



SSD-70283710: 1 Crescent Street, Holroyd Transport Impact Assessment

Prepared for:

Tiberius (Holroyd) Pty Ltd (ABN 61 061 131 959) atf
the Holroyd Unit Trust (ABN 42 891 308 354)

23 January 2025

The Transport Planning Partnership

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Transport Impact Assessment

Client: Tiberius (Holroyd) Pty Ltd (ABN 61 061 131 959)
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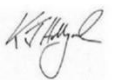
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Abbreviations

Abbreviation	Definition
AHD	Australian Height Datum
BCA	Building Code of Australia
Council	Cumberland City Council
CTMP	Construction Traffic Management Plan
DCP	Development Control Plan Cumberland Development Control Plan 2021 (CDCP 2021)
DPHI	Department of Planning, Housing and Infrastructure
EIS	Environmental Impact Statement
EP&A Act	Environmental Planning and Assessment Act 1979
CLEP	Local Environmental Plan Cumberland Local Environmental Plan 2021 (CLEP 2021)
LGA	Local Government Area
LoS	Level of Service
SEARs	Secretary's Environmental Assessment Requirements
SEPP (Housing) 2021	State Environmental Planning Policy (Housing) 2021
SSDA	State Significant Development Application
TfNSW	Transport for New South Wales
The Guide 2002	The Guide to Traffic Generating Developments, October 2002
The Guide 2024	The Guide to Transport Impact Assessment, November 2024
The site	1 Crescent Street, Holroyd
TIA	Transport Impact Assessment
TTPP	The Transport Planning Partnership

Executive Summary

This transport impact assessment (**TIA**) has been prepared by The Transport Planning Partnership (**TPPP**) to accompany a State Significant Development Application (**SSDA**) for a proposed mixed-use precinct located at 1 Crescent Street, Holroyd (**the site**).

This report has also been prepared to address the relevant Secretary's Environmental Assessment Requirements (**SEARs**) issued by the Department of Planning, Housing, and Infrastructure (**DPHI**) for SSD-70283710 on 6 May 2024.

The traffic and parking assessment concludes that the proposed mixed use state significant development will not result in any adverse impacts as the parking requirements are satisfied and the traffic generated by the development can be accommodated within the surrounding road network.

This report concludes that the proposed development is suitable and warrants approval subject to the implementation of the following mitigation measures.

- The implementation of a Green Travel Plan that embraces the principles of sustainable transport. It also indicates the measures that will be put in place to influence the travel patterns to/from the site, with a view to encourage more sustainable travel modes from Day One of occupation.
- The provision of a shuttle bus between the proposed site and Parramatta/Harris Park station.
- Upgrade roadworks along Crescent Street up to the intersection with Woodville Road.

Following the implementation of the above mitigation measures, the proposed mixed-use precinct development at 1 Crescent Street, Holroyd will be acceptable with regards to transport.

1 Introduction

This transport impact assessment (**TIA**) has been prepared by The Transport Planning Partnership (**TPP**) to accompany a State Significant Development Application (**SSDA**) for a proposed mixed-use precinct located at 1 Crescent Street, Holroyd (**the site**).

This report has been prepared to assess the traffic and parking impacts associated with the proposed development.

This report has been prepared in response to the requirements contained within the Secretary's Environmental Assessment Requirements (**SEARs**) dated 6 May 2024 and issued for the SSDA (**SSD-70283710**). Specifically, this report has been prepared to respond to the SEARs requirement issued below in Table 1.1.

Table 1.1: SEARs requirements – SSD-70283710

Traffic Transport and Accessibility	Addressed in
Provide a transport and accessibility impact assessment, which includes:	
an analysis of the existing transport network, including the road hierarchy and any pedestrian, bicycle or public transport infrastructure, current daily and peak hour vehicle movements, and existing performance levels of nearby intersections.	Section 2
details of the proposed development, including pedestrian and vehicular access arrangements (including swept path analysis of the largest vehicle and height clearances), parking arrangements and rates (including bicycle and end-of-trip facilities), drop-off/pick-up-zone(s) and bus bays (if applicable), and provisions for servicing and loading/unloading.	Section 5, 6 and Appendix C
analysis of the impacts of the proposed development during construction and operation (including justification for the methodology used), including predicted modal split, a forecast of additional daily and peak hour multimodal network flows as a result of the development (using industry standard modelling), identification of potential traffic impacts on road capacity, intersection performance and road safety (including pedestrian and cyclist conflict) and any cumulative impact from surrounding approved developments.	Section 7
measures to mitigate any traffic impacts, including details of any new or upgraded infrastructure to achieve acceptable performance and safety, and the timing, viability and mechanisms of delivery (including proposed arrangements with local councils or government agencies) of any infrastructure improvements in accordance with relevant standards.	Section 5.2
proposals to promote sustainable travel choices for employees, residents, guests and visitors, such as connections into existing walking and cycling networks, minimising car parking provision, encouraging car share and public transport, providing adequate bicycle parking and high quality end-of-trip facilities, and implementing a Green Travel Plan.	Appendix G
Provide a Construction Traffic Management Plan detailing predicted construction vehicle routes, access and parking arrangements, coordination with other construction occurring in the area, and how impacts on existing traffic, pedestrian and bicycle networks would be managed and mitigated.	Section 8

2 Site Context

2.1 Site Description

The land to which this SSDA relates is located at 1 Crescent Street, Holroyd (**the site**). The site is legally described as Lot 700 in Deposited Plan 1241836.

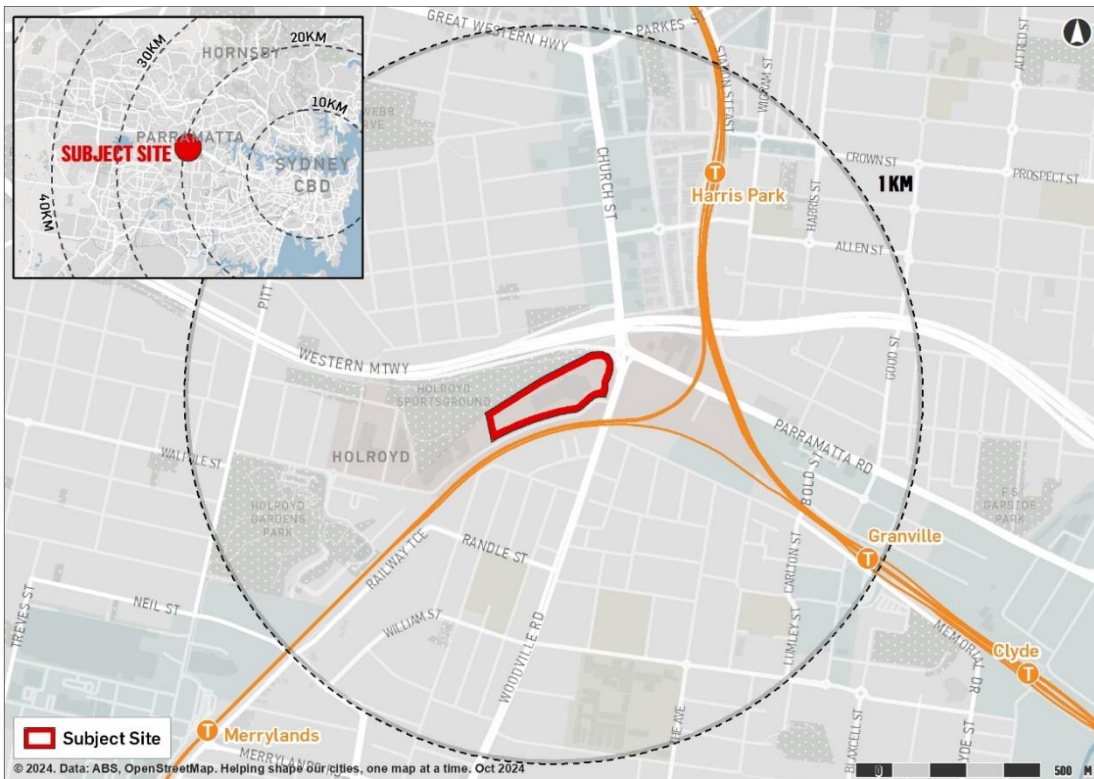
The site comprises an irregularly shaped allotment with an area of 37,877m² and has a primary frontage to Crescent Street to the south and a frontage to Woodville Road to the east. The northern boundary of the site adjoins the Holroyd Sportsground with the M4 Motorway beyond.

The site is located in the Cumberland Local Government Area (**LGA**) and is currently vacant and cleared after WesTrac ceased operations of an industrial facility at the site in early 2018. The site contains existing scattered pockets of landscaped vegetation, predominately located along the site's southern and eastern boundaries to Crescent Street and Woodville Road.

The site is bounded by Parramatta Road/Church Street/Woodville Road intersection to the north east, Woodville Road to the east and Crescent Street to the south. The northern frontage of the site faces the Holroyd Sportsground and the M4 Motorway beyond. It is noted that the eastern portion of the site fronting Woodville Road has been identified for potential future acquisition by Transport of NSW for future planned intersection upgrades to Woodville/Parramatta Road/M4.

A Location Plan including the site is provided in Figure 2.1 and an aerial photo of the site is provided in Figure 2.2.

Figure 2.1: Location Plan



Source: Urbis, 2024

Figure 2.2: Aerial Photography



Source: Urbis, 2024

2.2 Surrounding Road Network

Crescent Street

Crescent Street is a local road with an east-west configuration and a 10m wide carriageway. It is a two-way road with one travel lane provided in each direction. Within the vicinity of the site double-line marking divides the opposing traffic lanes. It currently allows access from all directions to/from the site.

The sign-posted speed limit on Crescent Street is 50 km/h. Along the site frontage on-street parking is not available, however, about 140m in length of unrestricted parking that could accommodate some 20 car spaces is located south-west of the site.

Woodville Road

Woodville Road is classified as a State road and is aligned in a north-south direction. Proximal to the site, Woodville Road is a six-lane median divided road with a carriage width of approximately 19m. The sign-posted speed limit is 60 km/h.

Up to 300m south of the site, Woodville Road operates as a clearway between Monday and Friday, specifically from 6:00am - 10:00am and 3:00pm - 7:00pm.

Parramatta Road

Parramatta Road is also a State road providing two traffic lanes in each direction. Parramatta Road has a speed limit of 60 km/h and is generally configured in an east-west direction. Proximal to the site, clearways are in operation along Parramatta Road from Monday to Friday during peak times.

The following intersections currently exist in the vicinity of the site:

- Crescent Street / Woodville Road (signalised)
- Church Street / Parramatta Road / Woodville Road / M4 Entry Ramp (signalised).
- M4 Eastbound Off Ramp

2.3 Public Transport Facilities

2.3.1 Train Services

The site is located close to three train stations, namely, Harris Park in the north, Granville in the east and Merrylands in the south. The distance between the site and the following stations are:

- Harris Park Station – 743m – specific study undertaken by Urbis to confirm distance

- Granville Station – 1.1km
- Merrylands Station – 1.2km – A new car park with 98 spaces was completed in August 2018
- Parramatta Station – 1.4km

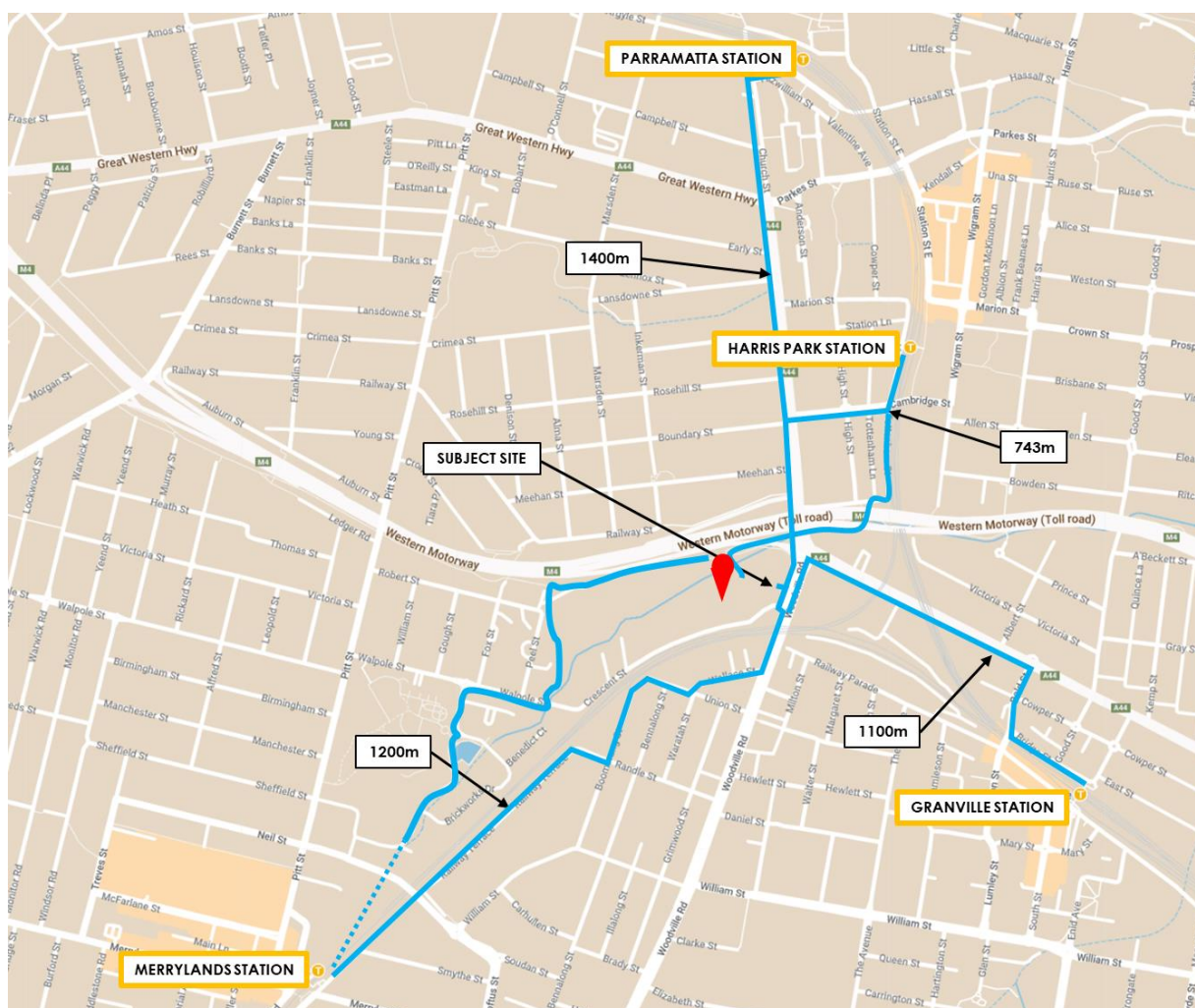
The frequency of current train services at all four stations is summarised in Table 2.1. the proximity of these stations to the site is shown in Figure 2.3.

Table 2.1: Public Transport Provision (Trains)

Station	Route Description	Frequency (to City)		
		Weekday AM Peak (7-9am)	Weekday PM Peak (4-6pm)	Weekday Off-Peak
Granville	T1 Western Line T2 Inner West & South Line	3-10 mins	3-10 mins	5-15 mins
Harris Park	T1 Western Line T2 Inner West & South Line	3-10 mins	3-10 mins	5-15 mins
Merrylands	T2 Inner West & South Line	3-15 mins	3-15 mins	5-20 mins
Parramatta	T1 Western Line T2 Inner West & South Line	3-10 mins	3-10 mins	5-15 mins

Table 2.1 indicates that a good level of train services to the city and other locations is provided at these train stations.

Figure 2.3: Nearby Railway Stations – Walking Distances



2.3.2 Bus Services

There are bus stops within close walking distance to the site. Those located in surrounding streets are summarised in Table 2.2.

Table 2.2: Public Transport Provision (Buses)

Location of stop	Route #	Route Description	Distance to Nearest Stop
Woodville Road	907	Bankstown to Parramatta via Bass Hill and Villawood	450m
Halsall Street	M91	Hurstville to Parramatta via Padstow, Bankstown and Chester Hill	350m
Pitt Street	802	Liverpool to Parramatta via Cartwright, Miller, Bonnyrigg, Fairfield, Merrylands	1km
	804	Liverpool to Parramatta via Hinchinbrook, Bonnyrigg, Greenfield Park, Fairfield, Merrylands	

Location of stop	Route #	Route Description	Distance to Nearest Stop
	806	Liverpool to Parramatta via Mt Pritchard, Abbotsbury, Prairiewood, Wetherill Pk, Merrylands	

2.4 Walking and Cycling Infrastructure

Along the site frontage there is a formal pedestrian paths on the northern side of Crescent Street. Footpaths are located on both sides of Woodville Road.

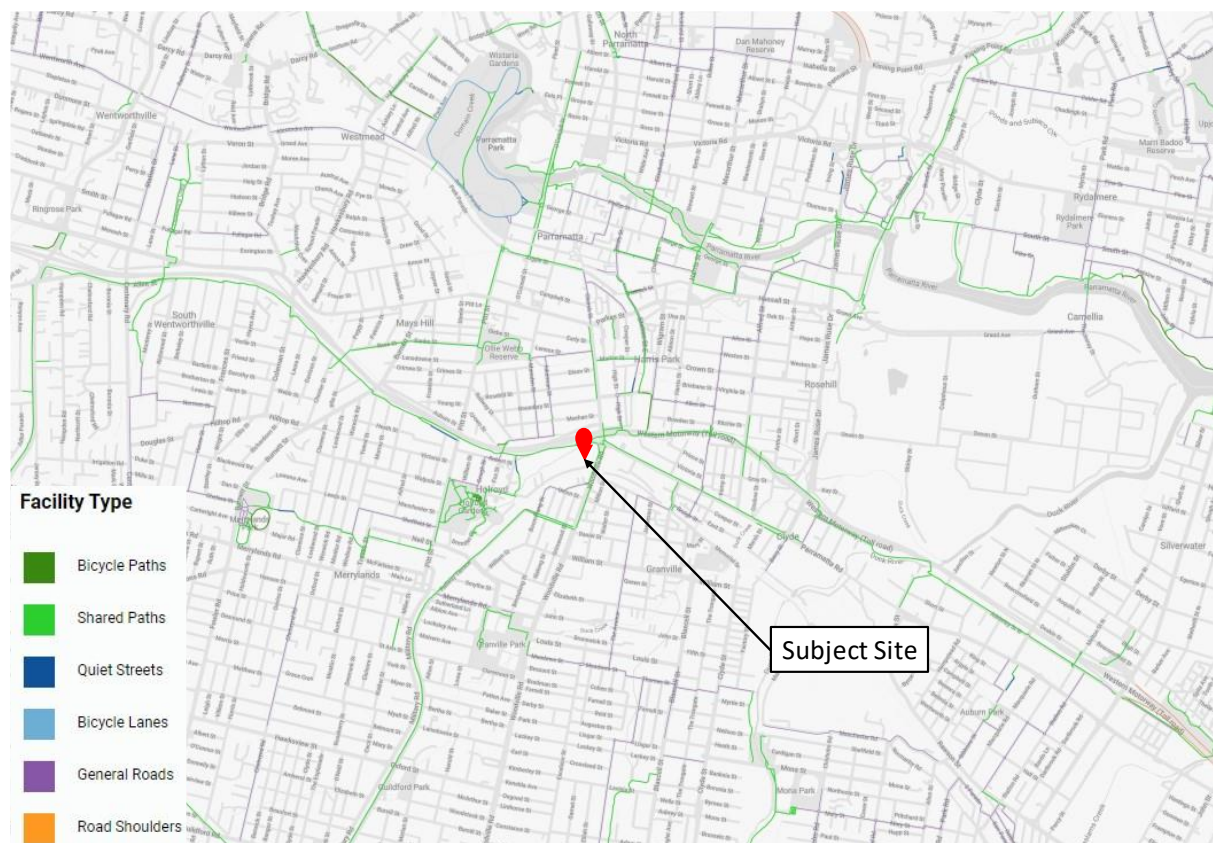
Nearby signalised crossing points with marked foot crossings include:

- Crescent Street / Woodville Road – western leg
- Church Street / Parramatta Road / Woodville Road – eastern, southern and western legs.

There are also shared paths that run along the northern boundary of the Holroyd Sportsground. This path has connections under the M4 Motorway and Church Street to Junction Street to the east and under the M4 to the west connecting to Railway Street. The site will provide a connection to the north that would access these paths.

Figure 2.4 shows the cycle network map for the Holroyd area.

Figure 2.4: Cycle Network Map



Source: TfNSW Cycleway Finder (accessed 14/03/23)

2.5 Existing Traffic Conditions

The existing traffic conditions have been assessed using Sidra models. The models have been developed based on the following assumptions.

2.5.1 Traffic Model Input Parameters

2.5.1.1 Traffic Surveys

TTPP commissioned traffic movement counts on the following key roads in the vicinity of the site on Tuesday 7 February 2023 from 6:30am – 9:00am and 3:30pm – 6:30pm, and Saturday 4 February 2023 from 11:00am – 2:00pm:

- Pitt Street / Walpole Street (TCS 2746)
- Pitt Street / Neil Street (TCS 0601)
- Pitt Street / Merrylands Road (TCS 4193)

An extensive traffic modelling exercise was undertaken in 2021 during the planning proposal stage of the project, particularly at the Crescent Street / Woodville Road/Parramatta Road intersection to demonstrate that the traffic impacts on the State Road Network were acceptable. This traffic report therefore does not revisit that significant modelling exercise and as such no counts have been undertaken at this intersection. The detailed results of the traffic surveys is provided in **Appendix A**.

Based on the surveys, the peak periods are 8am-9am, 3.30pm-4.30pm and 12pm-1pm (SAT). The AM, PM and SAT peak hour traffic volumes are shown in Figure 2.5 (AM), Figure 2.6 (PM) and Figure 2.7 (SAT).

Figure 2.5: Existing Weekday AM Traffic Volumes

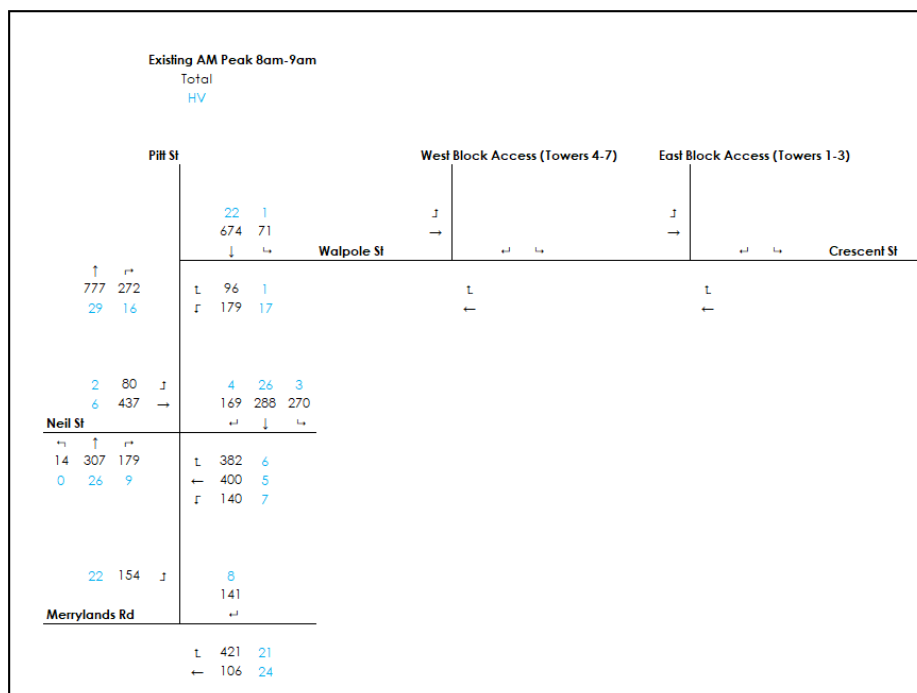


Figure 2.6: Existing Weekday PM Traffic Volumes

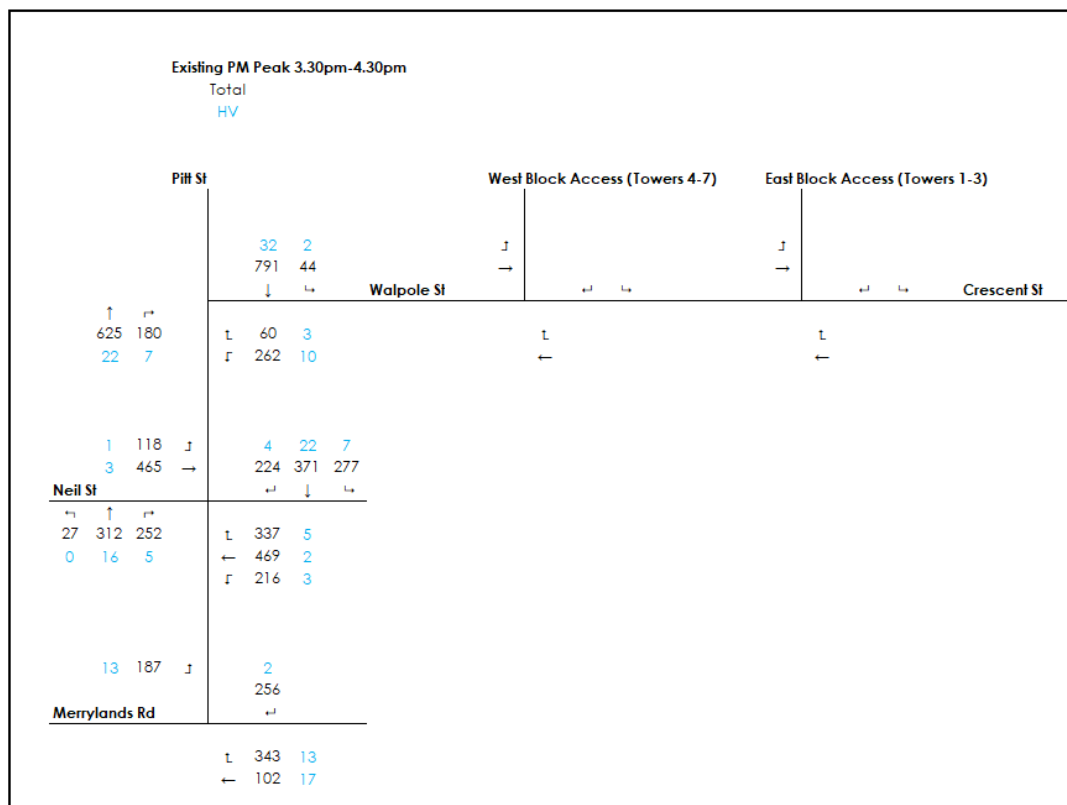
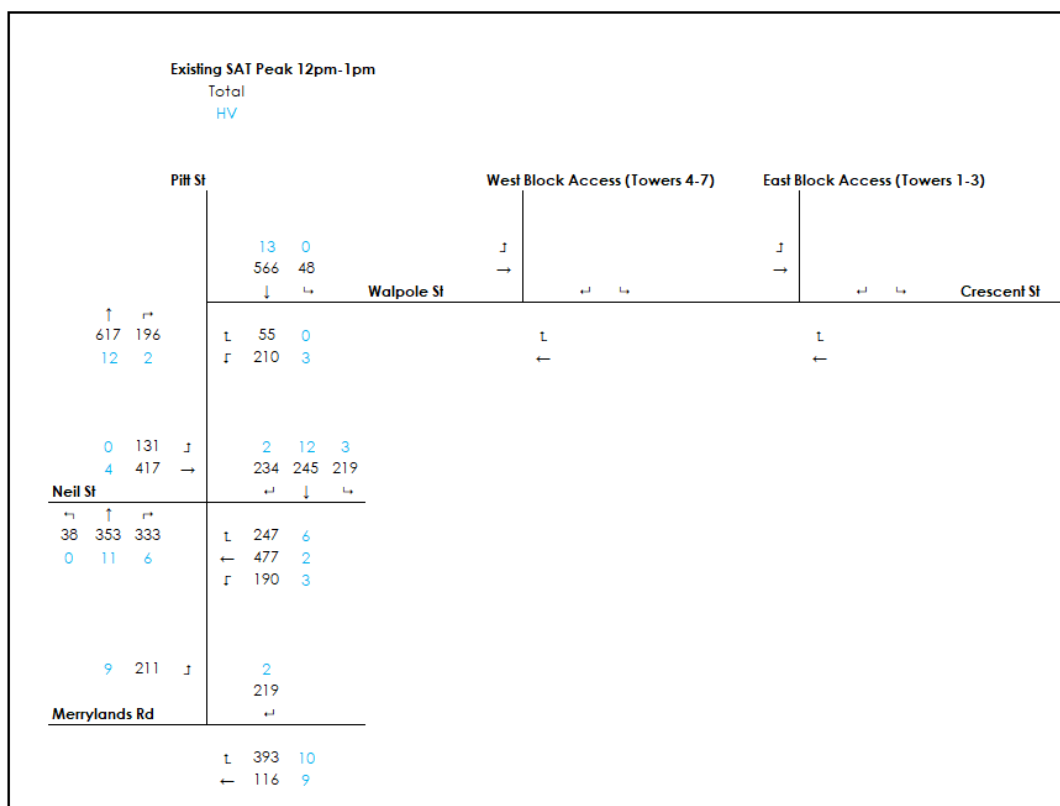


Figure 2.7: Existing Saturday Traffic Volumes



It should be noted that the traffic counts do not include the Parramatta Road/Woodville Road / M4 ramp intersection as agreed with TfNSW.

This intersection was modelled extensively as a result of TfNSW negotiations during the planning proposal stage. As a result of this modelling, and based upon TfNSW's advice, the Department of Planning decided that the intersection would operate acceptably following reductions in yield (which have been accounted for in the SSDA) and the provision of a shuttle bus between the proposed site and Parramatta/Harris Park station. This advice included in the gateway determination is provided in **Appendix B**.

Consequently, preliminary discussions with TfNSW indicated that they considered that sufficient modelling had been undertaken and this exercise did not need to be repeated if the yields remained the same as the planning proposal. This modelling has been undertaken on the basis of the yields used in the planning proposal. However, the proposed development provides 1,227 units compared to the 1,255 assessed in the planning proposal, and therefore is a conservative assessment. The traffic generation rates are based on a per unit rate for the residential component. Retail and commercial caps remain as per the planning proposal.

2.5.1.2 TCS Plan, Intersection Layout and Geometry

TCS plan and Nearmap aerial imagery has been used to code the intersection layout and geometry. The TCS plan was used for geometric details of the intersection including the

gradients, layout and lane widths. They also provide details on the phasing arrangements and additional information about how the intersection operates.

2.5.1.3 SCATS History, LX file and Intersection Data

SCATS and LX data was obtained from TfNSW for the abovementioned intersections (TCS 2746, 0601 and 4193) for the same date as the commissioned survey. The basic timing for the signalised intersections has been taken from the SCATS history files for the identified peak hour period above. Signal timing was added as user-given phase times. Pedestrian time (Walk time, clearance times) and intergreen times were taken from the LX files and Intersection and Subsystem Data.

2.5.2 Level of Service Criteria

TfNSW uses level of service as a performance measure to indicate the operating efficiency of a given intersection. The level of service ranges from A to F. Levels of service between A and D indicate the intersection is operating within capacity, with LoS A providing exceptionally good performance to LoS D indicating satisfactory performance. LoS E and F indicate the intersection is operating at or near capacity and generally would require intersection improvement works to maintain reasonable performance.

The level of service is directly related to the average delay experienced by vehicles travelling through the intersection. At signalised intersections, the average delay is the volume weighted average delay over all movements. For roundabouts and priority (give way and stop sign) controlled intersections, the average delay relates to the movement with the highest average delay per vehicle.

Table 2.3 shows the criteria that SIDRA Intersection adopts in assessing the level of service.

Table 2.3: RMS Level of Service Criteria

Level of Service (LoS)	Average Delay per vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way & Stop Sign
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	Near capacity	Near capacity, accident study required
E	57 to 70	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode	At capacity, requires other control mode.
F	Greater than 70	Unsatisfactory, requires additional capacity	Unsatisfactory, requires other control mode or major treatment

2.5.3 Intersection Capacity Analysis Results

A summary of the AM, PM and SAT peak traffic modelling results is provided in Table 2.4. Detailed modelling results are shown in **Appendix B**.

Table 2.4: SIDRA Intersection Analysis Results – Existing Base

Intersection	Control	AM Peak			PM Peak			SAT Peak		
		Ave. Delay (s)	LoS	Avg. Queue (m)	Ave. Delay (s)	LoS	Avg. Queue (m)	Ave. Delay (s)	LoS	Avg. Queue (m)
Pitt St / Walpole St, Holroyd	Signal	19	B	82	20	B	69	17	B	53
Pitt St / Neil St, Merrylands	Signal	42	C	93	47	D	96	41	C	86
Pitt St / Merrylands Rd, Merrylands	Signal	21	B	22	22	B	26	23	B	26

Based on Table 2.4, the key Pitt Street intersections currently operate satisfactorily at Level of Service (LoS) C or better during all assessed peak periods, except for the Neil Street intersection during the PM which operates near capacity at LoS D.

3 Strategic Context

The following section outlines the sites relationship to the broader transport policies and planning documents.

3.1 Parramatta Road and Woodville Road Intersection

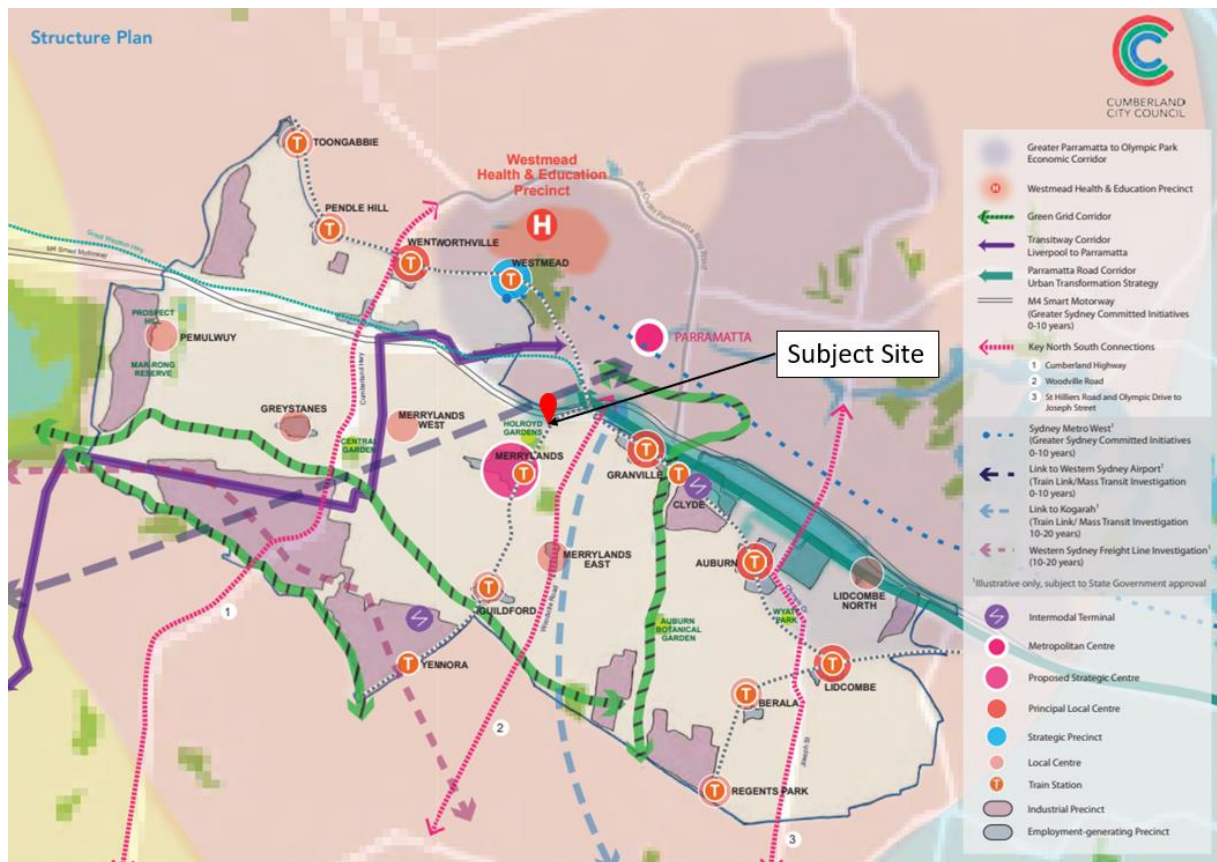
In 2018, Transport for NSW (TfNSW) acquired land from the eastern side of the site to facilitate some major road improvements at the Parramatta Road/Woodville Road / M4 ramp intersection. Furthermore, during the planning proposal phase of the current project, TfNSW also requested that additional land be zoned as a road reserve to facilitate an even greater scheme at some time in the future. In this way, TfNSW are ensuring that the Parramatta Road/Woodville Road / M4 ramp intersection will operate successfully into the future.

3.2 Cumberland 2030: Our Local Strategic Planning Statement

The proposed redevelopment of the site will contribute to the following:

- Expand the housing supply for the Merrylands strategic centre.
- Improve accessibility to key social, community and open space assets.
- Provide jobs and housing as identified for the area north-west of Granville.
- Manage the interface of employment lands with adjoining uses.
- Delivering housing choice for a culturally diverse community and growing young workforce, in a comparatively dense urban environment.
- Delivering transit-oriented development and place-based planning to deliver localised jobs and to accommodate growing population.
- Facilitating the evolution of employment and innovation lands to meet future needs.
- Protecting, enhancing, and increasing natural and green spaces.
- Contribute to the initiatives of the strategic plan.

Figure 3.1: Cumberland Council Structure Plan



Source: <https://www.cumberland.nsw.gov.au/sites/default/files/inline-files/cumberland-2030-our-local-strategic-planning-statement.pdf>

The plan shows Merrylands as a proposed strategic centre being the focus of future development in the area.

3.3 Future Transport Strategy 2056

The Future Transport Strategy is the NSW governments' long-term plan to enhance transport choices for people across NSW and to set out the future direction of the transport infrastructure with a vision to make a real impact on the lives of people in NSW and to reshape the state's economic growth. Future Transport Strategy recommends the action plan for building regional as well as greater metropolitan transport network by considering all modes of transport and the use of technology to evolve transport.

The future transport network as prescribed in the Future Transport Strategy 2056 focuses on establishment of Greater Sydney Strategic Transport Corridors as shown in Figure 3.2. It also leaves some flexibility in planning around these strategic locations and corridors.

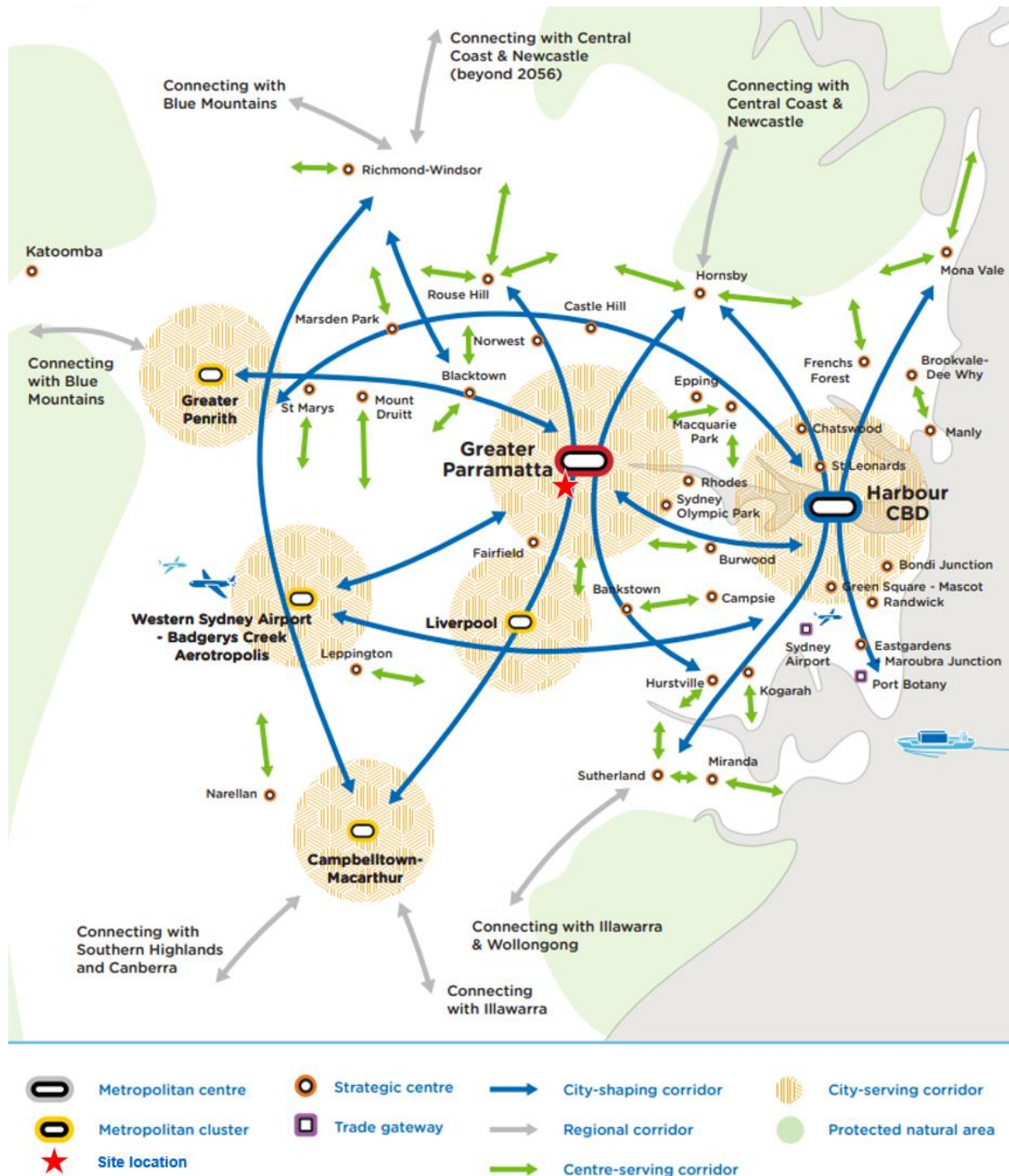
The development site is closely located to the metropolitan centre of Greater Parramatta, providing access to major north-south and east-west strategic transport corridors. This

provides connectivity by both public transport (Sydney Metro West, and the T1, T2 and T3 Sydney Train lines) and the M4 Motorway.

The development site is strategically located close to a north-south oriented principal bicycle network link along Railway Terrace and Military Road. This shared path link is along the west side of Railway Terrace and the east side of Railway Terrace. Principal Bicycle link is important due to it being a direct connection between the existing Greater Parramatta metropolitan centre, Fairfield and the Liverpool metropolitan city cluster.

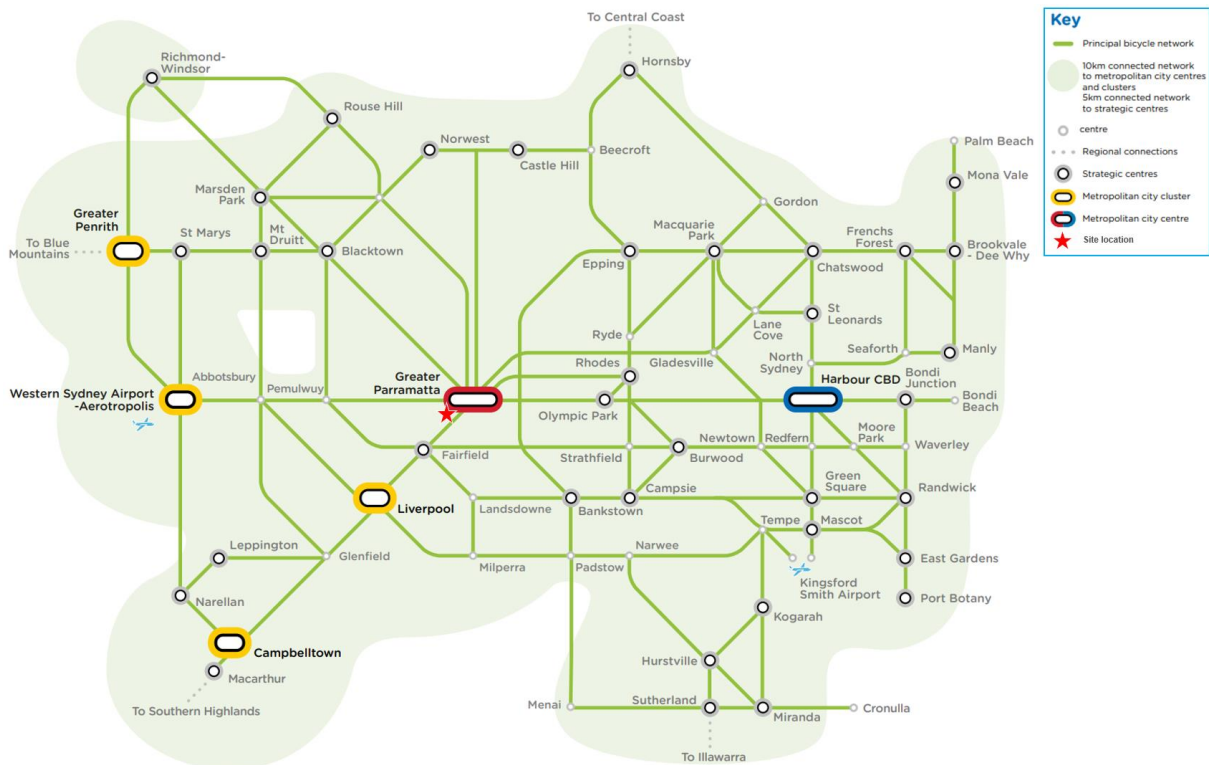
This site is also connected to the east-west oriented principal bicycle network link along the M4 Motorway which stretches between Sydney Olympic Park and Wentworthville via Parramatta. Adequate consideration has been given in the development of active transport strategy to connect the internal bicycle and pedestrian network with the M4 Motorway cycle path, which includes the construction of a bridge along the northern boundary of the site across A'Becketts Creek directly connecting the site to the cycle path. The location of the site with respect to the Greater Sydney's future Principal Bicycle Network as stated in the Future Transport Strategy 2056 is shown in Figure 3.3.

Figure 3.2: Greater Sydney Future Transport Corridors



Source: Future Transport Strategy 2056

Figure 3.3: Greater Sydney Principal Bicycle Network 2056



Source: Future Transport Strategy 2056

3.4 Cumberland Local Housing Strategy 2020

The proposed redevelopment of the site will contribute to the following:

- Delivering housing diversity to suit changing community needs.
- Promoting transit-oriented housing options to support the 30 Minute city.
- Provide mixed use developments at centres, strategic corridors and strategic precincts results in well designed, human-scale and liveable communities within walking distance to transport services and infrastructure
- Transit-oriented housing options contributing to reductions in traffic and congestion and Cumberland's carbon foot print through increased patronage of public transport services, walking and cycling.

3.5 A Metropolis of Three Cities - the Greater Sydney Region Plan

The objectives of A Metropolis of Three Cities to ensure planning and land use of the Greater Sydney Region is respectful, equitable and sustainable. The three cities being the Eastern Harbour City, the Central River City and the Western Parkland City.

Of critical importance in the plan are: -

- the integration of the mass transit network with the economic corridors, centres, transit-oriented development, urban renewal and health and education precincts
- the connectivity between the rail freight and strategic road networks and the trade gateways and industrial areas

While each of the three cities will require new infrastructure, the focus will vary according to:

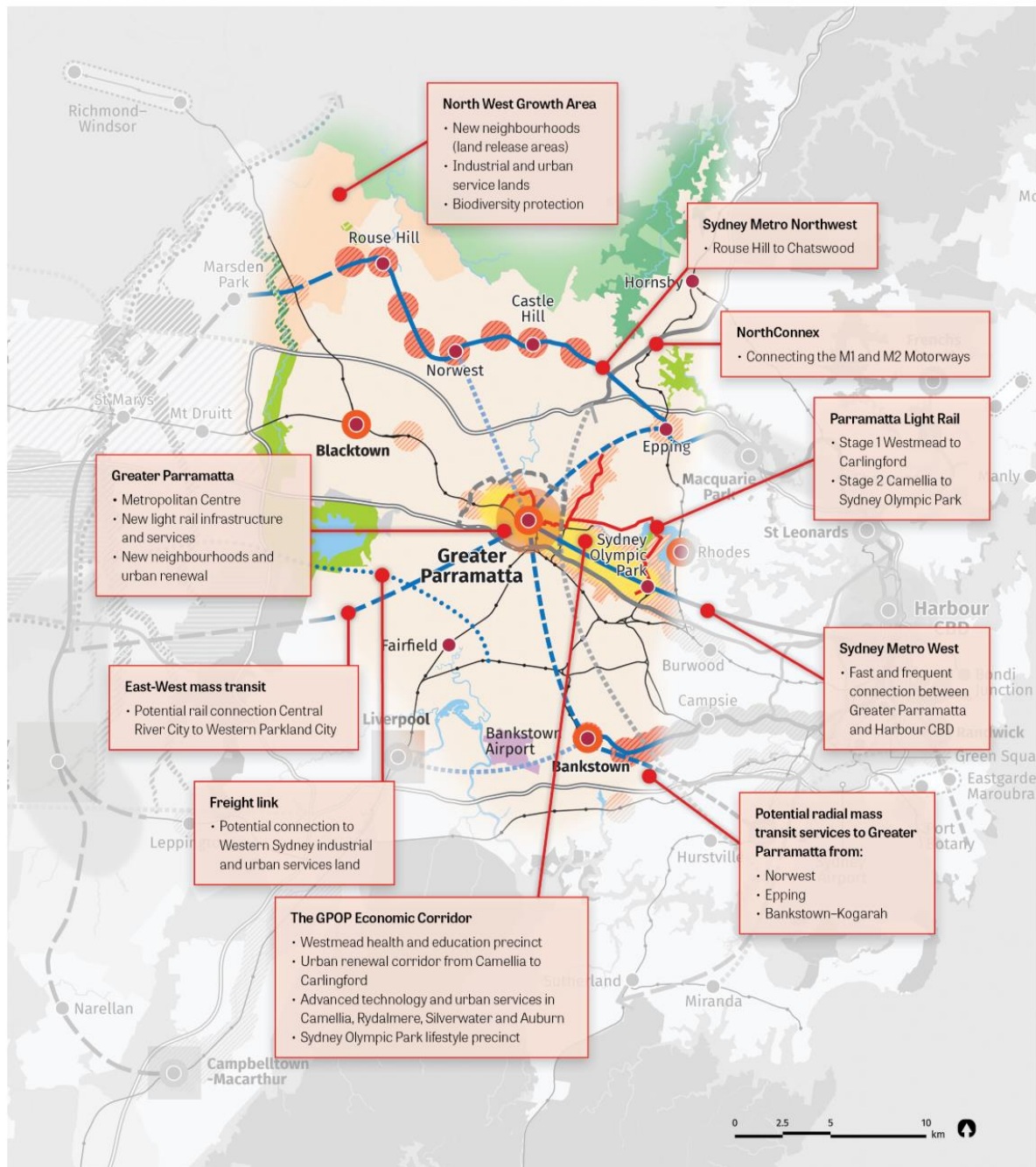
- existing infrastructure and services, capacity and industry and housing activity
- existing levels of committed investment
- the time scale of development.

The Central River City will grow substantially capitalising on its location close to the geographic centre of Greater Sydney. Unprecedented public and private investment is contributing to new transport and other infrastructure leading to a major transformation of the Central River City.

The Sydney Metro West rail link will deliver faster and more efficient transport from the Harbour CBD to Greater Parramatta. Potential radial mass transit/rail services from Greater Parramatta will boost business-to-business connections and provide access to a larger skilled labour force to support the growing metropolitan centre.

The Sydney Metro Northwest rail link will improve the growth prospects for the north-west of the city by increasing the access to jobs.

Figure 3.4: Plans for Central River City



Source: <https://www.greater.sydney/portal/metropolis-three-cities/vision-metropolis-three-cities/central-river-city-vision>

3.6 Central City District Plan

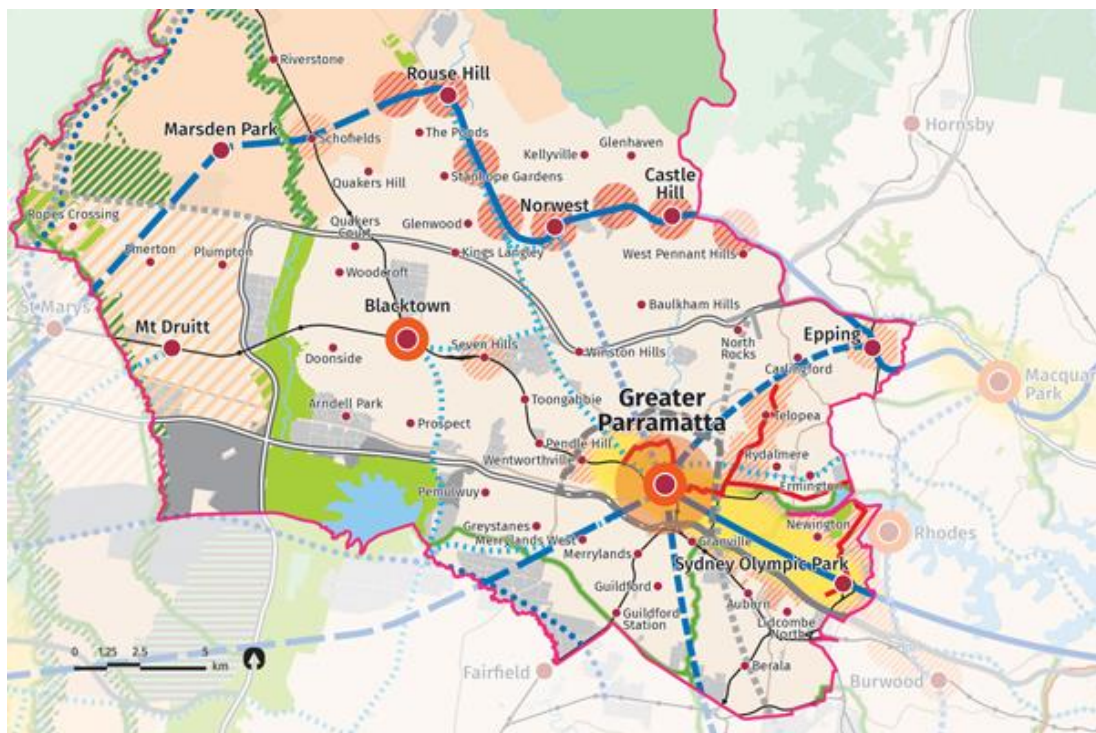
The Central City District Plan provides a guide for implementing the Greater Sydney Region Plan at a district level and serves as a bridge between regional and local planning. The plan covers the Blacktown, Cumberland, Parramatta and The Hills local government areas.

The District Plan informs local strategic planning statements and local environmental plans, the assessment of planning proposals as well as community strategic plans and policies, which is reflected in Cumberland Council's Local Housing Strategy 2020 plan and the Local Strategic Planning Statement.

The development will contribute to the following planning priorities:

- Planning for a city supported by infrastructure
- Providing housing supply, choice and affordability, with access to jobs, services and public transport.
- Creating and renewing great places and local centres, and respecting the District's heritage.
- Delivering integrated land use and transport planning and a 30-minute city
- Growing investment, business opportunities and jobs in strategic centres
- Delivering high quality open space

Figure 3.5: Plans for Central City District



Source: <https://greatercities.au/central-plan-archived>

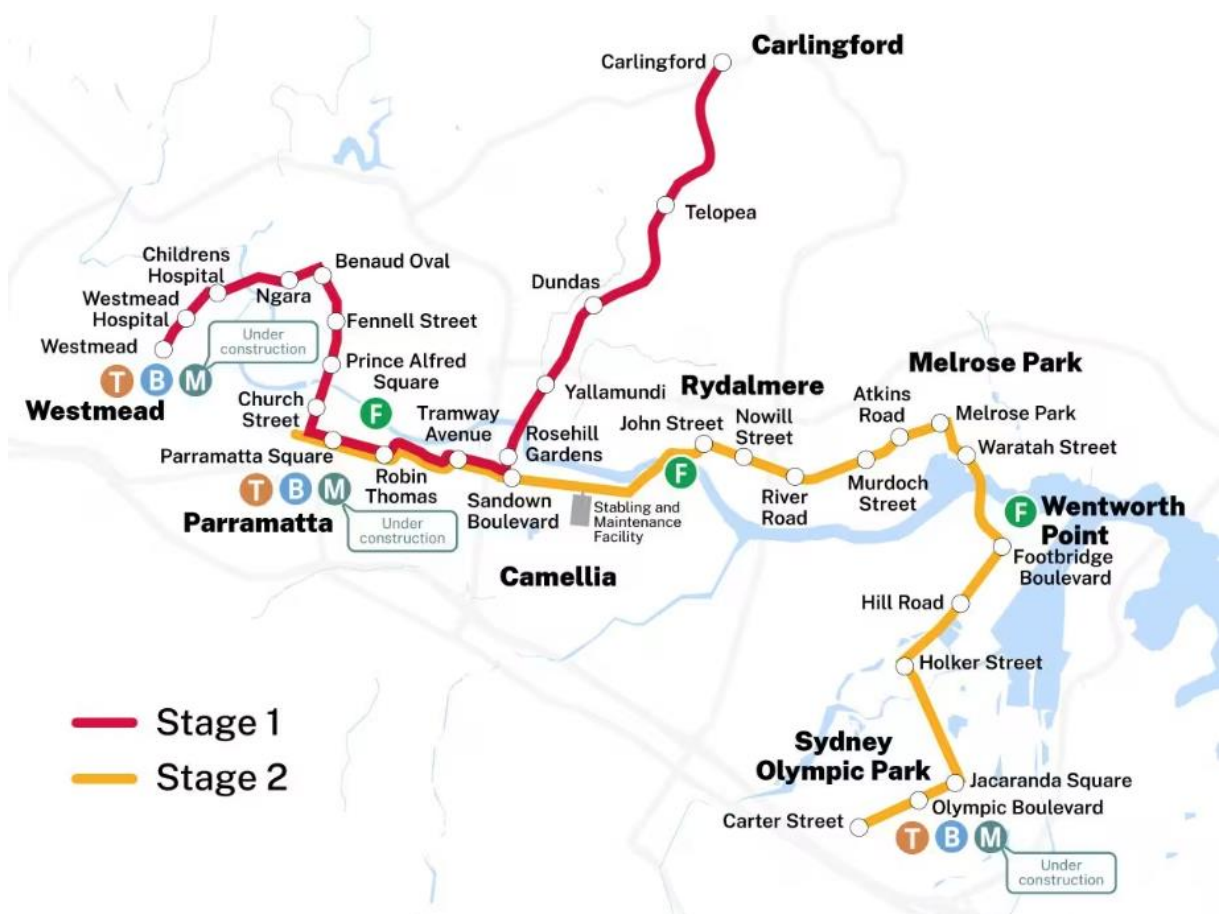
3.7 Parramatta Light Rail

Parramatta Light Rail is one of the NSW Government's latest major infrastructure projects being delivered to serve a growing Sydney. Light rail will create new communities, connect great places and help both locals and visitors move around and explore what the region has to offer.

Stage 1 of the Parramatta Light Rail will connect Westmead to Carlingford via the Parramatta CBD and Camellia with a two-way track spanning 12 kilometres, and is expected to open in late 2024. By 2026, around 28,000 people will use Parramatta Light Rail every day and an estimated 130,000 people will be living within walking distance of light rail stops.

In October 2017, the NSW Government announced the preferred route for Stage 2 which will connect Stage 1 and the Parramatta CBD to Ermington, Melrose Park, Wentworth Point and Sydney Olympic Park along a nine-kilometre route. Construction is anticipated to start in 2024.

Figure 3.6: Parramatta Light Rail Stages 1 and 2



Source: <https://www.nsw.gov.au/driving-boating-and-transport/projects/parramatta-light-rail/maps>

3.8 Sydney Metro West

Sydney Metro West is a new 24-kilometre metro line with stations confirmed at Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock, The Bays, Pyrmont and Hunter Street in the Sydney CBD. Two potential station locations are being investigated west of Sydney Olympic Park, including one at Rosehill Gardens which could support a significant increase in housing. Construction started on the project in 2020.

The project aims to double the rail capacity between the City Centre and Greater Western Sydney to relieve the Western Line and provide opportunities for growth.

The standalone metro railway will be built mostly underground and is able to move more than 40,000 people an hour in each direction, effectively doubling the rail capacity of the area and targets an opening date of 2032.

3.9 WestConnex

WestConnex was a three-stage upgrade of the M4 Western Motorway which encompasses 33km of road upgrades in the form of road widening and tunnelling. The project uses a combination of above and below ground motorways in order to save up to 40 minutes of travel time between Parramatta and Sydney Airport.

The project was completed in November 2023, with the Sydney Gateway connection to Sydney Airport opening in September 2023.

Along with the works for widening and tunnelling, new M4 motorway access points were introduced, including:

- Eastbound access to Westmead and Parramatta from the M4 near Coleman Street
- Westbound access from Parramatta at Church Street to the M4.

The tunnel alignment for WestConnex is shown in Figure 3.7.

Figure 3.7 WestConnex



Source <https://www.westconnex.com.au/>

Within the context of the WestConnex renewal of the Parramatta Road corridor, these areas will have particular importance and are suitable for transport oriented development, yield and density. The subject site has the opportunity to be Holroyd's gateway site at the western end of the WestConnex Project.

As a result of WestConnex, it is anticipated that there will be reductions in traffic volumes on both Parramatta Road and Woodville Road.

4 Project Background

4.1 Planning Proposal PP-2020-1970

A Planning Proposal (reference number PP-2020-1970) was lodged with the State Planning Panel (following a Rezoning Review) which sought to amend the Holroyd Local Environmental Plan 2013 (now replaced by the Cumberland LEP 2021) to facilitate the redevelopment of 1 Crescent Street, Holroyd for a mixed-use development comprising residential uses with supporting retail, commercial and community land uses. Specifically, the proposal sought to:

- Amend the Land Zoning Map from B5 Business Development to part MU1 Mixed Use (now replaced with the MU1 zone), part R4 High Density Residential, RE1 Public Recreation and part SP2 Infrastructure.
- Amend the maximum height in the Height of Buildings Map from 15m to between 32m and 96m.
- Amend the maximum floor space ratio on the Floor Space Ratio Map from 1:1 to between 3.4:1 and 3.75:1.
- Introduce an additional Clause within Part 6 with Additional local provisions that specify:
 - A maximum Gross Floor Area (GFA) for 'retail premises' permitted on the site of 2,500m²,
 - A maximum GFA for 'commercial premises' permitted on the site of 5,000m², and
 - A ground and first floor levels of buildings located in the MU1 Zone with frontage to Woodville Road be restricted to non-residential uses.

On 29 April 2022, after several years of negotiation, the planning proposal was gazetted bringing into effect the amended zoning and controls now applying to the site. The CLEP was updated and became active in November 2022. This established the framework under which this SSDA is being progressed.

4.2 Concept Development Application

On 31 March 2023, a Regionally Significant Concept Development Application (Concept DA) was submitted under s.4.22(1) of the Environmental Planning and Assessment Act 1979 (DA2023/0178). Broadly, the Concept DA sought approval for a mixed-use community including total site GFA, building envelopes, public open space and general site and building configurations.

On 5 August 2023, the applicant filed an appeal to the Land and Environment on a deemed refusal basis following delays in the progression and assessment of the development application. A mediation meeting was held on 12 February 2024.

The Concept DA was withdrawn on 18 March 2024 following the lodgement of a new Concept and Stage 1 in-fill affordable housing SSDA.

4.3 Concept and Detailed Stage 1 SSDA

A request for SEARs with an associated Scoping Report was lodged with DPHI for a Concept and Stage 1 in-fill affordable housing SSDA at the site under section 26A, Schedule 1 of the Planning Systems SEPP. Site-specific SEARs were issued on 7 February 2024 under application number SSD-66020958.

The project broadly comprised the staged development of the site under a Concept SSDA for the provision of a total of seven (7) residential flat buildings, as well as an eastern mixed-use podium and associated car parking structures. A detailed first stage development application is concurrently proposed to deliver the eastern mixed-use podium and three residential buildings, (classified as shoptop housing).

The proposed new SSDA omits the concept aspect from SSD-66020958, pursuing approval for the staged construction of the mixed-use precinct.

SSD-66020958 was withdrawn following the receipts of the industry-specific SEARs for the current detailed SSDA.

5 Proposed Development

The vision for the project is to deliver a new mixed-use precinct that fosters a dynamic live-work-play lifestyle. This precinct will feature a diverse range of housing options, including affordable housing, all complemented by expansive public open spaces. Retail and commercial uses will also be integrated, establishing a new, local destination that encourages community engagement and interaction.

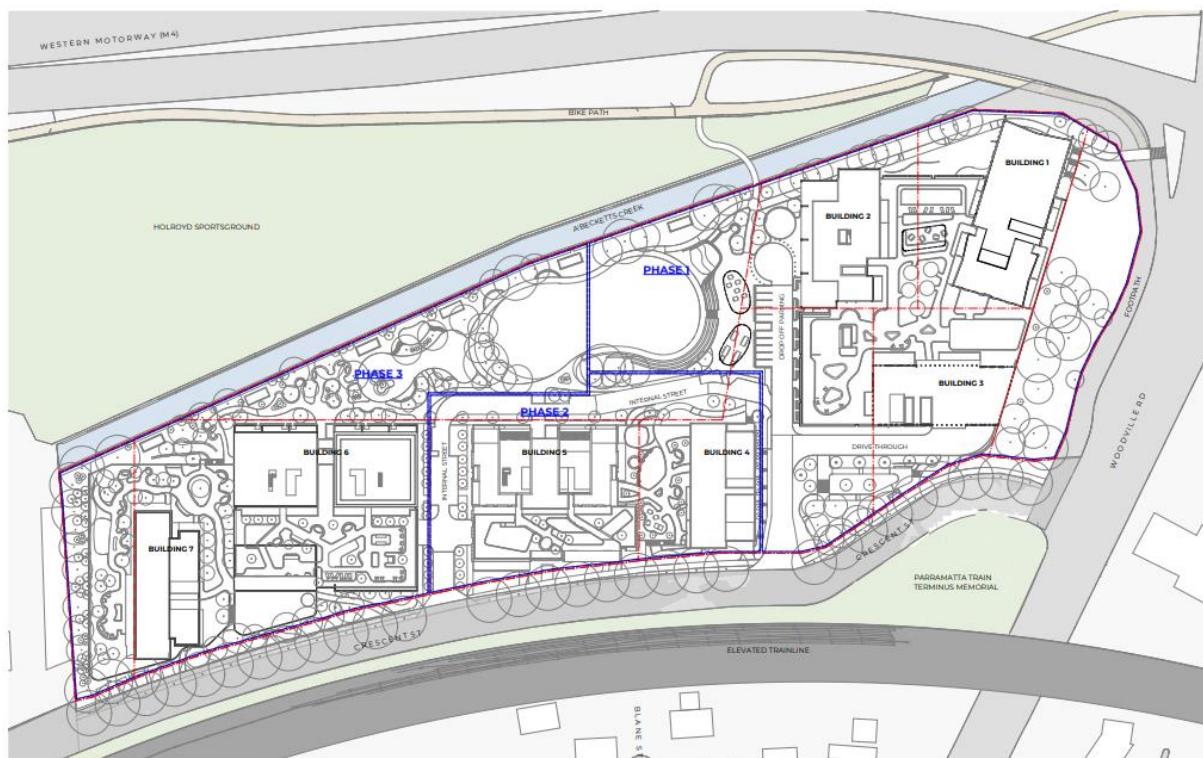
The proposal broadly seeks approval for an SSDA for a mixed-use precinct with public open spaces comprising the following components:

- Site establishment works, tree removal, site preparation, earthworks and excavation, services augmentation, and remediation works.
- Development of seven residential buildings comprising four shop top housing buildings and three residential flat buildings as outlined below:
 - Buildings 1-3 are integrated with an eastern mixed-use podium building, while Building 4 is situated above mixed residential / commercial space, offering shop-top housing.
 - Buildings 5-7 consist of residential flat buildings.
- Delivery of 15% of the total floor space as affordable housing to be distributed across each of the 7 residential buildings for 15 years.
- Approximately 134,000m² total floor space comprising:
 - A total of 2,500m² retail GFA and 5,000m² commercial GFA.
 - Communal amenity facilities for residents.
 - Building services areas.
- Activation of Crescent Street through a mix of amenity areas and pockets of open space.
- Shared car parking for Buildings 1-3 and the commercial and retail tenancies within the podium.
- Shared car parking for Buildings 4 to 7 on the lower ground levels and within the above ground parking structures adjoining Buildings 5 and 6.
- The widening of Crescent Street and upgrades to Crescent Street and Woodville Road intersection.
- Landscaping and accompanying place making works including:
 - Public open space, hard and soft landscape works.
 - Ground and rooftop communal open space.
 - Publicly accessible through-site links.
 - At grade car parking for the park, forecourt and retail areas.

- Vehicle access via a new internal publicly accessible road and vehicle accessway.
- New pedestrian footpaths and access arrangements to the site.
- Café tenancy within park-side structure.
- Staged completion of a public park.

The layout of the proposed site is presented in Figure 5.1

Figure 5.1: Site Layout



Source: Woods Bagot

5.1 Development Yield

A breakdown of the development yield is provided in Table 5.1

Table 5.1: Development Yield

Land Use	Total
Apartments	1,227 units
Retail	2,500m ² in GFA*
Commercial Office	5,000m ² in GFA
Car Parking	1,616 spaces

*Note: Including supermarket GFA of 1,500m²

5.2 Vehicle Access Arrangements

Vehicle access to the development will be via two driveways from Crescent Street. Each driveway will be two-way and connect to each block's car park. The driveways will serve residential, visitor, employee, waste and delivery vehicles.

A swept path analysis for delivery vehicles and other key-internal movements has been provided in **Appendix C**.

In the planning proposal stage, mitigation measures were proposed at the Crescent Street/Woodville Road intersection and along the initial section of Crescent Street. The mitigation measures proposed in the planning proposal are shown in Figure 5.2 and these improvements have been incorporated into the current design. Note that this is a historical plan and the location of driveway in this proposal has changed.

Figure 5.2: Crescent Street Upgrade



6 Parking Assessment

6.1 Car Parking Requirement

The car parking requirements for different development types are set out in Cumberland City Council's *Cumberland Development Control Plan (DCP) 2021*. This replaces the Holroyd Development Control Plan (2013) which was used to assess the Planning Proposal for the site.

However, as part of the Cumberland Local Environment Plan 2021 (CLEP) Provision 6.21 alternate parking rates are stipulated for the development at 1 Crescent Street, Holroyd. The rates are maximum requirements and are outlined below:

Residential accommodation:

- Studio: 0.6 spaces
- 1 bedroom: 0.9 spaces / dwelling
- 2 bedrooms: 1.2 spaces / dwelling
- 3 or more bedrooms: 1.5 spaces / dwelling
- Visitor parking: 1 space / 5 dwellings

Commercial:

- 1 space / 70m²

Retail:

- 1 space / 50m²

On 14 December 2023 the NSW Government implemented in-fill affordable housing reforms to encourage private developers to boost affordable housing and deliver more market housing. Developments require to be within 800m walking distance of an accessible area and a minimum of 10% - 15 % of the development to be used for affordable housing for 15 years. The development is located 743m from Harris Park Station as detailed in Section 2.3.1.

As part of the SEPP (Housing) 2021 in-fill affordable housing provisions, the affordable housing units can be assessed under the following parking rates:

- 1 bedroom: at least 0.4 spaces / dwelling
- 2 bedrooms: at least 0.5 spaces / dwelling
- 3 or more bedrooms: at least 1 space / dwelling

Under the SEPP (Housing) 2021, the following parking rates can be used for units not used for affordable housing:

- 1 bedroom: at least 0.5 spaces / dwelling

- 2 bedrooms: at least 1 spaces / dwelling
- 3 or more bedrooms: at least 1.5 space / dwelling

For the purposes of this assessment, the development has been assessed under both the SEPP (Housing) 2021 parking rates and the CLEP maximum rates.

A breakdown of the number of affordable and non-affordable residential dwellings for each phase and the overall development is provided in Table 6.1.

Table 6.1: Dwelling Type Yield and Mix

Dwelling Type	Phase 1	Phase 2	Phase 3	Overall
Residential – Non-affordable Units				
1 bedroom	59	17	33	109
2 bedrooms	346	128	171	645
3+ bedrooms	132	61	79	272
Overall	537	206	283	1026
Residential – Affordable Units				
1 bedroom	14	0	9	23
2 bedrooms	72	28	33	133
3+ bedrooms	28	8	9	45
Overall	114	36	51	201

In total, there would be 1616 car spaces provided of which 1413 would be for the non-affordable units, retail and commercial office components and 203 under the CLEP rates and 199 car spaces under the affordable units SEPP rates. The SEPP rates and the CLEP rates have been considered separately as the SEPP rates are minimums and the CLEP rates are maximums.

Table 6.2 summarises the CLEP maximum parking requirement and provision for the overall development and Table 6.3 summarises the SEPP (Housing) 2021 minimum parking requirement for the development. Note that in absence of the SEPP (Housing) 2021 rates for commercial and retail premises the CLEP rates have been used instead.

Table 6.2: LEP Car Parking Requirement – Overall

Proposed Use	Size	LEP Parking Provision Rate	LEP Required Maximum Parking Spaces	Provided Spaces
Residential				
1 bedroom	132 dwellings	0.9 spaces per dwelling	118	1480
2 bedrooms	778 dwellings	1.2 spaces per dwelling	933	
3+ bedrooms	317 dwellings	1.5 spaces per dwelling	475	
Visitors	1227 dwellings	1 per 5 units	245	15
Residential –Sub-total	1227 dwellings	-	1771	1495
Commercial premises				
Commercial	5,000m ² GFA	1 per 70m ² GFA	71	71
Retail premises				
Retail	2,500m ² GFA	1 per 50m ² GFA	50	50
Total Spaces Generated			1892	1616

Table 6.3: SEPP (Housing) 2021 Car Parking Requirement – Overall

Proposed Use	Size	SEPP Parking Provision Rate	SEPP Required Minimum Parking Spaces	Provided Spaces
Residential – Affordable Units				
1 bedroom	23 dwellings	0.4 spaces per dwelling	9	203
2 bedrooms	133 dwellings	0.5 spaces per dwelling	67	
3+ bedrooms	45 dwellings	1 space per dwelling -	45	
Residential Affordable –Sub-total	201 dwellings		122	
Residential – Non-affordable Units				
1 bedroom	109 dwellings	0.5 spaces per dwelling	55	1277
2 bedrooms	645 dwellings	1 space per dwelling	645	
3+ bedrooms	272 dwellings	1.5 space per dwelling -	408	
Residential Non-affordable –Sub-total	1026 dwellings		1108	
Residential Visitors				
Visitors	1227 dwellings	No rate	0	15
Commercial premises				
Commercial	5,000m ² GFA	1 per 70m ² GFA	71	71
Retail premises				
Retail	2,500m ² GFA	1 per 50m ² GFA	50	50
Total Spaces Generated			1351	1616

The car parking controls outlined in the Housing SEPP establish the minimum amount of parking required for dwellings used for affordable housing and those not used for affordable housing. The proposal complies with these controls by exceeding the minimum requirement.

Conversely, Clause 6.21(4)(c) of the Cumberland Local Environmental Plan 2021 (CLEP) specifies maximum car parking rates for residential accommodation. The proposal also complies with these controls by providing less than the maximum allowable parking.

As a result, the proposed car parking provision is considered acceptable, as it exceeds the minimum requirements of the Housing SEPP while remaining below the maximum limits set by the CLEP.

The proposed development results in the following indicative car parking requirements as summarised below for each Phase. It is noted that the parking calculations for each Phase when summed up differ slightly from Table 6.2 and Table 6.3 due to rounding when applying the rates to smaller yields, however, as each phase has its own car park it was deemed that assessing each on its own basis was a more appropriate method than assessing the parking for the whole development.

The proposal includes 15 visitor bays, which complies with the maximum visitor parking bay rate established in the Cumberland LEP. The provision of visitor bays at a rate of 1 space per 81 apartments is considered acceptable based on the following site-specific constraints and considerations:

- As outlined in the EIS, it is cost-prohibitive to excavate additional basement-level car parking to support the development. Consequently, accommodating more visitor parking would add to the above-ground parking structures, which would affect the perceived bulk and scale of the proposal.
- Priority has been given to allocating the compliant number of parking bays to residents rather than visitors.
- Approximately 140m in length of unrestricted parking that could accommodate some 20 visitor car spaces is located south-west of the site.

Further the site provides public parking for retail and at grade parking for the park land areas.

6.1.1 Phase 1 (Building 1, 2 & 3)

Table 6.4 summarises the CLEP maximum parking requirement and provision for the overall development and Table 6.5 summarises the SEPP (Housing) 2021 minimum parking requirement for the development. Note that in absence of the SEPP (Housing) 2021 rates for commercial and retail premises the CLEP rates have been used instead.

Table 6.4: LEP Car Parking Requirement – Phase 1

Proposed Use	Size	LEP Parking Provision Rate	LEP Required Maximum Parking Spaces	Provided Spaces
Residential				
1 bedroom	73 dwellings	0.9 spaces per dwelling	65	768
2 bedrooms	418 dwellings	1.2 spaces per dwelling	501	
3+ bedrooms	160 dwellings	1.5 spaces per dwelling	240	
Visitors	651 dwellings	1 per 5 units	130	5
Residential –Sub-total	651 dwellings	-	936	773
Commercial premises				
Commercial	4,771m ² GFA	1 per 70m ² GFA	68	68
Retail premises				
Retail	2,500m ² GFA	1 per 50m ² GFA	50	50
Total Spaces Generated			1054	891

Table 6.5: SEPP (Housing) 2021 Car Parking Requirement – Phase 1

Proposed Use	Size	SEPP Parking Provision Rate	SEPP Required Minimum Parking Spaces	Provided Spaces
Residential – Affordable Units				
1 bedroom	14 dwellings	0.4 spaces per dwelling	6	102
2 bedrooms	72 dwellings	0.5 spaces per dwelling	36	
3+ bedrooms	28 dwellings	1 space per dwelling -	28	
Residential Affordable –Sub-total	114 dwellings		70	
Residential – Non-affordable Units				
1 bedroom	59 dwellings	0.5 spaces per dwelling	30	666
2 bedrooms	346 dwellings	1 space per dwelling	346	
3+ bedrooms	132 dwellings	1.5 space per dwelling -	198	
Residential Non-affordable –Sub-total	537 dwellings		574	
Residential Visitors				
Visitors	651 dwellings	No rate	0	5
Commercial premises				
Commercial	4,771m² GFA	1 per 70m² GFA	68	68
Retail premises				
Retail	2,500m² GFA	1 per 50m² GFA	50	50
Total Spaces Generated			762	891

6.1.2 Phase 2 (Building 4 & 5)

Table 6.6 summarises the CLEP maximum parking requirement and provision for the overall development and Table 6.7 summarises the SEPP (Housing) 2021 minimum parking requirement for the development. Note that in absence of the SEPP (Housing) 2021 rates for commercial and retail premises the CLEP rates have been used instead.

Table 6.6: LEP Car Parking Requirement – Phase 2

Proposed Use	Size	LEP Parking Provision Rate	LEP Required Maximum Parking Spaces	Provided Spaces
Residential				
1 bedroom	17 dwellings	0.9 spaces per dwelling	15	302
2 bedrooms	156 dwellings	1.2 spaces per dwelling	187	
3+ bedrooms	69 dwellings	1.5 spaces per dwelling	103	
Visitors	242 dwellings	1 per 5 units	48	5
Residential –Sub-total	242 dwellings	-	356	307
Commercial premises				
Commercial	229m ² GFA	1 per 70m ² GFA	3	3
Total Spaces Generated			356	310

Table 6.7: SEPP (Housing) 2021 Car Parking Requirement – Phase 2

Proposed Use	Size	SEPP Parking Provision Rate	SEPP Required Minimum Parking Spaces	Provided Spaces
Residential – Affordable Units				
1 bedroom	0 dwellings	0.4 spaces per dwelling	0	43
2 bedrooms	28 dwellings	0.5 spaces per dwelling	14	
3+ bedrooms	8 dwellings	1 space per dwelling -	8	
Residential Affordable –Sub-total	36 dwellings		22	
Residential – Non-affordable Units				
1 bedroom	17 dwellings	0.5 spaces per dwelling	9	259
2 bedrooms	128 dwellings	1 space per dwelling	128	
3+ bedrooms	61 dwellings	1.5 space per dwelling -	92	
Residential Non-affordable –Sub-total	206 dwellings		229	
Residential Visitors				
Visitors	242 dwellings	No rate	0	5
Commercial premises				
Commercial	229m² GFA	1 per 70m² GFA	3	3
Total Spaces Generated			254	310

6.1.3 Phase 3 (Building 6 & 7)

Table 6.8 summarises the CLEP maximum parking requirement and provision for the overall development and Table 6.9 summarises the SEPP (Housing) 2021 minimum parking requirement for the development. Note that in absence of the SEPP (Housing) 2021 rates for commercial and retail premises the CLEP rates have been used instead.

Table 6.8: LEP Car Parking Requirement – Phase 3

Proposed Use	Size	LEP Parking Provision Rate	LEP Required Maximum Parking Spaces	Provided Spaces
Residential				
1 bedroom	42 dwellings	0.9 spaces per dwelling	37	410
2 bedrooms	204 dwellings	1.2 spaces per dwelling	244	
3+ bedrooms	88 dwellings	1.5 spaces per dwelling	132	
Visitors	334 dwellings	1 per 5 units	66	5
Total Spaces Generated			479	415

Table 6.9: SEPP (Housing) 2021 Car Parking Requirement – Phase 3

Proposed Use	Size	SEPP Parking Provision Rate	SEPP Required Minimum Parking Spaces	Provided Spaces
Residential – Affordable Units				
1 bedroom	9 dwellings	0.4 spaces per dwelling	4	58
2 bedrooms	33 dwellings	0.5 spaces per dwelling	17	
3+ bedrooms	9 dwellings	1 space per dwelling -	9	
Residential Affordable –Sub-total	51 dwellings		30	
Residential – Non-affordable Units				
1 bedroom	33 dwellings	0.5 spaces per dwelling	17	352
2 bedrooms	171 dwellings	1 space per dwelling	171	
3+ bedrooms	79 dwellings	1.5 space per dwelling -	119	
Residential Non-affordable –Sub-total	283 dwellings		307	
Residential Visitors				
Visitors	334 dwellings	No rate	0	5
Total Spaces Generated			337	415

6.2 Accessible Parking Requirement

Cumberland City Council's (Council) Cumberland Development Control Plan (DCP) 2021 does not stipulate an accessible parking requirement. In absence of this, the requirements from the Building Codes of Australia have been adopted.

The classification for each land use and associated required accessible spaces of the development is:

- Residential: Class 2 Nil
- Commercial Office: Class 5 1 space for every 100 car parking spaces
- Retail: Class 6 1 space for every 50 car parking spaces

Based on these rates there would be one accessible space provided for the commercial office, and one space for the retail use.

Furthermore, every adaptable unit (20% of units) will receive 1 accessible parking space, resulting in 245 accessible parking spaces for adaptable units.

6.3 Bicycle Parking

The bicycle parking requirements for different development types are set out in Cumberland City Council's (Council) Cumberland Development Control Plan (DCP) 2021.

To assess employee bicycle parking, an assumption of one employee per 20m² GFA has been used. This is based upon the employee density rates from the *Guide to Traffic Generating Developments* (RTA 2002).

An assessment of the DCP bicycle parking requirements for the proposed development against the provision showing indicative levels of bicycle parking is summarised in Table 6.10.

Table 6.10: Bicycle parking Requirement

Proposed Use		Size	DCP Bicycle Parking Provision Rate	DCP Required Bicycle Parking Spaces	Provided Spaces
Residential	Residents	1,227 units	1 space per 3 dwellings	409	437
	Visitors	1,227 units	1 space per 3 dwellings	409	231
Commercial – Business and Office	Employees	5,000m ² GFA	1 space per 10 employees	25	25
	Visitors	5,000m ² GFA	1 space per 750m ² over 1000m ²	6	6
Commercial – Retail (within MU1 zone)	Employees	2,500m ² GFA	1 space per 10 employees	13	13
	Visitors	2,500m ² GFA	1 space per 750m ² over 1000m ²	2	2
Total Spaces Generated				864	714

714 bicycle parking spaces are provided in dedicated secure bicycle parking areas. This is a shortfall from DCP. All the resident, commercial and retail bicycle spaces will be provided. The shortfall will apply to visitor bicycle parking which will not have the same demand as resident bicycle parking.

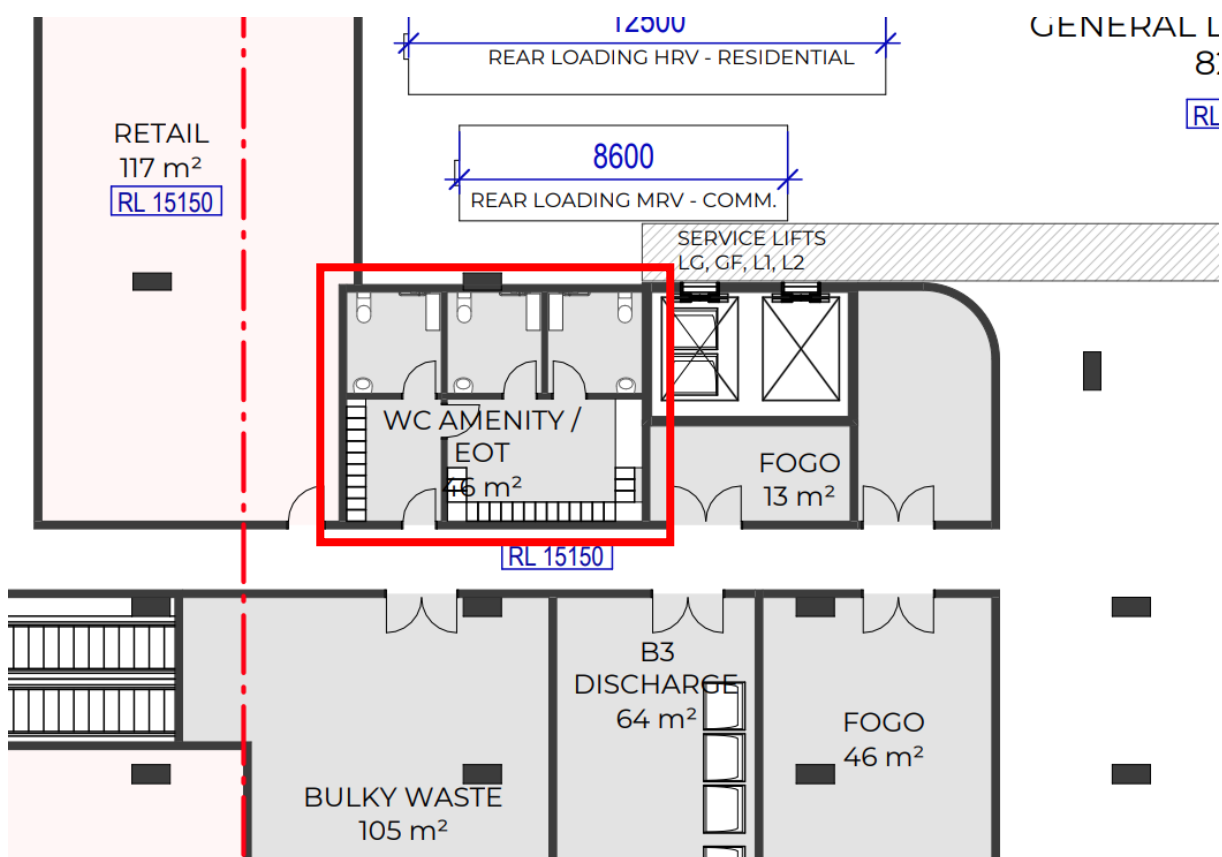
The proponent acknowledges the importance of 'end of trip' facilities in supporting active and sustainable transport options. For the non-supermarket retail uses it is proposed to provide end of trip facilities which will be provided in phase 1. The facilities would include:

- A Unisex Accessible Bathroom
- 2 x Unisex Accessible Bathroom / Shower with shower, toilet and washbasins.

The location of the facilities on the lower ground level is shown in Figure 6.1.

The 1500m² supermarket would provide facilities within the supermarket tenancy and small commercial space beneath building 4 would have access to phase 1 or provide their own end of trips facilities within the tenancy.

Figure 6.1: End of Trip Facilities



End-of-trip facilities for commercial office tenancies will be supplied within the individual tenancies. Cumberland City Council DCP does not proscribe rates and therefore it is proposed that future tenants would provide facilities at a rate of:

- 2 showers per 20 bicycle spaces
- 1 locker per bicycle space.

This is commensurate with rates prescribed by other LGA's in Sydney as shown in Table 6.11.

Table 6.11: Bicycle Shower Facilities Rates

Proposed Use	Rate
North Sydney Council	2 Showers per 20 Bicycle Spaces
City of Sydney Council	2 Showers per 20 Bicycle Spaces
Bayside Council	1 Shower per 7 Bicycle Spaces
Northern Beaches	1 Shower per 10 Bicycle Spaces

The exact quantity and location of these end of trip facilities will be determined during a future fit-out development application.

6.4 Loading and Servicing Requirements

The loading requirements for commercial and residential developments are set out in Cumberland City Council's (Council) Cumberland Development Control Plan (DCP) 2021. The relevant loading bay requirements from the DCP are presented below:

Business and office premises:

- 1 space / 4000m² GFA up to 20,000m² GFA
- 1 space / 8000m² GFA thereafter

Retail premises – shops and food and drink premises

- 1 space / 400m² GFA up to 2,000m² GFA
- 1 space / 1,000m² GFA thereafter

The requirements for loading bays for the development based upon the DCP rates is provided in Table 6.12.

Table 6.12: Loading Bay Requirements

Proposed Use	Size	DCP Loading Bay Provision Rate	DCP Required Loading Bays	Provided Loading Bays
Business and office premises	5000m ²	1 space / 4000m ² GFA up to 20,000m ² GFA 1 space / 8000m ² GFA thereafter	2	7
Retail premises – shops and food and drink premises	2500m ²	1 space / 400m ² GFA up to 2,000m ² GFA 1 space / 1,000m ² GFA thereafter	5	
Residential	1,227 units	-	-	
Total Loading Bays Generated			7	7

The site will provide three 12.5m long Heavy Rigid Vehicle spaces, and two 8.8m long Medium Rigid Vehicle spaces in the loading dock.

Two additional loading spaces will be provided at grade that would service the residential apartments and service garbage trucks and deliveries bringing the total on-site to 7 service bays.

6.5 Car Park Layout

The proposed car park is to comply with design requirements set out in the relevant Australian Standard for car parking facilities, namely AS2890.1:2004 and AS2890.6:2009.

Specifically, AS2890.1:2004 requires the following minimum car space dimensions for each land use:

- Residential car parking space is required to be 2.4m wide by 5.4m long with an aisle width of 5.8m wide.
- Commercial car spaces are required to be 2.4m wide by 5.4m long with an aisle width of 6.2m wide
- Retail car parking spaces are required to be 2.6m wide by 5.4m long with an aisle width of 6.6m wide.

Similarly, AS2890.6:2022 which relates to the design of accessible car spaces for people with mobility impairments, requires both the accessible car parking spaces and the adjacent shared area to each have dimensions of 2.4m wide by 5.4m long with an aisle width of 5.8m wide.

All ramps have been generally designed in accordance with AS2890.1:2004 and AS2890.2:2018, and adequate headroom has been provided for all vehicles accessing the site and car park.

The loading dock has been designed generally in accordance with AS2890.2:2018. However, the layout would not allow for independent access to all the loading dock spaces and would require a loading dock management to coordinate access for some spaces.

Swept path analysis of the critical areas within the proposed car park and loading areas has been conducted using design vehicles including Australian Standard 4.91m long B85 vehicle, 5.2m long B99 vehicle, and 12.5m long heavy rigid vehicle. The analysis found that the design vehicles will be able to circulate around the car park and access the service areas satisfactorily. The architectural car park layout plans are provided in **Appendix D** with swept paths provided in **Appendix C**.

Overall, the car park reference scheme demonstrates the future car parking layout will generally comply with the Australian Standards. However, we note some minor deficiencies in the design including areas where only one vehicle can pass at a time and widths of curved ramps that may need to be resolved at the construction certificate stage.

7 Traffic Assessment

7.1 Overview

The traffic assessment has been undertaken based on traffic modelling using Sidra Intersection and Aimsun microsimulation.

The Aimsun model was developed for the planning proposal and was the subject of substantial consultation with Transport for NSW. The model development report has been prepared and was previously reviewed and accepted by Transport for NSW as part of the planning proposal for the site.

7.2 Traffic Generation

The proposed development yield is summarised in Table 5.1 in Section 4 above. However, it is noted that the traffic assessment and SIDRA modelling discussed herein has been undertaken based on the CLEP yields previously assessed during the planning proposal. The yields assessed and modelled herein are as follows:

- Residential: 1,255 units¹
- Commercial/Office: 5,000m² GFA floor space
- Retail: 2,500 m² GFA floor space (i.e. 2,125m² GLFA floor space²)

It is noted that the proposal provides 28 less units than the planning proposal so would generate slightly less traffic than what is assessed below. Therefore, the results of the assessed development traffic represent a robust and conservative assessment.

The retail Gross Floor Area (GFA), for the development is 2500m² but for the purposes of traffic generation and modelling Gross Leasable Floor Area (GLFA) is used, which is 2,125m² for the development. This is in line with The Guide 2024 which states that "*Gross leasable floor area is preferred to gross floor area for this land use category, because it refers most specifically to the factor that generates/ attracts trips. As a guide, about 75% of the gross floor area is deemed gross leasable floor area.*"

As mentioned in Section 2.5.1.1, an extensive traffic modelling exercise was undertaken in 2021 during the planning proposal stage of the project. At that time, traffic generation rates, traffic distributions and the use of discounted traffic flows was discussed and agreed with

¹ Current proposal is for 1227 units

² GLFA is the metric used for traffic generation calculations

TfNSW to underpin the modelling of the Crescent Street/Woodville Road/Parramatta Road intersection. The rates agreed in the planning proposal have been retained for this analysis.

7.2.1 Residential

Traffic generation estimates for the proposed mixed-use development have been sourced from the *Guide to Traffic Generating Developments* (RMS 2002) & its supplementary technical direction (TDT 2013/04a). The following peak hour traffic generation rates have been used:

- High density residential flat buildings – 0.29 trips per unit for AM/PM

This traffic generation was previously adopted in the planning proposal after considerable discussion with TfNSW about the validity of the traffic generation rates. Hence no changes have been made to traffic generation associated with the residential component of the development compared to the planning proposal.

The Guide 2002 or 2024 does not stipulate weekend Saturday trip rates. As such, for a conservative measure the same residential trip rate has also been adopted for the Saturday peak hour.

7.2.2 Retail

The retail traffic generation has been based on the Roads and Maritime (now TfNSW) Trip Generation Surveys Small Suburban Shopping Centres Analysis Report and Data Report, Bitzios Consulting (November 2018). SLR Consulting agreed with the use of following retail traffic generation rates based on the average rates for all surveyed Sydney sites greater than 2,000 m² GLFA:

- 7.84 trips/100m² GLFA in the AM peak hour
- 10.77 trips/100m² GLFA in the PM peak hour

Consistent with the above approach, the weekend Saturday peak hour was calculated as:

- 11.71 trips/100m² GLFA in the SAT peak hour

Given the TfNSW suburban shopping centre sites are isolated and do not have substantial number of residential developments around and therefore generate a high level of car-based trips.

By contrast, the proposed development would serve the basic retail needs and contain a substantial number of trips within the site without creating vehicular trips. Having said this, TTPP has adopted a trip reduction factor of 10% to compensate for trips between the residential development and retail development. This trip reduction factor has previously been agreed by the Tiberius peer reviewer (SLR Consulting).

The assumption of 10% is considered more conservative than the 20% originally used by TTPP but we note that Parramatta Westfield is located within a 5–10-minute drive as is Merrylands Town Centre, and consequently it is anticipated that the catchment of the retail development proposed will be relatively local within those people wanting more shopping opportunities travelling to Parramatta or Merrylands.

7.2.3 Commercial / Office

The office traffic generation has been based on the RMS (TfNSW) Technical Direction (TDT 2013/04a):

- 1.6 trips per 100m² GFA in the AM peak hour
- 1.2 trips per 100m² GFA in the PM peak hour

However, previous TfNSW comments regarding the office AM peak trip rate stated the following:

*"The office trip generation rates utilised were 1.6 car trips per 100m² (AM) and 1.2 car trips per 100m² (PM). These values were as suggested in TDT 2013/04a, although the Technical Direction also notes that most of the surveyed sites had access to the rail network. One of those surveyed sites that was not near a rail station (Norwest; surveyed prior to NW Metro opening) showed a much higher AM car trip generation rate of **2.75** (but a comparable PM rate of 1.17). Given the poor accessibility of the development site to the 3 nearest rail stations, the use of a **slightly higher AM trip rate should be further considered.**"*

On the above basis, a trip rate of 2.75 trips per 100m² GFA in the AM peak hour has been adopted.

A 5% trip reduction has been adopted to compensate for trips between the commercial and the retail reflecting the multi-purpose trips associated with workers who visit the retail shops and/or live in the residential component of the site. The use of 5% trip reduction has also previously been agreed by the Tiberius peer reviewer (SLR Consulting).

Commercial / office uses typically do not operate on weekend Saturdays. As such, no trip generation rates have been adopted.

7.2.4 Traffic Generation Summary

A summary of traffic generation is provided as follows in Table 7.1 using the same trip rates and trip reduction rates that were approved by TfNSW in earlier assessments.

Table 7.1: Summary of Traffic Generation

Land use	Yield	AM Peak Hour		PM Peak Hour		SAT Peak Hour		Trip Reduction Rate
		Trip Rate	Traffic Generation	Trip Rate	Traffic Generation	Trip Rate	Traffic Generation	
Residential	1,255 units	0.29 trips/unit	364	0.29 trips/unit	364	0.29 trips/unit	364	0%
Retail	2,125 m ² GLFA*	7.84 trips/100m ² GLFA	150	10.77 trips/100m ² GLFA	206	11.71 trips/100m ² GLFA	224	10%
Office	5,000 m ² GFA	2.75 trips/100m ²	131	1.2 trips/100m ²	57	-	0	5%
Total			645		627		588	

*GLFA is assumed to be 85% of GFA

Traffic generation of the subject development under the current scheme (1,227 units) is expected to be slight less than the 637 vph in the AM peak hour, 619 vph in the PM peak hour and 580 vph in the Saturday peak hour that was assessed for the planning proposal.

7.3 Passer-by and Diverted Trips

TTPP's assessment followed Austroads Guide to Traffic Management Part 12: Traffic Impacts of Developments which suggests 18% of the trip generation related to the retail use (less than 3,000m²) are undiverted (passer-by) drop in trips. This was applied to the retail traffic volumes which consist of traffic on Crescent Street that enters the site as an intermediate stop to another destination. Figure 7.1 and Figure 7.2 show the passer-by trip reduction on Crescent Street.

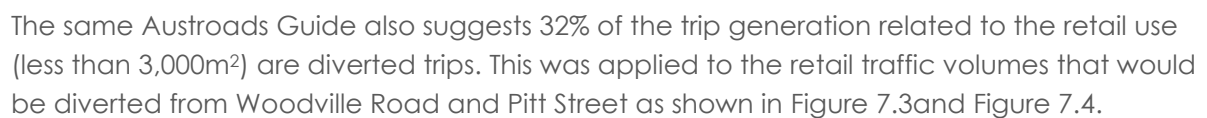


Figure 7.3: AM Diverted Trips

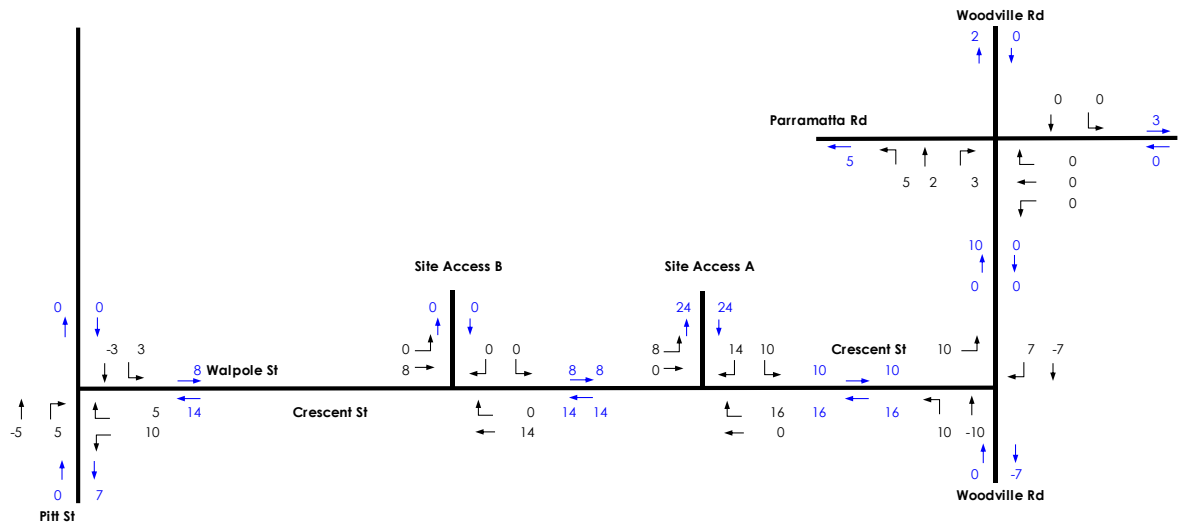
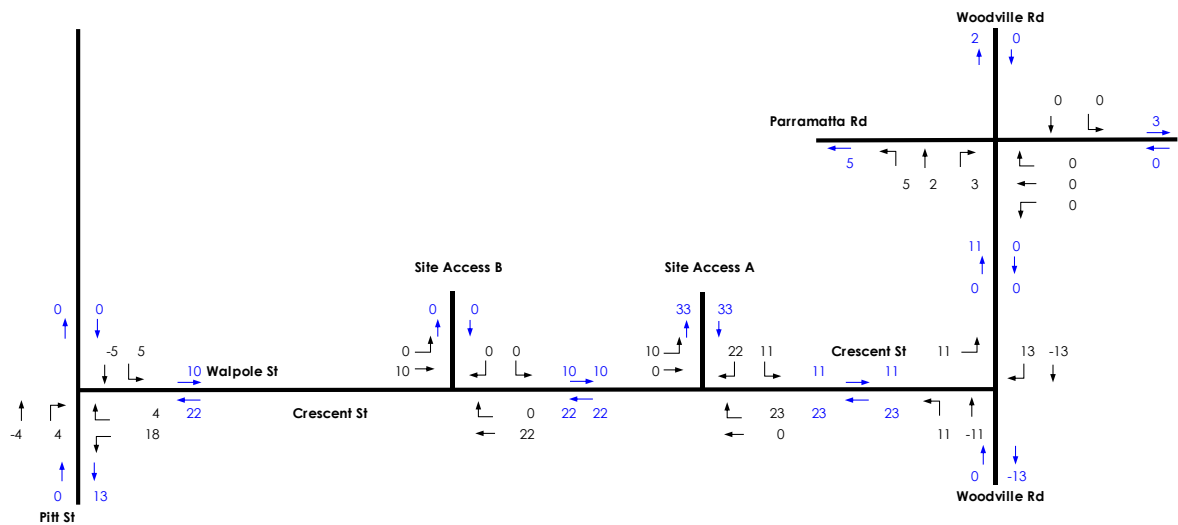


Figure 7.4: PM Diverted Trips



The same Austroads Guide also suggests 32% of the trip generation related to the retail use (less than 3,000m²) are diverted trips. This was applied to the retail traffic volumes that would be diverted from Woodville Road and Pitt Street.

7.4 Trip Distribution

As consistent with the previous assessment, directional distribution for residential traffic has been assumed to be 20% inbound and 80% outbound during the AM peak period, and reversed in the PM peak period.

For commercial / retail traffic, 50% has been assumed to be inbound while the remaining 50% would be outbound during both the AM and PM peak hours.

TTPP responded to the comment raised by the peer reviewer (GTA Consultants) in relation to traffic distribution as they derived this based on the STFM distribution at an adjacent zone. However, TTPP derived this based on two data sources, namely, Journey to Work 2016 data for residential and commercial trips, and the trade distribution based on a retail impact study for the retail trips.

Table 7.2: Trip Distribution

Land Use	Split	AM Peak	PM Peak	SAT Peak
Residential	Inbound	20%	80%	50%
	Outbound	80%	20%	50%
Commercial	Inbound	75%	25%	-
	Outbound	25%	75%	-
Retail	Inbound	50%	50%	50%
	Outbound	50%	50%	50%

7.5 Approved Developments

Consistent with previous assessments, a cumulative assessment has been undertaken based on the subject development at 1 Crescent Street and the adjacent approved developments in Merrylands near Pitt Street and Neil Street. The expected traffic generation of these approved developments is shown as follows based on the available DA documents and traffic generation calculation.

Table 7.3: Traffic Generation of Adjacent Approved Developments

Land use	Yield	AM Peak Hour		PM Peak Hour	
		Trip Rate	Traffic Generation	Trip Rate	Traffic Generation
244, 246-250 & 252 Pitt Street	161 residential units	0.19 trips per unit	31 (based on approved DA)	0.15 trips per unit	24 (based on approved DA)
	2,009 m2 GFA of commercial/ retail	1.6 trips per 100m ² GFA	32 (based on approved DA)	1.2 trips per 100m ² GFA	24 (based on approved DA)
2-6 Gladstone Street	149 residential units	0.19 trips per unit		0.15 trips per unit	DA specified that net

Land use	Yield	AM Peak Hour		PM Peak Hour	
		Trip Rate	Traffic Generation	Trip Rate	Traffic Generation
	118.7m ² GLA commercial	1.6 trips per 100m ² GFA	DA specified that net change would be zero	1.2 trips per 100m ² GFA	change would be zero
1-7 Neil Street Building 1	120 residential units	0.19 trips per unit	23	0.15 trips per unit	18
1-7 Neil Street Building 2	115 residential units	0.19 trips per unit	22	0.15 trips per unit	17
9-11 Neil Street	311 residential units	0.19 trips per unit	59	0.15 trips per unit	47
224-240 Pitt Street	355 residential units	0.19 trips per unit	67	0.15 trips per unit	53
	2,415m ² GFA commercial	1.6 trips per 100m ² GFA (based on other approved DA)	39	1.2 trips per 100m ² GFA (based on other approved DA)	29
Total	-	-	273	-	212

These developments are expected to generate 273 vph in the AM peak hour and 212 vph in the PM peak hour, as consistent with our previous assessment.

However, based on recent nearmap imagery it is noted that the developments at 1-7 Neil Street and 9-11 Neil Street have since been completed including the completion of new road links which connect Neil Street, Pitt Street and Walpole Street. On this basis, the associated development traffic has been excluded from the model to reduce double-counting as these movements would have been captured in the recent 2023 traffic surveys.

Furthermore, it is noted that the commercial uses at 2-6 Gladstone Street and 224-240 Pitt Street would not be expected to operate on weekend Saturday. Therefore, the associated traffic generation has been excluded from the Saturday model.

7.6 Future Development Traffic Volumes

The traffic volumes associated with the subject development are shown in Figure 7.5 (AM), Figure 7.6 (PM) and Figure 7.7 (SAT). Further traffic flow diagrams are provided in **Appendix E**.

Figure 7.5: AM peak Traffic Generation

Proposed Development Traffic AM Peak													
Pitt St			West Block Access (Towers 4-7)				East Block Access (Towers 1-3)						
↑ -5	↗ 54	↓	-3	32	17	↓	84	↓	139	125	↘ Crescent St		
			↓	↘	74	→	67	68	59	→		↙	↘
			Walpole St										
			t	72			t	17			t	128	
			r	130			←	135			←	13	
↖ 0	↑ 21	↗ 0	5	↓	30	51	48						
			0	→	↙	↓	↘						
Neil St													
			t	23									
			←	0									
			r	0									
↖ 0	↑ 21	↗ 0	5	↓	51								
			0	→	↙								
Merrylands Rd													
			t	16									
			←	0									

Figure 7.6: PM peak Traffic Generation

Proposed Development Traffic PM Peak																		
Pitt St		West Block Access (Towers 4-7)				East Block Access (Towers 1-3)												
↑	↔	-5	73	67	↓	124	↓	111	75									
		↓	↔	116	→	9	→	↔	↔									
		Walpole St				Crescent St												
↑	↔	t	37	t	68	t	150											
		r	80	←	100	←	58											
		14	↓	21	34	25												
		0	↔	↔	↔	↔												
Neil St		↑	↔															
↔	↑	0	43	0														
↑	↔	t	41															
		←	0															
		r	0															
		14	↓	34														
Merrylands Rd		↔																
		t	29															
		←	0															

Figure 7.7: SAT peak Traffic Generation

Proposed Development Traffic SAT Peak															
Pitt St		West Block Access (Towers 4-7)				East Block Access (Towers 1-3)									
↑	↔	-6	38	42	↓	94	↓	121	88						
		↓	↔	85	→	34	→	↔	↔						
		Walpole St				Crescent St									
↑	↔	t	42	t	43	t	115								
		r	110	←	110	←	31								
		13	↓	37	39	34									
		0	↔	↔	↔	↔									
Neil St		↑	↔												
↔	↑	0	40	0											
↑	↔	t	24												
		←	0												
		r	0												
		13	↓	39											
Merrylands Rd		↔													
		t	27												
		←	0												

7.7 Sidra Traffic Modelling

7.7.1 Sidra Modelling Scenarios

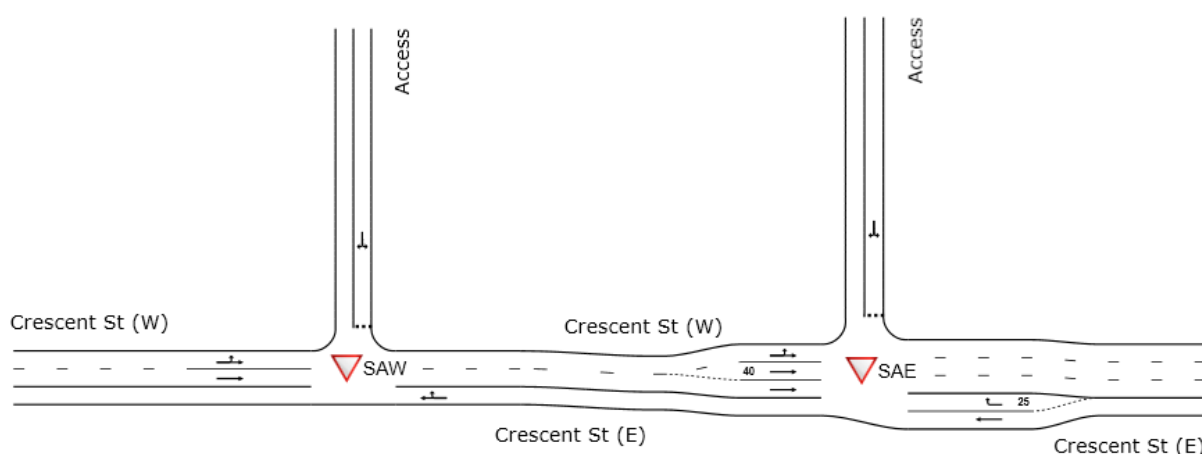
The following modelling scenarios were assessed.

- **S0 - Existing Base 2023** – based on traffic volumes shown in Figure 2.5 (AM), Figure 2.6 (PM) and Figure 2.7 (SAT)
- **S1 - 10-Year Future** – this scenario includes the future road network and the 10-Year traffic demand forecast (consistent with previous assessments, the traffic growth forecasts have been obtained from the AIMSUN modelling previously undertaken for the subject development as provided by TfNSW)
- **S2 - Future Year + Proposed Development** – this scenario includes the future road network and the 10-Year traffic demand forecast, plus the development traffic associated with the proposed mixed development.
- **S3 - Future Year + Approved Developments** – this scenario includes the future road network and the 10-Year traffic demand forecast, plus the development traffic associated with approved surrounding developments.
- **S4 - Future Year + All Developments** – this scenario includes the future road network and the 10-Year traffic demand forecast, plus approved surrounding developments and the proposed development. This also includes assessment of the proposed site accesses.

7.7.2 Proposed Site Accesses

As discussed above, it is proposed to provide two site access off Crescent Street. The eastern site access would service the East Block (Buildings 1-3) while the western access would service the West Block (Buildings 4-7).

Figure 7.8: Proposed Site Access Layout



7.7.3 Modelling Results

A summary of the AM, PM and SAT peak traffic modelling results is provided in Table 7.4, Table 7.5 and Table 7.6 respectively. The detailed results are provided in **Appendix B**.

Table 7.4: SIDRA Intersection Analysis Results – AM Peak

Intersection	Control	S0 – Existing Base			S1 – Future Case			S2 – Future Case + Proposed Development			S3 – Future Case + Approved Development			S4 – Future Case + All Development		
		Avg Delay (s)	LoS	Avg Queue (m)	Avg Delay (s)	LoS	Avg Queue (m)	Avg Delay (s)	LoS	Avg Queue (m)	Avg Delay (s)	LoS	Avg Queue (m)	Avg Delay (s)	LoS	Avg Queue (m)
Pitt St / Walpole St	Signal	19	B	82	22	B	121	24	B	144	23	B	139	26	B	154
Pitt St / Neil St	Signal	42	C	93	63	E	217	86	F	269	71	E	217	99	F	269
Pitt St / Merrylands Rd	Signal	21	B	22	22	B	26	25	B	35	22	B	29	26	B	38
Site Access (E)	Priority													19	B	10
Site Access (W)	Priority													15	B	3

Table 7.5: SIDRA Intersection Analysis Results – PM Peak

Intersection	Control	S0 – Existing Base			S1 – Future Case			S2 – Future Case + Proposed Development			S3 – Future Case + Approved Development			S4 – Future Case + All Development		
		Avg Delay (s)	LoS	Avg Queue (m)	Avg Delay (s)	LoS	Avg Queue (m)	Avg Delay (s)	LoS	Avg Queue (m)	Avg Delay (s)	LoS	Avg Queue (m)	Avg Delay (s)	LoS	Avg Queue (m)
Pitt St / Walpole St	Signal	20	B	69	26	B	118	32	C	142	28	B	124	35	C	150
Pitt St / Neil St	Signal	47	D	96	103	F	244	140	F	327	119	F	244	158	F	327
Pitt St / Merrylands Rd	Signal	22	B	26	23	B	31	24	B	39	23	B	32	24	B	41
Site Access (E)	Priority													24	B	8
Site Access (W)	Priority													20	B	5

Table 7.6: SIDRA Intersection Analysis Results – Saturday Peak

Intersection	Control	S0 – Existing Base			S1 – Future Case			S2 – Future Case + Proposed Development			S3 – Future Case + Approved Development			S4 – Future Case + All Development		
		Avg Delay (s)	LoS	Avg Queue (m)	Avg Delay (s)	LoS	Avg Queue (m)	Avg Delay (s)	LoS	Avg Queue (m)	Avg Delay (s)	LoS	Avg Queue (m)	Avg Delay (s)	LoS	Avg Queue (m)
Pitt St / Walpole St	Signal	17	B	53	23	B	105	27	B	133	24	B	117	30	C	138
Pitt St / Neil St	Signal	41	C	86	71	F	157	101	F	204	83	F	197	117	F	233
Pitt St / Merrylands Rd	Signal	23	B	26	24	B	31	27	B	43	24	B	32	28	B	46
Site Access (E)	Priority													23	B	9
Site Access (W)	Priority													19	B	3

Scenario 0 (S0) – 2023 Existing Base case

The key Pitt Street intersections currently operate satisfactorily at Level of Service (LoS) C or better during all assessed peak periods, except for the Neil Street intersection during the PM which operates near capacity at LoS D.

Scenario 1 (S1) – 10-Year Future

The Pitt Street intersections with Walpole Street and Merrylands Road would continue to operate satisfactorily at LoS B or better in the 10-Year future. The Pitt Street-Neil Street intersection would deteriorate to LoS E/F in the future year due to background growth, regardless of any development traffic.

It is noted that these results (LoS E/F) are consistent with modelling results predicted by traffic modelling undertaken SCT as commissioned by Cumberland City Council.

Furthermore, it is noted that Cumberland City Council is currently undertaking construction works in the vicinity of Neil Street-Pitt Street intersection. New roads are being constructed to service new and future developments. This is further discussed in Section 7.8.

Scenario 2 (S2) – Future Year + Proposed Development

The addition of the proposed development traffic would have minor impacts to the Pitt Street-Walpole Street and Pitt Street-Merrylands Road intersections, with a maximum increase of 6 seconds which is considered minor. These intersections would continue to operate at LoS B or better in all peak periods.

The Pitt Street-Neil Street intersection would deteriorate further with the addition of the proposed development traffic. However, it is again noted that the intersection would already operate at LoS E/F due to background growth only.

Scenario 3 (S3) – Future Year + Approved Developments

The addition of the approved surrounding developments would produce similar results to Scenario 2 i.e., Pitt Street-Neil Street would continue to operate at LoS E/F while other key intersections would continue to operate satisfactorily.

Scenario 4 (S4) – Future Year + All Developments

During the future year with all development traffic (i.e., approved and proposed) the intersection of Pitt Street-Neil Street and Pitt Street-Merrylands Road would continue to operate satisfactorily at LoS C or better. A maximum increase of 9 seconds would be anticipated. However, as discussed, the poor performance at Pitt Street-Neil Street would be further exacerbated.

7.8 Upgrade Works in Merrylands

As part of Merrylands CBD Infrastructure Upgrade, Cumberland City Council is currently undertaking construction works in the vicinity of the Neil Street- Pitt Street intersection. New roads are being constructed to service new and future developments, and to improve pedestrian and vehicular connection between Neil Street and Sheffield Street, Dressler Circuit and Holroyd Gardens. The remaining road to be constructed is depicted in yellow in Figure 7.9.

Figure 7.9: Upgrade Works in Neil Street Precinct



Basemap Source: NearMap aerial imagery dated 30 October 2024)

A more detailed design is shown in Figure 7.10 for the new roads provided in the Neil Street Precinct.

Figure 7.10: New Roads in Neil Street Precinct



Source: Cumberland Council

Figure 7.9 and Figure 7.10 indicate that the new roads will connect between Terminal Place and Neil Street and further extend to Sheffield Street.

As mentioned above, SCT's model as commissioned by Cumberland City Council in 2020 predicted poor performance for the Neil Street- Pitt Street intersection by year 2030 (10-Year future), taking into account background traffic growth and the approved developments in the Merrylands town centre. The poor intersection performance is expected to occur regardless of the subject development at 1 Crescent Street (the subject development).

When the new intersection is complete on Neil Street, it would provide direct access between the public transport interchange and the Neil Street overpass and would be expected to reduce traffic in Pitt Street and improve performance of the Pitt Street- Neil Street intersection.

7.9 Aimsun Modelling

7.9.1 Model Assumptions

The modelling has relied on an Aimsun model of the Auburn area that was developed by GTA consultants. The model was provided by the Roads and Maritime Services (Roads and Maritime) and has been calibrated as a micro-simulation model with the focus on the Woodville Road and Church Street section of the model.

To accommodate the forecast traffic volumes and recognition of the increase in capacity of some intersections in the future the signal timing has been optimised to improve the network performance. This was in response to comments from TfNSW.

The Aimsun Model Development Report is provided in **Appendix F**.

7.9.2 Modelling

The model extents are shown in Figure 7.11. The model covers Parramatta Road from Church Street to west of Homebush Bay Drive. Route choice in the model has been limited by the M4 being cut at locations between interchanges. Models were run as 'one shots' based on the mesoscopic paths.

Figure 7.11: Aimsun Modelling Extents



7.9.3 Model Scenarios

Three scenarios have been modelled for the morning and evening peak traffic periods of 4:00pm – 6:00pm in the evening and 7:00am – 9:00am in the morning. The following section describes the scenarios. A summary of what is included in the scenarios is shown in Table 7.7.

Table 7.7: Model Scenario Summary

To/From Directions	Upgrade of Parramatta Road / Church Street and M4 exit Ramp	Upgrade of Crescent Street and Woodville Road	2031 Traffic Growth	Development traffic
Base scenario	×	×	×	×
2031 Future	✓	×	✓	×
2031 with Development	✓	✓	✓	✓

7.9.3.1 Base

The base scenario is the base model as provided and calibrated as a micro-simulation model. The model has been refined and calibrated as a micro-simulation with focus on the core area around Church Street and Woodville Road. A calibration report has been produced that documents the calibration of the base model in conformance with the TfNSW standards.

7.9.3.2 2031 Future Scenario

The scenario assumes:

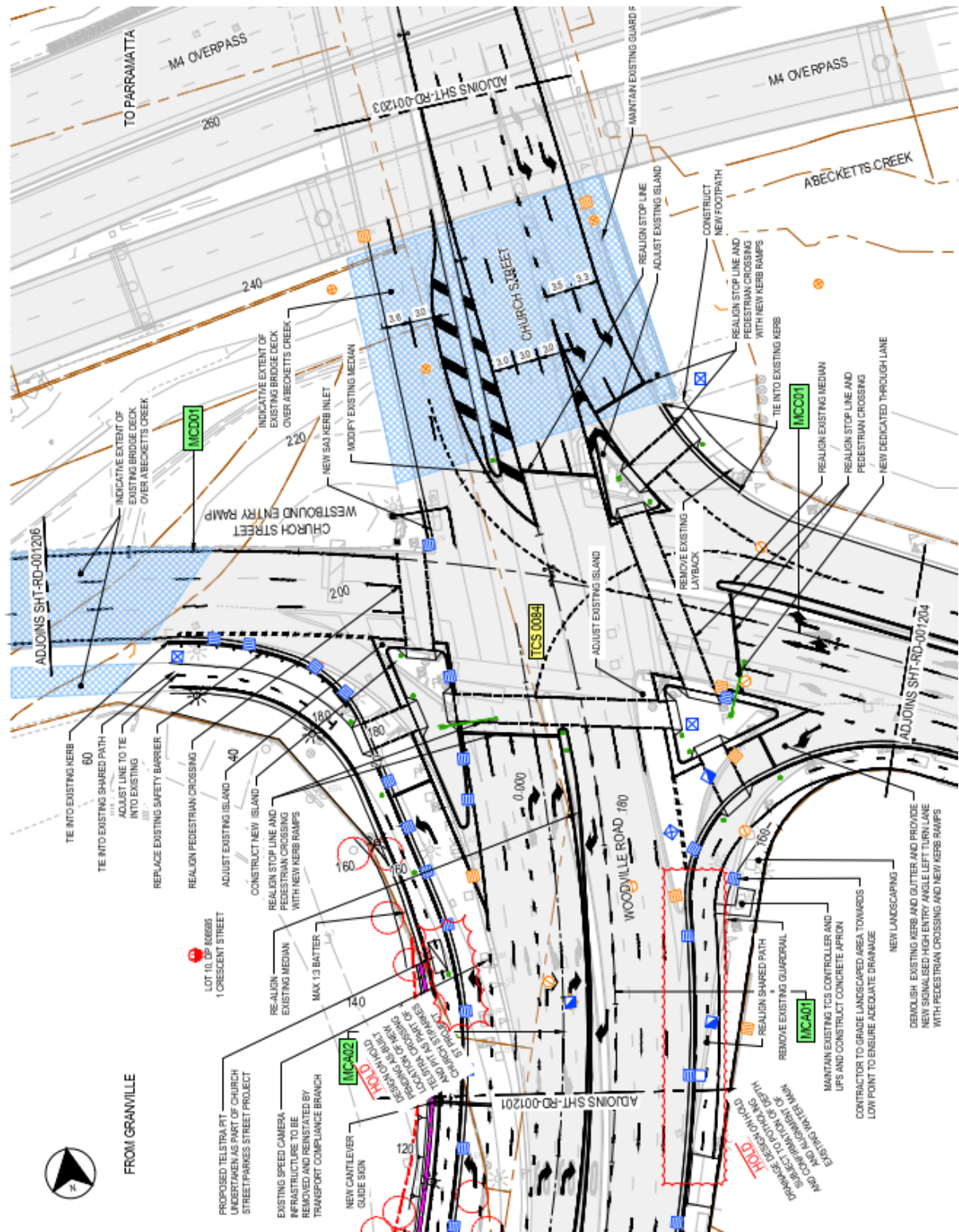
- Upgrade to Crescent Street intersection with Woodville Road.
- Upgrade of the M4 exit ramp to Church Street.
- Upgrade of the intersection of Church Street/ Woodville Road / Parramatta Road.
- The model includes the access driveways for the development.

In order to improve the existing traffic conditions, it is proposed to upgrade the following key intersections:

- Parramatta Road and Woodville Road (signalised)
- Woodville Road and the Crescent Street intersection (signalised).

Figure 7.12 shows an indicative updated design layout of the Parramatta Road / Woodville Road intersection as provided by TfNSW.

Figure 7.12: Layout of the Upgraded Parramatta Road and Woodville Road Intersection



Source: Transport for NSW

The key features of the upgrade at the Parramatta Road and the Woodville Road intersection include:

- Provision of an additional westbound right turn lane and an additional westbound through lane in Parramatta Road.
- Provision of an additional right turn lane on the Woodville Road approach to the intersection.
- Conversion of the northbound shared through and right turn lane into a through lane in the Woodville Road approach to the intersection.

7.9.3.3 2031 Future Scenario with Development Traffic

This scenario includes the upgrade of the intersection of Woodville Road and Crescent Street. Figure 7.13 shows an indicative updated design layout of the Woodville Road/ Crescent Street intersection.

Figure 7.13: Indicative layout of the Upgraded Woodville Road and Crescent Street Intersection



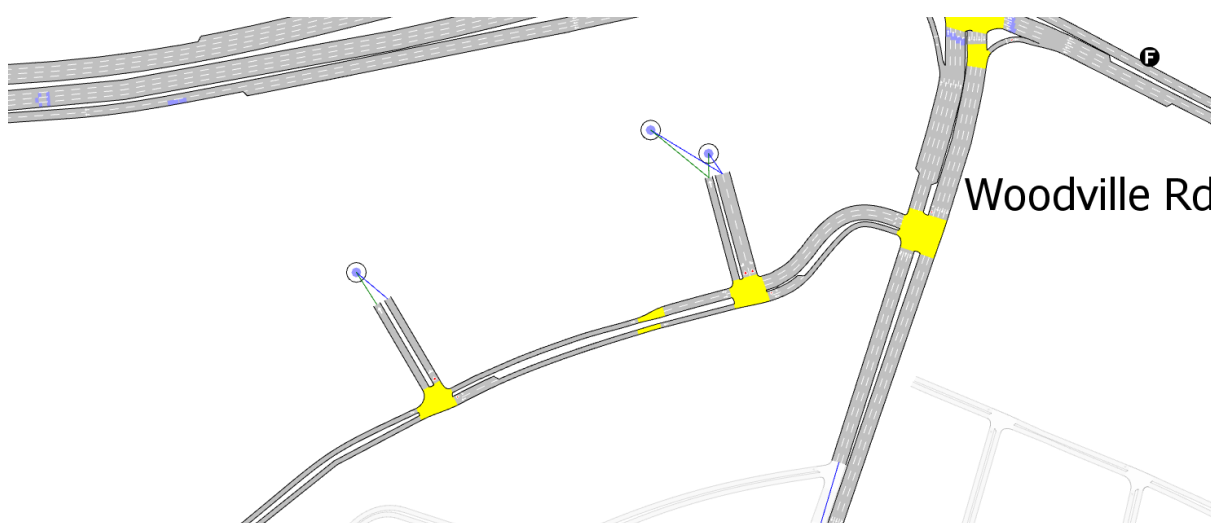
Source: GTA Consultants

Key features of the upgrade at the Woodville Road and The Crescent intersection include:

- Provision of an additional eastbound left turn lane for 100m in Crescent Street to create a three-lane left turn and an extension to the existing short left turn bay lane from 30m to 140m in length on The Crescent
- Provision of a right turn bay on Crescent Street approaching the site from Woodville Road.

The models were also extended to include the access driveways for the development. The driveways were also modelled as a Sidra Network with the results presented elsewhere.

Figure 7.14: Driveways



The development is represented by three centroids in the model corresponding to the location of the proposed driveways.

7.9.4 2031 Background Traffic Growth

Subarea matrices were provided by TfNSW the years 2021 and 2031 from the STFM model. The net growth between the 2021 and 2031 matrices were added to the base model traffic to produce a 2031 future demand. The forecasts often over predict the volume of traffic as the models are not constrained by network capacities.

Table 7.8: Total Number of Trips by Year

Period	Base Model	2031 Future	Difference	Growth %
Morning	107,853	129,906	22,053	20%
Evening	119,994	145,599	25,605	21%

The unconstrained strategic model forecasts a 20% growth in traffic over 10 years. A two hour difference plot for the morning and evening peaks is shown in Figure 7.15 and Figure 7.16 respectively.

Figure 7.15: Difference Plot – 2021 - 2031 Morning Peak (2hrs)



Figure 7.16: Difference Plot – 2021 - 2031 Evening Peak (2hrs)



The forecasts show large increases in traffic on Church Street north of the M4 Motorway exit ramp. There is also a significant increase in traffic on James Ruse Drive of which most appears to go to or from Parramatta Road. It should be noted that these growth predictions are based on unconstrained models which often results in much higher forecasts than actually eventuates.

7.9.5 Trip Distribution

As consistent with the previous assessment, directional distribution for residential traffic has been assumed to be 20% inbound and 80% outbound during the AM peak period, and reversed in the PM peak period.

For commercial / retail traffic, 50% has been assumed to be inbound while the remaining 50% would be outbound during both the AM and PM peak hours.

TPPP responded to the comment raised by the peer reviewer (GTA Consultants) in relation to traffic distribution as they derived this based on the STFM distribution at an adjacent zone. However, TPPP derived this based on two data sources, namely, Journey to Work 2016 data for residential and commercial trips, and the trade distribution based on a retail impact study for the retail trips.

TPPP is of the view that our approach was more holistic and realistic as it considered multiple travel zones in Holroyd and Merrylands to appreciate the travel patterns of the residential and commercial trips, and a specific study which provides trade catchment for retail trips. GTA's approach solely relied on a single travel zone with residential/ education uses but with little/ no commercial uses. As such, commercial trips are likely to relate more closely to journey to work than STFM.

On this basis, TPPP retained our JTW method and trade catchment for traffic distribution in this assessment.

The trips have been added to the model by:

- taking a 1 hour matrix for the traffic generation.
- Profiling the 1 hour matrix to 2hours using 15 minute time slices and profiling the traffic based on the existing traffic profile.
- This traffic was then added on top of the background traffic growth.

This traffic is summarised Table 7.9.

Table 7.9: Generated Traffic Added to the Aimsun Model (2hrs)

To/From Direction	Outbound Trips	Inbound Trips
Morning Peak	768	475
Evening Peak	413	771

The distribution of trips for the peak hours are shown in Table 7.10 and Table 7.11. Note that trips to and from Walpole Street are outside the scope of the micro-simulation model and are included in the sidra model assessment.

Table 7.10: Trip Distribution Morning Peak Hour

To/From Direction	Inbound	Outbound
N - Church Street	36	46
W - M4 Motorway	29	30
E - Parramatta Rd/M4	41	111
NW - Walpole Street	40	80
SW - Walpole Street	52	128
S - Woodville Road	40	-

Table 7.11: Trip Distribution Evening Peak Hour

To/From Direction	Inbound	Outbound
N - Church Street	53	39
W - M4 Motorway	26	17
E - Parramatta Rd/M4	109	34
NW - Walpole Street	82	50
SW - Walpole Street	103	73
S - Woodville Road	24	-

7.9.6 Seed Values

Based on the methodology recommended by TfNSW staff a single seed value was used for the future models based on the median seed value identified in the base model.

- Morning Peak Seed 560
- Evening Peak Seed 86429

7.9.7 Commentary on Model Congestion

As provided above the difference plots the STFM models which are unconstrained forecasts some significant traffic growth on the network particularly around the area of Parramatta Road and James Ruse Drive intersections. Although the model shows high levels of congestion around these areas of the model the congestion is not starving the area of Woodville Road / Parramatta Road / Church Street of traffic. The forecast volumes are shown in Table 7.12 and

Table 7.13.

Table 7.12: Morning Peak Hour Volumes Church Street / Parramatta Road

Approach	2018	2031
Woodville Road	1723	2446
Church Street	1915	2208
Parramatta Road	1576	1743
Totals	5214	6397

Table 7.13: Evening Peak Hour Volumes Church Street / Parramatta Road

Approach	2018	2031
Woodville Road	1723	2446
Church Street	1369	1868
Parramatta Road	2418	3233
Totals	5144	6947

The volumes are plotted on Figure 7.17 and Figure 7.18.

Figure 7.17: Traffic Volumes at Church Street / Parramatta Road – Morning Peak

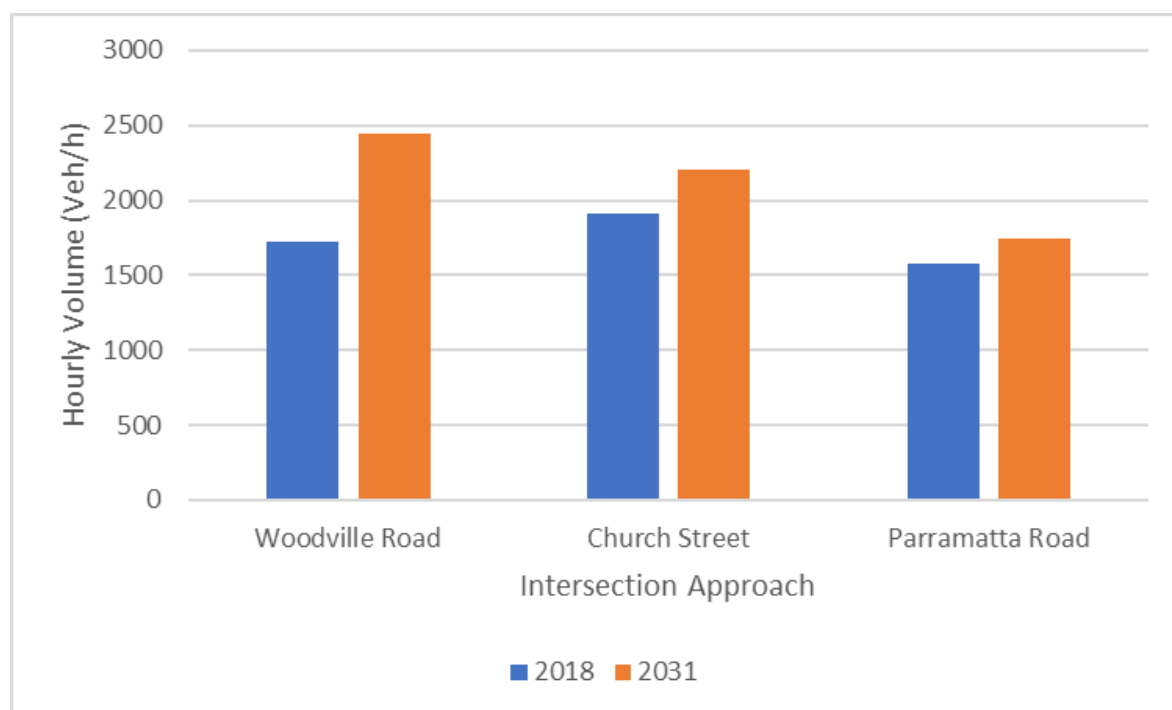
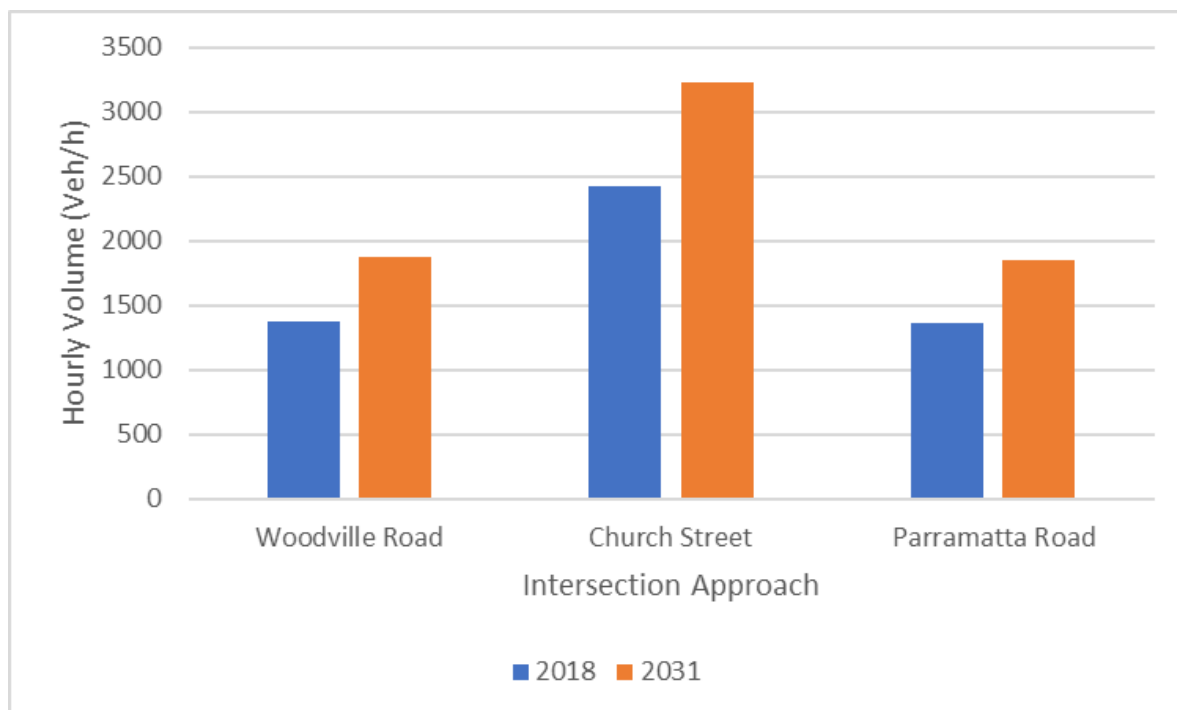


Figure 7.18: Traffic Volumes at Church Street / Parramatta Road – Evening Peak



In both peaks it can be seen that even through there is congestion in the network the subject area on Church Street is not being starved of traffic. However, some traffic is likely to be held back as it is unrealistic to expect all forecast traffic volumes from an unconstrained model to be able to travel through a constrained road network.

7.9.8 Intersection Level of Service

The operation of the key intersections has been assessed using the Aimsun model. The commonly used measure of intersection performance, as defined by the RTA (now Transport for NSW), is vehicle delay. Aimsun determines the average delay that vehicles encounter and provides a measure of the level of service based on the intersection average delay.

It should be noted that delay in a micro-simulation model is based on the delay experienced by vehicles on approach to the subject intersection. Results can vary considerably when compared to stand alone Sidra models as the delays from intersections downstream and influence the results of a subject intersection. Likewise, upstream capacity constraints can limit the amount of traffic flowing downstream and produce lower delay at the subject intersection.

Table 7.14 shows the criteria that has been adopted in assessing the level of service based on the RTA level of service criteria.

Table 7.14: Level of Service

Level of Service (LOS)	Average Delay per vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way & Stop Sign
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	Near capacity	Near capacity, accident study required
E	57 to 70	At capacity, at signals incidents will cause excessive delays	At capacity, requires other control mode
F	Greater than 70	Extra capacity required	Extreme delay, major treatment required

Intersection analysis was conducted for the key intersections based on the existing peak hour flows and the estimated future peak hour flows, with and without the proposed development traffic.

The results of the intersection performance for the morning peak are shown in Table 7.15.

Table 7.15: Intersection Level of Service (Morning Peak Hour 7:45am – 8:45am)

Approach	Average Delay	LoS	Average Delay	LoS	Average Delay	LoS
	Base		2031 Future		2031 with Development	
Woodville Road / Crescent Street						
Woodville Road Northbound	8	A	23	B	23	B
Crescent Street	41	C	36	C	36	C
Woodville Road Southbound	4	A	4	A	4	A
Intersection	10	A	18	B	18	B
Parramatta Road/Church Street						
Woodville Road Northbound	29	C	30	C	32	C
Woodville Road Northbound Slip Lane	5	A	6	A	8	A
Church Street Southbound	79	F	34	C	40	C
Church Street Southbound Slip Lane	12	A	6	A	11	A
Parramatta Road Westbound	66	E	52	D	47	D
Parramatta Road Westbound Slip Lane	19	B	31	C	31	C
Intersection	41	C	29	C	31	C
Church Street / M4 Exit ramp						
Church Street Northbound	16	B	32	C	33	C
Church Street Southbound	47	D	30	C	33	C
M4 Motorway exit ramp	58	E	52	D	47	D
Intersection	44	D	40	C	39	C

The intersection performance shows that most of the intersections would perform satisfactorily with level of service D or better. Key findings:

- Intersection of Woodville Road / Crescent Street would remain at Level of Service B.
- The intersection of Parramatta Road / Church Street would over all operate at Level of Service C with average delay increasing from 29 to 31 seconds. The delay on the Parramatta Road approach would remain similar.
- The intersection of Church Street / M4 Exit Ramp would perform at similar levels of delay as the 2031 Future Model.

Overall, in the morning peak the intersection would perform acceptably with the development. The proposed upgrade to the intersection of Church Street and Parramatta Road would allow for the road network to perform at similar levels in the future with the forecast traffic volumes.

The intersection performance for the evening peak is shown in Table 7.16.

Table 7.16: Intersection Level of Service (evening peak hour 4:45pm – 5:45pm)

Approach	Average Delay	LoS	Average Delay	LoS	Average Delay	LoS
	Base		2031 Future		2031 with Development	
Woodville Road / Crescent Street						
Woodville Road Northbound	6	A	12	A	13	B
Crescent Street	47	D	33	C	34	C
Woodville Road Southbound	4	A	7	A	8	A
Intersection	7	A	11	A	12	B
Parramatta Road/Church Street						
Woodville Road Northbound	30	C	33	C	30	C
Woodville Road Northbound Slip Lane	3	A	13	A	12	A
Church Street Southbound	26	B	36	C	33	C
Church Street Southbound Slip Lane	10	A	5	A	8	A
Parramatta Road Westbound	201	F	60	E	61	E
Parramatta Road Westbound Slip Lane	63	E	44	D	46	D
Intersection	57	E	33	C	32	C
Church Street / M4 Exit ramp						
Church Street Northbound	43	D	28	B	19	B
Church Street Southbound	49	D	59	E	69	E
M4 Motorway exit ramp	38	C	48	D	54	D
Intersection	42	D	48	D	52	D

The evening peak models show the intersections operating at acceptable level of service D or better. The key findings were:

- The intersection of Woodville Road and Crescent Street the intersection would operate at a similar level with the development and an increase in average delay from 11 seconds to 12 seconds.
- At the intersection of Parramatta Road and Church Street the intersection would operate at similar level of delay.
- The intersection of Church Street and the M4 Exit Ramp the intersection overall would operate at similar level of delay with an increase from 48 seconds to 52 seconds. The southbound approach on Church Street increases from 59 seconds to 69 seconds. This increase in delay is due to capacity constraints on Parramatta Road causing queueing back from Parramatta Road to church street in the development scenario.

7.9.9 Travel time

Model travel times were recorded in each direction along Church Street and Parramatta Road from Marion Street to James Ruse Drive.

The result for the morning peak models is shown in Table 7.17 and Table 7.18.

Table 7.17: Morning Peak Travel Times Eastbound 7:45am – 8:45am

Section	Base		2031 Future		2031 with Development	
	Time (min:sec)	Speed (km/h)	Time (min:sec)	Speed (km/h)	Time (min:sec)	Speed (km/h)
Marion Street to Parramatta Road	2:00	17	1:55	18	3:07	11
Church Street to Bold Street	1:02	34	2:46	13	2:39	13
Bold Street to James Ruse Drive	4:27	11	4:00	12	4:22	11
Total	7:29	16	8:41	14	10:08	12

Table 7.18: Morning Peak Travel Times Westbound 7:45am – 8:45am

Section	Base		2031 Future		2031 with Development	
	Time (min:sec)	Speed (km/h)	Time (min:sec)	Speed (km/h)	Time (min:sec)	Speed (km/h)
James Ruse Drive to Bold Street	2:10	22	2:12	22	2:07	23
Bold Street to Church Street	1:57	18	1:54	19	1:42	21
Parramatta Road to Marion Street	1:38	22	1:41	22	1:42	22
Total	5:45	21	5:47	21	5:31	22

The model results for the morning peak period travel time show that the development would increase travel times on the section of Church Street southbound from Marion Street to Parramatta Road. In the morning peak there is an increase in travel times of about 3 minutes in the eastbound direction and remain the same westbound. Average speeds remain within 2 km/h in each direction.

The travel times are plotted by distance in Figure 7.19 and Figure 7.20.

Figure 7.19: Eastbound Travel Times 7:45am - 8:45am



Figure 7.20: Westbound Travel Times 7:45am - 8:45am



The result for the evening peak models is shown in Table 7.19 and Table 7.20.

Table 7.19: Evening Peak Travel Times Eastbound 4:45pm – 5:45pm

Section	Base		2031 Future		2031 with Development	
	Time (min:sec)	Speed (km/h)	Time (min:sec)	Speed (km/h)	Time (min:sec)	Speed (km/h)
Marion Street to Parramatta Road	1:53	18	2:26	14	2:34	14
Church Street to Bold Street	0:49	42	1:38	21	1:55	18
Bold Street to James Ruse Drive	1:51	27	2:41	18	4:42	11
Total	4:33	26	6:45	18	9:11	13

Table 7.20: Evening Peak Travel Times Westbound 4:45pm – 5:45pm

Section	Base		2031 Future		2031 with Development	
	Time (min:sec)	Speed (km/h)	Time (min:sec)	Speed (km/h)	Time (min:sec)	Speed (km/h)
James Ruse Drive to Bold Street	6:13	8	2:25	20	2:15	21
Bold Street to Church Street	6:21	6	1:42	21	1:46	20
Parramatta Road to Marion Street	1:55	19	1:50	20	1:48	20
Total	14:29	8	5:57	20	5:49	21

The travel time results for the evening peak indicate that there would be an increase in travel times on Parramatta Road between Bold Street and James Ruse Drive. The increase in travel time is attributable to the capacity constraint on Parramatta Road on the approach to James Ruse Drive which is causing an increase in queueing with the additional development traffic. The average speeds reduced from 18 km/h to 13 km/h. Westbound travel times remain similar.

Travel times are plotted against distance in Figure 7.21 and Figure 7.22.

Figure 7.21: Eastbound Travel Times 4:45am - 5:45am

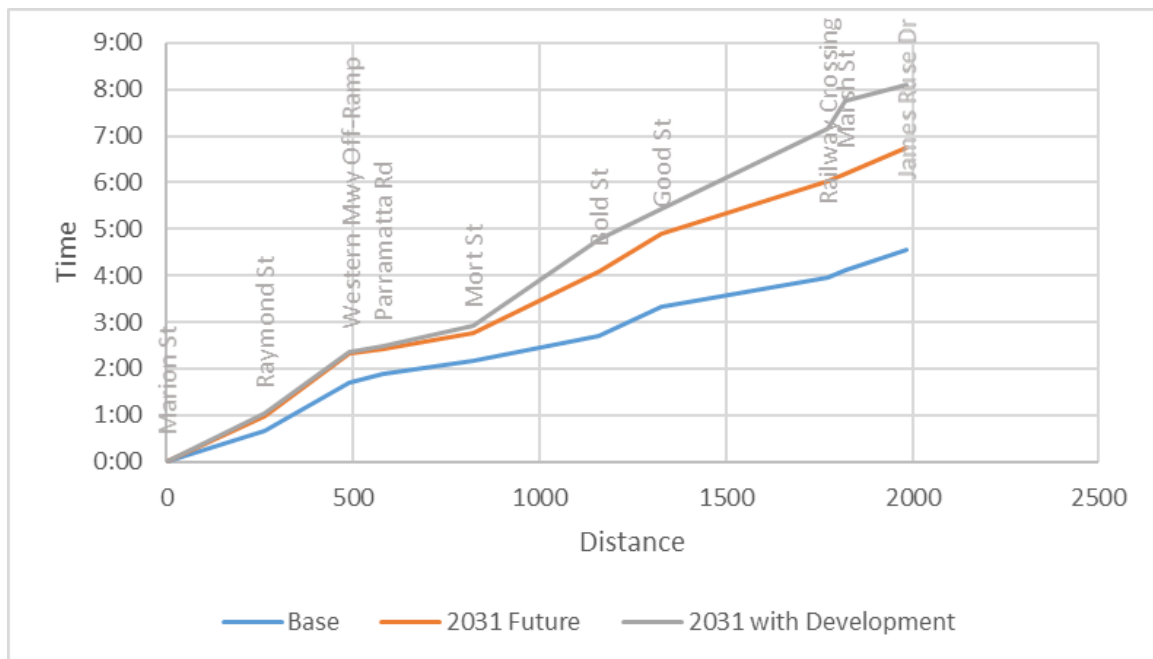
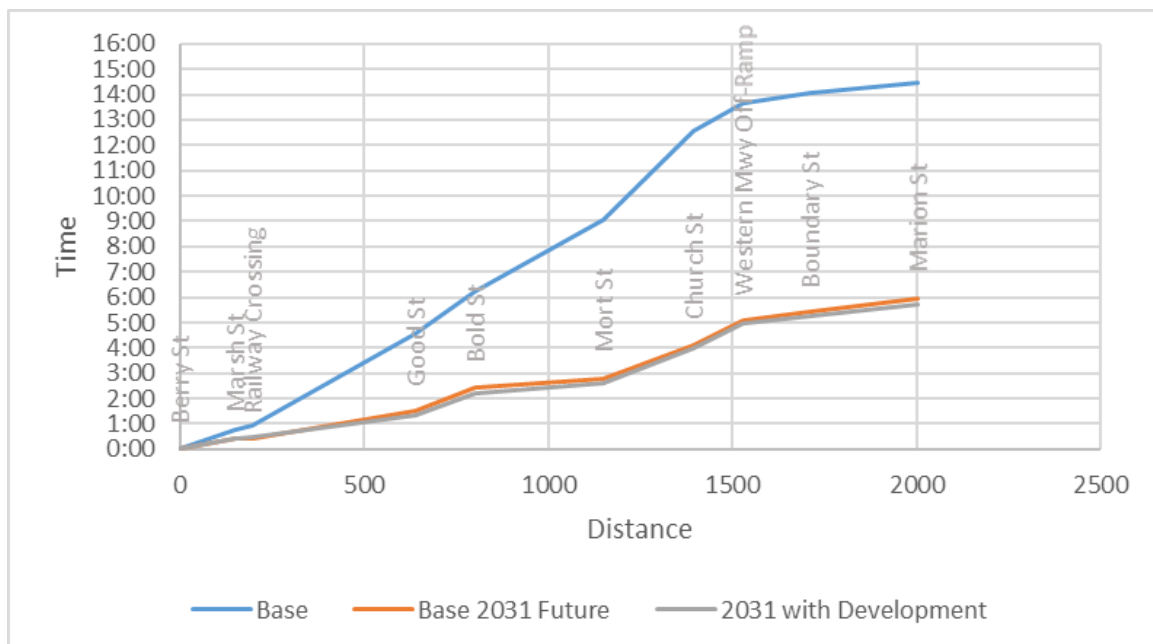


Figure 7.22: Westbound Travel Times 4:45am - 5:45am



7.9.10 Network Congestion

The network congestion has been plotted showing the simulated density in the model.

7.9.10.1 Morning Peak

The morning peak simulated densities are shown in Figure 7.23. It shows the significant reduction in congestion on Parramatta Road with the upgrade of the Parramatta Road / Church Street intersection. Compared to the 2031 Base model the 2031 scenario with the development traffic shows similar level of congestion.

Figure 7.23: Network Congestion Morning Peak



2031 Future Model

08:30:00



2031 With Development

08:30:00



The density plots show that the for the eastbound traffic west of Bold Street would queue back to Church Street. However, the M4 Motorway Exit ramp queue does not extend back to the M4 Motorway main line.

7.9.10.2 Evening Peak

The evening peak simulated densities are shown in Figure 7.24.

Figure 7.24: Network Congestion Evening Peak



2031 With Development

17:30:00



In the evening peak the models show that there would be some additional congestion on Church Street southbound. However, the levels of congestion between the models remain relatively consistent. It noted that the M4 Motorway exit ramp does not queue back to the M4 Motorway.

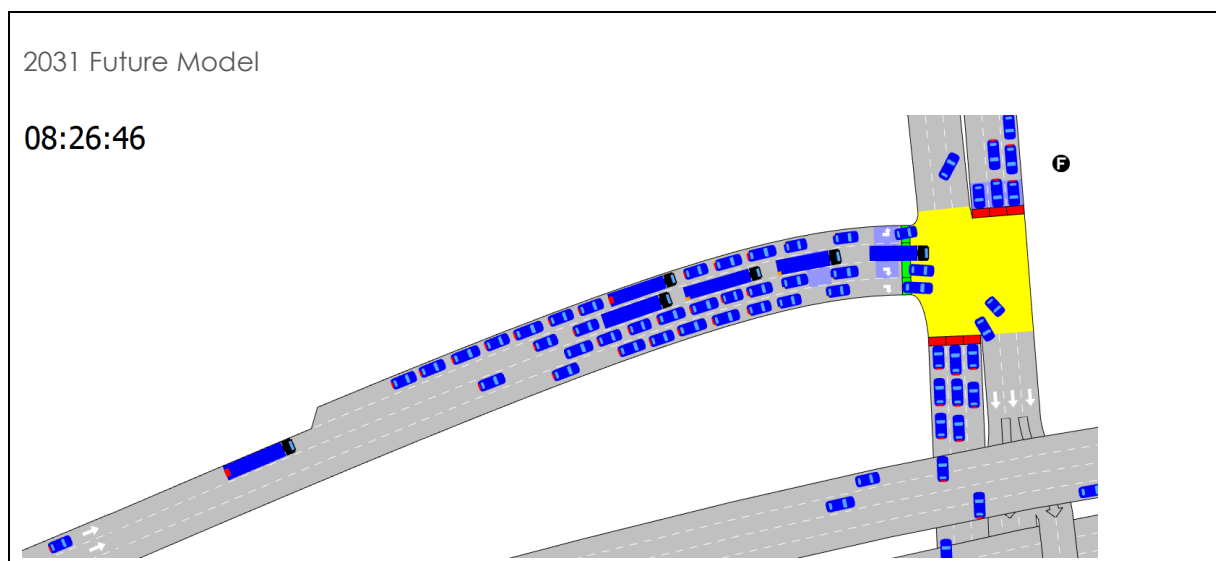
7.9.11 Queuing

Queuing has been reviewed on the key intersections and compared between the 2031 Future case and the 2031 With Development Case. The queues have been observed at the start of the green time. The development traffic is coloured orange.

7.9.11.1 Morning Peak

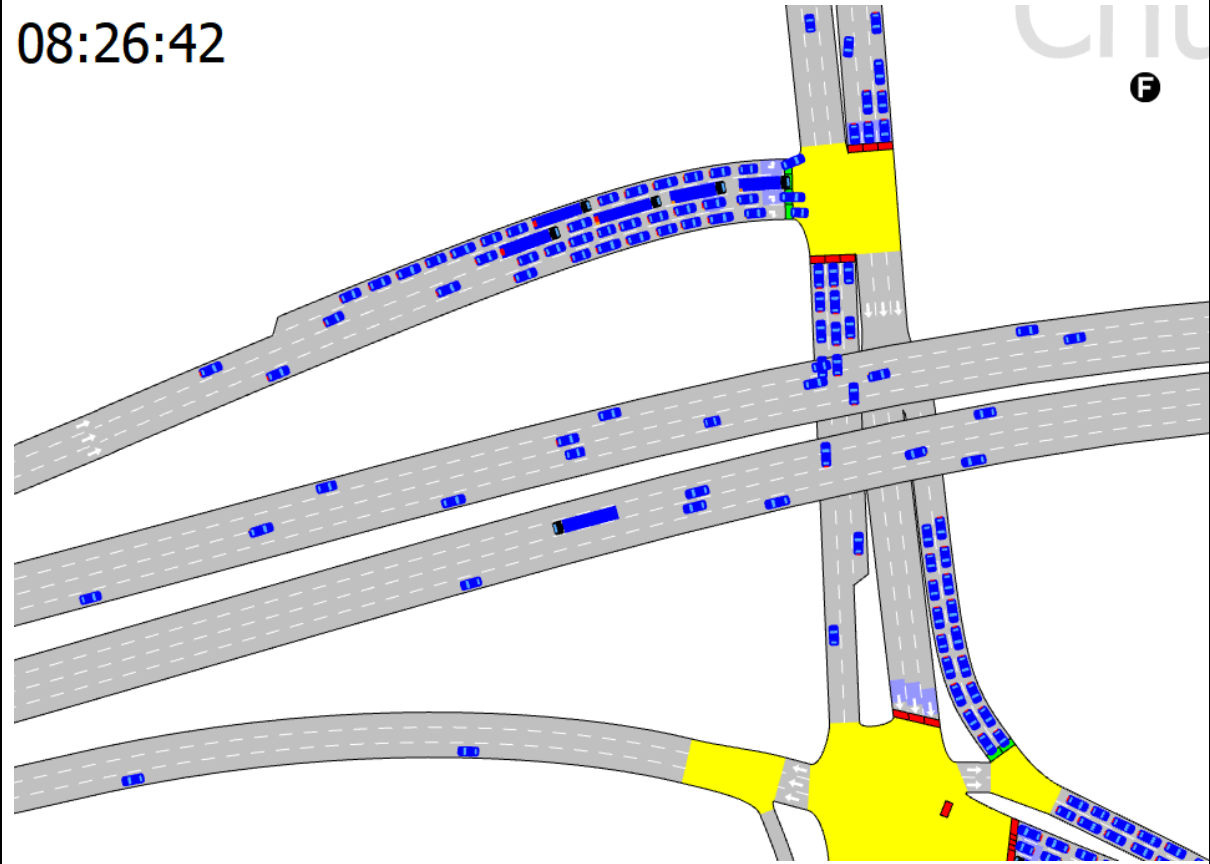
The queuing at the M4 Motorway Exit is shown in Figure 7.25.

Figure 7.25: Morning Peak – M4 Motorway Exit Ramp



2031 With Development Model

08:26:42



The models show that the queues from on the M4 Motorway exit ramp would not extend past the ramp and the queues would not be significantly impacted by the development.

Figure 7.26 shows the queue for the right turn from Woodville Road to Crescent Street.

Figure 7.26: Morning Peak – Right Turn from Woodville Road to Crescent Street

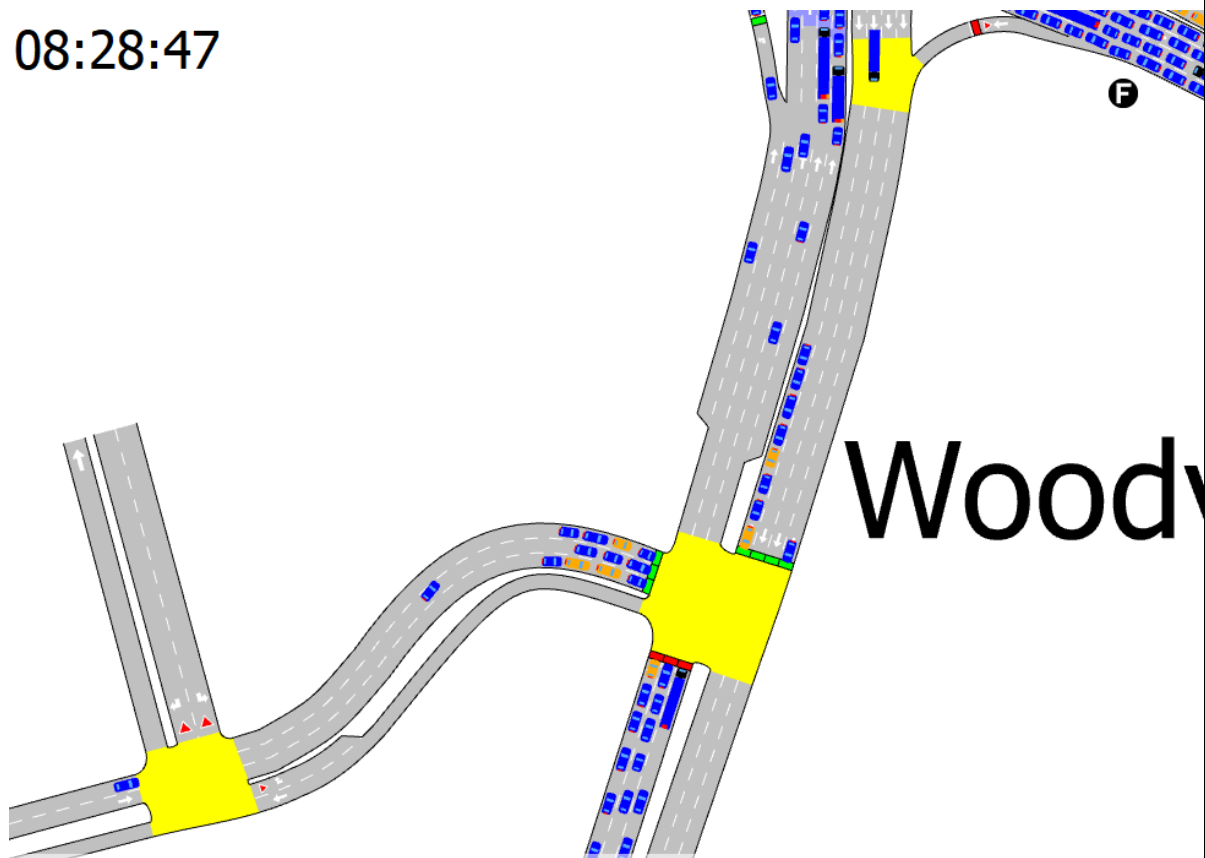
2031 Future Model

08:28:42



2031 With Development Model

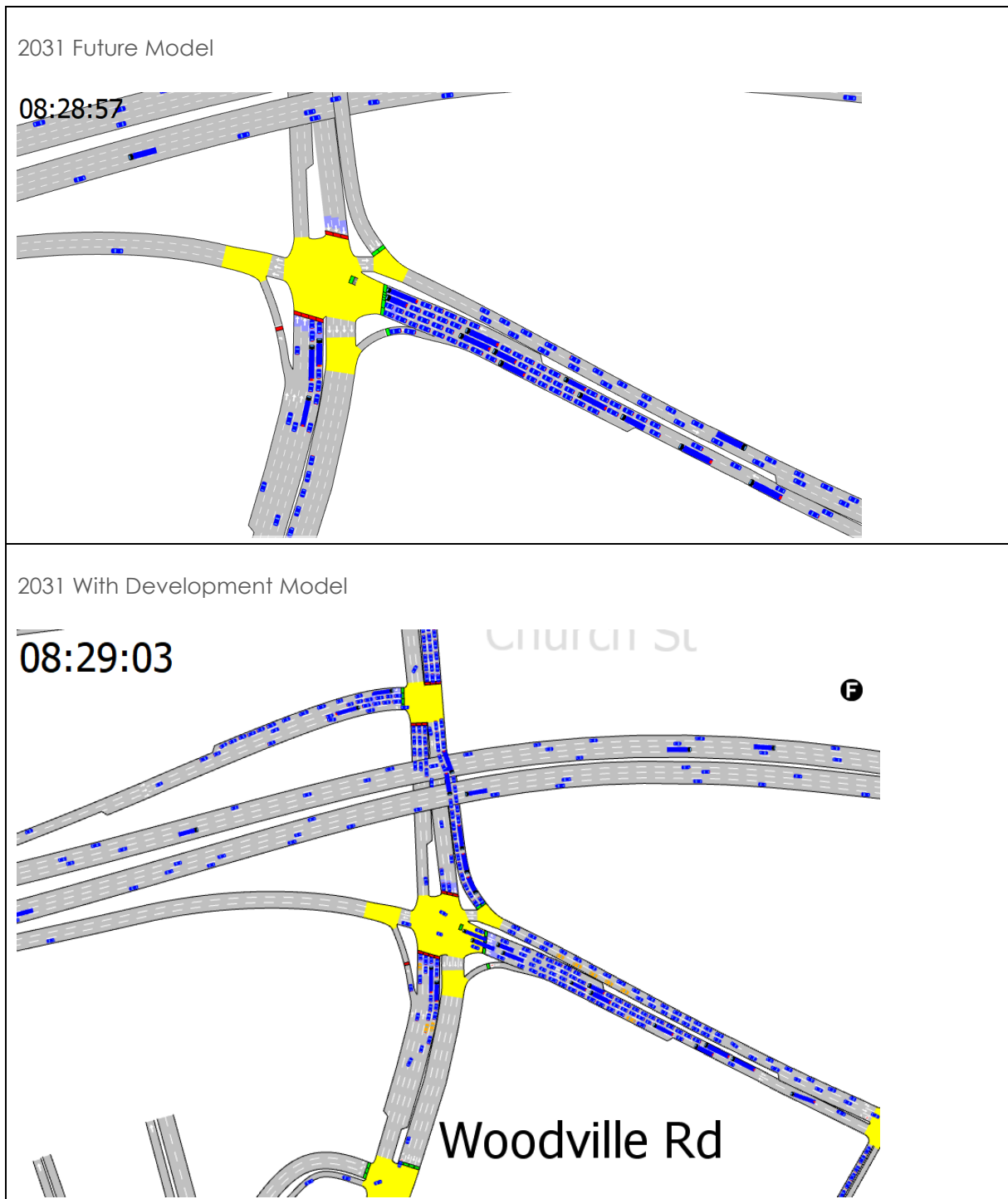
08:28:47



The models show only a modest increase in queues in the morning peak with the development traffic.

The queuing on Parramatta Road is shown in Figure 7.27.

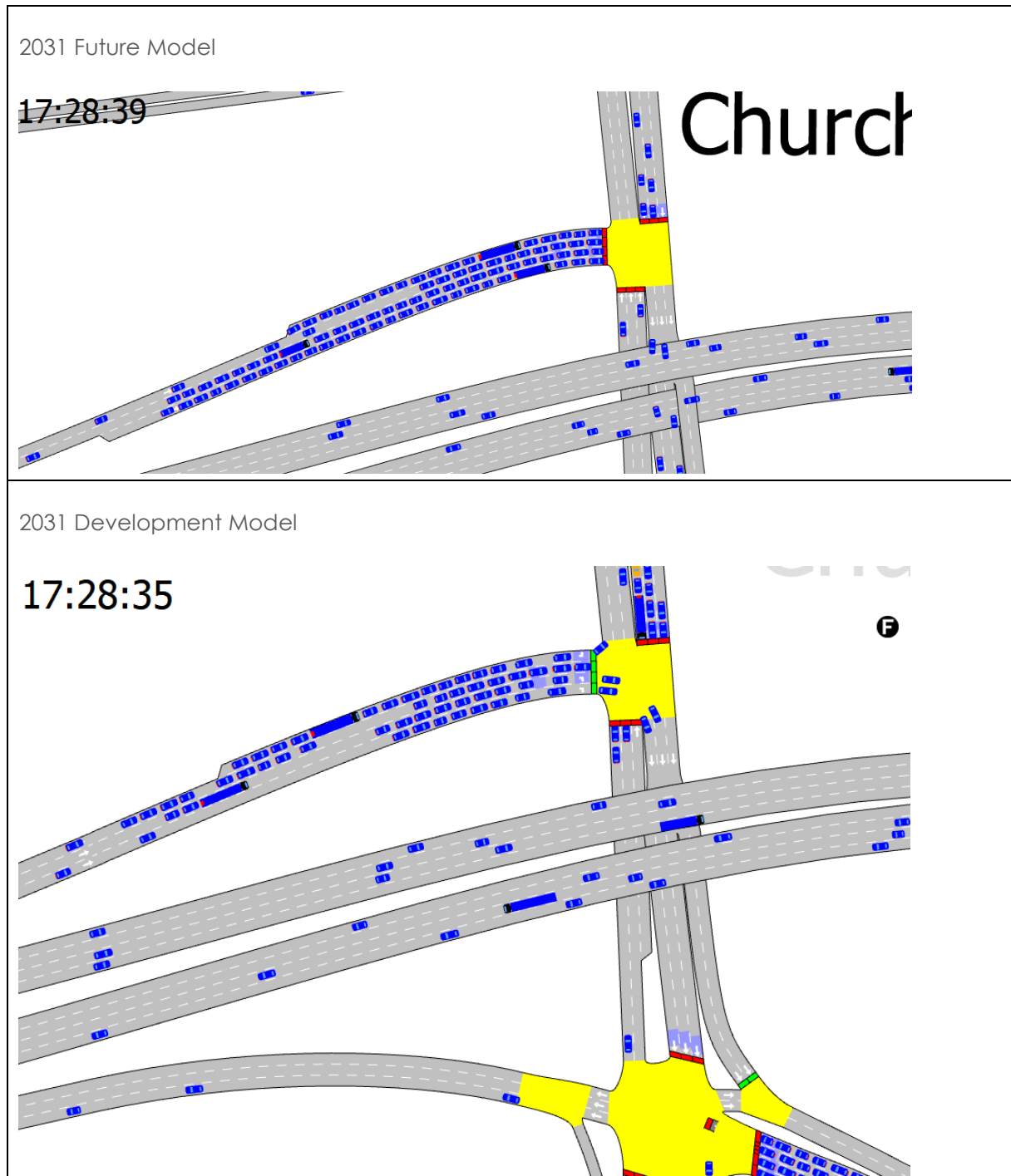
Figure 7.27: Morning Peak – Parramatta Road Approach



The models show that there would be an increase in the westbound queues on Parramatta Road. This is reflected in the high delays presented in the level of service result. It is also noted that the eastbound queues from Parramatta Road are extending into the left turn from Church Street at this time.

7.9.11.2 Evening Peak

Figure 7.28: Evening Peak – M4 Motorway Exit Ramp



The queues on the M4 Exit ramp in the evening peak are comparable. Queueing from the ramp does not extend onto the motorway throughout the model period with and without the development traffic.

The queues for the right turn from Woodville Road are shown in Figure 7.29.

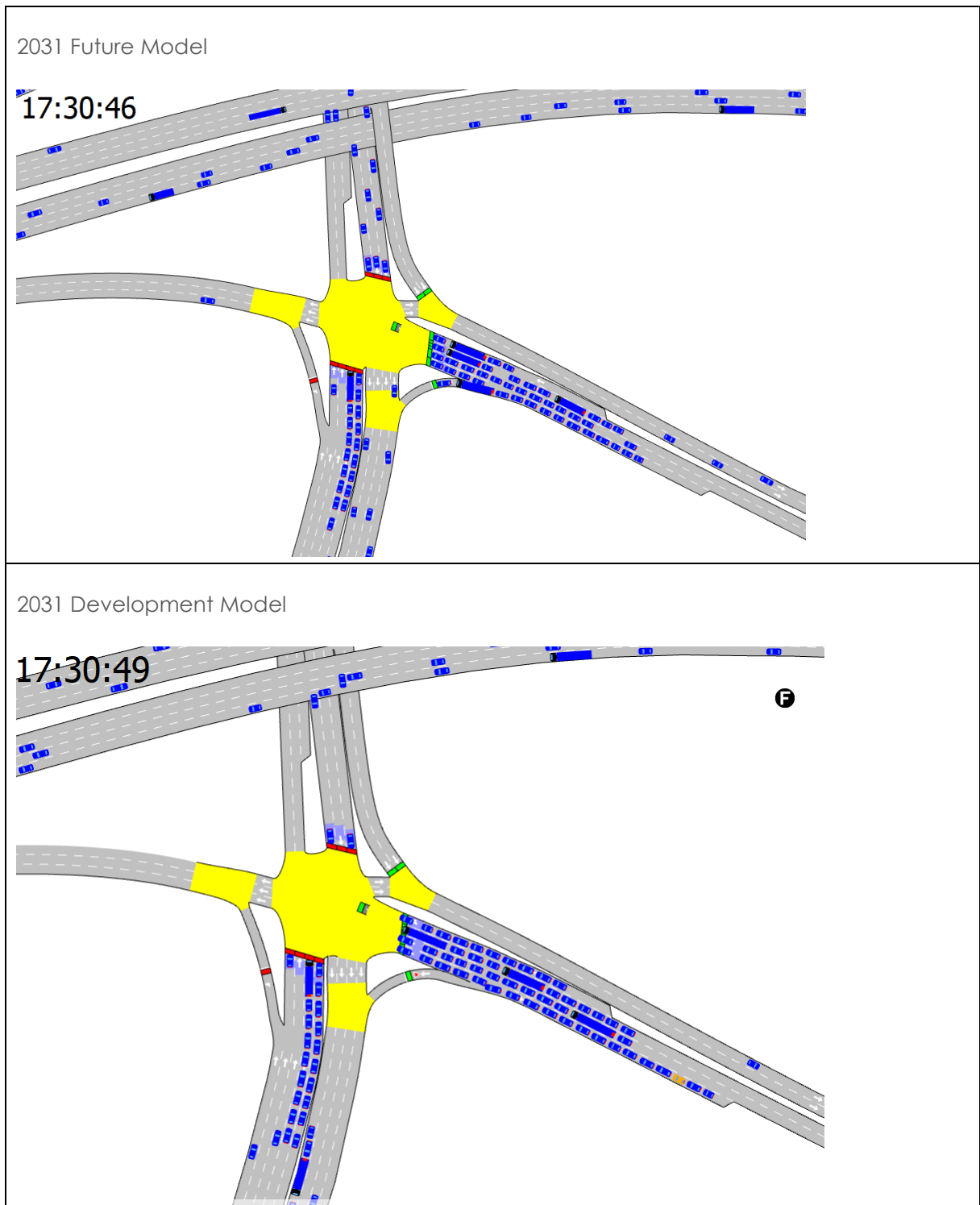
Figure 7.29: Evening Peak – Right Turn from Woodville Road to Crescent Street



The right turn from Woodville Road to Crescent Street shows a modest increase but does not extend beyond the block.

The queues on Parramatta Road are shown in Figure 7.30.

Figure 7.30: Evening Peak – Parramatta Road Approach



In the evening peak the queues on the Parramatta Road approach are similar however as can be seen the eastbound traffic on Parramatta Road is queueing back to Church Street.

7.9.12 Network Statistics

The network performance has been recorded in terms of network statistics that show the overall performance of the network. The key measures are:

- VKT – Vehicle Kilometres Travelled
- VHT – Vehicle Hours Travelled
- Stops – The number of times vehicles stop in the network.
- Unreleased – Vehicles that are waiting to enter the road network but cannot due to congestion in the network.

It should be noted that VKT and VHT can increase as a result of more vehicles in the network. Vehicles that cannot enter model are not recorded. The network statistics are summarised in Table 7.21 and Table 7.22.

Table 7.21: Morning Peak Network Statistics

Metric	Base	2031 Future	2031 with Development
VKT	175502	184102	182364
VHT	5627	9270	9439
Stops	111946	190192	192743
Unreleased	1333	12744	14205

Table 7.22: Evening Peak Network Statistics

Metric	Base	2031 Future	2031 with Development
VKT	186871	200288	200544
VHT	7043	10176	10873
Stops	145539	212774	229375
Unreleased	1867	14632	14906

The network statistics show a significant increase in trips by 2031 which corresponds to the higher VKT and VHT in the models. The unreleased vehicles are comparable between the 2031 base model and 2031 development Scenario. It is noted that there is a slight decrease in the VKT the development scenario which corresponds to the slight increase in unreleased trips.

7.9.13 Unreleased Vehicles

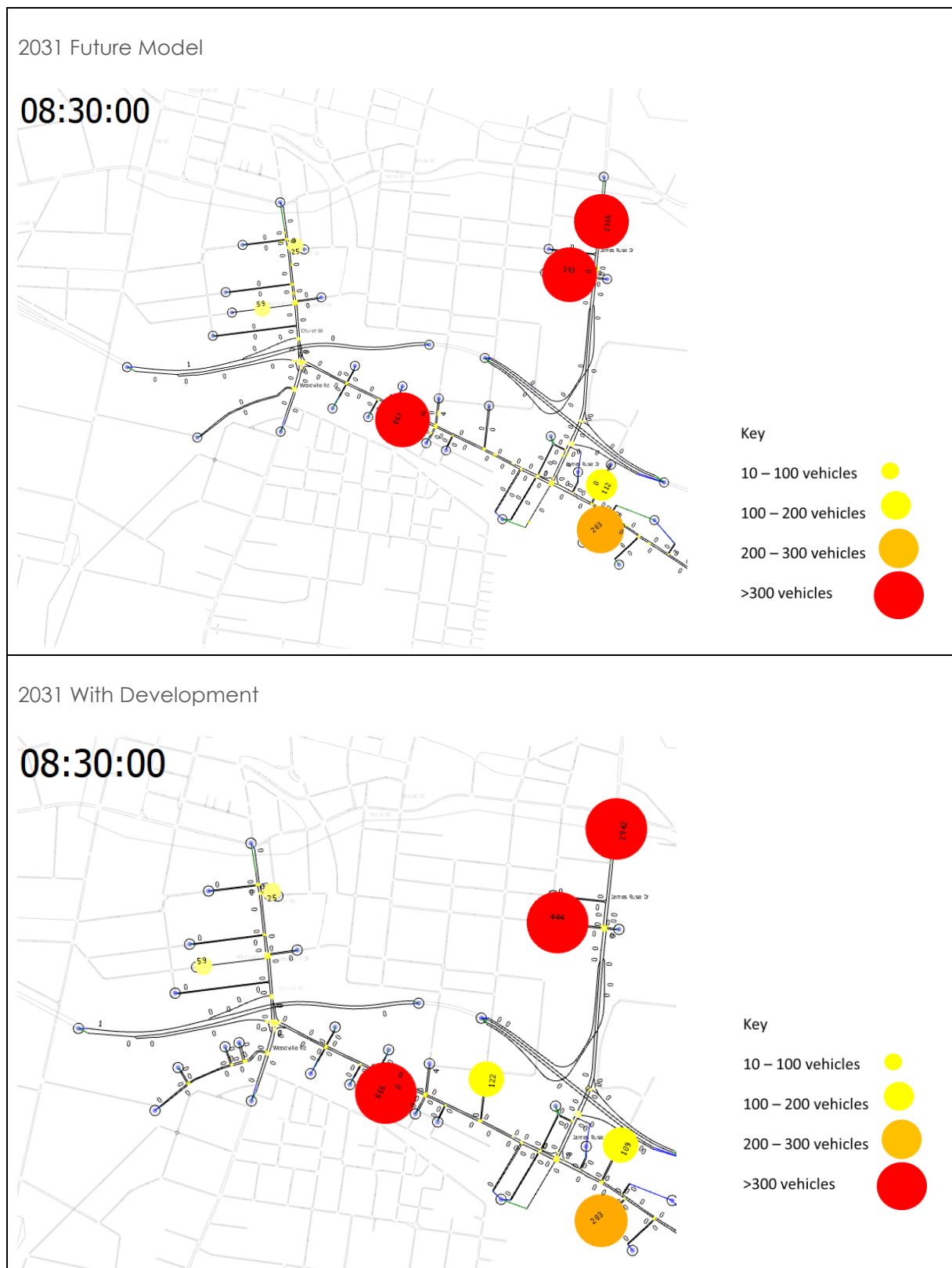
Unreleased vehicles or 'virtual queues' are the vehicles that are unable to enter the model network due to congestion.

The virtual queues in the morning peak are compared in Figure 7.31.

The key findings are:

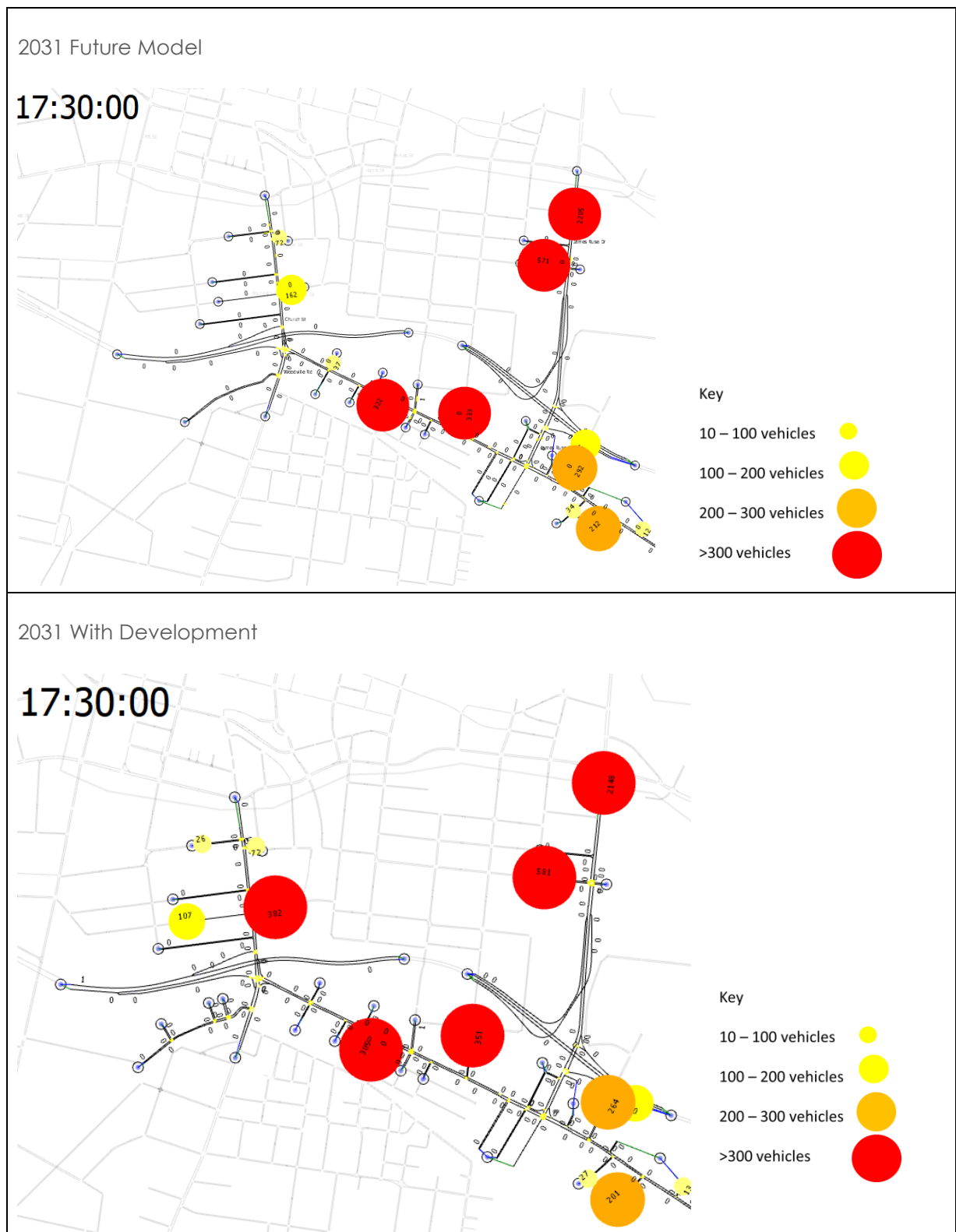
- Due to the very high forecast, there is a significant amount of traffic that is held back from James Ruse Drive.
- There is also a significant number of vehicles held back from Bold Street.
- Both scenarios show a similar number of unreleased vehicles with notably small numbers of unreleased vehicles around the development site.

Figure 7.31: Morning Peak – Unreleased Vehicles



The unreleased vehicles for the evening peak are compared in Figure 7.32.

Figure 7.32: Evening Peak – Unreleased Vehicles



The development scenario shows similar pattern of unreleased vehicles as the 2031 Future model. There was an increase in unreleased vehicles from a side street on Church Street at Raymond Street due to the spill back for the queue from Parramatta Road.

In both the morning and evening peak there were no unreleased vehicles from the development site or Crescent Street. This indicates that the driveways would have sufficient capacity as has been modelled in the Sidra Models.

7.10 Road Network Upgrade Staging

Traffic staging and the need for upgrading of the intersection of the intersection of Crescent Street and Woodville Road has been assessed by undertaking further sensitivity testing.

TTPP's analysis results are presented in Table 7.23 and Table 7.24 for the morning and evening peaks respectively. This analysis is based on delay and level of service according to the Transport for NSW level of service criteria as set out in the Guide to Traffic Generating Developments.

Table 7.23: Morning Peak Results

	0% Development		25% Development		50% Development		75% Development	
	Ave. Delay (Sec)	Level of Service	Ave. Delay (Sec)	Level of Service	Ave. Delay (Sec)	Level of Service	Ave. Delay (Sec)	Level of Service
Crescent Street	35	C	37	C	40	C	45	D
Intersection	16	B	20	B	18	B	18	B

Table 7.24: Evening Peak

	0% Development		25% Development		50% Development		75% Development	
	Ave. Delay (Sec)	Level of Service	Ave. Delay (Sec)	Level of Service	Ave. Delay (Sec)	Level of Service	Ave. Delay (Sec)	Level of Service
Crescent Street	33	C	36	C	39	C	39	C
Intersection	11	A	12	A	13	A	13	A

The results show that the delays increase as the development traffic increases with the morning peak delays increasing from 35 seconds to 45 seconds while the delays in the afternoon were lower with the delays increasing from 33 seconds to 39 seconds.

The intersection overall operates with an acceptable level of service.

7.10.1 Queue Lengths

The morning peak period was shown to be the critical period of queues on Crescent Street. The queue lengths on Crescent Street peaked at 8:30am. Screenshots from the model at the peak 8:30am show the length of queues in Figure 1 to Figure 4. The development traffic vehicles are coloured orange for comparison.

Figure 7.33: 0% Development Queue Length 8:30am

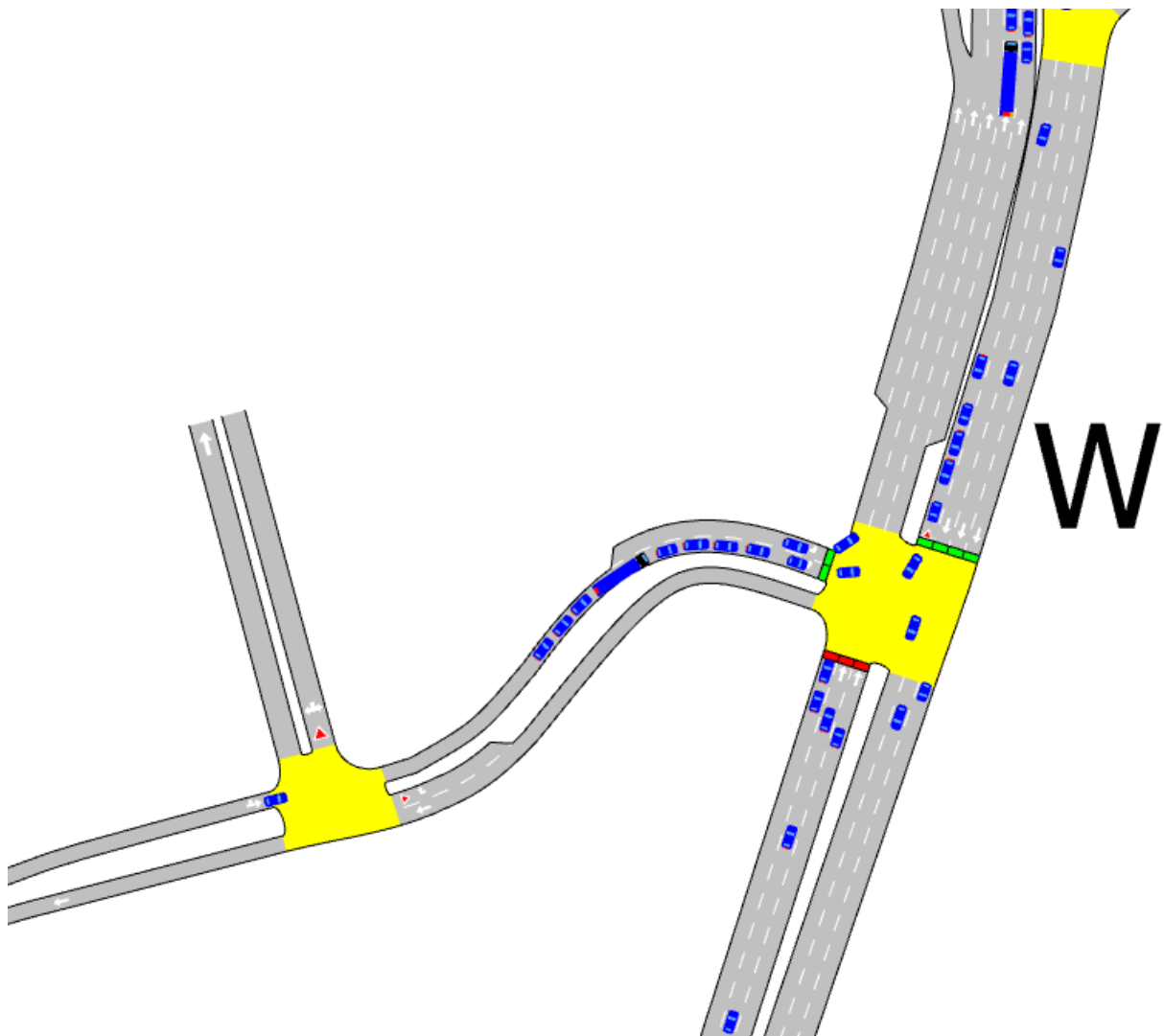


Figure 7.34: 25% Development Queue Length 8:30am

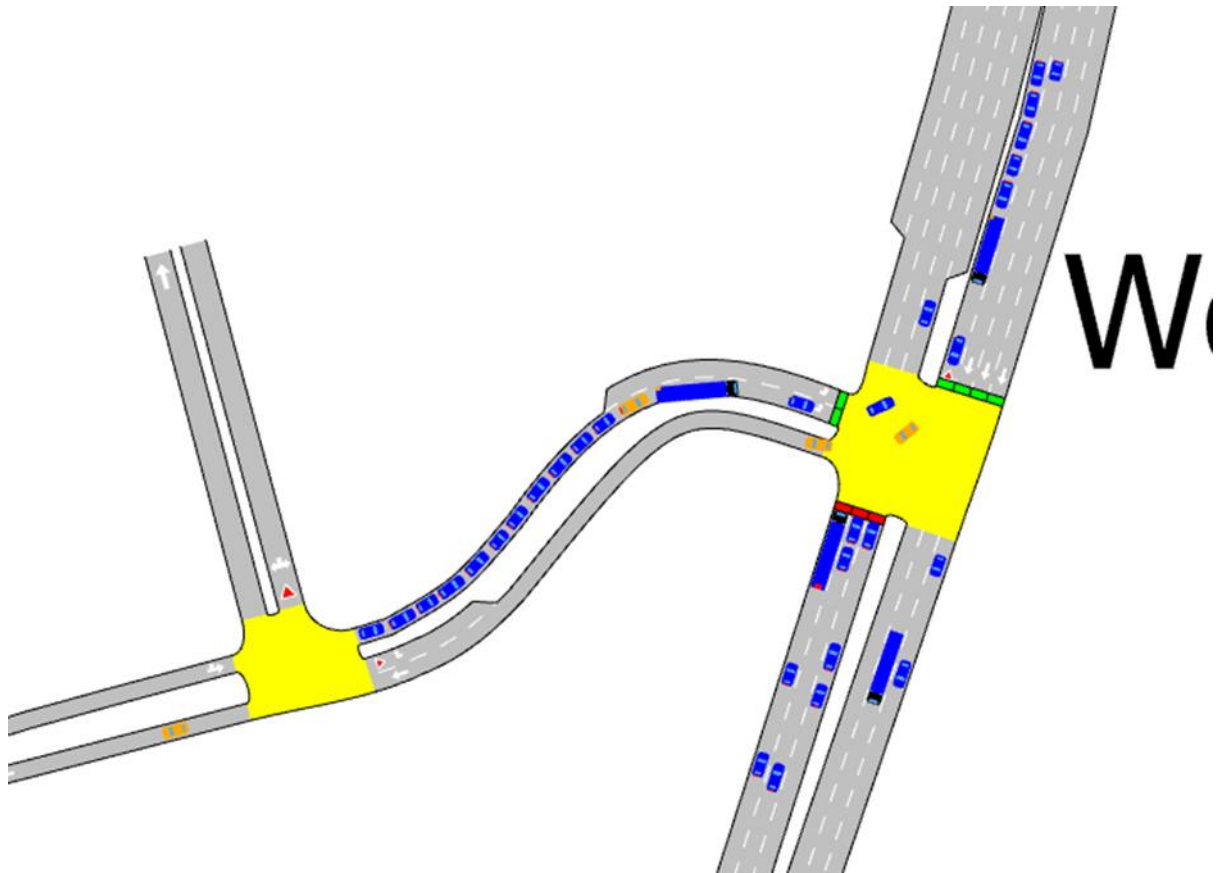


Figure 7.35: 50% Development Queue Length 8:30am

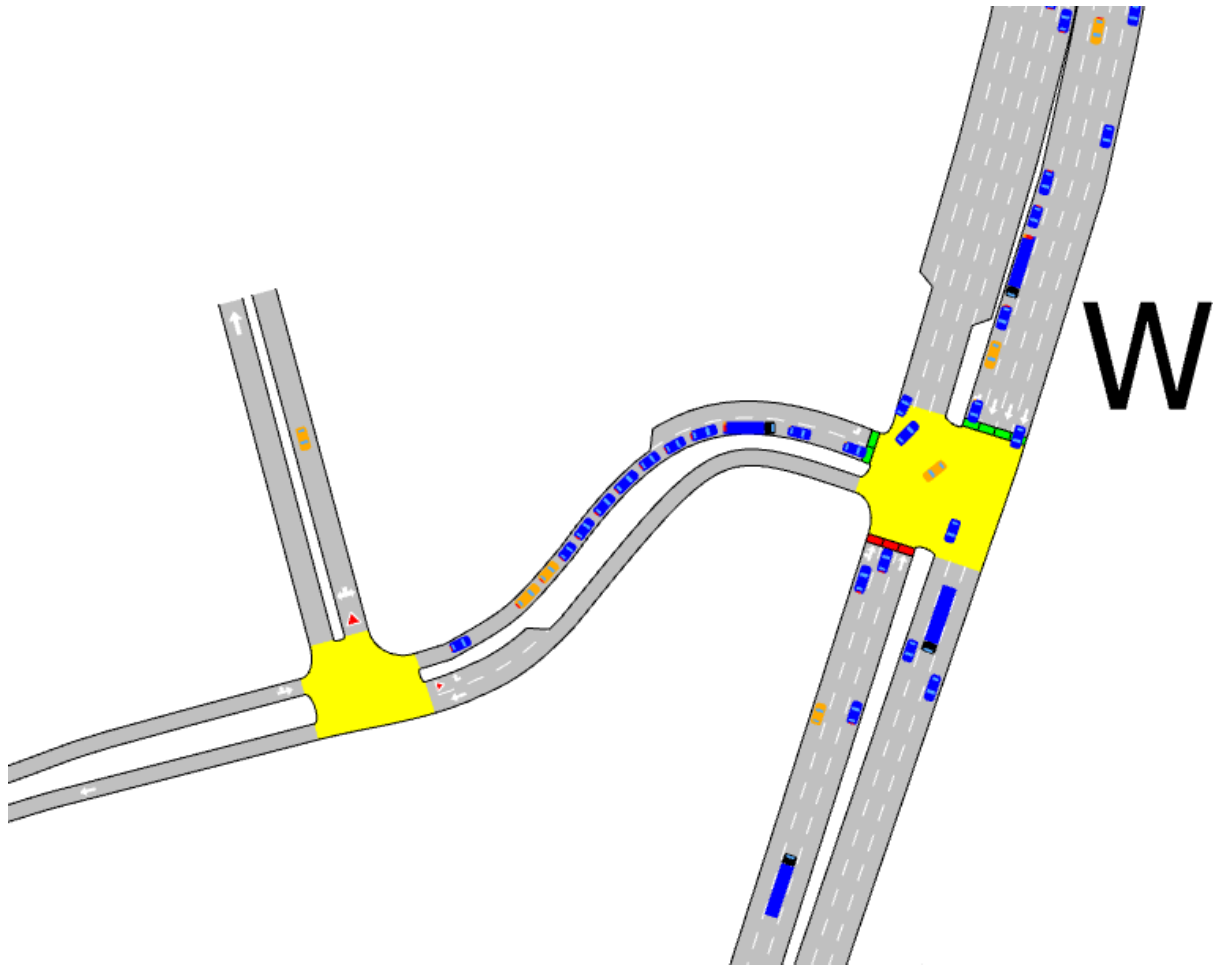
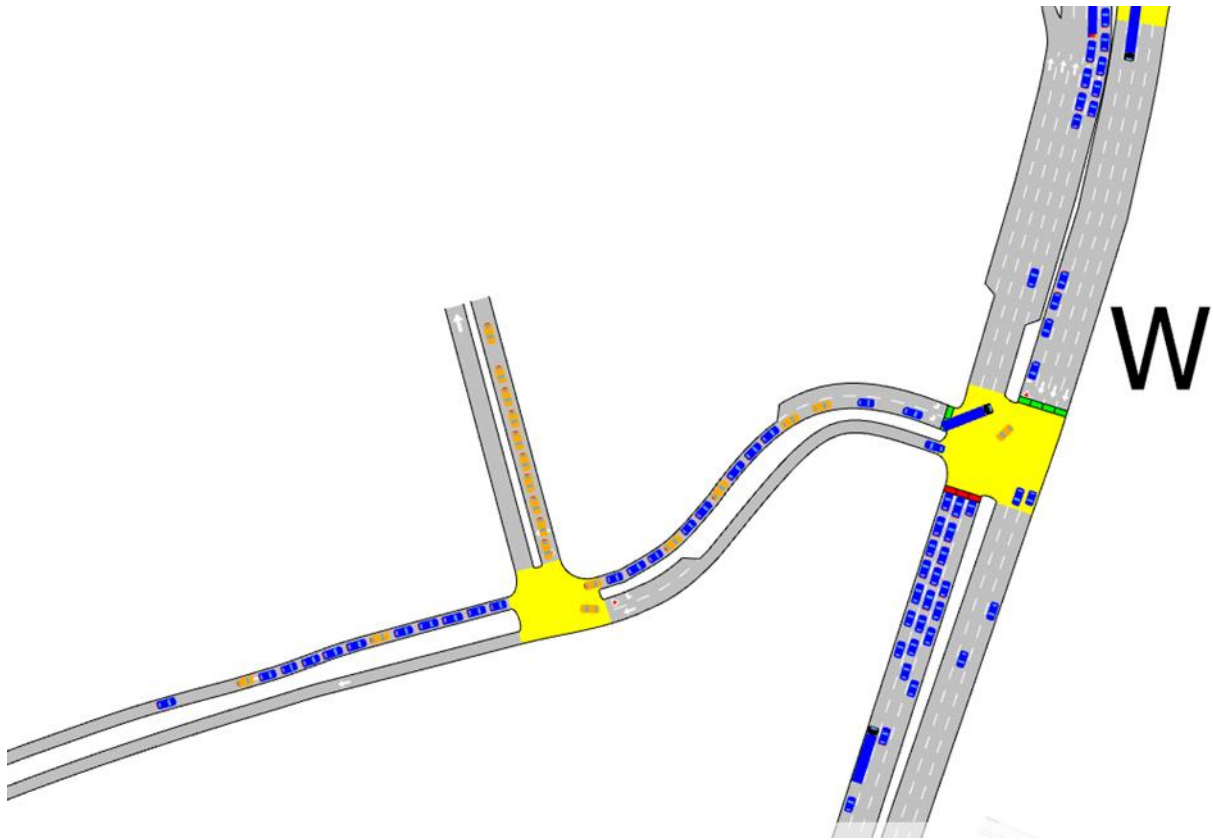


Figure 7.36: 75% Development Queue Length 8:30am



The assessment of queue lengths from the Aimsun model indicates that by the time the development reaches 75% of the total development, the queues extend beyond the first driveway from Woodville Road. While the queues at 25% and 50% are close to the first driveway.

To be consistent with the advice provided that the queue does not extend beyond the first driveway we recommend that the proposed upgrade of the intersection is undertaken at or before the development reaches 50% of the full forecast development traffic generation.

The 50% peak hour traffic generation in the morning could be generated by a number of combinations of the land use. Given that the morning peak was critical and most residential trips leave in the morning and office trips arrive and retail trips are split nearly evenly the following combination seems most logical:

- 600 dwellings – 174 trips
- Full retail - 2,125m² – 150 trips
- No office development

8 Mode Share and Travel Demand Management

8.1 Mode Share

The mode share was assessed using Journey to Work data for the Holroyd area based on the 2016 census data. The data from 2021 was significantly affected by the Covid 19 lockdowns and was unrepresentative.

The mode share from Journey to Work is shown along side target mode shares throughout the implementation of a green travel plan and travel demand management strategies.

Table 8.1: Mode Share

Column 1	Existing	Target
Car	66%	61% (-5%)
Train	27%	29% (+2%)
Bus	5%	7% (+2%)
Taxi	2%	2%
Walk Only	1%	2% (+1%)
Motorbike / scooter	1%	1%

8.2 Travel Demand Management

The proposal benefits from a number of characteristics to assist in travel demand management, the key aspects include:

- Connections to high quality active transport network,
- Trip containment through provision of mixed use on site including commercial employment and a supermarket.
- Provision of a shuttle bus service to connect to heavy rail services at Harris Park and Parramatta.
- Implementation of a green travel plan.
- Providing for car share on-site.

8.3.2 Green Travel Plan

A separate Green Travel Plan document has been prepared by TTPP to accompany the development application attached in **Appendix G**. This report encapsulates strategies for managing travel demand that embraces the principles of sustainable transport. It also indicates the measures that will be put in place to influence the travel patterns to/from the site, with a view to encourage more sustainable travel modes from Day One of occupation.

8.3.3 Shuttle Bus

During discussions in the Planning Proposal, the developer offered to provide a shuttle bus between the proposed site and Harris Park station. This shuttle bus service has been provided with the provision of a bus bay and costs shared between body corporates in the development.

9 Preliminary Construction Traffic Management Plan

9.1 Description of Works

This preliminary construction traffic management plan (CTMP) has been prepared to address the SEARs requirement (Issue 10 – Traffic, Transport and Accessibility).

At this stage, a construction contractor has not been appointed and therefore, details provided in this preliminary CTMP may change subject to a detailed construction methodology which will be available at a later stage. Any changes proposed by the appointed contractor will require further approvals from the relevant consent authorities for the Construction Certificate.

The purpose of this preliminary CTMP is to detail how traffic, pedestrians and public transport will be managed during the proposed construction works. This CTMP framework will provide a strategy to reduce the impacts to traffic and access on the surrounding roads during each construction stage to provide a safe road environment, while maintaining access for all road users and the local community.

Construction works would involve construction of 7 residential buildings to accommodate 1,227 new dwellings.

9.2 Staging

The construction of the development would occur across three main stages as follows:

- Stage 1 (Buildings 1, 2 & 3)
- Stage 2 (Buildings 4 & 5)
- Stage 3 (Buildings 6 & 7)

Each Stage will undertaken consecutively and will comprise the following:

- Site establishment/Setup
- Remediation/Excavation/Piling
- Initial stage & cranes up
- Mid structure & finishes start
- Complete structure and finishes

9.3 Hours of Construction

The construction hours will be limited to the conditions of consent once the development has been approved. Generally this would be:

- 7:00 am to 6:00 pm Monday to Friday
- 8:00 am to 1:00 pm on Saturdays
- No work on Sundays or Public Holidays

9.4 Construction Parking

On-site construction parking will be provided given the land available for Stage 1 and 2. However, all construction workers will be encouraged to use public transport and/or carpooling, wherever possible, to travel to/from the site.

The following measures would be implemented to encourage staff to utilise public transport:

- Provision of a secure tool storage facility on-site to allow tradespeople to safely store tools required for the project allowing them to use public transport to travel to and from the site on a daily basis.
- During the site induction phase and regular management meetings, staff would be instructed to use public transport when travelling to the site and informed on public transport timetables.

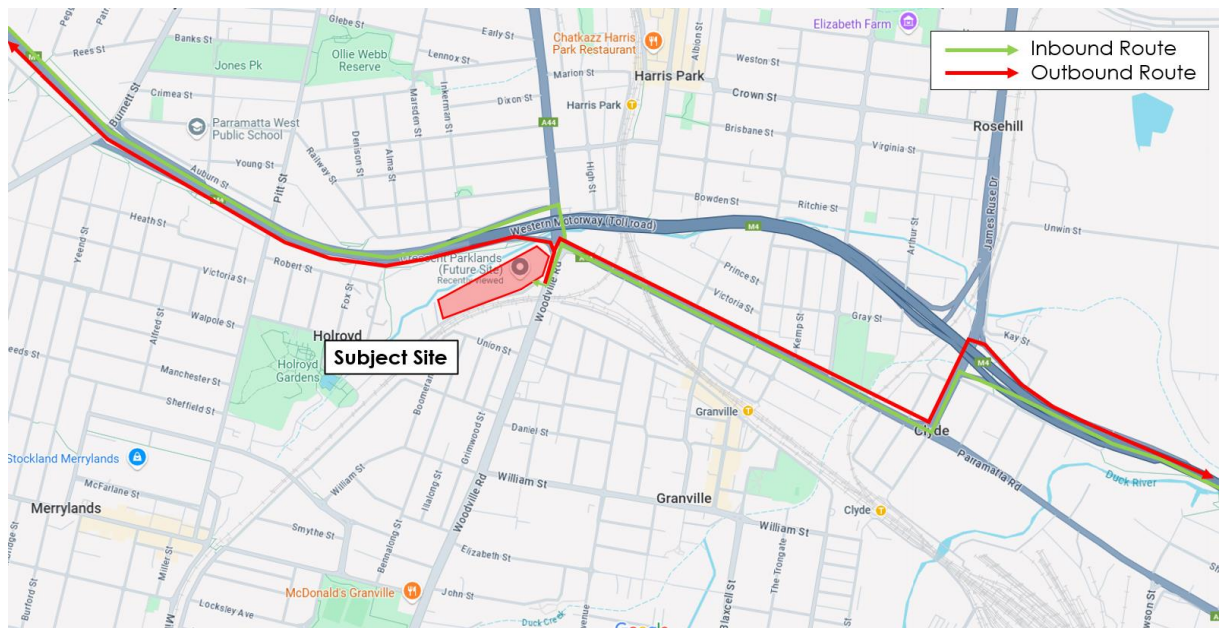
For stage 3 where there is limited parking on site, workers would be informed of restricted parking conditions on-site and the surrounding road network. Workers may park on Crescent Street (outside the work zone) but they will be encouraged to carpool if driving is the mode of choice. Crescent Street typically has low parking occupancy in close vicinity of the site and no adverse parking impact is anticipated.

9.5 Construction Transport Routes

Dedicated construction vehicle routes will be developed to provide the shortest distances to/from the arterial road network, whilst minimising the impact of construction traffic on local streets within the vicinity of the site. All truck drivers will be advised of the designated routes to/from the site.

The nominated construction vehicles routes are shown in Figure 9.1. Access from Woodville Road in the northbound direction is restricted due to a “No Left Turn” sign at the intersection with Crescent Street for vehicles over 9m long.

Figure 9.1: Construction Vehicle Routes



Basemap Source: Google Maps

9.6 Vehicle Types

Construction vehicles likely to be generated by the proposed construction activities include:

- Semi-trailers for delivery of large items to the site
- Heavy Rigid Vehicles (HRV) for transportation of large construction material, including crane trucks, bogies and concrete agitators
- Utility vehicles, vans and cars for delivery of small construction material and construction workforce transportation.

9.7 Access Arrangement

All authorised vehicles are to enter and exit the site in a forward direction. A traffic controller will be located at the driveway to manage construction vehicle and pedestrian movements at the existing driveway near the eastern end of the Crescent Street frontage.

No queueing, marshalling or parking will be permitted on any surrounding roads. Construction vehicles are to radio or call on approach to ensure adequate access to the site is available.

9.8 Construction Work Zone

A work zone is proposed along the northern side of Crescent Street, along the site frontage. While the length of the work zone is not determined at this early stage, the available length in

the Crescent Street frontage is a maximum of 90m between the existing western driveway and the eastern driveway. This means this works zone may require temporary removal of up to 15 on-street car space on Crescent Street which are not always occupied as the subject site is currently a vacant site. It is anticipated that parking could be displaced in the surrounding local roads where parking demand is generally low.

An application will be made to Council for this street work zone.

Loading of materials would occur within the site boundary.

9.9 Construction Traffic Generation

Construction traffic generation will be confirmed by the contractor following appointment and as part of the construction certification process.

However, based upon our experience, it is unlikely that there would be more than 10 trucks per day servicing the site. This proposal is mostly above ground including car parking and will have limited bulk excavation works which tends to generate most of the vehicle trips.

The most intense use would likely take place during the infrequent concrete pours when 6-8 trucks might attend in an hour for a short period. However generally, there would be no more than one to two trucks per hour.

Notwithstanding the above, construction vehicle impacts are to be minimised by restricting vehicle access during peak periods. Construction vehicles are to be permitted access outside of school pick up and drop off periods, to minimise impact to traffic flows along the adjoining road network.

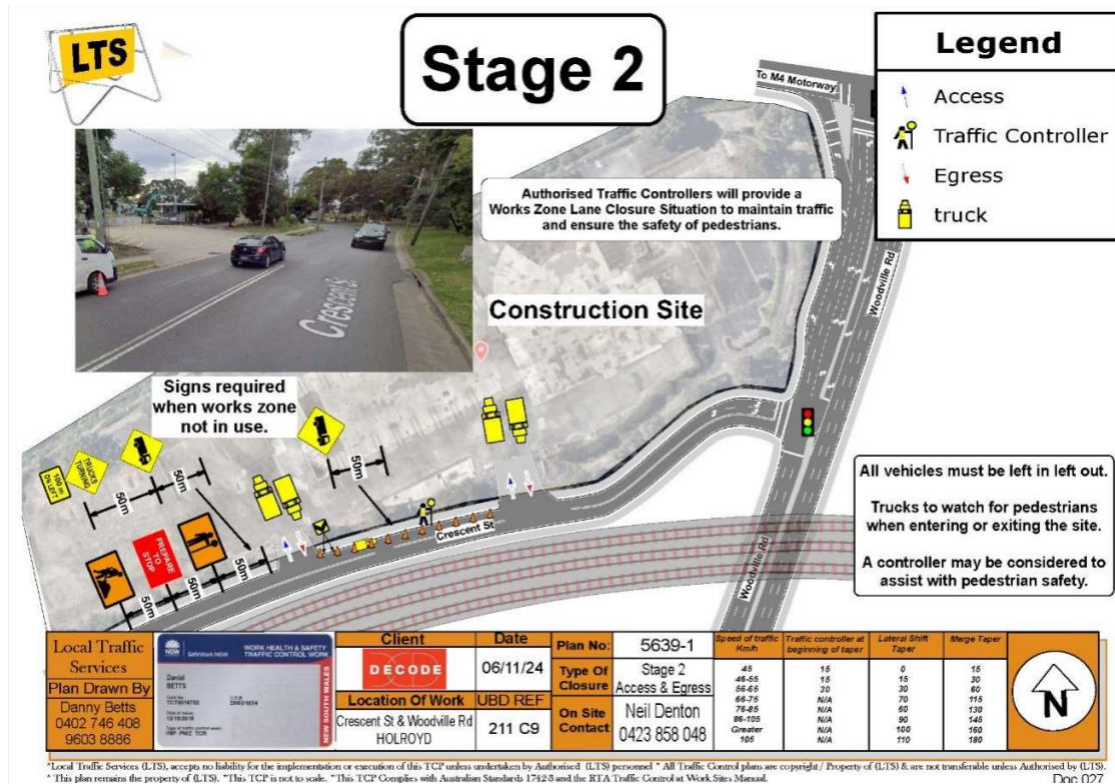
9.10 Traffic Impact

Workers would commute to/from site before the construction start time and after the construction end time, which fall outside of the road network peak periods.

Therefore, there is likely to be minimal traffic impact on the road network due to low number of construction vehicles during the road network peak periods.

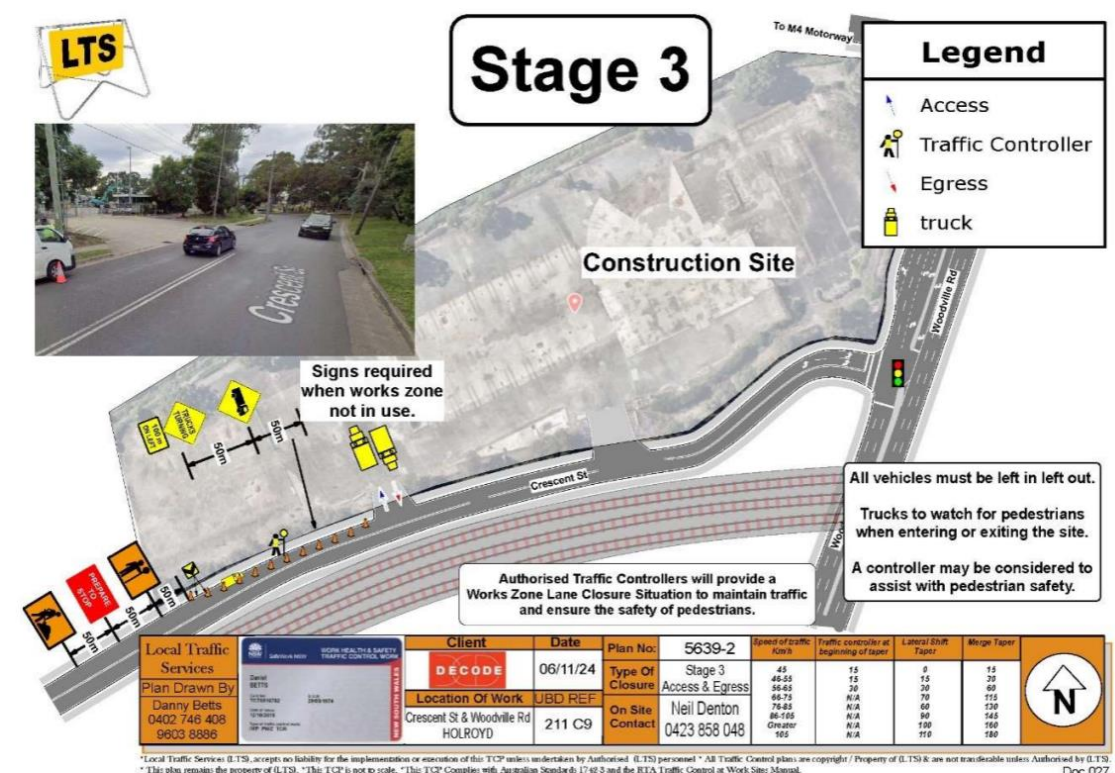
As discussed in Section 7.7.3, traffic impact during operation is minimal as the performance of key intersections is predicted to be largely unaffected by the traffic generation associated with residents of the subject site by year 2034. As construction traffic generation is expected to be lower than what is expected during operation in the network peak hours, traffic impact during construction is expected to be minimal as well.

Figure 9.3: Traffic Guidance Scheme – Stage 2



Source: Decode

Figure 9.4: Traffic Guidance Scheme – Stage 3



Source: Decode

9.11 Impact on Pedestrians and Cyclists

Pedestrian / cycling access on all pedestrian and cycling facilities surrounding the work site is to be maintained at all times.

All relevant permit approvals will be obtained from Council prior to the commencement of such construction works.

9.12 Impact on Public Transport

The proposed construction activities are not expected to result in any likely impact on existing public transport services.

Construction workers would be encouraged to use public transport, but the number of workers is not anticipated to generate any significant demand on public transport services.

9.13 Impact on Emergency Services

The proposed construction activities are not expected to create any adverse impacts to emergency vehicle access. As such, no special provisions for emergency service vehicles would be required as part of the proposed construction activities. Emergency vehicle access is to be maintained at all times.

9.14 Community and Motorist Notification

Neighbouring residents will be notified by letterbox drop with regard to the construction works for the approved work hours, anticipated impacts and traffic management plan. Temporary advanced warning signs will advise motorists of their approach to the site access.

10 Conclusion

The above traffic impact assessment has been prepared to accompany a masterplan and development application for a mixed-use development at 1 Crescent Street, Holroyd.

The key findings of this assessment are summarised as follows:

- The proposal includes an overall development of 1,227 residential apartments, 2500m² GFA of retail premises and 5000m² of commercial premises across three phases consisting of seven buildings between them.
- The development is compatible with local and regional strategy planning and is well serviced by the transport infrastructure planned in the area.
- Overall, the proposed development is required to provide a maximum of 1,616 parking spaces total parking spaces across development.
- The parking requirement under the CLEP is a maximum of 1892 car parking spaces. The proposal will provide less than the maximum parking at 1616 car spaces.
- The proposed development is required to provide a minimum of 122 parking spaces for the affordable units based on the SEPP (Housing) 2021 provisions, it is proposed to provide 203 parking spaces which meets this requirement. Overall the proposal will provide more than the minimum requirement for 1351 car spaces under the SEPP (Housing).
- The development adheres to this by providing the maximum allowable number of spaces.
- Furthermore, a Green Travel Plan is to be prepared to encourage residents, staff and visitors to use sustainable travel modes.
- The development is estimated to generate an additional 645, 627 and 673 vehicles per hour during the weekday AM, PM and Saturday peaks respectively.
- Intersection analysis indicates that the surrounding road network up to a 10-year forecast, would adequately support the development generated traffic, except for the Pitt St / Neil St intersection.
- It should be noted that the modelling does not include the Parramatta Road/Woodville Road / M4 ramp intersection. This intersection was modelled extensively as a result of TfNSW negotiations during the planning proposal stage.
- The Aimsun modelling considered the impacts on Woodville Road, Church Street and Parramatta Road. To mitigate impacts on Woodville Road and Crescent Street it is proposed to widen Crescent Street to three lanes. With this upgrade the impact would be minimal.
- Consequently, preliminary discussions with TfNSW indicated that they considered that sufficient modelling had been undertaken and this exercise did not need to be repeated if the yields remained the same or less as the planning proposal (which is the case).

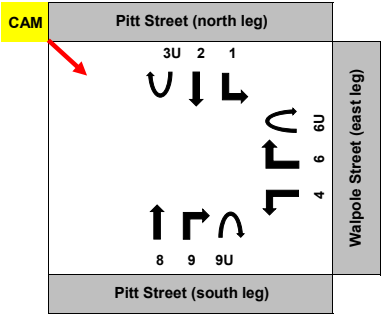
- A shuttle bus to Harris Park Station and Parramatta is proposed as part of travel demand measures to reduce reliance on private vehicles.
- It is envisioned that the construction of the project would have a manageable impact to the surrounding road network.

Overall, the traffic and parking aspects of the proposed development would be satisfactory.

Appendix A

Traffic Surveys

Report Type:	Classified Intersection Data - 15min
Geocounts Job ID:	1669341479408
Client Job Number:	n/a
Client Name:	TTPP
Location:	Merrylands
Survey Site:	IC01 (Pitt Street/Walpole Street)
Survey Date:	Saturday, 4th February 2023
Site Coordinates:	-33.8298333, 150.9933659

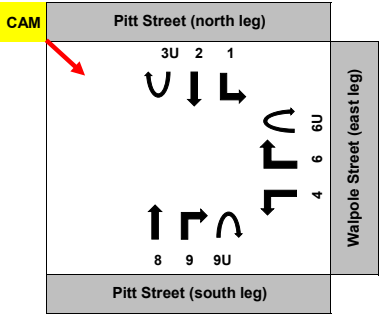


	Light	Heavy	HV%
Total Vehicles SAT:	4,765	89	1.8%



Approach	Pitt Street (north leg)									Walpole Street (east leg)									Pitt Street (south leg)								
Movement	Movement 1 (Left Turn)			Movement 2 (Through)			Movement 3U (U Turn)			Movement 4 (Left Turn)			Movement 6 (Right Turn)			Movement 6U (U Turn)			Movement 8 (Through)			Movement 9 (Right Turn)			Movement 9U (U Turn)		
Time Interval	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
11:00 to 11:15	9	1	10	135	2	137	0	0	0	52	0	52	14	2	16	0	0	0	148	3	151	42	0	42	0	0	0
11:15 to 11:30	10	0	10	113	4	117	0	0	0	46	2	48	18	0	18	0	0	0	127	2	129	40	3	43	0	0	0
11:30 to 11:45	8	0	8	127	0	127	0	0	0	56	2	58	11	0	11	0	0	0	155	4	159	40	0	40	0	0	0
11:45 to 12:00	8	0	8	133	4	137	0	0	0	65	2	67	15	0	15	0	0	0	129	2	131	49	0	49	0	0	0
12:00 to 12:15	13	0	13	146	1	147	0	0	0	49	0	49	19	0	19	0	0	0	129	2	131	45	1	46	0	0	0
12:15 to 12:30	9	0	9	129	6	135	0	0	0	52	2	54	9	0	9	0	0	0	142	2	144	42	0	42	0	0	0
12:30 to 12:45	8	0	8	133	3	136	0	0	0	56	0	56	16	0	16	0	0	0	156	2	158	58	1	59	0	0	0
12:45 to 13:00	18	0	18	145	3	148	0	0	0	50	1	51	11	0	11	0	0	0	178	6	184	49	0	49	0	0	0
13:00 to 13:15	14	2	16	147	2	149	0	0	0	49	2	51	11	0	11	0	0	0	146	3	149	50	0	50	0	0	0
13:15 to 13:30	9	0	9	146	4	150	0	0	0	56	0	56	14	0	14	0	0	0	130	2	132	49	0	49	0	0	0
13:30 to 13:45	10	0	10	144	2	146	0	0	0	35	1	36	10	0	10	0	0	0	137	0	137	48	0	48	0	0	0
13:45 to 14:00	12	1	13	128	3	131	0	0	0	46	0	46	6	0	6	0	0	0	121	2	123	35	2	37	0	0	0
SAT Total	128	4	132	1,626	34	1,660	0	0	0	612	12	624	154	2	156	0	0	0	1,698	30	1,728	547	7	554	0	0	0

Report Type:	Classified Intersection Data - 15min
Geocounts Job ID:	1669341479408
Client Job Number:	n/a
Client Name:	TTPP
Location:	Merrylands
Survey Site:	IC01 (Pitt Street/Walpole Street)
Survey Date:	Tuesday, 7th February 2023
Site Coordinates:	-33.8298333, 150.9933659

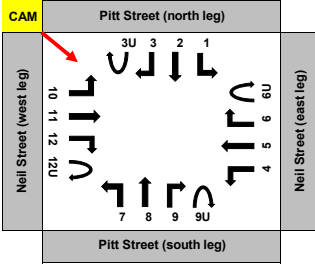


	Light	Heavy	HV%
Total Vehicles AM:	4,194	231	5.2%
Total Vehicles PM:	5,595	182	3.2%



Approach	Pitt Street (north leg)									Walpole Street (east leg)									Pitt Street (south leg)								
Movement	Movement 1 (Left Turn)			Movement 2 (Through)			Movement 3U (U Turn)			Movement 4 (Left Turn)			Movement 6 (Right Turn)			Movement 6U (U Turn)			Movement 8 (Through)			Movement 9 (Right Turn)			Movement 9U (U Turn)		
Time Interval	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
6:30 to 6:45	13	0	13	65	5	70	0	0	0	33	4	37	13	1	14	0	0	0	191	15	206	31	3	34	0	0	0
6:45 to 7:00	7	0	7	76	7	83	0	0	0	28	1	29	12	1	13	0	0	0	160	14	174	31	2	33	0	0	0
7:00 to 7:15	6	1	7	88	5	93	0	0	0	36	2	38	12	1	13	0	0	0	127	6	133	36	8	44	0	0	0
7:15 to 7:30	8	1	9	100	8	108	0	0	0	26	4	30	19	0	19	0	0	0	183	6	189	57	3	60	0	0	0
7:30 to 7:45	14	0	14	118	9	127	0	0	0	21	4	25	13	1	14	0	0	0	204	12	216	50	0	50	0	0	0
7:45 to 8:00	16	0	16	119	8	127	0	0	0	32	3	35	15	0	15	0	0	0	212	7	219	39	3	42	0	0	0
8:00 to 8:15	15	0	15	120	7	127	0	0	0	34	7	41	15	0	15	0	0	0	179	7	186	71	5	76	0	0	0
8:15 to 8:30	18	0	18	140	6	146	0	0	0	35	3	38	21	0	21	0	0	0	229	11	240	76	1	77	0	0	0
8:30 to 8:45	19	1	20	186	6	192	0	0	0	43	4	47	33	0	33	0	0	0	182	4	186	58	7	65	0	0	0
8:45 to 9:00	18	0	18	206	3	209	0	0	0	50	3	53	26	1	27	0	0	0	158	7	165	51	3	54	0	0	0
AM Total	134	3	137	1,218	64	1,282	0	0	0	338	35	373	179	5	184	0	0	0	1,825	89	1,914	500	35	535	0	0	0
15:30 to 15:45	9	0	9	216	5	221	0	0	0	78	3	81	15	0	15	0	0	0	137	5	142	58	2	60	0	0	0
15:45 to 16:00	12	0	12	209	14	223	0	0	0	60	2	62	11	0	11	0	0	0	132	5	137	54	2	56	0	0	0
16:00 to 16:15	9	0	9	195	8	203	0	0	0	56	1	57	14	1	15	0	0	0	153	7	160	39	2	41	0	0	0
16:15 to 16:30	12	2	14	139	5	144	0	0	0	58	4	62	17	2	19	0	0	0	181	5	186	22	1	23	0	0	0
16:30 to 16:45	5	0	5	160	7	167	0	0	0	61	2	63	14	2	16	0	0	0	151	5	156	40	5	45	0	0	0
16:45 to 17:00	9	0	9	182	3	185	0	0	0	59	1	60	17	1	18	0	0	0	132	7	139	45	2	47	0	0	0
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17:15 to 17:30	16	0	16	186	5	191	0	0	0	53	1	54	19	0	19	0	0	0	177	5	182	42	1	43	0	0	0
17:30 to 17:45	15	0	15	168	6	174	0	0	0	53	2	55	15	0	15	0	0	0	174	4	178	43	2	45	0	0	0
17:45 to 18:00	12	0	12	162	6	168	0	0	0	58	1	59	28	2	30	0	0	0	139	4	143	50	1	51	0	0	0
18:00 to 18:15	19	1	20	172	5	177	0	0	0	76	0	76	16	0	16	0	0	0	163	3	166	44	2	46	0	0	0
18:15 to 18:30	14	0	14	158	3	161	0	0	0	67	2	69	11	0	11	0	0	0	128	3	131	52	3	55	0	0	0
PM Total	146	3	149	2,137	70	2,207	0	0	0	739	20	759	199	8	207	0	0	0	1,831	57	1,888	543	24	567	0	0	0

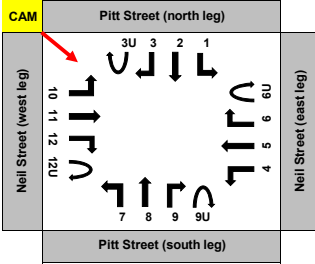
Report Type:	Classified Intersection Data - 15min
Geocounts Job ID:	1669341479408
Client Job Number:	n/a
Client Name:	TTPP
Location:	Merrylands
Survey Site:	IC02 (Pitt Street/Neil Street)
Survey Date:	Tuesday, 7th February 2023
Site Coordinates:	-33.8338482, 150.992175



	Light	Heavy	HV%
Total Vehicles SAT:	8,199	129	1.5%

Approach	Pitt Street (north leg)												Neil Street (east leg)												Pitt Street (south leg)												Neil Street (west leg)											
Movement	Movement 1 (Left Turn)			Movement 2 (Through)			Movement 3 (Right Turn)			Movement 3U (U Turn)			Movement 4 (Left Turn)			Movement 5 (Through)			Movement 6 (Right Turn)			Movement 6U (U Turn)			Movement 7 (Left Turn)			Movement 8 (Through)			Movement 9 (Right Turn)			Movement 9U (U Turn)			Movement 10 (Left Turn)			Movement 11 (Through)			Movement 12 (Right Turn)			Movement 12U (U Turn)		
Time Interval	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total						
11:00 to 11:15	44	0	44	64	3	67	66	0	66	0	0	0	37	0	37	121	0	121	54	0	54	0	0	0	12	0	12	72	1	73	62	1	63	0	0	0	38	0	38	89	1	90	0	0	0	0	0	0
11:15 to 11:30	55	2	57	60	3	63	41	0	41	0	0	0	43	2	45	99	1	100	51	1	52	0	0	0	13	0	13	86	2	88	66	2	68	0	0	0	15	0	15	85	0	85	0	0	0	0	0	0
11:30 to 11:45	50	2	52	57	0	57	64	0	64	0	0	0	53	0	53	122	2	124	73	1	74	0	0	0	10	0	10	75	3	78	73	1	74	0	0	0	35	0	35	96	3	99	0	0	0	0	0	0
11:45 to 12:00	54	0	54	87	4	91	58	0	58	0	0	0	53	1	54	107	3	110	59	0	59	0	0	0	13	0	13	75	2	77	59	2	61	0	0	0	27	0	27	89	0	89	0	0	0	0	0	0
12:00 to 12:15	51	0	51	59	1	60	61	1	62	0	0	0	44	1	45	121	1	122	55	0	55	0	0	0	10	0	10	86	2	88	89	2	91	0	0	0	24	0	24	93	2	95	0	0	0	0	0	0
12:15 to 12:30	48	0	48	49	5	54	61	1	62	0	0	0	54	0	54	120	0	120	61	0	61	0	0	0	9	0	9	75	3	78	95	2	97	0	0	0	32	0	32	108	0	108	0	0	0	0	0	0
12:30 to 12:45	53	2	55	66	3	69	55	0	55	0	0	0	46	1	47	118	1	119	58	3	61	0	0	0	12	0	12	100	2	102	75	1	76	0	0	0	29	0	29	92	0	92	0	0	0	0	0	0
12:45 to 13:00	64	1	65	59	3	62	55	0	55	0	0	0	43	1	44	116	0	116	67	3	70	0	0	0	7	0	7	81	4	85	68	1	69	0	0	0	46	0	46	120	2	122	0	0	0	0	0	0
13:00 to 13:15	47	0	47	66	3	69	52	0	52	0	0	0	43	1	44	116	1	117	64	2	66	0	0	0	14	0	14	86	4	90	73	1	74	0	0	0	25	0	25	93	0	93	0	0	0	0	0	0
13:15 to 13:30	47	2	49	63	2	65	72	0	72	0	0	0	56	0	56	98	0	98	53	0	53	0	0	0	6	0	6	72	2	74	83	3	86	0	0	0	27	0	27	118	1	119	0	0	0	0	0	0
13:30 to 13:45	49	0	49	57	2	59	55	0	55	0	0	0	43	0	43	117	1	118	53	0	53	0	0	0	9	0	9	71	1	72	76	2	78	0	0	0	33	0	33	94	2	96	0	0	0	0	0	0
13:45 to 14:00	32	0	32	66	2	68	65	0	65	0	0	0	67	1	68	111	0	111	49	0	49	0	0	0	9	0	9	76	3	79	80	1	81	0	0	0	21	0	21	95	0	95	0	0	0	0	0	0
SAT Total	594	9	603	753	31	784	705	2	707	0	0	0	582	8	590	1,366	10	1,376	697	10	707	0	0	0	124	0	124	955	29	984	899	19	918	0	0	0	352	0	352	1,172	11	1,183	0	0	0	0	0	0

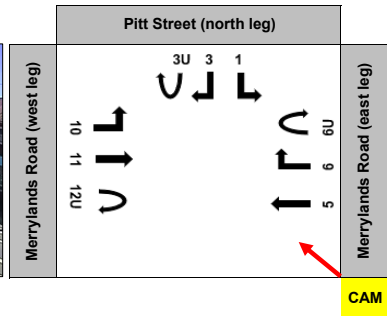
Report Type:	Classified Intersection Data - 15min
Geocounts Job ID:	1669341479408
Client Job Number:	n/a
Client Name:	TTPP
Location:	Merrylands
Survey Site:	IC02 (Pitt Street/Neil Street)
Survey Date:	Tuesday, 7th February 2023
Site Coordinates:	-33.8338482, 150.992175



	Light	Heavy	HV%
Total Vehicles AM:	5,261	266	4.8%
Total Vehicles PM:	8,701	187	2.1%

Approach	Pitt Street (north leg)												Neil Street (east leg)												Pitt Street (south leg)												Neil Street (west leg)											
Movement	Movement 1 (Left Turn)			Movement 2 (Through)			Movement 3 (Right Turn)			Movement 3U (U Turn)			Movement 4 (Left Turn)			Movement 5 (Through)			Movement 6 (Right Turn)			Movement 6U (U Turn)			Movement 7 (Left Turn)			Movement 8 (Through)			Movement 9 (Right Turn)			Movement 9U (U Turn)			Movement 10 (Left Turn)			Movement 11 (Through)			Movement 12 (Right Turn)			Movement 12U (U Turn)		
Time Interval	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total						
6:30 to 6:45	38	2	40	44	6	50	24	3	27	0	0	0	47	0	47	34	2	36	99	10	109	0	0	0	1	0	1	59	6	65	23	0	23	0	0	0	10	0	10	40	2	42	0	0	0	0	0	0
6:45 to 7:00	37	3	40	48	3	51	19	0	19	0	0	0	46	4	50	49	2	51	103	8	111	0	0	0	1	0	1	42	9	51	25	2	27	0	0	0	9	0	9	43	1	44	0	0	0	0	0	0
7:00 to 7:15	46	1	47	46	6	52	10	2	12	0	0	0	22	3	25	30	2	32	79	2	81	0	0	0	2	0	2	44	4	48	21	0	21	0	0	0	6	2	8	37	1	38	0	0	0	0	0	0
7:15 to 7:30	59	2	61	45	7	52	27	1	28	0	0	0	21	4	25	37	3	40	102	2	104	0	0	0	4	0	4	65	4	69	14	1	15	0	0	0	12	1	13	56	3	59	0	0	0	0	0	0
7:30 to 7:45	57	1	58	58	12	70	24	0	24	0	0	0	15	0	15	65	2	67	85	3	88	0	0	0	4	1	5	76	5	81	27	1	28	0	0	0	18	1	19	77	1	78	0	0	0	0	0	0
7:45 to 8:00	68	2	70	67	7	74	22	4	26	0	0	0	22	2	24	56	3	59	116	0	116	0	0	0	2	0	2	71	6	77	31	2	33	0	0	0	16	1	17	86	4	90	0	0	0	0	0	0
8:00 to 8:15	59	2	61	55	7	62	23	1	24	0	0	0	24	0	24	94	2	96	103	2	105	0	0	0	2	0	2	59	6	65	28	1	29	0	0	0	16	2	18	101	2	103	0	0	0	0	0	0
8:15 to 8:30	65	0	65	56	7	63	41	1	42	0	0	0	27	1	28	82	0	82	97	2	99	0	0	0	3	0	3	91	6	97	40	3	43	0	0	0	21	0	21	100	2	102	0	0	0	0	0	0
8:30 to 8:45	74	0	74	83	9	92	37	2	39	0	0	0	34	5	39	97	2	99	103	0	103	0	0	0	4	0	4	63	8	71	37	2	39	0	0	0	18	0	18	105	2	107	0	0	0	0	0	0
8:45 to 9:00	69	1	70	68	3	71	64	0	64	0	0	0	48	1	49	122	1	123	73	2	75	0	0	0	5	0	5	68	6	74	65	3	68	0	0	0	23	0	23	125	0	125	0	0	0	0	0	0
AM Total	572	14	586	570	67	637	291	14	305	0	0	0	306	20	326	666	19	685	960	31	991	0	0	0	28	1	29	638	60	698	311	15	326	0	0	0	149	7	156	770	18	788	0	0	0	0	0	0
15:30 to 15:45	78	3	81	107	4	111	63	0	63	0	0	0	44	1	45	94	0	94	77	1	78	0	0	0	7	0	7	78	4	82	63	3	66	0	0	0	33	0	33	107	0	107	0	0	0	0	0	0
15:45 to 16:00	75	2	77	90	7	97	53	1	54	0	0	0	60	1	61	121	1	122	84	1	85	0	0	0	4	0	4	54	4	58	50	0	50	0	0	0	26	1	27	129	3	132	0	0	0	0	0	0
16:00 to 16:15	62	0	62	83	7	90	56	1	57	0	0	0	52	0	52	119	1	120	76	2	78	0	0	0	7	0	7	91	6	97	83	0	83	0	0	0	28	0	28	116	0	116	0	0	0	0	0	0
16:15 to 16:30	55	2	57	69	4	73	47	3	50	0	0	0	57	1	58	133	0	133	95	1	96	0	0	0	9	0	9	73	2	75	51	2	53	0	0	0	30	0	30	110	0	110	0	0	0	0	0	0
16:30 to 16:45	62	2	64	62	4	66	35	1	36	0	0	0	51	3	54	102	0	102	94	1	95	0	0	0	7	1	8	83	9	92	78	3	81	0	0	0	29	0	29	104	1	105	0	0	0	0	0	0
16:45 to 17:00	50	0	50	66	3	69	47	0	47	0	0	0	49	2	51	125	1	126	79	1	80	0	0	0	10	0	10	72	6	78	80	1	81	0	0	0	24	1	25	116	1	117	0	0	0	0	0	0
17:00 to 17:15	51	1	52	81	2	83	51	0	51	0	0	0	51	0	51	98	0	98	102	1	103	0	0	0	8	0	8	79	6	85	68	0	68	0	0	0	27	0	27	106	0	106	0	0	0	0	0	0
17:15 to 17:30	62	0	62	78	5	83	38	0	38	0	0	0	39	1	40	119	0	119	81	0	81	0	0	0	8	0	8	98	4	102	92	1	93	0	0	0	29	0	29	125	0	125	0	0	0	0	0	0
17:30 to 17:45	67	2	69	71	4	75	32	1	33	0	0	0	63	1	64	109	2	111	90	1	91	0	0	0	7	0	7	72	4	76	78	2	80	0	0	0	26	0	26	130	0	130	0	0	0	0	0	0
17:45 to 18:00	68	3	71	71	6	77	48	0	48	0	0	0	50	1	51	94	0	94	74	0	74	0	0	0	6	0	6	77	4	81	74	4	78	0	0	0	25	1	26	129	1	130	0	0	0	0	0	0
18:00 to 18:15	60	1	61	81	3	84	49	0	49	0	0	0	52	1	53	86	1	87	84	0	84	0	0	0	9	0	9	78	2	80	76	0	76	0	0	0	16	0	16	87	0	87	0	0	0	0	0	0
18:15 to 18:30	65	0	65	73	4	77	37	0	37	0	0	0	30	0	30	97	1	98	75	3	78	0	0	0	7	0	7	85	3	88	79	0	79	0	0	0	20	0	20	79	0	79	0	0	0	0	0	0
PM Total	755	16	771	932	53	985	556	7	563	0	0	0	598	12	610	1,297	7	1,304	1,011	12	1,023	0	0	0	89	1	90	940	54	994	872	16	888	0	0	0	313	3	316	1,338	6	1,344	0	0	0	0	0	0

Report Type:	Classified Intersection Data - 15min
Geocounts Job ID:	1669341479408
Client Job Number:	n/a
Client Name:	TTPP
Location:	Merrylands
Survey Site:	IC03 (Pitt Street/Merrylands Road)
Survey Date:	Saturday, 4th February 2022
Site Coordinates:	-33.8367891, 150.9913543

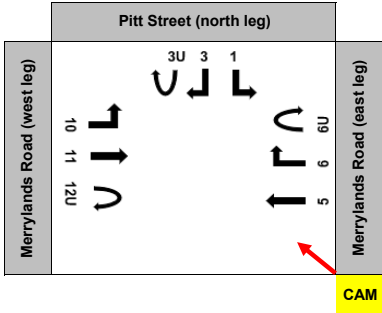


	Light	Heavy	HV%
Total Vehicles SAT:	2,549	79	3.0%



Approach	Pitt Street (north leg)									Merrylands Road (east leg)									Merrylands Road (west leg)								
Movement	Movement 1 (Left Turn)			Movement 3 (Right Turn)			Movement 3U (U Turn)			Movement 5 (Through)			Movement 6 (Right Turn)			Movement 6U (U Turn)			Movement 10 (Left Turn)			Movement 11 (Through)			Movement 12U (U Turn)		
Time Interval	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
11:00 to 11:15	0	0	0	49	0	49	0	0	0	26	3	29	75	0	75	0	0	0	34	1	35	0	0	0	0	0	0
11:15 to 11:30	0	0	0	45	0	45	0	0	0	28	2	30	86	3	89	0	0	0	42	4	46	0	0	0	0	0	0
11:30 to 11:45	0	0	0	65	0	65	0	0	0	23	0	23	88	2	90	0	0	0	44	2	46	0	0	0	0	0	0
11:45 to 12:00	0	0	0	78	0	78	0	0	0	21	5	26	74	0	74	0	0	0	36	2	38	0	0	0	0	0	0
12:00 to 12:15	0	0	0	61	0	61	0	0	0	28	3	31	94	4	98	0	0	0	54	2	56	0	0	0	0	0	0
12:15 to 12:30	0	0	0	52	0	52	0	0	0	18	1	19	107	3	110	0	0	0	57	2	59	0	0	0	0	0	0
12:30 to 12:45	0	0	0	50	1	51	0	0	0	34	2	36	97	0	97	0	0	0	50	2	52	0	0	0	0	0	0
12:45 to 13:00	0	0	0	54	1	55	0	0	0	27	3	30	85	3	88	0	0	0	41	3	44	0	0	0	0	0	0
13:00 to 13:15	0	0	0	59	1	60	0	0	0	29	3	32	88	1	89	0	0	0	36	2	38	0	0	0	0	0	0
13:15 to 13:30	0	0	0	55	0	55	0	0	0	27	1	28	81	1	82	0	0	0	39	4	43	0	0	0	0	0	0
13:30 to 13:45	0	0	0	62	0	62	0	0	0	26	2	28	72	2	74	0	0	0	38	1	39	0	0	0	0	0	0
13:45 to 14:00	0	0	0	67	1	68	0	0	0	25	3	28	81	1	82	0	0	0	41	2	43	0	0	0	0	0	0
SAT Total	0	0	0	697	4	701	0	0	0	312	28	340	1,028	20	1,048	0	0	0	512	27	539	0	0	0	0	0	0

Report Type:	Classified Intersection Data - 15min
Geocounts Job ID:	1669341479408
Client Job Number:	n/a
Client Name:	TTPP
Location:	Merrylands
Survey Site:	IC03 (Pitt Street/Merrylands Road)
Survey Date:	Tuesday, 7th February 2023
Site Coordinates:	-33.8367891, 150.9913543

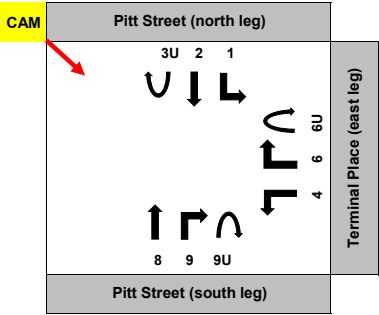


	Light	Heavy	HV%
Total Vehicles AM:	1,601	175	9.9%
Total Vehicles PM:	2,473	139	5.3%



Approach	Pitt Street (north leg)									Merrylands Road (east leg)									Merrylands Road (west leg)								
Movement	Movement 1 (Left Turn)			Movement 3 (Right Turn)			Movement 3U (U Turn)			Movement 5 (Through)			Movement 6 (Right Turn)			Movement 6U (U Turn)			Movement 10 (Left Turn)			Movement 11 (Through)			Movement 12U (U Turn)		
Time Interval	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
6:30 to 6:45	0	0	0	19	0	19	0	0	0	11	4	15	88	3	91	0	0	0	26	3	29	0	0	0	0	0	0
6:45 to 7:00	0	0	0	22	1	23	0	0	0	11	4	15	51	8	59	0	0	0	28	7	35	0	0	0	0	0	0
7:00 to 7:15	0	0	0	21	7	28	0	0	0	17	2	19	53	2	55	0	0	0	24	4	28	0	0	0	0	0	0
7:15 to 7:30	0	0	0	22	5	27	0	0	0	16	5	21	82	3	85	0	0	0	30	5	35	0	0	0	0	0	0
7:30 to 7:45	0	0	0	21	0	21	0	0	0	23	7	30	89	8	97	0	0	0	29	4	33	0	0	0	0	0	0
7:45 to 8:00	0	0	0	25	2	27	0	0	0	22	4	26	94	4	98	0	0	0	30	8	38	0	0	0	0	0	0
8:00 to 8:15	0	0	0	29	2	31	0	0	0	27	7	34	89	3	92	0	0	0	21	7	28	0	0	0	0	0	0
8:15 to 8:30	0	0	0	27	1	28	0	0	0	22	10	32	102	7	109	0	0	0	29	3	32	0	0	0	0	0	0
8:30 to 8:45	0	0	0	36	4	40	0	0	0	15	5	20	115	8	123	0	0	0	33	5	38	0	0	0	0	0	0
8:45 to 9:00	0	0	0	41	1	42	0	0	0	18	2	20	94	3	97	0	0	0	49	7	56	0	0	0	0	0	0
AM Total	0	0	0	263	23	286	0	0	0	182	50	232	857	49	906	0	0	0	299	53	352	0	0	0	0	0	0
15:30 to 15:45	0	0	0	62	0	62	0	0	0	23	4	27	74	4	78	0	0	0	45	4	49	0	0	0	0	0	0
15:45 to 16:00	0	0	0	66	2	68	0	0	0	18	6	24	73	5	78	0	0	0	55	1	56	0	0	0	0	0	0
16:00 to 16:15	0	0	0	60	0	60	0	0	0	20	4	24	92	1	93	0	0	0	41	7	48	0	0	0	0	0	0
16:15 to 16:30	0	0	0	66	0	66	0	0	0	24	3	27	91	3	94	0	0	0	33	1	34	0	0	0	0	0	0
16:30 to 16:45	0	0	0	50	1	51	0	0	0	27	5	32	82	7	89	0	0	0	39	5	44	0	0	0	0	0	0
16:45 to 17:00	0	0	0	53	1	54	0	0	0	22	4	26	84	5	89	0	0	0	38	6	44	0	0	0	0	0	0
17:00 to 17:15	0	0	0	50	0	50	0	0	0	15	3	18	94	6	100	0	0	0	47	2	49	0	0	0	0	0	0
17:15 to 17:30	0	0	0	47	1	48	0	0	0	23	5	28	99	1	100	0	0	0	24	3	27	0	0	0	0	0	0
17:30 to 17:45	0	0	0	69	1	70	0	0	0	33	6	39	88	4	92	0	0	0	37	2	39	0	0	0	0	0	0
17:45 to 18:00	0	0	0	52	0	52	0	0	0	18	4	22	83	2	85	0	0	0	35	5	40	0	0	0	0	0	0
18:00 to 18:15	0	0	0	64	0	64	0	0	0	31	2	33	79	1	80	0	0	0	50	1	51	0	0	0	0	0	0
18:15 to 18:30	0	0	0	50	0	50	0	0	0	25	6	31	81	1	82	0	0	0	41	4	45	0	0	0	0	0	0
PM Total	0	0	0	689	6	695	0	0	0	279	52	331	1,020	40	1,060	0	0	0	485	41	526	0	0	0	0	0	0

Report Type:	Classified Intersection Data - 15min
Geocounts Job ID:	1669341479408
Client Job Number:	n/a
Client Name:	TTPP
Location:	Merrylands
Survey Site:	IC04 (Pitt Street/Terminal Place)
Survey Date:	Saturday, 4th February 2023
Site Coordinates:	-33.8353142, 150.9917834

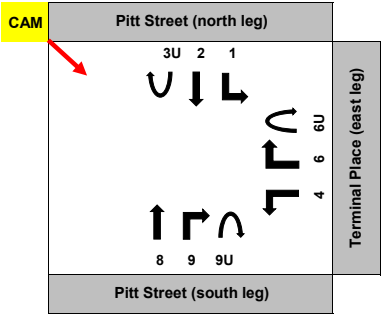


	Light	Heavy	HV%
Total Vehicles SAT:	3,387	101	2.9%



Approach	Pitt Street (north leg)									Terminal Place (east leg)									Pitt Street (south leg)								
Movement	Movement 1 (Left Turn)			Movement 2 (Through)			Movement 3U (U Turn)			Movement 4 (Left Turn)			Movement 6 (Right Turn)			Movement 6U (U Turn)			Movement 8 (Through)			Movement 9 (Right Turn)			Movement 9U (U Turn)		
Time Interval	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
11:00 to 11:15	42	2	44	52	0	52	0	0	0	0	0	0	0	0	0	0	0	0	148	3	151	12	2	14	0	0	0
11:15 to 11:30	56	6	62	41	0	41	0	0	0	0	0	0	0	0	0	0	0	0	152	5	157	19	0	19	0	0	0
11:30 to 11:45	48	1	49	66	0	66	0	0	0	0	0	0	0	0	0	0	0	0	156	4	160	13	1	14	0	0	0
11:45 to 12:00	65	4	69	78	0	78	0	0	0	0	0	0	0	0	0	0	0	0	137	4	141	14	0	14	0	0	0
12:00 to 12:15	50	4	54	55	0	55	0	0	0	0	0	0	0	0	0	0	0	0	157	4	161	25	2	27	0	0	0
12:15 to 12:30	51	5	56	51	0	51	0	0	0	0	0	0	0	0	0	0	0	0	184	5	189	22	0	22	0	0	0
12:30 to 12:45	57	3	60	53	1	54	0	0	0	0	0	0	0	0	0	0	0	0	160	3	163	21	1	22	0	0	0
12:45 to 13:00	51	4	55	53	1	54	0	0	0	0	0	0	0	0	0	0	0	0	157	5	162	16	0	16	1	0	1
13:00 to 13:15	61	3	64	60	1	61	0	0	0	0	0	0	0	0	0	0	0	0	136	4	140	17	2	19	0	0	0
13:15 to 13:30	60	2	62	55	0	55	0	0	0	0	0	0	0	0	0	0	0	0	148	5	153	18	0	18	1	0	1
13:30 to 13:45	43	2	45	59	0	59	0	0	0	0	0	0	0	0	0	0	0	0	130	3	133	22	1	23	0	0	0
13:45 to 14:00	66	3	69	76	0	76	1	0	1	0	0	0	0	0	0	0	0	0	152	4	156	19	1	20	0	0	0
SAT Total	650	39	689	699	3	702	1	0	1	0	0	0	0	0	0	0	0	0	1,817	49	1,866	218	10	228	2	0	2

Report Type:	Classified Intersection Data - 15min
Geocounts Job ID:	1669341479408
Client Job Number:	n/a
Client Name:	TTPP
Location:	Merrylands
Survey Site:	IC04 (Pitt Street/Terminal Place)
Survey Date:	Tuesday, 7th February 2023
Site Coordinates:	-33.8353142, 150.9917834



	Light	Heavy	HV%
Total Vehicles AM:	2,173	185	7.8%
Total Vehicles PM:	3,479	167	4.8%



Approach	Pitt Street (north leg)									Terminal Place (east leg)									Pitt Street (south leg)								
Movement	Movement 1 (Left Turn)			Movement 2 (Through)			Movement 3U (U Turn)			Movement 4 (Left Turn)			Movement 6 (Right Turn)			Movement 6U (U Turn)			Movement 8 (Through)			Movement 9 (Right Turn)			Movement 9U (U Turn)		
Time Interval	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
6:30 to 6:45	60	3	63	21	0	21	1	0	1	0	0	0	0	0	0	0	0	0	119	6	125	12	2	14	0	0	0
6:45 to 7:00	48	3	51	22	2	24	1	0	1	0	0	0	0	0	0	0	0	0	91	10	101	18	4	22	0	0	0
7:00 to 7:15	53	3	56	20	7	27	1	0	1	0	0	0	0	0	0	0	0	0	74	6	80	20	2	22	0	0	0
7:15 to 7:30	48	6	54	22	4	26	0	0	0	0	0	0	0	0	0	0	0	0	102	5	107	20	3	23	0	0	0
7:30 to 7:45	45	12	57	21	0	21	0	0	0	0	0	0	0	0	0	0	0	0	124	7	131	20	2	22	0	0	0
7:45 to 8:00	61	8	69	24	2	26	0	0	0	0	0	0	0	0	0	0	0	0	113	9	122	28	1	29	0	0	0
8:00 to 8:15	53	5	58	30	2	32	0	0	0	0	0	0	0	0	0	0	0	0	99	7	106	28	7	35	0	0	0
8:15 to 8:30	44	8	52	28	0	28	0	0	0	0	0	0	0	0	0	0	0	0	140	10	150	14	0	14	0	0	0
8:30 to 8:45	80	10	90	37	4	41	0	0	0	0	0	0	0	0	0	0	0	0	122	10	132	20	3	23	0	0	0
8:45 to 9:00	78	2	80	40	1	41	1	0	1	0	0	0	0	0	0	0	0	0	146	8	154	23	1	24	1	0	1
AM Total	570	60	630	265	22	287	4	0	4	0	0	0	0	0	0	0	0	0	1,130	78	1,208	203	25	228	1	0	1
15:30 to 15:45	79	4	83	63	0	63	0	0	0	0	0	0	0	0	0	0	0	0	136	8	144	17	7	24	0	0	0
15:45 to 16:00	85	6	91	64	2	66	0	0	0	0	0	0	0	0	0	0	0	0	128	5	133	20	3	23	0	0	0
16:00 to 16:15	83	7	90	55	0	55	0	0	0	0	0	0	0	0	0	0	0	0	153	6	159	22	1	23	0	0	0
16:15 to 16:30	71	5	76	73	0	73	0	0	0	0	0	0	0	0	0	0	0	0	132	4	136	13	3	16	0	0	0
16:30 to 16:45	67	6	73	48	1	49	0	0	0	0	0	0	0	0	0	0	0	0	140	12	152	29	2	31	0	0	0
16:45 to 17:00	65	5	70	51	1	52	0	0	0	0	0	0	0	0	0	0	0	0	125	7	132	19	3	22	0	0	0
17:00 to 17:15	76	2	78	55	0	55	0	0	0	0	0	0	0	0	0	0	0	0	161	6	167	11	2	13	0	0	0
17:15 to 17:30	71	5	76	47	1	48	0	0	0	0	0	0	0	0	0	0	0	0	161	5	166	17	2	19	0	0	0
17:30 to 17:45	72	5	77	75	0	75	0	0	0	0	0	0	0	0	0	0	0	0	137	7	144	18	2	20	0	0	0
17:45 to 18:00	71	7	78	52	0	52	0	0	0	0	0	0	0	0	0	0	0	0	125	7	132	26	1	27	0	0	0
18:00 to 18:15	63	2	65	60	0	60	0	0	0	0	0	0	0	0	0	0	0	0	139	2	141	21	1	22	0	0	0
18:15 to 18:30	70	7	77	47	0	47	0	0	0	0	0	0	0	0	0	0	0	0	145	3	148	20	2	22	1	0	1
PM Total	873	61	934	690	5	695	0	0	0	0	0	0	0	0	0	0	0	0	1,682	72	1,754	233	29	262	1	0	1

[illegible]

[illegible]

Appendix B

TfNSW and DPHI Advice



DATE OF DETERMINATION	16 March 2022
PANEL MEMBERS	Abigail Goldberg (Chair), David Ryan, Julie Savet Ward, Clr Diane Colman
APOLOGIES	None
DECLARATIONS OF INTEREST	Clr Ola Hamed and Clr Glenn Elmore have previously voted on the matter in council.

Public meeting held by Public Teleconference on 10 March 2022, opened at 1.30pm and closed at 2:10pm. Papers circulated electronically on 23 February 2022.

PLANNING PROPOSAL

2017SWC141 – Cumberland -PP-2020-1970 - 1 Crescent St, Holroyd, Rezoning from B5 Business Development to part B4 Mixed Use, R4 High Density Residential, SP2 Infrastructure and RE1 Public Open Space, and associated amendments to development controls.

PANEL CONSIDERATION AND DECISION

The Panel considered: the material listed at item 4, and the material presented at meetings listed at item 5 in Schedule 1.

As the planning proposal authority, the Panel determined to recommend to the Minister that the proposed instrument, as described in Schedule 1, should be made. The Panel adjourned during the meeting to deliberate on the matter and formulate a resolution. The decision was 3:1 in favour, against the decision was Clr Diane Colman.

REASONS FOR THE DECISION

The Panel deliberated on the matter, and it was agreed that the majority of the Panel supports the reasons outlined in the report provided by the Department of Planning and Environment, in particular:

- The proposal has satisfied all Gateway conditions.
- The proposal has been amended in response to issues raised in submissions to the public exhibition held in August 2020, as well as to matters of concern raised by Government Agencies, in particular Transport for NSW (TfNSW). These amendments include:
 - Incorporation of a TfNSW proposed land acquisition reservation in the order of 7% (2,710m²) of the site area
 - Reduction in retail Gross Floor Area (GFA) by 7,500m² to 2,500m²
 - Reduction in commercial premises permitted on site from 7,500m² to 5,000m²
 - In combination retail and commercial GFA is reduced by 50% to 7,500m².
 - Reduction of the footprint of the Woodville Road mixed use building
 - Reduction in trip rates for the development through travel demand management measures
 - Inclusion of car parking rates in any future LEP to ensure this reduces travel demand.
- The Department is progressing the draft State VPA offer lodged by the applicant. The draft State VPA includes monetary contributions in the order of \$12M and a 7% Affordable Housing component. The contribution to affordable housing is within the range that Council finds acceptable.
- The proposed additional open space resulting in 16,372m² of open space across the site, achieving about 43% of the site as publicly accessible open space.

The outstanding issue that the Panel has been asked to resolve is in relation to the TfNSW requirement for a pedestrian bridge over Woodville Road. In this regard the majority of the Panel did not support the

requirement for a pedestrian bridge due to there being insufficient evidence that such a bridge is required, and noting Council advice that other solutions to improve pedestrian crossings may be more appropriate.

However, the majority of the Panel has residual concerns regarding safe and effective pedestrian access to the site and its local context. As such, the Panel recommends that the following matters are further resolved via appropriate and sufficient funding mechanisms and a site specific DCP:

- Safe and effective pedestrian access to, from and within the site.
- Infrastructure to support the development – including in relation to pedestrian connectivity to stations and the provision of a shuttle bus throughout the life of the development.

The Panel recommends that these matters are resolved either:

- Before the instrument becomes operational (e.g. its commencement is deferred to enable State and Local VPA and/or contributions plan and a DCP to completed), or
- Prior to the granting of development consent (e.g. a satisfactory arrangement clause or similar, and a site specific DCP clause).

The Panel noted concerns regarding the need for schools in the local area considering population growth in the local area.

Councillor Diane Colman disagreed with the majority decision for the following reasons:

- The site is unsuitable for rezoning for residential housing due to potential contamination, location, noise and air quality issues.
- The proposal for high density housing does not meet the needs of the LGA which consists of family households and already has a greater proportion of high density zoning compared to greater Sydney.
- Local pressures from increased traffic and parking congestion on Crescent St and surrounding streets and, particularly, the intersection with Woodville Road are not adequately considered.
- The current industrial zoning of the site is more likely to create local jobs than the proposed rezoned use as there is no identified demand for additional retail space adjacent to Merrylands and Parramatta CBDs.

PANEL MEMBERS	
 Abigail Goldberg (Chair)	 David Ryan
 Julie Savet Ward	 Diane Colman

SCHEDULE 1		
1	PANEL REF – LGA – PLANNING PROPOSAL NO. - ADDRESS	2017SWC141 – Cumberland -PP-2020-1970 - 1 Crescent St, Holroyd
2	LEP TO BE AMENDED	Cumberland Local Environmental Plan 2021
3	PROPOSED INSTRUMENT	Planning proposal to amend Cumberland Local Environmental Plan 2021 and Rezone the site from B5 Business Development to part B4 Mixed Use, R4 High Density Residential, SP2 Infrastructure and RE1 Public Open Space, and associated amendments to development controls.
4	MATERIAL CONSIDERED BY THE PANEL	• Submissions report: 22 February 2022 • Written submissions during public exhibition: 14 • Verbal submissions at the public panel meeting: 2 ▪ Belinda Gray ▪ Daniel Cavallo (Director of Environment and Planning, Cumberland City Council) • On behalf of the applicant – Tim Blythe, Huw Williams, Ken Hollyoak, Oscar Stanish, Alison Lee
5	MEETINGS AND SITE INSPECTIONS BY THE PANEL	• Briefing: 22 July 2021, 11.01am to 12.04pm • <u>Panel members</u>: Abigail Goldberg (Chair), David Ryan, Julie Savet Ward, Ned Attie • <u>Department of Planning & Environment</u>: Christine Gough, Jorge Alvarez, Peter Pham • <u>Council staff</u>: Daniel Cavello, Daniel Anderson, Esra Calim • <u>Applicant</u>: Huw Williams, Tim Blythe • Council Briefing: 25 February 2022, 9.30am to 10.30am ○ <u>Panel members</u>: Abigail Goldberg (Chair), David Ryan, Julie Savet Ward ○ <u>Department of Planning & Environment</u>: Holly Villella, Jorge Alvarez ○ <u>Council staff</u>: Daniel Cavallo, Daniel Anderson, Jai Shankar, Sarah Sheehan, Marie DeSouza • Applicant Briefing: 10 March 2022, 12.30pm to 1.00pm ○ <u>Panel members</u>: Abigail Goldberg (Chair), David Ryan, Julie Savet Ward, Cllr Diane Colman ○ <u>Department of Planning & Environment</u>: Holly Villella, Jazmin van Veen ○ <u>Applicant</u>: Tim Blythe, Huw Williams, Ken Hollyoak, Oscar Stanish, Alison Lee, Lucas Hoy • <u>Observer</u>: Daniel Cavallo (Director of Environment and Planning, Cumberland City Council)

Appendix C

SIDRA Analysis

USER REPORT FOR SITE

All Movement Classes

 **Project: 16241-Crescent Parklands-230316- LEP Yields (2021)**

Template: Movement Summary

 **Site: 2746 [1.Pitt St / Walpole St (Site Folder: Current AM)]**

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 83 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABC

Reference Phase: Phase A

Input Phase Sequence: A, B, C

Output Phase Sequence: A, B, C

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Pitt St														
2	T1	777	29	818	3.7	0.638	10.7	LOS A	11.3	81.5	0.68	0.63	0.68	50.2
3	R2	272	16	286	5.9	* 0.638	26.6	LOS B	7.0	51.4	0.91	0.90	0.91	38.2
Approach		1049	45	1104	4.3	0.638	14.9	LOS B	11.3	81.5	0.74	0.70	0.74	46.4
East: Walpole St														
4	L2	179	17	188	9.5	0.232	18.1	LOS B	2.7	20.6	0.62	0.72	0.62	41.1
6	R2	96	1	101	1.0	* 0.276	35.3	LOS C	2.2	15.3	0.88	0.76	0.88	35.1
Approach		275	18	289	6.5	0.276	24.1	LOS B	2.7	20.6	0.71	0.73	0.71	38.7
North: Pitt St														
7	L2	71	1	75	1.4	0.555	27.9	LOS B	7.7	55.4	0.84	0.75	0.84	40.2
8	T1	674	22	709	3.3	* 0.555	22.3	LOS B	7.8	56.0	0.84	0.74	0.84	42.8
Approach		745	23	784	3.1	0.555	22.8	LOS B	7.8	56.0	0.84	0.74	0.84	42.5
All Vehicles		2069	86	2178	4.2	0.638	18.9	LOS B	11.3	81.5	0.77	0.72	0.77	43.8

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 0601 [2.Pitt St / Neil St (Site Folder: Current AM)]

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 101 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABCD

Reference Phase: Phase A

Input Phase Sequence: A, B, C, D

Output Phase Sequence: A, B, C, D

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Pitt St - S														
1	L2	14	0	15	0.0	* 0.733	48.2	LOS D	7.9	59.1	0.99	0.89	1.07	18.6
2	T1	307	26	323	8.5	0.733	43.6	LOS D	7.9	59.1	0.99	0.89	1.07	26.0
3	R2	179	9	188	5.0	0.733	48.2	LOS D	7.9	57.9	0.99	0.88	1.07	26.1
Approach		500	35	526	7.0	0.733	45.4	LOS D	7.9	59.1	0.99	0.89	1.07	25.9
East: Neil St - E														
4	L2	140	7	147	5.0	0.348	24.6	LOS B	5.5	39.5	0.69	0.69	0.69	37.1
5	T1	400	5	421	1.3	0.348	19.9	LOS B	5.7	40.3	0.70	0.63	0.70	40.6
6	R2	382	6	402	1.6	* 0.917	64.9	LOS E	13.1	92.8	1.00	1.19	1.38	27.7
Approach		922	18	971	2.0	0.917	39.3	LOS C	13.1	92.8	0.82	0.87	0.98	32.8
North: Pitt St - N														
7	L2	270	3	284	1.1	0.489	21.3	LOS B	3.9	27.6	0.86	0.80	0.86	42.7
8	T1	288	26	303	9.0	* 0.786	48.1	LOS D	7.6	57.6	1.00	0.92	1.16	24.9
9	R2	169	4	178	2.4	0.786	53.7	LOS D	7.5	54.5	1.00	0.91	1.16	25.0
Approach		727	33	765	4.5	0.786	39.4	LOS C	7.6	57.6	0.95	0.88	1.05	31.2
West: Neil St - W														
10	L2	80	2	84	2.5	0.767	50.9	LOS D	8.3	58.8	1.00	0.91	1.12	26.7
11	T1	437	6	460	1.4	* 0.767	45.4	LOS D	8.4	59.4	1.00	0.91	1.12	29.1
Approach		517	8	544	1.5	0.767	46.3	LOS D	8.4	59.4	1.00	0.91	1.12	28.7
All Vehicles		2666	94	2806	3.5	0.917	41.8	LOS C	13.1	92.8	0.92	0.88	1.04	30.3

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 4193 [3.Pitt St / Merrylands Rd (Site Folder: Current AM)]

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 53 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABC

Reference Phase: Phase A

Input Phase Sequence: A, B, C

Output Phase Sequence: A, B, C

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
East: Merrylands Rd														
5	T1	106	24	112	22.6	0.186	12.9	LOS A	1.2	10.4	0.72	0.58	0.72	23.9
6	R2	421	21	443	5.0	* 0.350	16.6	LOS B	2.6	19.3	0.78	0.76	0.78	19.0
Approach		527	45	555	8.5	0.350	15.9	LOS B	2.6	19.3	0.77	0.72	0.77	20.0
North: Pitt St														
9	R2	141	8	148	5.7	0.629	29.5	LOS C	2.5	18.0	0.99	0.85	1.10	20.0
Approach		141	8	148	5.7	0.629	29.5	LOS C	2.5	18.0	0.99	0.85	1.10	20.0
West: Merrylands Rd														
10	L2	154	22	162	14.3	* 0.717	30.9	LOS C	2.8	22.0	1.00	0.93	1.23	19.7
Approach		154	22	162	14.3	0.717	30.9	LOS C	2.8	22.0	1.00	0.93	1.23	19.7
All Vehicles		822	75	865	9.1	0.717	21.0	LOS B	2.8	22.0	0.85	0.78	0.91	19.9

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 2746 [4.Pitt St / Walpole St (Site Folder: Current PM)]

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 87 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABC

Reference Phase: Phase A

Input Phase Sequence: A, B, C

Output Phase Sequence: A, B, C

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Pitt St														
2	T1	625	22	658	3.5	0.506	11.2	LOS A	8.2	59.4	0.63	0.57	0.63	49.8
3	R2	180	7	189	3.9	* 0.506	27.3	LOS B	5.7	41.0	0.87	0.82	0.87	38.1
Approach		805	29	847	3.6	0.506	14.8	LOS B	8.2	59.4	0.68	0.62	0.68	46.6
East: Walpole St														
4	L2	262	10	276	3.8	0.319	18.7	LOS B	4.3	31.0	0.64	0.74	0.64	40.8
6	R2	60	3	63	5.0	* 0.166	34.8	LOS C	1.4	9.9	0.85	0.73	0.85	35.1
Approach		322	13	339	4.0	0.319	21.7	LOS B	4.3	31.0	0.68	0.74	0.68	39.5
North: Pitt St														
7	L2	44	2	46	4.5	0.634	30.3	LOS C	9.5	68.6	0.88	0.78	0.88	39.4
8	T1	791	32	833	4.0	* 0.634	24.6	LOS B	9.5	69.0	0.88	0.77	0.88	41.7
Approach		835	34	879	4.1	0.634	24.9	LOS B	9.5	69.0	0.88	0.77	0.88	41.6
All Vehicles		1962	76	2065	3.9	0.634	20.2	LOS B	9.5	69.0	0.77	0.71	0.77	43.1

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 0601 [5.Pitt St / Neil St (Site Folder: Current PM)]

Site Category: -

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

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABCD

Reference Phase: Phase A

Input Phase Sequence: A, B, C, D

Output Phase Sequence: A, B, C, D

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Pitt St - S														
1	L2	27	0	28	0.0	* 0.853	54.6	LOS D	10.2	74.0	1.00	1.03	1.25	16.9
2	T1	312	16	328	5.1	0.853	50.0	LOS D	10.3	73.7	1.00	1.02	1.25	24.1
3	R2	252	5	265	2.0	0.853	54.5	LOS D	10.3	73.7	1.00	0.98	1.25	24.3
Approach		591	21	622	3.6	0.853	52.1	LOS D	10.3	74.0	1.00	1.00	1.25	23.9
East: Neil St - E														
4	L2	216	3	227	1.4	0.483	27.4	LOS B	7.8	55.2	0.76	0.75	0.76	35.3
5	T1	469	2	494	0.4	0.483	22.7	LOS B	7.8	55.2	0.77	0.69	0.77	38.9
6	R2	337	5	355	1.5	* 0.973	83.3	LOS F	13.5	95.6	1.00	1.28	1.63	24.1
Approach		1022	10	1076	1.0	0.973	43.7	LOS D	13.5	95.6	0.85	0.90	1.05	30.8
North: Pitt St - N														
7	L2	277	7	292	2.5	0.554	22.5	LOS B	4.1	29.5	0.90	0.81	0.90	42.0
8	T1	371	22	391	5.9	* 0.895	55.6	LOS D	11.1	81.7	1.00	1.06	1.35	22.9
9	R2	224	4	236	1.8	0.895	61.3	LOS E	10.8	77.6	1.00	1.03	1.36	23.2
Approach		872	33	918	3.8	0.895	46.5	LOS D	11.1	81.7	0.97	0.97	1.21	28.4
West: Neil St - W														
10	L2	118	1	124	0.8	0.811	51.8	LOS D	9.5	67.1	1.00	0.95	1.17	26.3
11	T1	465	3	489	0.6	* 0.811	46.4	LOS D	9.7	68.0	1.00	0.95	1.17	28.7
Approach		583	4	614	0.7	0.811	47.5	LOS D	9.7	68.0	1.00	0.95	1.17	28.2
All Vehicles		3068	68	3229	2.2	0.973	46.8	LOS D	13.5	95.6	0.94	0.95	1.16	28.3

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 4193 [6.Pitt St / Merrylands Rd (Site Folder: Current PM)]

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 50 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABC

Reference Phase: Phase A

Input Phase Sequence: A, B, C

Output Phase Sequence: A, B, C

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %	v/c	sec		[Veh. veh	Dist] m				
East: Merrylands Rd														
5	T1	102	17	107	16.7	0.258	17.3	LOS B	1.4	10.9	0.85	0.67	0.85	21.0
6	R2	343	13	361	3.8	* 0.423	21.0	LOS B	2.4	17.3	0.89	0.78	0.89	16.8
Approach		445	30	468	6.7	0.423	20.2	LOS B	2.4	17.3	0.88	0.76	0.88	17.8
North: Pitt St														
9	R2	256	2	269	0.8	* 0.729	20.0	LOS B	3.7	26.0	0.89	0.82	0.94	23.9
Approach		256	2	269	0.8	0.729	20.0	LOS B	3.7	26.0	0.89	0.82	0.94	23.9
West: Merrylands Rd														
10	L2	187	13	197	7.0	0.685	29.9	LOS C	3.2	23.5	1.00	0.86	1.08	20.1
Approach		187	13	197	7.0	0.685	29.9	LOS C	3.2	23.5	1.00	0.86	1.08	20.1
All Vehicles		888	45	935	5.1	0.729	22.2	LOS B	3.7	26.0	0.91	0.79	0.94	20.3

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 2746 [7.Pitt St / Walpole St (Site Folder: Current SAT)]

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 64 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABC

Reference Phase: Phase A

Input Phase Sequence: A, B, C

Output Phase Sequence: A, B, C

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Pitt St														
2	T1	617	12	649	1.9	0.577	11.8	LOS A	7.4	52.9	0.75	0.66	0.75	49.3
3	R2	196	2	206	1.0	* 0.577	22.8	LOS B	4.6	32.2	0.91	0.80	0.91	40.1
Approach		813	14	856	1.7	0.577	14.4	LOS A	7.4	52.9	0.79	0.70	0.79	46.7
East: Walpole St														
4	L2	210	3	221	1.4	0.241	13.8	LOS A	2.3	16.6	0.59	0.71	0.59	43.4
6	R2	55	0	58	0.0	* 0.114	23.3	LOS B	0.8	5.9	0.78	0.71	0.78	39.7
Approach		265	3	279	1.1	0.241	15.8	LOS B	2.3	16.6	0.63	0.71	0.63	42.5
North: Pitt St														
7	L2	48	0	51	0.0	0.571	26.6	LOS B	5.4	38.2	0.90	0.77	0.90	40.8
8	T1	566	13	596	2.3	* 0.571	21.1	LOS B	5.4	38.5	0.90	0.77	0.90	43.5
Approach		614	13	646	2.1	0.571	21.5	LOS B	5.4	38.5	0.90	0.77	0.90	43.3
All Vehicles		1692	30	1781	1.8	0.577	17.2	LOS B	7.4	52.9	0.80	0.72	0.80	44.7

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 0601 [8.Pitt St / Neil St (Site Folder: Current SAT)]

Site Category: -

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

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABCD

Reference Phase: Phase A

Input Phase Sequence: A, B, C, D

Output Phase Sequence: A, B, C, D

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Pitt St - S														
1	L2	38	0	40	0.0	* 0.825	48.6	LOS D	12.0	85.9	1.00	0.98	1.16	18.4
2	T1	353	11	372	3.1	0.825	44.0	LOS D	12.0	85.9	1.00	0.98	1.16	25.9
3	R2	333	6	351	1.8	0.825	48.7	LOS D	11.9	84.5	1.00	0.94	1.16	25.8
Approach		724	17	762	2.3	0.825	46.4	LOS D	12.0	85.9	1.00	0.96	1.16	25.5
East: Neil St - E														
4	L2	190	3	200	1.6	0.496	29.7	LOS C	7.9	55.7	0.80	0.76	0.80	34.3
5	T1	477	2	502	0.4	0.496	25.0	LOS B	7.9	55.8	0.81	0.72	0.81	37.6
6	R2	247	6	260	2.4	* 0.849	57.4	LOS E	8.0	57.1	1.00	1.09	1.28	29.5
Approach		914	11	962	1.2	0.849	34.7	LOS C	8.0	57.1	0.86	0.83	0.93	33.9
North: Pitt St - N														
7	L2	219	3	231	1.4	0.548	25.1	LOS B	3.6	25.2	0.93	0.81	0.93	40.8
8	T1	245	12	258	4.9	* 0.802	48.2	LOS D	8.1	58.9	1.00	0.94	1.18	25.1
9	R2	234	2	246	0.9	0.802	53.9	LOS D	7.8	55.2	1.00	0.91	1.19	24.7
Approach		698	17	735	2.4	0.802	42.9	LOS D	8.1	58.9	0.98	0.89	1.10	29.7
West: Neil St - W														
10	L2	131	0	138	0.0	0.727	47.2	LOS D	8.3	58.6	0.98	0.87	1.05	27.6
11	T1	417	4	439	1.0	* 0.727	41.8	LOS C	8.5	59.8	0.99	0.87	1.05	30.2
Approach		548	4	577	0.7	0.727	43.1	LOS D	8.5	59.8	0.99	0.87	1.05	29.6
All Vehicles		2884	49	3036	1.7	0.849	41.2	LOS C	12.0	85.9	0.95	0.88	1.05	29.9

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 4193 [9.Pitt St / Merrylands Rd (Site Folder: Current SAT)]

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 51 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABC

Reference Phase: Phase A

Input Phase Sequence: A, B, C

Output Phase Sequence: A, B, C

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %	v/c	sec	[Veh. veh	Dist] m					
East: Merrylands Rd														
5	T1	116	9	122	7.8	0.243	16.0	LOS B	1.5	11.2	0.82	0.65	0.82	21.8
6	R2	393	10	414	2.5	* 0.420	19.8	LOS B	2.7	19.3	0.87	0.78	0.87	17.4
Approach		509	19	536	3.7	0.420	19.0	LOS B	2.7	19.3	0.85	0.75	0.85	18.3
North: Pitt St														
9	R2	219	2	231	0.9	* 0.708	27.6	LOS B	3.7	26.0	0.99	0.91	1.16	20.7
Approach		219	2	231	0.9	0.708	27.6	LOS B	3.7	26.0	0.99	0.91	1.16	20.7
West: Merrylands Rd														
10	L2	211	9	222	4.3	0.688	27.2	LOS B	3.5	25.5	0.99	0.89	1.13	21.0
Approach		211	9	222	4.3	0.688	27.2	LOS B	3.5	25.5	0.99	0.89	1.13	21.0
All Vehicles		939	30	988	3.2	0.708	22.8	LOS B	3.7	26.0	0.92	0.82	0.99	19.8

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 2746 [10.Pitt St / Walpole St (Site Folder: Future AM)]

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 83 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABC

Reference Phase: Phase A

Input Phase Sequence: A, B, C

Output Phase Sequence: A, B, C

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Pitt St														
2	T1	925	3.7	974	3.7	0.783	13.2	LOS A	16.7	120.5	0.80	0.75	0.81	48.5
3	R2	324	5.9	341	5.9	* 0.783	37.0	LOS C	8.8	64.9	0.97	1.05	1.10	34.1
Approach		1249	4.3	1315	4.3	0.783	19.4	LOS B	16.7	120.5	0.84	0.83	0.89	43.7
East: Walpole St														
4	L2	213	9.5	224	9.5	0.276	18.4	LOS B	3.3	25.1	0.64	0.73	0.64	40.9
6	R2	114	1.0	120	1.0	* 0.328	35.7	LOS C	2.6	18.4	0.90	0.77	0.90	34.9
Approach		327	6.5	344	6.5	0.328	24.4	LOS B	3.3	25.1	0.73	0.74	0.73	38.5
North: Pitt St														
7	L2	84	1.4	88	1.4	0.660	29.1	LOS C	9.7	69.4	0.89	0.79	0.89	39.6
8	T1	802	3.3	844	3.3	* 0.660	23.5	LOS B	9.7	70.1	0.89	0.78	0.89	42.2
Approach		886	3.1	933	3.1	0.660	24.0	LOS B	9.7	70.1	0.89	0.78	0.89	41.9
All Vehicles		2462	4.2	2592	4.2	0.783	21.7	LOS B	16.7	120.5	0.84	0.80	0.87	42.3

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 0601 [11.Pitt St / Neil St (Site Folder: Future AM)]

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 101 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABCD

Reference Phase: Phase A

Input Phase Sequence: A, B, C, D

Output Phase Sequence: A, B, C, D

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Pitt St - S														
1	L2	17	0.0	18	0.0	* 0.866	56.5	LOS D	10.5	78.7	1.00	1.05	1.28	16.6
2	T1	362	8.5	381	8.5	0.866	51.9	LOS D	10.5	78.7	1.00	1.04	1.28	23.5
3	R2	211	5.0	222	5.0	0.866	56.5	LOS E	10.5	77.1	1.00	1.01	1.28	23.9
Approach		590	7.0	621	7.0	0.866	53.7	LOS D	10.5	78.7	1.00	1.03	1.28	23.5
East: Neil St - E														
4	L2	165	5.0	174	5.0	0.410	25.3	LOS B	6.7	48.3	0.72	0.71	0.72	36.7
5	T1	472	1.3	497	1.3	0.410	20.6	LOS B	7.0	49.2	0.73	0.66	0.73	40.1
6	R2	451	1.6	475	1.6	* 1.146	168.3	LOS F	30.5	216.6	1.00	1.36	2.51	12.9
Approach		1088	2.0	1145	2.0	1.146	82.5	LOS F	30.5	216.6	0.84	0.96	1.47	19.7
North: Pitt St - N														
7	L2	319	1.1	336	1.1	0.578	21.8	LOS B	4.8	33.8	0.89	0.82	0.89	42.4
8	T1	340	9.0	358	9.0	* 0.928	63.3	LOS E	10.7	80.9	1.00	1.12	1.48	21.1
9	R2	199	2.4	209	2.4	0.928	69.0	LOS E	10.6	76.5	1.00	1.09	1.48	21.5
Approach		858	4.5	903	4.5	0.928	49.2	LOS D	10.7	80.9	0.96	1.00	1.26	27.9
West: Neil St - W														
10	L2	94	2.5	99	2.5	0.905	62.9	LOS E	11.4	81.0	1.00	1.08	1.38	23.5
11	T1	516	1.4	543	1.4	* 0.905	57.5	LOS E	11.5	81.8	1.00	1.08	1.38	25.6
Approach		610	1.5	642	1.5	0.905	58.3	LOS E	11.5	81.8	1.00	1.08	1.38	25.3
All Vehicles		3146	3.5	3312	3.5	1.146	63.3	LOS E	30.5	216.6	0.93	1.00	1.36	23.1

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 4193 [12.Pitt St / Merrylands Rd (Site Folder: Future AM)]

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 53 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABC

Reference Phase: Phase A

Input Phase Sequence: A, B, C

Output Phase Sequence: A, B, C

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
East: Merrylands Rd														
5	T1	119	22.6	125	22.6	0.209	13.0	LOS A	1.4	11.8	0.73	0.59	0.73	23.8
6	R2	472	5.0	497	5.0	* 0.393	16.9	LOS B	3.0	22.1	0.79	0.77	0.79	18.9
Approach		591	8.5	622	8.5	0.393	16.1	LOS B	3.0	22.1	0.78	0.73	0.78	19.9
North: Pitt St														
9	R2	158	5.7	166	5.7	0.705	30.5	LOS C	2.8	20.9	1.00	0.91	1.20	19.7
Approach		158	5.7	166	5.7	0.705	30.5	LOS C	2.8	20.9	1.00	0.91	1.20	19.7
West: Merrylands Rd														
10	L2	172	14.3	181	14.3	* 0.801	33.0	LOS C	3.3	25.8	1.00	1.03	1.40	19.1
Approach		172	14.3	181	14.3	0.801	33.0	LOS C	3.3	25.8	1.00	1.03	1.40	19.1
All Vehicles		921	9.1	969	9.1	0.801	21.7	LOS B	3.3	25.8	0.86	0.82	0.97	19.6

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 2746 [13.Pitt St / Walpole St (Site Folder: Future PM)]

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 87 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABC

Reference Phase: Phase A

Input Phase Sequence: A, B, C

Output Phase Sequence: A, B, C

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Pitt St														
2	T1	838	3.5	882	3.5	0.715	13.7	LOS A	14.4	103.8	0.76	0.70	0.76	48.1
3	R2	241	3.9	254	3.9	* 0.715	39.3	LOS C	7.2	52.3	0.96	1.00	1.02	33.4
Approach		1079	3.6	1136	3.6	0.715	19.4	LOS B	14.4	103.8	0.80	0.77	0.82	43.8
East: Walpole St														
4	L2	351	3.8	369	3.8	0.437	19.7	LOS B	6.2	44.5	0.69	0.76	0.69	40.3
6	R2	80	5.0	84	5.0	* 0.222	35.2	LOS C	1.8	13.4	0.86	0.75	0.86	35.0
Approach		431	4.0	454	4.0	0.437	22.6	LOS B	6.2	44.5	0.72	0.76	0.72	39.1
North: Pitt St														
7	L2	59	4.5	62	4.5	0.850	40.0	LOS C	16.2	117.1	0.99	1.00	1.15	35.6
8	T1	1060	4.0	1116	4.0	* 0.850	34.4	LOS C	16.2	117.6	0.99	1.00	1.15	37.3
Approach		1119	4.1	1178	4.1	0.850	34.7	LOS C	16.2	117.6	0.99	1.00	1.15	37.2
All Vehicles		2629	3.9	2767	3.9	0.850	26.4	LOS B	16.2	117.6	0.87	0.87	0.94	40.0

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 0601 [14.Pitt St / Neil St (Site Folder: Future PM)]

Site Category: -

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

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABCD

Reference Phase: Phase A

Input Phase Sequence: A, B, C, D

Output Phase Sequence: A, B, C, D

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Pitt St - S														
1	L2	33	0.0	35	0.0	1.040	117.0	LOS F	19.5	141.7	1.00	1.55	1.96	9.1
2	T1	381	5.1	401	5.1	* 1.040	112.4	LOS F	19.8	141.2	1.00	1.52	1.96	13.8
3	R2	307	2.0	323	2.0	1.040	116.7	LOS F	19.8	141.2	1.00	1.37	1.96	14.6
Approach		721	3.6	759	3.6	1.040	114.4	LOS F	19.8	141.7	1.00	1.46	1.96	14.0
East: Neil St - E														
4	L2	264	1.4	278	1.4	0.677	30.9	LOS C	12.3	87.0	0.87	0.81	0.87	33.8
5	T1	572	0.4	602	0.4	0.677	24.0	LOS B	12.3	87.0	0.82	0.73	0.82	38.0
6	R2	411	1.5	433	1.5	* 1.240	248.7	LOS F	34.4	244.2	1.00	1.53	3.06	9.9
Approach		1247	1.0	1313	1.0	1.240	99.5	LOS F	34.4	244.2	0.89	1.01	1.57	17.6
North: Pitt St - N														
7	L2	338	2.5	356	2.5	0.676	23.3	LOS B	5.3	37.7	0.94	0.83	0.94	41.6
8	T1	453	5.9	477	5.9	* 1.092	148.8	LOS F	23.3	171.4	1.00	1.60	2.25	11.1
9	R2	273	1.8	287	1.8	1.092	154.6	LOS F	22.7	162.6	1.00	1.48	2.25	11.8
Approach		1064	3.8	1120	3.8	1.092	110.4	LOS F	23.3	171.4	0.98	1.33	1.83	16.4
West: Neil St - W														
10	L2	144	0.8	152	0.8	0.989	88.3	LOS F	16.3	114.5	1.00	1.28	1.69	18.7
11	T1	567	0.6	597	0.6	* 0.989	82.9	LOS F	16.5	116.1	1.00	1.28	1.69	20.5
Approach		711	0.7	748	0.7	0.989	84.0	LOS F	16.5	116.1	1.00	1.28	1.69	20.1
All Vehicles		3743	2.2	3940	2.2	1.240	102.5	LOS F	34.4	244.2	0.96	1.24	1.74	16.9

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 4193 [15.Pitt St / Merrylands Rd (Site Folder: Future PM)]

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 50 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABC

Reference Phase: Phase A

Input Phase Sequence: A, B, C

Output Phase Sequence: A, B, C

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
East: Merrylands Rd														
5	T1	114	16.7	120	16.7	0.289	17.5	LOS B	1.5	12.3	0.86	0.68	0.86	20.9
6	R2	384	3.8	404	3.8	*0.473	21.3	LOS B	2.7	19.7	0.90	0.79	0.90	16.7
Approach		498	6.7	524	6.7	0.473	20.4	LOS B	2.7	19.7	0.89	0.76	0.89	17.6
North: Pitt St														
9	R2	287	0.8	302	0.8	*0.818	21.0	LOS B	4.4	31.2	0.94	0.86	1.04	23.4
Approach		287	0.8	302	0.8	0.818	21.0	LOS B	4.4	31.2	0.94	0.86	1.04	23.4
West: Merrylands Rd														
10	L2	209	7.0	220	7.0	0.765	31.0	LOS C	3.6	26.9	1.00	0.90	1.15	19.7
Approach		209	7.0	220	7.0	0.765	31.0	LOS C	3.6	26.9	1.00	0.90	1.15	19.7
All Vehicles		994	5.1	1046	5.1	0.818	22.8	LOS B	4.4	31.2	0.93	0.82	0.99	20.0

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 2746 [16.Pitt St / Walpole St (Site Folder: Future SAT)]

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 64 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABC

Reference Phase: Phase A

Input Phase Sequence: A, B, C

Output Phase Sequence: A, B, C

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Pitt St														
2	T1	827	1.9	871	1.9	0.817	18.6	LOS B	14.7	104.5	0.90	0.91	1.02	45.0
3	R2	263	1.0	277	1.0	* 0.817	35.3	LOS C	6.4	45.6	1.00	1.06	1.27	34.8
Approach		1090	1.7	1147	1.7	0.817	22.6	LOS B	14.7	104.5	0.92	0.95	1.08	42.0
East: Walpole St														
4	L2	281	1.4	296	1.4	0.322	14.3	LOS A	3.3	23.4	0.62	0.73	0.62	43.1
6	R2	74	0.0	78	0.0	* 0.154	23.5	LOS B	1.1	8.0	0.79	0.73	0.79	39.6
Approach		355	1.1	374	1.1	0.322	16.2	LOS B	3.3	23.4	0.65	0.73	0.65	42.3
North: Pitt St														
7	L2	64	0.0	67	0.0	0.764	30.7	LOS C	8.3	58.9	0.97	0.91	1.09	39.0
8	T1	758	2.3	798	2.3	* 0.764	25.1	LOS B	8.3	59.4	0.97	0.91	1.09	41.4
Approach		822	2.1	865	2.1	0.764	25.6	LOS B	8.3	59.4	0.97	0.91	1.09	41.2
All Vehicles		2267	1.8	2386	1.8	0.817	22.7	LOS B	14.7	104.5	0.90	0.90	1.02	41.7

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 0601 [17.Pitt St / Neil St (Site Folder: Future SAT)]

Site Category: -

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

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABCD

Reference Phase: Phase A

Input Phase Sequence: A, B, C, D

Output Phase Sequence: A, B, C, D

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Pitt St - S														
1	L2	46	0.0	48	0.0	1.006	95.3	LOS F	22.0	157.4	1.00	1.43	1.73	11.0
2	T1	431	3.1	454	3.1	* 1.006	90.8	LOS F	22.0	157.4	1.00	1.41	1.73	16.3
3	R2	406	1.8	427	1.8	1.006	95.5	LOS F	21.7	154.7	1.00	1.25	1.73	16.9
Approach		883	2.3	929	2.3	1.006	93.2	LOS F	22.0	157.4	1.00	1.34	1.73	16.4
East: Neil St - E														
4	L2	232	1.6	244	1.6	0.686	32.3	LOS C	12.0	84.9	0.89	0.82	0.89	33.2
5	T1	582	0.4	613	0.4	0.686	26.1	LOS B	12.0	84.9	0.85	0.75	0.85	36.9
6	R2	301	2.4	317	2.4	* 1.155	175.6	LOS F	21.0	150.2	1.00	1.36	2.63	12.6
Approach		1115	1.2	1174	1.2	1.155	67.8	LOS E	21.0	150.2	0.90	0.93	1.34	22.2
North: Pitt St - N														
7	L2	267	1.4	281	1.4	0.668	25.9	LOS B	4.5	32.1	0.96	0.83	0.97	40.3
8	T1	299	4.9	315	4.9	* 0.978	78.6	LOS F	13.1	95.9	1.00	1.24	1.67	18.4
9	R2	285	0.9	300	0.9	0.978	84.6	LOS F	12.8	90.0	1.00	1.12	1.68	18.6
Approach		851	2.4	896	2.4	0.978	64.1	LOS E	13.1	95.9	0.99	1.07	1.46	23.8
West: Neil St - W														
10	L2	160	0.0	168	0.0	0.888	58.5	LOS E	12.0	84.4	1.00	1.05	1.31	24.3
11	T1	509	1.0	536	1.0	* 0.888	53.1	LOS D	12.2	86.0	1.00	1.05	1.31	26.7
Approach		669	0.7	704	0.7	0.888	54.4	LOS D	12.2	86.0	1.00	1.05	1.31	26.2
All Vehicles		3518	1.7	3703	1.7	1.155	70.7	LOS F	22.0	157.4	0.96	1.09	1.46	21.5

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 4193 [18.Pitt St / Merrylands Rd (Site Folder: Future SAT)]

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 51 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABC

Reference Phase: Phase A

Input Phase Sequence: A, B, C

Output Phase Sequence: A, B, C

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
East: Merrylands Rd														
5	T1	130	7.8	137	7.8	0.273	16.2	LOS B	1.7	12.7	0.82	0.66	0.82	21.7
6	R2	440	2.5	463	2.5	* 0.470	20.1	LOS B	3.1	22.0	0.88	0.79	0.88	17.2
Approach		570	3.7	600	3.7	0.470	19.2	LOS B	3.1	22.0	0.87	0.76	0.87	18.2
North: Pitt St														
9	R2	245	0.9	258	0.9	* 0.792	29.8	LOS C	4.4	31.0	1.00	0.99	1.31	19.9
Approach		245	0.9	258	0.9	0.792	29.8	LOS C	4.4	31.0	1.00	0.99	1.31	19.9
West: Merrylands Rd														
10	L2	236	4.3	248	4.3	0.769	29.0	LOS C	4.2	30.1	1.00	0.97	1.27	20.4
Approach		236	4.3	248	4.3	0.769	29.0	LOS C	4.2	30.1	1.00	0.97	1.27	20.4
All Vehicles		1051	3.2	1106	3.2	0.792	23.9	LOS B	4.4	31.0	0.93	0.86	1.06	19.3

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 2746 [19.Pitt St / Walpole St (Site Folder: Future AM + Subject Dev)]

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 83 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABC

Reference Phase: Phase A

Input Phase Sequence: A, B, C

Output Phase Sequence: A, B, C

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Pitt St														
2	T1	920	3.7	968	3.7	0.825	15.3	LOS B	19.9	143.7	0.83	0.81	0.88	47.2
3	R2	378	5.9	398	5.9	* 0.835	43.1	LOS D	9.6	70.8	1.00	1.10	1.22	31.9
Approach		1298	4.4	1366	4.4	0.835	23.4	LOS B	19.9	143.7	0.88	0.89	0.98	41.4
East: Walpole St														
4	L2	343	9.5	361	9.5	0.445	19.9	LOS B	5.9	44.8	0.70	0.77	0.70	40.2
6	R2	186	1.0	196	1.0	* 0.535	37.3	LOS C	4.5	31.6	0.94	0.81	0.94	34.4
Approach		529	6.5	557	6.5	0.535	26.0	LOS B	5.9	44.8	0.79	0.78	0.79	37.8
North: Pitt St														
7	L2	116	1.4	122	1.4	0.682	29.3	LOS C	10.1	72.3	0.90	0.80	0.90	39.4
8	T1	799	3.3	841	3.3	* 0.682	23.7	LOS B	10.2	73.3	0.90	0.80	0.90	42.0
Approach		915	3.0	963	3.0	0.682	24.5	LOS B	10.2	73.3	0.90	0.80	0.90	41.6
All Vehicles		2742	4.3	2886	4.3	0.835	24.3	LOS B	19.9	143.7	0.87	0.84	0.92	40.7

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 0601 [20.Pitt St / Neil St (Site Folder: Future AM + Subject Dev)]

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 101 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABCD

Reference Phase: Phase A

Input Phase Sequence: A, B, C, D

Output Phase Sequence: A, B, C, D

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Pitt St - S														
1	L2	17	0.0	18	0.0	* 0.896	60.5	LOS E	11.4	85.4	1.00	1.10	1.35	15.7
2	T1	383	8.5	403	8.5	0.896	55.9	LOS D	11.4	85.4	1.00	1.09	1.35	22.5
3	R2	211	5.0	222	5.0	0.896	60.5	LOS E	11.4	83.7	1.00	1.06	1.35	23.0
Approach		611	7.0	643	7.0	0.896	57.6	LOS E	11.4	85.4	1.00	1.08	1.35	22.5
East: Neil St - E														
4	L2	165	5.0	174	5.0	0.410	25.3	LOS B	6.7	48.3	0.72	0.71	0.72	36.7
5	T1	472	1.3	497	1.3	0.410	20.6	LOS B	7.0	49.2	0.73	0.66	0.73	40.1
6	R2	474	1.6	499	1.6	* 1.221	230.7	LOS F	38.0	269.4	1.00	1.47	2.92	10.4
Approach		1111	1.9	1169	1.9	1.221	110.9	LOS F	38.0	269.4	0.84	1.01	1.66	16.4
North: Pitt St - N														
7	L2	367	1.1	386	1.1	0.665	22.4	LOS B	5.7	40.3	0.92	0.83	0.92	42.1
8	T1	391	9.0	412	9.0	* 1.067	131.2	LOS F	18.4	138.7	1.00	1.49	2.12	12.3
9	R2	229	2.4	241	2.4	1.067	136.9	LOS F	18.1	131.2	1.00	1.42	2.13	13.0
Approach		987	4.5	1039	4.5	1.067	92.1	LOS F	18.4	138.7	0.97	1.23	1.68	19.0
West: Neil St - W														
10	L2	99	2.5	104	2.5	0.913	64.3	LOS E	11.7	82.8	1.00	1.09	1.40	23.1
11	T1	516	1.4	543	1.4	* 0.913	58.9	LOS E	11.8	83.7	1.00	1.09	1.40	25.3
Approach		615	1.6	647	1.6	0.913	59.8	LOS E	11.8	83.7	1.00	1.09	1.40	24.9
All Vehicles		3324	3.6	3499	3.6	1.221	86.1	LOS F	38.0	269.4	0.94	1.10	1.56	19.2

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 4193 [21.Pitt St / Merrylands Rd (Site Folder: Future AM + Subject Dev)]

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 53 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABC

Reference Phase: Phase A

Input Phase Sequence: A, B, C

Output Phase Sequence: A, B, C

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
East: Merrylands Rd														
5	T1	119	22.6	125	22.6	0.209	13.0	LOS A	1.4	11.8	0.73	0.59	0.73	23.8
6	R2	488	5.0	514	5.0	* 0.406	17.0	LOS B	3.1	23.0	0.80	0.77	0.80	18.8
Approach		607	8.4	639	8.4	0.406	16.2	LOS B	3.1	23.0	0.78	0.74	0.78	19.8
North: Pitt St														
9	R2	209	5.7	220	5.7	* 0.933	43.7	LOS D	4.8	35.2	1.00	1.31	1.92	16.1
Approach		209	5.7	220	5.7	0.933	43.7	LOS D	4.8	35.2	1.00	1.31	1.92	16.1
West: Merrylands Rd														
10	L2	177	14.3	186	14.3	0.824	33.9	LOS C	3.4	27.1	1.00	1.06	1.46	18.8
Approach		177	14.3	186	14.3	0.824	33.9	LOS C	3.4	27.1	1.00	1.06	1.46	18.8
All Vehicles		993	8.9	1045	8.9	0.933	25.1	LOS B	4.8	35.2	0.87	0.91	1.14	18.3

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 2746 [22.Pitt St / Walpole St (Site Folder: Future PM + Subject Dev)]

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 87 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABC

Reference Phase: Phase A

Input Phase Sequence: A, B, C

Output Phase Sequence: A, B, C

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Pitt St														
2	T1	834	3.5	878	3.5	0.768	12.8	LOS A	16.5	118.8	0.79	0.72	0.79	49.0
3	R2	344	3.9	362	3.9	* 0.872	51.6	LOS D	9.6	69.1	1.00	1.13	1.31	29.5
Approach		1178	3.6	1240	3.6	0.872	24.1	LOS B	16.5	118.8	0.85	0.84	0.94	41.1
East: Walpole St														
4	L2	431	3.8	454	3.8	0.610	20.7	LOS B	8.1	58.2	0.73	0.78	0.73	39.8
6	R2	117	5.0	123	5.0	* 0.325	36.1	LOS C	2.8	20.1	0.88	0.77	0.88	34.7
Approach		548	4.1	577	4.1	0.610	24.0	LOS B	8.1	58.2	0.76	0.78	0.76	38.6
North: Pitt St														
7	L2	132	4.5	139	4.5	0.904	48.3	LOS D	19.4	140.5	1.00	1.10	1.29	32.8
8	T1	1055	4.0	1111	4.0	* 0.904	42.6	LOS D	19.6	141.8	1.00	1.10	1.29	34.1
Approach		1187	4.1	1249	4.1	0.904	43.2	LOS D	19.6	141.8	1.00	1.10	1.29	33.9
All Vehicles		2913	3.9	3066	3.9	0.904	31.9	LOS C	19.6	141.8	0.89	0.94	1.05	37.4

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 0601 [23.Pitt St / Neil St (Site Folder: Future PM + Subject Dev)]

Site Category: -

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

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABCD

Reference Phase: Phase A

Input Phase Sequence: A, B, C, D

Output Phase Sequence: A, B, C, D

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Pitt St - S														
1	L2	33	0.0	35	0.0	1.100	159.8	LOS F	24.7	179.5	1.00	1.79	2.29	6.9
2	T1	424	5.1	446	5.1	* 1.100	155.2	LOS F	25.0	179.0	1.00	1.75	2.29	10.6
3	R2	307	2.0	323	2.0	1.100	159.6	LOS F	25.0	179.0	1.00	1.57	2.29	11.4
Approach		764	3.6	804	3.6	1.100	157.2	LOS F	25.0	179.5	1.00	1.68	2.29	10.8
East: Neil St - E														
4	L2	264	1.4	278	1.4	0.679	30.9	LOS C	12.4	87.5	0.87	0.81	0.87	33.8
5	T1	572	0.4	602	0.4	0.679	24.0	LOS B	12.4	87.5	0.82	0.73	0.82	38.0
6	R2	452	1.5	476	1.5	* 1.364	357.5	LOS F	46.2	327.2	1.00	1.74	3.65	7.5
Approach		1288	1.0	1356	1.0	1.364	142.5	LOS F	46.2	327.2	0.89	1.10	1.82	13.9
North: Pitt St - N														
7	L2	363	2.5	382	2.5	0.726	24.6	LOS B	6.0	42.7	0.96	0.85	0.99	41.0
8	T1	487	5.9	513	5.9	* 1.175	214.7	LOS F	30.9	227.3	1.00	1.88	2.71	8.1
9	R2	294	1.8	309	1.8	1.175	220.5	LOS F	30.1	215.5	1.00	1.72	2.71	8.8
Approach		1144	3.8	1204	3.8	1.175	155.9	LOS F	30.9	227.3	0.99	1.51	2.16	12.6
West: Neil St - W														
10	L2	158	0.8	166	0.8	1.009	99.1	LOS F	17.7	124.9	1.00	1.35	1.79	17.1
11	T1	567	0.6	597	0.6	* 1.009	93.4	LOS F	17.9	126.3	1.00	1.35	1.79	18.9
Approach		725	0.7	763	0.7	1.009	94.7	LOS F	17.9	126.3	1.00	1.35	1.79	18.5
All Vehicles		3921	2.3	4127	2.3	1.364	140.4	LOS F	46.2	327.2	0.96	1.38	2.01	13.5

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 4193 [24.Pitt St / Merrylands Rd (Site Folder: Future PM + Subject Dev)]

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 50 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABC

Reference Phase: Phase A

Input Phase Sequence: A, B, C

Output Phase Sequence: A, B, C

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
East: Merrylands Rd														
5	T1	114	16.7	120	16.7	0.289	17.5	LOS B	1.5	12.3	0.86	0.68	0.86	20.9
6	R2	413	3.8	435	3.8	* 0.509	21.5	LOS B	3.0	21.4	0.91	0.80	0.91	16.6
Approach		527	6.6	555	6.6	0.509	20.6	LOS B	3.0	21.4	0.90	0.77	0.90	17.5
North: Pitt St														
9	R2	321	0.8	338	0.8	* 0.915	23.7	LOS B	5.5	39.0	1.00	0.96	1.23	22.2
Approach		321	0.8	338	0.8	0.915	23.7	LOS B	5.5	39.0	1.00	0.96	1.23	22.2
West: Merrylands Rd														
10	L2	223	7.0	235	7.0	0.816	32.0	LOS C	3.9	29.3	1.00	0.94	1.21	19.4
Approach		223	7.0	235	7.0	0.816	32.0	LOS C	3.9	29.3	1.00	0.94	1.21	19.4
All Vehicles		1071	4.9	1127	4.9	0.915	23.9	LOS B	5.5	39.0	0.95	0.86	1.06	19.6

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 2746 [25.Pitt St / Walpole St (Site Folder: Future SAT + Subject Dev)]

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 64 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABC

Reference Phase: Phase A

Input Phase Sequence: A, B, C

Output Phase Sequence: A, B, C

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Pitt St														
2	T1	822	1.9	865	1.9	0.876	24.2	LOS B	18.7	133.0	0.95	1.04	1.17	42.1
3	R2	345	1.0	363	1.0	* 0.932	50.6	LOS D	8.5	60.4	1.00	1.22	1.67	29.8
Approach		1167	1.7	1228	1.7	0.932	32.0	LOS C	18.7	133.0	0.96	1.09	1.32	37.5
East: Walpole St														
4	L2	391	1.4	412	1.4	0.448	15.2	LOS B	5.0	35.5	0.67	0.76	0.67	42.7
6	R2	116	0.0	122	0.0	* 0.241	24.1	LOS B	1.8	12.9	0.81	0.75	0.81	39.3
Approach		507	1.1	534	1.1	0.448	17.2	LOS B	5.0	35.5	0.70	0.76	0.70	41.8
North: Pitt St														
7	L2	102	0.0	107	0.0	0.795	32.1	LOS C	8.9	63.4	0.98	0.95	1.15	38.2
8	T1	752	2.3	792	2.3	* 0.795	26.6	LOS B	9.0	64.1	0.98	0.95	1.15	40.6
Approach		854	2.0	899	2.0	0.795	27.2	LOS B	9.0	64.1	0.98	0.95	1.15	40.3
All Vehicles		2528	1.7	2661	1.7	0.932	27.4	LOS B	18.7	133.0	0.92	0.98	1.14	39.2

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 0601 [26.Pitt St / Neil St (Site Folder: Future SAT + Subject Dev)]

Site Category: -

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

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABCD

Reference Phase: Phase A

Input Phase Sequence: A, B, C, D

Output Phase Sequence: A, B, C, D

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Pitt St - S														
1	L2	46	0.0	48	0.0	1.050	122.1	LOS F	26.3	188.6	1.00	1.61	1.96	8.8
2	T1	471	3.1	496	3.1	* 1.050	117.6	LOS F	26.3	188.6	1.00	1.58	1.96	13.3
3	R2	406	1.8	427	1.8	1.050	122.3	LOS F	26.1	185.5	1.00	1.38	1.97	14.0
Approach		923	2.4	972	2.4	1.050	119.9	LOS F	26.3	188.6	1.00	1.49	1.96	13.5
East: Neil St - E														
4	L2	232	1.6	244	1.6	0.694	33.1	LOS C	12.3	86.9	0.90	0.82	0.90	32.9
5	T1	582	0.4	613	0.4	0.694	26.5	LOS B	12.3	86.9	0.85	0.76	0.86	36.7
6	R2	325	2.4	342	2.4	* 1.261	267.1	LOS F	28.5	204.0	1.00	1.55	3.19	9.4
Approach		1139	1.2	1199	1.2	1.261	96.5	LOS F	28.5	204.0	0.90	1.00	1.53	18.0
North: Pitt St - N														
7	L2	301	1.4	317	1.4	0.753	28.3	LOS B	5.5	39.3	0.99	0.87	1.07	39.2
8	T1	338	4.9	356	4.9	* 1.105	158.9	LOS F	21.9	159.9	1.00	1.64	2.34	10.5
9	R2	322	0.9	339	0.9	1.105	164.8	LOS F	21.2	149.8	1.00	1.39	2.35	11.1
Approach		961	2.4	1012	2.4	1.105	120.0	LOS F	21.9	159.9	1.00	1.31	1.94	15.4
West: Neil St - W														
10	L2	173	0.0	182	0.0	0.906	61.4	LOS E	12.6	88.7	1.00	1.07	1.36	23.6
11	T1	509	1.0	536	1.0	* 0.906	56.0	LOS D	12.8	90.6	1.00	1.08	1.36	26.0
Approach		682	0.7	718	0.7	0.906	57.4	LOS E	12.8	90.6	1.00	1.08	1.36	25.4
All Vehicles		3705	1.7	3900	1.7	1.261	101.2	LOS F	28.5	204.0	0.97	1.22	1.71	16.9

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 4193 [27.Pitt St / Merrylands Rd (Site Folder: Future SAT + Subject Dev)]

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 51 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABC

Reference Phase: Phase A

Input Phase Sequence: A, B, C

Output Phase Sequence: A, B, C

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
East: Merrylands Rd														
5	T1	130	7.8	137	7.8	0.273	16.2	LOS B	1.7	12.7	0.82	0.66	0.82	21.7
6	R2	467	2.5	492	2.5	* 0.499	20.3	LOS B	3.3	23.5	0.89	0.80	0.89	17.1
Approach		597	3.7	628	3.7	0.499	19.4	LOS B	3.3	23.5	0.87	0.77	0.87	18.1
North: Pitt St														
9	R2	284	0.9	299	0.9	* 0.918	39.5	LOS C	6.2	43.4	1.00	1.24	1.76	17.1
Approach		284	0.9	299	0.9	0.918	39.5	LOS C	6.2	43.4	1.00	1.24	1.76	17.1
West: Merrylands Rd														
10	L2	249	4.3	262	4.3	0.811	30.6	LOS C	4.5	33.0	1.00	1.03	1.36	19.8
Approach		249	4.3	262	4.3	0.811	30.6	LOS C	4.5	33.0	1.00	1.03	1.36	19.8
All Vehicles		1130	3.1	1189	3.1	0.918	26.9	LOS B	6.2	43.4	0.93	0.94	1.20	18.2

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 2746 [28.Pitt/ Walpole St (Site Folder: Future AM + Approved Dev)]

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 83 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABC

Reference Phase: Phase A

Input Phase Sequence: A, B, C

Output Phase Sequence: A, B, C

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Pitt St														
2	T1	942	3.7	992	3.7	0.818	15.3	LOS B	19.3	139.4	0.83	0.80	0.87	47.1
3	R2	352	5.9	371	5.9	* 0.818	40.6	LOS C	9.5	69.7	0.99	1.09	1.18	32.8
Approach		1294	4.3	1362	4.3	0.818	22.2	LOS B	19.3	139.4	0.87	0.88	0.96	42.1
East: Walpole St														
4	L2	249	9.5	262	9.5	0.323	18.8	LOS B	4.0	30.2	0.65	0.74	0.65	40.7
6	R2	114	1.0	120	1.0	* 0.328	35.7	LOS C	2.6	18.4	0.90	0.77	0.90	34.9
Approach		363	6.8	382	6.8	0.328	24.1	LOS B	4.0	30.2	0.73	0.75	0.73	38.6
North: Pitt St														
7	L2	84	1.4	88	1.4	0.671	29.2	LOS C	9.9	71.0	0.89	0.80	0.89	39.6
8	T1	817	3.3	860	3.3	* 0.671	23.6	LOS B	10.0	71.7	0.89	0.79	0.89	42.1
Approach		901	3.1	948	3.1	0.671	24.1	LOS B	10.0	71.7	0.89	0.79	0.89	41.9
All Vehicles		2558	4.2	2693	4.2	0.818	23.1	LOS B	19.3	139.4	0.86	0.83	0.90	41.5

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 0601 [29.Pitt St / Neil St (Site Folder: Future AM + Approved Dev)]

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 101 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABCD

Reference Phase: Phase A

Input Phase Sequence: A, B, C, D

Output Phase Sequence: A, B, C, D

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Pitt St - S														
1	L2	17	0.0	18	0.0	0.973	81.5	LOS F	14.8	111.0	1.00	1.31	1.63	12.5
2	T1	409	8.5	431	8.5	* 0.973	76.9	LOS F	14.8	111.0	1.00	1.29	1.63	18.3
3	R2	238	5.0	251	5.0	0.973	81.6	LOS F	14.8	108.6	1.00	1.22	1.63	19.0
Approach		664	7.0	699	7.0	0.973	78.7	LOS F	14.8	111.0	1.00	1.26	1.63	18.5
East: Neil St - E														
4	L2	165	5.0	174	5.0	0.410	25.3	LOS B	6.7	48.3	0.72	0.71	0.72	36.7
5	T1	472	1.3	497	1.3	0.410	20.6	LOS B	7.0	49.2	0.73	0.66	0.73	40.1
6	R2	451	1.6	475	1.6	* 1.146	168.3	LOS F	30.5	216.6	1.00	1.36	2.51	12.9
Approach		1088	2.0	1145	2.0	1.146	82.5	LOS F	30.5	216.6	0.84	0.96	1.47	19.7
North: Pitt St - N														
7	L2	331	1.1	348	1.1	0.600	22.0	LOS B	5.0	35.4	0.90	0.82	0.90	42.3
8	T1	366	9.0	385	9.0	* 0.972	77.1	LOS F	12.5	94.5	1.00	1.22	1.65	18.5
9	R2	199	2.4	209	2.4	0.972	82.9	LOS F	12.3	89.6	1.00	1.19	1.66	19.1
Approach		896	4.6	943	4.6	0.972	58.0	LOS E	12.5	94.5	0.96	1.06	1.37	25.5
West: Neil St - W														
10	L2	94	2.5	99	2.5	0.905	62.9	LOS E	11.4	81.0	1.00	1.08	1.38	23.5
11	T1	516	1.4	543	1.4	* 0.905	57.5	LOS E	11.5	81.8	1.00	1.08	1.38	25.6
Approach		610	1.5	642	1.5	0.905	58.3	LOS E	11.5	81.8	1.00	1.08	1.38	25.3
All Vehicles		3258	3.6	3429	3.6	1.146	70.5	LOS E	30.5	216.6	0.94	1.07	1.46	21.7

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 4193 [30.Pitt St / Merrylands Rd (Site Folder: Future AM + Approved Dev)]

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 53 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABC

Reference Phase: Phase A

Input Phase Sequence: A, B, C

Output Phase Sequence: A, B, C

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
East: Merrylands Rd														
5	T1	123	22.6	129	22.6	0.216	13.1	LOS A	1.5	12.2	0.73	0.59	0.73	23.8
6	R2	533	5.0	561	5.0	*0.443	17.2	LOS B	3.5	25.5	0.81	0.78	0.81	18.7
Approach		656	8.3	691	8.3	0.443	16.4	LOS B	3.5	25.5	0.79	0.74	0.79	19.6
North: Pitt St														
9	R2	162	5.7	171	5.7	0.723	30.9	LOS C	2.9	21.6	1.00	0.93	1.23	19.6
Approach		162	5.7	171	5.7	0.723	30.9	LOS C	2.9	21.6	1.00	0.93	1.23	19.6
West: Merrylands Rd														
10	L2	185	14.3	195	14.3	*0.861	35.9	LOS C	3.7	29.4	1.00	1.13	1.58	18.2
Approach		185	14.3	195	14.3	0.861	35.9	LOS C	3.7	29.4	1.00	1.13	1.58	18.2
All Vehicles		1003	9.0	1056	9.0	0.861	22.4	LOS B	3.7	29.4	0.87	0.85	1.01	19.2

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 2746 [31.Pitt St / Walpole St (Site Folder: Future PM + Approved Dev)]

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 87 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABC

Reference Phase: Phase A

Input Phase Sequence: A, B, C

Output Phase Sequence: A, B, C

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Pitt St														
2	T1	848	3.5	893	3.5	0.746	13.5	LOS A	15.6	112.3	0.77	0.72	0.78	48.3
3	R2	269	3.9	283	3.9	* 0.746	41.2	LOS C	7.5	54.5	0.98	1.03	1.07	32.7
Approach		1117	3.6	1176	3.6	0.746	20.2	LOS B	15.6	112.3	0.82	0.79	0.85	43.3
East: Walpole St														
4	L2	373	3.8	393	3.8	0.482	20.0	LOS B	6.7	48.1	0.70	0.77	0.70	40.2
6	R2	80	5.0	84	5.0	* 0.222	35.2	LOS C	1.8	13.4	0.86	0.75	0.86	35.0
Approach		453	4.0	477	4.0	0.482	22.7	LOS B	6.7	48.1	0.73	0.77	0.73	39.1
North: Pitt St														
7	L2	59	4.5	62	4.5	0.866	41.9	LOS C	17.0	123.2	1.00	1.03	1.19	35.0
8	T1	1081	4.0	1138	4.0	* 0.866	36.2	LOS C	17.1	123.8	1.00	1.03	1.19	36.5
Approach		1140	4.1	1200	4.1	0.866	36.5	LOS C	17.1	123.8	1.00	1.03	1.19	36.4
All Vehicles		2710	3.9	2853	3.9	0.866	27.5	LOS B	17.1	123.8	0.88	0.89	0.97	39.5

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 0601 [32.Pitt St / Neil St (Site Folder: Future PM + Approved Dev)]

Site Category: -

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

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABCD

Reference Phase: Phase A

Input Phase Sequence: A, B, C, D

Output Phase Sequence: A, B, C, D

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Pitt St - S														
1	L2	33	0.0	35	0.0	1.111	168.1	LOS F	25.6	186.7	1.00	1.83	2.35	6.6
2	T1	409	5.1	431	5.1	* 1.111	163.5	LOS F	26.0	185.6	1.00	1.79	2.35	10.2
3	R2	329	2.0	346	2.0	1.111	167.9	LOS F	26.0	185.6	1.00	1.58	2.35	10.9
Approach		771	3.6	812	3.6	1.111	165.6	LOS F	26.0	186.7	1.00	1.71	2.35	10.4
East: Neil St - E														
4	L2	264	1.4	278	1.4	0.677	30.9	LOS C	12.3	87.0	0.87	0.81	0.87	33.8
5	T1	572	0.4	602	0.4	0.677	24.0	LOS B	12.3	87.0	0.82	0.73	0.82	38.0
6	R2	411	1.5	433	1.5	* 1.240	248.7	LOS F	34.4	244.2	1.00	1.53	3.06	9.9
Approach		1247	1.0	1313	1.0	1.240	99.5	LOS F	34.4	244.2	0.89	1.01	1.57	17.6
North: Pitt St - N														
7	L2	347	2.5	365	2.5	0.694	23.6	LOS B	5.5	39.2	0.94	0.84	0.95	41.4
8	T1	477	5.9	502	5.9	* 1.128	176.6	LOS F	26.5	195.1	1.00	1.72	2.45	9.6
9	R2	273	1.8	287	1.8	1.128	182.4	LOS F	25.8	185.3	1.00	1.60	2.45	10.3
Approach		1097	3.8	1155	3.8	1.128	129.7	LOS F	26.5	195.1	0.98	1.41	1.98	14.5
West: Neil St - W														
10	L2	144	0.8	152	0.8	0.989	88.3	LOS F	16.3	114.5	1.00	1.28	1.69	18.7
11	T1	567	0.6	597	0.6	* 0.989	82.9	LOS F	16.5	116.1	1.00	1.28	1.69	20.5
Approach		711	0.7	748	0.7	0.989	84.0	LOS F	16.5	116.1	1.00	1.28	1.69	20.1
All Vehicles		3826	2.3	4027	2.3	1.240	118.6	LOS F	34.4	244.2	0.96	1.32	1.86	15.2

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 4193 [33.Pitt St / Merrylands Rd (Site Folder: Future PM + Approved Dev)]

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 50 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABC

Reference Phase: Phase A

Input Phase Sequence: A, B, C

Output Phase Sequence: A, B, C

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
East: Merrylands Rd														
5	T1	118	16.7	124	16.7	0.299	17.5	LOS B	1.6	12.7	0.86	0.68	0.86	20.9
6	R2	428	3.8	451	3.8	* 0.527	21.6	LOS B	3.1	22.3	0.92	0.80	0.92	16.6
Approach		546	6.6	575	6.6	0.527	20.7	LOS B	3.1	22.3	0.91	0.77	0.91	17.5
North: Pitt St														
9	R2	293	0.8	308	0.8	* 0.835	21.3	LOS B	4.6	32.4	0.95	0.88	1.06	23.3
Approach		293	0.8	308	0.8	0.835	21.3	LOS B	4.6	32.4	0.95	0.88	1.06	23.3
West: Merrylands Rd														
10	L2	215	7.0	226	7.0	0.787	31.4	LOS C	3.8	27.9	1.00	0.91	1.17	19.6
Approach		215	7.0	226	7.0	0.787	31.4	LOS C	3.8	27.9	1.00	0.91	1.17	19.6
All Vehicles		1054	5.0	1109	5.0	0.835	23.0	LOS B	4.6	32.4	0.94	0.83	1.00	19.8

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 2746 [34.Pitt St / Walpole St (Site Folder: Future SAT + Approved Dev)]

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 64 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABC

Reference Phase: Phase A

Input Phase Sequence: A, B, C

Output Phase Sequence: A, B, C

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Pitt St														
2	T1	835	1.9	879	1.9	0.846	21.1	LOS B	16.5	117.4	0.92	0.97	1.09	43.6
3	R2	285	1.0	300	1.0	* 0.846	38.0	LOS C	6.8	48.1	1.00	1.10	1.35	33.7
Approach		1120	1.7	1179	1.7	0.846	25.4	LOS B	16.5	117.4	0.94	1.00	1.16	40.6
East: Walpole St														
4	L2	301	1.4	317	1.4	0.345	14.5	LOS A	3.6	25.5	0.63	0.73	0.63	43.0
6	R2	74	0.0	78	0.0	* 0.154	23.5	LOS B	1.1	8.0	0.79	0.73	0.79	39.6
Approach		375	1.1	395	1.1	0.345	16.2	LOS B	3.6	25.5	0.66	0.73	0.66	42.3
North: Pitt St														
7	L2	64	0.0	67	0.0	0.783	31.5	LOS C	8.7	61.7	0.98	0.94	1.13	38.7
8	T1	778	2.3	819	2.3	* 0.783	25.9	LOS B	8.7	62.1	0.98	0.94	1.13	41.0
Approach		842	2.1	886	2.1	0.783	26.4	LOS B	8.7	62.1	0.98	0.94	1.13	40.8
All Vehicles		2337	1.8	2460	1.8	0.846	24.3	LOS B	16.5	117.4	0.91	0.93	1.07	40.9

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 0601 [35.Pitt St / Neil St (Site Folder: Future SAT + Approved Dev)]

Site Category: -

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

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABCD

Reference Phase: Phase A

Input Phase Sequence: A, B, C, D

Output Phase Sequence: A, B, C, D

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Pitt St - S														
1	L2	46	0.0	48	0.0	1.061	129.8	LOS F	27.5	197.1	1.00	1.66	2.02	8.3
2	T1	456	3.1	480	3.1	* 1.061	125.2	LOS F	27.5	197.1	1.00	1.64	2.03	12.7
3	R2	430	1.8	453	1.8	1.061	130.0	LOS F	27.2	193.4	1.00	1.40	2.03	13.4
Approach		932	2.4	981	2.4	1.061	127.6	LOS F	27.5	197.1	1.00	1.53	2.03	12.8
East: Neil St - E														
4	L2	232	1.6	244	1.6	0.686	32.3	LOS C	12.0	84.9	0.89	0.82	0.89	33.2
5	T1	582	0.4	613	0.4	0.686	26.1	LOS B	12.0	84.9	0.85	0.75	0.85	36.9
6	R2	301	2.4	317	2.4	* 1.155	175.6	LOS F	21.0	150.2	1.00	1.36	2.63	12.6
Approach		1115	1.2	1174	1.2	1.155	67.8	LOS E	21.0	150.2	0.90	0.93	1.34	22.2
North: Pitt St - N														
7	L2	277	1.4	292	1.4	0.693	26.5	LOS B	4.8	34.0	0.97	0.84	1.00	40.1
8	T1	320	4.9	337	4.9	* 1.013	95.8	LOS F	15.2	110.5	1.00	1.33	1.84	15.9
9	R2	285	0.9	300	0.9	1.013	101.8	LOS F	14.7	103.8	1.00	1.20	1.85	16.3
Approach		882	2.5	928	2.5	1.013	76.0	LOS F	15.2	110.5	0.99	1.13	1.58	21.4
West: Neil St - W														
10	L2	160	0.0	168	0.0	0.888	58.5	LOS E	12.0	84.4	1.00	1.05	1.31	24.3
11	T1	509	1.0	536	1.0	* 0.888	53.1	LOS D	12.2	86.0	1.00	1.05	1.31	26.7
Approach		669	0.7	704	0.7	0.888	54.4	LOS D	12.2	86.0	1.00	1.05	1.31	26.2
All Vehicles		3598	1.7	3787	1.7	1.155	82.8	LOS F	27.5	197.1	0.97	1.16	1.57	19.4

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 4193 [36.Pitt St / Merrylands Rd (Site Folder: Future SAT + Approved Dev)]

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 51 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABC

Reference Phase: Phase A

Input Phase Sequence: A, B, C

Output Phase Sequence: A, B, C

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
East: Merrylands Rd														
5	T1	134	7.8	141	7.8	0.281	16.2	LOS B	1.8	13.1	0.83	0.66	0.83	21.7
6	R2	483	2.5	508	2.5	* 0.516	20.4	LOS B	3.4	24.5	0.89	0.80	0.89	17.1
Approach		617	3.7	649	3.7	0.516	19.5	LOS B	3.4	24.5	0.88	0.77	0.88	18.1
North: Pitt St														
9	R2	249	0.9	262	0.9	* 0.805	30.3	LOS C	4.5	31.8	1.00	1.01	1.34	19.8
Approach		249	0.9	262	0.9	0.805	30.3	LOS C	4.5	31.8	1.00	1.01	1.34	19.8
West: Merrylands Rd														
10	L2	241	4.3	254	4.3	0.785	29.6	LOS C	4.3	31.2	1.00	0.99	1.30	20.2
Approach		241	4.3	254	4.3	0.785	29.6	LOS C	4.3	31.2	1.00	0.99	1.30	20.2
All Vehicles		1107	3.2	1165	3.2	0.805	24.1	LOS B	4.5	31.8	0.93	0.87	1.07	19.1

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 2746 [37.Pitt St / Walpole St (Site Folder: Future AM + All Dev)]

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 83 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABC

Reference Phase: Phase A

Input Phase Sequence: A, B, C

Output Phase Sequence: A, B, C

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Pitt St														
2	T1	937	3.7	986	3.7	0.840	16.9	LOS B	21.3	153.9	0.85	0.84	0.92	46.2
3	R2	406	5.9	427	5.9	* 0.903	53.9	LOS D	11.8	87.0	1.00	1.18	1.40	29.0
Approach		1343	4.4	1414	4.4	0.903	28.1	LOS B	21.3	153.9	0.89	0.94	1.06	39.2
East: Walpole St														
4	L2	378	9.5	398	9.5	0.490	20.3	LOS B	6.7	50.9	0.73	0.78	0.73	40.0
6	R2	186	1.0	196	1.0	* 0.505	36.2	LOS C	4.4	31.0	0.93	0.80	0.93	34.7
Approach		564	6.7	594	6.7	0.505	25.6	LOS B	6.7	50.9	0.79	0.79	0.79	38.0
North: Pitt St														
7	L2	116	1.4	122	1.4	0.693	29.5	LOS C	10.3	74.0	0.91	0.81	0.91	39.3
8	T1	814	3.3	857	3.3	* 0.693	23.9	LOS B	10.4	74.9	0.91	0.80	0.91	41.9
Approach		930	3.0	979	3.0	0.693	24.6	LOS B	10.4	74.9	0.91	0.80	0.91	41.6
All Vehicles		2837	4.4	2986	4.4	0.903	26.4	LOS B	21.3	153.9	0.88	0.87	0.96	39.7

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 0601 [38.Pitt St / Neil St (Site Folder: Future AM + All Dev)]

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 101 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABCD

Reference Phase: Phase A

Input Phase Sequence: A, B, C, D

Output Phase Sequence: A, B, C, D

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Pitt St - S														
1	L2	17	0.0	18	0.0	1.003	96.1	LOS F	16.8	125.6	1.00	1.41	1.76	10.9
2	T1	430	8.5	453	8.5	* 1.003	91.6	LOS F	16.8	125.6	1.00	1.38	1.76	16.2
3	R2	238	5.0	251	5.0	1.003	96.3	LOS F	16.7	122.9	1.00	1.30	1.77	17.0
Approach		685	7.1	721	7.1	1.003	93.3	LOS F	16.8	125.6	1.00	1.36	1.77	16.4
East: Neil St - E														
4	L2	165	5.0	174	5.0	0.410	25.3	LOS B	6.7	48.3	0.72	0.71	0.72	36.7
5	T1	472	1.3	497	1.3	0.410	20.6	LOS B	7.0	49.2	0.73	0.66	0.73	40.1
6	R2	474	1.6	499	1.6	* 1.221	230.7	LOS F	38.0	269.4	1.00	1.47	2.92	10.4
Approach		1111	1.9	1169	1.9	1.221	110.9	LOS F	38.0	269.4	0.84	1.01	1.66	16.4
North: Pitt St - N														
7	L2	379	1.1	399	1.1	0.687	22.6	LOS B	5.9	42.0	0.93	0.84	0.93	42.0
8	T1	417	9.0	439	9.0	* 1.112	164.6	LOS F	21.8	164.3	1.00	1.64	2.37	10.2
9	R2	229	2.4	241	2.4	1.112	170.3	LOS F	21.5	155.7	1.00	1.56	2.37	10.9
Approach		1025	4.6	1079	4.6	1.112	113.4	LOS F	21.8	164.3	0.97	1.32	1.84	16.3
West: Neil St - W														
10	L2	99	2.5	104	2.5	0.913	64.3	LOS E	11.7	82.8	1.00	1.09	1.40	23.1
11	T1	516	1.4	543	1.4	* 0.913	58.9	LOS E	11.8	83.7	1.00	1.09	1.40	25.3
Approach		615	1.6	647	1.6	0.913	59.8	LOS E	11.8	83.7	1.00	1.09	1.40	24.9
All Vehicles		3436	3.7	3617	3.7	1.221	99.0	LOS F	38.0	269.4	0.94	1.19	1.69	17.4

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 4193 [39.Pitt St / Merrylands Rd (Site Folder: Future AM + All Dev)]

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 53 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABC

Reference Phase: Phase A

Input Phase Sequence: A, B, C

Output Phase Sequence: A, B, C

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
East: Merrylands Rd														
5	T1	123	22.6	129	22.6	0.216	13.1	LOS A	1.5	12.2	0.73	0.59	0.73	23.8
6	R2	550	5.0	579	5.0	*0.457	17.3	LOS B	3.6	26.5	0.81	0.78	0.81	18.6
Approach		673	8.2	708	8.2	0.457	16.5	LOS B	3.6	26.5	0.80	0.75	0.80	19.6
North: Pitt St														
9	R2	213	5.7	224	5.7	*0.951	47.5	LOS D	5.2	37.8	1.00	1.37	2.04	15.3
Approach		213	5.7	224	5.7	0.951	47.5	LOS D	5.2	37.8	1.00	1.37	2.04	15.3
West: Merrylands Rd														
10	L2	190	14.3	200	14.3	0.885	37.7	LOS C	4.0	31.2	1.00	1.19	1.68	17.7
Approach		190	14.3	200	14.3	0.885	37.7	LOS C	4.0	31.2	1.00	1.19	1.68	17.7
All Vehicles		1076	8.8	1133	8.8	0.951	26.4	LOS B	5.2	37.8	0.87	0.95	1.20	17.8

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 2746 [40.Pitt St / Walpole St (Site Folder: Future PM + All Dev)]

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 87 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABC

Reference Phase: Phase A

Input Phase Sequence: A, B, C

Output Phase Sequence: A, B, C

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Pitt St														
2	T1	843	3.5	887	3.5	0.777	12.9	LOS A	16.8	121.3	0.79	0.73	0.79	48.9
3	R2	372	3.9	392	3.9	* 0.948	66.6	LOS E	12.1	87.8	1.00	1.23	1.56	26.1
Approach		1215	3.6	1279	3.6	0.948	29.4	LOS C	16.8	121.3	0.86	0.88	1.03	38.6
East: Walpole St														
4	L2	453	3.8	477	3.8	0.640	21.0	LOS B	8.6	62.3	0.75	0.79	0.75	39.7
6	R2	117	5.0	123	5.0	* 0.308	35.1	LOS C	2.7	19.8	0.87	0.77	0.87	35.0
Approach		570	4.1	600	4.1	0.640	23.9	LOS B	8.6	62.3	0.77	0.79	0.77	38.6
North: Pitt St														
7	L2	132	4.5	139	4.5	0.919	51.7	LOS D	20.6	149.0	1.00	1.13	1.34	31.8
8	T1	1075	4.0	1132	4.0	* 0.919	45.9	LOS D	20.8	150.4	1.00	1.14	1.33	33.0
Approach		1207	4.1	1271	4.1	0.919	46.6	LOS D	20.8	150.4	1.00	1.14	1.33	32.8
All Vehicles		2992	3.9	3149	3.9	0.948	35.3	LOS C	20.8	150.4	0.90	0.97	1.10	36.0

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 0601 [41.Pitt St / Neil St (Site Folder: Future PM + All Dev)]

Site Category: -

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

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABCD

Reference Phase: Phase A

Input Phase Sequence: A, B, C, D

Output Phase Sequence: A, B, C, D

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Pitt St - S														
1	L2	33	0.0	35	0.0	1.171	216.3	LOS F	31.4	228.5	1.00	2.07	2.69	5.2
2	T1	452	5.1	476	5.1	* 1.171	211.7	LOS F	31.8	227.3	1.00	2.02	2.68	8.2
3	R2	329	2.0	346	2.0	1.171	216.2	LOS F	31.8	227.3	1.00	1.79	2.68	8.8
Approach		814	3.6	857	3.6	1.171	213.7	LOS F	31.8	228.5	1.00	1.93	2.68	8.3
East: Neil St - E														
4	L2	264	1.4	278	1.4	0.679	30.9	LOS C	12.4	87.5	0.87	0.81	0.87	33.8
5	T1	572	0.4	602	0.4	0.679	24.0	LOS B	12.4	87.5	0.82	0.73	0.82	38.0
6	R2	452	1.5	476	1.5	* 1.364	357.5	LOS F	46.2	327.2	1.00	1.74	3.65	7.5
Approach		1288	1.0	1356	1.0	1.364	142.5	LOS F	46.2	327.2	0.89	1.10	1.82	13.9
North: Pitt St - N														
7	L2	372	2.5	392	2.5	0.744	25.2	LOS B	6.3	44.8	0.96	0.86	1.01	40.7
8	T1	511	5.9	538	5.9	* 1.211	244.6	LOS F	34.3	252.4	1.00	1.99	2.90	7.2
9	R2	294	1.8	309	1.8	1.211	250.3	LOS F	33.4	239.6	1.00	1.83	2.91	7.9
Approach		1177	3.8	1239	3.8	1.211	176.7	LOS F	34.3	252.4	0.99	1.60	2.30	11.4
West: Neil St - W														
10	L2	158	0.8	166	0.8	1.009	99.1	LOS F	17.7	124.9	1.00	1.35	1.79	17.1
11	T1	567	0.6	597	0.6	* 1.009	93.4	LOS F	17.9	126.3	1.00	1.35	1.79	18.9
Approach		725	0.7	763	0.7	1.009	94.7	LOS F	17.9	126.3	1.00	1.35	1.79	18.5
All Vehicles		4004	2.3	4215	2.3	1.364	158.3	LOS F	46.2	327.2	0.96	1.46	2.13	12.2

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 4193 [42.Pitt St / Merrylands Rd (Site Folder: Future PM + All Dev)]

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 50 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABC

Reference Phase: Phase A

Input Phase Sequence: A, B, C

Output Phase Sequence: A, B, C

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
East: Merrylands Rd														
5	T1	118	16.7	124	16.7	0.299	17.5	LOS B	1.6	12.7	0.86	0.68	0.86	20.9
6	R2	457	3.8	481	3.8	* 0.563	21.8	LOS B	3.3	24.1	0.93	0.80	0.93	16.5
Approach		575	6.4	605	6.4	0.563	20.9	LOS B	3.3	24.1	0.91	0.78	0.91	17.4
North: Pitt St														
9	R2	327	0.8	344	0.8	* 0.932	24.8	LOS B	5.8	41.0	1.00	0.99	1.27	21.8
Approach		327	0.8	344	0.8	0.932	24.8	LOS B	5.8	41.0	1.00	0.99	1.27	21.8
West: Merrylands Rd														
10	L2	229	7.0	241	7.0	0.838	32.6	LOS C	4.1	30.4	1.00	0.96	1.25	19.2
Approach		229	7.0	241	7.0	0.838	32.6	LOS C	4.1	30.4	1.00	0.96	1.25	19.2
All Vehicles		1131	4.9	1191	4.9	0.932	24.4	LOS B	5.8	41.0	0.96	0.88	1.09	19.3

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 2746 [43.Pitt St / Walpole St (Site Folder: Future SAT + All Dev)]

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 64 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABC

Reference Phase: Phase A

Input Phase Sequence: A, B, C

Output Phase Sequence: A, B, C

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Pitt St														
2	T1	830	1.9	874	1.9	0.885	25.5	LOS B	19.4	138.2	0.96	1.06	1.20	41.4
3	R2	367	1.0	386	1.0	* 1.001	59.6	LOS E	11.6	81.7	1.00	1.22	2.10	24.1
Approach		1197	1.7	1260	1.7	1.001	36.0	LOS C	19.4	138.2	0.97	1.11	1.48	33.9
East: Walpole St														
4	L2	411	1.4	433	1.4	0.471	15.3	LOS B	5.3	37.9	0.68	0.76	0.68	42.6
6	R2	116	0.0	122	0.0	* 0.241	24.1	LOS B	1.8	12.9	0.81	0.75	0.81	39.3
Approach		527	1.1	555	1.1	0.471	17.3	LOS B	5.3	37.9	0.71	0.76	0.71	41.8
North: Pitt St														
7	L2	102	0.0	107	0.0	0.814	33.2	LOS C	9.4	66.5	0.99	0.98	1.19	37.8
8	T1	772	2.3	813	2.3	* 0.814	27.6	LOS B	9.4	67.3	0.99	0.98	1.19	40.1
Approach		874	2.0	920	2.0	0.814	28.3	LOS B	9.4	67.3	0.99	0.98	1.19	39.8
All Vehicles		2598	1.7	2735	1.7	1.001	29.6	LOS C	19.4	138.2	0.92	1.00	1.22	37.2

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 0601 [44.Pitt St / Neil St (Site Folder: Future SAT + All Dev)]

Site Category: -

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

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABCD

Reference Phase: Phase A

Input Phase Sequence: A, B, C, D

Output Phase Sequence: A, B, C, D

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Pitt St - S														
1	L2	46	0.0	48	0.0	1.105	162.5	LOS F	32.5	233.1	1.00	1.85	2.28	6.8
2	T1	496	3.1	522	3.1	* 1.105	157.9	LOS F	32.5	233.1	1.00	1.82	2.28	10.5
3	R2	430	1.8	453	1.8	1.105	162.7	LOS F	32.2	228.9	1.00	1.55	2.28	11.2
Approach		972	2.4	1023	2.4	1.105	160.2	LOS F	32.5	233.1	1.00	1.70	2.28	10.7
East: Neil St - E														
4	L2	232	1.6	244	1.6	0.694	33.1	LOS C	12.3	86.9	0.90	0.82	0.90	32.9
5	T1	582	0.4	613	0.4	0.694	26.5	LOS B	12.3	86.9	0.85	0.76	0.86	36.7
6	R2	325	2.4	342	2.4	* 1.261	267.1	LOS F	28.5	204.0	1.00	1.55	3.19	9.4
Approach		1139	1.2	1199	1.2	1.261	96.5	LOS F	28.5	204.0	0.90	1.00	1.53	18.0
North: Pitt St - N														
7	L2	311	1.4	327	1.4	0.778	29.3	LOS C	5.9	41.8	0.99	0.88	1.10	38.8
8	T1	359	4.9	378	4.9	* 1.140	186.4	LOS F	24.8	180.8	1.00	1.74	2.53	9.2
9	R2	322	0.9	339	0.9	1.140	192.3	LOS F	24.0	169.6	1.00	1.49	2.54	9.8
Approach		992	2.5	1044	2.5	1.140	139.1	LOS F	24.8	180.8	1.00	1.39	2.09	13.8
West: Neil St - W														
10	L2	173	0.0	182	0.0	0.906	61.4	LOS E	12.6	88.7	1.00	1.07	1.36	23.6
11	T1	509	1.0	536	1.0	* 0.906	56.0	LOS D	12.8	90.6	1.00	1.08	1.36	26.0
Approach		682	0.7	718	0.7	0.906	57.4	LOS E	12.8	90.6	1.00	1.08	1.36	25.4
All Vehicles		3785	1.8	3984	1.8	1.261	117.0	LOS F	32.5	233.1	0.97	1.30	1.84	15.2

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Site: 4193 [45.Pitt St / Merrylands Rd (Site Folder: Future SAT + All Dev)]

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 51 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: ABC

Reference Phase: Phase A

Input Phase Sequence: A, B, C

Output Phase Sequence: A, B, C

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %	v/c	sec	[Veh. veh	Dist] m					
East: Merrylands Rd														
5	T1	134	7.8	141	7.8	0.281	16.2	LOS B	1.8	13.1	0.83	0.66	0.83	21.7
6	R2	510	2.5	537	2.5	* 0.545	20.6	LOS B	3.6	26.1	0.90	0.80	0.90	17.0
Approach		644	3.6	678	3.6	0.545	19.7	LOS B	3.6	26.1	0.89	0.77	0.89	17.9
North: Pitt St														
9	R2	288	0.9	303	0.9	* 0.931	41.7	LOS C	6.5	45.6	1.00	1.28	1.83	16.6
Approach		288	0.9	303	0.9	0.931	41.7	LOS C	6.5	45.6	1.00	1.28	1.83	16.6
West: Merrylands Rd														
10	L2	255	4.3	268	4.3	0.831	31.5	LOS C	4.8	34.5	1.00	1.06	1.41	19.5
Approach		255	4.3	268	4.3	0.831	31.5	LOS C	4.8	34.5	1.00	1.06	1.41	19.5
All Vehicles		1187	3.1	1249	3.1	0.931	27.6	LOS B	6.5	45.6	0.94	0.96	1.23	17.9

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

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MOVEMENT SUMMARY

Site: SAE [46.Site Access (E) (Site Folder: Site Access Points AM)]

Network: N101 [AM (Network Folder: General)]

Site Category: -
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
East: Crescent St (E)														
5	T1	229	3.0	229	3.0	0.121	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
6	R2	135	0.0	135	0.0	0.280	10.7	LOS A	0.4	2.6	0.61	0.84	0.68	39.7
Approach		364	1.9	364	1.9	0.280	4.0	NA	0.4	2.6	0.23	0.31	0.25	41.6
North: Access														
7	L2	132	0.0	132	0.0	0.543	8.2	LOS A	1.4	9.6	0.43	0.77	0.73	37.3
9	R2	146	0.0	146	0.0	0.543	19.4	LOS B	1.4	9.6	0.43	0.77	0.73	36.2
Approach		278	0.0	278	0.0	0.543	14.1	LOS A	1.4	9.6	0.43	0.77	0.73	36.8
West: Crescent St (W)														
10	L2	88	0.0	88	0.0	0.110	4.6	LOS A	0.0	0.0	0.00	0.23	0.00	47.2
11	T1	539	3.0	539	3.0	0.110	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	48.6
Approach		627	2.6	627	2.6	0.110	0.7	NA	0.0	0.0	0.00	0.08	0.00	48.2
All Vehicles		1269	1.8	1269	1.8	0.543	4.5	NA	1.4	9.6	0.16	0.29	0.23	41.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

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

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

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

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

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MOVEMENT SUMMARY

Site: SAW [47.Site Access (W) (Site Folder: Site Access Points AM)]

Network: N101 [AM (Network Folder: General)]

Site Category: -
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
East: Crescent St (E)														
5	T1	358	3.0	358	3.0	0.210	0.4	LOS A	0.1	0.8	0.08	0.03	0.08	49.2
6	R2	18	0.0	18	0.0	0.210	8.3	LOS A	0.1	0.8	0.08	0.03	0.08	48.1
Approach		376	2.9	376	2.9	0.210	0.7	NA	0.1	0.8	0.08	0.03	0.08	49.1
North: Access														
7	L2	72	0.0	72	0.0	0.255	5.7	LOS A	0.4	2.9	0.54	0.72	0.57	39.1
9	R2	71	0.0	71	0.0	0.255	15.0	LOS B	0.4	2.9	0.54	0.72	0.57	43.3
Approach		142	0.0	142	0.0	0.255	10.3	LOS A	0.4	2.9	0.54	0.72	0.57	41.8
West: Crescent St (W)														
10	L2	18	0.0	18	0.0	0.150	4.6	LOS A	0.0	0.0	0.00	0.03	0.00	49.3
11	T1	555	3.0	555	3.0	0.150	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	49.7
Approach		573	2.9	573	2.9	0.150	0.2	NA	0.0	0.0	0.00	0.02	0.00	49.7
All Vehicles		1091	2.5	1091	2.5	0.255	1.7	NA	0.4	2.9	0.10	0.11	0.10	48.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

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

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

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

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

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MOVEMENT SUMMARY

▼ Site: SAE [48.Site Access (E) (Site Folder: Site Access Points ■■ Network: N101 [PM (Network PM)] Folder: General)]

Site Category: -
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist m				
East: Crescent St (E)														
5	T1	552	3.0	552	3.0	0.290	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
6	R2	158	0.0	158	0.0	0.266	8.6	LOS A	0.4	2.5	0.50	0.77	0.53	41.3
Approach		709	2.3	709	2.3	0.290	1.9	NA	0.4	2.5	0.11	0.17	0.12	44.0
North: Access														
7	L2	79	0.0	79	0.0	0.519	8.8	LOS A	1.1	8.0	0.17	0.60	0.29	34.9
9	R2	117	0.0	117	0.0	0.519	24.4	LOS B	1.1	8.0	0.17	0.60	0.29	33.6
Approach		196	0.0	196	0.0	0.519	18.1	LOS B	1.1	8.0	0.17	0.60	0.29	34.2
West: Crescent St (W)														
10	L2	131	0.0	131	0.0	0.083	4.6	LOS A	0.0	0.0	0.00	0.45	0.00	45.4
11	T1	341	3.0	341	3.0	0.083	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	49.1
Approach		472	2.2	472	2.2	0.083	1.3	NA	0.0	0.0	0.00	0.15	0.00	47.1
All Vehicles		1377	1.9	1377	1.9	0.519	4.0	NA	1.1	8.0	0.08	0.22	0.10	41.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

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

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

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

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

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MOVEMENT SUMMARY

Site: SAW [49.Site Access (W) (Site Folder: Site Access Points PM)]

Network: N101 [PM (Network Folder: General)]

Site Category: -
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
East: Crescent St (E)														
5	T1	596	3.0	596	3.0	0.399	1.0	LOS A	0.6	4.5	0.20	0.07	0.26	48.0
6	R2	72	0.0	72	0.0	0.399	8.9	LOS A	0.6	4.5	0.20	0.07	0.26	47.0
Approach		667	2.7	667	2.7	0.399	1.9	NA	0.6	4.5	0.20	0.07	0.26	47.9
North: Access														
7	L2	18	0.0	18	0.0	0.092	5.1	LOS A	0.1	0.9	0.51	0.66	0.51	37.3
9	R2	18	0.0	18	0.0	0.092	20.2	LOS B	0.1	0.9	0.51	0.66	0.51	42.1
Approach		36	0.0	36	0.0	0.092	12.7	LOS A	0.1	0.9	0.51	0.66	0.51	40.3
West: Crescent St (W)														
10	L2	71	0.0	71	0.0	0.138	4.6	LOS A	0.0	0.0	0.00	0.15	0.00	48.6
11	T1	454	3.0	454	3.0	0.138	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	49.2
Approach		524	2.6	524	2.6	0.138	0.7	NA	0.0	0.0	0.00	0.07	0.00	49.1
All Vehicles		1227	2.6	1227	2.6	0.399	1.7	NA	0.6	4.5	0.13	0.09	0.16	48.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

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

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

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

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

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MOVEMENT SUMMARY

Site: SAE [50.Site Access (E) (Site Folder: Site Access Points SAT)]

Network: N101 [SAT (Network Folder: General)]

Site Category: -
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
East: Crescent St (E)														
5	T1	523	3.0	523	3.0	0.276	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
6	R2	121	0.0	121	0.0	0.203	8.3	LOS A	0.2	1.7	0.48	0.73	0.48	41.6
Approach		644	2.4	644	2.4	0.276	1.6	NA	0.2	1.7	0.09	0.14	0.09	44.7
North: Access														
7	L2	93	0.0	93	0.0	0.534	8.8	LOS A	1.2	8.7	0.30	0.68	0.51	35.5
9	R2	127	0.0	127	0.0	0.534	23.1	LOS B	1.2	8.7	0.30	0.68	0.51	34.3
Approach		220	0.0	220	0.0	0.534	17.1	LOS B	1.2	8.7	0.30	0.68	0.51	34.8
West: Crescent St (W)														
10	L2	99	0.0	99	0.0	0.082	4.6	LOS A	0.0	0.0	0.00	0.35	0.00	46.2
11	T1	367	3.0	367	3.0	0.082	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	48.6
Approach		466	2.4	466	2.4	0.082	1.0	NA	0.0	0.0	0.00	0.11	0.00	47.6
All Vehicles		1331	2.0	1331	2.0	0.534	3.9	NA	1.2	8.7	0.09	0.22	0.13	41.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

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

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

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

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

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MOVEMENT SUMMARY

Site: SAW [51.Site Access (W) (Site Folder: Site Access Points SAT)]

Network: N101 [SAT (Network Folder: General)]

Site Category: -
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
East: Crescent St (E)														
5	T1	606	3.0	606	3.0	0.368	0.5	LOS A	0.3	2.5	0.12	0.04	0.15	48.9
6	R2	45	0.0	45	0.0	0.368	8.1	LOS A	0.3	2.5	0.12	0.04	0.15	47.8
Approach		652	2.8	652	2.8	0.368	1.0	NA	0.3	2.5	0.12	0.04	0.15	48.8
North: Access														
7	L2	45	0.0	45	0.0	0.209	5.2	LOS A	0.3	2.1	0.50	0.67	0.50	37.6
9	R2	44	0.0	44	0.0	0.209	19.3	LOS B	0.3	2.1	0.50	0.67	0.50	42.3
Approach		89	0.0	89	0.0	0.209	12.2	LOS A	0.3	2.1	0.50	0.67	0.50	40.6
West: Crescent St (W)														
10	L2	44	0.0	44	0.0	0.122	4.6	LOS A	0.0	0.0	0.00	0.10	0.00	48.9
11	T1	421	3.0	421	3.0	0.122	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	49.4
Approach		465	2.7	465	2.7	0.122	0.5	NA	0.0	0.0	0.00	0.05	0.00	49.3
All Vehicles		1206	2.6	1206	2.6	0.368	1.6	NA	0.3	2.5	0.10	0.09	0.12	48.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

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

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

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

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

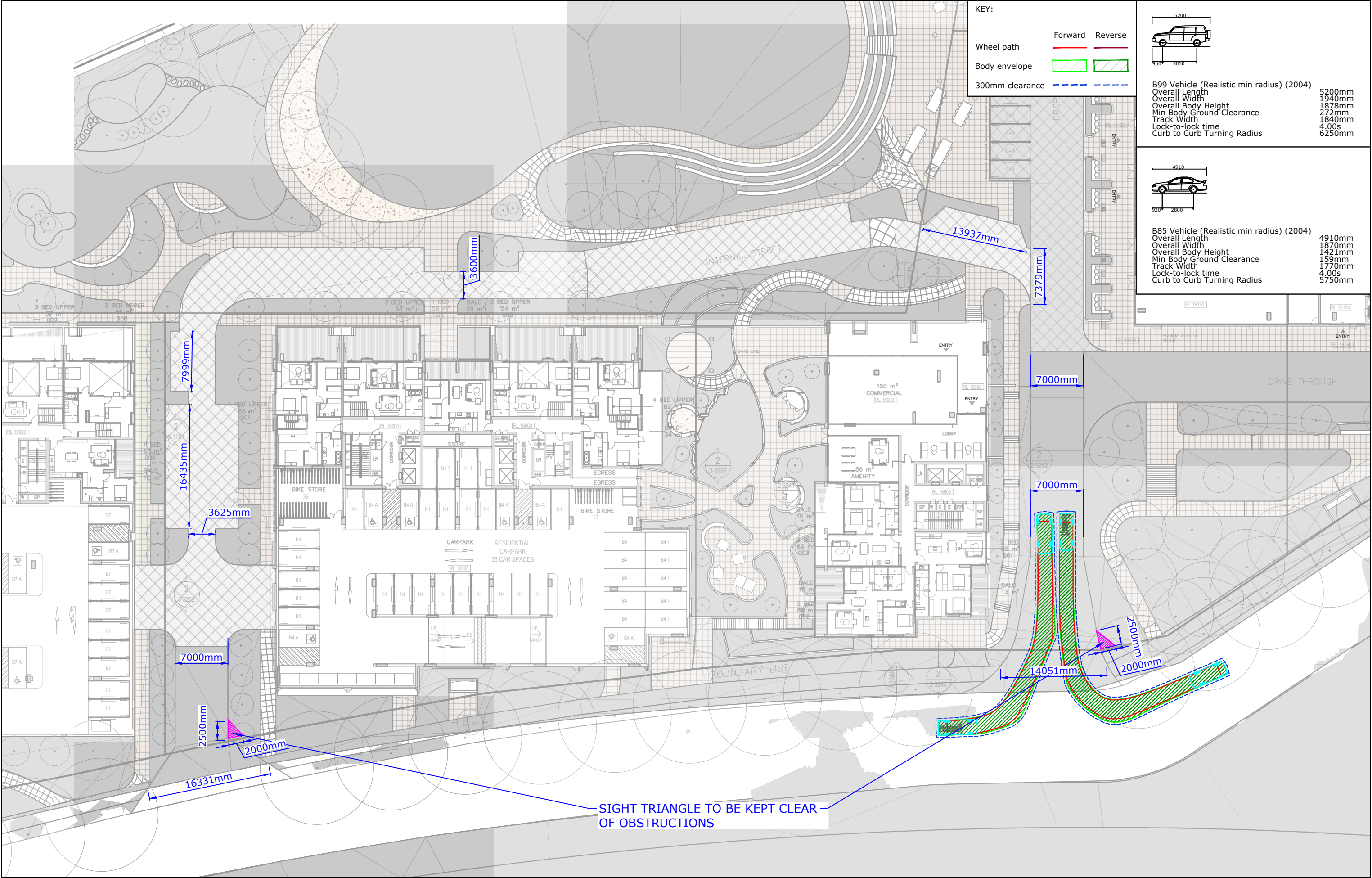
SIDRA INTERSECTION 9.0 | Copyright © 2000-2020 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: TTPP - THE TRANSPORT PLANNING PARTNERSHIP | Licence: NETWORK / 1PC | Processed: Thursday, 16 March 2023 10:02:28 AM

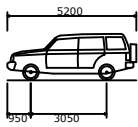
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Appendix D

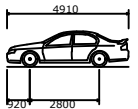
Swept Path Analysis



KEY:		
Wheel path	Forward	Reverse
Body envelope		
300mm clearance		



B99 Vehicle (Realistic min radius) (2004)
Overall Length 5200mm
Overall Width 1940mm
Overall Body Height 1878mm
Min Body Ground Clearance 272mm
Track Width 1840mm
Lock-to-lock time 4.00s
Curb to Curb Turning Radius 6250mm



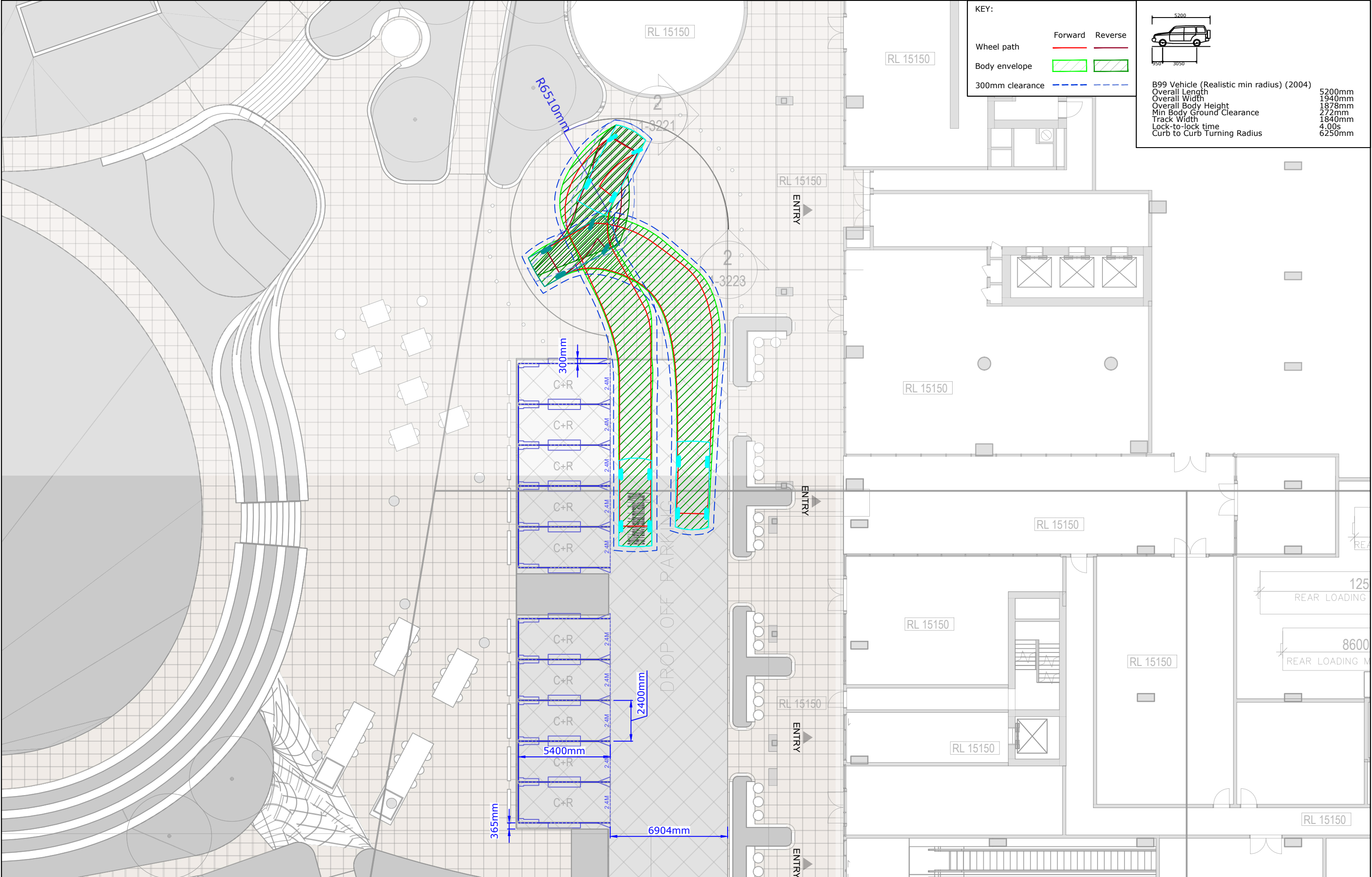
B85 Vehicle (Realistic min radius) (2004)
Overall Length 4910mm
Overall Width 1870mm
Overall Body Height 1421mm
Min Body Ground Clearance 159mm
Track Width 1770mm
Lock-to-lock time 4.00s
Curb to Curb Turning Radius 5750mm

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KR	HT	SR	21/11/24



PROJECT	1 CRESCENT STREET, HOLROYD		
TITLE	CAR PARK COMPLIANCE REVIEW AND SWEEP PATH ANALYSIS GROUND FLOOR: 4.9M B85 AND 5.2M B99		

DWG No.	16241CAD017 FIGURE 1		
DATE STAMP	21 November 2024		
PROJECT No.	SCALE	REV.	
16241	1:450 @A3	A	



REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KR	HT	SR	21/11/24

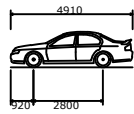


PROJECT	1 CRESCENT STREET, HOLROYD		
TITLE	CAR PARK COMPLIANCE REVIEW AND SWEEP PATH ANALYSIS GROUND FLOOR: 5.2M B99 AT CUL-DE-SAC		

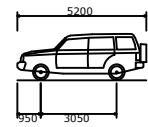
DWG No.		16241CAD017	
		FIGURE 2	
DATE STAMP			
21 November 2024			
PROJECT No.	SCALE	REV.	
16241	1:200 @A3	A	

NOTES:

- 1) GENERAL CAR SPACES ARE 2.4M WIDE AND 5.4M LONG
- 2) ACCESSIBLE CAR SPACES ARE 2.4M WIDE AND 5.4M LONG. A SHARED SPACE OF EQUAL DIMENSIONS HAS BEEN PROVIDED.
- 3) SMALL CAR SPACES ARE 2.3M WIDE AND 5.0M LONG.
- 4) HORIZONTAL STAGGERED BICYCLE SPACES ARE PROVIDED.
- 5) PROVIDE THE FOLLOWING MINIMUM HEADROOM CLEARANCES IN ACCORDANCE TO AS2890.1, AS2890.2, AND AS2890.6:
 - ABOVE LOADING AREA AND AREAS ACCESSIBLE BY SERVICE TRUCKS - 4.5m,
 - ABOVE DISABLED CAR SPACES AND SHARED AREA - 2.5m,
 - ABOVE CAR SPACES, RAMPS AND AISLES - 2.2m.



B85 Vehicle (Realistic min radius) (2004)
Overall Length 4910mm
Overall Width 1870mm
Overall Body Height 1421mm
Min Body Ground Clearance 272mm
Track Width 1770mm
Lock-to-lock time 4.00s
Curb to Curb Turning Radius 5750mm

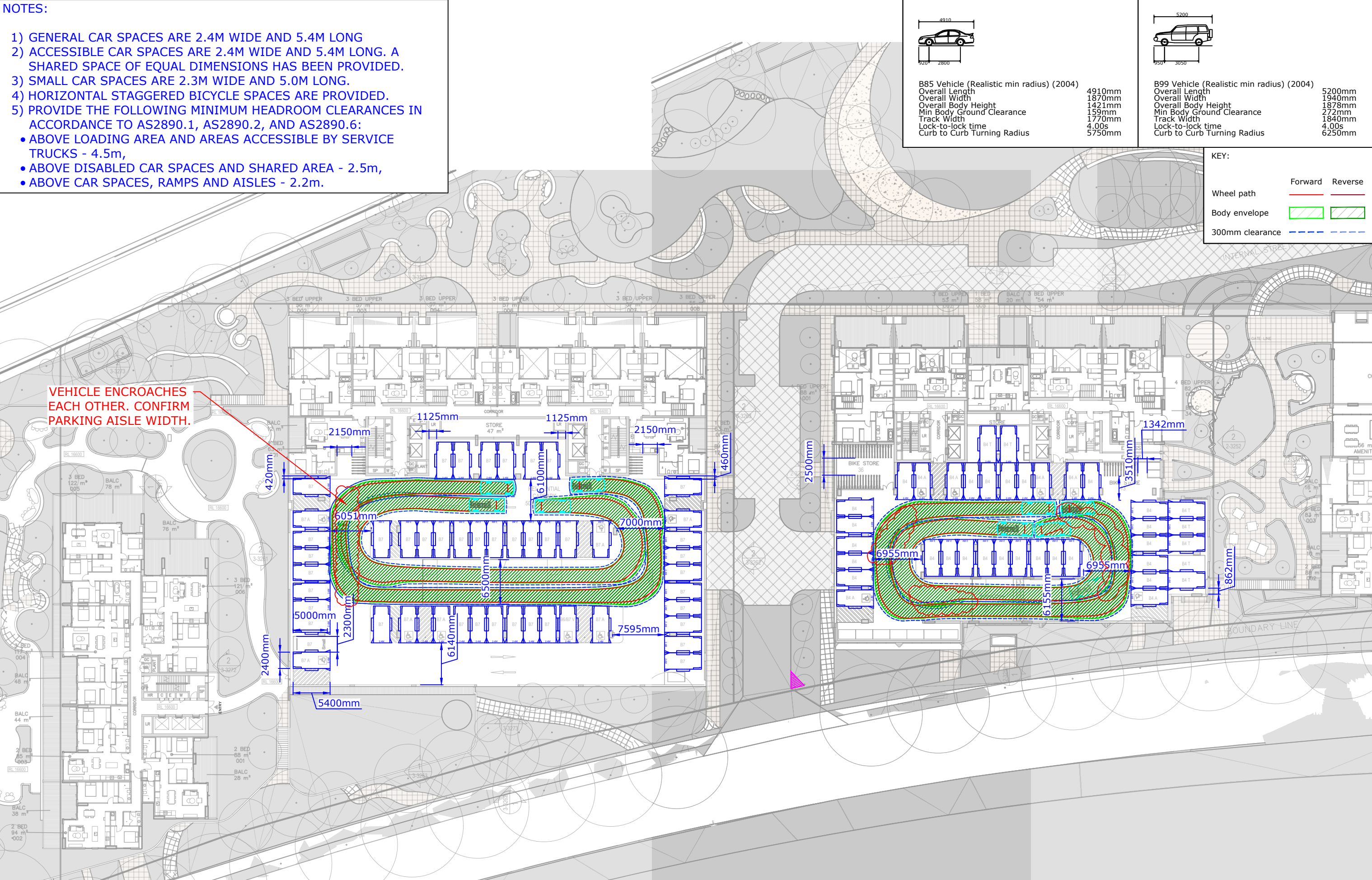


B99 Vehicle (Realistic min radius) (2004)
Overall Length 5200mm
Overall Width 1940mm
Overall Body Height 1878mm
Min Body Ground Clearance 272mm
Track Width 1840mm
Lock-to-lock time 4.00s
Curb to Curb Turning Radius 6250mm

KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		

VEHICLE ENCROACHES EACH OTHER. CONFIRM PARKING AISLE WIDTH.



REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KR	HT	SR	21/11/24

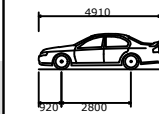


PROJECT	1 CRESCENT STREET, HOLROYD		
TITLE	COMPLIANCE CAR PARK REVIEW AND SWEEP PATH ANALYSIS GROUND FLOOR : 5.2M B99 AND 4.9M B85		

DWG No.	16241CAD017 Figure (3)		
DATE STAMP	21 November 2024		
PROJECT No.	16241	SCALE	1:500 @A3
REV.	A		

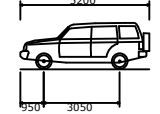
NOTES:

- 1) GENERAL CAR SPACES ARE 2.4M WIDE AND 5.4M LONG
- 2) ACCESSIBLE CAR SPACES ARE 2.4M WIDE AND 5.4M LONG. A SHARED SPACE OF EQUAL DIMENSIONS HAS BEEN PROVIDED.
- 3) HORIZONTAL STAGGERED BICYCLE SPACES ARE PROVIDED.
- 4) PROVIDE THE FOLLOWING MINIMUM HEADROOM CLEARANCES IN ACCORDANCE TO AS2890.1, AS2890.2, AND AS2890.6:
 - ABOVE LOADING AREA AND AREAS ACCESSIBLE BY SERVICE TRUCKS - 4.5m,
 - ABOVE DISABLED CAR SPACES AND SHARED AREA - 2.5m,
 - ABOVE CAR SPACES, RAMPS AND AISLES - 2.2m.



B85 Vehicle (Realistic min radius) (2004)

Overall Length	4910mm
Overall Width	1870mm
Overall Body Height	1421mm
Min Body Ground Clearance	272mm
Track Width	1770mm
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	5750mm

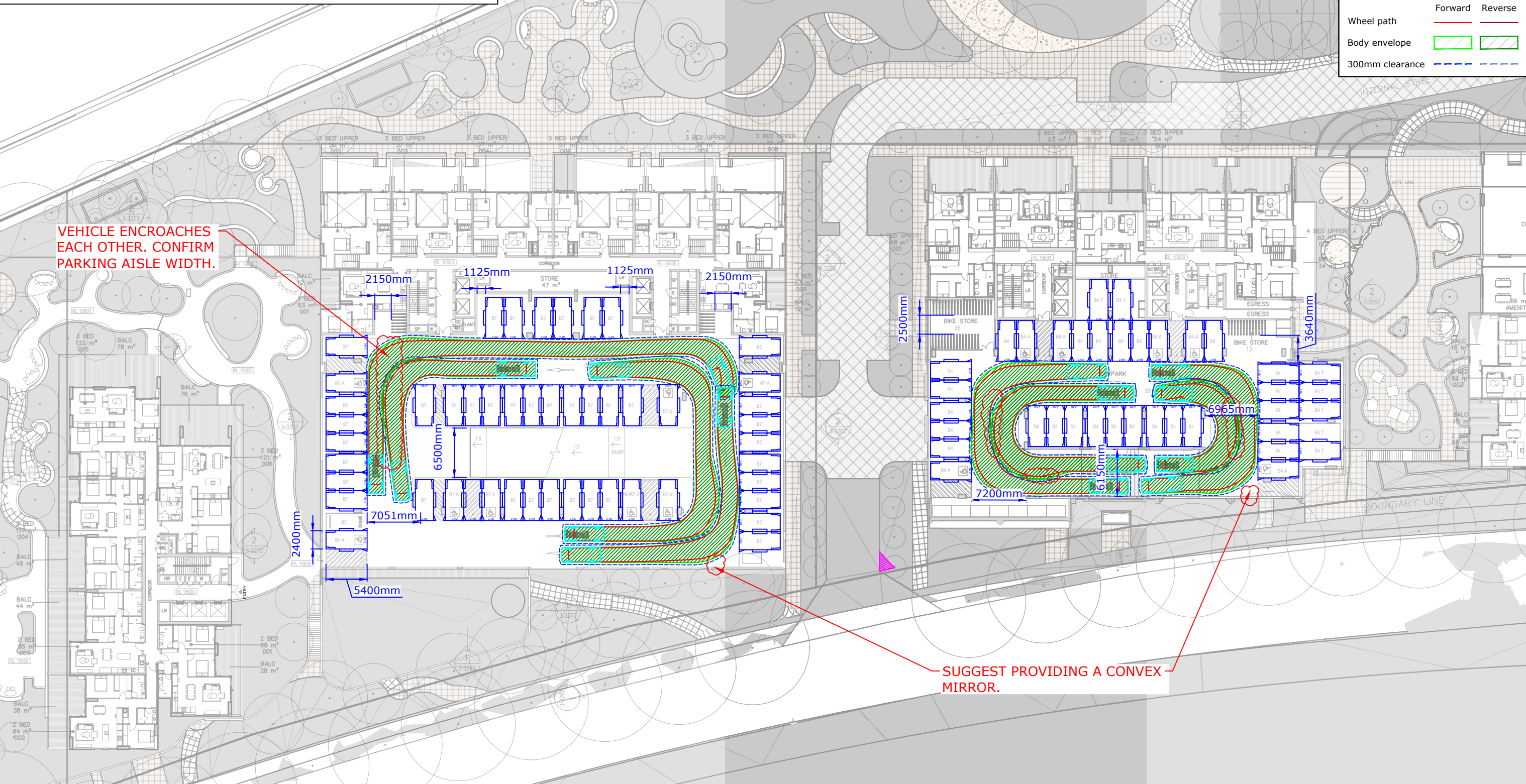


B99 Vehicle (Realistic min radius) (2004)

Overall Length	5200mm
Overall Width	1940mm
Overall Body Height	1878mm
Min Body Ground Clearance	272mm
Track Width	1840mm
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6250mm

KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		



REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KR	HT	SR	21/11/24



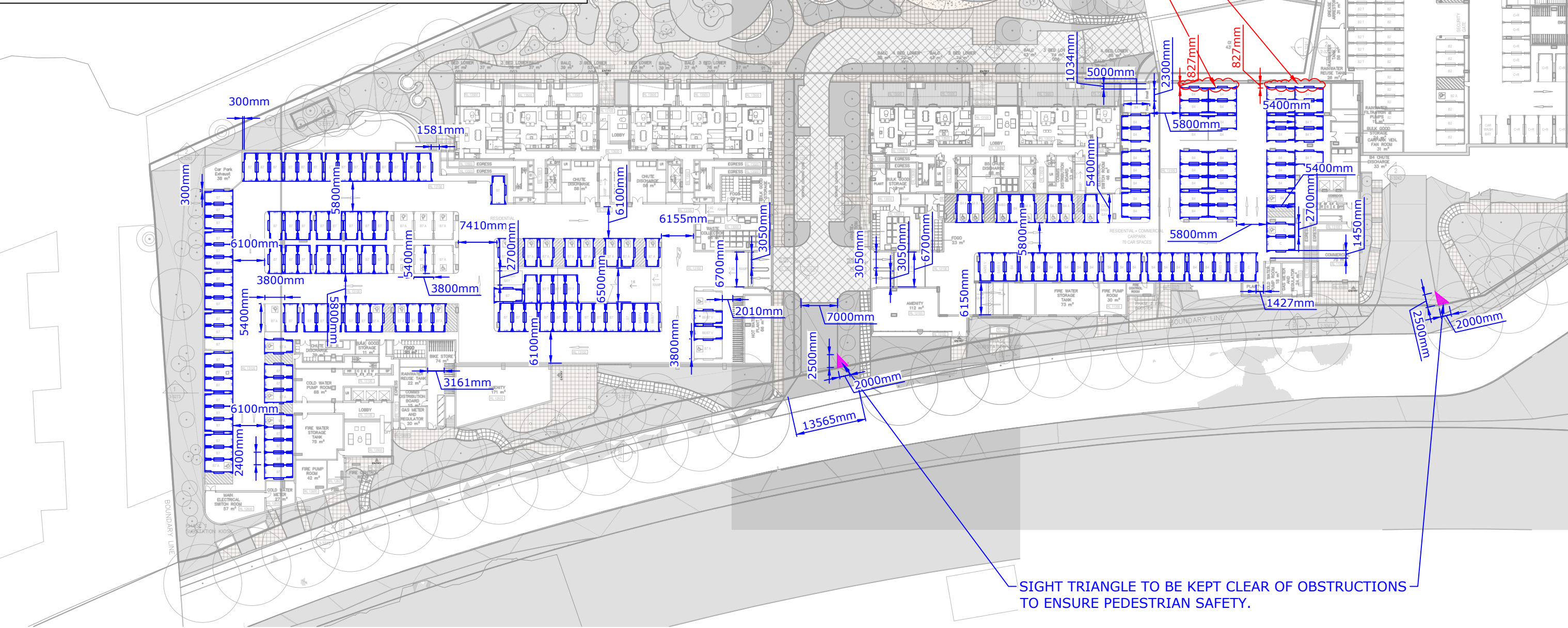
PROJECT	1 CRESCENT STREET, HOLROYD		
TITLE	CAR PARK COMPLIANCE REVIEW AND SWEEP PATH ANALYSIS GROUND FLOOR : 5.2M B99 AND 4.9M B85		

DWG No.	16241CAD017 FIGURE 4		
DATE STAMP	21 November 2024		
PROJECT No.	16241	SCALE	1:500 @A3
REV.	A		

NOTES:

- 1) GENERAL CAR SPACES ARE 2.4M WIDE AND 5.4M LONG
- 2) ACCESSIBLE CAR SPACES ARE 2.4M WIDE AND 5.4M LONG. A SHARED SPACE OF EQUAL DIMENSIONS HAS BEEN PROVIDED.
- 3) ADAPTABLE SPACES ARE 3.8M WIDE AND 5.4M LONG.
- 4) CAR WASH BAY IS PROVIDED.
- 5) THREE COMMERCIAL SPACES 2.7M WIDE AND 5.4M LONG ARE PROVIDED.
- 6) SMALL CAR SPACES ARE 2.3M WIDE AND 5.0M LONG.
- 7) HORIZONTAL STAGGERED BICYCLE SPACES ARE PROVIDED.
- 8) PROVIDE THE FOLLOWING MINIMUM HEADROOM CLEARANCES IN ACCORDANCE TO AS2890.1, AS2890.2, AND AS2890.6:
 - ABOVE LOADING AREA AND AREAS ACCESSIBLE BY SERVICE TRUCKS - 4.5m,
 - ABOVE DISABLED CAR SPACES AND SHARED AREA - 2.5m,
 - ABOVE CAR SPACES, RAMPS AND AISLES - 2.2m.

1M EXTENSION IS REQUIRED FOR END-OF-BLIND AISLE. END SPACE OBSTRUCTED BY A STRUCTURE REQUIRES 0.3M CLEARANCE.



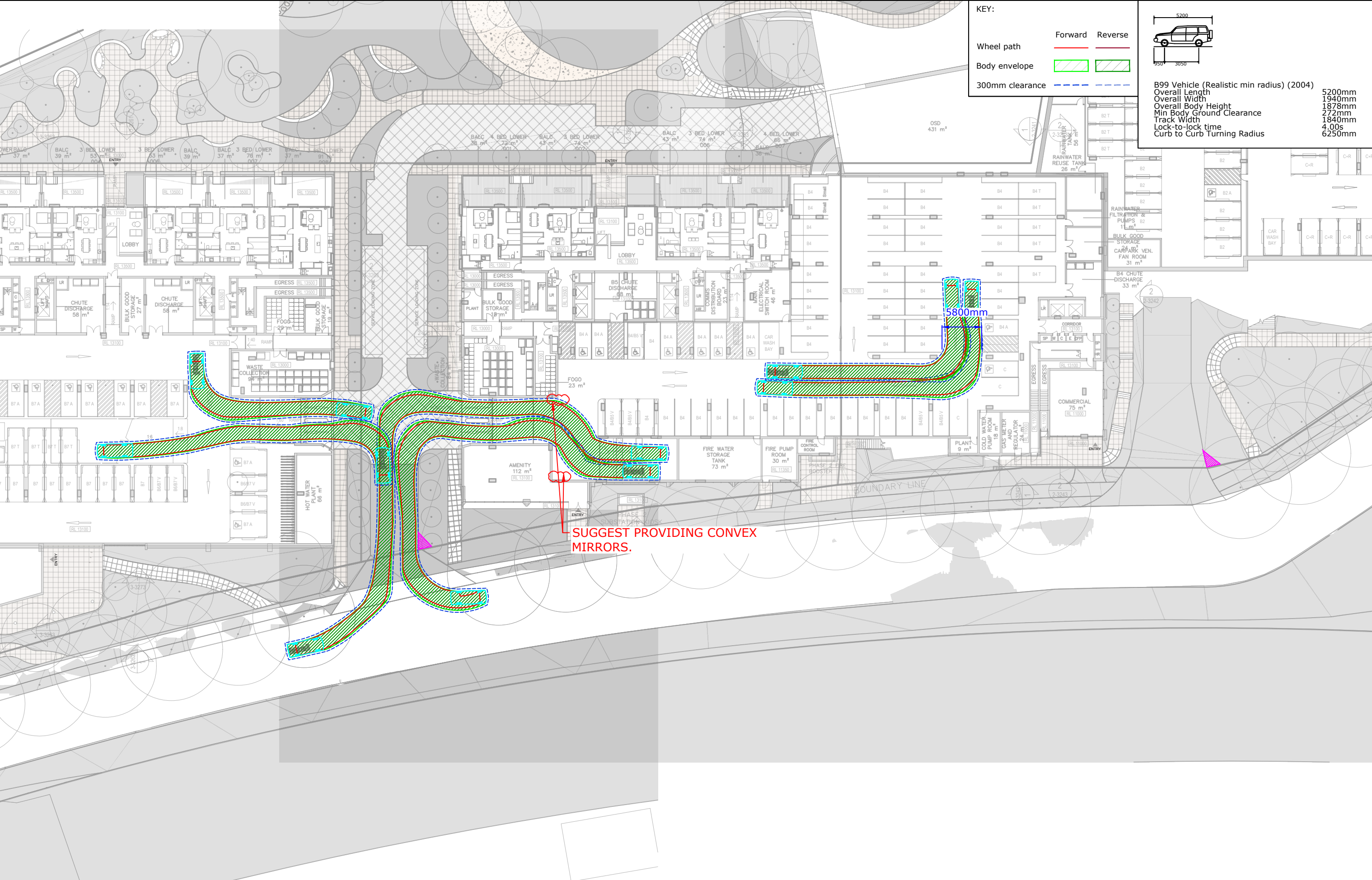
SIGHT TRIANGLE TO BE KEPT CLEAR OF OBSTRUCTIONS TO ENSURE PEDESTRIAN SAFETY.

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KR	HT	SR	21/11/24



PROJECT	1 CRESCENT ROAD, HOLROYD
TITLE	CAR PARK COMPLIANCE REVIEW: LOWER GROUND LEVEL

DWG No.	16241CAD017
FIGURE 5	
DATE STAMP	21 November 2024
PROJECT No.	16241
SCALE	1:750 @A3
REV.	A



REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KR	HT	SR	21/11/24



PROJECT	1 CRESCENT ROAD, HOLROYD		
TITLE	SWEPT PATH ANALYSIS: LOWER GROUND LEVEL 5.2M B99		

DWG No.	16241CAD017 FIGURE 6		
DATE STAMP	21 November 2024		
PROJECT No.	SCALE	REV.	
16241	1:500 @A3	A	

NOTES:

- 1) GENERAL CAR SPACES ARE 2.4M WIDE AND 5.4M LONG.
- 2) ACCESSIBLE CAR SPACES ARE 2.4M WIDE AND 5.4M LONG. A SHARED SPACE OF EQUAL DIMENSIONS HAS BEEN PROVIDED.
- 3) RETAIL AND COMMERCIAL CAR SPACES ARE 2.7M WIDE AND 5.4M LONG.
- 4) CAR WASH BAY IS PROVIDED.
- 5) HORIZONTAL STAGGERED BICYCLE SPACES ARE PROVIDED.
- 6) PROVIDE THE FOLLOWING MINIMUM HEADROOM CLEARANCES IN ACCORDANCE TO AS2890.1, AS2890.2, AND AS2890.6:
 - ABOVE LOADING AREA AND AREAS ACCESSIBLE BY SERVICE TRUCKS - 4.5m,
 - ABOVE DISABLED CAR SPACES AND SHARED AREA - 2.5m,
 - ABOVE CAR SPACES, RAMPS AND AISLES - 2.2m.



REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KR	HT	SR	21/11/24



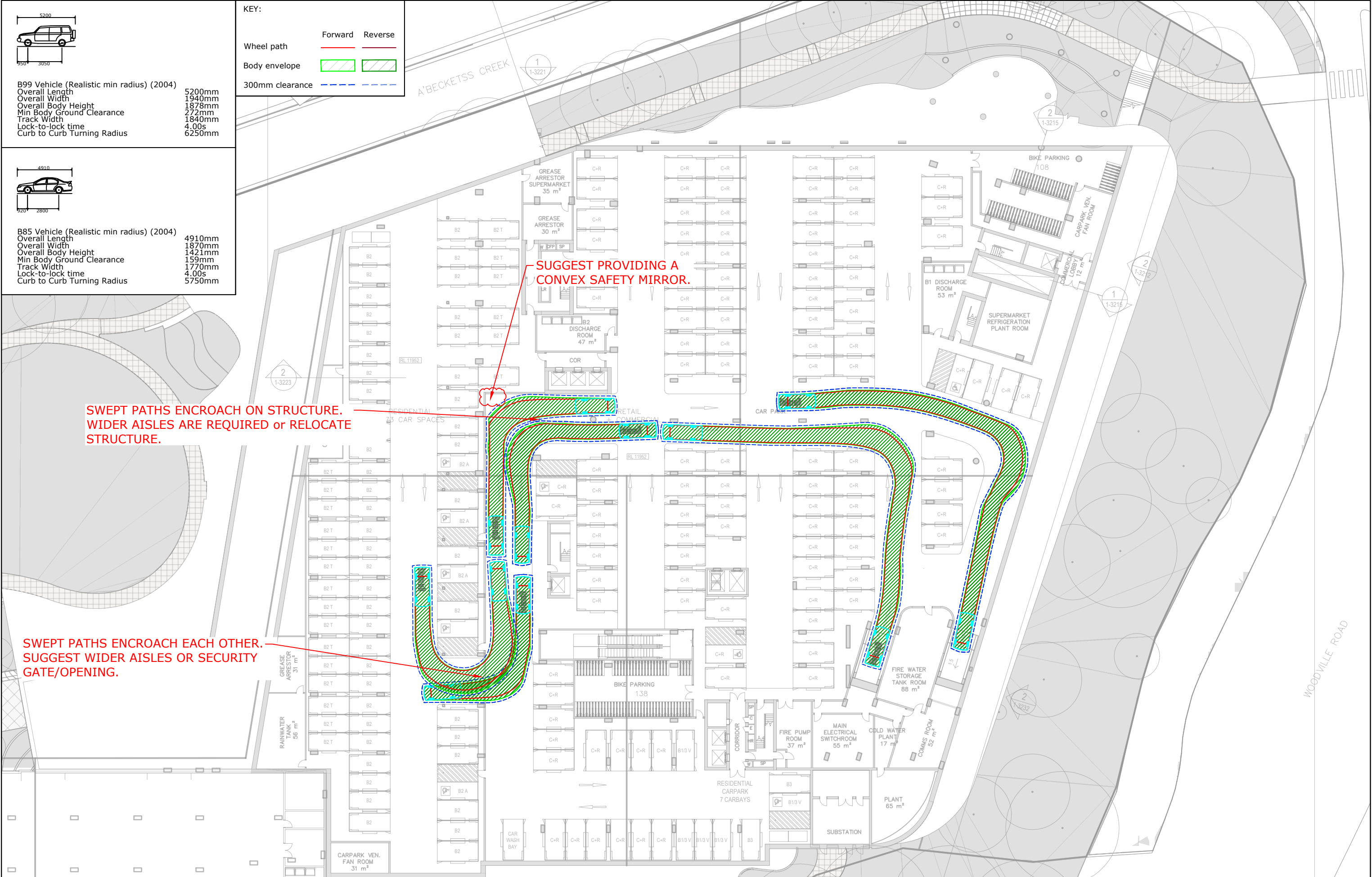
PROJECT

1 CRESCENT STREET, HOLROYD

TITLE

CAR PARK REVIEW: LOWER GROUND LEVEL

DWG No.	16241CAD017	REV.	A
FIGURE	7		
DATE STAMP	21 November 2024		
PROJECT No.	16241	SCALE	1:450 @A3



	B99 Vehicle (Realistic min radius) (2004) Overall Length 5200mm Overall Width 1940mm Overall Body Height 1878mm Min Body Ground Clearance 272mm Track Width 1840mm Lock-to-lock time 4.00s Curb to Curb Turning Radius 6250mm
	B85 Vehicle (Realistic min radius) (2004) Overall Length 4910mm Overall Width 1870mm Overall Body Height 1421mm Min Body Ground Clearance 159mm Track Width 1770mm Lock-to-lock time 4.00s Curb to Curb Turning Radius 5750mm

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KR	HT	SR	21/11/24

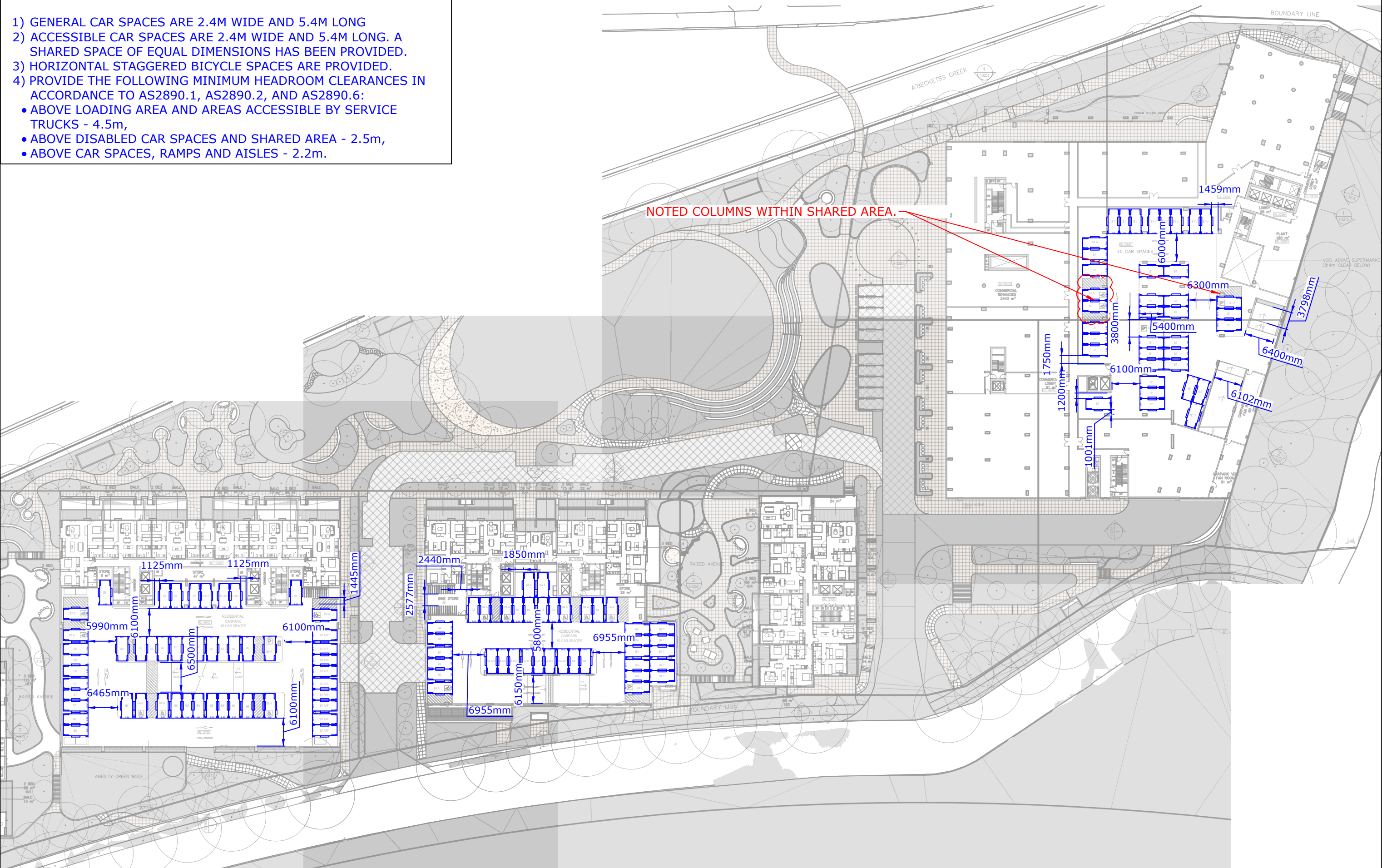


PROJECT	1 CRESCENT STREET, HOLROYD		
TITLE	SWEPT PATH ANALYSIS : LOWER GROUND LEVEL 5.2M B99 AND 4.9M B85		

DWG No.	16241CAD017 FIGURE 8		
DATE STAMP	21 November 2024		
PROJECT No.	SCALE	REV.	
16241	1:450 @A3	A	

NOTES:

- 1) GENERAL CAR SPACES ARE 2.4M WIDE AND 5.4M LONG
- 2) ACCESSIBLE CAR SPACES ARE 2.4M WIDE AND 5.4M LONG. A SHARED SPACE OF EQUAL DIMENSIONS HAS BEEN PROVIDED.
- 3) HORIZONTAL STAGGERED BICYCLE SPACES ARE PROVIDED.
- 4) PROVIDE THE FOLLOWING MINIMUM HEADROOM CLEARANCES IN ACCORDANCE TO AS2890.1, AS2890.2, AND AS2890.6:
 - ABOVE LOADING AREA AND AREAS ACCESSIBLE BY SERVICE TRUCKS - 4.5m,
 - ABOVE DISABLED CAR SPACES AND SHARED AREA - 2.5m,
 - ABOVE CAR SPACES, RAMPS AND AISLES - 2.2m.



REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KR	HT	SR	21/11/24



PROJECT

TITLE

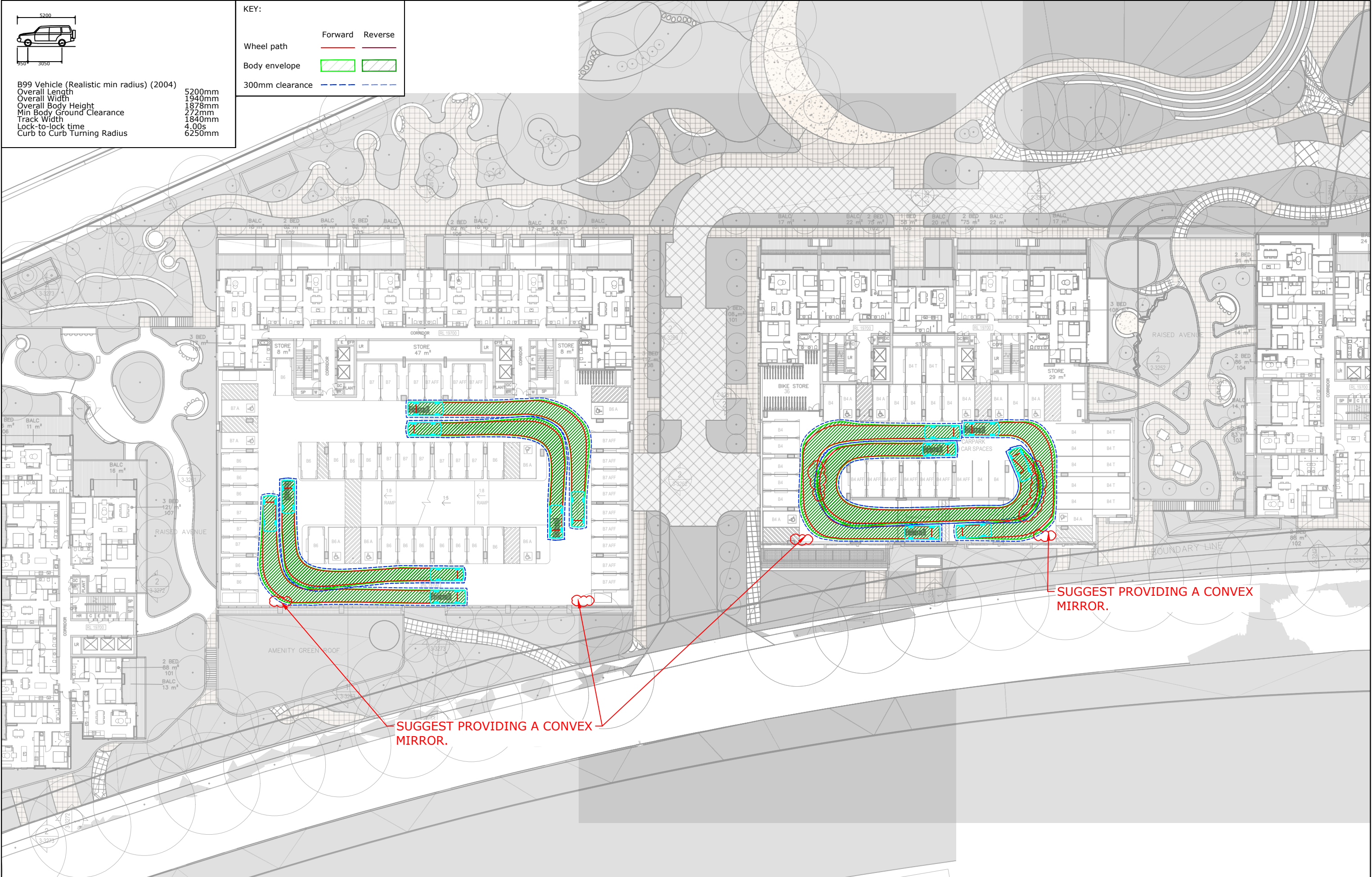
1 CRESCENT STREET, HOLROYD

CAR COMPLIANCE PARK REVIEW : LEVEL 01

DWG No.	16241CAD017
	FIGURE 9

DATE STAMP
21 November 2024

PROJECT No. 16241	SCALE 1:750 @A3	REV. A
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REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KR	HT	SR	21/11/24



PROJECT

1 CRESCENT STREET, HOLROYD

TITLE

CAR PARK COMPLIANCE REVIEW AND SWEEP PATHS : LEVEL 01 5.2M B99 AND 4.9 B85

DWG No.			16241CAD017		
			FIGURE 10		
DATE STAMP					
21 November 2024					
PROJECT No.		SCALE		REV.	
16241		1:500 @A3		A	

NOTES:

- 1) GENERAL CAR SPACES ARE 2.4M WIDE AND 5.4M LONG
- 2) ACCESSIBLE CAR SPACES ARE 2.4M WIDE AND 5.4M LONG. A SHARED SPACE OF EQUAL DIMENSIONS HAS BEEN PROVIDED.
- 3) ADAPTABLE SPACES ARE 3.8M WIDE AND 5.4M LONG.
- 4) HORIZONTAL STAGGERED BICYCLE SPACES ARE PROVIDED.
- 5) PROVIDE THE FOLLOWING MINIMUM HEADROOM CLEARANCES IN ACCORDANCE TO AS2890.1, AS2890.2, AND AS2890.6:
 - ABOVE LOADING AREA AND AREAS ACCESSIBLE BY SERVICE TRUCKS - 4.5m,
 - ABOVE DISABLED CAR SPACES AND SHARED AREA - 2.5m,
 - ABOVE CAR SPACES, RAMPS AND AISLES - 2.2m.



REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KR	HT	SR	21/11/24



PROJECT	1 CRESCENT STREET, HOLROYD		
TITLE	CAR PARK REVIEW AND SWEEP PATH ANALYSIS : LEVEL 01 : 5.2M B99 AND 4.9M B85		

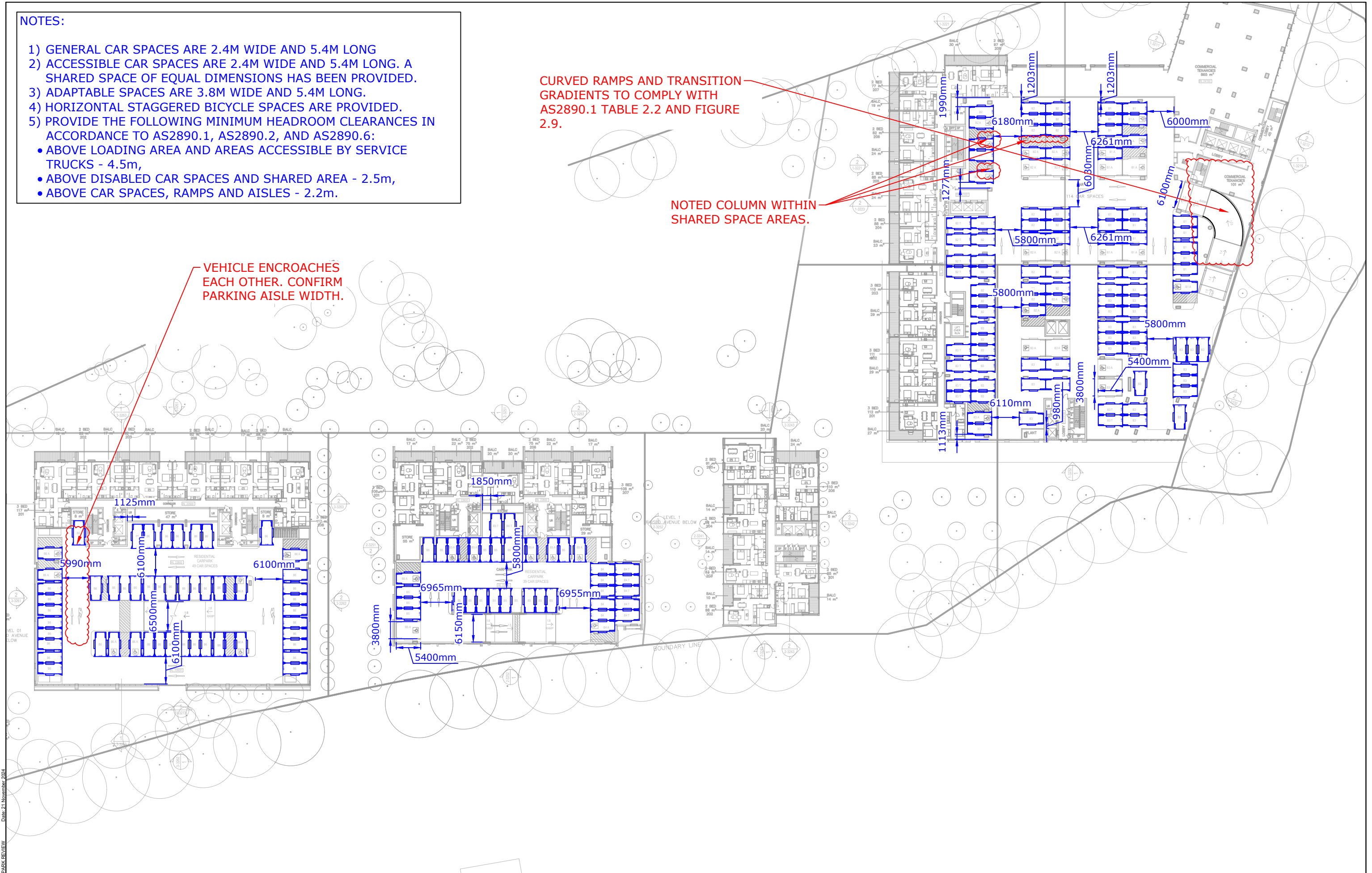
DWG No.	16241CAD017 FIGURE 11		
DATE STAMP	21 November 2024		
PROJECT No.	SCALE	REV.	
16241	1:250 @A3	A	

- NOTES:
- 1) GENERAL CAR SPACES ARE 2.4M WIDE AND 5.4M LONG
 - 2) ACCESSIBLE CAR SPACES ARE 2.4M WIDE AND 5.4M LONG. A SHARED SPACE OF EQUAL DIMENSIONS HAS BEEN PROVIDED.
 - 3) ADAPTABLE SPACES ARE 3.8M WIDE AND 5.4M LONG.
 - 4) HORIZONTAL STAGGERED BICYCLE SPACES ARE PROVIDED.
 - 5) PROVIDE THE FOLLOWING MINIMUM HEADROOM CLEARANCES IN ACCORDANCE TO AS2890.1, AS2890.2, AND AS2890.6:
 - ABOVE LOADING AREA AND AREAS ACCESSIBLE BY SERVICE TRUCKS - 4.5m,
 - ABOVE DISABLED CAR SPACES AND SHARED AREA - 2.5m,
 - ABOVE CAR SPACES, RAMPS AND AISLES - 2.2m.

CURVED RAMPS AND TRANSITION GRADIENTS TO COMPLY WITH AS2890.1 TABLE 2.2 AND FIGURE 2.9.

NOTED COLUMN WITHIN SHARED SPACE AREAS.

VEHICLE ENCROACHES EACH OTHER. CONFIRM PARKING AISLE WIDTH.



REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KR	HT	SR	21/11/24



PROJECT	1 CRESCENT STREET, HOLROYD		
TITLE	CAR PARK COMPLIANCE REVIEW: LEVEL 02		

DWG No.	16241CAD017 FIGURE 12		
DATE STAMP	21 November 2024		
PROJECT No.	SCALE	REV.	
16241	1:750 @A3	A	