Client	Date
MSM & Associates Pty Ltd	4 March 2026

Transport Impact Assessment

Ascension College – Stage 1

3 Nortons Lane, Wantirna South

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PLAN

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ratio:

Project
Ascension College, Wantirna South, Wantirna South

Prepared for
MSM & Associates Pty Ltd

Our reference
22781T

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Version	Date	Issue	Prepared by	Checked by
F01	09/09/2025	Final	J. Hamill-Beach	C. Greenland
F02	04/03/2026	RFI Response	J. Grant & J. Hamill-Beach	C. Greenland

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Acknowledgement of Country

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1. Introduction

1.1. Introduction

Planning approval is being sought for the proposed development of the land parcel addressed as 3 Nortons Lane in Wantirna South, for the purpose of a primary school (Ascension College).

The current planning permit application is pursuant to the delivery of Stage 1 of Ascension College.

Ratio Consultants has been engaged by the permit applicant to prepare a Transport Impact Assessment report for the development proposal.

1.2. Purpose of this Report

This report sets out an assessment of the anticipated transport engineering implications of the development proposal, including consideration of the:

- Existing traffic and car parking conditions in the vicinity of the site location;
- Parking demand likely to be generated by the development proposal;
- Suitability of the proposed parking facilities, in terms of supply and layout;
- Adequacy of the proposed site access arrangements;
- Adequacy of the proposed loading and waste collection arrangements; and
- Traffic generating characteristics of the development proposal and impact on the surrounding road network.

1.3. References

Throughout the preparation of this report, reference has been made to the following:

- Architectural plans prepared for the development proposal by MSM & Associates Pty Ltd, Rev H, dated 25 February 2026 (provided at Appendix A of this report);
- Knox Planning Scheme;
- Strategic Assessment Report prepared for Planning Scheme Amendment C194 Knox by Echelon Planning, dated October 2024
- Urban & Landscape Design Report prepared for Planning Scheme Amendment C194 Knox by McGregor Coxall and Murphy Landscape Consultancy, Rev G, dated October 2024;
- Transport Impact Assessment prepared for Planning Scheme Amendment C194 Knox by Traffix Group, Rev E, dated 23 July 2024;
- Wantirna South Development Plan – North-West Residential Area, prepared by Mirvac, Echelon Planning, Urban Fold & McGregor Coxall;

- Australian / New Zealand Standard, Parking Facilities Part 1: Off-Street Car Parking (AS/NZS 2890.1:2004);
- Australian Standard, Parking Facilities Part 2: Off-Street Commercial Vehicle Facilities (AS 2890.2:2018);
- Australian Standard, Parking Facilities Part 3: Bicycle Parking (AS 2890.3:2015);
- Australian Standard, Parking Facilities Part 6: Off-Street Parking for People with Disabilities (AS/NZS 2890.6:2022);
- National Construction Code (NCC) 2022 Volume 1;
- Knox City Council Public Road Register;
- Existing conditions traffic survey data;
- Various online mapping tools;
- An inspection of the subject site and its surrounds; and
- Other documents as nominated throughout this report.

1.4. Response to DTP RFI

The Department of Transport and Planning (DTP) has requested further information in relation to the planning application (PA2503929). In particular, DTP has provided comments responding directly to the Transport Impact Assessment (22781T-REP01-F01) dated 18 December 2025.

DTP's comments are outlined below in *italics*, with corresponding responses provided thereafter.

Updated Transport Impact Assessment (TIA)

Provide an updated TIA that assesses the revised access and traffic management strategy, including the proposed time-based right-turn ban from Nortons Lane into High Street Road. The updated TIA must include:

a. *operational analysis of the High Street Road and Nortons Lane intersection during school peak periods under existing and post-development conditions*
b. *assessment of redistributed traffic associated with the right-turn restriction, including impacts on U-turn movements on High Street Road*
c. *confirmation of assumed traffic growth and background volumes.*

Ratio has prepared this updated Transport Impact Assessment (TIA) to address the revised access and traffic management strategy, including the proposed recommended time-based right-turn ban from Nortons Lane into High Street Road.

The assessment includes an operational review of the High Street Road / Nortons Lane intersection and the High Street Road median break to the west during the school peak periods under existing conditions, together with a post-development assessment based on a redistribution of traffic associated with the proposed right-turn restriction.

Traffic volumes surveyed on 3 February 2026 have been adopted as the background volumes (refer to Figure 2.8). No background traffic growth has been applied. Instead, a detailed gap analysis of the existing conditions has been undertaken to establish the available capacity of the affected movements. This approach is considered appropriate given the nature of the intersection control and the reliance on available gaps in the High Street Road traffic stream.

The analysis incorporates site-generated traffic (refer to Figure 9.1) and the redistribution of vehicles previously undertaking the right-turn movement from Nortons Lane into High Street Road, including consideration of potential impacts on U-turn movements along High Street Road.

While traffic volumes along High Street Road may increase over time, the traffic stream is strongly influenced by upstream signalised intersections, which create platooning and bunching characteristics. As a result, gaps in the traffic stream are governed primarily by signal coordination rather than purely by traffic volume. It is therefore anticipated that moderate increases in traffic volumes would not materially reduce the frequency or suitability of available opportunity gaps. The gap analysis demonstrates that there is ample capacity within the existing traffic stream to accommodate the redistributed and site-generated traffic, with acceptable delays and queue lengths expected under post-development conditions.

Gap Surveys and Supporting Analysis

Provide latest gap surveys and supporting analysis to demonstrate that there is adequate capacity and safe operation for:

a. *right-turn movements from High Street Road into Nortons Lane during school peak periods, and*
b. *U-turn movements on High Street Road to the west of Nortons Lane that would accommodate vehicles unable to turn right from Nortons Lane during restricted periods.*

See previous commentary and refer to gap analysis in Sections 2.5 and 9.2 of this report.

Turn Restriction Design

Provide concept functional plans with the proposed time-based right-turn restriction from Nortons Lane into High Street Road, including:

a. *signage locations, size and visibility*
b. *hours of operation*
c. *responsibility for ongoing management*
d. *consideration of impacts on other users of Nortons Lane.*

Ratio has prepared the requested concept layout plans (CLP) indicating the above required information. The CLP has been included within Appendix B of this report.

As High Street Road is classified as a primary state arterial road, the Department of Transport and Planning will be responsible for the ongoing management and enforcement of the right turn ban.

Safe Public Transport Connectivity

Provide details demonstrating how safe pedestrian access will be achieved along Nortons Lane, including:

a. *How pedestrian safety will be managed during school peak periods for pedestrians travelling between the site and existing public transport infrastructure on High Street Road.*

The application is not proposing the provision of any pedestrian facilities along Nortons Lane.

When considering the acceptability of this arrangement, the following factors are noted:

— The site is being developed for the purpose of a primary school and therefore, all students will be within the age range of 5-12 years old; and

— The school will offer a private bus service that picks up students from their house and then drops them off at the school each day.

On the basis of the above, it is considered extremely unlikely that any students will travel to/from school via the public bus service that runs along High Street Road.

Staging and intersection upgrade trigger

Provide confirmation that the trigger for Stage 1C includes signalisation of the High Street Road and Nortons Lane intersection, including clarity on timing, responsibility, and delivery mechanism.

A gap capacity assessment has been undertaken which demonstrates that there is ample capacity within the traffic flows along High Street Road for vehicles to turn left from Nortons Lane onto High Street Road and for vehicles to undertake U-turns at the median break along High Street Road approximately 300 metres west of Nortons Lane.

As this assessment utilised the estimated traffic generation associated with the full delivery of Stage 1, it is concluded that the traffic generation associated with Stage 1 can be accommodated by the existing road network.

Refer to Section 2.5 and 9.2 of this report for further discussion.

2. Existing Conditions

2.1. Site Location

The subject site comprises the land parcel addressed as 3 Nortons Lane in Wantirna South.

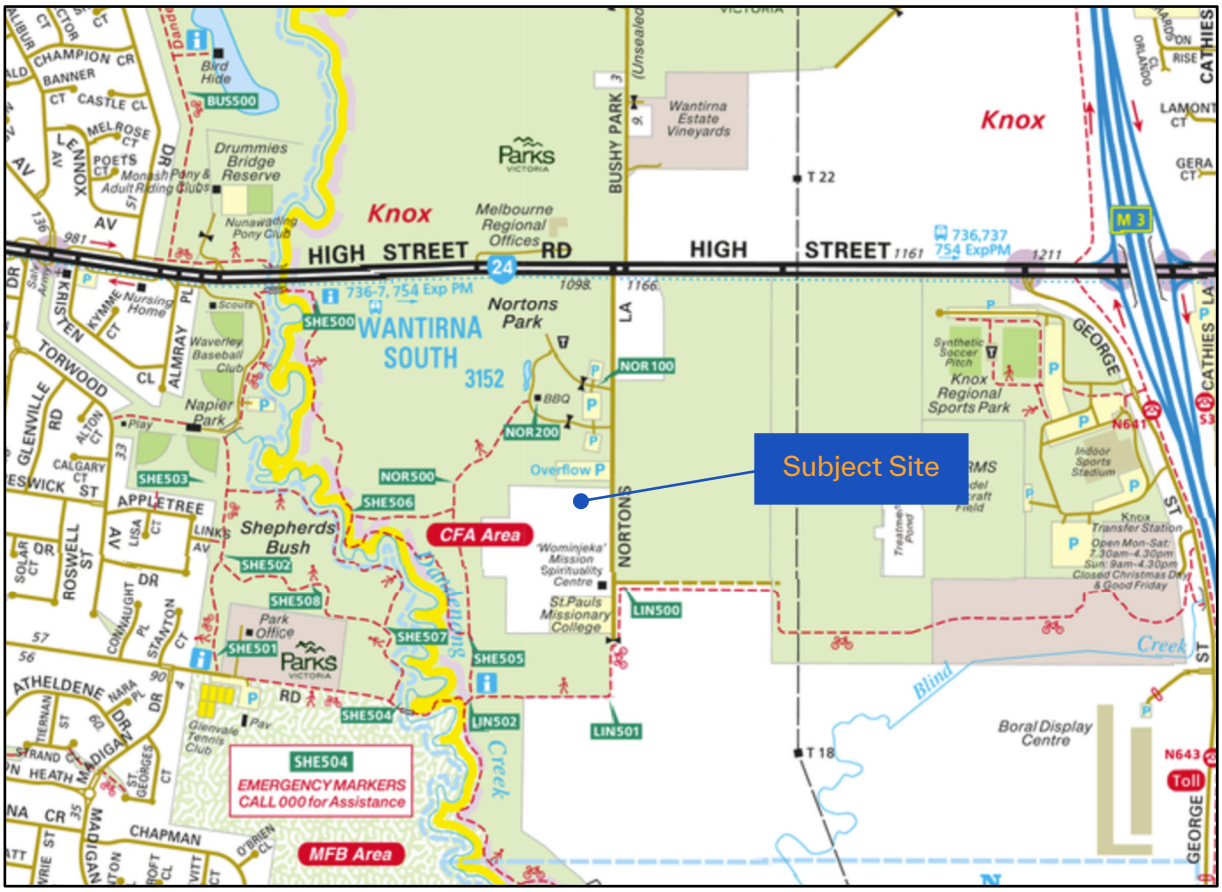
The site is situated along the western side of Nortons Lane, approximately midblock between High Street Road and the terminus of Nortons Lane.

The subject land is rectangular in shape with an overall site area of approximately 14,500 sqm.

The site is currently occupied by a single residential dwelling, with vehicle access provided at the southeast corner of the site. Additionally, the site has a carriageway easement over the property to the immediate south, which allows for a secondary access point to be provided to the existing garage and driveway area.

The location of the subject site and its surrounds environs is shown in Figure 2.1, with an aerial context also provided in Figure 2.2.

Figure 2.1: Site Location and Surrounds



Source: Melway

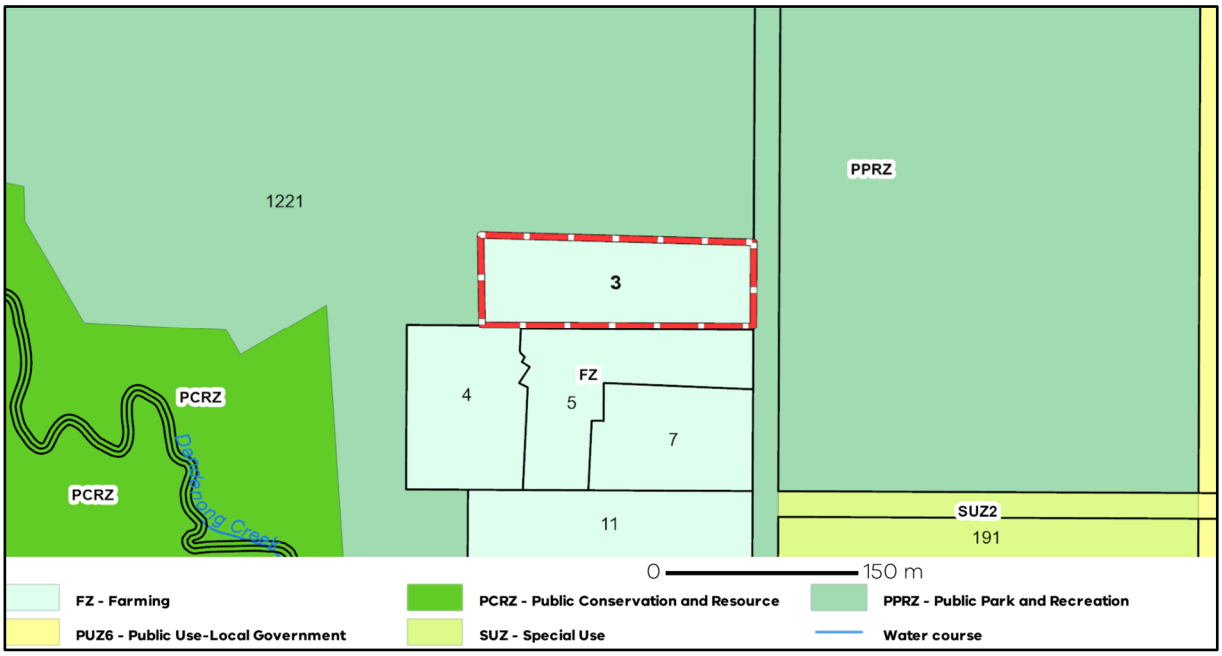
Figure 2.2: Site Location (Aerial Context)

Source: Landchecker (image dated 12 May 2025)

The site is situated within the Farming Zone (FZ) and is not subject to any planning overlays.

The land zoning in the immediate vicinity of the site location is shown in Figure 2.3.

Figure 2.3: Site Location and Land Zoning



Source: VicPlan

2.2. Road Network

Nortons Lane

Nortons Lane is classified as an 'unsealed road' within the Knox City Council Public Road Register.

It is aligned in a north-south direction between High Street Road and its terminus approximately 800 metres to the south of High Street Road.

Nortons Lane is generally provided with an unsealed carriageway[1] which varies in width, generally becoming narrower the further south, the road extends. The carriageway width is generally sufficient to facilitate traffic flow in both directions, noting that the grass shoulder either side of the carriageway can be used informally by vehicles to allow for passing opportunities in the narrower sections.

Nortons Lane does not have a posted speed limit and accordingly, the default urban speed limit of 50km/hr applies.

Images of Nortons Lane along the site frontage are provided at Figure 2.4 and Figure 2.5.

Figure 2.4: Nortons Lane, looking north

Source: Google Street View (image dated January 2023)

[1] The carriageway is sealed in the vicinity of High Street Road, transitioning to unsealed approximately 90 metres south of High Street Road.

Figure 2.5: Nortons Lane, looking south

Source: Google Street View (image dated January 2023)

High Street Road

High Street Road is classified as a primary state arterial road. It is located within a Transport Zone 2 (TRZ2), thereby forming part of the Principal Road Network and falling under the management of the Department of Transport and Planning.

High Street Road is generally aligned in an east-west direction between its continuation as High Street to the west (in Ashburton) and termination at Burwood Highway to the east.

In the vicinity of the subject site, High Street Road is configured with two (2) traffic lanes in each direction, separated by a central median. Dedicated turning lanes are provided as appropriate at intersections with minor roads.

High Street Road has a posted speed limit of 80 km/hr.

An image of High Street Road, looking toward its intersection with Nortons Lane, is provided in Figure 2.6.

Figure 2.6: High Street Road, looking east

Source: Google Street View (image dated February 2025)

High Street Road / Nortons Lane / Bushy Park Lane Intersection

The intersection of High Street Road / Nortons Lane / Bushy Park Lane is configured as two (2) staggered unsignalised T-intersections.

Due to the minimal offset between the intersection of Nortons Lane and Bushy Park Lane with High Street Road (approximately 30 metres, measured from the centre of each intersection), the two (2) intersections are considered as a single intersection from a functionality standpoint.

The layout of the intersection is shown in Figure 2.7.

Figure 2.7: High Street Road / Nortons Lane / Bushy Park Intersection Layout

Source: Landchecker (image dated 12 May 2025)

2.3. Sustainable Transport

The subject site location is provided with limited access to sustainable transport options.

The nearest public transport option is provided via the bus stop at the High Street Road / Nortons Lane intersection, which is serviced by bus routes 375 (Mitcham – Blackburn via Vermont South and Glen Waverly and Forest Hill) and 376 (Croydon Station – Monash University via Knox City Shopping Centre and Glen Waverly).

There are various off-road pathways in the nearby vicinity including the Blind Creek Trail, Dandenong Creek Trail and pathways within Nortons Park. However, there are no footpaths or cycling facilities provided along Nortons Lane or High Street Road and therefore no direct connection between these pathways and the subject site.

2.4. Existing Traffic Conditions

To understand existing traffic conditions in the vicinity of the site location, Ratio Consultants commissioned turning movement counts at the High Street Road / Nortons Lane intersection and at the High Street Road median break located approximately 300 metres west of Nortons Lane.

The surveys were undertaken on Tuesday 3 February 2026 over the following time periods:

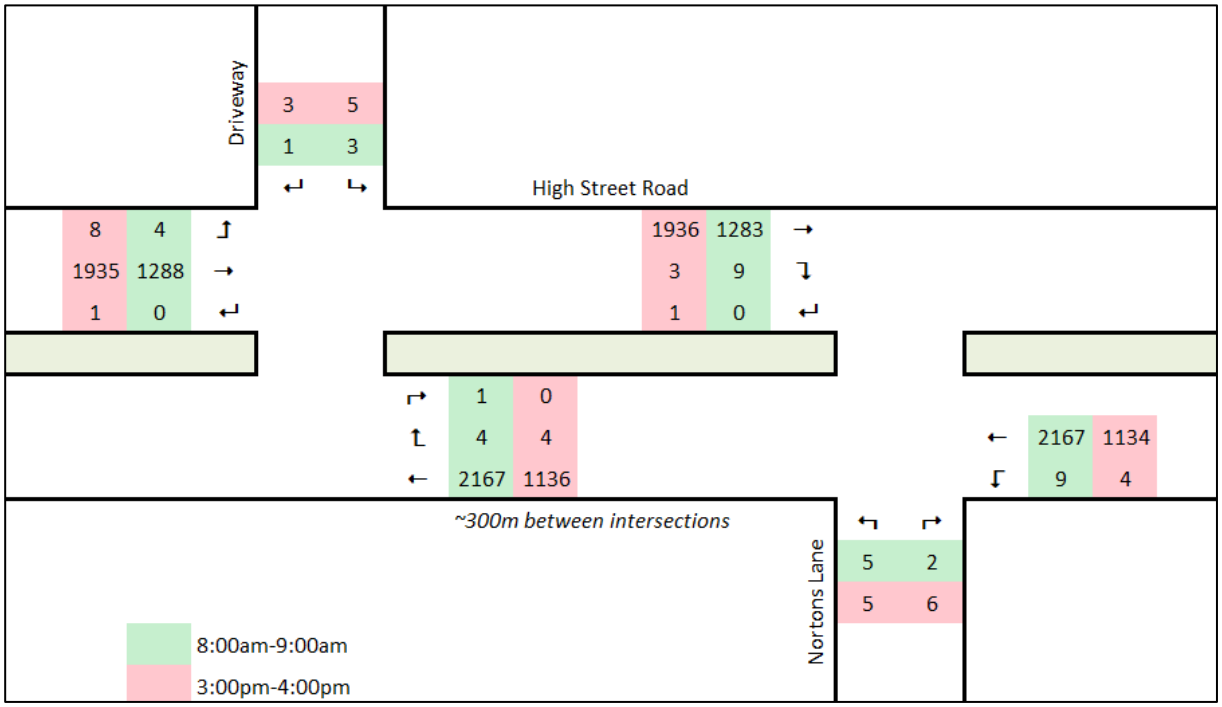
— 7:30am-9:30am; and

— 2:30pm-4:30pm.

Traffic volumes between 8:00am-9:00am and 3:00pm-4:00pm have been extracted from the survey results to gain an understanding of traffic volumes during the anticipated school drop-off and pick-up peak hours.

These existing traffic volumes are presented in Figure 2.8, with the full set of survey results provided at Appendix C of this report.

Figure 2.8: Existing Traffic Volumes (School Peak Hours)



The operation of these intersections shown in Figure 2.8 has been assessed using SIDRA Intersection 10.0.

The parameters used to assess the intersection are as follows:

— **Degree of Saturation (D.O.S)** is a ratio of arrival (or demand) flow to capacity. Degrees of Saturation above 1.00 represent oversaturated conditions. Typical D.O.S ratings for intersections are presented in Table 2.1;

— **The 95th percentile queue length (95%ile queue)** is the value below which 95 percent of all observed cycle queue lengths fall, or 5 percent of observed cycle queue lengths exceed; and

— **Average delay** is the average time, in seconds, that a vehicle can be expected to wait at an intersection.

Table 2.1: Degree of Saturation Ratings

Degree of Saturation (D.O.S)			Rating
Signalised Intersection	Roundabouts	Unsignalised Intersection	
Up to 0.60	Up to 0.60	Up to 0.60	Excellent

0.60 – 0.70	0.60 – 0.70	0.60 – 0.70	Very good
0.70 – 0.90	0.70 – 0.85	0.70 – 0.80	Good
0.90 – 0.95	0.85 - 0.95	0.80 – 0.90	Acceptable
0.95 – 1.00	0.95 – 1.00	0.90 – 1.00	Poor
Greater than 1.00	Greater than 1.00	Greater than 1.00	Very poor

The SIDRA modelling results for the existing operation of the two intersections are summarised in Table 2.2 and Table 2.3, with a full set of modelling results provided at Appendix D of this report.

Table 2.2: Existing Intersection Operation – Nortons Lane / High Street Road

Approach	Movement	AM			PM		
		D.O.S	Ave Delay (s)	95%ile Queue (m)	D.O.S	Ave Delay (s)	95%ile Queue (m)
High Street Road (East)	Left Turn	0.01	7	0	0.002	7	0
	Through	0.59	0	0	0.31	0	0
High Street Road (West)	Through	0.35	0	0	0.53	0	0
	Right Turn	0.54	294	0	0.02	21	0
	U-Turn	N/A	N/A	N/A	0.02	34	0
Nortons Lane (South)	Left Turn	0.39	39	7	0.05	7	1
	Right Turn	0.39	285	7	0.05	65	1
Intersection		**0.59**			**0.53**		

Table 2.3: Existing Intersection Operation – High Street Road Median Break

Approach	Movement	AM			PM		
		D.O.S	Ave Delay (s)	95%ile Queue (m)	D.O.S	Ave Delay (s)	95%ile Queue (m)
High Street Road (East)	U-Turn	0.03	32	1	N/A	N/A	N/A
	Right Turn	0.03	27	1	0.12	104	2
	Through	0.59	0	0	0.31	0	0
	Left Turn	0.35	10	0	0.53	10	0

High Street Road (West)	Through	0.35	0	0	0.53	0	0
	U-Turn	0.08	219	1	0.02	21	0
Private Driveway (North)	Left Turn	0.01	3	0	0.10	7	2
	Right Turn	0.08	231	0	0.10	112	2
Intersection		**0.59**			**0.53**		

The most critical results are noted below:

- The recorded D.O.S on all approaches are below 0.6, suggesting that the volume of traffic currently using the intersection during both peak hours is well below the theoretical capacity of the intersection;
- The right turn exit movement from Nortons Lane onto High Street Road experiences a significant delay of 285 seconds during the AM peak hour. This delay is a result of the 2,167 westbound through movements along High Street Road, noting that a vehicle wanting to turn right onto High Street Road would need to wait for a suitable gap in this traffic to be able to cross the westbound carriageway and prop within the median break;
- This right turn movement experiences a lesser, but still considerable delay of 65 seconds during the PM peak hour. The lesser delay is a product of the volume of westbound through movements in the PM peak hour being approximately half that of the AM peak hour, noting that the recorded 1,134 westbound movements is still a high volume of traffic;
- The right turn movement from High Street Road into Nortons Lane experiences a significant delay of 294 seconds during the AM peak hour and minor delay of 21 seconds during the PM peak hour. It is important to note that these outputs are not consistent with on-site observations;
- The corresponding D.O.S and 95th percentile queue for each of the above movements are quite low, indicating that the delays are being created by the volume of through traffic along High Street Road rather than being a product of the number of vehicles currently undertaking these movements; and
- Indeed, a review of the traffic volumes presented in Figure 2.8 indicates that there are only a small number of vehicles were observed to turn right into and out of Nortons Lane.

2.5. Gap Analysis – Existing Conditions

Assessment Methodology

Initially, the operation of the two key intersections with High Street Road were assessed using SIDRA, a computer-based modelling package which calculates intersection performance. However, even under existing conditions, the SIDRA models of the intersections were indicating significant delays associated with key movements providing potential access to the subject site. The model was indicating in the AM peak hour that the right turn from High Street Road into Nortons Lane was experiencing excessive delays in the order of 294 seconds, as well as other excessive delays associated with U-Turns at the downstream High Street Road median break.

The above SIDRA outputs are not consistent with on-site observations and therefore does not represent an accurate traffic model. As such, a gap assessment analysis has been undertaken.

Following DTP's RFI, a gap analysis has been required for *"right-turn movements from High Street Road into Nortons Lane during school peak periods, and U-turn movements on High Street Road to the west of Nortons Lane that would accommodate vehicles unable to turn right from Nortons Lane during restricted periods".*

In this regard, to better represent real time traffic flows on High Street Road and its absorption capacity for vehicle movements to/from the minor legs of Nortons Lane and the U-turn movements, gap surveys have been undertaken for these two intersections.

Gap Survey Analysis

Gap survey data records the frequency and duration of gaps in the live traffic flows in both directions along High Street Road, to identify the total number of vehicles that could undertake specific movements in/out of the Nortons Lane and U-turn movements, based on existing 'actual' gap opportunities in real time traffic.

To determine the existing capacity for vehicles to undertake each individual movement at the key intersections to High Street Road, the gap data has been analysed using the Austroads critical acceptance gaps and follow up headways as applicable.

It is noted that Austroads does not specify critical acceptance gap or follow-up headway parameters for a U-turn movement from a major road onto a major road. Accordingly, conservative values have been adopted, assuming a critical gap of up to 10 seconds and a follow-up headway of 3 seconds.

For reference, SIDRA 10.0 suggests a critical gap approximately 1.5 seconds greater than that for a right turn from a minor road (i.e. 6.5 seconds), and a follow-up headway 0.9 seconds longer (i.e. 3.9 seconds).

The results of the gap data analysis and corresponding capacities for the key turning movements at the intersection of Nortons Lane and High Street Road and the High Street Road median break are summarised in Table 2.4.

Table 2.4: Gap Capacity Assessment - Nortons Lane Access and High Street Road U-Turn

Peak Hour	Movement	Existing Total Gap Capacity (vph)	Existing Volume (vph) [1]	Existing Spare Capacity	DOS
AM (8:00-9:00am)	Left Out from Nortons Lane	189	7	182	0.04
	Right In to Nortons Lane	188	9	179	0.05
	U-Turn from Westbound to Eastbound High Street Road	112	5	107	0.04
PM (3:00-4:00pm)	Left Out from Nortons Lane	479	11	468	0.02
	Right In to Nortons Lane	478	4	474	0.01
	U-Turn from Westbound to Eastbound High Street Road	81	4	77	0.05

[1] Number of vehicles counted that currently utilise this turning lane.

Table 2.4 indicates that there is ample capacity currently in the through traffic flows during both peak periods to accommodate additional turning movements.

3. Planning Scheme Amendment C194knox

3.1. Overview

Planning Scheme Amendment C194 Knox applies to the land parcels addressed as 191 George Street in Wantirna South and 1257 Ferntree Gully Road in Scoresby.

The amendment was approved by the Minister for Planning on 23 February 2026 and is awaiting gazettal.

The amendment proposes to facilitate the rehabilitation and development of the site to accommodate new residential and mixed-use precincts, active open spaces and an extension of the Dandenong Valley Parklands.

Various supporting documents have been prepared for the proposed amendment. Items within these documents of relevance to the proposed primary school are summarised in the following sections.

3.2. Future Urban Structure Plan

A Future Urban Structure Plan for the development of the site has been prepared by McGregor Coxall and Murphy Landscape Consultancy within the Urban & Landscape Design Report (dated October 2024).

An extract of this plan is provided overleaf in Figure 3.1.

The key features of the Future Structure Plan are:

- Primarily residential development of the land, with in the order of 1,750 residential lots contemplated;
- The residential product will be split into two (2) distinct portions, bisected by the high voltage electricity easement through the site. In the order of 85% of residential development is proposed to the east of the easement and 15% on the western side;
- A small Neighbourhood Activity Centre (NAC) in a central location;
- Active open space in the form of various sporting fields in the northwest portion of the land; and
- A significant portion of the land will comprise public open space, in the form of an expansion to the Dandenong Valley Parklands.

Figure 3.1: Indicative Future Urban Structure Plan

Source: McGregor Coxall and Murphy Landscape Consultancy – Urban & Landscape Design Report

3.3. Access

Vehicle access to/from the external road network is proposed as follows:

— Nortons Lane, which provides a connection to High Street Road.

— George Street, which provides external road network connections to the north and east via:

- High Street Road to the north;
- Stud Road to the west; and
- Ferntree Gully Road to the south (via other collector roads).

To accommodate the above access arrangements, it is proposed that the Nortons Lane carriageway will be upgraded to accommodate the provisions of a connector road. It is also proposed to signalise the intersections of Nortons Lane and George Street with High Street Road.

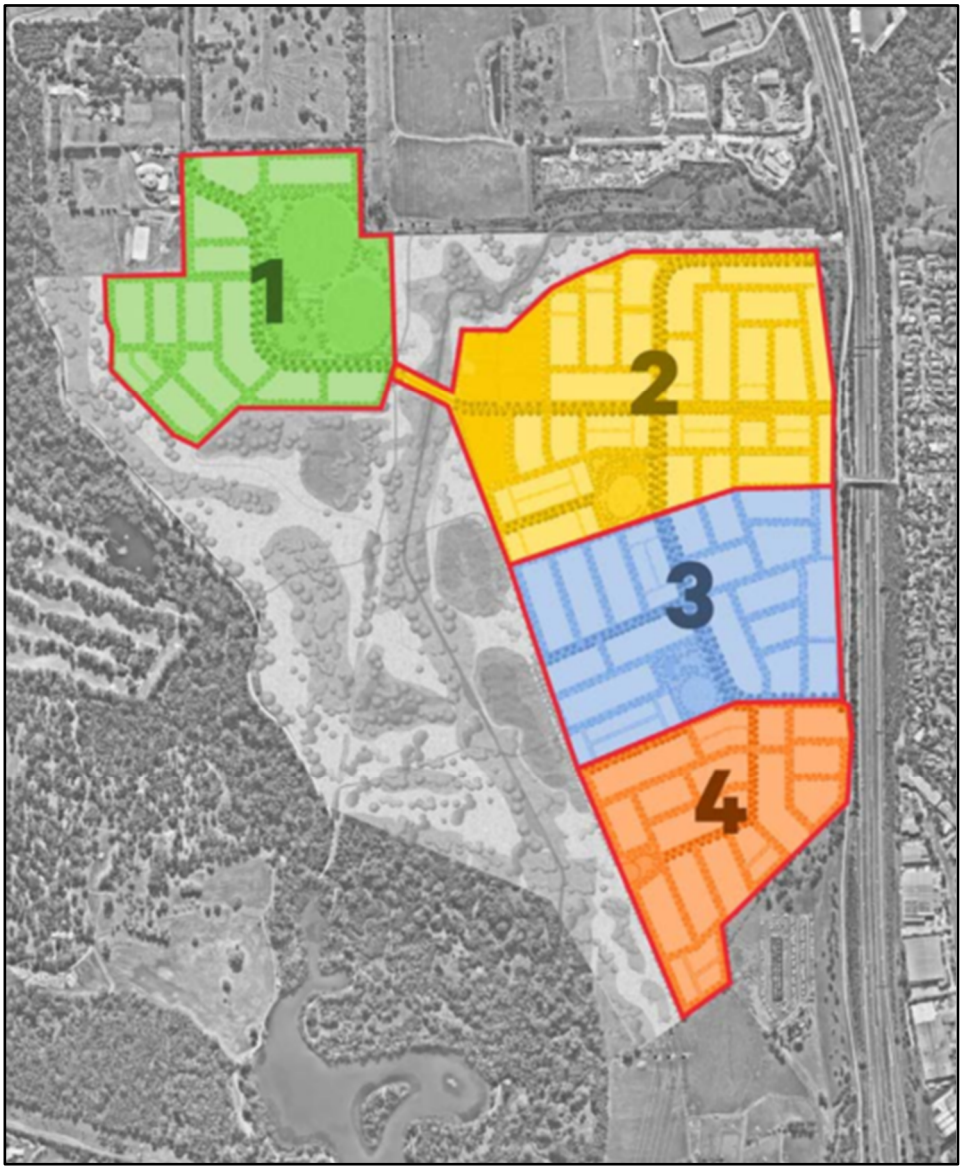
3.4. Staging

An indicative staging plan for the development of the site is proposed within the Strategic Assessment Report that has been prepared by Echelon Planning (dated October 2024).

The prospective staging strategy (shown below in Figure 3.2) proposes to develop the northwest quadrant of the site first. Doing so would allow for approximately 15% of the total residential product and the various sporting fields to be delivered early within the project.

It is noted that a Development Plan for the northwest quadrant has been prepared in partnership by Mirvac, Echelon Planning, Urban Fold and McGregor Coxall.

Figure 3.2: Indicative Staging Plan



Source: Echelon Planning – Strategic Assessment Report

Critically, vehicle access to/from the internal road network within Stage 1 will be via Nortons Lane and the High Street Road / Nortons Lane / Bushy Park Lane intersection.

An Integrated Transport Management Plan has been prepared by Traffix Group and forms Appendix A of the Development Plan.

Key conclusions within the Integrated Transport Management Plan are noted below:

— The High Street Road / Nortons Lane intersection requires signalisation in order to accommodate the development traffic that will be generated by Stage 1; and

— To service the additional traffic that will be generated by Stage 1, Nortons Lane will be upgraded to the provisions of a connector road.

No details are currently available with respect to the timing of the above road and intersection upgrades. It is also noted that no approvals have been granted with respect to the proposed intersection layout or Nortons Lane cross-section at this time.

3.5. Nortons Lane

As described above, no approvals have been granted with respect to the proposed upgraded cross-section for Nortons Lane at this time.

Notwithstanding, the Integrated Transport Management Plan makes the following key recommendations for Nortons Lane:

— Nortons Lane is expected to carry approximately 6,135 vehicles per day post development of the full site and would be functionally classified as a Collector Road under either a Clause 56.06 assessment or under Council's road hierarchy;

— The existing and proposed Nortons Lane road reserve is 20 metres wide, less than the typical cross section set out in the VPA PSP notes, which is accommodated within a 25-metre-wide road reserve;

— Noting the intensity of land use abutting Nortons Lane and the presence of high value vegetation within the road reserve, a 'non-standard' road design is considered to provide a better response for Nortons Lane;

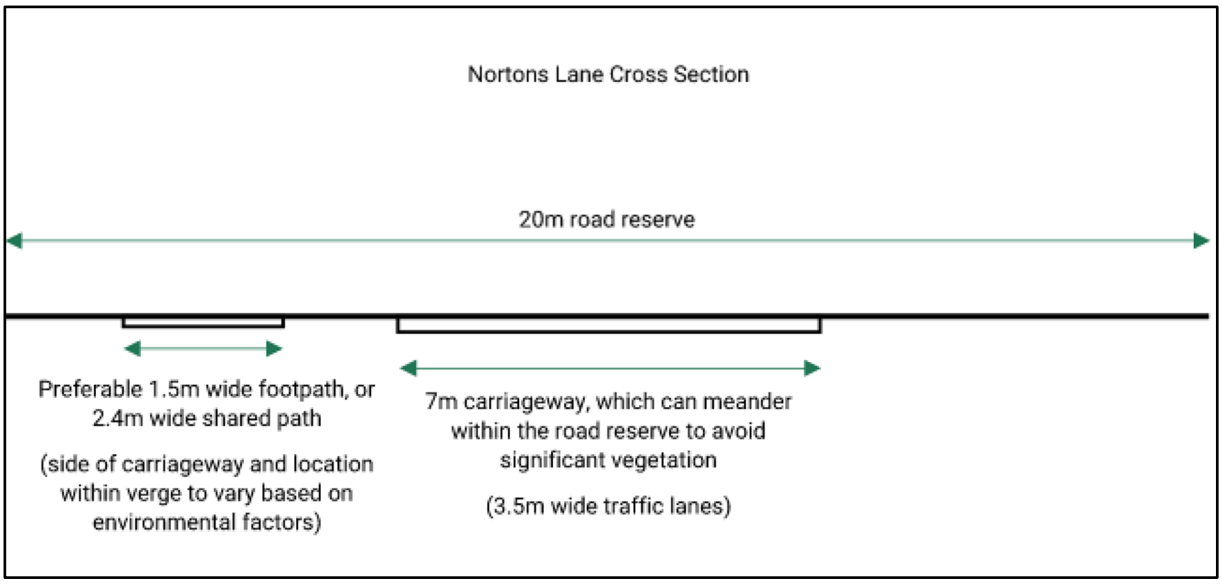
— In this regard, the following is proposed with respect to the Nortons Lane cross-section:

- A single 7.0-metre-wide carriageway, providing a single traffic lane in each direction;
- No indented parking along Nortons Lane; and
- Either:
  - A 1.5-metre-wide footpath; or
  - A minimum 2.4-metre-wide shared path on one side of the road only.

— The above would provide approximately 10 metres for a nature strip to be provided, which could be distributed either side of the carriageway as required to maximise vegetation retention.

The Integrated Transport Management Plan provides an indicative cross-section for Nortons Lane, which is shown below in Figure 3.3.

Figure 3.3: Indicative Nortons Lane Cross-Section



Source: Traffix Group – Integrated Transport Management Plan

4. Development Proposal

4.1. Development Overview

The application proposes to develop the land addressed as 3 Nortons Lane in Wantirna South for the purpose of a primary school, to be known as Ascension College.

The current planning permit application is pursuant to the delivery of Stage 1 of Ascension College.

The area of works for Stage 1 is limited to the eastern portion of the site and seeks to provide a portable classroom for each year level, staff and student amenities, various playground areas and a soccer field within the area of works.

No changes outside the area of works area proposed as part of this application and as such, the existing buildings and vegetation that occupies the western portion of the site will all be retained throughout Stage 1.

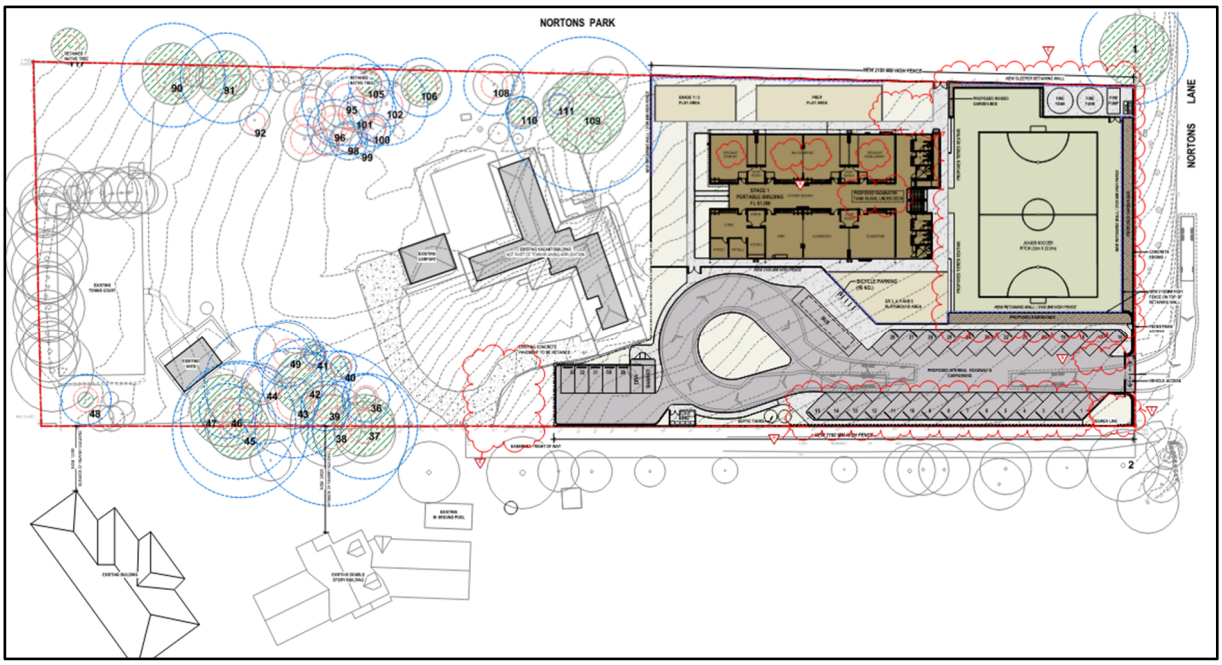
Information provided by the permit applicant indicates that within the overall Stage 1, a staged delivery of the maximum number of staff and students is sought. The proposed staged student and staff numbers are described in Table 4.1.

Table 4.1: Ascension College Stage 1 – Proposed Student & Staff Staging

Stage	Year	Student Numbers (Maximum)	Staff Numbers (Maximum)
Stage 1A	2027 (Grades P-1)	50	6
	2028 (Grades P-2)	70	7
Stage 1B	2029 (Grades P-3)	80	8
	2030 (Grades P-4)	100	10
Stage 1C	2031 (Grades P-5)	120	11
	2032 (Grades P-6)	130	12
	2033 (Grades P-6)	140	13
	2034 (Grades P-6)	150	13

The proposed site layout for Stage 1 is shown in Figure 4.1.

Figure 4.1: Proposed Site Layout



Source: MSM & Associates Pty Ltd – Proposed Site Plan – Stage 1

4.2. Parking Provision

It is proposed to provide a total of 33 car parking spaces on-site. One (1) accessible parking space is included within this provision. One (1) bus parking bay is also proposed.

A total of ten (10) bicycle parking spaces are proposed on-site, via five (5) bike hoops along the western fence line of the grade 3-6 playground.

4.3. Site Access Arrangements

Vehicle access is proposed via a 7.0-metre-wide crossover to/from Nortons Lane, at the southeast corner of the site.

A roundabout is proposed at the western end of the main car parking area for the purpose of providing a convenient location for vehicles to turnaround on-site.

A pedestrian gate is proposed to the north of the vehicle access point, with a footpath running along the northern side of the main car parking area to connect the pedestrian gate with the portable classrooms.

4.4. Loading and Waste Collection Arrangements

No formal loading facilities are proposed on-site.

A waste storage area is proposed on-site, to the south of the roundabout.

5. Car Parking Assessment

5.1. Clause 52.06 Requirements

Car parking requirements for new developments are set out within Clause 52.06 of the Knox Planning Scheme. The purpose of Clause 52.06 is defined in the scheme as follows:

- *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 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; and*
- *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.*

The number of car parking spaces required for a specified use is listed in Table 1 to Clause 52.06. Table 1 includes two (2) sets of parking rates listed as Column A and Column B. Column A rates are to apply unless the Column B rates are applicable[2].

Column B rates are applicable in the following circumstances:

- *Any part of the land is identified as being within the Principal Public Transport Network (PPTN) 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 the Column B rates apply.*

The subject site location is not situated within the City of Knox's PPTN area, nor is the site subject to a Parking Overlay.

The application is therefore subject to the Column A rates set out within Clause 52.06 of the Knox Planning Scheme.

Accordingly, the statutory car parking requirements for the development proposal are set out in Table 5.1.

[2] As this application was initially submitted to Knox City Council prior to the gazettal of Amendment VC277 on 18 December 2025, it is considered appropriate to continue to utilise the car parking rates specified by the former clause.

Table 5.1: Statutory Car Parking Requirements

Land Use	Size/Number	Column A Parking Rate	Car Parking Requirement
Primary school	13 employees	1.0 space to each employee that is part of the maximum number of employees on the site at any time	13 spaces

Based on the preceding assessment, the application has a statutory requirement to provide 13 car parking spaces on-site.

The proposed provision of 33 car parking spaces on-site exceeds the statutory requirement and therefore satisfies the requirements of Clause 52.06 of the Knox Planning Scheme.

5.2. Empirical Car Parking Assessment

It is important to acknowledge that the statutory car parking rate for the primary school land use does not make any allowance for the car parking demand that is generated by parents dropping off / picking up their child(ren) from school each day.

The overwhelming majority of the drop off / pick up demand comprises trips that are short term in nature, with parents either parking for a short time while they walk their child(ren) to/from their classroom or the child(ren) doing so themselves.

It is commonplace for most, if not all, of this demand to be accommodated off-site within the on-street parking supply along the frontage roads or in the nearby vicinity.

In this instance, it is noted that the site is only provided with one (1) road frontage, that being Nortons Lane, which does not provide any on-street parking opportunities. Moreover, there are no other roads or locations in the nearby vicinity that would be suitable to facilitate the student drop off / pick up demand generated by the site.

Accordingly, all car parking demand generated by the school will need to be accommodated on-site.

In this regard, our office holds case study data of surveys undertaken at a number of different schools to determine the traffic and car parking generation rates during the peak drop off and pick up periods.

These surveys indicate that the total peak car parking demand (i.e. inclusive of staff parking) generated by schools is in the order of 0.2-0.3 spaces per student.

The permit applicant has advised that the school will offer a private bus service to families whose child(ren) are enrolled at the school. For families that sign up for this service, a school bus will pick up students from their house and drive them to school each morning and then drive these students' home in the afternoon.

It is expected that half of the students enrolled at the school will utilise the bus service.

The use of the bus service will have a flow on effect to reduce the number of parents that need to drive to/from the school each day. Accordingly, the lower end of the surveyed parking range (i.e. 0.2 spaces per student) is considered an appropriate estimation for the level of car parking demand that will be generated by the site.

By applying this rate to the maximum number of students, the school is estimated to generate a peak car parking demand of 30 spaces.

5.3. Adequacy of Proposed Car Parking Provision

It is proposed to provide a total of 33 car parking spaces on-site.

This provision exceeds the statutory requirement and therefore satisfies the requirements of Clause 52.06 of the Knox Planning Scheme.

Moreover, this provision also exceeds the estimated peak parking demand, with a surplus of three (3) spaces expected on-site during the peak drop-off and pick-up periods.

Accordingly, the proposed car parking provision is considered acceptable.

5.4. DDA Car Parking Requirements

In addition to the statutory car parking requirements outlined in Clause 52.06 of the Knox Planning Scheme, the National Construction Code (NCC) outlines the requirements for the provision of car parking spaces for people with disabilities.

The applicable NCC rate for the provision of parking spaces for people with disabilities is provided in Table 5.2.

Table 5.2: NCC Parking Requirements for People with Disabilities

Land Use	NCC Class	Building Classification	NCC Parking Rate
Primary school	Class 9b	An assembly building [1] including a trade workshop or laboratory in a primary or secondary school	1 accessible space for every 100 car parking spaces or part thereof

[1] The NCC classifies an assembly building as a building where people may assemble for:

(b) educational purposes in a school, early childhood centre, preschool, or the like.

Application of the above rate to the proposed on-site car parking provision of 33 spaces indicates that the site also has a requirement to provide one (1) accessible parking space on-site.

It is proposed to provide one (1) accessible parking space (and adjacent shared area) within the car parking area to the west of the roundabout.

This provision satisfies the NCC requirement for the site and is therefore considered acceptable.

6. Bicycle Parking Assessment

6.1. Clause 52.34 Requirements

Requirements for the provision of bicycle parking spaces and associated facilities are set out within Clause 52.34 of the Knox Planning Scheme.

The purpose of Clause 52.34 is defined in the scheme as follows:

— *To encourage cycling as a mode of transport; and*

— *To provide secure, accessible and convenient bicycle parking spaces and associated shower and change facilities.*

Bicycle Parking Requirements

The statutory bicycle parking requirements for the application are set out in Table 6.1.

Table 6.1: Statutory Bicycle Parking Requirements

Land Use	Number	User	Parking Rate	Bicycle Parking Requirement
Primary school	13 employees 40 students [1]	Employee	1 space to each 20 employees	1 space
		Student	1 space to each 5 pupils over year 4	8 spaces

[1] Number of students above year 4.

Based on the preceding assessment, the application has a statutory requirement to provide a total of nine (9) bicycle parking spaces on-site, including:

— One (1) space for employees; and

— Eight (8) spaces for students.

Associated Facilities

In addition to the requirement for bicycle parking spaces that are outlined above, Table 2 and 3 within Clause 52.34 of the Knox Planning Scheme requires that if five (5) or more employee bicycle parking spaces are required, one (1) shower must be provided for the first five (5) employee bicycle parking spaces and one (1) shower to each ten (10) employee bicycle parking spaces thereafter.

Each shower must be provided with an accompanying change room or with direct access to a communal change room.

Application of these rates to the employee bicycle parking requirement of one (1) space indicates that the application does not have a requirement to provide any shower and change room facilities on-site for employees.

6.2. Provision of Bicycle Parking Spaces and Associated Facilities

A total of ten (10) bicycle parking spaces are proposed on-site, via five (5) bike hoops along the western fence line of the grade 3-6 playground.

This overall provision satisfies the statutory requirement for the site and is therefore considered acceptable.

Whilst the site does not have a statutory requirement to provide any showers and change rooms on-site, a shower is proposed within both of the student and staff DDA bathrooms and can be used as required.

6.3. Bicycle Parking Layout

All bicycle parking spaces on-site are proposed as at-grade bike hoops.

Bike hoops are shown on plans within a 1.8-metre-long parking envelope and at 1.0 metre spacings, thereby allowing for two (2) bicycles to be parked at each hoop. An access aisle exceeding 1.5 metres wide is proposed in front of the bike hoops.

On the basis of the above, bicycle parking spaces are considered to have been designed appropriately, in accordance with the relevant dimensional requirements outlined within AS 2890.3:2015.

Furthermore, the proposed bicycle parking layout seeks to provide 100% of bicycle parking spaces within an at-grade horizontal arrangement. This provision exceeds the requirement within AS 2890.3:2015 that at least 20% of bicycle parking spaces must be provided within an at-grade horizontal arrangement.

Examples of representative bicycle parking specifications are provided at Appendix E of this report for reference.

7. Access Arrangements & Car Park Layout

7.1. Site Access Arrangements

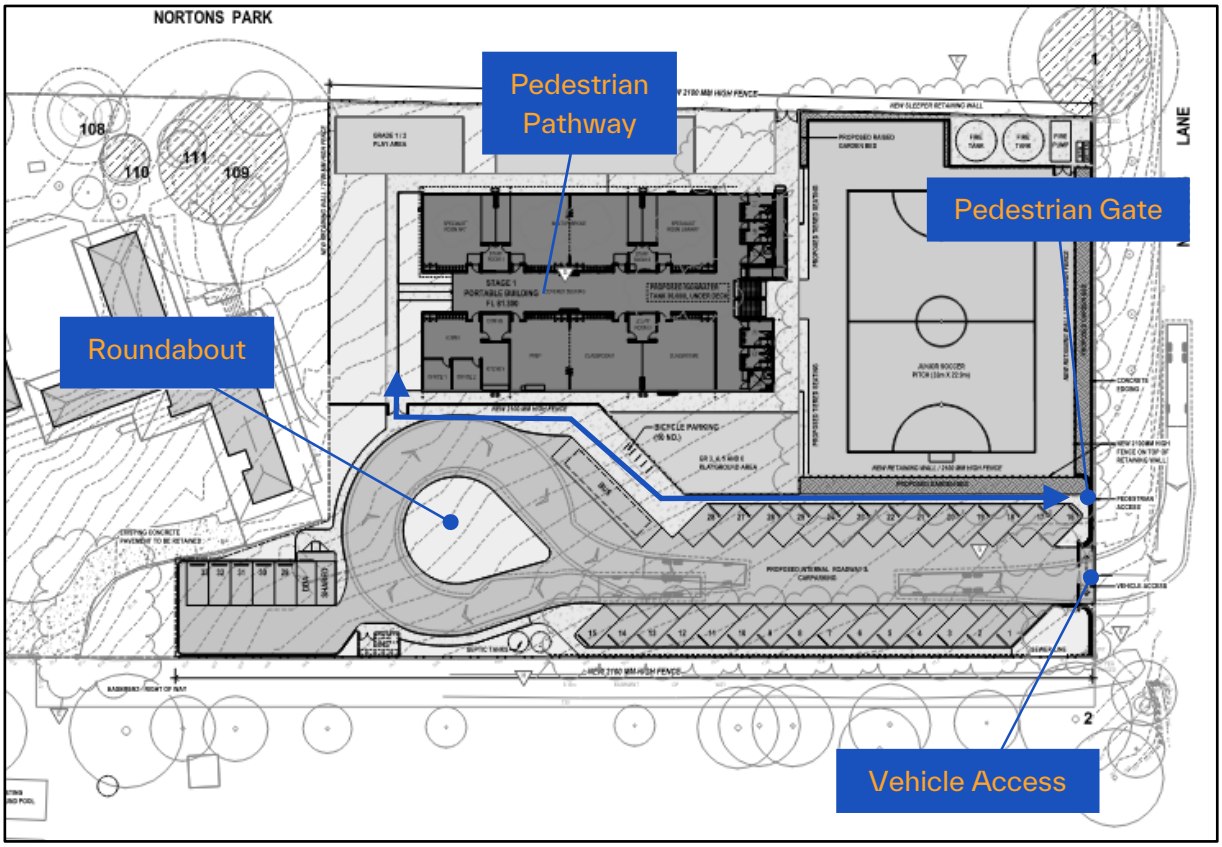
Vehicle access is proposed via a 7.0-metre-wide crossover to/from Nortons Lane, at the southeast corner of the site.

A roundabout is proposed at the western end of the main car parking area for the purpose of providing a convenient location for vehicles to turnaround on-site.

A pedestrian gate is proposed to the north of the vehicle access point, with a footpath running along the northern side of the main car parking area to connect the pedestrian gate with the portable classrooms.

The proposed site access arrangements are demonstrated in Figure 7.1.

Figure 7.1: Proposed Site Access Arrangements



Source: MSM & Associates Pty Ltd – Proposed Site Plan – Stage 1

7.2. Car Park Layout

The design of the proposed on-site car parking facilities is described below:

- A 3.52-metre-wide single width accessway is proposed to provide access to/from the car parking area to the west of the roundabout. This width satisfies the requirements for a single width accessway outlined in Design Standard 1 within Clause 52.06-9 of the Knox Planning Scheme;
- Two-way accessways within the site will be provided with a minimum width of 6.0-metres, satisfying the requirements for a double width accessway outlined in Design Standard 1 within Clause 52.06-9 of the Knox Planning Scheme;
- The roundabout has been designed with a circulation lane width of approximately 6.0 metres. This width is sufficient to vehicles up to a 12.5-metre-long bus (single unit truck / bus, as defined within Austroads Design Vehicles and Turning Path Templates Guide 2023) to circulate the roundabout (refer to the discussion provided within Section 7.3);
- Angled 45-degree spaces are proposed within the main car parking area. Parking spaces have been designed with typical dimensions of 2.6 metres wide by 4.9 metres long and are accessible via a 7.0-metre-wide aisle, satisfying the requirements outlined in Design Standard 2 within Clause 52.06 of the Knox Planning Scheme;
- 90-degree spaces are proposed within the car parking area to the west of the roundabout. Parking spaces have been designed with typical dimensions of 2.7 metres wide by 5.4 metres long and are accessible via a 6.0-metre-wide aisle, satisfying the requirements outlined in Design Standard 2 within Clause 52.06 of the Knox Planning Scheme;
- The bus parking bay has been designed with dimensions 3.5 metres wide by 15.67 metres long. These dimensions exceed the dimensions of a typical bus and are therefore considered to provide an appropriate parking bay for buses;
- The accessible parking space has been designed with dimensions of 2.4 metres wide by 5.4 metres long, with an adjacent shared area of the same dimensions, satisfying the dimensional requirements set out in Section 2.2.1 within AS/NZS 2890.6:2022; and
- An aisle extension of 1.0 metres is proposed beyond the end parking space within the dead-end aisle in the car parking to the west of the roundabout, satisfying the requirements set out within Section 2.4.2 within AS/NZS 2890.1:2004.

7.3. Swept Path Assessment

In addition to the above, a swept path assessment of site access and internal vehicle circulation has been undertaken using the *'Autodesk Vehicle Tracking'* software program.

The results of the swept path assessment are summarised as follows:

- The vehicle access point and internal site layout have been designed suitably to allow vehicles up to a 12.5-metre-long bus in size to turn right into the site from Nortons Lane, utilise the roundabout to turnaround and then depart the site in a forward direction by turning left onto Nortons Lane;
- Additionally, a 12.5-metre-long bus is able to turn from the roundabout circulation lane and park within the bus parking bay. A B99 (99.8th percentile passenger vehicle, as defined within AS/NZS 2890.1:2004) is able to utilise the roundabout and circulate past a bus parked in the bus parking bay;

— An 8.8-metre-long MRV (medium rigid vehicle, as defined within AS 2890.2:2018) is able to utilise the roundabout circulation lane to reverse into position in front of the waste storage area. Once waste collection is complete, the MRV is able to utilise the roundabout circulation lane to depart the site in a forward direction; and

— A B85 (85th percentile passenger vehicle, as defined within AS/NZS 2890.1:2004) is able to suitably access the end parking space within car parking area to the west of the roundabout in a suitable manner.

With regard to the preceding discussion, it is noted that swept paths indicate that the 12.5-metre-long bus and 8.8-metre-long MRV will both need to utilise the full width of the accessway when entering and exiting the site.

Having regard for the definitions presented at Section 1.4 within AS 2890.2:2018, access by these vehicles will be categorised as regular service (*service by a nominated design vehicle at least once per day*). Section 3.2 within AS 2890.2:2018 specifies that in situations where regular service is provided to/from a site with minor road access, the full width of the access driveway may be used for both entering and leaving the site.

On the basis of the above, the proposed access arrangements for the 12.5-metre-long bus and 8.8-metre-long MRV are considered acceptable.

Each of the above-mentioned swept paths are provided at Appendix F of this report.

7.4. Adequacy of Access Arrangements and Car Park Layout

Based on the assessment set out in the preceding sections of this report, the proposed site access arrangements and car parking facilities are considered to have been designed appropriately and in accordance with the design requirements outlined within Clause 52.06-9 of the Knox Planning Scheme and/or relevant sections of the Australian Standards (AS 2890 series).

8. Loading & Waste Collection Arrangements

8.1. Statutory Requirement

Clause 65.01 'Decision Guidelines' within the Knox Planning Scheme outlines the provision of loading requirements and states the following:

'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.'*

8.2. Loading Arrangements

The site will generate a loading demand associated with deliveries to the school. The school is not expected to require deliveries on a daily basis and accordingly, only a low level of loading demand will be generated.

Noting the low level of loading demand, all deliveries are expected to be completed by vans or courier vehicles. The B99 vehicle is typically considered an appropriate approximation for these types of vehicles.

No formal loading facilities are proposed on-site. Based on this, delivery vehicles are expected to park in one of the following locations when visiting the site:

— Within the bus parking bay (if it is vacant at the time of the delivery);

— Within the roundabout circulation lane in close proximity to the main entrance to the school building; or

— Within a vacant parking space, noting that a good portion of parking spaces are expected to be vacant outside of the student drop off and pick up periods.

As per the discussions presented in Section 7 of this report, the vehicle access point and internal site layout have been designed in a manner to accommodate access by vehicles up to a 12.5-metre-long bus in size. As the anticipated loading vehicle is significantly smaller in size, it follows that the loading vehicle will be able to access the site in a suitable manner.

8.3. Waste Collection Arrangements

A Waste Management Plan (WMP) has been prepared for the site by Ratio Consultants.

Based on the details within the WMP, it is understood that waste bins will be collected on-site by a private contractor using an 8.8-metre-long rear-lift waste truck.

As described in Section 7.3 of this report, a swept path assessment has been completed which demonstrates that an 8.8-metre-long MRV is able to enter the site by turning right from Nortons

Lane, circulate the internal accessways and reverse into position in front of the waste storage area. Once waste collection is complete, the MRV is able to utilise the roundabout to turnaround before exiting the site in a forward direction by turning left into Nortons Lane.

Refer to the Waste Management Plan for further waste management details such as collection timings or frequency.

8.4. Adequacy of Loading & Waste Collection Arrangements

Based on the preceding discussions, the proposed loading and waste collection arrangements for the site are considered to be acceptable.

9. Traffic Assessment

9.1. Traffic Generation

In order to estimate the level of traffic generation associated with the site, reference is made to the NSW Guide to Transport Impact Assessment 2024 (GTIA 2024).

Chapter 5.6.8 within GTIA 2024 sets out observed traffic generation rates for various education facilities.

With respect to primary schools, GTIA 2024 provides separate trip generation rates for schools within urban areas and regional areas.

These rates are presented in Table 9.1.

Table 9.1: GTIA 2024 Primary School Trip Generation Rates

	Urban	Regional
Person trips (person trips / student)		
AM Peak Hour	1.6	1.6
PM Peak Hour	1.8	1.5
Daily	4.2	3.7
Vehicle trips (vehicle trips / student)		
AM Peak Hour	0.7	1.2
PM Peak Hour	0.5	1.0
Daily	1.6	2.6

Having regard for the various rates provided in Table 9.1, it is noted that there is minimal difference between the total person trips generated by schools in urban and regional localities.

However, the number of vehicle-based trips are much higher for regional schools. This is considered to be reflective of the lack of available alternate transport modes and more car centric approach to travel that is more commonplace in regional environments.

Whilst the subject site is situated within metropolitan Melbourne and would technically be classified as being within an urban environment, the immediate surrounding locality is noted. As described previously throughout this report, the site has limited access to sustainable transport options.

As such, the higher regional traffic generation rates are considered more appropriate in this instance and will be adopted for this assessment.

Since the majority of trips to/from schools during the AM and PM peak hour comprises parents dropping off and picking up their child(ren), it has been assumed that inbound and outbound vehicle movements will be split evenly throughout each peak hour.

Across the day there will also be an even split between inbound and outbound vehicle movements.

Further to this, the permit applicant has advised that the school will offer a private bus service to families whose child(ren) are enrolled at the school. For families that sign up for this service, a school bus will pick up students from their house and drive them to school each morning and then drive these students' home in the afternoon. This would be enforced and managed via a Transport Management Plan prepared and administrated by the school.

In order to present a conservative assessment on the high side, it has been assumed that half of students enrolled at the school will use the bus service.

The above traffic generation rates have been applied to the number of students expected to be driven to school each year within Stage 1 in order to estimate the level of traffic that will be generated by the school during the morning and afternoon peak hours and each day.

On the basis of the preceding assumptions, the estimated traffic generation associated with the school throughout the proposed staging is presented in Table 9.2 and the traffic generation of the full buildout of the Stage 1 development is outlined in Table 9.3.

Table 9.2: Estimated Staged Traffic Generation

Year	Student Numbers Assumed Driven to School[1]	AM Vehicle Trips	PM Vehicle Trips
2027 (Grades P-1)	25	30 vph	25 vph
2028 (Grades P-2)	35	42 vph	35 vph
2029 (Grades P-3)	40	48 vph	40 vph
2030 (Grades P-4)	50	60 vph	50 vph
2031 (Grades P-5)	60	72 vph	60 vph
2032 (Grades P-6)	65	78 vph	65 vph
2033 (Grades P-6)	70	84 vph	70 vph
2034 (Grades P-6)	75	90 vph	75 vph

[1] 50% of the maximum number of students for that year to account for students using the bus service.

Table 9.3: Estimated Stage 1 Ultimate Traffic Generation

Direction	AM Peak Hour	PM Peak Hour	Daily
Inbound	45 vph	38 vph	98 vpd
Outbound	45 vph	38 vph	98 vpd
Total	**90 vph**	**76 vph**	**196 vpd**

As described throughout Section 3 of this report, a Planning Scheme Amendment is proposed to facilitate the development of the land parcels addressed as 191 George Street in Wantirna South and 1257 Ferntree Gully Road in Scoresby.

Critically, to accommodate the proposed access arrangements for this site, the Planning Scheme Amendment proposes that the Nortons Lane carriageway will be upgraded to accommodate the provisions of a connector road. It is also proposed to signalise the intersections of Nortons Lane and George Street with High Street Road.

We note that no information has been made available to our office with respect to the intended timings of each of the above road upgrades.

For the purpose of a robust assessment, the distribution and impact of the estimated traffic generation will be considered under each of the following scenarios:

— Interim conditions – the existing Nortons Lane carriageway and unsignalised intersection at Nortons Lane / High Street Road / Bushy Park Lane; and

— Ultimate conditions – upgraded Nortons Lane carriageway and signalised intersection at Nortons Lane / High Street Road / Bushy Park Lane.

9.2. Traffic Distribution and Impact – Interim Conditions

As Nortons Lane terminates to the south of the subject site location, all site generated traffic will access the site via right turn entry and left turn exit movements at the vehicle access point along Nortons Lane at the southeast corner of the site.

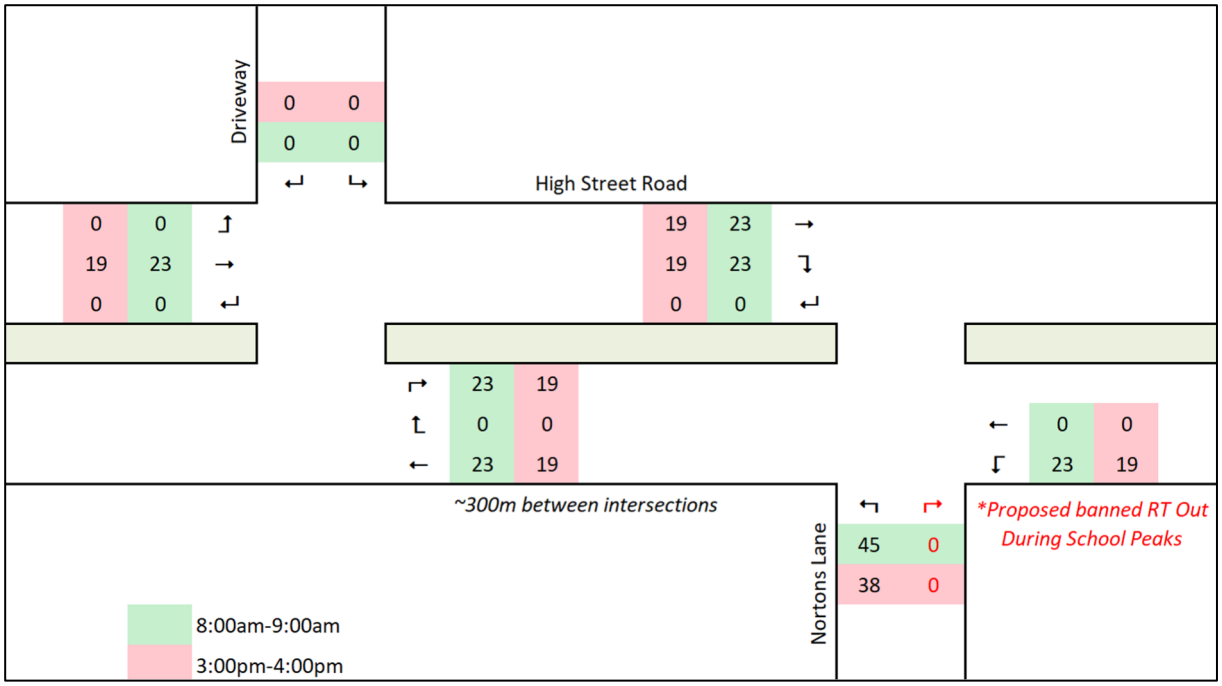
Nortons Lane does not provide connection to any other roads before its intersection with High Street Road. As such, all site generated traffic will disperse onto the broader network via High Street Road.

Having regard for the surrounding locality, it is noted that there are minimal residential dwellings in the immediate vicinity of the site; with the nearest residential catchments located approximately 1.0 kilometre away from the site, commencing to the east of Eastlink and west of Dandenong Creek respectively.

As Nortons Lane is located almost equidistant from each of these residential catchments and providing the only vehicular link to/from the school, it is assumed that students of the school will be split relatively evenly between those accessing the site to/from the west and to/from the east.

The anticipated distribution of site generated traffic is illustrated in Figure 9.1 below.

Figure 9.1: Site Generated Traffic Distribution



As described within Section 2.5 of this report, the intersection of High Street Road / Nortons Lane / Bushy Park Lane currently carries a very high volume of through volumes along High Street Road. As a result, fairly substantial delays are experienced by vehicles turning right in and out of Nortons Lane.

It is noted that median breaks are provided along High Street Road, approximately 300 metres west and 400 metres east of Nortons Lane.

These median breaks could be used suitably by staff and parents approaching the school from the west or departing the school to the east, to undertake a U-turn and reverse their direction of travel, thereby meaning they only need to undertake left in / left out movements at Nortons Lane. Given the proximity of each median break to Nortons Lane, these movements only require a minor detour to the overall trip.

As staff and parents will be travelling to/from the school each day, they will become familiar with the operation of the existing road network; in particular, the delays experienced by vehicles wanting to undertake right turn movements at Nortons Lane.

It is expected that most, if not all, staff and parents will naturally gravitate towards the easier trip to/from the school (i.e. left in / left out movements at Nortons Lane). Notwithstanding, it is recommended that these access arrangements be detailed within the school's TMP to further communicate these arrangements to staff and parents.

Having regard for the preceding discussion, the following is noted:

- A left turn deceleration lane is provided along High Street Road on the approach to Nortons Lane and therefore, left turn movements into Nortons Lane can be undertaken by vehicles without delay;
- Left turn exit movements onto High Street Road only require a vehicle to wait for an acceptable gap within the inside through lane in order to depart from Nortons Lane.

The discussion presented in Section 5 of this report is also noted, wherein it is recommended that the school's TMP is likely to include staggered start and finish times for the school day

between different year levels. This will result in site generated traffic being more evenly distributed throughout each of the peak hours, rather than all concentrated into a 15–20-minute window, as is common for schools where all year levels start and finish the day at the same time.

Based on each of the above factors, it is expected that the site generated traffic will be able to disperse onto the broader road network, primarily via left in / left out movements at Nortons Lane, in a safe and satisfactory manner.

Post-Development Gap Analysis

Notwithstanding the above, and in response to DTP's request, a gap analysis has been undertaken for the existing intersection, as detailed in Section 2.5. The results below in Table 9.4 assess the available capacity under existing conditions against the anticipated traffic generated by the site.

Table 9.4: Gap Capacity Post-Development Assessment

Peak Hour	Movement	Existing Total Gap Capacity (vph)	Existing Volume (vph) [1]	Existing Spare Capacity	Additional Site Generated Traffic (vph) [2]	Post Development Spare Capacity (vph)
AM (8:00-9:00am)	Left Out from Nortons Lane	189	7	182	45	137
	Right In to Nortons Lane	188	9	179	23	156
	U-Turn from Westbound to Eastbound High Street Road	112	5	107	25	82
PM (3:00-4:00pm)	Left Out from Nortons Lane	479	11	468	38	430
	Right In to Nortons Lane	478	4	474	19	455
	U-Turn from Westbound to Eastbound High Street Road	81	4	77	25	52

[1] Number of vehicles counted that currently utilise this turning lane.

[2] Additional site generated traffic includes redistribution of traffic due to right-turn ban.

Table 9.4 indicates that there is ample capacity in the through traffic flows during both peak periods to accommodate the additional turning movements associated with the anticipated site generated traffic movements.

Further to the above, an important factor of gap analysis is the average time between gap opportunities (i.e. the time between the end of one gap and the start of the next gap). While not a completely accurate reflection of the fully delay time to undertake a specific movement, this provides a strong indicator of the likely time that a car would need to wait after arriving at these intersections before they are able to complete a particular movement. Similarly, the average duration of each gap opportunity is another indicator of how many vehicles would likely be able to exit during each gap in the traffic flows. This information is summarised for the surveyed intersections along High Street Road in Table 9.5.

Table 9.5: Average Duration and Wait Times Between Gaps - Key Access Movements

Peak Hour	Movement	Average Time Between Gap Opportunities (s)	85th Percentile Time Between Gap Opportunities (s)	Average Gap Duration (s)
AM (8:00-9:00am)	Left Out from Nortons Lane	28	78	9
	Right In to Nortons Lane	28	78	9
	U-Turn from Westbound to Eastbound High Street Road	44	79	18
PM (3:00-4:00pm)	Left Out from Nortons Lane	8	17	11
	Right In to Nortons Lane	8	17	11
	U-Turn from Westbound to Eastbound High Street Road	90	124	16

The data in Table 9.5 indicates that vehicles undertaking the right-in and left-out movements to/from Nortons Lane will experience minimal delay before an acceptable gap becomes available.

During the more critical AM peak, a suitable gap is expected to occur on average every 28 seconds, with approximately two (2) vehicles able to complete the movement within each gap.

For the U-turn movement, the average time between suitable gaps is longer (approximately 44 seconds in the AM peak and 90 seconds in the PM peak). While this may initially appear significant, the average gap duration is approximately 18 seconds in the AM peak and 16 seconds in the PM peak, enabling at least three (3) vehicles to complete the movement during each opportunity, noting the initial highly conservative critical gap of 10 seconds and 3 second follow up headway.

Demand for the U-turn movement is expected to be low, with approximately 23 vehicles forecast during the peak hour, equating to an average arrival rate of one vehicle every 2.5 minutes. On this basis, it is highly unlikely that queues would form. The probability of vehicles needing to wait for more than one or two gap opportunities is extremely low, and queues would be expected to clear during each available gap.

Furthermore, assuming random vehicle arrivals and that queues fully dissipate during each available gap, the average delay can be approximated as half the average time between acceptable gaps. On this basis, the average delay for the U-turn movement is estimated to be approximately 22 seconds in the AM peak and 45 seconds in the PM peak.

9.3. Traffic Distribution and Impact – Ultimate Conditions

Under ultimate conditions, the Nortons Lane carriageway will be upgraded to accommodate the provisions of a connector road, and the High Street Road / Nortons Lane / Bushy Park Lane intersection will be signalised.

Further to this, in the order of 1,750 residential lots are proposed within the site to the south (that is the subject of Planning Scheme Amendment C194knox) and the internal street network within this site will be accessible via George Street, ultimately affording vehicular connections to the broader road network to the east and south of the site.

The ultimate conditions will provide greater directional flexibility for vehicles accessing the site. This will reduce the volume of traffic that takes access to the site via the High Street Road / Nortons Lane / Bushy Lane intersection.

Moreover, vehicles accessing the site via the High Street Road / Nortons Lane / Bushy Park Lane intersection will be able to do so in a much more safe and comfortable manner due to the presence of the traffic signals.

It is also expected that a number of future residents within the site to the south will enrol their child(ren) at the school. These students will live close enough to the site that walking or cycling will present as a viable option for getting to school most days, which would reduce the total number of vehicles travelling to/from the site.

Based on each of the above factors, it is expected that the site generated traffic will be able to be absorbed by the surrounding road network in a safe and satisfactory manner under ultimate conditions.

10. Conclusion

The application proposes to develop the land addressed as 3 Nortons Lane in Wantirna South for the purpose of a primary school, to be known as Ascension College.

The current planning permit application is pursuant to the delivery of Stage 1 of Ascension College.

The area of works for Stage 1 is limited to the eastern portion of the site and seeks to provide a portable classroom for each year level, staff and student amenities, various playground areas and a soccer field within the area of works.

The application is not proposing any changes outside of the area of works and as such, all existing buildings and vegetation outside of the area of works will be retained.

Information provided by the permit application indicates that within the overall Stage 1, a staged delivery of the maximum number of staff and students is sought, with the full delivery of Stage 1 comprising:

— A maximum of 150 students; and

— A maximum of 13 staff members.

The following parking facilities are proposed on-site:

— 33 car parking spaces;

— One (1) bus parking bay; and

— Ten (10) bicycle parking spaces;

Based on the foregoing assessment, the following conclusions are drawn:

— The development proposal has a statutory requirement to provide 13 car parking spaces on-site;

— The statutory car parking rate for the primary school land use does not make any allowance for the car parking demand that is generated by parents dropping off / picking up their child(ren) from school each day;

— On the basis of an empirical assessment that consider this demand as well as staff parking, the site is expected to generate a total peak car parking demand of 30 spaces;

— The proposed car parking provision of 33 spaces exceeds the statutory car parking requirement and the estimated peak car parking demand;

— The development proposal has a statutory requirement to provide nine (9) bicycle parking spaces on-site, including one (1) space for staff and eight (8) spaces for students;

— The proposed provision of ten (10) bicycle parking spaces on-site exceeds the overall statutory requirement and is therefore considered acceptable;

— The proposed bicycle parking spaces have been designed appropriately, in accordance with the design requirements set out within AS 2890.3:2015;

- The proposed access arrangements and car park layout have been designed in accordance with the requirements set out within Clause 52.06 of the Knox Planning Scheme and/or relevant sections of the Australian Standards (AS 2890 series);
- A swept path assessment has been completed which confirms that all key vehicle movements can be undertaken by the relevant design vehicle in a suitable manner;
- The proposed loading and waste collection arrangements are considered acceptable;
- Upon full delivery of Stage 1, the site is expected to generate up to 90 vehicle movements during the AM peak hour, 75 vehicle movements during the PM peak hour and 195 vehicle movements per day;
- Under interim conditions, all vehicles will be required to access the site via the High Street Road / Nortons Lane / Bushy Park Lane intersection;
- A SIDRA modelling assessment indicates that right turn movements to/from Nortons Lane currently experience significant delays due to the high volume of through movements along High Street Road;
- A gap analysis assessment was undertaken which indicated that due to significant bunching of through traffic on High Street Road, more regular gap opportunities are available in reality with average times between gap opportunities for right turn movements into Nortons Lane being 28 seconds in the AM critical peak;
- Post implementation of the proposed right-turn ban out of Nortons Lane vehicles will exit to the east by performing a left turn onto High Street Road before performing a U-turn at the High Street Road median break, located approximately 300m to the west;
- A gap analysis of the U-turn location to the west suggests that there is ample capacity at this intersection with average delays within acceptable limits;
- Additionally, as staff and parents will be travelling to/from the school each day, they will become familiar with the operating conditions of the surrounding road network and they will naturally gravitate towards making their trip to/from the school easier to complete;
- This is expected to manifest in vehicles accessing the site via left in / left out movements at Nortons Lane, which can be achieved via vehicles undertaking U-turn in the proximate median breaks along High Street Road;
- It is recommended that these access arrangements be detailed within the school's TMP to further communicate these arrangements to staff and parents;
- Based on each of the above factors, it is expected that the site generated traffic will be able to disperse onto the broader road network, primarily via left in / left out movements at Nortons Lane, in a safe and satisfactory manner;
- The Nortons Lane carriageway will be upgraded to the provision of a connector road (and also extended into the site to the south) and the High Street Road / Nortons Lane / Bushy Park Lane intersection will be signalised under ultimate conditions; and
- With these upgrades in place, it is expected that the site generated traffic will be able to be absorbed by the surrounding road network in a safe and satisfactory manner under ultimate conditions.

Appendix A Proposed Architectural Plans

NORTONS PARK

NORTONS LANE

RETAINED NATIVE TREE

RETAINED NATIVE TREE

NEW 2100 MM HIGH FENCE

NEW SLEEPER RETAINING WALL

NEW RETAINING WALL / 2100 MM HIGH FENCE

GRADE 1 / 2 PLAY AREA

PREP PLAY AREA

PROPOSED RAISED GARDEN BED

FIRE TANK

FIRE TANK

FIRE PUMP

KIOSK

LIFT

SPECIALIST ROOM ART

MULTI PURPOSE

SPECIALIST ROOM LIBRARY

STAFF ROOM 1

STAFF ROOM 2

STAGE 1 PORTABLE BUILDING FL 81.300

COVERED DECKING

PROPOSED RAINWATER TANK 30,000L UNDER DECK

STAFF ROOM 3

ADMIN

COMMS

PREP

CLASSROOM 1

CLASSROOM2

OFFICE 1

OFFICE 2

KITCHEN

PROPOSED TIERED SEATING

JUNIOR SOCCER PITCH (32m X 22.9m)

PROPOSED GARDEN BED

CONCRETE EDGING

NEW 2100MM HIGH FENCE ON TOP OF RETAINING WALL

PEDESTRIAN ACCESS

VEHICLE ACCESS

BICYCLE PARKING (10 NO.)

GR 3, 4, 5 AND 6 PLAYGROUND AREA

BUS

PROPOSED INTERNAL ROADWAY & CARPARKING

SEPTIC TANKS

SEWER LINE

BINS

DDA

SHARED

EXISTING CONCRETE PAVEMENT TO BE RETAINED

EASEMENT - RIGHT OF WAY

EXISTING TENNIS COURT

EXISTING SHED

EXISTING CARPORT

EXISTING VACANT BUILDING
NOT PART OF TOWN PLANING APPLICATION

EXISTING IN-GROUND POOL

EXISTING BUILDING

EXISTING DOUBLE STORY BUILDING

NOM. 12495 SETBACK OF NEARBY BUILDING

NOM. 20525 SETBACK OF NEARBY BUILDING

T-PEG PLACED

NAIL PLACED

PEG PLACED

PROPOSED PLAN LEGEND:

- EXISTING BUILDINGS TO BE RETAINED
- PROPOSED BUILDING
- PROPOSED GRASS / LANDSCAPE AREAS
- PROPOSED PLAY AREAS
- PROPOSED ASPHALT / DRIVEWAY & CAR PARK AREA
- PROPOSED CONCRETE PAVEMENT
- PROPOSED SPORT FIELD
- PROPOSED GARDEN BED
- SLEEPER RETAINING WALL
- SUBJECT SITE TITLE BOUNDARY
- PROPOSED FENCE LINE
- No. — EXISTING TREE TO BE RETAINED - TREE NO. AS PER ARBORIST REPORT
- No. — EXISTING NATIVE / INDINGENOUS TREE TO BE RETAINED - TREE NO. AS PER ARBORIST REPORT
- TPZ / SRZ — TREE PROTECTION AREA AS PER ARBORIST REPORT
  STRUCTURAL ROOT ZONE (SRZ)
  TREE PROTECTION ZONE (TPZ)

TOWN PLANNING DOCUMENT
NOT FOR CONSTRUCTION

MSM
MSM & ASSOCIATES PTY LTD
6 Apsley Place
Seaford VIC 3198
P 03 9770 0280
F 03 9783 1157
www.msmarchitects.com.au
msmarch@msmarchitects.com.au
ABN 31 055 969376
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ASCENSION COLLEGE

3 NORTONS LANE, WANTIRNA SOUTH

PROPOSED SITE PLAN - STAGE 1
SCALE @ A1 - 1:300
25/02/2026
1566 - TP-03 [Rev H]

Appendix B Concept Layout Plan

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SIGNAGE SCHEDULE:

#12	 (600 X 600)	R2-6B(R)
#15	 (600 X 600)	R9-1-2B

CAD File: 22781-CLP-001.dgn

ISSUE	APP'D	DATE	COMMENTS
A	C.G.	27.02.26	INITIAL ISSUE

GENERAL NOTES

1. AERIAL IMAGE OBTAINED FROM LANDCHECKER DATED 20/08/25
2. ALL DIMENSIONS ARE IN METRES AND MEASURED TO THE INVERT OF KERB AND CHANNEL
3. DECLARED ROAD - HIGH STREET ROAD (SPEED ZONE 80KM/H)
4. LOCAL ROAD - NORTONS LANE (SPEED ZONE 50KM/H)

DESIGNED	D. HUYNH
CHECKED	S. McKENZIE
APPROVED	C. GREENLAND
SCALE 1: 400@ A3	0 4 8

ratio:
RATIO CONSULTANTS PTY LTD
https://ratio.com.au/

3 NORTONS LANE, WANTIRNA SOUTH
Knox City Council
ASCENSION COLLEGE
PROPOSED SIGNAGE PLAN

DATE	SHEET NO.	DRAWING NO.	ISSUE
27.02.26	01 of 01	22781-CLP-001-01	A

Appendix C Traffic Survey Results

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

trafficsurvey.com.au

Intersection of High St Rd and Driveway, Wantirna Sout

GPS -37.876774, 145.196281

Date:	Tue 03/02/26
Weather:	Fine
Suburban:	Wantirna South
Customer:	Ratio

North:	Driveway
East:	High St Rd
South:	N/A
West:	High St Rd

Survey	AM:	7:30 AM-9:30 AM
Period	PM:	2:30 PM-4:30 PM
Traffic	AM:	8:00 AM-9:00 AM
Peak	PM:	3:15 PM-4:15 PM

All Vehicles

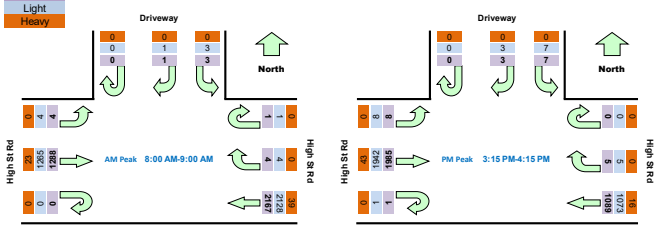
Time		North Approach Driveway			East Approach High St Rd			West Approach High St Rd			Hourly Total	
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	Hour	Peak
7:30	7:45	0	0	0	0	0	562	0	175	0	3253	
7:45	8:00	0	0	0	0	0	620	0	192	0	3427	
8:00	8:15	0	0	0	0	0	598	0	227	0	3468	Peak
8:15	8:30	0	0	0	0	0	564	0	315	0	3355	
8:30	8:45	0	0	2	0	2	477	0	428	2	3077	
8:45	9:00	0	1	1	1	2	528	0	318	2		
9:00	9:15	0	2	4	0	4	395	0	305	2		
9:15	9:30	0	4	4	0	5	332	0	253	3		
14:30	14:45	0	1	1	1	0	204	1	278	1	2524	
14:45	15:00	0	0	2	0	0	261	0	314	2	2839	
15:00	15:15	0	0	1	0	1	276	0	427	1	3092	
15:15	15:30	0	3	0	0	1	304	0	442	2	3098	Peak
15:30	15:45	0	0	2	0	1	292	1	504	2	3060	
15:45	16:00	0	0	2	0	1	264	0	562	3		
16:00	16:15	0	0	3	0	2	229	0	477	1		
16:15	16:30	0	0	1	0	2	227	2	480	2		

Peak Time		North Approach Driveway			East Approach High St Rd			West Approach High St Rd			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
8:00	9:00	0	1	3	1	4	2167	0	1288	4	3468
15:15	16:15	0	3	7	0	5	1089	1	1985	8	3098

Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.

Graphic

Total
Light
Heavy



Light Vehicles

Time		North Approach Driveway			East Approach High St Rd			West Approach High St Rd		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
7:30	7:45	0	0	0	0	0	550	0	168	0
7:45	8:00	0	0	0	0	0	602	0	180	0
8:00	8:15	0	0	0	0	0	583	0	221	0
8:15	8:30	0	0	0	0	0	557	0	308	0
8:30	8:45	0	0	2	0	2	470	0	422	2
8:45	9:00	0	1	1	1	2	518	0	314	2
9:00	9:15	0	2	4	0	4	384	0	300	2
9:15	9:30	0	4	4	0	5	320	0	244	3
14:30	14:45	0	1	1	1	0	201	1	267	1
14:45	15:00	0	0	2	0	0	258	0	302	2
15:00	15:15	0	0	1	0	1	272	0	413	1
15:15	15:30	0	3	0	0	1	296	0	433	2
15:30	15:45	0	0	2	0	1	288	1	490	2
15:45	16:00	0	0	2	0	1	262	0	552	3
16:00	16:15	0	0	3	0	2	227	0	467	1
16:15	16:30	0	0	1	0	2	223	2	471	2

Peak Time		North Approach Driveway			East Approach High St Rd			West Approach High St Rd			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
8:00	9:00	0	1	3	1	4	2128	0	1265	4	3406
15:15	16:15	0	3	7	0	5	1073	1	1942	8	3039

Heavy Vehicles

Time		North Approach Driveway			East Approach High St Rd			West Approach High St Rd		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
7:30	7:45	0	0	0	0	0	12	0	7	0
7:45	8:00	0	0	0	0	0	18	0	12	0
8:00	8:15	0	0	0	0	0	15	0	6	0
8:15	8:30	0	0	0	0	0	7	0	7	0
8:30	8:45	0	0	0	0	0	7	0	6	0
8:45	9:00	0	0	0	0	0	10	0	4	0
9:00	9:15	0	0	0	0	0	11	0	5	0
9:15	9:30	0	0	0	0	0	12	0	9	0
14:30	14:45	0	0	0	0	0	3	0	11	0
14:45	15:00	0	0	0	0	0	3	0	12	0
15:00	15:15	0	0	0	0	0	4	0	14	0
15:15	15:30	0	0	0	0	0	8	0	9	0
15:30	15:45	0	0	0	0	0	4	0	14	0
15:45	16:00	0	0	0	0	0	2	0	10	0
16:00	16:15	0	0	0	0	0	2	0	10	0
16:15	16:30	0	0	0	0	0	4	0	9	0

Peak Time		North Approach Driveway			East Approach High St Rd			West Approach High St Rd			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
8:00	9:00	0	0	0	0	0	39	0	23	0	62
15:15	16:15	0	0	0	0	0	16	0	43	0	59

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

trafficsurvey.com.au

Intersection of High St Rd and Driveway, Wantirna Sout

GPS -37.876774, 145.196281

Date:	Tue 03/02/26
Weather:	Fine
Suburban:	Wantirna South
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All Vehicles

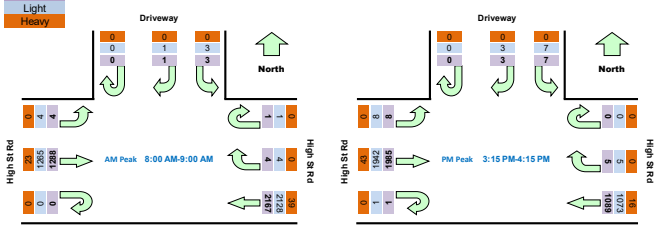
Time		North Approach Driveway			East Approach High St Rd			West Approach High St Rd			Hourly Total	
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	Hour	Peak
7:30	7:45	0	0	0	0	0	562	0	175	0	3253	
7:45	8:00	0	0	0	0	0	620	0	192	0	3427	
8:00	8:15	0	0	0	0	0	598	0	227	0	3468	Peak
8:15	8:30	0	0	0	0	0	564	0	315	0	3355	
8:30	8:45	0	0	2	0	2	477	0	428	2	3077	
8:45	9:00	0	1	1	1	2	528	0	318	2		
9:00	9:15	0	2	4	0	4	395	0	305	2		
9:15	9:30	0	4	4	0	5	332	0	253	3		
14:30	14:45	0	1	1	1	0	204	1	278	1	2524	
14:45	15:00	0	0	2	0	0	261	0	314	2	2839	
15:00	15:15	0	0	1	0	1	276	0	427	1	3092	
15:15	15:30	0	3	0	0	1	304	0	442	2	3098	Peak
15:30	15:45	0	0	2	0	1	292	1	504	2	3060	
15:45	16:00	0	0	2	0	1	264	0	562	3		
16:00	16:15	0	0	3	0	2	229	0	477	1		
16:15	16:30	0	0	1	0	2	227	2	480	2		

Peak Time		North Approach Driveway			East Approach High St Rd			West Approach High St Rd			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
8:00	9:00	0	1	3	1	4	2167	0	1288	4	3468
15:15	16:15	0	3	7	0	5	1089	1	1985	8	3098

Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.

Graphic

Total
Light
Heavy



Light Vehicles

Time		North Approach Driveway			East Approach High St Rd			West Approach High St Rd		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
7:30	7:45	0	0	0	0	0	550	0	168	0
7:45	8:00	0	0	0	0	0	602	0	180	0
8:00	8:15	0	0	0	0	0	583	0	221	0
8:15	8:30	0	0	0	0	0	557	0	308	0
8:30	8:45	0	0	2	0	2	470	0	422	2
8:45	9:00	0	1	1	1	2	518	0	314	2
9:00	9:15	0	2	4	0	4	384	0	300	2
9:15	9:30	0	4	4	0	5	320	0	244	3
14:30	14:45	0	1	1	1	0	201	1	267	1
14:45	15:00	0	0	2	0	0	258	0	302	2
15:00	15:15	0	0	1	0	1	272	0	413	1
15:15	15:30	0	3	0	0	1	296	0	433	2
15:30	15:45	0	0	2	0	1	288	1	490	2
15:45	16:00	0	0	2	0	1	262	0	552	3
16:00	16:15	0	0	3	0	2	227	0	467	1
16:15	16:30	0	0	1	0	2	223	2	471	2

Peak Time		North Approach Driveway			East Approach High St Rd			West Approach High St Rd			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
8:00	9:00	0	1	3	1	4	2128	0	1265	4	3406
15:15	16:15	0	3	7	0	5	1073	1	1942	8	3039

Heavy Vehicles

Time		North Approach Driveway			East Approach High St Rd			West Approach High St Rd		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
7:30	7:45	0	0	0	0	0	12	0	7	0
7:45	8:00	0	0	0	0	0	18	0	12	0
8:00	8:15	0	0	0	0	0	15	0	6	0
8:15	8:30	0	0	0	0	0	7	0	7	0
8:30	8:45	0	0	0	0	0	7	0	6	0
8:45	9:00	0	0	0	0	0	10	0	4	0
9:00	9:15	0	0	0	0	0	11	0	5	0
9:15	9:30	0	0	0	0	0	12	0	9	0
14:30	14:45	0	0	0	0	0	3	0	11	0
14:45	15:00	0	0	0	0	0	3	0	12	0
15:00	15:15	0	0	0	0	0	4	0	14	0
15:15	15:30	0	0	0	0	0	8	0	9	0
15:30	15:45	0	0	0	0	0	4	0	14	0
15:45	16:00	0	0	0	0	0	2	0	10	0
16:00	16:15	0	0	0	0	0	2	0	10	0
16:15	16:30	0	0	0	0	0	4	0	9	0

Peak Time		North Approach Driveway			East Approach High St Rd			West Approach High St Rd			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
8:00	9:00	0	0	0	0	0	39	0	23	0	62
15:15	16:15	0	0	0	0	0	16	0	43	0	59

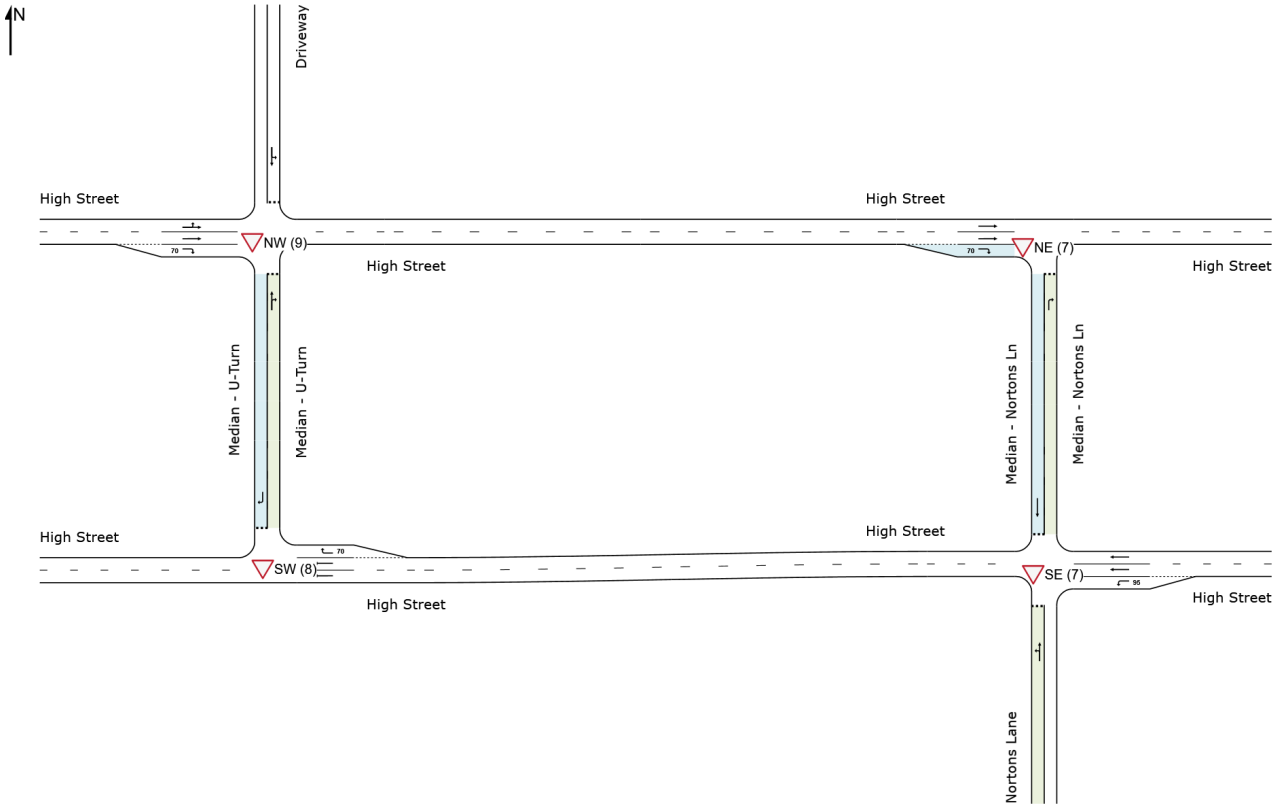
Appendix D SIDRA Modelling Results – Existing Intersection Operation

NETWORK LAYOUT

Network: [4] Existing AM - Feb 2026 (Existing Updated 03-02-2026)

New Network
Network Category: (None)

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



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
▽SE (7)	NA	High St WB / Nortons Ln - AM
▽NE (7)	NA	High St EB / Nortons Ln - AM
▽SW (8)	NA	High St WB/ U-Turn - AM
▽NW (9)	NA	High St EB / U-Turn - AM

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Organisation: RATIO CONSULTANTS PTY LTD | Licence: NETWORK / 1PC | Created: Monday, 2 March 2026 2:54:20 PM
Project: C:\Users\josh.grant\Ratio Consultants\22781T - 3 Nortons Lane, Wantirna South\Work\Analysis\SIDRA\22781T-SIDRA003.sipx

MOVEMENT SUMMARY

Site: [SE (7)] High St WB / Nortons Ln - AM (Existing Conditions AM 03-02-2026)

Network: [4] Existing AM - Feb 2026 (Existing Updated 03-02-2026)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

High St WB / Nortons Ln
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Nortons Lane															
1	L2	All MCs	5	0.0	5	0.0	0.138	14.4	LOS B	0.4	2.5	0.96	0.99	0.96	17.4
2	T1	All MCs	2	0.0	2	0.0	0.138	200.4	LOS F	0.4	2.5	0.96	0.99	0.96	17.4
Approach			7	0.0	7	0.0	0.138	67.6	LOS F	0.4	2.5	0.96	0.99	0.96	17.4
East: High Street															
3	L2	All MCs	9	0.0	9	0.0	0.005	6.9	LOS A	0.0	0.0	0.00	0.63	0.00	64.6
4	T1	All MCs	2281	1.8	2281	1.8	0.592	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	79.3
Approach			2291	1.8	2291	1.8	0.592	0.2	NA	0.0	0.0	0.00	0.00	0.00	79.2
North: Median - Nortons Ln															
5	T1	All MCs	9	0.0	9	0.0	0.541	285.6	LOS F	1.5	10.2	0.99	1.11	1.11	7.8
Approach			9	0.0	9	0.0	0.541	285.6	LOS F	1.5	10.2	0.99	1.11	1.11	7.8
All Vehicles			2307	1.8	2307	1.8	0.592	1.6	NA	1.5	10.2	0.01	0.01	0.01	75.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

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

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

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

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

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MOVEMENT SUMMARY

Site: [NE (7)] High St EB / Nortons Ln - AM (Existing Conditions AM 03-02-2026)

Network: [4] Existing AM - Feb 2026 (Existing Updated 03-02-2026)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

High St EB / Nortons Ln
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Median - Nortons Ln															
1	R2	All MCs	2	0.0	2	0.0	0.011	16.9	LOS C	0.0	0.2	0.85	0.83	0.85	35.1
Approach			2	0.0	2	0.0	0.011	16.9	LOS C	0.0	0.2	0.85	0.83	0.85	35.1
West: High Street															
2	T1	All MCs	1351	1.8	1351	1.8	0.350	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.7
3	R2	All MCs	9	0.0	9	0.0	0.006	8.1	LOS A	0.0	0.0	0.00	0.78	0.00	50.5
Approach			1360	1.8	1360	1.8	0.350	0.1	NA	0.0	0.0	0.00	0.01	0.00	79.6
All Vehicles			1362	1.8	1362	1.8	0.350	0.1	NA	0.0	0.2	0.00	0.01	0.00	79.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

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

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

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

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

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MOVEMENT SUMMARY

Site: [SW (8)] High St WB/ U-Turn - AM (Existing Conditions AM 03-02-2026)

Network: [4] Existing AM - Feb 2026 (Existing Updated 03-02-2026)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

High St WB / Nortons Ln
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

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. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: High Street															
4	T1	All MCs	2281	1.8	2281	1.8	0.592	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.3
6	R2	All MCs	5	0.0	5	0.0	0.003	5.7	LOS A	0.0	0.0	0.00	0.63	0.00	45.9
Approach			2286	1.8	2286	1.8	0.592	0.1	NA	0.0	0.0	0.00	0.00	0.00	79.2
North: Median - U-Turn															
9	R2	All MCs	1	0.0	1	0.0	0.080	212.9	LOS F	0.2	1.3	0.99	1.00	0.99	7.5
Approach			1	0.0	1	0.0	0.080	212.9	LOS F	0.2	1.3	0.99	1.00	0.99	7.5
All Vehicles			2287	1.8	2287	1.8	0.592	0.2	NA	0.2	1.3	0.00	0.00	0.00	79.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

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

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

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

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

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MOVEMENT SUMMARY

Site: [NW (9)] High St EB / U-Turn - AM (Existing Conditions AM 03-02-2026)

Network: [4] Existing AM - Feb 2026 (Existing Updated 03-02-2026)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

High St EB / U-Turn - AM
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Median - U-Turn															
2	T1	All MCs	4	0.0	4	0.0	0.030	21.5	LOS C	0.1	0.7	0.87	0.95	0.87	6.6
3	R2	All MCs	1	0.0	1	0.0	0.030	26.1	LOS D	0.1	0.7	0.87	0.95	0.87	2.4
Approach			5	0.0	5	0.0	0.030	22.5	LOS C	0.1	0.7	0.87	0.95	0.87	6.2
North: Driveway															
7	L2	All MCs	3	0.0	3	0.0	0.009	2.9	LOS A	0.0	0.2	0.67	0.52	0.67	8.0
5	T1	All MCs	1	0.0	1	0.0	0.009	18.4	LOS C	0.0	0.2	0.67	0.52	0.67	8.0
Approach			4	0.0	4	0.0	0.009	6.8	LOS A	0.0	0.2	0.67	0.52	0.67	8.0
West: High Street															
10	L2	All MCs	4	0.0	4	0.0	0.353	9.5	LOS A	0.0	0.0	0.00	0.01	0.00	42.5
11	T1	All MCs	1356	1.8	1356	1.8	0.353	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	69.7
12	R2	All MCs	1	0.0	1	0.0	0.001	6.3	LOS A	0.0	0.0	0.00	0.66	0.00	56.4
Approach			1361	1.8	1361	1.8	0.353	0.1	NA	0.0	0.0	0.00	0.00	0.00	69.5
All Vehicles			1371	1.8	1371	1.8	0.353	0.2	NA	0.1	0.7	0.01	0.01	0.01	68.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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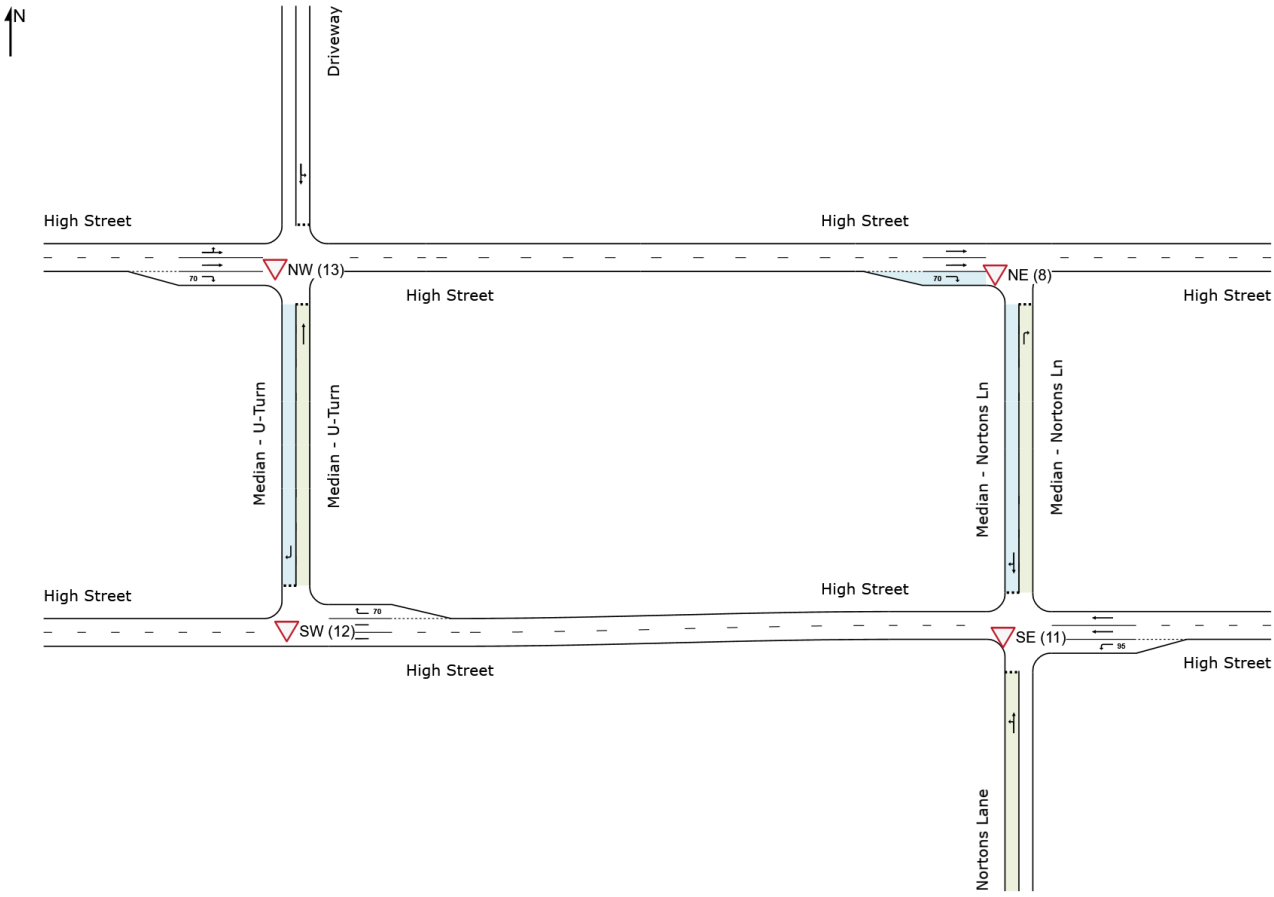
NETWORK LAYOUT

Network: [5] Existing PM - Feb 2026 (Existing Updated 03-02-2026)

New Network
Network Category: (None)

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



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
▽SE (11)	NA	High St WB / Nortons Ln - PM
▽NE (8)	NA	High St EB / Nortons Ln - PM
▽SW (12)	NA	High St WB/ U-Turn - PM
▽NW (13)	NA	High St EB / U-Turn - PM

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MOVEMENT SUMMARY

Site: [SE (11)] High St WB / Nortons Ln - PM (Existing Conditions PM 03-02-2026)

Network: [5] Existing PM - Feb 2026 (Existing Updated 03-02-2026)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

High St WB / Nortons Ln
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Nortons Lane															
1	L2	All MCs	5	0.0	5	0.0	0.030	7.0	LOS A	0.1	0.7	0.70	0.84	0.70	33.6
2	T1	All MCs	6	0.0	6	0.0	0.030	20.8	LOS C	0.1	0.7	0.70	0.84	0.70	33.6
Approach			12	0.0	12	0.0	0.030	14.5	LOS B	0.1	0.7	0.70	0.84	0.70	33.6
East: High Street															
3	L2	All MCs	4	0.0	4	0.0	0.002	6.9	LOS A	0.0	0.0	0.00	0.63	0.00	64.6
4	T1	All MCs	1194	1.6	1194	1.6	0.309	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.8
Approach			1198	1.6	1198	1.6	0.309	0.1	NA	0.0	0.0	0.00	0.00	0.00	79.7
North: Median - Nortons Ln															
5	T1	All MCs	3	0.0	3	0.0	0.018	13.1	LOS B	0.1	0.4	0.82	0.82	0.82	29.8
9U	R2	All MCs	1	0.0	1	0.0	0.018	19.7	LOS C	0.1	0.4	0.82	0.82	0.82	3.0
Approach			4	0.0	4	0.0	0.018	14.7	LOS B	0.1	0.4	0.82	0.82	0.82	26.8
All Vehicles			1214	1.6	1214	1.6	0.309	0.3	NA	0.1	0.7	0.01	0.01	0.01	78.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

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

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

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

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

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MOVEMENT SUMMARY

Site: [NE (8)] High St EB / Nortons Ln - PM (Existing Conditions PM 03-02-2026)

Network: [5] Existing PM - Feb 2026 (Existing Updated 03-02-2026)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

High St EB / Nortons Ln
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Median - Nortons Ln															
1	R2	All MCs	6	0.0	6	0.0	0.189	105.7	LOS F	0.5	3.5	0.98	1.00	1.00	13.9
Approach			6	0.0	6	0.0	0.189	105.7	LOS F	0.5	3.5	0.98	1.00	1.00	13.9
West: High Street															
2	T1	All MCs	2038	2.4	2038	2.4	0.531	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.5
3	R2	All MCs	3	0.0	3	0.0	0.002	8.1	LOS A	0.0	0.0	0.00	0.78	0.00	50.5
Approach			2041	2.4	2041	2.4	0.531	0.1	NA	0.0	0.0	0.00	0.00	0.00	79.4
All Vehicles			2047	2.4	2047	2.4	0.531	0.4	NA	0.5	3.5	0.00	0.00	0.00	78.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

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

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

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

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

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MOVEMENT SUMMARY

Site: [SW (12)] High St WB/ U-Turn - PM (Existing Conditions PM 03-02-2026)

Network: [5] Existing PM - Feb 2026 (Existing Updated 03-02-2026)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

High St WB / Nortons Ln
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

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. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: High Street															
4	T1	All MCs	1196	1.6	1196	1.6	0.310	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.8
6	R2	All MCs	4	0.0	4	0.0	0.002	5.7	LOS A	0.0	0.0	0.00	0.63	0.00	45.9
Approach			1200	1.6	1200	1.6	0.310	0.1	NA	0.0	0.0	0.00	0.00	0.00	79.7
North: Median - U-Turn															
9	R2	All MCs	4	0.0	4	0.0	0.016	14.2	LOS B	0.1	0.4	0.80	0.88	0.80	36.2
Approach			4	0.0	4	0.0	0.016	14.2	LOS B	0.1	0.4	0.80	0.88	0.80	36.2
All Vehicles			1204	1.6	1204	1.6	0.310	0.1	NA	0.1	0.4	0.00	0.01	0.00	79.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

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

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

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

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

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MOVEMENT SUMMARY

Site: [NW (13)] High St EB / U-Turn - PM (Existing Conditions PM 03-02-2026)

Network: [5] Existing PM - Feb 2026 (Existing Updated 03-02-2026)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

High St EB / U-Turn - AM
Site Category: (None)
Give-Way (Two-Way)
Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Median - U-Turn															
2	T1	All MCs	4	0.0	4	0.0	0.117	97.9	LOS F	0.3	2.2	0.98	0.99	0.98	3.1
Approach			4	0.0	4	0.0	0.117	97.9	LOS F	0.3	2.2	0.98	0.99	0.98	3.1
North: Driveway															
7	L2	All MCs	5	0.0	5	0.0	0.099	6.9	LOS A	0.3	1.9	0.94	0.94	0.94	4.9
5	T1	All MCs	3	0.0	3	0.0	0.099	95.5	LOS F	0.3	1.9	0.94	0.94	0.94	4.9
Approach			8	0.0	8	0.0	0.099	40.1	LOS E	0.3	1.9	0.94	0.94	0.94	4.9
West: High Street															
10	L2	All MCs	8	0.0	8	0.0	0.533	9.6	LOS A	0.0	0.0	0.00	0.01	0.00	42.3
11	T1	All MCs	2037	2.4	2037	2.4	0.533	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	69.4
12	R2	All MCs	1	0.0	1	0.0	0.001	6.3	LOS A	0.0	0.0	0.00	0.66	0.00	56.4
Approach			2046	2.4	2046	2.4	0.533	0.2	NA	0.0	0.0	0.00	0.01	0.00	69.1
All Vehicles			2059	2.4	2059	2.4	0.533	0.6	NA	0.3	2.2	0.01	0.01	0.01	67.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

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

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

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

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

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Project: C:\Users\josh.grant\Ratio Consultants\22781T - 3 Nortons Lane, Wantirna South\Work\Analysis\SIDRA\22781T-SIDRA003.sipx

Appendix E Representative Bicycle Parking Specifications

CORA BIKE RACK

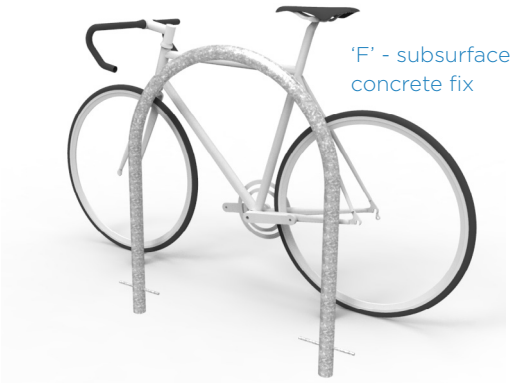
PRODUCT SPECIFICATION SHEET

CBR SERIES

CBR2'B' AND CBR2'F' BIKE RACKS

The Cora CBR Series offer a wide range of attractive bike rail designs that can be installed as single units or in clusters to accommodate 1 to 100's of bikes in an unlimited variety of configurations and in challenging spaces. CBR Series bike rails are designed to support the entire bike frame and each unit can accommodate up to 2 bikes, with 1 bike on each side.

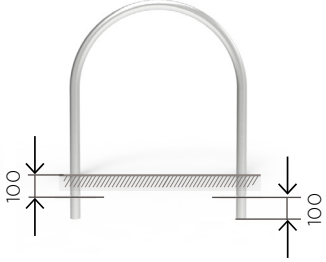
'B' - base plate with anchor bolts



'F' - subsurface concrete fix

CBR2 B

CBR2 F



Capacity

- Single side access - 1 bike
- Double sided access - 2 bikes

Construction

- Heavy duty high quality steel or 316 stainless steel
- 48.3 OD x 2.77 MD

Fixings

- 'B' 4x12mm x 75mm stainless steel anchor bolts with tamper resistant fasteners supplied. 150mm x 6mm round base plate
- 'F' Conctrete fix in-situ bike rail ends include spigots for a secure fix

Finishes

- Hot dipped galvanised.
- 316 stainless steel with electro-polish finish
- Colour powder coating

Assembly

- Supplied fully welded and assembled

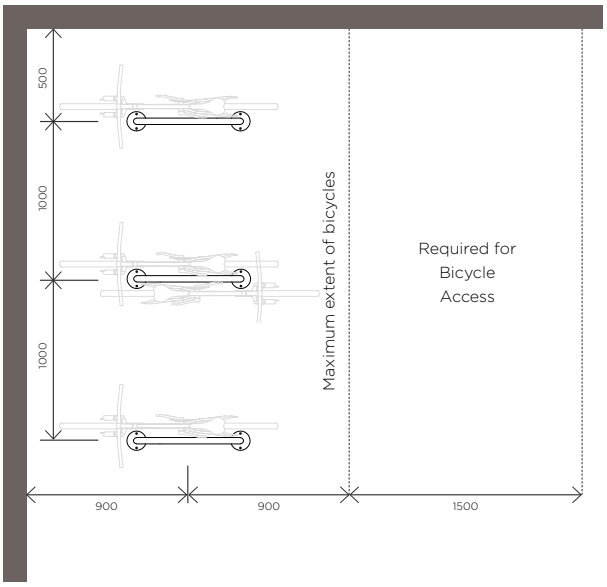
Compliance

- Rack is AS2890.3 (2015) compliant

CORA BIKE RACK

PRODUCT SPECIFICATION SHEET

Parallel Double Side



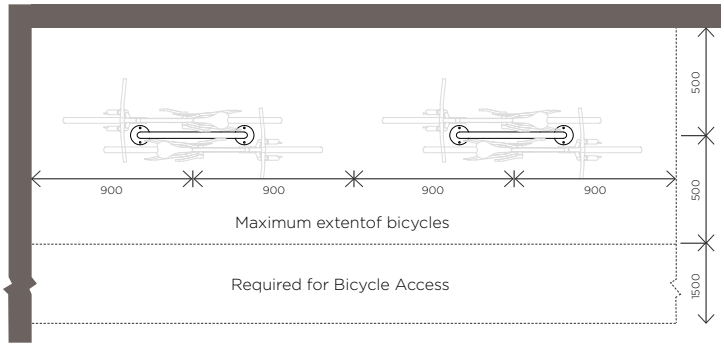
CBR LAYOUT GUIDE

To comply with AS2890.3 (2015) CBR Series racks should be mounted with the spacings shown.

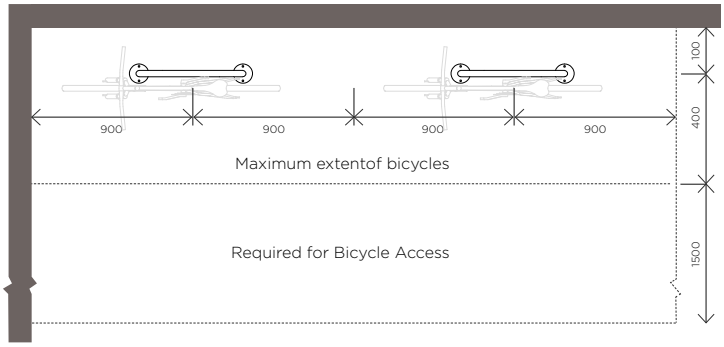
For specific assembly and installation instructions relating to CBR Series racks, please refer to individual instruction information sheets.

Racks should not be installed, based on the information on this sheet alone.

In- Line Double Side



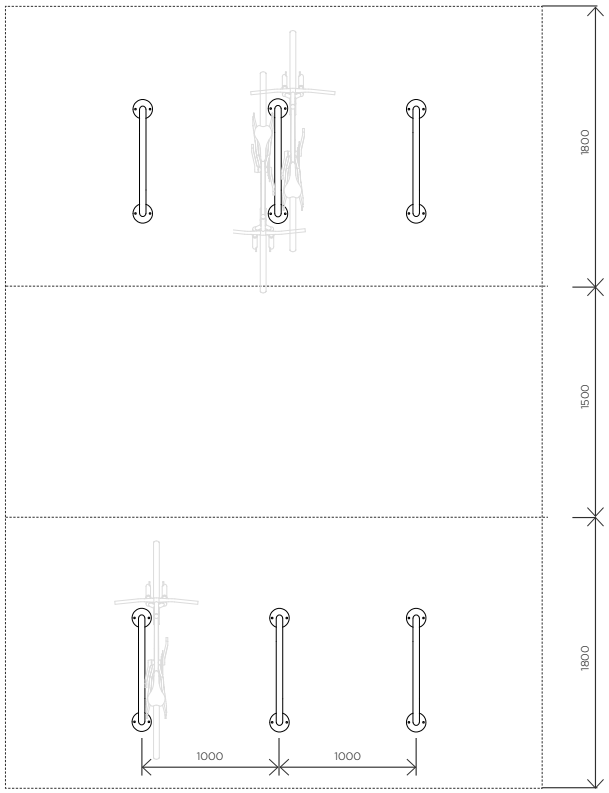
In- Line Single Side



CORA BIKE RACK

PRODUCT SPECIFICATION SHEET

Single Aisle Double Side



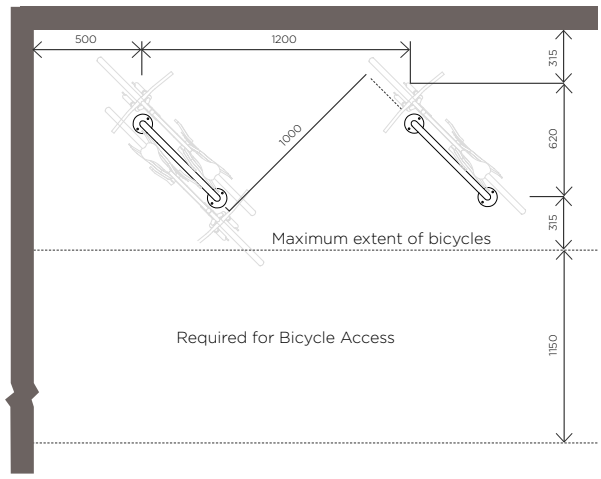
CBR LAYOUT GUIDE

To comply with AS2890.3 (2015) CBR Series racks should be mounted with the spacings shown.

For specific assembly and installation instructions relating to CBR Series racks, please refer to individual instruction information sheets.

Racks should not be installed, based on the information on this sheet alone.

Angle Double Side



ecospecifier global verified
find it on ecospecifier.com.au

greenstar

STANDARDS AUSTRALIA

Certified Product
Australian Standard

CORA BIKERACK

PH 1800 249 878

sales@cora.com.au

ww.cora.com.au

Rev 1.00 April 2018 ©

Appendix F Swept Path Assessment

NEW RETAINING WA

SPECIALIST ROOM ART

MULTI PURPOSE

SPECIALIST ROOM LIBRARY

STAFF ROOM 1

STAFF ROOM 2

STAGE 1
PORTABLE BUILDING
FL 81.300

COVERED DECKING

PROPOSED RAINWATER TANK 30,000L UNDER DECK

COMMS

STAFF ROOM 3

ADMIN

PREP

CLASSROOM 1

CLASSROOM2

OFFICE 1

OFFICE 2

KITCHEN

PROPOSED TIERED SEATING

PROPOSED TIERED SEATING

JUNIOR SOCCER PITCH (32m X 22.9m)

NEW RETAINING WALL / 2100 MM HIGH FENCE

PROPOSED GARDEN BED

EP

NORTO

78.2

78.0

77.8

77.6

77.4

77.2

77.0

NEW 2100 MM HIGH FENCE

BICYCLE PARKING
(10 NO.)

GR 3, 4, 5 AND 6
PLAYGROUND AREA

CONCRETE EDGING

EP

NEW 2100MM HIGH FENCE ON TOP OF RETAINING WALL

NEW RETAINING WALL / 2100 MM HIGH FENCE

PROPOSED GARDEN BED

PEDESTRIAN ACCESS

T.O.W. 84.0

BUS

28 27 26 25 24 23 22 21 20 19 18 17 16

12.5-metre-long Bus

12.5-metre-long Bus

PROPOSED INTERNAL ROADWAY & CARPARKING

12.5-metre-long Bus

VEHICLE ACCESS

SHARED

15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

BINS

SEPTIC TANKS

SEWER LINE

EPIT

T. PEG PLACED

NEW 2100 MM HIGH FENCE

6.10m EASEMENT OF WAY

130

2

0 3 6

C:\USERS\JACKSON.HAMILL-BEACH\RATIO CONSULTANTS\22781T - 3 NORTONS LANE, WANTIRNA SOUTH\DESIGN\DESIGN\SKETCH\22781T-SK001-D.DWG

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ratio:

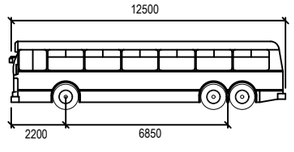
RATIO CONSULTANTS PTY LTD
ABN 005 422 104
LEVEL 5, 65 DOVER STREET
CREMORNE, VICTORIA 3121
TELEPHONE (03)9429 3111
FACSIMILE (03)9429 3011

BUS (AUSTROAD 2006)

VEHICLE ENVELOPE

500mm CLEARANCE

Width	:	2500
Track	:	2500
Lock to Lock Time	:	6.0
Steering Angle	:	36.6



Ascension College
3 Nortons Lane, Wantirna South
Swept Path Assessment

NOTE:
1) Base plan supplied by MSM & Associates Pty Ltd, Rev H, dated 25 February 2026
2) Maximum design speed - 5 km/h

RATIO REFERENCE	SHEET No.	PREPARED BY	SCALE	DATE
22781T-SK001-D	1 of 6	J.H.B	1:300 @A3	02/03/2026

NEW RETAINING WA

SPECIALIST ROOM ART

MULTI PURPOSE

SPECIALIST ROOM LIBRARY

STAFF ROOM 1

STAFF ROOM 2

STAGE 1
PORTABLE BUILDING
FL 81.300

COVERED DECKING

PROPOSED RAINWATER TANK 30,000L UNDER DECK

COMMS

STAFF ROOM 3

ADMIN

PREP

CLASSROOM 1

CLASSROOM2

OFFICE 1

OFFICE 2

KITCHEN

PROPOSED TIERED SEATING

JUNIOR SOCCER PITCH (32m X 22.9m)

NEW RETAINING WALL / 2100 MM HIGH FENCE

PROPOSED GARDEN BED

NORTO

EP

78.2

CONCRETE EDGING

NEW 2100 MM HIGH FENCE

BICYCLE PARKING (10 NO.)

GR 3, 4, 5 AND 6 PLAYGROUND AREA

NEW 2100MM HIGH FENCE ON TOP OF RETAINING WALL

PEDESTRIAN ACCESS

T.O.W. 84.0

SHARED

12.5-metre-long Bus

PROPOSED INTERNAL ROADWAY & CARPARKING

28 27 26 25 24 23 22 21 20 19 18 17 16

SIGN

VEHICLE ACCESS

BINS

SEPTIC TANKS

15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

SEWER LINE

EPIT

T. PEG PLACED

NEW 2100 MM HIGH FENCE

6.10m EASEMENT OF WAY

130

2

0 3 6

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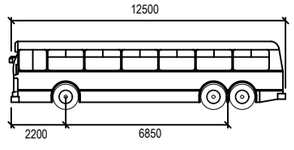
FACSIMILE (03)9429 3011

BUS (AUSTROAD 2006)

VEHICLE ENVELOPE

500mm CLEARANCE

Width	:	2500
Track	:	2500
Lock to Lock Time	:	6.0
Steering Angle	:	36.6



Ascension College
3 Nortons Lane, Wantirna South
Swept Path Assessment

NOTE:
1) Base plan supplied by MSM & Associates Pty Ltd, Rev H, dated 25 February 2026
2) Maximum design speed - 5 km/h

RATIO REFERENCE	SHEET No.	PREPARED BY	SCALE	DATE
22781T-SK001-D	2 of 6	J.H.B	1:300 @A3	02/03/2026

NEW RETAINING WA

SPECIALIST ROOM ART

MULTI PURPOSE

SPECIALIST ROOM LIBRARY

STAFF ROOM 1

STAFF ROOM 2

STAGE 1
PORTABLE BUILDING
FL 81.300

COVERED DECKING

PROPOSED RAINWATER TANK 30,000L UNDER DECK

ADMIN

COMMS

STAFF ROOM 3

PREP

CLASSROOM 1

CLASSROOM2

OFFICE 1

OFFICE 2

KITCHEN

PROPOSED TIERED SEATING

JUNIOR SOCCER PITCH (32m X 22.9m)

NEW RETAINING WALL / 2100 MM HIGH FENCE

PROPOSED GARDEN BED

NORTO

EP

78.2

78.0

77.8

CONCRETE EDGING

77.6

77.4

NEW 2100 MM HIGH FENCE

BICYCLE PARKING (10 NO.)

GR 3, 4, 5 AND 6 PLAYGROUND AREA

NEW 2100MM HIGH FENCE ON TOP OF RETAINING WALL

PEDESTRIAN ACCESS

77.0

T.O.W 84.0

28 27 26 25 24 23 22 21 20 19 18 17 16

PROPOSED INTERNAL ROADWAY & CARPARKING

SIGN

VEHICLE ACCESS

76.8

76.6

SHARED

B99 Vehicle

B99 Vehicle

B99 Vehicle

BINS

SEPTIC TANKS

15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

SEWER LINE

EPIT

T. PEG PLACED

79.4 79.2 79.0 78.8 78.6 78.4 78.2 78.0 77.8 77.6 77.4 77.2 77.0 76.8 76.6 76.4

NEW 2100 MM HIGH FENCE

6.10m EASEMENT OF WAY

130

6.10m

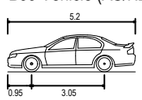
76.50 76.2 76.0 75.8 75.6

2

76.6 76.4 76.2 76.0 75.8 75.6

0 3 6

B99 Vehicle (AS/NZS2890.1:2004)



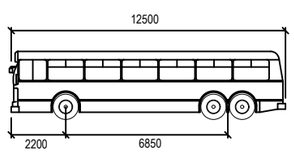
VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	2.200m
Min Body Ground Clearance	0.312m
Track Width	1.840m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	6.30m

BUS (AUSTROAD 2006)

VEHICLE ENVELOPE

500mm CLEARANCE



Width	:	2500
Track	:	2500
Lock to Lock Time	:	6.0
Steering Angle	:	36.6

ratio:
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Ascension College
3 Nortons Lane, Wantirna South
Swept Path Assessment

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2) Maximum design speed - 5 km/h

RATIO REFERENCE	SHEET No.	PREPARED BY	SCALE	DATE
22781T-SK001-D	3 of 6	J.H.B	1:300 @A3	02/03/2026

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NEW RETAINING WA

SPECIALIST ROOM ART

MULTI PURPOSE

SPECIALIST ROOM LIBRARY

STAFF ROOM 1

STAFF ROOM 2

STAGE 1
PORTABLE BUILDING
FL 81.300

COVERED DECKING

PROPOSED RAINWATER TANK 30,000L UNDER DECK

COMMS

STAFF ROOM 3

ADMIN

PREP

CLASSROOM 1

CLASSROOM2

OFFICE 1

OFFICE 2

KITCHEN

NEW 2100 MM HIGH FENCE

BICYCLE PARKING
(10 NO.)

GR 3, 4, 5 AND 6
PLAYGROUND AREA

PROPOSED TIERED SEATING

PROPOSED TIERED SEATING

JUNIOR SOCCER
PITCH (32m X 22.9m)

NEW RETAINING WALL / 2100 MM HIGH FENCE

NEW RETAINING WALL / 2100 MM HIGH FENCE

PROPOSED GARDEN BED

PROPOSED GARDEN BED

EP

NORTO

CONCRETE EDGING

EP

NEW 2100MM HIGH FENCE ON TOP OF RETAINING WALL

PEDESTRIAN ACCESS

8.8m Medium Rigid Vehicle

T.O.W. 84.0

BUS

28 27 26 25 24 23 22 21 20 19 18 17 16

PROPOSED GARDEN BED

SHARED

8.8m Medium Rigid Vehicle

PROPOSED INTERNAL ROADWAY & CARPARKING

8.8m Medium Rigid Vehicle

SIGN

VEHICLE ACCESS

BINS

SEPTIC TANKS

15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

SEWER LINE

EPIT

T. PEG PLACED

NEW 2100 MM HIGH FENCE

6.10m EASEMENT OF WAY

130

2

0 3 6

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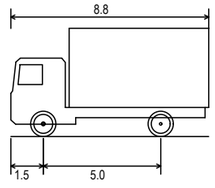
MRV - Medium Rigid Vehicle (AS/NZS2890.2:2002)



VEHICLE ENVELOPE (FORWARD)
500mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
500mm CLEARANCE (REVERSE)

Overall Length	8.800m
Overall Width	2.500m
Track Width	2.500m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	10.000m

Ascension College
3 Nortons Lane, Wantirna South
Swept Path Assessment

NOTE:
1) Base plan supplied by MSM & Associates Pty Ltd, Rev H, dated 25 February 2026
2) Maximum design speed - 5 km/h

RATIO REFERENCE	SHEET No.	PREPARED BY	SCALE	DATE
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NEW RETAINING WA

SPECIALIST ROOM ART

MULTI PURPOSE

SPECIALIST ROOM LIBRARY

STAFF ROOM 1

STAFF ROOM 2

STAGE 1
PORTABLE BUILDING
FL 81.300

COVERED DECKING

PROPOSED RAINWATER TANK 30,000L UNDER DECK

ADMIN

COMMS

STAFF ROOM 3

PREP

CLASSROOM 1

CLASSROOM2

OFFICE 1

OFFICE 2

KITCHEN

PROPOSED TIERED SEATING

JUNIOR SOCCER PITCH (32m X 22.9m)

NEW RETAINING WALL / 2100 MM HIGH FENCE

PROPOSED GARDEN BED

NORTO

EP

78.2

78.0

77.8

77.6

CONCRETE EDGING

NEW 2100 MM HIGH FENCE

BICYCLE PARKING (10 NO.)

GR 3, 4, 5 AND 6 PLAYGROUND AREA

NEW 2100MM HIGH FENCE ON TOP OF RETAINING WALL

T.O.W. 84.0

BUS

28 27 26 25 24 23 22 21 20 19 18 17 16

PEDESTRIAN ACCESS

8.8m Medium Rigid Vehicle

8.8m Medium Rigid Vehicle

PROPOSED INTERNAL ROADWAY & CARPARKING

8.8m Medium Rigid Vehicle

SIGN

VEHICLE ACCESS

SHARED

BINS

SEPTIC TANKS

15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

SEWER LINE

EPIT

T. PEG PLACED

6.10m

NEW 2100 MM HIGH FENCE

6.10m EASEMENT OF WAY

130

2

0 3 6

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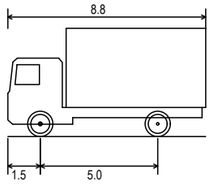
FACSIMILE (03)9429 3011

MRV - Medium Rigid Vehicle (AS/NZS2890.2:2002)



VEHICLE ENVELOPE (FORWARD)
500mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
500mm CLEARANCE (REVERSE)

Overall Length	8.800m
Overall Width	2.500m
Track Width	2.500m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	10.000m

Ascension College
3 Nortons Lane, Wantirna South
Swept Path Assessment

NOTE:
1) Base plan supplied by MSM & Associates Pty Ltd, Rev H, dated 25 February 2026
2) Maximum design speed - 5 km/h

RATIO REFERENCE	SHEET No.	PREPARED BY	SCALE	DATE
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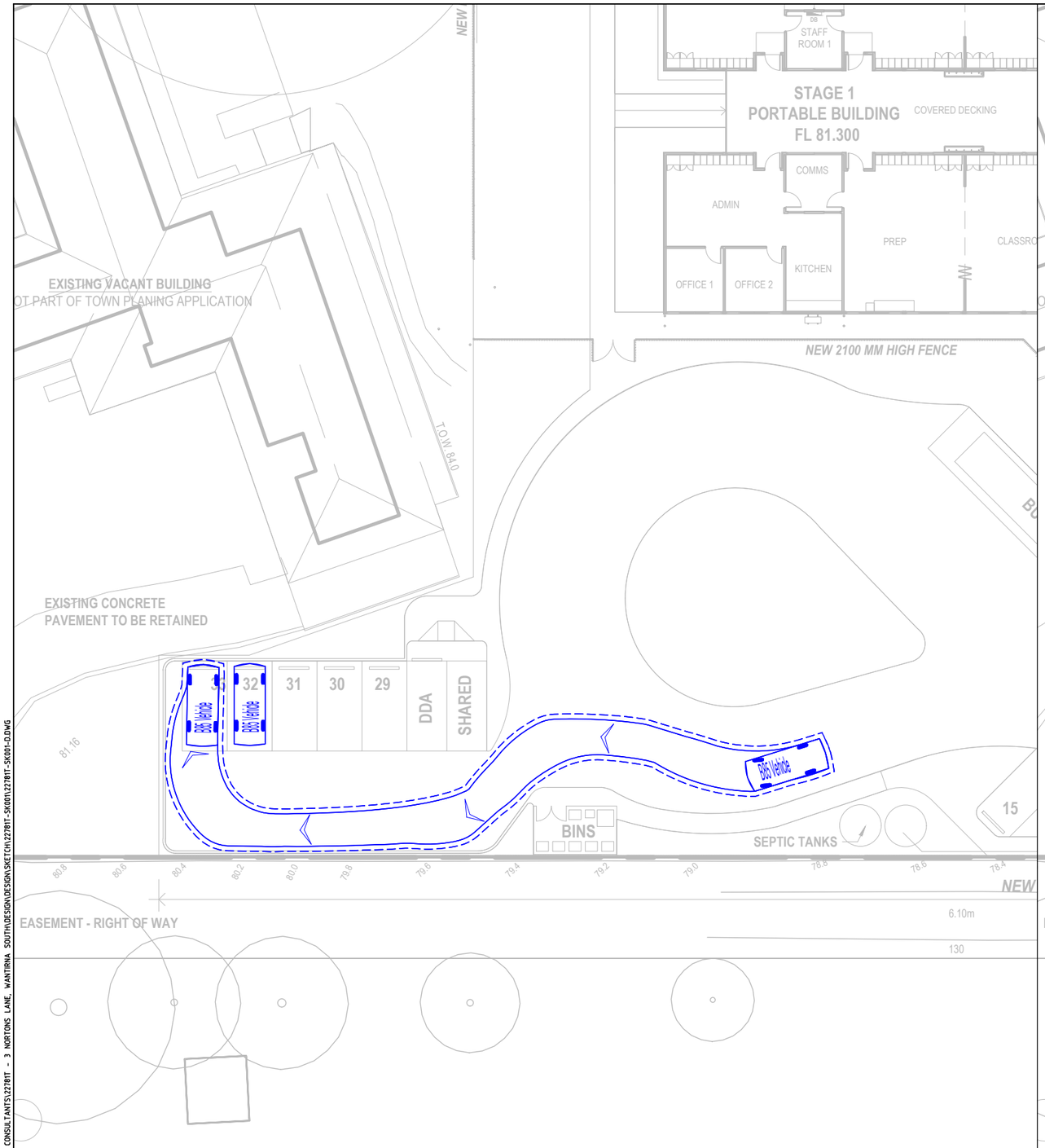

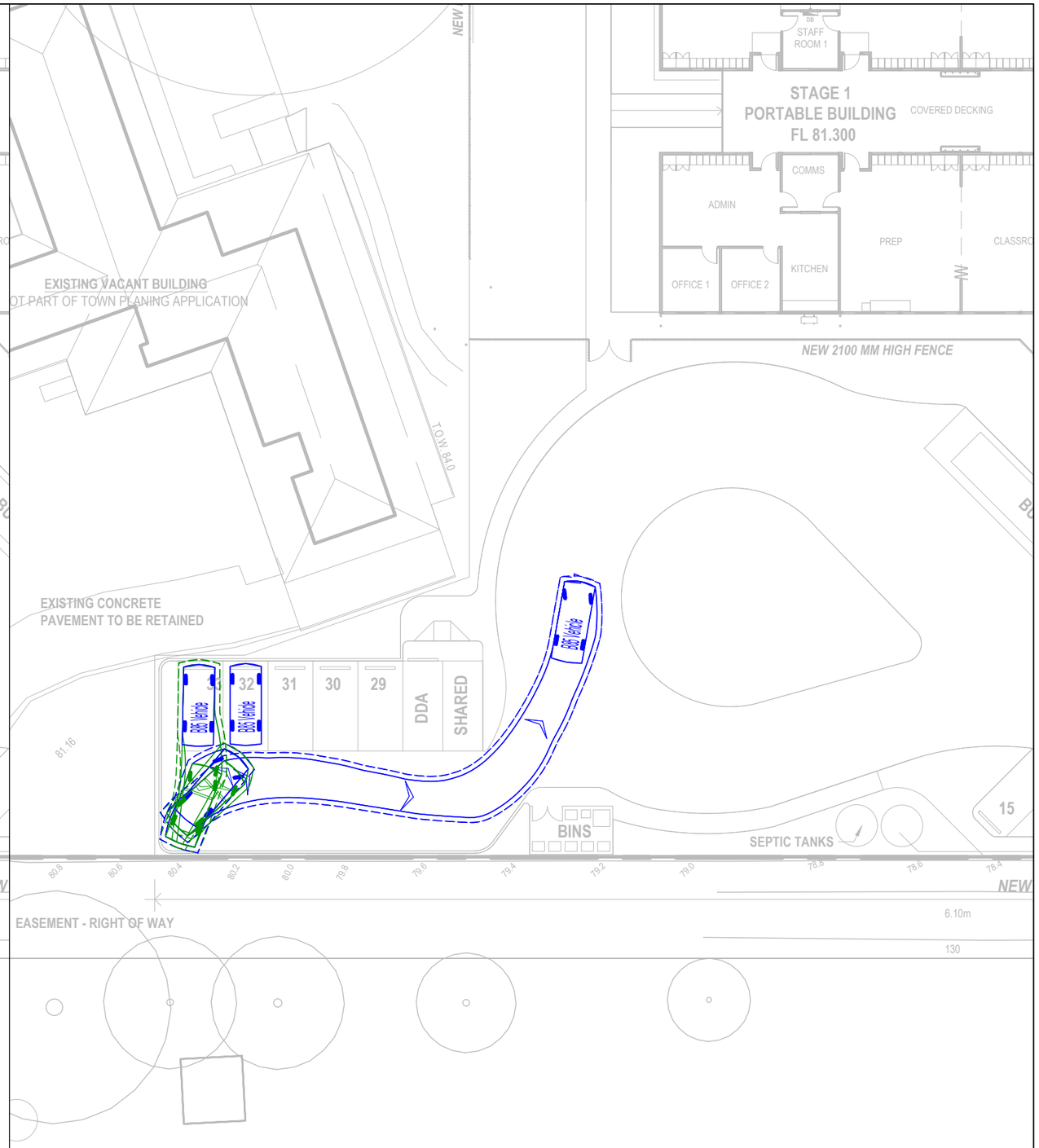

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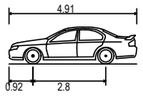
TELEPHONE (03)9429 3111
FACSIMILE (03)9429 3011

B85 Vehicle (AS/NZS2890.1:2004)



VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

Overall Length	4.910m
Overall Width	1.870m
Overall Body Height	1.421m
Min Body Ground Clearance	0.159m
Track Width	1.770m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	5.80m

Ascension College
3 Nortons Lane, Wantirna South
Swept Path Assessment

NOTE:
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RATIO REFERENCE	SHEET No.	PREPARED BY	SCALE	DATE
22781T-SK001-D	6 of 6	J.H.B	1:300 @A3	02/03/2026