ORDINARY COUNCIL MEETING

Item 9.3 - Attachments Book - Part 3

Attachments I to L (pages 450-855)

Under Separate Cover

Tuesday, 5 December 2023

Table of Contents

www.pwc.com.au

ATTACHMENT I

Concord West, 1 King Street Transport Study Report

PwC on behalf of Billbergia

June 2023

Strictly private and confidential

Disclaimer

This report is not intended to be read or used by anyone other than Billbergia, Transport for NSW (**TfNSW**) and City of Canada Bay Council (**Council**).

We prepared this report solely for Billbergia's use and benefit in accordance with and for the purpose set out in our engagement letter to Billbergia dated 02 September 2022. In doing so, we acted exclusively for Billbergia and considered no-one else's interests.

We accept no responsibility, duty or liability:

- to anyone other than Billbergia in connection with this report
- to Billbergia for the consequences of using or relying on it for a purpose other than that referred to above.

We make no representation concerning the appropriateness of this report for anyone other than Billbergia. If anyone other than Billbergia chooses to use or rely on it they do so at their own risk.

This disclaimer applies:

- to the maximum extent permitted by law and, without limitation, to liability arising in negligence or under statute; and
- even if we consent to anyone other than Billbergia receiving or using this report.

Liability limited by a scheme approved under Professional Standards legislation

Version Control

Revision	Date	Description	Prepared by
Rev01	2-Dec-2022	Working draft for client discussion / review	PwC
Rev02	12-Dec-2022	Draft for client review	PwC
Rev03	01-Jun-2023	Final incorporating TfNSW information on OPAL bus and rail data	PwC

Contents

1 Introduction

PwC has been commissioned by Billbergia to undertake a transport assessment of the proposed development located at 1 King Street, Concord West (**the site**). This report forms part of the planning proposal submission to the City of Canada Bay Council (**Council**) for the site.

This transport assessment takes on-board stakeholder feedback received by Billbergia during the initial pre-lodgement phase (the scoping study) of the planning proposal process. The stakeholder groups include Council, Transport for NSW (**TfNSW**), School Infrastructure NSW (**SINSW**) and Sydney Metro[1].

A copy of the scoping study feedback is presented in Appendix A. They include the following documents:

- 'ATTACHMENT D: 1 King Street – TfNSW Methodology for Transport Assessment'.
- 'ATTACHMENT E: 1 King Street – SINSW Response to Scoping Proposal'.

The purpose of this transport assessment is to:

- Establish a strategic planning context for the site based on a review of existing and relevant planning documents.
- Establish an existing transport and land use context, assessing the current transport network and travel characteristics near the site and its surroundings.
- Undertake an assessment of how the proposed development complements the desired future character of the place and the views of the community.
- Estimate future traffic generation, both site-generated and background traffic.
- Assess the future transport impacts (site accessibility, circulation and network performance), with and without the proposed development.
- Provide recommendations for improvements, where necessary, to accommodate future traffic demand and staging requirements.

This report is structured as follows:

- **Section 1:** Introduction and Summary (this section).
- **Section 2:** Site Description.
- **Section 3:** Strategic Planning Context.
- **Section 4:** Existing Condition Assessment.
- **Section 5:** Projected Traffic.
- **Section 6:** Transportation Analysis.
- **Section 7:** Improvement Analysis (George St / Pomeroy St).
- **Section 8:** Findings and Recommendations.

[1] Please note,Sydney Metro were identified as a stakeholder group and consulted during the latter stages of the planning proposal process, post-submission of the scoping study to Council.

2 Site Description

2.1 Locale

Figure 2-1 provides a map of the existing 1 King Street, Concord West property. Concord West is part of the City of Canada Bay's local government area (**LGA**), which is situated in Sydney's inner-west, about 11km west of Sydney's commercial business district (**CBD**).

The site is located adjacent to the T9 (Northern Line) rail line, south of Concord West Station. It is approximately 3.1ha and currently houses an existing Westpac building and multi deck car park within a large warehouse and commercial property. Specifically, the existing site provides for car parking for 480 spaces, a gym, basketball court and childcare centre.

Built in 1987, the 1.6ha building served as a business call centre for a major section of Westpac's banking support services staff. Billbergia (the owners of the site) are currently exploring plans to redevelop the site. This includes a proposal to provide more dwellings and commercial spaces, expanding the existing childcare facilities to offer residents better housing and retail opportunities.

Figure 2-1 Site location

Site Description

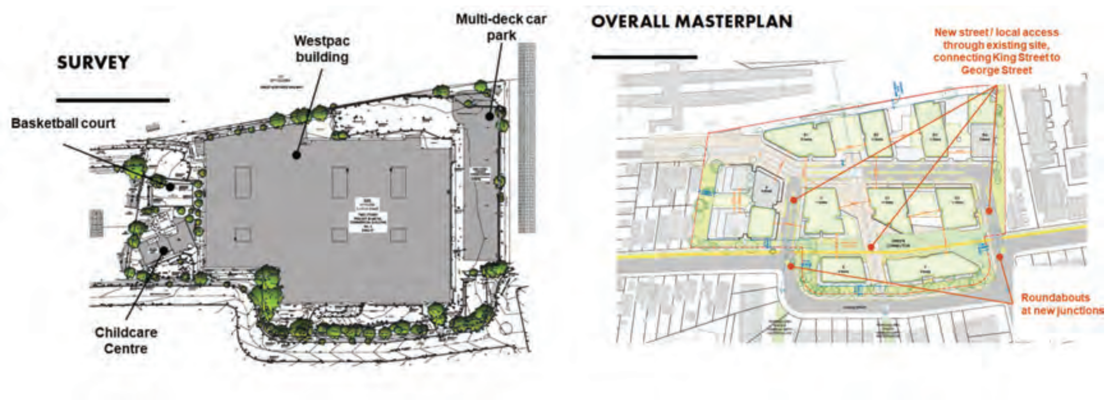
2.2 Site plan

Figure 2-2 below shows the existing survey and proposed masterplan for the site. The masterplan proposes to transform the site into a new revitalised precinct, incorporating both residential and non-residential land uses that caters to the local community.

Table 2-1 over-page provides the yield schedules that correspond to the site. Key features of the masterplan include:

- Delivery of **716 new dwellings.** These consist of different dwelling types and bedroom configurations (i.e. townhouses and units with 1-bedroom, 2-bedrooms and 3-bedrooms).
- Provision of **7,556 m^2 non-residential spaces** (Gross Floor Area (**GFA**)) for a new childcare centre, gym/health club, medical centre, community centre, supermarket and other retail uses.
- **Underground basement parking** for:
  - Residents: One car parking space per dwelling.
  - Visitors: One car parking space per five dwellings.
  - Shops/other retail: Four car parking spaces per 100 m^2 (GFA)
- **Internal road structure** consisting of:
  - Divided carriageway with one lane in each direction.
  - Pedestrian and cycling-friendly connections that run through the site, linking George Street and King Street.
  - Other road features required to accommodate the development; (1) new roundabouts at the site access points, (2) footpaths on either side of the road, and (3) pedestrian crossing marked across the site along key desire lines at George Street and outside the new supermarket.

Figure 2-2 Existing site survey (left), site masterplan (right)



Base map source: Left: GroupSA (30 March 2022), right: GroupSA (October 2022)

Site Description

Table 2-1 Site yield schedule

Block	Residential (no. dwellings)	Non-residential (GFA)
A	103	• Shops/cafes/food: 649 m^2
B1	98	• Supermarket: 1,967 m^2 (including back-of-office space) • Shops/cafes/food: 1,328 m^2 • Medical centre: 587 m^2 • Childcare centre: 896 m^2 / 120 children capacity • Mini-major retailor: 373 m^2 • Basement Lobbies: 116 m^2
B2	54	
B3	63	
B4	59	
C	87	• Shops: 225 m^2 • Community Centre: 341 m^2
D1	108	• Shops: 458 m^2 • Gym/health club: 616 m^2
D2	42	None
E	38	None
F	64	None
TOTAL	**716**	**Retail/commercial:** **6,660 m^2 (excludes childcare centre)** **7,556 m^2 (includes childcare centre)** **Childcare centre:** **120 children capacity**

Source: GroupSA (November 2022)

2.3 Phasing and timing

The construction delivery is scheduled occur over a five-year period from Jan-25 to Jan-30. The staging for the delivery is as follows:

- Jan-27 – 200 dwellings settling.
- Jan-28 – 200 dwellings settling.
- Jan-30 – 298 dwellings settling.

Please note that the above estimates are indicative only and may be subject to change.

3 Existing Condition Assessment

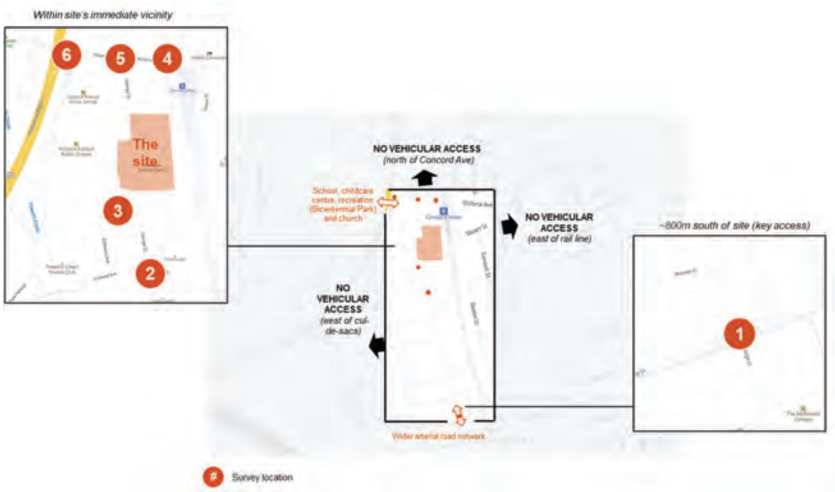
3.1 Study Area and Traffic Survey Details

The site is located adjacent to an existing mixed residential and general industrial area within an enclave in the Concord West Precinct. To provide an understanding of the existing traffic conditions, six key intersections within the site surrounds have been selected for analysis.

Figure 3-1 below shows the locations of the intersections. These include the following:

1. George Street / Pomeroy Street.
2. George Street / Conway Avenue.
3. George Street / Rothwell Avenue.
4. King Street / Victoria Avenue.
5. George Street / Victoria Avenue.
6. Victoria Avenue / access road to Victoria Avenue Public School and Powells Creek Reserve.

Figure 3-1 Concord West study area - key intersections and survey location ID



Traffic surveys were undertaken on Tuesday 20-September, with details of the data collection described as follows:

- **Time period:** 6-10am and 3-7pm.
- **Intersection turning movement counts:** Collected for car, heavy vehicles, pedestrian and cyclist for all intersections (as listed above).
- **Queue length surveys**: Collected for George Street / Pomeroy Street only. For rationale and subsequent TfNSW feedback with respect to the queue length survey location, please refer to the traffic projection methodology in Section 5.1 of this report and attached modelling methodology paper

A site visit was also undertaken on the same day by PwC personnel during the peak hours to observe site conditions. These included, but were not limited to, the following site observations; (1) existing traffic operations at key intersections, (2) movement and access to/from Concord West Station, the site, Victoria Avenue Public School, Bicentennial Park and Powells Creek Reserve, and (3) other public transport and active transport facilities.

Existing Condition Assessment

3.2 Study Area Land Use

3.2.1 Existing zoning and land uses

The site is currently zoned as IN1 General Industrial, with a Floor Space ratio (**FSR**) of 1.1 and Height of Building restricted to 8.5m. The area surrounding the site are generally low density residential, with some medium density, general industrial and warehouse properties. There are some retail land uses, however, these are mostly located on Concord Road to the east of the site over the rail line.

Major land uses near the site include the Victoria Avenue Primary School, Bicentennial Park, Powells Creek Reserve and Concord West Station. These are further described as follows:

Victoria Avenue Community Precinct

Located approximately 300m north of the site in Victoria Avenue, this Community Precinct was developed in 2015 as part of a joint initiative between NSW Department of Education, Council and Sydney Local Health District.

The Community Precinct includes *"a 47 place Child Care Centre catering for children from birth to school age, an Early Childhood Health Centre, an Outside School Hours Care Centre, shared community use of playing fields and communal hall[2]".* It also includes the new Victoria Avenue Public School that provides for capacity of up to 600 students.

Victoria Avenue Community Precinct, view from Victoria Ave

Source: PwC

Relevance to site:

Based on the traffic surveys, the Victoria Avenue Public School is currently the one of the key generators of vehicle and pedestrian trips in the area. The following peak hour volumes were observed (total trips travelling ***towards and away*** from school via Victoria Avenue – Survey Location ID #6):

Mode	AM Peak	PM Peak	Notes
Car	**213 vehicles** *8.15-9.15am*	86 vehicles *5-6pm*	• Morning peak coincides with school drop-off times. • Afternoon peak hour trips represent after school care and teachers/employees from the school leaving work. • While not the peak hour volumes, the afternoon school pick-up times (3-4pm) generates similar volumes of 77 car trips.
Cycle	20 cyclists *8.45-9.45am*	16 cyclists *5-6pm*	• Given the time of travel recorded for these peak hour volumes, these trips are likely to represent school or recreational trips.
Walking	**150 pedestrians** *8.30-9.30am*	**136 pedestrians** *3-4pm*	• Pedestrian volumes coincide with the school start and end times. • Data was recorded at the pedestrian crossing located directly outside the school entrance, with counts taken in both directions. Based on site observations at ~8.45-9am, some students were observed walking from the school to the park via this crossing.

---

[2] *'Victoria Avenue Public School'* (NSW Department of Education - School Infrastructure). Last accessed 1-Oct-22. Retrieved from: https://www.schoolinfrastructure.nsw.gov.au/schools/4/4655.html

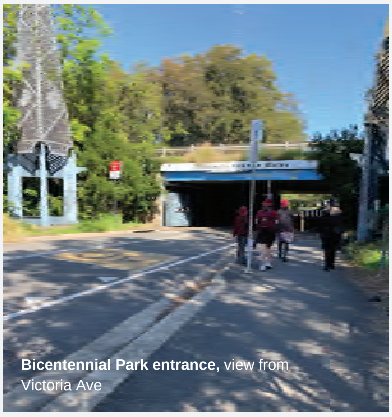
Existing Condition Assessment

Bicentennial Park - Sydney Olympic Park

With approximately 40ha of scenic parklands, Bicentennial Park is a significant open space that contributes to the local character of the area. The park is operated by the Sydney Olympic Park Authority and offers visitors several facilities, including (not not limited to) car parking, playgrounds, cycle and walking paths, BBQ facilities and pavilions.

There are currently two entrances to Bicentennial Park; (1) main park entrance via Australia Avenue, and (2) Victoria Avenue for local access via the underpass ~400m north of the site **- see image adjacent**.

From the Victoria Avenue entrance, the underpass provides for access to the Powells Creek Reserve, Bessington Park and Mason Park, which connects to the wider regional cycle network.


Bicentennial Park entrance, view from Victoria Ave

Source: PwC

Relevance to site:

Based on the traffic surveys, the park is currently one of the key generators of cycling trips in the area, particularly during the morning peak. The following peak hour volumes were observed (total trips travelling ***towards and away*** from Bicentennial Park entrance via Victoria Avenue - Survey Location ID #6):

Mode*	AM Peak	PM Peak	Notes
Car	37 vehicles *9-10am*	27 vehicles *3-4pm*	• Not a major generator of car trips during the weekday peak hours. • Vehicle volumes represent recreational trips to the park. It is noted that the afternoon peak coincides with the same school peak pick-up hours.
Cycle	**76 cyclists** *6.45-7.45am*	32 cyclists *5.45-6.45pm*	• Based on 2021 Census data, 15 people in Concord West indicated that they travel to work using bike[3]. Cyclists travelling to and from the park may consist of some commuter trips connecting to the regional cycle network, however, most are likely to be recreational in nature. • Morning peak cycling trips occurs outside the typical peak school and commuter peak hours.

** Please note that pedestrian movement data was recorded for trips travelling across the road reserve only at the intersection of 'Victoria Avenue / access road to Victoria Avenue Public School and Powells Creek Reserve' (Survey Location ID #6). Pedestrian counts along the footpath outside the Bicentennial Park entrance at Victoria Avenue were not recorded and hence have not been included in the above table.*

[3] *'Concord West – Method of Travel to Work' (*City of Canada Bay). Last accessed 7-Dec-2022. Retrieved from: https://profile.id.com.au/canada-bay/travel-to-work?WebID=150

Concord West Station

Concord West Station is located adjacent to the site (within 50m) and is part of the T9 Northern Line. The station can be accessed via Victoria Avenue and King Street from the western side of the rail line near the site, and via Queen Street from the eastern station entrance.

Station facilities were upgraded in 2014 and includes limited street parking, bike racks and a kiss and ride stopping area on King Street.

Relevance to site:

Concord West Station currently generates maximum ~**30 veh/hr** during the morning and afternoon peak via the King Street entrance near the site. Most trips travelling to the station are undertaken via walking by pedestrians.


Concord West Station, view from King Street (west of rail line near site)

Source: PwC,

The following peak hour volumes were observed (total trips travelling ***towards and away*** from Concord West Station at intersection of King Street and Victoria Avenue - Survey Location ID #4):

Mode	AM Peak	PM Peak	Notes
Car	25 vehicles *7.15-8.15am*	31 vehicles *4.45-5.45pm*	• Not a major generator of car trips during the weekday peak hours. This aligns with the limited station parking that is currently available.
Cycle	5 cyclists *7.45-8.45am*	9 cyclists *5-6pm*	• Not a major generator of cycling trips during the weekday peak hours.
Walking	**168 pedestrians** *8-9am*	**113 pedestrians** *5-6pm*	• High volumes of people walking towards / away from station during typical commuter hours.

3.2.2 Anticipated future development

Table 3-1, Figure 3-4 and Figure 3-5 provides a comparison of the Concord West land use forecasts. Over a 10-year horizon, the study area's population is set to grow by **5.4% p.a.** between 2026 and 2036, higher than the City of Canada Bay LGA's (1.8% p.a) and Sydney GMA's (1.4%) population forecasts.

Over the same period, the study area projects a modest increase in employment, with an annual growth of **1.0% p.a**., in-line with the City of Canada Bay LGA's (1.3% p.a) and Sydney GMA's (1.3%) forecasts.

It should be noted that:

- Council's *Concord West Precinct Master Plan* identifies a number of developments for future rezoning. This includes the 1 King Street, Concord West site (see Figure 3-2 overpage), and other industrial zoned sites west of the T9 Northern rail line.
- The majority of the available jobs within Concord West's employment projections are classed as "Financial and Insurance Services". This is likely to have included the employment offered by the existing Westpac building in the site.

Existing Condition Assessment

- – The site masterplan proposes to convert the existing Westpac building and other existing land uses to provide new residential and retail/commercial opportunities. This is expected to, in part, offset the loss in employment from the Westpac building. However, as the total traffic for the study area includes both site-generated and background traffic growth (as informed by TfNSW's standard land use projections), these may also include some commuting trips that would have been generated by the Westpac building.
- – No assumptions have been made to discount these defunct trips. As such, the trips generated for this transport assessment in the study area may be higher than forecasted, reflecting a more conservative estimate.

- The second highest job type by industry is "Construction", which aligns with the current zoning for the study area.

Figure 3-2 Concord West Master Plan 2014 – future development sites

Table 3-1 Population (no. persons) and employment (no. jobs available) projections

Population Projections	2016	2026	2036	2056	AAGR 2016-26	AAGR 2026-36	AAGR 2036-56
Concord West Station (TZ16 717)	1,540	2,135	3,298	4,736	3.9%	5.4%	2.2%
City of Canada Bay LGA	91,639	104,070	123,243	148,460	1.4%	1.8%	1.0%
Sydney GMA	6,086,371	7,293,772	8,333,949	10,142,701	2.0%	1.4%	1.1%
Employment Projections	**2016**	**2026**	**2036**	**2056**	**AAGR 2016-26**	**AAGR 2026-36**	**AAGR 2036-56**
Concord West Station (TZ16 717)	1,728	1,862	2,045	2,313	0.8%	1.0%	0.7%
City of Canada Bay LGA	39,067	45,678	51,631	60,343	1.7%	1.3%	0.8%
Sydney GMA	3,036,053	3,660,913	4,127,297	4,910,739	2.1%	1.3%	0.9%

Notes:

- *The site is located within Travel Zone 2016 (**TZ16**) 717, zone name 'Concord West Station). See zonal boundaries outlined in figure overpage.*
- *Projections based on TfNSW's Travel Zone Projections 2019 (**TZP19**) for Population, Workforce & Employment in New South Wales. It is noted that a more recent Travel Zone Projections 2022 (**TZP22**) was released by TfNSW in November 2022. However, for the purposes of this assessment, TZP19 has been as the basis of for comparisons to align with the underlying land use assumptions that are used for the traffic demand forecasts outlined in Section 5.3.*
- ***AAGR** is the Annual Average Growth Rate (%). GMA is the Greater Metropolitan Area as determined by TfNSW's TZP19 Technical Guide's spatial definitions.*
- *Population projections for Concord West Station TZ16 717 and City of Canada Bay LGA calculated based on population in occupied private dwellings. Population projections for Sydney GMA calculated based on estimated resident population.*

Figure 3-3 Concord West Station TZ16 717 - zonal boundaries

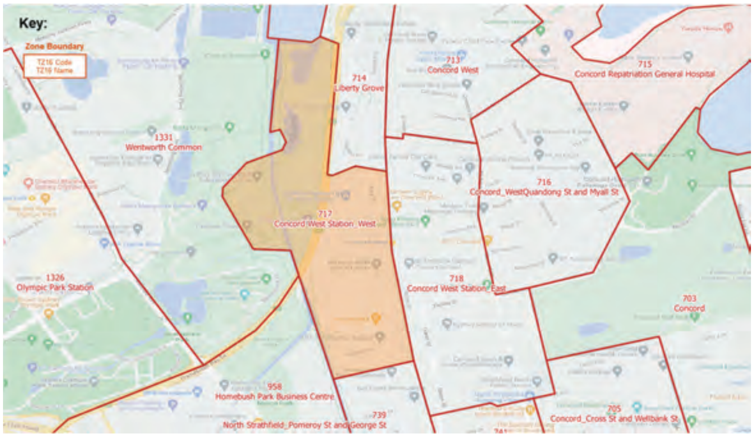


Figure 3-4 Concord West vs. City of Canada Bay LGA projections - population

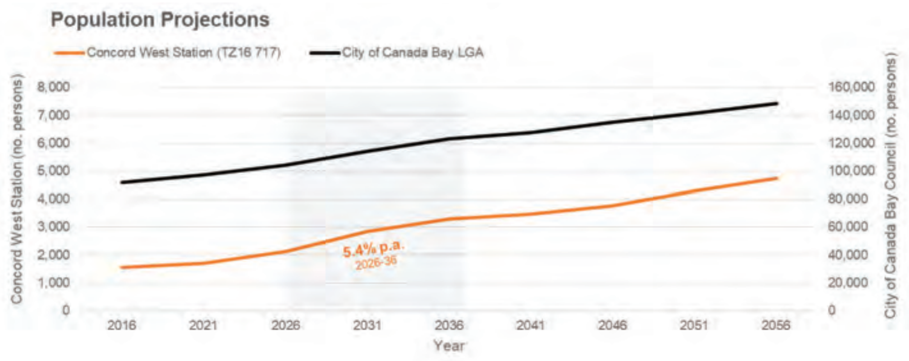
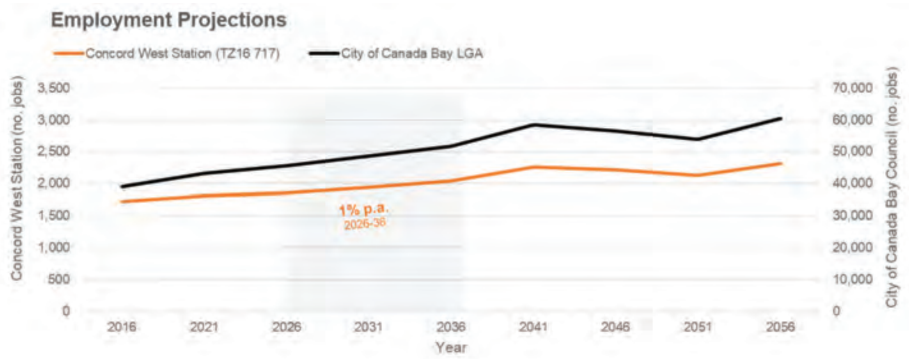


Figure 3-5 Concord West vs. City of Canada Bay LGA projections - employment



3.3 Site Accessibility

3.3.1 Road network

The site is bounded by the T9 (Northern Line) rail line to the east and George Street to the west. The properties of 33 George Street and 2 King Street form the northern boundary of the site. Similarly, the southern extents are bounded by the property at 31 George Street (North Strathfield).

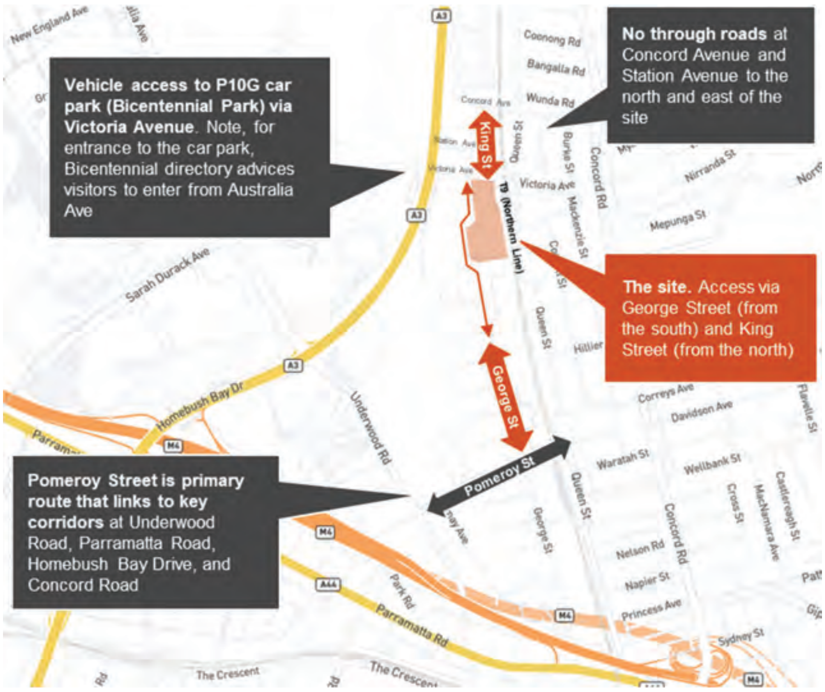
Figure 3-6 below illustrates the key vehicle access points. George Street and King Street currently provides direct access via Pomeroy Street, linking the site to key routes from:

- Underwood Road and Parramatta Road to the south.
- Homebush Bay Drive and Australia Avenue to the north and west.
- Concord Road to the east.

George Street and King Street are single carriageways with one lane in each direction, street parking provided on either side of the road, and a speed limit of 50km/hr. Victoria Avenue, located immediately north of the site, is within a school zone that operates at 40km/hr speed limit at 8-9.30am and 2.30-4pm during school days.

North, east and west of the site, there are no external connections to the wider road network outside of the local area. It is noted that Victoria Avenue provides vehicle access to the P10G car park at Bicentennial Park, which offers 2-hour free parking on weekdays and all-day parking on weekend. However, for access to the P10G car park, the Bicentennial Park directory advises visitors to enter from the main park entrance at Australia Avenue.

Figure 3-6 Existing road network



3.3.2 Traffic volumes and conditions

Figure 3-7 and Figure 3-8 overpage provides a summary of the vehicles counts over the morning and afternoon peak periods. Taken as an aggregate across the local road network, the overall peak hours are **8-9am** and **5-6pm**.

Summary of key observed findings are described as follows:

- The intersection of George Street and Pomeroy make up the majority total network traffic movements within the study area (over 60% of total movements surveyed – see Table 3-2 below for peak hour intersection volume summary), with through traffic travelling east-west along the Pomeroy Street corridor the dominant flow.
- Based on the peak hour surveyed flow diagrams illustrated in Figure 3-11 and Figure 3-12:
  - A key generator of traffic to the local area are trips to / from the Victoria Avenue Victoria Avenue Community Precinct (school) and existing employment (industrial / construction / commercial).
  - Morning southbound and afternoon northbound trips along the George Street corridor also consists of residents leaving / travelling back home via George Street and Pomeroy intersection.
- Heavy vehicles comprise of less than 2% of total traffic across the study area.
- Afternoon peak period traffic experiences a 'spike' in traffic increase at 3-3.15pm. This coincides with school pick-up hours and construction/industrial workers leaving the area.
- Based on SIDRA intersection analysis (see Section 6.3 for full traffic modelling details) and site observations:
  - All intersections within vicinity of the site currently perform at acceptable levels of (**LoS**); no significant levels of congestion and queuing were observed.
  - Substantial levels of delays were observed at the intersection of George Street and Pomeroy Street, with eastbound and westbound queues extending to adjacent intersections at Beronga Street / Queen St and Underwood Road. Downstream blockages from these intersections were also observed, reducing the effective green time, traffic discharge rates and overall intersection performance at George Street / Pomeroy Street.

Table 3-2 Peak hour intersection volumes (light and heavy vehicles)

#	Survey Location	Existing Control Type	Total Intersection Volume – All Movements (vehicles)		Proportion of Total Volume (All Survey Locations)	
			8-9am	5-6pm	8-9am	5-6pm
1	George Street / Pomeroy Street	Signal	2,136	2,171	62%	68%
2	George Street / Conway Avenue	Priority	436	380	13%	12%
3	George Street / Rothwell Avenue	Priority	332	265	10%	8%
4	King Street / Victoria Avenue	Priority	64	80	2%	3%
5	George Street / Victoria Avenue	Priority	320	240	9%	8%
6	Victoria Avenue / Public School Access	Priority	124	33	4%	1%
		Total	**3,412**	**3,169**	***100%***	***100%***

Existing Condition Assessment

Figure 3-7 Morning period survey count summary

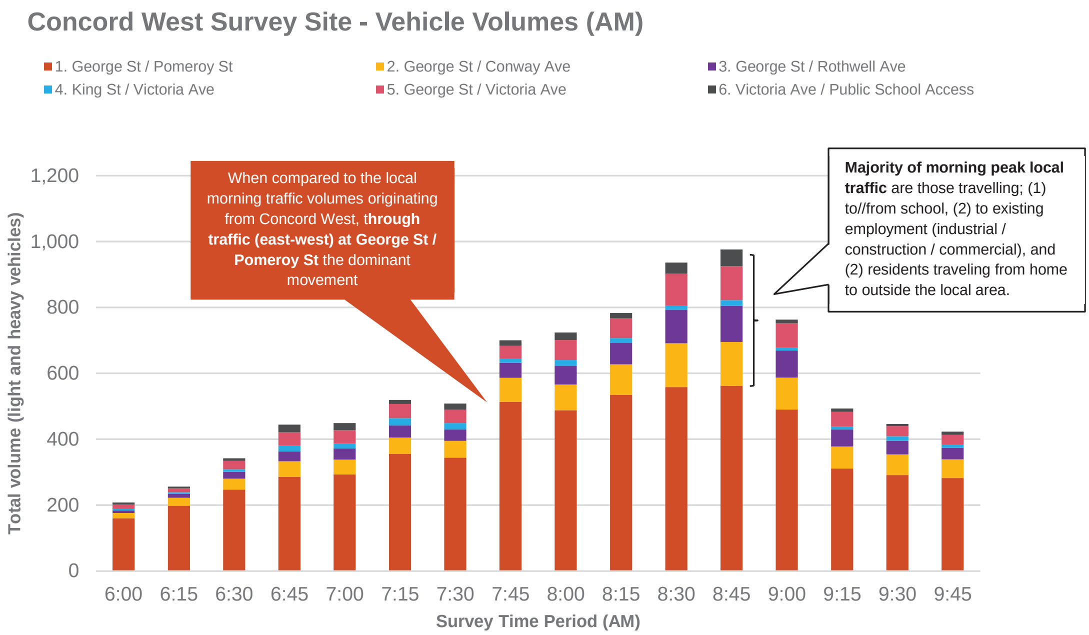
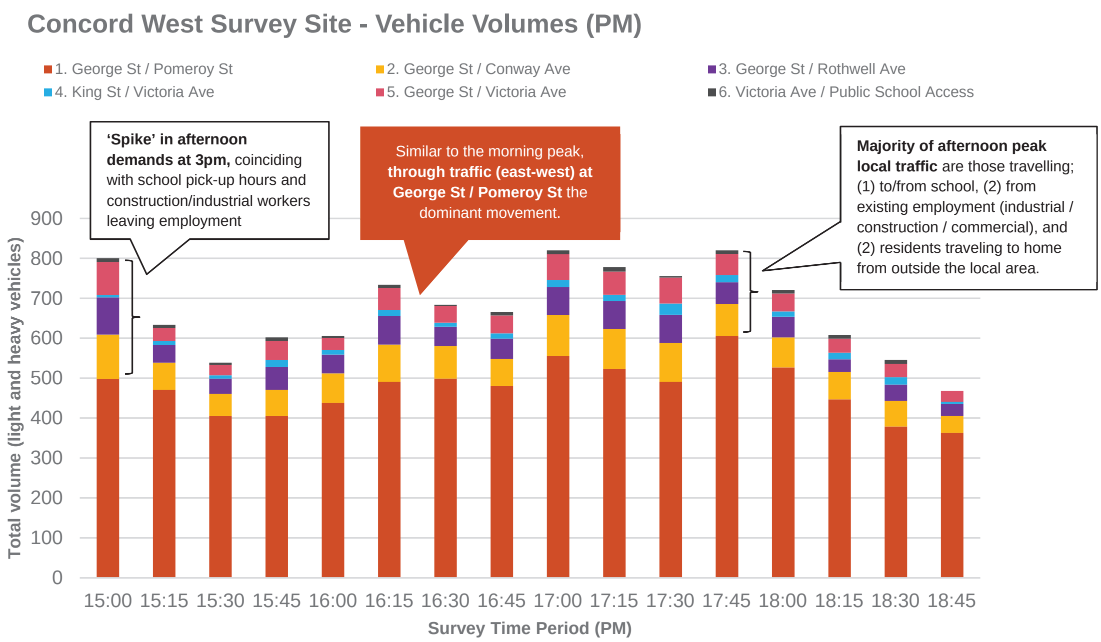


Figure 3-8 Evening period survey count summary



Existing Condition Assessment

Figure 3-9 Morning peak hour (8-9am) count summary – survey location IDs #2 to #6, flow diagram (light and heavy vehicles)

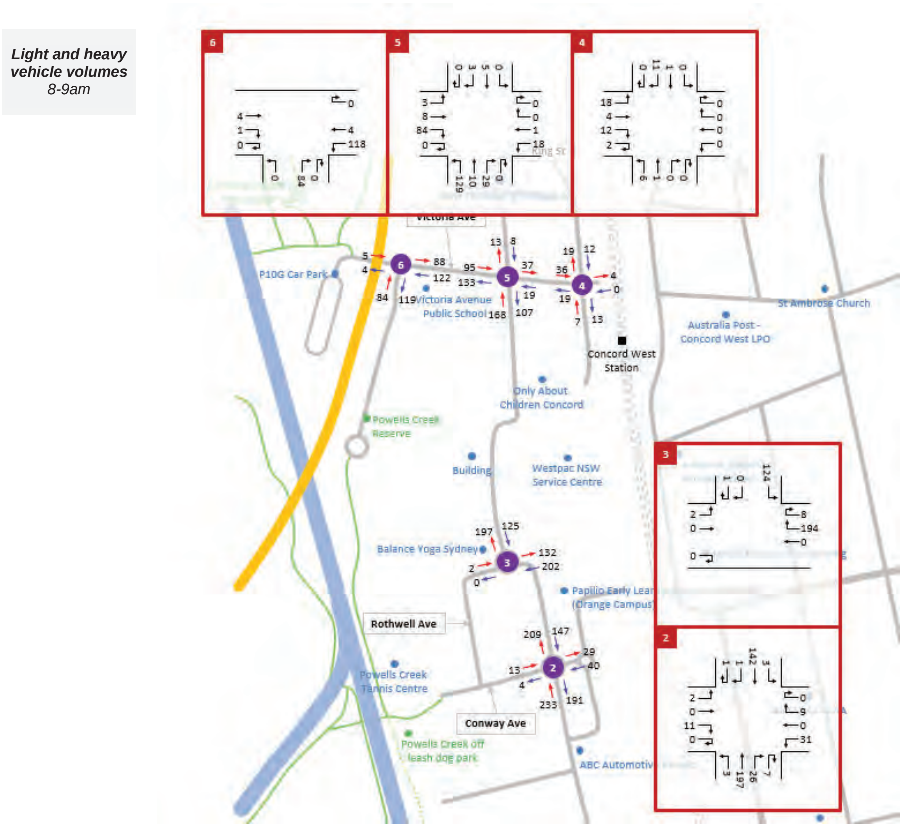
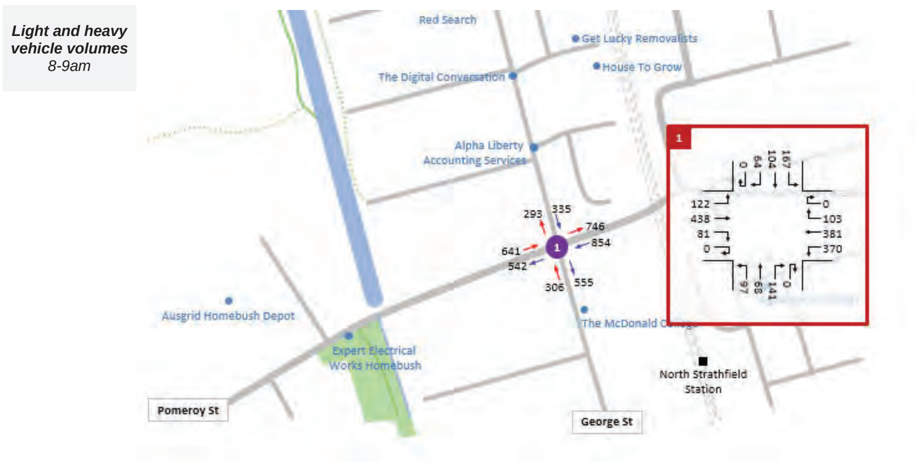


Figure 3-10 Morning peak hour (8-9am) count summary – survey location ID #1, flow diagram (light and heavy vehicles)



Existing Condition Assessment

Figure 3-11 Afternoon peak hour (5-6pm) count summary – survey location IDs #2 to #6, flow diagram (light and heavy vehicles)

Light and heavy vehicle volumes
5-6pm

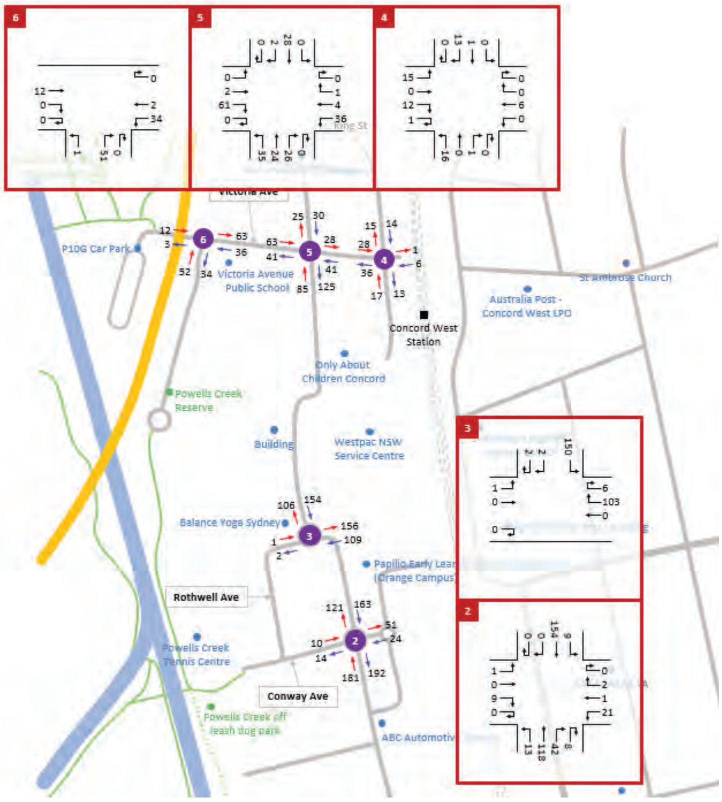


Figure 3-12 Afternoon peak hour (5-6pm) count summary – survey location ID #1, flow diagram (light and heavy vehicles)

Light and heavy vehicle volumes
5-6pm

Concord West, 1 King Street Transport Study Report
PwC

3.3.3 Existing rail network

The T9 Northern Line provides direct services to the North Shore via the City and the north-eastern suburbs travelling to / from Hornsby. It operates with services every 15-min in both directions, all day (weekdays, weekends and public holidays). Workers and visitors to the site currently access the T9 Northern Line from Concord West Station.

Figure 3-13 adjacent illustrates the closest site entrances relative to Concord Road Station, which shows a high level of accessibility to the rail network.

Figure 3-13 Site access via Concord West station

The site is also located approximately 1.1km away from the North Strathfield Station, which is the site for the planned North Strathfield Metro Station as part of the new Sydney Metro West (**SMW**). North Strathfield Station is within bicycle distance or about 20-min walk away from the site. Figure 3-14 presents the overview map of the SMW rail alignment, which shows the new alternate connections to / from the Sydney CBD that this new public transport infrastructure provides.

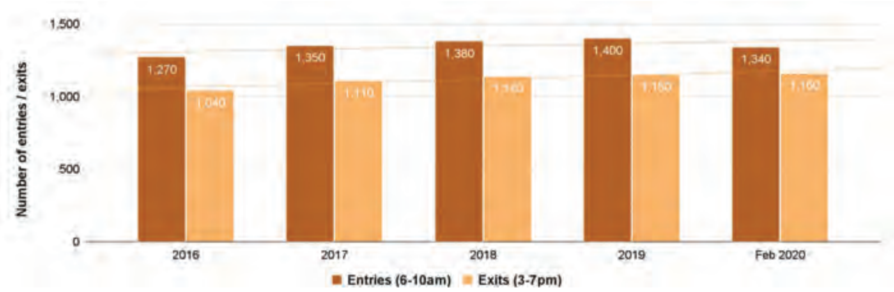
Figure 3-14 Overview map of the SMW rail alignment

Source: Image extracted from 'Sydney Metro West – Interactive Map' (Sydney Metro). Last accessed: 8-December-2022. Retrieved from: https://caportal.com.au/tfnsw/sydmetrowest/map

Based on historic Opal 'tap-on' and 'tap-off' data there has been an up to 12% growth in demand at Concord West Station between 2016 and 2020. Figure 3-15 shows the number of customer entries (morning peak periods 6-10am) and the exits (afternoon peak periods 3-7pm). The Opal data that has been collected represents a 'typical day' of customer entries and exits at Concord West Station, noting that no Opal data is available for the years preceding 2016.

Existing Condition Assessment

Figure 3-15 Concord West Station, Opal 'tap-on' and 'tap-off' entries and exits (2016-2020)



Data source: TfNSW Open Data Hub

To assess the existing rail capacity at Concord West Station, a formal request for 2022 OPAL data was put forward to TfNSW. Table 3-3 summarises the proportion of services that are under, at or above capacity for all trains stopping at Concord West Station. Based on the rail capacity analysis, it shows the majority of services operating under capacity across all time periods. Note that:

- The information provided is based on data already processed by TfNSW, with each capacity and time classification ('Under Capacity', 'At or Above Capacity' and 'Capacity Unknown', and 'AM Peak', 'Early Morning', 'Interpeak', 'PM Peak' and 'Late Night') as per the descriptions in the raw dataset.
- The Opal data was collected over two separate periods; 19-21 July, and 8-10 November 2022. This information has been averaged to represent a typical weekday (Tuesday to Thursday).

Table 3-3 Existing rail capacity (Concord West Station)

Capacity	Proportion of Services (%)				
	Early Morning	AM Peak	Interpeak	PM Peak	Late Night
Under Capacity	92%	98%	97%	95%	99%
At or Above Capacity	0%	0%	0%	0%	0%
Capacity Unknown	8%	1%	3%	5%	1%

Data source: Supplied by TfNSW.

3.3.4 Existing bus network

Bus stops within 500m walking catchment from the site are currently provided on Concord Road, located on the eastern side of the T9 Northern Line. Access from the site is primarily undertaken via active transport from King Street for the following bus services:

- 410 (Macquarie Park - Hurstville).
- 458 (Ryde - Burwood).
- N80 (Hornsby - City Town Hall via Strathfield (Night Service)).
- N81 (Parramatta - City Town Hall via Sydney Olympic Park (Night Service)).

Existing Condition Assessment

Figure 3-16 provides the maps of the existing bus network for the services listed above.

Figure 3-16 Existing Bus Network: Inner West and Southern Region Network (left), Sydney NightRide Bus Network (right)

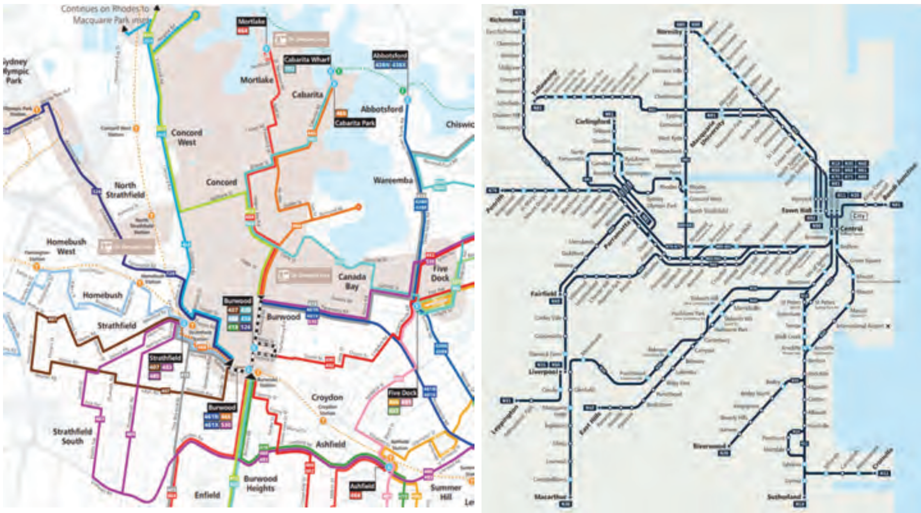


Image source (left): 'Inner West and Southern region network effective 5 December 2021' (TfNSW, Dec 2021)
Image source (right): 'Sydney NightRide Buses Network' (TfNSW, 2020)

Table 3-3 summarises the proportion of bus services with either seating available, seating capacity exceed, or total capacity exceed at key bus stops along Concord Road. The information is based on OPAL data supplied by TfNSW, which shows all bus services operating with seating capacity available across each time period. Note that:

- The information provided is based on data already processed by TfNSW, with each capacity and time classification as per the descriptions in the raw dataset.
- The Opal data was collected over two separate periods: 19-21 July, and 8-10 November 2022. This information has been averaged to represent a typical weekday (Tuesday to Thursday).

Table 3-4 Existing bus capacity (select bus stops on Concord Road)

Bus Stop (transit stop number - name of stop)	Proportion of services		
	Seating Available	Seating Capacity Exceeded	Total Capacity Exceeded
213826 - Concord Rd at Colane St, CONCORD WEST	100%	0%	0%
213835 - Concord Rd before Victoria Ave, CONCORD WEST	100%	0%	0%
213837 - Concord Rd at Coonong Rd, CONCORD WEST	100%	0%	0%

Data source: Supplied by TfNSW.

Existing Condition Assessment

3.3.5 Existing active transport network

The site is situated within 300m distance from several existing and future on-road and off-road cycle facilities in Concord West. Figure 3.11 illustrates the location of the cycle facilities relative to the site, which shows:

- **Existing on-road (purple highlighted)** cycle path on Victoria Avenue, Station Avenue and George Street. The on-road facilities currently connects to the Sydney Olympic Park Bike Network.
- **Existing off-road (green highlighted)** cycle path on Powells Creek Reserve, with access via the on-road cycle path on Victoria Avenue. The off-road facilities currently connects to the Sydney Olympic Park and Strathfield Bus Network.
- **Future (blue highlighted)** cycle paths on Queen Road and Pomeroy Street, which will provide better opportunities for connections to existing cycle facilities in Liberty Grove and Rhodes to the north, eastern suburbs within the City of Canada Bay LGA to the east and the Burwood Bike Network to the south.

Figure 3-18 to Figure 3-21 illustrates the morning (6-10am) and afternoon (3-7pm) peak period cyclist movements, which shows the majority of existing trips occurring at the on-road cycle path on Victoria Avenue.

The site masterplan proposes to provide a new shared path from King Street to George Street through the new revitalised precinct. This has potential to increase the permeability of the site and active transport accessibility between Queen Street (located on the other side of the rail line where the future cycle connections have been planned) and Powells Creek Reserve.

Figure 3-17 Existing Cycle Network (City of Canada Bay LGA)

Image source (base map): 'Interim Bike Network Map' (Council, Jan 2019)

Existing Condition Assessment

Figure 3-18 Morning peak period (6-10am) count summary – survey location IDs #2 to #6, flow diagram (cyclist)

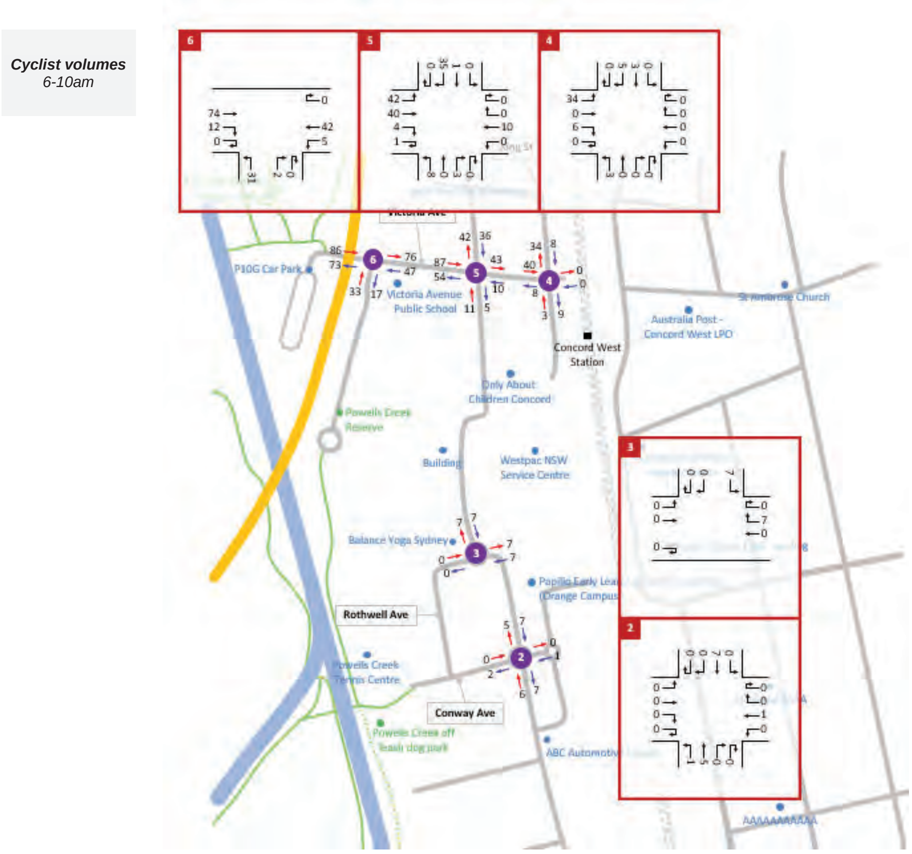


Figure 3-19 Morning peak period (6-10am) count summary – survey location ID #1, flow diagram (cyclist)

Existing Condition Assessment

Figure 3-20 Afternoon peak period (3-7pm) count summary – survey location IDs #2 to #6, flow diagram (cyclist)

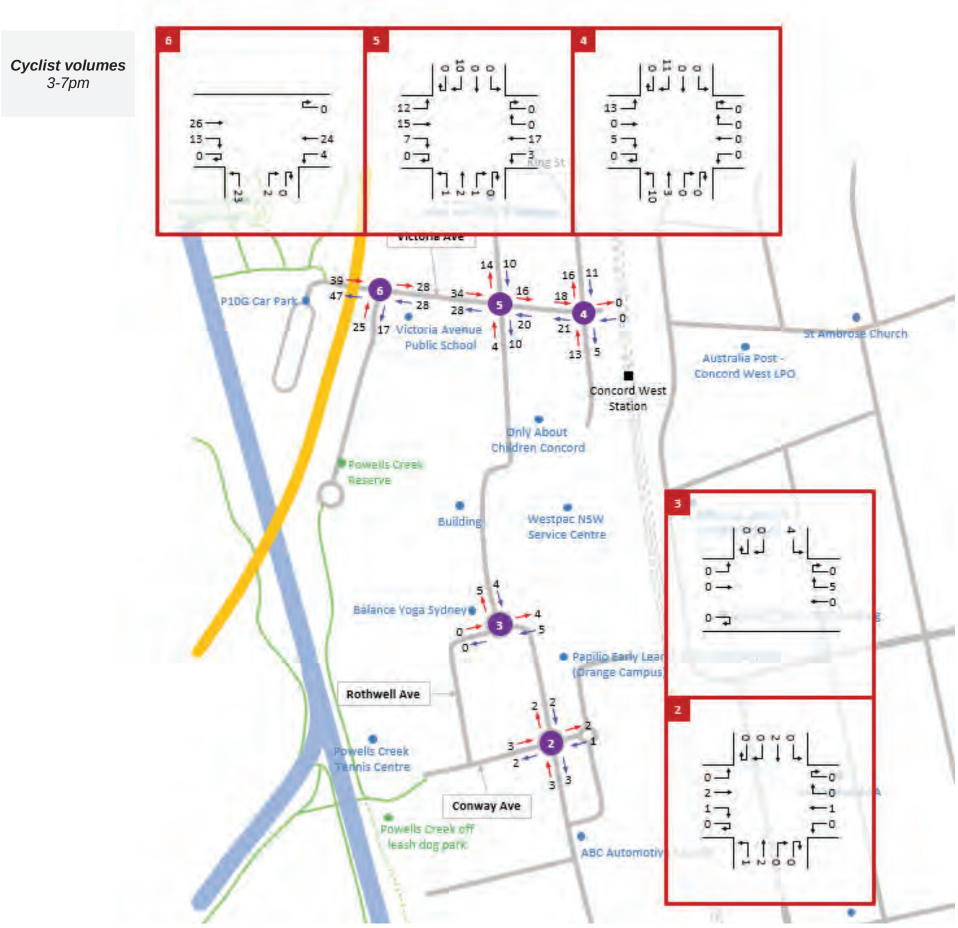
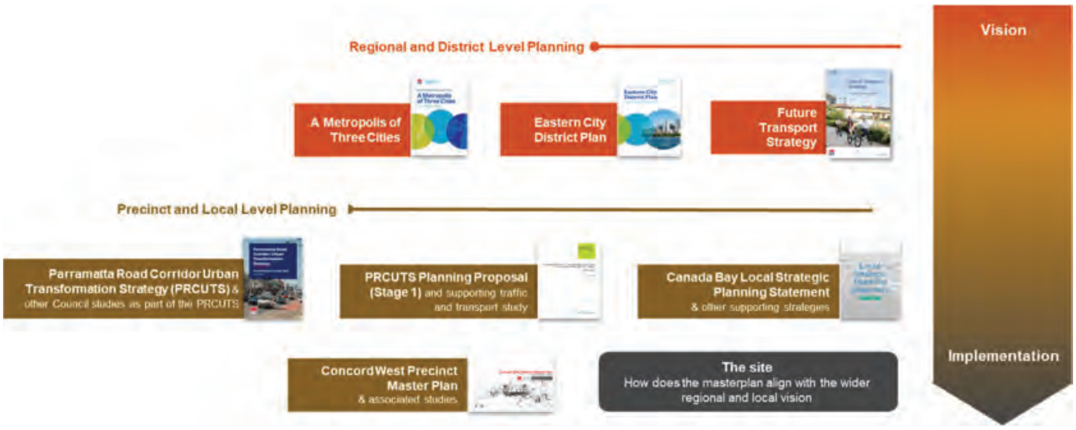


Figure 3-21 Afternoon peak period (3-7pm) count summary – survey location ID #1, flow diagram (cyclist)

4 Strategic Planning Context

The planning context for the site is informed by; (1) regional and district level planning that sets out the land use and transport vision for the wider region, and (2) precinct and local level planning that governs the implementation strategy for the site. Figure 4-1 below presents the overview of the relevant strategic documents that are further detailed in this section.

Figure 4-1 Overview of strategic plans and strategies relevant to the site



4.1 Regional & District Planning

4.1.1 Greater Sydney Region Plan - A Metropolis of Three Cities

From a metropolis of three cities to a city region of six cities[4], the Greater Sydney Region Plan sets out the 40-year strategic land use plan for Sydney.

Figure 4-2 adjacent illustrates the overarching view of the plan, where:

- The **east-west axis** connects the two airports (Sydney Airport and the planned Western Sydney Airport) as part of the metropolis of three cities, which consists of the Eastern Harbour City, the Central River City and the Western Parkland City.
- The city region's **north-south axis** links the seaports of Newcastle and the Illawarra, connecting the Central Coast and Parramatta to build important foundations that will enable the region to generate more jobs in future-facing industries, close to where people choose to live. It consists of the Lower Hunter and Greater Newcastle City, Central Coast City, and Illawarra-Shoalhaven City

The plan was developed in close collaboration with the Future Transport Strategy (2022). One of the key objectives for the plans is to provide transport connections that will enable people to reach their nearest metropolitan or strategic centre within 30 minutes (or 15-min neighbourhoods) by public or active transport.

Figure 4-2 Overview of the Six Cities Region

Base map source: 'A Metropolis of Three Cities - Greater Sydney Region Plan' (Greater Sydney Commission, March 2018)

[4] Source: *'From a metropolis of three cities to a city region of six cities'* (Greater Sydney Commission, December 2021). Retrieved from: https://www.greater.sydney/news/three-cities-to-six-cities

4.1.2 Eastern City District Plan

The Eastern City District Plan is a 20-year strategic planning document that outlines the directions, planning priorities and actions needed to achieve the vision set out in the Greater Sydney Regional Plan for the Eastern Harbour City. Concord West is located within the Eastern Harbour City, close to the strategic centres at Sydney Olympic Park, Burwood and Rhodes.

The following have been identified as being relevant to the site:

Dwellings located within 30 minutes travel time by active or public transport of a metropolitan or strategic centre.

The site is located directly adjacent to the Concord West Station for access to the T9 Northern Line. The provision of more dwellings close to the station will; (1) enable more efficient access to workplaces, services and community facilities via the existing T9 Northern Line, and (2) promote greater levels of self-containment within the Eastern Harbour City.

The site is also located close to Sydney Olympic Park, with connections via an extensive active transport network through Bicentennial Park. Within the adjacent district in the Central District City Plan, Sydney Olympic Park has been identified as a key employment centre and the site of significant public transport investment to improve connectivity to Greater Parramatta.

Opportunities for housing in Concord West have been realised through urban renewal and local infill developments, providing more dwellings in existing neighbourhoods where housing capacity exists for the site.

Improved access open space.

The Eastern City District Plan will provide walking and cycling links that connects Concord West, North Strathfield, Homebush and Strathfield to Parramatta Road, Bicentennial Park and the Parramatta River foreshore via Powells Creek and Mason Park, Strathfield.

The site is located within 400m from Powells Creek. The site masterplan proposes a new shared access for pedestrians and cyclists through the site that links King Street from Concord West Station to George Street. This new shared access link will improve accessibility to / from Powells Creek and Bicentennial Park via the site.

Record investment in public transport infrastructure.

The management of population and employment growth within the Eastern Harbour City will be supported by a number of new public transport initiatives. This is outlined below in the Future Transport Strategy (2022).

4.1.3 Future Transport Strategy (2022)

The Future Transport Strategy (2022) is a 40-year transport strategy for Sydney and Regional NSW. Within the Eastern Harbour City, the plan identifies a number of regional initiatives to improve transport connectivity '*through stronger* *investment in public transport, and walking and cycling networks, supported with travel demand management and improved digital connectivity.'*[5]

Key transport initiatives relevant to the site are:

- **Sydney Metro**. SMW is a 24km new metro line that will link Westmead, Parramatta and Sydney CBD. The NSW Government has committed to an opening date by 2030 and a new metro station at North Strathfield located 1.1km south of the site. SMW is part of the Sydney Metro infrastructure, Australia's biggest public transport project that is currently being delivered by the NSW Government. The new Sydney Metro will provide fast, safe and reliable services across the Sydney metropolitan area which, in addition to SMW, will include Sydney Metro Northwest, Sydney Metro City & Southwest and Sydney Metro Western Sydney Airport.

  SMW has potential to alleviate forecast rail patronage demand on the existing T9 Northern Line due to the new connections on the Sydney Metro services at Epping, which provides additional travel options to the North Shore stations and Sydney CBD. Coupled with the new metro station planned for North Strathfield, about 20-min walking or a short cycle distance from the site, this will provide an additional public transport option for people living in Concord West.

- **Parramatta Light Rail Stage 2 (PLR2).** Together with the Stage 1 works, PLR2 is proposed to link Parramatta CBD to Ermington, Melrose Park, Wentworth Point and Sydney Olympic Park. It will also provide connections to SMW, Parramatta Station and ferry services at Rydalmere and Sydney Olympic Park. The NSW Government has committed $602.4 million to commence the detailed PLR2 planning process, including early works associated with the bridge connection across the Parramatta River between Wentworth Point to Melrose Park[6].

- **Macquarie Park to Hurstville via Rhodes mass transit / train link.** This is a potential rail link that is currently under investigation that will provide important cross city connectivity from Macquarie Park on the Sydney Metro to the T9 Northern Line connection at Rhodes and Hurstville.

- **WestConnex**. WestConnex is a motorway project delivered over four majors stages; (1) the completed M4 Widening and M4 East. The M4 East is a new underground connection that links Haberfield to Parramatta and the M4, (2) the completed M8, consisting of twin tunnels that connects the M5 at Kingsgrove to a new interchange at St Peters, (3) the M4-M5 Link Tunnels opening in 2023 which will connect the M4 East at Haberfield with the M8 at St Peters, with connections to the Anzac and Iron Cove bridges via the Rozelle Interchange, and (4) the Rozelle Interchange, which is scheduled for completion in 2023.

  The completed WestConnex will also have potential to shift more cross-regional car trips away from Parramatta Road, one of the key north-south arterial connections that currently provides vehicle access to the site via the road network.

4.2 Precinct & Local Planning

4.2.1 PRCUTS[7]

The Parramatta Road Corridor Urban Transformation Strategy (**PRCUTS**) is a 30-year strategy that sets out the vision and land use and transport planning principles for the renewal and transformation of the the Parramatta Road corridor. The overall vision for the Parramatta Road Corridor is '*a high quality multi-use corridor with improved transport choices, better amenity and balanced growth of housing and jobs'* that is able to '*accommodate 27,000 new homes and 50,000 jobs in a range of industries across the [Parramatta] Corridor over the next 30 years'* [8].

---

[5] Source: '*Future Transport Strategy – Our Vision for Transport in NSW '* (TfNSW, 2022). Retrieved from: https://www.future.transport.nsw.gov.au/sites/default/files/2022-09/Future_Transport_Strategy_lowres_2.pdf

[6] Source: '*Parramatta Light Rail - Parramatta CBD to Sydney Olympic Park' (*NSW Government). Last accessed: 8-December-2022. Retrieved from: https://www.parramattalightrail.nsw.gov.au/parramatta-olympic-park

[7] Original strategy released by Landcom in November 2016). Some parts of the strategy has since been superseded by *the 'PRCUTS Implementation Update 2021'* released by the NSW Department of Planning and Environment (**DPE**) in July 2021.

[8] Source*: 'Parramatta Road Corridor Urban Transformation Strategy -Fact Sheet'* (Landcom, November 2016). Retrieved from: https://www.landcom.com.au/assets/Publications/Parramatta/eb21635a29/parramatta-road-rrban-transformation-strategy-fact-sheet-november-2016.pdf

Strategic Planning Context

The strategy is government-endorsed and given statutory weight through a Section 117 Ministerial Direction (Environmental Planning and Assessment Act 1979). DPE has been managing delivery of precinct traffic studies to support the realisation of PRCUTS, including precinct traffic studies and additional analysis of the upgrades proposed on state roads since mid-2020.

Figure 4-3 shows the boundary locations for the eight precincts located along the Parramatta Road Corridor. Each precinct has been planned to cater for a mix of housing, jobs and public spaces that matches the precincts' character and heritage.

The site is located within the Homebush-North Precinct (see map item number 3 in the PRCUTS boundaries shown below). While the strategy sets out the overall vision and planning framework for the revitalisation of the Parramatta Road corridor, the rezoning of the land within the PRCUTS area are actioned via planning proposals prepared by the relevant local councils and proponents.

A PRCUTS Planning Proposal was submitted by Council earlier this year supported by various documents and studies, including a precinct-wide traffic and transport study. This is further described in the following section.

Figure 4-3 PRCUTS Precinct Boundaries

Image source: 'PRCUTS Precinct Transport Report' (Landcom, Nov 2016)

4.2.2 Planning Proposal - PRCUTS (Stage 1)

In February 2022, Council exhibited a Planning Proposal to deliver Stage 1 (the 2016-2023 release areas) of the PRCUTS. The Planning Proposal seeks to amend the Canada Bay Local Environmental Plan 2013 (**LEP**) for three precincts within the City of Canada Bay LGA; (1) Homebush North, (2) Burwood-Concord and (3) Kings Bay. Community feedback has been received and Council is currently finalising the PRCUTS Planning Proposal to commence implementation of the plan

The PRCUTS Planning Proposal contains several design masterplans, a precinct-wide traffic and transport study (see following section) and local character assessments in support of Council's proposal. Within the Homebush North precinct this includes a proposal to change the zoning from mostly 'IN1 General Industrial' or 'R2 Low Density Residential' to 'R3 Medium Density Residential'.

While site is located within the Homebush North precinct, it does not form part of the PRCUTS Planning Proposal. Any proposed legislative amendments to the site is subject to the Canada Bay Local Strategic Planning Statement, which specifically identifies the site as "*likely to experience renewal within the short to medium term"* and that "*any proposals for land use change will also need to address site/precinct specific requirements."* [9]

The PRCUTS Planning proposal identifies Homebush North as being *a "residential precinct centred on George Street, which will be a Places for People. The precinct will comprise diverse housing typologies, mainly terrace houses, and characterised by footpaths and cycle ways*".[10]

Although the site has been specifically excluded from the PRCUTS Planning Proposal, the site masterplan is consistent with the objectives set out for the Homebush North Precinct, primarily through (1) the addition of more dwellings and housing types within the existing residential precinct along George Street and (2) provision of a new cycle and walking links through the site that provides connections between Concord West Station near King Street to George Street.

4.2.3 Parramatta Road Corridor - Traffic and Transport Strategy

Council in partnership with Burwood Council and Strathfield Council commissioned a traffic and transport study to support the planning proposal put forward by the councils to rezone land within the Homebush, Burwood-Concord and Kings Bay precinct. This was completed in December 2021.

The key scope items of the traffic and transport study included; (1) a review of the each precincts' visions and objectives within the context of the existing planning policies and framework established as part of the PRCUTS, (2) the development of an operational traffic simulation model to assess the potential impacts to the road network performance, and (3) provide recommendations for network improvements that would be required to support the planning proposal.

The traffic modelling identifies high delays on Parramatta Road due to the increase in forecast traffic demand. Within the surrounding road network, the traffic assessment also identified the following intersections as forecast to experience high levels of congestion:

- Parramatta Road / Concord Road / Leicester Avenue.
- Parramatta Road / George Street.
- Parramatta Road / Underwood Road.
- Underwood Road / Pomeroy Street.
- George Street / Pomeroy Street.

Specifically, for the intersection of George Street / Pomeroy Street which is the key access location to / from the site, the report states that there is forecast to be extensive queueing on all approaches caused by:

- Downstream congestion at Underwood Road / Pomeroy Street, with westbound morning peak queues on Pomeroy Street that extends past this intersection to George Street.
- Majority of filter right turning vehicles unable complete their movement due to high opposing traffic flows.

This is illustrated in Figure 4-4 which shows the simulated vehicle plots at the George Street / Pomeroy Street intersection.

In May 2022, various design options were investigated by Billbergia during stakeholder consultation with Council. Section 7 details the finalised design solution that is proposed for George Street / Pomeroy Street and forecast improvements to intersection performance.

---

[9] Source*: 'City of Canada Bay Local Strategic Planning Statement'* (Council, March 2020). Retrieved from: https://canadabay.t1cloud.com/T1Default/CiAnywhere/Web/CANADABAY/API/CMIS/PUB/content/?id=folder-6641087&streamId=streampdf-6641087

[10] Source: '*PLANNING PROPOSAL – Parramatta Road Corridor Urban Transformation Strategy (PRCUTS) – Stage 1'* (Council, February 2022). Retrieved from: https://www.canadabay.nsw.gov.au/sites/default/files/Strategic%20Planning/2.%20PLANNING%20PROPOSAL_PRCUTS%20(Stage%201).pdf

Strategic Planning Context

Figure 4-4 Parramatta Road Corridor - Traffic and Transport Strategy: George Street / Pomeroy Street Pinch Point - 2036 with Development Traffic

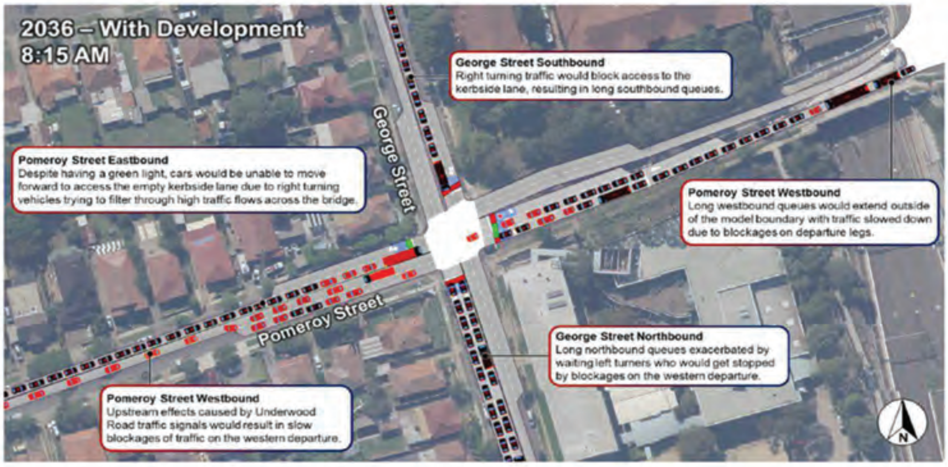


Image source: 'Parramatta Road Corridor - Traffic and Transport Strategy' (Bitzios on behalf of Council, Dec 2021)
Note. 'Development traffic' refers to the rezoning that that been proposed by Council as part of the PRCUTS.

Figure 4-5 Parramatta Road Corridor - Traffic and Transport Strategy: 2036 traffic congestion and pinch point map

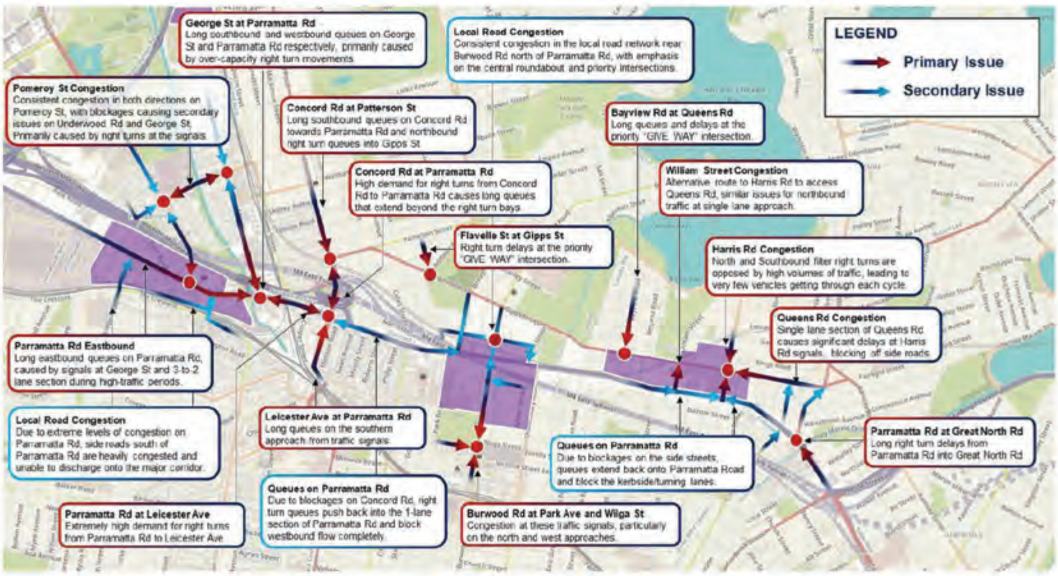


Image source: 'Parramatta Road Corridor - Traffic and Transport Strategy' (Bitzios on behalf of Council, Dec 2021)

Strategic Planning Context

4.2.4 Canada Bay Local Strategic Planning Statement

The Canada Bay Local Strategic Planning Statement is a 20-year statement that sets out Council's future direction and vision for land use in the LGA. The purpose of the document is to provide guidance and reasoning for any future changes to Council's planning controls through amendments to Council's LEP and development control plans (**DCP**).

The document is intended to align with the objectives set out for the Eastern Harbour City in the Greater Sydney Region Plan – A Metropolis of Three Cities and lists out 84 Actions required to achieve Council's Land Use Vision.

Action 6.5 relates specifically to the site, which states that: *"Prior to land use change occurring on the site known as 1-7 King Street, Concord West, the Concord West Socio Economic Study is to be updated by Council to respond to:*

- *the Eastern City District Plan.*
- *the PRCUTS.*
- *any outcomes arising from the Burwood, Strathfield, Homebush Planned Precinct.*
- *any commitment by the NSW Government in relation to a metro station in North Strathfield.*
- *any other matter of material importance.*

The Study is to provide a recommendation on the preferred land use outcome for the site having regard to the above plans, strategies and considerations."[11]

The plan is also supported by various strategies that help to inform Council's planning priorities. This includes the Canada Bay Local Movement Strategy. Figure 4-6 below presents the proposed Movement and Place extracted from the strategy, which classifies the future road network surrounding the site in Concord West as combination of 'Places for People' and 'Local Streets'.

Figure 4-6 Proposed Movement and Place for Canada Bay

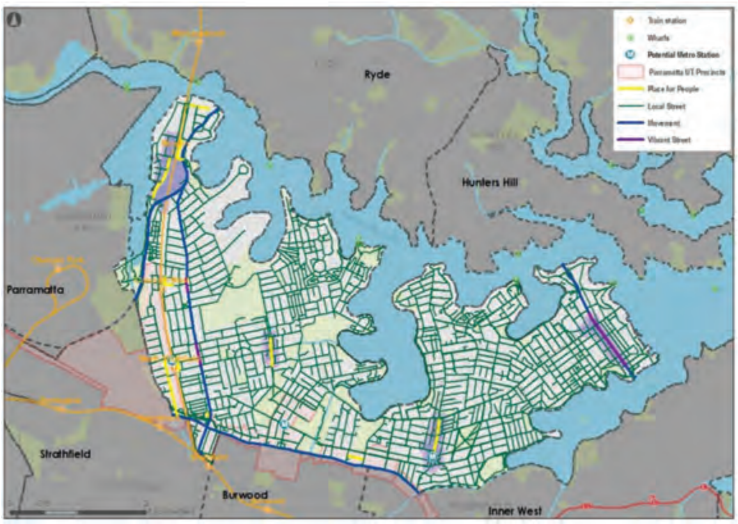


Image source: 'City of Canada Bay Local Movement Strategy' (GTA Consultants, Nov 2019)

[11] Source: '*City of Canada Bay Local Strategic Planning Statement*' (Council, March 2020). Retrieved from: https://canadabay.t1cloud.com/T1Default/CiAnywhere/Web/CANADABAY/API/CMIS/PUB/content/?id=folder-6641087&streamId=streampdf-6641087

4.2.5 Concord West Precinct Master Plan

Developed in 2014, the Concord West Precinct Master Plan provides guidance for the future development of industrial zoned sites located west of the T9 Northern Line in Concord West. The purpose of the Concord West Precinct Master Plan is to create new planning controls based on the objectives set out for the wider region and the community views. These include, but are not limited to:

- Mitigating impacts that relate to private vehicle usage.
- Promoting higher uptake of public and active transport modes.
- Identifying opportunities for public domain improvements, accessibility and connectivity.

The site is located within the Central Precinct of the Concord West Precinct Master Plan (refer to Figure 4-7 below, ‘Site 4’). It identifies the following development principles as being specific to the site:

- **Green link:** Create an east-west linear park connecting the site to Powell’s Creek Reserve.
- **King Street Extension**: Provide new connections between George Street and Concord West station.
- **Gradation of height:** Built form to intensify towards the centre and rear of the site.

From a traffic and transport perspective, the new connections that are proposed as part of the site aligns with the abovementioned development principles for the ‘Green link’ and ‘King Street Extension’.

Figure 4-7 Central Precinct (Sites 4-5) Development Principles

Image source: ‘Concord West Master Plan 2014’ (JBA and GTA Consultants, May 2014)

5 Projected Traffic

5.1 Modelling methodology

Between September 2022 and October 2022, two separate workshops were undertaken with key stakeholders (Council, TfNSW and Sydney Metro) to discuss the proposed modelling approach. A copy of the workshop presentation material and meeting minutes are provided in Appendix B.

Following stakeholder consultation, TfNSW requested Billbergia and PwC submit a Modelling Methodology Report, outlining the proposed modelling framework, model extents, scenario definitions and key inputs assumptions. For full details of the traffic projection methodology, including TfNSW feedback and comments register, please refer to Appendix C.

Table 5-1 provides an overview of the scenario definitions, which includes one base year scenario and three future year scenarios. The future year scenarios are based on modelling horizon year 2036, consistent with the *'Parramatta Road Corridor - Traffic and Transport Strategy'* (Bitzios on behalf of Council, December 2021).

The modelling framework consists of strategic transport and operational traffic modelling to assess the site impacts on the surrounding road network. Strategic modelling (STFM) is used to generate the background traffic growth (demand forecasts provided by TfNSW). Operational assessment has been undertaken using SIDRA intersection analysis, calibrated to existing traffic surveys.

Table 5-1 Scenario definitions

#	Scenario	Year	Traffic Demand			Network Coding
			Surveyed Data	Background Traffic Growth	Development Traffic Growth	
1	Base Year	2022	Yes	-	-	Existing road network
2	Future Reference Case	2036	Yes	Yes	-	Existing road network
3	Future Development Case	2036	Yes	Yes	Yes	Existing road network plus *two new intersections for site access points and conversion of existing roundabout to priority control.*
4	Future Development Case (with upgrade)	2036	Yes	Yes	Yes	As above *plus upgrade to George and Pomeroy Street (refer to Section 7).*

5.2 Site Traffic

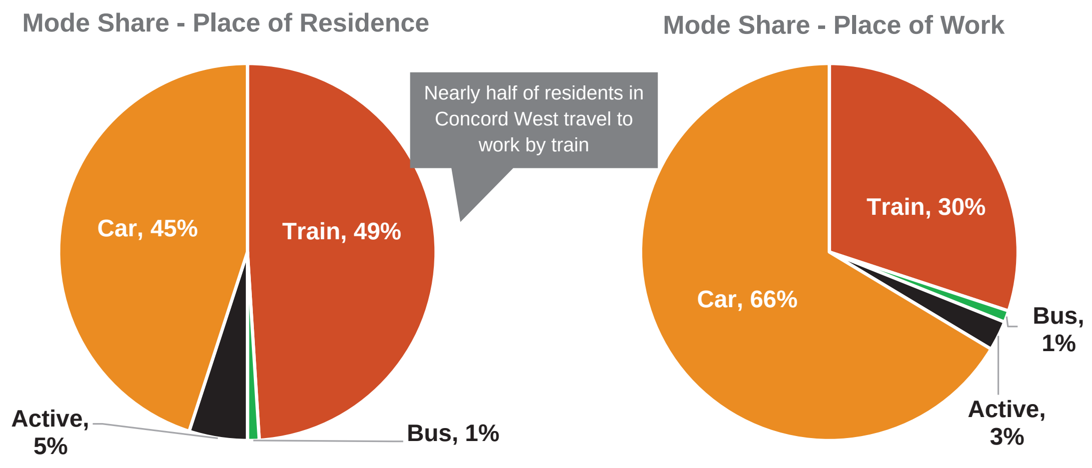
5.2.1 Mode share targets

Within the site surrounds, the area is mainly occupied by low and medium density residents. Figure 5-1 provides the existing mode shares based on Journey to Work 2016 (**JTW16**) data. It shows that the resident trips in the travel zone is highly dependent on train, accounting for 49% of total residence trips.

The site is located directly adjacent to Concord West Station. It is proposed to be high density mix used, comprising residential, retail/commercial and childcare. It has opportunities to increase the dependence on public transport and active transport. The proposed future mode share target is shown in Figure 5-7, with **30% car mode** for resident/retail/commercial and **50% car mode for childcare.**

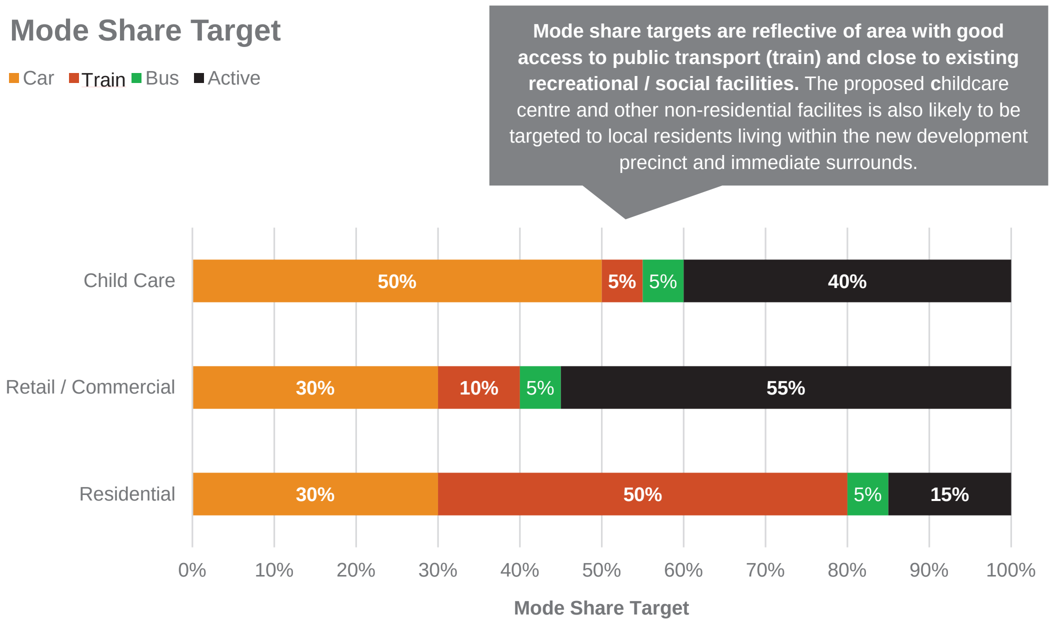
Projected Traffic

Figure 5-1 Mode share for travel to work at place of residence (left) and place of work (right) in study area



Data source: JTW16 for TZ16 717 (Concord West Station West)

Figure 5-2 Proposed site mode share target by land use



Projected Traffic

5.2.2 Trip generation

The assumptions for the trips rates have been derived from various sources based on specific trip generation studies, as advised by TfNSW:

- **Residential trip rate** is based on the average of high density residential in Sydney Metropolitan Area sourced from the *'High Density Residential Trip Generation Surveys'* (GHD 2012). The average car mode share in the reference cases is approximately 30%.
- **Retail/Commercial trip rate** is based on the average rate of the reference cases with similar Gross Leasable Floor Area (**GLFA**) (5,000m^2 to 7,000m^2) from *'[TfNSW] Trip Generation Surveys NSW Small Suburban Shopping Centres Data Report*' (Bitzios, 2018). The average car mode share in the references is approximately 90%. As the proposed site car mode share target is 30%, a revised correlation coefficient of 0.33 (30%/90%) was applied to the vehicle trip rates.
- **Childcare trip rate** is based on the average of childcare centre with similar surrounding land uses (Commercial/Retail) sourced from*'[TfNSW] Validation Trip Generation Surveys'* (TEF Consulting, 2015).

Both vehicle and person trip rate were calculated to reflect the modal share target for the site. Table 5-2 and Table 5-3 below presents a breakdown of the site trips using vehicle trip rate and person trip rate. Using the same car mode target / assumptions, both vehicle trip rate and person trip rate methods generate similar car trips volumes. To facilitate other mode analysis, such as train trip generation in Table 5-4, the person trip generation outcome was used in this study.

Table 5-2 Estimated peak hour site traffic generation by vehicle trip rate method

Land Use	Quantum	Metric	Vehicle Rate		Total Car trips		AM Car Trips		PM Car Trips	
			AM	PM	AM	PM	IN	OUT	IN	OUT
Residential	716	per Unit	0.19	0.15	136	108	27	109	86	22
Retail / Commercial	6,660	100m^2 GFA	1.84	2.60	123	173	61	61	87	87
Child Care	120	per child	0.30	0.20	36	24	18	18	12	12
Total					**290**	**306**	**105**	**185**	**295**	**305**

Note:
1. The Retail/Commercial GLA to GLFA conversion rate 0.8 already applied onto trip rate.
2. The original retail trip rate sourced are 6.97 and 9.86 per 100m^2 GLFA. The mode coefficient 0.33 and GLFA/GFA factor 0.8 was applied onto it.

Table 5-3 Estimated peak hour site traffic generation by person trip rate method (Car)

Land Use	Quantum	Metric	Person Trip Rate		Total Car trips		AM Car Trips		PM Car Trips	
			AM	PM	AM	PM	IN	OUT	IN	OUT
Residential	716	per Unit	0.66	0.55	118	99	24	95	79	20
Retail / Commercial	6,660	100m^2 GFA	7.81	11.04	130	184	65	65	92	92
Child Care	120	per child	0.70	0.50	35	25	18	18	13	13
Total					**283**	**308**	**106**	**177**	**183**	**124**

Note:
1. The Retail/Commercial GLA to GLFA conversion rate 0.8 already applied onto trip rate.
2. Car occupancy is assumed to be 1.2
3. Car mode shares as per targets outlined in Section 5.2.1 of this report.
4. Car trips calculated as (quantum x person trip rate x mode share target) / car occupancy rate. In/out distribution 80%/20% (AM) and 20%/80% (PM) for residential, and 50%/50% (AM and PM) for retail/commercial and child care.

Projected Traffic

Table 5-4 Estimated peak hour site traffic generation by person trip rate method (Rail)

Land Use	Quantum	Metric	Person Trip Rate		Total Rail trips		AM Rail Trips		PM Rail Trips	
			AM	PM	AM	PM	IN	OUT	IN	OUT
Residential	718	per Unit	0.66	0.55	237	197	47	190	158	39
Retail / Commercial	6,660	100m^2 GFA	7.81	11.04	52	74	26	26	37	37
Child Care	120	per child	0.70	0.50	4	3	2	2	2*	2*
Total					**293**	**274**	**75**	**218**	**197**	**78**

Note:
1. The Retail/Commercial GLA to GLFA conversion rate 0.8 already applied onto trip rate.
s. Rail mode shares as per targets outlined for the site in Section 5.2.1 of this report.
4. Rail trips calculated as (quantum x person trip rate x mode share target) / car occupancy rate. In/out distribution 80%/20% (AM) and 20%/80% (PM) for residential, and 50%/50% (AM and PM) for retail/commercial and child care.

**Numbers rounded up*

5.2.3 Trip distribution

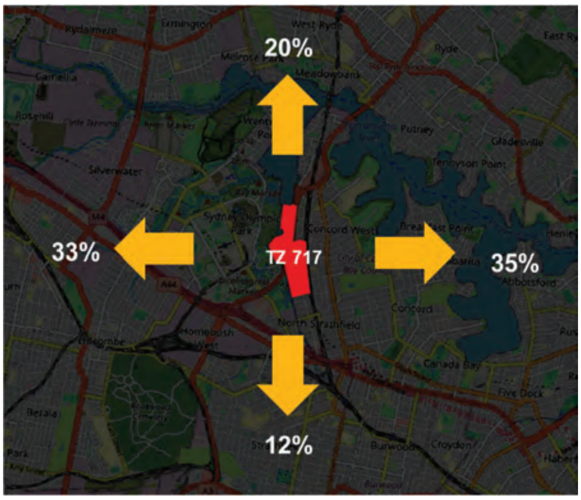
Figure 5-3 illustrates the trip distribution of existing commuting trips within the site surrounds, which shows the **majority of the trips occurring in the east-west direction**, to/from Sydney's West, inner west and Sydney CBD. Travel along this direction occurs along the M4 Motorway, Pomeroy Street, Parramatta Road and T9 Northern Line.

In terms of the future trip distribution, the modelled demand outputs provide an indication of how car trips are forecast to travel to/from George Street via Pomeroy Street (see Figure 5-4).

- Nearly half (52% / 48%) of inbound trips to Concord West in the morning and evening peak are forecast to be generated from Pomeroy Street west.
- The forecast outbound trips would be more evenly distributed on all three directions, particularly in the morning peak.

These trip distributions have been applied to the future traffic growth in the study area.

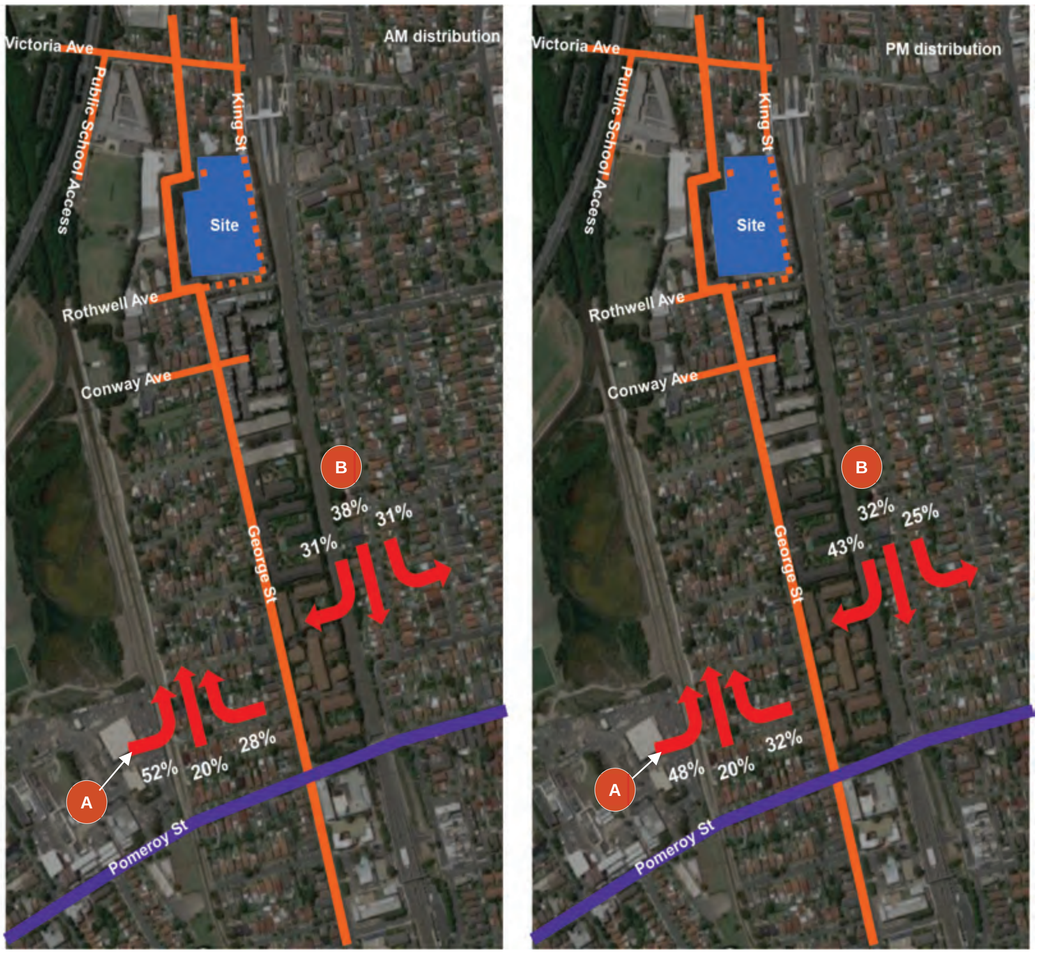
Figure 5-3 Existing directional distribution of traffic



Data source: JTW16 for TZ16 717 (Concord West Station West)

Projected Traffic

Figure 5-4 Peak directional distribution Pomeroy Street/George Street to/from the site surrounds - 2036 AM (left) and PM (right)



Data source: STFM for TZ16 717 (Concord West Station West) in 2036, select link analysis. Data supplied by TfNSW

A — **~50% of inbound trips to Concord West from Pomeroy Street west**

B — **Outbound trips from Concord West more evenly distributed across all directions**

Projected Traffic

5.2.4 Trip assignment

Figure 5-5 below shows the path for vehicle trips that currently travel through King Street / Victoria Avenue. With the development, these trips are assumed to divert from George Street to the new north-south road connection through the site.

While the new road connection is not intended as a 'rat-run' for through traffic in the area, for the purposes of this traffic assessment it is assumed that resident / workers / visitors north of the site on King Street would utilise this route.

Figure 5-5 Trip re-assignment with new connection between King Street and George Street

Note, path alignment through site indicative only

Projected Traffic

5.3 Background Traffic

Table 5-5 provides a summary of the forecast background demand growth, as supplied by TfNSW. As STFM is a strategic model, the demand forecasts only provide details for Pomeroy Street and George Street only. Traffic growth for other minor roads not listed in STFM are assumed to be the same proportions as the existing traffic flows. Figure 5-6 illustrates the flow diagram for the estimated background traffic growth.

- **Pomeroy Street (west of George Street)** background traffic is forecast increase by 26% and 29% during morning and evening periods, respectively
- **George Street (north of Pomeroy Street**) background traffic is forecast to increase by 42% and 48% during morning and evening periods, respectively

Table 5-5 Background traffic growth from base year (2022) to 2036 – 1-hour peak STFM

Road Name	Direction	AM 1-hour peak			PM 1-hour peak		
		Base Year	Growth (veh)	Growth (%)	Base Year	Growth (veh)	Growth (%)
Pomeroy Street (west of George Street)	**Eastbound**	641	+207	+32%	672	+188	+28%
	Westbound	542	+105	+19%	681	+211	+31%
	Sub-Total	**1,183**	**+312**	**+26%**	**1353**	**+399**	**+29%**
George Street (north of Pomeroy Street)	**Northbound**	293	+94	+32%	329	+178	+54%
	Southbound	335	+167	+50%	303	+125	+41%
	Sub-Total	**628**	**+261**	**+42%**	**632**	**+303**	**+48%**
Total		**1,811**	**+573**	**+32%**	**1985**	**+702**	**+35%**

Figure 5-6 Estimated background traffic increase – 2036 AM (left), 2036 PM (right) 1-hour peak link flows

Concord West, 1 King Street Transport Study Report
PwC

38

Projected Traffic

5.4 Total Traffic

Figure 5-7 illustrates the total estimated increase in traffic with the development in 2036 based on the assumptions discussed above, including:

- Background growth and site-generated traffic
- Trip reassignment (see green arrows)
- Directional distributions.

It assumes that 70% of the site-generated traffic would enter/exit the development via the new southern access, and 30% via the new western access.

Figure 5-7 Estimated total future traffic increase - 2036 AM (left), 2036 PM (right) 1-hour peak link flows

6 Transportation Analysis

6.1 Site Access

Figure 6-1 below illustrates the site access to the underground car park, new intersections and walking route between the station and site. It includes a main pedestrian- and cyclist-friendly vehicular north-south corridor through the site, as well as an open space, green connector route for cyclists and pedestrians only. It is expected that the main access will occur at the southern entrance of the site.

Figure 6-1 Site access to underground car park, new intersections and walking route between station and site

6.2 Movement and Place

To assist in the understanding of where movement and place interacts, the internal street structure has been mapped according to TfNSW's Movement and Place classification. Figure 6-2 shows the four street environments for analysing movement and place in NSW. The street environment descriptions (as extracted from the *'Practitioners Guide to Movement and Place'* (NSW Government, March 2020)) are outlined as follows:

Figure 6-2 : Four street environments for analysing movement and place in NSW

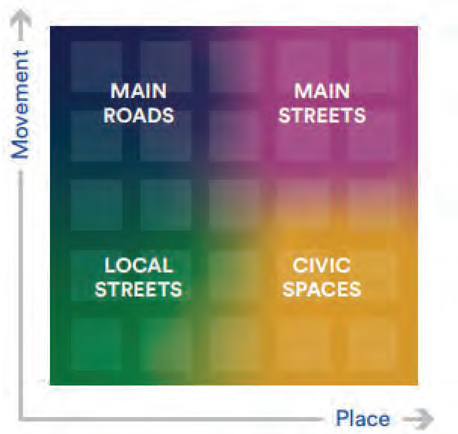


Image source: Practitioners Guide to Movement and Place (NSW Government, March 2020)

- **Civic spaces** are streets at the heart of our communities and have a significant meaning, activity function, or built environment. They are often in our major centres, our tourist and leisure destinations, and our community hubs. These streets are often pedestrian priority, shared spaces.
- **Local streets** are the majority of streets within our transport networks and often have important local place qualities. Activity levels are less intense, however, these streets can have significant meaning for local people.
- **Main streets** have both significant movement functions and place qualities. Balancing the functions of these streets is a common challenge.
- **Main roads** are routes central to the efficient movement of people and freight. They include motorways, primary freight corridors, major public transport routes, the principal bicycle network, and key urban pedestrian corridors. Place activity levels are less intense, however, these roads and routes can have significant meaning to local people.

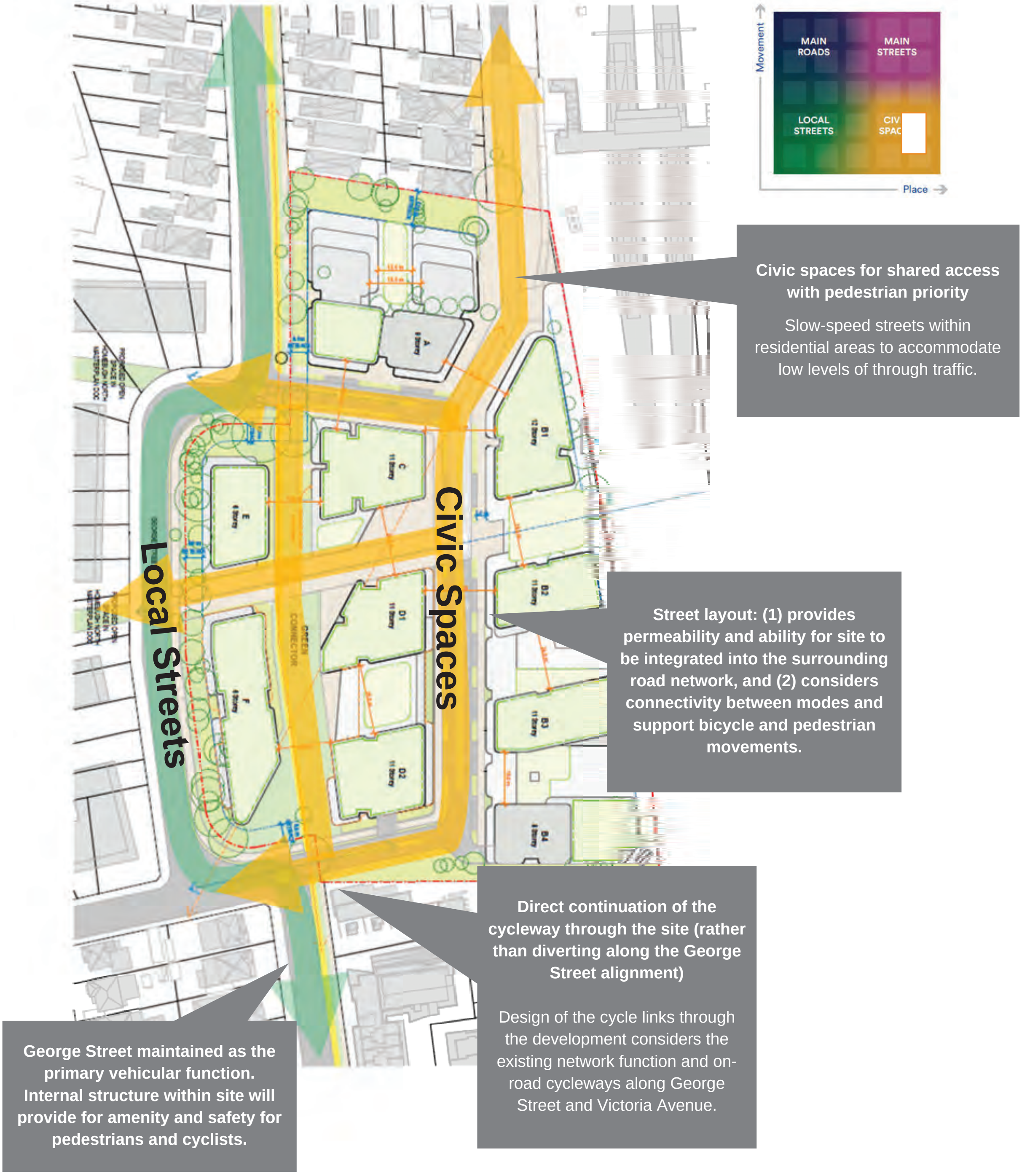
Figure 6-3 shows the classification of the internal street structure. Its classification ('Civic Spaces') considers the built form, activity function and intended place-making aspects of the site masterplan, as well as the guiding principles set out in 'Beyond the Pavement 2020' (TfNSW, August 2020) and 'Movement and Place - Network Planning in Precincts Guide' (NSW Government, May 2022).

Note that George Street is retained as 'Local streets', as per the proposed movement and place for Canada Bay in Council's 'Canada Bay Local Strategic Planning Statement'.

As part of the movement and place classification, SINSW requires the use of the Built Environment Performance Indicators 'Amenity and Use' and 'Primary Schools' to evaluate any impacts on walkability and public transport accessibility of public schools in an area. Figure 6-4 shows the current walkable and public transport access to primary schools in the area, with markups indicating the new connections through site.

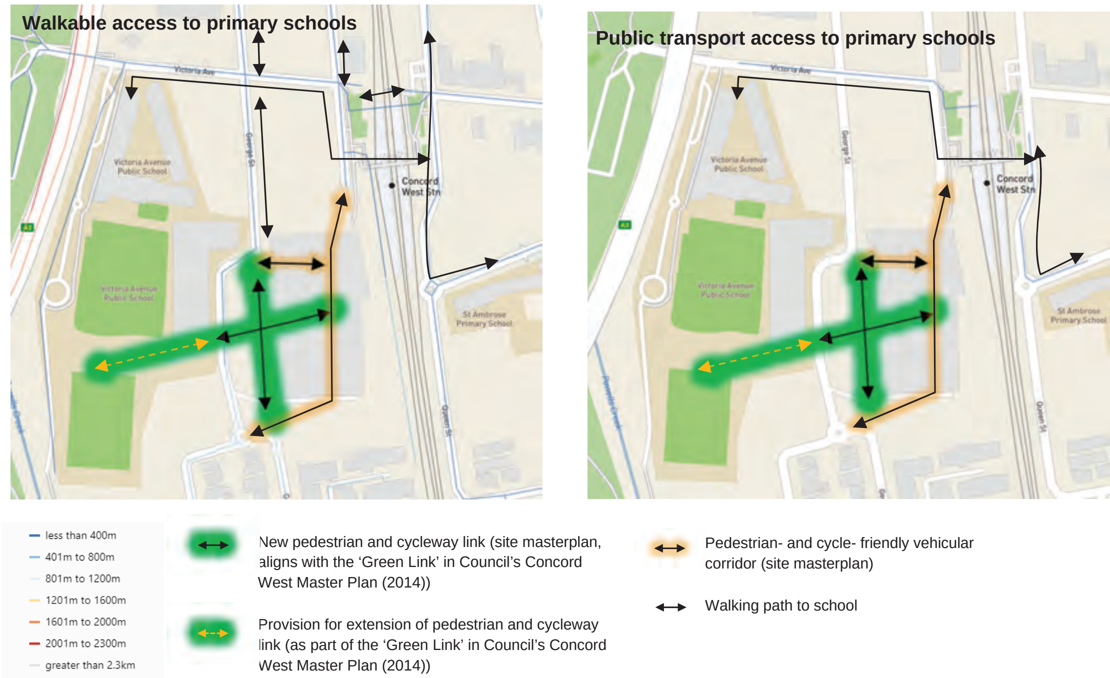
Transportation Analysis

Figure 6-3 Site masterplan – movement and place hierarchy



Transportation Analysis

Figure 6-4 Current walkable (left) and public transport access (right) to primary schools in the area – overlaid with new connections through site



Site is currently less than 400m walkable access to Victoria Avenue Public school and St Ambrose Primary School. Primary schools are also within 400m of Concord West Station.

Existing school access by walking and train via George Street, King Street and Victoria Avenue. East of the rail line, access via Queen Street and station overpass or Station Avenue.

Site does not impede on the existing walkable and public transport access to the primary schools. Majority of traffic generated travel south of the site. New pedestrian and cycleway link through site forms part of the proposed 'Green Link', with provision in Council's Concord West Masterplan (2014) for extension through to Powells Creek Reserve.

Base image extracted from map 'Primary schools - Measure the walkable access to primary schools and nearby public transport' (NSW Government). Last accessed 2-December-2022. Retrieved from: https://www.movementandplace.nsw.gov.au/place-and-network/built-environment-indicators/primary-schools

Transportation Analysis

6.3 Road Capacity and Level of Service

This section provides the traffic analysis for the base year (existing), Future Reference Case and Future Development Case scenarios. It also details other input assumptions adopted as part of the SIDRA Intersection Version 9 (SIDRA) base year calibration and validation process. The traffic analysis, performance assessment and reported outcomes are based on intersection delay time and LoS. For full details of the intersection performance summary, please refer to the SIDRA modelling outputs shown in Appendix D.

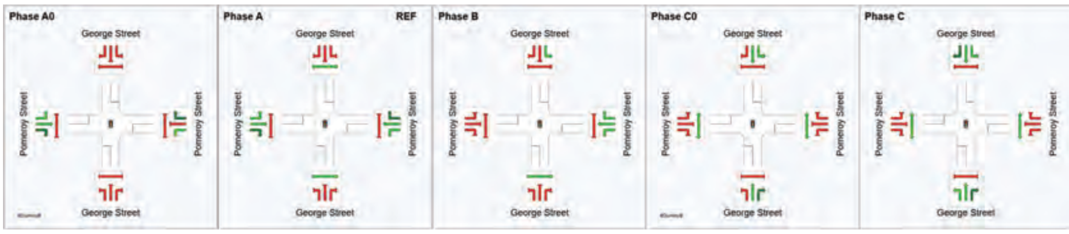
6.3.1 Existing conditions

Six intersections were modelled in the base year (2022) using SIDRA with demand inputs from the traffic survey and SCATS signal data. During the site observation, all intersections except George Street / Pomeroy Street performed well with low traffic volumes.

On George Street / Pomeroy Street, a noticeable westbound downstream blockage was observed in the morning peak hour caused by queue spillage from Underwood Road / Pomeroy Street. To account for this, the westbound effective green times were reduced by eight seconds and five seconds in Phases A and C, respectively, for the morning peak hour in the SIDRA model. Figure 6-5 shown the signal phase plan on George Street / Pomeroy Street, where:

- Phases A, B and C were modelled as typical phases for the intersection.
- Phase A0 and C0 (without movement to the departure lanes at the western approach) were modelled as 'dummy phases' with fixed eight seconds and five second phase times to account for the reduction in the effective green time. This setting has been carried through to the future models.

Figure 6-5 George Street / Pomeroy Street morning peak phase plan



The SIDRA base model was calibrated and validated at the key intersection of George Street / Pomeroy Street:

- The SIDRA signal time was set as program-optimised and used to calibrate against the recorded SCATS history time. Table 6-1 compares the observed SCATS history and modelled signal times, which shows differences of less than 10 seconds for each phase.

Table 6-1 Signal phase time calibration at George Street / Pomeroy Street

George Street / Pomeroy Street		Phase Time (sec)		
		Phase A	Phase B	Phase C
Morning Peak Hour (8-9am)	SCATS history	68	17	55
	Modelled	72	13	55
	Difference	4	-4	0
Afternoon Peak Hour (5-6pm)	SCATS history	48	19	43
	Modelled	54	12	44
	Difference	6	-7	1

- The maximum queue length observed on site was used to validate the modelled '95% Back of Queue' at each approach. Figure 6-6 maps the extents of the queue lengths based on the surveyed data, with images at two observations points collected during site observations during the morning peak hour.
  - A comparison of the modelled vs. surveyed queue lengths is provided in Table 6-2, which shows less than five vehicles difference, except at the western approach in the morning peak hour. At this approach, the surveyed queue lengths are 22 vehicles less than the modelled data.
  - It is noted that during site observations, queues from the western approach along Pomeroy Street extended as far back at Underwood Road. Given this, the potential overestimation of the modelled 95% Back of Queue was considered acceptable for the purposes of this transport study.

Table 6-2 Maximum queue length validation at George Street / Pomeroy Street

George Street / Pomeroy Street		Approach - Queue length (veh)			
		South	East	North	West
Morning Peak Hour (8-9am)	Surveyed	19	21	10	32
	Modelled	15	17	10	54
	Difference	**-4**	**-4**	**0**	**22**
Afternoon Peak Hour (5-6pm)	Surveyed	15	14	8	37
	Modelled	14	17	11	38
	Difference	**-1**	**3**	**3**	**1**

Figure 6-6 George Street / Pomeroy site observation map (surveyed queue lengths)

Overall, modelled results are consistent with the surveyed data at George Street / Pomeroy Street. Other modelled intersections, local road roundabout or priority intersections**,** were reviewed during the site visit with minimal delay observed.

The performance is measured by intersection LoS based on the '*RTA Guide to Traffic Generating Developments*' (RTA, 2002*)* criteria. Table 6-3 shows the intersection LoS bands, which are based on average delay per vehicle. Intersections that are LoS A to D are generally considered to be operating satisfactorily to near capacity. LoS E and F corresponds to intersections that are operating at or over capacity.

Table 6-3 Intersection LoS criteria

LoS	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabouts	Give Way and Stop Signs
A	<14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity, at signals, incidents will cause excessive delays	At capacity, requires other control mode
F	>70	Roundabouts require other control modes	Over capacity unstable operation.

Source: RTA Guide to Traffic Generating Developments (RTA, 2002)

Note: (1) The average daily assessed for signalised intersection is overall movements, (2) For roundabouts and priority control intersections (with Stop and Give Way signs or operating under the T-junction rule), the critical criterion for assessment is the movement with the highest delay per vehicle. Average daily is expressed in seconds per vehicle.

Table 6-4 and Table 6-5 presents the base year intersection performance in the morning and evening peak hours. Apart from George Street / Pomeroy Street, all other intersections perform at LoS A owing to low traffic volumes. George Street / Pomeroy Street operates at LoS E and D in the morning and afternoon peak hours, respectively. These were consistent with observations made during the site visit.

Table 6-4 Base year intersection performance – morning peak hour (8-9am)

#	Intersection Name	Intersection Type	Volume	Average Delay (sec)	LoS
1	George Street / Pomeroy Street	Signal	2,136	62	E
2	George Street / Conway Avenue	Roundabout	429	7	A
3	George Street / Rothwell Avenue	Roundabout	323	7	A
4	King Street / Victoria Avenue	Priority	58	5	A
5	George Street / Victoria Avenue	Priority	292	7	A
6	Victoria Avenue / Access Road	Priority	253	7	A

Table 6-5 Base year intersection performance – afternoon peak hour (5-6pm)

#	Intersection Name	Intersection Type	Volume	Average Delay (sec)	LoS
1	George Street / Pomeroy Street	Signal	2,171	47	D
2	George Street / Conway Avenue	Roundabout	372	7	A
3	George Street / Rothwell Avenue	Roundabout	258	7	A
4	King Street / Victoria Avenue	Priority	69	5	A
5	George Street / Victoria Avenue	Priority	221	8	A
6	Victoria Avenue / Access Road	Priority	131	7	A

6.3.2 Background conditions (existing plus background growth)

Table 6-6 and Table 6-7 presents the Future Reference Case intersection performance in the morning and afternoon peak hours. George Street / Pomeroy Street would further deteriorate to LoS F in both peaks while other intersections remain at LoS A.

Table 6-6 2036 Future Reference Case intersection performance – morning peak hour (8-9am)

#	Intersection Name	Intersection Type	Volume	Average Delay (sec)	LoS
1	George Street / Pomeroy Street	Signal	2,671	190	F
2	George Street / Conway Avenue	Roundabout	658	8	A
3	George Street / Rothwell Avenue	Roundabout	504	7	A
4	King Street / Victoria Avenue	Priority	91	5	A
5	George Street / Victoria Avenue	Priority	472	8	A
6	Victoria Avenue / Access Road	Priority	399	7	A

Table 6-7 2036 Future Reference Case intersection performance – afternoon peak hour (5-6pm)

#	Intersection Name	Intersection Type	Volume	Average Delay (sec)	LoS
1	George Street / Pomeroy Street	Signal	2,825	224	F
2	George Street / Conway Avenue	Roundabout	645	8	A
3	George Street / Rothwell Avenue	Roundabout	455	7	A
4	King Street / Victoria Avenue	Priority	128	5	A
5	George Street / Victoria Avenue	Priority	416	9	A
6	Victoria Avenue / Access Road	Priority	233	7	A

6.3.3 Total traffic (existing plus background and site-generated growth)

Table 6-8 and Table 6-9 presents the Future Development Case intersection performance in the morning and afternoon peak hours. It includes the new southern and western accesses at the site (location IDs #7 and 8). Similar to the Future Reference Case, George Street / Pomeroy Street would further deteriorate to LoS F in both peaks while other intersections would perform at LoS A.

Table 6-8 2036 Future Development Case intersection performance – morning peak hour (8-9am)

#	Intersection Name	Intersection Type	Volume	Average Delay (sec)	LoS
1	George Street / Pomeroy Street	Signal	2,954	354	F
2	George Street / Conway Avenue	Roundabout	941	9	A
3	George Street / Rothwell Avenue	Priority (modified)	533	6	A
4	King Street Victoria Avenue	Priority	65	4	A
5	George Street / Victoria Avenue	Priority	416	8	A
6	Victoria Avenue / Access Road	Priority	399	7	A
7	George Street / Site North Access	Roundabout (new)	802	9	A
8	George Street / Site West Access	Roundabout (new)	501	7	A

Table 6-9 2036 Future Development Case intersection performance – afternoon peak hour (5-6pm)

#	Intersection Name	Intersection Type	Volume	Average Delay (sec)	LoS
1	George Street / Pomeroy Street	Signal	3,133	421	F
2	George Street / Conway Avenue	Roundabout	947	9	A
3	George Street / Rothwell Avenue	Priority (modified)	460	5	A
4	King Street Victoria Avenue	Priority	79	4	A
5	George Street / Victoria Avenue	Priority	330	8	A
6	Victoria Avenue / Access Road	Priority	233	7	A
7	George Street / Site North Access	Roundabout (new)	769	9	A
8	George Street / Site West Access	Roundabout (new)	440	7	A

6.4 Infrastructure Staging

Using the indicative construction delivery schedule provided in Section 6.4, intersection performances have been modelled in 2027, 2028 and 2030 for the Future Development Cases for the following horizon years:

- Stage 1: 2027 – 200 dwellings total
- Stage 2: 2028 – 400 dwellings total
- Stage 3: 2030 – 798 dwellings total

The staging horizon years for the Future Reference Cases have also been modelled for comparison. Based on the morning and afternoon peak hour intersection performances reported in Table 6-10 to Table 6-13:

- By 2027, George Street / Pomeroy Street would continue to operate at unacceptable levels in the Future Reference Case, with LoS F and E in the morning and evening peak hours, respectively. With the Stage 1 development, the delays of the intersection in development case would increase by ~30 seconds, resulting in LoS F in both peaks.
- By 2028 and 2030, with background growth, traffic performance at George Street / Pomeroy Street would continue to deteriorate, even without the site-generated traffic.
- All other intersections would perform satisfactorily, operating at LoS A due to low traffic volumes.

Table 6-10 2027 to 2030 Future Reference Case intersection performance – morning peak hour (8-9am)

#	Intersection Name	2027			2028			2030		
		Volume	Average Delay (sec)	LoS	Volume	Average Delay (sec)	LoS	Volume	Average Delay (sec)	LoS
1	George Street / Pomeroy Street	2,350	78	F	2,386	147	F	2,457	115	F
2	George Street / Conway Avenue	520	8	A	535	8	A	566	8	A
3	George Street / Rothwell Avenue	395	7	A	408	7	A	432	7	A
4	King Street / Victoria Avenue	71	5	A	73	5	A	78	5	A
5	George Street / Victoria Avenue	364	7	A	376	7	A	400	7	A
6	Victoria Avenue / Access Road	312	7	A	321	7	A	341	7	A

Table 6-11 2027 to 2030 Future Reference Case intersection performance – afternoon peak hour (5-6pm)

#	Intersection Name	2027			2028			2030		
		Volume	Average Delay (sec)	LoS	Volume	Average Delay (sec)	LoS	Volume	Average Delay (sec)	LoS
1	George Street / Pomeroy Street	2,433	70	E	2,476	82	F	2,564	102	F
2	George Street / Conway Avenue	481	7	A	500	7	A	536	8	A
3	George Street / Rothwell Avenue	337	7	A	350	7	A	376	7	A
4	King Street / Victoria Avenue	93	5	A	96	5	A	104	5	A
5	George Street / Victoria Avenue	299	8	A	312	8	A	338	8	A
6	Victoria Avenue / Access Road	172	7	A	179	7	A	192	7	A

Table 6-12 2027 to 2030 Future Development Case intersection performance – morning peak hour (8-9am)

#	Intersection Name	2027			2028			2030		
		Volume	Average Delay (sec)	LoS	Volume	Average Delay (sec)	LoS	Volume	Average Delay (sec)	LoS
1	George Street / Pomeroy Street	2,432	119	F	2,547	291	F	2,740	200	F
2	George Street / Conway Avenue	602	8	A	697	8	A	849	9	A
3	George Street / Rothwell Avenue	398	5	A	430	5	A	483	5	A
4	King Street / Victoria Avenue	61	4	A	61	4	A	62	4	A
5	George Street / Victoria Avenue	342	7	A	350	7	A	366	7	A
6	Victoria Avenue / Access Road	312	7	A	321	7	A	341	7	A
7	George Street / Site North Access	492	8	A	583	8	A	729	8	A
8	George Street / Site West Access	366	7	A	398	7	A	451	7	A

Transportation Analysis

Table 6-13 2027 to 2030 Future Development Case intersection performance – morning peak hour (8-9am)

#	Intersection Name	2027			2028			2030		
		Volume	Average Delay (sec)	LoS	Volume	Average Delay (sec)	LoS	Volume	Average Delay (sec)	LoS
1	George Street / Pomeroy Street	2,522	96	F	2,652	136	F	2,871	281	F
2	George Street / Conway Avenue	568	8	A	672	8	A	840	9	A
3	George Street / Rothwell Avenue	328	5	A	362	5	A	416	5	A
4	King Street / Victoria Avenue	73	4	A	74	4	A	75	4	A
5	George Street / Victoria Avenue	264	8	A	272	8	A	286	8	A
6	Victoria Avenue / Access Road	172	7	A	179	7	A	192	7	A
7	George Street / Site North Access	436	8	A	534	8	A	692	9	A
8	George Street / Site West Access	309	7	A	342	7	A	396	7	A

6.5 Parking

Council's Development Control Plan (**DCP**) sets out the design controls for various types of development, including the desired parking rates. Table 6-14 estimates the desired car parking for the site based on Council's DCP, noting that:

- The site is located within 'Category C' in Council's Residential Car Parking Rates Map, as shown overpage in Figure 6-7.
- Parking rates have been derived for areas where the General Controls apply. This site does not fall within the precinct boundaries for Council's 'Special Precinct' in Concord West.

Figure 6-7 Council Residential Car Parking Rates Map

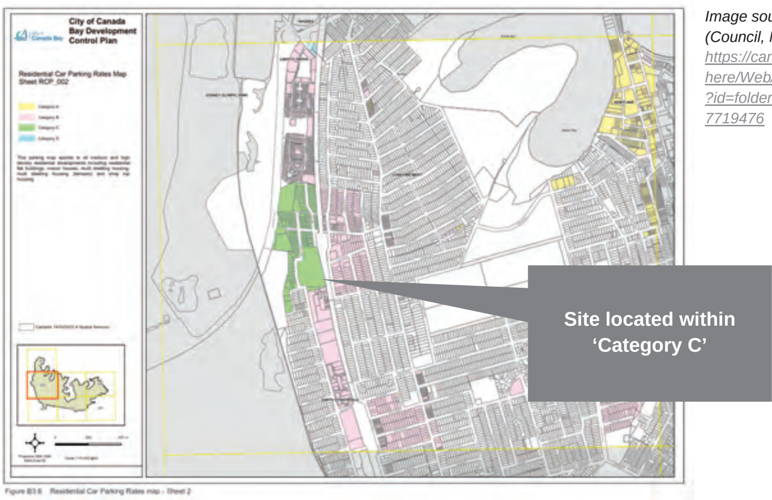


Image source: 'Part B – General Controls' (Council, November 2022). Retrieved from: https://canadabay.t1cloud.com/T1Default/CiAnywhere/Web/CANADABAY/API/CMIS/PUB/content/?id=folder-7719476&streamId=streampdf-7719476

Table 6-14 Required site car parking based on Council's DCP

Land Use	Rate		Metric	Quantum	Car Parking Spaces	DCP Source**
Resident Parking	1-bedroom	0.5	Per dwelling	171	86	Part G General Controls, Residential Parking Category C. Townhouse assumed same rates as 3-bedroom unit.
	2-bedroom	0.9	Per dwelling	275	248	
	3-bedroom	1.2	Per dwelling	252	302	
	Townhouse	1.2	Per dwelling	18	22	
Visitor Parking	Any no. of dwellings	1	Per five dwellings	716	143	
Retail	1		Per 40 m² GLFA	5,148	103*	Part G General Controls, Table B-E Parking Requirements: Development in mixed use areas and Neighbourhood Centres
Gym	7.5		Per 100 m² GFA	616	46	
Childcare	1		per four children	120	30	
Total					**979**	-

* *Assumed retail GFA to GLFA conversion rate of 0.8 applied onto trip rate.*

***'Part B – General Controls' (Council, November 2022). Retrieved from:*
https://canadabay.t1cloud.com/T1Default/CiAnywhere/Web/CANADABAY/API/CMIS/PUB/content/?id=folder-7719476&streamId=streampdf-7719476

The site masterplan proposes approximately 1,025 total car parking spaces. This is 46 parking spaces or 5% more than Council's DCP. It is noted that Council's DCP sets out to limit car parking in locations with good access to public transport. Recent traffic surveys and studies undertaken by PwC on behalf of Billbergia for similar high-density residential sites near Rhodes Station suggests that there is little correlation between the provision of car parking and vehicle trips generated.

Table 6-15 shows the vehicle trip generation rates per carpark spaces for the recent traffic surveys. Compared with the TfNSW Guide to Traffic Generating Developments, this is 0.32 (AM) and 0.42 (PM) lower than the average trip rates (per carpark space) for other high-density residential sites. Given this, it is recommended that considerations be provided for potential increase in the parking rates as outlined in the site masterplan.

Table 6-15 Site Vehicle Trip Generation (per carpark space) – Benchmarking (High density residential - weekdays)

Benchmarks	Site	Vehicle Generation Rates (per carpark space)	
		Peak AM Hour	Peak PM Hour
'*Technical Direction - Guide to Traffic Generating Developments Updated traffic surveys'* – Appendix B3 – High Density Residential – Generation Rates (TfNSW, 2013)	St Leonards	0.39	0.54
	Chatswood	0.51	0.82
	Cronulla	0.22	0.14
	Rockdale	0.47	0.53
	Parramatta	0.50	0.65
	Liberty Grove	0.62	0.91
	Strathfield	0.43	0.42
	Pyrmont	0.30	0.46
	Average	**0.43**	**0.56**
November 2022 Rhodes Traffic Surveys	Rhodes West	0.12	0.14

Table 6-16 shows the bicycle parking and storable facility for residents, visitors and retail usage, as set out by the DCP.

Table 6-16 Bicycle parking rate required by DCP

Land Use	Rates		Site Requirements (minimum)	
	Resident/Staff Bicycle Storage Facility	Visitor Bicycle Parking Facility	Resident/Staff Bicycle Storage Facility	Visitor Bicycle Parking Facility
Residential	2 per dwelling	2 per 10 dwellings	1,432	143
Retail	2 per 250 m^2 GFA	2 per unit + 2 per 100 m^2 GFA	46	115

Notes:
- Number of retail units not currently know. This has been excluded from the estimates.
- Retail includes GFA for the gym.

6.6 Railway Transport Capacity Analysis

A high-level capacity analysis for the T9 Northern Line has been undertaken to provide an understanding of the future performance of the rail network. This section outlines and assumptions used and outcomes of the analysis, noting that the information presented are based on data sourced from TfNSW's Open Data Hub to estimate the potential mode shift from rail to Sydney Metro. This analysis has been undertaken for the purposes of this transport study only.

The calculation process is briefly described as follows:

1. **Estimate theoretical spare capacity for train services** at Concord West Station based on existing train occupancy levels. It is assumed that this is carried forward to the future and that the background rail demand growth along the T9 Northern Line is offset by capacity increases to the rail network as part of the initiatives set out in the NSW Government's Future Transport Strategy (2022).
2. **Calculate future rail patronage** based on:
   a. Background rail patronage growth (%) based on population increase in catchment within walking distance of Concord West Station.
   b. Estimated mode shift from T9 Northern Line to Metro based on existing trip distribution (for travel to / from Sydney CBD) and population increase (%) in overlapping catchments within walking distance of the Concord West Station and new North Strathfield Metro Station.
   c. Number of additional rail users generated by the site, as estimated using the directional splits and mode share targets for the development.
3. **Assess rail network performance** on the basis of rail patronage (demand) to capacity ratio

6.6.1 Rail capacity

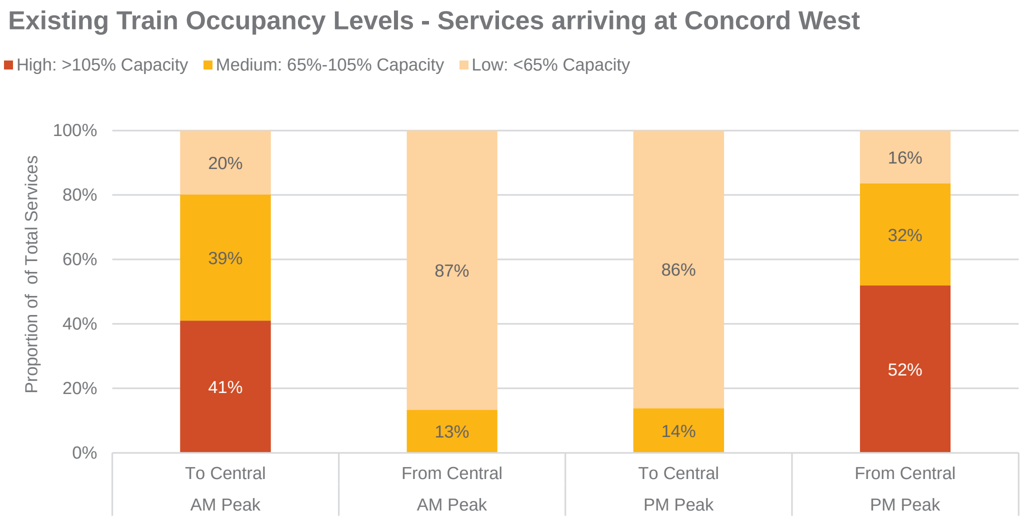
Figure 6-8 provides a summary of the 2019 train occupancy travelling through Concord West Station during the peak hours.

- During peak hours, T9 Northern Line comprises of two types of trains: 25% Type A train with 894 seats and 75% Type T with 840 seats, which is on average, is 850 seats. Four trains per hour each direction operates through Concord West station, providing **railway seated capacity of 3,400 passenger/hour/direction**. Note that this does not include additional capacity associated with standing room. As such, the analysis presented in this section is representative of seated capacity levels only for the rail services, not crush capacity (i.e. maximum level of passenger load).

- In the morning peak, **41% trains to Central were fully occupied** while the opposite direction trains were below medium occupancy. In the evening peak **52% train from Central were fully occupied** while the opposite direction trains were below medium occupancy.

Transportation Analysis

Figure 6-8 Existing Train Occupancy on Concord West Station (2019)



Data source: TfNSW Open Data Hub

Table 6-17 details the theoretical spare capacity (passengers/hour/direction) for train services travelling to Concord West Station during in peak directions. Based on the assumptions used, it estimates a total theoretical capacity of **658 passengers/hour/direction** and **530 passengers/hour/direction** in the morning and afternoon peak hours, respectively.

Table 6-17 Existing theoretical spare capacity for trains at Concord West Station

Peak Direction and Hour	Train Services at Concord West Station			Passengers/ hour/direction		% of Total Rail Capacity
	Occupancy Level	% of Total Services	Assumed Spare Capacity Level	Theoretical Seated Spare Capacity***	Total	
To Central (AM Peak Hour)	Trains at medium capacity	39%	15%*	199	**658**	**19%**
	Trains at low capacity	20%	67.5%**	459		
From Central (PM Peak Hour)	Trains at medium capacity	32%	15%*	163	**530**	**16%**
	Trains at low capacity	16%	67.5%**	367		

** 100% minus average of trains with medium occupancy level ((65% + 105%) / 2)*
***100% minus average of trains with low occupancy levels ((0% + 65%) / 2)*
**** (Rail Capacity of 3,400 passengers/hour/direction) x (% of Total Services) x (Assumed Spare Capacity Level)*
Note that these assumptions have been made as high-level analysis for the purposes of this study only.

6.6.2 Rail patronage

Figure 6-9 shows the travel zones located within 10-minute walking distance from Concord West Station. It includes TZ16 714, 716, 717, 718 and 739. Based on TZP19 population forecast, **by 2036 the population would increase 40%.** For the purposes of this analysis, the train patronage is assumed to grow at a similar rate.

With the opening of SMW, it is assumed that **30% of rail users in** TZ16 717, 718 and 739 would shift from the T9 Northern Line to Metro. These zones are located within 10 minutes' walk distance from North Strathfield Metro Station and Concord West Station, and corresponds to the distribution of trips that currently travelling towards Sydney CBD (refer to Section 5.2.3 – please note that a more conservative estimate of 30% was adopted, rather than 35%).

Table 6-18 shows the adjusted rail patronage growth with opening of SMW (using population as a proxy) at Concord West Station, which is **assumed to grow by 15% from 2019 to 2036 .**

Figure 6-9 Concord West and North Strathfield Station 10 minutes' walking distance (800m) catchment

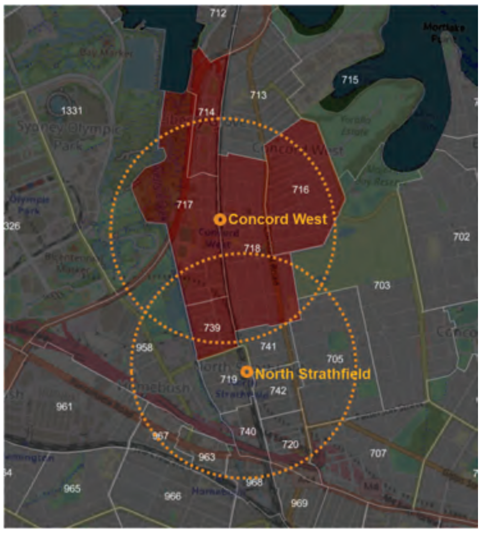


Table 6-18 Concord West Station population coverage

Travel Zone (TZ16)	2019 population	2036 population catchment (with no shift to SMW)	Adjusted 2036 population catchment (with shift to SMW)***
714	2,518	3,042	3,042
716	1,975	2,435	2,435
717	1,636	3,298	2,309*
718	2,428	3,506	2,454*
739	1,420	1,712	1,198*
Total	9,977	13,993	11,438
Growth from 2019		**40%**	**15%**

**Assumed 30% would shift from rail (T9 Northern Line) to Metro*

6.6.3 Rail performance

Table 6-19 shows the future rail demand to capacity ratio for the peak directions based on the rail mode share targets presented in Section 5.2.1 and the assumed train patronage and theoretical spare capacity estimated above. With the site-generated rail demand, rail services at Concord West Station are estimated to operate at seated capacity in the peak morning and afternoon directions.

Note that this assessment does not include the additional capacity for standing room on the rail services. Given this, this analysis suggests that there would be sufficient capacity in the future rail network to accommodate the site-generated rail trips.

Table 6-19 Future Train Capacity Analysis on Concord Station West

Concord West Station	Railway Demand (passenger/hr)	
	To Central (AM peak hour)	From Central (PM peak hour)
2019 Demand (1)	2,742	2,870
2019 to 2036 Background Growth (2)	410	429
Site-generated Demand (3)	103	92
Total Demand	3,255	3,391
Demand/Capacity Ratio	0.96	1.0

(1) Seated rail capacity of 3,400 passengers/hour/direction minus theoretical spare capacity – see Table 6-17.
(2) 15% growth from 2019 - see Table 6-18.
(3) Site-generated peak hour rail trips: (AM trips out) x (35% + 12% = 47% travelling in the south and eastern direction), (PM trips in) x (35% + 12% = 47% travelling from the south and eastern direction).

7 Improvement Analysis (George Street / Pomeroy Street)

Based on the traffic modelling outcomes presented in Section 6 (Transportation Analysis), George Street / Pomeroy Street currently operates at capacity (LoS E) during the peak hours. By 2027, without any intervention measures and with background traffic growth alone, the intersection performance would continue to decline, operating at LoS F with unacceptable levels of delays. These findings are in-line with Council's previous study for this intersection (*'Parramatta Road Corridor - Traffic and Transport Strategy'* (Bitzios, 2021 – see Section 4.2.3).

Given the significance of George Street / Pomeroy Street as the key intersection point for local traffic accessing Concord West, several design solutions were explored. This section presents the network upgrade details and intersection performance results for the final design.

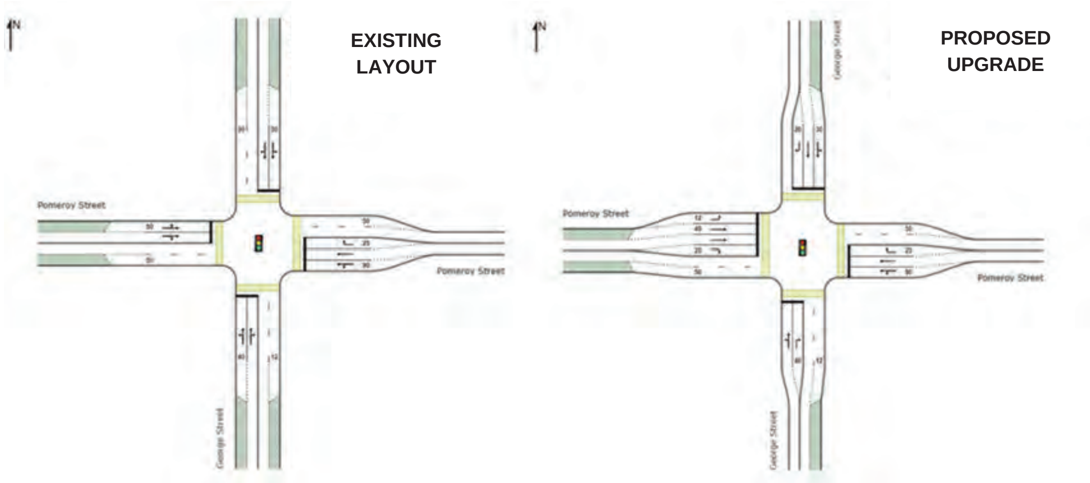
7.1 Intersection Upgrade Details

Figure 7-1 provides a side-by-side comparison of the existing and proposed upgrade intersection layout. Additional capacity is provided at the western and northern intersection approaches, accommodating, where possible, a design solution that minimises its footprint on the existing road reserve. The network upgrades details are further described as follows:

- Additional dedicated right turn and left turn bays at the western approach. The dedicated right turn allows for the leading right turn phase (D) to be added in the new signal plan – see Figure 7-2.
- At the northern approach, conversion of a departure lane to an approach lane for a dedicated right turn bay. The shared right and through is also converted to a continuous through lane. No widening of the approach is proposed, with all works occurring within the existing road reserve.
- At the southern approach conversion of movements to; (1) shared left turn and through movement at the kerbside (continuous lane) and (2) right turning short bay at the median side, with same short bay length as existing. No widening of the approach is proposed, with all works occurring within the existing road reserve.

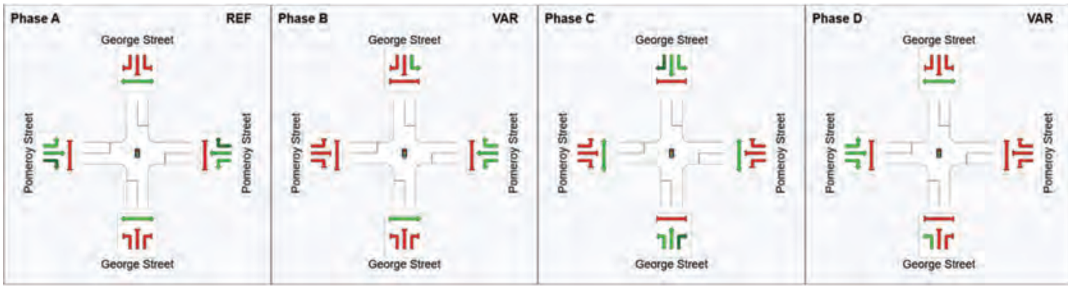
For the affected property where the western approach is proposed to be widened, surveys and early investigative works have been undertaken by Billbergia. Appendix E provides a copy of the preliminary engineering sketch for the upgrade design.

Figure 7-1 George Street / Pomeroy Street layout – existing and proposed upgrade



Improvement Analysis (George Street / Pomeroy Street)

Figure 7-2 George Street / Pomeroy Street proposed upgrade - signal plan



7.2 Intersection Upgrade Performance

Table 7-1 provides a summary of the George Street / Pomeroy Street intersection performances for all scenarios in the morning and afternoon peak hours.

Based on the SIDRA modelling outputs, the proposed upgrade at George Street / Pomeroy Street would improve intersection delays ***by upwards of ~390 seconds*** (when comparing the future scenarios with and without the proposed upgrade)**,** operating at LoS C and B to achieve performance levels ***better than existing conditions.***

It is noted that Sydney Metro are currently exploring plans to investigate potential upgrades at Pomeroy Street / Queen Street / Beronga Street intersection. This intersection is located adjacent to George Street / Pomeroy Street where queues frequently extend back to block downstream traffic. The SIDRA modelling undertaken for this transport study accounts for this event through the reduction in the effective green time.

Following any potential increases to capacity at Pomeroy Street / Queen Street / Beronga Street by Sydney Metro, this has potential to further improve intersection performances at both locations.

Table 7-1 George Street / Pomeroy Street proposed upgrade – intersection performance

#	Scenario	Year	Traffic Demand			George Street / Pomeroy Street		
			Surveyed Data	Background Traffic Growth	Development Traffic Growth	Network	Demand	Average Delay Time and LOS
1	Base Year	2022	Yes	-	-	Existing	AM: 2,136 PM: 2,171	AM: 62 sec - E PM: 47 sec - D
2	Future Reference Case	2036	Yes	Yes	-	Existing	AM: 2,671 PM: 2,825	AM: 190 sec – F PM: 224 sec – F
3	Future Development Case	2036	Yes	Yes	Yes	Existing	AM: 2,954 PM: 3,133	AM: 354 sec – F PM: 421 sec – F
4	Future Development Case (with upgrade)	2036	Yes	Yes	Yes	Proposed upgrade	AM: 2,954 PM: 3,133	AM: 39 sec - C PM: 33 sec - C
Sensitivity Test								
5	Future Reference Case (with upgrade)	2036	Yes	Yes	-	Proposed upgrade	AM: 2,671 PM: 2,825	AM: 28 sec – B PM: 27 sec - B

8 Summary

This report details the transport assessment undertaken for the proposed development located at 1 King Street, Concord West (the site). The key outcomes and conclusions are summarised as follows:

- **The planning context for the site is informed by regional and district level planning that sets out the land use and transport vision for the wider region, as well as precinct and local level planning that governs the implementation strategy for the site.**
  - Concord West is located in the Eastern Harbour City, which aims to provide liveable communities where more people work within 30 minutes of where they live. The masterplan aligns with the visions set out in the Eastern Harbour City, providing new dwellings directly adjacent to Concord West Station, which will (1) enable more efficient access to workplaces, services and community facilities via the existing T9 Northern Line, and (2) promote greater levels of self-containment within the Eastern Harbour City.
  - Within the Canada Bay Local Strategic Planning Statement, the local movement strategy adopts a people-centric view for Concord West, with the road network surrounding the site identified as a mix of 'Places for People' (now 'Civic Places') and 'Local Street'.
  - The Concord West Precinct Master Plan identifies two transport initiatives relevant to the site; (1) creation of an east-west linear park connecting the site to Powells Creek Reserve, and (2) provide new connections between George Street and Concord West station. These aligns with the transport initiatives set out in the masterplan.
- **Major land uses near the site include the Victoria Avenue Primary School, Bicentennial Park, Powells Creek Reserve and Concord West Station**
  - The area surrounding the site are generally low density residential, with some medium density, general industrial and warehouse properties.
  - Victoria Avenue Public School is currently the one of the key generators of vehicle and pedestrian trips in the area, with ~210 vehicle trips (in and out) generated during the peak morning hour during school drop-off hours (8.15-9.15am).
  - Bicentennial Park attracts ~75 cycling trips during the morning peak (6.45-7.45am) via the Victoria Avenue entrance where the underpass provides for access to the Powells Creek Reserve, Bessington Park and Mason Park, which connects to the wider regional cycle network.
  - Concord West Station is not a major generator of vehicle trips (maximum ~30 vehicles during the peak hours). Most trips travelling to the station are undertaken via walking by pedestrians.
- **George Street and King Street provides direct access to the site via Pomeroy Street from the south, which links to key routes at Underwood Road, Parramatta Road, Homebush Bay Drive and Concord Road.**
  - There is also a high level of public transport accessibility, with the site located approximately; (1) 50m from the Concord West Station and (2) 1.1km away from North Strathfield Station, which is the site for the planned metro station.
  - There are bus stops on Concord Road to the east of the site for services travelling to Macquarie Park, Hurstville, Ryde, Hornby, Sydney Olympic Park, Parramatta and Sydney CBD.
  - The site is located near existing on-road and off-road cycle facilities that currently connects to the Sydney Olympic Park and Strathfield Bike Network.
- **The modelling framework consists of strategic transport (STFM) and operational (SIDRA) traffic modelling to assess the site impacts on the surrounding road network.**
  - The future mode share target for the site proposes 30% car mode for resident/retail/commercial and 50% car mode for childcare. The mode share targets are reflective of area with good access to public transport (train) and close to existing recreational / social facilities.
  - The assumptions for the trips generation rates have been derived from various sources supplied by TfNSW.

Summary

- Background traffic growth is based on STFM demand forecasting outputs supplied by TfNSW, which shows 32% and 35% demand increase in the morning and afternoon peak hours, respectively.

- **George Street is maintained as the primary vehicular function. The internal network structure within the site will provide for amenity and safety for pedestrians and cyclists, designated as 'Civic Spaces' as part of TfNSW's Movement and Place framework.**
  - All intersections except George Street / Pomeroy Street would operate with minimal delay at LoS A in 2036 during the morning and afternoon peak hours, with and without the site-generated traffic.
  - By 2027, without any intervention measures and background traffic growth alone, George Street / Pomeroy Street would operate at LoS F.
  - The proposed upgrade design solution has potential to improve intersection delays by upwards of ~390 seconds (when comparing the future scenarios with and without the proposed upgrade), operating at LoS C (with development traffic) and LoS B (without development traffic) to achieve performance levels better than existing conditions. A summary of the intersection performances for all scenarios in the morning and afternoon peak hours are outlined as follows:

Table 8-1 George Street / Pomeroy Street proposed upgrade – intersection performance

#	Scenario	Year	Traffic Demand			George Street / Pomeroy Street		
			Surveyed Data	Background Traffic Growth	Development Traffic Growth	Network	Demand	Average Delay Time and LOS
1	Base Year	2022	Yes	-	-	Existing	AM: 2,136 PM: 2,171	AM: 62 sec - E PM: 47 sec - D
2	Future Reference Case	2036	Yes	Yes	-	Existing	AM: 2,671 PM: 2,825	AM: 190 sec – F PM: 224 sec – F
3	Future Development Case	2036	Yes	Yes	Yes	Existing	AM: 2,954 PM: 3,133	AM: 354 sec – F PM: 421 sec – F
4	Future Development Case (with upgrade)	2036	Yes	Yes	Yes	Proposed upgrade	AM: 2,954 PM: 3,133	AM: 39 sec - C PM: 33 sec - C
Sensitivity Test								
5	Future Reference Case (with upgrade)	2036	Yes	Yes	-	Proposed upgrade	AM: 2,671 PM: 2,825	AM: 28 sec – B PM: 27 sec - B

Appendices

Appendix A Scoping Study Feedback

This section presents a copy of the following documents, as received by Billbergia from Council as part of the scoping study feedback:

- ATTACHMENT D: 1 King Street – TfNSW Methodology for Transport Assessment.
- ATTACHMENT E: 1 King Street – SINSW Response to Scoping Proposal.

ATTACHMENT D – TfNSW Methodology for Transport Assessment

Transport for NSW

NSW GOVERNMENT

Attachment A – Methodology for Transport Assessment

It is suggested that a comprehensive Transport Study be undertaken to assess the impact of the proposal on public transport services, transport infrastructure and regional road network.
The study should include reference to (but not limited to) the following documents:

- Future Transport Strategy 2056
- A Metropolis of Three Cities
- Eastern City District Plan
- NSW Freight and Ports Plan
- State Infrastructure NSW Design Policy (Better Placed)
- Greater Sydney Region Plan
- Parramatta Road Corridor Urban Transformation Strategy (PRCUTS)
- Canada Bay Local Strategic Planning Statement
- Concord West Precinct Master Plan
- Practitioner's Guide to Movement and Place
- Beyond the Pavement

The following methodology is suggested for the Transport Study which should be undertaken in consultation with TfNSW and Sydney Trains.

Existing conditions assessment

- Define the existing conditions of the transport system serving the proposed development site, addressing the levels of performance for all transport modes, including walking, cycling and freight.

Connections

- Assess the impacts and opportunities arising from the proposal on travel demands and operation of the rail and bus networks and future Metro.
- Define a clear, permeable and accessible precinct network of walking and cycling connections to help achieve a sustainable transport system to accommodate the proposal.

Traffic Generation and Parking Rates

- Application of agreed trip generation rate previously modelled as part of the PRCUTS traffic and transport modelling assessment for the Homebush precinct. Journey to work data for the proposed development travel zone should be considered for future trip distribution.
- It is suggested to adopt maximum parking rates to reduce the number of trips generated by the development.

Traffic Count Surveys

- A traffic count surveys should be undertaken at the key intersections, including but not limited to, George Street/Pomeroy Street intersection, George Street/Victoria Avenue and King Street/Victoria Avenue to assess the existing road network performance as well as to assess future performance. The traffic surveys should be undertaken during

Transport for NSW

a typical weekday for both AM and PM peak hours (avoiding any public holidays and school holidays).

Transport Modelling

- Strategic transport modelling using existing model resources (i.e. STM and STFM) to identify travel demands, patterns and mode splits. Critically review the strategic modelling outputs to ensure that they adequately reflect future travel behaviours, including travel patterns and travel demands.
- Based on the information obtained from above modelling exercise and traffic surveys, a SIDRA intersection model should be developed to assess the performance of the key intersections.
- The above modelling approach should include a base year model, future years base case (without the proposal), and a separate model with full development proposal and background traffic growth. It is recommended to undertake an early consultation with TfNSW and Council to agree on the year for the future base, as well as to define the study area.

Identified Road and Transport Infrastructure

- Based on the above modelling outputs, identify transport and road infrastructure requirements to support the proposed increase in floor space and changes to land use. Staging based on trigger points linked to GFA/masterplan stages should be identified.
- The applicant's traffic consultant will be required to work in collaboration with Council and TfNSW to develop a precinct network of walking and cycling connection.

Noise Attenuation Measures

- Future development on the site should consider appropriate noise attenuation measures through design measures, architectural treatments, setbacks, durable materials and landscaping particularly along the site's frontage to the heavy train line to mitigate future residents against rail passenger noise generated by Concord West station. Council should be satisfied that any noise mitigation controls throughout the relevant DCP is appropriately aligned with this requirement.

Funding of transport and road network infrastructure

- High level strategic/concept engineering plans overlayed on an aerial to scale should be developed to determine feasibility including any third party land components.
- Strategic cost estimates of any identified walking, cycling, and road infrastructure required in support of the planning proposal should be prepared. These costs should align with the NSW Global Rates.
- In consultation with Council, DPIE and TfNSW, identify a planning/funding mechanism to deliver the identified transport infrastructure.

ATTACHMENT E – Schools Infrastructure NSW – requirements to be addressed in a Planning Proposal

Overshadowing

As per DoE's '*Educational Facilities Standards and Guidelines'* (EFSG), SINSW aim to ensure that that at least 70% of school spaces, including outdoor school play spaces, receive direct sunlight between 9am and 3pm in mid-winter. SINSW seek to prevent any reductions in amenity to Victoria Avenue Public School and request that the proponent consider how sunlight will be maximised on this school site as the precinct is developed in future.

Pedestrian Linkages

The Concept Masterplan provided as part of the scoping package notes a potential pedestrian link through to Powells Creek Reserve as per the Homebush North Masterplan (refer section 2.6, page 15). SINSW currently leases this area as play-space for the adjacent Public School and public access is restricted via security fencing.

Any proposed future access to this area will be subject to consultation with the SINSW Asset Activations Team.

Active Transport and Access

The scoping report notes that a preliminary transport analysis has been undertaken by PWC which considers the intersections surrounding the subject site. This report was not included within the scoping package and as a result, it is unknown whether this included consideration of active transport opportunities and pedestrian prioritisation measures for the draft Proposal. As a result, SINSW request that a robust Transport Impact Assessment be undertaken which outlines the proposals cumulative impact on the surrounding transport network and identifies active transport links to existing school travel paths.

In addition, SINSW request that transport planning for the proposal be guided by the NSW Governments Movement and Place Framework (MAPF) and its Built Environment Performance Indicators. These indicators are based on qualities that contribute to a well-designed built environment and should be used by proponents in the formulation of transport concepts.

The MAPF's core 'Amenity and Use' and 'Primary Schools' indicators are of particular importance to SINSW, as these encourage urban designers to consider the impact on adjacent places/uses, as well as emphasising movement that supports place. The 'Primary Schools' indicator provides two specific metrics to judge the effect of infrastructure on the accessibility of public schools in an area; these being walkability and public transport access. These metrics require designers to assess whether proposed infrastructure facilitates access to primary school facilities (or public transport connections to schools) or whether it exacerbates gaps in the network.

The primary school-focused MAPF amenity indicator can be accessed via the link below:

https://www.movementandplace.nsw.gov.au/place-and-network/built-environment-indicators/primary-schools

Social Infrastructure Assessment

SINSW request that the proposal be accompanied by a social infrastructure report, which considers the impact of population and enrolment growth on school infrastructure.

Appendix B Stakeholder Consultation (Modelling Approach Workshop)

This section provides a copy of the presentation material for the Modelling Approach Workshop, which outlines the proposed modelling framework, inputs and assumptions, as well as various preliminary George Street / Pomeroy St intersection upgrade designs that Billbergia are currently investigating.

Please note:

- The stakeholder consultation was undertaken over two separate sessions using the same presentation material.
  - **15-September-2022**: Meeting with Council only.
  - **10-October-2022**: Meeting with TfNSW and Sydney Metro only; minutes and notes captured at this meeting attached.
- The proposed approach as outlined in the presentation material have now been superseded by updated advice following TfNSW feedback from the above consultation process. The documents presented in Appendix are provided for reference only.

Concord West, 1 King Street Traffic Impact Assessment

Modelling Approach - Discussion

PwC (on behalf of Billbergia)
15 September 2022

pwc

Agenda

Agenda

Purpose of meeting
Discussion on modelling approach, confirmation of input assumptions and any issues / feedback.

1 Proposed Modelling Framework

2 Inputs and Assumptions

3 George Street and Pomeroy Street intersection upgrade

4 Questions

1

Proposed Modelling Framework

TfNSW Scoping Study Feedback (extracts)

- **Strategic transport modelling** using existing model resources (i.e. Sydney Strategic Travel Model (**STM**) and Strategic Traffic Forecasting Model (**STFM**)) to identify travel demands, patterns and mode splits.
- Based on the information obtained from above modelling exercise and traffic surveys, a **SIDRA intersection model** should be developed to assess the performance of the key intersections.
- The above modelling approach should include a **base year** model, **future years base case** (without the proposal), and a separate model with **full development proposal** and background traffic growth.
- It is recommended to undertake an early consultation with TfNSW and Council to agree on the **year** for the future base, as well as to define the **study area.**
- Assess the impacts and opportunities arising from the proposal on travel demands and operation of the rail and bus networks and **future Metro.**

TfNSW Scoping Study Feedback (extracts)

- **Strategic transport modelling** using existing model resources (i.e. Sydney Strategic Travel Model (**STM**) and Strategic Traffic Forecasting Model (**STFM**)) to identify travel demands, patterns and mode splits.
- Based on the information obtained from above modelling exercise and traffic surveys, a **SIDRA intersection model** should be developed to assess the performance of the key intersections.
- The above modelling approach should include a **base year** model, **future years base case** (without the proposal), and a separate model with **full development proposal** and background traffic growth.
- It is recommended to undertake an early consultation with TfNSW and Council to agree on the **year** for the future base, as well as to define the **study area.**
- Assess the impacts and opportunities arising from the proposal on travel demands and operation of the rail and bus networks and **future Metro.**

TfNSW Scoping Study Feedback (extracts)

- **Strategic transport modelling** using existing model resources (i.e. Sydney Strategic Travel Model (**STM**) and Strategic Traffic Forecasting Model (**STFM**)) to identify travel demands, patterns and mode splits.
- Based on the information obtained from above modelling exercise and traffic surveys, a **SIDRA intersection model** should be developed to assess the performance of the key intersections.
- The above modelling approach should include a **base year** model, **future years base case** (without the proposal), and a separate model with **full development proposal** and background traffic growth.
- It is recommended to undertake an early consultation with TfNSW and Council to agree on the **year** for the future base, as well as to define the **study area.**
- Assess the impacts and opportunities arising from the proposal on travel demands and operation of the rail and bus networks and **future Metro.**

Proposed Modelling Framework
PwC

September 2022
7

Proposed Modelling Framework- STM, Public Transport Project Model (PTPM) and SIDRA

Demand Models
Sydney GMA

1. Trip Generation
2. Trip Distribution
3. Mode Choice
4. Network Assignment

Model purpose:
- Generate background traffic growth
- Assess future public transport capacity (T9 Northern Line, impact of Sydney Metro)

Land Use Projections (TZP 2019)

↓

STM
24hr tour-based model

↓

PTPM
3.5hr AM peak incremental mode choice model

↓

SIDRA INTERSECTION
1hr AM and PM peak intersection models

Selected intersections near the development site (Concord West)

TfNSW permission required to access these tools

Proposed Modelling Framework
PwC

September 2022
8

2 Inputs and Assumptions

Inputs and Assumptions

Input	Assumption (requires confirmation)
Demand model versions	• STM version 3.8 • PTPM version 5 *Same model versions used from the previous demand modelling undertaken for the Wentworth Point Transport Study.*
Study Area	Key intersections: • George St / Pomeroy St. • George Street/Rothwell Avenue. • George Street/Conway Avenue. • King Street / Victoria Avenue. • George Street / Victoria Avenue. • Victoria Avenue / access road to Victoria Avenue Public School and Powells Creek Reserve. *See map over-page*

Key Areas of Focus

Key Intersections

1. George St / Pomeroy St.
2. George Street/Conway Avenue.
3. George Street/Rothwell Avenue.
4. King Street / Victoria Avenue.
5. George Street / Victoria Avenue.
6. Victoria Avenue / access road to Victoria Avenue Public School and Powells Creek Reserve.

Traffic surveys

Data collection scheduled for next Tuesday (20-Sep)

- 6-10am and 3-7pm
- Car, heavy vehicles, pedestrian and cyclist turning movement counts
- Queue length surveys for George St / Pomeroy St only.

Proposed Modelling Framework
PwC

September 2022
11

Inputs and Assumptions

Input	Assumption (requires confirmation)
Modelling scenarios and horizon years	Demand models: ● Base year model, ● Future year base case (without the site, **with Metro**) Intersection models: ● Base year model ● Future year base case (without the site, **with Metro**) ● Future year development model (with the site) and background traffic growth **with Metro.** Modelling horizon year: 2036
Development Traffic Assumptions	Trip Distribution: Based on 2016 / 2021 Journey to work data Trip Generation: ● TfNSW Scoping Study feedback advises: *"Application of agreed trip generation rate previously modelled as part of the PRCUTS traffic and transport modelling assessment for the Homebush precinct."*

Trip Generation

5. Homebush North Precinct

5.1 Uplift Development Summary

The proposed redevelopment in Homebush North precinct would result in:

- 479 medium density residential dwellings
- 517m² GFA of retail development
- 30,763m² GFA of commercial development.

Figure 5-2: Homebush North Precinct - STFM Zones

The total traffic generation estimated in the STFM for the zones within the Homebush North catchment is summarised in Table 5-1. Due to the coarseness of the STFM zoning system, these numbers include additional catchments and their respective but relatively minor future growth from just outside of the precinct.

Table 5-1: Homebush North Traffic Generation and Growth from 2019

Scenario	Traffic OUT (veh)	Traffic IN (veh)	Total TWO-WAY (veh)
AM 2-Hour			
2019 AM	820	843	1,663
2026 AM No Dev	755	627	1,382 (-281)
2026 AM with Dev	938	719	1,657 (-6)
2036 AM No Dev	772	617	1,389 (-274)
2036 AM with Dev	1,542	979	2,521 (+858)
PM 2-Hour			
2019 PM	673	1,341	2,014
2026 PM No Dev	509	1,207	1,716 (-298)
2026 PM with Dev	591	1,498	2,089 (+75)
2036 PM No Dev	521	1,225	1,746 (-268)
2036 PM with Dev	868	2,294	3,162 (+1,148)

Extract from the PRCUT transport study include mix of land use assumptions within the Homebush North Precinct.

Does not provide trip generation rate. What was the agreed assumption?

**'Parramatta Road Corridor - Traffic and Transport Strategy' (Bitzios on behalf of Council, Dec 2021)*

Proposed Modelling Framework
PwC

September 2022
13

3

George Street and Pomeroy Street intersection upgrade

Based on previous modelling presented to Council in May ‘22. Analysis will be revised with updated modelling.

Six design options have been assessed based on input assumptions derived from observed data (April 2022) and Council information

Design Source	Scenarios (AM)**	Network Assumption	Demand Assumption	Signal Settings	Pedestrian Volumes
N/A	Existing	Existing	Traffic survey count (April 2022) **Total intersection volume:** 2,303 veh/hr	Existing phasing based on Council's *"Parramatta Road Corridor - Traffic and Transport Strategy"* Cycle and green times based on SIDRA "Site Optimum Cycle Time - Minimum Delay"	50 pedestrian per hour each approach*
Billbergia	Option 1	Additional left-turning slip lanes at western and northern approaches	Traffic survey count (April 2022) plus Council traffic growth assumption* **Total intersection volume**: 2,950 veh/hr (+647)	As above	As above
	Option 2	Additional dedicated right turn and left turn bays at western approach			
	Option 3	'Option 2' plus additional left-turning slip lane at northern approach			
Council*	Original	Additional left-turning slip lane at northern approach			
	Mitigation 1	Additional left-turning slip lane and dedicated right turn bay at northern approach			
	Mitigation 2	'Mitigation 1' plus removal of eastern departure lane and conversion of shared through and right to dedicated right turn lane			

* Based on information provided by Council: *"POMEROY STREET / GEORGE STREET INTERSECTION UPGRADE SIDRA MODELLING OPTION TESTING"* (Cardno on behalf of Council, Feb 2020)
**Traffic growth assumptions have been provided for the AM peak hour only

Proposed Modelling Framework
PwC

September 2022
15

Back to table

Back to table

Back to table

Back to table

Original

Council Design

Proposed intersection design by Council

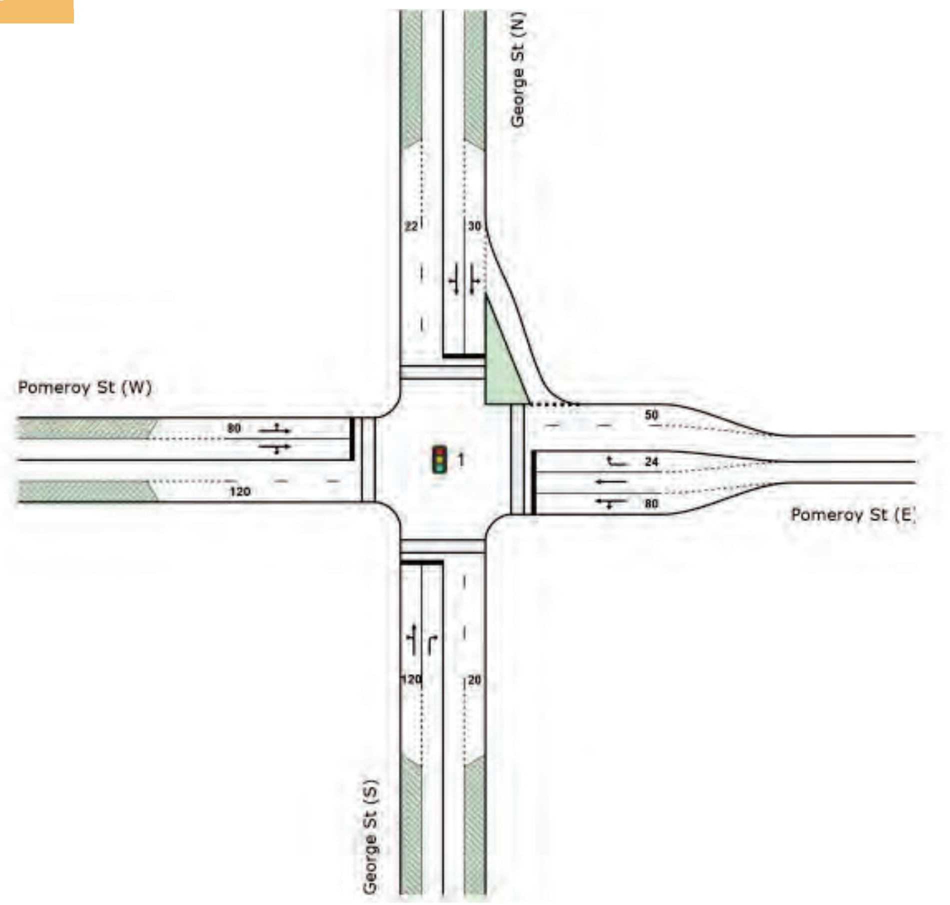


Image source: "POMEROY STREET / GEORGE STREET INTERSECTION UPGRADE SIDRA MODELLING OPTION TESTING" (Cardno on behalf of Council, Feb 2020)

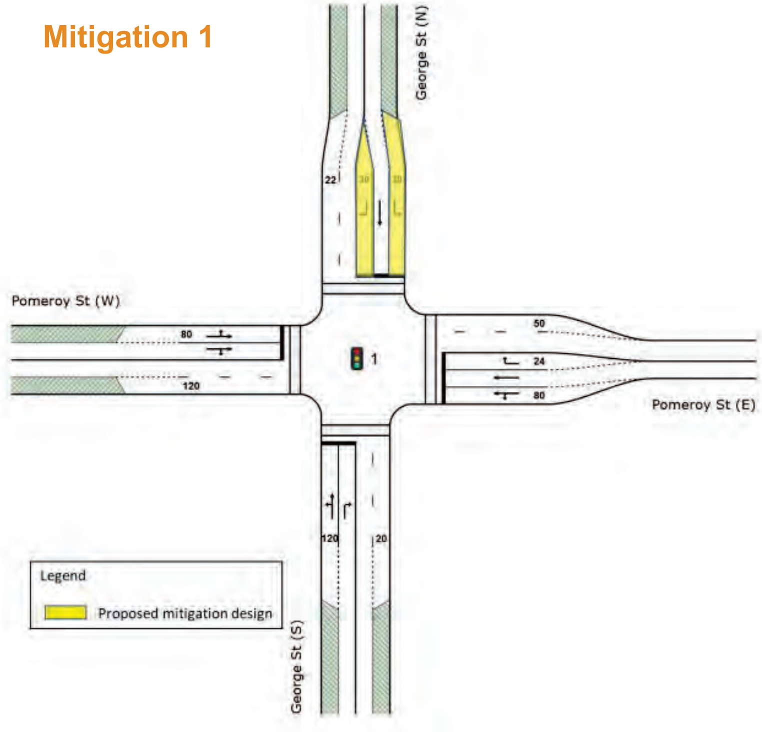
Back to table

Mitigation

Council Design

Viability of the left turn slip lane in the "Original" design is impacted by a number of constraints (i.e. existing utilities, property boundary). These design options aims to lower the impact on existing utilities.

Mitigation 1



Mitigation 2

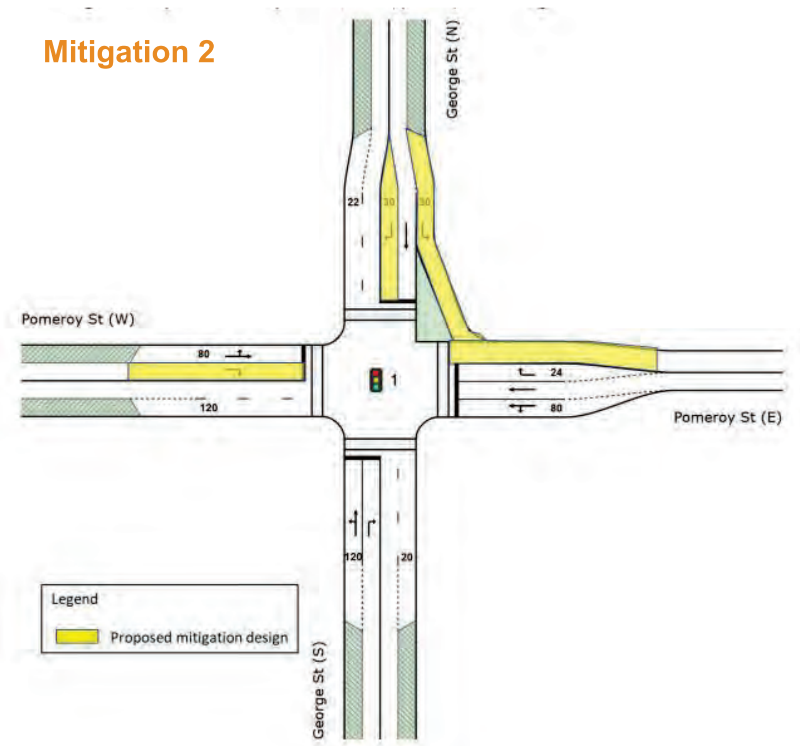


Image source: "POMEROY STREET / GEORGE STREET INTERSECTION UPGRADE SIDRA MODELLING OPTION TESTING" (Cardno on behalf of Council, Feb 2020)

Based on SIDRA analysis, Bilbergia's Option 2 and 3, and Council's Mitigation Design 2 would all perform at acceptable intersection LoS

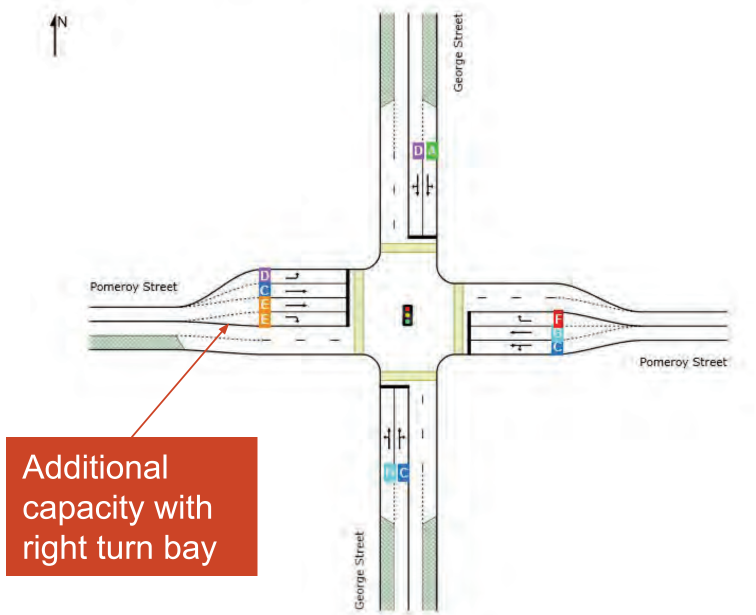
Note, some inconsistencies exists in the assumed traffic volumes* and signal phasings between Council intersection and PwC's assumptions. Notwithstanding these differences, the general viability (i.e. acceptable / unacceptable LoS) of the "Mitigation" design options remain the same.

Design Source	Scenarios (AM)**	Intersection LoS	Average Delay Time (sec)	Viable Design? (i.e. acceptable LoS)	Intersection LoS based on Council's SIDRA (2020)*
N/A	Existing	D	48	-	
N/A	Future with no Upgrade	F	223	-	
Billbergia	Option 1	E	61		
	Option 2	C	40	***YES***	
	Option 3	B	24	***YES***	
Council	Original	F	110		F
	Mitigation 1	E	60		F
	Mitigation 2	C	36	***YES***	B

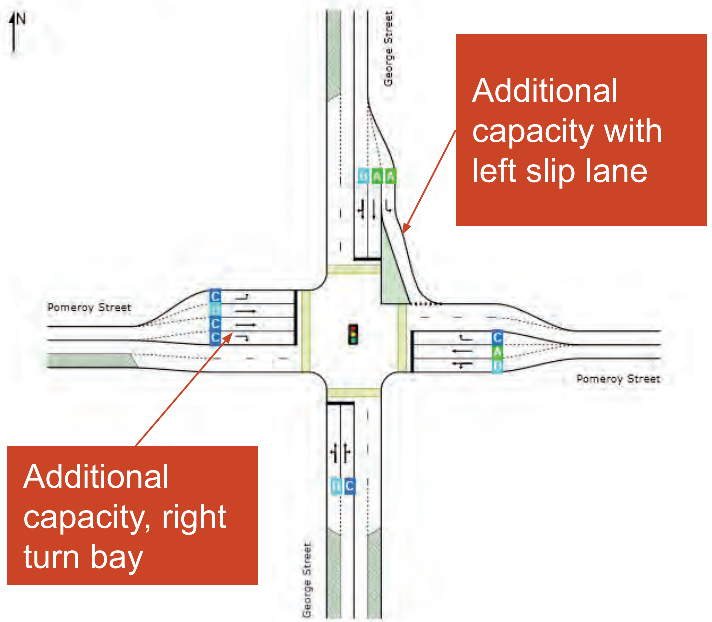
** Council's base year demands are based on 2020 traffic volume counts. PwC base year demands are based on recent traffic survey counts collected in April 2022.*

For Billbergia's Option 2 and 3, the proposed design provides additional lane capacity at the northern and and western legs, allowing traffic to clear and more time to be be allocated at the other approaches

	Approaches				Intersection
	South	East	North	West	
LOS	B	C	C	D	C



	Approaches				Intersection
	South	East	North	West	
LOS	C	B	B	C	B

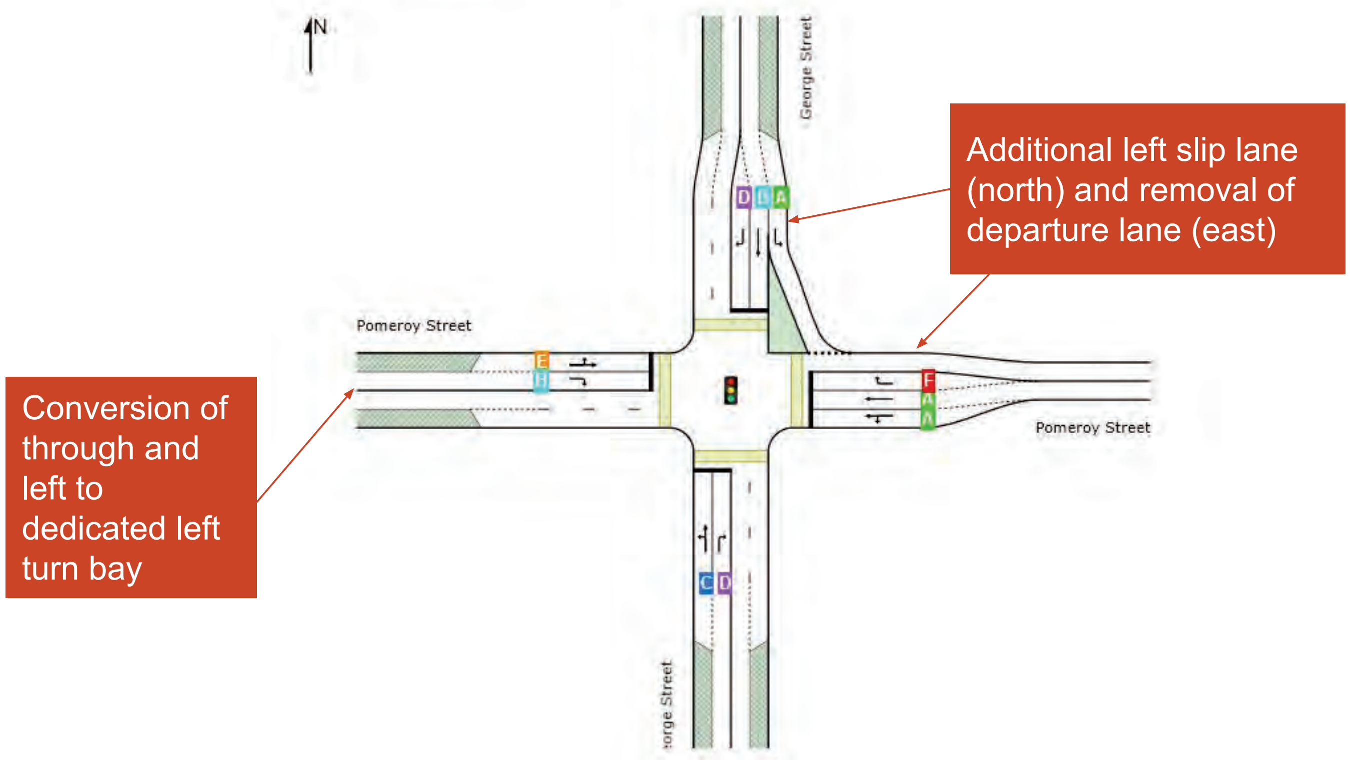


Proposed Modelling Framework
PwC

September 2022
22

Council's Mitigation Design #2 would have less impact on existing road reserve, while remaining within acceptable LoS

	Approaches				Intersection
	South	East	North	West	
LOS	C	B	B	E	C



4 Questions

pwc.com

pwc

Concord West, 1 King Street Transport Impact Assessment
Meeting Minutes – Modelling Approach Workshop

Date: Monday 10 October 2022, 1-2pm
Location: Microsoft Teams Meeting
Attendees:

- Thomas Gregg (TG) - Billbergia
- Bayzid Khan (BK) - TfNSW
- David Potter (DP) - Sydney Metro
- David Leahy (DL) - PwC
- Helen Young (HY) - PwC

Agenda

1. Proposed Modelling Framework
2. Inputs and Assumptions
3. George Street and Pomeroy Street intersection upgrade
4. Questions and Next Step

Notes/Minutes

1. **Proposed Modelling Framework**
    - A brief overview of the project background was presented to TfNSW and Sydney Metro.
        - In June 2022, a scoping study was submitted to the City of Canada Bay Council (Council) for consideration. The scoping study was prepared by Billbergia for the proposed development site at Concord West, 1 King Street.
        - Billbergia have since received feedback on the scoping study and are now moving forward with the next stages of works for the development submission.
        - PwC has been commissioned by Billbergia to undertake a transport assessment of the site, taking on-board the Council, TfNSW and School Infrastructure NSW (SINSW) scoping study feedback.
        - PwC have commenced preliminary discussion with Council regarding the proposed modelling approach, inputs and assumptions, as well as the George Street / Pomeroy St intersection upgrade designs that Billbergia are currently investigating.
        - Following this meeting in September 2022, Council have provided their initial feedback:
            - Council has advised that all traffic modelling-related queries, clarifications and assumptions be submitted and/or discussed with TfNSW.

- Council have suggested that representative/s from Sydney Metro be involved in future discussions as their investigation site for the intersection at Pomeroy Street / Queen Street / Beronga Street is likely to impact traffic operations at George Street / Pomeroy Street (note, the location of Sydney Metro investigation site was confirmed on 26-Sept., post-discussion with Council).

- TfNSW have provided feedback on the modelling framework and have advised that the workflow be undertaken as follows:
  - PwC to submit a Modelling Methodology report to TfNSW for review, incorporating STFM in the modelling framework to produce the demand growth. The report should contain (as a minimum):
    - Traffic growthing approach (i.e. base year SIDRA models using traffic survey data. The traffic growth extracted from the demand model to be pivoted off the base year model).
    - Model scenarios and horizon years.
    - Study area (i.e. key intersections for SIDRA analysis).
    - Development traffic assumptions (i.e. trip generation rates and trip distribution).
  - Following TfNSW endorsement of the Modelling Methodology report, PwC to develop base and future year SIDRA models.
    - STFM traffic growth will be provided by TfNSW.
    - TfNSW have requested that PwC build a SIDRA network model. No microsimulation modelling is required.
  - PwC to submit a combined 'Base Year Model Calibration and Validation' and "Future Option Assessment' Report, as well as the SIDRA model files to TfNSW for review.
    - The base year SIDRA model for George Street / Pomeroy Street will be calibrated and validated using the queue length surveys.
    - Should a follow-up workshop or discussion be required, the standard procedure is that PwC/Billbergia submit a request after the reporting the SIDRA models are submitted.

2. **Inputs and Assumptions**
   - Proposed demand model versions (i.e. STM3.8 and PTPM5) in the presentation slide pack are now obsolete, based on the above TfNSW feedback.

pwc

- TfNSW will review the key intersection as part of the Modelling Methodology Report, including the three additional intersections provided by Council for consideration.
    - TfNSW and Sydney Metro to check if there are any available traffic count data at (1) Underwood Rd / Pomeroy St, (2) George St / Parramatta Rd, and (3) Beronga St / Pomeroy St / Queen St.

- The TfNSW scoping study feedback advises that the trip generation assumptions be based on the PRCUTS transport study. However, based on the publicly available information on Council's portal, the reporting does not provide any specific references to trip generation rates.
    - TfNSW to confirm what trip generation assumptions were adopted for the PRCUTS transport study.
    - In the event that TfNSW are unable to confirm the trip generation rates for the PRCUTS transport study, PwC will adopt the rates as outlined in the RMS Guide to Traffic Generating Developments. TfNSW notes that the site is directly adjacent to the Concord West station. Any assumed future mode shares for public transport should be reflected in the traffic generation rates.

- Other TfNSW feedback:
    - The transport assessment for the site should include a qualitative analysis for any existing, committed and proposed active transport facilities.
    - Future public transport capacity to be also based on a combined qualitative and quantitative analysis, noting that existing train and bus usage can be based on other existing datasets:
        - PwC to nominate bus stops and train stations for OPAL tap on/tap off data analysis as part of the Modelling Methodology Report.
        - TfNSW to provide OPAL tap on/tap off data.

3. George Street and Pomeroy Street intersection upgrade

- Early investigation works were undertaken by PwC and Billbergia for three 'Billbergia' design options. These intersections were benchmarked against three proposed 'Council' design options.
    - The SIDRA analyses are based on preliminary traffic assumptions, which will be updated based on the updated traffic survey data and STFM demand growth assumptions.
    - Billbergia is currently investigating 'Billbergia Design Option 2' as the preferred design.

- TfNSW notes that queue lengths (particularly in any overflow lanes) should be recorded in the Options Assessment Report.

4. **Questions and Next Step**
   - A recap of next steps and actions captured during the meeting was discussed.
   - Minutes of the meeting will be distributed by PwC.

Actions

Task	Who	Status/notes
PwC to submit Modelling Methodology report to TfNSW for review	PwC	
TfNSW and Sydney Metro to check if there are any available traffic count data at; (1) Underwood Rd / Pomeroy St, (2) George St / Parramatta Rd, and (3) Beronga St / Pomeroy St / Queen St.	TfNSW, Sydney Metro	
TfNSW to check trip generation assumptions used for the PRCUTS transport study	TfNSW	
TfNSW to review Modelling Methodology report and provide feedback	TfNSW	Pending Modelling Methodology report
TfNSW to provide OPAL tap-on tap-off data	TfNSW	Pending Modelling Methodology report
TfNSW to provide STFM demand outputs	TfNSW	Pending Modelling Methodology report

Appendix C Modelling Methodology Report and TfNSW Comments Register

Please note that at the time of writing this Transport Study Report, and in reference to the attached Modelling Methodology Report:

- SCATS data were procured separately by PwC / Billbergia.
- SCATS count data was not used for this transport study; demand inputs for the base year SIDRA models are based on surveyed intersection count data.
- SIDRA network modelling for adjacent intersections near the site was initially proposed. However, for these adjacent intersections, little to no queues were observed in the existing and future SIDRA models (based on the isolated intersection analysis). As such, the SIDRA modelling was kept as-is using isolated intersection analysis.

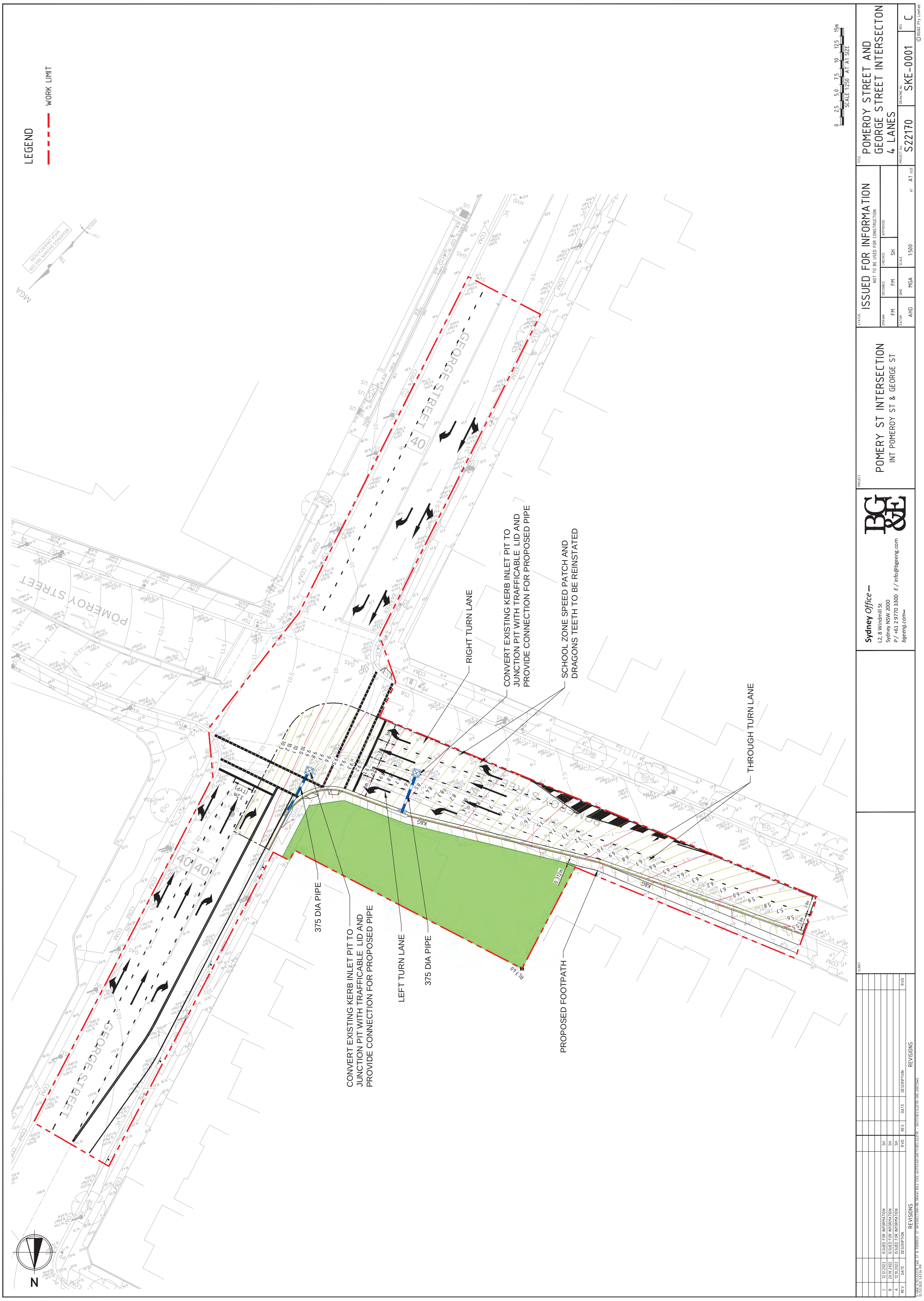
Modelling Methodology Report (October 2022, Rev02) | TfNSW Review Notes and Comments

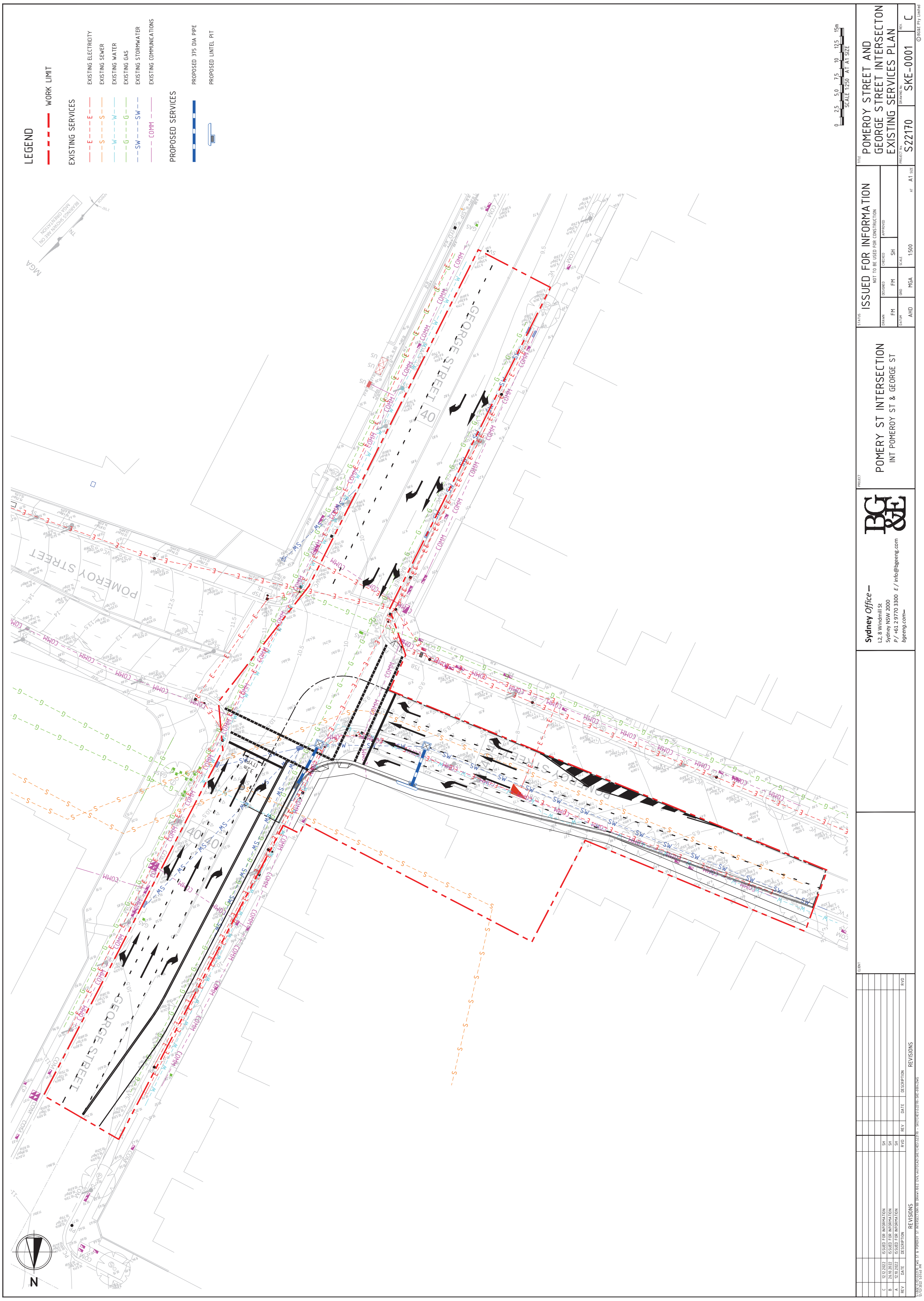
Item	Reviewer	Materia	Section	TfNSW Review Comments (received 31-Oct-2022)	Priority	PwC Response Date	PwC Response	PwC Action
1	TfNSW AAI	Report	2.1.2	"The existing road layout, signal phasing and peak hourly car, heavy vehicle and pedestrian volumes" Will the signal timings also be used for the existing model?	Minor	11/1/2022	The signal timings for the existing models (base year) will be optimised using SIDRA's in-built function, adjusted to balance out the surveyed/observed data (input traffic flows, signal phasings and the queue length surveys). ***Based on TfNSW Review Comment #6, we will also review the timings based on the SCATS signal data.***	No further action
2	TfNSW AAI	Report	2.1.2	"The base year model will be validated against the queue length surveys collected on-site, noting that this will be undertaken for one intersection only at George Street / Pomeroy Street" What information will the rest of the network use for validation?	Medium	11/1/2022	No further information has been put forward to validate the rest of the network. The remaining intersections were identified as priority junctions which currently do not experience congestion / queuing (based on video surveys and on-site observations during the peak hours). As such, the default SIDRA settings will be kept as-is for these non-signalised intersections.	No further action
3	TfNSW AAI	Report	2.1.2	"The future year pedestrian flows are assumed to be the same as the base year volumes." Are pedestrian flows likely to remain the same given the proposed development?	Minor	11/1/2022	Noted, we will revise the future pedetrians flows based on the agreed trip rates and mode shares for the development trips	Section 2.1.2 of report updated.
4	TfNSW AAI	Report	2.5	"divide 2-hour traffic flows by two to obtain 1-hour flows" It may be more accurate to use the portion calculated from the traffic surveys. Otherwise 55% of 2 hours STFM traffic flow should be used.	Medium	11/1/2022	Noted, we will apply the same time profiles as the surveyed data to convert the STFM 2-hourly flows (7-9am and 4-6pm) to 1-hour peak flows.	Section 2.5 of report updated
5	TfNSW AAI	Report	2.5	Taking this approach may result in unbalanced traffic volumes between adjacent intersections. Will balancing be undertaken afterwards?	Minor	11/1/2022	For the base year SIDRA models, no further balancing of the traffic flows will be required. The adjacent intersection counts have been surveyed on the same day. We can confirm that the counts are balanced for those locations, with no readjustments needed. For the future year SIDRA models, should the traffic growth applied result in unbalanced flows (e.g. combination of absolute and percentage growths for adjacent intersections), some adjustment may be necessary. Should this be required, we will undertake a comparison of the traffic flows differences to determine the appropriate adjustments, which will be documented in the traffic assessment report.	No further action
6	TfNSW AAI	Report	3	Would recommend SCATS data at the existing George St / Pomeroy St signalised intersection too.	Minor	11/1/2022	Noted, we will incorporate the SCATS signal and counts data as part of the data request list.	Table 3-1 updated
7	TfNSW AAI	Report	3	STM 3.8 already included Metro West in 2031 model onward, ie STFM demand also associated with Metro	Note	11/1/2022	Noted	No further action
8	TfNSW AAI	Report	Appendix B	Why are there no PM results shown? The documentation is all based on AM results. Based on local observation, PM queues at Pomeroy/George are extensive which should be included for analysis.	Minor	11/1/2022	The preliminary analysis presented in Appendix B were based initial demand forecasts containing growthing assumptions for the AM period only. The growthing assumptions (which has since been outdated following discussion with Council in May '22) were sourced from information provided by Council. ***The updated transport traffic (i.e. this report and modelling) will contain reported analysis for both the AM and PM peak hours.***	No further action

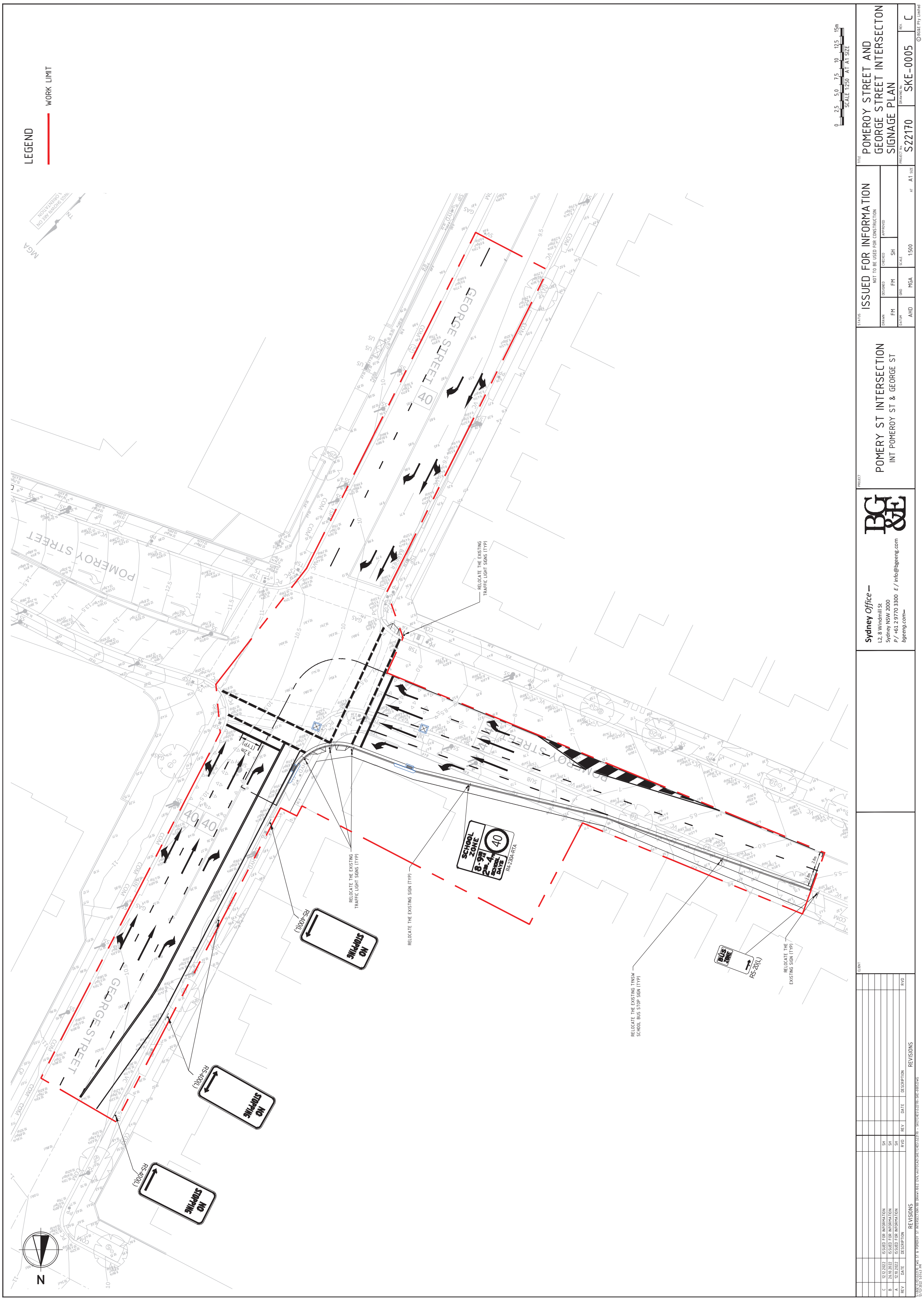
Appendix D SIDRA Outputs (Base Year, Future Reference Case and Future Development Case) – all intersections

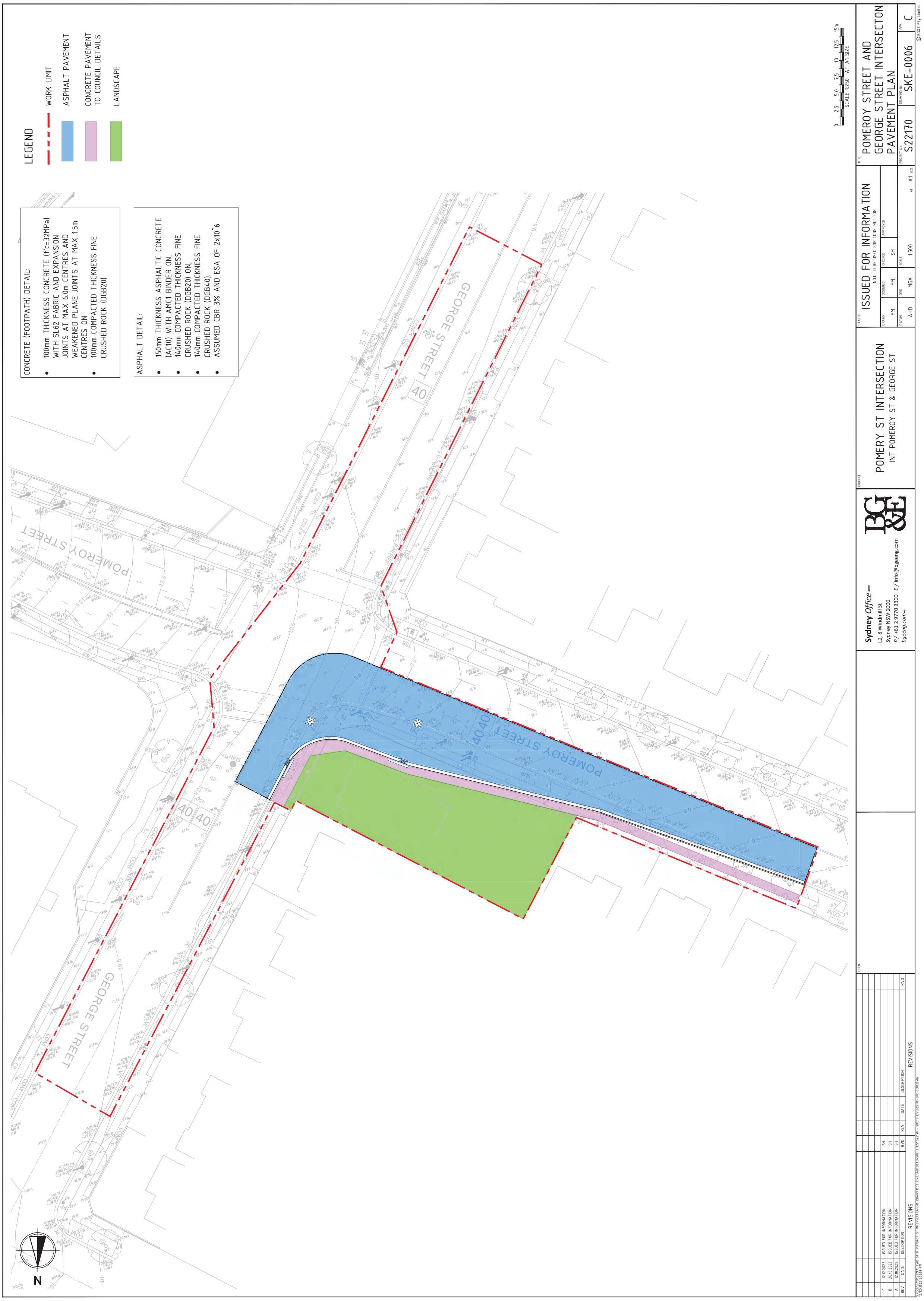
Attached separately.

Appendix E George Street / Pomeroy Street - Preliminary Sketches


LEGEND
WORK LIMIT
GEORGE STREET
POMEROY STREET
RIGHT TURN LANE
CONVERT EXISTING KERB INLET PIT TO JUNCTION PIT WITH TRAFFICABLE LID AND PROVIDE CONNECTION FOR PROPOSED PIPE
SCHOOL ZONE SPEED PATCH AND DRAGONS TEETH TO BE REINSTATED
THROUGH TURN LANE
375 DIA PIPE
CONVERT EXISTING KERB INLET PIT TO JUNCTION PIT WITH TRAFFICABLE LID AND PROVIDE CONNECTION FOR PROPOSED PIPE
LEFT TURN LANE
375 DIA PIPE
PROPOSED FOOTPATH
N
ISSUED FOR INFORMATION
NOT TO BE USED FOR CONSTRUCTION
POMERY ST INTERSECTION
INT POMEROY ST & GEORGE ST
POMEROY STREET AND GEORGE STREET INTERSECTON
4 LANES
S22170
SKE-0001
C
Sydney Office
L2, 8 Windmill St
Sydney NSW 2000
P/ +61 2 9770 3300 E/ info@bgeeng.com
bgeeng.com
REVISIONS


LEGEND
WORK LIMIT
EXISTING SERVICES
EXISTING ELECTRICITY
EXISTING SEWER
EXISTING WATER
EXISTING GAS
EXISTING STORMWATER
EXISTING COMMUNICATIONS
PROPOSED SERVICES
PROPOSED 375 DIA PIPE
PROPOSED LINTEL PIT
GEORGE STREET
POMEROY STREET
ISSUED FOR INFORMATION
POMERY ST INTERSECTION
INT POMEROY ST & GEORGE ST
POMEROY STREET AND
GEORGE STREET INTERSECTION
EXISTING SERVICES PLAN
S22170
SKE-0001
C
Sydney Office
REVISIONS
N


LEGEND
WORK LIMIT
MGA
GEORGE STREET
POMEROY STREET
40
RELOCATE THE EXISTING TRAFFIC LIGHT SIGNS (TYP)
RELOCATE THE EXISTING SIGN (TYP)
SCHOOL ZONE
8-9:30am
2:30-4pm
SCHOOL DAYS
40
NO STOPPING
R5-400(L)
R5-400(L)
R5-400(L)
BUS ZONE
R5-20(L)
RELOCATE THE EXISTING SIGN (TYP)
RELOCATE THE EXISTING TIMESH SCHOOL BUS STOP SIGN (TYP)
N
REVISIONS
ISSUED FOR INFORMATION
NOT TO BE USED FOR CONSTRUCTION
POMERY ST INTERSECTION
INT POMEROY ST & GEORGE ST
Sydney Office
POMEROY STREET AND GEORGE STREET INTERSECTON SIGNAGE PLAN
S22170
SKE-0005
C


LEGEND
WORK LIMIT
ASPHALT PAVEMENT
CONCRETE PAVEMENT TO COUNCIL DETAILS
LANDSCAPE
CONCRETE (FOOTPATH) DETAIL:
100mm THICKNESS CONCRETE (f'c=32MPa) WITH SL62 FABRIC AND EXPANSION JOINTS AT MAX 6.0m CENTRES AND WEAKENED PLANE JOINTS AT MAX 1.5m CENTRES ON
100mm COMPACTED THICKNESS FINE CRUSHED ROCK (DGB20)
ASPHALT DETAIL:
150mm THICKNESS ASPHALTIC CONCRETE (AC10) WITH AMC1 BINDER ON,
140mm COMPACTED THICKNESS FINE CRUSHED ROCK (DGB20) ON,
140mm COMPACTED THICKNESS FINE CRUSHED ROCK (DGB40).
ASSUMED CBR 3% AND ESA OF 2x10^6
GEORGE STREET
POMEROY STREET
40
N
ISSUED FOR INFORMATION
POMERY ST INTERSECTION
INT POMEROY ST & GEORGE ST
POMEROY STREET AND GEORGE STREET INTERSECTON PAVEMENT PLAN
S22170
SKE-0006
C
REVISIONS

Appendix F SIDRA Outputs (Future Reference and Future Development Case with upgrade) – George Street / Pomeroy Street

Attached separately.

www.pwc.com.au

SIDRA Outputs

Site Layout

Movement Summary

Lane Summary

Phase Sequence

Site

All Sites

- George Street / Pomeroy Street
- George Street / Conway Avenue
- George Street / Rothwell Avenue
- King Street / Victoria Avenue
- George Street / Victoria Avenue
- Victoria Avenue / Access Road

Scenario Name

Base Year, AM and PM

USER REPORT FOR SITE

All Movement Classes

Project: ConcordWestRedevelopment_Base&2036 **Template: Default Site User Report**

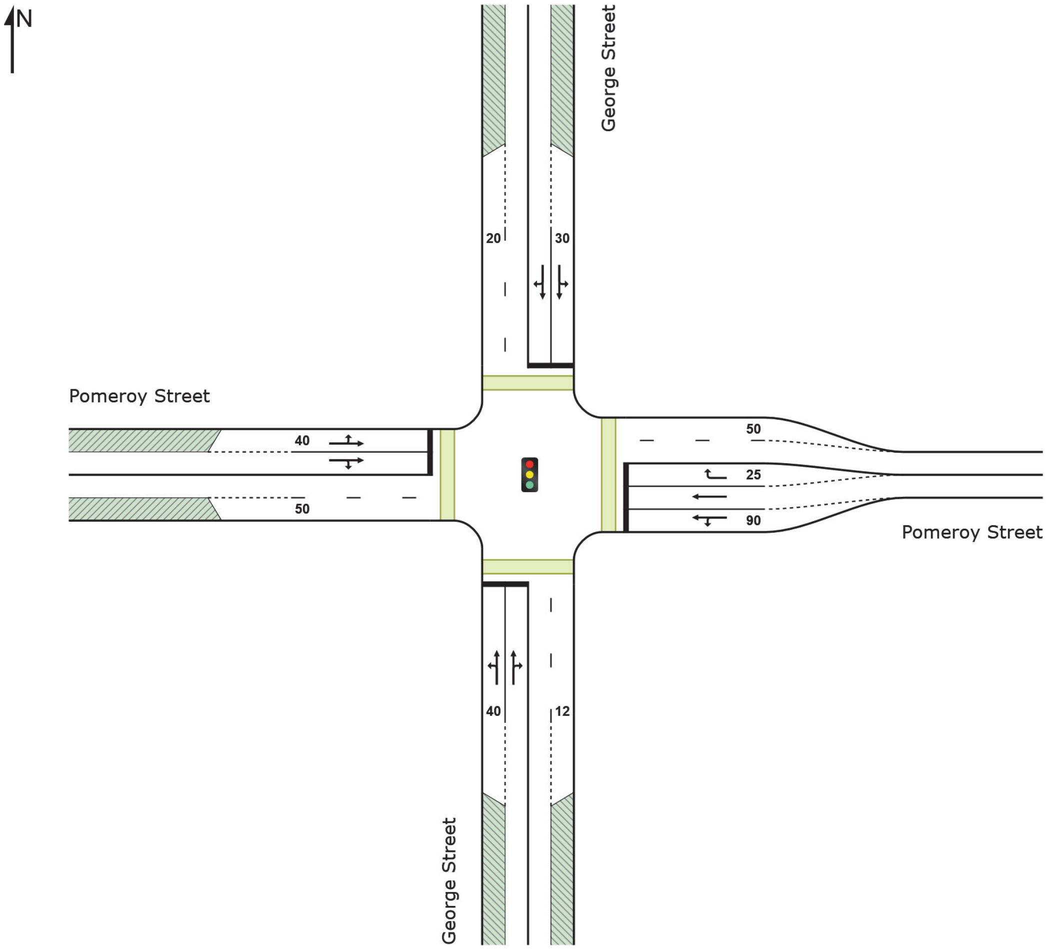
Site: [101_Existing_AM_GeorgeSt_PomeroySt (Site Folder: Existing)]

George St / Pomerory St
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: George St / Pomeroy
Reference Phase: Phase A
Input Phase Sequence: A0, A, B, C0, C
Output Phase Sequence: A0, A, B, C0, C

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: George Street														
1	L2	97	1.0	102	1.0	0.192	40.9	LOS C	5.6	39.5	0.76	0.72	0.76	21.1
2	T1	68	4.4	72	4.4	0.850	59.5	LOS E	14.8	104.8	0.92	0.94	1.13	10.3
3	R2	141	0.0	148	0.0	* 0.850	67.3	LOS E	14.8	104.8	0.95	0.98	1.20	11.3
Approach		306	1.3	322	1.3	0.850	57.2	LOS E	14.8	104.8	0.88	0.89	1.05	14.1
East: Pomeroy Street														
4	L2	370	0.5	389	0.5	0.373	21.5	LOS B	14.4	101.1	0.59	0.71	0.59	22.1
5	T1	381	1.6	401	1.6	0.512	22.7	LOS B	16.7	118.6	0.67	0.59	0.67	26.9
6	R2	103	1.0	108	1.0	* 0.533	54.6	LOS D	6.6	46.8	0.94	0.79	0.94	12.2
Approach		854	1.1	899	1.1	0.533	26.0	LOS B	16.7	118.6	0.67	0.66	0.67	23.0
North: George Street														
7	L2	167	1.2	176	1.2	0.219	29.9	LOS C	7.3	51.3	0.65	0.70	0.65	18.3
8	T1	104	1.0	109	1.0	0.562	47.0	LOS D	10.1	72.1	0.89	0.76	0.89	12.3
9	R2	64	3.1	67	3.1	0.562	50.4	LOS D	10.1	72.1	0.89	0.76	0.89	18.7
Approach		335	1.5	353	1.5	0.562	39.1	LOS C	10.1	72.1	0.77	0.73	0.77	16.4
West: Pomeroy Street														
10	L2	122	1.6	128	1.6	0.360	27.6	LOS B	10.4	73.7	0.65	0.64	0.65	25.0
11	T1	438	1.8	461	1.8	* 1.104	138.1	LOS F	54.8	388.3	0.91	1.35	1.62	9.8
12	R2	81	0.0	85	0.0	1.104	183.7	LOS F	54.8	388.3	1.00	1.62	1.98	7.6
Approach		641	1.6	675	1.6	1.104	122.8	LOS F	54.8	388.3	0.87	1.25	1.48	10.6
All Vehicles		2136	1.3	2248	1.3	1.104	61.6	LOS E	54.8	388.3	0.78	0.88	0.98	14.7

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)

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: George Street													
Lane 1	114	1.4	593	0.192	23[6]	40.5	LOS C	5.6	39.5	Short (P)	40	0.0	NA
Lane 2	208	1.3	245[1]	0.850	100	66.3	LOS E	14.8	104.8	Full	120	0.0	0.0
Approach	322	1.3		0.850		57.2	LOS E	14.8	104.8				
East: Pomeroy Street													
Lane 1	389	0.5	1044	0.373	73[5]	21.5	LOS B	14.4	101.1	Short	90	0.0	NA
Lane 2	401	1.6	783[1]	0.512	100	22.7	LOS B	16.7	118.6	Full	150	0.0	0.0
Lane 3	108	1.0	203[1]	0.533	100	54.6	LOS D	6.6	46.8	Short	25	0.0	NA
Approach	899	1.1		0.533		26.0	LOS B	16.7	118.6				
North: George Street													
Lane 1	176	1.2	803	0.219	39[5]	29.9	LOS C	7.3	51.3	Short (P)	30	0.0	NA
Lane 2	177	1.8	315[1]	0.562	100	48.3	LOS D	10.1	72.1	Full	100	0.0	0.0

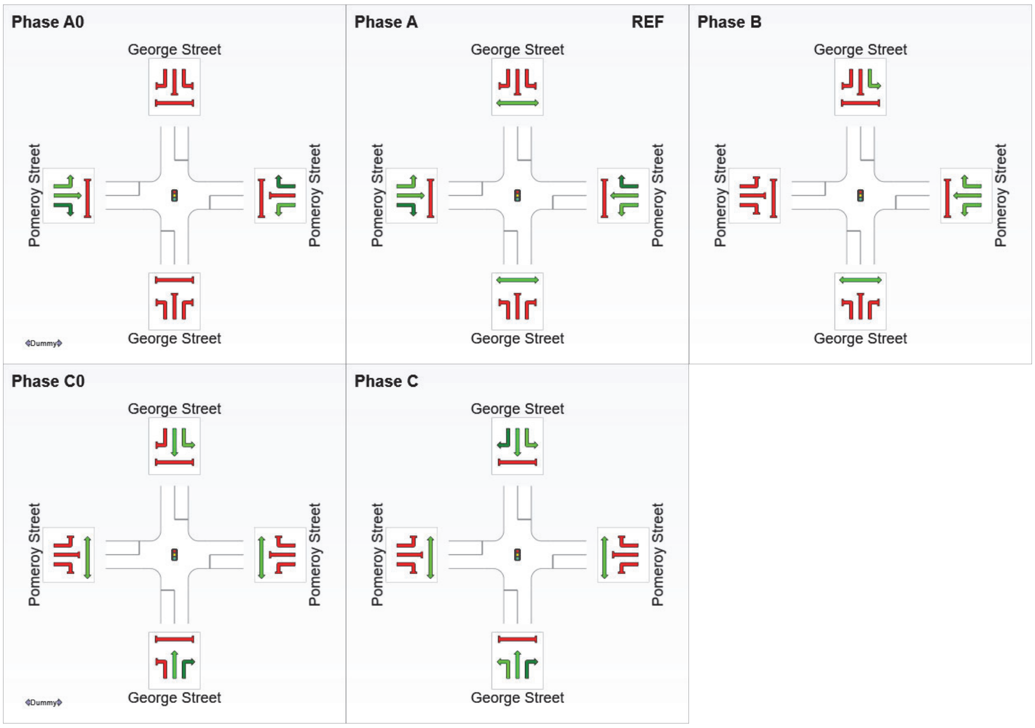
Approach	353	1.5		0.562		39.1	LOS C	10.1	72.1				
West: Pomeroy Street													
Lane 1	253	1.7	703[1]	0.360	33[6]	26.3	LOS B	10.4	73.7	Short (P)	40	0.0	NA
Lane 2	421	1.5	381[1]	1.104	100	180.9	LOS F	54.8	388.3	Full	350	0.0	14.4
Approach	675	1.6		1.104		122.8	LOS F	54.8	388.3				
Intersection	2248	1.3		1.104		61.6	LOS E	54.8	388.3				

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.
5 Lane under-utilisation found by the program
6 Lane under-utilisation due to downstream effects

Input Phase Sequence

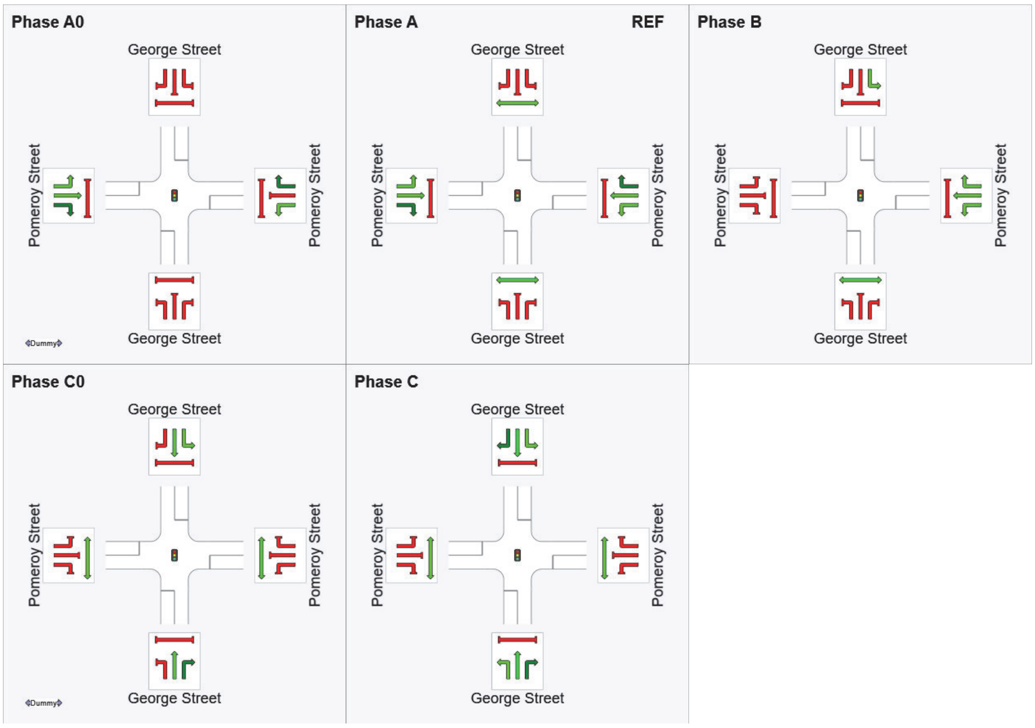
Phase Sequence: George St / Pomeroy
Reference Phase: Phase A
Input Phase Sequence: A0, A, B, C0, C



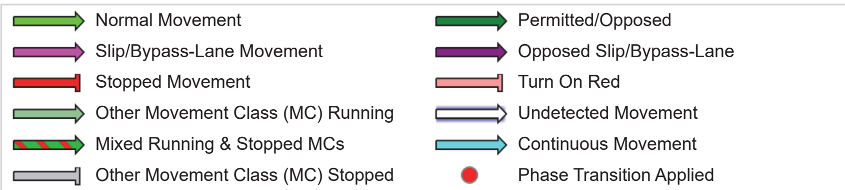
REF: Reference Phase
VAR: Variable Phase


Normal Movement
Slip/Bypass-Lane Movement
Stopped Movement
Other Movement Class (MC) Running
Mixed Running & Stopped MCs
Other Movement Class (MC) Stopped
Permitted/Opposed
Opposed Slip/Bypass-Lane
Turn On Red
Undetected Movement
Continuous Movement
Phase Transition Applied

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Phase Timing Summary

Phase	A0	A	B	C0	C
Phase Change Time (sec)	126	0	58	71	82
Green Time (sec)	8	58	7	5	44
Phase Time (sec)	8	64	13	5	50
Phase Split	6%	46%	9%	4%	36%

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%.

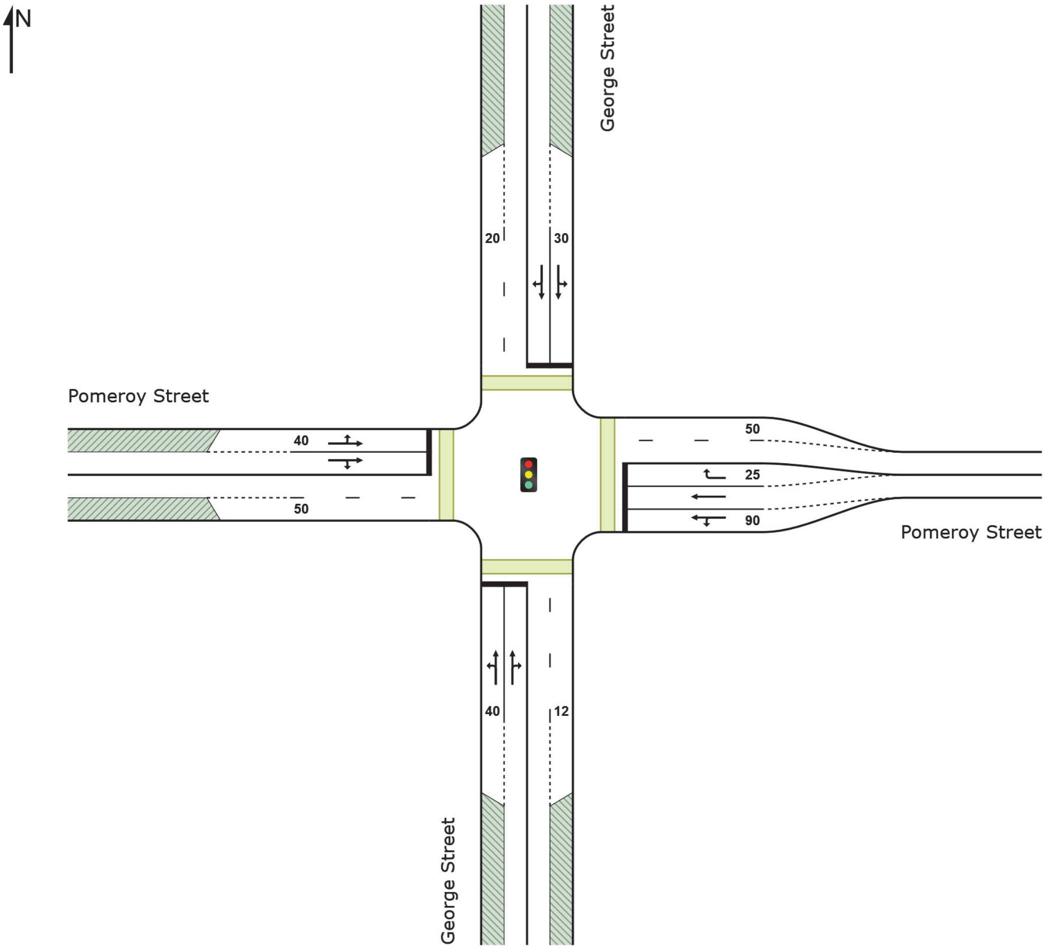
Site: [102_Existing_PM_GeorgeSt_PomeroySt (Site Folder: Existing)]

George St / Pomerory St
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: PM - George St / Pomeroy
Reference Phase: Phase A
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: George Street														
1	L2	95	0.0	100	0.0	0.213	33.1	LOS C	5.2	36.5	0.75	0.71	0.75	26.5
2	T1	63	0.0	66	0.0	0.941	47.5	LOS D	14.2	99.3	0.85	0.90	1.11	12.6
3	R2	167	0.0	176	0.0	0.941	79.4	LOS F	14.2	99.3	1.00	1.16	1.60	10.4
Approach		325	0.0	342	0.0	0.941	59.7	LOS E	14.2	99.3	0.90	0.98	1.25	14.4
East: Pomeroy Street														
4	L2	205	0.0	216	0.0	0.213	18.5	LOS B	5.9	41.0	0.55	0.70	0.55	26.1
5	T1	505	0.6	532	0.6	0.645	16.6	LOS B	17.6	123.9	0.67	0.60	0.67	34.6
6	R2	161	0.0	169	0.0	* 0.753	53.2	LOS D	9.2	64.5	1.00	0.94	1.16	13.1
Approach		871	0.3	917	0.3	0.753	23.8	LOS B	17.6	123.9	0.70	0.69	0.73	27.7
North: George Street														
7	L2	132	0.0	139	0.0	0.169	24.8	LOS B	4.4	31.0	0.63	0.71	0.63	22.2
8	T1	90	0.0	95	0.0	* 0.831	60.2	LOS E	10.7	74.7	0.99	0.96	1.25	10.8
9	R2	81	0.0	85	0.0	0.831	65.9	LOS E	10.7	74.7	1.00	0.97	1.26	17.2
Approach		303	0.0	319	0.0	0.831	46.3	LOS D	10.7	74.7	0.83	0.86	0.98	16.3
West: Pomeroy Street														
10	L2	105	0.0	111	0.0	0.327	26.6	LOS B	9.5	66.8	0.70	0.66	0.70	29.0
11	T1	507	0.8	534	0.8	* 1.003	75.3	LOS F	37.7	265.4	0.91	1.18	1.40	16.4
12	R2	60	0.0	63	0.0	1.003	102.5	LOS F	37.7	265.4	1.00	1.40	1.70	13.0
Approach		672	0.6	707	0.6	1.003	70.1	LOS E	37.7	265.4	0.88	1.12	1.31	17.1
All Vehicles		2171	0.3	2285	0.3	1.003	46.7	LOS D	37.7	265.4	0.81	0.89	1.03	19.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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)

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: George Street													
Lane 1	138	0.0	650	0.213	23[6]	31.6	LOS C	5.2	36.5	Short (P)	40	0.0	NA
Lane 2	204	0.0	217[1]	0.941	100	78.8	LOS F	14.2	99.3	Full	120	0.0	0.0
Approach	342	0.0		0.941		59.7	LOS E	14.2	99.3				
East: Pomeroy Street													
Lane 1	216	0.0	1013	0.213	33[5]	18.5	LOS B	5.9	41.0	Short	90	0.0	NA
Lane 2	532	0.6	824[1]	0.645	100	16.6	LOS B	17.6	123.9	Full	150	0.0	0.0
Lane 3	169	0.0	225[1]	0.753	100	53.2	LOS D	9.2	64.5	Short	25	0.0	NA
Approach	917	0.3		0.753		23.8	LOS B	17.6	123.9				
North: George Street													
Lane 1	142	0.0	837	0.169	20[6]	24.7	LOS B	4.4	31.0	Short (P)	30	0.0	NA
Lane 2	177	0.0	213[1]	0.831	100	63.6	LOS E	10.7	74.7	Full	100	0.0	0.0

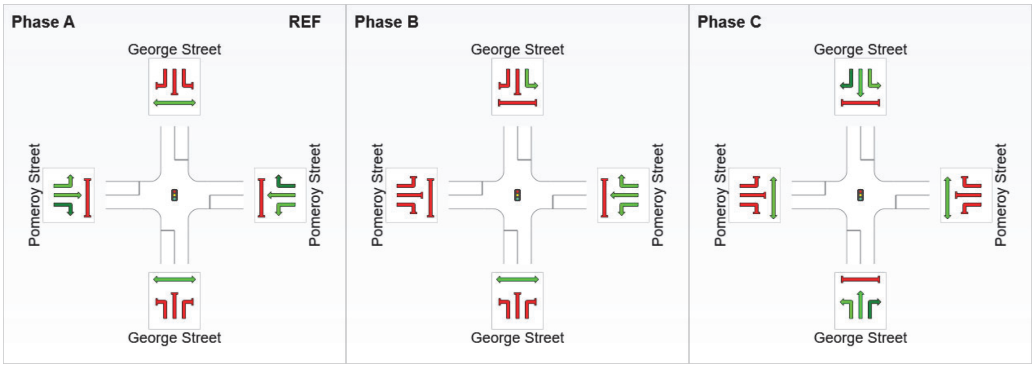
Approach	319	0.0		0.831		46.3	LOS D	10.7	74.7				
West: Pomeroy Street													
Lane 1	272	0.5	831	0.327	33[6]	24.5	LOS B	9.5	66.8	Short (P)	40	0.0	NA
Lane 2	435	0.7	434[1]	1.003	100	98.6	LOS F	37.7	265.4	Full	350	0.0	0.0
Approach	707	0.6		1.003		70.1	LOS E	37.7	265.4				
Intersection	2285	0.3		1.003		46.7	LOS D	37.7	265.4				

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.
5 Lane under-utilisation found by the program
6 Lane under-utilisation due to downstream effects

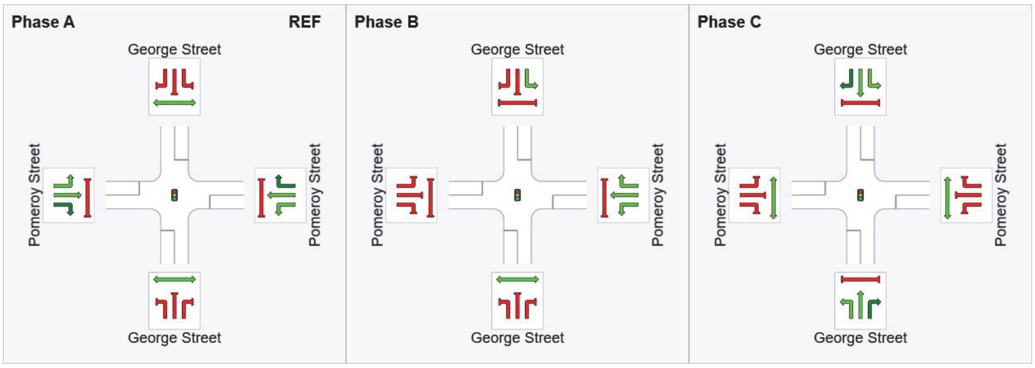
Input Phase Sequence

Phase Sequence: PM - George St / Pomeroy
Reference Phase: Phase A
Input Phase Sequence: A, B, C



REF: Reference Phase
VAR: Variable Phase

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class (MC) Running	Undetected Movement
Mixed Running & Stopped MCs	Continuous Movement
Other Movement Class (MC) Stopped	Phase Transition Applied

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	54	66
Green Time (sec)	48	6	38
Phase Time (sec)	54	12	44
Phase Split	49%	11%	40%

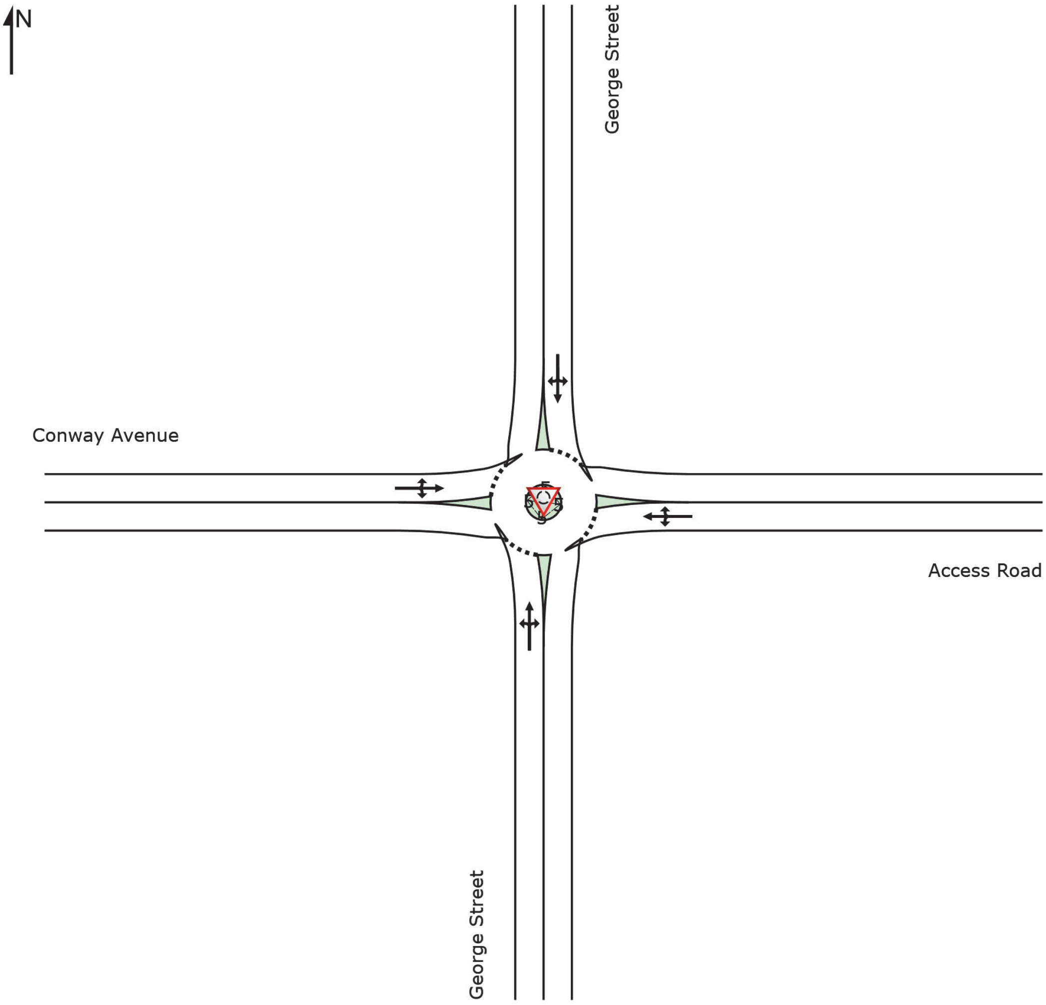
See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified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

Site: [201_Existing_AM_GeorgeSt_ConwayAve (Site Folder: Existing)]

New Site
Site Category: (None)
Roundabout

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: George Street														
1	L2	4	0.0	4	0.0	0.165	4.8	LOS A	0.9	6.6	0.08	0.49	0.08	46.1
2	T1	197	1.5	207	1.5	0.165	4.0	LOS A	0.9	6.6	0.08	0.49	0.08	46.6
3	R2	26	15.4	27	15.4	0.165	6.7	LOS A	0.9	6.6	0.08	0.49	0.08	46.2
Approach		227	3.1	239	3.1	0.165	4.3	LOS A	0.9	6.6	0.08	0.49	0.08	46.6
East: Access Road														
4	L2	31	0.0	33	0.0	0.041	5.7	LOS A	0.2	1.4	0.33	0.57	0.33	45.1
5	T1	1	0.0	1	0.0	0.041	4.8	LOS A	0.2	1.4	0.33	0.57	0.33	45.6
6	R2	9	0.0	9	0.0	0.041	7.3	LOS A	0.2	1.4	0.33	0.57	0.33	45.5
Approach		41	0.0	43	0.0	0.041	6.0	LOS A	0.2	1.4	0.33	0.57	0.33	45.2
North: George Street														
7	L2	3	0.0	3	0.0	0.122	5.0	LOS A	0.6	4.4	0.16	0.47	0.16	46.1
8	T1	142	2.1	149	2.1	0.122	4.2	LOS A	0.6	4.4	0.16	0.47	0.16	46.6
9	R2	2	50.0	2	50.0	0.122	7.3	LOS A	0.6	4.4	0.16	0.47	0.16	45.6
Approach		147	2.7	155	2.7	0.122	4.2	LOS A	0.6	4.4	0.16	0.47	0.16	46.5
West: Conway Avenue														
10	L2	2	50.0	2	50.0	0.016	7.2	LOS A	0.1	0.5	0.40	0.60	0.40	43.7
11	T1	1	0.0	1	0.0	0.016	5.2	LOS A	0.1	0.5	0.40	0.60	0.40	44.9
12	R2	11	0.0	12	0.0	0.016	7.7	LOS A	0.1	0.5	0.40	0.60	0.40	44.8
Approach		14	7.1	15	7.1	0.016	7.5	LOS A	0.1	0.5	0.40	0.60	0.40	44.6
All Vehicles		429	2.8	452	2.8	0.165	4.5	LOS A	0.9	6.6	0.14	0.49	0.14	46.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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.

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: George Street													
Lane 1[d]	239	3.1	1452	0.165	100	4.3	LOS A	0.9	6.6	Full	500	0.0	0.0
Approach	239	3.1		0.165		4.3	LOS A	0.9	6.6				
East: Access Road													
Lane 1[d]	43	0.0	1053	0.041	100	6.0	LOS A	0.2	1.4	Full	500	0.0	0.0
Approach	43	0.0		0.041		6.0	LOS A	0.2	1.4				
North: George Street													
Lane 1[d]	155	2.7	1267	0.122	100	4.2	LOS A	0.6	4.4	Full	500	0.0	0.0
Approach	155	2.7		0.122		4.2	LOS A	0.6	4.4				
West: Conway Avenue													
Lane 1[d]	15	7.1	940	0.016	100	7.5	LOS A	0.1	0.5	Full	500	0.0	0.0

Approach	15	7.1	0.016	7.5	LOS A	0.1	0.5
Intersection	452	2.8	0.165	4.5	LOS A	0.9	6.6

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.
Roundabout Capacity Model: SIDRA Standard.
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.

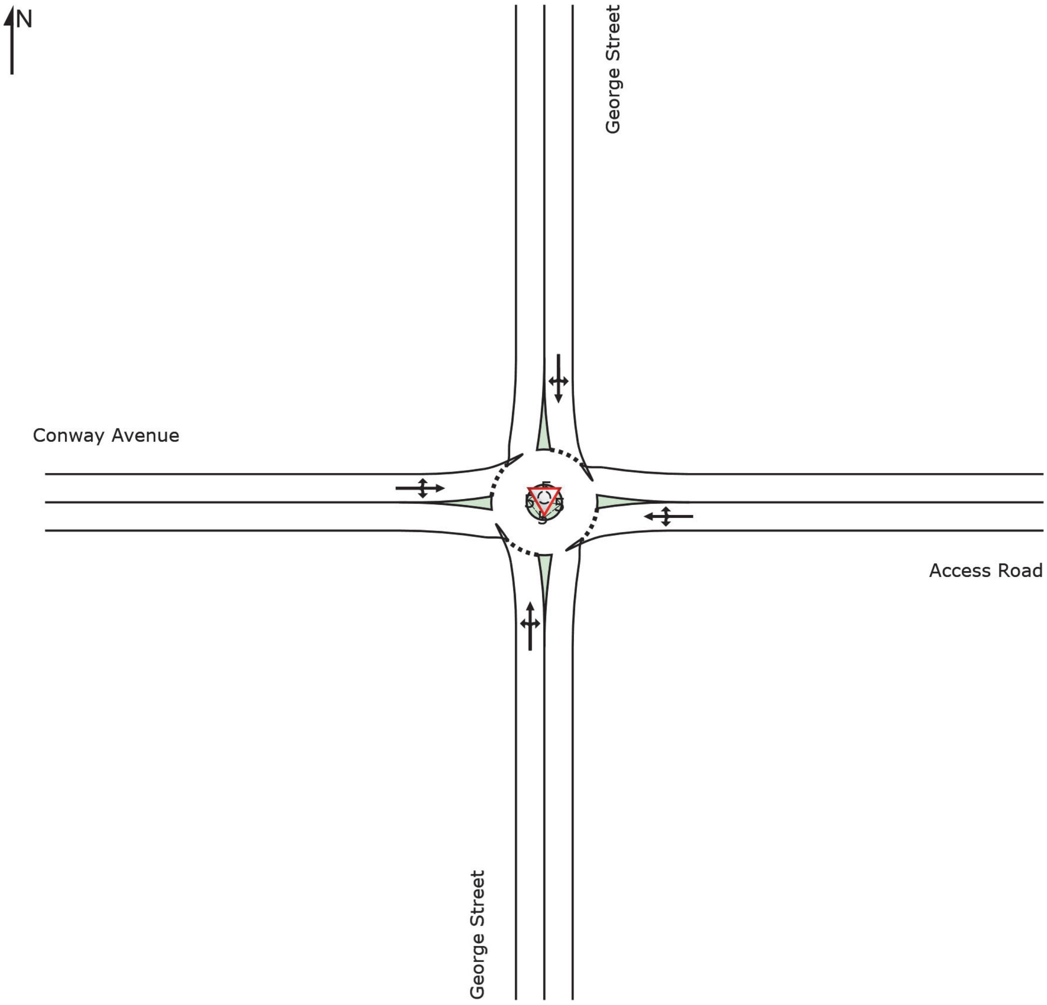
d Dominant lane on roundabout approach

Site: [202_Existing_PM_GeorgeSt_ConwayAve (Site Folder: Existing)]

New Site
Site Category: (None)
Roundabout

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance															
Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: George Street														
1	L2	13	0.0	14	0.0	0.117	4.8	LOS A	0.6	4.3	0.04	0.53	0.04	46.0
2	T1	118	0.0	124	0.0	0.117	3.9	LOS A	0.6	4.3	0.04	0.53	0.04	46.5
3	R2	42	0.0	44	0.0	0.117	6.5	LOS A	0.6	4.3	0.04	0.53	0.04	46.4
Approach		173	0.0	182	0.0	0.117	4.6	LOS A	0.6	4.3	0.04	0.53	0.04	46.4
East: Access Road														
4	L2	21	0.0	22	0.0	0.024	5.7	LOS A	0.1	0.8	0.33	0.56	0.33	45.3
5	T1	1	0.0	1	0.0	0.024	4.8	LOS A	0.1	0.8	0.33	0.56	0.33	45.8
6	R2	2	0.0	2	0.0	0.024	7.3	LOS A	0.1	0.8	0.33	0.56	0.33	45.6
Approach		24	0.0	25	0.0	0.024	5.8	LOS A	0.1	0.8	0.33	0.56	0.33	45.3
North: George Street														
7	L2	9	0.0	9	0.0	0.137	5.1	LOS A	0.7	4.9	0.19	0.47	0.19	46.0
8	T1	154	0.0	162	0.0	0.137	4.2	LOS A	0.7	4.9	0.19	0.47	0.19	46.5
9	R2	1	0.0	1	0.0	0.137	6.7	LOS A	0.7	4.9	0.19	0.47	0.19	46.4
Approach		164	0.0	173	0.0	0.137	4.3	LOS A	0.7	4.9	0.19	0.47	0.19	46.5
West: Conway Avenue														
10	L2	1	0.0	1	0.0	0.011	5.6	LOS A	0.0	0.3	0.32	0.59	0.32	44.7
11	T1	1	0.0	1	0.0	0.011	4.8	LOS A	0.0	0.3	0.32	0.59	0.32	45.2
12	R2	9	0.0	9	0.0	0.011	7.3	LOS A	0.0	0.3	0.32	0.59	0.32	45.0
Approach		11	0.0	12	0.0	0.011	6.9	LOS A	0.0	0.3	0.32	0.59	0.32	45.0
All Vehicles		372	0.0	392	0.0	0.137	4.6	LOS A	0.7	4.9	0.13	0.51	0.13	46.3

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.
Roundabout Capacity Model: SIDRA Standard.
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.

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: George Street													
Lane 1[d]	182	0.0	1552	0.117	100	4.6	LOS A	0.6	4.3	Full	500	0.0	0.0
Approach	182	0.0		0.117		4.6	LOS A	0.6	4.3				
East: Access Road													
Lane 1[d]	25	0.0	1045	0.024	100	5.8	LOS A	0.1	0.8	Full	500	0.0	0.0
Approach	25	0.0		0.024		5.8	LOS A	0.1	0.8				
North: George Street													
Lane 1[d]	173	0.0	1257	0.137	100	4.3	LOS A	0.7	4.9	Full	500	0.0	0.0
Approach	173	0.0		0.137		4.3	LOS A	0.7	4.9				
West: Conway Avenue													
Lane 1[d]	12	0.0	1054	0.011	100	6.9	LOS A	0.0	0.3	Full	500	0.0	0.0

Approach	12	0.0	0.011	6.9	LOS A	0.0	0.3
Intersection	392	0.0	0.137	4.6	LOS A	0.7	4.9

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.
Roundabout Capacity Model: SIDRA Standard.
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.

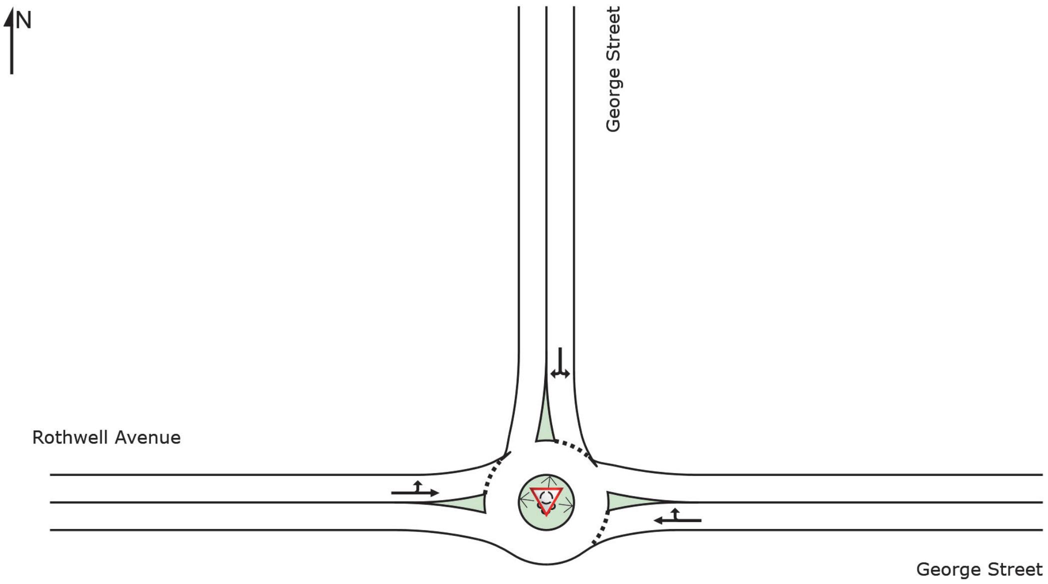
d Dominant lane on roundabout approach

Site: [301_Existing_AM_GeorgeSt_RothwellAv (Site Folder: Existing)]

New Site
Site Category: (None)
Roundabout

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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
East: George Street														
5	T1	1	0.0	1	0.0	0.123	3.7	LOS A	0.6	4.3	0.02	0.64	0.02	45.9
6	R2	194	1.5	204	1.5	0.123	6.8	LOS A	0.6	4.3	0.02	0.64	0.02	45.7
Approach		195	1.5	205	1.5	0.123	6.8	LOS A	0.6	4.3	0.02	0.64	0.02	45.7
North: George Street														
7	L2	124	1.6	131	1.6	0.079	3.8	LOS A	0.4	3.0	0.02	0.50	0.02	46.8
9	R2	1	0.0	1	0.0	0.079	6.8	LOS A	0.4	3.0	0.02	0.50	0.02	47.4
Approach		125	1.6	132	1.6	0.079	3.9	LOS A	0.4	3.0	0.02	0.50	0.02	46.8
West: Rothwell Avenue														
10	L2	2	0.0	2	0.0	0.003	4.7	LOS A	0.0	0.1	0.34	0.46	0.34	46.1
11	T1	1	0.0	1	0.0	0.003	4.6	LOS A	0.0	0.1	0.34	0.46	0.34	46.8
Approach		3	0.0	3	0.0	0.003	4.7	LOS A	0.0	0.1	0.34	0.46	0.34	46.3
All Vehicles		323	1.5	340	1.5	0.123	5.6	LOS A	0.6	4.3	0.02	0.58	0.02	46.1

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.
Roundabout Capacity Model: SIDRA Standard.
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.

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. %
East: George Street													
Lane 1[d]	205	1.5	1673	0.123	100	6.8	LOS A	0.6	4.3	Full	500	0.0	0.0
Approach	205	1.5		0.123		6.8	LOS A	0.6	4.3				
North: George Street													
Lane 1[d]	132	1.6	1660	0.079	100	3.9	LOS A	0.4	3.0	Full	500	0.0	0.0
Approach	132	1.6		0.079		3.9	LOS A	0.4	3.0				
West: Rothwell Avenue													
Lane 1[d]	3	0.0	1092	0.003	100	4.7	LOS A	0.0	0.1	Full	500	0.0	0.0
Approach	3	0.0		0.003		4.7	LOS A	0.0	0.1				
Intersection	340	1.5		0.123		5.6	LOS A	0.6	4.3				

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.
Roundabout Capacity Model: SIDRA Standard.
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.

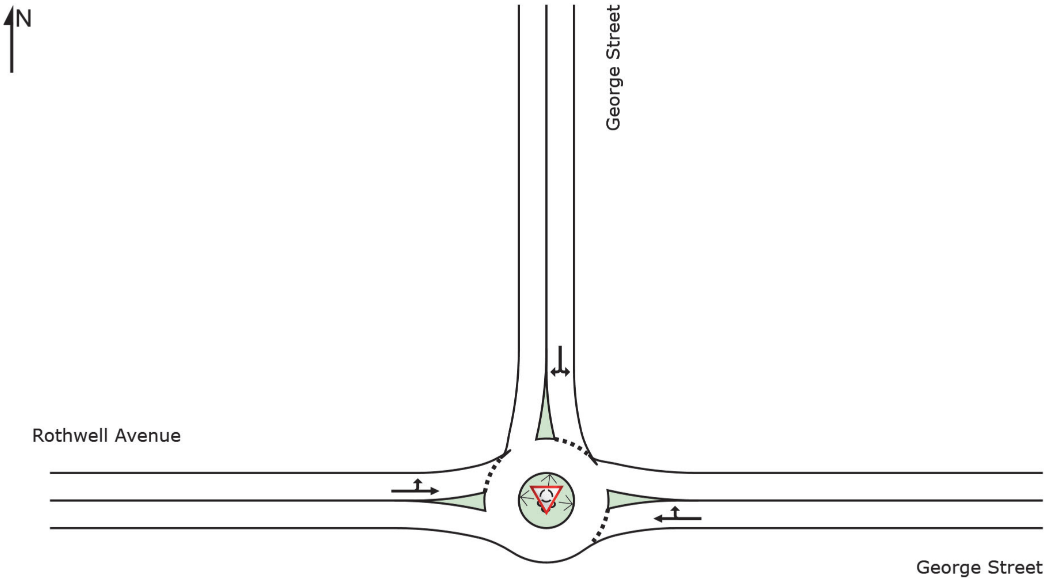
d Dominant lane on roundabout approach

Site: [302_Existing_PM_GeorgeSt_RothwellAv (Site Folder: Existing)]

New Site
Site Category: (None)
Roundabout

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance															
Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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
East: George Street														
5	T1	1	0.0	1	0.0	0.067	3.7	LOS A	0.3	2.2	0.02	0.63	0.02	45.9
6	R2	103	0.0	108	0.0	0.067	6.8	LOS A	0.3	2.2	0.02	0.63	0.02	45.7
Approach		104	0.0	109	0.0	0.067	6.8	LOS A	0.3	2.2	0.02	0.63	0.02	45.7
North: George Street														
7	L2	150	0.0	158	0.0	0.095	3.8	LOS A	0.5	3.5	0.02	0.50	0.02	46.8
9	R2	2	0.0	2	0.0	0.095	6.8	LOS A	0.5	3.5	0.02	0.50	0.02	47.4
Approach		152	0.0	160	0.0	0.095	3.9	LOS A	0.5	3.5	0.02	0.50	0.02	46.8
West: Rothwell Avenue														
10	L2	1	0.0	1	0.0	0.002	4.3	LOS A	0.0	0.1	0.24	0.43	0.24	46.3
11	T1	1	0.0	1	0.0	0.002	4.2	LOS A	0.0	0.1	0.24	0.43	0.24	47.1
Approach		2	0.0	2	0.0	0.002	4.2	LOS A	0.0	0.1	0.24	0.43	0.24	46.7
All Vehicles		258	0.0	272	0.0	0.095	5.0	LOS A	0.5	3.5	0.02	0.55	0.02	46.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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.

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. %
East: George Street													
Lane 1[d]	109	0.0	1627	0.067	100	6.8	LOS A	0.3	2.2	Full	500	0.0	0.0
Approach	109	0.0		0.067		6.8	LOS A	0.3	2.2				
North: George Street													
Lane 1[d]	160	0.0	1680	0.095	100	3.9	LOS A	0.5	3.5	Full	500	0.0	0.0
Approach	160	0.0		0.095		3.9	LOS A	0.5	3.5				
West: Rothwell Avenue													
Lane 1[d]	2	0.0	1185	0.002	100	4.2	LOS A	0.0	0.1	Full	500	0.0	0.0
Approach	2	0.0		0.002		4.2	LOS A	0.0	0.1				
Intersection	272	0.0		0.095		5.0	LOS A	0.5	3.5				

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.
Roundabout Capacity Model: SIDRA Standard.
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.

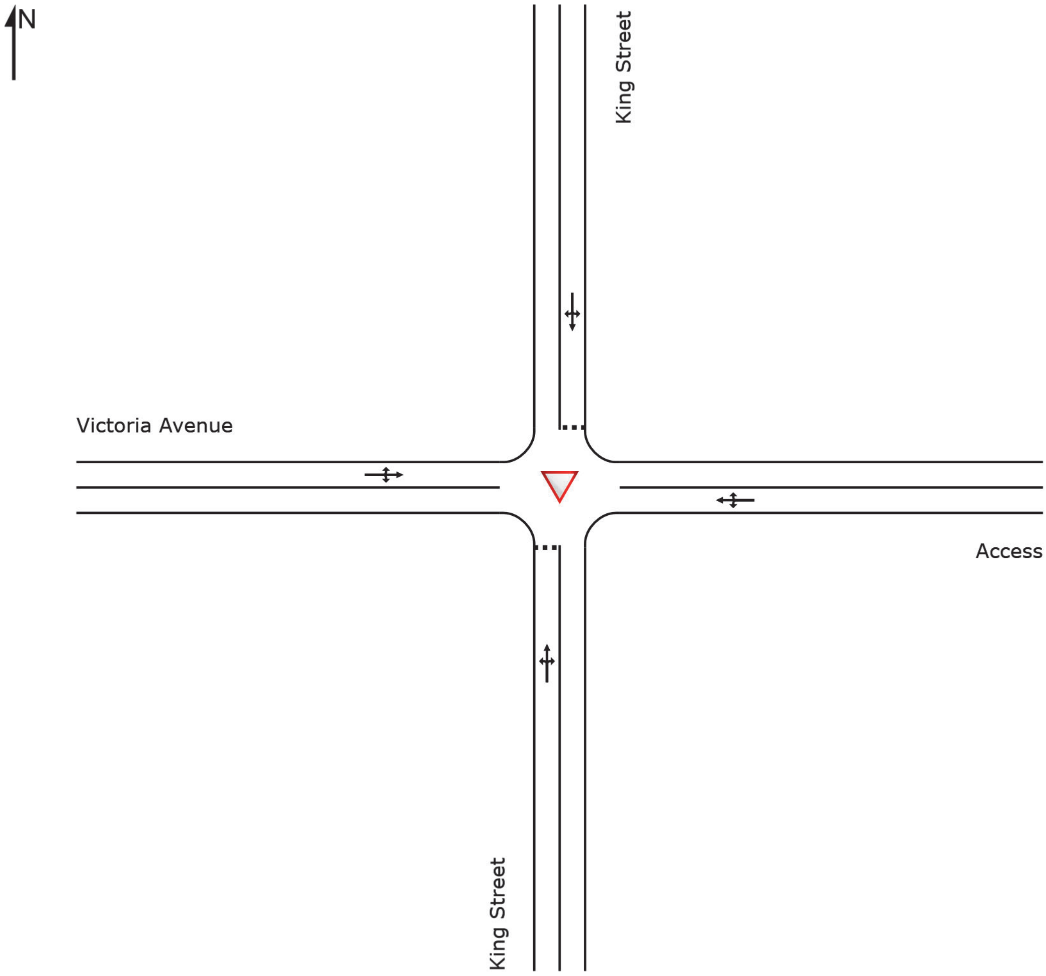
d Dominant lane on roundabout approach

Site: [401_Existing_AM_KingSt_VictoriaAve (Site Folder: Existing)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: King Street														
1	L2	6	0.0	6	0.0	0.006	4.6	LOS A	0.0	0.1	0.01	0.52	0.01	46.7
2	T1	1	0.0	1	0.0	0.006	3.3	LOS A	0.0	0.1	0.01	0.52	0.01	46.8
3	R2	1	0.0	1	0.0	0.006	4.6	LOS A	0.0	0.1	0.01	0.52	0.01	46.3
Approach		8	0.0	8	0.0	0.006	4.4	LOS A	0.0	0.1	0.01	0.52	0.01	46.7
East: Access														
4	L2	1	0.0	1	0.0	0.002	4.6	LOS A	0.0	0.0	0.06	0.35	0.06	47.4
5	T1	1	0.0	1	0.0	0.002	0.0	LOS A	0.0	0.0	0.06	0.35	0.06	47.8
6	R2	1	0.0	1	0.0	0.002	4.6	LOS A	0.0	0.0	0.06	0.35	0.06	46.9
Approach		3	0.0	3	0.0	0.002	3.1	NA	0.0	0.0	0.06	0.35	0.06	47.4
North: King Street														
7	L2	1	0.0	1	0.0	0.012	4.6	LOS A	0.0	0.3	0.07	0.53	0.07	46.5
8	T1	1	0.0	1	0.0	0.012	3.3	LOS A	0.0	0.3	0.07	0.53	0.07	46.6
9	R2	11	0.0	12	0.0	0.012	4.7	LOS A	0.0	0.3	0.07	0.53	0.07	46.1
Approach		13	0.0	14	0.0	0.012	4.6	LOS A	0.0	0.3	0.07	0.53	0.07	46.2
West: Victoria Avenue														
10	L2	18	0.0	19	0.0	0.019	4.6	LOS A	0.1	0.5	0.01	0.47	0.01	46.9
11	T1	4	0.0	4	0.0	0.019	0.0	LOS A	0.1	0.5	0.01	0.47	0.01	47.3
12	R2	12	0.0	13	0.0	0.019	4.6	LOS A	0.1	0.5	0.01	0.47	0.01	46.5
Approach		34	0.0	36	0.0	0.019	4.0	NA	0.1	0.5	0.01	0.47	0.01	46.8
All Vehicles		58	0.0	61	0.0	0.019	4.2	NA	0.1	0.5	0.03	0.49	0.03	46.7

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

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: King Street													
Lane 1	8	0.0	1495	0.006	100	4.4	LOS A	0.0	0.1	Full	500	0.0	0.0
Approach	8	0.0		0.006		4.4	LOS A	0.0	0.1				
East: Access													
Lane 1	3	0.0	1845	0.002	100	3.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	3	0.0		0.002		3.1	NA	0.0	0.0				
North: King Street													
Lane 1	14	0.0	1130	0.012	100	4.6	LOS A	0.0	0.3	Full	500	0.0	0.0
Approach	14	0.0		0.012		4.6	LOS A	0.0	0.3				
West: Victoria Avenue													

Lane 1	36	0.0	1842	0.019	100	4.0	LOS A	0.1	0.5	Full	500	0.0	0.0
Approach	36	0.0		0.019		4.0	NA	0.1	0.5				
Intersection	61	0.0		0.019		4.2	NA	0.1	0.5				

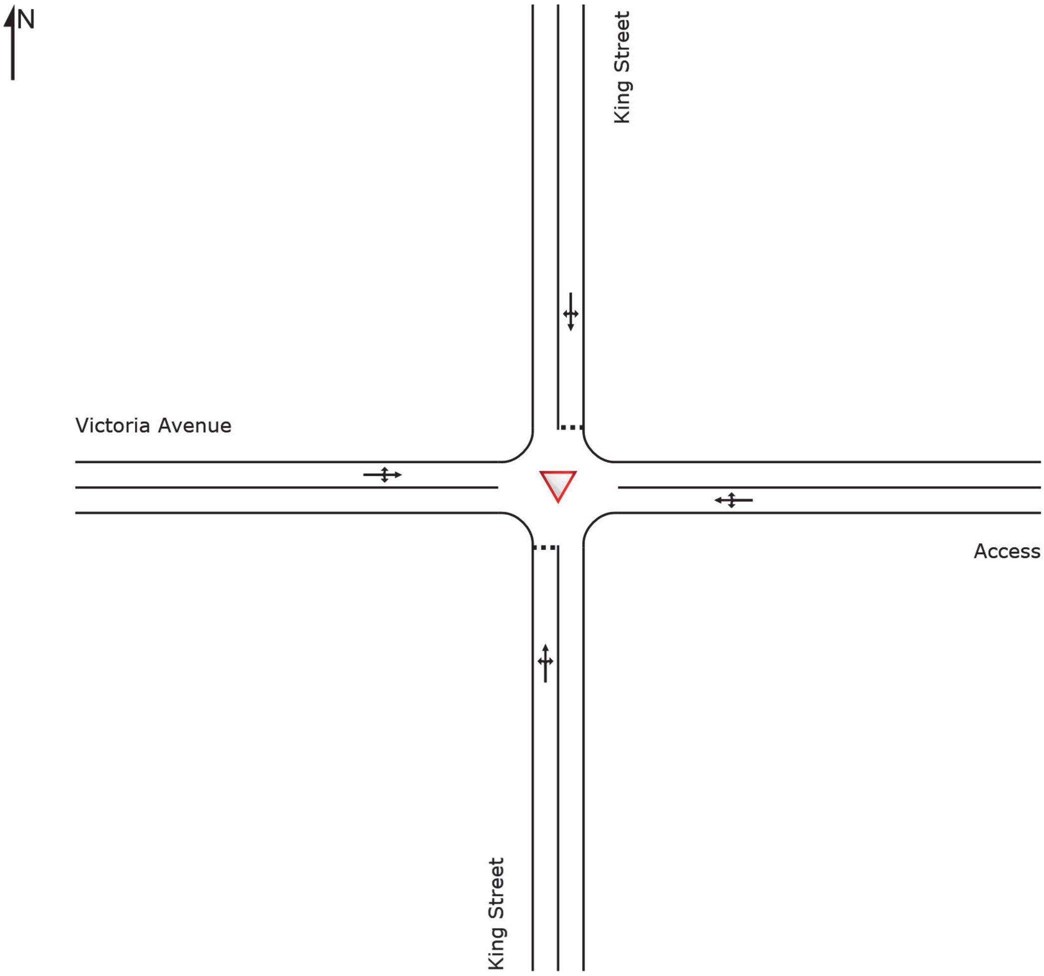
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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.

Site: [402_Existing_PM_KingSt_VictoriaAve (Site Folder: Existing)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: King Street														
1	L2	16	0.0	17	0.0	0.012	4.6	LOS A	0.0	0.3	0.03	0.51	0.03	46.6
2	T1	1	0.0	1	0.0	0.012	3.3	LOS A	0.0	0.3	0.03	0.51	0.03	46.7
3	R2	1	0.0	1	0.0	0.012	4.6	LOS A	0.0	0.3	0.03	0.51	0.03	46.2
Approach		18	0.0	19	0.0	0.012	4.5	LOS A	0.0	0.3	0.03	0.51	0.03	46.6
East: Access														
4	L2	1	0.0	1	0.0	0.004	4.6	LOS A	0.0	0.0	0.02	0.14	0.02	48.7
5	T1	6	0.0	6	0.0	0.004	0.0	LOS A	0.0	0.0	0.02	0.14	0.02	49.2
6	R2	1	0.0	1	0.0	0.004	4.6	LOS A	0.0	0.0	0.02	0.14	0.02	48.2
Approach		8	0.0	8	0.0	0.004	1.2	NA	0.0	0.0	0.02	0.14	0.02	49.0
North: King Street														
7	L2	1	0.0	1	0.0	0.014	4.6	LOS A	0.0	0.3	0.03	0.54	0.03	46.6
8	T1	1	0.0	1	0.0	0.014	3.3	LOS A	0.0	0.3	0.03	0.54	0.03	46.6
9	R2	13	0.0	14	0.0	0.014	4.8	LOS A	0.0	0.3	0.03	0.54	0.03	46.1
Approach		15	0.0	16	0.0	0.014	4.6	LOS A	0.0	0.3	0.03	0.54	0.03	46.2
West: Victoria Avenue														
10	L2	15	0.0	16	0.0	0.016	4.6	LOS A	0.1	0.4	0.03	0.51	0.03	46.6
11	T1	1	0.0	1	0.0	0.016	0.0	LOS A	0.1	0.4	0.03	0.51	0.03	47.1
12	R2	12	0.0	13	0.0	0.016	4.6	LOS A	0.1	0.4	0.03	0.51	0.03	46.2
Approach		28	0.0	29	0.0	0.016	4.4	NA	0.1	0.4	0.03	0.51	0.03	46.5
All Vehicles		69	0.0	73	0.0	0.016	4.1	NA	0.1	0.4	0.03	0.47	0.03	46.7

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

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: King Street													
Lane 1	19	0.0	1564	0.012	100	4.5	LOS A	0.0	0.3	Full	500	0.0	0.0
Approach	19	0.0		0.012		4.5	LOS A	0.0	0.3				
East: Access													
Lane 1	8	0.0	1906	0.004	100	1.2	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	8	0.0		0.004		1.2	NA	0.0	0.0				
North: King Street													
Lane 1	16	0.0	1114	0.014	100	4.6	LOS A	0.0	0.3	Full	500	0.0	0.0
Approach	16	0.0		0.014		4.6	LOS A	0.0	0.3				
West: Victoria Avenue													

Lane 1	29	0.0	1829	0.016	100	4.4	LOS A	0.1	0.4	Full	500	0.0	0.0
Approach	29	0.0		0.016		4.4	NA	0.1	0.4				
Intersection	73	0.0		0.016		4.1	NA	0.1	0.4				

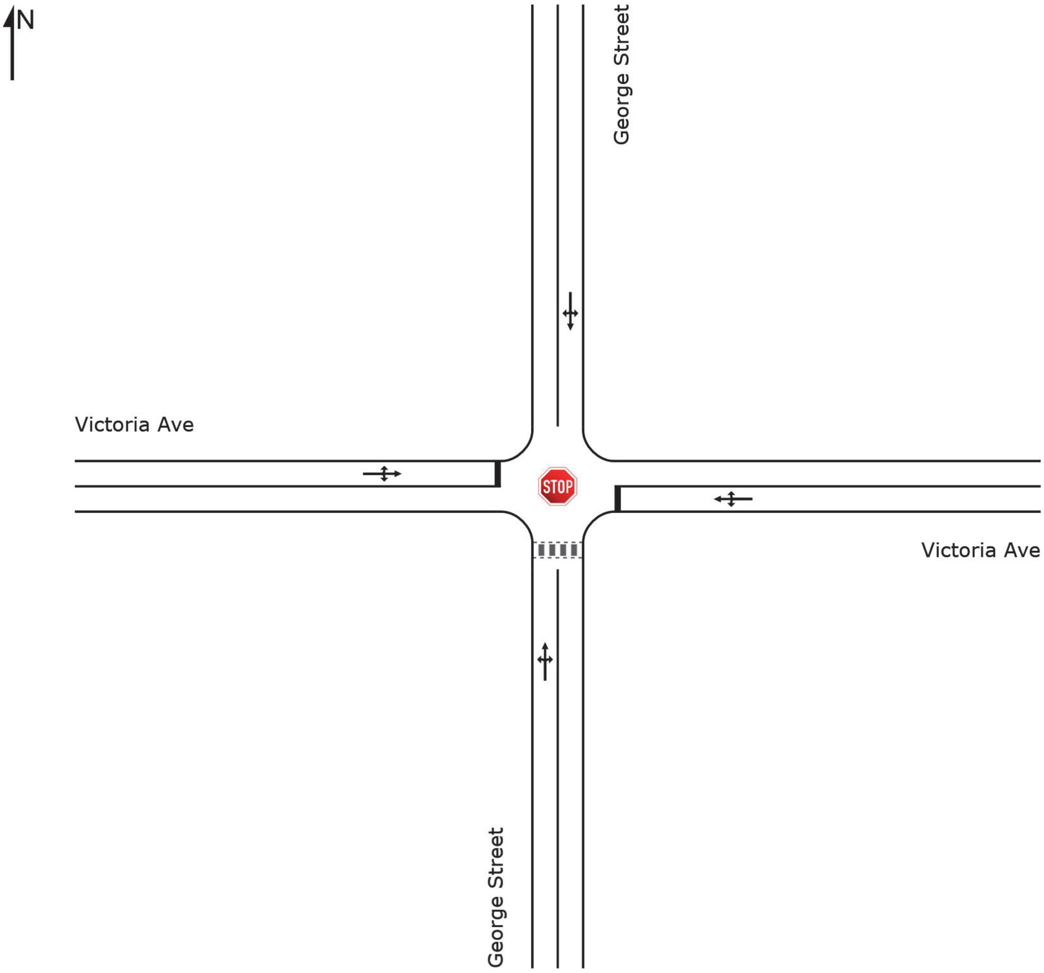
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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.

Site: [501_Existing_AM_GeorgeSt_VictoriaAv (Site Folder: Existing)]

George St / Victoria Ave
Site Category: (None)
Stop (Two-Way)

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance															
Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: George Street														
1	L2	129	0.0	136	0.0	0.096	4.6	LOS A	0.2	1.4	0.02	0.50	0.02	46.7
2	T1	10	10.0	11	10.0	0.096	0.0	LOS A	0.2	1.4	0.02	0.50	0.02	47.2
3	R2	29	0.0	31	0.0	0.096	4.6	LOS A	0.2	1.4	0.02	0.50	0.02	46.3
Approach		168	0.6	177	0.6	0.096	4.3	NA	0.2	1.4	0.02	0.50	0.02	46.7
East: Victoria Ave														
4	L2	18	0.0	19	0.0	0.015	7.5	LOS A	0.1	0.4	0.02	0.99	0.02	45.0
5	T1	1	0.0	1	0.0	0.015	8.0	LOS A	0.1	0.4	0.02	0.99	0.02	44.8
6	R2	1	0.0	1	0.0	0.015	7.2	LOS A	0.1	0.4	0.02	0.99	0.02	44.6
Approach		20	0.0	21	0.0	0.015	7.5	LOS A	0.1	0.4	0.02	0.99	0.02	45.0
North: George Street														
7	L2	1	0.0	1	0.0	0.005	4.9	LOS A	0.0	0.1	0.18	0.23	0.18	47.7
8	T1	5	0.0	5	0.0	0.005	0.2	LOS A	0.0	0.1	0.18	0.23	0.18	48.2
9	R2	3	0.0	3	0.0	0.005	5.0	LOS A	0.0	0.1	0.18	0.23	0.18	47.3
Approach		9	0.0	9	0.0	0.005	2.3	NA	0.0	0.1	0.18	0.23	0.18	47.8
West: Victoria Ave														
10	L2	3	0.0	3	0.0	0.110	6.7	LOS A	0.4	2.7	0.20	0.92	0.20	37.4
11	T1	8	0.0	8	0.0	0.110	7.1	LOS A	0.4	2.7	0.20	0.92	0.20	37.2
12	R2	84	0.0	88	0.0	0.110	7.1	LOS A	0.4	2.7	0.20	0.92	0.20	37.1
Approach		95	0.0	100	0.0	0.110	7.1	LOS A	0.4	2.7	0.20	0.92	0.20	37.1
All Vehicles		292	0.3	307	0.3	0.110	5.4	NA	0.4	2.7	0.08	0.66	0.08	43.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

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: George Street													
Lane 1	177	0.6	1844	0.096	100	4.3	LOS A	0.2	1.4	Full	500	0.0	0.0
Approach	177	0.6		0.096		4.3	NA	0.2	1.4				
East: Victoria Ave													
Lane 1	21	0.0	1369	0.015	100	7.5	LOS A	0.1	0.4	Full	500	0.0	0.0
Approach	21	0.0		0.015		7.5	LOS A	0.1	0.4				
North: George Street													
Lane 1	9	0.0	1785	0.005	100	2.3	LOS A	0.0	0.1	Full	500	0.0	0.0
Approach	9	0.0		0.005		2.3	NA	0.0	0.1				
West: Victoria Ave													

Lane 1	100	0.0	909	0.110	100	7.1	LOS A	0.4	2.7	Full	500	0.0	0.0
Approach	100	0.0		0.110		7.1	LOS A	0.4	2.7				
Intersection	307	0.3		0.110		5.4	NA	0.4	2.7				

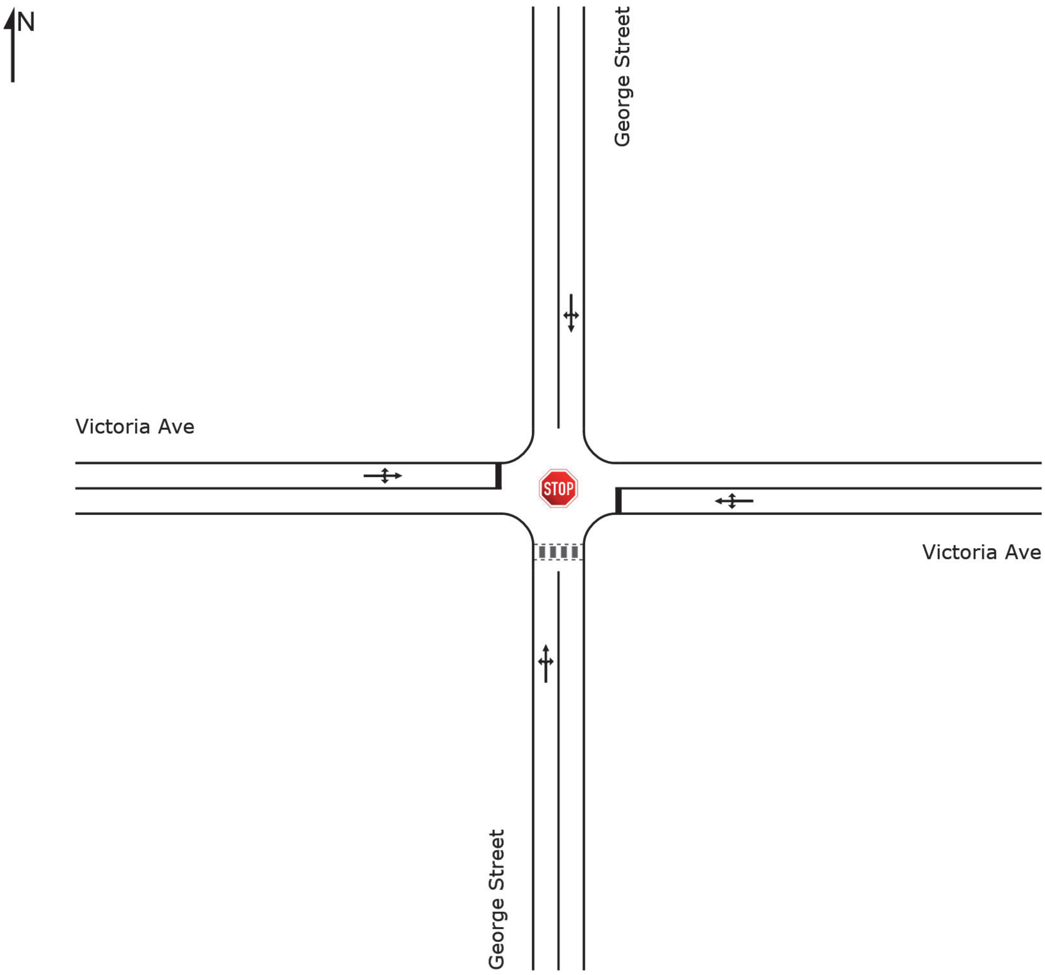
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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.

Site: [502_Existing_PM_GeorgeSt_VictoriaAv (Site Folder: Existing)]

George St / Victoria Ave
Site Category: (None)
Stop (Two-Way)

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: George Street														
1	L2	35	0.0	37	0.0	0.049	4.6	LOS A	0.2	1.2	0.07	0.37	0.07	47.2
2	T1	24	0.0	25	0.0	0.049	0.1	LOS A	0.2	1.2	0.07	0.37	0.07	47.7
3	R2	26	0.0	27	0.0	0.049	4.6	LOS A	0.2	1.2	0.07	0.37	0.07	46.8
Approach		85	0.0	89	0.0	0.049	3.3	NA	0.2	1.2	0.07	0.37	0.07	47.2
East: Victoria Ave														
4	L2	36	0.0	38	0.0	0.032	7.5	LOS A	0.1	0.9	0.09	0.94	0.09	45.0
5	T1	4	0.0	4	0.0	0.032	7.7	LOS A	0.1	0.9	0.09	0.94	0.09	44.8
6	R2	1	0.0	1	0.0	0.032	7.4	LOS A	0.1	0.9	0.09	0.94	0.09	44.6
Approach		41	0.0	43	0.0	0.032	7.5	LOS A	0.1	0.9	0.09	0.94	0.09	45.0
North: George Street														
7	L2	1	0.0	1	0.0	0.017	4.7	LOS A	0.0	0.1	0.03	0.05	0.03	49.1
8	T1	28	0.0	29	0.0	0.017	0.0	LOS A	0.0	0.1	0.03	0.05	0.03	49.6
9	R2	2	0.0	2	0.0	0.017	4.7	LOS A	0.0	0.1	0.03	0.05	0.03	48.7
Approach		31	0.0	33	0.0	0.017	0.5	NA	0.0	0.1	0.03	0.05	0.03	49.5
West: Victoria Ave														
10	L2	1	0.0	1	0.0	0.076	7.5	LOS A	0.3	1.8	0.24	0.90	0.24	45.0
11	T1	2	0.0	2	0.0	0.076	7.6	LOS A	0.3	1.8	0.24	0.90	0.24	44.8
12	R2	61	0.0	64	0.0	0.076	7.8	LOS A	0.3	1.8	0.24	0.90	0.24	44.6
Approach		64	0.0	67	0.0	0.076	7.8	LOS A	0.3	1.8	0.24	0.90	0.24	44.6
All Vehicles		221	0.0	233	0.0	0.076	5.0	NA	0.3	1.8	0.12	0.58	0.12	46.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

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: George Street													
Lane 1	89	0.0	1841	0.049	100	3.3	LOS A	0.2	1.2	Full	500	0.0	0.0
Approach	89	0.0		0.049		3.3	NA	0.2	1.2				
East: Victoria Ave													
Lane 1	43	0.0	1343	0.032	100	7.5	LOS A	0.1	0.9	Full	500	0.0	0.0
Approach	43	0.0		0.032		7.5	LOS A	0.1	0.9				
North: George Street													
Lane 1	33	0.0	1924	0.017	100	0.5	LOS A	0.0	0.1	Full	500	0.0	0.0
Approach	33	0.0		0.017		0.5	NA	0.0	0.1				
West: Victoria Ave													

Lane 1	67	0.0	890	0.076	100	7.8	LOS A	0.3	1.8	Full	500	0.0	0.0
Approach	67	0.0		0.076		7.8	LOS A	0.3	1.8				
Intersection	233	0.0		0.076		5.0	NA	0.3	1.8				

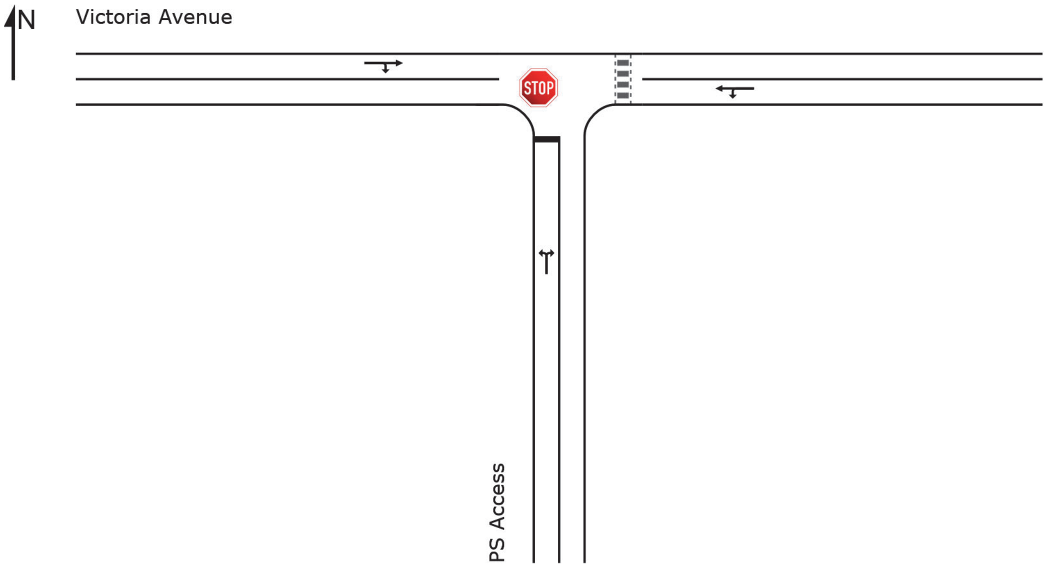
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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.

Site: [601_Existing_AM_VictoriaAvPSAccess (Site Folder: Existing)]

New Site
Site Category: (None)
Stop (Two-Way)

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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: PS Access														
1	L2	12	0	13	0.0	0.092	6.8	LOS A	0.3	2.2	0.13	0.92	0.13	37.5
3	R2	85	0	89	0.0	0.092	6.6	LOS A	0.3	2.2	0.13	0.92	0.13	37.2
Approach		97	0	102	0.0	0.092	6.6	LOS A	0.3	2.2	0.13	0.92	0.13	37.2
East:														
4	L2	124	4	131	3.2	0.083	3.4	LOS A	0.0	0.0	0.00	0.39	0.00	38.9
5	T1	20	0	21	0.0	0.083	0.0	LOS A	0.0	0.0	0.00	0.39	0.00	38.7
Approach		144	4	152	2.8	0.083	3.0	NA	0.0	0.0	0.00	0.39	0.00	38.9
West: Victoria Avenue														
11	T1	10	1	11	10.0	0.007	0.1	LOS A	0.0	0.1	0.09	0.08	0.09	39.6
12	R2	2	0	2	0.0	0.007	4.0	LOS A	0.0	0.1	0.09	0.08	0.09	39.4
Approach		12	1	13	8.3	0.007	0.7	NA	0.0	0.1	0.09	0.08	0.09	39.5
All Vehicles		253	5	266	2.0	0.092	4.3	NA	0.3	2.2	0.06	0.58	0.06	38.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

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: PS Access													
Lane 1	102	0.0	1111	0.092	100	6.6	LOS A	0.3	2.2	Full	500	0.0	0.0
Approach	102	0.0		0.092		6.6	LOS A	0.3	2.2				
East:													
Lane 1	152	2.8	1833	0.083	100	3.0	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	152	2.8		0.083		3.0	NA	0.0	0.0				
West: Victoria Avenue													
Lane 1	13	8.3	1785	0.007	100	0.7	LOS A	0.0	0.1	Full	500	0.0	0.0
Approach	13	8.3		0.007		0.7	NA	0.0	0.1				
Intersection	266	2.0		0.092		4.3	NA	0.3	2.2				

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.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

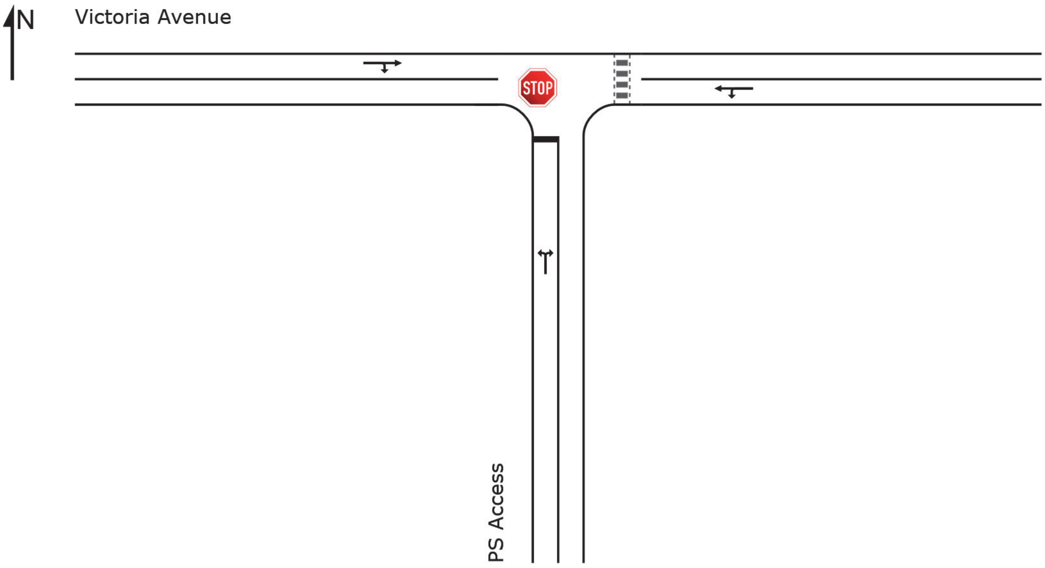
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: [602_Existing_PM_VictoriaAvPSAccess (Site Folder: Existing)]

New Site
Site Category: (None)
Stop (Two-Way)

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: PS Access														
1	L2	10	0.0	11	0.0	0.056	6.7	LOS A	0.2	1.3	0.08	0.95	0.08	37.5
3	R2	51	0.0	54	0.0	0.056	6.5	LOS A	0.2	1.3	0.08	0.95	0.08	37.2
Approach		61	0.0	64	0.0	0.056	6.5	LOS A	0.2	1.3	0.08	0.95	0.08	37.3
East:														
4	L2	38	5.3	40	5.3	0.027	3.4	LOS A	0.0	0.0	0.00	0.37	0.00	39.0
5	T1	9	0.0	9	0.0	0.027	0.0	LOS A	0.0	0.0	0.00	0.37	0.00	38.8
Approach		47	4.3	49	4.3	0.027	2.8	NA	0.0	0.0	0.00	0.37	0.00	38.9
West: Victoria Avenue														
11	T1	18	0.0	19	0.0	0.013	0.0	LOS A	0.0	0.2	0.06	0.11	0.06	39.6
12	R2	5	0.0	5	0.0	0.013	3.7	LOS A	0.0	0.2	0.06	0.11	0.06	39.4
Approach		23	0.0	24	0.0	0.013	0.8	NA	0.0	0.2	0.06	0.11	0.06	39.5
All Vehicles		131	1.5	138	1.5	0.056	4.2	NA	0.2	1.3	0.05	0.59	0.05	38.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

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: PS Access													
Lane 1	64	0.0	1156	0.056	100	6.5	LOS A	0.2	1.3	Full	500	0.0	0.0
Approach	64	0.0		0.056		6.5	LOS A	0.2	1.3				
East:													
Lane 1	49	4.3	1819	0.027	100	2.8	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	49	4.3		0.027		2.8	NA	0.0	0.0				
West: Victoria Avenue													
Lane 1	24	0.0	1881	0.013	100	0.8	LOS A	0.0	0.2	Full	500	0.0	0.0
Approach	24	0.0		0.013		0.8	NA	0.0	0.2				
Intersection	138	1.5		0.056		4.2	NA	0.2	1.3				

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

SIDRA Outputs

Site Layout

Movement Summary

Lane Summary

Phase Sequence

Site

All Sites

- George Street / Pomeroy Street
- George Street / Conway Avenue
- George Street / Rothwell Avenue
- King Street / Victoria Avenue
- George Street / Victoria Avenue
- Victoria Avenue / Access Road

Scenario Name

Future Reference Case, AM and PM

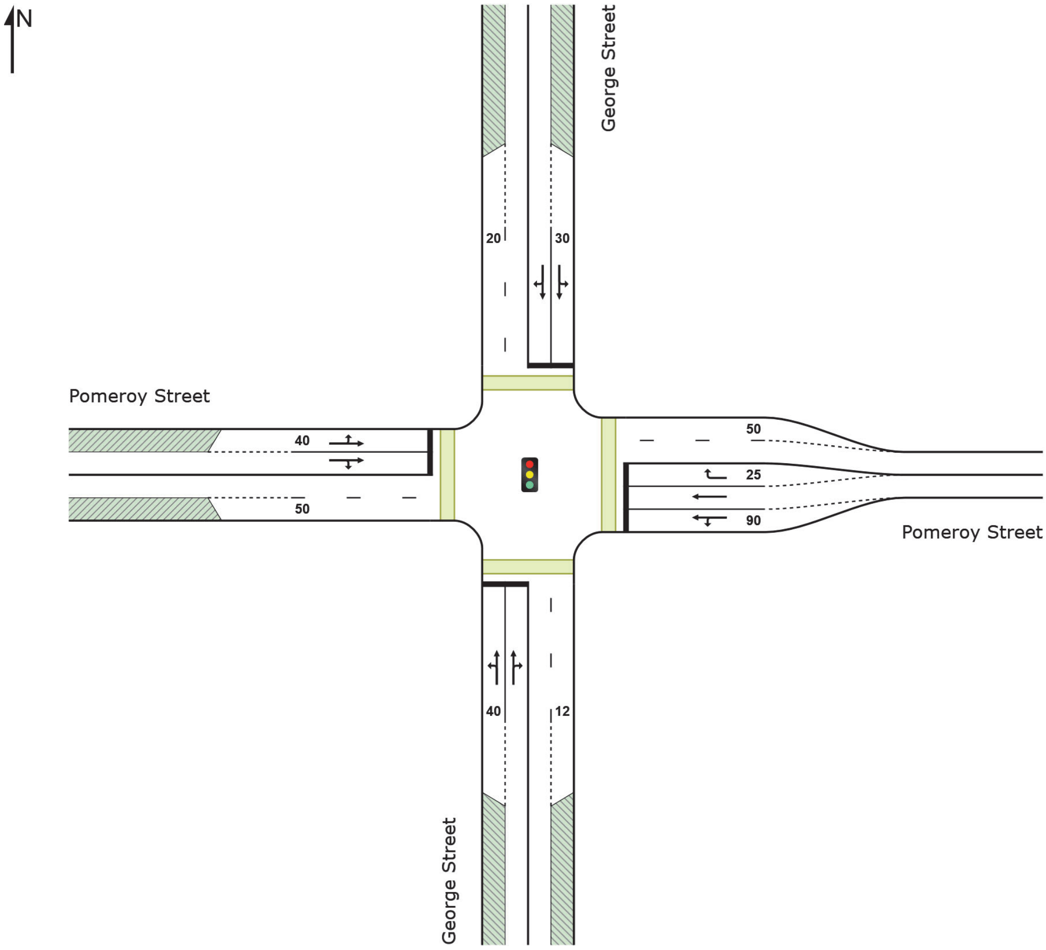
Site: [111_DoMin_AM_GeorgeSt_PomeroySt (Site Folder: DoMin)]

George St / Pomerory St
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110 seconds (Site Optimum Cycle Time - Minimum Delay)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: George St / Pomeroy
Reference Phase: Phase A
Input Phase Sequence: A0, A, B, C0, C
Output Phase Sequence: A0, A, B, C0, C

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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
Vehicle Movement Performance														
South: George Street														
1	L2	120	0.8	127	0.8	0.340	36.9	LOS C	7.9	56.4	0.83	0.74	0.83	22.4
2	T1	90	3.3	94	3.3	* 1.502	189.0	LOS F	40.2	282.9	0.88	1.35	1.89	3.9
3	R2	163	0.0	171	0.0	1.502	504.9	LOS F	40.2	282.9	1.00	2.57	4.00	1.9
Approach		373	1.1	392	1.1	1.502	277.8	LOS F	40.2	282.9	0.92	1.69	2.47	3.9
East: Pomeroy Street														
4	L2	410	0.5	431	0.5	0.407	17.8	LOS B	12.7	89.3	0.60	0.71	0.60	24.1
5	T1	425	1.4	447	1.4	0.574	19.0	LOS B	15.4	109.3	0.70	0.61	0.70	28.4
6	R2	115	0.9	121	0.9	* 0.437	42.2	LOS C	5.7	40.1	0.93	0.78	0.93	14.5
Approach		949	0.9	999	0.9	0.574	21.3	LOS B	15.4	109.3	0.68	0.68	0.68	25.0
North: George Street														
7	L2	236	0.8	249	0.8	0.466	26.7	LOS B	8.7	61.7	0.70	0.73	0.70	19.4
8	T1	166	0.6	175	0.6	1.314	339.3	LOS F	45.1	318.6	1.00	2.45	3.27	2.3
9	R2	100	2.0	105	2.0	1.314	342.8	LOS F	45.1	318.6	1.00	2.45	3.27	4.3
Approach		502	1.0	529	1.0	1.314	193.0	LOS F	45.1	318.6	0.86	1.64	2.06	4.7
West: Pomeroy Street														
10	L2	182	1.1	192	1.1	0.484	26.6	LOS B	10.5	74.2	0.73	0.70	0.73	25.1
11	T1	551	1.5	580	1.5	* 1.484	409.1	LOS F	119.0	841.1	0.95	2.64	3.34	4.0
12	R2	114	0.0	120	0.0	1.484	490.7	LOS F	119.0	841.1	1.00	3.03	3.87	3.2
Approach		847	1.2	891	1.2	1.484	337.7	LOS F	119.0	841.1	0.91	2.27	2.85	4.6
All Vehicles		2671	1.0	2811	1.0	1.502	189.7	LOS F	119.0	841.1	0.82	1.51	1.88	6.2

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)

	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. %
Lane Use and Performance													
South: George Street													
Lane 1	190	1.7	558	0.340	23[6]	35.5	LOS C	7.9	56.4	Short (P)	40	0.0	NA
Lane 2	203	0.5	135	1.502	100	504.3	LOS F	40.2	282.9	Full	120	0.0	85.4
Approach	392	1.1		1.502		277.8	LOS F	40.2	282.9				
East: Pomeroy Street													
Lane 1	431	0.5	1060	0.407	71[5]	17.8	LOS B	12.7	89.3	Short	90	0.0	NA
Lane 2	447	1.4	778[1]	0.574	100	19.0	LOS B	15.4	109.3	Full	150	0.0	0.0
Lane 3	121	0.9	277	0.437	100	42.2	LOS C	5.7	40.1	Short	25	0.0	NA
Approach	999	0.9		0.574		21.3	LOS B	15.4	109.3				
North: George Street													
Lane 1	249	0.8	534[1]	0.466	35[5]	26.7	LOS B	8.7	61.7	Short (P)	30	0.0	NA
Lane 2	280	1.1	213[1]	1.314	100	340.6	LOS F	45.1	318.6	Full	100	0.0	100.0

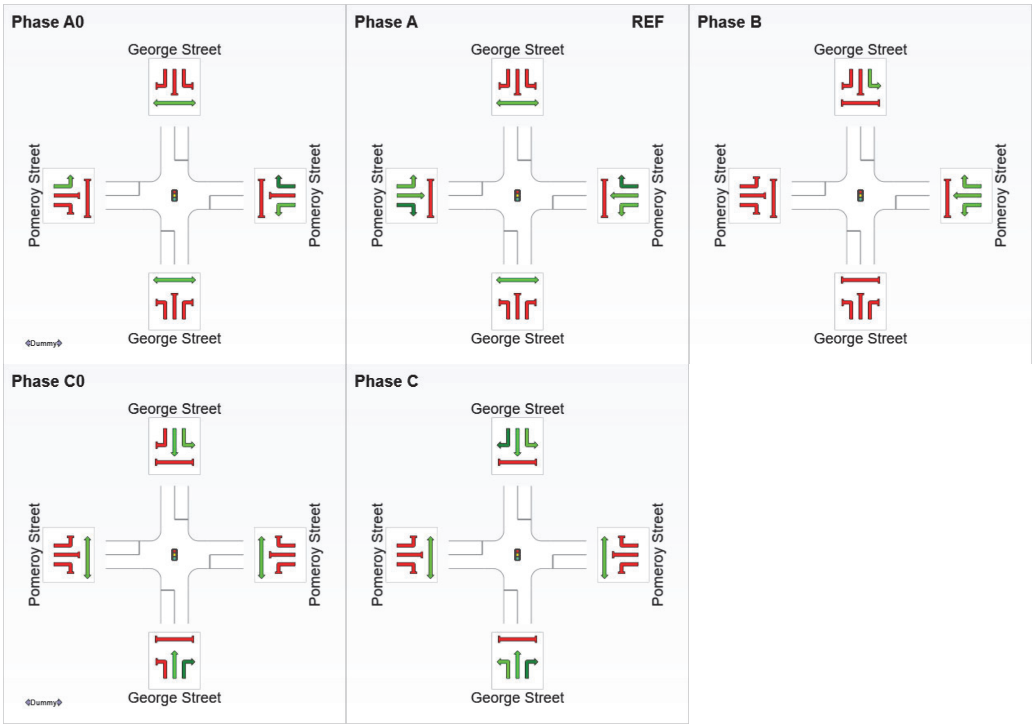
Approach	529	1.0		1.314		193.0	LOS F	45.1	318.6				
West: Pomeroy Street													
Lane 1	290	1.2	598[1]	0.484	33[6]	25.7	LOS B	10.5	74.2	Short (P)	40	0.0	NA
Lane 2	602	1.2	405[1]	1.484	100	488.0	LOS F	119.0	841.1	Full	350	0.0	87.3
Approach	891	1.2		1.484		337.7	LOS F	119.0	841.1				
Intersection	2811	1.0		1.502		189.7	LOS F	119.0	841.1				

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.
5 Lane under-utilisation found by the program
6 Lane under-utilisation due to downstream effects

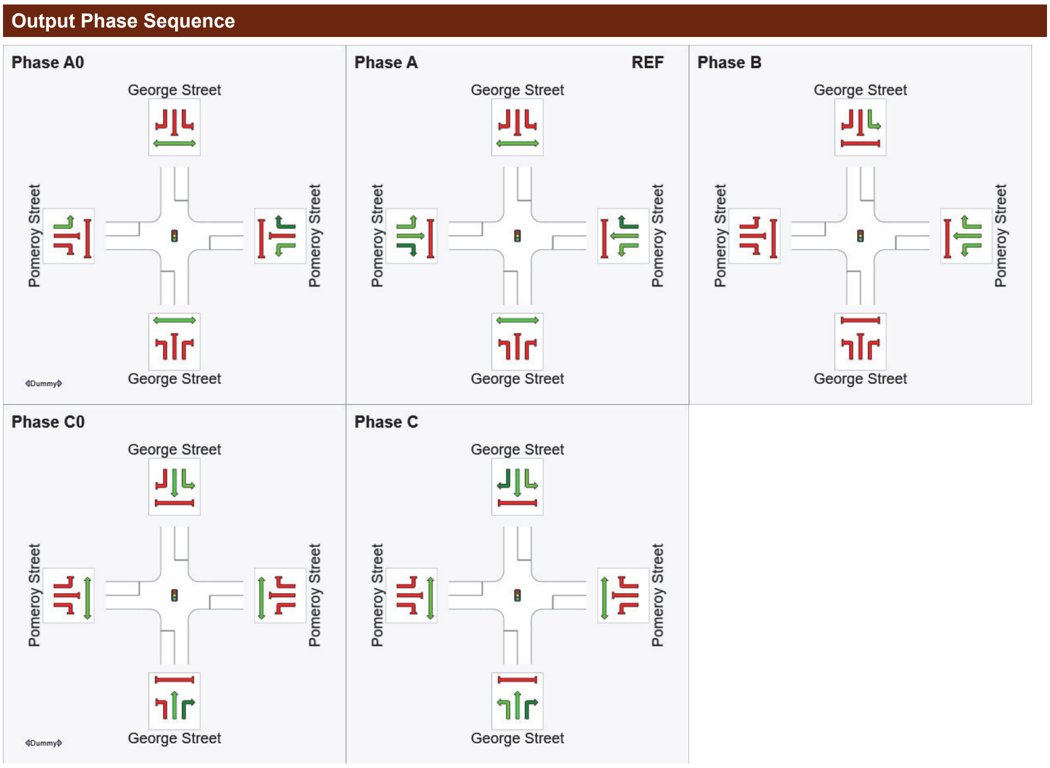
Input Phase Sequence

Phase Sequence: George St / Pomeroy
Reference Phase: Phase A
Input Phase Sequence: A0, A, B, C0, C

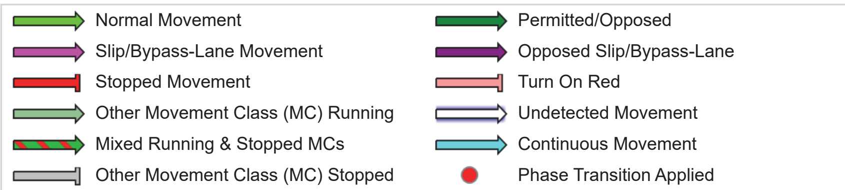


REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class (MC) Running	Undetected Movement
Mixed Running & Stopped MCs	Continuous Movement
Other Movement Class (MC) Stopped	Phase Transition Applied



REF: Reference Phase
VAR: Variable Phase



Phase Timing Summary

Phase	A0	A	B	C0	C
Phase Change Time (sec)	96	0	43	55	64
Green Time (sec)	8	43	6	3	32
Phase Time (sec)	8	49	12	3	38
Phase Split	7%	45%	11%	3%	35%

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%.

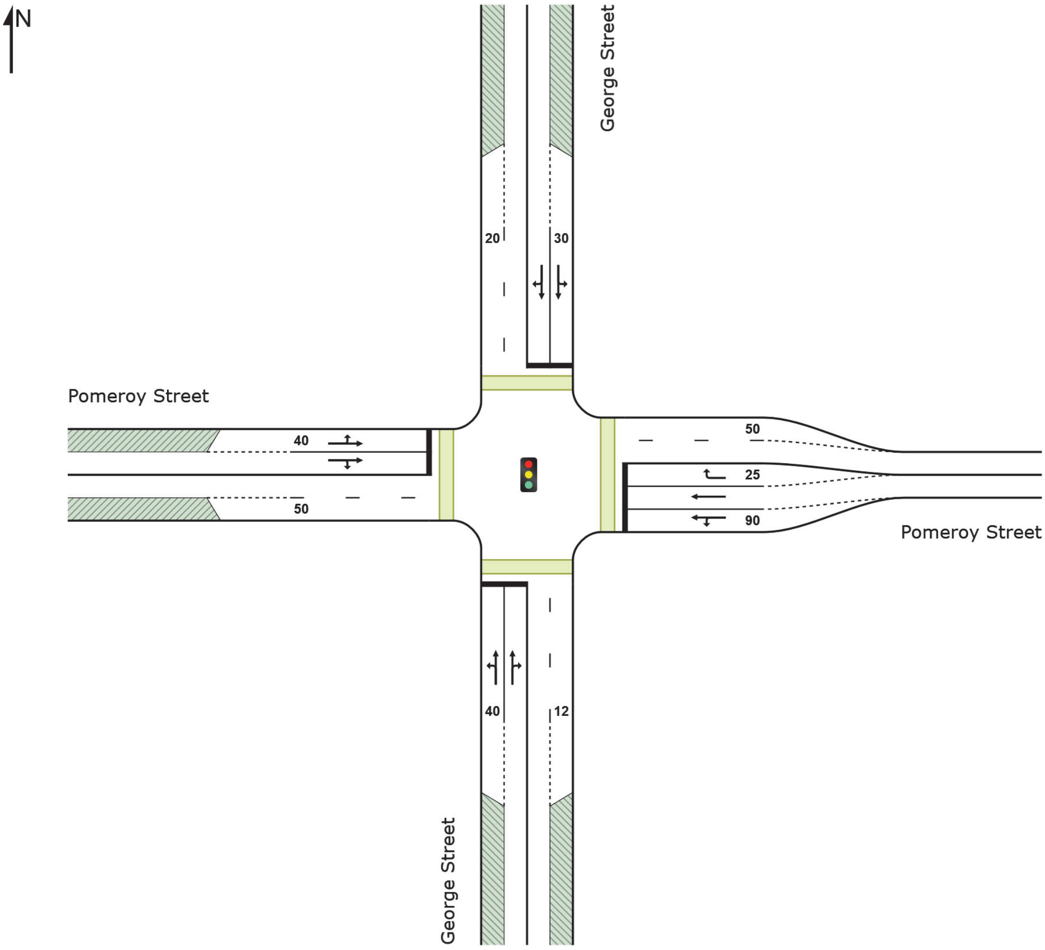
Site: [112_DoMin_PM_GeorgeSt_PomeroySt (Site Folder: DoMin)]

George St / Pomerory St
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated   Cycle Time = 100 seconds (Site Optimum Cycle Time - Minimum Delay)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: PM - George St / Pomeroy
Reference Phase: Phase A
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: George Street														
1	L2	133	0.0	140	0.0	0.384	32.8	LOS C	9.3	65.4	0.80	0.73	0.80	27.2
2	T1	113	0.0	119	0.0	* 1.698	50.1	LOS D	48.1	336.8	0.81	0.80	0.95	12.2
3	R2	200	0.0	211	0.0	1.698	674.2	LOS F	48.1	336.8	1.00	2.61	4.93	1.4
Approach		446	0.0	470	0.0	1.698	324.6	LOS F	48.1	336.8	0.89	1.59	2.69	3.4
East: Pomeroy Street														
4	L2	240	0.0	253	0.0	0.257	18.4	LOS B	6.6	46.4	0.58	0.72	0.58	26.1
5	T1	636	0.5	669	0.5	0.662	18.0	LOS B	23.2	163.2	0.77	0.70	0.77	33.7
6	R2	215	0.0	227	0.0	* 1.001	76.0	LOS F	16.1	112.8	1.00	1.21	1.87	7.9
Approach		1091	0.3	1149	0.3	1.001	29.5	LOS C	23.2	163.2	0.78	0.80	0.95	23.2
North: George Street														
7	L2	180	0.0	189	0.0	0.285	26.0	LOS B	7.1	49.9	0.70	0.73	0.70	21.7
8	T1	126	0.0	132	0.0	1.403	310.5	LOS F	39.6	277.1	0.92	1.88	3.07	2.5
9	R2	123	0.0	129	0.0	1.403	415.6	LOS F	39.6	277.1	1.00	2.28	3.89	3.6
Approach		428	0.0	451	0.0	1.403	221.3	LOS F	39.6	277.1	0.85	1.51	2.31	4.5
West: Pomeroy Street														
10	L2	178	0.0	187	0.0	0.536	27.3	LOS B	10.6	74.3	0.75	0.72	0.75	28.3
11	T1	600	0.7	631	0.7	* 1.642	507.0	LOS F	129.5	910.7	0.95	2.97	3.94	3.3
12	R2	82	0.0	87	0.0	1.642	627.3	LOS F	129.5	910.7	1.00	3.50	4.70	2.6
Approach		860	0.5	905	0.5	1.642	419.2	LOS F	129.5	910.7	0.92	2.55	3.35	3.9
All Vehicles		2825	0.2	2974	0.2	1.698	223.8	LOS F	129.5	910.7	0.85	1.57	2.16	5.7

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)

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: George Street													
Lane 1	255	0.0	664	0.384	23[6]	30.1	LOS C	9.3	65.4	Short (P)	40	0.0	NA
Lane 2	215	0.0	127	1.698	100	674.1	LOS F	48.1	336.8	Full	120	0.0	100.0
Approach	470	0.0		1.698		324.6	LOS F	48.1	336.8				
East: Pomeroy Street													
Lane 1	253	0.0	984	0.257	39[5]	18.4	LOS B	6.6	46.4	Short	90	0.0	NA
Lane 2	669	0.5	1011[1]	0.662	100	18.0	LOS B	23.2	163.2	Full	150	0.0	12.6
Lane 3	227	0.0	226	1.001	100	76.0	LOS F	16.1	112.8	Short	25	0.0	NA
Approach	1149	0.3		1.001		29.5	LOS C	23.2	163.2				
North: George Street													
Lane 1	223	0.0	782	0.285	20[6]	25.2	LOS B	7.1	49.9	Short (P)	30	0.0	NA
Lane 2	227	0.0	162[1]	1.403	100	413.6	LOS F	39.6	277.1	Full	100	0.0	100.0

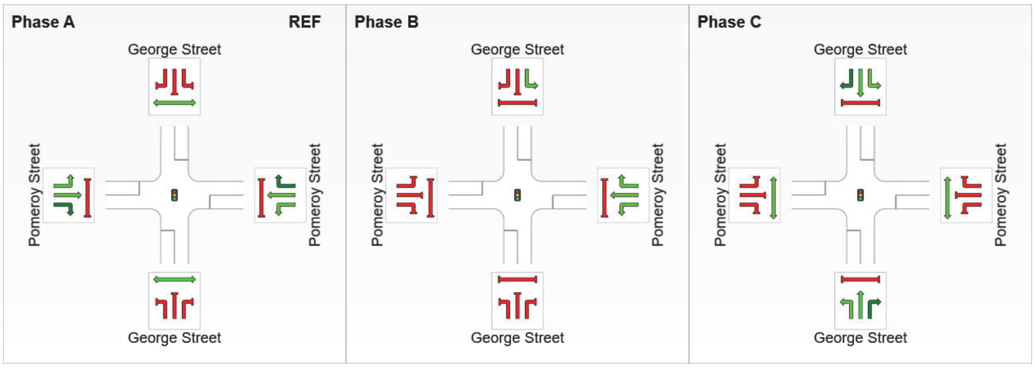
Approach	451	0.0		1.403		221.3	LOS F	39.6	277.1				
West: Pomeroy Street													
Lane 1	309	0.3	577[1]	0.536	33[6]	25.8	LOS B	10.6	74.3	Short (P)	40	0.0	NA
Lane 2	596	0.6	363[1]	1.642	100	623.4	LOS F	129.5	910.7	Full	350	0.0	95.2
Approach	905	0.5		1.642		419.2	LOS F	129.5	910.7				
Intersection	2974	0.2		1.698		223.8	LOS F	129.5	910.7				

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.
5 Lane under-utilisation found by the program
6 Lane under-utilisation due to downstream effects

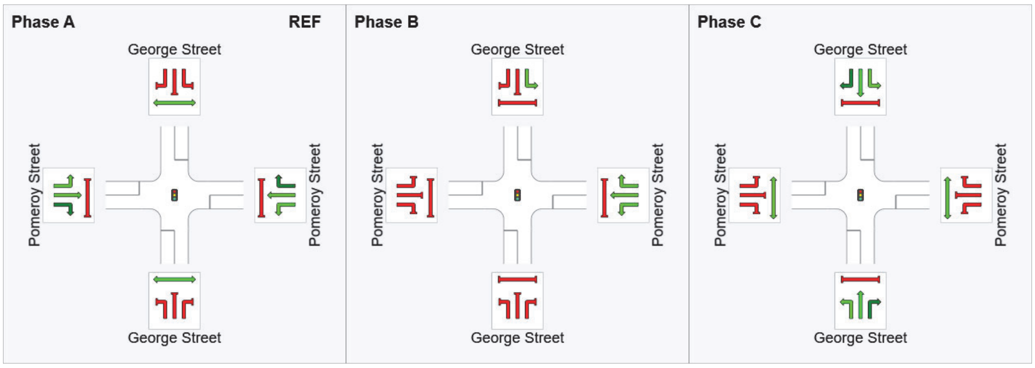
Input Phase Sequence

Phase Sequence: PM - George St / Pomeroy
Reference Phase: Phase A
Input Phase Sequence: A, B, C



REF: Reference Phase
VAR: Variable Phase

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class (MC) Running	Undetected Movement
Mixed Running & Stopped MCs	Continuous Movement
Other Movement Class (MC) Stopped	Phase Transition Applied

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	47	59
Green Time (sec)	41	6	35
Phase Time (sec)	47	12	41
Phase Split	47%	12%	41%

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%.

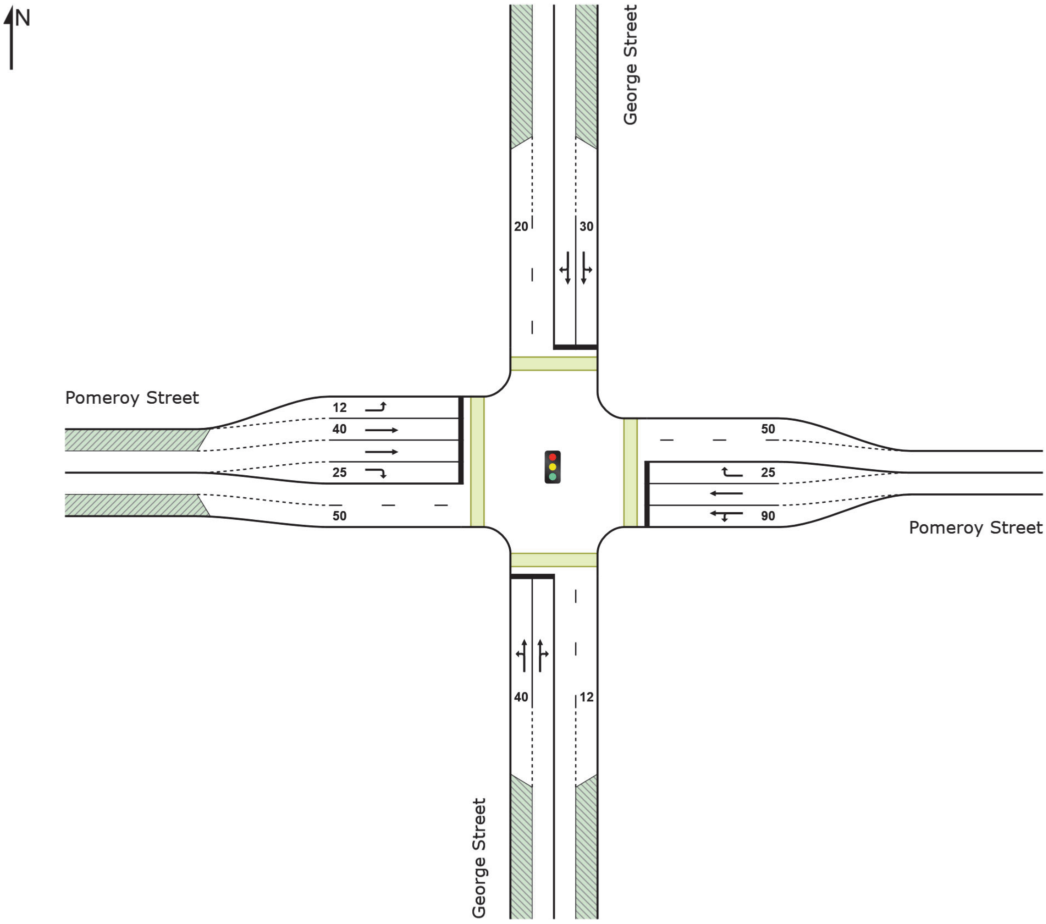
Site: [141_DoMin_AM_GeorgeSt_PomeroySt_Option1 (Site Folder: DoMin)]

George St / Pomerory St
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated   Cycle Time = 110 seconds (Site Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: George St / Pomeroy
Reference Phase: Phase A
Input Phase Sequence: A0, A, B*, C0, C, D*
Output Phase Sequence: A0, A, B*, C0, C, D*
(* Variable Phase)

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: George Street														
1	L2	120	0.8	127	0.8	0.233	30.0	LOS C	5.7	40.3	0.73	0.70	0.73	24.5
2	T1	90	3.3	94	3.3	* 0.984	72.4	LOS F	18.8	132.5	0.92	1.14	1.44	8.9
3	R2	163	0.0	171	0.0	0.984	96.0	LOS F	18.8	132.5	1.00	1.33	1.74	8.7
Approach		373	1.1	392	1.1	0.984	69.0	LOS E	18.8	132.5	0.89	1.08	1.34	12.4
East: Pomeroy Street														
4	L2	410	0.5	431	0.5	0.712	39.2	LOS C	20.4	143.2	0.94	0.85	0.94	16.1
5	T1	425	1.4	447	1.4	* 0.977	79.9	LOS F	33.2	235.0	1.00	1.30	1.55	14.7
6	R2	115	0.9	121	0.9	0.464	48.7	LOS D	6.1	43.1	0.96	0.82	0.96	13.2
Approach		949	0.9	999	0.9	0.977	58.5	LOS E	33.2	235.0	0.97	1.05	1.21	15.0
North: George Street														
7	L2	236	0.8	249	0.8	0.334	24.2	LOS B	8.0	56.6	0.65	0.71	0.65	20.9
8	T1	166	0.6	175	0.6	0.819	44.2	LOS D	14.6	103.3	0.91	0.93	1.10	13.0
9	R2	100	2.0	105	2.0	0.819	47.5	LOS D	14.6	103.3	0.91	0.93	1.10	19.6
Approach		502	1.0	529	1.0	0.819	35.4	LOS C	14.6	103.3	0.79	0.82	0.89	17.6
West: Pomeroy Street														
10	L2	182	1.1	192	1.1	0.329	25.9	LOS B	6.6	46.8	0.69	0.71	0.69	25.0
11	T1	551	1.5	580	1.5	* 0.886	37.5	LOS C	23.8	168.9	0.96	0.97	1.15	22.3
12	R2	114	0.0	120	0.0	0.292	28.2	LOS B	4.1	28.5	0.88	0.75	0.88	24.4
Approach		847	1.2	891	1.2	0.886	33.7	LOS C	23.8	168.9	0.89	0.89	1.01	23.0
All Vehicles		2671	1.0	2811	1.0	0.984	47.8	LOS D	33.2	235.0	0.90	0.96	1.11	17.3

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)

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: George Street													
Lane 1	155	1.3	666	0.233	24[6]	29.2	LOS C	5.7	40.3	Short (P)	40	0.0	NA
Lane 2	237	0.9	241[1]	0.984	100	95.1	LOS F	18.8	132.5	Full	120	0.0	14.0
Approach	392	1.1		0.984		69.0	LOS E	18.8	132.5				
East: Pomeroy Street													
Lane 1	431	0.5	606	0.712	73[5]	39.2	LOS C	20.4	143.2	Short	90	0.0	NA
Lane 2	447	1.4	458[1]	0.977	100	79.9	LOS F	33.2	235.0	Full	150	0.0	46.2
Lane 3	121	0.9	261	0.464	100	48.7	LOS D	6.1	43.1	Short	25	0.0	NA
Approach	999	0.9		0.977		58.5	LOS E	33.2	235.0				
North: George Street													
Lane 1	249	0.8	745[1]	0.334	41[5]	24.2	LOS B	8.0	56.6	Short (P)	30	0.0	NA
Lane 2	280	1.1	342[1]	0.819	100	45.4	LOS D	14.6	103.3	Full	100	0.0	8.0

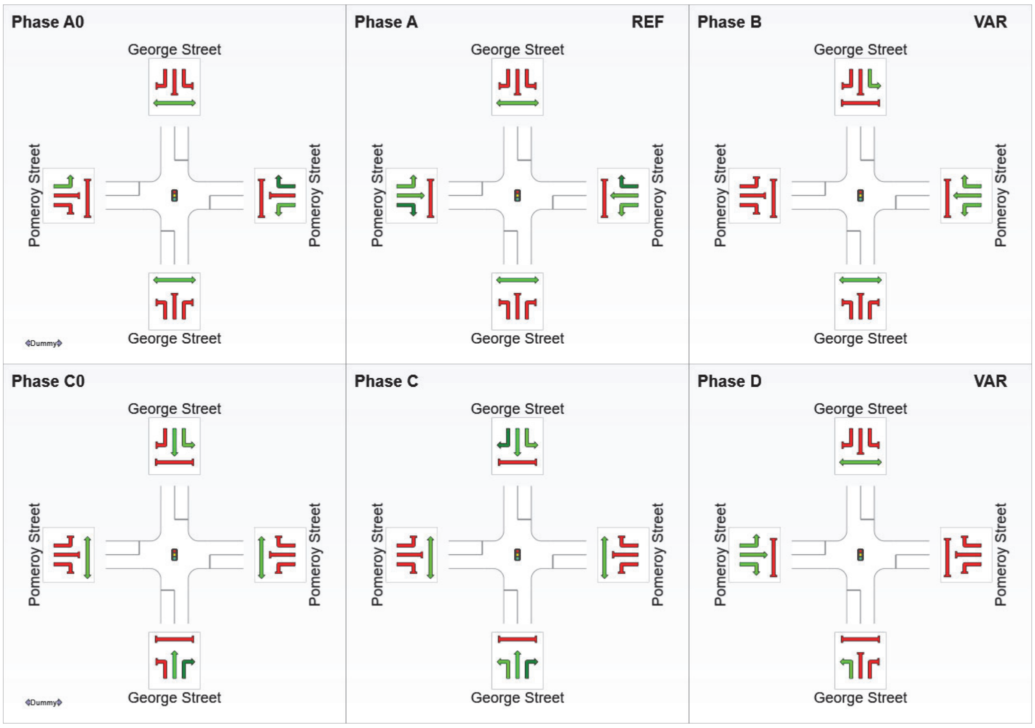
Approach	529	1.0		0.819		35.4	LOS C	14.6	103.3				
West: Pomeroy Street													
Lane 1	192	1.1	584[1]	0.329	100	25.9	LOS B	6.6	46.8	Short	12	0.0	NA
Lane 2	109	1.5	378[1]	0.289	33[6]	24.6	LOS B	3.7	26.0	Short (P)	40	0.0	NA
Lane 3	470	1.5	531[1]	0.886	100	40.4	LOS C	23.8	168.9	Full	350	0.0	0.0
Lane 4	120	0.0	410	0.292	100	28.2	LOS B	4.1	28.5	Short	25	0.0	NA
Approach	891	1.2		0.886		33.7	LOS C	23.8	168.9				
Intersection	2811	1.0		0.984		47.8	LOS D	33.2	235.0				

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.
5 Lane under-utilisation found by the program
6 Lane under-utilisation due to downstream effects

Input Phase Sequence

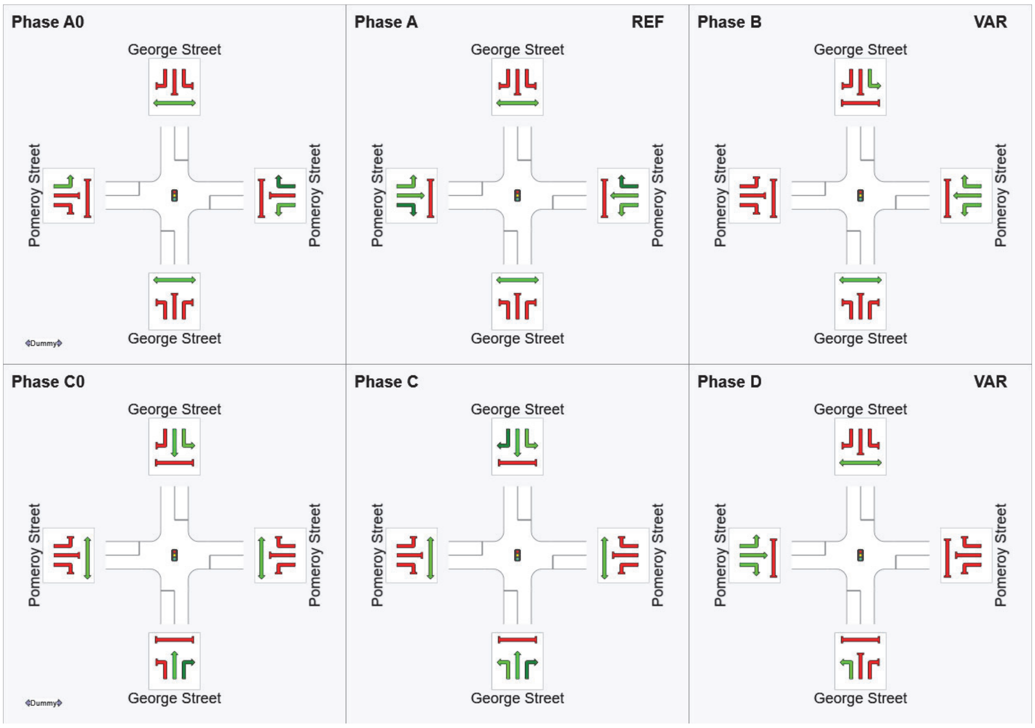
Phase Sequence: George St / Pomeroy
Reference Phase: Phase A
Input Phase Sequence: A0, A, B*, C0, C, D*



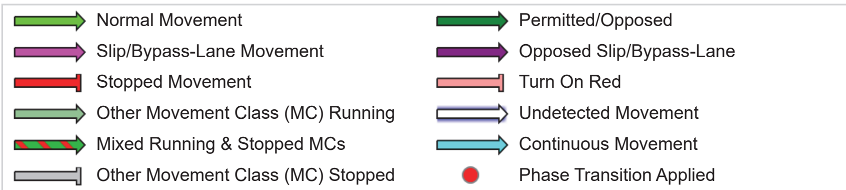
REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class (MC) Running	Undetected Movement
Mixed Running & Stopped MCs	Continuous Movement
Other Movement Class (MC) Stopped	Phase Transition Applied

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Phase Timing Summary

Phase	A0	A	B	C0	C	D
Phase Change Time (sec)	96	0	12	28	39	70
Green Time (sec)	8	12	10	5	31	20
Phase Time (sec)	8	18	16	5	37	26
Phase Split	7%	16%	15%	5%	34%	24%

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%.

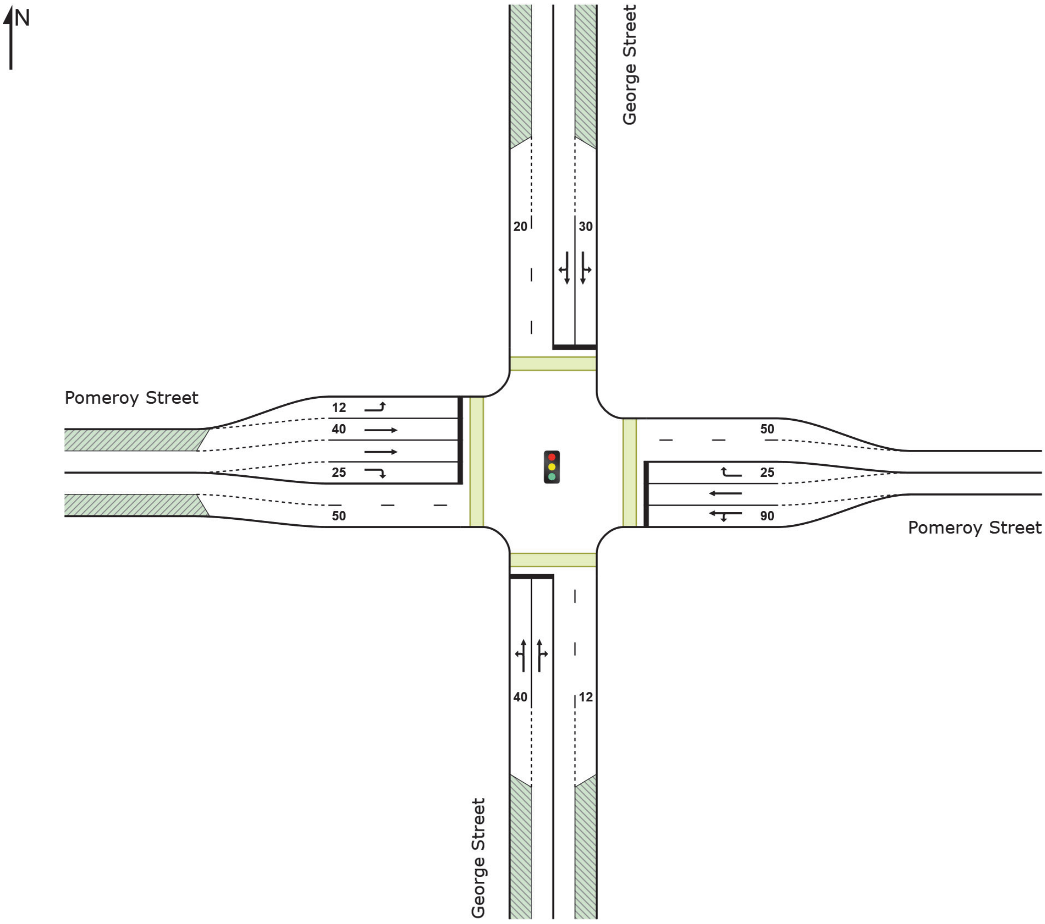
Site: [142_DoMin_PM_GeorgeSt_PomeroySt_Option1 (Site Folder: DoMin)]

George St / Pomerory St
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated   Cycle Time = 120 seconds (Site Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: George St / Pomeroy
Reference Phase: Phase A
Input Phase Sequence: A, B*, C, D*
Output Phase Sequence: A, B*, C
(* Variable Phase)

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: George Street														
1	L2	133	0.0	140	0.0	0.245	27.2	LOS B	7.5	52.5	0.64	0.67	0.64	29.7
2	T1	113	0.0	119	0.0	* 1.034	57.9	LOS E	24.2	169.4	0.77	0.91	1.09	10.9
3	R2	200	0.0	211	0.0	1.034	127.8	LOS F	24.2	169.4	1.00	1.33	1.87	6.9
Approach		446	0.0	470	0.0	1.034	80.0	LOS F	24.2	169.4	0.83	1.03	1.31	11.5
East: Pomeroy Street														
4	L2	240	0.0	253	0.0	0.314	28.7	LOS C	9.6	67.1	0.70	0.75	0.70	20.8
5	T1	636	0.5	669	0.5	0.917	49.6	LOS D	42.5	298.8	0.93	1.01	1.15	21.4
6	R2	215	0.0	227	0.0	* 1.154	192.9	LOS F	27.9	195.3	1.00	1.49	2.44	3.9
Approach		1091	0.3	1149	0.3	1.154	73.3	LOS F	42.5	298.8	0.89	1.05	1.31	13.6
North: George Street														
7	L2	180	0.0	189	0.0	0.182	20.0	LOS B	5.2	36.6	0.51	0.69	0.51	25.4
8	T1	126	0.0	132	0.0	0.735	36.2	LOS C	12.8	89.8	0.85	0.81	0.91	15.6
9	R2	123	0.0	129	0.0	0.735	40.7	LOS C	12.8	89.8	0.85	0.81	0.91	23.5
Approach		428	0.0	451	0.0	0.735	30.7	LOS C	12.8	89.8	0.71	0.76	0.74	21.6
West: Pomeroy Street														
10	L2	178	0.0	187	0.0	0.417	36.8	LOS C	8.1	56.6	0.79	0.76	0.79	23.8
11	T1	600	0.7	631	0.7	0.914	52.4	LOS D	33.9	239.0	0.93	0.98	1.15	20.9
12	R2	82	0.0	87	0.0	* 1.222	269.0	LOS F	12.3	86.3	1.00	1.47	2.84	5.5
Approach		860	0.5	905	0.5	1.222	69.9	LOS E	33.9	239.0	0.91	0.98	1.24	16.9
All Vehicles		2825	0.2	2974	0.2	1.222	66.8	LOS E	42.5	298.8	0.86	0.98	1.20	15.0

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)

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: George Street													
Lane 1	216	0.0	883	0.245	24[6]	25.0	LOS B	7.5	52.5	Short (P)	40	0.0	NA
Lane 2	254	0.0	245[1]	1.034	100	127.0	LOS F	24.2	169.4	Full	120	0.0	36.5
Approach	470	0.0		1.034		80.0	LOS F	24.2	169.4				
East: Pomeroy Street													
Lane 1	253	0.0	805	0.314	34[5]	28.7	LOS C	9.6	67.1	Short	90	0.0	NA
Lane 2	669	0.5	730[1]	0.917	100	49.6	LOS D	42.5	298.8	Full	150	0.0	69.0
Lane 3	227	0.0	196	1.154	100	192.9	LOS F	27.9	195.3	Short	25	0.0	NA
Approach	1149	0.3		1.154		73.3	LOS F	42.5	298.8				
North: George Street													
Lane 1	189	0.0	1041	0.182	25[5]	20.0	LOS B	5.2	36.6	Short (P)	30	0.0	NA
Lane 2	262	0.0	356[1]	0.735	100	38.4	LOS C	12.8	89.8	Full	100	0.0	0.0

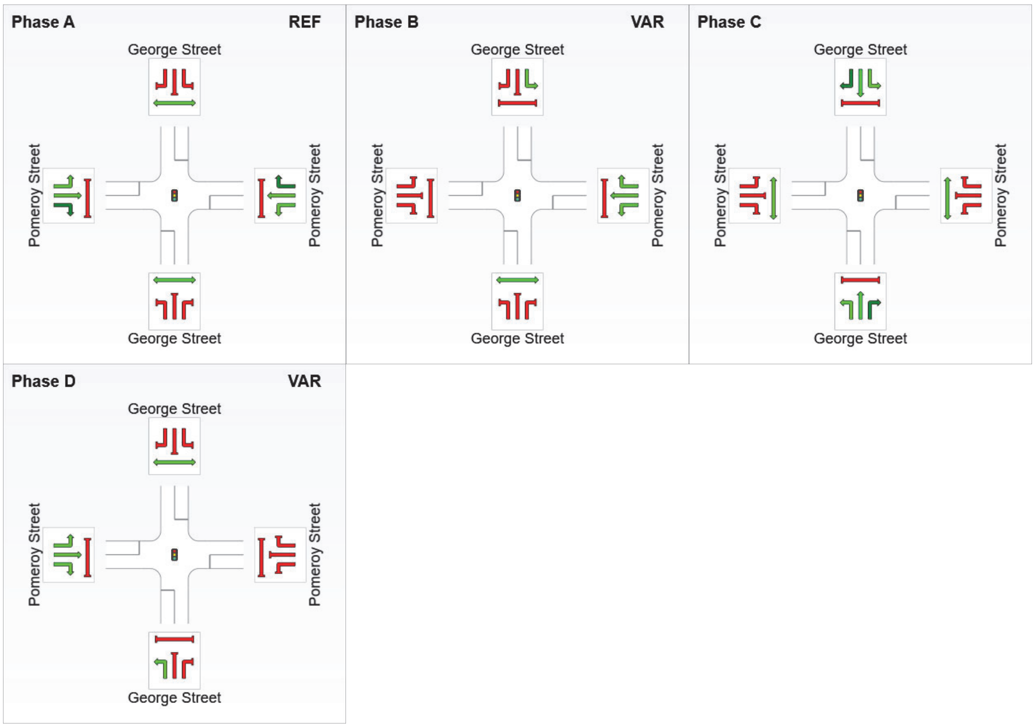
Approach	451	0.0		0.735		30.7	LOS C	12.8	89.8				
West: Pomeroy Street													
Lane 1	187	0.0	449[1]	0.417	100	36.8	LOS C	8.1	56.6	Short	12	0.0	NA
Lane 2	115	0.7	385[1]	0.298	33[6]	32.4	LOS C	4.7	33.2	Short (P)	40	0.0	NA
Lane 3	516	0.7	565[1]	0.914	100	56.8	LOS E	33.9	239.0	Full	350	0.0	0.0
Lane 4	87	0.0	71	1.222	100	269.0	LOS F	12.3	86.3	Short	25	0.0	NA
Approach	905	0.5		1.222		69.9	LOS E	33.9	239.0				
Intersection	2974	0.2		1.222		66.8	LOS E	42.5	298.8				

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.
5 Lane under-utilisation found by the program
6 Lane under-utilisation due to downstream effects

Input Phase Sequence

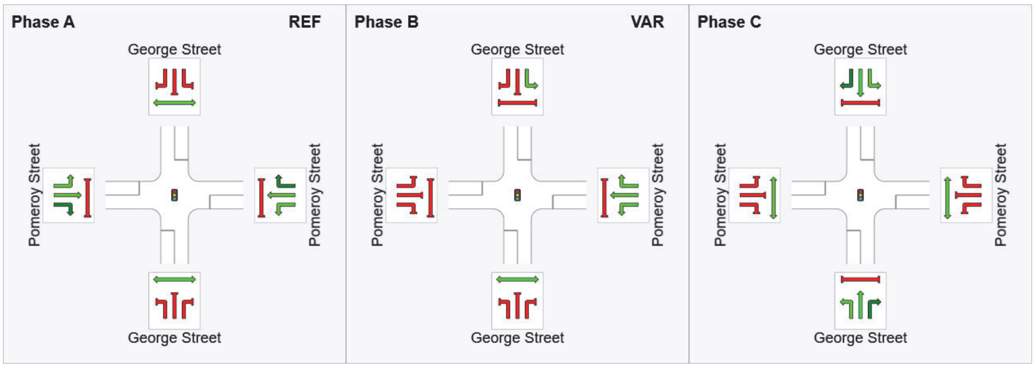
Phase Sequence: George St / Pomeroy
Reference Phase: Phase A
Input Phase Sequence: A, B*, C, D*



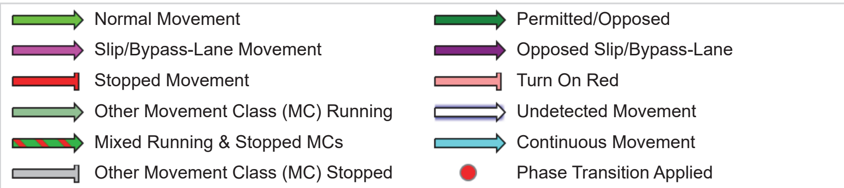
REF: Reference Phase
VAR: Variable Phase


Normal Movement
Permitted/Opposed
Slip/Bypass-Lane Movement
Opposed Slip/Bypass-Lane
Stopped Movement
Turn On Red
Other Movement Class (MC) Running
Undetected Movement
Mixed Running & Stopped MCs
Continuous Movement
Other Movement Class (MC) Stopped
Phase Transition Applied

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	46	58
Green Time (sec)	40	6	56
Phase Time (sec)	46	12	62
Phase Split	38%	10%	52%

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%.

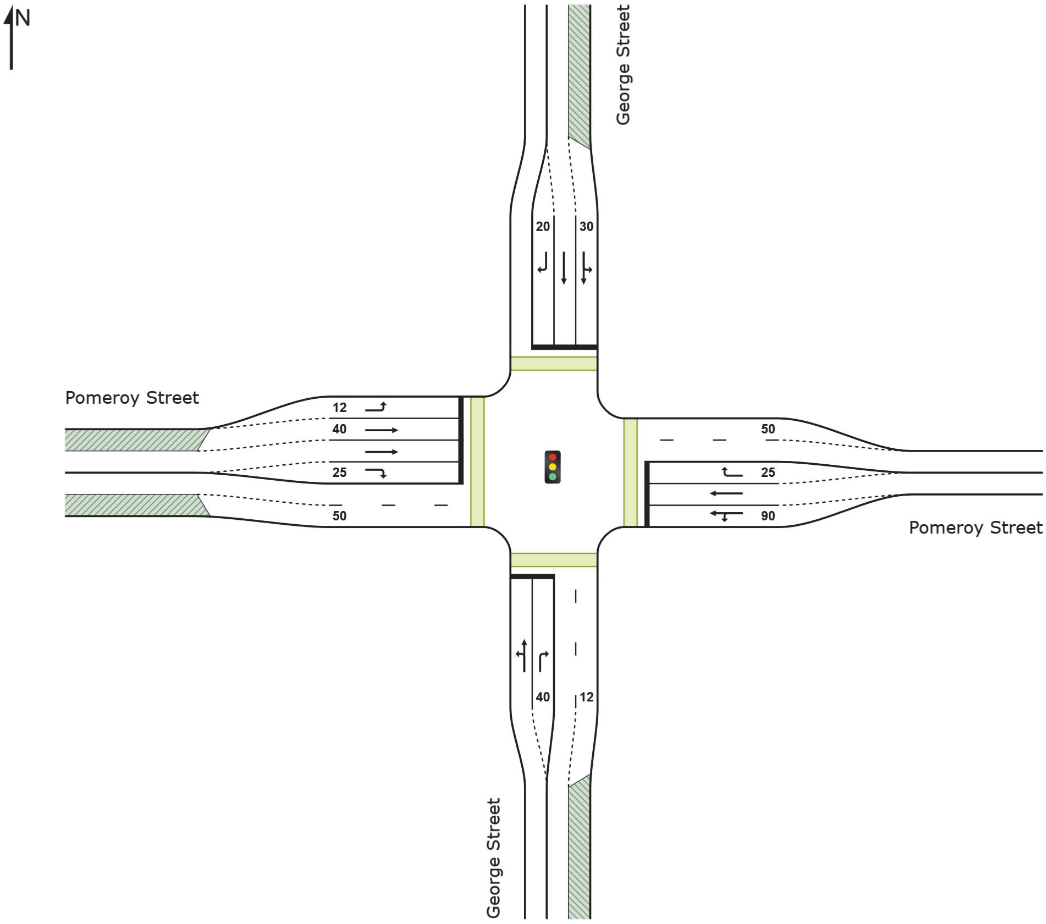
Site: [161_DoMin_AM_GeorgeSt_PomeroySt_Opiton2 (Site Folder: DoMin)]

George St / Pomerory St
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100 seconds (Site Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: George St / Pomeroy
Reference Phase: Phase A
Input Phase Sequence: A0, A, B*, C0, C, D*
Output Phase Sequence: A0, A, B*, C0, C
(* Variable Phase)

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: George Street														
1	L2	120	0.8	127	0.8	0.648	46.1	LOS D	10.3	73.0	0.98	0.83	0.99	20.8
2	T1	90	3.3	94	3.3	0.648	41.5	LOS C	10.3	73.0	0.98	0.83	0.99	14.3
3	R2	163	0.0	171	0.0	0.711	46.9	LOS D	8.5	59.2	0.98	0.89	1.10	15.3
Approach		373	1.1	392	1.1	0.711	45.4	LOS D	10.3	73.0	0.98	0.86	1.04	17.1
East: Pomeroy Street														
4	L2	410	0.5	431	0.5	0.388	15.2	LOS B	10.8	76.1	0.56	0.69	0.56	26.7
5	T1	425	1.4	447	1.4	0.620	20.3	LOS B	15.2	107.9	0.75	0.66	0.75	27.8
6	R2	115	0.9	121	0.9	* 0.315	24.5	LOS B	4.1	28.9	0.77	0.74	0.77	20.1
Approach		949	0.9	999	0.9	0.620	18.6	LOS B	15.2	107.9	0.67	0.68	0.67	26.6
North: George Street														
7	L2	236	0.8	249	0.8	0.347	26.2	LOS B	8.1	57.0	0.71	0.73	0.71	20.0
8	T1	166	0.6	175	0.6	0.416	30.8	LOS C	6.8	47.6	0.84	0.68	0.84	17.8
9	R2	100	2.0	105	2.0	* 0.901	66.3	LOS E	6.1	43.4	1.00	1.10	1.61	15.7
Approach		502	1.0	529	1.0	0.901	35.7	LOS C	8.1	57.0	0.81	0.79	0.93	17.9
West: Pomeroy Street														
10	L2	182	1.1	192	1.1	0.296	20.8	LOS B	5.6	39.5	0.64	0.70	0.64	26.9
11	T1	551	1.5	580	1.5	0.564	20.0	LOS B	15.5	109.8	0.72	0.63	0.72	28.2
12	R2	114	0.0	120	0.0	* 0.830	59.4	LOS E	6.8	47.7	1.00	1.05	1.40	17.6
Approach		847	1.2	891	1.2	0.830	25.4	LOS B	15.5	109.8	0.74	0.70	0.80	25.8
All Vehicles		2671	1.0	2811	1.0	0.901	27.7	LOS B	15.5	109.8	0.76	0.73	0.81	23.1

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)

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: George Street													
Lane 1	221	1.9	341[1]	0.648	100	44.1	LOS D	10.3	73.0	Full	150	0.0	0.0
Lane 2	171	0.0	241	0.711	100	46.9	LOS D	8.5	59.2	Short	40	0.0	NA
Approach	392	1.1		0.711		45.4	LOS D	10.3	73.0				
East: Pomeroy Street													
Lane 1	431	0.5	1110	0.388	63[5]	15.2	LOS B	10.8	76.1	Short	90	0.0	NA
Lane 2	447	1.4	721[1]	0.620	100	20.3	LOS B	15.2	107.9	Full	150	0.0	0.0
Lane 3	121	0.9	384	0.315	100	24.5	LOS B	4.1	28.9	Short	25	0.0	NA
Approach	999	0.9		0.620		18.6	LOS B	15.2	107.9				
North: George Street													
Lane 1	249	0.8	717[1]	0.347	83[5]	26.2	LOS B	8.1	57.0	Short (P)	30	0.0	NA
Lane 2	175	0.6	420[1]	0.416	100	30.8	LOS C	6.8	47.6	Full	100	0.0	0.0

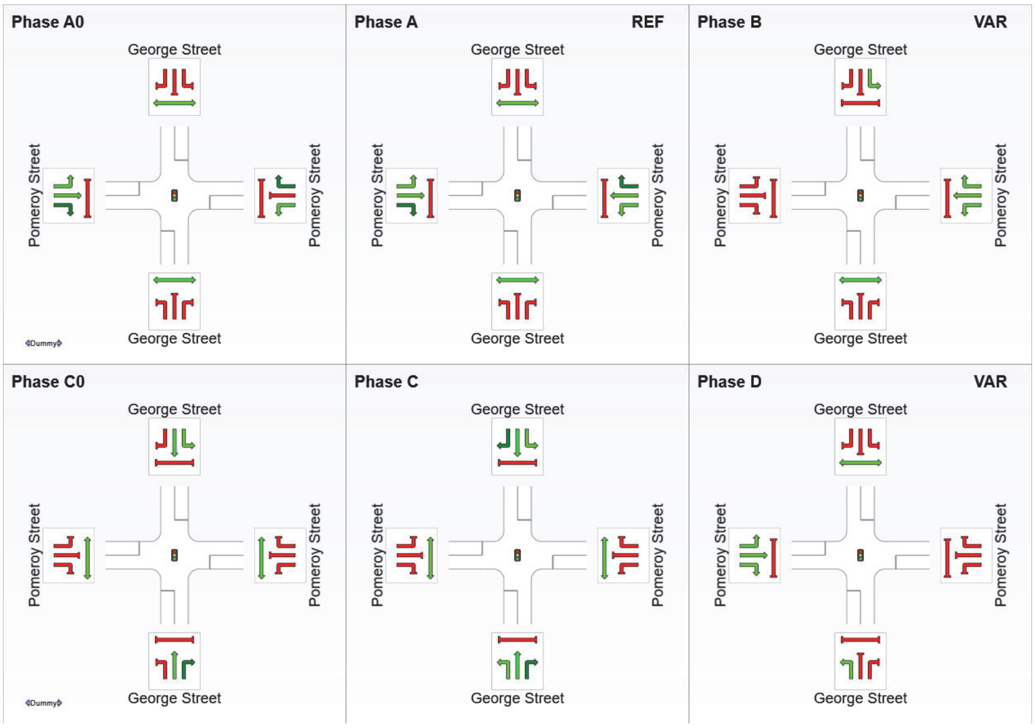
Lane 3	105	2.0	117[1]	0.901	100	66.3	LOS E	6.1	43.4	Short	20	0.0	NA
Approach	529	1.0		0.901		35.7	LOS C	8.1	57.0				
West: Pomeroy Street													
Lane 1	192	1.1	648[1]	0.296	100	20.8	LOS B	5.6	39.5	Short	12	0.0	NA
Lane 2	127	1.5	688[1]	0.184	33[6]	18.5	LOS B	3.5	25.0	Short (P)	40	0.0	NA
Lane 3	453	1.5	802[1]	0.564	100	20.4	LOS B	15.5	109.8	Full	350	0.0	0.0
Lane 4	120	0.0	144	0.830	100	59.4	LOS E	6.8	47.7	Short	25	0.0	NA
Approach	891	1.2		0.830		25.4	LOS B	15.5	109.8				
Intersection	2811	1.0		0.901		27.7	LOS B	15.5	109.8				

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.
5 Lane under-utilisation found by the program
6 Lane under-utilisation due to downstream effects

Input Phase Sequence

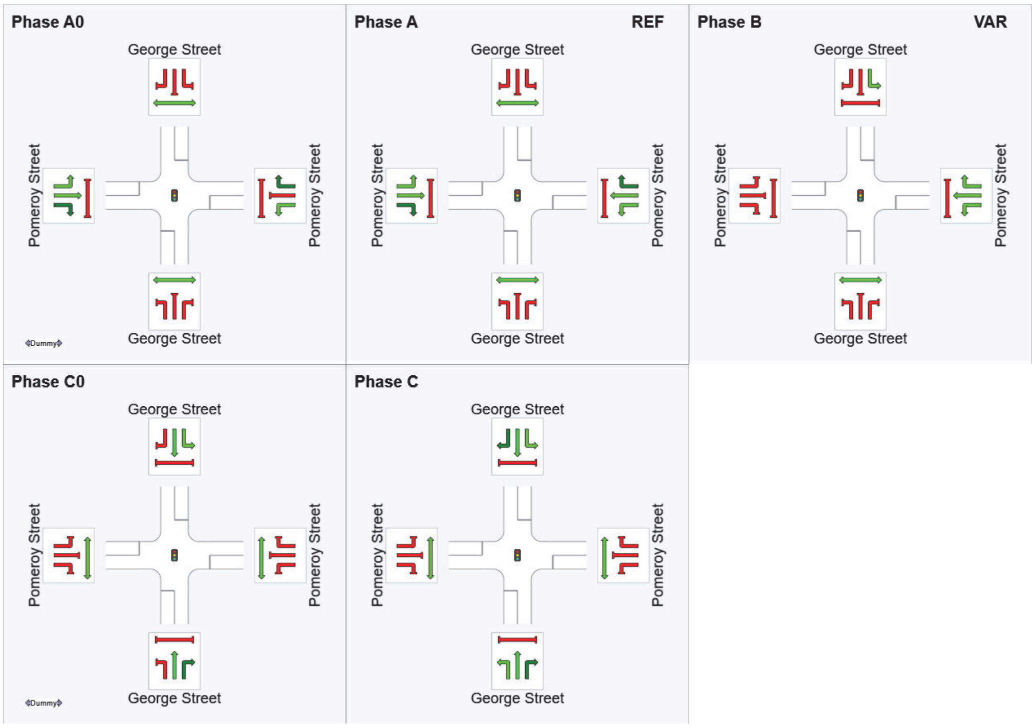
Phase Sequence: George St / Pomeroy
Reference Phase: Phase A
Input Phase Sequence: A0, A, B*, C0, C, D*



REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class (MC) Running	Undetected Movement
Mixed Running & Stopped MCs	Continuous Movement
Other Movement Class (MC) Stopped	Phase Transition Applied

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class (MC) Running	Undetected Movement
Mixed Running & Stopped MCs	Continuous Movement
Other Movement Class (MC) Stopped	Phase Transition Applied

Phase Timing Summary

Phase	A0	A	B	C0	C
Phase Change Time (sec)	86	0	38	52	63
Green Time (sec)	8	32	8	5	17
Phase Time (sec)	14	38	14	11	23
Phase Split	14%	38%	14%	11%	23%

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%.

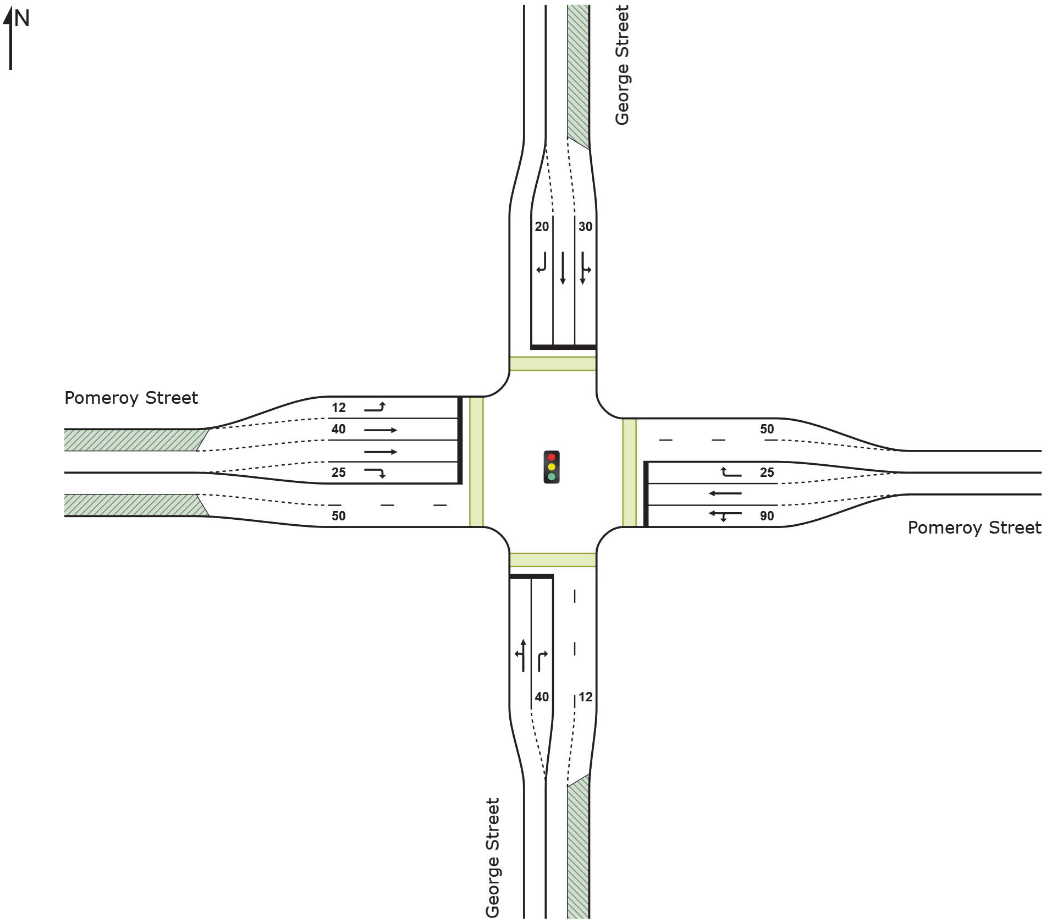
Site: [162_DoMin_PM_GeorgeSt_PomeroySt_Option2 (Site Folder: DoMin)]

George St / Pomerory St
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated   Cycle Time = 100 seconds (Site Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: George St / Pomeroy
Reference Phase: Phase A
Input Phase Sequence: A, B*, C, D*
Output Phase Sequence: A, B*, C
(* Variable Phase)

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: George Street														
1	L2	133	0.0	140	0.0	0.473	37.4	LOS C	10.3	72.2	0.86	0.77	0.86	26.2
2	T1	113	0.0	119	0.0	0.473	30.7	LOS C	10.3	72.2	0.86	0.77	0.86	18.4
3	R2	200	0.0	211	0.0	*0.699	44.2	LOS D	10.0	69.9	0.96	0.87	1.04	17.0
Approach		446	0.0	470	0.0	0.699	38.8	LOS C	10.3	72.2	0.91	0.81	0.94	20.3
East: Pomeroy Street														
4	L2	240	0.0	253	0.0	0.248	15.9	LOS B	6.3	44.2	0.52	0.69	0.52	29.4
5	T1	636	0.5	669	0.5	0.760	14.3	LOS A	20.1	141.4	0.68	0.62	0.68	36.1
6	R2	215	0.0	227	0.0	*0.567	36.4	LOS C	9.6	67.2	0.94	0.88	0.94	17.2
Approach		1091	0.3	1149	0.3	0.760	19.0	LOS B	20.1	141.4	0.70	0.69	0.70	30.7
North: George Street														
7	L2	180	0.0	189	0.0	0.204	21.6	LOS B	5.1	35.5	0.59	0.71	0.59	24.4
8	T1	126	0.0	132	0.0	0.226	28.3	LOS B	4.8	33.9	0.79	0.64	0.79	20.5
9	R2	123	0.0	129	0.0	0.573	45.3	LOS D	5.9	41.3	0.95	0.80	0.95	21.3
Approach		428	0.0	451	0.0	0.573	30.4	LOS C	5.9	41.3	0.75	0.71	0.75	22.1
West: Pomeroy Street														
10	L2	178	0.0	187	0.0	0.359	27.5	LOS B	6.3	43.9	0.73	0.75	0.73	27.2
11	T1	600	0.7	631	0.7	*0.775	28.9	LOS C	21.5	151.6	0.86	0.78	0.90	28.3
12	R2	82	0.0	87	0.0	0.613	50.1	LOS D	4.3	30.1	0.97	0.84	1.05	21.1
Approach		860	0.5	905	0.5	0.775	30.6	LOS C	21.5	151.6	0.84	0.78	0.88	27.2
All Vehicles		2825	0.2	2974	0.2	0.775	27.4	LOS B	21.5	151.6	0.78	0.74	0.80	26.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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)

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: George Street													
Lane 1	259	0.0	548[1]	0.473	100	34.3	LOS C	10.3	72.2	Full	150	0.0	0.0
Lane 2	211	0.0	301	0.699	100	44.2	LOS D	10.0	69.9	Short	40	0.0	NA
Approach	470	0.0		0.699		38.8	LOS C	10.3	72.2				
East: Pomeroy Street													
Lane 1	268	0.0	1080	0.248	33[6]	15.8	LOS B	6.3	44.2	Short	90	0.0	NA
Lane 2	654	0.5	862[1]	0.760	100	14.4	LOS A	20.1	141.4	Full	150	0.0	0.0
Lane 3	227	0.0	399[1]	0.567	100	36.4	LOS C	9.6	67.2	Short	25	0.0	NA
Approach	1149	0.3		0.760		19.0	LOS B	20.1	141.4				
North: George Street													
Lane 1	189	0.0	929	0.204	90[5]	21.6	LOS B	5.1	35.5	Short (P)	30	0.0	NA
Lane 2	132	0.0	585	0.226	100	28.3	LOS B	4.8	33.9	Full	100	0.0	0.0

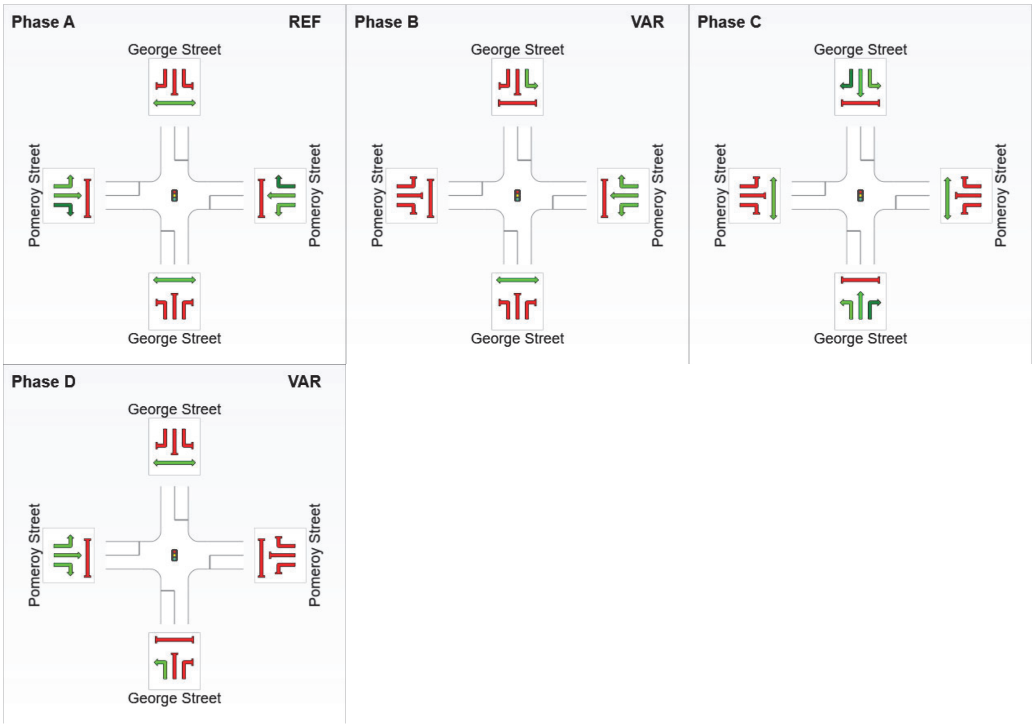
Lane 3	129	0.0	226[1]	0.573	100	45.3	LOS D	5.9	41.3	Short	20	0.0	NA
Approach	451	0.0		0.573		30.4	LOS C	5.9	41.3				
West: Pomeroy Street													
Lane 1	187	0.0	521[1]	0.359	100	27.5	LOS B	6.3	43.9	Short	12	0.0	NA
Lane 2	128	0.7	505[1]	0.253	33[6]	24.2	LOS B	4.1	28.9	Short (P)	40	0.0	NA
Lane 3	503	0.7	649[1]	0.775	100	30.1	LOS C	21.5	151.6	Full	350	0.0	0.0
Lane 4	87	0.0	141	0.613	100	50.1	LOS D	4.3	30.1	Short	25	0.0	NA
Approach	905	0.5		0.775		30.6	LOS C	21.5	151.6				
Intersection	2974	0.2		0.775		27.4	LOS B	21.5	151.6				

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.
5 Lane under-utilisation found by the program
6 Lane under-utilisation due to downstream effects

Input Phase Sequence

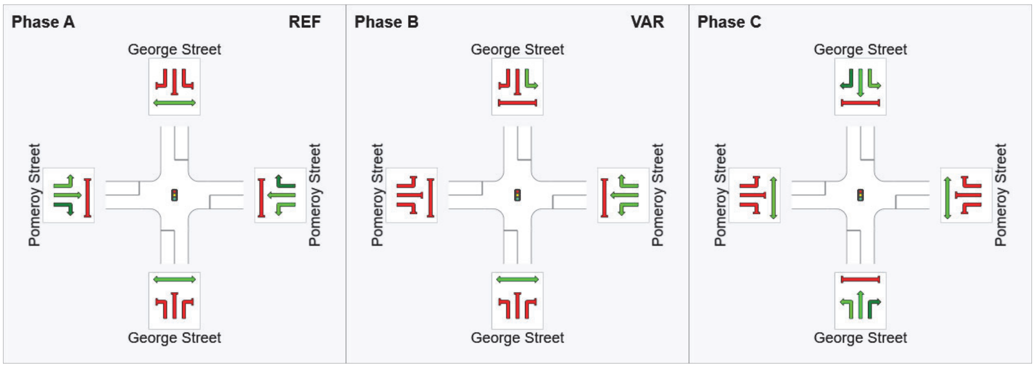
Phase Sequence: George St / Pomeroy
Reference Phase: Phase A
Input Phase Sequence: A, B*, C, D*



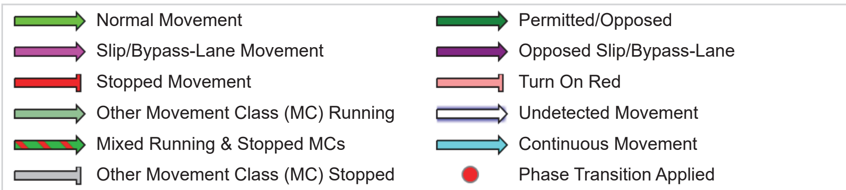
REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class (MC) Running	Undetected Movement
Mixed Running & Stopped MCs	Continuous Movement
Other Movement Class (MC) Stopped	Phase Transition Applied

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	44	64
Green Time (sec)	38	14	30
Phase Time (sec)	44	20	36
Phase Split	44%	20%	36%

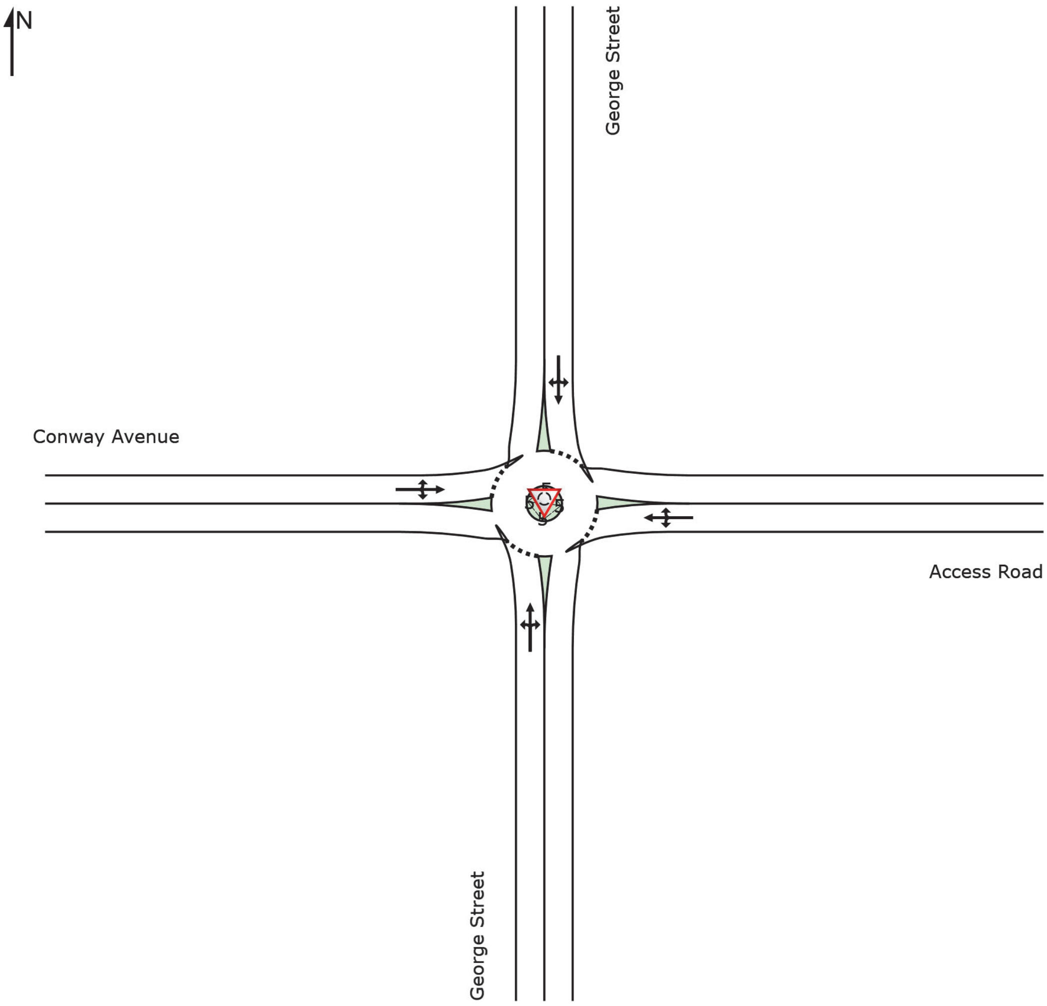
See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified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

Site: [211_DoMin_AM_GeorgeSt_ConwayAve (Site Folder: DoMin)]

New Site
Site Category: (None)
Roundabout

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: George Street														
1	L2	4	0.0	4	0.0	0.217	4.8	LOS A	1.3	9.5	0.09	0.49	0.09	46.1
2	T1	267	1.1	281	1.1	0.217	4.0	LOS A	1.3	9.5	0.09	0.49	0.09	46.6
3	R2	34	11.8	36	11.8	0.217	6.6	LOS A	1.3	9.5	0.09	0.49	0.09	46.3
Approach		305	2.3	321	2.3	0.217	4.3	LOS A	1.3	9.5	0.09	0.49	0.09	46.6
East: Access Road														
4	L2	60	0.0	64	0.0	0.079	6.5	LOS A	0.4	2.7	0.45	0.62	0.45	44.9
5	T1	1	0.0	1	0.0	0.079	5.6	LOS A	0.4	2.7	0.45	0.62	0.45	45.4
6	R2	9	0.0	9	0.0	0.079	8.1	LOS A	0.4	2.7	0.45	0.62	0.45	45.2
Approach		70	0.0	74	0.0	0.079	6.7	LOS A	0.4	2.7	0.45	0.62	0.45	44.9
North: George Street														
7	L2	3	0.0	3	0.0	0.215	5.1	LOS A	1.2	8.6	0.22	0.47	0.22	45.9
8	T1	253	1.2	266	1.2	0.215	4.3	LOS A	1.2	8.6	0.22	0.47	0.22	46.4
9	R2	2	50.0	2	50.0	0.215	7.5	LOS A	1.2	8.6	0.22	0.47	0.22	45.4
Approach		258	1.6	271	1.6	0.215	4.3	LOS A	1.2	8.6	0.22	0.47	0.22	46.4
West: Conway Avenue														
10	L2	2	50.0	2	50.0	0.029	8.0	LOS A	0.1	1.0	0.46	0.64	0.46	43.4
11	T1	1	0.0	1	0.0	0.029	5.7	LOS A	0.1	1.0	0.46	0.64	0.46	44.6
12	R2	21	0.0	23	0.0	0.029	8.2	LOS A	0.1	1.0	0.46	0.64	0.46	44.5
Approach		24	4.1	26	4.1	0.029	8.1	LOS A	0.1	1.0	0.46	0.64	0.46	44.4
All Vehicles		658	1.8	693	1.8	0.217	4.7	LOS A	1.3	9.5	0.19	0.50	0.19	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.
Roundabout Capacity Model: SIDRA Standard.
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.

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: George Street													
Lane 1[d]	321	2.3	1484	0.217	100	4.3	LOS A	1.3	9.5	Full	500	0.0	0.0
Approach	321	2.3		0.217		4.3	LOS A	1.3	9.5				
East: Access Road													
Lane 1[d]	74	0.0	939	0.079	100	6.7	LOS A	0.4	2.7	Full	500	0.0	0.0
Approach	74	0.0		0.079		6.7	LOS A	0.4	2.7				
North: George Street													
Lane 1[d]	271	1.6	1265	0.215	100	4.3	LOS A	1.2	8.6	Full	500	0.0	0.0
Approach	271	1.6		0.215		4.3	LOS A	1.2	8.6				
West: Conway Avenue													
Lane 1[d]	26	4.1	893	0.029	100	8.1	LOS A	0.1	1.0	Full	500	0.0	0.0

Approach	26	4.1	0.029	8.1	LOS A	0.1	1.0
Intersection	693	1.8	0.217	4.7	LOS A	1.3	9.5

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.
Roundabout Capacity Model: SIDRA Standard.
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.

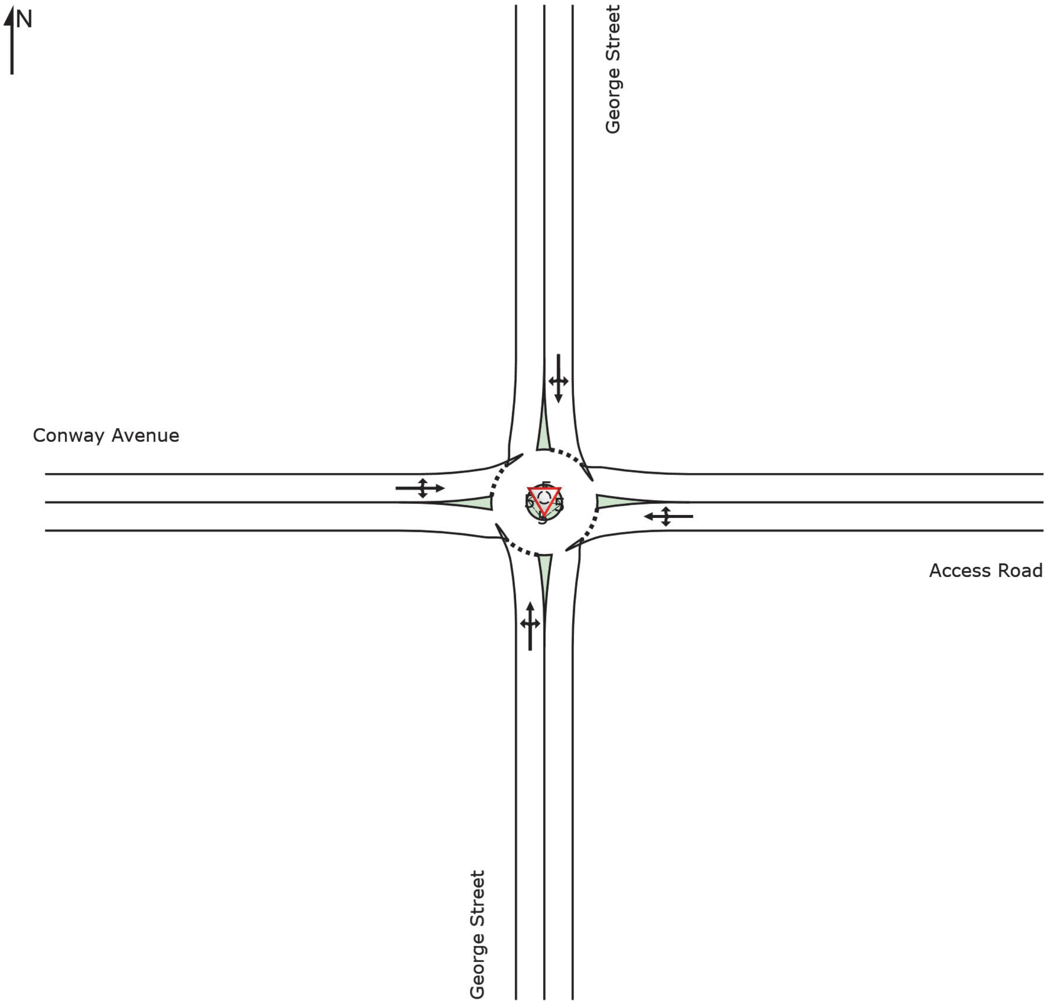
d Dominant lane on roundabout approach

Site: [212_DoMin_PM_GeorgeSt_ConwayAve (Site Folder: DoMin)]

New Site
Site Category: (None)
Roundabout

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: George Street														
1	L2	26	0.0	28	0.0	0.220	4.8	LOS A	1.3	9.4	0.04	0.53	0.04	46.0
2	T1	224	0.0	236	0.0	0.220	3.9	LOS A	1.3	9.4	0.04	0.53	0.04	46.5
3	R2	85	0.0	90	0.0	0.220	6.5	LOS A	1.3	9.4	0.04	0.53	0.04	46.3
Approach		336	0.0	354	0.0	0.220	4.6	LOS A	1.3	9.4	0.04	0.53	0.04	46.4
East: Access Road														
4	L2	35	0.0	37	0.0	0.042	6.3	LOS A	0.2	1.4	0.43	0.60	0.43	45.1
5	T1	1	0.0	1	0.0	0.042	5.4	LOS A	0.2	1.4	0.43	0.60	0.43	45.6
6	R2	2	0.0	2	0.0	0.042	7.9	LOS A	0.2	1.4	0.43	0.60	0.43	45.4
Approach		38	0.0	40	0.0	0.042	6.3	LOS A	0.2	1.4	0.43	0.60	0.43	45.1
North: George Street														
7	L2	9	0.0	9	0.0	0.227	5.4	LOS A	1.2	8.7	0.30	0.50	0.30	45.7
8	T1	244	0.0	257	0.0	0.227	4.6	LOS A	1.2	8.7	0.30	0.50	0.30	46.3
9	R2	1	0.0	1	0.0	0.227	7.1	LOS A	1.2	8.7	0.30	0.50	0.30	46.1
Approach		254	0.0	268	0.0	0.227	4.6	LOS A	1.2	8.7	0.30	0.50	0.30	46.2
West: Conway Avenue														
10	L2	1	0.0	1	0.0	0.019	6.5	LOS A	0.1	0.6	0.44	0.63	0.44	44.2
11	T1	1	0.0	1	0.0	0.019	5.7	LOS A	0.1	0.6	0.44	0.63	0.44	44.7
12	R2	15	0.0	16	0.0	0.019	8.2	LOS A	0.1	0.6	0.44	0.63	0.44	44.6
Approach		17	0.0	18	0.0	0.019	8.0	LOS A	0.1	0.6	0.44	0.63	0.44	44.6
All Vehicles		645	0.0	679	0.0	0.227	4.8	LOS A	1.3	9.4	0.18	0.53	0.18	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.
Roundabout Capacity Model: SIDRA Standard.
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.

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: George Street													
Lane 1[d]	354	0.0	1607	0.220	100	4.6	LOS A	1.3	9.4	Full	500	0.0	0.0
Approach	354	0.0		0.220		4.6	LOS A	1.3	9.4				
East: Access Road													
Lane 1[d]	40	0.0	949	0.042	100	6.3	LOS A	0.2	1.4	Full	500	0.0	0.0
Approach	40	0.0		0.042		6.3	LOS A	0.2	1.4				
North: George Street													
Lane 1[d]	268	0.0	1178	0.227	100	4.6	LOS A	1.2	8.7	Full	500	0.0	0.0
Approach	268	0.0		0.227		4.6	LOS A	1.2	8.7				
West: Conway Avenue													
Lane 1[d]	18	0.0	923	0.019	100	8.0	LOS A	0.1	0.6	Full	500	0.0	0.0

Approach	18	0.0	0.019	8.0	LOS A	0.1	0.6
Intersection	679	0.0	0.227	4.8	LOS A	1.3	9.4

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.
Roundabout Capacity Model: SIDRA Standard.
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.

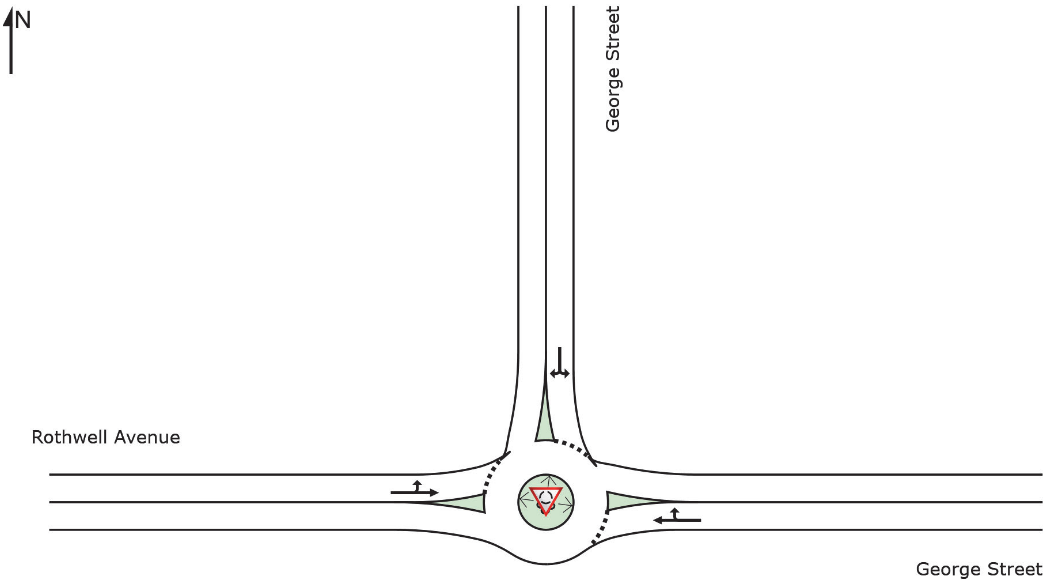
d Dominant lane on roundabout approach

Site: [311_DoMin_AM_GeorgeSt_RothwellAv (Site Folder: DoMin)]

New Site
Site Category: (None)
Roundabout

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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
East: George Street														
5	T1	1	0.0	1	0.0	0.166	3.7	LOS A	0.9	6.0	0.02	0.64	0.02	45.9
6	R2	264	1.1	278	1.1	0.166	6.8	LOS A	0.9	6.0	0.02	0.64	0.02	45.7
Approach		265	1.1	279	1.1	0.166	6.8	LOS A	0.9	6.0	0.02	0.64	0.02	45.7
North: George Street														
7	L2	234	0.9	246	0.9	0.149	3.8	LOS A	0.9	6.1	0.03	0.50	0.03	46.8
9	R2	1	0.0	1	0.0	0.149	6.8	LOS A	0.9	6.1	0.03	0.50	0.03	47.4
Approach		235	0.9	247	0.9	0.149	3.8	LOS A	0.9	6.1	0.03	0.50	0.03	46.8
West: Rothwell Avenue														
10	L2	2	0.0	2	0.0	0.004	5.1	LOS A	0.0	0.1	0.40	0.47	0.40	45.9
11	T1	2	0.0	2	0.0	0.004	5.0	LOS A	0.0	0.1	0.40	0.47	0.40	46.7
Approach		4	0.0	4	0.0	0.004	5.0	LOS A	0.0	0.1	0.40	0.47	0.40	46.3
All Vehicles		504	1.0	531	1.0	0.166	5.4	LOS A	0.9	6.1	0.02	0.57	0.02	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.
Roundabout Capacity Model: SIDRA Standard.
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.

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. %
East: George Street													
Lane 1[d]	279	1.1	1682	0.166	100	6.8	LOS A	0.9	6.0	Full	500	0.0	0.0
Approach	279	1.1		0.166		6.8	LOS A	0.9	6.0				
North: George Street													
Lane 1[d]	247	0.9	1663	0.149	100	3.8	LOS A	0.9	6.1	Full	500	0.0	0.0
Approach	247	0.9		0.149		3.8	LOS A	0.9	6.1				
West: Rothwell Avenue													
Lane 1[d]	4	0.0	1031	0.004	100	5.0	LOS A	0.0	0.1	Full	500	0.0	0.0
Approach	4	0.0		0.004		5.0	LOS A	0.0	0.1				
Intersection	531	1.0		0.166		5.4	LOS A	0.9	6.1				

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.
Roundabout Capacity Model: SIDRA Standard.
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.

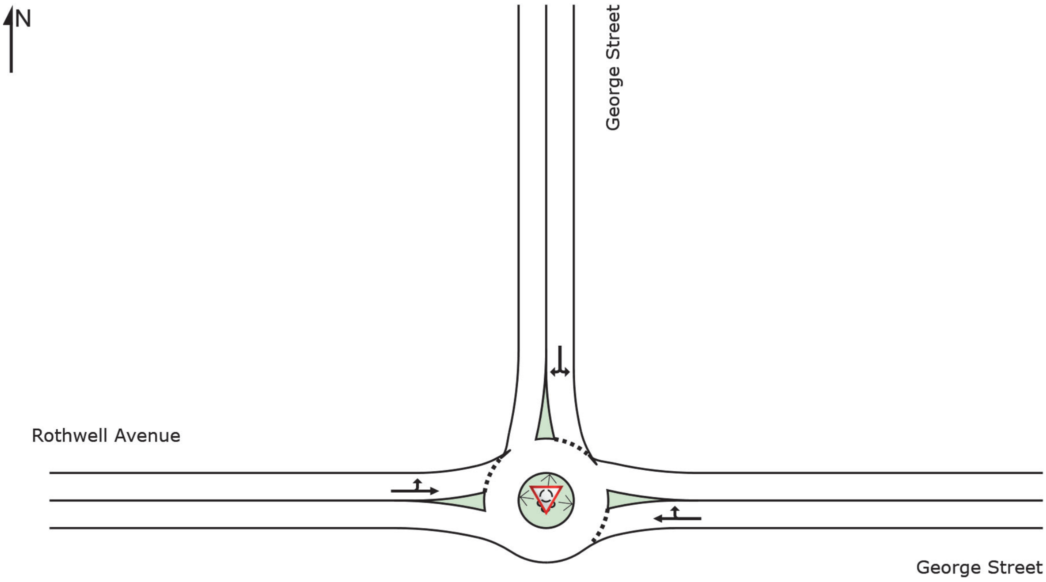
d Dominant lane on roundabout approach

Site: [312_DoMin_PM_GeorgeSt_RothwellAv (Site Folder: DoMin)]

New Site
Site Category: (None)
Roundabout

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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
East: George Street														
5	T1	2	0.0	2	0.0	0.133	3.7	LOS A	0.7	4.6	0.02	0.63	0.02	45.9
6	R2	208	0.0	219	0.0	0.133	6.8	LOS A	0.7	4.6	0.02	0.63	0.02	45.7
Approach		210	0.0	221	0.0	0.133	6.8	LOS A	0.7	4.6	0.02	0.63	0.02	45.7
North: George Street														
7	L2	240	0.0	252	0.0	0.152	3.8	LOS A	0.9	6.1	0.02	0.50	0.02	46.8
9	R2	2	0.0	2	0.0	0.152	6.8	LOS A	0.9	6.1	0.02	0.50	0.02	47.4
Approach		242	0.0	254	0.0	0.152	3.8	LOS A	0.9	6.1	0.02	0.50	0.02	46.8
West: Rothwell Avenue														
10	L2	1	0.0	1	0.0	0.003	4.8	LOS A	0.0	0.1	0.35	0.44	0.35	46.0
11	T1	2	0.0	2	0.0	0.003	4.7	LOS A	0.0	0.1	0.35	0.44	0.35	46.8
Approach		3	0.0	3	0.0	0.003	4.7	LOS A	0.0	0.1	0.35	0.44	0.35	46.5
All Vehicles		455	0.0	479	0.0	0.152	5.2	LOS A	0.9	6.1	0.03	0.56	0.03	46.3

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.
Roundabout Capacity Model: SIDRA Standard.
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.

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. %
East: George Street													
Lane 1[d]	221	0.0	1665	0.133	100	6.8	LOS A	0.7	4.6	Full	500	0.0	0.0
Approach	221	0.0		0.133		6.8	LOS A	0.7	4.6				
North: George Street													
Lane 1[d]	254	0.0	1677	0.152	100	3.8	LOS A	0.9	6.1	Full	500	0.0	0.0
Approach	254	0.0		0.152		3.8	LOS A	0.9	6.1				
West: Rothwell Avenue													
Lane 1[d]	3	0.0	1080	0.003	100	4.7	LOS A	0.0	0.1	Full	500	0.0	0.0
Approach	3	0.0		0.003		4.7	LOS A	0.0	0.1				
Intersection	479	0.0		0.152		5.2	LOS A	0.9	6.1				

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.
Roundabout Capacity Model: SIDRA Standard.
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.

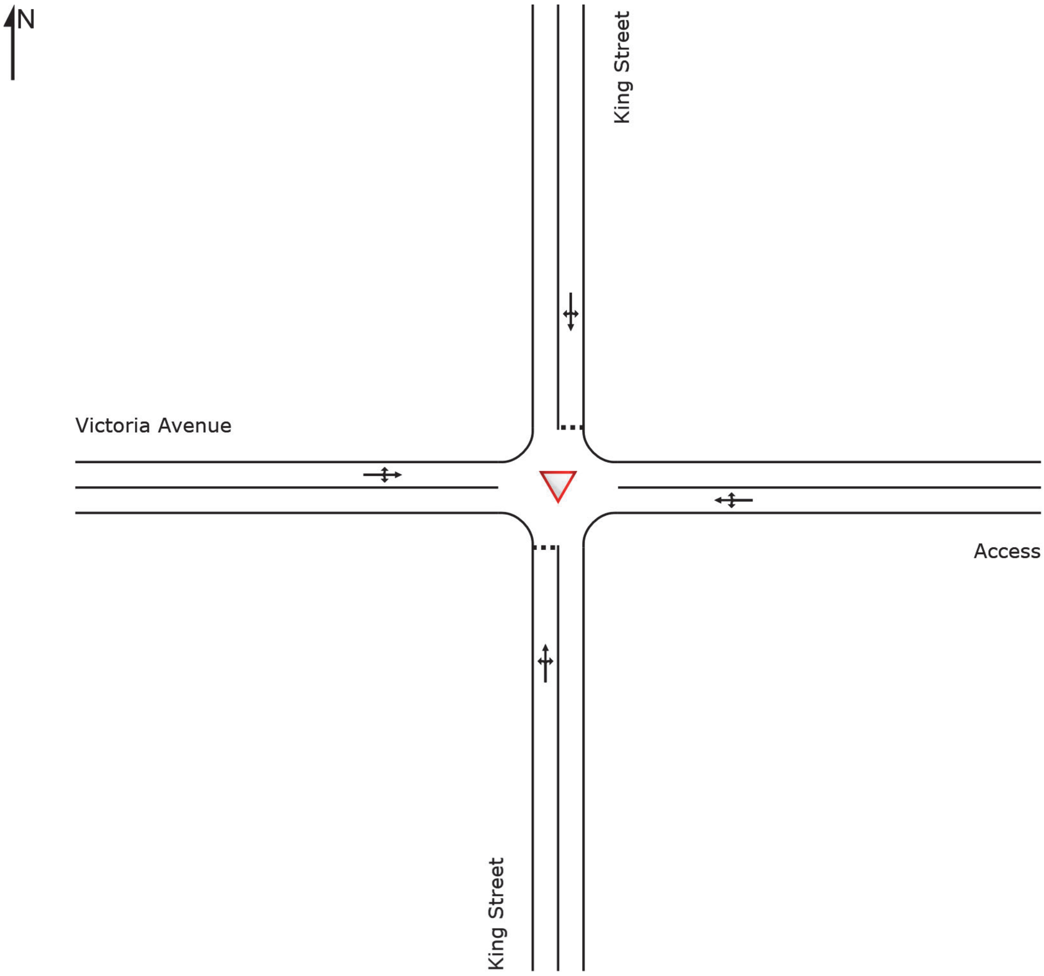
d Dominant lane on roundabout approach

Site: [411_DoMin_AM_KingSt_VictoriaAve (Site Folder: DoMin)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: King Street														
1	L2	12	0.0	12	0.0	0.009	4.6	LOS A	0.0	0.3	0.01	0.52	0.01	46.7
2	T1	1	0.0	1	0.0	0.009	3.4	LOS A	0.0	0.3	0.01	0.52	0.01	46.7
3	R2	1	0.0	1	0.0	0.009	4.7	LOS A	0.0	0.3	0.01	0.52	0.01	46.2
Approach		14	0.0	14	0.0	0.009	4.5	LOS A	0.0	0.3	0.01	0.52	0.01	46.6
East: Access														
4	L2	1	0.0	1	0.0	0.002	4.6	LOS A	0.0	0.0	0.07	0.34	0.07	47.4
5	T1	1	0.0	1	0.0	0.002	0.0	LOS A	0.0	0.0	0.07	0.34	0.07	47.8
6	R2	1	0.0	1	0.0	0.002	4.6	LOS A	0.0	0.0	0.07	0.34	0.07	46.9
Approach		3	0.0	3	0.0	0.002	3.1	NA	0.0	0.0	0.07	0.34	0.07	47.4
North: King Street														
7	L2	1	0.0	1	0.0	0.023	4.6	LOS A	0.1	0.5	0.09	0.53	0.09	46.5
8	T1	1	0.0	1	0.0	0.023	3.3	LOS A	0.1	0.5	0.09	0.53	0.09	46.5
9	R2	21	0.0	23	0.0	0.023	4.8	LOS A	0.1	0.5	0.09	0.53	0.09	46.0
Approach		23	0.0	25	0.0	0.023	4.7	LOS A	0.1	0.5	0.09	0.53	0.09	46.1
West: Victoria Avenue														
10	L2	24	0.0	26	0.0	0.029	4.6	LOS A	0.1	0.8	0.02	0.49	0.02	46.8
11	T1	4	0.0	4	0.0	0.029	0.0	LOS A	0.1	0.8	0.02	0.49	0.02	47.2
12	R2	22	0.0	23	0.0	0.029	4.6	LOS A	0.1	0.8	0.02	0.49	0.02	46.4
Approach		51	0.0	53	0.0	0.029	4.2	NA	0.1	0.8	0.02	0.49	0.02	46.6
All Vehicles		91	0.0	96	0.0	0.029	4.3	NA	0.1	0.8	0.04	0.50	0.04	46.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

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: King Street													
Lane 1	14	0.0	1546	0.009	100	4.5	LOS A	0.0	0.3	Full	500	0.0	0.0
Approach	14	0.0		0.009		4.5	LOS A	0.0	0.3				
East: Access													
Lane 1	3	0.0	1841	0.002	100	3.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	3	0.0		0.002		3.1	NA	0.0	0.0				
North: King Street													
Lane 1	25	0.0	1090	0.023	100	4.7	LOS A	0.1	0.5	Full	500	0.0	0.0
Approach	25	0.0		0.023		4.7	LOS A	0.1	0.5				
West: Victoria Avenue													

Lane 1	53	0.0	1834	0.029	100	4.2	LOS A	0.1	0.8	Full	500	0.0	0.0
Approach	53	0.0		0.029		4.2	NA	0.1	0.8				
Intersection	96	0.0		0.029		4.3	NA	0.1	0.8				

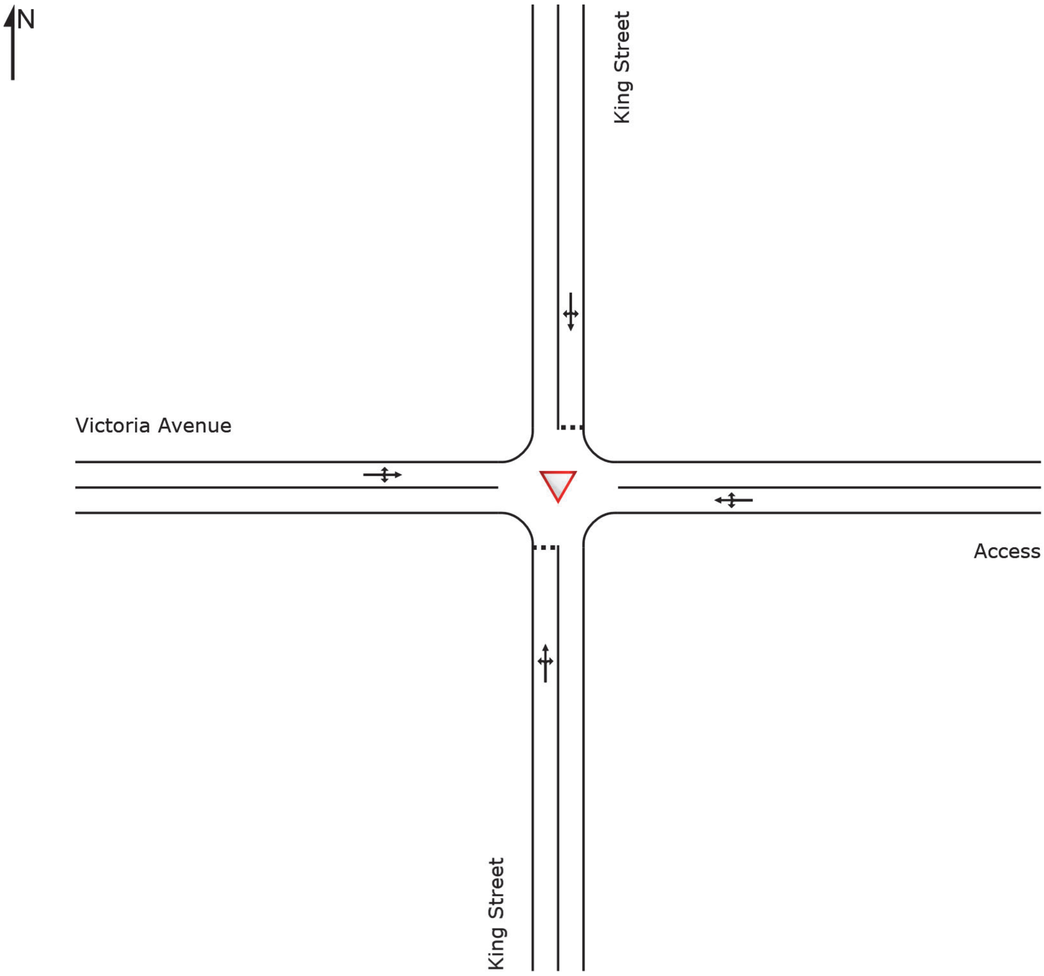
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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.

Site: [412_DoMin_PM_KingSt_VictoriaAve (Site Folder: DoMin)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance															
Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: King Street														
1	L2	32	0.0	33	0.0	0.022	4.6	LOS A	0.1	0.6	0.03	0.51	0.03	46.6
2	T1	1	0.0	1	0.0	0.022	3.4	LOS A	0.1	0.6	0.03	0.51	0.03	46.6
3	R2	1	0.0	1	0.0	0.022	4.7	LOS A	0.1	0.6	0.03	0.51	0.03	46.2
Approach		34	0.0	36	0.0	0.022	4.5	LOS A	0.1	0.6	0.03	0.51	0.03	46.6
East: Access														
4	L2	1	0.0	1	0.0	0.004	4.6	LOS A	0.0	0.1	0.03	0.14	0.03	48.7
5	T1	6	0.0	6	0.0	0.004	0.0	LOS A	0.0	0.1	0.03	0.14	0.03	49.1
6	R2	1	0.0	1	0.0	0.004	4.6	LOS A	0.0	0.1	0.03	0.14	0.03	48.2
Approach		8	0.0	8	0.0	0.004	1.2	NA	0.0	0.1	0.03	0.14	0.03	49.0
North: King Street														
7	L2	1	0.0	1	0.0	0.024	4.6	LOS A	0.1	0.5	0.04	0.55	0.04	46.4
8	T1	1	0.0	1	0.0	0.024	3.4	LOS A	0.1	0.5	0.04	0.55	0.04	46.5
9	R2	22	0.0	23	0.0	0.024	5.0	LOS A	0.1	0.5	0.04	0.55	0.04	46.0
Approach		24	0.0	25	0.0	0.024	4.9	LOS A	0.1	0.5	0.04	0.55	0.04	46.0
West: Victoria Avenue														
10	L2	30	0.0	32	0.0	0.036	4.6	LOS A	0.1	1.0	0.04	0.52	0.04	46.6
11	T1	1	0.0	1	0.0	0.036	0.0	LOS A	0.1	1.0	0.04	0.52	0.04	47.0
12	R2	31	0.0	33	0.0	0.036	4.6	LOS A	0.1	1.0	0.04	0.52	0.04	46.2
Approach		62	0.0	66	0.0	0.036	4.5	NA	0.1	1.0	0.04	0.52	0.04	46.4
All Vehicles		128	0.0	135	0.0	0.036	4.4	NA	0.1	1.0	0.04	0.50	0.04	46.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

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: King Street													
Lane 1	36	0.0	1590	0.022	100	4.5	LOS A	0.1	0.6	Full	500	0.0	0.0
Approach	36	0.0		0.022		4.5	LOS A	0.1	0.6				
East: Access													
Lane 1	8	0.0	1902	0.004	100	1.2	LOS A	0.0	0.1	Full	500	0.0	0.0
Approach	8	0.0		0.004		1.2	NA	0.0	0.1				
North: King Street													
Lane 1	25	0.0	1054	0.024	100	4.9	LOS A	0.1	0.5	Full	500	0.0	0.0
Approach	25	0.0		0.024		4.9	LOS A	0.1	0.5				
West: Victoria Avenue													

Lane 1	66	0.0	1823	0.036	100	4.5	LOS A	0.1	1.0	Full	500	0.0	0.0
Approach	66	0.0		0.036		4.5	NA	0.1	1.0				
Intersection	135	0.0		0.036		4.4	NA	0.1	1.0				

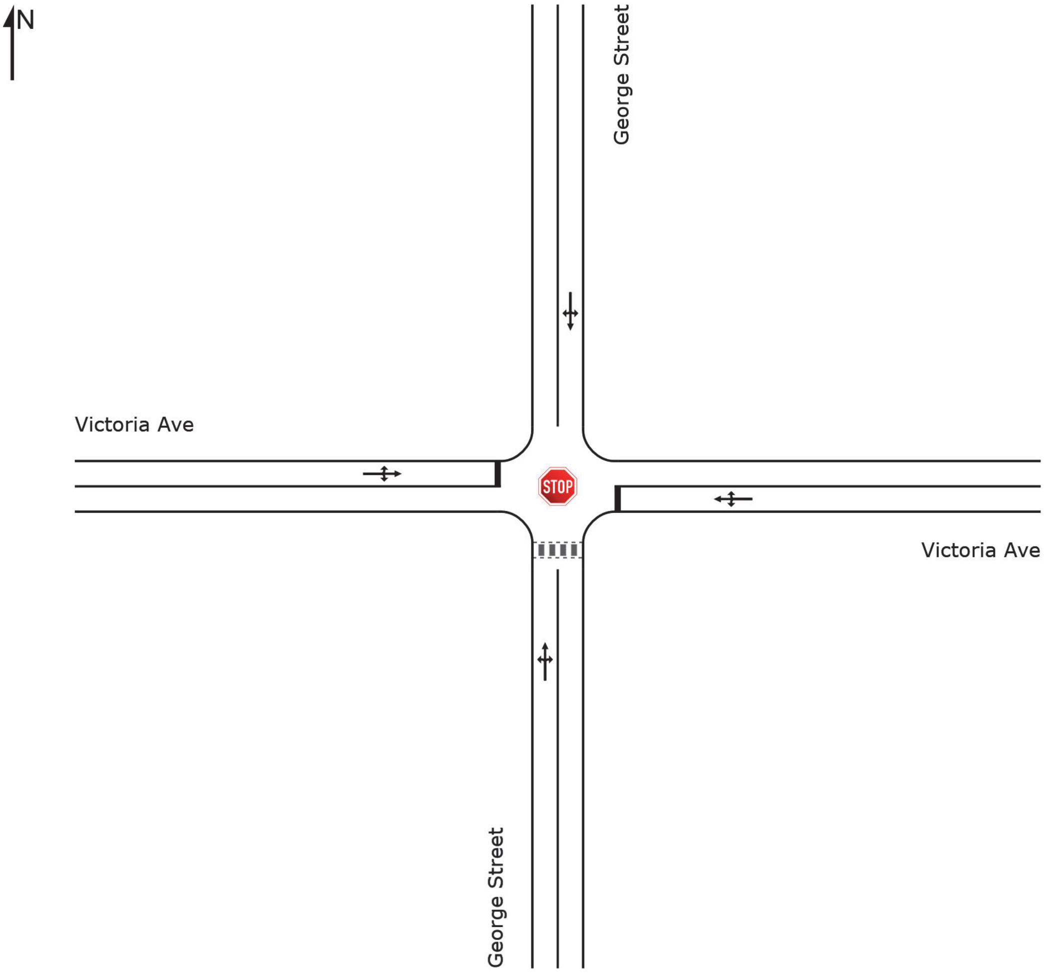
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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.

Site: [511_DoMin_AM_GeorgeSt_VictoriaAv (Site Folder: DoMin)]

George St / Victoria Ave
Site Category: (None)
Stop (Two-Way)

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: George Street														
1	L2	179	0.0	188	0.0	0.136	4.6	LOS A	0.3	2.2	0.03	0.49	0.03	46.7
2	T1	13	7.6	14	7.6	0.136	0.0	LOS A	0.3	2.2	0.03	0.49	0.03	47.1
3	R2	46	0.0	48	0.0	0.136	4.6	LOS A	0.3	2.2	0.03	0.49	0.03	46.3
Approach		238	0.4	250	0.4	0.136	4.3	NA	0.3	2.2	0.03	0.49	0.03	46.6
East: Victoria Ave														
4	L2	34	0.0	36	0.0	0.027	7.5	LOS A	0.1	0.8	0.04	0.97	0.04	45.0
5	T1	1	0.0	1	0.0	0.027	8.5	LOS A	0.1	0.8	0.04	0.97	0.04	44.8
6	R2	1	0.0	1	0.0	0.027	7.4	LOS A	0.1	0.8	0.04	0.97	0.04	44.6
Approach		36	0.0	38	0.0	0.027	7.5	LOS A	0.1	0.8	0.04	0.97	0.04	45.0
North: George Street														
7	L2	1	0.0	1	0.0	0.008	5.1	LOS A	0.0	0.2	0.16	0.15	0.16	48.2
8	T1	10	0.0	10	0.0	0.008	0.2	LOS A	0.0	0.2	0.16	0.15	0.16	48.7
9	R2	3	0.0	3	0.0	0.008	5.1	LOS A	0.0	0.2	0.16	0.15	0.16	47.8
Approach		14	0.0	14	0.0	0.008	1.6	NA	0.0	0.2	0.16	0.15	0.16	48.4
West: Victoria Ave														
10	L2	3	0.0	3	0.0	0.234	6.7	LOS A	0.9	6.4	0.31	0.92	0.31	37.2
11	T1	8	0.0	8	0.0	0.234	7.5	LOS A	0.9	6.4	0.31	0.92	0.31	37.0
12	R2	173	0.0	182	0.0	0.234	7.8	LOS A	0.9	6.4	0.31	0.92	0.31	36.9
Approach		184	0.0	194	0.0	0.234	7.8	LOS A	0.9	6.4	0.31	0.92	0.31	36.9
All Vehicles		472	0.2	497	0.2	0.234	5.8	NA	0.9	6.4	0.14	0.69	0.14	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.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

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: George Street													
Lane 1	250	0.4	1842	0.136	100	4.3	LOS A	0.3	2.2	Full	500	0.0	0.0
Approach	250	0.4		0.136		4.3	NA	0.3	2.2				
East: Victoria Ave													
Lane 1	38	0.0	1384	0.027	100	7.5	LOS A	0.1	0.8	Full	500	0.0	0.0
Approach	38	0.0		0.027		7.5	LOS A	0.1	0.8				
North: George Street													
Lane 1	14	0.0	1811	0.008	100	1.6	LOS A	0.0	0.2	Full	500	0.0	0.0
Approach	14	0.0		0.008		1.6	NA	0.0	0.2				
West: Victoria Ave													

Lane 1	194	0.0	829	0.234	100	7.8	LOS A	0.9	6.4	Full	500	0.0	0.0
Approach	194	0.0		0.234		7.8	LOS A	0.9	6.4				
Intersection	497	0.2		0.234		5.8	NA	0.9	6.4				

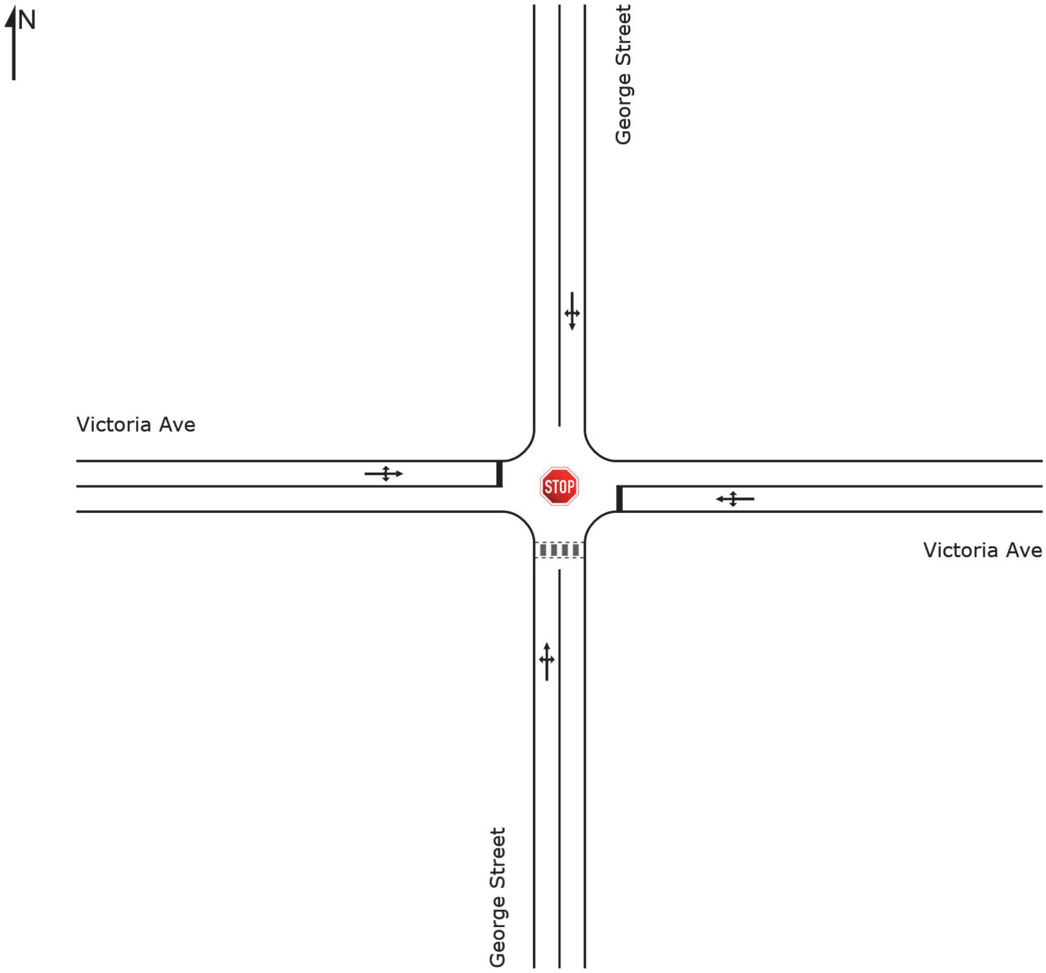
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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.

Site: [512_DoMin_PM_GeorgeSt_VictoriaAv (Site Folder: DoMin)]

George St / Victoria Ave
Site Category: (None)
Stop (Two-Way)

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance															
Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: George Street														
1	L2	81	0.0	86	0.0	0.110	4.6	LOS A	0.4	2.9	0.11	0.37	0.11	47.1
2	T1	49	0.0	51	0.0	0.110	0.1	LOS A	0.4	2.9	0.11	0.37	0.11	47.5
3	R2	60	0.0	64	0.0	0.110	4.7	LOS A	0.4	2.9	0.11	0.37	0.11	46.6
Approach		190	0.0	200	0.0	0.110	3.5	NA	0.4	2.9	0.11	0.37	0.11	47.0
East: Victoria Ave														
4	L2	60	0.0	64	0.0	0.052	7.6	LOS A	0.2	1.4	0.13	0.92	0.13	45.0
5	T1	4	0.0	4	0.0	0.052	8.5	LOS A	0.2	1.4	0.13	0.92	0.13	44.8
6	R2	1	0.0	1	0.0	0.052	7.9	LOS A	0.2	1.4	0.13	0.92	0.13	44.6
Approach		65	0.0	69	0.0	0.052	7.7	LOS A	0.2	1.4	0.13	0.92	0.13	45.0
North: George Street														
7	L2	1	0.0	1	0.0	0.027	4.8	LOS A	0.0	0.1	0.03	0.03	0.03	49.3
8	T1	47	0.0	49	0.0	0.027	0.0	LOS A	0.0	0.1	0.03	0.03	0.03	49.7
9	R2	2	0.0	2	0.0	0.027	5.0	LOS A	0.0	0.1	0.03	0.03	0.03	48.8
Approach		50	0.0	52	0.0	0.027	0.3	NA	0.0	0.1	0.03	0.03	0.03	49.7
West: Victoria Ave														
10	L2	1	0.0	1	0.0	0.153	7.6	LOS A	0.6	3.9	0.38	0.92	0.38	44.6
11	T1	2	0.0	2	0.0	0.153	8.3	LOS A	0.6	3.9	0.38	0.92	0.38	44.3
12	R2	107	0.0	113	0.0	0.153	8.8	LOS A	0.6	3.9	0.38	0.92	0.38	44.2
Approach		110	0.0	116	0.0	0.153	8.8	LOS A	0.6	3.9	0.38	0.92	0.38	44.2
All Vehicles		416	0.0	438	0.0	0.153	5.2	NA	0.6	3.9	0.17	0.56	0.17	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.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

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: George Street													
Lane 1	200	0.0	1828	0.110	100	3.5	LOS A	0.4	2.9	Full	500	0.0	0.0
Approach	200	0.0		0.110		3.5	NA	0.4	2.9				
East: Victoria Ave													
Lane 1	69	0.0	1323	0.052	100	7.7	LOS A	0.2	1.4	Full	500	0.0	0.0
Approach	69	0.0		0.052		7.7	LOS A	0.2	1.4				
North: George Street													
Lane 1	52	0.0	1927	0.027	100	0.3	LOS A	0.0	0.1	Full	500	0.0	0.0
Approach	52	0.0		0.027		0.3	NA	0.0	0.1				
West: Victoria Ave													

Lane 1	116	0.0	760	0.153	100	8.8	LOS A	0.6	3.9	Full	500	0.0	0.0
Approach	116	0.0		0.153		8.8	LOS A	0.6	3.9				
Intersection	438	0.0		0.153		5.2	NA	0.6	3.9				

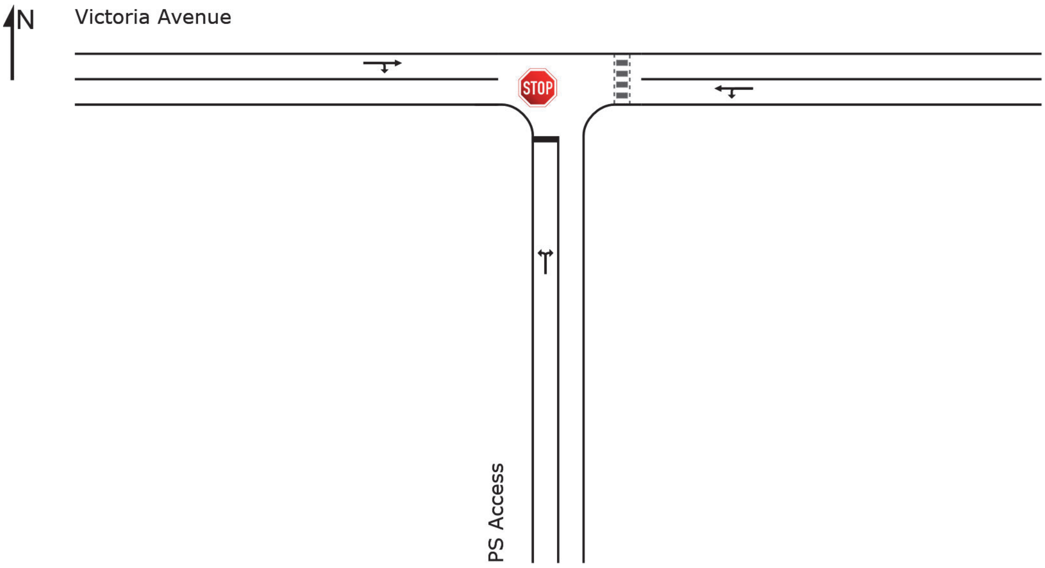
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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.

Site: [611_DoMin_AM_VictoriaAvPSAccess (Site Folder: DoMin)]

New Site
Site Category: (None)
Stop (Two-Way)

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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: PS Access														
1	L2	12	0	13	0.0	0.174	7.0	LOS A	0.6	4.5	0.20	0.90	0.20	37.5
3	R2	166	0	174	0.0	0.174	6.8	LOS A	0.6	4.5	0.20	0.90	0.20	37.2
Approach		178	0	187	0.0	0.174	6.8	LOS A	0.6	4.5	0.20	0.90	0.20	37.2
East:														
4	L2	131	4	138	3.0	0.110	3.5	LOS A	0.0	0.0	0.00	0.31	0.00	39.1
5	T1	63	0	66	0.0	0.110	0.0	LOS A	0.0	0.0	0.00	0.31	0.00	39.0
Approach		194	4	204	2.1	0.110	2.3	NA	0.0	0.0	0.00	0.31	0.00	39.1
West: Victoria Avenue														
11	T1	19	1	20	5.4	0.017	0.3	LOS A	0.1	0.4	0.20	0.16	0.20	39.1
12	R2	9	0	10	0.0	0.017	4.1	LOS A	0.1	0.4	0.20	0.16	0.20	39.0
Approach		28	1	29	3.6	0.017	1.6	NA	0.1	0.4	0.20	0.16	0.20	39.1
All Vehicles		399	5	420	1.3	0.174	4.3	NA	0.6	4.5	0.11	0.56	0.11	38.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

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: PS Access													
Lane 1	187	0.0	1074	0.174	100	6.8	LOS A	0.6	4.5	Full	500	0.0	0.0
Approach	187	0.0		0.174		6.8	LOS A	0.6	4.5				
East:													
Lane 1	204	2.1	1859	0.110	100	2.3	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	204	2.1		0.110		2.3	NA	0.0	0.0				
West: Victoria Avenue													
Lane 1	29	3.6	1730	0.017	100	1.6	LOS A	0.1	0.4	Full	500	0.0	0.0
Approach	29	3.6		0.017		1.6	NA	0.1	0.4				
Intersection	420	1.3		0.174		4.3	NA	0.6	4.5				

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.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

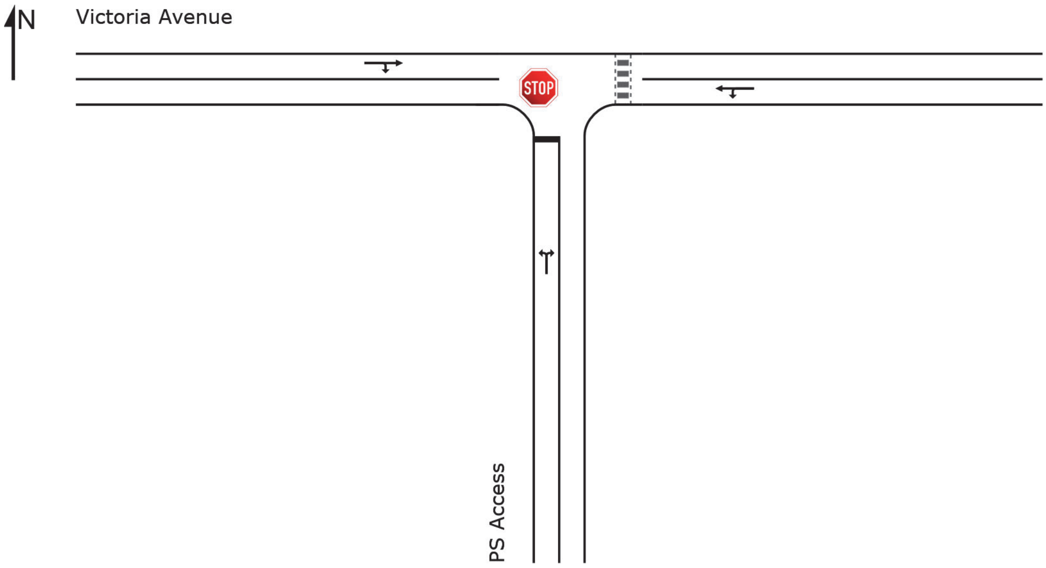
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: [612_DoMin_PM_VictoriaAvPSAccess (Site Folder: DoMin)]

New Site
Site Category: (None)
Stop (Two-Way)

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: PS Access														
1	L2	10	0.0	11	0.0	0.090	6.9	LOS A	0.3	2.2	0.16	0.91	0.16	37.5
3	R2	85	0.0	90	0.0	0.090	6.6	LOS A	0.3	2.2	0.16	0.91	0.16	37.2
Approach		95	0.0	100	0.0	0.090	6.6	LOS A	0.3	2.2	0.16	0.91	0.16	37.3
East:														
4	L2	47	4.2	50	4.2	0.052	3.4	LOS A	0.0	0.0	0.00	0.23	0.00	39.4
5	T1	46	0.0	48	0.0	0.052	0.0	LOS A	0.0	0.0	0.00	0.23	0.00	39.3
Approach		93	2.1	98	2.1	0.052	1.8	NA	0.0	0.0	0.00	0.23	0.00	39.3
West: Victoria Avenue														
11	T1	30	0.0	32	0.0	0.026	0.1	LOS A	0.1	0.6	0.13	0.16	0.13	39.3
12	R2	14	0.0	15	0.0	0.026	3.8	LOS A	0.1	0.6	0.13	0.16	0.13	39.1
Approach		44	0.0	47	0.0	0.026	1.3	NA	0.1	0.6	0.13	0.16	0.13	39.2
All Vehicles		233	0.9	245	0.9	0.090	3.7	NA	0.3	2.2	0.09	0.49	0.09	38.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

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: PS Access													
Lane 1	100	0.0	1111	0.090	100	6.6	LOS A	0.3	2.2	Full	500	0.0	0.0
Approach	100	0.0		0.090		6.6	LOS A	0.3	2.2				
East:													
Lane 1	98	2.1	1873	0.052	100	1.8	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	98	2.1		0.052		1.8	NA	0.0	0.0				
West: Victoria Avenue													
Lane 1	47	0.0	1824	0.026	100	1.3	LOS A	0.1	0.6	Full	500	0.0	0.0
Approach	47	0.0		0.026		1.3	NA	0.1	0.6				
Intersection	245	0.9		0.090		3.7	NA	0.3	2.2				

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

SIDRA Outputs

Site Layout

Movement Summary

Lane Summary

Phase Sequence

Site

All Sites

- George Street / Pomeroy Street
- George Street / Conway Avenue
- George Street / Rothwell Avenue
- King Street / Victoria Avenue
- George Street / Victoria Avenue
- Victoria Avenue / Access Road

Scenario Name

Future Development Case, AM and PM

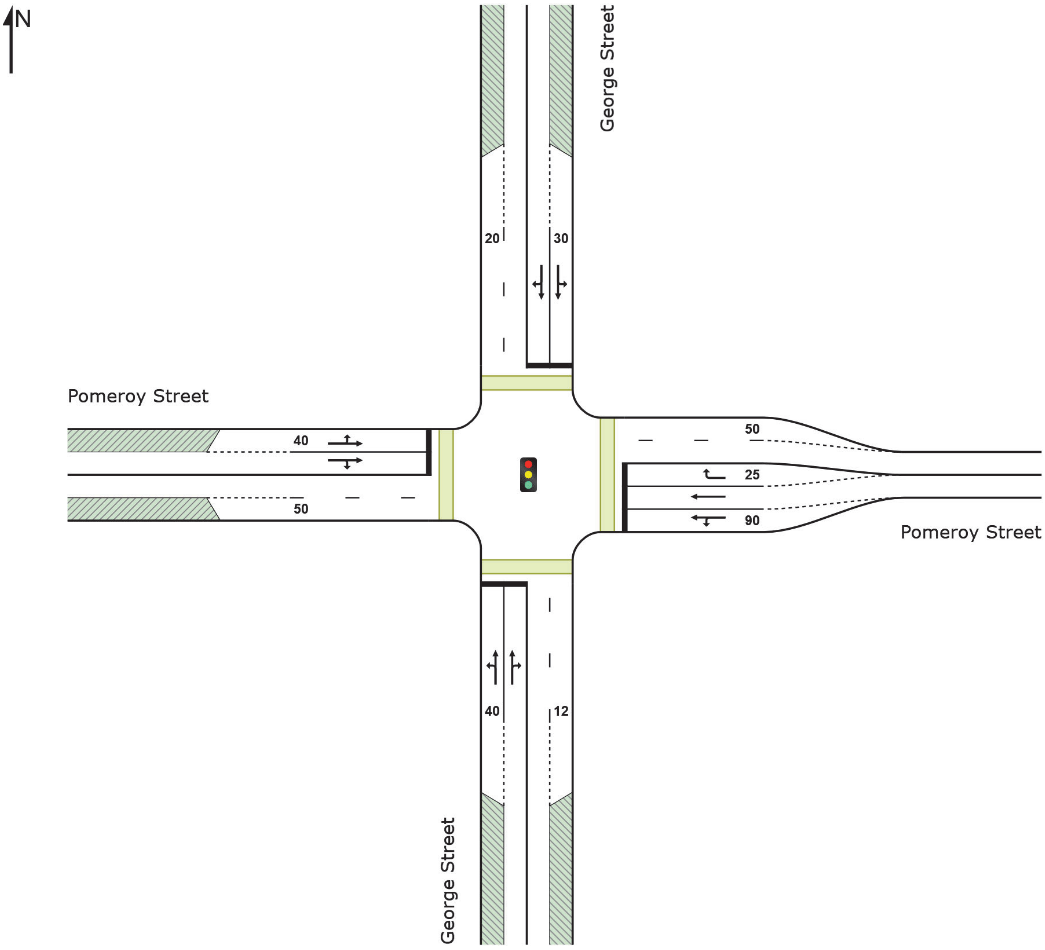
Site: [121_Prj_AM_GeorgeSt_PomeroySt (Site Folder: Project)]

George St / Pomerory St
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110 seconds (Site Optimum Cycle Time - Minimum Delay)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: George St / Pomeroy
Reference Phase: Phase A
Input Phase Sequence: A0, A, B, C0, C
Output Phase Sequence: A0, A, B, C0, C

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: George Street														
1	L2	120	0.8	127	0.8	0.403	35.2	LOS C	9.7	69.0	0.82	0.73	0.82	23.1
2	T1	111	2.7	117	2.7	1.783	81.8	LOS F	43.3	303.5	0.83	0.88	1.10	8.0
3	R2	163	0.0	171	0.0	1.783	750.4	LOS F	43.3	303.5	1.00	2.76	4.80	1.3
Approach		394	1.0	415	1.0	1.783	343.9	LOS F	43.3	303.5	0.90	1.61	2.54	3.1
East: Pomeroy Street														
4	L2	410	0.5	431	0.5	0.434	20.2	LOS B	13.8	97.1	0.65	0.73	0.65	22.8
5	T1	425	1.4	447	1.4	0.647	21.9	LOS B	16.6	117.5	0.75	0.66	0.75	27.2
6	R2	145	0.7	153	0.7	* 0.687	50.0	LOS D	8.1	56.8	1.00	0.88	1.08	13.0
Approach		979	0.9	1031	0.9	0.687	25.4	LOS B	16.6	117.5	0.74	0.72	0.76	23.2
North: George Street														
7	L2	292	0.7	307	0.7	0.705	25.7	LOS B	10.8	76.3	0.69	0.74	0.71	19.8
8	T1	233	0.4	246	0.4	* 2.101	1033.3	LOS F	112.0	789.0	1.00	3.88	5.44	0.8
9	R2	154	1.3	163	1.3	2.101	1036.7	LOS F	112.0	789.0	1.00	3.88	5.44	1.5
Approach		679	0.7	715	0.7	2.101	601.5	LOS F	112.0	789.0	0.87	2.53	3.41	1.7
West: Pomeroy Street														
10	L2	237	0.8	250	0.8	0.580	28.1	LOS B	10.8	75.9	0.75	0.74	0.75	24.3
11	T1	551	1.5	580	1.5	* 1.778	699.4	LOS F	159.5	1127.6	0.98	3.50	4.47	2.4
12	R2	114	0.0	120	0.0	1.778	750.3	LOS F	159.5	1127.6	1.00	3.69	4.73	2.2
Approach		902	1.1	949	1.1	1.778	529.2	LOS F	159.5	1127.6	0.92	2.80	3.52	3.1
All Vehicles		2954	0.9	3110	0.9	2.101	354.1	LOS F	159.5	1127.6	0.85	1.89	2.45	3.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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)

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: George Street													
Lane 1	235	1.7	583	0.403	23[6]	33.3	LOS C	9.7	69.0	Short (P)	40	0.0	NA
Lane 2	180	0.1	101	1.783	100	750.3	LOS F	43.3	303.5	Full	120	0.0	92.3
Approach	415	1.0		1.783		343.9	LOS F	43.3	303.5				
East: Pomeroy Street													
Lane 1	431	0.5	993	0.434	67[5]	20.2	LOS B	13.8	97.1	Short	90	0.0	NA
Lane 2	447	1.4	691[1]	0.647	100	21.9	LOS B	16.6	117.5	Full	150	0.0	0.0
Lane 3	153	0.7	222[1]	0.687	100	50.0	LOS D	8.1	56.8	Short	25	0.0	NA
Approach	1031	0.9		0.687		25.4	LOS B	16.6	117.5				
North: George Street													
Lane 1	307	0.7	436[1]	0.705	34[5]	25.7	LOS B	10.8	76.3	Short (P)	30	0.0	NA
Lane 2	408	0.8	194[1]	2.101	100	1034.6	LOS F	112.0	789.0	Full	100	0.0	100.0

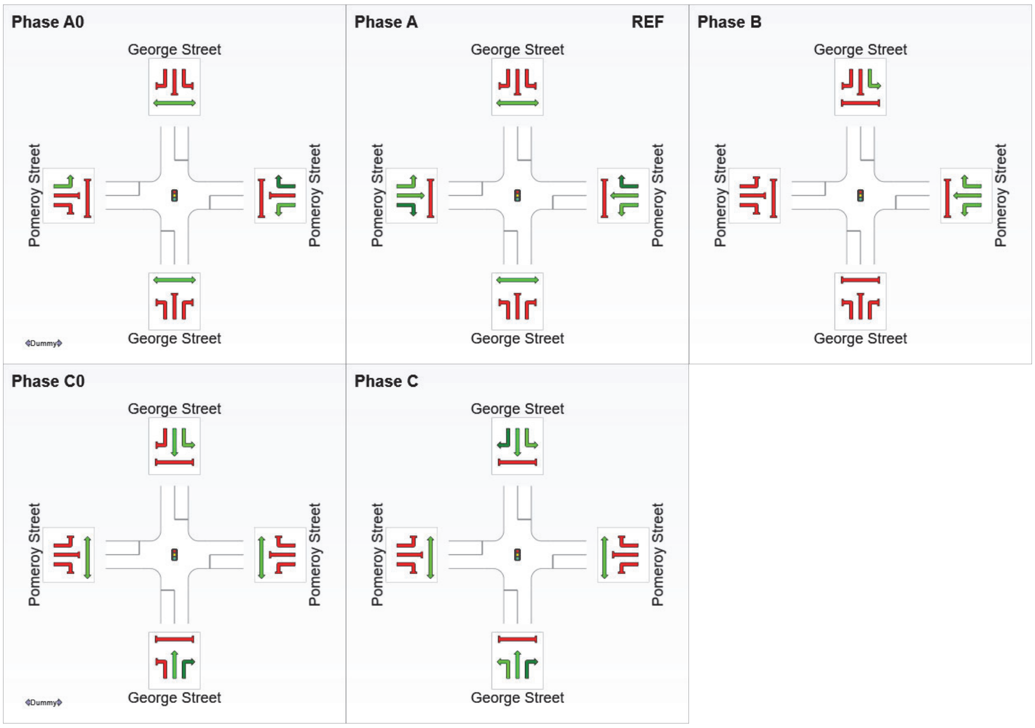
Approach	715	0.7		2.101		601.5	LOS F	112.0	789.0				
West: Pomeroy Street													
Lane 1	288	0.9	496[1]	0.580	33[6]	27.7	LOS B	10.8	75.9	Short (P)	40	0.0	NA
Lane 2	661	1.2	372[1]	1.778	100	747.5	LOS F	159.5	1127.6	Full	350	0.0	100.0
Approach	949	1.1		1.778		529.2	LOS F	159.5	1127.6				
Intersection	3110	0.9		2.101		354.1	LOS F	159.5	1127.6				

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.
5 Lane under-utilisation found by the program
6 Lane under-utilisation due to downstream effects

Input Phase Sequence

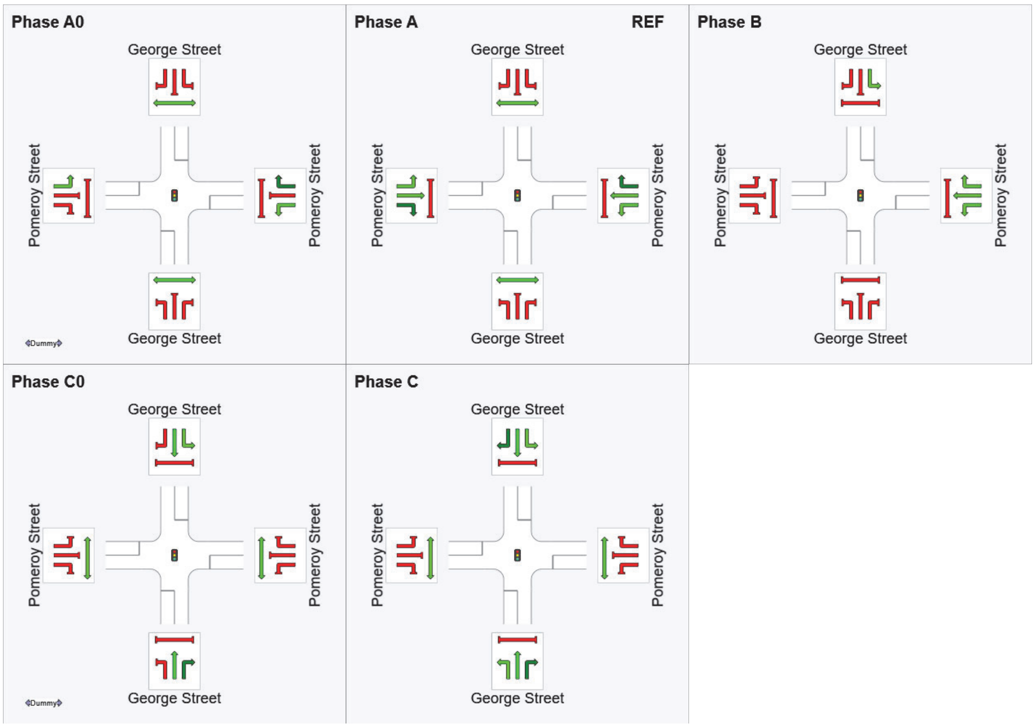
Phase Sequence: George St / Pomeroy
Reference Phase: Phase A
Input Phase Sequence: A0, A, B, C0, C



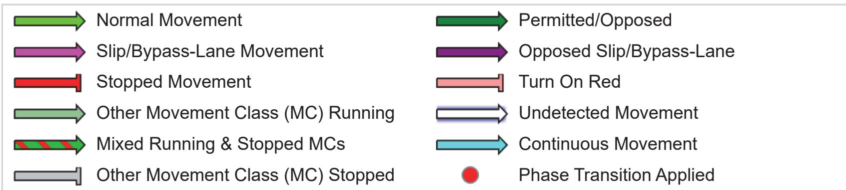
REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class (MC) Running	Undetected Movement
Mixed Running & Stopped MCs	Continuous Movement
Other Movement Class (MC) Stopped	Phase Transition Applied

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Phase Timing Summary

Phase	A0	A	B	C0	C
Phase Change Time (sec)	96	0	39	51	62
Green Time (sec)	8	39	6	5	34
Phase Time (sec)	8	45	12	5	40
Phase Split	7%	41%	11%	5%	36%

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%.

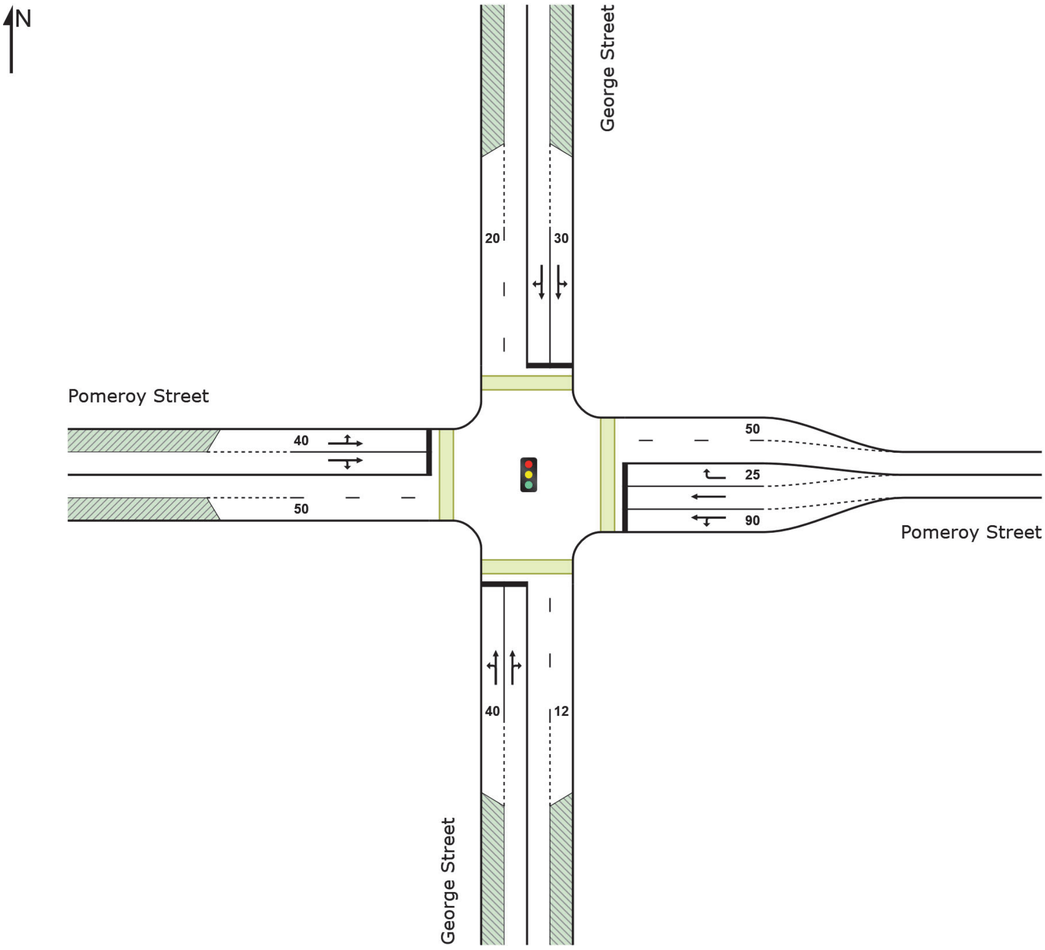
Site: [122_Prj_PM_GeorgeSt_PomeroySt (Site Folder: Project)]

George St / Pomerory St
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100 seconds (Site Optimum Cycle Time - Minimum Delay)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: PM - George St / Pomeroy
Reference Phase: Phase A
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: George Street														
1	L2	133	0.0	140	0.0	0.406	30.8	LOS C	10.0	70.1	0.78	0.72	0.78	28.2
2	T1	150	0.0	158	0.0	1.796	94.7	LOS F	53.5	374.4	0.80	0.91	1.20	7.4
3	R2	200	0.0	211	0.0	1.796	761.2	LOS F	53.5	374.4	1.00	2.73	5.20	1.3
Approach		483	0.0	508	0.0	1.796	353.2	LOS F	53.5	374.4	0.87	1.61	2.74	3.0
East: Pomeroy Street														
4	L2	240	0.0	253	0.0	0.272	20.2	LOS B	7.1	49.4	0.62	0.73	0.62	24.9
5	T1	636	0.5	669	0.5	0.721	20.4	LOS B	24.7	173.9	0.82	0.74	0.82	32.3
6	R2	274	0.0	289	0.0	* 1.380	377.5	LOS F	47.7	334.0	1.00	1.97	3.77	2.2
Approach		1150	0.3	1211	0.3	1.380	105.5	LOS F	47.7	334.0	0.82	1.03	1.48	10.3
North: George Street														
7	L2	211	0.0	223	0.0	0.457	21.3	LOS B	6.4	45.0	0.62	0.71	0.62	23.9
8	T1	165	0.0	173	0.0	* 2.245	1112.8	LOS F	99.2	694.7	0.99	3.30	5.93	0.7
9	R2	176	0.0	185	0.0	2.245	1160.6	LOS F	99.2	694.7	1.00	3.41	6.14	1.4
Approach		552	0.0	581	0.0	2.245	710.2	LOS F	99.2	694.7	0.85	2.34	3.96	1.5
West: Pomeroy Street														
10	L2	266	0.0	280	0.0	0.654	29.7	LOS C	10.9	76.1	0.79	0.77	0.79	26.6
11	T1	600	0.7	631	0.7	* 2.006	914.5	LOS F	181.6	1277.3	0.99	4.01	5.48	1.9
12	R2	82	0.0	87	0.0	2.006	950.7	LOS F	181.6	1277.3	1.00	4.12	5.65	1.7
Approach		948	0.4	997	0.4	2.006	669.4	LOS F	181.6	1277.3	0.94	3.11	4.18	2.5
All Vehicles		3133	0.2	3298	0.2	2.245	420.8	LOS F	181.6	1277.3	0.87	1.98	2.93	3.2

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)

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: George Street													
Lane 1	283	0.0	696	0.406	23[6]	27.7	LOS B	10.0	70.1	Short (P)	40	0.0	NA
Lane 2	226	0.0	126	1.796	100	760.9	LOS F	53.5	374.4	Full	120	0.0	100.0
Approach	508	0.0		1.796		353.2	LOS F	53.5	374.4				
East: Pomeroy Street													
Lane 1	253	0.0	929	0.272	38[5]	20.2	LOS B	7.1	49.4	Short	90	0.0	NA
Lane 2	669	0.5	928[1]	0.721	100	20.4	LOS B	24.7	173.9	Full	150	0.0	79.7[8]
Lane 3	289	0.0	209	1.380	100	377.5	LOS F	47.7	334.0	Short	25	0.0	NA
Approach	1211	0.3		1.380		105.5	LOS F	47.7	334.0				
North: George Street													
Lane 1	229	0.0	502[1]	0.457	20[6]	21.1	LOS B	6.4	45.0	Short (P)	30	0.0	NA
Lane 2	352	0.0	157[1]	2.245	100	1158.5	LOS F	99.2	694.7	Full	100	0.0	100.0

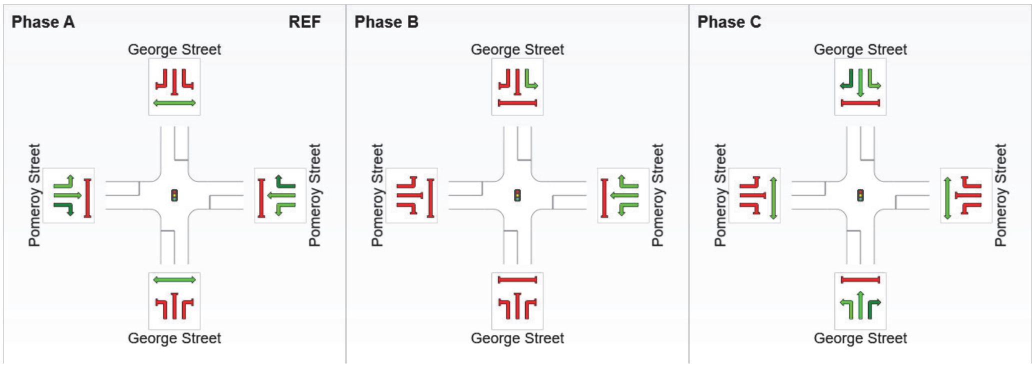
Approach	581	0.0		2.245		710.2	LOS F	99.2	694.7				
West: Pomeroy Street													
Lane 1	301	0.0	461[1]	0.654	33[6]	29.4	LOS C	10.9	76.1	Short (P)	40	0.0	NA
Lane 2	696	0.6	347[1]	2.006	100	946.7	LOS F	181.6	1277.3	Full	350	0.0	100.0
Approach	997	0.4		2.006		669.4	LOS F	181.6	1277.3				
Intersection	3298	0.2		2.245		420.8	LOS F	181.6	1277.3				

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.
5 Lane under-utilisation found by the program
6 Lane under-utilisation due to downstream effects
8 Probability of Blockage has been set on the basis of a queue that overflows from a short lane.

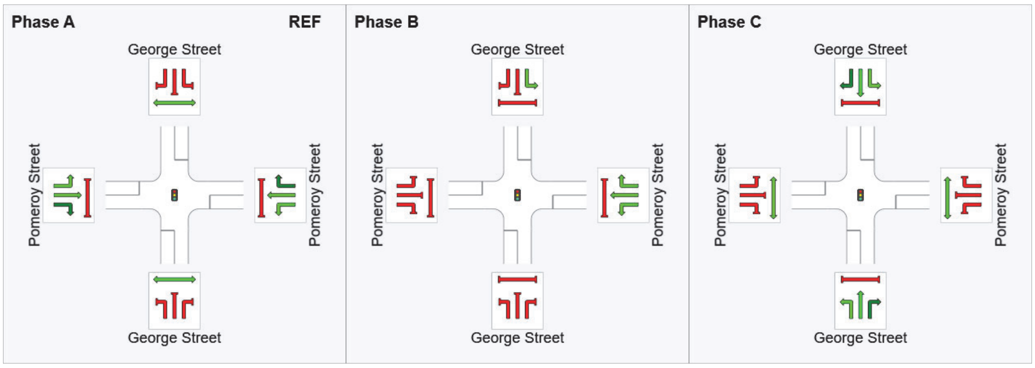
Input Phase Sequence

Phase Sequence: PM - George St / Pomeroy
Reference Phase: Phase A
Input Phase Sequence: A, B, C



REF: Reference Phase
VAR: Variable Phase

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class (MC) Running	Undetected Movement
Mixed Running & Stopped MCs	Continuous Movement
Other Movement Class (MC) Stopped	Phase Transition Applied

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	44	56
Green Time (sec)	38	6	38
Phase Time (sec)	44	12	44
Phase Split	44%	12%	44%

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%.

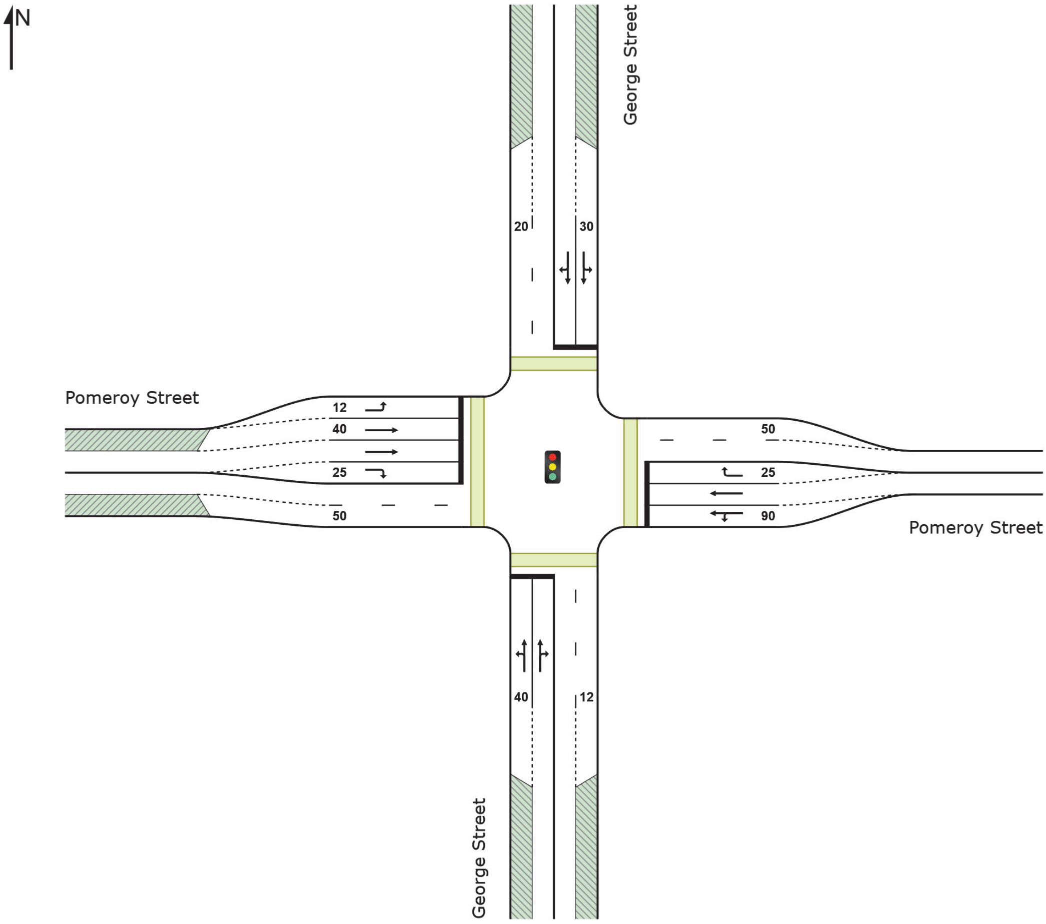
Site: [131_Prj_AM_GeorgeSt_PomeroySt_Option1 (Site Folder: Project)]

George St / Pomerory St
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated   Cycle Time = 120 seconds (Site Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: George St / Pomeroy
Reference Phase: Phase A
Input Phase Sequence: A0, A, B*, C0, C, D*
Output Phase Sequence: A0, A, B*, C0, C, D*
(* Variable Phase)

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: George Street														
1	L2	120	0.8	127	0.8	0.241	30.2	LOS C	6.8	48.0	0.70	0.68	0.70	24.6
2	T1	111	2.7	117	2.7	1.017	79.4	LOS F	23.1	162.5	0.87	1.10	1.36	8.3
3	R2	163	0.0	171	0.0	1.017	122.7	LOS F	23.1	162.5	1.00	1.41	1.85	7.0
Approach		394	1.0	415	1.0	1.017	82.3	LOS F	23.1	162.5	0.87	1.10	1.36	10.8
East: Pomeroy Street														
4	L2	410	0.5	431	0.5	0.736	44.0	LOS D	22.7	159.3	0.95	0.86	0.96	15.0
5	T1	425	1.4	447	1.4	* 1.035	118.2	LOS F	42.5	301.2	1.00	1.47	1.76	11.2
6	R2	145	0.7	153	0.7	0.703	63.1	LOS E	8.8	62.3	1.00	1.03	1.08	11.0
Approach		979	0.9	1031	0.9	1.035	79.0	LOS F	42.5	301.2	0.98	1.15	1.33	12.1
North: George Street														
7	L2	292	0.7	307	0.7	0.491	22.8	LOS B	10.1	70.9	0.61	0.70	0.61	21.7
8	T1	233	0.4	246	0.4	* 1.000	101.4	LOS F	37.2	261.9	1.00	1.34	1.65	7.0
9	R2	154	1.3	163	1.3	1.000	104.7	LOS F	37.2	261.9	1.00	1.34	1.65	11.8
Approach		679	0.7	715	0.7	1.000	68.4	LOS E	37.2	261.9	0.83	1.06	1.20	11.6
West: Pomeroy Street														
10	L2	237	0.8	250	0.8	0.477	32.8	LOS C	10.5	74.0	0.77	0.76	0.77	22.7
11	T1	551	1.5	580	1.5	* 0.981	69.1	LOS E	32.5	230.4	0.97	1.26	1.38	16.1
12	R2	114	0.0	120	0.0	0.364	34.3	LOS C	4.8	33.6	0.93	0.76	0.93	22.5
Approach		902	1.1	949	1.1	0.981	55.2	LOS D	32.5	230.4	0.91	1.06	1.16	18.0
All Vehicles		2954	0.9	3110	0.9	1.035	69.7	LOS E	42.5	301.2	0.91	1.10	1.25	13.5

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)

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: George Street													
Lane 1	176	1.4	732	0.241	24 [6]	29.0	LOS C	6.8	48.0	Short (P)	40	0.0	NA
Lane 2	238	0.8	234 [1]	1.017	100	121.8	LOS F	23.1	162.5	Full	120	0.0	32.7
Approach	415	1.0		1.017		82.3	LOS F	23.1	162.5				
East: Pomeroy Street													
Lane 1	431	0.5	586 [1]	0.736	71 [5]	44.0	LOS D	22.7	159.3	Short	90	0.0	NA
Lane 2	447	1.4	432 [1]	1.035	100	118.2	LOS F	42.5	301.2	Full	150	0.0	69.7
Lane 3	153	0.7	217	0.703	100	63.1	LOS E	8.8	62.3	Short	25	0.0	NA
Approach	1031	0.9		1.035		79.0	LOS F	42.5	301.2				
North: George Street													
Lane 1	307	0.7	626 [1]	0.491	49 [5]	22.8	LOS B	10.1	70.9	Short (P)	30	0.0	NA
Lane 2	408	0.8	408 [1]	1.000	100	102.7	LOS F	37.2	261.9	Full	100	0.0	95.9

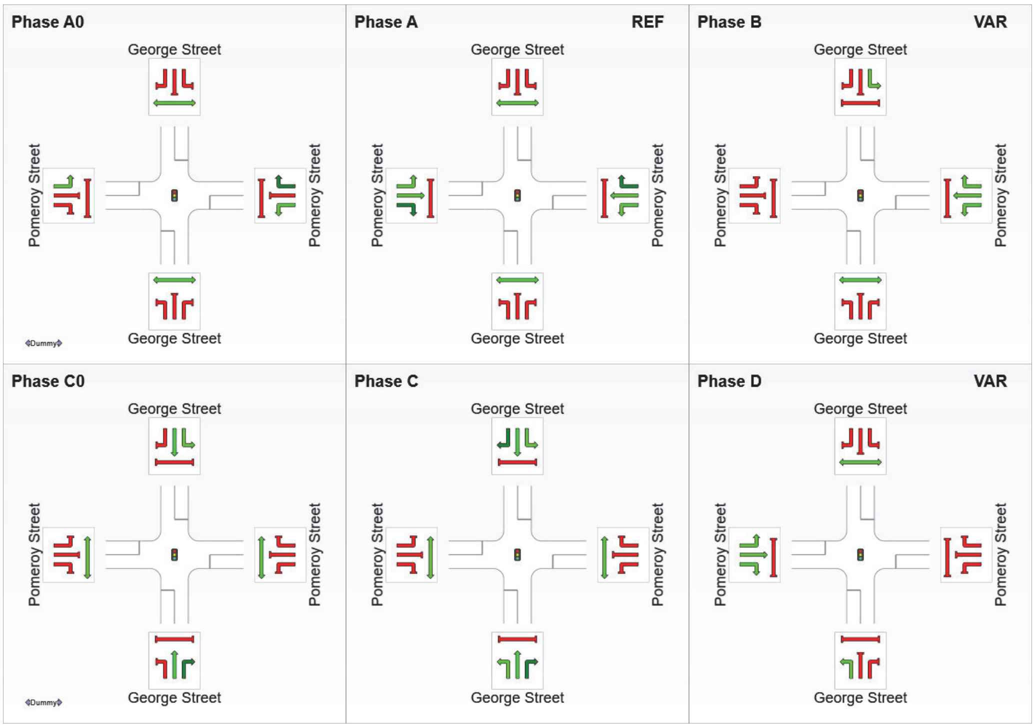
Approach	715	0.7		1.000		68.4	LOS E	37.2	261.9				
West: Pomeroy Street													
Lane 1	250	0.8	524[1]	0.477	100	32.8	LOS C	10.5	74.0	Short	12	0.0	NA
Lane 2	109	1.5	342[1]	0.320	33[6]	30.4	LOS C	4.3	30.7	Short (P)	40	0.0	NA
Lane 3	470	1.5	479[1]	0.981	100	78.1	LOS F	32.5	230.4	Full	350	0.0	0.0
Lane 4	120	0.0	329	0.364	100	34.3	LOS C	4.8	33.6	Short	25	0.0	NA
Approach	949	1.1		0.981		55.2	LOS D	32.5	230.4				
Intersection	3110	0.9		1.035		69.7	LOS E	42.5	301.2				

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.
5 Lane under-utilisation found by the program
6 Lane under-utilisation due to downstream effects

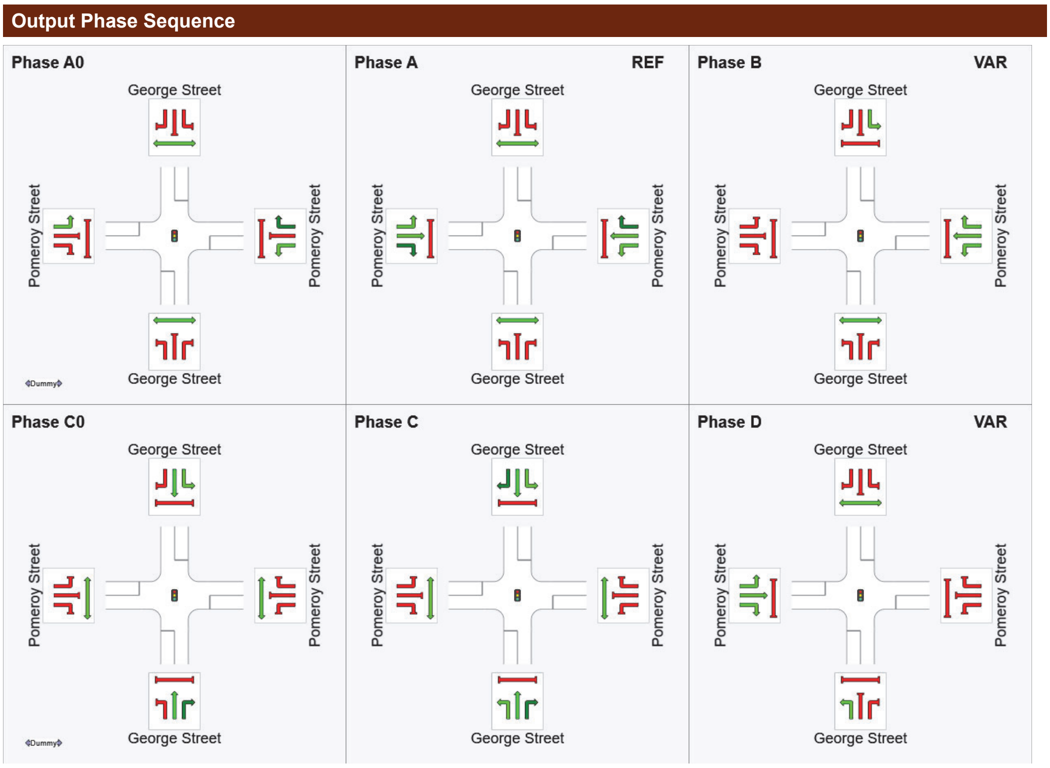
Input Phase Sequence

Phase Sequence: George St / Pomeroy
Reference Phase: Phase A
Input Phase Sequence: A0, A, B*, C0, C, D*



REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class (MC) Running	Undetected Movement
Mixed Running & Stopped MCs	Continuous Movement
Other Movement Class (MC) Stopped	Phase Transition Applied



REF: Reference Phase
VAR: Variable Phase

- Normal Movement
- Slip/Bypass-Lane Movement
- Stopped Movement
- Other Movement Class (MC) Running
- Mixed Running & Stopped MCs
- Other Movement Class (MC) Stopped
- Permitted/Opposed
- Opposed Slip/Bypass-Lane
- Turn On Red
- Undetected Movement
- Continuous Movement
- Phase Transition Applied

Phase Timing Summary

Phase	A0	A	B	C0	C	D
Phase Change Time (sec)	106	0	14	30	41	83
Green Time (sec)	8	14	10	5	42	17
Phase Time (sec)	8	20	16	5	48	23
Phase Split	7%	17%	13%	4%	40%	19%

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%.

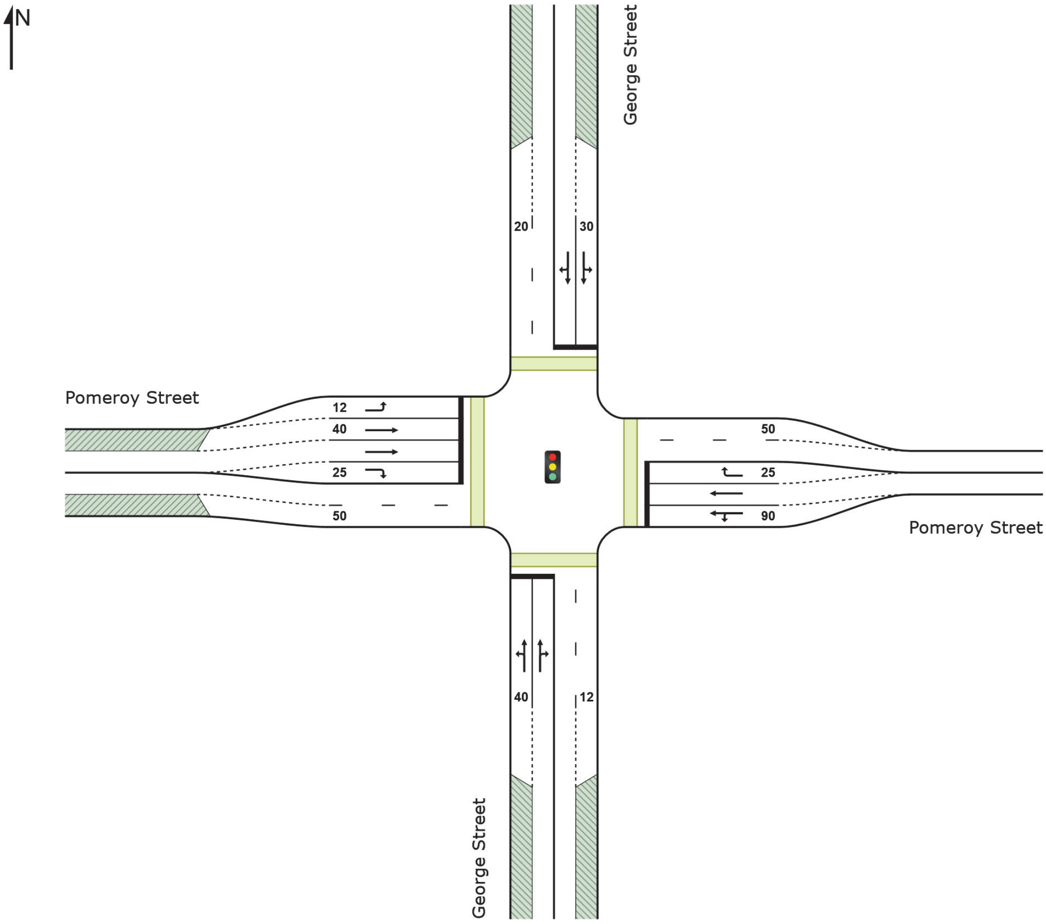
Site: [132_Prj_PM_GeorgeSt_PomeroySt_Option1 (Site Folder: Project)]

George St / Pomerory St
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated   Cycle Time = 100 seconds (Site Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: George St / Pomeroy
Reference Phase: Phase A
Input Phase Sequence: A, B*, C, D*
Output Phase Sequence: A, B*, C, D*
(* Variable Phase)

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: George Street														
1	L2	133	0.0	140	0.0	0.225	18.9	LOS B	5.6	39.4	0.56	0.62	0.56	35.7
2	T1	150	0.0	158	0.0	* 0.948	40.8	LOS C	19.3	135.3	0.76	0.89	1.04	17.3
3	R2	200	0.0	211	0.0	0.948	76.1	LOS F	19.3	135.3	1.00	1.20	1.59	13.0
Approach		483	0.0	508	0.0	0.948	49.4	LOS D	19.3	135.3	0.80	0.95	1.14	18.7
East: Pomeroy Street														
4	L2	240	0.0	253	0.0	0.567	41.6	LOS C	11.0	77.1	0.93	0.82	0.93	19.3
5	T1	636	0.5	669	0.5	1.440	441.4	LOS F	121.8	856.0	1.00	3.19	3.95	3.8
6	R2	274	0.0	289	0.0	* 1.090	121.5	LOS F	26.0	181.8	1.00	1.30	2.28	5.4
Approach		1150	0.3	1211	0.3	1.440	281.7	LOS F	121.8	856.0	0.99	2.25	2.92	4.7
North: George Street														
7	L2	211	0.0	223	0.0	0.193	13.6	LOS A	4.3	30.3	0.42	0.66	0.42	30.2
8	T1	165	0.0	173	0.0	0.910	51.2	LOS D	20.2	141.7	0.89	1.07	1.29	15.1
9	R2	176	0.0	185	0.0	0.910	56.9	LOS E	20.2	141.7	0.90	1.08	1.31	19.2
Approach		552	0.0	581	0.0	0.910	38.6	LOS C	20.2	141.7	0.71	0.92	0.97	19.8
West: Pomeroy Street														
10	L2	266	0.0	280	0.0	0.867	55.0	LOS D	14.8	103.9	0.97	0.98	1.29	18.9
11	T1	600	0.7	631	0.7	* 1.342	305.9	LOS F	85.9	604.7	0.98	2.41	3.11	5.3
12	R2	82	0.0	87	0.0	0.380	41.8	LOS C	3.7	25.7	0.97	0.76	0.97	24.4
Approach		948	0.4	997	0.4	1.342	212.6	LOS F	85.9	604.7	0.98	1.86	2.42	7.2
All Vehicles		3133	0.2	3298	0.2	1.440	182.2	LOS F	121.8	856.0	0.91	1.70	2.15	7.1

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)

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: George Street													
Lane 1	224	0.0	997	0.225	24[6]	16.9	LOS B	5.6	39.4	Short (P)	40	0.0	NA
Lane 2	284	0.0	300[1]	0.948	100	75.0	LOS F	19.3	135.3	Full	200	0.0	0.0
Approach	508	0.0		0.948		49.4	LOS D	19.3	135.3				
East: Pomeroy Street													
Lane 1	253	0.0	446	0.567	39[5]	41.6	LOS C	11.0	77.1	Short	90	0.0	NA
Lane 2	669	0.5	465[1]	1.440	100	441.4	LOS F	121.8	856.0	Full	150	0.0	100.0
Lane 3	289	0.0	265	1.090	100	121.5	LOS F	26.0	181.8	Short	25	0.0	NA
Approach	1211	0.3		1.440		281.7	LOS F	121.8	856.0				
North: George Street													
Lane 1	227	0.0	1177	0.193	21[6]	13.5	LOS A	4.3	30.3	Short (P)	30	0.0	NA
Lane 2	354	0.0	389[1]	0.910	100	54.7	LOS D	20.2	141.7	Full	100	0.0	36.8

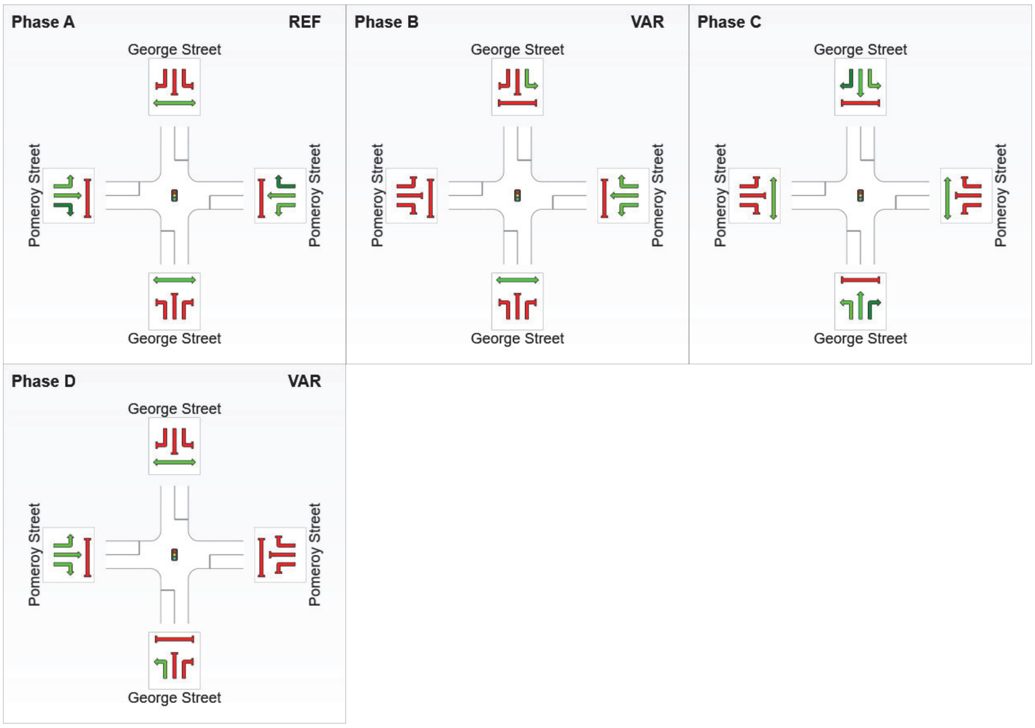
Approach	581	0.0		0.910		38.6	LOS C	20.2	141.7				
West: Pomeroy Street													
Lane 1	280	0.0	323[1]	0.867	100	55.0	LOS D	14.8	103.9	Short	12	0.0	NA
Lane 2	101	0.7	230[1]	0.438	33[6]	36.5	LOS C	4.1	28.8	Short (P)	40	0.0	NA
Lane 3	530	0.7	395[1]	1.342	100	357.1	LOS F	85.9	604.7	Full	350	0.0	55.4
Lane 4	87	0.0	228	0.380	100	41.8	LOS C	3.7	25.7	Short	25	0.0	NA
Approach	997	0.4		1.342		212.6	LOS F	85.9	604.7				
Intersection	3298	0.2		1.440		182.2	LOS F	121.8	856.0				

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.
5 Lane under-utilisation found by the program
6 Lane under-utilisation due to downstream effects

Input Phase Sequence

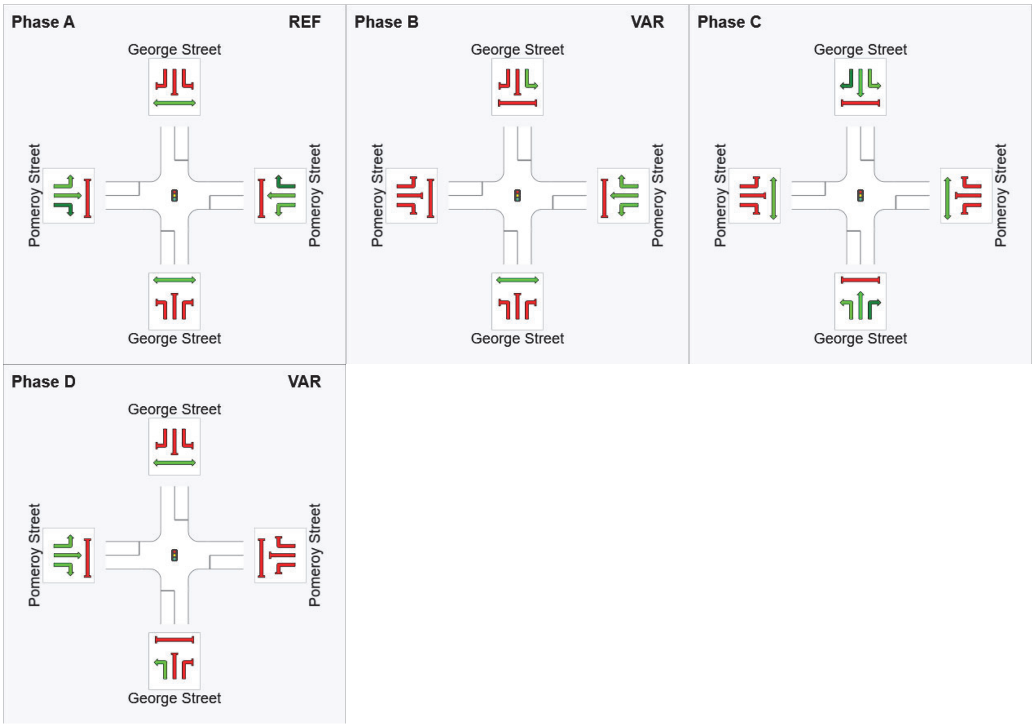
Phase Sequence: George St / Pomeroy
Reference Phase: Phase A
Input Phase Sequence: A, B*, C, D*



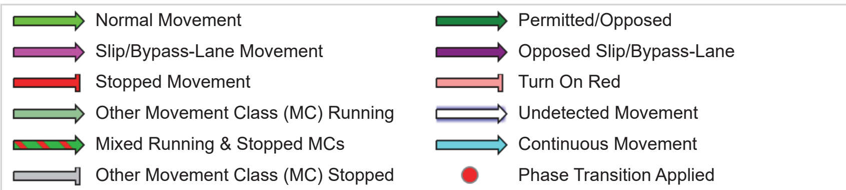
REF: Reference Phase
VAR: Variable Phase


Normal Movement
Permitted/Opposed
Slip/Bypass-Lane Movement
Opposed Slip/Bypass-Lane
Stopped Movement
Turn On Red
Other Movement Class (MC) Running
Undetected Movement
Mixed Running & Stopped MCs
Continuous Movement
Other Movement Class (MC) Stopped
Phase Transition Applied

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Phase Timing Summary

Phase	A	B	C	D
Phase Change Time (sec)	0	14	30	86
Green Time (sec)	8	10	50	8
Phase Time (sec)	14	16	56	14
Phase Split	14%	16%	56%	14%

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%.

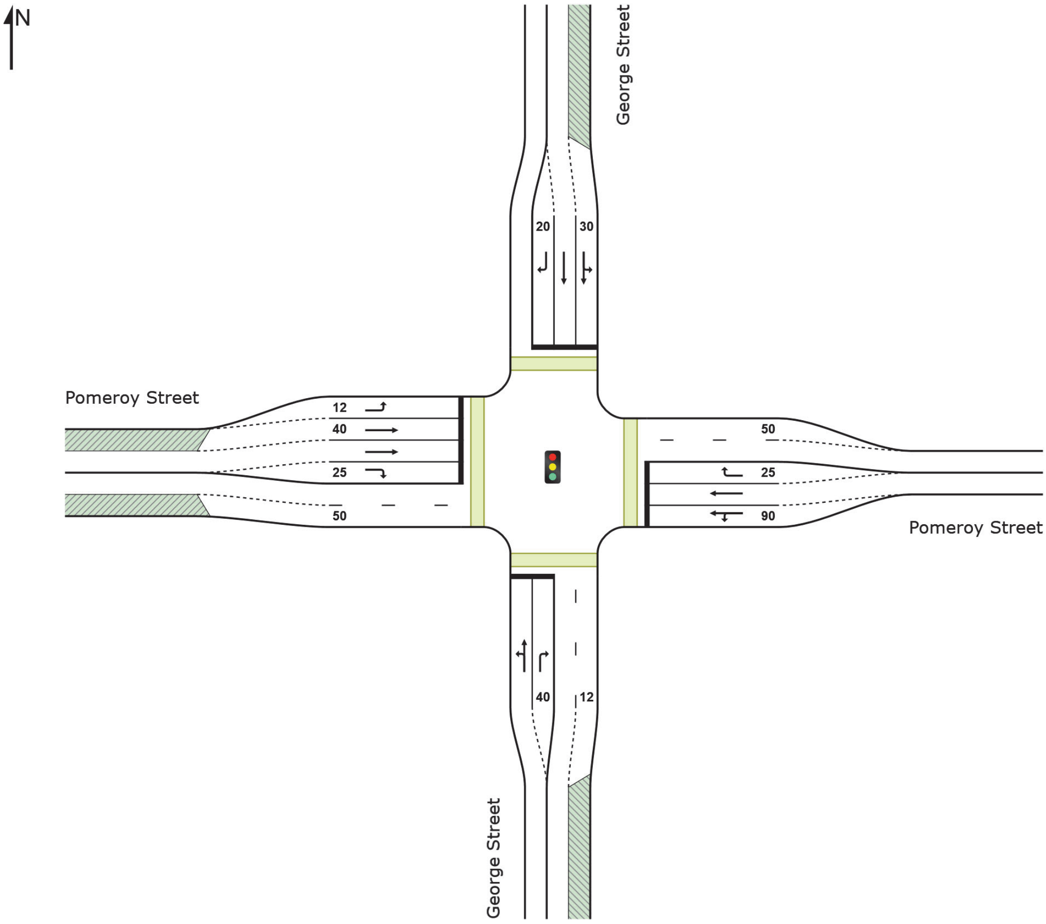
Site: [151_Prj_AM_GeorgeSt_PomeroySt_Option1 (Site Folder: Project)]

George St / Pomerory St
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110 seconds (Site Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: George St / Pomeroy
Reference Phase: Phase A
Input Phase Sequence: A0, A, B*, C0, C, D*
Output Phase Sequence: A0, A, B*, C0, C
(* Variable Phase)

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: George Street														
1	L2	120	0.8	127	0.8	0.584	42.0	LOS C	11.1	79.1	0.90	0.78	0.90	21.9
2	T1	111	2.7	117	2.7	0.584	37.2	LOS C	11.1	79.1	0.90	0.78	0.90	15.3
3	R2	163	0.0	171	0.0	0.696	47.1	LOS D	9.0	63.0	0.96	0.88	1.05	15.3
Approach		394	1.0	415	1.0	0.696	42.7	LOS D	11.1	79.1	0.92	0.82	0.96	17.6
East: Pomeroy Street														
4	L2	410	0.5	431	0.5	0.427	20.0	LOS B	13.5	95.1	0.64	0.73	0.64	24.1
5	T1	425	1.4	447	1.4	0.714	25.9	LOS B	18.1	127.9	0.81	0.71	0.81	25.7
6	R2	145	0.7	153	0.7	* 0.517	35.2	LOS C	6.9	48.4	0.90	0.80	0.90	16.5
Approach		979	0.9	1031	0.9	0.714	24.8	LOS B	18.1	127.9	0.75	0.73	0.75	23.8
North: George Street														
7	L2	292	0.7	307	0.7	0.444	25.1	LOS B	10.3	72.6	0.68	0.73	0.68	20.6
8	T1	233	0.4	246	0.4	0.513	28.9	LOS C	9.8	69.1	0.80	0.67	0.80	18.4
9	R2	154	1.3	163	1.3	* 1.093	165.2	LOS F	17.2	121.8	1.00	1.63	2.34	8.0
Approach		679	0.7	715	0.7	1.093	58.2	LOS E	17.2	121.8	0.79	0.91	1.10	13.1
West: Pomeroy Street														
10	L2	237	0.8	250	0.8	0.418	26.4	LOS B	8.9	63.1	0.72	0.73	0.72	24.7
11	T1	551	1.5	580	1.5	0.649	25.7	LOS B	19.1	135.6	0.79	0.68	0.79	25.9
12	R2	114	0.0	120	0.0	* 1.024	120.3	LOS F	10.5	73.6	1.00	1.40	2.07	11.1
Approach		902	1.1	949	1.1	1.024	37.8	LOS C	19.1	135.6	0.80	0.79	0.93	21.9
All Vehicles		2954	0.9	3110	0.9	1.093	38.9	LOS C	19.1	135.6	0.80	0.80	0.91	19.5

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)

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: George Street													
Lane 1	243	1.7	416[1]	0.584	100	39.7	LOS C	11.1	79.1	Full	150	0.0	0.0
Lane 2	171	0.0	246	0.696	100	47.1	LOS D	9.0	63.0	Short	40	0.0	NA
Approach	415	1.0		0.696		42.7	LOS D	11.1	79.1				
East: Pomeroy Street													
Lane 1	431	0.5	1009	0.427	60[5]	20.0	LOS B	13.5	95.1	Short	90	0.0	NA
Lane 2	447	1.4	626[1]	0.714	100	25.9	LOS B	18.1	127.9	Full	150	0.0	0.0
Lane 3	153	0.7	295[1]	0.517	100	35.2	LOS C	6.9	48.4	Short	25	0.0	NA
Approach	1031	0.9		0.714		24.8	LOS B	18.1	127.9				
North: George Street													
Lane 1	307	0.7	691[1]	0.444	87[5]	25.1	LOS B	10.3	72.6	Short (P)	30	0.0	NA
Lane 2	246	0.4	479[1]	0.513	100	28.9	LOS C	9.8	69.1	Full	100	0.0	22.9[8]

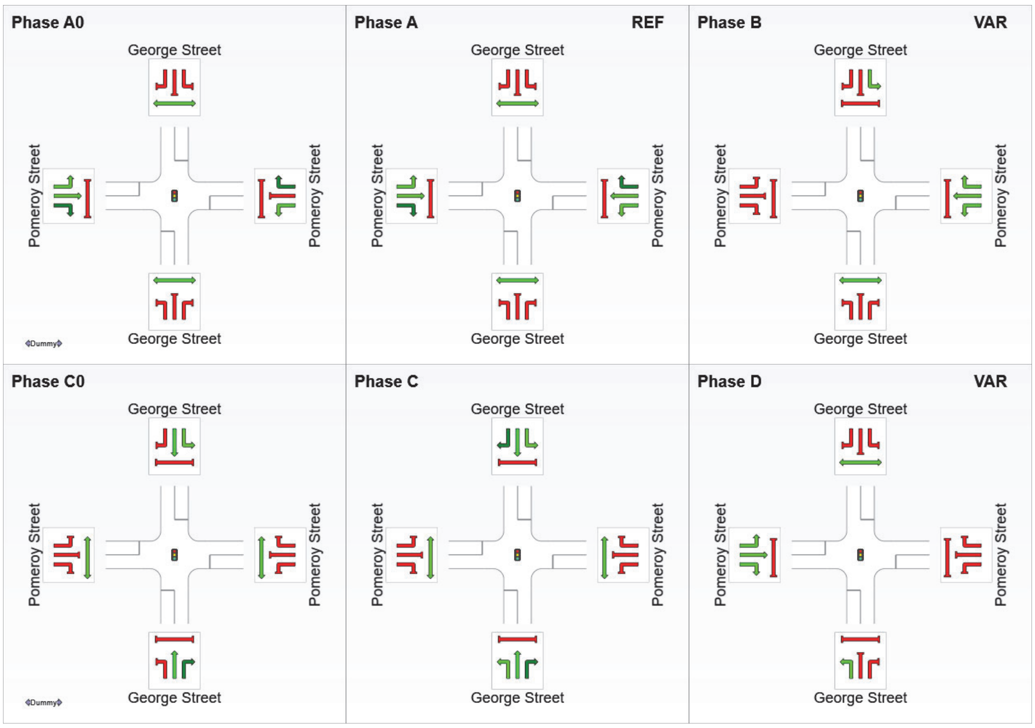
Lane 3	163	1.3	149[1]	1.093	100	165.2	LOS F	17.2	121.8	Short	20	0.0	NA
Approach	715	0.7		1.093		58.2	LOS E	17.2	121.8				
West: Pomeroy Street													
Lane 1	250	0.8	597[1]	0.418	100	26.4	LOS B	8.9	63.1	Short	12	0.0	NA
Lane 2	112	1.5	530[1]	0.212	33[6]	23.1	LOS B	3.7	26.0	Short (P)	40	0.0	NA
Lane 3	467	1.5	721[1]	0.649	100	26.3	LOS B	19.1	135.6	Full	350	0.0	0.0
Lane 4	120	0.0	117[1]	1.024	100	120.3	LOS F	10.5	73.6	Short	25	0.0	NA
Approach	949	1.1		1.024		37.8	LOS C	19.1	135.6				
Intersection	3110	0.9		1.093		38.9	LOS C	19.1	135.6				

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.
5 Lane under-utilisation found by the program
6 Lane under-utilisation due to downstream effects
8 Probability of Blockage has been set on the basis of a queue that overflows from a short lane.

Input Phase Sequence

Phase Sequence: George St / Pomeroy
Reference Phase: Phase A
Input Phase Sequence: A0, A, B*, C0, C, D*

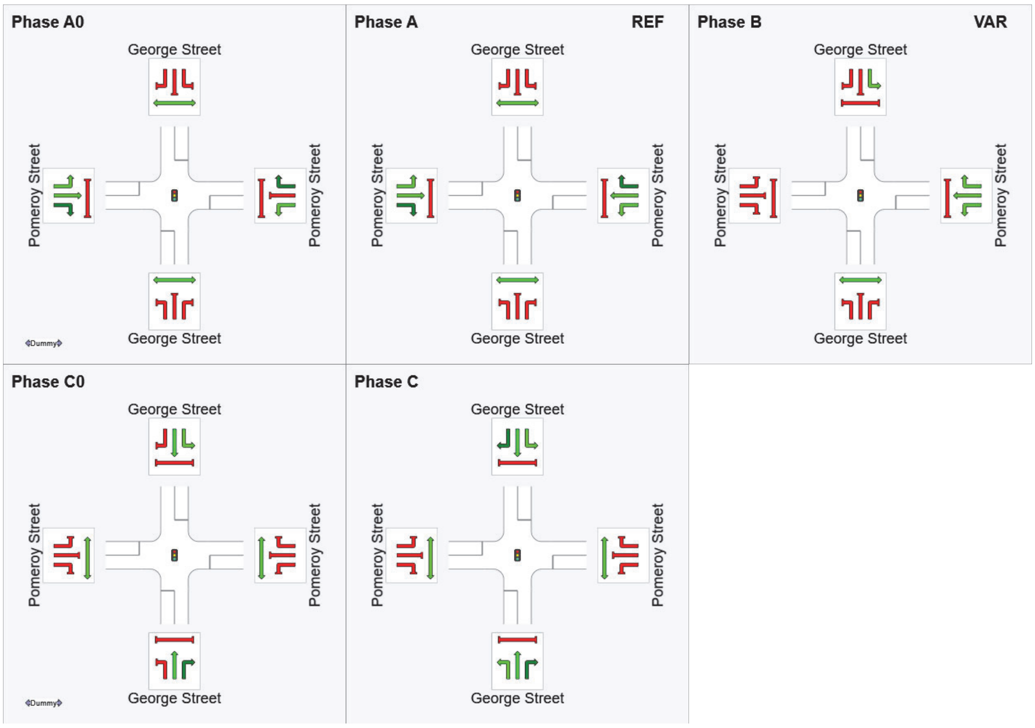


REF: Reference Phase

VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class (MC) Running	Undetected Movement
Mixed Running & Stopped MCs	Continuous Movement
Other Movement Class (MC) Stopped	Phase Transition Applied

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class (MC) Running	Undetected Movement
Mixed Running & Stopped MCs	Continuous Movement
Other Movement Class (MC) Stopped	Phase Transition Applied

Phase Timing Summary

Phase	A0	A	B	C0	C
Phase Change Time (sec)	96	0	38	52	63
Green Time (sec)	8	32	8	5	27
Phase Time (sec)	14	38	14	11	33
Phase Split	13%	35%	13%	10%	30%

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%.

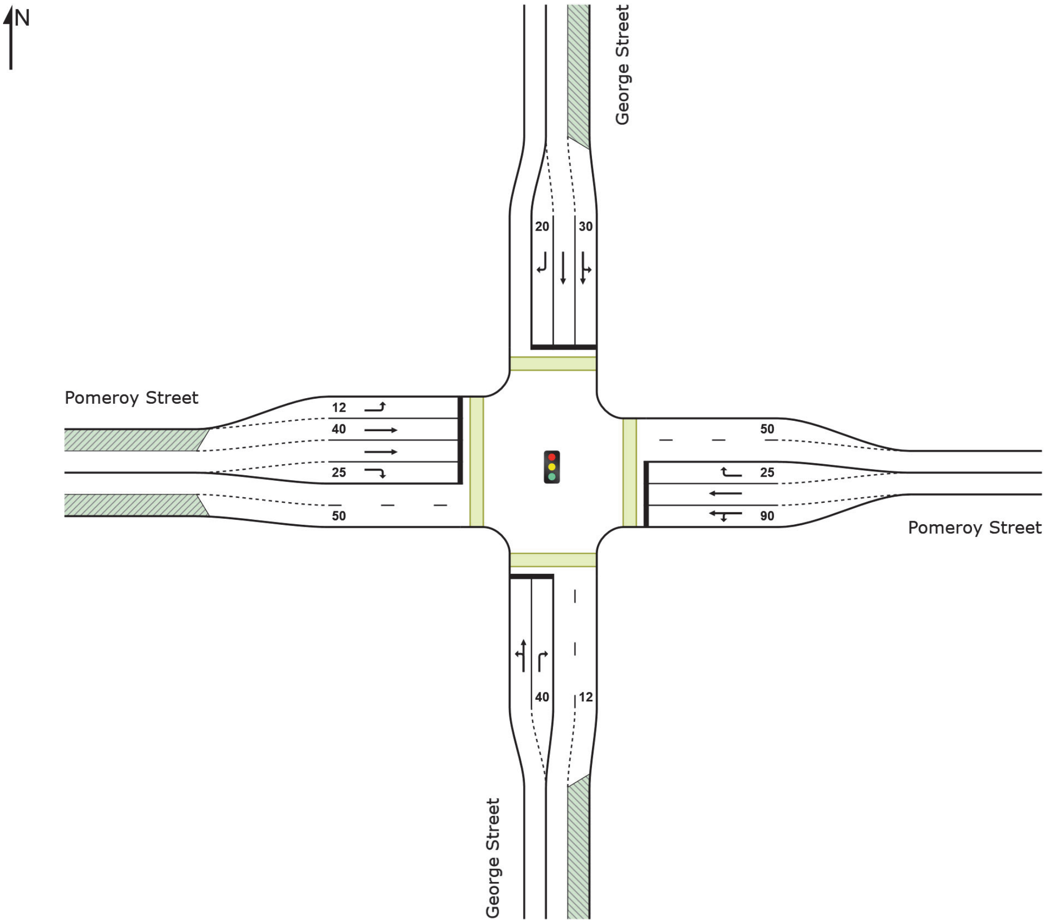
Site: [152_Prj_PM_GeorgeSt_PomeroySt_Option2 (Site Folder: Project)]

George St / Pomerory St
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated   Cycle Time = 100 seconds (Site Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: George St / Pomeroy
Reference Phase: Phase A
Input Phase Sequence: A, B*, C, D*
Output Phase Sequence: A, B*, C
(* Variable Phase)

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: George Street														
1	L2	133	0.0	140	0.0	0.555	34.8	LOS C	11.4	79.7	0.83	0.75	0.83	27.5
2	T1	150	0.0	158	0.0	0.555	27.8	LOS B	11.4	79.7	0.83	0.75	0.83	19.6
3	R2	200	0.0	211	0.0	0.682	41.6	LOS C	9.7	68.1	0.95	0.86	1.00	17.7
Approach		483	0.0	508	0.0	0.682	35.4	LOS C	11.4	79.7	0.88	0.80	0.90	21.2
East: Pomeroy Street														
4	L2	240	0.0	253	0.0	0.278	18.3	LOS B	7.3	51.0	0.58	0.70	0.58	27.9
5	T1	636	0.5	669	0.5	0.851	25.1	LOS B	25.9	181.7	0.73	0.76	0.86	29.8
6	R2	274	0.0	289	0.0	*0.823	52.5	LOS D	14.2	99.5	1.00	1.12	1.21	13.4
Approach		1150	0.3	1211	0.3	0.851	30.2	LOS C	25.9	181.7	0.76	0.83	0.88	24.8
North: George Street														
7	L2	211	0.0	223	0.0	0.230	20.9	LOS B	5.8	40.9	0.58	0.71	0.58	25.0
8	T1	165	0.0	173	0.0	0.366	25.7	LOS B	6.1	42.8	0.77	0.63	0.77	21.7
9	R2	176	0.0	185	0.0	*0.862	57.4	LOS E	10.2	71.6	0.97	1.03	1.37	18.5
Approach		552	0.0	581	0.0	0.862	33.9	LOS C	10.2	71.6	0.76	0.79	0.89	20.9
West: Pomeroy Street														
10	L2	266	0.0	280	0.0	0.537	30.5	LOS C	10.3	72.0	0.80	0.78	0.80	25.9
11	T1	600	0.7	631	0.7	*0.828	33.7	LOS C	24.2	170.5	0.89	0.85	0.99	26.4
12	R2	82	0.0	87	0.0	0.687	54.5	LOS D	4.5	31.6	1.00	0.88	1.17	20.1
Approach		948	0.4	997	0.4	0.828	34.6	LOS C	24.2	170.5	0.88	0.84	0.95	25.5
All Vehicles		3133	0.2	3298	0.2	0.862	33.0	LOS C	25.9	181.7	0.82	0.82	0.91	23.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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)

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: George Street													
Lane 1	298	0.0	536[1]	0.555	100	31.1	LOS C	11.4	79.7	Full	150	0.0	0.0
Lane 2	211	0.0	309	0.682	100	41.6	LOS C	9.7	68.1	Short	40	0.0	NA
Approach	508	0.0		0.682		35.4	LOS C	11.4	79.7				
East: Pomeroy Street													
Lane 1	280	0.0	1007	0.278	33[6]	18.0	LOS B	7.3	51.0	Short	90	0.0	NA
Lane 2	642	0.5	755[1]	0.851	100	25.5	LOS B	25.9	181.7	Full	150	0.0	22.4
Lane 3	289	0.0	351	0.823	100	52.5	LOS D	14.2	99.5	Short	25	0.0	NA
Approach	1211	0.3		0.851		30.2	LOS C	25.9	181.7				
North: George Street													
Lane 1	223	0.0	966	0.230	63[5]	20.9	LOS B	5.8	40.9	Short (P)	30	0.0	NA
Lane 2	173	0.0	474[1]	0.366	100	25.7	LOS B	6.1	42.8	Full	100	0.0	0.0

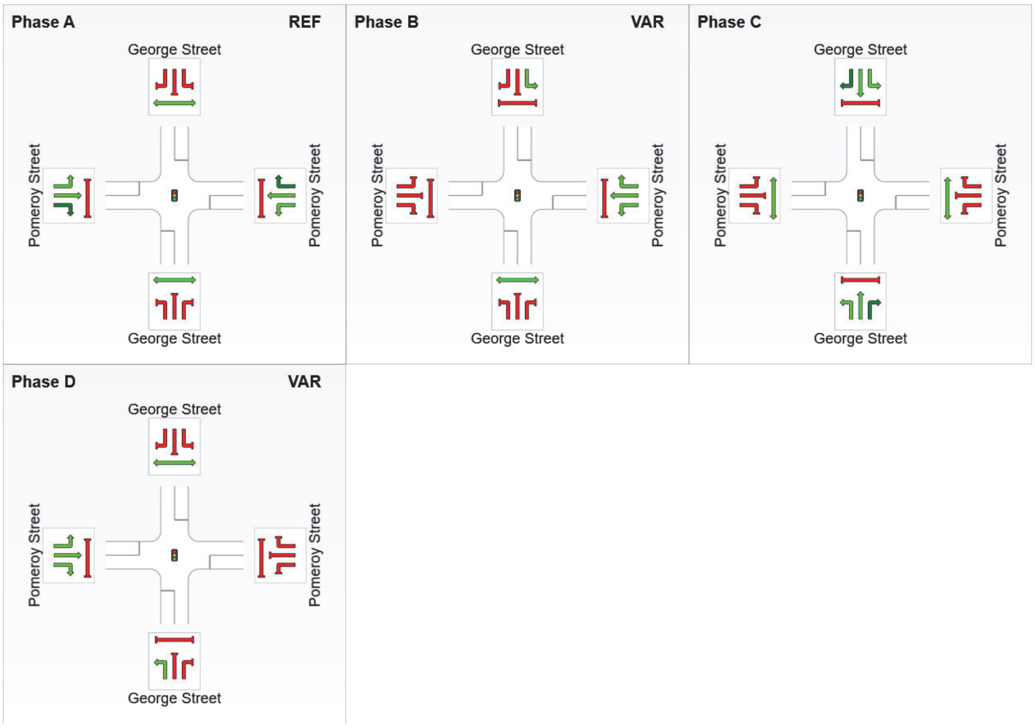
Lane 3	185	0.0	215[1]	0.862	100	57.4	LOS E	10.2	71.6	Short	20	0.0	NA
Approach	581	0.0		0.862		33.9	LOS C	10.2	71.6				
West: Pomeroy Street													
Lane 1	280	0.0	522[1]	0.537	100	30.5	LOS C	10.3	72.0	Short	12	0.0	NA
Lane 2	117	0.7	433[1]	0.270	33[6]	25.7	LOS B	3.9	27.1	Short (P)	40	0.0	NA
Lane 3	514	0.7	621[1]	0.828	100	35.5	LOS C	24.2	170.5	Full	350	0.0	0.0
Lane 4	87	0.0	126	0.687	100	54.5	LOS D	4.5	31.6	Short	25	0.0	NA
Approach	997	0.4		0.828		34.6	LOS C	24.2	170.5				
Intersection	3298	0.2		0.862		33.0	LOS C	25.9	181.7				

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.
5 Lane under-utilisation found by the program
6 Lane under-utilisation due to downstream effects

Input Phase Sequence

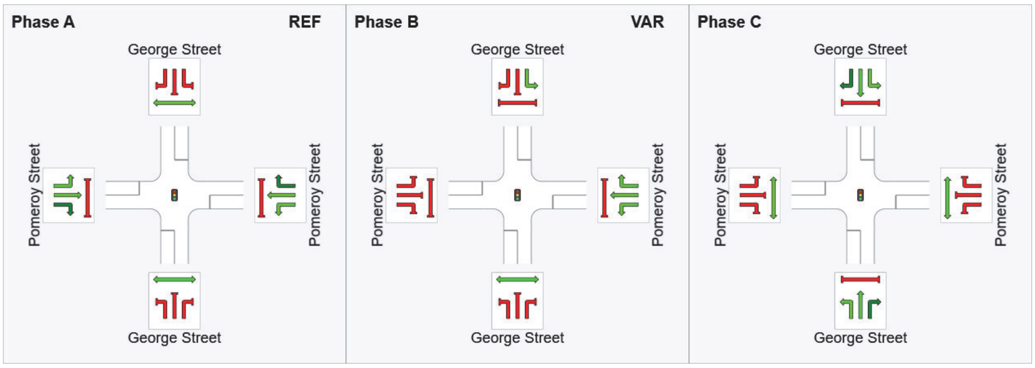
Phase Sequence: George St / Pomeroy
Reference Phase: Phase A
Input Phase Sequence: A, B*, C, D*



REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class (MC) Running	Undetected Movement
Mixed Running & Stopped MCs	Continuous Movement
Other Movement Class (MC) Stopped	Phase Transition Applied

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class (MC) Running	Undetected Movement
Mixed Running & Stopped MCs	Continuous Movement
Other Movement Class (MC) Stopped	Phase Transition Applied

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	42	60
Green Time (sec)	36	12	34
Phase Time (sec)	42	18	40
Phase Split	42%	18%	40%

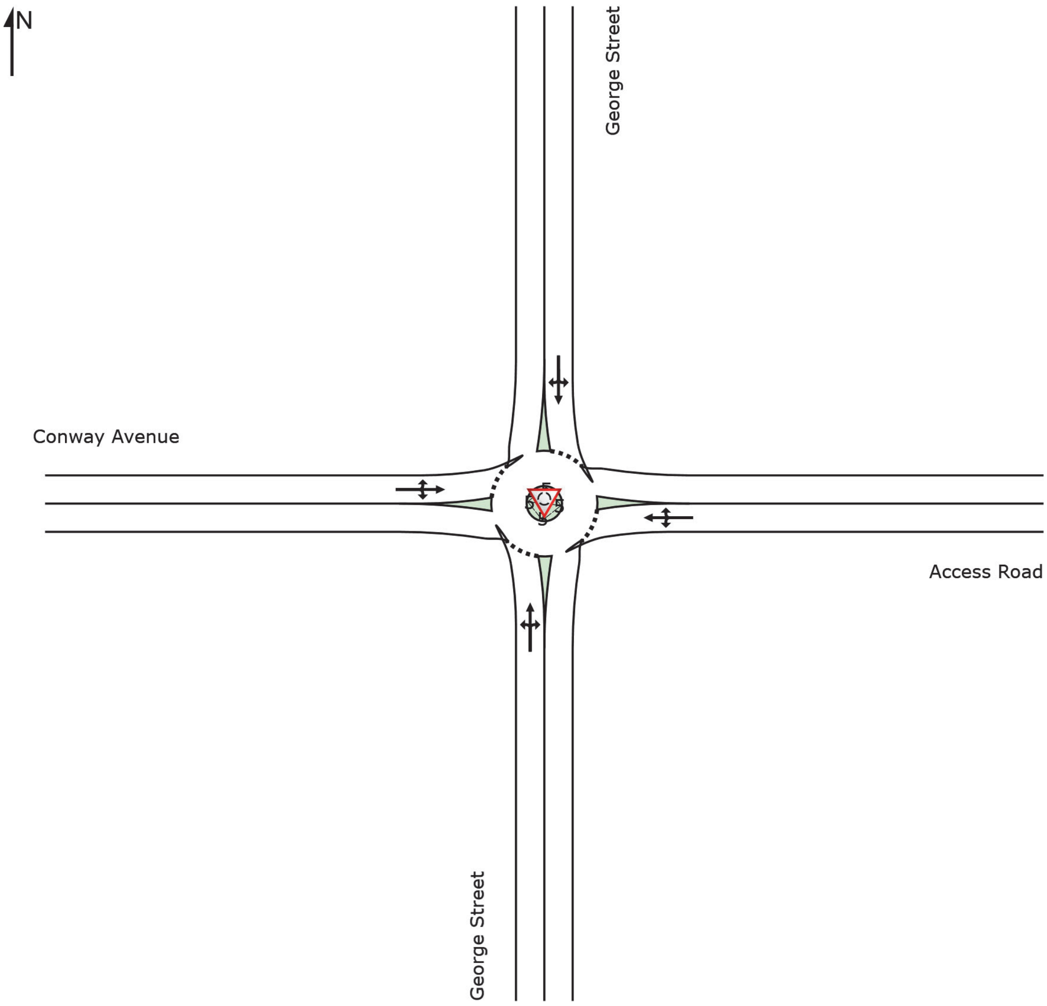
See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified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

Site: [221_Prj_AM_GeorgeSt_ConwayAve (Site Folder: Project)]

New Site
Site Category: (None)
Roundabout

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: George Street														
1	L2	4	0.0	4	0.0	0.286	4.8	LOS A	2.0	13.9	0.10	0.48	0.10	46.1
2	T1	374	0.8	393	0.8	0.286	4.0	LOS A	2.0	13.9	0.10	0.48	0.10	46.6
3	R2	34	11.8	36	11.8	0.286	6.6	LOS A	2.0	13.9	0.10	0.48	0.10	46.3
Approach		411	1.7	433	1.7	0.286	4.2	LOS A	2.0	13.9	0.10	0.48	0.10	46.6
East: Access Road														
4	L2	60	0.0	64	0.0	0.093	7.7	LOS A	0.5	3.3	0.57	0.69	0.57	44.2
5	T1	1	0.0	1	0.0	0.093	6.9	LOS A	0.5	3.3	0.57	0.69	0.57	44.7
6	R2	9	0.0	9	0.0	0.093	9.4	LOS A	0.5	3.3	0.57	0.69	0.57	44.5
Approach		70	0.0	74	0.0	0.093	7.9	LOS A	0.5	3.3	0.57	0.69	0.57	44.3
North: George Street														
7	L2	3	0.0	3	0.0	0.348	5.2	LOS A	2.3	16.2	0.25	0.47	0.25	45.9
8	T1	430	0.7	453	0.7	0.348	4.3	LOS A	2.3	16.2	0.25	0.47	0.25	46.4
9	R2	2	50.0	2	50.0	0.348	7.5	LOS A	2.3	16.2	0.25	0.47	0.25	45.4
Approach		435	0.9	458	0.9	0.348	4.3	LOS A	2.3	16.2	0.25	0.47	0.25	46.4
West: Conway Avenue														
10	L2	2	50.0	2	50.0	0.032	9.0	LOS A	0.2	1.1	0.52	0.67	0.52	43.0
11	T1	1	0.0	1	0.0	0.032	6.4	LOS A	0.2	1.1	0.52	0.67	0.52	44.2
12	R2	21	0.0	23	0.0	0.032	8.9	LOS A	0.2	1.1	0.52	0.67	0.52	44.1
Approach		24	4.1	26	4.1	0.032	8.8	LOS A	0.2	1.1	0.52	0.67	0.52	44.0
All Vehicles		941	1.3	991	1.3	0.348	4.7	LOS A	2.3	16.2	0.22	0.50	0.22	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.
Roundabout Capacity Model: SIDRA Standard.
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.

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: George Street													
Lane 1[d]	433	1.7	1514	0.286	100	4.2	LOS A	2.0	13.9	Full	500	0.0	0.0
Approach	433	1.7		0.286		4.2	LOS A	2.0	13.9				
East: Access Road													
Lane 1[d]	74	0.0	800	0.093	100	7.9	LOS A	0.5	3.3	Full	500	0.0	0.0
Approach	74	0.0		0.093		7.9	LOS A	0.5	3.3				
North: George Street													
Lane 1[d]	458	0.9	1316	0.348	100	4.3	LOS A	2.3	16.2	Full	500	0.0	0.0
Approach	458	0.9		0.348		4.3	LOS A	2.3	16.2				
West: Conway Avenue													
Lane 1[d]	26	4.1	815	0.032	100	8.8	LOS A	0.2	1.1	Full	500	0.0	0.0

Approach	26	4.1	0.032	8.8	LOS A	0.2	1.1
Intersection	991	1.3	0.348	4.7	LOS A	2.3	16.2

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.
Roundabout Capacity Model: SIDRA Standard.
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.

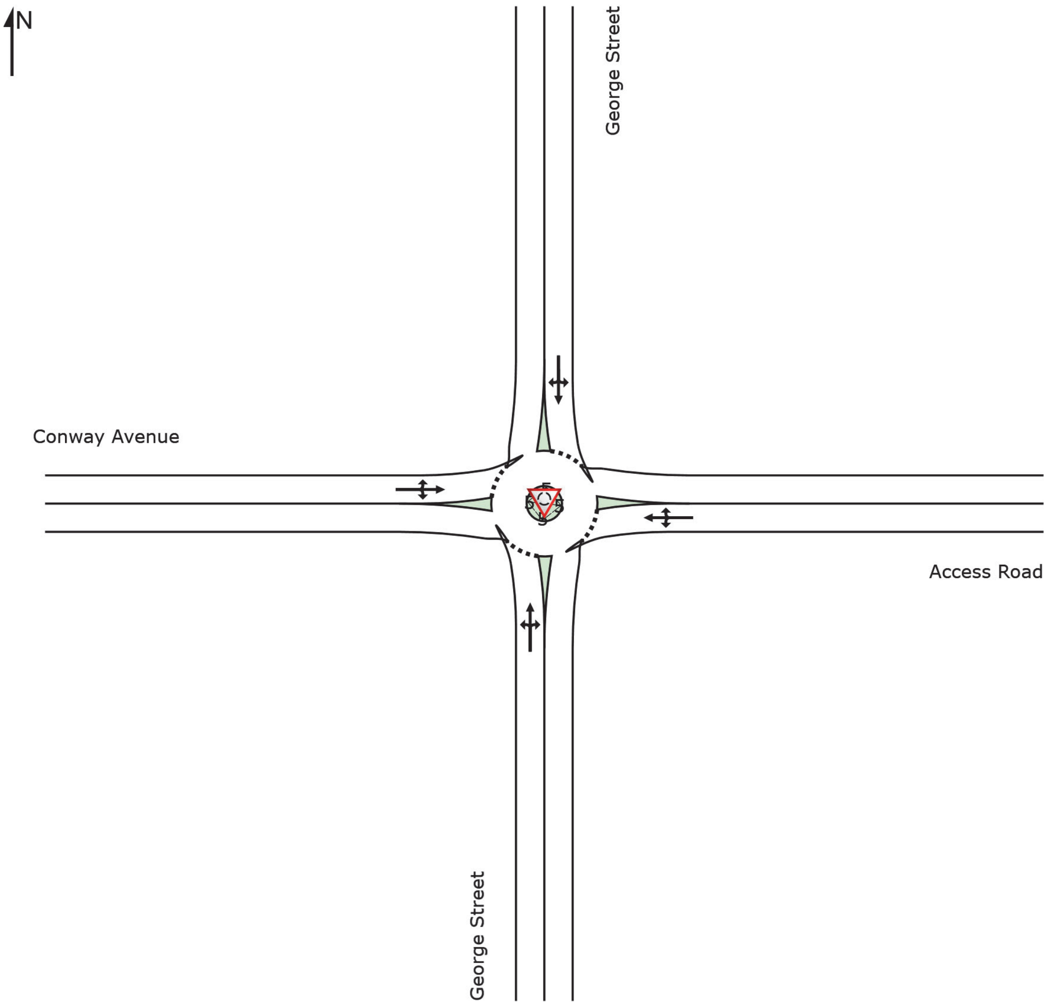
d Dominant lane on roundabout approach

Site: [222_Prj_PM_GeorgeSt_ConwayAve (Site Folder: Project)]

New Site
Site Category: (None)
Roundabout

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: George Street														
1	L2	26	0.0	28	0.0	0.336	4.8	LOS A	2.4	16.9	0.05	0.51	0.05	46.1
2	T1	407	0.0	429	0.0	0.336	3.9	LOS A	2.4	16.9	0.05	0.51	0.05	46.6
3	R2	85	0.0	90	0.0	0.336	6.5	LOS A	2.4	16.9	0.05	0.51	0.05	46.5
Approach		519	0.0	546	0.0	0.336	4.4	LOS A	2.4	16.9	0.05	0.51	0.05	46.6
East: Access Road														
4	L2	35	0.0	37	0.0	0.047	7.0	LOS A	0.2	1.7	0.52	0.64	0.52	44.6
5	T1	1	0.0	1	0.0	0.047	6.2	LOS A	0.2	1.7	0.52	0.64	0.52	45.1
6	R2	2	0.0	2	0.0	0.047	8.7	LOS A	0.2	1.7	0.52	0.64	0.52	45.0
Approach		38	0.0	40	0.0	0.047	7.1	LOS A	0.2	1.7	0.52	0.64	0.52	44.7
North: George Street														
7	L2	9	0.0	9	0.0	0.325	5.5	LOS A	2.0	13.9	0.32	0.50	0.32	45.7
8	T1	363	0.0	383	0.0	0.325	4.6	LOS A	2.0	13.9	0.32	0.50	0.32	46.2
9	R2	1	0.0	1	0.0	0.325	7.2	LOS A	2.0	13.9	0.32	0.50	0.32	46.0
Approach		373	0.0	393	0.0	0.325	4.7	LOS A	2.0	13.9	0.32	0.50	0.32	46.2
West: Conway Avenue														
10	L2	1	0.0	1	0.0	0.023	7.8	LOS A	0.1	0.8	0.55	0.67	0.55	43.6
11	T1	1	0.0	1	0.0	0.023	6.9	LOS A	0.1	0.8	0.55	0.67	0.55	44.0
12	R2	15	0.0	16	0.0	0.023	9.4	LOS A	0.1	0.8	0.55	0.67	0.55	43.9
Approach		17	0.0	18	0.0	0.023	9.2	LOS A	0.1	0.8	0.55	0.67	0.55	43.9
All Vehicles		947	0.0	997	0.0	0.336	4.7	LOS A	2.4	16.9	0.19	0.52	0.19	46.3

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.
Roundabout Capacity Model: SIDRA Standard.
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.

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: George Street													
Lane 1[d]	546	0.0	1627	0.336	100	4.4	LOS A	2.4	16.9	Full	500	0.0	0.0
Approach	546	0.0		0.336		4.4	LOS A	2.4	16.9				
East: Access Road													
Lane 1[d]	40	0.0	849	0.047	100	7.1	LOS A	0.2	1.7	Full	500	0.0	0.0
Approach	40	0.0		0.047		7.1	LOS A	0.2	1.7				
North: George Street													
Lane 1[d]	393	0.0	1209	0.325	100	4.7	LOS A	2.0	13.9	Full	500	0.0	0.0
Approach	393	0.0		0.325		4.7	LOS A	2.0	13.9				
West: Conway Avenue													
Lane 1[d]	18	0.0	794	0.023	100	9.2	LOS A	0.1	0.8	Full	500	0.0	0.0

Approach	18	0.0	0.023	9.2	LOS A	0.1	0.8
Intersection	997	0.0	0.336	4.7	LOS A	2.4	16.9

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.
Roundabout Capacity Model: SIDRA Standard.
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.

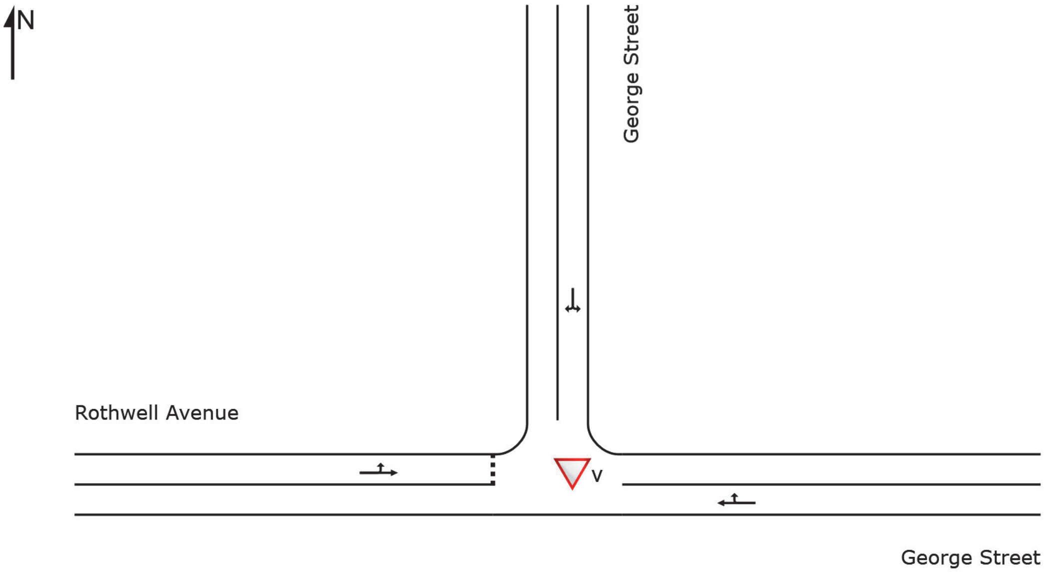
d Dominant lane on roundabout approach

Site: v [321_Prj_AM_GeorgeSt_RothwellAv (Site Folder: Project)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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
East: George Street														
5	T1	1	0.0	1	0.0	0.164	0.2	LOS A	0.8	5.9	0.16	0.51	0.16	46.7
6	R2	265	1.1	279	1.1	0.164	4.8	LOS A	0.8	5.9	0.16	0.51	0.16	46.0
Approach		266	1.1	280	1.1	0.164	4.8	NA	0.8	5.9	0.16	0.51	0.16	46.0
North: George Street														
7	L2	209	1.0	220	1.0	0.147	4.6	LOS A	0.3	2.4	0.01	0.53	0.01	46.6
9	R2	54	0.0	57	0.0	0.147	4.6	LOS A	0.3	2.4	0.01	0.53	0.01	46.4
Approach		264	0.8	277	0.8	0.147	4.6	NA	0.3	2.4	0.01	0.53	0.01	46.6
West: Rothwell Avenue														
10	L2	2	0.0	2	0.0	0.004	5.4	LOS A	0.0	0.1	0.39	0.52	0.39	46.0
11	T1	2	0.0	2	0.0	0.004	5.8	LOS A	0.0	0.1	0.39	0.52	0.39	46.1
Approach		4	0.0	4	0.0	0.004	5.6	LOS A	0.0	0.1	0.39	0.52	0.39	46.1
All Vehicles		533	0.9	561	0.9	0.164	4.7	NA	0.8	5.9	0.09	0.52	0.09	46.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

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. %
East: George Street													
Lane 1	280	1.1	1705	0.164	100	4.8	LOS A	0.8	5.9	Full	500	0.0	0.0
Approach	280	1.1		0.164		4.8	NA	0.8	5.9				
North: George Street													
Lane 1	277	0.8	1889	0.147	100	4.6	LOS A	0.3	2.4	Full	500	0.0	0.0
Approach	277	0.8		0.147		4.6	NA	0.3	2.4				
West: Rothwell Avenue													
Lane 1	4	0.0	951	0.004	100	5.6	LOS A	0.0	0.1	Full	500	0.0	0.0
Approach	4	0.0		0.004		5.6	LOS A	0.0	0.1				
Intersection	561	0.9		0.164		4.7	NA	0.8	5.9				

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.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

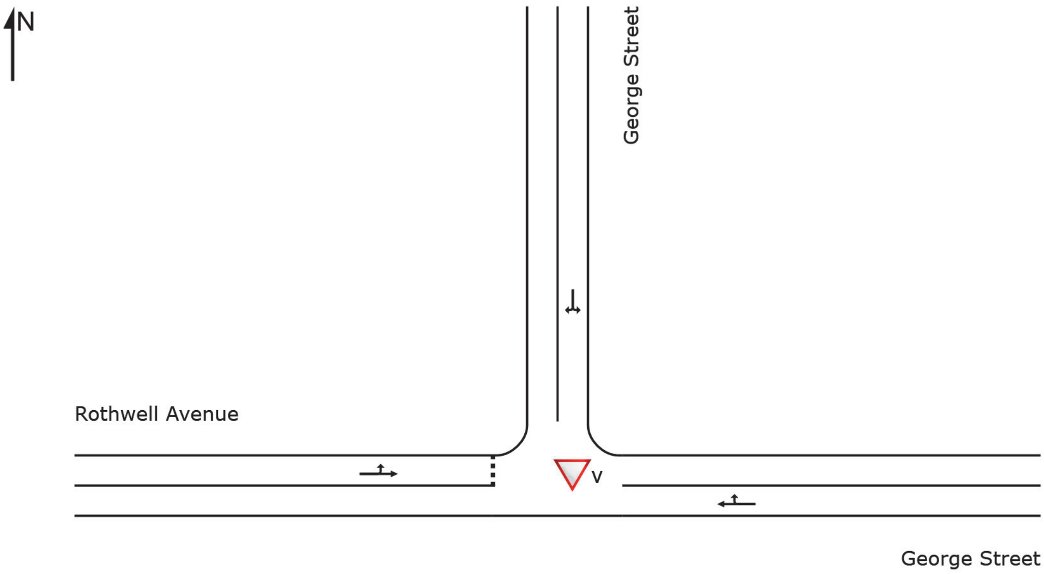
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: v [322_Prj_PM_GeorgeSt_RothwellAv (Site Folder: Project)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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
East: George Street														
5	T1	1	0.0	1	0.0	0.131	0.1	LOS A	0.7	4.6	0.13	0.51	0.13	46.8
6	R2	216	0.0	227	0.0	0.131	4.7	LOS A	0.7	4.6	0.13	0.51	0.13	46.1
Approach		217	0.0	228	0.0	0.131	4.7	NA	0.7	4.6	0.13	0.51	0.13	46.1
North: George Street														
7	L2	201	0.0	211	0.0	0.133	4.6	LOS A	0.3	1.8	0.01	0.53	0.01	46.6
9	R2	39	0.0	41	0.0	0.133	4.6	LOS A	0.3	1.8	0.01	0.53	0.01	46.4
Approach		240	0.0	253	0.0	0.133	4.6	NA	0.3	1.8	0.01	0.53	0.01	46.6
West: Rothwell Avenue														
10	L2	1	0.0	1	0.0	0.003	5.2	LOS A	0.0	0.1	0.37	0.50	0.37	46.2
11	T1	2	0.0	2	0.0	0.003	5.3	LOS A	0.0	0.1	0.37	0.50	0.37	46.3
Approach		3	0.0	3	0.0	0.003	5.3	LOS A	0.0	0.1	0.37	0.50	0.37	46.3
All Vehicles		460	0.0	484	0.0	0.133	4.6	NA	0.7	4.6	0.07	0.52	0.07	46.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

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. %
East: George Street													
Lane 1	228	0.0	1739	0.131	100	4.7	LOS A	0.7	4.6	Full	500	0.0	0.0
Approach	228	0.0		0.131		4.7	NA	0.7	4.6				
North: George Street													
Lane 1	253	0.0	1903	0.133	100	4.6	LOS A	0.3	1.8	Full	500	0.0	0.0
Approach	253	0.0		0.133		4.6	NA	0.3	1.8				
West: Rothwell Avenue													
Lane 1	3	0.0	964	0.003	100	5.3	LOS A	0.0	0.1	Full	500	0.0	0.0
Approach	3	0.0		0.003		5.3	LOS A	0.0	0.1				
Intersection	484	0.0		0.133		4.6	NA	0.7	4.6				

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.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

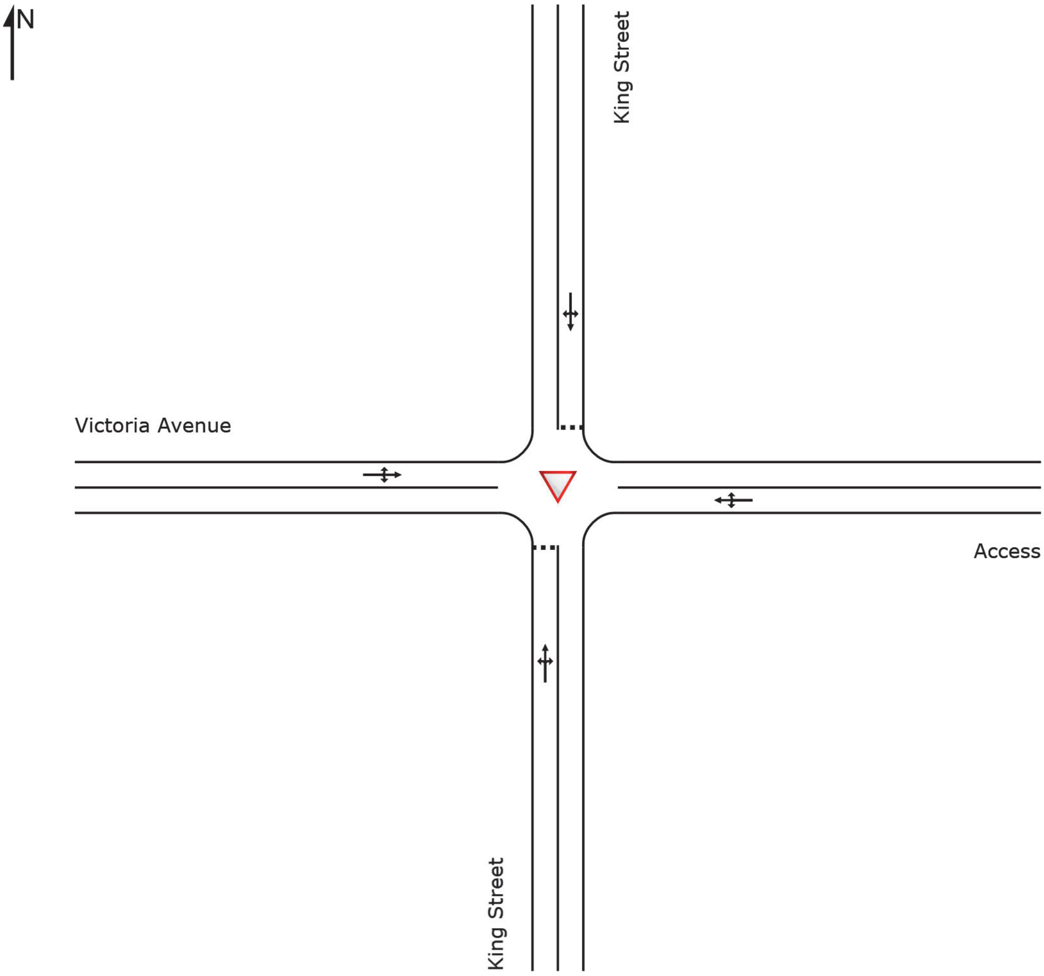
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: [421_Prj_AM_KingSt_VictoriaAve (Site Folder: Project)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: King Street														
1	L2	3	0.0	3	0.0	0.015	4.6	LOS A	0.1	0.4	0.02	0.47	0.02	47.2
2	T1	15	0.0	16	0.0	0.015	3.3	LOS A	0.1	0.4	0.02	0.47	0.02	47.3
3	R2	1	0.0	1	0.0	0.015	4.7	LOS A	0.1	0.4	0.02	0.47	0.02	46.8
Approach		19	0.0	20	0.0	0.015	3.5	LOS A	0.1	0.4	0.02	0.47	0.02	47.3
East: Access														
4	L2	1	0.0	1	0.0	0.002	4.6	LOS A	0.0	0.0	0.05	0.35	0.05	47.4
5	T1	1	0.0	1	0.0	0.002	0.0	LOS A	0.0	0.0	0.05	0.35	0.05	47.9
6	R2	1	0.0	1	0.0	0.002	4.6	LOS A	0.0	0.0	0.05	0.35	0.05	47.0
Approach		3	0.0	3	0.0	0.002	3.1	NA	0.0	0.0	0.05	0.35	0.05	47.4
North: King Street														
7	L2	1	0.0	1	0.0	0.020	4.6	LOS A	0.1	0.5	0.05	0.47	0.05	47.1
8	T1	17	0.0	18	0.0	0.020	3.2	LOS A	0.1	0.5	0.05	0.47	0.05	47.2
9	R2	6	0.0	6	0.0	0.020	4.7	LOS A	0.1	0.5	0.05	0.47	0.05	46.7
Approach		23	0.0	25	0.0	0.020	3.6	LOS A	0.1	0.5	0.05	0.47	0.05	47.0
West: Victoria Avenue														
10	L2	10	0.0	11	0.0	0.011	4.6	LOS A	0.0	0.3	0.01	0.47	0.01	46.9
11	T1	2	0.0	2	0.0	0.011	0.0	LOS A	0.0	0.3	0.01	0.47	0.01	47.3
12	R2	7	0.0	7	0.0	0.011	4.6	LOS A	0.0	0.3	0.01	0.47	0.01	46.5
Approach		19	0.0	21	0.0	0.011	4.0	NA	0.0	0.3	0.01	0.47	0.01	46.8
All Vehicles		65	0.0	68	0.0	0.020	3.7	NA	0.1	0.5	0.03	0.47	0.03	47.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

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: King Street													
Lane 1	20	0.0	1335	0.015	100	3.5	LOS A	0.1	0.4	Full	500	0.0	0.0
Approach	20	0.0		0.015		3.5	LOS A	0.1	0.4				
East: Access													
Lane 1	3	0.0	1850	0.002	100	3.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	3	0.0		0.002		3.1	NA	0.0	0.0				
North: King Street													
Lane 1	25	0.0	1261	0.020	100	3.6	LOS A	0.1	0.5	Full	500	0.0	0.0
Approach	25	0.0		0.020		3.6	LOS A	0.1	0.5				
West: Victoria Avenue													

Lane 1	21	0.0	1842	0.011	100	4.0	LOS A	0.0	0.3	Full	500	0.0	0.0
Approach	21	0.0		0.011		4.0	NA	0.0	0.3				
Intersection	68	0.0		0.020		3.7	NA	0.1	0.5				

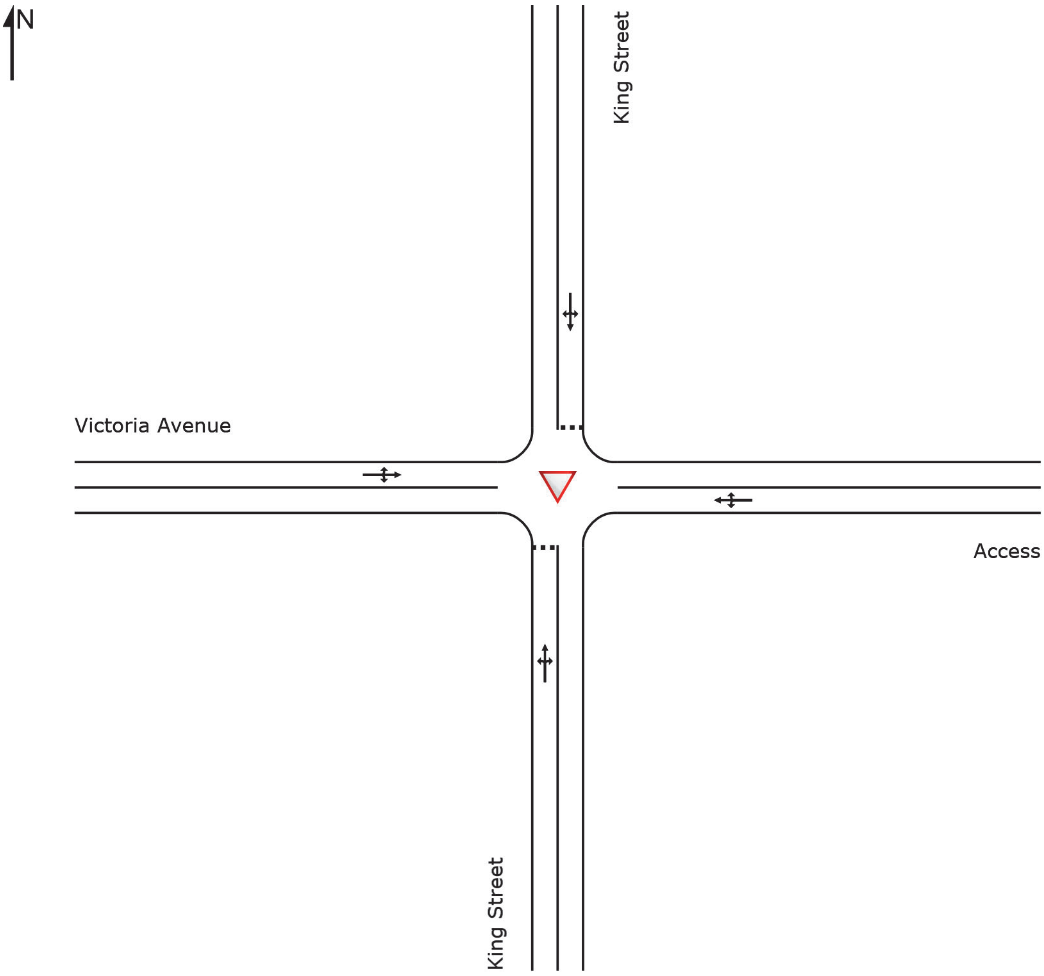
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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.

Site: [422_Prj_PM_KingSt_VictoriaAve (Site Folder: Project)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: King Street														
1	L2	8	0.0	8	0.0	0.025	4.6	LOS A	0.1	0.6	0.05	0.47	0.05	47.1
2	T1	23	0.0	25	0.0	0.025	3.3	LOS A	0.1	0.6	0.05	0.47	0.05	47.2
3	R2	1	0.0	1	0.0	0.025	4.7	LOS A	0.1	0.6	0.05	0.47	0.05	46.7
Approach		32	0.0	34	0.0	0.025	3.6	LOS A	0.1	0.6	0.05	0.47	0.05	47.1
East: Access														
4	L2	1	0.0	1	0.0	0.004	4.6	LOS A	0.0	0.0	0.02	0.14	0.02	48.7
5	T1	6	0.0	6	0.0	0.004	0.0	LOS A	0.0	0.0	0.02	0.14	0.02	49.2
6	R2	1	0.0	1	0.0	0.004	4.6	LOS A	0.0	0.0	0.02	0.14	0.02	48.2
Approach		8	0.0	8	0.0	0.004	1.1	NA	0.0	0.0	0.02	0.14	0.02	49.0
North: King Street														
7	L2	1	0.0	1	0.0	0.020	4.6	LOS A	0.1	0.5	0.03	0.49	0.03	47.1
8	T1	16	0.0	17	0.0	0.020	3.2	LOS A	0.1	0.5	0.03	0.49	0.03	47.2
9	R2	7	0.0	7	0.0	0.020	4.8	LOS A	0.1	0.5	0.03	0.49	0.03	46.7
Approach		24	0.0	25	0.0	0.020	3.7	LOS A	0.1	0.5	0.03	0.49	0.03	47.0
West: Victoria Avenue														
10	L2	8	0.0	8	0.0	0.009	4.6	LOS A	0.0	0.2	0.03	0.51	0.03	46.6
11	T1	1	0.0	1	0.0	0.009	0.0	LOS A	0.0	0.2	0.03	0.51	0.03	47.1
12	R2	6	0.0	7	0.0	0.009	4.6	LOS A	0.0	0.2	0.03	0.51	0.03	46.2
Approach		15	0.0	16	0.0	0.009	4.4	NA	0.0	0.2	0.03	0.51	0.03	46.5
All Vehicles		79	0.0	83	0.0	0.025	3.6	NA	0.1	0.6	0.04	0.45	0.04	47.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

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: King Street													
Lane 1	34	0.0	1365	0.025	100	3.6	LOS A	0.1	0.6	Full	500	0.0	0.0
Approach	34	0.0		0.025		3.6	LOS A	0.1	0.6				
East: Access													
Lane 1	8	0.0	1907	0.004	100	1.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	8	0.0		0.004		1.1	NA	0.0	0.0				
North: King Street													
Lane 1	25	0.0	1244	0.020	100	3.7	LOS A	0.1	0.5	Full	500	0.0	0.0
Approach	25	0.0		0.020		3.7	LOS A	0.1	0.5				
West: Victoria Avenue													

Lane 1	16	0.0	1829	0.009	100	4.4	LOS A	0.0	0.2	Full	500	0.0	0.0
Approach	16	0.0		0.009		4.4	NA	0.0	0.2				
Intersection	83	0.0		0.025		3.6	NA	0.1	0.6				

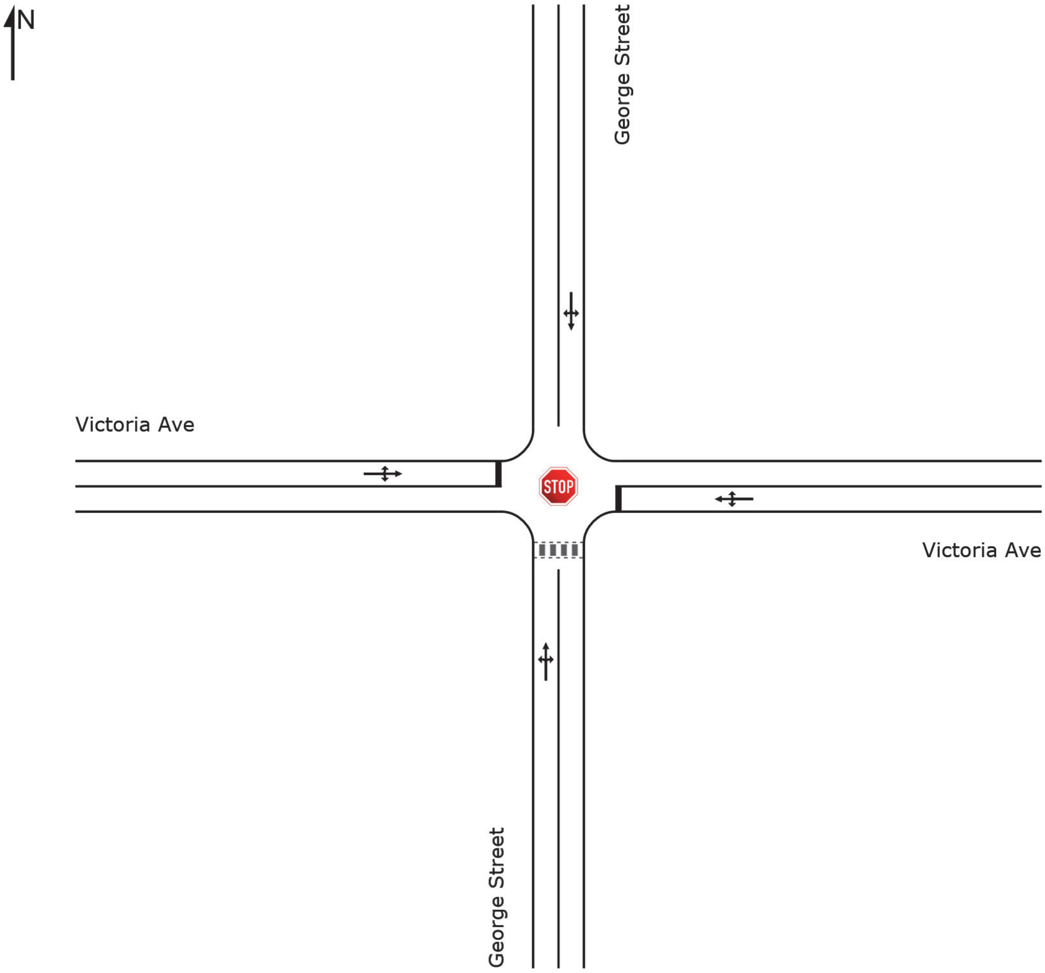
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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.

Site: [521_Prj_AM_GeorgeSt_VictoriaAv (Site Folder: Project)]

George St / Victoria Ave
Site Category: (None)
Stop (Two-Way)

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: George Street														
1	L2	179	0.0	188	0.0	0.118	4.6	LOS A	0.1	0.8	0.01	0.49	0.01	46.8
2	T1	13	7.6	14	7.6	0.118	0.0	LOS A	0.1	0.8	0.01	0.49	0.01	47.2
3	R2	15	0.0	15	0.0	0.118	4.6	LOS A	0.1	0.8	0.01	0.49	0.01	46.3
Approach		207	0.5	218	0.5	0.118	4.3	NA	0.1	0.8	0.01	0.49	0.01	46.8
East: Victoria Ave														
4	L2	10	0.0	10	0.0	0.009	7.5	LOS A	0.0	0.2	0.04	0.98	0.04	45.0
5	T1	1	0.0	1	0.0	0.009	8.2	LOS A	0.0	0.2	0.04	0.98	0.04	44.7
6	R2	1	0.0	1	0.0	0.009	7.2	LOS A	0.0	0.2	0.04	0.98	0.04	44.6
Approach		12	0.0	12	0.0	0.009	7.5	LOS A	0.0	0.2	0.04	0.98	0.04	44.9
North: George Street														
7	L2	1	0.0	1	0.0	0.008	5.1	LOS A	0.0	0.2	0.16	0.15	0.16	48.2
8	T1	10	0.0	10	0.0	0.008	0.2	LOS A	0.0	0.2	0.16	0.15	0.16	48.7
9	R2	3	0.0	3	0.0	0.008	5.1	LOS A	0.0	0.2	0.16	0.15	0.16	47.8
Approach		14	0.0	14	0.0	0.008	1.6	NA	0.0	0.2	0.16	0.15	0.16	48.4
West: Victoria Ave														
10	L2	3	0.0	3	0.0	0.219	6.7	LOS A	0.9	6.0	0.27	0.91	0.27	37.3
11	T1	8	0.0	8	0.0	0.219	7.3	LOS A	0.9	6.0	0.27	0.91	0.27	37.1
12	R2	173	0.0	182	0.0	0.219	7.3	LOS A	0.9	6.0	0.27	0.91	0.27	37.0
Approach		184	0.0	194	0.0	0.219	7.3	LOS A	0.9	6.0	0.27	0.91	0.27	37.0
All Vehicles		416	0.2	438	0.2	0.219	5.6	NA	0.9	6.0	0.13	0.68	0.13	41.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

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: George Street													
Lane 1	218	0.5	1852	0.118	100	4.3	LOS A	0.1	0.8	Full	500	0.0	0.0
Approach	218	0.5		0.118		4.3	NA	0.1	0.8				
East: Victoria Ave													
Lane 1	12	0.0	1313	0.009	100	7.5	LOS A	0.0	0.2	Full	500	0.0	0.0
Approach	12	0.0		0.009		7.5	LOS A	0.0	0.2				
North: George Street													
Lane 1	14	0.0	1811	0.008	100	1.6	LOS A	0.0	0.2	Full	500	0.0	0.0
Approach	14	0.0		0.008		1.6	NA	0.0	0.2				
West: Victoria Ave													

Lane 1	194	0.0	886	0.219	100	7.3	LOS A	0.9	6.0	Full	500	0.0	0.0
Approach	194	0.0		0.219		7.3	LOS A	0.9	6.0				
Intersection	438	0.2		0.219		5.6	NA	0.9	6.0				

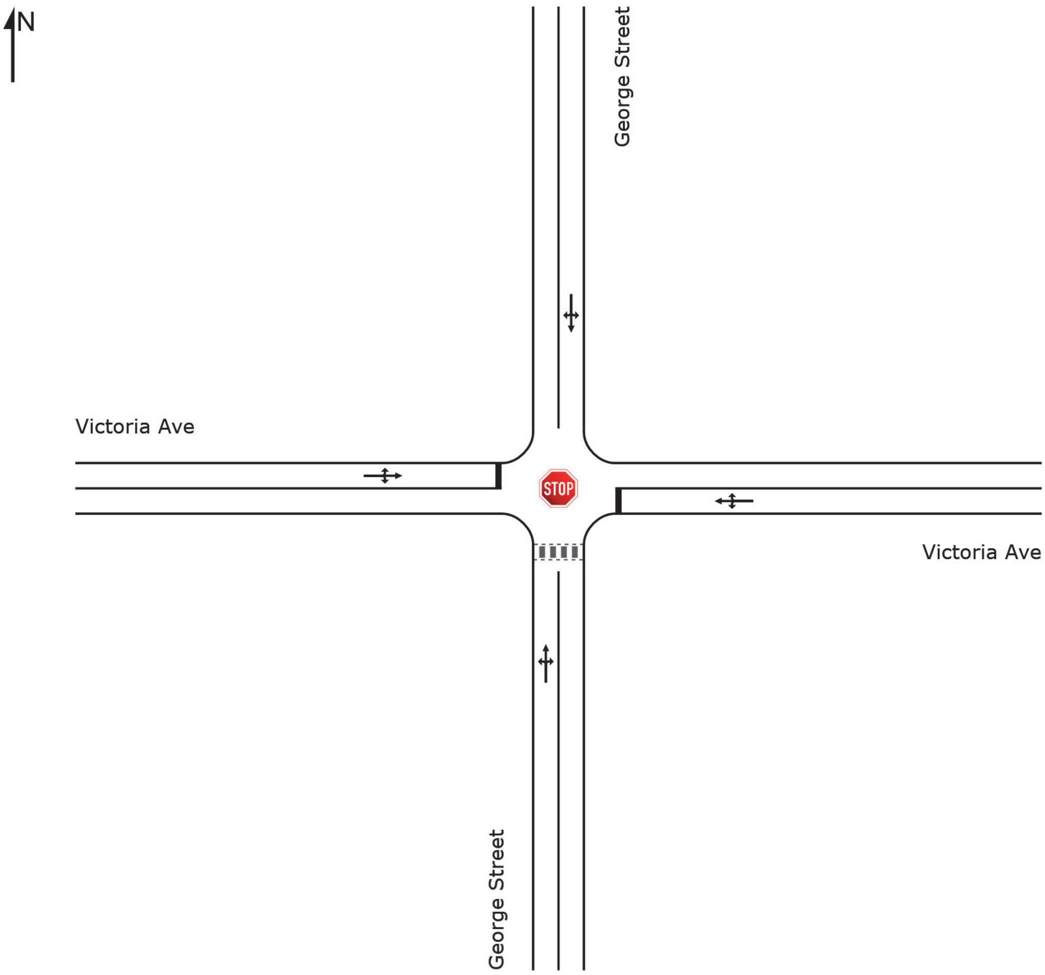
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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.

Site: [522_Prj_PM_GeorgeSt_VictoriaAv (Site Folder: Project)]

George St / Victoria Ave
Site Category: (None)
Stop (Two-Way)

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: George Street														
1	L2	81	0.0	86	0.0	0.080	4.6	LOS A	0.1	0.8	0.04	0.34	0.04	47.5
2	T1	49	0.0	51	0.0	0.080	0.0	LOS A	0.1	0.8	0.04	0.34	0.04	47.9
3	R2	13	0.0	14	0.0	0.080	4.7	LOS A	0.1	0.8	0.04	0.34	0.04	47.0
Approach		143	0.0	150	0.0	0.080	3.0	NA	0.1	0.8	0.04	0.34	0.04	47.6
East: Victoria Ave														
4	L2	22	0.0	23	0.0	0.022	7.6	LOS A	0.1	0.6	0.13	0.93	0.13	45.0
5	T1	4	0.0	4	0.0	0.022	8.1	LOS A	0.1	0.6	0.13	0.93	0.13	44.8
6	R2	1	0.0	1	0.0	0.022	7.6	LOS A	0.1	0.6	0.13	0.93	0.13	44.6
Approach		27	0.0	28	0.0	0.022	7.7	LOS A	0.1	0.6	0.13	0.93	0.13	44.9
North: George Street														
7	L2	1	0.0	1	0.0	0.027	4.8	LOS A	0.0	0.1	0.03	0.03	0.03	49.3
8	T1	47	0.0	49	0.0	0.027	0.0	LOS A	0.0	0.1	0.03	0.03	0.03	49.7
9	R2	2	0.0	2	0.0	0.027	5.0	LOS A	0.0	0.1	0.03	0.03	0.03	48.8
Approach		50	0.0	52	0.0	0.027	0.3	NA	0.0	0.1	0.03	0.03	0.03	49.7
West: Victoria Ave														
10	L2	1	0.0	1	0.0	0.138	7.6	LOS A	0.5	3.5	0.31	0.90	0.31	44.9
11	T1	2	0.0	2	0.0	0.138	8.0	LOS A	0.5	3.5	0.31	0.90	0.31	44.7
12	R2	107	0.0	113	0.0	0.138	8.1	LOS A	0.5	3.5	0.31	0.90	0.31	44.5
Approach		110	0.0	116	0.0	0.138	8.1	LOS A	0.5	3.5	0.31	0.90	0.31	44.5
All Vehicles		330	0.0	347	0.0	0.138	4.7	NA	0.5	3.5	0.13	0.53	0.13	46.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

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: George Street													
Lane 1	150	0.0	1872	0.080	100	3.0	LOS A	0.1	0.8	Full	500	0.0	0.0
Approach	150	0.0		0.080		3.0	NA	0.1	0.8				
East: Victoria Ave													
Lane 1	28	0.0	1271	0.022	100	7.7	LOS A	0.1	0.6	Full	500	0.0	0.0
Approach	28	0.0		0.022		7.7	LOS A	0.1	0.6				
North: George Street													
Lane 1	52	0.0	1927	0.027	100	0.3	LOS A	0.0	0.1	Full	500	0.0	0.0
Approach	52	0.0		0.027		0.3	NA	0.0	0.1				
West: Victoria Ave													

Lane 1	116	0.0	844	0.138	100	8.1	LOS A	0.5	3.5	Full	500	0.0	0.0
Approach	116	0.0		0.138		8.1	LOS A	0.5	3.5				
Intersection	347	0.0		0.138		4.7	NA	0.5	3.5				

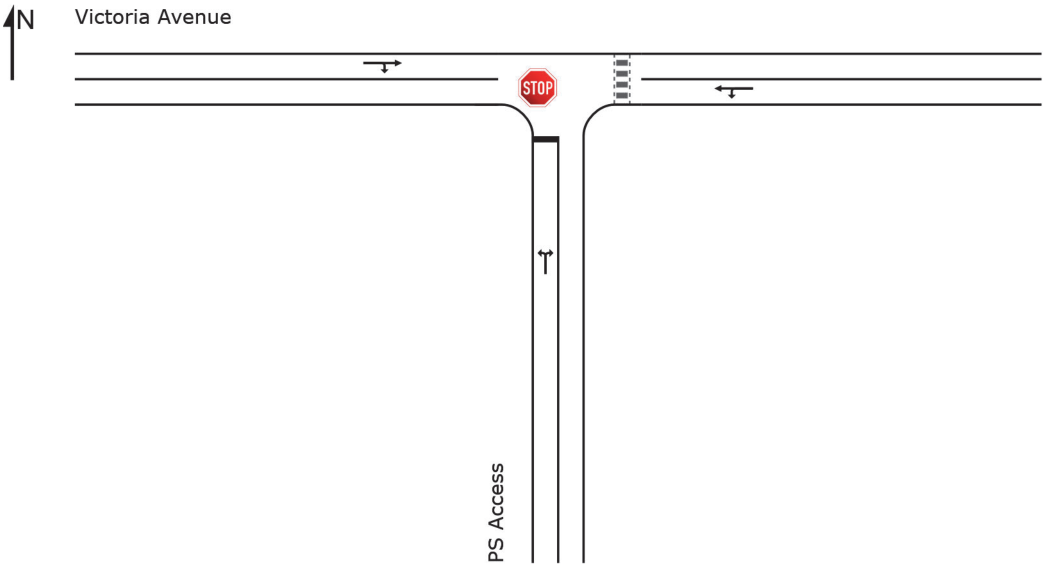
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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.

Site: [621_Prj_AM_VictoriaAvPSAccess (Site Folder: Project)]

New Site
Site Category: (None)
Stop (Two-Way)

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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: PS Access														
1	L2	12	0	13	0.0	0.174	7.0	LOS A	0.6	4.5	0.20	0.90	0.20	37.5
3	R2	166	0	174	0.0	0.174	6.8	LOS A	0.6	4.5	0.20	0.90	0.20	37.2
Approach		178	0	187	0.0	0.174	6.8	LOS A	0.6	4.5	0.20	0.90	0.20	37.2
East:														
4	L2	131	4	138	3.0	0.110	3.5	LOS A	0.0	0.0	0.00	0.31	0.00	39.1
5	T1	63	0	66	0.0	0.110	0.0	LOS A	0.0	0.0	0.00	0.31	0.00	39.0
Approach		194	4	204	2.1	0.110	2.3	NA	0.0	0.0	0.00	0.31	0.00	39.1
West: Victoria Avenue														
11	T1	19	1	20	5.4	0.017	0.3	LOS A	0.1	0.4	0.20	0.16	0.20	39.1
12	R2	9	0	10	0.0	0.017	4.1	LOS A	0.1	0.4	0.20	0.16	0.20	39.0
Approach		28	1	29	3.6	0.017	1.6	NA	0.1	0.4	0.20	0.16	0.20	39.1
All Vehicles		399	5	420	1.3	0.174	4.3	NA	0.6	4.5	0.11	0.56	0.11	38.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

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: PS Access													
Lane 1	187	0.0	1074	0.174	100	6.8	LOS A	0.6	4.5	Full	500	0.0	0.0
Approach	187	0.0		0.174		6.8	LOS A	0.6	4.5				
East:													
Lane 1	204	2.1	1859	0.110	100	2.3	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	204	2.1		0.110		2.3	NA	0.0	0.0				
West: Victoria Avenue													
Lane 1	29	3.6	1730	0.017	100	1.6	LOS A	0.1	0.4	Full	500	0.0	0.0
Approach	29	3.6		0.017		1.6	NA	0.1	0.4				
Intersection	420	1.3		0.174		4.3	NA	0.6	4.5				

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.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

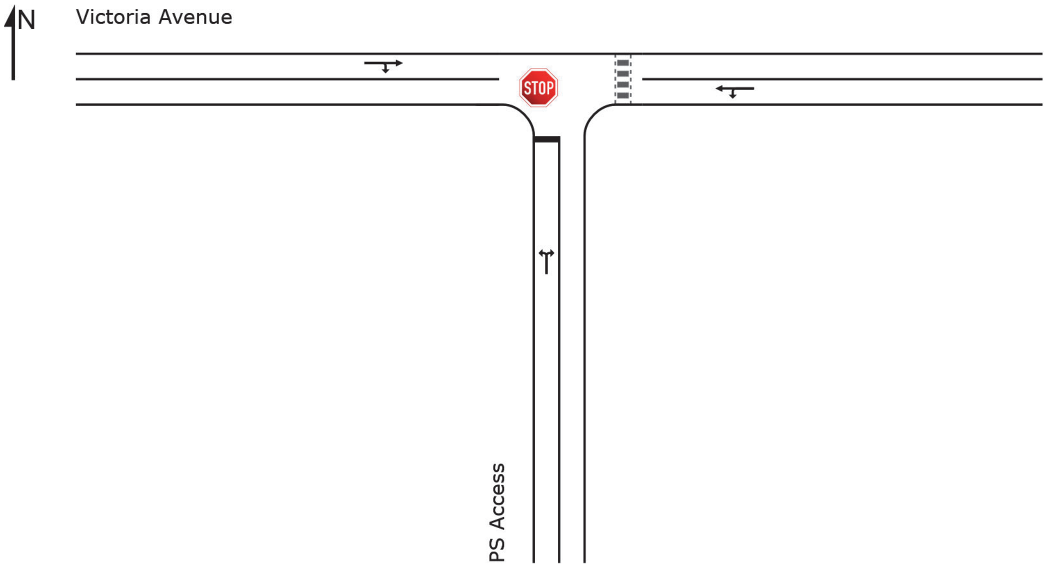
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: [622_Prj_PM_VictoriaAvPSAccess (Site Folder: Project)]

New Site
Site Category: (None)
Stop (Two-Way)

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: PS Access														
1	L2	10	0.0	11	0.0	0.090	6.9	LOS A	0.3	2.2	0.16	0.91	0.16	37.5
3	R2	85	0.0	90	0.0	0.090	6.6	LOS A	0.3	2.2	0.16	0.91	0.16	37.2
Approach		95	0.0	100	0.0	0.090	6.6	LOS A	0.3	2.2	0.16	0.91	0.16	37.3
East:														
4	L2	47	4.2	50	4.2	0.052	3.4	LOS A	0.0	0.0	0.00	0.23	0.00	39.4
5	T1	46	0.0	48	0.0	0.052	0.0	LOS A	0.0	0.0	0.00	0.23	0.00	39.3
Approach		93	2.1	98	2.1	0.052	1.8	NA	0.0	0.0	0.00	0.23	0.00	39.3
West: Victoria Avenue														
11	T1	30	0.0	32	0.0	0.026	0.1	LOS A	0.1	0.6	0.13	0.16	0.13	39.3
12	R2	14	0.0	15	0.0	0.026	3.8	LOS A	0.1	0.6	0.13	0.16	0.13	39.1
Approach		44	0.0	47	0.0	0.026	1.3	NA	0.1	0.6	0.13	0.16	0.13	39.2
All Vehicles		233	0.9	245	0.9	0.090	3.7	NA	0.3	2.2	0.09	0.49	0.09	38.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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.

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: PS Access													
Lane 1	100	0.0	1111	0.090	100	6.6	LOS A	0.3	2.2	Full	500	0.0	0.0
Approach	100	0.0		0.090		6.6	LOS A	0.3	2.2				
East:													
Lane 1	98	2.1	1873	0.052	100	1.8	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	98	2.1		0.052		1.8	NA	0.0	0.0				
West: Victoria Avenue													
Lane 1	47	0.0	1824	0.026	100	1.3	LOS A	0.1	0.6	Full	500	0.0	0.0
Approach	47	0.0		0.026		1.3	NA	0.1	0.6				
Intersection	245	0.9		0.090		3.7	NA	0.3	2.2				

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.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

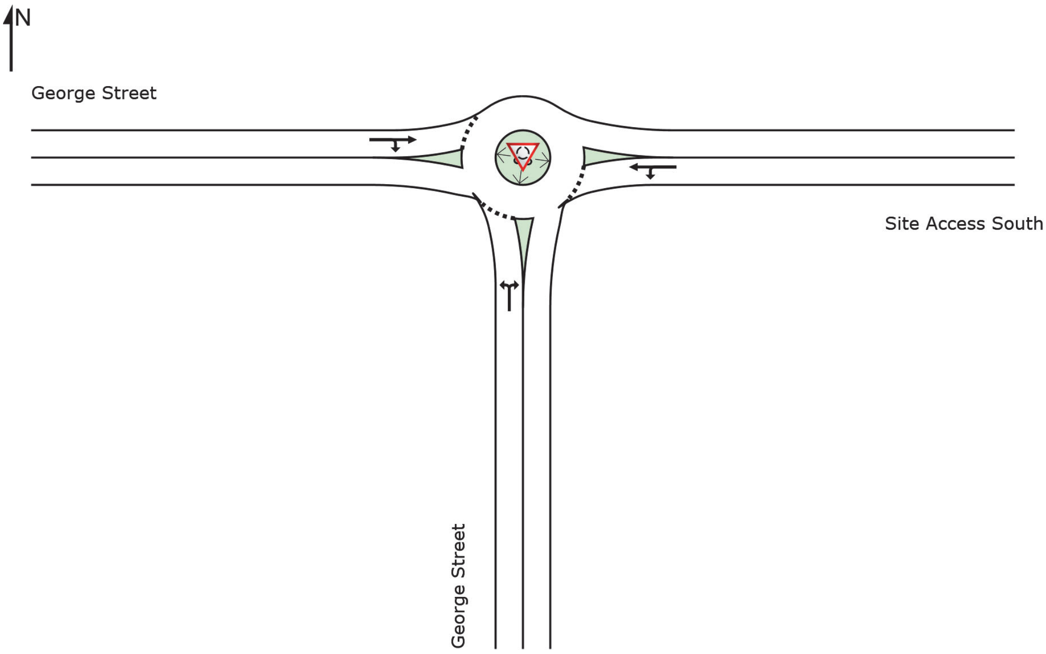
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: [721_Prj_AM_GeorgeSt_AccessSouth (Site Folder: Project)]

New Site
Site Category: (None)
Roundabout

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: George Street														
1	L2	263	0.0	277	0.0	0.229	4.7	LOS A	1.5	10.6	0.02	0.59	0.02	53.3
3	R2	106	0.0	111	0.0	0.229	7.9	LOS A	1.5	10.6	0.02	0.59	0.02	53.9
Approach		369	0.0	388	0.0	0.229	5.6	LOS A	1.5	10.6	0.02	0.59	0.02	53.5
East: Site Access South														
4	L2	149	0.0	157	0.0	0.158	6.4	LOS A	0.9	6.0	0.48	0.63	0.48	52.6
5	T1	1	0.0	1	0.0	0.158	5.4	LOS A	0.9	6.0	0.48	0.63	0.48	49.9
Approach		150	0.0	158	0.0	0.158	6.4	LOS A	0.9	6.0	0.48	0.63	0.48	52.6
West: George Street														
11	T1	1	0.0	1	0.0	0.239	4.3	LOS A	1.3	9.2	0.29	0.63	0.29	48.4
12	R2	282	0.0	297	0.0	0.239	8.5	LOS A	1.3	9.2	0.29	0.63	0.29	51.5
Approach		283	0.0	298	0.0	0.239	8.5	LOS A	1.3	9.2	0.29	0.63	0.29	51.5
All Vehicles		802	0.0	844	0.0	0.239	6.8	LOS A	1.5	10.6	0.20	0.61	0.20	52.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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.

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: George Street													
Lane 1[d]	388	0.0	1695	0.229	100	5.6	LOS A	1.5	10.6	Full	500	0.0	0.0
Approach	388	0.0		0.229		5.6	LOS A	1.5	10.6				
East: Site Access South													
Lane 1[d]	158	0.0	996	0.158	100	6.4	LOS A	0.9	6.0	Full	500	0.0	0.0
Approach	158	0.0		0.158		6.4	LOS A	0.9	6.0				
West: George Street													
Lane 1[d]	298	0.0	1246	0.239	100	8.5	LOS A	1.3	9.2	Full	500	0.0	0.0
Approach	298	0.0		0.239		8.5	LOS A	1.3	9.2				
Intersection	844	0.0		0.239		6.8	LOS A	1.5	10.6				

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.
Roundabout Capacity Model: SIDRA Standard.
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.

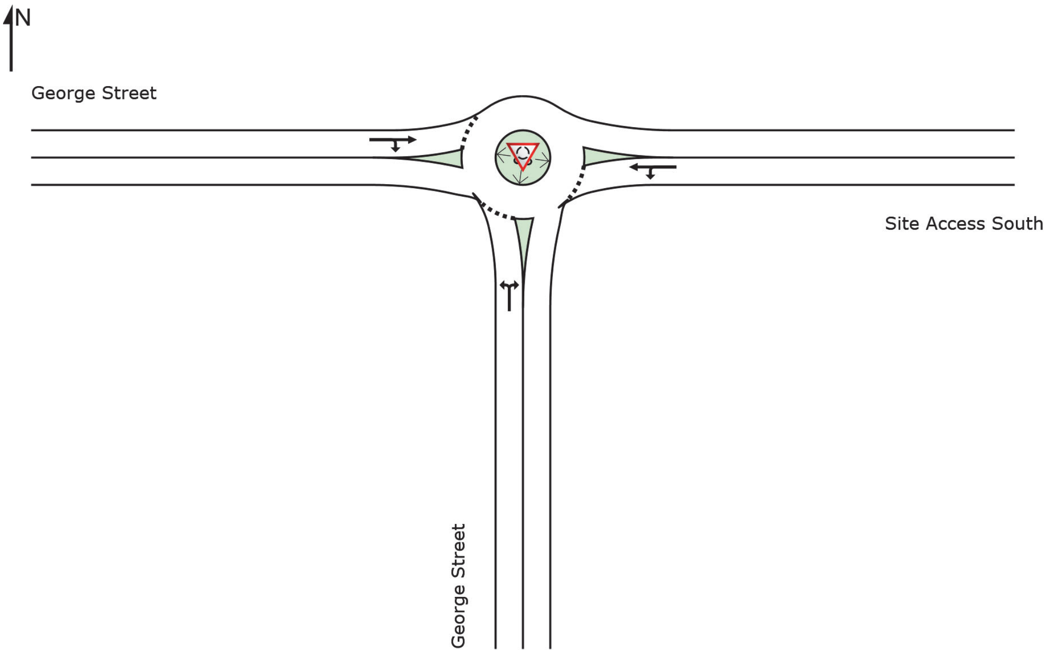
d Dominant lane on roundabout approach

Site: [722_Prj_PM_GeorgeSt_AccessSouth (Site Folder: Project)]

New Site
Site Category: (None)
Roundabout

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: George Street														
1	L2	218	0.0	229	0.0	0.244	4.7	LOS A	1.6	11.3	0.02	0.61	0.02	52.9
3	R2	175	0.0	184	0.0	0.244	7.9	LOS A	1.6	11.3	0.02	0.61	0.02	53.5
Approach		393	0.0	414	0.0	0.244	6.1	LOS A	1.6	11.3	0.02	0.61	0.02	53.2
East: Site Access South														
4	L2	121	0.0	127	0.0	0.126	6.2	LOS A	0.7	4.7	0.45	0.61	0.45	52.7
5	T1	1	0.0	1	0.0	0.126	5.1	LOS A	0.7	4.7	0.45	0.61	0.45	49.9
Approach		122	0.0	128	0.0	0.126	6.2	LOS A	0.7	4.7	0.45	0.61	0.45	52.7
West: George Street														
11	T1	1	0.0	1	0.0	0.237	4.8	LOS A	1.3	9.0	0.38	0.66	0.38	48.2
12	R2	253	0.0	266	0.0	0.237	9.0	LOS A	1.3	9.0	0.38	0.66	0.38	51.2
Approach		254	0.0	267	0.0	0.237	9.0	LOS A	1.3	9.0	0.38	0.66	0.38	51.2
All Vehicles		769	0.0	809	0.0	0.244	7.1	LOS A	1.6	11.3	0.21	0.63	0.21	52.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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.

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: George Street													
Lane 1[d]	414	0.0	1696	0.244	100	6.1	LOS A	1.6	11.3	Full	500	0.0	0.0
Approach	414	0.0		0.244		6.1	LOS A	1.6	11.3				
East: Site Access South													
Lane 1[d]	128	0.0	1016	0.126	100	6.2	LOS A	0.7	4.7	Full	500	0.0	0.0
Approach	128	0.0		0.126		6.2	LOS A	0.7	4.7				
West: George Street													
Lane 1[d]	267	0.0	1126	0.237	100	9.0	LOS A	1.3	9.0	Full	500	0.0	0.0
Approach	267	0.0		0.237		9.0	LOS A	1.3	9.0				
Intersection	809	0.0		0.244		7.1	LOS A	1.6	11.3				

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.
Roundabout Capacity Model: SIDRA Standard.
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.

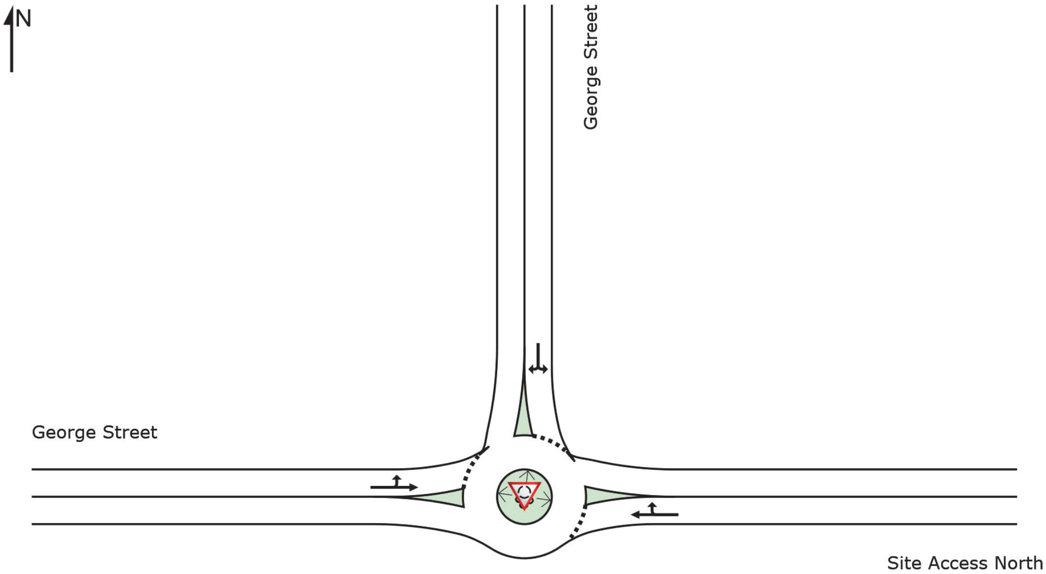
d Dominant lane on roundabout approach

Site: [821_Prj_AM_GeorgeSt_AccessNorth (Site Folder: Project)]

New Site
Site Category: (None)
Roundabout

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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
East: Site Access North														
5	T1	53	0.0	56	0.0	0.053	4.8	LOS A	0.3	1.8	0.37	0.48	0.37	46.6
6	R2	1	0.0	1	0.0	0.053	7.9	LOS A	0.3	1.8	0.37	0.48	0.37	46.4
Approach		54	0.0	57	0.0	0.053	4.8	LOS A	0.3	1.8	0.37	0.48	0.37	46.6
North: George Street														
7	L2	1	0.0	1	0.0	0.156	4.0	LOS A	0.8	5.6	0.13	0.60	0.13	45.0
9	R2	208	0.0	219	0.0	0.156	6.9	LOS A	0.8	5.6	0.13	0.60	0.13	45.5
Approach		209	0.0	220	0.0	0.156	6.9	LOS A	0.8	5.6	0.13	0.60	0.13	45.5
West: George Street														
10	L2	206	0.0	217	0.0	0.148	3.8	LOS A	0.9	6.0	0.02	0.49	0.02	46.8
11	T1	32	0.0	34	0.0	0.148	3.7	LOS A	0.9	6.0	0.02	0.49	0.02	47.6
Approach		238	0.0	250	0.0	0.148	3.8	LOS A	0.9	6.0	0.02	0.49	0.02	47.0
All Vehicles		501	0.0	528	0.0	0.156	5.2	LOS A	0.9	6.0	0.11	0.53	0.11	46.3

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.
Roundabout Capacity Model: SIDRA Standard.
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.

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. %
East: Site Access North													
Lane 1[d]	57	0.0	1073	0.053	100	4.8	LOS A	0.3	1.8	Full	500	0.0	0.0
Approach	57	0.0		0.053		4.8	LOS A	0.3	1.8				
North: George Street													
Lane 1[d]	220	0.0	1410	0.156	100	6.9	LOS A	0.8	5.6	Full	500	0.0	0.0
Approach	220	0.0		0.156		6.9	LOS A	0.8	5.6				
West: George Street													
Lane 1[d]	250	0.0	1690	0.148	100	3.8	LOS A	0.9	6.0	Full	500	0.0	0.0
Approach	250	0.0		0.148		3.8	LOS A	0.9	6.0				
Intersection	528	0.0		0.156		5.2	LOS A	0.9	6.0				

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.
Roundabout Capacity Model: SIDRA Standard.
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.

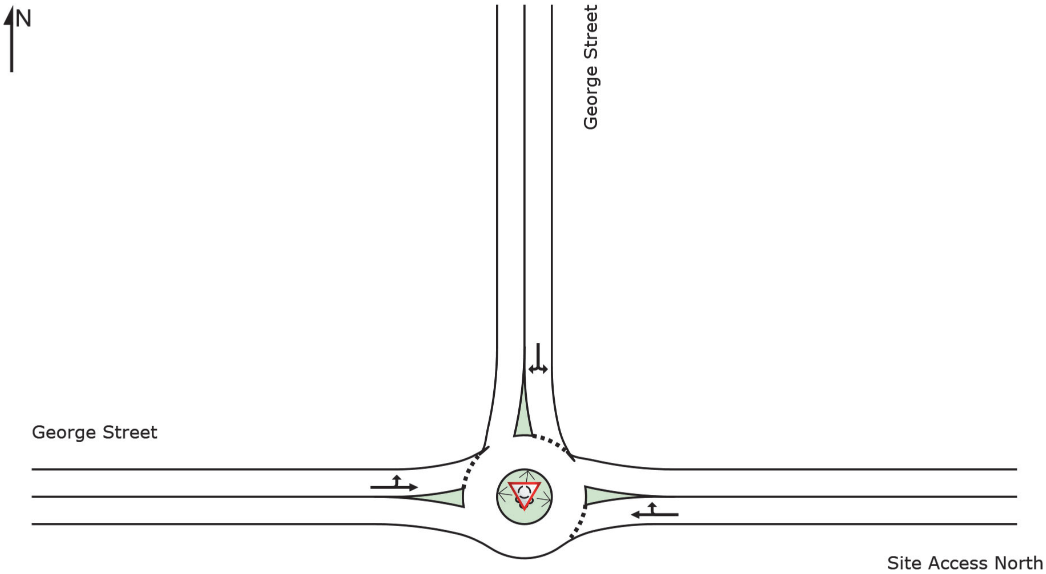
d Dominant lane on roundabout approach

Site: [822_Prj_PM_GeorgeSt_AccessNorth (Site Folder: Project)]

New Site
Site Category: (None)
Roundabout

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance															
Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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
East: Site Access North															
5	T1	37	0.0	39	0.0	0.037	4.7	LOS A	0.2	1.3	0.37	0.47	0.37	46.6
6	R2	1	0.0	1	0.0	0.037	7.8	LOS A	0.2	1.3	0.37	0.47	0.37	46.4
Approach		38	0.0	40	0.0	0.037	4.8	LOS A	0.2	1.3	0.37	0.47	0.37	46.6
North: George Street															
7	L2	1	0.0	1	0.0	0.161	4.1	LOS A	0.8	5.8	0.19	0.60	0.19	44.9
9	R2	203	0.0	213	0.0	0.161	7.1	LOS A	0.8	5.8	0.19	0.60	0.19	45.4
Approach		204	0.0	214	0.0	0.161	7.1	LOS A	0.8	5.8	0.19	0.60	0.19	45.4
West: George Street															
10	L2	143	0.0	150	0.0	0.124	3.8	LOS A	0.7	4.9	0.02	0.48	0.02	46.9
11	T1	55	0.0	58	0.0	0.124	3.7	LOS A	0.7	4.9	0.02	0.48	0.02	47.6
Approach		198	0.0	208	0.0	0.124	3.8	LOS A	0.7	4.9	0.02	0.48	0.02	47.1
All Vehicles		440	0.0	463	0.0	0.161	5.4	LOS A	0.8	5.8	0.13	0.53	0.13	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.
Roundabout Capacity Model: SIDRA Standard.
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.

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. %
East: Site Access North													
Lane 1[d]	40	0.0	1075	0.037	100	4.8	LOS A	0.2	1.3	Full	500	0.0	0.0
Approach	40	0.0		0.037		4.8	LOS A	0.2	1.3				
North: George Street													
Lane 1[d]	214	0.0	1331	0.161	100	7.1	LOS A	0.8	5.8	Full	500	0.0	0.0
Approach	214	0.0		0.161		7.1	LOS A	0.8	5.8				
West: George Street													
Lane 1[d]	208	0.0	1686	0.124	100	3.8	LOS A	0.7	4.9	Full	500	0.0	0.0
Approach	208	0.0		0.124		3.8	LOS A	0.7	4.9				
Intersection	463	0.0		0.161		5.4	LOS A	0.8	5.8				

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.
Roundabout Capacity Model: SIDRA Standard.
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.

d Dominant lane on roundabout approach

SIDRA Outputs

Site Layout

Movement Summary

Lane Summary

Site

George Street / Pomeroy Street

Scenario Name

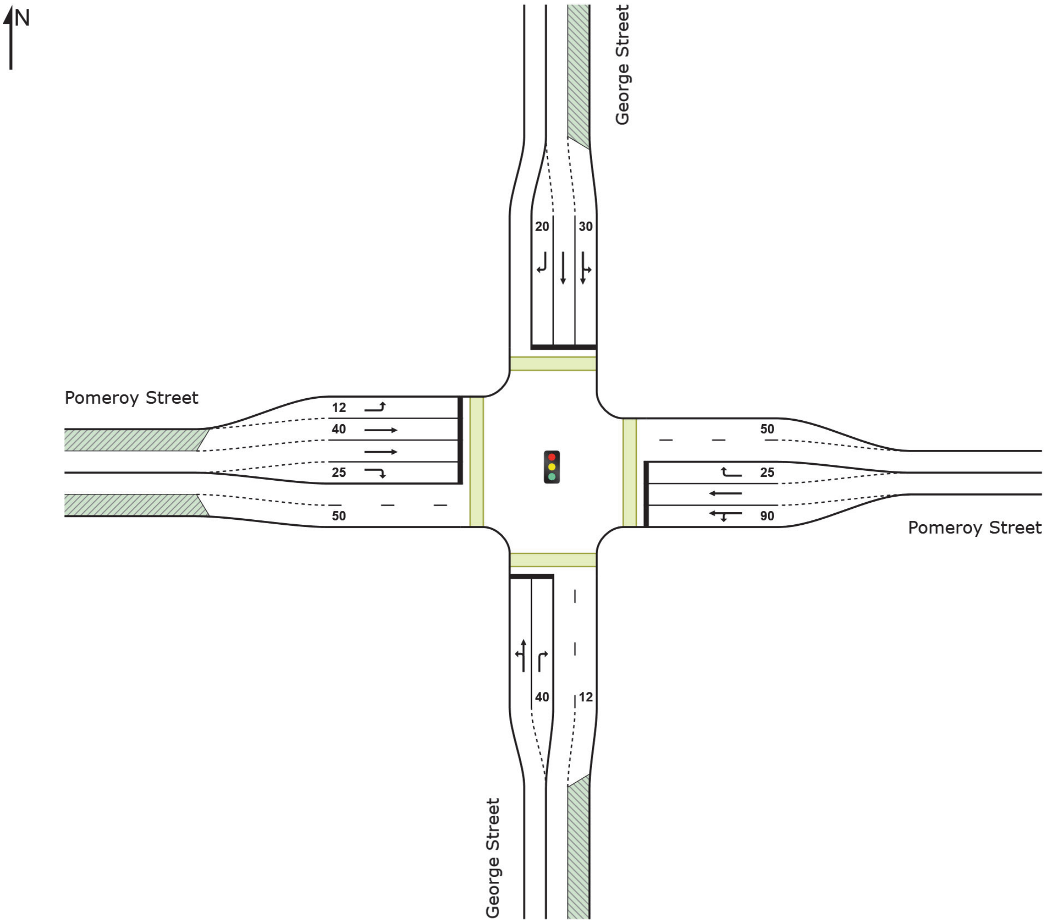
Future Development Case (with upgrades), AM and PM

SITE LAYOUT

Site: [151_PJop2_AM_GeorgeSt_PomerorySt (Site Folder: Prj)]

George St / Pomerory St
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: [151_PJop2_AM_GeorgeSt_PomerorySt (Site Folder: Prj)]

George St / Pomerory St
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110 seconds (Site Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: George Street														
1	L2	120	0.8	127	0.8	0.584	42.0	LOS C	11.1	79.1	0.90	0.78	0.90	21.9
2	T1	111	2.7	117	2.7	0.584	37.2	LOS C	11.1	79.1	0.90	0.78	0.90	15.3
3	R2	163	0.0	171	0.0	0.696	47.1	LOS D	9.0	63.0	0.96	0.88	1.05	15.3
Approach		394	1.0	415	1.0	0.696	42.7	LOS D	11.1	79.1	0.92	0.82	0.96	17.6
East: Pomeroy Street														
4	L2	410	0.5	431	0.5	0.427	20.0	LOS B	13.5	95.1	0.64	0.73	0.64	24.1
5	T1	425	1.4	447	1.4	0.714	25.9	LOS B	18.1	127.9	0.81	0.71	0.81	25.7
6	R2	145	0.7	153	0.7	* 0.517	35.2	LOS C	6.9	48.4	0.90	0.80	0.90	16.5
Approach		979	0.9	1031	0.9	0.714	24.8	LOS B	18.1	127.9	0.75	0.73	0.75	23.8
North: George Street														
7	L2	292	0.7	307	0.7	0.444	25.1	LOS B	10.3	72.6	0.68	0.73	0.68	20.6
8	T1	233	0.4	246	0.4	0.513	28.9	LOS C	9.8	69.1	0.80	0.67	0.80	18.4
9	R2	154	1.3	163	1.3	* 1.093	165.2	LOS F	17.2	121.8	1.00	1.63	2.34	8.0
Approach		679	0.7	715	0.7	1.093	58.2	LOS E	17.2	121.8	0.79	0.91	1.10	13.1
West: Pomeroy Street														
10	L2	237	0.8	250	0.8	0.418	26.4	LOS B	8.9	63.1	0.72	0.73	0.72	24.7
11	T1	551	1.5	580	1.5	0.649	25.7	LOS B	19.1	135.6	0.79	0.68	0.79	25.9
12	R2	114	0.0	120	0.0	* 1.024	120.3	LOS F	10.5	73.6	1.00	1.40	2.07	11.1
Approach		902	1.1	949	1.1	1.024	37.8	LOS C	19.1	135.6	0.80	0.79	0.93	21.9
All Vehicles		2954	0.9	3110	0.9	1.093	38.9	LOS C	19.1	135.6	0.80	0.80	0.91	19.5

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
South: George Street												
P1	Full	51	54	49.3	LOS E	0.2	0.2	0.95	0.95	214.8	215.2	1.00
East: Pomeroy Street												
P2	Full	104	109	49.4	LOS E	0.3	0.3	0.95	0.95	217.5	218.5	1.00

North: George Street											
P3 Full	1	1	49.2	LOS E	0.0	0.0	0.95	0.95	214.7	215.2	1.00
West: Pomeroy Street											
P4 Full	34	36	49.2	LOS E	0.1	0.1	0.95	0.95	219.9	221.8	1.01
All Pedestrians	190	200	49.3	LOS E	0.3	0.3	0.95	0.95	217.2	218.2	1.00

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.

LANE SUMMARY

Site: [152_PJop2_PM_GeorgeSt_PomerorySt (Site Folder: Prj)]

George St / Pomerory St
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100 seconds (Site Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

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: George Street													
Lane 1	298	0.0	536[1]	0.555	100	31.1	LOS C	11.4	79.7	Full	150	0.0	0.0
Lane 2	211	0.0	309	0.682	100	41.6	LOS C	9.7	68.1	Short	40	0.0	NA
Approach	508	0.0		0.682		35.4	LOS C	11.4	79.7				
East: Pomeroy Street													
Lane 1	280	0.0	1007	0.278	33[6]	18.0	LOS B	7.3	51.0	Short	90	0.0	NA
Lane 2	642	0.5	755[1]	0.851	100	25.5	LOS B	25.9	181.7	Full	150	0.0	22.4
Lane 3	289	0.0	351	0.823	100	52.5	LOS D	14.2	99.5	Short	25	0.0	NA
Approach	1211	0.3		0.851		30.2	LOS C	25.9	181.7				
North: George Street													
Lane 1	223	0.0	966	0.230	63[5]	20.9	LOS B	5.8	40.9	Short (P)	30	0.0	NA
Lane 2	173	0.0	474[1]	0.366	100	25.7	LOS B	6.1	42.8	Full	100	0.0	0.0
Lane 3	185	0.0	215[1]	0.862	100	57.4	LOS E	10.2	71.6	Short	20	0.0	NA
Approach	581	0.0		0.862		33.9	LOS C	10.2	71.6				
West: Pomeroy Street													
Lane 1	280	0.0	522[1]	0.537	100	30.5	LOS C	10.3	72.0	Short	12	0.0	NA
Lane 2	117	0.7	433[1]	0.270	33[6]	25.7	LOS B	3.9	27.1	Short (P)	40	0.0	NA
Lane 3	514	0.7	621[1]	0.828	100	35.5	LOS C	24.2	170.5	Full	350	0.0	0.0
Lane 4	87	0.0	126	0.687	100	54.5	LOS D	4.5	31.6	Short	25	0.0	NA
Approach	997	0.4		0.828		34.6	LOS C	24.2	170.5				
Intersection	3298	0.2		0.862		33.0	LOS C	25.9	181.7				

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.
5 Lane under-utilisation found by the program
6 Lane under-utilisation due to downstream effects

Approach Lane Flows (veh/h)

South: George Street										
Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	140	158	-	298	0.0	536[1]	0.555	100	NA	NA
Lane 2	-	-	211	211	0.0	309	0.682	100	53.9	1

Approach	140	158	211	508	0.0		0.682			
East: Pomeroy Street										
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	253	27	-	280	0.0	1007	0.278	33[6]	0.0	2
Lane 2	-	642	-	642	0.5	755[1]	0.851	100	NA	NA
Lane 3	-	-	289	289	0.0	351	0.823	100	100.0	2
Approach	253	669	289	1211	0.3		0.851			
North: George Street										
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	223	-	-	223	0.0	966	0.230	63[5]	33.3	2
Lane 2	-	173	-	173	0.0	474[1]	0.366	100	NA	NA
Lane 3	-	-	185	185	0.0	215[1]	0.862	100	100.0	2
Approach	223	173	185	581	0.0		0.862			
West: Pomeroy 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	280	-	-	280	0.0	522[1]	0.537	100	100.0	2
Lane 2	-	117	-	117	0.7	433[1]	0.270	33[6]	59.3	3
Lane 3	-	514	-	514	0.7	621[1]	0.828	100	NA	NA
Lane 4	-	-	87	87	0.0	126	0.687	100	26.2	3
Approach	280	631	87	997	0.4		0.828			

	Total	%HV	Deg.Satn (v/c)
Intersection	3298	0.2	0.862

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.
5 Lane under-utilisation found by the program
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	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: George Street Merge Type: **Priority**												
Exit Short Lane	1	12	0.0	260	260	3.00	2.00	253	1536	0.164	0.4	0.5
Merge Lane	2	-	100.0	Merge Lane is not Opposed				260	1800	0.144	0.0	0.0
East Exit: Pomeroy Street Merge Type: **Priority**												
Exit Short Lane	1	50	0.0	725	726	3.00	2.00	339	1046	0.324	1.4	2.4
Merge Lane	2	-	100.0	Merge Lane is not Opposed				725	1800	0.403	0.0	0.0
North Exit: George Street Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Pomeroy Street Merge Type: **Priority**												
Exit Short Lane	1	50	0.0	828	829	3.00	2.00	167	937	0.178	1.8	2.4
Merge Lane	2	-	100.0	Merge Lane is not Opposed				828	1800	0.460	0.0	0.0

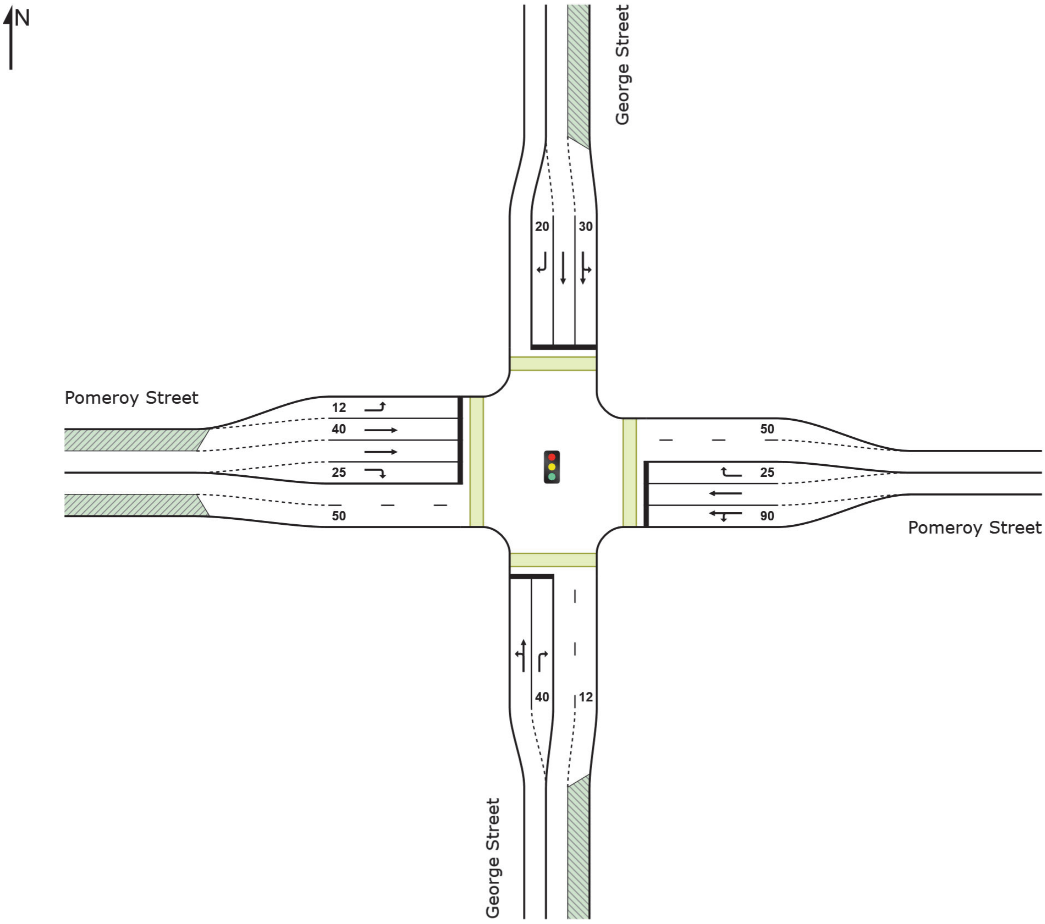
Project: D:\Projects\WestConcord\Sidra\bak20230119\ConcordWestRedevelopment_Existing6Sites_v5_2036&Base.sip9

SITE LAYOUT

Site: [152_PJop2_PM_GeorgeSt_PomerorySt (Site Folder: Prj)]

George St / Pomerory St
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: [152_PJop2_PM_GeorgeSt_PomerorySt (Site Folder: Prj)]

George St / Pomerory St
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated   Cycle Time = 100 seconds (Site Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: George Street														
1	L2	133	0.0	140	0.0	0.555	34.8	LOS C	11.4	79.7	0.83	0.75	0.83	27.5
2	T1	150	0.0	158	0.0	0.555	27.8	LOS B	11.4	79.7	0.83	0.75	0.83	19.6
3	R2	200	0.0	211	0.0	0.682	41.6	LOS C	9.7	68.1	0.95	0.86	1.00	17.7
Approach		483	0.0	508	0.0	0.682	35.4	LOS C	11.4	79.7	0.88	0.80	0.90	21.2
East: Pomeroy Street														
4	L2	240	0.0	253	0.0	0.278	18.3	LOS B	7.3	51.0	0.58	0.70	0.58	27.9
5	T1	636	0.5	669	0.5	0.851	25.1	LOS B	25.9	181.7	0.73	0.76	0.86	29.8
6	R2	274	0.0	289	0.0	* 0.823	52.5	LOS D	14.2	99.5	1.00	1.12	1.21	13.4
Approach		1150	0.3	1211	0.3	0.851	30.2	LOS C	25.9	181.7	0.76	0.83	0.88	24.8
North: George Street														
7	L2	211	0.0	223	0.0	0.230	20.9	LOS B	5.8	40.9	0.58	0.71	0.58	25.0
8	T1	165	0.0	173	0.0	0.366	25.7	LOS B	6.1	42.8	0.77	0.63	0.77	21.7
9	R2	176	0.0	185	0.0	* 0.862	57.4	LOS E	10.2	71.6	0.97	1.03	1.37	18.5
Approach		552	0.0	581	0.0	0.862	33.9	LOS C	10.2	71.6	0.76	0.79	0.89	20.9
West: Pomeroy Street														
10	L2	266	0.0	280	0.0	0.537	30.5	LOS C	10.3	72.0	0.80	0.78	0.80	25.9
11	T1	600	0.7	631	0.7	* 0.828	33.7	LOS C	24.2	170.5	0.89	0.85	0.99	26.4
12	R2	82	0.0	87	0.0	0.687	54.5	LOS D	4.5	31.6	1.00	0.88	1.17	20.1
Approach		948	0.4	997	0.4	0.828	34.6	LOS C	24.2	170.5	0.88	0.84	0.95	25.5
All Vehicles		3133	0.2	3298	0.2	0.862	33.0	LOS C	25.9	181.7	0.82	0.82	0.91	23.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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
South: George Street												
P1	Full	26	27	44.2	LOS E	0.1	0.1	0.94	0.94	209.8	215.2	1.03
East: Pomeroy Street												
P2	Full	4	4	44.2	LOS E	0.0	0.0	0.94	0.94	212.3	218.5	1.03

North: George Street											
P3 Full	16	17	44.2	LOS E	0.0	0.0	0.94	0.94	209.7	215.2	1.03
West: Pomeroy Street											
P4 Full	72	76	44.3	LOS E	0.2	0.2	0.94	0.94	214.9	221.8	1.03
All Pedestrians	118	124	44.3	LOS E	0.2	0.2	0.94	0.94	213.0	219.3	1.03

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.

LANE SUMMARY

Site: [151_PJop2_AM_GeorgeSt_PomerorySt (Site Folder: Prj)]

George St / Pomerory St
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110 seconds (Site Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	DEMAND FLOWS [Total	HV]	Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% BACK OF QUEUE [Veh	Dist]	Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: George Street													
Lane 1	243	1.7	416[1]	0.584	100	39.7	LOS C	11.1	79.1	Full	150	0.0	0.0
Lane 2	171	0.0	246	0.696	100	47.1	LOS D	9.0	63.0	Short	40	0.0	NA
Approach	415	1.0		0.696		42.7	LOS D	11.1	79.1				
East: Pomeroy Street													
Lane 1	431	0.5	1009	0.427	60[5]	20.0	LOS B	13.5	95.1	Short	90	0.0	NA
Lane 2	447	1.4	626[1]	0.714	100	25.9	LOS B	18.1	127.9	Full	150	0.0	0.0
Lane 3	153	0.7	295[1]	0.517	100	35.2	LOS C	6.9	48.4	Short	25	0.0	NA
Approach	1031	0.9		0.714		24.8	LOS B	18.1	127.9				
North: George Street													
Lane 1	307	0.7	691[1]	0.444	87[5]	25.1	LOS B	10.3	72.6	Short (P)	30	0.0	NA
Lane 2	246	0.4	479[1]	0.513	100	28.9	LOS C	9.8	69.1	Full	100	0.0	22.9[8]
Lane 3	163	1.3	149[1]	1.093	100	165.2	LOS F	17.2	121.8	Short	20	0.0	NA
Approach	715	0.7		1.093		58.2	LOS E	17.2	121.8				
West: Pomeroy Street													
Lane 1	250	0.8	597[1]	0.418	100	26.4	LOS B	8.9	63.1	Short	12	0.0	NA
Lane 2	112	1.5	530[1]	0.212	33[6]	23.1	LOS B	3.7	26.0	Short (P)	40	0.0	NA
Lane 3	467	1.5	721[1]	0.649	100	26.3	LOS B	19.1	135.6	Full	350	0.0	0.0
Lane 4	120	0.0	117[1]	1.024	100	120.3	LOS F	10.5	73.6	Short	25	0.0	NA
Approach	949	1.1		1.024		37.8	LOS C	19.1	135.6				
Intersection	3110	0.9		1.093		38.9	LOS C	19.1	135.6				

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.
5 Lane under-utilisation found by the program
6 Lane under-utilisation due to downstream effects
8 Probability of Blockage has been set on the basis of a queue that overflows from a short lane.

Approach Lane Flows (veh/h)

South: George Street

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	127	117	-	243	1.7	416[1]	0.584	100	NA	NA

Lane 2	-	-	171	171	0.0	246	0.696	100	46.6	1
Approach	127	117	171	415	1.0		0.696			
East: Pomeroy Street										
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	431	-	-	431	0.5	1009	0.427	60[5]	10.0	2
Lane 2	-	447	-	447	1.4	626[1]	0.714	100	NA	NA
Lane 3	-	-	153	153	0.7	295[1]	0.517	100	66.2	2
Approach	431	447	153	1031	0.9		0.714			
North: George Street										
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	307	-	-	307	0.7	691[1]	0.444	87[5]	87.9	2
Lane 2	-	246	-	246	0.4	479[1]	0.513	100	NA	NA
Lane 3	-	-	163	163	1.3	149[1]	1.093	100	100.0	2
Approach	307	246	163	715	0.7		1.093			
West: Pomeroy 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	250	-	-	250	0.8	597[1]	0.418	100	100.0	2
Lane 2	-	112	-	112	1.5	530[1]	0.212	33[6]	46.8	3
Lane 3	-	467	-	467	1.5	721[1]	0.649	100	NA	NA
Lane 4	-	-	120	120	0.0	117[1]	1.024	100	100.0	3
Approach	250	580	120	949	1.1		1.024			

	Total	%HV	Deg.Satn (v/c)
Intersection	3110	0.9	1.093

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.
5 Lane under-utilisation found by the program
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	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: George Street Merge Type: **Priority**												
Exit Short Lane	1	12	0.0	363	363	3.00	2.00	431	1430	0.302	0.6	0.9
Merge Lane	2	-	100.0	Merge Lane is not Opposed				363	1800	0.201	0.0	0.0
East Exit: Pomeroy Street Merge Type: **Priority**												
Exit Short Lane	1	50	0.0	639	642	3.00	2.00	419	1136	0.369	1.2	2.2
Merge Lane	2	-	100.0	Merge Lane is not Opposed				639	1800	0.355	0.0	0.0
North Exit: George Street Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Pomeroy Street Merge Type: **Priority**												
Exit Short Lane	1	50	0.0	596	600	3.00	2.00	127	1181	0.107	1.1	1.4

Merge Lane	2	-	100.0	Merge Lane is not Opposed	596	1800	0.331	0.0	0.0

SIDRA Outputs

Site Layout

Movement Summary

Lane Summary

Site

George Street / Pomeroy Street

Scenario Name

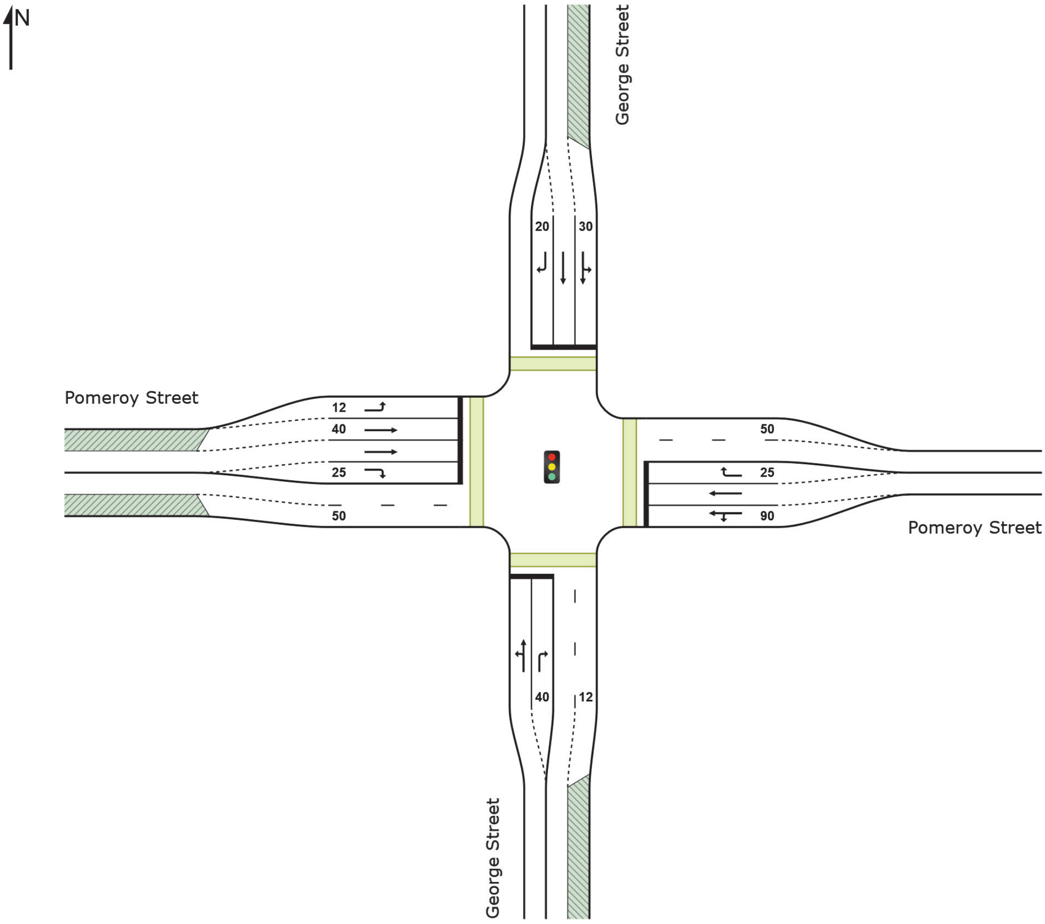
Future Reference Case (with upgrades), AM and PM

SITE LAYOUT

Site: [161_DMop2_AM_GeorgeSt_PomerorySt (Site Folder: DoMin)]

George St / Pomerory St
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Organisation: PRICEWATERHOUSECOOPERS | Licence: PLUS / 1PC | Created: Friday, 2 June 2023 10:09:06 AM
Project: D:\Projects\WestConcord\Sidra\ConcordWestRedevelopment_Existing6Sites_v6_2036&Base.sip9

MOVEMENT SUMMARY

Site: [161_DMop2_AM_GeorgeSt_PomerorySt (Site Folder: DoMin)]

George St / Pomerory St
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100 seconds (Site Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: George Street														
1	L2	120	0.8	127	0.8	0.648	46.1	LOS D	10.3	73.0	0.98	0.83	0.99	20.8
2	T1	90	3.3	94	3.3	0.648	41.5	LOS C	10.3	73.0	0.98	0.83	0.99	14.3
3	R2	163	0.0	171	0.0	0.711	46.9	LOS D	8.5	59.2	0.98	0.89	1.10	15.3
Approach		373	1.1	392	1.1	0.711	45.4	LOS D	10.3	73.0	0.98	0.86	1.04	17.1
East: Pomeroy Street														
4	L2	410	0.5	431	0.5	0.388	15.2	LOS B	10.8	76.1	0.56	0.69	0.56	26.7
5	T1	425	1.4	447	1.4	0.620	20.3	LOS B	15.2	107.9	0.75	0.66	0.75	27.8
6	R2	115	0.9	121	0.9	* 0.315	24.5	LOS B	4.1	28.9	0.77	0.74	0.77	20.1
Approach		949	0.9	999	0.9	0.620	18.6	LOS B	15.2	107.9	0.67	0.68	0.67	26.6
North: George Street														
7	L2	236	0.8	249	0.8	0.347	26.2	LOS B	8.1	57.0	0.71	0.73	0.71	20.0
8	T1	166	0.6	175	0.6	0.416	30.8	LOS C	6.8	47.6	0.84	0.68	0.84	17.8
9	R2	100	2.0	105	2.0	* 0.901	66.3	LOS E	6.1	43.4	1.00	1.10	1.61	15.7
Approach		502	1.0	529	1.0	0.901	35.7	LOS C	8.1	57.0	0.81	0.79	0.93	17.9
West: Pomeroy Street														
10	L2	182	1.1	192	1.1	0.296	20.8	LOS B	5.6	39.5	0.64	0.70	0.64	26.9
11	T1	551	1.5	580	1.5	0.564	20.0	LOS B	15.5	109.8	0.72	0.63	0.72	28.2
12	R2	114	0.0	120	0.0	* 0.830	59.4	LOS E	6.8	47.7	1.00	1.05	1.40	17.6
Approach		847	1.2	891	1.2	0.830	25.4	LOS B	15.5	109.8	0.74	0.70	0.80	25.8
All Vehicles		2671	1.0	2811	1.0	0.901	27.7	LOS B	15.5	109.8	0.76	0.73	0.81	23.1

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
South: George Street												
P1	Full	51	54	44.3	LOS E	0.1	0.1	0.94	0.94	209.8	215.2	1.03
East: Pomeroy Street												
P2	Full	104	109	44.4	LOS E	0.3	0.3	0.94	0.94	212.5	218.5	1.03

North: George Street											
P3 Full	1	1	44.2	LOS E	0.0	0.0	0.94	0.94	209.7	215.2	1.03
West: Pomeroy Street											
P4 Full	34	36	44.2	LOS E	0.1	0.1	0.94	0.94	214.9	221.8	1.03
All Pedestrians	190	200	44.3	LOS E	0.3	0.3	0.94	0.94	212.2	218.2	1.03

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.

Organisation: PRICEWATERHOUSECOOPERS | Licence: PLUS / 1PC | Processed: Friday, 2 June 2023 10:09:01 AM
Project: D:\Projects\WestConcord\Sidra\ConcordWestRedevelopment_Existing6Sites_v6_2036&Base.sip9

LANE SUMMARY

Site: [161_DMop2_AM_GeorgeSt_PomerorySt (Site Folder: DoMin)]

George St / Pomerory St
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100 seconds (Site Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

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: George Street													
Lane 1	221	1.9	341[1]	0.648	100	44.1	LOS D	10.3	73.0	Full	150	0.0	0.0
Lane 2	171	0.0	241	0.711	100	46.9	LOS D	8.5	59.2	Short	40	0.0	NA
Approach	392	1.1		0.711		45.4	LOS D	10.3	73.0				
East: Pomeroy Street													
Lane 1	431	0.5	1110	0.388	63[5]	15.2	LOS B	10.8	76.1	Short	90	0.0	NA
Lane 2	447	1.4	721[1]	0.620	100	20.3	LOS B	15.2	107.9	Full	150	0.0	0.0
Lane 3	121	0.9	384	0.315	100	24.5	LOS B	4.1	28.9	Short	25	0.0	NA
Approach	999	0.9		0.620		18.6	LOS B	15.2	107.9				
North: George Street													
Lane 1	249	0.8	717[1]	0.347	83[5]	26.2	LOS B	8.1	57.0	Short (P)	30	0.0	NA
Lane 2	175	0.6	420[1]	0.416	100	30.8	LOS C	6.8	47.6	Full	100	0.0	0.0
Lane 3	105	2.0	117[1]	0.901	100	66.3	LOS E	6.1	43.4	Short	20	0.0	NA
Approach	529	1.0		0.901		35.7	LOS C	8.1	57.0				
West: Pomeroy Street													
Lane 1	192	1.1	648[1]	0.296	100	20.8	LOS B	5.6	39.5	Short	12	0.0	NA
Lane 2	127	1.5	688[1]	0.184	33[6]	18.5	LOS B	3.5	25.0	Short (P)	40	0.0	NA
Lane 3	453	1.5	802[1]	0.564	100	20.4	LOS B	15.5	109.8	Full	350	0.0	0.0
Lane 4	120	0.0	144	0.830	100	59.4	LOS E	6.8	47.7	Short	25	0.0	NA
Approach	891	1.2		0.830		25.4	LOS B	15.5	109.8				
Intersection	2811	1.0		0.901		27.7	LOS B	15.5	109.8				

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.
5 Lane under-utilisation found by the program
6 Lane under-utilisation due to downstream effects

Approach Lane Flows (veh/h)

South: George Street

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	127	94	-	221	1.9	341[1]	0.648	100	NA	NA
Lane 2	-	-	171	171	0.0	241	0.711	100	40.8	1

Mov.	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Approach	127	94	171	392	1.1		0.711			
East: Pomeroy Street										
From E / To Exit:	S	W	N							
Lane 1	431	-	-	431	0.5	1110	0.388	63 [5]	0.0	2
Lane 2	-	447	-	447	1.4	721 [1]	0.620	100	NA	NA
Lane 3	-	-	121	121	0.9	384	0.315	100	18.1	2
Approach	431	447	121	999	0.9		0.620			
North: George Street										
From N / To Exit:	E	S	W							
Lane 1	249	-	-	249	0.8	717 [1]	0.347	83 [5]	64.4	2
Lane 2	-	175	-	175	0.6	420 [1]	0.416	100	NA	NA
Lane 3	-	-	105	105	2.0	117 [1]	0.901	100	77.3	2
Approach	249	175	105	529	1.0		0.901			
West: Pomeroy Street										
From W / To Exit:	N	E	S							
Lane 1	192	-	-	192	1.1	648 [1]	0.296	100	100.0	2
Lane 2	-	127	-	127	1.5	688 [1]	0.184	33 [6]	3.8	3
Lane 3	-	453	-	453	1.5	802 [1]	0.564	100	NA	NA
Lane 4	-	-	120	120	0.0	144	0.830	100	64.8	3
Approach	192	580	120	891	1.2		0.830			

	Total	%HV	Deg.Satn (v/c)
Intersection	2811	1.0	0.901

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.
5 Lane under-utilisation found by the program
6 Lane under-utilisation due to downstream effects

Merge Analysis

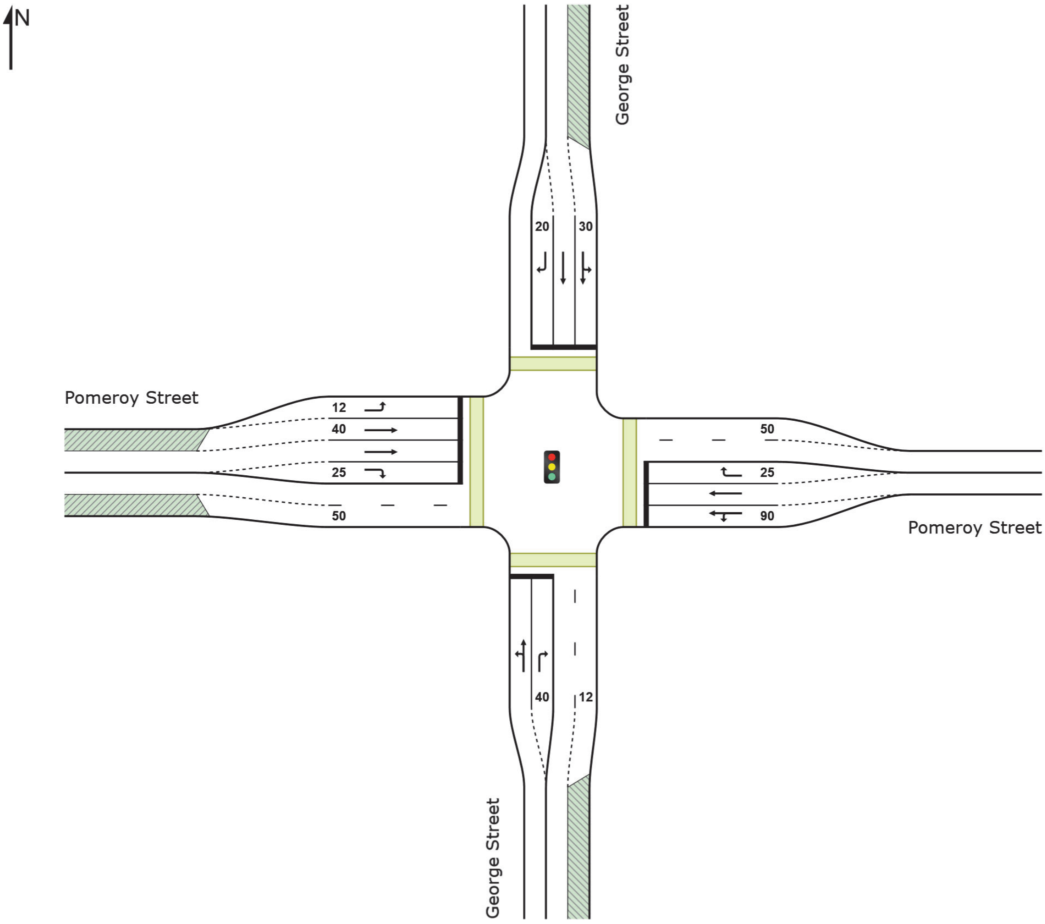
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: George Street Merge Type: **Priority**												
Exit Short Lane	1	12	0.0	294	295	3.00	2.00	431	1500	0.287	0.4	0.7
Merge Lane	2	-	100.0	Merge Lane is not Opposed				294	1800	0.164	0.0	0.0
East Exit: Pomeroy Street Merge Type: **Priority**												
Exit Short Lane	1	50	0.0	624	627	3.00	2.00	375	1152	0.326	1.2	1.9
Merge Lane	2	-	100.0	Merge Lane is not Opposed				624	1800	0.347	0.0	0.0
North Exit: George Street Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Pomeroy Street Merge Type: **Priority**												
Exit Short Lane	1	50	0.0	552	557	3.00	2.00	127	1227	0.103	1.0	1.2
Merge Lane	2	-	100.0	Merge Lane is not Opposed				552	1800	0.307	0.0	0.0

SITE LAYOUT

Site: [162_DMop2_PM_GeorgeSt_PomerorySt (Site Folder: DoMin)]

George St / Pomerory St
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: [162_DMop2_PM_GeorgeSt_PomerorySt (Site Folder: DoMin)]

George St / Pomerory St
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated   Cycle Time = 100 seconds (Site Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	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: George Street														
1	L2	133	0.0	140	0.0	0.473	37.4	LOS C	10.3	72.2	0.86	0.77	0.86	26.2
2	T1	113	0.0	119	0.0	0.473	30.7	LOS C	10.3	72.2	0.86	0.77	0.86	18.4
3	R2	200	0.0	211	0.0	* 0.699	44.2	LOS D	10.0	69.9	0.96	0.87	1.04	17.0
Approach		446	0.0	470	0.0	0.699	38.8	LOS C	10.3	72.2	0.91	0.81	0.94	20.3
East: Pomeroy Street														
4	L2	240	0.0	253	0.0	0.248	15.9	LOS B	6.3	44.2	0.52	0.69	0.52	29.4
5	T1	636	0.5	669	0.5	0.760	14.3	LOS A	20.1	141.4	0.68	0.62	0.68	36.1
6	R2	215	0.0	227	0.0	* 0.567	36.4	LOS C	9.6	67.2	0.94	0.88	0.94	17.2
Approach		1091	0.3	1149	0.3	0.760	19.0	LOS B	20.1	141.4	0.70	0.69	0.70	30.7
North: George Street														
7	L2	180	0.0	189	0.0	0.204	21.6	LOS B	5.1	35.5	0.59	0.71	0.59	24.4
8	T1	126	0.0	132	0.0	0.226	28.3	LOS B	4.8	33.9	0.79	0.64	0.79	20.5
9	R2	123	0.0	129	0.0	0.573	45.3	LOS D	5.9	41.3	0.95	0.80	0.95	21.3
Approach		428	0.0	451	0.0	0.573	30.4	LOS C	5.9	41.3	0.75	0.71	0.75	22.1
West: Pomeroy Street														
10	L2	178	0.0	187	0.0	0.359	27.5	LOS B	6.3	43.9	0.73	0.75	0.73	27.2
11	T1	600	0.7	631	0.7	* 0.775	28.9	LOS C	21.5	151.6	0.86	0.78	0.90	28.3
12	R2	82	0.0	87	0.0	0.613	50.1	LOS D	4.3	30.1	0.97	0.84	1.05	21.1
Approach		860	0.5	905	0.5	0.775	30.6	LOS C	21.5	151.6	0.84	0.78	0.88	27.2
All Vehicles		2825	0.2	2974	0.2	0.775	27.4	LOS B	21.5	151.6	0.78	0.74	0.80	26.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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
South: George Street												
P1	Full	26	27	44.2	LOS E	0.1	0.1	0.94	0.94	209.8	215.2	1.03
East: Pomeroy Street												
P2	Full	4	4	44.2	LOS E	0.0	0.0	0.94	0.94	212.3	218.5	1.03

North: George Street											
P3 Full	16	17	44.2	LOS E	0.0	0.0	0.94	0.94	209.7	215.2	1.03
West: Pomeroy Street											
P4 Full	72	76	44.3	LOS E	0.2	0.2	0.94	0.94	214.9	221.8	1.03
All Pedestrians	118	124	44.3	LOS E	0.2	0.2	0.94	0.94	213.0	219.3	1.03

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.

LANE SUMMARY

Site: [162_DMop2_PM_GeorgeSt_PomerorySt (Site Folder: DoMin)]

George St / Pomerory St
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100 seconds (Site Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

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: George Street													
Lane 1	259	0.0	548[1]	0.473	100	34.3	LOS C	10.3	72.2	Full	150	0.0	0.0
Lane 2	211	0.0	301	0.699	100	44.2	LOS D	10.0	69.9	Short	40	0.0	NA
Approach	470	0.0		0.699		38.8	LOS C	10.3	72.2				
East: Pomeroy Street													
Lane 1	268	0.0	1080	0.248	33[6]	15.8	LOS B	6.3	44.2	Short	90	0.0	NA
Lane 2	654	0.5	862[1]	0.760	100	14.4	LOS A	20.1	141.4	Full	150	0.0	0.0
Lane 3	227	0.0	399[1]	0.567	100	36.4	LOS C	9.6	67.2	Short	25	0.0	NA
Approach	1149	0.3		0.760		19.0	LOS B	20.1	141.4				
North: George Street													
Lane 1	189	0.0	929	0.204	90[5]	21.6	LOS B	5.1	35.5	Short (P)	30	0.0	NA
Lane 2	132	0.0	585	0.226	100	28.3	LOS B	4.8	33.9	Full	100	0.0	0.0
Lane 3	129	0.0	226[1]	0.573	100	45.3	LOS D	5.9	41.3	Short	20	0.0	NA
Approach	451	0.0		0.573		30.4	LOS C	5.9	41.3				
West: Pomeroy Street													
Lane 1	187	0.0	521[1]	0.359	100	27.5	LOS B	6.3	43.9	Short	12	0.0	NA
Lane 2	128	0.7	505[1]	0.253	33[6]	24.2	LOS B	4.1	28.9	Short (P)	40	0.0	NA
Lane 3	503	0.7	649[1]	0.775	100	30.1	LOS C	21.5	151.6	Full	350	0.0	0.0
Lane 4	87	0.0	141	0.613	100	50.1	LOS D	4.3	30.1	Short	25	0.0	NA
Approach	905	0.5		0.775		30.6	LOS C	21.5	151.6				
Intersection	2974	0.2		0.775		27.4	LOS B	21.5	151.6				

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.
5 Lane under-utilisation found by the program
6 Lane under-utilisation due to downstream effects

Approach Lane Flows (veh/h)

South: George Street

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	140	119	-	259	0.0	548[1]	0.473	100	NA	NA
Lane 2	-	-	211	211	0.0	301	0.699	100	56.5	1

Mov.	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Approach	140	119	211	470	0.0		0.699			
East: Pomeroy Street										
From E / To Exit:	S	W	N							
Lane 1	253	15	-	268	0.0	1080	0.248	33 [6]	0.0	2
Lane 2	-	654	-	654	0.5	862 [1]	0.760	100	NA	NA
Lane 3	-	-	227	227	0.0	399 [1]	0.567	100	98.5	2
Approach	253	669	227	1149	0.3		0.760			
North: George Street										
From N / To Exit:	E	S	W							
Lane 1	189	-	-	189	0.0	929	0.204	90 [5]	20.2	2
Lane 2	-	132	-	132	0.0	585	0.226	100	NA	NA
Lane 3	-	-	129	129	0.0	226 [1]	0.573	100	72.4	2
Approach	189	132	129	451	0.0		0.573			
West: Pomeroy Street										
From W / To Exit:	N	E	S							
Lane 1	187	-	-	187	0.0	521 [1]	0.359	100	100.0	2
Lane 2	-	128	-	128	0.7	505 [1]	0.253	33 [6]	13.5	3
Lane 3	-	503	-	503	0.7	649 [1]	0.775	100	NA	NA
Lane 4	-	-	87	87	0.0	141	0.613	100	21.7	3
Approach	187	631	87	905	0.5		0.775			

	Total	%HV	Deg.Satn (v/c)
Intersection	2974	0.2	0.775

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.
5 Lane under-utilisation found by the program
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	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: George Street Merge Type: **Priority**												
Exit Short Lane	1	12	0.0	219	219	3.00	2.00	253	1579	0.160	0.3	0.4
Merge Lane	2	-	100.0	Merge Lane is not Opposed				219	1800	0.122	0.0	0.0
East Exit: Pomeroy Street Merge Type: **Priority**												
Exit Short Lane	1	50	0.0	714	716	3.00	2.00	317	1058	0.299	1.4	2.2
Merge Lane	2	-	100.0	Merge Lane is not Opposed				714	1800	0.397	0.0	0.0
North Exit: George Street Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Pomeroy Street Merge Type: **Priority**												
Exit Short Lane	1	50	0.0	784	785	3.00	2.00	155	984	0.158	1.7	2.1
Merge Lane	2	-	100.0	Merge Lane is not Opposed				784	1800	0.435	0.0	0.0

Organisation: PRICEWATERHOUSECOOPERS | Licence: PLUS / 1PC | Processed: Friday, 2 June 2023 10:09:03 AM
Project: D:\Projects\WestConcord\Sidra\ConcordWestRedevelopment_Existing6Sites_v6_2036&Base.sip9

ATTACHMENT J

Preliminary Civil Engineering Report

1 King St, Concord West

Prepared for Concord West property Pty Ltd / 27 July 2023

221118

Taylor Thomson Whitting (NSW) Pty Ltd (ACN 113 578 377)
as trustee for the Taylor Thomson Whitting NSW Trust
(ABN 59 514 956 558) I Consulting Engineers
Level 6, 73 Miller Street, North Sydney NSW 2060

Your Partner in Engineering

Contents

1.0 Introduction

Taylor Thomson Whitting Pty. Ltd (TTW) have been engaged by Concord West Property Pty Ltd to provide civil engineering consultancy works for the proposed development at 1 King Street, Concord West in the City of Canada Bay Local Government Area (LGA). The civil works addressed in this report involve and are limited to the following:

1) Stormwater Diversion
    a. High level stormwater pipe diversion Plan for the Council-owned 900mm diameter pipe.
2) George Street regrading
3) Flooding of George Street

The site location is shown in figure 1. The site falls from east to west, with an average level of approximately RL 9.00. The existing 3.136ha site is developed with a two-storey precast and metal commercial building, a three-storey concrete carpark building and surrounding on-grade carparks and access roads.

Figure 1 - Site Location (source: Google Maps)

1.1 Council Requirements

The development will be required to comply with the requirements of City of Canada Bay Council as outlined in Council's Local Environmental Plan (LEP) and Development Control Plan (DCP). As the development is proposed to be mixed use, Part G of the DCP will apply. Appendix 2 of the DCP outlines the Engineering Specifications that will apply to the proposed works.

According to the DCP, Council requires on-site stormwater detention (OSD) systems to be implemented to reduce flow rates from new developments. Council also requires Water Sensitive Urban Design elements in including water quality treatment and rainwater reuse systems.

The OSD system will be required to comply with the following requirements:

- Site Storage Requirement (SSR) is 200 m^3 per hectare
- Permissible Site Discharge (PSD) is 180 L/s per hectare

Additionally, the stormwater quality treatment system will be required to meet the following targets:

Pollutant Type	Percentage Retention of Post-Development Loads
Total Suspended Solids (TSS)	80%
Total Phosphorus (TP)	45%
Total Nitrogen (TN)	45%
Gross Pollutants (GP)	70%

These reduction targets can be met through a combination of the following treatment options:

- Proprietary filter cartridges and pit inserts
- Rainwater reuse tanks
- Swales, bioretention swales and buffer strips
- Bioretention basins
- Raingardens

The design of these stormwater management systems will be governed by the development of the architectural concept.

Prior to the submission of the Development Application (DA), the proposed stormwater management strategy will be required to comply with all requirements set out in Council's documents.

2.0 Proposed Development

A concept masterplan has been developed by GroupGSA which shows residential, retail and commercial buildings across the site, internal roads running north-south and east-west, and a central through site link running east-west to George Street. The masterplan is shown in Figure 2 below.

Figure 2 - Concept Masterplan (source: GroupGSA)

3.0 Existing Flood Information

City of Canada Bay Council engaged Jacobs to prepare a flood assessment for the Concord West Precinct Master Plan in 2015. Council recently engaged WMA Water to update Jacob's 2015 flood study, however it is TTW's understanding that WMA Water's "Powell's Creek Flood Study, April 2022 (3rd draft)" has not been officially adopted by Council at the time of writing this report.

Both Jacobs' and WMA's flood studies identify the George St sag point near the north west corner of the site as a flood prone area. The location of the sag point is shown in the extract from Jacob's flood study below:

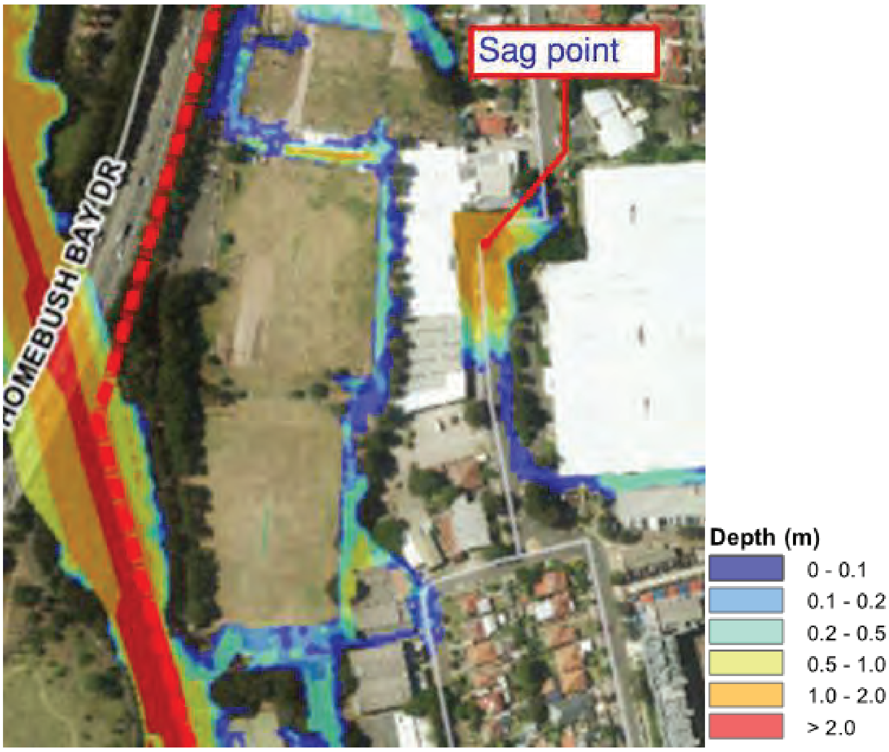


Figure 3 - Jacobs Flood Study Extract - 100-Year Baseline Model

Concord West Pty Ltd and TTW have consulted with City of Canada Bay Council officers to discuss mitigation strategies to reduce the flood risk in the area as well as safe vehicular passage for storms up to and including the 1 in 100-year ARI (1% AEP) event. The most viable solution to reduce the flood levels in the area would be to regrade George Street to create an overland flow path towards Powells Creek. Two potential solutions are presented in Section 4.0 of this report.

4.0 Proposed Options

Two stormwater management options have been developed to mitigate flood risks. Council's preferred option will be referred to as "Option 1" in this report. "Option 2" is the option that is preferred by the owner of 176-184 George Street. Both options involve regrading of George Street to create an overland flow path to locally reduce the flood levels in this area. Full copies of the plans that are referenced in this section at provided in **Appendix A.**

4.1 Option 1 – Council Preferred Option

Council's preferred option involves:

- Regrading of George St to move the sag point to the future pedestrian through link at George St as depicted in figure 5 below;
- Overland flow/flood path from the new low point through the site at 176-184 George St as per the intent of the masterplan. Floodwater is proposed to then flow on to Powells Creek.

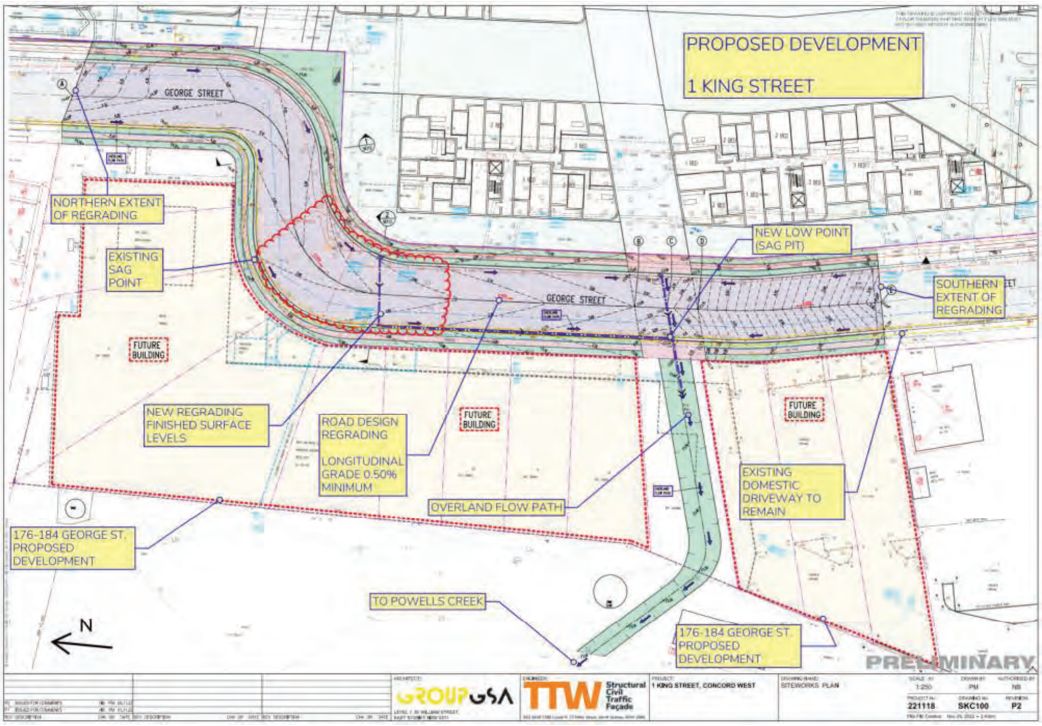


Figure 5 - Option 1: Council Preferred Option

Concord West Pty Ltd and TTW have extensively consulted City of Canada Bay officers regarding this option in September to November 2022. Copy of consultation with Council is in **Appendix A.**

Both TTW and City of Canada Bay officers have undertaken preliminary hydrological and hydraulic feasibility studies and have concluded that this option is feasible in a flooding point of view. However, a detailed flood study will be required to be undertaken as part of the design and development of Option 1.

4.2 Option 2 – 176-184 George St Owner Preferred Option

As depicted below in Figure 6, Option 2 involves:

- Retaining the location of existing sag point and regrading of George Street to locally reduce the flood depth;
- Construction of an overland flow path from the sag point through the proposed 176-184 George Street development;
- Construction of a floodway through the playing fields to drain flows to Powells Creek.

This option is preferred by the owner of 176-184 George St.

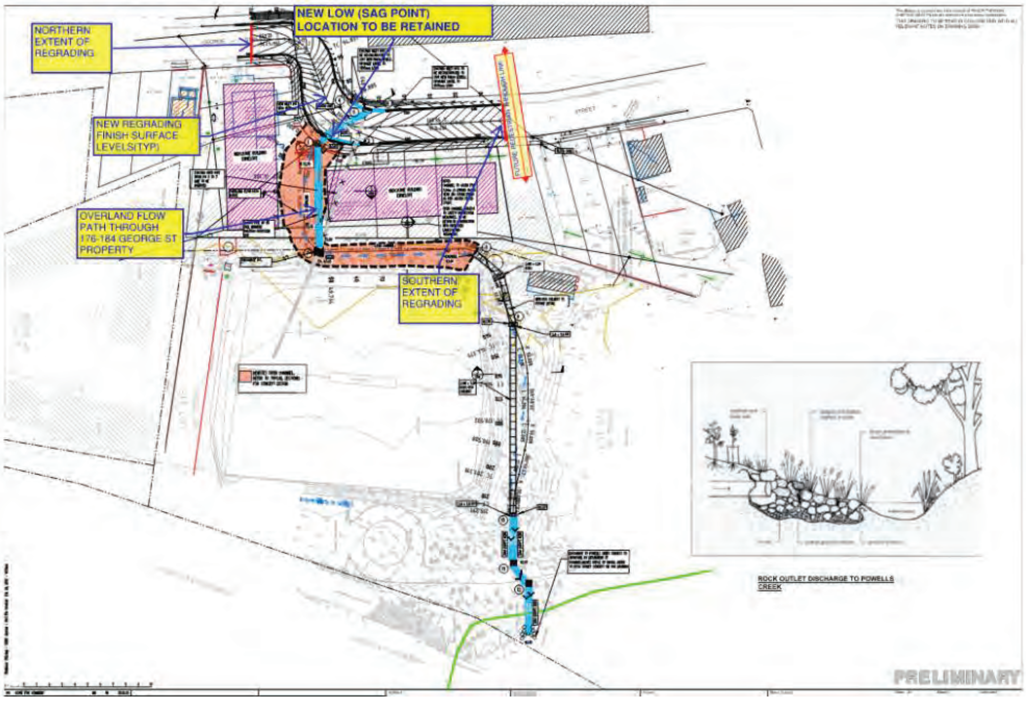


Figure 6 - Option 2: 176-184 George St Owner Preferred Option

TTW have undertaken a detailed flood study reflecting this option for the 176-184 George St property developer as part of their Development Approval (DA) submission.

The 1 King Street site is located at the high point and therefore will work in both scenarios presented in Option 1 and Option 2 depending on direction from Council on preferred approach for the George Street regrading works.

5.0 Flooding

Upon review, Jacobs' 2015 flood study indicates that the site is affected by flooding in the 1% AEP and PMF events. However, WMA's April 2022 (3rd draft) flood study shows that the site is not affected by flooding in the 1% AEP but affected by the PMF flood event. TTW have consulted with officers from City of Canada Bay Council and have been advised WMA's flood study is likely to be endorsed by Council imminently.

As mentioned in Section 4.0 of this report, both Jacobs' (2015) and WMA's (2022) flood studies identify the George St sag point near the north west corner of the site as a flood prone area. Two flood mitigation options have been investigated to reduce the flood risk in the area and provide safe vehicular passage for storms up to and including the 1 in 100-yr ARI (1% AEP) storm event.

A flood study has been undertaken for Option 2. A copy of the flood report is attached in **Appendix C.** In summary, this option is feasible to provide safe vehicular passage for storms up to and including the 1 in 100-Year ARI (1% AEP) storm event, provided that all flood mitigation works mentioned in the report are implemented.

TTW has not undertaken a flood study or modelling for Option 1 at the time of writing of this report. However, TTW's high-level hydrological/hydraulic analysis indicates that this option is feasible if should this option proceed.

For both options, the 1%AEP flood levels in George St are expected to be at least 500mm below the 1 King St site's lowest finish floor level as such Flood Planning requirements is not expected to be an issue.

6.0 Stormwater Design

6.1 Existing Stormwater

A Dial Before You Dig (DBYD) inquiry was undertaken to identify the extent of existing stormwater within and around the proposed development site. Additional information has been extracted from the site inspection, site survey and CCTV investigation to identify the location of the Council-owned stormwater assets.

City of Canada Bay council has indicated that a 900mm diameter stormwater pipe exists from the Railway line to the east and traverses the proposed site. The pipe connects to the west at the sag point pit on George Street and continues beneath the 176-184 George St site. Refer to figure 7.0 for the approximate location of the mentioned existing 900mm stormwater pipe.

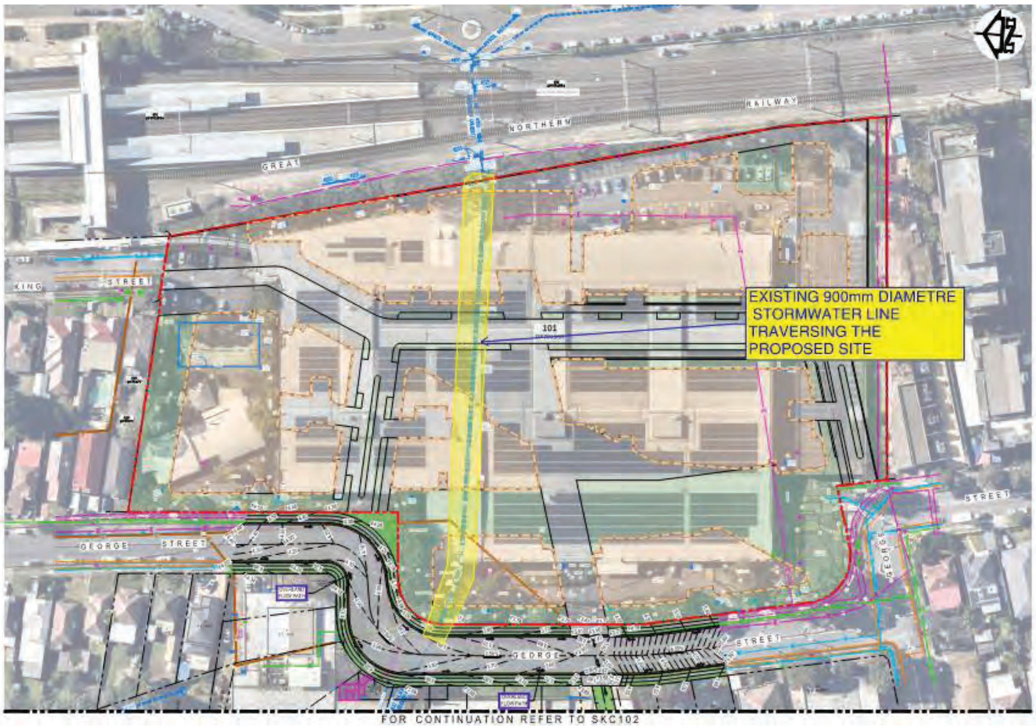


Figure 7 - Existing Council-Owned 900mm Diameter Stormwater Pipe Approximate Location

6.2 Proposed Stormwater Diversion and Flood Mitigation Stormwater Works (George St To Powells Creek)

The existing 900mm diameter stormwater pipe mentioned in section 6.1 of this report requires diversion to facilitate the construction of the proposed building works. The high-level proposed diversion and stormwater works within George St to Powells Creek can be found in Appendix B.

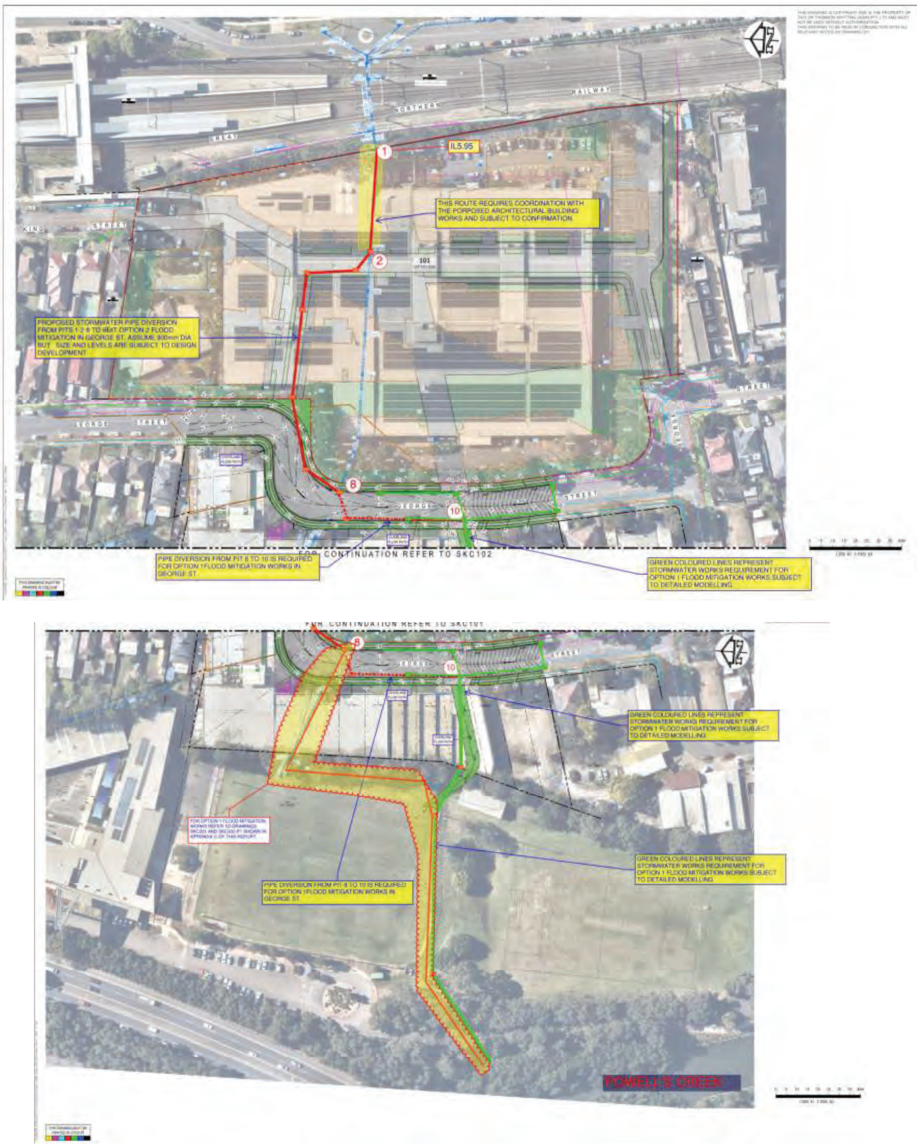


Figure 8 - Proposed Stormwater Diversion Works & Flood Mitigation works

7.0 Conclusion

T The 1 King Street site is located at the high point and therefore will work in both scenarios presented in Option 1 and Option 2 depending on direction from Council on preferred approach for the George Street regrading works.

This preliminary report provides a summary of the civil engineering/stormwater management and flooding requirements for the proposed development at 1 King Street, Concord West. The proposed options that are mentioned in this report are feasible to comply with the relevant planning and statutory requirements for flood, stormwater and level design.

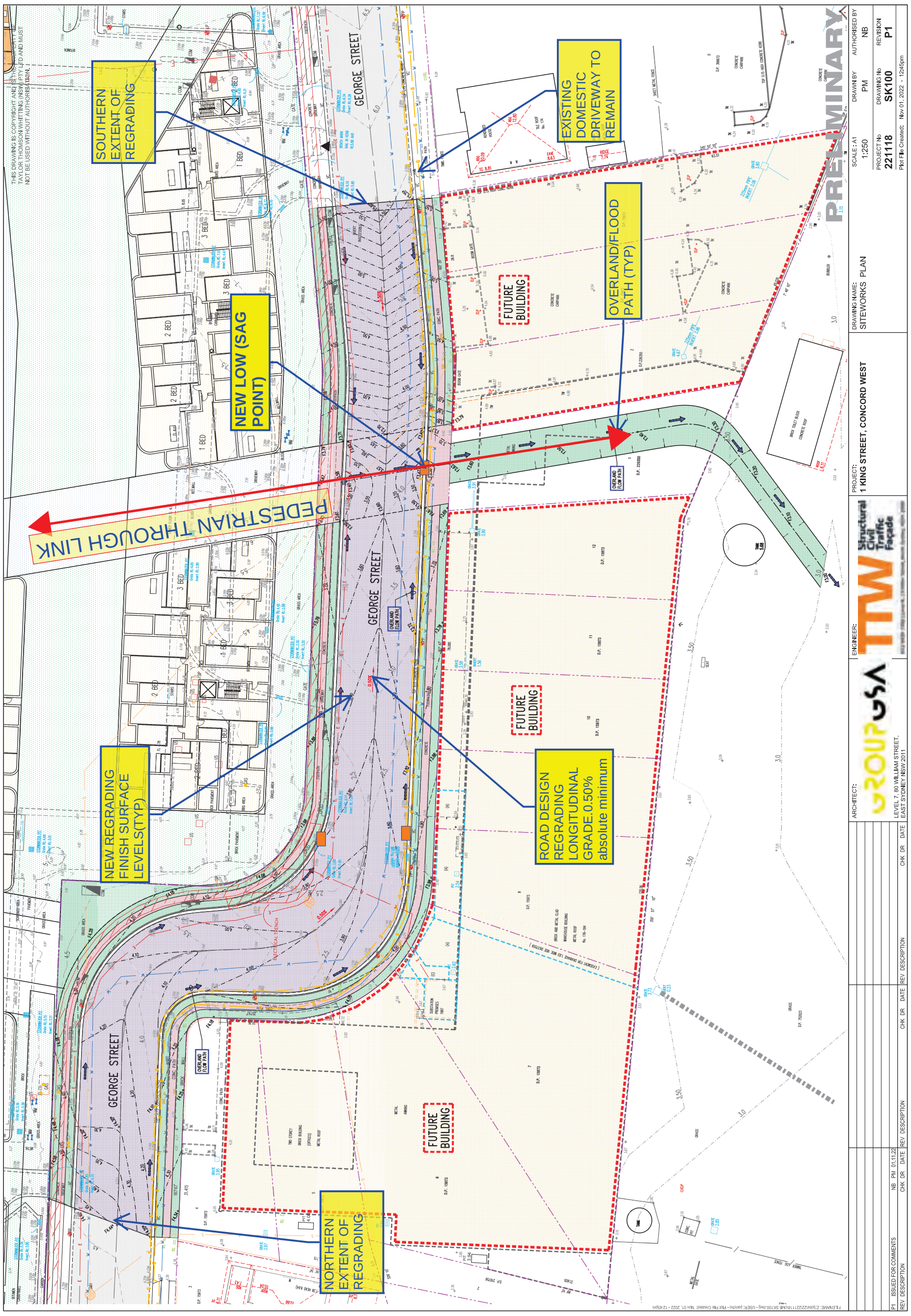
Prepared & Authorised by
TAYLOR THOMSON WHITTING (NSW) PTY LTD

NEMESIO BIASON JR, BE(CIVIL), MIEAUST, NER CPENG
Associate Director

P:\2022\2211\221118\Reports\TTW\Civil\Design Report\230727_Civil Design Report_nb.docx

Appendix A

Option 1 – Council Preferred Option


SOUTHERN EXTENT OF REGRADING
EXISTING DOMESTIC DRIVEWAY TO REMAIN
GEORGE STREET
OVERLAND/FLOOD PATH (TYP)
FUTURE BUILDING
NEW LOW (SAG POINT)
PEDESTRIAN THROUGH LINK
GEORGE STREET
FUTURE BUILDING
NEW REGRADING FINISH SURFACE LEVELS(TYP)
ROAD DESIGN REGRADING LONGITUDINAL GRADE 0.50% absolute minimum
GEORGE STREET
FUTURE BUILDING
NORTHERN EXTENT OF REGRADING
PRELIMINARY
SITEWORKS PLAN
1 KING STREET, CONCORD WEST
TTW
GROUPGSA
SK100
P1

Nemesio Biason Jr

From:	Mark Leong <Mark.Leong@canadabay.nsw.gov.au>
Sent:	Wednesday, 26 October 2022 5:27 PM
To:	Nemesio Biason Jr
Subject:	Conceptual Overland Flow paths - George St/King St
Attachments:	George St Draft Swale Layout 02.pdf; George St Draft Swale Layout 01-photo.pdf

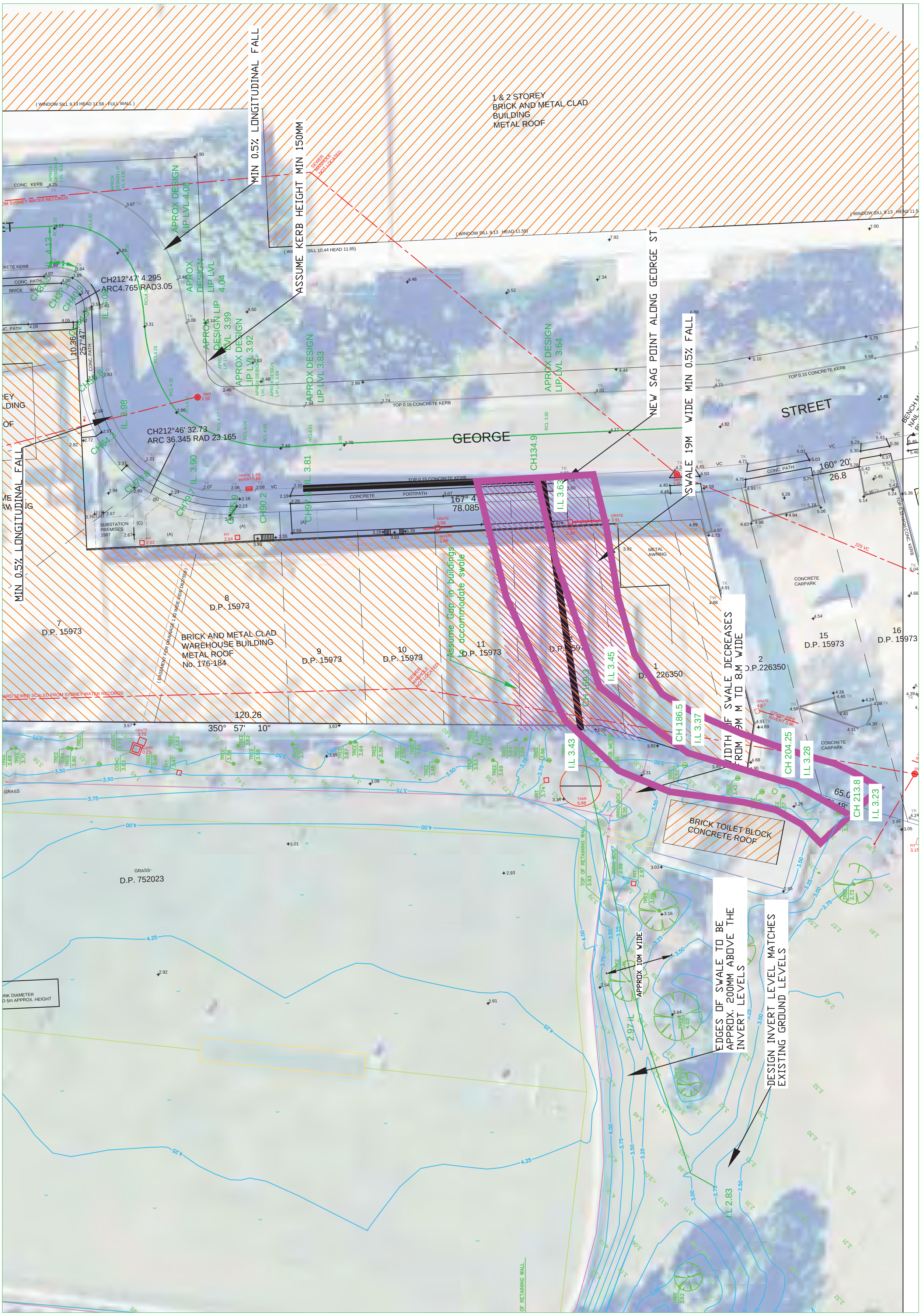
[External Email]: Do not click links or open attachments unless you recognize the sender and know the content is safe.

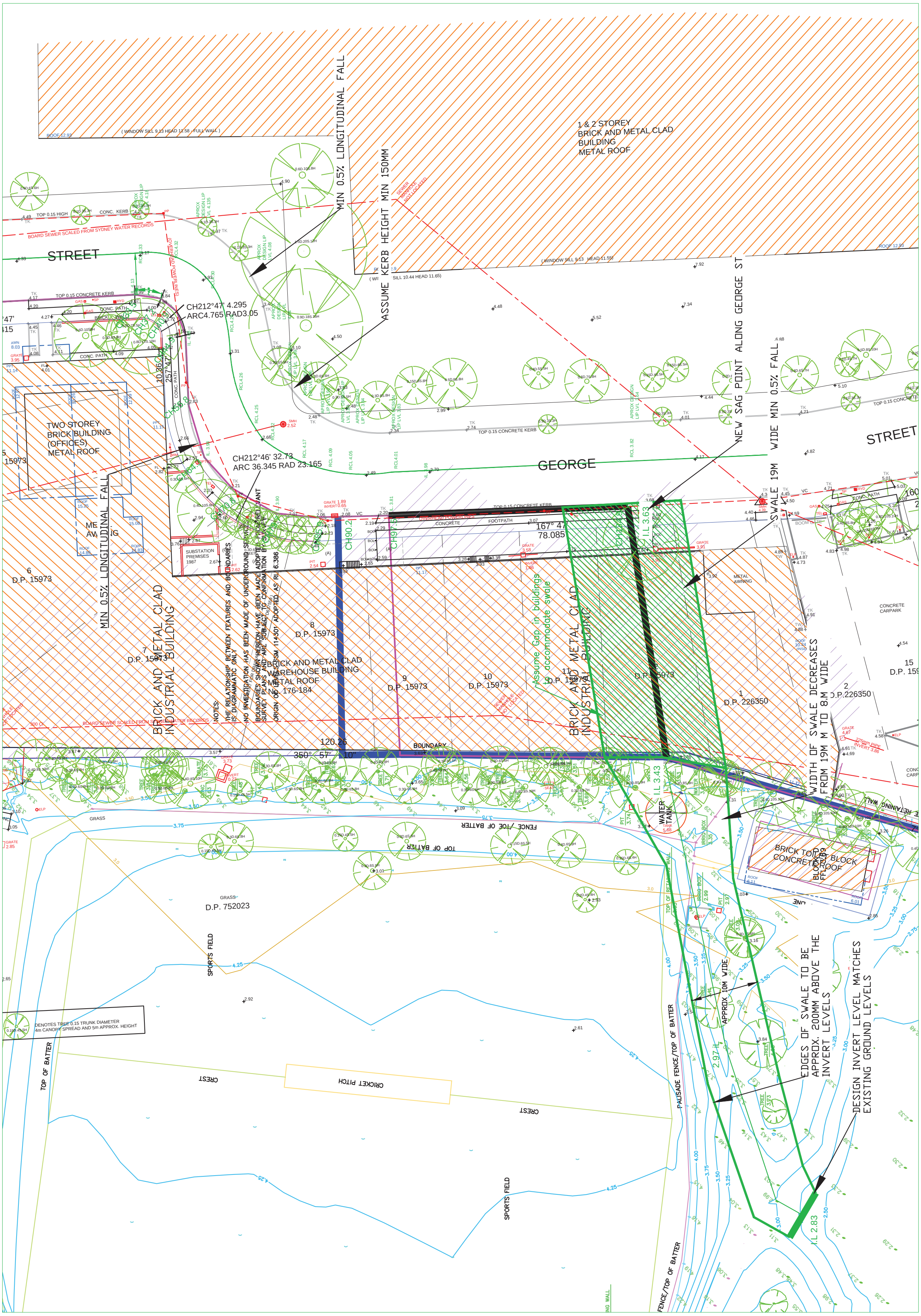
Hi Nem,
As requested, concept sketches are attached.

Regards
Mark Leong

Mark Leong | Infrastructure Project Manager
City of Canada Bay

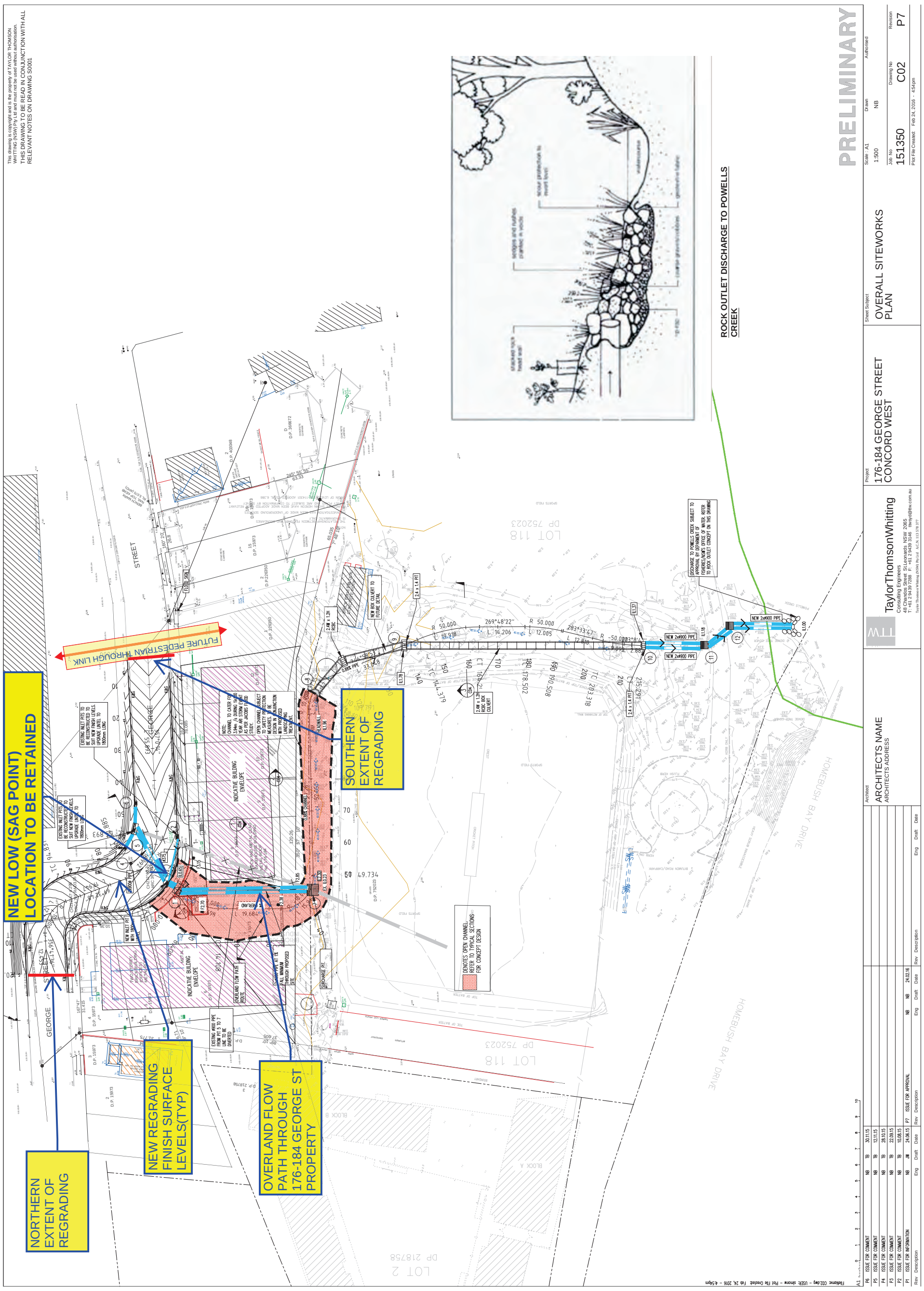
15-17 Regatta Road Five Dock NSW 2046 | www.canadabay.nsw.gov.au
T: 02 9911 6239 | Mark.Leong@canadabay.nsw.gov.au


MIN 0.5% LONGITUDINAL FALL
ASSUME KERB HEIGHT MIN 150MM
1 & 2 STOREY
BRICK AND METAL CLAD
BUILDING
METAL ROOF
NEW SAG POINT ALONG GEORGE ST
SWALE 19M WIDE MIN 0.5% FALL
GEORGE
STREET
MIN 0.5% LONGITUDINAL FALL
BRICK AND METAL CLAD
WAREHOUSE BUILDING
METAL ROOF
No. 176-184
Assume Gap in buildings to accommodate swale
BRICK TOILET BLOCK
CONCRETE ROOF
APPROX 10M WIDE
EDGES OF SWALE TO BE APPROX. 200MM ABOVE THE INVERT LEVELS
DESIGN INVERT LEVEL MATCHES EXISTING GROUND LEVELS
D.P. 752023
CONCRETE CARPARK


MIN 0.5% LONGITUDINAL FALL
ASSUME KERB HEIGHT MIN 150MM
1 & 2 STOREY BRICK AND METAL CLAD BUILDING METAL ROOF
STREET
GEORGE
TWO STOREY BRICK BUILDING (OFFICES) METAL ROOF
CH212°47' 4.295 ARC4.765 RAD3.05
CH212°46' 32.73 ARC 36.345 RAD 23.165
NEW SAG POINT ALONG GEORGE ST
SWALE 19M WIDE MIN 0.5% FALL
BRICK AND METAL CLAD INDUSTRIAL BUILDING
Assume Gap in buildings to accommodate swale
BRICK AND METAL CLAD WAREHOUSE BUILDING METAL ROOF No. 176-184
WIDTH OF SWALE DECREASES FROM 19M TO 8.M WIDE
EDGES OF SWALE TO BE APPROX. 200MM ABOVE THE INVERT LEVELS
DESIGN INVERT LEVEL MATCHES EXISTING GROUND LEVELS
APPROX 10M WIDE
IL 3.63
IL 3.43
IL 2.83
D.P. 15973
D.P. 752023
D.P. 226350
SPORTS FIELD
CRICKET PITCH
CREST
TOP OF BATTER
FENCE / TOE OF BATTER
WATER TANK
BRICK TOP BLOCK CONCRETE ROOF
DENOTES TREE 0.15 TRUNK DIAMETER 4m CANOPY SPREAD AND 5m APPROX. HEIGHT

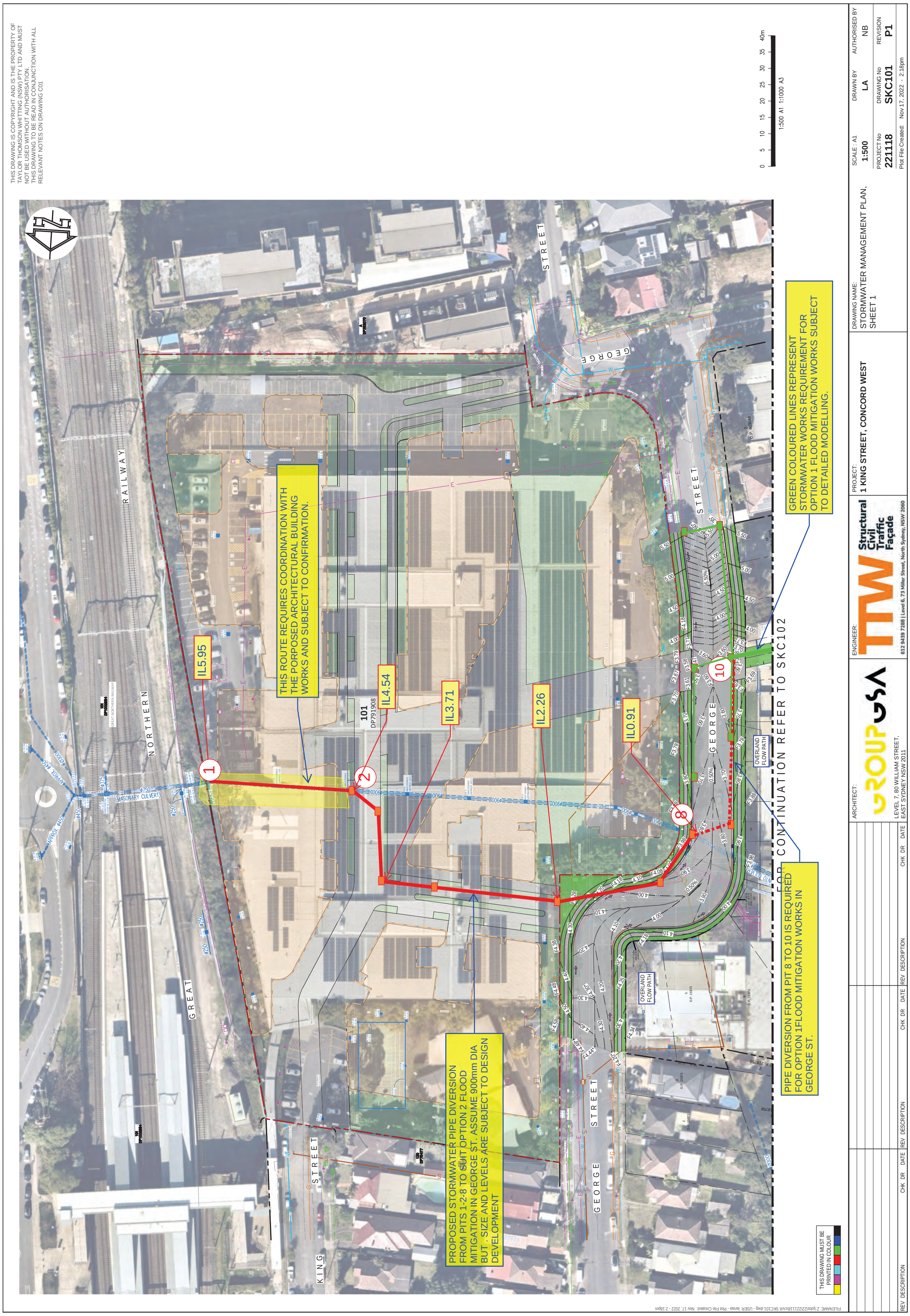
Appendix B

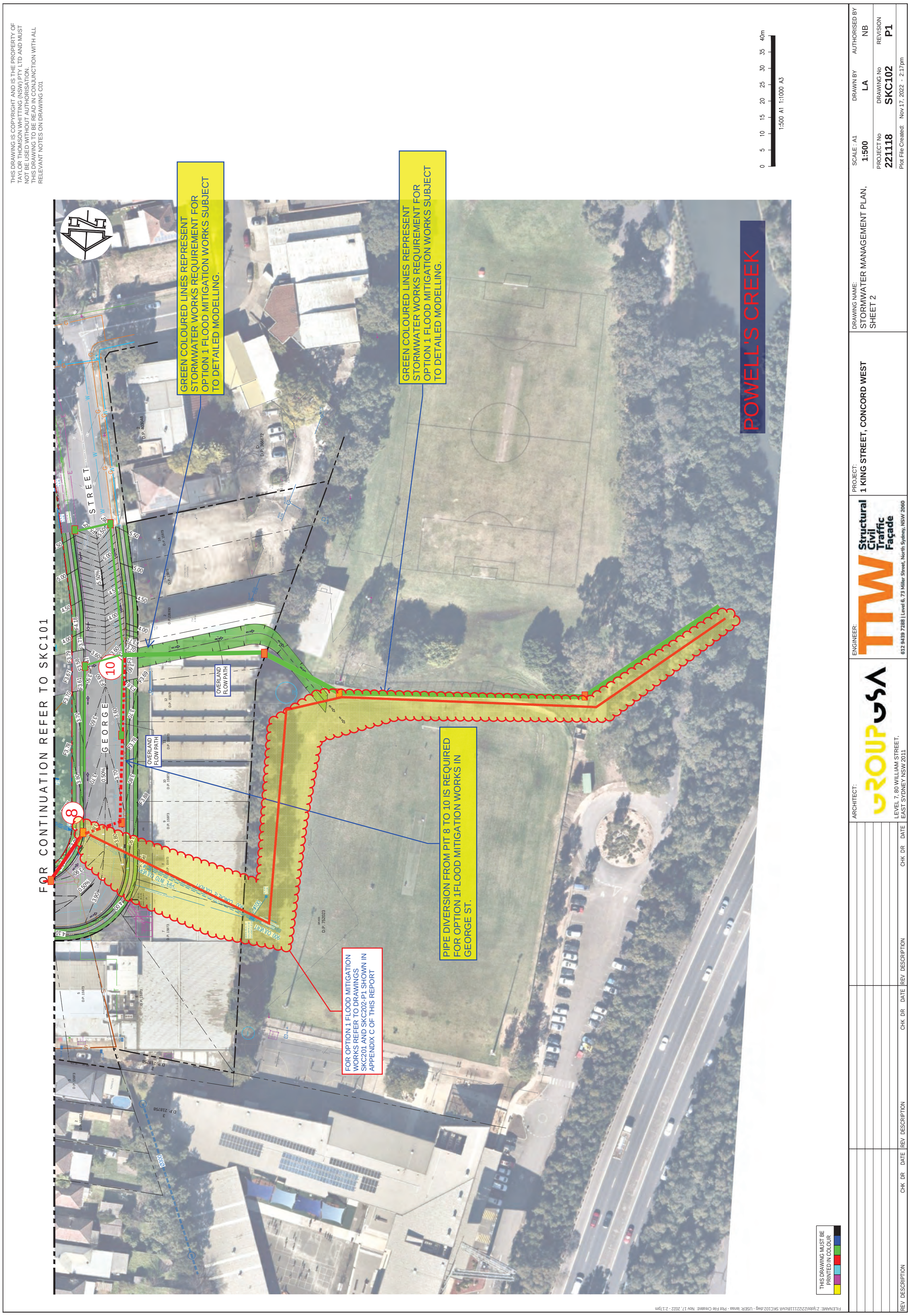
Option 2 – 176-184 George St Owner Preferred Option


NEW LOW (SAG POINT) LOCATION TO BE RETAINED
FUTURE PEDESTRIAN THROUGH LINK
SOUTHERN EXTENT OF REGRADING
NORTHERN EXTENT OF REGRADING
NEW REGRADING FINISH SURFACE LEVELS(TYP)
OVERLAND FLOW PATH THROUGH 176-184 GEORGE ST PROPERTY
GEORGE
STREET
LOT 118
DP 752023
LOT 2
DP 218758
HOMEBUSH BAY DRIVE
ROCK OUTLET DISCHARGE TO POWELLS CREEK
PRELIMINARY
ARCHITECTS NAME
ARCHITECTS ADDRESS
TaylorThomsonWhitting
176-184 GEORGE STREET CONCORD WEST
OVERALL SITEWORKS PLAN
151350
C02
P7

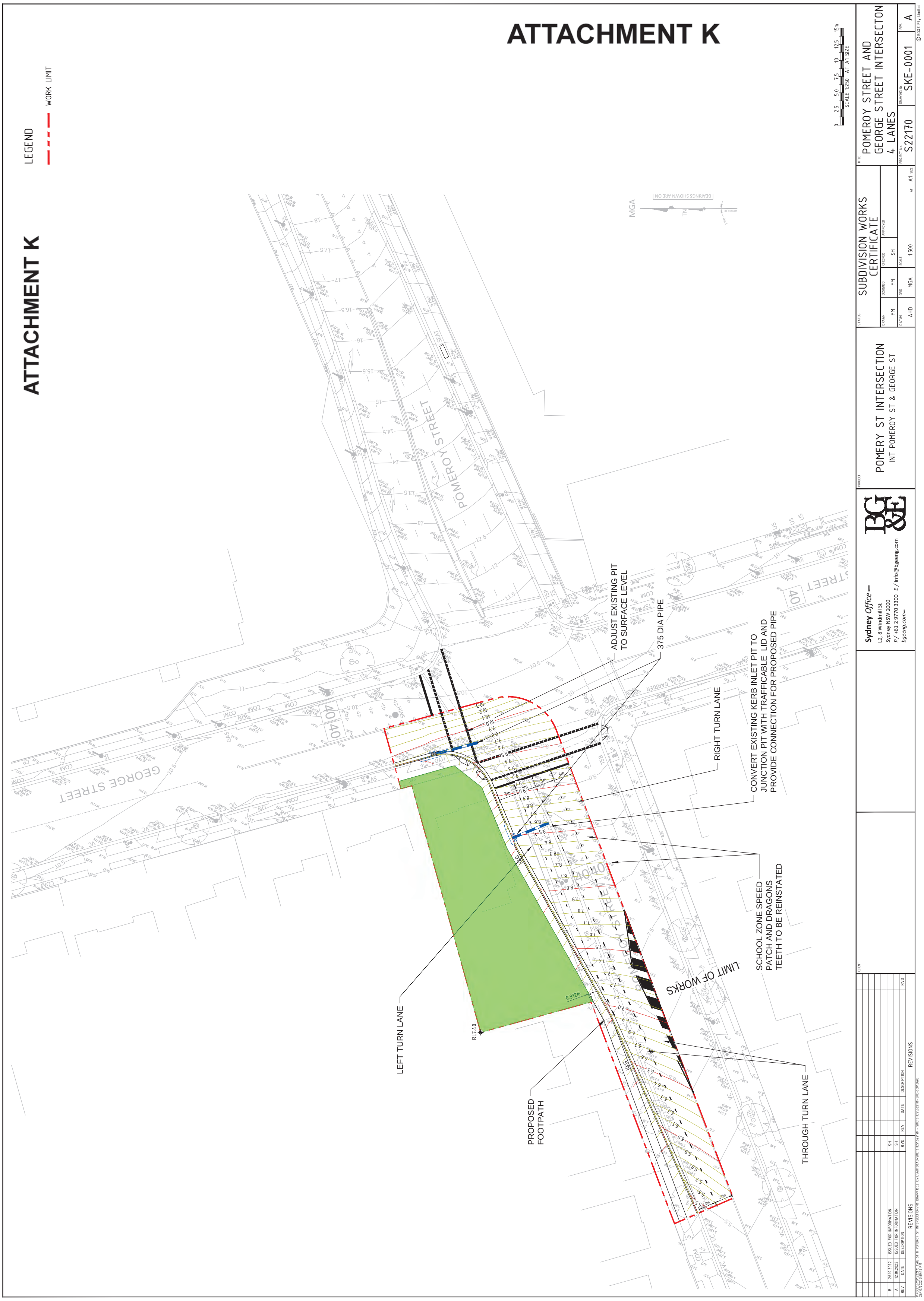
Appendix C

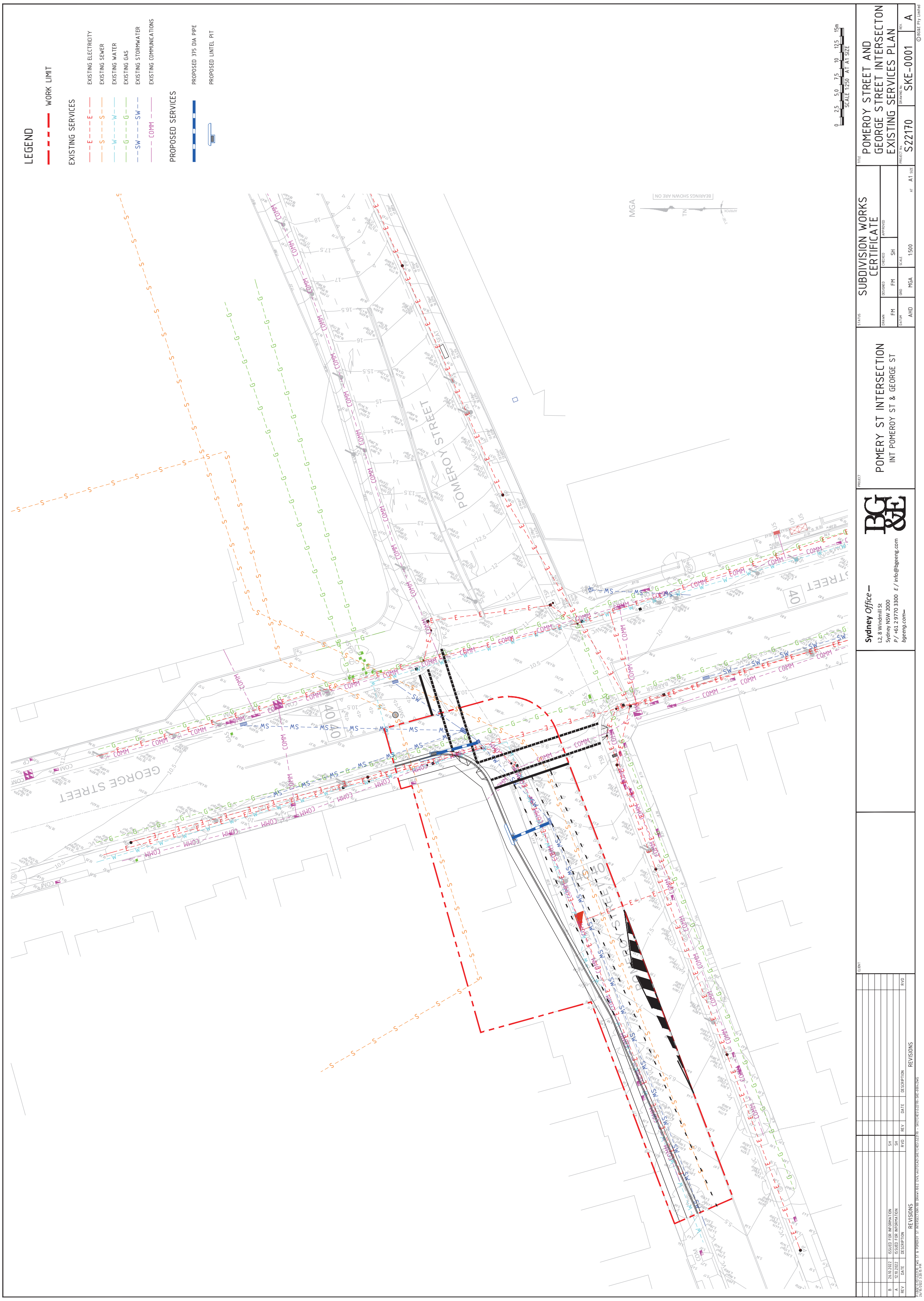
Schematic High-Level Stormwater works diversion and Flood Mitigation related stormwater works

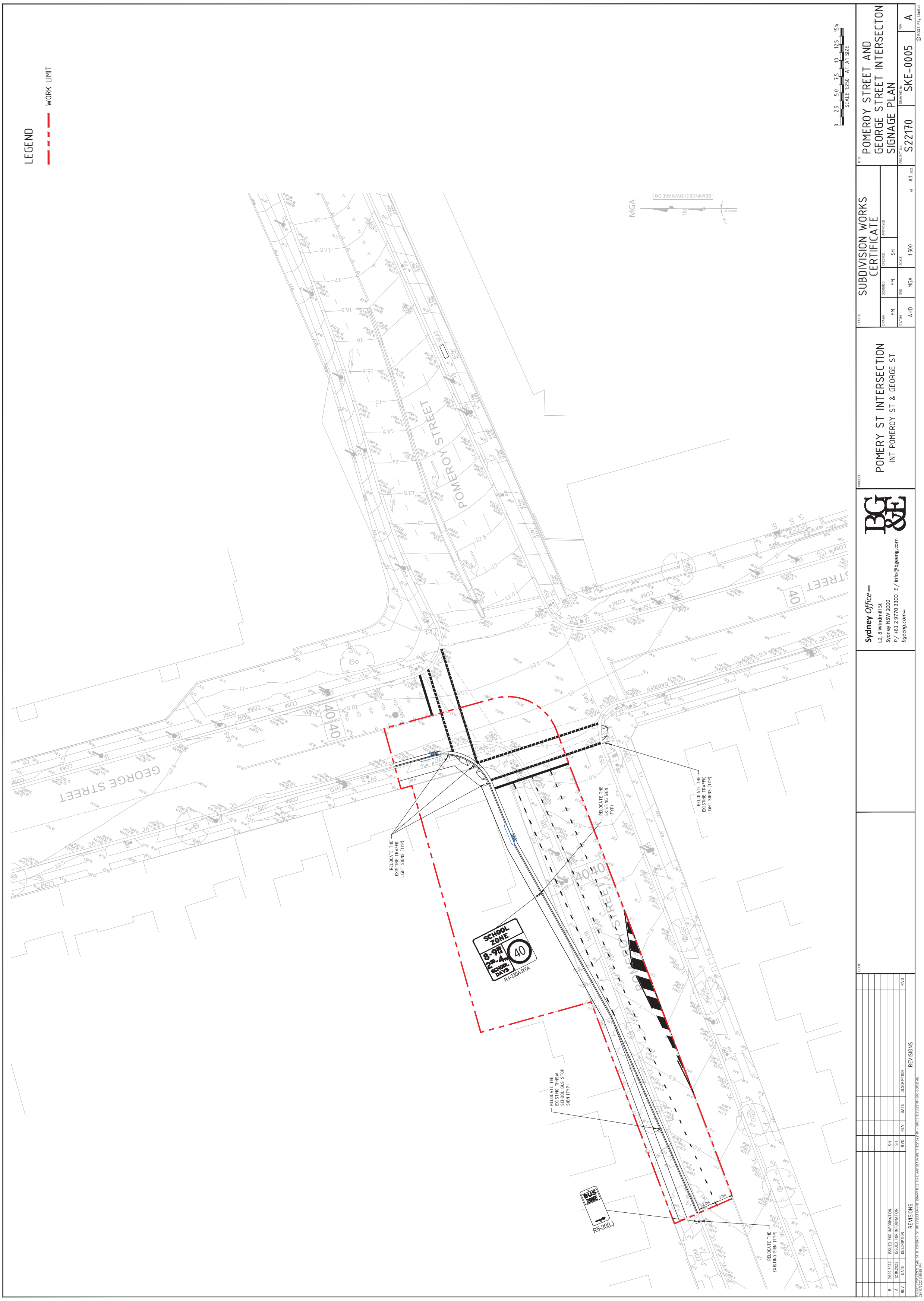

THIS DRAWING IS COPYRIGHT AND IS THE PROPERTY OF TAYLOR THOMSON WHITTING (NSW) PTY LTD AND MUST NOT BE USED WITHOUT AUTHORISATION. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT NOTES ON DRAWING C01
1:500 A1 1:1000 A3
THIS ROUTE REQUIRES COORDINATION WITH THE PORPOSED ARCHITECTURAL BUILDING WORKS AND SUBJECT TO CONFIRMATION.
IL5.95
IL4.54
IL3.71
IL2.26
IL0.91
101
DP791908
MASONARY CULVERT
NORTHERN RAILWAY
GREAT
KING STREET
GEORGE STREET
GREEN COLOURED LINES REPRESENT STORMWATER WORKS REQUIREMENT FOR OPTION 1 FLOOD MITIGATION WORKS SUBJECT TO DETAILED MODELLING.
FOR CONTINUATION REFER TO SKC102
OVERLAND FLOW PATH
PIPE DIVERSION FROM PIT 8 TO 10 IS REQUIRED FOR OPTION 1FLOOD MITIGATION WORKS IN GEORGE ST.
PROPOSED STORMWATER PIPE DIVERSION FROM PITS 1-2-8 TO SUIT OPTION 2 FLOOD MITIGATION IN GEORGE ST. ASSUME 900mm DIA BUT - SIZE AND LEVELS ARE SUBJECT TO DESIGN DEVELOPMENT
THIS DRAWING MUST BE PRINTED IN COLOUR
ARCHITECT:
GROUP GSA
LEVEL 7, 80 WILLIAM STREET, EAST SYDNEY NSW 2011
ENGINEER:
TTW
Structural Civil Traffic Façade
PROJECT:
1 KING STREET, CONCORD WEST
DRAWING NAME:
STORMWATER MANAGEMENT PLAN, SHEET 1
SCALE : A1 1:500
DRAWN BY LA
AUTHORISED BY NB
PROJECT No 221118
DRAWING No SKC101
REVISION P1
Plot File Created: Nov 17, 2022 - 2:18pm

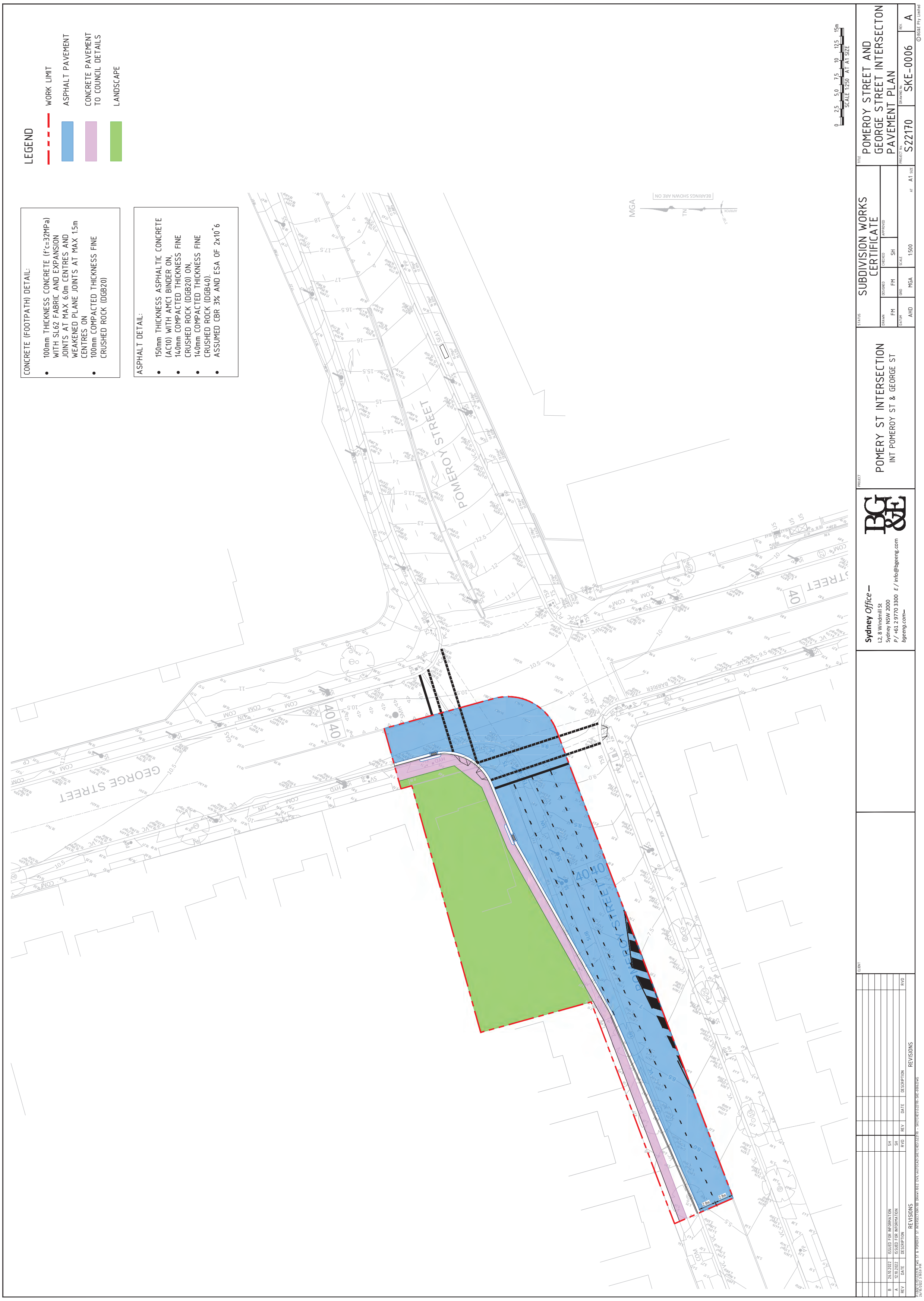

THIS DRAWING IS COPYRIGHT AND IS THE PROPERTY OF TAYLOR THOMSON WHITTING (NSW) PTY LTD AND MUST NOT BE USED WITHOUT AUTHORISATION. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT NOTES ON DRAWING C01
FOR CONTINUATION REFER TO SKC101
GREEN COLOURED LINES REPRESENT STORMWATER WORKS REQUIREMENT FOR OPTION 1 FLOOD MITIGATION WORKS SUBJECT TO DETAILED MODELLING.
GREEN COLOURED LINES REPRESENT STORMWATER WORKS REQUIREMENT FOR OPTION 1 FLOOD MITIGATION WORKS SUBJECT TO DETAILED MODELLING.
POWELL'S CREEK
GEORGE STREET
OVERLAND FLOW PATH
OVERLAND FLOW PATH
10
8
PIPE DIVERSION FROM PIT 8 TO 10 IS REQUIRED FOR OPTION 1FLOOD MITIGATION WORKS IN GEORGE ST.
FOR OPTION 1 FLOOD MITIGATION WORKS REFER TO DRAWINGS SKC201 AND SKC202-P1 SHOWN IN APPENDIX C OF THIS REPORT
0 5 10 15 20 25 30 35 40m
1:500 A1 1:1000 A3
THIS DRAWING MUST BE PRINTED IN COLOUR
ARCHITECT: GROUP GSA LEVEL 7, 80 WILLIAM STREET, EAST SYDNEY NSW 2011
ENGINEER: TTW Structural Civil Traffic Façade
PROJECT: 1 KING STREET, CONCORD WEST
DRAWING NAME: STORMWATER MANAGEMENT PLAN, SHEET 2
SCALE : A1 1:500
DRAWN BY LA
AUTHORISED BY NB
PROJECT No 221118
DRAWING No SKC102
REVISION P1
Plot File Created: Nov 17, 2022 - 2:17pm
REV DESCRIPTION CHK DR DATE

ATTACHMENT K




LEGEND
WORK LIMIT
EXISTING SERVICES
EXISTING ELECTRICITY
EXISTING SEWER
EXISTING WATER
EXISTING GAS
EXISTING STORMWATER
EXISTING COMMUNICATIONS
PROPOSED SERVICES
PROPOSED 375 DIA PIPE
PROPOSED LINTEL PIT
POMEROY STREET
GEORGE STREET
SUBDIVISION WORKS CERTIFICATE
POMERY ST INTERSECTION
INT POMEROY ST & GEORGE ST
Sydney Office
L2, 8 Windmill St
Sydney NSW 2000
P/ +61 2 9770 3300 E / info@bgeeng.com
bgeeng.com
POMEROY STREET AND GEORGE STREET INTERSECTON EXISTING SERVICES PLAN
S22170
SKE-0001
A
REVISIONS


LEGEND
WORK LIMIT
POMEROY STREET
GEORGE STREET
SCHOOL ZONE
R4-230A-RTA
R5-20(L)
SUBDIVISION WORKS CERTIFICATE
POMERY ST INTERSECTION
INT POMEROY ST & GEORGE ST
POMEROY STREET AND GEORGE STREET INTERSECTON SIGNAGE PLAN
S22170
SKE-0005
A


LEGEND
WORK LIMIT
ASPHALT PAVEMENT
CONCRETE PAVEMENT TO COUNCIL DETAILS
LANDSCAPE
CONCRETE (FOOTPATH) DETAIL:
• 100mm THICKNESS CONCRETE (f'c=32MPa) WITH SL62 FABRIC AND EXPANSION JOINTS AT MAX 6.0m CENTRES AND WEAKENED PLANE JOINTS AT MAX 1.5m CENTRES ON
• 100mm COMPACTED THICKNESS FINE CRUSHED ROCK (DGB20)
ASPHALT DETAIL:
• 150mm THICKNESS ASPHALTIC CONCRETE (AC10) WITH AMC1 BINDER ON,
• 140mm COMPACTED THICKNESS FINE CRUSHED ROCK (DGB20) ON,
• 140mm COMPACTED THICKNESS FINE CRUSHED ROCK (DGB40).
• ASSUMED CBR 3% AND ESA OF 2x10^6
POMEROY STREET
GEORGE STREET
MGA
Sydney Office –
L2, 8 Windmill St
Sydney NSW 2000
P/ +61 2 9770 3300 E/ info@bgeeng.com
bgeeng.com
POMERY ST INTERSECTION
INT POMEROY ST & GEORGE ST
SUBDIVISION WORKS CERTIFICATE
POMEROY STREET AND GEORGE STREET INTERSECTION PAVEMENT PLAN
S22170
SKE-0006
A
REVISIONS

ATTACHMENT L

Cost Plan 1 – 1 King Street, Concord West Precinct

George and Pomeroy Street Intersection Upgrade

6 December 2022

Submitted to:

Billbergia

Thomas Gregg

0431 906 201

thomas.gregg@billbergia.com.au

Document Title:

George and Pomeroy Street
Intersection Upgrade

Project No: 71130.104797.000

Reviewed by:

Altus Group Cost Management Pty Ltd

Ben Mules | Associate Director

0412 426 972

ben.mules@altusgroup.com

Prepared by:

Altus Group Cost Management Pty Ltd

Duncan Ferenczy | QS

CONTENTS

DOCUMENT CONTROL:

Version	Issue Date	Details	Prepared By	Review By
Draft for Discussion	16/11/22	Construction Cost Estimate	Duncan Ferenczy (QS)	Ben Mules (Associate Director)
Draft for Discussion V1	29/11/22	Construction Cost Estimate	Duncan Ferenczy (QS)	Ben Mules (Associate Director)
0	6/12/22	Construction Cost Estimate	Duncan Ferenczy (QS)	Ben Mules (Associate Director)

1. Introduction & Basis of Cost Plan

1.1 Introduction

Altus Group (AG) has been requested by Billbergia to prepare a high-level Construction Cost Estimate for the upgrade works to the George and Pomeroy Street intersection at North Strathfield. The project will see the demolition of an existing residential property and introduction of an additional left hand turning lane along with other road and footpath upgrades.

This Construction Cost Estimate will include:

- George and Pomeroy Street Intersection Upgrade Estimate

Please refer to the flowing summaries, estimate and appendices for details

1.2 Documentation

We have utilised the following information in preparing our report:

- Drawings Package / Email Correspondence / Site Photography
    - S22170-SKE-0001-A
    - S22170-SKE-0004-A
    - S22170-SKE-0005-A
    - S22170-SKE-0006-A
    - 220472_SK-001_[P1]_Ausgrid Asset Relocation Sketch_22021129

2. Cost Summary

2.1 Cost Summary

We have carried out our Construction Cost Estimates for the demolition of an existing residential property and introduction of an additional left hand turning lane along with other road, traffic control, lighting, services and footpath upgrades

ITEM	DESCRIPTION	Qty	Unit (m2)	TOTAL
1	DEMOLITION AND PREPARATION	1607	m2	$ 718,600.00
2	PEDESTRIAN ENHANCEMENTS	1607	m2	$ 64,170.45
3	ROAD WORKS	1607	m2	$ 534,656.30
4	SOFT LANDSCAPING	1607	m2	$ 205,008.75
5	SERVICES	1607	m2	$ 1,157,750.00
6	TRAFFIC CONTROL	1607	m2	$ 64,800.00
7	SUBTOTAL	1607	m2	$ 2,744,985.50
8	PRELIMINARIES	1607	m2	$ 420,000.00
9	MARGIN	1607	m2	$ 320,000.00
10	STAGING ALLOWANCE	1607	m2	$ 270,000.00
11	TOTAL CONSTRUCTION COSTS (EXCL. GST)	1607	m2	$ 3,754,985.50
12	AUTHORITY & COUNCIL FEES	1607	m2	$ 83,000.00
13	TOTAL (EXCL. GST)	1607	m2	$ 3,837,985.50
14	DESIGN CONTINGENCY	1607	m2	$ 640,000
15	CONSTRUCTION CONTINGENCY	1607	m2	$ 490,000
16	PROJECT TOTAL INCLUDING CONTINGENCY	1607	m2	$ 4,967,985.50
17	EXISTING DWELLING - DEVELOPER COSTS & PROFESSIONAL FEES	1607	m2	$ 123,750
18	CIVIL WORKS - DEVELOPER COSTS & PROFESSIONAL FEES	1607	m2	$ 599,500
19	PROJECT TOTAL INCLUDING DEVLOPER COSTS & PROFESSIONAL FEES	1607	m2	$ 5,691,235.50

3. Methodology & Key Assumptions

3.1 Cost Methodology & Approach

Altus Groups approach to pricing the Construction Cost Estimate was as follows;

- Reviewed documentation provided to us in forming our assessment
- Prepared our estimate as a conservative estimate, noting the that minimal detailed information is currently available for these works
- We have allowed for the addition of four new smart light poles under direction of Billbergia
- Included for preliminaries, margin, out of hours allowance, professional fees, developer costs, authority and council fees, design contingency, construction contingency
- Included for a 25% cost increase in design contingency for drawings provided by engineers as per the direction of Billbergia via E-mail (dated 28.11.22). this allowance is to cover design risk of the pavement.
- Staged night works to minimize disruption to the public
- Included for the following provisional sum allowances;
    - The removal and disposal of hazardous / contaminated material
    - The containment, removal, and disposal of asbestos and asbestos related materials
    - The upgrade of traffic signals
    - Working within proximity to HV lines
    - Install and commission new kiosk
    - Works that may be required to undocumented / scoped utilities such as gas, water, etc.
    - Relocations of existing services pits

4. Exclusions

The following has been excluded from our cost estimate:

- Any works outside of the scope is considered unrelated to the event
- Costs associate with the acquisition of land
- GST
- Long Service Levy
- Land costs
- Legal fees
- Finance costs
- Escalation past Nov 2022
- All other exclusions as noted in the cost estimate

5. Cost Plan

AltusGroup

Client: Billbergia
Project: 1 King Street, Concord West
Report: Cost Plan 1.1 - Copy

Ref.	Description	Quantity	Unit	Rate	Total
1	**Pomeroy St Intersection**				
2	DEMOLITION AND PREPARATION	1,607	m2	447	718,600.00
3	PEDESTRIAN ENHANCEMENTS	1,607	m2	40	64,170.45
4	ROAD WORKS	1,607	m2	333	534,656.30
5	SOFT LANDSCAPING	1,607	m2	128	205,008.75
6	SERVICES	1,607	m2	720	1,157,750.00
7	TRAFFIC CONTROL	1,607	m2	40	64,800
8	**SUBTOTAL**	1,607	m2	1,708	**2,744,985.50**
9	PRELIMINARIES	1,607	m2	261	420,000.00
10	MARGIN	1,607	m2	199	320,000.00
11	STAGING ALLOWANCE	1,607	m2	168	270,000.00
12	**TOTAL CONSTRUCTION COSTS (EXCL. GST)**	**1,607**	**m2**	**2,337**	**3,754,985.50**
13	AUTHORITY & COUNCIL FEES	1,607	m2	52	83,000.00
14	**TOTAL (EXCL. GST)**	**1,607**	**m2**	**2,388**	**3,837,985.50**
15	DESIGN CONTINGENCY	1,607	m2	398	640,000.00
16	CONSTRUCTION CONTINGENCY	1,607	m2	305	490,000.00
17	**PROJECT TOTAL INCLUDING CONTINGENCY**	**1,607**	**m2**	**3,091**	**4,967,985.50**
18	EXISTING DWELLING - DEVELOPER COSTS & PROFESSIONAL FEES	1,607	m2	77	123,750
19	CIVIL WORKS - DEVELOPER COSTS & PROFESSIONAL FEES	1,607	m2	373	599,500
20	**PROJECT TOTAL INCLUDING DEVLOPER COSTS & PROFESSIONAL FEES**	**1,607**	**m2**	**3,542**	**5,691,235.50**

Altus Group

Client: Billbergia
Project: 1 King Street, Concord West
Report: Cost Plan 1.1 - Copy

Ref.	Description	Quantity	Unit	Rate	Total
2	**DEMOLITION AND PREPARATION**				
2.1	**Preparation**				
2.2	Note; Allowance to protect existing trees assumed to be excluded		note		EXCL
2.3	Allow for in ground investigation before demolition and preparation works begin	1	item	12,500.00	12,500
2.4	Allow to de-commission existing kiosk	1	item	40,250.00	40,250
2.5	Allow to protect existing services	1	item	12,500.00	12,500
2.6	Allow to remove traffic lights	1	item	31,250.00	31,250
2.7	Allow to remove the below street signage for reinstatement at a later date;	1	item	6,250.00	6,250
2.8	> Bus Zone signage		note		INCL
2.9	> School Zone signage		note		INCL
2.10	> Traffic Light signage		note		INCL
2.11	> Street name signage		note		INCL
2.12	**Demolition**				
2.13	Existing Property				
2.14	Note; We have based our existing property demolition prices on a cost / m2 basis.		note		NOTE
2.15	Allow to demolish and remove single story property on the corner of Pomeray and George Street including land clearing, grading, retaining, turfing and backfilling.	1	Item	56,250.00	56,250
2.16	e/o to demolish the remainder of the above property	455	m2	37.50	17,063
2.17	Allow to reinstate boundary fence	58	m	150.00	8,700
2.18	Roads & Footpath				
2.19	Allowance to demolish, excavate and remove existing kerb and gutter, road and footpath to the corner of Pomeray and George Street, North Strathfield	982	m2	125.00	122,750
2.20	E/O to above for disposal of debris	1	Item	78,500.00	78,500
2.21	Site Clear and prep				
2.22	Allowance to clear and prepare site of debris and prepare base for construction	1,607	m2	12.50	20,088
2.23	Contamination				
2.24	Provisional allowance for the removal and disposal of hazardous / contaminated material	1	Prov. Sum	250,000.00	250,000
2.25	Provisional sum allowance for the containment, removal and disposal of asbestos and asbestos related materials	1	Prov. Sum	62,500.00	62,500
				DEMOLITION AND PREPARATION TOTAL	**718,600**

Altus Group

Client: Billbergia
Project: 1 King Street, Concord West
Report: Cost Plan 1.1 - Copy

Ref.	Description	Quantity	Unit	Rate	Total
3	**PEDESTRIAN ENHANCEMENTS**				
3.1	Footpath				
3.2	Allowance to construct 100mm thick concrete (32 MPa) footpath with SL62 Fabric in conjunction with 100mm compacted fine crushed (DGB20) rock situated below	124	m2	165.00	20,460
3.3	Allowance to form junction between existing footpath surfaces	1	item	6,250.00	6,250
3.4	Kerb & Gutter				
3.5	Allowance to construct concrete kerb and gutter to run in conjunction the to above new footpath	91	m	220.00	19,961
3.6	Allowance to form junction between existing kerb and gutters	1	item	2,500.00	2,500
3.7	Allowance to				
3.8	Pram Ramps				
3.9	Allowance to construct pram ramps to pedestrian junction points at Pomeroy and George Street.	2	no	7,500.00	15,000
				PEDESTRIAN ENHANCEMENTS TOTAL	**64,170**
4	**ROAD WORKS**				
4.1	Asphalt Road				
4.2	Allowance to construct 150mm thick asphalt concrete (AC10) with AMC1 binder in conjunction with 140mm compacted fine crushed (DGB20) rock and 140mm compacted fine crushed (DGB40) rock situated below.	831	m2	265.00	220,215
4.3	E/O to above for undocumented detail / design requirements TBC	1	Item	70,000.00	70,000
4.4	Allowance to form junction between existing road and new	1	item	52,500.00	52,500
4.5	Allowance to upgrade existing subbase as required (Further specification required)	1	Prov Sum	162,500.00	162,500
4.6	Linemarking				
4.7	Note: AG has assumed Thermoplastic materials are being applied		note		NOTE
4.8	Allow to grind off existing line marking to align with new intersection layout	1	item	8,750.00	8,750
4.9	Allow for road line marking - 100mm wide	156	m	12.50	1,956
4.10	Allow for road line marking - Double 100mm wide	73	m	20.00	1,463
4.11	Allow for pedestrian crossing line marking	69	m	20.00	1,372
4.12	Allow for directional turning arrow	1	item	900	900
4.13	Allow for School zone speed patch and dragons teeth	1	item	2,500.00	2,500
4.14	Allow for additional line marking / painting not specified	1	item	12,500.00	12,500
				ROAD WORKS TOTAL	**534,656**
5	**SOFT LANDSCAPING**				
5.1	Allow for landscaping in accordance with Canada Bay Council including new turf, trees ground, groundcover and shrubs	547	m2	375.00	205,009
				SOFT LANDSCAPING TOTAL	**205,009**

Altus Group

Client: Billbergia
Project: 1 King Street, Concord West
Report: Cost Plan 1.1 - Copy

Ref.	Description	Quantity	Unit	Rate	Total
6	**SERVICES**				
6.1	Traffic Signals				
6.2	Provisional allowance to upgrade existing traffic signals	1	Prov. Sum	320,000.00	320,000
6.3	Street Lighting				
6.4	Allowance for the installation of new smart light pole connected into existing lighting grid	4	no	55,000.00	220,000
6.5	Stormwater Drainage				
6.6	Allowance to convert existing kerb inlet pit to junction pit with trafficable lid and provide connection for proposed 375 diameter pipe	1	item	12,500.00	12,500
6.7	Allowance to adjust existing pit to surface level and provide connection for proposed 375 diameter pipe	1	item	5,000.00	5,000
6.8	Allowance to reconnect stormwater to main stormwater line	2	No	750.00	1,500
6.9	Allowance to interface drainage details between new and existing pavement types	1	item	18,750.00	18,750
6.10	Electrical Services				
6.11	Provisional sum allowance for working within close proximity to HV lines	1	Prov. Sum	25,000.00	25,000
6.12	Allow to install and commission new kiosk including footing / piers, slab, retaining wall, site leveling and drainage	1	Prov. Sum	345,000.00	345,000
6.13	Provisional sum allowance for working within close proximity to HV lines	1	Prov. Sum	25,000.00	25,000
6.14	Sundry, Utilities, Gas, Water, Comms Etc.				
6.15	Provisional allowance to relocate existing pits	1	Prov. Sum	60,000.00	60,000
6.16	Provisional Sum for works that may be required to undocumented/scoped utilities such as gas, water, etc.	1	Prov. Sum	125,000.00	125,000
				SERVICES TOTAL	**1,157,750**
7	**TRAFFIC CONTROL**				
7.1	Allowance for traffic control (assumed 4 men x 12 week x 10 hour days)	480	hr	135.00	64,800
				TRAFFIC CONTROL TOTAL	**64,800**