Appendix H
Traffic and Transport Assessment

FLAGSTONE CITY CONTEXT AREA 5

Traffic and Transport Assessment

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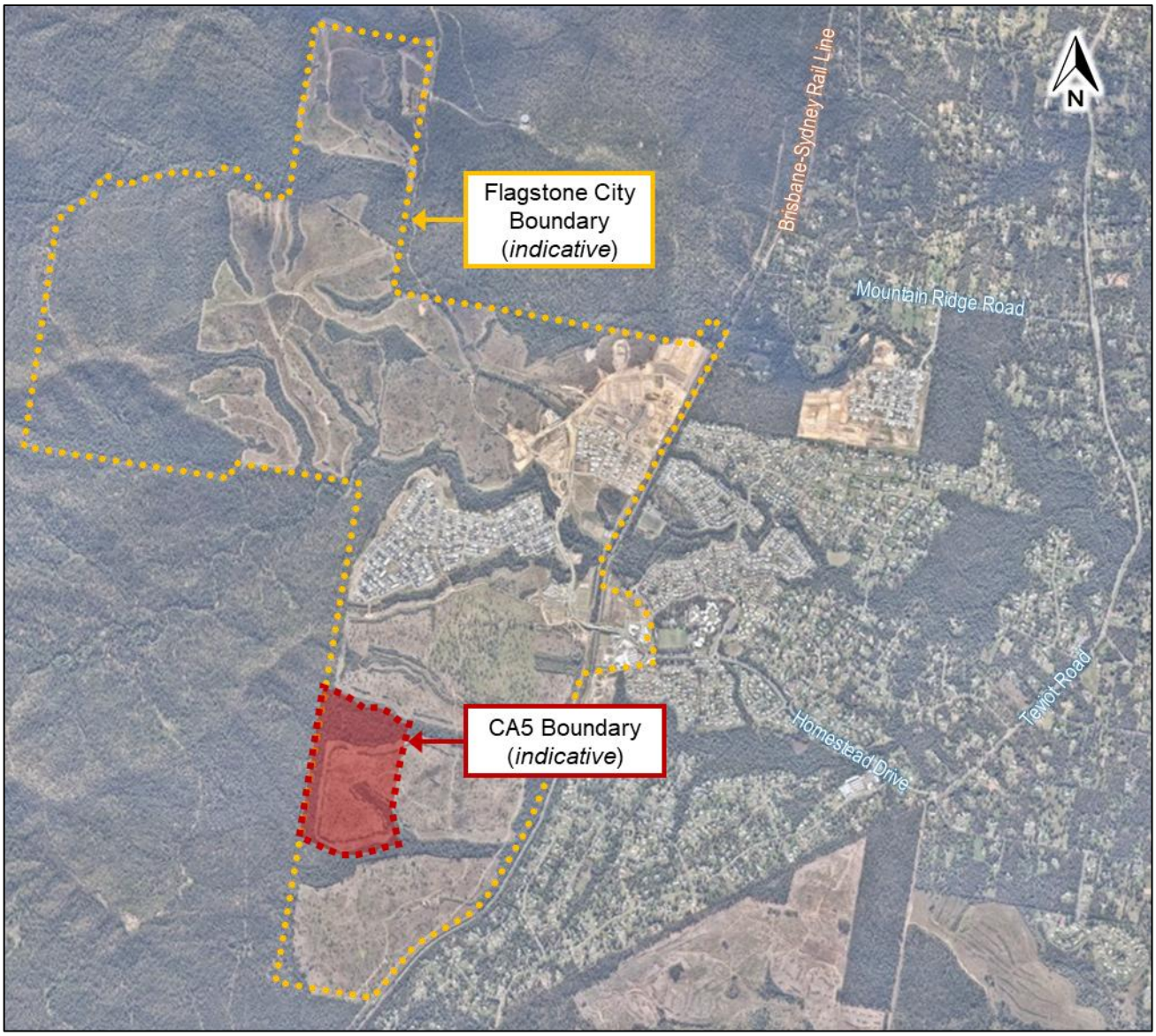
1. INTRODUCTION

1.1 Background

This traffic impact assessment (TIA) has been prepared on behalf of PEET Flagstone City Pty Ltd (PEET) for the proposed Context Area 5 (CA5) North subdivision within Flagstone City. The location of the subject site with respect to the Flagstone City boundary is illustrated in Figure 1.1.



Source: Adapted from Nearmap

Figure 1.1: Site Location

This report documents the proposed transport network and its integration with the surrounding network and future planning in the region. It includes an assessment of key intersections and identifies the necessary alternative transport provisions to suitably service the development, aligning with endorsed Context Area Plans and the Flagstone City Movement Network Infrastructure Master Plan (Movement IMP).

1.2 Scope of Assessment

The purpose of this assessment is to provide an overview and analysis of traffic and transport related elements of the subject site with the following scope of assessment:

- A review of the development's context with relation to transport planning within Flagstone City, the Greater Flagstone PDA and overarching transport planning in the South Logan region
- A review of the proposed development against relevant planning to date
- Detailing previous strategic modelling and current microsimulation modelling undertaken used to identify and evaluate appropriate road layout and road cross-sections within the subject site
- Source traffic volumes from the microsimulation modelling to assess key road links and intersections within the subject site
- Review alternate transport provisions throughout the site, including consideration of public and active transport facilities and connections.

1.3 Reference Material

The following planning documents have been considered as a part of this assessment including (but not limited to):

- The Flagstone City Movement Network Infrastructure Master Plan (Movement IMP) (2024)
- The Greater Flagstone PDA Development Scheme
- The Development Charges and Offset Plan (DCOP) and mapping
- The approved/endorsed Context Area Plans
- Relevant Economic Development Queensland (EDQ) Guidelines and Practice Notes.

2. SITE LOCATION & PLANNING CONTEXT

2.1 Context Plan Area

Flagstone City consists of several overarching Context Plan areas. The proposed CA5 North subdivision is comprised of the north-west portion of CA5, as well as a small portion of the south-west part of CA4. Therefore, the CA5 North (subject site) referred to herein relates to the portion of CA5 and CA4 as detailed below.

The location of the subject site with respect to the immediately surrounding context area plans of CA4 and CA5 is illustrated in Figure 2.1.

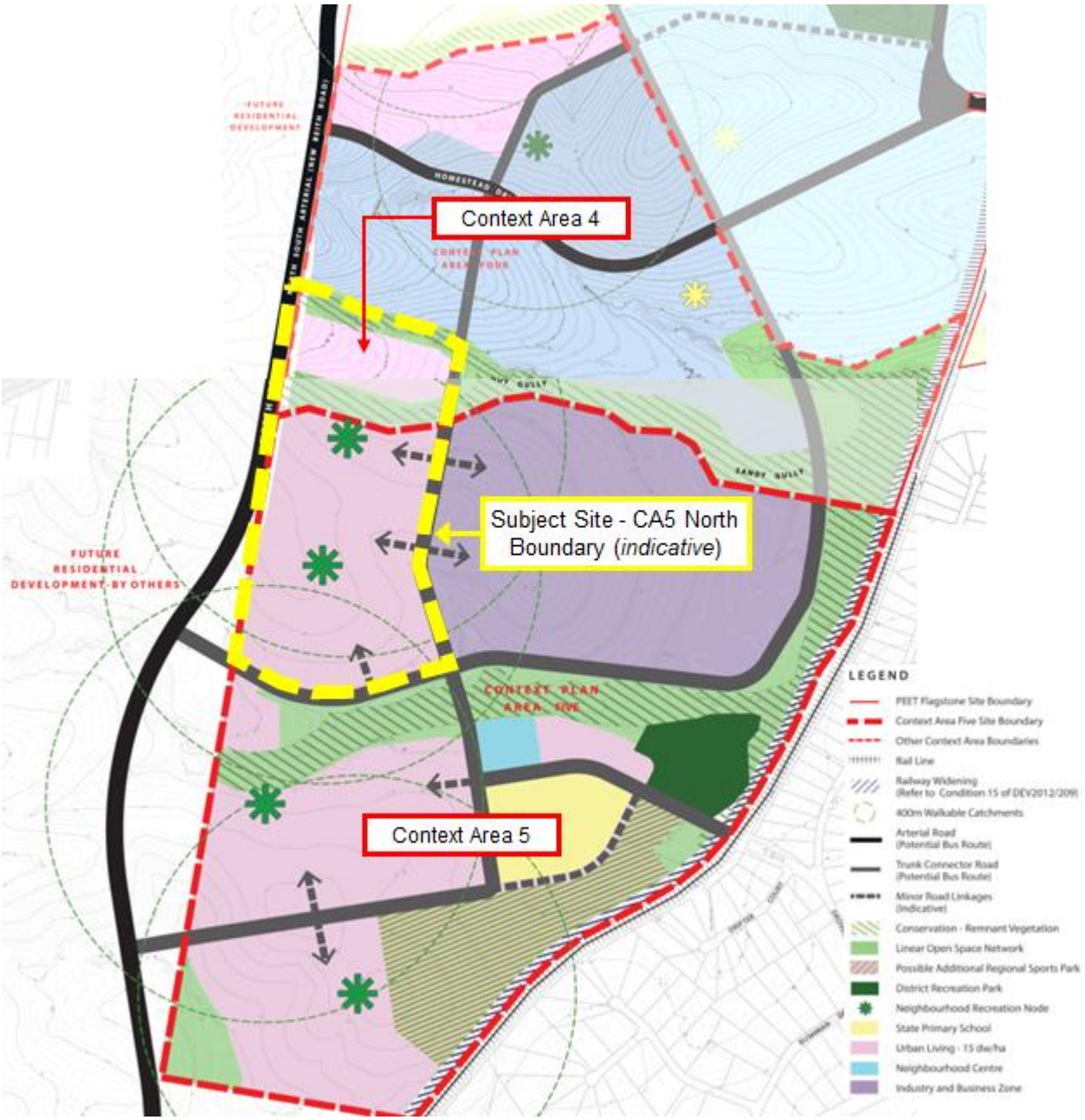


Figure 2.1: Subject Site and Surrounding Context Area Plans

2.2 Greater Flagstone Priority Development Area (PDA)

2.2.1 Overview

The Greater Flagstone PDA was declared on the 8th October 2010 and is located west of Jimboomba within the southern part of Council's LGA. Key PDA information is as follows:

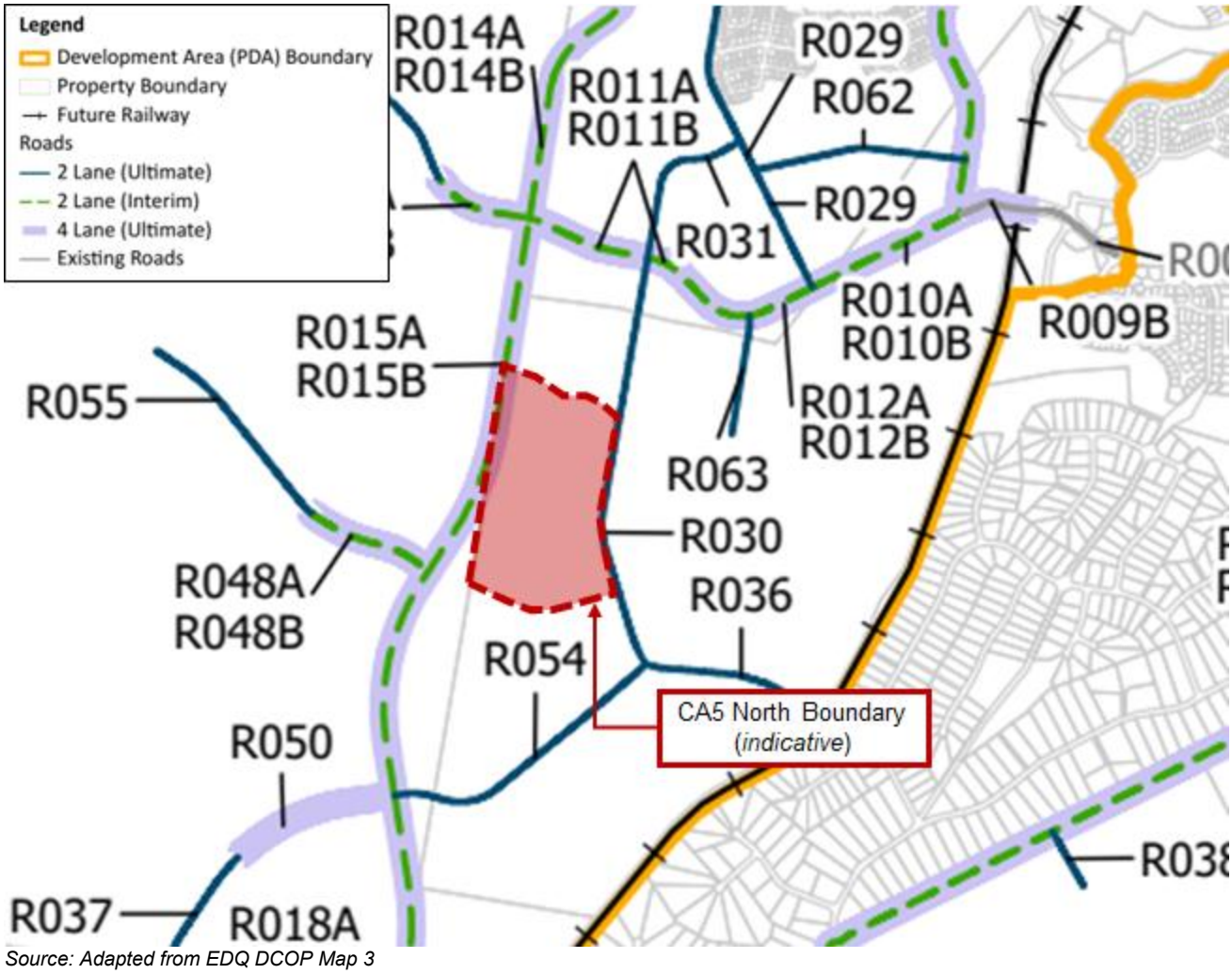
- The PDA is made up of three (3) separate land areas totalling 7,188ha
- It is projected to experience significant growth in employment and industry
- It is estimated to accommodate approximately 51,500 dwellings & 138,000 residents.

The larger PDA land area is bordered by the Brisbane-Sydney rail line (which is predominately a freight line at present) located east of the subject site, while the Mount Lindesay Highway is located further east. The proposed Town Centre Masterplan within PEET's Flagstone City forms a key portion of the PDA employment area.

2.2.2 Greater Flagstone Development Charges and Offset Plan (DCOP)

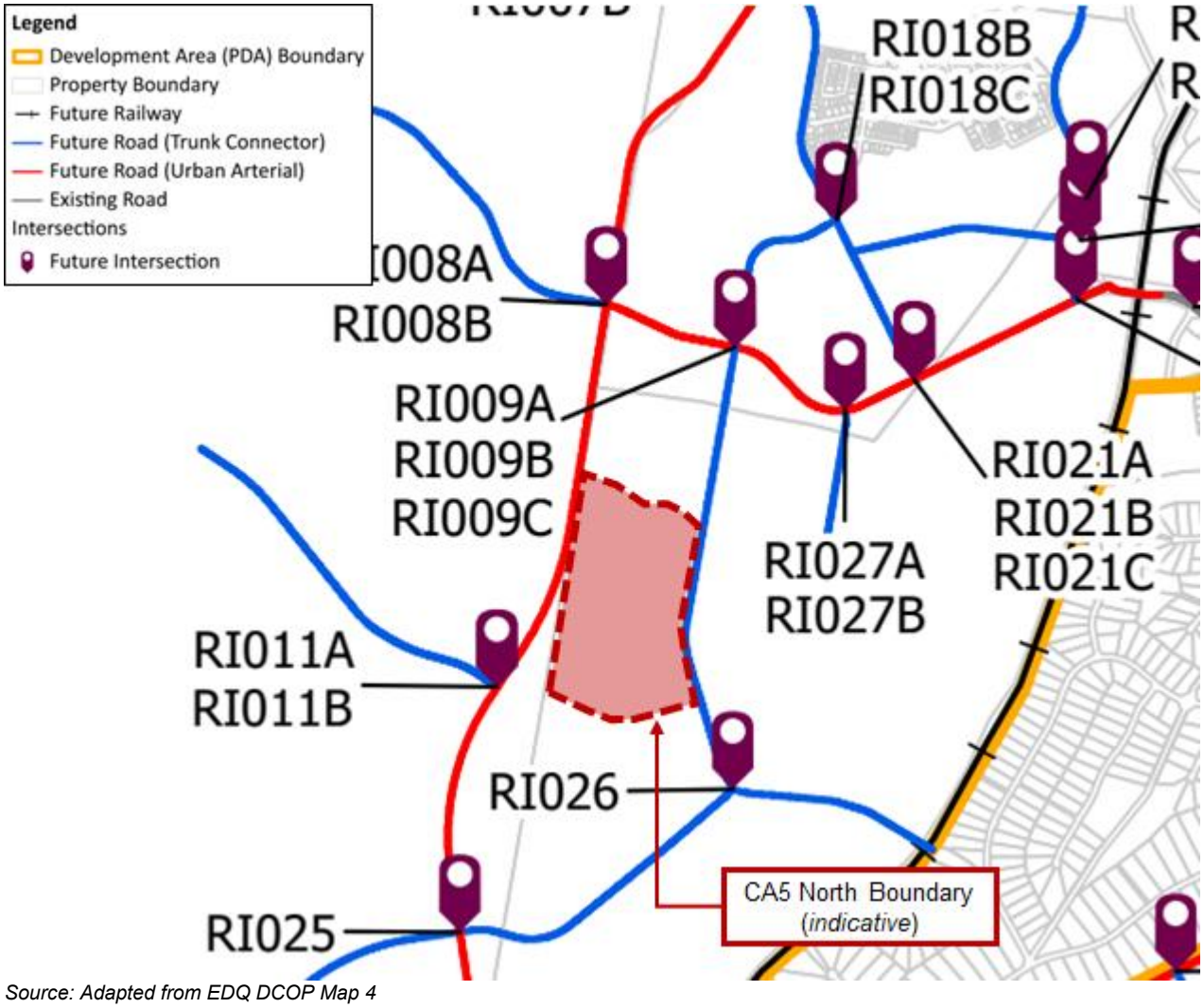
To ensure infrastructure delivery and funding is suitably allocated, EDQ developed the Greater Flagstone PDA Development Charges and Offset Plan (DCOP) effective July 2022. This document provides guidance on trunk infrastructure planning throughout the PDA.

Figure 2.2 and Figure 2.3 provide excerpts from the DCOP mapping showing planned trunk transport infrastructure in the vicinity of the subject site.



Source: Adapted from EDQ DCOP Map 3

Figure 2.2: DCOP Transport (Roads) Trunk Infrastructure



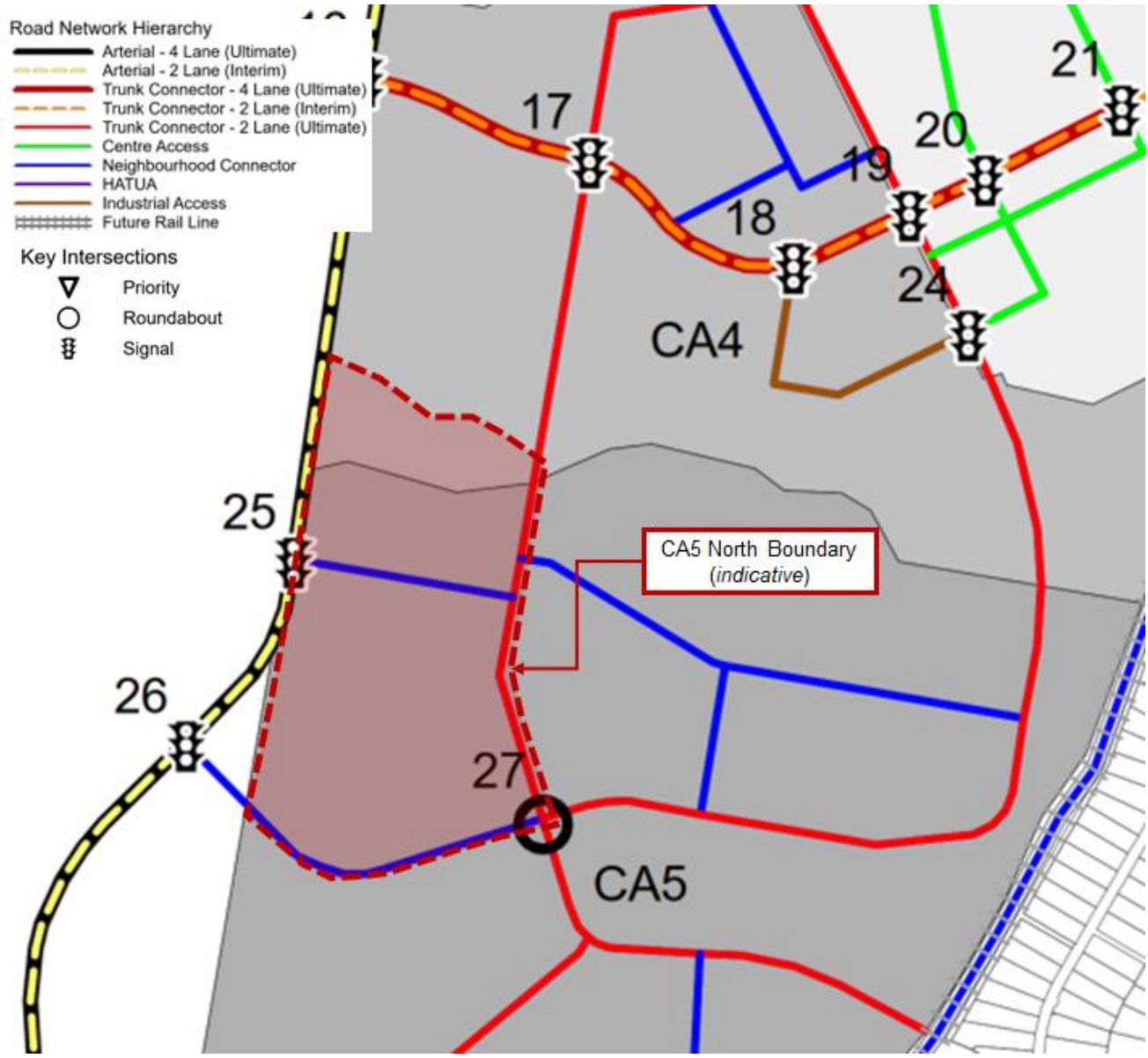
Source: Adapted from EDQ DCOP Map 4

Figure 2.3: DCOP Transport (Intersections) Trunk Infrastructure

2.2.3 Movement Network Infrastructure Master Plan (Movement IMP)

The Flagstone City endorsed Movement IMP (circa. 2024) was considered when developing the transport infrastructure requirements of the subject site.

The road network from the endorsed Movement IMP, relative to the subject site area, is illustrated in Figure 2.4.



Source: Adapted from Flagstone City Movement Network Infrastructure Master Plan (2024)

Figure 2.4: Endorsed Movement IMP

Key elements of the Movement IMP relative to the subject site include:

- A north-south, 2-lane Trunk Connector along the eastern boundary of the site connecting up to Homestead Drive in the north
- An east-west Neighbourhood Connector located centrally within the subject site which connects to New Beith Road at the subject site's western boundary with a signalised intersection
- An east-west Neighbourhood Connector along the southern boundary of the subject site connecting between the intersections of the north-south Trunk Connector and New Beith Road.

3. DEVELOPMENT DETAILS

3.1 Proposed Development

The proposed CA5 North development area is comprised primarily of low-density residential dwellings and accompanying parklands, road areas, open space and utilities, including:

- Low-Density Residential (543 dwellings, including multi-residential lots)
- A District Centre
- Drainage corridors / lots and basins
- Corridor parks / conservation areas
- Neighbourhood recreation parks, local recreation parks / linear parks and pedestrian linkages.

The CA5 North plan prepared by RPS is provided at **Appendix A** and includes the relevant lot / dwelling estimates.

3.2 Road Hierarchy

The proposed road hierarchy within the CA5 North area generally aligns with recent approvals and planning to date, and EDQ's *Guideline No. 6 – Street and Movement Network*. Typical cross-section parameters for each of the proposed hierarchies are detailed in Table 3.1.

Table 3.1: Road Cross Section Parameters

Road Hierarchy	Reserve	Pavement	Lanes	Parking	Bus	Footpath	Dedicated Cycle	Trunk
Trunk Connector (2-Lane)	23.8m	11.8m	2	Yes	Yes	3m shared path (one side) +1.5m (one side)	3m two-way (one side)	Yes
Neighbourhood Connector	21m	11.2m	2	Yes	Yes	1.5m (one side)	3m shared path (one side)	No
Modified Neighbourhood Connector 1	22.5m	10.4m	2	One-Side	Yes	3m shared path (one side) +1.5m (opposite side)	3m two-way (one side)	No
Modified Neighbourhood Connector 2	17.2m	11.2m	2	Yes	Yes	1.5m (one side)	3m shared path (one side)	No
Neighbourhood Access	16.5m	7.5m	2	On-Street	No	1.5m (one side)	On-road	No
Esplanade Road	14.5m	7.5m	2	Yes (one-side)	No	1.5m (one side)	On-road	No
Neighbourhood Lane	6.5m	5.5m	2	No	No	No	No	No

As shown above, key road reserve widths and provisions have been kept consistent with the recent CA3 South approval which included slight increases in reserve width for the following road typologies:

- Trunk Connector (2-lane): *increased from 23.7m to 23.8m*
- Neighbourhood Connector: *increased from 20.2m to 21m.*

In addition, where roads front park / open space areas, a reduced reserve width is adopted allowing for the majority of the verge and active transport provisions to be delivered within the park / open space. Two (2) typologies result from this, including:

- 14.5m wide Esplanade Roads (verge reduced by 2m on park / open space side)
- 17.2m wide Neighbourhood Connector (verge reduced on park / open space (southern) side).

The 17.2m Neighbourhood Connector is the east-west road running centrally through the site which then transitions back to the full 21m reserve width to its western extent where lots front both sides.

The proposed road network hierarchies are illustrated in Figure 3.1.

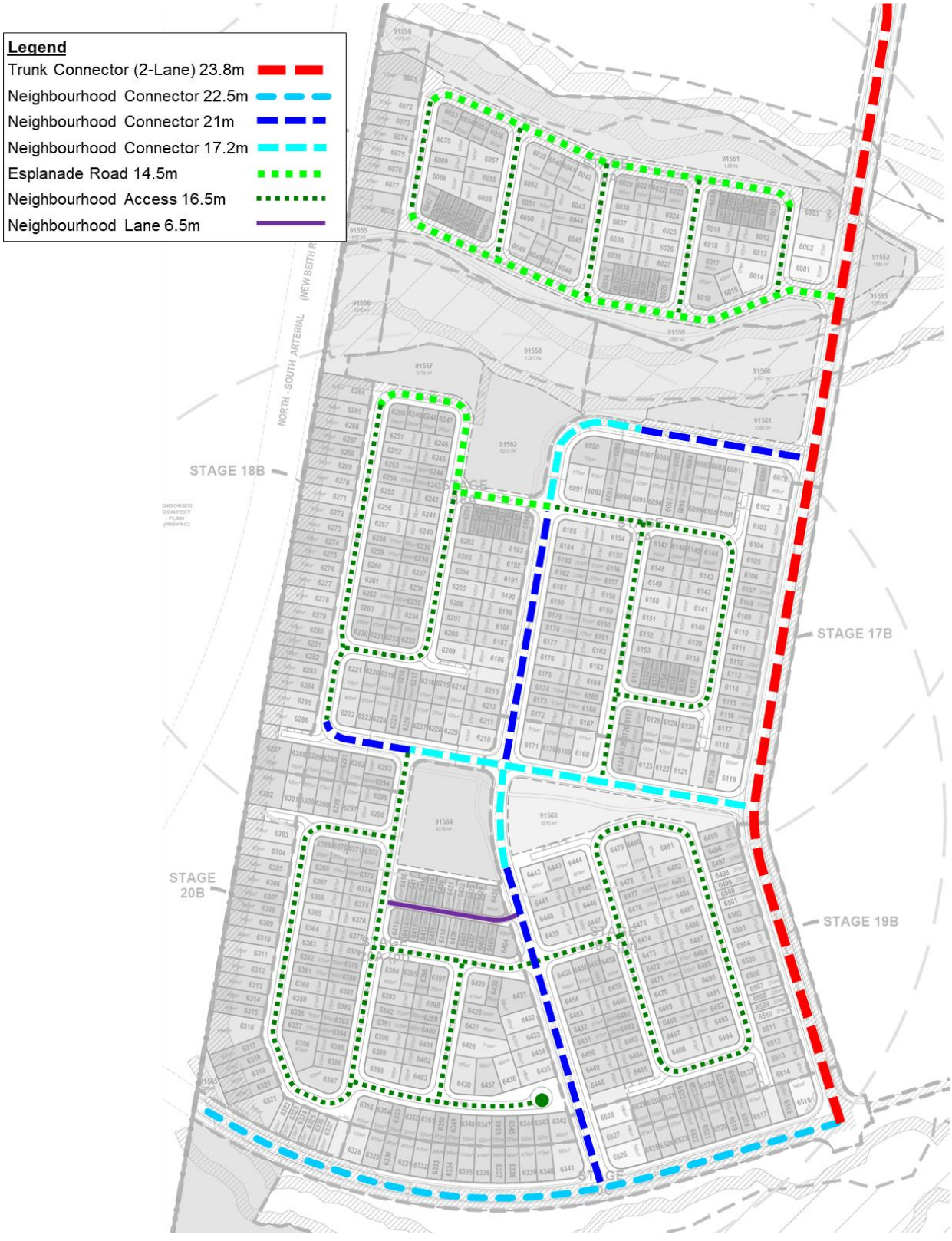


Figure 3.1: Proposed Road Network Hierarchies

Illustrations of the proposed road cross-sections are provided at **Appendix B**.

As detailed above, the road cross-sections are generally consistent with the endorsed Movement IMP and recent approvals such as CA3 South. Illustrations of the two (2) Modified Neighbourhood Connectors and the Esplanade Road cross-sections are shown below.

3.2.1 Modified Neighbourhood Connector 1

The Modified Neighbourhood Connector 1 generally achieves the same provisions as the typical Neighbourhood Connector, with the following site-specific modifications:

- Includes parking on the northern side only (fronting lots) with a 1.5m breakdown lane provided on the southern side given no lots or any other use attracting car parking demand will exist on the southern side
- Includes an increased verge width on the southern side (fronting open space) catering for a 1.5m footpath plus a 3m dedicate cycle track

The typical cross-section for the Modified Neighbourhood Connector 1 is shown in Figure 3.2.

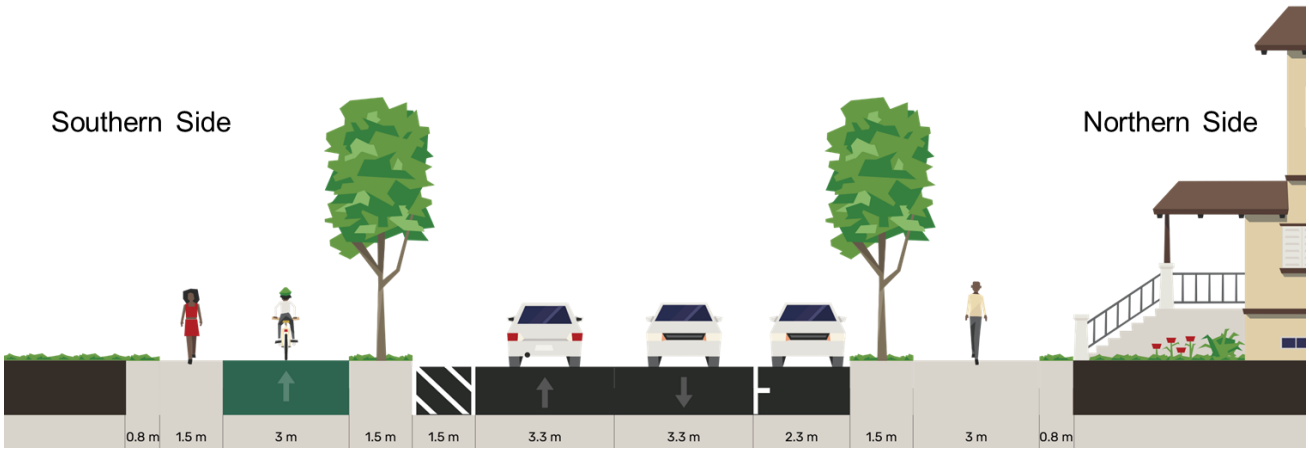


Figure 3.2: Modified Neighbourhood Connector 1 (22.5m)

3.2.2 Modified Neighbourhood Connector 2

Modified Neighbourhood Connector 2 is the east-west road running centrally through the site which includes a reduced verge width on the southern side where it fronts park / open space as shown in Figure 3.3. The active transport provisions are contained within the park / open space area, while all other provisions are consistent with the typical Neighbourhood Connector cross-section.

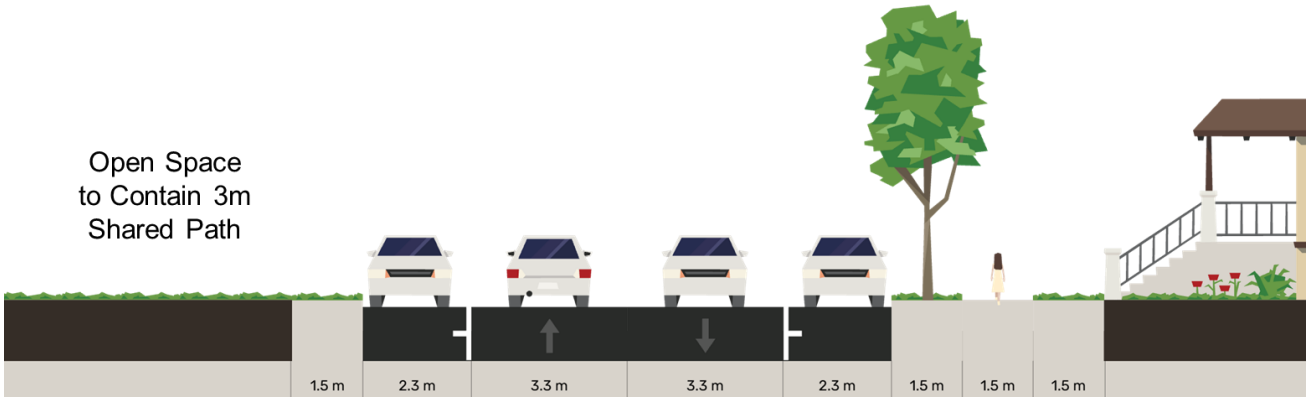


Figure 3.3: Modified Neighbourhood Connector 2 (17.2m)

3.2.3 Esplanade Road

The Esplanade Road is generally consistent with EDQ's Guideline No. 6, Neighbourhood Access (16.5m) with a reduced verge width on one side where fronting park / open space. The active transport provisions are contained within the park / open space, with all other provisions remaining consistent with the typical Neighbourhood Connector cross-section as shown in Figure 3.4.

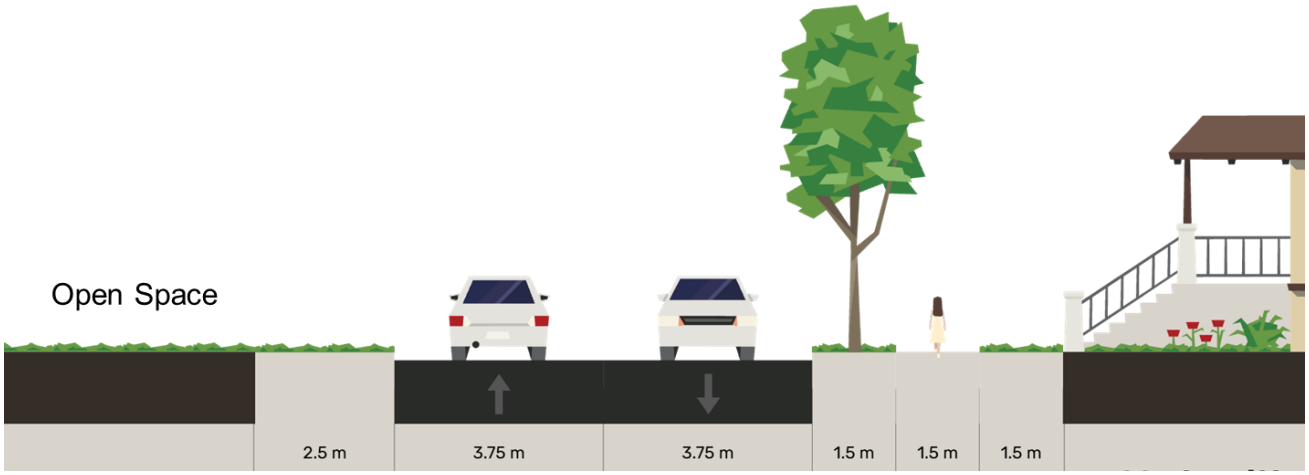


Figure 3.4: Esplanade Road (14.5m)

3.2.4 Alignment with Movement IMP

Review of the proposed road network and hierarchies against the endorsed Movement IMP showed:

- The development proposes a north-south Trunk Connector (2-lane) along the eastern boundary consistent with the endorsed Movement IMP
- The development proposes an east-west Neighbourhood Connector centrally through the site consistent with the endorsed Movement IMP (*see Section 3.3 RE: New Beith Road intersection*)
- The development proposes an east-west Neighbourhood Connector along the southern boundary consistent with the endorsed Movement IMP.

The proposed road network and hierarchy was therefore found to align with the endorsed Movement IMP and is considered appropriate from a traffic engineering perspective.

3.3 Intersections

3.3.1 Key Principles

Key principles for the proposed intersection forms and their locations were as follows:

- Roundabouts shall be minimised, however are considered appropriate at four-way intersections, where servicing a primary component of residential land uses and two connectors intersect
- Four-way priority-controlled intersections are considered appropriate where servicing small residential catchments and achieve appropriate sight distance where a connector and access street intersect
- Intersection spacings shall generally comply with those specified in EDQ's Guideline No. 6 and the Movement IMP for the relevant hierarchy. Reductions in spacing shall be considered where justified given key constraints and appropriate intersection operations can be demonstrated.

3.3.2 Configurations and Spacing

3.3.2.1 Intersection Configurations

The intersection configurations proposed for the subject site are predominantly made up of priority-controlled intersections, including:

- Intersections along the Trunk Connector are priority-controlled T-intersections, with exception only to the south-western intersection which ultimately will form a four-way roundabout (in the interim this will simply operate as a corner with movements from north to west and west to north)
- The intersection along the Modified Neighbourhood Connector 1 (along the southern boundary) is a priority-controlled T-intersection
- One (1) internal intersection along the east-west Modified Neighbourhood Connector 2 is provided as a small four-way roundabout

- Two (2) minor, low order intersections are provided as priority-controlled four-way intersections given they service small residential catchments, achieve appropriate sight distance and include the intersection of a Neighbourhood Connector and Neighbourhood Access Street.

All other internal intersections are provided as low order, priority-controlled T-intersections which are suitable to service the relevant catchments / traffic.

3.3.2.2 Intersection Spacings

Typical intersection spacings outlined in EDQ Guideline No. 6 are as follows:

- Trunk Connector: 300m
- Neighbourhood Connector: 120m
- Neighbourhood Access: *no prescribed minimum*
- Neighbourhood Lane: *no prescribed minimum*

As detailed above in Section 3.3.1, the spacings are aimed to be adhered to unless constraints exist and suitable operational performance can be demonstrated. The resultant intersection spacing for the subject site is shown below in Figure 3.5 which shows the following:

- The spacing between Intersection 1 and 2 is <300m, however:
  - There is no other feasible access that can be provided for the northern catchment within CA4 hence the Intersection 1 location is essentially fixed
  - Shifting Intersection 2 further south would compromise other intersection locations
  - Intersection testing shows suitable operations for each intersection without interaction between them
  - The cycle facilities are located on the eastern side of the trunk intersection and are there therefore not impacted by these T-intersections
- The spacing between Intersections 2 and 3, and Intersections 3 and 4 is marginally <300m (being 290m and 270m), this is considered appropriate given:
  - Intersection 3 is located effectively midblock between Intersections 2 and 4
  - Intersection 3 has been located on the outside of the bend along the Trunk Connector providing a better outcome from a sight distance and geometric manoeuvring perspective
  - Intersection testing shows suitable operations for each intersection without interaction between them
- Minor, low order T-intersections exist along the east-west Modified Neighbourhood Connector 2 located centrally within the site with spacings of approximately 80m either side of the small, internal roundabout. These are considered appropriate given:
  - Each intersection is a Neighbourhood Access Street servicing a small catchment which has alternative access points resulting in low volume, low conflict operations
  - The intersections are on a straight, flat section of road resulting in ample visibility / sight lines
  - Given the low order, low volume characteristics of these internal roads, operational performance is expected to be appropriate

Intersection spacing is shown in Figure 3.5.

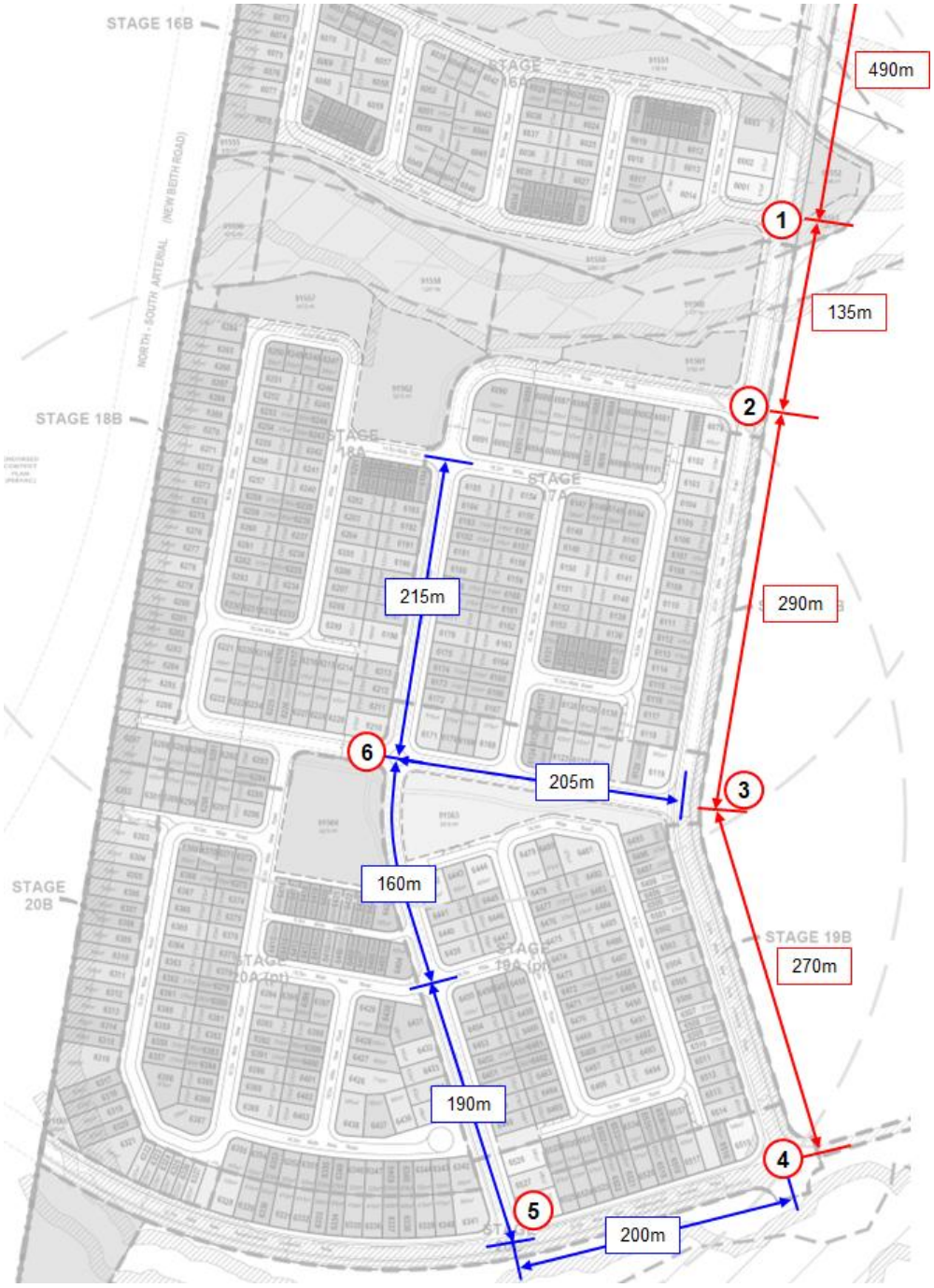


Figure 3.5: Subject Site Intersection Spacing

3.3.3 Sight Lines

Minor approaches to intersections 1-3 are located on straight sections of the trunk connector or on the outside of the bend in the road. As such, there will be ample sight lines in each direction from the side-street of these intersections.

A sight line assessment was undertaken for intersection 5 noting it's location on the inside of a gentle bend in the road. Sight lines to the east of the intersection are considered unobstructed and available sight lines to the west is in the order of 135m. This exceeds the minimum safe stopping distance (SISD) of 123m for a road with a design speed of 60km/h (50km/h posted). As such, ample sight lines are present in both directions from side-streets at key interection locations.

3.3.4 Alignment with the Movement IMP

The key difference between the proposed intersections and the Movement IMP, includes:

- The Movement IMP shows a signalised intersection with New Beith Road (Intersection #25, see Figure 2.4 above) however the development does not propose an intersection here.

This is considered an appropriate outcome as it limits the number of intersections (conflict points) along New Beith Road (an arterial road) and results in improved intersection spacing along the arterial road. Furthermore, intersection operations within the subject site were found to operate suitably, hence the additional external intersection is not required from an operational performance perspective.

Given the above, the proposed intersection arrangements are considered appropriate and the minor deviation from the Movement IMP outlined above are considered appropriate outcomes.

3.4 Access Considerations

3.4.1 Lot Access

Determination of access locations has not yet been undertaken throughout the subject site and should be the subject of further applications for specific developments. That said, the proposed road network arrangements have considered future access locations at a high level such as, servicing requirements, direct lot access etc.

As such, a base set of principles shall be adhered to when determining access locations through future applications and shall be provided in accordance with the following general requirements:

- Property accesses shall be provided on a property's lower order frontage road where practical
- Direct property access should be minimised on Trunk Connector roads where traffic volumes >10,000 veh/d or posted speeds >60km/h
- Property accesses shall be clear of prohibited access locations, in particular:
  - Be located clear of nearby intersections as per AS2890.1 (*except for domestic property access*)
  - Be located outside of the functional area of an intersection to avoid queuing impacts
  - Be provided perpendicular to the road unless designed as a one-way access for ease of manoeuvring
- Vehicle crossover design and separation of vehicle crossovers shall be as per the relevant requirements of IPWEAQ Standard Drawings RS-049, RS-050 and RS-051 and Logan City Council requirements.

As mentioned, detailed access design shall be undertaken with each future development application and apply the above general principles to ensure there is no adverse impact to the surrounding road network and that safety is not compromised.

Regardless, a review of the lot layout identified that all lots can be appropriately accessed in accordance with the above principles, achieving compliant driveway locations, appropriate access sight distance and appropriate manoeuvring.

3.4.2 Secondary Emergency Access

Due to the isolated nature of the subject site in terms of road network access and waterway crossings, it was necessary to determine an appropriate secondary emergency access arrangement in the event that the primary access was impacted (e.g. flooding).

An access easement has been allocated within the application material which provides alternative access from the southern extent of the road network looping around through a viable alignment, connecting back with the road network in the north.

The access easement is anticipated to be a 7.5m wide track delivered with a suitable, trafficable surface for general vehicular egress during an emergency. The delivery of the secondary emergency access is expected to be required upon delivery of the 300th lot within the CA5 North subdivision (timing of which is subject to future staging rollout for the subject site).

Figure 3.6 shows the alignment of the secondary emergency access easement, which is also included in the development plans at **Appendix A**.

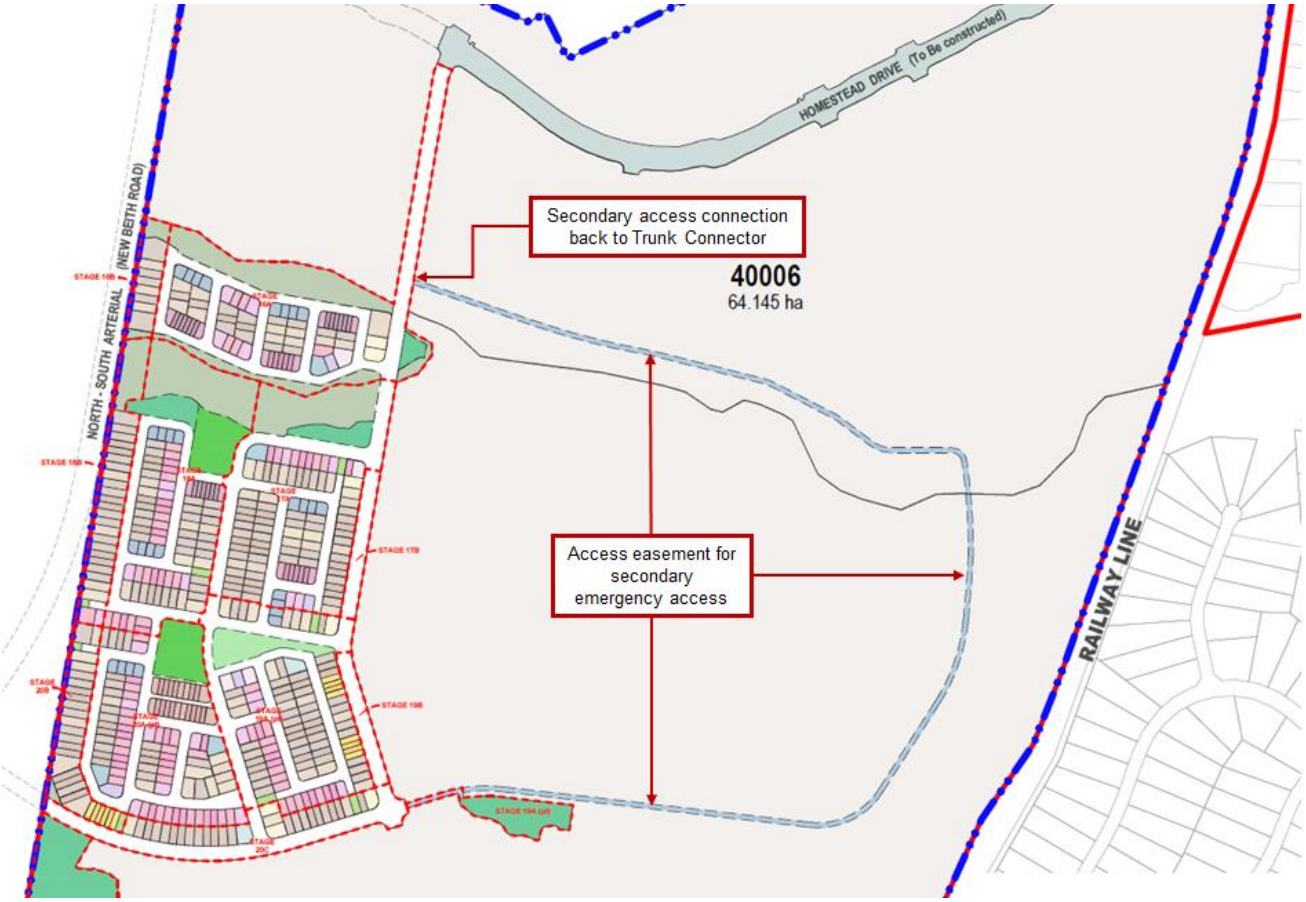


Figure 3.6: Secondary Emergency Access Alignment

4. TRAFFIC ASSESSMENT

4.1 Strategic Modelling

4.1.1 Overview

Veitch Lister Consulting Pty Ltd (VLC) were previously engaged to produce strategic models of the Flagstone PDA including PEET's development area. Strategic models were developed within VLC's Zenith model of Southeast Queensland with a cordon of the study area taken from the Greater Flagstone Strategic Traffic Model (GFSTM) to provide data relevant to PEET land to inform microsimulation (Aimsun) modelling.

A review of this model cordon was undertaken in comparison to the more recently developed South Logan Strategic Traffic Model (SLSTM) with similar strategic modelling outputs noted within the Flagstone PDA between the GFSTM and SLSTM models. As such, despite updated planning within the South Logan region, key Flagstone City strategic model outcomes remain relevant for the purpose of Aimsun modelling, detailed further below.

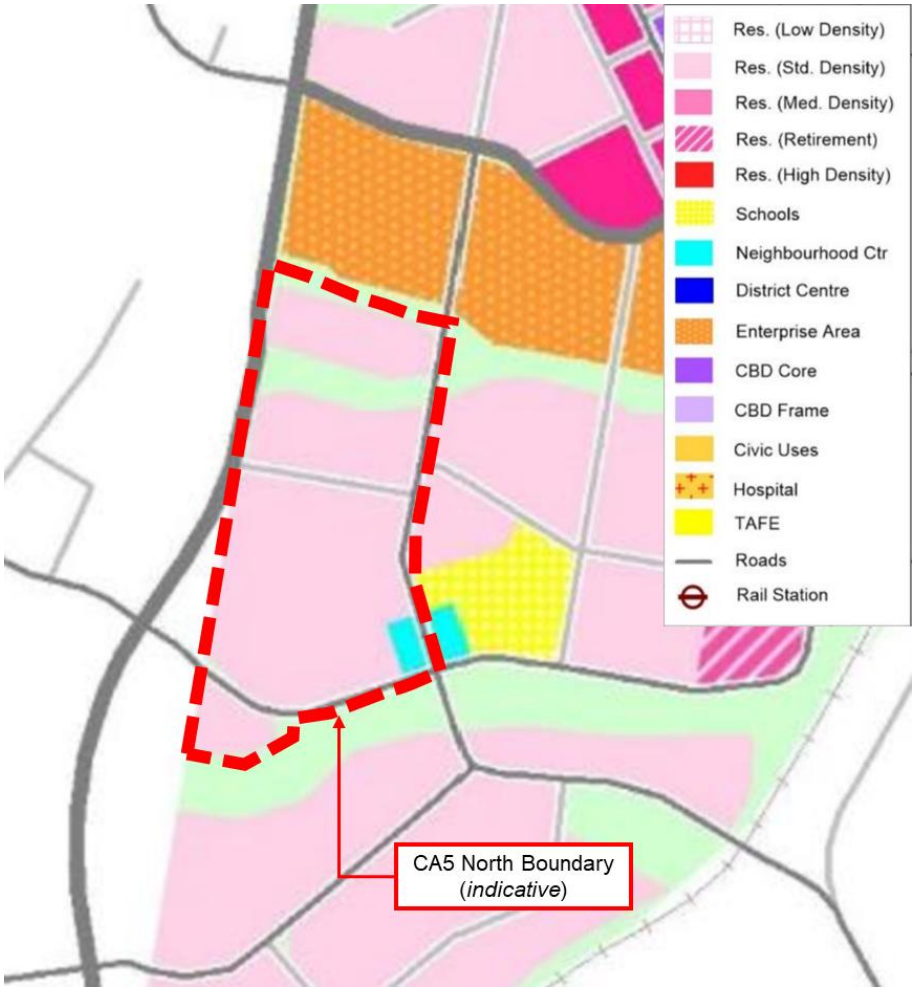
The details of the strategic modelling methodology and outcomes is documented in VLC's Cordon Modelling report for PEET (May 2019).

4.1.2 Land Use Plan

The land use patterns assumed in VLC's Flagstone City strategic model for the Ultimate (2066) development scenario are shown in Figure 4.1.

The development of this land use plan within the VLC model was done in such a way using single use zones such that land parcels are capable of being relocated throughout the development area (and within the model's origin-destination (OD) demand matrix) to account for changes in planning and land use proposals.

Regardless, Figure 4.1 is representative of the VLC modelling completed on behalf of PEET.



Source: VLC Cordon Modelling of PEET's Flagstone City – Final Report

Figure 4.1: 2066 Flagstone City Land Use Plan

4.2 Microsimulation Modelling

4.2.1 Overview

A 2066 microsimulation model of the Flagstone City area was prepared by Bitzios using Aimsun Next 23.0.2 traffic modelling software. This model was prepared to evaluate route choice and provide detailed insight into vehicle trip movements within Flagstone City. This facilities analysis of road link and intersection performance at a higher level of detail than possible with the VLC strategic model. This model was developed as a part of the development of the now endorsed Movement Network IMP and further refined for subsequent applications within Flagstone City.

The Flagstone City road network as modelled in Aimsun is illustrated in Figure 4.2.

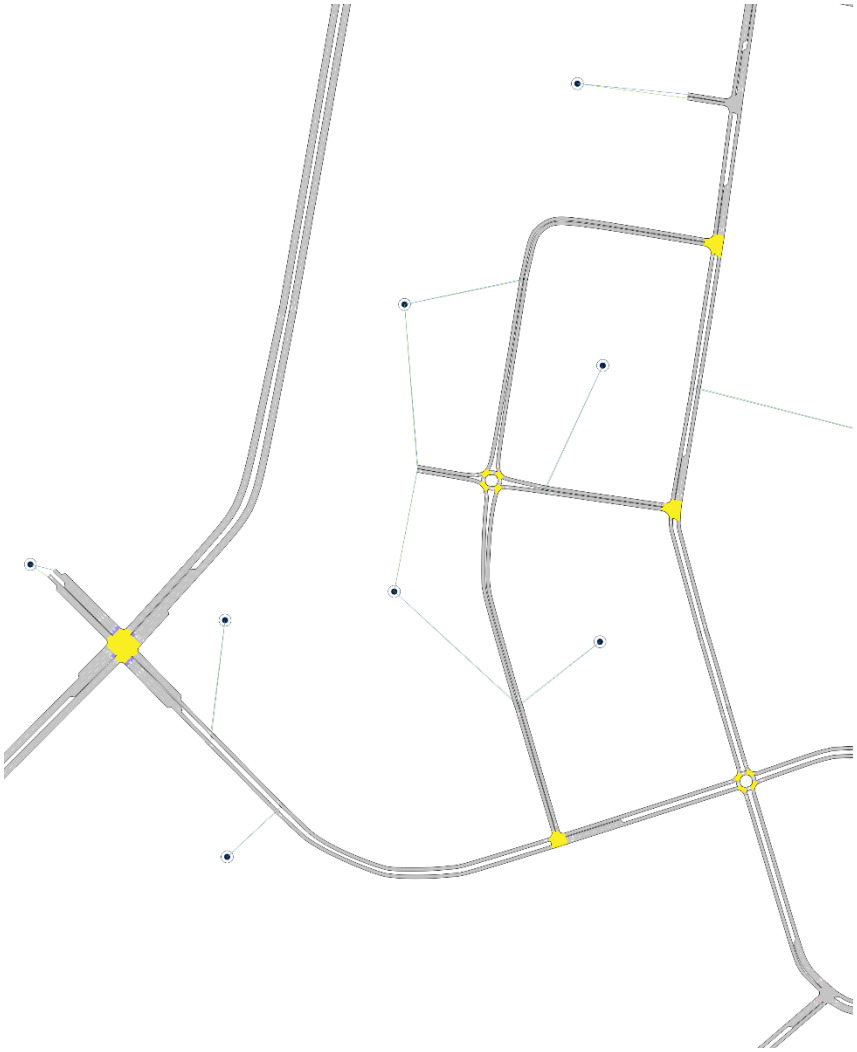


Figure 4.2: Microsimulation (Aimsun) Model Network

Changes to the model network have been made to reflect the proposed CA5 North road layout. The key change from the model network assessed in the Movement Network IMP is the removal of the neighbourhood connector road intersection with New Beith Road on the western side of CA5 N.

4.2.2 Model Time Periods & Profiling

The strategic model cordon provided 2-hour AM and PM peak traffic volumes. In the ultimate (2066) model year, these volumes are multiplied by a factor of 0.53 to determine peak hour traffic volumes, as per the average of VLC's SEQ strategic model.

Givern the study area of the model is predominantly greenfield, network peak hours are unknown. As such, AM and PM peak hours are arbitrarily assumed as follows:

- AM Peak: 07:30 – 08:30
- PM Peak: 16:30 – 17:30

The model also includes a 30-minute 'warm-up' and 'cool-down' period for each peak.

4.2.3 Zone System & Traffic Generation

The zone system for the microsimulation model was generally adopted as per the VLC strategic modelling with OD matrices of the study area taken from the cordon of the strategic model. This approach was taken to ensure as close to zone equivalence as possible with the VLC modelling. In the ultimate scenario (2066), 115 centroids are present within the cordon model, including 14 connections to external road links and neighbouring development areas, as per the cordon 'cut' from the strategic modelling.

With further development progression, significant changes in areas of the Flagstone City Structure Plan have occurred since the VLC cordon matrices were developed. To account for modified land uses and the updated scale of development expected in some stages, OD matrices for input into the microsimulation model have been updated accordingly as detailed in the endorsed Movement IMP traffic modelling report (*P2300.005R Flagstone City_IMP Traffic Modelling Report, 06/09//2024*).

With the development of the proposed CA5 North area, model zones have been further refined to reflect the additional detail reflected in the plan. Subsequent scaling of OD demands for zones is outlined in Table 4.1, based on dwelling numbers for residential zones.

Table 4.1: Aimsun Model 2066 OD Demand Updates

Zone ID	Land Use	Dwellings		Zone Scaling
		VLC Model	Proposed	
4020	Low Density Residential	76	78	102.6%
4021	Low Density Residential	96	101	105.2%
4022	Low Density Residential	286	153	53.5%
4026	Low Density Residential	64	99	154.7%
4027	Low Density Residential	146	108	74%

Relevant microsimulation model zones are illustrated in Figure 4.3

Figure 4.3: Microsimulation Model Zones

4.2.4 Microsimulation Model Output Overview

Link densities and link delays during the peak hours within the modelled CA5 North area are illustrated in Figure 4.4 to Figure 4.7.

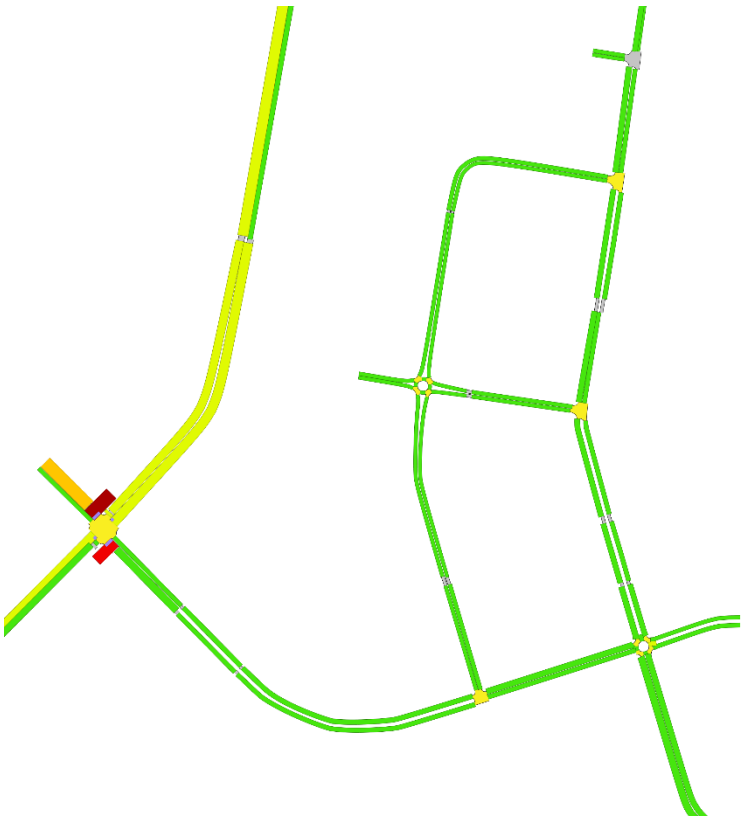


Figure 4.4: AM Peak Link Density

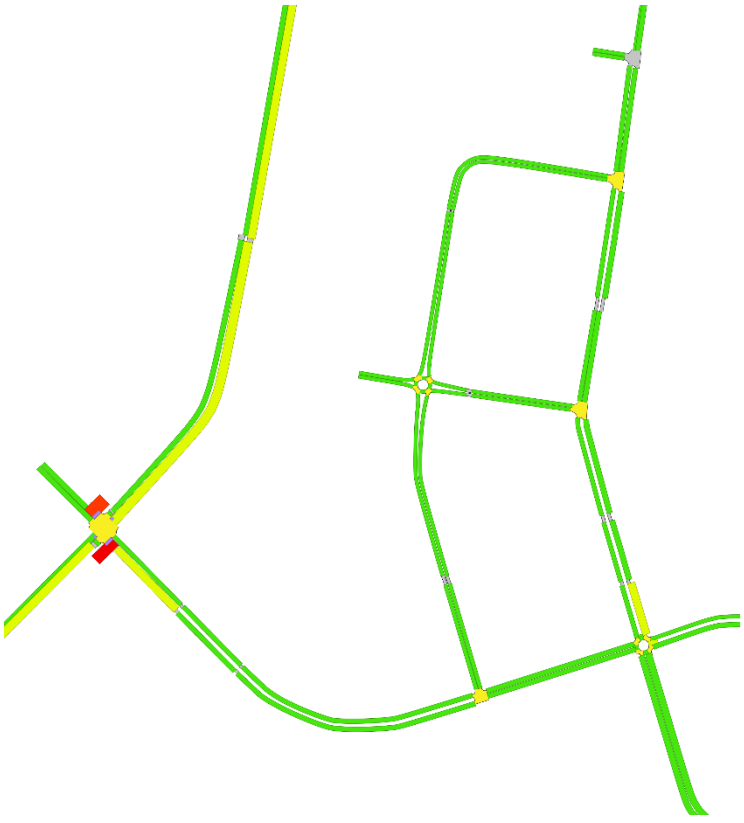


Figure 4.5: PM Peak Link Density

Figure 4.6: AM Peak Link Delays

Figure 4.7: PM Peak Link Delays

As shown, link delays are generally minimal within CA5 N (<15 seconds). This is exceeded at the future signalised intersection with New Beith Road inherently expected with a signalised intersection, given all vehicles are required to stop at some point. That said, based on the delay results, links are typically expected to be within acceptable performance limits. Further assessment of these intersections is detailed further below

4.3 Intersection Assessment

4.3.1 Overview

The key intersections assessed comprise of future trunk intersections identified in the endorsed Movement IMP as well as additional key intersections within the CA5 North area itself. The intersections assessed and their relevant ID are shown in Figure 4.8.

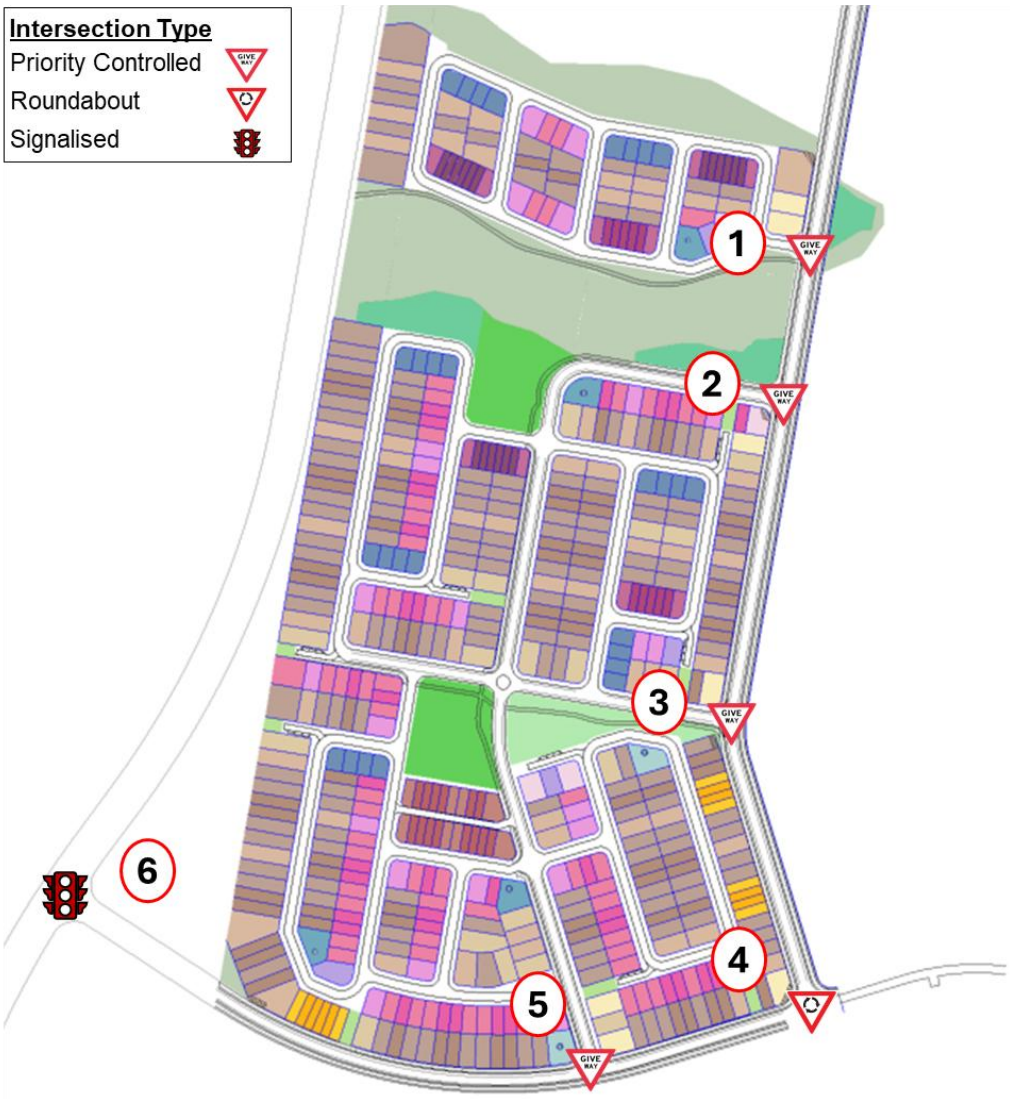


Figure 4.8: Key Intersections

4.3.2 Intersection Footprints

Key intersection layouts were transferred into SIDRA Intersection (v9.1) based on the Aimsun model layouts and assessed using peak flows extracted from the Aimsun models. This was to gain an indication of critical peak performance at the intersection level.

A turn warrants assessment was undertaken for all priority-controlled intersections to inform required layouts. The turn warrants assessment determined that all intersections warrant a short channelised right-turn treatment (CHR(s)). Dedicated left turn lanes are not deemed to be warranted for any of the priority-controlled intersections.

The resultant intersection forms and layouts are indicative only and subject to change based on further detailed assessment associated with future stages of development. Importantly, ultimate intersection forms are based on 2066 planning (40 years into the future) which may be subject to change over time.

NOTE: turn pocket lengths indicated on SIDRA layouts are indicative only and subject to design to accommodate queuing, deceleration and operational factors.

4.3.3 Intersection Assessment Results

A summary of the SIDRA intersection results for the key intersections identified is outlined in Table 4.2. Detailed SIDRA outputs are provided in **Appendix C**.

Table 4.2: SIDRA Intersection Results Summary

Intersection ID	DOS (v/c)		Avg. Delay (s)		LOS	
	AM	PM	AM	PM	AM	PM
1	0.29	0.29	1	1	A	A
2	0.25	0.27	1	1	A	A
3	0.29	0.25	1	1	B	A
4	0.57	0.44	7	7	A	A
5	0.19	0.18	1	1	A	A
6	0.95	0.90	52	37	D	D

Within typical capacity thresholds
Exceeds typical capacity thresholds (>0.9 DOS) yet within theoretical capacity thresholds (DOS<1.0)
Exceeds theoretical capacity thresholds (DOS>1.0)

As shown, with forecast ultimate (2066) traffic volumes, intersections are expected to generally operate within acceptable performance limits in the AM and PM peak hours.

5. ALTERNATE TRANSPORT PROVISIONS

5.1 Public Transport

Regional and local bus routes are proposed throughout Context Area 5 North generally in accordance with the endorsed Movement IMP. Indicative locations of bus stop pairs within the CA5 North site area are shown in Figure 5.1 demonstrating a high level of expected public transport coverage within the town centre.

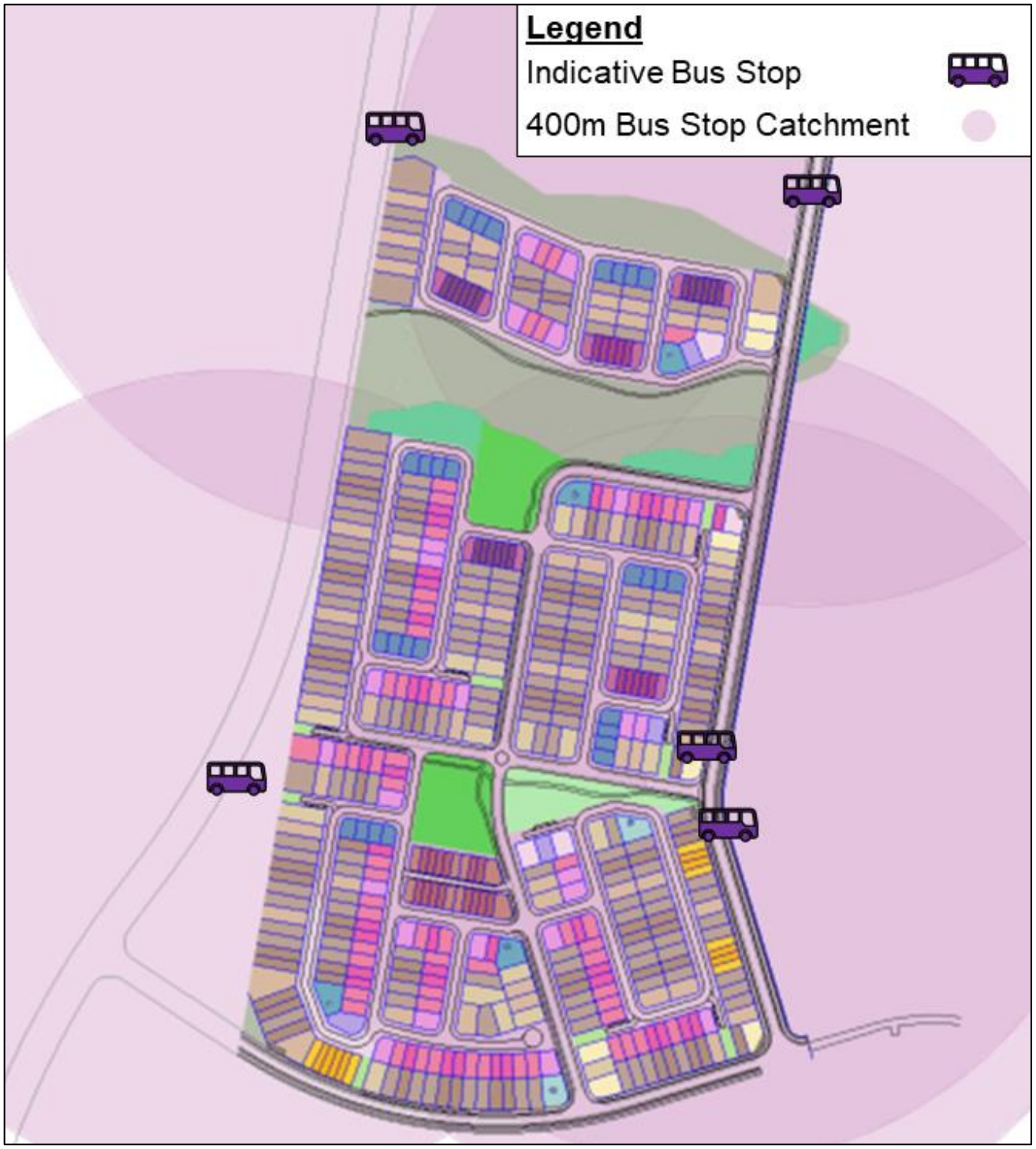


Figure 5.1: Indicative Public Transport Coverage

Where possible bus stop locations shown are located in close proximity to intersections, open space and active transport linkages to encourage accessibility to the public transport network using the proposed active transport network.

As shown, proposed residential development areas are located within reasonable walking distance of a future public transport stop. Consistent with the requirements of the Flagstone Development Scheme and endorsed Movement Network IMP, residential dwellings are all located within walking distance of a planned bus stop location.

Bus stop types and designs shall be in accordance with the Translink Public Transport Infrastructure Manual (PTIM). Bus stops within CA5 north are typically to be provided as inline 'regular' bus stops requiring localised widening of the on-street parking lane to 2.5m wide to cater for the bus stop. Any bus stop located on New Beith Road, on the western side of CA5 North, will be indented 3m wide bus stops designed in accordance with the PTIM.

5.2 Active Transport

5.2.1 Overview

Pedestrian and cycle infrastructure will be provided throughout the masterplan area both within the road reserve and outside the road reserve through park / open space linkages.

Significant active transport links included within CA5 North include:

- Separated cycle paths on trunk roads and the modified collector road for key cycle connectivity in accordance with the endorsed Movement IMP
- Shared paths on trunk roads and neighbourhood collector roads, deviating through proposed parklands where appropriate.

Parks, open space and pedestrian linkages are also proposed throughout the site area, with a large number of linkages between residential lots to provide direct pedestrian access between local neighbourhoods and the wider active (and public) transport network.

As CA5 N does not propose the inclusion of significant non-residential uses, there is not considered to be any major active transport attractors within the proposed area. As such, key active transport desire lines through CA5 N are driven by significant uses in the surrounding area and key major active transport linkages on trunk roads. Active transport provisions within CA5 N shall therefore be provided in accordance with the endorsed Movement IMP, as illustrated in Figure 5.2.

Figure 5.2: IMP Active Transport Provisions

In line with the IMP active transport plan above, an active transport route hierarchy was developed to specify a set of criteria and relevant infrastructure based on route classification.

The overarching hierarchy classification considers three levels, being:

- Major
- Medium
- Low.

The hierarchy does not suggest any lower level of importance or quality of infrastructure, rather defines the type of trip attractors/generators and user types that are most likely to use the prevailing facility, and therefore assist in the determination of an appropriate facility/infrastructure type.

For example:

a Major classification applies to routes / infrastructure that service multiple trip attractors such as connections between schools, parklands and major retail centres. This hierarchy may warrant a wider treatment due to a higher volume of active transport users.

a Low classification applies to routes / infrastructure that primarily service the immediate catchment, are not expected to service a large number of user types and warrant pathway treatments within the road reserve e.g. 1.5m footpath(s).

The route hierarchy criteria are summarised in Table 5.1.

Table 5.1: Criteria to Determine Route Hierarchy

Classification	Criteria	Infrastructure
Major	Provides connections: ▪ Within or between key centres ▪ To schools, shopping centres, transit hubs/stops ▪ Along major, higher volume transport routes	Includes: ▪ Separated cycleways ▪ Shared paths outside road reserve ▪ Shared paths ≥3m inside road reserve both sides of road
Medium	Provides connections: ▪ Within and between residential areas ▪ To major active transport routes ▪ To open space / parks ▪ To public transport stops	Includes: ▪ Shared path inside road reserve one side ▪ Shared paths ≤3m inside road reserve both sides of road ▪ Pathways outside road reserve (open space)
Low	Provides connections: ▪ Within immediate catchment (400m) ▪ On lower order, lower volume transport routes	Includes: ▪ Pathways inside road reserve one side (e.g. 1.5m footpath)

The key active transport linkages and route hierarchy is shown in Figure 5.3.

As shown, the proposed key active transport linkages are considered to provide a high-level of service and accessibility for the CA5 North site and provide connectivity to surrounding services and properties. The proposed connections also generally align with the active transport components of the current Movement IMP.

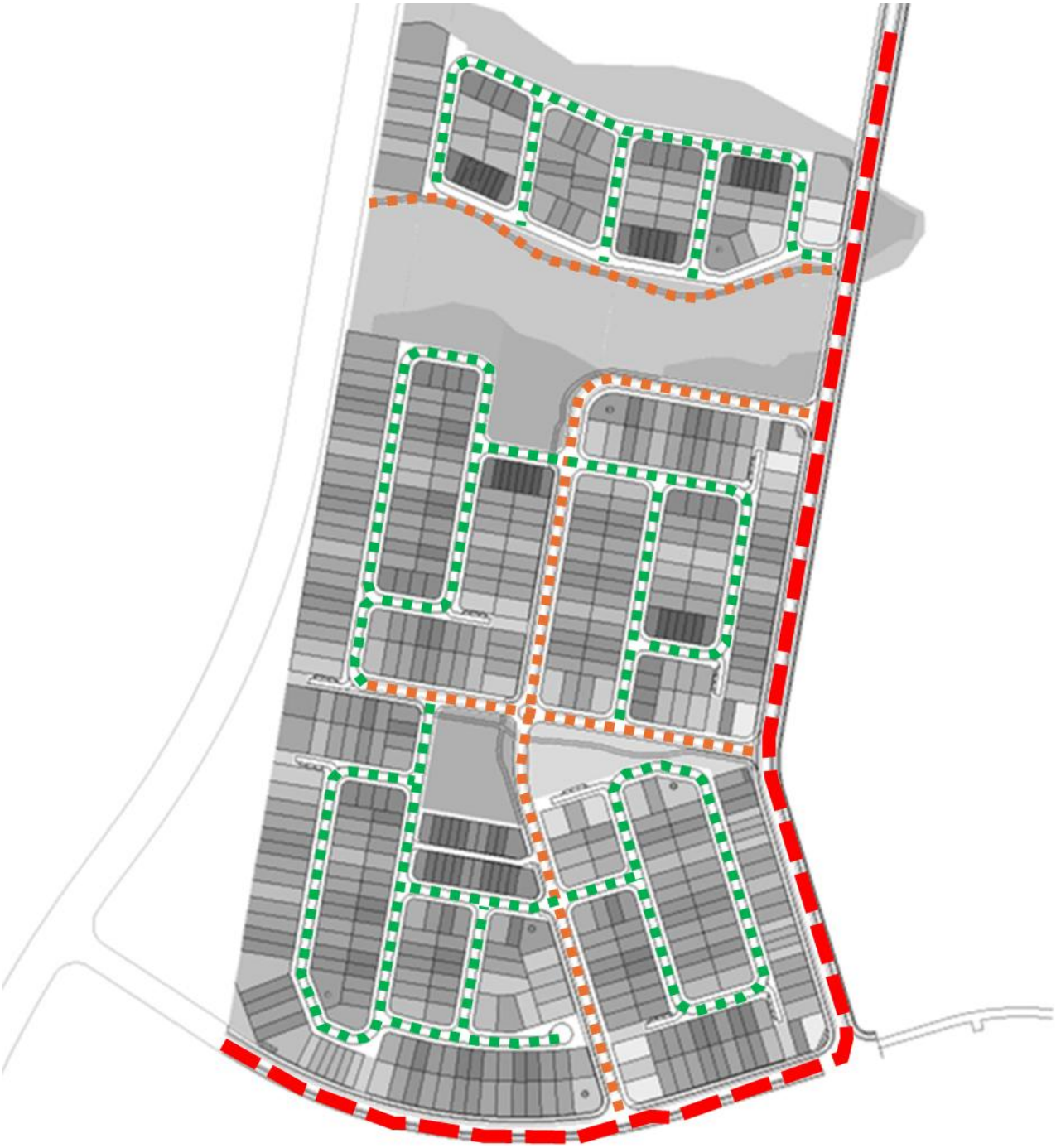


Figure 5.3: Active Transport Linkages

6. SUMMARY & CONCLUSIONS

The traffic and transport findings for the proposed Context Area 5 North development are summarised below:

- The proposed development is located within the south-west portion of Context Area 4 and north-west portion of Context Area 5 and incorporates primarily low-density residential development areas consistent with the zone planning for this area
- CA5 North includes a proposed 543 residential dwellings and accompanying roads and open space
- Proposed road hierarchies are generally in accordance with the endorsed Movement Network IMP and / or the EDQ Street and Movement Network PDA Guideline
- Proposed intersection arrangements are considered appropriate, and the minor deviation from the Movement IMP regarding intersection locations and spacing are considered appropriate outcomes
- A review of the lot layout identified that all lots can be appropriately accessed in accordance with relevant design principles, achieving compliant driveway locations, appropriate access sight distance and appropriate manoeuvring
- An access easement has been allocated within the application material which provides alternative access from the southern extent of the road network looping around through a viable alignment, connecting back with the road network in the north in case of an emergency. This secondary access shall be delivered by construction of the 300th lot within CA5 North
- Strategic traffic modelling was undertaken by VLC for which cordon matrices were extracted for the development of microsimulation (Aimsun) traffic models of Flagstone City, this process has been used throughout all previous application material and as such, presents a consistent approach to determining road network / intersection requirements
- Microsimulation modelling indicates that CA5 North road links are typically expected to be within acceptable performance limits
- Overall findings of intersection modelling of key intersections demonstrate that, based on current estimates of future traffic volumes, key intersections can cater for peak traffic demands in the vicinity of CA5 North to the ultimate design horizon of 2066
- Residential dwellings within CA5 North are located within 400m walking distance of proposed bus stop locations providing public transport accessibility to residential development areas in line with the requirements of the Flagstone Development Scheme
- The CA3 South site is considered to provide a highly accessible active transport network, with a range of route options both within and outside the road reserve. The proposed connections also generally align with the active transport components of the Movement IMP.

Based on the above assessment, it is concluded that the proposed road network, intersection arrangements and alternate transport provisions are expected to accommodate transport demands associated with the proposed Context Area 5 North development.

Appendix A: CA5 North Development Plans

Note:

All Lot Numbers, Dimensions and Areas are approximate only, and are subject to survey and Council approval.

Dimensions have been rounded to the nearest 0.1 metres.

Areas have been rounded down to the nearest 5m².

The boundaries shown on this plan should not be used for final detailed engineers design.

Source Information:

Site boundaries: RPS Survey
Adjoining information: DCDB
Rectified Environment constraints: Saunders Havill Group.
Defined Flood Event: Engeny.
Waterway Stability Buffers: Engeny.

ENDORSED CONTEXT PLAN (MIRVAC)

NORTH - SOUTH ARTERIAL (NEW BEITH ROAD)

STAGE 16
STAGE 17
STAGE 18
STAGE 19
STAGE 20

40005
55.075 ha

40006
64.145 ha

40007
175.439 ha

91550
1.48 ha

91552
1530m²

91553 Pt
242m² (1117m² Total)

91553 Pt
875m² (1117m² Total)

91555
3.30 ha

91557
3475 m²

91561
3160 m²

91562
6215 m²

91563
5310 m²

91564
6275 m²

91565
530m²

91566
2.04 ha

91567
6910 m²

Yield Breakdown

Lot Type	Overall	
20m Deep Product		
Squat Lots	28	5.2%
Subtotal	**28**	**5.2%**
25m Deep Product		
Terrace 6.6m Allotment Front Loaded	18	3.4%
Terrace 7.5m Allotment Front Loaded	10	1.9%
Terrace 9m Allotment Front Loaded End	10	1.9%
Terrace 7.5m Allotment Rear Loaded	14	2.6%
Terrace 9m Allotment Rear Loaded End	8	1.5%
Villa 10.5m Allotment	34	6.3%
Premium Villa 12.5m Allotment	58	10.8%
Courtyard 14m Allotment	24	4.5%
Premium Courtyard 16m Allotment	4	0.7%
Premium Traditional 18m Allotment	4	0.7%
Possible Multi-Residential Allotment	4	0.7%
Subtotal	**188**	**35.0%**
30m Deep Product		
Terrace 7.5m Allotment Front Loaded	8	1.5%
Terrace 9m Allotment Front Loaded End	6	1.1%
Villa 10.5m Allotment	74	13.8%
Premium Villa 12.5m Allotment	149	27.7%
Courtyard 14m Allotment	56	10.4%
Premium Courtyard 16m Allotment	19	3.5%
Premium Traditional 18m Allotment	7	1.3%
Possible Multi-Residential Allotment	2	0.4%
Subtotal	**321**	**59.8%**
Total Residential Allotments	**537**	**100.0%**
Total Residential Dwellings	**543**	
Residential Net Density	**17.5 dw/ha**	

Land Budget

Land Use	CA5 North	
	Area	%
Area of Application Boundary	**43.763 ha**	**100.0%**
Saleable Area		
Residential Allotments	19.99 ha	45.7%
Total Area of Allotments	**19.99 ha**	**45.7%**
Road		
Trunk Collector Road (23.8m)	2.90 ha	6.6%
Neighbourhood Connector (22.9m)	1.18 ha	2.7%
Neighbourhood Connector (21.0m)	2.23 ha	5.1%
Neighbourhood Access Street (16.5m)	6.81 ha	15.6%
Laneway (6.5m)	0.07 ha	0.2%
Pedestrian Linkages	0.25 ha	0.6%
Access Easement	0.07 ha	0.2%
Total Area of New Road	**13.50 ha**	**30.8%**
Open Space		
Drainage	3.55 ha	8.1%
Corridor Park / Conservation	4.95 ha	11.3%
Neighbourhood Recreation Park	1.25 ha	2.9%
Local Recreation Park	—	0.0%
Local Linear Recreation Park	0.53 ha	1.2%
Total Open Space	**10.28 ha**	**23.5%**

Legend

- Site Boundary
- Application Boundary
- Stage Boundary
- Access Easement
- 400m Neighbourhood Park Catchment
- Hard Environmental Constraint (PMAV)
- Waterway Stability Buffer
- Defined Flood Extent
- Balance Allotments
- Entry Signage Lease

TO BE READ IN CONJUNCTION WITH 110056-703 OVERALL APPLICATION

PLAN REF: 110056 – 704
Rev No: A
DATE: 13 May 2026
CLIENT: PEET
DRAWN BY: CB
CHECKED BY: CK

0 30 60 90 120 150 1 : 3,000 @ A3

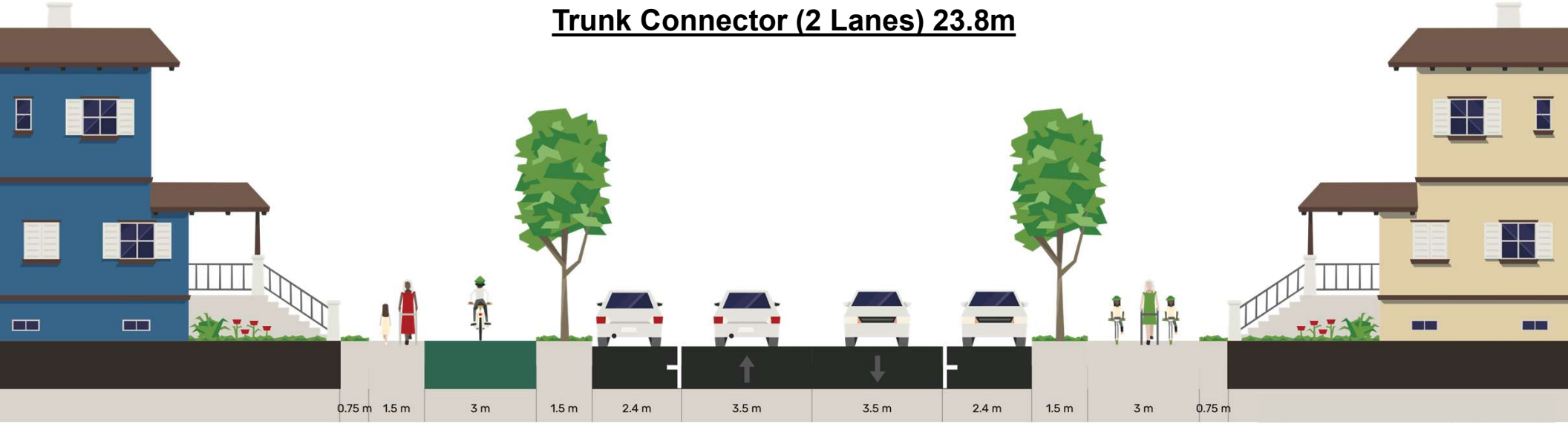
FLAGSTONE CA5
PLAN OF SUBDIVISION
STAGES 16 - 20

URBAN DESIGN
Level 8
31 Duncan Street
PO Box 1559
Fortitude Valley QLD 4006
T +61 7 3539 9500
W rpsgroup.com

A TETRA TECH COMPANY

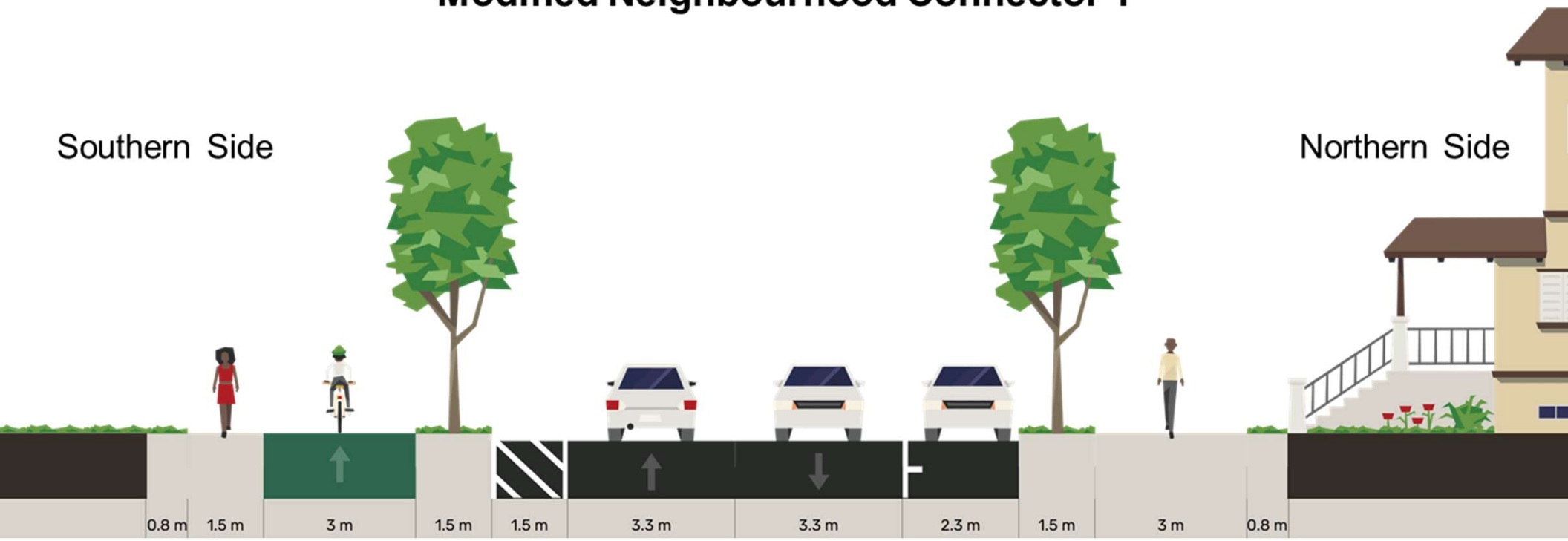
Appendix B: Typical Road Cross-Sections

Trunk Connector (2 Lanes) 23.8m

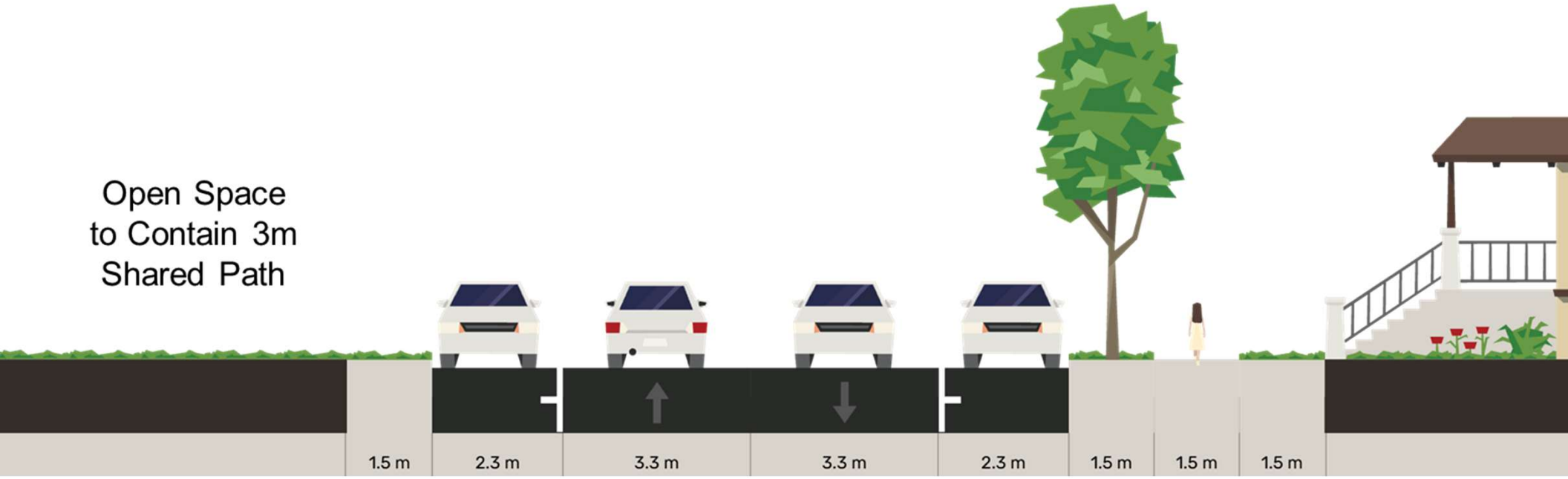


Neighbourhood Collector 21m

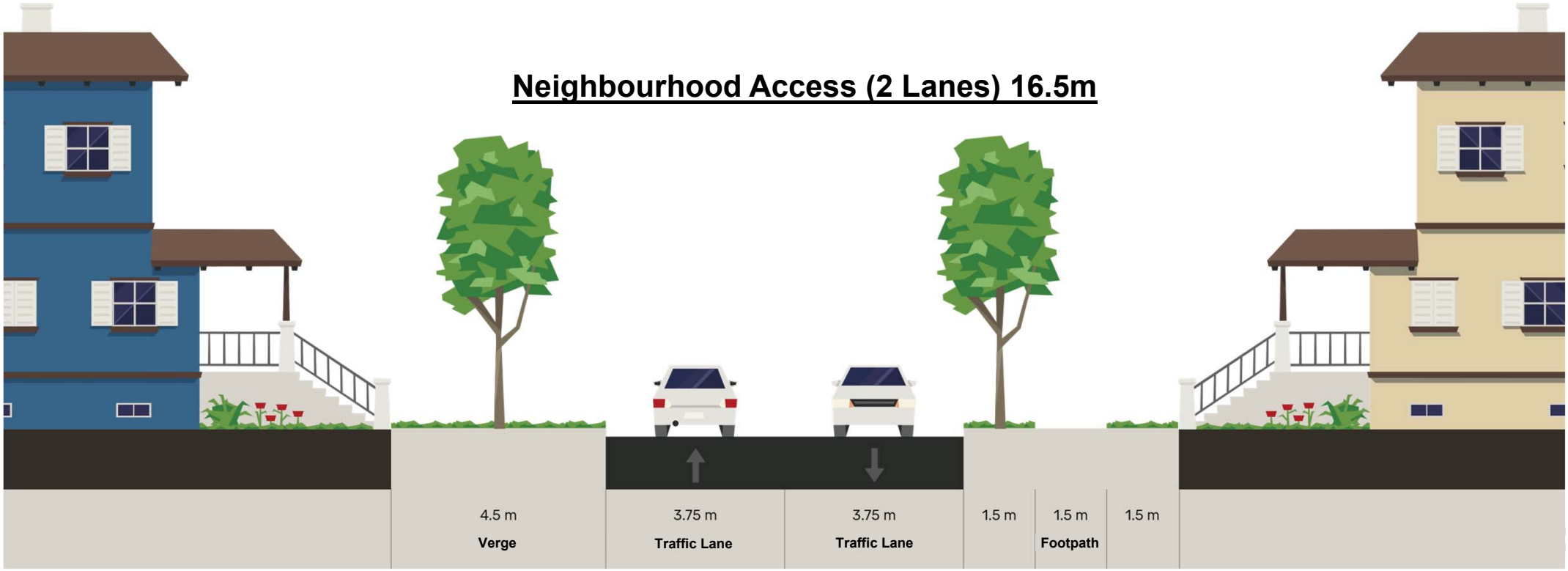
Modified Neighbourhood Connector 1



Modified Neighbourhood Connector 2



Neighbourhood Access (2 Lanes) 16.5m



Esplanade Road

Neighbourhood Lane 6.5m

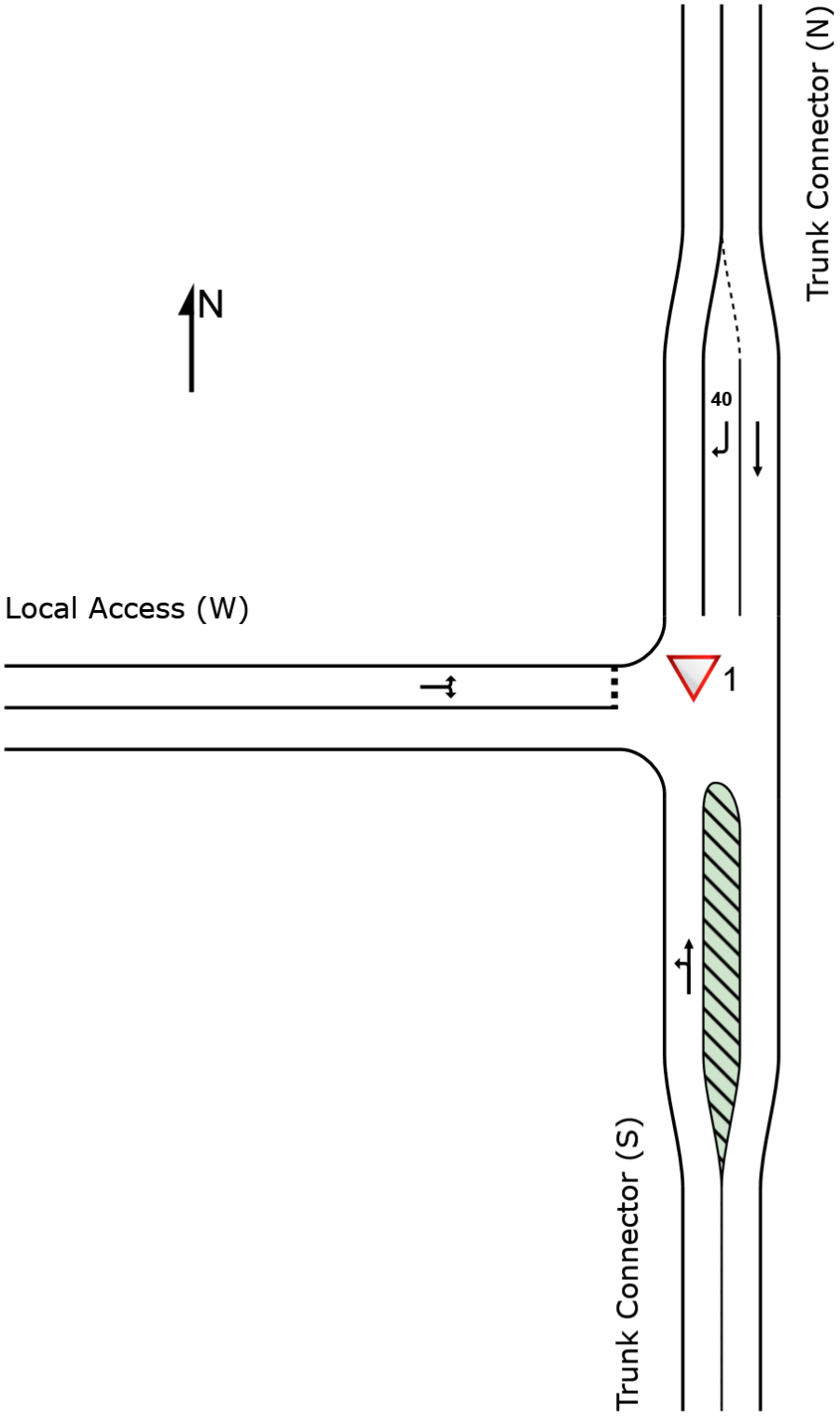
Appendix C: Key Intersection SIDRA Results

SITE LAYOUT

Site: 1 [1_2066 AM (Site Folder: General)]

CA5 N Intersection 1
Site Category: (None)
Give-Way (Two-Way)

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



MOVEMENT SUMMARY

Site: 1 [1_2066 AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

CA5 N Intersection 1
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Trunk Connector (S)															
1	L2	All MCs	7	0.0	7	0.0	0.285	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	57.3
2	T1	All MCs	546	1.9	546	1.9	0.285	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
Approach			554	1.9	554	1.9	0.285	0.2	NA	0.0	0.0	0.00	0.01	0.00	59.7
North: Trunk Connector (N)															
8	T1	All MCs	356	2.7	356	2.7	0.184	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	4	0.0	4	0.0	0.004	7.6	LOS A	0.0	0.1	0.44	0.60	0.44	47.7
Approach			360	2.6	360	2.6	0.184	0.1	NA	0.0	0.1	0.01	0.01	0.01	59.7
West: Local Access (W)															
10	L2	All MCs	21	0.0	21	0.0	0.042	6.8	LOS A	0.2	1.1	0.56	0.71	0.56	46.8
12	R2	All MCs	7	0.0	7	0.0	0.042	13.0	LOS B	0.2	1.1	0.56	0.71	0.56	46.7
Approach			28	0.0	28	0.0	0.042	8.4	LOS A	0.2	1.1	0.56	0.71	0.56	46.8
All Vehicles			942	2.1	942	2.1	0.285	0.4	NA	0.2	1.1	0.02	0.03	0.02	59.2

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

MOVEMENT SUMMARY

Site: 1 [1_2066 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

CA5 N Intersection 1
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Trunk Connector (S)															
1	L2	All MCs	5	0.0	5	0.0	0.191	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	57.3
2	T1	All MCs	367	1.1	367	1.1	0.191	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
Approach			373	1.1	373	1.1	0.191	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
North: Trunk Connector (N)															
8	T1	All MCs	559	0.6	559	0.6	0.285	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
9	R2	All MCs	24	0.0	24	0.0	0.019	6.7	LOS A	0.1	0.5	0.34	0.60	0.34	48.2
Approach			583	0.5	583	0.5	0.285	0.4	NA	0.1	0.5	0.01	0.02	0.01	59.2
West: Local Access (W)															
10	L2	All MCs	11	0.0	11	0.0	0.032	5.8	LOS A	0.1	0.8	0.57	0.66	0.57	46.4
12	R2	All MCs	8	0.0	8	0.0	0.032	12.9	LOS B	0.1	0.8	0.57	0.66	0.57	46.4
Approach			19	0.0	19	0.0	0.032	9.0	LOS A	0.1	0.8	0.57	0.66	0.57	46.4
All Vehicles			975	0.8	975	0.8	0.285	0.4	NA	0.1	0.8	0.02	0.03	0.02	59.1

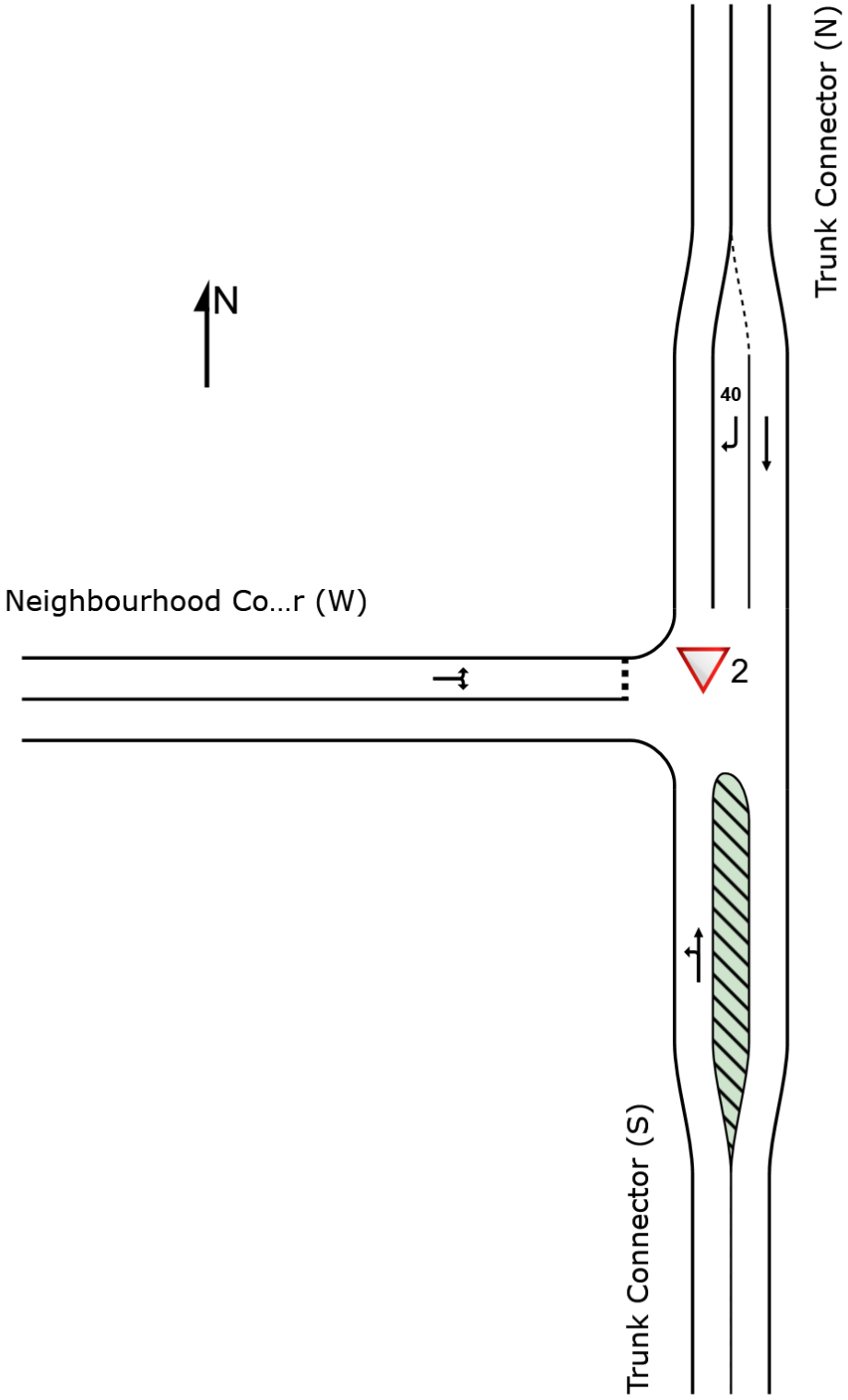
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of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

SITE LAYOUT

Site: 2 [2_2066 AM (Site Folder: General)]

CA5 N Intersection 2
Site Category: (None)
Give-Way (Two-Way)

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



MOVEMENT SUMMARY

Site: 2 [2_2066 AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

CA5 N Intersection 2
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Trunk Connector (S)															
1	L2	All MCs	1	0.0	1	0.0	0.254	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	57.4
2	T1	All MCs	494	1.9	494	1.9	0.254	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			495	1.9	495	1.9	0.254	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.8
North: Trunk Connector (N)															
8	T1	All MCs	357	2.7	357	2.7	0.184	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	6	0.0	6	0.0	0.006	7.3	LOS A	0.0	0.2	0.49	0.60	0.49	47.9
Approach			363	2.6	363	2.6	0.184	0.2	NA	0.0	0.2	0.01	0.01	0.01	59.6
West: Neighbourhood Connector (W)															
10	L2	All MCs	61	1.7	61	1.7	0.070	6.6	LOS A	0.3	1.9	0.50	0.67	0.50	47.6
12	R2	All MCs	3	0.0	3	0.0	0.070	13.1	LOS B	0.3	1.9	0.50	0.67	0.50	47.6
Approach			64	1.6	64	1.6	0.070	6.9	LOS A	0.3	1.9	0.50	0.67	0.50	47.6
All Vehicles			922	2.2	922	2.2	0.254	0.6	NA	0.3	1.9	0.04	0.05	0.04	58.7

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

MOVEMENT SUMMARY

Site: 1 [2_2066 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

CA5 N Intersection 1
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Trunk Connector (S)															
1	L2	All MCs	1	0.0	1	0.0	0.173	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	57.4
2	T1	All MCs	337	1.3	337	1.3	0.173	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			338	1.2	338	1.2	0.173	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.9
North: Trunk Connector (N)															
8	T1	All MCs	524	0.4	524	0.4	0.267	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	40	2.6	40	2.6	0.031	6.7	LOS A	0.1	1.0	0.41	0.60	0.41	48.0
Approach			564	0.6	564	0.6	0.267	0.5	NA	0.1	1.0	0.03	0.04	0.03	58.8
West: Neighbourhood Connector (W)															
10	L2	All MCs	36	0.0	36	0.0	0.039	5.7	LOS A	0.1	1.0	0.43	0.59	0.43	48.0
12	R2	All MCs	3	0.0	3	0.0	0.039	13.6	LOS B	0.1	1.0	0.43	0.59	0.43	48.0
Approach			39	0.0	39	0.0	0.039	6.3	LOS A	0.1	1.0	0.43	0.59	0.43	48.0
All Vehicles			941	0.8	941	0.8	0.267	0.6	NA	0.1	1.0	0.03	0.05	0.03	58.7

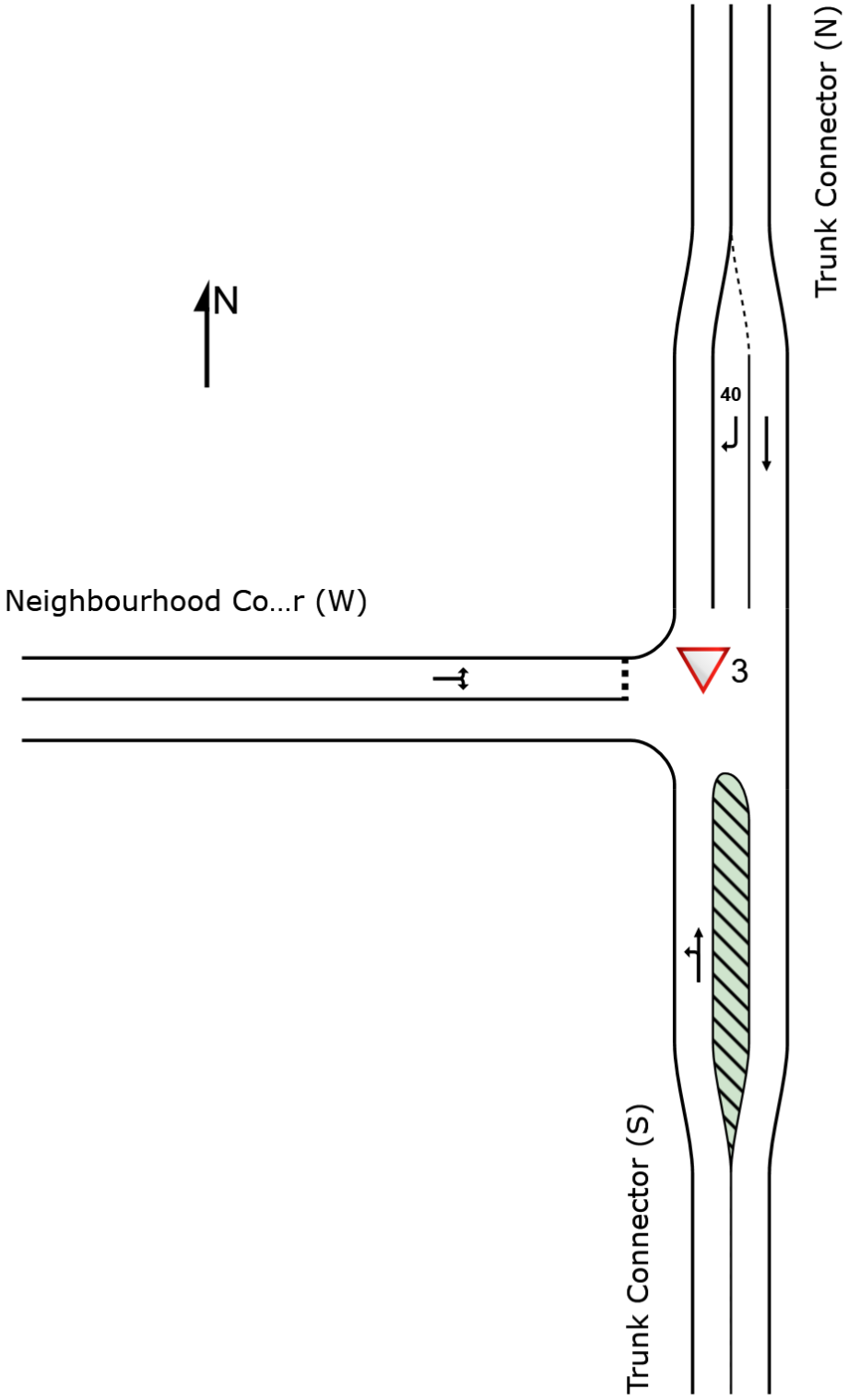
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of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

SITE LAYOUT

Site: 3 [3_2066 AM (Site Folder: General)]

CA5 N Intersection 3
Site Category: (None)
Give-Way (Two-Way)

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



MOVEMENT SUMMARY

Site: 3 [3_2066 AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

CA5 N Intersection 3
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Trunk Connector (S)															
1	L2	All MCs	11	0.0	11	0.0	0.287	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	57.3
2	T1	All MCs	549	1.3	549	1.3	0.287	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.7
Approach			560	1.3	560	1.3	0.287	0.2	NA	0.0	0.0	0.00	0.01	0.00	59.7
North: Trunk Connector (N)															
8	T1	All MCs	288	2.6	288	2.6	0.149	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	24	8.7	24	8.7	0.027	8.1	LOS A	0.1	0.8	0.53	0.68	0.53	47.2
Approach			313	3.0	313	3.0	0.149	0.7	NA	0.1	0.8	0.04	0.05	0.04	58.7
West: Neighbourhood Connector (W)															
10	L2	All MCs	23	0.0	23	0.0	0.085	6.8	LOS A	0.3	2.1	0.61	0.79	0.61	45.8
12	R2	All MCs	22	0.0	22	0.0	0.085	13.3	LOS B	0.3	2.1	0.61	0.79	0.61	45.8
Approach			45	0.0	45	0.0	0.085	10.0	LOS B	0.3	2.1	0.61	0.79	0.61	45.8
All Vehicles			918	1.8	918	1.8	0.287	0.8	NA	0.3	2.1	0.04	0.06	0.04	58.5

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

MOVEMENT SUMMARY

Site: 1 [3_2066 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

CA5 N Intersection 1
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Trunk Connector (S)															
1	L2	All MCs	15	0.0	15	0.0	0.157	5.6	LOS A	0.0	0.0	0.00	0.03	0.00	57.2
2	T1	All MCs	289	2.2	289	2.2	0.157	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	59.7
Approach			304	2.1	304	2.1	0.157	0.3	NA	0.0	0.0	0.00	0.03	0.00	59.5
North: Trunk Connector (N)															
8	T1	All MCs	484	0.9	484	0.9	0.247	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	51	4.2	51	4.2	0.039	6.6	LOS A	0.2	1.2	0.39	0.60	0.39	48.0
Approach			535	1.2	535	1.2	0.247	0.7	NA	0.2	1.2	0.04	0.06	0.04	58.5
West: Neighbourhood Connector (W)															
10	L2	All MCs	9	0.0	9	0.0	0.029	5.5	LOS A	0.1	0.7	0.54	0.63	0.54	46.7
12	R2	All MCs	8	0.0	8	0.0	0.029	12.1	LOS B	0.1	0.7	0.54	0.63	0.54	46.6
Approach			18	0.0	18	0.0	0.029	8.6	LOS A	0.1	0.7	0.54	0.63	0.54	46.6
All Vehicles			857	1.5	857	1.5	0.247	0.7	NA	0.2	1.2	0.03	0.06	0.03	58.5

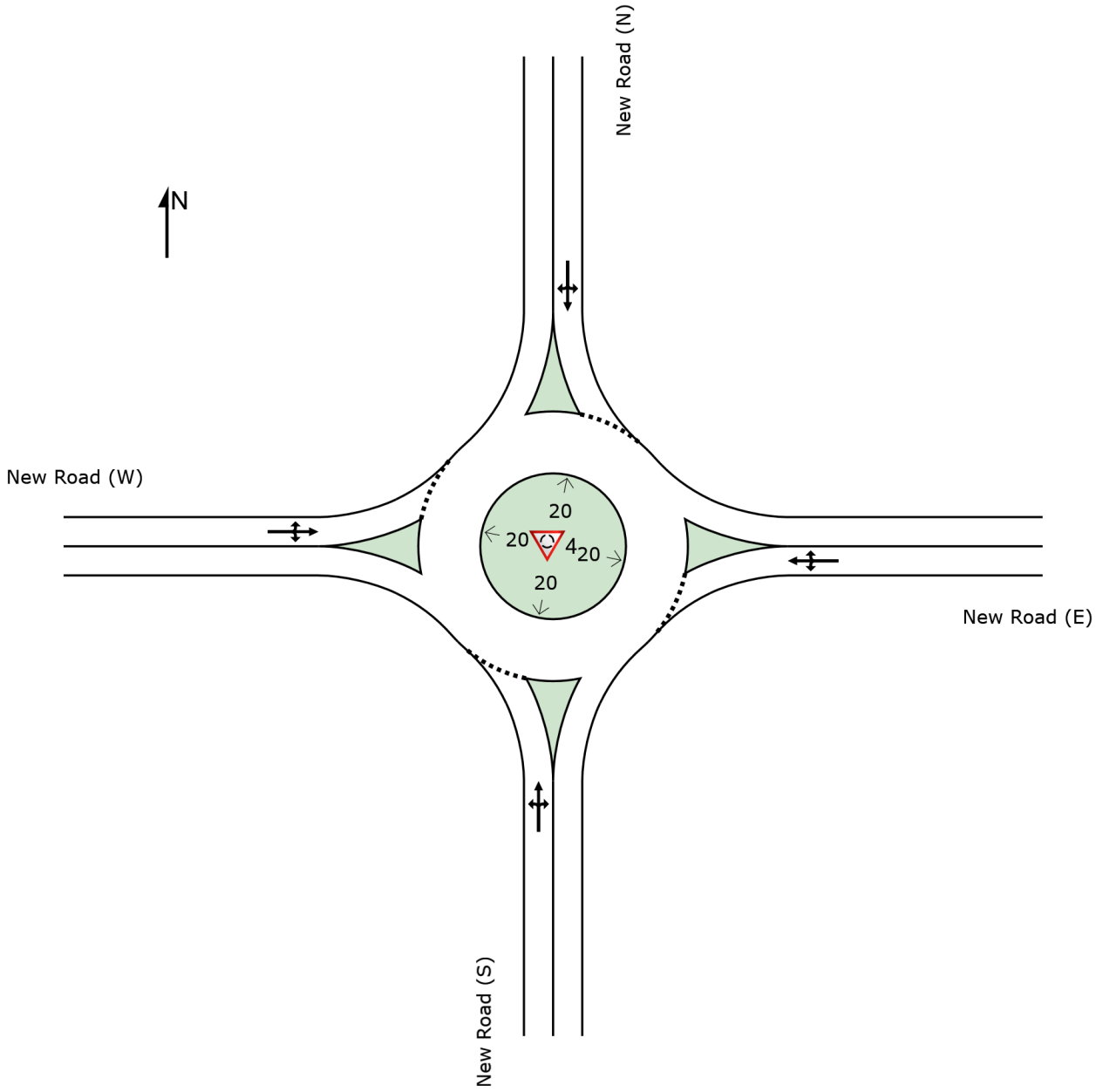
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of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

SITE LAYOUT

Site: 4 [4_2066 AM (Site Folder: General)]

CA5 Central Roundabout
Site Category: (None)
Roundabout

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



MOVEMENT SUMMARY

Site: 4 [4_2066 AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

CA5 Central Roundabout
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: New Road (S)															
1	L2	All MCs	293	0.7	293	0.7	0.565	4.1	LOS A	5.5	38.7	0.23	0.44	0.23	53.5
2	T1	All MCs	489	1.2	489	1.2	0.565	4.3	LOS A	5.5	38.7	0.23	0.44	0.23	53.9
3	R2	All MCs	116	3.4	116	3.4	0.565	9.0	LOS A	5.5	38.7	0.23	0.44	0.23	52.9
Approach			898	1.3	898	1.3	0.565	4.9	LOS A	5.5	38.7	0.23	0.44	0.23	53.6
East: New Road (E)															
4	L2	All MCs	69	2.9	69	2.9	0.103	7.2	LOS A	0.6	4.3	0.65	0.65	0.65	52.1
5	T1	All MCs	14	14.3	14	14.3	0.103	7.9	LOS A	0.6	4.3	0.65	0.65	0.65	52.2
6	R2	All MCs	1	0.0	1	0.0	0.103	11.9	LOS B	0.6	4.3	0.65	0.65	0.65	51.7
Approach			84	4.8	84	4.8	0.103	7.4	LOS A	0.6	4.3	0.65	0.65	0.65	52.1
North: New Road (N)															
7	L2	All MCs	2	0.0	2	0.0	0.311	6.5	LOS A	2.0	14.5	0.65	0.61	0.65	51.8
8	T1	All MCs	273	2.6	273	2.6	0.311	6.8	LOS A	2.0	14.5	0.65	0.61	0.65	52.0
9	R2	All MCs	16	0.0	16	0.0	0.311	11.3	LOS B	2.0	14.5	0.65	0.61	0.65	51.3
Approach			291	2.4	291	2.4	0.311	7.0	LOS A	2.0	14.5	0.65	0.61	0.65	52.0
West: New Road (W)															
10	L2	All MCs	46	2.2	46	2.2	0.427	8.4	LOS A	2.9	20.8	0.76	0.74	0.77	48.9
11	T1	All MCs	12	16.7	12	16.7	0.427	9.3	LOS A	2.9	20.8	0.76	0.74	0.77	49.0
12	R2	All MCs	306	1.0	306	1.0	0.427	13.1	LOS B	2.9	20.8	0.76	0.74	0.77	48.5
Approach			364	1.6	364	1.6	0.427	12.4	LOS B	2.9	20.8	0.76	0.74	0.77	48.6
All Vehicles			1637	1.8	1637	1.8	0.565	7.1	LOS A	5.5	38.7	0.44	0.55	0.45	52.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
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 (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 4 [4_2066 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

CA5 Central Roundabout
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: New Road (S)															
1	L2	All MCs	283	1.8	283	1.8	0.442	4.4	LOS A	3.5	24.6	0.34	0.46	0.34	53.2
2	T1	All MCs	272	1.8	272	1.8	0.442	4.7	LOS A	3.5	24.6	0.34	0.46	0.34	53.5
3	R2	All MCs	67	0.0	67	0.0	0.442	9.3	LOS A	3.5	24.6	0.34	0.46	0.34	52.7
Approach			622	1.6	622	1.6	0.442	5.1	LOS A	3.5	24.6	0.34	0.46	0.34	53.3
East: New Road (E)															
4	L2	All MCs	174	0.6	174	0.6	0.272	8.6	LOS A	1.8	12.5	0.77	0.71	0.77	51.2
5	T1	All MCs	26	0.0	26	0.0	0.272	8.8	LOS A	1.8	12.5	0.77	0.71	0.77	51.6
6	R2	All MCs	5	0.0	5	0.0	0.272	13.4	LOS B	1.8	12.5	0.77	0.71	0.77	50.8
Approach			205	0.5	205	0.5	0.272	8.7	LOS A	1.8	12.5	0.77	0.71	0.77	51.3
North: New Road (N)															
7	L2	All MCs	1	0.0	1	0.0	0.439	6.0	LOS A	3.1	22.1	0.62	0.58	0.62	51.8
8	T1	All MCs	412	0.5	412	0.5	0.439	6.2	LOS A	3.1	22.1	0.62	0.58	0.62	52.1
9	R2	All MCs	55	3.6	55	3.6	0.439	11.0	LOS B	3.1	22.1	0.62	0.58	0.62	51.2
Approach			468	0.9	468	0.9	0.439	6.8	LOS A	3.1	22.1	0.62	0.58	0.62	52.0
West: New Road (W)															
10	L2	All MCs	13	7.7	13	7.7	0.255	6.0	LOS A	1.5	10.8	0.55	0.66	0.55	49.9
11	T1	All MCs	3	0.0	3	0.0	0.255	6.0	LOS A	1.5	10.8	0.55	0.66	0.55	50.4
12	R2	All MCs	248	0.8	248	0.8	0.255	10.7	LOS B	1.5	10.8	0.55	0.66	0.55	49.6
Approach			264	1.1	264	1.1	0.255	10.4	LOS B	1.5	10.8	0.55	0.66	0.55	49.6
All Vehicles			1559	1.2	1559	1.2	0.442	7.0	LOS A	3.5	24.6	0.52	0.56	0.52	52.0

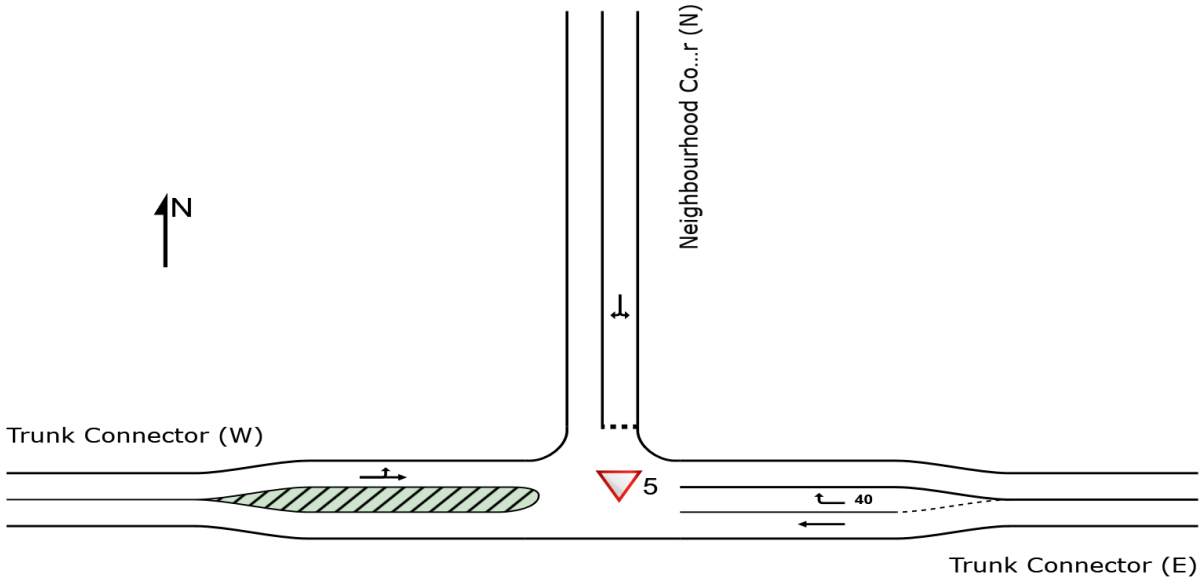
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay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

SITE LAYOUT

Site: 5 [5_2066 AM (Site Folder: General)]

CA5 N Intersection 5
Site Category: (None)
Give-Way (Two-Way)

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



MOVEMENT SUMMARY

Site: 5 [5_2066 AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

CA5 N Intersection 5
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Trunk Connector (E)															
8	T1	All MCs	316	1.3	316	1.3	0.162	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	24	0.0	24	0.0	0.019	6.7	LOS A	0.1	0.6	0.42	0.59	0.42	48.0
Approach			340	1.2	340	1.2	0.162	0.5	NA	0.1	0.6	0.03	0.04	0.03	58.9
North: Neighbourhood Connector (N)															
10	L2	All MCs	41	2.6	41	2.6	0.100	5.9	LOS A	0.4	2.8	0.52	0.67	0.52	47.1
12	R2	All MCs	34	0.0	34	0.0	0.100	10.1	LOS B	0.4	2.8	0.52	0.67	0.52	47.1
Approach			75	1.4	75	1.4	0.100	7.8	LOS A	0.4	2.8	0.52	0.67	0.52	47.1
West: Trunk Connector (W)															
1	L2	All MCs	24	0.0	24	0.0	0.189	5.6	LOS A	0.0	0.0	0.00	0.04	0.00	57.1
2	T1	All MCs	344	1.5	344	1.5	0.189	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	59.5
Approach			368	1.4	368	1.4	0.189	0.4	NA	0.0	0.0	0.00	0.04	0.00	59.4
All Vehicles			783	1.3	783	1.3	0.189	1.2	NA	0.4	2.8	0.06	0.10	0.06	57.7

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

MOVEMENT SUMMARY

Site: 1 [5_2066 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

CA5 N Intersection 1
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Trunk Connector (E)															
8	T1	All MCs	357	2.1	357	2.1	0.184	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	36	0.0	36	0.0	0.026	6.5	LOS A	0.1	0.8	0.38	0.58	0.38	48.1
Approach			393	1.9	393	1.9	0.184	0.6	NA	0.1	0.8	0.03	0.05	0.03	58.6
North: Neighbourhood Connector (N)															
10	L2	All MCs	19	0.0	19	0.0	0.074	5.4	LOS A	0.3	2.0	0.53	0.66	0.53	46.8
12	R2	All MCs	29	3.6	29	3.6	0.074	10.2	LOS B	0.3	2.0	0.53	0.66	0.53	46.6
Approach			48	2.2	48	2.2	0.074	8.3	LOS A	0.3	2.0	0.53	0.66	0.53	46.7
West: Trunk Connector (W)															
1	L2	All MCs	40	2.6	40	2.6	0.159	5.6	LOS A	0.0	0.0	0.00	0.08	0.00	56.7
2	T1	All MCs	268	1.2	268	1.2	0.159	0.0	LOS A	0.0	0.0	0.00	0.08	0.00	59.2
Approach			308	1.4	308	1.4	0.159	0.8	NA	0.0	0.0	0.00	0.08	0.00	58.9
All Vehicles			749	1.7	749	1.7	0.184	1.2	NA	0.3	2.0	0.05	0.10	0.05	57.8

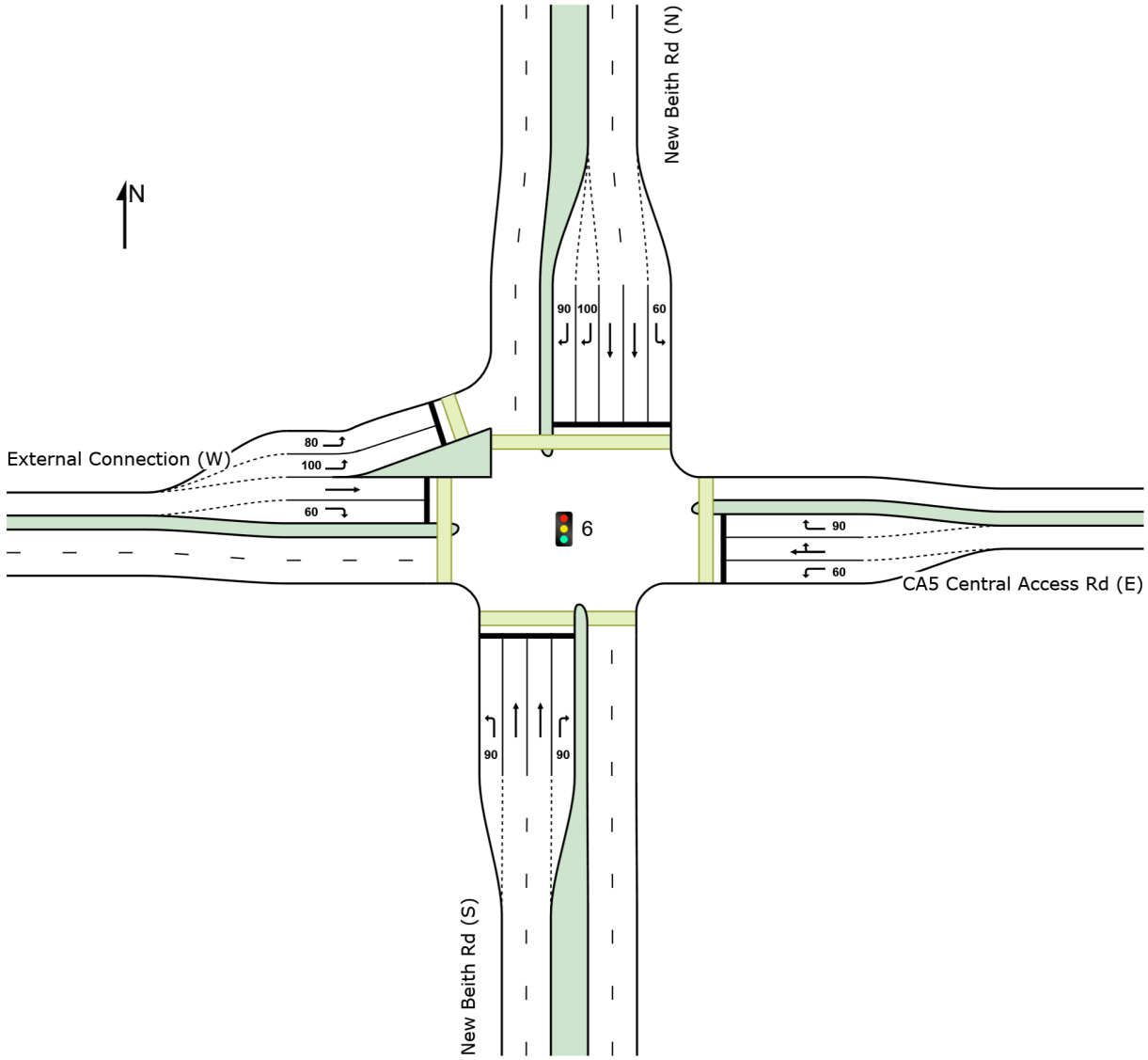
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of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

SITE LAYOUT

Site: 6 [6_2066 AM (Site Folder: General)]

New Beith Road / CA5 Central Access Road
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated

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



MOVEMENT SUMMARY

Site: 6 [6_2066 AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Beith Road / CA5 Central Access Road
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 160 seconds (Site Practical Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: New Beith Rd (S)															
1	L2	All MCs	61	0.0	61	0.0	0.058	35.5	LOS D	2.1	14.4	0.47	0.71	0.47	52.5
2	T1	All MCs	2187	1.8	2187	1.8	* 0.946	38.6	LOS D	77.2	548.6	0.86	0.87	0.93	55.4
3	R2	All MCs	5	40.0	5	40.0	0.011	61.6	LOS E	0.3	2.4	0.70	0.66	0.70	41.7
Approach			2253	1.8	2253	1.8	0.946	38.6	LOS D	77.2	548.6	0.85	0.86	0.92	47.4
East: CA5 Central Access Rd (E)															
4	L2	All MCs	3	0.0	3	0.0	0.029	83.9	LOS F	0.2	1.6	0.97	0.63	0.97	31.9
5	T1	All MCs	108	0.9	108	0.9	* 0.895	90.1	LOS F	13.8	97.8	1.00	1.00	1.29	24.1
6	R2	All MCs	206	1.5	206	1.5	0.895	96.0	LOS F	13.8	97.8	1.00	0.99	1.29	21.4
Approach			317	1.3	317	1.3	0.895	93.9	LOS F	13.8	97.8	1.00	0.99	1.29	22.4
North: New Beith Rd (N)															
7	L2	All MCs	165	1.2	165	1.2	0.287	39.5	LOS D	7.2	51.2	0.80	0.78	0.80	36.9
8	T1	All MCs	591	4.6	591	4.6	0.433	42.5	LOS D	17.6	128.2	0.80	0.69	0.80	46.7
9	R2	All MCs	157	1.9	157	1.9	* 0.857	99.4	LOS F	6.8	48.1	1.00	0.90	1.31	21.0
Approach			913	3.5	913	3.5	0.857	51.7	LOS D	17.6	128.2	0.84	0.74	0.89	38.1
West: External Connection (W)															
10	L2	All MCs	398	1.0	398	1.0	0.576	69.7	LOS E	14.2	100.4	0.96	0.82	0.96	25.8
11	T1	All MCs	176	0.6	176	0.6	* 0.906	90.9	LOS F	15.4	108.1	1.00	1.02	1.30	24.3
12	R2	All MCs	138	1.4	138	1.4	0.751	85.4	LOS F	11.0	78.2	1.00	0.87	1.10	31.7
Approach			712	1.0	712	1.0	0.906	78.0	LOS E	15.4	108.1	0.98	0.88	1.07	26.7
All Vehicles			4195	2.0	4195	2.0	0.946	52.3	LOS D	77.2	548.6	0.88	0.85	0.97	38.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: New Beith Rd (S)												
P11	Stage 1	25	25	74.2	LOS F	0.1	0.1	0.96	0.96	228.0	200.0	0.88
P12	Stage 2	25	25	74.2	LOS F	0.1	0.1	0.96	0.96	228.0	200.0	0.88
East: CA5 Central Access Rd (E)												

P2	Full	25	25	73.2	LOS F	0.1	0.1	0.96	0.96	227.1	200.0	0.88
North: New Beith Rd (N)												
P3	Full	13	13	73.2	LOS F	0.1	0.1	0.96	0.96	227.0	200.0	0.88
West: External Connection (W)												
P4	Full	25	25	73.2	LOS F	0.1	0.1	0.96	0.96	227.1	200.0	0.88
P4B	Slip/ Bypass	25	25	37.6	LOS D	0.1	0.1	0.93	0.93	191.4	200.0	1.04
All Pedestrians		138	138	67.1	LOS F	0.1	0.1	0.95	0.95	221.0	200.0	0.91

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: 6 [6_2066 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Beith Road / CA5 Central Access Road
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 110 seconds (Site Practical Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: New Beith Rd (S)															
1	L2	All MCs	137	1.5	137	1.5	0.390	49.5	LOS D	6.5	46.3	0.92	0.79	0.92	41.1
2	T1	All MCs	837	4.5	837	4.5	0.891	54.8	LOS D	25.3	183.8	1.00	1.03	1.23	40.6
3	R2	All MCs	9	0.0	9	0.0	*0.267	72.8	LOS E	0.5	3.8	1.00	0.66	1.00	34.8
Approach			983	4.1	983	4.1	0.891	54.2	LOS D	25.3	183.8	0.99	0.99	1.19	40.6
East: CA5 Central Access Rd (E)															
4	L2	All MCs	17	0.0	17	0.0	0.144	60.6	LOS E	0.9	6.3	0.97	0.69	0.97	37.3
5	T1	All MCs	204	2.0	204	2.0	*0.896	63.8	LOS E	12.6	89.7	1.00	1.04	1.37	29.5
6	R2	All MCs	128	3.1	128	3.1	0.596	57.3	LOS E	6.8	48.8	1.00	0.80	1.00	28.8
Approach			349	2.3	349	2.3	0.896	61.2	LOS E	12.6	89.7	1.00	0.94	1.21	29.7
North: New Beith Rd (N)															
7	L2	All MCs	199	2.0	199	2.0	0.230	23.2	LOS C	3.6	25.5	0.63	0.75	0.63	47.2
8	T1	All MCs	1853	1.0	1853	1.0	*0.897	23.9	LOS C	41.8	295.3	0.76	0.77	0.84	59.9
9	R2	All MCs	312	0.3	312	0.3	0.281	40.7	LOS D	6.4	44.9	0.81	0.78	0.81	35.5
Approach			2364	1.0	2364	1.0	0.897	26.1	LOS C	41.8	295.3	0.75	0.77	0.82	52.1
West: External Connection (W)															
10	L2	All MCs	176	2.3	176	2.3	0.102	22.6	LOS C	2.6	18.3	0.58	0.70	0.58	42.3
11	T1	All MCs	91	0.0	91	0.0	0.395	49.8	LOS D	4.7	32.6	0.97	0.75	0.97	33.2
12	R2	All MCs	89	1.1	89	1.1	*0.409	55.7	LOS E	4.6	32.4	0.97	0.77	0.97	38.8
Approach			356	1.4	356	1.4	0.409	37.8	LOS D	4.7	32.6	0.78	0.73	0.78	38.5
All Vehicles			4052	1.9	4052	1.9	0.897	37.0	LOS D	41.8	295.3	0.83	0.83	0.94	45.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: New Beith Rd (S)												
P11	Stage 1	25	25	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
P12	Stage 2	25	25	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
East: CA5 Central Access Rd (E)												

P2	Full	25	25	48.3	LOS E	0.1	0.1	0.94	0.94	202.1	200.0	0.99
North: New Beith Rd (N)												
P3	Full	13	13	48.2	LOS E	0.0	0.0	0.94	0.94	202.1	200.0	0.99
West: External Connection (W)												
P4	Full	25	25	48.3	LOS E	0.1	0.1	0.94	0.94	202.1	200.0	0.99
P4B	Slip/ Bypass	25	25	26.3	LOS C	0.1	0.1	0.89	0.89	180.1	200.0	1.11
All Pedestrians		138	138	44.6	LOS E	0.1	0.1	0.93	0.93	198.5	200.0	1.01

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

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