

TRAFFIC & PARKING REPORT

171 – 179 Great North Road & 1A – 1B
Henry Street, Five Dock

PREPARED FOR:
Traders in Purple

REFERENCE:
0796r01v03

DATE:
19/12/2023

Traders
In
Purple

sydney
anglicans⁺

ANGLICAN CHURCH
GROWTH CORPORATION



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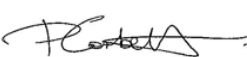
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1. Introduction

1.1. Overview

PDC Consultants has been commissioned by Traders in Purple to prepare a traffic and parking report to support a Planning Proposal (PP) relating to a proposed mixed-use development for the site at 171 – 179 Great North Road & 1A – 1B Henry Street, Five Dock. Section 1.2 provides a detailed description of the PP. In a traffic and parking perspective, key features of the contemplated development scheme are as follows:

- 162 residential apartments including:
 - 137 standard apartments.
 - 25 affordable rental housing (ARH) apartments.
- A childcare centre, commercial and retail floor areas with a combined gross floor area (GFA) of 1,930m².
- Retention of the heritage St Alban's church building and construction of new church facilities providing a combined GFA of 1,160m².
- Five levels of basement car parking providing 277 car spaces.
- A loading dock on Ground Floor that can accommodate service vehicles up to and including a 12.5-metre-long Heavy Rigid Vehicle (HRV).
- Two vehicle access driveways including:
 - A 7.6-metre wide driveway onto Henry Street serving the basement car park.
 - A 7.0-metre-wide driveway onto East Street serving the loading dock.

It is noted that the proposed development is of a scale that will require referral of the PP to Transport for New South Wales (TfNSW), under the provisions of the State Environmental Planning Policy (Transport and Infrastructure) 2021.

The site is located in the City of Canada Bay Council local government area (LGA) and accordingly, the proposed development has been assessed in accordance with City of Canada Bay Development Control Plan 2023 (CDCP) and City of Canada Bay Local Environmental Plan 2013 (CLEP).

1.2. Proposal

The PP seeks to deliver increased housing, commercial and retail land uses within a highly accessible location which will optimise the infrastructure investment of Sydney Metro West.

Specifically, the PP seeks to amend the Canada Bay Local Environmental Plan 2013 as follows:

- Amend the height of buildings control from 15 metres to 75 metres, and

- Amend the floor space ratio control from 2.5:1 to 4.5:1.

A reference design scheme has been prepared by Carter Williamson which demonstrates how the site is intended to be developed under the proposed amendments.

The reference design scheme supports a mixed-use development at the site that responds to the significant infrastructure investment that is Sydney Metro West, whilst considerate to the existing local character and heritage buildings. Key elements of the reference design are:

- Demolish existing buildings and structures on site with the exception of St Alban's Anglican Church, St Alban's Anglican Church Rectory and St Alban's Church Shops,
- Construct two x 20 storey mixed use buildings with four storey podium levels to accommodate:
 - Ground floor Retail, Community/ Church facilities.
 - Commercial and Community/ Church facilities – level 1.
 - Residential, Church facilities – level 2-3.
 - Residential – levels 4-19.
 - Podium level common enclosed and outdoor spaces (NW tower only).
 - Rooftop common enclosed & outdoor space (SE tower only).
 - Rooftop plant & lift overruns (both towers).
 - Basement level car parking for Church, residents, commercial, Childcare and retail use and associated services, plant, storage, etc.
 - A 4-storey building and rooftop open space area to the rear of St Alban's Church Shops to accommodate a future childcare centre that includes the former shop building on 2 levels to the street.
 - A new Hall behind St Alban's Church Rectory on East Street, with two levels of church facilities over and rooftop open space.
 - A new publicly accessible open space and through site link within the site linking Henry Street with the new Metro Station,
 - A new covered forecourt area (not fully enclosed) in front of St Alban's Church along East Street, and
 - Restoration, maintenance and renovation works of existing St Alban's Church, Rectory and Shops.

1.3. Structure of this Report

This report documents the findings of our investigations in relation to the anticipated traffic and parking impacts of the PP and should be read in the context of the Statement of Environmental Effects, prepared separately. The remainder of this report is structured as follows:

- Section 2: Describes the site and existing traffic and parking conditions in the locality.
- Section 3: Describes the PP.
- Section 4: Assesses the parking requirements of the PP.
- Section 5: Assesses the traffic impacts of the PP.
- Section 6: Discusses the proposed access and internal design arrangements.
- Section 7: Presents the overall study conclusions.

1.4. References

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

- City of Canada Bay Local Environmental Plan 2013 (CLEP).
- City of Canada Bay Development Control Plan 2023 (CDCP).
- NSW Child Care Planning Guideline 2021 (CCPG).
- State Environmental Planning Policy (Transport and Infrastructure) 2021 (SEPP T&I 2021).
- State Environmental Planning Policy (Housing) 2021 (Housing SEPP).
- Integrated Public Transport Service Planning Guideline, Sydney Metropolitan Area 2013 (Integrated Public Transport Planning Guidelines 2013).
- RMS Validation Trip Generation Surveys – Childcare Centres Analysis Report, September 2015 (CCC Analysis Report).
- Australian Standard AS 2890.1-2004, Part 1: Off-Street Car Parking (AS 2890.1).
- Australian Standard AS 2890.2-2018, Part 2: Off-Street Commercial Facilities (AS 2890.2).
- Australian Standard AS 2890.6-2022, Part 6: Off-Street Parking for People with Disabilities (AS 2890.6).
- RMS Guide to Traffic Generating Development 2002 (GTTGD).
- RMS Technical Direction TDT 2013/04a - Guide to Traffic Generating Developments, Updated Traffic Surveys (GTTGD Update).

2. Existing Conditions

2.1. Site Context

The site is located at 171-179 Great North Road & 1A – 1B Henry Street, Five Dock and is within the City of Canada Bay Local Government Area (LGA). The site consists of seven lots and is legally known as Lots 4, 5, 6, 7, 8 and 9 of DP17324 and Lot 1 of DP 1258912. The site has an approximate total land area of 4,037m².

The site is bounded by Great North Road in the east, Henry Street in the north, East Street to the west and 169 Great North Road to the south, which forms part of the future Five Dock Metro station site.

Existing development on the site consists of St Alban's Anglican Church, Rectory and Hall/Shops, two red brick detached dwellings and associated parking and landscaping.

The Anglican Church has occupied the site since 1859 and continues to be an active parish with services and events occurring on the site. The hall is also leased for a variety of uses including dance classes, church functions and general community events.

The site is located directly north of Five Dock Metro station (under construction), which is planned to be operational by 2030. The site's location and context are shown from **Figure 1** and **Figure 2** below.



Figure 1: Site Aerial Photo (Source: Carter Williamson)



Figure 2: Local Context Map (Source: Carter Williamson)

2.2. Existing On-Site Developments

The site consists of seven separate lots comprising of various land uses. **Table 1** summaries the existing developments that are currently within the site.

Table 1: Summary of Existing Developments

LOT NAME	DESCRIPTION OF BUILDINGS/FEATURES ON-SITE
Lot 5, DP 17324	A single residential dwelling
Lot 4, DP 17324	A single residential dwelling
Lot 6, DP 17324	Two-storey building with retail stores on ground floor.
Lot 9, DP 17324	A concrete driveway.
Lot 7, DP 17324	Comprises of numerous buildings including: <ul style="list-style-type: none"> Childcare centre and associated outdoor play area. St Alban's Church Parish Centre. St Alban's Church building. Church car park accommodating in the order of eight car spaces.
Lot 8, DP 17324	
Lot D, DP 158552	

2.2.1. St Alban's Church

Sunday services are provided within the St Alban's Church building once a week, commencing at 10 am and in the order of 60 persons¹ are in attendance.

In addition to the abovementioned weekly service, the church also holds the following activities:

- Weekly and fortnightly 'community groups' which comprise of groups of 8 – 12 persons and regularly meet for sharing, prayer, bible reading and support.
- Mobile Community Pantry every fortnight on Wednesdays, 10:30 am – 11:30 am.
- 'Jazz on the Lawn', a free event held one to two times a year for the local community.

Further to the above, the church has aspirations to increase the activities that would benefit its patrons and local community. Such activities include but not limited to the following:

- To expand the church's Mobile Community Pantry to have more fresh food available for the local shoppers, and also a fortnightly free dinner in a suitable space and with suitable kitchen facilities, offering relational connection, counselling, prayer, and occasional financial coaching. This would be run, largely, by attendees of the church who lives locally and/or in the accommodation on site.
- To run regularly parenting seminars for locals/primary school/daycare/preschool parents, where local professionals present on relevant topics.
- Run a Christian preschool on site.
- Offer more frequent free local community events (Open air cinema, 'Jazz on the lawn', etc) which allows the church to make local connections, and foster connections between locals.

At this point in time, the exact details of the abovementioned increased activities were not known. However, as part of any subsequent development application to Council, details will be provided and any future traffic impact assessment report will quantify and assess the associated traffic and parking impacts.

2.3. Road Network

The road hierarchy in the vicinity of the site is shown by **Figure 3** with the following roads considered noteworthy:

- Great North Road: A classified state road (MR 395) that runs in a north-south direction between Abbotsford Wharf in the north and Parramatta Road in the south. It is subject to 50km/h speed zoning restrictions and accommodates one lane of traffic in each direction.
- Henry Street: A local road that runs in an east-west direction between Great North Road in the east and East Street in the west. It is subject to 50km/h speed zoning restrictions and accommodates a single lane

¹ <https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SUB-12283%2120200624T022632.895%20GMT>

of traffic in each direction. Near the site, unrestricted parallel parking is permitted along the northern kerbside.

- **East Street:** A local road that runs in a north-south direction between Lyons Road in the north and terminates in the south. It is subject to 50km/h speed zoning restrictions and accommodates a single lane of traffic in each direction. Unrestricted parallel parking is permitted along both kerbsides.

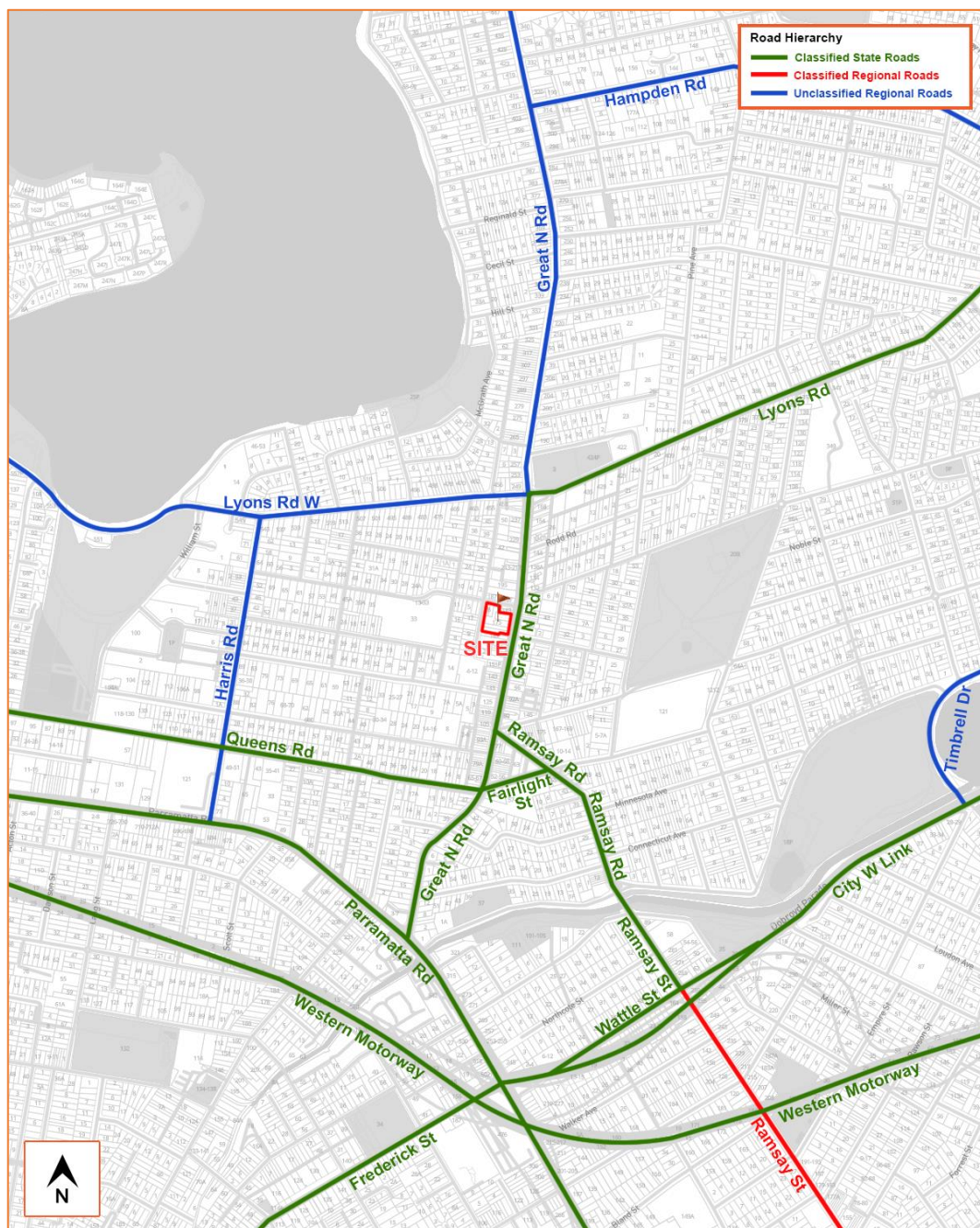


Figure 3: Location & Road and Hierarchy

2.4. Public Transport

2.4.1. Rail Services

The Integrated Public Transport Planning Guidelines 2013 states that the walking catchment for metropolitan railway stations includes all areas within an 800-metre radius of a station. Croydon Railway Station is located approximately 2.2 kilometres south-west of the site, and hence falls outside the typical walking catchment area. Notwithstanding, it is considered that residents, visitors and workers of the development would still have convenient access to the Sydney Rail network as part of a multi-modal trip (rail and walk or rail and bus).

Croydon Railway Station is serviced by one railway line, being the T2 Inner West Line. **Table 2** shows the notable town centres that are accessible along abovementioned railway line and the average service headways during peak and off-peak periods.

Table 2: Rail Services

RAIL LINE	NOTABLE TOWN CENTRES ALONG LINE	AVERAGE HEADWAY
T2 Inner West Line	Leppington or Parramatta, Homebush, Strathfield, Ashfield, Redfern and Sydney CBD	Weekdays: 10 minutes peak / 20 minutes off peak Saturday: 15 minutes Sunday: 15 minutes

2.4.2. Bus Services

The Integrated Public Transport Planning Guidelines 2013 states that the walking catchment for metropolitan bus services includes all areas within 400-metre radius of a bus stop. As can be seen from **Figure 4**, the site is located within 400 metres of several bus stops located along Great North Road. Several further stops serviced by additional bus services are accessible within 800 metres. Accordingly, residents, visitors and workers of the proposed development would have convenient access to bus services for journeys to and from the site.

Table 3 shows the notable town centres that are accessible via these bus services and the average service headways during peak and off-peak periods.

Table 3: Bus Services

ROUTE NO.	ROUTE (TO / FROM)	ROUTE DESCRIPTION	AVERAGE HEADWAY
406	Five Dock to Hurlstone Park	Via Rodd Point, Haberfield, Ashfield	Weekdays: 30 minutes peak / 1 hour off peak Saturdays: 1 hour Sundays & Public Holidays: 1 hour
415	Chiswick to Campsie	Via Abbotsford, Wareemba, Five Dock, Burwood, Enfield, Belmore, Canterbury	Weekdays: 30 minutes Saturdays: 30 minutes Sundays & Public Holidays: 1 hour
437	Five Dock to City QVB	Via Rodd Point, Haberfield, Lilyfield, Rozelle, Pyrmont,	Weekdays: 20 minutes

ROUTE NO.	ROUTE (TO / FROM)	ROUTE DESCRIPTION	AVERAGE HEADWAY
			Saturdays: 20 minutes Sundays & Public Holidays: 30 minutes
438N	Abbotsford to City Martin Place	Via Wareemba, Five Dock, Haberfield, Camperdown, Chippendale	Weekdays: 30 minutes Saturdays: 30 minutes Sundays & Public Holidays: 30 minutes
438X	Abbotsford to City Martin Place	Via Wareemba, Five Dock, Haberfield, Camperdown, Chippendale	Weekdays: 10 minutes Saturdays: 20 minutes Sundays & Public Holidays: 30 minutes
461N	Burwood to City Hyde Park	Via Croydon, Haberfield, Camperdown, Chippendale	Weekdays: 30 minutes Saturdays: 30 minutes Sundays & Public Holidays: 30 minutes
461X	Burwood to City Domain	Via Croydon, Haberfield, Camperdown, Chippendale	Weekdays: 15 minutes Saturdays: 20 minutes Sundays & Public Holidays: 20 minutes
490	Hurstville to Drummoyne	Via Clemton Park, Campsie, Burwood, Croydon, Five Dock, Rodd Point	Weekdays: 15 minutes Saturdays: 20 minutes Sundays & Public Holidays: 20 minutes
491	Hurstville to Five Dock	Via Bexley, Ashbury, Ashfield	Weekdays: 30 minutes Saturdays: 30 minutes Sundays & Public Holidays: 1 hour
492	Rockdale to Drummoyne	Via Bexley, Clemton Park, Campsie, Burwood, Croydon, Five Dock, Rodd Point	Weekdays: 30 minutes Saturdays: 30 minutes Sundays & Public Holidays: 30 minutes
502	Five Dock to City Town Hall	Via Concord, Canada Bay, Drummoyne, Rozelle, Pyrmont	Weekdays: 30 minutes Saturdays: 30 minutes Sundays & Public Holidays: 30 minutes
530	Burwood to Chatswood	Via Five Dock, Drummoyne, Hunters Hill, Lane Cove	Weekdays: 20 minutes peak / 30 minutes off peak Saturdays: 30 minutes Sundays & Public Holidays: 30 minutes
N70	Penrith to City Town Hall	Via Blacktown, Parramatta, Homebush, Five Dock, Camperdown	Night-ride service
N71	Richmond to City Town Hall	Via Windsor, Blacktown, Parramatta, Homebush, Five Dock, Camperdown	Night-ride service
N80	Hornsby to City Town Hall	Via Epping, West Ryde, Strathfield, Five Dock, Camperdown	Night-ride service
N81	Parramatta to City Town Hall	Via Silverwater, Concord West, Canada Bay, Five Dock, Haberfield, Camperdown	Night-ride service

2.4.3. Cycle Network

Figure 4 shows that the site has excellent access to the local bicycle network with an on-road cycle path provided along Henry Street along the site frontage and provides connection to the wider bicycle network.

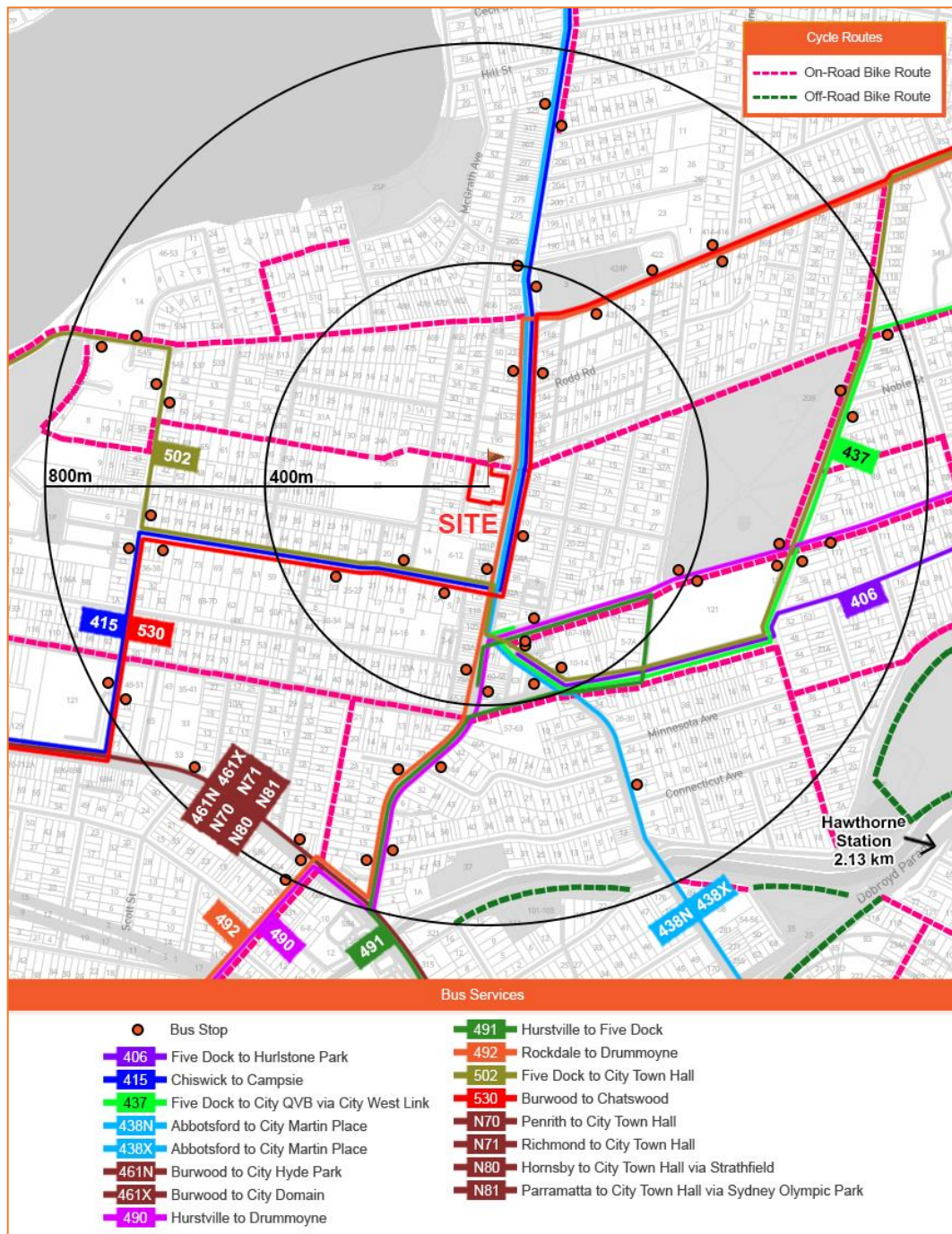


Figure 4: Public & Active Transport Services

2.5. Sydney Metro West

Per the Sydney Metro West project overview²:

“The Sydney Metro West project will support a growing city and deliver world-class metro services to more communities.

This new underground railway will connect Greater Parramatta and the Sydney CBD.

This once-in-a-century infrastructure investment will transform Sydney for generations to come, doubling rail capacity between the two CBDs, linking new communities to rail services and supporting employment growth and housing supply. The project is expected to create about 10,000 direct and 70,000 indirect jobs during construction.

Sydney Metro West is a new 24-kilometre metro line with stations confirmed at Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock, The Bays, Pyrmont and Hunter Street in the Sydney CBD.”

Figure 5 illustrates the extent of the Sydney Metro West Corridor and future Metro stations along the route.



Figure 5: Sydney Metro West Corridor & Metro Station Locations (Source: Sydney Metro West)

² <https://www.sydneymetro.info/west/project-overview#>

The future Five Dock Station is located along Great North Road, between its intersections of Second Avenue in the north and Garfield Street in the south and is immediately adjacent to the site. Given its immediate proximity, it is expected that staff, residents, and workers of the development would utilise the metro service for journeys to and from work and place of residence.

2.6. Existing Traffic Generation

As part of this traffic and parking assessment, it is considered that the typical commuter weekday peak periods being 7 am – 9 am during the mornings and 4pm – 6pm during the evenings are the critical periods for assessment noting these are times where traffic volumes within the external road network are highest.

As discussed in Section 2.2, the site comprises of numerous buildings with various land uses operating within them. Noteworthy commentary on the expected traffic generation of the existing site in relation to the abovementioned peak periods are discussed below.

- Church services are held weekly, every Sunday, commencing at 10 am. This service, which is expected to have 60 persons in attendance, does not coincide with the typical morning and evening commuter peak periods.
- On Lots 4 – 5, DP 17324, two separate residential dwellings are provided. Under the GTTGD Update, a traffic generation rate of 0.99 trips / dwelling / hour during the morning peak and 0.95 trips / dwelling / hour during the evening peak applies. This equates to a trip generation rate of 2 vehicle trips / hour during the morning and evening peaks for these two dwellings.
- On Lot 6, DP 17324, a two-storey building is provided with retail floor space on ground floor. The existing GFA of the retail floor space is not known however, given that the retail stores are operating within the Five Dock Town Centre, it is considered that the majority of business trade occurs via ‘passing foot traffic’ and customers visiting the town centre for another destination and then visiting the retail stores as a secondary destination (i.e. a linked trip). Accordingly, the retail stores would not generate substantial vehicle trips during the morning and evening peaks.
- As advised by the project team, the maximum number of children the existing childcare centre can accommodate is 29 children.

Having regard for the above, the existing site generated negligible if not, minimal vehicle trips during the morning and evening peaks. Accordingly, for conservatism, it has been considered that the existing site does not generate any traffic. The traffic impacts resulting from the PP is discussed in Section 5.1 of this report.

2.7. Existing Surveyed Intersection Performance

To gain an appreciation of the existing performance of key intersections in the vicinity of the site, intersection turn count and queue length survey were undertaken of the following intersections:

- Great North Road / Garfield Street.
- Great North Road / Henry Street.
- Henry Street / East Street.

The surveys were undertaken during a typical weekday, being Tuesday, 31 October 2023 between the 7 am – 9 am during the mornings and 4pm – 6pm during the evenings which coincide with the typical commuter weekday peak periods. Following a review of the survey results, the highest traffic volumes observed (one hour peak) through the intersections occurred at 7:45 am – 8:45 am (AM) and 4:30 pm – 5:30 pm (PM). A copy of the raw survey results is provided as **Appendix A**.

The survey results and video recordings were used to develop existing (base case) SIDRA models of the intersections for the weekday AM and PM peaks.

SIDRA modelling outputs a range of performance measures, in particular:

- **Degree of Saturation (DOS):** The DOS, or vehicle to capacity ratio (V/C), is used to measure the performance of intersections, where a value of 1.0 represents an intersection at theoretical capacity. As the performance of an intersection approaches DOS of 1.0, queue lengths and delays increase rapidly. The RMS Guide notes a DOS upper limit of 0.9 is appropriate, with satisfactory operation generally achieved with DOS of 0.7 – 0.8.
- **Average Vehicle Delay (AVD):** The AVD (or average delay per vehicle, in seconds) for intersections provides a measure of the operational performance of an intersection and is used to determine an intersection's Level of Service. For traffic signals, the AVD is the weighted average experienced by all movement at the intersection.
- **Level of Service (LOS):** A comparative measure that provides an indication of the operating performance, based on AVD.

Table 4 provides a recommended baseline for assessment of intersection performance as per the RMS Guide.

Table 4: Intersection Performance Criteria

LOS	AVD (s)	TRAFFIC SIGNALS
A	Less than 14	Good operation
B	15 to 28	Good with acceptable delays and spare capacity
C	29 to 42	Satisfactory
D	43 to 56	Operating near capacity
E	57 to 70	At capacity, incidents will cause excessive delays
F	More than 70	Unsatisfactory and requires additional capacity

A summary of the modelling results for the existing (base case) models is provided in **Table 5**. Reference should also be made to the detailed SIDRA outputs provided in **Appendix B**, which give additional information regarding intersection performance.

Table 5: Summary of SIDRA Modelling Results - Existing

INTERSECTION	PERIOD	DOS	AVD (s)	LOS
Great North Road / Garfield Street	AM	0.685	16.8	B
	PM	0.477	16.4	B
Great North Road / Henry Street	AM	0.144	10	A
	PM	0.139	10.7	A
Henry Street / East Street	AM	0.013	13.1	A
	PM	0.039	8.8	A

From **Table 5**, it can be seen that all intersections exhibit good operating performance during both the AM and PM peaks with minimal delays and ample spare capacity.

Nevertheless, that the most relevant use of these results is to compare the relative change in performance resulting from the proposed development, as discussed in Section 5.

3. Planning Proposal Development Scheme

A detailed description of the PP is provided in Section 1.2. In a traffic and parking perspective, key features of the proposed development scheme are as follows:

- 162 residential apartments including:
 - 137 standard apartments.
 - 25 ARH apartments.
- A childcare centre, commercial and retail floor areas with a combined GFA of 1,930m².
- Retention of the heritage St Alban's church building and construction of new church facilities providing a combined GFA of 1,160m².
- Five levels of basement car parking providing 277 car spaces.
- A loading dock on Ground Floor that can accommodate service vehicles up to and including a 12.5-metre-long Heavy Rigid Vehicle (HRV).
- Two vehicle access driveways including:
 - A 7.6-metre wide driveway onto Henry Street serving the basement car park.
 - A 7.0-metre-wide driveway onto East Street serving the loading dock.

The parking and traffic implications arising from the proposed development are discussed in Sections 4 and 5, respectively. A copy of the relevant architectural drawings, prepared by Carter Williamson, are included in **Appendix C**.

4. Parking Requirements

4.1. Car Parking

4.1.1. Residential Land Use

The site will be situated immediately adjacent to the future Five Dock Metro Station and accordingly, it is considered appropriate to consider the Objective 3J-1 of the ADG which state that the car parking requirements are to be in accordance with the GTTGD or CDCP, whichever is less. It is noted that the GTTGD stipulate minimum car parking rates to be applied to residential flat buildings whilst the CDCP stipulates maximum rates. With this in mind, it is considered that the CDCP parking rates apply to the proposed development noting that is permitted to provide up to the maximum requirement, however, can provide less if proposed. Accordingly, the 137 standard apartments have been assessed against the relevant 'residential flat building' car parking rates under the CDCP.

As previously discussed, the PP will also include the provision of 25 ARH apartments and will be operated by a social housing provider. With the site being immediately adjacent to the future Five Dock Metro Station, the proposed development will be in an 'accessible area', as defined in the Housing SEPP and as such, the car parking rates outlined in Clause 18(f)(i iii) are applicable to the 25 ARH apartments.

Table 6 shows the applicable car parking rates and the proposed provision for the residential apartments.

Table 6: Residential Car Parking Requirements and Provision

RESIDENTIAL	NO. UNITS	CDCP MAXIMUM PARKING RATES	HOUSING SEPP MINIMUM PARKING RATES	REQUIREMENT	PROVISION
<u>Standard Apartments (i.e. Non-ARH)</u>					
1 bedroom	21	0.6 spaces / unit	-	13 (max)	135
2 bedroom	82	0.9 spaces / unit	-	74 (max)	
3 bedroom	34	1.4 spaces / unit	-	48 (max)	
Visitor	137	0.2 spaces / unit	-	27 (max)	27
TOTAL				162 (max)	162
<u>ARH Apartments</u>					
1 bedroom	4	-	0.4 spaces / unit	2 (min)	22
2 bedroom	15	-	0.5 spaces / unit	8 (min)	
3 bedroom	6	-	1 spaces / unit	6 (min)	
TOTAL				16 (min)	22

Note: the proposed development falls under Residential Parking Category B under the CDCP.

From **Table 6**, the following is noted:

- For the standard apartments, the proposed development is permitted to provided up to 162 car spaces including 135 resident spaces and 27 visitor spaces under the CDCP. In response, the proposed development provides 162 spaces including 135 resident spaces and 27 visitor spaces. The proposed development complies with the maximum requirements of the CDCP and is acceptable.
- For the ARH apartments, a minimum of 16 car spaces is required to be provided under the Housing SEPP. In response, the proposed development provides 22 car spaces and therefore complies with the minimum requirements of the Housing SEPP and is acceptable.

4.1.2. Non-Residential Land Use

Table 7 shows the minimum car parking requirements against the applicable parking requirements under the CDCP, for each of the non-residential land use, and proposed provision in response.

Table 7: Non-Residential Car Parking Provision

LAND USE	GFA	PROVISION
Childcare	1,930m ² (combined)	93
Retail		
Commercial		
Place of Worship	1,160m ²	

Note: For the place of worship, includes areas for the 'existing heritage buildings' and new areas.

The exact commercial and retail GFAs, and childcare numbers are not currently known and as such, a parking assessment cannot be undertaken having regard for the minimum car parking rates stipulated in the CDCP. Notwithstanding, under the PP, 93 car spaces have been designated to the non-residential uses of the development. A detailed parking assessment taking into consideration the relevant car parking rates stipulated in the CDCP will be undertaken as part of any future development application.

4.1.3. Car Parking Summary

Table 8 summarises the car parking assessment of the proposed development.

Table 8: Car Parking Assessment Summary

LAND USE	GFA.	REQUIREMENT	PROVISION
RESIDENTIAL			
<u>Standard Apartments</u>			
1 bedroom	21	135 (max)	135
2 bedroom	82		
3 bedroom	34		
Visitor	137	27 (max)	27
<u>ARH Apartments</u>			
1 bedroom	4	16 (min)	22
2 bedroom	15		
3 bedroom	6		
NON-RESIDENTIAL			
Childcare	1,930m ² (combined)	-	93
Retail		-	
Commercial		-	
Place of Worship	1,160m ²	-	
TOTAL:			277

Note: The CDCP parking rate (based on GLFA) has been applied to the retail GFA.

4.2. Bicycle Parking

As previously mentioned, the individual floor areas for the retail and commercial floor areas are not known. Nevertheless, as part of any Development Application to Council, any future traffic impact assessment will consider the bicycle parking requirements outlined in the CDCP. **Table 9** summarises the relevant bicycle parking rates under the CDCP that the proposed development will need to consider as part of any future Development Application.

Table 9: Summary of Relevant Bicycle Parking Rates Under the CDCP

TYPE	CDCP BICYCLE PARKING RATES
Residential	2.0 spaces / dwelling
Residential – Visitor	2.0 spaces / 10 dwellings

TYPE	CDCP BICYCLE PARKING RATES
Retail (Staff)	2.0 spaces / 250m ² GFA
Retail – Visitor	2.0 per unit + 2.0 / 100m ² GFA
Commercial (Staff)	2.0 spaces / 150m ² GFA
Commercial – Visitor	2.0 spaces / 400m ² GFA

4.3. Motorcycle Parking

Table 10 shows the minimum motorcycle parking requirements against the applicable parking rate under the CDCP.

Table 10: Motorcycle Parking Requirements

TYPE	NO.	CDCP PARKING RATE	REQUIREMENT
Motorcycle	287 car spaces	1.0 space + 1.0 space / 30 car spaces provided thereafter	11

The proposed development is required to provide in the order of 11 motorcycle parking spaces. Whilst not shown on the architectural drawings, the location and design of the motorcycle spaces shall be detailed on the architectural drawings at a later stage of the project as part of a future Development Application submission to Council.

4.4. Service Vehicle Parking & Waste Collection

The proposed development will provide a loading dock on Ground Floor and is capable of accommodating a single service vehicle with dimensions up to and including a 12.5-metre-long Heavy Rigid Vehicle (HRV). Given the scale of the development and various land uses proposed on-site, it is proposed that a Loading Dock Management Plan (LDMP) be prepared and implemented for the development to ensure the safe and efficient operation of the loading dock. At a minimum, the LDMP will outline the following:

- Roles and responsibilities of key personnel in loading dock operations.
- The operational and safety measures that are to be followed while within the loading dock.
- Expected loading activities including waste collection and outlining the required scheduling requirements to book the loading dock.
- Details on the governance and administration of the LDMP.

Waste collection will be undertaken on-site within the loading dock and under the management of the LDMP. As mentioned above, the loading dock will accommodate vehicles up to a HRV and is in accordance with General Control C11 of B4: Waste Management of the CDCP.

5. Traffic Impacts

5.1. Overview

As previously mentioned earlier in this report, the details of the exact GFAs of the commercial, retail and the expected number of childcare places for the childcare centre are known. Based on discussions with the project team, the following high-level details were considered for the traffic assessment:

- The combined GFA of 1,930m² for the childcare centre, retail and commercial land uses to approximately be broken down as follows:
 - Childcare centre: 800m² (approximately 40% of the combined GFA).
 - Retail: 480m² (approximately 25% of the combined GFA).
 - Commercial: 650m² (approximately 35% of the combined GFA).
- The number of childcare places is not known and so, the estimated traffic generation of the proposed childcare centre were assessed based on GFA.

5.2. Proposed Traffic Generation

Table 11 shows the traffic generation of the proposed development under the applicable traffic generation rates stipulated in the GTTGD and GTTGD Update and CCC Analysis Report.

Table 11: Traffic Generation of the Proposed Development

TYPE	NO.	PERIOD	TRAFFIC GENERATION RATE	IN / OUT SPLIT (%)	TRAFFIC GENERATION
Childcare Centre	800 m ² GFA	AM	8.62 trips / 100m ² GFA / hour	50 / 50	69 vehicle trips / hour (35 in / 34 out)
		PM	9.4 trips / 100m ² GFA / hour	50 / 50	41 vehicle trips / hour (21 in / 20 out)
Residential	162 units	AM	0.19 trips / unit / hour	80 / 20	31 vehicle trips / hour (6 in / 25 out)
		PM	0.15 trips / unit / hour	20 / 80	24 vehicle trips / hour (19 in / 5 out)
Retail	480 m ² GFA	AM	1.4 trips / 100m ² GFA / hour	80 / 20	7 vehicle trips / hour (6 in / 1 out)
		PM	4.6 trips / 100m ² GFA / hour	50 / 50	22 vehicle trips / hour (11 in / 11 out)
Commercial	650 m ² GFA	AM	1.6 trips / 100m ² GFA / hour	90 / 10	10 vehicle trips / hour (9 in / 1 out)
		PM	1.2 trips / 100m ² GFA / hour	10 / 90	8 vehicle trips / hour (1 in / 7 out)
Place of Worship	Church service does not coincide with the weekday AM and PM peaks				
AM TOTAL:					117 vehicle trips / hour (56 in / 61 out)
PM TOTAL:					95 vehicle trips / hour (52 in / 43 out)

Note: The AM and PM average rates for 'centre vehicle trips per 100m² of GFA during adjacent roads' peak hour' under Table 3.3 of the CCC Analysis Report has been adopted.

As discussed in Section 2.6, the existing traffic generation of the site has been disregarded. Therefore, the total AM and PM peak traffic generation as shown in **Table 11** can be taken as additional vehicle trips above existing conditions.

5.3. Traffic Distribution

The directional split of development traffic was determined by assessing the existing surveyed splits during the AM and PM peaks including:

- Along East Street.
- At the Great North Road / Garfield Street intersection.
- At the Great North Road / Henry Street intersection.
- At the Henry Street / East Street intersection.

In addition to the above, it is noted the Great North Road / Henry Street intersection prohibits right-turns onto Great North Road. Therefore, it is expected that motorists seeking to travel southbound along Great North Road will utilise the route as indicated in blue, in **Figure 6**. The route is the most direct path of travel for motorists seeking to travel southbound along Great North Road. This traffic route has been taken into consideration in assessing the turn movements of the traffic volumes generated by the proposed development at each of the key intersections.

Having regard for the above, reference should be made to the Traffic Distribution Diagrams included in **Appendix D** which detail the traffic volumes of the proposed development through the surveyed key intersections during the AM and PM peaks.

The proposed traffic generation and distribution were utilised as inputs in SIDRA, when undertaking the traffic modelling assessment as discussed below.

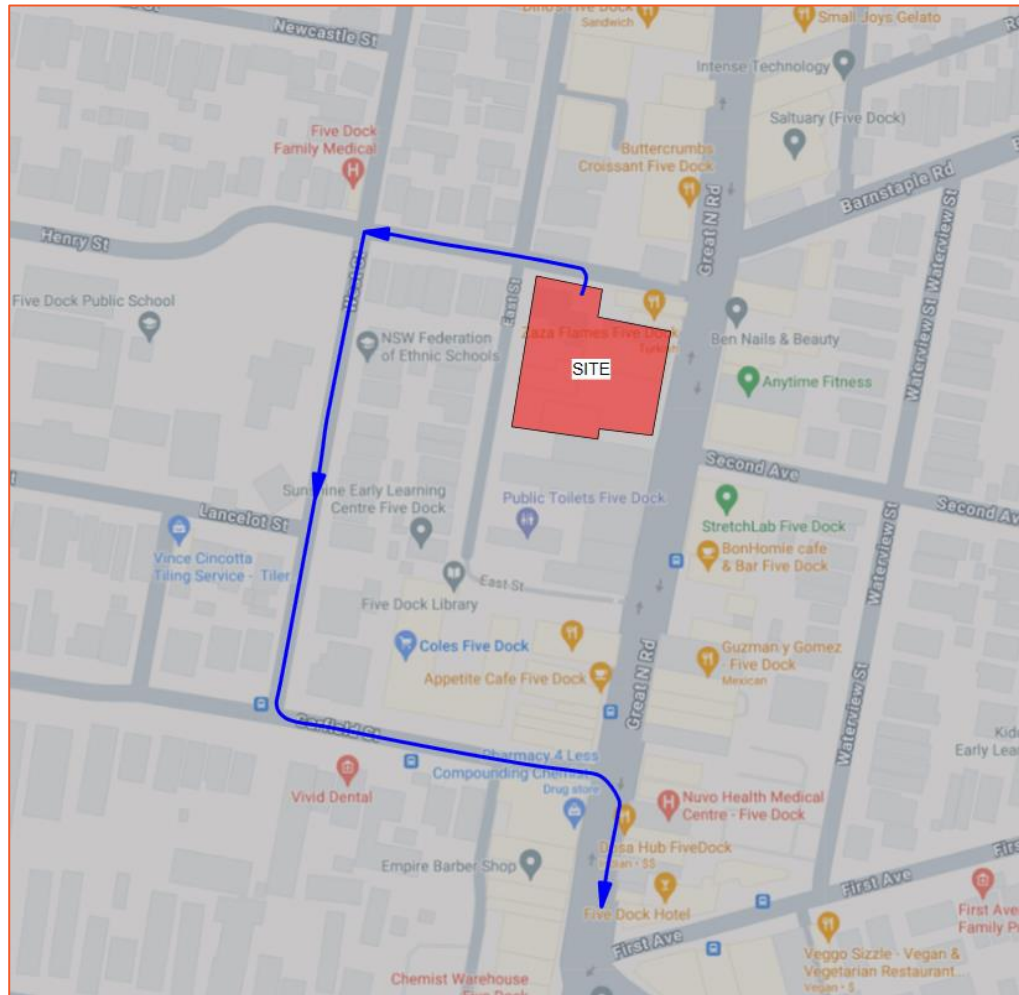


Figure 6: Expected Route taken by Motorists to Travel Southbound Along Great North Road

5.4. Traffic Impacts

The traffic impacts of the increased volumes through the intersections were analysed using SIDRA. The following scenarios have been assessed:

- Existing (base-case).
- Existing + Development.
- Existing + 10-year background traffic growth (Existing + BTG).
- Existing + 10-year background traffic growth + Development (Existing + BTG + Development).

For the scenarios where background traffic growth has been assessed, a 2% annual traffic growth rate has been applied.

A summary of the modelling results is presented in **Table 12**, with the detailed SIDRA outputs provided in **Appendix B**. **Table 12** also provides a comparison against the existing intersection performance, which has been extracted from **Table 5**.

Table 12: Summary of SIDRA Modelling Results – Existing & With Development

INTERSECTION	SCENARIO	PERIOD	DOS	AVD (s)	LOS
Great North Road / Garfield Street	Existing	AM	0.685	16.8	B
		PM	0.477	16.4	B
	Existing + Development	AM	0.816	18.9	B
		PM	0.522	17.1	B
	Existing + BTG	AM	1.006	25.6	B
		PM	0.697	21.1	B
	Existing + BTG + Development	AM	1.119	36.9	C
		PM	0.754	22.1	B
Great North Road / Henry Street	Existing	AM	0.144	10	A
		PM	0.139	10.7	A
	Existing + Development	AM	0.155	10.0	A
		PM	0.158	10.8	A
	Existing + BTG	AM	0.196	10.9	A
		PM	0.196	11.9	A
	Existing + BTG + Development	AM	0.210	10.9	A
		PM	0.222	12.0	A
Henry Street / East Street	Existing	AM	0.013	13.1	A
		PM	0.039	8.8	A
	Existing + Development	AM	0.014	14.2	A
		PM	0.042	9.3	A
	Existing + BTG	AM	0.016	13.5	A
		PM	0.049	9.0	A
	Existing + BTG + Development	AM	0.018	14.9	B
		PM	0.053	9.6	A

With regard to the ‘Existing + Development’ scenarios, it is evident from **Table 12** that the increase in additional vehicle trips will result in minimal impact on all three key intersections during both the AM and PM peaks. Indeed, all intersections will experience minor increases in AVD and DOS however, there will be no change in LOS compared to the ‘Existing’ scenario intersection counterparts.

Regarding the 'Existing + BTG' scenarios, all key intersections will continue to operate satisfactorily with increases to AVD and DOS however, the intersections will continue to perform at the same LOS as the 'Existing' scenario for both the AM and PM peaks. Of note, is the high DOS exhibited for the Great North Road / Garfield Street with a value of 1.006 which suggests that after a 10-year period, the intersection will be over capacity. Whilst the intersection may be over capacity in 10 years, this is not a result of the PP but rather, background traffic.

With regard to the results of the 'Existing + BTG + Development' scenario, generally, all intersections will continue to operate satisfactorily with increase to AVD and DOS, with no change in LOS compared to the 'Existing + Development' scenario. The only exceptions are the Great North Road / Garfield Street intersection whereby the LOS will worsen from a B to a C (AM peak) and the Henry Street / East Street intersection whereby the LOS will worsen from an A to a B (AM peak). Notwithstanding, the intersections will still operate satisfactorily.

Further to the above, it should be reiterated that the traffic assessment has been conservative noting the existing traffic generation has not been taken into consideration. Additionally, with the site being immediately adjacent to Five Dock Metro Station, there's expected to a reduction in vehicle trips generated by the proposed development as it would be expected that there would be a proportion of staff, residents and visitors that would utilise the metro services for journeys to and from work and place of residence. The traffic assessment has not accounted this reduction in vehicle trips however, **Table 12** shows good operation and performance of all key intersections.

The increase in traffic generation resulting from the proposed development can therefore be accommodated by the existing road network, with no external improvements required. The traffic impacts of the proposed development are therefore considered acceptable.

6. Design Aspects

6.1. Access

The access driveway onto Henry Street, serving the basement car park, has been provided as a Category 3 driveway under Table 3.2 of AS 2890.1, having a total width of 7.0 metres (between kerbs). The 7.0 metre width allows for provision of a separate entry and exit lane of 3.0-metre width and a 1.0-metre-wide traffic median along the centreline of the driveway.

The loading dock will be serviced by a 7.0-metre-wide driveway onto East Street accommodate vehicle turn movements of vehicles with dimensions up to and including an HRV.

Preliminary swept path analysis has been undertaken of the proposed vehicle access arrangements of the development using a B85 Design Vehicle, B99 Design Vehicle and HRV as defined under AS 2890.1 and AS 2890.2. The results included in **Appendix E** show satisfactory vehicle movements and importantly, all entry and exit movements will occur in a forward direction.

Further assessment of the access provisions including swept path analysis, would be undertaken as part of any subsequent development application.

6.2. Internal Design

All internal car, service vehicle, bicycle and motorcycle parking facilities would be designed in accordance with the relevant requirements of AS 2890.1, AS 2890.2, AS 2890.3 and AS 2890.6.

7. Conclusions

In summary:

- PDC Consultants has been commissioned by Traders in Purple to prepare a traffic and parking report to support a Planning Proposal (PP) relating to a proposed mixed-use development for the site at 171 – 179 Great North Road & 1A – 1B Henry Street, Five Dock. Section 1.2 provides a detailed description of the PP. In a traffic and parking perspective, key features of the contemplated development scheme are as follows:
 - 162 residential apartments including:
 - A childcare centre, commercial and retail floor areas with a combined GFA of 1,930m².
 - Retention of the heritage St Alban's church building and construction of new church facilities providing a combined GFA of 1,160m².
 - Five levels of basement car parking providing 277 car spaces.
 - A loading dock on Ground Floor that can accommodate service vehicles up to and including a HRV
 - Two vehicle access driveways onto Henry Street serving the basement car park and onto East Street serving the loading dock.
- The traffic generation assessment confirms that the development will generate a total of 117 vehicle trips / hour and 95 vehicle trips / hour during the weekday AM and PM peaks respectively. For the purposes of this traffic assessment, the abovementioned traffic generation is taken to be a net increase above existing conditions.
- The traffic impacts of the increased volumes through the key intersections of Great North Road / Garfield Street, Great North Road / Henry Street and Henry Street/ East were analysed using SIDRA. Results of traffic modelling confirms that the proposed development traffic will have a minimal impact on the performance of the intersections.
- Further to the above, modelling scenarios considering 10-year background traffic growth (with and without development traffic) were undertaken. The results show that the Great North Road / Garfield Street intersection will be oversaturated (i.e. over capacity after 10 years solely from the increase in background traffic growth. However, the intersection will still operate satisfactorily. When considering the PP after 10 years, the traffic modelling assessment shows that the development traffic will have minimal impact on the Great North Road / Garfield Street intersection albeit worsening of the performance of the intersection in the AM peak from a B to a C. The performance of the Henry Street / East Street intersection will also deteriorate with the LOS worsening from an A to a B (AM peak). However, both intersections will continue to operate satisfactorily.
- With regard to the above, the increase in traffic generation resulting from the proposed development can therefore be accommodated by the existing road network, with no external improvements required. The traffic impacts of the proposed development are therefore considered acceptable.

- The proposed development will provide 287 car spaces and complies with the minimum and maximum requirements of the CDCP.
- The proposed development including the vehicle access and internal car parking arrangements will be subject to a detailed design review at a future stage of the project. All internal car, service vehicle, bicycle and motorcycle parking facilities would be designed in accordance with the relevant requirements of AS 2890.1, AS 2890.2, AS 2890.3 and AS 2890.6.

It is therefore concluded that the proposed development is supportable on traffic planning grounds.



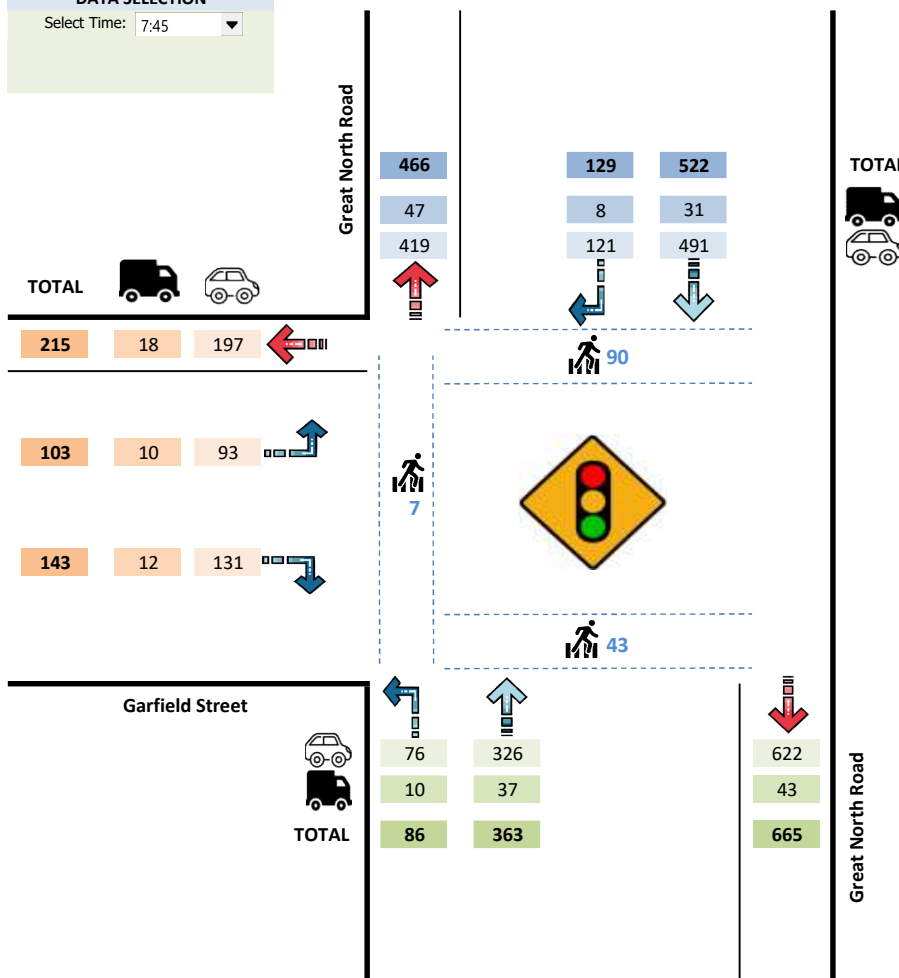
Appendix A

Location Great North Road
-
Great North Road
Garfield Street
 Suburb FIVE DOCK

Duration 7:00 - 9:00
16:00 - 18:00
-
 Day/Date Tuesday, 31 October 2023
 Weather -

DATA SELECTION
 Select Time: 7:45

TIME RANGE
 7:45 - 8:45
 PEAK
 7:45 - 8:45

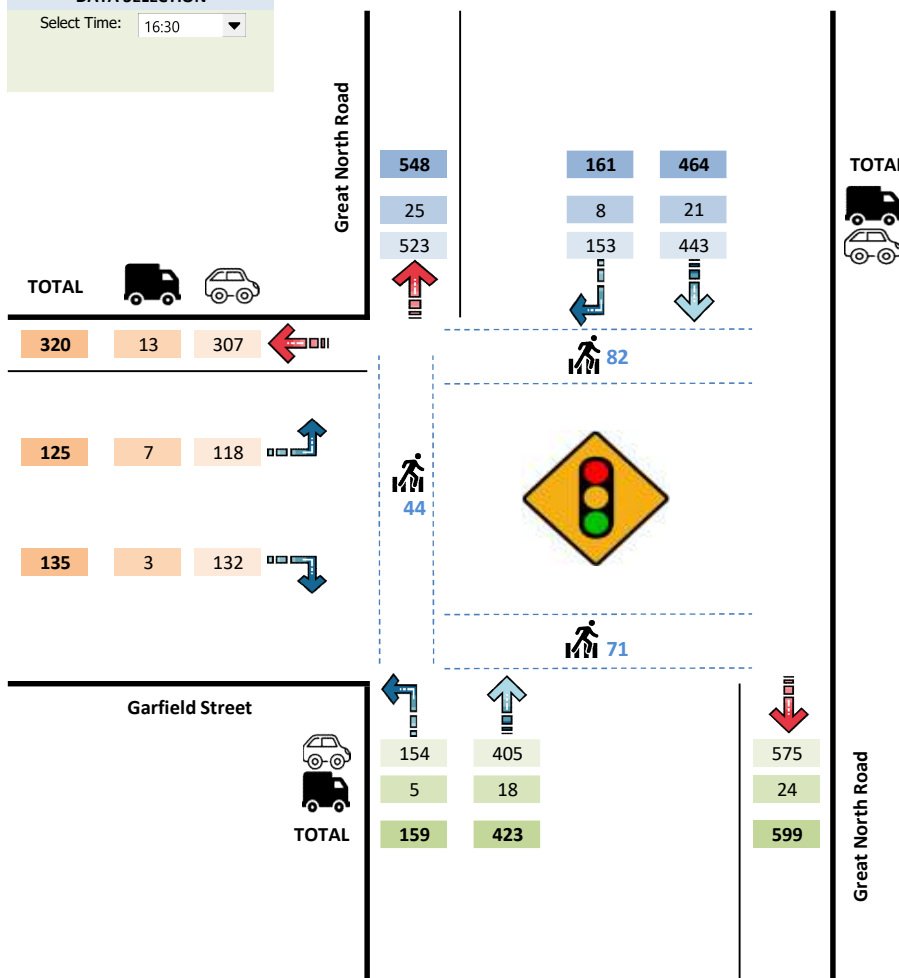


Location Great North Road
-
Great North Road
Garfield Street
 Suburb FIVE DOCK

Duration 7:00 - 9:00
16:00 - 18:00
-
 Day/Date Tuesday, 31 October 2023
 Weather -

DATA SELECTION
 Select Time: 16:30

TIME RANGE		
16:30	-	17:30
PEAK		
16:30	-	17:30

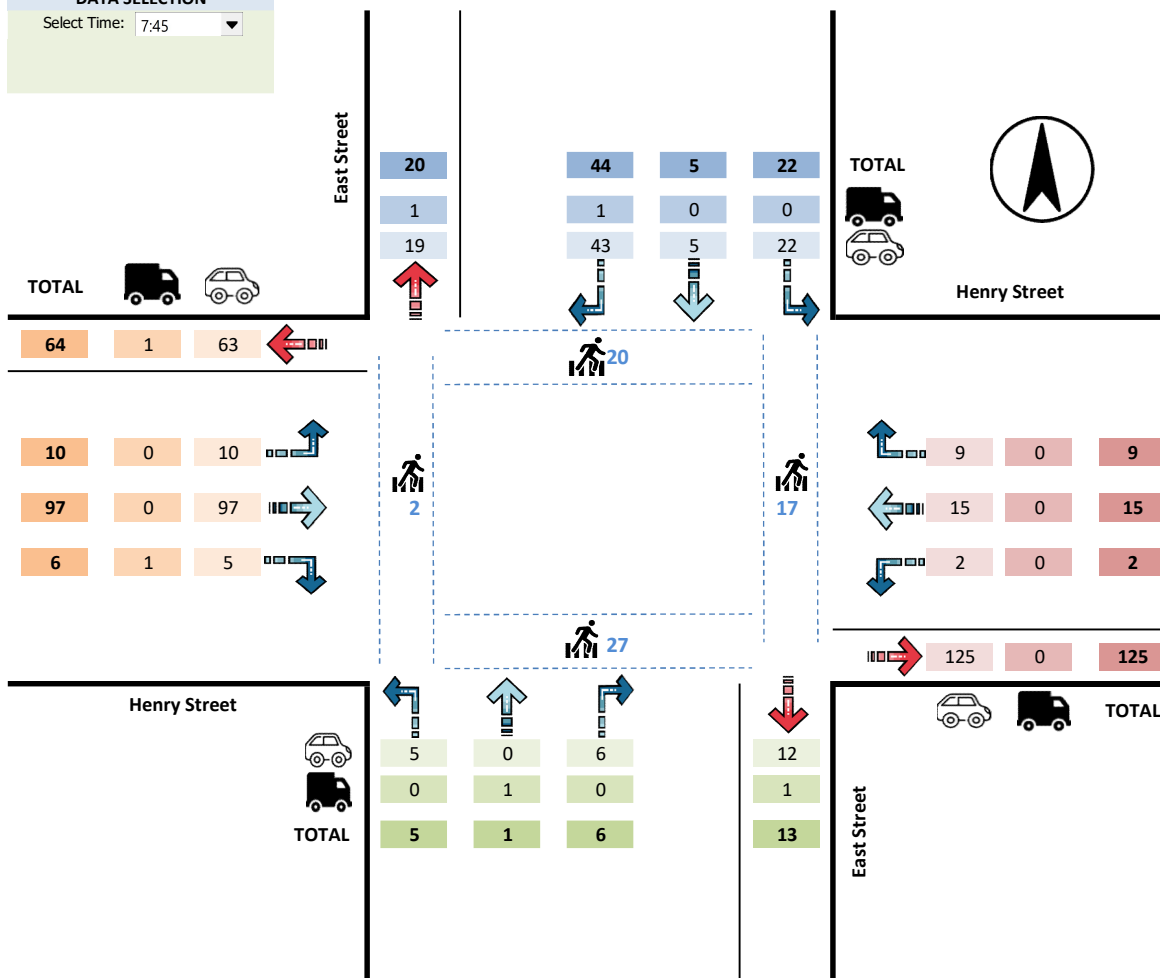


Location East Street
Henry Street
East Street
Henry Street
 Suburb FIVE DOCK

Duration 7:00 - 9:00
16:00 - 18:00
-
 Day/Date Tuesday, 31 October 2023
 Weather -

DATA SELECTION
 Select Time: 7:45

TIME RANGE		
7:45	-	8:45
PEAK		
8:00	-	9:00



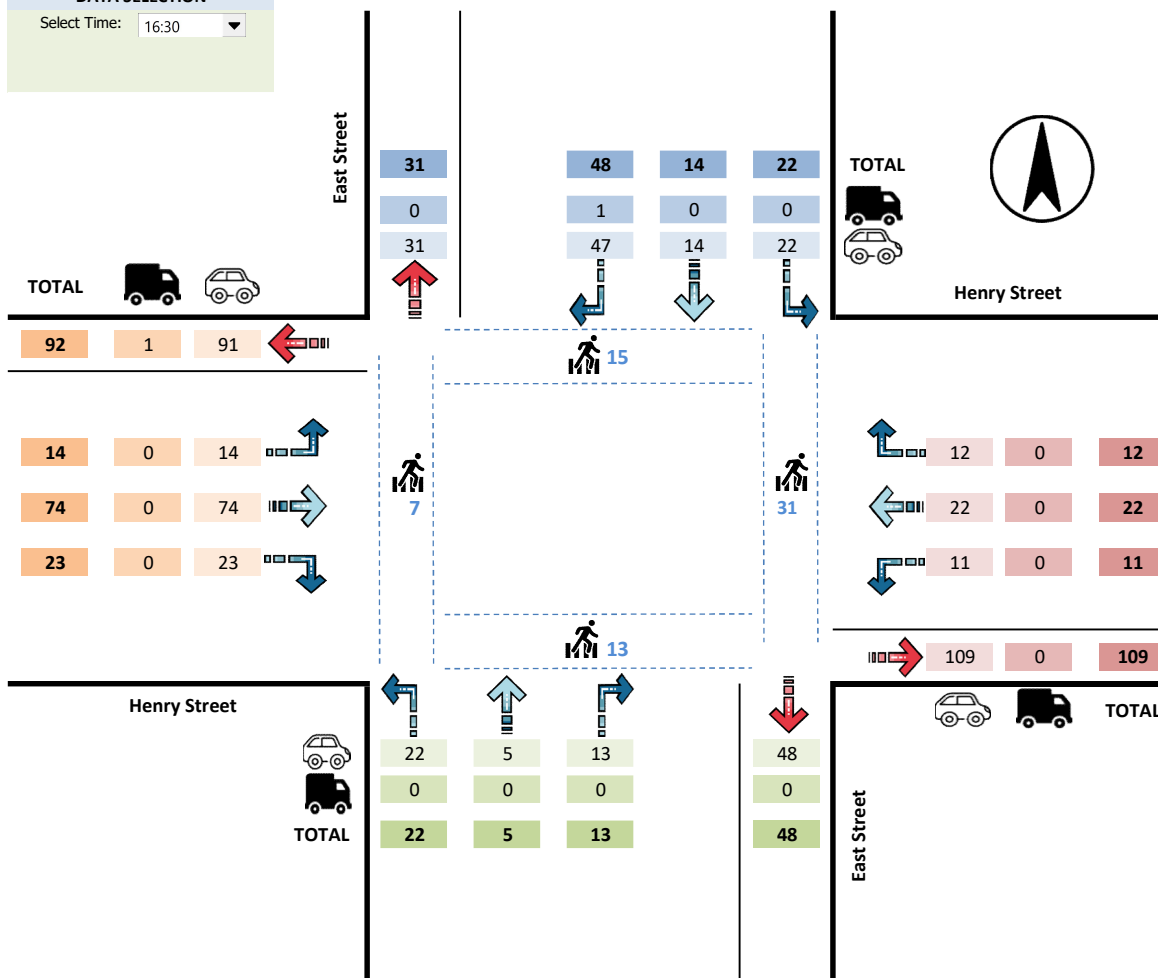
Location East Street
Henry Street
East Street
Henry Street
 Suburb FIVE DOCK

Duration 7:00 - 9:00
16:00 - 18:00
-
 Day/Date Tuesday, 31 October 2023
 Weather -

DATA SELECTION

Select Time: 16:30 ▼

TIME RANGE		
16:30	-	17:30
PEAK		
16:15	-	17:15

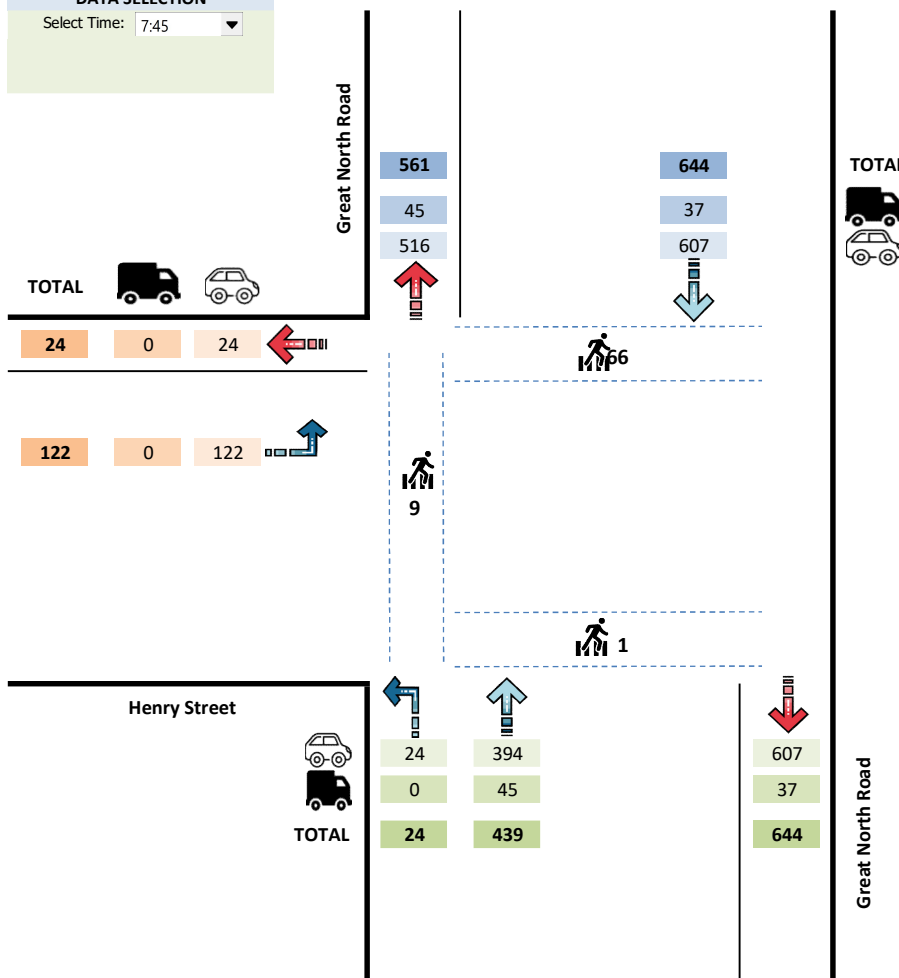


Location Great North Road
-
Great North Road
Henry Street
 Suburb FIVE DOCK

Duration 7:00 - 9:00
16:00 - 18:00
-
 Day/Date Tuesday, 28 February 2023
 Weather -

DATA SELECTION
 Select Time: 7:45

TIME RANGE		
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PEAK		
7:45	-	8:45

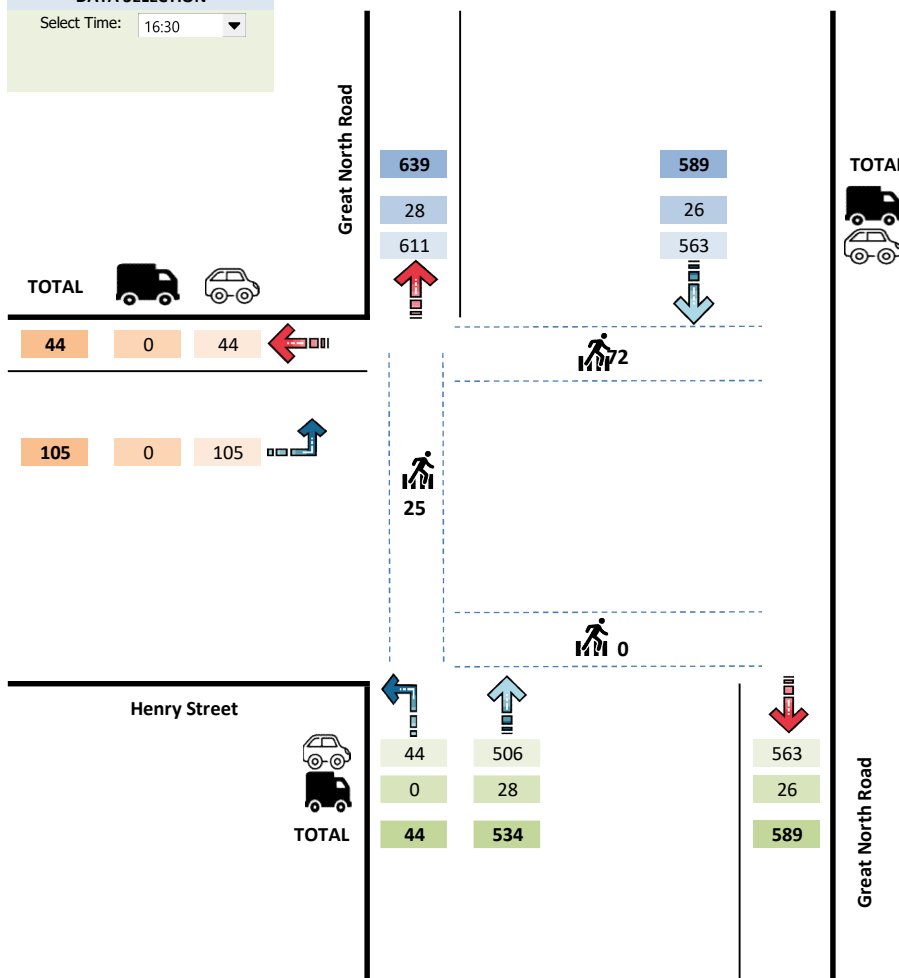


Location Great North Road
-
Great North Road
Henry Street
 Suburb FIVE DOCK

Duration 7:00 - 9:00
16:00 - 18:00
-
 Day/Date Tuesday, 28 February 2023
 Weather -

DATA SELECTION
 Select Time: 16:30

TIME RANGE		
16:30	-	17:30
PEAK		
16:30	-	17:30





Appendix B

SITE LAYOUT

 **Site: 101 [Garfield St / Great N Road AM EX (Site Folder: Existing)]**

Intersection: Great North Rd / Garfield St

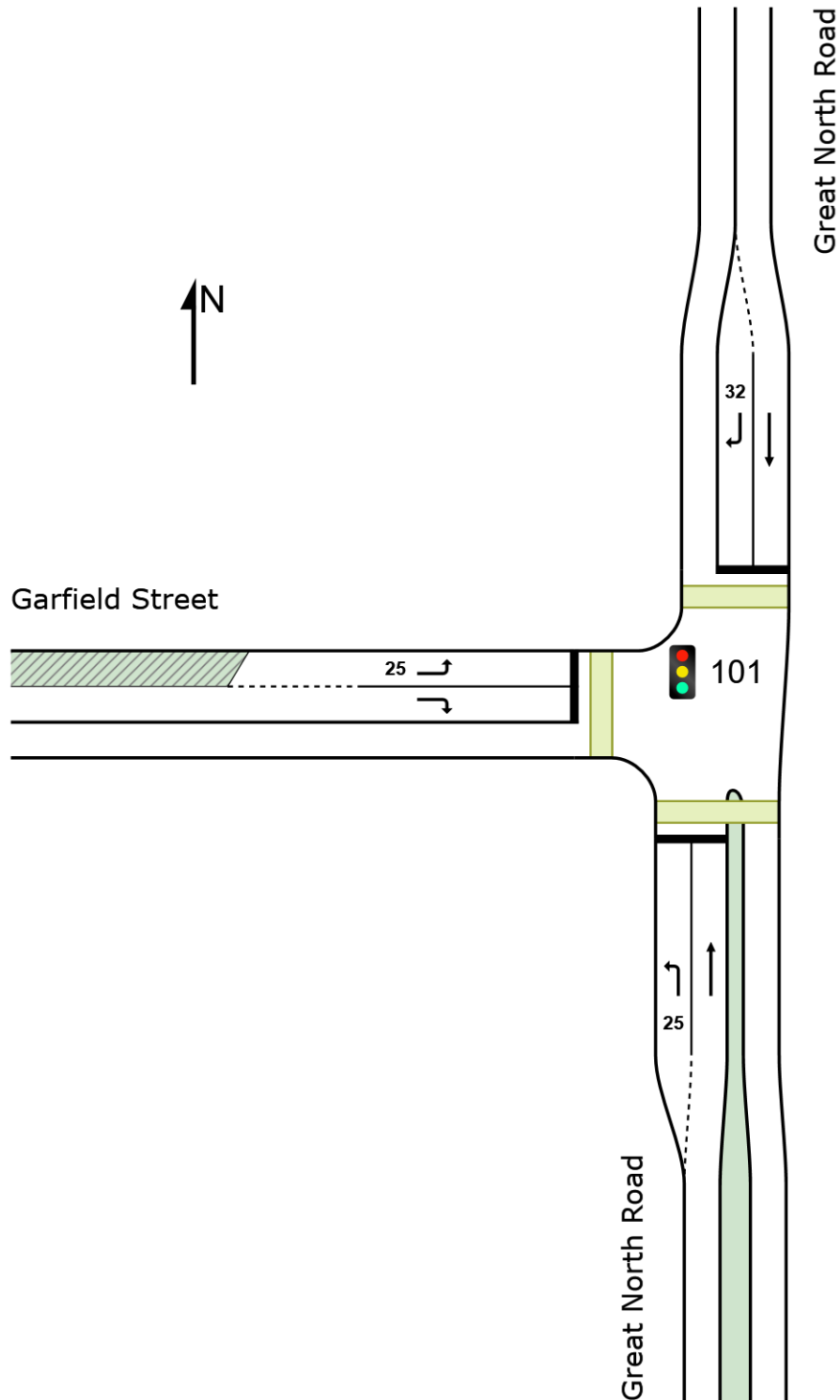
Scenario: AM

Period: EX

Site Category: Existing Design

Signals - EQUISAT (Fixed-Time/SCATS) Isolated

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



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Project: Z:\PDC Consultants\Jobs\0796\Modelling\0796m01 PDC Modelling.sip9

MOVEMENT SUMMARY

 Site: 101 [Garfield St / Great N Road AM EX (Site Folder: Existing)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Intersection: Great North Rd / Garfield St

Scenario: AM

Period: EX

Site Category: Existing Design

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100 seconds (Site User-Given Phase Times)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
			veh/h	%	veh/h	%	v/c	sec							km/h
South: Great North Road															
1	L2	All MCs	91	11.6	91	11.6	0.063	5.5	LOS A	0.5	3.5	0.18	0.57	0.18	42.7
2	T1	All MCs	382	10.2	382	10.2	0.300	5.9	LOS A	6.5	49.7	0.38	0.34	0.38	44.0
Approach			473	10.5	473	10.5	0.300	5.8	LOS A	6.5	49.7	0.34	0.38	0.34	43.1
North: Great North Road															
8	T1	All MCs	549	5.9	549	5.9	* 0.472	7.9	LOS A	11.2	82.2	0.46	0.41	0.46	43.0
9	R2	All MCs	136	6.2	136	6.2	0.225	14.0	LOS A	2.7	20.1	0.44	0.67	0.44	41.5
Approach			685	6.0	685	6.0	0.472	9.1	LOS A	11.2	82.2	0.45	0.46	0.45	41.3
West: Garfield Street															
10	L2	All MCs	108	9.7	108	9.7	0.480	56.2	LOS D	5.1	38.8	0.97	0.78	0.97	28.9
12	R2	All MCs	151	8.4	151	8.4	* 0.685	57.9	LOS E	7.4	55.7	1.00	0.85	1.09	21.7
Approach			259	8.9	259	8.9	0.685	57.1	LOS E	7.4	55.7	0.99	0.82	1.04	23.8
All Vehicles			1417	8.0	1417	8.0	0.685	16.8	LOS B	11.2	82.2	0.51	0.50	0.52	35.9

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped]	[Dist] m			sec	m	m/sec
South: Great North Road												
P1	Full	43	45	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
North: Great North Road												
P3	Full	90	95	44.4	LOS E	0.3	0.3	0.94	0.94	198.2	200.0	1.01
West: Garfield Street												
P4	Full	115	121	44.4	LOS E	0.3	0.3	0.94	0.94	198.3	200.0	1.01
All Pedestrians		248	261	44.4	LOS E	0.3	0.3	0.94	0.94	198.2	200.0	1.01

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.

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Project: Z:\PDC Consultants\Jobs\0796\Modelling\0796m01 PDC Modelling.sip9

MOVEMENT SUMMARY

 Site: 101 [Garfield St / Great N Road PM EX (Site Folder: Existing)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Intersection: Great North Rd / Garfield St

Scenario: PM

Period: EX

Site Category: Existing Design

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 98 seconds (Site User-Given Phase Times)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]		[Total HV]					[Veh.	Dist]				
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Great North Road															
1	L2	All MCs	167	3.1	167	3.1	0.110	7.0	LOS A	0.9	6.3	0.19	0.58	0.19	42.8
2	T1	All MCs	445	4.3	445	4.3	0.389	9.2	LOS A	9.0	65.4	0.46	0.41	0.46	42.3
Approach			613	4.0	613	4.0	0.389	8.6	LOS A	9.0	65.4	0.39	0.46	0.39	40.6
North: Great North Road															
8	T1	All MCs	488	4.5	488	4.5	* 0.454	9.1	LOS A	10.5	76.6	0.49	0.44	0.49	41.9
9	R2	All MCs	169	5.0	169	5.0	0.345	18.5	LOS B	4.4	32.1	0.57	0.72	0.57	39.4
Approach			658	4.6	658	4.6	0.454	11.5	LOS A	10.5	76.6	0.51	0.51	0.51	39.8
West: Garfield Street															
10	L2	All MCs	132	5.6	132	5.6	0.451	45.8	LOS D	5.9	43.0	0.95	0.79	0.95	29.9
12	R2	All MCs	142	2.2	142	2.2	* 0.477	45.9	LOS D	6.4	45.3	0.95	0.79	0.95	23.1
Approach			274	3.8	274	3.8	0.477	45.8	LOS D	6.4	45.3	0.95	0.79	0.95	26.9
All Vehicles			1544	4.2	1544	4.2	0.477	16.4	LOS B	10.5	76.6	0.54	0.54	0.54	36.3

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped]	[Dist] m			sec	m	m/sec
South: Great North Road												
P1	Full	71	75	43.3	LOS E	0.2	0.2	0.94	0.94	197.2	200.0	1.01
North: Great North Road												
P3	Full	82	86	43.3	LOS E	0.2	0.2	0.94	0.94	197.2	200.0	1.01
West: Garfield Street												
P4	Full	115	121	43.4	LOS E	0.3	0.3	0.94	0.94	197.2	200.0	1.01
All Pedestrians		268	282	43.4	LOS E	0.3	0.3	0.94	0.94	197.2	200.0	1.01

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.

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SITE LAYOUT

 **Site: 101v [Great North Rd / Henry St AM EX (Site Folder: Existing)]**

Intersection: Great N Road / Henry Street

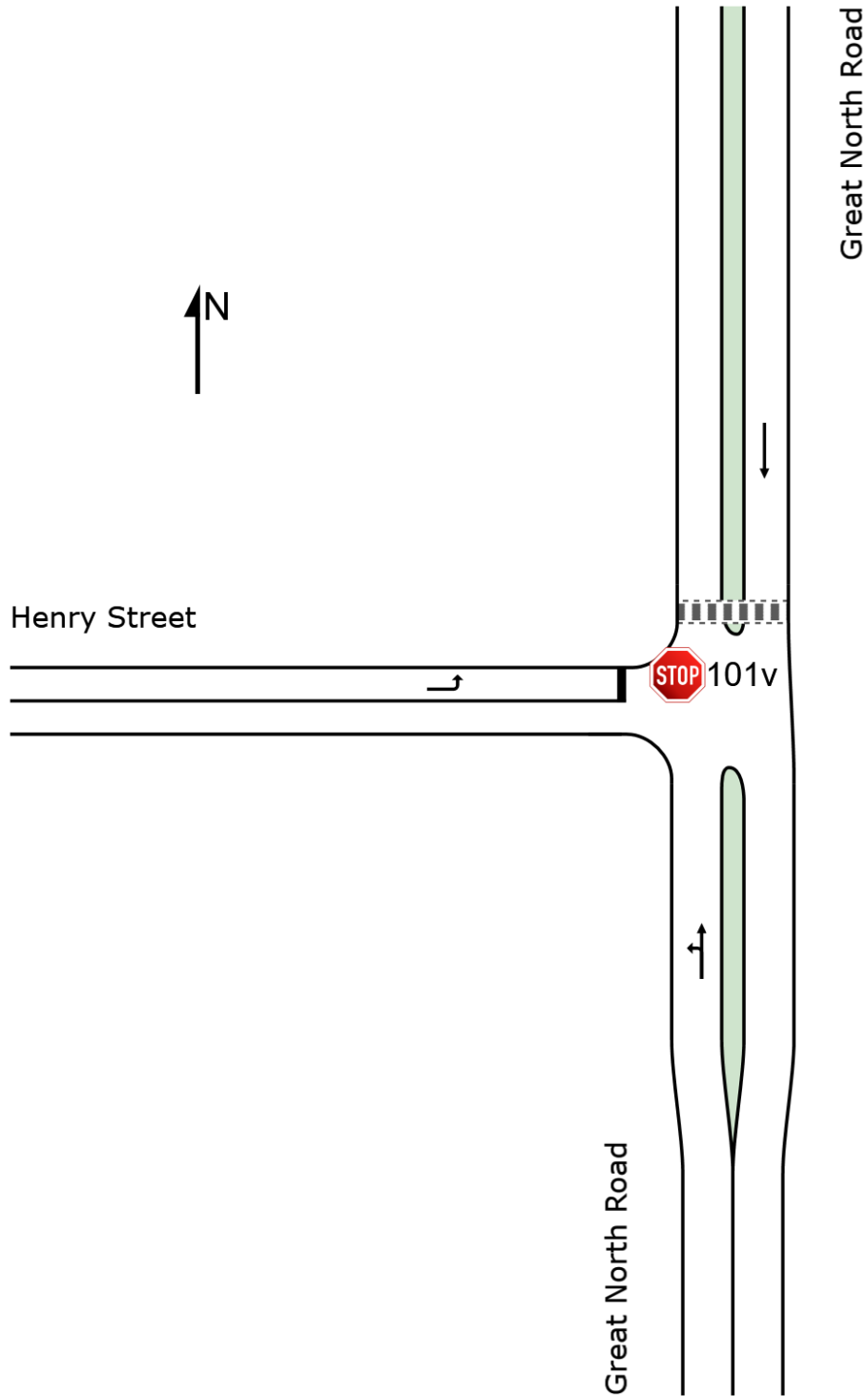
Scenario: Existing

Period: AM

Site Category: Existing Design

Stop (Two-Way)

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MOVEMENT SUMMARY

 **Site: 101v [Great North Rd / Henry St AM EX (Site Folder: Existing)]**

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Intersection: Great N Road / Henry Street
Scenario: Existing
Period: AM
Site Category: Existing Design
Stop (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
			veh/h		veh/h		v/c	sec							km/h
South: Great North Road															
1	L2	All MCs	25	0.0	25	0.0	0.251	4.6	LOS A	0.0	0.0	0.00	0.03	0.00	47.9
2	T1	All MCs	462	10.3	462	10.3	0.251	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	49.5
Approach			487	9.7	487	9.7	0.251	0.3	NA	0.0	0.0	0.00	0.03	0.00	49.4
North: Great North Road															
8	T1	All MCs	678	5.7	678	5.7	0.348	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
Approach			678	5.7	678	5.7	0.348	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.8
West: Henry Street															
10	L2	All MCs	128	0.0	128	0.0	0.144	10.0	LOS A	0.6	4.4	0.51	0.91	0.51	41.8
Approach			128	0.0	128	0.0	0.144	10.0	LOS A	0.6	4.4	0.51	0.91	0.51	41.8
All Vehicles			1294	6.7	1294	6.7	0.348	1.1	NA	0.6	4.4	0.05	0.10	0.05	48.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

 **Site: 101v [Great North Rd / Henry St PM EX (Site Folder: Existing)]**

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Intersection: Great N Road / Henry Street
Scenario: Existing
Period: PM
Site Category: Existing Design
Stop (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh.]	Dist]				
			veh/h		veh/h		v/c	sec		veh	m				km/h
South: Great North Road															
1	L2	All MCs	46	0.0	46	0.0	0.304	4.6	LOS A	0.0	0.0	0.00	0.04	0.00	47.8
2	T1	All MCs	562	5.2	562	5.2	0.304	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	49.3
Approach			608	4.8	608	4.8	0.304	0.4	NA	0.0	0.0	0.00	0.04	0.00	49.1
North: Great North Road															
8	T1	All MCs	620	4.4	620	4.4	0.316	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach			620	4.4	620	4.4	0.316	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.9
West: Henry Street															
10	L2	All MCs	111	0.0	111	0.0	0.139	10.7	LOS A	0.6	4.1	0.56	0.93	0.56	41.5
Approach			111	0.0	111	0.0	0.139	10.7	LOS A	0.6	4.1	0.56	0.93	0.56	41.5
All Vehicles			1339	4.2	1339	4.2	0.316	1.1	NA	0.6	4.1	0.05	0.10	0.05	48.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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SITE LAYOUT

 **Site: 101 [Henry St / East St AM EX (Site Folder: Existing)]**

Intersection: Henry St / East St

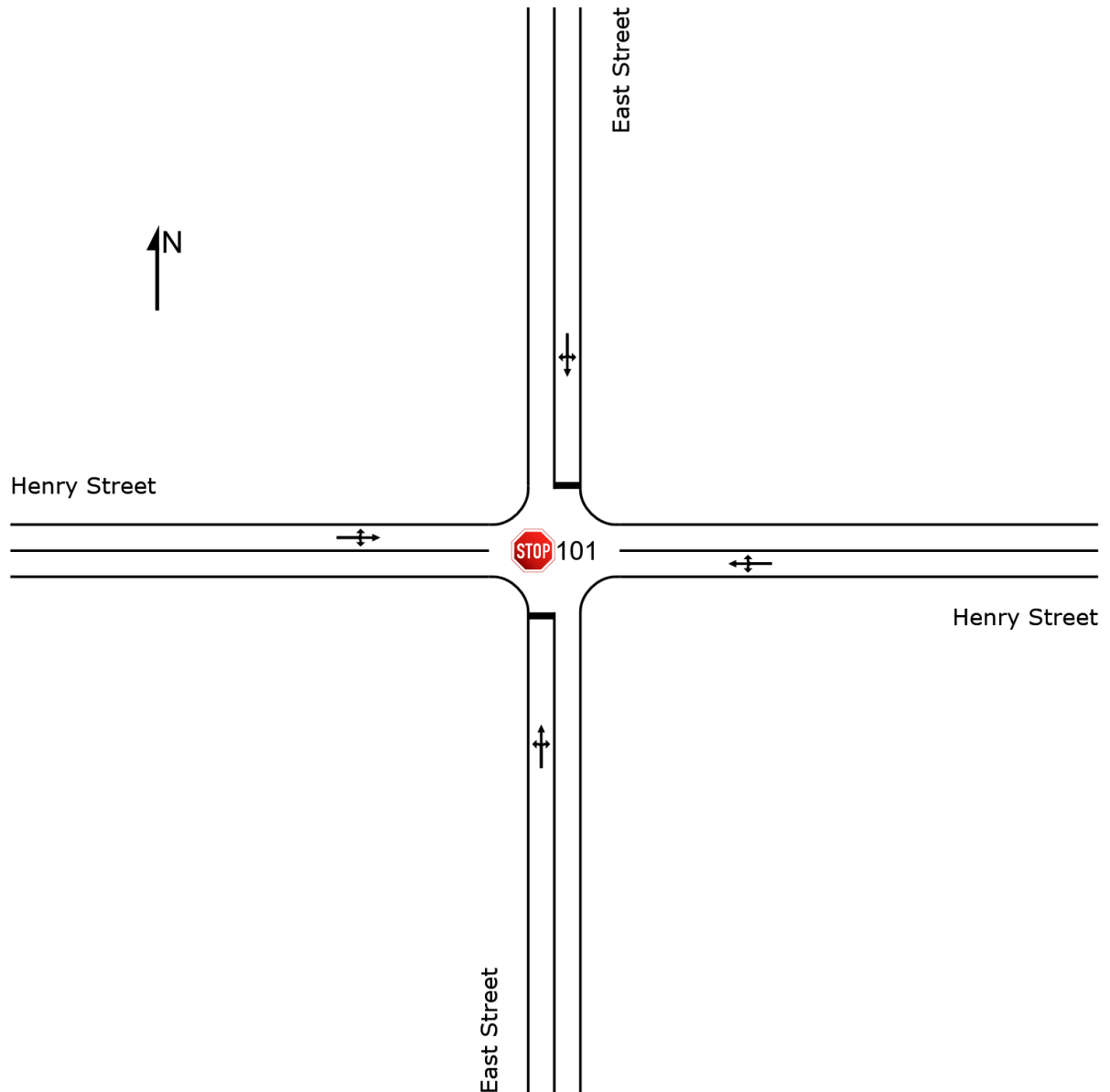
Scenario: Existing

Period: AM

Site Category: Existing Design

Stop (Two-Way)

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MOVEMENT SUMMARY

 **Site: 101 [Henry St / East St AM EX (Site Folder: Existing)]**

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Intersection: Henry St / East St

Scenario: Existing

Period: AM

Site Category: Existing Design

Stop (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: East Street															
1	L2	All MCs	5	0.0	5	0.0	0.013	7.5	LOS A	0.0	0.3	0.12	0.94	0.12	41.3
2	T1	All MCs	1	100.0	1	100.0	0.013	13.1	LOS A	0.0	0.3	0.12	0.94	0.12	34.6
3	R2	All MCs	6	0.0	6	0.0	0.013	7.8	LOS A	0.0	0.3	0.12	0.94	0.12	30.1
Approach			13	8.3	13	8.3	0.013	8.1	LOS A	0.0	0.3	0.12	0.94	0.12	37.1
East: Henry Street															
4	L2	All MCs	2	0.0	2	0.0	0.015	4.8	LOS A	0.1	0.4	0.16	0.26	0.16	38.7
5	T1	All MCs	16	0.0	16	0.0	0.015	0.2	LOS A	0.1	0.4	0.16	0.26	0.16	47.1
6	R2	All MCs	9	0.0	9	0.0	0.015	4.9	LOS A	0.1	0.4	0.16	0.26	0.16	41.3
Approach			27	0.0	27	0.0	0.015	2.2	NA	0.1	0.4	0.16	0.26	0.16	45.2
North: East Street															
7	L2	All MCs	23	0.0	23	0.0	0.076	7.8	LOS A	0.3	1.9	0.24	0.89	0.24	31.0
8	T1	All MCs	5	0.0	5	0.0	0.076	7.8	LOS A	0.3	1.9	0.24	0.89	0.24	37.5
9	R2	All MCs	46	2.3	46	2.3	0.076	7.9	LOS A	0.3	1.9	0.24	0.89	0.24	42.4
Approach			75	1.4	75	1.4	0.076	7.9	LOS A	0.3	1.9	0.24	0.89	0.24	39.7
West: Henry Street															
10	L2	All MCs	11	0.0	11	0.0	0.063	4.6	LOS A	0.1	0.4	0.01	0.08	0.01	47.8
11	T1	All MCs	102	0.0	102	0.0	0.063	0.0	LOS A	0.1	0.4	0.01	0.08	0.01	49.2
12	R2	All MCs	6	16.7	6	16.7	0.063	4.8	LOS A	0.1	0.4	0.01	0.08	0.01	45.8
Approach			119	0.9	119	0.9	0.063	0.7	NA	0.1	0.4	0.01	0.08	0.01	48.8
All Vehicles			234	1.4	234	1.4	0.076	3.5	NA	0.3	1.9	0.11	0.41	0.11	44.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

 **Site: 101 [Henry St / East St PM EX (Site Folder: Existing)]**

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Intersection: Henry St / East St
Scenario: Existing
Period: PM
Site Category: Existing Design
Stop (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h %		Arrival Flows [Total HV] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh Dist] veh m		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: East Street															
1	L2	All MCs	23	0.0	23	0.0	0.039	7.5	LOS A	0.1	1.0	0.12	0.93	0.12	41.6
2	T1	All MCs	6	16.7	6	16.7	0.039	8.8	LOS A	0.1	1.0	0.12	0.93	0.12	36.9
3	R2	All MCs	14	0.0	14	0.0	0.039	7.9	LOS A	0.1	1.0	0.12	0.93	0.12	30.6
Approach			43	2.4	43	2.4	0.039	7.8	LOS A	0.1	1.0	0.12	0.93	0.12	39.0
East: Henry Street															
4	L2	All MCs	12	0.0	12	0.0	0.026	4.7	LOS A	0.1	0.6	0.13	0.29	0.13	38.2
5	T1	All MCs	23	0.0	23	0.0	0.026	0.1	LOS A	0.1	0.6	0.13	0.29	0.13	46.8
6	R2	All MCs	13	0.0	13	0.0	0.026	4.9	LOS A	0.1	0.6	0.13	0.29	0.13	40.9
Approach			47	0.0	47	0.0	0.026	2.5	NA	0.1	0.6	0.13	0.29	0.13	44.3
North: East Street															
7	L2	All MCs	23	0.0	23	0.0	0.092	7.7	LOS A	0.3	2.4	0.25	0.90	0.25	30.9
8	T1	All MCs	15	0.0	15	0.0	0.092	7.9	LOS A	0.3	2.4	0.25	0.90	0.25	37.4
9	R2	All MCs	51	2.1	51	2.1	0.092	8.1	LOS A	0.3	2.4	0.25	0.90	0.25	42.4
Approach			88	1.2	88	1.2	0.092	8.0	LOS A	0.3	2.4	0.25	0.90	0.25	39.6
West: Henry Street															
10	L2	All MCs	15	0.0	15	0.0	0.063	4.6	LOS A	0.2	1.1	0.06	0.19	0.06	46.9
11	T1	All MCs	78	0.0	78	0.0	0.063	0.0	LOS A	0.2	1.1	0.06	0.19	0.06	48.0
12	R2	All MCs	24	0.0	24	0.0	0.063	4.7	LOS A	0.2	1.1	0.06	0.19	0.06	46.0
Approach			117	0.0	117	0.0	0.063	1.6	NA	0.2	1.1	0.06	0.19	0.06	47.4
All Vehicles			296	0.7	296	0.7	0.092	4.5	NA	0.3	2.4	0.14	0.53	0.14	43.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

Site: 101 [Garfield St / Great N Road AM EX + DEV (Site Folder: Existing + Development)]

Intersection: Great North Rd / Garfield St

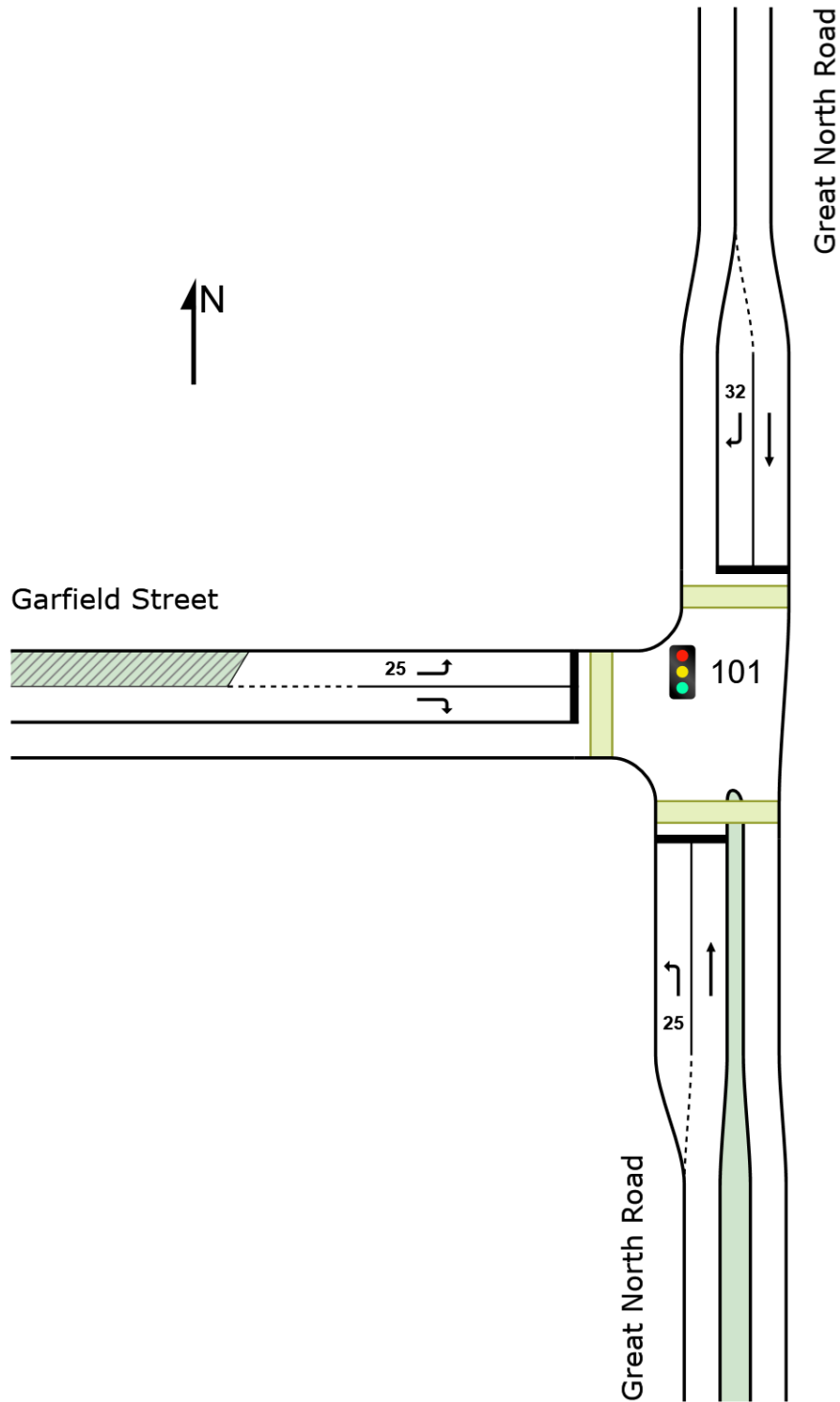
Scenario: EX + DEV

Period: AM

Site Category: Existing Design

Signals - EQUISAT (Fixed-Time/SCATS) Isolated

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MOVEMENT SUMMARY

 Site: 101 [Garfield St / Great N Road AM EX + DEV (Site Folder: Existing + Development)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Intersection: Great North Rd / Garfield St

Scenario: EX + DEV

Period: AM

Site Category: Existing Design

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100 seconds (Site User-Given Phase Times)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
South: Great North Road															
1	L2	All MCs	91	11.6	91	11.6	0.063	5.6	LOS A	0.5	3.5	0.18	0.57	0.18	42.7
2	T1	All MCs	391	10.0	391	10.0	0.308	6.1	LOS A	6.7	51.1	0.39	0.34	0.39	44.1
Approach			481	10.3	481	10.3	0.308	6.0	LOS A	6.7	51.1	0.35	0.38	0.35	43.1
North: Great North Road															
8	T1	All MCs	549	5.9	549	5.9	* 0.473	7.9	LOS A	11.2	82.3	0.46	0.41	0.46	43.0
9	R2	All MCs	136	6.2	136	6.2	0.228	14.1	LOS A	2.7	20.2	0.44	0.68	0.44	41.5
Approach			685	6.0	685	6.0	0.473	9.2	LOS A	11.2	82.3	0.45	0.46	0.45	41.2
West: Garfield Street															
10	L2	All MCs	108	9.7	108	9.7	0.480	60.8	LOS E	5.1	38.8	0.97	0.78	0.97	28.9
12	R2	All MCs	172	7.4	172	7.4	* 0.816	67.5	LOS E	9.1	67.7	1.00	0.95	1.25	20.8
Approach			280	8.3	280	8.3	0.816	64.9	LOS E	9.1	67.7	0.99	0.88	1.14	22.1
All Vehicles			1446	7.9	1446	7.9	0.816	18.9	LOS B	11.2	82.3	0.52	0.52	0.55	34.8

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped]	Dist]			sec	m	m/sec
South: Great North Road												
P1	Full	43	45	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
North: Great North Road												
P3	Full	90	95	44.4	LOS E	0.3	0.3	0.94	0.94	198.2	200.0	1.01
West: Garfield Street												
P4	Full	115	121	44.4	LOS E	0.3	0.3	0.94	0.94	198.3	200.0	1.01
All Pedestrians		248	261	44.4	LOS E	0.3	0.3	0.94	0.94	198.2	200.0	1.01

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.

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MOVEMENT SUMMARY

 **Site: 101 [Garfield St / Great N Road PM EX + DEV (Site Folder: Existing + Development)]**

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Intersection: Great North Rd / Garfield St

Scenario: EX + DEV

Period: PM

Site Category: Existing Design

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 98 seconds (Site User-Given Phase Times)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: Great North Road															
1	L2	All MCs	167	3.1	167	3.1	0.132	7.3	LOS A	1.6	11.3	0.27	0.57	0.27	42.4
2	T1	All MCs	463	4.1	463	4.1	0.395	9.2	LOS A	9.1	65.8	0.46	0.42	0.46	42.5
Approach			631	3.8	631	3.8	0.395	8.7	LOS A	9.1	65.8	0.41	0.46	0.41	40.7
North: Great North Road															
8	T1	All MCs	488	4.5	488	4.5	* 0.456	9.1	LOS A	10.6	76.8	0.49	0.44	0.49	41.9
9	R2	All MCs	169	5.0	169	5.0	0.351	18.5	LOS B	4.4	32.2	0.57	0.72	0.57	39.4
Approach			658	4.6	658	4.6	0.456	11.6	LOS A	10.6	76.8	0.51	0.51	0.51	39.8
West: Garfield Street															
10	L2	All MCs	132	5.6	132	5.6	* 0.522	48.1	LOS D	6.6	47.9	0.96	0.80	0.96	29.9
12	R2	All MCs	156	2.0	156	2.0	0.522	47.8	LOS D	6.6	47.9	0.96	0.79	0.96	23.1
Approach			287	3.7	287	3.7	0.522	47.9	LOS D	6.6	47.9	0.96	0.79	0.96	26.2
All Vehicles			1576	4.1	1576	4.1	0.522	17.1	LOS B	10.6	76.8	0.55	0.54	0.55	36.0

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped]	[Dist] m			sec	m	m/sec
South: Great North Road												
P1	Full	71	75	43.3	LOS E	0.2	0.2	0.94	0.94	197.2	200.0	1.01
North: Great North Road												
P3	Full	82	86	43.3	LOS E	0.2	0.2	0.94	0.94	197.2	200.0	1.01
West: Garfield Street												
P4	Full	115	121	43.4	LOS E	0.3	0.3	0.94	0.94	197.2	200.0	1.01
All Pedestrians		268	282	43.4	LOS E	0.3	0.3	0.94	0.94	197.2	200.0	1.01

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.

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SITE LAYOUT

 **Site: 101v [Great North Rd / Henry St AM EX + DEV (Site Folder: Existing + Development)]**

Intersection: Great N Road / Henry Street

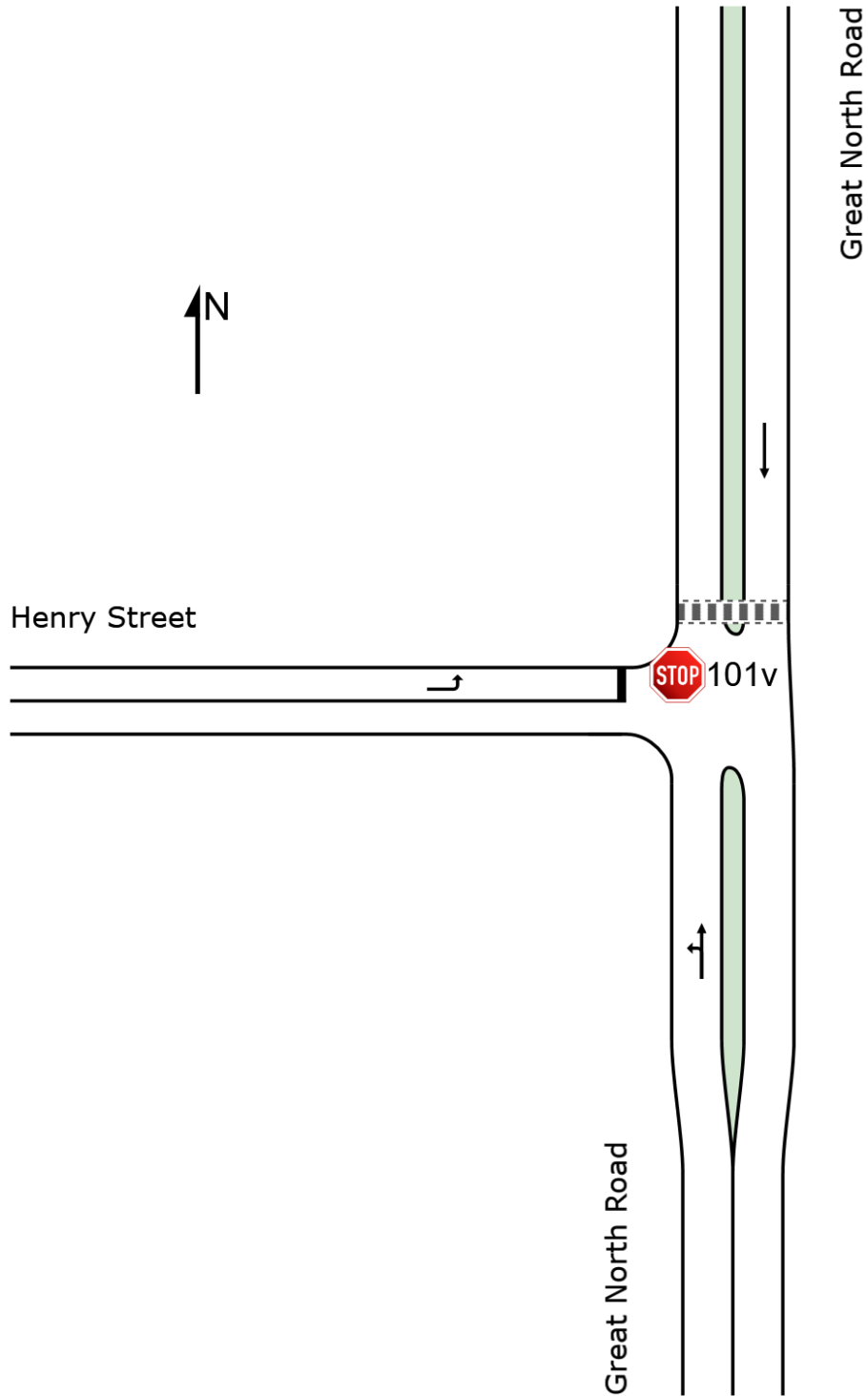
Scenario: Existing + DEV

Period: AM

Site Category: Existing Design

Stop (Two-Way)

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MOVEMENT SUMMARY

 **Site: 101v [Great North Rd / Henry St AM EX + DEV (Site Folder: Existing + Development)]**

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Intersection: Great N Road / Henry Street
Scenario: Existing + DEV
Period: AM
Site Category: Existing Design
Stop (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh.]	Dist]				
			veh/h		veh/h		v/c	sec		veh	m				km/h
South: Great North Road															
1	L2	All MCs	34	0.0	34	0.0	0.255	4.6	LOS A	0.0	0.0	0.00	0.04	0.00	48.0
2	T1	All MCs	462	10.3	462	10.3	0.255	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	49.5
Approach			496	9.6	496	9.6	0.255	0.3	NA	0.0	0.0	0.00	0.04	0.00	49.4
North: Great North Road															
8	T1	All MCs	678	5.7	678	5.7	0.348	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
Approach			678	5.7	678	5.7	0.348	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.8
West: Henry Street															
10	L2	All MCs	138	0.0	138	0.0	0.155	10.0	LOS A	0.7	4.8	0.52	0.91	0.52	42.2
Approach			138	0.0	138	0.0	0.155	10.0	LOS A	0.7	4.8	0.52	0.91	0.52	42.2
All Vehicles			1312	6.6	1312	6.6	0.348	1.2	NA	0.7	4.8	0.05	0.11	0.05	48.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 **Site: 101v [Great North Rd / Henry St PM EX + DEV (Site Folder: Existing + Development)]**

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Intersection: Great N Road / Henry Street
Scenario: Existing + DEV
Period: PM
Site Category: Existing Design
Stop (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh.]	Dist]				
			veh/h		veh/h		v/c	sec		veh	m				km/h
South: Great North Road															
1	L2	All MCs	64	0.0	64	0.0	0.313	4.6	LOS A	0.0	0.0	0.00	0.06	0.00	47.9
2	T1	All MCs	562	5.2	562	5.2	0.313	0.1	LOS A	0.0	0.0	0.00	0.06	0.00	49.3
Approach			626	4.7	626	4.7	0.313	0.5	NA	0.0	0.0	0.00	0.06	0.00	49.1
North: Great North Road															
8	T1	All MCs	620	4.4	620	4.4	0.316	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach			620	4.4	620	4.4	0.316	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.9
West: Henry Street															
10	L2	All MCs	125	0.0	125	0.0	0.158	10.8	LOS A	0.7	4.7	0.56	0.93	0.56	42.1
Approach			125	0.0	125	0.0	0.158	10.8	LOS A	0.7	4.7	0.56	0.93	0.56	42.1
All Vehicles			1372	4.1	1372	4.1	0.316	1.2	NA	0.7	4.7	0.05	0.11	0.05	48.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

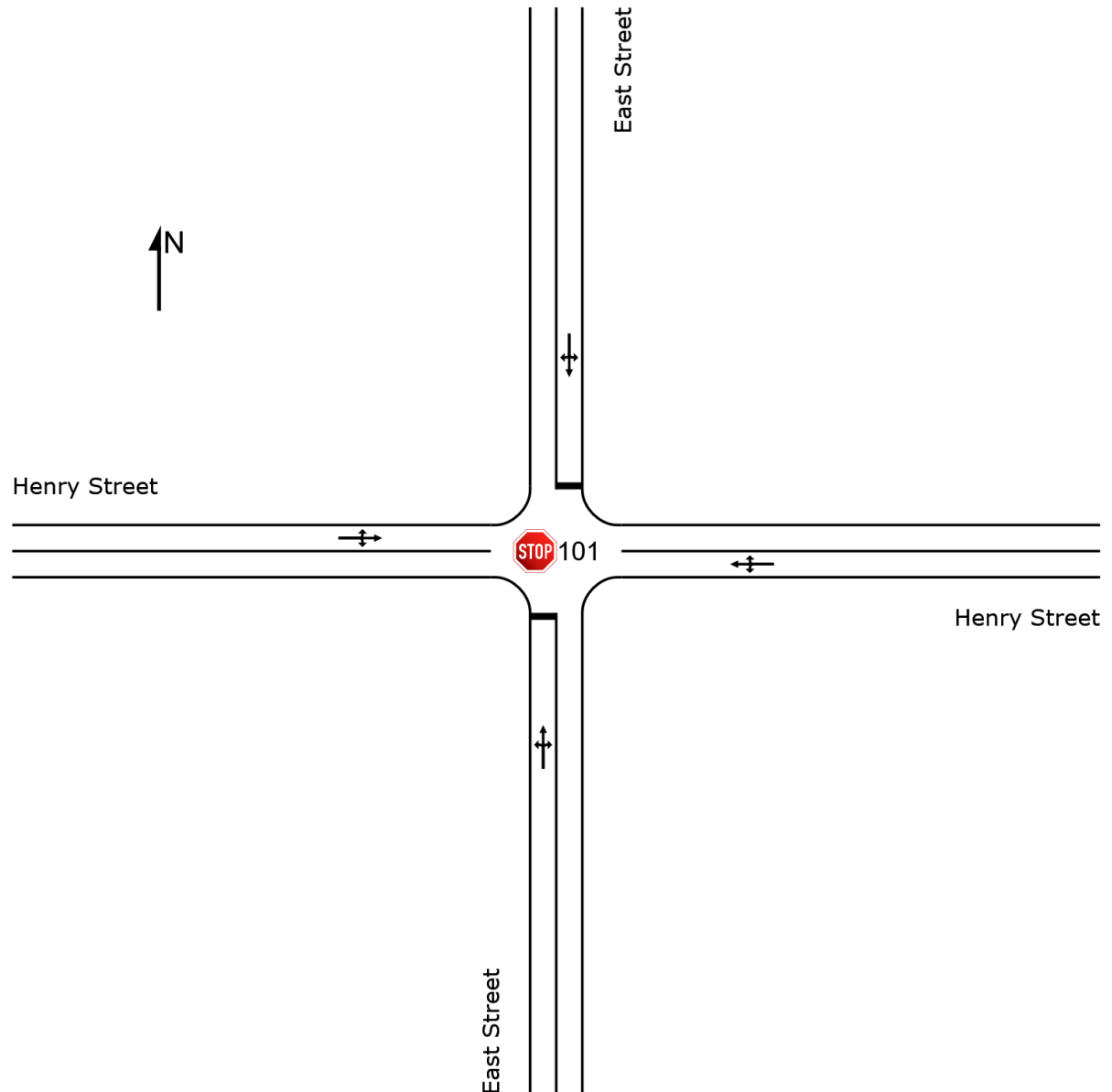
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

 **Site: 101 [Henry St / East St AM EX + DEV (Site Folder: Existing + Development)]**

Intersection: Henry St / East St
Scenario: Existing + DEV
Period: AM
Site Category: Existing Design
Stop (Two-Way)

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



MOVEMENT SUMMARY

 **Site: 101 [Henry St / East St AM EX + DEV (Site Folder: Existing + Development)]**

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Intersection: Henry St / East St
Scenario: Existing + DEV
Period: AM
Site Category: Existing Design
Stop (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h %		Arrival Flows [Total HV] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. Dist] veh m		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: East Street															
1	L2	All MCs	5	0.0	5	0.0	0.014	7.6	LOS A	0.0	0.4	0.21	0.90	0.21	41.1
2	T1	All MCs	1	100.0	1	100.0	0.014	14.2	LOS A	0.0	0.4	0.21	0.90	0.21	34.4
3	R2	All MCs	6	0.0	6	0.0	0.014	8.4	LOS A	0.0	0.4	0.21	0.90	0.21	29.8
Approach			13	8.3	13	8.3	0.014	8.6	LOS A	0.0	0.4	0.21	0.90	0.21	36.9
East: Henry Street															
4	L2	All MCs	2	0.0	2	0.0	0.046	5.0	LOS A	0.2	1.2	0.20	0.29	0.20	39.7
5	T1	All MCs	46	0.0	46	0.0	0.046	0.3	LOS A	0.2	1.2	0.20	0.29	0.20	52.7
6	R2	All MCs	32	0.0	32	0.0	0.046	5.2	LOS A	0.2	1.2	0.20	0.29	0.20	44.6
Approach			80	0.0	80	0.0	0.046	2.3	NA	0.2	1.2	0.20	0.29	0.20	50.1
North: East Street															
7	L2	All MCs	38	0.0	38	0.0	0.095	8.2	LOS A	0.3	2.5	0.30	0.89	0.30	31.2
8	T1	All MCs	5	0.0	5	0.0	0.095	8.3	LOS A	0.3	2.5	0.30	0.89	0.30	37.6
9	R2	All MCs	46	2.3	46	2.3	0.095	8.5	LOS A	0.3	2.5	0.30	0.89	0.30	42.5
Approach			89	1.2	89	1.2	0.095	8.4	LOS A	0.3	2.5	0.30	0.89	0.30	38.8
West: Henry Street															
10	L2	All MCs	11	0.0	11	0.0	0.081	4.6	LOS A	0.1	0.4	0.02	0.06	0.02	49.2
11	T1	All MCs	136	0.0	136	0.0	0.081	0.0	LOS A	0.1	0.4	0.02	0.06	0.02	51.5
12	R2	All MCs	6	16.7	6	16.7	0.081	4.8	LOS A	0.1	0.4	0.02	0.06	0.02	47.4
Approach			153	0.7	153	0.7	0.081	0.5	NA	0.1	0.4	0.02	0.06	0.02	51.1
All Vehicles			335	0.9	335	0.9	0.095	3.4	NA	0.3	2.5	0.14	0.37	0.14	46.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akcelik M3D).

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 **Site: 101 [Henry St / East St PM EX + DEV (Site Folder: Existing + Development)]**

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Intersection: Henry St / East St
Scenario: Existing + DEV
Period: PM
Site Category: Existing Design
Stop (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
South: East Street															
1	L2	All MCs	23	0.0	23	0.0	0.042	7.6	LOS A	0.2	1.1	0.18	0.91	0.18	41.5
2	T1	All MCs	6	16.7	6	16.7	0.042	9.3	LOS A	0.2	1.1	0.18	0.91	0.18	36.8
3	R2	All MCs	14	0.0	14	0.0	0.042	8.5	LOS A	0.2	1.1	0.18	0.91	0.18	30.4
Approach			43	2.4	43	2.4	0.042	8.1	LOS A	0.2	1.1	0.18	0.91	0.18	38.8
East: Henry Street															
4	L2	All MCs	12	0.0	12	0.0	0.049	4.9	LOS A	0.2	1.4	0.19	0.32	0.19	38.6
5	T1	All MCs	42	0.0	42	0.0	0.049	0.2	LOS A	0.2	1.4	0.19	0.32	0.19	50.4
6	R2	All MCs	33	0.0	33	0.0	0.049	5.2	LOS A	0.2	1.4	0.19	0.32	0.19	43.4
Approach			86	0.0	86	0.0	0.049	2.7	NA	0.2	1.4	0.19	0.32	0.19	47.3
North: East Street															
7	L2	All MCs	37	0.0	37	0.0	0.110	8.1	LOS A	0.4	2.9	0.30	0.89	0.30	31.1
8	T1	All MCs	15	0.0	15	0.0	0.110	8.4	LOS A	0.4	2.9	0.30	0.89	0.30	37.5
9	R2	All MCs	51	2.1	51	2.1	0.110	8.6	LOS A	0.4	2.9	0.30	0.89	0.30	42.4
Approach			102	1.0	102	1.0	0.110	8.4	LOS A	0.4	2.9	0.30	0.89	0.30	38.9
West: Henry Street															
10	L2	All MCs	15	0.0	15	0.0	0.080	4.7	LOS A	0.2	1.2	0.06	0.16	0.06	48.4
11	T1	All MCs	109	0.0	109	0.0	0.080	0.0	LOS A	0.2	1.2	0.06	0.16	0.06	50.4
12	R2	All MCs	24	0.0	24	0.0	0.080	4.8	LOS A	0.2	1.2	0.06	0.16	0.06	47.7
Approach			148	0.0	148	0.0	0.080	1.3	NA	0.2	1.2	0.06	0.16	0.06	49.6
All Vehicles			380	0.6	380	0.6	0.110	4.3	NA	0.4	2.9	0.17	0.48	0.17	44.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

 **Site: 101 [Garfield St / Great N Road AM EX (Site Folder: Existing)]**

Intersection: Great North Rd / Garfield St

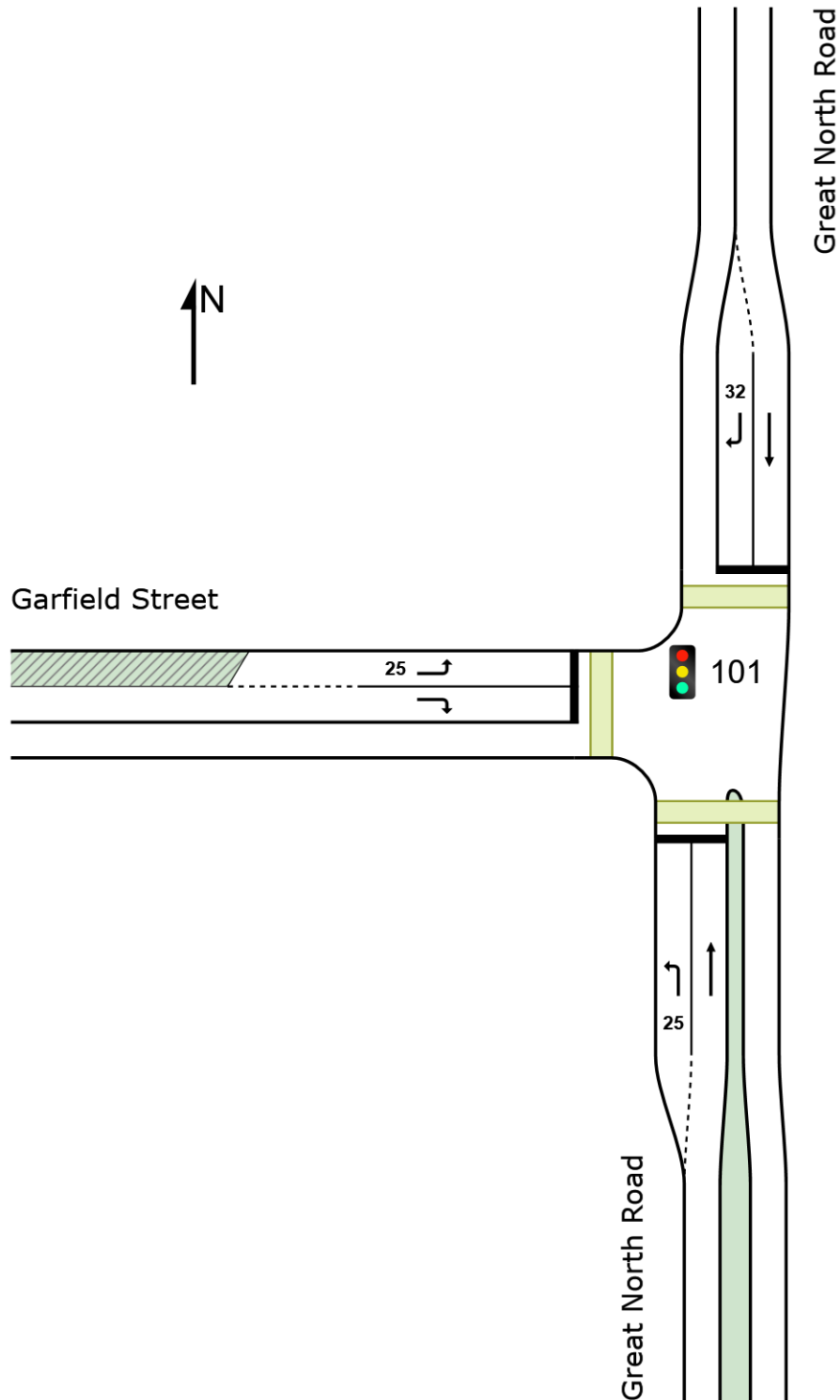
Scenario: AM

Period: EX

Site Category: Existing Design

Signals - EQUISAT (Fixed-Time/SCATS) Isolated

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MOVEMENT SUMMARY

 Site: 101 [Garfield St / Great N Road AM EX (Site Folder: Existing)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Intersection: Great North Rd / Garfield St

Scenario: AM

Period: EX

Site Category: Existing Design

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100 seconds (Site User-Given Phase Times)

Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]		[Total HV]					[Veh.	Dist]				
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Great North Road															
1	L2	All MCs	110	11.6	110	11.6	0.077	6.6	LOS A	0.6	4.3	0.18	0.57	0.18	42.7
2	T1	All MCs	466	10.2	466	10.2	0.384	7.5	LOS A	8.6	65.8	0.42	0.37	0.42	43.6
Approach			576	10.5	576	10.5	0.384	7.3	LOS A	8.6	65.8	0.37	0.41	0.37	41.8
North: Great North Road															
8	T1	All MCs	670	5.9	670	5.9	* 0.645	11.1	LOS A	16.8	123.6	0.57	0.51	0.57	41.7
9	R2	All MCs	166	6.2	166	6.2	0.317	17.8	LOS B	3.9	28.5	0.50	0.70	0.50	40.5
Approach			835	6.0	835	6.0	0.645	12.5	LOS A	16.8	123.6	0.55	0.55	0.55	38.9
West: Garfield Street															
10	L2	All MCs	132	9.7	132	9.7	0.688	67.7	LOS E ¹¹	6.6	50.2	1.00	0.85	1.10	28.1
12	R2	All MCs	183	8.4	183	8.4	* 1.006	112.4	LOS F ¹¹	13.4	100.6	1.00	1.26	1.84	14.5
Approach			316	8.9	316	8.9	1.006	93.7	LOS F ¹¹	13.4	100.6	1.00	1.09	1.53	17.9
All Vehicles			1727	8.0	1727	8.0	1.006	25.6	LOS B	16.8	123.6	0.57	0.60	0.67	31.5

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

¹¹ Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Great North Road												
P1	Full	43	55	44.3	LOS E ¹²	0.1	0.1	0.94	0.94	198.1	200.0	1.01
North: Great North Road												
P3	Full	90	115	44.4	LOS E ¹²	0.3	0.3	0.94	0.94	198.2	200.0	1.01
West: Garfield Street												
P4	Full	115	148	44.5	LOS E ¹²	0.4	0.4	0.95	0.95	198.3	200.0	1.01

All	248	318	44.4	LOS	0.4	0.4	0.94	0.94	198.2	200.0	1.01
Pedestrians				E ¹²							

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.

¹² Level of Service is worse than the Pedestrian Level of Service Target specified in the Parameter Settings dialog.

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Project: Z:\PDC Consultants\Jobs\0796\Modelling\0796m01 PDC Modelling.sip9

MOVEMENT SUMMARY

 Site: 101 [Garfield St / Great N Road PM EX (Site Folder: Existing)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Intersection: Great North Rd / Garfield St

Scenario: PM

Period: EX

Site Category: Existing Design

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 98 seconds (Site User-Given Phase Times)

Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]		[Total HV]					[Veh. veh	Dist]				
			veh/h	%	veh/h	%	v/c	sec			m				km/h
South: Great North Road															
1	L2	All MCs	204	3.1	204	3.1	0.134	8.5	LOS A	1.1	7.9	0.20	0.58	0.20	42.8
2	T1	All MCs	543	4.3	543	4.3	0.503	11.5	LOS A	12.3	89.4	0.52	0.47	0.52	41.5
Approach			747	4.0	747	4.0	0.503	10.6	LOS A	12.3	89.4	0.43	0.50	0.43	38.9
North: Great North Road															
8	T1	All MCs	595	4.5	595	4.5	* 0.664	13.2	LOS A	16.2	118.0	0.62	0.56	0.62	40.1
9	R2	All MCs	207	5.0	207	5.0	0.519	25.4	LOS B	6.7	48.7	0.70	0.77	0.70	37.4
Approach			802	4.6	802	4.6	0.664	16.3	LOS B	16.2	118.0	0.64	0.62	0.64	36.8
West: Garfield Street															
10	L2	All MCs	160	5.6	160	5.6	0.646	55.4	LOS D ¹¹	7.5	55.0	0.99	0.83	1.03	29.4
12	R2	All MCs	173	2.2	173	2.2	* 0.697	56.6	LOS E ¹¹	8.3	59.0	1.00	0.85	1.08	22.3
Approach			334	3.8	334	3.8	0.697	56.0	LOS D ¹¹	8.3	59.0	0.99	0.84	1.06	24.4
All Vehicles			1882	4.2	1882	4.2	0.697	21.1	LOS B	16.2	118.0	0.62	0.61	0.63	33.8

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

¹¹ Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Great North Road												
P1	Full	71	91	43.3	LOS E ¹²	0.2	0.2	0.94	0.94	197.2	200.0	1.01
North: Great North Road												
P3	Full	82	105	43.4	LOS E ¹²	0.3	0.3	0.94	0.94	197.2	200.0	1.01
West: Garfield Street												
P4	Full	115	148	43.5	LOS E ¹²	0.4	0.4	0.94	0.94	197.3	200.0	1.01

All	268	344	43.4	LOS	0.4	0.4	0.94	0.94	197.2	200.0	1.01
Pedestrians				E ¹²							

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.

¹² Level of Service is worse than the Pedestrian Level of Service Target specified in the Parameter Settings dialog.

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Project: Z:\PDC Consultants\Jobs\0796\Modelling\0796m01 PDC Modelling.sip9

SITE LAYOUT

 **Site: 101v [Great North Rd / Henry St AM EX (Site Folder: Existing)]**

Intersection: Great N Road / Henry Street

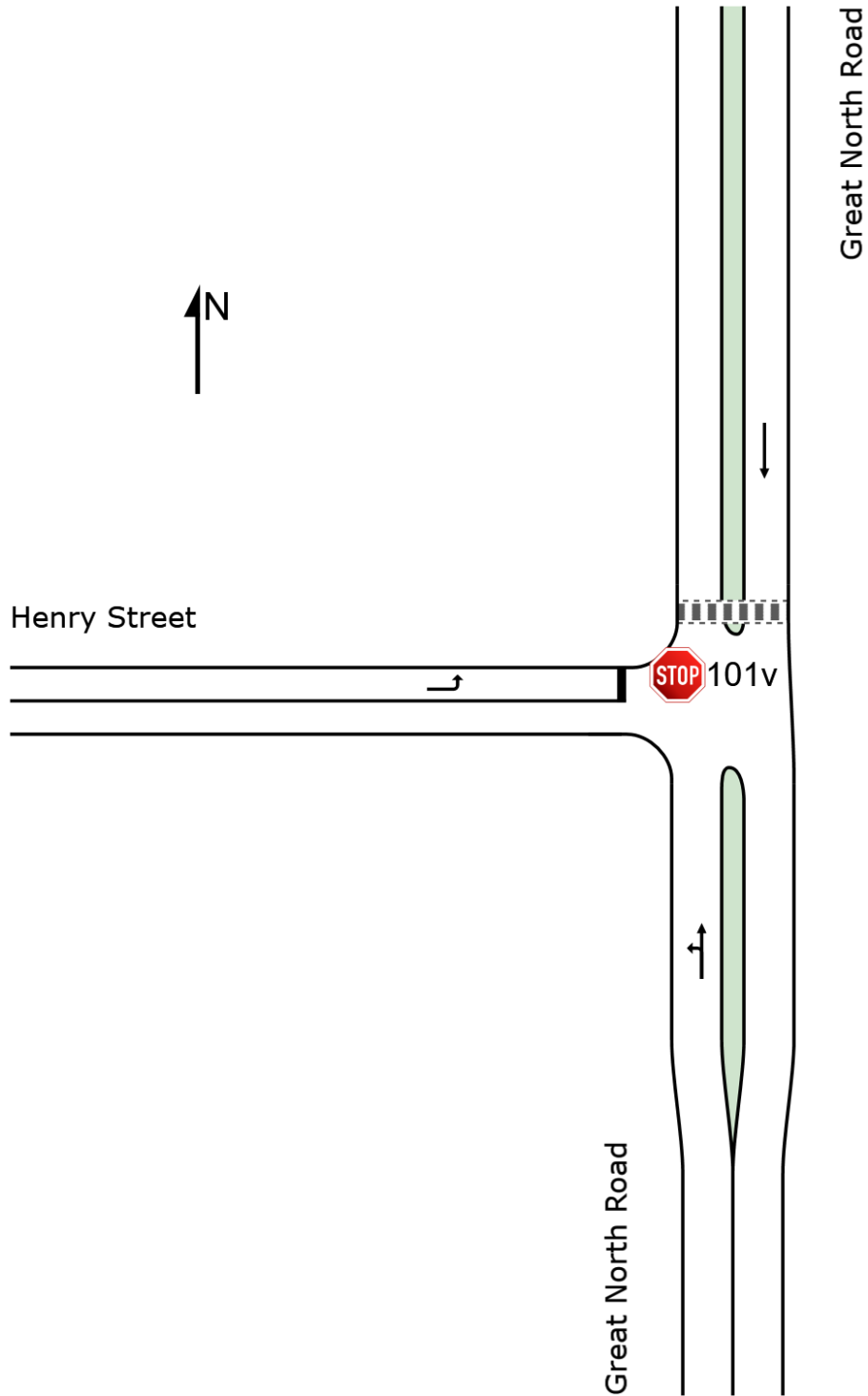
Scenario: Existing

Period: AM

Site Category: Existing Design

Stop (Two-Way)

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



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Project: Z:\PDC Consultants\Jobs\0796\Modelling\0796m01 PDC Modelling.sip9

MOVEMENT SUMMARY

 **Site: 101v [Great North Rd / Henry St AM EX (Site Folder: Existing)]**

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Intersection: Great N Road / Henry Street
Scenario: Existing
Period: AM
Site Category: Existing Design
Stop (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: Great North Road															
1	L2	All MCs	30	0.0	30	0.0	0.301	4.6	LOS A	0.0	0.0	0.00	0.03	0.00	47.9
2	T1	All MCs	555	10.3	555	10.3	0.301	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	49.5
Approach			585	9.7	585	9.7	0.301	0.3	NA	0.0	0.0	0.00	0.03	0.00	49.3
North: Great North Road															
8	T1	All MCs	813	5.7	813	5.7	0.418	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
Approach			813	5.7	813	5.7	0.418	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.8
West: Henry Street															
10	L2	All MCs	154	0.0	154	0.0	0.196	10.9	LOS A	0.9	6.0	0.57	0.93	0.57	41.4
Approach			154	0.0	154	0.0	0.196	10.9	LOS A	0.9	6.0	0.57	0.93	0.57	41.4
All Vehicles			1552	6.7	1552	6.7	0.418	1.2	NA	0.9	6.0	0.06	0.10	0.06	48.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 **Site: 101v [Great North Rd / Henry St PM EX (Site Folder: Existing)]**

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Intersection: Great N Road / Henry Street
Scenario: Existing
Period: PM
Site Category: Existing Design
Stop (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
South: Great North Road															
1	L2	All MCs	56	0.0	56	0.0	0.365	4.6	LOS A	0.0	0.0	0.00	0.04	0.00	47.8
2	T1	All MCs	675	5.2	675	5.2	0.365	0.1	LOS A	0.0	0.0	0.00	0.04	0.00	49.3
Approach			730	4.8	730	4.8	0.365	0.4	NA	0.0	0.0	0.00	0.04	0.00	49.1
North: Great North Road															
8	T1	All MCs	744	4.4	744	4.4	0.379	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
Approach			744	4.4	744	4.4	0.379	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.8
West: Henry Street															
10	L2	All MCs	133	0.0	133	0.0	0.196	11.9	LOS A	0.8	5.7	0.62	0.97	0.62	40.8
Approach			133	0.0	133	0.0	0.196	11.9	LOS A	0.8	5.7	0.62	0.97	0.62	40.8
All Vehicles			1607	4.2	1607	4.2	0.379	1.2	NA	0.8	5.7	0.05	0.10	0.05	48.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

 **Site: 101 [Henry St / East St AM EX (Site Folder: Existing)]**

Intersection: Henry St / East St

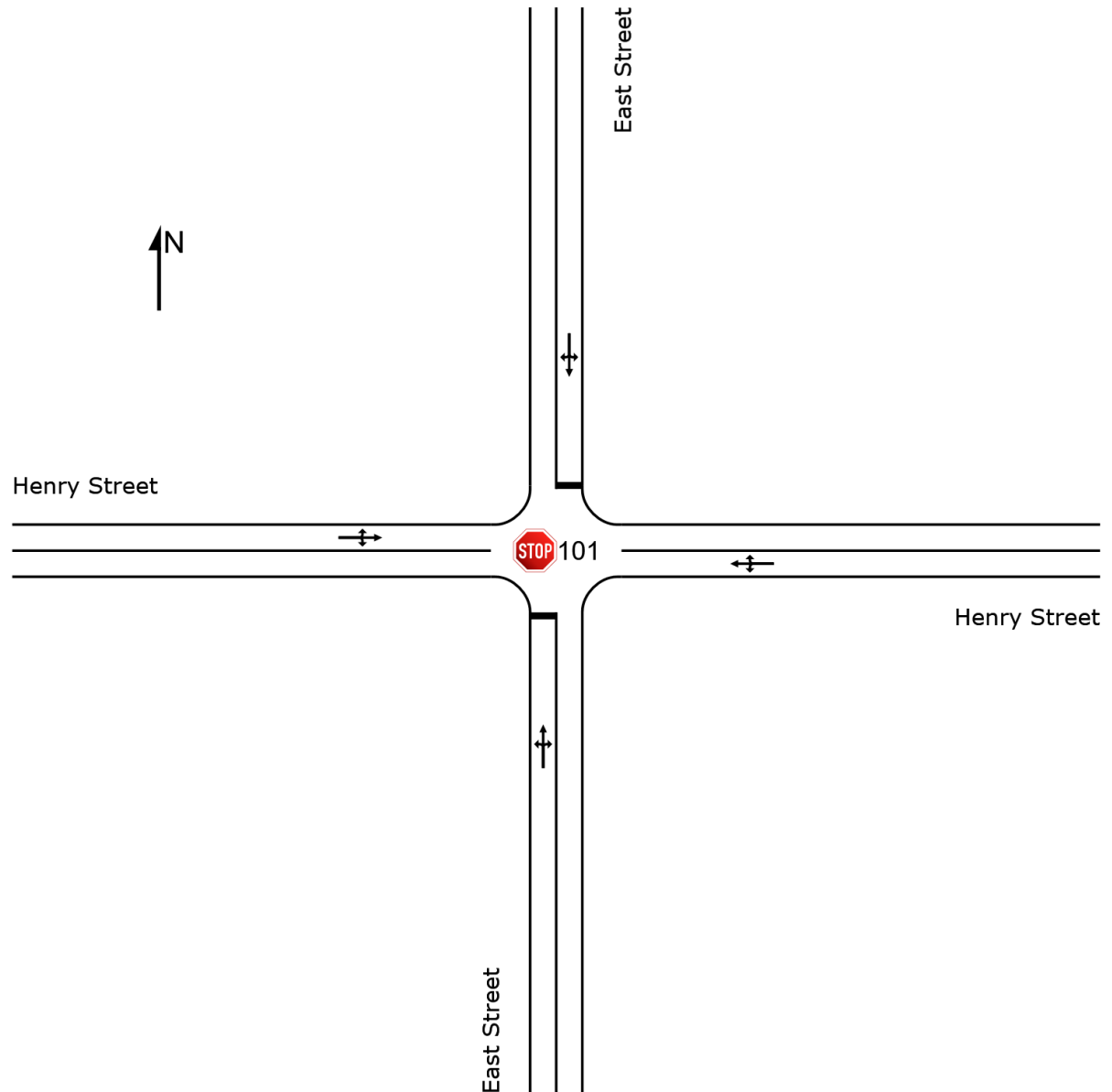
Scenario: Existing

Period: AM

Site Category: Existing Design

Stop (Two-Way)

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



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MOVEMENT SUMMARY

 **Site: 101 [Henry St / East St AM EX (Site Folder: Existing)]**

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Intersection: Henry St / East St
Scenario: Existing
Period: AM
Site Category: Existing Design
Stop (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h %		Arrival Flows [Total HV] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. Dist] veh m		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: East Street															
1	L2	All MCs	6	0.0	6	0.0	0.016	7.5	LOS A	0.1	0.4	0.13	0.93	0.13	41.3
2	T1	All MCs	100.0		100.0		0.016	13.5	LOS A	0.1	0.4	0.13	0.93	0.13	34.5
3	R2	All MCs	8	0.0	8	0.0	0.016	8.0	LOS A	0.1	0.4	0.13	0.93	0.13	30.0
Approach			15	8.3	15	8.3	0.016	8.2	LOS A	0.1	0.4	0.13	0.93	0.13	37.0
East: Henry Street															
4	L2	All MCs	3	0.0	3	0.0	0.019	4.9	LOS A	0.1	0.5	0.18	0.27	0.18	38.6
5	T1	All MCs	19	0.0	19	0.0	0.019	0.2	LOS A	0.1	0.5	0.18	0.27	0.18	47.0
6	R2	All MCs	11	0.0	11	0.0	0.019	5.0	LOS A	0.1	0.5	0.18	0.27	0.18	41.2
Approach			33	0.0	33	0.0	0.019	2.2	NA	0.1	0.5	0.18	0.27	0.18	45.2
North: East Street															
7	L2	All MCs	28	0.0	28	0.0	0.095	7.9	LOS A	0.3	2.4	0.28	0.89	0.28	30.9
8	T1	All MCs	6	0.0	6	0.0	0.095	8.0	LOS A	0.3	2.4	0.28	0.89	0.28	37.3
9	R2	All MCs	56	2.3	56	2.3	0.095	8.1	LOS A	0.3	2.4	0.28	0.89	0.28	42.3
Approach			90	1.4	90	1.4	0.095	8.0	LOS A	0.3	2.4	0.28	0.89	0.28	39.6
West: Henry Street															
10	L2	All MCs	13	0.0	13	0.0	0.076	4.6	LOS A	0.1	0.5	0.01	0.08	0.01	47.8
11	T1	All MCs	123	0.0	123	0.0	0.076	0.0	LOS A	0.1	0.5	0.01	0.08	0.01	49.2
12	R2	All MCs	8	16.7	8	16.7	0.076	4.8	LOS A	0.1	0.5	0.01	0.08	0.01	45.8
Approach			143	0.9	143	0.9	0.076	0.7	NA	0.1	0.5	0.01	0.08	0.01	48.8
All Vehicles			280	1.4	280	1.4	0.095	3.6	NA	0.3	2.4	0.12	0.41	0.12	44.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akcelik M3D).

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 **Site: 101 [Henry St / East St PM EX (Site Folder: Existing)]**

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Intersection: Henry St / East St
Scenario: Existing
Period: PM
Site Category: Existing Design
Stop (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
South: East Street															
1	L2	All MCs	28	0.0	28	0.0	0.049	7.5	LOS A	0.2	1.3	0.14	0.92	0.14	41.5
2	T1	All MCs	8	16.7	8	16.7	0.049	9.0	LOS A	0.2	1.3	0.14	0.92	0.14	36.8
3	R2	All MCs	16	0.0	16	0.0	0.049	8.2	LOS A	0.2	1.3	0.14	0.92	0.14	30.5
Approach			52	2.4	52	2.4	0.049	8.0	LOS A	0.2	1.3	0.14	0.92	0.14	38.9
East: Henry Street															
4	L2	All MCs	14	0.0	14	0.0	0.032	4.8	LOS A	0.1	0.7	0.14	0.30	0.14	38.1
5	T1	All MCs	28	0.0	28	0.0	0.032	0.2	LOS A	0.1	0.7	0.14	0.30	0.14	46.7
6	R2	All MCs	15	0.0	15	0.0	0.032	5.0	LOS A	0.1	0.7	0.14	0.30	0.14	40.9
Approach			57	0.0	57	0.0	0.032	2.6	NA	0.1	0.7	0.14	0.30	0.14	44.2
North: East Street															
7	L2	All MCs	28	0.0	28	0.0	0.114	7.8	LOS A	0.4	3.0	0.29	0.90	0.29	30.8
8	T1	All MCs	18	0.0	18	0.0	0.114	8.1	LOS A	0.4	3.0	0.29	0.90	0.29	37.2
9	R2	All MCs	61	2.1	61	2.1	0.114	8.4	LOS A	0.4	3.0	0.29	0.90	0.29	42.3
Approach			106	1.2	106	1.2	0.114	8.2	LOS A	0.4	3.0	0.29	0.90	0.29	39.5
West: Henry Street															
10	L2	All MCs	18	0.0	18	0.0	0.076	4.6	LOS A	0.2	1.4	0.06	0.19	0.06	46.8
11	T1	All MCs	93	0.0	93	0.0	0.076	0.0	LOS A	0.2	1.4	0.06	0.19	0.06	47.9
12	R2	All MCs	29	0.0	29	0.0	0.076	4.7	LOS A	0.2	1.4	0.06	0.19	0.06	46.0
Approach			140	0.0	140	0.0	0.076	1.6	NA	0.2	1.4	0.06	0.19	0.06	47.3
All Vehicles			355	0.7	355	0.7	0.114	4.6	NA	0.4	3.0	0.15	0.53	0.15	43.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

 **Site: 101 [Garfield St / Great N Road AM EX + DEV (Site Folder: Existing + Development)]**

Intersection: Great North Rd / Garfield St

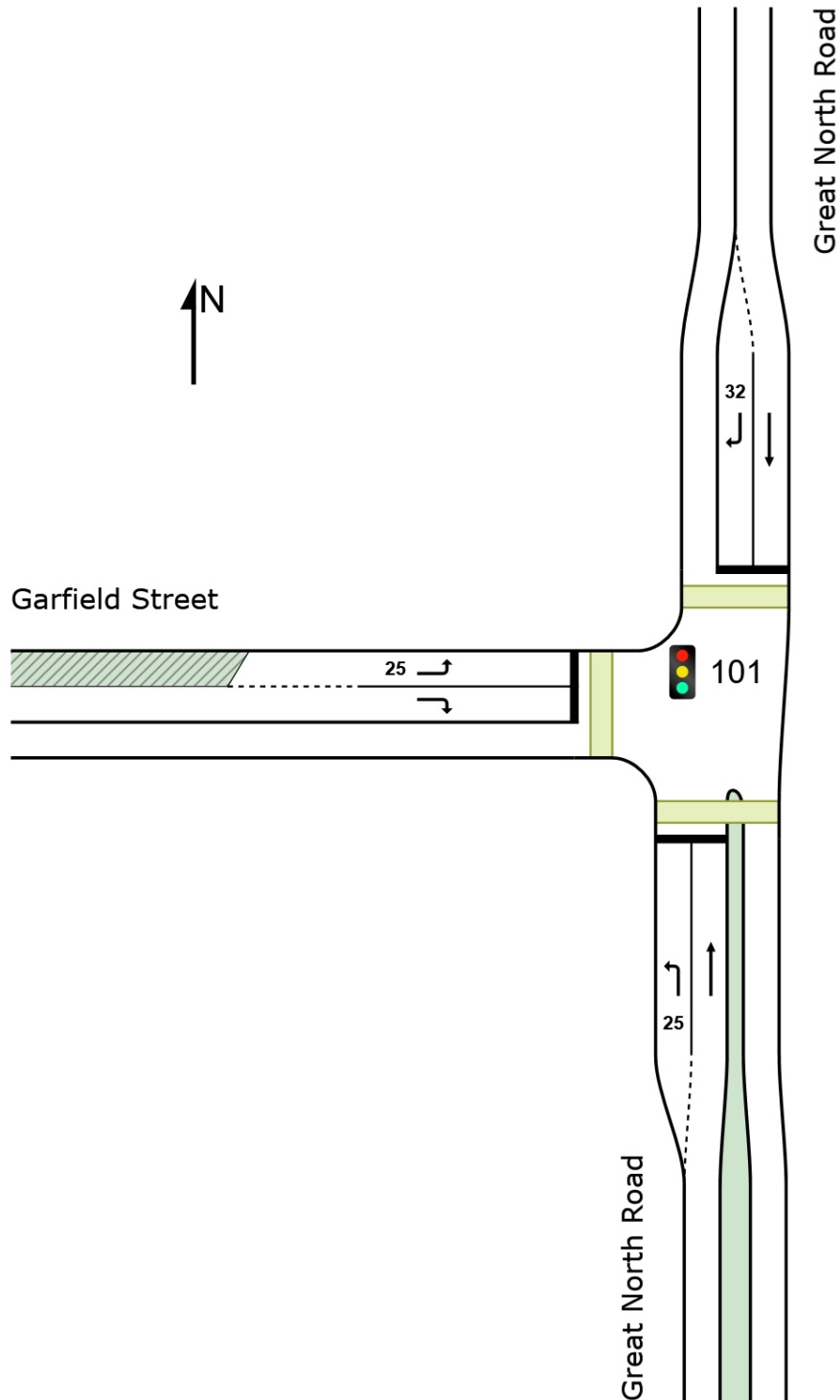
Scenario: EX + DEV

Period: AM

Site Category: Existing Design

Signals - EQUISAT (Fixed-Time/SCATS) Isolated

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



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Project: Z:\PDC Consultants\Jobs\0796\Modelling\0796m01 PDC Modelling.sip9

MOVEMENT SUMMARY

 **Site: 101 [Garfield St / Great N Road AM EX + DEV (Site Folder: Existing + Development)]**

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Intersection: Great North Rd / Garfield St

Scenario: EX + DEV

Period: AM

Site Category: Existing Design

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100 seconds (Site User-Given Phase Times)

Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]		[Total HV]					[Veh.	Dist]				
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Great North Road															
1	L2	All MCs	110	11.6	110	11.6	0.077	6.7	LOS A	0.6	4.3	0.18	0.57	0.18	42.7
2	T1	All MCs	476	10.0	476	10.0	0.393	7.7	LOS A	8.9	67.8	0.42	0.38	0.42	43.7
Approach			586	10.3	586	10.3	0.393	7.5	LOS A	8.9	67.8	0.38	0.41	0.38	41.7
North: Great North Road															
8	T1	All MCs	670	5.9	670	5.9	* 0.644	11.1	LOS A	16.8	123.5	0.57	0.51	0.57	41.7
9	R2	All MCs	166	6.2	166	6.2	0.322	18.3	LOS B	4.0	29.3	0.52	0.71	0.52	40.3
Approach			835	6.0	835	6.0	0.644	12.6	LOS A	16.8	123.5	0.56	0.55	0.56	38.8
West: Garfield Street															
10	L2	All MCs	132	9.7	132	9.7	0.696	71.7	LOS F ¹¹	6.6	50.4	1.00	0.86	1.11	28.0
12	R2	All MCs	209	7.4	209	7.4	* 1.119	194.9	LOS F ¹¹	20.3	151.1	1.00	1.50	2.38	9.4
Approach			341	8.3	341	8.3	1.119	147.2	LOS F ¹¹	20.3	151.1	1.00	1.25	1.89	13.1
All Vehicles			1763	7.9	1763	7.9	1.119	36.9	LOS C	20.3	151.1	0.58	0.64	0.75	27.2

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

¹¹ Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Great North Road												
P1	Full	43	55	44.3	LOS E ¹²	0.1	0.1	0.94	0.94	198.1	200.0	1.01
North: Great North Road												
P3	Full	90	115	44.4	LOS E ¹²	0.3	0.3	0.94	0.94	198.2	200.0	1.01
West: Garfield Street												
P4	Full	115	148	44.5	LOS E ¹²	0.4	0.4	0.95	0.95	198.3	200.0	1.01

All	248	318	44.4	LOS	0.4	0.4	0.94	0.94	198.2	200.0	1.01
Pedestrians				E ¹²							

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.

¹² Level of Service is worse than the Pedestrian Level of Service Target specified in the Parameter Settings dialog.

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MOVEMENT SUMMARY

 Site: 101 [Garfield St / Great N Road PM EX + DEV (Site Folder: Existing + Development)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Intersection: Great North Rd / Garfield St

Scenario: EX + DEV

Period: PM

Site Category: Existing Design

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 98 seconds (Site User-Given Phase Times)

Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: Great North Road															
1	L2	All MCs	204	3.1	204	3.1	0.161	8.8	LOS A	2.0	14.2	0.27	0.57	0.27	42.4
2	T1	All MCs	565	4.1	565	4.1	0.514	11.6	LOS A	12.5	90.4	0.52	0.48	0.52	41.7
Approach			769	3.8	769	3.8	0.514	10.9	LOS A	12.5	90.4	0.45	0.50	0.45	38.9
North: Great North Road															
8	T1	All MCs	595	4.5	595	4.5	* 0.670	13.3	LOS A	16.4	119.1	0.63	0.57	0.63	40.1
9	R2	All MCs	207	5.0	207	5.0	0.532	25.6	LOS B	6.7	49.2	0.71	0.78	0.71	37.4
Approach			802	4.6	802	4.6	0.670	16.5	LOS B	16.4	119.1	0.65	0.62	0.65	36.7
West: Garfield Street															
10	L2	All MCs	160	5.6	160	5.6	* 0.754	60.2	LOSE ¹¹	8.7	63.9	1.00	0.89	1.15	28.8
12	R2	All MCs	190	2.0	190	2.0	0.754	58.8	LOSE ¹¹	8.7	63.9	1.00	0.86	1.10	22.2
Approach			350	3.7	350	3.7	0.754	59.4	LOSE ¹¹	8.7	63.9	1.00	0.88	1.13	23.6
All Vehicles			1921	4.1	1921	4.1	0.754	22.1	LOS B	16.4	119.1	0.63	0.62	0.66	33.3

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

¹¹ Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Great North Road												
P1	Full	71	91	43.3	LOS E ¹²	0.2	0.2	0.94	0.94	197.2	200.0	1.01
North: Great North Road												
P3	Full	82	105	43.4	LOS E ¹²	0.3	0.3	0.94	0.94	197.2	200.0	1.01
West: Garfield Street												
P4	Full	115	148	43.5	LOS E ¹²	0.4	0.4	0.94	0.94	197.3	200.0	1.01

All	268	344	43.4	LOS	0.4	0.4	0.94	0.94	197.2	200.0	1.01
Pedestrians				E ¹²							

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.

¹² Level of Service is worse than the Pedestrian Level of Service Target specified in the Parameter Settings dialog.

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SITE LAYOUT

 **Site: 101v [Great North Rd / Henry St AM EX + DEV (Site Folder: Existing + Development)]**

Intersection: Great N Road / Henry Street

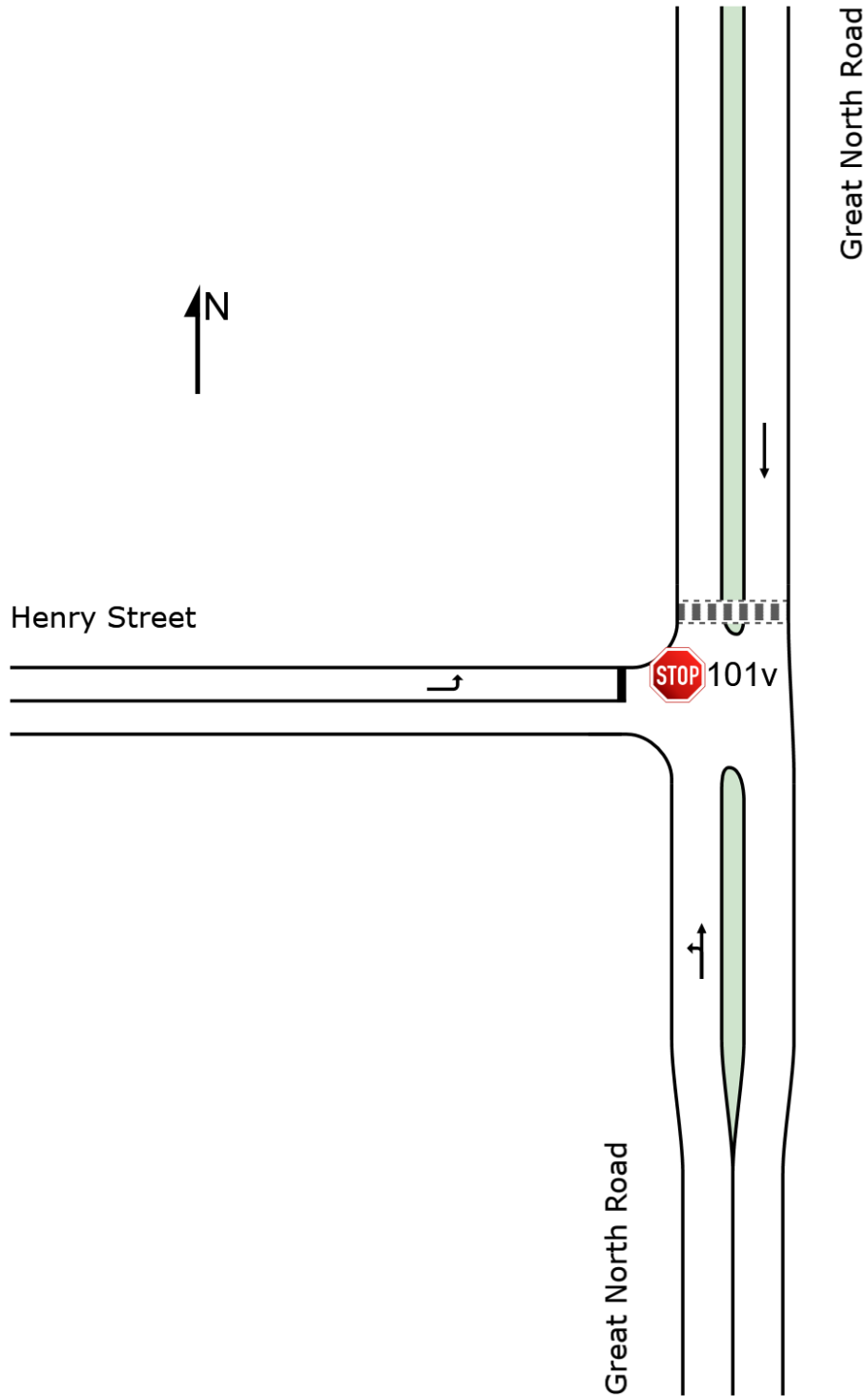
Scenario: Existing + DEV

Period: AM

Site Category: Existing Design

Stop (Two-Way)

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



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MOVEMENT SUMMARY

 **Site: 101v [Great North Rd / Henry St AM EX + DEV (Site Folder: Existing + Development)]**

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Intersection: Great N Road / Henry Street
Scenario: Existing + DEV
Period: AM
Site Category: Existing Design
Stop (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
South: Great North Road															
1	L2	All MCs	40	0.0	40	0.0	0.306	4.6	LOS A	0.0	0.0	0.00	0.04	0.00	47.9
2	T1	All MCs	555	10.3	555	10.3	0.306	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	49.5
Approach			595	9.6	595	9.6	0.306	0.4	NA	0.0	0.0	0.00	0.04	0.00	49.3
North: Great North Road															
8	T1	All MCs	813	5.7	813	5.7	0.418	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
Approach			813	5.7	813	5.7	0.418	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.8
West: Henry Street															
10	L2	All MCs	165	0.0	165	0.0	0.210	10.9	LOS A	0.9	6.5	0.58	0.93	0.58	41.7
Approach			165	0.0	165	0.0	0.210	10.9	LOS A	0.9	6.5	0.58	0.93	0.58	41.7
All Vehicles			1574	6.6	1574	6.6	0.418	1.3	NA	0.9	6.5	0.06	0.11	0.06	48.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 **Site: 101v [Great North Rd / Henry St PM EX + DEV (Site Folder: Existing + Development)]**

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Intersection: Great N Road / Henry Street
Scenario: Existing + DEV
Period: PM
Site Category: Existing Design
Stop (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
South: Great North Road															
1	L2	All MCs	77	0.0	77	0.0	0.376	4.6	LOS A	0.0	0.0	0.00	0.06	0.00	47.8
2	T1	All MCs	675	5.2	675	5.2	0.376	0.1	LOS A	0.0	0.0	0.00	0.06	0.00	49.3
Approach			752	4.7	752	4.7	0.376	0.5	NA	0.0	0.0	0.00	0.06	0.00	49.1
North: Great North Road															
8	T1	All MCs	744	4.4	744	4.4	0.379	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
Approach			744	4.4	744	4.4	0.379	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.8
West: Henry Street															
10	L2	All MCs	150	0.0	150	0.0	0.222	12.0	LOS A	0.9	6.6	0.62	0.97	0.62	41.4
Approach			150	0.0	150	0.0	0.222	12.0	LOS A	0.9	6.6	0.62	0.97	0.62	41.4
All Vehicles			1646	4.1	1646	4.1	0.379	1.4	NA	0.9	6.6	0.06	0.11	0.06	48.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

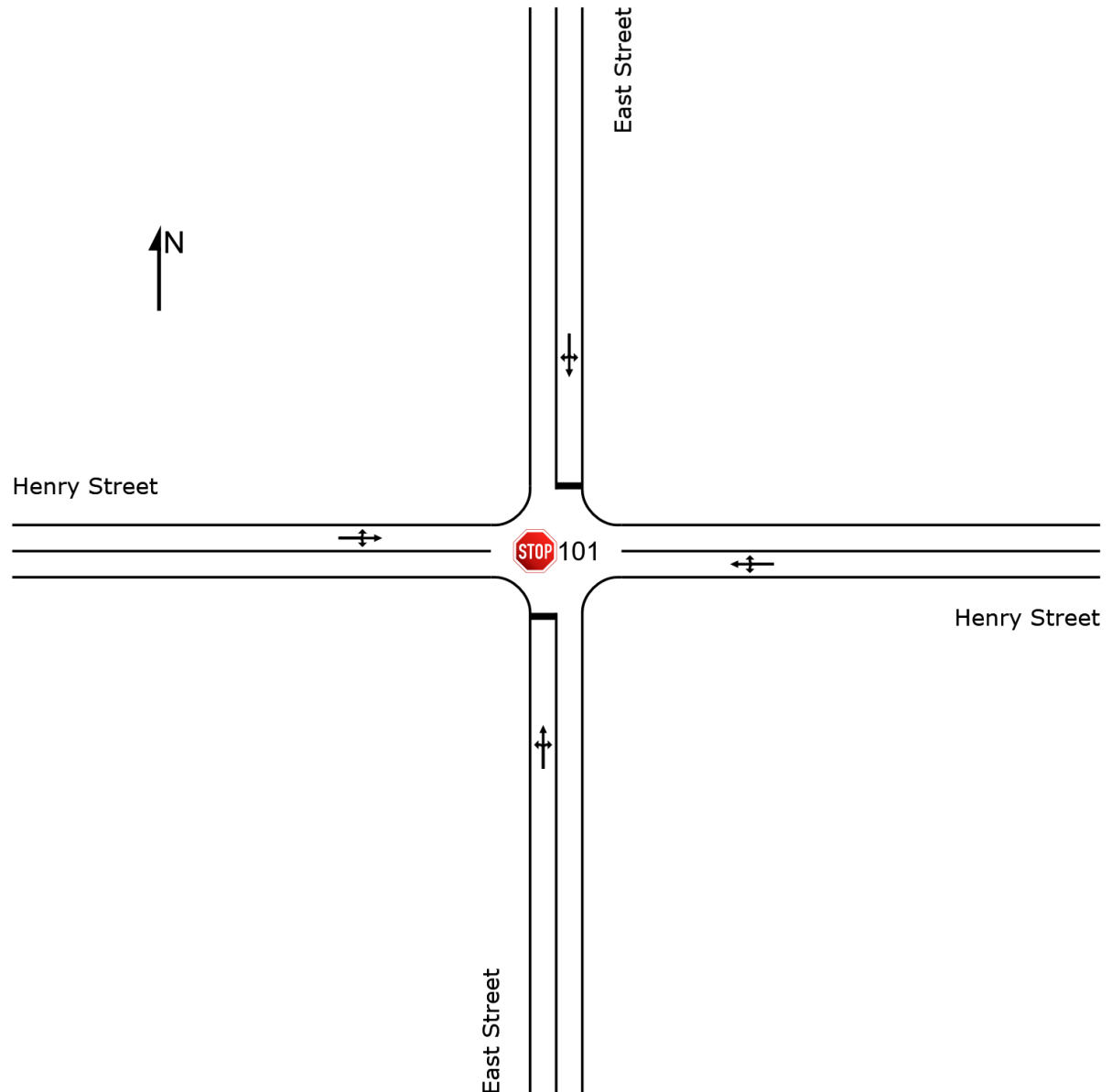
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

 **Site: 101 [Henry St / East St AM EX + DEV (Site Folder: Existing + Development)]**

Intersection: Henry St / East St
Scenario: Existing + DEV
Period: AM
Site Category: Existing Design
Stop (Two-Way)

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



MOVEMENT SUMMARY

 **Site: 101 [Henry St / East St AM EX + DEV (Site Folder: Existing + Development)]**

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Intersection: Henry St / East St

Scenario: Existing + DEV

Period: AM

Site Category: Existing Design

Stop (Two-Way)

Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]		[Total HV]					[Veh.	Dist]				
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: East Street															
1	L2	All MCs	6	0.0	6	0.0	0.018	7.6	LOS A	0.1	0.5	0.24	0.89	0.24	41.0
2	T1	All MCs	1	100.0	1	100.0	0.018	14.9	LOS B	0.1	0.5	0.24	0.89	0.24	34.3
3	R2	All MCs	8	0.0	8	0.0	0.018	8.8	LOS A	0.1	0.5	0.24	0.89	0.24	29.6
Approach			15	8.3	15	8.3	0.018	8.8	LOS A	0.1	0.5	0.24	0.89	0.24	36.7
East: Henry Street															
4	L2	All MCs	3	0.0	3	0.0	0.056	5.1	LOS A	0.2	1.5	0.22	0.30	0.22	39.6
5	T1	All MCs	56	0.0	56	0.0	0.056	0.3	LOS A	0.2	1.5	0.22	0.30	0.22	52.6
6	R2	All MCs	38	0.0	38	0.0	0.056	5.3	LOS A	0.2	1.5	0.22	0.30	0.22	44.5
Approach			96	0.0	96	0.0	0.056	2.4	NA	0.2	1.5	0.22	0.30	0.22	49.9
North: East Street															
7	L2	All MCs	45	0.0	45	0.0	0.119	8.4	LOS A	0.4	3.1	0.34	0.89	0.34	31.0
8	T1	All MCs	6	0.0	6	0.0	0.119	8.7	LOS A	0.4	3.1	0.34	0.89	0.34	37.4
9	R2	All MCs	56	2.3	56	2.3	0.119	8.9	LOS A	0.4	3.1	0.34	0.89	0.34	42.4
Approach			107	1.2	107	1.2	0.119	8.7	LOS A	0.4	3.1	0.34	0.89	0.34	38.6
West: Henry Street															
10	L2	All MCs	13	0.0	13	0.0	0.097	4.6	LOS A	0.1	0.5	0.02	0.06	0.02	49.2
11	T1	All MCs	163	0.0	163	0.0	0.097	0.0	LOS A	0.1	0.5	0.02	0.06	0.02	51.5
12	R2	All MCs	8	16.7	8	16.7	0.097	4.9	LOS A	0.1	0.5	0.02	0.06	0.02	47.4
Approach			183	0.7	183	0.7	0.097	0.5	NA	0.1	0.5	0.02	0.06	0.02	51.1
All Vehicles			402	0.9	402	0.9	0.119	3.5	NA	0.4	3.1	0.16	0.37	0.16	46.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 **Site: 101 [Henry St / East St PM EX + DEV (Site Folder: Existing + Development)]**

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Intersection: Henry St / East St
Scenario: Existing + DEV
Period: PM
Site Category: Existing Design
Stop (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
South: East Street															
1	L2	All MCs	28	0.0	28	0.0	0.053	7.6	LOS A	0.2	1.4	0.21	0.90	0.21	41.4
2	T1	All MCs	8	16.7	8	16.7	0.053	9.6	LOS A	0.2	1.4	0.21	0.90	0.21	36.6
3	R2	All MCs	16	0.0	16	0.0	0.053	8.9	LOS A	0.2	1.4	0.21	0.90	0.21	30.2
Approach			52	2.4	52	2.4	0.053	8.3	LOS A	0.2	1.4	0.21	0.90	0.21	38.7
East: Henry Street															
4	L2	All MCs	14	0.0	14	0.0	0.059	5.0	LOS A	0.2	1.7	0.21	0.33	0.21	38.4
5	T1	All MCs	51	0.0	51	0.0	0.059	0.3	LOS A	0.2	1.7	0.21	0.33	0.21	50.3
6	R2	All MCs	39	0.0	39	0.0	0.059	5.3	LOS A	0.2	1.7	0.21	0.33	0.21	43.2
Approach			104	0.0	104	0.0	0.059	2.8	NA	0.2	1.7	0.21	0.33	0.21	47.2
North: East Street															
7	L2	All MCs	44	0.0	44	0.0	0.138	8.2	LOS A	0.5	3.7	0.34	0.89	0.34	30.9
8	T1	All MCs	18	0.0	18	0.0	0.138	8.7	LOS A	0.5	3.7	0.34	0.89	0.34	37.3
9	R2	All MCs	61	2.1	61	2.1	0.138	9.1	LOS A	0.5	3.7	0.34	0.89	0.34	42.3
Approach			123	1.0	123	1.0	0.138	8.7	LOS A	0.5	3.7	0.34	0.89	0.34	38.7
West: Henry Street															
10	L2	All MCs	18	0.0	18	0.0	0.096	4.7	LOS A	0.2	1.5	0.07	0.16	0.07	48.3
11	T1	All MCs	131	0.0	131	0.0	0.096	0.0	LOS A	0.2	1.5	0.07	0.16	0.07	50.3
12	R2	All MCs	29	0.0	29	0.0	0.096	4.8	LOS A	0.2	1.5	0.07	0.16	0.07	47.6
Approach			178	0.0	178	0.0	0.096	1.3	NA	0.2	1.5	0.07	0.16	0.07	49.6
All Vehicles			456	0.6	456	0.6	0.138	4.4	NA	0.5	3.7	0.19	0.48	0.19	44.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

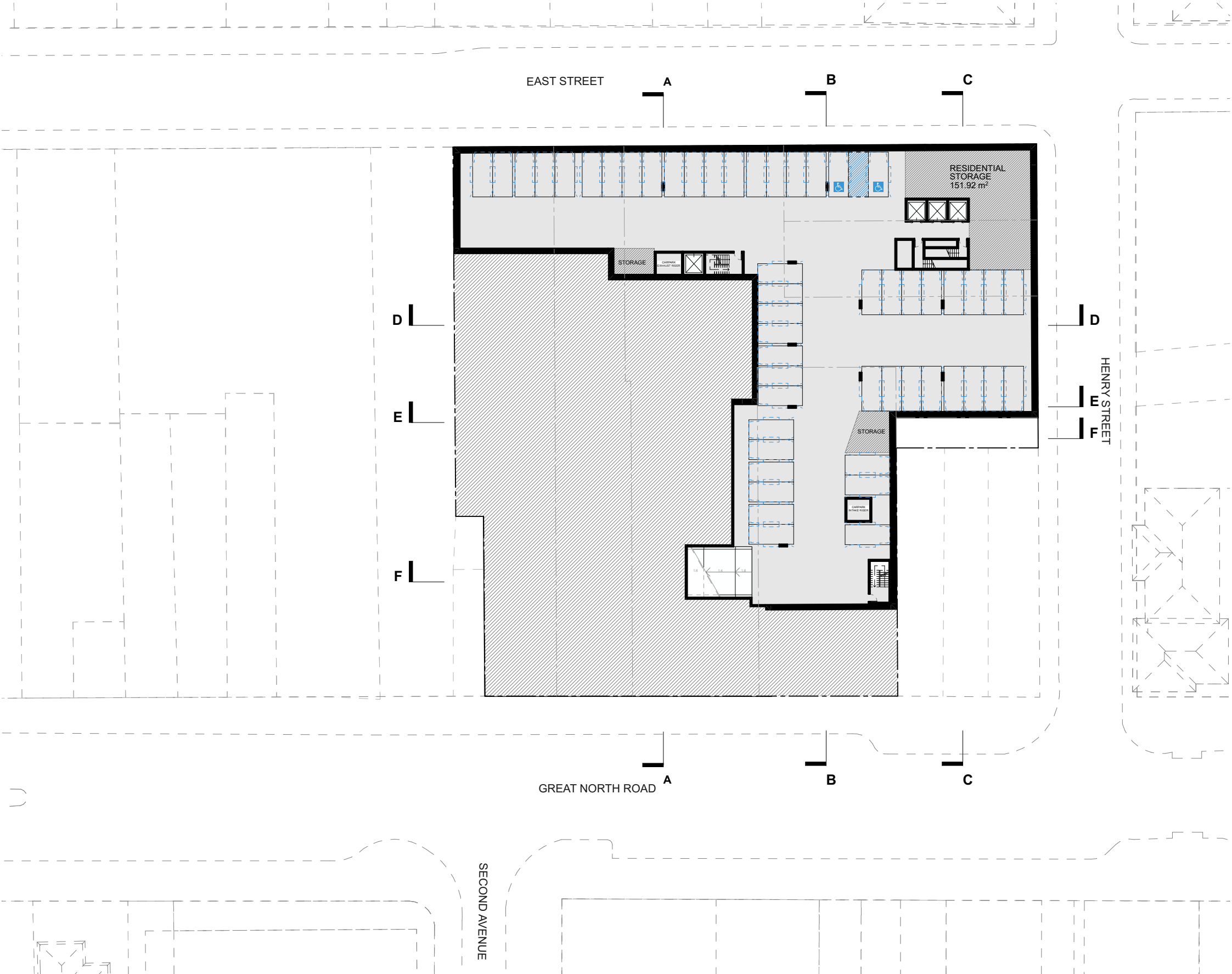
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.



Appendix C

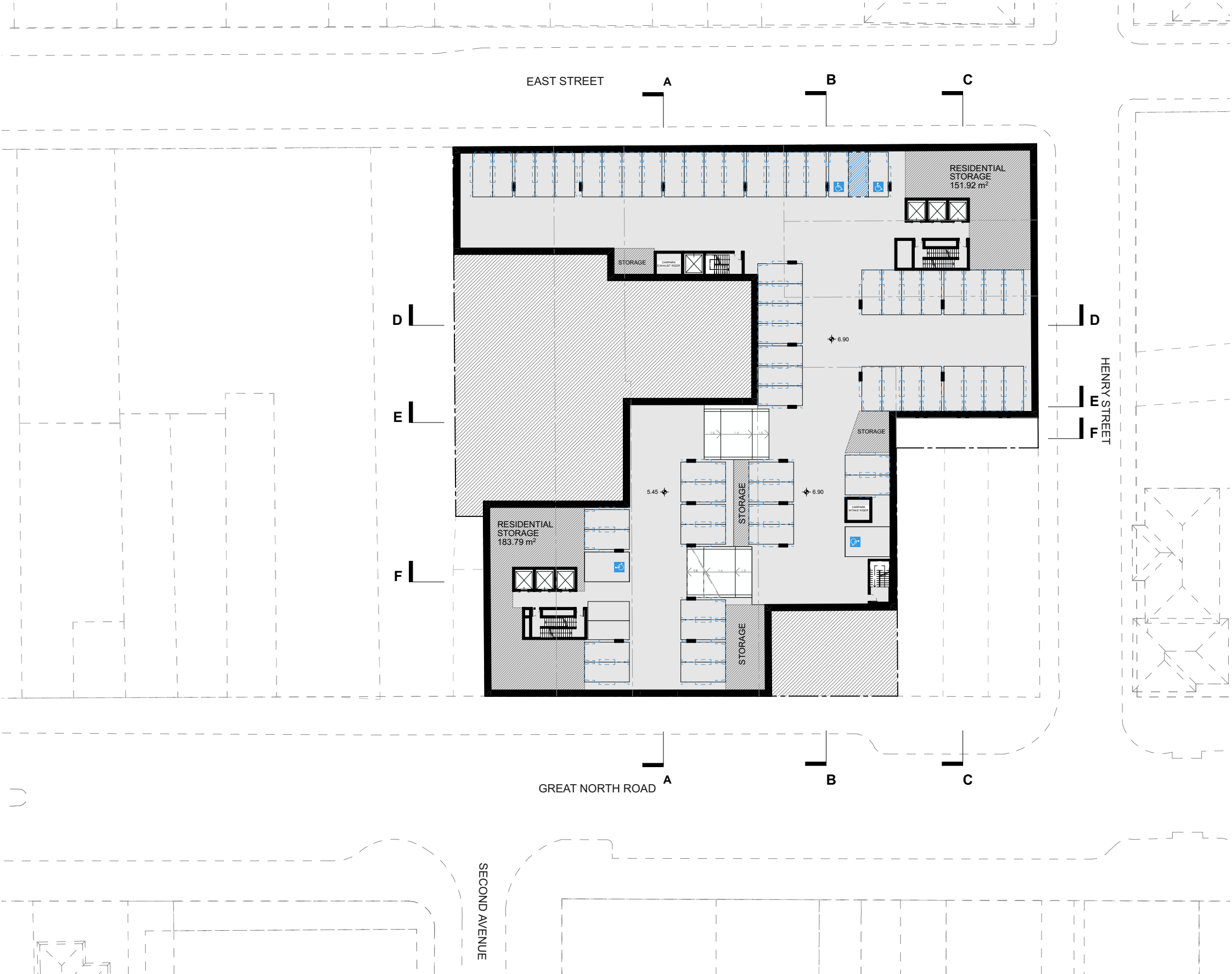
Car Park Type	Quantity
Basement - 01	
Parallel	3
Small Car	2
Accessible with Shared Space	4
Standard	37
46	
Basement - 02	
Standard	44
Parallel	2
Small Car	2
Accessible	2
Accessible with Shared Space	2
52	
Basement - 03	
Standard	58
Small Car	2
Accessible with Shared Space	2
Accessible	2
64	
Basement - 04	
Standard	59
Small Car	2
Accessible with Shared Space	2
Accessible	1
64	
Basement - 05	
Standard	49
Accessible with Shared Space	2
51	
277	



Basement - 05
Scale 1:500



Car Park Type	Quantity
Basement - 01	
Parallel	3
Small Car	2
Accessible with Shared Space	4
Standard	37
46	
Basement - 02	
Standard	44
Parallel	2
Small Car	2
Accessible	2
Accessible with Shared Space	2
52	
Basement - 03	
Standard	58
Small Car	2
Accessible with Shared Space	2
Accessible	2
64	
Basement - 04	
Standard	59
Small Car	2
Accessible with Shared Space	2
Accessible	1
64	
Basement - 05	
Standard	49
Accessible with Shared Space	2
51	
277	



Basement - 03
Scale 1:500



Car Park Type	Quantity
Basement - 01	
Parallel	3
Small Car	2
Accessible with Shared Space	4
Standard	37

46

Basement - 02	
Standard	44
Parallel	2
Small Car	2
Accessible	2
Accessible with Shared Space	2

52

Basement - 03	
Standard	58
Small Car	2
Accessible with Shared Space	2
Accessible	2

64

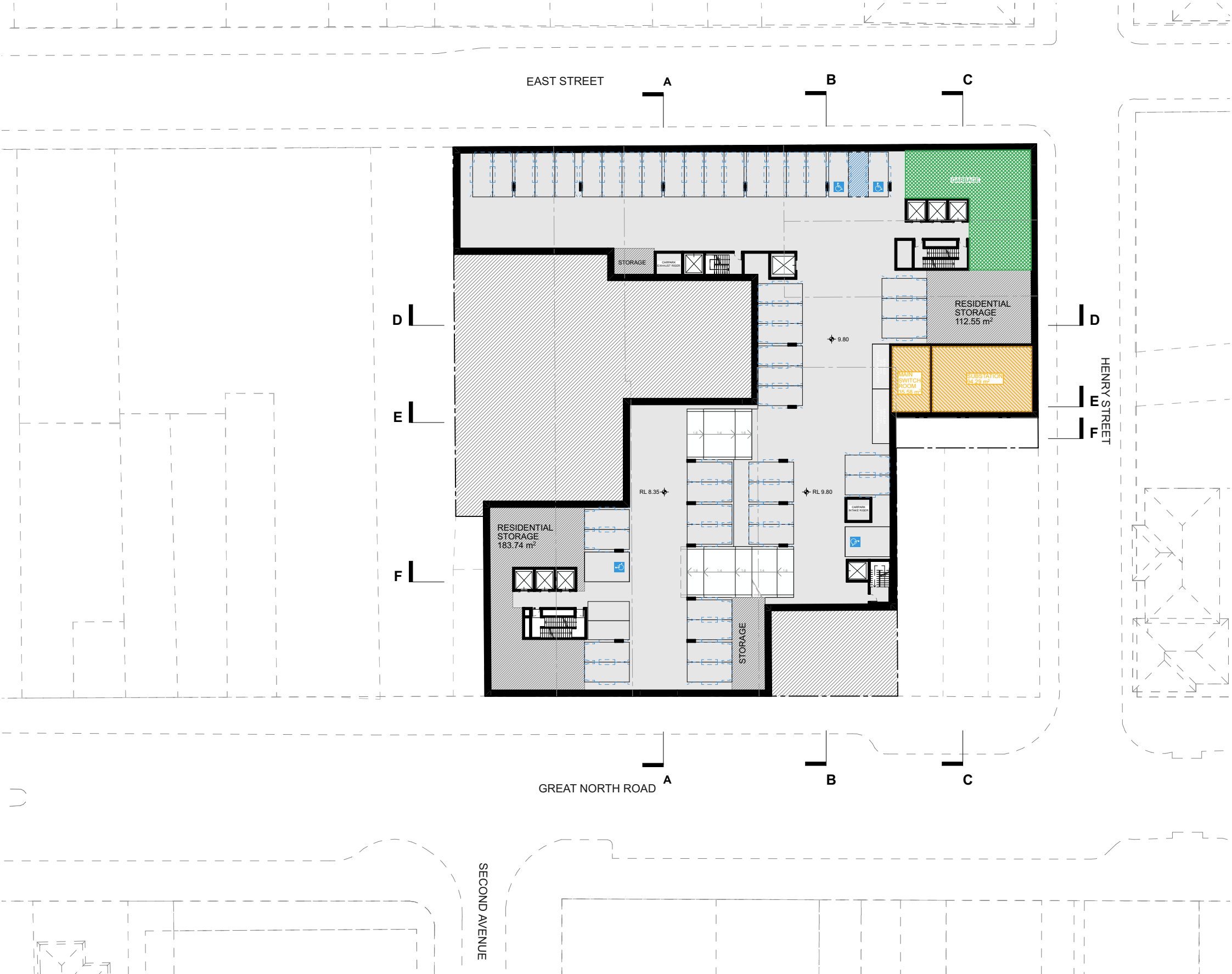
Basement - 04	
Standard	59
Small Car	2
Accessible with Shared Space	2
Accessible	1

64

Basement - 05	
Standard	49
Accessible with Shared Space	2

51

277



Basement - 02
Scale 1:500

Contact.

102 Smith Street
Summer Hill NSW 2130
02 9799 4472
studio@carterwilliamson.com
Nominated Architect:
Shaun Carter 7860

Carter Williamson acknowledge the
Traditional Custodians of the land we work
on, and extend our respect to Country.
We recognise that Country encompasses
land, sea, sky and all living things.

Note.

True North shown. Preliminary, not for
construction. This drawing is copyright and is
not to be reproduced without the permission of
Carter Williamson Architects. All heights
reduced to AHD unless otherwise noted. Use
figured dimensions only. Refer any discrepancy
to Carter Williamson Architects for clarification.

Feasibility.

Reference: 23337
Clients: Traders In Purple

Address: 171-179 Great North Road & 1A-1B Henry Street
Five Dock NSW 2046

Description: #Site Description
Scale: 1:500
Paper: A3

Legend.

- Church
- Church Commercial
- Residential
- Retail
- Commercial
- Core & Services
- Context Uplift

Revision Note

Consultant Issue
To Consultants - For Information
To Consultants - For Information
To Consultants - For Information
To Consultants - For Information

Rev	Date
A	18/7/2023
B	2/11/2023
C	8/11/2023
D	14/11/2023
E	27/11/2023

Basement 2.

PP-03-E

Car Park Type	Quantity
Basement - 01	
Parallel	3
Small Car	2
Accessible with Shared Space	4
Standard	37

46

Basement - 02	
Standard	44
Parallel	2
Small Car	2
Accessible	2
Accessible with Shared Space	2

52

Basement - 03	
Standard	58
Small Car	2
Accessible with Shared Space	2
Accessible	2

64

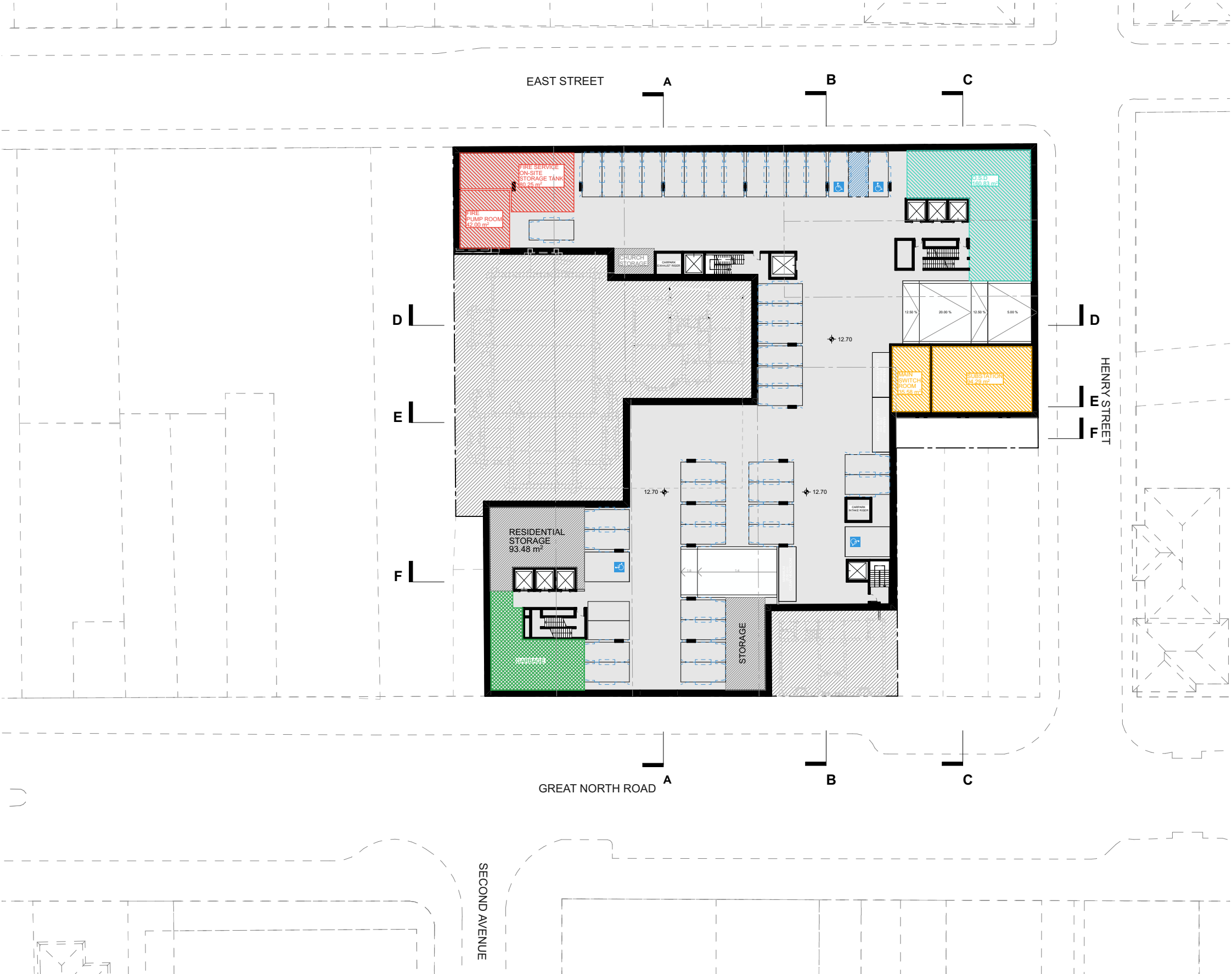
Basement - 04	
Standard	59
Small Car	2
Accessible with Shared Space	2
Accessible	1

64

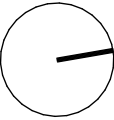
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Standard	49
Accessible with Shared Space	2

51

277



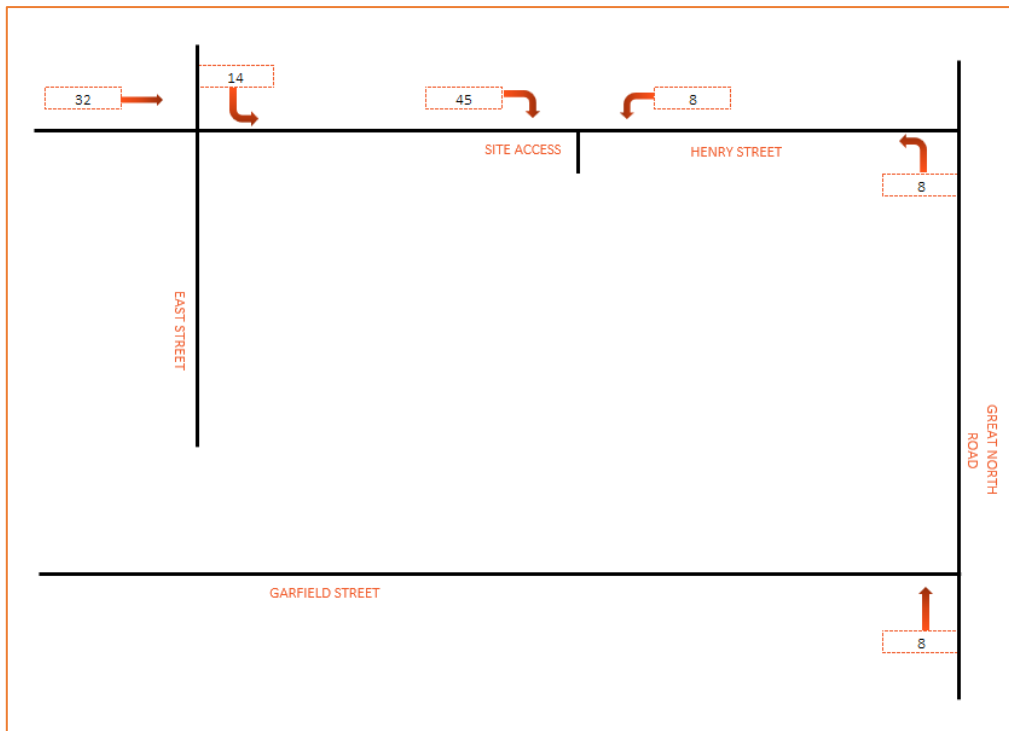
Basement - 01
Scale 1:500



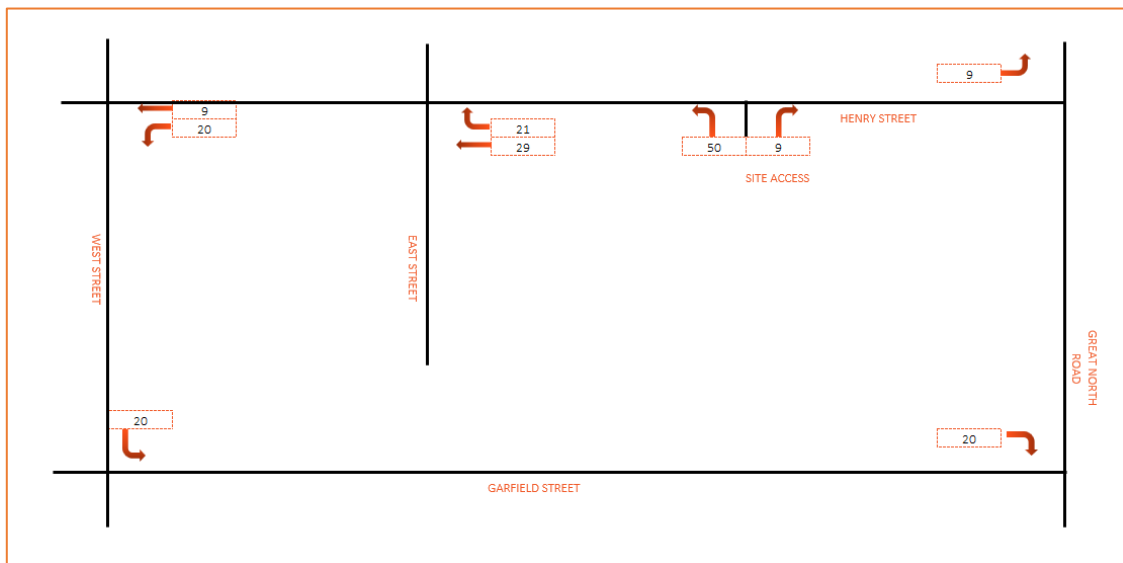


Appendix D

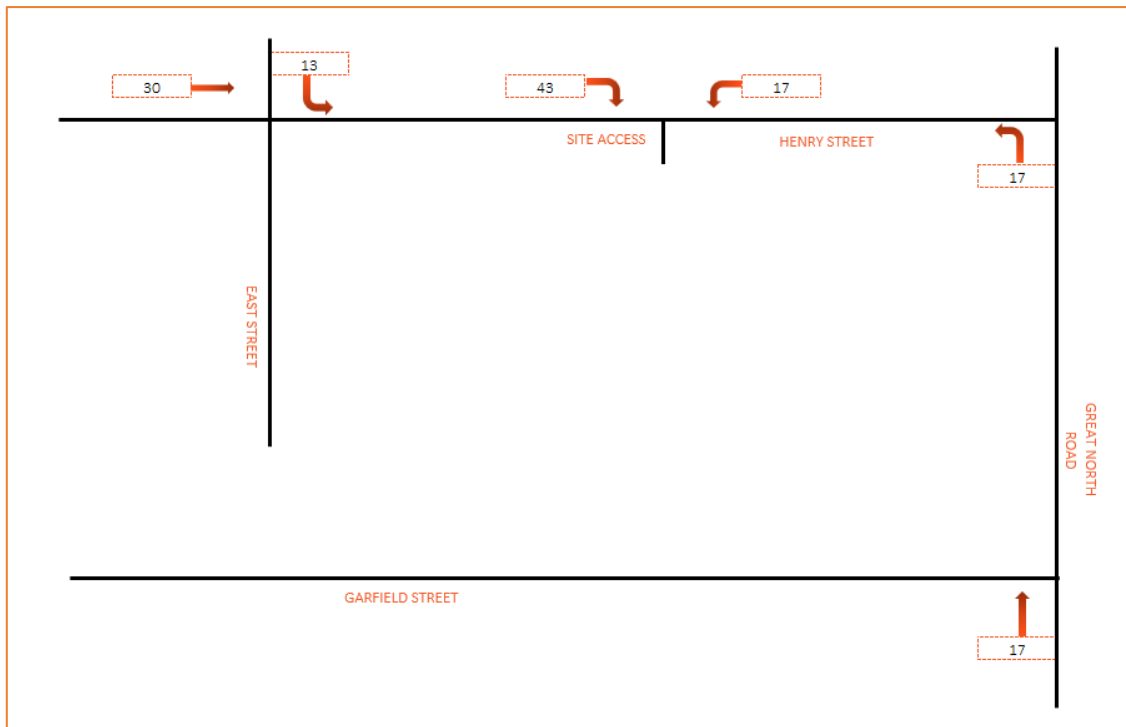
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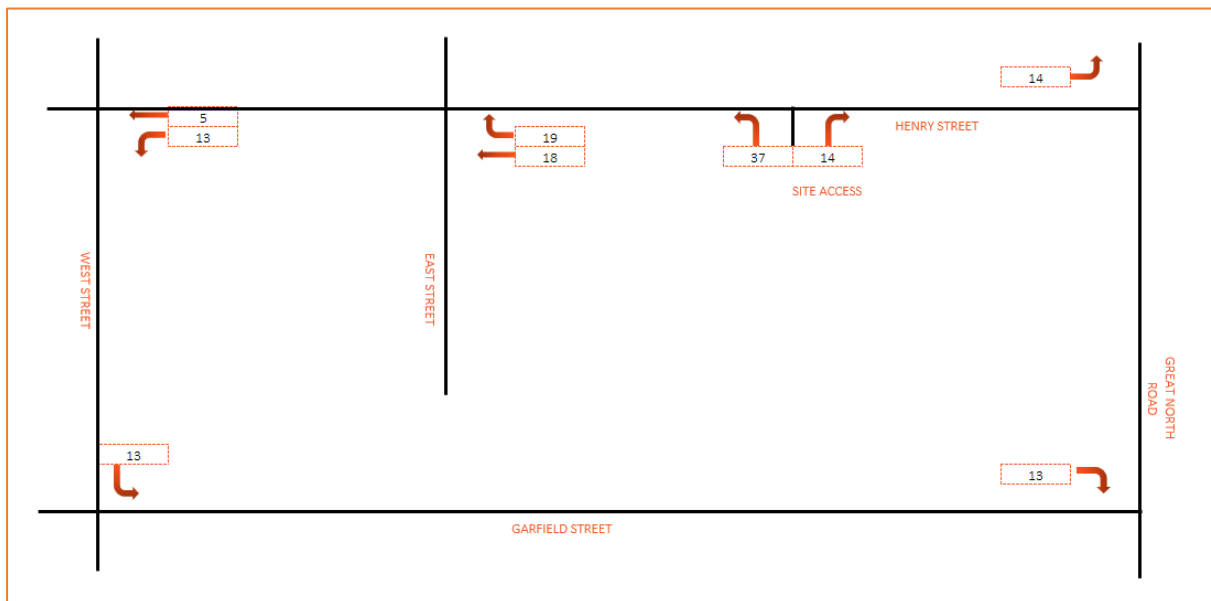
AM OUTBOUND



PM INBOUND

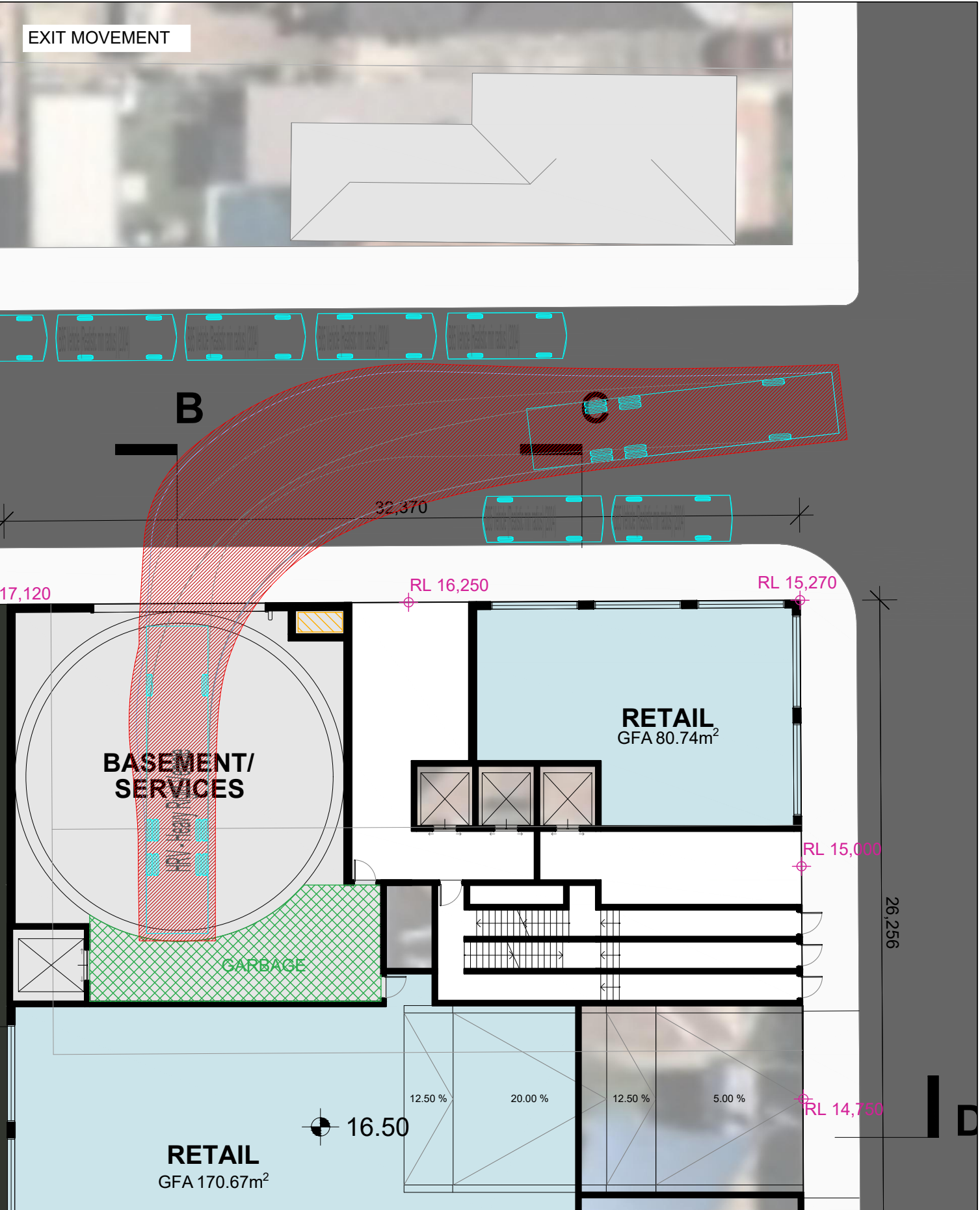
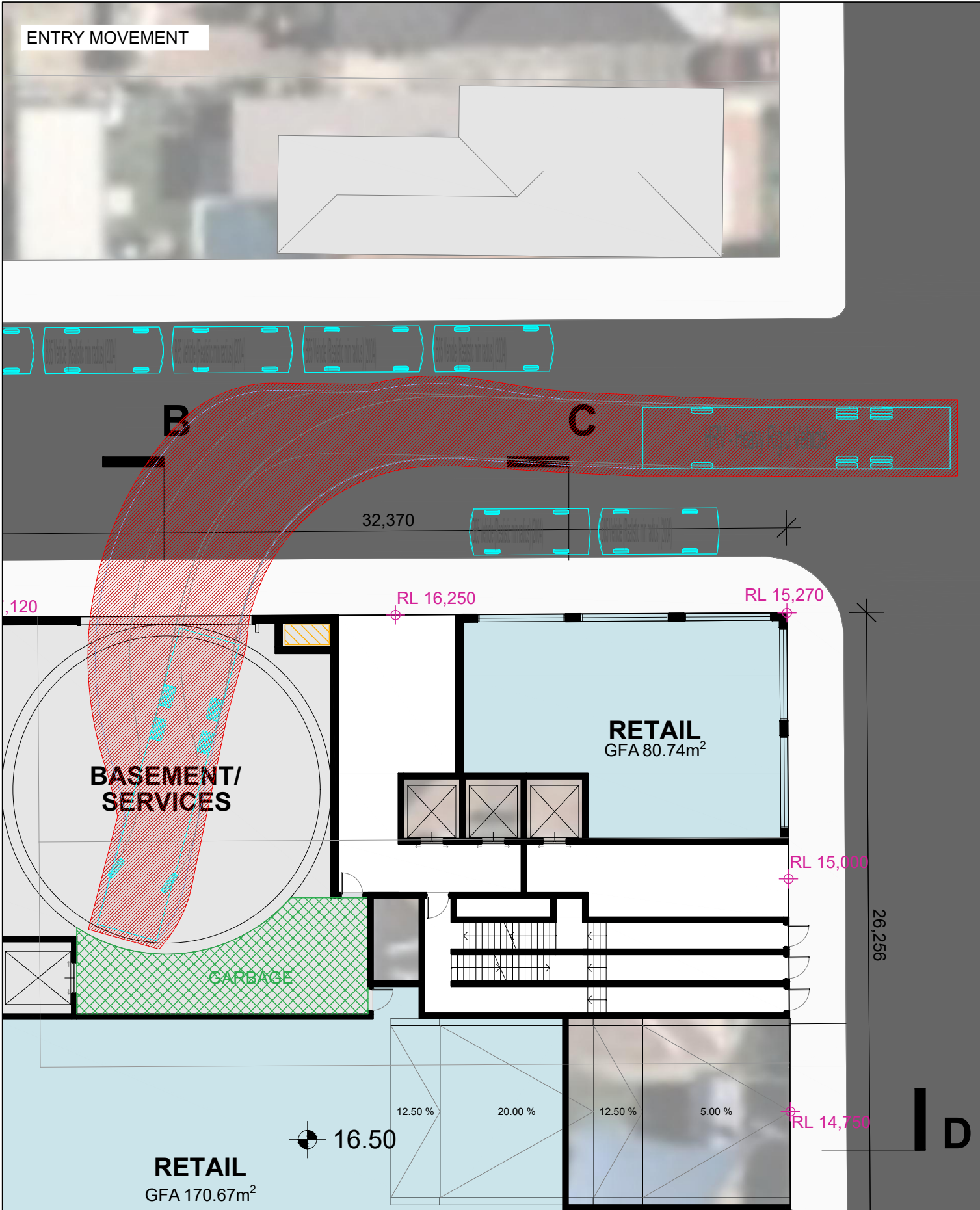


PM OUTBOUND

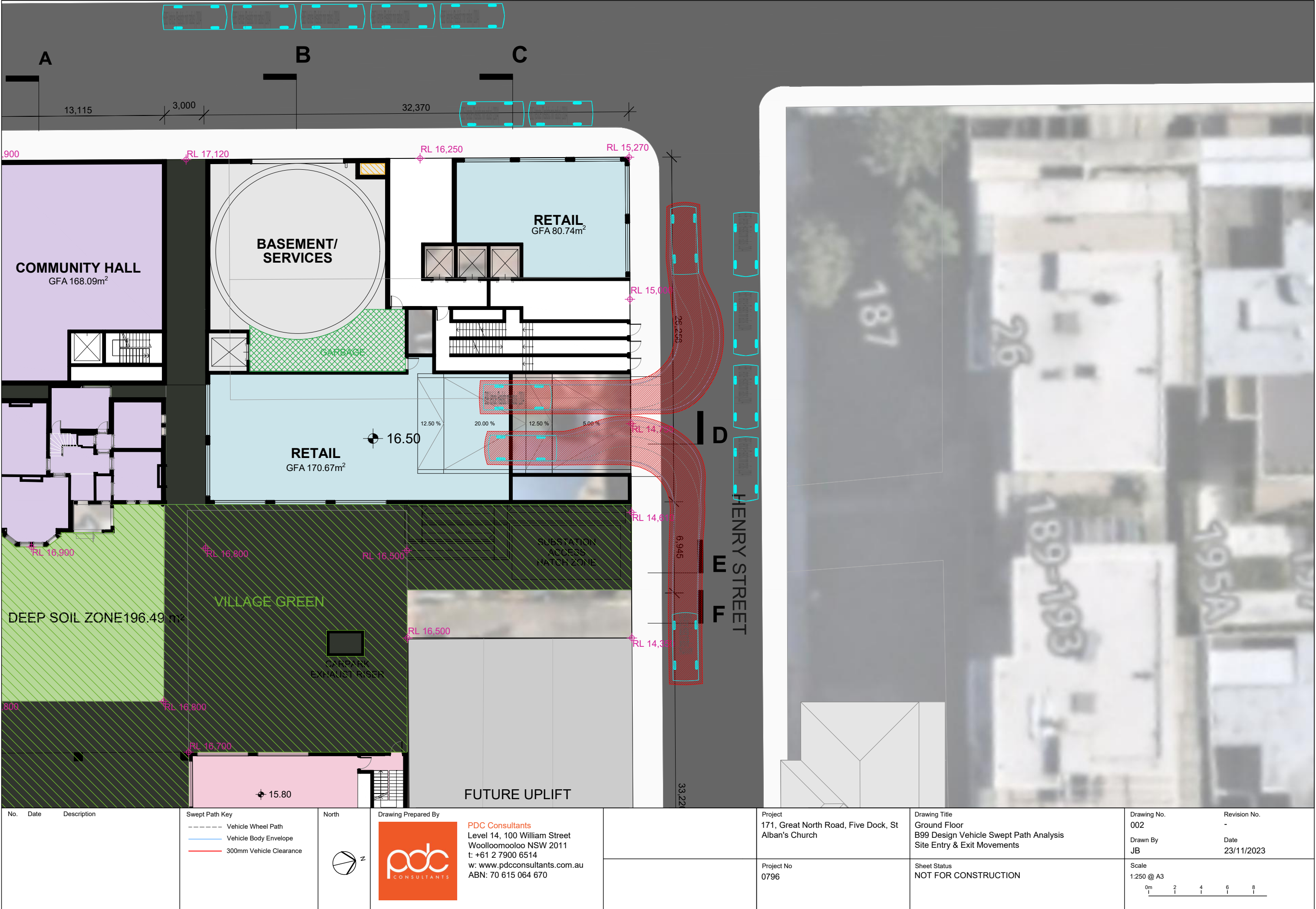




Appendix E



No.	Date	Description	<div>Swept Path Key</div> <div><div>-----</div> Vehicle Wheel Path</div> <div><div>-----</div> Vehicle Body Envelope</div> <div><div>-----</div> 300mm Vehicle Clearance</div>	North	<div><div><div></div></div></div>	<div>Drawing Prepared By</div> <div><div><div></div></div></div> <div><div>PDC Consultants</div><div>Level 14, 100 William Street</div><div>Woolloomooloo NSW 2011</div><div>t: +61 2 7900 6514</div><div>w: www.pdcconsultants.com.au</div><div>ABN: 70 615 064 670</div></div>		<div>Project</div> <div>171, Great North Road, Five Dock, St Alban's Church</div>	<div>Drawing Title</div> <div>Ground Floor</div> <div>12.5m Heavy Rigid Vehicle Swept Path Analysis</div> <div>Site Entry & Exit Movements</div>	<div>Drawing No.</div> <div>001</div> <div>Drawn By</div> <div>JB</div>	<div>Revision No.</div> <div>-</div> <div>Date</div> <div>23/11/2023</div>
							<div>Project No</div> <div>0796</div>	<div>Sheet Status</div> <div>NOT FOR CONSTRUCTION</div>	<div>Scale</div> <div>1:200 @ A3</div> <div><div>0m</div><div>2</div><div>4</div><div>6</div><div>8</div></div>		



No.	Date	Description	<div>Swept Path Key</div> <div><div>-----</div> Vehicle Wheel Path</div> <div><div>-----</div> Vehicle Body Envelope</div> <div><div>-----</div> 300mm Vehicle Clearance</div>	North	<div><div><div><div></div></div></div><div></div></div>	<div>Drawing Prepared By</div> <div><div><div></div></div></div> <div>PDC Consultants</div> <div>Level 14, 100 William Street</div> <div>Woolloomooloo NSW 2011</div> <div>t: +61 2 7900 6514</div> <div>w: www.pdcconsultants.com.au</div> <div>ABN: 70 615 064 670</div>	Project	Drawing Title	Drawing No.	Revision No.
							171, Great North Road, Five Dock, St Alban's Church	Ground Floor	002	-
									Drawn By	Date
									JB	23/11/2023
							Project No	Sheet Status	Scale	
							0796	NOT FOR CONSTRUCTION	1:250 @ A3	
									<div><div>0m</div><div>2</div><div>4</div><div>6</div><div>8</div></div>	

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