Traffix Group

Traffic Engineering Assessment

Proposed Mixed Use Development

173 Burke Road, Glen Iris

Prepared for
Glen Iris Devco Pty Ltd

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Summary of Issues

The subject site is 173 Burke Road, Glen Iris. A previous planning application was submitted for a development of this site comprising a supermarket, food & drink premises and residential apartments. The proposal included all vehicle access to Hope Street and included a signalisation of the Burke Road and Hope Street intersection.

Ultimately, VCAT determined to refuse the application. The reasons for refusal relating to traffic engineering are summarised as follows:

- Daily traffic volume impact to Hope Street.
- Truck impacts to Hope Street.
- Extent of on-street car parking loss due to the traffic signals.
- Impacts to individual properties nearby to the intersection.

The VCAT decision accepted that the peak hour impact of the development could be accommodated, and a signalised intersection provided appropriate access.

In light of the decision, an alternative vehicle access strategy was investigated post-VCAT hearing, which included a signalised pedestrian crossing on Burke Road in lieu of a full set of traffic signals to assist vehicles exiting Hope Street, as well as a new access point to Burke Road for cars (entry only via left and right-turn) and all truck movements (left-in/left-out only).

The Department of Transport and Planning (DTP) provided feedback on this scheme (letter dated 27th March 2024), stating that DTP recommends that full traffic signals be installed at the intersection, access to Burke Road be limited to trucks via left-in/left-out movements and all customers/residents to access the site via Hope Street.

Traffix Group undertook extensive consultation with DTP to work through the concept design for the signalised upgrade of Burke Road and Hope Street, which provided a 'smaller' set of traffic signals compared to that at the previous VCAT hearing to minimise on-street car parking loss but still provide for the necessary traffic performance.

Traffix Group also reviewed whether vehicles could enter the site via the Burke Road access and DTP provided in principle support[1] for a left-turn entry only for cars via the same access point that trucks will use (trucks via left-in/left-out movements). The Functional Layout Plan prepared includes arrangements to ensure this will work efficiently and the necessary safety measures that DTP sought to be included if cars were to enter via Burke Road. The Hope Street access has been retained.

Traffix Group also undertook updated traffic generation surveys of suitable supermarkets in metropolitan Melbourne for peak hour and daily volumes which demonstrated that previous analysis was overly conservative. Revised traffic generation rates have been adopted, as agreed with the DTP, to provide for a more realistic traffic

[1] Subject to reviewing the updated Traffic Engineering Assessment (this report) and updated Functional Layout Plan.

assessment of impacts from the development. Of key importance is that surveys confirmed that peak period traffic generation rates adopted in the previous analysis were realistic (and on the conservative side) and they found that the daily traffic generation assumed in the previous modelling was unrealistically high.

The revised development scheme has responded to the VCAT refusal via the following measures:

- Reduction in development intensity with 22 less apartments and a food & drink premises (café) instead of a bottle shop,
- Revised access arrangements so that a proportion of traffic accesses the site directly from Burke Road, rather than all traffic via Hope Street (left-in for cars via Burke Road, plus Hope Street access),
- Removal of all truck movements from Hope Street and provision of highly managed truck loading bay via Burke Road, controlled by extensive Loading Management Plan inclusive of access restrictions and 'block-out' windows for key pedestrian times,
- Highly resolved Functional Layout Plan which considers individual property access points, controlled right-turn movements as per DTP request and peak hour traffic impacts of the development,
- A reduction in extent of on-street parking loss (20 car spaces instead of 29 spaces) via revised FLP design, and
- A reduction in the daily traffic volume impact to Hope Street via revised access arrangements, lower development intensity and revised traffic generation rates based on robust empirical data from comparable developments in 2024.

The development design and analysis has also considered that should the left-in for cars from Burke Road not be desired by decision-makers, all vehicle movements can occur from the Hope Street access, with loading access still retained via Burke Road. The benefit of the left-turn entry for cars from Burke Road provides for improved vehicle access to the site and further reduces traffic impacts to Hope Street.

We consider that the revised development proposal has addressed all traffic engineering concerns from the VCAT hearing and DTP has provided in-principle support[1] for the proposed arrangements.

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1. Introduction

Traffix Group has been engaged by Glen Iris Devco Pty Ltd to undertake a Traffic Engineering Assessment for a proposed mixed use development at 173 Burke Road, Glen Iris.

This site was the subject of a previous VCAT hearing, Glen Iris Devco Pty Ltd v Stonnington CC [2022] VCAT 471. The previous planning application and VCAT decision is reviewed at Section 2.

2. Previous Proposal & History

A previous planning application was submitted for a mixed use development on the land at 173 Burke Road, Glen Iris. This application was the subject of a VCAT hearing (reviewed at Section 2). The previous proposal can be summarised as follows:

- A Woolworths supermarket with a floor area of 3,148m^2 of Leasable Floor Area (LFA) and a 278m^2 BWS.
- 80 apartments, comprising 8 x one-bedroom, 61 x two-bedroom and 11 x three-bedroom apartments.
- A total of 171 commercial car spaces and 132 resident spaces were provided, complying with the requirements of Clause 52.06-5 of the Planning Scheme. In addition, 133 bicycle spaces and 2 motorbike spaces were proposed.

All vehicle access to the site was proposed via Hope Street, towards the site's north-western boundary.

A ground floor loading bay, inclusive of an inbuilt turntable, was proposed via Hope Street, to the east of the carpark access. Trucks up to the 12.5m long Heavy Rigid Vehicle (HRV) were proposed to use the loading bay to service the commercial tenancies.

The intersection of Burke Road and Hope Street was proposed to be fully signalised by the applicant.

These arrangements and locations are shown in the figures below.

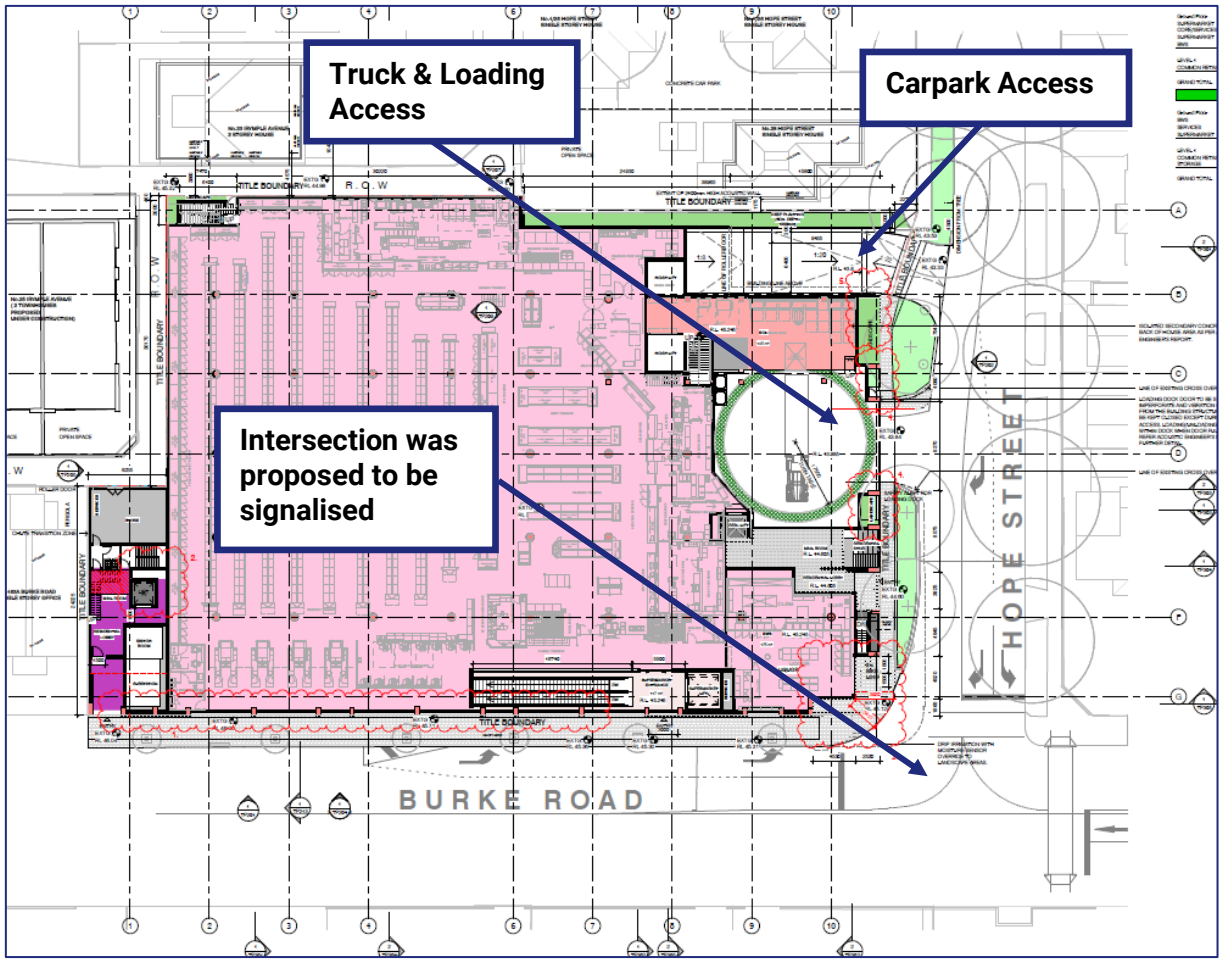

Figure 1: Previous Proposal - Carpark access and truck loading locations

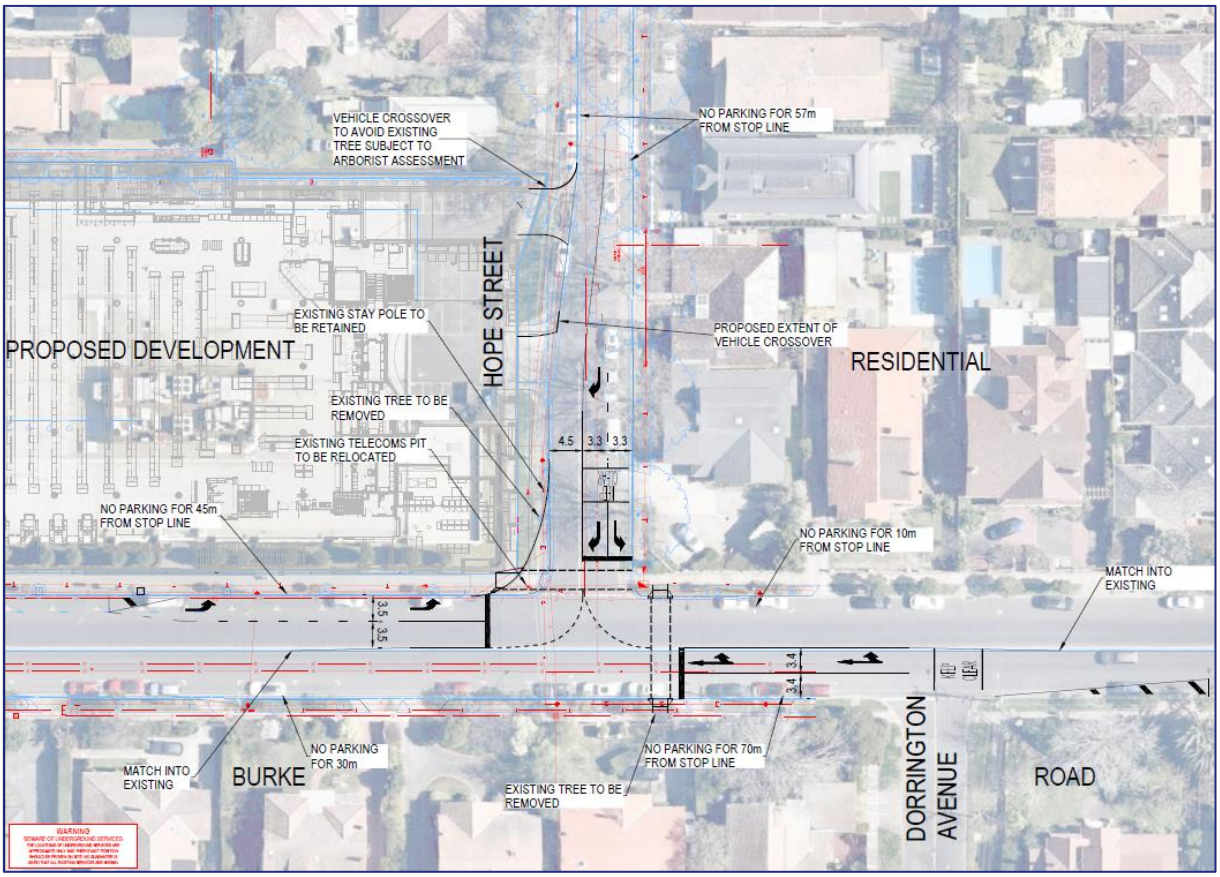

Figure 2: Previously proposed signalisation of Burke Road and Hope Street intersection and works

After initially objecting to the proposal, following consultation with the DTP prior to the VCAT hearing, the DTP in its letter dated 1st March 2022 stated that it had updated its formal position to that of support for the installation of traffic signals in relation to this proposal. DTP included conditions which related to the vesting of the land required for the road widening to DTP.

Stonnington Council refused the previous application for a number of reasons, including traffic and parking impacts as a result of the signalised intersection, waste management issues and loading bay concerns.

A VCAT hearing followed, and a summary of the refusal is outlined at Section 2.1.

2.1. VCAT Decision

A VCAT hearing was held in March and April 2022 relating to the previous planning proposal (Glen Iris Devco Pty Ltd v Stonnington CC [2022] VCAT 471).[2]

Ultimately, VCAT determined to refuse the application in its VCAT Decision dated 9th May 2022. VCAT refused the application for a range of reasons, with reasons related to traffic engineering summarised as follows:

- *The traffic and parking implications including:*
  - *Operation and functional matters as a consequence of:*
    - *A new signalised intersection that is required at the intersection of Burke Road and Hope Street;*
    - *The use of Hope Street for all car parking access and egress; for commercial deliveries; for commercial loading; and for waste collection;*
    - *The loss of on-street car parking supply;*
    - *Potential impacts on access to private properties, particularly in Burke Road and to the medical centre;*
  - *The effect on the amenity of the area;*
- *Impacts on the amenity on the adjoining and nearby properties.*

2.1.1. Key paragraphs from VCAT Decision

207 *The additional traffic volumes and impacts on intersection performance do not prevent vehicle movement. We understand that DoT would have the ability and power to coordinate the new signals with other signals along Burke Road, to streamline flows. It would also have the power to implement measures to increase vehicle carrying capacity, such as extended clearways (by time or in physical extent/dimension). We refer to this again below, in terms of community impacts and access to properties. We accept, whether on Ms Dunstan's evidence, Mr Gnanakone's evidence, or Mr Maina's evidence, the additional traffic and its flow can be accommodated within the functional capacity of Burke Road and can be managed, notwithstanding the extended queues in physical length, duration and/or frequency.*

208 *We have serious concerns about the significant increase in traffic volumes and traffic movements on Hope Street, and impacts that arise. The additional traffic is substantially greater than generated by the actual or theoretical volumes associated with the existing office building on the subject land. We accept that part of the eastern end of Hope Street is C1Z. We do not accept that Hope Street that is not a residential street, nor do we agree that Hope Street is within the activity centre. Hope Street is within the influence of the activity centre but is not formally part of it and, as indicated, only serves the subject land within the CPVNAC. The scheme gives weight to considering the traffic impacts on local*

[2] The VCAT decision can be found via this link: http://www.austlii.edu.au/cgi-bin/viewdoc/au/cases/vic/VCAT/2022/471.html?context=1;query=glen%20iris%20devco;mask_path=au/cases/vic/VCAT

amenity in residential areas as we have cited earlier. This is a different consideration to the assessment of the environmental capacity of the street that the traffic experts cite.

209 *While Hope Street is wider adjacent to much of the subject land, it is a local street which does not lead to other locations, except the crescent created with Louis and Clyde Streets that return to Burke Road. The situation is different to other locations cited in the hearing where a loading bay abuts a residential street, such as Bay/Male Streets, Brighton, and Derby Street, Kew. The streets used for loading in these examples are opposite houses on wider roads that link with the broader road network. In the case of Brighton, Male Street is a collector road. Hope/Louis/Clyde are no-through roads and are currently signed as such.*

210 *Compounded by arrangements relating to loading/deliveries/waste collection, the impact of the loss of on-street parking, and property access, all of which we refer to below, we are concerned about the future operation of Hope Street, as follows:*

- *We have not been persuaded that impacts from the number of vehicles turning into Hope Street will not lead to unreasonable congestion. While much of the analysis is understandably based on peak conditions, the projected daily traffic volumes based on Ms Dunstan's evidence, of 3,483 vehicles (3,083 being volumes associated with the supermarket) is a major impost.*
- *We are concerned about the combined use of Hope Street focussing all loading, waste and car park access into the street. In addition to the periods of queuing, and the amenity impacts of that for residents and property owners from the expected increase in cars, we have not been persuaded of the satisfactory operation of Hope Street. Among the issues, in our assessment, are the following:*
- *The functional layout shows a 'Keep Clear' sign to facilitate access into the medical centre property, but the issue of cars reversing out of the medical centre has not been adequately understood or addressed. It has been emphasised through the hearing that there is no guarantee that DoT will implement that 'Keep Clear' major traffic control item even though it is shown on the functional layout concept plan. A similar concern relates to delays and impacts associated with access and egress to other properties (eg. 25 Hope Street) that have no on-site turning capacity. We note traffic volumes generated by the dwellings would be lower than the medical centre.*
- *Heavy rigid vehicles are longer than the lane length between the signals and the 'Keep Clear' line-marking at the medical centre access/egress point. Trucks could, therefore, block the access or prop west of the 'Keep Clear' effecting queuing down Hope Street.*
- *Trucks turning into/out of the subject land may block or partly block in-bound and exiting traffic even though swept paths indicate that there is adequate allowance.*
- *Large or medium sized vehicles waiting to use the loading bay, or attending for waste collection, would block traffic in Hope Street if the loading bay is being used, or otherwise travel through the three local streets in the crescent.*

211 Further, and as a consequence:

- *We expect there would be cars that travel around the crescent to avoid the new signals, either when coming to the subject land or when departing.*
- *We accept that local knowledge could result in some vehicles using the laneways off the Hope/Louis/Clyde Streets crescent. However, their use is unlikely to be substantial given their configuration.*

212 In summary, regardless of which expert evidence is applied or accepted, we agree with Mr Wren, Mr Gale and other respondents that the impact of the signals would be to cause much disruption to the street network and residential amenity.

In summary, the Tribunal concluded the following:

- Hope Street is a low volume, no-through local road and an increase of 3,000+ vehicles per day is too high and unacceptable from an amenity perspective.
- Compounding impacts of loading/deliveries/waste collection, including what happens if a second truck arrives whilst the loading bay is in use for Hope Street and impacts of trucks to the nearby medical clinic access.
- Loss of on-street parking as a result of the proposed traffic signals (between 29-31 car spaces overall from the development), noting retention of on-street parking nearby to the medical clinic is of particular importance.
- Impacts to individual property access points as a result of full intersection signalisation, including the medical centre located at 177 Burke Road, Glen Iris and residential property at No. 164 Burke Road.

3. Proposal

3.1. Updated Proposal

A new development scheme is set out below:

- A Woolworths supermarket with a floor area of 3,035m^2 of Leasable Floor Area (LFA).
- A 125m^2 food and drink premises.
- 58 apartments, comprising 2 x one-bedroom, 30 x two-bedroom and 26 x three or more-bedroom apartments.
- A total of 170 commercial car spaces and 120 resident spaces are proposed across a 3-level basement carpark, exceeding the requirements of Clause 52.06-5 of the Planning Scheme.
  - A total of 20 tandem pairs (40 car spaces) are provided and will be allocated to the same apartments as required.
- A total of 97 bicycle spaces and 3 motorbike spaces are proposed.

The key changes from the previous development scheme include:

- a supermarket at ground level of similar scale,
- removal of the bottle shop (BWS),
- inclusion of a 125m^2 food and drink premises on ground level,
- similar level of commercial car spaces from 171 to 170 (-1 space),
- reduction in the number of dwellings from 80 to 58 (-22 dwellings), and
- reduction in residential car spaces from 132 to 120 (-12 spaces).

A new vehicle access strategy has been developed and is outlined at Section 3.2, in conjunction with a number of works to the road network as outlined at Section 3.3.

The loading strategy for the site is outlined at Section 3.4.

3.2. Vehicle & Pedestrian Access

The proposal includes 2 vehicle access points, including:

- an access from Burke Road, located towards the site's southern boundary, and
- an access from Hope Street, towards the site's western boundary.

There are two access options proposed for the proposal, as follows:

1. Burke Road access will permit left-turn entry movements via cars, and a two-way access via Hope Street. Trucks will use the Burke Road access via left-in and left-out in accordance with the Loading Management Plan.

2. Burke Road access will only be permitted for trucks, with all cars to access the site via a two-way access via Hope Street. Trucks will use the Burke Road access via left-in and left-out in accordance with the Loading Management Plan.

Under both options:

- The intersection of Burke Road and Hope Street is proposed to be signalised to facilitate vehicle movements to and from the site via Hope Street.
- All truck movements associated with the supermarket and waste collection vehicles will use the loading bay accessed via Burke Road in accordance with the Loading Management Plan as per Section 3.4.

Option 1 and Option 2 do not change the crossover or accessway widths of the Burke Road access, only how cars will access the site.

Both access points connect to Basement level 1, noting that the ramp from Burke Road to Basement 1 would be removed under the Option 2 scheme.

These access locations are shown in the figure below and a copy of the development plan prepared by Cera Stribley Architecture is provided at Appendix A.

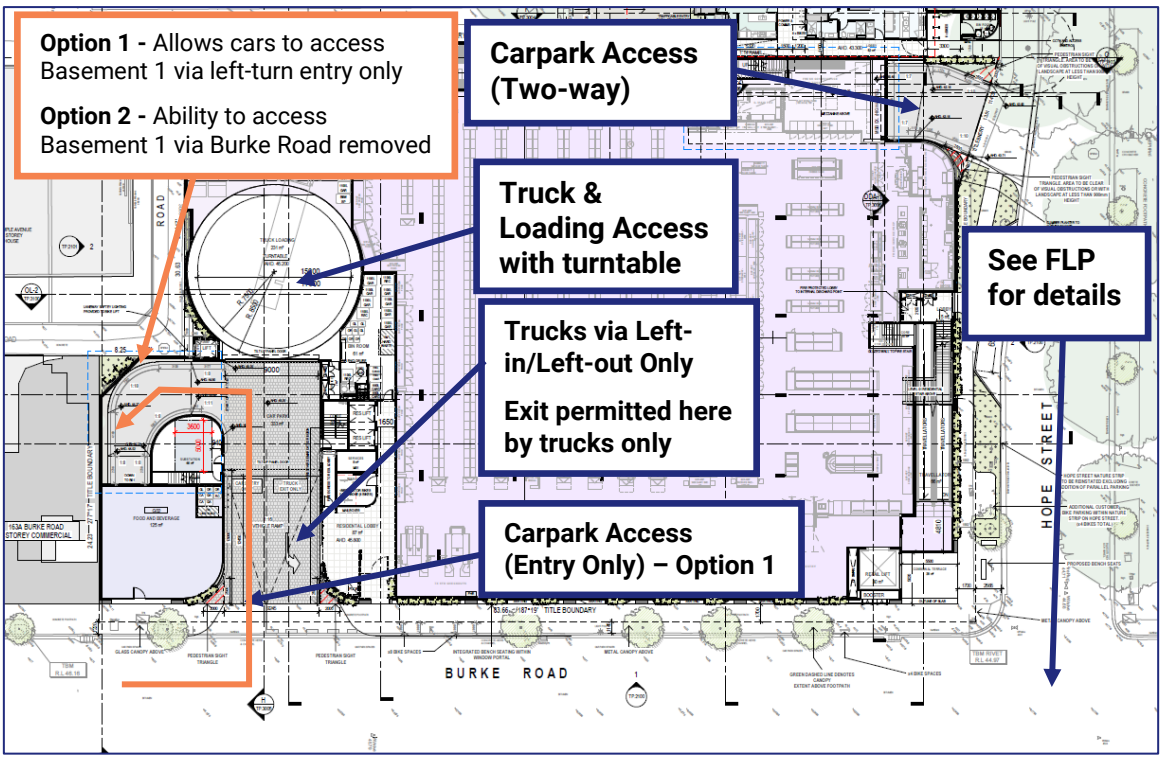

Figure 3: Proposed ground floor architectural plan

The basement level 1 carpark and part of basement level 2 carpark are allocated to customers and staff of the commercial tenancies. The remaining portion of the basement level 2 carpark and all the basement level 3 carpark will be allocated to residents, with a secure entry gate provided within basement level 2 to separate these car parking areas.

Pedestrian access to the site is provided as follows:

- pedestrian access to the supermarket is provided to Burke Road at the site's north-eastern corner, with the north-eastern corner setback at ground level,
- pedestrian access to the residential component is provided to Burke Road at the site's eastern boundary, and
- the food and drink premises will have a pedestrian access to Burke Road at the site's south-eastern corner.

A pedestrian lift and travellators will provide access from Basement Levels 1 and 2 to the ground floor supermarket, while separate pedestrian lifts within the southern core will provide access between Basement Levels 2 and 3, and the apartments.

A bicycle lift for residents is proposed via the rear Right-Of-Way (ROW) to provide a convenient connection for bike riders to and from the bicycle parking on Basement Level 3. Bicyclists can access the bike spaces on basement Level 2 for the commercial tenancies via the retail lift at the site's north-eastern corner.

Hoist and Goods Lifts will provide for loading opportunities between the loading bay located on Ground Level, along with storage area in Basement Level 2 and the supermarket 'pick-up' area located within Basement Level 1.

3.3. Functional Layout Plan

The development proposes to signalise the intersection of Burke Road and Hope Street in order to assist vehicles accessing Hope Street (to enter and exit the site access) and assist with pedestrian movements across both Burke Road and Hope Street.

A Functional Layout Plan (FLP) has been prepared by Traffix Group which outlines the proposed works and key swept path diagrams demonstrating access movements. This is attached at Appendix B and extract shown below.

This FLP has been designed in consultation with the Department of Transport and Planning (DTP) and has been thoroughly reviewed with respect to:

- Traffic and turning lane lengths and widths,
- Extent of car parking removal,
- Line marking treatments, including chevron treatments and diverge lengths,
- Swept path assessments, and
- Access to individual properties, including No. 177 Burke Road (Medical Centre) and No. 164 Burke Road (dwelling).

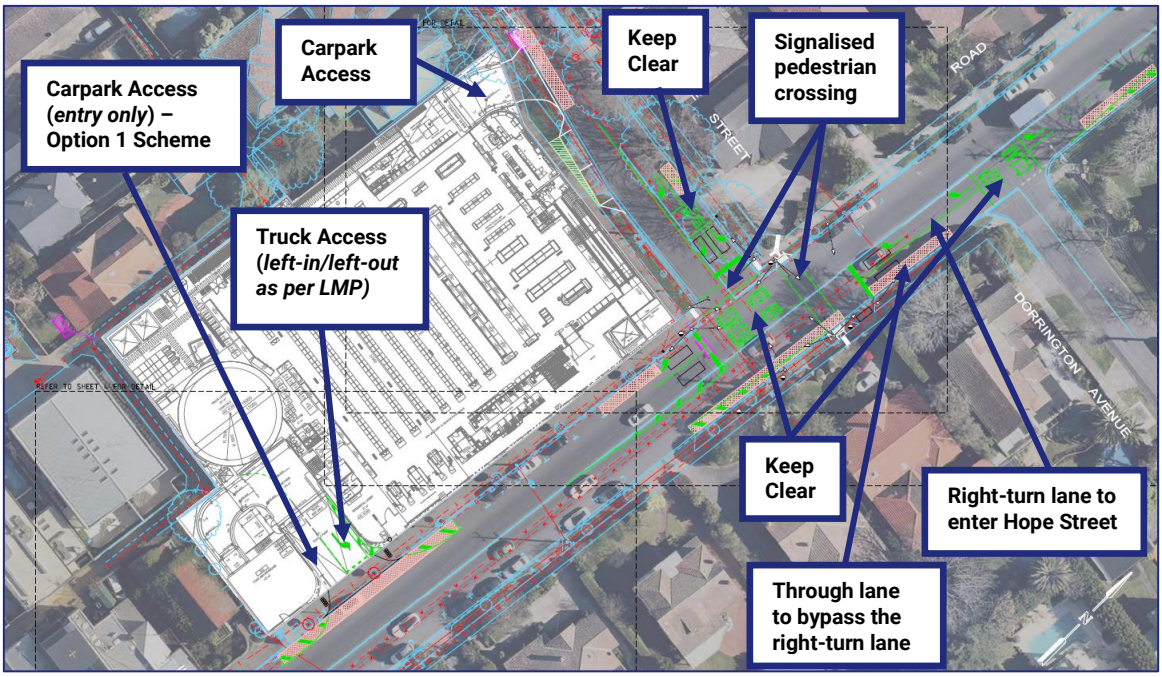

Figure 4: Functional Layout Plan

Key features of this plan include:

Burke Road & Hope Street Works

- Fully signalised intersection for Burke Road & Hope Street.
- Dedicated right-turn lane (40m long lane, plus 40m taper) along Burke Road accessing Hope Street.
- Keep Clear line marking provided within northbound lane of Burke Road.
- Separate left and right turn lanes exiting Hope Street. This feature maximises the efficiency of this intersection and minimises any delays.
- The centreline of Hope Street re-positioned to accommodate the above lanes. An 8.8m long Medium Rigid Vehicle can still turn left and right into Hope Street without crossing the centreline as per the road design guidelines.
- Removal of car parking on the eastern side of Burke Road, opposite Hope Street, along with segments of the site's frontage along the western side of Burke Road.
- Removal of car parking on the southern side of Hope Street along the site's frontage and 1 car space along the northern side of Hope Street to allow for the signalised intersection.
- Keep Clear line marking is provided adjacent to Dorrington Avenue on Burke Road and adjacent to the carpark access to No. 177 (Melbourne Pathology Glen Iris) on Hope Street.
- Two new indented parallel parking spaces along the site frontage to Hope Street.

- Setback of stop line for southbound traffic on Burke Road to allow access opportunities for the dwelling at No. 164 Burke Road. Due to on-street car parking removal, improved visibility will be afforded along Burke Road for this property. A vehicle can exit this access during stopped conditions due to the setback of the stop line for the crossing, inclusion of a vehicle detector loop within the vehicle crossover and a traffic lantern signal which will face No. 164 Burke Road to assist with exiting the property as required (i.e. all other traffic signals will display red when a vehicle is detected on the crossover, exiting the property).

Vehicle Access Point to Burke Road

- Customers to use this access via left-turn entry only Under Option 1 access to the basement, with no exit movements permitted from the basement. The Hope Street access will provide for two-way movements to and from the basement. As previously highlighted, under the Option 2 scheme, customer access via Burke Road will not be permitted.
- The crossover has been designed to accommodate simultaneous entry movement via a B99 design vehicle, entirely separate to the 'truck exit' part of the access.
- Pedestrian sight triangle provided on both sides of the access and gentle gradients to provide safety for pedestrians on the footpath. Further surface treatments and signage will form part of the ultimate design.
- The Burke Road crossover and footpath area will have a clear surface delineation, signage, pedestrian sight triangles and DDA tactile pads to assist with pedestrian safety along the footpath past the access.

Truck Access Point to Burke Road

- Truck use is expected to be infrequent as outlined in Section 3.4 and managed via a Loading Management Plan.
- Truck access limited to left-in and left-out movements only for all trucks. Left-out line marking provided, and specific instructions provided to Woolworths drivers/trucks and any other minor loading activities as part of Loading Management Plan to direct approach and departure instructions.
- As part of the Loading Management Plan, co-ordination with larger trucks is achieved via Woolworths and the internal door will be opened ahead of arrival. Smaller, infrequent deliveries will enter the site and similarly co-ordinate door arrival ahead of time.
- Signage is provided stated 'No Entry Trucks Excepted' for the loading bay entrance and signage will be provided to direct all customers down to the basement if Option 1 proceeds, allowing cars to turn left-in from Burke Road to access the basement.
- A surface treatment and line marking is provided to the 'truck exit' side of the access, ensuring customers entering the site drive on the left-hand side, similar to any two-way access point.

On-Street Parking Loss

The FLP prepared has been through a robust consultation process with DTP and this has informed how many car spaces are to be removed in certain locations to deliver a signalised intersection and access arrangements to DTP's satisfaction.

Factors considered included (but not limited to):

- Vehicle and truck movements to and from the Burke Road access,
- Ability to view pedestrians on the footpath upon approach to the Burke Road access,
- A dedicated right-turn lane on the north approach of Burke Road,
- A dedicated short left-turn lane on the south approach of Burke Road, and
- The ability for a heavy vehicle travelling southbound on Burke Road to bypass cars in the right-turn lane.

In order to accommodate all of the above, a total of 22 existing car spaces are proposed to be removed, as follows:

- 3 x car spaces along site frontage to Hope Street,
  - *To facilitate access point to Hope Street and two-way vehicle movements.*
- 1 x car space opposite the site on Hope Street, upon approach to Burke Road,
  - *To facilitate the proposed signalised intersection.*
- 8 x car spaces along site frontage to Burke Road, and
  - *To facilitate Burke Road vehicle access and truck access, along with the signalised intersection.*
- 10 x car spaces along eastern side of Burke Road.
  - *8 car spaces opposite Hope Street and 2 car spaces to the north of Dorrington Avenue to facilitate the proposed signalised intersection*.

Two new indented parallel car spaces are proposed along the site frontage to Hope Street, resulting in a **net loss of 20 car spaces**.

This is substantially less than the 29 car spaces proposed to be removed under the previous proposal at the VCAT hearing (referenced at Section 2.1). This is further explored at Section 5.2.

We consider that this signalised intersection will be of significant benefit to pedestrians accessing the site via provision of 2 new pedestrian crossings and also aid the local Neighbourhood Activity Centre by improving pedestrian connectivity in the area (noting that the nearest crossings are located approximately 210m south and 250m north of this location).

3.4. Loading Bay Arrangements

The loading bay has been relocated to the Burke Road frontage as a result of the Tribunal's findings at the previous VCAT hearing.

The reconfigured loading bay has been designed to allow for a truck up to the 12.5m long Heavy Rigid Vehicle (HRV) to enter the loading area in a forwards direction, use an in-built turntable to reposition as required for unloading and then exit the site in a forwards direction.

A robust Loading Management Plan has been prepared by Traffix Group in close consultation with Woolworths to determine how the loading bay will be used.

The location of the loading bay is shown in the figure below.

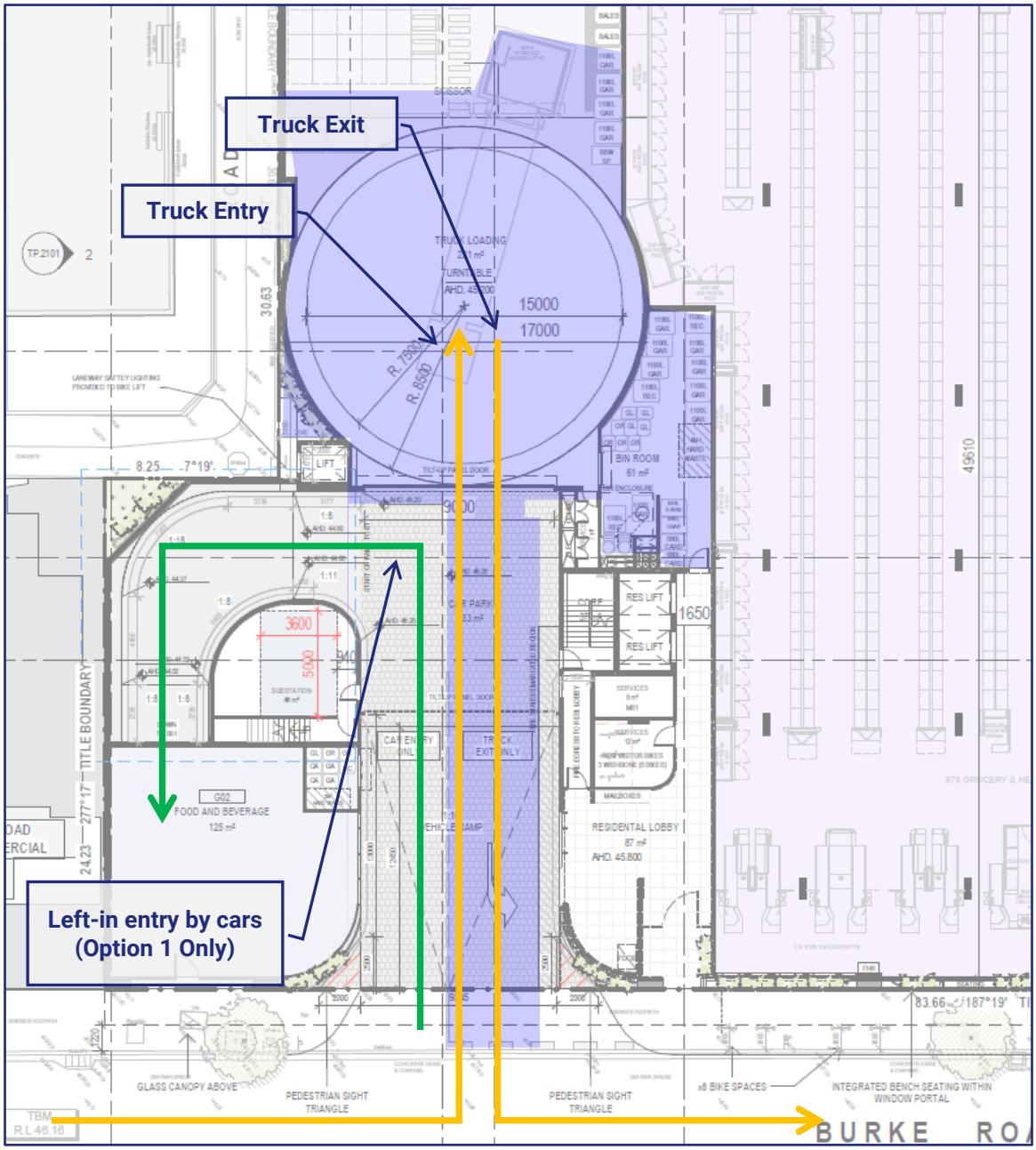

Figure 5: Loading Bay Location

We understand that Woolworths will carefully manage the loading bay process, including arrival and departure of vehicles, opening of necessary security doors ahead of arrival, communication with drivers, to manage the loading bay as required.

All loading vehicles will be required to access the site via left-in and left-out arrangements at all times, simplifying the movements to and from the site. This is included within the Loading Management Plan.

Deliveries to the supermarket will be controlled to avoid the following times to avoid times of peak pedestrian movements in the area, including school drop-off and pick-up times.

Table 1: Loading Bay Block-Out Windows

Block-Out Windows	Block-Out Windows
Weekday	**Weekend**
8am to 9am	8:30am to 1pm
3pm to 5:30pm	

The larger Woolworths trucks will be managed to ensure that there is never more than 1 larger truck accessing the site in any one period of time. Woolworths have the capability to schedule trucks, communicate with drivers and manage this process. A total of between 4 to 7 larger Woolworths trucks are expected to access the site across a typical day.

Other occasional deliveries by specialty suppliers will be infrequent (up to 5 times per day), typically short in duration and scheduled to avoid the larger trucks and the block-out windows.

We understand that the loading bay will typically be operational between 6am to 9pm, providing sufficient time across the day to manage all deliveries as required.

To assist with managing scheduling across the day:

- Trucks will be given a delivery window with no overlap, as well as avoiding the block-out windows as per above.
- Trucks will be provided with detailed instructions on how to access the site (access routes to enforce left-in/left-out) and to co-ordinate arrivals with Loading Bay Manager to open the internal security door to the loading bay (if required).
- The Loading Bay Manager will maintain channels of communication as required.

Truck access directly from Burke Road is acceptable given the loading bay design, infrequent use of the loading bay and management process.

Access to the loading bay for all trucks will be limited to left-in and left-out movements only.

A surface treatment and signage will clearly delineate the 'truck exit' side of the access, keeping the car entry side clear for customers to enter via left-turn at all times (under the Option 1 access scheme). Customers will not be able to navigate from the basement back to the Burke Road access due to the ramp design, signage and directional arrows provided. All cars will exit the basement carpark to Hope Street at all times.

- The Burke Road crossover and footpath area will have a clear surface delineation, signage, pedestrian sight triangles and DDA tactile pads to assist with pedestrian safety along the footpath past the access.

The DTP has provided in-principle support for the loading bay arrangements, including the loading bay block-out windows, restrictions on left-in and left-out movements, swept path movements and crossover treatment.

4. Existing Conditions

4.1. Subject Site

The subject site is located on the south-west corner of the intersection between Hope Street and Burke Road, in Glen Iris. The site has an additional frontage to a ROW network at its south-western frontages. A locality plan, photograph of the site's frontages to Hope Street and Burke Road and aerial photograph are presented in Figure 6 to Figure 9, respectively.

The site is approximately rectangular in shape and has an area of approximately 4,285m^2 and with a frontage to Hope Street and Burke Road of approximately 54.1m and 84.8m, respectively.

The subject site is currently occupied by a two-storey office building with a Net Leasable Area of approximately 3,383m^2. Vehicle access to an under-croft carpark accommodating 102 car spaces is provided via a double width crossover from Hope Street at the site's midpoint.

A total of 16 on-street car spaces are provided along the site's combined frontages, comprising:

- 13 x spaces along the site's frontage to Burke Road, subject to '1P 9am-5pm Mon-Fri, 9am-12pm Sat' restrictions, and
- 3 x unrestricted spaces along the site's frontage to Hope Street.

The subject site is located within a Commercial 1 Zone (C1Z) under the Planning Scheme as presented in Figure 10. Land surrounding the site is predominantly residential and commercial, along with a Public Park and Recreation Zone associated with Central Park, located to the south of the site.

The site is located within the Central Park Village Neighbourhood Activity Centre[3]. This activity centre provides a variety of community, retail, recreational, transport and housing opportunities. The site is also located within the Principal Public Transport Network (PPTN) area.

In addition to the Central Park Village Neighbourhood Activity Centre, other significant non-residential land uses in the nearby area include:

- **Sacre Coeur Catholic Girls School**, located approximately 100m north of the site,
- **Central Park**, located approximately 150m south of the site,
- **Caulfield Grammar (Malvern Campus)**, located approximately 200m east of the site,
- **Korowa Anglican Girls School**, located approximately 550m north-east of the site,
- **St. Roch's Catholic School**, located approximately 650m north of the site, and
- **Glen Iris Railway Station**, located approximately 950m north-east of the site.

[3] As referenced in the Stonnington Activity Centres Strategy – dated June, 2016.

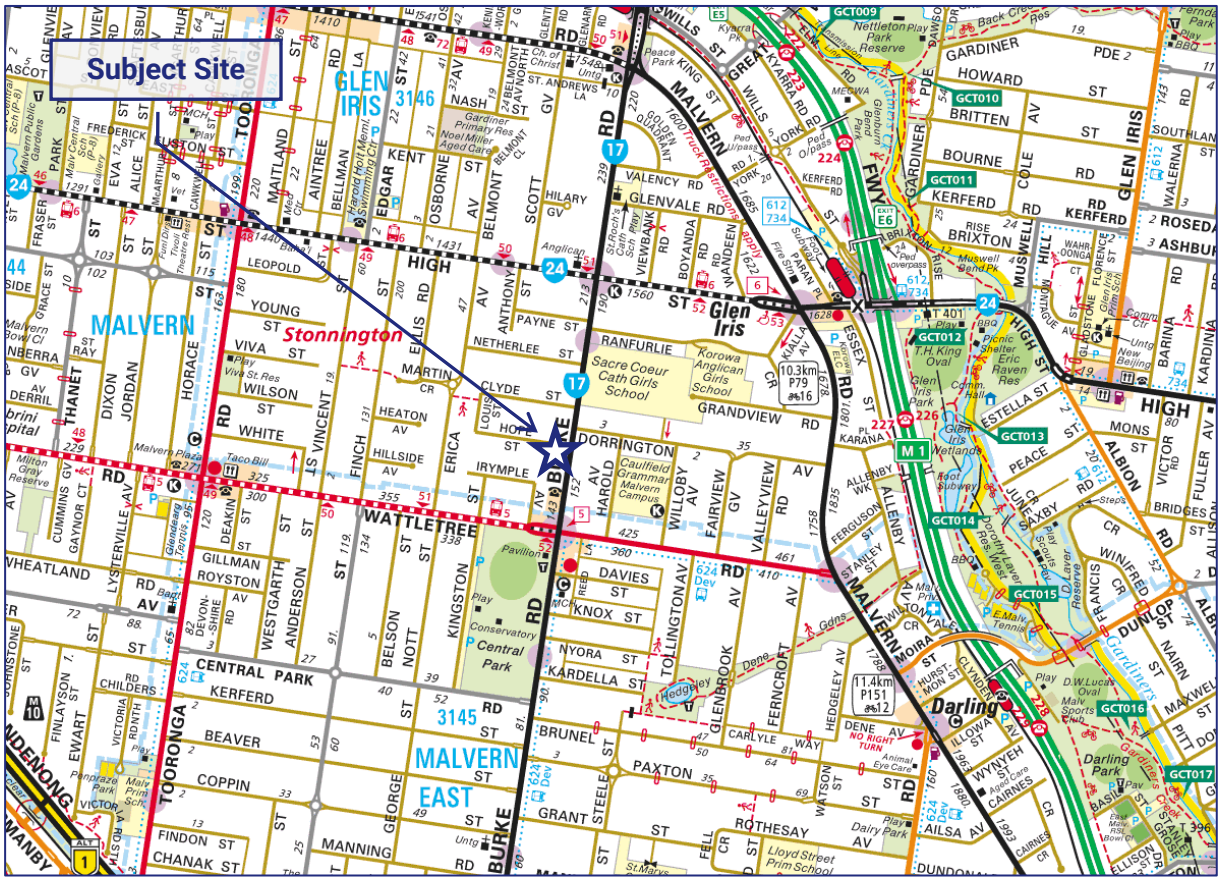

Figure 6: Locality plan

Figure 7: Subject site (view south-west from Hope Street)

Figure 8: Subject site (view south-west from Burke Road)

Figure 9: Aerial photograph (source: nearmap.com)

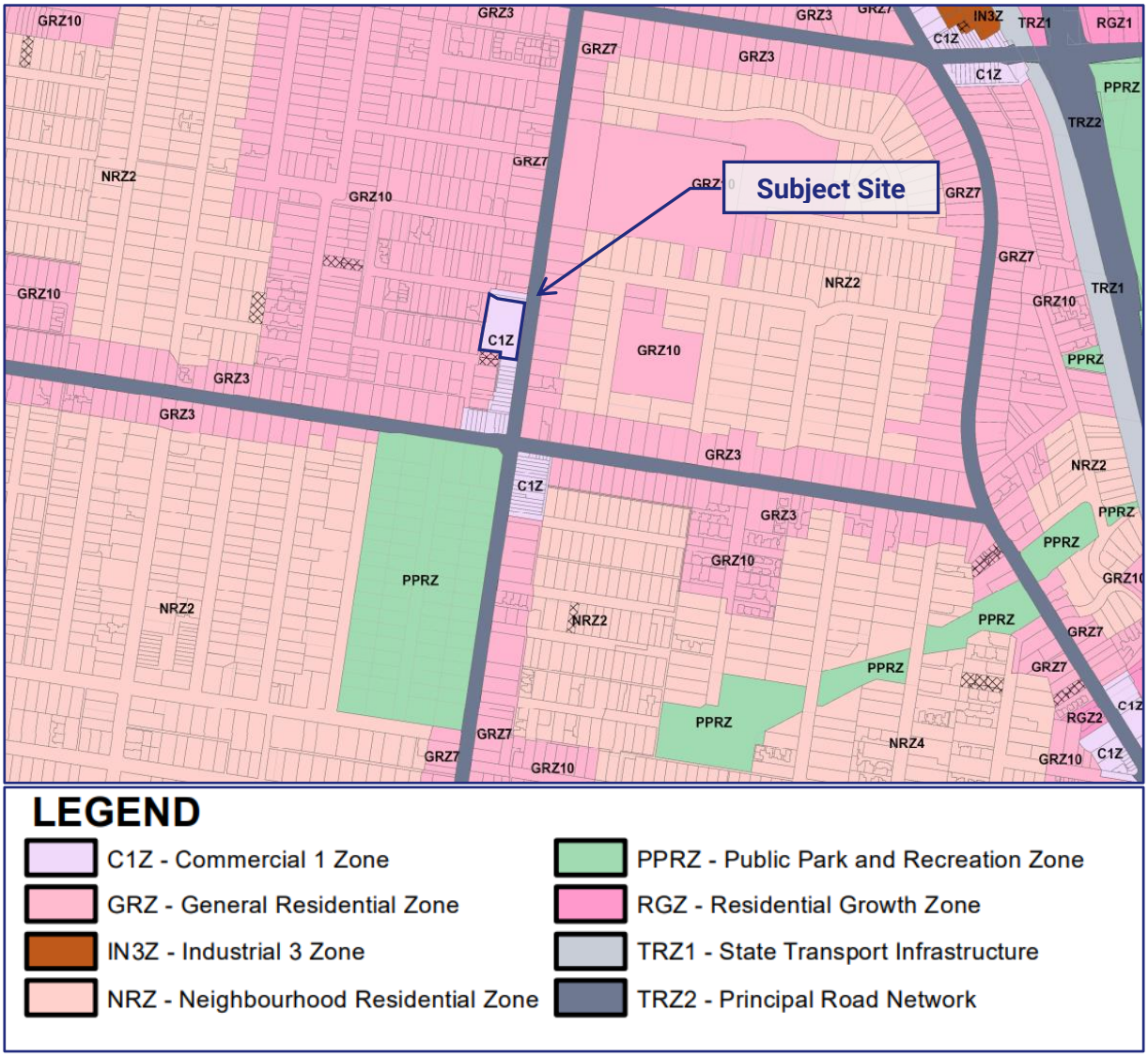

Figure 10: Land Use Zoning Map (source: Planning Schemes Online)

4.2. Transport Network

4.2.1. Road Network

Burke Road is an Arterial Road managed by the DTP and a Transport Zone 2 (TRZ2), aligned in a north-south direction.

Burke Road has a single undivided carriageway that typically provides one traffic lane in each direction, with a kerbside parking lane on each side. At the signalised intersection with Wattletree Road, Burke Road provides an additional short right-turn lane, as well as an additional through/left-turn lane in place of kerbside parking. This is also the case for the signalised intersection with High Street to the north.

A posted speed limit of 60km/h applies to Burke Road in the vicinity of the site, with a 40km/h speed limit applying between 8am-9:30am and 2:30pm-4pm on school days which applies in a northerly direction from the midpoint of the site. Burke Road carries a two-way daily volume of approximately 18,000 vehicles per day between High Street and Wattletree Road[4] in 2020.

Hope Street is a Council operated 'Local Road'[5], aligned in an east-west direction from Burke Road to the east and Louis Street to the west.

Hope Street, Louis Street and Clyde Street form a loop to and from Burke Road. A 3.2m wide, single-width Right-Of-Way (ROW) provides a local connection between Louis Street and Erica Avenue to the north-west of the site. This ROW is constructed with bluestone pavers.

Hope Street has a carriageway width of 11m up to the midpoint of the site from Burke Road, which then tapers down to 7.3m at the western boundary of the site. Where Hope Street is wider, Hope Street provides sufficient space for a dedicated traffic lane in each direction and kerbside parking (where permitted). At the intersection with Burke Road, cars can exit via left-turn and right-turn at the same time.

Where the width of Hope Street reduces to 7.3m with kerbside parking on both sides to the west of the site, Hope Street has a cross section consistent with an Access Street – Level 2 under Clause 56.06, with an environmental capacity of up to 3,000 vehicles per day.

A posted speed limit of 50km/h typically applies to Hope Street, however there is also a 40km/h speed limit between 8am-9:30am and 2:30pm-4pm on school days which applies upon approach to Burke Road from the midpoint of the site.

A ROW network is located partially along the site's western and southern boundaries. The ROW extends northerly from Irymple Avenue to the south-west of the site, before branching towards both the east and north.

The ROW is typically 3m in width and constructed of concrete.

Photographs depicting the surrounding road network are presented in Figure 11 to Figure 16.

[4] Source: vicroadsopendata-vicroadsmaps.opendata.arcgis.com – sourced 7th May, 2024
[5] According to the Stonnington City Council – Register of Public Roads – dated 2021

Figure 11: Burke Road – view north

Figure 12: Burke Road – view south

Figure 13: Hope Street – view west

Figure 14: Hope Street – view east

Figure 15: ROW – view north, from Irymple Avenue

Figure 16: ROW – view east, south-western boundary of site

4.2.2. Existing Traffic Conditions

A number of updated traffic surveys were commissioned to understand existing traffic conditions in the area, including:

- 5 x 7-day automatic tube counters which commenced on Wednesday 1st March, 2023, at the following locations:
  - Dorrington Avenue, directly east of Burke Road,
  - Clyde Street, directly west of Burke Road,
  - Hope Street, adjacent to the site's western boundary,
  - Hope Street, directly west of Burke Road, and
  - the site's existing crossover.
- Peak period traffic movement counts between 7am to 7pm on Thursday 2nd March, 2023, Friday 3rd March, 2023 and Saturday 4th March, 2023 for the intersections of:
  - Burke Road and Hope Street,
  - Burke Road and Wattletree Road,
  - Burke Road and Dorrington Avenue, and
  - Hope Street/Carpark Access to No. 177 Burke Road (Glen Iris Medical Group).

7-Day Automatic Tube Counts

The traffic counters were placed in the locations shown at Figure 17.

A summary of results of the 7-day automatic tube count surveys is provided at Table 2.

The tube count results are attached at Appendix D.

Source: Neamap.com

Figure 17: Aerial photograph of tube count locations

Table 2: Tube count data summary

Road	Average Weekday Two-Way Traffic Volumes	Speed (km/h)	
	Daily Weekday Average	85th Percentile	Mean
Hope Street, Glen Iris – immediately west of Burke Road	563	24.5	21.3
Hope Street, Glen Iris – at the site's western boundary	352	33.7	28.7
Dorrington Avenue, Glen Iris – immediately east of Burke Road	1,206	26.3	23.2
Clyde Street, Glen Iris – immediately west of Burke Road	341	24.0	21.1
Existing vehicle access to the site(Note 1)	59	7.2	6.8
Note 1: This figure is substantially less than pre-COVID19 conditions. There are 102 car spaces provided on the site, which would be expected to generate approximately 51 vehicle trips in the AM and PM peak hour, and approximately 245 vehicle trips per day.			

Based on the environmental capacities outlined at Section 4.2.1, Hope Street currently carries a traffic volume within its environmental capacity.

Traffic Movement Counts

The traffic movement count surveys were conducted at the previously stated intersections and access points.

The peak hours were identified as follows:

- Thursday 2nd March, 2023:
  - School PM peak - 3-4pm.
  - PM peak - 5:15-6:15pm.
- Friday 3rd March, 2023:
  - AM peak - 7:45-8:45am.
- Saturday 4th March, 2023:
  - Midday Peak - 11:30am-12:30pm.
  - Supermarket Evening Peak - 4:45pm-5:45pm.

The DTP *Transport Modelling Guidelines – Volumes 5: Intersection Modelling* (dated June, 2020) outlines that consideration should be given to the base model / design day which is based on the 30th busiest hour of the year.

A review of SCATS[6] traffic volume data was undertaken for the signalised intersection of Burke Road and Wattletree Road. This analysed the hourly traffic volumes for each day between March, 2022 and March, 2023 up to and including the day of the traffic counts as described above[7]. These graphs are attached at Appendix E.

To undertake traffic modelling in accordance with the measure outlined within the guidelines, the following factoring was made to the peak traffic volumes for the signalised intersection of Burke Road and Wattletree Road in order to align with the recorded 30th largest volume for the year. The respective increase/decrease in through movements along Burke Road (as a result of the adjustments) was then added to the other intersections along Burke Road where relevant. The turning movements at the remaining intersections were not adjusted.

No change was applied to the recorded Saturday 4:45pm-5:45pm volumes, given that the SCATS review for that particular peak hour also corresponds with the PM weekday peak periods. This is a conservative assessment given that the midday peak resulted in decreased volumes.

Thursday 2nd March, 2023

- 1.63% increase in the School PM peak.
- 4.58% decrease in the PM peak.

Friday 3rd March, 2023

- 0.76% decrease in the AM peak.

Saturday 4th March, 2023

- 1.22% decrease in the Saturday Midday peak.
- No change in the Saturday Supermarket Evening peak.

Figure 18 sets out the traffic volumes for the commuter AM, School PM and PM peak periods. These reported volumes have been factored as described previously to align more closely with the recorded 30th largest relevant peak hour volume for the year.

Through movements along Hope Street (located at the western boundary of the subject site) have been obtained via the 7-day tube count data at that location, for the corresponding peak hours identified above. It is noted that tube count data does not separate traffic into 15 minute intervals (i.e. utilises 1 hour intervals), accordingly peak hours corresponding closest to the turning movement counts have been used.

Figure 19 sets out the existing pedestrian volumes surrounding the site. These volumes have not been factored. The pedestrian counts also recorded pedestrians crossing 'mid-block' at various locations to assist with understanding pedestrian movements in the area.

[6] SCATS uses sensors at each traffic signal to detect vehicle presence in each lane, typically via vehicle sensors such as inductive loops within the road pavement.

[7] It is noted that SCATS data is only available for whole hours (i.e. 7am-8am, 8am-9am etc.). Where necessary, the nearest whole hour was used to determine factoring for the recorded peak periods.

Medical Centre Carpark Access to No. 177 Burke Road – Traffic Volumes

The table below outlines the peak hour traffic volumes access the medical centre carpark at No. 177 Burke Road.

Table 3: Summary of traffic volumes accessing No. 177 Burke Road

Peak Period	Left-In	Right-In	Left-Out	Right-Out
AM Peak	0	2	1	0
School Peak	1	4	2	1
PM Peak	0	0	1	0
Saturday Midday Peak	3	0	1	0
Saturday Evening Peak	0	0	0	0

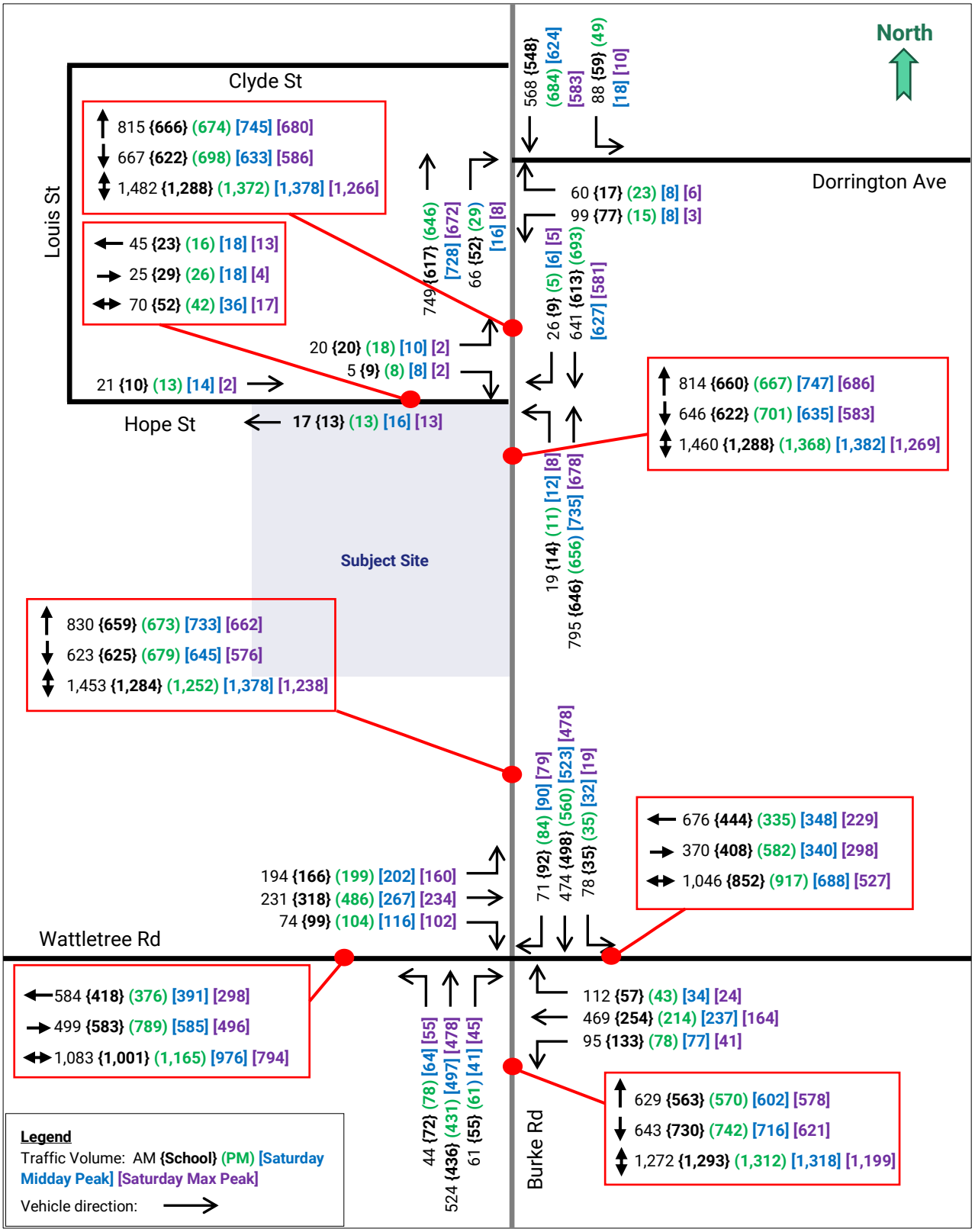

Figure 18: Existing Traffic Conditions (Thursday 2nd March, 2023 (School & PM), Friday 3rd March, 2023 (AM) and Saturday 4th March, 2023)

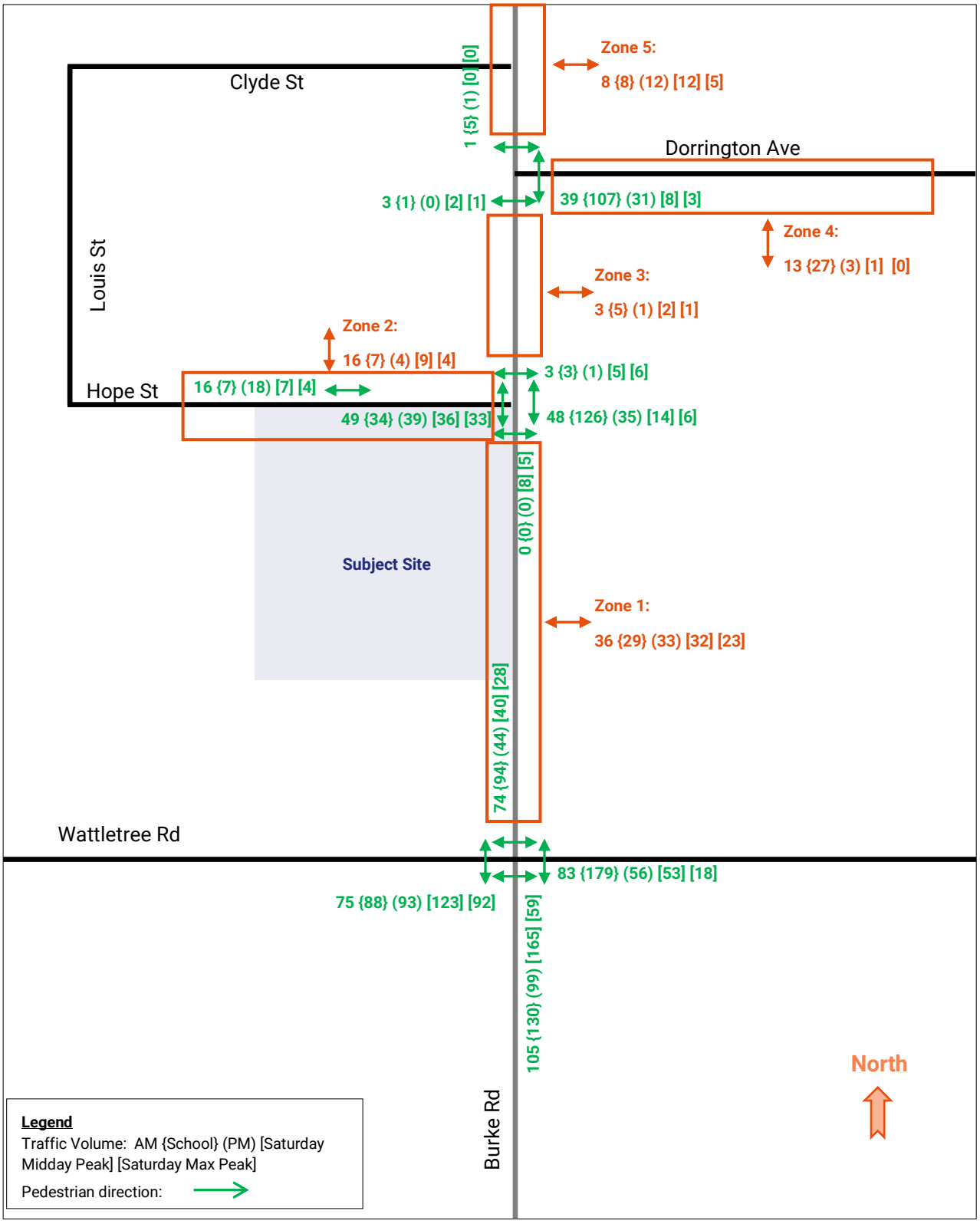

Figure 19: Existing Pedestrian Conditions (Thursday 2nd March, 2023 (School & PM), Friday 3rd March, 2023 (AM) and Saturday 4th March, 2023)

4.2.3. Road Safety Review

A review of the State Road Accident Records (Crashstats) has been undertaken in the vicinity of the site for the past 5 years of available data (01/09/2018 to 31/08/2023)[8]. The review area is shown in Figure 20.

A summary of the crash history is provided in Table 4.

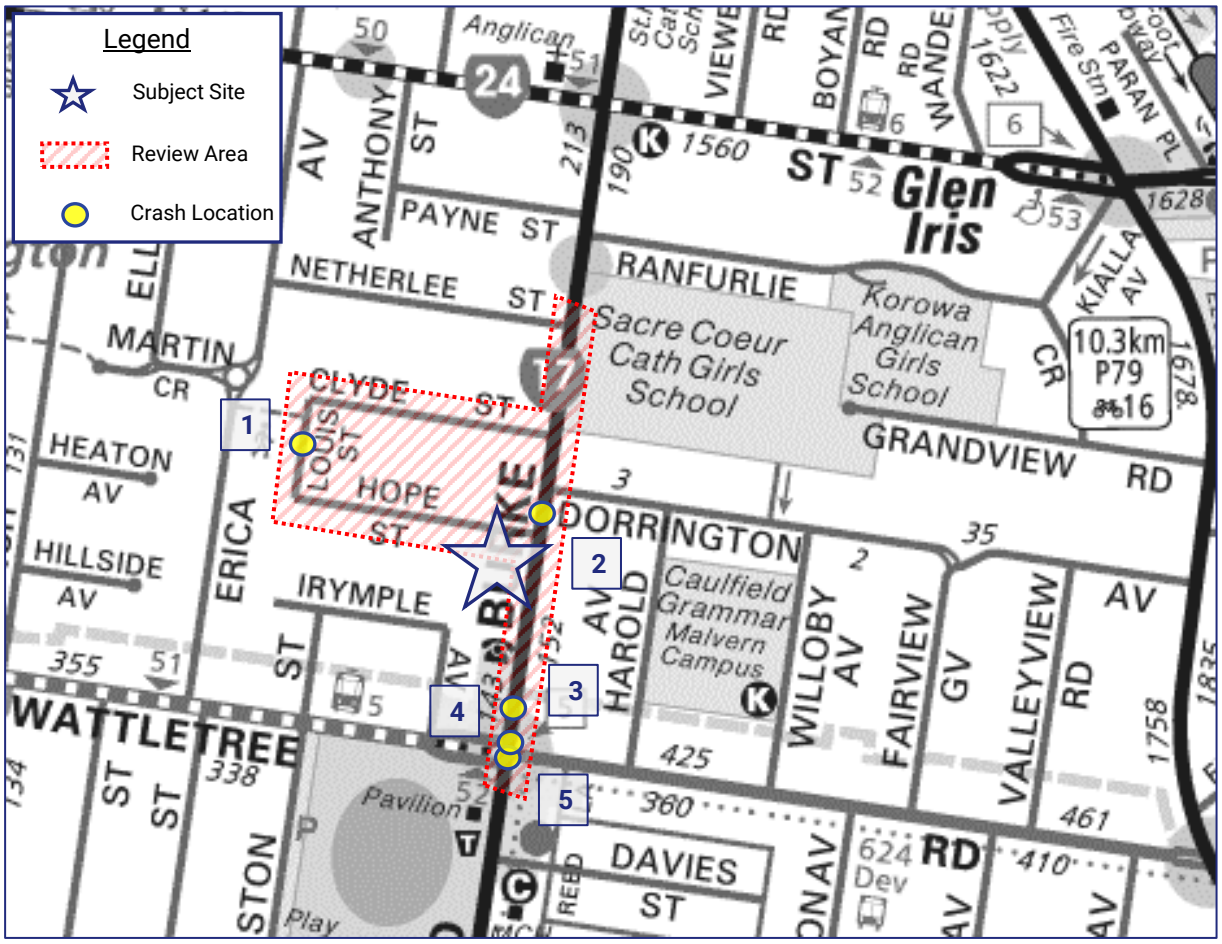

Figure 20: Crash History Investigation Area

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[8] Casualty crash data is contained in the VicRoads' *Crashstats Internet Database* and includes all reported casualty crashes (i.e., injury crashes), which are classified into Fatal Injury, Serious Injury and Other Injury (i.e., minor injury) crashes. Property damage only or non-injury crashes are not included in the database.

Table 4: Casualty crash history

No.	Location	Date	Time	Severity	Type (DCA Code)	Type of Accident
1	Louis Street, 33m south of Clyde Street	Friday 11/12/2020	09:30	OI	160 (B)	Vehicle collides with vehicle parked on left of road. Involving one southbound vehicle and one northbound bicycle.
2	Burke Road, 16m north of Hope Street	Monday 22/11/2021	12:30	OI	163 (B)	Vehicles strikes door of parked/stationary vehicle. Involving one southbound vehicle and a bicycle.
3	Burke Road, 33m north of Wattletree Road	Thursday 05/12/2019	09:00	OI	130	Rear End (Vehicles in same lane). Involving two southbound travelling vehicles.
4	Burke Road, 9m north of Wattletree Road	Saturday 02/07/2022	18:30	OI	130	Rear End (Vehicles in same lane). Involving two southbound travelling vehicles.
5	Wattletree Road and Burke Road intersection	Thursday 18/06/2020	08:00	OI	130	Rear End (Vehicles in same lane). Involving two northbound travelling vehicles.

LEGEND:

OI:	Other Injury	SI:	Serious Injury	F:	Fatality
(B):	Bicyclist	(M):	Motorcyclist	(P):	Pedestrian
(C):	Bus/Coach	(RT):	Rigid Truck	(ST):	Semi-trailer

The road safety review indicates that there have been 5 casualty crashes reported within the review area within the review period. All of the crashes occurred at different locations within the review area.

We note that 3 crashes are of the same crash type, however they all occurred at different locations.

One crash has been recorded at the signalised intersection between Wattletree Road and Burke Road. Given the volume of traffic travelling along Burke Road and Wattletree Road, crashes at this signalised intersection is not uncommon due to higher exposure. Rear end crashes along busy roads are not uncommon in Melbourne and are a result of the higher volumes, rather than any inherent safety risks. Noting that a total of 4 crashes are recorded along various sections of Burke Road.

Overall, we are satisfied that the casualty crashes recorded within the surrounding road network do not highlight any particular road safety issues that would materially concern this development or its access arrangements.

4.2.4. Car Parking Conditions

As outlined at Section 5.1, the proposal provides all of its required car parking on the site (excess of 52 car spaces) and a statutory car parking reduction is not required by the application.

In any event, Traffix Group has completed an updated parking inventory of on-street parking in the vicinity of the subject site. The purpose of the parking inventory was to assess the supply and management for public parking resources in the nearby area.

The parking inventory was completed at 11am on Monday 27th May, 2024.

The area surveyed is shown below in Figure 21 and the detailed results of the parking inventory are provided at Appendix F. The area covered includes all parking within approximately 200-300m walking distance of the site.

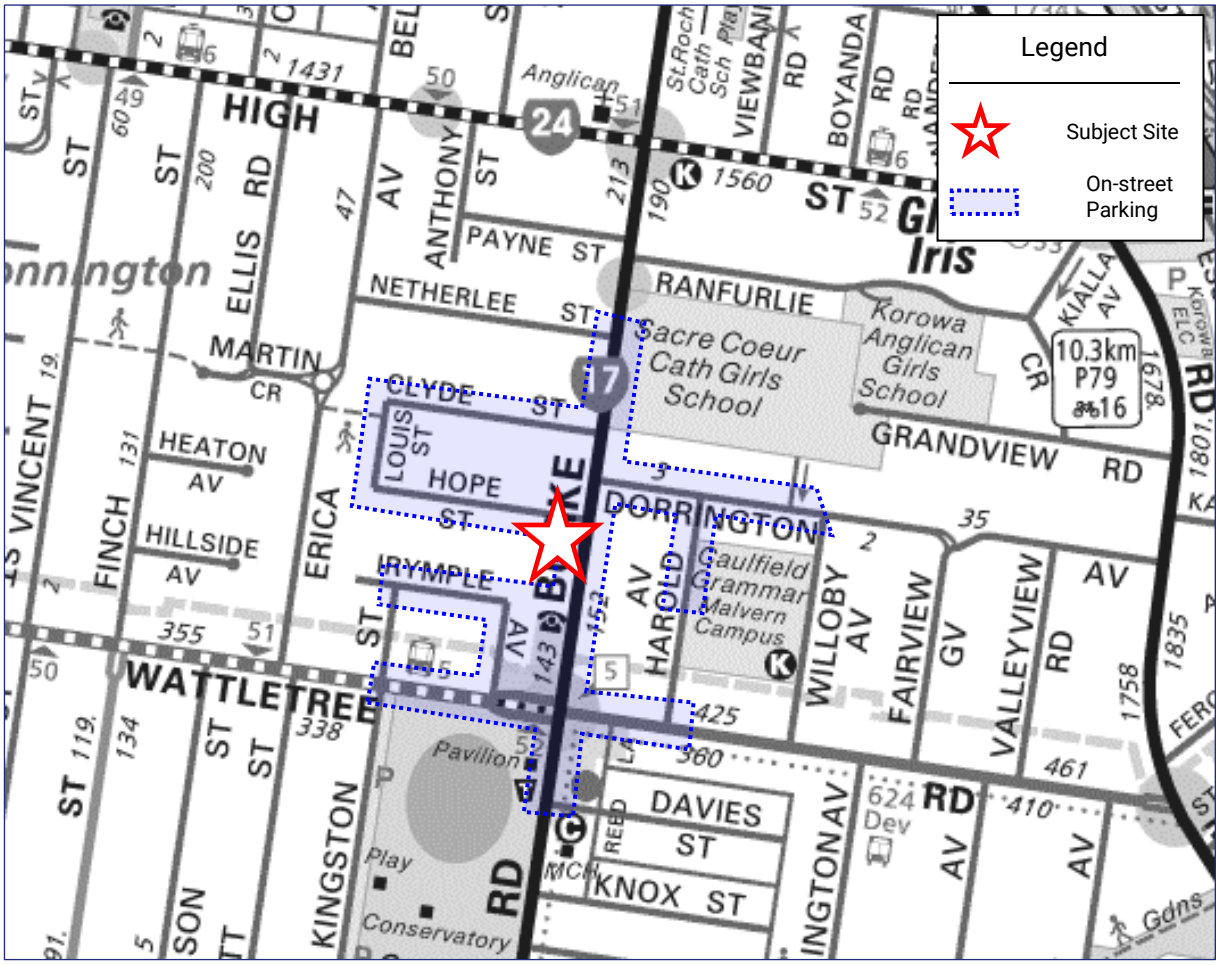

Figure 21: Parking inventory area

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A total of 363 publicly accessible[9] on-street car spaces were available within the survey area at the time of the parking inventory. Car parking is mostly short term (1P and 2P) and

[9] Excludes car spaces subject to 'Clearway', '5mins parking', 'Bus Zone', 'Work Zone', 'No Parking' and 'No Stopping' during the relevant time periods.

unrestricted parking in the vicinity of the site. Car parking capacity varies during other times of the day when various car spaces are subject to restrictions such as 'No parking', 'Permit Zone', 'Clearway', 'Bus Zone' and 'No Stopping' restrictions apply at various times.

We understand that parking restrictions within Dorrington Avenue, Willoby Avenue and Harold Avenue have recently changed under a trial by the City of Stonnington, introducing Permit Zone parking restrictions within these streets in certain locations during morning and afternoon school times. The parking inventory has included these changes to restrictions.

There are a total of 16 on-street car spaces along the site's combined frontages, comprised of the following:

- 13 x spaces along the site's frontage to Burke Road, subject to '1P 9am-5pm Mon-Fri, 9am-12pm Sat' restrictions, and
- 3 x unrestricted spaces along the site's frontage to Hope Street.

Previous car parking occupancy surveys conducted by Traffix Group in February 2022 indicated that there was a low to moderate demand for on-street parking in the vicinity of the site across the weekday (47% to 62% occupancy, 132 to 200 vacant car spaces) and a low demand across the Saturday (23% to 41% occupancy, 218 to 289 vacant car spaces).

4.3. Alternative Transport Modes

4.3.1. Public Transport

The site is located within the PPTN area as shown in Figure 22. Two tram routes and a bus route are located in close proximity to the site. The nearest railway station is Glen Iris Railway Station, which is located approximately 950m north-east of the site. Gardiner Railway Station is also located 1.1km north of the site.

A summary of the public transport services is provided in Table 5. The available public transport services within close proximity of the site are shown at Figure 23.

Figure 22: Principal Public Transport Network Map (source: planning.vic.gov.au)

Figure 23: Public Transport Map (source: ptv.vic.gov.au)

Table 5: Summary of Public Transport Services

Service	Between	Via
Wattletree Road – located approximately 150m south of the site		
Tram Route 5	Melbourne University & Malvern	St Kilda Road
Wattletree Road – located approximately 200m south-east of the site		
Bus Route 624	Kew & Oakleigh	Caulfield, Carnegie, Darling & Chadstone
High Street – located approximately 450m north of the site		
Tram Route 6	Moreland & Glen Iris	St Kilda Road
Glen Iris Railway Station – located approximately 950m walking distance north-east of the site		
Glen Waverley Line	Glen Waverley & City	East Malvern, Kooyong & Burnley
Bus Route 612	Box Hill & Chadstone	Surrey Hills, Camberwell & Glen Iris
Bus Route 734	Glen Iris & Glen Waverley	High Street
Malvern Road – located approximately 950m walking distance north of the site		
Tram Route 72	Melbourne University & Camberwell	St Kilda Road & Burke Road
Gardiner Railway Station – located approximately 1.1km walking distance north of the site		
Glen Waverley Line	Glen Waverley & City	East Malvern, Kooyong & Burnley

4.3.2. Bicycle Infrastructure

The site is served by bicycle infrastructure with on-road and off-road bicycle lanes and informal bicycle routes surrounding the site, as shown in the excerpt from the City of Stonnington TravelSmart Map shown in Figure 24.

Gardiners Creek Trail provides an off-road shared path, which provides a connection to the CBD. Access to this trail is approximately 1.1km east of the site.

Additional on-road bike lanes are provided along Malvern Road to the east of the site and Tooronga Road to the west of the site. A large number of informal bike routes are provided in the vicinity of the site, including Burke Road, along the site's frontage, Wattletree Road to the south of the site, Dorrington Avenue to the east of the site and Erica Avenue to the west of the site.

4.3.3. Walkability

The site is highly walkable, with many everyday services located within walking distance of the site. The services detailed above demonstrate that there are a high level of everyday land uses in close proximity to the site, which would reduce dependence on vehicular travel within this area.

Source: City of Stonnington

Figure 24: Sustainable Transport Infrastructure

5. Traffic Engineering Assessment

5.1. Statutory Car Parking Assessment

The proposed development falls under the land-use categories of 'dwelling', 'food and drink premises' and 'supermarket' under Clause 73.03 of the Planning Scheme.

The Planning Scheme sets out the parking requirements for new developments under Clause 52.06.

The purpose of Clause 52.06 is:

- *To ensure that car parking is provided in accordance with the Municipal Planning Strategy and the Planning Policy Framework.*
- *To ensure the provision of an appropriate number of car parking spaces having regard to the demand likely to be generated, the activities on the land and the nature of the locality.*
- *To support sustainable transport alternatives to the motor car.*
- *To promote the efficient use of car parking spaces through the consolidation of car parking facilities.*
- *To ensure that car parking does not adversely affect the amenity of the locality.*
- *To ensure that the design and location of car parking is of a high standard, creates a safe environment for users and enables easy and efficient use.*

Clause 52.06-5 states:

Column B applies if:

- *any part of the land is identified as being within the Principal Public Transport Network Area as shown on the Principal Public Transport Network Area Maps (State Government of Victoria, 2018); or*
- *a schedule to the Parking Overlay or another provision of the planning scheme specifies that Column B applies.*

The site is located within the Principal Public Transport Area (PPTN Area) and accordingly, the Column B rates set out at Table 1 of Clause 52.06-5 apply to the site.

An assessment of the parking requirement of the development against the rates presented at the car parking table at Clause 52.06-5 of the Planning Scheme is set out below.

Table 6: Statutory Car Parking Requirement – Clause 52.06-5 (Column B)

Use	Size/No.	Statutory Parking Rate (Column B)	Car Parking Requirement (Note 1)	Car Parking Provision	Shortfall/ Surplus
Residential Use					
One-bedroom Apt.	2	1 space per one or two-bedroom dwelling	2	2	0
Two-bedroom Apt.	30		30	30	0
Three or more-bedroom Apt.	26	2 spaces per three or more bedroom dwelling	52	52	0
Residential Visitors	58 apts.	*No Requirement*	-	-	0
Surplus Resident Spaces				36	+36
Subtotal			84	120	+36
Commercial					
Supermarket	3,035m^2 (Note 2)	5.0 car spaces per 100m^2 LFA	151	170	+15
Food and drink premises	125m^2	3.5 car spaces per 100m^2 LFA	4		
Total			**239**	**290**	**+51**

Notes:
1. Clause 52.06-5 specifies that where a car parking calculation results in a requirement that is not a whole number, then number of spaces should be rounded down to the nearest whole number.
2. Includes ground floor area of 2,633m^2 and basement level 2 back of house area of 402m^2. Excludes the Basement Level 1 Back of House (Direct to Boot) area of 162m^2 and ground floor back of house/loading area of 348m^2.

Based on the above, a car parking reduction is not required under Clause 52.06-7.

A surplus of 36 resident and 15 commercial car spaces are provided above the minimum requirements.

Disabled Parking

Clause 52.06-9 states that:

> *The car parking requirement specified in Table 1 includes disabled car parking spaces. The proportion of spaces to be allocated as disabled spaces must be in*

accordance with Australian Standard AS2890.6-2009 (disabled) and the Building Code of Australia.

Four disabled car spaces are required under the NCC in relation to the commercial car parking, which is met on-site.

5.2. Car Parking Loss due to Works

The previous proposal considered at the VCAT stage involved the signalisation of the intersection of Burke Road and Hope Street and resulted in 29 on-street car parking spaces being removed.

The current proposal also proposes to provide a full signalisation of this intersection, however with a net loss of 20 on-street car parking spaces due to changes in the design of the signalised intersection in consultation with DTP, as detailed within the FLP works outlined at Section 3.3.

The FLP prepared to date has been through a robust consultation process with DTP and this has informed how many car spaces are to be removed in certain locations to deliver a signalised intersection and access arrangements to DTP's satisfaction in relation to traffic movements through the intersection.

Factors considered included (but not limited to):

- Vehicle and truck movements to and from the Burke Road access,
- Ability to view pedestrians on the footpath upon approach to the Burke Road access,
- A dedicated right-turn lane on the north approach of Burke Road,
- A dedicated short left-turn lane on the south approach of Burke Road, and
- The ability for a heavy vehicle travelling southbound on Burke Road to bypass cars in the right-turn lane.

In order to accommodate all of the above, a total of 22 car spaces are proposed to be removed, as follows:

- 3 x car spaces along site frontage to Hope Street,
  - *To facilitate access point to Hope Street and two-way vehicle movements.*
- 1 x car space opposite the site on Hope Street,
  - *To facilitate the proposed signalised intersection.*
- 8 x car spaces along site frontage to Burke Road, and
  - *To facilitate Burke Road vehicle access and truck access, along with the signalised intersection.*
- 10 x car spaces along eastern side of Burke Road.
  - *8 car spaces opposite Hope Street and 2 car spaces to the north of Dorrington Avenue to facilitate the proposed signalised intersection*.

Two new indented parallel car spaces are proposed along the site frontage to Hope Street, resulting in a net loss of 20 car spaces.

This is summarised in the table below.

Table 7: On-Street Car Parking Changes – VCAT Scheme vs New Proposal

Street	Loss of Car Parking (VCAT 2022)	Loss of Car Parking (New Proposal)	Difference from VCAT to New
Hope Street – Northern Side	4 spaces (2P)	1 space (2P)	+3 spaces
Hope Street – Southern Side (Frontage)	3 spaces (Unrestricted)	3 spaces (Unrestricted) +2 new indented spaces **Net change -1 space**	+2 spaces
Burke Road – Eastern Side	13 spaces (Unrestricted)	10 spaces (Unrestricted)	+3 spaces
Burke Road (Western side (Frontage)	9 spaces (8 x 1P along frontage, 1 unrestricted north of Hope St)	8 spaces (1P along frontage)	+1 spaces
Total	**29 spaces**	**20 spaces**	**+9 spaces**

Post-development, there will be 5 car spaces retained along the site's frontage to Burke Road and 2 new indented car spaces along the site's frontage to Hope Street.

As per Section 5.1, a surplus of 51 car spaces are provided (36 resident and 15 commercial spaces) above the minimum requirements, ensuring parking demands are met on-site.

We are satisfied that the loss of on-street parking as a result of the proposed works is acceptable and that there is adequate car parking supply within the vicinity of the site to cater for on-street car parking demands. There is also a surplus of car parking within the development proposal, minimising impacts to the surrounding area.

5.3. Bicycle Parking Assessment

Clause 52.34 of the Planning Scheme specifies bicycle parking requirements for new developments. The statutory bicycle parking requirement of the development under Clause 52.34 is set out in the table below.

Table 8: Statutory Bicycle Parking Assessment – Clause 52.34

Use	Size/No.	Statutory Bicycle Parking Requirement		No. Bicycle spaces required
		Employees/Residents	Customers/Visitors	
Dwelling	58	1 space per 5 dwellings	1 space per 10 dwellings	12 resident 6 visitor
Supermarket (*Shop*)	3,035m^2	1 space to each 600m^2 of NFA, if the NFA >1000m^2	1 space to each 500m^2 of NFA, if the NFA >1000m^2	5 staff 6 customer
Food & Drink Premises (*Retail other than listed*)	125m^2	1 space to each 300m^2 of LFA	1 space to each 500m^2 of LFA	0 staff 0 customer
TOTAL				**29 spaces** 12 resident 5 staff 12 visitor/customer

The proposal has a statutory bicycle requirement of 29 bicycle spaces, which is met on-site via the provision of 97 bicycle spaces across the site, including a total of 49 resident, 14 commercial staff spaces and 34 customer/visitor spaces[10].

- The overall provision of bicycle parking exceeds the requirements of Clause 52.34.
- Customer and visitor bicycle spaces are provided both at ground level and within Basement 2, adjacent to the retail lift. The retail lift is convenient to use, and signage will be provided to direct customers to the bicycle parking, should the ground floor bicycle spaces be occupied.
- Staff bicycle spaces are provided within a secure room on Basement Level 2 and accessed via the retail lift.
- A bicycle lift for residents is proposed via the rear Right-Of-Way (ROW) to provide a convenient connection for bicyclists to and from the bicycle parking on Basement Level 3. Residents can also use the lifts from Burke Road if required.

[10] 2 x Bicycle rails (4 spaces) are proposed within the Hope Street frontage, along with 4 x Bicycle rails (8 spaces) within the Burke Road frontage, being a convenient location for customers who ride to the site. These bicycle spaces are subject to Council approval. In any event, customer bicycle spaces are also provided within Basement 2, adjacent to the customer lift.

- Bicycle spaces are provided via either horizontal rails (wishbone racks), vertical wall-mounted rails or two-tier bicycle racks. All spaces accord with the manufacturer's specifications and/or AS2890.3-2015.
- Approximately 64% of bicycle parking spaces provided via horizontal arrangements (62 out of 97) in accordance with AS2890.3-2015.
- There is a requirement for 1 shower/change room for staff under Clause 52.34, which is met on-site via the provision of 2 showers/change rooms at Basement Level 2.

Based on the above, we are satisfied that a high level of bicycle facilities has been provided.

5.4. Carpark Layout and Vehicle Access Arrangements

Traffix Group has provided design advice to the project architect to achieve a satisfactory carpark layout. The proposed parking layout has been assessed under the following guidelines:

- Clause 52.06-9 of the Planning Scheme (Design Standards for car parking),
- AS2890.1-2004 – Part 1: Off-Street Car Parking (where relevant),
- AS2890.2-2018 – Part 2: Off-Street Commercial Vehicle Facilities, and
- AS2890.6-2022 – Part 6: Off-Street Car Parking for People with Disabilities.

An assessment against the relevant design standards of the Planning Scheme and Australian Standards (where relevant) is provided in the table attached at Appendix C.

Overall, we are satisfied that the parking layout and vehicle access arrangements are acceptable and accord with requirements of Clause 52.06, AS2890.1-2004, AS2890.2-2018 and AS2890.6-2022, where relevant.

5.5. Land Adjacent to The Principal Road Network

Clause 52.29 applies to land adjacent to a Transport Zone 2, or a Public Acquisition Overlay.

The purpose of this clause is to:

- *To ensure appropriate access to identified roads.*
- *To ensure appropriate subdivision of land adjacent to identified roads.*

A permit is required to:

- *Create or alter access to:*
  - *A road in a Transport Zone 2.*
  - *Land in a Public Acquisition Overlay if a transport manager (other than a municipal council) is the acquiring authority and the acquisition is for the purpose of a road.*
- *Subdivide land adjacent to:*
  - *A road in a Transport Zone 2.*

– *Land in a Public Acquisition Overlay if a transport manager (other than a municipal council) is the acquiring authority and the acquisition is for the purpose of a road.*

Burke Road is a road in a Transport Zone 2, and the proposal seeks to alter access. Specifically, the proposal is to construct a new 9.245m wide access. The crossover provides access for vehicles using the basement level carpark (left-turn entry only, no exit movements), noting that this is only the case for the Option 1 Scheme. Option 2 removes the ability to access basement 1 via Burke Road. Trucks will be accessing the loading bay area as per the Loading Management Plan under both options via left-in and left-out movements.

Accordingly, a permit is required.

5.5.1. Decision Guidelines

Before deciding on an application, in addition to the decision guidelines in Clause 65, the responsible authority must consider:

- *The Municipal Planning Strategy and the Planning Policy Framework.*
- *The views of the relevant road authority.*
- *The effect of the proposal on the operation of the road and on public safety.*
- *Any policy made by the relevant road authority pursuant to Schedule 2, Clause 3 of the Road Management Act 2004 regarding access between a controlled access road and adjacent land.*

5.5.2. Assessment

The proposal seeks to provide a new crossover which will allow for access for vehicles (entry only to the basement, not exit) and trucks via Burke Road (as per the Loading Management Plan).

The proposed access point to Burke Road is acceptable, with the following key features:

- Customers will use this access as a left-turn entry only access to the basement, with no exit movements permitted from the basement. Right-turn entry movements are not permitted. It is noted that under the Option 2 Scheme that all vehicle access outside of loading trucks will be directed to Hope Street and not permitted along Burke Road.
- The Hope Street access will provide for two-way movements to and from the basement.
- The crossover has been designed to accommodate simultaneous left-turn entry movement via a B99 design vehicle, entirely separate to the 'truck exit' part of the access.
- Pedestrian sight triangle provided on both sides of the access and gentle gradients to provide safety for pedestrians on the footpath. Further surface treatments and signage will form part of the ultimate detailed design and will include surface delineation, DDA tactile pads, signage and line marking.
- Truck use is expected to be infrequent as outlined in Section 3.4 and managed via a comprehensive Loading Management Plan.

- Truck access limited to left-in and left-out movements only for all trucks. Left-out line directional arrows, signage and line marking provided, and specific instructions provided to Woolworths drivers/trucks and any other minor loading activities as part of Loading Management Plan to direct and control approach and departure instructions.
- As part of the Loading Management Plan, co-ordination with larger trucks is achieved via Woolworths and the internal door will be opened ahead of arrival. Smaller, infrequent deliveries will enter the site and similarly co-ordinate door arrival ahead of time.
- Signage is provided stated 'No Entry Trucks Excepted' for the loading bay and signage will be provided to direct all customers down to the basement.
- A surface treatment is provided to the 'truck exit' side of the access, ensuring customers entering the site drive on the left-hand side, similar to any two-way access point.

We are satisfied that the vehicle access arrangements achieve the objectives of Clause 52.29.

5.6. Loading and Waste Collection Arrangements

Loading

Clause 65.01 of the Planning Scheme specifies the following in respect to loading considerations:

> *Before deciding on an application or approval of a plan, the responsible authority must consider, as appropriate:*
>
> – *The adequacy of loading and unloading facilities and any associated amenity, traffic flow and road safety impacts.*

Residents

Residential loading for minor loading activities via residents' cars or low-height vans up to 2.3m in height can occur within the basement level 3 carpark as per the figure below.

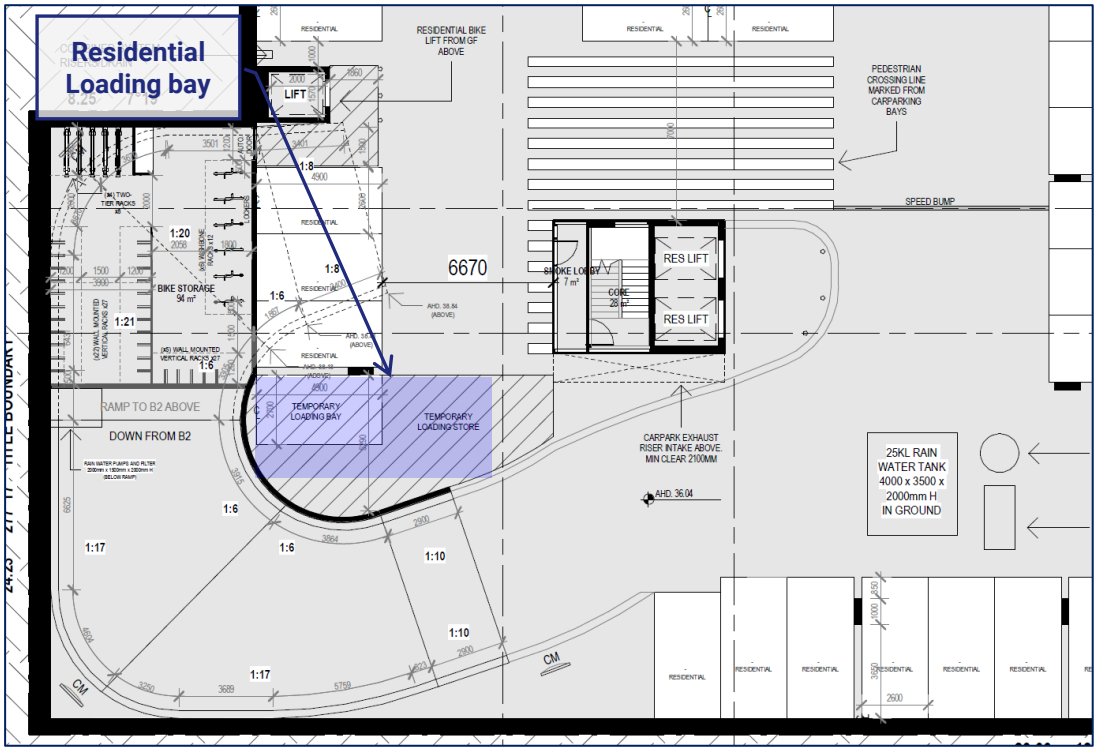


Figure 25: Residential loading area

Occasional furniture removalist trucks will load on-street, including along the site's frontage to Burke Road where 5 on-street short-term car spaces will be retained post-development. We consider this arrangement appropriate given the infrequent nature of these activities.

Whilst not able to be tied to this planning permit application and not necessary to this application, an on-street Loading Zone along Burke Road within the vicinity of the site (and/or Neighbourhood Activity Centre) would be suitable and also serve other nearby businesses within the activity centre. If desired, this can be investigated by Council as part of their management of the activity centre and on-street loading zones are common for 'strip shopping centres' across Melbourne.

Supermarket

The main loading requirements of the development is the supermarket.

A detailed review of the Loading Bay Arrangements is outlined at Section 3.4 and within the Loading Management Plan prepared by Traffix Group.

A loading bay with in-built internal turntable is provided, accessed via Burke Road. The turntable has a diameter of 15m, and trucks will be limited to vehicles up to and including the 12.5m long HRV. There is additional clearance provided outside of the turntable.

As an internal turntable is provided, this vehicle can enter and exit the site in a forward direction.

A minimum headroom clearance of at least 4.5m is available within the loading bay, in accordance with AS2890.2-2018 for the HRV.

Swept path diagrams demonstrating this vehicle adequately accessing the loading bay are attached at Appendix G within the FLP package.

We understand that the supermarket will require typical deliveries as follows:

Daily

- 4 to 7 deliveries by Woolworths Trucks (i.e. 12.5m trucks) per day.
- Up to 5 smaller direct vendor deliveries per day (B99 style van, up to a 6.4m long Small Rigid Vehicle).
- Trucks will be given a delivery window with no overlap, as well as avoiding the block-out windows as per Section 3.4.
- Trucks will be provided with detailed instructions on how to access the site (access routes to enforce left-in/left-out) and to co-ordinate arrivals with Loading Bay Manager to open the internal security door to the loading bay.

We are satisfied with the loading arrangements for the following reasons:

- All trucks will enter and exit the site in a forwards direction using the turntable. These arrangements are now common within inner area supermarkets (such as Coles Bay Street Brighton, Coles Middle Camberwell or Coles Kew).
- Loading arrangements will be managed by the supermarket operator under a Loading Management Plan. We understand that this operator will oversee the management and co-ordination of all users of the loading bay and there will be no conflict with other users.
- Woolworths has direct contact, co-ordination and control with trucks to ensure left-in and left-out arrangements are adhered to and avoid interaction between trucks.
- Woolworths has committed to managing the loading process to ensure that all truck movements avoid peak pedestrian times in the area and peak hour traffic periods. The ‘block-out windows’ are outlined in the table at Section 3.4.
- These hours will also minimise the impact on local traffic as these hours occurs before the commuter peak period.

- Woolworths maintains contact and controls all deliveries to ensure that they deliver outside of the blockout times and to schedule these deliveries to avoid the larger trucks on-site.

Swept path diagrams have also been prepared which demonstrate how 2 smaller vendor vehicles can access the loading bay at the same time without the need of the turntable being used.

Another scenario has also been demonstrated by which, whilst highly unlikely, if there is a delay with a larger HRV vehicle leaving the site and a smaller vendor arrives, the smaller vendor can still load to the side of the larger truck. The smaller vendor then either waits for the larger truck to finish, or the turntable is momentarily rotated to allow the vendor to leave, before the truck then continues loading as required. This is acceptable and whilst not expected to occur, ensures there is a process in place to manage such circumstances.

Food and Drinks Premises

A small 125m^2 food and drink premises is proposed at ground level, at the site's south-eastern corner. The tenancy connects only to the Burke Road footpath and not internally to the rest of the development.

From our experience, the average loading vehicle generation for a small food and drink premises is typically 1 to 2 deliveries per week. There will be days where there are no deliveries for a food and drink premises of this size.

Given the size of the shop, deliveries are expected to be undertaken via smaller delivery vehicles (i.e. vans). Deliveries would typically be no more than 15 minutes during business hours and can would be expected to utilise the on-street parking near the site (including along the site frontage), similar to other shop and café tenancies within the activity centre.

Waste Management

We understand that residential waste will be collected from within ground floor loading bay via an 8.8m long Medium Rigid Vehicle, approximately twice per week.

We understand that supermarket waste will be collected via the loading bay approximately once per day and co-ordinated in line with other loading requirements.

The above is detailed within the Waste Management Plan.

We are satisfied that the waste collection arrangements proposed are acceptable from a traffic engineering perspective.

5.7. Traffic Impact Assessment

5.7.1. Traffic Generation

We consider that the following peak periods are relevant having regard to the proposed development and nearby land uses:

- AM Commuter Peak Hour,
- School PM (3-4pm) Peak Hour,
- PM Commuter Peak Hour,
- Saturday Midday Peak hour, and
- Saturday Evening Supermarket Peak hour.

Dwellings

The development comprises 58 dwellings, including 2 x one-bedroom and 30 x two-bedroom apartments with at least 1 car space each and 26 x three or more-bedroom apartments provided with at least 2 car spaces each. A surplus of 36 car spaces is provided above the minimum statutory car parking requirements in relation to residential car parking (as per Section 5.1).

During the previous VCAT Hearing (refer Section 2), the traffic generation rates adopted by Ms Dunstan included the following:

- An average of 5 vehicle trips per dwelling per day, with 10% of the daily traffic occurring in each commuter peak hour.

These rates were conservative and took into account what traffic generation rates had been adopted throughout the town planning application process by other traffic consultants.

Traffix Group undertook traffic generation surveys for residential apartments located above the Coles Kew supermarket, located at 369 High Street, Kew[11], for 24-hour periods on Thursday 15th February and Saturday 17th February 2024. The results of these surveys are provided at Appendix J, with the results summarised as follows:

- AM Peak Hour: 0.18 vehicle movements per apartment.
- School PM Peak Hour: 0.17 vehicle movements per apartment.
- PM Commuter Peak Hour: 0.14 vehicle movements per apartment.
- Saturday Midday Peak Hour: 0.29 vehicle movements per apartment.
- Saturday Evening Peak Hour: 0.22 vehicle movements per apartment.

A daily traffic generation rate of 2.13 and 2.22 vehicle movements per apartment was recorded for the Thursday and Saturday, respectively.

As a result of the above analysis and wider reviews, we have adopted the following conservative traffic generation rates:

[11] Supermarket with area 3,331m^2, along with 77 residential apartments and 136 car spaces (121 resident and 15 visitor car spaces).

- An average of 4 vehicle trips per dwelling per day.
- 10% of the daily traffic occurring in each commuter peak hour, including the AM, PM, Saturday midday and Saturday Evening peak hours. A traffic generation rate of 75% of this rate has been used for the School PM peak hour.
- These rates are conservative and consider the site's location nearby to sustainable transport opportunities within the vicinity of the site. These rates are above the traffic generation rates for high density residential developments provided within the Guide to Traffic Generating Developments – Updated traffic surveys (August 2013) prepared by the Roads & Maritime Services (RMS)[12].

These rates consider that a number of the dwellings may have an increased provision of car parking, the site's location nearby to the Central Park Village Neighbourhood Activity Centre and sustainable transport opportunities within the vicinity of the site.

Traffix Group consulted with the Department of Transport and Planning regarding the above traffic generation rate for the apartments and agreed that it was acceptable subject to review of the case study data outlined above.

Applying these rates to the development equates to 232 vehicle trips per day and 23 vehicle trips per peak hour for the apartments during the AM, PM and SAT peak hours.

During the School PM peak hour, a total of 17 vehicle trips are expected (i.e. 75% of peak rate).

The following arrival and departure patterns have been adopted for the peak periods:

- AM peak traffic split of 20% arrivals and 80% departures,
- School PM traffic split of 60% arrivals and 40% departures,
- PM peak traffic split of 60% arrivals and 40% departures,
- SAT Midday peak traffic split of 50% arrivals and 50% departures, and
- SAT Evening peak traffic split of 50% arrivals and 50% departures.

[12]. These surveys break down the trip generation on a per dwelling, per bedroom, and per car space basis for daily trips and the AM and PM peak hours. The generation rates per dwelling were 0.19 trips (AM), 0.15 trips (PM) and 1.52 trips (daily). The trips per bedroom were 0.09 trips (AM), 0.07 trips (PM) and 0.72 trips (daily). The trips per car space were 0.15 trips (AM), 0.12 trips (PM) and 1.34 trips (daily).

Applying these travel patterns, it is projected that the **residential component** of the development will generate:

- AM PEAK HOUR: 5 arrivals and 18 departures.
- SCHOOL PEAK HOUR: 10 arrivals and 7 departures.
- PM PEAK HOUR: 14 arrivals and 9 departures.
- SAT MIDDAY PEAK HOUR: 11 arrivals and 12 departures.
- SAT EVENING PEAK HOUR: 11 arrivals and 12 departures.

Supermarket & Food and Drink Premises

For a conservative and simplified assessment, we have included the area of the food and drink premises as a total with the supermarket.

We have reviewed data from several sources when determining what is an appropriate traffic generation rate for the proposed supermarket in this location.

RTA Guide to Traffic Generating Developments

The RTA Guide (now the NSW Roads and Maritime Services Authority) sets out the following rates for retail uses in shopping centres (we note that the RTA guide states that the highest daily traffic generation usually occurs on a Thursday evening). For Saturday morning, the peak period is typically 11am-12noon.

> *Thursday evening peak hour: V(P) = 20 A(S) + 51 A(F) + **155 A(SM)** + 46 A(SS) + 22 A(OM) (vehicle trips per 1000m²).*
>
> *Saturday morning 11am-12noon: PVT= 38 A(S) + 13 A(F) + **147 A(SM)** + 107 A(SS)*
>
> *A(SM): Supermarket GLFA - includes stores such as Franklins and large fruit markets.*

These are equivalent to 15.5 and 14.7 vehicle movements per 100m^2, respectively. These rates are fairly 'generic', being an aggregate of a number of **shopping centres** in NSW and is an older data source.

The Guide to Traffic Generating Developments – updated traffic surveys (August 2013) includes survey data for 'Shopping Centres' (as distinct from just supermarkets) and recommends rates of 12.5 and 16.3 vehicle movements per 100m^2 for shopping centres.

We do not consider that these rates are appropriate to use for a supermarket in this location as they relate to shopping centres and not standalone supermarkets.

Previous VCAT Hearing

During the previous VCAT Hearing (refer Section 2), the traffic generation rates adopted by Ms Dunstan included the following:

- AM Peak Hour: 3.5 vehicle movements per 100m^2.
- School PM Peak Hour: 5.0 vehicle movements per 100m^2.
- PM Peak Hour: 9.0 vehicle movements per 100m^2.
- Saturday Midday Peak Hour: 8.5 vehicle movements per 100m^2.
- Saturday Evening Peak Hour: *Not assessed at that time*.

The above rates were conservative and took into account what traffic generation rates had been adopted throughout the town planning application process by others at that time and accepted throughout that process.

Since then, Traffix Group has undertaken additional traffic generation studies for 4 supermarkets in similar inner suburban conditions on Thursday 18th April and Saturday 20th April 2024, including the following:

- Woolworths Ivanhoe - 72-84 Upper Heidelberg Road, Ivanhoe.
- Woolworths North Melbourne (Arden Gardens Shopping Centre) - 168 Macaulay Road, North Melbourne.
- Coles Middle Camberwell - 751 Riversdale Road, Camberwell.
- Coles Kew - 369 High Street, Kew.

The detailed results of these traffic generation surveys are outlined at Appendix L.

The average peak hour traffic generation rates for these supermarkets were as follows:

- AM Peak Hour: 1.94 vehicle movements per 100m^2.
- School PM Peak Hour: 4.79 vehicle movements per 100m^2.
- PM Commuter Peak Hour: 6.61 vehicle movements per 100m^2.
- Saturday Midday Peak Hour: 6.61 vehicle movements per 100m^2.
- Saturday Evening Peak Hour: 7.11 vehicle movements per 100m^2.

We consider that the abovementioned case study data is highly relevant to this proposal given their inner suburban locations, surrounding road environment and public transport characteristics. Where the case study sites included other commercial tenancies, the traffic associated with those uses from the customer carparks has been included, however only the supermarket floor area has been used to calculate the traffic generation rates in order to conduct a conservative analysis.

Further to the above, we have previously been provided with case study data from **7 suburban supermarkets** *(noting 4 are the supermarket sites stated above)* within Melbourne. These are provided at Appendix H with details of each supermarket and provide further robustness around the traffic generation adopted within this assessment.

The average peak hour traffic generation rates for these supermarkets were as follows:

- AM Peak Hour: 2.04 vehicle movements per 100m^2.
- School PM Peak Hour: *Not provided.*
- PM Peak Hour: 5.89 vehicle movements per 100m^2.
- Saturday Midday Peak Hour: 6.66 vehicle movements per 100m^2.
- Saturday Evening Peak Hour: *Not provided.*

Traffic Generation Rates Adopted in this Assessment

Traffix Group consulted with the Department of Transport and Planning regarding the above case studies and traffic generation rates and agreed that the following traffic generation rates are more realistic for this proposal and are to be adopted for the commercial tenancies for the traffic analysis:

- AM Peak Hour: 2.5 vehicle movements per 100m^2.
- School PM Peak Hour: 5.0 vehicle movements per 100m^2.
- PM Peak Hour: 7.5 vehicle movements per 100m^2.
- Saturday Midday Peak Hour: 8.0 vehicle movements per 100m^2.
- Saturday Evening Peak Hour: 8.0 vehicle movements per 100m^2.

The abovementioned traffic generation rates considered the case study data outlined above and had consideration to the site's location within the Central Park Village Neighbourhood Activity Centre and proximity to sustainable modes of transport, including (but not limited to) nearby tram lines.

The School PM Peak Hour traffic generation rate of 5.0 vehicle movements per 100m^2 is consistent with the rate adopted at the previous VCAT hearing and it is above the average traffic generation rate across the 4 comparable supermarket case study sites surveyed. We further note that the School PM peak hour is not the critical peak hour for the wider road network in terms of overall existing traffic volumes, being less than the PM peak hour. The combination of higher existing traffic volumes and higher traffic generation rate for the PM peak hour provides for the most critical assessment.

Based on a commercial leasable floor area of 3,160m^2, the following vehicle movements are expected:

- AM Peak Hour: 79 vehicle movements.
- School PM Peak Hour: 158 vehicle movements.
- PM Peak Hour: 237 vehicle movements.
- Saturday Midday Peak Hour: 253 vehicle movements.
- Saturday Evening Peak Hour: 253 vehicle movements.

A 50%/50% arrival/departure pattern has been adopted for all peak periods in relation to the supermarket component (as supermarket traffic is driven almost entirely by customer turnover).

Applying this travel pattern, it is projected that the commercial component will generate:

- AM PEAK HOUR: 40 arrivals and 39 departures
- SCHOOL PM PEAK HOUR: 79 arrivals and 79 departures
- PM PEAK HOUR: 119 arrivals and 118 departures
- SAT PEAK HOUR: 127 arrivals and 126 departures
- SAT EVENING PEAK HOUR: 127 arrivals and 126 departures

Total Traffic Generation

A summary of the peak hour traffic generation of the proposal is provided in Table 9.

Table 9: Projected Site Traffic Generation

Use	AM Peak			School Peak			PM Peak			Sat Peaks		
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
Residential	5	18	23	10	7	17	14	9	23	11	12	23
Supermarket	40	39	79	79	79	158	119	118	237	127	126	253
Total	45	57	**102**	89	86	**175**	133	127	**260**	138	138	**276**

5.7.2. Traffic Growth along Burke Road

A review of traffic growth along Burke Road is detailed at Appendix I.

We have undertaken a comprehensive review of multiple traffic data sources and we do not consider that traffic volumes have been increasing to any meaningful degree through this part of Burke Road, nor do we expect them to in the near future. Accordingly, we have not included any growth rates into our traffic analysis.

Given that our analysis already accounts for the '30th busiest peak hour' into the assessment and conservative traffic generation rates, further adjustments are not required in our view as it is already conservative in nature.

We understand that the DTP is supportive of our findings regarding traffic growth and that it does not need to be included within this analysis.

5.7.3. Distribution of Traffic

Our assessment of the traffic distributions is outlined below. We have had regard to the major road connections in the area, local catchment of residents and the directional bias of existing traffic as observed from the traffic counts reported at Section 4.2.2. We expect that traffic will arrive and depart the site as follows:

- 50% of traffic will arrive and depart via the north along Burke Road,
- 50% of traffic will arrive and depart via the south along Burke Road,
  - At Wattletree Road, based on wider road connections traffic will arrive/depart as follows:
    - 20% of traffic to/from the east via Wattletree Road,
    - 20% of traffic to/from the west via Wattletree Road, and
    - 60% of traffic to/from the south via Burke Road.

This distribution is in line with that adopted at the previous VCAT hearing.

Further to the above, we expect traffic to be split amongst the 2 vehicle access points as per below, based on the following factors:

- Exit movements for customers/residents are not permitted at the Burke Road access at any time, under either Access Option.
- Option 1 allows for cars to also enter the site via left-turn.
- Trucks will access the site via left-in/left-out via Burke Road under both options. The truck volumes during peak traffic periods are minimal (often correlates to a 'block-out window' for the loading bay).

Arrivals

- All traffic arriving from the south will enter via the Burke Road access under the Option 1 Scheme.
- All traffic arriving from the north will enter via the Hope Street access under the Option 1 Scheme.
- All traffic (from north and south) will enter the site via the Hope Street access under the Option 2 Scheme,

Departures

- All traffic departing the site will exit via the Hope Street access under both schemes.

Traffic impacts from the proposed development will generally be limited to Hope Street and Burke Road, with traffic movements dispersing via the arterial road network at Wattletree Road to the south and High Street to the north. We note that some traffic would naturally disperse amongst the immediate local road network.

The total traffic associated with a supermarket typically includes a proportion of 'diverted trips', which are trips already travelling along the road network which are then diverted to the supermarket (i.e., travelling along Burke Road and diverted into the site). These aren't 'new

trips' to the road network and can account for up to 28% of trips associated with a supermarket.

The 'Austroads Guide to Traffic Management Part 12: Integrated Transport Assessments for Developments' (2020) indicates that for shopping centres between 3,000m^2 and 20,000m^2 in area, typically 28% of site generated traffic is considered to be passing trade accessing the site via undiverted drop-in trips.

We have adopted this rate for the commercial traffic, and this is in line with the AustRoads Guide.

To conduct a conservative peak hour assessment, we have not discounted any vehicle trips relating to the current use of the site during the peak hour analysis.

A number of works are proposed to the road network. These are outlined within the FLP attached at Appendix B and summarised at Section 3.3.

We have adopted these works throughout the traffic analysis.

5.8. Traffic Analysis

SIDRA Intersection 9.1 has been used to model the performance of the following intersections and access points via a SIDRA network model due to their proximity and relevance to each other:

- Burke Road & Wattletree Road,
- Burke Road & Hope Street,
- Hope Street access point (post-development models only), and
- Burke Road & Dorrington Avenue.

The existing and post-development intersection network layouts adopted are presented below. For a conservative assessment, the post-development peak hour modelling has been undertaken for the **Option 2 traffic conditions only**, where all development traffic will be via Hope Street.

This is the more conservative assessment out of the 2 'Access Options' as it directs all traffic associated with the development via Hope Street. Option 1, which includes a left-turn entry for cars from Burke Road allows vehicles arriving from the south to enter the site without travelling through the Burke Road/Hope Street intersection; resulting in improved traffic conditions beyond that assessed under the Option 2 scenario.

The post-development network analysis includes the Hope Street access point and the signalised intersection of Burke Road and Hope Street. These items are discussed in more detail at Section 5.8.1 and Appendix K.

The truck movements in and out of the loading bay have not been included in the traffic analysis given their highly infrequent occurrence and typically off-peak timings. Heavy vehicles have been included within the analysis which were already on the road network as recorded during the traffic movement counts.

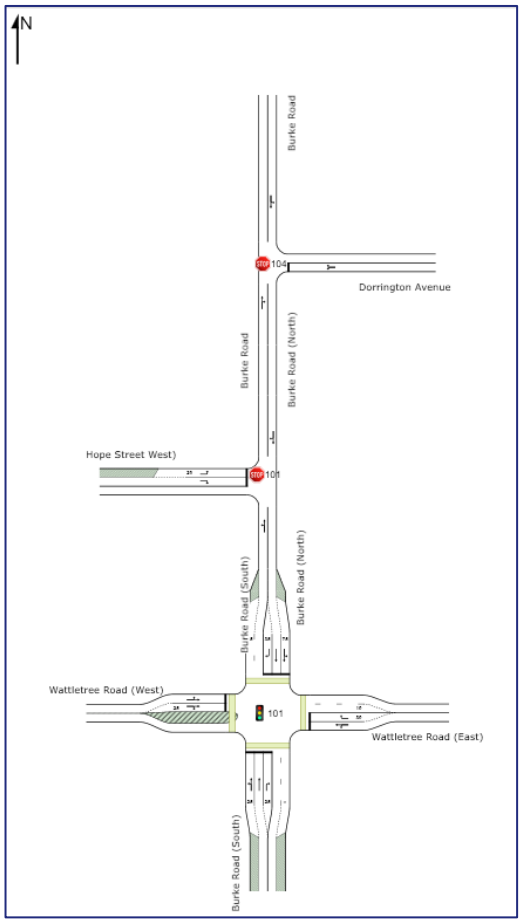


Figure 26: Existing intersection network layout

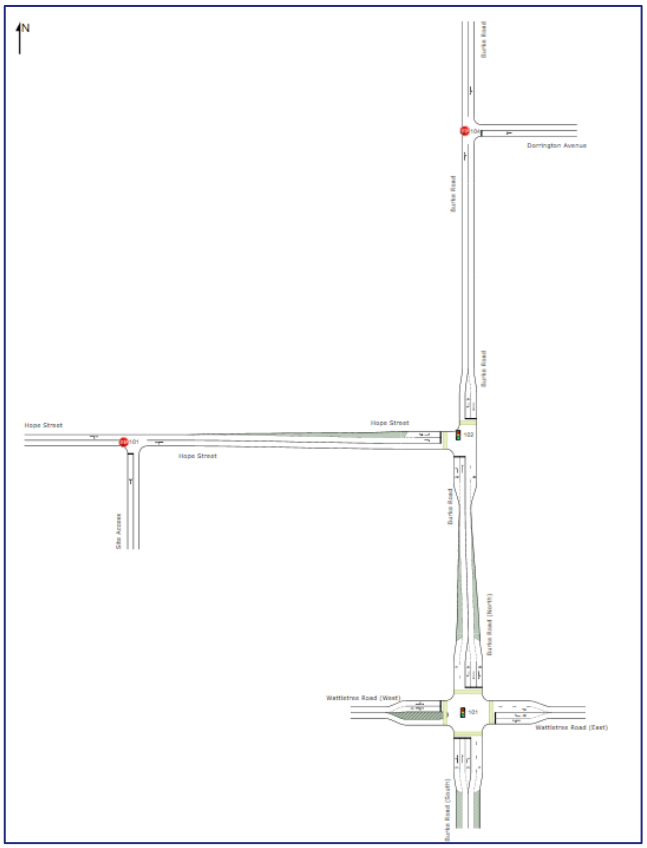


Figure 27: Post-development intersection network layout

Figure 28 outlines the expected future traffic volumes for each movement to and from the site generated by the proposed development based on the configuration of the wider road network (distribution of traffic as described previously), under both Option 1 and Option 2 access arrangements.

Figure 29 outlines the passer-by traffic which will enter the site relating to the supermarket from the existing traffic stream (i.e. traffic diverted into the site to use the supermarket). These are the deductions considered in the post-development model.

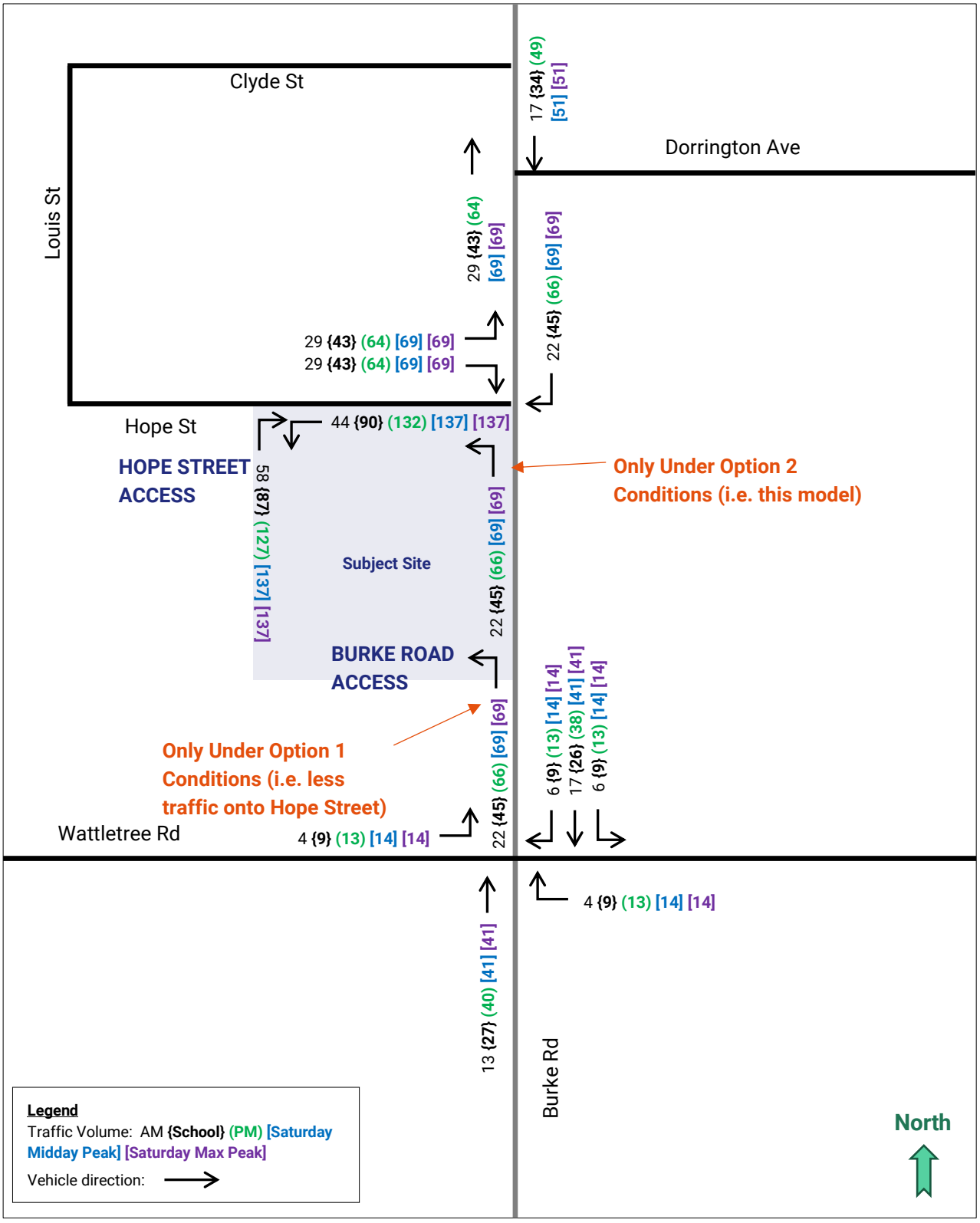


Figure 28: Development traffic – Option 2 Conditions

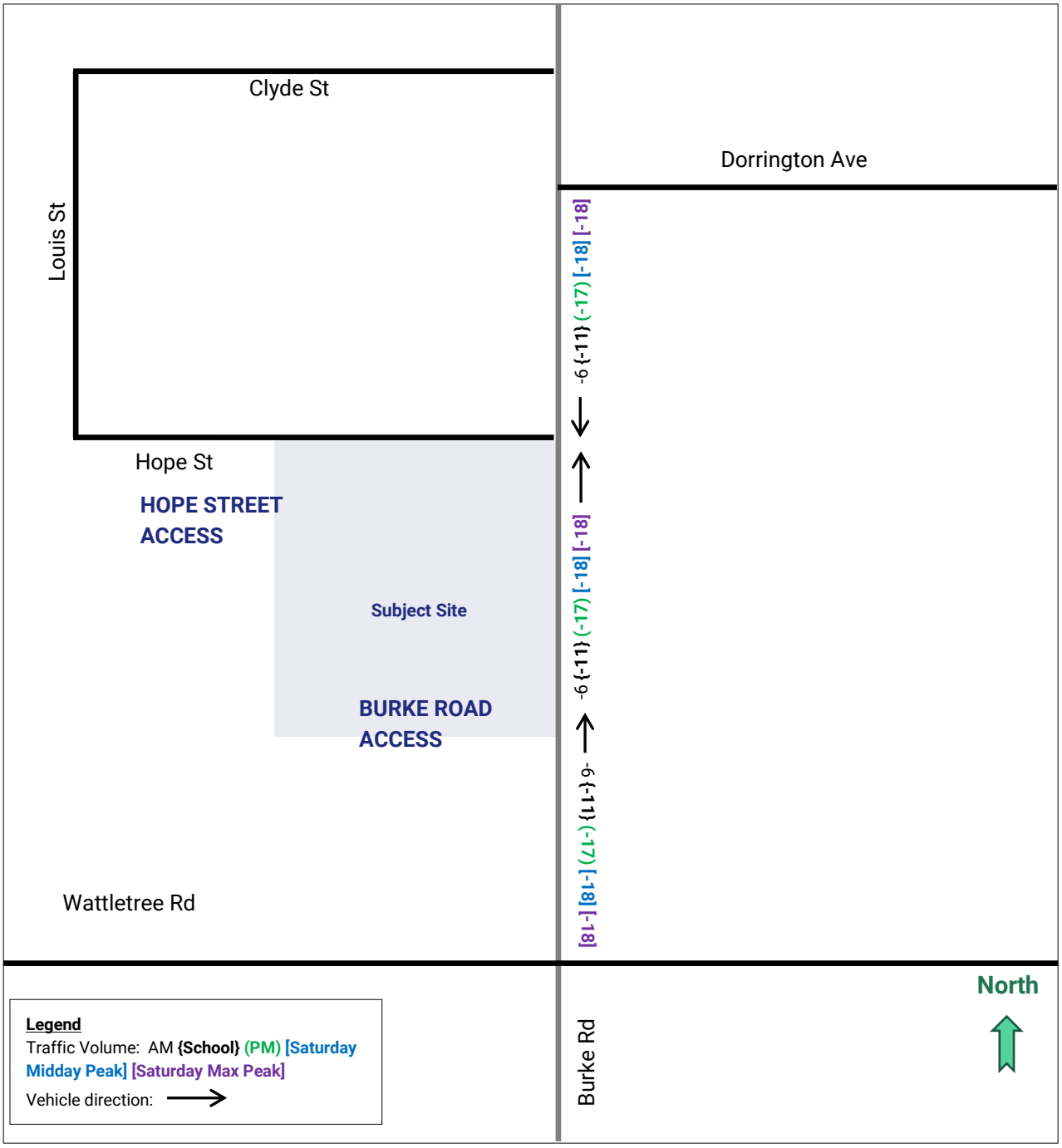


Figure 29: Pass by discount volumes for commercial traffic – Option 2 Conditions

In Figure 30, the above predicted traffic volumes have been superimposed onto the existing traffic volumes (as detailed at Section 4.2.2), inclusive of the passer-by deductions.

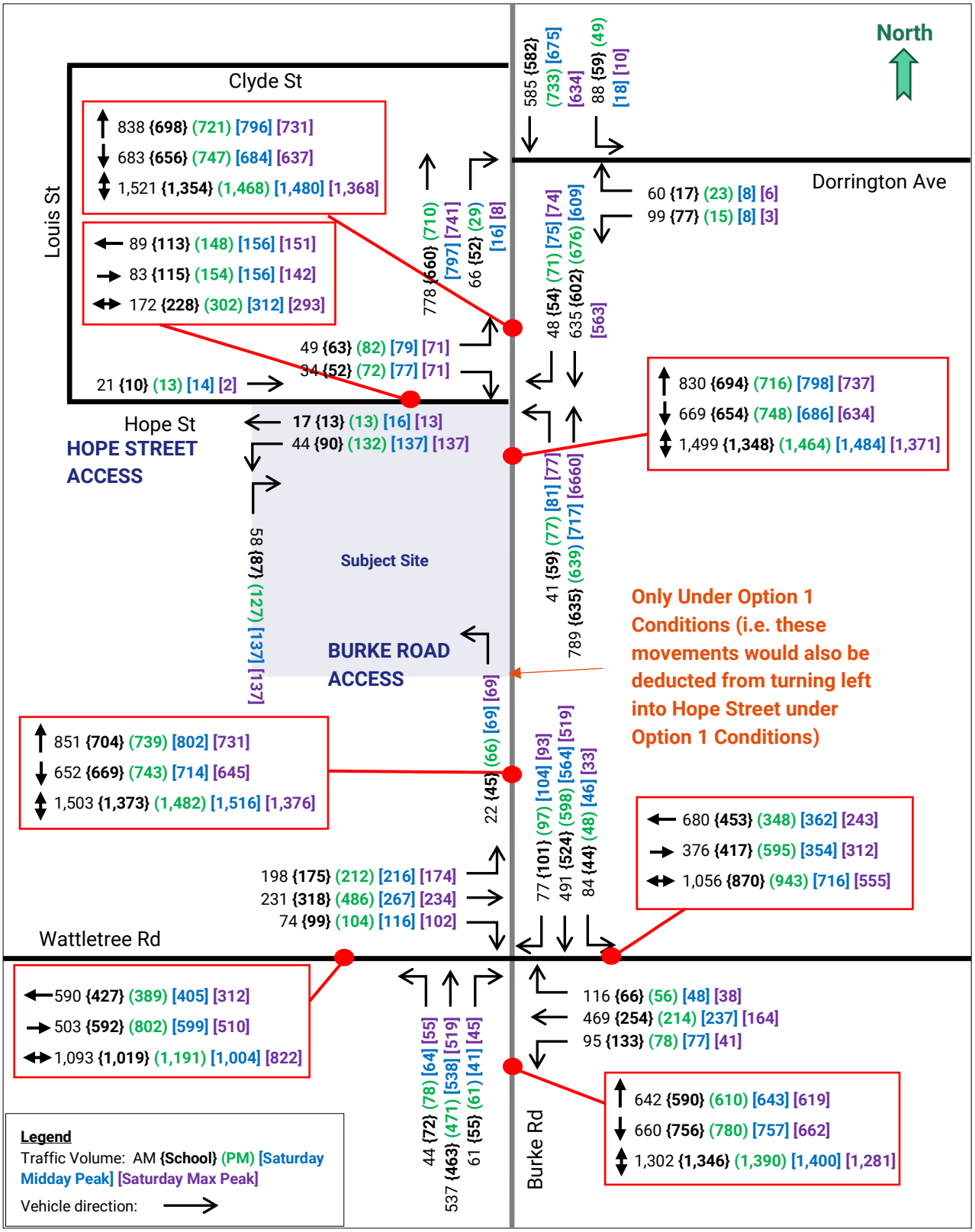


Figure 30: Post-development peak hour traffic volumes

Further analysis of the traffic impacts on the road network, including the proposed Hope Street vehicle access point and intersections of Burke Road/Dorrington Avenue, Burke Road/Hope Street and Burke Road/Wattletree Road is detailed at Section 5.8.1.

A review of the daily traffic impacts upon Hope Street is also detailed at Section 5.8.2.

5.8.1. Network Intersection Performance

As outlined previously, SIDRA Intersection 9.1 has been used to model the performance of the following intersections and access points via a SIDRA network model due to their proximity and relevance to each other:

- Burke Road & Wattletree Road,
- Burke Road & Hope Street,
- Hope Street access point (post-development models only), and
- Burke Road & Dorrington Avenue.

The intersection capacity analysis allows estimation of key operating parameters such as intersection degree of saturation (DoS), Level of Service (LoS), 95th percentile queues and average delays, which are described below:

- **Degree Of Saturation (DoS)** – measure of intersection performance expressed as a ratio of demand/capacity. A DOS greater than 0.95 is generally regarded as unsatisfactory for a signalised intersection, while a DOS greater than 0.90 is generally regarded as unsatisfactory for an unsignalised intersection. This is shown in the table below.

Table 10: Intersection Degree of Saturation

Level of Service		Intersection Degree of Saturation	
		Unsignalised Intersection	Signalised Intersection
A	Excellent	<= 0.60	<= 0.60
B	Very Good	0.60 – 0.70	0.60 – 0.70
C	Good	0.70 – 0.80	0.70 – 0.90
D	Acceptable	0.80 – 0.90	0.90 – 0.95
E	Poor	0.90 – 1.00	0.95 – 1.00
F	Very Poor	>= 1.0	>= 1.0

- **Level of Service (LOS)** – the level of service is based on the Degree of Saturation.
- **95th Percentile Queue Length (m) –** one car represents a 7m queue.
- **Average delay -** no. of seconds delayed.

- A number of assumptions have been made and these are outlined at Appendix K.

A review of the existing and post-development performance of the network is provided below for the AM, School Pick-up, PM and Saturday peak hours.

The traffic modelling presented below is based on a range of factors, including:

- traffic volumes recorded at the relevant intersections, which have been factored to represent the 30th busiest peak hours, as detailed at Section 4.2.2,
- the layout of the intersections, including the proposed FLP works,
- the signal phase arrangements and phase timings per peak period under existing conditions,
- configuration to reflect how vehicles navigate through these intersections, and
- calibration factors where appropriate to more closely reflect existing conditions observed on video footage (as outlined at Appendix K).

AM Peak Hour

Existing Conditions

- Figure 31 outlines the existing conditions of the intersections within the network model.
- All intersections operate with at least 'Good' Conditions.
- The detailed SIDRA Movement Summaries and Phasing Summaries are provided at Appendix N.

Post-Development Conditions – No Changes to Phase Timings

- Figure 32 outlines the post-development conditions of the intersections within the network model.
- All intersections will continue to operate with at least 'Good' Conditions, with exception of:
  - the eastern leg of Dorrington Avenue at Burke Road, which will operate with a 'Acceptable' condition. This is due to the higher northbound volumes in the AM period and high peak hour volumes exiting Dorrington Avenue at this time. We believe this result is highly conservative, as naturally there will be opportunities for vehicles to exit Dorrington Avenue at times when the signals are activated, and northbound traffic flow is paused and southbound traffic stationary. A 'Keep Clear' will physically permit vehicle movements in and out of Dorrington Avenue at those times. This exact circumstance is challenging to model into the network; however performance will clearly be better than forecast once this is taken into account.
- The following key differences and findings were recorded in the 95th percentile queues between existing and post-development conditions:
  - Burke Road and Wattletree Road
    - Increased queue for the south approach of Burke Road from 151.5m to 159.4m (i.e. an increase of 7.9m).

  - Increased queue for the north approach of Burke Road from 155.8m to 158.5m (i.e. an increase of 2.7m).
  - Increased queue for the east approach of Wattletree Road from 155.8m to 156.5m (i.e. an increase of 0.7m).
  - Increased queue for the west approach of Wattletree Road from 139.0m to 140.7m (i.e. an increase of 3.4m).
- Burke Road and Hope Street
  - Increased queue for the west approach of Hope Street from 1.0m to 14.0m (i.e. an increase of 13.0m).
  - 95th percentile queue length of 17.8m (2.5 vehicles) for the right-turn lane from Burke Road to Hope Street.
  - 95th percentile queue length for the southern approach for Burke Road of 151.2m.

- The detailed SIDRA Movement Summaries and Phasing Summaries are provided at Appendix O.

We are satisfied that the network will operate to an acceptable level during this peak hour.

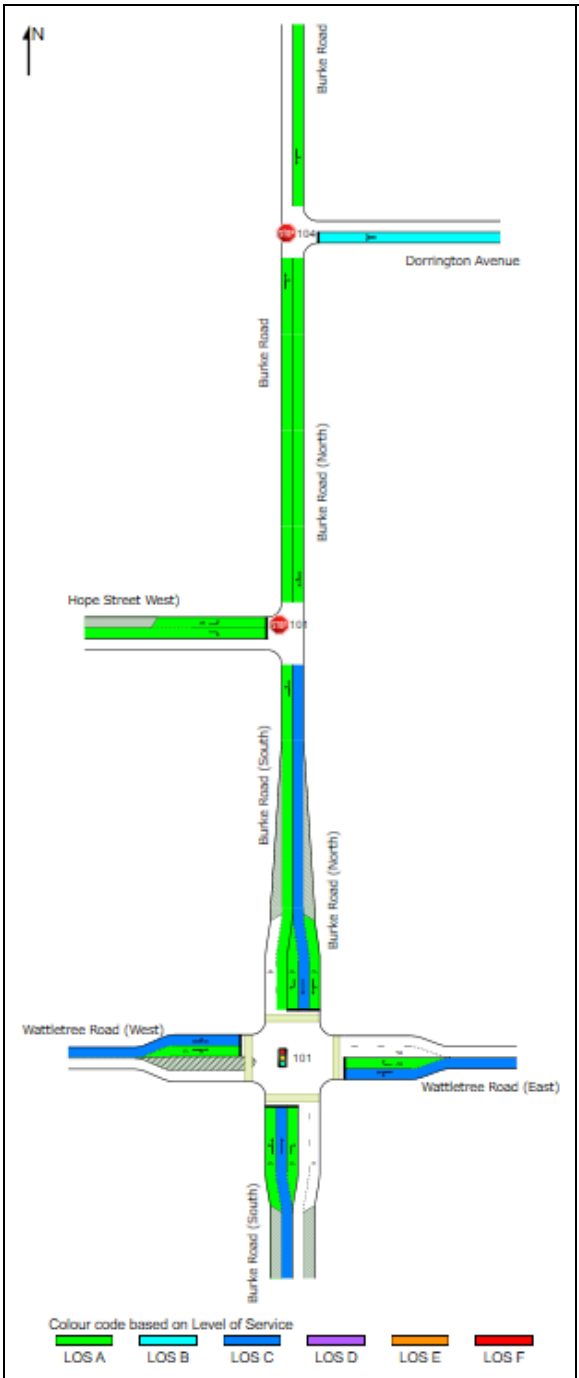


Figure 31: AM Peak Hour – Existing Conditions

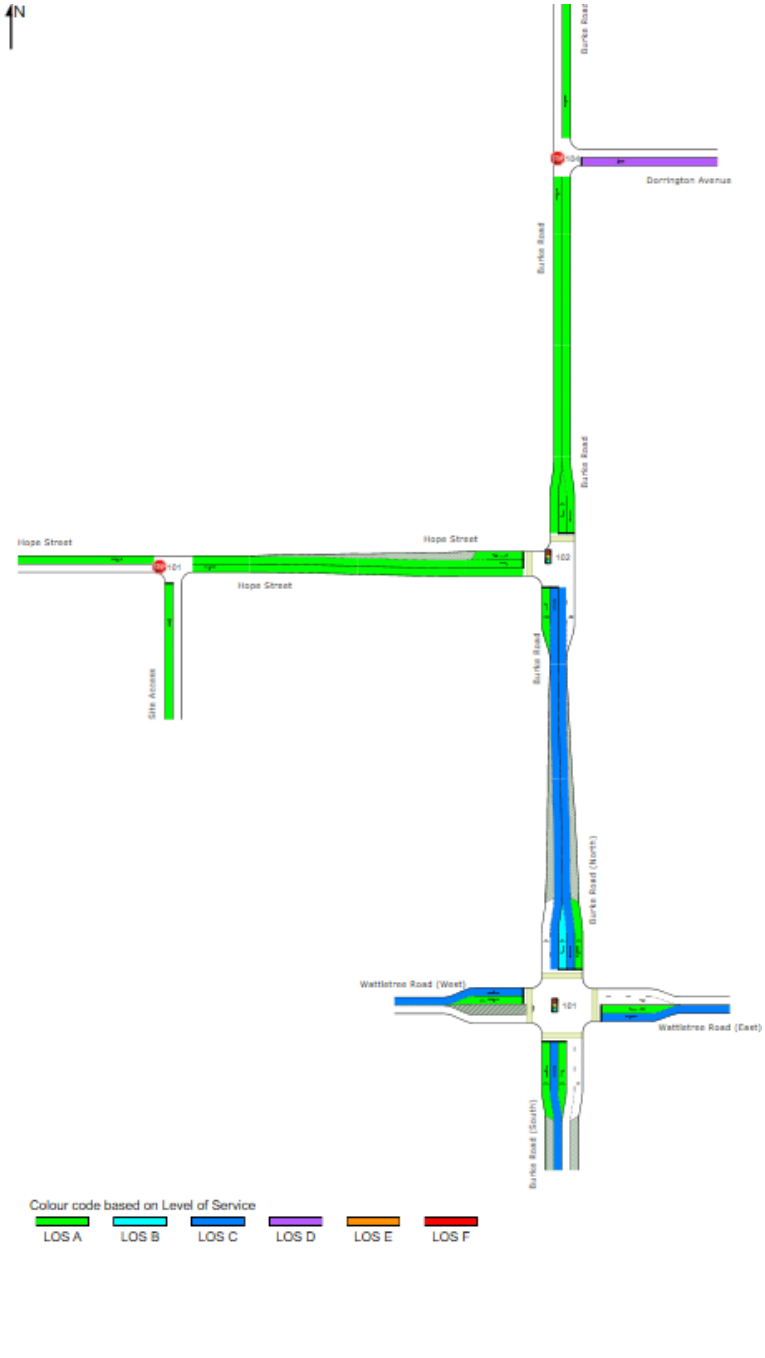


Figure 32: AM Peak hour – Post-development

School Pick-Up Peak Hour

Existing Conditions

- Figure 33 outlines the existing conditions of the intersections within the network model.
- All intersections operate with at least 'Good' Conditions.
- The detailed SIDRA Movement Summaries and Phasing Summaries are provided at Appendix P.

Post-Development Conditions – No Changes to Phase Timings

- Figure 34 outlines the post-development conditions of the intersections within the network model.
- All intersections will continue to operate with at least 'Good' Conditions.
- The following key differences and findings were recorded in the 95th percentile queues between existing and post-development conditions:
  - Burke Road and Wattletree Road
    - Increased queue for the south approach of Burke Road from 120.3m to 129.1m (i.e. an increase of 8.8m).
    - Increased queue for the north approach of Burke Road from 136.9m to 145.6m (i.e. an increase of 8.7m).
    - Increased queue for the east approach of Wattletree Road from 95.3m to 95.7m (i.e. an increase of 0.4m).
    - Increased queue for the west approach of Wattletree Road from 162.1m to 169.9m (i.e. an increase of 7.8m).
  - Burke Road and Hope Street
    - Increased queue for the west approach of Hope Street from 0.9m to 17.5m (i.e. an increase of 16.6m).
    - 95th percentile queue length of 19.4m (2.8 vehicles) for the right-turn lane from Burke Road to Hope Street.
    - 95th percentile queue length for the southern approach for Burke Road of 100.5m.
- The detailed SIDRA Movement Summaries and Phasing Summaries are provided at Appendix Q.

We are satisfied that the network will operate to an acceptable level during this peak hour.

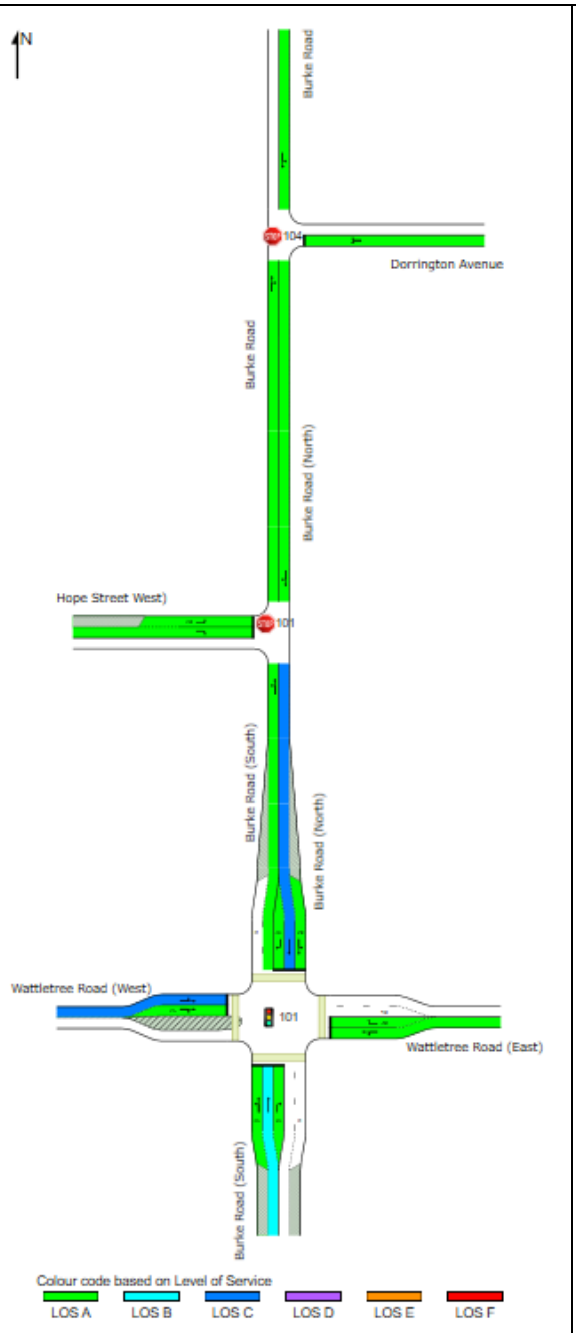


Figure 33: School Pick-up Peak Hour –Existing Conditions

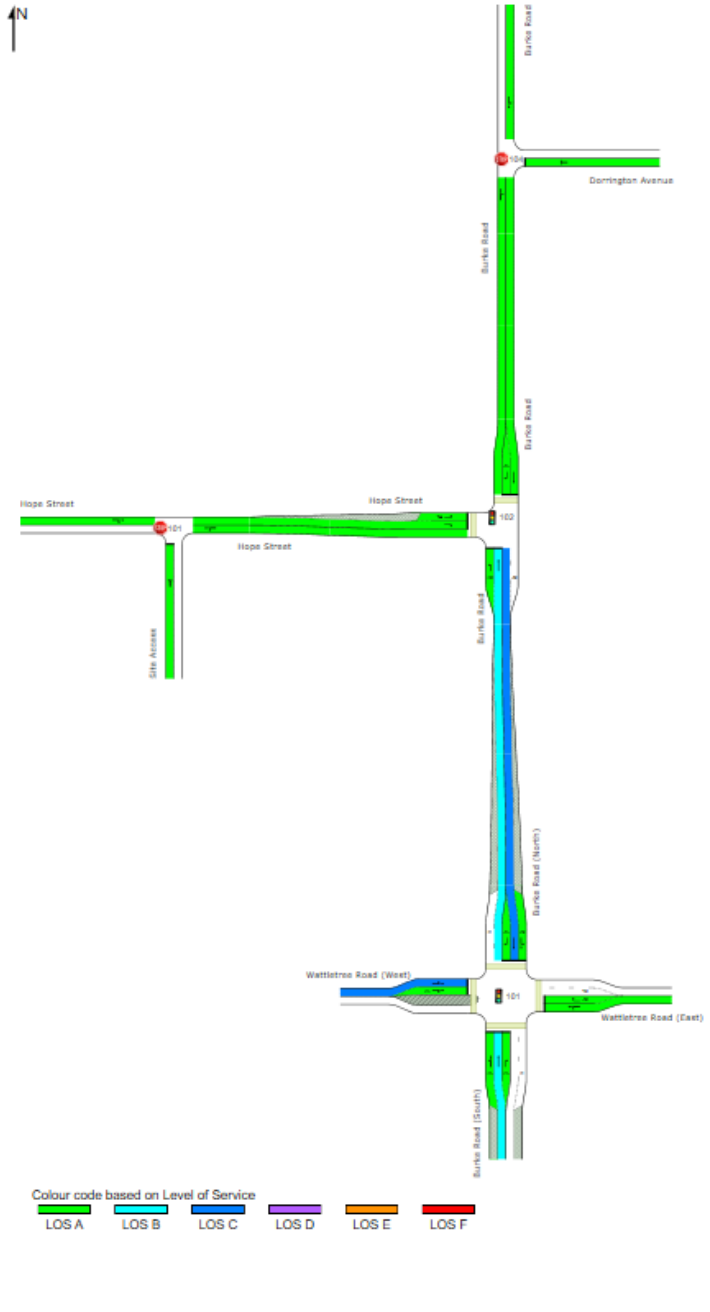


Figure 34: School Pick-up Peak hour – Post-development

PM Peak Hour

Existing Conditions

- Figure 35 outlines the existing conditions of the intersections within the network model.
- All intersections operate with at least 'Good' Conditions.
- The detailed SIDRA Movement Summaries and Phasing Summaries are provided at Appendix R.

Post-Development Conditions – No Changes to Phase Timings

- Figure 36 outlines the post-development conditions of the intersections within the network model.
- All intersections will continue to operate with at least 'Good' Conditions.
- The following key differences and findings were recorded in the 95th percentile queues between existing and post-development conditions:
  - Burke Road and Wattletree Road
    - Increased queue for the south approach of Burke Road from 111.9m to 123.8m (i.e. an increase of 11.9m).
    - Decreased queue for the north approach of Burke Road from 150.5m to 149.6m (i.e. a decrease of 0.9m).
    - Increased queue for the east approach of Wattletree Road from 66.1m to 66.3m (i.e. an increase of 0.2m).
    - Increased queue for the west approach of Wattletree Road from 189.9m to 196.9m (i.e. an increase of 7.0m).
  - Burke Road and Hope Street
    - Increased queue for the west approach of Hope Street from 0.9m to 24.0m (i.e. an increase of 23.1m).
    - 95th percentile queue length of 26.3m (3.8 vehicles) for the right-turn lane from Burke Road to Hope Street.
    - 95th percentile queue length for the southern approach for Burke Road of 125.3m.
- The detailed SIDRA Movement Summaries and Phasing Summaries are provided at Appendix S.

We are satisfied that the network will operate to an acceptable level during this peak hour.

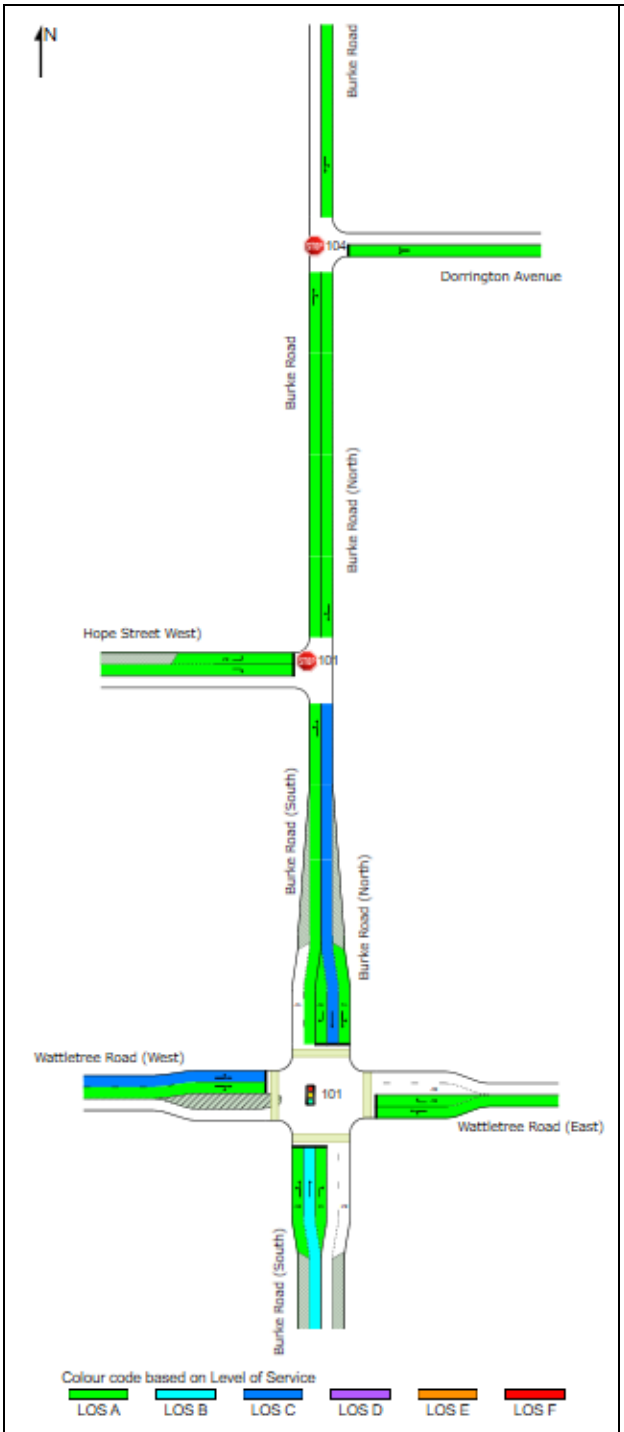


Figure 35: PM Peak Hour –Existing Conditions

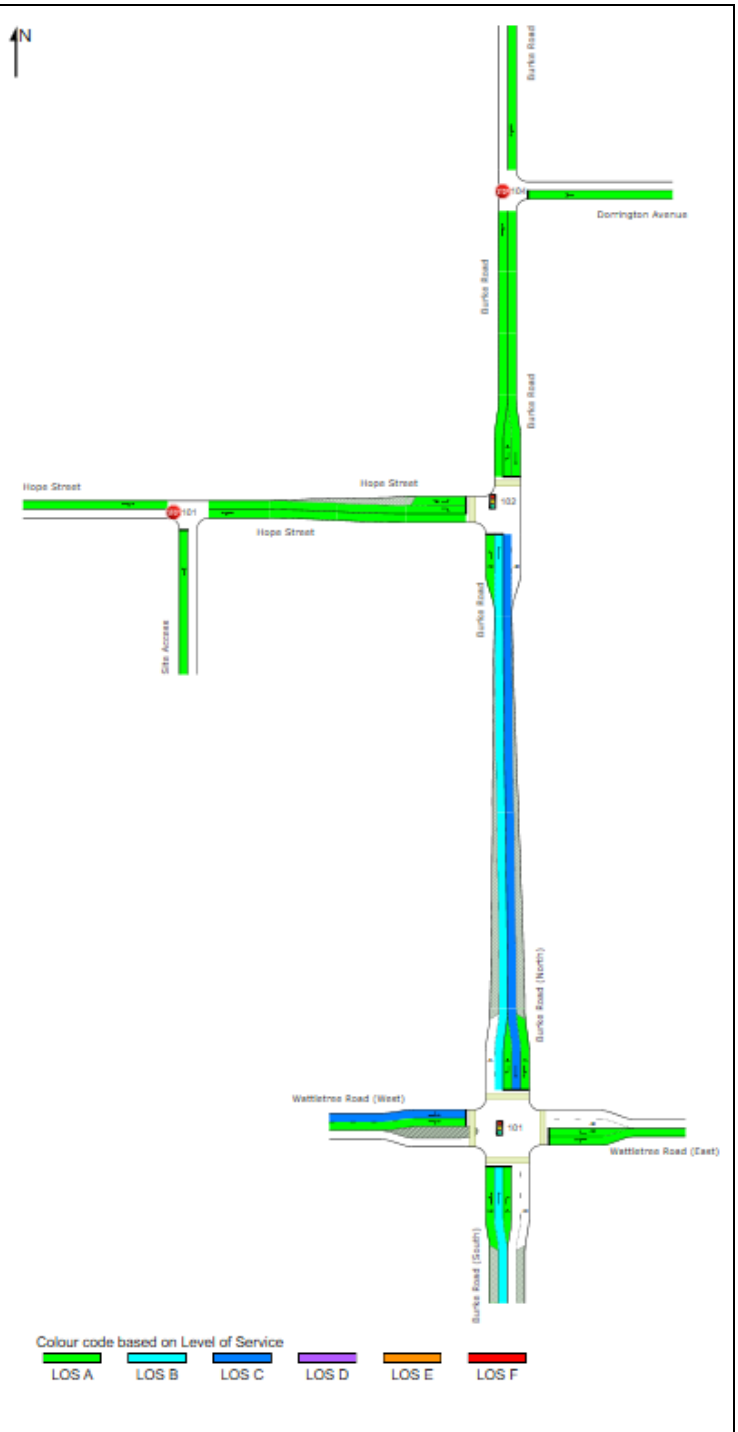


Figure 36: PM Peak hour – Post-development

Saturday Midday Peak Hour

Existing Conditions

- Figure 37 outlines the existing conditions of the intersections within the network model.
- All intersections operate with at least 'Good' Conditions.
- The detailed SIDRA Movement Summaries and Phasing Summaries are provided at Appendix T.

Post-Development Conditions – No Changes to Phase Timings

- Figure 38 outlines the post-development conditions of the intersections within the network model.
- All intersections will continue to operate with at least 'Good' Conditions.
- The following key differences and findings were recorded in the 95th percentile queues between existing and post-development conditions:
  - Burke Road and Wattletree Road
    - Increased queue for the south approach of Burke Road from 118.6m to 137.2m (i.e. an increase of 18.6m).
    - Increased queue for the north approach of Burke Road from 128.3m to 153.1m (i.e. an increase of 24.8m).
    - Increased queue for the east approach of Wattletree Road from 66.1m to 66.3m (i.e. an increase of 0.2m).
    - Increased queue for the west approach of Wattletree Road from 150.8m to 164.5m (i.e. an increase of 13.7m).
  - Burke Road and Hope Street
    - Increased queue for the west approach of Hope Street from 0.9m to 21.9m (i.e. an increase of 21.0m).
    - 95th percentile queue length of 24.3m (3.5 vehicles) for the right-turn lane from Burke Road to Hope Street.
    - 95th percentile queue length for the southern approach for Burke Road of 132.9m.
- The detailed SIDRA Movement Summaries and Phasing Summaries are provided at Appendix U.

We are satisfied that the network will operate to an acceptable level during this peak hour.

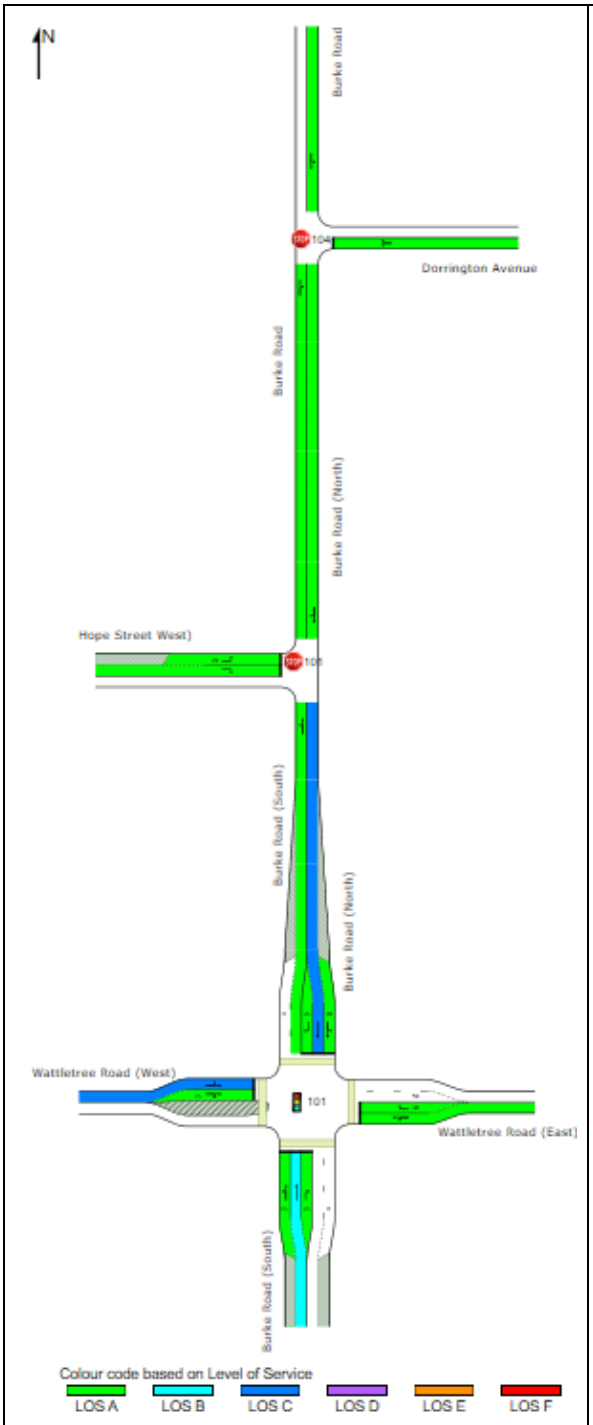


Figure 37: SAT Midday Peak Hour –Existing Conditions

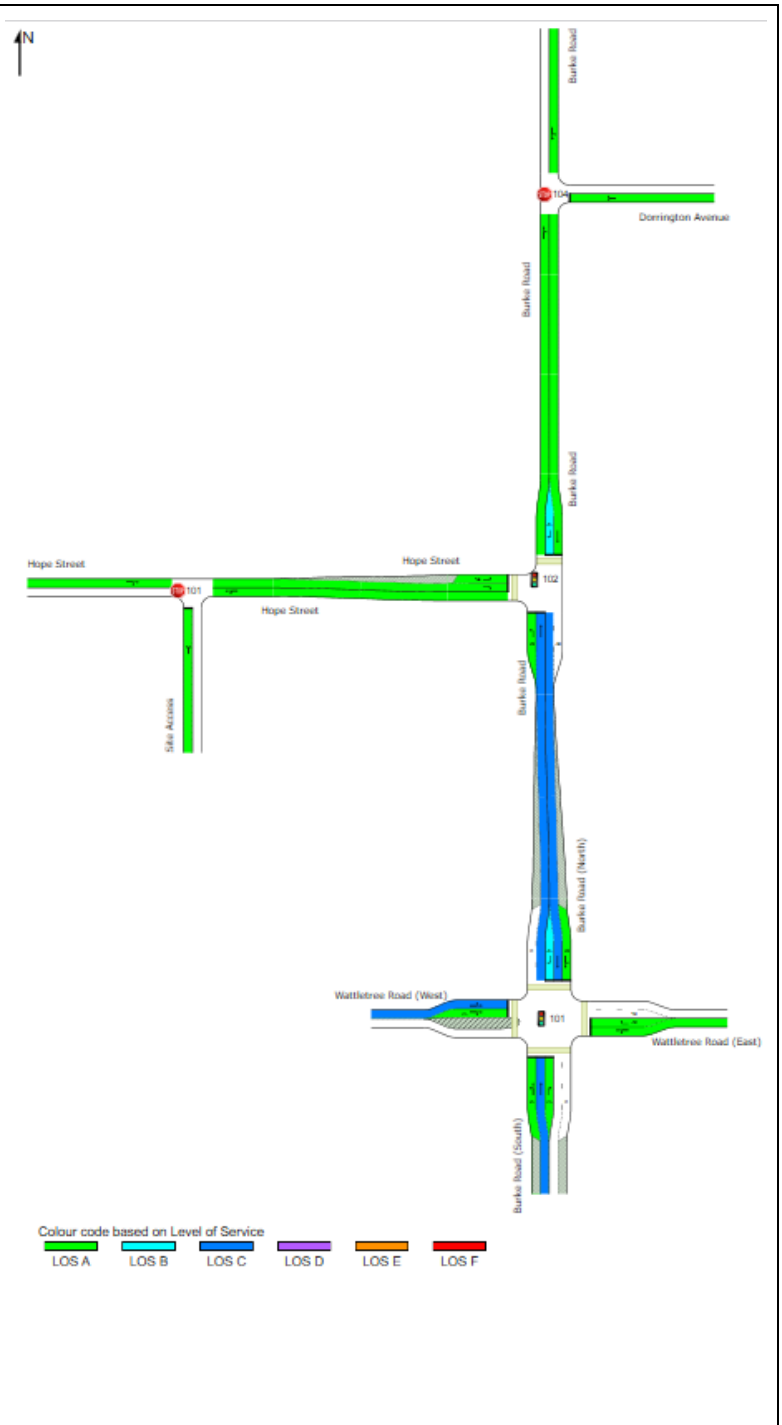


Figure 38: SAT Midday Peak hour – Post-development

Saturday Max Peak Hour

Existing Conditions

- Figure 39 outlines the existing conditions of the intersections within the network model.
- All intersections operate with at least 'Good' Conditions.
- The detailed SIDRA Movement Summaries and Phasing Summaries are provided at Appendix V.

Post-Development Conditions – No Changes to Phase Timings

- Figure 40 outlines the post-development conditions of the intersections within the network model.
- All intersections will continue to operate with at least 'Good' Conditions.
- The following key differences and findings were recorded in the 95th percentile queues between existing and post-development conditions:
  - Burke Road and Wattletree Road
    - Increased queue for the south approach of Burke Road from 115.0m to 134.6m (i.e. an increase of 19.6m).
    - Increased queue for the north approach of Burke Road from 111.2m to 131.4m (i.e. an increase of 20.2m).
    - No change in the queue for the east approach of Wattletree Road at 34.7m.
    - Increased queue for the west approach of Wattletree Road from 84.5m to 88.7m (i.e. an increase of 4.2m).
  - Burke Road and Hope Street
    - Increased queue for the west approach of Hope Street from 0.2m to 18.5m (i.e. an increase of 18.3m).
    - 95th percentile queue length of 22.0m (3.1 vehicles) for the right-turn lane from Burke Road to Hope Street.
    - 95th percentile queue length for the southern approach for Burke Road of 100.6m.
- The detailed SIDRA Movement Summaries and Phasing Summaries are provided at Appendix W.

We are satisfied that the network will operate to an acceptable level during this peak hour.

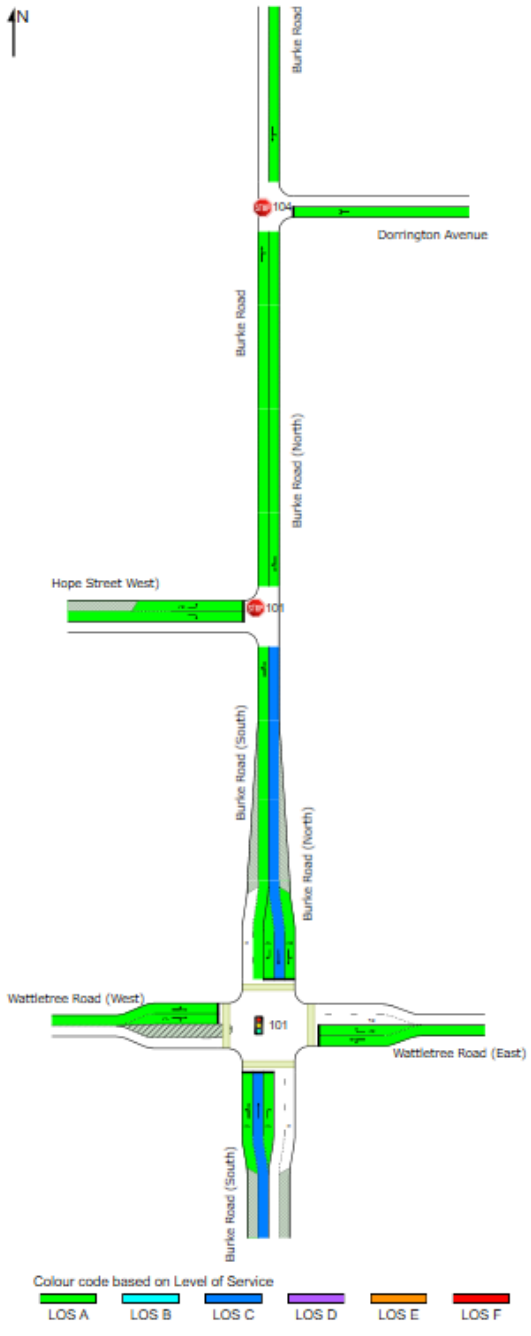


Figure 39: SAT Max Peak Hour –Existing Conditions

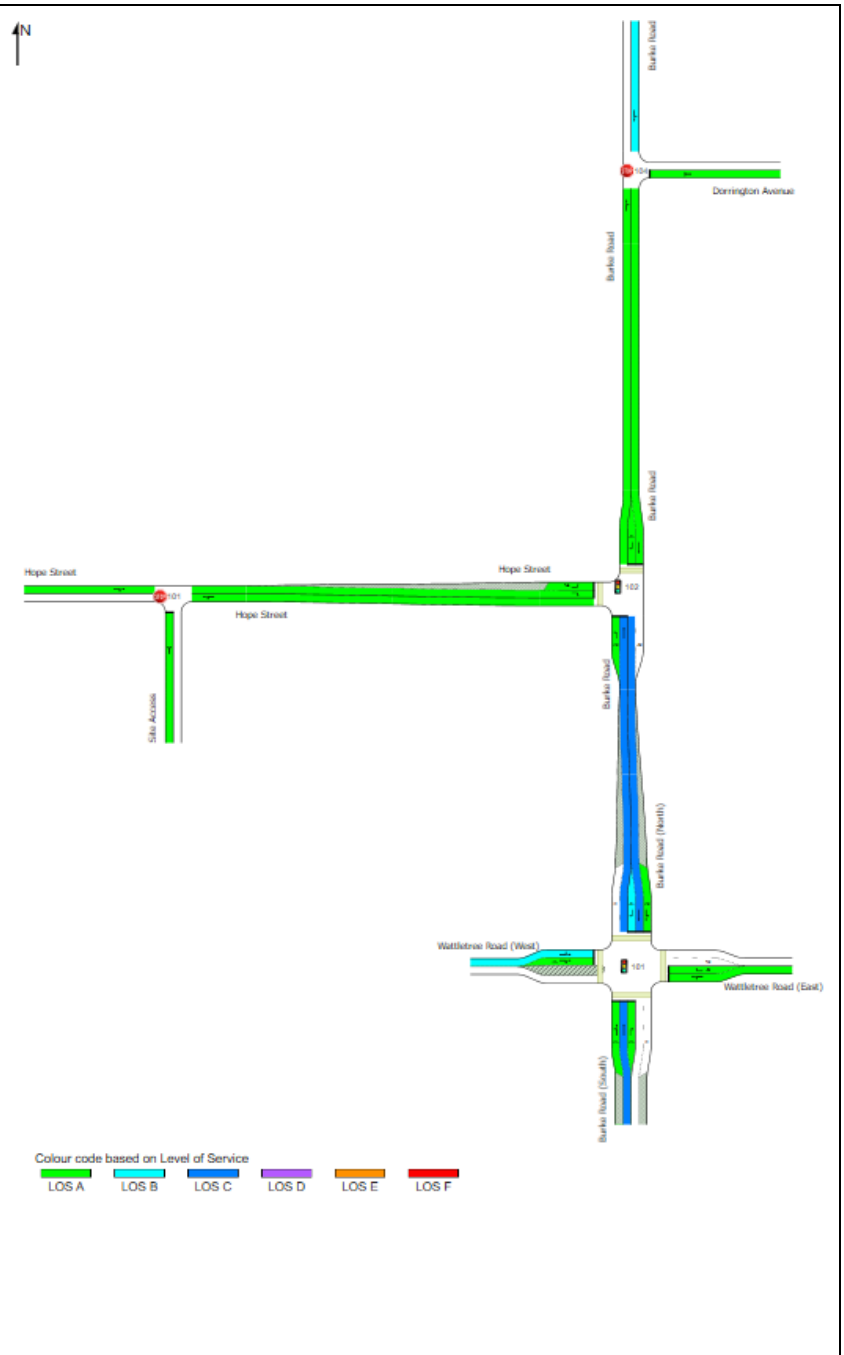


Figure 40: SAT Max Peak hour – Post-development

Summary

As detailed at Section 5.8.1, the traffic modelling for post-development conditions is acceptable and can be catered for via the modifications proposed to the road network, including the installation of operated signals at the intersection between Burke Road and Hope Street and removal of car parking where relevant.

The post development conditions indicate the following key findings:

- The western leg of Hope Street does not queue past the location of the proposed site access during any of the assessed peak hours, with a 95th percentile queue ranging between 14m – 24m.
- The proposed right-turn lane via Burke Road does not exceed its capacity during any of the assessed peak hours, with a 95th percentile queue ranging between 18m – 26.3m. This also has taken into account that all right-turn movements into Hope Street be fully controlled as per DTP's request.
- Queuing for the respective approaches between the intersections of Burke Road/Wattletree Road and Burke Road/Hope Street do not overlap/extend into each other post-development for all the analysed peak periods.

It is acknowledged that at times, Burke Road can become congested in both directions during peak periods. This includes adjacent and upon approach to Hope Street, in particular during the AM peak hour where both network traffic and school traffic coincide, the PM peak hour and during school pick-up times. This congestion can be for a range of reasons, including (but not limited to):

- Downstream traffic impacts and delays, such as:
  - A delay with vehicles travelling through downstream intersections, such as at Malvern Road to the north or Waverley Road to the south) which flow back to this location and cause congestion within this area.
  - The signalised pedestrian signals across Burke Road temporarily causing traffic flow issues.
- A vehicle wishing to enter kerbside parking via a parallel parking manoeuvre and temporarily obstructing through traffic on Burke Road, either north or south of the Wattletree Road intersection.

The factors outlined previously have been made to reflect these conditions as closely as possible. It is noted that for any given day, there may be no significant congestion during the peak periods, whereas for others, there is congestion at times. This was observed in our video footage for the 2 weekdays of the traffic counts, and we have used a conservative dataset to undertake a robust assessment.

Whilst we do not consider these changes necessary in order to accommodate the proposed development, DTP could consider minor adjustments to phase timings at the intersection of Burke Road & Wattletree Road in particular, during the School, PM and Saturday time periods, to further improve traffic flows along Burke Road. These changes should be investigated regardless of the outcome of this development as there are likely improvements that can be made to the intersection to improve conditions at certain periods of the day.

Notwithstanding the traffic modelling outputs and our assessment that they are acceptable post-development, there are other areas that the relevant road authorities (DTP for Burke Road and Council for local roads) to investigate and to determine the best course of action to treat the wider road network. For example, the downstream congestion issues experienced in the northbound direction upon approach to Malvern Road from High Street could be eased via introduction of temporary morning clearways in order to provide for 2 traffic lanes, instead of 1. This would significantly increase traffic flow capacity in the northbound direction and as a result, ease congestion within the section of Burke Road between Wattletree Road and High Street.

We do not consider that any of these changes are required for the proposed development to proceed, but rather they are for the road authority to consider in managing the wider area. The proposed works outlined in the FLP will satisfactorily manage the traffic impacts of the development. The change between the existing and post-development traffic modelling results is acceptable in our view.

5.8.2. Daily Traffic Impacts

The following section reviews the daily impacts of the traffic generated by the proposal.

Residential

As per Section 5.7.1, Traffix Group undertook traffic generation surveys for residential apartments located above the Coles Kew supermarket at 369 High Street, Kew, for 24-hour periods on Thursday 15th February and Saturday 17th February 2024. A daily traffic generation rate of 2.13 and 2.22 vehicle movements per apartment was recorded for the Thursday and Saturday, respectively.

As discussed previously, the traffic generation rate previously adopted for the dwellings was 5 trips per dwelling and we consider this to be overly conservative based on the above case study and traffic generation rates outlined within the Guide to Traffic Generating Developments – Updated traffic surveys (August 2013) prepared by the Roads & Maritime Services (RMS)13.

A conservative traffic generation rate of 4 vehicle trips per dwelling per day has been adopted for this assessment.

Accordingly, the dwellings are expected to generate a total of 232 vehicle trips per day based on this traffic generation rate.

Supermarket

As discussed at Section 5.7.1, Traffix Group has undertaken additional traffic generation studies for 4 supermarkets in similar inner suburban conditions, including the following:

- Woolworths Ivanhoe
- Woolworths North Melbourne (Arden Gardens Shopping Centre)

[13]. These surveys break down the trip generation on a per dwelling, per bedroom, and per car space basis for daily trips and the AM and PM peak hours. The generation rates per dwelling were 0.19 trips (AM), 0.15 trips (PM) and 1.52 trips (daily). The trips per bedroom were 0.09 trips (AM), 0.07 trips (PM) and 0.72 trips (daily). The trips per car space were 0.15 trips (AM), 0.12 trips (PM) and 1.34 trips (daily).

- Coles Middle Camberwell
- Coles Kew

The daily traffic movements were recorded for each site.

The average daily traffic generation rate based on those 4 sites were 58.95 vehicle movements per 100m^2 of supermarket floor area. The daily traffic generation rate adopted at the previous VCAT hearing was 90 vehicle movements per 100m^2 of supermarket floor area and was an overly conservative assessment given the proposed supermarket's location and review of relevant case study data.

Traffix Group consulted with the DTP regarding the above daily traffic generation rates and agreed that it was acceptable to adopt a rate of **60 vehicle movements per 100m^2 of supermarket floor area.**

The daily traffic generated by the proposal is set out in the table below.

Table 11: Daily Traffic Impacts

Use	Size	Daily Traffic Generation Rate	Daily Volume
Dwellings	2 x one-bedroom apts. 30 x two-bedroom apts. 26 x three or more-bedroom apts.	4 per dwelling	232
Supermarket & Food and Drink Premises	3,160m^2	60 per 100m^2	1,896
Total			**2,128**

The existing and post-development weekday daily traffic volumes for Hope Street are detailed at Table 12.

The daily traffic volumes forecast at the previous VCAT hearing are provided within this table, however it is important to note that the previous assessment adopted overly high traffic generation rates for both the dwellings and supermarket, included only 1 vehicle access point to Hope Street and included a higher level of development intensity (i.e. 22 more apartments).

As discussed previously, there are 2 access options proposed for the development, including:

1. Burke Road access will permit left-turn entry movements via cars, and a two-way access via Hope Street.
2. Burke Road access will only be permitted for trucks, with all cars to access the site via a two-way access via Hope Street.

Option 1 directs vehicles arriving from the south to enter the site via the Burke Road access via left-turn, while Option 2 includes all vehicles (except loading trucks) accessing the site via the Hope Street access. As a result, the post-development traffic volumes are higher under the Option 2 scheme.

Table 12: Existing and post-development daily traffic volumes

Street	Existing Daily Weekday Volumes (vpd)	Post-Development Daily Volumes (vpd) – VCAT 2022	Post-Development Daily Volumes (vpd) – Option 1 – Left-in permitted via Burke Road	Post-Development Daily Volumes (vpd) – Option 2
Hope Street, west of the site access	352	352 (Note 2)	352	352
Hope Street, east of the site access (near Burke Road)	563	4,004 (Note 1)	2,100 (Note 3) *Option 1 Access Strategy*	2,632 – Option 2 (Note 4) *Option 2 Access Strategy*

Notes:
1. This figure excludes the daily traffic currently accessing the site (56 vpd) at the time of the previous VCAT.
2. This figure excludes the daily traffic currently accessing the site (59 vpd).
3. 532 less trips than Option 2, which are accessing the site via left-turn at Burke Road.
4. Our assessment is based on all traffic which uses the Hope Street Access, arriving and departing via Burke Road, for the purposes of a conservative analysis.

Hope Street has a carriageway width of 11m up to the midpoint of the site from Burke Road, which then tapers down to 7.3m at the western boundary of the site. Where Hope Street is wider, Hope Street provides sufficient space for a dedicated traffic lane in each direction and kerbside parking (where permitted). At the intersection with Burke Road, cars can exit via left-turn and right-turn at the same time.

Where the width of Hope Street reduces to 7.3m with kerbside parking on both sides to the west of the site, Hope Street has a cross section consistent with an Access Street – Level 2 under Clause 56.06, with an environmental capacity of up to 3,000 vehicles per day.

Based on the above volumes, we consider that the level of post-development daily traffic within Hope Street will fall within its categorisation by the Tribunal as a local access road and in line with this classification under Clause 56.06 of the Planning Scheme. Importantly, the increase in traffic to Hope Street will occur between the site access point and Burke Road, not to the west of the site access for the remainder of Hope Street.

Overall, we are satisfied that the traffic impacts of the development on the nearby road network are acceptable, and that the proposed functional layout plan works, and access arrangements will cater for the proposed development.

6. Review of Issues

As discussed previously, the key reasons for the previous VCAT refusal relating to traffic engineering are summarised as follows:

- Daily traffic volume impact to Hope Street.
- Truck impacts to Hope Street.
- Extent of on-street car parking loss due to the traffic signals.
- Impacts to individual properties nearby to the intersection.

The VCAT decision accepted that the peak hour impact of the development could be accommodated, and a signalised intersection provided appropriate access.

A summary comparison between the VCAT Scheme and the 2 development schemes (Access Options 1 and 2) is shown in the table below, which reviews these options from a high level against the key traffic outcomes relating to the previous VCAT decision and moving forward with the development site, including:

1. Daily traffic volume impact to Hope Street.
2. Truck impacts to Hope Street.
3. Extent of on-street car parking loss due to the traffic signals.
4. Impacts to medical centre access at No. 177 Burke Road.
5. Impacts to access at No. 164 Burke Road.
6. General traffic performance via SIDRA Intersection modelling.
7. Traffic accessibility.

As discussed throughout this Traffic Engineering Assessment, we consider that the proposed development scheme has adequately addressed these concerns or outcomes via the following measures:

- Reduction in development intensity with 22 less apartments and a food & drink premises (café) instead of a bottle shop,
- Revised access arrangements so that a proportion of traffic accesses the site directly from Burke Road, rather than all traffic via Hope Street (left-in for cars via Burke Road, plus Hope Street access),
- Removal of all truck movements from Hope Street and provision of highly managed truck loading bay via Burke Road, controlled by extensive Loading Management Plan inclusive of access restrictions and 'block-out' windows for key pedestrian times,
- Highly resolved Functional Layout Plan which considers individual property access points, controlled right-turn movements as per DTP request and peak hour traffic impacts of the development,
- A reduction in extent of on-street parking loss (20 car spaces instead of 29 spaces) via revised FLP design, and

- A reduction in the daily traffic volume impact to Hope Street via revised access arrangements, lower development intensity and revised traffic generation rates based on robust empirical data from comparable developments in 2024.

We consider that the revised development proposal has addressed all traffic engineering concerns from the VCAT hearing and DTP has provided in-principle support[1] for the proposed arrangements.

COMPARISON BETWEEN ACCESS STRATEGIES

	1) VCAT 2022 Scheme • Signalised Intersection at Hope Street • Car and Truck Access via Hope Street only.	2) 2024 - Scheme Option 1 • Signalised Intersection at Hope Street • Trucks to Burke Road • Burke Road Car Access – Left-in Only	3) 2024 – Scheme Option 2 • Signalised Intersection at Hope Street • Trucks to Burke Road
Daily Traffic Volume *VCAT Rates*	**3,483**	**3,134**	**3,134**
Impact to Hope Street Volumes *VCAT Rates*	**+**3,483 **Post-Dev =** 4,004	**+2,351** **Post-Dev =** 2,855 *(783 left-in via Burke Rd)* ✓	**+ 3,134** **Post-Dev =** 3,638
Overall Daily Development Traffic *New Case Study Rates*	**-**	**2,128**	**2,128**
Impact to Hope Street Volumes *New Case Study Rates*	**-**	**+1,596** **Post-Dev =** 2,100 *(532 left-in via Burke Rd)* ✓	**+2,128** **Post-Dev =** 2,632 ✓
Truck Impacts to Hope Street	All loading to Hope Street	None ✓	
Overall Car Parking Loss	29 spaces	20 spaces (69% of VCAT) – *Pending DTP final review* ✓	
Hope Street	7 spaces	2 spaces	
Burke Road	22 spaces	18 spaces	
Impacts on Medical Centre Access	Influenced by trucks, stop line and Keep Clear Medical Centre volumes not known	No trucks in Hope Street Modest medical centre volumes surveyed Keep Clear resolves any issues ✓	
Impacts to 164 Burke Road Access	Impacts due to traffic signals and potential for turning restriction Access arrangements not resolved	Access arrangements resolved Movements permitted via detector loop & lantern provided ✓	
General Traffic Performance via Sidra	Performance works to an acceptable level ✓		
Traffic Accessibility	Access facilitated by signals at Hope Street ✓	Access facilitated by signals at Hope Street Left-in entry from Burke Road ✓	Access facilitated by signals at Hope Street ✓
Legend	Acceptable Traffic Engineering Outcome ✓		

7. Conclusions

Having undertaken a detailed traffic engineering assessment for the proposed mixed use development at 173 Burke Road, Glen Iris, we are of the opinion that:

a) the development has a statutory requirement for 239 car spaces, which is satisfied by the provision and allocation of 290 car spaces and a car parking reduction is not required under Clause 52.06-7 of the Planning Scheme,

b) a surplus of 36 resident and 15 commercial car spaces are provided above the minimum requirements,

c) bicycle parking is provided in excess of the statutory requirement set out at Clause 52.34 of the Planning Scheme and is satisfactory,

d) the proposed parking layout and vehicle access arrangements accord with the requirements of the Planning Scheme, AS2890.1:2004, AS2890.2-2018, AS2890.6-2022 (where relevant) and current practice,

e) the proposed vehicle access points are acceptable, accord with the objectives of Clause 52.29 of the Planning Scheme, assist with traffic distribution and are designed appropriately,

f) the proposed location and operation of the loading bay is acceptable for the following reasons:

   a. Loading arrangements will be managed by the supermarket operator under a Loading Management Plan. We understand that this operator will oversee the management and co-ordination of all users of the loading bay and there will be no conflict with other users.

   b. All trucks will enter and exit the site in a forwards direction using the turntable. These arrangements are now common within inner area supermarkets (such as Coles Bay Street Brighton, Coles Middle Camberwell or Coles Kew).

   c. Woolworths has direct contact, co-ordination and control with trucks to ensure left-in and left-out arrangements are adhered to and avoid interaction between trucks.

   d. The Burke Road access has a clearly defined 'truck exit' side of the access and allows customers to enter the site at all times.

g) residential loading for minor loading activities via residents' cars or low-height vans up to 2.3m in height can occur within the drop off area within the basement, with occasional furniture removalist trucks loading on-street in the nearby area, including along the site's frontage to Burke Road where 5 on-street car spaces will be retained. A temporary loading bay area is also provided within basement level 1 which can accommodate low-height vans up to 2.1m in height,

h) the proposed waste collection arrangements are appropriate, with supermarket, food and drink premises and residential waste collected on-site as per the Waste Management Plan,

i) the proposed signalised intersection between Burke Road and Hope Street has been appropriately designed and the Functional Layout Plan has considered all relevant

factors, including access to nearby properties such as the medical centre at 177 Burke Road and the residential dwelling at 164 Burke Road and retention of on-street parking along the northern side of Hope Street,

j) the loss of on-street car parking as a result of the development is acceptable, with 5 on-street car spaces being retained along the site's frontage to Burke Road and 2 new indented parallel spaces proposed for Hope Street. The net loss of 20 on-street car spaces is a significant improvement of the 29 car spaces lost under the previous VCAT scheme,

k) the expected level of traffic as a result of the development can be accommodated by the surrounding road network, including:

   a. the intersections of Burke Road/Hope Street, Burke Road/Wattletree Road and Burke Road/Dorrington Avenue,

   b. the impact to Hope Street, with traffic impacts typically limited to between the proposed access and Burke Road is acceptable and Hope Street currently carries a traffic volume well below its traffic capacity of up to 3,000 vehicles per day under Clause 56.06, and

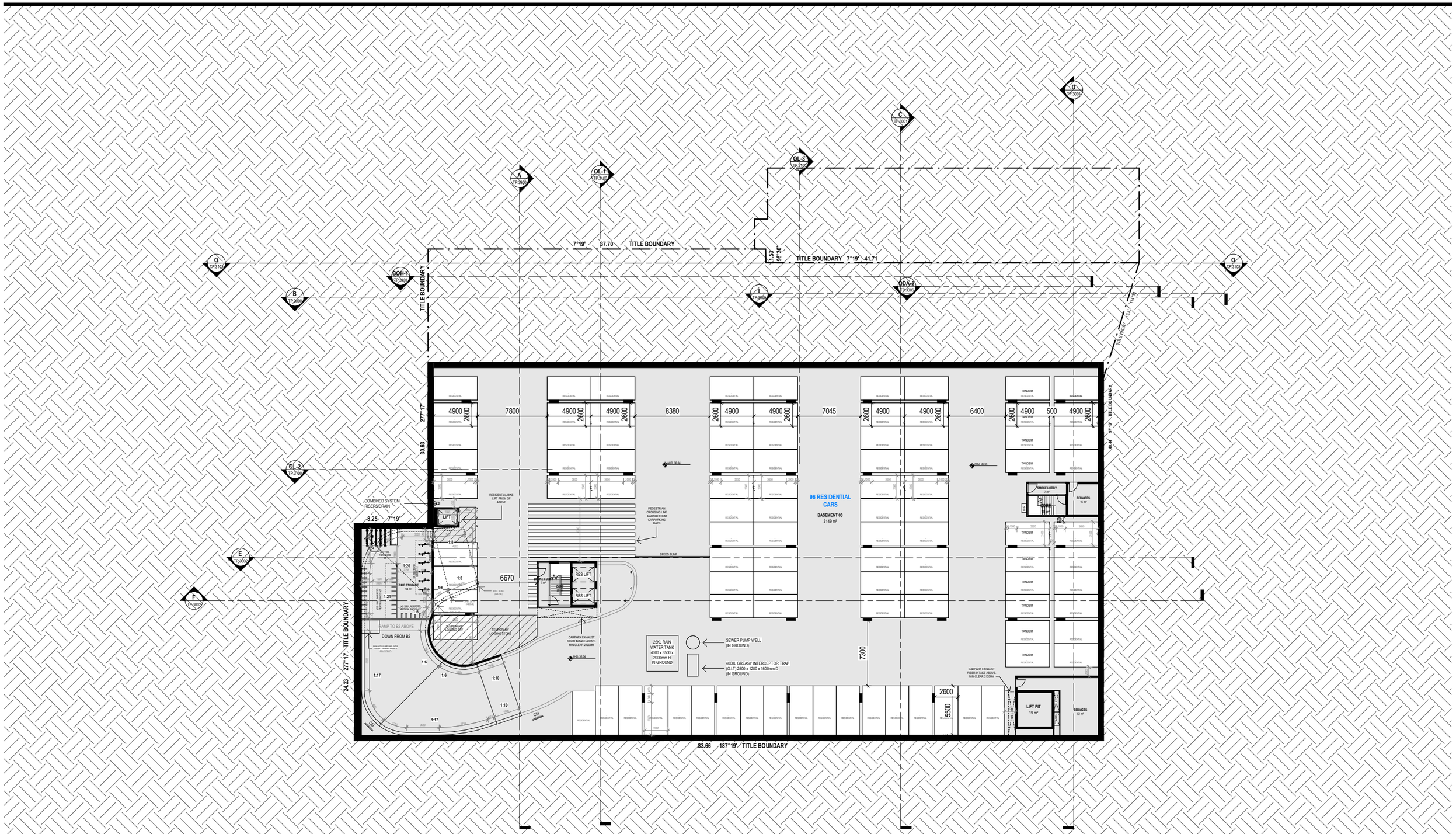
   c. the impact on local roads nearby to the subject site.

l) the revised proposal comprehensively addresses the issues raised in the previous VCAT decision, and

m) there are no traffic engineering reasons why a planning permit for the proposed mixed use development at 173 Burke Road, Glen Iris, should be refused, subject to appropriate conditions.

Appendix A

Development Plans



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NOTES

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REV	DATE	REVISION	BY	CHK
01	11.04.24	OVGA (2)	OF	DC

REV	DATE	REVISION	BY	CHK

PROJECT

BURKE ROAD

173 BURKE ROAD GLEN IRIS

MIXED-USE DEVELOPMENT

DRAWING STATUS

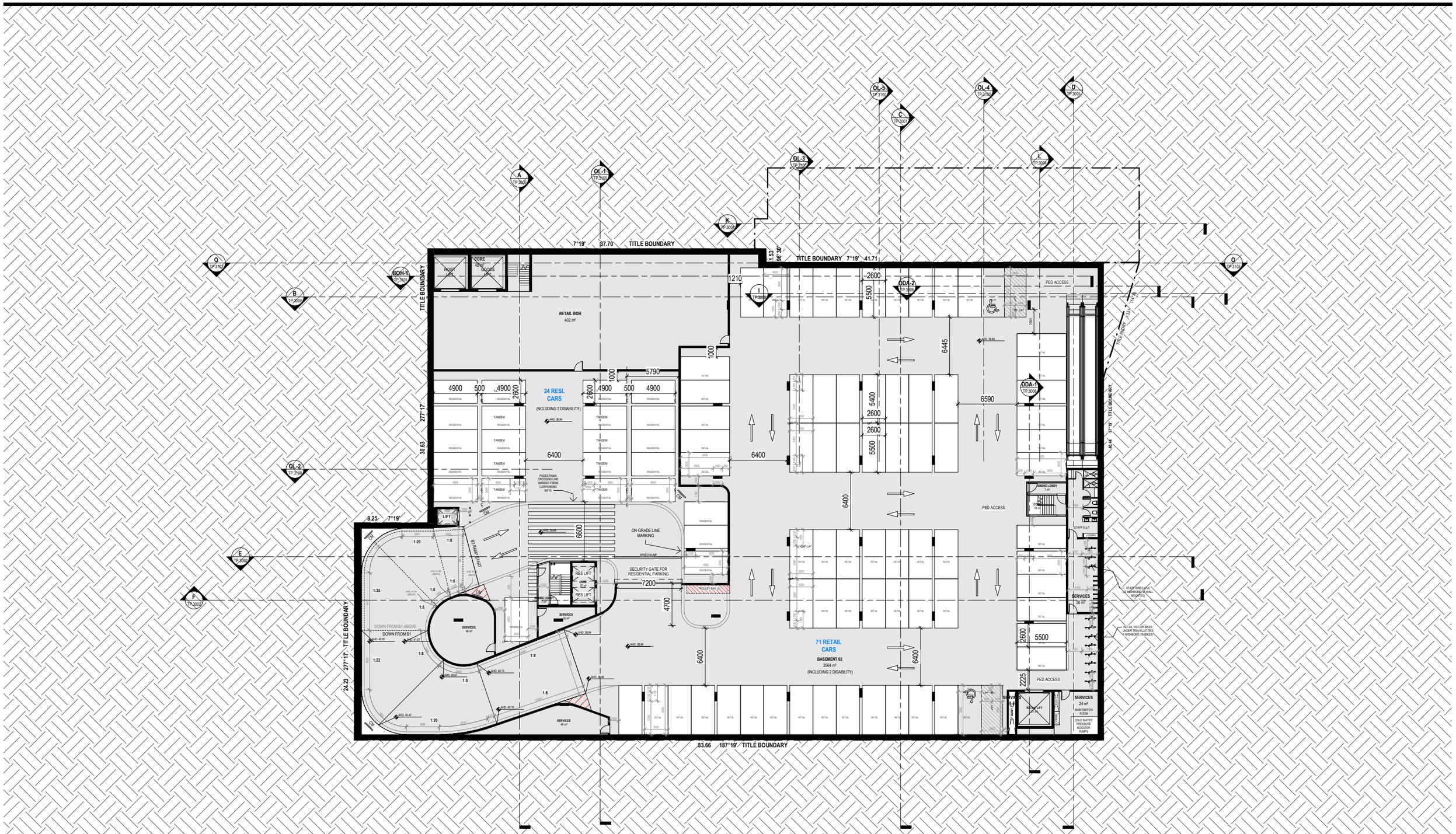
TOWN PLANNING

JOB N°	23076
REVISION N°	
DATE	10.10.2023
SCALE	1 : 200 @ A1
DRAWN BY	Author
CHECKED BY	Checker

DRAWING TITLE

BASEMENT 03 PLAN

TP.1090



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REV	DATE	REVISION	BY	CHK

PROJECT

BURKE ROAD

173 BURKE ROAD GLEN IRIS

MIXED-USE DEVELOPMENT

DRAWING STATUS

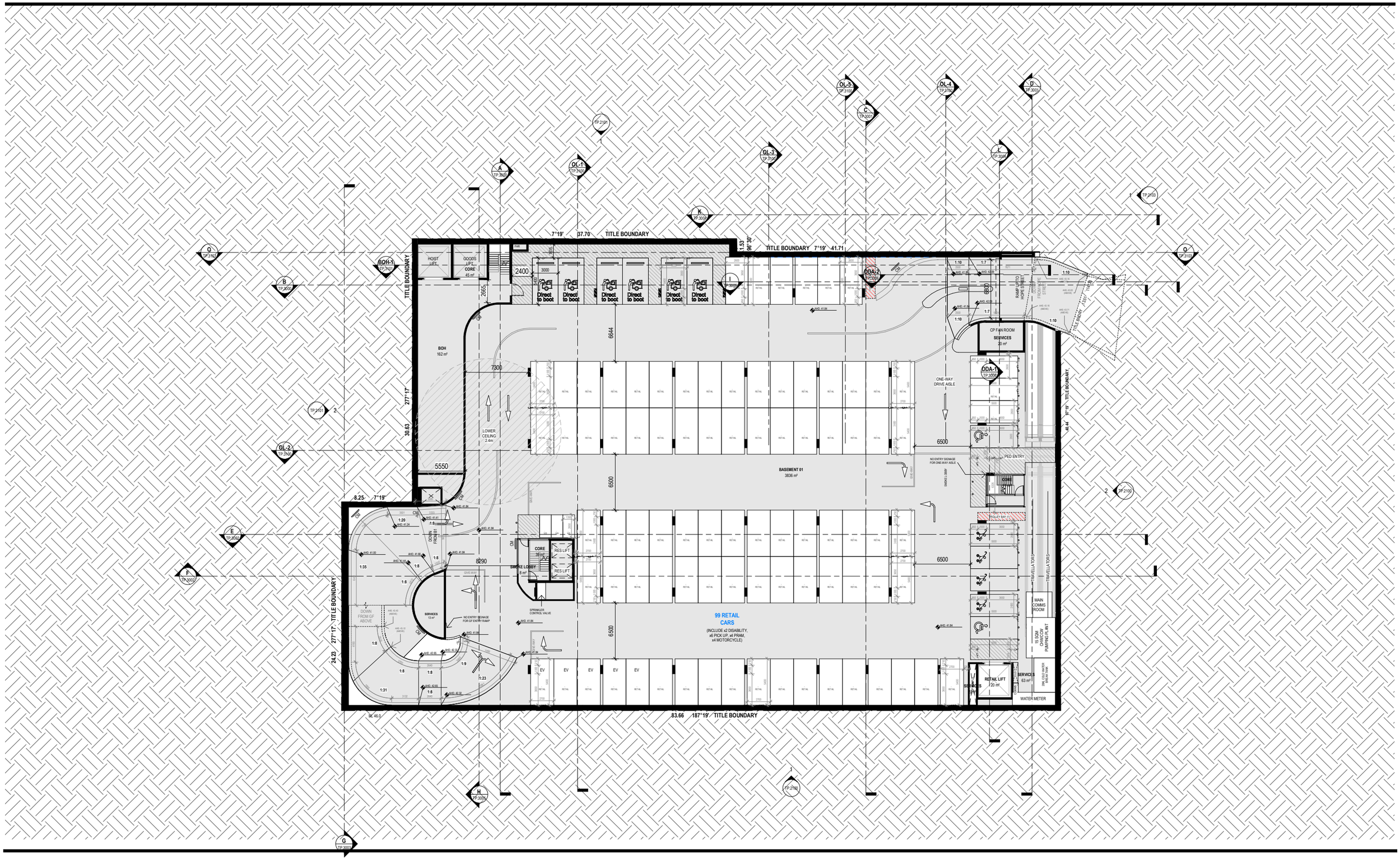
TOWN PLANNING

JOB N°	23076
REVISION N°	
DATE	10.10.2023
SCALE	1 : 200 @ A1
DRAWN BY	Author
CHECKED BY	Checker

DRAWING TITLE

BASEMENT 02 PLAN

TP.1091



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01	11.04.24	OVGA (2)	OF	DC

REV	DATE	REVISION	BY	CHK

PROJECT

BURKE ROAD

173 BURKE ROAD GLEN IRIS

MIXED-USE DEVELOPMENT

DRAWING STATUS

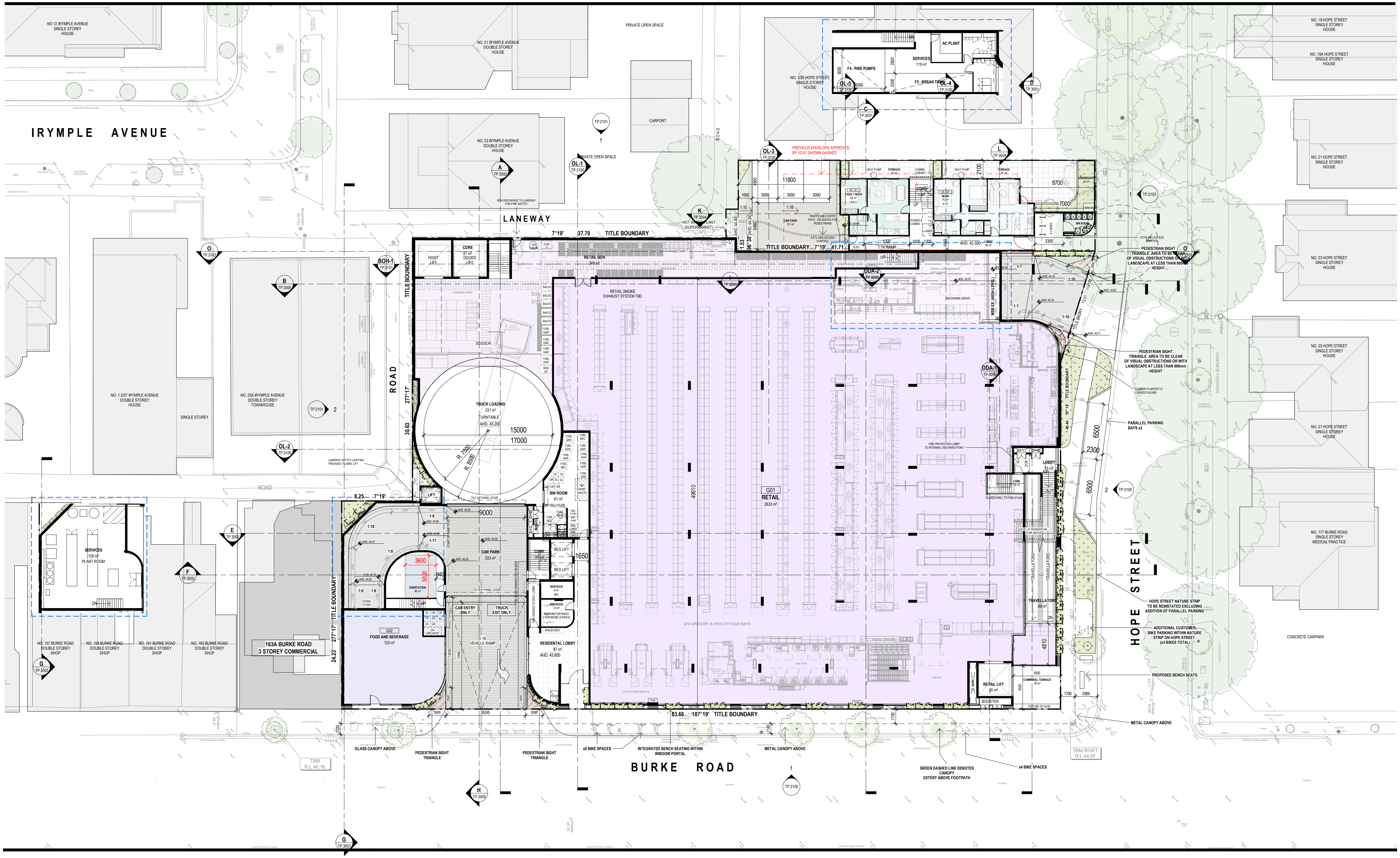
TOWN PLANNING

JOB N°	23076
REVISION N°	
DATE	10.10.2023
SCALE	1 : 200 @ A1
DRAWN BY	KH
CHECKED BY	DC

DRAWING TITLE

BASEMENT 01 PLAN

TP.1092


IRYMPLE AVENUE
LANEWAY
ROAD
BURKE ROAD
HOPE STREET
TITLE BOUNDARY
NO.12 IRYMPLE AVENUE SINGLE STOREY HOUSE
NO. 21 IRYMPLE AVENUE DOUBLE STOREY HOUSE
NO. 23 IRYMPLE AVENUE DOUBLE STOREY HOUSE
NO. 1-2/27 IRYMPLE AVENUE DOUBLE STOREY HOUSE
NO. 25A IRYMPLE AVENUE DOUBLE STOREY TOWNHOUSE
SINGLE STOREY
PRIVATE OPEN SPACE
CARPORT
NO. 19 HOPE STREET SINGLE STOREY HOUSE
NO. 19A HOPE STREET SINGLE STOREY HOUSE
NO. 21 HOPE STREET SINGLE STOREY HOUSE
NO. 23 HOPE STREET SINGLE STOREY HOUSE
NO. 25 HOPE STREET SINGLE STOREY HOUSE
NO. 27 HOPE STREET SINGLE STOREY HOUSE
NO. 177 BURKE ROAD SINGLE STOREY MEDICAL PRACTICE
CONCRETE CARPARK
NO. 157 BURKE ROAD DOUBLE STOREY SHOP
NO. 159 BURKE ROAD DOUBLE STOREY SHOP
NO. 161 BURKE ROAD DOUBLE STOREY SHOP
NO. 163 BURKE ROAD DOUBLE STOREY SHOP
163A BURKE ROAD 3 STOREY COMMERCIAL
G01 RETAIL 2633 m²
G02 FOOD AND BEVERAGE 125 m²
TRUCK LOADING 231 m² TURNTABLE AHD. 45.200
RETAIL BOH 348 m²
SERVICES 126 m² PLANT ROOM
SERVICES 119 m²
CAR PARK 333 m²
RESIDENTIAL LOBBY 87 m² AHD. 45.800
TRAVELLATORS
RETAIL LIFT
BIN ROOM 61 m²
SUBSTATION
CAR ENTRY ONLY
TRUCK EXIT ONLY
1:16 VEHICLE RAMP
PREVIOUS ENVELOPE APPROVED BY VCAT SHOWN DASHED
PEDESTRIAN SIGHT TRIANGLE
GLASS CANOPY ABOVE
METAL CANOPY ABOVE
x8 BIKE SPACES
x4 BIKE SPACES
INTEGRATED BENCH SEATING WITHIN WINDOW PORTAL
GREEN DASHED LINE DENOTES CANOPY EXTENT ABOVE FOOTPATH
PARALLEL PARKING BAYS x2
HOPE STREET NATURE STRIP TO BE REINSTATED EXCLUDING ADDITION OF PARALLEL PARKING
ADDITIONAL CUSTOMER BIKE PARKING WITHIN NATURE STRIP ON HOPE STREET. (x4 BIKES TOTAL)
PROPOSED BENCH SEATS
TBM R.L 46.16
TBM RIVET R.L 44.97
83.66 187°19' TITLE BOUNDARY
37.70 TITLE BOUNDARY
41.71
30.63
24.23
8.25
15000
17000
49610

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REV	DATE	REVISION	BY	CHK
01	11.04.24	OVGA (2)	OF	DC

REV	DATE	REVISION	BY	CHK

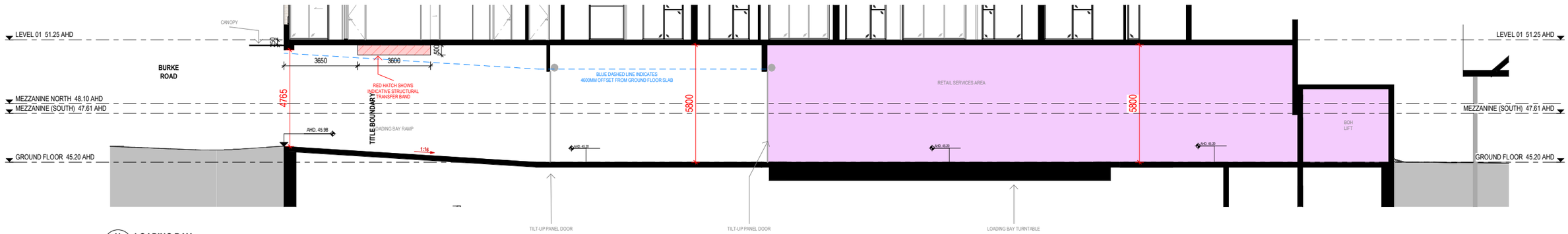
PROJECT
BURKE ROAD
173 BURKE ROAD GLEN IRIS
MIXED-USE DEVELOPMENT

DRAWING STATUS
TOWN PLANNING

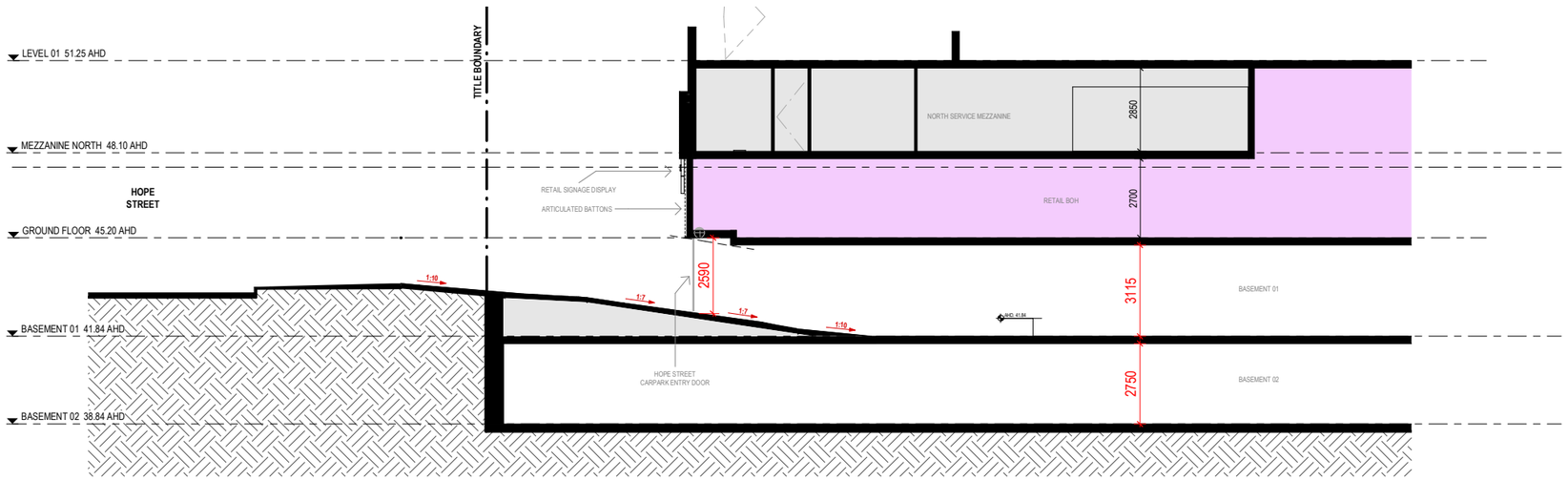
JOB N°	23076
REVISION N°	
DATE	29.11.23
SCALE	1 : 200 @ A1
DRAWN BY	OF
CHECKED BY	DC

DRAWING TITLE
GROUND FLOOR PLAN

TP.1100



H SK.1003 **LOADING BAY**
1 : 100



I SK.1001 **TRAFFIX_HOPE ST ENTRY**
1 : 100

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REV	DATE	REVISION	BY	CHK

PROJECT

BURKE ROAD

173 BURKE ROAD GLEN IRIS

MIXED-USE DEVELOPMENT

DRAWING STATUS

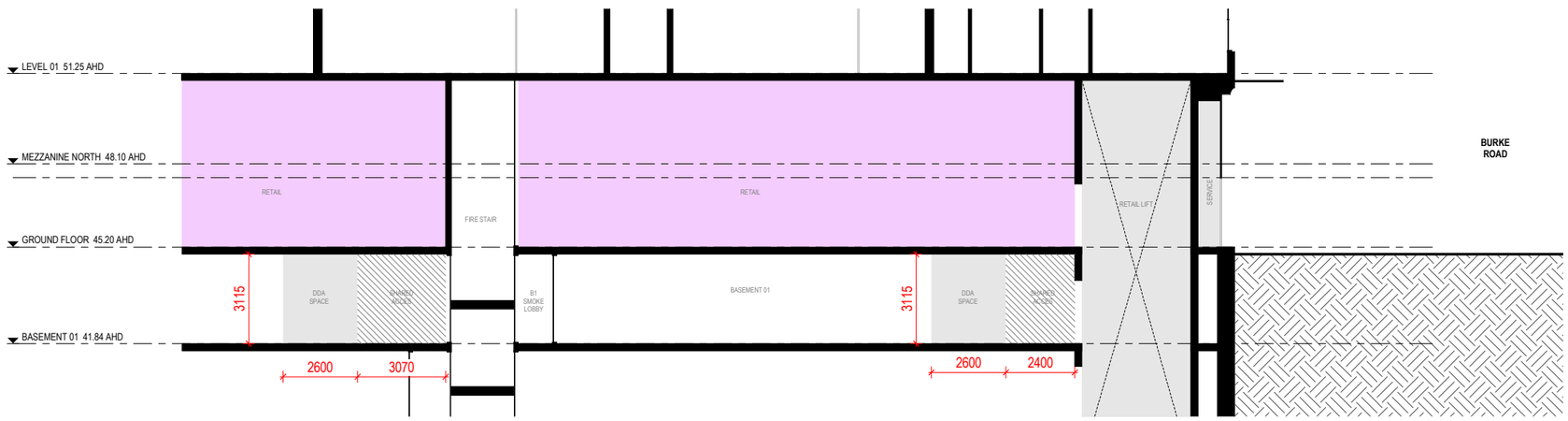
TOWN PLANNING

JOB N°	23076
REVISION N°	
DATE	12/08/23
SCALE	1 : 100 @ A1
DRAWN BY	Author
CHECKED BY	Checker

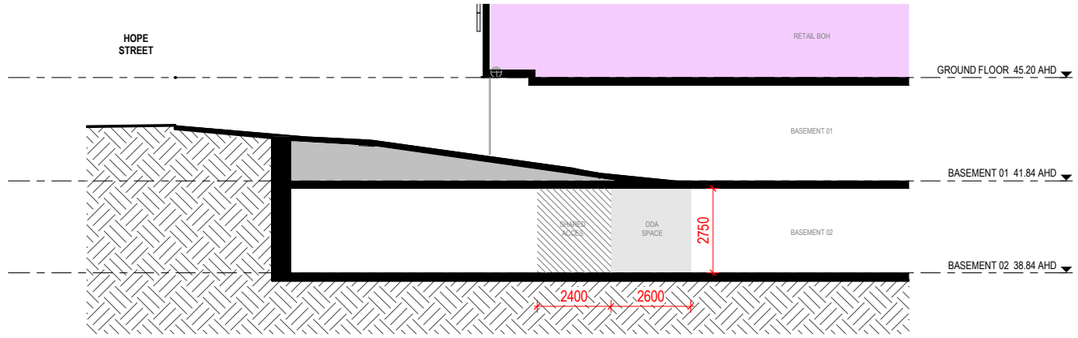
DRAWING TITLE

ENTRY RAMP SECTIONS

TP.3005



DDA-1 SK.1003 **DDA SECTION (B1)**
1 : 100



DDA-2 SK.1003 **DDA ACCESS (B2)**
1 : 100

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REV	DATE	REVISION	BY	CHK

PROJECT

BURKE ROAD

173 BURKE ROAD GLEN IRIS

MIXED-USE DEVELOPMENT

DRAWING STATUS

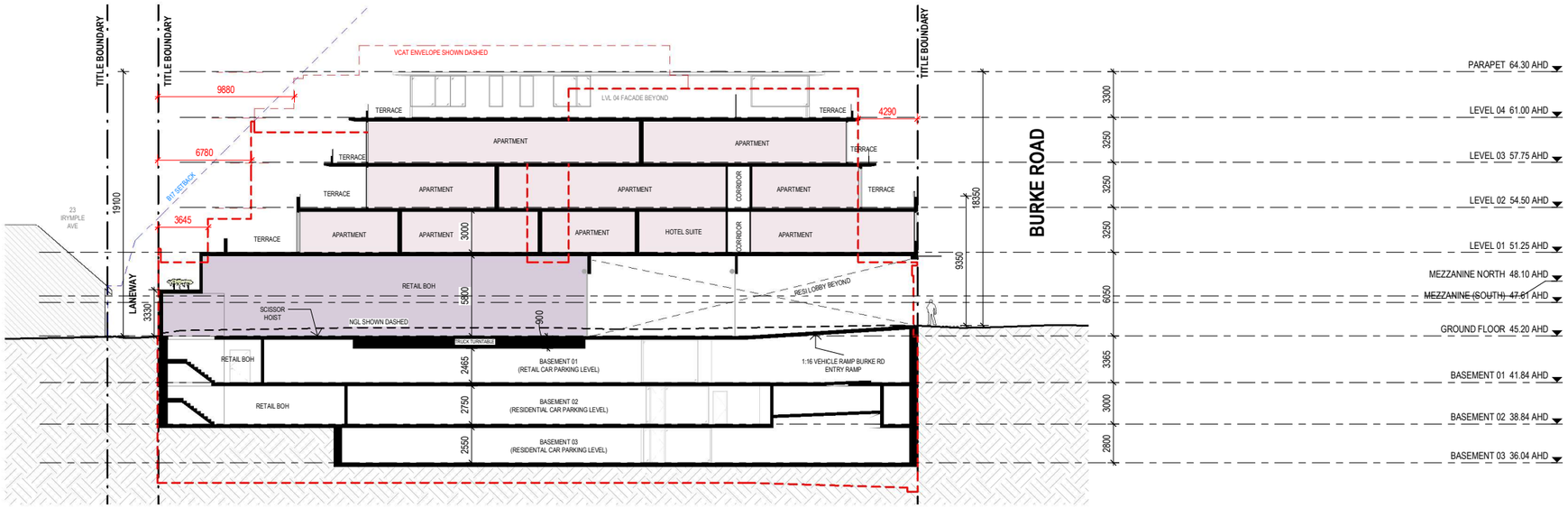
TOWN PLANNING

JOB N°	23076
REVISION N°	
DATE	12/08/23
SCALE	1 : 100 @ A1
DRAWN BY	Author
CHECKED BY	Checker

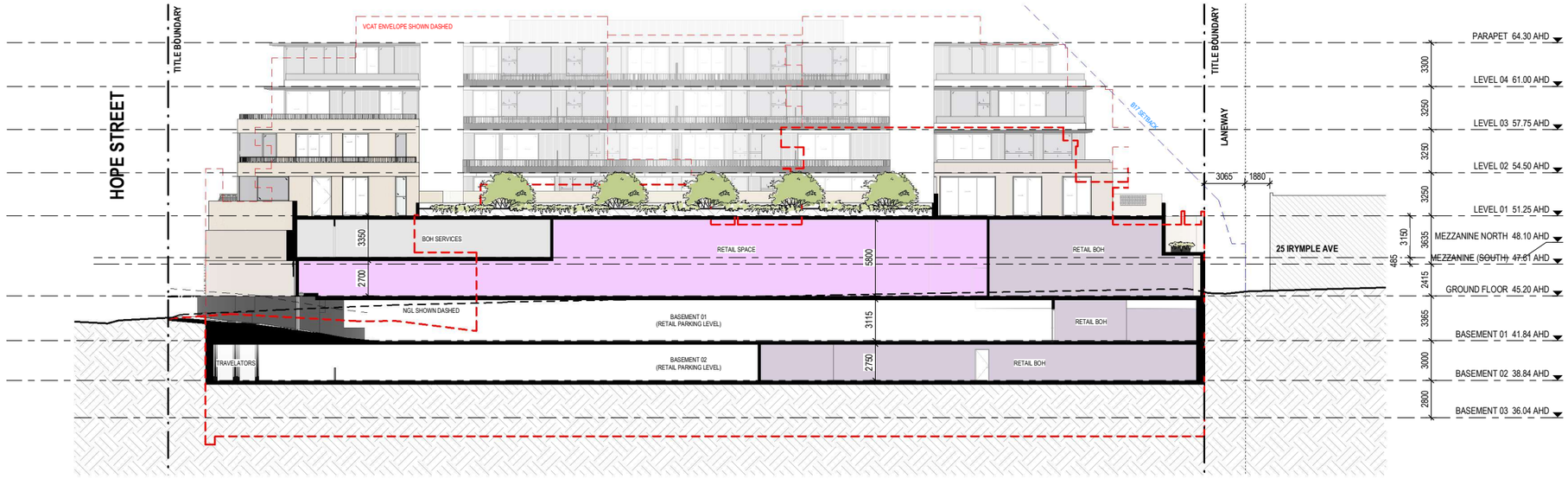
DRAWING TITLE

DDA ACCESS SECTIONS

TP.3006



A Section A
SK.1003 1 : 200



B Section B
SK.1003 1 : 200

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REV	DATE	REVISION	BY	CHK

PROJECT

BURKE ROAD

173 BURKE ROAD GLEN IRIS

MIXED-USE DEVELOPMENT

DRAWING STATUS

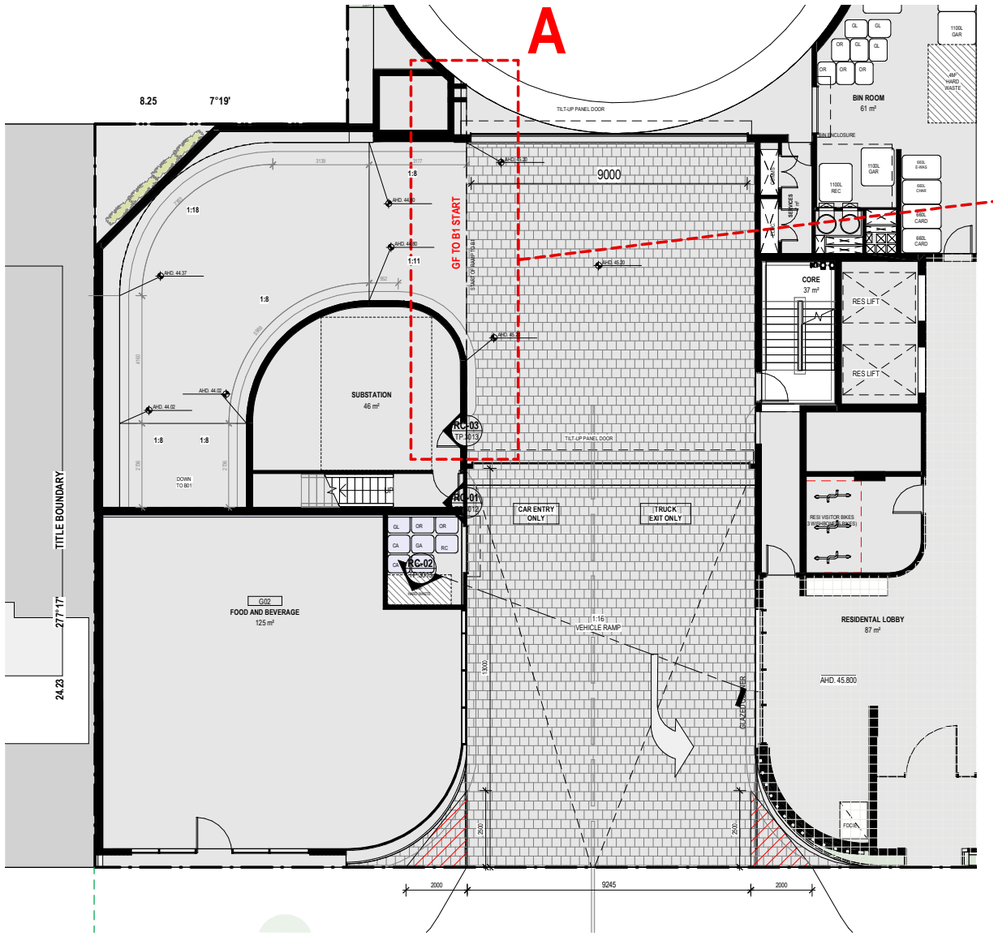
TOWN PLANNING

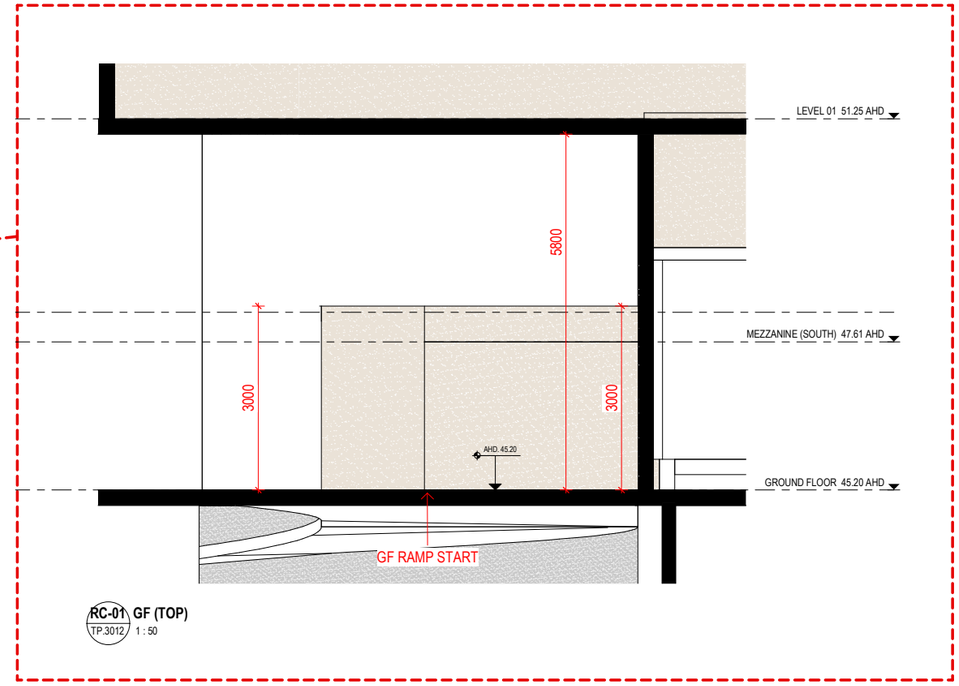
JOB N°	23076
REVISION N°	
DATE	04.04.2023
SCALE	1 : 200 @ A1
DRAWN BY	KH
CHECKED BY	DC

DRAWING TITLE

SECTIONS A & B

TP.3000





RC-01 TP.3012 **GF (TOP)** 1 : 50

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01	11.04.24	OVGA (2)	OF	DC

REV	DATE	REVISION	BY	CHK

PROJECT

BURKE ROAD

173 BURKE ROAD GLEN IRIS

MIXED-USE DEVELOPMENT

DRAWING STATUS

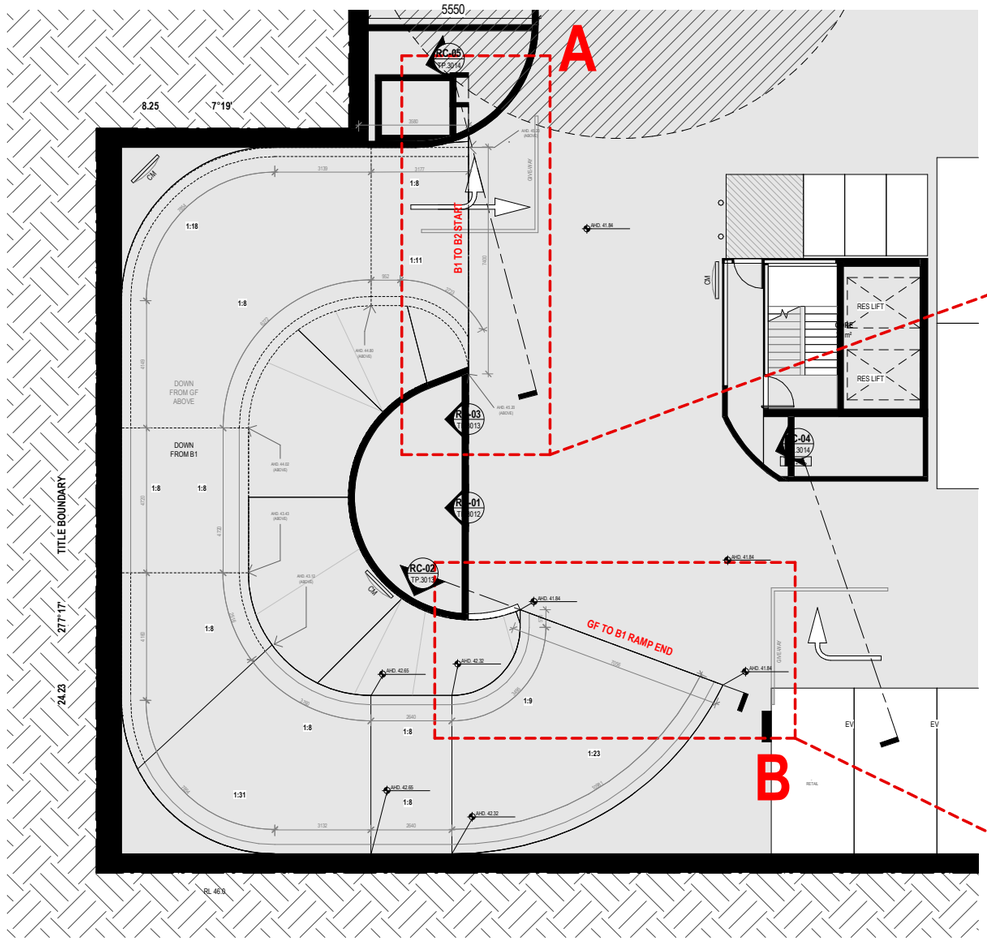
TOWN PLANNING

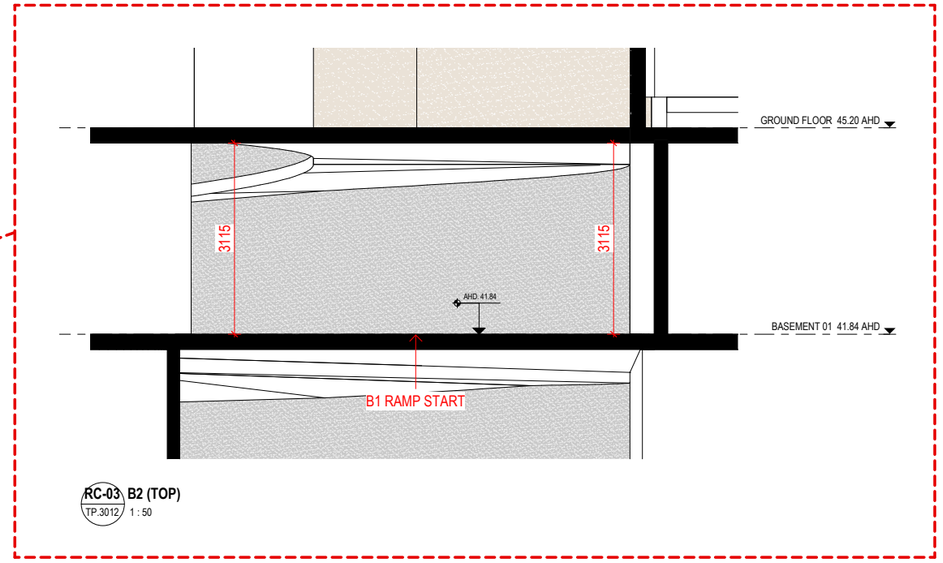
JOB N°	23076
REVISION N°	
DATE	12/09/23
SCALE	As indicated @ A1
DRAWN BY	Author
CHECKED BY	Checker

DRAWING TITLE

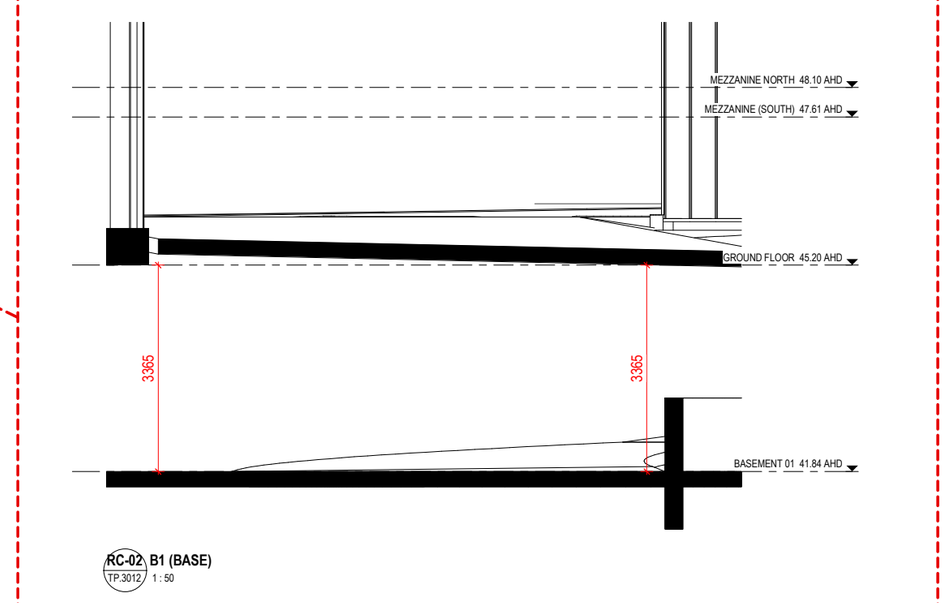
RAMP CLEARANCES (GF)

TP.3012





RC-03 TP.3012 **B2 (TOP)**
1 : 50



RC-02 TP.3012 **B1 (BASE)**
1 : 50

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REV	DATE	REVISION	BY	CHK
01	11.04.24	OVGA (2)	OF	DC

REV	DATE	REVISION	BY	CHK

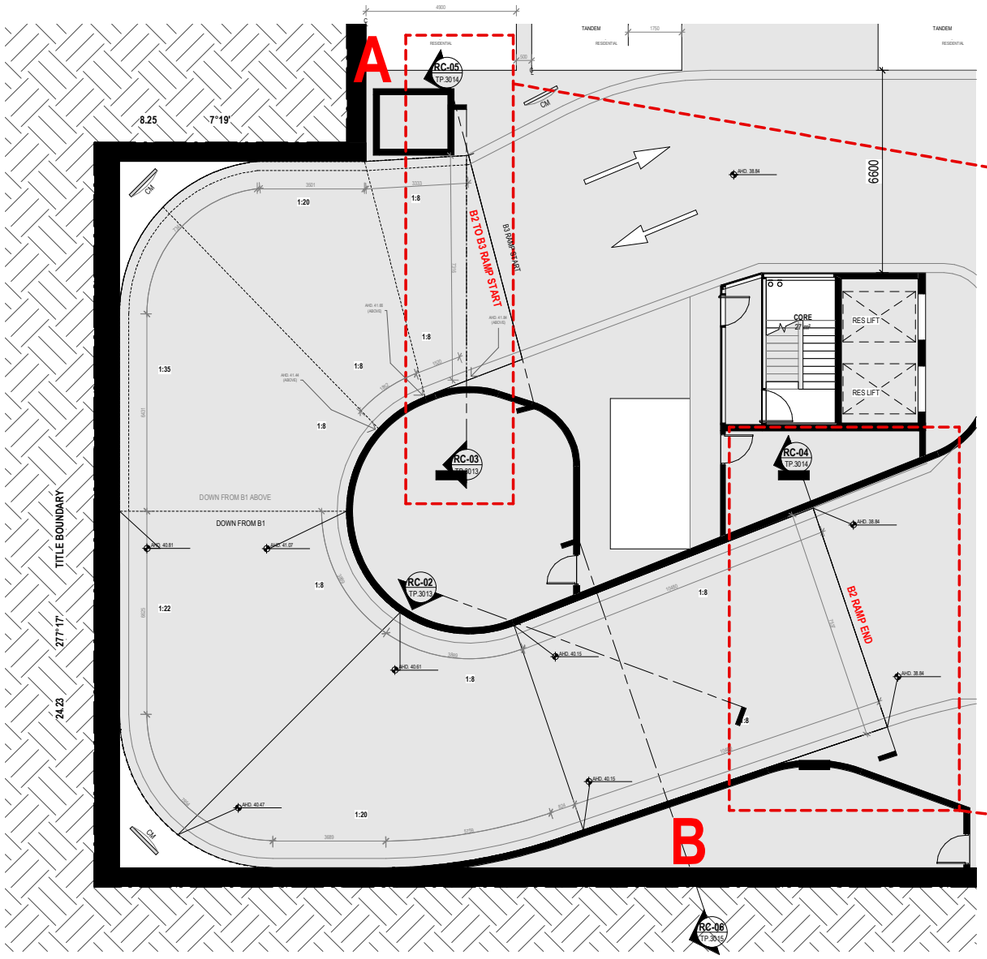
PROJECT
BURKE ROAD
173 BURKE ROAD GLEN IRIS
MIXED-USE DEVELOPMENT

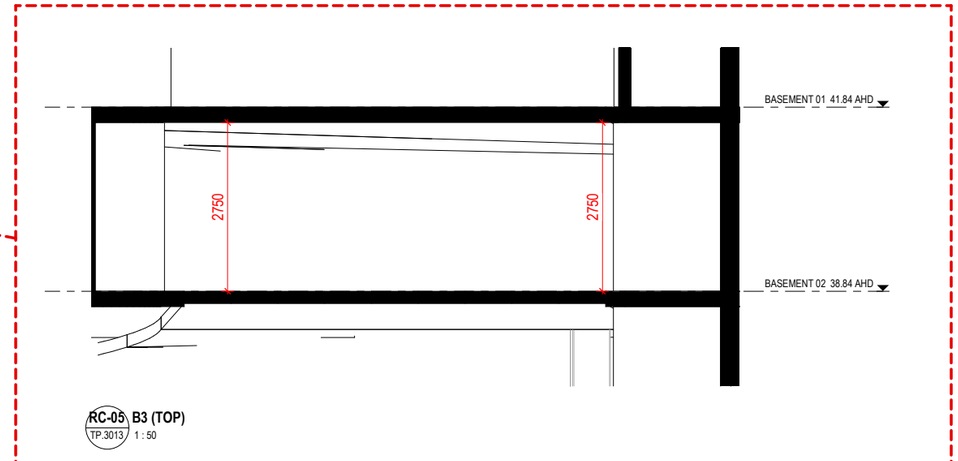
DRAWING STATUS
TOWN PLANNING

JOB N°	23076
REVISION N°	
DATE	12/08/23
SCALE	As indicated @ A1
DRAWN BY	Author
CHECKED BY	Checker

DRAWING TITLE
RAMP CLEARANCES (B1)

TP.3013





RC-05 TP.3013 **B3 (TOP)**
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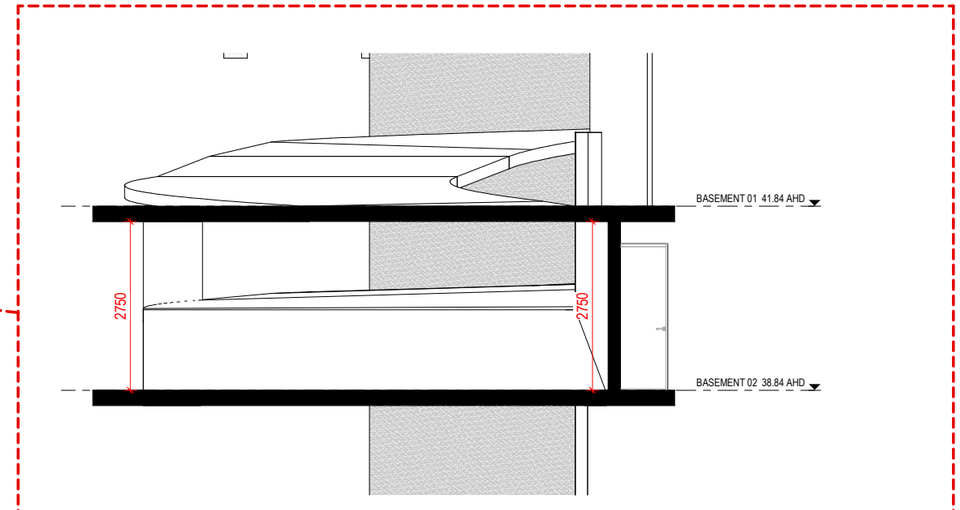

RC-04 TP.3013 **B2 (BASE)**
1 : 50

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REV	DATE	REVISION	BY	CHK
01	11.04.24	OVGA (2)	OF	DC

REV	DATE	REVISION	BY	CHK

PROJECT

BURKE ROAD

173 BURKE ROAD GLEN IRIS

MIXED-USE DEVELOPMENT

DRAWING STATUS

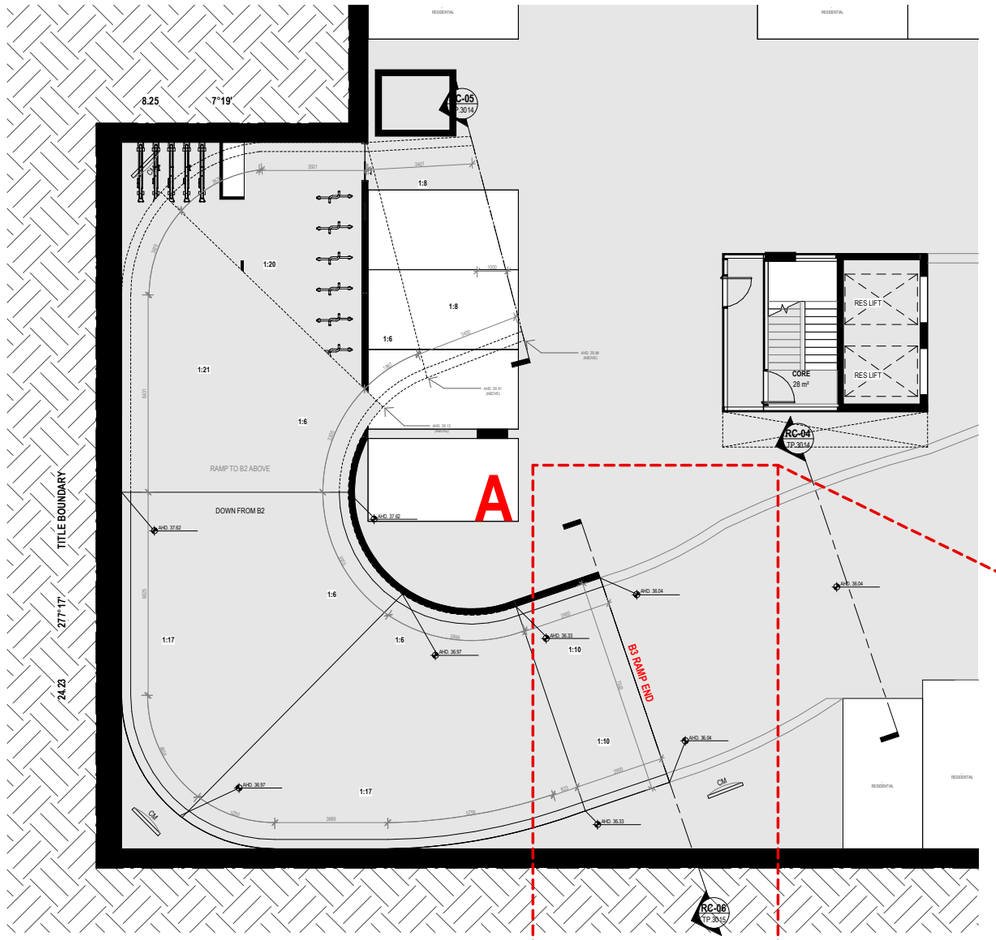
TOWN PLANNING

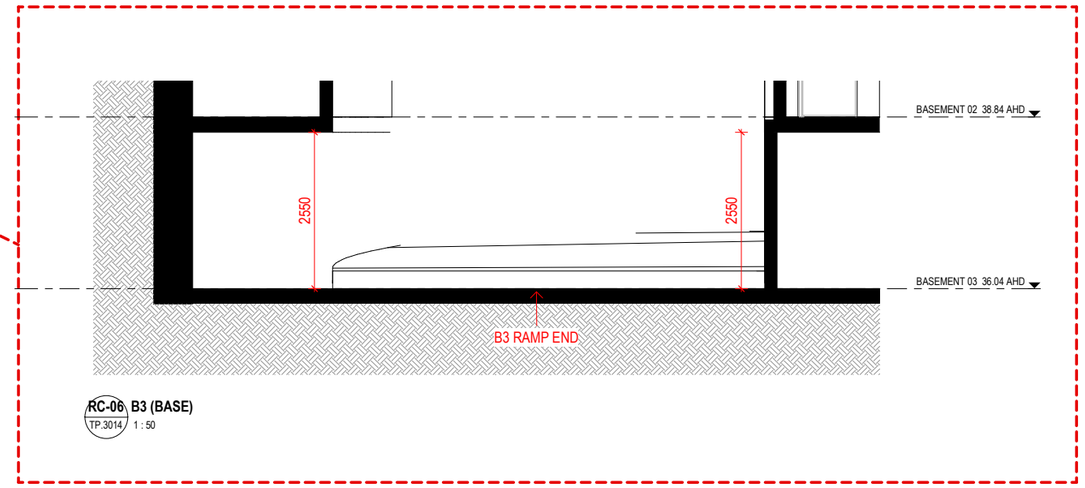
JOB N°	23076
REVISION N°	
DATE	12/09/23
SCALE	As indicated @ A1
DRAWN BY	Author
CHECKED BY	Checker

DRAWING TITLE

RAMP CLEARANCES (B2)

TP.3014





RC-06 TP.3014 **B3 (BASE)**
1 : 50

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REV	DATE	REVISION	BY	CHK
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REV	DATE	REVISION	BY	CHK

PROJECT

BURKE ROAD

173 BURKE ROAD GLEN IRIS

MIXED-USE DEVELOPMENT

DRAWING STATUS

TOWN PLANNING

JOB N°	23076
REVISION N°	
DATE	12/09/23
SCALE	As indicated @ A1
DRAWN BY	Author
CHECKED BY	Checker

DRAWING TITLE

RAMP CLEARANCES (B3)

TP.3015

Appendix B

Functional Layout Plan (FLP)

ISSUE	ISSUE DESCRIPTION	DESIGNER	CHECKED/APPROVED	ISSUE DATE
B	UPDATED ISSUE	S S	J STONE (RPE0008161)	24 APR 2024
C	UPDATED ISSUE	SOK	J STONE (RPE0008161)	06 MAY 2024
D	UPDATED ISSUE	SOK	J STONE (RPE0008161)	09 MAY 2024
E	UPDATED ISSUE	SOK	J STONE (RPE0008161)	17 MAY 2024
F	UPDATED ISSUE	SOK	J STONE (RPE0008161)	03 JUN 2024

GENERAL NOTES
1 BASE INFORMATION FROM SUPPLIED ARCHITECTS DRAWINGS /AERIAL PHOTOGRAPH (SOURCE: NEARMAP)
2 ALL DIMENSIONS ARE TO FACE OF KERB & CHANNEL UNLESS SPECIFIED OTHERWISE
3 MAIN ROAD - BURKE ROAD (VARIED SPEED ZONE 60km/h SOUTHBOUND & 40km/h NORTHBOUND AT SCHOOL TIMES)

DESIGNED: S STEPHENSON
CHECKED/APPROVED: J STONE
FILE NAME: G28846-01-00 dgn

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Level 28, 459 Collins Street
Melbourne, Victoria 3000
+61 3 9822 2888
www.traffixgroup.com.au

173 BURKE ROAD
GLEN IRIS
STONNINGTON CITY
OVERALL KEY PLAN

SCALE 1:500 (A3) 0 5 10 | SHEET No. 1 of 7 | DWG No. G28846-04-01

DATE: 3/06/2024
MODEL: G28846-04-01_A
FILE: \\tfasvr02\group\Synergy\Projects\GRP2\GRP28846\03-Drawings\G28846-01-00I - Sarah.dgn

ISSUE	ISSUE DESCRIPTION	DESIGNER	CHECKED/APPROVED	ISSUE DATE
B	UPDATED ISSUE	S S	J STONE (RPE0008161)	24 APR 2024
C	UPDATED ISSUE	SOK	J STONE (RPE0008161)	06 MAY 2024
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E	UPDATED ISSUE	SOK	J STONE (RPE0008161)	17 MAY 2024
F	UPDATED ISSUE	SOK	J STONE (RPE0008161)	03 JUN 2024

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3 MAIN ROAD - BURKE ROAD (VARIED SPEED ZONE 60km/h SOUTHBOUND & 40km/h NORTHBOUND AT SCHOOL TIMES)
4 TRAFFIC SIGNAL HARDWARE SHOWN AS INDICATIVE ONLY AND SUBJECT TO CHANGE

ON-STREET PARKING TO BE REMOVED

DESIGNED: S STEPHENSON
CHECKED/APPROVED: J STONE
FILE NAME: G28846-01-00 dgn

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Melbourne, Victoria 3000
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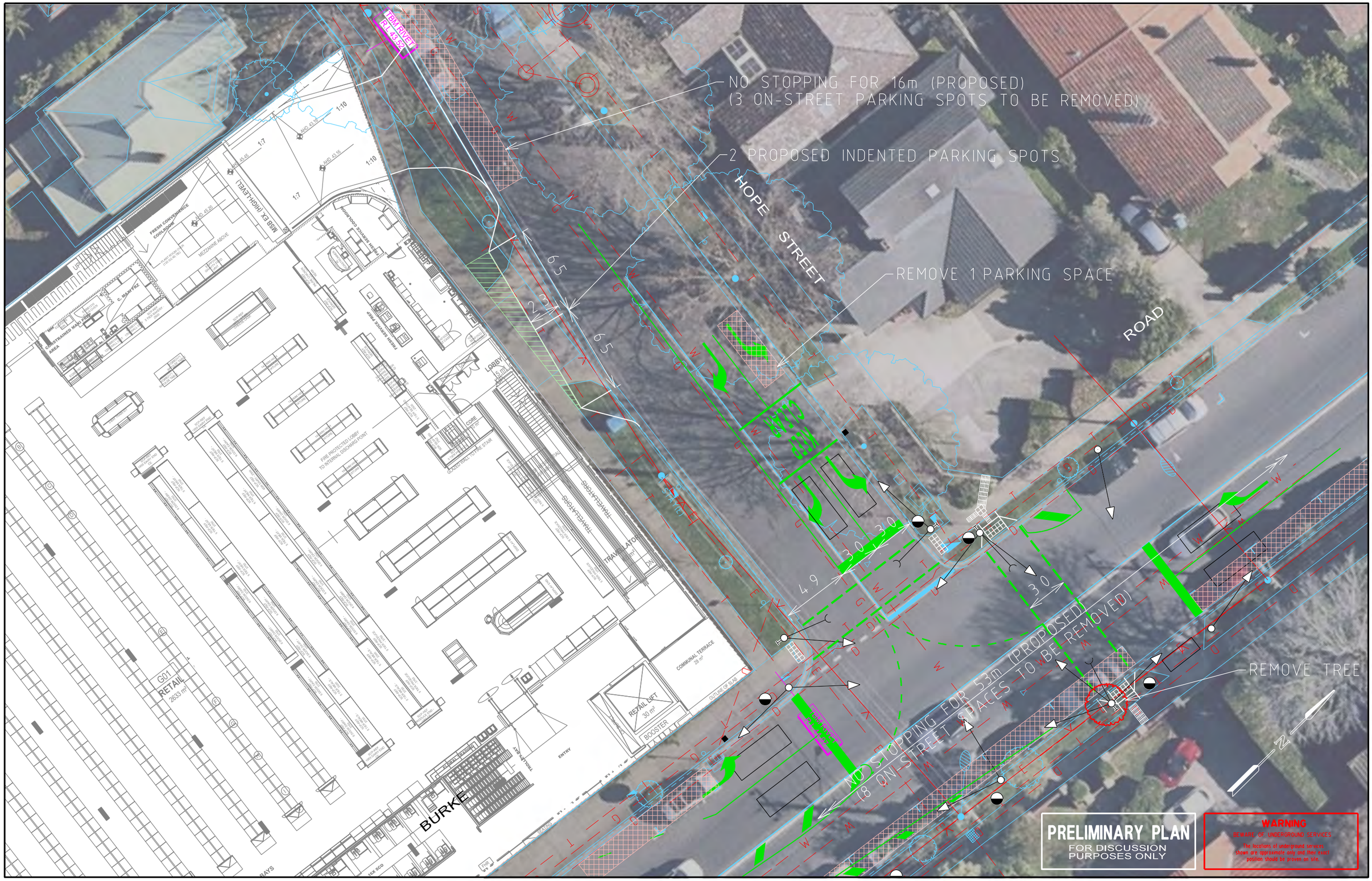
www.traffixgroup.com.au

173 BURKE ROAD
GLEN IRIS
STONNINGTON CITY
CONCEPT PLAN

SCALE 1:250 (A3) 0 2.5 5 | SHEET No. 2 of 7 | DWG No. G28846-04-02

DATE: 3/06/2024
MODEL: G28846-04-02_A
FILE: \\tfasvr02\group\Synergy\Projects\GRP2\GRP28846\03-Drawings\G28846-01-00] - Sarah.dgn



ISSUE	ISSUE DESCRIPTION	DESIGNER	CHECKED/APPROVED	ISSUE DATE
B	UPDATED ISSUE	S.S	J. STONE (RPE0008161)	24 APR 2024
C	UPDATED ISSUE	SOK	J. STONE (RPE0008161)	06 MAY 2024
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E	UPDATED ISSUE	SOK	J. STONE (RPE0008161)	17 MAY 2024
F	UPDATED ISSUE	SOK	J. STONE (RPE0008161)	03 JUN 2024

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3 MAIN ROAD - BURKE ROAD (VARIED SPEED ZONE 60km/h SOUTHBOUND & 40km/h NORTHBOUND AT SCHOOL TIMES)
4 TRAFFIC SIGNAL HARDWARE SHOWN AS INDICATIVE ONLY AND SUBJECT TO CHANGE

ON-STREET PARKING TO BE REMOVED

DESIGNED: S STEPHENSON
CHECKED/APPROVED: J STONE
FILE NAME: G28846-01-00 dgn

Traffix Group
Level 28, 459 Collins Street
Melbourne, Victoria 3000
+61 3 9822 2888
www.traffixgroup.com.au

173 BURKE ROAD
GLEN IRIS
STONNINGTON CITY

FUNCTIONAL LAYOUT PLAN

SCALE 1:250 (A3) 0 2.5 5
SHEET No. 3 of 7
DWG No. G28846-04-03

DATE: 3/06/2024
MODEL: G28846-04-03_A
FILE: \\tfaswl02\group\Synergy\Projects\GRP2\GRP28846\03-Drawings\G28846-01-00I - Sarah.dgn

SIGN SCHEDULE

#10	GIVE WAY TO PEDESTRIANS	R2-10
#12		R2-6(R)
#15	NO ENTRY	R2-4
#16	TRUCKS EXCEPTED	
#17	P	

CROSSOVER TO HAVE COLOUR/PAVEMENT TREATMENT

WARNING LIGHT WHEN TRUCK EXITING

DDA TACTILES

DDA TACTILES

REMOVE TREES

#15
#16
#17
#10
#10
#12

NO STOPPING FOR 36m (PROPOSED)
16 ON-STREET SPACES TO BE REMOVED

ROAD

BURKE

PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY

WARNING
BEWARE OF UNDERGROUND SERVICES
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ISSUE	ISSUE DESCRIPTION	DESIGNER	CHECKED/APPROVED	ISSUE DATE
B	UPDATED ISSUE	S S	J STONE (RPE0008161)	24 APR 2024
C	UPDATED ISSUE	SOK	J STONE (RPE0008161)	06 MAY 2024
D	UPDATED ISSUE	SOK	J STONE (RPE0008161)	09 MAY 2024
E	UPDATED ISSUE	SOK	J STONE (RPE0008161)	17 MAY 2024
F	UPDATED ISSUE	SOK	J STONE (RPE0008161)	03 JUN 2024

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CROSSOVER PAVEMENT TREATMENT
ON-STREET PARKING TO BE REMOVED

DESIGNED: S STEPHENSON
CHECKED/APPROVED: J STONE
FILE NAME: G28846-01-00.dgn

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173 BURKE ROAD
GLEN IRIS
STONNINGTON CITY
FUNCTIONAL LAYOUT PLAN

SCALE 1:250 (A3) 0 2.5 5
SHEET No. 4 of 7
DWG No. G28846-04-04

DATE: 3/06/2024
MODEL: G28846-04-04_A
FILE: I:\trsn\02\group\Synergy\Projects\GRP2\GRP28846\03-Drawings\G28846-01-00 - Sarah.dgn

ISSUE	ISSUE DESCRIPTION	DESIGNER	CHECKED/APPROVED	ISSUE DATE
B	UPDATED ISSUE	S S	J STONE (RPE0008161)	24 APR 2024
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FILE NAME: G28846-01-00 dgn

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173 BURKE ROAD
GLEN IRIS
STONNINGTON CITY
SWEPT PATH ASSESSMENTS

SCALE 1:250 (A3) 0 2.5 5
SHEET No. 5 of 7
DWG No. G28846-04-05

DATE: 3/06/2024
MODEL: G28846-04-05 SP1
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ISSUE	ISSUE DESCRIPTION	DESIGNER	CHECKED/APPROVED	ISSUE DATE
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FILE NAME: G28846-01-00 dgn

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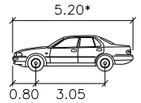
STONNINGTON CITY
SWEPT PATH ASSESSMENTS

SCALE 1:250 (A3) 0 25 5
SHEET No. 5 of 7
DWG No. G28846-04-05A

DATE: 3/06/2024
MODEL: G28846-04-05A SP1
FILE: \\tfasvr02\group\Synergy\Projects\GRP2\GRP28846\03-Drawings\G28846-01-00] - Sarah.dgn

VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5km/h)



99th percentile

	meters
Width	: 1.94
Track	: 1.84
Lock to Lock Time	: 6.0
Steering Angle	: 33.9

*ACTUAL TEMPLATE BASED ON RELEVANT CONDITIONAL DIMENSIONS THAT AFFECT SWEPT PATH AS SET OUT IN SECTION B.2.7 OF AS/NZS 2890.1:2004

LEGEND

VEHICLE BODY

BODY CLEARANCE (300mm)

PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY

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SWEPT PATH ASSESSMENTS

SCALE 1:250 (A3) 0 2.5 5 | SHEET No. 5 of 7 | DWG No. G28846-04-05B

DATE: 06/05/24
MODEL: G28846-04-05B SP1
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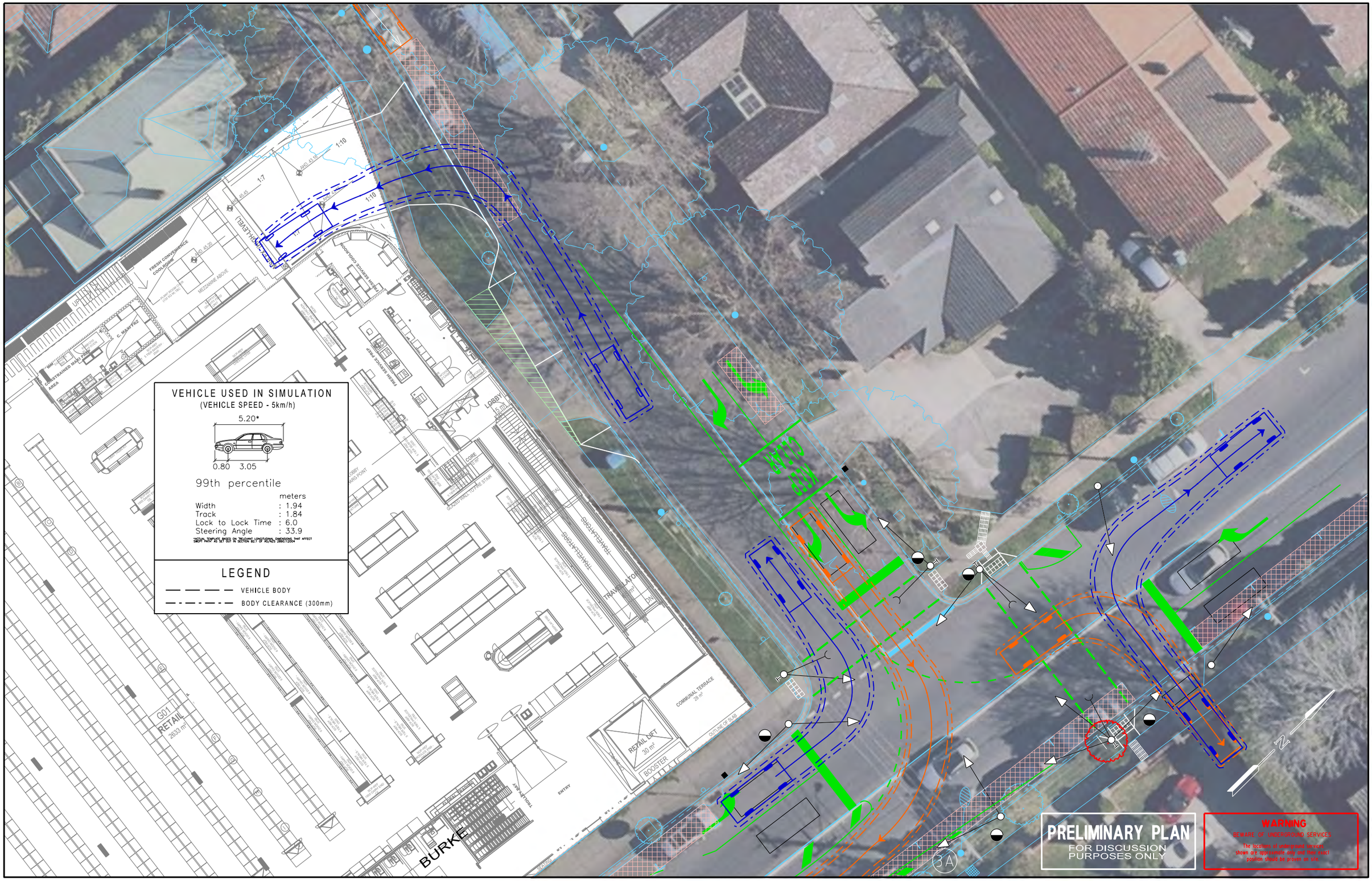

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SWEPT PATH ASSESSMENTS

SCALE 1:250 (A3) 0 2.5 5
SHEET No. 5 of 7
DWG No. G28846-04-05C

DATE: 3/06/2024
MODEL: G28846-04-05C SP1
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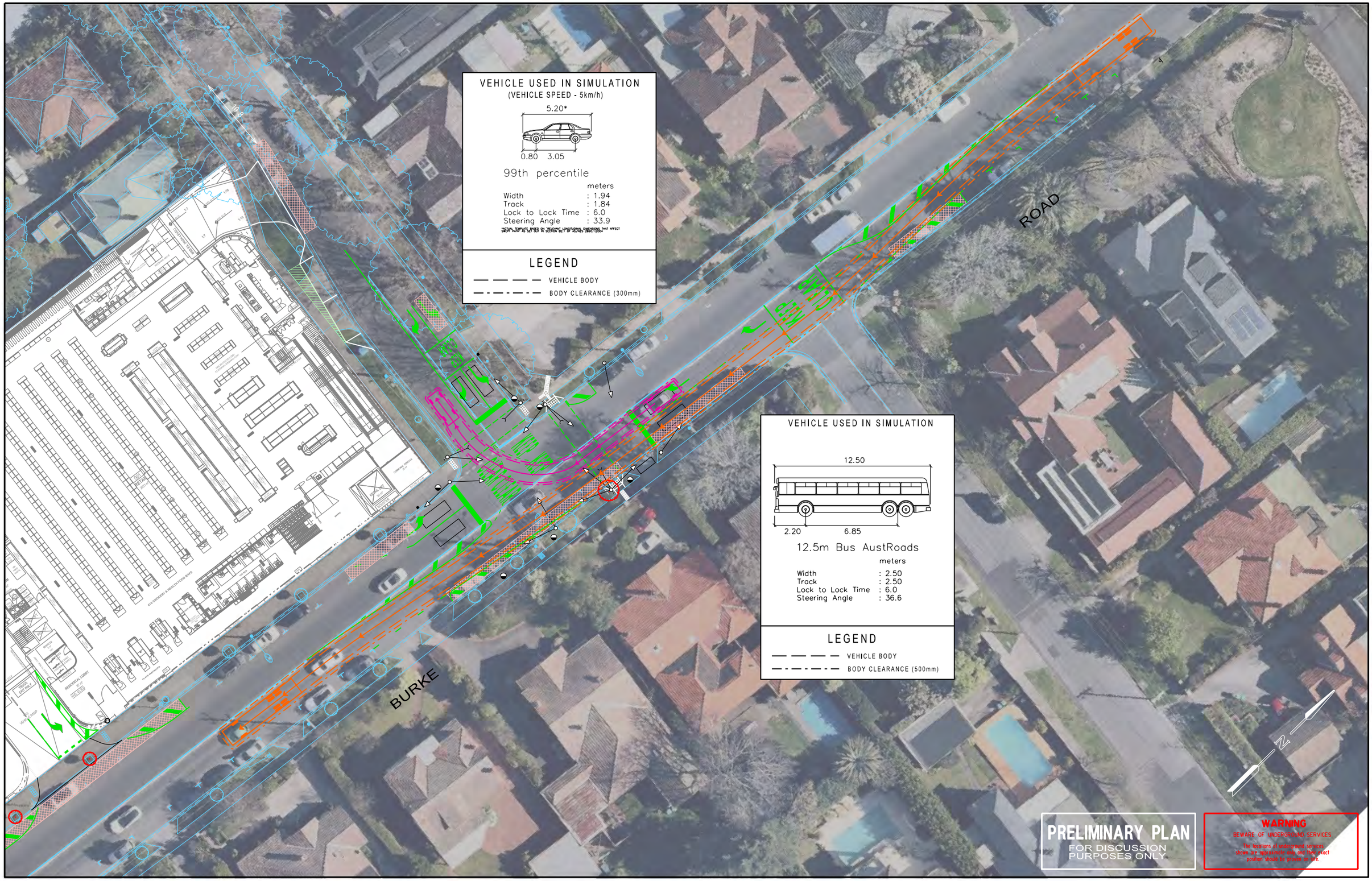

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SWEPT PATH ASSESSMENTS

SCALE 1:500 (A3) 0 5 10 | SHEET No. 5 of 7 | DWG No. G28846-04-05D

3/06/2024
MODEL: G28846-04-05D SP3
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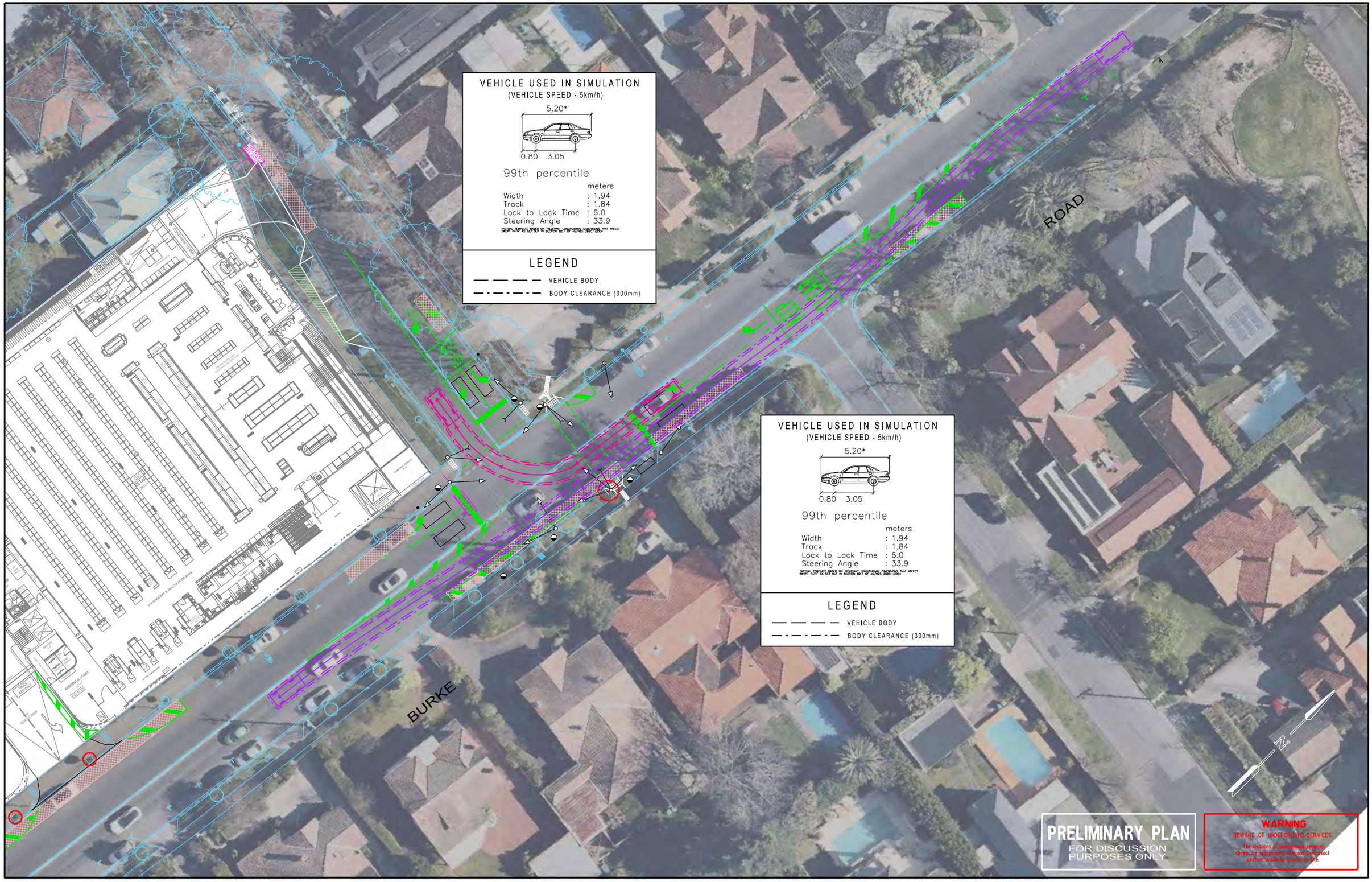

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SWEPT PATH ASSESSMENTS

SCALE 1:250 (A3) 0 5 10
SHEET No. 5 of 7
DWG No. G28846-04-05E

3/06/2024
MODEL: G28846-04-05E SP3
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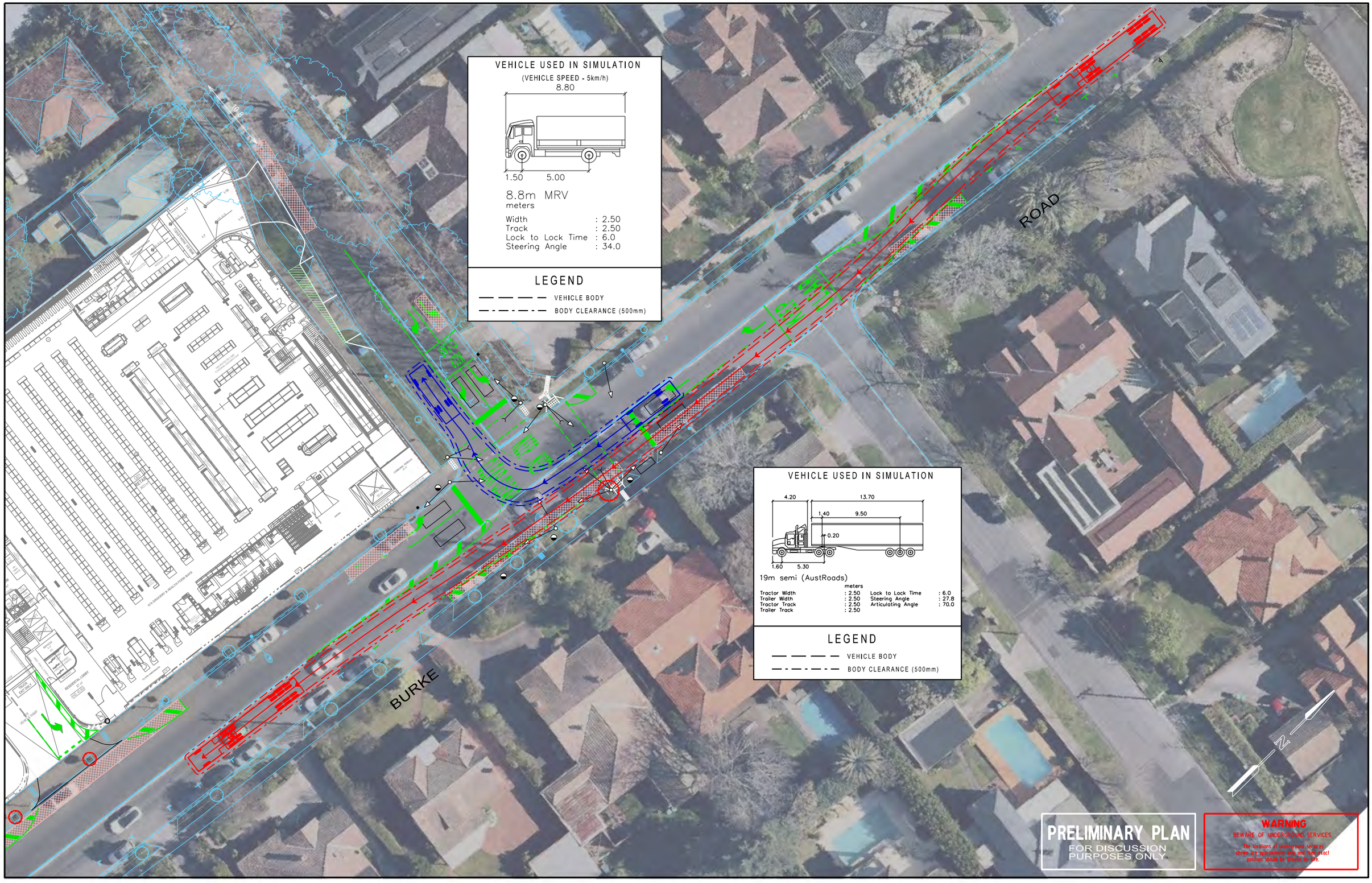

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173 BURKE ROAD
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SWEPT PATH ASSESSMENTS

SCALE 1:500 (A3) 0 5 10
SHEET No. 5 of 7
DWG No. G28846-04-05F

3/06/2024
MODEL: G28846-04-05F SP3
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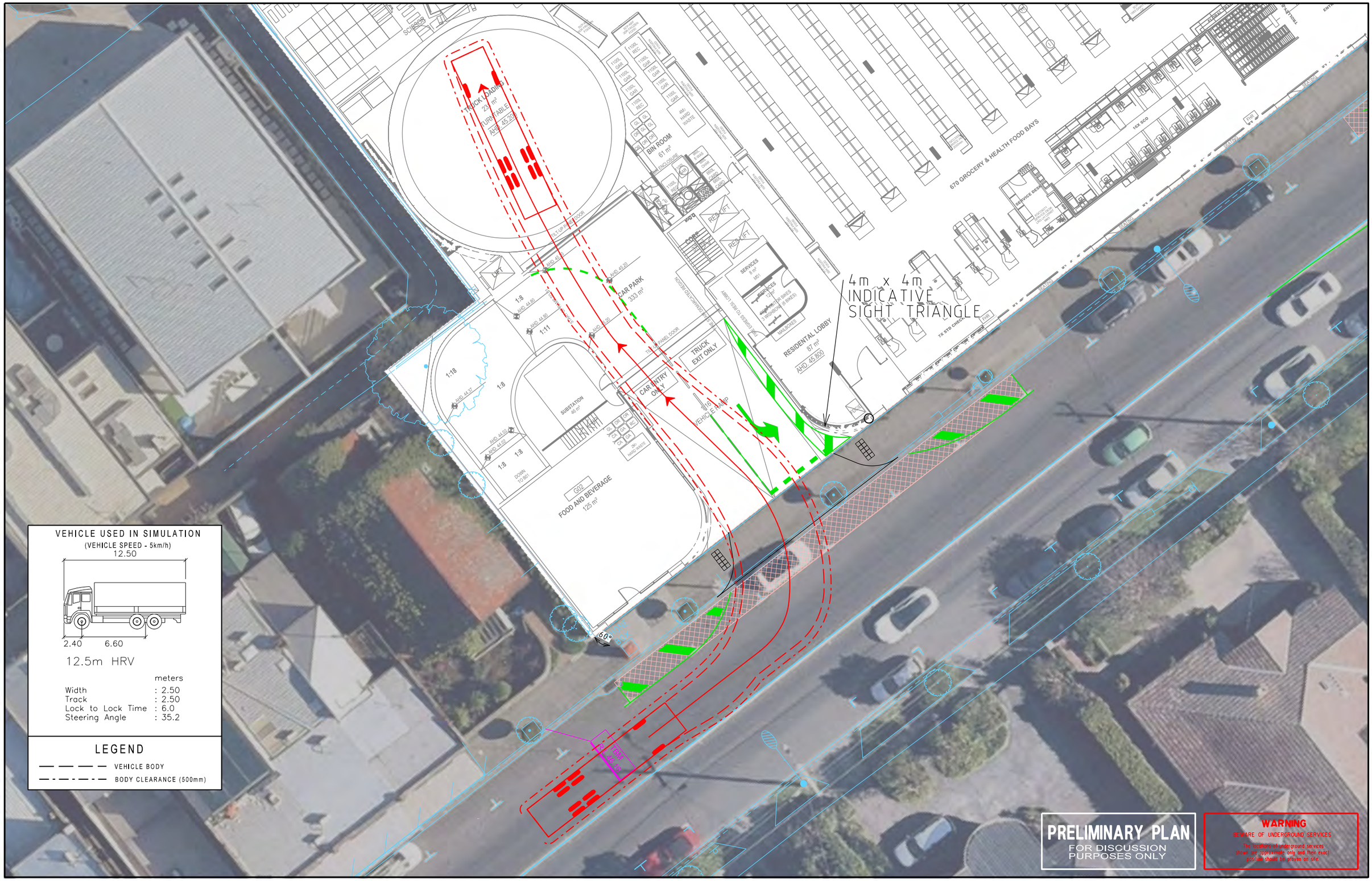

ISSUE	ISSUE DESCRIPTION	DESIGNER	CHECKED/APPROVED	ISSUE DATE
B	UPDATED ISSUE	S S	J STONE (RPE0008161)	22 APR 2024
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SCALE 1:250 (A3) 0 2.5 5
SHEET No. 6 of 7
DWG No. G28846-04-06

DATE: 3/06/2024
MODEL: G28846-04-06 SP2
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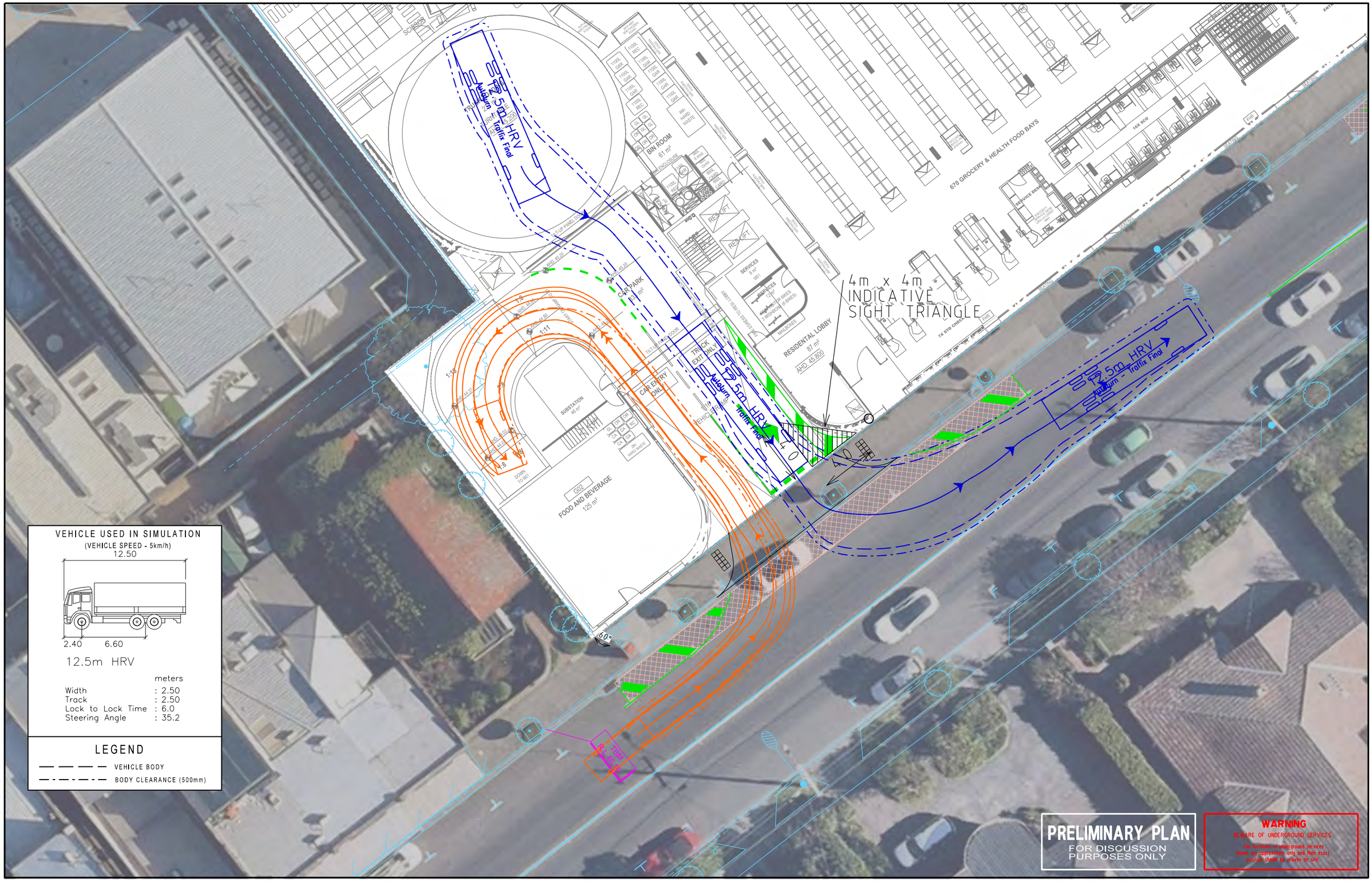

VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5km/h)

12.5m HRV

	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 35.2

LEGEND

— — — — VEHICLE BODY

—·—·—·— BODY CLEARANCE (500mm)

PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY

WARNING
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ISSUE	ISSUE DESCRIPTION	DESIGNER	CHECKED/APPROVED	ISSUE DATE
A	INITIAL ISSUE	G R	J STONE (RPE0008161)	15 APR 2024
B	UPDATED ISSUE	S S	J STONE (RPE0008161)	22 APR 2024
C	UPDATED ISSUE	S O K	J STONE (RPE0008161)	06 MAY 2024
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SCALE 1:250 (A3) 0 2.5 5 | SHEET No. 6 of 7 | DWG No. G28846-04-06A

DATE: 05/20/24
MODEL: G28846-04-06A SP2
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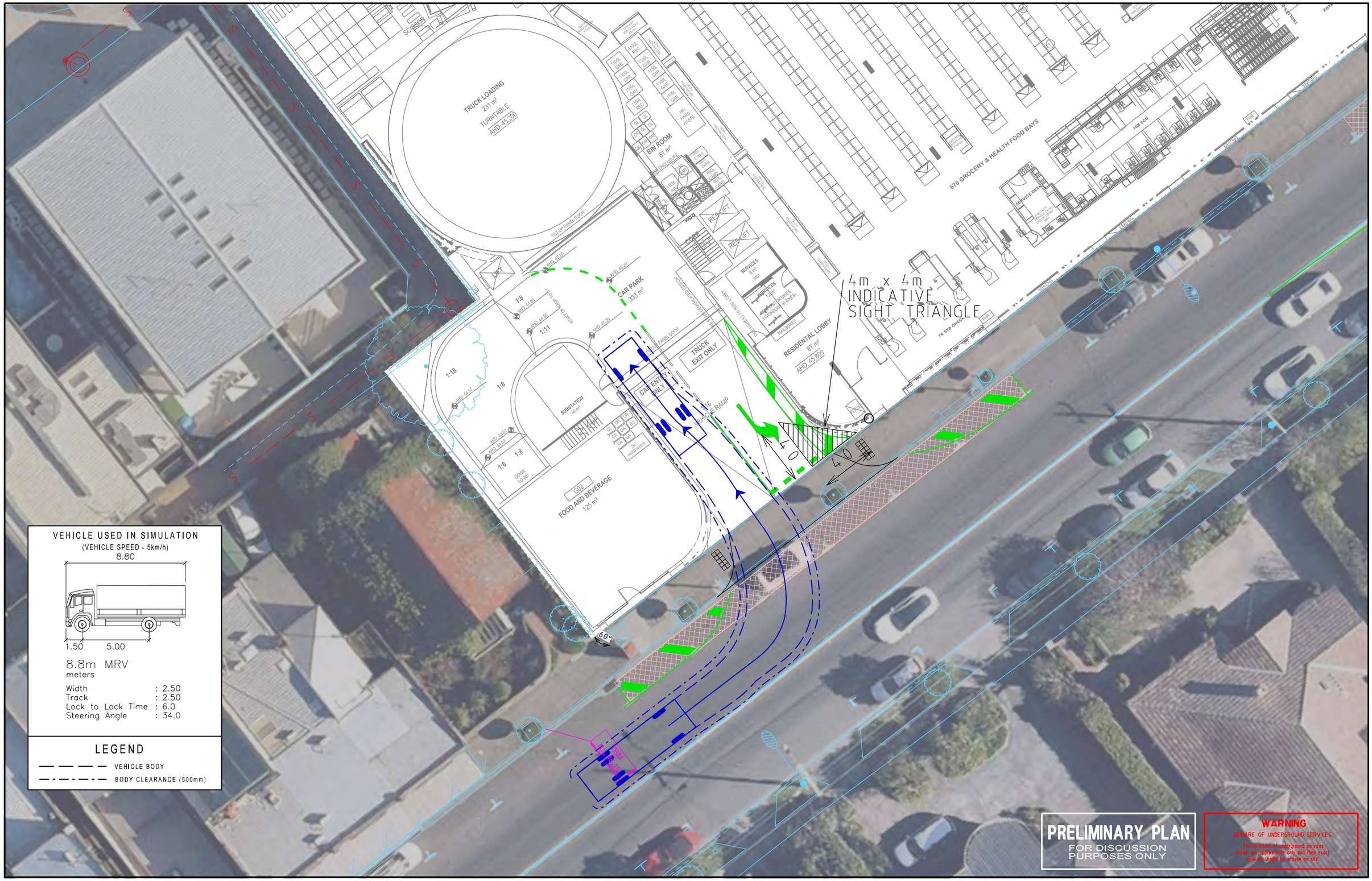

VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5km/h)

8.80

8.8m MRV
meters

Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 34.0

LEGEND

— — — — VEHICLE BODY

— · — · — · — BODY CLEARANCE (500mm)

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SCALE 1:250 (A3) 0 2.5 5
SHEET No. 6 of 7
DWG No. G28846-04-06B

DATE: 3/06/2024
MODEL: G28846-04-06B SP2
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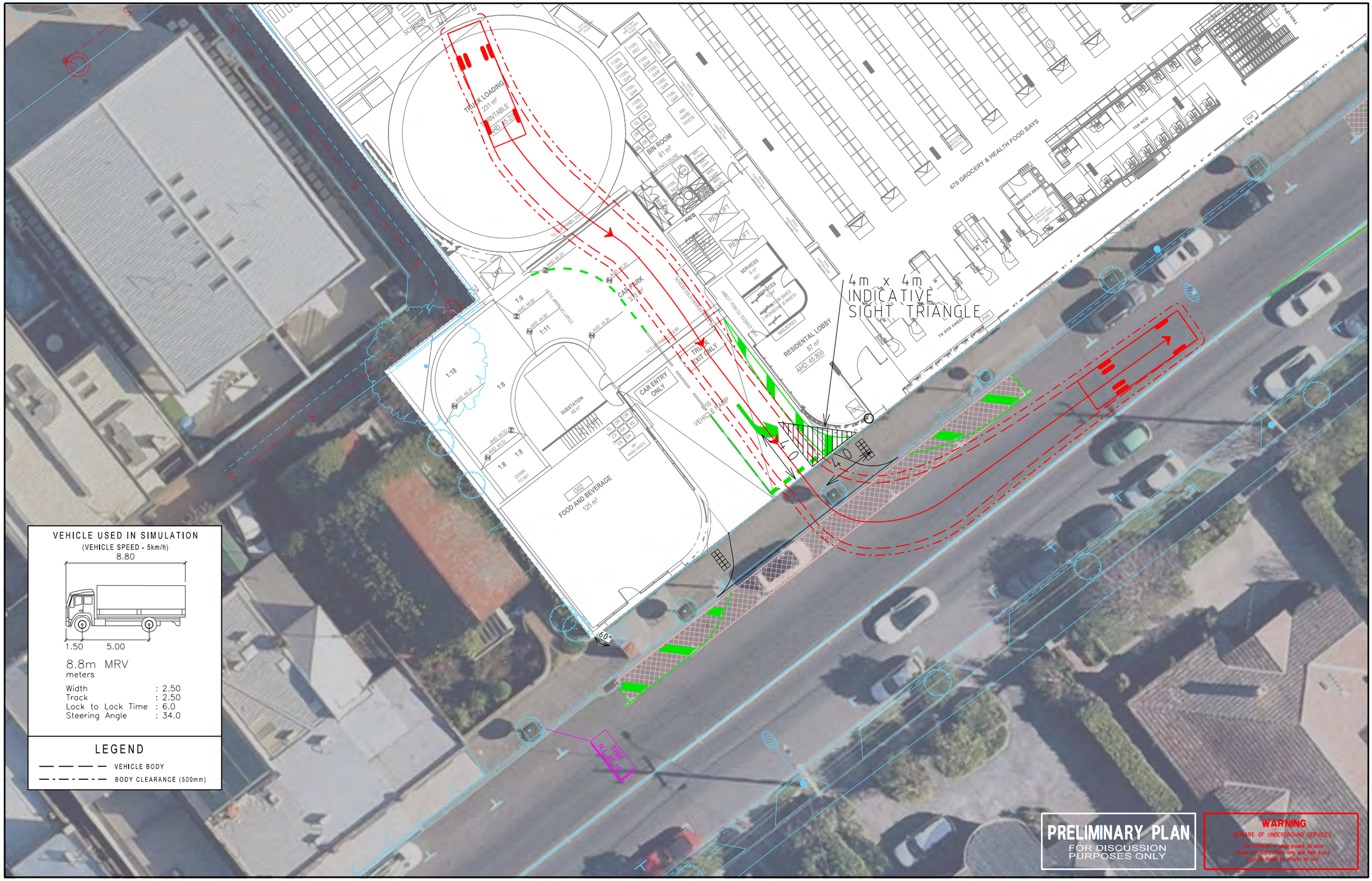

VEHICLE USED IN SIMULATION
(VEHICLE SPEED - 5km/h)

8.80
1.50 5.00

8.8m MRV
meters

Width : 2.50
Track : 2.50
Lock to Lock Time : 6.0
Steering Angle : 34.0

LEGEND

— — — — VEHICLE BODY
— · — · — BODY CLEARANCE (500mm)

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DATE: 3/06/2024
MODEL: G28846-04-06C SP2
FILE: \\tfxsrv02\group\Synergy\Projects\GRP2\GRP28846\03-Drawings\G28846-01-00I - Sarah.dgn

ISSUE	ISSUE DESCRIPTION	DESIGNER	CHECKED/APPROVED	ISSUE DATE
B	UPDATED ISSUE	S S	J STONE (RPE0008161)	22 APR 2024
C	UPDATED ISSUE	SOK	J STONE (RPE0008161)	06 MAY 2024
D	UPDATED ISSUE	SOK	J STONE (RPE0008161)	09 MAY 2024
E	UPDATED ISSUE	SOK	J STONE (RPE0008161)	17 MAY 2024
F	UPDATED ISSUE	SOK	J STONE (RPE0008161)	03 JUN 2024

GENERAL NOTES
1 BASE INFORMATION FROM SUPPLIED ARCHITECTS DRAWINGS /AERIAL PHOTOGRAPH (SOURCE: NEARMAP).
2 ALL DIMENSIONS ARE TO FACE OF KERB & CHANNEL UNLESS SPECIFIED OTHERWISE.
3 MAIN ROAD - BURKE ROAD (VARIED SPEED ZONE 60km/h SOUTHBOUND & 40km/h NORTHBOUND AT SCHOOL TIMES).

DESIGNED
S. STEPHENSON

CHECKED/APPROVED
J. STONE

FILE NAME
G28846-01-00.dgn

Traffix Group
Level 28, 459 Collins Street
Melbourne, Victoria 3000
+61 3 9822 2888
www.traffixgroup.com.au

173 BURKE ROAD
GLEN IRIS
STONNINGTON CITY

SWEPT PATH ASSESSMENTS

SCALE 1:250 (A3) 0 2.5 5
SHEET No. 6 of 7
DWG No. G28846-04-06C

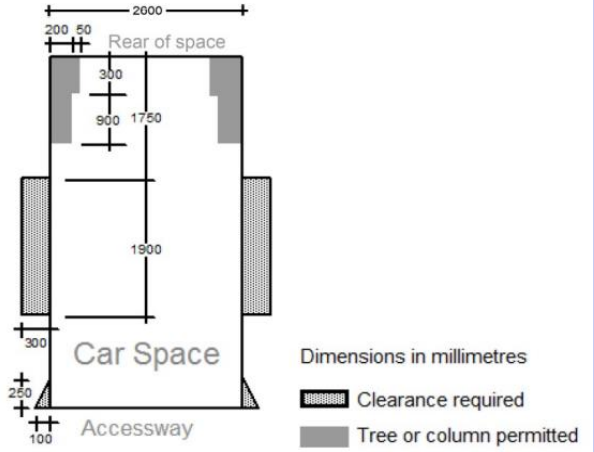
Appendix C

Carpark Design Assessment

Table 13: Carpark Layout and Access Assessment

Requirement	Assessment	Design Response
Clause 52.06-9 Design Standard 1 – Accessways		
Must be at least 3m wide	✓	Complies.
Have an internal radius of at least 4m at changes of direction or intersection or be at least 4.2m wide.	✓	Complies. All accessways greater than 4.2m wide.
Allow vehicles parked in the last space of a dead-end accessway in public car parks to exit in a forwards direction with one manoeuvre.	✓	Complies.
Provide at least 2.1m headroom beneath overhead obstructions, calculated for a vehicle with a wheel base of 2.8m.	✓	Complies.
If the accessway serves four or more car spaces or connects to a road in a Transport Zone 2 or Transport Zone 3, the accessway must be designed so that cars can exit the site in a forward direction.	✓	Complies.
Provide a passing area at the entrance at least 6.1m wide and 7m long if the accessway serves ten or more car parking spaces and is either more than 50m long or connects to a road in a Transport Zone 2 or Transport Zone 3.	✓	Complies.
Have a corner splay or area at least 50% clear of visual obstructions extending at least 2m along the frontage road from the edge of an exit lane and 2.5m along the exit lane from the frontage, to provide a clear view of pedestrians on the footpath of the frontage road. The area clear of visual obstructions may include an adjacent entry or exit lane where more than one lane is provided, or adjacent landscaped areas, provided the landscaping in those areas is less than 900mm in height.	✓	A pedestrian sight triangle is shown on both sides of the crossover to Hope Street. A pedestrian sight triangle is also shown for both sides of the Burke Road crossover. A sight triangle is not strictly required on the 'entry' side of either access point, however these are provided in addition.
If an accessway to four or more car parking spaces is from land in a Transport Zone 2 or Transport Zone 3, the access to the car spaces must be at least 6m from the road carriageway.	N/A	N/A
If entry to the car space is from a road, the width of the accessway may include the road.	N/A	N/A

<table>
<tr><th>Requirement</th><th>Assessment</th><th>Design Response</th></tr>
<tr><td colspan="3">Clause 52.06-9 Design Standard 2 – Car Parking Spaces</td></tr>
<tr><td>Car parking spaces and accessways must have the minimum dimensions as outlined in Table 2 under Clause 52.06-9.
<table>
<tr><th>Angle of car spaces to accessway</th><th>Accessway width</th><th>Car park width</th><th>Car park length</th></tr>
<tr><td>Parallel</td><td>3.6 m</td><td>2.3 m</td><td>6.7 m</td></tr>
<tr><td>45°</td><td>3.5 m</td><td>2.6 m</td><td>4.9 m</td></tr>
<tr><td>60°</td><td>4.9 m</td><td>2.6 m</td><td>4.9 m</td></tr>
<tr><td>90°</td><td>6.4 m</td><td>2.6 m</td><td>4.9 m</td></tr>
<tr><td></td><td>5.8 m</td><td>2.8 m</td><td>4.9 m</td></tr>
<tr><td></td><td>5.2 m</td><td>3.0 m</td><td>4.9 m</td></tr>
<tr><td></td><td>4.8 m</td><td>3.2 m</td><td>4.9 m</td></tr>
</table>
Note to Table 2: Some dimensions in Table 2 vary from those shown in the Australian Standard AS2890.1-2004 (off street). The dimensions shown in Table 2 allocate more space to aisle widths and less to marked spaces to provide improved operation and access. The dimensions in Table 2 are to be used in preference to the Australian Standard AS2890.1-2004 (off street) except for disabled spaces which must achieve Australian Standard AS2890.6-2009 (disabled).</td><td>✓</td><td>All car spaces are provided in accordance with Clause 52.06-9, with a number of car spaces provided with dimensions that exceed these requirements.

We are satisfied that access to all car spaces can be achieved and is satisfactory.</td></tr>
<tr><td>A wall, fence, column, tree, tree guard or any other structure that abuts a car space must not encroach into the area marked ‘clearance required’ on Diagram 1, other than:
• A column, tree or tree guard, which may project into a space if it is within the area marked ‘tree or column permitted’ on Diagram 1.
• A structure, which may project into the space if it is at least 2.1 metres above the space.
Diagram 1 Clearance to car parking spaces
 
</td><td>✓</td><td>Complies.</td></tr>
<tr><td>Car spaces in garages/carports must be at least 6m long and 3.5m wide for a single space and 5.5m wide for a double space measured inside the garage/carport.</td><td>N/A</td><td>N/A</td></tr>
</table>

<table>
<tr><th>Requirement</th><th>Assessment</th><th>Design Response</th></tr>
<tr><td>Where parking spaces are provided in tandem, an additional 0.5m in length must be provided between each space.</td><td>✓</td><td>Complies.</td></tr>
<tr><td>Where two or more car parking spaces are provided for a dwelling, at least one space must be under cover.</td><td>N/A</td><td>N/A</td></tr>
<tr><td>Disabled car parking spaces must be designed in accordance with AS2890.6-2009 and the Building Code of Australia.
Disabled car parking spaces may encroach into an accessway width specified in Table 2 by 0.5m.
A minimum headroom of 2.5m is to be provided above the disabled car space in accordance with AS2890.6-2009.</td><td>✓</td><td>Complies.</td></tr>
<tr><td colspan="3">Clause 52.06-9 Design Standard 3 - Gradients</td></tr>
<tr><td>Accessway grades must not be steeper than 1:10 (10 per cent) within 5 metres of the frontage to ensure safety for pedestrians and vehicles. The design must have regard to the wheelbase of the vehicle being designed for; pedestrian and vehicular traffic volumes; the nature of the car park; and the slope and configuration of the vehicle crossover at the site frontage.
This does not apply to accessways serving three dwellings or less.</td><td>✓</td><td>The grades over the first 5m into the site do not exceed 1:10 (10%).

Complies.</td></tr>
<tr><td>Ramps (except within 5 metres of the frontage) must have the maximum grades as outlined in Table 3 and be designed for vehicles travelling in a forward direction.
<table>
<tr><th>Type of car park</th><th>Length of ramp</th><th>Maximum grade</th></tr>
<tr><td>Public car parks</td><td>20 metres or less</td><td>1:5 (20%)</td></tr>
<tr><td></td><td>longer than 20 metres</td><td>1:6 (16.7%)</td></tr>
<tr><td>Private or residential car parks</td><td>20 metres or less</td><td>1:4 (25%)</td></tr>
<tr><td></td><td>longer than 20 metres</td><td>1:5 (20%)</td></tr>
</table></td><td>✓</td><td>Complies.</td></tr>
<tr><td>Where the difference in grade between two sections of ramp or floor is greater that 1:8 (12.5 per cent) for a summit grade change, or greater than 1:6.7 (15 per cent) for a sag grade change, the ramp must include a transition section of at least 2 metres to prevent vehicles scraping or bottoming.</td><td>✓</td><td>Complies.</td></tr>
<tr><td>Plans must include an assessment of grade changes of greater than 1:5.6 (18 per cent) or less than 3 metres apart for clearances, to the satisfaction of the responsible authority</td><td>✓</td><td>Complies.</td></tr>
</table>

Requirement	Assessment	Design Response
Clause 52.06-9 Design Standard 4 – Mechanical Parking		
At least 25 per cent of the mechanical car parking spaces can accommodate a vehicle height of at least 1.8 metres.	N/A	No mechanical car parking.
Car parking spaces that require the operation of the system are not allocated to visitors unless used in a valet parking situation.	N/A	
The design and operation are to the satisfaction of the responsible authority.	N/A	
Clause 52.06-9 Design Standard 5 – Urban Design		
Ground level car parking, garage doors and accessways must not visually dominate public space.	N/A	These matters are more related to urban design, rather than specifically traffic engineering.
Car parking within buildings (including visible portions of partly submerged basements) must be screened or obscured where possible, including through the use of occupied tenancies, landscaping, architectural treatments and artworks.		
Design of car parks must take into account their use as entry points to the site.		
Design of new internal streets in developments must maximise on street parking opportunities.	N/A	No internal streets proposed
Clause 52.06-9 Design Standard 6 – Safety		
Car parking must be well lit and clearly signed.	✓	Lighting of the carpark can be addressed as part of the detailed design stage. The signage within the carpark can be addressed within a Car Parking Management Plan, if required.
The design of car parks must maximise natural surveillance and pedestrian visibility from adjacent buildings.	✓	We are satisfied that the common accessway naturally provides good sightlines.
Pedestrian access to car parking areas from the street must be convenient.	✓	Pedestrian access to the site is available to Hope Street via a separate pedestrian entrance located towards the intersection with Burke Road.

Requirement	Assessment	Design Response
Pedestrian routes through car parking areas and building entries and other destination points must be clearly marked and separated from traffic in high activity parking areas.	✓	The pedestrian entrance is clearly shown on the plans.
Clause 52.06-9 Design Standard 7 - Landscaping		
The layout of car parking areas must provide for water sensitive urban design treatment and landscaping.	N/A	These requirements are not specifically related to traffic engineering matters.
Landscaping and trees must be planted to provide shade and shelter, soften the appearance of ground level car parking and aid in the clear identification of pedestrian paths.		

Appendix D

Tube Count Data

TRANS TRAFFIC SURVEY

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AUTOMATIC COUNT SUMMARY

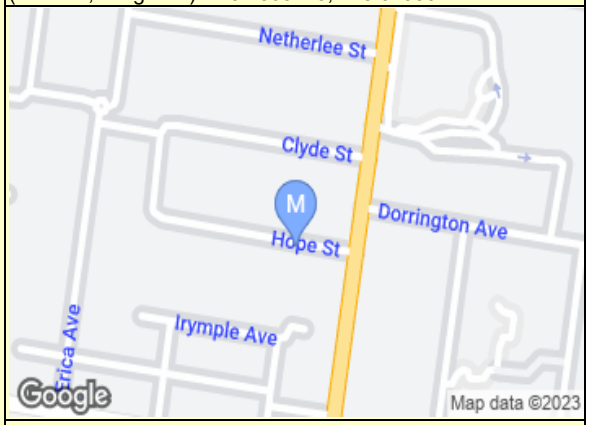
Street Name :	Hope St	**Location :**	Outside Property 28
Suburb :	Glen Iris	**Start Date :**	00:00 Wed 01/March/2023
Machine ID:	EJ01KX3Q/P	**Finish Date :**	00:00 Wed 08/March/2023
Site ID:	15673	**Speed Zone :**	50 km/h
Prepared By :	Vo Son Binh	**Email:**	binh@trafficsurvey.com.au

GPS information		Lat 37° 51' 47.31 South Long 145° 2' 59.28 East	Direction of Travel		
			Both directions	**Westbound**	**Eastbound**
Traffic Volume :		Weekdays Average	352	200	152
(Vehicles/Day)		7 Day Average	329	183	146
Weekday	**AM**	08:00	35	21	14
Peak hour start	**PM**	17:00	27	16	11
Speeds :		85th Percentile	33.7	33.2	34.7
(Km/Hr)		Average	28.7	28.0	29.4
Classification % :		Light Vehicles up to 5.5m	96.7%	97.3%	96.6%

Location

GPS Information Load Google Map (internet required)

(Latitude, Longitude) -37.863143, 145.049801



Speed Data | Speed Graph | Speed Bin
Volume Data | Volume Graph | Classification

QUALITY ASSURED COMPANY BY ISO 9001:2015
OH&S SYSTEM CERTIFIED TO ISO 4801:2001
ENVIRONMENT MANAGEMENT SYSTEM CERTIFIED TO ISO14001:2015

Status of movement – Covid 19

"Traffic behaviour is not the same as pre-pandemic (traditional morning/afternoon peak is much less pronounced and school start/finish times are much more pronounced), the current patterns are close enough to what probably is going to be a 'COVID normal' situation for at least the next year or two. Workplaces are currently not all yet open.
These results should be used for indicative assessment only."

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Site Hope St

Direction Both directions

Back to Site Summary Page

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	7 days		Weekday		Weekend	
Date	6/03/2023	7/03/2023	1/03/2023	2/03/2023	3/03/2023	4/03/2023	5/03/2023	Total	Average	Total	Average	Total	Average
AM Peak	08:00	08:00	08:00	08:00	10:00	11:00	11:00	N/A	08:00	N/A	08:00	N/A	11:00
PM Peak	17:00	15:00	17:00	18:00	15:00	12:00	13:00	N/A	17:00	N/A	17:00	N/A	12:00
00:00	1	0	2	0	1	2	8	14	2	4	1	10	5
01:00	0	1	2	3	0	2	14	22	3	6	1	16	8
02:00	2	2	2	2	2	4	14	28	4	10	2	18	9
03:00	0	0	1	1	0	2	1	5	1	2	0	3	2
04:00	0	0	0	0	1	0	3	4	1	1	0	3	2
05:00	3	9	6	7	2	2	1	30	4	27	5	3	2
06:00	7	9	14	10	11	5	1	57	8	51	10	6	3
07:00	16	19	13	18	21	12	5	104	15	87	17	17	9
08:00	29	42	37	29	38	17	6	198	28	175	35	23	12
09:00	29	21	20	21	40	21	16	168	24	131	26	37	19
10:00	23	20	19	26	45	14	12	159	23	133	27	26	13
11:00	19	24	19	27	29	30	22	170	24	118	24	52	26
12:00	22	24	17	21	25	25	12	146	21	109	22	37	19
13:00	14	21	18	24	16	12	21	126	18	93	19	33	17
14:00	19	14	17	12	16	20	13	111	16	78	16	33	17
15:00	22	33	23	23	31	17	14	163	23	132	26	31	16
16:00	20	25	24	21	25	13	14	142	20	115	23	27	14
17:00	27	28	27	26	26	15	18	167	24	134	27	33	17
18:00	25	25	16	28	24	17	18	153	22	118	24	35	18
19:00	15	17	22	13	19	18	16	120	17	86	17	34	17
20:00	11	9	11	16	15	11	18	91	13	62	12	29	15
21:00	8	11	16	8	9	14	7	73	10	52	10	21	11
22:00	7	1	2	5	3	14	0	32	5	18	4	14	7
23:00	1	1	2	1	10	9	1	25	4	15	3	10	5
Total	320	356	330	342	409	296	255	2308	330	1757	351	551	283
% Heavy	4.38%	3.37%	5.76%	3.51%	3.67%	1.69%	0.39%	3.38%		4.10%		1.09%	

TRANS TRAFFIC SURVEY
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Site Hope St

Direction Westbound

Back to Site Summary Page

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	7 days		Weekday		Weekend	
Date	6/03/2023	7/03/2023	1/03/2023	2/03/2023	3/03/2023	4/03/2023	5/03/2023	Total	Average	Total	Average	Total	Average
AM Peak	08:00	08:00	08:00	08:00	10:00	11:00	11:00	N/A	08:00	N/A	08:00	N/A	11:00
PM Peak	12:00	17:00	17:00	18:00	15:00	12:00	13:00	N/A	17:00	N/A	18:00	N/A	17:00
00:00	0	0	2	0	0	0	1	3	0	2	0	1	1
01:00	0	1	0	1	0	1	0	3	0	2	0	1	1
02:00	1	1	0	1	1	2	2	8	1	4	1	4	2
03:00	0	0	1	1	0	1	1	4	1	2	0	2	1
04:00	0	0	0	0	0	0	2	2	0	0	0	2	1
05:00	0	4	1	2	0	1	0	8	1	7	1	1	1
06:00	5	1	6	6	3	3	1	25	4	21	4	4	2
07:00	5	5	2	6	10	5	2	35	5	28	6	7	4
08:00	18	28	21	19	17	10	4	117	17	103	21	14	7
09:00	15	11	15	11	22	10	4	88	13	74	15	14	7
10:00	11	12	11	15	28	7	7	91	13	77	15	14	7
11:00	14	15	10	16	15	16	12	98	14	70	14	28	14
12:00	19	12	11	9	13	17	7	88	13	64	13	24	12
13:00	11	14	12	14	7	7	14	79	11	58	12	21	11
14:00	11	9	10	10	10	13	9	72	10	50	10	22	11
15:00	10	19	13	13	19	9	7	90	13	74	15	16	8
16:00	10	16	12	15	11	6	8	78	11	64	13	14	7
17:00	15	20	17	13	16	13	14	108	15	81	16	27	14
18:00	18	20	10	21	14	9	11	103	15	83	17	20	10
19:00	10	10	12	8	13	11	10	74	11	53	11	21	11
20:00	4	3	6	9	10	1	10	43	6	32	6	11	6
21:00	4	8	9	6	4	3	3	37	5	31	6	6	3
22:00	3	0	0	3	2	7	0	15	2	8	2	7	4
23:00	1	1	1	0	8	5	1	17	2	11	2	6	3
Total	185	210	182	199	223	157	130	1286	183	999	200	287	148
% Heavy	4.86%	2.38%	6.04%	4.02%	1.35%	1.27%	0.00%	2.95%		3.60%		0.70%	

TRANS TRAFFIC SURVEY
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Site Hope St

Direction Eastbound

Back to Site Summary Page

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	7 days		Weekday		Weekend	
Date	6/03/2023	7/03/2023	1/03/2023	2/03/2023	3/03/2023	4/03/2023	5/03/2023	Total	Average	Total	Average	Total	Average
AM Peak	09:00	07:00	08:00	07:00	08:00	11:00	01:00	N/A	08:00	N/A	08:00	N/A	09:00
PM Peak	15:00	15:00	16:00	17:00	16:00	21:00	20:00	N/A	15:00	N/A	15:00	N/A	20:00
00:00	1	0	0	0	1	2	7	11	2	2	0	9	5
01:00	0	0	2	2	0	1	14	19	3	4	1	15	8
02:00	1	1	2	1	1	2	12	20	3	6	1	14	7
03:00	0	0	0	0	0	1	0	1	0	0	0	1	1
04:00	0	0	0	0	1	0	1	2	0	1	0	1	1
05:00	3	5	5	5	2	1	1	22	3	20	4	2	1
06:00	2	8	8	4	8	2	0	32	5	30	6	2	1
07:00	11	14	11	12	11	7	3	69	10	59	12	10	5
08:00	11	14	16	10	21	7	2	81	12	72	14	9	5
09:00	14	10	5	10	18	11	12	80	11	57	11	23	12
10:00	12	8	8	11	17	7	5	68	10	56	11	12	6
11:00	5	9	9	11	14	14	10	72	10	48	10	24	12
12:00	3	12	6	12	12	8	5	58	8	45	9	13	7
13:00	3	7	6	10	9	5	7	47	7	35	7	12	6
14:00	8	5	7	2	6	7	4	39	6	28	6	11	6
15:00	12	14	10	10	12	8	7	73	10	58	12	15	8
16:00	10	9	12	6	14	7	6	64	9	51	10	13	7
17:00	12	8	10	13	10	2	4	59	8	53	11	6	3
18:00	7	5	6	7	10	8	7	50	7	35	7	15	8
19:00	5	7	10	5	6	7	6	46	7	33	7	13	7
20:00	7	6	5	7	5	10	8	48	7	30	6	18	9
21:00	4	3	7	2	5	11	4	36	5	21	4	15	8
22:00	4	1	2	2	1	7	0	17	2	10	2	7	4
23:00	0	0	1	1	2	4	0	8	1	4	1	4	2
Total	135	146	148	143	186	139	125	1022	146	758	152	264	139
% Heavy	3.70%	4.79%	5.41%	2.80%	6.45%	2.16%	0.80%	3.91%		4.75%		1.52%	

TRANS TRAFFIC SURVEY
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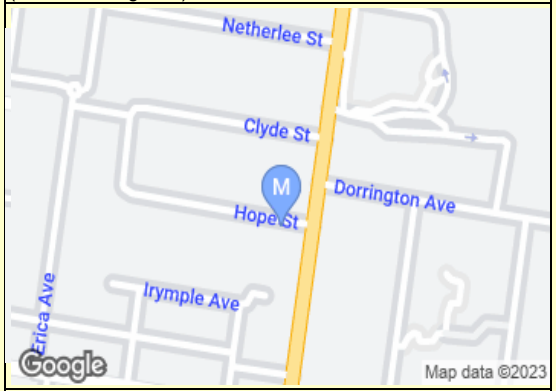
AUTOMATIC COUNT SUMMARY

Street Name :	Car Park Access	**Location :**	At Property 171 Burke Rd
Suburb :	Glen Iris	**Start Date :**	00:00 Wed 01/March/2023
Machine ID:	JE59AS8S	**Finish Date :**	00:00 Wed 08/March/2023
Site ID:	15672	**Speed Zone :**	20 km/h
Prepared By :	Vo Son Binh	**Email:**	binh@trafficsurvey.com.au

GPS information		Lat 37° 51' 47.59 South Long 145° 3' 0.48 East	Direction of Travel		
			Both directions	**Northbound**	**Southbound**
Traffic Volume :		Weekdays Average	59	33	26
(Vehicles/Day)		7 Day Average	41	22	19
Weekday	**AM**	08:00	12	1	12
Peak hour starts	**PM**	17:00	12	11	1
Speeds :		85th Percentile	7.2	7.5	6.8
(Km/Hr)		Average	6.8	7.1	6.5
Classification % :		Light Vehicles up to 5.5m	100.0%	100.0%	100.0%

Location

GPS Information	Load Google Map (internet required)
(Latitude, Longitude)	-37.863219, 145.050132



Speed Data | Speed Graph | Speed Bin
Volume Data | Volume Graph | Classification

QUALITY ASSURED COMPANY BY ISO 9001:2015
OH&S SYSTEM CERTIFIED TO ISO 4801:2001
ENVIRONMENT MANAGEMENT SYSTEM CERTIFIED TO ISO14001:2015

Status of movement – Covid 19

"Traffic behaviour is not the same as pre-pandemic (traditional morning/afternoon peak is much less pronounced and school start/finish times are much more pronounced), the current patterns are close enough to what probably is going to be a 'COVID normal' situation for at least the next year or two. Workplaces are currently not all yet open.
These results should be used for indicative assessment only."

TRANS TRAFFIC SURVEY
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Site Car Park Access

Direction Both directions

Back to Site Summary Page

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	7 days		Weekday		Weekend	
Date	6/03/2023	7/03/2023	1/03/2023	2/03/2023	3/03/2023	4/03/2023	5/03/2023	Total	Average	Total	Average	Total	Average
AM Peak	08:00	08:00	08:00	09:00	08:00	09:00	00:00	N/A	08:00	N/A	08:00	N/A	09:00
PM Peak	17:00	17:00	16:00	17:00	17:00	12:00	18:00	N/A	17:00	N/A	17:00	N/A	12:00
00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00	3	1	3	0	1	0	0	8	1	8	2	0	0
08:00	14	14	11	6	16	0	0	61	9	61	12	0	0
09:00	2	2	3	7	1	1	0	16	2	15	3	1	1
10:00	3	1	7	1	2	0	0	14	2	14	3	0	0
11:00	0	4	2	5	0	0	0	11	2	11	2	0	0
12:00	5	0	1	4	5	5	0	20	3	15	3	5	3
13:00	6	1	4	4	2	0	0	17	2	17	3	0	0
14:00	2	3	6	5	1	0	0	17	2	17	3	0	0
15:00	8	6	3	7	1	0	0	25	4	25	5	0	0
16:00	5	7	13	1	0	0	0	26	4	26	5	0	0
17:00	13	14	8	14	11	0	0	60	9	60	12	0	0
18:00	4	0	6	2	0	0	1	13	2	12	2	1	1
19:00	1	0	0	2	0	0	0	3	0	3	1	0	0
20:00	0	1	0	0	0	0	0	1	0	1	0	0	0
21:00	0	0	1	0	0	0	0	1	0	1	0	0	0
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	66	54	68	58	40	6	1	293	42	286	56	7	5
% Heavy	0.00%	0.00%	2.94%	0.00%	2.50%	0.00%	0.00%	1.02%		1.05%		0.00%	

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Site Car Park Access

Direction Northbound

Back to Site Summary Page

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	7 days		Weekday		Weekend	
Date	6/03/2023	7/03/2023	1/03/2023	2/03/2023	3/03/2023	4/03/2023	5/03/2023	Total	Average	Total	Average	Total	Average
AM Peak	00:00	11:00	10:00	09:00	10:00	00:00	00:00	N/A	11:00	N/A	08:00	N/A	00:00
PM Peak	17:00	17:00	16:00	17:00	17:00	12:00	12:00	N/A	17:00	N/A	17:00	N/A	12:00
00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00	0	1	1	1	0	0	0	3	0	3	1	0	0
09:00	0	1	0	2	0	0	0	3	0	3	1	0	0
10:00	0	0	2	0	1	0	0	3	0	3	1	0	0
11:00	0	2	1	2	0	0	0	5	1	5	1	0	0
12:00	4	0	0	4	3	2	0	13	2	11	2	2	1
13:00	1	1	3	2	1	0	0	8	1	8	2	0	0
14:00	2	2	3	5	1	0	0	13	2	13	3	0	0
15:00	6	5	1	6	1	0	0	19	3	19	4	0	0
16:00	5	7	10	1	0	0	0	23	3	23	5	0	0
17:00	13	12	8	10	11	0	0	54	8	54	11	0	0
18:00	3	0	6	2	0	0	0	11	2	11	2	0	0
19:00	1	0	0	1	0	0	0	2	0	2	0	0	0
20:00	0	1	0	0	0	0	0	1	0	1	0	0	0
21:00	0	0	1	0	0	0	0	1	0	1	0	0	0
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	35	32	36	36	18	2	0	159	22	157	33	2	1
% Heavy	0.00%	0.00%	2.78%	0.00%	5.56%	0.00%	0.00%	1.26%		1.27%		0.00%	

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Site Car Park Access

Direction Southbound

Back to Site Summary Page

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	7 days		Weekday		Weekend	
Date	6/03/2023	7/03/2023	1/03/2023	2/03/2023	3/03/2023	4/03/2023	5/03/2023	Total	Average	Total	Average	Total	Average
AM Peak	08:00	08:00	08:00	08:00	08:00	09:00	00:00	N/A	08:00	N/A	08:00	N/A	09:00
PM Peak	13:00	17:00	14:00	17:00	12:00	12:00	18:00	N/A	12:00	N/A	13:00	N/A	12:00
00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00	3	1	3	0	1	0	0	8	1	8	2	0	0
08:00	14	13	10	5	16	0	0	58	8	58	12	0	0
09:00	2	1	3	5	1	1	0	13	2	12	2	1	1
10:00	3	1	5	1	1	0	0	11	2	11	2	0	0
11:00	0	2	1	3	0	0	0	6	1	6	1	0	0
12:00	1	0	1	0	2	3	0	7	1	4	1	3	2
13:00	5	0	1	2	1	0	0	9	1	9	2	0	0
14:00	0	1	3	0	0	0	0	4	1	4	1	0	0
15:00	2	1	2	1	0	0	0	6	1	6	1	0	0
16:00	0	0	3	0	0	0	0	3	0	3	1	0	0
17:00	0	2	0	4	0	0	0	6	1	6	1	0	0
18:00	1	0	0	0	0	0	1	2	0	1	0	1	1
19:00	0	0	0	1	0	0	0	1	0	1	0	0	0
20:00	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	31	22	32	22	22	4	1	134	19	129	26	5	4
% Heavy	0.00%	0.00%	3.13%	0.00%	0.00%	0.00%	0.00%	0.75%		0.78%		0.00%	

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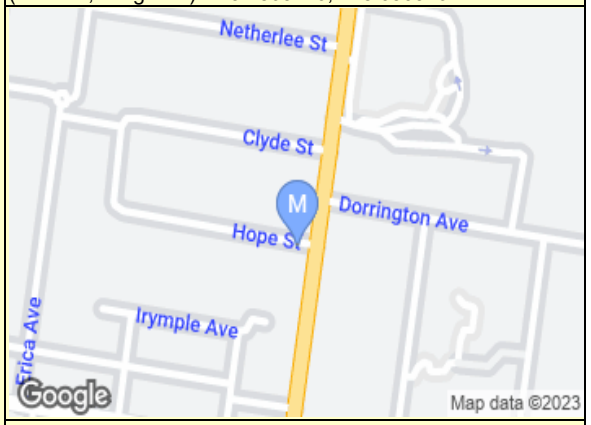
AUTOMATIC COUNT SUMMARY

Street Name :	Hope St	**Location :**	West of Burke Rd
Suburb :	Glen Iris	**Start Date :**	00:00 Wed 01/March/2023
Machine ID:	K354KXNE/P	**Finish Date :**	00:00 Wed 08/March/2023
Site ID:	15671	**Speed Zone :**	50 km/h
Prepared By :	Vo Son Binh	**Email:**	binh@trafficsurvey.com.au

GPS information		Lat 37° 51' 47.56 South Long 145° 3' 1.17 East	Direction of Travel		
			Both directions	**Westbound**	**Eastbound**
Traffic Volume :		Weekdays Average	563	320	243
(Vehicles/Day)		7 Day Average	498	280	218
Weekday	**AM**	08:00	70	50	20
Peak hour start	**PM**	17:00	44	19	24
Speeds :		85th Percentile	24.5	25.4	23.7
(Km/Hr)		Average	21.3	22.1	20.4
Classification % :		Light Vehicles up to 5.5m	93.0%	93.2%	93.1%

Location

GPS Information	Load Google Map (internet required)
(Latitude, Longitude)	-37.863210, 145.050326



Speed Data	Speed Graph	Speed Bin
Volume Data	Volume Graph	Classification

QUALITY SYSTEM CERTIFICATION DNV·GL ISO 9001 | SAFETY SYSTEM CERTIFICATION DNV·GL AS/NZS 4801 | ENVIRONMENTAL SYSTEM CERTIFICATION DNV·GL ISO 14001

QUALITY ASSURED COMPANY BY ISO 9001:2015
OH&S SYSTEM CERTIFIED TO ISO 4801:2001
ENVIRONMENT MANAGEMENT SYSTEM CERTIFIED TO ISO14001:2015

Status of movement – Covid 19

"Traffic behaviour is not the same as pre-pandemic (traditional morning/afternoon peak is much less pronounced and school start/finish times are much more pronounced), the current patterns are close enough to what probably is going to be a 'COVID normal' situation for at least the next year or two. Workplaces are currently not all yet open.
These results should be used for indicative assessment only."

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Site Hope St

Direction Both directions

Back to Site Summary Page

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	7 days		Weekday		Weekend	
Date	6/03/2023	7/03/2023	1/03/2023	2/03/2023	3/03/2023	4/03/2023	5/03/2023	Total	Average	Total	Average	Total	Average
AM Peak	08:00	08:00	08:00	08:00	08:00	11:00	09:00	N/A	08:00	N/A	08:00	N/A	11:00
PM Peak	17:00	15:00	16:00	13:00	12:00	12:00	13:00	N/A	17:00	N/A	17:00	N/A	12:00
00:00	1	0	3	0	1	2	8	15	2	5	1	10	5
01:00	0	1	1	3	0	3	14	22	3	5	1	17	9
02:00	2	2	2	2	2	4	14	28	4	10	2	18	9
03:00	0	0	1	1	0	2	1	5	1	2	0	3	2
04:00	0	0	0	0	1	0	3	4	1	1	0	3	2
05:00	3	9	6	7	3	3	1	32	5	28	6	4	2
06:00	7	9	15	13	13	5	1	63	9	57	11	6	3
07:00	23	28	21	24	29	12	7	144	21	125	25	19	10
08:00	69	87	66	55	71	21	8	377	54	348	70	29	15
09:00	48	35	34	43	63	28	26	277	40	223	45	54	27
10:00	37	45	35	36	66	21	19	259	37	219	44	40	20
11:00	41	57	36	44	51	40	26	295	42	229	46	66	33
12:00	38	40	27	39	47	32	16	239	34	191	38	48	24
13:00	30	38	36	43	25	14	25	211	30	172	34	39	20
14:00	26	26	28	31	34	28	17	190	27	145	29	45	23
15:00	31	53	39	38	43	19	20	243	35	204	41	39	20
16:00	38	46	46	41	37	16	17	241	34	208	42	33	17
17:00	48	46	42	38	44	16	18	252	36	218	44	34	17
18:00	32	33	30	36	27	18	17	193	28	158	32	35	18
19:00	21	19	24	15	27	22	17	145	21	106	21	39	20
20:00	11	10	12	19	14	10	19	95	14	66	13	29	15
21:00	9	15	15	11	10	15	7	82	12	60	12	22	11
22:00	9	4	4	7	2	14	0	40	6	26	5	14	7
23:00	1	1	2	2	14	9	1	30	4	20	4	10	5
Total	525	604	525	548	624	354	302	3482	500	2826	566	656	334
% Heavy	7.24%	8.77%	8.00%	8.21%	7.21%	4.52%	1.32%	6.98%		7.89%		3.05%	

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Site Hope St

Direction Westbound

Back to Site Summary Page

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	7 days		Weekday		Weekend	
Date	6/03/2023	7/03/2023	1/03/2023	2/03/2023	3/03/2023	4/03/2023	5/03/2023	Total	Average	Total	Average	Total	Average
AM Peak	08:00	08:00	08:00	08:00	08:00	11:00	11:00	N/A	08:00	N/A	08:00	N/A	11:00
PM Peak	12:00	15:00	15:00	16:00	15:00	12:00	13:00	N/A	15:00	N/A	15:00	N/A	14:00
00:00	0	0	3	0	0	0	1	4	1	3	1	1	1
01:00	0	1	0	1	0	1	0	3	0	2	0	1	1
02:00	1	1	0	1	1	3	2	9	1	4	1	5	3
03:00	0	0	1	1	0	1	1	4	1	2	0	2	1
04:00	0	0	0	0	0	0	2	2	0	0	0	2	1
05:00	0	4	1	2	0	2	0	9	1	7	1	2	1
06:00	5	2	7	9	4	3	1	31	4	27	5	4	2
07:00	14	12	10	10	17	5	3	71	10	63	13	8	4
08:00	52	61	46	40	50	16	5	270	39	249	50	21	11
09:00	29	21	23	26	36	13	11	159	23	135	27	24	12
10:00	21	26	20	23	38	11	9	148	21	128	26	20	10
11:00	27	34	19	28	28	22	15	173	25	136	27	37	19
12:00	24	18	16	18	24	18	8	126	18	100	20	26	13
13:00	21	23	20	24	13	8	17	126	18	101	20	25	13
14:00	14	14	15	15	16	18	10	102	15	74	15	28	14
15:00	13	31	22	22	25	10	11	134	19	113	23	21	11
16:00	19	23	21	26	17	7	10	123	18	106	21	17	9
17:00	20	23	20	13	21	14	14	125	18	97	19	28	14
18:00	21	24	14	24	15	10	10	118	17	98	20	20	10
19:00	11	11	14	9	16	14	11	86	12	61	12	25	13
20:00	5	3	7	11	9	1	11	47	7	35	7	12	6
21:00	5	11	8	8	5	4	3	44	6	37	7	7	4
22:00	4	1	1	5	1	7	0	19	3	12	2	7	4
23:00	1	1	1	1	10	5	1	20	3	14	3	6	3
Total	307	345	289	317	346	193	156	1953	280	1604	320	349	180
% Heavy	8.79%	8.70%	7.27%	8.83%	6.36%	2.07%	1.28%	6.86%		7.98%		1.72%	

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Site Hope St

Direction Eastbound

Back to Site Summary Page

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	7 days		Weekday		Weekend	
Date	6/03/2023	7/03/2023	1/03/2023	2/03/2023	3/03/2023	4/03/2023	5/03/2023	Total	Average	Total	Average	Total	Average
AM Peak	09:00	08:00	08:00	09:00	10:00	11:00	09:00	N/A	09:00	N/A	08:00	N/A	09:00
PM Peak	17:00	16:00	16:00	17:00	12:00	12:00	15:00	N/A	17:00	N/A	17:00	N/A	12:00
00:00	1	0	0	0	1	2	7	11	2	2	0	9	5
01:00	0	0	1	2	0	2	14	19	3	3	1	16	8
02:00	1	1	2	1	1	1	12	19	3	6	1	13	7
03:00	0	0	0	0	0	1	0	1	0	0	0	1	1
04:00	0	0	0	0	1	0	1	2	0	1	0	1	1
05:00	3	5	5	5	3	1	1	23	3	21	4	2	1
06:00	2	7	8	4	9	2	0	32	5	30	6	2	1
07:00	9	16	11	14	12	7	4	73	10	62	12	11	6
08:00	17	26	20	15	21	5	3	107	15	99	20	8	4
09:00	19	14	11	17	27	15	15	118	17	88	18	30	15
10:00	16	19	15	13	28	10	10	111	16	91	18	20	10
11:00	14	23	17	16	23	18	11	122	17	93	19	29	15
12:00	14	22	11	21	23	14	8	113	16	91	18	22	11
13:00	9	15	16	19	12	6	8	85	12	71	14	14	7
14:00	12	12	13	16	18	10	7	88	13	71	14	17	9
15:00	18	22	17	16	18	9	9	109	16	91	18	18	9
16:00	19	23	25	15	20	9	7	118	17	102	20	16	8
17:00	28	23	22	25	23	2	4	127	18	121	24	6	3
18:00	11	9	16	12	12	8	7	75	11	60	12	15	8
19:00	10	8	10	6	11	8	6	59	8	45	9	14	7
20:00	6	7	5	8	5	9	8	48	7	31	6	17	9
21:00	4	4	7	3	5	11	4	38	5	23	5	15	8
22:00	5	3	3	2	1	7	0	21	3	14	3	7	4
23:00	0	0	1	1	4	4	0	10	1	6	1	4	2
Total	218	259	236	231	278	161	146	1529	218	1222	243	307	159
% Heavy	5.05%	8.88%	8.90%	7.36%	8.27%	7.45%	1.37%	7.13%		7.77%		4.56%	

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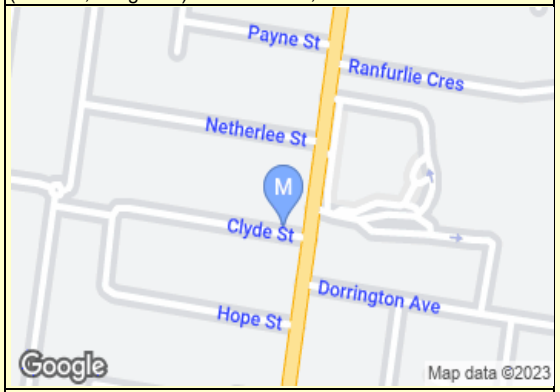
AUTOMATIC COUNT SUMMARY

Street Name :	Clyde St	**Location :**	West of Burke Rd
Suburb :	Glen Iris	**Start Date :**	00:00 Wed 01/March/2023
Machine ID:	FT152P29/P	**Finish Date :**	00:00 Wed 08/March/2023
Site ID:	15670	**Speed Zone :**	50 km/h
Prepared By :	Vo Son Binh	**Email:**	binh@trafficsurvey.com.au

GPS information		Lat 37° 51' 43.95 South Long 145° 3' 1.41 East	Direction of Travel		
			Both directions	**Westbound**	**Eastbound**
Traffic Volume :		Weekdays Average	341	172	169
(Vehicles/Day)		7 Day Average	351	183	168
Weekday	**AM**	08:00	36	20	16
Peak hour start	**PM**	18:00	33	20	13
Speeds :		85th Percentile	24.0	25.6	22.7
(Km/Hr)		Average	21.1	22.4	20.0
Classification % :		Light Vehicles up to 5.5m	97.4%	97.8%	97.0%

Location

GPS Information	Load Google Map (internet required)
(Latitude, Longitude)	-37.862207, 145.050391



Speed Data	Speed Graph	Speed Bin
Volume Data	Volume Graph	Classification

QUALITY SYSTEM CERTIFICATION DNV·GL ISO 9001
SAFETY SYSTEM CERTIFICATION DNV·GL AS/NZS 4801
ENVIRONMENTAL SYSTEM CERTIFICATION DNV·GL ISO 14001

QUALITY ASSURED COMPANY BY ISO 9001:2015
OH&S SYSTEM CERTIFIED TO ISO 4801:2001
ENVIRONMENT MANAGEMENT SYSTEM CERTIFIED TO ISO14001:2015

Status of movement – Covid 19

"Traffic behaviour is not the same as pre-pandemic (traditional morning/afternoon peak is much less pronounced and school start/finish times are much more pronounced), the current patterns are close enough to what probably is going to be a 'COVID normal' situation for at least the next year or two. Workplaces are currently not all yet open.
These results should be used for indicative assessment only."

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Site Clyde St

Direction Both directions

Back to Site Summary Page

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	7 days		Weekday		Weekend	
Date	6/03/2023	7/03/2023	1/03/2023	2/03/2023	3/03/2023	4/03/2023	5/03/2023	Total	Average	Total	Average	Total	Average
AM Peak	08:00	08:00	08:00	08:00	11:00	11:00	01:00	N/A	08:00	N/A	08:00	N/A	11:00
PM Peak	18:00	18:00	16:00	18:00	18:00	20:00	12:00	N/A	18:00	N/A	18:00	N/A	12:00
00:00	0	0	0	0	0	7	32	39	6	0	0	39	20
01:00	1	0	1	0	0	0	34	36	5	2	0	34	17
02:00	1	0	1	1	1	1	21	26	4	4	1	22	11
03:00	0	0	1	1	0	0	2	4	1	2	0	2	1
04:00	0	0	1	0	0	1	1	3	0	1	0	2	1
05:00	1	1	3	6	2	1	1	15	2	13	3	2	1
06:00	11	5	10	12	5	5	2	50	7	43	9	7	4
07:00	21	23	24	21	16	10	7	122	17	105	21	17	9
08:00	43	42	40	26	31	17	12	211	30	182	36	29	15
09:00	14	19	13	18	25	16	17	122	17	89	18	33	17
10:00	14	23	14	15	30	25	15	136	19	96	19	40	20
11:00	19	13	15	12	33	27	28	147	21	92	18	55	28
12:00	24	23	20	15	13	27	23	145	21	95	19	50	25
13:00	18	29	17	30	18	28	21	161	23	112	22	49	25
14:00	17	16	16	16	11	24	18	118	17	76	15	42	21
15:00	16	27	23	21	26	24	20	157	22	113	23	44	22
16:00	23	30	28	29	25	16	16	167	24	135	27	32	16
17:00	25	36	28	33	30	22	21	195	28	152	30	43	22
18:00	33	40	24	36	31	28	22	214	31	164	33	50	25
19:00	17	19	15	29	16	35	8	139	20	96	19	43	22
20:00	13	16	8	12	9	38	12	108	15	58	12	50	25
21:00	5	11	8	10	10	19	6	69	10	44	9	25	13
22:00	8	7	7	7	4	17	8	58	8	33	7	25	13
23:00	4	0	2	3	2	18	0	29	4	11	2	18	9
Total	328	380	319	353	338	406	347	2471	352	1718	343	753	382
% Heavy	2.74%	3.16%	4.08%	3.68%	3.25%	2.22%	0.86%	2.83%		3.38%		1.59%	

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Site Clyde St

Direction Westbound

Back to Site Summary Page

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	7 days		Weekday		Weekend	
Date	6/03/2023	7/03/2023	1/03/2023	2/03/2023	3/03/2023	4/03/2023	5/03/2023	Total	Average	Total	Average	Total	Average
AM Peak	08:00	08:00	08:00	08:00	11:00	10:00	01:00	N/A	08:00	N/A	08:00	N/A	00:00
PM Peak	18:00	18:00	18:00	18:00	15:00	20:00	12:00	N/A	18:00	N/A	18:00	N/A	20:00
00:00	0	0	0	0	0	4	22	26	4	0	0	26	13
01:00	0	0	1	0	0	0	23	24	3	1	0	23	12
02:00	0	0	1	0	0	0	15	16	2	1	0	15	8
03:00	0	0	0	0	0	0	1	1	0	0	0	1	1
04:00	0	0	0	0	0	1	0	1	0	0	0	1	1
05:00	0	0	0	2	0	0	0	2	0	2	0	0	0
06:00	2	0	3	3	0	1	0	9	1	8	2	1	1
07:00	7	13	11	4	8	2	3	48	7	43	9	5	3
08:00	27	22	25	13	14	8	2	111	16	101	20	10	5
09:00	8	9	7	7	12	5	8	56	8	43	9	13	7
10:00	6	9	4	7	10	15	7	58	8	36	7	22	11
11:00	8	7	7	8	20	7	18	75	11	50	10	25	13
12:00	8	7	9	6	7	16	13	66	9	37	7	29	15
13:00	9	13	8	15	10	16	9	80	11	55	11	25	13
14:00	10	8	6	4	5	15	10	58	8	33	7	25	13
15:00	9	16	13	12	17	16	12	95	14	67	13	28	14
16:00	13	14	13	15	17	9	10	91	13	72	14	19	10
17:00	10	17	13	17	15	13	9	94	13	72	14	22	11
18:00	22	26	18	20	15	14	11	126	18	101	20	25	13
19:00	11	9	8	17	10	23	5	83	12	55	11	28	14
20:00	7	10	6	8	6	25	9	71	10	37	7	34	17
21:00	5	7	6	6	5	13	5	47	7	29	6	18	9
22:00	7	3	4	3	3	10	5	35	5	20	4	15	8
23:00	2	0	1	2	2	11	0	18	3	7	1	11	6
Total	171	190	164	169	176	224	197	1291	183	870	172	421	218
% Heavy	1.17%	2.63%	3.05%	2.96%	3.98%	1.79%	0.51%	2.25%		2.76%		1.19%	

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Site Clyde St

Direction Eastbound

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Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	7 days		Weekday		Weekend	
Date	6/03/2023	7/03/2023	1/03/2023	2/03/2023	3/03/2023	4/03/2023	5/03/2023	Total	Average	Total	Average	Total	Average
AM Peak	08:00	08:00	08:00	07:00	10:00	11:00	01:00	N/A	08:00	N/A	08:00	N/A	11:00
PM Peak	12:00	17:00	16:00	17:00	18:00	18:00	13:00	N/A	17:00	N/A	17:00	N/A	18:00
00:00	0	0	0	0	0	3	10	13	2	0	0	13	7
01:00	1	0	0	0	0	0	11	12	2	1	0	11	6
02:00	1	0	0	1	1	1	6	10	1	3	1	7	4
03:00	0	0	1	1	0	0	1	3	0	2	0	1	1
04:00	0	0	1	0	0	0	1	2	0	1	0	1	1
05:00	1	1	3	4	2	1	1	13	2	11	2	2	1
06:00	9	5	7	9	5	4	2	41	6	35	7	6	3
07:00	14	10	13	17	8	8	4	74	11	62	12	12	6
08:00	16	20	15	13	17	9	10	100	14	81	16	19	10
09:00	6	10	6	11	13	11	9	66	9	46	9	20	10
10:00	8	14	10	8	20	10	8	78	11	60	12	18	9
11:00	11	6	8	4	13	20	10	72	10	42	8	30	15
12:00	16	16	11	9	6	11	10	79	11	58	12	21	11
13:00	9	16	9	15	8	12	12	81	12	57	11	24	12
14:00	7	8	10	12	6	9	8	60	9	43	9	17	9
15:00	7	11	10	9	9	8	8	62	9	46	9	16	8
16:00	10	16	15	14	8	7	6	76	11	63	13	13	7
17:00	15	19	15	16	15	9	12	101	14	80	16	21	11
18:00	11	14	6	16	16	14	11	88	13	63	13	25	13
19:00	6	10	7	12	6	12	3	56	8	41	8	15	8
20:00	6	6	2	4	3	13	3	37	5	21	4	16	8
21:00	0	4	2	4	5	6	1	22	3	15	3	7	4
22:00	1	4	3	4	1	7	3	23	3	13	3	10	5
23:00	2	0	1	1	0	7	0	11	2	4	1	7	4
Total	157	190	155	184	162	182	150	1180	168	848	169	332	173
% Heavy	4.46%	3.68%	5.16%	4.35%	2.47%	2.75%	1.33%	3.47%		4.01%		2.11%	

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AUTOMATIC COUNT SUMMARY

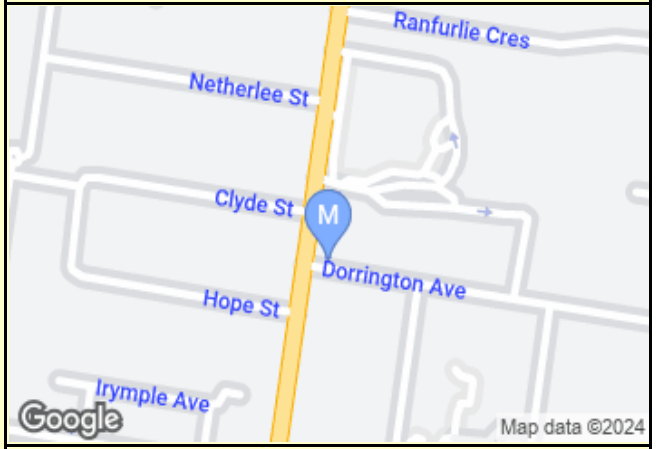
Street Name :	Dorrington Ave	**Location :**	East of Burke Rd
Suburb :	Glen Iris	**Start Date :**	00:00 Wed 01/March/2023
Machine ID:	K354KXNE/P	**Finish Date :**	00:00 Wed 08/March/2023
Site ID:	15669	**Speed Zone :**	40 km/h
Prepared By :	Vo Son Binh	**Email:**	binh@trafficsurvey.com.au

GPS information			Direction of Travel		
	Lat	37° 51' 45.85 South	**Both directions**	**Westbound**	**Eastbound**
	Long	145° 3' 3.47 East			
Traffic Volume :		Weekdays Average	1,206	469	737
(Vehicles/Day)		7 Day Average	1,008	382	626
Weekday	**AM**	08:00	211	99	112
Peak hour start	**PM**	15:00	147	56	91
Speeds :		85th Percentile	26.3	24.9	27.8
(Km/Hr)		Average	23.2	21.5	24.8
Classification % :		Light Vehicles up to 5.5m	95.5%	95.0%	95.8%

Location

GPS Information Load Google Map (internet requir

(Latitude, Longitud -37.862735, 145.050965



Speed Data | Speed Graph | Speed Bin Classification

Volume Data | Volume Graph

QUALITY SYSTEM CERTIFICATION DNV·GL ISO 9001

SAFETY SYSTEM CERTIFICATION DNV·GL AS/NZS 4801

ENVIRONMENTAL SYSTEM CERTIFICATION DNV·GL ISO 14001

QUALITY ASSURED COMPANY BY ISO 9001:2015
OH&S SYSTEM CERTIFIED TO ISO 4801:2001
ENVIRONMENT MANAGEMENT SYSTEM CERTIFIED TO ISO14001:2015

Status of movement – Covid 19

"Traffic behaviour is not the same as pre-pandemic (traditional morning/afternoon peak is much less pronounced and school start/finish times are much more pronounced), the current patterns are close enough to what probably is going to be a 'COVID normal' situation for at least the next year or two. Workplaces are currently not all yet open.
These results should be used for indicative assessment only."

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Site Dorrington Ave

Direction Both directions

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Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	7 days		Weekday		Weekend	
Date	6/03/2023	7/03/2023	1/03/2023	2/03/2023	3/03/2023	4/03/2023	5/03/2023	Total	Average	Total	Average	Total	Average
AM Peak	08:00	08:00	08:00	08:00	08:00	10:00	11:00	N/A	08:00	N/A	08:00	N/A	11:00
PM Peak	15:00	15:00	15:00	15:00	15:00	15:00	12:00	N/A	15:00	N/A	15:00	N/A	12:00
00:00	0	1	0	0	0	3	8	12	2	1	0	11	6
01:00	0	1	0	0	1	4	4	10	1	2	0	8	4
02:00	0	1	0	0	0	0	2	3	0	1	0	2	1
03:00	0	1	1	1	1	0	2	6	1	4	1	2	1
04:00	1	0	0	1	0	1	2	5	1	2	0	3	2
05:00	4	4	2	3	3	2	1	19	3	16	3	3	2
06:00	19	17	20	21	15	4	2	98	14	92	18	6	3
07:00	75	125	92	102	102	16	9	521	74	496	99	25	13
08:00	199	212	210	204	232	26	13	1096	157	1057	211	39	20
09:00	45	47	62	59	76	29	22	340	49	289	58	51	26
10:00	46	42	31	40	103	52	24	338	48	262	52	76	38
11:00	37	55	60	60	51	51	48	362	52	263	53	99	50
12:00	63	59	46	47	44	50	54	363	52	259	52	104	52
13:00	47	43	48	59	42	55	39	333	48	239	48	94	47
14:00	87	119	85	119	110	45	27	592	85	520	104	72	36
15:00	132	130	149	156	167	69	27	830	119	734	147	96	48
16:00	96	124	106	98	91	26	34	575	82	515	103	60	30
17:00	93	96	106	127	51	34	45	552	79	473	95	79	40
18:00	65	63	53	63	47	47	19	357	51	291	58	66	33
19:00	43	66	51	34	37	28	11	270	39	231	46	39	20
20:00	16	58	19	22	29	12	13	169	24	144	29	25	13
21:00	8	41	11	8	17	11	2	98	14	85	17	13	7
22:00	7	6	9	10	11	7	3	53	8	43	9	10	5
23:00	0	3	9	8	4	10	2	36	5	24	5	12	6
Total	1083	1314	1170	1242	1234	582	413	7038	1008	6043	1208	995	503
% Heavy	4.43%	5.25%	4.70%	5.48%	5.83%	1.20%	0.97%	4.59%		5.16%		1.11%	

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Site Dorrington Ave

Direction Westbound

Back to Site Summary Page

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	7 days		Weekday		Weekend	
Date	6/03/2023	7/03/2023	1/03/2023	2/03/2023	3/03/2023	4/03/2023	5/03/2023	Total	Average	Total	Average	Total	Average
AM Peak	08:00	08:00	08:00	08:00	08:00	11:00	11:00	N/A	08:00	N/A	08:00	N/A	11:00
PM Peak	15:00	15:00	15:00	15:00	15:00	13:00	17:00	N/A	15:00	N/A	15:00	N/A	13:00
00:00	0	0	0	0	0	2	3	5	1	0	0	5	3
01:00	0	1	0	0	0	1	2	4	1	1	0	3	2
02:00	0	1	0	0	0	0	1	2	0	1	0	1	1
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	1	0	0	0	0	1	1	3	0	1	0	2	1
05:00	3	3	1	3	1	2	1	14	2	11	2	3	2
06:00	6	6	4	10	6	2	1	35	5	32	6	3	2
07:00	33	55	41	50	43	8	5	235	34	222	44	13	7
08:00	91	108	105	85	106	9	5	509	73	495	99	14	7
09:00	20	22	33	29	34	6	12	156	22	138	28	18	9
10:00	14	22	11	11	73	14	5	150	21	131	26	19	10
11:00	11	20	23	28	22	17	13	134	19	104	21	30	15
12:00	20	18	17	14	18	17	13	117	17	87	17	30	15
13:00	22	12	18	20	15	24	8	119	17	87	17	32	16
14:00	14	22	15	24	22	18	9	124	18	97	19	27	14
15:00	49	51	62	55	61	9	6	293	42	278	56	15	8
16:00	30	36	18	26	25	7	11	153	22	135	27	18	9
17:00	24	25	33	34	19	13	14	162	23	135	27	27	14
18:00	24	30	20	30	10	12	5	131	19	114	23	17	9
19:00	28	39	28	18	14	12	5	144	21	127	25	17	9
20:00	7	47	8	14	13	1	3	93	13	89	18	4	2
21:00	4	32	4	1	9	7	1	58	8	50	10	8	4
22:00	3	1	3	3	5	4	2	21	3	15	3	6	3
23:00	0	2	1	1	2	3	1	10	1	6	1	4	2
Total	404	553	445	456	498	189	127	2672	382	2356	469	316	164
% Heavy	5.20%	5.79%	6.07%	6.36%	5.02%	0.53%	0.79%	5.09%		5.69%		0.63%	

TRANS TRAFFIC SURVEY
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Site Dorrington Ave

Direction Eastbound

Back to Site Summary Page

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	7 days		Weekday		Weekend	
Date	6/03/2023	7/03/2023	1/03/2023	2/03/2023	3/03/2023	4/03/2023	5/03/2023	Total	Average	Total	Average	Total	Average
AM Peak	08:00	08:00	08:00	08:00	08:00	10:00	11:00	N/A	08:00	N/A	08:00	N/A	11:00
PM Peak	15:00	14:00	16:00	15:00	15:00	15:00	12:00	N/A	15:00	N/A	15:00	N/A	15:00
00:00	0	1	0	0	0	1	5	7	1	1	0	6	3
01:00	0	0	0	0	1	3	2	6	1	1	0	5	3
02:00	0	0	0	0	0	0	1	1	0	0	0	1	1
03:00	0	1	1	1	1	0	2	6	1	4	1	2	1
04:00	0	0	0	1	0	0	1	2	0	1	0	1	1
05:00	1	1	1	0	2	0	0	5	1	5	1	0	0
06:00	13	11	16	11	9	2	1	63	9	60	12	3	2
07:00	42	70	51	52	59	8	4	286	41	274	55	12	6
08:00	108	104	105	119	126	17	8	587	84	562	112	25	13
09:00	25	25	29	30	42	23	10	184	26	151	30	33	17
10:00	32	20	20	29	30	38	19	188	27	131	26	57	29
11:00	26	35	37	32	29	34	35	228	33	159	32	69	35
12:00	43	41	29	33	26	33	41	246	35	172	34	74	37
13:00	25	31	30	39	27	31	31	214	31	152	30	62	31
14:00	73	97	70	95	88	27	18	468	67	423	85	45	23
15:00	83	79	87	101	106	60	21	537	77	456	91	81	41
16:00	66	88	88	72	66	19	23	422	60	380	76	42	21
17:00	69	71	73	93	32	21	31	390	56	338	68	52	26
18:00	41	33	33	33	37	35	14	226	32	177	35	49	25
19:00	15	27	23	16	23	16	6	126	18	104	21	22	11
20:00	9	11	11	8	16	11	10	76	11	55	11	21	11
21:00	4	9	7	7	8	4	1	40	6	35	7	5	3
22:00	4	5	6	7	6	3	1	32	5	28	6	4	2
23:00	0	1	8	7	2	7	1	26	4	18	4	8	4
Total	679	761	725	786	736	393	286	4366	626	3687	737	679	346
% Heavy	3.98%	4.86%	3.86%	4.96%	6.39%	1.53%	1.05%	4.28%		4.83%		1.33%	

Appendix E

30th Busiest Day Graphs (Per Hour)

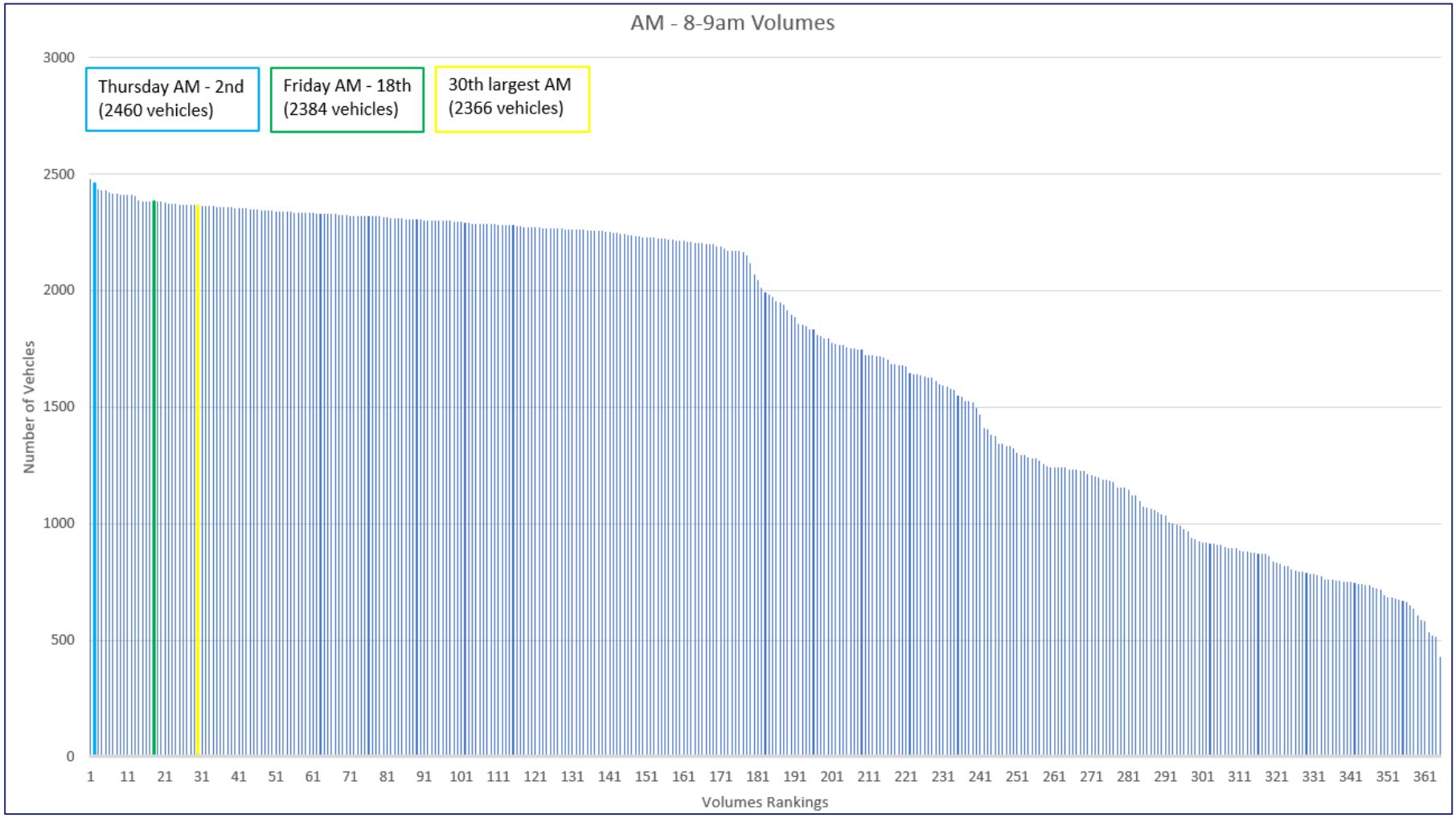


Figure D1: AM peak period comparison of 30th largest volumes between March, 2022 to March, 2023

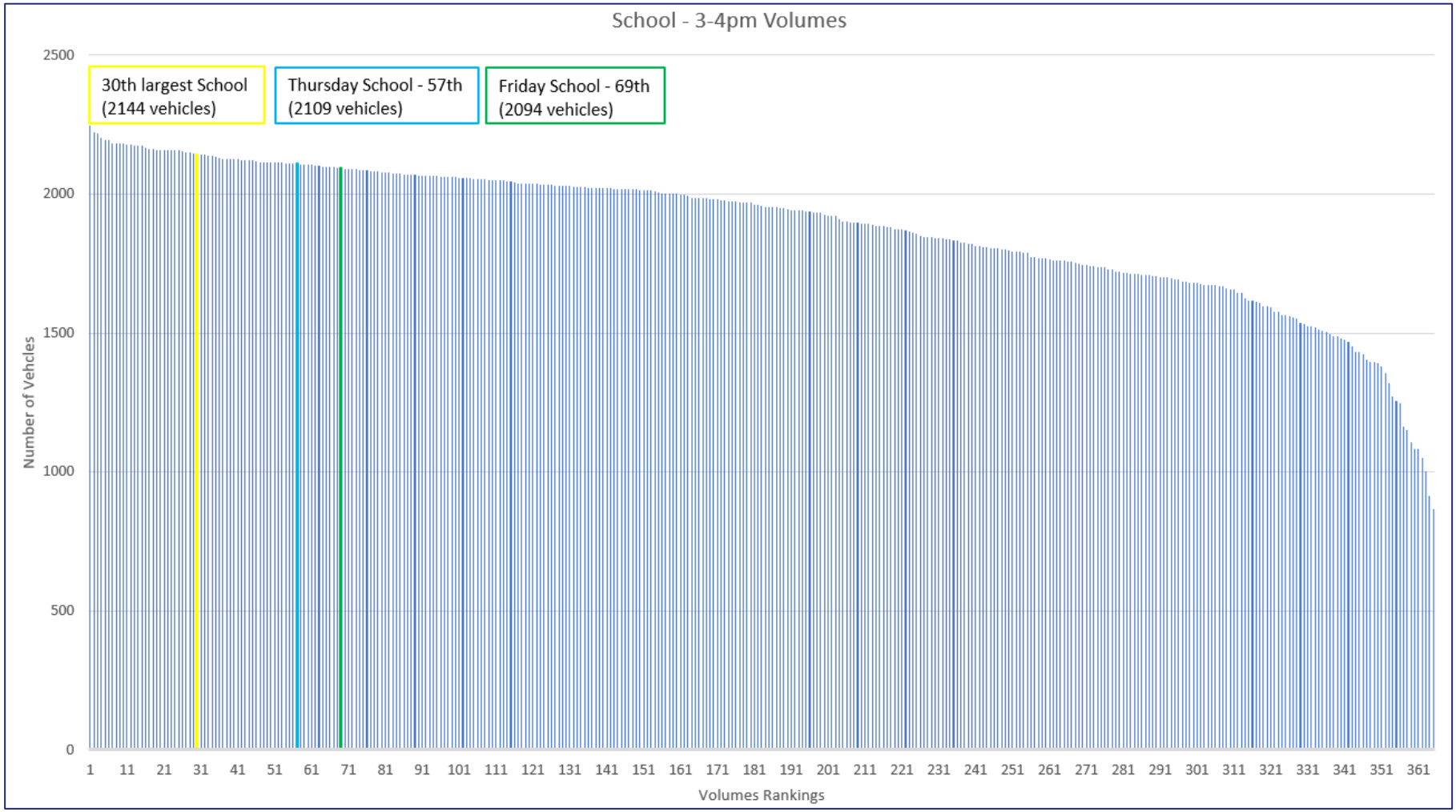


Figure D2: School pick-up peak period comparison of 30th largest volumes between March, 2022 to March, 2023

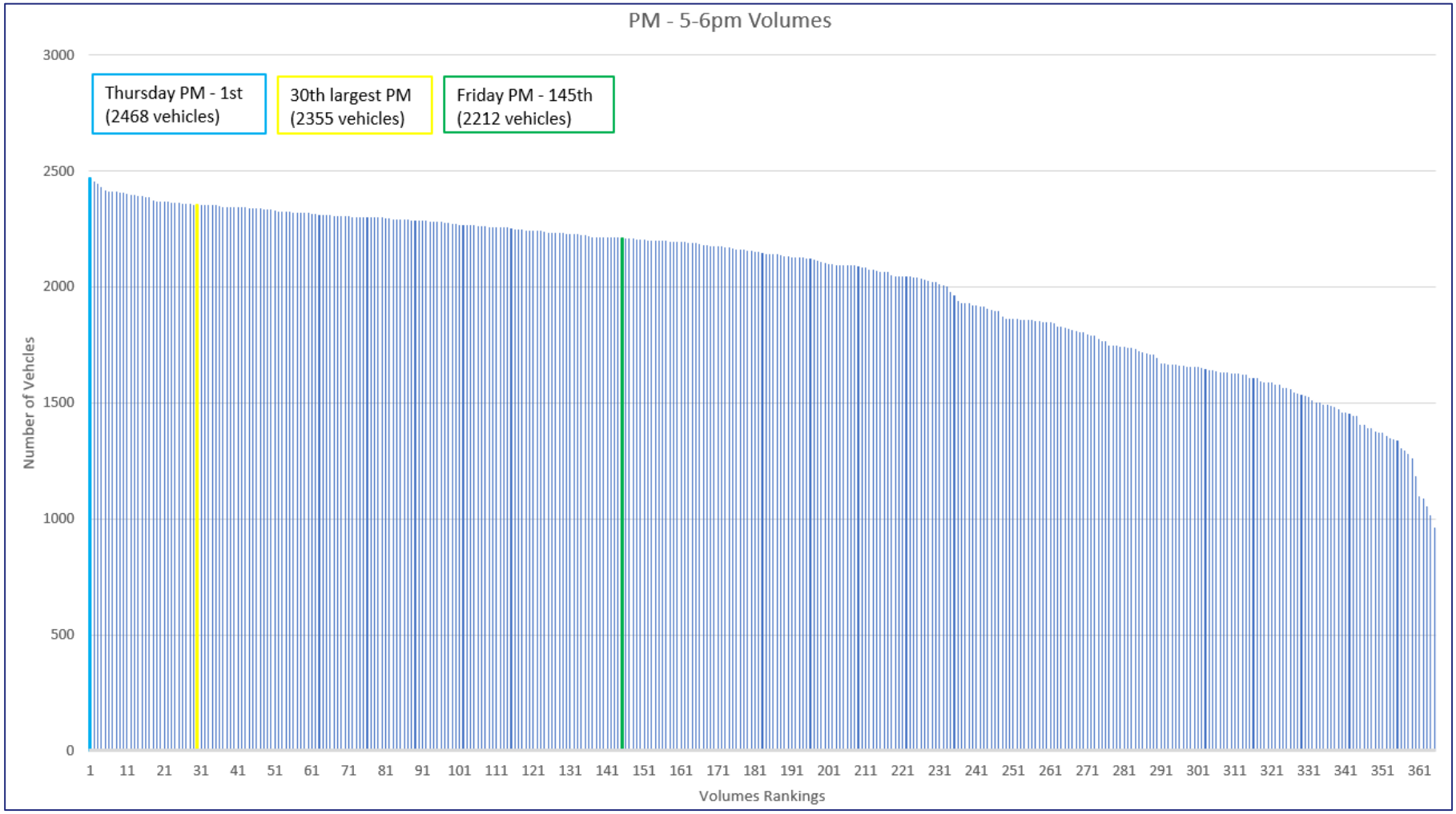


Figure D3: PM peak period comparison of 30th largest volumes between March, 2022 to March, 2023

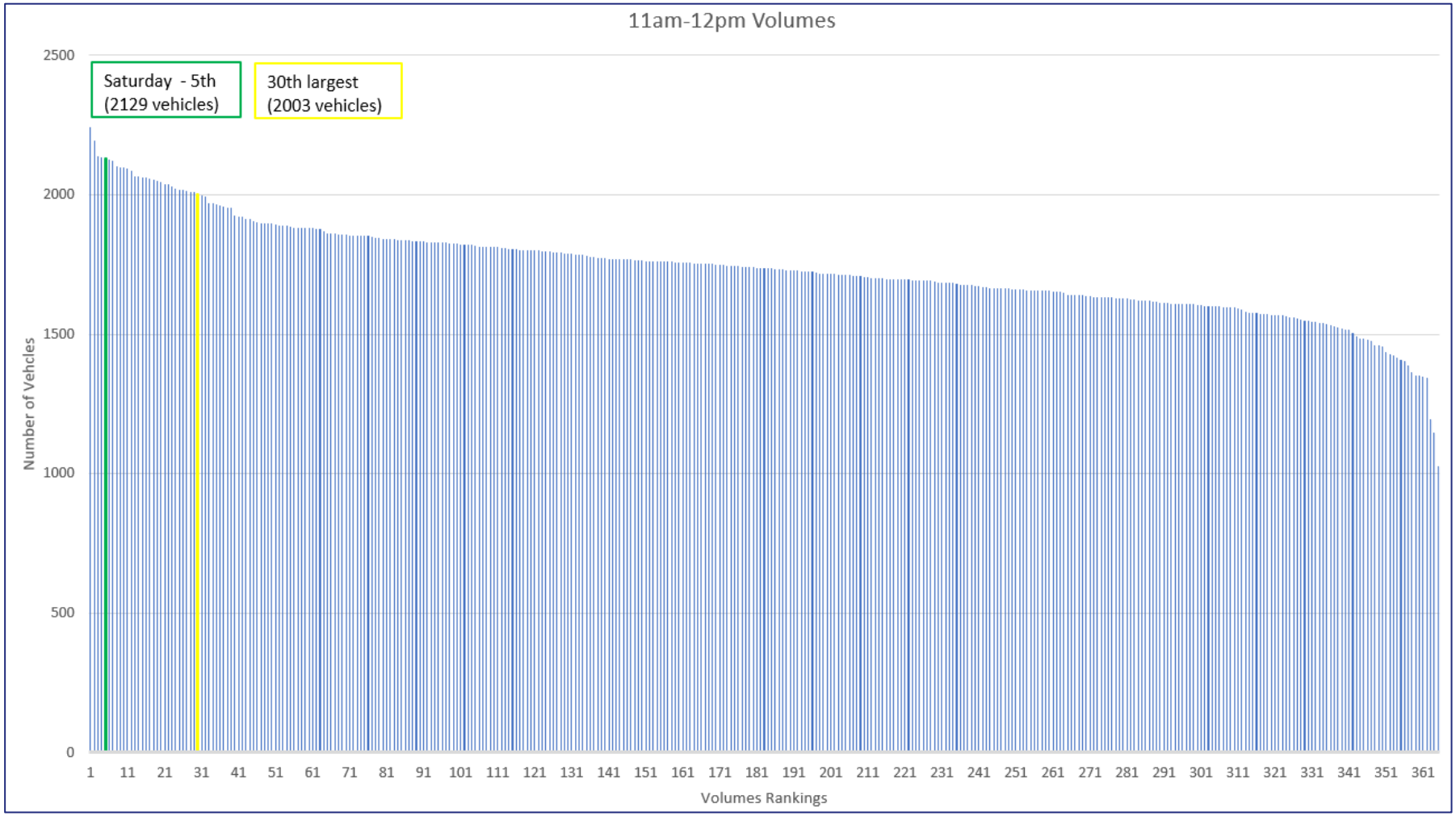


Figure D4: Saturday Midday peak period comparison of 30th largest volumes between March, 2022 to March, 2023

Appendix F

Parking Inventory

Traffix Group

Surveyed By: Lily Green

Survey Dates & Times: See below

173 Burke Road, Glen Iris		Restriction	Capacity Min - Max	Monday 27th May, 2024 11am
ON-STREET CARPARKING				
Map Ref.	**BURKE ROAD**			
	West Side			
A	Opposite Davies Street to Wattletree Road	1P 9am-6pm Mon-Fri, 9am-1pm Sat	6	2
		Bus Zone	-	0
		No Stopping 4:30pm-6:30pm Mon-Fri, 1P 9am-4:30pm Mon-Fri, 9am-1pm Sat	2	2
		No Stopping	-	0
B	Wattletree Road to SB #173 (SS)	No Stopping	-	0
		No Stopping 7am-9am, 4:30pm-6:30pm Mon-Fri, 1P 9am-4:30pm Mon-Fri, 9am-12pm Sat	3	0
		No Stopping	-	0
		1/2P 9am-9pm	5	2
		1P 9am-5pm Mon-Fri, 9am-12pm Sat	7	1
	SB #173 (SS) to NB #173 (SS) Hope Street	**1P 9am-5pm Mon-Fri, 9am-12pm Sat**	**13**	**6**
		No Stopping	**-**	**0**
C	Hope Street to Clyde Street	No Stopping	-	0
		Unrestricted	6	7
		No Stopping	-	0
D	Clyde Street to Netherlee Street	No Stopping	-	0
		Unrestricted	8	1
		No Stopping	-	0
	East Side			
E	Opposite Netherlee Street to Dorrington Avenue	Unrestricted	3	3
		Bus Zone 8am-9am, 3pm-4pm School Days	5	0
		Unrestricted	11	4
		No Stopping	-	0
F	Dorrington Avenue to Wattletree Road	No Stopping (10m)	-	0
		Unrestricted	14	12
		2P 9am-4:30pm Mon-Fri, 9am-12noon Sat	5	1
		No Stopping	-	0
		2P 9am-4:30pm Mon-Fri, 9am-12noon Sat, No Stopping 7am-9am, 4:30pm-6:30pm Mon-Fri	5	3
		No Stopping	-	0
G	Wattletree Road to Davies Street	No Stopping	-	0
		No Stopping 4:30pm-6:30pm Mon-Fri, 1P 9am-4:30pm Mon-Fri, 9am-9pm Sat	2	1
		1P 9am-6pm Mon-Fri, 9am-1pm Sat	9	6
		No Stopping	-	0
BURKE ROAD		**Capacity**	**104 - 104**	**104**
		Total Number of Cars Parked		**51**
		Total Number of Vacant Spaces		**53**
		Percentage Occupancy		**49%**

Nb/Sb - Northern/Southern Property Boundary
Eb/Wb - Eastern/Western Property Boundary
Mid pt - Mid point
ROW - Right of Way

Traffix Group

Surveyed By: Lily Green

Survey Dates & Times: See below

173 Burke Road, Glen Iris		Restriction	Capacity Min - Max	Monday 27th May, 2024
				11am
Map Ref.	**HOPE STREET**			
	South Side			
H	**Burke Road (EB #173 (SS)) to WB #173 (SS)**	**No Stopping**	**-**	0
		Unrestricted	**3**	**1**
	WB #173 (SS) to WB #16	Unrestricted	9	9
	WB #16 to Louis Street	Unrestricted	10	5
	North Side			
I	Louis Street to EB #9	No Stopping	-	0
		2P 9am-6pm Mon-Fri	7	1
	EB #9 to MB #19	2P 9am-6pm Mon-Fri	5	5
	MB #19 to Burke Road	2P 9am-6pm Mon-Fri	5	5
		No Stopping	-	0
HOPE STREET		**Capacity**	**39 - 39**	**39**
		Total Number of Cars Parked		**26**
		Total Number of Vacant Spaces		**13**
		Percentage Occupancy		**67%**
Map Ref.	**LOUIS STREET**			
	West Side			
J	Hope Street to Clyde Street	Unrestricted	6	1
	East Side			
K	Hope Street to Clyde Street	No Stopping	-	0
		Unrestricted	7	0
		No Stopping	-	0
LOUIS STREET		**Capacity**	**13 - 13**	**13**
		Total Number of Cars Parked		**1**
		Total Number of Vacant Spaces		**12**
		Percentage Occupancy		**8%**
Map Ref.	**CLYDE STREET**			
	North Side			
L	Louis Street to EB #9	Unrestricted	7	2
	EB #9 to WB #21	Unrestricted	7	4
	WB #21 to Burke Road	Unrestricted	7	3
		No Stopping	-	0
	South Side			
M	Burke Road to EB #18	No Stopping	-	0
		Unrestricted	8	6
	EB #18 to EB #8	Unrestricted	6	2
	EB #8 to Louis Street	Unrestricted	6	1
		No Stopping (10m)	-	0
CLYDE STREET		**Capacity**	**41 - 41**	**41**
		Total Number of Cars Parked		**18**
		Total Number of Vacant Spaces		**23**
		Percentage Occupancy		**44%**

Nb/Sb - Northern/Southern Property Boundary
Eb/Wb - Eastern/Western Property Boundary
Mid pt - Mid point
ROW - Right of Way

Traffix Group

Surveyed By: Lily Green

Survey Dates & Times: See below

173 Burke Road, Glen Iris		Restriction	Capacity Min - Max	Monday 27th May, 2024
				11am
Map Ref.	**WATTLETREE ROAD**			
	North Side			
N	Kingston Street to Irymple Avenue	No Stopping	-	0
		Clearway 4:30pm-6:30pm Mon-Fri TOW AWAY	9	3
		No Stopping	-	0
		Clearway 4:30pm-6:30pm Mon-Fri TOW AWAY	2	2
		No Stopping	-	0
		Clearway 4:30pm-6:30pm Mon-Fri TOW AWAY, 1/2P 9am-4:30pm Mon-Fri, 9am-12noon Sat	2	1
		No Stopping	-	0
O	Irymple Avenue to Burke Road	No Stopping	-	0
		Clearway 4:30pm-6:30pm Mon-Fri TOW AWAY, 1P 9am-4:30pm Mon-Fri, 9am-12noon Sat	4	3
		No Stopping	-	0
P	Burke Road to Harold Avenue	No Stopping	-	0
		No Stopping 4:30pm-6:30pm Mon-Fri	2	1
		Unrestricted	2	2
		No Stopping	-	0
		Unrestricted	2	2
		Bus Stop	-	0
		No Stopping (10m)	-	0
	South Side			
Q	EB #370 to Burke Road	Unrestricted	2	2
		Bus Stop	-	1
		Unrestricted	1	1
		No Stopping 7am-9am Mon-Fri	7	4
		No Stopping	-	0
R	Burke Road to Opposite Irymple Avenue	No Stopping	-	0
		Clearway 7am-9am Mon-Fri TOW AWAY, 1P 9am-5pm Mon-Fri, 9am-12noon Sat	8	3
	Opposite Irymple Avenue to Kingston Street	Clearway 7am-9am Mon-Fri TOW AWAY, 1P 9am-5pm Mon-Fri, 9am-12noon Sat	4	1
		Clearway 7am-9am Mon-Fri TOW AWAY	14	3
WATTLETREE ROAD		**Capacity**	**59 - 59**	**59**
		Total Number of Cars Parked		**28**
		Total Number of Vacant Spaces		**31**
		Percentage Occupancy		**47%**

Nb/Sb - Northern/Southern Property Boundary
Eb/Wb - Eastern/Western Property Boundary
Mid pt - Mid point
ROW - Right of Way

Traffix Group

Surveyed By: Lily Green

Survey Dates & Times: See below

173 Burke Road, Glen Iris		Restriction	Capacity Min - Max	Monday 27th May, 2024 11am
Map Ref.	**IRYMPLE AVENUE**			
	West Side to South Side			
S	Wattletree Road to Bend	No Stopping	-	0
		No Stopping 9am-5pm Mon-Fri, 9am-12noon Sat	4	0
		No Stopping	-	0
		Unrestricted	6	5
		No Stopping	-	0
T	Bend to Kingston Street	No Stopping	-	0
		Unrestricted	11	6
		No Stopping (10m)	-	0
	North Side to East Side			
U	Opposite Kingston Street to EB #13A	2P 9am-6pm Mon-Fri	9	2
	EB #13A to Bend	2P 9am-6pm Mon-Fri	7	3
V	Bend to Wattletree Road	No Stopping	-	0
		2P 9am-6pm Mon-Fri	3	3
		No Stopping 9am-5pm Mon-Fri, 9am-12noon Sat	1	0
		2P 9am-5pm Mon-Fri, 9am-12noon Sat	3	1
		No Stopping	-	0
IRYMPLE AVENUE		**Capacity**	**39 - 39**	**39**
		Total Number of Cars Parked		**20**
		Total Number of Vacant Spaces		**19**
		Percentage Occupancy		**51%**
Map Ref.	**DORRINGTON AVENUE**			
	North Side			
W	Burke Road to Sacre Coeur Driveway	No Stopping	-	0
		2P 9am-6pm School Days	11	2
		No Parking 5mins 8am-9am, 3pm-4pm School Days, Residential Permits Excepted	8	0
	South Side			
X	Willoby Avenue to Harold Avenue	No Stopping	-	0
		Permit Zone 8-9:30am and 2:30-4pm School Days, 2P 9:30am-2:30pm School Days	8	2
		2P 9:30am-2:30pm School Days	2	0
		Permit Zone 8-9:30am and 2:30-4pm School Days, 2P 9:30am-2:30pm School Days	4	1
		No Stopping	-	0
Y	Harold Avenue to Burke Road	No Stopping	-	0
		Permit Zone 8-9:30am and 2:30-4pm School Days, 2P 9:30am-2:30pm School Days	10	0
		No Stopping	-	0
DORRINGTON AVENUE		**Capacity**	**43 - 43**	**43**
		Total Number of Cars Parked		**5**
		Total Number of Vacant Spaces		**38**
		Percentage Occupancy		**12%**

Nb/Sb - Northern/Southern Property Boundary
Eb/Wb - Eastern/Western Property Boundary
Mid pt - Mid point
ROW - Right of Way

Traffix Group

Surveyed By: Lily Green

Survey Dates & Times: See below

173 Burke Road, Glen Iris		Restriction	Capacity Min - Max	Monday 27th May, 2024 11am
Map Ref.	**HAROLD AVENUE**			
	East Side			
Z	Dorrington Avenue to MB Caulfield Grammar	No Stopping	-	0
		No Parking 5mins 8am-9am, 3pm-4pm School Days, Residential Permits Excepted	3	0
		No Parking 8am-9am, 3pm-4pm School Days	5	0
		No Parking 8am-9am, 3pm-4pm School Days, Kiss and Go, 2 min limit	6	0
	West Side			
AA	SB #9 to NB #13	Permit Zone 8-9:30am and 2:30-4pm School Days, 2P 9:30am-2:30pm School Days	7	2
	NB #13 to Dorrington Avenue	Permit Zone 8-9:30am and 2:30-4pm School Days, 2P 9:30am-2:30pm School Days	4	1
		No Stopping	-	0
HAROLD AVENUE		**Capacity**	**25 - 25**	**25**
		Total Number of Cars Parked		**3**
		Total Number of Vacant Spaces		**22**
		Percentage Occupancy		**12%**
SUMMARY => ON-STREET CARPARKING				
Car Parking Supply			**363 - 363**	**363**
Total Number of Cars Parked				**152**
Total Number of Vacant Spaces				**211**
Percentage Occupancy				**42%**
Note: Public parking includes spaces that are available to the general public and excludes 'Clearway', '5mins parking', 'Bus Zone', 'Work Zone', 'No Stopping' and 'No Parking' areas, etc., during the relevant enforcement periods				

LEGEND: Public Parking	
Not available to the general public	
Not Available, illegally parked cars included in analysis	
No Stopping/ Other No Parking	

Nb/Sb - Northern/Southern Property Boundary
Eb/Wb - Eastern/Western Property Boundary
Mid pt - Mid point
ROW - Right of Way

Traffix Group

Appendix G

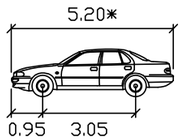
Swept Path Diagrams

VEHICLE PROFILE

B99 VEHICLES PASSING IN BASEMENT 1 - HOPE STREET ACCESS

VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5KM/H)



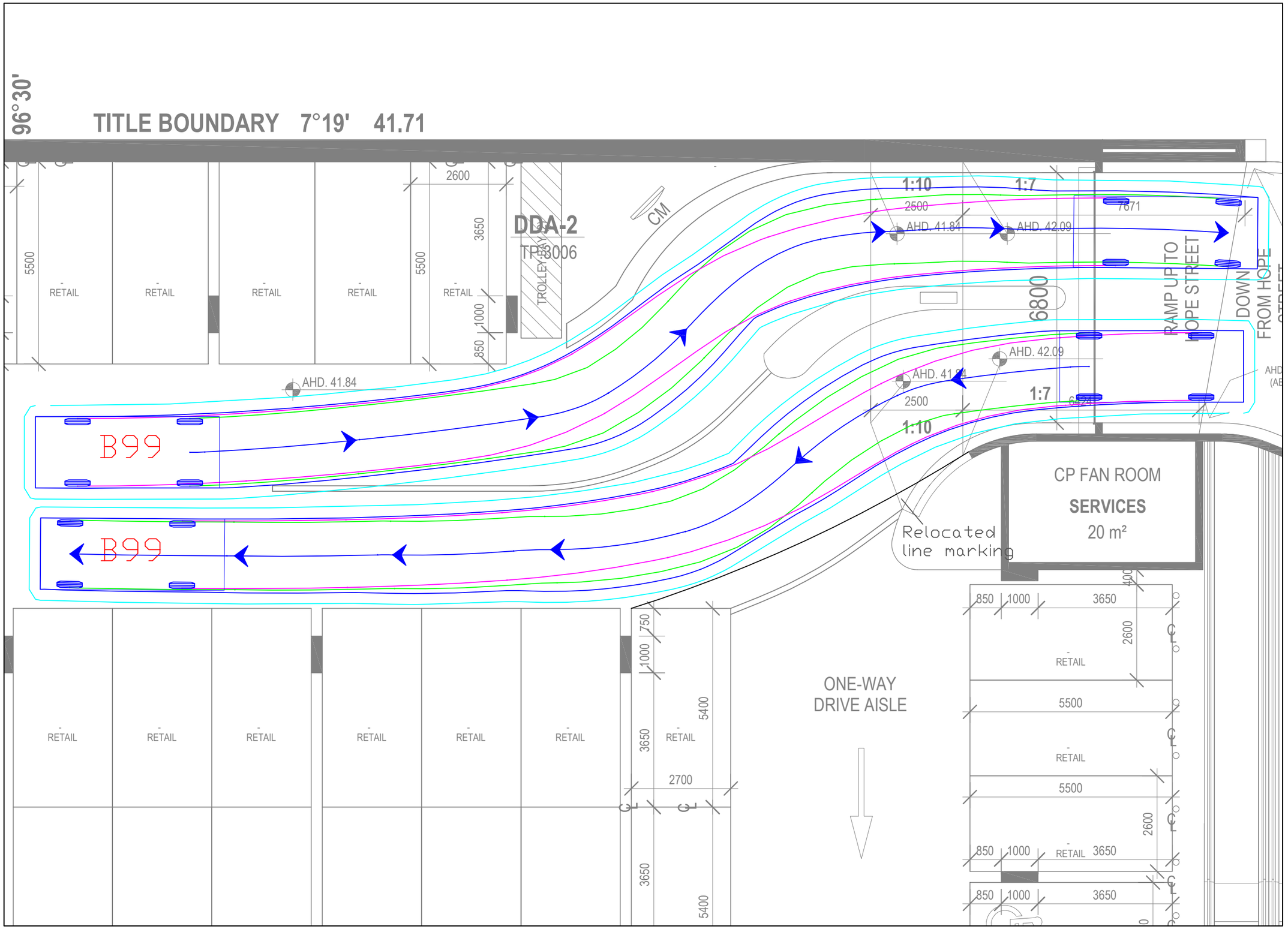
99th percentile
(AS/NZS 2890.1:2004)

Width	: 1.94
Track	: 1.84
Kerb to Kerb Radius	12.5m

* actual template based on 'relevant longitudinal dimensions that affect swept path' as set out in Section B2.1 of AS/NZS 2890.1:2004

LEGEND

REAR WHEELS — VEHICLE BODY
FRONT WHEELS — BODY CLEARANCE



REV	DATE	NOTES	DESIGNED BY	CHECKED BY
04A	07/05/2024		D. ECONOMOU	J. STONE

173 BURKE ROAD, GLEN IRIS
PROPOSED MIXED USE DEVELOPMENT

GENERAL NOTES:

BASE INFORMATION FROM:
23076-PLAN--Area Plan (Gross Building) - TP_BASEMENT 01.dwg
DRAWINGS BY: Cera Stribley - dated 11th April, 2024

FILE NAME: G28846-04A
SHEET NO.: 01

SCALE: 1:100 (A3) 0 1 2

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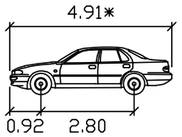
www.traffixgroup.com.au

VEHICLE PROFILE

VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5KM/H)



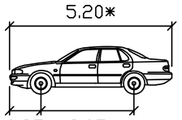
85th percentile
(AS/NZS 2890.1:2004)

Width	: 1.87m
Track	: 1.77m
Kerb to Kerb Radius	11.5m

* actual template based on 'relevant longitudinal dimensions that affect swept path' as set out in Section B2.1 of AS/NZS 2890.1:2004

VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5KM/H)



99th percentile
(AS/NZS 2890.1:2004)

Width	: 1.94
Track	: 1.84
Kerb to Kerb Radius	12.5m

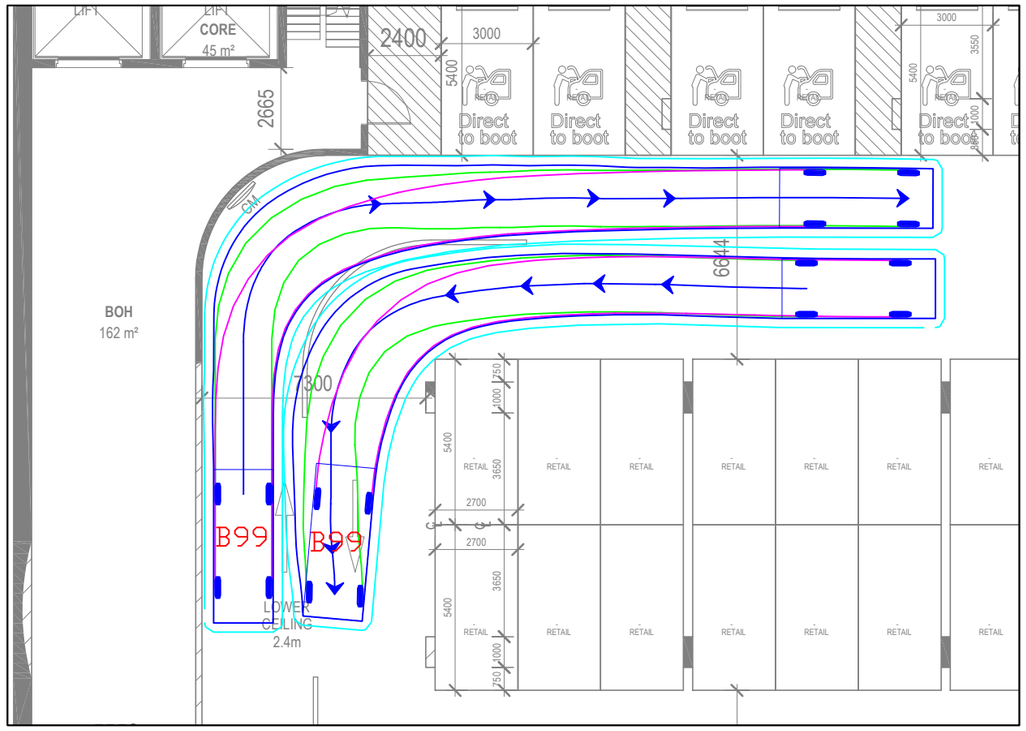
* actual template based on 'relevant longitudinal dimensions that affect swept path' as set out in Section B2.1 of AS/NZS 2890.1:2004

LEGEND

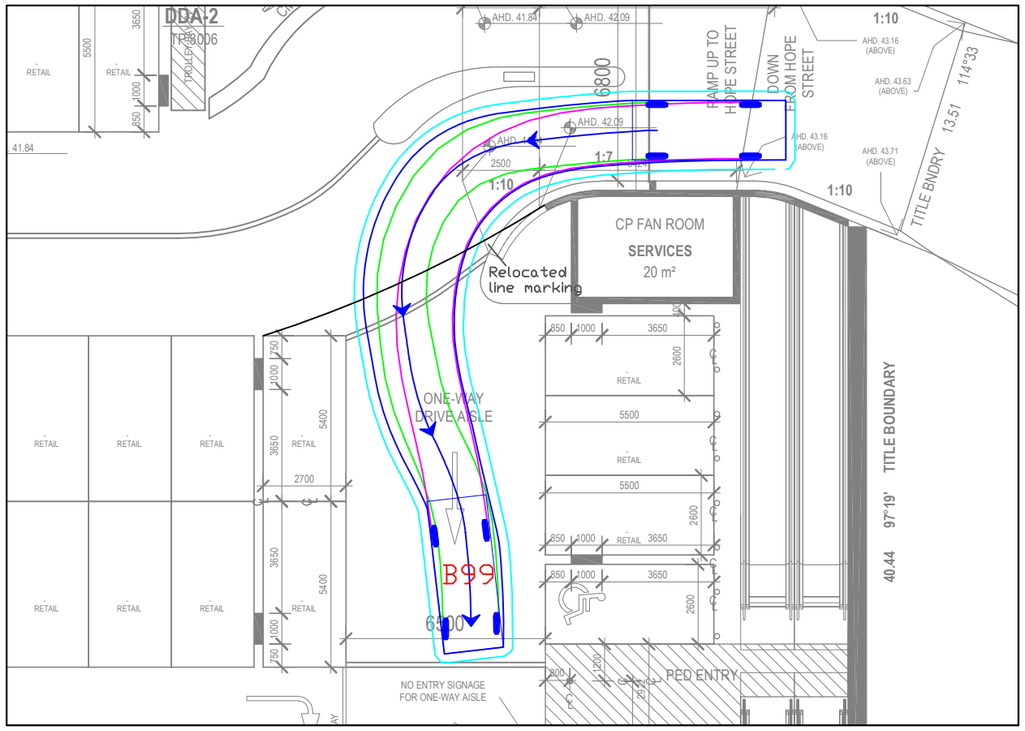
REAR WHEELS — VEHICLE BODY

FRONT WHEELS — BODY CLEARANCE

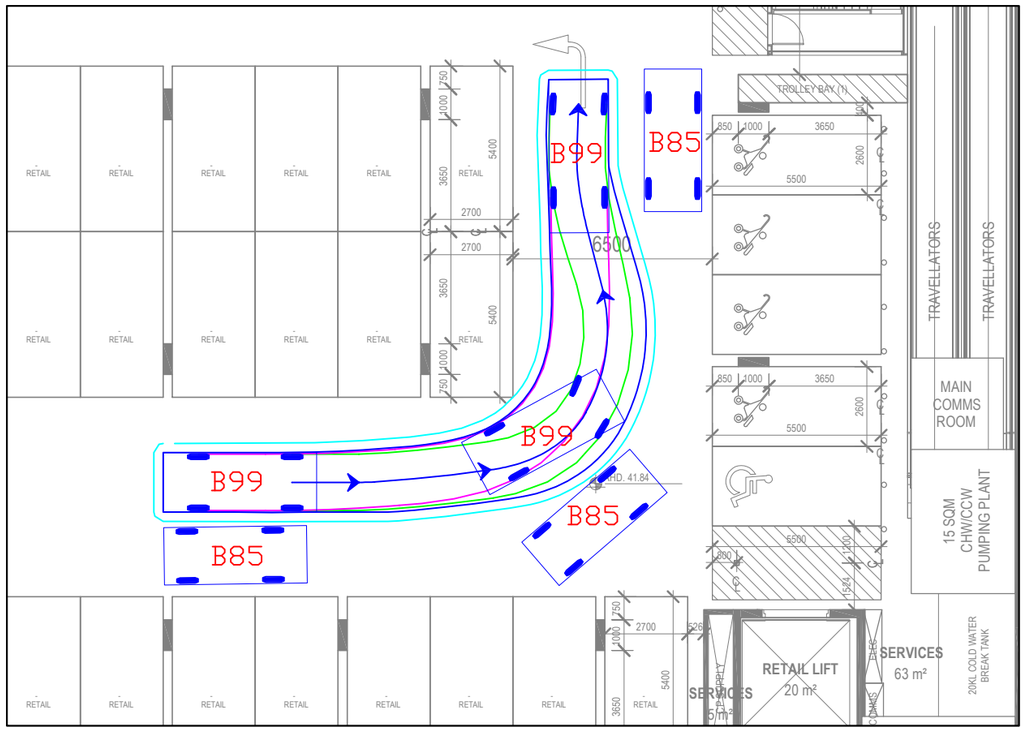
B99 VEHICLES PASSING IN BASEMENT 1 - SOUTH-WEST CORNER



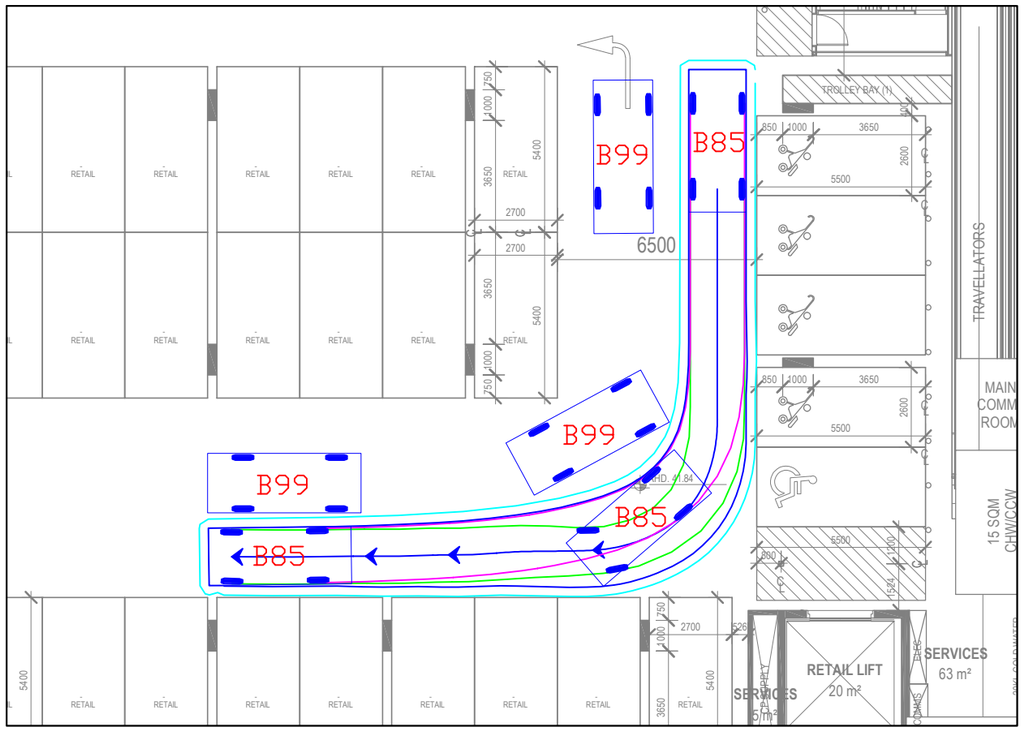
B99 VEHICLE TURNING LEFT IN BASEMENT 1 - HOPE STREET ACCESS



B99 PROP PASSING IN BASEMENT 1 - NORTH-EAST CORNER



B85 PROP PASSING IN BASEMENT 1 - NORTH-EAST CORNER



REV	DATE	NOTES	DESIGNED BY	CHECKED BY
04A	07/05/2024		D. ECONOMOU	J. STONE

173 BURKE ROAD, GLEN IRIS

PROPOSED MIXED USE DEVELOPMENT

GENERAL NOTES:

BASE INFORMATION FROM:
23076-PLAN--Area Plan (Gross Building) - TP_BASEMENT 01.dwg
DRAWINGS BY: Cera Stribley - dated 11th April, 2024

FILE NAME: G28846-04A

SHEET NO.: 02

SCALE: 1:200 (A3)

0 2 4

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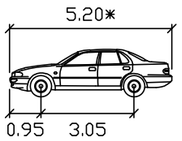
VEHICLE PROFILE

VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5KM/H)



99th percentile
(AS/NZS 2890.1:2004)

Width	: 1.94
Track	: 1.84
Kerb to Kerb Radius	12.5m

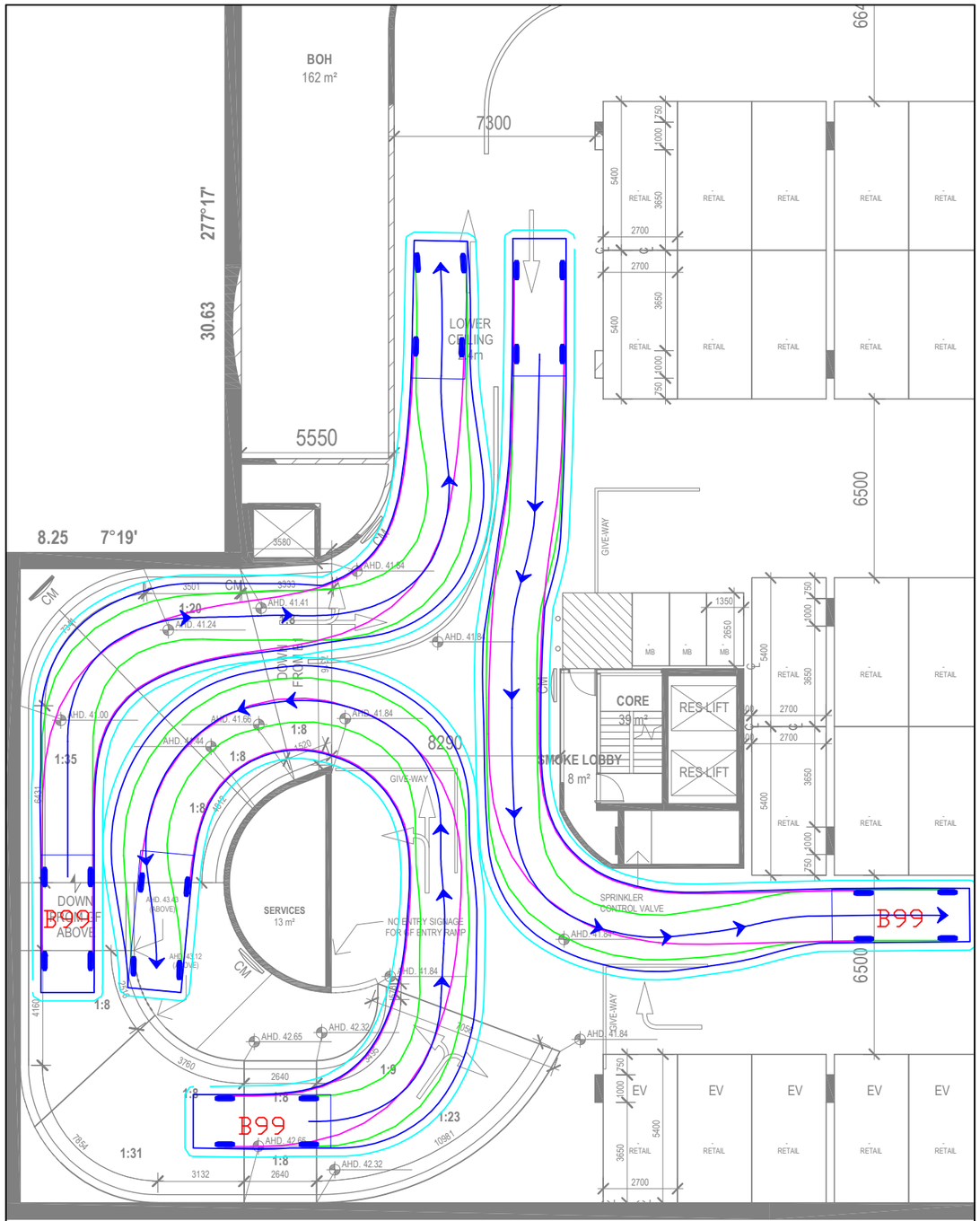
* actual template based on 'relevant longitudinal dimensions that affect swept path' as set out in Section B2.1 of AS/NZS 2890.1:2004

LEGEND

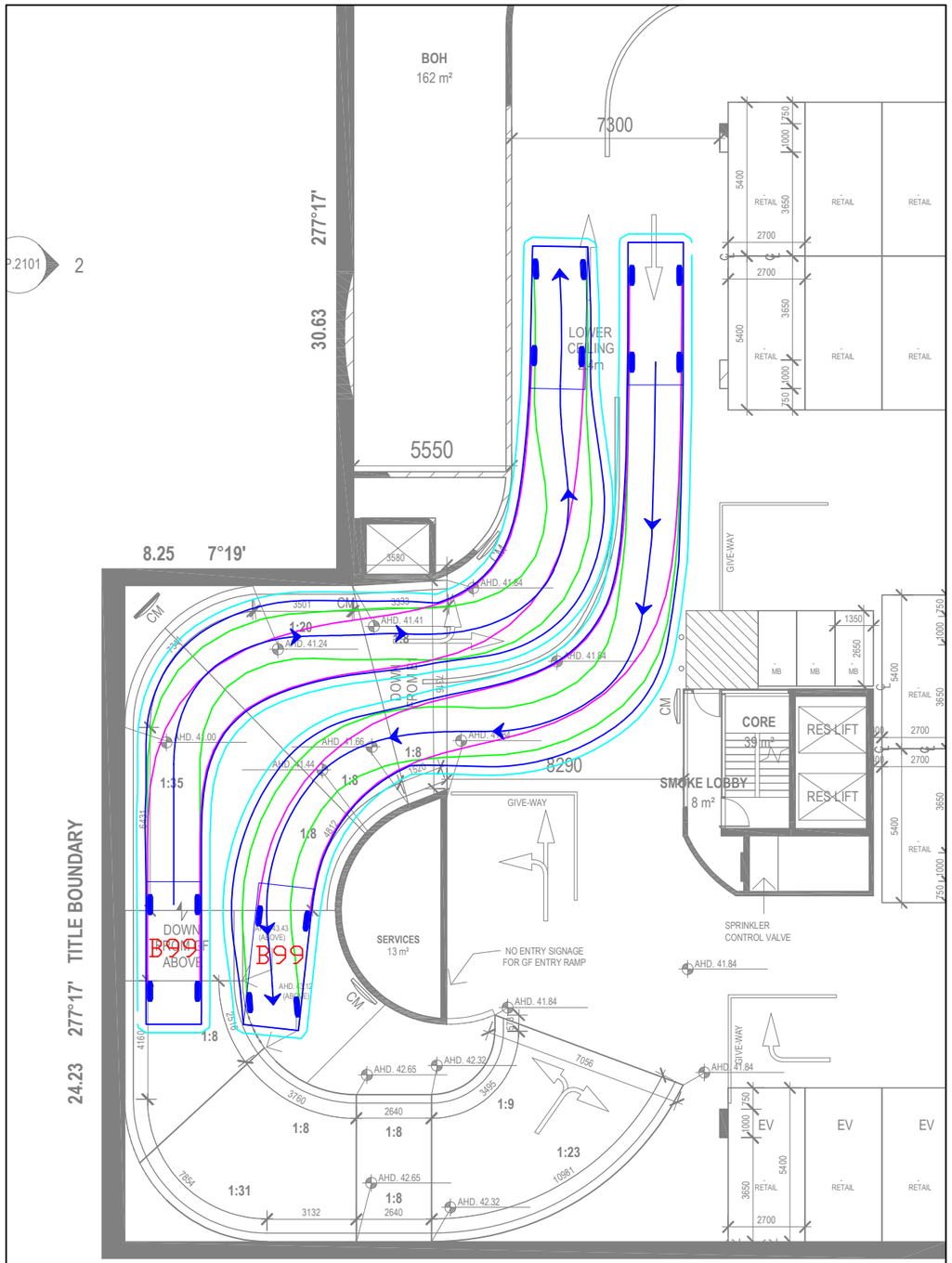
REAR WHEELS — VEHICLE BODY

FRONT WHEELS — BODY CLEARANCE

B99 CIRCULATION MOVEMENTS IN BASEMENT 1 - BETWEEN INTERNAL RAMPS



B99 CIRCULATION MOVEMENTS IN BASEMENT 1 - BETWEEN INTERNAL RAMPS 2



REV	DATE	NOTES	DESIGNED BY	CHECKED BY
04A	07/05/2024		D. ECONOMOU	J. STONE

173 BURKE ROAD, GLEN IRIS

PROPOSED MIXED USE DEVELOPMENT

GENERAL NOTES:

BASE INFORMATION FROM:
23076-PLAN--Area Plan (Gross Building) - TP_BASEMENT 01.dwg
DRAWINGS BY: Cera Stribley - dated 11th April, 2024

FILE NAME: G28846-04A

SHEET NO.: 03

SCALE: 1:200 (A3)

0 2 4

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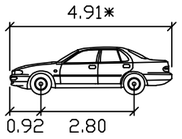
VEHICLE PROFILE

VEHICLE USED IN SIMULATION
(VEHICLE SPEED - 5KM/H)

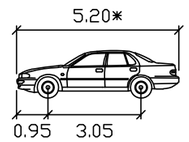


85th percentile
(AS/NZS 2890.1:2004)

Width	: 1.87m
Track	: 1.77m
Kerb to Kerb Radius	11.5m

* actual template based on 'relevant longitudinal dimensions that affect swept path' as set out in Section B2.1 of AS/NZS 2890.1:2004

VEHICLE USED IN SIMULATION
(VEHICLE SPEED - 5KM/H)



99th percentile
(AS/NZS 2890.1:2004)

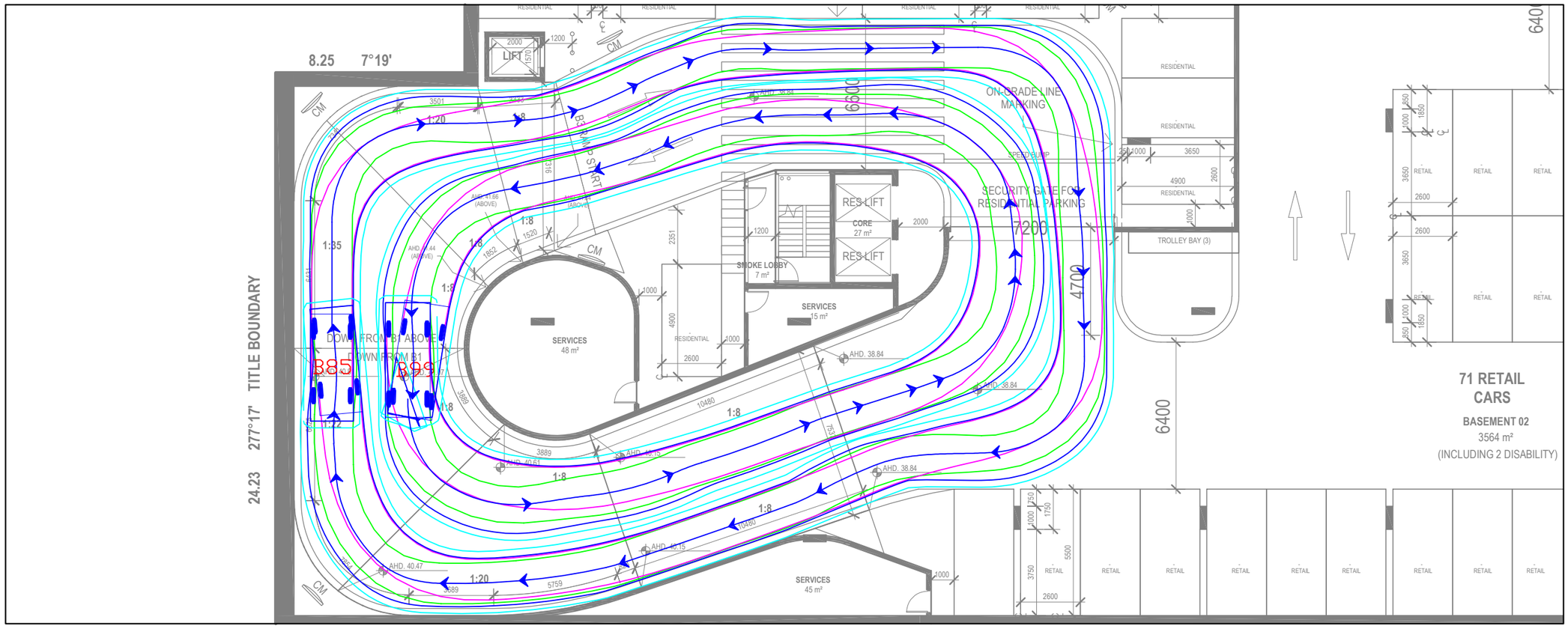
Width	: 1.94
Track	: 1.84
Kerb to Kerb Radius	12.5m

* actual template based on 'relevant longitudinal dimensions that affect swept path' as set out in Section B2.1 of AS/NZS 2890.1:2004

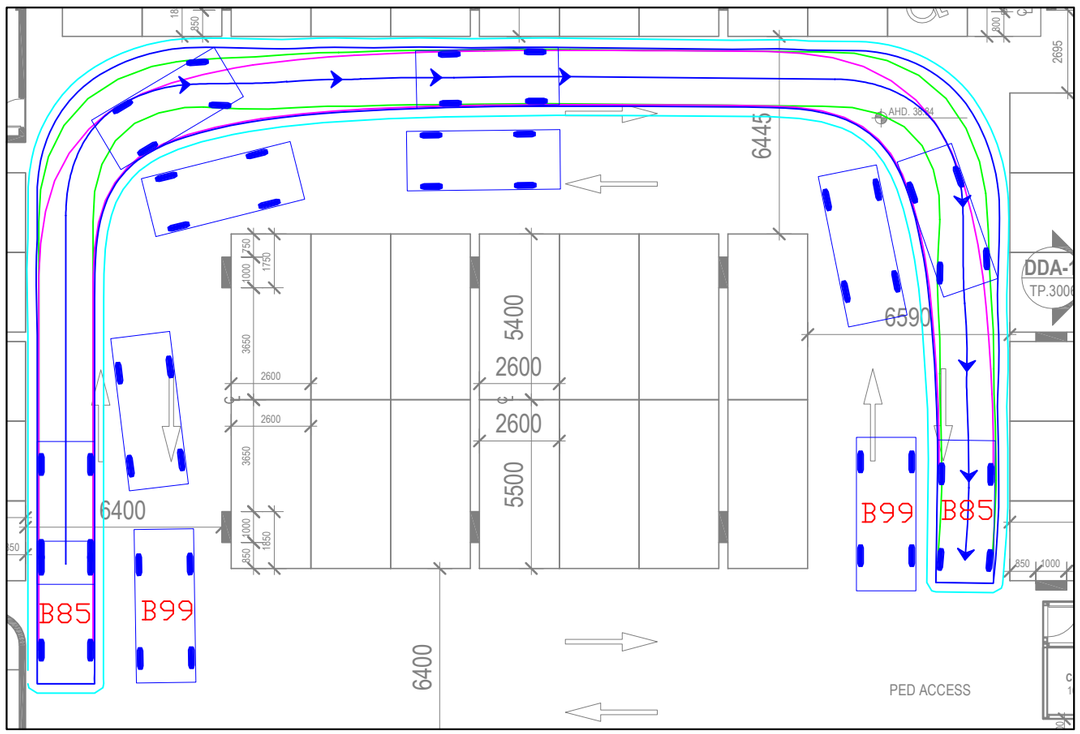
LEGEND

REAR WHEELS — VEHICLE BODY
FRONT WHEELS — BODY CLEARANCE

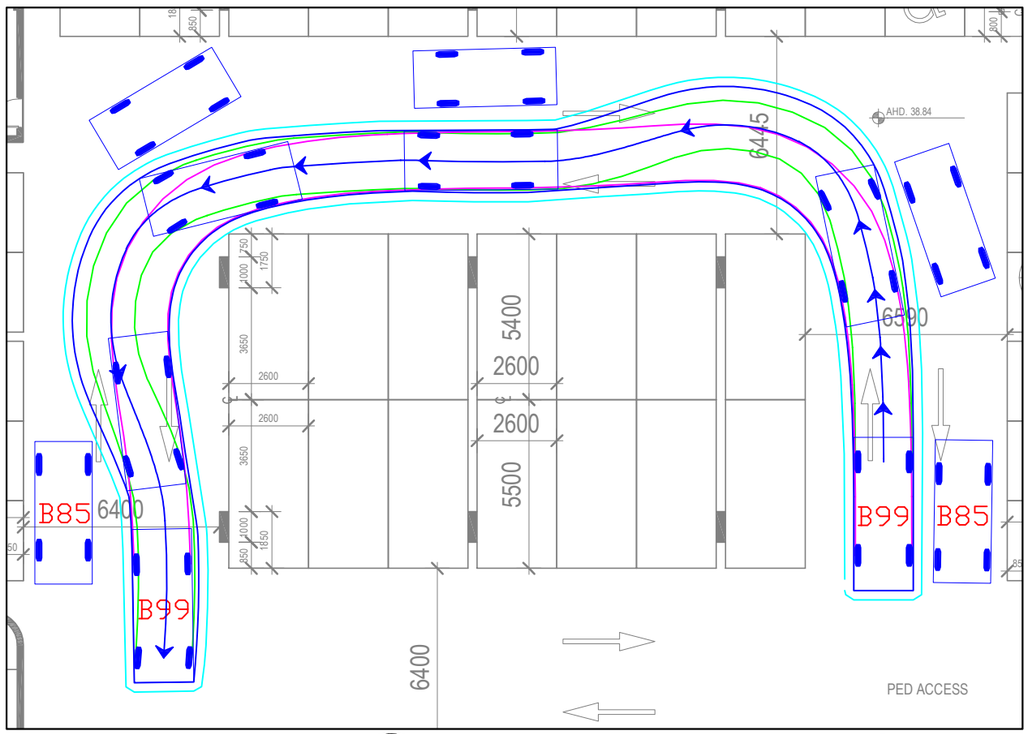
B99 & B85 CIRCULATION IN BASEMENT 2 - INTERNAL RAMPS



B85 PROP PASSING IN BASEMENT 2 - WESTERN END



B99 PROP PASSING IN BASEMENT 2 - WESTERN END



REV	DATE	NOTES	DESIGNED BY	CHECKED BY
04A	07/05/2024		D. ECONOMOU	J. STONE

173 BURKE ROAD, GLEN IRIS
PROPOSED MIXED USE DEVELOPMENT

GENERAL NOTES:

BASE INFORMATION FROM:
23076-PLAN--Area Plan (Gross Building) - TP_BASEMENT 02.dwg
DRAWINGS BY: Cera Stribley - dated 11th April, 2024

FILE NAME: G28846-04A
SHEET NO.: 04

SCALE: 1:200 (A3)
0 2 4

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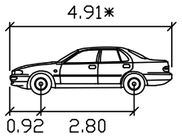
B99 & B85 PASSING IN BASEMENT 3

VEHICLE PROFILE

VEHICLE USED IN SIMULATION
(VEHICLE SPEED - 5KM/H)

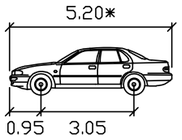


85th percentile
(AS/NZS 2890.1:2004)

Width	: 1.87m
Track	: 1.77m
Kerb to Kerb Radius	11.5m

* actual template based on 'relevant longitudinal dimensions that affect swept path' as set out in Section B2.1 of AS/NZS 2890.1:2004

VEHICLE USED IN SIMULATION
(VEHICLE SPEED - 5KM/H)



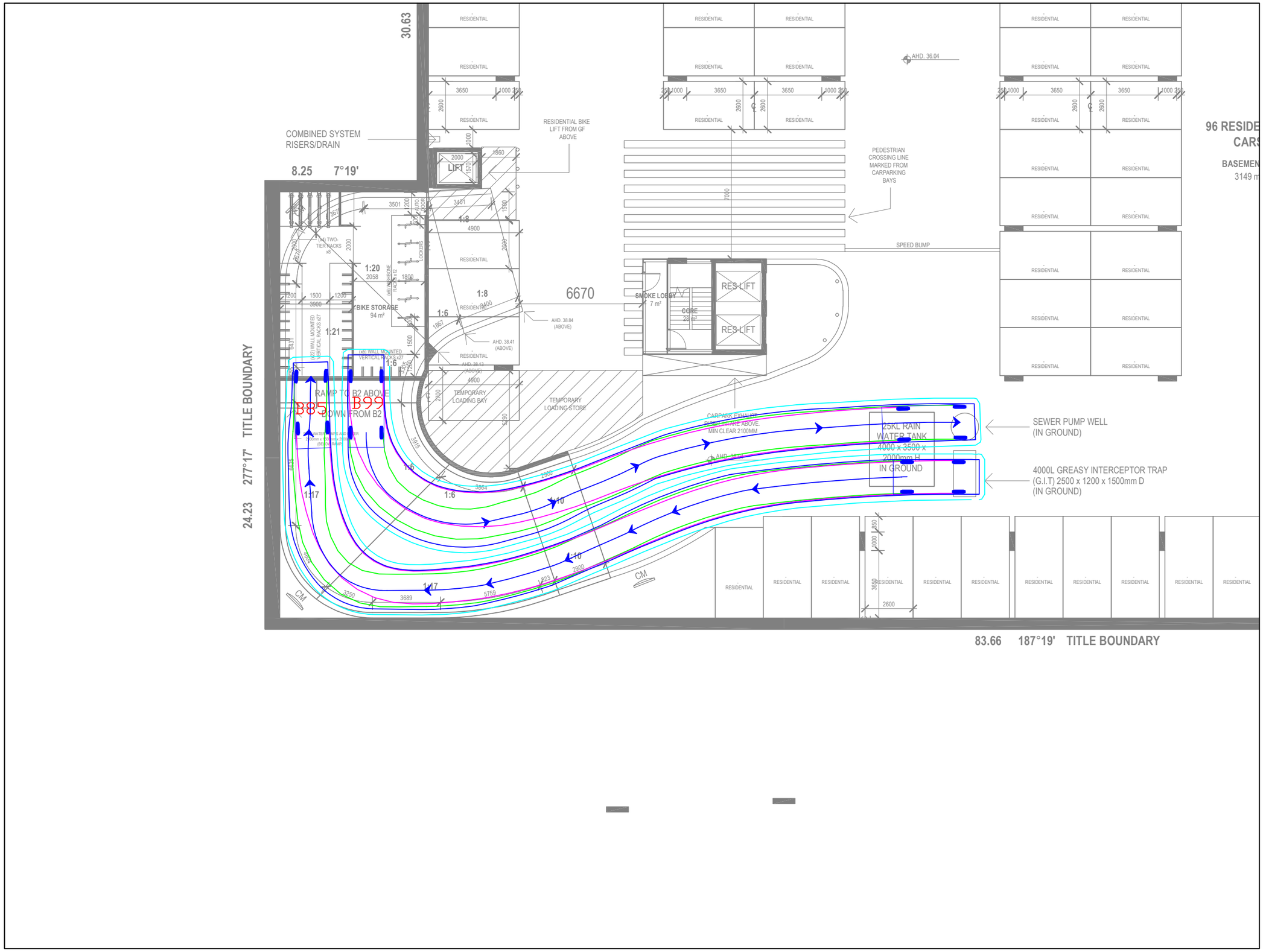
99th percentile
(AS/NZS 2890.1:2004)

Width	: 1.94
Track	: 1.84
Kerb to Kerb Radius	12.5m

* actual template based on 'relevant longitudinal dimensions that affect swept path' as set out in Section B2.1 of AS/NZS 2890.1:2004

LEGEND

- REAR WHEELS
- FRONT WHEELS
- VEHICLE BODY
- BODY CLEARANCE



REV	DATE	NOTES	DESIGNED BY	CHECKED BY
04A	07/05/2024		D. ECONOMOU	J. STONE

173 BURKE ROAD, GLEN IRIS
PROPOSED MIXED USE DEVELOPMENT

GENERAL NOTES:

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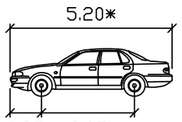
VEHICLE PROFILE

VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5KM/H)



99th percentile
(AS/NZS 2890.1:2004)

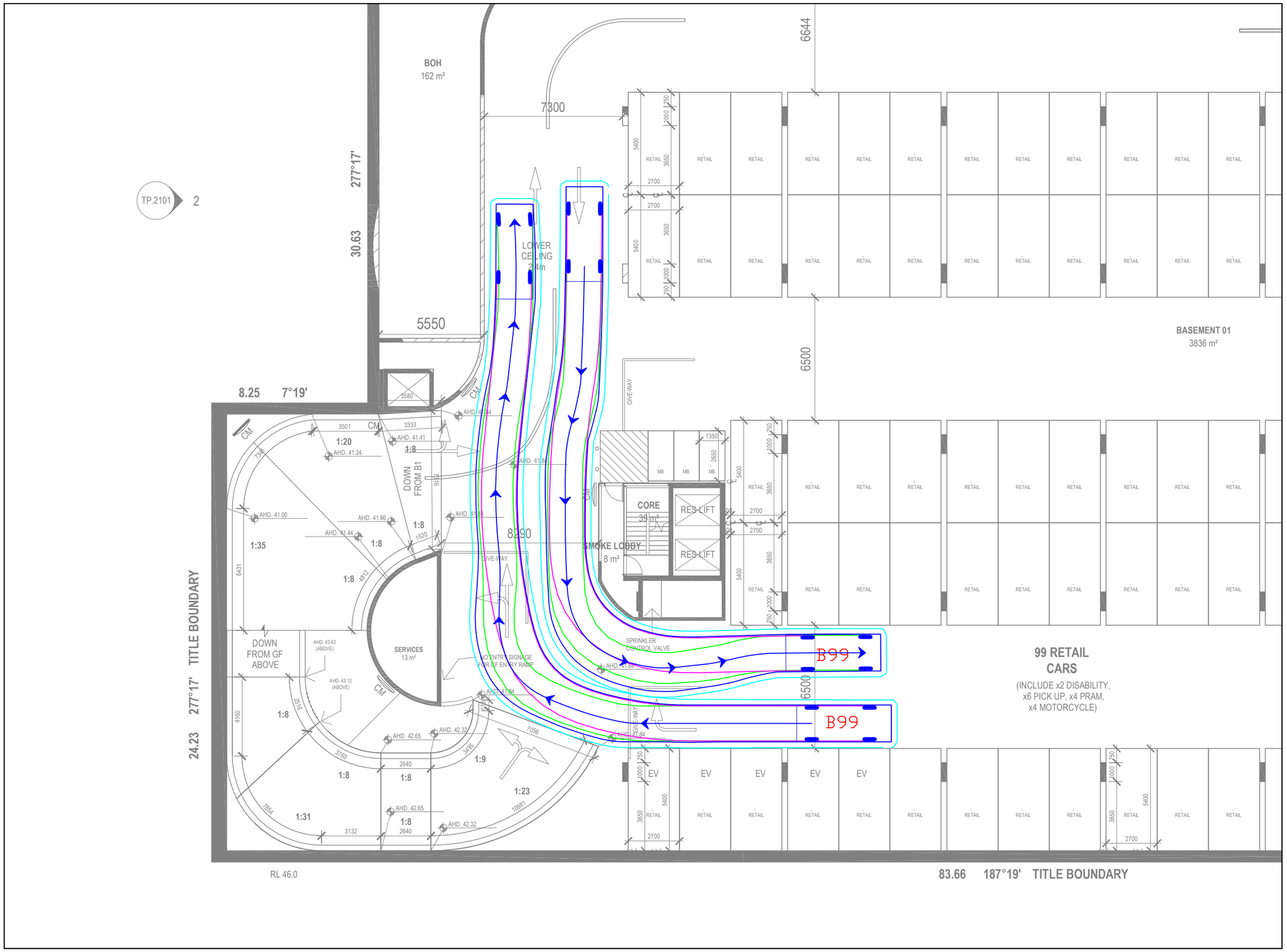
Width	: 1.94
Track	: 1.84
Kerb to Kerb Radius	12.5m

* actual template based on 'relevant longitudinal dimensions that affect swept path' as set out in Section B2.1 of AS/NZS 2890.1:2004

LEGEND

REAR WHEELS — VEHICLE BODY
FRONT WHEELS — BODY CLEARANCE

B99 PASSING IN BASEMENT 1 - SOUTH-EAST CORNER



REV	DATE	NOTES	DESIGNED BY	CHECKED BY
04A	07/05/2024		D. ECONOMOU	J. STONE

173 BURKE ROAD, GLEN IRIS
PROPOSED MIXED USE DEVELOPMENT

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FILE NAME: G28846-04A
SHEET NO.: 06

SCALE: 1:200 (A3)

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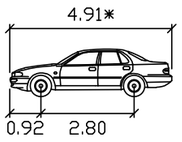
VEHICLE PROFILE

VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5KM/H)



85th percentile
(AS/NZS 2890.1:2004)

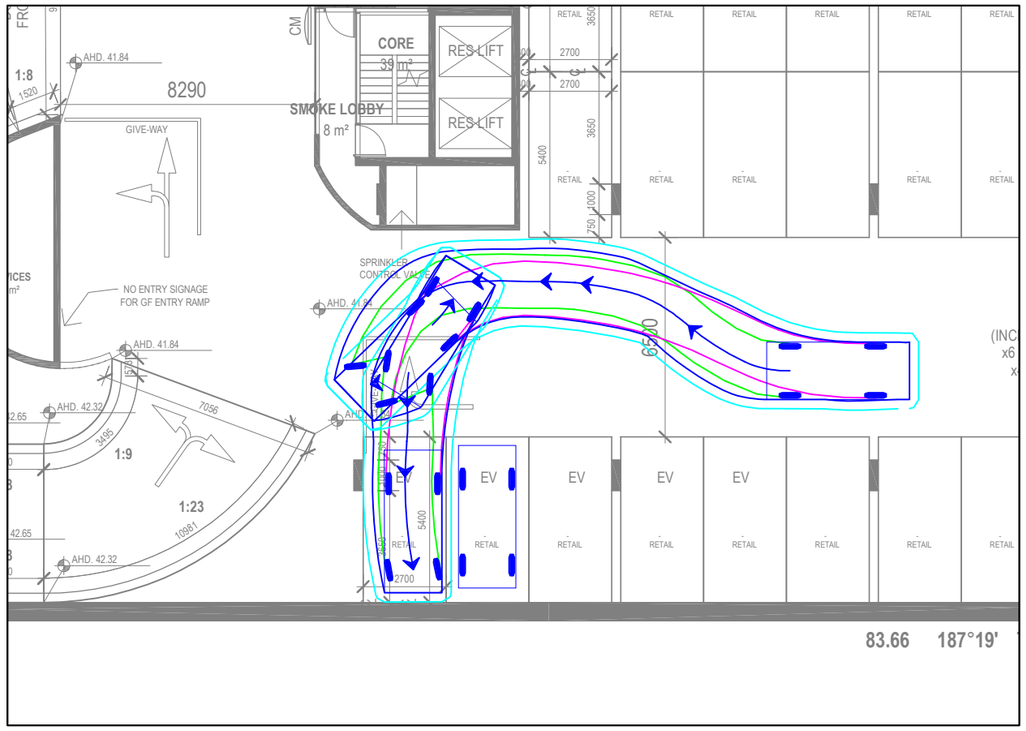
Width	: 1.87m
Track	: 1.77m
Kerb to Kerb Radius	: 11.5m

* actual template based on 'relevant longitudinal dimensions that affect swept path' as set out in Section B2.1 of AS/NZS 2890.1:2004

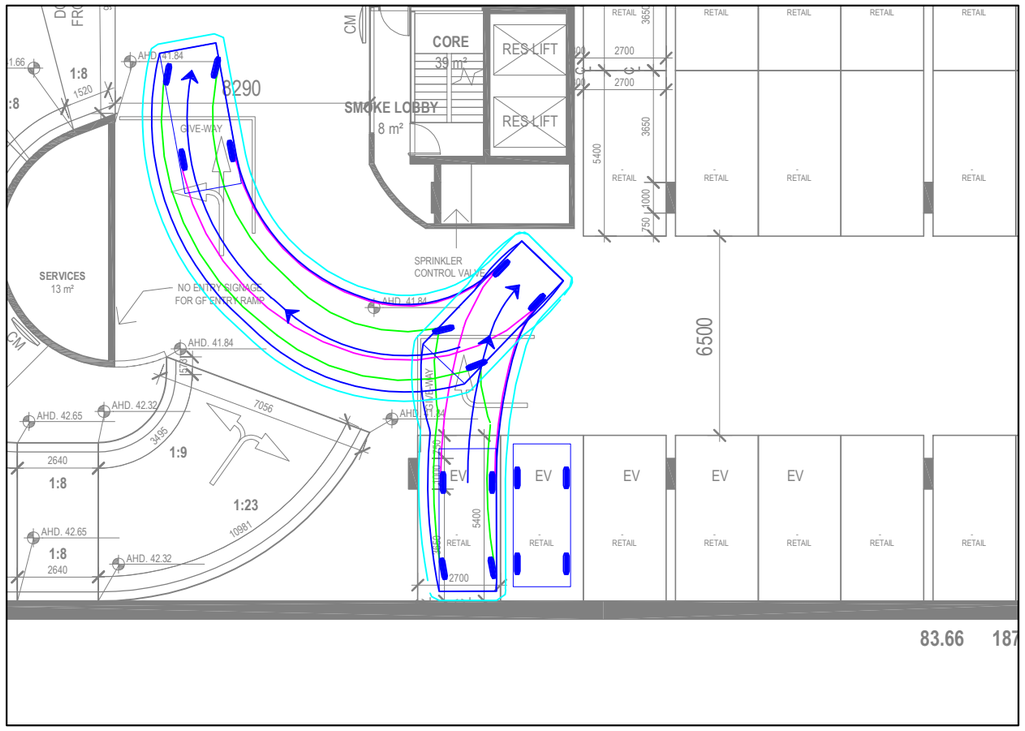
LEGEND

REAR WHEELS — VEHICLE BODY
FRONT WHEELS — BODY CLEARANCE

BASEMENT 1 - SOUTH-EAST CAR SPACE - INGRESS



BASEMENT 1 - SOUTH-EAST CAR SPACE - EGRESS



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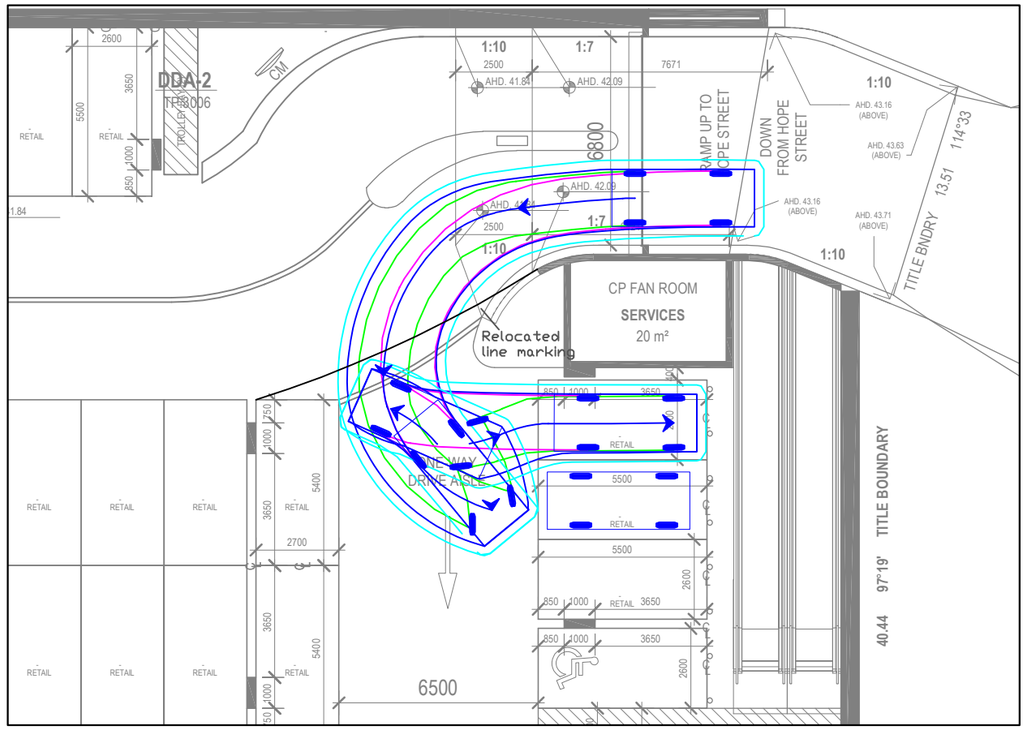
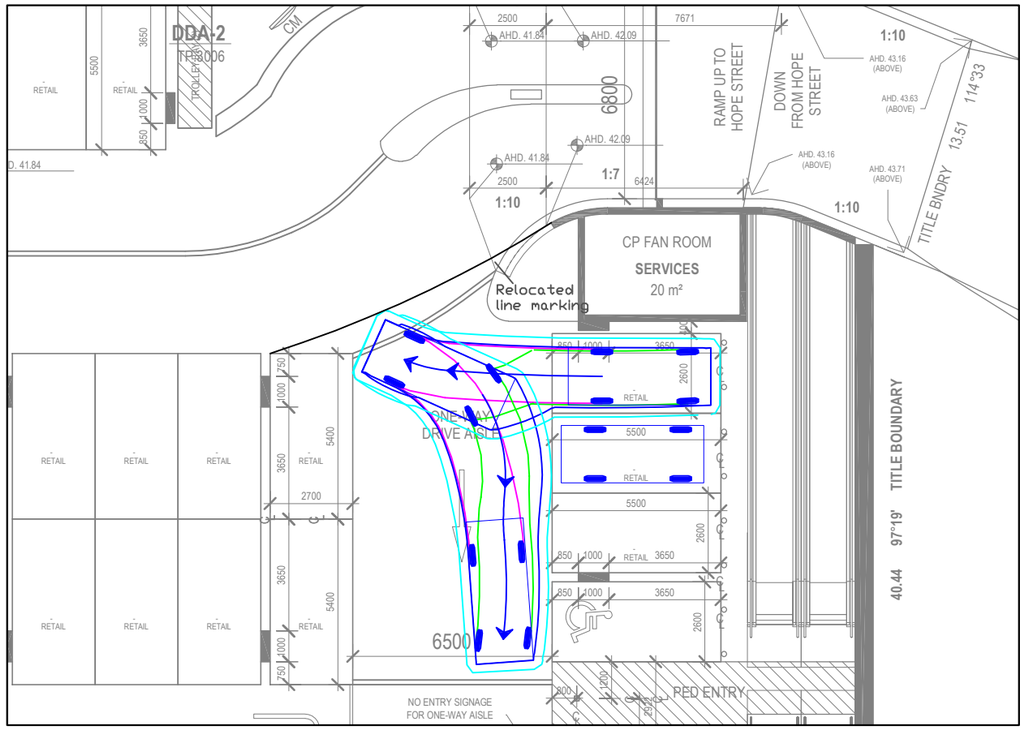


BASEMENT 1 - NORTH-WEST CAR SPACE - EGRESS



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04A	07/05/2024		D. ECONOMOU	J. STONE

173 BURKE ROAD, GLEN IRIS
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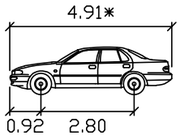
VEHICLE PROFILE

VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5KM/H)



85th percentile
(AS/NZS 2890.1:2004)

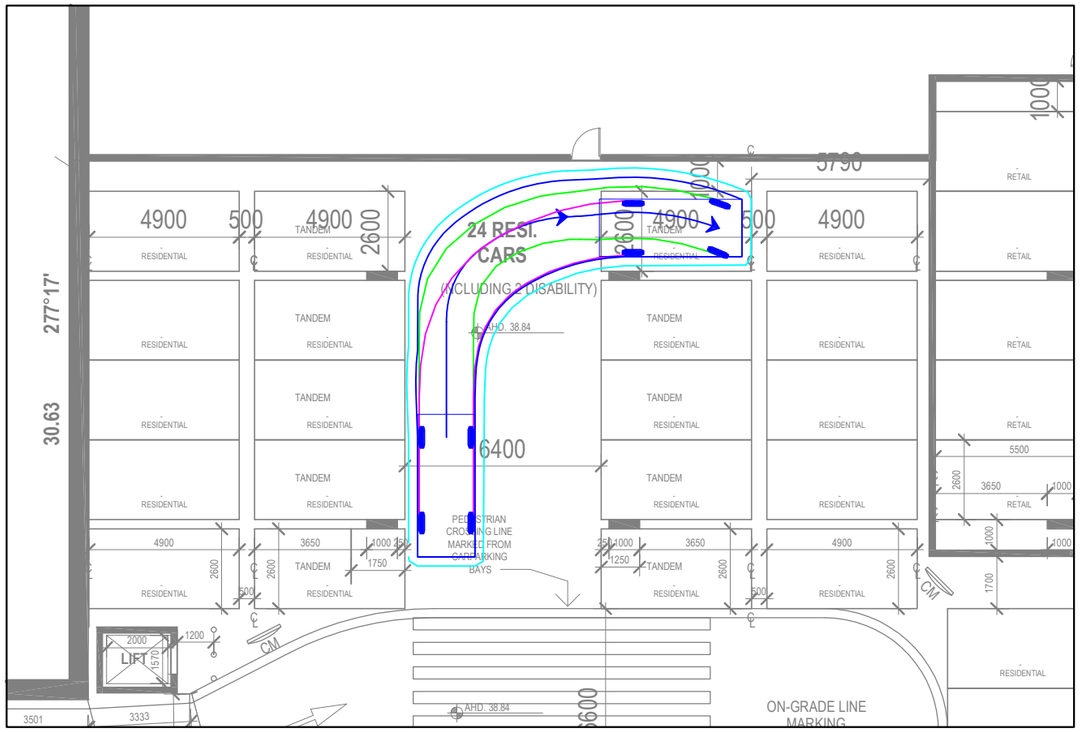
Width	: 1.87m
Track	: 1.77m
Kerb to Kerb Radius	: 11.5m

* actual template based on 'relevant longitudinal dimensions that affect swept path' as set out in Section B2.1 of AS/NZS 2890.1:2004

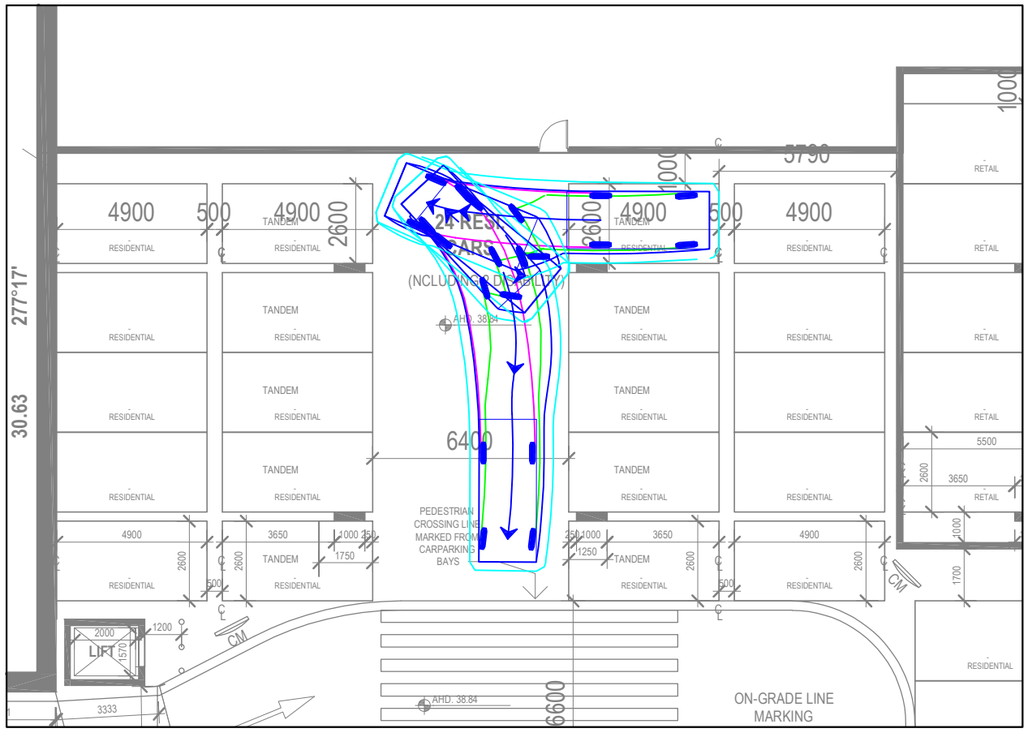
LEGEND

REAR WHEELS — VEHICLE BODY
FRONT WHEELS — BODY CLEARANCE

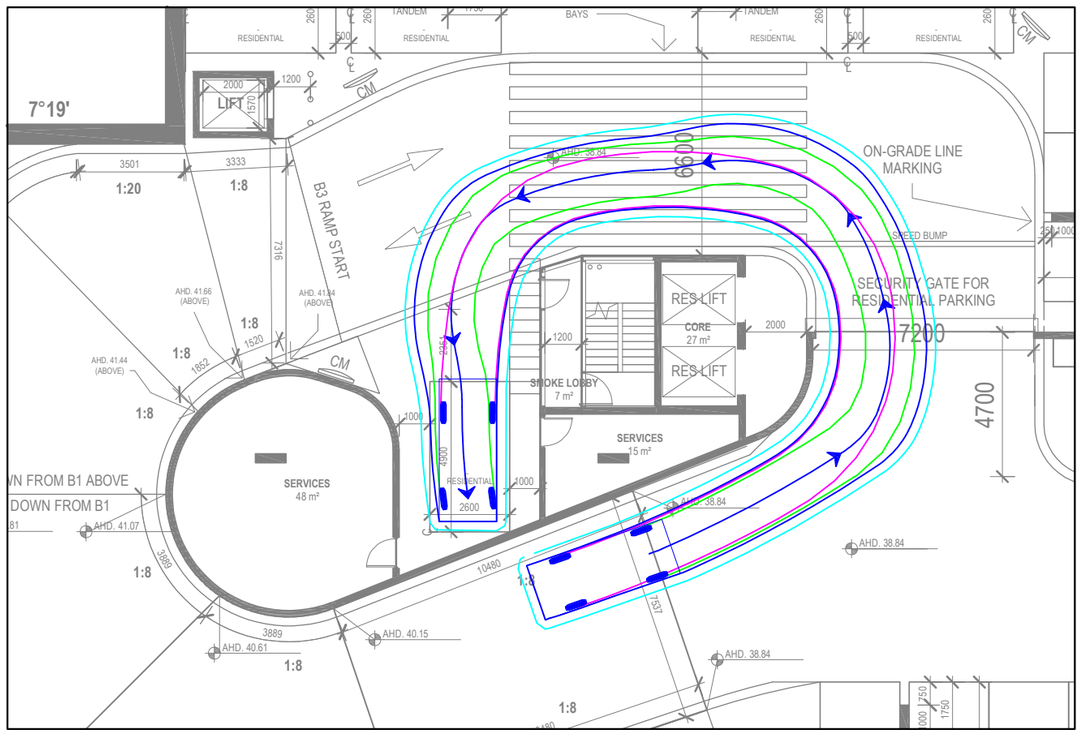
BASEMENT 2 - END CAR SPACE - INGRESS



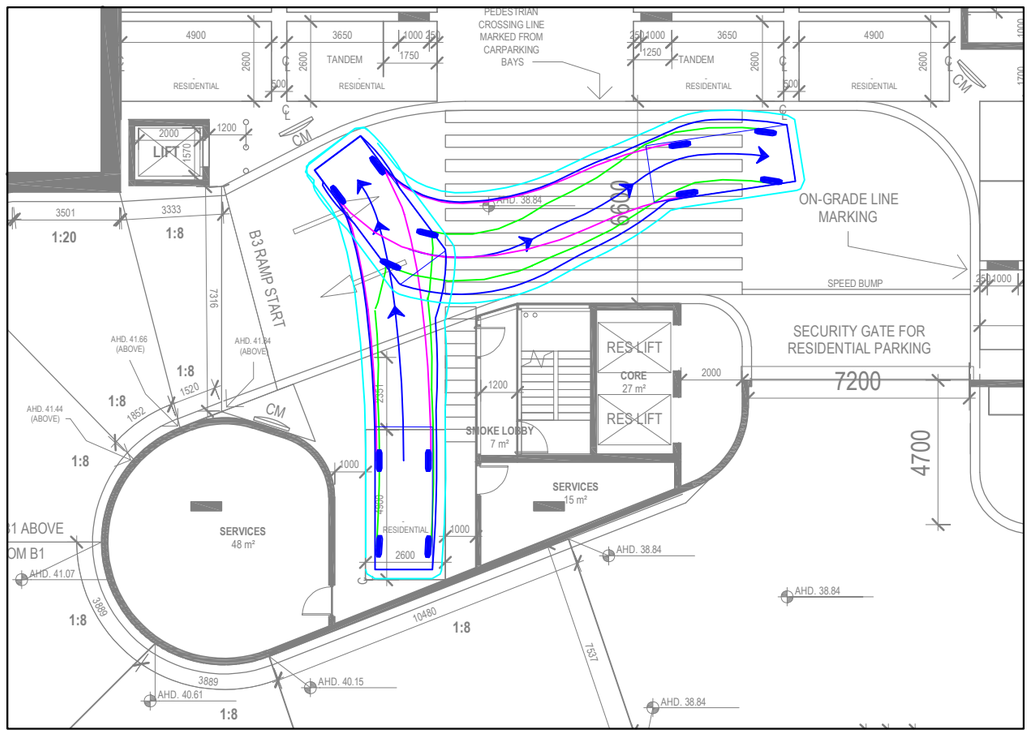
BASEMENT 2 - END CAR SPACE - EGRESS



BASEMENT 2 - CENTRAL CAR SPACE - INGRESS



BASEMENT 2 - CENTRAL CAR SPACE - EGRESS



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04A	07/05/2024		D. ECONOMOU	J. STONE

173 BURKE ROAD, GLEN IRIS
PROPOSED MIXED USE DEVELOPMENT

GENERAL NOTES:

BASE INFORMATION FROM:
23076-PLAN--Area Plan (Gross Building) - TP_BASEMENT 02.dwg
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FILE NAME: G28846-04A
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SCALE: 1:200 (A3)
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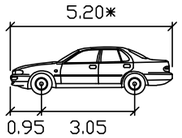
VEHICLE PROFILE

VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5KM/H)



99th percentile
(AS/NZS 2890.1:2004)

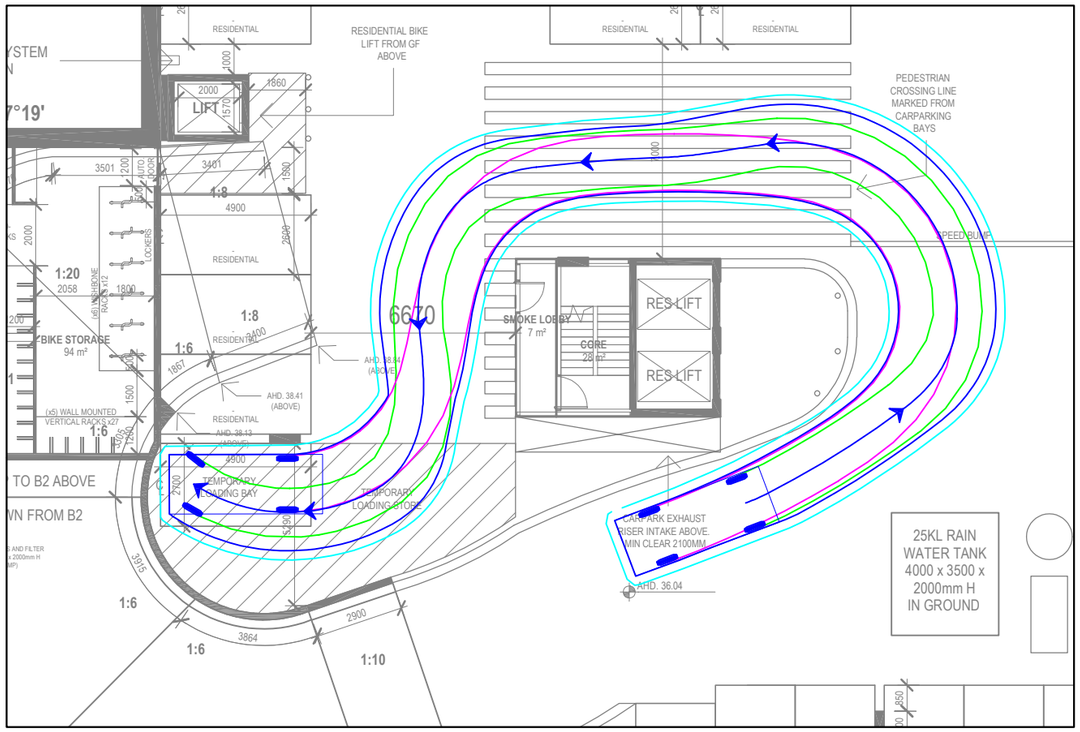
Width	: 1.94
Track	: 1.84
Kerb to Kerb Radius	12.5m

* actual template based on 'relevant longitudinal dimensions that affect swept path' as set out in Section B2.1 of AS/NZS 2890.1:2004

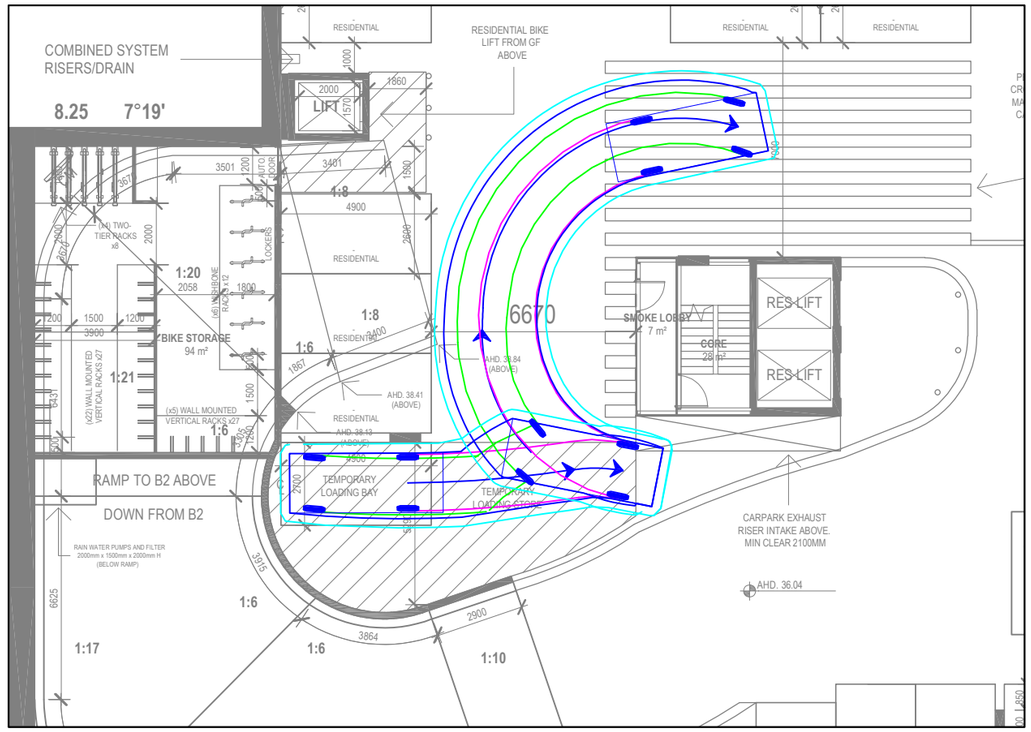
LEGEND

REAR WHEELS — VEHICLE BODY
FRONT WHEELS — BODY CLEARANCE

BASEMENT 3 - TEMPORARY LOADING AREA - B99 VEHICLE INGRESS



BASEMENT 3 - TEMPORARY LOADING AREA - B99 VEHICLE EGRESS



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04A	07/05/2024		D. ECONOMOU	J. STONE

173 BURKE ROAD, GLEN IRIS
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FILE NAME: G28846-04A
SHEET NO.: 09

SCALE: 1:200 (A3)

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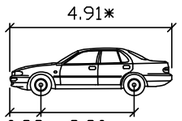
VEHICLE PROFILE

VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5KM/H)



85th percentile
(AS/NZS 2890.1:2004)

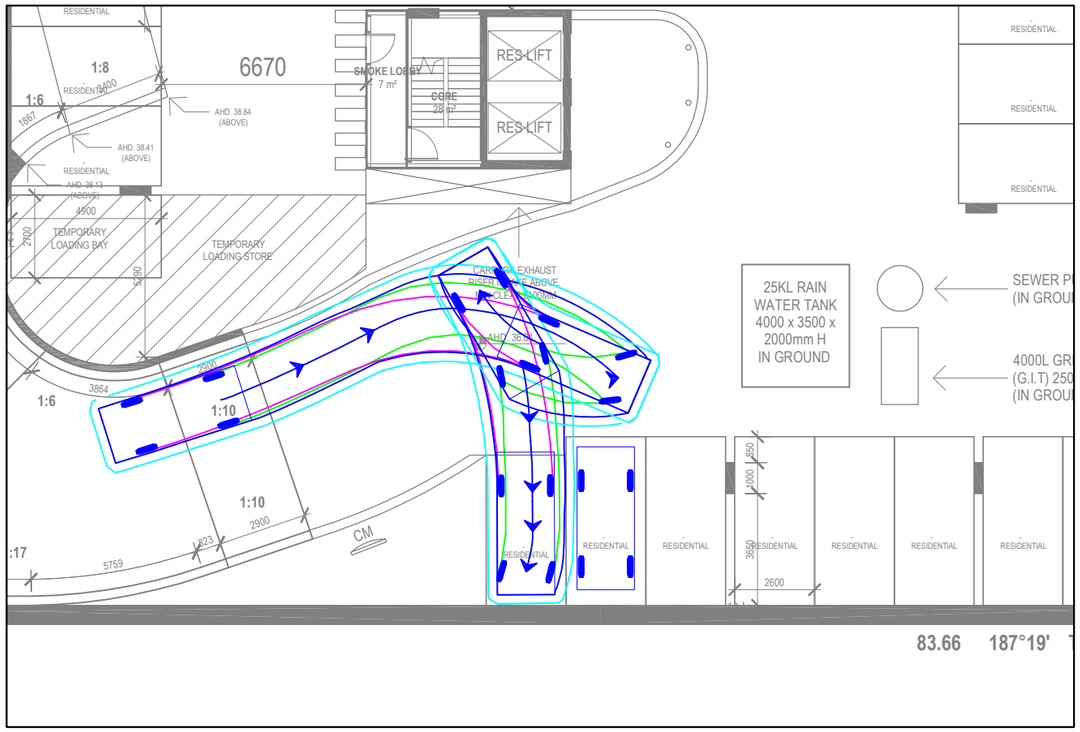
Width	: 1.87m
Track	: 1.77m
Kerb to Kerb Radius	11.5m

* actual template based on 'relevant longitudinal dimensions that affect swept path' as set out in Section B2.1 of AS/NZS 2890.1:2004

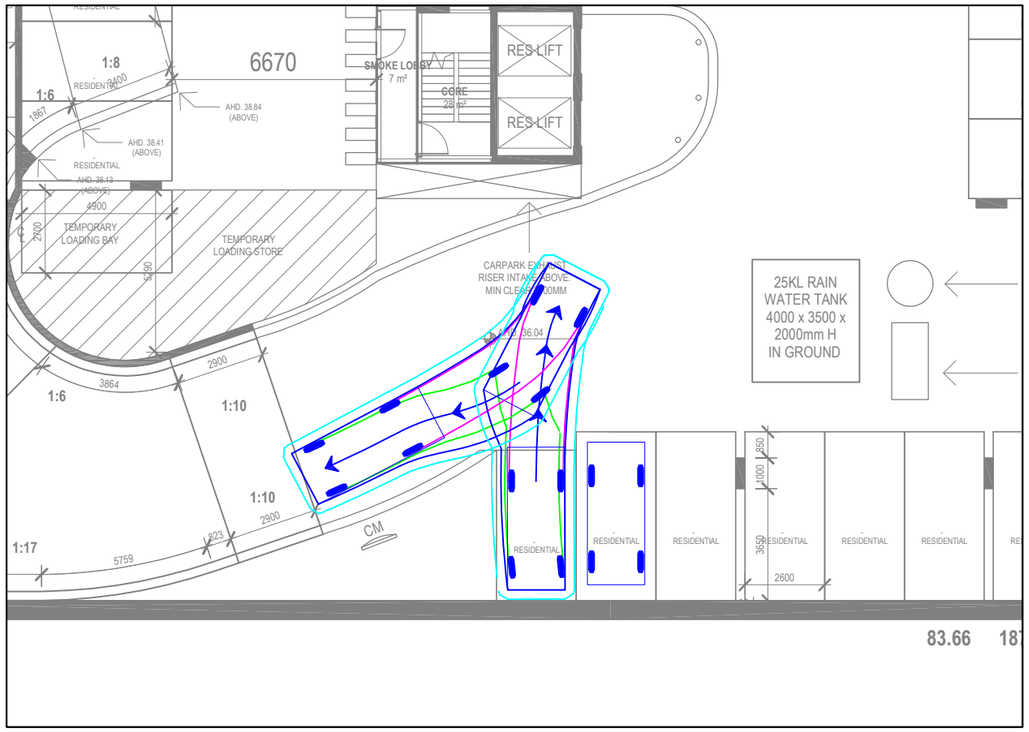
LEGEND

REAR WHEELS — VEHICLE BODY
FRONT WHEELS — BODY CLEARANCE

BASEMENT 3 - SOUTH-EAST CAR SPACE - INGRESS



BASEMENT 3 - SOUTH-EAST CAR SPACE - EGRESS



REV 04A | **DATE** 07/05/2024 | **NOTES** | **DESIGNED BY** D. ECONOMOU | **CHECKED BY** J. STONE

173 BURKE ROAD, GLEN IRIS
PROPOSED MIXED USE DEVELOPMENT

GENERAL NOTES:

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SCALE: 1:200 (A3)

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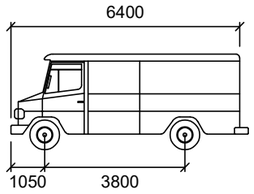
VEHICLE PROFILE

VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5KM/H)



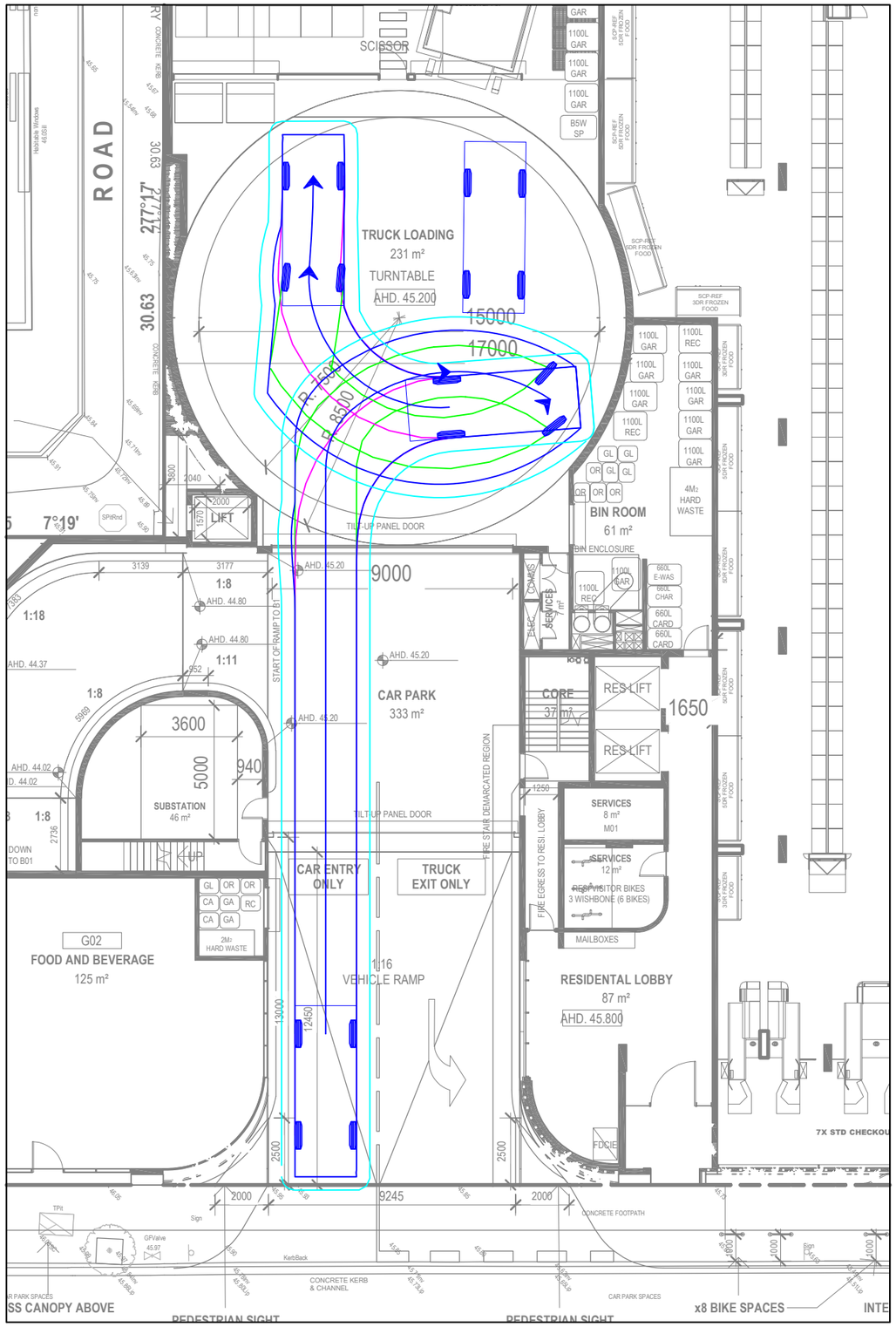
SRV (AS 2890.2)		mm
Width	:	2300
Track	:	2300
Lock to Lock Time	:	6.0
Steering Angle	:	38.0

LEGEND

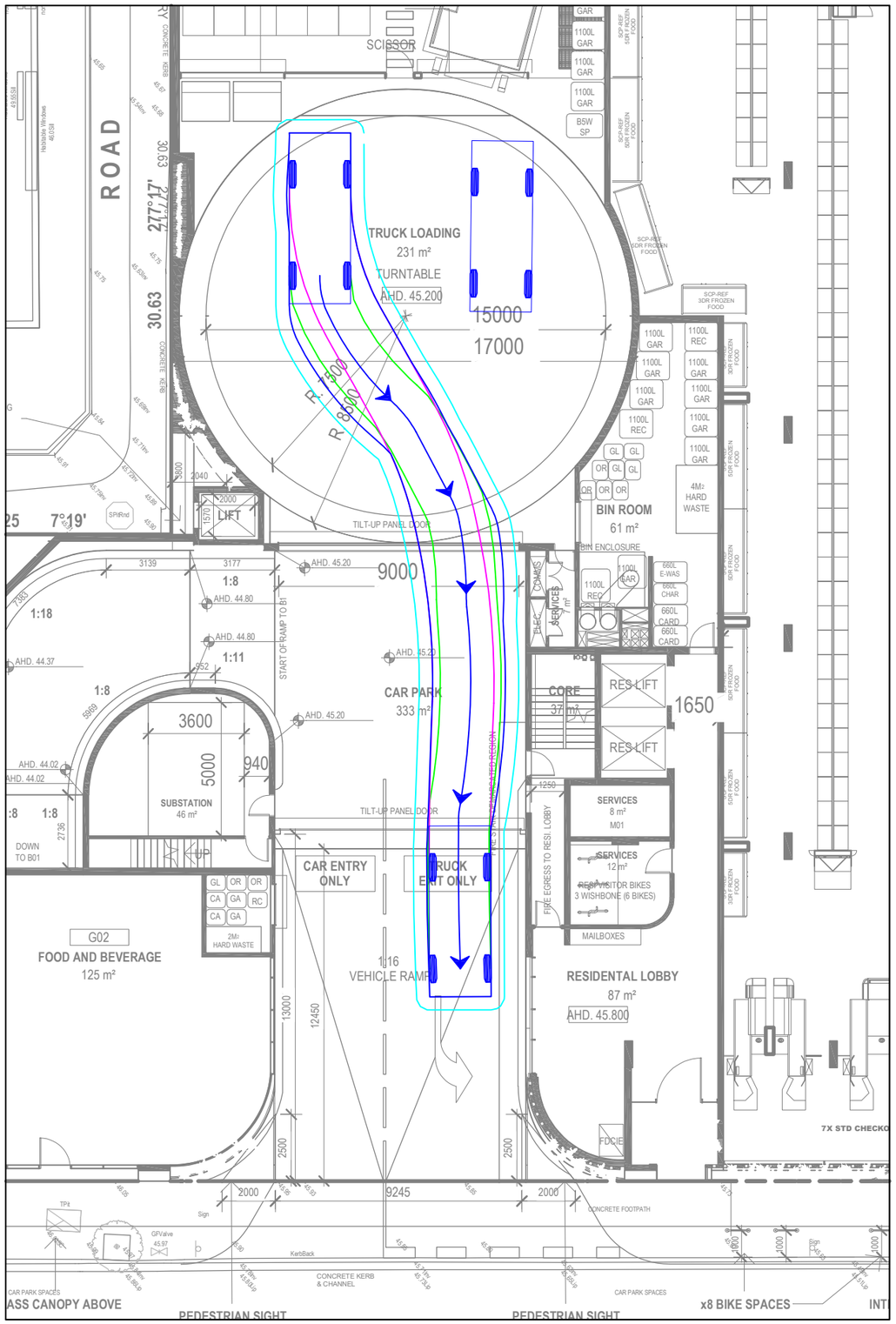
REAR WHEELS — VEHICLE BODY

FRONT WHEELS — BODY CLEARANCE

6.4m SRV - INGRESS 1



6.4m SRV - EGRESS 1



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173 BURKE ROAD, GLEN IRIS

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DRAWINGS BY: Cera Stribley - dated 11th April, 2024

FILE NAME: G28846-04A

SHEET NO.: 11

SCALE: 1:200 (A3)

0 2 4

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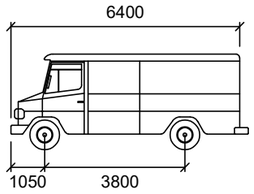
VEHICLE PROFILE

VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5KM/H)



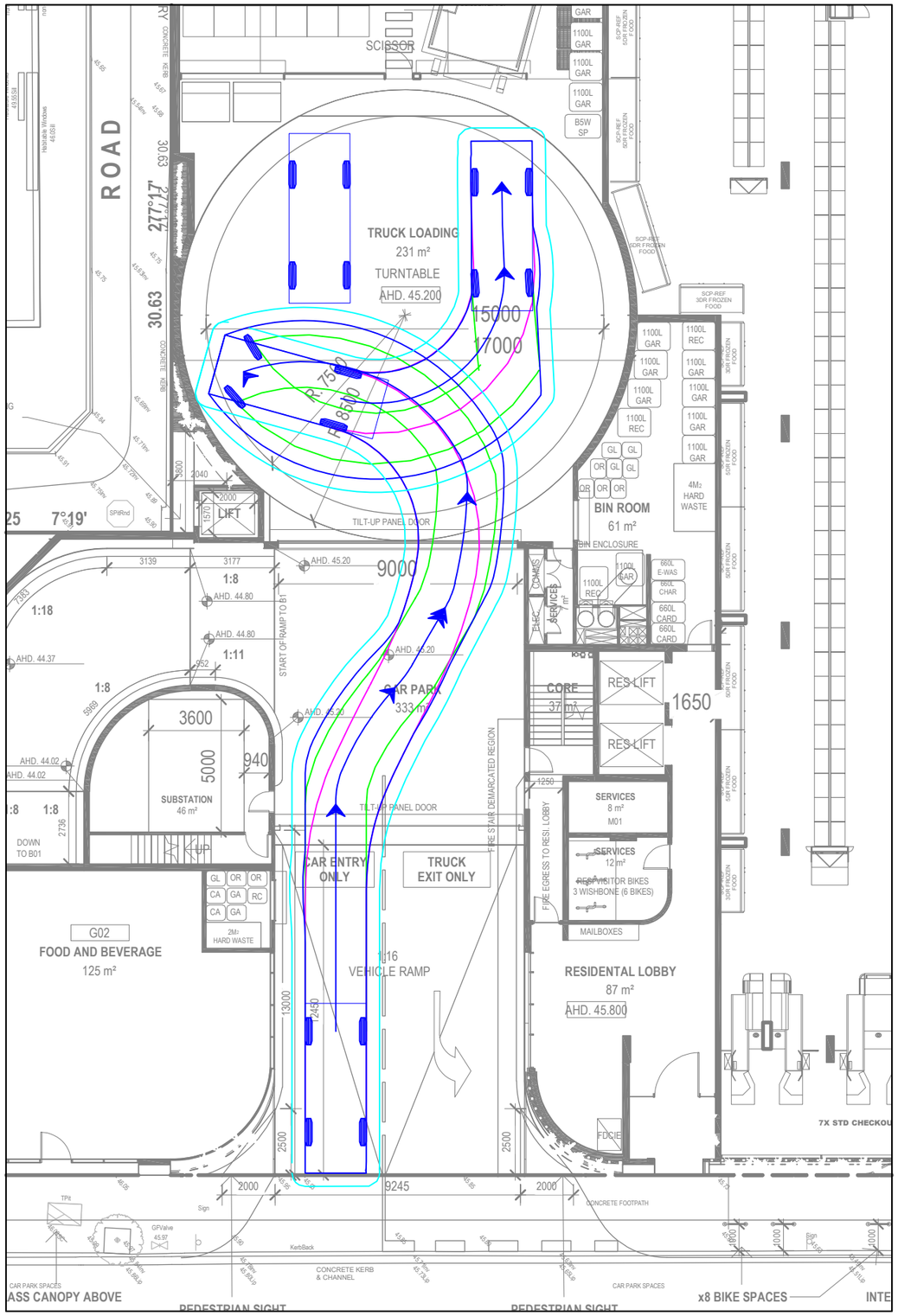
SRV (AS 2890.2)		mm
Width	:	2300
Track	:	2300
Lock to Lock Time	:	6.0
Steering Angle	:	38.0

LEGEND

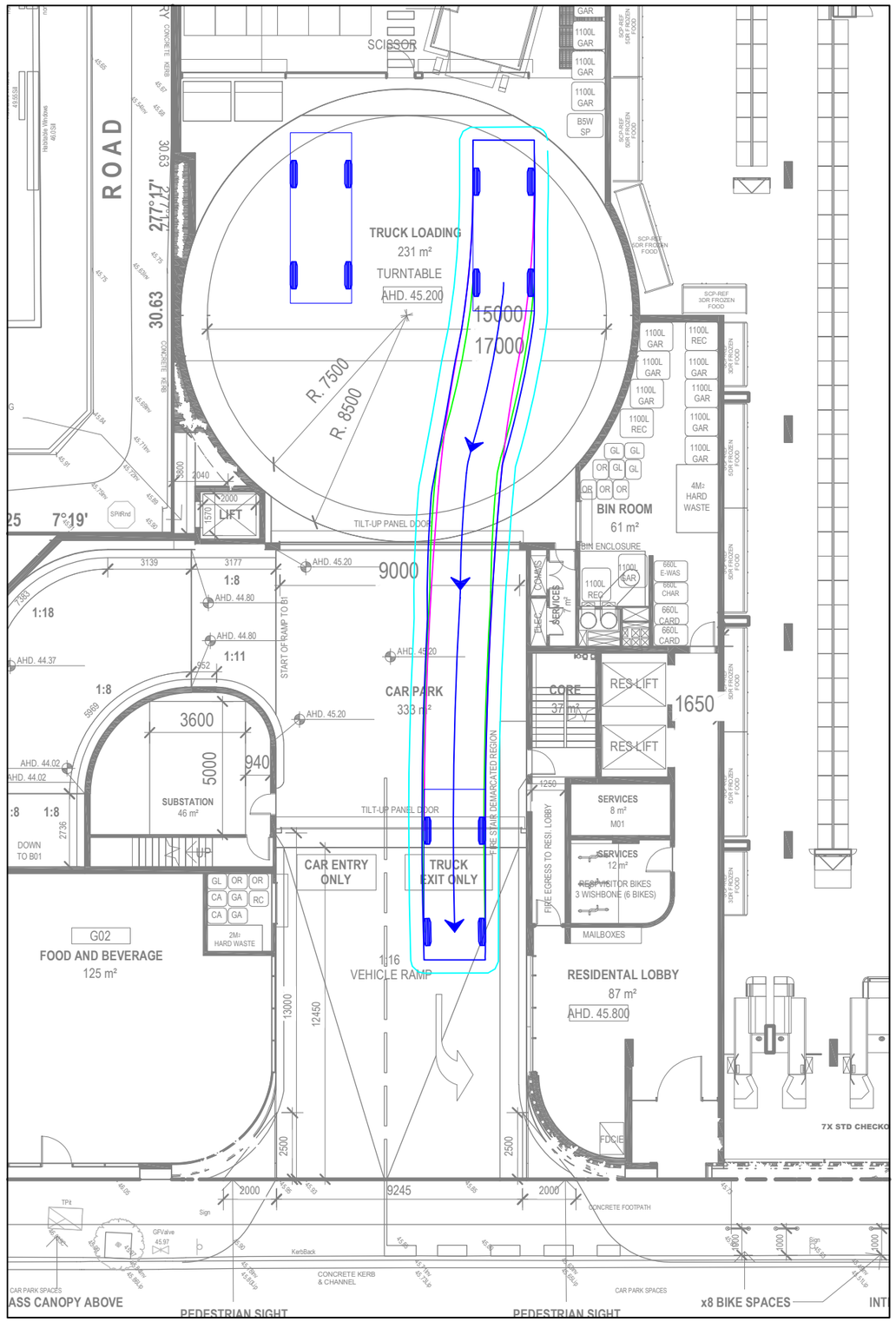
REAR WHEELS — VEHICLE BODY

FRONT WHEELS — BODY CLEARANCE

6.4m SRV - INGRESS 2



6.4m SRV - EGRESS 2



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FILE NAME: G28846-04A

SHEET NO.: 12

SCALE: 1:200 (A3)

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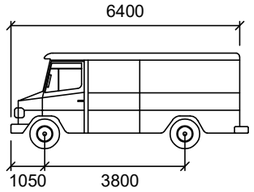
VEHICLE PROFILE

VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5KM/H)



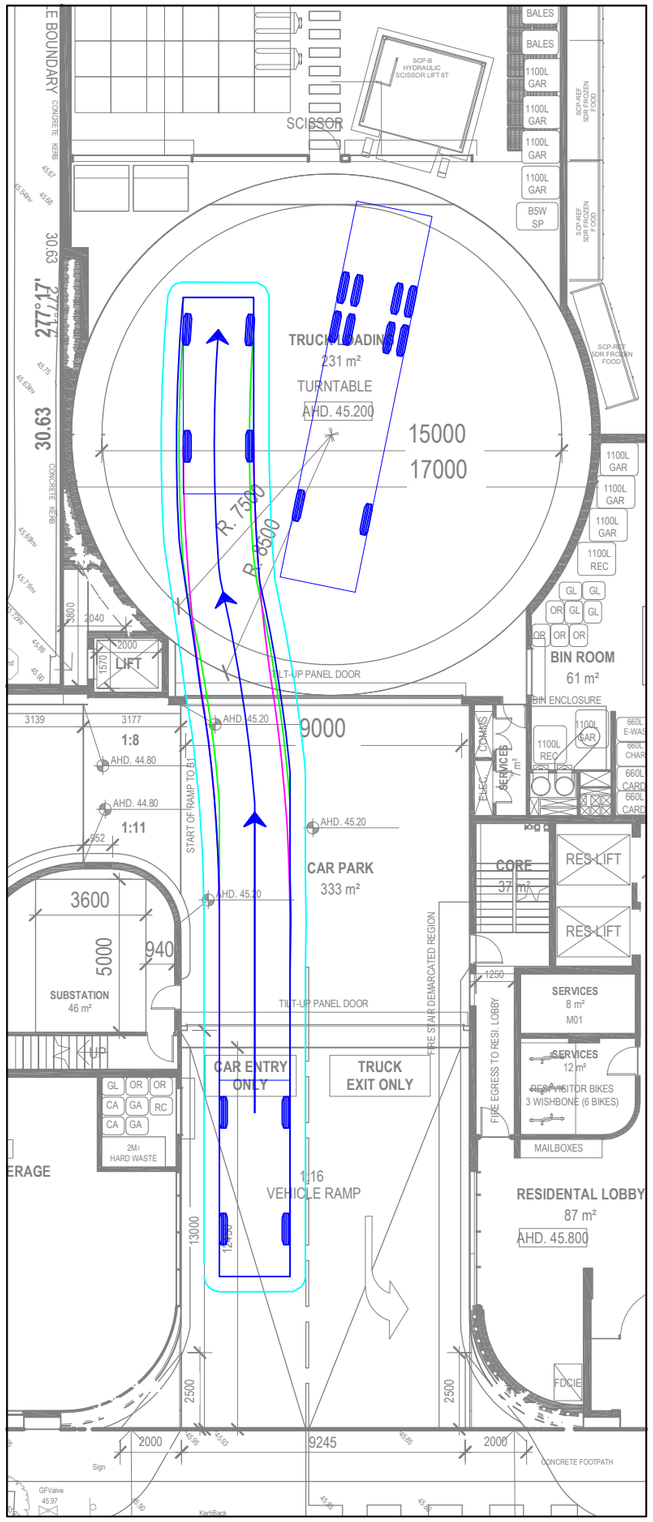
SRV (AS 2890.2)		mm
Width	:	2300
Track	:	2300
Lock to Lock Time	:	6.0
Steering Angle	:	38.0

LEGEND

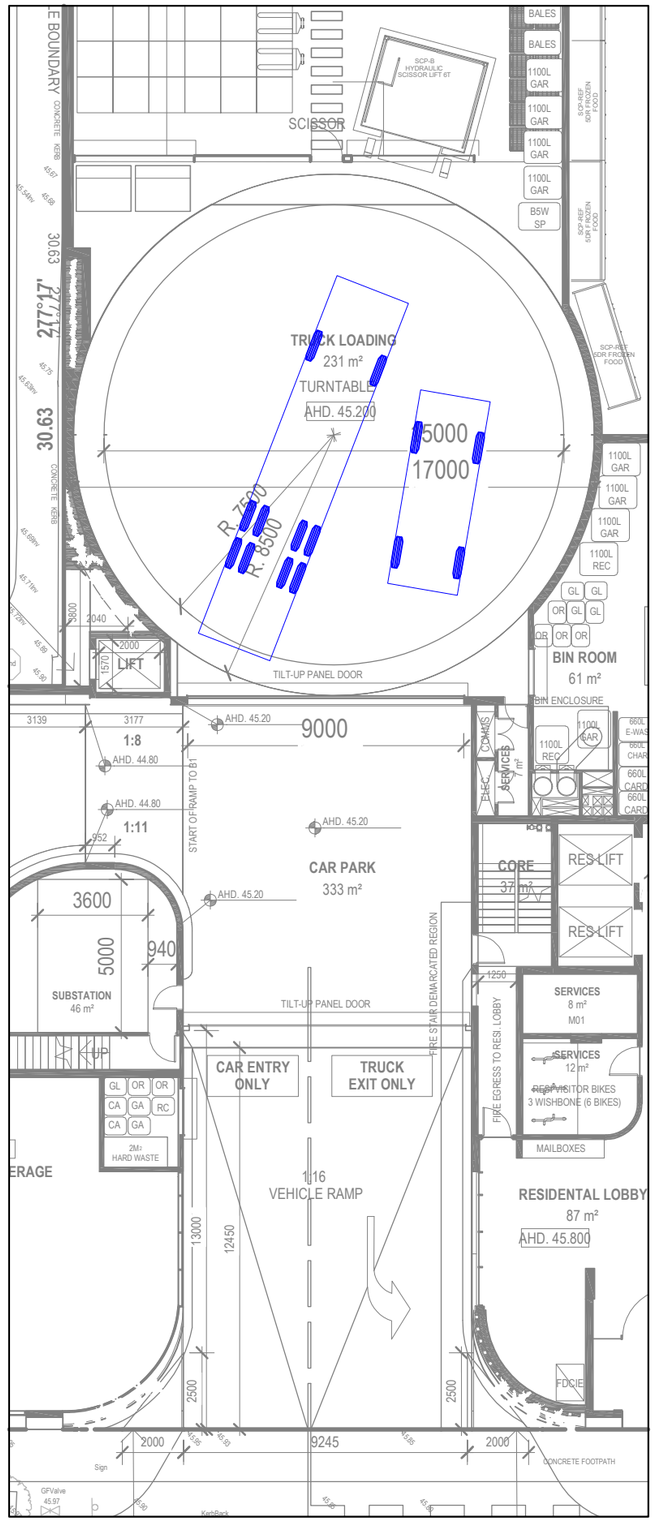
REAR WHEELS — VEHICLE BODY

FRONT WHEELS — BODY CLEARANCE

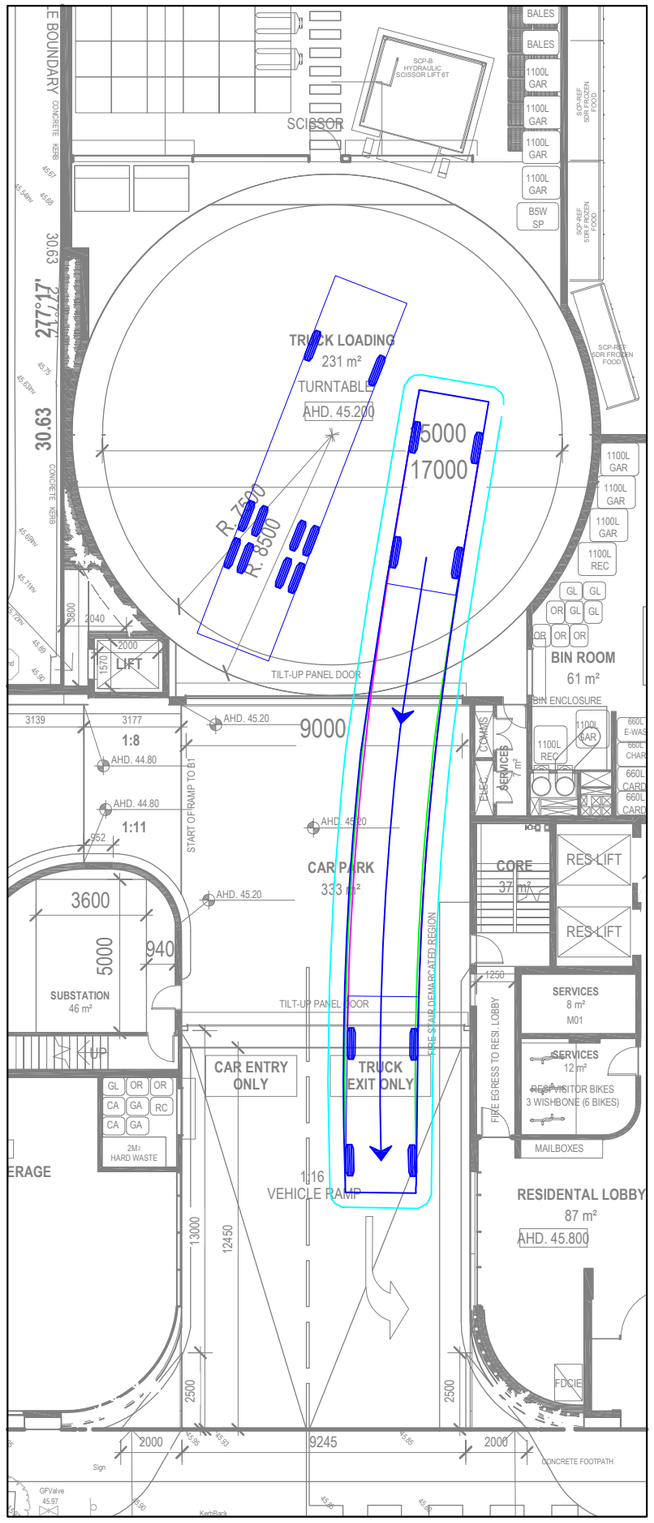
6.4m SRV - INGRESS WITH 12.5m HRV PARKED



6.4m SRV AND 12.5m HRV TURNTABLE ROTATION



6.4m SRV - EGRESS WITH 12.5m HRV PARKED



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173 BURKE ROAD, GLEN IRIS

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FILE NAME: G28846-04A

SHEET NO.: 13

SCALE: 1:200 (A3) 0 2 4

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Appendix H

Traffic Generation Rates – Supermarkets - Additional Data

Table E1: Supermarket Case Study Data (August, 2022)

Description	Size	Surveyed Traffic Volumes and Associated Generation Rates					
		Weekday AM		**Weekday PM**		**Saturday Midday**	
		Vehicle Movements	**Traffic Generation Rate**	**Vehicle Movements**	**Traffic Generation Rate**	**Vehicle Movements**	**Traffic Generation Rate**
Woolworths Supermarket – 72 Upper Heidelberg Road, Ivanhoe	3,748 sqm	76 vehicle movements	2.03 movements per 100 sqm	194 vehicle movements	5.18 movements per 100 sqm	218 vehicle movements	5.82 movements per 100 sqm
Woolworths Supermarket – Canning Street, North Melbourne	4,321 sqm	52 vehicle movements	1.20 movements per 100 sqm	254 vehicle movements	5.88 movements per 100 sqm	219 vehicle movements	5.07 movements per 100 sqm
Coles Supermarket – 380 Bay Street, Brighton	3,800 sqm	136 vehicle movements	2.35 movements per 100 sqm	311 vehicle movements	8.18 movements per 100 sqm	391 vehicle movements	10.29 movements per 100 sqm
Coles Supermarket – 369 High Street, Kew	3,240 sqm	76 vehicle movements	2.03 movements per 100 sqm	168 vehicle movements	5.19 movements per 100 sqm	240 vehicle movements	7.41 movements per 100 sqm
Coles Supermarket – Richmond Icon, 150 Swan Street, Richmond	3,500 sqm	20 vehicle movements	0.57 movements per 100 sqm	51 vehicle movements	1.46 movements per 100 sqm	62 vehicle movements	1.77 movements per 100 sqm
Woolworths Supermarket – 451 Lower Heidelberg Road, Heidelberg	4,270 sqm	177 vehicle movements	4.15 movements per 100 sqm	348 vehicle movements	8.15 movements per 100 sqm	374 vehicle movements	8.76 movements per 100 sqm
Coles Supermarket – 751 Riversdale Road, Camberwell	3,800 sqm	75 vehicle movements	1.97 movements per 100 sqm	272 vehicle movements	7.16 movements per 100 sqm	285 vehicle movements	7.50 movements per 100 sqm
Average			**2.04 movements per 100 sqm**		**5.89 movements per 100 sqm**		**6.66 movements per 100 sqm**

Appendix I

Traffic Growth along Burke Road

We have reviewed the following sources to determine whether any growth factor for traffic volumes is required along Burke Road:

- The Traffic Volume Information database provided by the Department of Transport (dated April 2018) reported the following two-way volumes[14] are reported along Burke Road, between Wattletree Road and High Street:
  - **2007:** 18,500 vehicles.
  - **2014:** 18,000 vehicles.
  - **2015:** 18,100 vehicles.
  - **2016:** 18,300 vehicles.
  - **2017:** 18,200 vehicles.
- Furthermore, a review of the Department of Transport Open Data set[15] states that Burke Road has the following growth factors for each direction of travel between Wattletree Road and High Street:
  - **Northbound:** Growth rate of -0.002 (based on Year 2020).
  - **Southbound:** Growth rate of -0.008 (Based on Year 2020).
- The 30th largest volumes along Burke Road at the pedestrian crossing south of Ranfurlie Crescent for each year between 2014-2022 has been assessed for the 4 peak periods as outlined within this report. It is noted that data from 2015 and 2020 has been conservatively removed from the dataset due to the Burke Road level crossing works (2015) and Covid-19 lockdowns (2020), respectively. The below graphs highlight that there is no observable growth pattern for any of the peak periods.

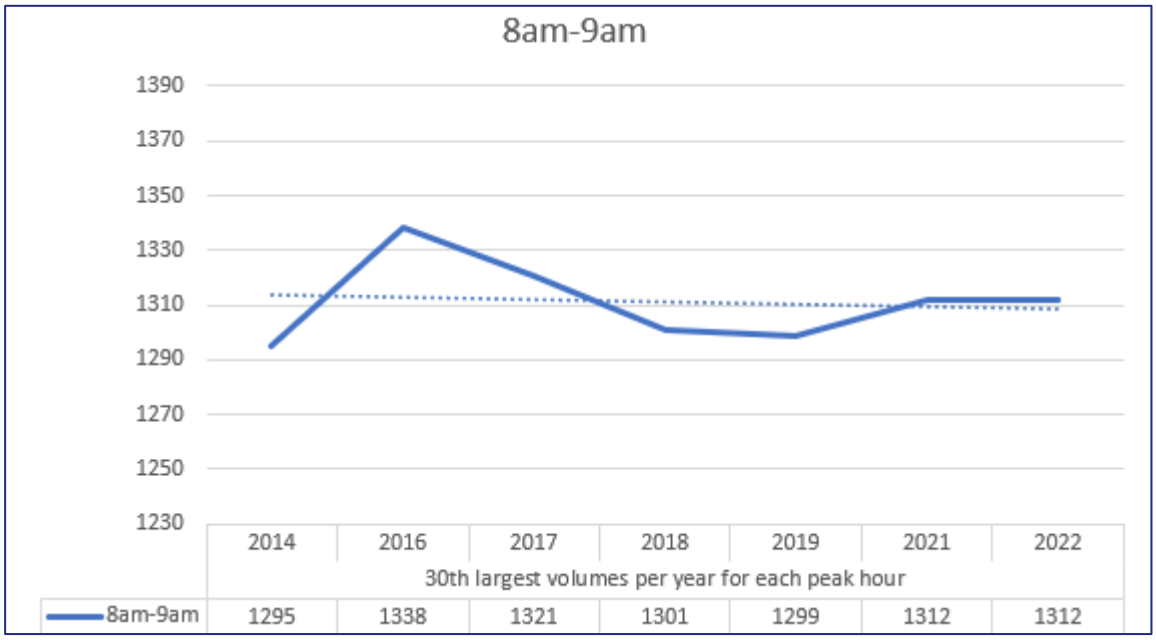


Figure F1: 30th largest traffic volumes between 2014-2022 along Burke Road – AM Peak

[14] Estimated volumes with growth factors applied from surrounding years.

[15] Source: https://vicroadsopendata-vicroadsmaps.opendata.arcgis.com/datasets/traffic-volume

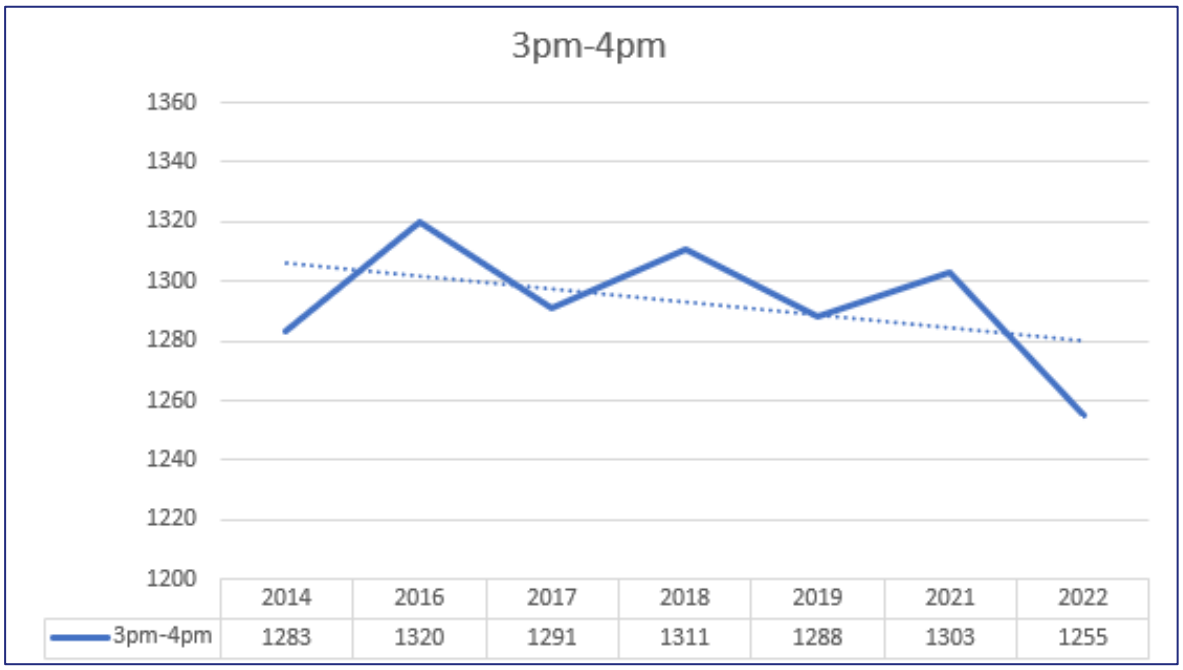


Figure F1: 30th largest traffic volumes between 2014-2022 along Burke Road – School Peak

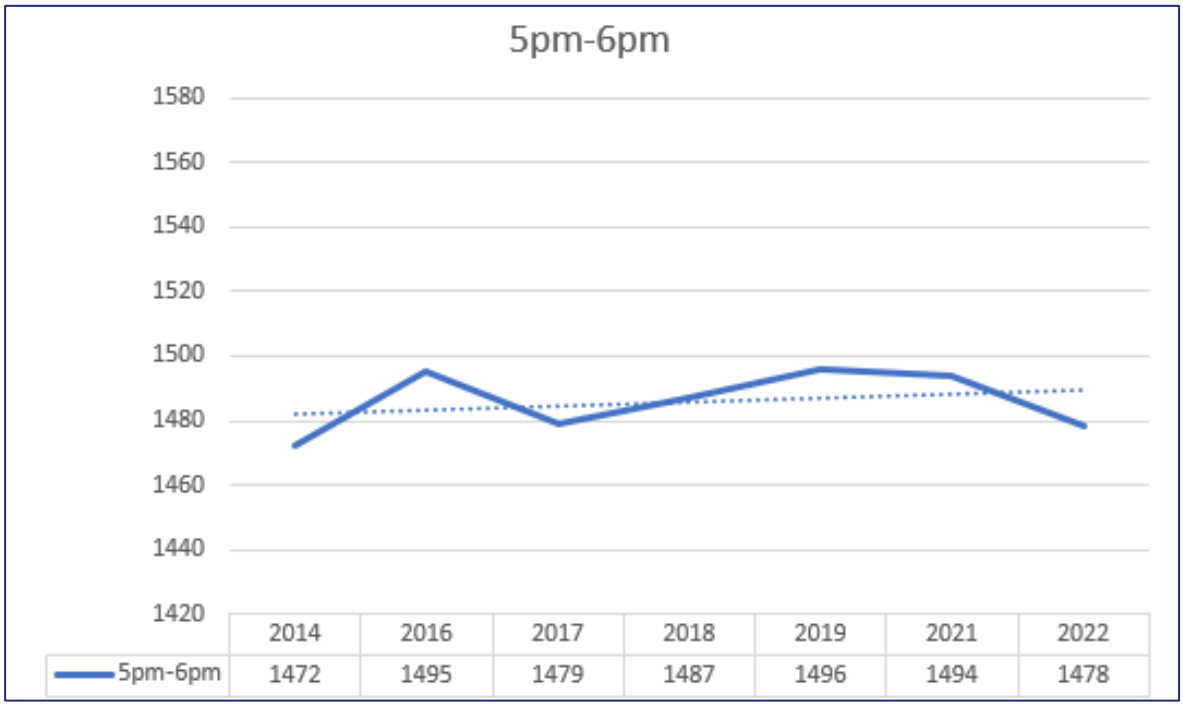


Figure F1: 30th largest traffic volumes between 2014-2022 along Burke Road – PM Peak

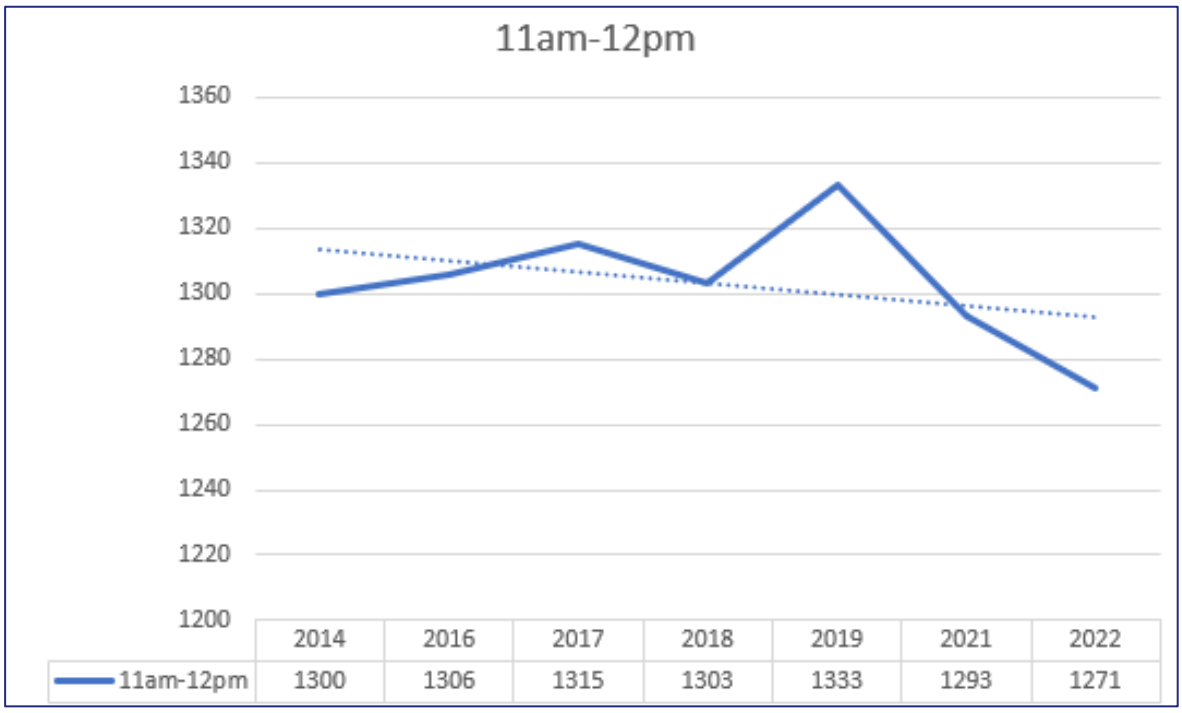


Figure F1: 30th largest traffic volumes between 2014-2022 along Burke Road – Saturday Peak

Based on the above analysis, we do not consider that traffic volumes have been increasing through this part of Burke Road, nor do we expect them to in near future. As a result, we have not included any growth rates into our traffic analysis.

Appendix J

Traffic Generation Surveys – Residential Apartments (Coles Kew)

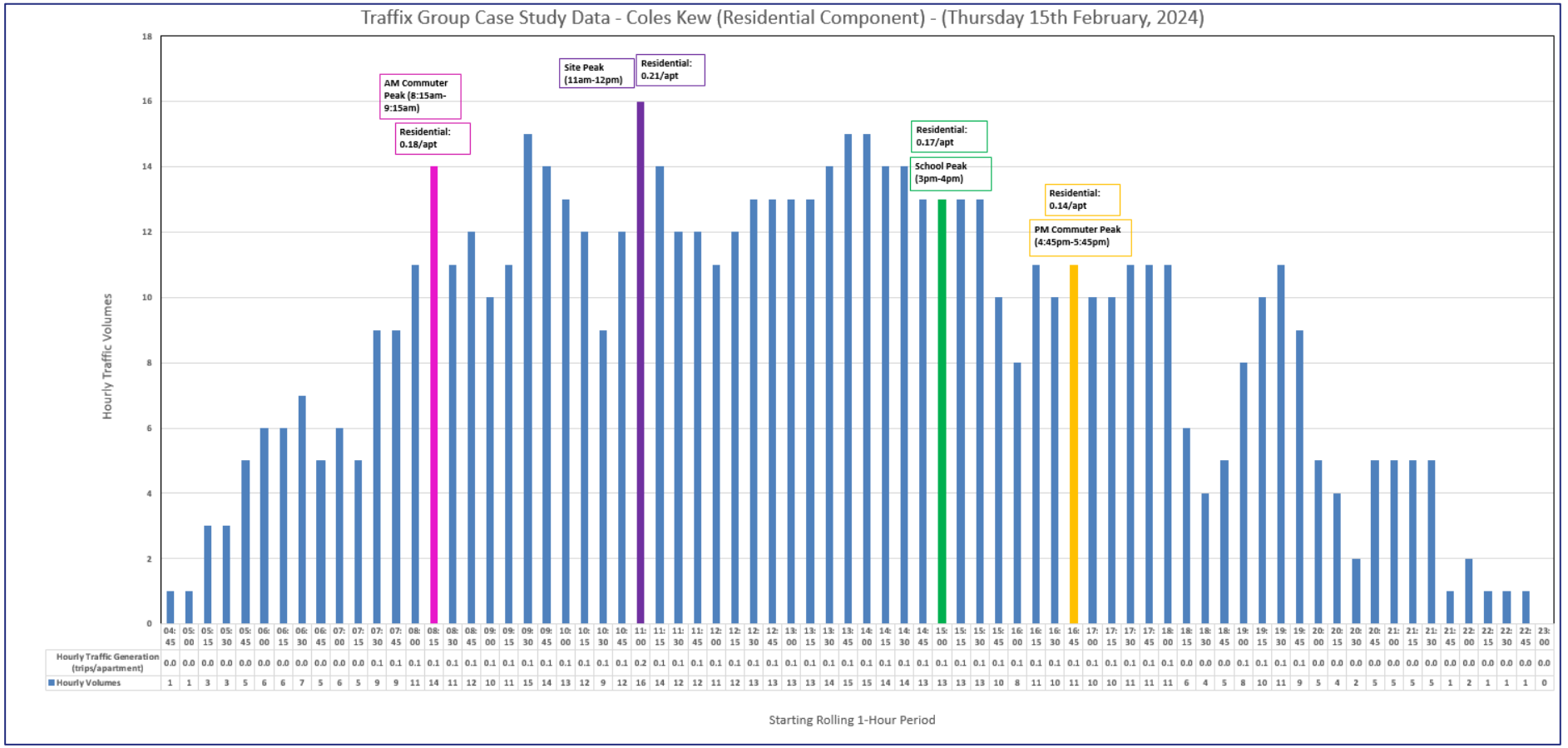


Figure J1: Traffix Group Case Study Data – Coles Kew (Residential Component) (Thursday 15th February, 2024)

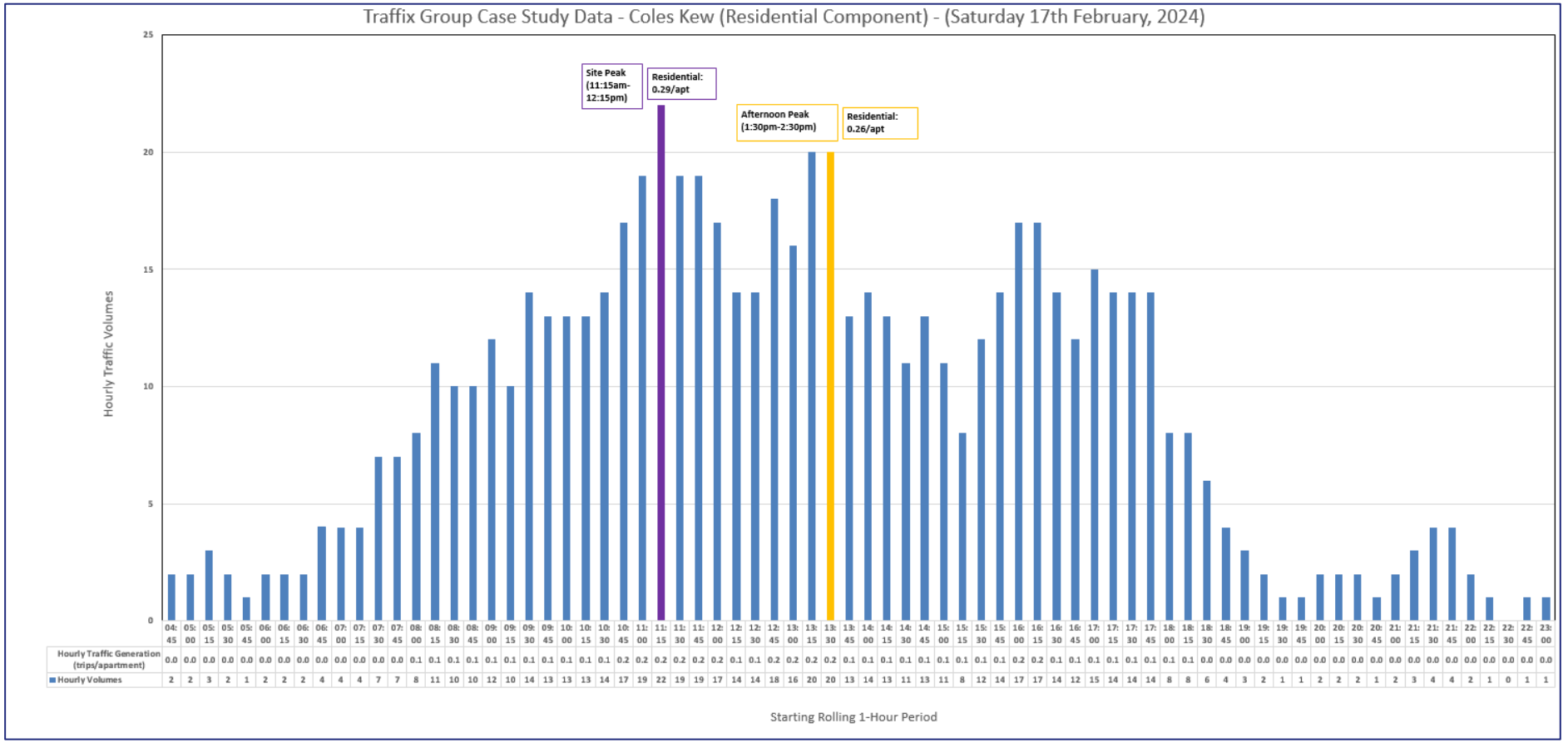


Figure J2: Traffix Group Case Study Data – Coles Kew (Residential Component) (Saturday 17th February, 2024)

Appendix K

SIDRA Layout and Assumptions

- The peak hour traffic volumes were recorded as per Section 4.2.2.
- A heavy vehicle percentage has been calculated for each relevant leg within the network model based on the traffic surveys.
- Extra bunching factors have been inputted only for the legs of intersections which do not connect to another intersection in the network. For intersections in the model that connect to each other, Sidra automatically accounts for this.
- Re-allocation of 28% of the 'turning' traffic into Hope Street and left-turn into the Burke Road Access from Burke Road (for Option 1 only) from the 'through' movements along Burke Road for the commercial traffic. This is allowing for diverted trips, which are trips already on Burke Road that divert to the supermarket (a linked trip) and therefore not 'new' trips in the road network. This is in line with the AustRoads Guide.
- The signalised intersection of Hope Street and Burke Road will operate with a cycle time which matches that at the existing signalised intersection of Burke Road and Wattletree Road and be 'synced' with this intersection to operate efficiently for through traffic along Burke Road.
- The phasing movements and timings for the signalised intersection of Burke Road and Wattletree Road were inputted as per signal timing and operations data sourced from the Department of Transport and Planning for the peak time periods reported as detailed at Section 4.2.2. A 3-phase signal model has been used where recorded to operate in that manner by DTP, which includes a right-turn lantern for the northern approach of Burke Road which can permit filtered right-turn movements, as well as left-turn green arrows for the south and western approaches to allow extra traffic movements where possible. It is noted in the PM peak hour, the intersection operates with only 2 phases.
- An 'intergreen' transition phase was included for the abovementioned left-turn traffic under both existing and post-development conditions (i.e., to include a short 'red' phase in between 2 separate phases which would allow a left-turn vehicle to pass through the intersection).
- The pedestrian volumes at the signalised intersection of Wattletree Road and Burke Road have been assumed to match the existing pedestrian volumes as recorded in the traffic counts detailed at Section 4.2.2.
- A nominal value for pedestrian volumes expected to cross Burke Road at the new signalised intersection has been used; in the order of 75 pedestrians per hour. The default SIDRA value of 50 pedestrians per hour has been retained crossing Hope Street. This exceeds the existing pedestrian volumes recorded crossing Hope Street as recorded in the traffic counts detailed at Section 4.2.2 and exceeds SIDRA defaults.
- The Sidra lane layouts have been adjusted on the west approach of Wattletree Road to Burke Road to more accurately and realistically model the nature in which eastbound traffic travels through this intersection during peak periods. When modelled under an intersection layout that more physically 'reflects' the existing layout, with the left-turn and through lane being a 'short lane'. Sidra does not automatically divert eastbound through traffic into the kerbside lane to pass by a right-turning vehicle waiting to turn right in the inner lane. This situation does not reflect vehicle movements through this intersection, as through traffic will seek to divert around a vehicle propped turning right rather than waiting in a queue for excessive lengths of time.

To more realistically model this intersection, we have adjusted the priorities of the lanes in the eastbound direction to prioritise through movements to the kerbside lane, with the inner lane modelled as a short-lane and the kerbside lane as the full length lane. The same treatment is applied to the departure side. This configuration allows Sidra to then analyse how the through movements pass through the intersection. This layout is shown below and highlighted for emphasis.

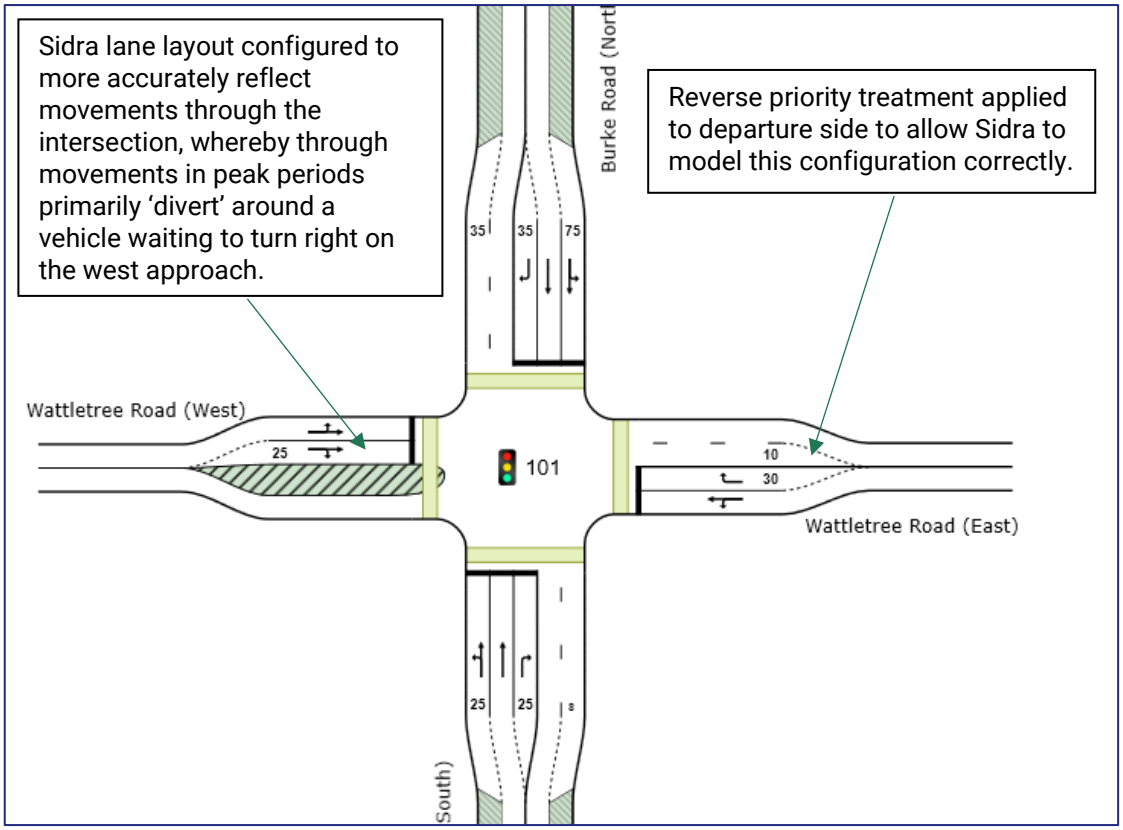


Figure K1: Sidra layout for intersection of Burke Road and Wattletree Road

- Based on a review of the road environment, the following adjustments have been made to the traffic models to better represent existing traffic conditions, as follows:
  - School Pick-Up and Saturday Peak Hours
    - The input for 'Parking Manoeuvres' was changed from 0 (default) to 10 for the northern approach of Burke Road at the intersection with Wattletree Road during these 2 peak hours to represent that during these peak hours, there is some turnover of vehicles along the eastern side of Burke Road, to the north of Wattletree Road, that would impact on traffic capacity. In the AM and PM periods, these car spaces are restricted to No Stopping conditions near the intersection.

Appendix L

Traffic Generation Surveys – 4 Supermarkets

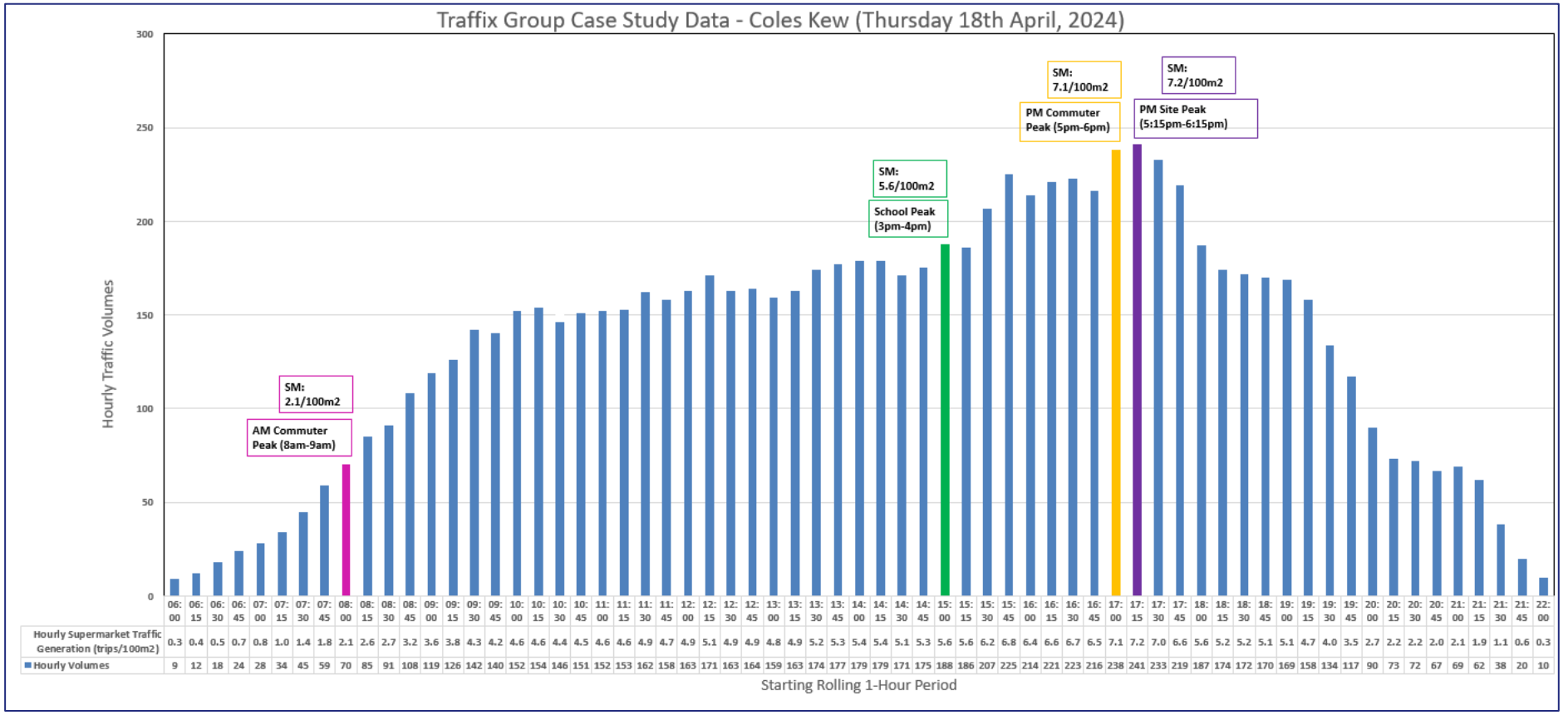


Figure L1: Traffix Group Case Study Data – Coles Kew (Thursday 18th April, 2024)

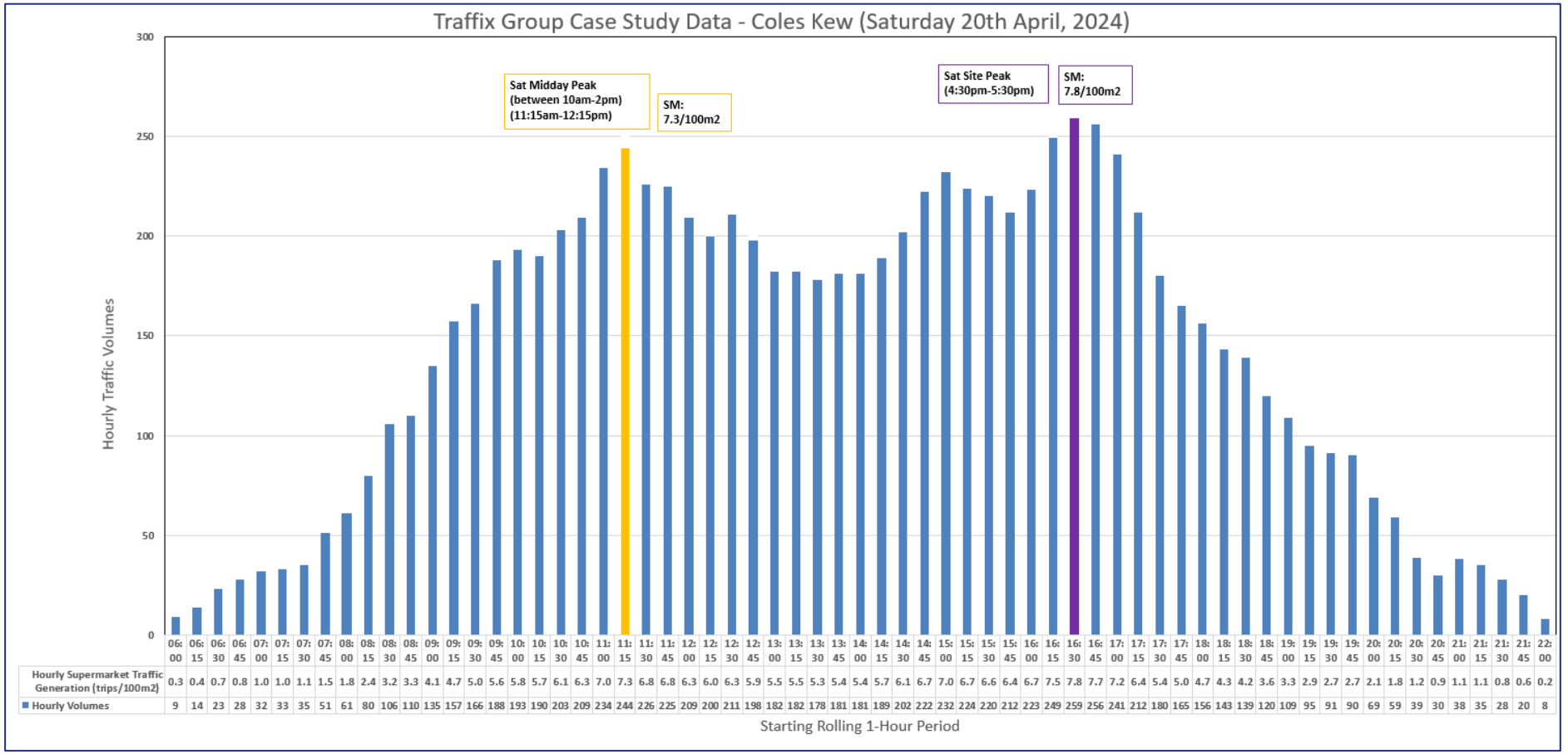


Figure L2: Traffix Group Case Study Data – Coles Kew (Saturday 20th April, 2024)

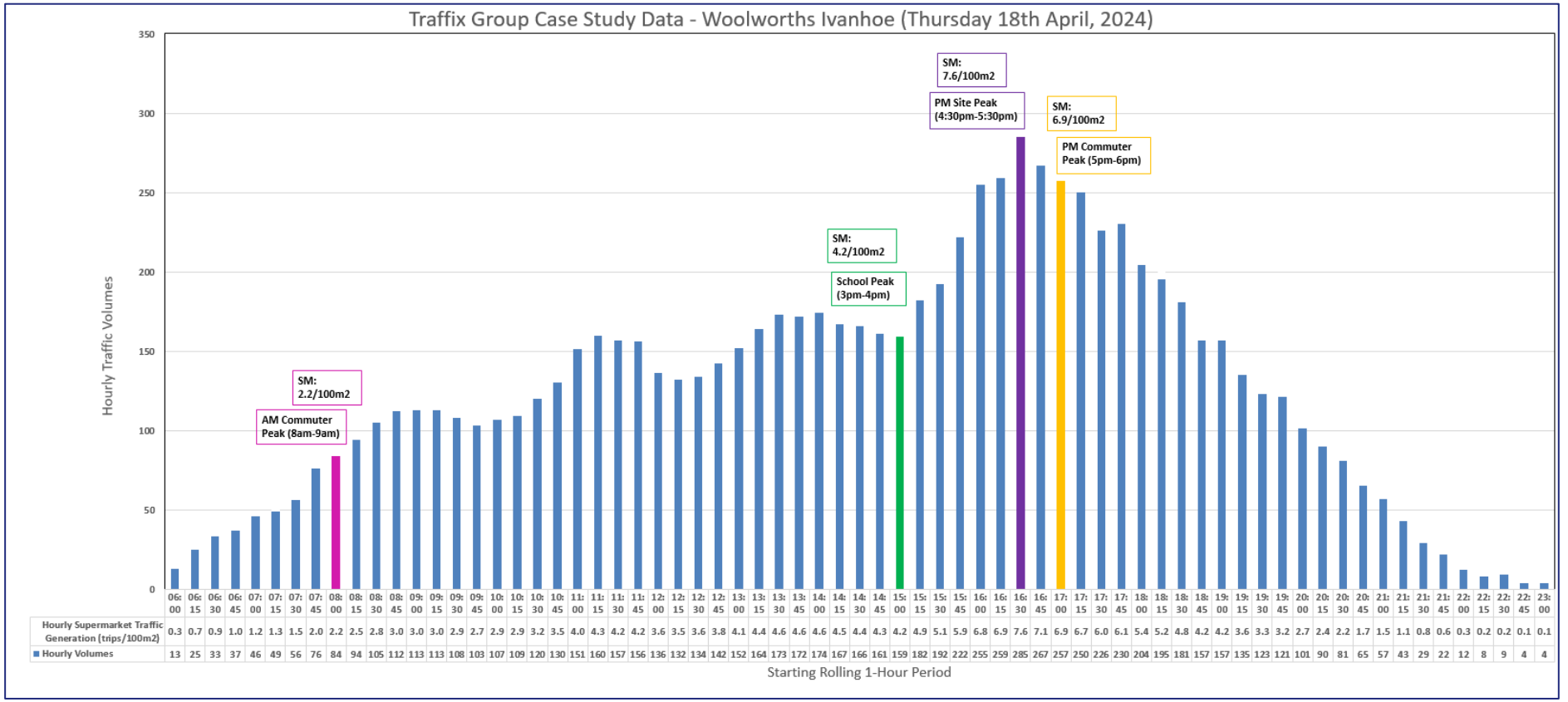


Figure L3: Traffix Group Case Study Data – Coles Ivanhoe (Thursday 18th April, 2024)

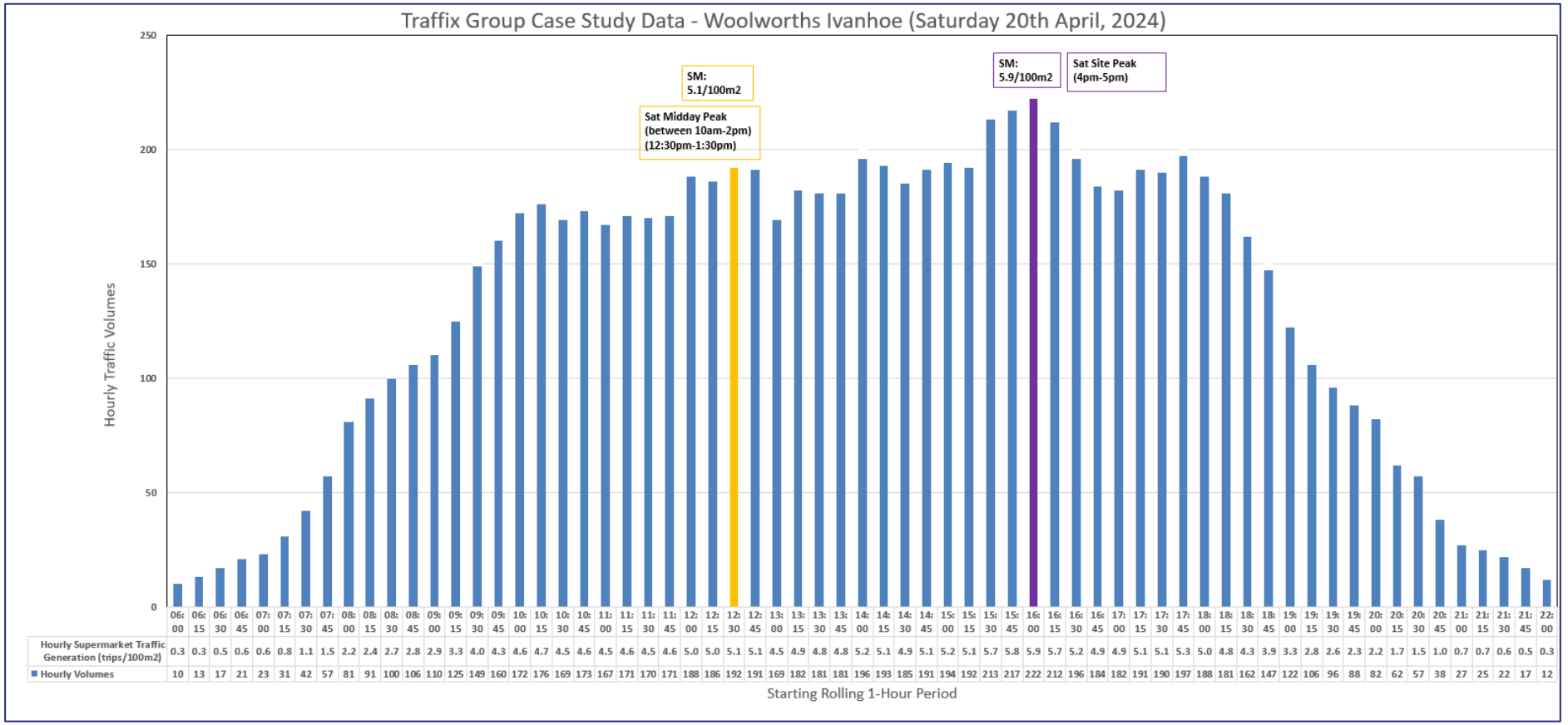


Figure L4: Traffix Group Case Study Data – Coles Ivanhoe (Saturday 20th April, 2024)

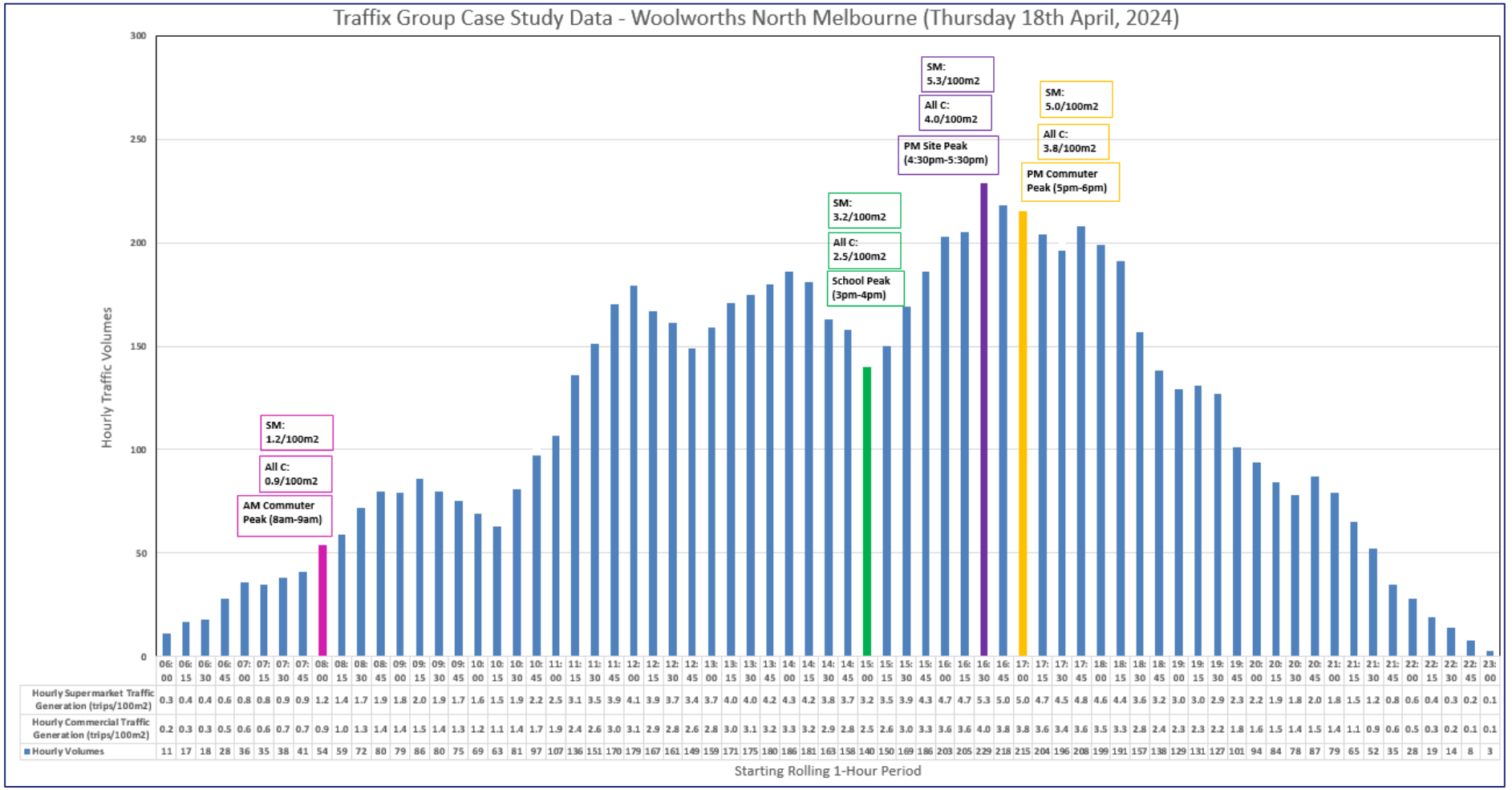


Figure L5: Traffix Group Case Study Data – Coles North Melbourne (Thursday 18th April, 2024)

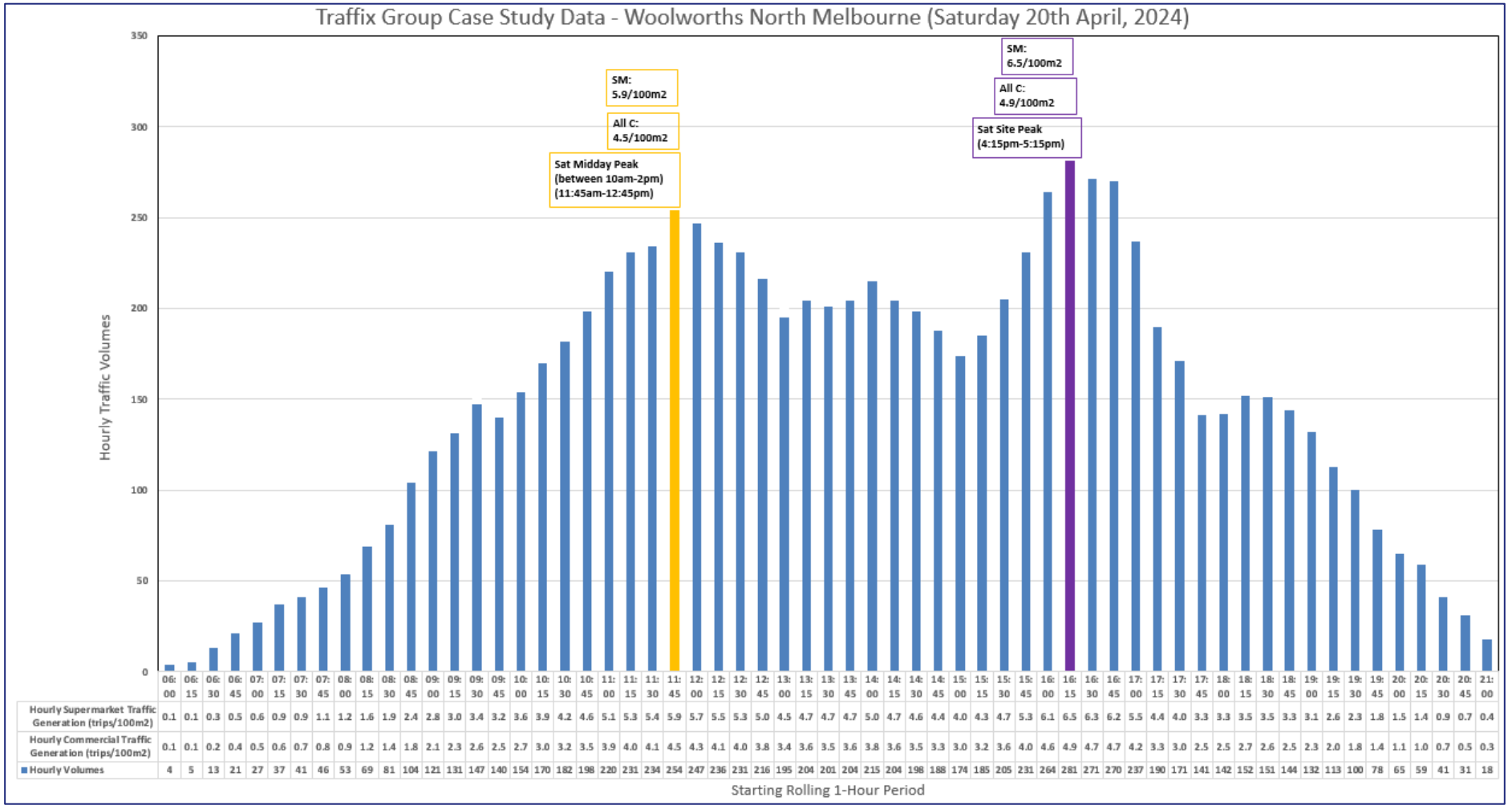


Figure L6: Traffix Group Case Study Data – Coles North Melbourne (Saturday 20th April, 2024)

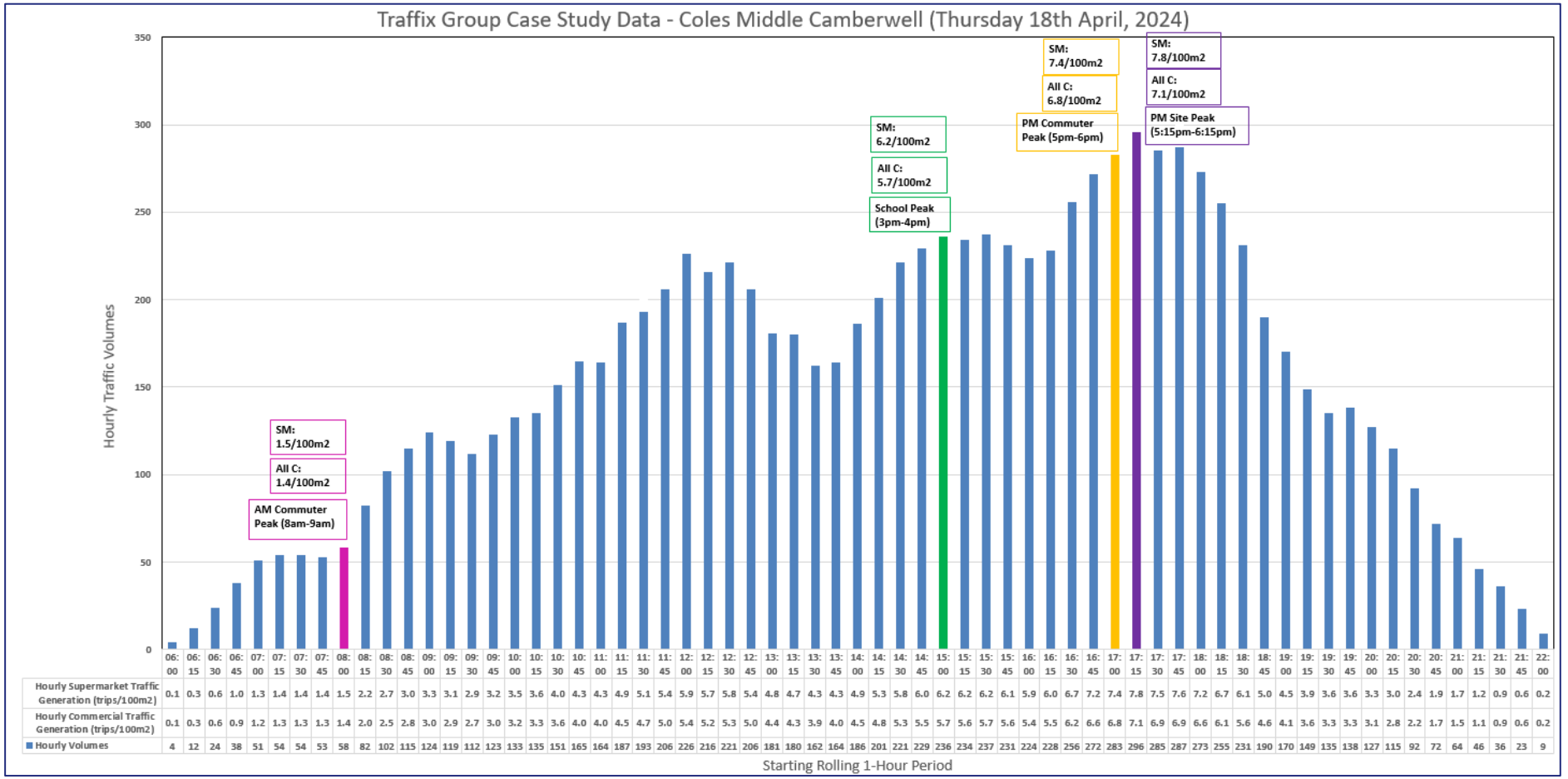
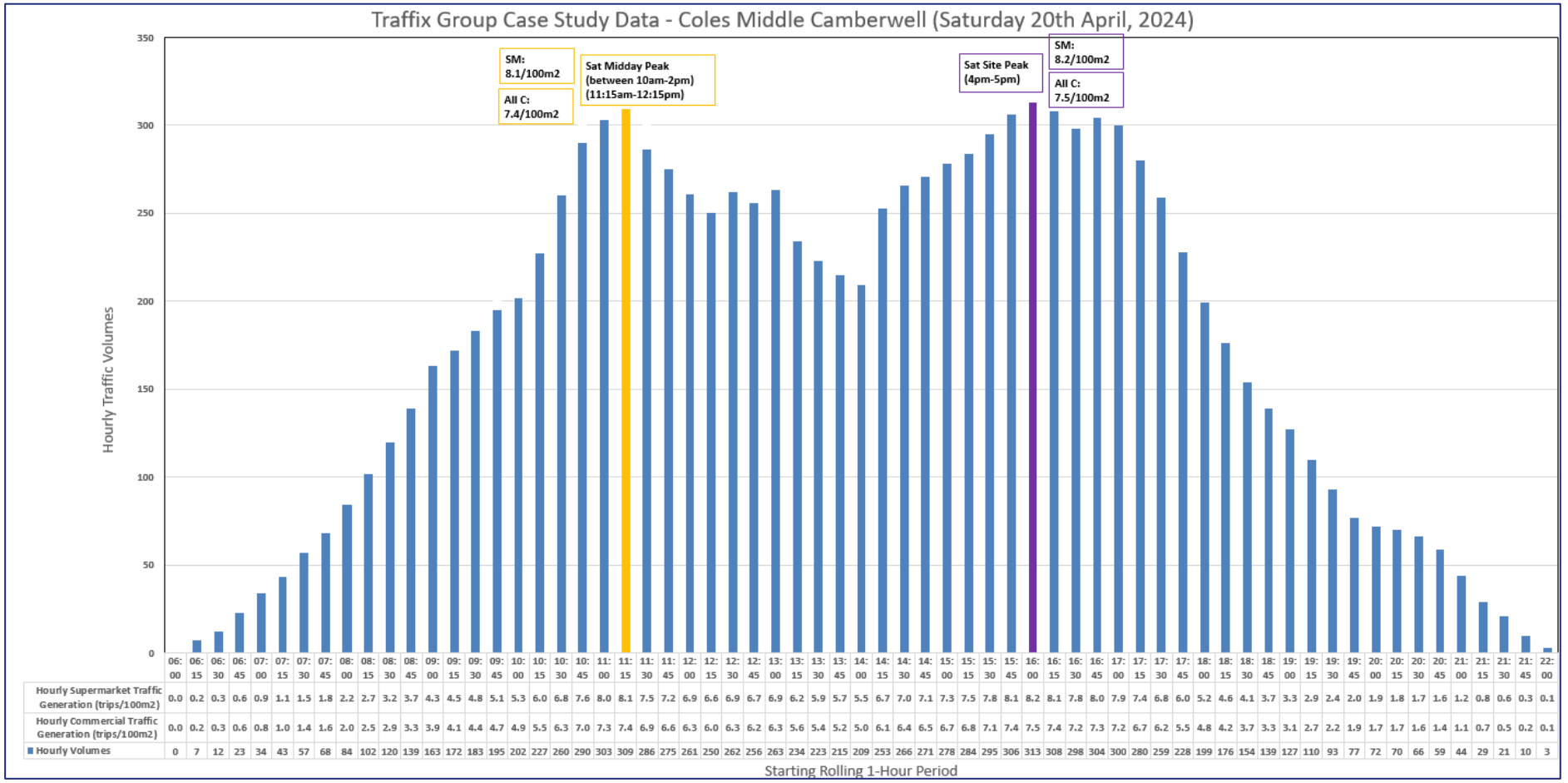


Figure L7: Traffix Group Case Study Data – Coles Middle Camberwell (Thursday 18th April, 2024)



	06:00	06:15	06:30	06:45	07:00	07:15	07:30	07:45	08:00	08:15	08:30	08:45	09:00	09:15	09:30	09:45	10:00	10:15	10:30	10:45	11:00	11:15	11:30	11:45	12:00	12:15	12:30	12:45	13:00	13:15	13:30	13:45	14:00	14:15	14:30	14:45	15:00	15:15	15:30	15:45	16:00	16:15	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15	18:30	18:45	19:00	19:15	19:30	19:45	20:00	20:15	20:30	20:45	21:00	21:15	21:30	21:45	22:00
Hourly Supermarket Traffic Generation (trips/100m2)	0.0	0.2	0.3	0.6	0.9	1.1	1.5	1.8	2.2	2.7	3.2	3.7	4.3	4.5	4.8	5.1	5.3	6.0	6.8	7.6	8.0	8.1	7.5	7.2	6.9	6.6	6.9	6.7	6.9	6.2	5.9	5.7	5.5	6.7	7.0	7.1	7.3	7.5	7.8	8.1	8.2	8.1	7.8	8.0	7.9	7.4	6.8	6.0	5.2	4.6	4.1	3.7	3.3	2.9	2.4	2.0	1.9	1.8	1.7	1.6	1.2	0.8	0.6	0.3	0.1
Hourly Commercial Traffic Generation (trips/100m2)	0.0	0.2	0.3	0.6	0.8	1.0	1.4	1.6	2.0	2.5	2.9	3.3	3.9	4.1	4.4	4.7	4.9	5.5	6.3	7.0	7.3	7.4	6.9	6.6	6.3	6.0	6.3	6.2	6.3	5.6	5.4	5.2	5.0	6.1	6.4	6.5	6.7	6.8	7.1	7.4	7.5	7.4	7.2	7.3	7.2	6.7	6.2	5.5	4.8	4.2	3.7	3.3	3.1	2.7	2.2	1.9	1.7	1.7	1.6	1.4	1.1	0.7	0.5	0.2	0.1
Hourly Volumes	0	7	12	23	34	43	57	68	84	102	120	139	163	172	183	195	202	227	260	290	303	309	286	275	261	250	262	256	263	234	223	215	209	253	266	271	278	284	295	306	313	308	298	304	300	280	259	228	199	176	154	139	127	110	93	77	72	70	66	59	44	29	21	10	3

Figure L8: Traffix Group Case Study Data – Coles Middle Camberwell (Saturday 20th April, 2024)

Appendix M

VISTA Data Analysis

We have reviewed VISTA data for shopping trips between 2016-2018 within the Boroondara, Stonnington and Glen Eira LGA areas. From this data we were able to determine that a total of 21% of 'shopping trip' arrivals were pedestrians, while 58% were drivers via cars. A number of other splits were also calculated such as public transport, bicycle and vehicle passenger arrivals.

Working backwards based on the forecast traffic generation for the supermarket component of the proposal for each peak period determined within this report, we calculated the number of pedestrians accessing the site during each peak hour relating to the supermarket. This is shown in the table below.

Table J1: Pedestrians accessing the proposed supermarket during each peak period

Peak Period	Number of Pedestrians
AM Peak	40
School Peak	57
PM Peak	103
Saturday Midday Peak	98

The pedestrians will arrive from a number of various directions; however this provides an indication that the signalised intersection (inclusive of pedestrian crossings on 2 legs) will provide a positive addition to the intersection of Burke Road and Hope Street.

In addition to the above, existing pedestrian volumes in the immediate area were recorded and are outlined at Section 4.2.2.

There are currently modest pedestrian volumes travelling north-south along both sides of Burke Road, nearby to Hope Street, during peak periods, as well as higher volumes crossing the northern leg of the Burke Road/Wattletree Road intersection. There are also pedestrians crossing Burke Road 'mid-block' (i.e. informally) in various locations along Burke Road.

Appendix N

SIDRA Output Existing Conditions – AM Peak

MOVEMENT SUMMARY

Site: 104 [2023 - Burke Road & Dorrington Avenue - AM EXG (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Network: N101 [AM - EXG (Network Folder: Burke Road Access Models)]

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

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Burke Road															
2	T1	All MCs	788	2.9	788	2.9	0.493	0.5	LOS A	1.9	13.8	0.16	0.20	0.25	38.6
3	R2	All MCs	69	0.0	69	0.0	0.493	16.9	LOS A	1.9	13.8	0.16	0.20	0.25	37.6
Approach			858	2.7	858	2.7	0.493	1.8	LOS A	1.9	13.8	0.16	0.20	0.25	38.5
East: Dorrington Avenue															
4	L2	All MCs	104	0.0	104	0.0	0.607	16.5	LOS B	3.0	20.8	0.86	1.26	1.48	26.0
6	R2	All MCs	63	0.0	63	0.0	0.607	43.1	LOS B	3.0	20.8	0.86	1.26	1.48	31.1
Approach			167	0.0	167	0.0	0.607	26.5	LOS B	3.0	20.8	0.86	1.26	1.48	28.6
North: Burke Road															
7	L2	All MCs	93	1.1	93	1.1	0.364	3.6	LOS A	0.0	0.0	0.00	0.06	0.00	39.2
8	T1	All MCs	598	3.8	598	3.8	0.364	0.2	LOS A	0.0	0.0	0.00	0.06	0.00	39.5
Approach			691	3.4	691	3.4	0.364	0.6	LOS A	0.0	0.0	0.00	0.06	0.00	39.4
All Vehicles			1716	2.7	1716	2.7	0.607	3.7	LOS B	3.0	20.8	0.16	0.25	0.27	37.3

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Minor Road Approach LOS values are based on worst degree of saturation for any vehicle movement.
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [2023 - Burke Road & Hope Street - AM EXG (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Network: N101 [AM - EXG (Network Folder: Burke Road Access Models)]

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

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Burke Road (South)															
1	L2	All MCs	20	0.0	20	0.0	0.447	3.5	LOS A	0.0	0.0	0.00	0.01	0.00	39.1
2	T1	All MCs	837	2.7	837	2.7	0.447	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	39.6
Approach			857	2.6	857	2.6	0.447	0.2	LOS A	0.0	0.0	0.00	0.01	0.00	39.6
North: Burke Road (North)															
8	T1	All MCs	675	3.4	675	3.4	0.391	0.0	LOS A	0.7	4.7	0.09	0.11	0.10	33.9
9	R2	All MCs	27	0.0	27	0.0	0.391	22.7	LOS A	0.7	4.7	0.09	0.11	0.10	45.5
Approach			702	3.3	702	3.3	0.391	0.9	LOS A	0.7	4.7	0.09	0.11	0.10	36.5
West: Hope Street West)															
10	L2	All MCs	21	0.0	21	0.0	0.038	13.0	LOS A	0.1	1.0	0.63	0.92	0.63	38.0
12	R2	All MCs	5	0.0	5	0.0	0.034	28.0	LOS A	0.1	0.7	0.87	1.00	0.87	29.1
Approach			26	0.0	26	0.0	0.038	16.0	LOS A	0.1	1.0	0.68	0.94	0.68	35.9
All Vehicles			1585	2.9	1585	2.9	0.447	0.8	LOS A	0.7	4.7	0.05	0.07	0.05	38.7

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Minor Road Approach LOS values are based on worst degree of saturation for any vehicle movement.
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [2023 - Burke Road & Wattletree Road - AM EXG (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Network: N101 [AM - EXG (Network Folder: Burke Road Access Models)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 99 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Burke Road (South)															
1	L2	All MCs	46	4.5	46	4.5	0.216	49.9	LOS A	4.8	34.5	0.74	0.65	0.74	40.8
2	T1	All MCs	552	2.5	552	2.5	0.797	51.4	LOS C	21.2	151.5	0.92	0.86	0.99	29.2
3	R2	All MCs	64	4.9	64	4.9	0.478	72.3	LOS A	3.1	22.8	0.98	0.77	0.98	31.2
Approach			662	2.9	662	2.9	0.797	53.3	LOS C	21.2	151.5	0.91	0.84	0.97	30.6
East: Wattletree Road (East)															
4	L2	All MCs	100	2.1	100	2.1	0.730	40.6	LOS C	22.1	155.8	0.84	0.77	0.84	43.3
5	T1	All MCs	494	0.4	494	0.4	0.730	31.3	LOS C	22.1	155.8	0.84	0.77	0.84	44.7
6	R2	All MCs	118	1.8	118	1.8	* 0.375	48.5	LOS A	3.2	22.6	0.88	0.77	0.88	33.0
Approach			712	0.9	712	0.9	0.730	35.4	LOS C	22.1	155.8	0.84	0.77	0.84	43.1
North: Burke Road (North)															
7	L2	All MCs	82	0.0	82	0.0	0.157	24.7	LOS A	3.2	22.3	0.69	0.69	0.69	38.2
8	T1	All MCs	499	4.6	499	4.6	0.783	47.5	LOS C	21.4	155.8	0.94	0.88	1.00	34.2
9	R2	All MCs	75	2.8	75	2.8	* 0.571	70.1	LOS A	3.7	26.6	0.99	0.80	1.04	25.9
Approach			656	3.8	656	3.8	0.783	47.2	LOS C	21.4	155.8	0.91	0.84	0.97	33.4
West: Wattletree Road (West)															
10	L2	All MCs	204	3.1	204	3.1	* 0.757	55.2	LOS C	19.4	139.0	0.93	0.86	0.97	29.4
11	T1	All MCs	243	2.1	243	2.1	0.757	45.2	LOS C	19.4	139.0	0.93	0.86	0.97	39.2
12	R2	All MCs	78	0.0	78	0.0	0.360	58.2	LOS A	3.3	23.1	0.88	0.78	0.88	34.9
Approach			525	2.2	525	2.2	0.757	51.0	LOS C	19.4	139.0	0.92	0.85	0.96	35.5
All Vehicles			2555	2.4	2555	2.4	0.797	46.3	LOS C	22.1	155.8	0.90	0.82	0.93	35.9

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Intersection and Approach LOS values are based on worst degree of saturation for any vehicle movement.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE	Prop. Que	Eff. Stop	Travel Time	Travel Dist.	Aver. Speed

		ped/h	sec		[Ped ped	Dist] m		Rate	sec	m	m/sec
South: Burke Road (South)											
P1	Full	109	43.9	LOS E	0.3	0.3	0.94	0.94	197.7	200.0	1.01
East: Wattletree Road (East)											
P2	Full	61	43.8	LOS E	0.2	0.2	0.94	0.94	197.6	200.0	1.01
North: Burke Road (North)											
P3	Full	66	43.8	LOS E	0.2	0.2	0.94	0.94	197.6	200.0	1.01
West: Wattletree Road (West)											
P4	Full	95	43.9	LOS E	0.3	0.3	0.94	0.94	197.7	200.0	1.01
All Pedestrians		332	43.8	LOS E	0.3	0.3	0.94	0.94	197.7	200.0	1.01

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: 101 [2023 - Burke Road & Wattletree Road - AM EXG (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Network: N101 [AM - EXG (Network Folder: Burke Road Access Models)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 99 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: Two-Phase
Input Phase Sequence: A, C, D
Output Phase Sequence: A, C, D
Reference Phase: Phase A
Offset: NA

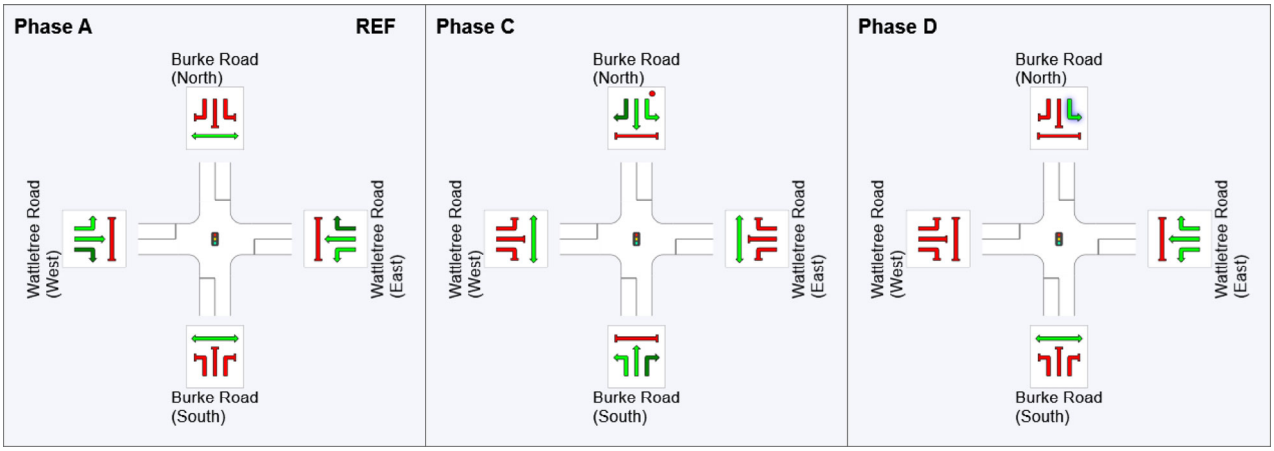
Phase Timing Summary

Phase	A	C	D
Phase Change Time (sec)	0	44	86
Green Time (sec)	40	36	7
Phase Time (sec)	46	42	11
Phase Split	46%	42%	11%
Phase Frequency (%)	100.0[1]	100.0[1]	81.0[1]

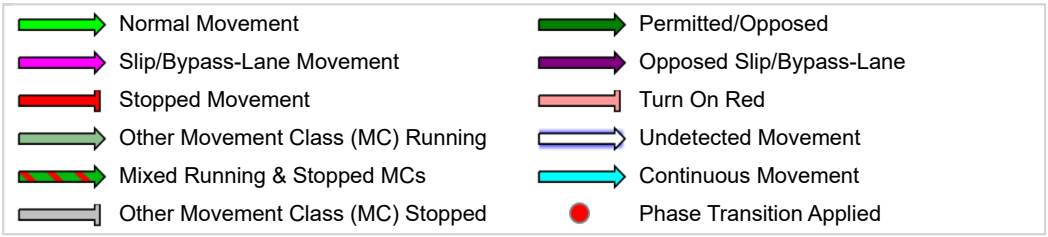
See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified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

1 Phase Frequency has been given with User-Specified Phase Times.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Appendix O

SIDRA Output Post-Development Conditions – AM Peak

MOVEMENT SUMMARY

Site: 104 [2023 - Burke Road & Dorrington Avenue - AM PDV - POS (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [AM - PDV - Original Phases - Post-DTP - 2024-05-17 (Network Folder: Burke Road Access Models)]

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

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Burke Road															
2	T1	All MCs	819	2.9	819	2.9	0.511	1.2	LOS A	1.8	13.0	0.16	0.19	0.24	38.6
3	R2	All MCs	69	0.0	69	0.0	0.511	8.7	LOS A	1.8	13.0	0.16	0.19	0.24	37.6
Approach			888	2.7	888	2.7	0.511	1.8	LOS A	1.8	13.0	0.16	0.19	0.24	38.5
East: Dorrington Avenue															
4	L2	All MCs	104	0.0	104	0.0	0.889	24.5	LOS D	3.8	26.7	0.95	1.64	2.49	23.6
6	R2	All MCs	63	0.0	63	0.0	0.889	49.9	LOS D	3.8	26.7	0.95	1.64	2.49	29.2
Approach			167	0.0	167	0.0	0.889	34.1	LOS D	3.8	26.7	0.95	1.64	2.49	26.4
North: Burke Road															
7	L2	All MCs	93	1.1	93	1.1	0.374	3.6	LOS A	2.0	14.2	0.00	0.06	0.00	39.2
8	T1	All MCs	616	3.8	616	3.8	0.374	0.2	LOS A	2.0	14.2	0.00	0.06	0.00	39.5
Approach			708	3.4	708	3.4	0.374	0.6	LOS A	2.0	14.2	0.00	0.06	0.00	39.4
All Vehicles			1764	2.7	1764	2.7	0.889	4.4	LOS D	3.8	26.7	0.17	0.28	0.36	36.9

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Minor Road Approach LOS values are based on worst degree of saturation for any vehicle movement.
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [2023 - Site Access & Hope Street - AM PDV (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [AM - PDV - Original Phases - Post-DTP - 2024-05-17 (Network Folder: Burke Road Access Models)]

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

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Site Access															
1	L2	All MCs	1	0.0	1	0.0	0.056	6.8	LOS A	0.2	1.4	0.14	0.91	0.14	37.0
3	R2	All MCs	61	0.0	61	0.0	0.056	6.5	LOS A	0.2	1.4	0.14	0.91	0.14	35.2
Approach			62	0.0	62	0.0	0.056	6.5	LOS A	0.2	1.4	0.14	0.91	0.14	35.2
East: Hope Street															
4	L2	All MCs	47	0.0	47	0.0	0.035	3.2	LOS A	0.0	0.0	0.00	0.33	0.00	37.5
5	T1	All MCs	18	0.0	18	0.0	0.035	0.0	LOS A	0.0	0.0	0.00	0.33	0.00	38.2
Approach			65	0.0	65	0.0	0.035	2.3	LOS A	0.0	0.0	0.00	0.33	0.00	37.7
West: Hope Street															
11	T1	All MCs	22	0.0	22	0.0	0.012	0.0	LOS A	0.0	0.1	0.02	0.02	0.02	39.8
12	R2	All MCs	1	0.0	1	0.0	0.012	3.6	LOS A	0.0	0.1	0.02	0.02	0.02	39.3
Approach			23	0.0	23	0.0	0.012	0.2	LOS A	0.0	0.1	0.02	0.02	0.02	39.8
All Vehicles			151	0.0	151	0.0	0.056	3.7	LOS A	0.2	1.4	0.06	0.52	0.06	36.9

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Minor Road Approach LOS values are based on worst degree of saturation for any vehicle movement.
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 102 [2023 - Burke Road & Hope Street - AM PDV - WIP (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [AM - PDV - Original Phases - Post-DTP - 2024-05-17 (Network Folder: Burke Road Access Models)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 99 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Burke Road															
1	L2	All MCs	43	0.0	43	0.0	0.028	12.9	LOS A	0.2	1.3	0.09	0.49	0.09	32.5
2	T1	All MCs	831	2.7	831	2.7	* 0.721	16.7	LOS C	21.1	151.2	0.58	0.53	0.58	27.8
Approach			874	2.6	874	2.6	0.721	16.5	LOS C	21.1	151.2	0.55	0.53	0.55	21.0
North: Burke Road															
8	T1	All MCs	668	3.4	668	3.4	0.480	6.9	LOS A	10.2	73.4	0.43	0.39	0.43	20.1
9	R2	All MCs	51	0.0	51	0.0	* 0.449	57.1	LOS A	2.5	17.8	1.00	0.74	1.00	3.5
Approach			719	3.2	719	3.2	0.480	10.4	LOS A	10.2	73.4	0.47	0.41	0.47	13.5
West: Hope Street															
10	L2	All MCs	52	0.0	52	0.0	0.125	36.8	LOS A	2.0	14.0	0.83	0.72	0.83	4.9
12	R2	All MCs	36	0.0	36	0.0	* 0.147	45.4	LOS A	1.6	11.0	0.92	0.72	0.92	3.9
Approach			87	0.0	87	0.0	0.147	40.3	LOS A	2.0	14.0	0.87	0.72	0.87	4.4
All Vehicles			1680	2.7	1680	2.7	0.721	15.1	LOS C	21.1	151.2	0.53	0.49	0.53	17.8

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Intersection and Approach LOS values are based on worst degree of saturation for any vehicle movement.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
North: Burke Road											
P3	Full	79	43.8	LOS E	0.2	0.2	0.94	0.94	197.7	200.0	1.01
West: Hope Street											
P4	Full	53	43.8	LOS E	0.1	0.1	0.94	0.94	197.6	200.0	1.01
All Pedestrians		132	43.8	LOS E	0.2	0.2	0.94	0.94	197.7	200.0	1.01

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [2023 - Burke Road & Wattletree Road - AM PDV - POS (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [AM - PDV - Original Phases - Post-DTP - 2024-05-17 (Network Folder: Burke Road Access Models)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 99 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Burke Road (South)															
1	L2	All MCs	46	4.5	46	4.5	0.221	50.5	LOS A	4.9	35.5	0.74	0.65	0.74	40.8
2	T1	All MCs	565	2.5	565	2.5	0.817	53.2	LOS C	22.3	159.4	0.93	0.88	1.02	28.6
3	R2	All MCs	64	4.9	64	4.9	0.488	72.9	LOS A	3.1	22.9	0.98	0.77	0.98	31.2
Approach			676	2.9	676	2.9	0.817	54.8	LOS C	22.3	159.4	0.92	0.86	1.00	23.7
East: Wattletree Road (East)															
4	L2	All MCs	100	2.1	100	2.1	0.736	40.8	LOS C	22.2	156.5	0.84	0.77	0.84	43.2
5	T1	All MCs	494	0.4	494	0.4	0.736	31.4	LOS C	22.2	156.5	0.84	0.77	0.84	44.7
6	R2	All MCs	122	1.8	122	1.8	* 0.390	37.3	LOS A	3.3	23.5	0.89	0.77	0.89	33.0
Approach			716	0.9	716	0.9	0.736	33.7	LOS C	22.2	156.5	0.85	0.77	0.85	37.4
North: Burke Road (North)															
7	L2	All MCs	88	0.0	88	0.0	0.163	20.5	LOS A	2.9	20.4	0.61	0.66	0.61	39.6
8	T1	All MCs	517	4.6	517	4.6	0.817	44.9	LOS C	21.8	158.5	0.90	0.86	0.98	35.3
9	R2	All MCs	81	2.8	81	2.8	* 0.656	64.3	LOS B	3.9	27.7	0.95	0.79	0.98	27.3
Approach			686	3.8	686	3.8	0.817	44.0	LOS C	21.8	158.5	0.87	0.82	0.93	29.2
West: Wattletree Road (West)															
10	L2	All MCs	208	3.1	208	3.1	* 0.760	55.5	LOS C	19.7	140.7	0.93	0.86	0.97	29.3
11	T1	All MCs	243	2.1	243	2.1	0.760	45.5	LOS C	19.7	140.7	0.93	0.86	0.97	39.2
12	R2	All MCs	78	0.0	78	0.0	0.365	59.2	LOS A	3.3	23.4	0.89	0.78	0.89	34.6
Approach			529	2.2	529	2.2	0.760	51.4	LOS C	19.7	140.7	0.92	0.85	0.96	29.4
All Vehicles			2607	2.4	2607	2.4	0.817	45.5	LOS C	22.3	159.4	0.89	0.82	0.93	30.1

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Intersection and Approach LOS values are based on worst degree of saturation for any vehicle movement.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov	Dem.	Aver.	Level of	AVERAGE BACK OF	Prop.	Eff.	Travel	Travel	Aver.

ID	Crossing	Flow	Delay	Service	QUEUE [Ped	Dist]	Que	Stop Rate	Time	Dist.	Speed
		ped/h	sec		ped	m			sec	m	m/sec
South: Burke Road (South)											
P1	Full	109	43.9	LOS E	0.3	0.3	0.94	0.94	197.7	200.0	1.01
East: Wattletree Road (East)											
P2	Full	61	43.8	LOS E	0.2	0.2	0.94	0.94	197.6	200.0	1.01
North: Burke Road (North)											
P3	Full	66	43.8	LOS E	0.2	0.2	0.94	0.94	197.6	200.0	1.01
West: Wattletree Road (West)											
P4	Full	95	43.9	LOS E	0.3	0.3	0.94	0.94	197.7	200.0	1.01
All Pedestrians		332	43.8	LOS E	0.3	0.3	0.94	0.94	197.7	200.0	1.01

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: 102 [2023 - Burke Road & Hope Street - AM PDV - WIP (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [AM - PDV - Original Phases - Post-DTP - 2024-05-17 (Network Folder: Burke Road Access Models)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 99 seconds (Network User-Given Cycle Time)

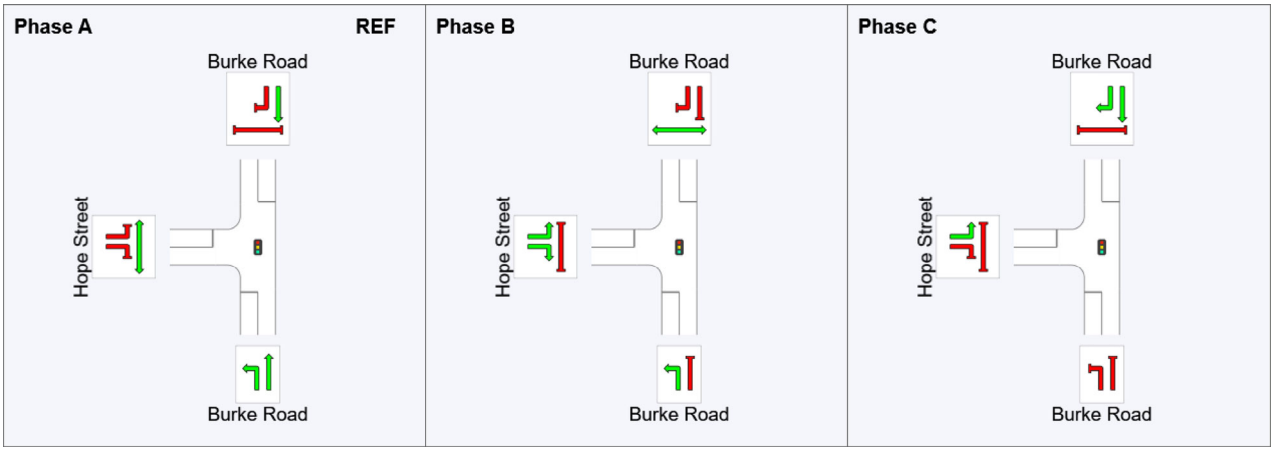
Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Leading Right Turn
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C
Reference Phase: Phase A
Offset: 64 seconds (Program)

Phase Timing Summary

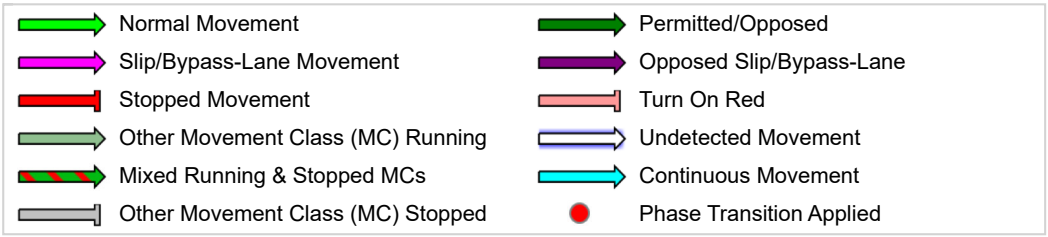
Phase	A	B	C
Phase Change Time (sec)	62	31	50
Green Time (sec)	62	13	6
Phase Time (sec)	68	19	12
Phase Split	69%	19%	12%
Phase Frequency (%)	100.0	100.0	100.0

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

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



PHASING SUMMARY

Site: 101 [2023 - Burke Road & Wattletree Road - AM PDV - POS (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [AM - PDV - Original Phases - Post-DTP - 2024-05-17 (Network Folder: Burke Road Access Models)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 99 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog
Phase Times specified by the user
Phase Sequence: Two-Phase
Input Phase Sequence: A, C, D
Output Phase Sequence: A, C, D
Reference Phase: Phase A
Offset: 0 seconds (Program)

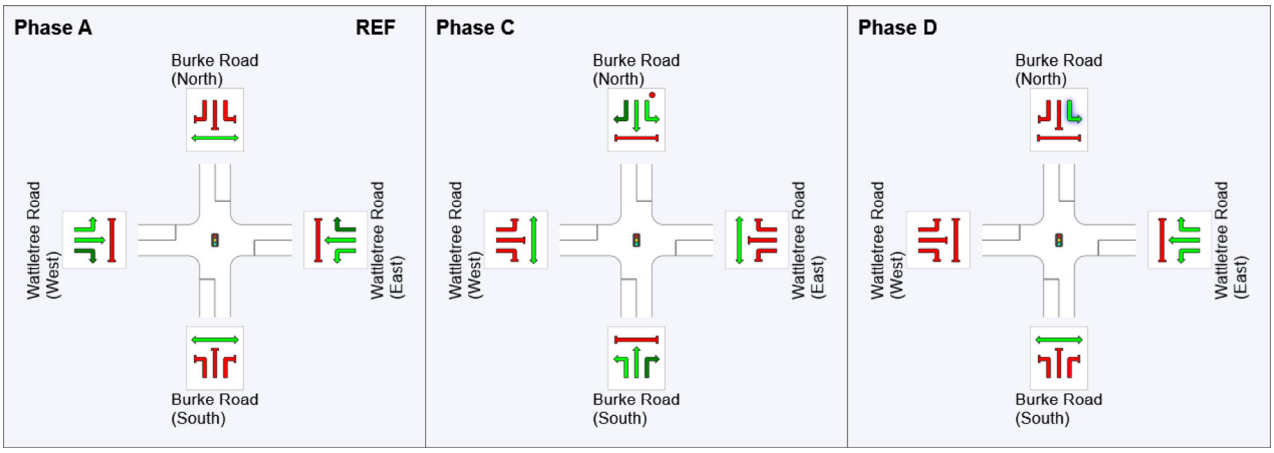
Phase Timing Summary

Phase	A	C	D
Phase Change Time (sec)	0	44	86
Green Time (sec)	40	36	7
Phase Time (sec)	46	42	11
Phase Split	46%	42%	11%
Phase Frequency (%)	100.0[1]	100.0[1]	81.0[1]

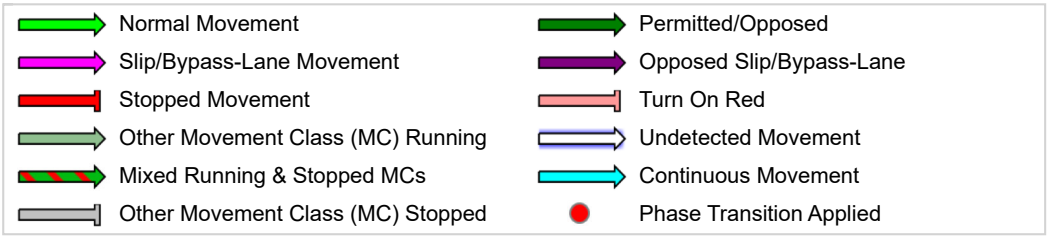
See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified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

1 Phase Frequency has been given with User-Specified Phase Times.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Appendix P

SIDRA Output Existing Conditions – School Peak

MOVEMENT SUMMARY

Site: 104 [2023 - Burke Road & Dorrington Avenue - SCHOOL EXG (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Network: N101 [SCHOOL - EXG (Network Folder: Burke Road Access Models)]

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

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Burke Road															
2	T1	All MCs	649	2.6	649	2.6	0.398	0.1	LOS A	1.0	6.9	0.14	0.17	0.16	39.1
3	R2	All MCs	55	0.0	55	0.0	0.398	14.1	LOS A	1.0	6.9	0.14	0.17	0.16	38.0
Approach			704	2.4	704	2.4	0.398	1.2	LOS A	1.0	6.9	0.14	0.17	0.16	39.0
East: Dorrington Avenue															
4	L2	All MCs	81	1.3	81	1.3	0.191	10.1	LOS A	0.7	5.0	0.64	0.97	0.64	32.2
6	R2	All MCs	18	0.0	18	0.0	0.191	23.3	LOS A	0.7	5.0	0.64	0.97	0.64	35.2
Approach			99	1.1	99	1.1	0.191	12.5	LOS A	0.7	5.0	0.64	0.97	0.64	33.1
North: Burke Road															
7	L2	All MCs	62	3.4	62	3.4	0.334	3.6	LOS A	0.0	0.0	0.00	0.05	0.00	39.3
8	T1	All MCs	577	2.0	577	2.0	0.334	0.1	LOS A	0.0	0.0	0.00	0.05	0.00	39.6
Approach			639	2.1	639	2.1	0.334	0.5	LOS A	0.0	0.0	0.00	0.05	0.00	39.5
All Vehicles			1442	2.2	1442	2.2	0.398	1.6	LOS A	1.0	6.9	0.11	0.17	0.12	38.7

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Minor Road Approach LOS values are based on worst degree of saturation for any vehicle movement.
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [2023 - Burke Road & Hope Street - SCHOOL EXG (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Network: N101 [SCHOOL - EXG (Network Folder: Burke Road Access Models)]

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

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Burke Road (South)															
1	L2	All MCs	15	0.0	15	0.0	0.362	3.5	LOS A	0.0	0.0	0.00	0.01	0.00	39.2
2	T1	All MCs	680	2.5	680	2.5	0.362	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	39.7
Approach			695	2.4	695	2.4	0.362	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	39.7
North: Burke Road (North)															
8	T1	All MCs	645	2.0	645	2.0	0.346	0.0	LOS A	0.2	1.2	0.03	0.03	0.03	38.3
9	R2	All MCs	9	0.0	9	0.0	0.346	16.0	LOS A	0.2	1.2	0.03	0.03	0.03	46.2
Approach			655	2.0	655	2.0	0.346	0.2	LOS A	0.2	1.2	0.03	0.03	0.03	39.1
West: Hope Street West)															
10	L2	All MCs	21	0.0	21	0.0	0.030	11.2	LOS A	0.1	0.9	0.57	0.88	0.57	39.4
12	R2	All MCs	9	0.0	9	0.0	0.041	20.7	LOS A	0.1	0.9	0.81	1.00	0.81	32.8
Approach			31	0.0	31	0.0	0.041	14.2	LOS A	0.1	0.9	0.65	0.92	0.65	37.1
All Vehicles			1380	2.2	1380	2.2	0.362	0.5	LOS A	0.2	1.2	0.03	0.04	0.03	39.4

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Minor Road Approach LOS values are based on worst degree of saturation for any vehicle movement.
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [2023 - Burke Road & Wattletree Road - SCHOOL EXG (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Network: N101 [SCHOOL - EXG (Network Folder: Burke Road Access Models)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 96 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Burke Road (South)															
1	L2	All MCs	76	1.4	76	1.4	0.130	40.5	LOS A	2.7	19.4	0.68	0.70	0.68	41.2
2	T1	All MCs	459	3.0	459	3.0	0.649	38.8	LOS B	16.8	120.3	0.86	0.75	0.86	33.4
3	R2	All MCs	58	3.7	58	3.7	0.372	63.8	LOS A	2.6	19.0	0.95	0.76	0.95	32.5
Approach			593	2.9	593	2.9	0.649	41.5	LOS B	16.8	120.3	0.84	0.75	0.84	34.6
East: Wattletree Road (East)															
4	L2	All MCs	140	1.5	140	1.5	0.522	36.8	LOS A	13.5	95.3	0.76	0.72	0.76	42.8
5	T1	All MCs	267	0.4	267	0.4	0.522	26.8	LOS A	13.5	95.3	0.76	0.72	0.76	44.3
6	R2	All MCs	60	0.0	60	0.0	* 0.289	45.1	LOS A	1.8	12.8	0.91	0.73	0.91	31.0
Approach			467	0.7	467	0.7	0.522	32.2	LOS A	13.5	95.3	0.78	0.72	0.78	42.5
North: Burke Road (North)															
7	L2	All MCs	37	0.0	37	0.0	0.155	55.3	LOS A	3.1	21.8	0.67	0.60	0.67	40.8
8	T1	All MCs	524	1.4	524	1.4	* 0.777	48.6	LOS C	19.3	136.9	0.89	0.83	0.95	36.4
9	R2	All MCs	97	6.6	97	6.6	0.485	56.6	LOS A	4.3	31.4	0.93	0.79	0.93	28.6
Approach			658	2.1	658	2.1	0.777	50.2	LOS C	19.3	136.9	0.88	0.81	0.93	35.2
West: Wattletree Road (West)															
10	L2	All MCs	175	1.2	175	1.2	* 0.809	56.3	LOS C	22.9	162.1	0.94	0.91	1.04	29.1
11	T1	All MCs	335	1.3	335	1.3	0.809	46.7	LOS C	22.9	162.1	0.94	0.91	1.04	39.0
12	R2	All MCs	104	0.0	104	0.0	0.330	51.8	LOS A	3.9	27.6	0.83	0.77	0.83	37.2
Approach			614	1.1	614	1.1	0.809	50.3	LOS C	22.9	162.1	0.92	0.89	1.00	36.5
All Vehicles			2332	1.7	2332	1.7	0.809	44.4	LOS C	22.9	162.1	0.86	0.80	0.90	37.0

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Intersection and Approach LOS values are based on worst degree of saturation for any vehicle movement.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE	Prop. Que	Eff. Stop	Travel Time	Travel Dist.	Aver. Speed

	ped/h	sec		[Ped ped	Dist] m		Rate	sec	m	m/sec
South: Burke Road (South)										
P1 Full	131	42.4	LOS E	0.3	0.3	0.94	0.94	196.3	200.0	1.02
East: Wattletree Road (East)										
P2 Full	164	42.5	LOS E	0.4	0.4	0.94	0.94	196.3	200.0	1.02
North: Burke Road (North)										
P3 Full	109	42.4	LOS E	0.3	0.3	0.94	0.94	196.2	200.0	1.02
West: Wattletree Road (West)										
P4 Full	104	42.4	LOS E	0.3	0.3	0.94	0.94	196.2	200.0	1.02
All Pedestrians	508	42.4	LOS E	0.4	0.4	0.94	0.94	196.3	200.0	1.02

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: 101 [2023 - Burke Road & Wattletree Road - SCHOOL EXG (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Network: N101 [SCHOOL - EXG (Network Folder: Burke Road Access Models)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 96 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: Two-Phase
Input Phase Sequence: A, C, D
Output Phase Sequence: A, C, D
Reference Phase: Phase A
Offset: NA

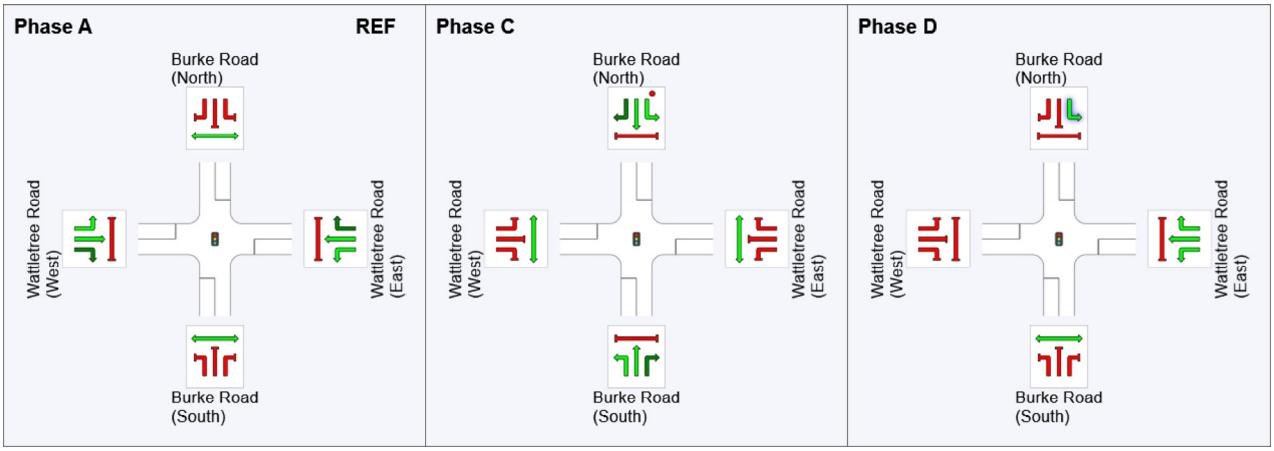
Phase Timing Summary

Phase	A	C	D
Phase Change Time (sec)	0	43	88
Green Time (sec)	41	39	2
Phase Time (sec)	47	45	4
Phase Split	49%	47%	4%
Phase Frequency (%)	100.0[1]	100.0[1]	31.0[1]

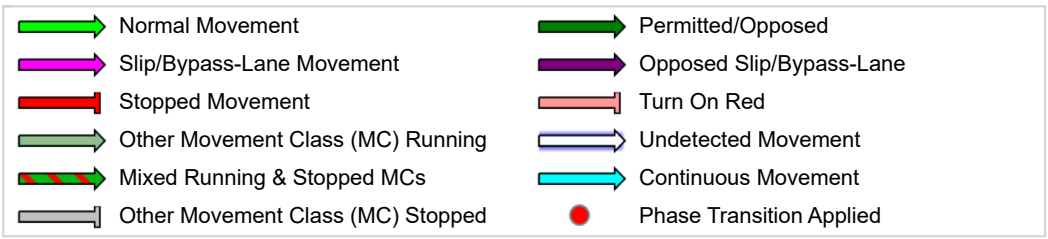
See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified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

1 Phase Frequency has been given with User-Specified Phase Times.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Appendix Q

SIDRA Output Post-Development Conditions – School Peak

MOVEMENT SUMMARY

Site: 104 [2023 - Burke Road & Dorrington Avenue - SCHOOL PDV (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [School - PDV - Original Phases - Post-DTP - 2024-05-17 (Network Folder: Burke Road Access Models)]

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

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Burke Road															
2	T1	All MCs	695	2.6	695	2.6	0.424	0.8	LOS A	1.0	7.3	0.13	0.16	0.16	39.0
3	R2	All MCs	55	0.0	55	0.0	0.424	7.8	LOS A	1.0	7.3	0.13	0.16	0.16	38.0
Approach			749	2.4	749	2.4	0.424	1.3	LOS A	1.0	7.3	0.13	0.16	0.16	38.9
East: Dorrington Avenue															
4	L2	All MCs	81	1.3	81	1.3	0.356	11.4	LOS A	0.9	6.0	0.70	1.04	0.84	31.5
6	R2	All MCs	18	0.0	18	0.0	0.356	25.3	LOS A	0.9	6.0	0.70	1.04	0.84	34.7
Approach			99	1.1	99	1.1	0.356	13.9	LOS A	0.9	6.0	0.70	1.04	0.84	32.4
North: Burke Road															
7	L2	All MCs	62	3.4	62	3.4	0.353	3.6	LOS A	1.0	7.2	0.00	0.04	0.00	39.3
8	T1	All MCs	613	2.0	613	2.0	0.353	0.2	LOS A	1.0	7.2	0.00	0.04	0.00	39.6
Approach			675	2.1	675	2.1	0.353	0.5	LOS A	1.0	7.2	0.00	0.04	0.00	39.5
All Vehicles			1523	2.2	1523	2.2	0.424	1.7	LOS A	1.0	7.3	0.11	0.17	0.14	38.6

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Minor Road Approach LOS values are based on worst degree of saturation for any vehicle movement.
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 102 [2023 - Burke Road & Hope Street - SCHOOL PDV - WIP (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [School - PDV - Original Phases - Post-DTP - 2024-05-17 (Network Folder: Burke Road Access Models)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 96 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Burke Road															
1	L2	All MCs	62	0.0	62	0.0	0.041	10.5	LOS A	0.3	2.3	0.12	0.50	0.12	32.2
2	T1	All MCs	668	2.5	668	2.5	* 0.603	13.2	LOS B	14.1	100.5	0.49	0.44	0.49	28.7
Approach			731	2.3	731	2.3	0.603	13.0	LOS B	14.1	100.5	0.46	0.45	0.46	23.4
North: Burke Road															
8	T1	All MCs	634	2.0	634	2.0	0.455	6.6	LOS A	10.3	73.4	0.42	0.38	0.42	20.1
9	R2	All MCs	57	0.0	57	0.0	* 0.490	55.2	LOS A	2.8	19.4	1.00	0.75	1.00	3.5
Approach			691	1.8	691	1.8	0.490	10.6	LOS A	10.3	73.4	0.47	0.41	0.47	13.4
West: Hope Street															
10	L2	All MCs	66	0.0	66	0.0	0.156	35.5	LOS A	2.5	17.5	0.84	0.73	0.84	5.1
12	R2	All MCs	55	0.0	55	0.0	* 0.218	44.4	LOS A	2.4	16.5	0.93	0.74	0.93	4.0
Approach			121	0.0	121	0.0	0.218	39.5	LOS A	2.5	17.5	0.88	0.73	0.88	4.5
All Vehicles			1542	1.9	1542	1.9	0.603	14.0	LOS B	14.1	100.5	0.50	0.46	0.50	18.1

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Intersection and Approach LOS values are based on worst degree of saturation for any vehicle movement.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
North: Burke Road											
P3	Full	79	42.3	LOS E	0.2	0.2	0.94	0.94	196.2	200.0	1.02
West: Hope Street											
P4	Full	53	42.3	LOS E	0.1	0.1	0.94	0.94	196.1	200.0	1.02
All Pedestrians		132	42.3	LOS E	0.2	0.2	0.94	0.94	196.2	200.0	1.02

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [2023 - Site Access & Hope Street - SCHOOL PDV (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [School - PDV - Original Phases - Post-DTP - 2024-05-17 (Network Folder: Burke Road Access Models)]

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

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Site Access															
1	L2	All MCs	1	0.0	1	0.0	0.085	6.7	LOS A	0.3	2.1	0.15	0.91	0.15	37.0
3	R2	All MCs	92	0.0	92	0.0	0.085	6.6	LOS A	0.3	2.1	0.15	0.91	0.15	35.2
Approach			93	0.0	93	0.0	0.085	6.6	LOS A	0.3	2.1	0.15	0.91	0.15	35.2
East: Hope Street															
4	L2	All MCs	95	0.0	95	0.0	0.058	3.2	LOS A	0.0	0.0	0.00	0.40	0.00	37.1
5	T1	All MCs	14	0.0	14	0.0	0.058	0.0	LOS A	0.0	0.0	0.00	0.40	0.00	37.9
Approach			108	0.0	108	0.0	0.058	2.8	LOS A	0.0	0.0	0.00	0.40	0.00	37.2
West: Hope Street															
11	T1	All MCs	11	0.0	11	0.0	0.006	0.0	LOS A	0.0	0.1	0.05	0.06	0.05	39.6
12	R2	All MCs	1	0.0	1	0.0	0.006	3.8	LOS A	0.0	0.1	0.05	0.06	0.05	39.2
Approach			12	0.0	12	0.0	0.006	0.4	LOS A	0.0	0.1	0.05	0.06	0.05	39.5
All Vehicles			213	0.0	213	0.0	0.085	4.3	LOS A	0.3	2.1	0.07	0.60	0.07	36.5

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Minor Road Approach LOS values are based on worst degree of saturation for any vehicle movement.
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [2023 - Burke Road & Wattletree Road - SCHOOL PDV (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [School - PDV - Original Phases - Post-DTP - 2024-05-17 (Network Folder: Burke Road Access Models)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 96 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Burke Road (South)															
1	L2	All MCs	76	1.4	76	1.4	0.137	41.6	LOS A	2.9	20.7	0.68	0.69	0.68	41.3
2	T1	All MCs	487	3.0	487	3.0	0.686	40.1	LOS B	18.0	129.1	0.87	0.77	0.87	33.1
3	R2	All MCs	58	3.7	58	3.7	0.394	65.0	LOS A	2.6	19.1	0.95	0.77	0.95	32.4
Approach			621	2.9	621	2.9	0.686	42.6	LOS B	18.0	129.1	0.86	0.76	0.86	27.9
East: Wattletree Road (East)															
4	L2	All MCs	140	1.5	140	1.5	0.528	37.0	LOS A	13.6	95.7	0.77	0.72	0.77	42.8
5	T1	All MCs	267	0.4	267	0.4	0.528	26.9	LOS A	13.6	95.7	0.77	0.72	0.77	44.2
6	R2	All MCs	69	0.0	69	0.0	* 0.349	37.8	LOS A	2.1	15.0	0.93	0.74	0.93	30.7
Approach			477	0.7	477	0.7	0.528	31.5	LOS A	13.6	95.7	0.79	0.72	0.79	38.4
North: Burke Road (North)															
7	L2	All MCs	46	0.0	46	0.0	0.166	37.3	LOS A	3.0	21.1	0.61	0.58	0.61	41.4
8	T1	All MCs	552	1.4	552	1.4	* 0.828	45.0	LOS C	20.5	145.6	0.86	0.83	0.95	37.0
9	R2	All MCs	106	6.6	106	6.6	0.580	51.9	LOS A	4.4	32.6	0.87	0.78	0.89	30.1
Approach			704	2.1	704	2.1	0.828	45.5	LOS C	20.5	145.6	0.84	0.80	0.91	28.8
West: Wattletree Road (West)															
10	L2	All MCs	184	1.2	184	1.2	* 0.825	58.2	LOS C	24.0	169.9	0.95	0.93	1.07	28.4
11	T1	All MCs	335	1.3	335	1.3	0.825	48.5	LOS C	24.0	169.9	0.95	0.93	1.07	38.3
12	R2	All MCs	104	0.0	104	0.0	0.333	52.2	LOS A	3.9	27.6	0.83	0.77	0.83	37.1
Approach			623	1.1	623	1.1	0.825	52.0	LOS C	24.0	169.9	0.93	0.90	1.03	30.1
All Vehicles			2425	1.7	2425	1.7	0.828	43.7	LOS C	24.0	169.9	0.86	0.80	0.90	30.8

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Intersection and Approach LOS values are based on worst degree of saturation for any vehicle movement.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov	Dem.	Aver.	Level of	AVERAGE BACK OF	Prop.	Eff.	Travel	Travel	Aver.

ID	Crossing	Flow	Delay	Service	QUEUE [Ped	Dist]	Que	Stop Rate	Time	Dist.	Speed
		ped/h	sec		ped	m			sec	m	m/sec
South: Burke Road (South)											
P1	Full	131	42.4	LOS E	0.3	0.3	0.94	0.94	196.3	200.0	1.02
East: Wattletree Road (East)											
P2	Full	164	42.5	LOS E	0.4	0.4	0.94	0.94	196.3	200.0	1.02
North: Burke Road (North)											
P3	Full	109	42.4	LOS E	0.3	0.3	0.94	0.94	196.2	200.0	1.02
West: Wattletree Road (West)											
P4	Full	104	42.4	LOS E	0.3	0.3	0.94	0.94	196.2	200.0	1.02
All Pedestrians		508	42.4	LOS E	0.4	0.4	0.94	0.94	196.3	200.0	1.02

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: 102 [2023 - Burke Road & Hope Street - SCHOOL PDV - WIP (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [School - PDV - Original Phases - Post-DTP - 2024-05-17 (Network Folder: Burke Road Access Models)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 96 seconds (Network User-Given Cycle Time)

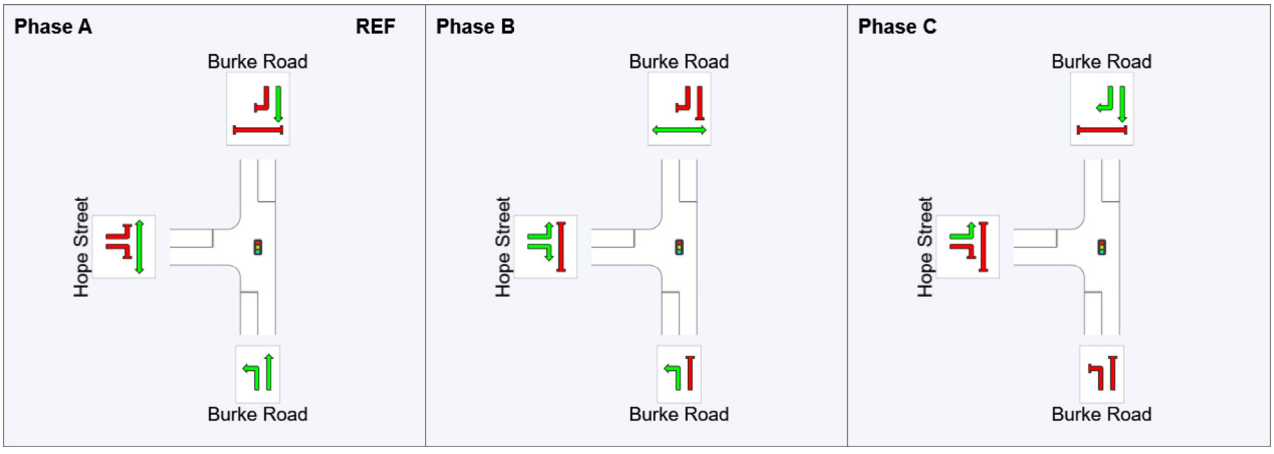
Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Leading Right Turn
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C
Reference Phase: Phase A
Offset: 63 seconds (Program)

Phase Timing Summary

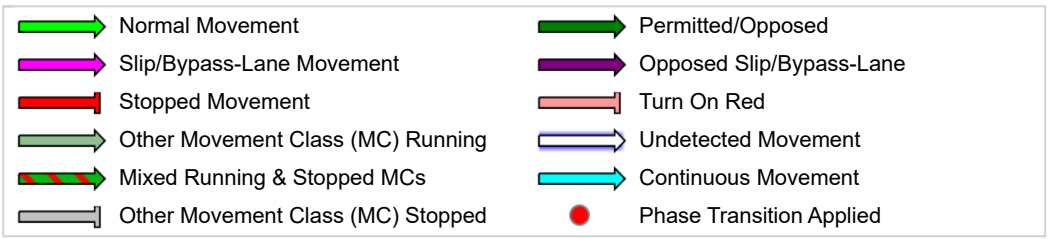
Phase	A	B	C
Phase Change Time (sec)	59	28	47
Green Time (sec)	59	13	6
Phase Time (sec)	65	19	12
Phase Split	68%	20%	13%
Phase Frequency (%)	100.0	100.0	100.0

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

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



PHASING SUMMARY

Site: 101 [2023 - Burke Road & Wattletree Road - SCHOOL PDV (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [School - PDV - Original Phases - Post-DTP - 2024-05-17 (Network Folder: Burke Road Access Models)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 96 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog
Phase Times specified by the user
Phase Sequence: Two-Phase
Input Phase Sequence: A, C, D
Output Phase Sequence: A, C, D
Reference Phase: Phase A
Offset: 0 seconds (Program)

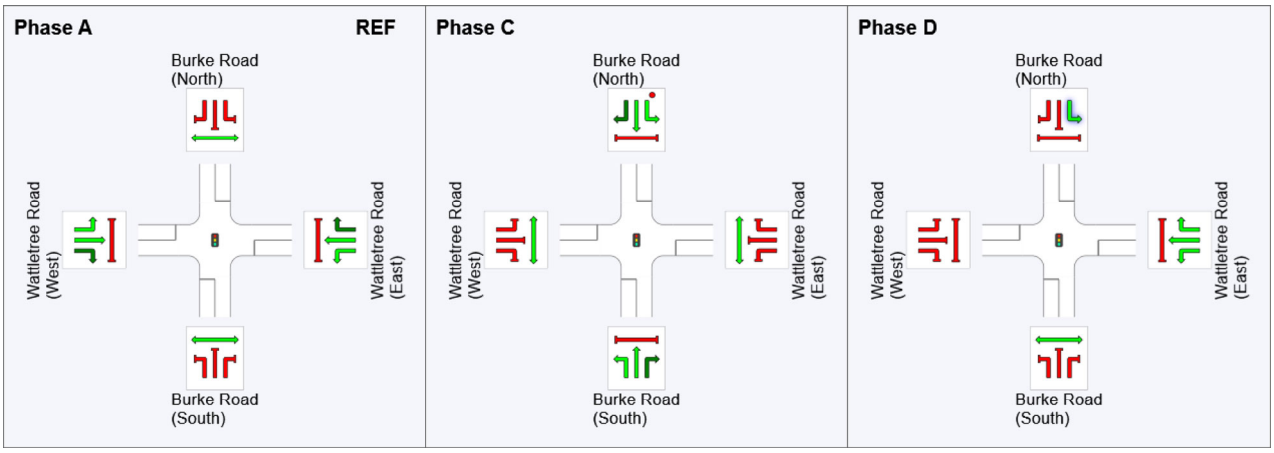
Phase Timing Summary

Phase	A	C	D
Phase Change Time (sec)	0	43	88
Green Time (sec)	41	39	2
Phase Time (sec)	47	45	4
Phase Split	49%	47%	4%
Phase Frequency (%)	100.0[1]	100.0[1]	31.0[1]

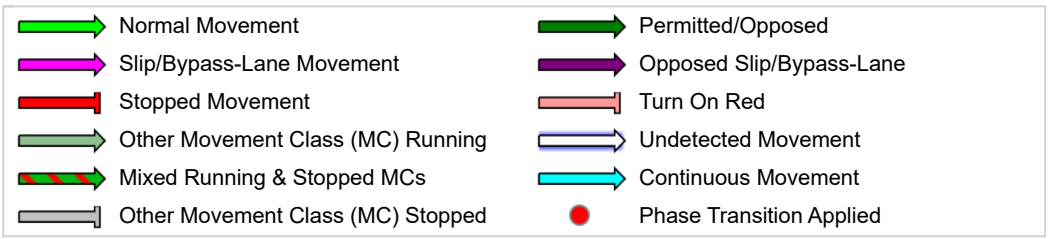
See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified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

1 Phase Frequency has been given with User-Specified Phase Times.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Appendix R

SIDRA Output Existing Conditions – PM Peak

MOVEMENT SUMMARY

Site: 104 [2023 - Burke Road & Dorrington Avenue - PM EXG (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Network: N101 [PM - EXG (Network Folder: Burke Road Access Models)]

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

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Burke Road															
2	T1	All MCs	680	1.2	680	1.2	0.391	0.1	LOS A	0.6	4.5	0.09	0.11	0.10	58.5
3	R2	All MCs	31	0.0	31	0.0	0.391	18.7	LOS A	0.6	4.5	0.09	0.11	0.10	39.5
Approach			711	1.1	711	1.1	0.391	0.9	LOS A	0.6	4.5	0.09	0.11	0.10	57.3
East: Dorrington Avenue															
4	L2	All MCs	16	0.0	16	0.0	0.168	11.3	LOS A	0.5	3.6	0.81	1.00	0.82	28.3
6	R2	All MCs	24	0.0	24	0.0	0.168	26.6	LOS A	0.5	3.6	0.81	1.00	0.82	37.2
Approach			40	0.0	40	0.0	0.168	20.5	LOS A	0.5	3.6	0.81	1.00	0.82	34.5
North: Burke Road															
7	L2	All MCs	52	0.0	52	0.0	0.399	5.7	LOS A	0.0	0.0	0.00	0.04	0.00	56.9
8	T1	All MCs	720	1.0	720	1.0	0.399	0.1	LOS A	0.0	0.0	0.00	0.04	0.00	59.0
Approach			772	0.9	772	0.9	0.399	0.5	LOS A	0.0	0.0	0.00	0.04	0.00	58.7
All Vehicles			1522	1.0	1522	1.0	0.399	1.2	LOS A	0.6	4.5	0.06	0.10	0.07	56.5

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Minor Road Approach LOS values are based on worst degree of saturation for any vehicle movement.
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [2023 - Burke Road & Hope Street - PM EXG (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Network: N101 [PM - EXG (Network Folder: Burke Road Access Models)]

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

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Burke Road (South)															
1	L2	All MCs	12	0.0	12	0.0	0.363	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	56.2
2	T1	All MCs	691	1.2	691	1.2	0.363	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.3
Approach			702	1.2	702	1.2	0.363	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.2
North: Burke Road (North)															
8	T1	All MCs	729	1.0	729	1.0	0.382	0.0	LOS A	0.1	0.7	0.01	0.02	0.01	58.7
9	R2	All MCs	5	0.0	5	0.0	0.382	10.9	LOS A	0.1	0.7	0.01	0.02	0.01	48.3
Approach			735	1.0	735	1.0	0.382	0.1	LOS A	0.1	0.7	0.01	0.02	0.01	57.9
West: Hope Street West)															
10	L2	All MCs	19	0.0	19	0.0	0.027	11.3	LOS A	0.1	0.8	0.57	0.88	0.57	39.3
12	R2	All MCs	8	0.0	8	0.0	0.043	23.4	LOS A	0.1	0.9	0.84	1.00	0.84	31.3
Approach			27	0.0	27	0.0	0.043	15.0	LOS A	0.1	0.9	0.66	0.92	0.66	36.5
All Vehicles			1464	1.1	1464	1.1	0.382	0.4	LOS A	0.1	0.9	0.02	0.03	0.02	56.6

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Minor Road Approach LOS values are based on worst degree of saturation for any vehicle movement.
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [2023 - Burke Road & Wattletree Road - PM EXG (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Network: N101 [PM - EXG (Network Folder: Burke Road Access Models)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 99 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Burke Road (South)															
1	L2	All MCs	82	1.2	82	1.2	0.167	30.9	LOS A	3.8	26.9	0.68	0.68	0.68	41.5
2	T1	All MCs	454	1.1	454	1.1	0.618	37.7	LOS B	15.8	111.9	0.84	0.74	0.84	33.2
3	R2	All MCs	64	3.1	64	3.1	0.420	65.0	LOS A	3.0	21.7	0.95	0.77	0.95	32.1
Approach			600	1.3	600	1.3	0.618	39.7	LOS B	15.8	111.9	0.83	0.73	0.83	34.5
East: Wattletree Road (East)															
4	L2	All MCs	82	2.4	82	2.4	0.366	29.5	LOS A	9.4	66.1	0.68	0.64	0.68	44.2
5	T1	All MCs	225	0.4	225	0.4	0.366	20.4	LOS A	9.4	66.1	0.68	0.64	0.68	45.7
6	R2	All MCs	45	0.0	45	0.0	0.270	48.5	LOS A	2.0	13.9	0.90	0.75	0.90	24.4
Approach			353	0.8	353	0.8	0.366	26.1	LOS A	9.4	66.1	0.71	0.65	0.71	42.8
North: Burke Road (North)															
7	L2	All MCs	37	0.0	37	0.0	0.166	26.8	LOS A	3.9	27.5	0.67	0.60	0.67	38.3
8	T1	All MCs	589	0.7	589	0.7	* 0.760	39.5	LOS C	21.4	150.5	0.88	0.80	0.91	36.5
9	R2	All MCs	88	3.4	88	3.4	0.416	57.6	LOS A	3.9	27.9	0.91	0.78	0.91	28.9
Approach			715	1.0	715	1.0	0.760	41.1	LOS C	21.4	150.5	0.88	0.79	0.90	35.4
West: Wattletree Road (West)															
10	L2	All MCs	209	1.4	209	1.4	* 0.757	30.1	LOS C	27.0	189.9	0.88	0.82	0.88	33.5
11	T1	All MCs	512	0.0	512	0.0	0.757	22.3	LOS C	27.0	189.9	0.87	0.81	0.87	42.7
12	R2	All MCs	109	0.0	109	0.0	0.308	30.7	LOS A	5.0	34.8	0.74	0.73	0.74	40.3
Approach			831	0.4	831	0.4	0.757	25.4	LOS C	27.0	189.9	0.86	0.80	0.86	40.7
All Vehicles			2498	0.8	2498	0.8	0.760	33.4	LOS C	27.0	189.9	0.83	0.76	0.84	38.2

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Intersection and Approach LOS values are based on worst degree of saturation for any vehicle movement.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE	Prop. Que	Eff. Stop	Travel Time	Travel Dist.	Aver. Speed

	ped/h	sec		[Ped ped	Dist] m		Rate	sec	m	m/sec
South: Burke Road (South)										
P1 Full	62	43.8	LOS E	0.2	0.2	0.94	0.94	197.6	200.0	1.01
East: Wattletree Road (East)										
P2 Full	27	43.7	LOS E	0.1	0.1	0.94	0.94	197.6	200.0	1.01
North: Burke Road (North)										
P3 Full	21	43.7	LOS E	0.1	0.1	0.94	0.94	197.6	200.0	1.01
West: Wattletree Road (West)										
P4 Full	49	43.8	LOS E	0.1	0.1	0.94	0.94	197.6	200.0	1.01
All Pedestrians	160	43.8	LOS E	0.2	0.2	0.94	0.94	197.6	200.0	1.01

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: 101 [2023 - Burke Road & Wattletree Road - PM EXG (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Network: N101 [PM - EXG (Network Folder: Burke Road Access Models)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 99 seconds (Site User-Given Phase Times)

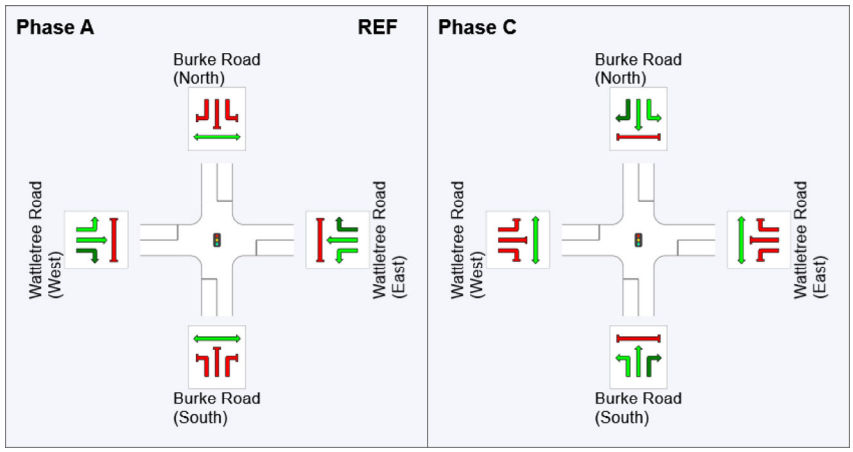
Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: Two-Phase
Input Phase Sequence: A, C
Output Phase Sequence: A, C
Reference Phase: Phase A
Offset: NA

Phase Timing Summary

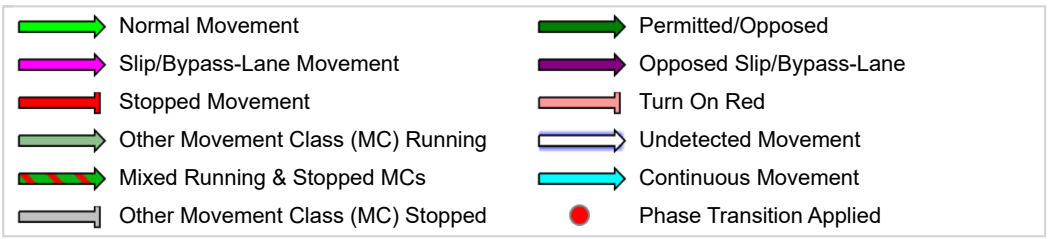
Phase	A	C
Phase Change Time (sec)	0	53
Green Time (sec)	47	40
Phase Time (sec)	53	46
Phase Split	54%	46%
Phase Frequency (%)	100.0	100.0

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

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Appendix S

SIDRA Output Post-Development Conditions – PM Peak

MOVEMENT SUMMARY

Site: 104 [2023 - Burke Road & Dorrington Avenue - PM PDV - Copy (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Network: N101 [PM - PDV - Post-DTP - 2024-05-17 (Network Folder: Burke Road Access Models)]

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

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Burke Road															
2	T1	All MCs	747	1.2	747	1.2	0.429	0.1	LOS A	0.7	5.2	0.09	0.11	0.11	58.3
3	R2	All MCs	31	0.0	31	0.0	0.429	21.4	LOS A	0.7	5.2	0.09	0.11	0.11	39.4
Approach			778	1.2	778	1.2	0.429	1.0	LOS A	0.7	5.2	0.09	0.11	0.11	57.2
East: Dorrington Avenue															
4	L2	All MCs	16	0.0	16	0.0	0.239	12.7	LOS A	0.6	3.9	0.83	1.03	0.91	27.7
6	R2	All MCs	24	0.0	24	0.0	0.239	28.1	LOS A	0.6	3.9	0.83	1.03	0.91	36.6
Approach			40	0.0	40	0.0	0.239	22.0	LOS A	0.6	3.9	0.83	1.03	0.91	33.9
North: Burke Road															
7	L2	All MCs	52	0.0	52	0.0	0.426	5.7	LOS A	3.3	23.4	0.00	0.04	0.00	56.9
8	T1	All MCs	772	1.0	772	1.0	0.426	0.2	LOS A	3.3	23.4	0.00	0.04	0.00	59.0
Approach			823	0.9	823	0.9	0.426	0.5	LOS A	3.3	23.4	0.00	0.04	0.00	58.8
All Vehicles			1641	1.0	1641	1.0	0.429	1.3	LOS A	3.3	23.4	0.06	0.10	0.08	56.6

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Minor Road Approach LOS values are based on worst degree of saturation for any vehicle movement.
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [2023 - Site Access & Hope Street - PM PDV - Copy (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Network: N101 [PM - PDV - Post-DTP - 2024-05-17 (Network Folder: Burke Road Access Models)]

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

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Site Access															
1	L2	All MCs	1	0.0	1	0.0	0.126	6.7	LOS A	0.5	3.3	0.19	0.90	0.19	40.3
3	R2	All MCs	134	0.0	134	0.0	0.126	6.7	LOS A	0.5	3.3	0.19	0.90	0.19	35.1
Approach			135	0.0	135	0.0	0.126	6.7	LOS A	0.5	3.3	0.19	0.90	0.19	35.2
East: Hope Street															
4	L2	All MCs	139	0.0	139	0.0	0.082	3.4	LOS A	0.0	0.0	0.00	0.47	0.00	44.5
5	T1	All MCs	14	0.0	14	0.0	0.082	0.0	LOS A	0.0	0.0	0.00	0.47	0.00	46.4
Approach			153	0.0	153	0.0	0.082	3.1	LOS A	0.0	0.0	0.00	0.47	0.00	44.6
West: Hope Street															
11	T1	All MCs	14	0.0	14	0.0	0.008	0.0	LOS A	0.0	0.1	0.05	0.05	0.05	49.3
12	R2	All MCs	1	0.0	1	0.0	0.008	5.6	LOS A	0.0	0.1	0.05	0.05	0.05	43.5
Approach			15	0.0	15	0.0	0.008	0.4	LOS A	0.0	0.1	0.05	0.05	0.05	48.4
All Vehicles			302	0.0	302	0.0	0.126	4.6	LOS A	0.5	3.3	0.09	0.64	0.09	40.2

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Minor Road Approach LOS values are based on worst degree of saturation for any vehicle movement.
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 102 [2023 - Burke Road & Hope Street - PM PDV (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Network: N101 [PM - PDV - Post-DTP - 2024-05-17 (Network Folder: Burke Road Access Models)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 99 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Burke Road															
1	L2	All MCs	81	0.0	81	0.0	0.054	15.3	LOS A	0.7	5.0	0.20	0.62	0.20	37.5
2	T1	All MCs	673	1.2	673	1.2	* 0.615	18.1	LOS B	17.7	125.3	0.60	0.54	0.60	32.7
Approach			754	1.1	754	1.1	0.615	17.8	LOS B	17.7	125.3	0.55	0.55	0.55	33.1
North: Burke Road															
8	T1	All MCs	712	1.0	712	1.0	0.510	7.5	LOS A	10.4	73.4	0.44	0.40	0.44	23.6
9	R2	All MCs	75	0.0	75	0.0	* 0.569	57.0	LOS A	3.8	26.3	1.00	0.78	1.04	3.6
Approach			786	0.9	786	0.9	0.569	12.2	LOS A	10.4	73.4	0.49	0.44	0.50	15.4
West: Hope Street															
10	L2	All MCs	86	0.0	86	0.0	0.200	36.6	LOS A	3.4	23.7	0.84	0.74	0.84	4.9
12	R2	All MCs	76	0.0	76	0.0	* 0.311	46.7	LOS A	3.4	24.0	0.95	0.76	0.95	3.8
Approach			162	0.0	162	0.0	0.311	41.3	LOS A	3.4	24.0	0.89	0.75	0.89	4.3
All Vehicles			1702	0.9	1702	0.9	0.615	17.4	LOS B	17.7	125.3	0.56	0.52	0.56	21.6

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Intersection and Approach LOS values are based on worst degree of saturation for any vehicle movement.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
North: Burke Road											
P3	Full	79	43.8	LOS E	0.2	0.2	0.94	0.94	197.7	200.0	1.01
West: Hope Street											
P4	Full	53	43.8	LOS E	0.1	0.1	0.94	0.94	197.6	200.0	1.01
All Pedestrians		132	43.8	LOS E	0.2	0.2	0.94	0.94	197.7	200.0	1.01

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [2023 - Burke Road & Wattletree Road - PM PDV - Copy (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Network: N101 [PM - PDV - Post-DTP - 2024-05-17 (Network Folder: Burke Road Access Models)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 99 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Burke Road (South)															
1	L2	All MCs	82	1.2	82	1.2	0.182	32.9	LOS A	4.2	29.6	0.69	0.67	0.69	41.6
2	T1	All MCs	496	1.1	496	1.1	0.673	39.6	LOS B	17.5	123.8	0.86	0.76	0.86	32.8
3	R2	All MCs	64	3.1	64	3.1	0.408	64.5	LOS A	3.0	21.3	0.94	0.77	0.94	32.6
Approach			642	1.3	642	1.3	0.673	41.2	LOS B	17.5	123.8	0.84	0.75	0.84	34.3
East: Wattletree Road (East)															
4	L2	All MCs	82	2.4	82	2.4	0.372	29.7	LOS A	9.4	66.3	0.68	0.64	0.68	44.2
5	T1	All MCs	225	0.4	225	0.4	0.372	20.5	LOS A	9.4	66.3	0.68	0.64	0.68	45.7
6	R2	All MCs	59	0.0	59	0.0	0.366	50.3	LOS A	2.7	18.7	0.93	0.77	0.93	23.9
Approach			366	0.8	366	0.8	0.372	27.3	LOS A	9.4	66.3	0.72	0.66	0.72	41.9
North: Burke Road (North)															
7	L2	All MCs	51	0.0	51	0.0	0.181	19.4	LOS A	3.0	21.2	0.48	0.51	0.48	42.0
8	T1	All MCs	629	0.7	629	0.7	* 0.825	31.9	LOS C	21.2	149.6	0.76	0.73	0.82	39.9
9	R2	All MCs	102	3.4	102	3.4	0.544	60.6	LOS A	4.8	34.5	0.97	0.80	0.97	27.3
Approach			782	1.0	782	1.0	0.825	34.8	LOS C	21.2	149.6	0.77	0.73	0.82	37.7
West: Wattletree Road (West)															
10	L2	All MCs	223	1.4	223	1.4	* 0.771	30.9	LOS C	28.0	196.9	0.89	0.83	0.90	33.1
11	T1	All MCs	512	0.0	512	0.0	0.771	22.9	LOS C	28.0	196.9	0.88	0.83	0.89	42.4
12	R2	All MCs	109	0.0	109	0.0	0.314	31.7	LOS A	5.1	35.9	0.75	0.73	0.75	40.0
Approach			844	0.4	844	0.4	0.771	26.1	LOS C	28.0	196.9	0.87	0.82	0.88	40.3
All Vehicles			2635	0.8	2635	0.8	0.825	32.6	LOS C	28.0	196.9	0.81	0.75	0.83	38.5

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Intersection and Approach LOS values are based on worst degree of saturation for any vehicle movement.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov	Dem.	Aver.	Level of	AVERAGE BACK OF	Prop.	Eff.	Travel	Travel	Aver.

ID	Crossing	Flow	Delay	Service	QUEUE [Ped	Dist]	Que	Stop Rate	Time	Dist.	Speed
		ped/h	sec		ped	m			sec	m	m/sec
South: Burke Road (South)											
P1	Full	62	43.8	LOS E	0.2	0.2	0.94	0.94	197.6	200.0	1.01
East: Wattletree Road (East)											
P2	Full	27	43.7	LOS E	0.1	0.1	0.94	0.94	197.6	200.0	1.01
North: Burke Road (North)											
P3	Full	21	43.7	LOS E	0.1	0.1	0.94	0.94	197.6	200.0	1.01
West: Wattletree Road (West)											
P4	Full	49	43.8	LOS E	0.1	0.1	0.94	0.94	197.6	200.0	1.01
All Pedestrians		160	43.8	LOS E	0.2	0.2	0.94	0.94	197.6	200.0	1.01

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: 102 [2023 - Burke Road & Hope Street - PM PDV (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Network: N101 [PM - PDV - Post-DTP - 2024-05-17 (Network Folder: Burke Road Access Models)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 99 seconds (Network User-Given Cycle Time)

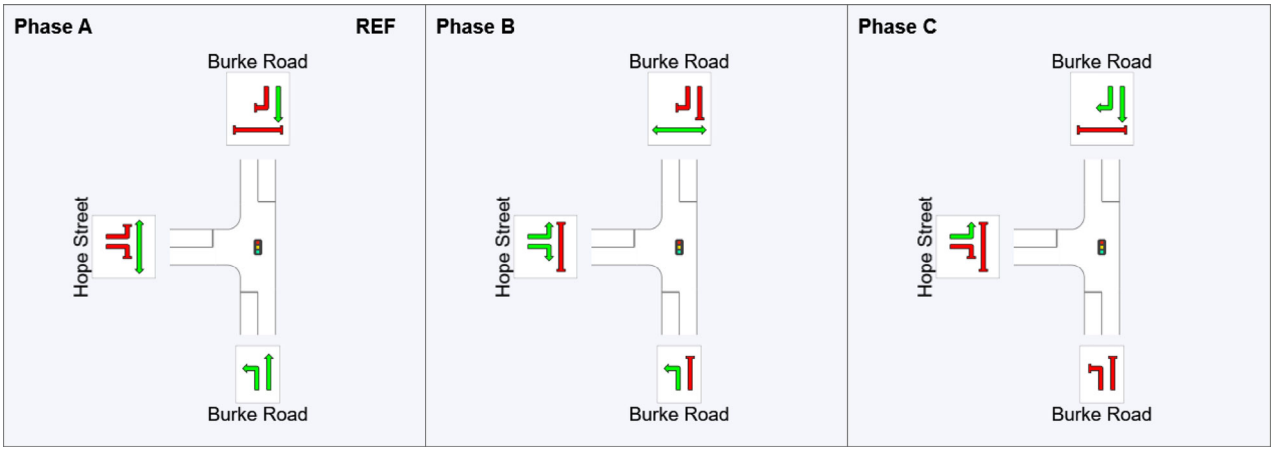
Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Leading Right Turn
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C
Reference Phase: Phase A
Offset: 53 seconds (Program)

Phase Timing Summary

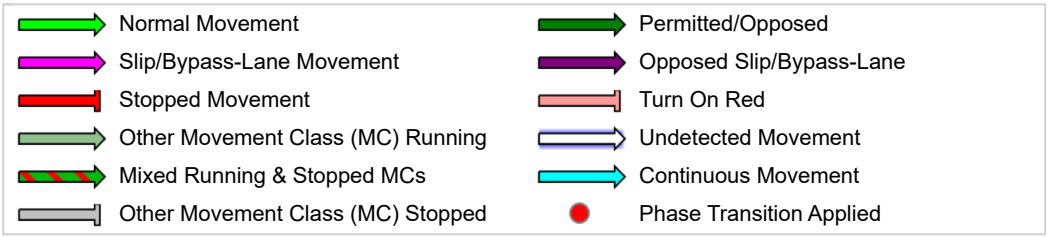
Phase	A	B	C
Phase Change Time (sec)	53	21	40
Green Time (sec)	61	13	7
Phase Time (sec)	67	19	13
Phase Split	68%	19%	13%
Phase Frequency (%)	100.0	100.0	100.0

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

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



PHASING SUMMARY

Site: 101 [2023 - Burke Road & Wattletree Road - PM PDV - Copy (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Network: N101 [PM - PDV - Post-DTP - 2024-05-17 (Network Folder: Burke Road Access Models)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 99 seconds (Network Site User-Given Phase Times)

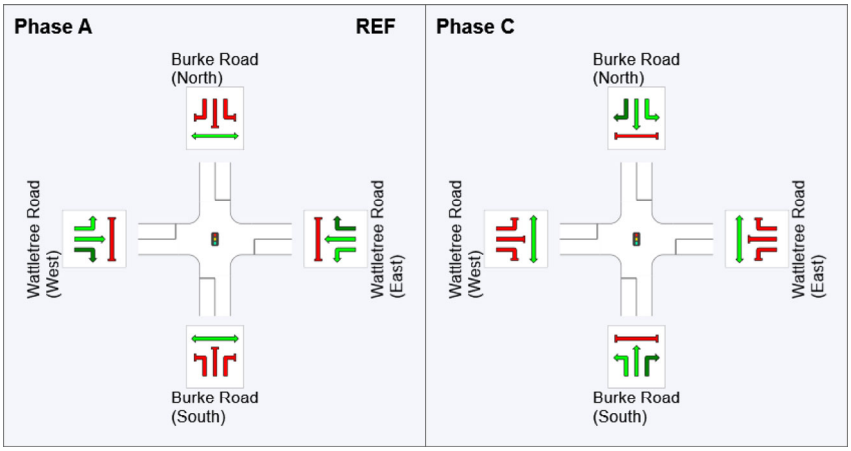
Timings based on settings in the Network Timing dialog
Phase Times specified by the user
Phase Sequence: Two-Phase
Input Phase Sequence: A, C
Output Phase Sequence: A, C
Reference Phase: Phase A
Offset: 0 seconds (Program)

Phase Timing Summary

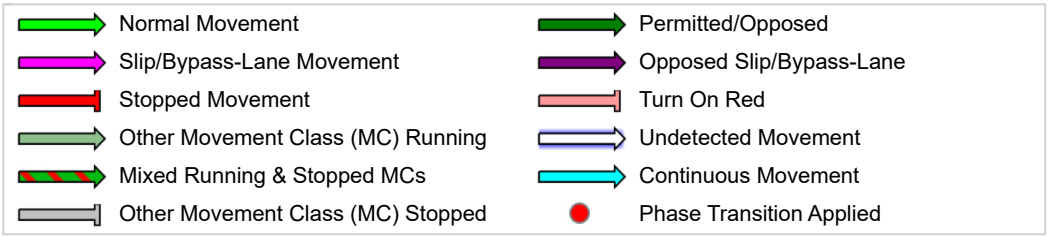
Phase	A	C
Phase Change Time (sec)	0	53
Green Time (sec)	47	40
Phase Time (sec)	53	46
Phase Split	54%	46%
Phase Frequency (%)	100.0	100.0

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

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Appendix T

SIDRA Output Existing Conditions – Saturday Midday Peak

MOVEMENT SUMMARY

Site: 104 [2023 - Burke Road & Dorrington Avenue - SAT EXG (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Network: N101 [Sat MID - EXG (Network Folder: Burke Road Access Models)]

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

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Burke Road															
2	T1	All MCs	766	1.9	766	1.9	0.417	0.0	LOS A	0.3	2.4	0.04	0.05	0.05	59.3
3	R2	All MCs	17	0.0	17	0.0	0.417	15.6	LOS A	0.3	2.4	0.04	0.05	0.05	39.9
Approach			783	1.9	783	1.9	0.417	0.4	LOS A	0.3	2.4	0.04	0.05	0.05	58.7
East: Dorrington Avenue															
4	L2	All MCs	8	0.0	8	0.0	0.064	10.3	LOS A	0.2	1.4	0.76	1.00	0.76	29.3
6	R2	All MCs	8	0.0	8	0.0	0.064	26.4	LOS A	0.2	1.4	0.76	1.00	0.76	38.0
Approach			17	0.0	17	0.0	0.064	18.4	LOS A	0.2	1.4	0.76	1.00	0.76	34.5
North: Burke Road															
7	L2	All MCs	19	0.0	19	0.0	0.348	5.6	LOS A	0.0	0.0	0.00	0.02	0.00	57.2
8	T1	All MCs	657	0.5	657	0.5	0.348	0.1	LOS A	0.0	0.0	0.00	0.02	0.00	59.5
Approach			676	0.5	676	0.5	0.348	0.3	LOS A	0.0	0.0	0.00	0.02	0.00	59.4
All Vehicles			1476	1.2	1476	1.2	0.417	0.5	LOS A	0.3	2.4	0.03	0.05	0.04	58.3

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Minor Road Approach LOS values are based on worst degree of saturation for any vehicle movement.
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [2023 - Burke Road & Hope Street - SAT EXG (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Network: N101 [Sat MID - EXG (Network Folder: Burke Road Access Models)]

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

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Burke Road (South)															
1	L2	All MCs	13	0.0	13	0.0	0.408	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	56.2
2	T1	All MCs	774	1.9	774	1.9	0.408	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.3
Approach			786	1.9	786	1.9	0.408	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.1
North: Burke Road (North)															
8	T1	All MCs	660	0.5	660	0.5	0.348	0.0	LOS A	0.1	0.9	0.02	0.03	0.02	57.3
9	R2	All MCs	6	0.0	6	0.0	0.348	17.3	LOS A	0.1	0.9	0.02	0.03	0.02	48.2
Approach			666	0.5	666	0.5	0.348	0.2	LOS A	0.1	0.9	0.02	0.03	0.02	56.4
West: Hope Street West)															
10	L2	All MCs	11	0.0	11	0.0	0.017	12.1	LOS A	0.1	0.5	0.60	0.87	0.60	38.7
12	R2	All MCs	8	0.0	8	0.0	0.044	23.9	LOS A	0.1	0.9	0.84	1.00	0.84	31.1
Approach			19	0.0	19	0.0	0.044	17.3	LOS A	0.1	0.9	0.71	0.93	0.71	34.9
All Vehicles			1472	1.2	1472	1.2	0.408	0.4	LOS A	0.1	0.9	0.02	0.03	0.02	56.9

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Minor Road Approach LOS values are based on worst degree of saturation for any vehicle movement.
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [2023 - Burke Road & Wattletree Road - SAT EXG (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Network: N101 [Sat MID - EXG (Network Folder: Burke Road Access Models)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 85 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Burke Road (South)															
1	L2	All MCs	67	0.0	67	0.0	0.139	36.8	LOS A	2.7	19.0	0.68	0.67	0.68	42.9
2	T1	All MCs	523	1.0	523	1.0	0.696	34.6	LOS B	16.8	118.6	0.87	0.77	0.87	35.0
3	R2	All MCs	43	0.0	43	0.0	0.265	55.8	LOS A	1.7	11.9	0.93	0.75	0.93	34.3
Approach			634	0.8	634	0.8	0.696	36.3	LOS B	16.8	118.6	0.85	0.76	0.85	36.1
East: Wattletree Road (East)															
4	L2	All MCs	81	0.0	81	0.0	0.411	30.2	LOS A	9.4	66.1	0.73	0.67	0.73	44.2
5	T1	All MCs	249	0.4	249	0.4	0.411	20.3	LOS A	9.4	66.1	0.73	0.67	0.73	45.7
6	R2	All MCs	36	0.0	36	0.0	* 0.171	32.9	LOS A	0.9	6.6	0.91	0.71	0.91	32.5
Approach			366	0.3	366	0.3	0.411	23.7	LOS A	9.4	66.1	0.75	0.67	0.75	44.4
North: Burke Road (North)															
7	L2	All MCs	34	0.0	34	0.0	0.157	46.8	LOS A	2.8	19.7	0.66	0.59	0.66	42.6
8	T1	All MCs	551	0.4	551	0.4	* 0.786	43.2	LOS C	18.3	128.3	0.89	0.84	0.97	37.7
9	R2	All MCs	95	1.1	95	1.1	0.490	51.2	LOS A	3.8	26.7	0.95	0.79	0.95	29.6
Approach			679	0.5	679	0.5	0.786	44.5	LOS C	18.3	128.3	0.89	0.82	0.95	36.5
West: Wattletree Road (West)															
10	L2	All MCs	213	3.4	213	3.4	* 0.835	53.8	LOS C	21.2	150.8	0.97	0.96	1.13	28.6
11	T1	All MCs	281	0.4	281	0.4	0.835	45.9	LOS C	21.2	150.8	0.97	0.96	1.13	38.5
12	R2	All MCs	122	0.0	122	0.0	0.331	44.5	LOS A	4.0	27.8	0.80	0.77	0.80	39.2
Approach			616	1.4	616	1.4	0.835	48.4	LOS C	21.2	150.8	0.93	0.92	1.06	36.0
All Vehicles			2295	0.8	2295	0.8	0.835	40.0	LOS C	21.2	150.8	0.87	0.81	0.92	37.6

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Intersection and Approach LOS values are based on worst degree of saturation for any vehicle movement.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE	Prop. Que	Eff. Stop	Travel Time	Travel Dist.	Aver. Speed

		ped/h	sec		[Ped ped	Dist] m		Rate	sec	m	m/sec
South: Burke Road (South)											
P1	Full	146	36.9	LOS D	0.3	0.3	0.94	0.94	190.8	200.0	1.05
East: Wattletree Road (East)											
P2	Full	78	36.8	LOS D	0.2	0.2	0.93	0.93	190.7	200.0	1.05
North: Burke Road (North)											
P3	Full	34	36.8	LOS D	0.1	0.1	0.93	0.93	190.6	200.0	1.05
West: Wattletree Road (West)											
P4	Full	71	36.8	LOS D	0.2	0.2	0.93	0.93	190.7	200.0	1.05
All Pedestrians		328	36.9	LOS D	0.3	0.3	0.93	0.93	190.7	200.0	1.05

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: 101 [2023 - Burke Road & Wattletree Road - SAT EXG (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Network: N101 [Sat MID - EXG (Network Folder: Burke Road Access Models)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 85 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: Two-Phase
Input Phase Sequence: A, C, D
Output Phase Sequence: A, C, D
Reference Phase: Phase A
Offset: NA

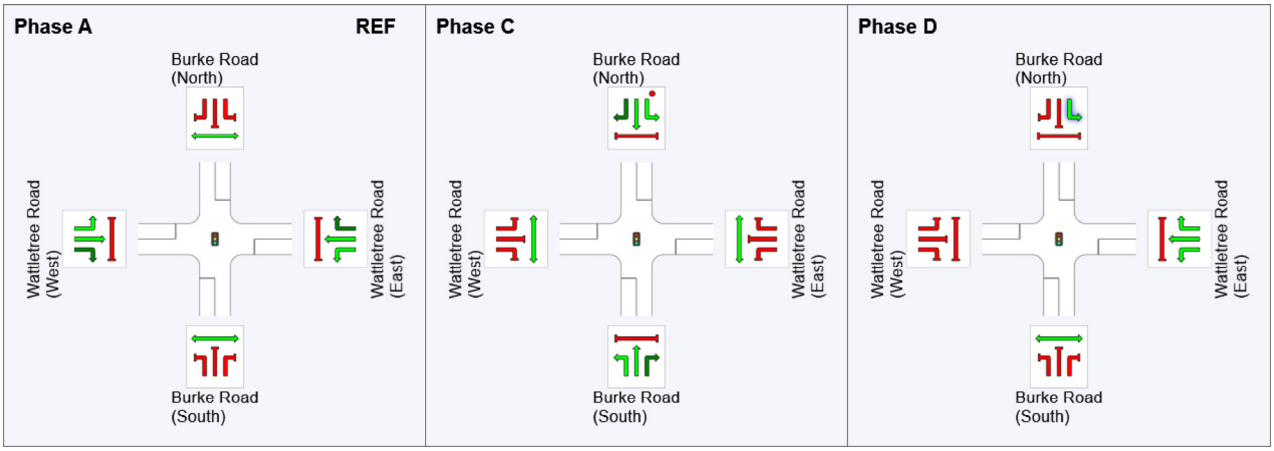
Phase Timing Summary

Phase	A	C	D
Phase Change Time (sec)	0	35	76
Green Time (sec)	34	35	3
Phase Time (sec)	40	41	4
Phase Split	47%	48%	5%
Phase Frequency (%)	100.0[1]	100.0[1]	30.0[1]

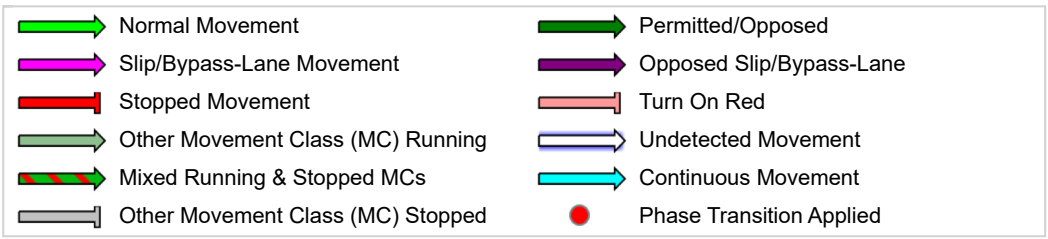
See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified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

1 Phase Frequency has been given with User-Specified Phase Times.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Appendix U

SIDRA Output Post-Development Conditions – Saturday Midday Peak

MOVEMENT SUMMARY

Site: 104 [2023 - Burke Road & Dorrington Avenue - SAT PDV (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [SAT MID - PDV - Original Phases - Post-DTP - 2024-05-17 (Network Folder: Burke Road Access Models)]

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

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Burke Road															
2	T1	All MCs	844	1.9	844	1.9	0.459	0.3	LOS A	0.4	2.8	0.04	0.05	0.05	59.2
3	R2	All MCs	17	0.0	17	0.0	0.459	8.3	LOS A	0.4	2.8	0.04	0.05	0.05	39.9
Approach			861	1.9	861	1.9	0.459	0.4	LOS A	0.4	2.8	0.04	0.05	0.05	58.7
East: Dorrington Avenue															
4	L2	All MCs	8	0.0	8	0.0	0.099	10.9	LOS A	0.2	1.4	0.78	1.00	0.78	28.9
6	R2	All MCs	8	0.0	8	0.0	0.099	27.4	LOS A	0.2	1.4	0.78	1.00	0.78	37.7
Approach			17	0.0	17	0.0	0.099	19.2	LOS A	0.2	1.4	0.78	1.00	0.78	34.2
North: Burke Road															
7	L2	All MCs	19	0.0	19	0.0	0.378	5.6	LOS A	0.7	5.2	0.00	0.02	0.00	57.2
8	T1	All MCs	715	0.5	715	0.5	0.378	0.1	LOS A	0.7	5.2	0.00	0.02	0.00	59.5
Approach			734	0.5	734	0.5	0.378	0.3	LOS A	0.7	5.2	0.00	0.02	0.00	59.4
All Vehicles			1612	1.2	1612	1.2	0.459	0.5	LOS A	0.7	5.2	0.03	0.05	0.04	58.4

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Minor Road Approach LOS values are based on worst degree of saturation for any vehicle movement.
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: P:\Synergy\Projects\GRP2\GRP28846\07-Analysis\SIDRA - 2024-05-17\GRP28846 - 173 Burke Road Glen Iris - 2024-05-17.sip9

MOVEMENT SUMMARY

Site: 101 [2023 - Site Access & Hope Street - SAT MID PDV (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [SAT MID - PDV - Original Phases - Post-DTP - 2024-05-17 (Network Folder: Burke Road Access Models)]

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

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Site Access															
1	L2	All MCs	1	0.0	1	0.0	0.141	6.8	LOS A	0.5	3.7	0.13	0.92	0.13	40.4
3	R2	All MCs	156	0.0	156	0.0	0.141	6.5	LOS A	0.5	3.7	0.13	0.92	0.13	35.2
Approach			157	0.0	157	0.0	0.141	6.5	LOS A	0.5	3.7	0.13	0.92	0.13	35.2
East: Hope Street															
4	L2	All MCs	39	0.0	39	0.0	0.030	3.4	LOS A	0.0	0.0	0.00	0.36	0.00	45.2
5	T1	All MCs	17	0.0	17	0.0	0.030	0.0	LOS A	0.0	0.0	0.00	0.36	0.00	47.2
Approach			56	0.0	56	0.0	0.030	2.4	LOS A	0.0	0.0	0.00	0.36	0.00	45.8
West: Hope Street															
11	T1	All MCs	15	0.0	15	0.0	0.008	0.0	LOS A	0.0	0.1	0.02	0.04	0.02	49.5
12	R2	All MCs	1	0.0	1	0.0	0.008	4.6	LOS A	0.0	0.1	0.02	0.04	0.02	43.5
Approach			16	0.0	16	0.0	0.008	0.3	LOS A	0.0	0.1	0.02	0.04	0.02	48.6
All Vehicles			228	0.0	228	0.0	0.141	5.1	LOS A	0.5	3.7	0.09	0.72	0.09	38.3

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Minor Road Approach LOS values are based on worst degree of saturation for any vehicle movement.
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 102 [2023 - Burke Road & Hope Street - SAT PDV - WIP (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [SAT MID - PDV - Original Phases - Post-DTP - 2024-05-17 (Network Folder: Burke Road Access Models)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 85 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Burke Road															
1	L2	All MCs	85	0.0	85	0.0	0.058	15.7	LOS A	0.5	3.5	0.15	0.61	0.15	38.5
2	T1	All MCs	755	1.9	755	1.9	* 0.739	18.0	LOS C	18.7	132.9	0.65	0.59	0.65	34.2
Approach			840	1.7	840	1.7	0.739	17.8	LOS C	18.7	132.9	0.60	0.59	0.60	24.4
North: Burke Road															
8	T1	All MCs	641	0.5	641	0.5	0.472	6.8	LOS A	10.4	73.4	0.46	0.42	0.46	23.5
9	R2	All MCs	79	0.0	79	0.0	* 0.602	49.8	LOS B	3.5	24.3	1.00	0.80	1.08	4.0
Approach			720	0.4	720	0.4	0.602	11.5	LOS B	10.4	73.4	0.52	0.46	0.53	14.2
West: Hope Street															
10	L2	All MCs	83	0.0	83	0.0	0.181	30.9	LOS A	2.8	19.3	0.83	0.74	0.83	5.7
12	R2	All MCs	81	0.0	81	0.0	* 0.309	40.0	LOS A	3.1	21.9	0.94	0.76	0.94	4.4
Approach			164	0.0	164	0.0	0.309	35.4	LOS A	3.1	21.9	0.88	0.75	0.88	5.0
All Vehicles			1724	1.0	1724	1.0	0.739	16.8	LOS C	18.7	132.9	0.59	0.55	0.60	18.9

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Intersection and Approach LOS values are based on worst degree of saturation for any vehicle movement.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
North: Burke Road											
P3	Full	79	36.8	LOS D	0.2	0.2	0.93	0.93	190.7	200.0	1.05
West: Hope Street											
P4	Full	53	36.8	LOS D	0.1	0.1	0.93	0.93	190.6	200.0	1.05

All Pedestrians	132	36.8	LOS D	0.2	0.2	0.93	0.93	190.7	200.0	1.05

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [2023 - Burke Road & Wattletree Road - SAT PDV (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [SAT MID - PDV - Original Phases - Post-DTP - 2024-05-17 (Network Folder: Burke Road Access Models)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 85 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Burke Road (South)															
1	L2	All MCs	67	0.0	67	0.0	0.151	38.3	LOS A	3.0	20.8	0.68	0.66	0.68	43.0
2	T1	All MCs	569	1.0	569	1.0	0.755	37.9	LOS C	19.4	137.2	0.90	0.83	0.94	33.6
3	R2	All MCs	43	0.0	43	0.0	0.312	60.2	LOS A	1.8	12.5	0.96	0.74	0.96	33.3
Approach			680	0.8	680	0.8	0.755	39.4	LOS C	19.4	137.2	0.88	0.80	0.91	28.5
East: Wattletree Road (East)															
4	L2	All MCs	81	0.0	81	0.0	0.415	30.4	LOS A	9.4	66.3	0.73	0.67	0.73	44.2
5	T1	All MCs	249	0.4	249	0.4	0.415	20.3	LOS A	9.4	66.3	0.73	0.67	0.73	45.7
6	R2	All MCs	52	0.0	52	0.0	* 0.262	30.4	LOS A	1.4	9.7	0.93	0.73	0.93	32.1
Approach			382	0.3	382	0.3	0.415	23.8	LOS A	9.4	66.3	0.76	0.68	0.76	42.2
North: Burke Road (North)															
7	L2	All MCs	49	0.0	49	0.0	0.175	31.3	LOS A	2.6	18.4	0.56	0.54	0.56	43.9
8	T1	All MCs	597	0.4	597	0.4	* 0.877	43.8	LOS C	21.8	153.1	0.87	0.89	1.03	36.5
9	R2	All MCs	111	1.1	111	1.1	0.659	56.7	LOS B	4.8	33.7	0.99	0.85	1.11	28.0
Approach			757	0.5	757	0.5	0.877	44.9	LOS C	21.8	153.1	0.86	0.86	1.01	29.0
West: Wattletree Road (West)															
10	L2	All MCs	228	3.4	228	3.4	* 0.862	57.8	LOS C	23.2	164.5	0.98	1.00	1.19	27.2
11	T1	All MCs	281	0.4	281	0.4	0.862	49.7	LOS C	23.2	164.5	0.98	1.00	1.19	37.2
12	R2	All MCs	122	0.0	122	0.0	0.332	45.2	LOS A	4.0	27.8	0.81	0.77	0.81	39.1
Approach			632	1.4	632	1.4	0.862	51.8	LOS C	23.2	164.5	0.95	0.96	1.12	29.6
All Vehicles			2451	0.8	2451	0.8	0.877	41.8	LOS C	23.2	164.5	0.87	0.84	0.97	31.0

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Intersection and Approach LOS values are based on worst degree of saturation for any vehicle movement.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Burke Road (South)											
P1	Full	146	36.9	LOS D	0.3	0.3	0.94	0.94	190.8	200.0	1.05
East: Wattletree Road (East)											
P2	Full	78	36.8	LOS D	0.2	0.2	0.93	0.93	190.7	200.0	1.05
North: Burke Road (North)											
P3	Full	34	36.8	LOS D	0.1	0.1	0.93	0.93	190.6	200.0	1.05
West: Wattletree Road (West)											
P4	Full	71	36.8	LOS D	0.2	0.2	0.93	0.93	190.7	200.0	1.05
All Pedestrians		328	36.9	LOS D	0.3	0.3	0.93	0.93	190.7	200.0	1.05

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: 102 [2023 - Burke Road & Hope Street - SAT PDV - WIP (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [SAT MID - PDV - Original Phases - Post-DTP - 2024-05-17 (Network Folder: Burke Road Access Models)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 85 seconds (Network User-Given Cycle Time)

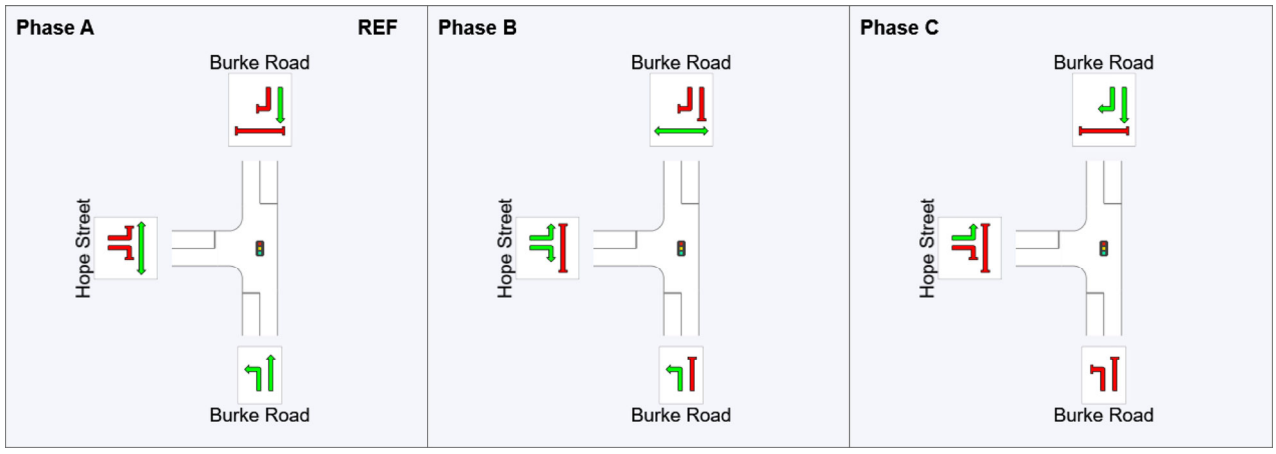
Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Leading Right Turn
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C
Reference Phase: Phase A
Offset: 49 seconds (Program)

Phase Timing Summary

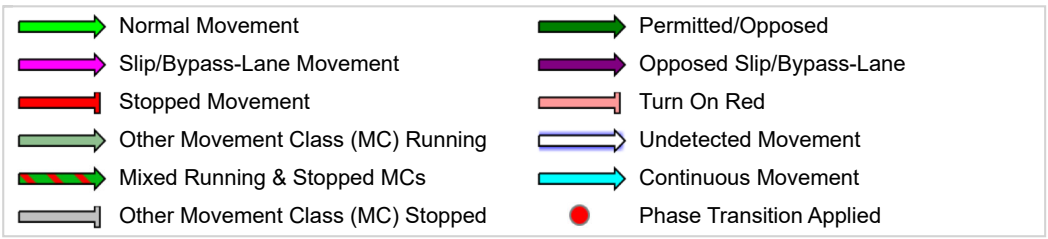
Phase	A	B	C
Phase Change Time (sec)	44	14	32
Green Time (sec)	49	12	6
Phase Time (sec)	55	18	12
Phase Split	65%	21%	14%
Phase Frequency (%)	100.0	100.0	100.0

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

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



PHASING SUMMARY

Site: 101 [2023 - Burke Road & Wattletree Road - SAT PDV (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [SAT MID - PDV - Original Phases - Post-DTP - 2024-05-17 (Network Folder: Burke Road Access Models)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 85 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog
Phase Times specified by the user
Phase Sequence: Two-Phase
Input Phase Sequence: A, C, D
Output Phase Sequence: A, C, D
Reference Phase: Phase A
Offset: 0 seconds (Program)

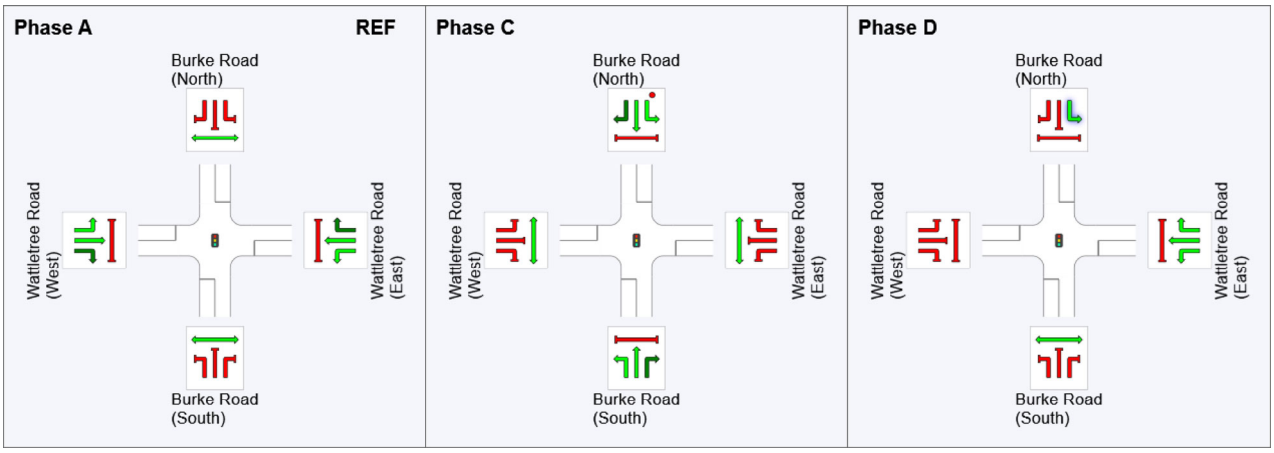
Phase Timing Summary

Phase	A	C	D
Phase Change Time (sec)	0	35	76
Green Time (sec)	34	35	3
Phase Time (sec)	40	41	4
Phase Split	47%	48%	5%
Phase Frequency (%)	100.0[1]	100.0[1]	30.0[1]

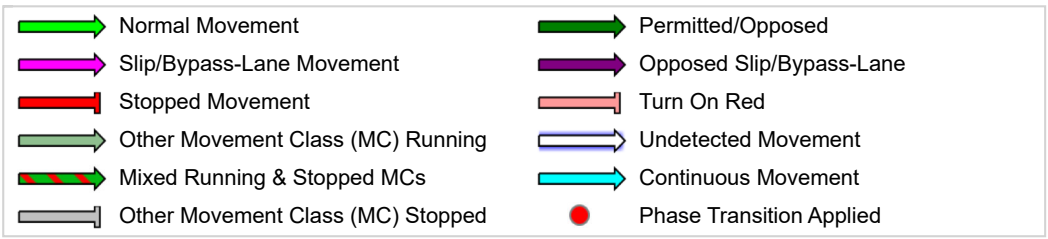
See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified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

1 Phase Frequency has been given with User-Specified Phase Times.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Appendix V

SIDRA Output Existing Conditions – Saturday Evening Peak

MOVEMENT SUMMARY

Site: 104 [2023 - Burke Road & Dorrington Avenue - SAT Evening EXG (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [Sat Evening - EXG (Network Folder: Burke Road Access Models)]

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

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Burke Road															
2	T1	All MCs	707	0.6	707	0.6	0.373	0.1	LOS A	0.1	0.9	0.02	0.03	0.02	59.8
3	R2	All MCs	8	0.0	8	0.0	0.373	6.3	LOS A	0.1	0.9	0.02	0.03	0.02	40.1
Approach			716	0.6	716	0.6	0.373	0.1	LOS A	0.1	0.9	0.02	0.03	0.02	59.4
East: Dorrington Avenue															
4	L2	All MCs	3	0.0	3	0.0	0.035	9.9	LOS A	0.1	0.7	0.75	0.98	0.75	29.6
6	R2	All MCs	6	0.0	6	0.0	0.035	21.5	LOS A	0.1	0.7	0.75	0.98	0.75	38.2
Approach			9	0.0	9	0.0	0.035	17.6	LOS A	0.1	0.7	0.75	0.98	0.75	36.1
North: Burke Road															
7	L2	All MCs	11	0.0	11	0.0	0.321	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	57.2
8	T1	All MCs	614	0.5	614	0.5	0.321	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.6
Approach			624	0.5	624	0.5	0.321	0.2	LOS A	0.0	0.0	0.00	0.01	0.00	59.5
All Vehicles			1349	0.5	1349	0.5	0.373	0.3	LOS A	0.1	0.9	0.02	0.03	0.02	59.1

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Minor Road Approach LOS values are based on worst degree of saturation for any vehicle movement.
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [2023 - Burke Road & Hope Street - SAT Evening EXG (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [Sat Evening - EXG (Network Folder: Burke Road Access Models)]

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

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Burke Road (South)															
1	L2	All MCs	8	0.0	8	0.0	0.372	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	56.2
2	T1	All MCs	714	0.6	714	0.6	0.372	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.5
Approach			722	0.6	722	0.6	0.372	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.3
North: Burke Road (North)															
8	T1	All MCs	612	0.5	612	0.5	0.321	0.1	LOS A	0.1	0.7	0.02	0.02	0.02	58.2
9	R2	All MCs	5	0.0	5	0.0	0.321	6.5	LOS A	0.1	0.7	0.02	0.02	0.02	48.3
Approach			617	0.5	617	0.5	0.321	0.1	LOS A	0.1	0.7	0.02	0.02	0.02	57.3
West: Hope Street West)															
10	L2	All MCs	2	0.0	2	0.0	0.003	11.3	LOS A	0.0	0.1	0.58	0.79	0.58	39.3
12	R2	All MCs	2	0.0	2	0.0	0.009	20.1	LOS A	0.0	0.2	0.80	0.96	0.80	33.2
Approach			4	0.0	4	0.0	0.009	15.7	LOS A	0.0	0.2	0.69	0.88	0.69	36.0
All Vehicles			1343	0.5	1343	0.5	0.372	0.2	LOS A	0.1	0.7	0.01	0.02	0.01	58.5

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Minor Road Approach LOS values are based on worst degree of saturation for any vehicle movement.
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [2023 - Burke Road & Wattletree Road - SAT Evening EXG (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [Sat Evening - EXG (Network Folder: Burke Road Access Models)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 79 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Burke Road (South)															
1	L2	All MCs	58	0.0	58	0.0	0.147	38.5	LOS A	2.5	17.8	0.73	0.68	0.73	42.3
2	T1	All MCs	503	0.8	503	0.8	0.737	37.2	LOS C	16.3	115.0	0.91	0.83	0.96	33.4
3	R2	All MCs	47	2.2	47	2.2	0.304	55.6	LOS A	1.8	12.8	0.95	0.75	0.95	34.4
Approach			608	0.8	608	0.8	0.737	38.7	LOS C	16.3	115.0	0.90	0.81	0.93	28.9
East: Wattletree Road (East)															
4	L2	All MCs	43	0.0	43	0.0	0.240	22.3	LOS A	5.0	34.7	0.64	0.58	0.64	46.8
5	T1	All MCs	173	0.0	173	0.0	0.240	13.0	LOS A	5.0	34.7	0.64	0.58	0.64	48.4
6	R2	All MCs	25	0.0	25	0.0	* 0.076	21.0	LOS A	0.6	4.2	0.76	0.67	0.76	35.8
Approach			241	0.0	241	0.0	0.240	15.5	LOS A	5.0	34.7	0.65	0.59	0.65	47.2
North: Burke Road (North)															
7	L2	All MCs	20	0.0	20	0.0	0.157	32.8	LOS A	2.5	17.4	0.70	0.59	0.70	42.5
8	T1	All MCs	503	0.8	503	0.8	* 0.786	41.4	LOS C	15.8	111.2	0.91	0.85	1.01	37.4
9	R2	All MCs	83	0.0	83	0.0	0.485	49.6	LOS A	3.2	22.3	0.97	0.78	0.97	29.6
Approach			606	0.7	606	0.7	0.786	42.2	LOS C	15.8	111.2	0.91	0.83	0.99	30.2
West: Wattletree Road (West)															
10	L2	All MCs	168	0.0	168	0.0	* 0.586	32.4	LOS A	12.1	84.5	0.80	0.75	0.80	36.4
11	T1	All MCs	246	0.0	246	0.0	0.586	25.0	LOS A	12.1	84.5	0.80	0.75	0.80	45.1
12	R2	All MCs	107	0.0	107	0.0	0.210	29.7	LOS A	2.7	19.1	0.69	0.74	0.69	42.7
Approach			522	0.0	522	0.0	0.586	28.4	LOS A	12.1	84.5	0.78	0.75	0.78	38.6
All Vehicles			1978	0.5	1978	0.5	0.786	34.2	LOS C	16.3	115.0	0.84	0.77	0.88	34.0

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Intersection and Approach LOS values are based on worst degree of saturation for any vehicle movement.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE	Prop. Que	Eff. Stop	Travel Time	Travel Dist.	Aver. Speed

		ped/h	sec		[Ped ped	Dist] m		Rate	sec	m	m/sec
South: Burke Road (South)											
P1	Full	146	33.9	LOS D	0.3	0.3	0.93	0.93	187.8	200.0	1.07
East: Wattletree Road (East)											
P2	Full	78	33.8	LOS D	0.2	0.2	0.93	0.93	187.7	200.0	1.07
North: Burke Road (North)											
P3	Full	34	33.8	LOS D	0.1	0.1	0.93	0.93	187.6	200.0	1.07
West: Wattletree Road (West)											
P4	Full	71	33.8	LOS D	0.1	0.1	0.93	0.93	187.7	200.0	1.07
All Pedestrians		328	33.9	LOS D	0.3	0.3	0.93	0.93	187.7	200.0	1.07

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: 101 [2023 - Burke Road & Wattletree Road - SAT Evening EXG (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [Sat Evening - EXG (Network Folder: Burke Road Access Models)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 79 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: Two-Phase
Input Phase Sequence: A, C, D
Output Phase Sequence: A, C, D
Reference Phase: Phase A
Offset: NA

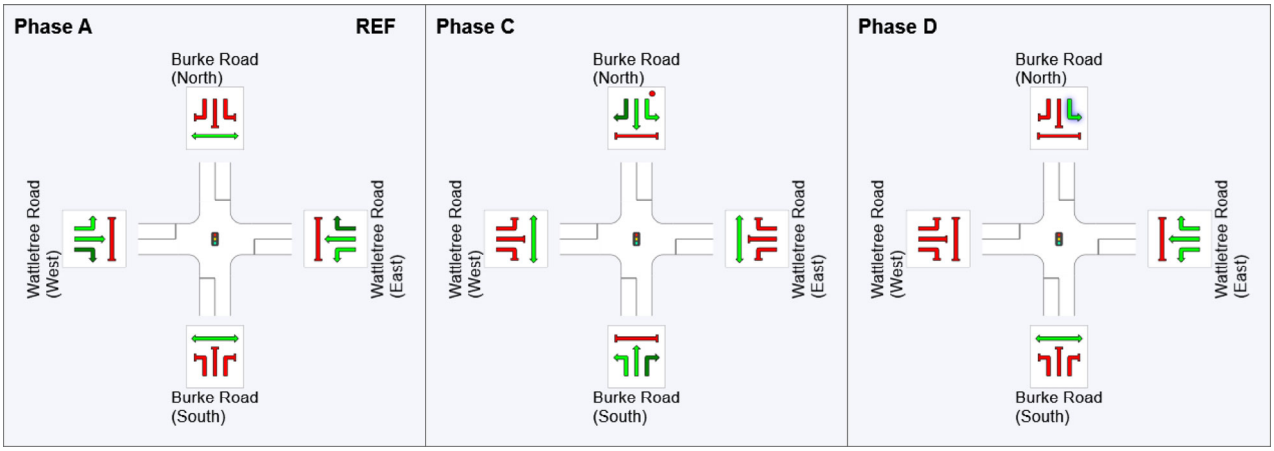
Phase Timing Summary

Phase	A	C	D
Phase Change Time (sec)	0	36	71
Green Time (sec)	35	29	2
Phase Time (sec)	41	35	3
Phase Split	52%	44%	4%
Phase Frequency (%)	100.0[1]	100.0[1]	20.0[1]

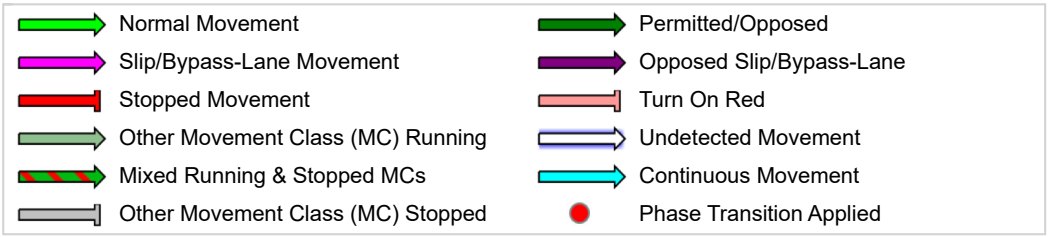
See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified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

1 Phase Frequency has been given with User-Specified Phase Times.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Appendix W

SIDRA Output Post-Development Conditions – Saturday Evening Peak

MOVEMENT SUMMARY

Site: 104 [2023 - Burke Road & Dorrington Avenue - SAT Evening PDV (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [Sat Evening - PDV - 2024-05-17 (Network Folder: Burke Road Access Models)]

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

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Burke Road															
2	T1	All MCs	780	0.6	780	0.6	0.411	0.1	LOS A	0.1	1.0	0.02	0.03	0.02	59.7
3	R2	All MCs	8	0.0	8	0.0	0.411	6.8	LOS A	0.1	1.0	0.02	0.03	0.02	40.1
Approach			788	0.6	788	0.6	0.411	0.2	LOS A	0.1	1.0	0.02	0.03	0.02	59.4
East: Dorrington Avenue															
4	L2	All MCs	3	0.0	3	0.0	0.047	10.4	LOS A	0.1	0.8	0.77	1.00	0.77	29.2
6	R2	All MCs	6	0.0	6	0.0	0.047	22.5	LOS A	0.1	0.8	0.77	1.00	0.77	37.9
Approach			9	0.0	9	0.0	0.047	18.5	LOS A	0.1	0.8	0.77	1.00	0.77	35.8
North: Burke Road															
7	L2	All MCs	11	0.0	11	0.0	0.635	6.1	LOS B	0.0	0.0	0.00	0.01	0.00	56.4
8	T1	All MCs	667	0.5	667	0.5	0.635	0.7	LOS B	0.0	0.0	0.00	0.01	0.00	58.6
Approach			678	0.5	678	0.5	0.635	0.7	LOS B	0.0	0.0	0.00	0.01	0.00	58.5
All Vehicles			1476	0.5	1476	0.5	0.635	0.5	LOS B	0.1	1.0	0.02	0.02	0.02	58.6

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Minor Road Approach LOS values are based on worst degree of saturation for any vehicle movement.
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [2023 - Burke Road & Wattletree Road - SAT Evening PDV (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [Sat Evening - PDV - 2024-05-17 (Network Folder: Burke Road Access Models)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 79 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Burke Road (South)															
1	L2	All MCs	58	0.0	58	0.0	0.160	39.3	LOS A	2.8	19.3	0.72	0.67	0.72	42.8
2	T1	All MCs	546	0.8	546	0.8	0.801	41.5	LOS C	19.1	134.6	0.94	0.90	1.05	31.6
3	R2	All MCs	47	2.2	47	2.2	0.349	59.1	LOS A	1.9	13.2	0.98	0.74	0.98	33.7
Approach			652	0.8	652	0.8	0.801	42.6	LOS C	19.1	134.6	0.92	0.87	1.01	27.3
East: Wattletree Road (East)															
4	L2	All MCs	43	0.0	43	0.0	0.240	22.4	LOS A	5.0	34.7	0.64	0.58	0.64	46.8
5	T1	All MCs	173	0.0	173	0.0	0.240	13.0	LOS A	5.0	34.7	0.64	0.58	0.64	48.4
6	R2	All MCs	40	0.0	40	0.0	* 0.124	21.5	LOS A	1.0	6.7	0.78	0.69	0.78	35.5
Approach			256	0.0	256	0.0	0.240	15.9	LOS A	5.0	34.7	0.66	0.59	0.66	46.7
North: Burke Road (North)															
7	L2	All MCs	35	0.0	35	0.0	0.176	31.3	LOS A	2.2	15.7	0.57	0.53	0.57	44.0
8	T1	All MCs	546	0.8	546	0.8	* 0.878	43.1	LOS C	18.6	131.4	0.87	0.89	1.06	36.7
9	R2	All MCs	98	0.0	98	0.0	0.667	54.1	LOS B	4.0	28.1	1.00	0.85	1.15	28.2
Approach			679	0.6	679	0.6	0.878	44.1	LOS C	18.6	131.4	0.87	0.87	1.05	29.3
West: Wattletree Road (West)															
10	L2	All MCs	183	0.0	183	0.0	* 0.609	33.4	LOS B	12.7	88.7	0.82	0.76	0.82	36.2
11	T1	All MCs	246	0.0	246	0.0	0.609	25.7	LOS B	12.7	88.7	0.82	0.76	0.82	44.9
12	R2	All MCs	107	0.0	107	0.0	0.210	30.2	LOS A	2.7	19.1	0.69	0.74	0.69	42.7
Approach			537	0.0	537	0.0	0.609	29.3	LOS B	12.7	88.7	0.79	0.75	0.79	38.1
All Vehicles			2123	0.5	2123	0.5	0.878	36.5	LOS C	19.1	134.6	0.84	0.81	0.93	32.8

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Intersection and Approach LOS values are based on worst degree of saturation for any vehicle movement.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov	Dem.	Aver.	Level of	AVERAGE BACK OF	Prop.	Eff.	Travel	Travel	Aver.

ID	Crossing	Flow	Delay	Service	QUEUE [Ped	Dist]	Que	Stop Rate	Time	Dist.	Speed
		ped/h	sec		ped	m			sec	m	m/sec
South: Burke Road (South)											
P1	Full	146	33.9	LOS D	0.3	0.3	0.93	0.93	187.8	200.0	1.07
East: Wattletree Road (East)											
P2	Full	78	33.8	LOS D	0.2	0.2	0.93	0.93	187.7	200.0	1.07
North: Burke Road (North)											
P3	Full	34	33.8	LOS D	0.1	0.1	0.93	0.93	187.6	200.0	1.07
West: Wattletree Road (West)											
P4	Full	71	33.8	LOS D	0.1	0.1	0.93	0.93	187.7	200.0	1.07
All Pedestrians		328	33.9	LOS D	0.3	0.3	0.93	0.93	187.7	200.0	1.07

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [2023 - Site Access & Hope Street - SAT Evening PDV (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [Sat Evening - PDV - 2024-05-17 (Network Folder: Burke Road Access Models)]

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

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Site Access															
1	L2	All MCs	1	0.0	1	0.0	0.135	6.7	LOS A	0.5	3.6	0.18	0.90	0.18	40.4
3	R2	All MCs	144	0.0	144	0.0	0.135	6.7	LOS A	0.5	3.6	0.18	0.90	0.18	35.1
Approach			145	0.0	145	0.0	0.135	6.7	LOS A	0.5	3.6	0.18	0.90	0.18	35.2
East: Hope Street															
4	L2	All MCs	144	0.0	144	0.0	0.085	3.4	LOS A	0.0	0.0	0.00	0.47	0.00	44.4
5	T1	All MCs	14	0.0	14	0.0	0.085	0.0	LOS A	0.0	0.0	0.00	0.47	0.00	46.3
Approach			158	0.0	158	0.0	0.085	3.1	LOS A	0.0	0.0	0.00	0.47	0.00	44.6
West: Hope Street															
11	T1	All MCs	2	0.0	2	0.0	0.002	0.2	LOS A	0.0	0.0	0.18	0.21	0.18	47.1
12	R2	All MCs	1	0.0	1	0.0	0.002	5.0	LOS A	0.0	0.0	0.18	0.21	0.18	42.6
Approach			3	0.0	3	0.0	0.002	1.8	LOS A	0.0	0.0	0.18	0.21	0.18	44.8
All Vehicles			306	0.0	306	0.0	0.135	4.8	LOS A	0.5	3.6	0.09	0.67	0.09	39.8

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Minor Road Approach LOS values are based on worst degree of saturation for any vehicle movement.
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 102 [2023 - Burke Road & Hope Street - SAT Evening PDV (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [Sat Evening - PDV - 2024-05-17 (Network Folder: Burke Road Access Models)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 79 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Burke Road															
1	L2	All MCs	81	0.0	81	0.0	0.057	13.0	LOS A	0.2	1.4	0.07	0.59	0.07	40.0
2	T1	All MCs	695	0.6	695	0.6	* 0.710	14.4	LOS C	14.3	100.6	0.58	0.52	0.58	37.2
Approach			776	0.5	776	0.5	0.710	14.2	LOS C	14.3	100.6	0.52	0.53	0.52	27.7
North: Burke Road															
8	T1	All MCs	593	0.5	593	0.5	0.445	6.5	LOS A	9.9	69.9	0.47	0.43	0.47	23.0
9	R2	All MCs	78	0.0	78	0.0	* 0.552	45.5	LOS A	3.1	22.0	1.00	0.78	1.04	4.3
Approach			671	0.4	671	0.4	0.552	11.0	LOS A	9.9	69.9	0.54	0.47	0.54	14.6
West: Hope Street															
10	L2	All MCs	75	0.0	75	0.0	0.151	27.6	LOS A	2.2	15.6	0.80	0.72	0.80	6.4
12	R2	All MCs	75	0.0	75	0.0	* 0.265	36.5	LOS A	2.6	18.5	0.92	0.75	0.92	4.8
Approach			149	0.0	149	0.0	0.265	32.0	LOS A	2.6	18.5	0.86	0.74	0.86	5.5
All Vehicles			1596	0.4	1596	0.4	0.710	14.5	LOS C	14.3	100.6	0.56	0.52	0.56	20.8

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Intersection and Approach LOS values are based on worst degree of saturation for any vehicle movement.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
North: Burke Road											
P3	Full	79	33.8	LOS D	0.2	0.2	0.93	0.93	187.7	200.0	1.07
West: Hope Street											
P4	Full	53	33.8	LOS D	0.1	0.1	0.93	0.93	187.6	200.0	1.07
All Pedestrians		132	33.8	LOS D	0.2	0.2	0.93	0.93	187.7	200.0	1.07

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: 102 [2023 - Burke Road & Hope Street - SAT Evening PDV (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [Sat Evening - PDV - 2024-05-17 (Network Folder: Burke Road Access Models)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 79 seconds (Network User-Given Cycle Time)

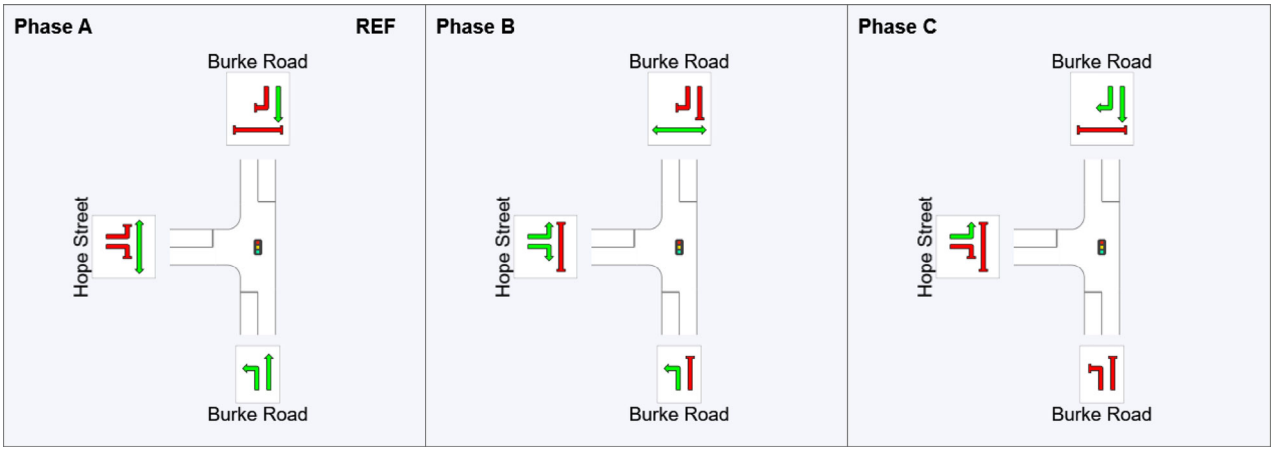
Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Leading Right Turn
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C
Reference Phase: Phase A
Offset: 50 seconds (Program)

Phase Timing Summary

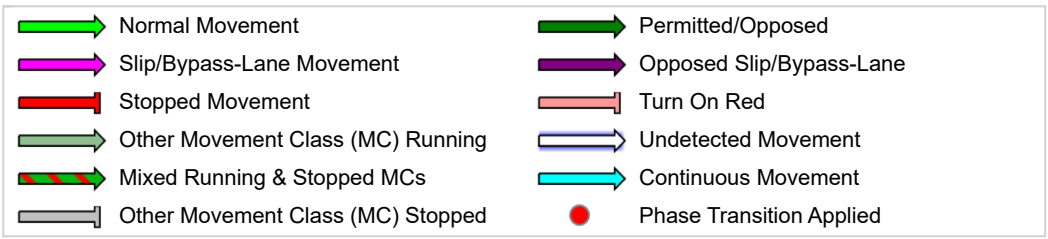
Phase	A	B	C
Phase Change Time (sec)	45	15	33
Green Time (sec)	43	12	6
Phase Time (sec)	49	18	12
Phase Split	62%	23%	15%
Phase Frequency (%)	100.0	100.0	100.0

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

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



PHASING SUMMARY

Site: 101 [2023 - Burke Road & Wattletree Road - SAT Evening PDV (Site Folder: Burke Road Access Models)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [Sat Evening - PDV - 2024-05-17 (Network Folder: Burke Road Access Models)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 79 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog
Phase Times specified by the user
Phase Sequence: Two-Phase
Input Phase Sequence: A, C, D
Output Phase Sequence: A, C, D
Reference Phase: Phase A
Offset: 0 seconds (Program)

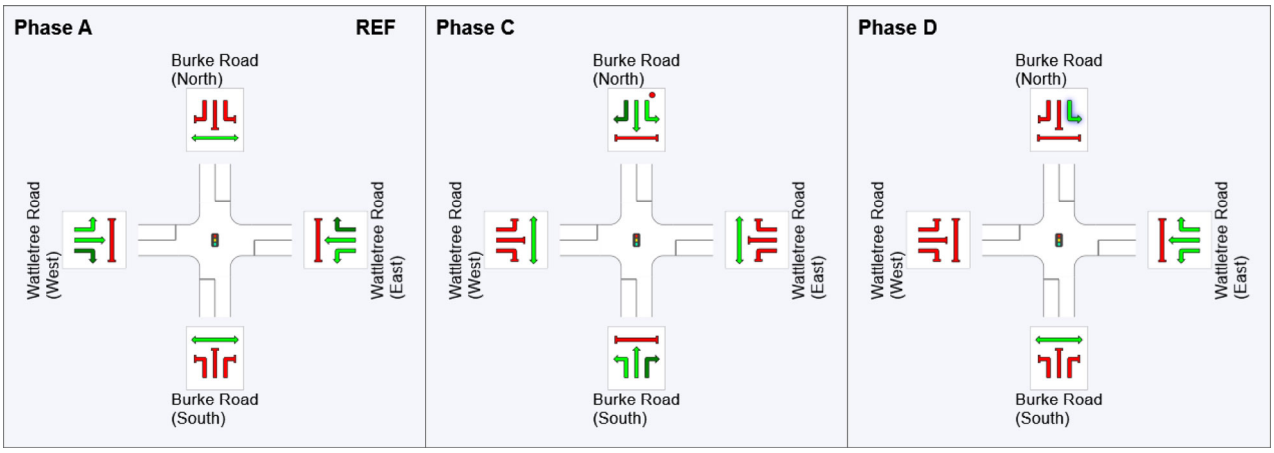
Phase Timing Summary

Phase	A	C	D
Phase Change Time (sec)	0	36	71
Green Time (sec)	35	29	2
Phase Time (sec)	41	35	3
Phase Split	52%	44%	4%
Phase Frequency (%)	100.0[1]	100.0[1]	20.0[1]

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

1 Phase Frequency has been given with User-Specified Phase Times.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase