Prepared for

FIFE STOCKLAND TRUST

Transport Assessment

State Significant Development Application

200 Aldington Road, Kemps Creek

Ref: 1294r02
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Revision History

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-	24/09/2020	Working Draft	R. Butler-Madden	R. Butler-Madden
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1 Introduction

1.1 Overview

Ason Group has been engaged by Fife Capital and Stockland (Fife Kemps Creek Trust) to prepare a Transport Assessment in relation to the State Significant Development for an industrial development at 200 Aldington Road, Kemps Creek (the Site).

The Site sits within (what has been termed) the Mamre Road Precinct (MRP), which has recently been rezoned for industrial land uses, with the Draft MRP Structure Plan being released in late 2019 and Development Control Plan (DCP) currently being developed.

The proposed development relates to a Concept Masterplan, providing for a total of 375,755m^2 of industrial Gross Floor Area (GFA). Detailed approval is also sought for an initial warehouse building (the Stage 1 Proposal). The SSD generally provides for:

- Concept Masterplan, including:
  - A total of 375,555m^2 of largely industrial GFA with supporting uses,
  - On-site parking for 1,700 cars and servicing areas,
  - 2 new access intersections onto Aldington Road.
- A Stage 1 Proposal (as per **Figure 1**) including:
  - A total of 50,930m^2 GFA, including:
    - 48,430m^2 warehouse floorspace; and
    - 2,500m^2 ancillary office floorspace; and
    - 231 car parking spaces.
  - Roadworks and access infrastructure.
  - Bulk earthworks including detention basins.

Full details are provided in the Environmental Impact Statement (EIS) which this TA accompanies.

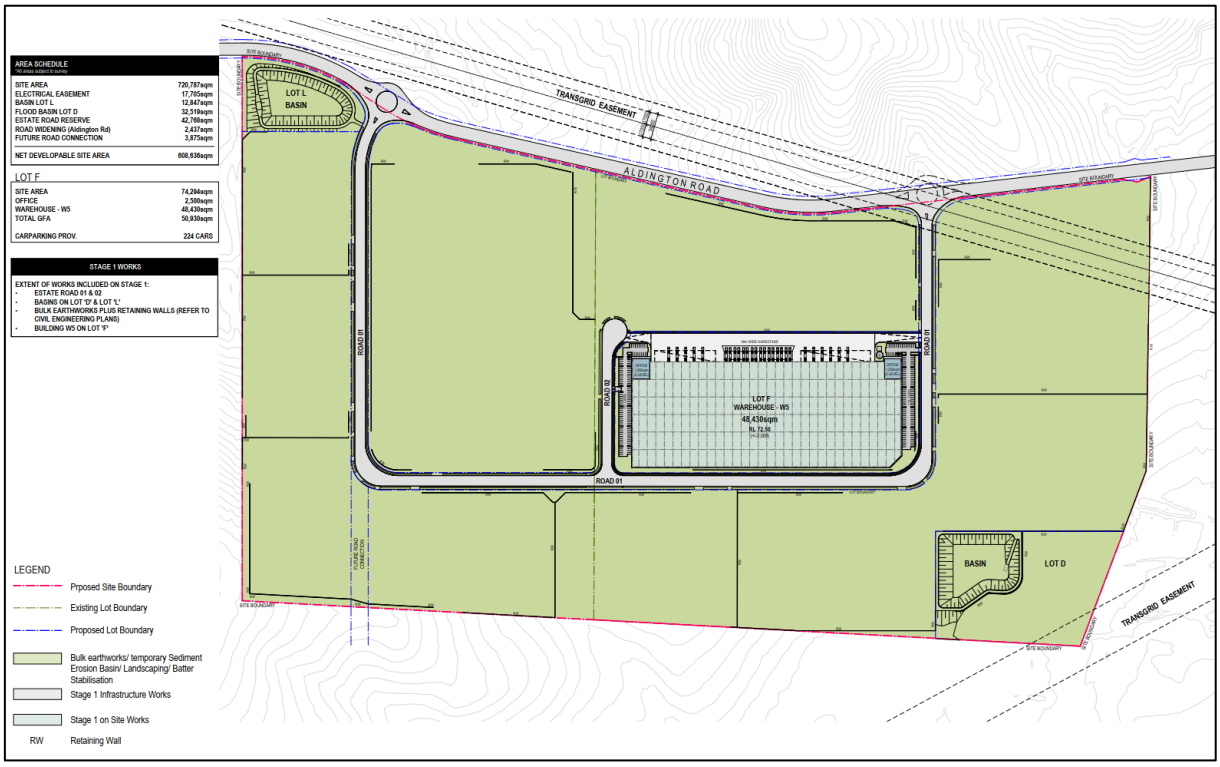


Figure 1: Stage 1 Proposal

Source: SBA Architects

1.2 Transport Assessment Objectives

The key objectives of this SSDA TA are as follows:

- To establish that the development of the Site further to the Stage 1 Proposal is compliant and consistent with the relevant access, traffic and parking requirements.
- To establish that the trip generation of the Stage 1 Proposal and the Estate can appropriately be accommodated by interim upgrades to the local road network.
- To demonstrate that there is an appropriate and sustainable provision of car parking across the Site.
- To demonstrate that the proposed access driveways, internal roads, car parks and service facilities can provide a design compliant with the relevant Australian Standards.
- To demonstrate that the construction of Stage 1 can be undertaken in an efficient and safe manner, and that construction vehicles can be appropriately accommodated by completed/committed upgrades to the local road network in the short term.

From the outset, it is critical to note that the background traffic modelling to support the rezoning of the MRP (to inform the MRP DCP) is currently being undertaken. Therefore, the information detailed in this report is based on the most up to date and relevant information currently publicly available.

Ason Group acknowledges the assistance provided by Transport for New South Wales (TfNSW) officers in providing updated information in regard to the MRP rezoning, and in regard to the current work being undertaken by TfNSW and others in regard to ongoing detailed planning of the MRP.

1.3 Secretary's Environmental Assessment Requirements

Secretary's Environmental Assessment Requirements (SEARs) were issued by the Department of Planning, Industry & Environmental (DPIE) in July 2020 regarding the Stage 1 Proposal and the broader Estate, and include both general DPIE SEARs and more specific TfNSW SEARs.

The DPIE SEARs relating to transport issues are outlined in **Table 1** below, while the TfNSW SEARs are outlined in **Table 2**; in both tables, Ason Group has provided a summary response to each SEAR, and reference to the section of this SSDA TA providing a more detailed analysis of each SEAR.

Table 1: Department of Planning, Industry & Environment SEARs

SEARs	TA Summary Response	Section
details of all traffic types and volumes likely to be generated during construction and operation, including a description of haul routes. Traffic flows are to be shown diagrammatically to a level of detail sufficient for easy interpretation	Operational traffic flows have been determined at the key intersections of Mamre Road & Bakers Lane and Mamre Road & Abbotts Road in clear figures. Construction traffic flows cannot be determined at this time; however, anticipated the anticipated construction vehicle mix, Site access provisions and potential haul routes have been clearly identified.	7, 8 Appendix D
an assessment of the predicted impacts of this traffic on road safety and the capacity of the road network, including consideration of cumulative traffic impacts at key intersections using SIDRA or similar traffic model. This is to include the identification and consideration of approved and proposed developments/planning proposals/road upgrades in the vicinity. The assessment needs to consider the impact on Aldington Road for the duration of the works because traffic growth in this area is expected to increase more quickly than standard growth rates	The operation of the key Mamre Road & Abbotts Road intersection has been examined in detail utilising the SIDRA model, with Mamre Road traffic flows adopted from the Mamre Road Upgrade technical reports. It is critical to note that the broader operation of the MRP (of which the Site lies) is currently being assessed as part of the development of a Precinct specific Development Control Plan, which will identify additional network requirements further to the development of the broader MRP.	8

detailing how the proposed development connects to adjoining sites to facilitate their future development for their intended purposes	As discussed above, TfNSW is currently developing a Mamre Precinct DCP, which includes detailed modelling of the MRP holistically, including the future road network structure and the development of sites across the MRP. The future connections between the Site and adjoining sites will be determined as part of this DCP process, though it is noted that the Proposal specifically provides for future connectivity between the intersection of Mamre Road & Southern Site Access Road and future sites to the east of the Site.	7, 8
plans demonstrating how all vehicles likely to be generated during construction and operation and awaiting loading, unloading or servicing can be accommodated on the site to avoid queuing in the street network	The plans have been assessed with reference to the appropriate Australian Standards to ensure that all loading, servicing and queuing can be accommodated on-site rather than generating on-street parking or queuing. It is anticipated that future Conditions of Consent will compliance with the relevant standards to ensure safe and efficient operation of each of the Lots with the Site.	10
detailed plans of the site access and proposed layout of the internal road and pedestrian network and parking on site in accordance with the relevant Australian Standards and Council's DCP	The plans have been assessed with reference to the appropriate Australian Standards to ensure that the design of internal roads, parking and servicing areas acre compliant. It is anticipated that a future Condition of Consent will necessarily ensure such compliance with the Australian Standards.	10
swept path diagrams depicting vehicles entering, exiting and manoeuvring throughout the site	Swept path plans have been prepared to illustrate heavy vehicle movements along the internal roads, as well as to and from the Stage 1 access driveways and on-site service areas. It is anticipated that a future Condition of Consent will necessarily ensure such compliance with the Australian Standards, and that such compliance would extend to all future road and access infrastructure within the Site.	10
details of road upgrades, infrastructure works or new roads or access points required for the development	A response in regard to the design of road upgrades, infrastructure works and new roads and access points has been prepared by AT&L, and is provided within the broader SSDA submission which this TA accompanies.	N/A
details of travel demand management measures to minimise the impact on general traffic and bus operations, including details of a location-specific sustainable travel plan (Green Travel Plan and specific Workplace travel plan) and the provision of facilities to increase the non-car mode share for travel to and from the site	The provision of public and access transport services and infrastructure has been specifically developed to provide integration with the public and active transport provisions detailed for the Mamre Road Upgrade. This includes the provision of bus capable roads, with the potential for internal routing further to the development of the broader MRP road network; and shared and pedestrian paths across the Site and connecting to Mamre Road and the future sub-regional active transport network. However, until such a time that the active and public transport network has been established, there is little benefit to developing a Draft Green Travel Plan. The Site has been designed to respond to changes in the transport system and measures to encourage non-car travel will be implemented at a time that is appropriate, in consultation with the tenants of the specific buildings.	6

details of the adequacy of existing public transport or any future public transport infrastructure within the vicinity of the site, pedestrian and bicycle networks and associated infrastructure to meet the likely future demand of the proposed development	Further to the above, there are no adequate public or active transport services or infrastructure in the vicinity of the Site at this time. However, the Stage 1 development provides for full integration with the future public and active provisions detailed for the Mamre Road Upgrade. These include the operation of local and sub-regional bus services providing connectivity to railway stations and other public transport interchanges; and shared paths along Mamre Road connecting to the future sub-regional shared (cycle) path network.	6
measures to integrate the development with the existing/future public transport network.	As discussed above, the Stage 1 Proposal provides for full integration with the future public and active provisions detailed for the Mamre Road Upgrade.	6

Table 2: Transport for NSW Comments

TFNSW Comment	TA Summary Response	Section
Details of all traffic types and volumes likely to be generated by the proposed development during construction and operation, including a description of haul route origins and destinations, including:	As above	7, 8
Daily inbound and outbound vehicle traffic profile by time of day and day of week (if travel patterns differ across the week);	Refer to Section 7.	7
Site and traffic management plan on how to manage number of vehicles likely to be generated during construction and operation and awaiting loading, unloading or servicing can be accommodated on the site to avoid queuing in the surrounding road network;	A Draft Construction Traffic Management Plan has been provided as Appendix D. It is anticipated that individual lots within the wider Site will be subject to Operational Traffic Management Plans, to be implemented via a suitable Condition of consent as part of Occupation Certificate Works.	Appendix D
Detailed plan of proposed layout of internal road network to demonstrate that the site will be able to accommodate the most productive vehicle types and parking on site in accordance with the relevant Australian Standard and Council's Development Control Plan;	As above, the plans have been assessed with reference to the appropriate Australian Standards to ensure that the design of internal roads, parking and servicing areas acre compliant. It is anticipated that a future Condition of Consent will necessarily ensure such compliance with the Australian Standards.	
Demonstrate compliance with the Western Sydney Employment Area State Environmental Planning Policy, Part 6; clause 33C; Development within the Mamre Road Precinct; specifically: i. integration with the Mamre Road Precinct dedicated freight network;	The Site layout has been designed with consideration to the future freight network so as not to impede any future dedicated network. Fife Kemps Creek Trust are a member of the Working Group, working with TfNSW on the future road network for the MRP and therefore would ensure that the Site would not impact on this Clause.	N/A
Swept path diagrams to demonstrate vehicles entering, exiting and manoeuvring throughout the site;	Appendix C	Appendix C

An assessment of the forecast impacts on traffic volume generated on road safety and capacity of road network including consideration of cumulative traffic impacts at key intersections using SIDRA or similar traffic model as prescribed by TfNSW (former Roads and Maritime). The traffic modelling should consider the scenarios of year 2026, 2031, 2036 and the year until the facility cease operation. These should include, but not be limited to: Mamre Road at Bakers Lane (Aldington Mamre Road at Abbotts Road.	The operation of the key Mamre Road & Abbotts Road intersection has been examined in detailed utilising the SIDRA model, with Mamre Road traffic flows adopted from the Mamre Road Upgrade technical reports for the forecast years of 2026 and 2031. It is critical to note that the broader operation of the MRP (of which the Site lies) is currently being assessed as part of the development of a Precinct specific Development Control Plan, which will identify additional network requirements further to the development of the broader MRP. Therefore, assessment past 2026 is not reliable at this stage, based on currently available information.	7, 8
An assessment of potential impact on load road pavement lifespan including: i. Aldington Road/ Bakers Lane/ Abbotts Road; and ii. Mamre Road.	The load pavement lifespan of the key roads is being considered as part of the broader background work being undertaken for the MRP.	N/A
To ensure that the above requirements are fully addressed, the traffic impact assessment must properly ascertain the cumulative study area traffic impacts associated with the development (and any other approved planning proposals and developments in the precinct and surrounds), including the impact on nearby intersections and the need/associated funding for upgrading or road improvement works (if required); and	As discussed, the broader operation of the MPP is currently being assessed as part of the development of a Precinct specific Development Control Plan, which will identify additional network requirements further to the development of the broader MR Precinct. As noted in the SEARs, the traffic modelling being undertaken by TfNSW as part of the DCP development process provides the opportunity to identify the broader package of traffic and transport infrastructure measures required to support future development across the MR Precinct. This modelling will specifically consider regional and local intersection and road improvements; vehicular access options for adjoining sites; public transport needs; the timing and cost of infrastructure works; and the identification of funding responsibilities associated with the provision of such infrastructure/services.	Section 5.3

1.4 Consultation

During the preparation of this SSDA TA, the key local transport issues have been discussed verbally with TfNSW officers. This has specifically included consideration of:

- Current investigations being undertaken by TfNSW and DPIE in regard to the rezoning of the broader MRP in which the Estate lies.
- An appropriate level of traffic modelling within the SSDA TA, acknowledging that TfNSW is currently commencing detailed modelling of the MRP, including future connections to the external road network; the internal MRP road network; and road network upgrades required to appropriately provide for the rezoning of the MRP.

Ason Group acknowledges the insights and advice provided by TfNSW officers in this regard.

1.5 Reference Documents

1.5.1 Penrith City Council Development Controls

The Site lies within the Penrith City Council Local Government Area (LGA); as such, Ason Group has referenced the following key Council controls in preparing this SSDA TA:

- Penrith City Council Local Environmental Plan 2010 (Penrith LEP).
- Penrith City Council Development Control Plan 2014 (Penrith DCP).

1.5.2 General Policies & Guidelines

Ason Group has referenced the following additional policies and guidelines relevant to the assessment of the Proposal:

- Roads and Maritime Services (Roads and Maritime) Guide to Traffic Generating Developments 2002 (RMS Guide).
- Roads and Maritime Guide to Traffic Generating Developments Updated Traffic Surveys, August 2013 (RMS Guide Update).
- Department of Planning & Environment (DPE) Western Sydney Aerotropolis Land Use and Infrastructure Implementation Plan Stage 1: Initial Precincts (WSA Stage 1 Plan).
- State Environmental Planning Policy (West Sydney Employment Area) 2009 (SEPP WSEA).
- DPE Mamre West Land Investigation Area Development Control Plan 2016 (Mamre West DCP).
- Australian Standard 2890.1: Parking Facilities – Off-Street Car Parking (AS 2890.1).
- Australian Standard 2890.2: Parking Facilities – Off-Street Commercial Vehicle Facilities (AS 2890.2).
- Australian Standard 2890.6: Parking Facilities – Off-Street Parking for People with a Disability (AS 2890.6).

1.5.3 Reference Reports

Finally, Ason Group has specifically referenced the most recent assessments available in regard to the recent rezoning of the MRP, including:

- NSW Government Mamre Road Precinct Rezoning Exhibition Discussion Paper, November 2019 (MRP Rezoning Paper).

- NSW Government Mamre Road Precinct Rezoning Finalisation Report, June 2020 (MRP Finalisation Report).
- Roads & Maritime Mamre Road Upgrades Kerrs Road to M4 Motorway, November 2017 (MR Upgrade Report).
- Roads & Maritime Mamre Road Upgrade Community Consultation Report May 2019 (MR Upgrade CC Report).
- Numerous reports prepared by Ason Group and others for similar industrial development within the Mamre West, Kemps Creek and Erskine Park industrial precincts.

2 The Proposal

2.1 Overview

A detailed description of the SSD Proposal is included in the Environmental Impact Statement (EIS) which this TA accompanies. In summary, the application relates to the construction of an industrial estate with associated hardstand and parking. The following summarises key aspects of the Proposal:

- Concept Masterplan with an indicative total building area of 375,755m^2, comprising:
  - A total of 357,355m^2 industrial GFA,
  - A total of 18,200m^2 of ancillary office GFA and 200m^2 café GFA,
  - 13 individual development lots for warehouse buildings with associated hardstand areas;
  - Internal road layouts and road connections to Aldington Road;
  - Provision for 1700 car parking spaces; and
  - Associated site landscaping.
- A detailed Consent for site preparation, earthworks and infrastructure works (i.e. Stage 1 works) on the Site, including:
  - Demolition and clearing of all existing built form structures;
  - Drainage and infill of existing farm dams and any ground dewatering;
  - Clearing of all existing vegetation;
  - Construction of a warehouse building with a total of 50,930 sqm of GFA, including:
    - 48,430 sqm of warehouse GFA;
    - 2,500 sqm of ancillary office GFA;
    - 231 car parking spaces; and
    - associated landscaping
  - Bulk earthworks including ‘cut and fill’ to create flat development platforms for the warehouse buildings, and topsoiling and grassing / site stabilisation works;
  - Roadworks, access infrastructure and associated landscaping;
  - Stormwater and drainage works including stormwater basins, diversion of stormwater lines, gross pollutant traps and associated swale works;
  - Sewer and potable water reticulation; and
  - Inter-allotment, road and boundary retaining walls.

The Concept masterplan (prepared by SBA Architects) is shown in **Figure 2**.

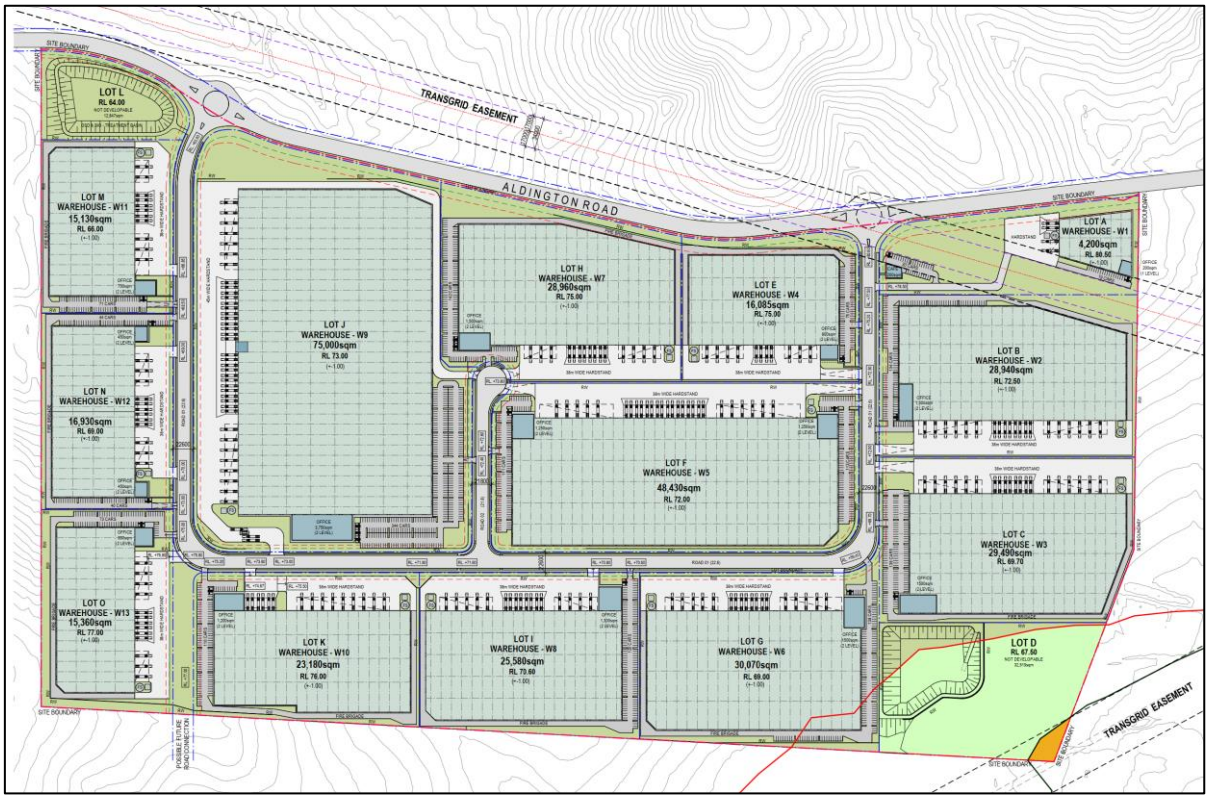


Figure 2: Proposed Concept Masterplan

3 The Existing Site

3.1 Location

The Site is comprised of 7 separate allotments with a total area of approximately 72 Hectares (ha). The Site is located approximately 5km north-west of the future Western Sydney International (Nancy-Bird Walton) Airport (WSA), 13km south-east of the Penrith CBD and 40km west of the Sydney CBD.

The Site is shown in its sub-regional context in **Figure 3**, as well as the broader MRP area in which it lies.

3.2 Current Site Land Usage

The Site currently provides for a number of rural residential properties, as well as for small scale agricultural industries businesses. The properties along the length of Aldington Road can be categorised on this manner.

3.3 Site Access

The Site has approximately 1.3km of direct frontage to Aldington Road, and at present provides numerous private driveways for access to adjacent sites. Aldington Road connects with Mamre Road by way of Abbots Road (to the South) and Bakers Lane to the North. From Mamre Road, access is available north to the M4 Motorway, Great Western Highway, Lenore Drive and M7 Motorway; and south to Elizabeth Drive, the M7 Motorway and the future M12 Motorway.

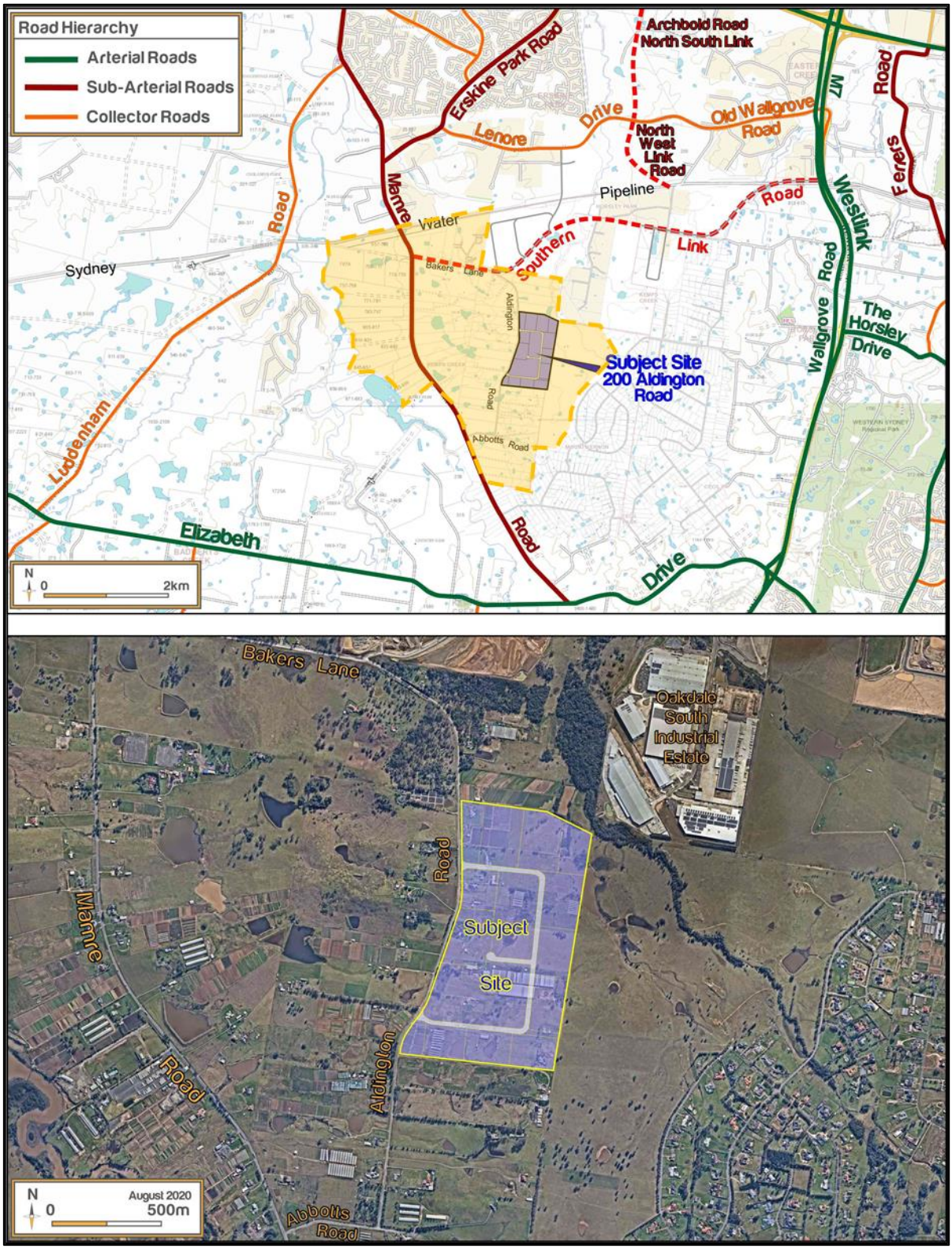


Figure 3: Site Location & Road Hierarchy

4 The Existing Road Network

4.1 Key Roads

The existing road network providing access to the Site is shown in Figure 3, and detailed further below.

4.1.1 Mamre Road

Mamre Road is an arterial road which runs north-south between the Great Western Highway and M4, and Elizabeth Drive respectively. In the vicinity of the Site, Mamre Road provides 1 traffic lane in each direction, and has a posted speed limit of 80km/h.

4.1.2 Erskine Park Road

Erskine Park Road is a sub-arterial road which generally runs north-south between the Great Western Highway and M4, and Mamre Road respectively; it also links east to the M7 via Lenore Drive. Erskine Park Road provides 2 traffic lanes in each direction, and has a posted speed limit of 70km/h.

4.1.3 Bakers Lane

Bakers Lane is a local access that runs east-west (to the east of Mamre Road) and currently provides access for a number of rural residential, educational and retirement sites. Bakers Lane provides 1 traffic lane in each direction and has a posted speed limit of 60km/h, with School Zone restrictions (40km/h during school peaks) adjacent to the Trinity Primary School and Emmaus College.

4.1.4 Elizabeth Drive

Elizabeth Drive is a sub-arterial road that runs east-west between Hume Highway and M7, and Mamre Road and The Northern Road respectively. In the vicinity of Mamre Road, Elizabeth Drive provides 1 - 2 traffic lanes in each direction, and has a posted speed limit of 80km/h.

4.2 Existing Traffic Flows

Ason Group conducted AM and PM peak period traffic surveys in Mamre Road south of Bakers Lane in 2018; based on the minimum number of traffic generating developments in the vicinity of the Site, these flows provide a good representation of current traffic flows in Mamre Road adjacent to the Site.

The results of the surveys, and the corresponding Level of Service (LoS) for the directional flows (based on RMS Level of Service criteria (as detailed in the RMS Guide) are shown in **Table 3**.

Table 3: 2018 Mamre Road Traffic Flows

Peak Period	Total Volumes	Directional Volumes	Level of Service
AM	1,391	NB: 782 vph	D
		SB: 609 vph	D
PM	1,541	NB: 678 vph	D
		SB: 863 vph	D

With reference to **Table 3**, Mamre Road is currently operating satisfactorily but with little spare capacity, an issue known to TfNSW and as such one of the key drivers of the proposed Mamre Road Upgrade (see also **Section 5.4**).

It is notable that the turning movements into and out of Abbotts Road and Bakers Lane from / to Mamre Road, relate largely to the small number of rural residential properties, as well as small scale agricultural industries businesses, along Aldington Road and therefore traffic flows along Aldington Road are currently not significant. The main traffic generation in this area, to the east of Mamre Road, relate largely to the existing School, located on Bakers Lane, north of Aldington Road.

5 Mamre Road Precinct Rezoning

5.1 Overview

In June 2020, the NSW Government released the MRP Finalisation Report addressing the rezoning of the MRP, and subsequently the rezoning was fast-tracked in response to current COVID-19 conditions.

As detailed in the MRP Finalisation Report, the rezoning:

- Responds to the demand for industrial land in Western Sydney, as well as the future freight, logistics and industrial needs of Greater Sydney
- Facilitates the NSW Government's vision for the Western Parkland City.
- Facilities the opportunities provided for a 30-minute city as detailed in the Western City District Plan recognises the opportunity to deliver a 30-minute city. The draft MRP rezoning package was exhibited between 20 November and 18 December 2019. The MRP has been rezoned under the State Environmental Planning Policy (Western Sydney Employment Area) 2009 (WSEA SEPP).

The rezoning is anticipated to provide approximately 850 hectares of industrial land with an approximate capacity of 17,000 jobs, and the creation of new environmental conservation areas and public open space.

The Mamre Road Precinct Structure Plan (the MRP Structure Plan) is shown in **Figure 4**.

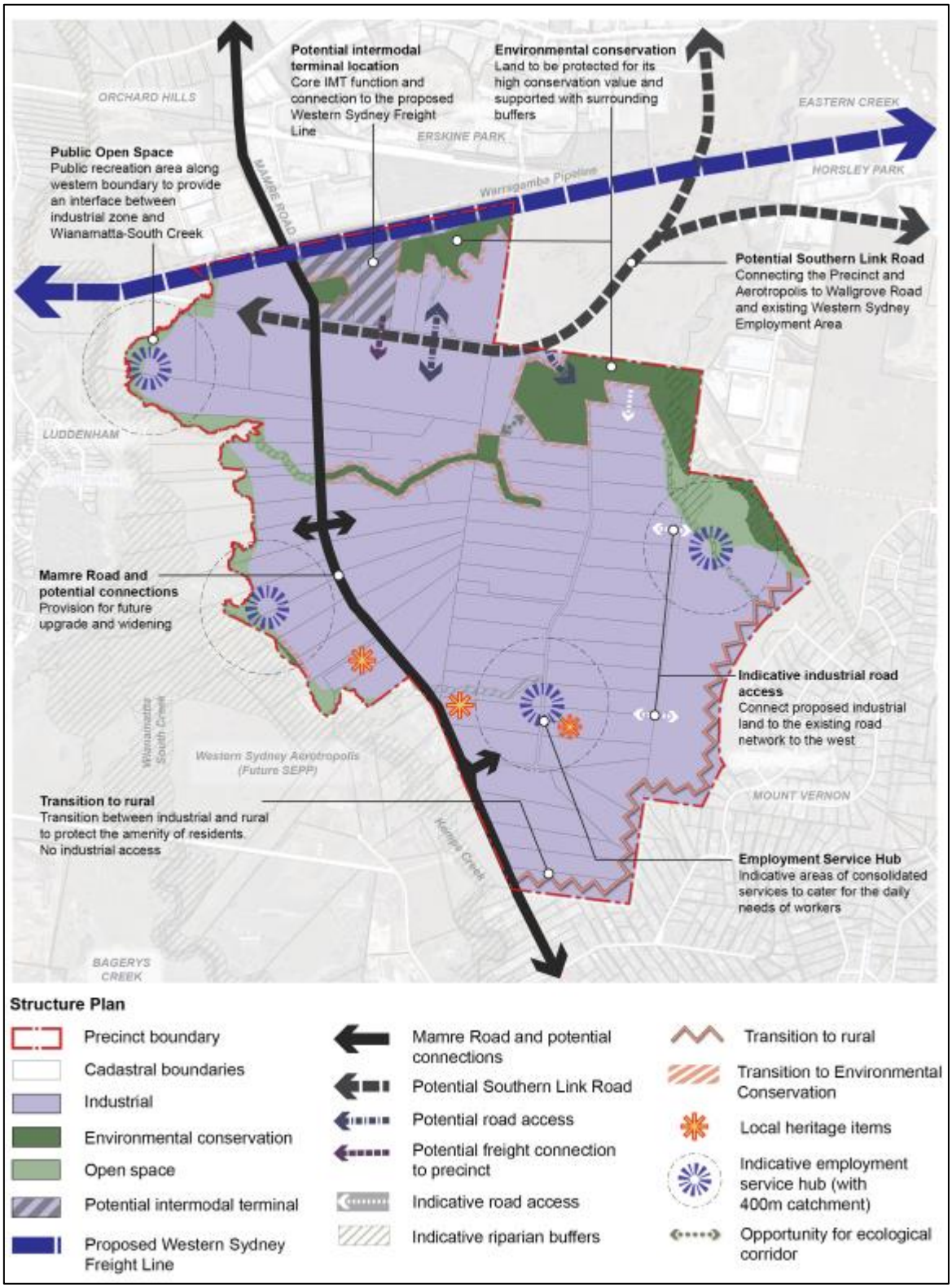


Figure 4: Mamre Road Precinct Structure Plan

Source: NSW Government

5.2 Strategic Context

5.2.1 Strategic Policies

The rezoning the MRP fits within the strategic development of the WSEA and Broader Western Sydney Employment Area (BWSEA); in the context of the MR Proposal, key planning policies and strategies relevant to the MRP rezoning include:

- **A Plan for Growing Sydney** sets out the State Government's strategies for accommodating Sydney's future population growth over the next 20 years; it provides goals, directions and actions that provide a framework for strengthening the global competitiveness of Sydney and delivering strong investment and jobs growth, particularly in Western Sydney.
- The **NSW Long Term Transport Master Plan** provides a framework for delivering an integrated, modern transport system by identifying transport actions and investment priorities across NSW for the next 20 years. Section 5.6 of the Long Term Transport Master Plan specifically identifies Mamre Road (from St Marys to Kemps Creek) as a corridor for future investigation.
- The **NSW Freight and Ports Plan** targets specific challenges associated with the forecast doubling of the NSW freight task by 2031. Providing a road network that minimises congestion will support economic growth and productivity and encourage regional development; in this context, the F&P Strategy identifies the need to develop and maintain capacity for freight on the road network, and of course the provision of additional Intermodal capacity, noting that a new Intermodal is identified in the MRP Rezoning Paper.
- The **NSW Road Safety Strategy 2012 - 2021** establishes the direction of road safety in NSW for 10 years from 2012, and specifically supports a targeted reduction in the annual number of fatalities and serious injuries by at least 30% by the end of 2021. The Safety Strategy places particular importance on the design of safe roads and roadsides and recognises that the ongoing development and upgrade of the NSW road network is essential to improving road safety; these goals will be integral to the development of the MRP road network.

5.2.2 Strategic Constraints & Opportunities

The MRP Rezoning Paper – drawing from the policies outlined above and the broader demands on an ever-growing Western Sydney – identifies the following key constraints within the region, and the opportunities provided by the Rezoning to respond to these constraints.

- **Industrial Land Shortfall:** There is a growing demand for industrial land in Western Sydney, the provision of such which is essential, so supply is maintained despite increasing take-up rates. The

most critical shortage at this time is an increasing warehouse and logistic demands to meet the existing and future e-commerce demand.

- **Freight and Logistics:** The WSEA is strategically located with proximity to key freight and logistic corridors including the M4 and M7 Motorways, and provides land and economies of scale that give Western Sydney's industrial land a comparative advantage over other parts of Sydney.
- **Intermodal Terminal:** As discussed, the NSW Freight and Ports Plan identifies moving an increasing percentage of goods by rail to international gateways, and TfNSW has identified an urgent need to plan for and protect intermodal capacity within the Aerotropolis. The Aerotropolis LUIIP specifically identifies the MRP as a potential Intermodal location from a freight and logistics perspective.
- **Western Sydney Airport:** Further to the above, the need for land focused on freight and logistics will be further increased once the Western Sydney Airport becomes operational. The Aerotropolis LUIIP again identifies the MRP as providing warehousing and logistics uses to support the development of the Western Sydney Airport (and broader Aerotropolis).
- **Western Parkland City:** The Western City District Plan has as a key objective the delivery of a 30-minute city, where people can reach their nearest metropolitan and strategic centres within 30 minutes, seven days a week by public transport, which includes expansive industrial and urban services land. The development of land within the MRP will provide for Greater Sydney's long-term freight and logistics and industrial needs and is an opportunity to deliver jobs closer to people's homes quickly and contribute to the NSW economy.

5.3 Mamre Road Precinct Transport and Movement Outcomes

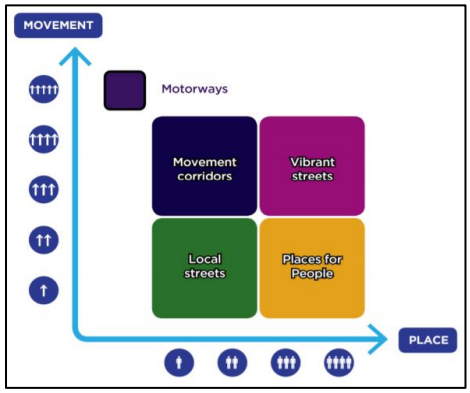
5.3.1 Overview

Achieving the vision and objectives for the MRP will be dependent on the development of a coherent MRP wide transport structure, which will necessarily be underpinned by a road network with appropriate capacity and augmented by strong public and active transport networks.

As discussed, TfNSW is currently in the process of more detailed investigations into the transport network infrastructure required for the rezoning of the MR Precinct, and specifically road network requirements. The TfNSW investigations include detailed traffic modelling of the MRP and its connectivity to the broader regional road network, a task which will also inform the MRP specific Development Control Plan (the Precinct DCP) also being prepared by TfNSW and DPIE.

5.3.2 Objectives

Noting that the development of the MRP will result in significant traffic demands, it is anticipated that the road network will be grounded in the core principles of integrated land use (for example, the opportunities to internalise vehicle movements generated by the future Intermodal) and the Movement and Place framework.



Adherence to these principles is anticipated to provide for the development of a MRP road network that provides:

- An interconnected, legible, urban-scale grid road pattern;
- Capacity to support demand;
- An understanding on the function of different roads, and indeed different parts of the same road, according to movement and place functions;
- Protection for sensitive land uses such as schools located along Bakers Lane;
- Maximum safety and efficiency through design;
- Well defined public transport links;
- A permeable network for pedestrian and cyclists; and
- Ultimately, the integration of all modes of travel across the road network.

5.3.3 Key Infrastructure

- **Mamre Road:** Mamre Road will provide the central north-west access corridor to/through the MR Precinct, with the MRP Rezoning Paper indicating an upgrade of Mamre Road (between the M4 Motorway and Kerrs Road) in line with that outlined in the Mamre Upgrade Report (see also **Section 5.4** below).
- The proposed WSEA SEPP amendments would zone the widened Mamre Road as SP2 Infrastructure (Classified Road).
- **Southern Link Road:** The Southern Link Road is a proposed east-west link from Wallgrove Road to Mamre Road, connecting the MRP to the existing WSEA lands (Oakdale, Eastern Creek etc).

- TfNSW is currently finalising a concept design for the Southern Link Road, which along with an assessment of environmental opportunities and constraints analysis, will also investigate the potential for a further extension to the west (of Mamre Road).
- **Future Internal Roads:** As previously discussed, TfNSW has commenced detailed traffic modelling for the MRP, focusing on its external connections to the regional road network, and the internal road network within the MRP. This process is outlined in the MRP Rezoning Paper, which states:

  Future planning as part WSEA Road Network Strategy and planning for the Western Sydney Aerotropolis will identify additional regional transport connections to the precinct. This planning is to include modelling to estimate the traffic generation and distribution of trips to and from the future Western Sydney intermodal terminal.

  Local roads will need to be designed to accommodate heavy vehicles whilst ensuring that access to regional and sub-arterial roads is achieved in a controlled and efficient manner. The Department will continue work with RMS and Council to determine appropriate road hierarchy and ongoing maintenance of major roads within the precinct.

  Importantly again, the design of Stage 1 and the broader Estate provides for full integration with the future internal MRP road network, to specifically account for future road corridors and Site connections.
- **Active & Public Transport:** As discussed further in **Section 6.2** below, there is very little active transport infrastructure within the MRP at this time. The MRP Rezoning Paper cites ongoing discussions with local Councils and TfNSW to deliver a cycle network connecting the Precinct to existing urban areas, the future Aerotropolis and WSEA. In this regard, the primary active transport corridor is expected to be designed around Mamre Road itself, with the MR Upgrade proposing a shared path along its full length, and cycle paths branching along creek lines and into the central portions of the MR Precinct.

  It is noted that the MRP Rezoning Paper does not provide any commentary in regard to public transport; however, the MR Upgrade provides more certainty in this regard, as do broader regional public transport strategies. These public transport proposals and strategies are discussed in more detail in **Section 6**.

5.4 Mamre Road Upgrade

5.4.1 Overview

The MR Upgrade Report details the proposed MR Upgrade (the MR Upgrade) between the M4 Motorway and Kerrs Road (south of the Site, and north of Elizabeth Drive). The objectives of the MR Upgrade – which essentially mirror those of the broader MRP Rezoning Paper - are stated as:

- *Meeting the future transport demand associated with the Western Sydney Priority Growth Area and the Western Sydney Airport at Badgerys Creek;*
- *Reducing future road transport costs by improving corridor performance;*
- *Improving liveability and sustainability and support economic growth and productivity by providing road capacity for projected freight and general traffic volumes;*
- *Improving road safety in line with the NSW Road Safety Strategy;*
- *Improving quality of service, sustainability and liveability by providing facilities for walking and cycling and future public transport needs;*
- *Delivering good urban design outcomes; and*
- *Minimising environmental and community impacts.*

5.4.2 Mamre Road Upgrade Design Components

The MR Upgrade provides the following key infrastructure proposals:

- **A typical cross section** that includes:
  - 2 traffic lanes in each direction with a wide central median between the M4 Motorway and Kerrs Road;
  - Provisions for the central median to provide third traffic lane in each direction to meet growing demand; and
  - Shared bicycle and pedestrian paths to promote active transport.
- **New or upgraded intersections** including:
  - Signalised U-turn facilities at key intersections in the short term pending full development of the area (noting that one of the identified U-turn sites is the proposed location of the primary Site intersection);
  - A new signalised intersection with turn-around facility at Abbotts Road;
  - A new signalised intersection between Abbotts Road and Bakers Lane;
  - An upgrade of the signalised intersection at Bakers Lane, with provisions for U-turn and local access;
  - An upgrade of the signalised intersection at Erskine Park Road;

- An upgrade of the signalised intersection at James Erskine Drive, with provisions for future access to development on the western side of Mamre Road (a temporary arrangement is currently in place);
- Left in / left out access at Mandalong Close;
- Left in / left out access at McIntyre Avenue;
- A new signalised intersection at Luddenham Road;
- A new signalised intersection at Solander Drive; and
- An upgrade of the signalised intersection at Banks Drive.

The typical future Mamre Road cross-section is shown in **Figure 5** while the broader MR Upgrade proposal (per the MR Upgrade Report) is shown in **Figure 7.**

Figure 5: Mamre Road Upgrade Typical Cross Section

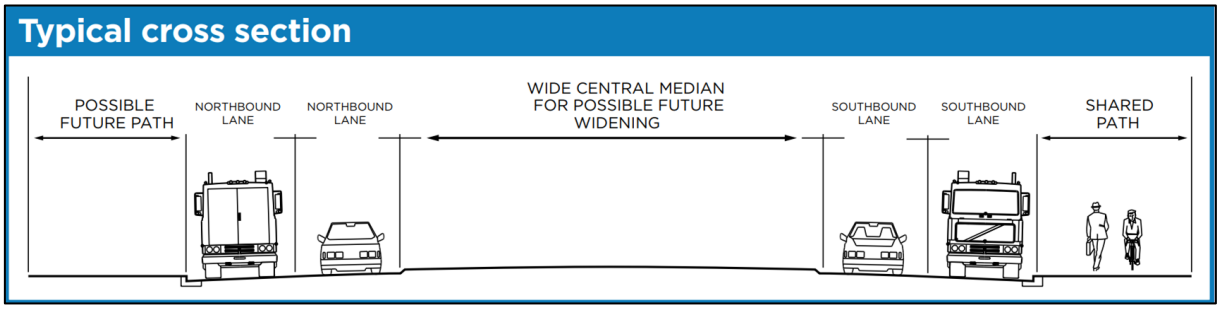


Figure 6: Mamre Road Upgrade Typical Cross Section

Source: Mamre Road Upgrade Report

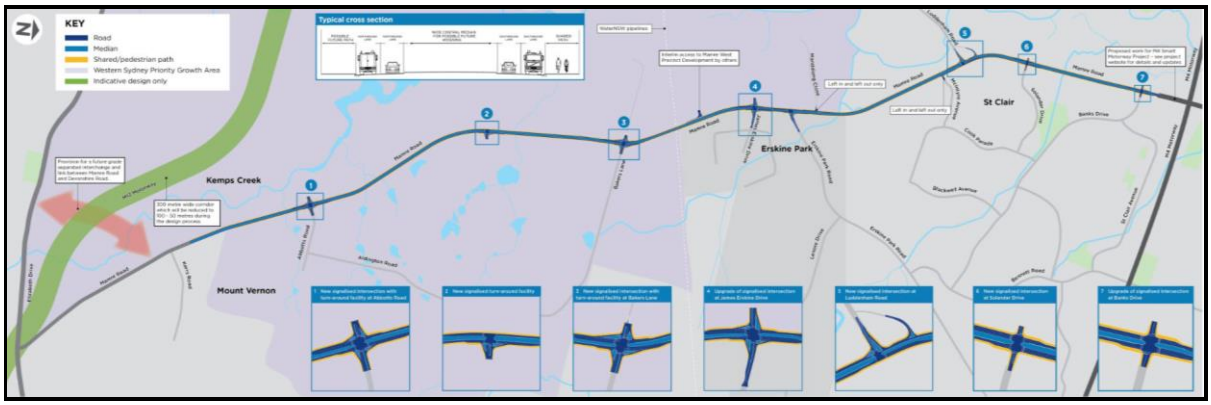


Figure 7: Mamre Road Upgrade

Source: Mamre Road Upgrade Report

5.4.3 Abbotts Road & Bakers Lane Intersection Upgrades

The MR Upgrade Report indicates future signalised intersections at the Abbotts Road and Bakers Lane intersections with Mamre Road. The intersection designs are reproduced in **Figure 8** and **Figure 9** below.

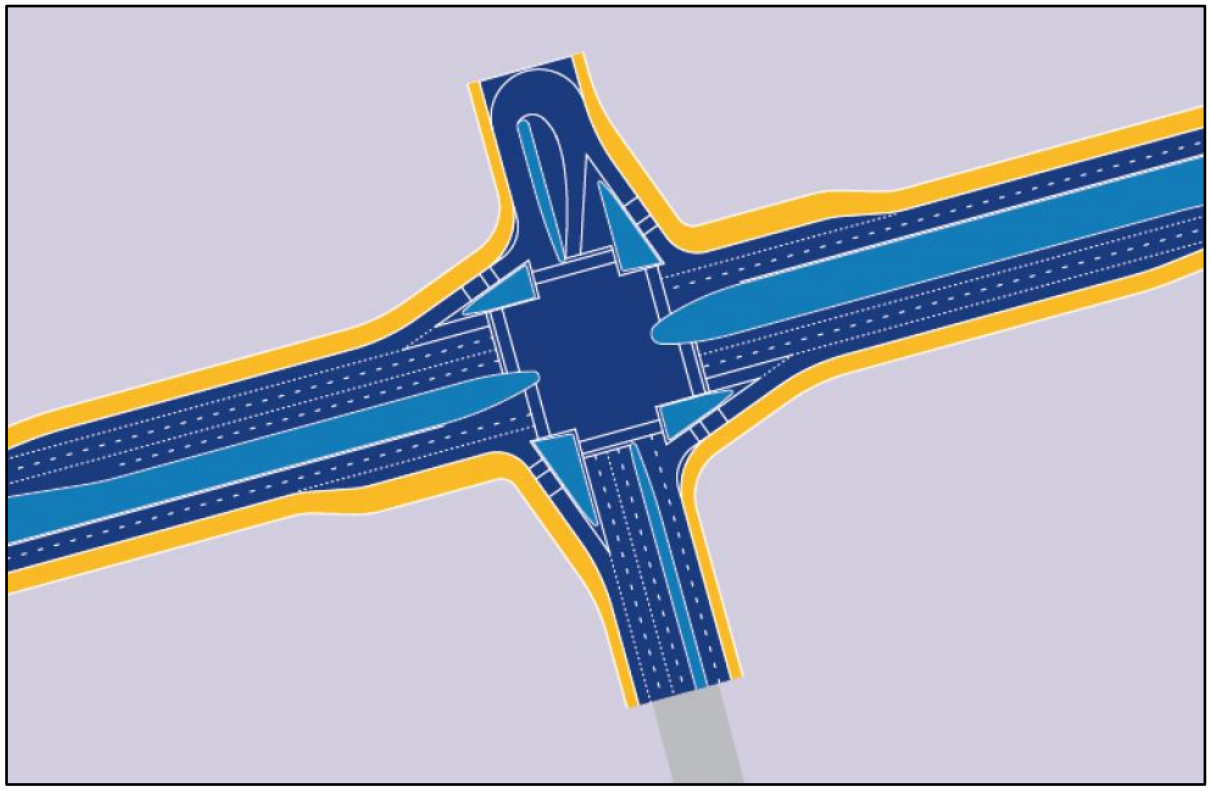


Figure 8: Abbotts Road / Mamre Road Intersection

Source: Mamre Road Upgrade Report

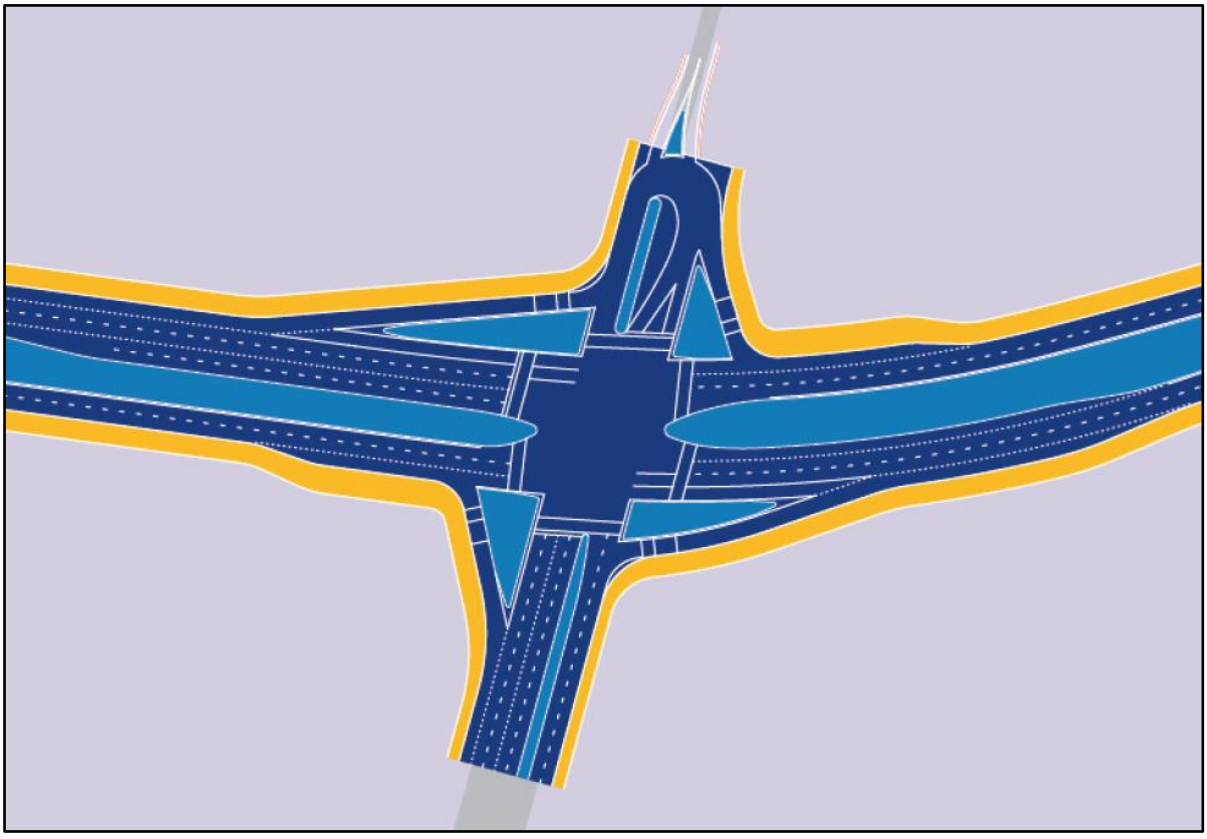


Figure 9: Abbotts Road / Mamre Road Intersection

Source: Mamre Road Upgrade Report

5.5 Mamre Road Precinct Rezoning Status

As discussed, the MRP has been recently rezoned, and based on our discussions with key authorities, it is anticipated that a Precinct DCP will be released in the near future which responds to the rezoning and provides governance for the future growth across the MR Precinct. Concurrently, the detailed traffic modelling of the MRP being undertaken by TfNSW will specifically determine:

- Sub-regional connections to the regional road network, with a specific focus on Mamre Road and Southern Link Road;
- The road network within the MRP to ensure efficient and equality of access to these sub-regional connectors;
- Road and intersection upgrade requirements and the timing of such in line with the staged development of the MR Precinct; and
- An appropriate apportionment of infrastructure costs.

6 Public & Active Transport Opportunities

6.1 Public Transport

It is evident that the Site is not directly serviced by public transport at this time (**Figure 10**); notwithstanding, opportunities for future connections have been identified, noting again that the MR Upgrade specifically provides for new bus stops along its entire route.

The planning of bus services in Sydney is governed by the *NSW Service Planning Guidelines,* which aim to establish Strategic Transport Corridors and a hierarchy of bus route types that:

- Link to regional centres (such as Penrith and Mt Druitt);
- Pass through patronage generators such as district centres, TAFE colleges, hospitals and universities;
- Connect with other transport modes (trains, ferries and other buses);
- Are multifunctional (serving journeys to work, education, shopping and recreation);
- Are direct and frequent; and
- Meet the network planning principles.

It is also the case that the establishment of public transport services as early as possible in the development stages of the MRP is important to achieve a culture of public transport use from the outset. To make public transport a viable choice in the study area, the services will ideally:

- Integrate with existing bus services in the area;
- Connect to regional centres of Penrith, Mt Druitt and Blacktown; and
- In the long term, connect to areas such as Leppington in the South West Growth Centre, Prairiewood and the Liverpool to Parramatta T-Way.

While the internal MRP road network will be finalised further to the outcomes of the TfNSW modelling, it is anticipated that internal roads – which would already provide greater width to accommodate heavy vehicle movements – would also therefore be bus capable. There are significant opportunities therefore to provide sub-regional services along Mamre Road, as well as services within the MRP itself to maximise the number of sites that lies within 400m of a viable bus service.

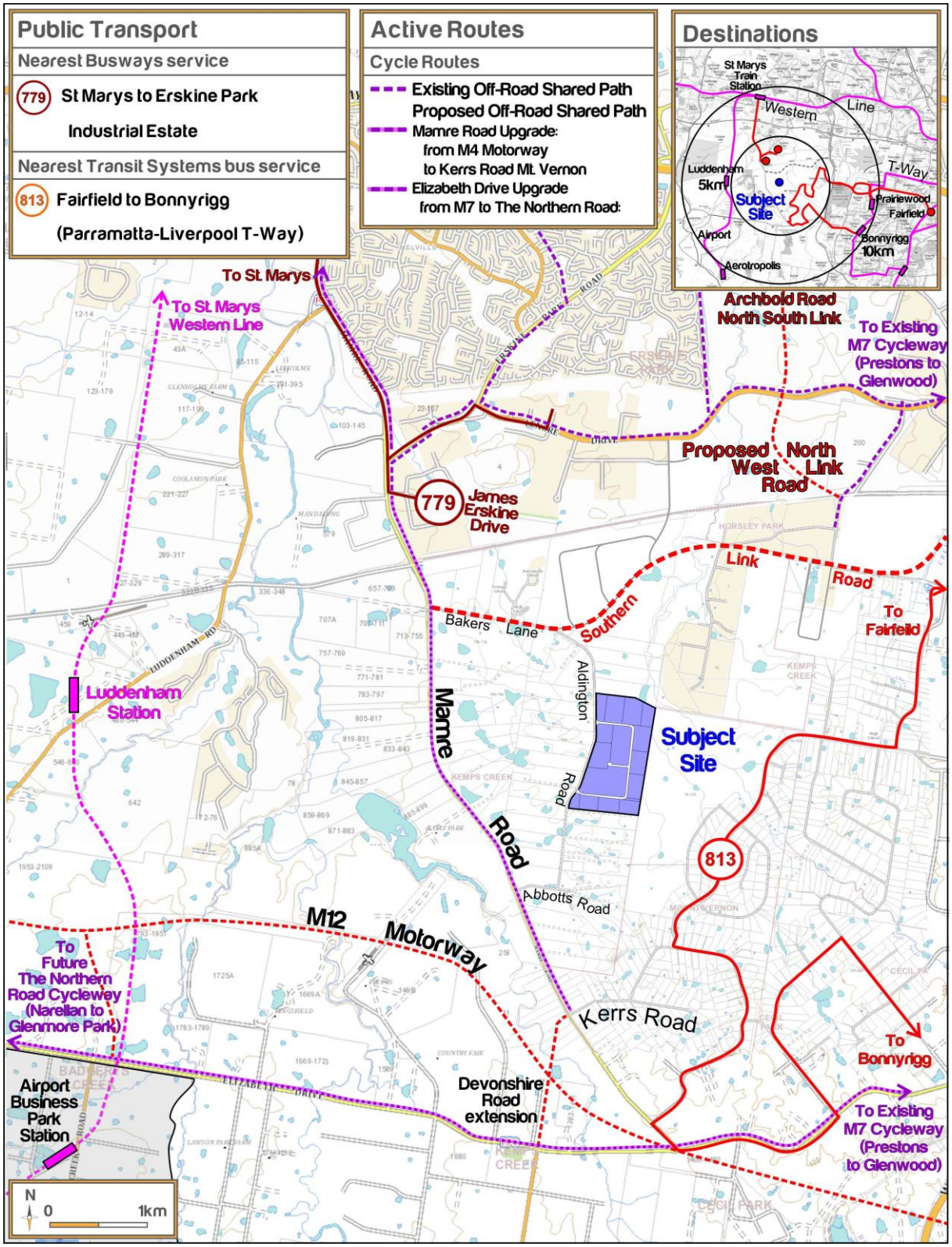


Figure 10: Public Transport Network

Key transit corridors identified in the BWSEA Structure Plan are shown in **Figure 11**.

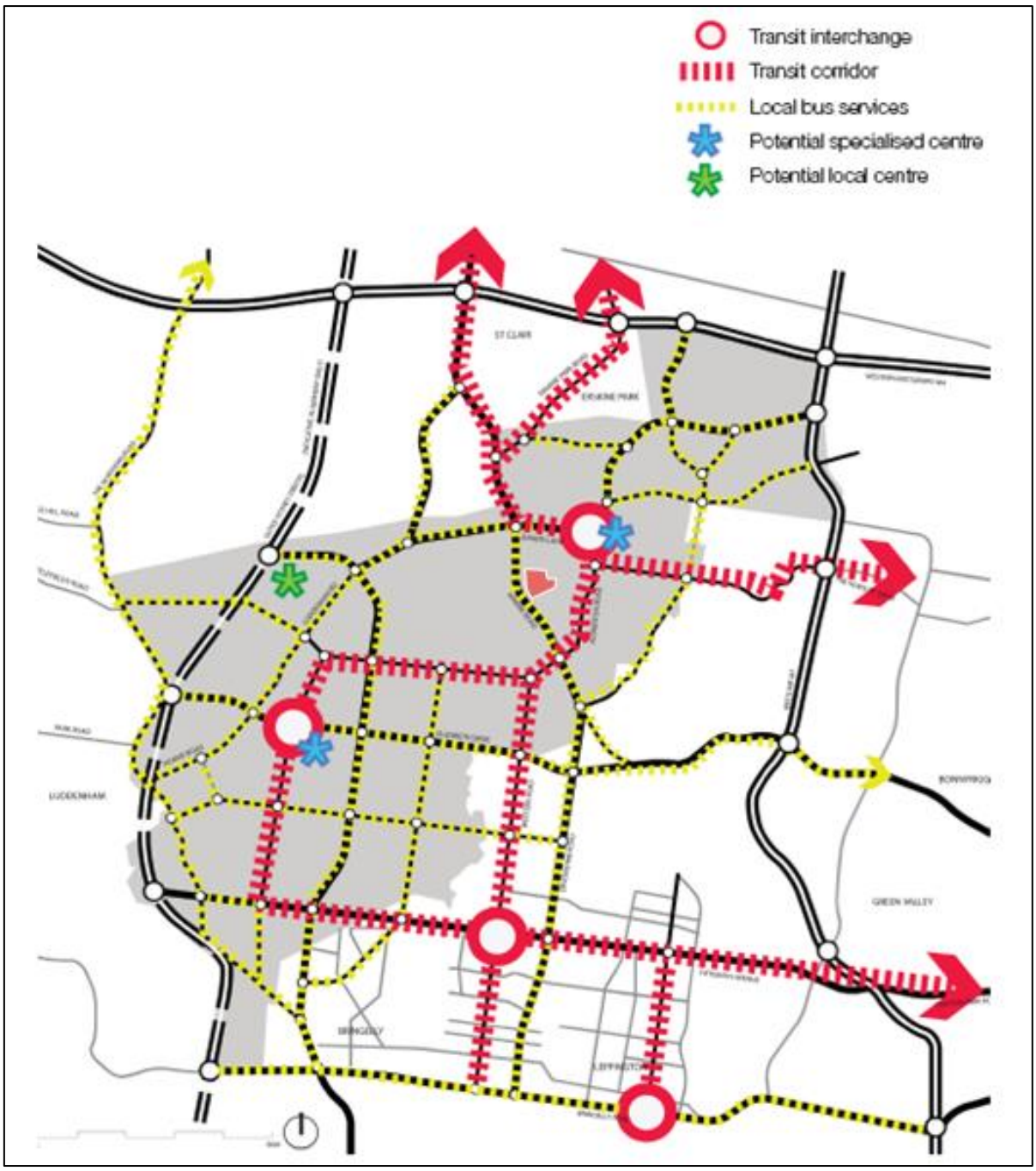


Figure 11: BWSEA Transit Corridors

Source: BWSEA Structure Plan

6.2 Cycling

At present, shared paths (pedestrian and cycle) are provided along Erskine Park Road and sections of Mamre Road to the north of the Site, but there is little cycling (or pedestrian) infrastructure in Mamre Road between Distribution Drive to the north and Elizabeth Drive to the south.

The BWSEA Structure Plan provides a detailed outline of future active transport objectives and strategies, acknowledging that the provision of such will be essential to encourage the use of active transport from the outset. In this regard, the BWSEA provides the following key objectives:

- *Provide quality pedestrian and cycling environments around transit corridors and facilities.*
- *Understand the key walking and cycling needs in the region and the need for the separation of pedestrians and cyclists from motor vehicle traffic.*
- *Recognise that all trips involve walking at either the beginning or end of the journey, resulting in the need for connections between parking and public transport areas and destinations.*
- *Recognise that walking and cycling paths can form key routes between destinations.*
- *Understand that walking and cycling trips perform a variety of functions, not only travel from an origin to a destination, but such trips are also undertaken for recreation and/or health benefits, which can be influenced by the amenity of the route.*

Key active transport routes identified in the BWSEA Structure Plan are shown in **Figure 12**, noting again that the MR Upgrade will provide shared paths along at least one side of the road for its entire length.

Figure 12: BWSEA Active Transport Network

Source: BWSEA Structure Plan

7 Traffic Generation & Distribution Assessment

7.1 Trip Rates

The assessment of industrial development within Western Sydney has generally – in recent years – referenced the trip generation rates provided in the RMS Guide Update, and specifically sites displaying the similar characteristics of (large scale) industrial development, including the Erskine Park Industrial Estate, and the Wonderland Business Park, Eastern Creek Roads & Maritime survey sites (as detailed in the RMS Guide Update).

However, as reference, Ason Group is currently working with TfNSW with regard to the wider precinct modelling in regard to traffic generation assumptions for the MRP. The trip rates that have been agreed through this process as suitable for adoption in the assessment of developments in the MRP are shown by **Table 4**. To ensure consistency with the background MRP assessment being undertaken separately, these rates have been adopted for the purposes of this assessment.

Table 4: TfNSW Agreed Trip Rates

Time Period	Rate per 100m^2
Daily Trips	2.91
Local Road AM Peak (7am – 8am)	0.23
Local Road PM Peak (4pm – 5pm)	0.24
Site Maximum Generation Rate (All Vehicles)	0.26
Site Maximum Generation Rate (Heavy Vehicles)	0.07

7.2 Traffic Generation

7.2.1 Concept Masterplan Generation

Further to the adoption of the trip rate as described above, **Table 5** provides a summary of the Site's traffic generation further to the Concept Masterplan Proposal, while a breakdown of the Site's daily traffic profile, again based on the significant survey data available, in show in **Table 6**; it is noted that there are minor differences between the peak hour volumes reported in Table 5 and those reported in Table 6 further to minor rounding changes.

Table 5: Concept Masterplan Traffic Generation

SSDA Proposal	GFA (m^2)	Rate per 100m^2	Trips
Daily Trips	375,555	2.91	10,929
Local Road AM Peak (7am – 8am)		0.23	864
Local Road PM Peak (4pm – 5pm)		0.24	901
Site Maximum Generation Rate (All Vehicles)		0.26	976
Site Maximum Generation Rate (Heavy Vehicles)		0.07	263

Table 6: Concept Master Plan Site Daily Traffic Profile

Start Time	Light Vehicle	Rigid	Semi-trailer	B-double	Total
0:00	63	16	6	2	87
1:00	52	13	5	2	72
2:00	58	15	6	2	80
3:00	74	19	7	2	102
4:00	254	64	24	8	350
5:00	468	118	44	16	646
6:00	555	140	52	19	765
7:00	626	158	59	21	864
8:00	501	126	47	17	691
9:00	384	97	36	13	530
10:00	353	89	33	12	487
11:00	376	95	36	13	519
12:00	456	115	43	15	629
13:00	475	120	45	16	656
14:00	708	178	67	24	976
15:00	555	140	52	19	765
16:00	653	164	62	22	901
17:00	401	101	38	13	553
18:00	227	57	21	8	313
19:00	134	34	13	4	185
20:00	97	24	9	3	134
21:00	147	37	14	5	203
22:00	190	48	18	6	262
23:00	128	32	12	4	176
Total	**7,934**	**1,996**	**749**	**266**	**10,945**

7.2.2 Stage 1 Traffic Generation

Further to the adoption of the trip rate as described above, **Table 7** provides a summary of the Site's traffic generation further to the Stage 1 Proposal, while a breakdown of the Site's daily traffic profile, again based on the significant survey data available, in shown in **Table 8**.

Table 7: Stage 1 Traffic Generation

SSDA Proposal	**GFA (m^2)**	**Rate per 100m^2**	**Trips**
Daily Trips	50,930	2.91	1,482
Local Road AM Peak (7am – 8am)		0.23	117
Local Road PM Peak (4pm – 5pm)		0.24	122
Site Maximum Generation Rate (All Vehicles)		0.26	132
Site Maximum Generation Rate (Heavy Vehicles)		0.07	36

Table 8: Stage 1 Daily Traffic Profile

Start Time	Light Vehicle	Rigid	Semi-trailer	B-double	Total
0:00	9	2	1	0	12
1:00	7	2	1	0	10
2:00	8	2	1	0	11
3:00	10	3	1	0	14
4:00	34	9	3	1	47
5:00	63	16	6	2	88
6:00	75	19	7	3	104
7:00	85	21	8	3	117
8:00	68	17	6	2	94
9:00	52	13	5	2	72
10:00	48	12	5	2	66
11:00	51	13	5	2	70
12:00	62	16	6	2	85
13:00	64	16	6	2	89
14:00	96	24	9	3	132
15:00	75	19	7	3	104
16:00	89	22	8	3	122
17:00	54	14	5	2	75
18:00	31	8	3	1	42
19:00	18	5	2	1	25
20:00	13	3	1	0	18
21:00	20	5	2	1	28
22:00	26	6	2	1	36
23:00	17	4	2	1	24
Total	**1,076**	**271**	**102**	**36**	**1,484**

7.3 Adjacent Sites – Cumulative Assessment

7.3.1 Aldington Road

It is critical to note that at this stage in the process of planning the wider MRP, the form and function of Aldington Road (including whether there will be a connection the SLR), and therefore the anticipated future background traffic flows, are totally unknown. The purpose of the background MRP traffic modelling being undertaken is to ultimately determine the requirements of the road network to accommodate the background traffic associated with not only the MRP but also the wider Aerotropolis area.

While this process is being finalised, and the delivery of the required wider road upgrades are confirmed, this assessment therefore considers the key routes into the Site via the existing Aldington Road, and the upgrades that would need to be delivered independently in the interim period to facilitate the Proposal.

Accordingly, this assessment has focused on Aldington Road and provides consideration to the other properties along it, the development of which for similar uses will impact the intersection requirements. An assessment has been undertaken of the potential developable GFA along Aldington Road to determine future traffic flows. This GFA assessment has been developed in consultation with Fife Capital and Stockland, who have a strong understanding of market demands and the likelihood of when additional GFA will be delivered, based on current landholdings.

It is currently understood, that of the surrounding development sites, there is only one other site which is currently being progressed, this being the ESR Kemps Creek Logistics Park (SSD-9138102) to the south of Abbotts Road. A request for SEARs was submitted to DPIE on 28 August 2020 for a similar development, with a Stage 1 approval sought for 35,350m^2 of GFA, alongside a concept plan providing for a GFA of 163,628m^2.

These sites have been divided into 8 separate Precincts (**Figure 13**) for the purposes of this assessment. Precinct 1 is the location of the Site and Precinct 8 includes the ESR Kemps Creek Logistics Park.

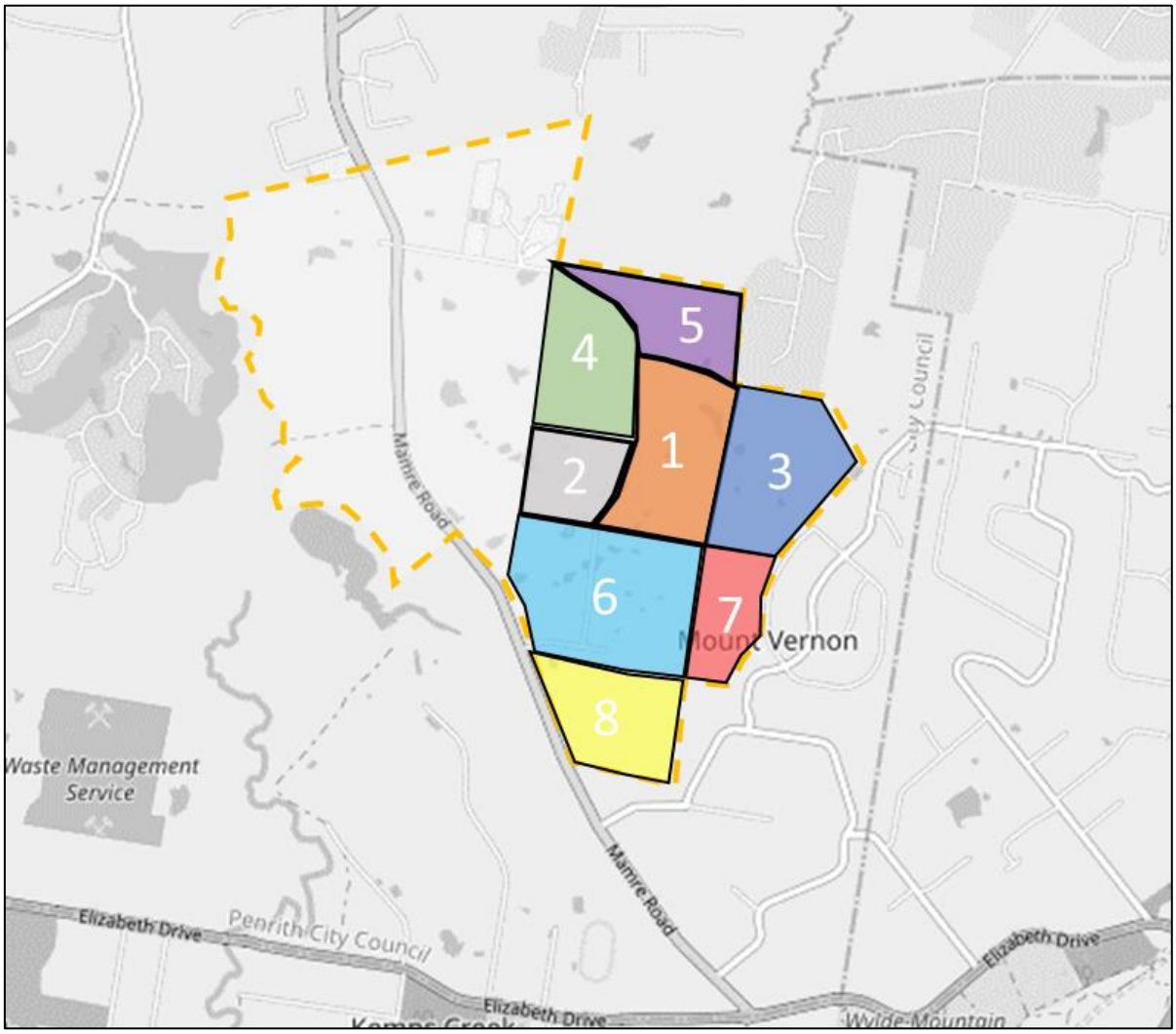


Figure 13: Aldington Road Precincts

7.4 Assessment Scenarios

7.4.1 Forecast Years

It has been requested as part of the SEARs that forecast years 2026, 2031 and 2036 be assessed. It is critical to note however that the current forecasting traffic flow data is outdated and does not provide consideration for the Aerotropolis or the wider MRP. Therefore, forecasting for subsequent years, beyond 2026, without revised information from TNSW provides little benefit to the assessment of future conditions.

As discussed throughout this TA, the background traffic modelling being undertaken for the MRP will identify the required road network and upgrades. Therefore, the future scenarios should be validated

against this; when it becomes available. It is further noted that it is expected that this information will be available by November / December 2020.

The key purpose of this assessment, therefore, has been to determine the interim intersection upgrade required to facilitate Stage 1 of the Concept Masterplan, alongside the Site access requirements. Further (detailed) stages will ultimately be subject to separate application processes, which can be assessed against the background modelling being undertaken by TfNSW.

As such, the detailed SIDRA analysis provided in Section 8 includes assessment of the following future scenarios:

- **Scenario 1 – 2026:** Base 2026 traffic flows on Mamre Road (i.e. with background traffic growth to 2026 on Mamre Road based on EMME data) with 30% of GFA developed from the Site, and some development of adjacent Sites (as per Section 7.4.2) forming the flows along Aldington Road.
- **Scenario 2 – 2031:** As per Scenario 1 but for 2031 and with 50% of GFA developed from the Site, and some development of adjacent Sites (as per Section 7.4.2) forming the flows along Aldington Road.
- **Scenario 3 – 2036:** As per Scenario 1 but for 2036 and with 100% of GFA developed from the Site, and 100% development of adjacent Sites (as per Section 7.4.2) forming the flows along Aldington Road.

7.4.2 Developable GFA Assumptions

It is assumed that 45% of the site areas of all properties along Aldington Road can be developed as industrial GFA. For the assessment year of 2026 the following GFA yields has been adopted for the key properties along Aldington Road:

- 30% of the Site
- 25% of Precinct 2
- 20% of Precinct 8
- This provides for a total of 227,645m^2 GFA.

The 2031 assessment year assumes 100% development of the Site and 50% of all other development sites along Aldington Road. This provides for 1,406,290m^2 .

The 2036 assessment year assumes 100% development of the Site and 100% of all other development sites along Aldington Road. This provides for 2,437,015m^2.

7.4.3 Traffic Generation

On the basis of the above, the future cumulative development scenarios are summarised in **Table 9**.

Table 9: Site + Adjacent Aldington Road Sites Traffic Generation

Cumulative Sites	GFA (m^2)	AM Peak Hour Trips	PM Peak Hour Trips
2026	227,645	523	547
2031	1,406,290	3,235	3,376
2036	2,437,015	5,606	5,849

The GFA associated with the Site represents 15% of the total GFA expected along the Aldington Road precinct. Therefore, it is critical to recognise that at this stage, this assessment has focussed on establishing the interim upgrades required to facilitate the Stage 1 development of the Site by 2026, while also taking account of other development sites also being developed.

The long term intersection requirements need to be derived as part of the MRP modelling being undertaken by TfNSW.

7.5 Trip Distribution

7.5.1 Arrival & Departure Distribution

The arrival and departure distribution of trips to and from the Site during the AM and PM peak periods has considered the following:

- Journey to Work (JTW) data;
- Ason Group surveys of local industrial sites;
- The RMS Guide and RMS Guide Update; and
- Current status of intersection upgrades.

Further to this analysis, the following arrival and departure distribution has been adopted:

- AM Peak Hour:
  - 70% arrival; and
  - 30% departure.
- PM Peak Hour:
  - 30% arrival; and

- 70% departure.

With regard to access to and from Mamre Road, the two key intersections to / from Aldington Road are via Abbotts Road and Bakers Lane.

With regard to the Mamre Road / Bakers Lane intersection, this intersection potentially will form one of the key intersections for the MRP, with the most publicly available information suggesting that this section of Bakers Lane will be upgraded to form the SLR. Further, this intersection currently also forms the key access intersection into the development site currently known as the Mamre South Precinct (subject to SSD-9522).

While there are so many factors influence the intersection requirements for the Mamre Road / Bakers Lane intersection, it is difficult to assess the specific requirements for the Site itself. As has been discussed, the key purpose of this assessment is to inform the interim requirements for a Stage 1 development, while the wider network upgrades are investigated by TfNSW.

Therefore, the reminder of this assessment focuses on the upgrades required to the Mamre Road / Abbotts Road intersection. Prior to the Bakers Lane / Mamre Road intersection being upgraded, it is therefore anticipated that a significant proportion of traffic form the sites assessed will travel via the Abbotts Road / Mamre Road (upgraded) intersection.

Forecast traffic flows generated by the Site, and the other development sites along Aldington Road are shown by **Appendix A**.

8 Traffic Impact Assessment

8.1 Introduction

As stated from the outset, one of the primary objectives of this TA is to identify potential localised traffic impacts associated with the development of the Site, and (where required) provide interim intersection upgrades which would appropriately accommodate the Stage 1 traffic generation.

As discussed, the key intersections of Bakers Lane / Mamre Road and Abbotts Road / Mamre Road form part of the key road network of the MRP and simply, the design and operation of these intersections will be significantly influenced by the broader growth within the sub-region and of course the infrastructure proposals recommended by TNSW further to the completion of current studies. The background MRP studies will ultimately inform the required upgrades to accommodate development of the MRP.

As per Section 7.4.1, the following scenarios have been adopted:

- **Scenario 1 – 2026:** Base 2026 traffic flows on Mamre Road, with flows on Aldington Road determined by the level of development undertaken.
- **Scenario 2 – 2031:** Base 2031 traffic flows on Mamre Road, with flows on Aldington Road determined by the level of development undertaken.
- **Scenario 3 – 2036:** Base 2036 traffic flows on Mamre Road, with flows on Aldington Road determined by the level of development undertaken.

8.2 Background Traffic Growth

In order to determine future base traffic flows in Mamre Road, Ason Group has been provided with 2018 output data from the TfNSW STFM for the forecast year 2026 to determine a suitable growth rate to apply to the existing Mamre Road flows at the key intersections. As has been previously discussed with TfNSW, these forecast volumes are based on 2016 land-use inputs and are currently being revised. Notwithstanding, for the purposes of this assessment, these volumes are deemed to still provide an appropriate basis for the assessment of short-medium term Mamre Road volumes (i.e. to 2026).

As discussed previously discussed (see Section 7.3.1), the form and function of Aldington Road is unknown at the moment, therefore it has been assumed that the “base” flows would remain consistent with the existing flows for this assessment. Any change to these flows has been assumed to relate to additional GFA being developed along Aldington Road.

The future 2026 base forecast flows on this basis are summarised in **Figure 14** and **Figure 15**.

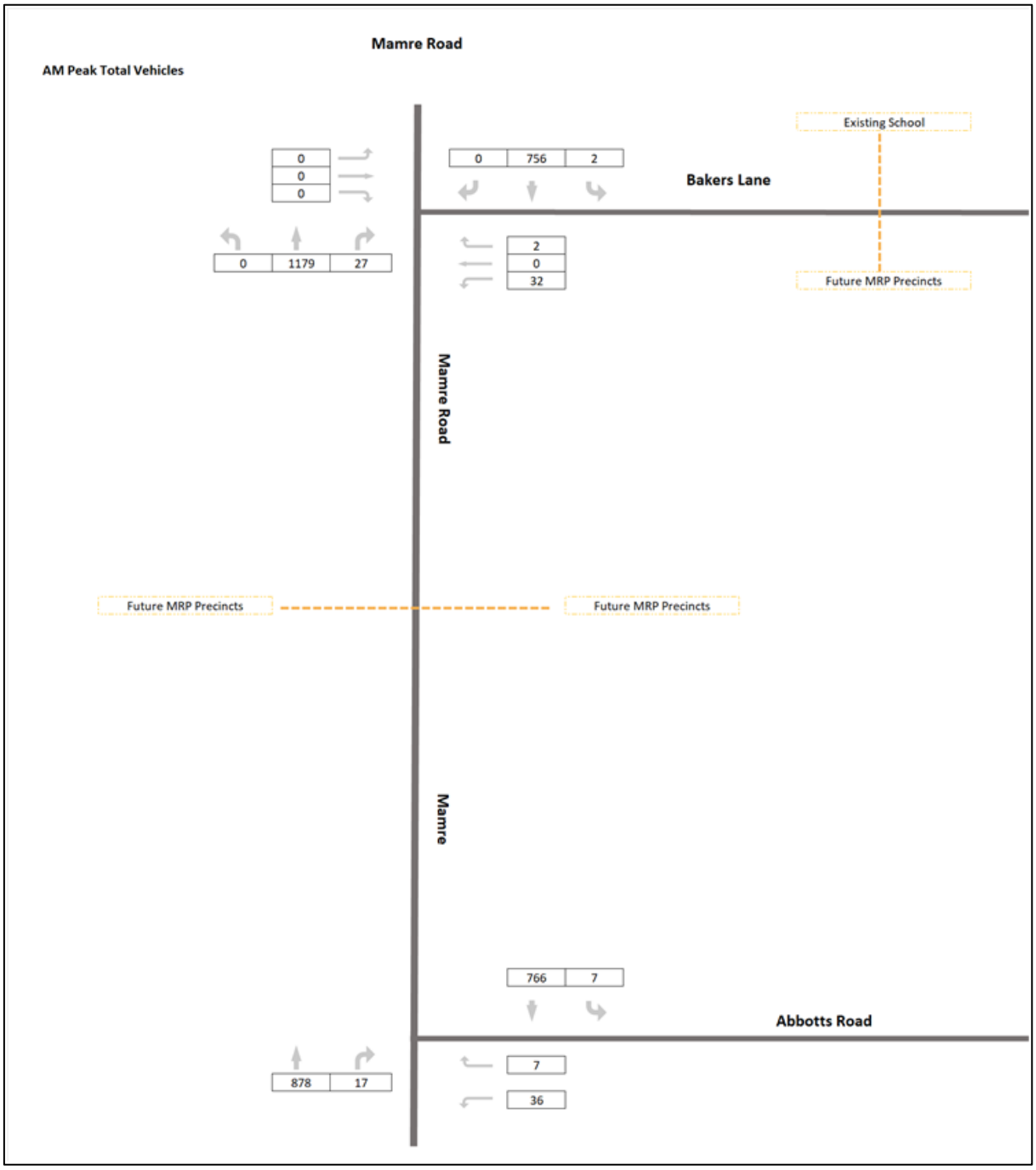


Figure 14: AM 2026 Base Flows

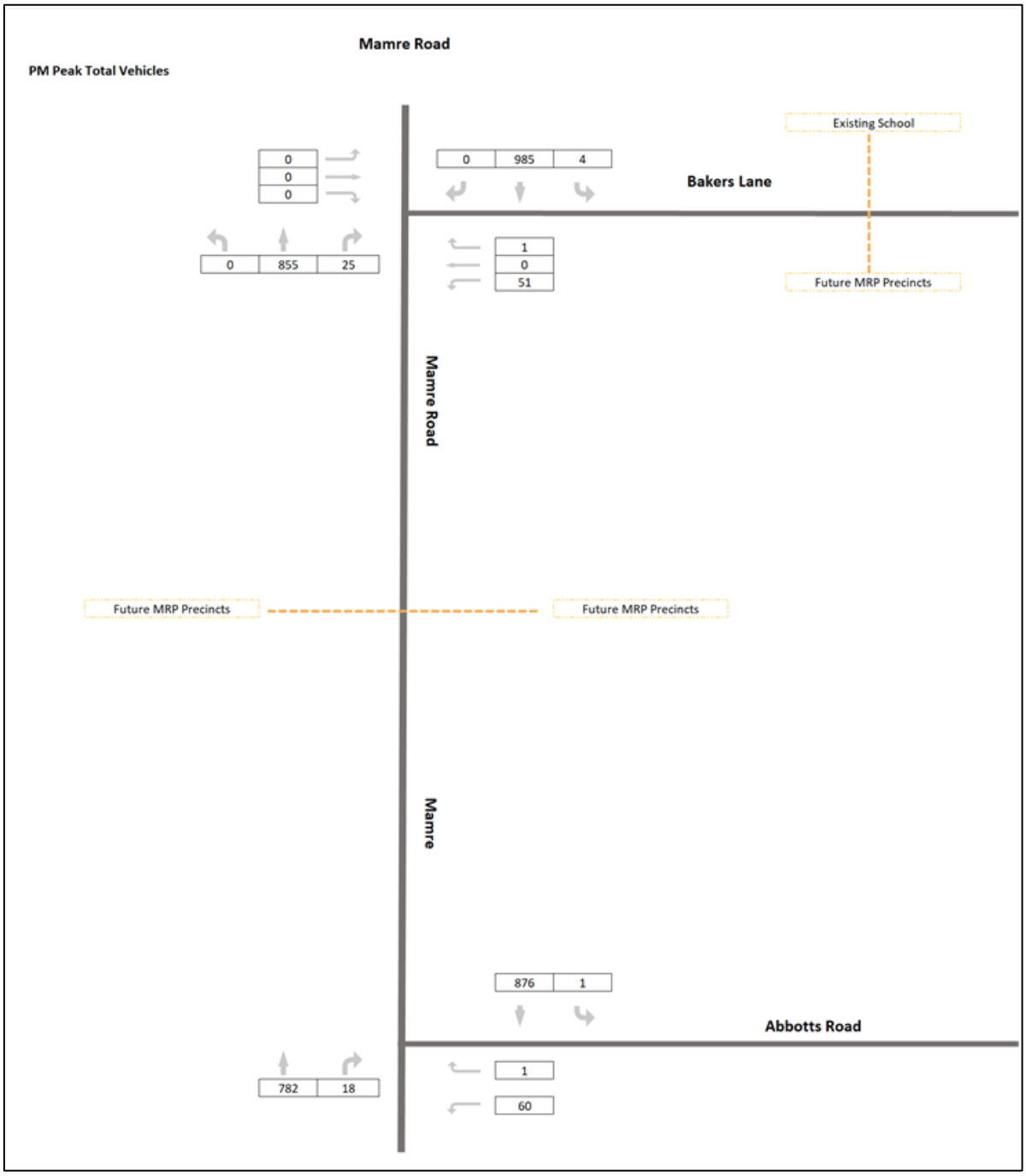


Figure 15: PM 2026 Base Flows

Given that the MRP and the wider network upgrades would significantly alter future conditions beyond 2026 it is suggested that forecasting beyond 2026 should not be conducted at this stage (therefore, detailed consent is sought for Stage 1 only, with the remainder of the Concept Masterplan being considered as part of the wider MRP modelling).

It is noted that the SEARs have also included the future years of 2031 and 2036 to be assessed. With consideration to the above, the requirements of the Site access points along Aldington road have been considered at this stage.

8.3 Intersection Operations: External Intersections

8.3.1 SIDRA Intersection Model

The future operation of the road network has been assessed using the Roads & Maritime approved SIDRA intersection model. The SIDRA model provides a number of outputs by which to measure the performance of an intersection, including:

- **Average Vehicle Delay (AVD):** AVD (or average delay per vehicle in seconds) for intersections is used to determine an intersection's Level of Service (see below). For signalised intersections, the AVD reported relates to the average of all vehicle movements through the intersection.
- **Degree of Saturation (DOS):** DOS is defined as the ratio of demand (arrival) flow to capacity.
- **Level of Service (LOS):** LOS is a comparative measure that provides an indication of the operating performance, based on AVD.

Table 10 provides the SIDRA recommended criteria for the assessment of intersections with reference to the RMS Guide.

Table 10: SIDRA Level of Service Criteria

Level of Service	Average Delay per Vehicle (s)	Traffic Signals & Roundabout	Give Way & Stop Signs
A	less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays & spare capacity	Acceptable delays & spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity; at signals, incidents will cause excessive delays	At capacity, requires other control mode
		Roundabouts require other control mode	
F	More than 70	Unsatisfactory and requires additional capacity.	Unsatisfactory and requires other control mode or major treatment.

8.3.2 2026 Base Intersection Operations

The performance of the key external intersections under Base 2026 growth conditions, as per Figure 14 and Figure 15, is summarised in **Table 11**. Relevant SIDRA Outputs are provided as **Appendix B**.

Table 11: 2026 Base External Intersection Operations

Intersection	Intersection Type	Period	Intersection Delay	Level of Service
Mamre Road / Bakers Lane	Signals	AM	71.0	F
		PM	119.7	F
Mamre Road / Abbotts Road	Priority Controlled	AM	163.2	F
		PM	164.6	F

With reference to Table 11, it is clear that both intersections would be operating with poor LOS by 2026 based on their current configurations.

With regard to the Mamre Road / Bakers Lane intersection, this intersection potentially will form one of the key intersections for the MRP, with the most publicly available information suggesting that this section of Bakers Lane will be upgraded to form the SLR. Further, this intersection currently also forms the key access intersection into the development site currently known as the Mamre South Precinct (subject to SSD-9522).

While there are so many factors influence the intersection requirements for the Mamre Road / Bakers Lane intersection, it is difficult to assess the specific requirements for the Site itself. As has been discussed, the key purpose of this assessment is to inform the interim requirements for a Stage 1 development, while the wider network upgrades are investigated by TfNSW.

Therefore, the reminder of this assessment focuses on the upgrades required to the Mamre Road / Abbotts Road intersection, which will accommodate a significant proportion of development traffic associated with the development sites along Aldington Road.

8.3.3 2026 Base + Development Intersection Operations

The proposed interim intersection layout that has been assessed is shown by **Figure 16**.

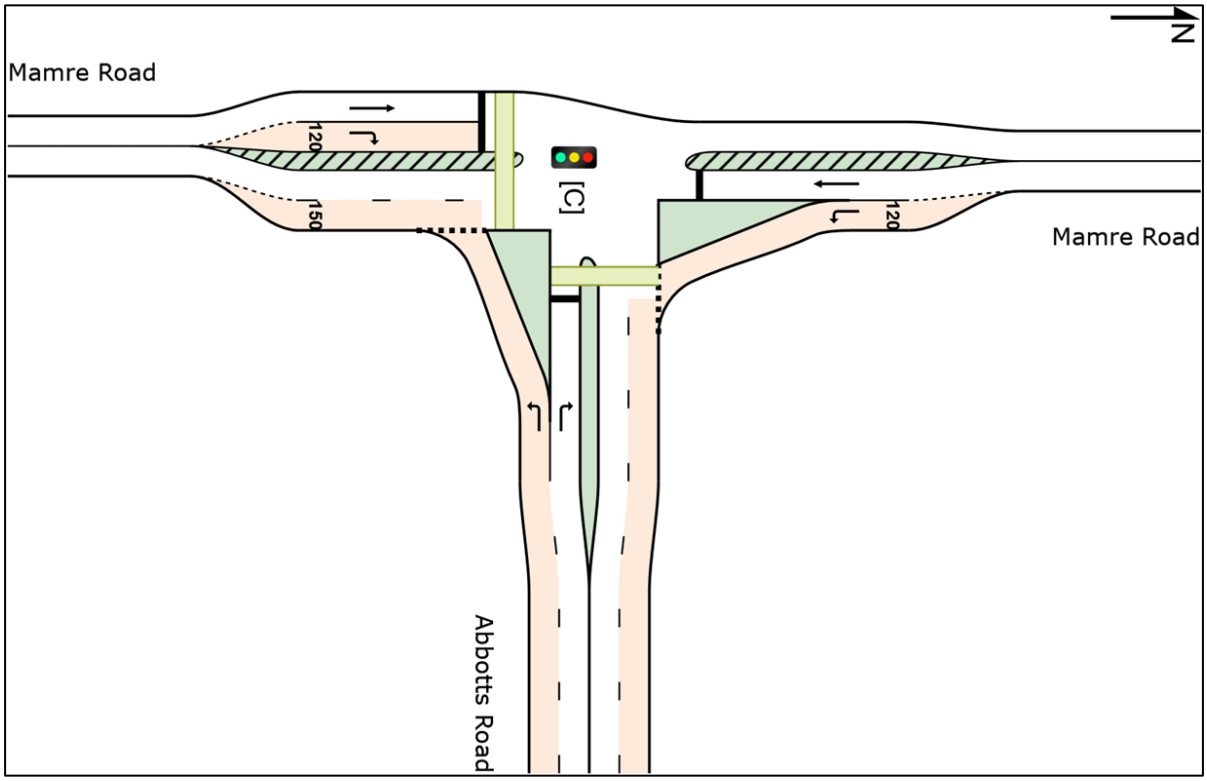


Figure 16: Interim 2026 SIDRA Intersection Layout

The operation of the key Mamre Road / Abbotts Road intersection in 2026, further to the additional of the traffic flows as per Scenario 1 (Stage 1 plus cumulative requirements) are summarised in **Table 12**.

Table 12: Scenario 1 Intersection Operations

Intersection	Scenario	Precinct 1-8 GFA (m^2)	Period	Intersection Delay	Level of Service
Mamre Road / Abbotts Road	Signals (Interim Upgrade)	227,645	AM	21.2	B
			PM	19.2	B

With reference to Table 12, the SIDRA analysis indicates that the proposed interim intersection can accommodate not only the Stage 1 development traffic, but also an additional 176,000m^2 from the wider Aldington Road development sites as well.

As such – and notwithstanding the provision of further detailed assessments during the DA stages using revised RMS forecast data for the reminder of the Concept Master Plan – all available information indicates that Stage 1 can be supported on traffic grounds with regard to external intersection operations.

8.4 Concept Master Plan Access Intersection Operations

Further to the operation of the Mamre Road / Abbots Road intersection, the site access requirements have also been assessed (based on the flows shown in Appendix A).

As discussed in Section 7.3.1, the form and function of Aldington Road is currently not fully understood Therefore, it has been assumed that the future flows would relate to development sites along Aldington Road only.

It is currently proposed to access the Site from Aldington Road via 2 access intersections, being a priority controlled stop intersection (with the potential to be a roundabout, subject to other development site requirements and future Aldington Road flows) as the northern access intersection, and a roundabout intersection as the southern access intersection.

The SIDRA model intersection layouts based on these considerations is shown in **Figure 17** and **Figure 18**.

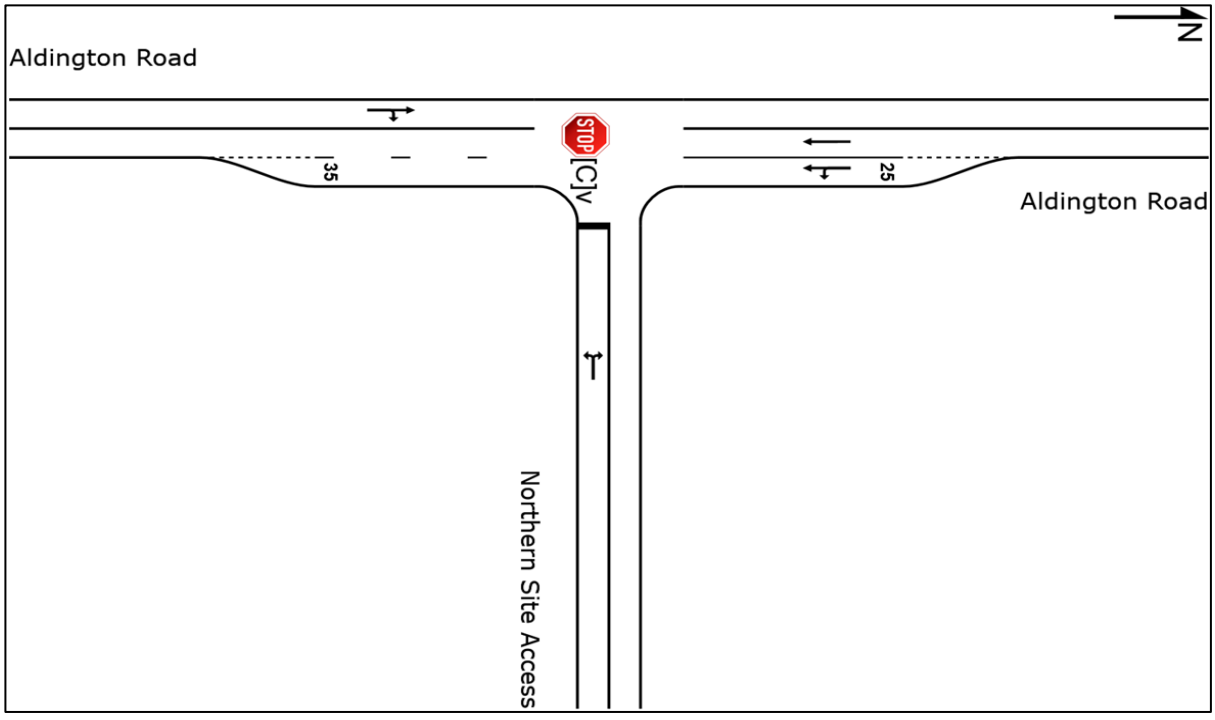


Figure 17: Aldington Road / Northern Site Access 2026 Intersection Layout

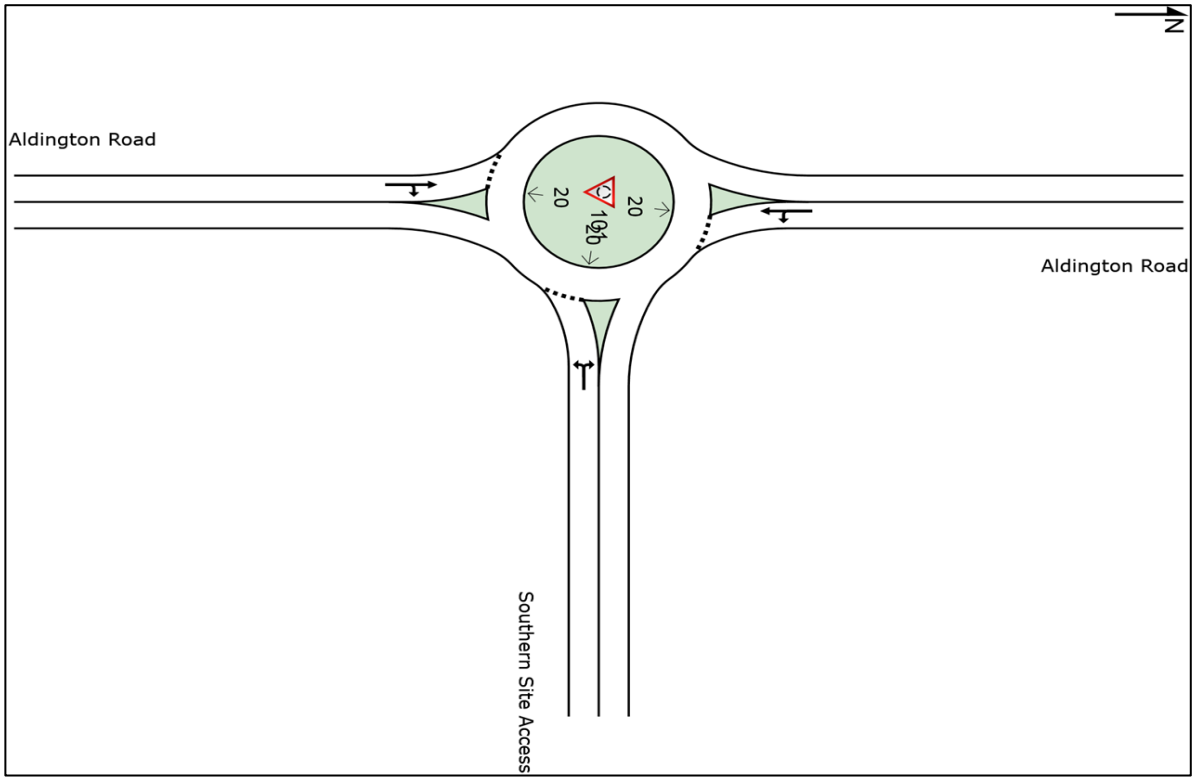


Figure 18: Aldington Road / Southern Site Access 2026 Intersection Layout

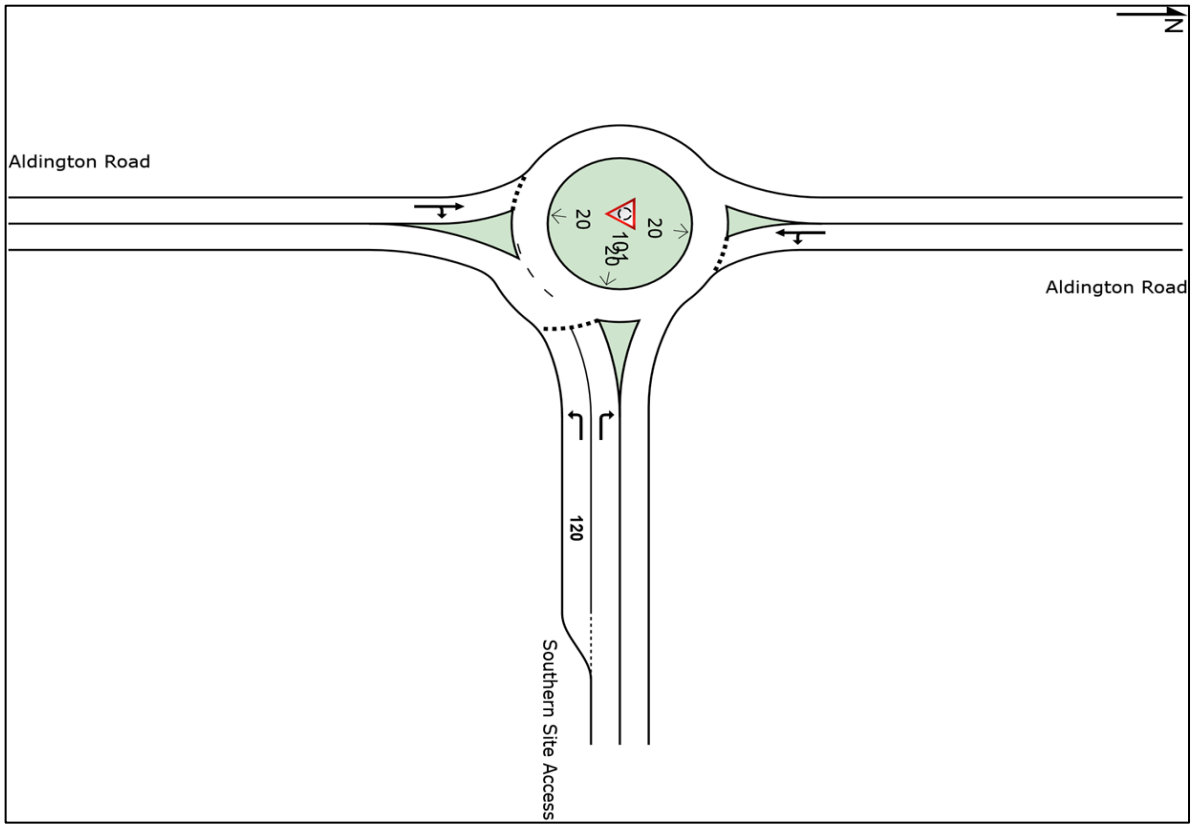


Figure 19: Aldington Road / Southern Site Access 2031 Intersection Layout

SIDRA has again been used to examine the performance of the access intersections for the forecast years 2026 and 2031; the results of the analysis are summarised in **Table 13**.

Table 13: Access Intersection Performance

Intersection	Control	Year	Period	Degree of Saturation	Intersection Delay	Level of Service
Aldington Road / Northern Site Access	Priority	2026	AM	0.070	10.1	A
			PM	0.077	9.1	A
		2031	AM	0.196	44.9	D
			PM	0.330	38.5	C
Aldington Road / Southern Site Access	Roundabout	2026	AM	0.160	6.3	A
			PM	0.141	5.9	A
		2031	AM	0.949	17.3	B
			PM	0.934	19.7	B

With reference to Table 13:

- The northern site access operates with good LOS in 2026 in both peak periods. In the 2031 scenario assessed, the performance of the intersection deteriorates to LOS D.

  However, it is noted that this relates to right-turn movement out of the Site being restricted by the volume of through movement of Aldington Road. This suggests that this intersection be better served as a roundabout controlled intersection, which has been indicated by preliminary analysis undertaken of the 2036 assessment year. However, as above, this is subject to coordination the neighbouring development sites and future Aldington Road flows, and therefore cannot be determined at this stage.
- The southern site access roundabout intersection operates at good LOS in both assessment years. However, it is noted that additional capacity is required to facilitate the demand of the right-turn out of the Site (shown by Figure 19).
- It is noteworthy that preliminary analysis of the 2036 southern access roundabout indicates that two lanes are required on Aldington Road as a result of the demand for the through movement only.

A preliminary assessment has been conducted for the assessment year of 2036, however, to date it has found that any additional capacity required along Aldington Road relates to through movements. Therefore, for assessment of 2036, the flows along Aldington Road are required to be confirmed as part

of the wider precinct modelling (which is currently being conducted). Any conclusions based on the currently available information would not provide an accurate assessment of the requirements of the road network and therefore have not been documented. Assessment beyond 2026 is required once the background modelling has been completed.

Nevertheless, the assessment has demonstrated that the Stage 1 development could be accommodated by the road network in 2026, subject to the interim upgrades identified to be required to Aldington Road. It is therefore concluded that the Stage 1 development is acceptable from a traffic and transport perspective.

9 Car Parking Requirements

9.1.1 Precinct Parking Rates

The currently applicable rates are outlined in Part C10, Table C10.2 *Car Parking Rates* of the Penrith DCP, which specifies requirements for various industrial and business premises as shown by **Table 14**. Council's DCP also provides site-specific rates for the Oakdale South Industrial Estate (located immediately to the north-east of the Site), which are consistent with the rates contained within the RMS Guide.

Table 14: Penrith DCP & RMS Guide Parking Rates

Land Use	Minimum Parking Rate
Penrith DCP	
Warehouses or distribution centres, including ancillary office	1 space per 100m^2
Oakdale South Industrial Estate (Other Site Specific Requirements defined in DCP)	Warehouse – space per 300m^2 Office –1 space per 40m^2
RMS Guide	
Warehouse	1 space per 300m^2
Factory	1.3 spaces per 100m^2
Office	1 space per 40m^2

It is proposed that parking for the Site be provided with reference to the site-specific rates provided within Council's DCP for other Sites in the WSEA, as well as the Mamre West DCP. There is no information to suggest that these parking rates, which have been adopted at similar sites across the WSEA, would not also be adopted in the forthcoming MRP DCP.

9.1.2 Adopted Parking Rates & Parking Provision

Table 15 details the requirements for Stage 1 and the remainder of the Concept Masterplan, based on the RMS parking rates detailed in Table 14.

As per Table 15, the Stage 1 development requires 224 parking spaces and 231 parking spaces are provided, exceeding the requirements of the adopted parking rate. Similarly, the reminder of the Concept Masterplan requires a total of 1,422 parking spaces, with 1,469 currently provided. Therefore, the Proposal can provide full compliance with the adopted rates.

Table 15: Proposed Car Parking Rates & Provision

Stage	Land Use	GFA (m^2)	Requirement (spaces)	Currently Proposed
1	Warehouse	48,430	161	231
	Office	2,500	63	
	Sub Total	**50,930**	**224**	
Concept Masterplan	Warehouse	308,925	1,030	1,469
	Office	15,700	393	
	Sub Total	**324,625**	**1,422**	
Total	-	**375,555**	**1,646**	**1,700**

9.1.3 Additional Parking Considerations

The Penrith DCP provides the following in regard to accessible parking:

Accessible parking must be provided in accordance with the provisions of the Building Code of Australia and relevant Australian Standards.

In this regard, 2 accessible parking spaces have been provided per every 100 spaces, therefore providing compliance with the Disability (Access to Premises – Buildings) Standards 2010 from the BCA, as well as the accessible parking requirements provided in Appendix B of AS 2890.6.

9.1.4 Bicycle Parking

The Penrith DCP refers to the document '*Planning Guidelines for Walking and Cycling*' (NSW Government 2004) for the bicycle parking requirements. This requires bicycle parking for industrial uses to be provided for 3-5% of the staff population.

While there is currently a lack of cycle facilities in the area, it is anticipated that such facilities will be developed as part of the broader WESA, and that as such, consideration should be given to providing appropriate bicycle facilities (such as bicycle parking and end of journey facilities) within the Site. The final provision of such facilities should be detailed in the future staged DAs noting that for the earlier stages there is little benefit to providing bicycle parking in the current conditions. Given the nature of the Site, it is anticipated that if required, cycle parking could be readily accommodated in the future (when appropriate, to avoid any inefficient use of space).

10 Access, Parking and Servicing Design

10.1.1 Design Standards

The Site's access, car park and loading areas have specifically been designed with reference to the following Australian Standards:

- AS2890.1 for car parking areas;
- AS2890.2 for commercial vehicle loading areas; and
- AS2890.6 for accessible (disabled) parking.

10.1.2 Access Driveways

All access driveways (to the internal road network) have been designed with reference to AS 2890.1 and AS 2890.2, with service driveways providing for vehicles up to and including a 26m B-Double. It is anticipated that full access driveway design compliance with AS 2890.1 and AS 2890.2 would form a standard Condition of Consent further to approval.

10.1.3 Parking Areas

All parking areas, including access aisles and parking modules, have been designed with reference to AS 2890.1 and AS 2890.6. It is anticipated that full parking area design compliance with AS 2890.2 would form a standard Condition of Consent further to approval.

10.1.4 Service Areas

All service areas have been designed with reference to AS 2890.2, and again provide for the movement of vehicles up to and including a 26m B-Double. It is anticipated that service area design compliance with AS 2890.2 would form a standard Condition of Consent further to approval.

11 Conclusions

Ason Group has been engaged by Fife Capital and Stockland (Fife Kemps Creek Trust) to prepare a Transport Assessment in relation to the State Significant Development for an industrial development at 200 Aldington Road, Kemps Creek (the Site). Further to a detailed assessment of all relevant traffic and transport issues, Ason Group provides the following conclusions:

- The Site is well located for industrial development, with excellent existing and future connections to the sub-regional and regional network, as well as key growth centres across Western Sydney.
- Access to the Site will be provided via Aldington Road, with two access points into the Site, with access to the wider road network provided via Mamre Road, which itself will be upgraded in accordance with the TfNSW MR Upgrade project.
- The trip generation rate adopted for the assessment has been agreed with TfNSW, and are consistent with the rates being adopted for the MRP background modelling, being undertaken by TfNSW.
- SIDRA analysis has identified the required interim configuration of the future intersection for Mamre Road & Abbotts Road to facilitated development of the Stage 1 Proposal, alongside a small proportion of surrounding development. The analysis indicates that an interim signalised intersection design – providing single turning lanes and 2 lanes in Mamre Road – would more than provide for the development of the Stage 1 Proposal. The requirements for the ultimate intersection will be confirmed as part of the wider MRP road network planning being undertaken by TfNSW.
- SIDRA analysis has also confirmed that appropriate Site access points can be provided for both 2026 and 2031 assessment years. Preliminary assessment suggest that beyond that, additional capacity is required in Aldington Road to accommodate the demand of background traffic – however this needs to be determined as part of the wider MRP background modelling.
- All internal Lots circulation, hardstand and parking areas have been designed with reference to the Australian Standards and provide for vehicles up to and including a 26m B-Double.
- Parking has been provided in accordance with the rates detailed in the RMS Guide, and includes an appropriate allocation of accessible parking spaces.
- All future operators will be encouraged to maximise the use of public and active transport, noting the future pedestrian, cycle and bus provisions included in the MR Upgrade design.
- All access driveways, parking areas and service areas have been designed with reference to the appropriate Australian Standards. It is anticipated that full design compliance with the relevant Australian Standards would form a standard Condition of Consent further to approval, which will also provide for any minor design changes if required.

Appendix A

Development Traffic Flows

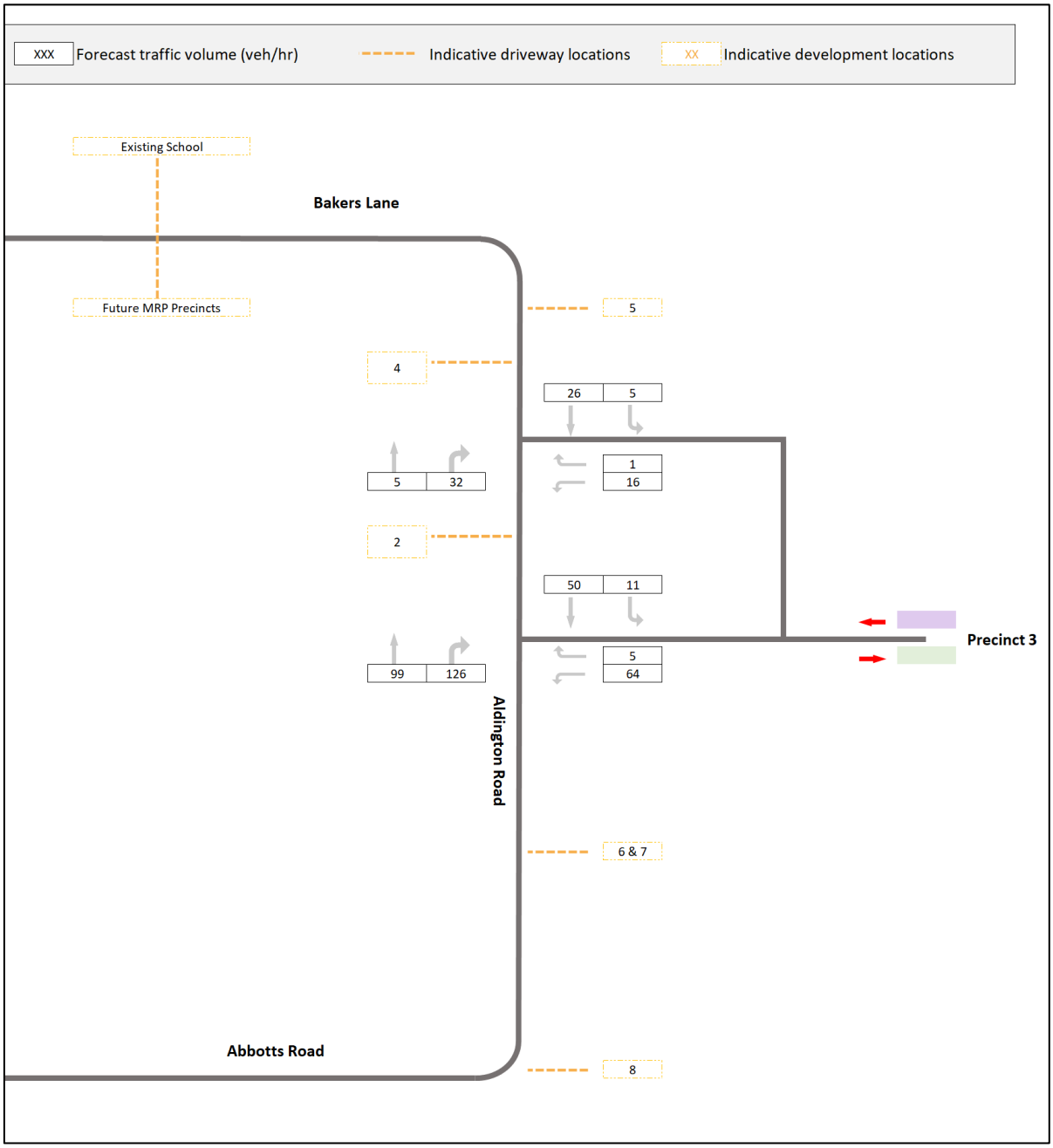


Figure 20: 2026 AM Peak Hour Traffic Distribution

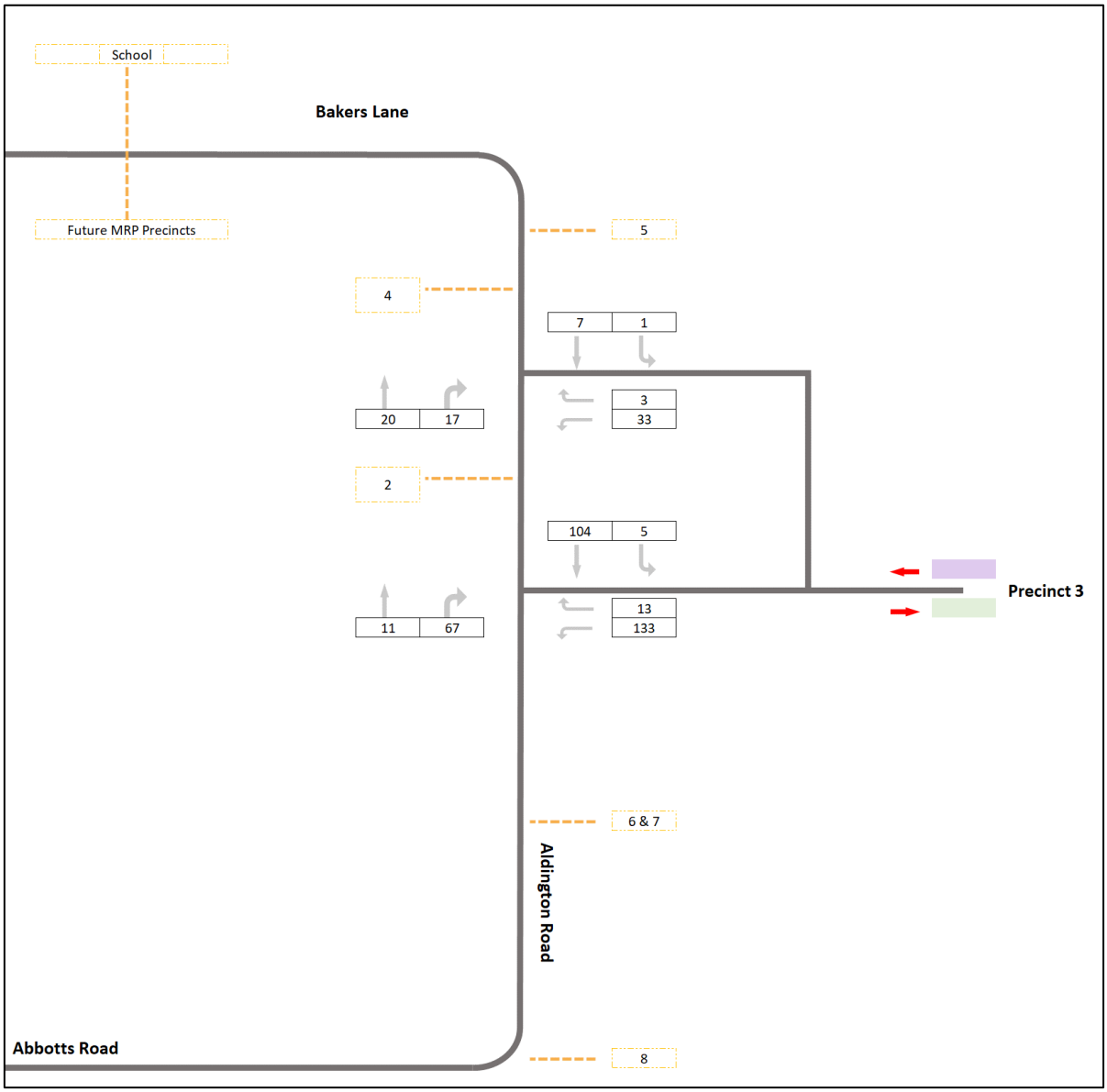


Figure 21: 2026 PM Peak Hour Traffic Distribution

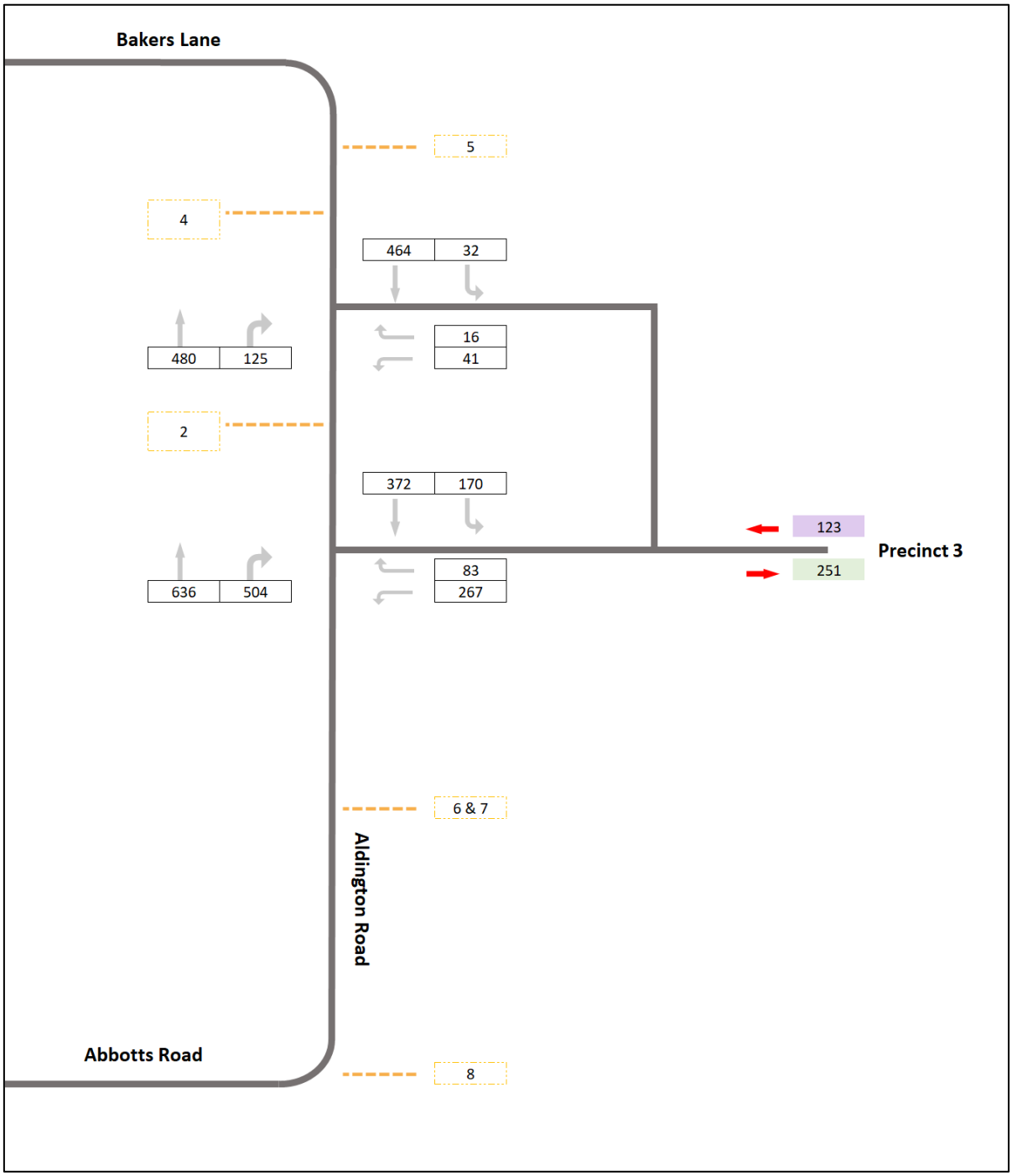


Figure 22: 2031 AM Peak Hour Traffic Distribution

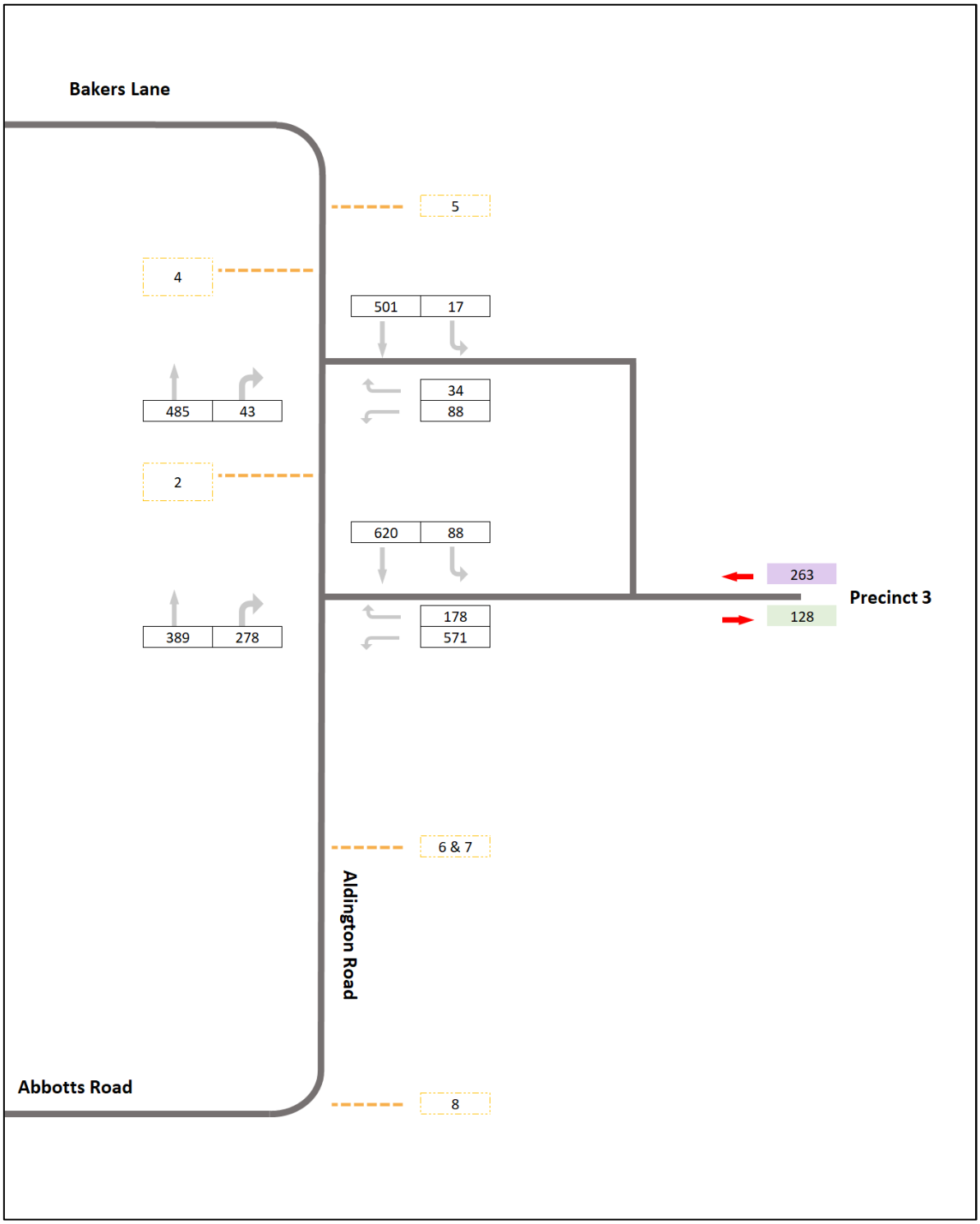


Figure 23: 2031 PM Peak Hour Traffic Distribution

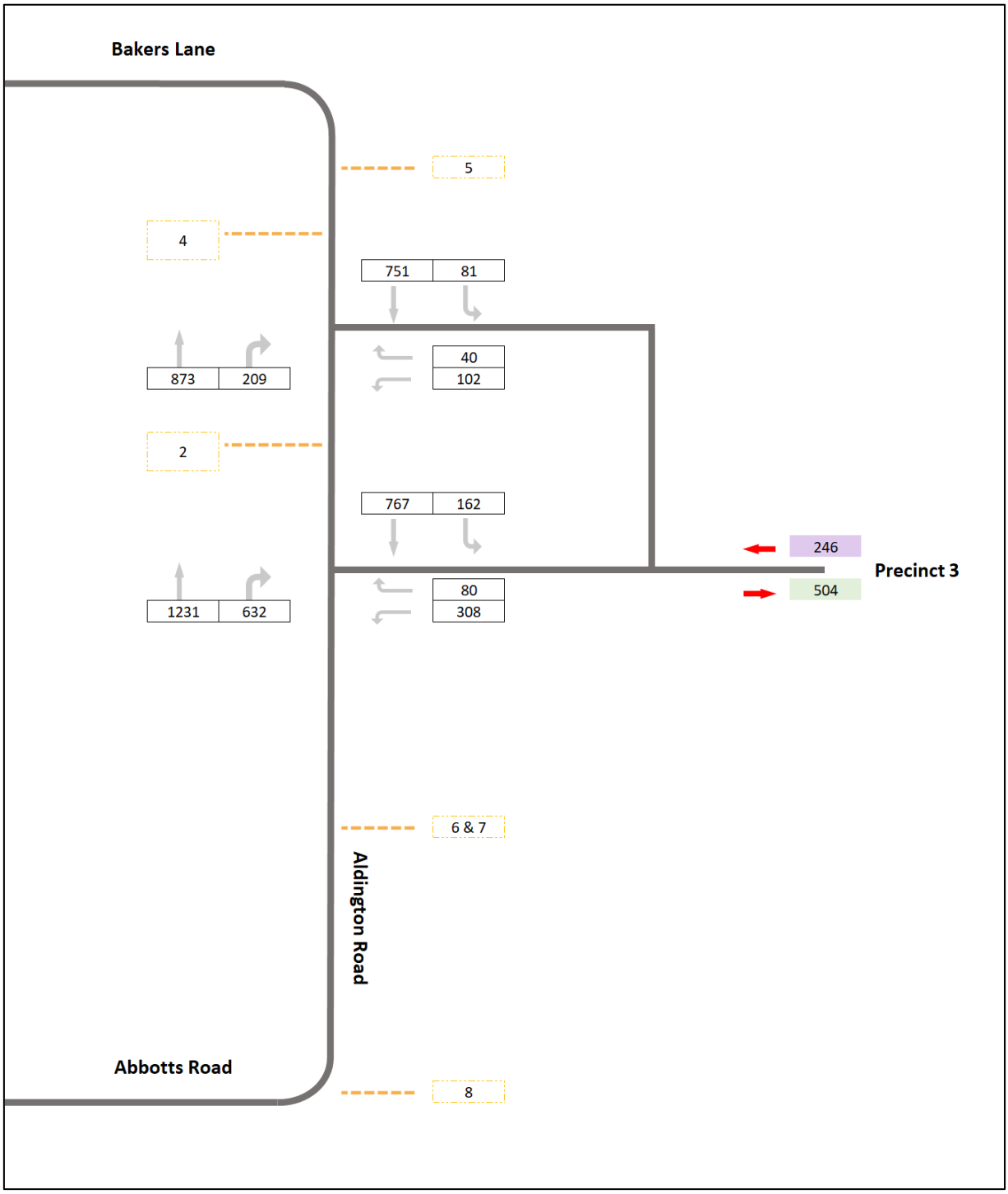


Figure 24: 2036 AM Peak Hour Traffic Distribution

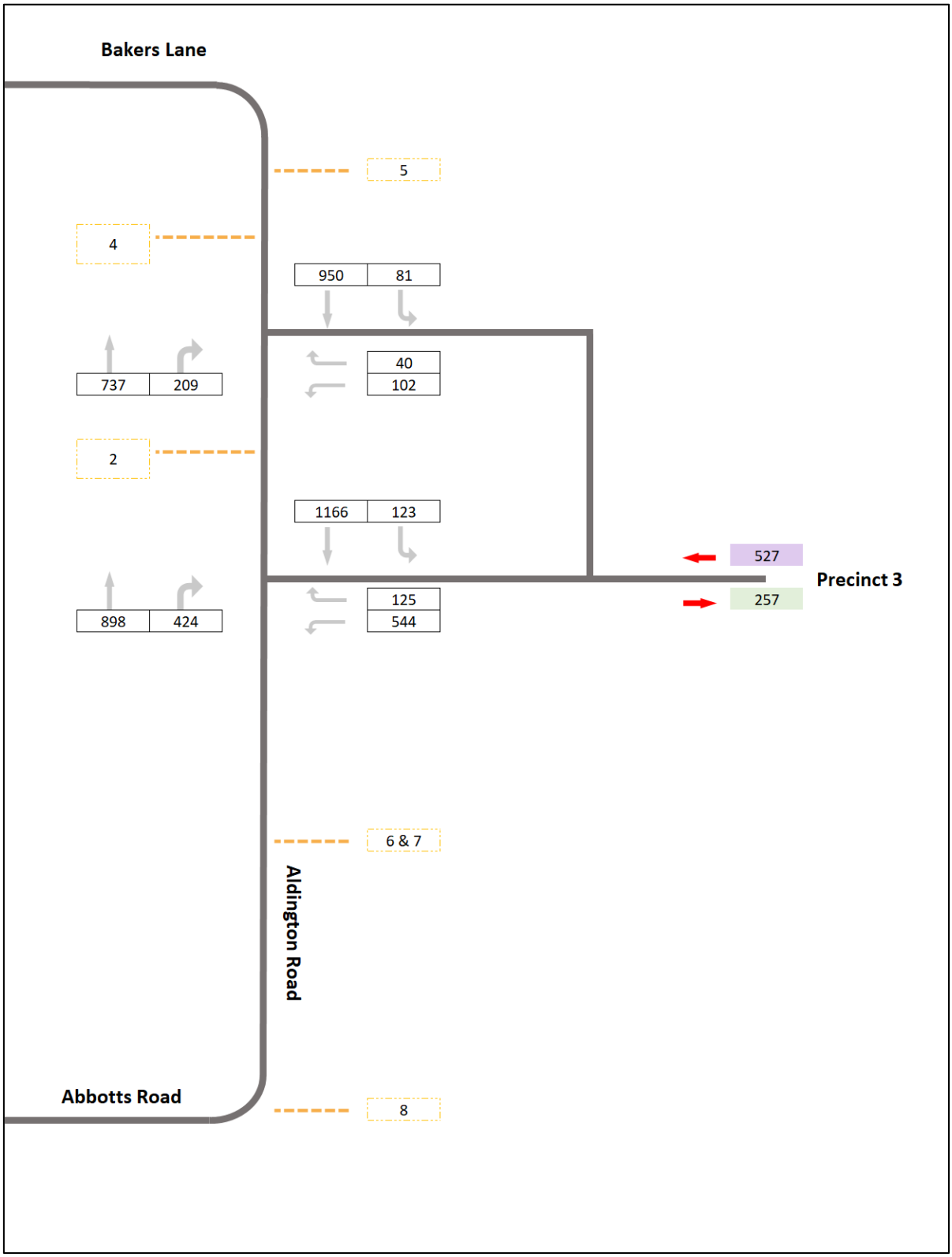


Figure 25: 2036 PM Peak Hour Traffic Distribution

Appendix B

SIDRA Output Summaries

MOVEMENT SUMMARY

Site: [C]v [[C] Mamre Rd / Abbotts Rd - 2026 Base AM (Site Folder: Base 2026)]

Mamre Rd / Abbotts Road
Site Category: Future
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Mamre Road														
2	T1	878	119	924	13.6	0.431	1.1	LOS A	0.8	6.5	0.07	0.01	0.10	78.4
3	R2	17	0	18	0.0	0.431	17.9	LOS B	0.8	6.5	0.10	0.02	0.14	64.7
Approach		895	119	942	13.3	0.431	1.4	NA	0.8	6.5	0.07	0.01	0.10	78.0
East: Abbotts Road														
4	L2	36	0	38	0.0	0.344	18.0	LOS B	1.1	7.9	0.70	0.85	0.83	38.3
6	R2	7	0	7	0.0	0.344	163.2	LOS F	1.1	7.9	0.70	0.85	0.83	38.3
Approach		43	0	45	0.0	0.344	41.7	LOS C	1.1	7.9	0.70	0.85	0.83	38.3
North: Mamre Road														
7	L2	7	0	7	0.0	0.089	7.0	LOS A	0.0	0.0	0.00	0.03	0.00	74.0
8	T1	766	112	806	14.6	0.367	0.4	LOS A	0.0	0.0	0.00	0.01	0.00	79.6
Approach		773	112	814	14.5	0.367	0.5	NA	0.0	0.0	0.00	0.01	0.00	79.5
All Vehicles		1711	231	1801	13.5	0.431	2.0	NA	1.1	7.9	0.06	0.03	0.08	76.7

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

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

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

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

Queue Model: SIDRA Standard.

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

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

MOVEMENT SUMMARY

Site: [C]v [[C] Mamre Rd / Abbotts Rd - 2026 Base PM (Site Folder: Base 2026)]

Mamre Rd / Abbotts Road
Site Category: Future
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Mamre Road														
2	T1	782	126	823	16.1	0.400	1.4	LOS A	1.0	8.3	0.10	0.02	0.13	77.6
3	R2	18	0	19	0.0	0.400	20.2	LOS B	1.0	8.3	0.13	0.02	0.18	64.0
Approach		800	126	842	15.8	0.400	1.8	NA	1.0	8.3	0.10	0.02	0.14	77.2
East: Abbotts Road														
4	L2	30	0	32	0.0	0.079	11.2	LOS A	0.2	1.7	0.47	0.82	0.47	52.5
6	R2	1	0	1	0.0	0.079	164.6	LOS F	0.2	1.7	0.47	0.82	0.47	52.3
Approach		31	0	33	0.0	0.079	16.2	LOS B	0.2	1.7	0.47	0.82	0.47	52.5
North: Mamre Road														
7	L2	1	0	1	0.0	0.101	7.0	LOS A	0.0	0.0	0.00	0.00	0.00	74.5
8	T1	876	114	922	13.0	0.413	0.5	LOS A	0.0	0.0	0.00	0.00	0.00	79.6
Approach		877	114	923	13.0	0.413	0.5	NA	0.0	0.0	0.00	0.00	0.00	79.6
All Vehicles		1708	240	1798	14.1	0.413	1.4	NA	1.0	8.3	0.05	0.02	0.07	77.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 104 [Mamre Road x Bakers Lane - 2026 Base AM (Site Folder: Base 2026)]

Mamre Road x Bakers Lane
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Mamre Road (500m)														
1	L2	1	0	1	0.0	0.983	51.0	LOS D	79.4	608.1	0.76	0.88	0.97	36.9
2	T1	1055	116	1111	11.0	0.983	44.0	LOS D	79.4	608.1	0.76	0.88	0.97	45.1
3	R2	76	2	80	2.6	* 0.940	100.8	LOS F	6.8	48.6	1.00	0.91	1.48	22.5
Approach		1132	118	1192	10.4	0.983	47.8	LOS D	79.4	608.1	0.78	0.89	1.00	42.9
East: Bakers Lane (440m)														
4	L2	41	0	43	0.0	0.066	39.3	LOS C	2.0	14.3	0.69	0.71	0.69	37.2
5	T1	1	0	1	0.0	* 1.053	146.8	LOS F	46.5	325.2	1.00	1.16	1.72	16.1
6	R2	372	0	392	0.0	1.053	152.3	LOS F	46.5	325.2	1.00	1.16	1.72	19.7
Approach		414	0	436	0.0	1.053	141.1	LOS F	46.5	325.2	0.97	1.11	1.62	20.5
North: Mamre Road (750m)														
7	L2	596	0	627	0.0	0.387	8.8	LOS A	8.5	59.6	0.21	0.69	0.21	60.8
8	T1	699	110	736	15.7	* 1.037	120.2	LOS F	87.2	692.8	1.00	1.36	1.56	25.5
9	R2	1	0	1	0.0	1.037	126.8	LOS F	87.2	692.8	1.00	1.36	1.56	24.2
Approach		1296	110	1364	8.5	1.037	69.0	LOS E	87.2	692.8	0.64	1.05	0.94	34.5
West: Bakers lane														
10	L2	3	0	3	0.0	0.003	5.5	LOS A	0.0	0.0	0.00	0.47	0.00	55.5
11	T1	1	0	1	0.0	0.003	0.0	LOS A	0.0	0.0	0.00	0.47	0.00	55.7
12	R2	1	0	1	0.0	0.003	5.5	LOS A	0.0	0.0	0.00	0.47	0.00	54.3
Approach		5	0	5	0.0	0.003	4.4	LOS A	0.0	0.0	0.00	0.47	0.00	55.3
All Vehicles		2847	228	2997	8.0	1.053	71.0	LOS F	87.2	692.8	0.74	0.99	1.06	33.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 104 [Mamre Road x Bakers Lane - 2026 Base PM (Site Folder: Base 2026)]

Mamre Road x Bakers Lane
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

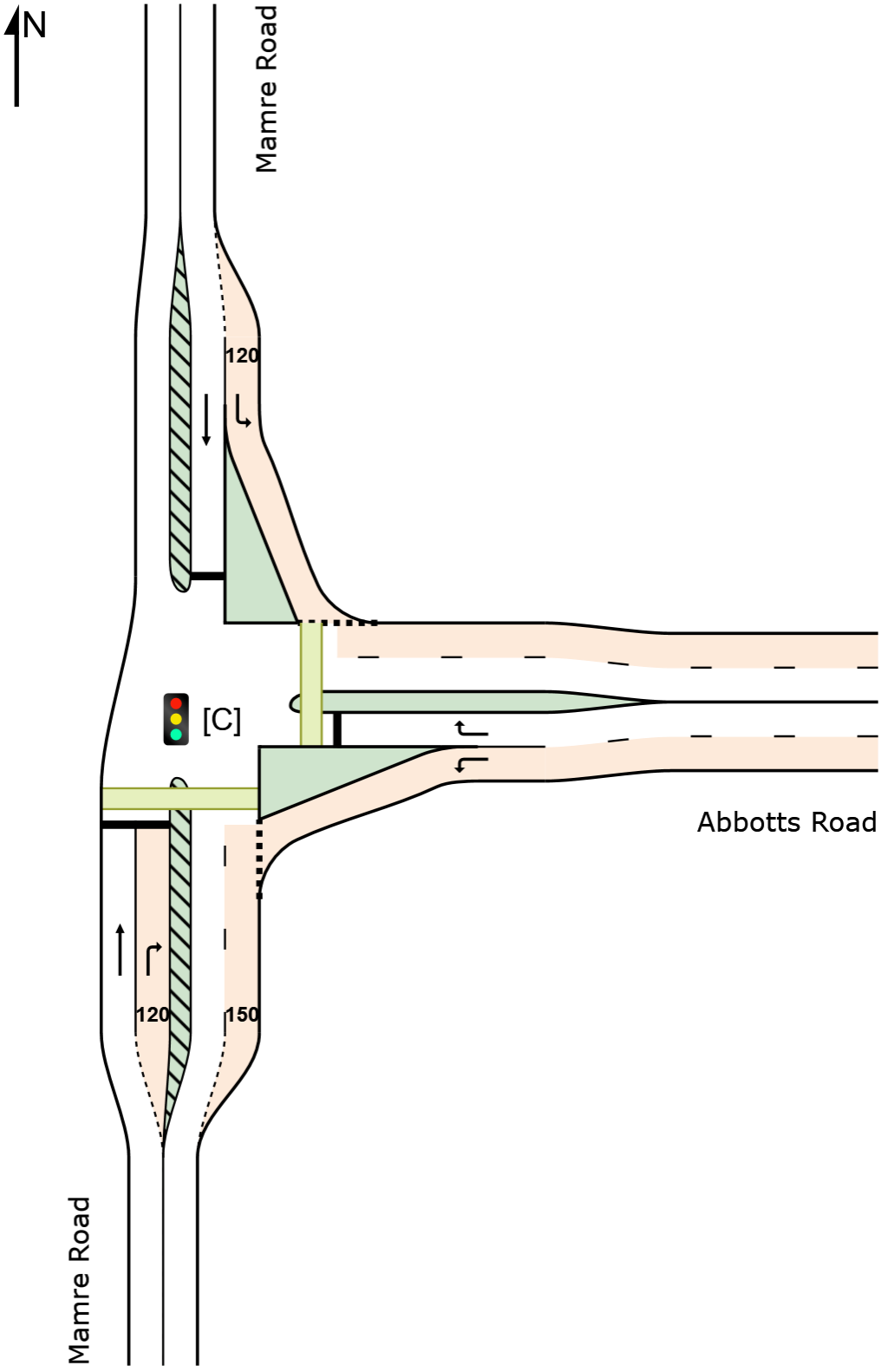
Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Mamre Road (500m)														
1	L2	1	0	1	0.0	0.919	32.6	LOS C	57.8	451.7	0.79	0.79	0.86	45.4
2	T1	921	125	969	13.6	0.919	25.6	LOS B	57.8	451.7	0.79	0.79	0.86	55.1
3	R2	25	0	26	0.0	* 0.354	87.3	LOS F	2.0	13.9	1.00	0.71	1.00	24.7
Approach		947	125	997	13.2	0.919	27.3	LOS B	57.8	451.7	0.79	0.79	0.86	53.8
East: Bakers Lane (440m)														
4	L2	49	0	52	0.0	0.069	34.7	LOS C	2.3	15.9	0.65	0.71	0.65	39.2
5	T1	1	0	1	0.0	* 1.160	224.8	LOS F	76.2	533.6	1.00	1.32	2.10	11.6
6	R2	487	0	513	0.0	1.160	230.4	LOS F	76.2	533.6	1.00	1.32	2.10	14.3
Approach		537	0	565	0.0	1.160	212.5	LOS F	76.2	533.6	0.97	1.27	1.97	15.0
North: Mamre Road (750m)														
7	L2	171	1	180	0.6	0.111	8.2	LOS A	1.7	11.9	0.14	0.66	0.14	61.3
8	T1	899	113	946	12.6	* 1.125	183.4	LOS F	132.6	1028.0	1.00	1.63	1.88	18.6
9	R2	1	0	1	0.0	1.125	190.0	LOS F	132.6	1028.0	1.00	1.63	1.88	17.9
Approach		1071	114	1127	10.6	1.125	155.5	LOS F	132.6	1028.0	0.86	1.48	1.60	20.8
West: Bakers lane														
10	L2	3	0	3	0.0	0.003	5.5	LOS A	0.0	0.0	0.00	0.47	0.00	55.5
11	T1	1	0	1	0.0	0.003	0.0	LOS A	0.0	0.0	0.00	0.47	0.00	55.7
12	R2	1	0	1	0.0	0.003	5.5	LOS A	0.0	0.0	0.00	0.47	0.00	54.3
Approach		5	0	5	0.0	0.003	4.4	LOS A	0.0	0.0	0.00	0.47	0.00	55.3
All Vehicles		2560	239	2695	9.3	1.160	119.7	LOS F	132.6	1028.0	0.86	1.18	1.40	24.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

Site: Mamre Rd / Abbotts Rd - 2026



MOVEMENT SUMMARY

Site: [C] [Mamre Rd / Abbotts Rd - 2026 AM Base + Dev (Site Folder: 2026 Abbotts)]

Mamre Rd / Abbotts Road
Site Category: Future
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Mamre Road														
2	T1	878	119	924	13.6	0.665	4.5	LOS A	16.6	129.9	0.50	0.47	0.50	72.9
3	R2	246	60	259	24.4	* 0.873	52.5	LOS D	12.0	101.2	1.00	0.97	1.41	33.7
Approach		1124	179	1183	15.9	0.873	15.0	LOS B	16.6	129.9	0.61	0.58	0.70	58.1
East: Abbotts Road														
4	L2	119	50	125	42.0	0.235	17.6	LOS B	2.7	25.5	0.65	0.72	0.65	43.0
6	R2	44	20	46	45.5	* 0.440	48.0	LOS D	1.9	18.5	0.99	0.74	0.99	31.1
Approach		163	70	172	42.9	0.440	25.8	LOS B	2.7	25.5	0.74	0.73	0.74	39.0
North: Mamre Road														
7	L2	82	22	86	26.8	0.080	10.4	LOS A	0.8	7.2	0.33	0.67	0.33	56.0
8	T1	766	111	806	14.5	* 0.888	30.8	LOS C	35.5	279.5	0.96	1.02	1.18	47.8
Approach		848	133	893	15.7	0.888	28.8	LOS C	35.5	279.5	0.90	0.99	1.09	48.5
All Vehicles		2135	382	2247	17.9	0.888	21.3	LOS B	35.5	279.5	0.74	0.75	0.86	52.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Mamre Road												
P1	Full	10	11	34.2	LOS D	0.0	0.0	0.93	0.93	62.9	37.2	0.59
East: Abbotts Road												
P2	Full	10	11	34.2	LOS D	0.0	0.0	0.93	0.93	60.3	33.9	0.56
All Pedestrians		20	21	34.2	LOS D	0.0	0.0	0.93	0.93	61.6	35.6	0.58

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

MOVEMENT SUMMARY

Site: [C] [Mamre Rd / Abbotts Rd - 2026 PM Base + Dev (Site Folder: 2026 Abbotts)]

Mamre Rd / Abbotts Road
Site Category: Future
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Mamre Road														
2	T1	782	126	823	16.1	0.602	4.0	LOS A	13.4	107.0	0.46	0.42	0.46	73.5
3	R2	126	60	133	47.6	* 0.850	55.2	LOS D	6.1	60.0	1.00	0.96	1.49	32.7
Approach		908	186	956	20.5	0.850	11.1	LOS A	13.4	107.0	0.53	0.50	0.60	62.6
East: Abbotts Road														
4	L2	258	60	272	23.3	0.551	21.2	LOS B	7.4	62.2	0.81	0.80	0.81	43.7
6	R2	86	26	91	30.2	* 0.790	52.1	LOS D	4.0	35.4	1.00	0.92	1.39	31.1
Approach		344	86	362	25.0	0.790	28.9	LOS C	7.4	62.2	0.86	0.83	0.95	39.7
North: Mamre Road														
7	L2	45	26	47	57.8	0.047	9.7	LOS A	0.3	3.4	0.26	0.64	0.26	55.7
8	T1	876	113	922	12.9	* 0.880	25.2	LOS B	37.9	294.3	0.92	0.96	1.08	51.6
Approach		921	139	969	15.1	0.880	24.4	LOS B	37.9	294.3	0.88	0.95	1.04	51.8
All Vehicles		2173	411	2287	18.9	0.880	19.6	LOS B	37.9	294.3	0.73	0.74	0.84	53.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
* Critical Movement (Signal Timing)

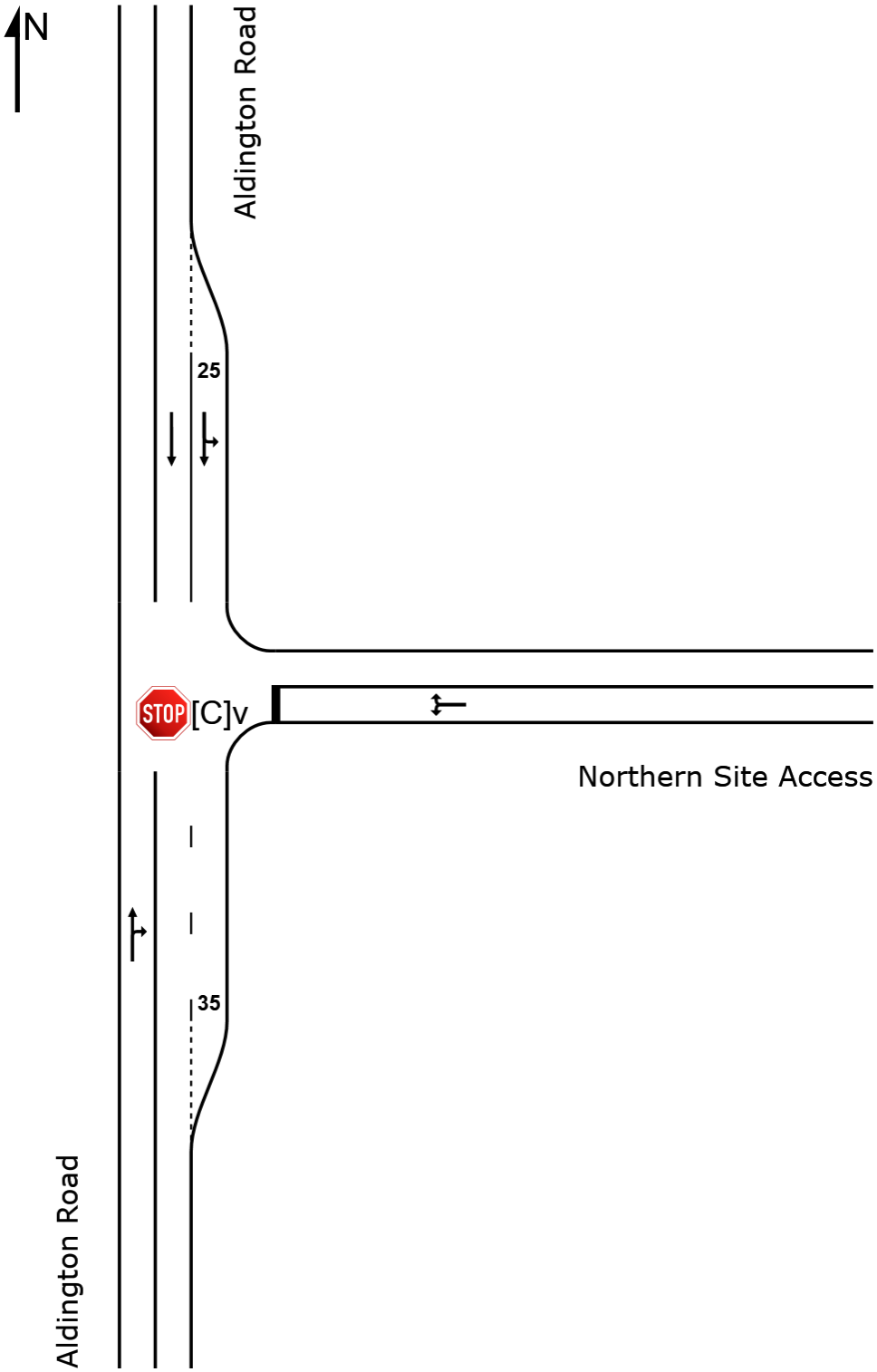
Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Mamre Road												
P1	Full	10	11	34.2	LOS D	0.0	0.0	0.93	0.93	62.9	37.2	0.59
East: Abbotts Road												
P2	Full	10	11	34.2	LOS D	0.0	0.0	0.93	0.93	60.3	33.9	0.56
All Pedestrians		20	21	34.2	LOS D	0.0	0.0	0.93	0.93	61.6	35.6	0.58

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

SITE LAYOUT

Site: [C]v [Aldington Rd / Northern Site Access



MOVEMENT SUMMARY

Site: [C]v [Aldington Rd / Northern Site Access 2026 AM (Site Folder: Site Access)]

Mamre Rd / Abbotts Road
Site Category: Future
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Aldington Road														
2	T1	5	0	5	0.0	0.070	0.1	LOS A	0.3	2.5	0.10	0.57	0.10	69.8
3	R2	79	20	83	25.3	0.070	7.4	LOS A	0.3	2.5	0.10	0.57	0.10	57.7
Approach		84	20	88	23.8	0.070	7.0	NA	0.3	2.5	0.10	0.57	0.10	58.3
East: Northern Site Access														
4	L2	40	20	42	50.0	0.040	10.1	LOS A	0.0	0.1	0.00	1.07	0.00	46.0
6	R2	3	0	3	0.0	0.040	8.5	LOS A	0.0	0.1	0.00	1.07	0.00	56.3
Approach		43	20	45	46.5	0.040	10.0	LOS A	0.0	0.1	0.00	1.07	0.00	46.6
North: Aldington Road														
7	L2	8	0	8	0.0	0.005	6.9	LOS A	0.0	0.0	0.00	0.63	0.00	65.4
8	T1	15	0	16	0.0	0.008	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	80.0
Approach		23	0	24	0.0	0.008	2.4	NA	0.0	0.0	0.00	0.22	0.00	74.2
All Vehicles		150	40	158	26.7	0.070	7.1	NA	0.3	2.5	0.05	0.66	0.05	56.1

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

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

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

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

Queue Model: SIDRA Standard.

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

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

MOVEMENT SUMMARY

Site: [C]v [Aldington Rd / Northern Site Access 2026 PM (Site Folder: Site Access)]

Mamre Rd / Abbotts Road
Site Category: Future
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Aldington Road														
2	T1	15	0	16	0.0	0.049	0.0	LOS A	0.2	1.9	0.06	0.46	0.06	73.2
3	R2	42	21	44	50.0	0.049	7.8	LOS A	0.2	1.9	0.06	0.46	0.06	58.7
Approach		57	21	60	36.8	0.049	5.8	NA	0.2	1.9	0.06	0.46	0.06	61.9
East: Northern Site Access														
4	L2	83	21	87	25.3	0.077	9.1	LOS A	0.0	0.3	0.00	1.04	0.00	50.6
6	R2	8	0	8	0.0	0.077	8.3	LOS A	0.0	0.3	0.00	1.04	0.00	56.3
Approach		91	21	96	23.1	0.077	9.0	LOS A	0.0	0.3	0.00	1.04	0.00	51.1
North: Aldington Road														
7	L2	3	0	3	0.0	0.002	6.9	LOS A	0.0	0.0	0.00	0.63	0.00	65.4
8	T1	5	2	5	40.0	0.003	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	80.0
Approach		8	2	8	25.0	0.003	2.6	NA	0.0	0.0	0.00	0.24	0.00	73.8
All Vehicles		156	44	164	28.2	0.077	7.5	NA	0.2	1.9	0.02	0.78	0.02	55.5

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

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

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

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

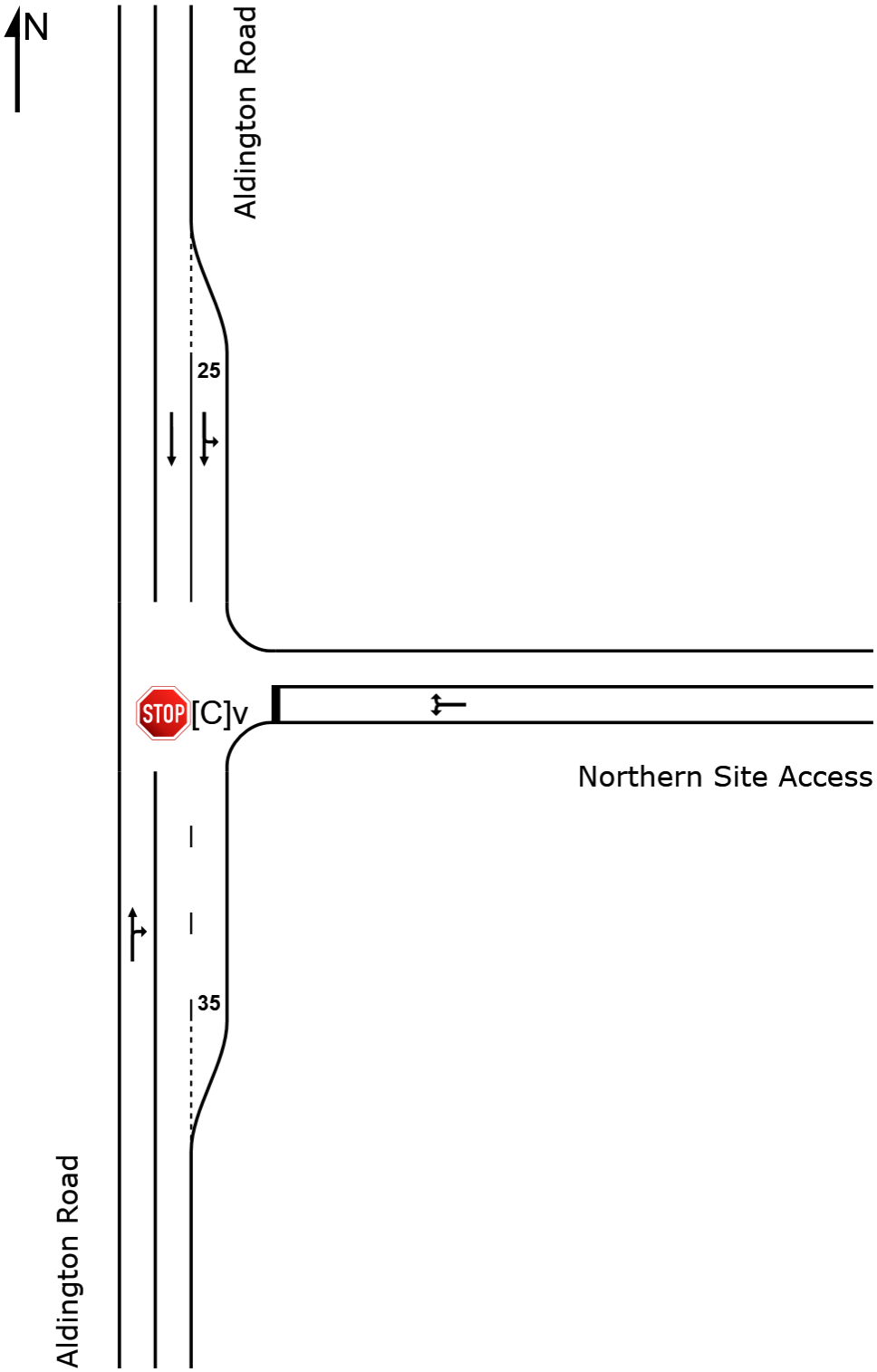
Queue Model: SIDRA Standard.

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

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

SITE LAYOUT

Site: [C]v [Aldington Rd / Northern Site Access 2031



MOVEMENT SUMMARY

Site: [C]v [Aldington Rd / Northern Site Access 2031 AM (Site Folder: Site Access)]

Mamre Rd / Abbotts Road
Site Category: Future
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Aldington Road														
2	T1	480	137	505	28.5	0.526	4.1	LOS A	4.4	38.5	0.49	0.19	0.77	70.0
3	R2	125	30	132	24.0	0.526	15.7	LOS B	4.4	38.5	0.49	0.19	0.77	57.9
Approach		605	167	637	27.6	0.526	6.5	NA	4.4	38.5	0.49	0.19	0.77	67.1
East: Northern Site Access														
4	L2	41	5	43	12.2	0.196	9.8	LOS A	0.6	4.9	0.33	0.88	0.33	46.8
6	R2	16	2	17	12.5	0.196	44.9	LOS D	0.6	4.9	0.33	0.88	0.33	46.6
Approach		57	7	60	12.3	0.196	19.7	LOS B	0.6	4.9	0.33	0.88	0.33	46.8
North: Aldington Road														
7	L2	32	10	34	31.3	0.063	7.5	LOS A	0.0	0.0	0.00	0.22	0.00	60.4
8	T1	464	141	488	30.4	0.259	0.2	LOS A	0.0	0.0	0.00	0.03	0.00	79.3
Approach		496	151	522	30.4	0.259	0.7	NA	0.0	0.0	0.00	0.04	0.00	77.7
All Vehicles		1158	325	1219	28.1	0.526	4.6	NA	4.4	38.5	0.27	0.16	0.42	69.7

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

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

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

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

Queue Model: SIDRA Standard.

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

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

MOVEMENT SUMMARY

Site: [C]v [Aldington Rd / Northern Site Access 2031 PM (Site Folder: Site Access)]

Mamre Rd / Abbotts Road
Site Category: Future
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Aldington Road														
2	T1	485	137	511	28.2	0.379	1.2	LOS A	1.2	10.7	0.19	0.06	0.25	76.2
3	R2	43	5	45	11.6	0.379	13.4	LOS A	1.2	10.7	0.19	0.06	0.25	62.8
Approach		528	142	556	26.9	0.379	2.2	NA	1.2	10.7	0.19	0.06	0.25	74.9
East: Northern Site Access														
4	L2	88	5	93	5.7	0.330	11.0	LOS A	1.4	10.0	0.36	0.90	0.41	48.6
6	R2	34	2	36	5.9	0.330	38.5	LOS C	1.4	10.0	0.36	0.90	0.41	48.4
Approach		122	7	128	5.7	0.330	18.7	LOS B	1.4	10.0	0.36	0.90	0.41	48.5
North: Aldington Road														
7	L2	17	10	18	58.8	0.065	8.0	LOS A	0.0	0.0	0.00	0.11	0.00	54.4
8	T1	501	141	527	28.1	0.268	0.2	LOS A	0.0	0.0	0.00	0.02	0.00	79.6
Approach		518	151	545	29.2	0.268	0.5	NA	0.0	0.0	0.00	0.02	0.00	78.4
All Vehicles		1168	300	1229	25.7	0.379	3.1	NA	1.4	10.7	0.12	0.13	0.15	72.2

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

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

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

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

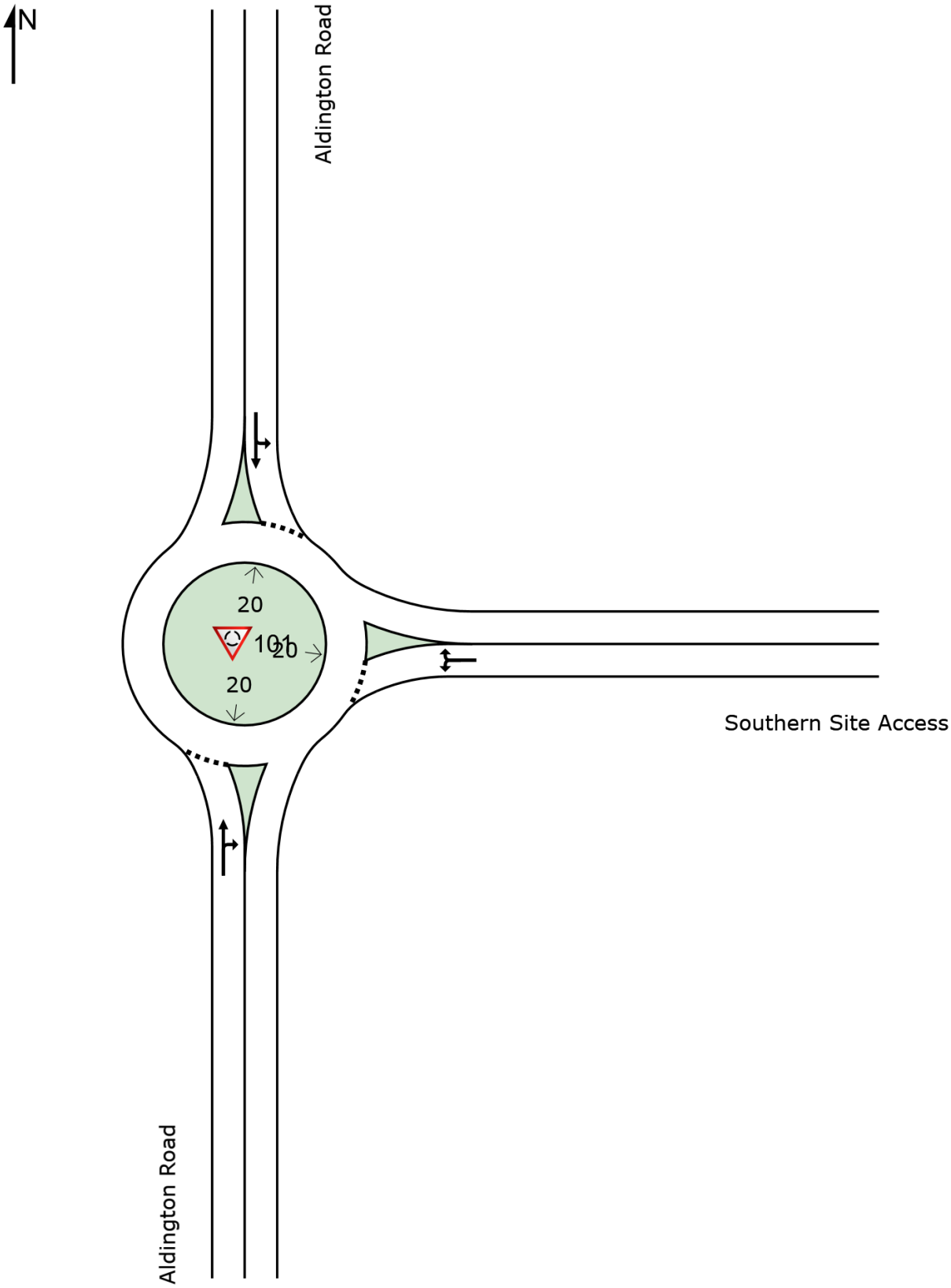
Queue Model: SIDRA Standard.

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

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

SITE LAYOUT

Site: 101 [Aldington Rd / Southern Site Access 2026



MOVEMENT SUMMARY

Site: 101 [Aldington Rd / Southern Site Access 2026 AM (Site Folder: Site Access)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Aldington Road														
2	T1	99	30	104	30.3	0.160	4.4	LOS A	0.9	7.5	0.05	0.55	0.05	53.9
3	R2	126	30	133	23.8	0.160	9.0	LOS A	0.9	7.5	0.05	0.55	0.05	53.6
Approach		225	60	237	26.7	0.160	7.0	LOS A	0.9	7.5	0.05	0.55	0.05	53.7
East: Southern Site Access														
4	L2	64	20	67	31.3	0.064	4.6	LOS A	0.3	2.8	0.22	0.48	0.22	53.6
6	R2	5	0	5	0.0	0.064	9.0	LOS A	0.3	2.8	0.22	0.48	0.22	55.9
Approach		69	20	73	29.0	0.064	4.9	LOS A	0.3	2.8	0.22	0.48	0.22	53.7
North: Aldington Road														
7	L2	11	2	12	18.2	0.068	4.8	LOS A	0.3	3.2	0.33	0.46	0.33	53.6
8	T1	50	30	53	60.0	0.068	5.7	LOS A	0.3	3.2	0.33	0.46	0.33	54.0
Approach		61	32	64	52.5	0.068	5.5	LOS A	0.3	3.2	0.33	0.46	0.33	53.9
All Vehicles		355	112	374	31.5	0.160	6.3	LOS A	0.9	7.5	0.13	0.52	0.13	53.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Aldington Rd / Southern Site Access 2026 PM (Site Folder: Site Access)]

New Site
Site Category: (None)
Roundabout

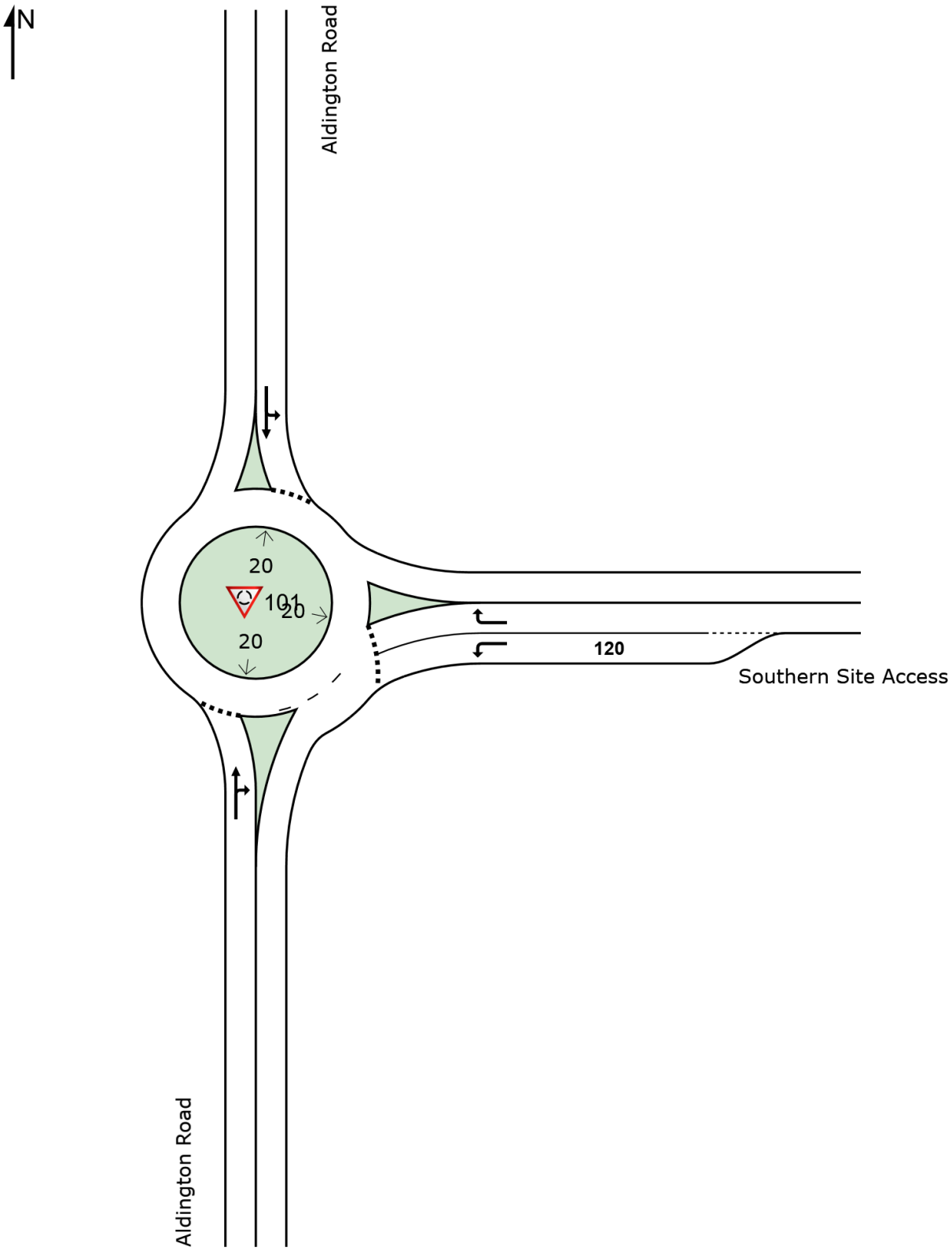
Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Aldington Road														
2	T1	11	3	12	27.3	0.066	4.4	LOS A	0.3	3.2	0.09	0.58	0.09	53.0
3	R2	67	30	71	44.8	0.066	9.3	LOS A	0.3	3.2	0.09	0.58	0.09	51.9
Approach		78	33	82	42.3	0.066	8.6	LOS A	0.3	3.2	0.09	0.58	0.09	52.0
East: Southern Site Access														
4	L2	133	40	140	30.1	0.141	4.9	LOS A	0.7	6.4	0.32	0.51	0.32	53.2
6	R2	13	0	14	0.0	0.141	9.3	LOS A	0.7	6.4	0.32	0.51	0.32	55.5
Approach		146	40	154	27.4	0.141	5.3	LOS A	0.7	6.4	0.32	0.51	0.32	53.4
North: Aldington Road														
7	L2	5	0	5	0.0	0.100	4.3	LOS A	0.5	4.2	0.24	0.42	0.24	54.4
8	T1	104	30	109	28.8	0.100	4.8	LOS A	0.5	4.2	0.24	0.42	0.24	55.0
Approach		109	30	115	27.5	0.100	4.8	LOS A	0.5	4.2	0.24	0.42	0.24	55.0
All Vehicles		333	103	351	30.9	0.141	5.9	LOS A	0.7	6.4	0.24	0.50	0.24	53.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

Site: 101 [Aldington Rd / Southern Site Access 2031



MOVEMENT SUMMARY

Site: 101 [Aldington Rd / Southern Site Access 2031 AM (Site Folder: Site Access)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Aldington Road														
2	T1	636	190	669	29.9	0.949	7.2	LOS A	28.6	251.4	1.00	0.54	1.00	51.0
3	R2	504	151	531	30.0	0.949	11.9	LOS A	28.6	251.4	1.00	0.54	1.00	50.6
Approach		1140	341	1200	29.9	0.949	9.2	LOS A	28.6	251.4	1.00	0.54	1.00	50.8
East: Southern Site Access														
4	L2	267	80	281	30.0	0.306	7.0	LOS A	2.2	19.3	0.71	0.72	0.71	51.9
6	R2	83	0	87	0.0	0.115	11.4	LOS A	0.7	4.8	0.65	0.73	0.65	51.2
Approach		350	80	368	22.9	0.306	8.0	LOS A	2.2	19.3	0.70	0.72	0.70	51.8
North: Aldington Road														
7	L2	170	51	179	30.0	0.945	40.3	LOS C	22.4	197.2	1.00	1.70	2.61	35.6
8	T1	372	111	392	29.8	0.945	40.4	LOS C	22.4	197.2	1.00	1.70	2.61	36.3
Approach		542	162	571	29.9	0.945	40.4	LOS C	22.4	197.2	1.00	1.70	2.61	36.1
All Vehicles		2032	583	2139	28.7	0.949	17.3	LOS B	28.6	251.4	0.95	0.88	1.38	46.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Aldington Rd / Southern Site Access 2031 PM (Site Folder: Site Access)]

New Site
Site Category: (None)
Roundabout

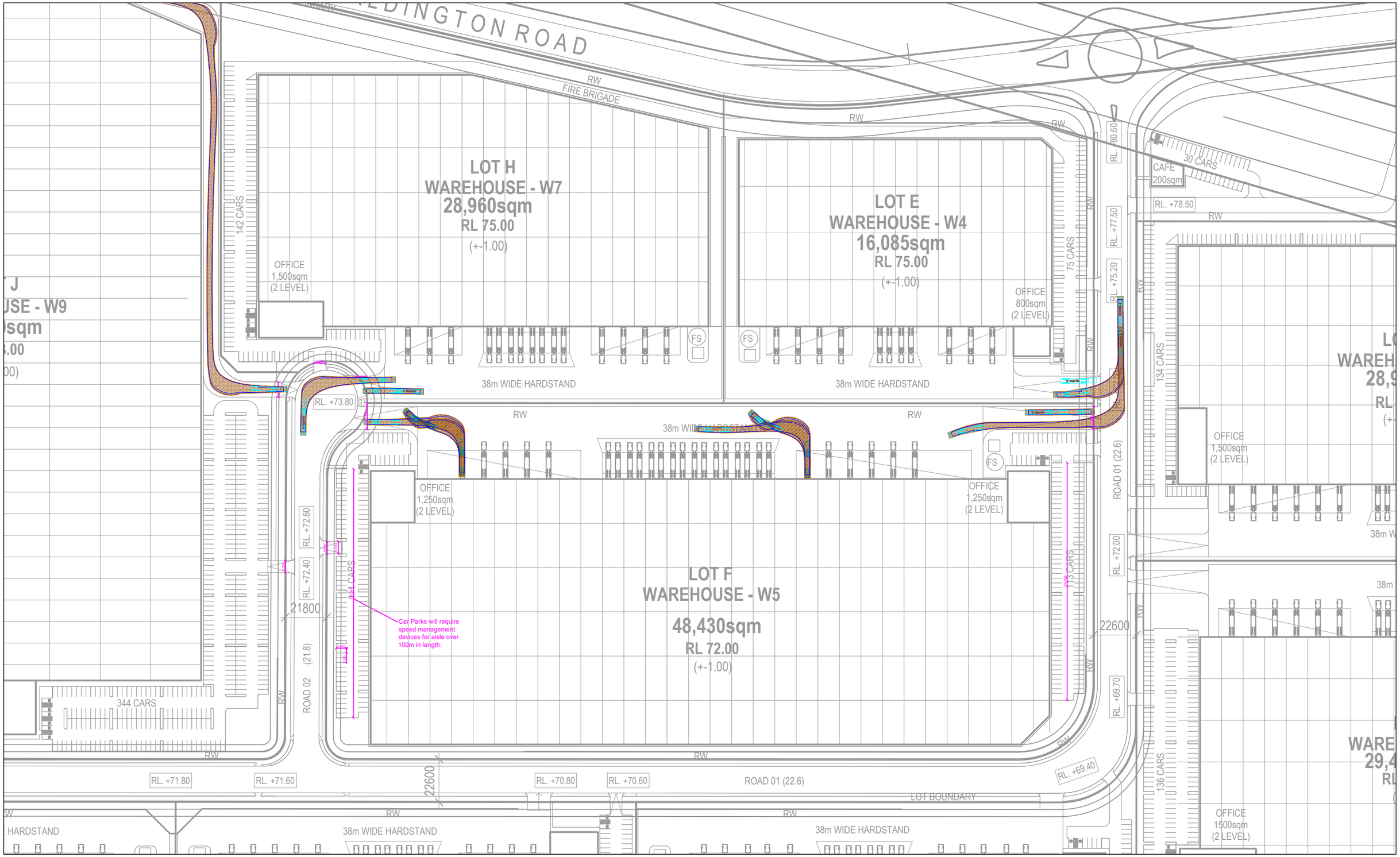
Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Aldington Road														
2	T1	389	100	409	25.7	0.661	6.4	LOS A	7.0	60.3	0.74	0.65	0.74	52.1
3	R2	278	83	293	29.9	0.661	11.2	LOS A	7.0	60.3	0.74	0.65	0.74	51.5
Approach		667	183	702	27.4	0.661	8.4	LOS A	7.0	60.3	0.74	0.65	0.74	51.8
East: Southern Site Access														
4	L2	571	171	601	29.9	0.934	40.3	LOS C	22.7	199.8	1.00	1.70	2.57	35.4
6	R2	178	0	187	0.0	0.350	14.4	LOS A	2.5	17.7	0.90	0.92	0.90	49.3
Approach		749	171	788	22.8	0.934	34.2	LOS C	22.7	199.8	0.98	1.51	2.17	38.0
North: Aldington Road														
7	L2	88	26	93	29.5	0.839	14.8	LOS B	14.9	130.7	1.00	1.08	1.42	47.2
8	T1	620	186	653	30.0	0.839	15.0	LOS B	14.9	130.7	1.00	1.08	1.42	48.4
Approach		708	212	745	29.9	0.839	15.0	LOS B	14.9	130.7	1.00	1.08	1.42	48.2
All Vehicles		2124	566	2236	26.6	0.934	19.7	LOS B	22.7	199.8	0.91	1.10	1.47	45.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Appendix C

Swept Path Analysis – Stage 1



Revision notes:

Rev:	Date:	Notes:

For information purposes only - not for construction

Drawn By: VC

Client: Fifie Stocklands Trust

Project: 1292 — 200 Aldington Road - Stage 1

Drawing Title: 26m B-Double Access and 19m AV Access

Date: 29/09/2020

Scale @ A3: n/a

Drawing Number: 01

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Appendix D

Draft Construction Traffic Management Plan

Prepared for

FIFE STOCKLAND TRUST

Preliminary Construction Traffic Management Plan

200 Aldington Road, Kemps Creek

Ref: 1294r03
30/09/2020

Info@asongroup.com.au | +61 2 9083 6601 | Suite 5.02, Level 5, 1 Castlereagh Street Sydney, NSW 2000

Document Control

Project No: 1292

Project: Industrial Precinct SSDA, 200 Aldington Road, Kemps Creek

Client: Fife Stockland Trust

File Reference: 12924r03 Draft CTMP_200 Aldington Rd, Issue

Revision History

Revision	Date	Details	Author	Approved by
-	30/09/2020	Issue	V. Cheng	R. Butler-Madden

Table of Contents

Appendices

1 Introduction

1.1 Overview

Ason Group has been engaged by Fife Capital and Stockland (Fife Kemps Creek Trust) to prepare a Draft Construction Traffic Management Plan (CTMP) in regard to the future construction of industrial development at 200 Aldington Road, Kemps Creek (the Site).

This CTMP details the proposed construction management strategies which would provide for the safe and efficient completion of the proposed works while minimising construction traffic impacts on the surrounding road network and public road network users.

From the outset, it is noted that the this CTMP is designed to be updated over time as additional details in regard to the construction proposal are revised / finalised as is standard in any major construction project, noting that all such updates would be completed in consultation with Penrith City Council (Council) in whose Local Government Area (LGA) the Site lies; and / or with the relevant authorities such as Transport for NSW (TfNSW) where special road occupancy or the like are required.

Importantly, Ason Group has been responsible for the preparation of this Draft CTMP, which has been prepared with reference to all available information in regard to the construction program, and all relevant CTMP preparation guidelines. The implementation of the recommendations and strategies detailed in this CTMP are the strict responsibility of Fife Kemps Creek Trust and / or the designated construction Project Manager.

2 The Site

2.1 Site Location

The Site is comprised of 7 separate allotments with a total area of approximately 72 Hectares (ha). The Site is located approximately 5km north-east of the future Western Sydney International (Nancy-Bird Walton) Airport (WSA), 13.5km south-east of the Penrith CBD and 40km west of the Sydney CBD.

The Site in its sub-regional context is shown in **Figure 1**, as well as the broader Mamre Road Precinct as designated by DPIE.

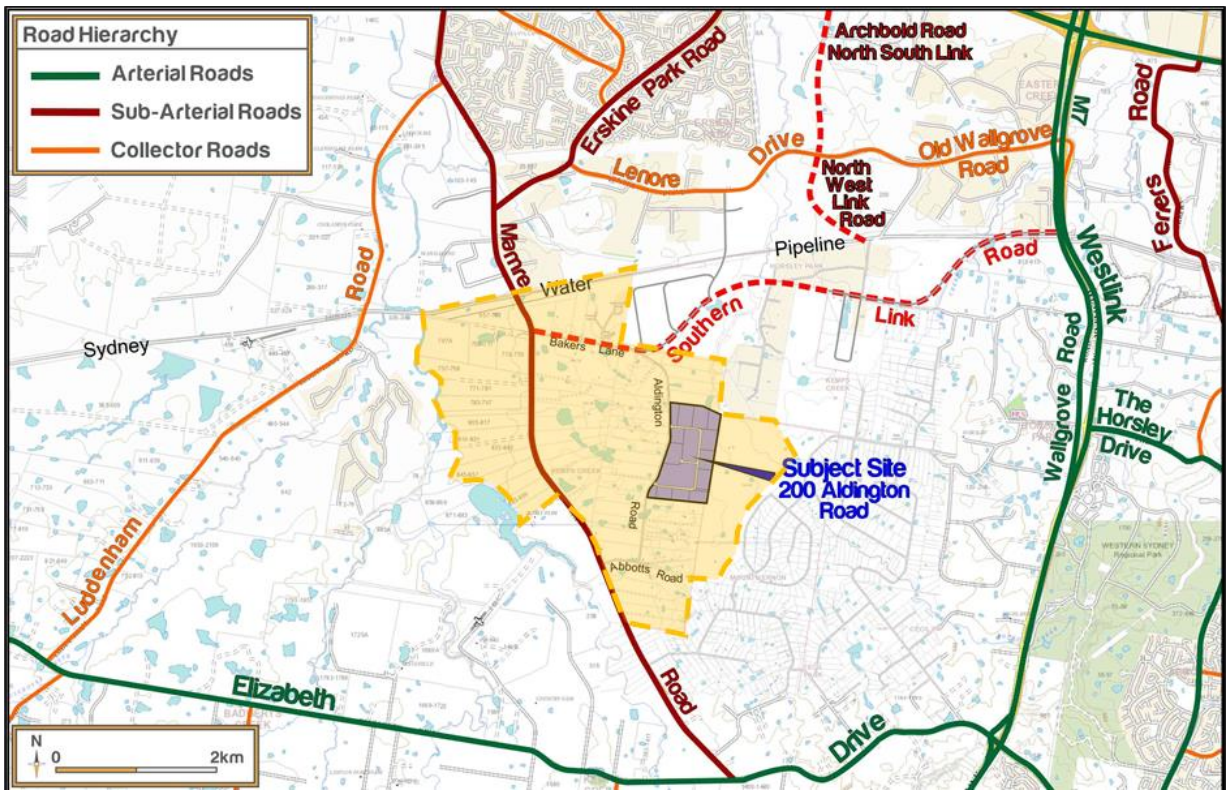


Figure 1: Site Location

2.2 Road Network

Key roads in the vicinity of the Site are shown in **Figure 1**, and include:

- **Westlink M7 Motorway:** M7 Motorway is a high capacity road link of state significance and was built to accommodate future traffic growth in the Western Sydney region. It provides a key north-south link between the M2 Motorway to the north and the M5 Motorway to the south as part of the Sydney orbital road network. A major interchange between the M7 Motorway and M4 Western Motorway is located approximately 3.5 km north of the Site, which connects the Sydney CBD and

western Sydney suburbs. The M7 Motorway provides 4 lanes (2 lanes per direction, divided carriageway) and has a posted speed limit of 100 km/h

- **(Future) M12 Motorway**: A proposed 16km motorway generally running in an east-west between the existing M7 motorway and the Northern Road. It is expected to run in parallel with Elizabeth Drive and is to have 2 lanes in each direction separated by a central median. Construction is expected to commence in 2020.
- **Wallgrove Road:** Wallgrove Road is an arterial road that runs in a north-south direction to the east of the Site and parallel (to the west of) the M7, functioning as a service road. The 2-lane, two-way road provides a link between the Great Western Highway to the north and Elizabeth Drive to the south. As with the M7, Wallgrove Road connects to the M4 motorway approximately 2.5 kilometres to the north of the Site.
- **Elizabeth Drive:** An TfNSW classified main road (MR 535) that runs in an east-west direction to the south of the site. Elizabeth Drive in the vicinity of the site generally provides 2 lanes (1 lane per direction) and has a posted speed limit of 80km/h. This road forms the Site's southern frontage and provides a vital link between Westlink M7 Motorway and The Northern Road.
- **The Northern Road:** The Northern Road is TfNSW classified main road (MR 154) that runs in a north-south direction to the west of the site. The Northern Road section near the vicinity of the site generally provides 3 lanes (1 to 2 lanes per direction) and has a posted speed limit of 80km/h. Currently, The Northern Road is undergoing multiple stages of road upgrades by RMS, including a realignment of the road in the south. The road upgrades between The Old Northern Road, Narellan and Peter Brock Drive, Oran Park, has been completed.
- **Mamre Road:** Mamre Road is an arterial road servicing traffic between the Great Western Highway and M4 to the north and Elizabeth Drive to the south. In the vicinity of the Site, Mamre Road generally provides 2 lanes for two-way traffic, with additional through movement and turning infrastructure at key intersections to the north through the Erskine Park and Mamre West industrial precincts, and at Elizabeth Drive to the south. Mamre Road has a posted speed limit of 80km/h in the vicinity of the Site. TfNSW has confirmed road upgrades will be undertaken for Mamre Road between Elizabeth Drive and Luddenham Road.

Further to the above, it is clear that the Site is well located in regard to immediate access to the local and sub-regional road network, as shown in **Figure 2** with specific reference to the current TfNSW Restricted Access Vehicle (RAC) routes, which allow for up to 25m/26m B-Double combinations.

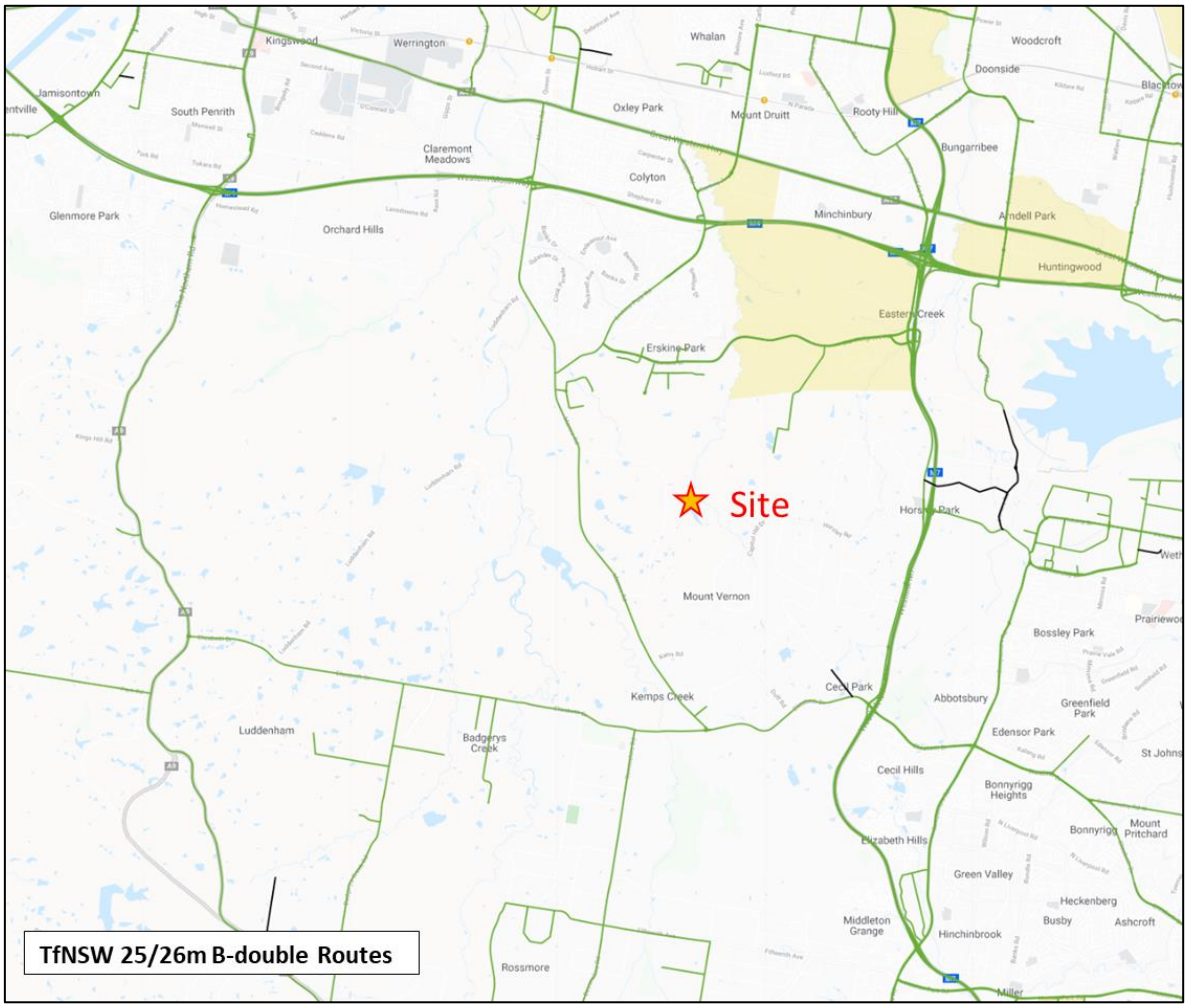


Figure 2: TfNSW Approved 25/26m B-Double Routes

3 Overview of Construction Works

3.1 Staging and Duration of Works

While there is no Contractor engaged for the project, for the purposes of the Draft CTMP, staging and duration of works has been based on similar developments in the area. Based on this, it is anticipated that construction works would commence in 2021 and be completed over a duration between 2-3 years, subject to authority approvals and inclement weather delays.

The following summarises key aspects of the construction stages:

- Demolition works are set to have a duration for 8-12 weeks commencing in 2021.
- Excavation activities would continue for 12-18 months commencing in 2021 finishing Mid-Late 2022.
- General Construction works are estimated to continue concurrently to excavation activities for 12-24 months commencing Mid-End 2021.

3.2 Construction Hours

The type of work being undertaken will remain consistent throughout the duration of construction and associated activities. All works will be undertaken within the following hours:

- Monday to Friday (other than Public Holidays): 7:00am – 6:00pm.
- Saturday: 8:00am – 1:00pm
- Sunday & Public Holidays: No works to be undertaken.

Any work to be undertaken outside of the standard construction hours will be required to obtain an Out of Hours (OOH) approval; any such works would necessarily be undertaken in accordance with the appropriate OOH protocols and approval processes.

3.3 Site Access

3.3.1 Construction Vehicle Access

All construction vehicles will enter and depart the Site from / to Mamre Road via Abbotts Road and not Bakers Lane, to avoid conflict with the School peak periods. A temporary access driveway will be provided, which will be constructed on the alignment of the future Southern Site Access Road.

It is anticipated that the largest vehicle accessing the Site would be a 19.6m Truck & Dog combination, which the temporary access driveway will be designed for.

The following **Figure 3** shows the indicative Site access location and **Figure 4** details the likely key access strategy into the routes between the Site and the regional road network.

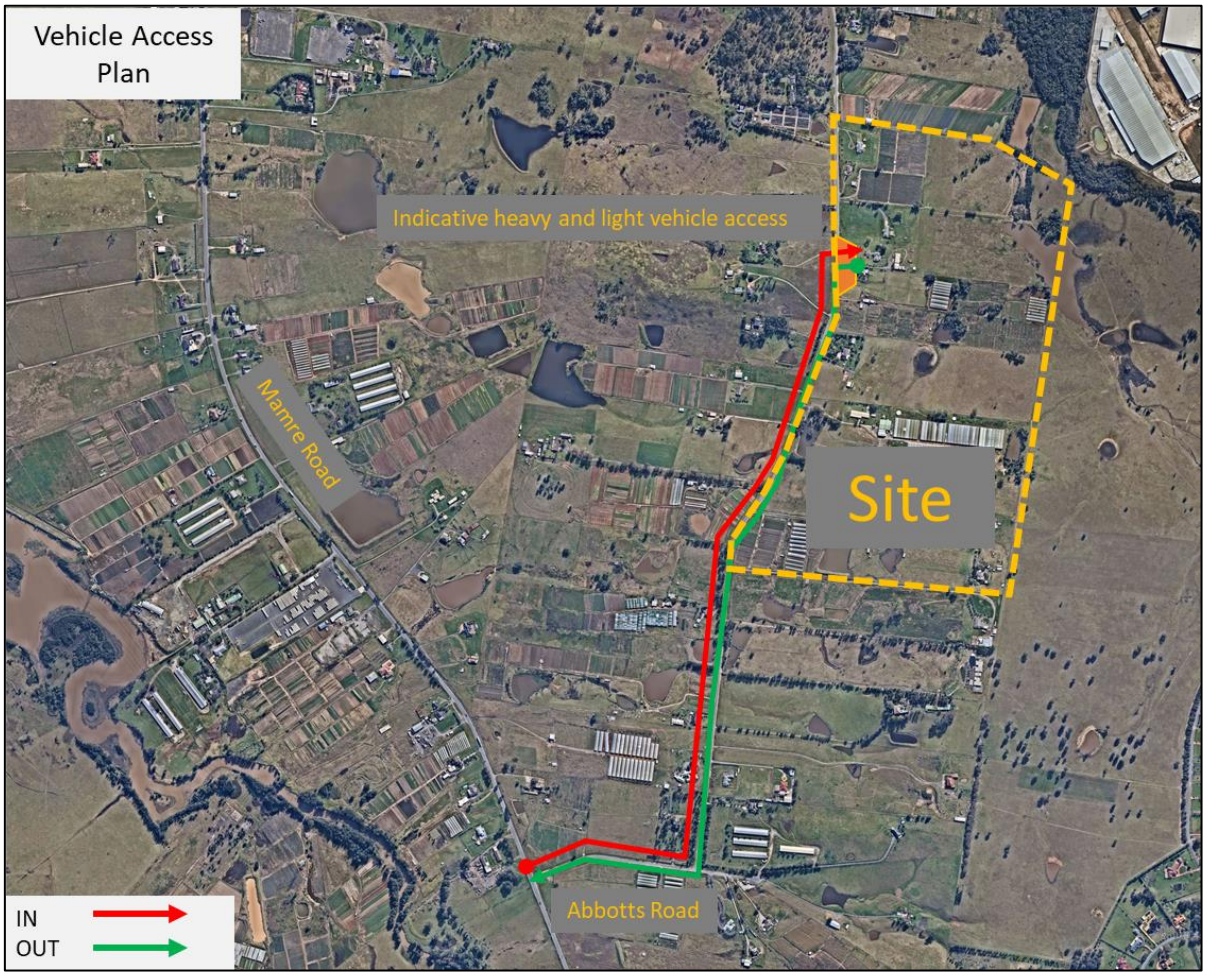


Figure 3: Indicative Vehicle Access Plan

3.3.2 Emergency Vehicle Access

Emergency vehicle access to and from the Site will be available at all times while the Site is occupied by construction workers; emergency protocols during the works will be developed by the Project Manager for inclusion within the final CTMP.

3.3.3 Pedestrian Access

There are currently no pedestrian amenities or footpaths along Aldington Road adjacent to the Site. However, the grassed verge on both sides of the road remains usable for any pedestrian that may wish to walk along Aldington Road.

Further to the above, while there is no expectation of pedestrians crossing the future construction access road, pedestrian safety will be managed through the provision of appropriate signage and pedestrian barriers. Construction personnel will also be able to access the Site by foot via a secure access gate

along the temporary access road, though with all construction staff (and vehicle) parking to be provided within the Site there is again little potential for such pedestrian demand.

3.4 Construction Vehicle Access Routes

As discussed, all construction vehicles will enter and exit the Site via Aldington Road.

It is anticipated that all heavy vehicles will access Site via the following routes:

- Arrival Trips:
  - Route 1: From M4 Western Motorway, southbound along Mamre Road and left into Abbotts Road, right into Site.
  - Route 2: From Westlink M7, westbound on Old Wallgrove Road, Lenore Drive and Erskine Park Road, then south along Mamre Road and left into Abbotts Road.
- Departure Trips:
  - Route 1: From the Site, left onto Aldington Road then south on Mamre Road to Elizabeth Drive and left to the M7 Motorway and sub-regional routes to the east.
  - Route 2: From the Site, left onto Aldington Road then south on Mamre Road to Elizabeth Drive and right to Badgerys Creek and The Northern Road to the west.

These routes are shown in **Figure 4**.

A copy of the approved routes will be distributed by the Project Manager to all drivers as part of their induction process.

In the event that an oversized or over-mass vehicles is required to travel to and / or from the Site, a permit from Roads and Maritime Services and / or the National Heavy Vehicle Register (NHVR) will be required prior to arrival to the site. Notwithstanding, this CTMP relates to general construction which does not seek the use of oversize vehicles; a separate application would be submitted if such access is required.

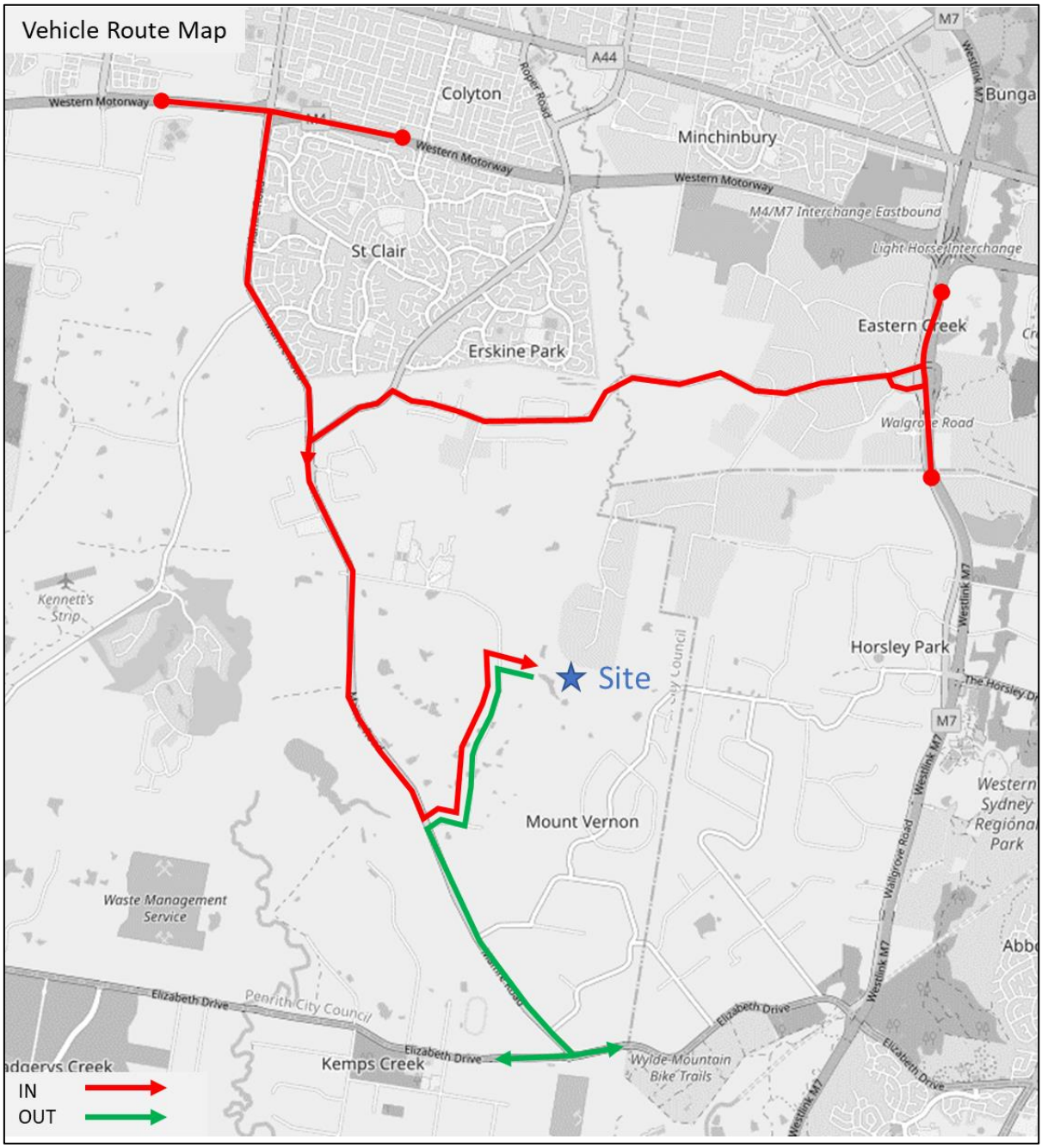


Figure 4: Construction Vehicle Routes

3.5 Fencing Requirements

Security fencing will be erected along the entire boundary of the Site and will be maintained for the duration of the construction works to ensure that unauthorised persons are kept out of the Site. The fencing will either be ATF or 2.4m chain wires.

Site access gates would be provided at the temporary driveway which would remain closed at all times outside of the permitted construction hours.

3.6 Materials Handling

All material loading will be undertaken wholly within the Site, and all construction equipment, materials and waste will similarly be strictly kept within the Site.

While not anticipated, should any materials handling (or other constructed related activity) be required from the public roadway (i.e. Aldington Road) then prior approval shall be sought and obtained from the appropriate authorities.

3.7 Additional Site Management

Although it is not expected, in the event that any Site construction traffic management outside of that described in this CTMP is required, the Project Manager will be required to notify adjacent properties of any temporary traffic restrictions (or the like) at least fourteen (14) days in advance.

3.8 Road Occupancy

The potential exists for future road occupancy requirements to facilitate the construction of the temporary driveway, and then any further upgrades to the intersection of Aldington Road. Road occupancy permits will necessarily be procured prior to starting intersection construction works, while a detailed intersection-specific CTMP would be prepared in consultation with Council and Roads & Maritime to ensure traffic along Aldington Road would continue to operate adequately during any such occupancy period.

3.9 CTMP – Monitoring & Review Process

This CTMP has been prepared referencing the existing Site conditions. Consultation with Council, Roads and Maritime and neighbouring developments will continue to be undertaken to ensure that the cumulative traffic impacts of construction within the area do not adversely impact the operations of the neighbouring developments or the local road network.

4 Assessment of Traffic & Transport Impacts

4.1 Construction Vehicle Traffic Generation

Table 1 provides a breakdown of potential vehicle movements throughout the proposed works (to be confirmed by Contractor once appointed, based on similar projects in area):

Table 1: Movement Overview

Stage	Demolition	Excavation	General Construction
Worker Numbers (Maximum on-site at any one time)	50 - 100	50 – 200	50 – 400
Truck Frequency (Maximum movements per day)	100 (50 in / 50 out)	600 (300 in / 300 out)	600 (300 in / 300 out)
Peak Hour Heavy Vehicle Movements	50 (25 in / 25 out)	120 (60 in / 60 out)	120 (60 in / 60 out)
Largest Vehicle Size	Truck & Dog	Truck & Dog	Truck & Dog

4.1.1 Light Vehicle Movements

It is anticipated that a peak construction workforce of up to 400 workers on-site at any one time (based on the specific constructions tasks being undertaken). Light vehicle traffic generation would generally be associated with construction staff movements to and from the Site, including Project Managers, trade and general employees.

With respect to the potential impacts of light vehicle traffic, the overwhelming majority of trips would occur in the short workforce arrival and departure periods, being (based on the proposed construction hours) 6:30am – 7:00am and 6:00pm – 6:30pm respectively; as such, these movements would occur outside of the existing (commuter) peak periods in the local network.

4.1.2 Heavy Vehicle Movements

As indicated in **Table 1**, the construction works are estimated to generate a peak demand for up to 600 truck movements per day (300 vehicles arriving / 300 vehicles departing). To provide a conservative assessment of intersection operations, a peak hour truck generation of up to 120 movements (60 vehicles arriving / 60 vehicles departing) has been assigned; on average, it is expected there would be approximately 60 truck movements per hour (30 vehicles arriving / 30 vehicles departing).

4.2 Vehicle Management – Principles

In accordance with TfNSW requirements, all vehicles transporting loose materials would have the entire load covered and/or secured to prevent any large items, excess dust or dirt particles depositing onto the roadway during travel to and from the Site.

Further to covering/securing the load to prevent deposits onto the roadway, a Shaker Grid is proposed and installed at the point of vehicle egress to minimise the risk of dirt tracking out onto Aldington Road. The responsibility of the driver to ensure that the Shaker Grid is driven over would be included as part of the Driver Code of conduct; this requirement, and indeed all driver requirements, will be detailed during an induction process for all drivers prior to commencing work at the Site, and will be further detailed in the Driver Code of Conduct, a copy of which included in **Appendix A**.

4.3 Construction Staff Parking

All construction staff and contractors will be required to park wholly within the Site, noting that there will be significant area available (at all times) to meet the peak parking demand.

5 Traffic Control

5.1 Traffic Control

The RMS guide “Traffic Control at Worksites” (TCAW) manual contains standard traffic control plans (TCPs) for a range or work activities. The manual’s objective is to maximise safety by ensuring traffic control at worksites complies with best practice.

The RMS TCAW outlines the requirements for a Vehicle Movement Plan (VMP) for construction works such as proposed; a VMP is a diagram showing the preferred travel paths for vehicles associated with a work site entering, leaving or crossing the through traffic stream. A VMP should also show travel paths for trucks at key points on routes remote from the work site such as places to turn around, accesses, ramps and side roads.

Regarding construction work on roads with an average daily total (ADT) in excess of 1,500 vehicles, approach speeds of between 60 km/hr and 80 km/hr, with truck movements > 20 veh/shift, and sight distance is less than 2d, (where d equals the posted speed limit and in this instance the sight distance is required to be up to 120 metres), it would be expected for the following to be required by the RMS TCAW:

- A detailed Traffic Control Plan (TCP) with Traffic controllers
- A VMP.
- Warning Signs required during shifts.

With regard to the proposed temporary access road, a site-specific version of TCP 195 (as shown in **Appendix B**) would be implemented for the duration of the works.

5.2 Authorised Traffic Controller

An authorised Traffic Controller(s) is to be present on-site throughout the proposed works. Responsibilities of the Traffic Controller will include:

- The supervision of all construction vehicle movements into and out of site at all times,
- The supervision of all loading and unloading of construction materials during the deliveries in the construction phase of the project, and
- Pedestrian management, to ensure that adverse conflicts between vehicle movements and pedestrians do not occur, while maintaining radio communication with construction vehicles at all times.

6 Monitoring and Communication Strategies

6.1 Development of Monitoring Program

The development of a program to monitor the effectiveness of this CTMP shall be established by the Project Manager and should consider scheduled reviews as well as additional reviews should construction characteristics be substantially changed (from those outlined in the Final CTMP). All and any reviews of the CTMP should be documented, with key considerations expected to include:

- Tracking heavy vehicle movements against the estimated heavy vehicle flows during the Stage 1 works.
- The identification of any shortfalls in the CTMP, and the development of revised strategies / action plans to address such issues.
- Ensuring that all TCPs are updated (if necessary) by "Prepare a Work Zone Traffic Management Plan" card holders to ensure they remain consistent with the set-up on-site.
- Regular checks to ensure all loads are departing the Site covered as outlined within this CTMP.

6.2 Communications Strategy

A Communications Strategy shall be established by the Project Manager for implementation throughout the construction works; this strategy will outline the most effective communication methods to ensure adequate information within the community and assist the Project Team to ensure the construction works have minimal disruption on the road network. The Communications Strategy will include:

- The erection of appropriate signage providing advanced notice of works and any traffic control measures to be implemented.
- Written notices to surrounding landowners (and tenants) likely to be directly affected by the works, prior to commencement.

Ongoing communication is also required so that all stakeholders are kept up to date of works and potential impacts.

7 Summary

This CTMP has been prepared to ensure appropriate traffic management is undertaken during the proposed industrial development.

Ultimately, this CTMP report has been prepared with regard to the management principles outlined in the RMS Traffic Control at Worksites Manual (2018) and AS1742.3, and per the detailed strategies outlined in the CTMP is recommended for adoption at the Site.

In summary though – and further to a determination that the proposal's construction traffic will not impact the local road network - the following measures are recommended to minimise the potential traffic impacts associated with the proposal:

- Traffic control would be required to manage and regulate construction vehicle traffic movements to and from the Site during construction.
- All vehicles transporting loose materials will have the load covered and/or secured to prevent any items depositing onto the roadway during travel to and from the Site.
- All vehicles are to enter and depart the Site in a forward direction, with reverse movements to occur only within the Site boundary.
- All contractor parking is to be contained wholly within the Site, and.
- Pedestrian and cyclist traffic along the Site frontage will be managed appropriately at all times.

In summary, the CTMP report is proposed in accordance with the RMS TCAW.

Appendix A

Driver Code of Conduct

- Driver Code of Conduct -

Drivers Code of Conduct

Safe Driving Policy for the 200 Aldington Road, Kemps Creek.

Objectives of the Drivers Code of conduct

- To minimise the impact of earthworks and construction on the local and regional road network;
- Minimise conflict with other road users;
- Minimise road traffic noise; and
- Ensure truck drivers use specified routes

Code of Conduct

All vehicle operators accessing the site must:

- Take reasonable care for his or her own personal health and safety.
- Not adversely, by way of actions or otherwise, impact on the health and safety of other persons.
- Notify their employer if they are not fit for duty prior to commencing their shift.
- Obey all applicable road rules and laws at all times.
- In the event an emergency vehicle behind your vehicle, pull over and allow the emergency vehicle to pass immediately.
- Obey the applicable driving hours in accordance with legislation and take all reasonable steps to manage their fatigue and not drive with high levels of drowsiness.
- Obey all on-site signposted speed limits and comply with directions of traffic control supervisors in relation to movements in and around temporary or fixed work areas.
- Ensure all loads are safely restrained, as necessary.
- Drive over cattle grids – located at the Site's access – to vibrate off any loose material attached to construction vehicles.
- Operate their vehicles in a safe and professional manner, with consideration for all other road users.
- Hold a current Australian State or Territory issued driver's licence.
- Notify their employer or operator immediately should the status or conditions of their driver's license change in any way.

- Comply with other applicable workplace policies, including a zero tolerance of driving while under the influence of alcohol and/or illicit drugs.
- Not use mobile phones when driving a vehicle or operating equipment. If the use of a mobile device is required, the driver shall pull over in a safe and legal location prior to the use of any mobile device.
- Advise management of any situations in which you know, or think may, present a threat to workplace health and safety.
- Drive according to prevailing conditions (such as during inclement weather) and reduce speed, if necessary.
- Have necessary identification documentation at hand and ready to present to security staff on entry and departure from the site, as necessary, to avoid unnecessary delays to other vehicles.

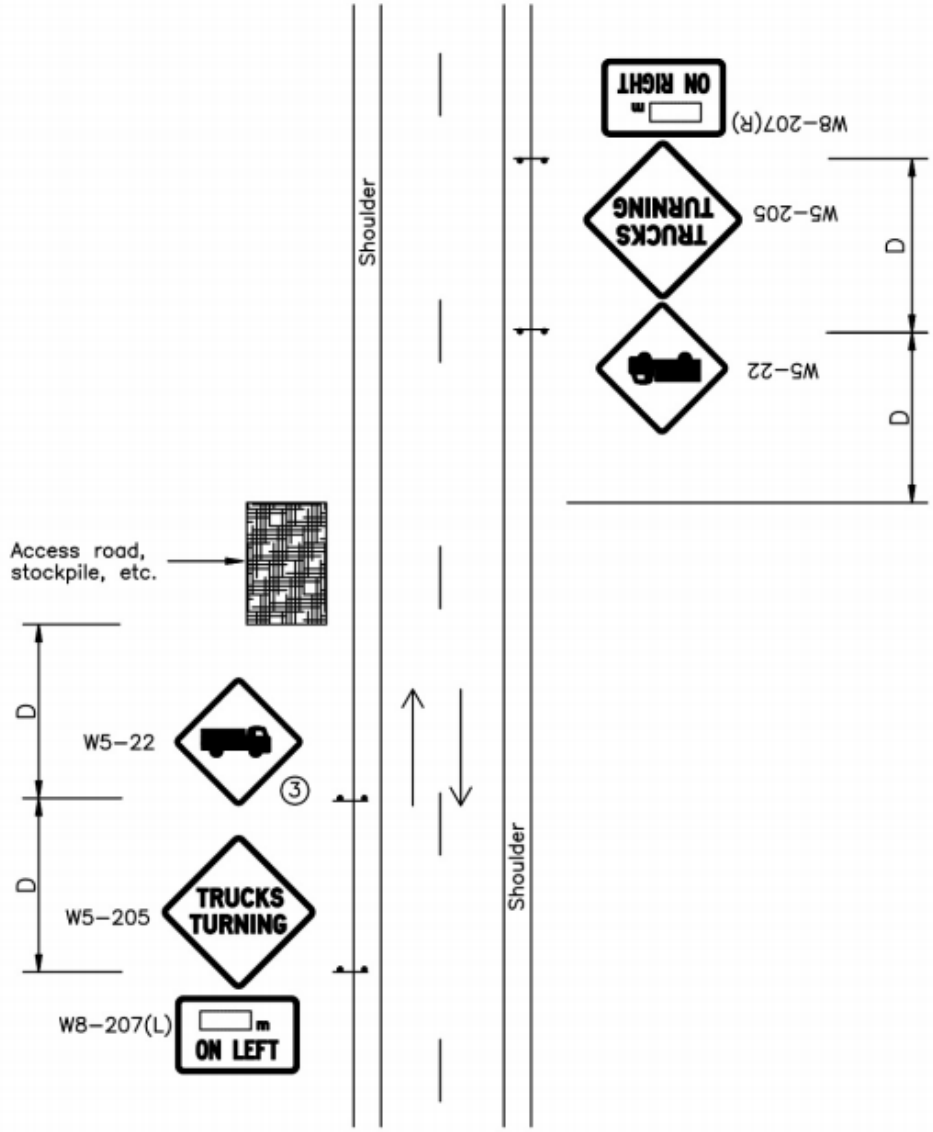
Crash or incident Procedure

- Stop your vehicle as close to it as possible to the scene, making sure you are not hindering traffic. Ensure your own safety first, then help any injured people and seek assistance immediately if required.
- Ensure the following information is noted:
  - Details of the other vehicles and registration numbers
  - Names and addresses of the other vehicle drivers
  - Names and addresses of witnesses
  - Insurers details
- Give the following information to the involved parties:
  - Name, address and company details
- If the damaged vehicle is not occupied, provide a note with your contact details for the owner to contact the company.
- Ensure that the police are contacted should the following circumstances occur:
  - If there is a disagreement over the cause of the crash.
  - If there are injuries.
  - If you damage property other than your own.
- As soon as reasonably practical, report all details gathered to your manager.

Appendix B

Traffic Control Plan(s)

TCP 195



NOTE:

① For use where roadside is generally undeveloped, ADT is more than 1,500 vehicles per day, sight distance is restricted and there are more than 20 truck movements per shift.

② See ***Traffic control at work sites,*** Section 7.7, ***Signs for depots, stockpiles, quarries, gravel pits etc.***

③ For short term works use T2–25.

ACCESS TO DEPOT, STOCKPILE, QUARRY, GRAVEL PIT ETC.
ALL ROADS
LONG TERM USE

T000195