SMITHFIELD BATTERY ENERGY STORAGE SYSTEM

Traffic Impact Assessment

30 October 2023

Smithfield Battery Energy Storage System

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Our Ref:

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Version Control

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1 INTRODUCTION

1.1 Project overview

Smithfield BESS Pty Ltd (Smithfield BESS), as owned by Iberdrola Australia Limited (Iberdrola) (the Proponent) is seeking development consent for the construction, operation, and maintenance of a Battery Energy Storage System (BESS) at the Smithfield Energy Facility (SEF) (Lot 33, DP850596) at 6 Herbert Place, Smithfield NSW 2164 (the Project Site). The BESS will provide up to 72 Megawatt (MW) and would provide up to 260 Megawatt hours (MWh) of battery storage capacity.

The Project is considered to support the NSW Government's electricity strategy for a reliable, affordable, and sustainable electricity future that supports a growing economy. BESS facilities, such as the Project, would assist with intermittency risks associated with renewable energy generation in NSW, and is considered a key element of the transformation of the NSW energy sector.

The Project is considered to meet the definition of State Significant Development under Clause 2.6 of the *State Environmental Planning Policy (Planning Systems) 2021*. The Project would be for electricity generating works on land that is permitted with development consent under Clause 2.35 of the *State Environmental Planning Policy (Transport and Infrastructure) 2021* and would have a capital investment value greater than $30 million. The Proponent is seeking State Significant Development (SSD) approval for the Project under Part 4, Division 4.7 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The Project would involve construction and operation of the following:

- A BESS including battery enclosures, inverters, transformers, switch room and control room
- Medium voltage cables between transformers and the existing switchgear building in the northeast corner of the SEF
- Switchgear building upgrades to facilitate connection of the BESS
- Site access to the BESS from Herbert Place
- Utilities to support operation of the BESS
- Stormwater management infrastructure, lighting, fencing and security.

The BESS would operate 24 hours a day, seven days a week.

1.2 Location and context

The Project is located at the Smithfield Energy Facility (SEF) (Lot 33, DP850596) at 6 Herbert Place, Smithfield NSW 2164 (the Project Site). The Project is within the Cumberland local government area (LGA) in Western Sydney, around 30 kilometres west of the Sydney Central Business District (CBD). The Project location is shown in Figure 1-1. An overview of the Project Site is shown in Figure 1-2.

The Project is located within an existing industrial area, part of the Smithfield Recycling and Manufacturing Precinct (SRMP). The Project is bounded to the south, west and east by the Visy Smithfield Recycling Facility (Visy site), and to the north by Kingspan. The Visy site operates a paper and plastics sorting and recycling facility. The Kingspan site includes a large carparking area and a warehouse used for assembly, service, and storage of retail and commercial water tanks. The nearest residential receiver is located approximately 400 metres (m) south of the Project Site.

The SEF is owned and operated by Smithfield Power Generation Pty Ltd on land leased from Visy. The SEF has been in operation since 1996, originally designed and operated as a Combined Cycle Gas Turbine (CCGT or cogeneration) power plant, supplying both electricity to the NSW electricity grid and heat in the form of steam to the adjacent Visy Smithfield Recycling Facility. Since 2017, the SEF has operated as a gas peaking power plant supplying electricity to the NSW electricity grid during periods of peak demand and no longer supplies steam to the adjacent Visy Smithfield Recycling Facility. Access to the Project Site is via Herbert Place, a 40 kilometre per hour dual lane local road. Herbert Place is accessed by Cumberland Highway (a state road) from the north and south, and Long Street (a local road) from the west.

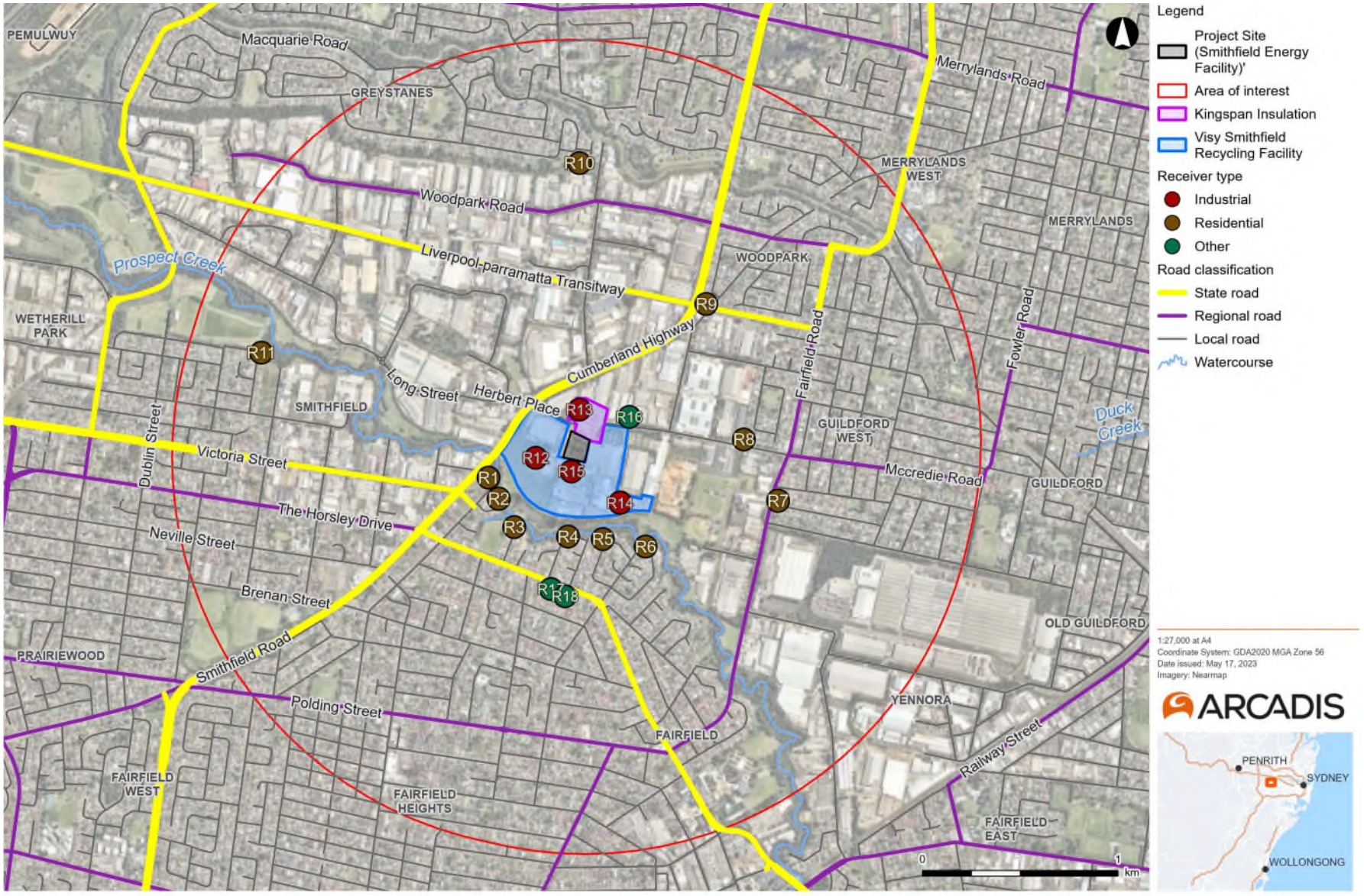


Figure 1-1 Local context

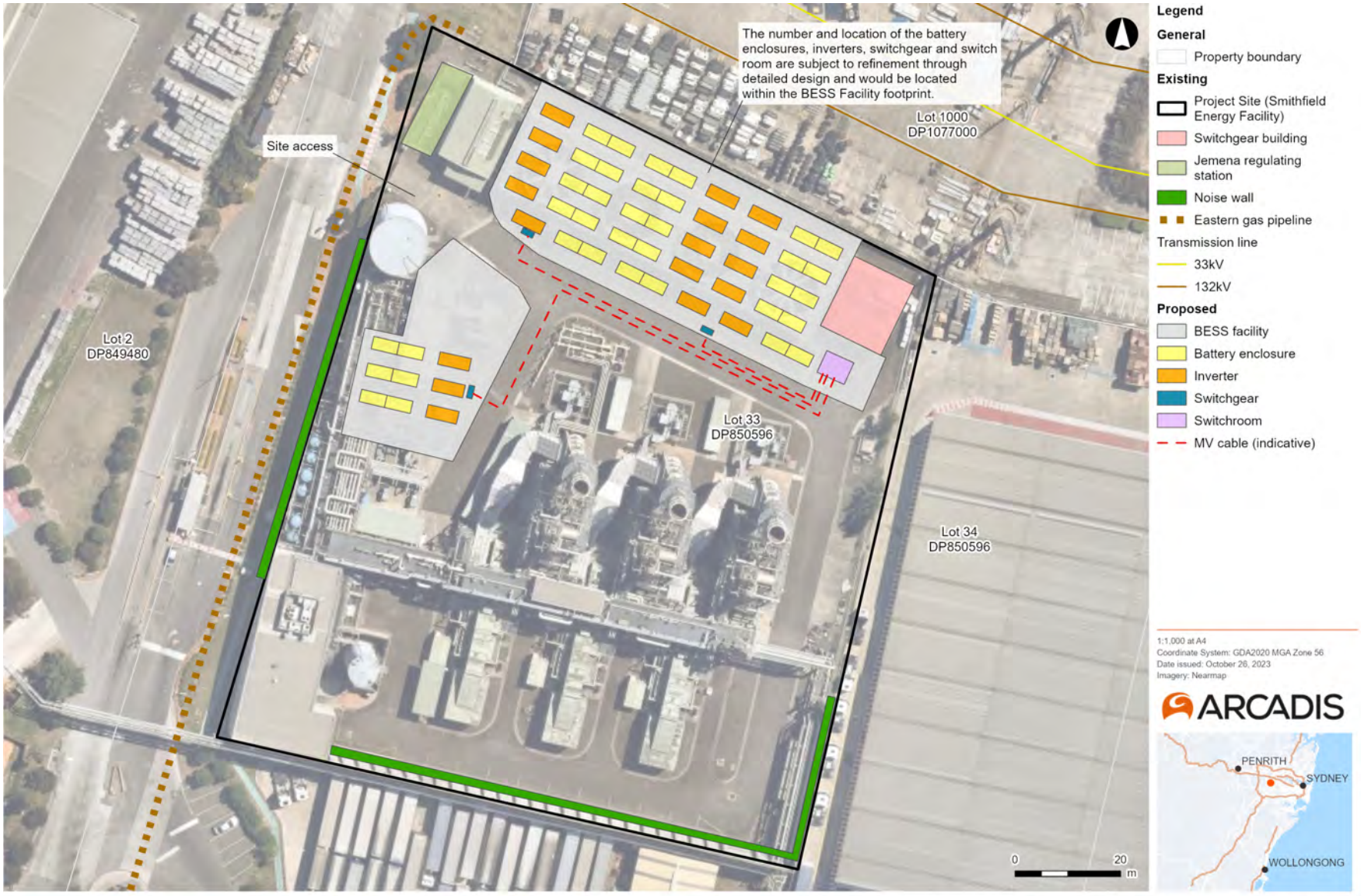


Figure 1-2 Project overview

1.3 Assessment framework and purpose

The purpose of this Traffic Impact Assessment (TIA) is to estimate, evaluate and mitigate the expected impact resulting from the construction and operational stage of the Project on the surrounding road network.

The assessment was prepared in accordance with the requirements of the NSW Department of Planning and Environment (DPE), which are set out in the Secretary's Environmental Assessment Requirements (SEARs) (SSD 59325460) for the Project, issued on 13 July 2023. The SEARs identify matters which must be addressed in the Project Environmental Impact Statement (EIS). This TIA responds to SEARs relating to transport issues.

Table 1-1 lists requirements for the Project relevant to this assessment and references where they are addressed in this report or in the EIS.

Table 1-1 SEARs for the assessment of transport

Requirement	Section reference
Transport	
An assessment of the peak and average traffic generation, including over-dimensional vehicles and construction worker transportation	Chapter 4 outlines the anticipated traffic volumes generated and traffic related impacts from the Proposal. Peak hour volumes were used to assess the worst case scenario for the intersection capacity assessment.
An assessment of the likely transport impacts to the site access route, site access point(s), any Crown land, particularly in relation to the capacity and condition of the roads, road safety and intersection performance.	Chapter 4 outlines the traffic related impacts from the Proposal. Chapter 5 outlines the site access assessment.
A cumulative impact assessment of traffic from nearby developments.	Section 4.3.3 outlines cumulative impact assumptions incorporated into the assessment.
Provide details of measures to mitigate and / or manage potential impacts including a schedule of all required road upgrades (including resulting from heavy vehicle and over mass / over dimensional traffic haulage routes), road maintenance contributions, and any other traffic control measures, developed in consultation with the relevant road authority.	Chapter 8 outlines measures to mitigate and / or manage potential impacts.

In addition to the above SEARs, Transport for NSW (TfNSW), in a letter dated 27 June 2023, raised additional comments. TfNSW comments and Arcadis responses are provided in Table 1-2.

Table 1-2 TfNSW comments as part of the SEARs submission and report references

Requirement	Response / section reference
Transport	
Daily and peak traffic movements likely to be generated by the proposed development during construction and operation of the development including the impact on nearby intersections and the need/associated funding for upgrading or road improvement works (if required) Key intersections to be examined/modelled include but shall not be limited to: • Warren Road/Herbert Place/Long Street	Chapter 4 outlines the anticipated traffic volumes generated and traffic related impacts from the Proposal including examination of the Warren Road/Herbert Place/Long Street intersection. Four peak periods have been assessed at this intersection including: • Construction AM peak: 6:00am-7:00am • Commuter AM peak: 7:30am-8:30am • Commuter PM peak: 4:15pm-5:15pm • Construction PM peak: 6:00pm-7:00pm. The assessment identifies that no road improvement works would be required to support the development.
Details of the proposed accesses and the parking provisions associated with the proposed development including compliance with the requirements of the relevant Australian Standards (ie: turn paths, sight distance requirements, aisle width, etc.	Chapter 5 outlines the site access assessment. Chapter 6 outlines the parking assessment.
Details of light and heavy vehicle movements (including vehicle type and likely arrival and departure times).	Chapter 4.3.1 details the light and heavy vehicle loads to be expected during the construction and operations phase of the Project, including likely arrival and departure times.
Identify the timeframe for the schedule of works (commencement year and completion year) overlapping timeframe of components during construction (to capture worst case scenario) and identify the construction hours for the project.	Project timeframes are identified in Chapter 4.3.1. Construction is anticipated to occur in 2024 with the Project becoming operational in 2025. Construction would be undertaken during standard working hours: • Monday to Friday: 7.00 am to 6.00 pm • Saturday: 8.00 am to 1.00 pm • No works of Sunday and public holidays.

Requirement	Response / section reference
It is noted that the proposed development will include transmission line upgrades which are likely to have a separate access to the Project site and the separate location of the access for the upgrades is required to be considered within the TIA in relation to the light, heavy and OSOMs required at the peak of construction. Preference of the access is to be via local roads.	No transmission line upgrades are required from the Project Site to the Guildford Site. Access to the Project Site would be via Herbert Place.
Detailed plans identifying the proposed location of any: • Project related infrastructure within and outside of the Project boundary • Transmission line infrastructure, or any other Project-related structures, within a road reserve. Include demarcation of local and classified road reserves • Identify the key access roads with the classified road network required for the Project (including any access required from classified road network for components being constructed outside of the Project area) and justification of additional access required to a classified road in accordance with section 2.119 of *State Environmental Planning Policy (Transport and Infrastructure) 2021* • The scoping report has defined the light vehicle volumes not the heavy vehicle volumes which will influence the AM/PM peak. The report must include the heavy vehicle calculations associated with transportation of equipment/plant and construction supplies such as concrete, fill etc.	A detailed overview of the Project, including the built form, construction, and operation of the Project is included in Chapter 4 of the EIS. No transmission line infrastructure is proposed within the road reserve. The key access roads for the Project that would be utilised for the Project are shown in Chapter 5.2. Chapter 4.3.1 details the light and heavy vehicle loads to be expected during the construction and operations phase of the Project.

Requirement	Response / section reference
Cumulative impacts: • An assessment should be undertaken as part of the EIS and TIA to identify the projects that will have overlapping construction periods and assess the cumulative traffic impacts with emphasis on the following: - The cumulative impacts from traffic generated from the construction workforce in terms of the origin-destination routes, access, AM/PM peaks and routes where there is an overlap with other projects - The cumulative impacts of heavy vehicle movements in terms of AM/PM peaks and routes where there is an overlap with other projects - Cumulative impacts and consideration in relation to the timing of movements of OSOMs where other projects will be utilising the same routes as proposed for this development.	An assessment of the cumulative traffic impacts from other land developments in the vicinity is included in Chapter 4.3.3. Cumulative traffic impacts from the Smithfield Recycling Centre have been identified in AM and PM peaks. No OSOM vehicle movements are anticipated with the overlapping projects.

Requirement	Response / section reference
Heavy vehicle and OSOM routes: • Identify the return routes for OSOMs • National Heavy Vehicle Regulator (NHVR) approved routes identified on the Restricted Access Maps (RAV MAP) are to be utilised for the heavy vehicle routes for the proposed development • Further include details on the number of oversize and/or over mass (OSOM) movements, the intended time for OSOM movements to occur, and GPS coordinates along the proposed routes for pinch points, traffic management measures and pull-over bays / rest areas along the OSOM routes. Identifying road and rail projects occurring along the OSOM route within the anticipated schedule for the movement of the OSOM components. Inclusive of any impacts (e.g civil works or obstructions) that could impede the movement of the OSOM components due to the concurrent road and rail projects occurring along the nominated OSOM route(s). • It is noted that the transformer and switch rooms are the largest OSOM components and have a high axle to weight ratio, are wide loads and may depending on design and route have height clearance issues. Transformers can range from 140t to 240t. The review of the route for the OSOMs shall be included within the TIA and an assessment of the bridges, pullover locations, vertical/lateral/horizontal clearances need to be reviewed for the route. The route shall be reviewed from the Port to the subject site. There will likely be requirements for signage removal, tree removal or other modifications on the network which may need to be considered as part of the development assessment process	Chapter 4.3.1 details the light and heavy vehicle loads to be expected during the construction and operations phase of the Project. OSOM vehicles would be confirmed during construction and subject to detailed construction planning. Notwithstanding, the number of OSOM vehicle movements are anticipated to be minimal. Battery components are anticipated to be delivered by 19-metre six-axle articulated heavy vehicles. Chapter 5.2 outlines the heavy vehicles routes and maps that would be utilised and the process that would be followed should OSOM be required.
Project schedule: • Hours and days of work, number of shifts and start and end times • Phases and stages of the Project, including construction, operation and decommissioning.	The Project schedule is identified in Chapter 4.3.1.
Traffic volumes including: • Existing background traffic • Project-related traffic for each phase or stage of the Project • Projected cumulative traffic at commencement of operation, and a 10-year horizon post-commencement.	Existing traffic volumes are identified in Chapter 3.1. Project-related traffic for each phase (construction, operation and decommissioning) and cumulative scenarios are included in Chapter 4.3.1.

Requirement	Response / section reference
Traffic characteristics including: • Number and ratio of heavy vehicles to light vehicles • Peak times for existing traffic • Peak times for Project-related traffic including commuter periods • Proposed hours for transportation and haulage • Interactions between existing and Project-related traffic.	Chapter 3 details the existing traffic conditions including characteristics of the vehicle types and peak hour periods. Chapter 4.3.1 details the proposed hours for transportation.
Capacity analysis using SIDRA or other relevant application, to identify an acceptable Level of Service (LOS) at intersections with the classified (State) road/s, and where relevant, analysis of any other intersections along the proposed transport route/s.	Chapter 4 outlines the anticipated traffic volumes generated and traffic related impacts from the Proposal including the results from the SIDRA modelling on the Warren Road/Herbert Place/Long Street intersection.
The origins, destinations and routes for: • Commuter (employee and contractor) light vehicles and pool vehicles • Heavy (haulage) vehicles • OSOM vehicles.	Chapter 4.3.1.1 presents the origin and destination for all vehicles. Commuter and heavy vehicles are anticipated to originate from the Greater Sydney Region. Heavy vehicles attributed to the transportation of battery modules/transformers units are anticipated to originate from Port Botany. Cumberland Highway has been identified as one of the key haulage routes as it is an approved B-double route. OSOM vehicles would be confirmed during construction and subject to detailed construction planning. Notwithstanding, the number of OSOM vehicle movements are anticipated to be minimal. Battery components are anticipated to be delivered by 19-metre six-axle articulated heavy vehicles. Chapter 5.2 outlines the heavy vehicles routes and maps that would be utilised and the process that would be followed should OSOM be required.
Road safety assessment of key haulage route/s. Where road safety concerns are identified at a specific location along the proposed haulage routes, TfNSW suggests that the TIA be supported by a targeted Road Safety Audit undertaken by suitably qualified persons in accordance with the Austroads Guidelines.	No road safety concerns have been identified in the TIA based. As such a road safety assessment is not required.

Requirement	Response / section reference
Identify the necessary road network infrastructure upgrades that are required to cater for and mitigate the impact of Project related traffic on both the local and classified road network for the development (for instance, road widening and/or intersection treatments). In this regard, preliminary concept drawings should be submitted with the SSD application for any identified road infrastructure upgrades. It should be noted that any identified road infrastructure upgrades will need to be to the satisfaction of TfNSW and Council.	No external road network infrastructure upgrades are required due to the Project. Chapter 5.1 identifies the access to the Project Site.
Proposed road facilities, access and intersection treatments are to be identified and be in accordance with Austroads Guide to Road Design including provision of Safe Intersection Sight Distance (SISD).	Chapter 4.5 identified that the study intersection performs at an acceptable Level of Service with the development traffic and no road upgrades are required.
Consideration of the local climate conditions that may affect road safety during the life of the Project (e.g. fog, wet and dry weather, icy road conditions).	Local climate conditions are not anticipated to materially affect road safety during the life of the Project.
The layout of the internal road network, parking facilities and infrastructure.	Chapters 1.1 and 1.2 details the internal configuration of the Project Site.
There shall be consideration of different access points for any transmission line upgrades occurring outside of the project area	No transmission line upgrades are required from the Project Site to the Guildford Site. Access to the Project Site would be via Herbert Place.
Impact on public transport (public and school bus routes) and consideration for alternative transport modes such as carpooling and shuttle buses during construction.	Chapter 7.2 identified negligible impacts on the public transport network including school bus routes. Chapter 4.3.1.1 discusses the consideration of carpooling or shuttle buses during construction.
Identification and assessment of potential environmental impacts of the Project, such as blasting, lighting, visual, noise, dust and drainage on the function and integrity of all affected public roads.	No environmental impacts are anticipated on the function and integrity of utilised public roads.
Controls for transport and use of any dangerous goods in accordance with State Environmental Planning Policy No.33 – Hazardous and Offensive Development, the Australian Dangerous Goods Code and AS4452 Storage and Handling of Toxic Substances.	Lithium-ion batteries are classified as a Class 9 dangerous good. Transport movement thresholds will not be exceeded. Movements are expected to occur during construction and minimally during operation for maintenance purposes (i.e. battery replacement). An assessment of dangerous goods is further detailed within the Preliminary Hazard Analysis (PHA).

Requirement	Response / section reference
A draft Traffic Management Plan (TMP) that could be implemented following approval of the EIS, in consultation with relevant Councils and TfNSW. The TMP would need to identify strategies to manage the impacts of Project related traffic, including any community consultation measures for peak haulage periods. The developer should consider the need to consult widely (i.e. outside the department's local government area), as the cumulative impacts of OSOM transportation, particularly blades, are acutely felt by the local communities in the townships along the route.	A Traffic Management Plan (TMP) would be developed in consultation with TfNSW upon Project approval.
Propose a Driver Code of Conduct for haulage operations which could include, but not be limited to: • Safety initiatives for haulage through residential areas and/or school zones. • An induction process for vehicle operators and regular toolbox meetings. • A public complaint resolution and disciplinary procedure.	A Driver Code of Conduct would be included in the Traffic Management Plan (TMP) to be developed in consultation with TfNSW upon Project approval.

1.4 Relevant guidelines

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

- *Traffic Modelling Guidelines* (TfNSW, 2013)
- *Guide to Traffic Management Part 3: Transport Studies and Analysis Methods* (Austroads, 2020)
- *Highway Capacity Manual* (Transportation Research Board, 2000)
- Other documents and data as referenced in this report.

1.5 Report structure

This report has been structured as follows:

- **Chapter 2 Existing Environment** describes the existing conditions in relation to the site, including the surrounding road network, heavy vehicle routes, crash analysis and available transport modes.
- **Chapter 3 Existing Traffic Condition** outlines the current traffic volumes in the peak periods identified from the traffic survey and the background traffic growth.
- **Chapter 4 Traffic Modelling** outlines the intersection modelling approach (SIDRA) used to assess the development traffic impacts on the surrounding road network, including the assessment criteria and modelling results.
- **Chapter 5 Access and Route Assessment** presents the results of the swept path analysis of the largest vehicle expected to access the site and the expected heavy vehicle routes.
- **Chapter 6 Parking Assessment** summarises the parking arrangement for the Project.
- **Chapter 7 Transport Network Impacts** presents the results of the impact assessment on parking, active and public transport.
- **Chapter 8 Management of Impacts** provides a list of mitigation and management measures developed to minimise the impacts identified with consideration of all road users.
- **Chapter 9 Conclusion** summarises the findings from the Traffic Impact Assessment.

2 EXISTING ENVIRONMENT

2.1 Site location and access

Access to the Project Site is via Herbert Place, a 40 kilometre per hour dual lane local road. Herbert Place is accessed by Cumberland Highway (a state road) from the north and south, and Long Street (a local road) from the west.

2.2 External road network

Herbert Place

Herbert Place is a two-way local road controlled by the Cumberland City Councill. Herbert Place has two six-metre-wide lanes, separated by a three-metre median strip. Each lane is wide enough for vehicles to park adjacent to the kerb whilst other vehicles travel onwards as shown in Figure 2-1. Herbert Place has an east-west orientation and intersects with Cumberland Highway to the west and cul-de-sac on the east. A speed limit of 40 kilometres per hour applies to Herbert Place.

A footpath exists on the northern side of Herbert Place with no footpath provided on the southern side.

Figure 2-1 Herbert Place, facing east

Cumberland Highway

Cumberland Highway is a two-way state road controlled by Transport for NSW. Cumberland Highway in general has three lanes on each side, with no stopping enforced throughout the alignment. A clearway is enforced between from 6am to 7pm, Monday to Friday and from 8am to 8pm, Saturday to Sunday.

Cumberland Highway has a north-south orientation and intersects with Herbert Place and Long Street at a signalised intersection. A posted speed limit of 70 kilometres per hour is enforced.

Footpaths are provided on both sides of Cumberland Highway (refer to Figure 2-2).

Figure 2-2 Cumberland Highway, facing north

Long Street

Long Street is a two-way local road with one traffic lane and one parking lane in each direction. Long Street has an east-west alignment and intersects with Cumberland Highway to the east and Gipps Road in the west.

A posted speed limit of 60 kilometres per hour is enforced.

Footpaths are provided on either side of the road (refer to Figure 2-3).

Figure 2-3 Long Street, facing west

2.3 Heavy vehicle routes

Transport for NSW's Restricted Access Vehicles (RAV) map (refer to Figure 2-4) shows the 26 metre B-double routes on Cumberland Highway, Long Street, and Herbert Place.

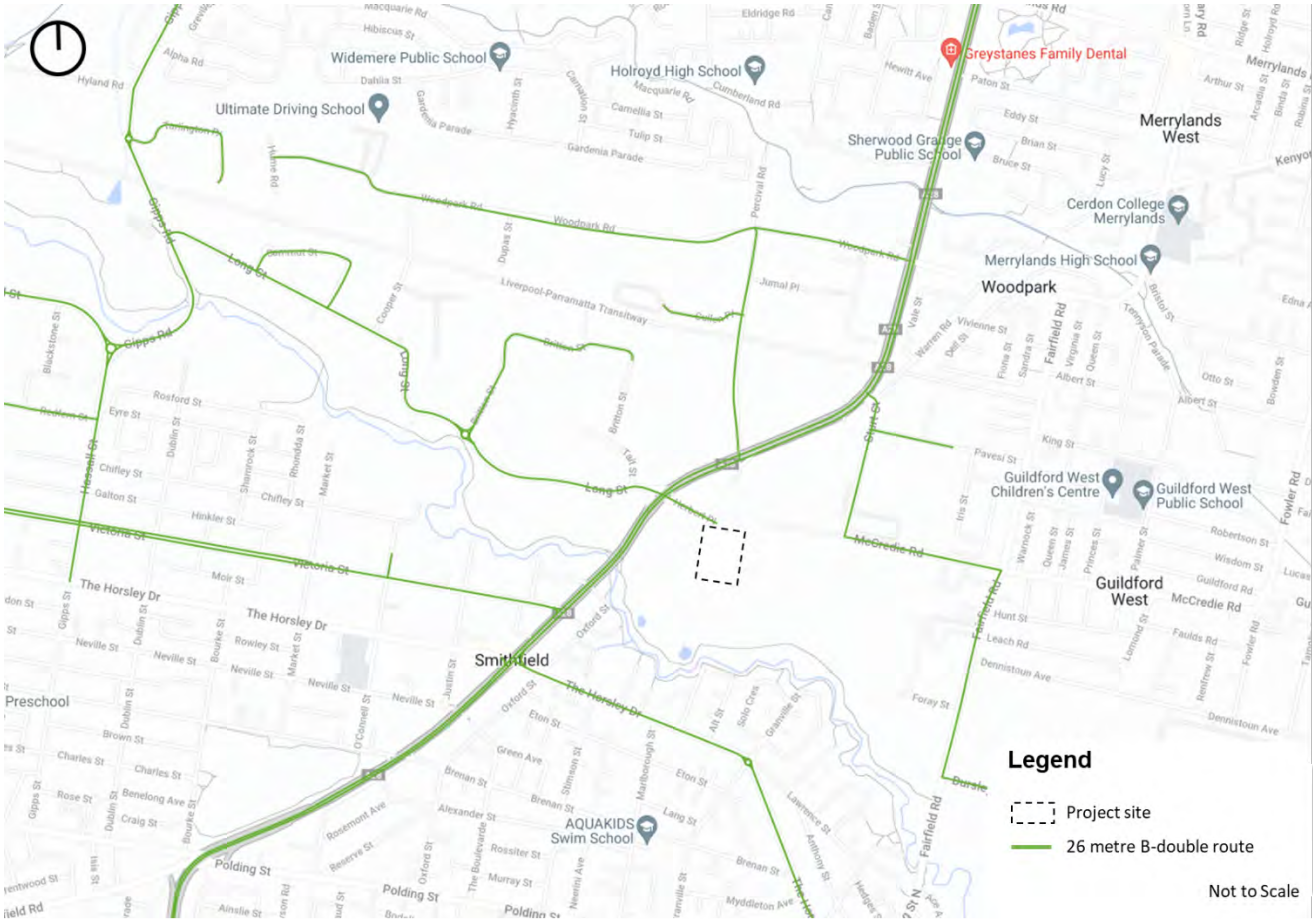


Figure 2-4 Transport for NSW Restricted Access Vehicle map

2.4 Crash analysis

Five-year crash data between 2018 and 2022 has been analysed to understand the severity of crashes located within the general vicinity of the Project site. The data is available from the NSW Centre for Road Safety which was provided by TfNSW.

The severity of the crashes is categorised in five categories as below:

- Killed
- Seriously injured
- Moderately injured
- Minor/Other injured
- Non-casualty/towaway.

Road user movement (RUM) codes indicate the type of crash that occurred. Analysis of the data indicates that:

- Ten crashes were reported between 2018 and 2022 in the vicinity of the Project site
- Six of the ten (60 per cent) crashes occurred at the intersection of Cumberland Highway and Long Street
- Six of the ten (60 per cent) crashes were rear ends (RUM 30)
- Four of the ten crashes (40 per cent) were recorded to have resulted in 'minor/non-injury' and the remaining six crashes were recorded as 'non-casualty/towaway'.

The ten crashes that occurred within the vicinity of the Project site across the five-year period were considered to be minor in terms of crash severity.

2.5 Public transport

2.5.1 Rail

No train stations are located within the vicinity of the Project site. The closest train stations are Yennora Station which is approximately four kilometres southeast of the site and Guilford Station, which is located around four kilometres east of the site as shown in Figure 2-5.

Figure 2-5 Train stations in proximity to the Project site
Source: Sixmaps

2.5.2 Bus

There are limited bus infrastructure and services available for construction workers and employees to access the Project site. The only bus service that provides access to the site is the 821AM service which only runs in the morning until 8:00am (refer to Figure 2-6).

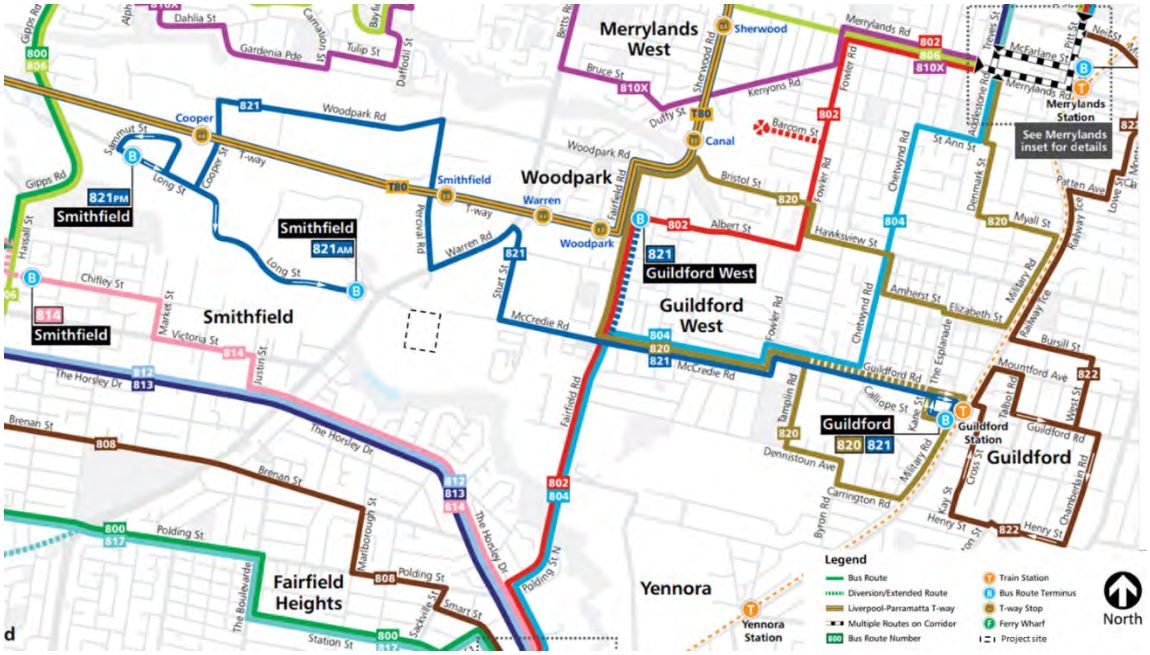


Figure 2-6 Bus services within the vicinity of the Project site

There are three bus stops located within walking distance of the site as shown on Figure 2-7. A list of the bus services that use the bus stops are shown in Table 2-1. The bus stops on Cumberland Highway only service school services. The bus stop on Long Street operates during the morning, with services terminating before 8.00am.

Table 2-1 Bus stops and services within the vicinity of the Project site

Bus stop	Location
Long Street at Tait Street	• 821 Smithfield Industrial Area or Woodpark to Guildford (AM service only)
Stop Id 2164295, Warren Rd after Long St	• 9001 Mimosa Road at The Horsley Drive to Cerdon College • 9007 Marion Primary School to Sherwood Grange Primary School • 9032 Canley Vale Road near Allenby Street to Prince Alfred Park via Merrylands West
Stop Id 2164297, Warren Rd after Herbert Pl	• 8575 Cerdon College to Wetherill Park TAFE via Horsley Park • 9608 Our Lady of Mercy College to Canley Vale Road at Allenby Street via Prairiewood

Figure 2-7 Bus stops located within vicinity of the Project site
Source: Nearmaps

2.6 Active transport

2.6.1 Pedestrian network

The pedestrian network is limited in the vicinity of the Project site. No footpath is provided on the southern side of Herbert Place with only a footpath provided on the northern side. Footpaths are provided on both sides of Cumberland Highway, with the western footpath being a shared path with bicycle riders. The shared path ends in the south at the intersection of Victoria Street and Cumberland Highway. The shared path continues north to connect to the M4 Cycleway.

There are footpaths on both sides of Long Street. At the intersection of Cumberland Highway, Long Street, and Herbert Street, a signalised pedestrian crossing facility is provided on all legs of the intersection except on the southern leg.

2.6.2 Cycling network

The existing cycle network is shown in Figure 2-8. Cycling provisions are limited to strategic cycling routes located near the Project site.

A shared path on the western side of Cumberland Highway is provided and has a north-south alignment. The shared path width varies across the alignment and can narrow to 1.5 metres. The shared path continues north to connect to the Lower Prospect Canal Reserve shared path. The shared path terminates at the intersection of Victoria Street and Cumberland Highway.

The Prospect Creek Cycle Path runs parallel to Prospect Creek and provides an east-west connection. The cycle path connects to Prospect Reservoir in the west and to Yennora in the east.

Figure 2-8 Existing cycling network
Source: Transport for NSW Cycleway Finder

3 EXISTING TRAFFIC CONDITION

3.1 Traffic data collection

Traffic count surveys were conducted to determine the existing traffic volumes at the intersection of Cumberland Highway, Long Street, and Herbert Place (study intersection) providing access to the site. The survey data was collected for 6am to 10pm on Thursday 1st June 2023. Details of the traffic count survey is provided in **Appendix A**. Sydney Coordinated Adaptive Traffic System (SCATs) signal phasing data was provided for the intersection assessment which is included in **Appendix B**.

Analysis of the traffic count data indicates the AM and PM (commuter) peak hours at the study intersection as shown in Table 3-1.

Table 3-1 Commuter peak hour periods for the weekday

Commuter peak	Time period
AM peak	7:30am to 8:30am
PM peak	4:15pm to 5:15pm

The background AM and PM (commuter) peak hour traffic volumes at the study intersection are shown in Figure 3-1.

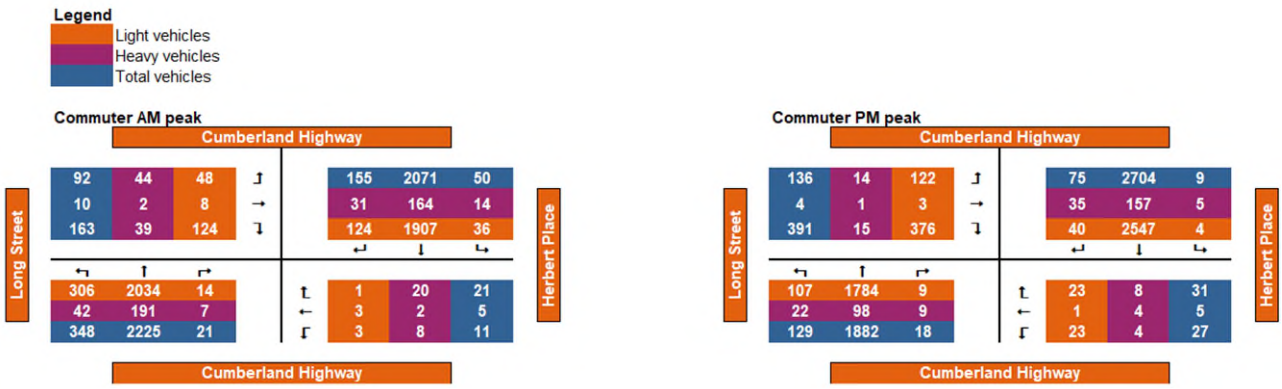


Figure 3-1 AM and PM commuter peak traffic volumes at the study intersection

The commuter peak data indicates that:

- The AM and PM peak for the intersection occurs at 7:30am to 8:30am and 4:15pm to 5:15pm, respectively.
- Cumberland Highway is well traversed during both the AM and PM peak, with between 1,900 – 2,300 through movements in the northbound direction and 2,100 – 2,700 through movements in the southbound direction.
- Two-way traffic volumes on Long Street range from 740 – 780 vehicles in the peak hours.
- Two-way traffic volumes on Herbert Place range from 95 – 120 vehicles in the peak hours which is minimal
- Heavy vehicles comprise of 10.9% and 6.9% of the AM and PM commuter peak hour volumes, respectively.

Construction vehicle movement data given by the applicant indicates the AM and PM (construction) peak hours at the study intersection are as shown in Table 3-2.

Table 3-2 Construction peak hour periods for the weekday

Construction peak	Time period
AM peak	6:00am to 7:00am
PM peak	6:00pm to 7:00pm

The background traffic volumes during the construction peaks are shown in Figure 3-2.

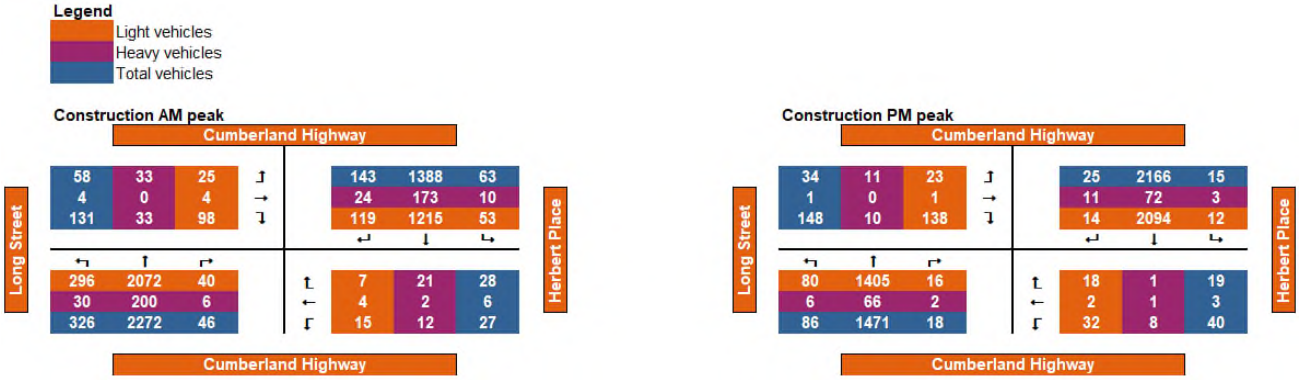


Figure 3-2 Traffic volumes during the construction peak at the study intersection

The construction peak data indicates that:

- Cumberland Highway is well traversed during both the AM and PM peak, with between 1,500 – 2,300 through movements in the northbound direction and 1,400 – 2,200 through movements in the southbound direction.
- Two-way traffic volumes on Long Street range from 300 – 670 vehicles in the peak hours.
- Two-way traffic volumes on Herbert Place range from 100 – 180 vehicles in the peak hours which is minimal
- Heavy vehicles comprise of 12.1% and 4.7% of the AM and PM construction peak hour volumes, respectively.

3.2 Background traffic growth

The background traffic growth rate was determined to be 0.4 per cent per annum from analysis of historical traffic volume data sourced from Transport for NSW (TfNSW) Traffic Volume Viewer. The linear growth rate was determined using 2008 and 2018 annual average daily traffic (AADT) volumes recorded at a traffic detector located on Cumberland Highway as seen in Figure 3-3.

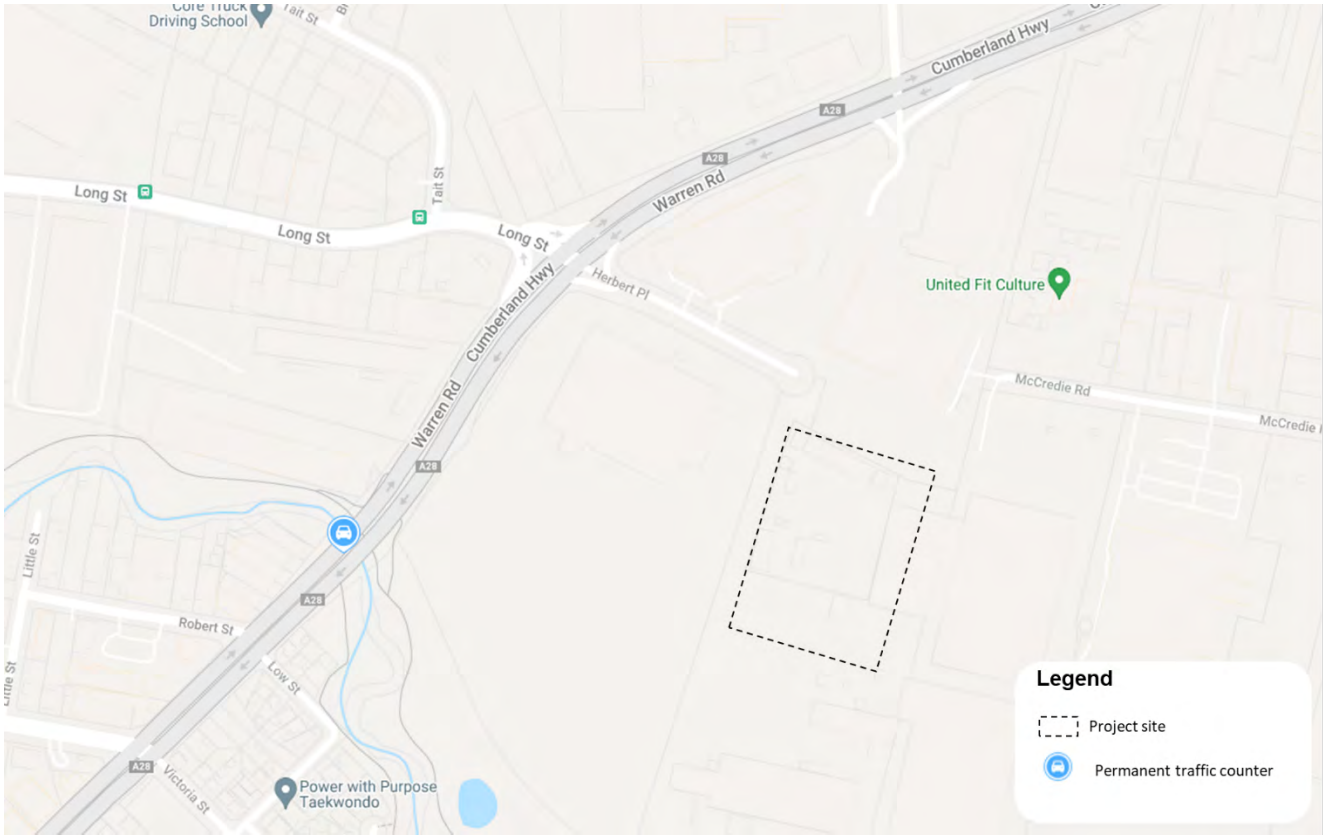


Figure 3-3 Permanent traffic counter location in relation to the Project side

4 TRAFFIC MODELLING

4.1 Modelling approach and assessment criteria

Intersection analysis of Cumberland Highway, Long Street, and Hebert Place intersection (study intersection) was conducted using SIDRA Intersection 9.0, a computer-based modelling package to understand the traffic implications of the construction of BESS on the performance of the surrounding network.

The operational performance of the intersection was evaluated by assessing the average vehicle delay and the corresponding Level of Service (LOS). The average vehicle delay and LOS were assessed in accordance with the RMS Traffic Modelling Guidelines and is summarised in Table 4-1.

The RMS Traffic Modelling Guidelines recommends that LOS for a signalised intersection is related to the average intersection delay measure in seconds per vehicle.

Table 4-1 LOS Criteria for intersection capacity analysis

Level of Service (LOS)	Traffic Signals	Description of intersection operation
A	d ≤14	Good operation
B	15 ≤ d ≤ 28	Good with acceptable delays & spare capacity
C	29 ≤ d ≤ 42	Satisfactory
D	43 ≤ d ≤ 56	Operating near capacity
E	57 < d ≤ 70	At capacity; at signals, incidents will cause excessive delays Roundabouts require other control mode
F	d > 70	Unsatisfactory and requires additional capacity.

Source: RMS Traffic Modelling Guidelines, 2013

The Degree of Saturation (DOS) is equal to the *demand to capacity ratio* for each traffic movement, with the overall intersection DOS defined as the highest DOS of all individual movements calculated at the intersection. For various intersection controls, the following DOS ratings are defined in Table 4-2.

Table 4-2 Degree of Saturation

Degree of Saturation (DOS)	Rating
DOS < 0.6	Excellent
0.6 < X < 0.7	Very good
0.7 < X < 0.8	Good
0.8 < X < 0.9	Acceptable
0.9 < X < 1.0	Poor
X > 1.0	Very poor

The intersection traffic performance targets established for this assessment include:

- An overall intersection level of service (LOS) D or better
- A degree of saturation (DOS) of less than 0.90 for a signalised intersection.

4.2 Modelling scenarios

The assessment was conducted for the current year 2023 and the construction year 2024 in the peak periods identified in the traffic count survey and construction vehicle movements. The accessed scenarios are listed in Table 4-3.

Table 4-3 Assessed SIDRA modelling scenarios

Year	Scenario	Peak period	Time period
2023 (current year)	Background traffic	Construction AM peak	6:00am to 7:00am
		Construction AM peak	7:30am to 8:30am
		Commuter PM peak	4:15pm to 5:15pm
		Construction PM peak	6:00pm to 7:00pm
2024 (construction year)	Background traffic without development	Construction AM peak	6:00am to 7:00am
		Construction AM peak	7:30am to 8:30am
		Commuter PM peak	4:15pm to 5:15pm
		Construction PM peak	6:00pm to 7:00pm
	Background traffic with development	Construction AM peak	6:00am to 7:00am
		Construction AM peak	7:30am to 8:30am
		Commuter PM peak	4:15pm to 5:15pm
		Construction PM peak	6:00pm to 7:00pm

The base SIDRA model was calibrated based on the existing intersection geometry (lane, median widths and pedestrian crossing distances), gradient, vehicle speeds, lane utilisation, traffic composition and signal phasing and timing from the given SCATs data. Figure 4-1 shows the SIDRA modelled layout of the Cumberland Highway, Long Street, and Hebert Place intersection.

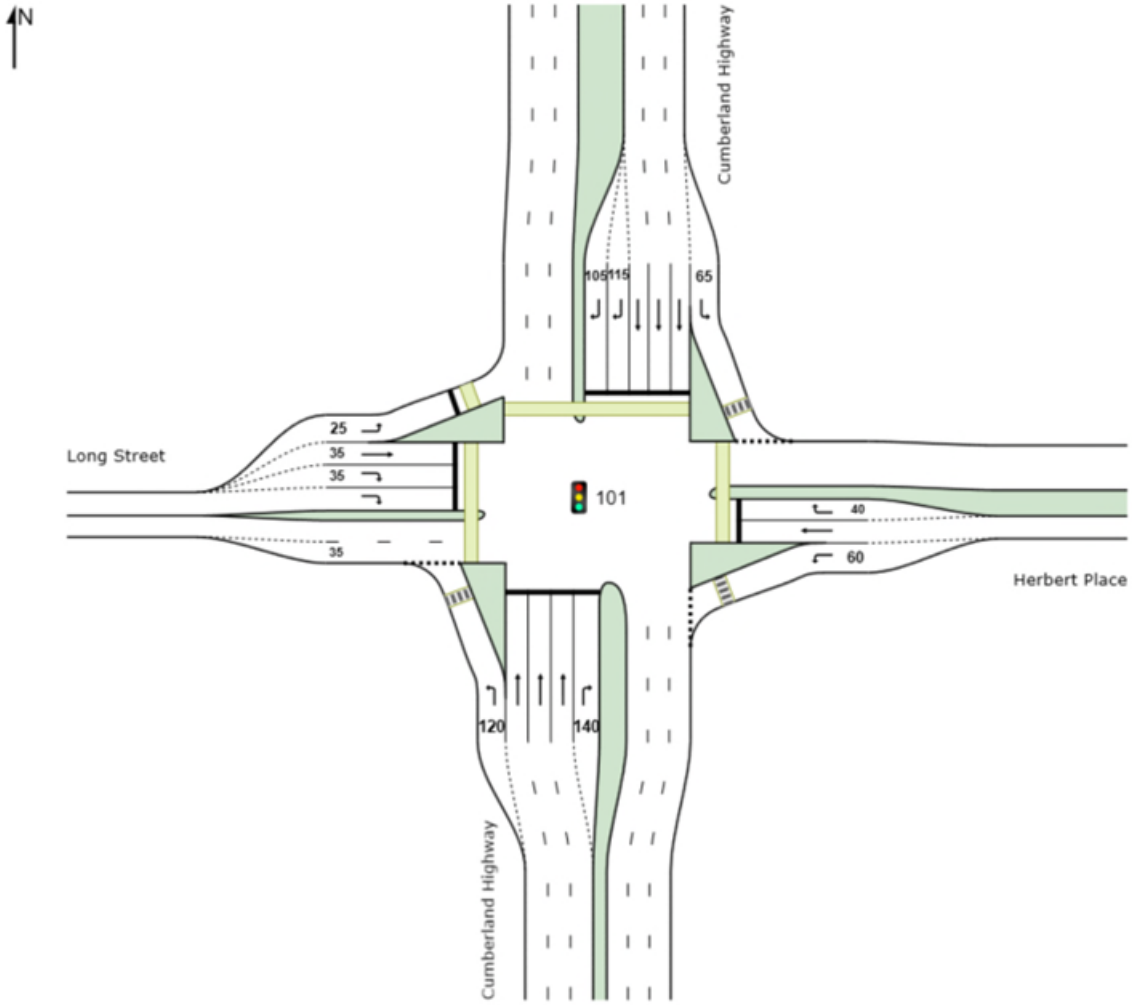


Figure 4-1 Modelled intersection layout

4.3 Modelling input

4.3.1 Traffic generation

4.3.1.1 Construction phase

Construction working hours

Construction is anticipated to commence in mid to late 2024 with a 12-month duration, ending prior to the end of 2025. Construction working hours are proposed to follow the standard construction working hours which are as follows:

- 7:00am to 6:00pm, Monday to Friday
- 8:00am to 1:00pm Saturday
- No works to be completed on Sunday or public holidays.

Light vehicles

It is anticipated that 30 light vehicles (two-way movements) would occur daily and are attributed to the construction work force entering and exiting the site. Workers are expected to arrive before the start of the construction working hours and leave afterwards, therefore workers will typically arrive between 6.00am to 7.00am and leave between 6.00pm and 7.00pm.

It is anticipated that most of the construction workforce will be located within the Greater Sydney Region. The Proponent has advised that no shuttle buses are to be provided for the construction workforce given the wide range of origins within the Greater Sydney Region that the construction workforce will be travelling from. Whilst construction personnel can carpool to the Project Site, a conservative estimate of 30 light vehicles travelling to the site daily during the peak hour has been used in the assessment.

Heavy vehicles

Heavy vehicles will be used to move goods and other plant equipment to and from site. It is estimated that a around 180 heavy vehicles (two-way movements) would occur within the construction program. A conservative estimate, 10 (two-way movements) heavy vehicles will be entering and exiting the site during the commuter AM and PM peak hours per day.

All heavy vehicles movements are anticipated to occur from origins within the Greater Sydney Region and to occur within the construction working hours.

Oversize/Overmass vehicles (OSOM)

OSOM vehicles would be confirmed during construction and subject to detailed construction planning. Notwithstanding, the number of OSOM vehicle movements are anticipated to be minimal. It is noted that the battery components are anticipated to be delivered by 19-metre six-axle articulated heavy vehicles from Port Botany (up 45 trips are expected to delivery battery components).

Average traffic generation

Average trip generation for light and heavy vehicles would be less than the peak volumes described for the AM and PM peak periods above. This would include a greater proportion of vehicles arriving outside the AM and PM peak period, and would fluctuate throughout the Project construction program (i.e., civil works, battery delivery, commissioning).

4.3.1.2 Operation phase

Minimal vehicle movements are anticipated during the operation of the BESS. The Project will contribute to the employment of an additional employee during operation, primarily for scheduled maintenance. There would be up to 5 trips per day (5 in-bound and 5 out-bound), comprising staff vehicles and heavy vehicles (as required for transporting replacement parts and equipment). Average volumes in relation to the Project are expected be one trip per day.

Operational traffic volumes will be significantly less than the project's construction traffic and would result in minimal impacts to the traffic volumes on the road network. As such, operational traffic impacts have not been further considered.

4.3.1.3 Decommissioning

The decommission of the BESS would result in the removal of infrastructure related to the battery storage system and would not exceed traffic generation associated with construction works outlined in Section 4.3.1.1.

As such, decommissioning traffic impacts are anticipated to be limited and have not been further considered.

4.3.2 Traffic distribution

The construction vehicle trips have been distributed onto the road network in accordance with the traffic survey patterns for the corresponding peak hours. It is assumed that all vehicle trips accessing the site will be either from the north or south of Cumberland Highway.

- In the construction AM peak, most vehicles will be approaching from the north of Cumberland Highway.
- In the construction PM peak, most vehicles will be departing to the south of Cumberland Highway.
- In the commuter AM peak, most vehicles will be approaching and departing to the north of Cumberland Highway.
- In the commuter PM peak, vehicles are evenly distributed north and south of Cumberland Highway.

The construction trips associated with the BESS for each peak period are shown in Figure 4-2.

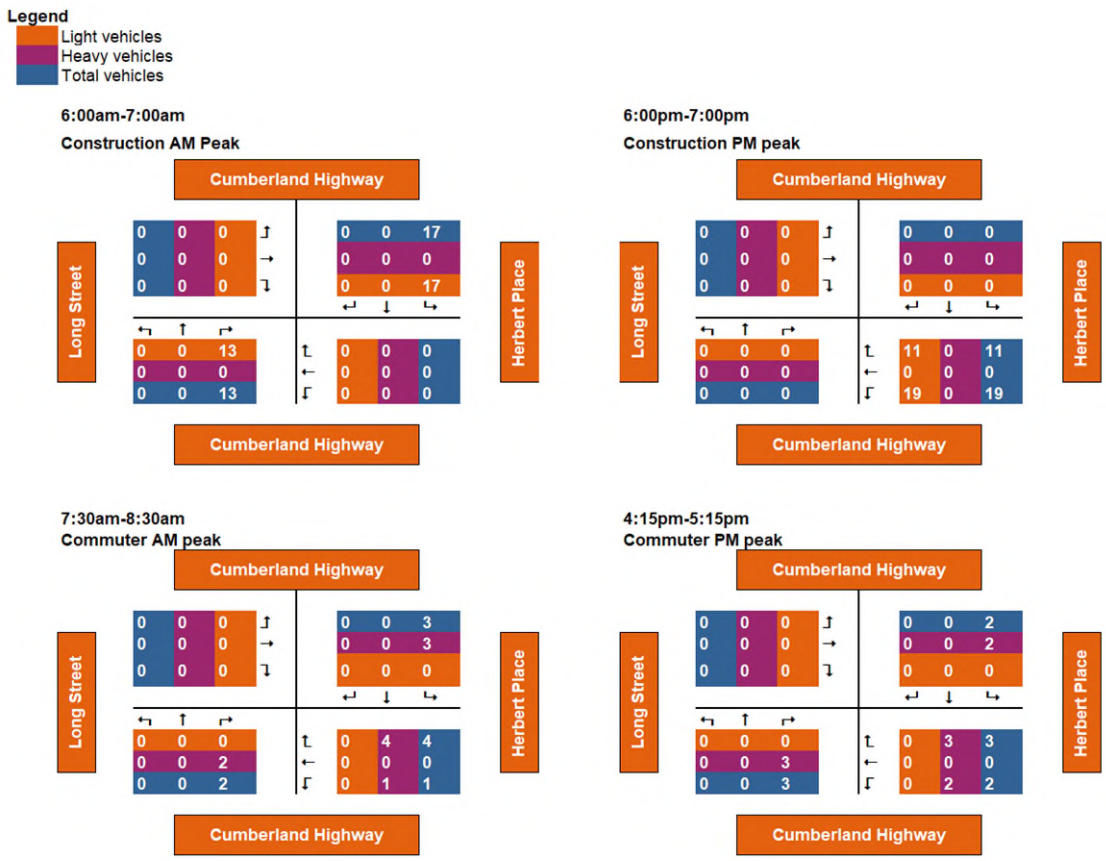


Figure 4-2 Traffic generated by the construction of the Project

4.3.3 Cumulative traffic impacts

A review of the NSW Major Planning Projects Portal for major projects occurring within the general vicinity of the BESS has indicated there is the potential for one project, Smithfield Recycling Centre (SRC), to overlap with the construction and operation of the Project.

Smithfield Recycling Centre

The Smithfield Recycling Centre is located one kilometre north of the Project site at 132-144 Warren Road, Smithfield. Currently the SRC's status is responding to submissions.

The SRC would be constructed to process and recycle up to 150,000 tonnes of recyclable materials per annum. No indicative dates have been provided to when the construction and operation of the recycling centre would commence. A review of the traffic impact assessment (attached in **Appendix C**) has indicated:

- Construction is anticipated to take around 4 months. The site would be accessed during the construction hours of 7am to 6pm weekdays and 7am to 1 pm on Saturdays. It would be expected that approximately 30 light vehicles and 2 trucks would access the site daily for construction and installation works
- During operation, the total number of one-way vehicular movements is 190 truck movements per day, 72 passenger vehicle movement (administrative and shift worker movements) per day and 4 visitor vehicle movement per day. The maximum number of trucks would occur in the late morning, between 11 am and 12 pm
- A total of 26 shift workers for the SRC will arrive and depart at shift change over times which occur between 3:45am to 4:15am and between 3:45pm and 4:15pm
- Eight administrative staff are assumed to arrive between 7:30am and 8:30am and leave between 4:45pm and 5:45pm
- All arriving vehicles will be approaching from the east and departing vehicles will travel west towards the intersection of Cumberland Highway and Herbert Place.

For the purposes of analysing the 'worst' case scenario for the cumulative traffic impact assessment, it has been assumed the operation of SRC will coincide with the construction of the Smithfield BESS. A review of the SRC TIA and its 24-hour traffic profile has revealed that the SRC's impacts on the road network would include:

- All departing vehicles from the SRC travelling south on Cumberland Highway and use the Cumberland Highway and Long Street intersection
- Vehicles attributed to the SRC will arrive on the north approach of the Cumberland Highway and Long Street intersection where:
  - During the construction AM peak (6:00am to 7:00am), 6 one-way heavy vehicle movements are anticipated
  - During the commuter AM peak (7:30am to 8:30am), 15 one-way heavy vehicle movements are expected
  - In the construction PM peak (6:00pm to 7:00pm), 2 one-way heavy vehicle movements are anticipated
  - In the commuter PM peak (4:15pm to 5:15pm), 3 one-way heavy vehicle movements would occur and 4 one-way light vehicle movements.

Hence, the SRC generated movements have been included in the background traffic volumes in the assessment of the 2024 construction year scenarios. It is assumed that the generated trips from the operation of the SRC and the Smithfield BESS would be relatively low as such was not assessed. .

4.4 Traffic volumes

Figure 4-3 shows the intersection turning volumes at the study intersection for the “Background traffic without development” scenario in 2024 (construction year).

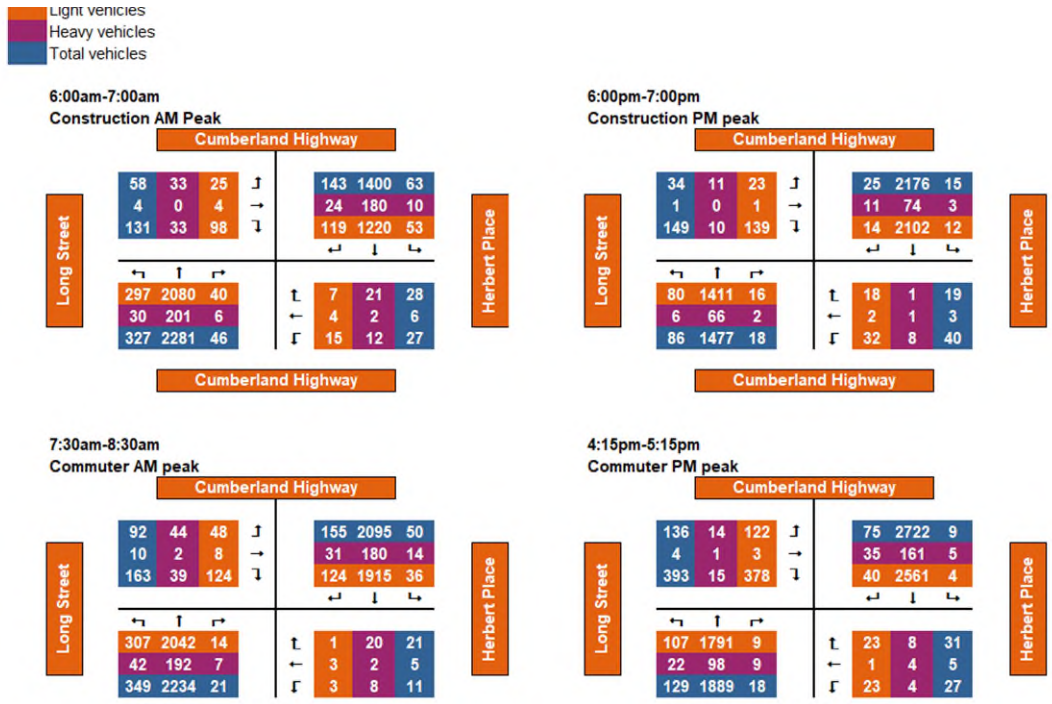


Figure 4-3 2024 Background traffic without development traffic volumes scenario

Figure 4-4 shows the intersection turning volumes at the study intersection for the “Background traffic with development” scenario in 2024 (construction year).

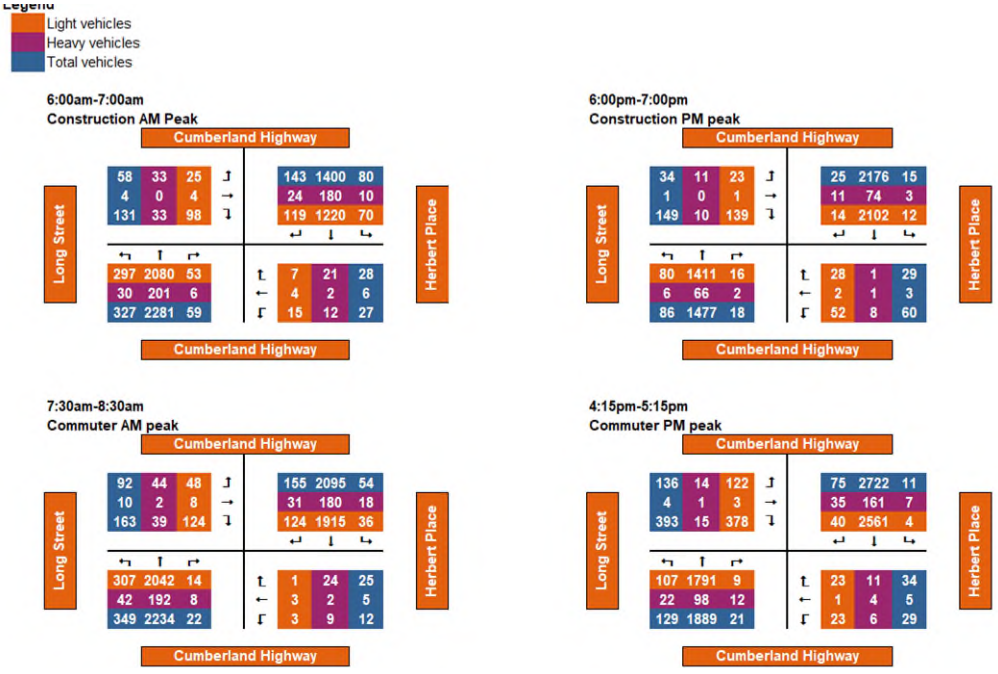


Figure 4-4 2024 Background traffic with development traffic volumes scenario

4.5 SIDRA modelling results

Table 4-4 summarises the SIDRA intersection modelling results for the existing condition (2023), background traffic with and without development scenarios in 2024 (construction year) of the Cumberland Highway, Long Street, and Hebert Place intersection. The full SIDRA results including movement summaries, lane summaries and phasing summarises are presented in **Appendix D**.

Table 4-4 Intersection performance summary

Peak period	2023 Background traffic		2024 Background traffic without development		2024 Background traffic with development	
	DOS	LOS	DOS	LOS	DOS	LOS
Construction AM peak (6:00am to 7:00am)	0.787	LOS B	0.790	LOS B	0.793	LOS B
Commuter AM peak (7:30am to 8:30am)	0.808	LOS B	0.812	LOS B	0.813	LOS B
Commuter PM peak (4:15pm to 5:15pm)	0.881	LOS C	0.887	LOS C	0.888	LOS C
Construction PM peak (6:00pm to 7:00pm)	0.717	LOS B	0.722	LOS B	0.722	LOS B

The intersection performance results indicate that the study intersection performs satisfactorily in terms of DOS and LOS (i.e. DOS<0.90 and LOS D or better) in the existing conditions in both 2023 and 2024. The intersection is anticipated to experience minor increases in DOS and queue lengths in 2024 with the BESS development, which is considered to have a marginal impact on the intersection performance. Therefore, no intersection upgrades are warranted to offset the development traffic impacts at the study intersection.

5 SITE ACCESS AND ROUTE ASSESSMENT

5.1 Swept path analysis

All vehicular access to the Project site required for construction and operation is via Herbert Place. The largest vehicle anticipated is a 19-metre six-axle articulated heavy vehicle to deliver plant equipment which will be confirmed during detailed construction planning stage. The 19-metre vehicle is able to enter the site without impacting any of the street furniture as shown in Figure 5-1. The egress of the 19-metre vehicle requires the vehicle to reverse out onto the cul-de-sac as any other vehicular movements would impact the facilities as shown in Figure 5-2. Traffic management personnel are anticipated to facilitate the egress of the 19-metre vehicles through supervision to ensure public safety.

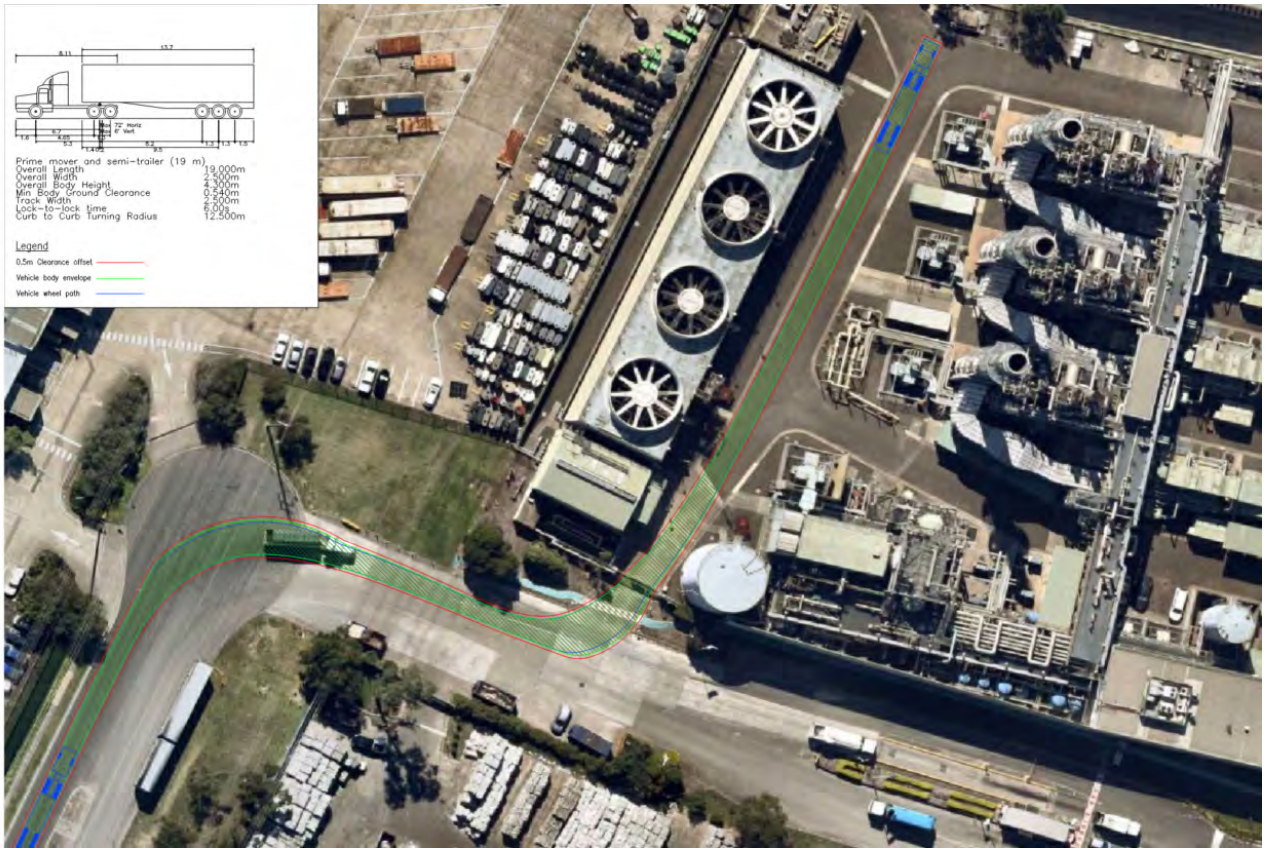


Figure 5-1 Ingress of the 19-metre six-axle vehicle to the Project Site

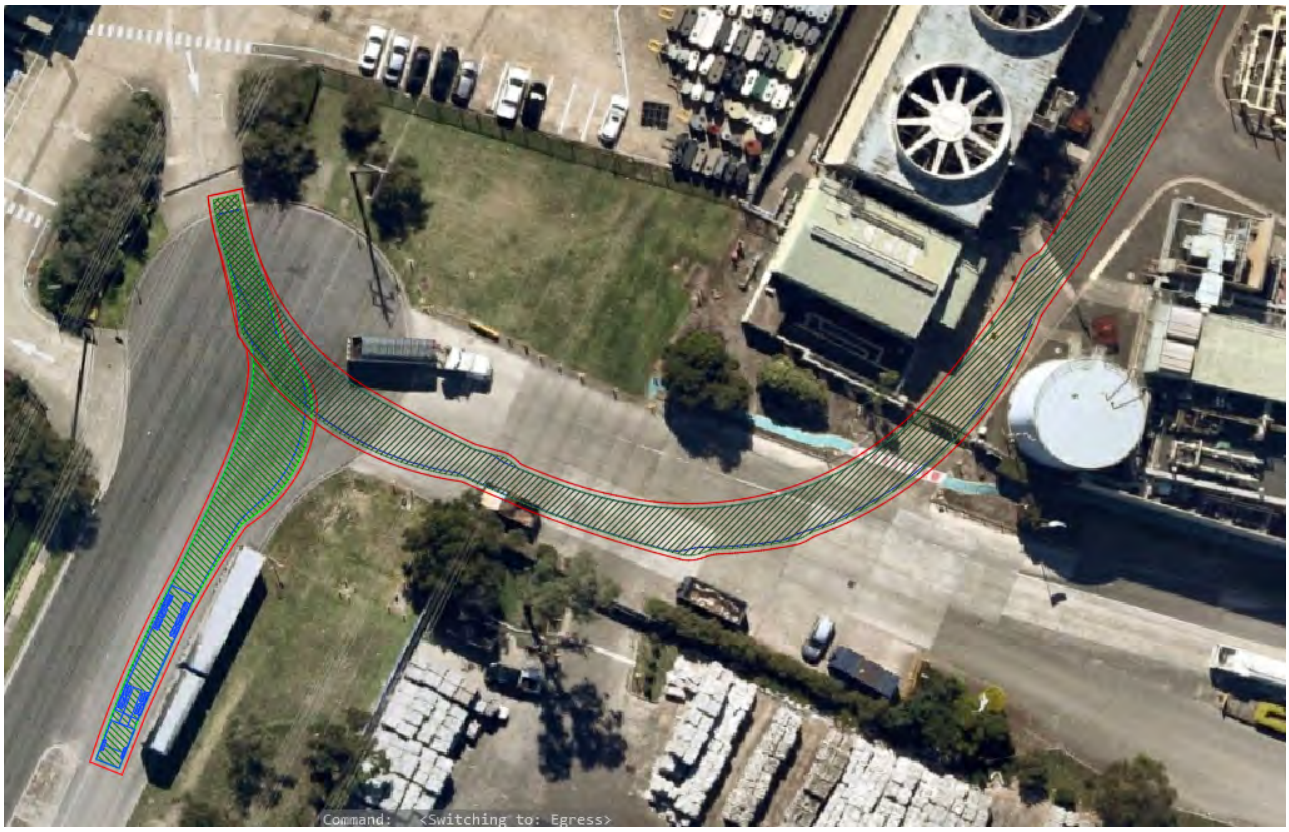


Figure 5-2 Egress of the 19 metre six-axle vehicle

5.2 Heavy vehicle route

Transportation routes would to be agreed upon, subject to the required size of the vehicles. The Project Site provides high accessibility to the broader road network and in particular access to and from Cumberland Highway (see Figure 5-3). The anticipated largest heavy vehicle is a 19-metre six-axle articulated truck however, it is subject to change depending on construction planning. Should OSOM be required, the Proponent would be required to obtain either a Ministerial Orders, Class 1 National Notices or permits with the National Heavy Vehicle Regulator depending on the size and loads of the vehicles. Transportation routes would follow approved routes as outlined in Figure 5-3.

Traffic impacts due to the operation and construction phases from the Project have been assessed to be minor. On this basis, road upgrades, infrastructure works, or new roads would not be required for the development.

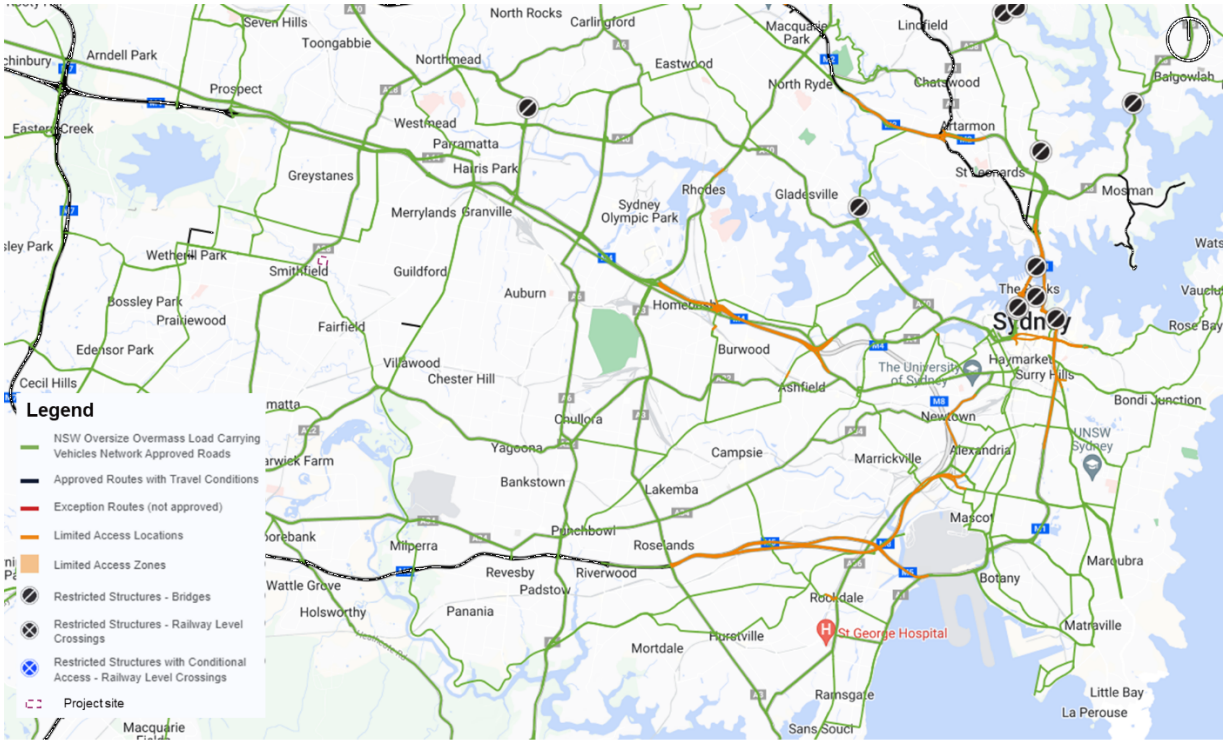


Figure 5-3 TfNSW Oversize Overmass Load Carrying Vehicles Network map
Source: TfNSW

6 PARKING ASSESSMENT

6.1 Construction

During peak construction period, up to 30 workers are anticipated. In recent years, the existing site (the SEF) has operated between 2% and 5% of the time each year with four staff onsite. This is not anticipated to change as the SEF operates as a peaking plant.

To cater for worker parking during construction, the following hierarchy would be applied:

- Existing parking within the SEF would be utilised. There is capacity of around 20 light vehicles, four of which are used for current SEF staff
- Car parking within the proposed construction compound (anticipated to be for 10 light vehicles) would be utilised
- Available on-street parking would be used, in consultation with neighbouring landowners.

6.2 Operation

The car parking requirements for the Project are set out in the Cumberland Development Control Plan, (2021), specifically in Part G3, Section 3. Reference to the Table of General Parking Controls indicate that there is no applicable land use provided in the Cumberland Development Control Plan, (2021), specifically in Part G3, Section 3, for energy infrastructure. Furthermore, no additional floor areas are proposed.

The BESS would be operated remotely with a scheduled maintenance and inspection program. The existing workforce at the SEF and the additional scheduled maintenance personnel would be available to manage the BESS (currently four staff onsite) as required. Existing parking within the SEF would be utilised which has a capacity of around 20 light vehicles which would be sufficient for the Project and existing SEF activities.

7 TRANSPORT NETWORK IMPACTS

7.1 Impacts to parking

The construction workforce is expected to use existing parking facilities on site with the excess of parking to be located either on a site compound or a neighbourhood car park, minimal impacts to parking are expected from the construction and operation of BESS. The excess parking demand will be managed to minimise any on-street parking impacts.

7.2 Impacts to public / active transport

There is minimal impact on the existing public or active transport facilities anticipated due to the traffic generation from the BESS facility.

No changes are required for bus and train services to facilitate the construction and operation of the facility. The bus stops located within proximity of the site will remain operational throughout the Project.

The vehicular movements associated with the egress of the 19-metre six-axle articulated truck may have minor impacts on other users e.g., pedestrian movements, on Herbert Place. Given the industrial land use and the minimal pedestrian movements on Herbert Place, the impacts are anticipated to be limited. In addition, traffic wardens will be used to manage the safe movement (to avoid any traffic conflicts) of the 19-metre six-axle articulated truck into and out of the site.

8 MANAGEMENT OF IMPACTS

As assessed within this report, traffic generated by the Project is not expected to compromise the safety or function of the surrounding road network. Notwithstanding this, the following measures are proposed to mitigate any traffic impact.

8.1 Construction traffic management plan

A Construction Traffic Management Plan (CTMP) will be prepared to mitigate potential construction traffic impact. The CTMP will address the specific traffic control requirements during the construction phase of the Project. The CTMP should include the following:

- Consultation outcomes with the relevant road authorities and adjacent landowners during preparation of the CTMP
- A process for ongoing consultation with relevant authorities and neighbours
- A process for managing OSOM deliveries (obtain either a Ministerial Orders, Class 1 National Notices or permits with the National Heavy Vehicle Regulator depending on the size and loads of the vehicles)
- Routes to be used by heavy construction-related vehicles to minimise impacts on sensitive land uses and businesses. Secondary alternative construction route activities should be included, in the event of the primary route is blocked off by an emergency
- Identification of parking areas for the workforce to minimise impacts on sensitive land uses and businesses. To minimise the potential for parking disruptions, the following management hierarchy would be applied:
  - Existing parking within the SEF would be utilised
  - Car parking within the proposed construction compound
  - In consultation with neighbouring landowners
- Implement measures to manage and facilitate the ingress/egress of the vehicles to ensure safety for all users along Herbert Place, including, as required regulatory and direction signposting, variable message signs, traffic management personnel and all other traffic control devices necessary for the implementation of the CTMP
- Provision to induct employees and contractors to raise awareness and understanding of traffic and transport mitigation measures to be implemented
- Ensure the performance of project traffic arrangements is monitored during construction

8.2 Operational mitigation measures

Operational traffic will be managed as per the existing operating procedures for SEF.

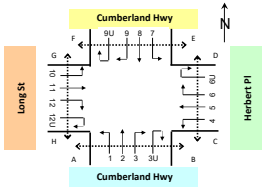
9 CONCLUSION

This report details the traffic impact assessment of the construction and operation of a BESS at the Smithfield Energy Facility at 6 Herbert Place, Smithfield. Key findings are summarised below:

- The site access is located on Herbert Place, which is accessed from the Cumberland Highway (a state road) from the north and south, and Long Street (a local road) from the west
- The construction works for the BESS is expected to generate up to 30 light vehicle trips (two-way movements) during the construction AM and PM peak periods and 10 heavy vehicle trips (two-way movements) during the commuter AM and PM peak periods in 2024
- A maximum of five light vehicles (two-way movements) daily is anticipated during the operation of the BESS for maintenance works. The BESS operations would be expected to occur remotely. Some additional heavy vehicle movements may be required occasionally
- SIDRA intersection modelling of the Cumberland Highway, Long Street and Herbert Place intersection has been completed to understand the implications of the construction and operation traffic on the intersection
- The performance of the intersection was assessed for the existing situation (2023) and the construction year 2024 for the following four peak periods:
  - Construction AM peak: 6:00am to 7:00am
  - Commuter AM peak: 7:30am to 8:30am
  - Commuter PM peak: 4:15pm to 5:15pm
  - Construction PM peak: 6:00pm to 7:00pm
- The intersection modelling results showed that the traffic generated by the construction works is considered to have a minimal impact on the Cumberland Highway, Long Street and Herbert Place intersection. The intersection is anticipated to perform satisfactorily at LOS D or better and DOS<0.90 during all the assessed peak periods both in current situation in 2023 and construction year 2024 (with and without development scenarios)
- The construction workforce is expected to use the existing parking facilities on site, minimal impact on the on-street parking is expected by the construction and operation of the BESS development
- Minimal impact on the existing public or active transport facilities is anticipated by the construction and operation of the BESS development.

Appendix A – Traffic count survey data

Job No.	: AUNSW6031
Client	: Arcadis Australia Pacific Pty/Ltd
Suburb	: Smithfield BESS
Location	: 1. Cumberland Hwy / Herbert Pl / Long St
Day/Date	: Thu, 1 June 2023
Weather	: Fine
Description	: Classified Intersection Count
	: 15 mins Data



MATRIX
Traffic and Transport Data

Classifications	**Class 1**	**Class 2**	**Class 3**	**Ped Class 1**	**Ped Class 2**
	Lights	Heavies	Cyclists	Peds	Cyclists

Approach	**Cumberland Hwy**																**Herbert Pl**															
Direction	**Direction 1 (Left Turn)**				**Direction 2 (Through)**				**Direction 3 (Right Turn)**				**Direction 3U (U Turn)**				**Direction 4 (Left Turn)**				**Direction 5 (Through)**				**Direction 6 (Right Turn)**				**Direction 6U (U Turn)**			
Time Period	**Lights**	**Heavies**	**Cyclists**	**Total**	**Lights**	**Heavies**	**Cyclists**	**Total**	**Lights**	**Heavies**	**Cyclists**	**Total**	**Lights**	**Heavies**	**Cyclists**	**Total**	**Lights**	**Heavies**	**Cyclists**	**Total**	**Lights**	**Heavies**	**Cyclists**	**Total**	**Lights**	**Heavies**	**Cyclists**	**Total**	**Lights**	**Heavies**	**Cyclists**	**Total**
6:00 to 6:15	69	4	0	**73**	553	64	0	**617**	10	2	0	**12**	0	0	0	**0**	8	3	0	**11**	1	1	0	**2**	5	8	0	**13**	0	0	0	**0**
6:15 to 6:30	70	6	0	**76**	523	45	0	**568**	9	0	0	**9**	0	0	0	**0**	4	3	0	**7**	2	0	0	**2**	1	3	0	**4**	0	0	0	**0**
6:30 to 6:45	76	9	0	**85**	491	41	0	**532**	9	1	0	**10**	0	0	0	**0**	1	2	0	**3**	1	1	0	**2**	0	6	0	**6**	0	0	0	**0**
6:45 to 7:00	81	11	0	**92**	505	50	0	**555**	12	3	0	**15**	0	0	0	**0**	2	4	0	**6**	0	0	0	**0**	1	4	0	**5**	0	0	0	**0**
7:00 to 7:15	81	8	0	**89**	529	54	0	**583**	9	7	0	**16**	0	0	0	**0**	6	1	0	**7**	1	1	0	**2**	0	2	0	**2**	0	0	0	**0**
7:15 to 7:30	66	11	0	**77**	497	32	0	**529**	5	2	0	**7**	0	0	0	**0**	1	2	0	**3**	0	1	0	**1**	3	4	0	**7**	0	0	0	**0**
7:30 to 7:45	68	8	0	**76**	570	58	0	**628**	4	3	0	**7**	0	0	0	**0**	0	2	0	**2**	0	0	0	**0**	1	6	0	**7**	0	0	0	**0**
7:45 to 8:00	75	8	0	**83**	453	41	0	**494**	5	0	0	**5**	0	0	0	**0**	0	3	0	**3**	0	0	0	**0**	0	4	0	**4**	0	0	0	**0**
8:00 to 8:15	82	10	0	**92**	495	53	0	**548**	1	2	0	**3**	0	0	0	**0**	1	1	0	**2**	1	2	0	**3**	0	5	0	**5**	0	0	0	**0**
8:15 to 8:30	81	16	0	**97**	516	39	0	**555**	4	2	0	**6**	0	0	0	**0**	2	2	0	**4**	2	0	0	**2**	0	5	0	**5**	0	0	0	**0**
8:30 to 8:45	69	8	0	**77**	433	47	0	**480**	1	3	0	**4**	0	0	0	**0**	0	4	0	**4**	1	0	0	**1**	2	3	0	**5**	0	0	0	**0**
8:45 to 9:00	51	8	0	**59**	384	42	0	**426**	3	2	0	**5**	0	0	0	**0**	3	4	0	**7**	1	1	0	**2**	0	1	0	**1**	0	0	0	**0**
9:00 to 9:15	49	14	0	**63**	407	45	0	**452**	8	2	0	**10**	0	0	0	**0**	3	1	0	**4**	3	1	0	**4**	0	2	0	**2**	0	0	0	**0**
9:15 to 9:30	53	17	0	**70**	388	43	0	**431**	2	2	0	**4**	0	0	0	**0**	2	4	0	**6**	0	1	0	**1**	3	2	0	**5**	0	0	0	**0**
9:30 to 9:45	52	9	0	**61**	353	53	0	**406**	2	2	0	**4**	0	0	0	**0**	3	9	0	**12**	0	2	0	**2**	4	3	0	**7**	0	0	0	**0**
9:45 to 10:00	36	16	0	**52**	330	40	0	**370**	1	3	0	**4**	0	0	0	**0**	7	6	0	**13**	0	0	0	**0**	0	6	0	**6**	0	0	0	**0**
10:00 to 10:15	32	16	0	**48**	309	38	0	**347**	5	5	0	**10**	0	0	0	**0**	2	8	0	**10**	1	0	0	**1**	3	7	0	**10**	0	0	0	**0**
10:15 to 10:30	36	5	0	**41**	306	38	0	**344**	3	5	0	**8**	0	0	0	**0**	2	2	0	**4**	1	1	0	**2**	0	7	0	**7**	0	0	0	**0**
10:30 to 10:45	37	13	0	**50**	267	38	0	**305**	3	3	0	**6**	0	0	0	**0**	6	9	0	**15**	0	2	0	**2**	3	3	0	**6**	0	0	0	**0**
10:45 to 11:00	27	12	0	**39**	301	58	0	**359**	6	1	0	**7**	0	0	0	**0**	4	2	0	**6**	1	1	0	**2**	5	4	0	**9**	0	0	0	**0**
11:00 to 11:15	38	20	0	**58**	282	39	0	**321**	4	4	0	**8**	0	0	0	**0**	11	3	0	**14**	0	0	0	**0**	2	4	0	**6**	0	0	0	**0**
11:15 to 11:30	29	11	0	**40**	290	51	0	**341**	3	3	0	**6**	0	0	0	**0**	4	4	0	**8**	1	2	0	**3**	2	4	0	**6**	0	0	0	**0**
11:30 to 11:45	45	15	0	**60**	314	40	0	**354**	8	6	0	**14**	0	0	0	**0**	4	6	0	**10**	0	1	0	**1**	1	3	0	**4**	0	0	0	**0**
11:45 to 12:00	25	18	0	**43**	240	40	0	**280**	7	2	0	**9**	0	0	0	**0**	7	6	0	**13**	0	1	0	**1**	4	3	0	**7**	0	0	0	**0**
12:00 to 12:15	39	13	0	**52**	304	35	0	**339**	5	5	0	**10**	1	0	0	**1**	13	4	0	**17**	0	2	0	**2**	5	4	0	**9**	0	0	0	**0**
12:15 to 12:30	39	9	0	**48**	317	44	0	**361**	7	3	0	**10**	0	0	0	**0**	5	1	0	**6**	1	1	0	**2**	3	6	0	**9**	0	0	0	**0**
12:30 to 12:45	43	14	0	**57**	298	30	0	**328**	6	1	0	**7**	0	0	0	**0**	7	1	0	**8**	1	1	0	**2**	1	6	0	**7**	0	0	0	**0**
12:45 to 13:00	53	9	0	**62**	349	32	0	**381**	1	4	0	**5**	0	0	0	**0**	5	3	0	**8**	0	3	0	**3**	3	9	0	**12**	0	0	0	**0**
13:00 to 13:15	47	13	0	**60**	274	42	0	**316**	1	2	0	**3**	1	0	0	**1**	6	1	0	**7**	0	1	0	**1**	2	3	0	**5**	0	0	0	**0**
13:15 to 13:30	51	11	0	**62**	317	42	0	**359**	7	1	0	**8**	0	0	0	**0**	5	3	0	**8**	3	1	0	**4**	3	6	0	**9**	0	0	0	**0**
13:30 to 13:45	64	15	0	**79**	361	41	0	**402**	10	3	0	**13**	2	0	0	**2**	8	2	0	**10**	5	0	0	**5**	8	1	0	**9**	0	0	0	**0**
13:45 to 14:00	59	9	0	**68**	305	37	0	**342**	11	1	0	**12**	0	0	0	**0**	5	5	0	**10**	0	4	0	**4**	7	5	0	**12**	0	0	0	**0**
14:00 to 14:15	41	11	0	**52**	333	40	0	**373**	3	1	0	**4**	1	0	0	**1**	19	1	0	**20**	1	3	0	**4**	7	3	0	**10**	0	0	0	**0**
14:15 to 14:30	31	10	0	**41**	362	40	0	**402**	1	3	0	**4**	0	0	0	**0**	6	4	0	**10**	0	1	0	**1**	6	2	0	**8**	0	0	0	**0**
14:30 to 14:45	40	2	0	**42**	361	41	0	**402**	0	4	0	**4**	0	0	0	**0**	14	3	0	**17**	3	2	0	**5**	5	1	0	**6**	0	0	0	**0**
14:45 to 15:00	32	16	0	**48**	328	33	0	**361**	2	3	0	**5**	0	0	0	**0**	4	3	0	**7**	0	0	0	**0**	4	2	0	**6**	0	0	0	**0**
15:00 to 15:15	33	13	0	**46**	304	29	0	**333**	0	1	0	**1**	1	0	0	**1**	2	2	0	**4**	2	1	0	**3**	2	1	0	**3**	0	0	0	**0**
15:15 to 15:30	26	6	0	**32**	461	34	0	**495**	1	4	0	**5**	0	0	0	**0**	4	6	0	**10**	1	1	0	**2**	6	1	0	**7**	0	0	0	**0**
15:30 to 15:45	41	9	0	**50**	393	24	0	**417**	1	4	0	**5**	1	0	0	**1**	11	3	0	**14**	5	1	0	**6**	3	2	0	**5**	0	0	0	**0**
15:45 to 16:00	36	9	0	**45**	403	33	0	**436**	3	1	0	**4**	1	1	0	**2**	10	2	0	**12**	6	3	0	**9**	2	4	0	**6**	0	0	0	**0**
16:00 to 16:15	31	9	0	**40**	443	27	0	**470**	0	2	0	**2**	0	0	0	**0**	9	3	0	**12**	0	0	0	**0**	4	1	0	**5**	0	0	0	**0**
16:15 to 16:30	26	4	0	**30**	385	24	0	**409**	3	1	0	**4**	0	0	0	**0**	6	2	0	**8**	1	1	0	**2**	4	3	0	**7**	0	0	0	**0**
16:30 to 16:45	22	6	0	**28**	454	30	0	**484**	1	3	0	**4**	2	0	0	**2**	7	0	0	**7**	0	2	0	**2**	9	3	0	**12**	0	0	0	**0**
16:45 to 17:00	31	8	0	**39**	457	14	0	**471**	3	2	0	**5**	0	0	0	**0**	3	2	0	**5**	0	0	0	**0**	7	2	0	**9**	0	0	0	**0**
17:00 to 17:15	28	4	0	**32**	488	30	0	**518**	2	3	0	**5**	0	0	0	**0**	7	0	0	**7**	0	1	0	**1**	3	0	0	**3**	0	0	0	**0**
17:15 to 17:30	17	5	0	**22**	401	20	0	**421**	3	2	0	**5**	0	0	0	**0**	3	0	0	**3**	1	2	0	**3**	6	1	0	**7**	0	0	0	**0**
17:30 to 17:45	23	2	0	**25**	476	23	0	**499**	4	2	0	**6**	0	0	0	**0**	6	2	0	**8**	2	0	0	**2**	8	0	0	**8**	0	0	0	**0**
17:45 to 18:00	20	8	0	**28**	444	17	0	**461**	4	2	0	**6**	0	0	0	**0**	4	0	0	**4**	0	0	0	**0**	3	1	0	**4**	0	0	0	**0**
18:00 to 18:15	27	2	0	**29**	381	16	0	**397**	4	1	0	**5**	0	0	0	**0**	12	2	0	**14**	1	0	0	**1**	9	0	0	**9**	0	0	0	**0**
18:15 to 18:30	20	2	0	**22**	403	25	0	**428**	5	0	0	**5**	0	0	0	**0**	8	1	0	**9**	1	0	0	**1**	3	1	0	**4**	0	0	0	**0**
18:30 to 18:45	21	1	0	**22**	337	9	0	**346**	4	1	0	**5**	1	0	0	**1**	5	4	0	**9**	0	0	0	**0**	3	0	0	**3**	0	0	0	**0**
18:45 to 19:00	12	1	0	**13**	284	16	0	**300**	3	0	0	**3**	0	0	0	**0**	7	1	0	**8**	0	1	0	**1**	3	0	0	**3**	0	0	0	**0**

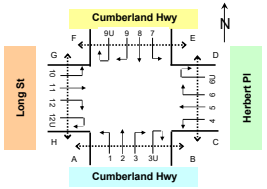
19:00 to 19:15	10	1	0	**11**	278	9	0	**287**	0	1	0	**1**	1	0	0	**1**	10	0	0	**10**	0	0	0	**0**	6	0	0	**6**	0	0	0	**0**
19:15 to 19:30	8	0	0	**8**	268	10	0	**278**	2	1	0	**3**	0	0	0	**0**	4	0	0	**4**	0	0	0	**0**	5	1	0	**6**	0	0	0	**0**
19:30 to 19:45	6	1	0	**7**	251	8	0	**259**	2	0	0	**2**	0	0	0	**0**	4	3	0	**7**	0	0	0	**0**	2	1	0	**3**	0	0	0	**0**
19:45 to 20:00	10	0	0	**10**	233	6	0	**239**	1	4	0	**5**	0	0	0	**0**	1	1	0	**2**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**
20:00 to 20:15	4	0	0	**4**	194	10	0	**204**	0	2	0	**2**	0	0	0	**0**	4	2	0	**6**	1	0	0	**1**	4	0	0	**4**	0	0	0	**0**
20:15 to 20:30	8	1	0	**9**	243	6	0	**249**	3	0	0	**3**	0	0	0	**0**	5	1	0	**6**	0	0	0	**0**	5	0	0	**5**	0	0	0	**0**
20:30 to 20:45	9	0	0	**9**	251	14	0	**265**	0	1	0	**1**	1	0	0	**1**	1	0	0	**1**	0	1	0	**1**	1	0	0	**1**	0	0	0	**0**
20:45 to 21:00	7	0	0	**7**	193	13	0	**206**	0	0	0	**0**	0	0	0	**0**	2	0	0	**2**	0	1	0	**1**	0	0	0	**0**	0	0	0	**0**
21:00 to 21:15	10	1	0	**11**	178	8	0	**186**	1	0	0	**1**	0	0	0	**0**	1	1	0	**2**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**
21:15 to 21:30	8	1	0	**9**	211	7	0	**218**	0	0	0	**0**	0	0	0	**0**	0	2	0	**2**	0	0	0	**0**	1	0	0	**1**	0	0	0	**0**
21:30 to 21:45	25	1	0	**26**	210	7	0	**217**	2	1	0	**3**	0	0	0	**0**	1	0	0	**1**	0	1	0	**1**	1	0	0	**1**	0	0	0	**0**
21:45 to 22:00	13	0	0	**13**	183	10	0	**193**	1	0	0	**1**	0	0	0	**0**	1	0	0	**1**	0	0	0	**0**	0	1	0	**1**	0	0	0	**0**
16hr Totals	**2,399**	**500**	**0**	**2,899**	**22,852**	**2,025**	**0**	**24,877**	**231**	**135**	**0**	**366**	**13**	**1**	**0**	**14**	**318**	**162**	**0**	**480**	**52**	**54**	**0**	**106**	**194**	**170**	**0**	**364**	**0**	**0**	**0**	**0**

Approach	Cumberland Hwy																Long St															
Direction	Direction 7 (Left Turn)				Direction 8 (Through)				Direction 9 (Right Turn)				Direction 9U (U Turn)				Direction 10 (Left Turn)				Direction 11 (Through)				Direction 12 (Right Turn)				Direction 12U (U Turn)			
Time Period	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total
6:00 to 6:15	13	1	0	**14**	255	45	0	**300**	22	4	0	**26**	0	0	0	**0**	11	8	0	**19**	1	0	0	**1**	48	11	0	**59**	0	0	0	**0**
6:15 to 6:30	17	4	0	**21**	322	42	0	**364**	27	9	0	**36**	0	0	0	**0**	1	6	0	**7**	1	0	0	**1**	10	5	0	**15**	0	0	0	**0**
6:30 to 6:45	14	5	0	**19**	347	32	0	**379**	18	4	0	**22**	0	0	0	**0**	3	11	0	**14**	0	0	0	**0**	20	7	0	**27**	0	0	0	**0**
6:45 to 7:00	9	0	0	**9**	291	54	0	**345**	52	7	0	**59**	0	0	0	**0**	10	8	0	**18**	2	0	0	**2**	20	10	0	**30**	0	0	0	**0**
7:00 to 7:15	8	3	0	**11**	362	38	0	**400**	36	7	0	**43**	0	0	0	**0**	8	14	0	**22**	1	2	0	**3**	21	10	0	**31**	0	0	0	**0**
7:15 to 7:30	8	4	0	**12**	376	37	0	**413**	26	7	0	**33**	0	0	0	**0**	9	12	0	**21**	2	0	0	**2**	26	17	0	**43**	0	0	0	**0**
7:30 to 7:45	12	2	0	**14**	517	42	0	**559**	32	7	0	**39**	0	0	0	**0**	11	12	0	**23**	0	2	0	**2**	18	8	0	**26**	0	0	0	**0**
7:45 to 8:00	11	6	0	**17**	429	38	0	**467**	38	10	0	**48**	0	0	0	**0**	10	19	0	**29**	3	0	0	**3**	36	15	0	**51**	0	0	0	**0**
8:00 to 8:15	4	3	0	**7**	462	46	0	**508**	36	7	0	**43**	0	0	0	**0**	11	6	0	**17**	2	0	0	**2**	34	9	0	**43**	0	0	0	**0**
8:15 to 8:30	9	3	0	**12**	499	38	0	**537**	18	7	0	**25**	0	0	0	**0**	16	7	0	**23**	3	0	0	**3**	36	7	0	**43**	0	0	0	**0**
8:30 to 8:45	3	2	0	**5**	390	43	0	**433**	22	14	0	**36**	0	0	0	**0**	10	19	0	**29**	1	1	0	**2**	41	15	0	**56**	0	0	0	**0**
8:45 to 9:00	4	6	0	**10**	424	35	0	**459**	38	11	0	**49**	0	0	0	**0**	10	12	0	**22**	1	2	0	**3**	25	17	0	**42**	0	0	0	**0**
9:00 to 9:15	7	7	0	**14**	364	39	0	**403**	37	12	0	**49**	0	0	0	**0**	21	22	0	**43**	2	0	0	**2**	25	14	0	**39**	0	0	0	**0**
9:15 to 9:30	3	20	0	**23**	382	54	0	**436**	18	8	0	**26**	0	0	0	**0**	13	9	0	**22**	1	1	0	**2**	26	10	0	**36**	0	0	0	**0**
9:30 to 9:45	5	9	0	**14**	341	50	0	**391**	22	18	0	**40**	0	0	0	**0**	16	21	0	**37**	1	3	0	**4**	44	12	0	**56**	0	0	0	**0**
9:45 to 10:00	7	8	0	**15**	370	41	0	**411**	29	13	0	**42**	0	0	0	**0**	16	18	0	**34**	1	2	0	**3**	21	9	0	**30**	0	0	0	**0**
10:00 to 10:15	1	4	0	**5**	315	39	0	**354**	14	12	0	**26**	0	0	0	**0**	18	20	0	**38**	0	1	0	**1**	34	15	0	**49**	0	0	0	**0**
10:15 to 10:30	3	8	0	**11**	381	51	0	**432**	22	15	0	**37**	0	0	0	**0**	13	17	0	**30**	1	2	0	**3**	36	12	0	**48**	0	0	0	**0**
10:30 to 10:45	4	2	0	**6**	267	61	0	**328**	24	12	0	**36**	0	0	0	**0**	14	24	0	**38**	3	0	0	**3**	26	8	0	**34**	0	0	0	**0**
10:45 to 11:00	7	7	0	**14**	358	55	0	**413**	22	10	0	**32**	0	0	0	**0**	9	10	0	**19**	2	0	0	**2**	26	14	0	**40**	0	0	0	**0**
11:00 to 11:15	1	9	0	**10**	292	58	0	**350**	24	8	0	**32**	0	0	0	**0**	14	14	0	**28**	0	1	0	**1**	29	12	0	**41**	0	0	0	**0**
11:15 to 11:30	3	5	0	**8**	371	46	0	**417**	16	14	0	**30**	0	0	0	**0**	13	8	0	**21**	0	0	0	**0**	23	12	0	**35**	0	0	0	**0**
11:30 to 11:45	10	7	0	**17**	361	58	0	**419**	15	17	0	**32**	0	0	0	**0**	14	19	0	**33**	1	1	0	**2**	28	9	0	**37**	0	0	0	**0**
11:45 to 12:00	4	11	0	**15**	330	54	0	**384**	14	15	0	**29**	0	0	0	**0**	17	17	0	**34**	0	0	0	**0**	34	15	0	**49**	0	0	0	**0**
12:00 to 12:15	4	8	0	**12**	319	62	0	**381**	25	13	0	**38**	0	0	0	**0**	11	10	0	**21**	0	0	0	**0**	48	7	0	**55**	0	0	0	**0**
12:15 to 12:30	3	6	0	**9**	373	59	0	**432**	16	9	0	**25**	0	0	0	**0**	10	15	0	**25**	1	1	0	**2**	35	12	0	**47**	0	0	0	**0**
12:30 to 12:45	3	8	0	**11**	364	56	0	**420**	24	17	0	**41**	0	0	0	**0**	13	7	0	**20**	0	3	0	**3**	46	12	0	**58**	0	0	0	**0**
12:45 to 13:00	4	5	0	**9**	375	50	0	**425**	23	9	0	**32**	0	0	0	**0**	15	10	0	**25**	0	0	0	**0**	41	9	0	**50**	0	0	0	**0**
13:00 to 13:15	5	8	0	**13**	394	50	0	**444**	19	16	0	**35**	0	0	0	**0**	20	12	0	**32**	1	1	0	**2**	53	12	0	**65**	0	0	0	**0**
13:15 to 13:30	8	6	0	**14**	394	52	0	**446**	14	10	0	**24**	0	0	0	**0**	25	7	0	**32**	0	0	0	**0**	41	15	0	**56**	0	0	0	**0**
13:30 to 13:45	8	4	0	**12**	436	42	0	**478**	22	14	0	**36**	0	0	0	**0**	12	16	0	**28**	0	2	0	**2**	52	11	0	**63**	0	0	0	**0**
13:45 to 14:00	17	10	0	**27**	426	61	0	**487**	25	12	0	**37**	0	0	0	**0**	12	5	0	**17**	0	1	0	**1**	51	9	0	**60**	0	0	0	**0**
14:00 to 14:15	2	2	0	**4**	541	56	0	**597**	25	10	0	**35**	0	0	0	**0**	35	9	0	**44**	0	1	0	**1**	101	11	0	**112**	0	0	0	**0**
14:15 to 14:30	0	5	0	**5**	508	33	0	**541**	12	6	0	**18**	0	0	0	**0**	26	9	0	**35**	1	1	0	**2**	56	11	0	**67**	0	0	0	**0**
14:30 to 14:45	5	1	0	**6**	518	54	0	**572**	16	11	0	**27**	0	0	0	**0**	25	3	0	**28**	1	1	0	**2**	94	8	0	**102**	0	0	0	**0**
14:45 to 15:00	5	3	0	**8**	585	59	0	**644**	15	13	0	**28**	0	0	0	**0**	12	5	0	**17**	1	2	0	**3**	61	8	0	**69**	0	0	0	**0**
15:00 to 15:15	1	6	0	**7**	525	42	0	**567**	18	15	0	**33**	0	0	0	**0**	30	9	0	**39**	3	0	0	**3**	103	6	0	**109**	0	0	0	**0**
15:15 to 15:30	4	5	0	**9**	603	43	0	**646**	10	11	0	**21**	0	0	0	**0**	10	11	0	**21**	0	1	0	**1**	58	6	0	**64**	0	0	0	**0**
15:30 to 15:45	0	0	0	**0**	539	43	0	**582**	21	9	0	**30**	0	0	0	**0**	33	7	0	**40**	2	3	0	**5**	98	13	0	**111**	0	0	0	**0**
15:45 to 16:00	1	6	0	**7**	649	42	0	**691**	14	9	0	**23**	0	0	0	**0**	17	6	0	**23**	0	0	0	**0**	65	2	0	**67**	0	0	0	**0**
16:00 to 16:15	1	3	0	**4**	644	45	0	**689**	10	8	0	**18**	0	0	0	**0**	10	3	0	**13**	0	1	0	**1**	109	5	0	**114**	0	0	0	**0**
16:15 to 16:30	1	1	0	**2**	645	37	0	**682**	16	10	0	**26**	0	0	0	**0**	33	2	0	**35**	0	0	0	**0**	92	6	0	**98**	0	0	0	**0**
16:30 to 16:45	1	3	0	**4**	656	35	0	**691**	9	8	0	**17**	0	0	0	**0**	30	3	0	**33**	0	0	0	**0**	112	5	0	**117**	0	0	0	**0**
16:45 to 17:00	1	1	0	**2**	602	59	0	**661**	10	9	0	**19**	0	0	0	**0**	23	5	0	**28**	2	0	0	**2**	77	2	0	**79**	0	0	0	**0**
17:00 to 17:15	1	0	0	**1**	644	26	0	**670**	5	8	0	**13**	0	0	0	**0**	36	4	0	**40**	1	1	0	**2**	95	2	0	**97**	0	0	0	**0**
17:15 to 17:30	1	0	0	**1**	533	26	0	**559**	7	5	0	**12**	0	0	0	**0**	24	3	0	**27**	0	0	0	**0**	78	3	0	**81**	0	0	0	**0**
17:30 to 17:45	1	1	0	**2**	690	23	0	**713**	6	5	0	**11**	0	0	0	**0**	7	1	0	**8**	1	0	0	**1**	42	0	0	**42**	0	0	0	**0**
17:45 to 18:00	3	0	0	**3**	610	21	0	**631**	15	6	0	**21**	0	0	0	**0**	3	3	0	**6**	0	1	0	**1**	31	0	0	**31**	0	0	0	**0**
18:00 to 18:15	4	1	0	**5**	576	31	0	**607**	6	4	0	**10**	0	0	0	**0**	7	3	0	**10**	0	0	0	**0**	51	3	0	**54**	0	0	0	**0**
18:15 to 18:30	1	0	0	**1**	601	19	0	**620**	2	1	0	**3**	0	0	0	**0**	4	1	0	**5**	0	0	0	**0**	25	2	0	**27**	0	0	0	**0**
18:30 to 18:45	4	1	0	**5**	461	15	0	**476**	3	4	0	**7**	0	0	0	**0**	7	3	0	**10**	1	0	0	**1**	40	2	0	**42**	0	0	0	**0**
18:45 to 19:00	3	1	0	**4**	456	7	0	**463**	3	2	0	**5**	0	0	0	**0**	5	4	0	**9**	0	0	0	**0**	22	3	0	**25**	0	0	0	**0**
19:00 to 19:15	2	0	0	**2**	411	10	0	**421**	1	3	0	**4**	0	0	0	**0**	7	1	0	**8**	0	0	0	**0**	11	2	0	**13**	0	0	0	**0**

Approach	Crossing Pedestrians																							
Direction	B to A			A to B			D to C			C to D			F to E			E to F			H to G			G to H		
Time Period	Peds	Cyclists	Total	Peds	Cyclists	Total	Peds	Cyclists	Total	Peds	Cyclists	Total	Peds	Cyclists	Total	Peds	Cyclists	Total	Peds	Cyclists	Total	Peds	Cyclists	Total
6:00 to 6:15	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	1	0	**1**	0	0	**0**	0	0	**0**	1	0	**1**
6:15 to 6:30	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
6:30 to 6:45	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	1	0	**1**	0	0	**0**	3	0	**3**	0	0	**0**
6:45 to 7:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	1	0	**1**	0	0	**0**	1	0	**1**	0	0	**0**
7:00 to 7:15	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	1	0	**1**
7:15 to 7:30	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
7:30 to 7:45	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
7:45 to 8:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
8:00 to 8:15	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
8:15 to 8:30	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	1	0	**1**	0	0	**0**
8:30 to 8:45	0	0	**0**	0	0	**0**	0	0	**0**	1	0	**1**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
8:45 to 9:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
9:00 to 9:15	0	0	**0**	0	0	**0**	1	0	**1**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	1	0	**1**
9:15 to 9:30	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
9:30 to 9:45	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	1	0	**1**	0	0	**0**	1	0	**1**	1	0	**1**
9:45 to 10:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
10:00 to 10:15	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
10:15 to 10:30	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
10:30 to 10:45	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
10:45 to 11:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	1	0	**1**	0	0	**0**
11:00 to 11:15	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	1	0	**1**	0	0	**0**	0	0	**0**	0	0	**0**
11:15 to 11:30	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
11:30 to 11:45	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
11:45 to 12:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
12:00 to 12:15	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
12:15 to 12:30	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	1	0	**1**	0	0	**0**	1	0	**1**
12:30 to 12:45	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
12:45 to 13:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
13:00 to 13:15	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	1	0	**1**	0	0	**0**
13:15 to 13:30	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	1	0	**1**
13:30 to 13:45	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	1	0	**1**
13:45 to 14:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
14:00 to 14:15	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
14:15 to 14:30	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	2	0	**2**	1	0	**1**
14:30 to 14:45	0	0	**0**	0	0	**0**	1	0	**1**	0	1	**1**	1	0	**1**	0	0	**0**	0	0	**0**	0	0	**0**
14:45 to 15:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
15:00 to 15:15	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	1	0	**1**	0	0	**0**	0	0	**0**	1	0	**1**
15:15 to 15:30	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	3	0	**3**	0	0	**0**
15:30 to 15:45	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	1	0	**1**	0	0	**0**	0	0	**0**	0	0	**0**
15:45 to 16:00	0	0	**0**	0	0	**0**	0	0	**0**	1	0	**1**	0	0	**0**	1	0	**1**	0	0	**0**	1	0	**1**
16:00 to 16:15	0	0	**0**	0	0	**0**	0	0	**0**	2	0	**2**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
16:15 to 16:30	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
16:30 to 16:45	0	0	**0**	0	0	**0**	1	0	**1**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
16:45 to 17:00	0	0	**0**	0	0	**0**	2	0	**2**	0	0	**0**	0	0	**0**	0	0	**0**	1	0	**1**	1	0	**1**
17:00 to 17:15	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
17:15 to 17:30	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
17:30 to 17:45	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	1	**1**
17:45 to 18:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
18:00 to 18:15	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	1	0	**1**	0	0	**0**	0	0	**0**
18:15 to 18:30	0	0	**0**	0	0	**0**	1	0	**1**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
18:30 to 18:45	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	1	0	**1**	1	0	**1**	0	0	**0**
18:45 to 19:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
19:00 to 19:15	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**

19:15	to	19:30	3	0	0	**3**	346	12	0	**358**	1	1	0	**2**	0	0	0	**0**	6	3	0	**9**	0	1	0	**1**	23	1	0	**24**	0	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
19:30	to	19:45	4	1	0	**5**	349	10	0	**359**	0	0	0	**0**	0	0	0	**0**	3	2	0	**5**	1	0	0	**1**	9	0	0	**9**	0	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
19:45	to	20:00	2	1	0	**3**	292	9	0	**301**	2	2	0	**4**	0	0	0	**0**	3	1	0	**4**	0	0	0	**0**	4	1	0	**5**	0	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	1	0	**1**	0	0	**0**
20:00	to	20:15	1	0	0	**1**	273	5	0	**278**	0	0	0	**0**	0	0	0	**0**	4	0	0	**4**	0	0	0	**0**	10	2	0	**12**	0	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
20:15	to	20:30	0	1	0	**1**	313	8	0	**321**	2	4	0	**6**	0	0	0	**0**	1	1	0	**2**	0	1	0	**1**	10	1	0	**11**	0	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
20:30	to	20:45	0	0	0	**0**	266	9	0	**275**	1	1	0	**2**	0	0	0	**0**	1	3	0	**4**	0	0	0	**0**	12	0	0	**12**	0	0	0	**0**	0	0	**0**	0	0	**0**	1	0	**1**	0	0	**0**	1	0	**1**	0	0	**0**	0	0	**0**	0	0	**0**
20:45	to	21:00	0	0	0	**0**	262	6	0	**268**	2	1	0	**3**	0	0	0	**0**	0	1	0	**1**	0	0	0	**0**	10	0	0	**10**	0	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
21:00	to	21:15	0	1	0	**1**	282	6	0	**288**	2	0	0	**2**	0	0	0	**0**	2	2	0	**4**	0	1	0	**1**	5	0	0	**5**	0	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
21:15	to	21:30	0	1	0	**1**	340	7	0	**347**	3	1	0	**4**	0	0	0	**0**	1	2	0	**3**	0	0	0	**0**	7	0	0	**7**	0	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
21:30	to	21:45	0	1	0	**1**	285	9	0	**294**	6	0	0	**6**	0	0	0	**0**	3	1	0	**4**	0	0	0	**0**	4	0	0	**4**	0	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
21:45	to	22:00	1	0	0	**1**	258	10	0	**268**	8	1	0	**9**	0	0	0	**0**	3	1	0	**4**	0	0	0	**0**	12	2	0	**14**	0	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
16hr Totals			**272**	**237**	**0**	**509**	**27,150**	**2,345**	**0**	**29,495**	**1,041**	**516**	**0**	**1,557**	**0**	**0**	**0**	**0**	**817**	**527**	**0**	**1,344**	**45**	**41**	**0**	**86**	**2,581**	**467**	**0**	**3,048**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**7**	**4**	**1**	**5**	**9**	**0**	**9**	**4**	**0**	**4**	**16**	**0**	**16**	**11**	**1**	**12**

Job No.	: AUNSW6031
Client	: Arcadis Australia Pacific Pty/Ltd
Suburb	: Smithfield BESS
Location	: 1. Cumberland Hwy / Herbert Pl / Long St
Day/Date	: Sat, 3 June 2023
Weather	: Fine
Description	: Classified Intersection Count
	: 15 mins Data



MATRIX
Traffic and Transport Data

	Class 1	Class 2	Class 3	Ped Class 1	Ped Class 2
Classification	Lights	Heavies	Cyclists	Peds	Cyclists

Approach	Cumberland Hwy																Herbert Pl															
Direction	Direction 1 (Left Turn)				Direction 2 (Through)				Direction 3 (Right Turn)				Direction 3U (U Turn)				Direction 4 (Left Turn)				Direction 5 (Through)				Direction 6 (Right Turn)				Direction 6U (U Turn)			
Time Period	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total
6:00 to 6:15	19	1	0	**20**	237	20	0	**257**	3	1	0	**4**	0	0	0	**0**	6	0	0	**6**	0	0	0	**0**	3	0	0	**3**	0	0	0	**0**
6:15 to 6:30	14	2	0	**16**	260	40	0	**300**	6	0	0	**6**	0	0	0	**0**	5	0	0	**5**	0	1	0	**1**	2	2	0	**4**	0	0	0	**0**
6:30 to 6:45	11	2	0	**13**	257	43	0	**300**	2	1	0	**3**	0	0	0	**0**	2	1	0	**3**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**
6:45 to 7:00	27	2	0	**29**	240	36	0	**276**	2	0	0	**2**	0	0	0	**0**	2	0	0	**2**	1	0	0	**1**	0	1	0	**1**	0	0	0	**0**
7:00 to 7:15	16	2	0	**18**	212	22	0	**234**	1	0	0	**1**	0	0	0	**0**	1	0	0	**1**	0	0	0	**0**	1	0	0	**1**	0	0	0	**0**
7:15 to 7:30	10	1	0	**11**	254	24	0	**278**	1	0	0	**1**	0	0	0	**0**	3	0	0	**3**	0	0	0	**0**	0	2	0	**2**	0	0	0	**0**
7:30 to 7:45	12	1	0	**13**	252	23	0	**275**	1	1	0	**2**	0	0	0	**0**	1	1	0	**2**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**
7:45 to 8:00	18	1	0	**19**	266	15	0	**281**	0	2	0	**2**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**
8:00 to 8:15	23	5	0	**28**	311	20	0	**331**	0	1	0	**1**	0	0	0	**0**	2	0	0	**2**	1	0	0	**1**	2	0	0	**2**	0	0	0	**0**
8:15 to 8:30	10	2	0	**12**	345	14	0	**359**	0	1	0	**1**	0	0	0	**0**	3	1	0	**4**	0	0	0	**0**	1	1	0	**2**	0	0	0	**0**
8:30 to 8:45	17	4	0	**21**	374	26	0	**400**	0	0	0	**0**	0	0	0	**0**	3	0	0	**3**	1	0	0	**1**	0	0	0	**0**	0	0	0	**0**
8:45 to 9:00	23	2	0	**25**	337	11	0	**348**	1	2	0	**3**	0	0	0	**0**	1	2	0	**3**	0	0	0	**0**	0	1	0	**1**	0	0	0	**0**
9:00 to 9:15	16	3	0	**19**	291	17	0	**308**	0	1	0	**1**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	1	1	0	**2**	0	0	0	**0**
9:15 to 9:30	13	2	0	**15**	320	14	0	**334**	0	2	0	**2**	1	0	0	**1**	0	1	0	**1**	0	0	0	**0**	1	1	0	**2**	0	0	0	**0**
9:30 to 9:45	14	2	0	**16**	331	16	0	**347**	0	0	0	**0**	0	0	0	**0**	1	0	0	**1**	0	0	0	**0**	0	1	0	**1**	0	0	0	**0**
9:45 to 10:00	24	1	0	**25**	289	12	0	**301**	2	0	0	**2**	0	0	0	**0**	1	1	0	**2**	1	1	0	**2**	0	0	0	**0**	0	0	0	**0**
10:00 to 10:15	23	2	0	**25**	345	14	0	**359**	1	2	0	**3**	0	0	0	**0**	1	1	0	**2**	0	0	0	**0**	3	1	0	**4**	0	0	0	**0**
10:15 to 10:30	21	1	0	**22**	315	11	0	**326**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	1	0	**1**	4	0	0	**4**	0	0	0	**0**
10:30 to 10:45	27	4	0	**31**	388	10	0	**398**	3	1	0	**4**	1	0	0	**1**	3	1	0	**4**	0	0	0	**0**	0	2	0	**2**	0	0	0	**0**
10:45 to 11:00	25	2	0	**27**	387	10	0	**397**	2	0	0	**2**	1	0	0	**1**	1	1	0	**2**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**
11:00 to 11:15	12	1	0	**13**	380	13	0	**393**	2	1	0	**3**	0	0	0	**0**	2	0	0	**2**	0	2	0	**2**	1	1	0	**2**	0	0	0	**0**
11:15 to 11:30	16	1	0	**17**	405	8	0	**413**	1	0	0	**1**	0	0	0	**0**	2	1	0	**3**	0	0	0	**0**	2	0	0	**2**	0	0	0	**0**
11:30 to 11:45	33	3	0	**36**	410	8	0	**418**	2	1	0	**3**	0	0	0	**0**	2	1	0	**3**	0	1	0	**1**	0	0	0	**0**	0	0	0	**0**
11:45 to 12:00	23	1	0	**24**	423	14	0	**437**	0	1	0	**1**	1	0	0	**1**	3	0	0	**3**	0	0	0	**0**	1	1	0	**2**	0	0	0	**0**
12:00 to 12:15	12	5	0	**17**	365	10	0	**375**	2	0	0	**2**	1	0	0	**1**	14	0	0	**14**	5	0	0	**5**	4	0	0	**4**	0	0	0	**0**
12:15 to 12:30	24	2	0	**26**	384	16	0	**400**	1	1	0	**2**	0	0	0	**0**	1	0	0	**1**	1	0	0	**1**	2	0	0	**2**	0	0	0	**0**
12:30 to 12:45	14	1	0	**15**	416	11	0	**427**	0	0	0	**0**	1	0	0	**1**	1	0	0	**1**	0	0	0	**0**	3	3	0	**6**	0	0	0	**0**
12:45 to 13:00	19	2	0	**21**	428	4	0	**432**	2	0	0	**2**	0	0	0	**0**	1	0	0	**1**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**
13:00 to 13:15	19	3	0	**22**	449	12	0	**461**	3	0	0	**3**	0	0	0	**0**	3	0	0	**3**	0	0	0	**0**	3	0	0	**3**	0	0	0	**0**
13:15 to 13:30	17	4	0	**21**	418	10	0	**428**	3	1	0	**4**	0	0	0	**0**	3	0	0	**3**	0	0	0	**0**	2	0	0	**2**	0	0	0	**0**
13:30 to 13:45	23	2	0	**25**	431	16	0	**447**	0	0	0	**0**	2	1	0	**3**	1	0	0	**1**	0	0	0	**0**	2	0	0	**2**	0	0	0	**0**
13:45 to 14:00	24	2	0	**26**	423	8	0	**431**	1	0	0	**1**	0	0	0	**0**	2	0	0	**2**	1	0	0	**1**	3	0	0	**3**	0	0	0	**0**
14:00 to 14:15	14	3	0	**17**	436	10	0	**446**	1	0	0	**1**	0	0	0	**0**	6	1	0	**7**	0	0	0	**0**	1	1	0	**2**	0	0	0	**0**
14:15 to 14:30	16	1	0	**17**	378	13	0	**391**	2	0	0	**2**	1	0	0	**1**	0	1	0	**1**	0	0	0	**0**	2	0	0	**2**	0	0	0	**0**
14:30 to 14:45	18	3	0	**21**	410	8	0	**418**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	3	0	0	**3**	0	0	0	**0**
14:45 to 15:00	16	3	0	**19**	437	13	0	**450**	2	0	0	**2**	0	0	0	**0**	7	0	0	**7**	0	0	0	**0**	2	0	0	**2**	0	0	0	**0**
15:00 to 15:15	14	0	0	**14**	376	8	0	**384**	1	0	0	**1**	1	0	0	**1**	2	0	0	**2**	0	0	0	**0**	1	0	0	**1**	0	0	0	**0**
15:15 to 15:30	15	1	0	**16**	409	8	0	**417**	0	1	0	**1**	1	0	0	**1**	2	0	0	**2**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**
15:30 to 15:45	13	0	0	**13**	407	14	0	**421**	0	0	0	**0**	1	0	0	**1**	1	0	0	**1**	0	0	0	**0**	1	1	0	**2**	0	0	0	**0**
15:45 to 16:00	13	3	0	**16**	388	11	0	**399**	1	0	0	**1**	2	0	0	**2**	0	0	0	**0**	1	0	0	**1**	0	0	0	**0**	0	0	0	**0**
16:00 to 16:15	15	2	0	**17**	415	4	0	**419**	1	0	0	**1**	0	0	0	**0**	2	0	0	**2**	0	1	0	**1**	1	1	0	**2**	0	0	0	**0**
16:15 to 16:30	9	0	0	**9**	391	3	0	**394**	0	0	0	**0**	1	0	0	**1**	2	0	0	**2**	0	0	0	**0**	0	1	0	**1**	0	0	0	**0**
16:30 to 16:45	10	2	0	**12**	426	7	0	**433**	3	0	0	**3**	0	0	0	**0**	1	0	0	**1**	0	1	0	**1**	2	0	0	**2**	0	0	0	**0**
16:45 to 17:00	9	0	0	**9**	434	3	0	**437**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**
17:00 to 17:15	8	0	0	**8**	430	6	0	**436**	0	0	0	**0**	1	0	0	**1**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**
17:15 to 17:30	1	0	0	**1**	451	2	0	**453**	2	0	0	**2**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**
17:30 to 17:45	9	3	0	**12**	435	5	0	**440**	3	0	0	**3**	1	0	0	**1**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**
17:45 to 18:00	4	1	0	**5**	383	2	0	**385**	8	0	0	**8**	1	0	0	**1**	3	1	0	**4**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**
18:00 to 18:15	7	0	0	**7**	420	8	0	**428**	1	0	0	**1**	0	0	0	**0**	13	1	0	**14**	0	0	0	**0**	5	0	0	**5**	0	0	0	**0**
18:15 to 18:30	7	2	0	**9**	415	2	0	**417**	1	0	0	**1**	0	0	0	**0**	2	0	0	**2**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**
18:30 to 18:45	7	0	0	**7**	377	3	0	**380**	2	0	0	**2**	0	0	0	**0**	1	0	0	**1**	1	0	0	**1**	0	0	0	**0**	0	0	0	**0**
18:45 to 19:00	5	0	0	**5**	307	2	0	**309**	0	0	0	**0**	0	0	0	**0**	1	0	0	**1**	0	0	0	**0**	2	0	0	**2**	0	0	0	**0**

19:00 to 19:15	13	1	0	14	354	2	0	356	1	0	0	1	0	0	0	0	7	0	0	7	0	0	0	0	1	0	0	1	0	0	0	0
19:15 to 19:30	6	1	0	7	219	1	0	220	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0
19:30 to 19:45	13	0	0	13	279	6	0	285	2	0	0	2	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
19:45 to 20:00	9	0	0	9	244	2	0	246	1	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0
20:00 to 20:15	5	1	0	6	254	3	0	257	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
20:15 to 20:30	5	0	0	5	242	4	0	246	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
20:30 to 20:45	5	0	0	5	238	4	0	242	1	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20:45 to 21:00	5	1	0	6	246	4	0	250	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00 to 21:15	5	0	0	5	231	3	0	234	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
21:15 to 21:30	6	0	0	6	257	2	0	259	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0
21:30 to 21:45	2	0	0	2	231	2	0	233	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:45 to 22:00	3	0	0	3	220	3	0	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16hr Totals	**886**	**97**	**0**	**983**	**22,083**	**696**	**0**	**22,779**	**76**	**21**	**0**	**97**	**20**	**1**	**0**	**21**	**126**	**16**	**0**	**142**	**13**	**9**	**0**	**22**	**65**	**23**	**0**	**88**	**0**	**0**	**0**	**0**

Approach	Cumberland Hwy																Long St															
Direction	Direction 7 (Left Turn)				Direction 8 (Through)				Direction 9 (Right Turn)				Direction 9U (U Turn)				Direction 10 (Left Turn)				Direction 11 (Through)				Direction 12 (Right Turn)				Direction 12U (U Turn)			
Time Period	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total
6:00 to 6:15	2	2	0	4	129	10	0	139	7	1	0	8	0	0	0	0	7	2	0	9	0	1	0	1	27	0	0	27	0	0	0	0
6:15 to 6:30	2	0	0	2	167	9	0	176	5	2	0	7	0	0	0	0	2	0	0	2	0	0	0	0	8	1	0	9	0	0	0	0
6:30 to 6:45	0	0	0	0	174	16	0	190	4	2	0	6	0	0	0	0	3	0	0	3	0	0	0	0	3	1	0	4	0	0	0	0
6:45 to 7:00	0	1	0	1	189	14	0	203	9	2	0	11	0	0	0	0	0	0	0	0	0	0	0	0	7	2	0	9	0	0	0	0
7:00 to 7:15	0	0	0	0	167	19	0	186	12	2	0	14	0	0	0	0	1	2	0	3	0	0	0	0	8	4	0	12	0	0	0	0
7:15 to 7:30	1	0	0	1	193	18	0	211	7	1	0	8	0	0	0	0	2	6	0	8	0	0	0	0	6	4	0	10	0	0	0	0
7:30 to 7:45	1	0	0	1	219	16	0	235	11	5	0	16	0	0	0	0	0	2	0	2	0	0	0	0	7	1	0	8	0	0	0	0
7:45 to 8:00	0	2	0	2	260	17	0	277	10	1	0	11	1	0	0	1	1	3	0	4	0	0	0	0	10	3	0	13	0	0	0	0
8:00 to 8:15	0	0	0	0	194	16	0	210	13	5	0	18	0	0	0	0	3	1	0	4	1	0	0	1	9	0	0	9	0	0	0	0
8:15 to 8:30	0	1	0	1	263	17	0	280	15	3	0	18	0	0	0	0	5	4	0	9	0	0	0	0	24	1	0	25	0	0	0	0
8:30 to 8:45	0	0	0	0	329	15	0	344	14	1	0	15	0	0	0	0	8	3	0	11	0	0	0	0	14	4	0	18	0	0	0	0
8:45 to 9:00	1	0	0	1	327	15	0	342	5	0	0	5	0	0	0	0	4	7	0	11	0	0	0	0	20	0	0	20	0	0	0	0
9:00 to 9:15	0	1	0	1	311	14	0	325	4	5	0	9	0	0	0	0	6	3	0	9	0	0	0	0	14	3	0	17	0	0	0	0
9:15 to 9:30	1	0	0	1	334	20	0	354	6	3	0	9	0	0	0	0	0	3	0	3	0	1	0	1	14	3	0	17	0	0	0	0
9:30 to 9:45	0	2	0	2	390	12	0	402	11	6	0	17	0	0	0	0	6	3	0	9	0	0	0	0	25	5	0	30	0	0	0	0
9:45 to 10:00	0	0	0	0	409	21	0	430	12	7	0	19	0	0	0	0	5	3	0	8	0	0	0	0	22	2	0	24	0	0	0	0
10:00 to 10:15	0	1	0	1	366	10	0	376	19	5	0	24	0	0	0	0	15	5	0	20	0	0	0	0	31	3	0	34	0	0	0	0
10:15 to 10:30	3	1	0	4	381	17	0	398	9	4	0	13	0	0	0	0	7	2	0	9	0	0	0	0	27	2	0	29	0	0	0	0
10:30 to 10:45	0	1	0	1	439	21	0	460	17	0	0	17	0	0	0	0	4	4	0	8	0	0	0	0	18	1	0	19	0	0	0	0
10:45 to 11:00	0	0	0	0	420	8	0	428	9	8	0	17	0	0	0	0	8	2	0	10	0	0	0	0	19	1	0	20	0	0	0	0
11:00 to 11:15	1	1	0	2	442	11	0	453	8	3	0	11	0	1	0	1	7	4	0	11	0	1	0	1	25	6	0	31	0	0	0	0
11:15 to 11:30	0	1	0	1	393	19	0	412	9	3	0	12	0	0	0	0	12	2	0	14	0	0	0	0	26	3	0	29	0	0	0	0
11:30 to 11:45	1	0	0	1	464	31	0	495	9	3	0	12	0	0	0	0	5	2	0	7	0	0	0	0	26	0	0	26	0	0	0	0
11:45 to 12:00	1	0	0	1	474	17	0	491	8	6	0	14	0	0	0	0	3	3	0	6	0	1	0	1	32	0	0	32	0	0	0	0
12:00 to 12:15	0	2	0	2	523	17	0	540	11	4	0	15	0	0	0	0	6	4	0	10	0	0	0	0	69	2	0	71	0	0	0	0
12:15 to 12:30	3	1	0	4	437	16	0	453	6	3	0	9	0	0	0	0	18	2	0	20	0	0	0	0	35	0	0	35	0	0	0	0
12:30 to 12:45	0	0	0	0	493	13	0	506	6	2	0	8	0	0	0	0	5	2	0	7	0	0	0	0	29	2	0	31	0	0	0	0
12:45 to 13:00	1	0	0	1	488	12	0	500	12	4	0	16	0	0	0	0	5	4	0	9	0	0	0	0	30	2	0	32	0	0	0	0
13:00 to 13:15	0	0	0	0	522	21	0	543	9	3	0	12	0	0	0	0	8	3	0	11	0	0	0	0	28	1	0	29	0	0	0	0
13:15 to 13:30	2	0	0	2	503	22	0	525	6	2	0	8	0	0	0	0	6	4	0	10	1	0	0	1	21	0	0	21	0	0	0	0
13:30 to 13:45	3	0	0	3	526	20	0	546	13	6	0	19	0	0	0	0	8	5	0	13	0	0	0	0	18	4	0	22	0	0	0	0
13:45 to 14:00	3	2	0	5	549	15	0	564	4	4	0	8	0	0	0	0	8	1	0	9	1	0	0	1	26	1	0	27	0	0	0	0
14:00 to 14:15	1	0	0	1	499	17	0	516	5	5	0	10	0	0	0	0	5	4	0	9	1	0	0	1	27	1	0	28	0	0	0	0
14:15 to 14:30	1	1	0	2	517	18	0	535	5	4	0	9	0	0	0	0	7	2	0	9	0	0	0	0	30	1	0	31	0	0	0	0
14:30 to 14:45	2	0	0	2	449	18	0	467	7	3	0	10	0	0	0	0	8	1	0	9	0	0	0	0	18	0	0	18	0	0	0	0
14:45 to 15:00	2	0	0	2	509	14	0	523	6	2	0	8	0	0	0	0	2	2	0	4	0	0	0	0	17	2	0	19	0	0	0	0
15:00 to 15:15	0	0	0	0	434	13	0	447	6	2	0	8	0	0	0	0	8	1	0	9	1	0	0	1	22	0	0	22	0	0	0	0
15:15 to 15:30	0	0	0	0	453	14	0	467	7	0	0	7	0	0	0	0	4	0	0	4	0	0	0	0	26	1	0	27	0	0	0	0
15:30 to 15:45	1	0	0	1	472	18	0	490	8	1	0	9	0	0	0	0	5	1	0	6	0	1	0	1	21	0	0	21	0	0	0	0
15:45 to 16:00	1	0	0	1	464	17	0	481	7	1	0	8	0	0	0	0	3	1	0	4	0	0	0	0	18	0	0	18	0	0	0	0
16:00 to 16:15	0	1	0	1	447	11	0	458	4	1	0	5	0	0	0	0	4	1	0	5	0	0	0	0	28	0	0	28	0	0	0	0
16:15 to 16:30	1	0	0	1	476	13	0	489	0	2	0	2	0	0	0	0	6	2	0	8	0	0	0	0	18	2	0	20	0	0	0	0
16:30 to 16:45	0	0	0	0	485	7	0	492	8	1	0	9	0	0	0	0	4	1	0	5	0	0	0	0	25	3	0	28	0	0	0	0
16:45 to 17:00	0	0	0	0	470	7	0	477	1	0	0	1	0	0	0	0	2	0	0	2	0	0	0	0	11	1	0	12	0	0	0	0
17:00 to 17:15	0	0	0	0	504	9	0	513	2	2	0	4	0	0	0	0	1	1	0	2	0	1	0	1	15	1	0	16	0	0	0	0
17:15 to 17:30	0	0	0	0	505	7	0	512	1	0	0	1	0	0	0	0	3	1	0	4	0	0	0	0	13	1	0	14	0	0	0	0
17:30 to 17:45	3	0	0	3	541	7	0	548	1	2	0	3	0	0	0	0	1	0	0	1	0	0	0	0	17	0	0	17	0	0	0	0
17:45 to 18:00	4	1	0	5	495	3	0	498	3	0	0	3	0	0	0	0	3	0	0	3	0	0	0	0	19	0	0	19	0	0	0	0
18:00 to 18:15	1	0	0	1	507	7	0	514	1	0	0	1	0	0	0	0	4	0	0	4	0	0	0	0	6	0	0	6	0	0	0	0
18:15 to 18:30	1	0	0	1	475	6	0	481	1	0	0	1	0	0	0	0	0	1	0	1	0	0	0	0	10	0	0	10	0	0	0	0
18:30 to 18:45	4	0	0	4	427	10	0	437	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	11	0	0	11	0	0	0	0
18:45 to 19:00	0	0	0	0	372	5	0	377	0	1	0	1	0	0	0	0	2	0	0	2	0	1	0	1	8	0	0	8	0	0	0	0
19:00 to 19:15	0	1	0	1	322	2	0	324	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	1	0	10	0	0	0	0

Approach	Crossing Pedestrians																							
Direction	B to A			A to B			D to C			C to D			F to E			E to F			H to G			G to H		
Time Period	Peds	Cyclists	Total	Peds	Cyclists	Total	Peds	Cyclists	Total	Peds	Cyclists	Total	Peds	Cyclists	Total	Peds	Cyclists	Total	Peds	Cyclists	Total	Peds	Cyclists	Total
6:00 to 6:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 to 6:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 to 6:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 to 7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	3	0	3
7:00 to 7:15	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
7:15 to 7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 to 7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 to 8:00	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	1	0	0	0	0	0	0
8:00 to 8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 to 8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 to 8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 to 9:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
9:00 to 9:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 to 9:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 to 9:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
9:45 to 10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 to 10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 to 10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 to 10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 to 11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 to 11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
11:15 to 11:30	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	0
11:30 to 11:45	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	1
11:45 to 12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
12:00 to 12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 to 12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
12:30 to 12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0
12:45 to 13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:00 to 13:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15 to 13:30	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30 to 13:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45 to 14:00	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00 to 14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15 to 14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30 to 14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45 to 15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00 to 15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15 to 15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30 to 15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45 to 16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00 to 16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3
16:15 to 16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30 to 16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45 to 17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00 to 17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15 to 17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30 to 17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45 to 18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00 to 18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
18:15 to 18:30	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	1	0	0	0	0	0	0
18:30 to 18:45	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
18:45 to 19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:00 to 19:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

19:15 to 19:30	0	0	0	**0**	308	1	0	**309**	1	0	0	**1**	0	0	0	**0**	1	0	0	**1**	0	0	0	**0**	6	1	0	**7**	0	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	1	0	**1**	0	0	**0**
19:30 to 19:45	1	0	0	**1**	314	2	0	**316**	1	1	0	**2**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	8	0	0	**8**	0	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
19:45 to 20:00	1	0	0	**1**	288	2	0	**290**	2	0	0	**2**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	5	0	0	**5**	0	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
20:00 to 20:15	0	0	0	**0**	245	1	0	**246**	1	0	0	**1**	0	0	0	**0**	4	0	0	**4**	0	0	0	**0**	9	0	0	**9**	0	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
20:15 to 20:30	1	0	0	**1**	236	3	0	**239**	3	1	0	**4**	0	0	0	**0**	1	0	0	**1**	0	0	0	**0**	1	0	0	**1**	0	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
20:30 to 20:45	0	0	0	**0**	225	3	0	**228**	3	0	0	**3**	0	0	0	**0**	1	0	0	**1**	0	0	0	**0**	1	1	0	**2**	0	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
20:45 to 21:00	0	0	0	**0**	193	8	0	**201**	1	0	0	**1**	0	0	0	**0**	0	1	0	**1**	0	0	0	**0**	10	0	0	**10**	0	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
21:00 to 21:15	0	0	0	**0**	224	1	0	**225**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	4	0	0	**4**	0	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
21:15 to 21:30	1	0	0	**1**	233	1	0	**234**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	6	0	0	**6**	0	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
21:30 to 21:45	0	0	0	**0**	262	0	0	**262**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	4	0	0	**4**	0	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
21:45 to 22:00	1	0	0	**1**	257	4	0	**261**	1	0	0	**1**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	6	0	0	**6**	0	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	1	1	**2**
16hr Totals	**53**	**23**	**0**	**76**	**24,083**	**768**	**0**	**24,851**	**387**	**135**	**0**	**522**	**1**	**1**	**0**	**2**	**257**	**111**	**0**	**368**	**6**	**7**	**0**	**13**	**1,107**	**78**	**0**	**1,185**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	**0**	**1**	**1**	**3**	**2**	**5**	**3**	**0**	**3**	**3**	**0**	**3**	**4**	**1**	**5**	**13**	**1**	**14**

Appendix B – SCATs signal phasing data

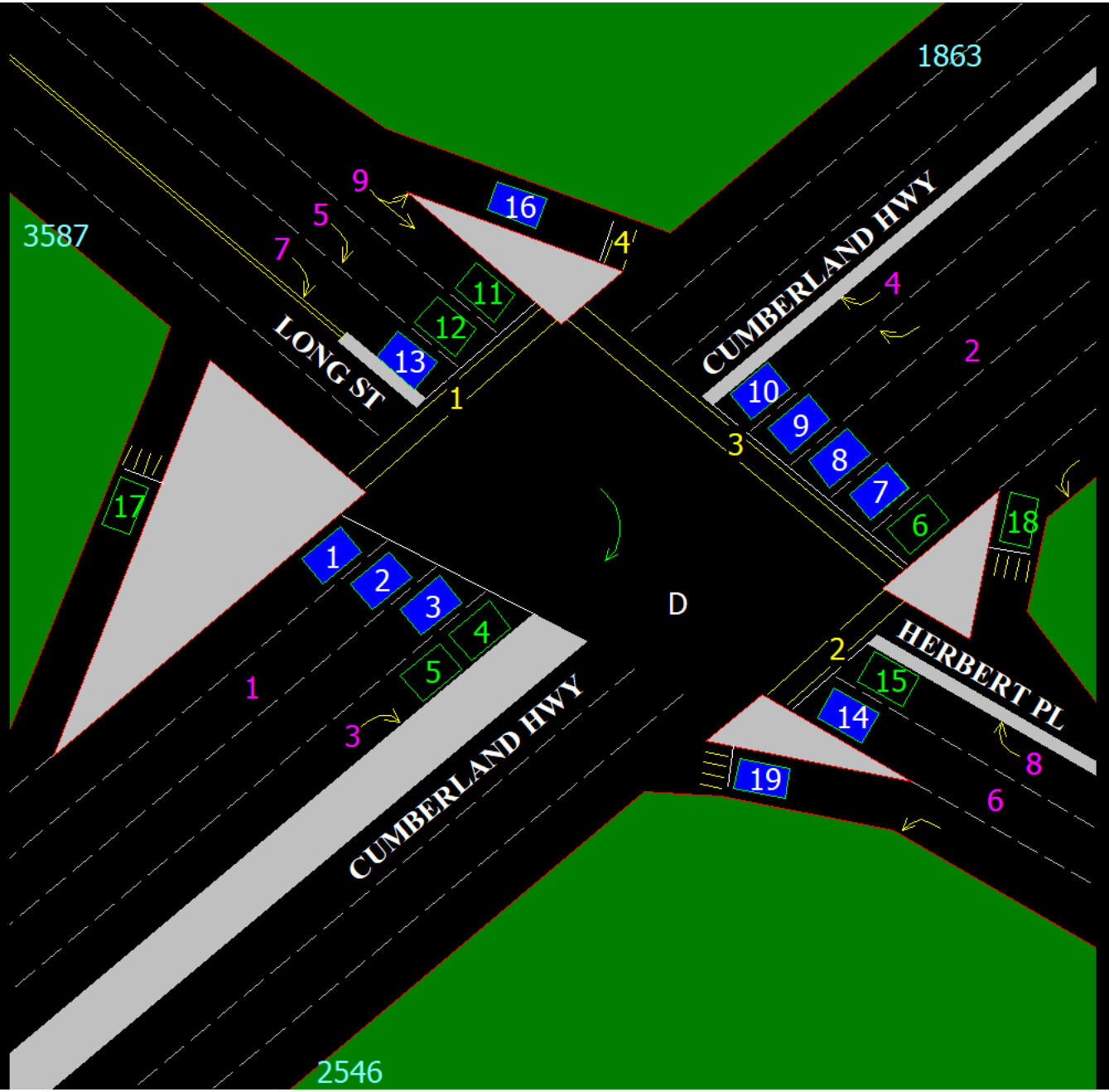
TCS 2427

SMITHFIELD 229M2

FAI SS=27

12 PHASES

A	D1	F2
B	D2	G
C	E	G1
D	F1	G2



Report: Periodic statistics for site 2427

15 minute intervals

From: Thursday, 1 June 2023, 12:00:00 AM AEST

To: Thursday, 1 June 2023, 11:59:59 PM AEST

Thursday, 1 June 2023, 12:00:00 AM AEST to Thursday, 1 June 2023, 12:15:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
Unknown phase	1	35	35	35	35
A phase	9	21	117	61	557
D phase	7	14	18	15	105
G phase	6	14	15	14	88
Nominal cycle length	6	64	75	69	415
Active cycle length	10	60	82	68	686
Actual cycle	11	14	131	71	785
Split plan 2	2	64	139	101	203
Split plan 7	2	133	142	137	275
Signal group 1	8	29	161	68	545
Signal group 2	7	14	174	76	537
Signal group 3	4	8	9	8	35
Signal group 4	3	8	9	8	26
Signal group 5	7	8	12	9	63
Signal group 7	7	8	12	9	63
Signal group 9	9	8	23	10	95
Signal group 13	8	29	161	68	545
Pedestrian movement 4	8	27	158	65	526

Thursday, 1 June 2023, 12:15:00 AM AEST to Thursday, 1 June 2023, 12:30:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	2	172	320	246	492
D phase	2	14	14	14	28
G phase	1	15	15	15	15
Nominal cycle length	3	42	64	53	161
Active cycle length	4	42	61	51	206
Actual cycle	2	187	334	260	521
Split plan 5	1	42	42	42	42
Split plan 6	1	42	42	42	42
Signal group 1	1	500	500	500	500
Signal group 2	2	165	313	239	478
Signal group 3	1	9	9	9	9
Signal group 5	2	8	8	8	16
Signal group 7	2	8	8	8	16
Signal group 9	2	8	8	8	16
Signal group 13	1	500	500	500	500
Pedestrian movement 4	1	498	498	498	498

Thursday, 1 June 2023, 12:30:00 AM AEST to Thursday, 1 June 2023, 12:45:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	10	21	117	68	683
D phase	6	14	15	14	85
E phase	2	13	13	13	26

G phase	3	14	15	14	43
Nominal cycle length	4	42	64	53	212
Active cycle length	5	42	64	52	264
Actual cycle	10	37	131	83	837
Split plan 1	1	176	176	176	176
Split plan 2	2	42	168	105	210
Signal group 1	8	14	125	75	607
Signal group 2	7	16	138	72	504
Signal group 3	1	9	9	9	9
Signal group 4	2	8	8	8	16
Signal group 5	6	6	20	9	59
Signal group 6	3	6	8	6	20
Signal group 7	5	8	9	8	41
Signal group 8	1	8	8	8	8
Signal group 9	8	6	20	9	75
Signal group 13	7	14	163	89	628
Pedestrian movement 4	8	10	161	80	642

Thursday, 1 June 2023, 12:45:00 AM AEST to Thursday, 1 June 2023, 1:00:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	5	16	128	73	367
D phase	3	14	14	14	42
G phase	3	14	16	15	45
Nominal cycle length	2	42	64	53	106
Active cycle length	6	29	64	43	260
Actual cycle	5	30	143	87	438
Split plan 5	1	212	212	212	212
Signal group 1	4	9	121	64	259
Signal group 2	3	73	152	107	323
Signal group 3	1	10	10	10	10
Signal group 4	2	8	9	8	17
Signal group 5	2	8	8	8	16
Signal group 6	1	8	8	8	8
Signal group 7	2	8	8	8	16
Signal group 8	1	8	8	8	8
Signal group 9	4	8	9	8	33
Signal group 13	3	9	98	46	138
Pedestrian movement 4	3	6	96	43	131

Thursday, 1 June 2023, 1:00:00 AM AEST to Thursday, 1 June 2023, 1:15:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	16	155	69	552
D phase	4	14	14	14	56
G phase	5	14	15	14	73
Actual cycle	8	30	169	83	667
Split plan 4	1	42	42	42	42
Signal group 1	5	51	148	103	518
Signal group 2	6	9	159	90	540
Signal group 3	3	8	9	8	25
Signal group 4	2	9	9	9	18
Signal group 5	2	8	8	8	16
Signal group 6	2	8	8	8	16
Signal group 7	2	8	8	8	16

Signal group 8	2	8	8	8	16
Signal group 9	4	8	9	8	34
Signal group 13	3	117	184	149	449
Pedestrian movement 4	3	115	180	147	441

Thursday, 1 June 2023, 1:15:00 AM AEST to Thursday, 1 June 2023, 1:30:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	4	16	213	109	436
D phase	5	14	14	14	70
G phase	1	15	15	15	15
Actual cycle	4	30	227	126	507
Split plan 1	1	84	84	84	84
Split plan 5	1	126	126	126	126
Signal group 1	4	9	206	102	408
Signal group 2	4	12	206	105	423
Signal group 4	1	9	9	9	9
Signal group 5	2	8	8	8	16
Signal group 6	3	8	8	8	24
Signal group 7	2	8	8	8	16
Signal group 8	3	8	8	8	24
Signal group 9	2	8	23	15	31
Signal group 13	1	214	214	214	214
Pedestrian movement 4	1	212	212	212	212

Thursday, 1 June 2023, 1:30:00 AM AEST to Thursday, 1 June 2023, 1:45:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	7	19	240	87	610
D phase	4	14	14	14	56
G phase	4	14	17	15	61
Nominal cycle length	1	64	64	64	64
Active cycle length	1	64	64	64	64
Actual cycle	7	33	254	101	713
Split plan 4	1	51	51	51	51
Signal group 1	4	42	275	157	628
Signal group 2	6	12	233	97	583
Signal group 3	3	8	11	9	28
Signal group 4	1	9	9	9	9
Signal group 5	2	8	8	8	16
Signal group 6	2	8	8	8	16
Signal group 7	2	8	8	8	16
Signal group 8	2	8	8	8	16
Signal group 9	3	8	9	8	25
Signal group 13	2	136	238	187	374
Pedestrian movement 4	2	134	236	185	370

Thursday, 1 June 2023, 1:45:00 AM AEST to Thursday, 1 June 2023, 2:00:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	7	20	154	62	439
D phase	3	14	17	15	45
E phase	1	13	13	13	13
G phase	4	14	14	14	56
Nominal cycle length	1	42	42	42	42

Active cycle length	3	40	42	41	124
Actual cycle	7	34	168	77	539
Split plan 1	2	210	294	252	504
Split plan 4	1	126	126	126	126
Split plan 5	2	7	84	45	91
Signal group 1	7	13	147	55	390
Signal group 2	4	56	231	102	410
Signal group 3	1	8	8	8	8
Signal group 4	4	8	8	8	32
Signal group 5	4	6	11	8	33
Signal group 6	1	6	6	6	6
Signal group 7	3	8	11	9	27
Signal group 9	8	6	11	8	65
Signal group 13	7	13	147	55	390
Pedestrian movement 4	7	9	144	53	373

Thursday, 1 June 2023, 2:00:00 AM AEST to Thursday, 1 June 2023, 2:15:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	19	153	69	553
D phase	5	14	14	14	70
E phase	1	12	12	12	12
G phase	4	14	15	14	58
Actual cycle	8	33	181	85	681
Split plan 1	1	504	504	504	504
Split plan 2	1	42	42	42	42
Split plan 4	1	42	42	42	42
Signal group 1	8	12	146	62	497
Signal group 2	5	21	197	115	576
Signal group 4	4	8	9	8	35
Signal group 5	5	5	8	7	37
Signal group 6	2	5	8	6	13
Signal group 7	4	8	8	8	32
Signal group 8	1	8	8	8	8
Signal group 9	8	5	23	9	78
Signal group 13	7	12	146	73	517
Pedestrian movement 4	7	8	144	71	500

Thursday, 1 June 2023, 2:15:00 AM AEST to Thursday, 1 June 2023, 2:30:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	28	201	104	625
D phase	3	14	15	14	43
E phase	1	14	14	14	14
G phase	3	14	14	14	42
Actual cycle	6	42	215	118	710
Split plan 1	2	42	84	63	126
Split plan 5	2	168	462	315	630
Signal group 1	5	21	195	120	604
Signal group 2	4	25	311	156	625
Signal group 3	1	8	8	8	8
Signal group 4	2	8	8	8	16
Signal group 5	3	7	8	7	23
Signal group 6	1	7	7	7	7
Signal group 7	3	8	9	8	25

Signal group 8	1	9	9	9	9
Signal group 9	5	7	8	7	39
Signal group 13	4	21	195	127	508
Pedestrian movement 4	4	19	194	125	501

Thursday, 1 June 2023, 2:30:00 AM AEST to Thursday, 1 June 2023, 2:45:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	5	65	192	107	537
D phase	4	14	14	14	56
E phase	2	12	13	12	25
G phase	1	14	14	14	14
Actual cycle	5	79	220	123	619
Split plan 1	2	84	336	210	420
Split plan 2	2	84	84	84	168
Split plan 5	2	42	42	42	84
Split plan 6	1	42	42	42	42
Split plan 7	2	42	42	42	84
Split plan 8	1	84	84	84	84
Signal group 1	5	58	185	103	516
Signal group 2	5	58	185	100	502
Signal group 3	1	8	8	8	8
Signal group 5	3	5	8	6	19
Signal group 6	5	5	8	7	35
Signal group 7	1	8	8	8	8
Signal group 8	3	8	8	8	24
Signal group 9	3	5	8	6	19
Signal group 13	2	235	264	249	499
Pedestrian movement 4	2	233	264	248	497

Thursday, 1 June 2023, 2:45:00 AM AEST to Thursday, 1 June 2023, 3:00:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	4	26	288	148	594
D phase	3	14	14	14	42
G phase	4	14	20	15	63
Nominal cycle length	2	42	64	53	106
Active cycle length	4	29	64	44	177
Actual cycle	4	54	317	169	679
Split plan 1	1	326	326	326	326
Split plan 2	1	126	126	126	126
Split plan 6	1	148	148	148	148
Signal group 1	3	19	281	161	483
Signal group 2	3	19	295	200	601
Signal group 3	2	9	14	11	23
Signal group 4	2	8	8	8	16
Signal group 5	1	8	8	8	8
Signal group 6	2	8	8	8	16
Signal group 7	1	8	8	8	8
Signal group 8	2	8	8	8	16
Signal group 9	3	8	8	8	24
Signal group 13	2	34	183	108	217
Pedestrian movement 4	2	32	180	106	212

Thursday, 1 June 2023, 3:00:00 AM AEST to Thursday, 1 June 2023, 3:15:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	9	16	220	82	739
D phase	2	14	14	14	28
E phase	1	13	13	13	13
G phase	7	14	15	14	99
Nominal cycle length	2	42	64	53	106
Active cycle length	2	42	64	53	106
Actual cycle	9	29	234	96	865
Split plan 1	3	42	210	126	378
Split plan 2	1	42	42	42	42
Split plan 4	1	50	50	50	50
Split plan 5	3	84	128	112	338
Split plan 6	1	42	42	42	42
Signal group 1	4	9	302	195	782
Signal group 2	7	9	239	97	679
Signal group 3	5	8	9	8	41
Signal group 4	2	8	8	8	16
Signal group 5	2	5	8	6	13
Signal group 6	2	5	8	6	13
Signal group 7	1	8	8	8	8
Signal group 8	1	8	8	8	8
Signal group 9	4	5	8	7	29
Signal group 13	3	197	332	267	803
Pedestrian movement 4	3	195	328	265	797

Thursday, 1 June 2023, 3:15:00 AM AEST to Thursday, 1 June 2023, 3:30:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	10	18	112	48	486
D phase	4	14	16	14	59
G phase	7	14	15	14	99
Nominal cycle length	1	64	64	64	64
Active cycle length	3	42	64	51	154
Actual cycle	10	32	128	63	630
Split plan 1	4	42	84	52	210
Split plan 4	2	84	126	105	210
Split plan 5	4	42	140	77	308
Signal group 1	7	29	105	57	404
Signal group 2	7	11	152	58	406
Signal group 3	4	8	9	8	33
Signal group 4	4	8	8	8	32
Signal group 5	2	9	10	9	19
Signal group 6	2	8	8	8	16
Signal group 7	2	9	10	9	19
Signal group 8	2	8	8	8	16
Signal group 9	6	8	10	8	51
Signal group 13	5	32	225	89	446
Pedestrian movement 4	6	28	222	97	583

Thursday, 1 June 2023, 3:30:00 AM AEST to Thursday, 1 June 2023, 3:45:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	11	20	108	55	609

D phase	2	14	14	14	28
G phase	10	14	17	14	146
Nominal cycle length	5	42	70	61	308
Active cycle length	9	42	70	57	514
Actual cycle	11	34	122	69	769
Split plan 4	3	93	151	127	381
Split plan 5	4	42	202	98	392
Signal group 1	4	13	291	134	539
Signal group 2	9	20	159	64	577
Signal group 3	8	8	9	8	67
Signal group 4	3	8	11	9	28
Signal group 5	1	8	8	8	8
Signal group 6	1	8	8	8	8
Signal group 7	1	8	8	8	8
Signal group 8	1	8	8	8	8
Signal group 9	4	8	11	9	36
Signal group 13	3	39	291	186	560
Pedestrian movement 4	3	35	289	183	551

Thursday, 1 June 2023, 3:45:00 AM AEST to Thursday, 1 June 2023, 4:00:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	13	16	141	42	548
D phase	6	14	18	15	90
E phase	1	12	12	12	12
G phase	10	14	16	14	147
Nominal cycle length	3	42	64	49	148
Active cycle length	7	30	64	45	320
Actual cycle	13	32	155	60	783
Split plan 1	2	106	126	116	232
Split plan 4	1	136	136	136	136
Split plan 5	1	170	170	170	170
Signal group 1	10	13	203	53	536
Signal group 2	11	9	134	41	451
Signal group 3	6	8	9	8	50
Signal group 4	6	8	10	8	53
Signal group 5	3	5	12	8	25
Signal group 6	5	5	10	7	39
Signal group 7	2	8	12	10	20
Signal group 8	4	8	10	8	34
Signal group 9	8	5	28	10	84
Signal group 13	7	14	203	88	616
Pedestrian movement 4	7	12	201	85	601

Thursday, 1 June 2023, 4:00:00 AM AEST to Thursday, 1 June 2023, 4:15:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	14	17	79	41	584
D phase	7	14	19	15	108
E phase	3	12	12	12	36
G phase	8	14	15	14	117
Nominal cycle length	1	64	64	64	64
Active cycle length	4	42	64	56	226
Actual cycle	13	29	93	59	774
Split plan 1	2	84	303	193	387

Split plan 4	2	42	84	63	126
Split plan 5	1	128	128	128	128
Signal group 1	13	13	72	36	475
Signal group 2	11	10	147	54	595
Signal group 3	2	8	9	8	17
Signal group 4	6	8	9	8	52
Signal group 5	4	5	12	6	27
Signal group 6	10	5	13	7	77
Signal group 7	1	12	12	12	12
Signal group 8	7	8	13	8	62
Signal group 9	9	5	21	9	86
Signal group 13	8	19	193	68	545
Pedestrian movement 4	8	16	190	65	527

Thursday, 1 June 2023, 4:15:00 AM AEST to Thursday, 1 June 2023, 4:30:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	16	244	85	687
D phase	3	14	20	16	50
E phase	1	36	36	36	36
G phase	5	14	15	14	71
Nominal cycle length	8	73	99	85	683
Active cycle length	11	63	109	79	879
Actual cycle	8	45	258	105	844
Split plan 2	1	99	99	99	99
Split plan 3	1	80	80	80	80
Split plan 5	1	97	97	97	97
Split plan 6	1	256	256	256	256
Signal group 1	6	9	237	112	674
Signal group 2	6	9	413	114	689
Signal group 3	2	8	8	8	16
Signal group 4	3	8	9	8	25
Signal group 5	1	29	29	29	29
Signal group 6	3	8	29	17	51
Signal group 7	1	10	10	10	10
Signal group 8	3	8	14	10	32
Signal group 9	4	8	29	13	54
Signal group 12	1	6	6	6	6
Signal group 13	3	24	237	152	458
Pedestrian movement 3	1	6	6	6	6
Pedestrian movement 4	3	24	234	150	452

Thursday, 1 June 2023, 4:30:00 AM AEST to Thursday, 1 June 2023, 4:45:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	41	186	89	712
D phase	5	14	15	14	71
E phase	1	12	12	12	12
G phase	6	14	16	14	88
Nominal cycle length	6	67	72	70	422
Active cycle length	8	68	73	70	564
Actual cycle	8	55	216	108	869
Signal group 1	8	34	179	82	656
Signal group 2	5	34	195	144	721
Signal group 3	3	8	9	8	25

Signal group 4	5	8	10	8	43
Signal group 5	4	5	9	7	30
Signal group 6	3	5	8	7	21
Signal group 7	3	8	9	8	25
Signal group 8	2	8	8	8	16
Signal group 9	7	5	24	12	85
Signal group 13	6	40	179	91	551
Pedestrian movement 4	6	37	177	89	534

Thursday, 1 June 2023, 4:45:00 AM AEST to Thursday, 1 June 2023, 5:00:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	12	36	64	51	614
D phase	6	14	14	14	84
E phase	3	12	13	12	37
G phase	8	14	18	15	123
Nominal cycle length	10	70	85	73	731
Active cycle length	10	70	81	72	727
Actual cycle	12	54	89	70	843
Split plan 5	1	72	72	72	72
Split plan 6	2	141	215	178	356
Split plan 7	1	144	144	144	144
Signal group 1	11	29	115	51	565
Signal group 2	10	29	170	59	592
Signal group 3	5	8	10	8	43
Signal group 4	6	8	12	9	59
Signal group 5	4	5	8	6	24
Signal group 6	7	5	8	6	48
Signal group 7	2	8	8	8	16
Signal group 8	5	8	8	8	40
Signal group 9	9	5	24	10	90
Signal group 13	8	35	118	73	587
Pedestrian movement 4	8	33	114	71	568

Thursday, 1 June 2023, 5:00:00 AM AEST to Thursday, 1 June 2023, 5:15:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	10	41	69	54	546
C phase	3	13	13	13	39
D phase	8	14	17	14	116
E phase	1	13	13	13	13
G phase	7	14	17	14	104
Nominal cycle length	10	70	100	82	824
Active cycle length	8	70	96	81	648
Actual cycle	9	68	99	79	719
Split plan 2	2	71	79	75	150
Split plan 3	1	70	70	70	70
Split plan 5	4	70	164	100	401
Split plan 6	1	86	86	86	86
Signal group 1	9	36	109	56	511
Signal group 2	9	41	68	55	501
Signal group 3	3	8	8	8	24
Signal group 4	8	6	11	8	64
Signal group 5	5	6	8	7	38
Signal group 6	2	8	20	14	28

Signal group 7	6	8	11	8	52
Signal group 8	4	8	11	9	36
Signal group 9	8	6	24	16	135
Signal group 13	8	37	126	72	580
Pedestrian movement 4	8	34	126	70	561

Thursday, 1 June 2023, 5:15:00 AM AEST to Thursday, 1 June 2023, 5:30:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	7	63	101	80	563
B phase	1	13	13	13	13
D phase	6	14	23	17	104
E phase	1	12	12	12	12
G phase	7	14	20	15	108
Nominal cycle length	8	110	127	118	944
Active cycle length	8	107	125	117	939
Actual cycle	7	96	130	114	800
Split plan 4	1	127	127	127	127
Split plan 5	2	119	240	179	359
Signal group 1	7	56	114	83	581
Signal group 2	7	59	94	77	543
Signal group 3	6	6	14	9	54
Signal group 4	4	8	11	9	36
Signal group 5	5	5	10	8	40
Signal group 6	1	5	5	5	5
Signal group 7	6	8	17	11	68
Signal group 8	2	16	17	16	33
Signal group 9	6	8	23	15	95
Signal group 13	6	56	200	105	634
Pedestrian movement 4	6	53	198	103	621

Thursday, 1 June 2023, 5:30:00 AM AEST to Thursday, 1 June 2023, 5:45:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	60	101	74	449
B phase	6	14	20	17	104
D phase	7	14	21	16	117
E phase	3	12	12	12	36
G phase	6	15	32	22	134
Nominal cycle length	4	120	140	128	515
Active cycle length	4	120	140	127	510
Actual cycle	6	108	160	131	791
Split plan 8	1	280	280	280	280
Signal group 1	6	69	113	87	524
Signal group 2	6	59	95	78	471
Signal group 3	8	7	26	12	96
Signal group 4	6	9	19	14	85
Signal group 5	4	12	22	18	73
Signal group 6	4	5	9	6	24
Signal group 7	6	8	15	11	66
Signal group 8	3	9	15	11	35
Signal group 9	7	9	44	25	179
Signal group 13	6	69	129	93	561
Pedestrian movement 4	6	66	127	90	543

Thursday, 1 June 2023, 5:45:00 AM AEST to Thursday, 1 June 2023, 6:00:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	79	111	94	567
B phase	1	25	25	25	25
D phase	5	14	19	15	79
E phase	3	12	14	12	38
G phase	6	17	29	23	140
Actual cycle	5	127	156	137	689
Signal group 1	6	72	109	95	571
Signal group 2	6	81	104	89	539
Signal group 3	8	8	23	15	121
Signal group 4	6	10	19	13	78
Signal group 5	5	5	19	10	52
Signal group 6	3	5	7	5	17
Signal group 7	5	8	13	9	48
Signal group 8	2	9	11	10	20
Signal group 9	6	11	39	27	163
Signal group 13	5	72	114	99	496
Pedestrian movement 4	5	68	112	96	484

Thursday, 1 June 2023, 6:00:00 AM AEST to Thursday, 1 June 2023, 6:15:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	59	102	78	469
B phase	3	20	22	20	62
D phase	7	15	22	19	133
E phase	4	12	33	17	69
G phase	7	14	21	17	124
Actual cycle	6	102	169	135	813
Split plan 5	1	280	280	280	280
Signal group 1	6	52	95	81	489
Signal group 2	6	66	110	83	502
Signal group 3	5	8	15	11	57
Signal group 4	7	8	15	11	82
Signal group 5	5	5	31	12	62
Signal group 6	4	5	26	10	41
Signal group 7	7	9	16	13	91
Signal group 8	6	9	16	11	70
Signal group 9	7	15	45	25	177
Signal group 10	1	6	6	6	6
Signal group 12	1	7	7	7	7
Signal group 13	6	75	111	97	585
Pedestrian movement 1	1	3	3	3	3
Pedestrian movement 3	1	6	6	6	6
Pedestrian movement 4	6	71	108	94	566

Thursday, 1 June 2023, 6:15:00 AM AEST to Thursday, 1 June 2023, 6:30:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	5	79	105	97	489
C phase	2	13	15	14	28
D phase	6	15	20	17	102
E phase	2	12	12	12	24

G phase	6	14	22	17	105
Nominal cycle length	2	138	140	139	278
Active cycle length	2	138	140	139	278
Actual cycle	5	113	167	142	711
Signal group 1	5	72	112	93	468
Signal group 2	5	76	111	98	493
Signal group 3	6	8	12	9	56
Signal group 4	7	6	16	10	74
Signal group 5	4	5	20	11	46
Signal group 6	3	5	13	7	23
Signal group 7	5	9	14	10	53
Signal group 8	3	8	14	11	35
Signal group 9	7	6	38	21	147
Signal group 13	6	8	114	82	495
Pedestrian movement 4	6	8	113	80	485

Thursday, 1 June 2023, 6:30:00 AM AEST to Thursday, 1 June 2023, 6:45:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	55	111	91	548
C phase	5	13	14	13	67
D phase	7	16	19	17	124
E phase	2	12	37	24	49
G phase	6	15	20	16	96
Actual cycle	6	107	175	141	850
Signal group 1	6	63	104	89	536
Signal group 2	6	62	117	100	603
Signal group 3	4	9	13	10	40
Signal group 4	9	6	14	8	74
Signal group 5	4	5	30	14	57
Signal group 6	2	5	30	17	35
Signal group 7	7	10	13	11	81
Signal group 8	5	11	13	12	60
Signal group 9	10	6	32	15	151
Signal group 10	1	6	6	6	6
Signal group 12	1	6	6	6	6
Signal group 13	9	11	119	65	588
Pedestrian movement 1	1	6	6	6	6
Pedestrian movement 3	1	5	5	5	5
Pedestrian movement 4	9	11	119	64	579

Thursday, 1 June 2023, 6:45:00 AM AEST to Thursday, 1 June 2023, 7:00:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	5	77	102	89	448
D phase	6	15	20	17	104
E phase	2	13	36	24	49
G phase	6	15	28	22	137
Actual cycle	5	121	153	137	688
Signal group 1	5	70	95	82	413
Signal group 2	5	70	100	88	441
Signal group 3	6	8	17	11	66
Signal group 4	6	9	22	16	101
Signal group 5	4	6	29	15	63
Signal group 6	2	6	29	17	35

Signal group 7	6	8	14	11	68
Signal group 8	4	8	13	10	40
Signal group 9	6	21	45	31	190
Signal group 12	1	6	6	6	6
Signal group 13	5	70	115	93	465
Pedestrian movement 3	1	4	4	4	4
Pedestrian movement 4	5	68	112	89	449

Thursday, 1 June 2023, 7:00:00 AM AEST to Thursday, 1 June 2023, 7:15:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	79	125	92	553
C phase	1	18	18	18	18
D phase	6	15	26	19	119
E phase	3	12	13	12	37
G phase	6	18	24	21	127
Actual cycle	5	124	158	136	682
Signal group 1	6	72	118	86	517
Signal group 2	6	75	122	87	524
Signal group 3	7	8	18	12	86
Signal group 4	8	11	16	13	107
Signal group 5	5	5	22	12	63
Signal group 6	3	5	6	5	16
Signal group 7	6	9	20	13	83
Signal group 8	3	8	19	13	41
Signal group 9	8	11	45	25	203
Signal group 10	1	6	6	6	6
Signal group 13	7	19	118	81	570
Pedestrian movement 1	1	3	3	3	3
Pedestrian movement 4	7	19	115	79	556

Thursday, 1 June 2023, 7:15:00 AM AEST to Thursday, 1 June 2023, 7:30:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	91	103	95	575
C phase	2	15	17	16	32
D phase	6	17	27	20	124
E phase	1	12	12	12	12
G phase	6	15	25	19	118
Actual cycle	6	134	150	143	861
Signal group 1	6	84	96	89	536
Signal group 2	5	85	112	102	510
Signal group 3	4	8	12	9	38
Signal group 4	8	8	19	12	96
Signal group 5	2	13	22	17	35
Signal group 6	1	5	5	5	5
Signal group 7	6	11	21	14	88
Signal group 8	4	11	21	16	64
Signal group 9	7	8	43	21	151
Signal group 13	7	15	123	88	621
Pedestrian movement 4	7	15	120	86	602

Thursday, 1 June 2023, 7:30:00 AM AEST to Thursday, 1 June 2023, 7:45:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total

A phase	5	79	101	90	453
C phase	2	12	18	15	30
D phase	6	14	24	17	102
E phase	3	12	13	12	38
G phase	6	15	22	18	110
Actual cycle	5	124	154	138	694
Signal group 1	6	74	102	90	542
Signal group 2	6	72	112	95	571
Signal group 3	5	9	16	12	60
Signal group 4	7	6	16	10	74
Signal group 5	4	6	19	9	39
Signal group 6	3	5	6	5	17
Signal group 7	6	8	18	11	66
Signal group 8	4	9	18	12	49
Signal group 9	8	6	36	16	133
Signal group 13	7	9	117	69	483
Pedestrian movement 4	7	7	114	67	469

Thursday, 1 June 2023, 7:45:00 AM AEST to Thursday, 1 June 2023, 8:00:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	76	103	94	565
C phase	3	17	18	17	53
D phase	7	14	25	19	139
G phase	6	14	25	18	113
Actual cycle	6	127	152	137	827
Signal group 1	6	69	96	87	523
Signal group 2	6	87	123	102	615
Signal group 3	5	8	10	8	44
Signal group 4	8	8	19	12	99
Signal group 5	5	8	19	12	63
Signal group 7	7	8	19	13	97
Signal group 8	2	17	17	17	34
Signal group 9	7	10	51	28	200
Signal group 13	6	69	111	91	546
Pedestrian movement 4	6	67	111	89	535

Thursday, 1 June 2023, 8:00:00 AM AEST to Thursday, 1 June 2023, 8:15:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	5	84	108	96	481
C phase	3	13	17	15	45
D phase	6	15	22	17	106
E phase	3	12	12	12	36
G phase	5	15	22	18	94
Actual cycle	5	130	155	143	719
Signal group 1	6	70	101	86	516
Signal group 2	5	92	123	108	542
Signal group 3	2	9	9	9	18
Signal group 4	8	6	16	11	88
Signal group 5	4	9	22	15	61
Signal group 6	3	5	5	5	15
Signal group 7	6	9	16	11	70
Signal group 8	3	9	16	12	36
Signal group 9	7	8	41	26	183

Signal group 13	7	9	117	80	566
Pedestrian movement 4	7	9	114	79	553

Thursday, 1 June 2023, 8:15:00 AM AEST to Thursday, 1 June 2023, 8:30:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	85	105	92	556
C phase	3	13	20	16	50
D phase	7	16	28	20	144
E phase	4	12	13	12	50
G phase	5	14	21	17	88
Actual cycle	6	129	160	140	843
Signal group 1	6	78	98	88	530
Signal group 2	6	86	107	95	575
Signal group 3	4	8	12	9	38
Signal group 4	7	6	15	11	77
Signal group 5	6	5	27	11	71
Signal group 6	4	5	6	5	23
Signal group 7	7	10	22	14	102
Signal group 8	5	8	16	10	54
Signal group 9	8	5	49	22	181
Signal group 13	7	14	105	84	589
Pedestrian movement 4	7	14	101	82	575

Thursday, 1 June 2023, 8:30:00 AM AEST to Thursday, 1 June 2023, 8:45:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	5	73	96	83	418
C phase	5	17	22	19	99
D phase	6	15	25	19	119
E phase	1	12	12	12	12
G phase	5	14	22	18	91
Actual cycle	5	117	150	138	690
Split plan 3	2	140	420	280	560
Split plan 7	1	140	140	140	140
Signal group 1	5	68	93	81	405
Signal group 2	5	88	118	99	499
Signal group 3	3	8	16	10	32
Signal group 4	9	8	15	12	109
Signal group 5	5	9	20	15	78
Signal group 6	1	5	5	5	5
Signal group 7	6	9	19	13	83
Signal group 8	1	16	16	16	16
Signal group 9	6	15	58	40	240
Signal group 13	5	68	111	85	427
Pedestrian movement 4	5	65	111	83	417

Thursday, 1 June 2023, 8:45:00 AM AEST to Thursday, 1 June 2023, 9:00:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	5	85	154	108	543
C phase	2	15	15	15	30
D phase	6	15	29	21	129
E phase	2	12	12	12	24
G phase	6	14	33	20	125

Active cycle length	2	140	188	164	328
Actual cycle	5	116	215	158	794
Signal group 1	5	78	147	101	508
Signal group 2	5	78	195	117	588
Signal group 3	5	8	10	8	44
Signal group 4	7	8	27	13	97
Signal group 5	6	8	25	16	101
Signal group 6	2	5	5	5	10
Signal group 7	6	9	23	15	93
Signal group 8	1	8	8	8	8
Signal group 9	7	8	56	33	236
Signal group 13	6	8	147	85	515
Pedestrian movement 4	6	8	143	83	501

Thursday, 1 June 2023, 9:00:00 AM AEST to Thursday, 1 June 2023, 9:15:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	5	70	145	96	483
C phase	3	16	18	17	52
D phase	6	15	29	21	129
E phase	3	12	13	12	37
G phase	5	14	38	23	119
Active cycle length	5	140	185	157	789
Actual cycle	5	120	217	155	775
Split plan 3	1	280	280	280	280
Split plan 6	1	140	140	140	140
Split plan 7	1	140	140	140	140
Signal group 1	5	63	138	92	462
Signal group 2	5	86	141	101	508
Signal group 3	5	8	11	8	44
Signal group 4	7	9	32	16	112
Signal group 5	6	11	23	18	111
Signal group 6	3	5	6	5	16
Signal group 7	6	9	23	15	93
Signal group 8	1	10	10	10	10
Signal group 9	6	30	61	45	271
Signal group 13	5	63	155	95	478
Pedestrian movement 4	5	60	152	93	466

Thursday, 1 June 2023, 9:15:00 AM AEST to Thursday, 1 June 2023, 9:30:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	5	84	143	112	560
B phase	2	13	13	13	26
D phase	6	17	26	21	131
E phase	2	12	12	12	24
G phase	5	16	28	21	108
Active cycle length	3	140	192	173	520
Actual cycle	4	134	192	153	613
Signal group 1	5	77	149	110	551
Signal group 2	5	97	158	120	601
Signal group 3	4	6	10	7	31
Signal group 4	5	10	22	15	78
Signal group 5	3	5	20	11	34
Signal group 6	2	5	5	5	10

Signal group 7	6	11	20	15	95
Signal group 8	5	8	20	13	69
Signal group 9	5	13	36	24	120
Signal group 13	5	92	165	125	627
Pedestrian movement 4	5	89	163	122	611

Thursday, 1 June 2023, 9:30:00 AM AEST to Thursday, 1 June 2023, 9:45:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	7	68	102	85	595
C phase	2	18	21	19	39
D phase	6	14	35	22	136
E phase	2	12	13	12	25
G phase	5	15	25	18	90
Actual cycle	6	109	152	132	794
Signal group 1	7	61	95	78	546
Signal group 2	6	61	120	91	547
Signal group 3	3	8	8	8	24
Signal group 4	7	9	19	12	85
Signal group 5	3	6	29	20	60
Signal group 6	2	5	6	5	11
Signal group 7	6	8	29	16	100
Signal group 8	4	8	20	14	56
Signal group 9	8	6	46	19	158
Signal group 10	2	6	6	6	12
Signal group 12	1	6	6	6	6
Signal group 13	9	8	95	68	616
Pedestrian movement 1	2	3	4	3	7
Pedestrian movement 3	1	6	6	6	6
Pedestrian movement 4	9	8	91	66	600

Thursday, 1 June 2023, 9:45:00 AM AEST to Thursday, 1 June 2023, 10:00:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	85	101	92	555
C phase	4	15	21	18	73
D phase	7	15	32	21	151
E phase	1	12	12	12	12
G phase	4	14	26	20	81
Active cycle length	2	140	148	144	288
Actual cycle	5	131	153	141	705
Split plan 3	1	420	420	420	420
Split plan 7	1	140	140	140	140
Signal group 1	6	78	98	88	531
Signal group 2	6	92	117	105	631
Signal group 3	3	9	12	11	33
Signal group 4	8	8	20	12	102
Signal group 5	5	9	26	15	79
Signal group 6	1	5	5	5	5
Signal group 7	7	9	26	15	109
Signal group 8	3	9	16	11	35
Signal group 9	6	13	59	34	208
Signal group 13	6	87	113	97	586
Pedestrian movement 4	6	85	113	95	571

Thursday, 1 June 2023, 10:00:00 AM AEST to Thursday, 1 June 2023, 10:15:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	68	112	85	514
C phase	3	15	18	17	51
D phase	6	17	28	22	133
E phase	1	12	12	12	12
G phase	5	15	34	21	105
Actual cycle	6	103	174	135	815
Split plan 3	2	140	140	140	280
Split plan 7	1	280	280	280	280
Signal group 1	6	61	105	79	476
Signal group 2	6	64	109	90	545
Signal group 3	5	8	13	10	51
Signal group 4	8	8	28	12	101
Signal group 5	3	8	17	13	41
Signal group 6	1	5	5	5	5
Signal group 7	6	11	22	16	97
Signal group 8	4	11	22	15	61
Signal group 9	7	8	49	24	169
Signal group 13	7	16	134	79	558
Pedestrian movement 4	7	16	130	77	541

Thursday, 1 June 2023, 10:15:00 AM AEST to Thursday, 1 June 2023, 10:30:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	68	98	84	507
C phase	3	15	17	15	47
D phase	7	15	32	20	142
E phase	4	12	13	12	49
G phase	6	15	22	18	109
Nominal cycle length	2	138	140	139	278
Active cycle length	3	132	140	136	410
Actual cycle	5	115	156	135	678
Signal group 1	6	61	91	80	480
Signal group 2	6	69	107	90	545
Signal group 3	6	8	18	10	64
Signal group 4	9	8	19	12	109
Signal group 5	6	5	22	13	80
Signal group 6	4	5	6	5	21
Signal group 7	7	9	26	14	100
Signal group 8	3	11	26	17	53
Signal group 9	9	6	46	25	229
Signal group 13	8	16	103	67	540
Pedestrian movement 4	8	16	100	66	528

Thursday, 1 June 2023, 10:30:00 AM AEST to Thursday, 1 June 2023, 10:45:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	77	106	92	552
C phase	5	13	18	16	82
D phase	6	16	20	18	108
E phase	2	12	13	12	25
G phase	4	15	31	20	80

Nominal cycle length	2	139	140	139	279
Active cycle length	2	139	140	139	279
Actual cycle	6	107	154	141	847
Signal group 1	6	70	104	87	525
Signal group 2	6	83	131	103	623
Signal group 3	2	9	9	9	18
Signal group 4	8	6	25	11	94
Signal group 5	4	6	12	10	40
Signal group 6	2	5	6	5	11
Signal group 7	6	10	14	12	72
Signal group 8	4	8	14	10	43
Signal group 9	9	6	27	17	155
Signal group 13	9	8	105	63	574
Pedestrian movement 4	9	8	103	62	563

Thursday, 1 June 2023, 10:45:00 AM AEST to Thursday, 1 June 2023, 11:00:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	65	108	88	533
C phase	4	15	21	17	69
D phase	6	15	28	20	123
E phase	3	12	13	12	37
G phase	6	14	24	17	105
Actual cycle	5	123	160	140	704
Signal group 1	6	58	101	84	506
Signal group 2	6	73	113	95	572
Signal group 3	5	8	9	8	42
Signal group 4	9	8	18	11	100
Signal group 5	3	5	13	8	24
Signal group 6	3	5	6	5	16
Signal group 7	6	9	22	14	86
Signal group 8	6	8	22	13	78
Signal group 9	9	8	31	16	145
Signal group 10	1	7	7	7	7
Signal group 13	8	8	118	76	609
Pedestrian movement 1	1	3	3	3	3
Pedestrian movement 4	8	8	115	74	594

Thursday, 1 June 2023, 11:00:00 AM AEST to Thursday, 1 June 2023, 11:15:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	48	102	80	484
C phase	3	19	22	20	61
D phase	6	14	25	18	111
E phase	2	14	36	25	50
G phase	6	14	23	19	115
Nominal cycle length	4	135	140	137	551
Active cycle length	4	135	140	137	551
Actual cycle	6	105	177	134	806
Split plan 3	1	412	412	412	412
Signal group 1	6	55	95	79	475
Signal group 2	6	60	105	88	533
Signal group 3	5	8	16	10	54
Signal group 4	7	9	17	14	98
Signal group 5	4	7	29	16	67

Signal group 6	2	7	29	18	36
Signal group 7	6	8	19	12	75
Signal group 8	4	8	13	11	44
Signal group 9	9	7	41	19	177
Signal group 12	1	6	6	6	6
Signal group 13	8	8	105	66	532
Pedestrian movement 3	1	4	4	4	4
Pedestrian movement 4	8	8	105	65	524

Thursday, 1 June 2023, 11:15:00 AM AEST to Thursday, 1 June 2023, 11:30:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	82	98	93	560
C phase	1	18	18	18	18
D phase	6	17	26	20	124
E phase	2	12	12	12	24
G phase	6	14	26	22	132
Nominal cycle length	3	138	140	138	416
Active cycle length	3	138	140	138	416
Actual cycle	5	122	156	139	698
Split plan 6	2	140	278	209	418
Split plan 7	2	140	280	210	420
Signal group 1	6	75	91	86	518
Signal group 2	6	87	128	101	611
Signal group 3	3	8	16	13	39
Signal group 4	7	8	20	15	107
Signal group 5	3	11	25	18	56
Signal group 6	2	5	5	5	10
Signal group 7	6	11	20	14	88
Signal group 8	4	8	16	12	48
Signal group 9	6	17	45	28	172
Signal group 13	6	75	106	94	569
Pedestrian movement 4	6	71	103	92	552

Thursday, 1 June 2023, 11:30:00 AM AEST to Thursday, 1 June 2023, 11:45:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	70	157	100	602
C phase	3	19	21	20	61
D phase	5	14	21	18	92
E phase	1	12	12	12	12
G phase	6	15	23	19	116
Nominal cycle length	5	134	140	136	682
Active cycle length	5	137	178	153	769
Actual cycle	5	106	211	148	744
Split plan 3	1	552	552	552	552
Signal group 1	6	70	150	97	583
Signal group 2	6	63	150	107	646
Signal group 3	5	9	17	12	61
Signal group 4	8	9	15	12	101
Signal group 5	3	8	13	11	33
Signal group 6	1	5	5	5	5
Signal group 7	5	8	15	12	62
Signal group 8	3	8	14	11	34
Signal group 9	6	11	46	25	152

Signal group 13	6	14	165	85	514
Pedestrian movement 4	6	14	163	83	503

Thursday, 1 June 2023, 11:45:00 AM AEST to Thursday, 1 June 2023, 12:00:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	7	42	117	83	583
B phase	2	13	18	15	31
D phase	6	15	25	19	116
E phase	1	12	12	12	12
G phase	7	15	29	17	122
Nominal cycle length	3	136	140	138	414
Active cycle length	6	98	141	131	791
Actual cycle	6	73	160	122	737
Signal group 1	7	35	110	80	565
Signal group 2	7	50	110	82	579
Signal group 3	7	6	11	8	60
Signal group 4	7	9	23	11	80
Signal group 5	3	10	21	16	50
Signal group 6	1	5	5	5	5
Signal group 7	7	9	19	12	89
Signal group 8	3	9	19	13	41
Signal group 9	7	9	37	21	149
Signal group 13	7	35	115	89	627
Pedestrian movement 4	7	32	113	87	611

Thursday, 1 June 2023, 12:00:00 PM AEST to Thursday, 1 June 2023, 12:15:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	73	105	83	503
C phase	2	19	20	19	39
D phase	6	16	23	19	116
E phase	5	12	13	12	61
G phase	7	15	29	20	142
Nominal cycle length	4	135	140	138	554
Active cycle length	4	134	140	137	549
Actual cycle	6	112	174	138	831
Split plan 6	1	139	139	139	139
Split plan 7	1	140	140	140	140
Signal group 1	6	66	98	77	467
Signal group 2	6	69	135	91	550
Signal group 3	5	9	16	12	60
Signal group 4	9	9	23	13	119
Signal group 5	4	5	24	15	63
Signal group 6	5	5	6	5	26
Signal group 7	6	9	17	13	80
Signal group 8	4	9	17	12	50
Signal group 9	8	11	49	25	200
Signal group 11	1	6	6	6	6
Signal group 13	8	9	98	66	531
Pedestrian movement 2	1	4	4	4	4
Pedestrian movement 4	8	9	94	63	510

Thursday, 1 June 2023, 12:15:00 PM AEST to Thursday, 1 June 2023, 12:30:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	48	118	83	499
C phase	4	16	21	17	71
D phase	6	17	26	21	128
E phase	2	12	36	24	48
G phase	6	15	25	18	109
Active cycle length	2	132	140	136	272
Actual cycle	5	113	159	132	663
Split plan 3	1	140	140	140	140
Split plan 7	2	140	420	280	560
Signal group 1	6	41	111	79	474
Signal group 2	6	57	133	91	551
Signal group 3	4	9	15	11	44
Signal group 4	9	9	19	11	105
Signal group 5	2	25	29	27	54
Signal group 6	2	5	29	17	34
Signal group 7	6	11	20	15	92
Signal group 8	5	11	20	15	78
Signal group 9	9	9	45	19	173
Signal group 10	1	6	6	6	6
Signal group 11	1	6	6	6	6
Signal group 12	1	6	6	6	6
Signal group 13	8	12	138	71	572
Pedestrian movement 1	1	4	4	4	4
Pedestrian movement 2	1	4	4	4	4
Pedestrian movement 3	1	4	4	4	4
Pedestrian movement 4	8	12	135	69	559

Thursday, 1 June 2023, 12:30:00 PM AEST to Thursday, 1 June 2023, 12:45:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	70	104	82	495
C phase	4	15	20	17	68
D phase	6	19	27	22	136
E phase	3	12	14	13	39
G phase	6	14	28	20	123
Actual cycle	6	125	168	143	861
Split plan 6	1	280	280	280	280
Split plan 7	1	140	140	140	140
Signal group 1	6	63	97	78	470
Signal group 2	6	63	117	93	561
Signal group 3	5	8	13	10	52
Signal group 4	8	8	22	13	104
Signal group 5	4	9	18	12	49
Signal group 6	3	6	7	6	20
Signal group 7	6	13	21	16	100
Signal group 8	5	8	21	14	71
Signal group 9	9	7	58	19	171
Signal group 13	8	8	101	57	457
Pedestrian movement 4	8	8	98	55	444

Thursday, 1 June 2023, 12:45:00 PM AEST to Thursday, 1 June 2023, 1:00:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	68	100	87	522

C phase	3	15	18	17	51
D phase	6	18	26	21	130
E phase	3	12	13	12	37
G phase	5	18	24	19	97
Actual cycle	5	105	158	139	696
Split plan 2	1	140	140	140	140
Split plan 5	1	140	140	140	140
Split plan 6	1	140	140	140	140
Split plan 7	1	140	140	140	140
Signal group 1	6	66	93	81	488
Signal group 2	6	61	125	93	559
Signal group 3	3	8	13	11	33
Signal group 4	8	8	18	11	89
Signal group 5	3	5	12	9	27
Signal group 6	3	5	6	5	16
Signal group 7	6	12	20	15	94
Signal group 8	6	11	20	13	83
Signal group 9	9	8	26	14	129
Signal group 13	8	11	111	63	509
Pedestrian movement 4	8	11	107	62	499

Thursday, 1 June 2023, 1:00:00 PM AEST to Thursday, 1 June 2023, 1:15:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	73	103	85	511
C phase	2	18	18	18	36
D phase	6	20	26	22	137
E phase	2	12	13	12	25
G phase	7	15	31	21	148
Actual cycle	6	113	162	137	826
Signal group 1	6	69	96	80	484
Signal group 2	6	66	121	96	578
Signal group 3	4	8	9	8	35
Signal group 4	8	8	25	14	118
Signal group 5	4	11	29	18	72
Signal group 6	2	5	6	5	11
Signal group 7	6	14	20	17	102
Signal group 8	3	8	20	15	46
Signal group 9	7	13	49	31	223
Signal group 13	6	69	123	91	550
Pedestrian movement 4	6	65	120	89	535

Thursday, 1 June 2023, 1:15:00 PM AEST to Thursday, 1 June 2023, 1:30:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	5	71	96	85	425
C phase	4	17	18	17	71
D phase	6	17	27	21	131
E phase	3	12	12	12	36
G phase	6	14	31	19	114
Actual cycle	5	135	153	143	717
Signal group 1	5	64	89	81	405
Signal group 2	5	79	133	102	513
Signal group 3	3	8	9	8	26
Signal group 4	8	8	25	12	103

Signal group 5	3	5	25	14	43
Signal group 6	3	5	5	5	15
Signal group 7	6	11	21	15	95
Signal group 8	5	8	21	14	73
Signal group 9	9	5	59	17	160
Signal group 10	1	6	6	6	6
Signal group 13	8	8	110	61	491
Pedestrian movement 1	1	3	3	3	3
Pedestrian movement 4	8	8	107	60	480

Thursday, 1 June 2023, 1:30:00 PM AEST to Thursday, 1 June 2023, 1:45:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	67	121	87	525
C phase	3	18	24	20	60
D phase	6	17	27	22	134
E phase	4	12	13	12	49
G phase	5	14	28	21	105
Active cycle length	2	183	187	185	370
Actual cycle	5	117	155	136	683
Split plan 6	1	140	140	140	140
Signal group 1	6	68	114	83	503
Signal group 2	5	77	97	84	422
Signal group 3	5	8	22	12	62
Signal group 4	7	10	22	14	100
Signal group 5	5	6	17	11	58
Signal group 6	4	5	6	5	21
Signal group 7	6	11	21	16	98
Signal group 8	5	8	21	12	61
Signal group 9	8	11	57	23	185
Signal group 10	1	7	7	7	7
Signal group 13	8	8	114	73	585
Pedestrian movement 1	1	3	3	3	3
Pedestrian movement 4	8	8	110	71	572

Thursday, 1 June 2023, 1:45:00 PM AEST to Thursday, 1 June 2023, 2:00:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	39	136	85	510
D phase	7	18	38	23	163
E phase	3	12	13	12	37
G phase	7	15	27	20	142
Active cycle length	5	98	141	131	659
Actual cycle	6	78	201	135	810
Split plan 5	1	280	280	280	280
Split plan 6	1	140	140	140	140
Split plan 7	2	140	140	140	280
Signal group 1	6	32	129	78	468
Signal group 2	6	44	129	83	500
Signal group 3	7	8	10	8	62
Signal group 4	7	9	21	14	99
Signal group 5	5	6	16	11	57
Signal group 6	3	5	6	5	16
Signal group 7	7	12	32	17	121
Signal group 8	6	8	20	12	73

Signal group 9	7	9	43	27	189
Signal group 13	7	20	146	82	576
Pedestrian movement 4	7	20	146	80	561

Thursday, 1 June 2023, 2:00:00 PM AEST to Thursday, 1 June 2023, 2:15:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	65	89	77	462
C phase	4	13	19	17	68
D phase	6	20	37	27	162
E phase	3	12	13	12	37
G phase	6	16	28	20	123
Active cycle length	1	140	140	140	140
Actual cycle	5	120	150	135	676
Split plan 2	1	280	280	280	280
Split plan 3	1	140	140	140	140
Split plan 5	2	140	140	140	280
Split plan 7	1	140	140	140	140
Signal group 1	6	58	82	70	421
Signal group 2	6	67	123	88	530
Signal group 3	4	8	11	9	37
Signal group 4	10	6	22	12	128
Signal group 5	6	6	31	17	106
Signal group 6	3	5	6	5	16
Signal group 7	6	14	31	21	126
Signal group 8	3	8	17	11	34
Signal group 9	10	6	55	27	273
Signal group 13	9	8	82	50	453
Pedestrian movement 4	9	7	79	48	435

Thursday, 1 June 2023, 2:15:00 PM AEST to Thursday, 1 June 2023, 2:30:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	72	110	88	533
C phase	3	13	18	16	48
D phase	6	20	36	26	157
E phase	1	15	15	15	15
G phase	7	15	20	16	116
Active cycle length	2	132	140	136	272
Actual cycle	6	125	169	139	836
Signal group 1	6	72	103	84	509
Signal group 2	6	83	136	101	607
Signal group 3	3	9	12	10	30
Signal group 4	8	6	14	10	80
Signal group 5	5	8	30	17	88
Signal group 6	1	8	8	8	8
Signal group 7	6	14	30	20	121
Signal group 8	3	8	18	14	42
Signal group 9	8	9	53	25	200
Signal group 10	2	6	9	7	15
Signal group 13	7	16	104	80	565
Pedestrian movement 1	2	4	9	6	13
Pedestrian movement 4	7	16	101	79	553

Thursday, 1 June 2023, 2:30:00 PM AEST to Thursday, 1 June 2023, 2:45:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	5	61	93	74	371
C phase	1	17	17	17	17
D phase	6	21	45	30	181
E phase	3	12	33	19	57
G phase	6	15	28	19	115
Active cycle length	3	140	148	143	429
Actual cycle	5	108	155	139	695
Signal group 1	6	54	94	72	432
Signal group 2	6	54	109	85	513
Signal group 3	3	8	14	10	30
Signal group 4	7	9	22	12	87
Signal group 5	6	12	43	25	154
Signal group 6	3	5	26	12	36
Signal group 7	6	15	39	24	145
Signal group 8	3	8	11	9	27
Signal group 9	6	35	71	47	287
Signal group 11	2	6	9	7	15
Signal group 12	1	20	20	20	20
Signal group 13	5	54	101	77	386
Pedestrian movement 2	2	6	7	6	13
Pedestrian movement 3	1	18	18	18	18
Pedestrian movement 4	5	52	98	73	369

Thursday, 1 June 2023, 2:45:00 PM AEST to Thursday, 1 June 2023, 3:00:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	83	98	90	542
C phase	2	19	20	19	39
D phase	7	19	25	21	148
E phase	3	12	15	13	39
G phase	6	16	24	19	119
Actual cycle	5	132	152	143	716
Signal group 1	6	76	94	86	519
Signal group 2	6	76	113	98	591
Signal group 3	5	8	16	10	52
Signal group 4	7	11	18	13	95
Signal group 5	3	8	25	14	44
Signal group 6	3	5	8	6	18
Signal group 7	7	12	19	15	105
Signal group 8	6	8	19	14	86
Signal group 9	7	12	43	22	160
Signal group 13	6	76	139	100	601
Pedestrian movement 4	6	73	139	98	588

Thursday, 1 June 2023, 3:00:00 PM AEST to Thursday, 1 June 2023, 3:15:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	56	94	81	491
C phase	2	17	18	17	35
D phase	6	23	30	26	160
E phase	3	12	33	19	57
G phase	4	19	28	23	93

Actual cycle	6	108	164	139	836
Signal group 1	5	49	87	75	376
Signal group 2	6	49	120	93	563
Signal group 3	1	8	8	8	8
Signal group 4	6	10	22	15	90
Signal group 5	5	16	40	25	127
Signal group 6	3	5	26	12	37
Signal group 7	6	17	24	20	124
Signal group 8	3	8	24	13	40
Signal group 9	7	10	50	34	243
Signal group 10	1	6	6	6	6
Signal group 12	1	17	17	17	17
Signal group 13	6	8	118	71	430
Pedestrian movement 1	1	6	6	6	6
Pedestrian movement 3	1	15	15	15	15
Pedestrian movement 4	6	8	115	69	417

Thursday, 1 June 2023, 3:15:00 PM AEST to Thursday, 1 June 2023, 3:30:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	72	99	86	519
C phase	4	15	21	19	78
D phase	6	18	29	23	141
E phase	3	12	12	12	36
G phase	4	14	23	18	75
Actual cycle	5	127	152	139	698
Split plan 3	1	280	280	280	280
Split plan 6	1	140	140	140	140
Split plan 7	1	140	140	140	140
Signal group 1	6	78	92	82	492
Signal group 2	6	78	122	95	574
Signal group 3	2	8	15	11	23
Signal group 4	7	8	17	13	91
Signal group 5	5	8	27	18	92
Signal group 6	3	5	5	5	15
Signal group 7	7	12	24	18	129
Signal group 8	4	8	22	14	58
Signal group 9	9	8	48	19	173
Signal group 10	1	9	9	9	9
Signal group 13	9	8	121	61	557
Pedestrian movement 1	1	9	9	9	9
Pedestrian movement 4	9	8	118	60	547

Thursday, 1 June 2023, 3:30:00 PM AEST to Thursday, 1 June 2023, 3:45:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	65	100	78	469
C phase	3	13	15	14	43
D phase	6	18	39	26	160
E phase	3	12	12	12	36
G phase	7	15	30	20	143
Actual cycle	6	123	162	138	830
Split plan 3	1	140	140	140	140
Signal group 1	6	58	93	73	440
Signal group 2	6	60	133	86	520

Signal group 3	4	8	24	12	49
Signal group 4	10	6	19	11	110
Signal group 5	5	11	33	22	113
Signal group 6	3	5	5	5	15
Signal group 7	6	12	33	20	124
Signal group 8	3	10	12	10	32
Signal group 9	8	6	56	31	248
Signal group 12	1	6	6	6	6
Signal group 13	8	10	98	59	479
Pedestrian movement 3	1	6	6	6	6
Pedestrian movement 4	8	10	95	57	463

Thursday, 1 June 2023, 3:45:00 PM AEST to Thursday, 1 June 2023, 4:00:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	62	105	86	518
C phase	3	14	17	16	48
D phase	6	20	32	26	158
E phase	2	13	33	23	46
G phase	5	14	16	15	76
Actual cycle	5	100	197	141	706
Signal group 1	6	69	98	81	490
Signal group 2	6	55	115	90	541
Signal group 3	5	8	9	8	41
Signal group 4	8	7	10	9	73
Signal group 5	4	12	38	23	93
Signal group 6	2	6	26	16	32
Signal group 7	6	14	26	20	122
Signal group 8	4	8	26	15	61
Signal group 9	8	7	41	22	176
Signal group 10	1	6	6	6	6
Signal group 11	2	6	6	6	12
Signal group 12	1	15	15	15	15
Signal group 13	8	10	98	68	550
Pedestrian movement 1	1	6	6	6	6
Pedestrian movement 2	2	3	4	3	7
Pedestrian movement 3	1	13	13	13	13
Pedestrian movement 4	8	10	96	67	542

Thursday, 1 June 2023, 4:00:00 PM AEST to Thursday, 1 June 2023, 4:15:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	71	113	89	539
C phase	3	15	18	16	48
D phase	7	19	36	28	197
G phase	6	14	23	17	103
Actual cycle	6	117	164	140	844
Signal group 1	6	64	106	82	497
Signal group 2	6	83	131	99	599
Signal group 3	3	9	11	10	30
Signal group 4	9	8	17	10	94
Signal group 5	4	13	30	22	91
Signal group 7	7	13	30	22	155
Signal group 8	3	19	24	21	64
Signal group 9	7	9	59	25	180

Signal group 13	7	24	134	82	575
Pedestrian movement 4	7	24	132	79	558

Thursday, 1 June 2023, 4:15:00 PM AEST to Thursday, 1 June 2023, 4:30:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	5	70	96	84	420
C phase	3	13	18	14	44
D phase	6	17	30	25	153
E phase	3	12	13	12	37
G phase	6	15	23	18	108
Actual cycle	5	132	158	142	714
Signal group 1	5	63	89	80	400
Signal group 2	5	79	127	101	507
Signal group 3	2	8	9	8	17
Signal group 4	8	6	17	10	86
Signal group 5	5	12	32	22	114
Signal group 6	3	5	6	5	16
Signal group 7	6	11	24	19	117
Signal group 8	2	9	22	15	31
Signal group 9	7	6	61	34	241
Signal group 13	6	9	108	73	438
Pedestrian movement 4	6	9	105	70	423

Thursday, 1 June 2023, 4:30:00 PM AEST to Thursday, 1 June 2023, 4:45:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	78	93	85	511
D phase	7	25	44	34	243
E phase	2	12	12	12	24
G phase	6	15	28	17	106
Actual cycle	5	132	151	140	702
Signal group 1	6	71	86	78	469
Signal group 2	6	71	93	83	498
Signal group 3	5	8	11	9	45
Signal group 4	7	8	22	11	77
Signal group 5	3	11	30	18	56
Signal group 6	2	5	5	5	10
Signal group 7	7	19	38	28	201
Signal group 8	6	13	38	25	155
Signal group 9	7	8	44	21	153
Signal group 11	1	6	6	6	6
Signal group 13	6	78	116	105	632
Pedestrian movement 2	1	4	4	4	4
Pedestrian movement 4	6	75	114	102	617

Thursday, 1 June 2023, 4:45:00 PM AEST to Thursday, 1 June 2023, 5:00:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	80	108	98	590
C phase	1	20	20	20	20
D phase	6	15	42	25	153
G phase	5	14	20	16	83
Actual cycle	6	126	150	141	846
Signal group 1	6	73	101	91	548

Signal group 2	6	73	118	99	599
Signal group 3	3	8	12	10	31
Signal group 4	6	8	14	11	66
Signal group 5	2	19	26	22	45
Signal group 7	6	9	36	19	117
Signal group 8	4	9	36	18	72
Signal group 9	6	9	40	20	123
Signal group 10	1	6	6	6	6
Signal group 13	6	73	129	104	625
Pedestrian movement 1	1	3	3	3	3
Pedestrian movement 4	6	71	127	101	611

Thursday, 1 June 2023, 5:00:00 PM AEST to Thursday, 1 June 2023, 5:15:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	77	106	90	544
C phase	2	14	17	15	31
D phase	6	15	28	24	149
E phase	1	12	12	12	12
G phase	5	14	28	18	90
Actual cycle	5	131	157	144	721
Signal group 1	6	85	99	88	531
Signal group 2	6	70	123	93	558
Signal group 3	4	8	13	10	41
Signal group 4	5	7	22	12	60
Signal group 5	5	5	22	18	90
Signal group 6	1	5	5	5	5
Signal group 7	7	9	22	18	132
Signal group 8	3	8	19	11	35
Signal group 9	6	22	39	29	177
Signal group 13	6	86	111	97	587
Pedestrian movement 4	6	84	109	95	573

Thursday, 1 June 2023, 5:15:00 PM AEST to Thursday, 1 June 2023, 5:30:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	71	116	90	544
C phase	3	12	17	14	44
D phase	6	17	30	22	137
E phase	4	12	13	12	49
G phase	5	15	20	16	81
Actual cycle	6	117	169	137	827
Signal group 1	6	64	109	86	517
Signal group 2	6	76	136	97	584
Signal group 3	3	8	9	8	26
Signal group 4	7	5	14	9	65
Signal group 5	3	10	16	12	37
Signal group 6	4	5	6	5	21
Signal group 7	6	11	24	16	101
Signal group 8	6	8	24	13	80
Signal group 9	7	5	32	15	106
Signal group 13	7	9	154	89	629
Pedestrian movement 4	7	7	154	88	617

Thursday, 1 June 2023, 5:30:00 PM AEST to Thursday, 1 June 2023, 5:45:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	5	95	113	106	531
D phase	6	16	19	18	109
E phase	2	12	13	12	25
G phase	6	14	20	16	99
Actual cycle	5	131	153	146	731
Signal group 1	5	95	106	102	514
Signal group 2	5	88	109	102	513
Signal group 3	5	8	11	9	47
Signal group 4	5	8	14	10	51
Signal group 5	4	8	13	10	43
Signal group 6	2	5	6	5	11
Signal group 7	6	10	13	12	73
Signal group 8	4	8	13	10	41
Signal group 9	6	8	32	18	113
Signal group 13	5	104	125	116	582
Pedestrian movement 4	5	100	124	113	569

Thursday, 1 June 2023, 5:45:00 PM AEST to Thursday, 1 June 2023, 6:00:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	102	109	105	634
C phase	1	17	17	17	17
D phase	7	16	22	18	128
G phase	6	16	20	17	104
Actual cycle	6	135	146	141	847
Signal group 1	6	98	102	99	597
Signal group 2	6	95	134	108	649
Signal group 3	4	8	14	10	40
Signal group 4	7	9	11	10	72
Signal group 5	5	10	16	12	62
Signal group 7	7	10	16	12	86
Signal group 8	2	11	13	12	24
Signal group 9	7	9	33	23	165
Signal group 13	6	98	116	102	615
Pedestrian movement 4	6	95	113	99	599

Thursday, 1 June 2023, 6:00:00 PM AEST to Thursday, 1 June 2023, 6:15:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	5	80	106	95	475
C phase	3	16	17	16	50
D phase	6	15	22	18	109
E phase	3	12	36	27	81
G phase	3	15	15	15	45
Actual cycle	5	117	154	141	709
Signal group 1	5	84	111	94	470
Signal group 2	5	84	116	94	473
Signal group 3	3	8	9	8	26
Signal group 4	4	9	10	9	38
Signal group 5	5	5	41	20	104
Signal group 6	3	5	29	20	60
Signal group 7	6	9	16	12	73

Signal group 8	3	9	15	11	33
Signal group 9	7	5	57	22	156
Signal group 12	2	6	18	12	24
Signal group 13	6	9	120	86	516
Pedestrian movement 3	2	4	18	11	22
Pedestrian movement 4	6	9	120	85	512

Thursday, 1 June 2023, 6:15:00 PM AEST to Thursday, 1 June 2023, 6:30:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	104	130	115	694
D phase	6	15	27	17	105
E phase	1	12	12	12	12
G phase	4	14	17	15	61
Actual cycle	5	123	160	143	716
Signal group 1	6	97	123	109	654
Signal group 2	6	100	138	113	681
Signal group 3	2	9	11	10	20
Signal group 4	4	8	9	8	34
Signal group 5	3	5	21	11	35
Signal group 6	1	5	5	5	5
Signal group 7	6	9	21	11	69
Signal group 8	4	8	11	9	38
Signal group 9	5	8	24	16	82
Signal group 12	1	6	6	6	6
Signal group 13	5	115	248	145	726
Pedestrian movement 3	1	4	4	4	4
Pedestrian movement 4	5	112	242	142	710

Thursday, 1 June 2023, 6:30:00 PM AEST to Thursday, 1 June 2023, 6:45:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	72	109	96	581
C phase	1	17	17	17	17
D phase	6	15	21	18	112
G phase	5	14	17	15	78
Nominal cycle length	5	124	137	133	665
Active cycle length	5	122	138	132	662
Actual cycle	6	107	145	128	771
Signal group 1	6	65	115	92	553
Signal group 2	6	68	126	95	573
Signal group 3	4	8	10	9	36
Signal group 4	5	8	11	9	48
Signal group 5	4	9	15	12	50
Signal group 7	6	9	15	12	76
Signal group 8	2	11	15	13	26
Signal group 9	6	8	30	16	100
Signal group 13	6	77	133	98	593
Pedestrian movement 4	6	75	131	96	579

Thursday, 1 June 2023, 6:45:00 PM AEST to Thursday, 1 June 2023, 7:00:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	75	111	98	589
D phase	7	14	19	15	110

E phase	1	12	12	12	12
G phase	7	14	20	15	110
Nominal cycle length	6	126	140	134	804
Active cycle length	6	126	141	134	807
Actual cycle	6	104	151	131	788
Signal group 1	6	68	114	93	562
Signal group 2	6	84	118	101	607
Signal group 3	2	9	9	9	18
Signal group 4	6	8	14	9	59
Signal group 5	5	8	19	12	62
Signal group 6	1	5	5	5	5
Signal group 7	7	8	13	9	69
Signal group 8	2	8	10	9	18
Signal group 9	7	8	35	20	146
Signal group 13	6	68	120	98	591
Pedestrian movement 4	6	65	118	95	574

Thursday, 1 June 2023, 7:00:00 PM AEST to Thursday, 1 June 2023, 7:15:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	94	114	101	611
D phase	7	14	21	16	115
G phase	6	14	17	15	92
Nominal cycle length	6	131	140	134	805
Active cycle length	6	131	141	134	805
Actual cycle	6	120	147	131	790
Signal group 1	6	87	107	99	597
Signal group 2	6	90	117	102	616
Signal group 3	3	8	11	9	27
Signal group 4	3	9	11	9	29
Signal group 5	4	8	15	11	44
Signal group 7	7	8	15	10	73
Signal group 8	3	8	13	9	29
Signal group 9	6	8	23	13	79
Signal group 13	5	100	227	130	653
Pedestrian movement 4	5	97	224	128	640

Thursday, 1 June 2023, 7:15:00 PM AEST to Thursday, 1 June 2023, 7:30:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	5	101	132	111	558
D phase	6	14	18	15	94
G phase	4	14	17	15	60
Nominal cycle length	4	134	140	137	551
Active cycle length	5	133	140	138	690
Actual cycle	5	119	163	135	677
Signal group 1	5	94	125	107	537
Signal group 2	5	98	125	113	569
Signal group 3	1	8	8	8	8
Signal group 4	3	8	11	9	28
Signal group 5	3	8	8	8	24
Signal group 6	1	10	10	10	10
Signal group 7	5	8	12	9	48
Signal group 8	3	10	12	11	34
Signal group 9	5	8	22	11	58

Signal group 13	4	99	231	144	578
Pedestrian movement 4	4	96	227	141	566

Thursday, 1 June 2023, 7:30:00 PM AEST to Thursday, 1 June 2023, 7:45:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	92	126	105	631
D phase	5	14	16	15	75
E phase	1	13	13	13	13
G phase	3	14	15	14	43
Nominal cycle length	7	118	127	123	867
Active cycle length	7	113	128	122	858
Actual cycle	6	108	140	124	746
Signal group 1	7	85	119	101	710
Signal group 2	6	85	207	119	718
Signal group 3	2	8	8	8	16
Signal group 4	2	8	9	8	17
Signal group 5	3	6	10	8	24
Signal group 6	2	6	8	7	14
Signal group 7	4	8	10	9	37
Signal group 8	3	8	10	9	27
Signal group 9	5	6	10	8	41
Signal group 13	5	89	362	153	769
Pedestrian movement 4	5	86	360	152	760

Thursday, 1 June 2023, 7:45:00 PM AEST to Thursday, 1 June 2023, 8:00:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	67	105	86	693
D phase	4	14	15	14	57
G phase	8	14	23	16	128
Nominal cycle length	8	99	128	109	877
Active cycle length	8	97	129	108	871
Actual cycle	7	81	135	110	776
Signal group 1	6	60	212	118	712
Signal group 2	5	73	267	125	629
Signal group 3	5	8	12	9	49
Signal group 4	5	8	17	10	54
Signal group 5	4	8	9	8	33
Signal group 7	4	8	9	8	33
Signal group 9	7	8	31	14	99
Signal group 13	6	60	212	118	712
Pedestrian movement 4	6	57	208	116	697

Thursday, 1 June 2023, 8:00:00 PM AEST to Thursday, 1 June 2023, 8:15:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	7	70	179	99	693
D phase	7	14	17	15	106
G phase	4	14	15	14	58
Nominal cycle length	8	102	107	104	832
Active cycle length	7	102	107	104	732
Actual cycle	7	86	209	122	857
Signal group 1	7	63	187	96	673
Signal group 2	6	79	172	99	595

Signal group 3	2	8	9	8	17
Signal group 4	2	8	9	8	17
Signal group 5	4	8	10	9	37
Signal group 6	2	8	8	8	16
Signal group 7	5	8	11	9	48
Signal group 8	3	8	11	9	27
Signal group 9	6	8	10	9	54
Signal group 13	6	63	199	121	727
Pedestrian movement 4	6	60	197	118	713

Thursday, 1 June 2023, 8:15:00 PM AEST to Thursday, 1 June 2023, 8:30:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	40	156	83	665
C phase	1	13	13	13	13
D phase	5	14	15	14	73
E phase	1	36	36	36	36
G phase	6	14	16	14	89
Nominal cycle length	8	85	105	92	739
Active cycle length	9	82	105	91	821
Actual cycle	8	54	207	107	862
Split plan 3	1	265	265	265	265
Split plan 6	1	87	87	87	87
Split plan 7	1	85	85	85	85
Signal group 1	7	33	248	90	630
Signal group 2	6	33	168	95	575
Signal group 3	3	8	8	8	24
Signal group 4	6	6	10	8	51
Signal group 5	4	8	29	13	54
Signal group 6	1	29	29	29	29
Signal group 7	5	8	9	8	43
Signal group 8	2	9	9	9	18
Signal group 9	7	6	45	17	124
Signal group 12	1	6	6	6	6
Signal group 13	6	33	247	111	667
Pedestrian movement 3	1	6	6	6	6
Pedestrian movement 4	6	31	244	108	653

Thursday, 1 June 2023, 8:30:00 PM AEST to Thursday, 1 June 2023, 8:45:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	32	157	83	668
D phase	7	14	16	14	100
E phase	1	12	12	12	12
G phase	4	14	15	14	58
Nominal cycle length	10	85	103	94	945
Active cycle length	9	84	104	93	844
Actual cycle	8	48	186	104	838
Split plan 6	1	98	98	98	98
Signal group 1	7	59	164	85	601
Signal group 2	6	62	192	103	623
Signal group 3	2	9	9	9	18
Signal group 4	3	8	9	8	26
Signal group 5	6	8	19	10	61
Signal group 6	2	5	8	6	13

Signal group 7	6	8	10	8	50
Signal group 8	1	8	8	8	8
Signal group 9	8	8	23	11	93
Signal group 13	7	59	164	87	615
Pedestrian movement 4	8	22	162	77	622

Thursday, 1 June 2023, 8:45:00 PM AEST to Thursday, 1 June 2023, 9:00:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	5	70	266	118	593
D phase	3	14	15	14	44
E phase	1	13	13	13	13
G phase	3	14	15	14	43
Nominal cycle length	8	84	119	95	763
Active cycle length	9	83	125	96	867
Actual cycle	5	85	281	135	679
Split plan 8	1	93	93	93	93
Signal group 1	5	63	259	111	558
Signal group 2	3	77	344	200	601
Signal group 4	3	8	9	8	25
Signal group 5	4	6	9	8	32
Signal group 6	1	6	6	6	6
Signal group 7	3	8	9	8	26
Signal group 9	6	6	23	10	63
Signal group 13	5	63	259	111	558
Pedestrian movement 4	5	60	259	109	548

Thursday, 1 June 2023, 9:00:00 PM AEST to Thursday, 1 June 2023, 9:15:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	5	104	221	141	705
D phase	2	14	15	14	29
E phase	1	12	12	12	12
G phase	3	14	15	14	43
Nominal cycle length	7	121	140	127	890
Active cycle length	7	122	143	127	895
Actual cycle	5	118	236	155	775
Signal group 1	4	97	248	173	692
Signal group 2	3	129	332	198	594
Signal group 3	1	9	9	9	9
Signal group 4	2	8	8	8	16
Signal group 5	3	5	9	7	22
Signal group 6	1	5	5	5	5
Signal group 7	2	8	9	8	17
Signal group 9	5	5	9	7	38
Signal group 13	4	97	248	172	691
Pedestrian movement 4	4	97	246	171	685

Thursday, 1 June 2023, 9:15:00 PM AEST to Thursday, 1 June 2023, 9:30:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	85	131	112	673
D phase	5	14	15	14	71
G phase	5	14	16	15	75
Nominal cycle length	4	108	138	123	495

Active cycle length	7	105	148	130	915
Actual cycle	5	132	159	141	705
Signal group 1	6	78	124	105	631
Signal group 2	4	94	393	180	720
Signal group 3	1	8	8	8	8
Signal group 4	5	8	10	9	45
Signal group 5	3	8	8	8	24
Signal group 6	1	8	8	8	8
Signal group 7	4	8	9	8	33
Signal group 8	2	8	9	8	17
Signal group 9	5	9	24	17	87
Signal group 13	4	93	121	106	426
Pedestrian movement 4	4	91	118	103	414

Thursday, 1 June 2023, 9:30:00 PM AEST to Thursday, 1 June 2023, 9:45:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	55	160	82	659
C phase	2	12	13	12	25
D phase	3	14	15	14	43
E phase	3	12	13	12	38
G phase	5	14	17	14	74
Nominal cycle length	9	87	110	97	879
Active cycle length	9	84	111	96	872
Actual cycle	8	79	174	104	839
Split plan 3	1	176	176	176	176
Signal group 1	7	48	168	79	559
Signal group 2	6	48	177	85	514
Signal group 3	2	8	9	8	17
Signal group 4	6	5	11	7	47
Signal group 5	6	5	9	7	42
Signal group 6	3	5	6	5	17
Signal group 7	3	8	9	8	25
Signal group 9	8	6	25	14	115
Signal group 13	7	48	168	79	557
Pedestrian movement 4	7	46	166	78	547

Thursday, 1 June 2023, 9:45:00 PM AEST to Thursday, 1 June 2023, 10:00:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	7	53	88	73	513
C phase	1	12	12	12	12
D phase	5	15	21	16	84
G phase	6	14	18	15	90
Nominal cycle length	10	89	104	97	973
Active cycle length	9	87	107	97	873
Actual cycle	7	74	112	97	684
Split plan 3	1	104	104	104	104
Split plan 6	1	91	91	91	91
Split plan 7	1	199	199	199	199
Signal group 1	7	46	172	78	552
Signal group 2	6	60	188	90	540
Signal group 3	1	8	8	8	8
Signal group 4	6	5	12	8	51
Signal group 5	4	9	15	11	44

Signal group 7	5	9	15	10	54
Signal group 8	1	10	10	10	10
Signal group 9	7	8	28	16	114
Signal group 13	6	46	189	83	502
Pedestrian movement 4	6	43	187	80	485

Thursday, 1 June 2023, 10:00:00 PM AEST to Thursday, 1 June 2023, 10:15:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	9	45	91	68	619
D phase	9	14	35	20	181
E phase	2	12	12	12	24
G phase	4	14	17	15	62
Nominal cycle length	9	91	116	99	895
Active cycle length	8	91	121	102	816
Actual cycle	8	61	115	94	753
Split plan 3	1	222	222	222	222
Signal group 1	9	38	84	61	556
Signal group 2	9	38	84	65	588
Signal group 3	2	8	10	9	18
Signal group 4	4	8	11	9	37
Signal group 5	9	5	29	14	132
Signal group 6	2	5	5	5	10
Signal group 7	10	8	29	13	139
Signal group 8	2	8	15	11	23
Signal group 9	10	10	36	18	188
Signal group 13	9	38	92	64	577
Pedestrian movement 4	9	36	90	62	560

Thursday, 1 June 2023, 10:15:00 PM AEST to Thursday, 1 June 2023, 10:30:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	51	146	83	667
D phase	7	14	15	14	99
E phase	1	12	12	12	12
G phase	2	14	15	14	29
Nominal cycle length	10	80	108	88	889
Active cycle length	10	78	106	87	877
Actual cycle	8	66	160	100	807
Signal group 1	8	51	139	78	625
Signal group 2	9	44	139	78	709
Signal group 3	1	8	8	8	8
Signal group 4	1	9	9	9	9
Signal group 5	8	5	9	7	62
Signal group 6	1	5	5	5	5
Signal group 7	7	8	9	8	57
Signal group 9	8	5	23	9	77
Signal group 13	8	51	139	78	625
Pedestrian movement 4	8	48	137	76	610

Thursday, 1 June 2023, 10:30:00 PM AEST to Thursday, 1 June 2023, 10:45:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	9	41	145	74	673
D phase	7	14	18	14	104

G phase	4	14	15	14	57
Nominal cycle length	10	70	85	76	760
Active cycle length	9	68	84	75	680
Actual cycle	9	55	161	91	820
Signal group 1	7	34	192	82	574
Signal group 2	9	38	138	69	624
Signal group 3	3	8	9	8	25
Signal group 4	2	8	9	8	17
Signal group 5	3	8	12	10	30
Signal group 6	1	8	8	8	8
Signal group 7	6	8	12	9	54
Signal group 8	4	8	8	8	32
Signal group 9	4	8	26	13	53
Signal group 13	3	34	198	94	284
Pedestrian movement 4	3	31	196	92	277

Thursday, 1 June 2023, 10:45:00 PM AEST to Thursday, 1 June 2023, 11:00:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	41	133	81	651
D phase	5	14	16	14	73
E phase	3	13	13	13	39
G phase	3	14	20	16	49
Nominal cycle length	9	70	74	71	646
Active cycle length	10	69	75	71	716
Actual cycle	8	55	161	98	784
Split plan 3	1	216	216	216	216
Signal group 1	8	41	126	76	615
Signal group 2	7	34	126	77	544
Signal group 3	2	8	14	11	22
Signal group 4	2	8	9	8	17
Signal group 5	6	6	10	7	45
Signal group 6	4	6	21	10	42
Signal group 7	3	8	10	8	26
Signal group 8	2	8	9	8	17
Signal group 9	8	6	10	7	62
Signal group 13	7	41	193	90	635
Pedestrian movement 4	7	41	191	89	626

Thursday, 1 June 2023, 11:00:00 PM AEST to Thursday, 1 June 2023, 11:15:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	41	206	108	652
D phase	5	14	15	14	71
E phase	1	12	12	12	12
G phase	2	14	15	14	29
Nominal cycle length	8	64	81	72	577
Active cycle length	12	61	86	70	848
Actual cycle	6	55	220	124	749
Split plan 8	1	70	70	70	70
Signal group 1	6	34	199	101	610
Signal group 2	5	38	322	129	646
Signal group 4	2	8	9	8	17
Signal group 5	5	5	9	7	39
Signal group 6	2	5	8	6	13

Signal group 7	4	8	9	8	34
Signal group 8	1	8	8	8	8
Signal group 9	6	5	23	10	62
Signal group 13	5	34	199	101	506
Pedestrian movement 4	5	31	197	99	498

Thursday, 1 June 2023, 11:15:00 PM AEST to Thursday, 1 June 2023, 11:30:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	7	41	268	101	711
D phase	2	16	18	17	34
E phase	4	12	13	12	50
G phase	3	14	15	14	44
Nominal cycle length	1	70	70	70	70
Active cycle length	2	70	74	72	144
Actual cycle	7	59	295	117	825
Split plan 3	1	420	420	420	420
Signal group 1	6	34	261	103	618
Signal group 2	6	34	261	83	501
Signal group 3	2	9	9	9	18
Signal group 4	2	8	8	8	16
Signal group 5	5	5	12	6	34
Signal group 6	5	5	10	6	32
Signal group 7	1	12	12	12	12
Signal group 8	1	10	10	10	10
Signal group 9	6	5	20	9	57
Signal group 13	5	34	261	128	641
Pedestrian movement 4	5	34	261	127	635

Thursday, 1 June 2023, 11:30:00 PM AEST to Thursday, 1 June 2023, 11:45:00 PM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	7	39	169	69	488
D phase	6	14	18	15	91
E phase	1	13	13	13	13
G phase	1	16	16	16	16
Nominal cycle length	4	64	72	69	276
Active cycle length	10	61	74	69	691
Actual cycle	7	55	183	84	594
Split plan 7	2	128	344	236	472
Split plan 8	1	64	64	64	64
Signal group 1	7	32	162	62	439
Signal group 2	6	39	217	77	462
Signal group 4	1	10	10	10	10
Signal group 5	6	6	12	8	53
Signal group 6	2	6	8	7	14
Signal group 7	5	8	12	9	47
Signal group 8	1	8	8	8	8
Signal group 9	7	6	12	9	63
Signal group 13	6	32	162	76	460
Pedestrian movement 4	6	30	158	74	446

Thursday, 1 June 2023, 11:45:00 PM AEST to Friday, 2 June 2023, 12:00:00 AM AEST:

Data item	Frequency	Minimum	Maximum	Average	Total

A phase	8	50	171	94	757
D phase	5	14	15	14	71
E phase	1	12	12	12	12
G phase	3	14	18	15	47
Nominal cycle length	1	72	72	72	72
Active cycle length	4	69	73	70	283
Actual cycle	8	64	171	107	861
Split plan 3	1	70	70	70	70
Split plan 7	2	202	490	346	692
Signal group 1	7	43	172	104	734
Signal group 2	7	43	331	106	745
Signal group 3	1	12	12	12	12
Signal group 4	2	8	9	8	17
Signal group 5	5	5	8	7	37
Signal group 6	1	5	5	5	5
Signal group 7	5	8	9	8	41
Signal group 8	1	9	9	9	9
Signal group 9	6	8	20	10	61
Signal group 13	6	43	209	125	754
Pedestrian movement 4	6	41	207	123	741

Appendix C – Smithfield Recycling Centre traffic impact assessment report

132-144 Warren Road, Smithfield (NSW)

Traffic Impact Assessment Report

Client: Polytrade Pty Ltd

Prepared by

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12 August 2022
Rev F

1. INTRODUCTION

1.1 Purpose of this report

This report sets out an assessment of the traffic and parking implications of the proposed development, with specific consideration of the following:

- the existing conditions and a description of the proposed development;
- an assessment of the development's car parking requirements;
- adequacy of the on-site car parking supply to accommodate the development's parking requirements;
- the ability for trucks to access the loading bay areas and then exit from the site in a forward manner; and
- an assessment of the traffic anticipated to be generated by the proposal.

1.2 Referenced documents

This report has been based upon a number of sources. These include:

- Information provided by the applicant and officers from Council;
- Melways maps, nearmap and Google maps;
- AutoTURN computer software for the swept path analysis and SIDRA intersection analysis computer software;
- Australian Standards AS 2890.1 (2004), AS 2890.6 (2009) and AS 2890.2 (2018);
- Cumberland Development Control Plan (2021) and Building Code of Australia;
- Turning movement surveys undertaken on Thursday 7 April 2022 between 7 am - 9 am and between 4.30 pm - 6.30 pm;
- Letter from Cumberland City Council to NSW Department of Planning, Industry and Environment, Ref: SSD-19425495, dated 9 June 2021;
- SEARS document issued for the development site at 132-144 Warren Road Smithfield (NSW), Ref: SSD-19425495, dated 10 June 2021;
- Letter from NSW EPA to Department of Planning, Industry and Environment, Notice No. 1609506, dated 4 June 2021;
- Letter from Transport for NSW to Department of Planning, Industry and Environment, Ref: SYD21/00639, dated 9 June 2021;
- SEARs Scoping report prepared by MRA, dated 14 May 2021;
- TANSW, Guide to Traffic Generating Developments, Ver 2, 2002 and TANSW, Land Use Traffic Generation, Data and Analysis 11 – Warehouses;

- Ausgrid NS167 Positioning of Poles and Lighting Columns (document no. NW000-S0045, approved 8 November 2018);
- Letter from NSW Government Planning and Environment to Mr Tony Lyons, Ref: SSD-19425495, dated 8 July 2022; and
- Layout plan of the proposed development at 132-144 Warren Road Smithfield (NSW) prepared by Polytrade, Sheet 1 of 5, Rev 12, dated 13 July 2022.

2. EXISTING CONDITIONS

2.1 Location and Land use

The existing site is located on the south side of the Warren Road approximately 120 m west of Sturt Street. The location of the subject site is shown in **Figure 2.1**.

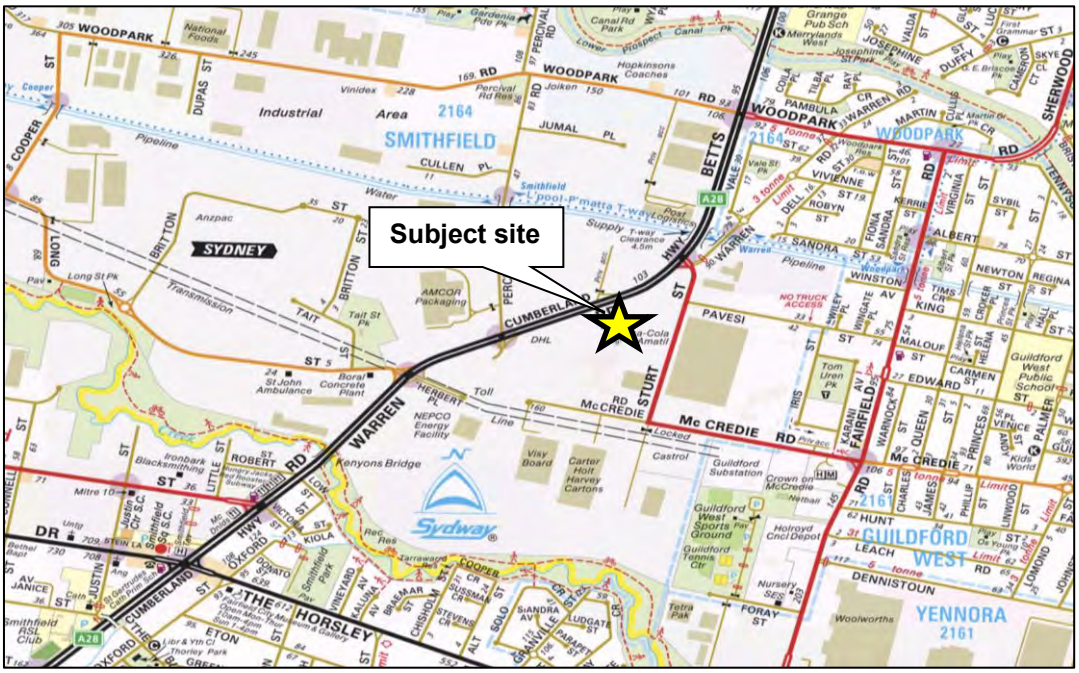

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Figure 2.1: Location of the subject site

The site, which is currently vacant, has an area of 1.9 ha. Information provided by the applicant indicates that they believed that the previous use was understood to be involved in the fabrication of steel products.

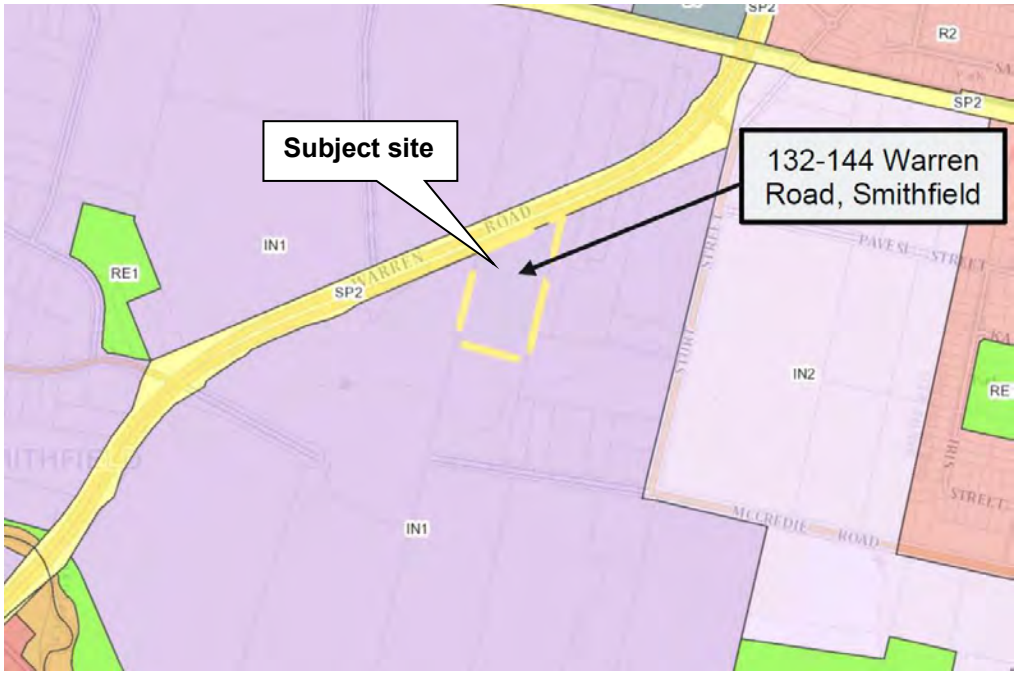
The site contains a shed (8,600 sqm), landscaped areas (1,910 sqm), car parking (1,600 sqm) and external hardstand areas for circulation (6,400 sqm).

The site is shown in **Figure 2.2.**

Source: MRA SEARs (2021)

Figure 2.2: Existing site layout

The area immediately surrounding the site is industrial in nature. The site is identified as Lot 2 of DP 1230452 in the Holroyd Local Environmental Plan (LEP) 2013 and is zoned General Industrial (IN1), as shown in **Figure 2.3**.



Source: MRA SEARs (2021)

Figure 2.3: Land Use Zoning of subject site

2.2 Road Network

Warren Road is classified as an arterial road and contains a divided cross section with three traffic lanes in each direction. No Stopping restrictions along the south side of Warren Road adjacent to and in the vicinity of the site.

Photos showing the cross section of Warren Road looking to the east and west in close proximity to the site are shown in **Figures 2.4** and **2.5**, respectively.

Source: google maps street view

Figure 2.4: Warren Road looking east

Source: google maps street view

Figure 2.5: Warren Road looking west

2.3 Existing Traffic Volumes

To establish the existing traffic movements, surveys were undertaken at the intersections of the Cumberland Highway (Warren Road) at both Sturt Street and at Percival Road on Thursday 7 April 2022 between 7 am and 9 am and between 4.30 pm and 6.30 pm.

The results of the surveys, which are summarised in **Attachment A**, indicate that, during the survey periods:

- The morning commuter peak hour occurred between 7.15-8.15 am and between 7.30-8.30 am at the two intersections and the afternoon commuter peak hour occurred between 4.45-5.45 pm at both intersections;
- Cumberland Highway (Warren Road) carries around 3,700 vehicles during the morning peak hour and 4,300 vehicles during the late afternoon commuter peak hour; and
- Sturt Street carries around 900-1,000 vehicles during both the morning peak hour and the late afternoon commuter peak hour; and

- Percival Road (north) carries around 250-300 vehicles during both the morning peak hour and the late afternoon commuter peak hour. Percival Road (South) carries up to 20 vehicles during the morning and late afternoon commuter peak hours.

2.4 Public Transport Facilities

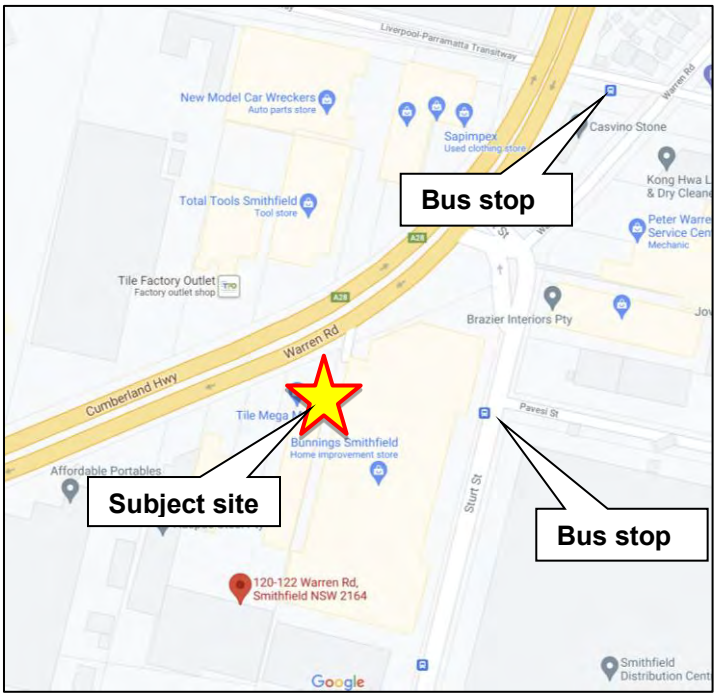
The site is well serviced by public transport services. Details of the public transport services operating in relative close proximity to the site are summarised as follows:

- Bus route T80 operates between Penrith to Parramatta via Miller, Bonnyrigg, Prairiewood, T-Way service; and

- Bus route 821 operates between Guildford and Smithfield Industrial area.

Bus stops are conveniently located in close proximity to the site. The locations of the nearby bus stops are shown in **Figure 2.6**.

The public transport services operate during times which coincide with the operating times for the proposed development during the weekday daytime and Saturday morning periods and provides convenient access for employees to the development.



Source: google maps

Figure 2.6: Public transport services in the vicinity of the subject site

2.5 Existing Operating Conditions

An assessment was undertaken of the existing operation of the signalised intersections at Cumberland Highway (Warren Road) at both Sturt St and at Percival Road during the morning and late afternoon commuter peak hours.

The assessment was undertaken using the SIDRA intersection analysis computer program (Version 9). Intersection performance is generally reported by the intersection degree of saturation (x), which provides a measure of the relationship of volume to capacity for all movements at the intersection.

The relationship between level of service criteria and degree of saturation for the various intersection types are summarised in **Table 2.1.**

Table 2.1: Relationship between level of service and degree of saturation (x)

Level of Service		Intersection Degree of Saturation (x)		
		Unsignalised intersections	Roundabouts	Signalised intersections
A	Excellent	<=0.6	<=0.6	<=0.6
B	Very good	0.6 – 0.7	0.6 – 0.7	0.6 – 0.7
C	Good	0.7 – 0.8	0.7 – 0.85	0.7 – 0.9
D	Acceptable	0.8 – 0.9	0.85 – 0.95	0.9 – 0.95
E	Poor	0.9 – 1.0	0.95 – 1.0	0.95 – 1.0
F	Very poor	>=1.0	>=1.0	>=1.0

A summary of the intersection geometry, peak hour traffic phasing (cycle length of 140 sec) adopted for the morning and late afternoon commuter peak hours are shown summarised in **Attachment B.**

The existing performance of the intersection was assessed using the SIDRA computer program, with the intersection layout and performance measures of critical degrees of saturation, average vehicle delay and 95 th % ile queue lengths shown in **Attachment C** and summarised in **Tables 2.2 and 2.3.**

Table 2.2: Existing Performance: Warren Rd/Sturt St

Peak Hour	Intersection Performance				
	Approach / Critical Movement #	Degree of Sat (x)	Average delay (sec/veh)	95 th % ile queue (m)	Level of Service
AM PEAK	North East - T	0.624	17.8	230.0	B
PM PEAK	South East - R	0.789	81.1	75.3	C

Note: # L Left, T Through, R Right, N North, S South, E East, W West

On the basis of the above analysis, the intersection currently operates at a good to very good level of operation during the am and pm commuter peak hours.

Table 2.3: Existing Performance: Warren Rd/Percival St

Peak Hour	Intersection Performance				
	Approach / Critical Movement #	Degree of Sat (x)	Average delay (sec/veh)	95 th % ile queue (m)	Level of Service
AM PEAK	East - R	0.781	57.5	37.4	C
PM PEAK	East - T	0.660	13.7	253.0	B

Note: # L Left, T Through, R Right, N North, S South, E East, W West

On the basis of the above analysis, the intersection currently operates at a good to very good level of operation during the am and pm commuter peak hours.

3. THE PROPOSAL

It is proposed to refurbish the existing buildings to provide a Material Recycling Facility (MRF).

The recycling facility has a floor area of 8,900 sqm and will be focused on processing domestic kerbside waste, that is, glass, paper, cardboard, plastics, steel, aluminium and general waste.

The recycling facility will have a processing capacity of 150,000 tonnes per annum (tpa).

The facility will operate 24/7 and will have 2 x 12 hour shifts with up to 12 shift workers per shift (total 24 shift workers). The applicant has advised that the shift changeover times will occur at 4 am and at 4 pm.

In addition, the applicant has advised that there will be one site manager, four office staff, two weighbridge operators, two shift managers and three maintenance/cleaning staff. At any one time, there will be a maximum of 36 staff on site (at shift changeover times).

Management and administrative staff will typically be on the site between 9 am and 5 pm on weekdays.

Reference to the layout plans indicates that the on-site parking areas will contain a total of 41 spaces for staff and visitors, inclusive of an accessible bay. In addition, two weighbridges are proposed to be located at the facility to accommodate both trucks arriving at the facility and trucks departing from the facility.

Access for trucks will comprise of the existing access which will accommodate all truck arrivals (and exit access for B-Doubles). The majority of trucks (up to 19 m in length) will circulate clockwise around the site and exit via the existing access adjacent to the site's western boundary.

Access to and from the on-site parking area for staff and visitors will be provided via a new access located 10 m west of the site's eastern boundary.

In addition, there will be loading dock areas within the building for trucks up to 19 m in length with the largest truck visiting the site corresponding to a 26 m B-double articulated vehicle, which will be required to prop within the accessway for unloading.

The layout of the proposed development is shown in **Attachment D**.

4. CAR PARKING CONSIDERATIONS

4.1 Car Parking Requirements

The car parking requirements for the proposal are set out in the Cumberland Development Control Plan, (2021), specifically in Part G3, Section 3.

Reference to the Table of General Parking Controls indicate that there is no applicable land use provided in the Cumberland Development Control Plan, (2021), specifically in Part G3, Section 3, for a Resource Recovery Facility.

While there is no land use which reflects the proposed resource recovery facility, following discussions with the applicant, it is considered that *warehouse* provides the best comparative land use to the proposed development, and is therefore adopted as the basis to determine the development's car parking requirements.

The Table of General Parking Controls indicates that the (minimum) car parking requirements for *Warehouse* correspond to:

- 1 space per 300 sqm

On the basis of the above, the assessment of car parking requirements indicates the proposed development has a car parking requirement for 29 spaces.

Further, reference to the Building Code of Australia indicates that there is a requirement to provide an accessible space, which is proposed to be provided.

The development's car parking requirement of 29 spaces is satisfied by the on-site parking supply of 41 spaces.

4.2 Car Park Layout

The existing car parking area will be reconfigured to provide a total of 41 car spaces. Reference to the car park layout plan indicates that:

- all parking spaces are proposed to be provided at a width of 2.6 m and a length of 5.4 m with a minimum aisle width of 6.258 m, which can accommodate either staff or visitor parking;

- the parking bay on the east side of the gate is designated as a staff space and is provided at a width of 2.7m;

- the accessible space and the adjacent shared space be provided at a width of 2.4 m and a length of 5.4 m, with the shared space containing a centrally located bollard offset by a distance of 800 mm from the edge of the accessway.

The car park layout accords with the requirements stipulated in the Australian Standards AS 2890.1:2004 and AS 2890.6:2009.

To facilitate safe access for staff and visitors between the staff/visitor car park and the entrance to the facility, a pedestrian pathway is proposed to be provided between the western side of the car park across the front of the warehouse.

The pathway is recommended to be provided at a width of 1.2 m and with yellow pavement markings. In addition, it is recommended that 'watch for trucks' signage is located on either side of Gate 1 and signage installed within the truck entry access indicating 'watch for pedestrians'.

An assessment of the proposed car park access indicates that the following gradients are required to be marked on the layout plan.

RL at southern edge of footpath: RL = 24.39 (higher RL):

- Gradient of 1:20 for length of 6 m: RL = 24.09
- Gradient of 1:11.65 for length of 12.23 m up to car park access gate: RL = 23.03

It should be noted that a traffic island is located at the entrance to the staff/visitor car park within the Warren Road/road reserve. An existing utility pole is located within the traffic island which is offset at 1.5 m from the edge of the island.

The offset clearance of 1.5 m adopted for the placement of the utility pole within the traffic island was sourced from *Ausgrid NS167 Positioning of Poles and Lighting Columns* (document no. NW000-S0045, approved 8 November 2018). This advice has also been confirmed by officers from Transport NSW in an email response received on 7 July 2022.

The ability for two vehicles to simultaneously enter and exit the car park access was assessed with the use of the AutoTURN computer software using B85 and B99 vehicles.

The results of the assessment are shown in **Attachment E** and indicates that two cars can simultaneously turn into and out of the car park access, whilst maintaining a safe clearance to the edge of the central traffic island and the existing utility pole.

5. COMMERCIAL VEHICLES

5.1 Accessibility to/from the site

Information provided by the client indicates that the trucks arriving to pick up recycled material at the processing area will be undertaken by a mixture of Council's collection vehicles, walking floor semi-trailers, small rigid/tipper trucks, truck and dog trailers and 26 m B-double trucks.

The applicant has advised that the trucks will align themselves with the respective loading docks as set out below:

- Loading dock I: 12.5 m HRV enters loading dock, reverses out then forward into Gate 1
- Loading docks B and C: 19 m and 26 m B-Double – props alongside the loading docks – forklifts used to unload goods under traffic control
- Loading docks C and D: 19 m and 26 m B-Double trucks partially reverse into loading docks, then 19 m truck exits in a clockwise manner around site to exit via Gate 2 and 26 m B-Double undertakes a left turn to exit via Gate 1
- Loading docks E and F: 19 m truck and dog trailer props between the loading docks
- Loading dock (adjacent to weighbridge 2): 19 m AV manoeuvre back to the loading dock ramp. An example of this external loading dock ramp is shown in **Figure 5.1**.

Figure 5.1: Example of external loading dock ramp

The ability for a 12.5 m HRV and 19 m AV trucks to enter/exit the site in a forward manner, manoeuvre on-site to access the various loading docks and then exit from the site in a forward manner was assessed with the use of the AutoTURN swept path computer software, the analysis of which is shown in **Attachment F**.

The analysis indicates that a 12.5 m HRV and a 19 m articulated vehicle can enter the site in a forward manner, manoeuvre on-site to access the various loading dock areas (and loading ramp) to then circulate in a clockwise direction around the site to depart from the site in a forward manner, subject to the provision of splays on either side of the truck entry crossover.

It is further noted that the AV truck propped in front of the loading ramp would restrict the passage of personnel from the fire escape door located adjacent to loading dock H and accessibility for fork-lifts to/from roller doors at loading bays G and H.

It is understood from discussions with the applicant that a new loading dock roller door and fire escape door would be constructed to provide ease of access for forklifts to the loading dock ramp facility.

A further assessment was undertaken to examine the ability for a 26 m B-Double truck to enter/exit the site in a forward manner, manoeuvre on-site and then exit from the site.

The analysis indicates that a 26 m B-double truck can enter the site in a forward manner, and manoeuvre on-site to either prop between the loading docks C and D or partially reverse into loading dock D but is unbale to physically circulate around the site in a clockwise manner. As a result, the 26 m B-Double is required to exit via Gate 1.

During the times when B-Double trucks are accessing the site, all other trucks will be restricted from accessing the abutting loading docks to provide the B-Double truck(s) with a clear area to be able to undertake a u-turn manoeuvre to then exit from the eastern access (Gate 1).

During these times, the other trucks are able to utilise the truck layover area abutting the south side of the staff/visitor car park. This layover truck facility can accommodate up to seven trucks at one time and, on this basis, minimal queuing is anticipated to occur at the site access given the provision of a bypass lane adjacent to the weighbridge, four separate loading bay facilities and a layover area capable of accommodating up to seven trucks at any one time.

The ability for a 26 m B-Double truck to enter/exit the site in a forward manner, manoeuvre on-site and then exit from the site in a forward manner was assessed with the use of the AutoTURN swept path computer software, the analysis of which is shown in **Attachment G**.

The analysis indicates that a 26 m B-Double truck can enter the site in a forward manner, manoeuvre on-site to then depart from the site in a forward manner via the existing access (Gate 1), subject to the provision of splays on either side of the entry access.

On occasions, when the trucks are required to reverse back to the loading dock areas, it is recommended that a spotter be deployed to minimise the potential for conflict with other trucks circulating within the site's accessways.

It is further noted that B-double trucks cannot exit from the existing site access whilst another truck is entering the site access, and similarly, the B-Double trucks cannot enter the site access whilst another truck is propped to exit from the site access.

As such, it is recommended that 26 m B-Double movements are minimised and are only permitted to access the site during the off-peak time periods, such as between 6 pm and 5 am.

Further, 26 m B-Double truck movements are required to be regulated and spotters used at the eastern access point to ensure that one B-Double truck arrives or departs from the site's eastern access at any one time.

The B-Double trucks will be required to communicate with the site manager, prior to arriving at the site to ensure that their arrival time occurs at an off-peak time with no other B-Double trucks on site as well as minimal truck activity on the site to minimise the potential for conflict between arriving/departing trucks.

Truck queuing will be kept to a minimum at the exit access with the vast majority of trucks, upon exiting from the loading docks will circulate in a clockwise manner around the site to depart from the site's western access via a left turn manoeuvre into Warren Road.

Information provided by the applicant indicates that there will be a maximum of two incoming and two outgoing B-Double truck movements per day, which will be restricted to occur between 6 pm and 5 am.

The vast majority of all other truck movements will occur between 5 am and 6 pm thereby minimising the potential for conflict between B-Double trucks and all other trucks.

Information provided by the applicant indicate that the truck movements forecast to be generated by the proposed development are shown summarised in **Attachment H**.

Reference to the forecast truck movements indicate that there are anticipated to be a maximum of 8 trucks during the morning commuter peak hour and 2 trucks during the late afternoon commuter peak hour which will be required to use the weighbridge at Gate 1.

During the morning commuter peak hour, the incoming trucks will arrive at an average rate of one truck each 7.5 minutes.

The applicant has further advised that the average time taken by a truck on a weighbridge, that is, a truck driving onto the weighbridge, their weight recorded and the truck exiting from the weighbridge varies between 15 seconds and 30 seconds per truck.

Adopting the upper limit of 30 seconds for a truck propped on the weighbridge at Gate 1 and, based upon an average arrival rate of one truck every 7.5 minutes, it is anticipated that there will be minimal queuing at the weighbridge facility.

Even in the event that two trucks arrive simultaneously, there is adequate provision within the entry access to safely accommodate a truck propped on a weighbridge and a truck propped within the entry access.

In the event that there is a truck propped within the entry access, whilst a truck is propped on weighbridge at Gate 1, it is recommended that traffic management personnel signal to any subsequently arriving trucks that they are to use the bypass lane at Gate 1 and then prop in the waiting bays until the weighbridge is vacant for the trucks to then manoeuvre onto the weighbridge.

5.2 Headroom clearance

AS 2890.2:21018 indicates that a minimum headroom clearance of 4.5 m required to be provided within the buildings to facilitate access to/from the loading dock areas.

Information provided by the applicant indicates that the available headroom clearance at both roller doors and within the warehouses are in excess of 4.5 m.

6. TRAFFIC IMPACT

6.1 Anticipated Vehicle Movements

The impact of the proposed development can be assessed having regard to the anticipated number of truck and car movements likely to be generated at the development access during the commuter peak periods.

Truck Movements

Based upon information provided by the applicant (refer **Attachment H)**, the number of receival truck movements anticipated to be generated by the proposed recycling facility corresponds to the following number during the morning and late afternoon commuter peak hours:

- Morning commuter peak hour (7.30-8.30 am): 15 IN, 15 OUT
- Late afternoon commuter peak hour (4.45-5.45 pm): 5 IN, 5 OUT

It is noted that Council trucks will drop off materials five days per week (Monday to Friday) and commercial waste will be dropped off seven days per week.

Offtake, that is, materials picked up from the facility, will be undertaken over a 24 hour period.

Having regard to the peak truck arrival movements, it is considered that there will be minimal queuing at the site entry access. On those occasions when several trucks arrive simultaneously, a bypass lane is provided adjacent to the weighbridge to enable arriving trucks to bypass any trucks propped on the weighbridge, if required.

Staff and Visitors

There will be a maximum of up to 12 shift worker vehicles (assuming all drive) which will arrive and depart the site at shift changeover times, that is between 3.45 am – 4.15 am and between 3.45 pm and 4.15 pm.

In addition, assuming say one visitor arriving at the site during the shift changeover times, results in a total (car) peak hour traffic generation of 25 vehicle movements between 3.30 – 4.30 am and between 3.30-4.30 pm.

During the morning commuter peak hour, that is between 7.30 am – 8.30 am, it is assumed that the office manager, four office staff and three maintenance staff will arrive at the site.

During the late afternoon commuter peak hour, that is between 4.45 pm – 5.45 pm, it is assumed that the office manager, four office staff and three maintenance staff will depart the site.

The shift changeover times will occur between 3.45 pm – 4.15 pm and will therefore not coincide with the late afternoon commuter peak hour.

As a comparison, reference to *TANSW, Guide to Traffic Generating Developments, 2002* indicates that, application of the traffic generation rates for either a factory or warehouse use, which were the land uses which were originally approved by Council for this site, generate a significantly higher number of vehicles trips than that forecast to be generated for this proposed development.

A comparative assessment is set out as follows:

The daily traffic generation corresponding to the originally approved uses on this site (based upon a floor area of 8,600 sqm) are summarised as follows:

- Factory Daily generation rate of 5 vm/100 sqm => 430 vm/day
- Warehouse Daily generation rate of 4 vm/100 sqm => 344 vm/day

Reference to the data provided by the applicant indicates that the proposed development will generate a total of 266 vehicle movements per day, which is comprised of 190 truck movements and 76 staff and visitor movements.

On the basis of the above, the level of traffic anticipated to be generated by the development site is significantly lower than that which had been originally approved to operate on the site.

6.2 Impact of additional traffic movements

Discussions between the applicant and Transport NSW indicate that, for the purpose of the analysis, the traffic generation rates for warehouse should be adopted to estimate the traffic flows for the existing use.

Reference is made to *TANSW, Guide to Traffic Generating Developments, 2002*, which states amongst other things that, the morning peak hour traffic generation rates for warehouse corresponds to 0.5 trips per 100 sqm.

Application of the peak hour generation rate to the existing warehouse (8,600 sqm) results in an anticipated morning peak hour traffic flow of 43 vehicles per hour.

Further, reference to the *TANSW, Land Use Traffic Generation, Data and Analysis 11 – Warehouses* indicates that, for comparable warehouse sites, the proportion of trucks and cars during the morning commuter peak hour corresponds to an average of 60 % (trucks) and 40 % (cars).

Therefore, based upon an existing morning peak hour traffic flow of 43 vehicle movements, it is anticipated that the existing site generated 25 truck movements and 18 car movements during the morning commuter peak hour. An assessment of the net traffic movements can be undertaken as follows:

Existing site traffic generation (Section 5.2)

AM peak hour: 18 cars (entry)
25 trucks (entry/exit)

Future development traffic generation (section 5.1)

AM peak hour 8 cars (entry)
15 trucks IN, 15 trucks OUT

Therefore there is anticipated to be a net reduction in the total number of vehicles generated by the development site in the peak morning commuter hour in comparison to what was previously generated by the existing warehouse.

Notwithstanding the above, given that there is anticipated to be a reduction in the number of cars being generated and a net increase of five trucks (between the existing site and future development), the assessment of future impact on the road network was conservatively based upon the following number of truck movements anticipated to be generated by the development site during the commuter peak hours:

- AM commuter peak hour (7.30-8.30 am): 14 trucks IN, 14 trucks OUT
- PM commuter peak hour (4.45 – 5.45 pm): 4 trucks IN, 4 trucks OUT

The distribution of vehicle movements to and from the development access can be assessed having regard to the existing turning movements at the adjoining signalised intersections on the adjacent road network.

An examination of the turning movements at the abutting signalised intersections indicates that there are minimal u-turn manoeuvres at the intersections, which suggest that vehicles travelling to and from the commercial and industrial uses along Warren Road between Percival Road and Sturt Street are using the broader road network to align themselves on the approach to and from the sites.

On the basis, it is assumed that all arriving vehicles will approach from the east and all departing vehicles will depart toward the west.

The respective movements at the adjoining intersections are show in **Figure 4.3**.

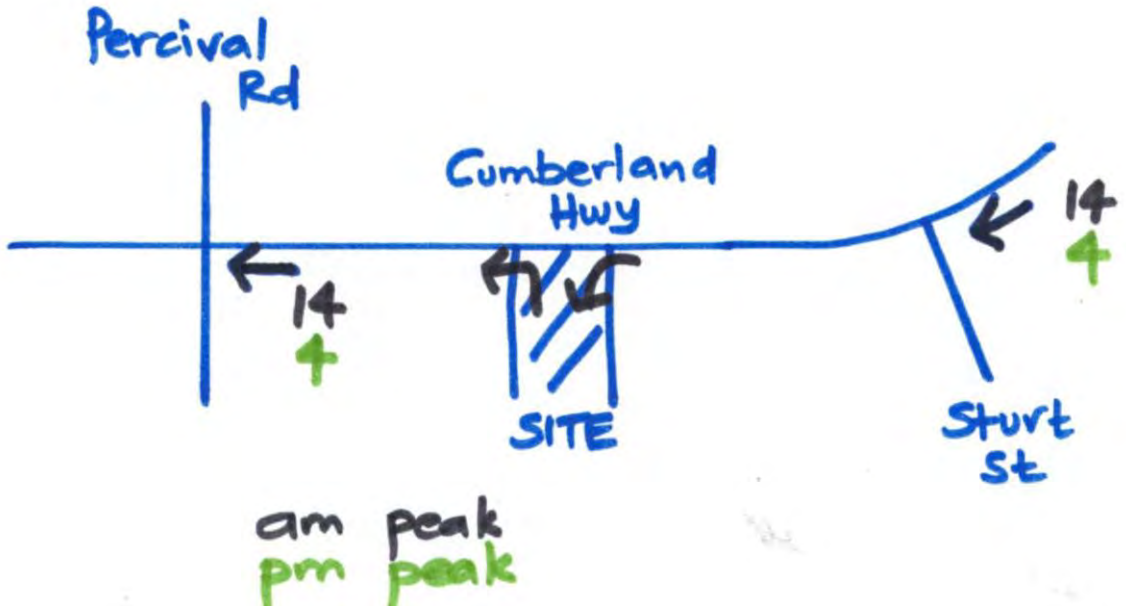


Figure 6.2: Directional distribution at site access

6.3 Traffic Impact upon adjacent intersections

The impact of the development can be determined by superimposing the traffic volumes anticipated to be generated by the proposed development upon the existing traffic volumes for the morning and late afternoon commuter peak hours.

The intersections of Cumberland Highway (Warren Road) at both Percival Road and Sturt Street were assessed using the SIDRA intersection computer program having regard to the resultant traffic distributions for the proposed development, with the performance measures of critical degrees of saturation, 95 th % ile queue lengths and average delay are shown in **Attachment J** and summarised in **Tables 6.1** and **6.2.**

Table 6.1: Future Performance: Warren Rd/Sturt St

Peak Hour	Intersection Performance				
	Approach / Critical Movement #	Degree of Sat (x)	Average delay (sec/veh)	95 th % ile queue (m)	Level of Service
AM PEAK	North East - T	0.624	17.3	229.9	B
PM PEAK	South East - R	0.789	81.1	78.3	C

Note: # L Left, T Through, R Right, N North, S South, E East, W West

On the basis of the above analysis, the intersections are forecast to operate at a good to very good level of operation for the future case during the am and pm peak hours.

Table 6.2: Future Performance: Warren Road/Percival Rd

Peak Hour	Intersection Performance				
	Approach / Critical Movement #	Degree of Sat (x)	Average delay (sec/veh)	95 th % ile queue (m)	Level of Service
AM PEAK	East - R	0.781	57.5	37.4	C
PM PEAK	East - T	0.661	13.8	254.3	B

Note: # L Left, T Through, R Right, N North, S South, E East, W West

On the basis of the above analysis, the intersections are forecast to operate at a good to very good level of operation for the future case during the am and pm peak hours.

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As a result of the above assessment, it is considered that the proposed development will have a negligible additional impact upon the operation of the intersections of Warren Road at both Percival Road and Sturt Street during the commuter peak hours.

Therefore, it is considered that the traffic flows anticipated to be generated by the proposed development will therefore not represent an adverse impact upon the operation of the adjacent road network at the peak road network times.

7. CONCLUSIONS AND RECOMMENDATIONS

Having regard to the above, it is considered that:

- The development's car parking requirement of 29 spaces is satisfied by the on-site parking supply of 41 spaces;
- The anticipated peak parking demands correspond to a maximum of up to 36 vehicles at shift changeover times, could be accommodated within the proposed parking supply of 41 spaces; and
- The level of traffic movements anticipated to be generated by the proposed development is considered minimal and is not anticipated to represent an adverse impact upon the operation of the abutting road network at the peak road network times.

Further, it is recommended that :

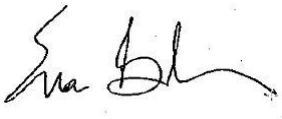
- pedestrian pathway be provided at a width of 1.2 m with yellow pavement markings;
- installation of 'watch for trucks' signage on either side of Gate 1 and signage installed within the truck entry access indicating 'watch for pedestrians';
- the following gradients are required to be marked on the layout plan.

  RL at southern edge of footpath: RL = 24.39 (higher RL):

  - Gradient of 1:20 for length of 6 m: RL = 24.09
  - Gradient of 1:11.65 for length of 12.23 m up to car park access gate: RL = 23.03

- splays be provided on either side of the entry access to facilitate safe entry/exit for 19 m AV and B-double trucks;
- during the times when B-Double trucks are accessing the site, all other trucks will be restricted from accessing the abutting loading docks;
- a spotter be deployed to minimise the potential for conflict with other trucks circulating within the site's accessways;
- A spotter would also be required to ensure that an AV could safely manoeuvre back to the loading dock ramp facility;
- (when two trucks are queued at Gate 1) traffic management personnel signal to any subsequently arriving trucks that they are to use the bypass lane at Gate 1 and then prop in the waiting bays until the weighbridge is vacant;
- either the loading dock ramp and weighbridge be relocated 2 m to the south or that a flush style of weighbridge 2 be adopted to allow improved manoeuvring in this area;
- 26 m B-Double movements are only permitted to access the site during the off-peak time periods, such as between 6 pm and 5 am;
- 26 m B-Double truck movements are required to be regulated and spotters used at the eastern access point to ensure that one B-Double truck arrives or departs from the site's eastern access at any one time; and

- a minimum headroom clearance of 4.5 m required to be provided for a 19 m articulated vehicle.



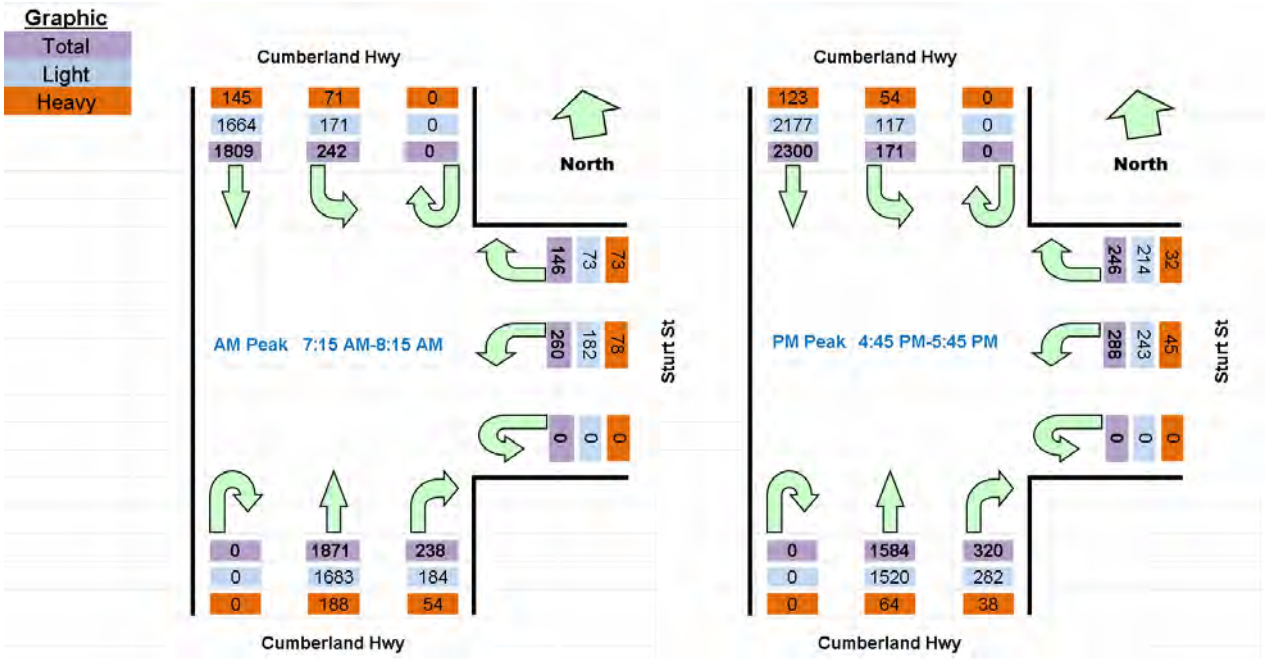
Evan Boloutis
Director
EB Traffic Solutions Pty Ltd

B.Eng (Civil), MEng Sc (Traffic), MBA

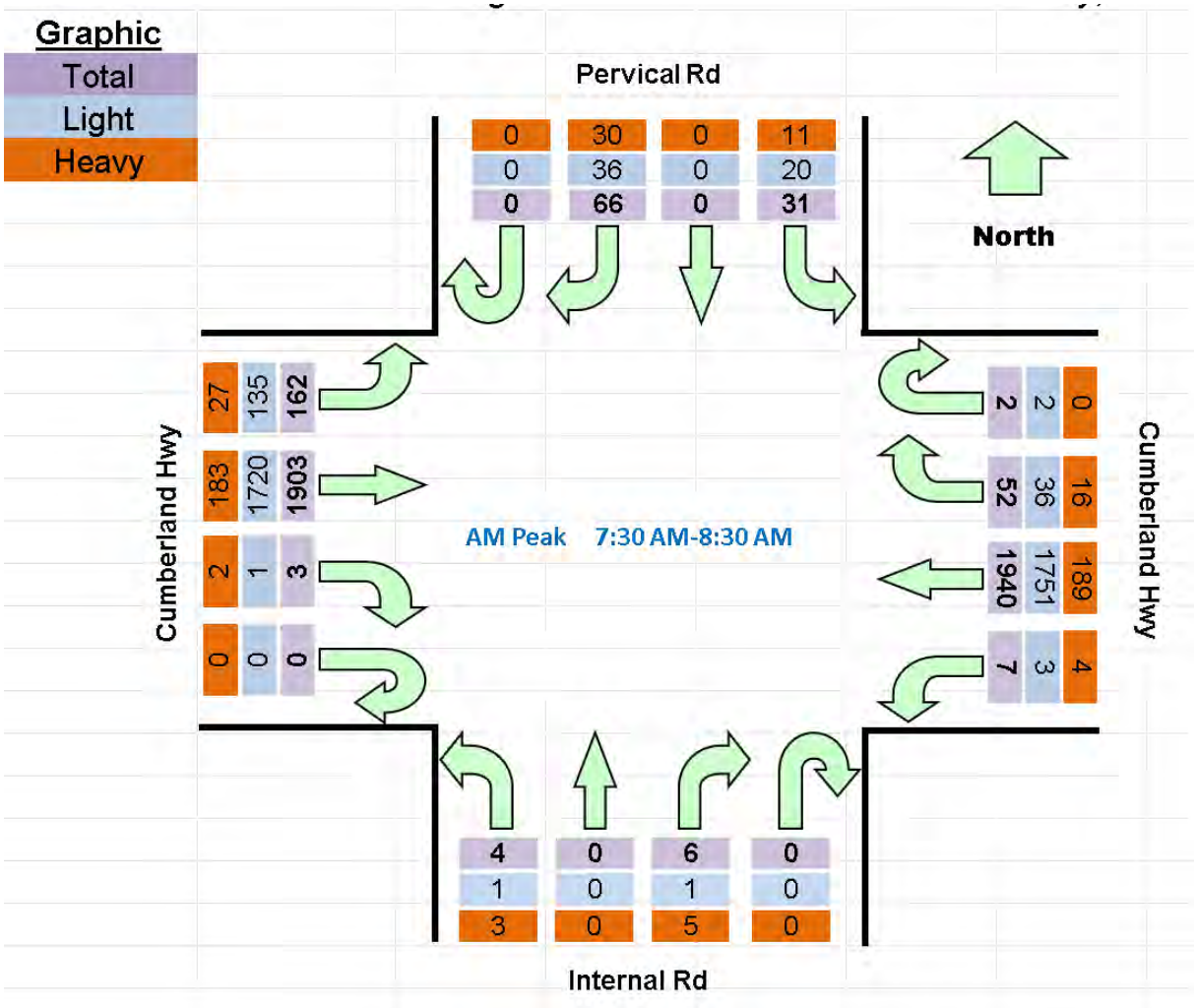
ATTACHMENTA

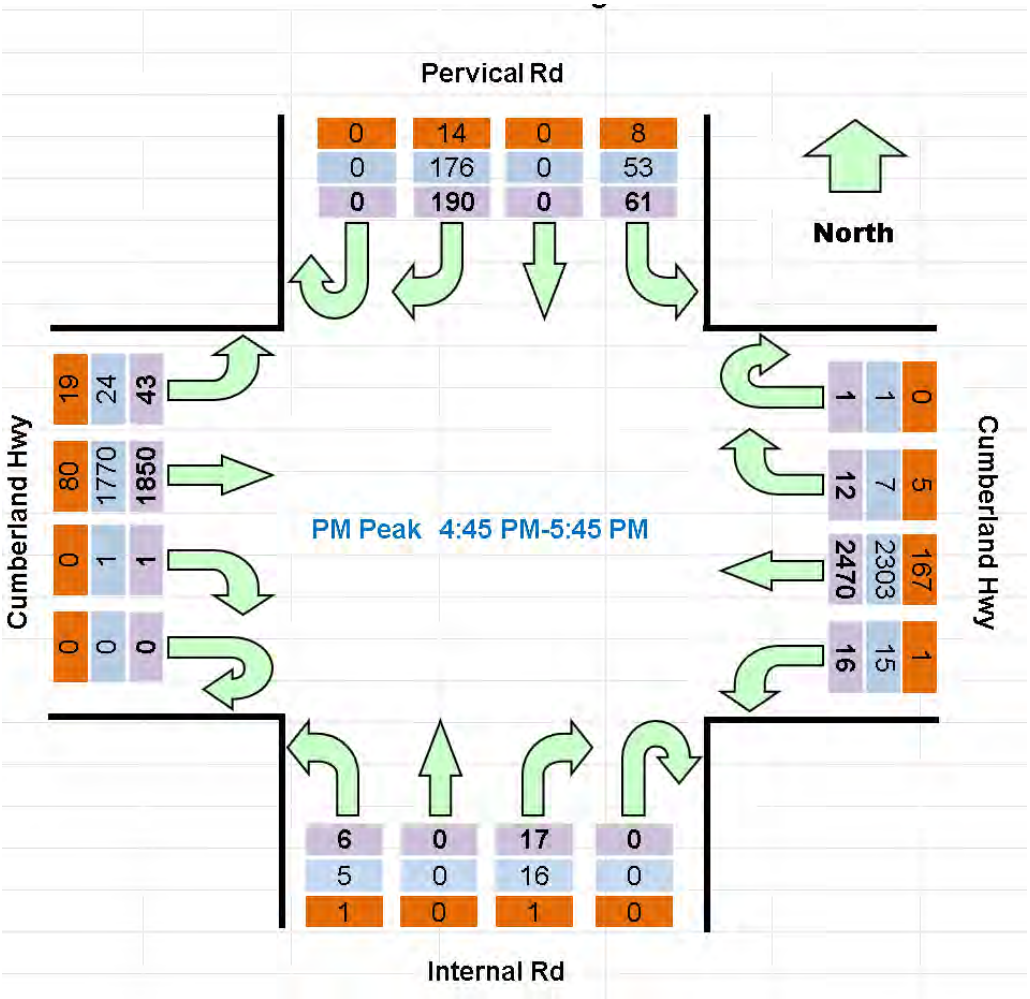
TRAFFIC VOLUME SURVEYS

Warren Road/Sturt Street



Warren Road/Percival Road




Pervical Rd
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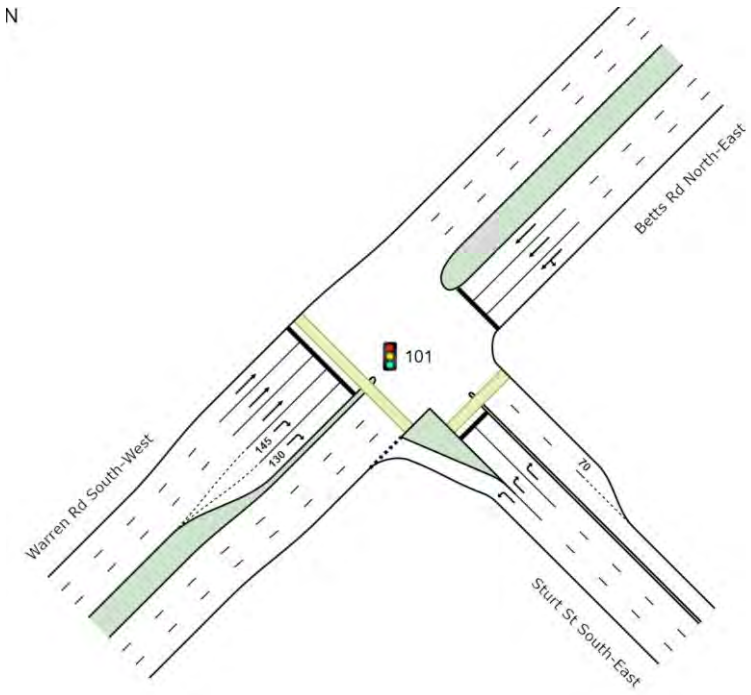
0 176 0 53
0 190 0 61
North
Cumberland Hwy
19 24 43
80 1770 1850
0 1 1
0 0 0
1 1 0
12 7 5
2470 2303 167
16 15 1
Cumberland Hwy
PM Peak 4:45 PM-5:45 PM
6 0 17 0
5 0 16 0
1 0 1 0
Internal Rd

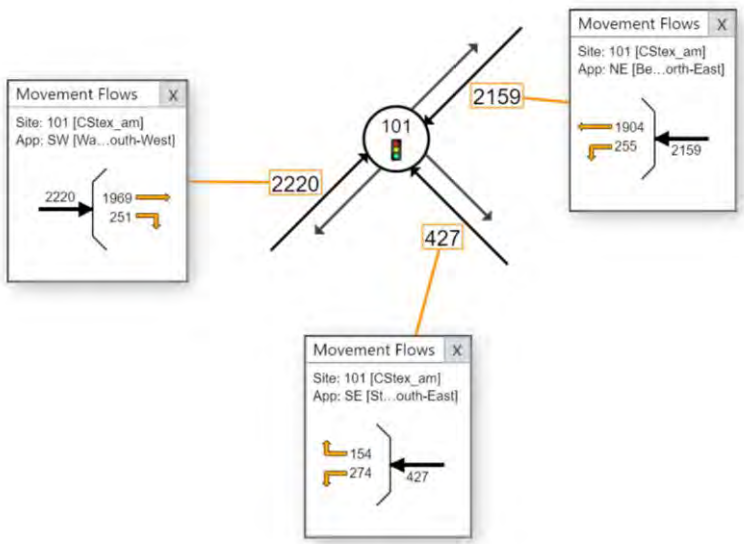
ATTACHMENT B

INTERSECTION LAYOUT, PHASING AND VOLUMES

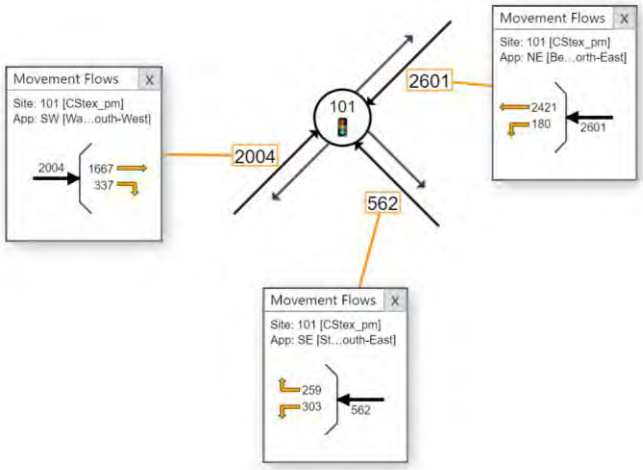
Warren Road/Sturt Street



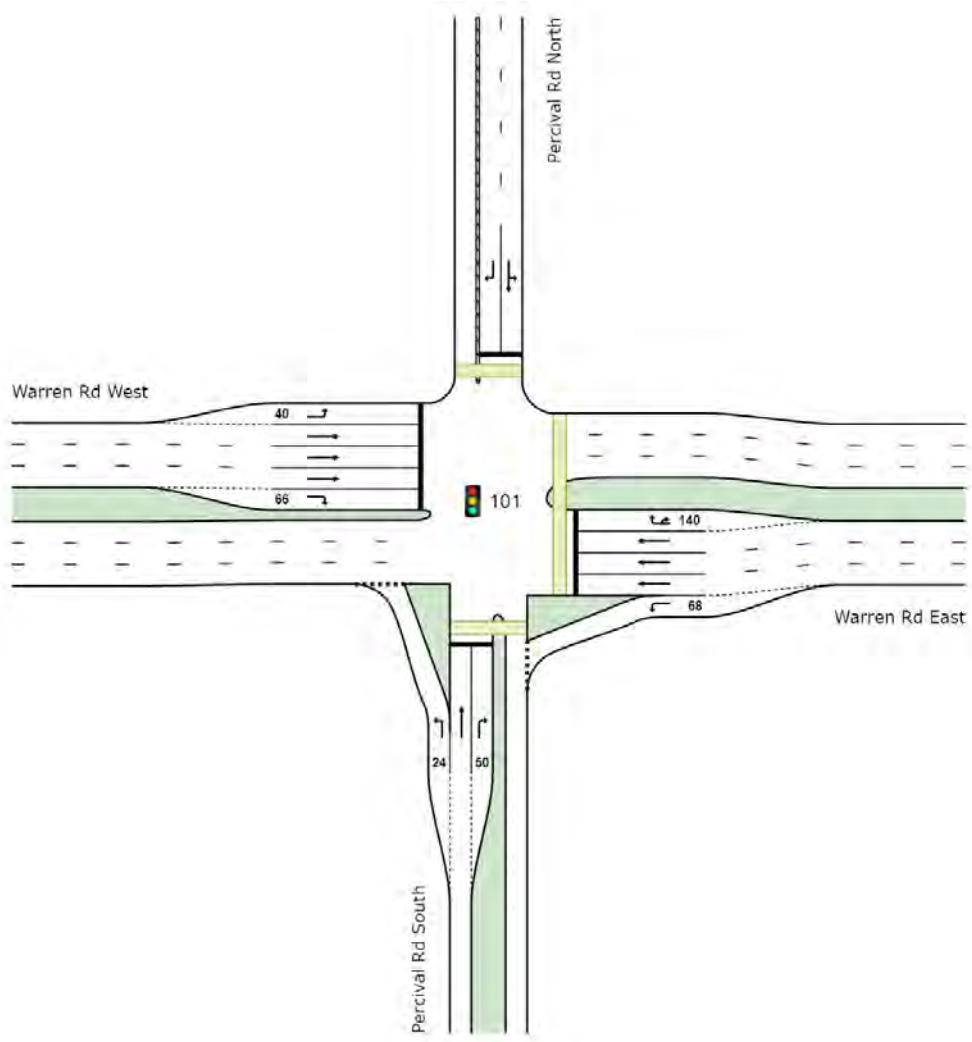
AM Peak

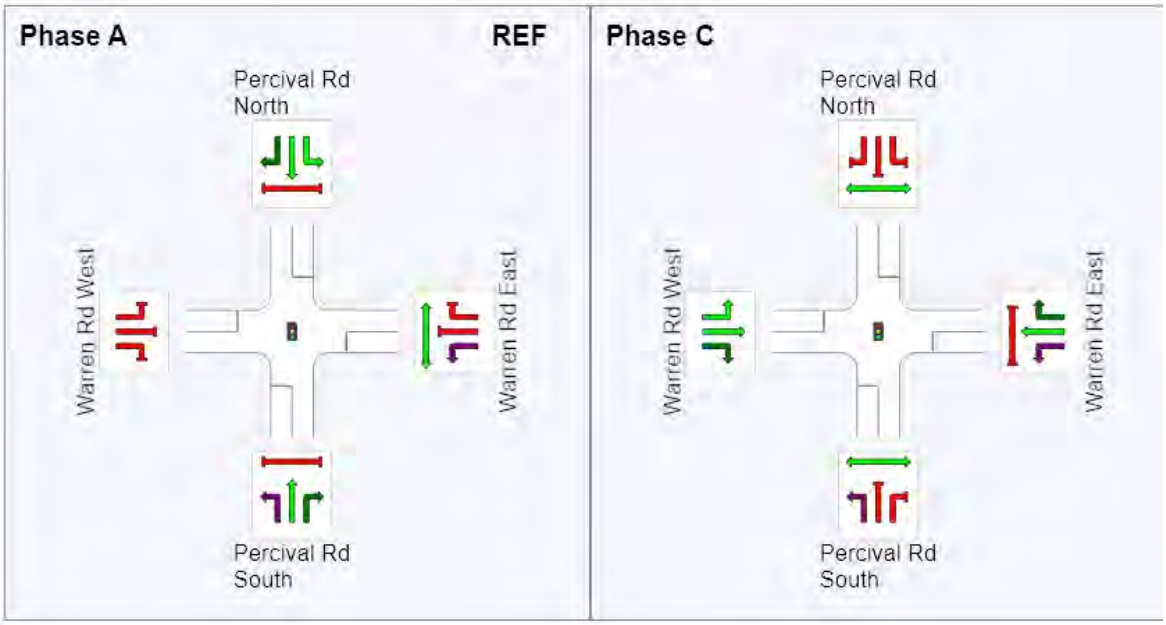


PM Peak

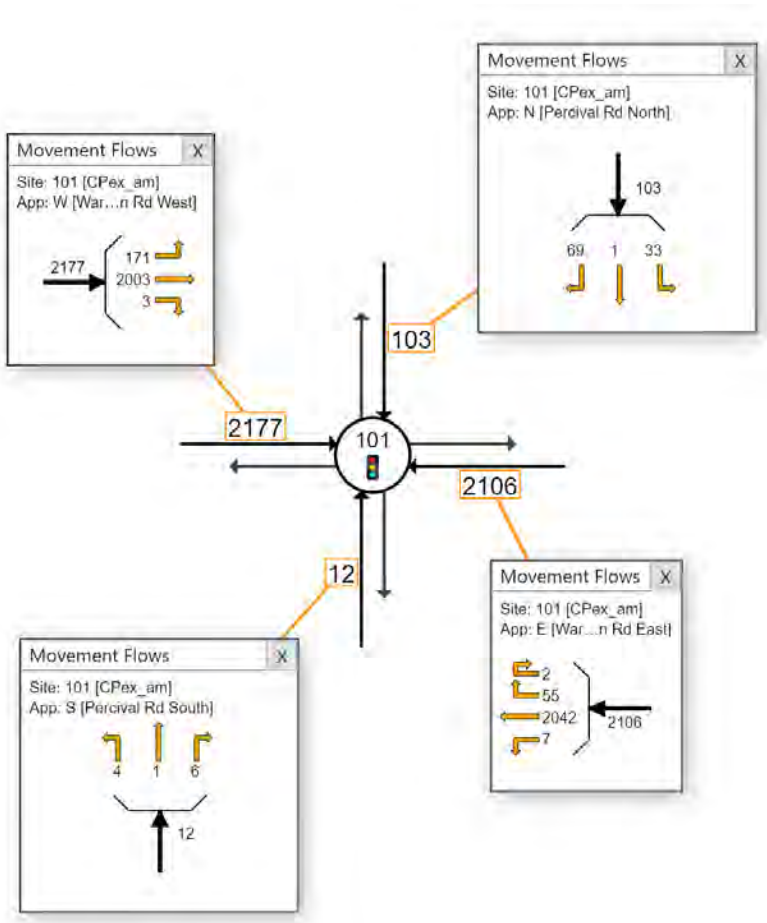


Warren Road/Percival Road




Phase A
REF
Percival Rd North
Warren Rd West
Warren Rd East
Percival Rd South
Phase C
Percival Rd North
Warren Rd West
Warren Rd East
Percival Rd South

AM Peak


Movement Flows
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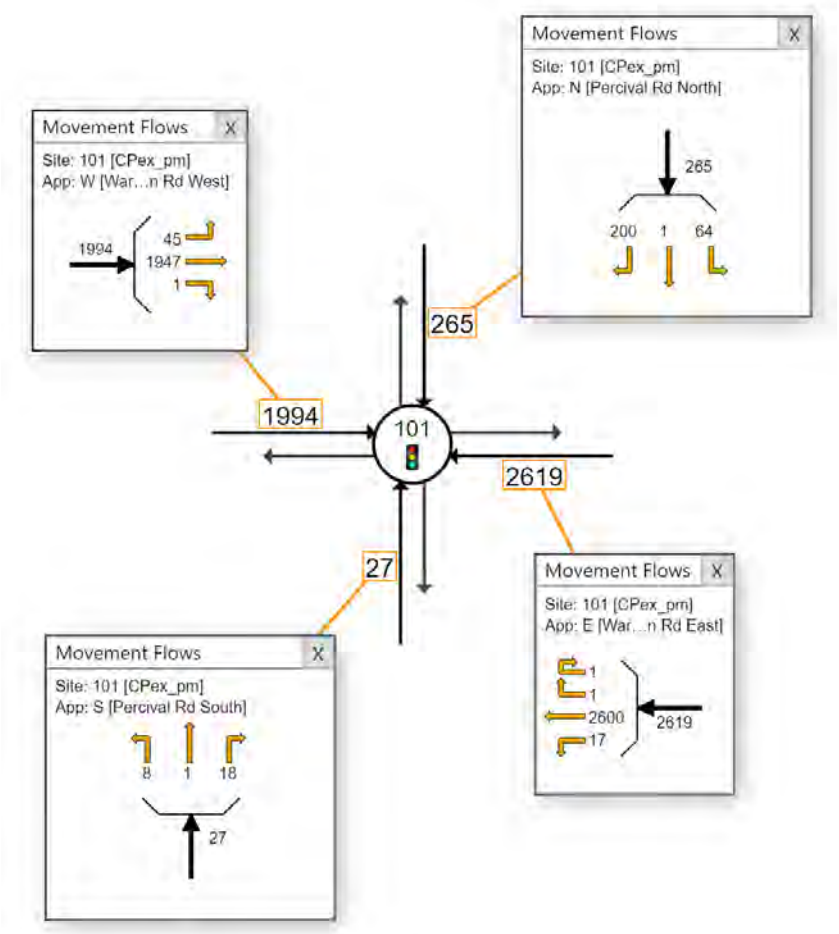
App: N [Percival Rd North]
103
69
1
33
Movement Flows
Site: 101 [CPex_am]
App: W [War…n Rd West]
2177
171
2003
3
103
2177
101
2106
12
Movement Flows
Site: 101 [CPex_am]
App: E [War…n Rd East]
2
55
2042
7
2106
Movement Flows
Site: 101 [CPex_am]
App: S [Percival Rd South]
4
1
6
12

PM Peak


Movement Flows
Site: 101 [CPex_pm]
App: W [War...n Rd West]
1994
45
1947
1
Movement Flows
Site: 101 [CPex_pm]
App: N [Percival Rd North]
265
200
1
64
Movement Flows
Site: 101 [CPex_pm]
App: E [War...n Rd East]
1
1
2600
17
2619
Movement Flows
Site: 101 [CPex_pm]
App: S [Percival Rd South]
8
1
18
27
1994
265
101
2619
27

ATTACHMENT C

INTERSECTION PEFORMANCE - EXISTING

Warren Road/Sturt Street

AM Peak

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Sturt St South-East														
21	L2	260	78	274	30.0	0.578	18.4	LOS B	11.0	97.2	0.65	0.78	0.65	45.0
23	R2	146	73	154	50.0	* 0.543	75.6	LOS E	5.4	54.0	0.99	0.78	0.99	26.1
Approach		406	151	427	37.2	0.578	39.0	LOS D	11.0	97.2	0.78	0.78	0.78	35.6
NorthEast: Betts Rd North-East														
24	L2	242	71	255	29.3	0.624	22.2	LOS C	28.3	225.1	0.64	0.71	0.64	46.0
25	T1	1809	145	1904	8.0	* 0.624	17.8	LOS B	30.7	230.0	0.65	0.68	0.65	48.9
Approach		2051	216	2159	10.5	0.624	18.3	LOS B	30.7	230.0	0.65	0.68	0.65	48.5
SouthWest: Warren Rd South-West														
31	T1	1871	188	1969	10.0	0.441	5.2	LOS A	13.1	99.7	0.32	0.41	0.32	59.3
32	R2	238	54	251	22.7	* 0.612	51.7	LOS D	11.8	98.3	0.95	0.97	0.95	32.0
Approach		2109	242	2220	11.5	0.612	10.5	LOS B	13.1	99.7	0.39	0.48	0.39	54.1
All Vehicles		4566	609	4806	13.3	0.624	16.5	LOS B	30.7	230.0	0.54	0.59	0.54	49.3

PM Peak

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Sturt St South-East														
21	L2	288	45	303	15.6	0.579	25.6	LOS C	14.0	111.1	0.74	0.80	0.74	41.6
23	R2	246	32	259	13.0	* 0.789	81.1	LOS F	9.7	75.3	1.00	0.88	1.19	25.4
Approach		534	77	562	14.4	0.789	51.2	LOS D	14.0	111.1	0.86	0.84	0.95	32.2
NorthEast: Betts Rd North-East														
24	L2	171	54	180	31.6	0.778	28.8	LOS C	43.5	333.2	0.81	0.80	0.81	43.1
25	T1	2300	123	2421	5.3	* 0.778	23.9	LOS C	45.8	335.1	0.81	0.79	0.81	45.3
Approach		2471	177	2601	7.2	0.778	24.3	LOS C	45.8	335.1	0.81	0.79	0.81	45.1
SouthWest: Warren Rd South-West														
31	T1	1584	64	1667	4.0	0.356	4.6	LOS A	9.7	70.1	0.27	0.38	0.27	59.9
32	R2	320	38	337	11.9	* 0.646	59.5	LOS E	15.2	117.4	0.95	0.99	0.95	30.1
Approach		1904	102	2004	5.4	0.646	13.8	LOS B	15.2	117.4	0.39	0.48	0.39	51.3
All Vehicles		4909	356	5167	7.3	0.789	23.1	LOS C	45.8	335.1	0.65	0.68	0.66	45.3

Warren Road/Percival Road

AM Peak

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	INPUT VOLUMES HV] veh/h	DEMAND FLOWS [Total veh/h	DEMAND FLOWS HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	95% BACK OF QUEUE Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Percival Rd South														
1	L2	4	3	4	75.0	0.027	7.6	LOS A	0.0	0.6	0.25	0.53	0.25	46.5
2	T1	1	0	1	0.0	0.005	60.6	LOS E	0.1	0.4	0.92	0.55	0.92	29.1
3	R2	6	5	6	83.3	0.064	71.1	LOS E	0.4	5.0	0.95	0.66	0.95	25.7
Approach		11	8	12	72.7	0.064	47.1	LOS D	0.4	5.0	0.69	0.60	0.69	31.1
East: Warren Rd East														
4	L2	7	4	7	57.1	0.007	5.3	LOS A	0.0	0.3	0.10	0.49	0.10	48.3
5	T1	1940	189	2042	9.7	0.456	5.1	LOS A	13.4	101.4	0.32	0.42	0.32	59.3
6	R2	52	16	55	30.8	*0.781	57.5	LOS E	4.3	37.4	0.70	0.99	1.17	28.8
6u	U	2	0	2	0.0	0.781	59.7	LOS E	4.3	37.4	0.70	0.99	1.17	29.1
Approach		2001	209	2106	10.4	0.781	6.5	LOS A	13.4	101.4	0.33	0.43	0.34	57.6
North: Percival Rd North														
7	L2	31	11	33	35.5	0.226	69.5	LOS E	2.2	19.9	0.96	0.73	0.96	26.2
8	T1	1	0	1	0.0	0.226	64.6	LOS E	2.2	19.9	0.96	0.73	0.96	27.2
9	R2	66	30	69	45.5	*0.505	72.2	LOS E	4.7	45.9	0.99	0.78	0.99	25.8
Approach		98	41	103	41.8	0.505	71.3	LOS E	4.7	45.9	0.98	0.76	0.98	25.9
West: Warren Rd West														
10	L2	162	27	171	16.7	0.126	7.5	LOS A	2.3	18.7	0.22	0.60	0.22	47.4
11	T1	1903	183	2003	9.6	0.458	5.1	LOS A	13.5	102.2	0.32	0.41	0.32	59.4
12	R2	3	2	3	66.7	0.051	12.5	LOS B	0.1	0.8	0.32	0.57	0.32	43.8
Approach		2068	212	2177	10.3	0.458	5.3	LOS A	13.5	102.2	0.31	0.43	0.31	58.2
All Vehicles		4178	470	4398	11.2	0.781	7.5	LOS A	13.5	102.2	0.34	0.44	0.34	56.2

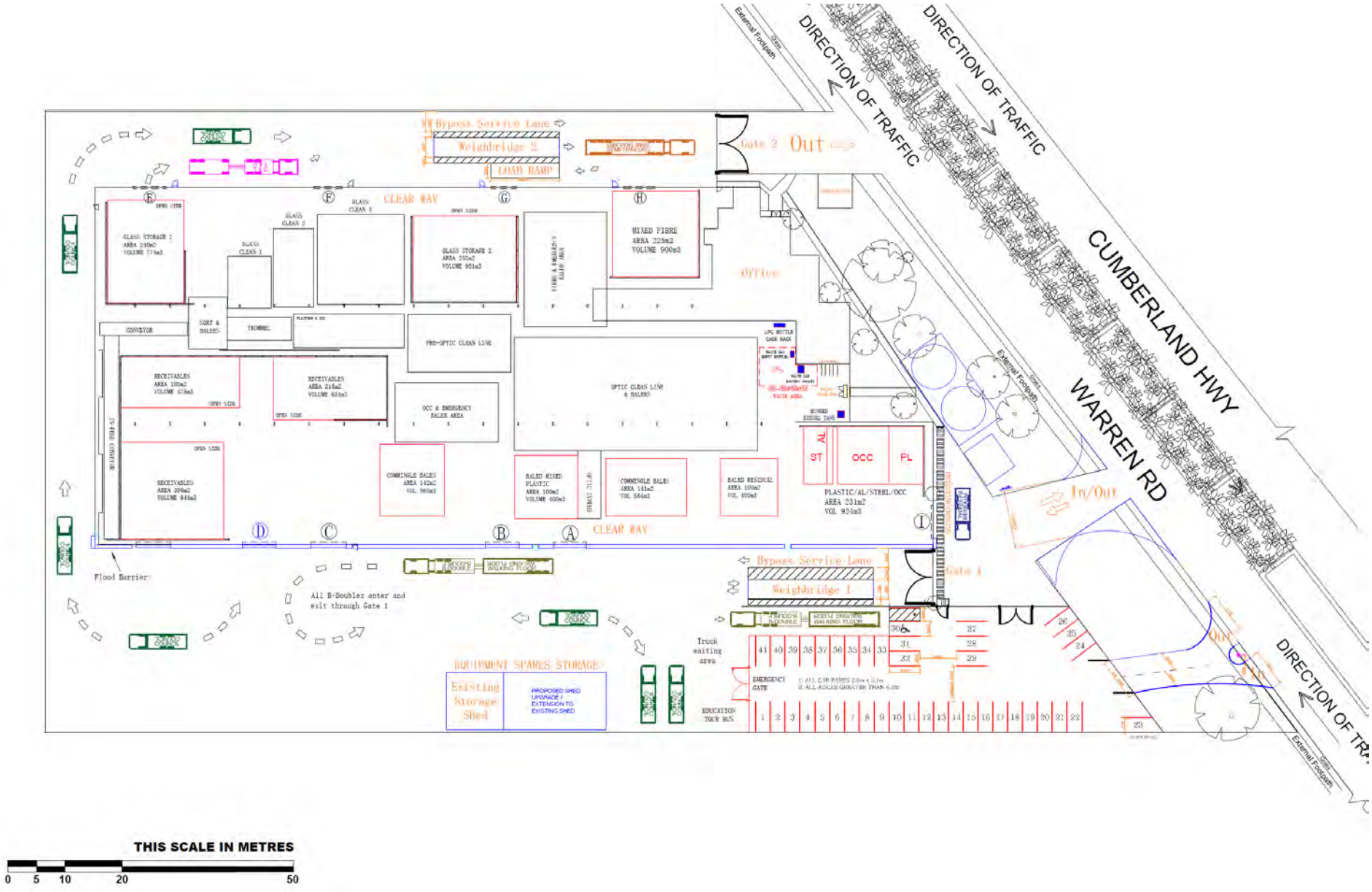
PM Peak

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	INPUT VOLUMES HV] veh/h	DEMAND FLOWS [Total veh/h	DEMAND FLOWS HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh veh	95% BACK OF QUEUE Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Percival Rd South														
1	L2	8	3	8	37.5	0.046	15.1	LOS B	0.2	2.0	0.49	0.61	0.49	43.2
2	T1	1	0	1	0.0	0.003	48.5	LOS D	0.1	0.4	0.80	0.49	0.80	32.2
3	R2	17	1	18	5.9	0.070	58.8	LOS E	1.1	8.0	0.85	0.69	0.85	28.9
Approach		26	4	27	15.4	0.070	45.0	LOS D	1.1	8.0	0.74	0.66	0.74	32.3
East: Warren Rd East														
4	L2	16	1	17	6.3	0.011	4.8	LOS A	0.0	0.4	0.08	0.51	0.08	50.0
5	T1	2470	167	2600	6.8	*0.660	13.7	LOS B	34.2	253.0	0.60	0.63	0.60	52.1
6	R2	1	0	1	0.0	0.024	21.8	LOS C	0.1	0.5	0.47	0.65	0.47	41.4
6u	U	1	0	1	0.0	0.024	24.2	LOS C	0.1	0.5	0.47	0.65	0.47	41.2
Approach		2488	168	2619	6.8	0.660	13.7	LOS B	34.2	253.0	0.59	0.63	0.59	52.0
North: Percival Rd North														
7	L2	61	8	64	13.1	0.180	56.5	LOS E	3.9	30.3	0.86	0.74	0.86	29.1
8	T1	1	0	1	0.0	0.180	51.8	LOS D	3.9	30.3	0.86	0.74	0.86	30.0
9	R2	190	14	200	7.4	*0.648	63.3	LOS E	13.5	100.8	0.97	0.83	0.97	27.9
Approach		252	22	265	8.7	0.648	61.6	LOS E	13.5	100.8	0.94	0.81	0.94	28.1
West: Warren Rd West														
10	L2	43	19	45	44.2	0.045	11.9	LOS B	1.0	9.4	0.32	0.61	0.32	44.2
11	T1	1850	80	1947	4.3	0.494	11.4	LOS B	21.3	154.4	0.48	0.54	0.48	53.9
12	R2	1	0	1	0.0	0.016	30.5	LOS C	0.0	0.3	0.57	0.61	0.57	37.1
Approach		1894	99	1994	5.2	0.494	11.4	LOS B	21.3	154.4	0.48	0.54	0.48	53.6
All Vehicles		4660	293	4905	6.3	0.660	15.5	LOS B	34.2	253.0	0.57	0.60	0.57	50.1

ATTACHMENT D

LAYOUT OF THE PROPOSED DEVELOPMENT

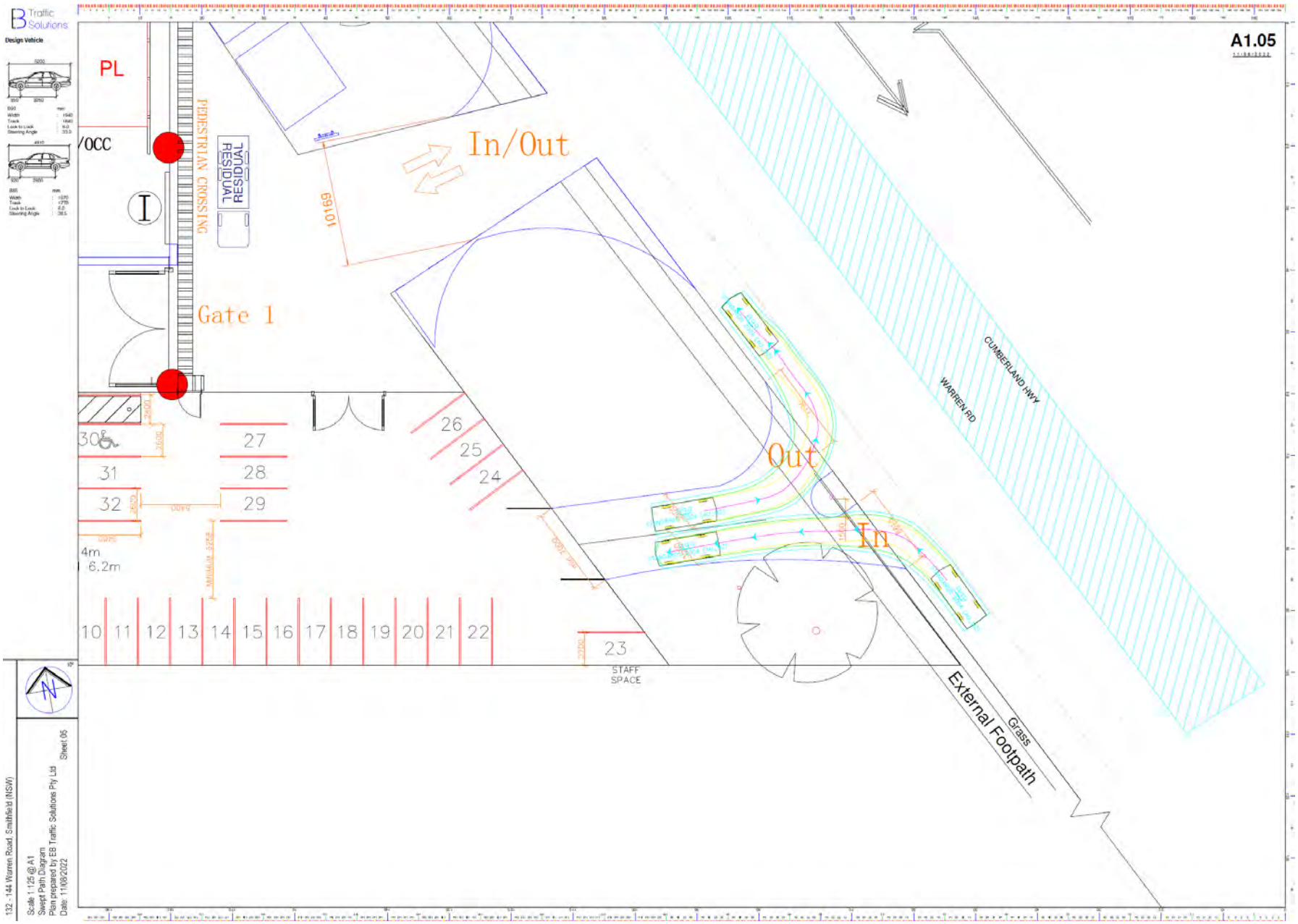


THIS SCALE IN METRES

0 5 10 20 50

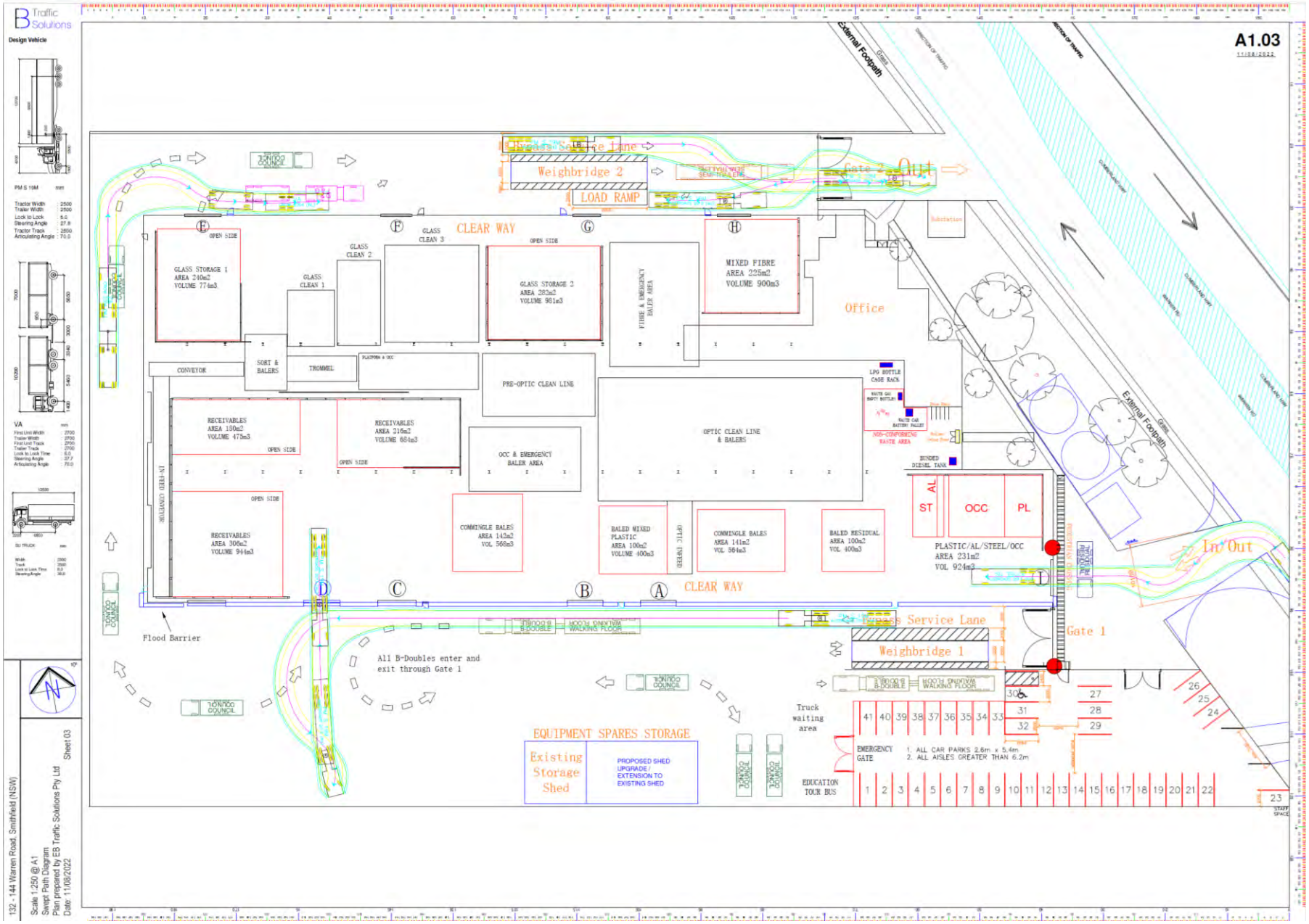
ATTACHMENT E

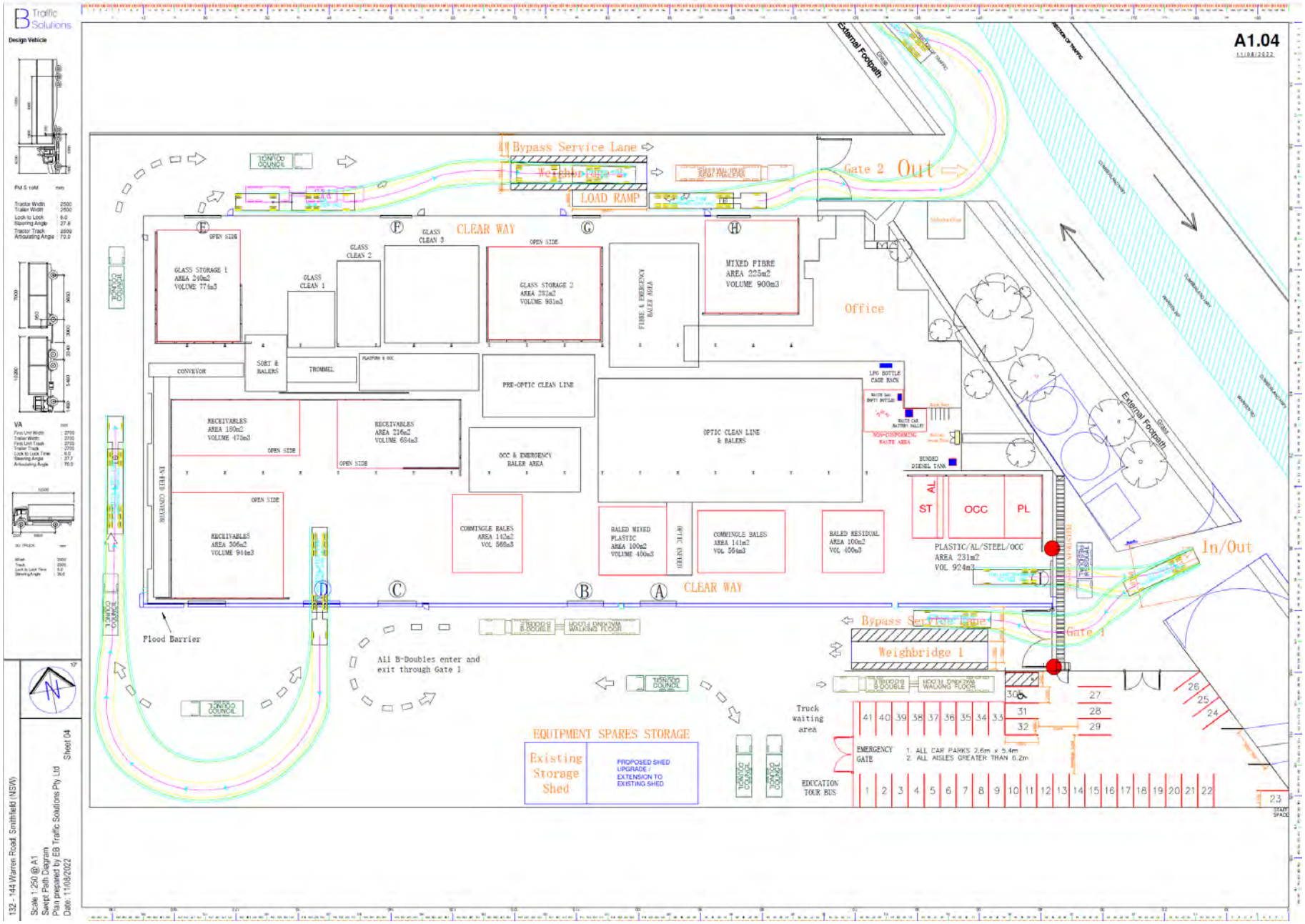
SWEPT PATH ANALYSIS (B85/B99 CARS)


A1.05
PL
/OCC
PEDESTRIAN CROSSING
RESIDUAL
In/Out
10169
Gate 1
CUMBERLAND HWY
WARREN RD
Out
In
26
25
24
27
28
29
30
31
32
4m
6.2m
10
11
12
13
14
15
16
17
18
19
20
21
22
23
STAFF SPACE
External Footpath
Grass
132 - 144 Warren Road, Smithfield (NSW)
Scale 1:125 @ A1
Swept Path Diagram
Plan prepared by EB Traffic Solutions Pty Ltd
Date: 11/08/2022
Sheet 05

ATTACHMENT F

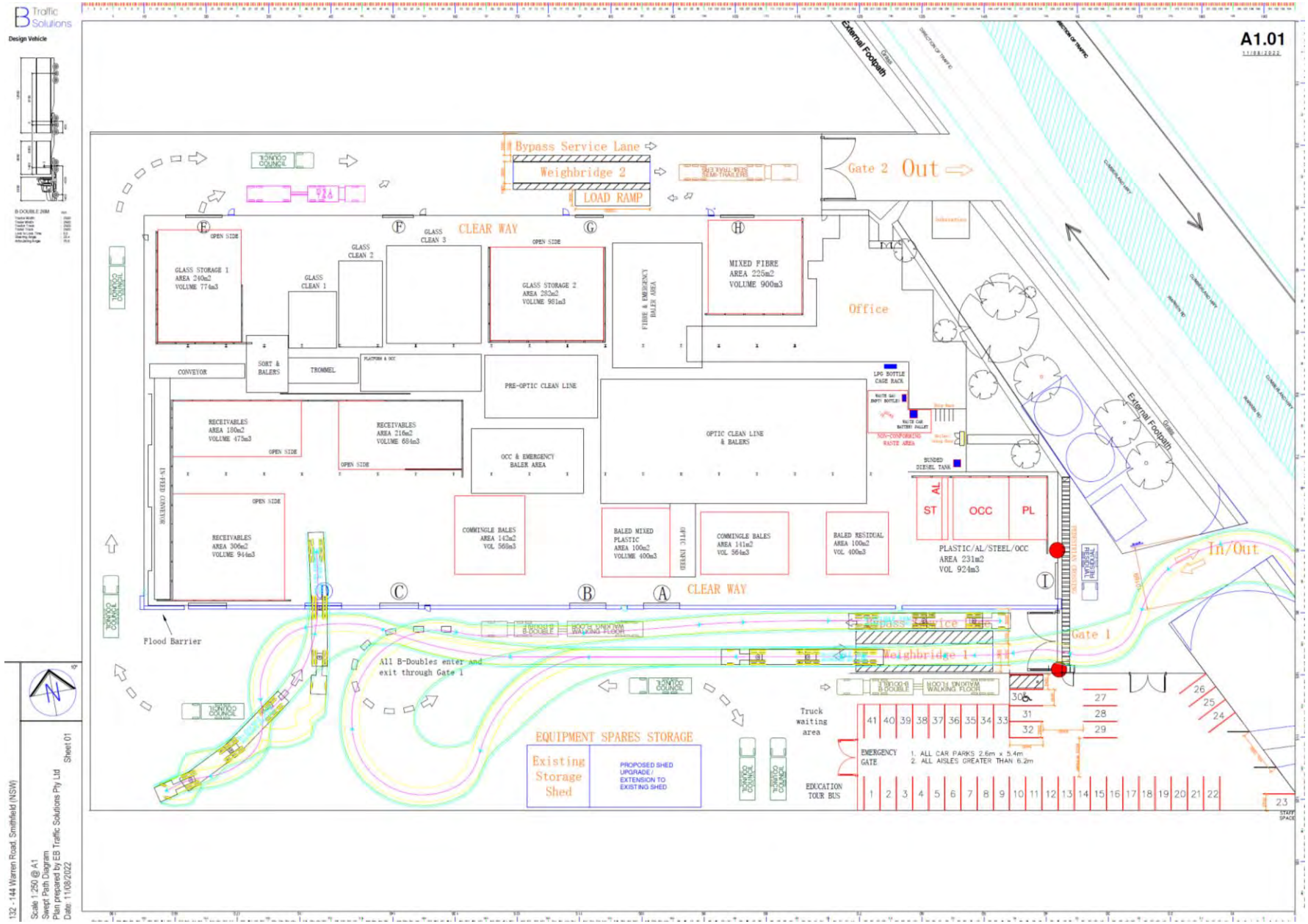
SWEPT PATH ANALYSIS (12.5 m HRV AND 19 M SEMI TRAILER)

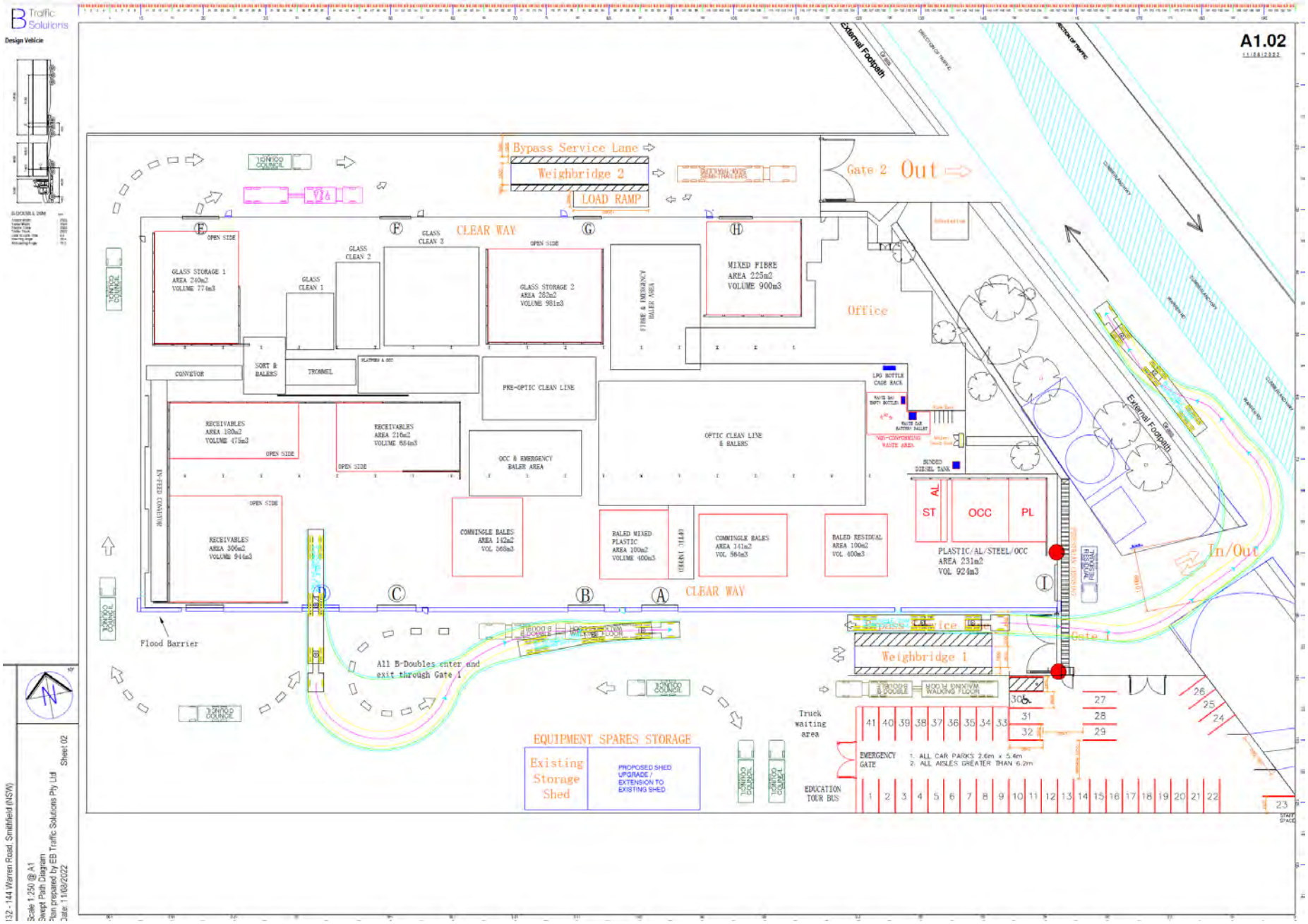

Traffic Solutions
Design Vehicle
PM S 19M
VA
SU TRUCK
A1.03
External Footpath
Weighbridge 2
LOAD RAMP
Gate 2 Out
CLEAR WAY
GLASS STORAGE 1
AREA 240m2
VOLUME 774m3
GLASS CLEAN 1
GLASS CLEAN 2
GLASS CLEAN 3
GLASS STORAGE 2
AREA 282m2
VOLUME 981m3
FIBRE & EMERGENCY BALER AREA
MIXED FIBRE
AREA 225m2
VOLUME 900m3
Office
CONVEYOR
SORT & BALERS
TROMMEL
PRE-OPTIC CLEAN LINE
OPTIC CLEAN LINE & BALERS
RECEIVABLES
AREA 130m2
VOLUME 475m3
RECEIVABLES
AREA 216m2
VOLUME 684m3
RECEIVABLES
AREA 306m2
VOLUME 944m3
OCC & EMERGENCY BALER AREA
COMMINGLE BALES
AREA 142m2
VOL 566m3
BALED MIXED PLASTIC
AREA 100m2
VOLUME 400m3
COMMINGLE BALES
AREA 141m2
VOL 564m3
BALED RESIDUAL
AREA 100m2
VOL 400m3
LPG BOTTLE CAGE RACK
BUNDED DIESEL TANK
AL
ST
OCC
PL
PLASTIC/AL/STEEL/OCC
AREA 231m2
VOL 924m3
In Out
Gate 1
Weighbridge 1
Flood Barrier
All B-Doubles enter and exit through Gate 1
EQUIPMENT SPARES STORAGE
Existing Storage Shed
PROPOSED SHED UPGRADE / EXTENSION TO EXISTING SHED
Truck waiting area
EMERGENCY GATE
1. ALL CAR PARKS 2.6m x 5.4m
2. ALL AISLES GREATER THAN 6.2m
EDUCATION TOUR BUS
132 - 144 Warren Road, Smithfield (NSW)
Scale 1:250 @ A1
Swept Path Diagram
Plan prepared by EB Traffic Solutions Pty Ltd
Date: 11/08/2022
Sheet 03


A1.04
Design Vehicle
Bypass Service Lane
Weighbridge 2
LOAD RAMP
Gate 2 Out
External Footpath
CLEAR WAY
GLASS STORAGE 1
AREA 240m2
VOLUME 774m3
GLASS CLEAN 1
GLASS CLEAN 2
GLASS CLEAN 3
GLASS STORAGE 2
AREA 282m2
VOLUME 901m3
FIBRE & EMERGENCY BALER AREA
MIXED FIBRE
AREA 225m2
VOLUME 900m3
Office
CONVEYOR
SORT & BALERS
TROMMEL
PRE-OPTIC CLEAN LINE
OPTIC CLEAN LINE & BALERS
RECEIVABLES
AREA 180m2
VOLUME 473m3
RECEIVABLES
AREA 216m2
VOLUME 684m3
RECEIVABLES
AREA 306m2
VOLUME 914m3
IN-FEED CONVEYOR
OCC & EMERGENCY BALER AREA
COMMINGLE BALES
AREA 142m2
VOL 568m3
BALED MIXED PLASTIC
AREA 100m2
VOLUME 400m3
COMMINGLE BALES
AREA 141m2
VOL 564m3
BALED RESIDUAL
AREA 106m2
VOL 400m3
LPG BOTTLE CAGE BAYS
BUNDED DIESEL TANK
ST
OCC
PL
PLASTIC/AL/STEEL/OCC
AREA 231m2
VOL 924m3
In/Out
Gate 1
Bypass Service Lane
Weighbridge 1
Flood Barrier
All B-Doubles enter and exit through Gate 1
Truck waiting area
EQUIPMENT SPARES STORAGE
Existing Storage Shed
PROPOSED SHED UPGRADE / EXTENSION TO EXISTING SHED
EMERGENCY GATE
1. ALL CAR PARKS 2.6m x 5.4m
2. ALL AISLES GREATER THAN 6.2m
EDUCATION TOUR BUS
132 - 144 Warren Road Smithfield (NSW)
Scale 1:250 @ A1
Swept Path Diagram
Plan prepared by EB Traffic Solutions Pty Ltd
Date: 11/08/2022
Sheet 04

ATTACHMENT G

SWEPT PATH ANALYSIS (26 M B-DOUBLE)


A1.01
Design Vehicle
B-DOUBLE 26M
Bypass Service Lane
Weighbridge 2
LOAD RAMP
Gate 2 Out
CLEAR WAY
GLASS STORAGE 1
AREA 240m2
VOLUME 774m3
GLASS CLEAN 1
GLASS CLEAN 2
GLASS CLEAN 3
GLASS STORAGE 2
AREA 282m2
VOLUME 901m3
FIBRE & EMERGENCY BALER AREA
MIXED FIBRE
AREA 225m2
VOLUME 900m3
Office
CONVEYOR
SORT & BALERS
TROMMEL
PRE-OPTIC CLEAN LINE
OPTIC CLEAN LINE & BALERS
RECEIVABLES
AREA 180m2
VOLUME 475m3
RECEIVABLES
AREA 216m2
VOLUME 684m3
RECEIVABLES
AREA 306m2
VOLUME 944m3
OCC & EMERGENCY BALER AREA
COMMINGLE BALES
AREA 142m2
VOL 568m3
BALED MIXED PLASTIC
AREA 100m2
VOLUME 400m3
COMMINGLE BALES
AREA 141m2
VOL 564m3
BALED RESIDUAL
AREA 100m2
VOL 400m3
LPG BOTTLE CAGE RACK
BUNDED DIESEL TANK
ST
OCC
PL
AL
PLASTIC/AL/STEEL/OCC
AREA 231m2
VOL 924m3
External Footpath
In/Out
Gate 1
Weighbridge 1
Flood Barrier
All B-Doubles enter and exit through Gate 1
Truck waiting area
EQUIPMENT SPARES STORAGE
Existing Storage Shed
PROPOSED SHED UPGRADE / EXTENSION TO EXISTING SHED
EMERGENCY GATE
1. ALL CAR PARKS 2.6m x 5.4m
2. ALL AISLES GREATER THAN 6.2m
EDUCATION TOUR BUS
STAFF SPACE
132 - 144 Warren Road, Smithfield (NSW)
Scale 1:250 @ A1
Swept Path Diagram
Plan prepared by EB Traffic Solutions Pty Ltd
Date: 11/08/2022
Sheet 01


A1.02
Traffic Solutions
Design Vehicle
B-DOUBLE 26M
Bypass Service Lane
Weighbridge 2
LOAD RAMP
Gate 2 Out
External Footpath
CLEAR WAY
GLASS STORAGE 1
AREA 240m2
VOLUME 774m3
GLASS CLEAN 1
GLASS CLEAN 2
GLASS CLEAN 3
GLASS STORAGE 2
AREA 282m2
VOLUME 981m3
FIBRE & EMERGENCY BALER AREA
MIXED FIBRE
AREA 225m2
VOLUME 900m3
Office
CONVEYOR
SORT & BALERS
TROMMEL
PRE-OPTIC CLEAN LINE
OPTIC CLEAN LINE & BALERS
RECEIVABLES
AREA 180m2
VOLUME 475m3
RECEIVABLES
AREA 216m2
VOLUME 684m3
OCC & EMERGENCY BALER AREA
RECEIVABLES
AREA 306m2
VOLUME 944m3
COMMINGLE BALES
AREA 142m2
VOL 568m3
BALED MIXED PLASTIC
AREA 100m2
VOLUME 400m3
COMMINGLE BALES
AREA 141m2
VOL 564m3
BALED RESIDUAL
AREA 100m2
VOL 400m3
LPG BOTTLE CAGE RACK
BUNDED DIESEL TANK
AL
ST
OCC
PL
PLASTIC/AL/STEEL/OCC
AREA 231m2
VOL 924m3
In/Out
Flood Barrier
All B-Doubles enter and exit through Gate 1
Bypass Service
Weighbridge 1
Gate 1
Truck waiting area
EQUIPMENT SPARES STORAGE
Existing Storage Shed
PROPOSED SHED UPGRADE / EXTENSION TO EXISTING SHED
EMERGENCY GATE
1. ALL CAR PARKS 2.6m x 5.4m
2. ALL AISLES GREATER THAN 6.2m
EDUCATION TOUR BUS
STAFF CARPARK
132 - 144 Warren Road, Smithfield (NSW)
Scale 1:250 @ A1
Swept Path Diagram
Plan prepared by EB Traffic Solutions Pty Ltd
Date: 11/08/2022
Sheet 02

ATTACHMENT H

ANTICIPATED TRAFFIC MOVEMENTS (LOADS)

Inbound Loads for 150,000 tpa						Outbound Loads for 150,000 tpa						
	Heavy Vehicles	Local commingle	Local commingled (Containers only)	Other customers	Total Entry/Exit Movements	Baled OCC plastics metals	Mixed paper to Visy or Export	Glass course	Glass fines	Waste out	Total Entry/Exit Movements	Total Truck Movements
5am	1	4			10						0	10
6am	1	4			10			1			2	12
7am	1	6			14	1					2	16
8am	1	4	1		12			1			2	14
9am	1	4			10	1	1		1		6	16
10am	1	4	1		12		1				2	14
11am	1	6			14	1	1				4	18
12pm	1	4	1		12		1	1			4	16
1pm	1	4			10	1	1				4	14
2pm	1	5	1		14		1				2	16
3pm	1	5			12	1				1	4	16
4pm	1		1		4			1			2	6
5pm	1				2					1	2	4
6pm				1	2			1			2	4
7pm	1				2		1				2	4
8pm				1	2		1				2	4
9pm	1				2		1				2	4
10pm				1	2						0	2
11pm					0						0	0
	15	50	5	3	146	5	9	5	1	2	44	190

ATTACHMENT J

INTERSECTION PEFORMANCE

FUTURE DEVELOPMENT

Warren Road/Sturt Street

AM Peak

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Sturt St South-East														
21	L2	260	78	274	30.0	0.593	18.6	LOS B	11.2	98.6	0.66	0.78	0.66	44.9
23	R2	146	73	154	50.0	0.581	77.1	LOS E	5.5	54.8	1.00	0.79	1.02	25.9
Approach		406	151	427	37.2	0.593	39.6	LOS D	11.2	98.6	0.78	0.78	0.79	35.5
NorthEast: Betts Rd North-East														
24	L2	242	71	255	29.3	0.624	21.7	LOS C	28.2	224.7	0.63	0.70	0.63	46.3
25	T1	1823	159	1919	8.7	0.624	17.3	LOS B	30.6	229.9	0.65	0.67	0.65	49.2
Approach		2065	230	2174	11.1	0.624	17.8	LOS B	30.6	229.9	0.64	0.67	0.64	48.8
SouthWest: Warren Rd South-West														
31	T1	1871	188	1969	10.0	0.437	4.9	LOS A	12.6	96.0	0.30	0.40	0.30	59.6
32	R2	238	54	251	22.7	0.613	51.6	LOS D	11.8	98.4	0.95	0.97	0.95	32.0
Approach		2109	242	2220	11.5	0.613	10.2	LOS B	12.6	98.4	0.38	0.47	0.38	54.3
All Vehicles		4580	623	4821	13.6	0.624	16.2	LOS B	30.6	229.9	0.53	0.59	0.53	49.5

PM Peak

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Sturt St South-East														
21	L2	288	45	303	15.6	0.579	26.1	LOS C	14.1	112.1	0.75	0.81	0.75	41.4
23	R2	246	32	259	13.0	0.789	81.1	LOS F	9.7	75.3	1.00	0.88	1.19	25.4
Approach		534	77	562	14.4	0.789	51.5	LOS D	14.1	112.1	0.86	0.84	0.95	32.1
NorthEast: Betts Rd North-East														
24	L2	171	54	180	31.6	0.780	28.9	LOS C	43.7	334.9	0.81	0.80	0.81	43.1
25	T1	2304	127	2425	5.5	0.780	24.0	LOS C	45.9	336.8	0.82	0.80	0.82	45.3
Approach		2475	181	2605	7.3	0.780	24.3	LOS C	45.9	336.8	0.82	0.80	0.82	45.1
SouthWest: Warren Rd South-West														
31	T1	1584	64	1667	4.0	0.356	4.6	LOS A	9.7	70.1	0.27	0.38	0.27	59.9
32	R2	320	38	337	11.9	0.646	59.8	LOS E	15.2	117.4	0.95	0.99	0.95	30.0
Approach		1904	102	2004	5.4	0.646	13.8	LOS B	15.2	117.4	0.39	0.48	0.39	51.3
All Vehicles		4913	360	5172	7.3	0.789	23.2	LOS C	45.9	336.8	0.66	0.68	0.66	45.2

Warren Road/Percival Road

AM Peak

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	INPUT VOLUMES HV] veh/h	DEMAND FLOWS [Total veh/h	DEMAND FLOWS HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	95% BACK OF QUEUE Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Percival Rd South														
1	L2	4	3	4	75.0	0.027	7.6	LOS A	0.0	0.6	0.25	0.53	0.25	46.5
2	T1	1	0	1	0.0	0.005	60.6	LOS E	0.1	0.4	0.92	0.55	0.92	29.1
3	R2	6	5	6	83.3	0.064	71.1	LOS E	0.4	5.0	0.95	0.66	0.95	25.7
Approach		11	8	12	72.7	0.064	47.1	LOS D	0.4	5.0	0.69	0.60	0.69	31.1
East: Warren Rd East														
4	L2	7	4	7	57.1	0.007	5.3	LOS A	0.0	0.3	0.10	0.49	0.10	48.3
5	T1	1954	203	2057	10.4	0.461	5.2	LOS A	13.6	103.3	0.32	0.42	0.32	59.3
6	R2	52	16	55	30.8	0.781	57.5	LOS E	4.3	37.4	0.70	0.99	1.17	28.8
6u	U	2	0	2	0.0	0.781	59.7	LOS E	4.3	37.4	0.70	0.99	1.17	29.1
Approach		2015	223	2121	11.1	0.781	6.6	LOS A	13.6	103.3	0.33	0.43	0.34	57.6
North: Percival Rd North														
7	L2	31	11	33	35.5	0.226	69.5	LOS E	2.2	19.9	0.96	0.73	0.96	26.2
8	T1	1	0	1	0.0	0.226	64.6	LOS E	2.2	19.9	0.96	0.73	0.96	27.2
9	R2	66	30	69	45.5	0.505	72.2	LOS E	4.7	45.9	0.99	0.78	0.99	25.8
Approach		98	41	103	41.8	0.505	71.3	LOS E	4.7	45.9	0.98	0.76	0.98	25.9
West: Warren Rd West														
10	L2	162	27	171	16.7	0.126	7.5	LOS A	2.3	18.7	0.22	0.60	0.22	47.4
11	T1	1903	183	2003	9.6	0.458	5.1	LOS A	13.5	102.2	0.32	0.41	0.32	59.4
12	R2	3	2	3	66.7	0.051	12.5	LOS B	0.1	0.8	0.32	0.57	0.32	43.8
Approach		2068	212	2177	10.3	0.458	5.3	LOS A	13.5	102.2	0.31	0.43	0.31	58.2
All Vehicles		4192	484	4413	11.5	0.781	7.5	LOS A	13.6	103.3	0.34	0.44	0.34	56.2

PM Peak

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	INPUT VOLUMES HV] veh/h	DEMAND FLOWS [Total veh/h	DEMAND FLOWS HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	95% BACK OF QUEUE Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Percival Rd South														
1	L2	8	3	8	37.5	0.046	15.1	LOS B	0.2	2.0	0.49	0.61	0.49	43.2
2	T1	1	0	1	0.0	0.003	48.5	LOS D	0.1	0.4	0.80	0.49	0.80	32.2
3	R2	17	1	18	5.9	0.070	58.8	LOS E	1.1	8.0	0.85	0.69	0.85	28.9
Approach		26	4	27	15.4	0.070	45.0	LOS D	1.1	8.0	0.74	0.66	0.74	32.3
East: Warren Rd East														
4	L2	16	1	17	6.3	0.011	4.8	LOS A	0.0	0.4	0.08	0.51	0.08	50.0
5	T1	2474	171	2604	6.9	0.661	13.8	LOS B	34.3	254.3	0.60	0.63	0.60	52.0
6	R2	1	0	1	0.0	0.024	21.8	LOS C	0.1	0.5	0.47	0.65	0.47	41.4
6u	U	1	0	1	0.0	0.024	24.2	LOS C	0.1	0.5	0.47	0.65	0.47	41.2
Approach		2492	172	2623	6.9	0.661	13.7	LOS B	34.3	254.3	0.59	0.63	0.59	52.0
North: Percival Rd North														
7	L2	61	8	64	13.1	0.180	56.5	LOS E	3.9	30.3	0.86	0.74	0.86	29.1
8	T1	1	0	1	0.0	0.180	51.8	LOS D	3.9	30.3	0.86	0.74	0.86	30.0
9	R2	190	14	200	7.4	0.648	63.3	LOS E	13.5	100.8	0.97	0.83	0.97	27.9
Approach		252	22	265	8.7	0.648	61.6	LOS E	13.5	100.8	0.94	0.81	0.94	28.1
West: Warren Rd West														
10	L2	43	19	45	44.2	0.045	11.9	LOS B	1.0	9.4	0.32	0.61	0.32	44.2
11	T1	1850	80	1947	4.3	0.494	11.4	LOS B	21.3	154.4	0.48	0.54	0.48	53.9
12	R2	1	0	1	0.0	0.016	30.5	LOS C	0.0	0.3	0.57	0.61	0.57	37.1
Approach		1894	99	1994	5.2	0.494	11.4	LOS B	21.3	154.4	0.48	0.54	0.48	53.6
All Vehicles		4664	297	4909	6.4	0.661	15.5	LOS B	34.3	254.3	0.57	0.60	0.57	50.1

Appendix D – SIDRA assessment outputs

LANE SUMMARY

Site: 101 [Cumberland Hwy/Long St - Construction AM Peak - Background - 2023 (Site Folder: 2023 Background)]

Cumberland Highway/Long Street/Herbert Place
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 162 seconds (Site User-Given Phase Times)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Cumberland Highway													
Lane 1	343	9.2	1239	0.277	100	8.7	LOS A	3.9	29.1	Short	120	0.0	NA
Lane 2	708	8.8	900[1]	0.787	100	23.5	LOS B	36.6	275.2	Full	430	0.0	0.0
Lane 3	857	8.8	1090	0.787	100	27.1	LOS B	50.9	383.1	Full	430	0.0	0.0
Lane 4	826	8.8	1050[1]	0.787	100	26.3	LOS B	47.6	358.0	Full	430	0.0	0.0
Lane 5	48	13.0	282	0.172	100	41.3	LOS C	2.1	16.4	Short	140	0.0	NA
Approach	2783	8.9		0.787		23.9	LOS B	50.9	383.1				
East: Herbert Place													
Lane 1	28	44.4	775	0.037	100	9.9	LOS A	0.6	5.8	Short	60	0.0	NA
Lane 2	6	33.3	139	0.045	100	74.4	LOS F	0.5	4.2	Full	220	0.0	0.0
Lane 3	29	75.0	74	0.397	100	87.3	LOS F	2.4	27.6	Short	40	0.0	NA
Approach	64	57.4		0.397		51.8	LOS D	2.4	27.6				
North: Cumberland Highway													
Lane 1	66	15.9	1175	0.056	100	7.5	LOS A	0.3	2.7	Short	65	0.0	NA
Lane 2	478	12.5	882[1]	0.541	100	17.6	LOS B	17.4	134.9	Full	300	0.0	0.0
Lane 3	497	12.5	918	0.541	100	18.0	LOS B	18.4	142.8	Full	300	0.0	0.0
Lane 4	487	12.5	899	0.541	100	18.0	LOS B	18.1	139.9	Full	300	0.0	0.0
Lane 5	35	16.8	196	0.178	30[6]	53.0	LOS D	2.0	15.6	Short	115	0.0	NA
Lane 6	116	16.8	197	0.589	100	55.4	LOS D	6.9	55.5	Short	105	0.0	NA
Approach	1678	13.0		0.589		20.8	LOS B	18.4	142.8				
West: Long Street													
Lane 1	61	56.9	306	0.200	100	50.2	LOS D	3.6	37.4	Short	25	0.0	NA
Lane 2	4	0.0	169	0.025	100	76.0	LOS F	0.3	2.1	Short	35	0.0	NA
Lane 3	69	25.2	98	0.704	100	92.3	LOS F	5.7	48.7	Short	35	0.0	NA
Lane 4	69	25.2	98	0.704	100	92.2	LOS F	5.8	49.0	Full	800	0.0	0.0
Approach	203	34.2		0.704		79.3	LOS F	5.8	49.0				
Intersection	4728	12.1		0.787		25.6	LOS B	50.9	383.1				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
6 Lane under-utilisation due to downstream effects

Approach Lane Flows (veh/h)

South: Cumberland Highway

Mov. From S	L2	T1	R2	Total	%HV	Cap.	Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane

To Exit:	W	N	E			veh/h	v/c	%	%	No.
Lane 1	343	-	-	343	9.2	1239	0.277	100	0.0	2
Lane 2	-	708	-	708	8.8	900[1]	0.787	100	NA	NA
Lane 3	-	857	-	857	8.8	1090	0.787	100	NA	NA
Lane 4	-	826	-	826	8.8	1050[1]	0.787	100	NA	NA
Lane 5	-	-	48	48	13.0	282	0.172	100	0.0	4
Approach	343	2392	48	2783	8.9		0.787			

East: Herbert Place

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	28	-	-	28	44.4	775	0.037	100	0.0	2
Lane 2	-	6	-	6	33.3	139	0.045	100	NA	NA
Lane 3	-	-	29	29	75.0	74	0.397	100	0.0	2
Approach	28	6	29	64	57.4		0.397			

North: Cumberland Highway

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	66	-	-	66	15.9	1175	0.056	100	0.0	2
Lane 2	-	478	-	478	12.5	882[1]	0.541	100	NA	NA
Lane 3	-	497	-	497	12.5	918	0.541	100	NA	NA
Lane 4	-	487	-	487	12.5	899	0.541	100	NA	NA
Lane 5	-	-	35	35	16.8	196	0.178	30[6]	0.0	4
Lane 6	-	-	116	116	16.8	197	0.589	100	0.0	5
Approach	66	1461	151	1678	13.0		0.589			

West: Long Street

Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	61	-	-	61	56.9	306	0.200	100	41.8	2
Lane 2	-	4	-	4	0.0	169	0.025	100	10.9	3
Lane 3	-	-	69	69	25.2	98	0.704	100	35.2	4
Lane 4	-	-	69	69	25.2	98	0.704	100	NA	NA
Approach	61	4	138	203	34.2		0.704			

	Total	%HV	Deg.Satn (v/c)
Intersection	4728	12.1	0.787

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

6 Lane under-utilisation due to downstream effects

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Cumberland Highway Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
Full Length Lane	3	Merge Analysis not applied.										
East Exit: Herbert Place Merge Type: **Not Applied**												

Full Length Lane	1	Merge Analysis not applied.									
North Exit: Cumberland Highway Merge Type: **Not Applied**											
Full Length Lane	1	Merge Analysis not applied.									
Full Length Lane	2	Merge Analysis not applied.									
Full Length Lane	3	Merge Analysis not applied.									
West Exit: Long Street Merge Type: **Priority**											
Exit Short Lane	1	35	0.0	290	309	3.00	2.00	210	1486	0.141	0.5	0.6
Merge Lane	2	-	100.0	Merge Lane is not Opposed				290	1800	0.161	0.0	0.0

LANE SUMMARY

Site: 101 [Cumberland Hwy/Long St - Commuter AM Peak - Background - 2023 (Site Folder: 2023 Background)]

Cumberland Highway/Long Street/Herbert Place
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Phase Times)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Cumberland Highway													
Lane 1	366	12.1	1221	0.300	100	8.9	LOS A	4.0	30.5	Short	120	0.0	NA
Lane 2	701	8.6	867[1]	0.808	100	24.1	LOS B	34.0	255.3	Full	430	0.0	0.0
Lane 3	827	8.6	1024	0.808	100	27.0	LOS B	45.0	338.5	Full	430	0.0	0.0
Lane 4	814	8.6	1006[1]	0.808	100	26.7	LOS B	43.7	328.3	Full	430	0.0	0.0
Lane 5	22	33.3	111	0.200	100	75.9	LOS F	1.5	13.4	Short	140	0.0	NA
Approach	2731	9.3		0.808		24.1	LOS B	45.0	338.5				
East: Herbert Place													
Lane 1	12	72.7	456	0.025	100	12.3	LOS A	0.3	3.0	Short	60	0.0	NA
Lane 2	5	40.0	100	0.053	100	68.9	LOS E	0.3	3.3	Full	220	0.0	0.0
Lane 3	22	95.2	79	0.281	100	74.3	LOS F	1.5	19.5	Short	40	0.0	NA
Approach	39	81.1		0.281		55.2	LOS D	1.5	19.5				
North: Cumberland Highway													
Lane 1	53	28.0	1109	0.047	100	7.7	LOS A	0.2	1.9	Short	65	0.0	NA
Lane 2	707	7.9	1129[1]	0.626	100	14.7	LOS B	27.0	201.7	Full	300	0.0	0.0
Lane 3	758	7.9	1212	0.626	100	15.2	LOS B	29.9	223.5	Full	300	0.0	0.0
Lane 4	715	7.9	1143[1]	0.626	100	14.9	LOS B	27.5	205.6	Full	300	0.0	0.0
Lane 5	38	20.0	210	0.180	30[6]	45.2	LOS D	1.8	14.6	Short	115	0.0	NA
Lane 6	125	20.0	211	0.594	100	47.3	LOS D	6.4	52.2	Short	105	0.0	NA
Approach	2396	9.2		0.626		17.0	LOS B	29.9	223.5				
West: Long Street													
Lane 1	97	47.8	299[1]	0.324	100	43.6	LOS D	4.9	48.4	Short	25	0.0	NA
Lane 2	11	20.0	112	0.094	100	71.8	LOS F	0.7	5.8	Short	35	0.0	NA
Lane 3	86	23.9	114	0.751	100	81.1	LOS F	6.2	52.6	Short	35	0.0	NA
Lane 4	86	23.9	115	0.751	100	81.0	LOS F	6.3	52.9	Full	800	0.0	0.0
Approach	279	32.1		0.751		67.7	LOS E	6.3	52.9				
Intersection	5444	10.9		0.808		23.4	LOS B	45.0	338.5				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
6 Lane under-utilisation due to downstream effects

Approach Lane Flows (veh/h)

South: Cumberland Highway

Mov. From S	L2	T1	R2	Total	%HV	Cap.	Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane

To Exit:	W	N	E			veh/h	v/c	%	%	No.
Lane 1	366	-	-	366	12.1	1221	0.300	100	0.0	2
Lane 2	-	701	-	701	8.6	867[1]	0.808	100	NA	NA
Lane 3	-	827	-	827	8.6	1024	0.808	100	NA	NA
Lane 4	-	814	-	814	8.6	1006[1]	0.808	100	NA	NA
Lane 5	-	-	22	22	33.3	111	0.200	100	0.0	4
Approach	366	2342	22	2731	9.3		0.808			

East: Herbert Place

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	12	-	-	12	72.7	456	0.025	100	0.0	2
Lane 2	-	5	-	5	40.0	100	0.053	100	NA	NA
Lane 3	-	-	22	22	95.2	79	0.281	100	0.0	2
Approach	12	5	22	39	81.1		0.281			

North: Cumberland Highway

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	53	-	-	53	28.0	1109	0.047	100	0.0	2
Lane 2	-	707	-	707	7.9	1129[1]	0.626	100	NA	NA
Lane 3	-	758	-	758	7.9	1212	0.626	100	NA	NA
Lane 4	-	715	-	715	7.9	1143[1]	0.626	100	NA	NA
Lane 5	-	-	38	38	20.0	210	0.180	30[6]	0.0	4
Lane 6	-	-	125	125	20.0	211	0.594	100	0.0	5
Approach	53	2180	163	2396	9.2		0.626			

West: Long Street

Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	97	-	-	97	47.8	299[1]	0.324	100	66.2	2
Lane 2	-	11	-	11	20.0	112	0.094	100	34.5	3
Lane 3	-	-	86	86	23.9	114	0.751	100	42.3	4
Lane 4	-	-	86	86	23.9	115	0.751	100	NA	NA
Approach	97	11	172	279	32.1		0.751			

	Total	%HV	Deg.Satn (v/c)
Intersection	5444	10.9	0.808

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

6 Lane under-utilisation due to downstream effects

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Cumberland Highway Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
Full Length Lane	3	Merge Analysis not applied.										
East Exit: Herbert Place Merge Type: **Not Applied**												

Full Length Lane	1	Merge Analysis not applied.									
North Exit: Cumberland Highway Merge Type: **Not Applied**											
Full Length Lane	1	Merge Analysis not applied.									
Full Length Lane	2	Merge Analysis not applied.									
Full Length Lane	3	Merge Analysis not applied.									
West Exit: Long Street Merge Type: **Priority**											
Exit Short Lane	1	35	0.0	311	335	3.00	2.00	224	1458	0.153	0.5	0.7
Merge Lane	2	-	100.0	Merge Lane is not Opposed				311	1800	0.173	0.0	0.0

LANE SUMMARY

Site: 101 [Cumberland Hwy/Long St - Commuter PM Peak - Background - 2023 (Site Folder: 2023 Background)]

Cumberland Highway/Long Street/Herbert Place
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 149 seconds (Site User-Given Phase Times)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Cumberland Highway													
Lane 1	136	17.1	1192	0.114	100	7.8	LOS A	0.9	7.1	Short	120	0.0	NA
Lane 2	638	5.2	876[1]	0.728	100	30.9	LOS C	35.0	255.9	Full	430	0.0	0.0
Lane 3	678	5.2	931	0.728	100	31.9	LOS C	38.4	280.9	Full	430	0.0	0.0
Lane 4	665	5.2	914[1]	0.728	100	31.6	LOS C	37.3	272.8	Full	430	0.0	0.0
Lane 5	19	50.0	85	0.222	100	83.1	LOS F	1.4	13.9	Short	140	0.0	NA
Approach	2136	6.4		0.728		30.4	LOS C	38.4	280.9				
East: Herbert Place													
Lane 1	28	14.8	419	0.068	100	34.4	LOS C	1.3	10.4	Short	60	0.0	NA
Lane 2	5	80.0	78	0.068	100	74.7	LOS F	0.4	4.5	Full	220	0.0	0.0
Lane 3	33	25.8	251	0.130	100	61.0	LOS E	2.0	17.5	Short	40	0.0	NA
Approach	66	25.4		0.130		50.7	LOS D	2.0	17.5				
North: Cumberland Highway													
Lane 1	9	55.6	984	0.010	100	8.1	LOS A	0.0	0.4	Short	65	0.0	NA
Lane 2	939	5.8	1067[1]	0.881	100	31.3	LOS C	59.7	438.6	Full	300	0.0	39.7
Lane 3	971	5.8	1103	0.881	100	30.9	LOS C	61.8	454.2	Full	300	0.0	43.0
Lane 4	936	5.8	1062[1]	0.881	100	31.3	LOS C	59.3	435.6	Full	300	0.0	39.1
Lane 5	18	46.7	160	0.114	30[6]	44.3	LOS D	0.8	8.0	Short	115	0.0	NA
Lane 6	61	46.7	161	0.378	100	45.8	LOS D	2.8	27.9	Short	105	0.0	NA
Approach	2935	7.1		0.881		31.5	LOS C	61.8	454.2				
West: Long Street													
Lane 1	143	10.3	338[1]	0.423	100	41.3	LOS C	6.9	52.7	Short	25	0.0	NA
Lane 2	4	25.0	102	0.041	100	76.1	LOS F	0.3	2.5	Short	35	0.0	NA
Lane 3	240	3.8	289[1]	0.828	100	77.3	LOS F	18.2	131.3	Short	35	0.0	NA
Lane 4	172	3.8	208[1]	0.828	100	76.3	LOS F	12.7	91.8	Full	800	0.0	0.0
Approach	559	5.6		0.828		67.8	LOS E	18.2	131.3				
Intersection	5696	6.9		0.881		34.9	LOS C	61.8	454.2				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
6 Lane under-utilisation due to downstream effects

Approach Lane Flows (veh/h)

South: Cumberland Highway

Mov. From S	L2	T1	R2	Total	%HV	Cap.	Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane

To Exit:	W	N	E			veh/h	v/c	%	%	No.
Lane 1	136	-	-	136	17.1	1192	0.114	100	0.0	2
Lane 2	-	638	-	638	5.2	876[1]	0.728	100	NA	NA
Lane 3	-	678	-	678	5.2	931	0.728	100	NA	NA
Lane 4	-	665	-	665	5.2	914[1]	0.728	100	NA	NA
Lane 5	-	-	19	19	50.0	85	0.222	100	0.0	4
Approach	136	1981	19	2136	6.4		0.728			

East: Herbert Place

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	28	-	-	28	14.8	419	0.068	100	0.0	2
Lane 2	-	5	-	5	80.0	78	0.068	100	NA	NA
Lane 3	-	-	33	33	25.8	251	0.130	100	0.0	2
Approach	28	5	33	66	25.4		0.130			

North: Cumberland Highway

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	9	-	-	9	55.6	984	0.010	100	0.0	2
Lane 2	-	939	-	939	5.8	1067[1]	0.881	100	NA	NA
Lane 3	-	971	-	971	5.8	1103	0.881	100	NA	NA
Lane 4	-	936	-	936	5.8	1062[1]	0.881	100	NA	NA
Lane 5	-	-	18	18	46.7	160	0.114	30[6]	0.0	4
Lane 6	-	-	61	61	46.7	161	0.378	100	0.0	5
Approach	9	2846	79	2935	7.1		0.881			

West: Long Street

Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	143	-	-	143	10.3	338[1]	0.423	100	74.5	2
Lane 2	-	4	-	4	25.0	102	0.041	100	42.5	3
Lane 3	-	-	240	240	3.8	289[1]	0.828	100	100.0	4
Lane 4	-	-	172	172	3.8	208[1]	0.828	100	NA	NA
Approach	143	4	412	559	5.6		0.828			

	Total	%HV	Deg.Satn (v/c)
Intersection	5696	6.9	0.881

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

6 Lane under-utilisation due to downstream effects

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Cumberland Highway Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
Full Length Lane	3	Merge Analysis not applied.										
East Exit: Herbert Place Merge Type: **Not Applied**												

Full Length Lane	1	Merge Analysis not applied.									
North Exit: Cumberland Highway Merge Type: **Not Applied**											
Full Length Lane	1	Merge Analysis not applied.									
Full Length Lane	2	Merge Analysis not applied.									
Full Length Lane	3	Merge Analysis not applied.									
West Exit: Long Street Merge Type: **Priority**											
Exit Short Lane	1	35	0.0	131	152	3.00	2.00	89	1646	0.054	0.2	0.3
Merge Lane	2	-	100.0	Merge Lane is not Opposed				131	1800	0.073	0.0	0.0

LANE SUMMARY

Site: 101 [Cumberland Hwy/Long St - Construction PM Peak - Background - 2023 (Site Folder: 2023 Background)]

Cumberland Highway/Long Street/Herbert Place
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 148 seconds (Site User-Given Phase Times)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Cumberland Highway													
Lane 1	91	7.0	1252	0.072	100	7.2	LOS A	0.3	2.5	Short	120	0.0	NA
Lane 2	516	4.5	1084	0.476	100	20.0	LOS B	21.6	157.0	Full	430	0.0	0.0
Lane 3	516	4.5	1084	0.476	100	20.0	LOS B	21.6	157.0	Full	430	0.0	0.0
Lane 4	516	4.5	1084	0.476	100	20.0	LOS B	21.6	157.0	Full	430	0.0	0.0
Lane 5	19	11.1	84	0.225	100	83.9	LOS F	1.4	10.7	Short	140	0.0	NA
Approach	1658	4.7		0.476		20.0	LOS B	21.6	157.0				
East: Herbert Place													
Lane 1	42	20.0	607	0.069	100	11.4	LOS A	1.0	8.0	Short	60	0.0	NA
Lane 2	3	33.3	131	0.024	100	68.5	LOS E	0.2	1.9	Full	220	0.0	0.0
Lane 3	20	5.3	108	0.185	100	76.9	LOS F	1.4	10.5	Short	40	0.0	NA
Approach	65	16.1		0.185		34.3	LOS C	1.4	10.5				
North: Cumberland Highway													
Lane 1	16	20.0	1152	0.014	100	7.4	LOS A	0.1	0.5	Short	65	0.0	NA
Lane 2	749	3.3	1239[1]	0.605	100	14.2	LOS A	29.1	209.4	Full	300	0.0	0.0
Lane 3	776	3.3	1283	0.605	100	14.3	LOS A	30.4	218.9	Full	300	0.0	0.0
Lane 4	755	3.3	1248[1]	0.605	100	14.2	LOS A	29.4	211.9	Full	300	0.0	0.0
Lane 5	6	44.0	154	0.040	30[6]	47.5	LOS D	0.3	2.9	Short	115	0.0	NA
Lane 6	20	44.0	154	0.131	100	48.4	LOS D	1.0	9.8	Short	105	0.0	NA
Approach	2322	3.9		0.605		14.6	LOS B	30.4	218.9				
West: Long Street													
Lane 1	36	32.4	329	0.109	100	43.8	LOS D	1.8	16.2	Short	25	0.0	NA
Lane 2	1	0.0	159	0.007	100	70.1	LOS E	0.1	0.5	Short	35	0.0	NA
Lane 3	78	6.8	108	0.717	100	84.9	LOS F	5.9	43.9	Short	35	0.0	NA
Lane 4	78	6.8	109	0.717	100	84.9	LOS F	6.0	44.1	Full	800	0.0	0.0
Approach	193	11.5		0.717		77.2	LOS F	6.0	44.1				
Intersection	4238	4.7		0.717		19.8	LOS B	30.4	218.9				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
6 Lane under-utilisation due to downstream effects

Approach Lane Flows (veh/h)

South: Cumberland Highway

Mov. From S	L2	T1	R2	Total	%HV	Cap.	Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane

To Exit:	W	N	E			veh/h	v/c	%	%	No.
Lane 1	91	-	-	91	7.0	1252	0.072	100	0.0	2
Lane 2	-	516	-	516	4.5	1084	0.476	100	NA	NA
Lane 3	-	516	-	516	4.5	1084	0.476	100	NA	NA
Lane 4	-	516	-	516	4.5	1084	0.476	100	NA	NA
Lane 5	-	-	19	19	11.1	84	0.225	100	0.0	4
Approach	91	1548	19	1658	4.7		0.476			

East: Herbert Place

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	42	-	-	42	20.0	607	0.069	100	0.0	2
Lane 2	-	3	-	3	33.3	131	0.024	100	NA	NA
Lane 3	-	-	20	20	5.3	108	0.185	100	0.0	2
Approach	42	3	20	65	16.1		0.185			

North: Cumberland Highway

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	16	-	-	16	20.0	1152	0.014	100	0.0	2
Lane 2	-	749	-	749	3.3	1239[1]	0.605	100	NA	NA
Lane 3	-	776	-	776	3.3	1283	0.605	100	NA	NA
Lane 4	-	755	-	755	3.3	1248[1]	0.605	100	NA	NA
Lane 5	-	-	6	6	44.0	154	0.040	30[6]	0.0	4
Lane 6	-	-	20	20	44.0	154	0.131	100	0.0	5
Approach	16	2280	26	2322	3.9		0.605			

West: Long Street

Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	36	-	-	36	32.4	329	0.109	100	0.0	2
Lane 2	-	1	-	1	0.0	159	0.007	100	0.0	3
Lane 3	-	-	78	78	6.8	108	0.717	100	25.5	4
Lane 4	-	-	78	78	6.8	109	0.717	100	NA	NA
Approach	36	1	156	193	11.5		0.717			

	Total	%HV	Deg.Satn (v/c)
Intersection	4238	4.7	0.717

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

6 Lane under-utilisation due to downstream effects

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Cumberland Highway Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
Full Length Lane	3	Merge Analysis not applied.										
East Exit: Herbert Place Merge Type: **Not Applied**												

Full Length Lane	1	Merge Analysis not applied.									
North Exit: Cumberland Highway Merge Type: **Not Applied**											
Full Length Lane	1	Merge Analysis not applied.									
Full Length Lane	2	Merge Analysis not applied.									
Full Length Lane	3	Merge Analysis not applied.									
West Exit: Long Street Merge Type: **Priority**											
Exit Short Lane	1	35	0.0	67	73	3.00	2.00	53	1726	0.031	0.1	0.1
Merge Lane	2	-	100.0	Merge Lane is not Opposed				67	1800	0.037	0.0	0.0

MOVEMENT SUMMARY

Site: 101 [Cumberland Hwy/Long St - Construction AM Peak - Background - 2023 (Site Folder: 2023 Background)]

Cumberland Highway/Long Street/Herbert Place
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 162 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Cumberland Highway														
1	L2	326	30	343	9.2	0.277	8.7	LOS A	3.9	29.1	0.20	0.64	0.20	56.0
2	T1	2272	200	2392	8.8	* 0.787	25.7	LOS B	50.9	383.1	0.79	0.73	0.79	42.1
3	R2	46	6	48	13.0	0.172	41.3	LOS C	2.1	16.4	0.90	0.74	0.90	29.3
Approach		2644	236	2783	8.9	0.787	23.9	LOS B	50.9	383.1	0.72	0.72	0.72	43.9
East: Herbert Place														
4	L2	27	12	28	44.4	0.037	9.9	LOS A	0.6	5.8	0.33	0.51	0.33	36.4
5	T1	6	2	6	33.3	0.045	74.4	LOS F	0.5	4.2	0.94	0.63	0.94	26.3
6	R2	28	21	29	75.0	0.397	87.3	LOS F	2.4	27.6	1.00	0.74	1.00	14.2
Approach		61	35	64	57.4	0.397	51.8	LOS D	2.4	27.6	0.69	0.63	0.69	21.9
North: Cumberland Highway														
7	L2	63	10	66	15.9	0.056	7.5	LOS A	0.3	2.7	0.11	0.61	0.11	46.3
8	T1	1388	173	1461	12.5	* 0.541	17.9	LOS B	18.4	142.8	0.73	0.65	0.73	47.9
9	R2	143	24	151	16.8	* 0.589	54.8	LOS D	6.9	55.5	0.98	0.77	0.98	33.6
Approach		1594	207	1678	13.0	0.589	20.8	LOS B	18.4	142.8	0.73	0.66	0.73	45.4
West: Long Street														
10	L2	58	33	61	56.9	0.200	50.2	LOS D	3.6	37.4	0.85	0.73	0.85	31.9
11	T1	4	0	4	0.0	0.025	76.0	LOS F	0.3	2.1	0.94	0.63	0.94	26.0
12	R2	131	33	138	25.2	* 0.704	92.2	LOS F	5.8	49.0	1.00	0.83	1.13	26.4
Approach		193	66	203	34.2	0.704	79.3	LOS F	5.8	49.0	0.95	0.80	1.04	27.7
All Vehicles		4492	544	4728	12.1	0.787	25.6	LOS B	50.9	383.1	0.73	0.70	0.74	42.3

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Herbert Place												
P2	Full	50	53	46.8	LOS E	0.2	0.2	0.93	0.93	228.2	217.7	0.95
North: Cumberland Highway												
P3	Full	50	53	75.3	LOS F	0.2	0.2	0.97	0.97	267.6	230.8	0.86
West: Long Street												

P4	Full	50	53	75.3	LOS F	0.2	0.2	0.97	0.97	259.2	220.7	0.85
P4B	Slip/ Bypass	50	53	52.2	LOS E	0.2	0.2	0.93	0.93	223.2	205.2	0.92
All Pedestrians		200	211	62.4	LOS F	0.2	0.2	0.95	0.95	244.5	218.6	0.89

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

MOVEMENT SUMMARY

Site: 101 [Cumberland Hwy/Long St - Commuter AM Peak - Background - 2023 (Site Folder: 2023 Background)]

Cumberland Highway/Long Street/Herbert Place
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Cumberland Highway														
1	L2	348	42	366	12.1	0.300	8.9	LOS A	4.0	30.5	0.23	0.65	0.23	55.8
2	T1	2225	191	2342	8.6	* 0.808	26.0	LOS B	45.0	338.5	0.85	0.78	0.85	41.9
3	R2	21	7	22	33.3	0.200	75.9	LOS F	1.5	13.4	0.97	0.71	0.97	20.7
Approach		2594	240	2731	9.3	0.808	24.1	LOS B	45.0	338.5	0.76	0.76	0.76	43.9
East: Herbert Place														
4	L2	11	8	12	72.7	0.025	12.3	LOS A	0.3	3.0	0.39	0.52	0.39	32.0
5	T1	5	2	5	40.0	0.053	68.9	LOS E	0.3	3.3	0.96	0.63	0.96	27.4
6	R2	21	20	22	95.2	0.281	74.3	LOS F	1.5	19.5	0.98	0.72	0.98	15.3
Approach		37	30	39	81.1	0.281	55.2	LOS D	1.5	19.5	0.80	0.65	0.80	20.5
North: Cumberland Highway														
7	L2	50	14	53	28.0	0.047	7.7	LOS A	0.2	1.9	0.11	0.60	0.11	46.3
8	T1	2071	164	2180	7.9	0.626	14.9	LOS B	29.9	223.5	0.63	0.58	0.63	50.5
9	R2	155	31	163	20.0	* 0.594	46.8	LOS D	6.4	52.2	0.97	0.78	0.97	36.0
Approach		2276	209	2396	9.2	0.626	17.0	LOS B	29.9	223.5	0.64	0.59	0.64	48.5
West: Long Street														
10	L2	92	44	97	47.8	0.324	43.6	LOS D	4.9	48.4	0.89	0.76	0.89	34.1
11	T1	10	2	11	20.0	* 0.094	71.8	LOS F	0.7	5.8	0.97	0.67	0.97	26.8
12	R2	163	39	172	23.9	* 0.751	81.0	LOS F	6.3	52.9	1.00	0.87	1.19	28.3
Approach		265	85	279	32.1	0.751	67.7	LOS E	6.3	52.9	0.96	0.82	1.08	29.9
All Vehicles		5172	564	5444	10.9	0.808	23.4	LOS B	45.0	338.5	0.72	0.69	0.73	43.8

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Herbert Place												
P2	Full	50	53	64.3	LOS F	0.2	0.2	0.96	0.96	245.7	217.7	0.89
North: Cumberland Highway												
P3	Full	50	53	64.3	LOS F	0.2	0.2	0.96	0.96	256.6	230.8	0.90
West: Long Street												

P4	Full	50	53	64.3	LOS F	0.2	0.2	0.96	0.96	248.2	220.7	0.89
P4B	Slip/ Bypass	50	53	40.8	LOS E	0.2	0.2	0.92	0.92	211.8	205.2	0.97
All Pedestrians		200	211	58.4	LOS E	0.2	0.2	0.95	0.95	240.6	218.6	0.91

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

MOVEMENT SUMMARY

Site: 101 [Cumberland Hwy/Long St - Commuter PM Peak - Background - 2023 (Site Folder: 2023 Background)]

Cumberland Highway/Long Street/Herbert Place
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 149 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Cumberland Highway														
1	L2	129	22	136	17.1	0.114	7.8	LOS A	0.9	7.1	0.14	0.62	0.14	56.3
2	T1	1882	98	1981	5.2	0.728	31.4	LOS C	38.4	280.9	0.85	0.77	0.85	38.7
3	R2	18	9	19	50.0	0.222	83.1	LOS F	1.4	13.9	0.98	0.71	0.98	19.5
Approach		2029	129	2136	6.4	0.728	30.4	LOS C	38.4	280.9	0.80	0.76	0.80	39.6
East: Herbert Place														
4	L2	27	4	28	14.8	0.068	34.4	LOS C	1.3	10.4	0.69	0.65	0.69	29.0
5	T1	5	4	5	80.0	0.068	74.7	LOS F	0.4	4.5	0.97	0.64	0.97	26.1
6	R2	31	8	33	25.8	0.130	61.0	LOS E	2.0	17.5	0.89	0.70	0.89	19.0
Approach		63	16	66	25.4	0.130	50.7	LOS D	2.0	17.5	0.81	0.68	0.81	23.4
North: Cumberland Highway														
7	L2	9	5	9	55.6	0.010	8.1	LOS A	0.0	0.4	0.10	0.58	0.10	46.2
8	T1	2704	157	2846	5.8	* 0.881	31.2	LOS C	61.8	454.2	0.92	0.88	0.95	38.8
9	R2	75	35	79	46.7	* 0.378	45.5	LOS D	2.8	27.9	0.96	0.74	0.96	36.2
Approach		2788	197	2935	7.1	0.881	31.5	LOS C	61.8	454.2	0.92	0.88	0.95	38.7
West: Long Street														
10	L2	136	14	143	10.3	0.423	41.3	LOS C	6.9	52.7	0.93	0.78	0.93	36.9
11	T1	4	1	4	25.0	0.041	76.1	LOS F	0.3	2.5	0.96	0.64	0.96	26.0
12	R2	391	15	412	3.8	* 0.828	76.9	LOS F	18.2	131.3	0.99	0.91	1.17	30.0
Approach		531	30	559	5.6	0.828	67.8	LOS E	18.2	131.3	0.97	0.88	1.11	31.3
All Vehicles		5411	372	5696	6.9	0.881	34.9	LOS C	61.8	454.2	0.88	0.83	0.91	37.5

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Herbert Place												
P2	Full	50	53	68.8	LOS F	0.2	0.2	0.96	0.96	250.2	217.7	0.87
North: Cumberland Highway												
P3	Full	50	53	68.8	LOS F	0.2	0.2	0.96	0.96	261.1	230.8	0.88
West: Long Street												

P4	Full	50	53	68.8	LOS F	0.2	0.2	0.96	0.96	252.7	220.7	0.87
P4B	Slip/ Bypass	50	53	37.8	LOS D	0.1	0.1	0.92	0.92	208.8	205.2	0.98
All Pedestrians		200	211	61.0	LOS F	0.2	0.2	0.95	0.95	243.2	218.6	0.90

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

MOVEMENT SUMMARY

Site: 101 [Cumberland Hwy/Long St - Construction PM Peak - Background - 2023 (Site Folder: 2023 Background)]

Cumberland Highway/Long Street/Herbert Place
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 148 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Cumberland Highway														
1	L2	86	6	91	7.0	0.072	7.2	LOS A	0.3	2.5	0.10	0.61	0.10	56.8
2	T1	1471	66	1548	4.5	0.476	20.0	LOS B	21.6	157.0	0.64	0.57	0.64	46.2
3	R2	18	2	19	11.1	* 0.225	83.9	LOS F	1.4	10.7	0.99	0.70	0.99	19.4
Approach		1575	74	1658	4.7	0.476	20.0	LOS B	21.6	157.0	0.61	0.58	0.61	46.3
East: Herbert Place														
4	L2	40	8	42	20.0	0.069	11.4	LOS A	1.0	8.0	0.38	0.55	0.38	39.1
5	T1	3	1	3	33.3	0.024	68.5	LOS E	0.2	1.9	0.94	0.60	0.94	27.4
6	R2	19	1	20	5.3	0.185	76.9	LOS F	1.4	10.5	0.98	0.70	0.98	17.0
Approach		62	10	65	16.1	0.185	34.3	LOS C	1.4	10.5	0.59	0.60	0.59	28.5
North: Cumberland Highway														
7	L2	15	3	16	20.0	0.014	7.4	LOS A	0.1	0.5	0.09	0.59	0.09	46.4
8	T1	2166	72	2280	3.3	* 0.605	14.2	LOS A	30.4	218.9	0.60	0.55	0.60	51.2
9	R2	25	11	26	44.0	0.131	48.2	LOS D	1.0	9.8	0.93	0.69	0.93	35.4
Approach		2206	86	2322	3.9	0.605	14.6	LOS B	30.4	218.9	0.60	0.56	0.60	50.8
West: Long Street														
10	L2	34	11	36	32.4	0.109	43.8	LOS D	1.8	16.2	0.84	0.71	0.84	34.8
11	T1	1	0	1	0.0	0.007	70.1	LOS E	0.1	0.5	0.94	0.58	0.94	27.1
12	R2	148	10	156	6.8	* 0.717	84.9	LOS F	6.0	44.1	1.00	0.83	1.15	28.3
Approach		183	21	193	11.5	0.717	77.2	LOS F	6.0	44.1	0.97	0.81	1.09	29.2
All Vehicles		4026	191	4238	4.7	0.717	19.8	LOS B	30.4	218.9	0.62	0.58	0.63	46.2

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Herbert Place												
P2	Full	50	53	68.3	LOS F	0.2	0.2	0.96	0.96	249.7	217.7	0.87
North: Cumberland Highway												
P3	Full	50	53	68.3	LOS F	0.2	0.2	0.96	0.96	260.6	230.8	0.89
West: Long Street												

P4	Full	50	53	68.3	LOS F	0.2	0.2	0.96	0.96	252.2	220.7	0.88
P4B	Slip/ Bypass	50	53	44.4	LOS E	0.2	0.2	0.92	0.92	215.4	205.2	0.95
All Pedestrians		200	211	62.3	LOS F	0.2	0.2	0.95	0.95	244.5	218.6	0.89

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.

PHASING SUMMARY

Site: 101 [Cumberland Hwy/Long St - Construction AM Peak - Background - 2023 (Site Folder: 2023 Background)]

Cumberland Highway/Long Street/Herbert Place
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 162 seconds (Site User-Given Phase Times)

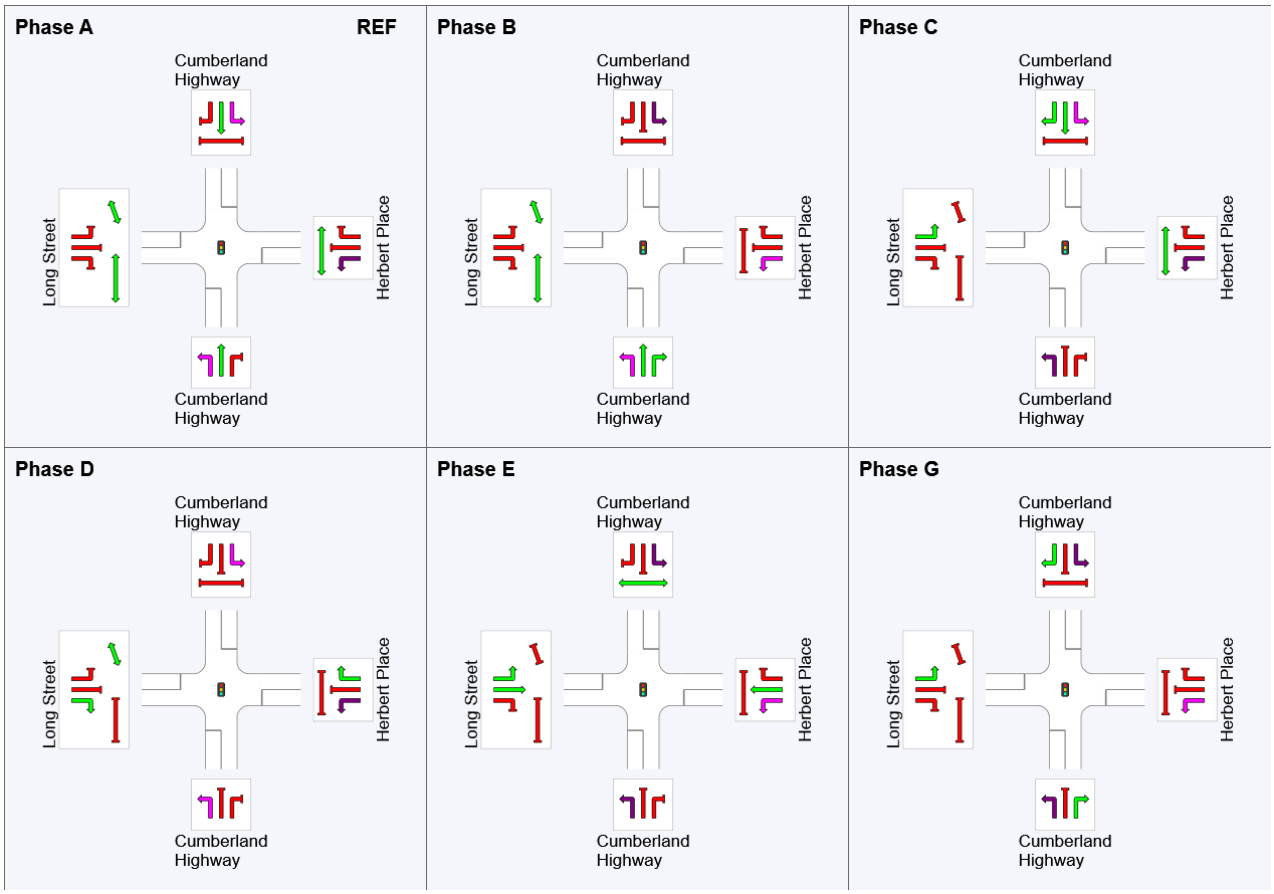
Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: Construction AM peak
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D, E, G
Output Phase Sequence: A, B, C, D, E, G

Phase Timing Summary

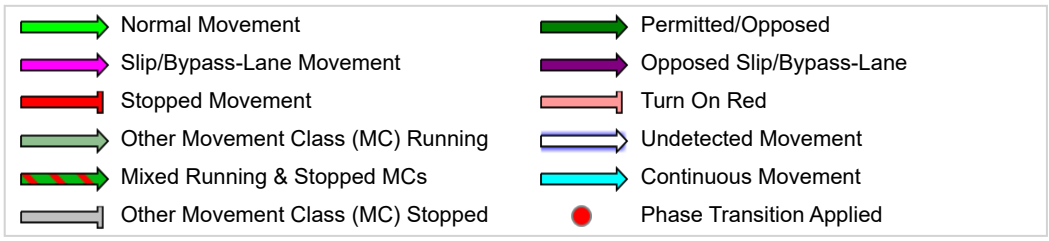
Phase	A	B	C	D	E	G
Phase Change Time (sec)	0	79	101	116	129	149
Green Time (sec)	73	16	9	10	14	10
Phase Time (sec)	79	22	12	16	17	16
Phase Split	49%	14%	7%	10%	10%	10%

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



PHASING SUMMARY

Site: 101 [Cumberland Hwy/Long St - Commuter AM Peak - Background - 2023 (Site Folder: 2023 Background)]

Cumberland Highway/Long Street/Herbert Place
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Phase Times)

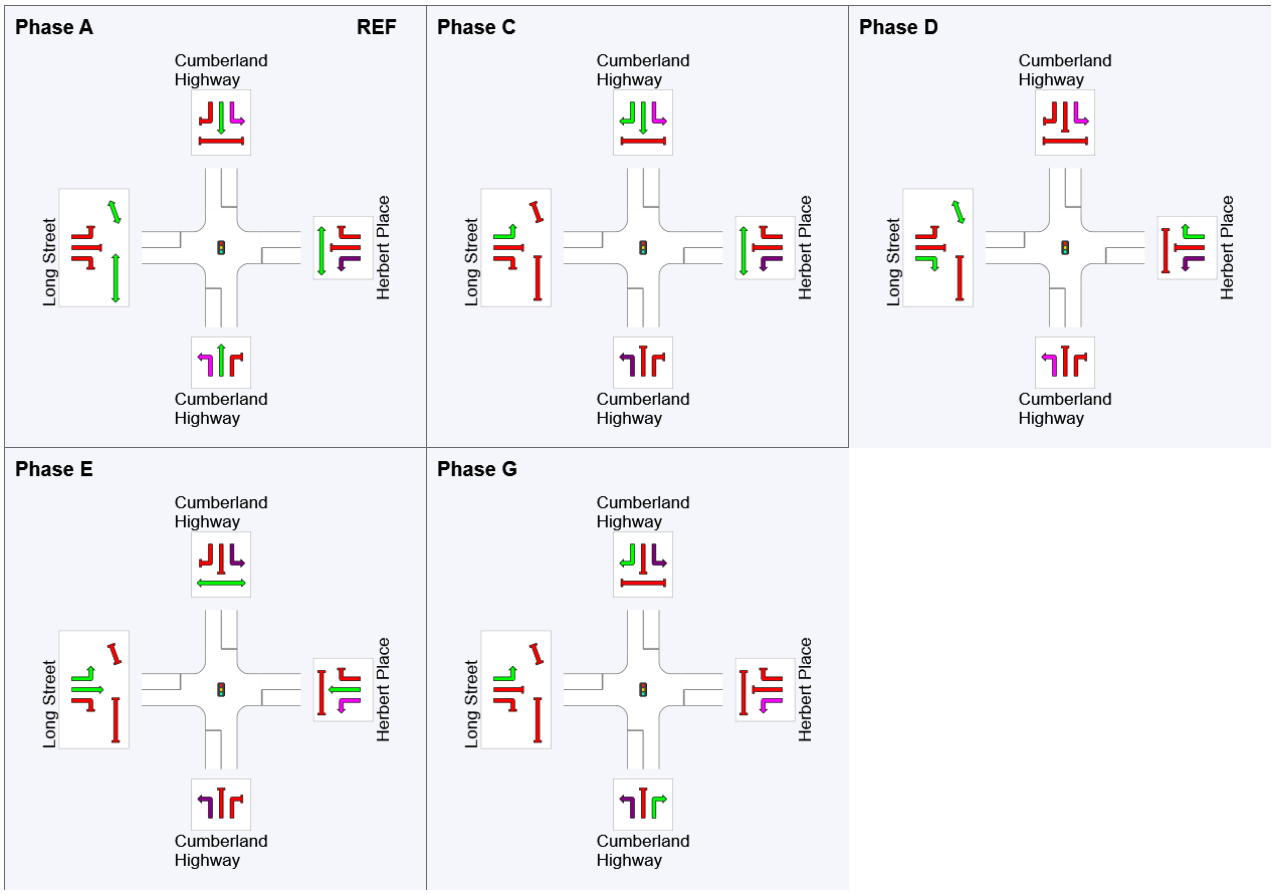
Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: Construction AM peak
Reference Phase: Phase A
Input Phase Sequence: A, C, D, E, G
Output Phase Sequence: A, C, D, E, G

Phase Timing Summary

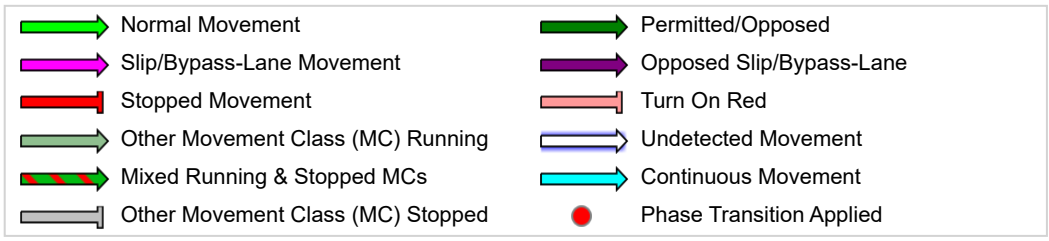
Phase	A	C	D	E	G
Phase Change Time (sec)	0	83	97	113	128
Green Time (sec)	77	8	10	9	10
Phase Time (sec)	83	14	16	11	16
Phase Split	59%	10%	11%	8%	11%

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



PHASING SUMMARY

Site: 101 [Cumberland Hwy/Long St - Commuter PM Peak - Background - 2023 (Site Folder: 2023 Background)]

Cumberland Highway/Long Street/Herbert Place
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 149 seconds (Site User-Given Phase Times)

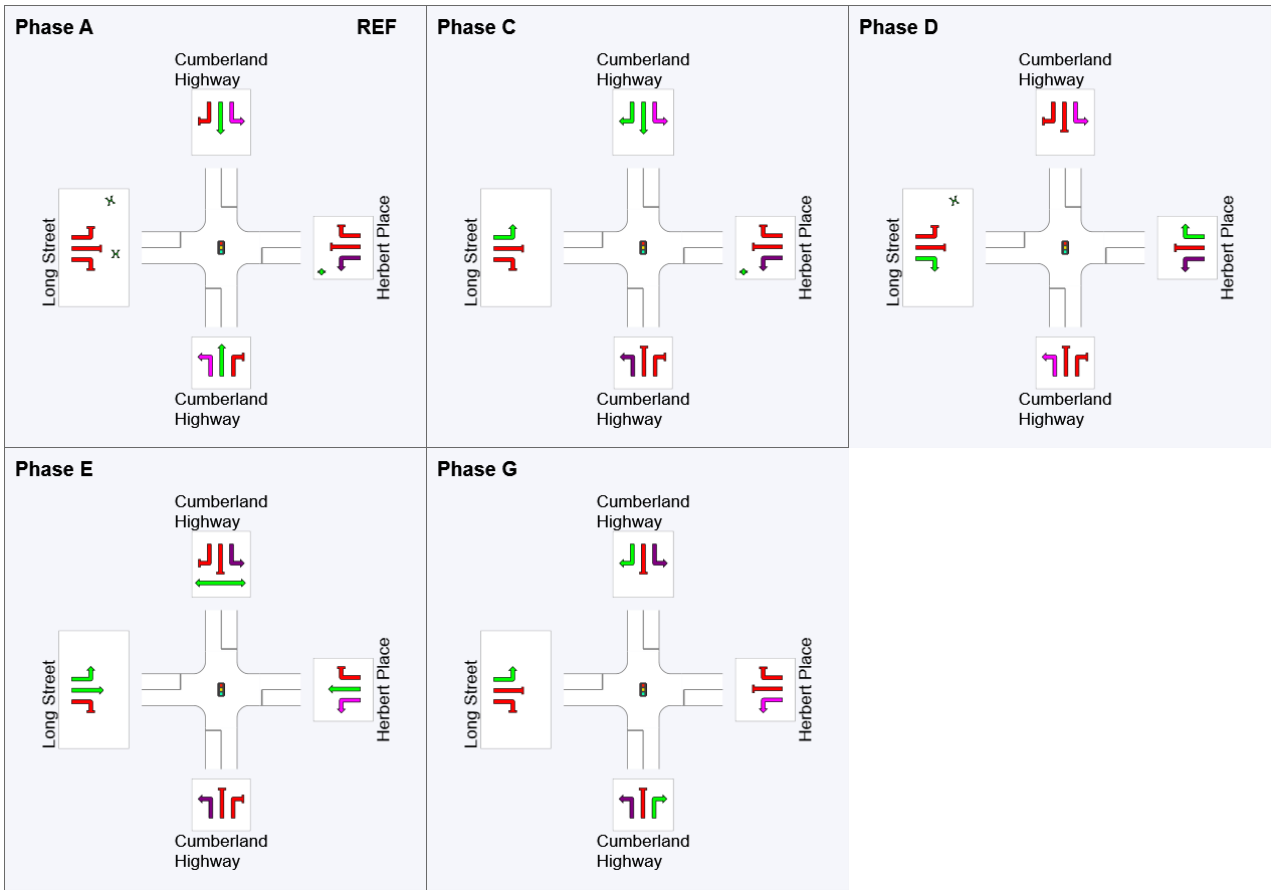
Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: Construction AM peak
Reference Phase: Phase A
Input Phase Sequence: A, C, D, E, G
Output Phase Sequence: A, C, D, E, G

Phase Timing Summary

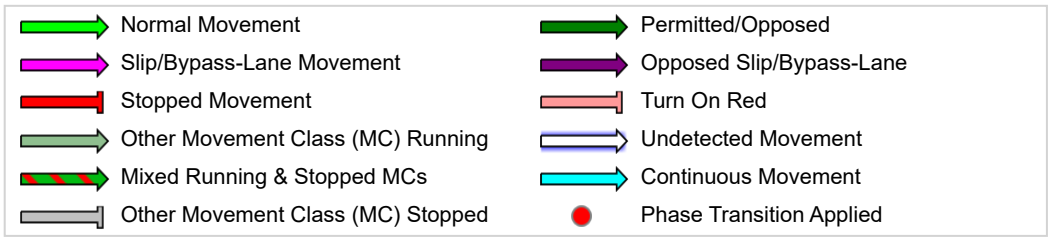
Phase	A	C	D	E	G
Phase Change Time (sec)	0	79	93	123	138
Green Time (sec)	73	8	24	9	9
Phase Time (sec)	79	14	30	11	15
Phase Split	53%	9%	20%	7%	10%

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



PHASING SUMMARY

Site: 101 [Cumberland Hwy/Long St - Construction PM Peak - Background - 2023 (Site Folder: 2023 Background)]

Cumberland Highway/Long Street/Herbert Place
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 148 seconds (Site User-Given Phase Times)

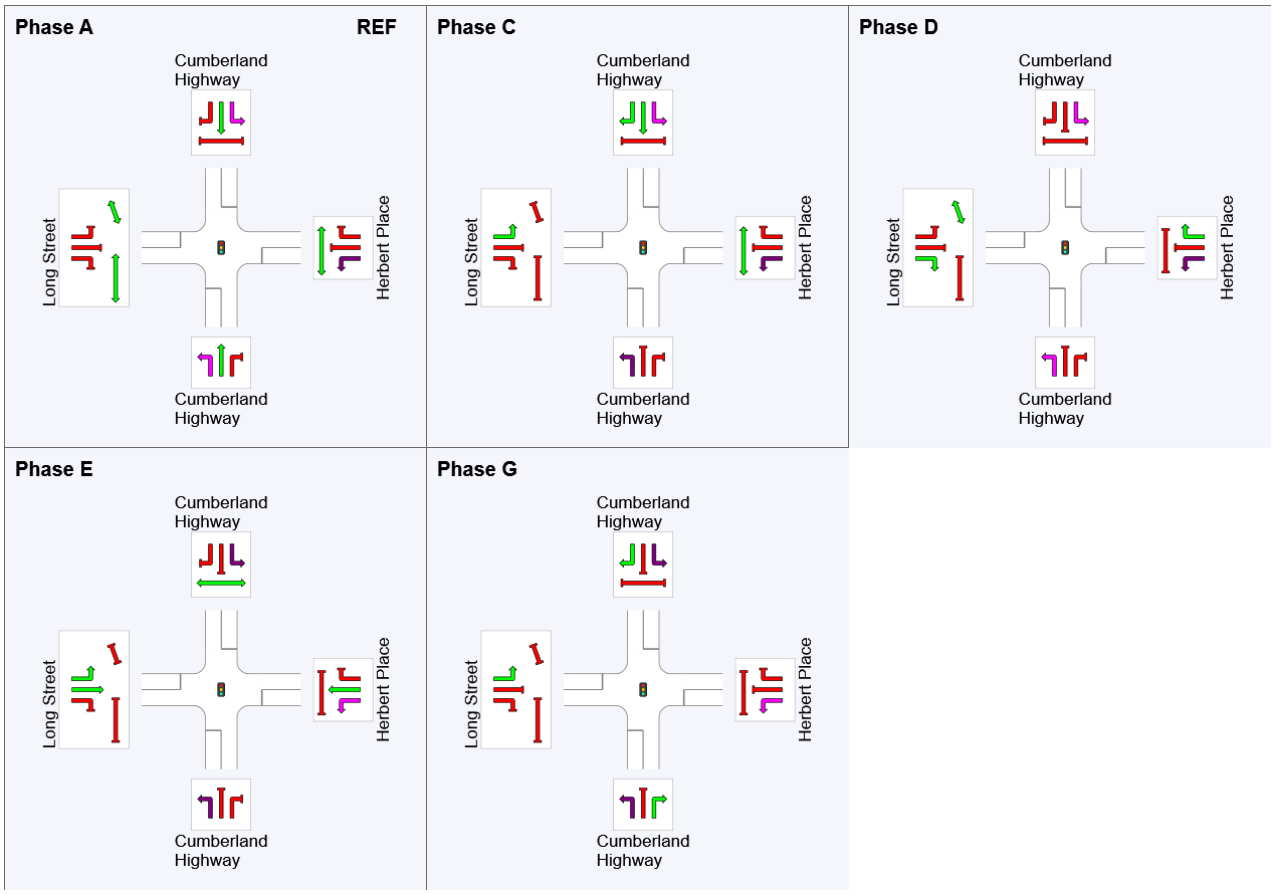
Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: Construction AM peak
Reference Phase: Phase A
Input Phase Sequence: A, C, D, E, G
Output Phase Sequence: A, C, D, E, G

Phase Timing Summary

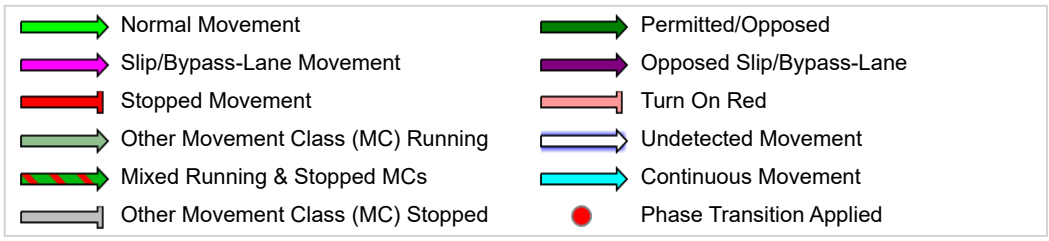
Phase	A	C	D	E	G
Phase Change Time (sec)	0	90	105	120	138
Green Time (sec)	84	9	9	12	7
Phase Time (sec)	90	15	15	15	13
Phase Split	61%	10%	10%	10%	9%

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



LANE SUMMARY

Site: 101 [Cumberland Hwy/Long St - Construction AM Peak - W Dev - 2024 (Site Folder: 2024 Background with development)]

Cumberland Highway/Long Street/Herbert Place
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 162 seconds (Site User-Given Phase Times)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Cumberland Highway													
Lane 1	344	9.2	1239	0.278	100	8.7	LOS A	3.9	29.2	Short	120	0.0	NA
Lane 2	711	8.8	897[1]	0.793	100	23.6	LOS B	36.8	277.3	Full	430	0.0	0.0
Lane 3	864	8.8	1090	0.793	100	27.3	LOS B	51.7	389.0	Full	430	0.0	0.0
Lane 4	825	8.8	1041[1]	0.793	100	26.2	LOS B	47.5	357.4	Full	430	0.0	0.0
Lane 5	62	10.2	287	0.216	100	41.5	LOS C	2.7	20.8	Short	140	0.0	NA
Approach	2807	8.9		0.793		24.1	LOS B	51.7	389.0				
East: Herbert Place													
Lane 1	28	44.4	772	0.037	100	10.0	LOS A	0.6	5.8	Short	60	0.0	NA
Lane 2	6	33.3	139	0.045	100	74.4	LOS F	0.5	4.2	Full	220	0.0	0.0
Lane 3	29	75.0	74	0.397	100	87.3	LOS F	2.4	27.6	Short	40	0.0	NA
Approach	64	57.4		0.397		51.8	LOS D	2.4	27.6				
North: Cumberland Highway													
Lane 1	84	12.5	1195	0.070	100	7.5	LOS A	0.5	3.7	Short	65	0.0	NA
Lane 2	480	12.9	875[1]	0.548	100	17.7	LOS B	17.6	136.8	Full	300	0.0	0.0
Lane 3	502	12.9	916	0.548	100	18.3	LOS B	18.9	146.6	Full	300	0.0	0.0
Lane 4	492	12.9	897	0.548	100	18.3	LOS B	18.5	143.7	Full	300	0.0	0.0
Lane 5	35	16.8	196	0.178	30[6]	53.0	LOS D	2.0	15.6	Short	115	0.0	NA
Lane 6	116	16.8	197	0.589	100	55.4	LOS D	6.9	55.5	Short	105	0.0	NA
Approach	1708	13.2		0.589		20.8	LOS B	18.9	146.6				
West: Long Street													
Lane 1	61	56.9	306	0.200	100	50.2	LOS D	3.6	37.4	Short	25	0.0	NA
Lane 2	4	0.0	169	0.025	100	76.0	LOS F	0.3	2.1	Short	35	0.0	NA
Lane 3	69	25.2	98	0.704	100	92.3	LOS F	5.7	48.7	Short	35	0.0	NA
Lane 4	69	25.2	98	0.704	100	92.2	LOS F	5.8	49.0	Full	800	0.0	0.0
Approach	203	34.2		0.704		79.3	LOS F	5.8	49.0				
Intersection	4783	12.1		0.793		25.6	LOS B	51.7	389.0				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
6 Lane under-utilisation due to downstream effects

Approach Lane Flows (veh/h)

South: Cumberland Highway

Mov. From S	L2	T1	R2	Total	%HV	Cap.	Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane

To Exit:	W	N	E			veh/h	v/c	%	%	No.
Lane 1	344	-	-	344	9.2	1239	0.278	100	0.0	2
Lane 2	-	711	-	711	8.8	897[1]	0.793	100	NA	NA
Lane 3	-	864	-	864	8.8	1090	0.793	100	NA	NA
Lane 4	-	825	-	825	8.8	1041[1]	0.793	100	NA	NA
Lane 5	-	-	62	62	10.2	287	0.216	100	0.0	4
Approach	344	2401	62	2807	8.9		0.793			

East: Herbert Place

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	28	-	-	28	44.4	772	0.037	100	0.0	2
Lane 2	-	6	-	6	33.3	139	0.045	100	NA	NA
Lane 3	-	-	29	29	75.0	74	0.397	100	0.0	2
Approach	28	6	29	64	57.4		0.397			

North: Cumberland Highway

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	84	-	-	84	12.5	1195	0.070	100	0.0	2
Lane 2	-	480	-	480	12.9	875[1]	0.548	100	NA	NA
Lane 3	-	502	-	502	12.9	916	0.548	100	NA	NA
Lane 4	-	492	-	492	12.9	897	0.548	100	NA	NA
Lane 5	-	-	35	35	16.8	196	0.178	30[6]	0.0	4
Lane 6	-	-	116	116	16.8	197	0.589	100	0.0	5
Approach	84	1474	151	1708	13.2		0.589			

West: Long Street

Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	61	-	-	61	56.9	306	0.200	100	41.8	2
Lane 2	-	4	-	4	0.0	169	0.025	100	10.9	3
Lane 3	-	-	69	69	25.2	98	0.704	100	35.2	4
Lane 4	-	-	69	69	25.2	98	0.704	100	NA	NA
Approach	61	4	138	203	34.2		0.704			

	Total	%HV	Deg.Satn (v/c)
Intersection	4783	12.1	0.793

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

6 Lane under-utilisation due to downstream effects

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Cumberland Highway Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
Full Length Lane	3	Merge Analysis not applied.										
East Exit: Herbert Place Merge Type: **Not Applied**												

Full Length Lane	1	Merge Analysis not applied.									
North Exit: Cumberland Highway Merge Type: **Not Applied**											
Full Length Lane	1	Merge Analysis not applied.									
Full Length Lane	2	Merge Analysis not applied.									
Full Length Lane	3	Merge Analysis not applied.									
West Exit: Long Street Merge Type: **Priority**											
Exit Short Lane	1	35	0.0	291	309	3.00	2.00	210	1486	0.141	0.5	0.6
Merge Lane	2	-	100.0	Merge Lane is not Opposed				291	1800	0.162	0.0	0.0

LANE SUMMARY

Site: 101 [Cumberland Hwy/Long St - Commuter AM Peak - W Dev - 2024 (Site Folder: 2024 Background with development)]

Cumberland Highway/Long Street/Herbert Place
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Phase Times)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Cumberland Highway													
Lane 1	367	12.0	1221	0.301	100	8.9	LOS A	4.0	30.6	Short	120	0.0	NA
Lane 2	703	8.6	865[1]	0.813	100	24.4	LOS B	34.4	258.2	Full	430	0.0	0.0
Lane 3	832	8.6	1023	0.813	100	27.1	LOS B	45.5	341.7	Full	430	0.0	0.0
Lane 4	817	8.6	1005[1]	0.813	100	26.7	LOS B	44.0	330.8	Full	430	0.0	0.0
Lane 5	23	36.4	109	0.213	100	76.1	LOS F	1.6	14.4	Short	140	0.0	NA
Approach	2742	9.3		0.813		24.3	LOS B	45.5	341.7				
East: Herbert Place													
Lane 1	13	75.0	446	0.028	100	12.7	LOS A	0.3	3.4	Short	60	0.0	NA
Lane 2	5	40.0	100	0.053	100	68.9	LOS E	0.3	3.3	Full	220	0.0	0.0
Lane 3	26	96.0	78	0.336	100	74.8	LOS F	1.8	23.5	Short	40	0.0	NA
Approach	44	83.3		0.336		56.4	LOS D	1.8	23.5				
North: Cumberland Highway													
Lane 1	57	33.3	1083	0.052	100	7.8	LOS A	0.2	2.2	Short	65	0.0	NA
Lane 2	712	8.6	1118[1]	0.637	100	14.9	LOS B	27.4	205.8	Full	300	0.0	0.0
Lane 3	768	8.6	1207	0.637	100	15.4	LOS B	30.7	230.6	Full	300	0.0	0.0
Lane 4	725	8.6	1139[1]	0.637	100	15.0	LOS B	28.2	212.2	Full	300	0.0	0.0
Lane 5	38	20.0	210	0.180	30[6]	45.2	LOS D	1.8	14.6	Short	115	0.0	NA
Lane 6	125	20.0	211	0.594	100	47.3	LOS D	6.4	52.2	Short	105	0.0	NA
Approach	2425	9.9		0.637		17.1	LOS B	30.7	230.6				
West: Long Street													
Lane 1	97	47.8	299[1]	0.324	100	43.6	LOS D	4.9	48.4	Short	25	0.0	NA
Lane 2	11	20.0	112	0.094	100	71.8	LOS F	0.7	5.8	Short	35	0.0	NA
Lane 3	86	23.9	114	0.751	100	81.1	LOS F	6.2	52.6	Short	35	0.0	NA
Lane 4	86	23.9	115	0.751	100	81.0	LOS F	6.3	52.9	Full	800	0.0	0.0
Approach	279	32.1		0.751		67.7	LOS E	6.3	52.9				
Intersection	5491	11.3		0.813		23.6	LOS B	45.5	341.7				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
6 Lane under-utilisation due to downstream effects

Approach Lane Flows (veh/h)

South: Cumberland Highway

Mov. From S	L2	T1	R2	Total	%HV	Cap.	Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane

To Exit:	W	N	E			veh/h	v/c	%	%	No.
Lane 1	367	-	-	367	12.0	1221	0.301	100	0.0	2
Lane 2	-	703	-	703	8.6	865[1]	0.813	100	NA	NA
Lane 3	-	832	-	832	8.6	1023	0.813	100	NA	NA
Lane 4	-	817	-	817	8.6	1005[1]	0.813	100	NA	NA
Lane 5	-	-	23	23	36.4	109	0.213	100	0.0	4
Approach	367	2352	23	2742	9.3		0.813			

East: Herbert Place

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	13	-	-	13	75.0	446	0.028	100	0.0	2
Lane 2	-	5	-	5	40.0	100	0.053	100	NA	NA
Lane 3	-	-	26	26	96.0	78	0.336	100	0.0	2
Approach	13	5	26	44	83.3		0.336			

North: Cumberland Highway

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	57	-	-	57	33.3	1083	0.052	100	0.0	2
Lane 2	-	712	-	712	8.6	1118[1]	0.637	100	NA	NA
Lane 3	-	768	-	768	8.6	1207	0.637	100	NA	NA
Lane 4	-	725	-	725	8.6	1139[1]	0.637	100	NA	NA
Lane 5	-	-	38	38	20.0	210	0.180	30[6]	0.0	4
Lane 6	-	-	125	125	20.0	211	0.594	100	0.0	5
Approach	57	2205	163	2425	9.9		0.637			

West: Long Street

Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	97	-	-	97	47.8	299[1]	0.324	100	66.2	2
Lane 2	-	11	-	11	20.0	112	0.094	100	34.5	3
Lane 3	-	-	86	86	23.9	114	0.751	100	42.3	4
Lane 4	-	-	86	86	23.9	115	0.751	100	NA	NA
Approach	97	11	172	279	32.1		0.751			

	Total	%HV	Deg.Satn (v/c)
Intersection	5491	11.3	0.813

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

6 Lane under-utilisation due to downstream effects

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Cumberland Highway Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
Full Length Lane	3	Merge Analysis not applied.										
East Exit: Herbert Place Merge Type: **Not Applied**												

Full Length Lane	1	Merge Analysis not applied.										
North Exit: Cumberland Highway Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
Full Length Lane	3	Merge Analysis not applied.										
West Exit: Long Street Merge Type: **Priority**												
Exit Short Lane	1	35	0.0	312	336	3.00	2.00	224	1458	0.154	0.5	0.7
Merge Lane	2	-	100.0	Merge Lane is not Opposed				312	1800	0.173	0.0	0.0

LANE SUMMARY

Site: 101 [Cumberland Hwy/Long St - Commuter PM Peak - W Dev - 2024 (Site Folder: 2024 Background with development)]

Cumberland Highway/Long Street/Herbert Place
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 149 seconds (Site User-Given Phase Times)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Cumberland Highway													
Lane 1	136	17.1	1192	0.114	100	7.8	LOS A	0.9	7.1	Short	120	0.0	NA
Lane 2	641	5.2	875[1]	0.732	100	30.9	LOS C	35.2	257.5	Full	430	0.0	0.0
Lane 3	681	5.2	931	0.732	100	32.0	LOS C	38.7	283.2	Full	430	0.0	0.0
Lane 4	666	5.2	910[1]	0.732	100	31.6	LOS C	37.4	273.4	Full	430	0.0	0.0
Lane 5	22	57.1	82	0.268	100	83.7	LOS F	1.6	17.0	Short	140	0.0	NA
Approach	2146	6.5		0.732		30.5	LOS C	38.7	283.2				
East: Herbert Place													
Lane 1	31	20.7	402	0.076	100	35.3	LOS C	1.4	11.8	Short	60	0.0	NA
Lane 2	5	80.0	78	0.068	100	74.7	LOS F	0.4	4.5	Full	220	0.0	0.0
Lane 3	36	32.4	242	0.148	100	61.4	LOS E	2.3	20.2	Short	40	0.0	NA
Approach	72	30.9		0.148		51.2	LOS D	2.3	20.2				
North: Cumberland Highway													
Lane 1	12	63.6	952	0.012	100	8.3	LOS A	0.0	0.5	Short	65	0.0	NA
Lane 2	944	5.9	1062[1]	0.888	100	32.8	LOS C	61.3	450.9	Full	300	0.0	42.3
Lane 3	979	5.9	1102	0.888	100	32.4	LOS C	63.8	469.5	Full	300	0.0	46.1
Lane 4	943	5.9	1062[1]	0.888	100	32.8	LOS C	61.2	450.4	Full	300	0.0	42.2
Lane 5	18	46.7	160	0.114	30[6]	44.3	LOS D	0.8	8.0	Short	115	0.0	NA
Lane 6	61	46.7	161	0.378	100	45.8	LOS D	2.8	27.9	Short	105	0.0	NA
Approach	2956	7.2		0.888		32.9	LOS C	63.8	469.5				
West: Long Street													
Lane 1	143	10.3	338[1]	0.423	100	41.3	LOS C	6.9	52.7	Short	25	0.0	NA
Lane 2	4	25.0	102	0.041	100	76.1	LOS F	0.3	2.5	Short	35	0.0	NA
Lane 3	241	3.8	290[1]	0.833	100	77.8	LOS F	18.4	132.7	Short	35	0.0	NA
Lane 4	172	3.8	207[1]	0.833	100	76.8	LOS F	12.8	92.4	Full	800	0.0	0.0
Approach	561	5.6		0.833		68.2	LOS E	18.4	132.7				
Intersection	5735	7.1		0.888		35.7	LOS C	63.8	469.5				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
6 Lane under-utilisation due to downstream effects

Approach Lane Flows (veh/h)

South: Cumberland Highway

Mov. From S	L2	T1	R2	Total	%HV	Cap.	Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane

To Exit:	W	N	E			veh/h	v/c	%	%	No.
Lane 1	136	-	-	136	17.1	1192	0.114	100	0.0	2
Lane 2	-	641	-	641	5.2	875[1]	0.732	100	NA	NA
Lane 3	-	681	-	681	5.2	931	0.732	100	NA	NA
Lane 4	-	666	-	666	5.2	910[1]	0.732	100	NA	NA
Lane 5	-	-	22	22	57.1	82	0.268	100	0.0	4
Approach	136	1988	22	2146	6.5		0.732			

East: Herbert Place

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	31	-	-	31	20.7	402	0.076	100	0.0	2
Lane 2	-	5	-	5	80.0	78	0.068	100	NA	NA
Lane 3	-	-	36	36	32.4	242	0.148	100	0.0	2
Approach	31	5	36	72	30.9		0.148			

North: Cumberland Highway

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	12	-	-	12	63.6	952	0.012	100	0.0	2
Lane 2	-	944	-	944	5.9	1062[1]	0.888	100	NA	NA
Lane 3	-	979	-	979	5.9	1102	0.888	100	NA	NA
Lane 4	-	943	-	943	5.9	1062[1]	0.888	100	NA	NA
Lane 5	-	-	18	18	46.7	160	0.114	30[6]	0.0	4
Lane 6	-	-	61	61	46.7	161	0.378	100	0.0	5
Approach	12	2865	79	2956	7.2		0.888			

West: Long Street

Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	143	-	-	143	10.3	338[1]	0.423	100	74.5	2
Lane 2	-	4	-	4	25.0	102	0.041	100	42.5	3
Lane 3	-	-	241	241	3.8	290[1]	0.833	100	100.0	4
Lane 4	-	-	172	172	3.8	207[1]	0.833	100	NA	NA
Approach	143	4	414	561	5.6		0.833			

	Total	%HV	Deg.Satn (v/c)
Intersection	5735	7.1	0.888

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

6 Lane under-utilisation due to downstream effects

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Cumberland Highway Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
Full Length Lane	3	Merge Analysis not applied.										
East Exit: Herbert Place Merge Type: **Not Applied**												

Full Length Lane	1	Merge Analysis not applied.									
North Exit: Cumberland Highway Merge Type: **Not Applied**											
Full Length Lane	1	Merge Analysis not applied.									
Full Length Lane	2	Merge Analysis not applied.									
Full Length Lane	3	Merge Analysis not applied.									
West Exit: Long Street Merge Type: **Priority**											
Exit Short Lane	1	35	0.0	131	152	3.00	2.00	89	1646	0.054	0.2	0.3
Merge Lane	2	-	100.0	Merge Lane is not Opposed				131	1800	0.073	0.0	0.0

LANE SUMMARY

Site: 101 [Cumberland Hwy/Long St - Construction PM Peak - W Dev - 2024 (Site Folder: 2024 Background with development)]

Cumberland Highway/Long Street/Herbert Place
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 148 seconds (Site User-Given Phase Times)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Cumberland Highway													
Lane 1	91	7.0	1252	0.072	100	7.2	LOS A	0.3	2.5	Short	120	0.0	NA
Lane 2	518	4.5	1084	0.478	100	20.0	LOS B	21.7	157.9	Full	430	0.0	0.0
Lane 3	518	4.5	1084	0.478	100	20.0	LOS B	21.7	157.9	Full	430	0.0	0.0
Lane 4	518	4.5	1084	0.478	100	20.0	LOS B	21.7	157.9	Full	430	0.0	0.0
Lane 5	19	11.1	84	0.225	100	83.9	LOS F	1.4	10.7	Short	140	0.0	NA
Approach	1664	4.7		0.478		20.0	LOS B	21.7	157.9				
East: Herbert Place													
Lane 1	63	13.3	630	0.100	100	11.6	LOS A	1.5	11.8	Short	60	0.0	NA
Lane 2	3	33.3	131	0.024	100	68.5	LOS E	0.2	1.9	Full	220	0.0	0.0
Lane 3	31	3.4	110	0.278	100	77.6	LOS F	2.2	15.9	Short	40	0.0	NA
Approach	97	10.9		0.278		34.3	LOS C	2.2	15.9				
North: Cumberland Highway													
Lane 1	16	20.0	1152	0.014	100	7.4	LOS A	0.1	0.5	Short	65	0.0	NA
Lane 2	753	3.4	1238[1]	0.608	100	14.2	LOS A	29.3	211.2	Full	300	0.0	0.0
Lane 3	780	3.4	1283	0.608	100	14.4	LOS A	30.7	220.9	Full	300	0.0	0.0
Lane 4	758	3.4	1247[1]	0.608	100	14.3	LOS A	29.7	213.8	Full	300	0.0	0.0
Lane 5	6	44.0	154	0.040	30[6]	47.5	LOS D	0.3	2.9	Short	115	0.0	NA
Lane 6	20	44.0	154	0.131	100	48.4	LOS D	1.0	9.8	Short	105	0.0	NA
Approach	2333	4.0		0.608		14.6	LOS B	30.7	220.9				
West: Long Street													
Lane 1	36	32.4	329	0.109	100	43.8	LOS D	1.8	16.2	Short	25	0.0	NA
Lane 2	1	0.0	159	0.007	100	70.1	LOS E	0.1	0.5	Short	35	0.0	NA
Lane 3	78	6.7	108	0.722	100	85.0	LOS F	6.0	44.2	Short	35	0.0	NA
Lane 4	79	6.7	109	0.722	100	85.0	LOS F	6.0	44.4	Full	800	0.0	0.0
Approach	194	11.4		0.722		77.3	LOS F	6.0	44.4				
Intersection	4287	4.7		0.722		20.0	LOS B	30.7	220.9				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
6 Lane under-utilisation due to downstream effects

Approach Lane Flows (veh/h)

South: Cumberland Highway

Mov. From S	L2	T1	R2	Total	%HV	Cap.	Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane

To Exit:	W	N	E			veh/h	v/c	%	%	No.
Lane 1	91	-	-	91	7.0	1252	0.072	100	0.0	2
Lane 2	-	518	-	518	4.5	1084	0.478	100	NA	NA
Lane 3	-	518	-	518	4.5	1084	0.478	100	NA	NA
Lane 4	-	518	-	518	4.5	1084	0.478	100	NA	NA
Lane 5	-	-	19	19	11.1	84	0.225	100	0.0	4
Approach	91	1555	19	1664	4.7		0.478			

East: Herbert Place

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	63	-	-	63	13.3	630	0.100	100	0.0	2
Lane 2	-	3	-	3	33.3	131	0.024	100	NA	NA
Lane 3	-	-	31	31	3.4	110	0.278	100	0.0	2
Approach	63	3	31	97	10.9		0.278			

North: Cumberland Highway

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	16	-	-	16	20.0	1152	0.014	100	0.0	2
Lane 2	-	753	-	753	3.4	1238[1]	0.608	100	NA	NA
Lane 3	-	780	-	780	3.4	1283	0.608	100	NA	NA
Lane 4	-	758	-	758	3.4	1247[1]	0.608	100	NA	NA
Lane 5	-	-	6	6	44.0	154	0.040	30[6]	0.0	4
Lane 6	-	-	20	20	44.0	154	0.131	100	0.0	5
Approach	16	2291	26	2333	4.0		0.608			

West: Long Street

Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	36	-	-	36	32.4	329	0.109	100	0.0	2
Lane 2	-	1	-	1	0.0	159	0.007	100	0.0	3
Lane 3	-	-	78	78	6.7	108	0.722	100	26.2	4
Lane 4	-	-	79	79	6.7	109	0.722	100	NA	NA
Approach	36	1	157	194	11.4		0.722			

	Total	%HV	Deg.Satn (v/c)
Intersection	4287	4.7	0.722

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

6 Lane under-utilisation due to downstream effects

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Cumberland Highway Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
Full Length Lane	3	Merge Analysis not applied.										
East Exit: Herbert Place Merge Type: **Not Applied**												

Full Length Lane	1	Merge Analysis not applied.									
North Exit: Cumberland Highway Merge Type: **Not Applied**											
Full Length Lane	1	Merge Analysis not applied.									
Full Length Lane	2	Merge Analysis not applied.									
Full Length Lane	3	Merge Analysis not applied.									
West Exit: Long Street Merge Type: **Priority**											
Exit Short Lane	1	35	0.0	67	73	3.00	2.00	53	1726	0.031	0.1	0.1
Merge Lane	2	-	100.0	Merge Lane is not Opposed				67	1800	0.037	0.0	0.0

MOVEMENT SUMMARY

Site: 101 [Cumberland Hwy/Long St - Construction AM Peak - W Dev - 2024 (Site Folder: 2024 Background with development)]

Cumberland Highway/Long Street/Herbert Place
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 162 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Cumberland Highway														
1	L2	327	30	344	9.2	0.278	8.7	LOS A	3.9	29.2	0.20	0.64	0.20	56.0
2	T1	2281	201	2401	8.8	* 0.793	25.8	LOS B	51.7	389.0	0.80	0.74	0.80	42.0
3	R2	59	6	62	10.2	0.216	41.5	LOS C	2.7	20.8	0.91	0.75	0.91	29.2
Approach		2667	237	2807	8.9	0.793	24.1	LOS B	51.7	389.0	0.73	0.72	0.73	43.7
East: Herbert Place														
4	L2	27	12	28	44.4	0.037	10.0	LOS A	0.6	5.8	0.33	0.51	0.33	36.4
5	T1	6	2	6	33.3	0.045	74.4	LOS F	0.5	4.2	0.94	0.63	0.94	26.3
6	R2	28	21	29	75.0	0.397	87.3	LOS F	2.4	27.6	1.00	0.74	1.00	14.2
Approach		61	35	64	57.4	0.397	51.8	LOS D	2.4	27.6	0.69	0.63	0.69	21.9
North: Cumberland Highway														
7	L2	80	10	84	12.5	0.070	7.5	LOS A	0.5	3.7	0.12	0.61	0.12	46.2
8	T1	1400	180	1474	12.9	* 0.548	18.1	LOS B	18.9	146.6	0.73	0.66	0.73	47.7
9	R2	143	24	151	16.8	* 0.589	54.8	LOS D	6.9	55.5	0.98	0.77	0.98	33.6
Approach		1623	214	1708	13.2	0.589	20.8	LOS B	18.9	146.6	0.72	0.67	0.72	45.3
West: Long Street														
10	L2	58	33	61	56.9	0.200	50.2	LOS D	3.6	37.4	0.85	0.73	0.85	31.9
11	T1	4	0	4	0.0	0.025	76.0	LOS F	0.3	2.1	0.94	0.63	0.94	26.0
12	R2	131	33	138	25.2	* 0.704	92.2	LOS F	5.8	49.0	1.00	0.83	1.13	26.4
Approach		193	66	203	34.2	0.704	79.3	LOS F	5.8	49.0	0.95	0.80	1.04	27.7
All Vehicles		4544	552	4783	12.1	0.793	25.6	LOS B	51.7	389.0	0.73	0.71	0.74	42.2

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Herbert Place												
P2	Full	50	53	46.8	LOS E	0.2	0.2	0.93	0.93	228.2	217.7	0.95
North: Cumberland Highway												
P3	Full	50	53	75.3	LOS F	0.2	0.2	0.97	0.97	267.6	230.8	0.86
West: Long Street												

P4	Full	50	53	75.3	LOS F	0.2	0.2	0.97	0.97	259.2	220.7	0.85
P4B	Slip/ Bypass	50	53	52.2	LOS E	0.2	0.2	0.93	0.93	223.2	205.2	0.92
All Pedestrians		200	211	62.4	LOS F	0.2	0.2	0.95	0.95	244.5	218.6	0.89

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

MOVEMENT SUMMARY

Site: 101 [Cumberland Hwy/Long St - Commuter AM Peak - W Dev - 2024 (Site Folder: 2024 Background with development)]

Cumberland Highway/Long Street/Herbert Place
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Cumberland Highway														
1	L2	349	42	367	12.0	0.301	8.9	LOS A	4.0	30.6	0.23	0.65	0.23	55.8
2	T1	2234	192	2352	8.6	* 0.813	26.2	LOS B	45.5	341.7	0.85	0.78	0.85	41.8
3	R2	22	8	23	36.4	0.213	76.1	LOS F	1.6	14.4	0.98	0.72	0.98	20.7
Approach		2605	242	2742	9.3	0.813	24.3	LOS B	45.5	341.7	0.77	0.76	0.77	43.7
East: Herbert Place														
4	L2	12	9	13	75.0	0.028	12.7	LOS A	0.3	3.4	0.40	0.52	0.40	31.6
5	T1	5	2	5	40.0	0.053	68.9	LOS E	0.3	3.3	0.96	0.63	0.96	27.4
6	R2	25	24	26	96.0	0.336	74.8	LOS F	1.8	23.5	0.99	0.73	0.99	15.2
Approach		42	35	44	83.3	0.336	56.4	LOS D	1.8	23.5	0.82	0.66	0.82	20.0
North: Cumberland Highway														
7	L2	54	18	57	33.3	0.052	7.8	LOS A	0.2	2.2	0.11	0.60	0.11	46.2
8	T1	2095	180	2205	8.6	0.637	15.1	LOS B	30.7	230.6	0.64	0.58	0.64	50.4
9	R2	155	31	163	20.0	* 0.594	46.8	LOS D	6.4	52.2	0.97	0.78	0.97	36.0
Approach		2304	229	2425	9.9	0.637	17.1	LOS B	30.7	230.6	0.65	0.60	0.65	48.4
West: Long Street														
10	L2	92	44	97	47.8	0.324	43.6	LOS D	4.9	48.4	0.89	0.76	0.89	34.1
11	T1	10	2	11	20.0	* 0.094	71.8	LOS F	0.7	5.8	0.97	0.67	0.97	26.8
12	R2	163	39	172	23.9	* 0.751	81.0	LOS F	6.3	52.9	1.00	0.87	1.19	28.3
Approach		265	85	279	32.1	0.751	67.7	LOS E	6.3	52.9	0.96	0.82	1.08	29.9
All Vehicles		5216	591	5491	11.3	0.813	23.6	LOS B	45.5	341.7	0.72	0.69	0.73	43.7

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Herbert Place												
P2	Full	50	53	64.3	LOS F	0.2	0.2	0.96	0.96	245.7	217.7	0.89
North: Cumberland Highway												
P3	Full	50	53	64.3	LOS F	0.2	0.2	0.96	0.96	256.6	230.8	0.90
West: Long Street												

P4	Full	50	53	64.3	LOS F	0.2	0.2	0.96	0.96	248.2	220.7	0.89
P4B	Slip/ Bypass	50	53	40.8	LOS E	0.2	0.2	0.92	0.92	211.8	205.2	0.97
All Pedestrians		200	211	58.4	LOS E	0.2	0.2	0.95	0.95	240.6	218.6	0.91

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

MOVEMENT SUMMARY

Site: 101 [Cumberland Hwy/Long St - Commuter PM Peak - W Dev - 2024 (Site Folder: 2024 Background with development)]

Cumberland Highway/Long Street/Herbert Place
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 149 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Cumberland Highway														
1	L2	129	22	136	17.1	0.114	7.8	LOS A	0.9	7.1	0.14	0.62	0.14	56.3
2	T1	1889	98	1988	5.2	0.732	31.5	LOS C	38.7	283.2	0.85	0.77	0.85	38.6
3	R2	21	12	22	57.1	* 0.268	83.7	LOS F	1.6	17.0	0.99	0.72	0.99	19.4
Approach		2039	132	2146	6.5	0.732	30.5	LOS C	38.7	283.2	0.80	0.76	0.80	39.5
East: Herbert Place														
4	L2	29	6	31	20.7	0.076	35.3	LOS C	1.4	11.8	0.70	0.66	0.70	28.2
5	T1	5	4	5	80.0	0.068	74.7	LOS F	0.4	4.5	0.97	0.64	0.97	26.1
6	R2	34	11	36	32.4	0.148	61.4	LOS E	2.3	20.2	0.90	0.71	0.90	18.7
Approach		68	21	72	30.9	0.148	51.2	LOS D	2.3	20.2	0.82	0.68	0.82	22.9
North: Cumberland Highway														
7	L2	11	7	12	63.6	0.012	8.3	LOS A	0.0	0.5	0.10	0.58	0.10	46.1
8	T1	2722	161	2865	5.9	* 0.888	32.7	LOS C	63.8	469.5	0.93	0.90	0.97	38.0
9	R2	75	35	79	46.7	0.378	45.5	LOS D	2.8	27.9	0.96	0.74	0.96	36.2
Approach		2808	203	2956	7.2	0.888	32.9	LOS C	63.8	469.5	0.93	0.89	0.96	38.0
West: Long Street														
10	L2	136	14	143	10.3	0.423	41.3	LOS C	6.9	52.7	0.93	0.78	0.93	36.9
11	T1	4	1	4	25.0	0.041	76.1	LOS F	0.3	2.5	0.96	0.64	0.96	26.0
12	R2	393	15	414	3.8	* 0.833	77.4	LOS F	18.4	132.7	0.99	0.92	1.18	29.9
Approach		533	30	561	5.6	0.833	68.2	LOS E	18.4	132.7	0.97	0.88	1.11	31.2
All Vehicles		5448	386	5735	7.1	0.888	35.7	LOS C	63.8	469.5	0.89	0.84	0.92	37.1

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Herbert Place												
P2	Full	50	53	68.8	LOS F	0.2	0.2	0.96	0.96	250.2	217.7	0.87
North: Cumberland Highway												
P3	Full	50	53	68.8	LOS F	0.2	0.2	0.96	0.96	261.1	230.8	0.88
West: Long Street												

P4	Full	50	53	68.8	LOS F	0.2	0.2	0.96	0.96	252.7	220.7	0.87
P4B	Slip/ Bypass	50	53	37.8	LOS D	0.1	0.1	0.92	0.92	208.8	205.2	0.98
All Pedestrians		200	211	61.0	LOS F	0.2	0.2	0.95	0.95	243.2	218.6	0.90

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

MOVEMENT SUMMARY

Site: 101 [Cumberland Hwy/Long St - Construction PM Peak - W Dev - 2024 (Site Folder: 2024 Background with development)]

Cumberland Highway/Long Street/Herbert Place
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 148 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Cumberland Highway														
1	L2	86	6	91	7.0	0.072	7.2	LOS A	0.3	2.5	0.10	0.61	0.10	56.8
2	T1	1477	66	1555	4.5	0.478	20.0	LOS B	21.7	157.9	0.64	0.57	0.64	46.2
3	R2	18	2	19	11.1	* 0.225	83.9	LOS F	1.4	10.7	0.99	0.70	0.99	19.4
Approach		1581	74	1664	4.7	0.478	20.0	LOS B	21.7	157.9	0.61	0.58	0.61	46.3
East: Herbert Place														
4	L2	60	8	63	13.3	0.100	11.6	LOS A	1.5	11.8	0.39	0.56	0.39	40.0
5	T1	3	1	3	33.3	0.024	68.5	LOS E	0.2	1.9	0.94	0.60	0.94	27.4
6	R2	29	1	31	3.4	0.278	77.6	LOS F	2.2	15.9	0.99	0.72	0.99	16.9
Approach		92	10	97	10.9	0.278	34.3	LOS C	2.2	15.9	0.60	0.61	0.60	28.8
North: Cumberland Highway														
7	L2	15	3	16	20.0	0.014	7.4	LOS A	0.1	0.5	0.09	0.59	0.09	46.4
8	T1	2176	74	2291	3.4	* 0.608	14.3	LOS A	30.7	220.9	0.60	0.56	0.60	51.2
9	R2	25	11	26	44.0	0.131	48.2	LOS D	1.0	9.8	0.93	0.69	0.93	35.4
Approach		2216	88	2333	4.0	0.608	14.6	LOS B	30.7	220.9	0.60	0.56	0.60	50.8
West: Long Street														
10	L2	34	11	36	32.4	0.109	43.8	LOS D	1.8	16.2	0.84	0.71	0.84	34.8
11	T1	1	0	1	0.0	0.007	70.1	LOS E	0.1	0.5	0.94	0.58	0.94	27.1
12	R2	149	10	157	6.7	* 0.722	85.0	LOS F	6.0	44.4	1.00	0.84	1.15	28.3
Approach		184	21	194	11.4	0.722	77.3	LOS F	6.0	44.4	0.97	0.81	1.09	29.2
All Vehicles		4073	193	4287	4.7	0.722	20.0	LOS B	30.7	220.9	0.62	0.58	0.63	46.0

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Herbert Place												
P2	Full	50	53	68.3	LOS F	0.2	0.2	0.96	0.96	249.7	217.7	0.87
North: Cumberland Highway												
P3	Full	50	53	68.3	LOS F	0.2	0.2	0.96	0.96	260.6	230.8	0.89
West: Long Street												

P4	Full	50	53	68.3	LOS F	0.2	0.2	0.96	0.96	252.2	220.7	0.88
P4B	Slip/ Bypass	50	53	44.4	LOS E	0.2	0.2	0.92	0.92	215.4	205.2	0.95
All Pedestrians		200	211	62.3	LOS F	0.2	0.2	0.95	0.95	244.5	218.6	0.89

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.

PHASING SUMMARY

Site: 101 [Cumberland Hwy/Long St - Construction AM Peak - W Dev - 2024 (Site Folder: 2024 Background with development)]

Cumberland Highway/Long Street/Herbert Place
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 162 seconds (Site User-Given Phase Times)

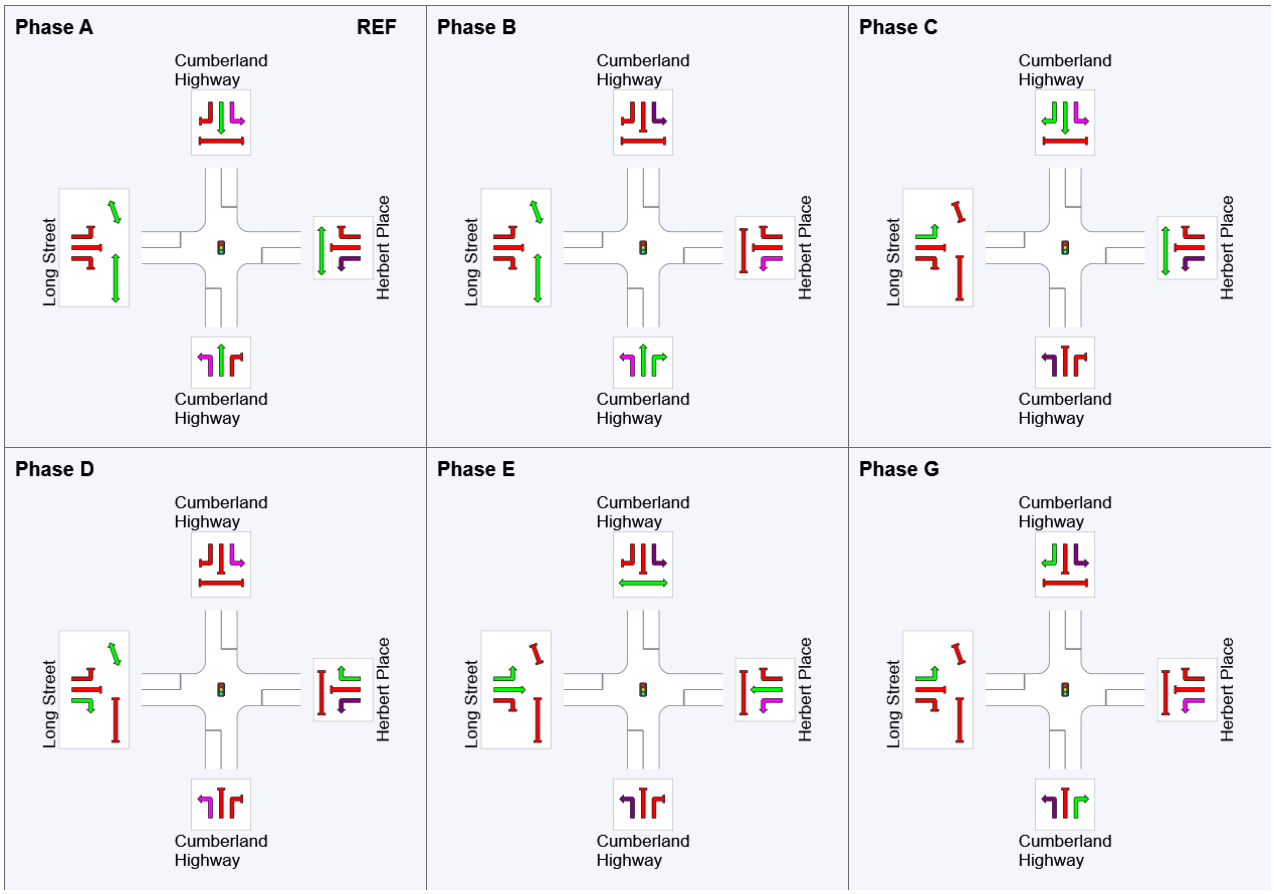
Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: Construction AM peak
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D, E, G
Output Phase Sequence: A, B, C, D, E, G

Phase Timing Summary

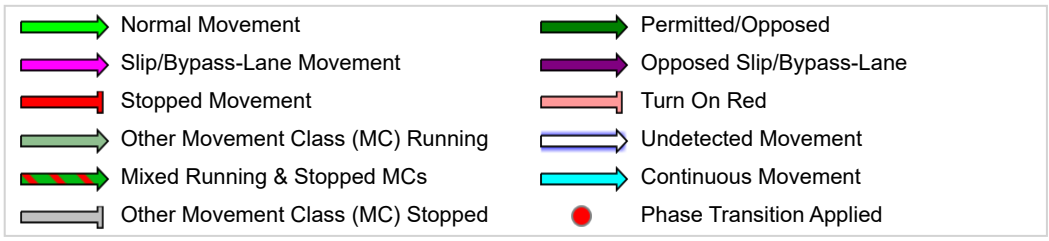
Phase	A	B	C	D	E	G
Phase Change Time (sec)	0	79	101	116	129	149
Green Time (sec)	73	16	9	10	14	10
Phase Time (sec)	79	22	12	16	17	16
Phase Split	49%	14%	7%	10%	10%	10%

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



PHASING SUMMARY

Site: 101 [Cumberland Hwy/Long St - Commuter AM Peak - W Dev - 2024 (Site Folder: 2024 Background with development)]

Cumberland Highway/Long Street/Herbert Place
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Phase Times)

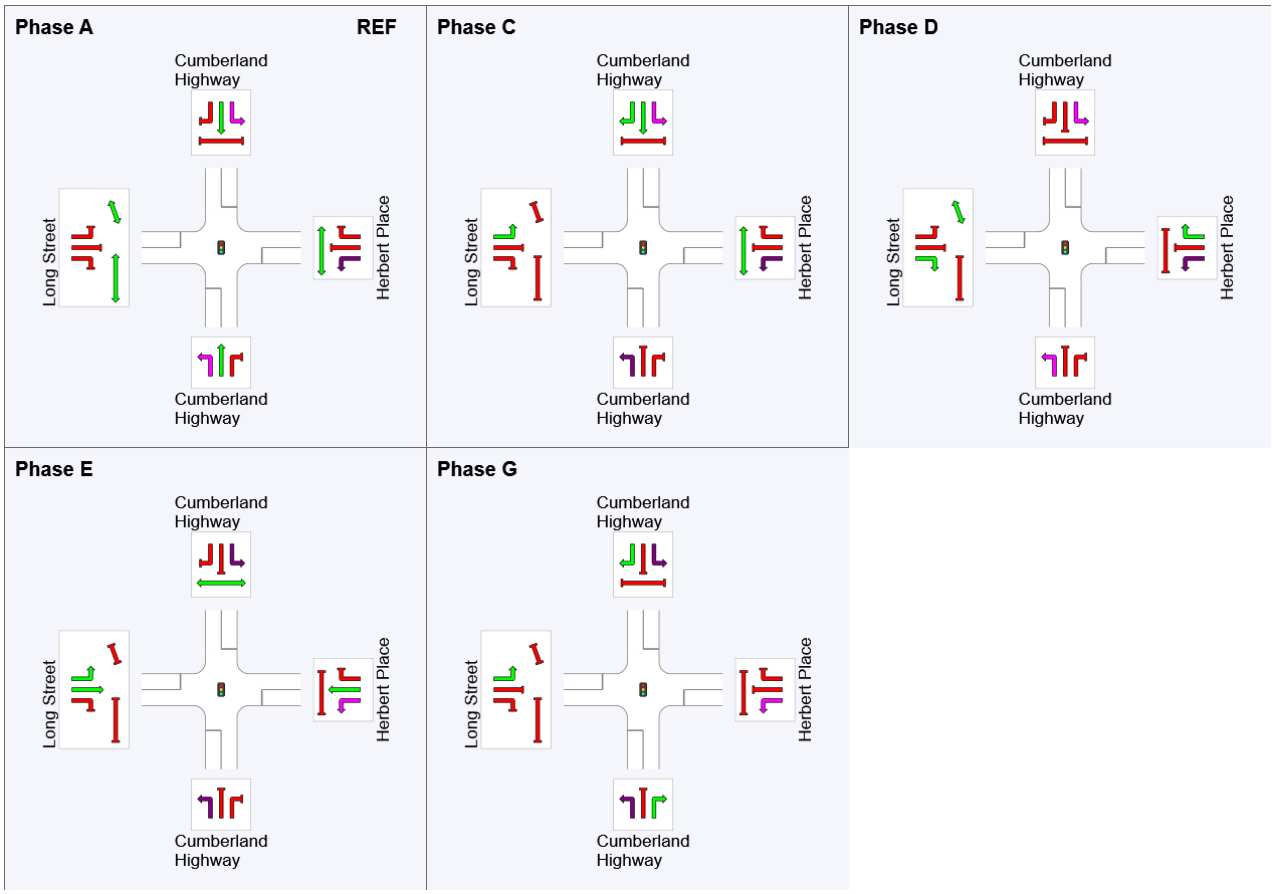
Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: Construction AM peak
Reference Phase: Phase A
Input Phase Sequence: A, C, D, E, G
Output Phase Sequence: A, C, D, E, G

Phase Timing Summary

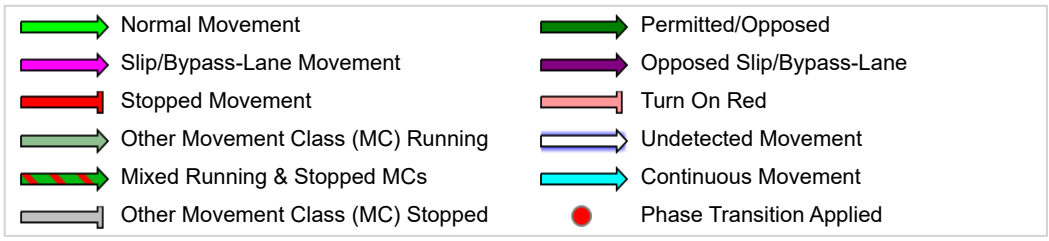
Phase	A	C	D	E	G
Phase Change Time (sec)	0	83	97	113	128
Green Time (sec)	77	8	10	9	10
Phase Time (sec)	83	14	16	11	16
Phase Split	59%	10%	11%	8%	11%

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



PHASING SUMMARY

Site: 101 [Cumberland Hwy/Long St - Commuter PM Peak - W Dev - 2024 (Site Folder: 2024 Background with development)]

Cumberland Highway/Long Street/Herbert Place
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 149 seconds (Site User-Given Phase Times)

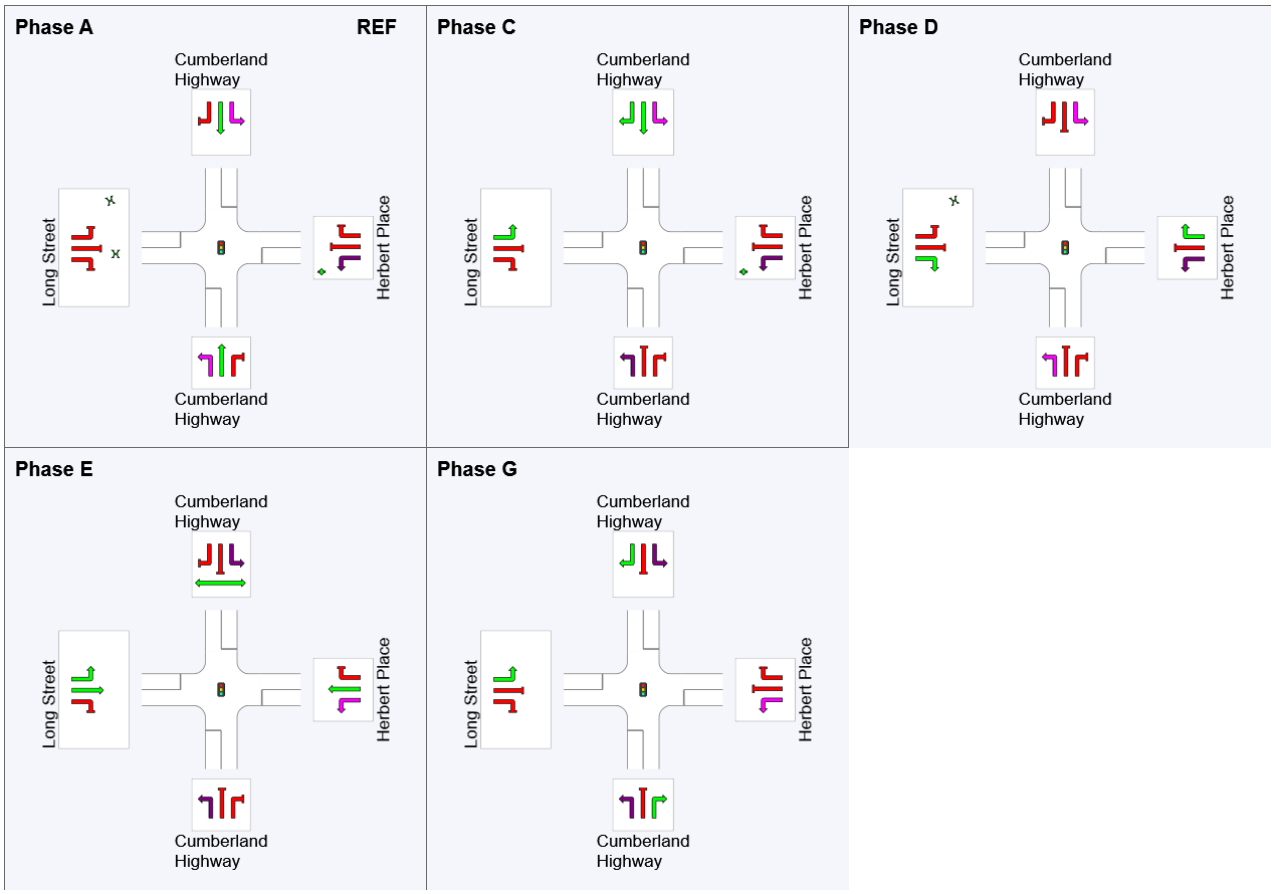
Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: Construction AM peak
Reference Phase: Phase A
Input Phase Sequence: A, C, D, E, G
Output Phase Sequence: A, C, D, E, G

Phase Timing Summary

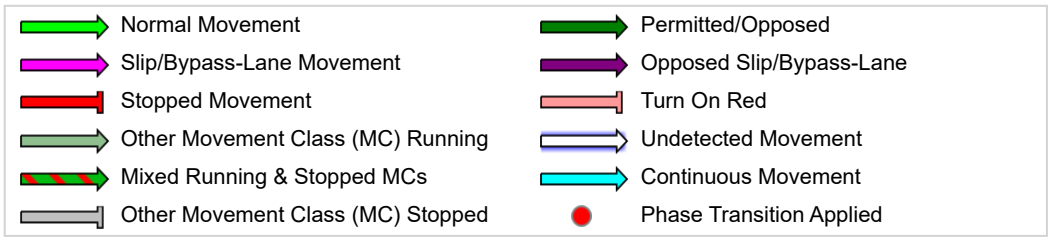
Phase	A	C	D	E	G
Phase Change Time (sec)	0	79	93	123	138
Green Time (sec)	73	8	24	9	9
Phase Time (sec)	79	14	30	11	15
Phase Split	53%	9%	20%	7%	10%

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



PHASING SUMMARY

Site: 101 [Cumberland Hwy/Long St - Construction PM Peak - W Dev - 2024 (Site Folder: 2024 Background with development)]

Cumberland Highway/Long Street/Herbert Place
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 148 seconds (Site User-Given Phase Times)

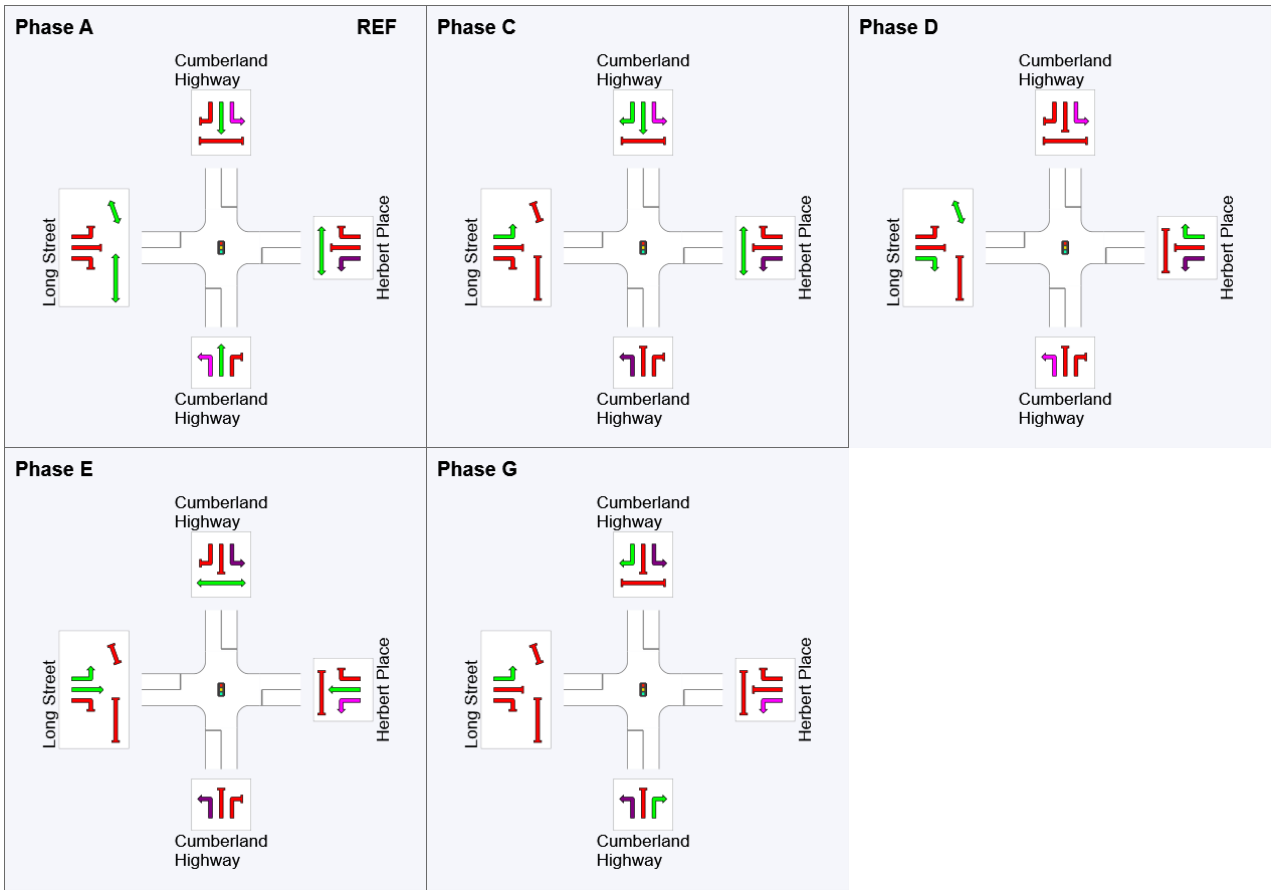
Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: Construction AM peak
Reference Phase: Phase A
Input Phase Sequence: A, C, D, E, G
Output Phase Sequence: A, C, D, E, G

Phase Timing Summary

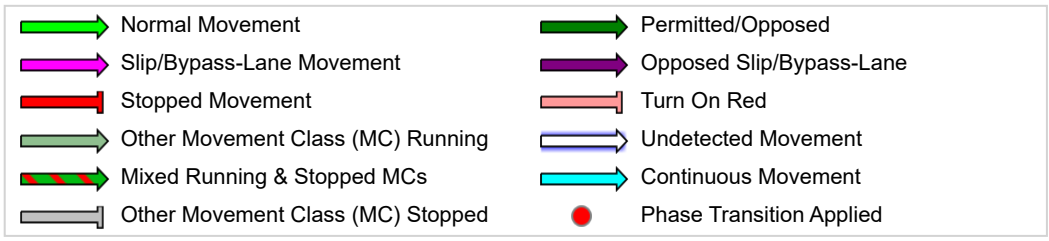
Phase	A	C	D	E	G
Phase Change Time (sec)	0	90	105	120	138
Green Time (sec)	84	9	9	12	7
Phase Time (sec)	90	15	15	15	13
Phase Split	61%	10%	10%	10%	9%

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



LANE SUMMARY

Site: 101 [Cumberland Hwy/Long St - Construction AM Peak - WO Dev - 2024 (Site Folder: 2024 Background without development)]

Cumberland Highway/Long Street/Herbert Place
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 162 seconds (Site User-Given Phase Times)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Cumberland Highway													
Lane 1	344	9.2	1239	0.278	100	8.7	LOS A	3.9	29.2	Short	120	0.0	NA
Lane 2	710	8.8	898[1]	0.790	100	23.6	LOS B	36.7	276.3	Full	430	0.0	0.0
Lane 3	861	8.8	1090	0.790	100	27.2	LOS B	51.3	386.4	Full	430	0.0	0.0
Lane 4	830	8.8	1050[1]	0.790	100	26.4	LOS B	48.0	361.1	Full	430	0.0	0.0
Lane 5	48	13.0	282	0.172	100	41.3	LOS C	2.1	16.4	Short	140	0.0	NA
Approach	2794	8.9		0.790		24.0	LOS B	51.3	386.4				
East: Herbert Place													
Lane 1	28	44.4	771	0.037	100	10.0	LOS A	0.6	5.8	Short	60	0.0	NA
Lane 2	6	33.3	139	0.045	100	74.4	LOS F	0.5	4.2	Full	220	0.0	0.0
Lane 3	29	75.0	74	0.397	100	87.3	LOS F	2.4	27.6	Short	40	0.0	NA
Approach	64	57.4		0.397		51.8	LOS D	2.4	27.6				
North: Cumberland Highway													
Lane 1	66	15.9	1175	0.056	100	7.5	LOS A	0.3	2.7	Short	65	0.0	NA
Lane 2	481	12.9	879[1]	0.548	100	17.8	LOS B	17.7	137.6	Full	300	0.0	0.0
Lane 3	501	12.9	916	0.548	100	18.2	LOS B	18.8	146.2	Full	300	0.0	0.0
Lane 4	491	12.9	897	0.548	100	18.3	LOS B	18.4	143.3	Full	300	0.0	0.0
Lane 5	35	16.8	196	0.178	30[6]	53.0	LOS D	2.0	15.6	Short	115	0.0	NA
Lane 6	116	16.8	197	0.589	100	55.4	LOS D	6.9	55.5	Short	105	0.0	NA
Approach	1691	13.3		0.589		21.0	LOS B	18.8	146.2				
West: Long Street													
Lane 1	61	56.9	306	0.200	100	50.2	LOS D	3.6	37.4	Short	25	0.0	NA
Lane 2	4	0.0	169	0.025	100	76.0	LOS F	0.3	2.1	Short	35	0.0	NA
Lane 3	69	25.2	98	0.704	100	92.3	LOS F	5.7	48.7	Short	35	0.0	NA
Lane 4	69	25.2	98	0.704	100	92.2	LOS F	5.8	49.0	Full	800	0.0	0.0
Approach	203	34.2		0.704		79.3	LOS F	5.8	49.0				
Intersection	4752	12.2		0.790		25.7	LOS B	51.3	386.4				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
6 Lane under-utilisation due to downstream effects

Approach Lane Flows (veh/h)

South: Cumberland Highway

Mov.	L2	T1	R2	Total	%HV	Deg.	Lane	Prob.	Ov.

From S To Exit:	W	N	E			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.
Lane 1	344	-	-	344	9.2	1239	0.278	100	0.0	2
Lane 2	-	710	-	710	8.8	898[1]	0.790	100	NA	NA
Lane 3	-	861	-	861	8.8	1090	0.790	100	NA	NA
Lane 4	-	830	-	830	8.8	1050[1]	0.790	100	NA	NA
Lane 5	-	-	48	48	13.0	282	0.172	100	0.0	4
Approach	344	2401	48	2794	8.9		0.790			

East: Herbert Place

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	28	-	-	28	44.4	771	0.037	100	0.0	2
Lane 2	-	6	-	6	33.3	139	0.045	100	NA	NA
Lane 3	-	-	29	29	75.0	74	0.397	100	0.0	2
Approach	28	6	29	64	57.4		0.397			

North: Cumberland Highway

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	66	-	-	66	15.9	1175	0.056	100	0.0	2
Lane 2	-	481	-	481	12.9	879[1]	0.548	100	NA	NA
Lane 3	-	501	-	501	12.9	916	0.548	100	NA	NA
Lane 4	-	491	-	491	12.9	897	0.548	100	NA	NA
Lane 5	-	-	35	35	16.8	196	0.178	30[6]	0.0	4
Lane 6	-	-	116	116	16.8	197	0.589	100	0.0	5
Approach	66	1474	151	1691	13.3		0.589			

West: Long Street

Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	61	-	-	61	56.9	306	0.200	100	41.8	2
Lane 2	-	4	-	4	0.0	169	0.025	100	10.9	3
Lane 3	-	-	69	69	25.2	98	0.704	100	35.2	4
Lane 4	-	-	69	69	25.2	98	0.704	100	NA	NA
Approach	61	4	138	203	34.2		0.704			

	Total	%HV	Deg.Satn (v/c)
Intersection	4752	12.2	0.790

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

6 Lane under-utilisation due to downstream effects

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Cumberland Highway Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
Full Length Lane	3	Merge Analysis not applied.										
East Exit: Herbert Place												

Merge Type: **Not Applied**											
Full Length Lane	1	Merge Analysis not applied.									
North Exit: Cumberland Highway Merge Type: **Not Applied**											
Full Length Lane	1	Merge Analysis not applied.									
Full Length Lane	2	Merge Analysis not applied.									
Full Length Lane	3	Merge Analysis not applied.									
West Exit: Long Street Merge Type: **Priority**											
Exit Short Lane	1	35	0.0	291	309	3.00	2.00	210	1486	0.141	0.5	0.6
Merge Lane	2	-	100.0	Merge Lane is not Opposed				291	1800	0.162	0.0	0.0

LANE SUMMARY

Site: 101 [Cumberland Hwy/Long St - Commuter AM Peak - WO Dev - 2024 (Site Folder: 2024 Background without development)]

Cumberland Highway/Long Street/Herbert Place
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Phase Times)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Cumberland Highway													
Lane 1	367	12.0	1221	0.301	100	8.9	LOS A	4.0	30.6	Short	120	0.0	NA
Lane 2	703	8.6	865[1]	0.812	100	24.4	LOS B	34.3	257.9	Full	430	0.0	0.0
Lane 3	831	8.6	1023	0.812	100	27.1	LOS B	45.4	341.4	Full	430	0.0	0.0
Lane 4	817	8.6	1006[1]	0.812	100	26.8	LOS B	44.1	331.2	Full	430	0.0	0.0
Lane 5	22	33.3	111	0.200	100	75.9	LOS F	1.5	13.4	Short	140	0.0	NA
Approach	2741	9.3		0.812		24.3	LOS B	45.4	341.4				
East: Herbert Place													
Lane 1	12	72.7	451	0.026	100	12.7	LOS A	0.3	3.1	Short	60	0.0	NA
Lane 2	5	40.0	100	0.053	100	68.9	LOS E	0.3	3.3	Full	220	0.0	0.0
Lane 3	22	95.2	79	0.281	100	74.3	LOS F	1.5	19.5	Short	40	0.0	NA
Approach	39	81.1		0.281		55.3	LOS D	1.5	19.5				
North: Cumberland Highway													
Lane 1	53	28.0	1109	0.047	100	7.7	LOS A	0.2	1.9	Short	65	0.0	NA
Lane 2	714	8.6	1124[1]	0.636	100	14.9	LOS B	27.5	207.0	Full	300	0.0	0.0
Lane 3	767	8.6	1207	0.636	100	15.4	LOS B	30.6	229.9	Full	300	0.0	0.0
Lane 4	724	8.6	1139[1]	0.636	100	15.0	LOS B	28.1	211.5	Full	300	0.0	0.0
Lane 5	38	20.0	210	0.180	30[6]	45.2	LOS D	1.8	14.6	Short	115	0.0	NA
Lane 6	125	20.0	211	0.594	100	47.3	LOS D	6.4	52.2	Short	105	0.0	NA
Approach	2421	9.8		0.636		17.1	LOS B	30.6	229.9				
West: Long Street													
Lane 1	97	47.8	299[1]	0.324	100	43.6	LOS D	4.9	48.4	Short	25	0.0	NA
Lane 2	11	20.0	112	0.094	100	71.8	LOS F	0.7	5.8	Short	35	0.0	NA
Lane 3	86	23.9	114	0.751	100	81.1	LOS F	6.2	52.6	Short	35	0.0	NA
Lane 4	86	23.9	115	0.751	100	81.0	LOS F	6.3	52.9	Full	800	0.0	0.0
Approach	279	32.1		0.751		67.7	LOS E	6.3	52.9				
Intersection	5480	11.2		0.812		23.5	LOS B	45.4	341.4				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
6 Lane under-utilisation due to downstream effects

Approach Lane Flows (veh/h)

South: Cumberland Highway

Mov.	L2	T1	R2	Total	%HV	Deg.	Lane	Prob.	Ov.

From S To Exit:	W	N	E			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.
Lane 1	367	-	-	367	12.0	1221	0.301	100	0.0	2
Lane 2	-	703	-	703	8.6	865[1]	0.812	100	NA	NA
Lane 3	-	831	-	831	8.6	1023	0.812	100	NA	NA
Lane 4	-	817	-	817	8.6	1006[1]	0.812	100	NA	NA
Lane 5	-	-	22	22	33.3	111	0.200	100	0.0	4
Approach	367	2352	22	2741	9.3		0.812			

East: Herbert Place

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	12	-	-	12	72.7	451	0.026	100	0.0	2
Lane 2	-	5	-	5	40.0	100	0.053	100	NA	NA
Lane 3	-	-	22	22	95.2	79	0.281	100	0.0	2
Approach	12	5	22	39	81.1		0.281			

North: Cumberland Highway

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	53	-	-	53	28.0	1109	0.047	100	0.0	2
Lane 2	-	714	-	714	8.6	1124[1]	0.636	100	NA	NA
Lane 3	-	767	-	767	8.6	1207	0.636	100	NA	NA
Lane 4	-	724	-	724	8.6	1139[1]	0.636	100	NA	NA
Lane 5	-	-	38	38	20.0	210	0.180	30[6]	0.0	4
Lane 6	-	-	125	125	20.0	211	0.594	100	0.0	5
Approach	53	2205	163	2421	9.8		0.636			

West: Long Street

Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	97	-	-	97	47.8	299[1]	0.324	100	66.2	2
Lane 2	-	11	-	11	20.0	112	0.094	100	34.5	3
Lane 3	-	-	86	86	23.9	114	0.751	100	42.3	4
Lane 4	-	-	86	86	23.9	115	0.751	100	NA	NA
Approach	97	11	172	279	32.1		0.751			

	Total	%HV	Deg.Satn (v/c)
Intersection	5480	11.2	0.812

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

6 Lane under-utilisation due to downstream effects

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Cumberland Highway Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
Full Length Lane	3	Merge Analysis not applied.										
East Exit: Herbert Place												

Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Cumberland Highway Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
Full Length Lane	3	Merge Analysis not applied.										
West Exit: Long Street Merge Type: **Priority**												
Exit Short Lane	1	35	0.0	312	336	3.00	2.00	224	1458	0.154	0.5	0.7
Merge Lane	2	-	100.0	Merge Lane is not Opposed				312	1800	0.173	0.0	0.0

LANE SUMMARY

Site: 101 [Cumberland Hwy/Long St - Commuter PM Peak - WO Dev - 2024 (Site Folder: 2024 Background without development)]

Cumberland Highway/Long Street/Herbert Place
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 149 seconds (Site User-Given Phase Times)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Cumberland Highway													
Lane 1	136	17.1	1192	0.114	100	7.8	LOS A	0.9	7.1	Short	120	0.0	NA
Lane 2	640	5.2	876[1]	0.731	100	30.9	LOS C	35.2	257.1	Full	430	0.0	0.0
Lane 3	681	5.2	931	0.731	100	31.9	LOS C	38.6	282.6	Full	430	0.0	0.0
Lane 4	668	5.2	914[1]	0.731	100	31.6	LOS C	37.5	274.5	Full	430	0.0	0.0
Lane 5	19	50.0	85	0.222	100	83.1	LOS F	1.4	13.9	Short	140	0.0	NA
Approach	2143	6.3		0.731		30.5	LOS C	38.6	282.6				
East: Herbert Place													
Lane 1	28	14.8	414	0.069	100	35.1	LOS C	1.3	10.5	Short	60	0.0	NA
Lane 2	5	80.0	78	0.068	100	74.7	LOS F	0.4	4.5	Full	220	0.0	0.0
Lane 3	33	25.8	251	0.130	100	61.0	LOS E	2.0	17.5	Short	40	0.0	NA
Approach	66	25.4		0.130		51.0	LOS D	2.0	17.5				
North: Cumberland Highway													
Lane 1	9	55.6	984	0.010	100	8.1	LOS A	0.0	0.4	Short	65	0.0	NA
Lane 2	946	5.9	1066[1]	0.887	100	32.6	LOS C	61.4	451.4	Full	300	0.0	42.4
Lane 3	978	5.9	1102	0.887	100	32.2	LOS C	63.6	467.5	Full	300	0.0	45.7
Lane 4	942	5.9	1062[1]	0.887	100	32.6	LOS C	61.0	448.5	Full	300	0.0	41.8
Lane 5	18	46.7	160	0.114	30[6]	44.3	LOS D	0.8	8.0	Short	115	0.0	NA
Lane 6	61	46.7	161	0.378	100	45.8	LOS D	2.8	27.9	Short	105	0.0	NA
Approach	2954	7.2		0.887		32.7	LOS C	63.6	467.5				
West: Long Street													
Lane 1	143	10.3	338[1]	0.423	100	41.3	LOS C	6.9	52.7	Short	25	0.0	NA
Lane 2	4	25.0	102	0.041	100	76.1	LOS F	0.3	2.5	Short	35	0.0	NA
Lane 3	241	3.8	290[1]	0.833	100	77.8	LOS F	18.4	132.7	Short	35	0.0	NA
Lane 4	172	3.8	207[1]	0.833	100	76.8	LOS F	12.8	92.4	Full	800	0.0	0.0
Approach	561	5.6		0.833		68.2	LOS E	18.4	132.7				
Intersection	5724	6.9		0.887		35.6	LOS C	63.6	467.5				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
6 Lane under-utilisation due to downstream effects

Approach Lane Flows (veh/h)

South: Cumberland Highway

Mov.	L2	T1	R2	Total	%HV	Deg.	Lane	Prob.	Ov.

From S To Exit:	W	N	E			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.
Lane 1	136	-	-	136	17.1	1192	0.114	100	0.0	2
Lane 2	-	640	-	640	5.2	876[1]	0.731	100	NA	NA
Lane 3	-	681	-	681	5.2	931	0.731	100	NA	NA
Lane 4	-	668	-	668	5.2	914[1]	0.731	100	NA	NA
Lane 5	-	-	19	19	50.0	85	0.222	100	0.0	4
Approach	136	1988	19	2143	6.3		0.731			

East: Herbert Place

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	28	-	-	28	14.8	414	0.069	100	0.0	2
Lane 2	-	5	-	5	80.0	78	0.068	100	NA	NA
Lane 3	-	-	33	33	25.8	251	0.130	100	0.0	2
Approach	28	5	33	66	25.4		0.130			

North: Cumberland Highway

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	9	-	-	9	55.6	984	0.010	100	0.0	2
Lane 2	-	946	-	946	5.9	1066[1]	0.887	100	NA	NA
Lane 3	-	978	-	978	5.9	1102	0.887	100	NA	NA
Lane 4	-	942	-	942	5.9	1062[1]	0.887	100	NA	NA
Lane 5	-	-	18	18	46.7	160	0.114	30[6]	0.0	4
Lane 6	-	-	61	61	46.7	161	0.378	100	0.0	5
Approach	9	2865	79	2954	7.2		0.887			

West: Long Street

Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	143	-	-	143	10.3	338[1]	0.423	100	74.5	2
Lane 2	-	4	-	4	25.0	102	0.041	100	42.5	3
Lane 3	-	-	241	241	3.8	290[1]	0.833	100	100.0	4
Lane 4	-	-	172	172	3.8	207[1]	0.833	100	NA	NA
Approach	143	4	414	561	5.6		0.833			

	Total	%HV	Deg.Satn (v/c)
Intersection	5724	6.9	0.887

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

6 Lane under-utilisation due to downstream effects

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Cumberland Highway Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
Full Length Lane	3	Merge Analysis not applied.										
East Exit: Herbert Place												

Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Cumberland Highway Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
Full Length Lane	3	Merge Analysis not applied.										
West Exit: Long Street Merge Type: **Priority**												
Exit Short Lane	1	35	0.0	131	152	3.00	2.00	89	1646	0.054	0.2	0.3
Merge Lane	2	-	100.0	Merge Lane is not Opposed				131	1800	0.073	0.0	0.0

LANE SUMMARY

Site: 101 [Cumberland Hwy/Long St - Construction PM Peak - WO Dev - 2024 (Site Folder: 2024 Background without development)]

Cumberland Highway/Long Street/Herbert Place
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 148 seconds (Site User-Given Phase Times)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Cumberland Highway													
Lane 1	91	7.0	1252	0.072	100	7.2	LOS A	0.3	2.5	Short	120	0.0	NA
Lane 2	518	4.5	1084	0.478	100	20.0	LOS B	21.7	157.9	Full	430	0.0	0.0
Lane 3	518	4.5	1084	0.478	100	20.0	LOS B	21.7	157.9	Full	430	0.0	0.0
Lane 4	518	4.5	1084	0.478	100	20.0	LOS B	21.7	157.9	Full	430	0.0	0.0
Lane 5	19	11.1	84	0.225	100	83.9	LOS F	1.4	10.7	Short	140	0.0	NA
Approach	1664	4.7		0.478		20.0	LOS B	21.7	157.9				
East: Herbert Place													
Lane 1	42	20.0	604	0.070	100	11.4	LOS A	1.0	8.0	Short	60	0.0	NA
Lane 2	3	33.3	131	0.024	100	68.5	LOS E	0.2	1.9	Full	220	0.0	0.0
Lane 3	20	5.3	108	0.185	100	76.9	LOS F	1.4	10.5	Short	40	0.0	NA
Approach	65	16.1		0.185		34.3	LOS C	1.4	10.5				
North: Cumberland Highway													
Lane 1	16	20.0	1152	0.014	100	7.4	LOS A	0.1	0.5	Short	65	0.0	NA
Lane 2	753	3.4	1238[1]	0.608	100	14.2	LOS A	29.3	211.2	Full	300	0.0	0.0
Lane 3	780	3.4	1283	0.608	100	14.4	LOS A	30.7	220.9	Full	300	0.0	0.0
Lane 4	758	3.4	1247[1]	0.608	100	14.3	LOS A	29.7	213.8	Full	300	0.0	0.0
Lane 5	6	44.0	154	0.040	30[6]	47.5	LOS D	0.3	2.9	Short	115	0.0	NA
Lane 6	20	44.0	154	0.131	100	48.4	LOS D	1.0	9.8	Short	105	0.0	NA
Approach	2333	4.0		0.608		14.6	LOS B	30.7	220.9				
West: Long Street													
Lane 1	36	32.4	329	0.109	100	43.8	LOS D	1.8	16.2	Short	25	0.0	NA
Lane 2	1	0.0	159	0.007	100	70.1	LOS E	0.1	0.5	Short	35	0.0	NA
Lane 3	78	6.7	108	0.722	100	85.0	LOS F	6.0	44.2	Short	35	0.0	NA
Lane 4	79	6.7	109	0.722	100	85.0	LOS F	6.0	44.4	Full	800	0.0	0.0
Approach	194	11.4		0.722		77.3	LOS F	6.0	44.4				
Intersection	4256	4.8		0.722		19.9	LOS B	30.7	220.9				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
6 Lane under-utilisation due to downstream effects

Approach Lane Flows (veh/h)

South: Cumberland Highway

Mov.	L2	T1	R2	Total	%HV	Deg.	Lane	Prob.	Ov.

From S To Exit:	W	N	E			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.
Lane 1	91	-	-	91	7.0	1252	0.072	100	0.0	2
Lane 2	-	518	-	518	4.5	1084	0.478	100	NA	NA
Lane 3	-	518	-	518	4.5	1084	0.478	100	NA	NA
Lane 4	-	518	-	518	4.5	1084	0.478	100	NA	NA
Lane 5	-	-	19	19	11.1	84	0.225	100	0.0	4
Approach	91	1555	19	1664	4.7		0.478			

East: Herbert Place

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	42	-	-	42	20.0	604	0.070	100	0.0	2
Lane 2	-	3	-	3	33.3	131	0.024	100	NA	NA
Lane 3	-	-	20	20	5.3	108	0.185	100	0.0	2
Approach	42	3	20	65	16.1		0.185			

North: Cumberland Highway

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	16	-	-	16	20.0	1152	0.014	100	0.0	2
Lane 2	-	753	-	753	3.4	1238[1]	0.608	100	NA	NA
Lane 3	-	780	-	780	3.4	1283	0.608	100	NA	NA
Lane 4	-	758	-	758	3.4	1247[1]	0.608	100	NA	NA
Lane 5	-	-	6	6	44.0	154	0.040	30[6]	0.0	4
Lane 6	-	-	20	20	44.0	154	0.131	100	0.0	5
Approach	16	2291	26	2333	4.0		0.608			

West: Long Street

Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	36	-	-	36	32.4	329	0.109	100	0.0	2
Lane 2	-	1	-	1	0.0	159	0.007	100	0.0	3
Lane 3	-	-	78	78	6.7	108	0.722	100	26.2	4
Lane 4	-	-	79	79	6.7	109	0.722	100	NA	NA
Approach	36	1	157	194	11.4		0.722			

	Total	%HV	Deg.Satn (v/c)
Intersection	4256	4.8	0.722

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

6 Lane under-utilisation due to downstream effects

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Cumberland Highway Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
Full Length Lane	3	Merge Analysis not applied.										
East Exit: Herbert Place												

Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Cumberland Highway Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
Full Length Lane	3	Merge Analysis not applied.										
West Exit: Long Street Merge Type: **Priority**												
Exit Short Lane	1	35	0.0	67	73	3.00	2.00	53	1726	0.031	0.1	0.1
Merge Lane	2	-	100.0	Merge Lane is not Opposed				67	1800	0.037	0.0	0.0

MOVEMENT SUMMARY

Site: 101 [Cumberland Hwy/Long St - Construction AM Peak - WO Dev - 2024 (Site Folder: 2024 Background without development)]

Cumberland Highway/Long Street/Herbert Place
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 162 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Cumberland Highway														
1	L2	327	30	344	9.2	0.278	8.7	LOS A	3.9	29.2	0.20	0.64	0.20	56.0
2	T1	2281	201	2401	8.8	* 0.790	25.8	LOS B	51.3	386.4	0.80	0.74	0.80	42.0
3	R2	46	6	48	13.0	0.172	41.3	LOS C	2.1	16.4	0.90	0.74	0.90	29.3
Approach		2654	237	2794	8.9	0.790	24.0	LOS B	51.3	386.4	0.73	0.72	0.73	43.8
East: Herbert Place														
4	L2	27	12	28	44.4	0.037	10.0	LOS A	0.6	5.8	0.33	0.51	0.33	36.4
5	T1	6	2	6	33.3	0.045	74.4	LOS F	0.5	4.2	0.94	0.63	0.94	26.3
6	R2	28	21	29	75.0	0.397	87.3	LOS F	2.4	27.6	1.00	0.74	1.00	14.2
Approach		61	35	64	57.4	0.397	51.8	LOS D	2.4	27.6	0.69	0.63	0.69	21.9
North: Cumberland Highway														
7	L2	63	10	66	15.9	0.056	7.5	LOS A	0.3	2.7	0.11	0.61	0.11	46.3
8	T1	1400	180	1474	12.9	* 0.548	18.1	LOS B	18.8	146.2	0.73	0.66	0.73	47.7
9	R2	143	24	151	16.8	* 0.589	54.8	LOS D	6.9	55.5	0.98	0.77	0.98	33.6
Approach		1606	214	1691	13.3	0.589	21.0	LOS B	18.8	146.2	0.73	0.67	0.73	45.3
West: Long Street														
10	L2	58	33	61	56.9	0.200	50.2	LOS D	3.6	37.4	0.85	0.73	0.85	31.9
11	T1	4	0	4	0.0	0.025	76.0	LOS F	0.3	2.1	0.94	0.63	0.94	26.0
12	R2	131	33	138	25.2	* 0.704	92.2	LOS F	5.8	49.0	1.00	0.83	1.13	26.4
Approach		193	66	203	34.2	0.704	79.3	LOS F	5.8	49.0	0.95	0.80	1.04	27.7
All Vehicles		4514	552	4752	12.2	0.790	25.7	LOS B	51.3	386.4	0.74	0.71	0.74	42.3

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Herbert Place												
P2	Full	50	53	46.8	LOS E	0.2	0.2	0.93	0.93	228.2	217.7	0.95
North: Cumberland Highway												
P3	Full	50	53	75.3	LOS F	0.2	0.2	0.97	0.97	267.6	230.8	0.86

West: Long Street												
P4	Full	50	53	75.3	LOS F	0.2	0.2	0.97	0.97	259.2	220.7	0.85
P4B	Slip/ Bypass	50	53	52.2	LOS E	0.2	0.2	0.93	0.93	223.2	205.2	0.92
All Pedestrians		200	211	62.4	LOS F	0.2	0.2	0.95	0.95	244.5	218.6	0.89

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

MOVEMENT SUMMARY

Site: 101 [Cumberland Hwy/Long St - Commuter AM Peak - WO Dev - 2024 (Site Folder: 2024 Background without development)]

Cumberland Highway/Long Street/Herbert Place
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Cumberland Highway														
1	L2	349	42	367	12.0	0.301	8.9	LOS A	4.0	30.6	0.23	0.65	0.23	55.8
2	T1	2234	192	2352	8.6	* 0.812	26.2	LOS B	45.4	341.4	0.85	0.78	0.85	41.8
3	R2	21	7	22	33.3	0.200	75.9	LOS F	1.5	13.4	0.97	0.71	0.97	20.7
Approach		2604	241	2741	9.3	0.812	24.3	LOS B	45.4	341.4	0.77	0.76	0.77	43.8
East: Herbert Place														
4	L2	11	8	12	72.7	0.026	12.7	LOS A	0.3	3.1	0.40	0.52	0.40	31.8
5	T1	5	2	5	40.0	0.053	68.9	LOS E	0.3	3.3	0.96	0.63	0.96	27.4
6	R2	21	20	22	95.2	0.281	74.3	LOS F	1.5	19.5	0.98	0.72	0.98	15.3
Approach		37	30	39	81.1	0.281	55.3	LOS D	1.5	19.5	0.81	0.65	0.81	20.5
North: Cumberland Highway														
7	L2	50	14	53	28.0	0.047	7.7	LOS A	0.2	1.9	0.11	0.60	0.11	46.3
8	T1	2095	180	2205	8.6	0.636	15.1	LOS B	30.6	229.9	0.64	0.58	0.64	50.4
9	R2	155	31	163	20.0	* 0.594	46.8	LOS D	6.4	52.2	0.97	0.78	0.97	36.0
Approach		2300	225	2421	9.8	0.636	17.1	LOS B	30.6	229.9	0.65	0.60	0.65	48.4
West: Long Street														
10	L2	92	44	97	47.8	0.324	43.6	LOS D	4.9	48.4	0.89	0.76	0.89	34.1
11	T1	10	2	11	20.0	* 0.094	71.8	LOS F	0.7	5.8	0.97	0.67	0.97	26.8
12	R2	163	39	172	23.9	* 0.751	81.0	LOS F	6.3	52.9	1.00	0.87	1.19	28.3
Approach		265	85	279	32.1	0.751	67.7	LOS E	6.3	52.9	0.96	0.82	1.08	29.9
All Vehicles		5206	581	5480	11.2	0.812	23.5	LOS B	45.4	341.4	0.72	0.69	0.73	43.7

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Herbert Place												
P2	Full	50	53	64.3	LOS F	0.2	0.2	0.96	0.96	245.7	217.7	0.89
North: Cumberland Highway												
P3	Full	50	53	64.3	LOS F	0.2	0.2	0.96	0.96	256.6	230.8	0.90

West: Long Street												
P4	Full	50	53	64.3	LOS F	0.2	0.2	0.96	0.96	248.2	220.7	0.89
P4B	Slip/ Bypass	50	53	40.8	LOS E	0.2	0.2	0.92	0.92	211.8	205.2	0.97
All Pedestrians		200	211	58.4	LOS E	0.2	0.2	0.95	0.95	240.6	218.6	0.91

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

MOVEMENT SUMMARY

Site: 101 [Cumberland Hwy/Long St - Commuter PM Peak - WO Dev - 2024 (Site Folder: 2024 Background without development)]

Cumberland Highway/Long Street/Herbert Place
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 149 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Cumberland Highway														
1	L2	129	22	136	17.1	0.114	7.8	LOS A	0.9	7.1	0.14	0.62	0.14	56.3
2	T1	1889	98	1988	5.2	0.731	31.5	LOS C	38.6	282.6	0.85	0.77	0.85	38.6
3	R2	18	9	19	50.0	0.222	83.1	LOS F	1.4	13.9	0.98	0.71	0.98	19.5
Approach		2036	129	2143	6.3	0.731	30.5	LOS C	38.6	282.6	0.80	0.76	0.80	39.6
East: Herbert Place														
4	L2	27	4	28	14.8	0.069	35.1	LOS C	1.3	10.5	0.70	0.65	0.70	28.7
5	T1	5	4	5	80.0	0.068	74.7	LOS F	0.4	4.5	0.97	0.64	0.97	26.1
6	R2	31	8	33	25.8	0.130	61.0	LOS E	2.0	17.5	0.89	0.70	0.89	19.0
Approach		63	16	66	25.4	0.130	51.0	LOS D	2.0	17.5	0.82	0.68	0.82	23.4
North: Cumberland Highway														
7	L2	9	5	9	55.6	0.010	8.1	LOS A	0.0	0.4	0.10	0.58	0.10	46.2
8	T1	2722	161	2865	5.9	* 0.887	32.5	LOS C	63.6	467.5	0.93	0.90	0.97	38.1
9	R2	75	35	79	46.7	* 0.378	45.5	LOS D	2.8	27.9	0.96	0.74	0.96	36.2
Approach		2806	201	2954	7.2	0.887	32.7	LOS C	63.6	467.5	0.93	0.89	0.96	38.1
West: Long Street														
10	L2	136	14	143	10.3	0.423	41.3	LOS C	6.9	52.7	0.93	0.78	0.93	36.9
11	T1	4	1	4	25.0	0.041	76.1	LOS F	0.3	2.5	0.96	0.64	0.96	26.0
12	R2	393	15	414	3.8	* 0.833	77.4	LOS F	18.4	132.7	0.99	0.92	1.18	29.9
Approach		533	30	561	5.6	0.833	68.2	LOS E	18.4	132.7	0.97	0.88	1.11	31.2
All Vehicles		5438	376	5724	6.9	0.887	35.6	LOS C	63.6	467.5	0.89	0.84	0.92	37.2

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Herbert Place												
P2	Full	50	53	68.8	LOS F	0.2	0.2	0.96	0.96	250.2	217.7	0.87
North: Cumberland Highway												
P3	Full	50	53	68.8	LOS F	0.2	0.2	0.96	0.96	261.1	230.8	0.88

West: Long Street												
P4	Full	50	53	68.8	LOS F	0.2	0.2	0.96	0.96	252.7	220.7	0.87
P4B	Slip/ Bypass	50	53	37.8	LOS D	0.1	0.1	0.92	0.92	208.8	205.2	0.98
All Pedestrians		200	211	61.0	LOS F	0.2	0.2	0.95	0.95	243.2	218.6	0.90

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

MOVEMENT SUMMARY

Site: 101 [Cumberland Hwy/Long St - Construction PM Peak - WO Dev - 2024 (Site Folder: 2024 Background without development)]

Cumberland Highway/Long Street/Herbert Place
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 148 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Cumberland Highway														
1	L2	86	6	91	7.0	0.072	7.2	LOS A	0.3	2.5	0.10	0.61	0.10	56.8
2	T1	1477	66	1555	4.5	0.478	20.0	LOS B	21.7	157.9	0.64	0.57	0.64	46.2
3	R2	18	2	19	11.1	* 0.225	83.9	LOS F	1.4	10.7	0.99	0.70	0.99	19.4
Approach		1581	74	1664	4.7	0.478	20.0	LOS B	21.7	157.9	0.61	0.58	0.61	46.3
East: Herbert Place														
4	L2	40	8	42	20.0	0.070	11.4	LOS A	1.0	8.0	0.38	0.55	0.38	39.1
5	T1	3	1	3	33.3	0.024	68.5	LOS E	0.2	1.9	0.94	0.60	0.94	27.4
6	R2	19	1	20	5.3	0.185	76.9	LOS F	1.4	10.5	0.98	0.70	0.98	17.0
Approach		62	10	65	16.1	0.185	34.3	LOS C	1.4	10.5	0.59	0.60	0.59	28.5
North: Cumberland Highway														
7	L2	15	3	16	20.0	0.014	7.4	LOS A	0.1	0.5	0.09	0.59	0.09	46.4
8	T1	2176	74	2291	3.4	* 0.608	14.3	LOS A	30.7	220.9	0.60	0.56	0.60	51.2
9	R2	25	11	26	44.0	0.131	48.2	LOS D	1.0	9.8	0.93	0.69	0.93	35.4
Approach		2216	88	2333	4.0	0.608	14.6	LOS B	30.7	220.9	0.60	0.56	0.60	50.8
West: Long Street														
10	L2	34	11	36	32.4	0.109	43.8	LOS D	1.8	16.2	0.84	0.71	0.84	34.8
11	T1	1	0	1	0.0	0.007	70.1	LOS E	0.1	0.5	0.94	0.58	0.94	27.1
12	R2	149	10	157	6.7	* 0.722	85.0	LOS F	6.0	44.4	1.00	0.84	1.15	28.3
Approach		184	21	194	11.4	0.722	77.3	LOS F	6.0	44.4	0.97	0.81	1.09	29.2
All Vehicles		4043	193	4256	4.8	0.722	19.9	LOS B	30.7	220.9	0.62	0.58	0.63	46.2

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Herbert Place												
P2	Full	50	53	68.3	LOS F	0.2	0.2	0.96	0.96	249.7	217.7	0.87
North: Cumberland Highway												
P3	Full	50	53	68.3	LOS F	0.2	0.2	0.96	0.96	260.6	230.8	0.89

West: Long Street												
P4	Full	50	53	68.3	LOS F	0.2	0.2	0.96	0.96	252.2	220.7	0.88
P4B	Slip/ Bypass	50	53	44.4	LOS E	0.2	0.2	0.92	0.92	215.4	205.2	0.95
All Pedestrians		200	211	62.3	LOS F	0.2	0.2	0.95	0.95	244.5	218.6	0.89

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.

PHASING SUMMARY

Site: 101 [Cumberland Hwy/Long St - Construction AM Peak - WO Dev - 2024 (Site Folder: 2024 Background without development)]

Cumberland Highway/Long Street/Herbert Place
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 162 seconds (Site User-Given Phase Times)

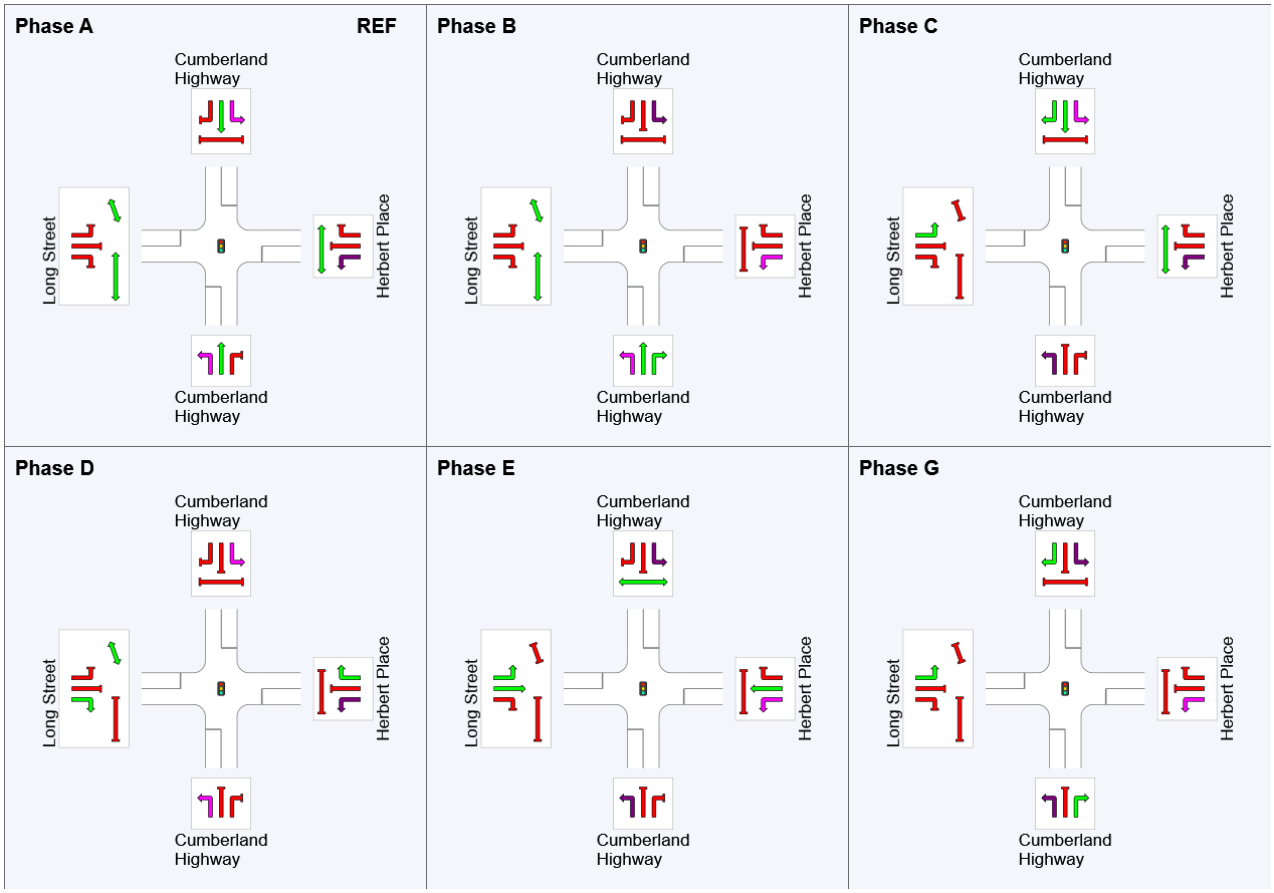
Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: Construction AM peak
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D, E, G
Output Phase Sequence: A, B, C, D, E, G

Phase Timing Summary

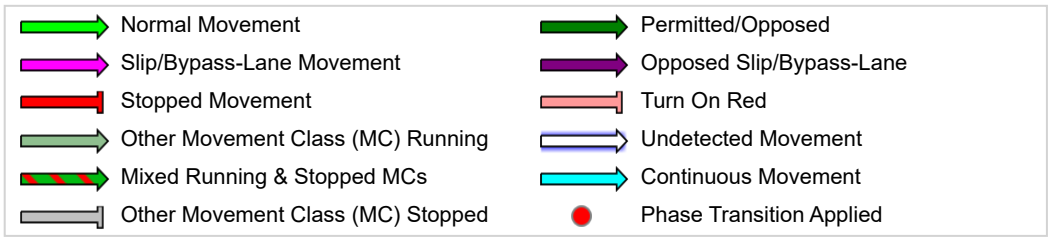
Phase	A	B	C	D	E	G
Phase Change Time (sec)	0	79	101	116	129	149
Green Time (sec)	73	16	9	10	14	10
Phase Time (sec)	79	22	12	16	17	16
Phase Split	49%	14%	7%	10%	10%	10%

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



PHASING SUMMARY

Site: 101 [Cumberland Hwy/Long St - Commuter AM Peak - WO Dev - 2024 (Site Folder: 2024 Background without development)]

Cumberland Highway/Long Street/Herbert Place
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Phase Times)

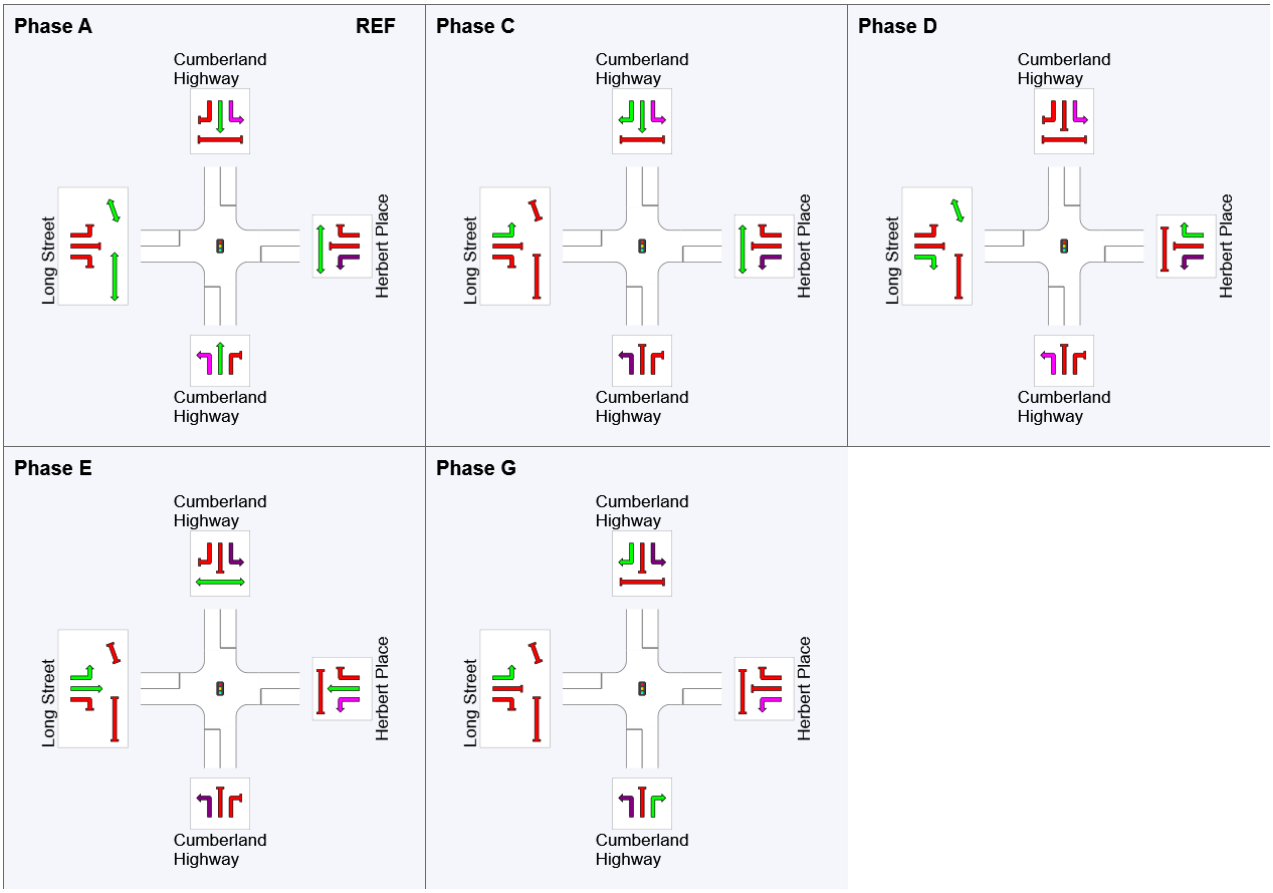
Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: Construction AM peak
Reference Phase: Phase A
Input Phase Sequence: A, C, D, E, G
Output Phase Sequence: A, C, D, E, G

Phase Timing Summary

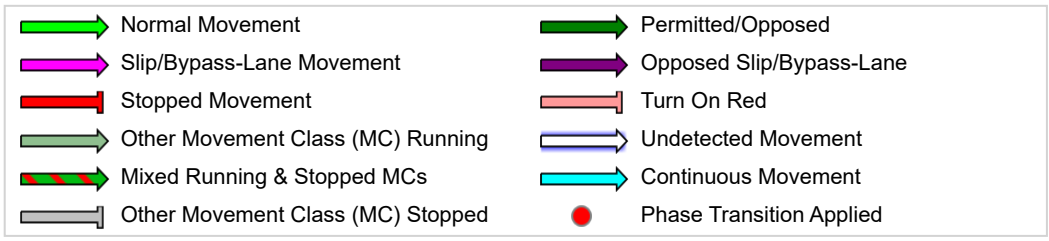
Phase	A	C	D	E	G
Phase Change Time (sec)	0	83	97	113	128
Green Time (sec)	77	8	10	9	10
Phase Time (sec)	83	14	16	11	16
Phase Split	59%	10%	11%	8%	11%

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



PHASING SUMMARY

Site: 101 [Cumberland Hwy/Long St - Commuter PM Peak - WO Dev - 2024 (Site Folder: 2024 Background without development)]

Cumberland Highway/Long Street/Herbert Place
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 149 seconds (Site User-Given Phase Times)

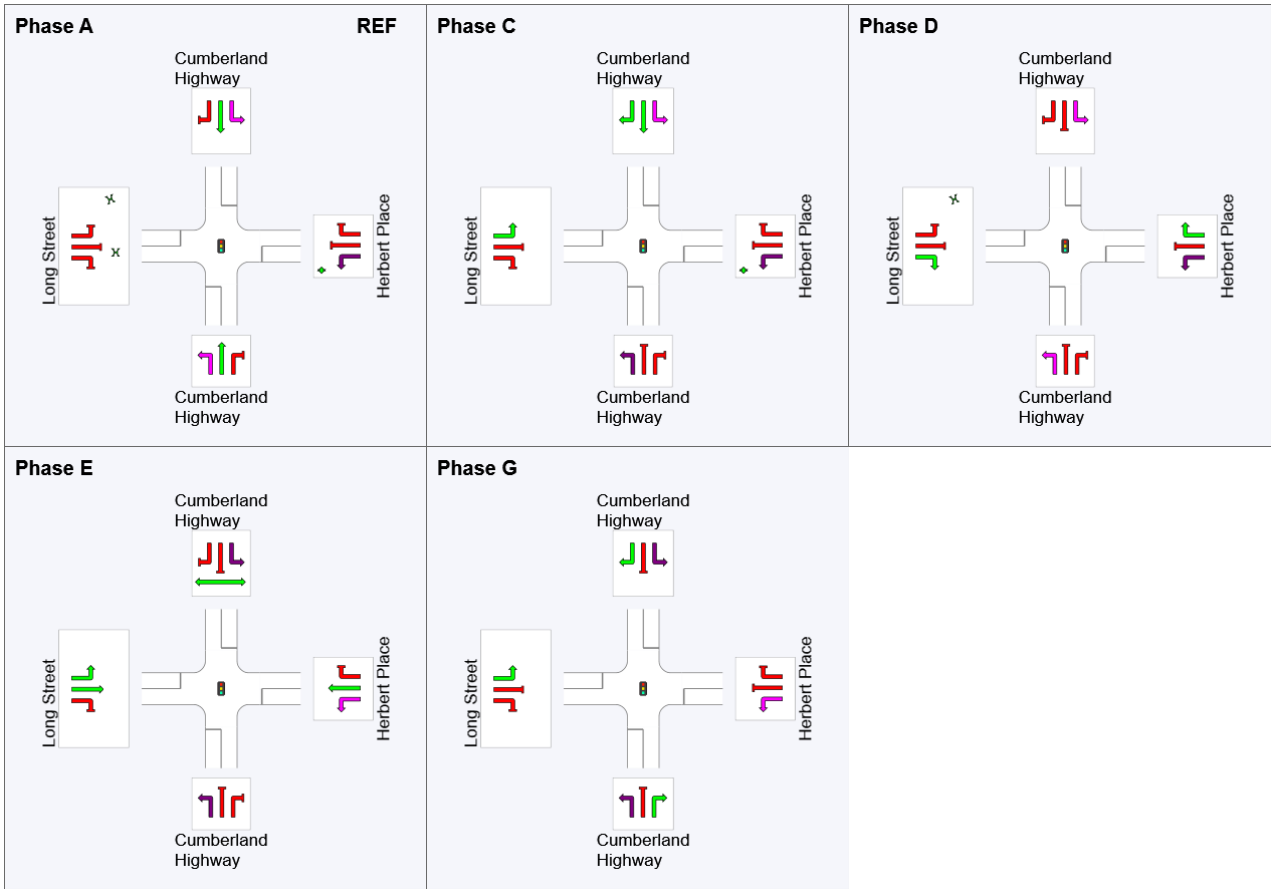
Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: Construction AM peak
Reference Phase: Phase A
Input Phase Sequence: A, C, D, E, G
Output Phase Sequence: A, C, D, E, G

Phase Timing Summary

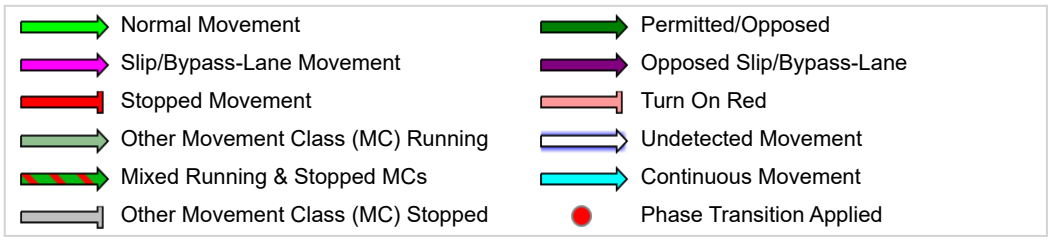
Phase	A	C	D	E	G
Phase Change Time (sec)	0	79	93	123	138
Green Time (sec)	73	8	24	9	9
Phase Time (sec)	79	14	30	11	15
Phase Split	53%	9%	20%	7%	10%

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



PHASING SUMMARY

Site: 101 [Cumberland Hwy/Long St - Construction PM Peak - WO Dev - 2024 (Site Folder: 2024 Background without development)]

Cumberland Highway/Long Street/Herbert Place
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 148 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: Construction AM peak
Reference Phase: Phase A
Input Phase Sequence: A, C, D, E, G
Output Phase Sequence: A, C, D, E, G

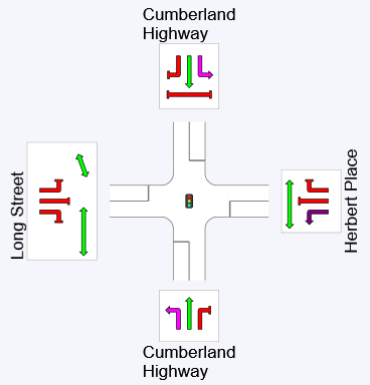
Phase Timing Summary

Phase	A	C	D	E	G
Phase Change Time (sec)	0	90	105	120	138
Green Time (sec)	84	9	9	12	7
Phase Time (sec)	90	15	15	15	13
Phase Split	61%	10%	10%	10%	9%

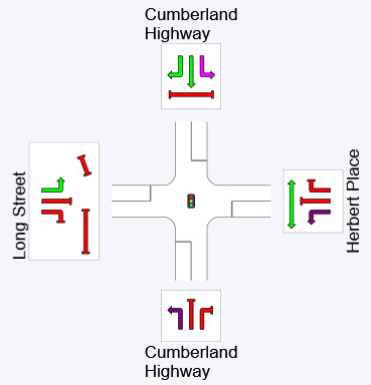
See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence

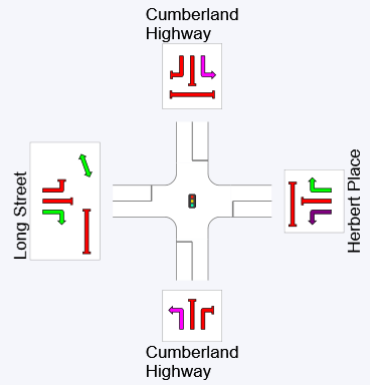
Phase A REF



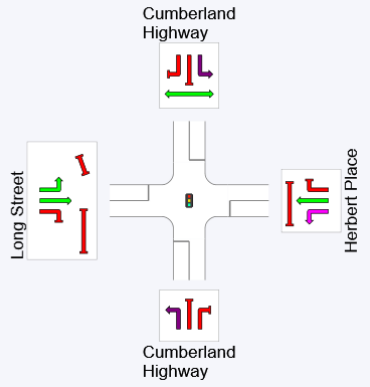
Phase C



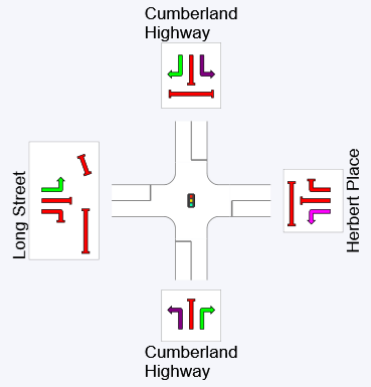
Phase D



Phase E



Phase G



REF: Reference Phase
VAR: Variable Phase