Attachment F

Traffic Report

Our Ref: 18014

16 March 2020

Coombes Property Group
c/o Mirvac
Level 28, 200 George Street
Sydney, NSW, 2000

Attention: Mr Nicholas McCarthy

Dear Nicholas,

RE: 505 GEORGE STREET, SYDNEY
ADDENDUM TRAFFIC REPORT – REVISED ACCESS ARRANGEMENTS

This letter has been prepared on behalf of Coombes Property Group to support the development application for a proposed mixed-use development at 505 George Street, Sydney (D/2019/857). This letter includes The Transport Planning Partnership's (TTPP) review of the revised access arrangements for the site and forms an addendum to TTPP's traffic report dated 6 December 2019.

Background

Coombes Property Group submitted a development application (DA) to City of Sydney Council (Council) in August 2019, to develop a mixed-use development comprising serviced apartments/residential units, retail, cinema and Council facilities.

Following consultation with Council and the adjacent landowner, the below revised access arrangements are proposed from Kent Street:

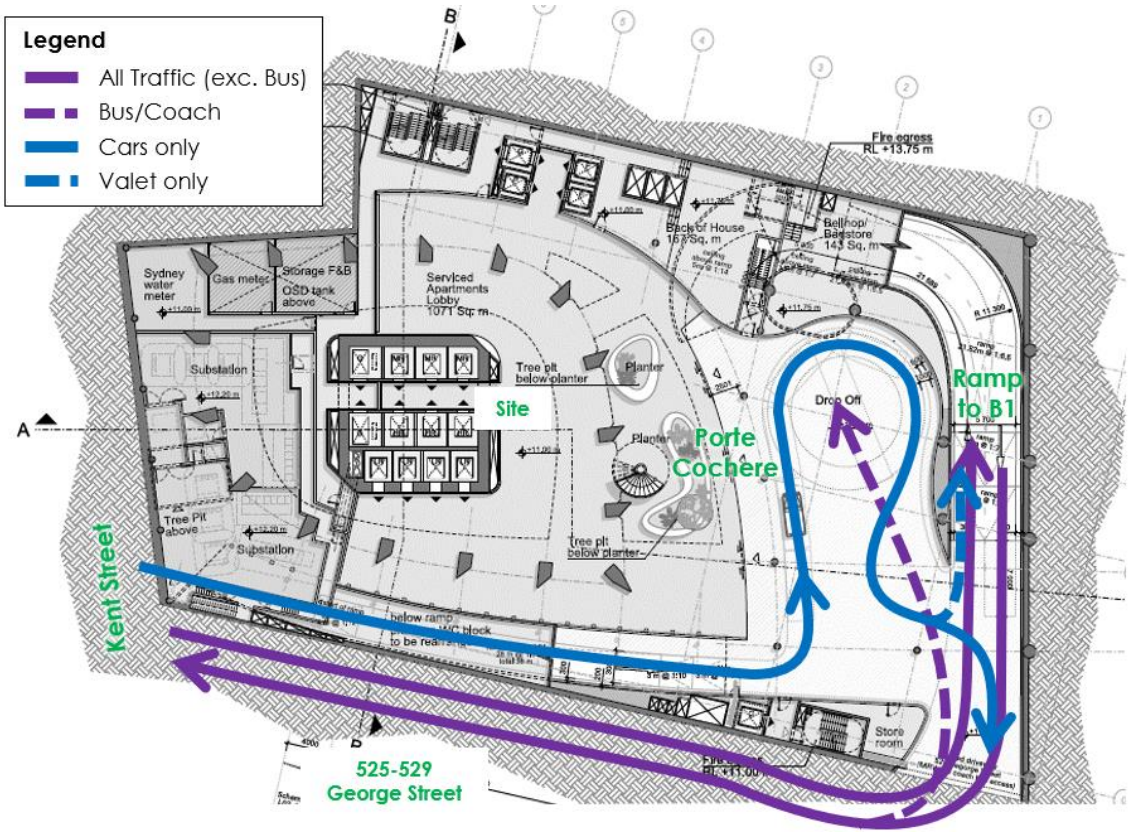
- a two-way shared driveway at 525-529 George Street which is suitable for vehicles up to a 14.5m bus; and
- a one-way entry-only ramp into 505 George Street for light vehicles only.

The proposed two-way driveway at 525-529 George Street is to provide access for vehicles at 505 George Street and 525-529 George Street, including service vehicles and buses/coaches. A one-way ramp is provided for cars to efficiently drop-off serviced apartment visitors directly to the to the porte-cochere of 505 George Street. Cars from the porte-cochere would exit the site via the two-way shared driveway at 525-529 George Street.

The proposed parking provisions (i.e. car, bicycle, drop-off/pick-up, bus, service vehicles, car share etc.) have not changed from the submitted DA.

A diagram of the revised access arrangements is shown in Figure 1.

Figure 1: Access Arrangements



Review of Access Arrangements

The proposed access arrangements have been reviewed for compliance with Australian Standard design requirements, namely AS2890:2004. The review included assessment of the following:

- ramp grades;
- sight lines;
- circulation; and
- swept paths.

The entry ramp at 505 George Street is designed to accommodate up to a B99 vehicle with ramp width and grades compliant with AS2890.1:2004.

Priority access for 505 George Street is between the two-way driveway from 525-529 George Street and the ramp into the basement 1 loading dock at 505 George Street. Vehicles from the porte-cochere would be expected to give way upon exit. The appropriate 'give-way' line markings will be provided.

The driveway from 525-529 George Street is subject to a separate DA. Nonetheless, its noted that the site access will be designed to accommodate two-way flows between cars and MRVs, between Kent Street and the 505 George Street access.

Two-way access for a coach (up to 14.5m) and a car will also be provided along the shared driveway, however, at the top and bottom of the ramp the coach turning manoeuvre would occupy the entire width of the access. Traffic management measures will be implemented, to prevent opposing cars from conflicting with on-coming buses.

The site is to be managed by a traffic light system which would manage two-way flows and priority at the top and bottom of ramps. During coach access, the traffic light system would be manually controlled to enable other vehicles to be held at appropriate locations while a bus enters or exits. During coach access, the traffic management system and vehicle hold points would include:

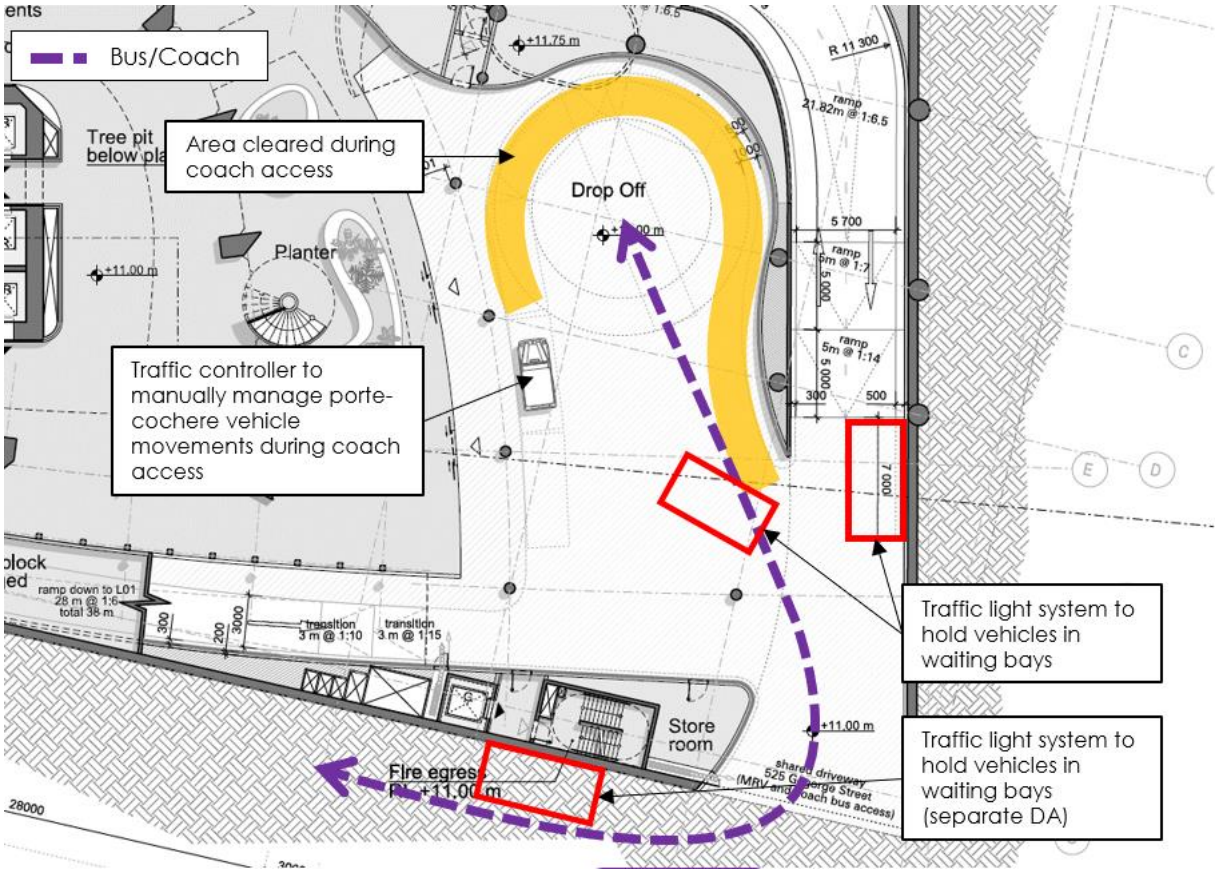
- a traffic light and waiting bay 7m in length, at the top of the 505 George Street B1 ramp, to enable vehicles (up to a 9.5m waste vehicle) to be held on flat ground, during bus entry and exit
- a traffic light and waiting bay at the bottom of the shared ramp at 525-529 George Street (subject to a separate DA) to enable entering vehicles to wait while vehicles/coaches are exiting the site.

A traffic light and waiting bay is also provided upon exiting the porte-cochere, where vehicles would give way to traffic flows between 525-529 George Street and the 505 George Street B1 ramp. During coach access, porte-cochere traffic movements would be manually managed to ensure the waiting bay and the coach turntable is clear for coach movements.

Vehicles at the porte-cochere would be manually managed by on-site staff. This arrangement is considered acceptable noting that a 14.5m buses requiring access to the site would be an infrequent event, and therefore is not expected to greatly affect typical operations on site. Otherwise, the proposed access arrangements would cater for two-way traffic between cars and service vehicles/small buses.

The traffic management plan during coach/bus access is conceptually shown in Figure 2.

Figure 2: Coach Access Traffic Management



Summary and Conclusion

Based on the above, the revised access arrangements to the site is acceptable and compliant with Australian Standards, namely AS2890.1 and AS2890.2.

A detailed traffic management plan is expected to be prepared as part of the occupation certificate stage for 505 George Street in consolidation with the adjoining site of 525-529 George Street, Sydney.

The revised architectural plans are provided in Appendix A and TTPP's original DA traffic report is provided in Appendix B for reference.

We trust the above is to your satisfaction. Should you have any queries regarding the above or require further information, please do not hesitate to contact the undersigned on 8437 7800.

Yours sincerely,

Ken Hollyoak
Director

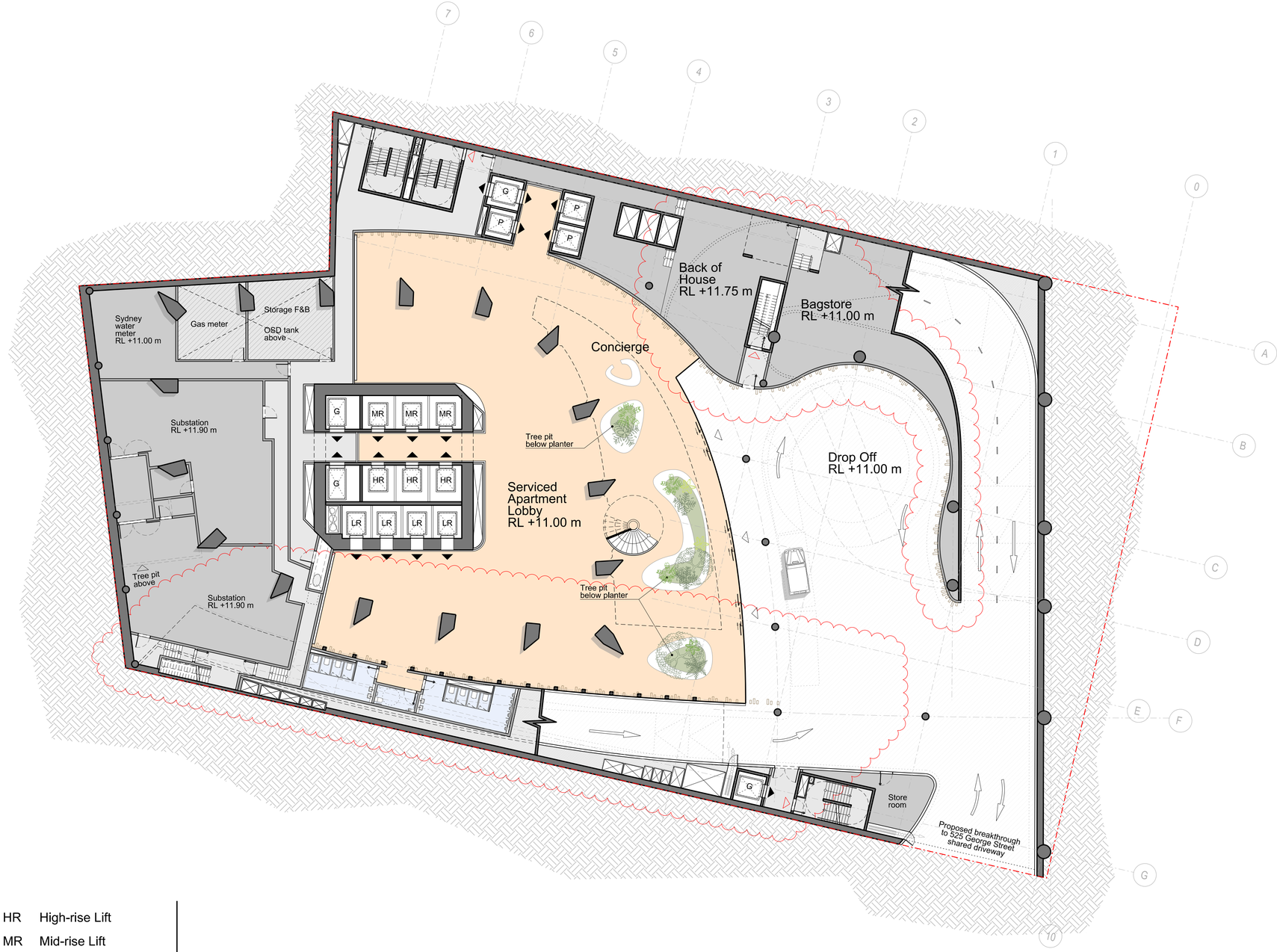
Encl. Attachment One – Architectural Plans
Attachment Two – DA Traffic Report

Attachment One

Architectural Plans

Attachment Two

DA Traffic Report



Serviced apartment lobby	HR	High-rise Lift
BOH Areas	MR	Mid-rise Lift
Plantrooms	LR	Low-rise Lift
Toilets	G	Goods Lift
Drop Off	P	Podium Lift

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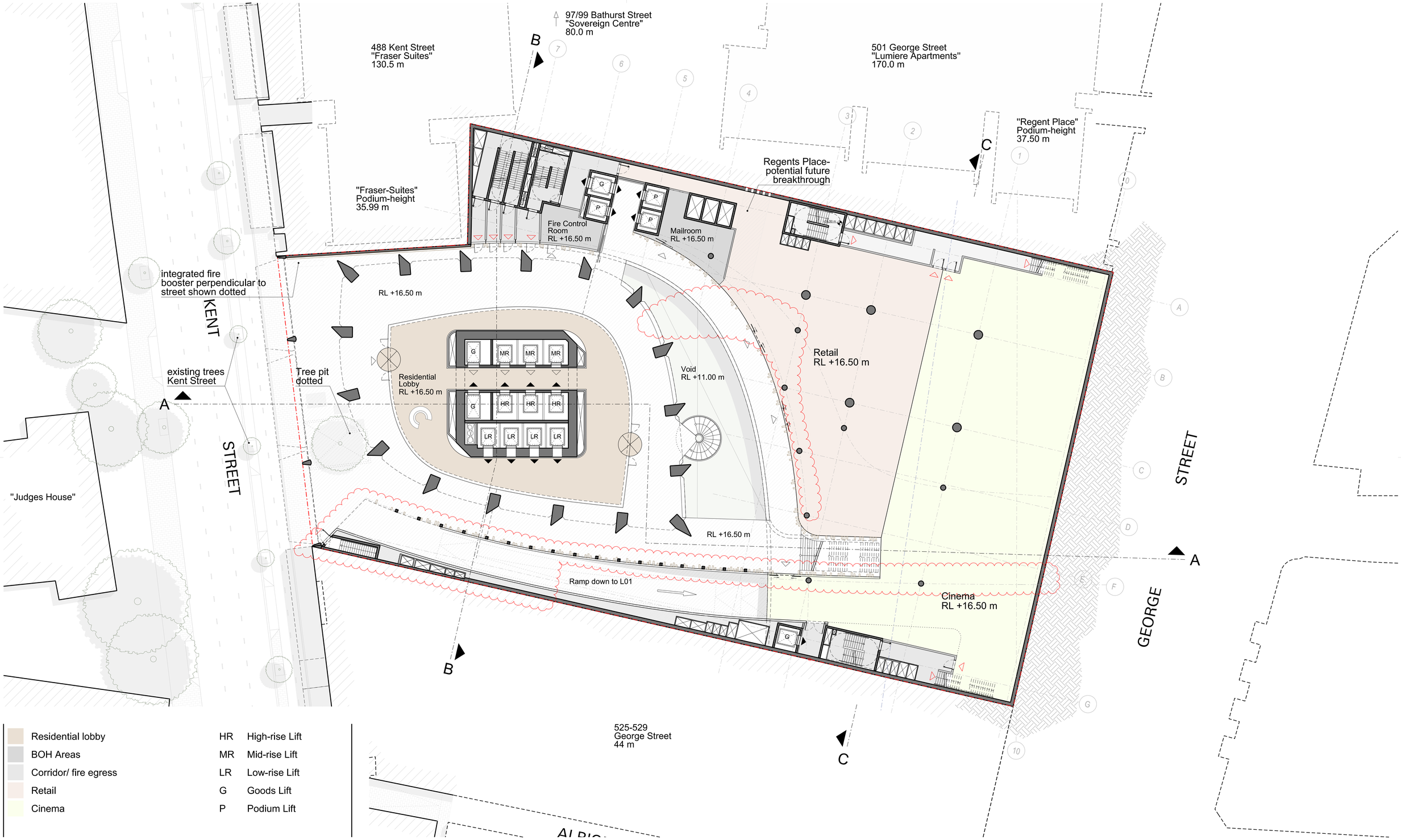
0 5 10 15 m

Revision:	Date:	Amendment:
A	29.07.2019	Development Application
B	04.11.2019	Council RFI Response
C	29.11.2019	Council RFI #2 Response
D	13.03.2020	Council RFI #4 Response

Project:
505-523 George Street, Sydney

Drawing: **Podium Level 01 Plan**
Drawing no: DA-1000-POD-01
Issue: Revision D
RL: +11.00 m
Scale @ A1: 1:200 Date: 13/03/20



	Residential lobby	HR	High-rise Lift
	BOH Areas	MR	Mid-rise Lift
	Corridor/ fire egress	LR	Low-rise Lift
	Retail	G	Goods Lift
	Cinema	P	Podium Lift

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A	29.07.2019	Development Application
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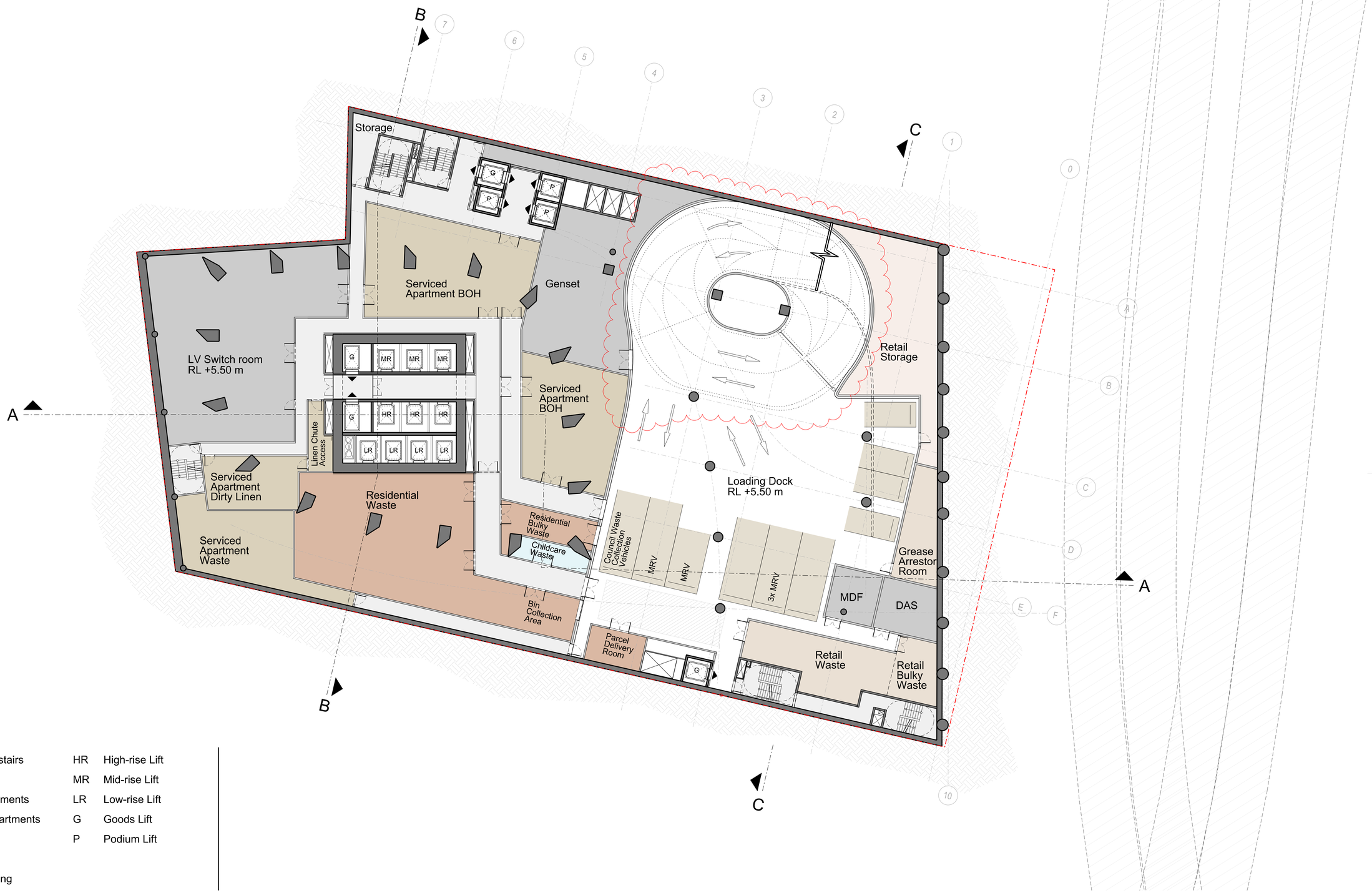
C	13.03.2020	Council RFI #4 Response

Project:
505-523 George Street, Sydney

Drawing: **Podium L02 Plan**
Drawing no: DA-1000-POD-02
Issue: Revision C
RL: +16.00 m
Scale @ A1: 1:200 Date: 13/03/20



BOH Areas - Corridors/ Firestairs	HR	High-rise Lift
BOH Areas - Plantrooms	MR	Mid-rise Lift
BOH Areas - Serviced Apartments	LR	Low-rise Lift
BOH Areas - Residential Apartments	G	Goods Lift
BOH Areas - Childcare	P	Podium Lift
BOH Areas - Retail		
10 Service vehicles parking		

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Project:
505-523 George Street, Sydney

Drawing: **Basement B01 Plan**
Drawing no: DA-1000-BAS-B1
Issue: Revision C
RL: +5.50 m
Scale @ A1: 1:200 Date: 13/03/20

505-523 George Street, Sydney

Traffic and Parking Impact Assessment

Prepared for:

Coombes Property Group

6 December 2019

The Transport Planning Partnership

505-523 George Street, Sydney

Traffic and Parking Impact Assessment

Client: Coombes Property Group

Version: V07

Date: 6 December 2019

TTPP Reference: 18014

Quality Record

Version	Date	Prepared by	Reviewed by	Approved by	Signature
V01	24/05/19	Oasika Faiz	Oasika Faiz	Ken Hollyoak	-
V02	20/06/19	Oasika Faiz	Oasika Faiz	Ken Hollyoak	-
V03	15/07/19	Oasika Faiz	Oasika Faiz	Michael Lee	-
V04	26/07/19	Oasika Faiz	Oasika Faiz	Michael Lee	-
V05	31/07/19	Oasika Faiz	Michal Lee	Ken Hollyoak	Ken Hollyoak
V06	01/08/19	Oasika Faiz	Michal Lee	Ken Hollyoak	Ken Hollyoak
V07	06/12/19	Oasika Faiz	Oasika Faiz	Ken Hollyoak	

Table of Contents

APPENDICES

1 Introduction

This traffic and parking assessment report relates to a proposed mixed-use development at 505-523 George Street, Sydney. The subject site is located within Central Sydney in a block bounded by Bathurst Street to the north, George Street to the east, Liverpool Street to the south and Kent Street to the west. The site has an area of approximately 4,308m^2 and is legally described as Lot 1 in Deposited Plan 573250. The site is currently occupied by Event Cinemas, a number of supplementary retailers and a college. Primary pedestrian access to the site is provided via George Street and secondary access, including vehicular access, is provided via Kent Street to the west. The site is well serviced by public transport and is within walking distance to Town Hall Station and will benefit from the future George Street light rail.

The proposed development will include an approximately 270m tall tower comprising residential apartments (with a time limited approval for use as serviced apartments) above a mixed-use podium incorporating retail, serviced apartment lobby and porte-cochere, serviced apartment ancillary uses, a residential lobby and community facilities such as a childcare centre and community meeting facilities. The proposed development will include basement loading for service vehicles and basement car parking area to be accessed off Kent Street.

The Development Application seeks consent for residential accommodation with a time limited condition of consent for use as serviced apartments over all or part of the tower.

The Transport Planning Partnership (TTPP) has prepared this report on behalf of Coombes Property Group to accompany the DA and assess the traffic and parking implications of the proposed development.

The remainder of the report is set out as follows:

- Chapter 2 discusses the existing conditions including a description of the subject site
- Chapter 3 provides a brief description of the proposed development
- Chapter 4 assesses the proposed on-site parking provision and internal layout
- Chapter 5 examines the traffic generation and its impact, and
- Chapter 6 presents the conclusions of the assessment.

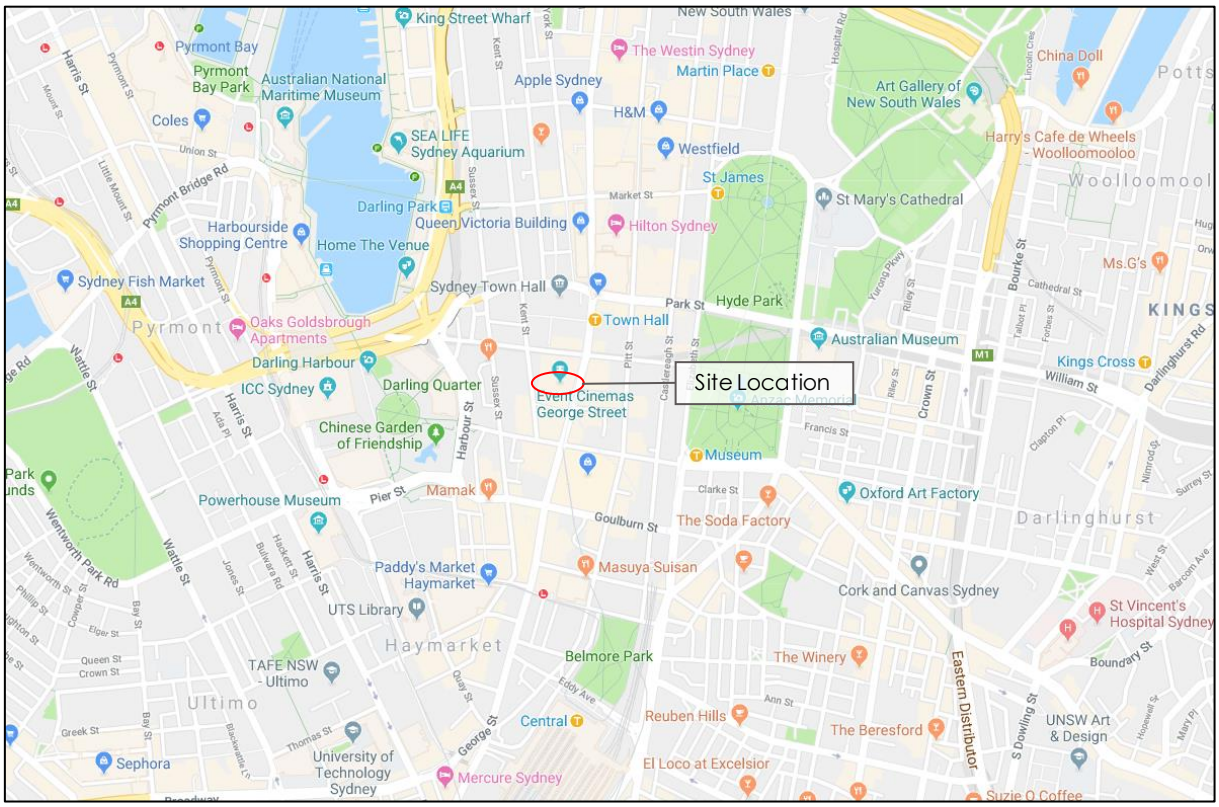
2 Existing Conditions

2.1 Site Description

The proposed development is located at 505-523 George Street, Sydney. It is currently occupied by entertainment facilities (including a cinema, arcade and billiard pool hall) and fast food outlets at the ground floor level.

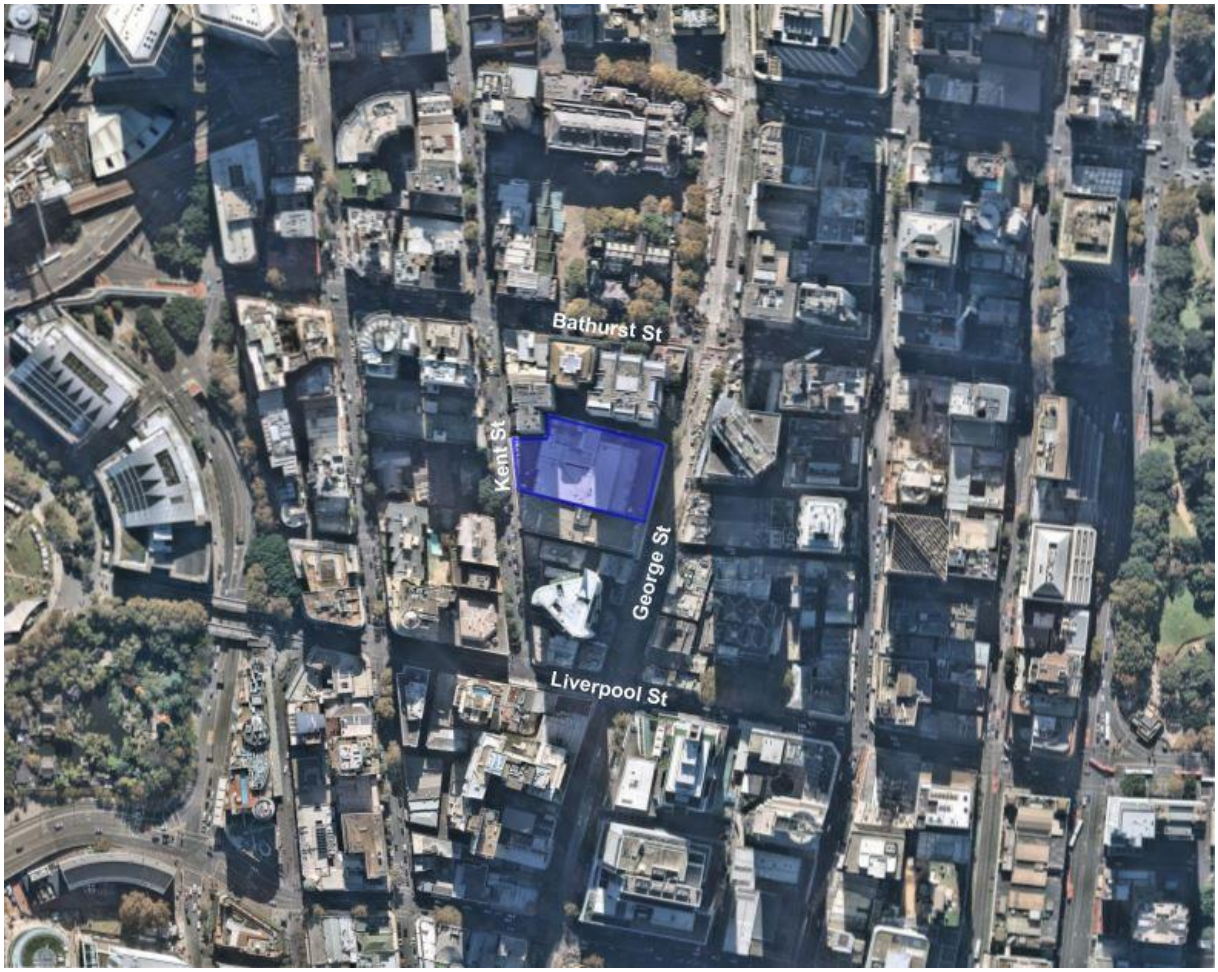
The site is located centrally within the Sydney CBD, with Town Hall Station located 100m to the north, World Square Shopping Centre 150m to the south, Darling Harbour 400-600m to the west and Hyde Park located 400m to the east. The subject site and surrounding context is shown in Figure 2.1 and Figure 2.2.

Figure 2.1 Site Context



Base Map Source: Google Maps

Figure 2.2 Site Location



Aerial Imagery: NearMap

2.2 Adjoining Road Network

2.2.1 George Street

At present, George Street is one of main streets within the Sydney CBD and runs in a north-south direction through the city centre. George Street is located along the eastern frontage of the subject site.

Currently, due to CBD and South East Light Rail construction works, vehicular access along George Street is restricted, with one lane of northbound traffic permitted along the site's frontage and a full road closure applied north of Bathurst Street, where George Street is proposed to be a pedestrianised zone in the future. South of Liverpool Street, George Street permits two lanes of northbound traffic. However, it is noted that the nature of the construction works and road closures is frequently changing as construction works on the Sydney Light Rail Project progresses.

Following completion of the light rail construction works, it is understood that George Street, fronting the site, will continue to permit traffic in the northbound direction only (within a single traffic lane).

2.2.2 Kent Street

Kent Street is a one-way northbound road located along the western frontage of the site. It contains two lanes of traffic and one kerbside parking lane along the eastern side of the road. A separated bi-directional cycleway also runs along the eastern side of the road, adjacent to the kerbside lane.

Kerbside parking restrictions along the site includes ticketed loading zone (6am-6pm Mon-Fri, 7am-10am Sat) and 4-hour (6pm-10pm Mon-Fri, 10am-10pm Sat, 8am-10pm Sun and public holidays) parking. Immediately north of the site is 5min time restricted parking between 8am and 10pm.

2.3 Public Transport

The subject site has good access to public transport services in the CBD area. A description of the surrounding public transport services is provided in the following section.

2.3.1 Rail

The subject site is located in close proximity to city circle train services and is within two-minute walking distance (100m) from the Town Hall Station entrance located at north-western corner of Bathurst Street and George Street. Town Hall Station is well connected to the Sydney rail network and is serviced by the following the Sydney train lines:

- T1 North Shore, Northern & Western Line
- T2 Inner West & Leppington Line
- T3 Bankstown Line
- T4 Eastern Suburbs & Illawarra line
- T7 Olympic Park Line
- T8 Airport & South Line
- T9 Northern Line

High frequency train services are available at Town Hall Station with one train stopping every two to three minutes on some lines during peak hours.

2.3.2 Bus

The subject site is located within a five-minute walking distance (300-400m) to high frequency bus services along Park Road. Services along Park Road provide connections to Circular

Quay, Coogee, Sydenham and Botany and includes Metro services M20, M30, M50 and M52. Services are generally provided every 10 minutes during the peak periods.

2.3.3 Future Public Transport Infrastructure

2.3.3.1 CBD and South East Light Rail

The CBD and South East Light Rail (CSELR) will function as a new light rail network featuring 19 stops between Circular Quay, Kingsford and Randwick via Central Station on a 12km route.

Key features of the new light rail route include reliable and high-capacity services available every four minutes during peak periods and additional services between Central and the Moore Park and Alison Road stops during special events.

The CSELR runs along the site on George Street, with the nearest stop being Town Hall Station, located approximately 150-200m north of the site. As part of the CSELR, George Street, between Hunter Street and Bathurst Street is to be pedestrianised.

2.3.3.2 Sydney Metro

The New South Wales (NSW) Government is implementing Sydney's Rail Future, a plan to transform and modernise Sydney's rail network so that it can grow with the city's population and meet the needs of customers in the future (Transport for NSW, 2012). Sydney Metro is a new standalone rail network identified in Sydney's Rail Future.

Sydney Metro is Australia's biggest public transport project, consisting of Sydney Metro Northwest (Stage 1), which was completed and opened in in May 2019 and Sydney Metro City & Southwest (Stage 2), which is scheduled for completion in 2024.

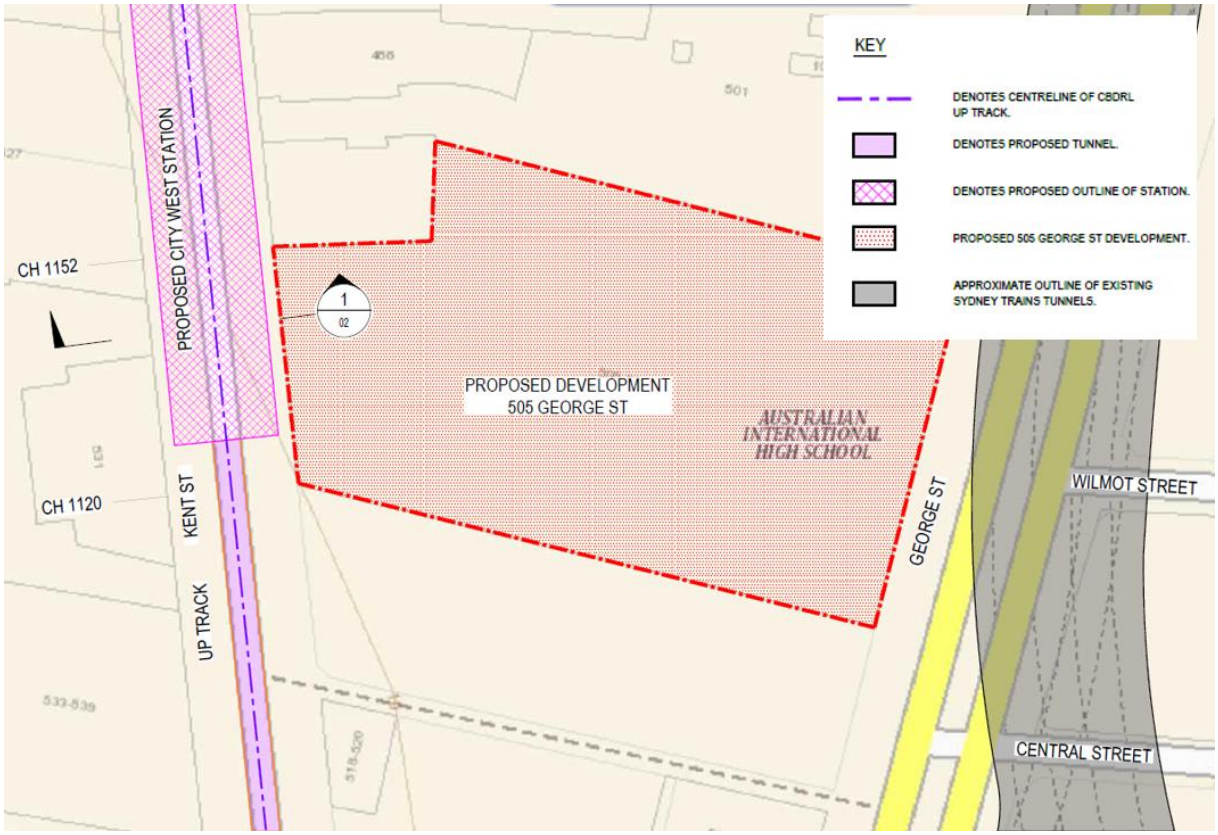
Stage 2 of Sydney Metro includes the construction and operation of a new metro rail line from Chatswood, under Sydney Harbour through Sydney's CBD to Sydenham and on to Bankstown through the conversion of the existing line to metro standards.

The project also involves the delivery of eight new metro stations. Once completed, Sydney Metro will have the ultimate capacity for 30 trains an hour (one every two minutes) through the CBD in each direction. The nearest stop to the site would be Pitt Street Station, located 150-200m to the east on Pitt Street.

2.3.3.3 Future CBD Rail Link Corridor

Correspondence with Transport for NSW (TfNSW) indicates that a future underground rail corridor is proposed along Kent Street. The CBD Rail Link (CBDRL) corridor is identified under Clause 88 of the State Environmental Policy (Infrastructure) 2007 (ISEPP) and diagrammatically in Figure 2.3.

Figure 2.3 Future Rail Link Corridor



Source: Transport for NSW, 29/04/19, CBDRL Alignment Option 1, Plan 250091-41-01, Rev 01

Figure 2.3 also indicates that there is a "Proposed City West Station" located adjacent to the site, under Kent Street.

Further detail, including a summary of engagement with TfNSW and Sydney Rail, is provided in the Geometrical Report prepared by PSM and submitted as part of the Development Application for the subject site.

2.4 Pedestrian and Cyclist Infrastructure

The subject site is accessible by well-established pedestrian infrastructure, consistent with the high pedestrian traffic volumes in the CBD area.

Three to five-metre-wide paved footpaths are provided along the frontage of the subject site, and along surrounding streets in the vicinity. Abundant signalised pedestrian crossings are also available including a midblock crossing on George Street about 25m south of the site.

The City of Sydney encourages greater use of active transport around Sydney and in the CBD, offering fortnightly 'cycling in the city' courses as well as regular cycling information sessions. Decreased speed limits have also been implemented in the Sydney CBD to increase pedestrian and cyclist safety. The subject site is located within a 40km/h speed limit zone

which encompasses the city centre from Circular Quay to Central Station in the north and south respectively.

Separated cycleways are available along Kent Street, along the subject site. The Kent Street cycleway provides connectivity north across the Harbour Bridge to Milson's Point, and links to a wider network of cycleways in Sydney.

The local cycleway network is shown in Figure 2.4.

Figure 2.4 Surrounding Cycleway Network

Source: Sydney Cycleways, 9/05/19

2.5 Car Share Facilities

Car sharing is a flexible, cost effective alternative to car ownership and is a convenient and reliable way for staff and visitors to use a car when they need one.

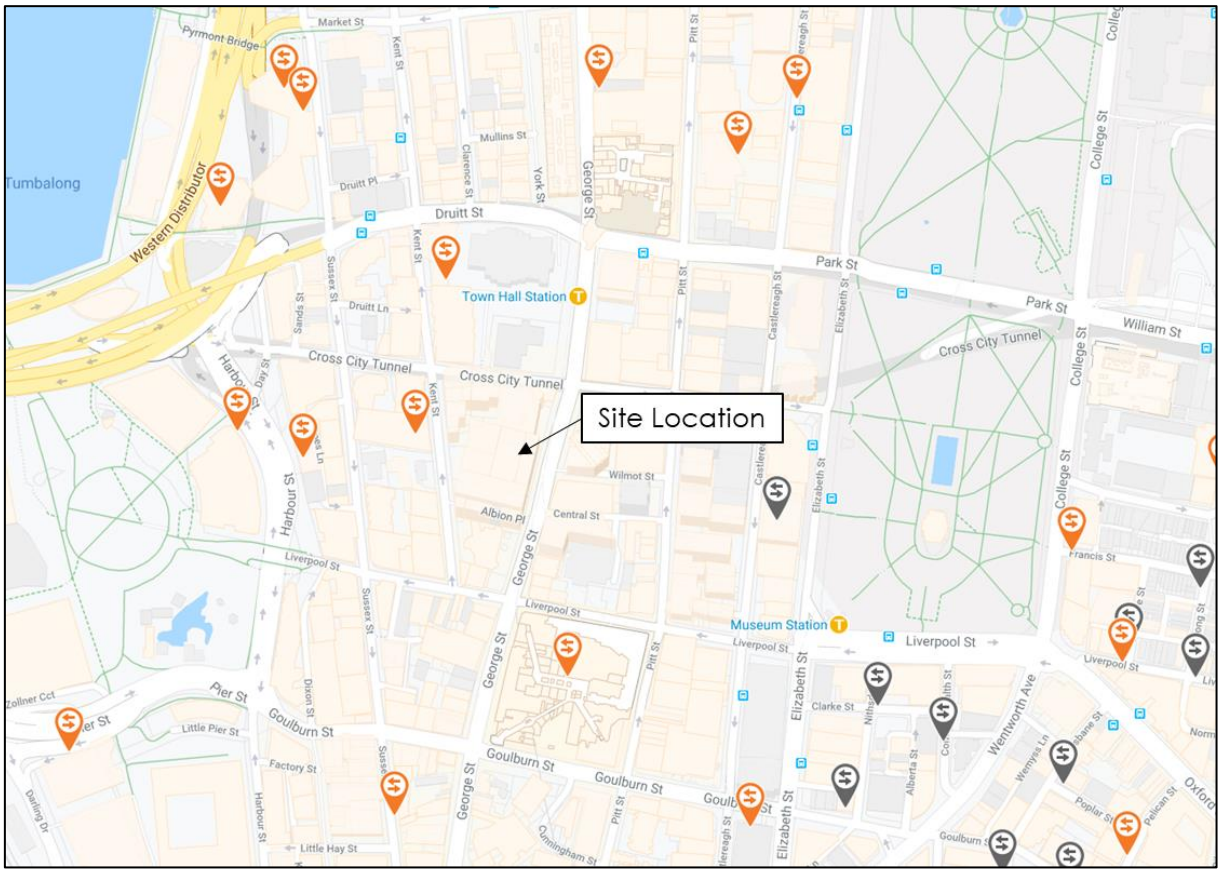
Car share is a concept by which members join a car ownership club, choose a rate plan and pay an annual fee. The fees cover fuel, insurance, maintenance, and cleaning. The vehicles are mostly sedans, but also include SUVs and station wagons. Each vehicle has a home location, referred to as a "pod", either in a parking lot or on a street, typically in a highly populated urban neighbourhood. Members reserve a car by web or telephone and use a key card to access the vehicle.

Notably, the City of Sydney Council has reported that *"a single car share vehicle can replace up to 12 private vehicles that would otherwise compete for local parking"*.

As such, the provision of car sharing facilities can assist to reduce the traffic generated by the site.

Figure 2.5 shows the location of the existing GoGet vehicles within the immediate vicinity of the site.

Figure 2.5: Location of Existing GoGet Vehicles



Source: GoGet Australia

3 Proposed Development

3.1 Proposal Description

The proposed development is located at 505-523 George Street, Sydney and involves the demolition of the existing building onsite and construction of a new 80-level tower comprising the following mix of land uses:

- Residential/Serviced Apartments – 507 apartment units
- Cinema – 1,021m^2 gross floor area (GFA)
- Childcare Centre – 2,658m^2 GFA with 140 children
- Retail – 6,743m^2 GFA,
- Community Facilities – 259m^2 GFA.

The proposed residential apartments include 76 adaptable apartments.

The Development Application seeks consent for residential accommodation with a time limited alternate use for serviced apartments over all or part of the tower for up to 20 years. On this basis, the proposed development includes a porte-cochere to podium level 1 to accommodate pick-up/drop-off activities for cars and buses for the serviced apartment's time-limited use. This is in addition to parking for cars, service vehicles, bicycles and motorcycles.

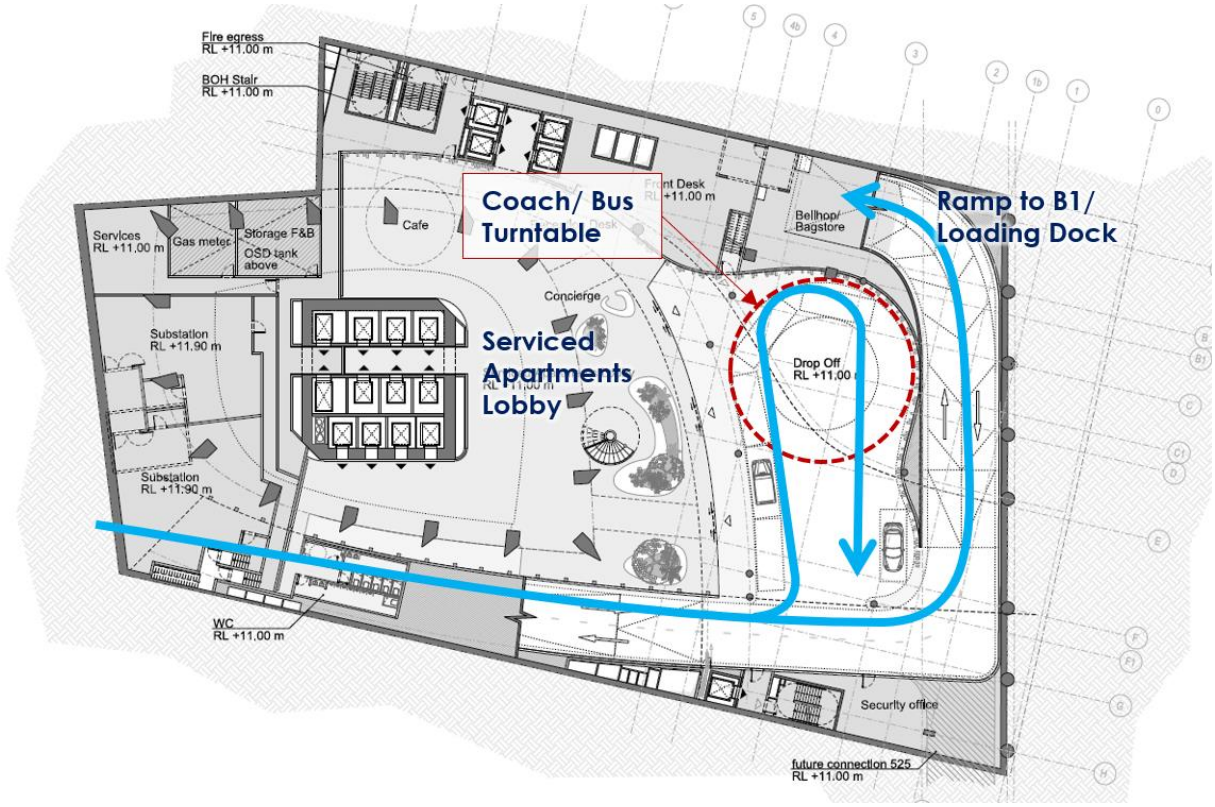
The basement is anticipated to accommodate approximately 324 car spaces, 6 car share vehicles, 696 bicycle spaces, 28 motorcycles and 17 loading bays.

Further commentary on the time limited use is provided in Section 4.1.1 of this report.

3.2 Access and Servicing Arrangements

The proposed basement car park is to be accessed via a new two-way driveway off Kent Street. The site access leads down to podium level 1, where there is a porte-cochere fronting the serviced apartments lobby. The porte-cochere is to accommodate both cars and coaches as required by the DCP for serviced apartment uses. A turntable is to be provided to enable a coach to enter and exit the porte-cochere in a forward direction. The podium level 1 layout is shown in Figure 3.1.

Figure 3.1 Podium Level 1 Plan



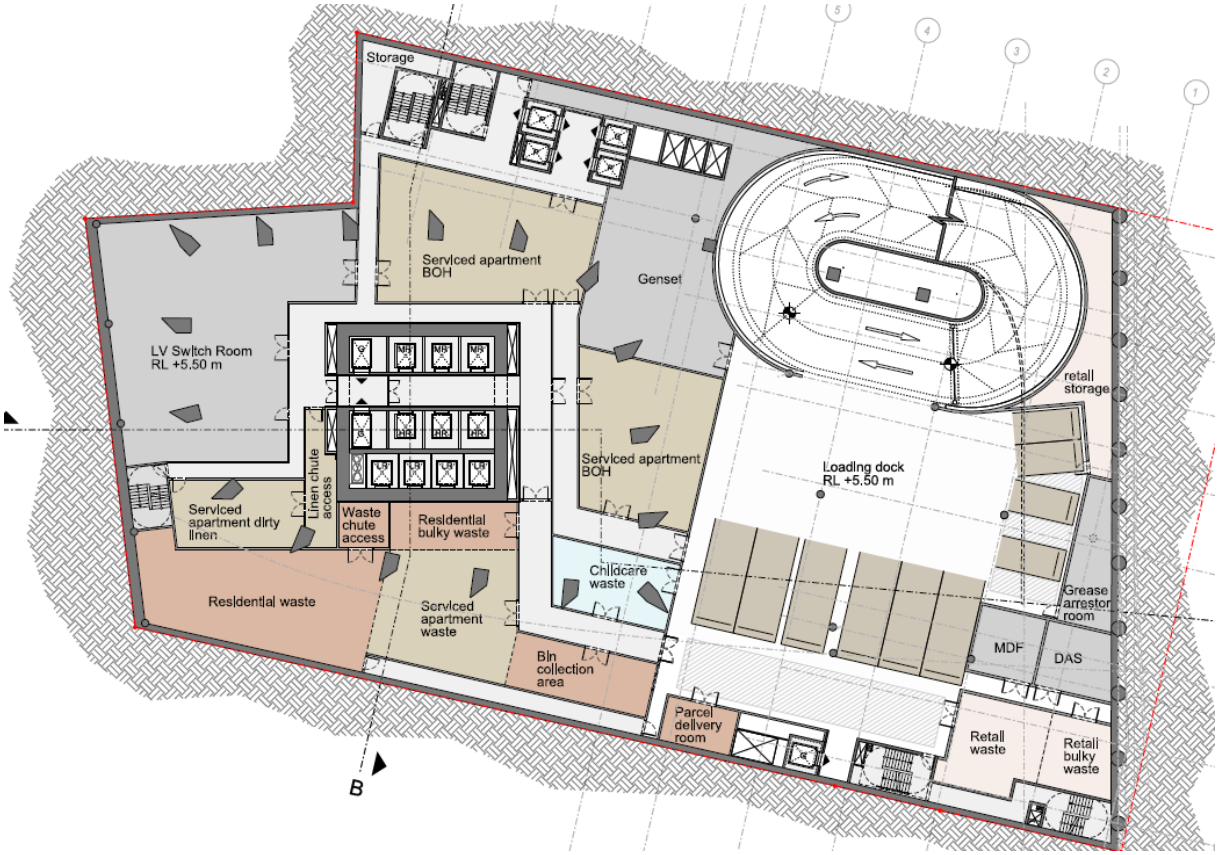
Source: Ingenhoven + Architectus, 29/07/19

To accommodate vehicles as large as a coach (up to 14.5m long), the site access on Kent Street has been designed in accordance with swept paths with a 7m wide driveway. It is noted that the proposed driveway does not meet Council's standard driveway dimensions (i.e. 6m wide), however, the marginally wider driveway enables compliance with Council's requirement to accommodate bus parking on-site, as per Section 3.11.8 of the DCP.

Basement level 1 is located below podium level 1, however, it has direct access off the ramp from Kent Street access and would accommodate loading and service vehicles up to an 8.8m medium rigid vehicle (MRV) and 9.5m Council waste collection vehicle. The loading dock includes six MRV loading bays and four courier (van) loading bays. In addition, the site includes seven courier spaces in basement level 2. It is anticipated that Council's waste collection vehicle would utilise an MRV space which has be designed to accommodate the larger waste collection vehicle. The proposed loading dock is shown in Figure 3.2.

Layouts of the site access and parking levels are provided in Appendix A.

Figure 3.2 Loading Dock Layout

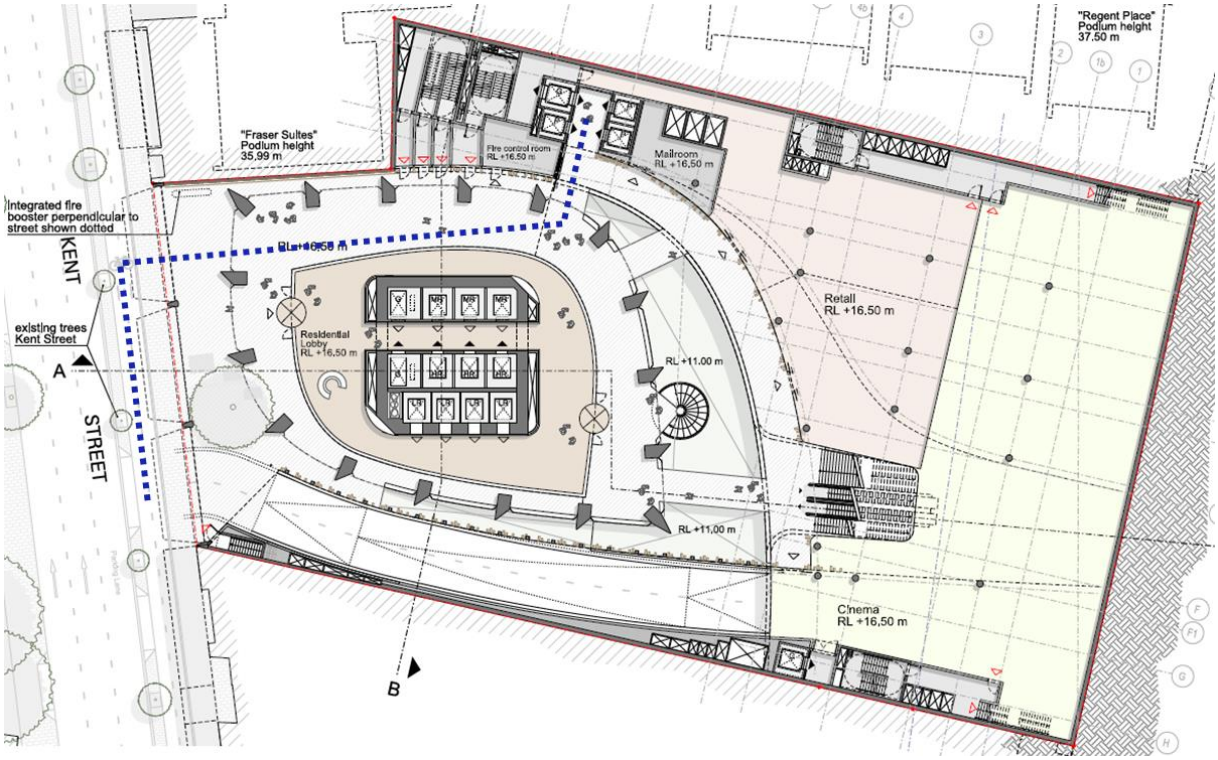


Source: Ingenhoven + Architectus, 28/07/19

3.3 End of Trip Journey

The proposed development is to provide a total of 690 bicycle parking spaces and end of trip (EoT) facilities (lockers, showers and change rooms) for staff. EoT facilities for retail staff are provided in basement level 2 and in basement mezzanine level 1 for serviced apartment staff. The journey from the street to the lifts transport cyclists to the bicycle parking and EoT facilities is shown in Figure 3.3 to Figure 3.6.

Figure 3.3 EoT Journey from Kent Street



Source: Ingenhoven + Architectus, 28/07/19

Figure 3.4 EoT Journey from George Street

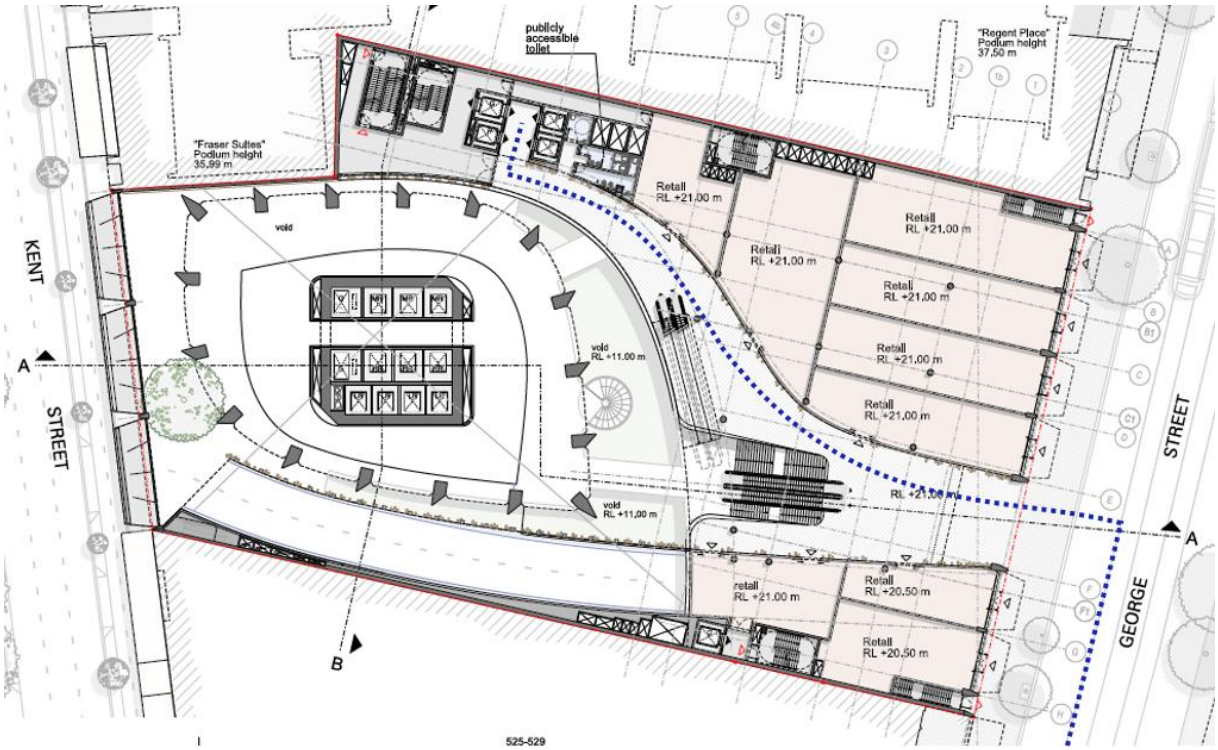
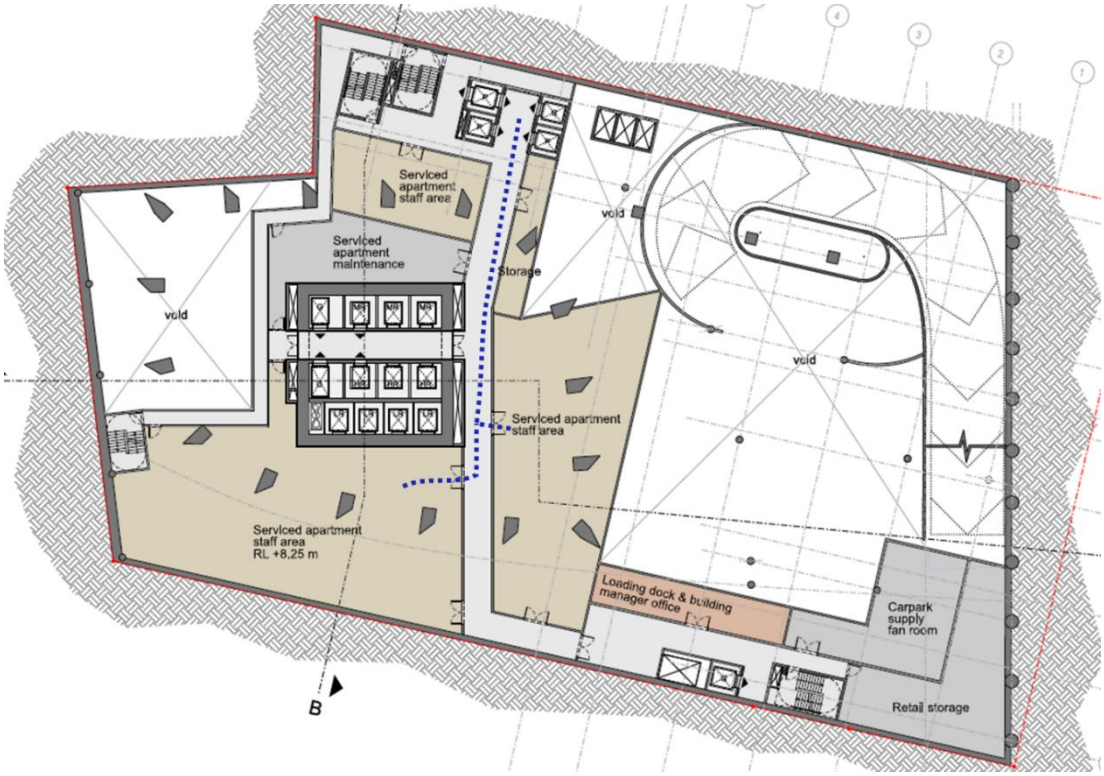
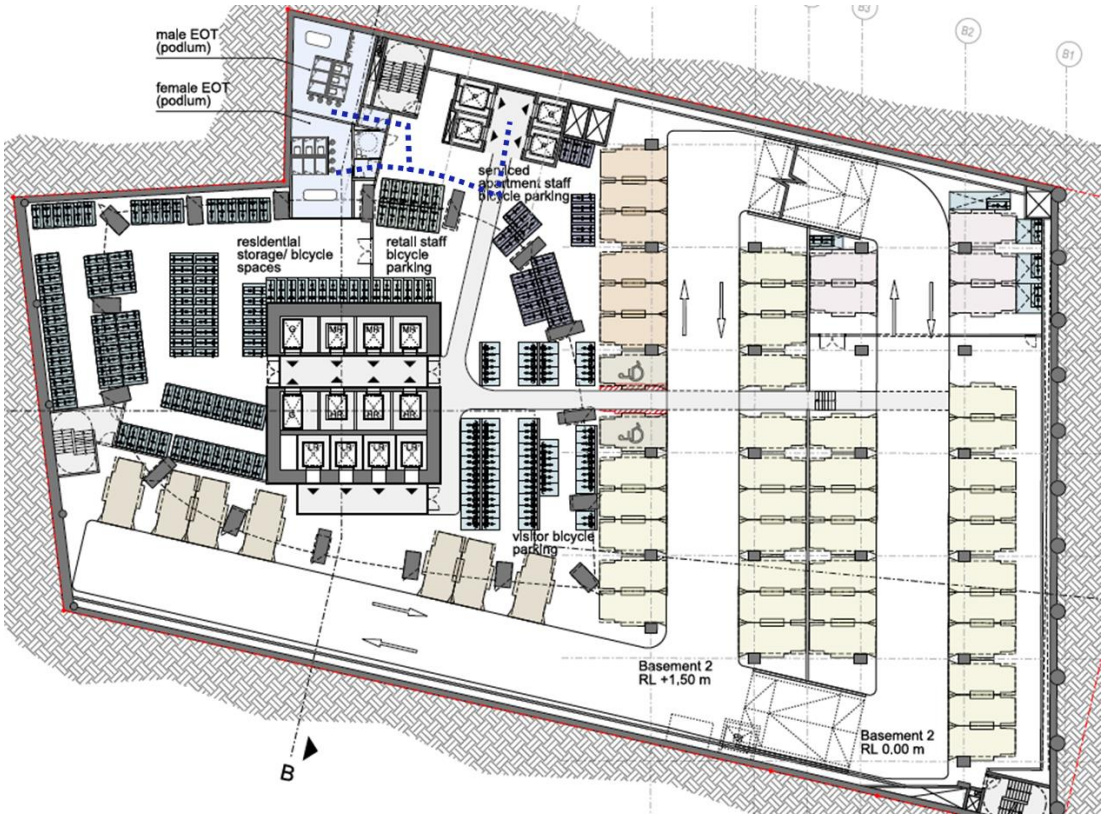


Figure 3.5 Journey to Serviced Apartment Staff EoT Facilities



Source: Ingenhoven + Architectus, 28/07/19

Figure 3.6 Journey to Retail Staff EoT Facilities

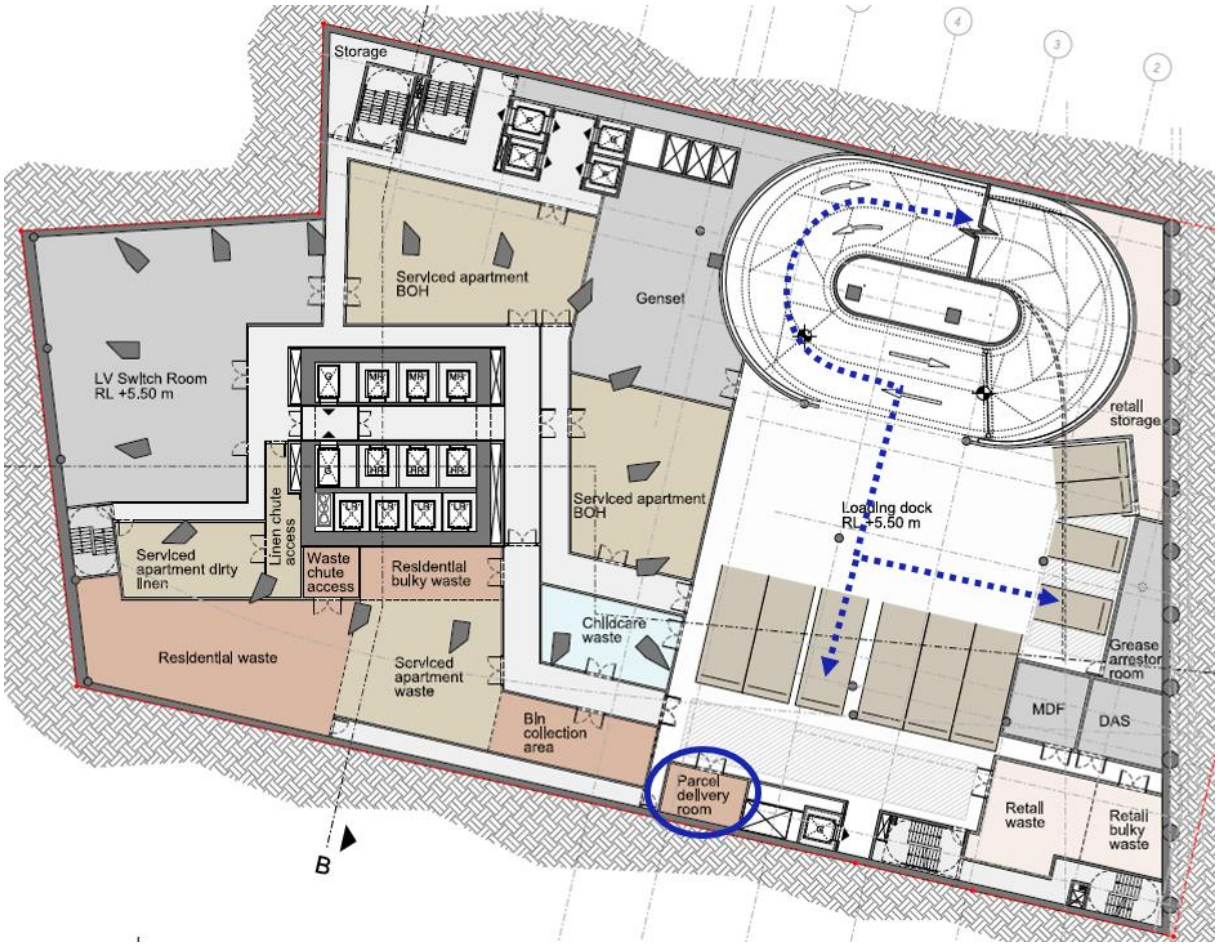


Source: Ingenhoven + Architectus, 28/07/19

3.4 Parcel Delivery Strategy

The on-site parcel room is located on basement level 1 with delivery vehicles entering from Kent Street and additional service vehicle parking is available on basement level 2 for courier vans. Parcel pick up would be coordinated with the concierge following delivery. The parcel delivery route is shown in Figure 3.7.

Figure 3.7 Parcel Delivery Strategy – Basement 1



Source: Ingenhoven + Architectus, 28/07/19

3.5 Access to Transport Services

The proposed development site is well situated with regard to access to existing public transport services.

The Town Hall Station Interchange containing the existing heavy rail and bus services and proposed light rail services will link the site to wider Sydney with high frequency services provided on transport facilities.

The site is also near several existing taxi ranks and a five-minute parking area adjacent to the site on Kent Street, that would accommodate visitors to the site, notwithstanding the additional on-site provision of a porte-cochere for taxi and drop-off activity.

The site's proximity to the range of public transport services is shown graphically in Figure 3.8.

Figure 3.8 Surrounding Pubic Transport Facilities

To influence travel patterns to and from the site and ensure maximum benefits are obtained from the public transport accessible nature of the site, a Green Travel Plan (GTP) is to be implemented. A GTP is a strategy for managing travel demand that embraces the principles of sustainable transport and minimises traffic generation.

A GTP sets out initiatives that influence peoples travel behaviour to the site including strategies to raise awareness of the available transport options, provision of incentives or awards to residents and staff to use sustainable modes of transport, provision of sustainable transport services and infrastructure, or coordination with government authorities to implement wider transport infrastructure initiatives.

A GTP is to be prepared for submission to the principal certifier during the Construction Certification stage.

3.6 Access to Adjoining Site

It has been suggested that a future shared driveway or vehicular access arrangements with the adjoining site at 525-529 George Street be considered. This would require the owners of 525-529 acquiring a property right over the applicant's land involving an easement or right of way. The owners of 525 – 529 George Street have not made any such approach. If such an approach was made, the applicant would need to consider this in terms of the design implications, impact on the operations of the proposed development, whether it affects the interest from serviced apartment operators and whether it was a satisfactory commercial offer.

It is not known whether any potential consolidated driveway would have sufficient traffic capacity to accommodate future traffic volumes from both sites, once redeveloped.

Relevantly, consolidation would not decrease overall traffic movements within the road network. While it would decrease the number of vehicle conflict points with cyclists/pedestrians along Kent Street, the resulting access would concentrate additional traffic to one point with potential issues of queueing and longer delays to cyclists/pedestrians. Therefore, the feasibility of this consolidation in relation to traffic impact, would need to be further analysed as part of the design for 525 – 529 George Street site.

4 Parking Assessment

4.1 Car Parking Requirement

Parking requirements for the site have been assessed against the City of Sydney Local Environmental Plan 2012 (LEP) and City of Sydney Development Control Plan (DCP) 2012.

The maximum permissible parking for the subject site is summarised in Table 4.1.

Table 4.1: Car Parking Requirements

Land Use	Size	Parking Rate (max.)	Maximum Permissible	Proposed Parking
Residential				
- Studio	55	0.1 space/ dwelling	6	
- 1-bedroom	144	0.3 space/ dwelling	43	
- 2-bedroom	224	0.7 space/ dwelling	157	
- 3-bedroom	84	1 space/ dwelling	84	
- visitors	-	No requirement	-	
Sub-total	**507**		**290**	**290**
Community Facility (Commercial rate assumed)	259m² GFA	M = (G x A) / (50 x T) [see note 1]	0.2	0
Retail	6,743m² GFA	No parking requirement for retail premises greater than 2,000m² GFA	0	0
Childcare Centre	2,658m² GFA	1 space + 1 space/ 100m² GFA	28	0
Cinema (Entertainment)	1021m² GFA	1 space/ 10 seats OR 1 space/30m² GFA	34	34
Total			**352**	**324**

[1] M=maximum number of spaces, G=GFA of Commercial/Office, A=Site Area, T=Total GFA of all buildings on the site

Table 4.1 indicates that the maximum permissible parking for the proposed development is 352 car spaces including 290 resident spaces, 28 childcare centre spaces and 34 entertainment/cinema spaces. Parking is not permitted for the retail component.

It is proposed to provide 324 car parking spaces including 290 car parking spaces for the residential apartments and 34 public parking spaces for the cinema.

Childcare centre patrons are expected to either live or work in the area and therefore are expected to walk to the site for pick up and drop off. Further to this, the Voluntary Planning Agreement does not anticipate the use of vehicles for pick up and drop off for the childcare and therefore does not require any car parking. This is typical for most childcare centres in the CBD.

No visitor car parking is proposed for the residential apartments, consistent with the City of Sydney LEP requirements.

4.1.1 Time-Limited Used – Parking Requirements

The Development Application seeks consent for residential accommodation with a time limited alternate use for serviced apartments over all or part of the tower for up to 20 years. On this basis, the proposed development includes a porte-cochere to podium level 1 to accommodate pick-up/drop-off activities for cars and buses. This is in addition to parking for cars, service vehicles, bicycles and motorcycles.

The maximum DCP car parking requirement for serviced apartments is detailed in Table 4.2.

Table 4.2: Serviced Apartment Car Parking Requirements

Land Use	DCP Parking Rate (max.)
Serviced Apartments	1 space/4 bedrooms up to 100 rooms and 1 space/5 bedrooms for 100+ rooms

During the time-limited use there may be a mix of serviced apartments and residential accommodation within the tower. These land uses have different maximum parking rates under LEP 2012, with the serviced apartment parking rates resulting in a lower number of permissible parking spaces for the proposed development than the residential rates.

The basement will be constructed to accommodate the number of parking spaces permissible for residential apartments to avoid future works within or at the end of the 20-year time-limited use period.

As a consequence, for the various tower configurations provided in Table 4.3, surplus car spaces may exist. In these scenarios, basement areas approved for use as residential car parking which exceed the maximum LEP 2012 parking rates for serviced apartments are proposed to be used for storage purposes and service vehicle access only and not as car parking spaces.

A similar approach was approved by Council at 234 Sussex Street, Sydney (D/2018/1276), which had surplus parking spaces when a number of levels were converted from residential accommodation to a serviced apartment use. The maximum permissible number of car parking spaces will vary dependent on the allocation of uses throughout the tower rises. These numbers are provided in Table 4.3. At no point will the available number of car spaces within the building exceed the maximum permissible rates for the relevant land uses.

It is proposed that measures would be implemented to prevent basement areas from being used as car parking spaces above the permissible maximum parking, to the satisfaction of Council.

Table 4.3: Development Yield Scenarios

Scenarios	Tower Rises			Maximum permissible car parking allowances	Car parking used for storage and services purposes only
	High Rise	Mid Rise	Low Rise		
1	R	R	R	290	0
2	R	R	SA	269	21
3	R	SA	SA	225	65
4	SA	SA	SA	185	105
5	SA	SA	R	210	79
6	SA	R	R	255	35
7	R	SA	R	250	39
8	SA	R	SA	229	61

R = Residential, SA = Serviced Apartments

4.2 Accessible Car Parking

Accessible car parking requirements are set in the Sydney DCP (2012), which stipulates a parking requirement of:

- one accessible space per adaptable residential unit, and
- one space per 20 car spaces or part thereof for visitors.

Based on the apartment mix, 76 apartments will be adaptable units with 76 adaptable/accessible car parking spaces.

For a full serviced apartment mix, there would be 20 adaptable apartments and 20 accessible car parking spaces.

In addition to this, two of the 34 cinema parking spaces for visitors will be provided as accessible car parking spaces.

4.3 Car Share Requirements

The Sydney DCP (2012) requires the proposed development to provide parking spaces for exclusive use by an organised car share scheme. The proposed development is to provide car share spaces at a rate of:

- one space per 50 car spaces for a residential development, and
- one space per 30 car spaces for office, business and retail premises.

The proposed development would require a minimum of six car share spaces based on a proposed parking provision of 290 residential car spaces. These spaces can be provided in addition to the maximum permissible car parking requirement.

There are no car share requirements for serviced apartments or entertainment facilities (i.e. cinema).

4.4 Set-down/Pick-up Requirement

The Sydney DCP (2012) specifies pick up and set down parking requirements for serviced apartment/hotel uses. It indicates that for serviced apartment developments containing more than 100 rooms, the parking requirements are as follows:

- 2 car spaces plus, and
- 1 bus/ coach space per 100 rooms.

Under the time limited use, there may be up to 507 serviced apartments with a required provision of two car spaces and five bus/coach spaces for set-down/pick-up activities.

However, a provision of five bus space is considered excessive for the subject site and its anticipated use.

The proposed development will provide a porte-cochere that would allow up to six cars to park. The porte-cochere would also accommodate one bus/coach with the provision of a turntable to allow a bus/coach to enter and exit the porte-cochere in a forward direction. This is considered satisfactory for the anticipated demand of buses at the proposed development. The site layout is shown in Figure 3.1.

In addition to the on-site provision, the site would also benefit from existing set-down/pick-up facilities nearby the site, including immediately north of the site on Kent Street, where there are three car spaces restricted as 5-minute parking between 8am and 10pm. These spaces are understood to currently service the adjoining property to the north (Frasers Suites). Furthermore, taxi zones are located along Kent Street and Bathurst Street, within 100m from the site. A separate application will be submitted in the future to extend the five-minute parking zone on Kent Street past 505-523 George Street.

4.5 Motorcycle Parking

The Sydney DCP (2012) states that one motorcycle space is to be provided for every 12 car parking spaces. Based on a car parking provision of 330 spaces (including 290 residential spaces, 34 cinema spaces and six car share spaces), 28 motorcycle parking spaces are required.

The proposed development includes a provision of 28 motorcycle spaces, which is compliant with the DCP requirement.

As discussed in Section 4.1.1, partial provision of the above motorcycle parking would be provided for a serviced apartment scenario to maintain a parking rate of one motorcycle

space per 12 car spaces. Therefore, for a full serviced apartment scenario with 185 car spaces, the development requires 15 motorcycle spaces.

4.6 Bicycle Spaces

The rates stipulated in the Sydney DCP (2012) are minimum bicycle parking requirements. The DCP bicycle parking requirements are summarised in Table 4.4.

Table 4.4: Bicycle Parking Requirements

Land Use	Size	Parking Rate (min.)		Requirement (min.)	
		Staff/ Resident	Visitor	Staff/ Resident	Visitor
Residents	507 units	1 space/ unit	1 space/ 10 units	507	50.7
Community Facility (Commercial rate assumed)	259m² GFA	1 space/150m²	1 space/400m²	1.7	0.6
Retail	6,743m² GFA	1 space/200m²	1 space/300m²	33.7	22.5
Childcare Centre	2,658m² GFA	1 space/10 staff	2 per centre	2.1	2.0
Cinema (Entertainment)	1,021m² GFA	Greater of 1/15 seats or 1/40m² GFA		0	25.5
Total				**545**	**101**

The proposed development is compliant with the minimum requirement of 646 bicycle parking spaces including 507 resident spaces, 38 staff spaces and 101 visitor spaces.

The DCP requires bicycle parking to be designed as Class 1 bike lockers for residents, Class 2 bike facilities for staff and class 3 bike rails for customers. For staff, a personal locker per bike space and one shower and change cubicle for up to 10 bike spaces is also required.

The proposed development is to provide a total of 696 bicycle parking spaces including:

- 507 Class 1 facilities for residents (including 141 within private storage lockers)
- 88 Class 2 facilities for employees (including serviced apartment employees – see below)
- 101 Class 3 facilities for visitors.

Residential bicycle parking is wholly catered within the proposed storage lockers within the integrated car park, the number of which satisfy the combined Class A parking requirement of AS2890.3:2015. Storage lockers for bicycles (Class A) are 1840mm x 1015mm in dimension, and all include a 2000mm aisle where practicable, complying with AS2809.3:2015.

Shower and change room facilities for staff are provided in basement level 2 for retail/ childcare staff and basement mezzanine level 1 for serviced apartment staff.

Comparatively, serviced apartments require bicycle parking at a minimum rate of:

- one employee space per four staff members and
- one visitor space per 20 rooms.

Under the full serviced apartment scenario, there is a potential provision of up to 200 staff and 507 units. On this basis, the serviced apartments scenario would require up to 50 employee bicycle spaces and 25 visitor bicycle spaces using the above rates. The total bicycle parking requirement (including commercial, retail and childcare as per Table 4.4) would therefore be a minimum of 88 employee bicycle spaces and 76 visitor bicycle spaces.

The development is compliant with the minimum bicycle parking requirement with 88 employee spaces provided, including 50 spaces provided in basement level 2 for serviced apartment employees. In addition, sufficient visitor bicycle parking is provided with bicycle lockers provided in basement level 2 that can be used by serviced apartments in any of the eight scenarios shown in Table 4.3.

4.7 Service Vehicle Parking

The Sydney DCP (2012) includes service vehicle parking requirements for different land uses. These requirements are summarised in Table 4.5.

Table 4.5: Service Vehicle Parking Requirements

Land Use	Size	Parking Rate	Requirement	Proposed
Residential Apartments	507 units	1 space for the first 50 dwellings then 0.5 spaces for every 50 dwellings or thereafter	5.6	17 bays (incl. 6 MRV bays plus 11 courier bays)
Community Facility (Commercial rate assumed)	259m² GFA	1 space/ 3,300m² GFA for the first 50,000m²	0.1	
Shops, shopping centres (retail + cinema)	7,764m² GFA	1 space/ 350m² GFA up to 2,000m² then 1 space/ 800m²	12.9	
Childcare Centre (Commercial rate assumed)	2,658m² GFA	1 space/ 3,300m² GFA for the first 50,000m²	0.8	
Total			**19**	

Table 4.5 indicates a cumulative service vehicle requirement of 19 loading bays.

Comparatively, the serviced apartment mode would require a provision of one space per 50 rooms for up to 100 bedrooms and then one space per 100 rooms thereafter. On this basis, the serviced apartments would generate a requirement of 6 loading bays, similar to a residential use.

The proposal is to include 10 loading bays in the basement level 1 loading dock including six MRV bays and four courier bays. Two of the MRV bays are to be dedicated for use by the serviced apartments. In addition, seven courier bays are proposed in basement level 2, where there would be public parking.

On this basis, the development includes a total of 17 service vehicle spaces. This is considered to be sufficient noting that each land use is to share the loading bays, instead of occupying their own individual bays, as the estimate in Table 4.5 assumes.

4.8 Car Park Layout

The basement car park and associated access arrangements have been reviewed for compliance with Australian Standard design requirements, namely AS2890:2004. The review included assessment of the following:

- access ramp into the basement car park
- car park circulation,
- parking space and aisle dimensions, and
- bicycle parking and facilities.

The proposed car park is compliant with Australian Standard as Class 1A car parking spaces for residents (which are required to have dimensions of 2.4m wide by 5.4m long with aisle width of 5.8m) and as such is expected to operate satisfactorily.

The accessible car parking spaces have been designed as per AS2890.6:2009 and AS4299:1995.

The site access ramp from Kent Street to the porte-cochere has been designed to accommodate two-way flows between cars, coaches and MRVs.

Sufficient design work has been undertaken to ensure that the basement car park can be provided to accommodate the required parking and service vehicles requirements in compliant with the relevant requirements stipulated in the LEP and DCP. Any non-compliances will be minor in nature and can be adequately dealt with during the detailed design stage.

Appropriate traffic management measures will be implemented to manage all vehicular traffic on the site, including on-site personnel to manage the interface between cars coming up from the basement level one whilst an MRV enters the site from podium level one. To ensure a safe and managed interface, during the exit, the MRV will be held by a traffic light system until the ramp is clear of vehicles entering.

The proposed car park layout is provided in Appendix A.

5 Traffic Assessment

5.1 Traffic Generation

Typical traffic generation estimates for the proposed development have been sourced from the Roads and Maritime *Guide to Traffic Generating Developments* (2002) and the updates in the Technical Direction *TDT2013/4a* (herein RMS guide).

The site is only expected to generate traffic as a result of the residential apartments. The parking for the cinema (34 spaces) is anticipated to generate peak traffic outside of the road network peaks (e.g. weekends) and given there is only 34 car spaces, the hourly traffic generation would be nominal. Parking is not provided for the other land uses.

On this basis, the proposed development is anticipated to generate 96 vehicles per hour (vph) and 76 vph in the morning and afternoon peaks respectively, as shown in Table 5.1.

Table 5.1: Traffic Generation Summary

Land Use	Size	Trip Rate per Hour		Trip Generation (vehicles per hour)	
		AM	PM	AM	PM
Residential Apartments	507 units	0.19 trips per unit	0.15 trips per unit	96	76
Community Facility (Office/Business assumed)	259m² GFA	No parking provided on-site		NA	NA
Childcare Centre	140 children	No parking provided on-site		NA	NA
Retail	2,658m² GFA	No parking provided on-site		NA	NA
Cinema	1,021m² GFA	Traffic generated outside of peak periods		NA	NA
Total				**96**	**76**

It is noted that consultation has been undertaken with both City of Sydney and Roads and Maritime Services regarding the site's proposed traffic generation, a schedule of which is displayed in Table 5.2.

Table 5.2: Consultation Schedule

Meeting	Items Presented / Issued	Date of meeting	Authority Representative
City of Sydney – Traffic Meeting	1. Development Application Strategy 2. Building Composition & Parking Figures 3. George Street Frontage 4. Kent St Frontage & Vehicular Access 5. Architectural Plans 6. Construction access 7. EOT Journey For Cyclists and Pedestrians 8. Design Assumptions	11/06/19	Patrick Quinn Andy Aspen – CoS
Transport NSW & RMS - Construction Access Meeting	1. Project parameters & DA strategy 2. Construction Access - Including George Street access 3. Indicative programme savings 4. Proposed construction work zones 5. Public interface strategy 6. Traffic modelling proposal	24/06/19	Terry Brown – RMS George Mobayed - TfNSW Terry O Conner – TfNSW
City of Sydney - Traffic Meeting 2	1. Development Application Strategy 2. Building Composition & Parking Figures 3. Construction Access - George Street use (pedestrianised and non pedestrianised mode) 4. Traffic Consultant modelling 5. EOT Journey For Cyclists and Pedestrians 6. Parcel drop off strategy	11/07/2019	Patrick Quinn Andy Aspen – CoS

Whilst it is understood that City of Sydney Council may not have considered traffic modelling to be necessary, TTPP has undertaken a SIDRA modelling assessment of the project as requested by Roads and Maritime Services, with commentary of this modelling below.

TTPP's traffic modelling adopted a rounded figure of 100vph in the AM peak and 80vph in the PM peak.

5.1.1 Serviced Apartment Option

As discussed, the site is to consider a time limited approval for use of some or all residential apartments as serviced apartments. On this basis, these serviced apartments are anticipated to generate a lower volume of traffic than a full residential use, for the following reasons:

- The maximum car parking permitted by the Sydney DCP (2012) is higher for a residential use than for a serviced apartment use. As discussed in Section 4.1, the parking provision during a time-limited use as serviced apartments would have a permissible maximum provision of up to 184 spaces, versus a maximum permissible provision of 290 spaces for a full residential use.
- Noting that there is a number of hotels located nearby to the subject site, a large of portion of the taxi traffic generation to the site would be existing taxi's already in the area e.g. dropping off passengers to one hotel and picking up from another.

- The arrival / departure of guests from hotels/serviced apartments typically occurs outside of the peak commuter periods.
- Guests living at the serviced apartments would generally be people from out of town and would not have access to a vehicle. In light of this and the public transport accessibility of the subject site, the guests are likely to use public transport when accessing the site.

On this basis, additional intersection analysis for the potential serviced apartments is not necessary. The below assessment assumes the conservative scenario with all residential apartments.

A comparison of the traffic generation of similar sites has been undertaken. Survey data of the Frasers Suites/Lumiere Apartments car park and Meriton Suites car park on Kent Street indicates that the actual traffic generation of the proposed development may be lower than estimated.

Table 5.3: Comparison with Similar Site Traffic Generation

Land Use	Frasers Suites/Lumiere Apartments (488 Kent St, Sydney)	Meriton Suites (528 Kent St, Sydney)	Subject Site (505-523 George St)
Date of Survey	Wednesday 24 May 2017	Monday 4 February 2019	
Residential	447 units	NA	508 units
Serviced Apartments	140 units	430 units	(incl. in above)
Commercial	3,048m²	NA	
Retail	5,331m²	Unknown	
Childcare Centre	NA	NA	1,431m²
Cinema	NA	NA	2,001m²
Car Parking	565 spaces	Unknown	304 [1]
AM Traffic Generation	98	89	97
PM Traffic Generation	106	92	76

[1] Includes service vehicle and porte-cochere parking spaces

Frasers Suites/ Lumiere Apartments, provides a car park with 565 spaces and accommodates both residential and non-residential parking requirements. On the basis that Fraser Suites/Lumiere Apartments have 60% more car parking than the subject site for both residential and non-residential uses, it is expected that the traffic generation from the subject site would be lower than Frasers Suites/ Lumiere Apartments.

Notwithstanding this, TTPP's estimate assumes a similar traffic generation to the two comparable sites.

Meriton Suites is noted to generate a similar traffic generation to Frasers, however, it is noted that the provision of parking for the site is not known. Notwithstanding, the Meriton survey is considered to provide an indication of the likely traffic generation of developments similar to the proposed development.

5.2 Traffic Distribution

The distribution (i.e. inbound/ outbound) and direction (to the road network) of development traffic is based on many factors including the land use characteristics, the configuration of the arterial road network, location of employment centres in relation to the site and access arrangements of the subject site.

The subject development traffic has been distributed noting the right-in/ right-out site access due to Kent Street being a one-way northbound road. Furthermore, adjoining roads are one-way including Liverpool Street which is one-way westbound and Bathurst Street which is one-way eastbound. On this basis, it is anticipated that all entering traffic would arrive by turning right from Liverpool Street into Kent Street and then right into site, and all exiting traffic would right out from the site and then right out to Bathurst Street or straight through along Kent Street.

In addition, the following typical inbound/ outbound splits have been assumed:

- 20 per cent inbound/ 80 per cent outbound in the morning peak, and vice versa in the afternoon peak

On the above basis, the estimated development traffic (100vph and 80vph in the morning and afternoon respectively) has been distributed into the road network and assessed in SIDRA Intersection, to identify the traffic impact of the development.

5.3 Background Growth Factors

Background RMS growth factors have been applied to traffic movements along Kent Street, Liverpool Street and Bathurst Street for a 10-year future scenario.

Background traffic growth has been adopted based on Sydney Traffic Forecasting Model (STFM) volume plots obtained from Roads and Maritime Services. The STFM plots provide midblock volumes for the year 2017 and 2026. The following traffic growth rates (per cent per annum growth) has been interpolated from the data:

- Bathurst Street = 2.9% per annum (pa) in AM peak, 3.7% pa in PM peak
- Kent Street = 3.6% pa in AM peak, 4.7% pa in PM peak
- Liverpool Street = 3.1% pa in AM peak, 4.5% pa in PM peak.

To ensure balanced traffic flows in the SIDRA network model, TTPP has adopted a weighted average growth rate of 3.2% pa in the AM peak and 4.3% pa in the PM peak period.

However, Roads and Maritime advised by email on 25 June 2019 that the "*STFM model is not calibrated within the CBD so there needs to be some caution here*".

It is considered that the STFM growth figures are high and not aligned with the trend in the reduction in traffic in the CBD, which is expected to continue with the opening of the CSELR.

During a meeting held on 11 June 2019 with City of Sydney, it was indicated that traffic volumes around the site have reduced and will reduce even further in the future (or at least remain similar) following the implementation of the CSELR. On this basis, the STFM growth rates (3.2-4.3% pa) is unreasonable to apply, overly conservative and unlikely to provide a robust assessment of the traffic conditions after CSELR is fully operational in 2020.

5.4 Intersection Assessment

To assess the traffic implications arising from the proposal, intersection capacity analysis has been undertaken for the intersection of Kent Street and Bathurst Street.

The following four scenarios have been assessed:

- 2018 Existing Base
- 2018 Existing plus development
- 2028 Base (+10 years without development)
- 2028 Base plus development.

The turning movement volumes for each of the above scenarios is provided in Appendix B.

5.4.1 Intersection Modelling Criteria

The existing operation of the nearby intersections to the site have been assessed using SIDRA Intersection 8, a computer-based modelling package which assesses intersection performance under prevailing traffic conditions.

SIDRA calculates intersection performance measures such as 'average delay' that vehicles encounter and the level of service (LoS). SIDRA provides analysis of the operating conditions which can be compared to the performance criteria set out in Table 5.4.

Table 5.4: Level of Service Criteria for Intersection Operation

Level of Service	Average Delay (seconds per vehicle)	Traffic Signals, Roundabout	Give Way and Stop Signs
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity and accident study required
E	57 to 70	At capacity – at traffic signals, incidents will cause excessive delays, roundabouts require other control mode	At capacity, requires other control mode
F	Greater than 71	Unsatisfactory with excessive queuing	Unsatisfactory with excessive queuing; requires other control mode

Source: Roads and Maritime Guide to Traffic Generating Developments, 2002

5.4.2 Traffic Impact

SIDRA network modelling of 2018 existing conditions with and without the proposed development has been undertaken and is presented in Table 5.5.

Table 5.5: 2018 Intersection Performance

Intersection	AM Peak				PM Peak			
	2018 Base		2018 + Development		2018 Base		2018 + Development	
	Delay	LoS	Delay	LoS	Delay	LoS	Delay	LoS
Kent St-Bathurst St	33	C	38	C	41	C	45	D
Kent St-Liverpool St	12	A	15	B	6	A	9	A

The results indicate that the assessed intersections operate satisfactorily under existing traffic conditions. Furthermore, the proposed development traffic would have minor impacts to the performance of the assessed intersections with a negligible increase to delay including four to five seconds at the intersection of Kent Street and Bathurst Street and three to four seconds at the intersection of Kent Street and Liverpool Street.

The SIDRA network modelling results for the future road network conditions (Year 2029) with and without the development is presented in Table 5.6.

Table 5.6: 2029 Intersection Performance

Intersection	AM Peak				PM Peak			
	2029 Base		2029 + Development		2029 Base		2029 + Development	
	Delay	LoS	Delay	LoS	Delay	LoS	Delay	LoS
Kent St-Bathurst St	80	F	104	F	114	F	114	F
Kent St-Liverpool St	83	F	110	F	47	D	78	F

Table 5.6 indicates that the 3.2 to 4.3% pa background traffic growth would put pressure on the road network with the assessed intersections anticipated to operate at capacity (LoS F). The inclusion of the proposed development traffic has a minor impact on this scenario where the assessed intersections would operate at above capacity based on the background growth rates with or without development from the subject site if the background traffic increases as projected by the STFM model.

The results indicate that the surrounding road network is required to be upgraded or mitigation measures put in place to reduce traffic in the CBD by the Year 2029 with or without the proposed development. The estimated traffic growth of 3.2 to 4.3% pa indicates a significant growth in background traffic, however Roads and Maritime Services advised for caution to be applied when considering the future growth provided by the STFM model in the CBD area.

It is further noted that these growth figures appear high based on recent consultation with City of Sydney in which it was indicated that traffic volumes around the site would reduce after CSELR is fully operational in 2020. On this basis, the above is unlikely to be a robust assessment of the traffic conditions after CSELR is fully operational.

In summary, the surrounding network in the future would reach capacity with or without the subject proposed development. The addition of development traffic would have a minor impact on the road network if the background traffic increases as forecast by the STFM traffic model.

6 Conclusion

This traffic impact assessment report relates to a proposed mixed-use development at 505-523 George Street, Sydney. The key findings of the report are presented below.

- The proposed development would involve demolition of the existing building and construction of an approximately 270m tall tower comprising residential apartments (with a time limited approval for use as serviced apartments) above a mixed-use podium incorporating retail, serviced apartment lobby and porte-cochere, serviced apartment ancillary uses and a residential lobby. The proposed development will include basement loading for service vehicles and car parking.
- Vehicle access to the basement car park would be provided off Kent Street. The access driveway is proposed to be designed in accordance with AS2890.1:2004.
- Car parking spaces are proposed to be designed in accordance with design requirements set out in the relevant Australian Standard, namely AS2890.1:2004 and AS2890.6:2009.
- The proposed development includes 290 residential car parking spaces (including 76 accessible spaces), 34 cinema car parking spaces (including two accessible spaces), 6 car share spaces, 17 service vehicle parking spaces, 696 bicycle parking spaces, and 28 motorcycle spaces when it is operating as traditional apartment dwellings.
- During the time-limited use of the residential apartments as serviced apartments, the proposed parking provision is to be reduced to comply with maximum DCP rates with surplus car parking spaces to be used for storage and servicing with no vehicular access.
- The overall proposed car parking provision complies with parking requirements stipulated in the LEP and DCP as such the proposed parking provision is considered to be satisfactory.
- The proposed development is expected to generate 96 and 76 vehicle trips per hour in the morning and evening peak periods respectively. TTPP's traffic modelling adopted a rounded figure of 100vph in the AM peak and 80vph in the PM peak.
- SIDRA Intersection modelling has been undertaken, indicating that the development would have a negligible impact to the current road network conditions.
- The 10-year future scenario the surrounding network would reach capacity with or without the development. The addition of development traffic would have a minor impact on the road network if the background traffic increases as forecast by the STFM traffic model.
- However, consultation with Roads and Maritime indicates that the traffic growth rates obtained from Roads and Maritime are not calibrated in the CBD and caution to be applied when considering the forecast volumes. In addition, Council suggested that traffic volumes around the site would reduce following commencement of full operation

of the CSELR in 2020. As such, growth rates from the STFM model are unlikely to provide a robust assessment of the post-light rail traffic conditions.

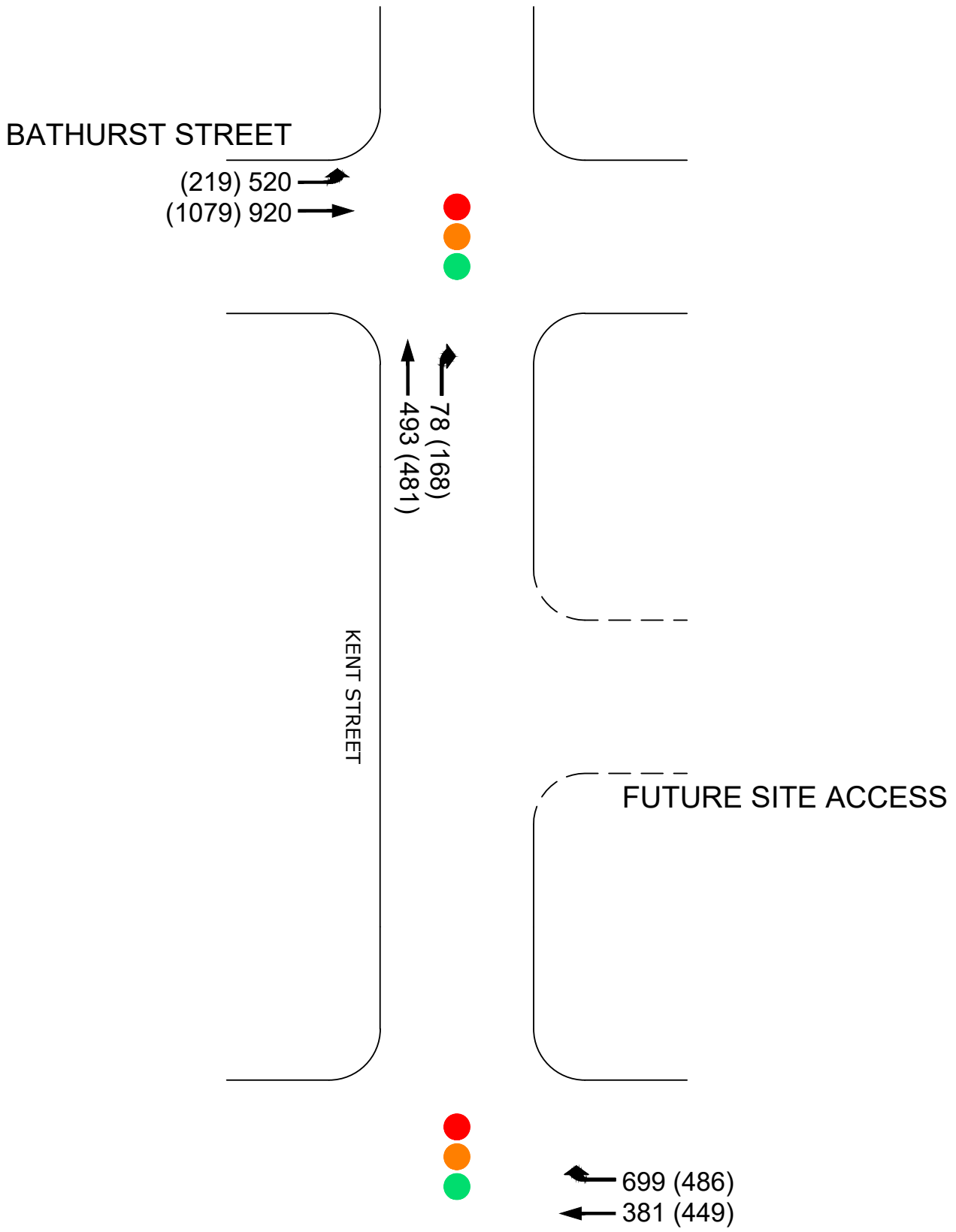
Overall, the traffic and parking impacts of the proposed development is considered to be satisfactory.

Appendix A

Architectural Layouts

Appendix B

Turning Movement Diagrams



2018 EXISTING BASE
10 (10) = AM (PM) PEAK
VEHICLE TRAFFIC

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KM	OF	KH	31/07/19

ttpp transport planning

PROJECT: 505 GEORGE STREET

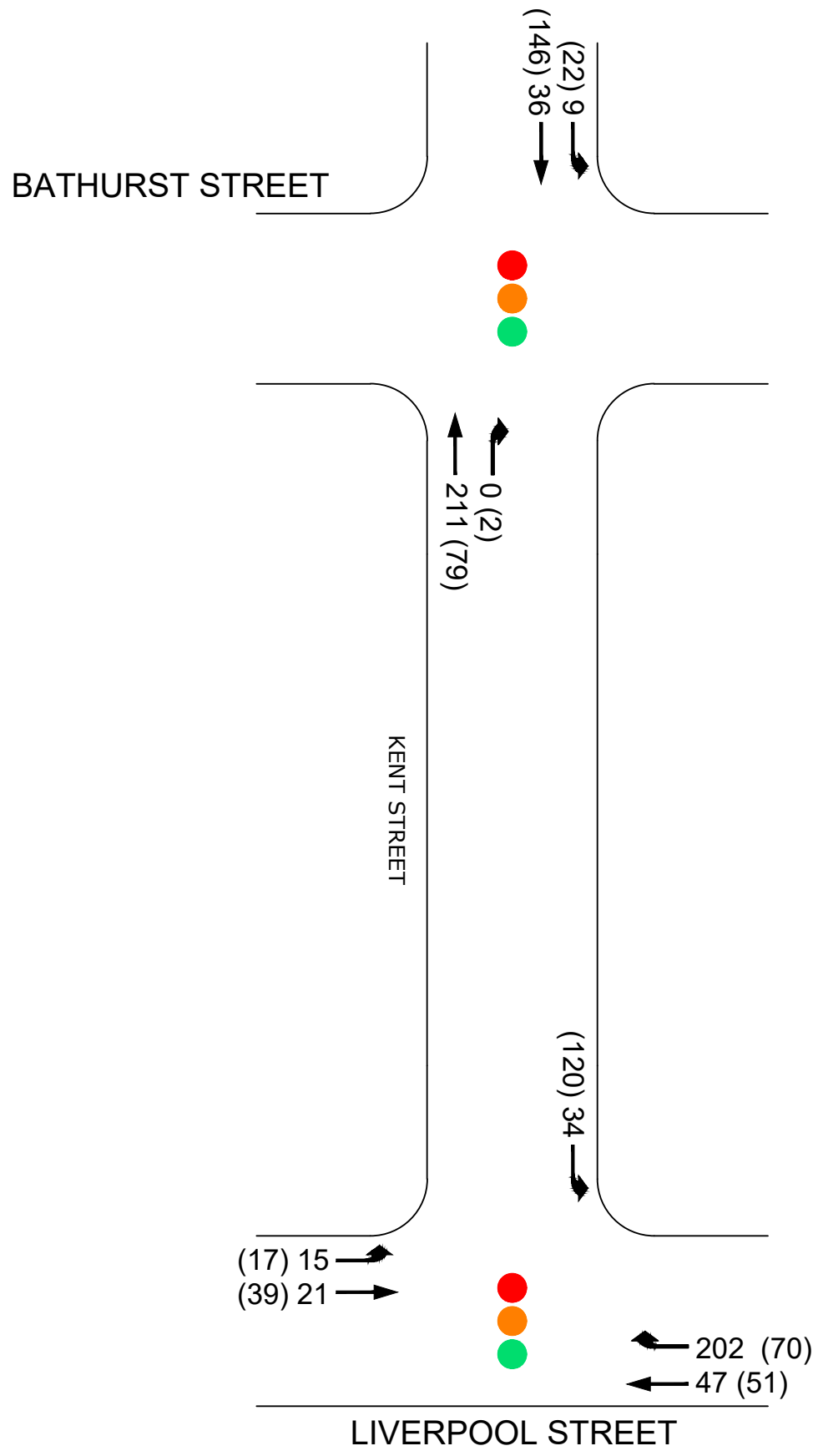
TITLE: 419 NETWORK DIAGRAM

DWG No. 18014CAD027 FIGURE 1

DATE STAMP: 31 JULY 2019

PROJECT No. 18014 | SCALE NTS | REV. A

Filename: 18014CAD027-NETWORK DIAGRAM-190624.dwg Date: 31 July 2019 By: Karl.magistrado



2018 EXISTING
10 (10) = AM (PM) PEAK
CYCLIST VOLUMES

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KM	OF	KH	31/07/19

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PROJECT: 505 GEORGE STREET

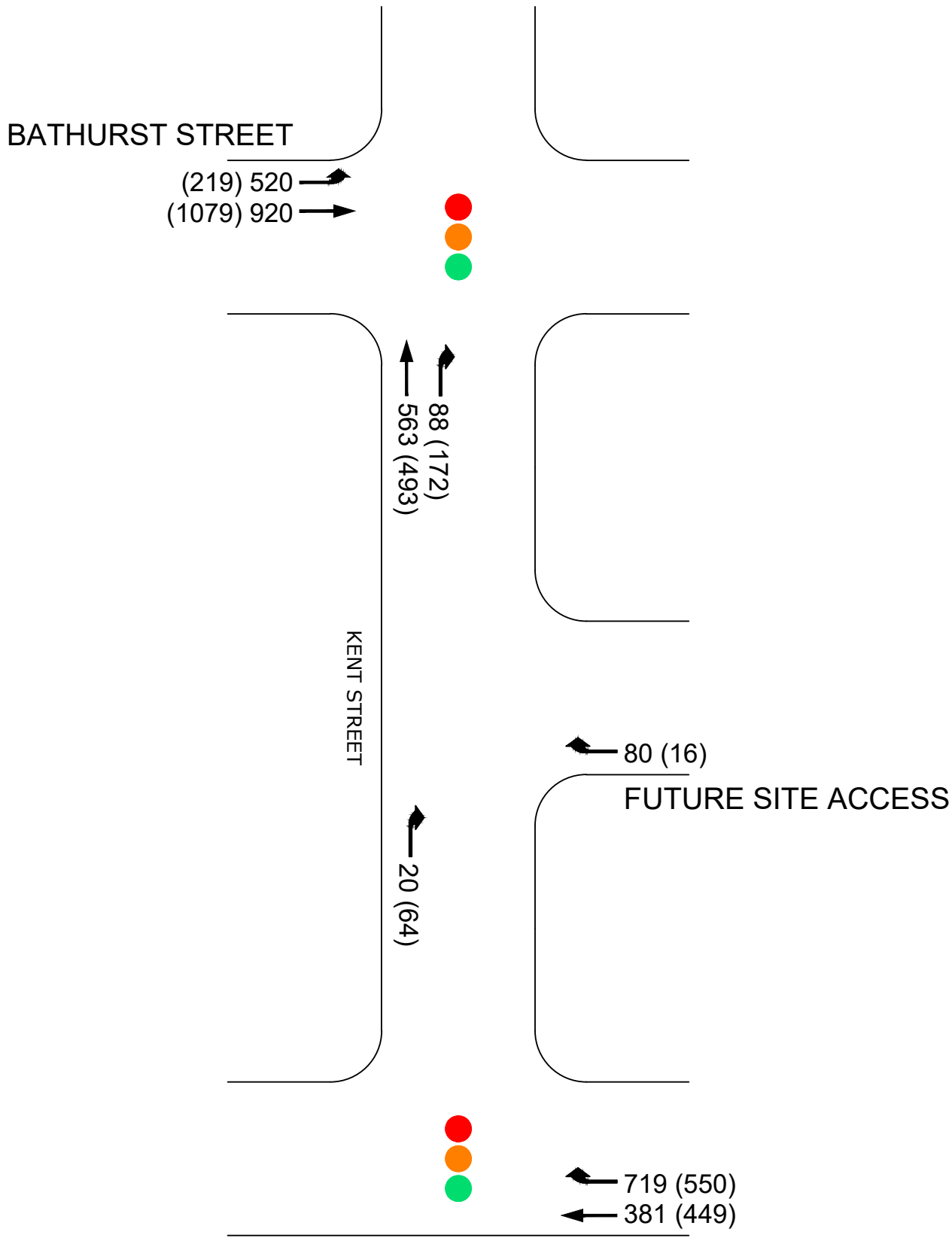
TITLE: 420 NETWORK DIAGRAM

DWG No. 18014CAD027 FIGURE 2

DATE STAMP: 31 JULY 2019

PROJECT No.	SCALE	REV.
18014	NTS	A

Filename: 18014CAD027-NETWORK DIAGRAM-190824.dwg Date: 31 July 2019 By: Karl.magistrado



2018 EXISTING + DEVELOPMENT
10 (10) = AM (PM) PEAK
VEHICLE TRAFFIC

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KM	OF	KH	31/07/19

ttpp transport planning

PROJECT: 505 GEORGE STREET

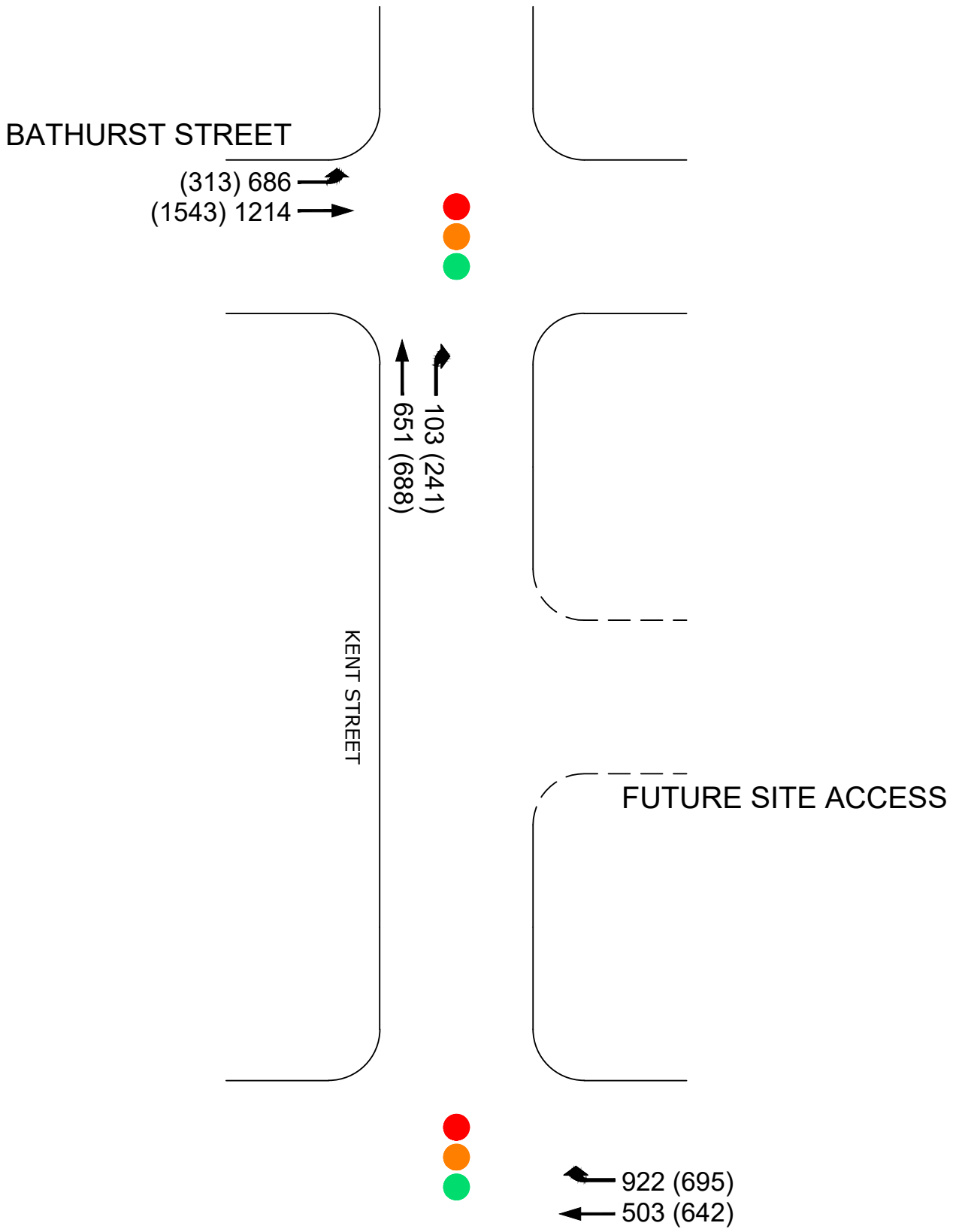
TITLE: 421 NETWORK DIAGRAM

DWG No. 18014CAD027 FIGURE 3

DATE STAMP: 31 JULY 2019

PROJECT No. 18014 | SCALE NTS | REV. A

Filename: 18014CAD027-NETWORK DIAGRAM-190624.dwg Date: 31 July 2019 By: Karl.magistrado



2029 BASE (+10 YEAR WITHOUT DEVELOPMENT)
10 (10) = AM (PM) PEAK
VEHICLE TRAFFIC

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KM	OF	KH	31/07/19

ttpp transport planning

PROJECT: 505 GEORGE STREET

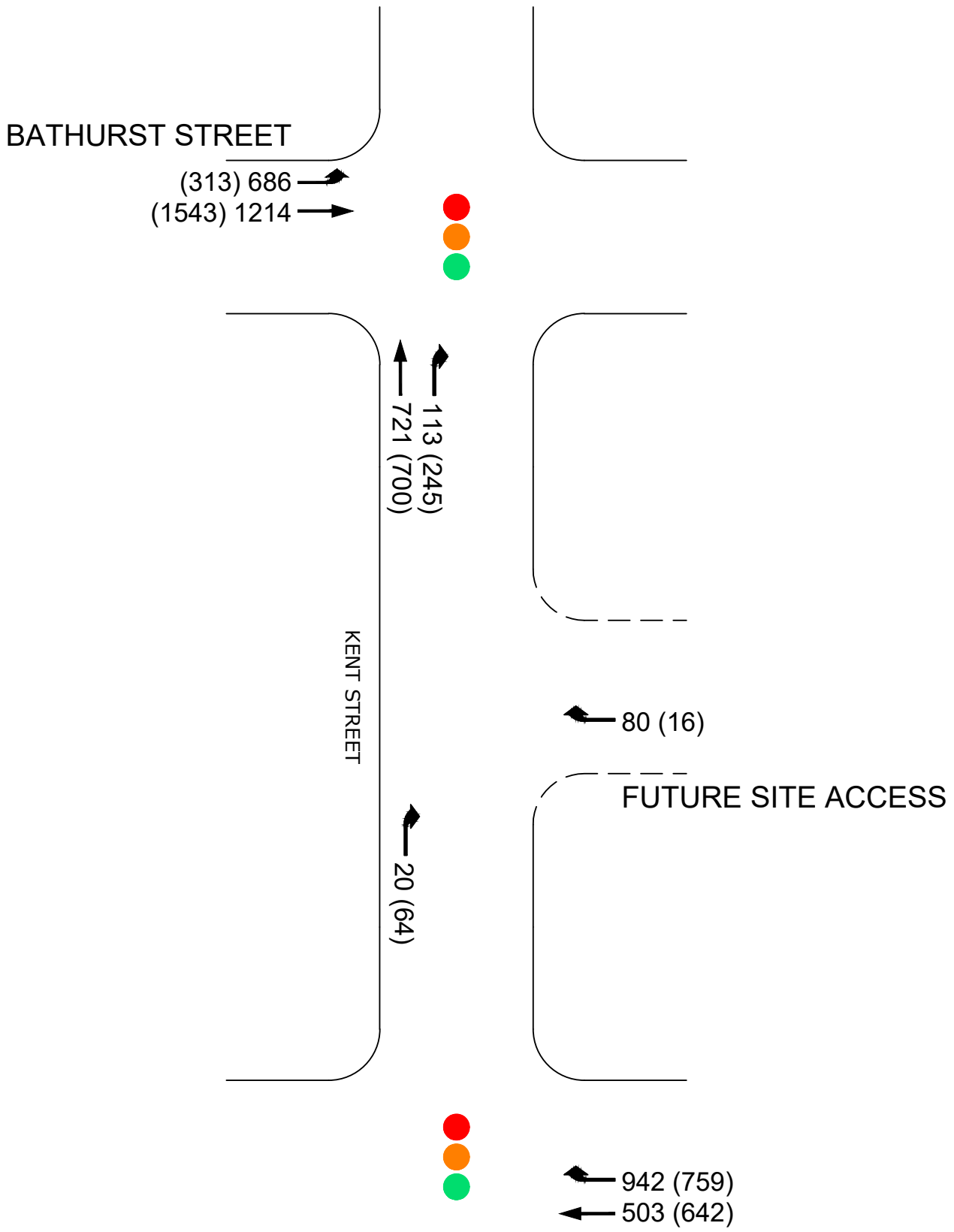
TITLE: 422 NETWORK DIAGRAM

DWG No. 18014CAD027 FIGURE 4

DATE STAMP: 31 JULY 2019

PROJECT No.	SCALE	REV.
18014	NTS	A

Filename: 18014CAD027-NETWORK DIAGRAM-190624.dwg Date: 31 July 2019 By: Karl.magistrado



2029 BASE + DEVELOPMENT
10 (10) = AM (PM) PEAK
VEHICLE TRAFFIC

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KM	OF	KH	31/07/19

ttpp transport planning

PROJECT: 505 GEORGE STREET

TITLE: 423 NETWORK DIAGRAM

DWG No. 18014CAD027 FIGURE 5

DATE STAMP: 31 JULY 2019

PROJECT No. 18014 | SCALE NTS | REV. A

Filename: 18014CAD027-NETWORK DIAGRAM-190624.dwg Date: 31 July 2019 By: Karl.magistrado