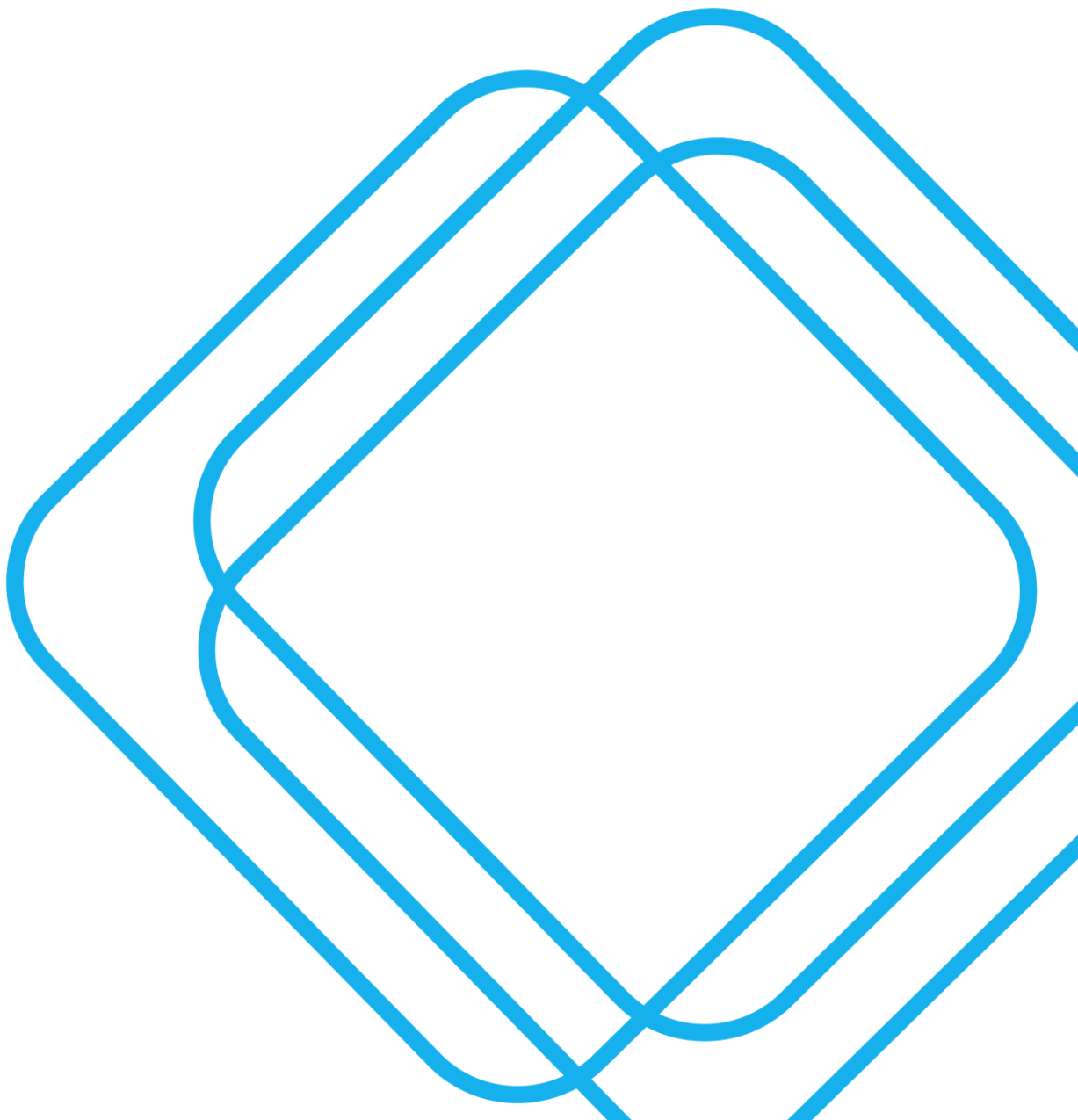




# 1A CONSTITUTION AVENUE CANBERRA

Transport Assessment Report

20 SEPTEMBER 2024



## Quality Assurance

<b>Project:</b>	1A Constitution Avenue Canberra		
<b>Project Number:</b>	SCT_00526C		
<b>Client:</b>	Canberra Airport Group	<b>ABN:</b>	14 080 361 548
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1.0	11 March 2024	Draft report
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3.0	11 July 2024	Updated final report
4.0	20 September 2024	Updated final report to address TCCS comments dated 6 September 2024

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## Executive summary

### The proposal

SCT Consulting was engaged by Canberra Airport Group to carry out a Transport Assessment Report to support an NCA submission for the development at Block 40 Section 19, City (the site).

The site is currently an unoccupied land, covering an area of approximately 2,740m<sup>2</sup> within the City Hill Precinct, one of the Designated Areas under the *National Capital Plan*. The site has street frontages to Vernon Circle, Constitution Avenue and Knowles Place. It is located to the south of Canberra Theatre Centre and the ACT Legislative Assembly.

The proposed development is for an eight-storey office tower plus rooftop plant with a total gross floor area (GFA) of 15,689m<sup>2</sup> and a two-level basement car park. The tower consists of a lobby, office spaces, winter gardens, and an end-of-trip facility. A total of 89 car parking spaces, including three accessible parking spaces, and 113 bicycle parking spaces co-located with the end-of-trip facility are provided.

### Existing transport conditions

Based on the 2022 Household Travel Survey for ACT, for commuting trips, North Canberra where the site is located indicates the highest mode shares in sustainable modes including walking and cycling (22%) and public transport (11%). Comparatively, the car mode share is low at 65 per cent provided a well-developed public transport network and cycle network as well as high-density development features.

Major roads in the vicinity of the site include Vernon Circle, Constitution Avenue, London Circuit, and Northbourne Avenue.

The area around the site is provided with extensive pedestrian infrastructure, including footpaths, separated shared paths, pedestrian crossings, plazas, and street trees. Various pedestrian crossings are provided at intersections along Constitution Avenue and London Circuit.

On-road bicycle lanes are available along Vernon Circle and Northbourne Avenue. Separated cycleways along Coranderrk Street to Marcus Clarke Street are designated *C8 City Loop* bike route, which connects to other main bike routes and forms part of the wider Canberra cycle network.

The site is located within walking distance from Alinga Street Light Rail Station, the future City South Light Rail Station, the City Interchange, and bus stops on London Circuit. The Light Rail is currently operating at a five-minute frequency during the morning peak hours and a six-minute frequency during the evening peak hours. The Light Rail is currently under expansion, with the first enabling project being Raising London Circuit. The future City South Light Rail Station will be closer than the current Alinga Street Station.

The City Interchange is a major transport hub in City. It is served by the Light Rail, 14 regular bus routes, and seven rapid bus routes. Seven bus routes stop on London Circuit, providing more than 15 services per hour per direction during the peaks, which is only a 200m walk from the site.

An analysis of existing intersection performance shows that the network currently performs at a Level of Service B or better. However, the Vernon Circle / Constitution Avenue intersection is operating close to its capacity under the current traffic signal timing plan and restricted road environment due to the light rail construction.

### Transport appraisal

An annual traffic growth rate of 1.5 per cent was adopted for all movements in the road network based on the Canberra Strategic Transport Model (CSTM). Trip rate adopted for the development is one trip per 100m<sup>2</sup> GFA per peak hour during a typical weekday based on the requirement by TCCS.

The estimation indicates that the additional traffic increase associated with the development is 125 inbound trips and 31 outbound trips during the AM peak and vice versa during the PM peak hours.

Two modelling scenarios were developed to assess the traffic impact of the proposed development on the surrounding intersections for the design year in 2036 with and without development traffic. The intersection geometry for 2036 has reflected the completion of light rail construction, where Constitution Avenue will be returned to two-lane, and the south leg of London Circuit will also be open.

The modelling results show that the network would operate at satisfactory levels in 2036, either with or without development traffic, and does not require any upgrades given a relatively low car traffic increase. This is expected as

the proposed development is in a high accessibility area in Central Canberra and will encourage the use of active and public transport modes through the provision of limited parking spaces, the bicycle facility, and the integration with existing active transport infrastructure.

Given the scale of the development, the number of walking and cycling trips generated by the development during peak hours is expected to be satisfactorily accommodated by the existing infrastructure. Also, it is expected that the additional public transport demand during peak hours can be accommodated by the current high-frequency public transport services.

The area that the site sits in is a designated zone where there is no particular requirement for the car parking provision. The proposed parking spaces provided are lower than the requirements outlined by the ACT Parking and Vehicular Access General Code and *Planning (Commercial Zones) Technical Specifications 2024* for office buildings but higher than any rates for high-density urban environments such as the City of Sydney and North Sydney.

This level of parking provision is considered reasonable and would support the modal shift from private vehicles to active and public transport modes and reduce car use in an area served by extensive active transport infrastructure and public transport services and in proximity to mixed land-use and high-density development.

The waste collection will be undertaken at a nearby site rather than on-site due to site constraints, manoeuvrability of larger trucks and minimised impact on the shared zone. Hence, a loading dock is provided next to the basement entrance, which will accommodate up to Medium Rigid Vehicles (MRV) with rear loading.

## **Conclusion**

The Transport Assessment Report concludes that the traffic impacts of the proposal on the adjacent road network are limited and at a level able to be accommodated by the existing and planned infrastructure.

## 1.0 Introduction

### 1.1 Purpose of the report

This Transport Assessment Report is prepared to be submitted to the National Capital Authority (NCA) in support of the development application for a development at 1A Constitution Avenue Canberra (the site).

The document considers:

- The existing context of the site and surrounding transport network
- An integrated approach to determining the optimal land uses and density concentrations as a means of minimising (where possible) trip generation and transport-related demand
- Estimated future transport demands given the site's location and public transport accessibility
- Maximised efficiency and safety of the existing and proposed transport systems in proximity to the subject site
- A review of proposed vehicle access, servicing, car parking and bicycle parking provision
- An assessment of the traffic and transport impacts associated with the development

### 1.2 Development context

The proposal is for the development of an unoccupied land at Block 40 Section 19, City. The site covers an area of approximately 2,740m<sup>2</sup> within the City Hill Precinct, the municipal heart of Central Canberra, one of the Designated Areas under the *National Capital Plan*. **Figure 1** shows an artist's impression of the development.

**Figure 1** Artist's impression of the development



Source: Bates Smart, 11 July 2024

The site has street frontages to Vernon Circle, Constitution Avenue and Knowles Place. It is located to the south of Canberra Theatre Centre and the ACT Legislative Assembly and bounded to the east by the mixed-use Constitution Place buildings. Four 1P on-street parking spaces are available in front of the site on Constitution Avenue. Across Constitution Avenue is a paid off-street car park at grade.

The proposed development includes an eight-storey office tower plus rooftop plant with a total gross floor area (GFA) of 15,689m<sup>2</sup> and a two-level basement car park. The tower consists of a lobby, office spaces, winter gardens, and an end-of-trip facility. A total of 89 car parking spaces, including three accessible parking spaces, and 113 bicycle parking spaces co-located with the end-of-trip facility are provided.

### 1.3 Report structure

This report has been structured into the following sections:

- **Section 2.0** describes the existing transport conditions.
- **Section 3.0** provides an overview of the proposed development, parking and access requirements.
- **Section 4.0** outlines the traffic appraisal which describes the likely trip generation and indicative impact as a result of the proposed development including traffic modelling.
- **Section 5.0** summarises the study findings and presents the conclusions.

### 1.4 TCCS comments

The Transport Canberra and City Services (TCCS) has provided comments regarding traffic and transport matters of the proposal via an email correspondence dated 6 September 2024. A summary of the comments and the relevant sections where the comments are addressed is provided in **Table 1**.

**Table 1 Summary of TCCS comments**

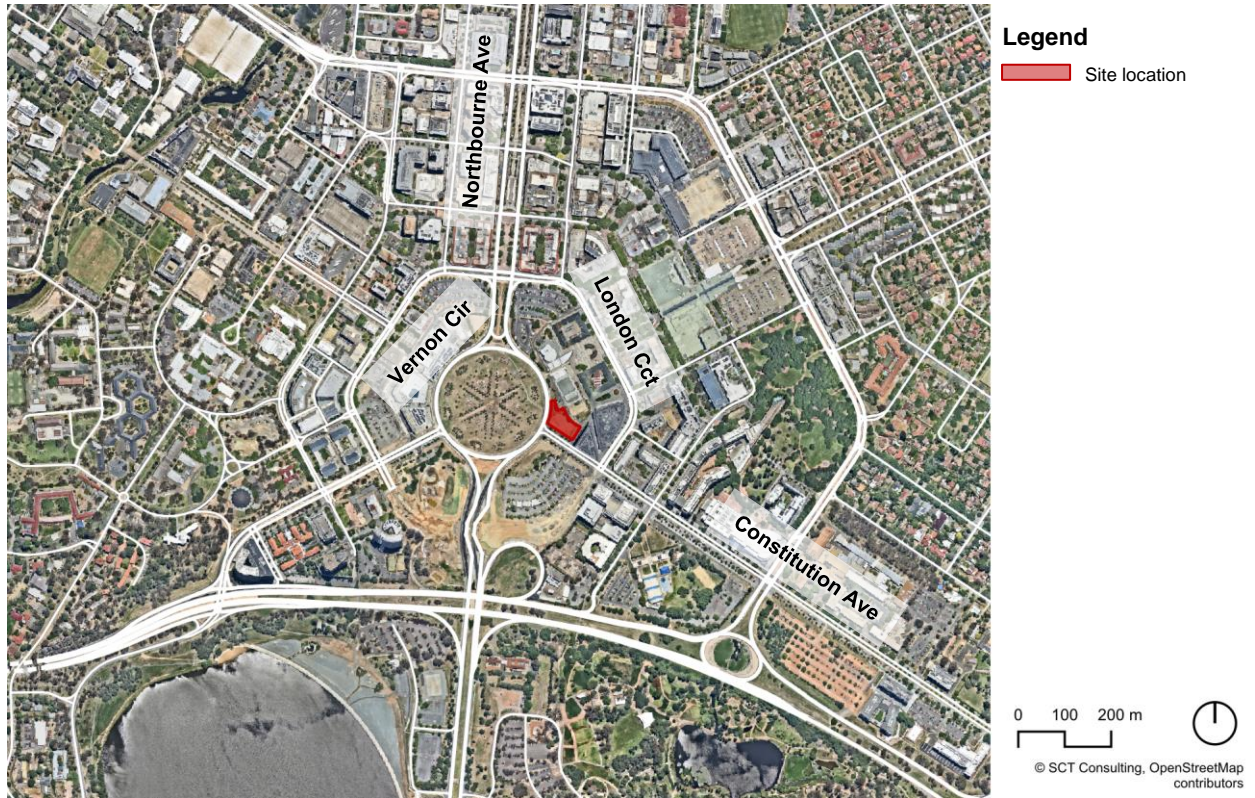
Comment	Section addressed
Queuing analysis to be undertaken based on an updated trip generation rate of 1 trip per 100m <sup>2</sup> .	<b>Section 3.2.2</b>
Was queuing availability analysed against existing queuing in the area with respect to traffic generated by the buildings at Blocks 31 and 35, Section 19 City?	<b>Section 2.7</b>
How does the car parking provision for the proposed site at Block 38, Section 19 City compare to the Constitution Place, which is similar given its location and office space offering?	
Have there been any parking surveys undertaken at Constitution Place to understand the demand for parking compared to the supply?	
Based on the review of Appendix B drawings, the boom gate to enter the basement is best placed at the top of the ramp so there is no queuing along the ramp.	<b>Sections 3.2.2 and 3.4</b>
Based on traffic modelling undertaken for similar sites in the Canberra City area, a traffic generation rate of 1 trip per 100m <sup>2</sup> GFA is to be applied for assessing the likely traffic generation for the site.	<b>Sections 4.2 and 4.3</b>
In/Out splits are to be 80%/20% in the AM peak and 20%/80% in the PM peak.	



## 2.0 Existing conditions

The purpose of this chapter is to provide an understanding of the current traffic and transport conditions in the vicinity of the site. The site location is shown in **Figure 2**.

**Figure 2** Location of the subject site



Source: OpenStreetMap, 2024

### 2.1 Travel behaviour

Based on the 2022 Household Travel Survey for ACT, for commuting trips, North Canberra where the site is located indicates the highest mode shares in sustainable modes including walking and cycling (22%) and public transport (11%). Comparatively, the car mode share is low at 65 per cent. This is contributed by its well-provided public transport network and cycle network as well as high-density features (**Table 2**).

**Table 2** Mode share for commuting trips

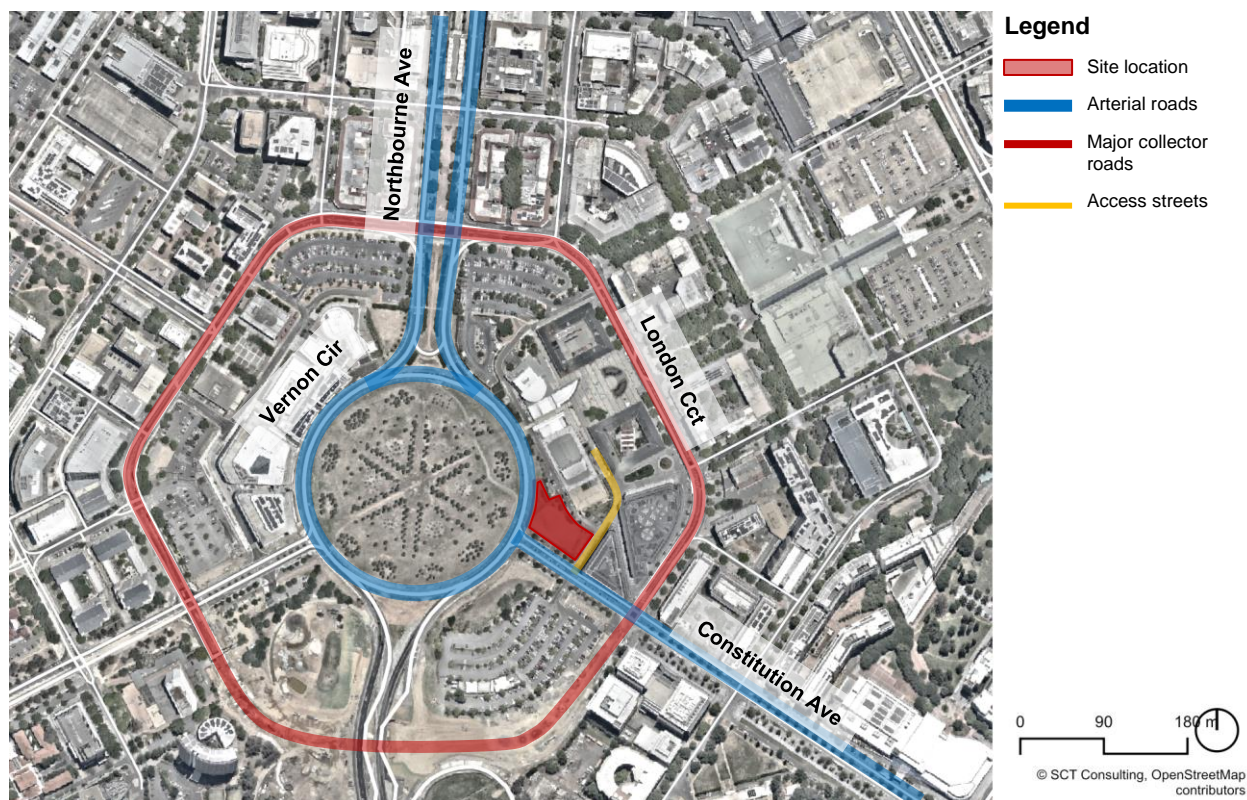
Region	Car	Walking & Cycling	Public transport	Other	Total
Belconnen	85%	7%	6%	3%	100%
Gungahlin	88%	2%	9%	1%	100%
<b>North Canberra</b>	<b>65%</b>	<b>22%</b>	<b>11%</b>	<b>2%</b>	<b>100%</b>
South Canberra	73%	16%	7%	4%	100%
Woden	87%	5%	5%	2%	100%
Weston Creek	89%	2%	9%	1%	100%
Tuggeranong	92%	3%	5%	1%	100%

Source: [Household travel survey - Transport Canberra \(act.gov.au\)](https://www.act.gov.au/transport/household-travel-survey), 2024

## 2.2 Road network

Major roads in the vicinity of the site that may accommodate future traffic generated by the development include Vernon Circle, Constitution Avenue, London Circuit, and Northbourne Avenue, as shown in **Figure 3**.

**Figure 3** Road network around the site



The key characteristics of the roads around the site are:

- **Vernon Circle** is an arterial road circling the City Hill. It intersects with several major roads that link to other major centres in Canberra, including Northbourne Avenue, Constitution Avenue, Commonwealth Avenue, and Edinburgh Avenue. It has a speed limit of 60km/h and serves as a major thoroughfare, hence does not provide access to any buildings or on-street parking spaces. There is an on-road bicycle lane along its entire length which forms part of the wider Canberra cycle network.
- **Constitution Avenue** is an arterial road connecting Campbell in the east to Central Canberra in the west. It has mostly two lanes in each direction with a wide median for landscaping and bus lanes between Allara Street and Anzac Parade. The road has a speed limit of 40km/h. Time-restricted on-street parking spaces are provided on both sides of the road throughout most of its length.
- **London Circuit** is a major collector road forming a second ring road around Vernon Circle. It also intersects with several major roads similar to Vernon Circle. The road has a speed limit of 40km/h and mostly two lanes in each direction with a narrow median. It provides access to various important places, including the ACT Legislative Assembly and Canberra Theatre Centre. It also provides access to many at grade off-street car parks and is served by seven bus routes. There are loading zones provided but no on-street parking.
- **Northbourne Avenue** is an arterial road linking City to residential areas in the north. It has a speed limit of 40km/h up to Barry Drive with three lanes in each direction. Along the median are the Canberra Light Rail tracks and stations and landscaping. Wide footpaths and on-road bicycle lanes are provided throughout its length.
- **Knowles Place** has recently been transformed into a 10km/h shared-zone access street. It forms part of a pedestrian-friendly precinct stretching from Civic Square in the north through the ACT Legislative Assembly to Constitution Place in the south. The road also provides access to the basement car park under Constitution Place (the neighbouring office tower) as well as an exit from Theatre Lane.

### 2.3 Active transport

The active transport network map around the site is shown in **Figure 4**.

**Figure 4** Walking and cycling network map around the site



Source: Transport Canberra, 2022

The area around the site is provided with extensive pedestrian infrastructure, including footpaths, separated shared paths, pedestrian crossings, plazas, and street trees. Various pedestrian crossings are provided at intersections along Constitution Avenue and London Circuit. The pedestrian infrastructure provides pedestrian comfort and safety while shortening walking distances overall.

According to the ACT road rules, cyclists are permitted to use footpaths provided they give way to pedestrians. This makes footpaths and shared paths attractive for cyclists. On-road bicycle lanes are available along Vernon Circle and Northbourne Avenue. Separated cycleways along Coranderrk Street to Marcus Clarke Street are designated C8 City Loop bike route (shown in brown in **Figure 4**), which connects to other bike routes to Gungahlin and Belconnen in the northwest and forms part of the wider Canberra cycle network.

Given the relatively high density and availability of employment and services within the area, the provision of extensive cycling facilities provides a sustainable transport alternative for residents and visitors for short- and medium-distance trips.

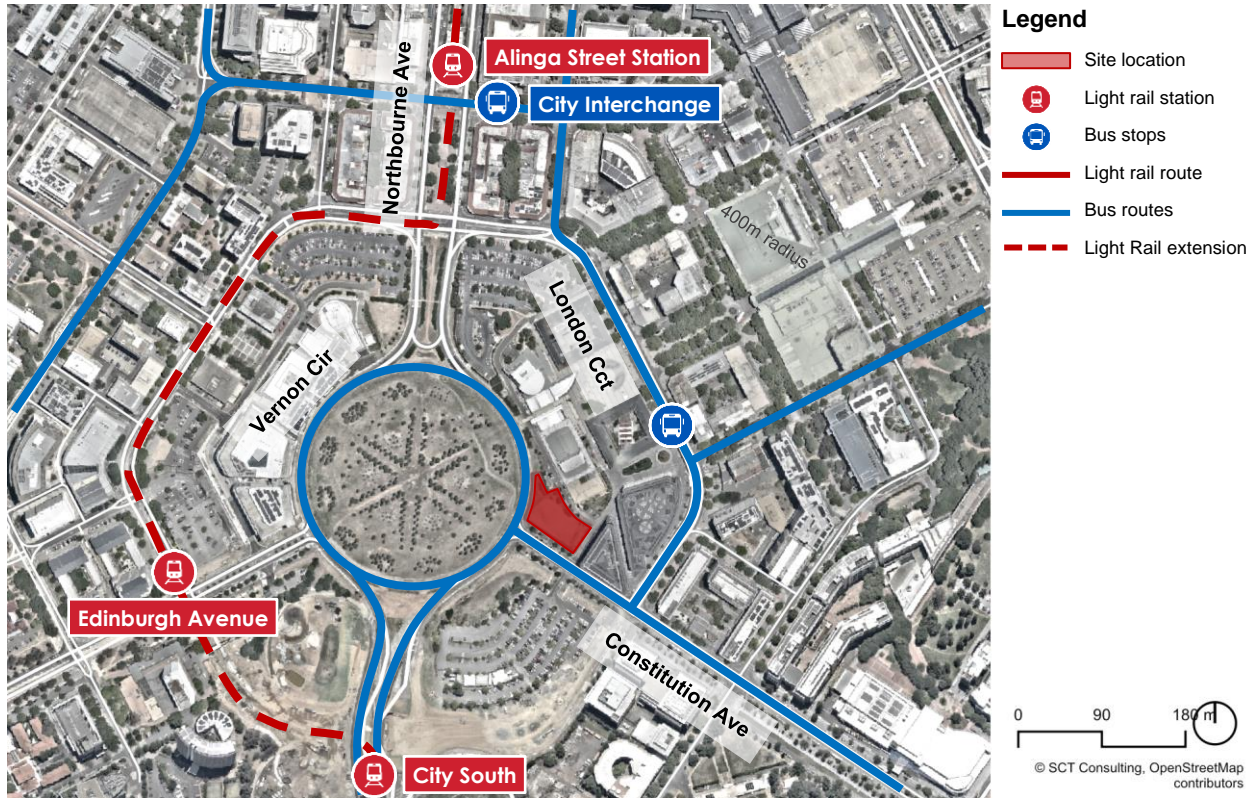
### 2.4 Public transport

The site is served by several public transport services, as shown in **Figure 5**. It is located 700m from Alinga Street Light Rail Station and the City Interchange, 200m from bus stops on London Circuit, and 400m from the future City South Light Rail Station. The City Interchange is a major transport hub in City. It is served by the Light Rail, 14

regular bus routes, and seven rapid bus routes. The buses departing from the Interchange service several destinations, covering most of the built-up areas of Canberra.<sup>1</sup>

The Light Rail between Gungahlin Place and Alinga Street operates at a five-minute frequency during the morning peak hours, six-minute during the evening peak hours, and ten-minute during the afternoon off-peak hours.

**Figure 5 Public transport servicing the site**



Also, seven bus routes stop on London Circuit (a bus stop within 200m walking distance), providing more than 15 services per hour per direction during the peaks (Table 3).

**Table 3 Bus route at London Circuit after Akuna Street**

Routes	Origin and destination	Frequency during peak hours on weekdays	
		7.30-8.30am	4.30-5.30pm
R3	Spence - Brindabella Park	5 trips	4 trips
56	City interchange - Narrabundah Terminus	2 trips	2 trips
59	Woden Interchange - ANU Rimmer Street	4 trips	4 trips
182	ANU - Lanyon Market Place	2 trips	1 trip
840X	Googong - Canberra CBD	2 trips	2 trips
842	Yass - Canberra CBD	2 trips	2 trips
844X	Bungendore - Canberra CBD	2 trips	1 trip
<b>Total</b>	-	<b>19 trips</b>	<b>16 trips</b>

Source: [Routes by number - Transport Canberra \(act.gov.au\)](https://www.act.gov.au/transport/routes-by-number) and [Routes and timetables | transportnsw.info](https://www.transportnsw.info/routes-and-timetables), 2024

<sup>1</sup> Transport Canberra (2023) [Transport Canberra Network Map](https://www.transportcanberra.com.au/network-map)

## 2.5 Crash data

Over the five years between 2017 and 2021, there were 14 crashes reported on Constitution Avenue in the section between Vernon Circle and London Circuit<sup>2</sup>. Of the 14 crashes, 13 occurred at an intersection, specifically, five at the Vernon Circle / Constitution Avenue intersection and eight at the Constitution Avenue / London Circuit intersection.

The 13 crashes resulted in property damages only, while the other one involved an injury. “Rear-end collisions” were the most common crash type, involved in seven crashes. The second most common crash type was “same direction side swipe”, reported for four crashes. Overall, the crash severity around the site is low.

## 2.6 Existing traffic conditions

A traffic model was prepared based on SIDRA Intersection, a micro-analytical traffic evaluation tool, for three intersections adjacent to the site to assess the existing network performance and to test the impacts associated with the proposed development. Intersection performance was assessed for the weekday AM and PM peak hours when the development traffic impacts would be the most pronounced. The three intersections assessed and their associated intersection controls were:

- Vernon Circle / Constitution Avenue (Traffic signals)
- Constitution Avenue / Knowles Place (Priority-controlled)
- Constitution Avenue / London Circuit (Traffic signals).

### 2.6.1 Traffic volumes and intersection geometry

#### 2.6.1.1 Traffic data

An on-site traffic turning movement count survey was carried out at the three intersections on Thursday, 8 February 2024. Based on the highest network traffic volume, the peak hours were:

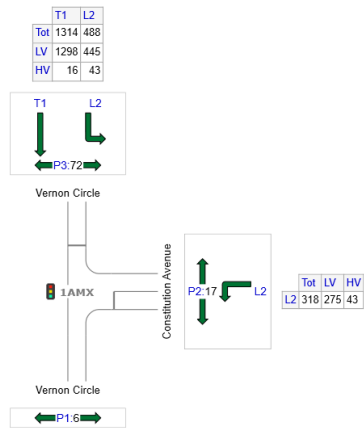
- Weekday AM peak hour: 8.00 am to 9.00 am.
- Weekday PM peak hour: 5.00 pm to 6.00 pm.

Peak-hour traffic volumes as recorded from the on-site survey and as modelled on SIDRA are shown in the following **Table 4** and **Table 5**.

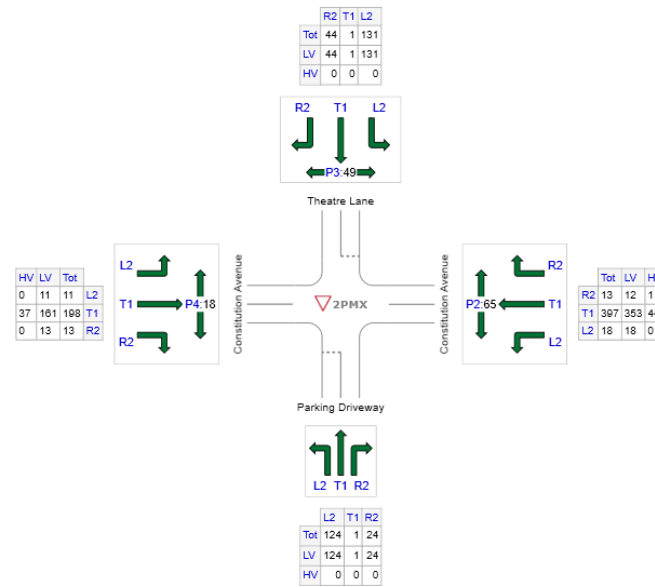
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<sup>2</sup> dataACT (2022) [ACT Road Crash Data](#)

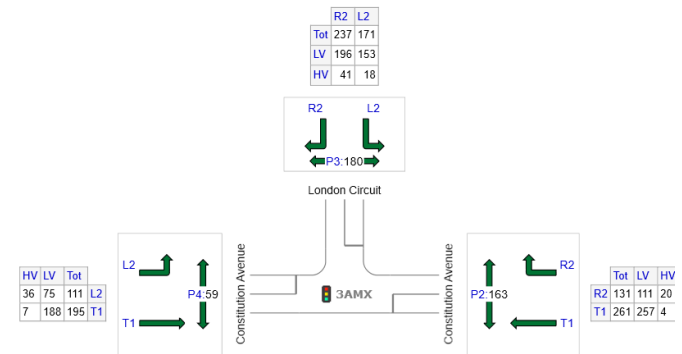
**Table 4 Traffic volumes in 2024 AM peak hour**



**Vernon Circle / Constitution Avenue**

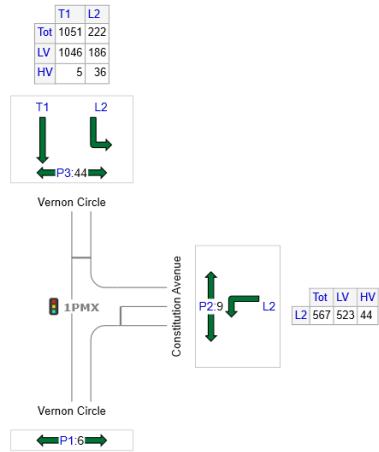


**Constitution Avenue / Theatre Lane (Knowles Place)**

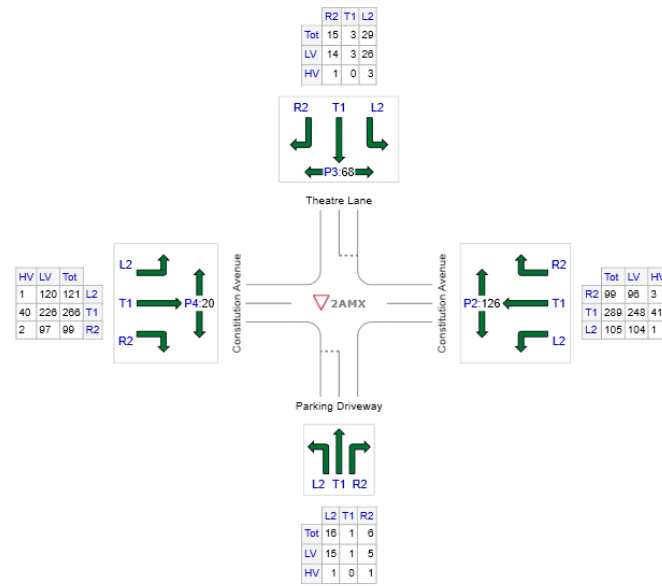


**Constitution Avenue / London Circuit**

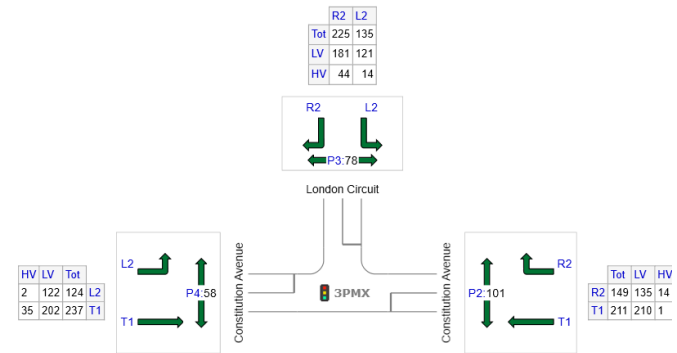
Table 5 Traffic volumes in 2024 PM peak hour



Vernon Circle / Constitution Avenue



Constitution Avenue / Theatre Lane (Knowles Place)



Constitution Avenue / London Circuit

### 2.6.1.2 Site layouts and signal timings

Intersection layouts were modelled based on a combination of satellite imageries from Nearmap and Google Street View. The SCATS data of traffic signal phasings and timings were provided by the Transport Canberra and City Services (TCCS) Directorate.

### 2.6.2 Model calibration

The intersection models were calibrated using the input data to reflect observations of traffic behaviours on site. A method is to calibrate the models such that the Degree of Saturation (DoS) of all movements is 1.0 or below. This is a standard procedure to ensure that the models are not over-predicting congestion under current traffic conditions. The queue calibration is summarised and compared in **Table 6**. The difference between the observed queue and modelled queue are less than three cars.

**Table 6 Model calibration**

Intersection	Direction	Observed queue (AM peak / PM peak)	Modelled queue (AM peak / PM peak)	Difference (AM peak / PM peak)
Vernon Circle / Constitution Avenue	N	19 / 19 cars	18 / 22 cars	1 / -3 cars
	E	10 / 12 cars	12 / 11 cars	-2 / 1 cars
Constitution Avenue / Knowles Place	N	3 / 5 cars	1 / 2 cars	2 / 3 cars
	E	8 / 7 cars	8 / 4 cars	0 / 3 cars
	W	5 / 6 cars	5 / 3 cars	0 / 2 cars
Constitution Avenue / London Circuit	N	10 / 11 cars	10 / 9 cars	0 / 2 cars
	E	10 / 10 cars	7 / 8 cars	3 / 2 cars
	W	8 / 8 cars	9 / 10 cars	-1 / -2 cars

### 2.6.3 Intersection Level of Service

Intersection Level of Service (LOS) is a typical design tool used by traffic engineers to identify the level of congestion of roads and intersections. It is acknowledged that for SIDRA modelling purposes, the TCCS has adopted the Roads and Maritime Services (RMS) *NSW Traffic Modelling Guidelines* as its primary technical reference, which was used for the assessment presented in this report. The LoS as defined in the *NSW Traffic Modelling Guidelines* is provided in **Table 7**.

**Table 7 Level of Service definitions**

Level of Service	Average delay per vehicle (seconds)	Performance explanation
A	Less than 14.5	Good operation
B	14.5 to 28.4	Good with acceptable delays and spare capacity
C	28.5 to 42.4	Satisfactory
D	42.5 to 56.4	Operating near capacity
E	56.5 to 70.4	At capacity, at signals incidents will cause excessive delays. Roundabouts require other control method.
F	70.5 or greater	At capacity, at signals incidents will cause excessive delays. Roundabouts require other control method.

Source: Roads and Maritime Services (2002)<sup>3</sup>

<sup>3</sup> Roads and Maritime Services (2002) *NSW Traffic Modelling Guidelines*



In addition, the DoS is included to complement the LoS analysis. The DoS is a measure of the volume-to-capacity ratios for the worst turning movement at an intersection. For instance, a DoS of 1.0 implies that the turning movement is at capacity.

### 2.6.4 Existing intersection performance

The outcomes of the intersection analysis are presented in **Table 8** based on the modelling assessment by the SIDRA Intersection 9.1 software.

**Table 8 Existing intersection performance in 2024**

Intersection	Weekday AM peak			Weekday PM peak		
	Delay (sec)	LoS	DoS	Delay (sec)	LoS	DoS
Vernon Circle / Constitution Avenue	8.4	A	0.84	11.1	A	0.89
Constitution Avenue / Knowles Place	19.8	B	0.65	16.1	B	0.57
Constitution Avenue / London Circuit	20.8	B	0.60	23.3	B	0.67

Note that the delay is an average of all arms of the signalised intersections and the worst approach for priority-controlled intersections.

It should be noted that there is lane closure due to the construction of the light rail during the traffic survey. Hence, these factors have been considered in the existing traffic model. The SIDRA results show that the network currently performs at a Level of Service B or better.

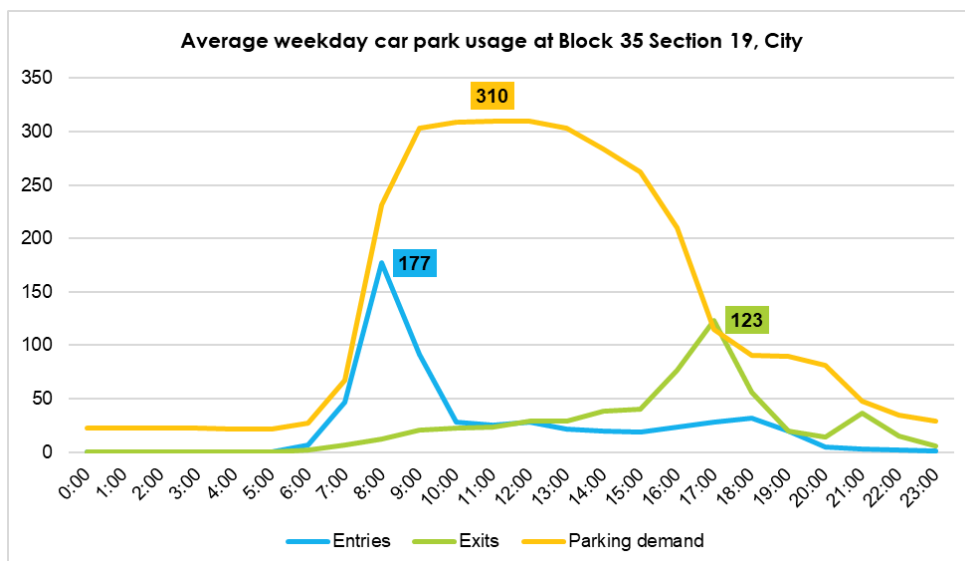
A summary of the detailed SIDRA modelling outputs is included in **Appendix A**.

## 2.7 Case study: Block 35 Section 19, City

Car park data were collected at a neighbouring development at Block 35 Section 19, City (currently known as Constitution Place), between July and August 2024 at the request of the TCCS. The development consists of several uses, including 130 hotel rooms, 33,276m<sup>2</sup> of office space, a gym, and retail spaces. A total of 560 shared car parking spaces are provided in the two-level basement car park, including 225 spaces for public access.

The average weekday car park usage at Block 35 Block 19, City, is illustrated in **Figure 6**. The results reveal that the AM peak traffic generation occurs at 8.00 am – 9.00 am with 177 trips in and 12 trips out, while the PM peak takes place at 5.00 pm – 6.00 pm with 123 trips out and 28 trips in. The parking demand is found to increase sharply between 8.00 am and 10.00 am and peaks at an average of 310 spaces before a gradual drop from 13.00 pm onwards.

**Figure 6 Average weekday car park usage at Block 35 Section 19, City**



Source: Constitution Place Pty Ltd (2024)

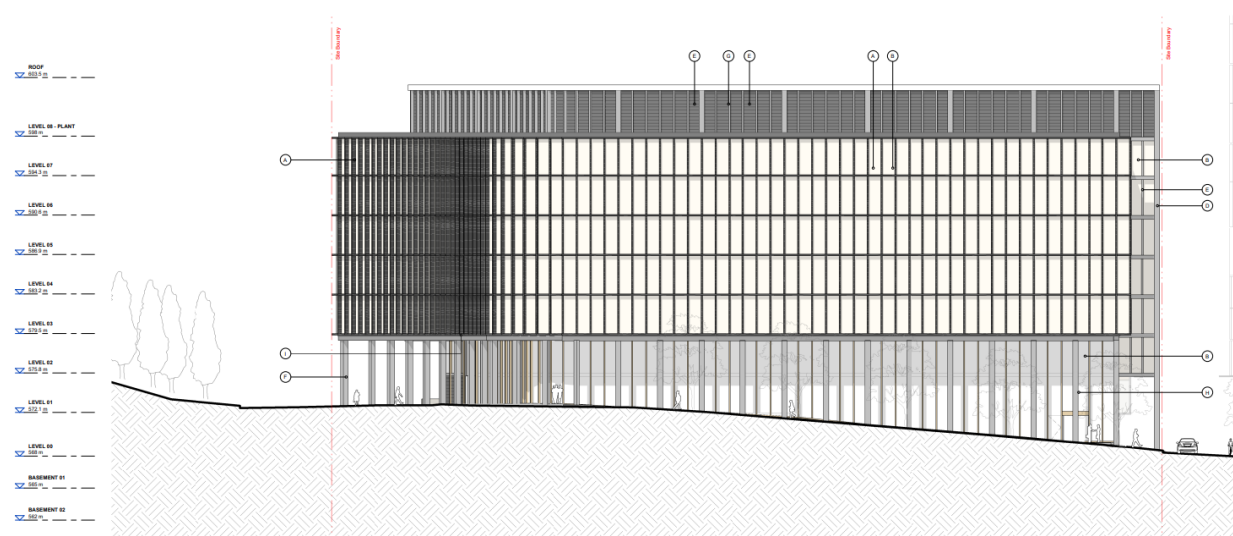
A further analysis was carried out to derive rated trip generation and parking demand of Block 35 Section 19, City. The analysis considers that all peak-hour trips are generated by a combination of all uses. It suggests that the development generates an average of 0.45 and 0.36 vehicle trips per 100m<sup>2</sup> GFA during the AM and PM peak hours, respectively. The analysis further shows that the average car park occupancy peaks at 55 per cent and the development provides parking at a rate of one space every 127m<sup>2</sup> GFA.

## 3.0 Proposed development

### 3.1 Proposed development

The proposed development at 1A Constitution Avenue seeks to develop an eight-storey office tower plus roof top plant with a total GFA of 15,689m<sup>2</sup> and a two-level basement car park on the currently unoccupied 2,740m<sup>2</sup> land, as shown as an elevation plan in **Figure 7**. The tower consists of a lobby, office spaces, winter gardens, and an end-of-trip facility. A total of 89 car parking spaces, including three accessible parking spaces, and 113 bicycle parking spaces are provided.

Figure 7 Proposed south elevation



Source: Bates Smart, 12 April 2024

### 3.2 Proposed transport access

The transport access of the proposed development considers the employees' travel behaviours and the travel demand of potential employees and visitors of the development, as well as an appropriate integration with the surrounding road and active transport infrastructure network.

#### 3.2.1 Active transport access

The main pedestrian entrance is located on the Ground Floor via Constitution Avenue. It addresses the street frontage on Constitution Avenue and integrates with the shared zone and other pedestrian infrastructure to the east. Public transport users may access the site from one of the public transport hubs located to the north of the site. The pedestrian route would be along London Circuit, Legislative Plaza, and then the shared-zone Knowles Place to the east of the tower.

A total of 113 bicycle parking spaces and an end-of-trip facility spanning 570m<sup>2</sup> are located on Ground Floor. The facility can be accessed directly from the ground level via Vernon Circle. The cycling routes are expected to majorly follow the Canberra cycling network on Constitution Avenue, Commonwealth Avenue, Northbourne Avenue, and Vernon Circle.

The orientation of the tower to integrate with adjacent pedestrian infrastructure and the provision of cycling facilities form part of an intention to reduce the reliance on private vehicle use and encourage a modal shift towards active and public transport modes.

#### 3.2.2 Vehicular access

Vehicles will access the site via Knowles Place. The basement entrance is separated from the pedestrian entrance to minimise potential conflicts and create a safe pedestrian environment. A boom gate is located down the car park ramp on Basement Level One.

An AS2890.1 queueing analysis was undertaken to determine the required queueing area. It is estimated that the average queue length would be about one car in the AM peak hour<sup>4</sup>. Therefore, queue space of up to 6m is required for queueing between the control point and the road boundary to avoid vehicles overspilling onto the public road.

Meanwhile, *TCCS's Engineering Advisory Note 6 – Queueing at Carpark Entrances (EAN 06)* requires that:

- The queue be contained in full within the property boundary and not adversely affect traffic or pedestrian flows in the frontage road.
- For less than 100 cars in the parking area, a minimum of 12m queue should be available.

The proposed design allows for sufficient room for the queue estimated to occur given up to a 20m driveway, or three cars, between the boom gate and the road frontage. Based on the above, the location of the boom gate on Basement Level One down the entrance ramp is considered appropriate.

### 3.2.3 Service vehicle access

A loading bay is located next to the basement entrance and the waste room to the northeast corner of the tower. The bay can accommodate up to Medium Rigid Vehicles (MRV) with rear loading. The loading dock can fully accommodate a parked MRV with no obstruction to other traffic.

Trucks can access the site via Theatre Lane and reverse to the loading bay. To egress, trucks need to drive up north along Knowles Place, reverse to Lyric Lane, and drive out to Constitution Avenue via Theatre Lane. The detailed swept path analysis for the loading bay is shown in **Appendix B**.

The waste collection will occur off-site in a surrounding development for the below reasons:

- The manoeuvring of an HRV has a high spatial requirement where a 1m buffer is required for the swept path of a waste truck on both sides, resulting in feasibility issues.
- The exiting of the HRV is constrained by the structure and needs to turn around at the intersection of Knowles Street and Lyric Lane, which is challenging given the street furniture and clear head room.
- Loss of effective GFA for the site due to a larger loading dock.
- The loading dock is located off a shared zone. Larger truck has poorer visibility which might cause safety issue for the pedestrians.

Hence, the design does not allow for the manoeuvring of a Heavy Rigid Vehicle (HRV).

## 3.3 Proposed parking

### 3.3.1 Car parking requirement

According to the *National Capital Plan*, the area around the site is a designated zone where there is no particular requirement for the car parking provision.

As part of the new planning system, Canberra now has a new interim Territory Plan, which guides planning and development in the ACT. The interim Territory Plan has supporting documents to provide more guidance and clarity. This includes technical specifications which are notifiable instruments that can provide guidance for aspects of a development proposal. The *Planning (Commercial Zones) Technical Specifications 2024* specifies parking requirements for the city centre as 1.5 spaces every 100m<sup>2</sup> GFA.

### 3.3.2 Car parking provision

With the site's proximity to Alinga Street Light Rail Station, the future City South Light Rail Station, the City Interchange, and bus stops on London Circuit, a lower parking provision should be applied to the required parking spaces to reflect the likelihood of more people using sustainable transport modes to access and leave the site. The proposed development will also be Greenstar accredited with applicable bicycle parking as well as end-of-trip facilities, with the goal to attract more sustainable travel to and from the proposed office development.

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<sup>4</sup> The assumptions of the M/G/1 queue analysis include 125 inbound cars (100% arrival rate during AM peak hour) at full development stage, 9 second service time based on AS2890.1's card reader and boom gate, a 45-minute process window, and 20% deviation of the service time.

A total of 89 car parking spaces are proposed. The spaces provided result in a parking rate of around one space every 176m<sup>2</sup> GFA or one space every 31m<sup>2</sup> site area, which is within the range of similar high-density, high public transport accessibility rates:

Lower end:

- North Sydney maximum parking rate: one space every 400m<sup>2</sup> non-residential GFA (would result in 40 spaces for the site)
- City of Sydney maximum parking rate: one space every 50m<sup>2</sup> site area (would result in 55 spaces for the site)

Higher end:

- ACT Parking and Vehicular Access General (PVAG) Code: one space every 100m<sup>2</sup> GFA for Commercial Zone 1 (would result in 157 spaces for the site)
- *Planning (Commercial Zones) Technical Specifications 2024*: 1.5 spaces every 100m<sup>2</sup> GFA for Commercial Zone 1 (would result in 236 spaces for the site)

Therefore, the proposed provision for car parking is considered reasonable. Three accessible parking spaces are provided, which is above the provision of two per cent of the overall parking, hence, is reasonable.

### 3.3.3 Bicycle parking requirement and provision

**Table 9** below outlines the bicycle parking requirement based on *Planning (Commercial Zones) Technical Specifications 2024*, a total of 113 spaces are provided at the ground level, which is considered satisfactory and more than the 101 spaces required based on the *Planning (Commercial Zones) Technical Specifications 2024*.

**Table 9 Parking requirement and provision**

Scale of the development	Vehicle type	Parking rates	Required spaces	Provided spaces
15,689m <sup>2</sup> of GFA / 13,336 m <sup>2</sup> of NLA	Bicycle	Employees: 1 space per 200m <sup>2</sup> NLA <sup>^</sup>	67 spaces	113 spaces
		Visitors: 1 space per 400m <sup>2</sup> NLA <sup>*</sup>	34 spaces	

<sup>^</sup> Classes 1 and 2 bicycle parking for employees

<sup>\*</sup> Class 3 bicycle parking for visitors

The limited parking spaces, complemented by the provisions of bicycle parking spaces and the end-of-trip facility, intend to reduce the reliance on private vehicle use and encourage a modal shift towards active and public transport modes.

### 3.3.4 Basement car park

The proposed two-level basement car park can accommodate 89 car parking spaces, with 45 cars on Basement Level One and 44 cars on Basement Level Two. Two accessible parking spaces are provided at Basement Level One and one space at Basement Level Two. All accessible parking spaces are located next to a lift lobby.

Vehicles access the basement car park from the ground level via a two-way ramp. At Basement Level One, vehicles may either turn left to access Basement Level One or keep straight to go down to Basement Level Two. A boom gate is located down the ramp between Ground Floor and Basement Level One, providing a queue space of 20m, or three cars, between the boom gate and the road boundary.

## 3.4 Swept path assessment

Swept path assessments were carried out to assess the manoeuvrability of vehicles at difficult locations, including:

- MRV accessing and egressing the loading bay.
- Private vehicles (B99 standard vehicles) accessing and egressing the basement entrance on the ground level.
- Private vehicles accessing and egressing the Basement Level One parking aisle.

The results show that MRV can access the loading bay by a reversing movement and egress by driving up north along Knowles Place, reverse to Lyric Lane, and drive out to Constitution Avenue via Theatre Lane. MRV can be parked within the loading bay envelope with no obstruction to other traffic.

Private vehicles can access and egress the basement entrance with another vehicle waiting and no obstruction to other traffic. Mirrors, Variable Message Signs (VMS) and posted signs are suggested to be provided to improve visibility and better inform drivers.

Similarly, private vehicles can access and egress the Basement Level One parking aisle with another vehicle waiting. At the Basement Level One arrival platform, mirrors and posted signs are suggested to be provided to improve visibility.

The detailed swept path assessments are shown in **Appendix B**.

## 4.0 Traffic and transport impacts appraisal

This section assesses the impacts of the proposed development on the nearby transport network. The impact assessment projects a design-year traffic condition in the year 2036, 10 years from the time of project completion, as guided by the TCCS's *Guidelines for Transport Impact Assessment* 3.1 Version.

### 4.1 Background traffic growth

An annual traffic growth rate of 1.5 per cent was adopted for all movements in the road network based on the Canberra Strategic Transport Model (CSTM). The 1.5 per cent annual growth rate results in a compound growth of approximately 20 per cent over 12 years. This provided a basis to understand future base traffic volumes and the potential impacts incurred by the development in 2036.

### 4.2 Traffic generation

#### 4.2.1 Traffic generation

A trip generation rate of 1 trip per 100m<sup>2</sup> GFA per hour in both AM and PM peak hours was adopted for the development. The trip rate is in line with the TCCS's requirement and consistent with the traffic modelling undertaken for the Canberra Light Rail.

The traffic generated was then allocated 80 per cent as incoming traffic and 20 per cent as outgoing traffic in the AM peak hour and 20 per cent incoming and 80 per cent outgoing in the PM peak hour.

**Table 10** outlines the estimated traffic to be generated by the development based on the proposed GFA of 15,689m<sup>2</sup>.

**Table 10** Traffic generated by the development

GFA (m <sup>2</sup> )	Trip rates (vehicle-trips per 100m <sup>2</sup> per hour)		Traffic generated (vehicle-trips per hour)	
	AM peak	PM peak	AM peak	PM peak
15,689	1.00	1.00	125 incoming 31 outgoing	31 incoming 125 outgoing

The estimation indicates that the additional traffic increase associated with the development is 156 trips during both AM and PM peak hours.

#### 4.2.2 Traffic distribution

The distribution of the development traffic is informed by the ACT and Queanbeyan-Palerang Household Travel Survey conducted in the second half of 2022.<sup>5</sup> The distribution considers the origin-destination pairs of all trips made to and from the North Canberra region where the site is located.

The origin-destination pairs were then mapped for the fastest driving routes during the peak hours. All traffic was modelled to access and leave the site from and to Constitution Avenue via Knowles Place.

**Table 11** summarises the distribution of the development traffic onto major roads in the vicinity of the site, including Northbourne Avenue, Constitution Avenue, Commonwealth Avenue, and Barry Drive.

**Table 11** Traffic distribution

Travel route (Direction)	Proportion
London Circuit > Northbourne Avenue (North)	63%
Constitution Avenue (East)	4%

<sup>5</sup> Transport Canberra (2023) [ACT and Queanbeyan-Palerang Household Travel Survey 2022](#)

Travel route (Direction)	Proportion
Vernon Circle > Commonwealth Avenue (South)	18%
Vernon Circle > Barry Drive (West)	15%
<b>Total</b>	<b>100%</b>

### 4.3 Road network impact

Two future year scenarios were developed to assess the traffic impact of the proposed development on the surrounding intersections. The two modelling scenarios were:

- 2036 base traffic without development
- 2036 with development traffic.

Currently, there is a lane closure at the surrounding road network due to the ongoing light rail construction. By 2036, it is expected that Constitution Avenue will be recovered to two lanes in each direction between Vernon Circle and London Circuit (except the southbound lane between Vernon Circle and Knowles Place). The south leg of the London Circuit will also be open. Hence, the geometry will be different to what is considered in the current condition. A summary of the detailed SIDRA modelling outputs is included in **Appendix A**.

The performance of the intersections under each modelling scenario is shown in **Table 12** and **Table 13**.

**Table 12 Intersection performance under design year 2036 base traffic**

Intersection	Weekday AM peak			Weekday PM peak		
	Delay (sec)	LoS	DoS	Delay (sec)	LoS	DoS
Vernon Circle / Constitution Avenue	5.8	A	0.86	13.0	A	0.95
Constitution Avenue / Knowles Place	15.2	B	0.53	12.9	A	0.58
Constitution Avenue / London Circuit	26.7	B	0.54	24.4	B	0.49

Note that the delay is an average of all arms of the signalised intersections and the worst approach for priority-controlled intersections.

**Table 13 Intersection performance under design year 2036 with development traffic**

Intersection	Weekday AM peak			Weekday PM peak		
	Delay (sec)	LoS	DoS	Delay (sec)	LoS	DoS
Vernon Circle / Constitution Avenue	6.5	A	0.87	13.5	A	0.95
Constitution Avenue / Knowles Place	20.7	B	0.58	18.2	B	0.59
Constitution Avenue / London Circuit	27.0	B	0.53	25.2	B	0.52

Note that the delay is an average of all arms of the signalised intersections and the worst approach for priority-controlled intersections.

The results show that there is an insignificant change in the intersection performance with the increase in the development traffic. The network would operate at satisfactory levels in the design year 2036, either with or without development traffic, with a marginally higher delay at all intersections.

The average delay will increase the most at the Constitution Avenue / Knowles Place intersection—by 5.5 seconds and 5.3 seconds during the AM and PM peak hours, respectively. The detailed results show that this maximum delay is only experienced by vehicles turning right from the paid off-street car park opposite the development. In other words, the impact on vehicles on Constitution Avenue is expected to be minimal.

The results are as expected as the proposed development is located in a high accessibility area in Central Canberra and will encourage the use of active and public transport modes through the provision of limited parking spaces, the expansive end-of-trip facility, and the integration with existing active transport infrastructure. No upgrade to the existing infrastructure is required given the relatively low car traffic increase.



## 4.4 Active transport impact

The existing pedestrian infrastructure, including footpaths, plazas, street trees, and various pedestrian crossings at intersections along Constitution Avenue and London Circuit will ensure pedestrian comfort and safety while shortening walking distances overall, both from places of residence and public transport nodes.

The pedestrian access to the tower is separated from the vehicular and service vehicle access. Vehicular access will be accommodated via the shared-zone Knowles Place which limits vehicle speed and is designed to prioritise pedestrians and cyclists. This reduces potential conflicts between motorised vehicles and other more vulnerable road users.

Strategic cycle routes are available around the site and the footpaths are generally wide enough to accommodate cyclists and support the cyclists to safely reach the wider Canberra cycle network.

The development will encourage the use of cycling through the provision of 113 bicycle parking spaces and the expansive end-of-trip facility. The data from the Household Travel Survey 2022 showed that around 13 per cent of all commuting trips made to and from the North Canberra region were done by cycling. The bicycle parking spaces for such an office development means that the development will cater for a relatively large mode share of cyclists, both for employees as well as visitors to the site. Those cycle trips would become an important component for short- and medium-distance trips by the commuters.

Given the scale of the development, the number of walking and cycling trips generated by the development during peak hours could be accommodated by the existing infrastructure.

## 4.5 Public transport impact

The site is located within walking distance from many public transport nodes, including Alinga Street Light Rail Station, the future City South Light Rail Station, the City Interchange, and bus stops on London Circuit. The current high-frequency public transport services will ensure the attractiveness of public transport mode for employees and visitors of the development. Coupled with the limited parking spaces, the use of public transport would be further encouraged.

The Household Travel Survey 2022 showed that 11 per cent of all commuting trips made to and from the North Canberra region were done by public transport. Similar to the active transport mode share, the public transport mode share in the area can be expected to be considerably higher due to the availability of public transport services.

Ultimately, with the size of the development and the resulting public transport demands generated, it is expected that these additional demands during the peak hours can be accommodated by the current high-frequency public transport services. Hence, the impacts on the public transport system are expected to be minimal capacity issues would be expected.

## 4.6 Parking impact

The proposed parking spaces provided are lower than the requirements outlined by the PVAG Code and the *Planning (Commercial Zones) Technical Specifications 2024* for office buildings but higher than any rates for high-density urban environments such as the City of Sydney and North Sydney.

This level of parking provision would support the modal shift from private vehicles to active and public transport modes and reduce car use in an area served by extensive active transport infrastructure and public transport services and in proximity to mixed land-use and high-density development.

## 5.0 Conclusion

The development application proposes an eight-storey office tower plus roof top plant that would deliver a total GFA of 15,689m<sup>2</sup> on a currently unoccupied land at 1A Constitution Avenue Canberra. In summary, this Transport Assessment Report concludes that:

- The proposed development would generate 156 additional vehicle trips during both AM and PM peak hours.
- The SIDRA modelling was undertaken to assess the impact on three intersections in proximity to the site:
  - Vernon Circle / Constitution Avenue
  - Constitution Avenue / Knowles Place
  - Constitution Avenue / London Circuit and
- The transport network would operate at satisfactory levels in all modelled periods including the design year 2036 with development traffic and does not require any upgrades given a relatively low traffic increase on the local road network.
- The total provision of 89 parking spaces would support the modal shift from private vehicles to active and public transport modes and reduce car use in an area served by extensive active transport infrastructure and public transport services and in proximity to mixed land-use and high-density development.
- Various pedestrian crossings are provided at intersections along Constitution Avenue and London Circuit. The pedestrian infrastructure provides pedestrian comfort and safety while shortening walking distances overall.
- Strategic cycle routes are available around the site and the footpaths are generally wide enough to accommodate cyclists. The development will encourage the uptake of cycling through the provision of 113 bicycle parking spaces, the expansive end-of-trip facility, and the integration with existing pedestrian infrastructure.
- There is potential to encourage more employees and visitors to use public transport as the site is located within walking distances from Alinga Street Light Rail Station, the future City South Light Rail Station, and the City Interchange. The design and orientation of the tower would support sustainable travel behaviours by providing increased land-use density in proximity to high-frequency public transport services. Nevertheless, impacts on the public transport system are expected to be limited and little capacity issue would be expected.
- The provided loading bay next to the basement entrance can accommodate up to Medium Rigid Vehicles (MRV) with rear loading. The waste collection will be undertaken at a nearby site.

The Transport Assessment Report concludes that the traffic impacts of the proposal on the adjacent road network are limited and at a level able to be accommodated by the existing and planned infrastructure.

## APPENDIX A

# SIDRA modelling output

# MOVEMENT SUMMARY

**Site: 1AMX [1.VER\_CON\_24\_AM\_X (Site Folder: Base Year 2024)]**

**Output produced by SIDRA INTERSECTION Version: 9.1.3.210**

1.Vernon Cir / Constitution Ave (TCS 302)  
 2024 Base Year  
 AM (8AM-9AM)  
 Site Category: Base Year  
 Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 95 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. ]	[ Dist ]				km/h
			veh/h		veh/h					veh	m				
East: Constitution Avenue															
4	L2	All MCs	335	13.5	335	13.5	* 0.706	23.0	LOS B	11.5	89.5	0.77	0.77	0.78	32.8
Approach			335	13.5	335	13.5	0.706	23.0	LOS B	11.5	89.5	0.77	0.77	0.78	32.8
North: Vernon Circle															
7	L2	All MCs	514	8.8	514	8.8	0.844	12.1	LOS A	18.4	134.4	0.41	0.59	0.45	44.2
8	T1	All MCs	1383	1.2	1383	1.2	* 0.844	3.5	LOS A	18.4	134.4	0.21	0.27	0.24	55.9
Approach			1897	3.3	1897	3.3	0.844	5.9	LOS A	18.4	134.4	0.27	0.36	0.30	53.5
All Vehicles			2232	4.8	2232	4.8	0.844	8.4	LOS A	18.4	134.4	0.34	0.42	0.37	50.3

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 ]	[ Dist ]			sec	m	m/sec
						ped	m					
South: Vernon Circle												
P1	Full	6	6	41.7	LOS E	0.0	0.0	0.94	0.94	195.5	200.0	1.02
East: Constitution Avenue												
P2	Full	17	18	41.7	LOS E	0.0	0.0	0.94	0.94	195.6	200.0	1.02
North: Vernon Circle												
P3	Full	72	76	41.8	LOS E	0.2	0.2	0.94	0.94	195.7	200.0	1.02
All Pedestrians		95	100	41.8	LOS E	0.2	0.2	0.94	0.94	195.6	200.0	1.02

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: 1PMX [1.VER\_CON\_24\_PM\_X (Site Folder: Base Year 2024)]**

**Output produced by SIDRA INTERSECTION Version: 9.1.3.210**

1.Vernon Cir / Constitution Ave (TCS 302)

2024 Base Year

PM (5PM-6PM)

Site Category: Base Year

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 87 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 ]	[ Total HV ]	[ Total HV ]				[ Veh. ]	[ Dist ]				
			veh/h	%	veh/h	%	v/c	sec			veh	m			km/h
East: Constitution Avenue															
4	L2	All MCs	597	7.8	597	7.8	* 0.697	8.8	LOS A	10.5	78.4	0.45	0.65	0.45	42.6
Approach			597	7.8	597	7.8	0.697	8.8	LOS A	10.5	78.4	0.45	0.65	0.45	42.6
North: Vernon Circle															
7	L2	All MCs	234	16.2	234	16.2	* 0.893	17.3	LOS B	21.1	155.2	0.75	0.77	0.81	40.8
8	T1	All MCs	1106	0.5	1106	0.5	0.893	11.0	LOS A	22.1	155.1	0.75	0.74	0.81	50.3
Approach			1340	3.2	1340	3.2	0.893	12.1	LOS A	22.1	155.2	0.75	0.74	0.81	49.1
All Vehicles			1937	4.6	1937	4.6	0.893	11.1	LOS A	22.1	155.2	0.65	0.71	0.70	47.6

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.

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 ]	[ Dist ]					
		ped/h	ped/h	sec		ped	m			sec	m	m/sec
South: Vernon Circle												
P1	Full	6	6	37.7	LOS D	0.0	0.0	0.93	0.93	191.6	200.0	1.04
East: Constitution Avenue												
P2	Full	9	9	37.7	LOS D	0.0	0.0	0.93	0.93	191.6	200.0	1.04
North: Vernon Circle												
P3	Full	44	46	37.8	LOS D	0.1	0.1	0.93	0.93	191.6	200.0	1.04
All Pedestrians		59	62	37.8	LOS D	0.1	0.1	0.93	0.93	191.6	200.0	1.04

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

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

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

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# MOVEMENT SUMMARY

Site: 2AMX [2.CON\_THE\_24\_AM\_X (Site Folder: Base Year 2024)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2. Constitution Ave / Theatre Ln  
 2024 Base Year  
 AM (8AM-9AM)  
 Site Category: Base Year  
 Give-Way (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 ]	[ Total HV ]	[ Total HV ]				[ Veh. ]	[ Dist ]				
			veh/h	%	veh/h	%	v/c	sec			veh	m			km/h
South: Parking Driveway															
1	L2	All MCs	17	6.3	17	6.3	0.059	1.6	LOS A	0.2	1.4	0.60	0.50	0.60	19.0
2	T1	All MCs	1	0.0	1	0.0	0.059	15.7	LOS B	0.2	1.4	0.60	0.50	0.60	12.5
3	R2	All MCs	6	16.7	6	16.7	0.059	19.8	LOS B	0.2	1.4	0.60	0.50	0.60	19.0
Approach			24	8.7	24	8.7	0.059	7.0	LOS A	0.2	1.4	0.60	0.50	0.60	18.3
East: Constitution Avenue															
4	L2	All MCs	111	1.0	111	1.0	0.650	6.9	LOS A	7.7	58.5	0.58	0.69	0.87	19.4
5	T1	All MCs	304	14.2	304	14.2	0.650	4.7	LOS A	7.7	58.5	0.58	0.69	0.87	22.9
6	R2	All MCs	104	3.0	104	3.0	0.650	18.5	LOS B	7.7	58.5	0.58	0.69	0.87	10.7
Approach			519	9.1	519	9.1	0.650	7.9	NA	7.7	58.5	0.58	0.69	0.87	15.4
North: Theatre Lane															
7	L2	All MCs	31	10.3	31	10.3	0.149	3.1	LOS A	0.5	3.5	0.67	0.67	0.67	7.7
8	T1	All MCs	3	0.0	3	0.0	0.149	16.2	LOS B	0.5	3.5	0.67	0.67	0.67	12.1
9	R2	All MCs	16	6.7	16	6.7	0.149	19.6	LOS B	0.5	3.5	0.67	0.67	0.67	7.7
Approach			49	8.5	49	8.5	0.149	9.2	LOS A	0.5	3.5	0.67	0.67	0.67	7.9
West: Constitution Avenue															
10	L2	All MCs	127	0.8	127	0.8	0.560	8.8	LOS A	4.9	36.8	0.45	0.54	0.55	10.8
11	T1	All MCs	280	15.0	280	15.0	0.560	2.9	LOS A	4.9	36.8	0.45	0.54	0.55	26.4
12	R2	All MCs	104	2.0	104	2.0	0.560	7.9	LOS A	4.9	36.8	0.45	0.54	0.55	20.1
Approach			512	8.8	512	8.8	0.560	5.4	NA	4.9	36.8	0.45	0.54	0.55	15.3
All Vehicles			1104	9.0	1104	9.0	0.650	6.8	NA	7.7	58.5	0.52	0.61	0.70	14.3

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: 2PMX [2.CON\_THE\_24\_PM\_X (Site Folder: Base Year 2024)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

2. Constitution Ave / Theatre Ln  
 2024 Base Year  
 PM (5PM-6PM)  
 Site Category: Base Year  
 Give-Way (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 ]	[ Total HV ]	[ Total HV ]				[ Veh. veh ]	[ Dist ]				
			veh/h	%	veh/h	%	v/c	sec			m				km/h
South: Parking Driveway															
1	L2	All MCs	131	0.0	131	0.0	0.236	2.6	LOS A	0.9	6.4	0.58	0.54	0.59	19.9
2	T1	All MCs	1	0.0	1	0.0	0.236	11.0	LOS A	0.9	6.4	0.58	0.54	0.59	12.7
3	R2	All MCs	25	0.0	25	0.0	0.236	11.6	LOS A	0.9	6.4	0.58	0.54	0.59	19.9
Approach			157	0.0	157	0.0	0.236	4.1	LOS A	0.9	6.4	0.58	0.54	0.59	19.8
East: Constitution Avenue															
4	L2	All MCs	19	0.0	19	0.0	0.567	4.3	LOS A	3.8	29.0	0.36	0.24	0.39	21.3
5	T1	All MCs	418	11.1	418	11.1	0.567	1.5	LOS A	3.8	29.0	0.36	0.24	0.39	33.9
6	R2	All MCs	14	7.7	14	7.7	0.567	11.4	LOS A	3.8	29.0	0.36	0.24	0.39	11.1
Approach			451	10.5	451	10.5	0.567	1.9	NA	3.8	29.0	0.36	0.24	0.39	26.7
North: Theatre Lane															
7	L2	All MCs	138	0.0	138	0.0	0.331	2.5	LOS A	1.5	10.6	0.62	0.67	0.75	7.8
8	T1	All MCs	1	0.0	1	0.0	0.331	10.5	LOS A	1.5	10.6	0.62	0.67	0.75	12.3
9	R2	All MCs	46	0.0	46	0.0	0.331	16.1	LOS B	1.5	10.6	0.62	0.67	0.75	7.8
Approach			185	0.0	185	0.0	0.331	6.0	LOS A	1.5	10.6	0.62	0.67	0.75	7.8
West: Constitution Avenue															
10	L2	All MCs	12	0.0	12	0.0	0.478	8.2	LOS A	2.5	20.1	0.37	0.31	0.41	11.0
11	T1	All MCs	208	18.7	208	18.7	0.478	2.8	LOS A	2.5	20.1	0.37	0.31	0.41	30.2
12	R2	All MCs	14	0.0	14	0.0	0.478	8.3	LOS A	2.5	20.1	0.37	0.31	0.41	20.7
Approach			234	16.7	234	16.7	0.478	3.3	NA	2.5	20.1	0.37	0.31	0.41	22.8
All Vehicles			1026	8.4	1026	8.4	0.567	3.3	NA	3.8	29.0	0.44	0.38	0.49	13.7

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: 3AMX [3.CON\_LON\_24\_AM\_X (Site Folder: Base Year 2024)]**

**Output produced by SIDRA INTERSECTION Version: 9.1.3.210**

3. Constitution Ave / London Cct (TCS 97)

2024 Base Year

AM (8AM-9AM)

Site Category: Base Year

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 91 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 ]	[ Total HV ]	[ Total HV ]				[ Veh. ]	[ Dist ]				
			veh/h	%	veh/h	%	v/c	sec		veh	m				
East: Constitution Avenue															
5	T1	All MCs	275	1.5	275	1.5	0.264	12.0	LOS A	6.5	46.0	0.57	0.49	0.57	22.8
6	R2	All MCs	138	15.3	138	15.3	* 0.280	30.1	LOS C	4.7	37.6	0.81	0.74	0.81	14.9
Approach			413	6.1	413	6.1	0.280	18.1	LOS B	6.5	46.0	0.65	0.57	0.65	19.1
North: London Circuit															
7	L2	All MCs	180	10.5	180	10.5	0.180	12.9	LOS A	3.7	28.1	0.50	0.64	0.50	22.5
9	R2	All MCs	249	17.3	249	17.3	* 0.600	36.4	LOS C	10.0	80.3	0.93	0.82	0.93	10.7
Approach			429	14.5	429	14.5	0.600	26.6	LOS B	10.0	80.3	0.75	0.74	0.75	14.4
West: Constitution Avenue															
10	L2	All MCs	117	32.4	117	32.4	0.599	9.5	LOS A	8.5	66.4	0.62	0.60	0.62	17.5
11	T1	All MCs	205	3.6	205	3.6	* 0.599	20.6	LOS B	8.5	66.4	0.62	0.60	0.62	19.8
Approach			322	14.1	322	14.1	0.599	16.6	LOS B	8.5	66.4	0.62	0.60	0.62	18.9
All Vehicles			1164	11.4	1164	11.4	0.600	20.8	LOS B	10.0	80.3	0.68	0.64	0.68	17.0

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 ]	[ Dist ]					
		ped/h	ped/h	sec		ped	m					
East: Constitution Avenue												
P2	Full	163	172	40.0	LOS D	0.4	0.4	0.94	0.94	193.8	200.0	1.03
North: London Circuit												
P3	Full	180	189	40.0	LOS E	0.5	0.5	0.94	0.94	193.9	200.0	1.03
West: Constitution Avenue												
P4	Full	59	62	39.8	LOS D	0.2	0.2	0.94	0.94	193.6	200.0	1.03
All Pedestrians		402	423	40.0	LOS D	0.5	0.5	0.94	0.94	193.8	200.0	1.03

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

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



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

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# MOVEMENT SUMMARY

**Site: 3PMX [3.CON\_LON\_24\_PM\_X (Site Folder: Base Year 2024)]**

**Output produced by SIDRA INTERSECTION Version: 9.1.3.210**

3. Constitution Ave / London Cct (TCS 97)

2024 Base Year

PM (5PM-6PM)

Site Category: Base Year

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 83 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 ]	[ Total HV ]	[ Total HV ]				[ Veh. ]	[ Dist ]				
			veh/h	%	veh/h	%	v/c	sec		veh	m				
East: Constitution Avenue															
5	T1	All MCs	222	0.5	222	0.5	0.221	19.9	LOS B	7.7	53.9	0.91	0.54	0.91	17.8
6	R2	All MCs	157	9.4	157	9.4	* 0.329	36.2	LOS C	6.0	45.7	0.99	0.80	0.99	13.3
Approach			379	4.2	379	4.2	0.329	26.6	LOS B	7.7	53.9	0.94	0.65	0.94	15.4
North: London Circuit															
7	L2	All MCs	142	10.4	142	10.4	0.149	13.1	LOS A	2.8	21.1	0.51	0.64	0.51	22.4
9	R2	All MCs	237	19.6	237	19.6	* 0.674	37.5	LOS C	9.3	75.9	0.97	0.85	1.02	10.5
Approach			379	16.1	379	16.1	0.674	28.3	LOS B	9.3	75.9	0.80	0.78	0.83	13.7
West: Constitution Avenue															
10	L2	All MCs	131	1.6	131	1.6	0.671	9.1	LOS A	9.7	73.9	0.66	0.63	0.66	18.2
11	T1	All MCs	249	14.8	249	14.8	* 0.671	18.2	LOS B	9.7	73.9	0.66	0.63	0.66	20.4
Approach			380	10.2	380	10.2	0.671	15.1	LOS B	9.7	73.9	0.66	0.63	0.66	19.7
All Vehicles			1138	10.2	1138	10.2	0.674	23.3	LOS B	9.7	75.9	0.80	0.68	0.81	15.9

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 ]	[ Dist ]					
		ped/h	ped/h	sec		ped	m					
East: Constitution Avenue												
P2	Full	101	106	35.9	LOS D	0.2	0.2	0.93	0.93	189.7	200.0	1.05
North: London Circuit												
P3	Full	78	82	35.8	LOS D	0.2	0.2	0.93	0.93	189.7	200.0	1.05
West: Constitution Avenue												
P4	Full	58	61	35.8	LOS D	0.1	0.1	0.93	0.93	189.7	200.0	1.05
All Pedestrians		237	249	35.8	LOS D	0.2	0.2	0.93	0.93	189.7	200.0	1.05

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: 1AMFY [1.VER\_CON\_36\_AM\_F (Site Folder: Future Base 2036)]**

**Output produced by SIDRA INTERSECTION Version: 9.1.3.210**

1.Vernon Cir / Constitution Ave (TCS 302)  
 2036 Future Base Case  
 AM (8AM-9AM)  
 Site Category: Future Conditions 1  
 Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 106 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 ]	[ Total HV ]	[ Total HV ]				[ Veh. ]	[ Dist ]				
			veh/h	%	veh/h	%	v/c	sec			veh	m			km/h
East: Constitution Avenue															
4	L2	All MCs	112	15.1	112	15.1	* 0.138	26.1	LOS B	1.6	12.5	0.57	0.63	0.57	31.2
Approach			112	15.1	112	15.1	0.138	26.1	LOS B	1.6	12.5	0.57	0.63	0.57	31.2
North: Vernon Circle															
7	L2	All MCs	463	8.9	463	8.9	0.864	10.3	LOS A	18.0	130.9	0.32	0.49	0.35	46.5
8	T1	All MCs	1654	1.2	1654	1.2	* 0.864	3.2	LOS A	18.0	130.9	0.20	0.27	0.23	56.3
Approach			2117	2.9	2117	2.9	0.864	4.8	LOS A	18.0	130.9	0.23	0.32	0.25	54.7
All Vehicles			2228	3.5	2228	3.5	0.864	5.8	LOS A	18.0	130.9	0.25	0.34	0.27	53.4

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.

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 ]	[ Dist ]					
		ped/h	ped/h	sec		ped	m			sec	m	m/sec
South: Vernon Circle												
P1	Full	7	7	47.2	LOS E	0.0	0.0	0.94	0.94	201.0	200.0	0.99
East: Constitution Avenue												
P2	Full	20	21	47.2	LOS E	0.1	0.1	0.94	0.94	201.1	200.0	0.99
North: Vernon Circle												
P3	Full	86	91	47.3	LOS E	0.3	0.3	0.95	0.95	201.2	200.0	0.99
All Pedestrians		113	119	47.3	LOS E	0.3	0.3	0.95	0.95	201.2	200.0	0.99

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: 1PMFY [1.VER\_CON\_36\_PM\_F (Site Folder: Future Base 2036)]**

**Output produced by SIDRA INTERSECTION Version: 9.1.3.210**

1.Vernon Cir / Constitution Ave (TCS 302)  
 2036 Future Base Case  
 PM (5PM-6PM)  
 Site Category: Future Conditions 1  
 Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 110 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 ]	[ Total HV ]	[ Total HV ]	v/c	sec		[ Veh. ]	[ Dist ]				km/h
			veh/h	%	veh/h	%				veh	m				
East: Constitution Avenue															
4	L2	All MCs	361	1.5	361	1.5	* 0.220	11.6	LOS A	2.8	19.7	0.31	0.57	0.31	40.6
Approach			361	1.5	361	1.5	0.220	11.6	LOS A	2.8	19.7	0.31	0.57	0.31	40.6
North: Vernon Circle															
7	L2	All MCs	279	16.2	279	16.2	0.947	18.6	LOS B	31.7	233.4	0.71	0.77	0.80	39.7
8	T1	All MCs	1323	0.5	1323	0.5	* 0.947	12.3	LOS A	33.2	233.7	0.71	0.74	0.80	49.5
Approach			1602	3.2	1602	3.2	0.947	13.4	LOS A	33.2	233.7	0.71	0.74	0.80	48.2
All Vehicles			1963	2.9	1963	2.9	0.947	13.0	LOS A	33.2	233.7	0.63	0.71	0.71	47.1

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.

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
						ped	m					
South: Vernon Circle												
P1	Full	7	7	49.2	LOS E	0.0	0.0	0.95	0.95	203.0	200.0	0.99
East: Constitution Avenue												
P2	Full	11	12	49.2	LOS E	0.0	0.0	0.95	0.95	203.0	200.0	0.99
North: Vernon Circle												
P3	Full	53	56	49.3	LOS E	0.2	0.2	0.95	0.95	203.1	200.0	0.98
All Pedestrians		71	75	49.3	LOS E	0.2	0.2	0.95	0.95	203.1	200.0	0.98

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: 2AMFY [2.CON\_THE\_36\_AM\_F (Site Folder: Future Base 2036)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

2. Constitution Ave / Theatre Ln  
 2036 Future Base Case  
 AM (8AM-9AM)  
 Site Category: Future Conditions 1  
 Give-Way (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 ]	[ Total HV ]	[ Total HV ]				[ Veh. ]	[ Dist ]				
			veh/h	%	veh/h	%	v/c	sec			m				km/h
South: Parking Driveway															
1	L2	All MCs	20	5.3	20	5.3	0.053	0.4	LOS A	0.2	1.3	0.40	0.23	0.40	19.7
2	T1	All MCs	1	0.0	1	0.0	0.053	12.7	LOS A	0.2	1.3	0.40	0.23	0.40	12.6
3	R2	All MCs	7	14.3	7	14.3	0.053	15.2	LOS B	0.2	1.3	0.40	0.23	0.40	19.6
Approach			28	7.4	28	7.4	0.053	4.7	LOS A	0.2	1.3	0.40	0.23	0.40	19.0
East: Constitution Avenue															
4	L2	All MCs	201	0.5	201	0.5	0.257	4.2	LOS A	1.2	8.6	0.32	0.42	0.32	20.7
5	T1	All MCs	74	18.6	74	18.6	0.257	1.7	LOS A	1.2	8.6	0.32	0.42	0.32	29.5
6	R2	All MCs	195	2.2	195	2.2	0.358	13.1	LOS A	1.4	10.2	0.65	0.97	0.83	10.4
Approach			469	4.0	469	4.0	0.358	7.5	NA	1.4	10.2	0.46	0.65	0.53	13.8
North: Theatre Lane															
7	L2	All MCs	37	11.4	37	11.4	0.153	4.1	LOS A	0.5	3.7	0.66	0.66	0.66	7.7
8	T1	All MCs	4	0.0	4	0.0	0.153	12.2	LOS A	0.5	3.7	0.66	0.66	0.66	12.2
9	R2	All MCs	19	5.6	19	5.6	0.153	13.2	LOS A	0.5	3.7	0.66	0.66	0.66	7.7
Approach			60	8.8	60	8.8	0.153	7.6	LOS A	0.5	3.7	0.66	0.66	0.66	8.0
West: Constitution Avenue															
10	L2	All MCs	83	1.3	83	1.3	0.526	8.7	LOS A	4.0	30.0	0.45	0.50	0.54	10.9
11	T1	All MCs	322	11.8	322	11.8	0.526	2.9	LOS A	4.0	30.0	0.45	0.50	0.54	28.2
12	R2	All MCs	55	3.8	55	3.8	0.526	6.2	LOS A	4.0	30.0	0.45	0.50	0.54	20.4
Approach			460	8.9	460	8.9	0.526	4.4	NA	4.0	30.0	0.45	0.50	0.54	16.6
All Vehicles			1018	6.6	1018	6.6	0.526	6.0	NA	4.0	30.0	0.47	0.57	0.54	13.8

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.

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: 2PMFY [2.CON\_THE\_36\_PM\_F (Site Folder: Future Base 2036)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

2. Constitution Ave / Theatre Ln  
 2036 Future Base Case  
 PM (5PM-6PM)  
 Site Category: Future Conditions 1  
 Give-Way (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 ]	[ Total HV ]	[ Total HV ]				[ Veh. ]	[ Dist ]				
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Parking Driveway															
1	L2	All MCs	43	0.0	43	0.0	0.446	2.8	LOS A	2.4	16.6	0.71	0.89	1.04	18.1
2	T1	All MCs	1	0.0	1	0.0	0.446	12.3	LOS A	2.4	16.6	0.71	0.89	1.04	12.3
3	R2	All MCs	143	0.0	143	0.0	0.446	12.9	LOS A	2.4	16.6	0.71	0.89	1.04	18.1
Approach			187	0.0	187	0.0	0.446	10.6	LOS A	2.4	16.6	0.71	0.89	1.04	18.1
East: Constitution Avenue															
4	L2	All MCs	23	0.0	23	0.0	0.191	3.8	LOS A	0.7	4.7	0.23	0.17	0.23	21.4
5	T1	All MCs	267	2.0	267	2.0	0.191	0.7	LOS A	0.7	4.7	0.24	0.22	0.24	34.5
6	R2	All MCs	22	4.8	22	4.8	0.191	9.8	LOS A	0.6	4.6	0.26	0.26	0.26	11.1
Approach			313	2.0	313	2.0	0.191	1.6	NA	0.7	4.7	0.24	0.22	0.24	22.7
North: Theatre Lane															
7	L2	All MCs	165	0.0	165	0.0	0.346	3.0	LOS A	1.6	11.5	0.60	0.68	0.73	7.8
8	T1	All MCs	1	0.0	1	0.0	0.346	7.7	LOS A	1.6	11.5	0.60	0.68	0.73	12.4
9	R2	All MCs	56	0.0	56	0.0	0.346	10.5	LOS A	1.6	11.5	0.60	0.68	0.73	7.8
Approach			222	0.0	222	0.0	0.346	4.9	LOS A	1.6	11.5	0.60	0.68	0.73	7.8
West: Constitution Avenue															
10	L2	All MCs	14	0.0	14	0.0	0.583	9.4	LOS A	4.2	33.7	0.47	0.44	0.59	10.8
11	T1	All MCs	248	18.6	248	18.6	0.583	4.7	LOS A	4.2	33.7	0.47	0.44	0.59	26.9
12	R2	All MCs	17	0.0	17	0.0	0.583	7.7	LOS A	4.2	33.7	0.47	0.44	0.59	20.2
Approach			279	16.6	279	16.6	0.583	5.1	NA	4.2	33.7	0.47	0.44	0.59	21.3
All Vehicles			1001	5.3	1001	5.3	0.583	5.0	NA	4.2	33.7	0.47	0.51	0.60	12.6

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: 3AMFY [3.CON\_LON\_36\_AM\_F (Site Folder: Future Base 2036)]**

**Output produced by SIDRA INTERSECTION Version: 9.1.3.210**

3. Constitution Ave / London Cct (TCS 97)

2036 Future Base Case

AM (8AM-9AM)

Site Category: Future Conditions 1

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 80 seconds (Site Optimum Cycle Time - Minimum Delay)

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: RoadName															
1	L2	All MCs	139	0.0	139	0.0	0.483	35.5	LOS C	7.3	51.9	0.91	0.79	0.91	27.7
2	T1	All MCs	315	4.0	315	4.0	0.483	27.3	LOS B	8.1	58.6	0.90	0.76	0.90	33.4
3	R2	All MCs	195	0.0	195	0.0	*0.524	37.4	LOS C	7.0	49.1	0.94	0.81	0.94	29.1
Approach			648	1.9	648	1.9	0.524	32.1	LOS C	8.1	58.6	0.91	0.78	0.91	30.7
East: Constitution Avenue															
4	L2	All MCs	63	0.0	63	0.0	0.537	16.6	LOS B	10.1	71.8	0.88	0.76	0.88	32.5
5	T1	All MCs	265	2.0	265	2.0	*0.537	28.1	LOS B	10.1	71.8	0.88	0.76	0.88	15.4
6	R2	All MCs	165	15.3	165	15.3	0.537	32.9	LOS C	6.5	50.8	0.92	0.79	0.92	14.5
Approach			494	6.2	494	6.2	0.537	28.2	LOS B	10.1	71.8	0.89	0.77	0.89	18.2
North: London Circuit															
7	L2	All MCs	102	22.7	102	22.7	0.510	34.8	LOS C	7.0	56.0	0.92	0.78	0.92	14.9
8	T1	All MCs	340	11.1	340	11.1	*0.510	27.6	LOS B	8.2	63.1	0.91	0.76	0.91	33.2
9	R2	All MCs	72	19.1	72	19.1	0.220	33.1	LOS C	2.4	19.6	0.88	0.73	0.88	11.4
Approach			514	14.5	514	14.5	0.510	29.8	LOS C	8.2	63.1	0.90	0.76	0.90	27.7
West: Constitution Avenue															
10	L2	All MCs	127	25.6	127	25.6	0.311	9.3	LOSA	2.6	21.1	0.38	0.51	0.38	21.7
11	T1	All MCs	239	3.5	239	3.5	0.311	11.6	LOSA	3.3	23.9	0.45	0.43	0.45	23.7
12	R2	All MCs	6	0.0	6	0.0	0.311	21.4	LOS B	3.3	23.9	0.47	0.40	0.47	41.0
Approach			373	11.0	373	11.0	0.311	11.0	LOSA	3.3	23.9	0.43	0.45	0.43	23.6
All Vehicles			2028	7.8	2028	7.8	0.537	26.7	LOS B	10.1	71.8	0.82	0.71	0.82	26.5

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.

\* 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 ]	[ Dist ]					
		ped/h	ped/h	sec		ped	m			sec	m	m/sec
South: RoadName												



P1 Full	50	53	34.3	LOS D	0.1	0.1	0.93	0.93	188.1	200.0	1.06
East: Constitution Avenue											
P2 Full	195	205	34.5	LOS D	0.4	0.4	0.93	0.93	188.4	200.0	1.06
North: London Circuit											
P3 Full	215	226	34.6	LOS D	0.5	0.5	0.93	0.93	188.4	200.0	1.06
West: Constitution Avenue											
P4 Full	71	75	34.3	LOS D	0.2	0.2	0.93	0.93	188.2	200.0	1.06
All Pedestrians	531	559	34.5	LOS D	0.5	0.5	0.93	0.93	188.3	200.0	1.06

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: 3PMFY [3.CON\_LON\_36\_PM\_F (Site Folder: Future Base 2036)]**

**Output produced by SIDRA INTERSECTION Version: 9.1.3.210**

3. Constitution Ave / London Cct (TCS 97)

2036 Future Base Case

PM (5PM-6PM)

Site Category: Future Conditions 1

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 80 seconds (Site Optimum Cycle Time - Minimum Delay)

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: RoadName															
1	L2	All MCs	13	0.0	13	0.0	0.196	33.6	LOS C	2.9	20.3	0.83	0.67	0.83	30.2
2	T1	All MCs	176	0.0	176	0.0	0.196	25.6	LOS B	3.0	20.9	0.83	0.66	0.83	34.7
3	R2	All MCs	114	0.0	114	0.0	* 0.490	42.5	LOS D	4.4	30.5	0.98	0.78	0.98	27.3
Approach			302	0.0	302	0.0	0.490	32.3	LOS C	4.4	30.5	0.88	0.70	0.88	31.2
East: Constitution Avenue															
4	L2	All MCs	101	0.0	101	0.0	0.421	19.5	LOS B	10.2	71.2	0.92	0.76	0.92	32.1
5	T1	All MCs	265	0.4	265	0.4	0.421	30.5	LOS C	10.2	71.2	0.94	0.76	0.94	14.7
6	R2	All MCs	187	9.6	187	9.6	0.421	33.7	LOS C	9.4	69.5	0.99	0.78	0.99	14.4
Approach			554	3.4	554	3.4	0.421	29.6	LOS C	10.2	71.2	0.95	0.77	0.95	19.0
North: London Circuit															
7	L2	All MCs	32	56.7	32	56.7	0.480	35.3	LOS C	6.7	54.9	0.90	0.75	0.90	16.0
8	T1	All MCs	378	13.4	378	13.4	* 0.480	28.0	LOS B	7.3	57.0	0.90	0.75	0.90	33.5
9	R2	All MCs	44	11.9	44	11.9	0.231	40.1	LOS C	1.7	12.8	0.95	0.73	0.95	10.0
Approach			454	16.2	454	16.2	0.480	29.7	LOS C	7.3	57.0	0.91	0.75	0.91	30.6
West: Constitution Avenue															
10	L2	All MCs	156	1.4	156	1.4	0.482	5.5	LOSA	3.1	23.7	0.23	0.35	0.23	28.0
11	T1	All MCs	299	14.8	299	14.8	0.482	7.1	LOSA	5.5	40.7	0.37	0.45	0.37	25.3
12	R2	All MCs	114	0.0	114	0.0	* 0.482	27.5	LOS B	5.5	40.7	0.73	0.70	0.73	34.6
Approach			568	8.1	568	8.1	0.482	10.7	LOSA	5.5	40.7	0.41	0.47	0.41	29.4
All Vehicles			1878	7.4	1878	7.4	0.490	24.4	LOS B	10.2	71.2	0.76	0.66	0.76	27.0

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 ]	[ Dist ]					
		ped/h	ped/h	sec		ped	m			sec	m	m/sec
South: RoadName												

P1 Full	50	53	34.3	LOS D	0.1	0.1	0.93	0.93	188.1	200.0	1.06
East: Constitution Avenue											
P2 Full	121	127	34.4	LOS D	0.3	0.3	0.93	0.93	188.3	200.0	1.06
North: London Circuit											
P3 Full	93	98	34.4	LOS D	0.2	0.2	0.93	0.93	188.2	200.0	1.06
West: Constitution Avenue											
P4 Full	69	73	34.3	LOS D	0.2	0.2	0.93	0.93	188.2	200.0	1.06
All Pedestrians	333	351	34.4	LOS D	0.3	0.3	0.93	0.93	188.2	200.0	1.06

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: 1AMFD [1.VER\_CON\_36\_AM\_Dev (Site Folder: Future with Dev 2036)]**

**Output produced by SIDRA INTERSECTION Version: 9.1.6.228**

1.Vernon Cir / Constitution Ave (TCS 302)  
 2036 Future with Development  
 AM (8AM-9AM)  
 Site Category: Future Conditions 2  
 Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 106 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 ]	[ Total HV ]	[ Total HV ]				[ Veh. ]	[ Dist ]				
			veh/h	%	veh/h	%	v/c	sec			veh	m			km/h
East: Constitution Avenue															
4	L2	All MCs	117	14.4	117	14.4	*0.144	26.1	LOS B	1.7	13.1	0.57	0.64	0.57	31.2
Approach			117	14.4	117	14.4	0.144	26.1	LOS B	1.7	13.1	0.57	0.64	0.57	31.2
North: Vernon Circle															
7	L2	All MCs	482	8.5	482	8.5	0.871	11.1	LOS A	19.5	142.0	0.34	0.52	0.37	45.6
8	T1	All MCs	1654	1.2	1654	1.2	*0.871	3.8	LOS A	19.5	142.0	0.21	0.28	0.24	55.8
Approach			2136	2.9	2136	2.9	0.871	5.4	LOS A	19.5	142.0	0.24	0.34	0.27	54.1
All Vehicles			2253	3.5	2253	3.5	0.871	6.5	LOS A	19.5	142.0	0.26	0.35	0.29	52.8

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 ]	[ Dist ]					
		ped/h	ped/h	sec		ped	m			sec	m	m/sec
South: Vernon Circle												
P1	Full	7	7	47.2	LOS E	0.0	0.0	0.94	0.94	201.0	200.0	0.99
East: Constitution Avenue												
P2	Full	20	21	47.2	LOS E	0.1	0.1	0.94	0.94	201.1	200.0	0.99
North: Vernon Circle												
P3	Full	86	91	47.3	LOS E	0.3	0.3	0.95	0.95	201.2	200.0	0.99
All Pedestrians		113	119	47.3	LOS E	0.3	0.3	0.95	0.95	201.2	200.0	0.99

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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City\_SIDRA\_v0.4.sip9

# MOVEMENT SUMMARY

**Site: 1PMFD [1.VER\_CON\_36\_PM\_Dev (Site Folder: Future with Dev 2036)]**

**Output produced by SIDRA INTERSECTION Version: 9.1.6.228**

1.Vernon Cir / Constitution Ave (TCS 302)  
 2036 Future with Development  
 PM (5PM-6PM)  
 Site Category: Future Conditions 2  
 Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 110 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 ]	[ Total HV ]	[ Total HV ]				[ Veh. ]	[ Dist ]				
			veh/h	%	veh/h	%	v/c	sec			veh	m			km/h
East: Constitution Avenue															
4	L2	All MCs	380	1.4	380	1.4	* 0.231	11.6	LOS A	3.0	21.0	0.31	0.57	0.31	40.6
Approach			380	1.4	380	1.4	0.231	11.6	LOS A	3.0	21.0	0.31	0.57	0.31	40.6
North: Vernon Circle															
7	L2	All MCs	284	15.9	284	15.9	0.950	19.2	LOS B	32.6	240.4	0.72	0.79	0.83	39.3
8	T1	All MCs	1323	0.5	1323	0.5	* 0.950	12.8	LOS A	34.3	240.8	0.72	0.76	0.82	49.1
Approach			1607	3.2	1607	3.2	0.950	14.0	LOS A	34.3	240.8	0.72	0.76	0.82	47.8
All Vehicles			1987	2.9	1987	2.9	0.950	13.5	LOS A	34.3	240.8	0.64	0.73	0.72	46.7

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 ]	[ Dist ]					
		ped/h	ped/h	sec		ped	m			sec	m	m/sec
South: Vernon Circle												
P1	Full	7	7	49.2	LOS E	0.0	0.0	0.95	0.95	203.0	200.0	0.99
East: Constitution Avenue												
P2	Full	11	12	49.2	LOS E	0.0	0.0	0.95	0.95	203.0	200.0	0.99
North: Vernon Circle												
P3	Full	53	56	49.3	LOS E	0.2	0.2	0.95	0.95	203.1	200.0	0.98
All Pedestrians		71	75	49.3	LOS E	0.2	0.2	0.95	0.95	203.1	200.0	0.98

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: 2AMFD [2.CON\_THE\_36\_AM\_Dev (Site Folder: Future with Dev 2036)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2. Constitution Ave / Theatre Ln  
 2036 Future with Development  
 AM (8AM-9AM)  
 Site Category: Future Conditions 2  
 Give-Way (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 ]	[ Total HV ]	[ Total HV ]				[ Veh. ]	[ Dist ]				
			veh/h	%	veh/h	%	v/c	sec			veh	m			km/h
South: Parking Driveway															
1	L2	All MCs	20	5.3	20	5.3	0.064	0.4	LOS A	0.2	1.5	0.45	0.26	0.45	19.3
2	T1	All MCs	1	0.0	1	0.0	0.064	15.2	LOS B	0.2	1.5	0.45	0.26	0.45	12.5
3	R2	All MCs	7	14.3	7	14.3	0.064	20.7	LOS B	0.2	1.5	0.45	0.26	0.45	19.2
Approach			28	7.4	28	7.4	0.064	6.2	LOS A	0.2	1.5	0.45	0.26	0.45	18.6
East: Constitution Avenue															
4	L2	All MCs	201	0.5	201	0.5	0.260	4.2	LOS A	1.2	8.6	0.32	0.42	0.32	20.7
5	T1	All MCs	74	18.6	74	18.6	0.260	1.7	LOS A	1.2	8.6	0.32	0.42	0.32	29.5
6	R2	All MCs	307	1.4	307	1.4	0.581	15.5	LOS B	3.0	21.4	0.75	1.09	1.25	10.2
Approach			582	3.3	582	3.3	0.581	9.9	NA	3.0	21.4	0.55	0.78	0.81	12.7
North: Theatre Lane															
7	L2	All MCs	65	6.5	65	6.5	0.240	4.4	LOS A	0.8	6.2	0.69	0.76	0.76	7.7
8	T1	All MCs	4	0.0	4	0.0	0.240	16.4	LOS B	0.8	6.2	0.69	0.76	0.76	12.2
9	R2	All MCs	24	4.3	24	4.3	0.240	18.1	LOS B	0.8	6.2	0.69	0.76	0.76	7.7
Approach			94	5.6	94	5.6	0.240	8.5	LOS A	0.8	6.2	0.69	0.76	0.76	7.9
West: Constitution Avenue															
10	L2	All MCs	102	1.0	102	1.0	0.540	8.7	LOS A	4.3	32.4	0.46	0.52	0.55	10.9
11	T1	All MCs	322	11.8	322	11.8	0.540	3.1	LOS A	4.3	32.4	0.46	0.52	0.55	27.7
12	R2	All MCs	55	3.8	55	3.8	0.540	6.3	LOS A	4.3	32.4	0.46	0.52	0.55	20.4
Approach			479	8.6	479	8.6	0.540	4.6	NA	4.3	32.4	0.46	0.52	0.55	15.9
All Vehicles			1183	5.7	1183	5.7	0.581	7.6	NA	4.3	32.4	0.52	0.66	0.69	12.6

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.

# MOVEMENT SUMMARY

Site: 2PMFD [2.CON\_THE\_36\_PM\_Dev (Site Folder: Future with Dev 2036)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2.Constitution Ave / Theatre Ln  
 2036 Future with Development  
 PM (5PM-6PM)  
 Site Category: Future Conditions 2  
 Give-Way (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: Parking Driveway															
1	L2	All MCs	43	0.0	43	0.0	0.540	4.6	LOS A	3.0	21.2	0.79	1.12	1.30	17.1
2	T1	All MCs	1	0.0	1	0.0	0.540	14.5	LOS B	3.0	21.2	0.79	1.12	1.30	12.0
3	R2	All MCs	143	0.0	143	0.0	0.540	18.2	LOS B	3.0	21.2	0.79	1.12	1.30	17.1
Approach			187	0.0	187	0.0	0.540	15.0	LOS B	3.0	21.2	0.79	1.12	1.30	17.0
East: Constitution Avenue															
4	L2	All MCs	23	0.0	23	0.0	0.212	3.8	LOS A	0.8	5.3	0.24	0.17	0.24	21.4
5	T1	All MCs	267	2.0	267	2.0	0.212	0.7	LOS A	0.8	5.3	0.26	0.27	0.26	33.0
6	R2	All MCs	51	2.1	51	2.1	0.212	9.8	LOS A	0.7	5.1	0.29	0.40	0.29	11.0
Approach			341	1.9	341	1.9	0.212	2.3	NA	0.8	5.3	0.26	0.28	0.26	18.4
North: Theatre Lane															
7	L2	All MCs	278	0.0	278	0.0	0.534	4.7	LOS A	3.6	25.0	0.68	1.01	1.06	7.8
8	T1	All MCs	1	0.0	1	0.0	0.534	10.7	LOS A	3.6	25.0	0.68	1.01	1.06	12.3
9	R2	All MCs	75	0.0	75	0.0	0.534	14.2	LOS A	3.6	25.0	0.68	1.01	1.06	7.8
Approach			354	0.0	354	0.0	0.534	6.7	LOS A	3.6	25.0	0.68	1.01	1.06	7.8
West: Constitution Avenue															
10	L2	All MCs	19	0.0	19	0.0	0.587	9.4	LOS A	4.3	34.4	0.47	0.45	0.59	10.8
11	T1	All MCs	248	18.6	248	18.6	0.587	4.7	LOS A	4.3	34.4	0.47	0.45	0.59	26.6
12	R2	All MCs	17	0.0	17	0.0	0.587	7.8	LOS A	4.3	34.4	0.47	0.45	0.59	20.1
Approach			284	16.3	284	16.3	0.587	5.2	NA	4.3	34.4	0.47	0.45	0.59	20.1
All Vehicles			1166	4.5	1166	4.5	0.587	6.4	NA	4.3	34.4	0.52	0.68	0.75	11.1

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: 3AMFD [3.CON\_LON\_36\_AM\_Dev (Site Folder: Future with Dev 2036)]**

**Output produced by SIDRA INTERSECTION Version: 9.1.6.228**

3. Constitution Ave / London Cct (TCS 97)

2036 Future with Development

AM (8AM-9AM)

Site Category: Future Conditions 2

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 80 seconds (Site Optimum Cycle Time - Minimum Delay)

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: RoadName															
1	L2	All MCs	162	0.0	162	0.0	0.511	35.5	LOS C	7.7	54.5	0.92	0.80	0.92	27.5
2	T1	All MCs	315	4.0	315	4.0	*0.511	27.5	LOS B	8.6	62.6	0.91	0.76	0.91	33.4
3	R2	All MCs	195	0.0	195	0.0	*0.524	37.4	LOS C	7.0	49.1	0.94	0.81	0.94	29.1
Approach			672	1.9	672	1.9	0.524	32.3	LOS C	8.6	62.6	0.92	0.78	0.92	30.5
East: Constitution Avenue															
4	L2	All MCs	63	0.0	63	0.0	0.533	16.6	LOS B	10.0	71.2	0.88	0.76	0.88	32.6
5	T1	All MCs	271	1.9	271	1.9	*0.533	28.0	LOS B	10.0	71.2	0.88	0.76	0.88	15.4
6	R2	All MCs	165	15.3	165	15.3	0.533	32.1	LOS C	6.7	52.1	0.91	0.79	0.91	14.8
Approach			499	6.1	499	6.1	0.533	27.9	LOS B	10.0	71.2	0.89	0.77	0.89	18.3
North: London Circuit															
7	L2	All MCs	102	22.7	102	22.7	0.510	34.8	LOS C	7.0	56.0	0.92	0.78	0.92	14.9
8	T1	All MCs	340	11.1	340	11.1	0.510	27.6	LOS B	8.2	63.1	0.91	0.76	0.91	33.2
9	R2	All MCs	156	8.8	156	8.8	0.448	34.7	LOS C	5.5	41.6	0.93	0.78	0.93	11.1
Approach			598	12.5	598	12.5	0.510	30.7	LOS C	8.2	63.1	0.91	0.77	0.91	25.7
West: Constitution Avenue															
10	L2	All MCs	148	22.0	148	22.0	0.339	8.8	LOS A	2.7	22.0	0.36	0.51	0.36	22.3
11	T1	All MCs	240	3.5	240	3.5	0.339	12.3	LOS A	3.8	27.3	0.48	0.46	0.48	22.9
12	R2	All MCs	13	0.0	13	0.0	0.339	22.8	LOS B	3.8	27.3	0.52	0.45	0.52	39.8
Approach			401	10.2	401	10.2	0.339	11.4	LOS A	3.8	27.3	0.44	0.48	0.44	23.7
All Vehicles			2169	7.3	2169	7.3	0.533	27.0	LOS B	10.0	71.2	0.82	0.72	0.82	25.9

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 ]	[ Dist ]					
		ped/h	ped/h	sec		ped	m			sec	m	m/sec
South: RoadName												



P1 Full	50	53	34.3	LOS D	0.1	0.1	0.93	0.93	188.1	200.0	1.06
East: Constitution Avenue											
P2 Full	195	205	34.5	LOS D	0.4	0.4	0.93	0.93	188.4	200.0	1.06
North: London Circuit											
P3 Full	215	226	34.6	LOS D	0.5	0.5	0.93	0.93	188.4	200.0	1.06
West: Constitution Avenue											
P4 Full	71	75	34.3	LOS D	0.2	0.2	0.93	0.93	188.2	200.0	1.06
All Pedestrians	531	559	34.5	LOS D	0.5	0.5	0.93	0.93	188.3	200.0	1.06

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: 3PMFD [3.CON\_LON\_36\_PM\_Dev (Site Folder: Future with Dev 2036)]**

**Output produced by SIDRA INTERSECTION Version: 9.1.6.228**

3. Constitution Ave / London Cct (TCS 97)

2036 Future with Development

PM (5PM-6PM)

Site Category: Future Conditions 2

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 90 seconds (Site Optimum Cycle Time - Minimum Delay)

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: RoadName															
1	L2	All MCs	19	0.0	19	0.0	0.219	38.1	LOS C	3.4	23.9	0.85	0.69	0.85	28.2
2	T1	All MCs	176	0.0	176	0.0	0.219	30.1	LOS C	3.6	25.0	0.85	0.68	0.85	32.3
3	R2	All MCs	114	0.0	114	0.0	* 0.501	47.2	LOS D	4.9	34.2	0.98	0.78	0.98	25.8
Approach			308	0.0	308	0.0	0.501	36.9	LOS C	4.9	34.2	0.90	0.72	0.90	29.3
East: Constitution Avenue															
4	L2	All MCs	101	0.0	101	0.0	0.373	19.2	LOS B	10.9	76.4	0.89	0.71	0.89	32.2
5	T1	All MCs	266	0.4	266	0.4	0.373	30.4	LOS C	10.9	76.6	0.91	0.71	0.91	14.7
6	R2	All MCs	187	9.6	187	9.6	0.373	34.4	LOS C	10.3	76.6	0.97	0.72	0.97	14.3
Approach			555	3.4	555	3.4	0.373	29.7	LOS C	10.9	76.6	0.93	0.72	0.93	18.9
North: London Circuit															
7	L2	All MCs	32	56.7	32	56.7	0.519	41.9	LOS C	7.7	63.1	0.93	0.77	0.93	14.3
8	T1	All MCs	378	13.4	378	13.4	* 0.519	33.2	LOS C	8.5	66.0	0.93	0.77	0.93	31.0
9	R2	All MCs	65	8.1	65	8.1	0.336	45.1	LOS D	2.8	20.8	0.96	0.75	0.96	9.2
Approach			475	15.5	475	15.5	0.519	35.4	LOS C	8.5	66.0	0.93	0.77	0.93	27.4
West: Constitution Avenue															
10	L2	All MCs	240	0.9	240	0.9	0.516	3.8	LOSA	0.9	6.5	0.05	0.28	0.05	31.7
11	T1	All MCs	304	14.5	304	14.5	0.516	5.1	LOSA	6.9	50.8	0.26	0.41	0.26	26.4
12	R2	All MCs	137	0.0	137	0.0	* 0.516	26.8	LOS B	6.9	50.8	0.69	0.69	0.69	35.0
Approach			681	6.8	681	6.8	0.516	9.0	LOSA	6.9	50.8	0.27	0.42	0.27	31.0
All Vehicles			2019	6.9	2019	6.9	0.519	25.2	LOS B	10.9	76.6	0.70	0.63	0.70	26.2

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.

\* 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 ]	[ Dist ]					
		ped/h	ped/h	sec		ped	m			sec	m	m/sec
South: RoadName												

P1 Full	50	53	39.3	LOS D	0.1	0.1	0.94	0.94	193.1	200.0	1.04
East: Constitution Avenue											
P2 Full	121	127	39.4	LOS D	0.3	0.3	0.94	0.94	193.3	200.0	1.03
North: London Circuit											
P3 Full	93	98	39.4	LOS D	0.2	0.2	0.94	0.94	193.2	200.0	1.04
West: Constitution Avenue											
P4 Full	69	73	39.3	LOS D	0.2	0.2	0.94	0.94	193.2	200.0	1.04
All Pedestrians	333	351	39.4	LOS D	0.3	0.3	0.94	0.94	193.2	200.0	1.04

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

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

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

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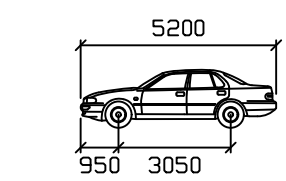
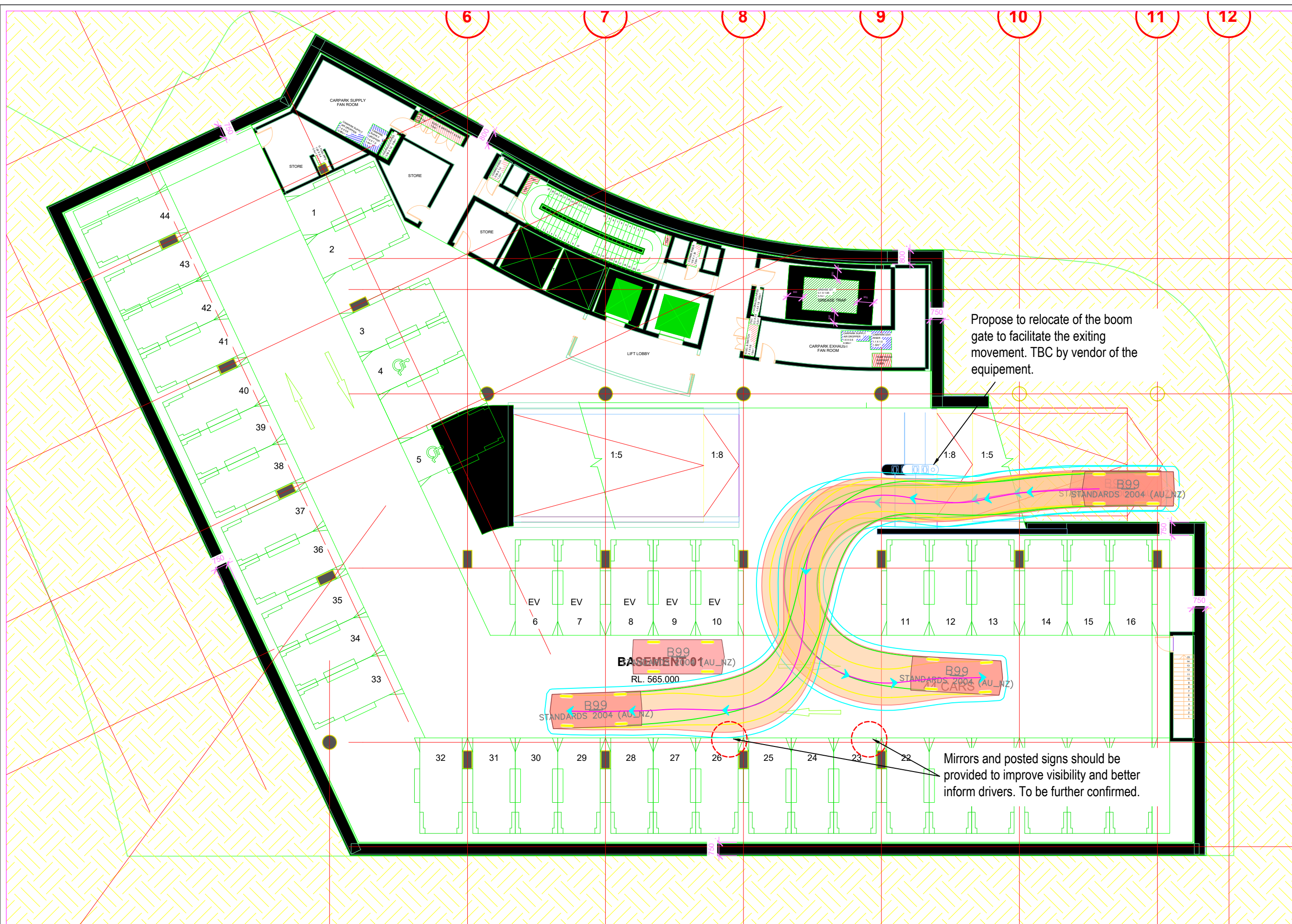
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City\_SIDRA\_v0.4.sip9

APPENDIX B

# Swept path assessment

The review is undertaken based on the drawing DA03.0B1\_B1 Plan\_2 issued on 12 April.

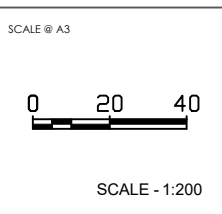


B99  
 Width : 1940 mm  
 Track : 1840 mm  
 Lock to Lock Time : 6.0  
 Steering Angle : 33.9

REV	DESCRIPTION	DATE
1.0	FOR COORDINATION	29/02/2024
2.0	FOR COORDINATION	17/04/2024

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**CANBERRA AIRPORT GROUP**

QUALITY INFORMATION	
DATE	04/24
PREPARED	SC
REVIEWED	JB
AUTHORISED	JB



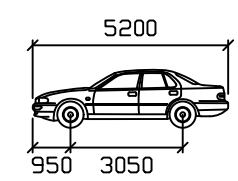
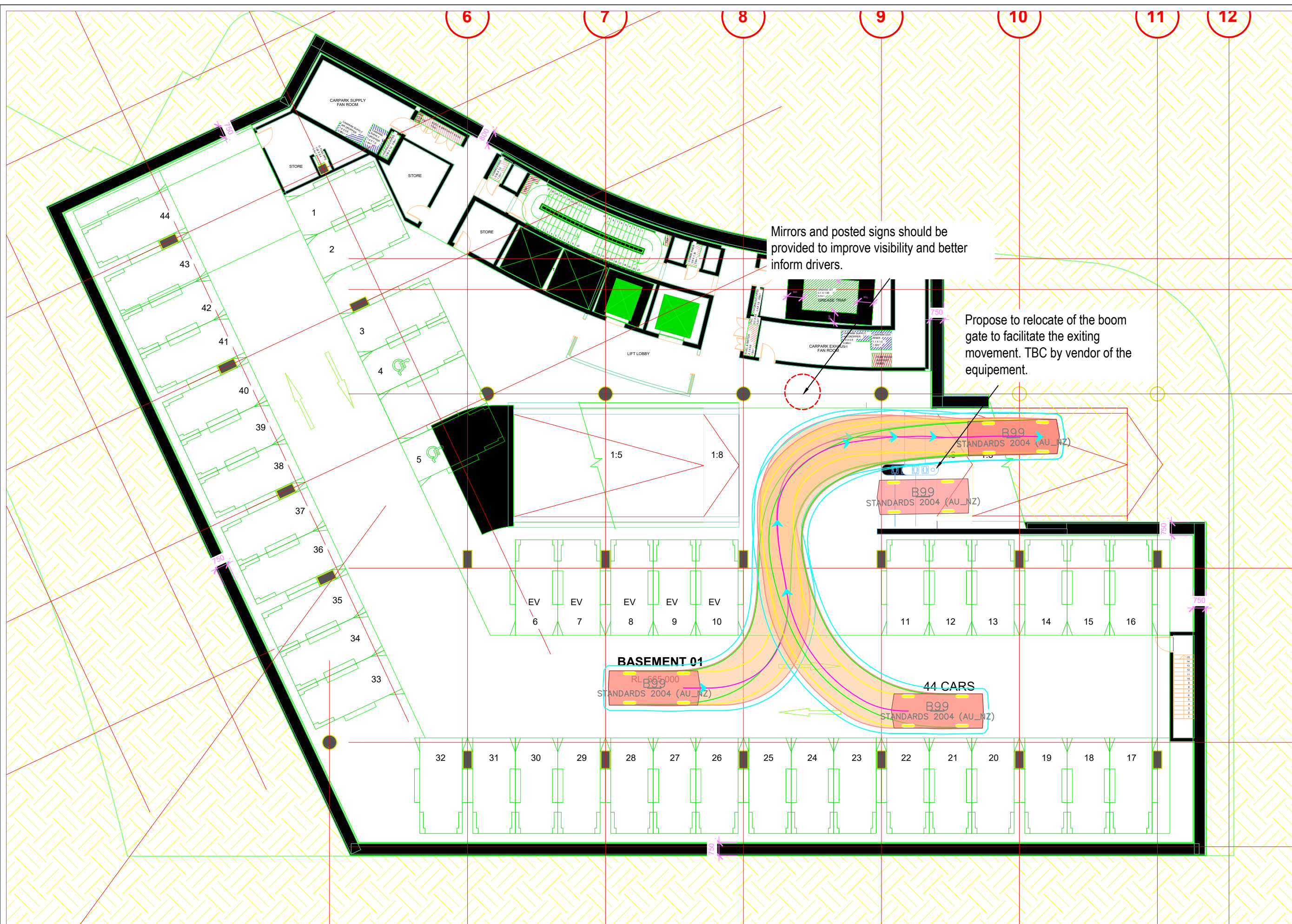
PROJECT  
**CANBERRA BLOCK 40 SECT 19 CITY**

TITLE  
**BASEMENT 01  
 SWEEP PATH TEST FOR B99 ACCESSING B01 FROM GF**

DRAWING NUMBER  
**SCT\_00526C\_Canberra Blk 40 Sect 19 City\_CAD-B01-01 SHEET 01 OF 02**



The review is undertaken based on the drawing DA03.0B1\_B1 Plan\_2 issued on 12 April.

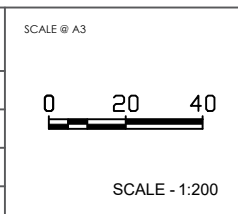


B99  
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 Track : 1840 mm  
 Lock to Lock Time : 6.0  
 Steering Angle : 33.9

REV	DESCRIPTION	DATE
1.0	FOR COORDINATION	29/02/2024
2.0	FOR COORDINATION	17/04/2024

PREPARED FOR  
**CANBERRA AIRPORT GROUP**

QUALITY INFORMATION	
DATE	04/24
PREPARED	SC
REVIEWED	JB
AUTHORISED	JB



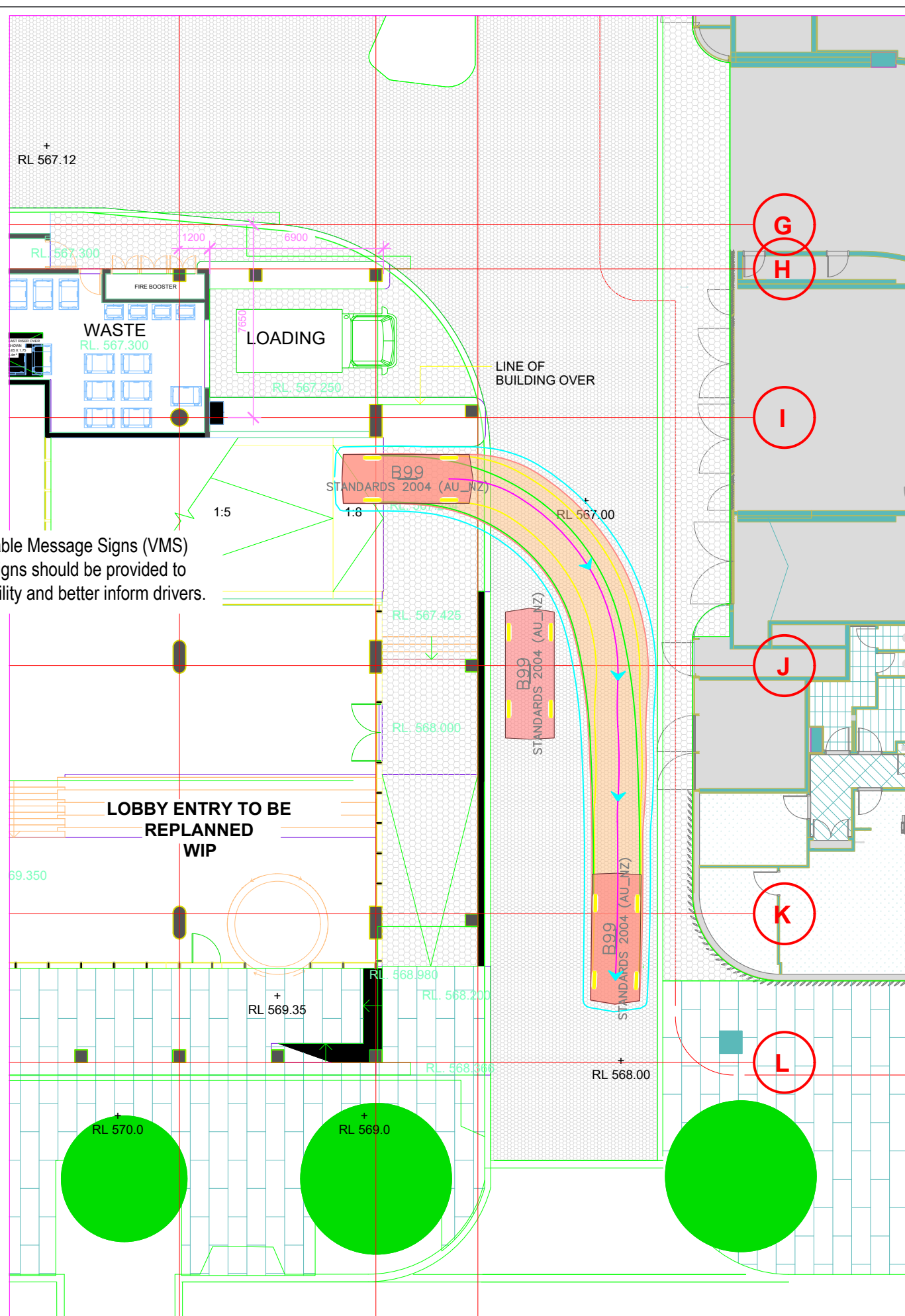
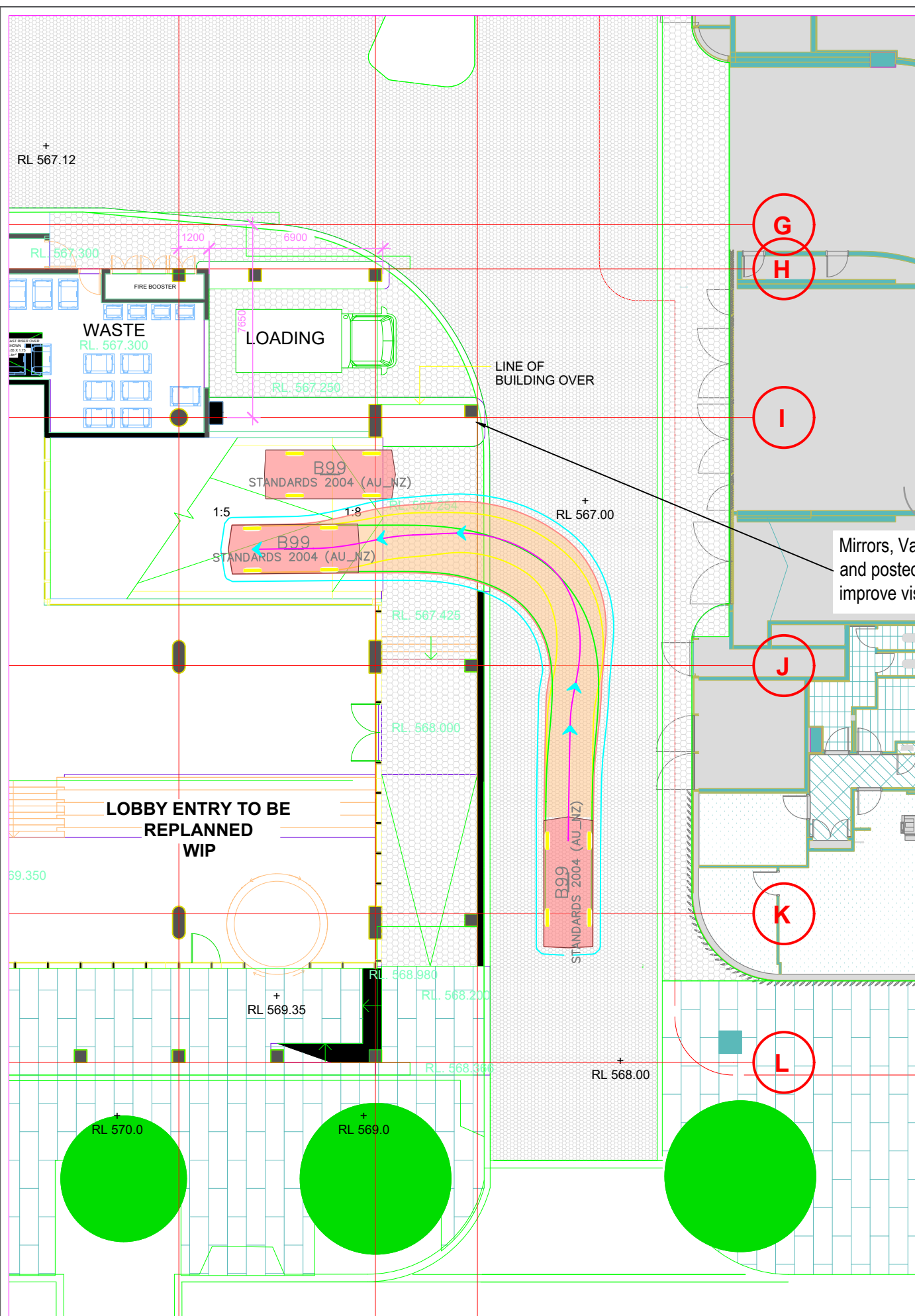
PROJECT  
**CANBERRA BLOCK 40 SECT 19 CITY**

TITLE  
**BASEMENT 01  
 SWEEP PATH TEST FOR B99 EGRESSING FROM B01 TO GF**

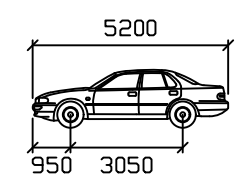
DRAWING NUMBER  
**SCT\_00526C\_Canberra Blk 40 Sect 19 City\_CAD-B01-02 SHEET 02 OF 02**



The review is undertaken based on the drawing DA03.00G\_Ground Floor Plan\_2 issued on 12 April.



Mirrors, Variable Message Signs (VMS) and posted signs should be provided to improve visibility and better inform drivers.



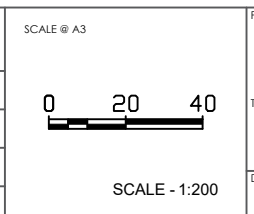
B99  
 Width : 1940 mm  
 Track : 1840 mm  
 Lock to Lock Time : 6.0  
 Steering Angle : 33.9



REV	DESCRIPTION	DATE
1.0	FOR COORDINATION	29/02/2024
2.0	FOR COORDINATION	17/04/2024

PREPARED FOR  
**CANBERRA AIRPORT GROUP**

QUALITY INFORMATION	
DATE	04/24
PREPARED	SC
REVIEWED	JB
AUTHORISED	JB



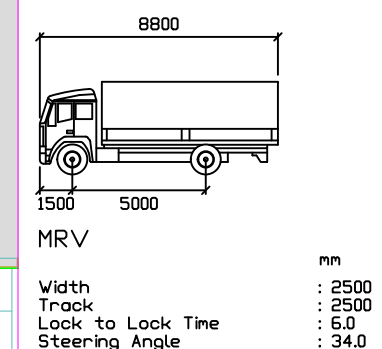
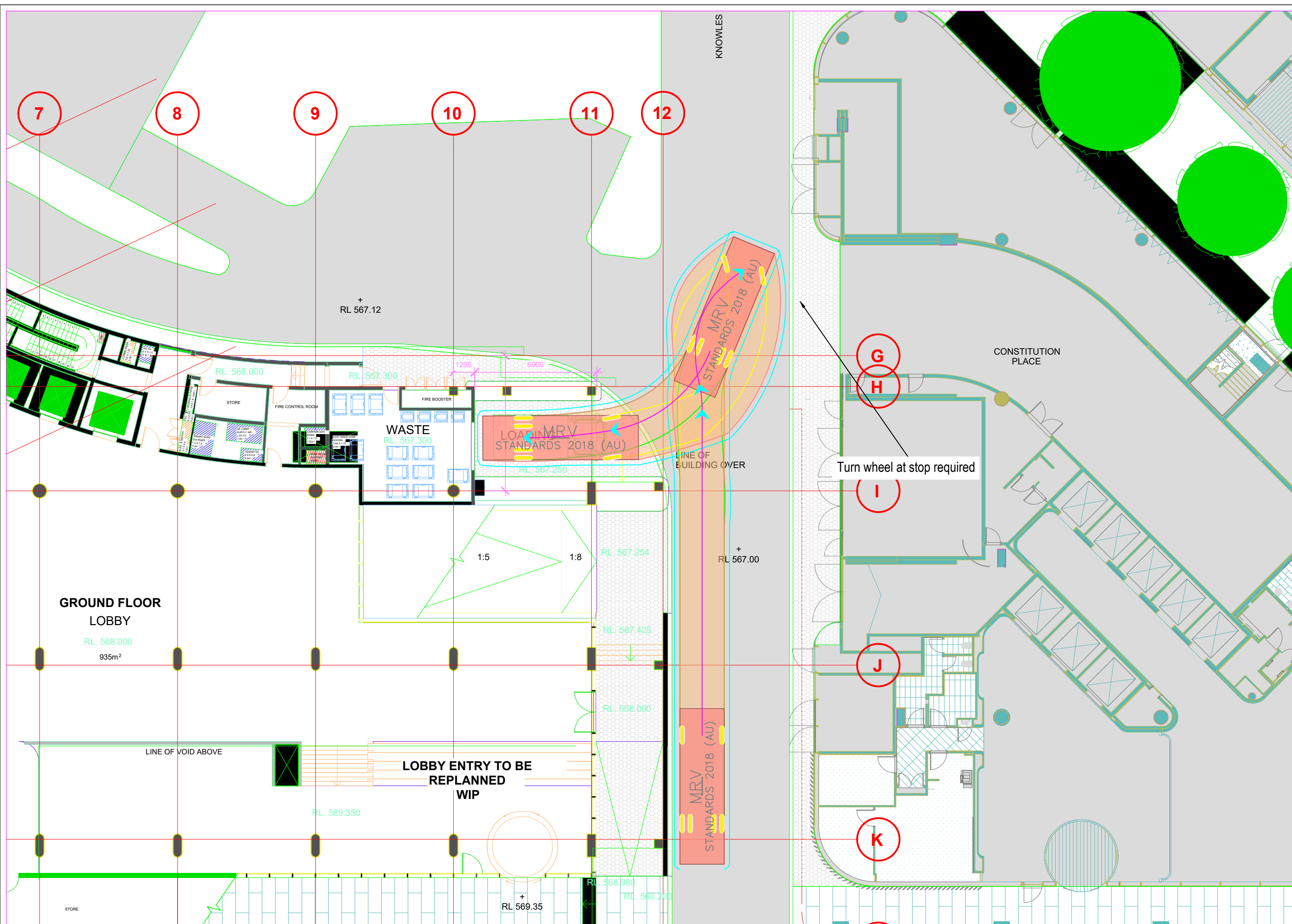
PROJECT  
**CANBERRA BLOCK 40 SECT 19 CITY**

TITLE  
**GROUND FLOOR SWEEP PATH TEST FOR B99 VEHICLES**

DRAWING NUMBER  
 SCT\_00526C\_Canberra Blk 40 Sect 19 City\_CAD-GF-03 SHEET 03 OF 03



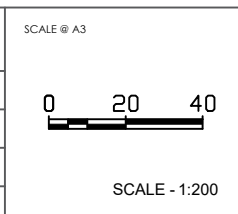
The review is undertaken based on the drawing DA03.00G\_Ground Floor Plan\_2 issued on 12 April.



REV	DESCRIPTION	DATE
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2.0	FOR COORDINATION	17/04/2024

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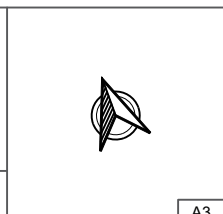
QUALITY INFORMATION	
DATE	04/24
PREPARED	SC
REVIEWED	JB
AUTHORISED	JB



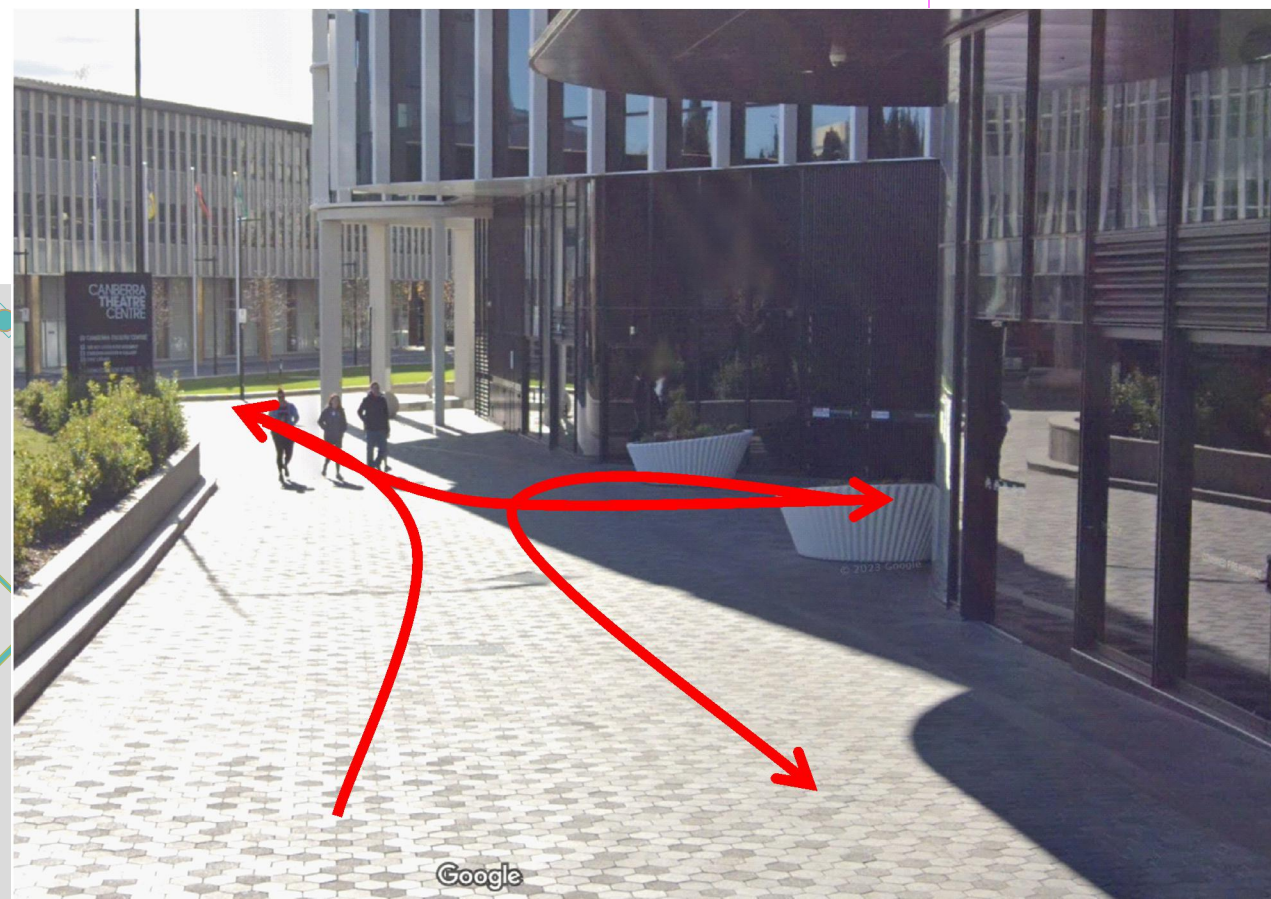
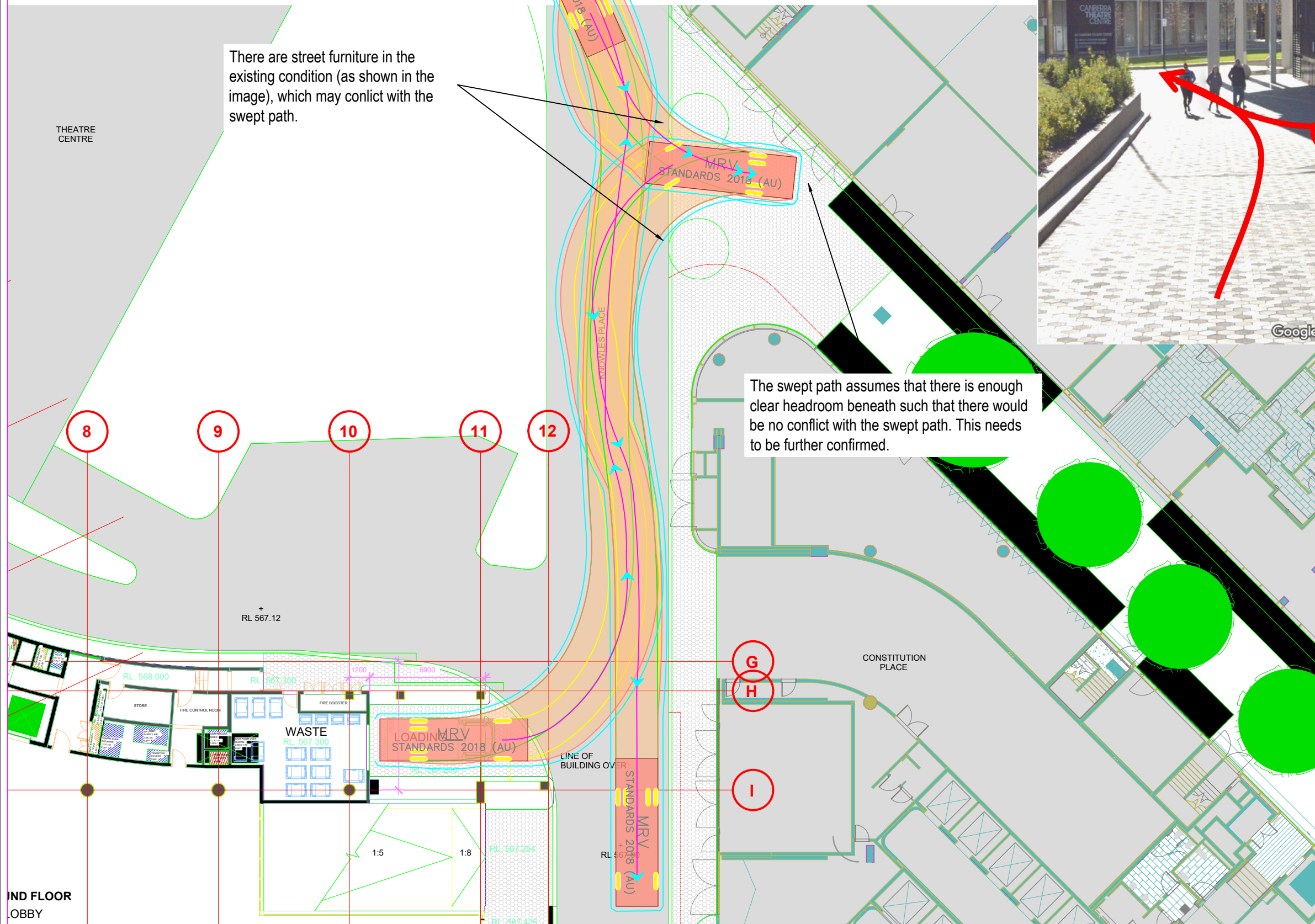
PROJECT  
**CANBERRA BLOCK 40 SECT 19 CITY**

TITLE  
**GROUND FLOOR SWEEP PATH TEST FOR MRV REVERSING IN**

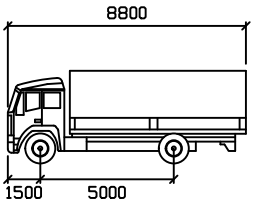
DRAWING NUMBER  
**SCT\_00526C\_Canberra Blk 40 Sect 19 City\_CAD-GF-01 SHEET 01 OF 03**







The review is undertaken based on the drawing DA03.00G\_Ground Floor Plan\_2 issued on 12 April.



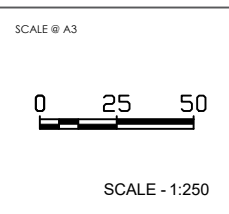
MRV  
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 Track : 2500 mm  
 Lock to Lock Time : 6.0  
 Steering Angle : 34.0



REV	DESCRIPTION	DATE
1.0	FOR COORDINATION	29/02/2024
2.0	FOR COORDINATION	17/04/2024

PREPARED FOR  
**CANBERRA AIRPORT GROUP**

QUALITY INFORMATION	
DATE	04/24
PREPARED	SC
REVIEWED	JB
AUTHORISED	JB



PROJECT  
**CANBERRA BLOCK 40 SECT 19 CITY**

TITLE  
**GROUND FLOOR SWEEP PATH TEST FOR MRV DRIVING OUT**

DRAWING NUMBER  
**SCT\_00526C\_Canberra Blk 40 Sect 19 City\_CAD-GF-02 SHEET 02 OF 03**

