

Wyatt Road Masterplan

Traffic Impact Assessment



Wel.Co

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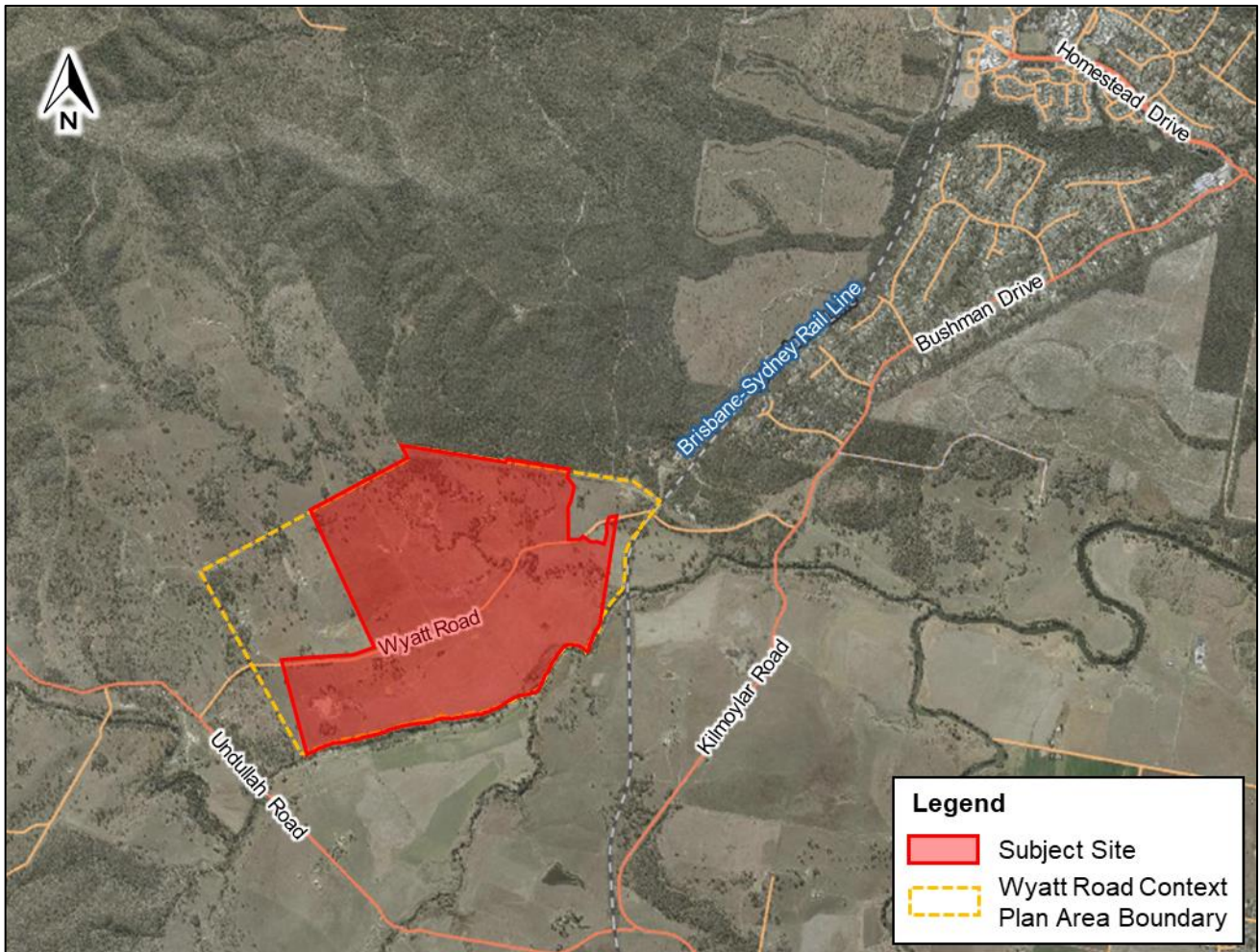
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- Appendix A: Development Plans
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1. INTRODUCTION

1.1 Background

Bitzios Consulting has been engaged to undertake a Traffic Impact Assessment for the Wyatt Road Masterplan. The location of the subject site with respect to the Wyatt Road Context Plan Area is illustrated in Figure 1.1.



Source: Adapted from Queensland Globe

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.

1.2 Development Details

The proposed development is a residential subdivision of 1,747 low-density residential allotments with accompanying parklands and open space. The development Masterplan prepared by Saunders Havill Group is provided at **Appendix A**, including proposed development yields.

An overview of the site layout is shown in Figure 1.2.

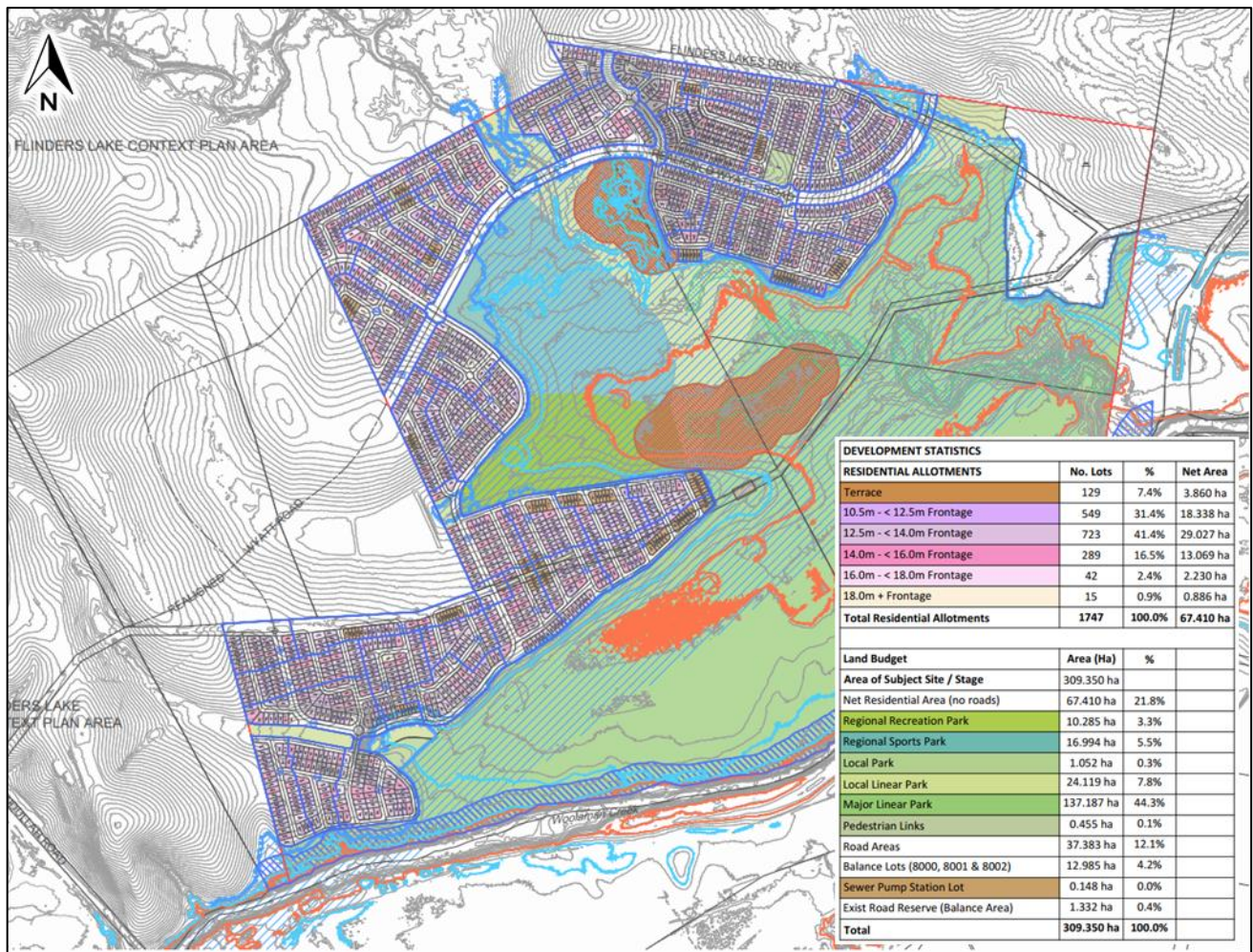


Figure 1.2: Development Plans

1.3 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 Wyatt Road Context Plan Area, the Greater Flagstone PDA and overarching transport planning in the South Logan area
- A review of the proposed development against relevant planning to date
- Detailing previous strategic modelling undertaken used to identify and evaluate appropriate road layout and road cross-sections within the subject site
- Source traffic volumes from the strategic 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.

1.4 Reference Material

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

- Greater Flagstone PDA Development Scheme
- The Development Charges and Offset Plan (DCOP) and DCOP maps
- The Greater Flagstone PDA Infrastructure Plan Background Report (IPBR)
- South Logan Strategic Transport Model Update: Model Development and Network Apportionments (VLC, 18 June 2020)
- Greater Flagstone Priority Development Area – Bicycle Network Plan (VLC, June 2017)
- Wyatt Road Realignment Review (VLC, August 2023)
- Wyatt Road Kagaru Context Area Plan (current application pending review by EDQ (DEV2023/1431)
- Relevant Context Area Plans associated with the Flagstone PDA
- Relevant EDQ Guidelines and Practice Notes.

2. SITE LOCATION & PLANNING CONTEXT

2.1 Context Area Plan

The subject site forms a large portion of the developable land within the Wyatt Road Context Plan Area. An application has been made with Economic Development Queensland (EDQ) for the Wyatt Road Context Plan (DEV/2023/1431) and is currently under review.

The location of the subject site with respect to the proposed context area plan is illustrated in Figure 2.1.

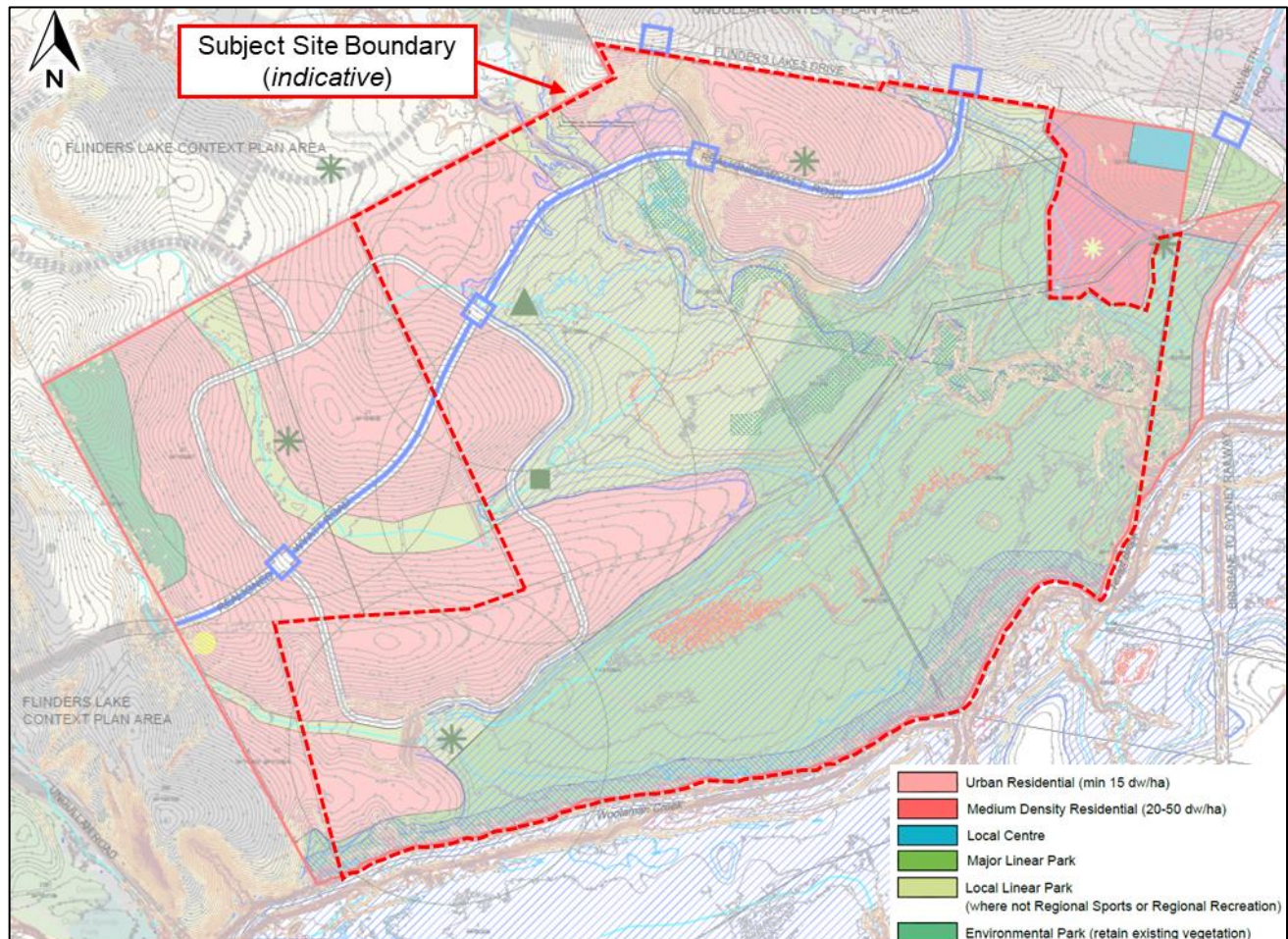


Figure 2.1: Subject Site within Context Area Plan

2.2 Greater Flagstone Priority Development Area

2.2.1 Overview

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

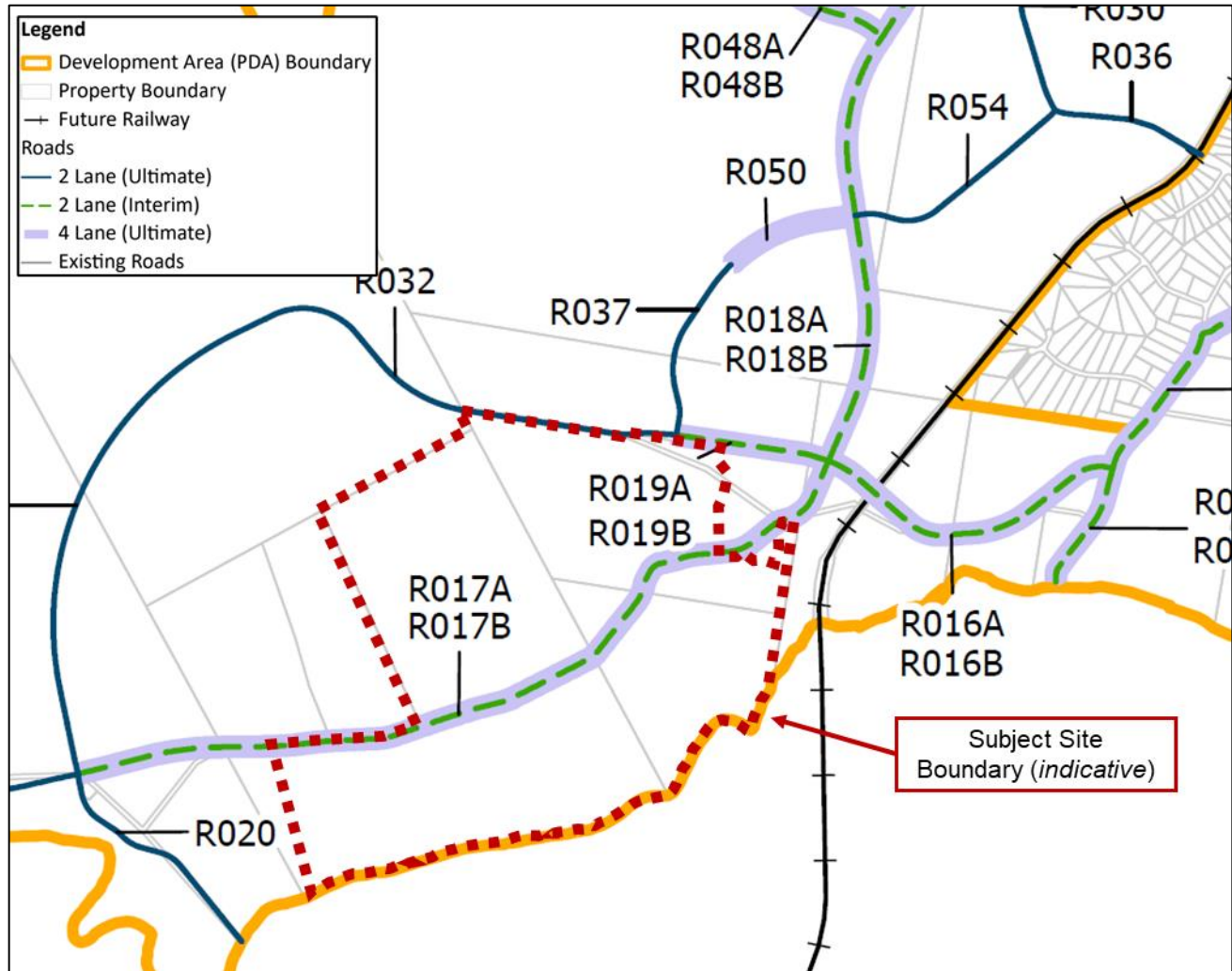
- The PDA is made up of three (3) separate land areas totalling 7,188ha
- It is projected to experience significant growth in employment and industry
- It is estimated to accommodate approximately 51,500 dwellings & 138,000 residents.

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 to the east. The proposed Town Centre Masterplan forms a key portion of the PDA employment area.

2.2.2 Greater Flagstone Development Charges and Offset Plan (DCOP)

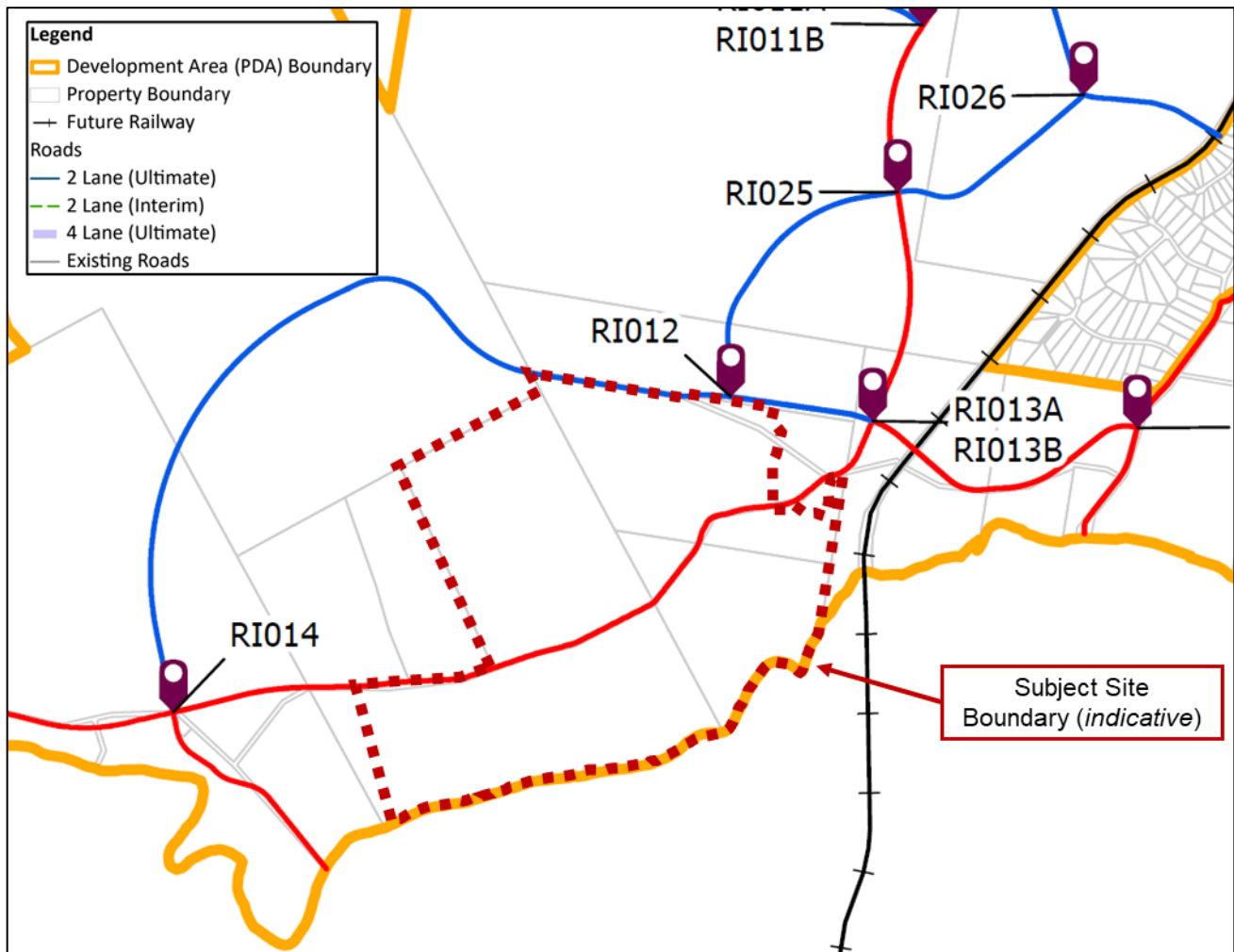
To ensure infrastructure delivery and funding is suitably allocated, EDQ developed the Greater Flagstone PDA Development Charges and Offset Plan (DCOP) effective July 2022. This document provides guidance to trunk infrastructure planning through the PDA.

Planned trunk transport infrastructure in the vicinity of the subject site is illustrated in Figure 2.2 and Figure 2.3.



Source: EDQ DCOP Map 3 (edited by Bitzios)

Figure 2.2: DCOP Transport (Roads) Trunk Infrastructure



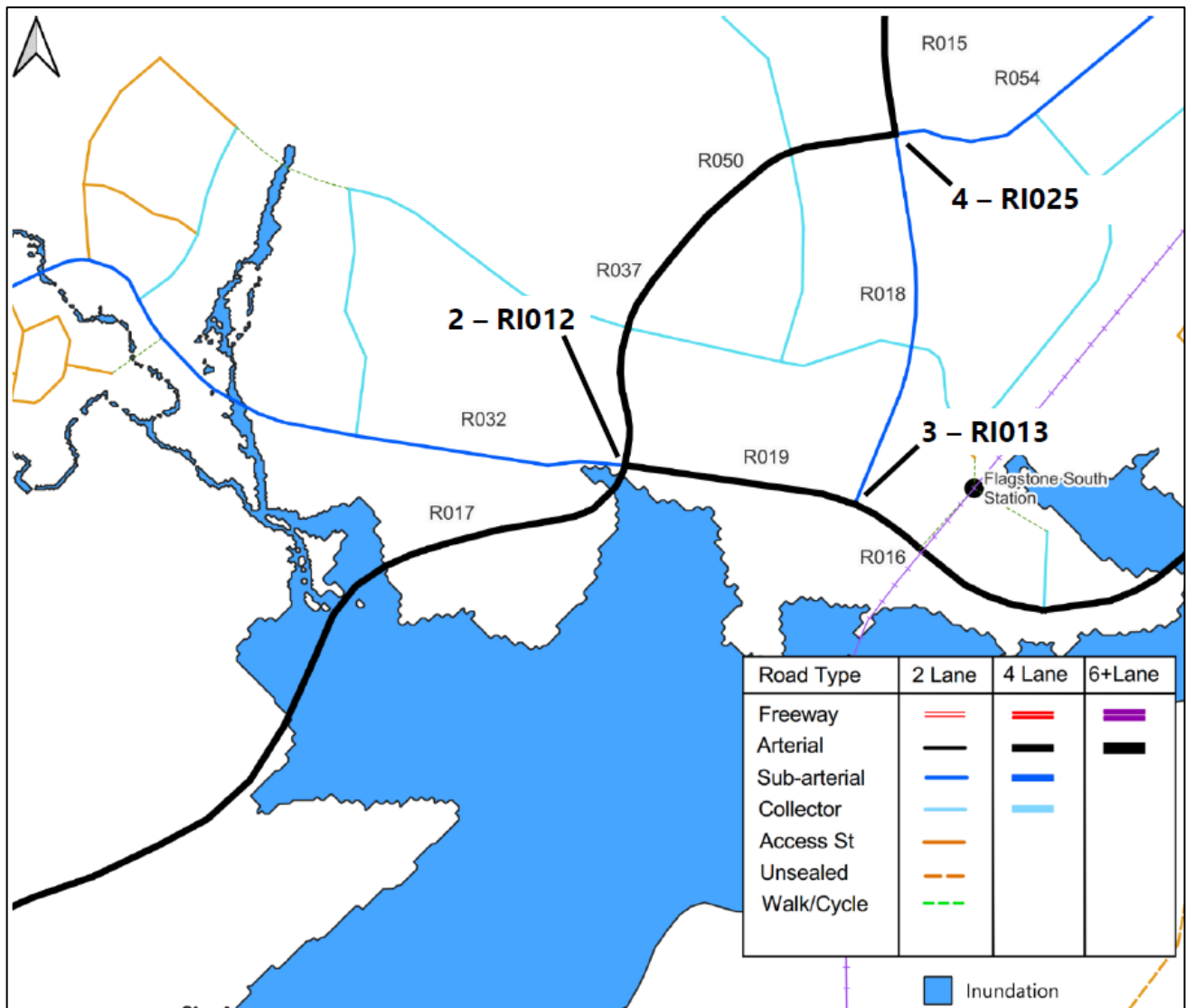
Source: EDQ DCOP Map 4 (edited by Bitzios)

Figure 2.3: DCOP Transport (Intersections) Trunk Infrastructure

2.3 Wyatt Road Realignment Review

Veitch Lister Consulting (VLC) was engaged by EDQ to investigate traffic scenarios exploring the potential realignment of Wyatt Road (RO17). The intent of this investigation was to identify new road alignment options avoiding impacts to the existing flood plain within the development's subject site. New road alignment scenarios were developed from the 2066 South Logan Strategic Transport Model (SLSTM).

The findings of the review, as outlined in the Wyatt Road Realignment Review report, indicated Scenario 3 as the recommended road network option. The Scenario 3 road network recommended is illustrated in Figure 2.4.



Source: Wyatt Road Realignment Review (VLC, August 2023)

Figure 2.4: Wyatt Road Realignment Preferred Option (Scenario 3)

Since the completion of the study, EDQ has advised that the Scenario 3 alignment should be adopted for road network planning and transport assessment going forward. As such, plans for any proposed development within the Wyatt Road Context Plan area will adopt this revised alignment.

3. DEVELOPMENT DETAILS

3.1 Proposed Development

The proposed development comprises of the following:

- 1,747 low-density residential allotments
- Regional recreation park
- Regional sports park
- Various local and linear parks
- Associated road connections.

3.2 Road Hierarchy Overview

The road hierarchy of the proposed masterplan is illustrated in Figure 3.1.

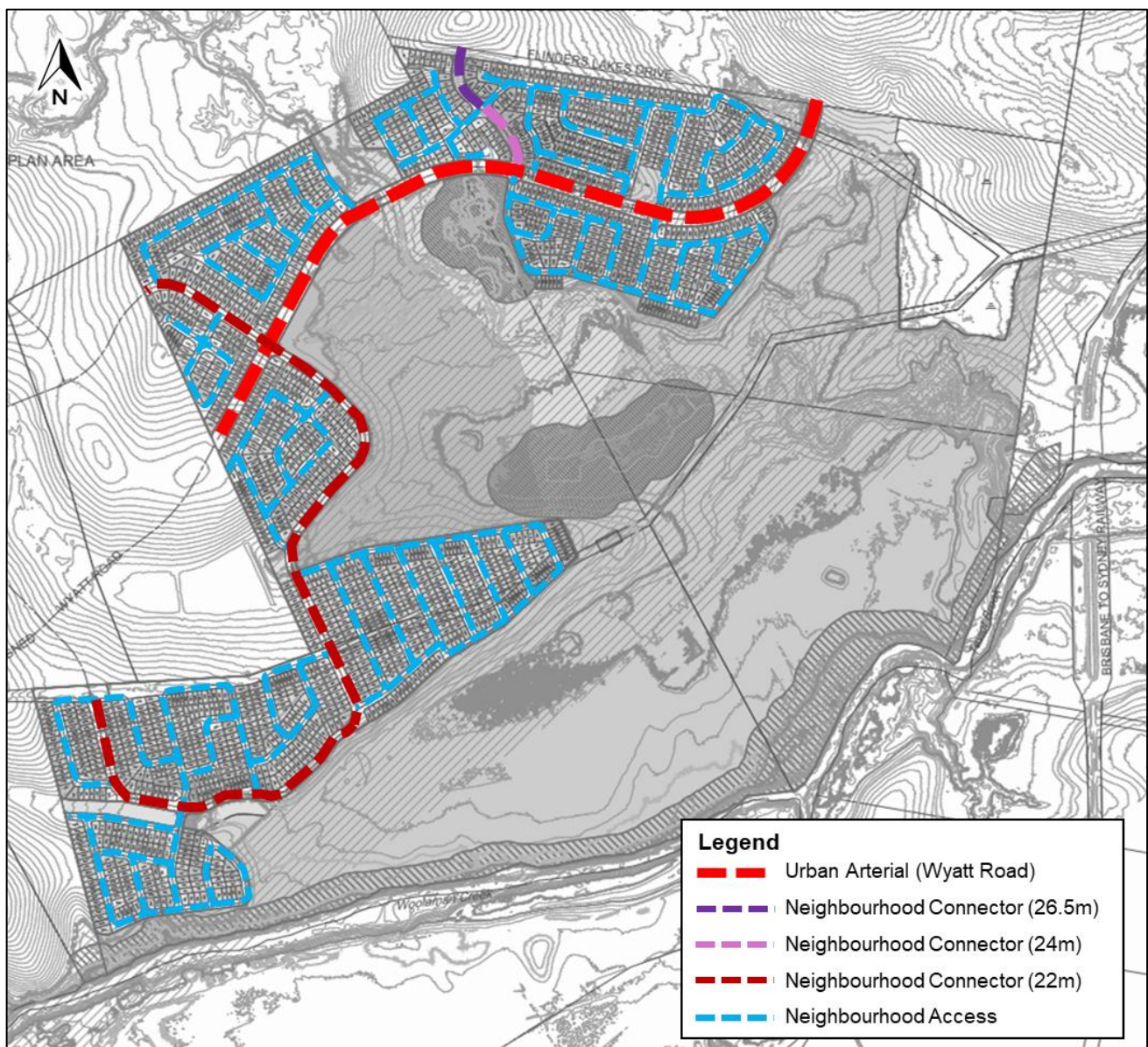


Figure 3.1: Road Hierarchy

Wyatt Road is defined as an urban arterial road in the DCOP (R017A/B) and as such, interim and ultimate Wyatt Road cross-sections, shall generally be provided in accordance with Figure 7-14 and 7-15 of the Greater Flagstone IPBR, illustrated in Figure 3.2.

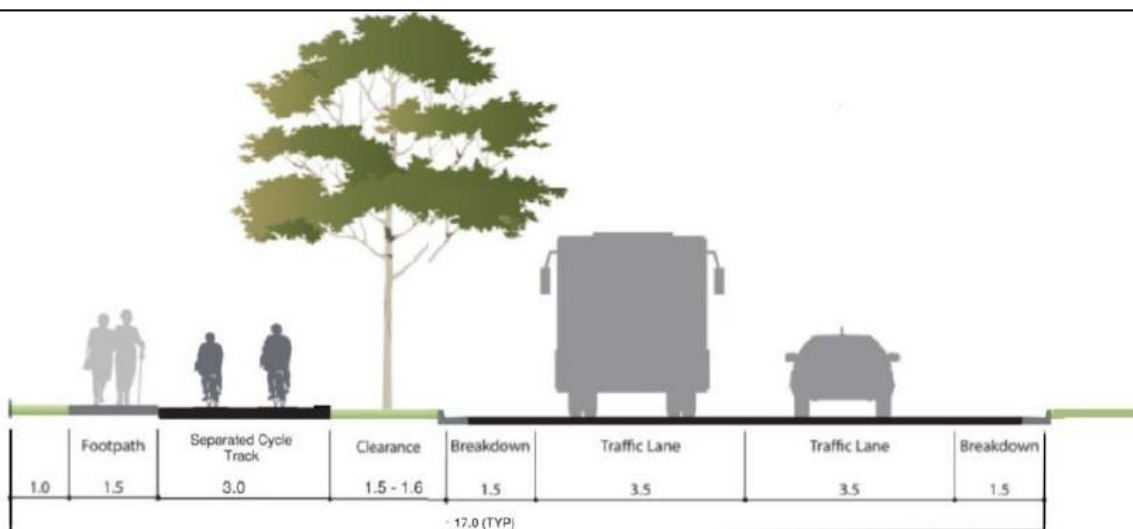


Figure 7-14 Interim 4 Lane Urban Arterial (2 lane no parking)

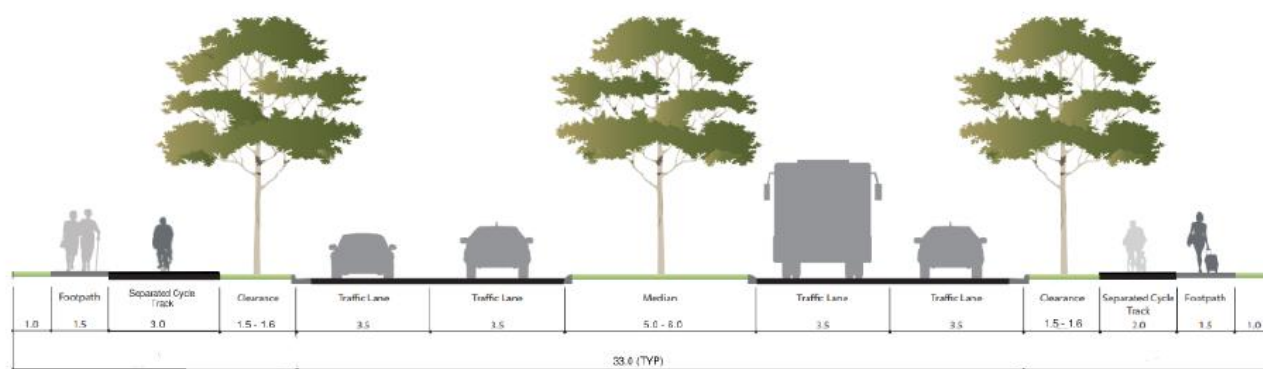


Figure 7-15 Ultimate 4 Lane Urban Arterial (no parking)

Figure 3.2: Urban Arterial Interim and Ultimate Typical Cross-Sections

Development plans provided at **Appendix A** demonstrate a proposed 33m wide road corridor for the Wyatt Road alignment facilitating the typical ultimate 4-lane arterial cross-section outlined in the Greater Flagstone IPBR.

Local roads within the Masterplan are proposed, generally in accordance with the EDQ's Guideline No. 6 – Street and Movement Network. Typical cross-section parameters for each of the proposed local road types are detailed in Table 3.1.

Table 3.1: Typical Local Road Cross-Sections Proposed

Hierarchy	Road Reserve	Seal Width ¹	Lanes	Median	Parking	Bus	Footpath	Cycling
Neighbourhood Connector	26.5m	9.6m	2	Yes (3.5m)	No	Yes	1.5m (one side)	3m shared path (one side)
	24m			No				
	22m	11.2m	2	No	Yes	Yes		
Neighbourhood Access	16m	7.5m	2	No	Yes	No	1.5m (one side)	On-road
Neighbourhood Lane	10m	7m	2	No	Yes	No	No	On-road

¹Seal width includes parking lane / indented parking widths

As shown above, the 22m neighbourhood connector road and 16m neighbourhood access road cross-sections proposed are in-line with the requirements of the EDQ's Guideline No. 6 – Street and Movement Network. Where neighbourhood connector streets and neighbourhood access streets are located adjacent parklands / open space, the proposed verge width is reduced by 1m on the side of the road fronting the green space. This is considered acceptable from a traffic perspective on the condition that active transport provisions required for the relevant road type may be provided either within the reduced verge width or adjacent park / open space.

Alternate neighbourhood connector cross-sections are proposed for a short distance of road at the northern extent of the site, connecting Wyatt Road and Flinders Lake Drive, as shown in Figure 3.1. Based on the planned sequencing of Masterplan Lot delivery, this connector road will initially function as the primary entrance road to the development. As such, wider road reserves are proposed for this entrance to facilitate an improved road environment on entrance to the subject site. Noting the alignment of the road, and the ultimate proximity to intersections with surrounding trunk roads, there is also limited ability to safely provide on-street parking on this length of collector road. Considering the above, proposed 24m and 26.5m wide neighbourhood connector cross-sections vary from the typical cross-section to achieve the following outcomes:

- Wider verge widths to provide improved landscaping / streetscaping outcomes as well as the potential for improved active transport facilities
- A green median divide on the 26.5m wide cross-section to further improve landscaping / streetscaping outcomes
- Reduced total sealed pavement width from 11.2m to 9.6m, facilitating a 3.3m traffic lane and 1.5m wide breakdown lane on each side of the road.

The proposed neighbourhood lane cross-section is shown in Figure 3.3.

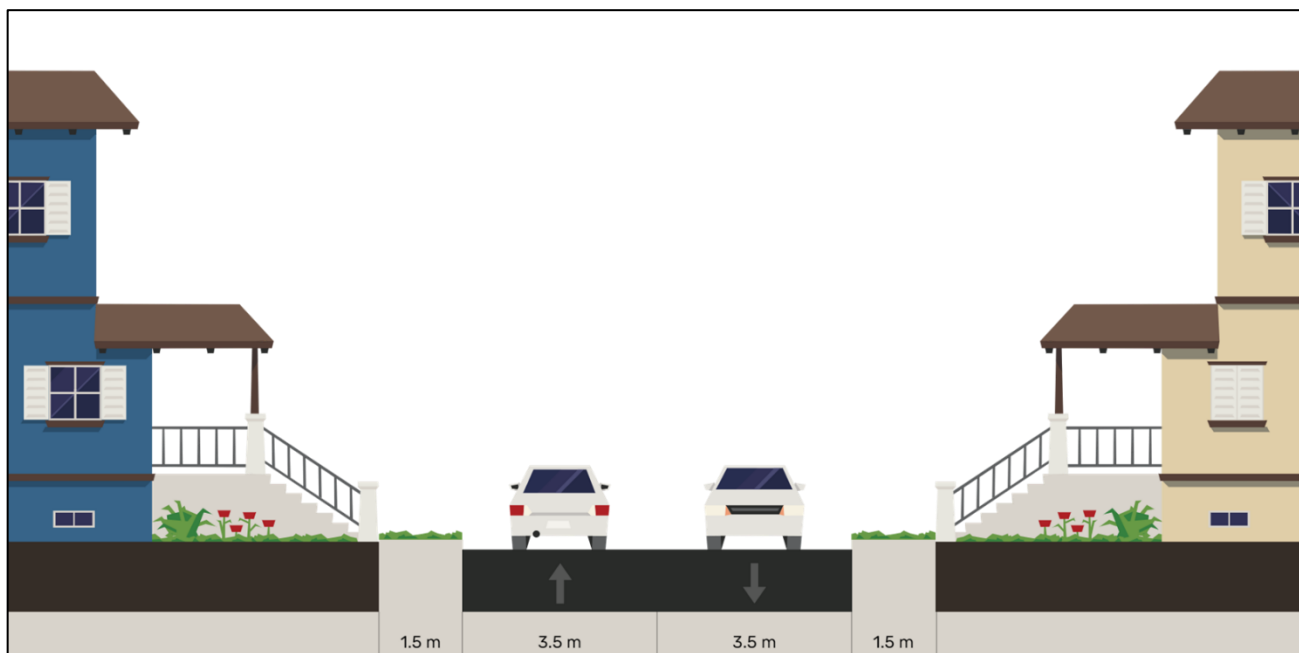


Figure 3.3: Neighbourhood Lane Cross-Section

As shown, the proposed cross-section provides additional road width and verge widths compared to the cross-section detailed in the EDQ's Guideline and is therefore considered an improved transport outcome. Neighbourhood lanes are proposed only for access to a number of dwellings (<10 Lots) consistent with similar laneway / driveway accesses in existing Greater Flagstone development areas.

3.3 Intersections

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

- Intersections with four-lane roads shall be signalised or otherwise restricted to left-in / left-out
- Roundabouts are considered appropriate at four-way intersections, where servicing a primary component of residential land uses
- Intersection spacings shall generally comply with those specified in EDQ's Guideline No. 6 for the relevant hierarchy, unless otherwise constrained by topography or other constraint, where spacing shall be appropriately justified.

The proposed road layout is compliant with the above principles. By specific road types, minimum intersection spacing requirements are as follows:

- Trunk Road (Wyatt Road): 300m
- Neighbourhood Connector: 120m
- Neighbourhood Access / Lane: N/A.

As shown in the proposed Masterplan at **Appendix A**, intersection spacing is compliant with the above requirements apart from one neighbourhood connector location, as shown in Figure 3.4.

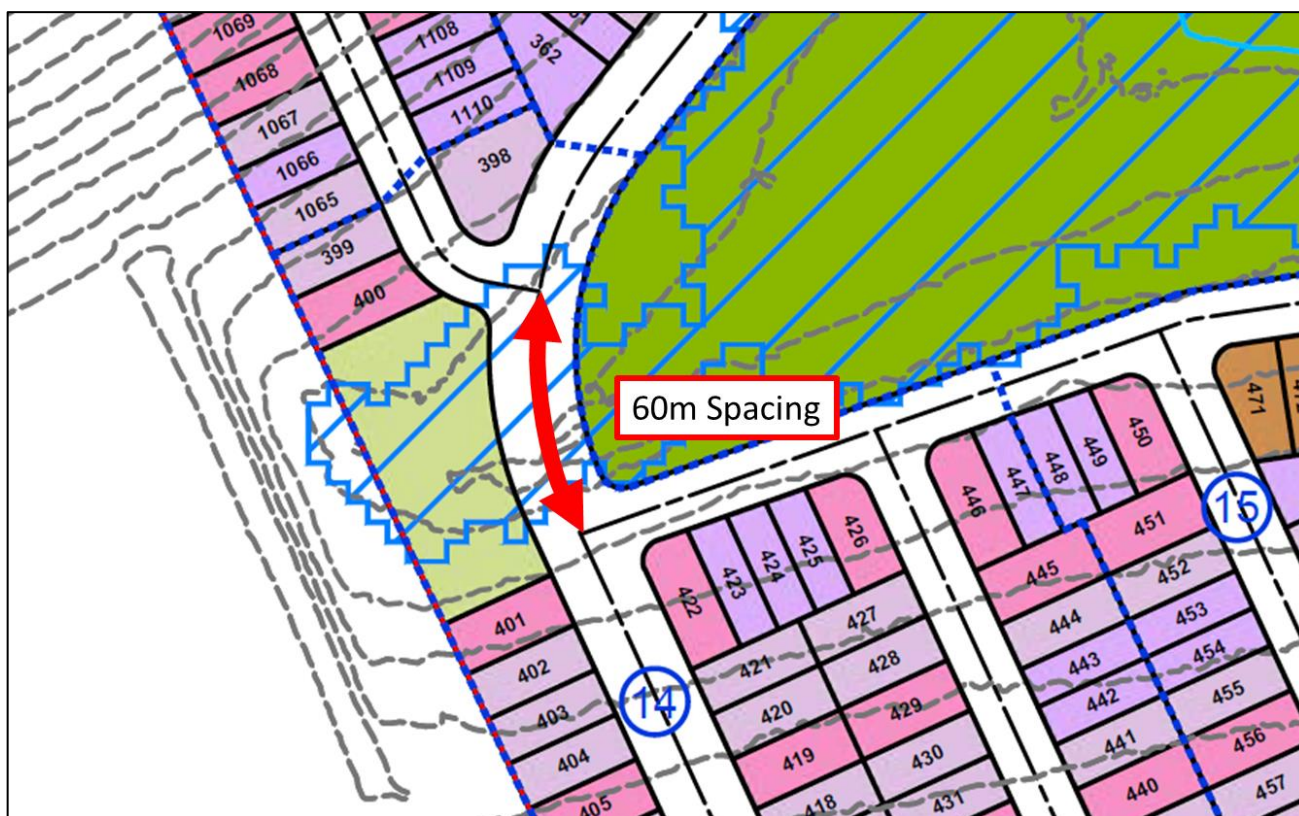


Figure 3.4: Non-Typical Intersection Spacing

In this specific location, the reduced intersection spacing is considered acceptable noting the following:

- Intersections are staggered T intersections servicing local residential catchments only
- There is no potential for queuing from one intersection to impact the other as each relevant connector road movements have priority.

3.4 Access Considerations

A base set of principles was adhered to when determining access locations throughout the development and provided generally in accordance with the following 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
 - 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.

4. TRAFFIC ASSESSMENT

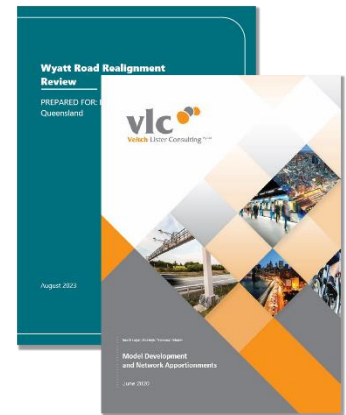
4.1 Strategic Modelling

4.1.1 Overview

A strategic transport model was developed by Veitch Lister Consulting (VLC), on behalf of EDQ, known as the South Logan Strategic Transport Model (SLSTM). This model uses the planned and projected demographic data for population, enrolments and employment to plan and assess the road network needs and requirements for the broader area.

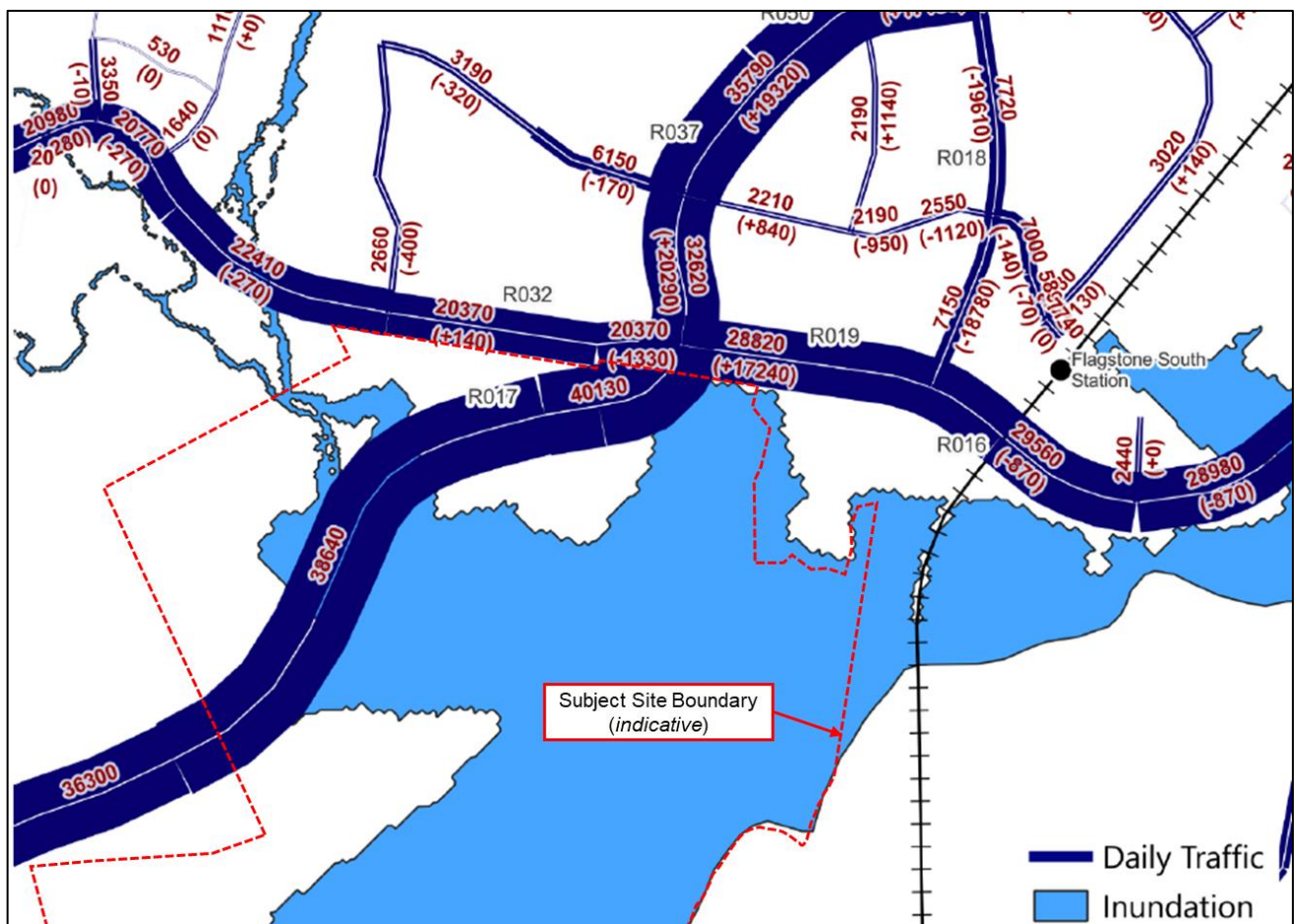
VLC was also recently engaged by EDQ to assess the realignment of the planned Wyatt Road trunk infrastructure link (DCOP R017). This assessment involved testing a number of scenarios with amendments to the SLSTM to investigate alternate alignments of Wyatt Road and subsequent impacts to surrounding trunk infrastructure.

As detailed in the *Wyatt Road Realignment Review* (2023), Scenario 3 was recommended, incorporating a realignment of Wyatt Road (R017) as well as changes to R037 and R018 trunk roads. Advice from EDQ representatives was that this Scenario 3 trunk road network should be adopted for transport planning in the area instead of the road network shown in the DCOP mapping. Details of this updated trunk road network is detailed further below.



4.1.2 Wyatt Road Realignment Review Scenario 3

Ultimate (2066) forecast daily traffic volumes are shown in Figure 4.1.



Source: Wyatt Road Realignment Review (VLC, August 2023)

Figure 4.1: Wyatt Road Realignment Scenario 3 Ultimate (2066) Daily Traffic Volumes

Map of the Flagstone South Station area showing V/C ratios and inundation. The map includes a north arrow, a legend for V/C Ratio (ranging from < 0.5 to 1.3+), and a legend for Inundation (blue). The map shows various roads and areas with V/C ratios. A red dashed line indicates the Subject Site Boundary (indicative). The map also shows the Flagstone South Station and the Flagstone South Road.

V/C Ratio Legend:

- < 0.5 (Green)
- 0.5 - 0.7 (Dark Green)
- 0.7 - 0.85 (Yellow)
- 0.85 - 1 (Orange)
- 1 - 1.15 (Red)
- 1.15 - 1.3 (Purple)
- 1.3 + (Black)

Inundation Legend:

- Inundation (Blue)

Subject Site Boundary (indicative)

Flagstone South Station

Flagstone South Road

Map Labels:

- 2014
- 2010
- 2280
- 2268
- 2384
- 2364
- 1706
- 1701
- 1680
- 1630
- 925
- 923
- 925
- 923
- 633
- 617
- 426
- 425
- 378
- 375
- 334
- 389
- 479
- 1942
- 1930
- 1975
- 1956
- 226
- 220
- 249
- 275
- 274
- 348
- 331
- 875
- 985
- 370
- 345
- 353
- 1461
- 1454
- 134
- 152
- 1485
- 1476
- 620
- 632
- 524
- 529
- 217
- 114
- 105
- 649
- 639
- 516
- 523
- 2010
- 2006
- R015
- R054
- R050
- R037
- R032
- R017
- R019
- R018
- R016

Figure 4.2: Wyatt Road Realignment Scenario 3 Ultimate (2066) Maximum Peak Volumes

4.2 Intersection Modelling

4.2.1 Development Traffic

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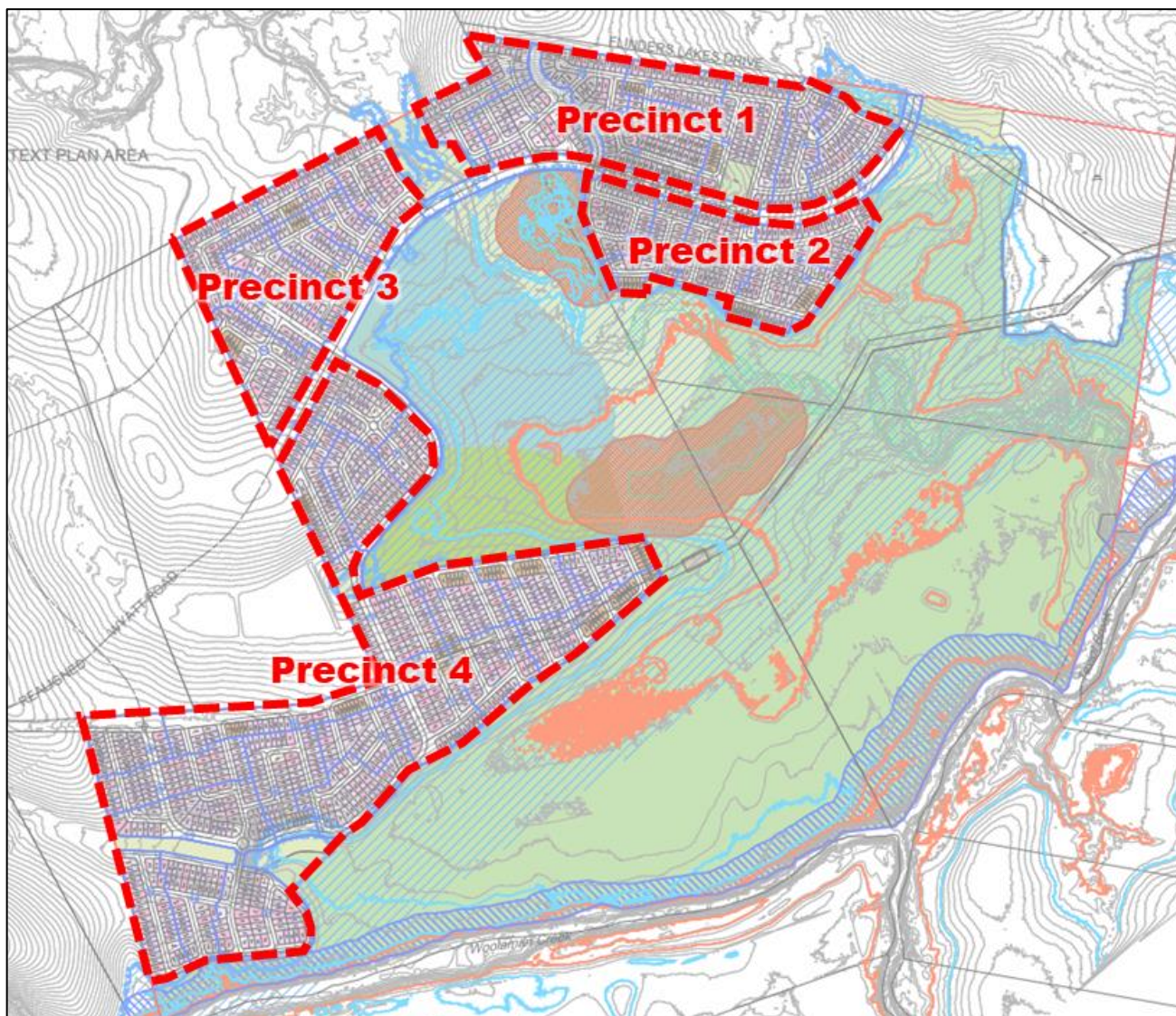


Figure 4.3: Development Precincts for Intersection Modelling

Traffic generation for each precinct was adopted using trip generation rates sourced from the *TfNSW Guide to Traffic Generating Developments: Technical Direction* (2013) as detailed in Table 3.1.

Table 4.1: Development Peak Hour Traffic Generation

Precinct	Yield	Traffic Generation Rate		Peak Hour Trips	
		AM	PM	AM	PM
1	372 Dwellings	0.71 peak hour trips per dwelling	0.78 peak hour trips per dwelling	264	290
2	197 Dwellings			140	154
3	291 Dwellings			207	227
4	887 Dwellings			630	692
Total				1,240	1,363

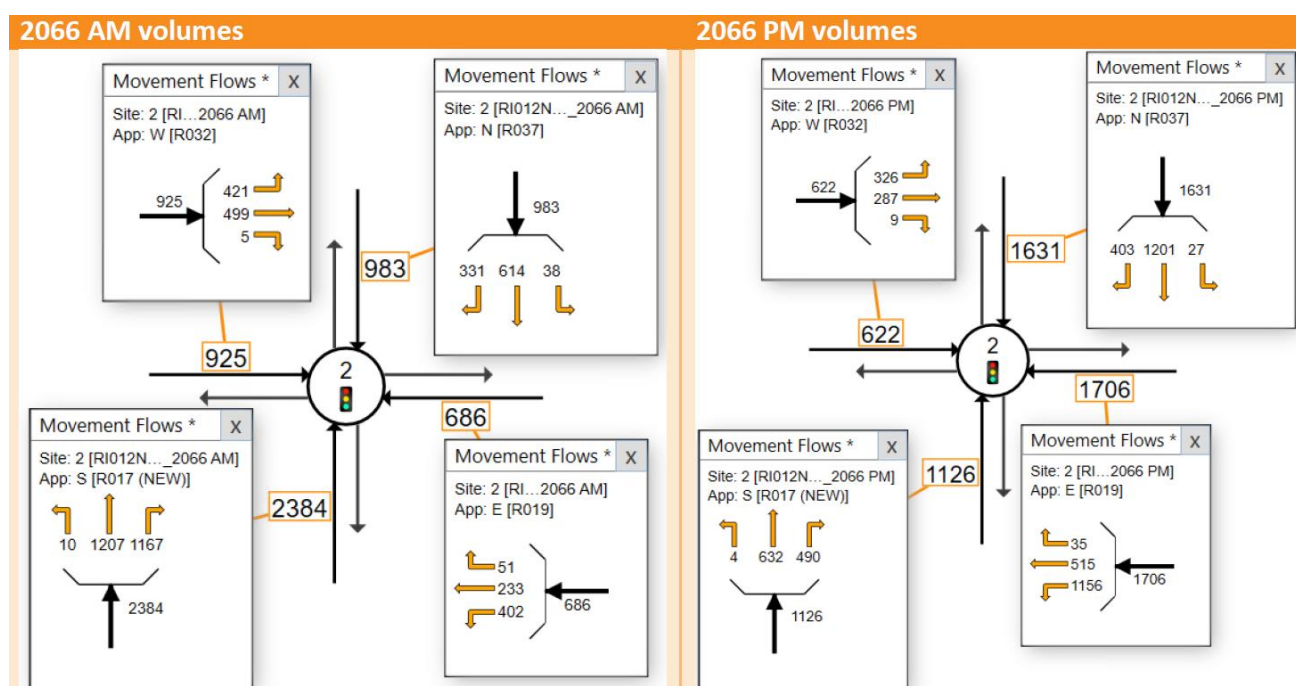
Adopting typical in / out splits for residential uses, development trip directionality is shown in Table 4.2.

Table 4.2: Development Peak Hour Trip Directionality

Precinct	Trip Directionality Split				Trips			
	AM		PM		AM		PM	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	20%	80%	70%	30%	53	211	203	87
2	20%	80%	70%	30%	28	112	108	46
3	20%	80%	70%	30%	41	165	159	68
4	20%	80%	70%	30%	126	504	484	208
Total					248	992	954	409

The distribution of development trips onto the surrounding road network was determined from peak strategic model flows. Traffic distributions to / from each of development precincts are subsequently outlined in **Appendix B** (Sheet 1 – Sheet 8). Applying these expected distributions to the above forecast traffic generation, development trip assignment onto the road network for each precinct is shown at **Appendix B** (Sheet 9 – Sheet 12). Total development trips for all precincts are subsequently provided at **Appendix B** (Sheet 13).

Peak hour traffic volumes at the new Wyatt Road / Flinders Lake Drive intersection (RI012) were sourced from the Wyatt Road Realignment Review report, as shown in Figure 4.4. Noting that the SLSTM included full development of the Wyatt Road Context Area (2,240 total dwellings), these intersection volumes are considered inclusive of the proposed Wyatt Road development (1,747 dwellings).



Source: Wyatt Road Realignment Review (VLC, August 2023)

Figure 4.4: Wyatt Road / Flinders Lake Drive Ultimate (2066) Intersection Turn Volumes

Working out from the Wyatt Road / Flinders Lake Drive intersection, using these turn volumes and the development traffic volumes determined above, forecast ultimate (2066) turn volumes at key development intersections were determined as shown at **Appendix B** (Sheet 14).

Key intersections to be assessed are shown in Figure 4.5. Intersection modelling was undertaken in the Wyatt Road Realignment Review and as such, the Wyatt Road / Flinders Lake Drive intersection (RI012) was not reassessed.

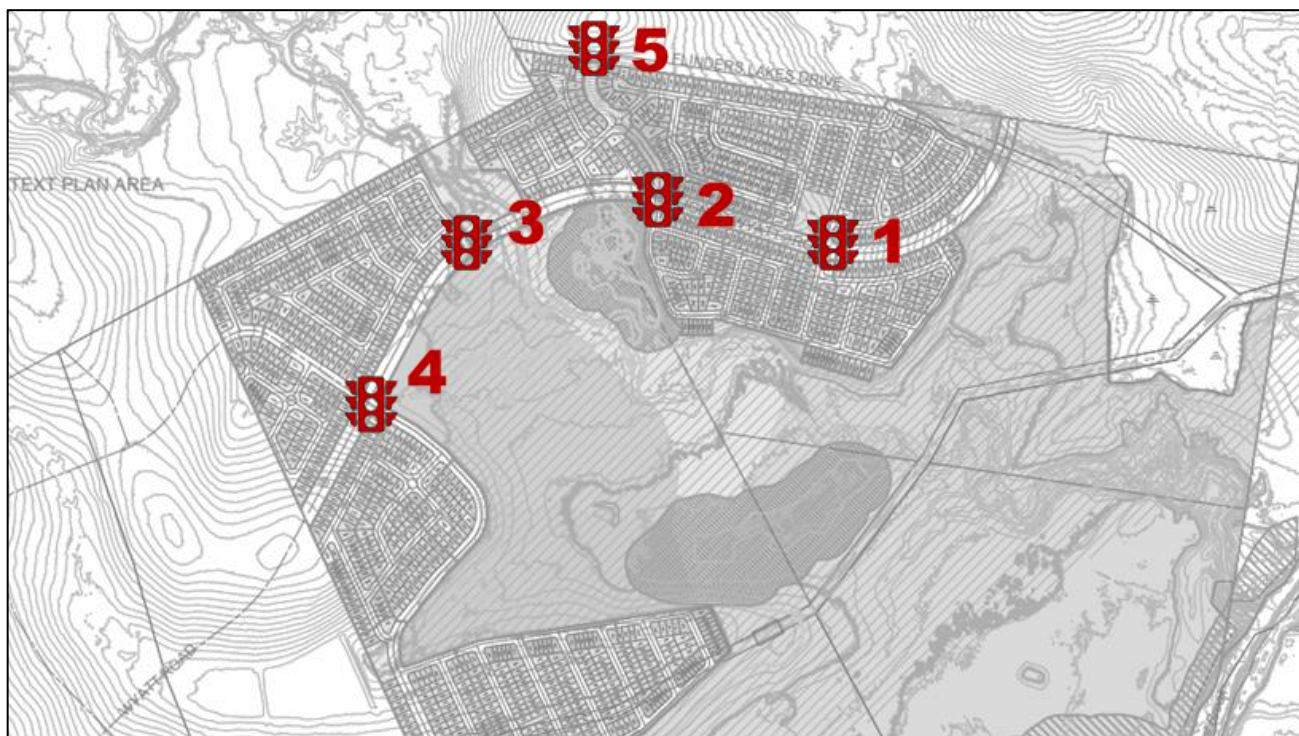


Figure 4.5: Key Intersection for Intersection Modelling

4.2.2 SIDRA Modelling

Key intersection layouts were developed in SIDRA Intersection 9.1 to evaluate critical peak performance at the intersection level. However, these intersection forms are considered indicative only and subject to change based on further detailed assessment, detailed design and assessment associated with future surrounding developments. Importantly, intersection forms tested are based on 2066 forecasts (42 years into the future) and therefore are subject to change over time. SIDRA intersection layouts are provided at **Appendix C**.

A summary of the SIDRA intersection results for the key intersections identified is outlined in Table 4.3, with detailed SIDRA outputs provided at **Appendix C**.

Table 4.3: Ultimate (2066) SIDRA Intersection results Summary

Intersection ID	DOS (v/c)		Avg. Delay (s)		LOS	
	AM	PM	AM	PM	AM	PM
1	0.86	0.86	32	21	B	B
2	0.81	0.81	18	18	B	B
3	0.81	0.81	3	3	A	A
4	0.89	0.89	52	49	D	D
5	0.80	0.81	11	10	A	A

As shown, key intersections can cater for forecast ultimate (2066) traffic volumes adopting intersection forms shown at **Appendix C**.

5. ALTERNATE TRANSPORT PROVISIONS

5.1 Public Transport

Regional and local bus routes are proposed throughout the subject site, noting that details of future public transport services are subject to consultation with TMR / TransLink. Regardless, proposed locations of bus stop pairs have been identified within the subject site to public transport maximise accessibility and coverage.

Bus stop locations proposed are shown in Figure 5.1, with a 400m radius representing the coverage of each bus stop. The indicative location and catchment of the nearby future train station is also shown.

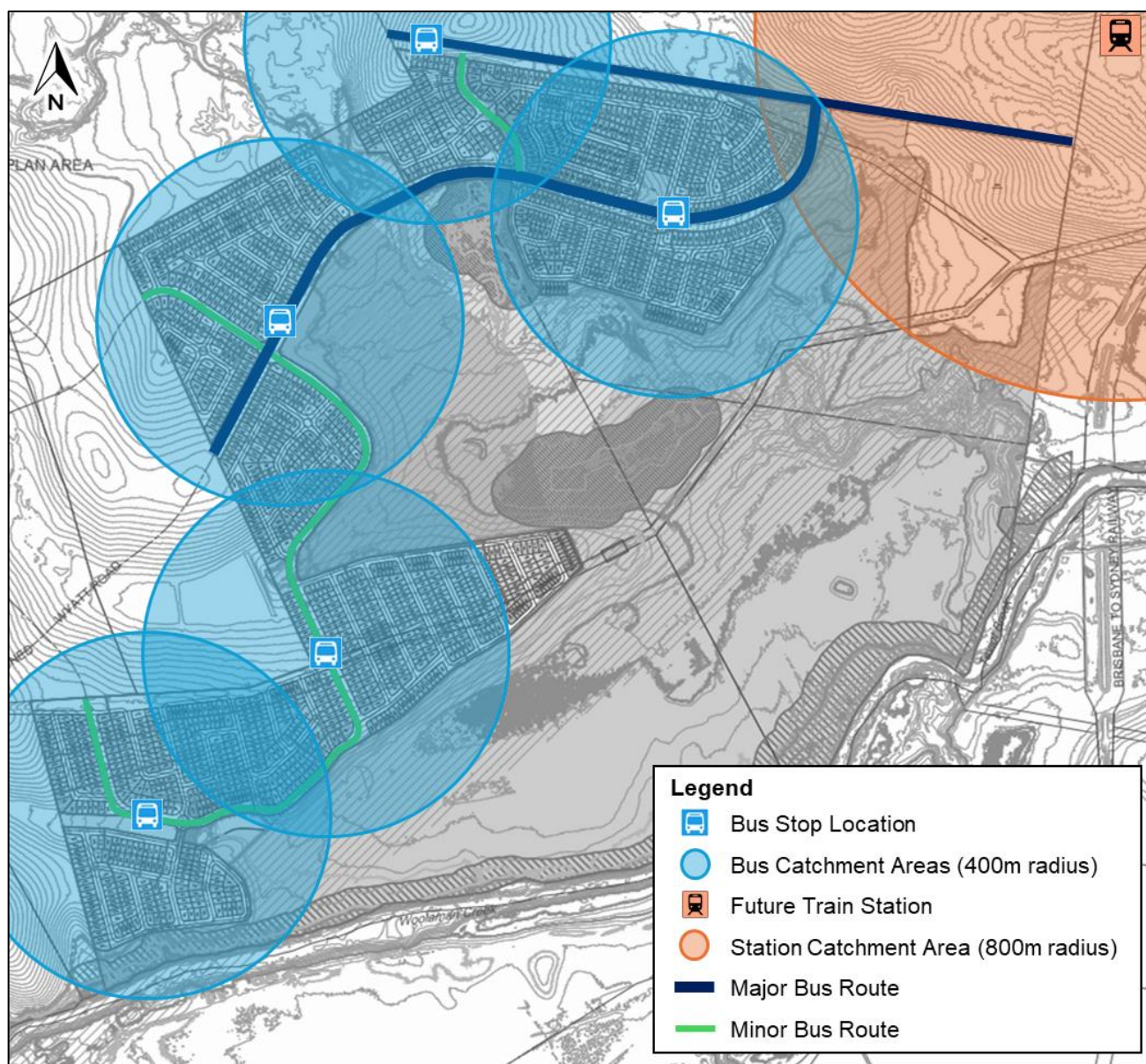


Figure 5.1: Public Transport Stop Locations and Coverage

As shown, the majority of the proposed development area is located within reasonable walking distance of a future public transport route / stop, with only a small portion (~48 lots) outside of the typical catchment of a public transport stop. As such, approximately 97% of residential dwellings are within the catchment of a public transport service, in line with the requirements of the Greater Flagstone Development Scheme.

5.2 Active Transport

5.2.1 Overview

Pedestrian and cycle infrastructure will be provided throughout the subject site both within the road reserve and outside the road reserve, through park linkages and open space.

Shared paths shall also be provided along all neighbourhood connector roads, and within parks / open space aligned with the landscape plan / strategy. Pedestrian linkages are also proposed within 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.

5.2.2 Active Transport Strategy Development

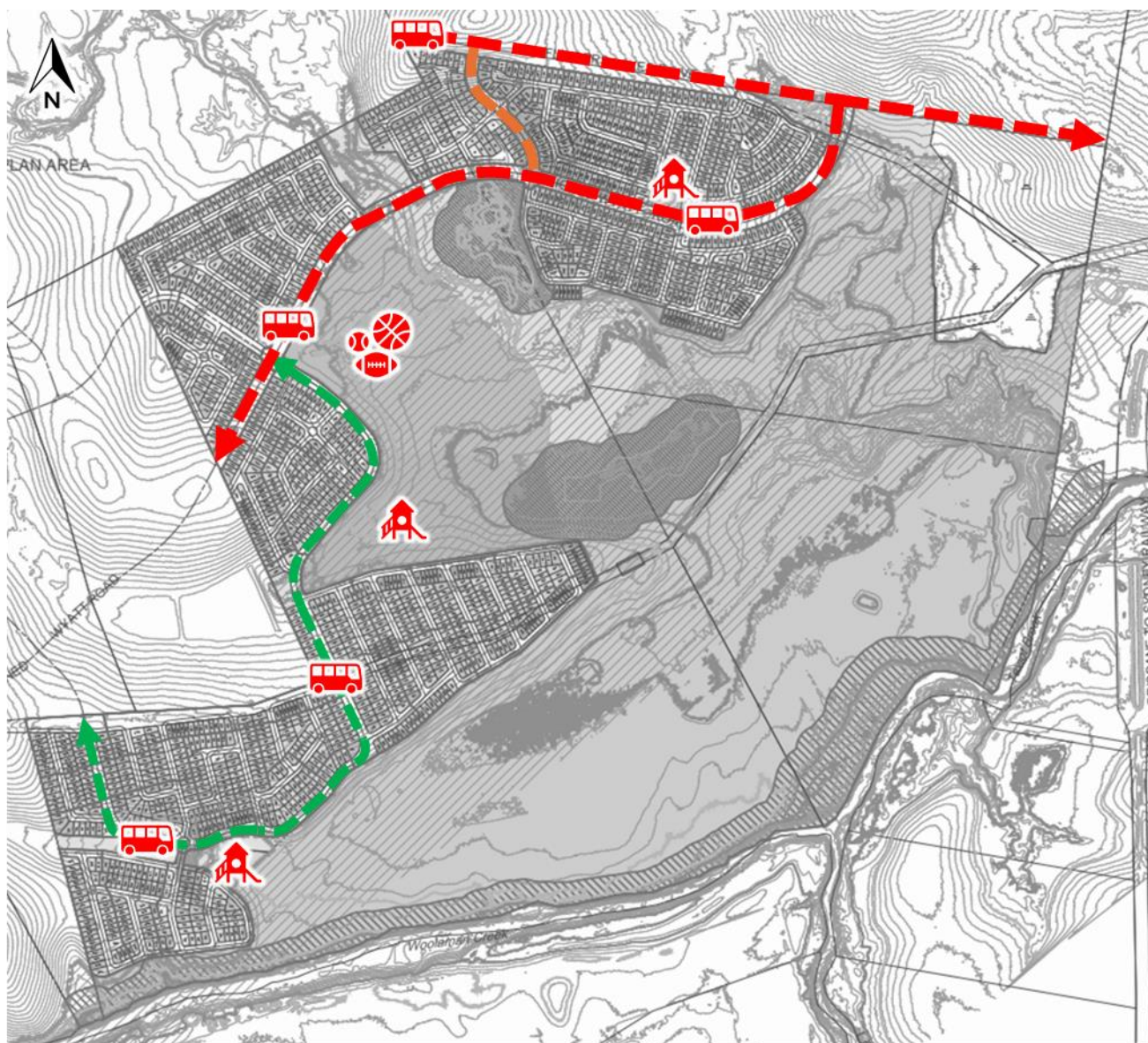
An active transport strategy was developed for the site area to deliver a hierarchy of active transport provisions. The strategy is based on:

- Key active transport attractors
- Relevant user types
- Key active transport desire line routes.

Key active transport attractors internal to the subject site consist of the major land uses including neighbourhood centre and various types of parklands. These land uses are expected to attract active transport demand from the residential lots throughout the site area.

Key active transport attractors external to the subject site include retail / commercial centres, schools, and various types of parklands in neighbouring context plans.

The key attractors and key pedestrian desire line routes through the site area are depicted in Figure 5.2. The subject site is predominantly made up of residential land uses and open space / park areas.



Desire Line Routes		Key Attractors	
Major	← — — — →	Neighbourhood Centre	
Medium	← — — — →	Sports Park	
Low	← — — — →	Local / Recreation Parks	
		Bus Stops	

Figure 5.2: Key Attractors and Active Transport Desire Line Routes

Based on the above attractors and desire line routes, 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 $\geq 3\text{m}$ 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 $\leq 3\text{m}$ 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 throughout the site area were therefore developed adopting the strategy of key attractors, key desire line routes and the criteria outlined in the route hierarchy classification. The key active transport linkages and route hierarchy is shown in Figure 5.3.

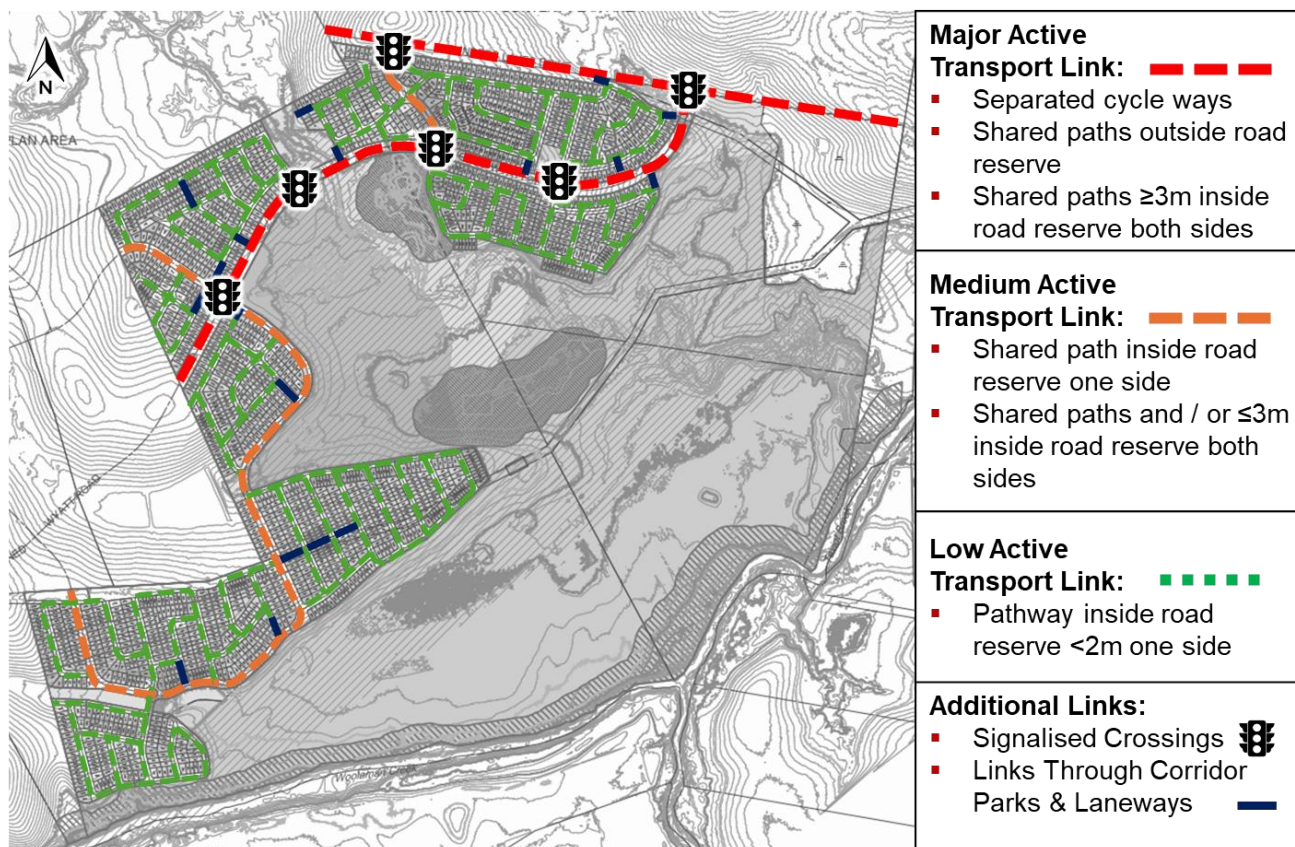


Figure 5.3: Active Transport Linkages

As shown, the proposed key active transport linkages are considered to provide a high-level of service and accessibility for the subject site and provide connectivity to surrounding services and properties. There is also opportunity to provide recreational pathways within the parklands. Whilst providing a positive outcome for the community, these will not be critical to the active transport network.

6. SUMMARY AND CONCLUSIONS

The traffic and transport findings for the Wyatt Road Masterplan are summarised below:

- The proposed development is located within the Wyatt Road Context Area and incorporates predominantly residential uses
- The development proposed 1,747 low-density residential dwellings accompanied by a range of parklands and open space provisions
- Proposed road hierarchies are generally in accordance with the Greater Flagstone IPBR and EDQ Street and Movement Network PDA Guideline
- Strategic transport modelling was undertaken by VLC as a part of the Wyatt Road Realignment Review for the purpose of determining ultimate (2066) forecast traffic volumes on the trunk road network
- Key intersection traffic volumes were determined based on the expected traffic generation of the proposed development and the turn volumes sourced from the VLC modelling for use in SIDRA Intersection testing
- Intersection modelling indicated that key intersections are able to cater for forecast ultimate (2066) traffic volumes, noting that the form of these intersection are subject to change over time
- Approximately 97% of the proposed site is located within 400m of a future public transport service achieving the public transport requirements of the Development Scheme
- The subject site is considered to provide a highly accessible active transport network, with a range of route options both within and outside the road reserve.

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 Wyatt Road Masterplan development.

Appendix A: Development Plans



CONCEPT PLAN

NOT TO BE USED FOR ENGINEERING DESIGN
OR CONSTRUCTION

NOTES

This plan was prepared as a conceptual layout only. The information on this plan is not suitable for any other purpose.

Property dimensions, areas, numbers of lots and contours and other physical features shown have been compiled from existing information and may not have been verified by field survey. These may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions.

No reliance should be placed on the information on this plan for detailed subdivision design or for any financial dealings involving the land.

Pavements and centrelines shown are indicative only and are subject to Engineering Design.

Saunders Havill Group therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of the Saunders Havill Group. Unless a development approval states otherwise, this is not an approved plan.

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Lidar Data © State of Queensland (Department of Natural Resources and Mines) 2016.

* This note is an integral part of this plan/data. Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

PROJECTION - GDA2020 MGA56
SUBJECT BOUNDARIES OBTAINED FROM DCDB

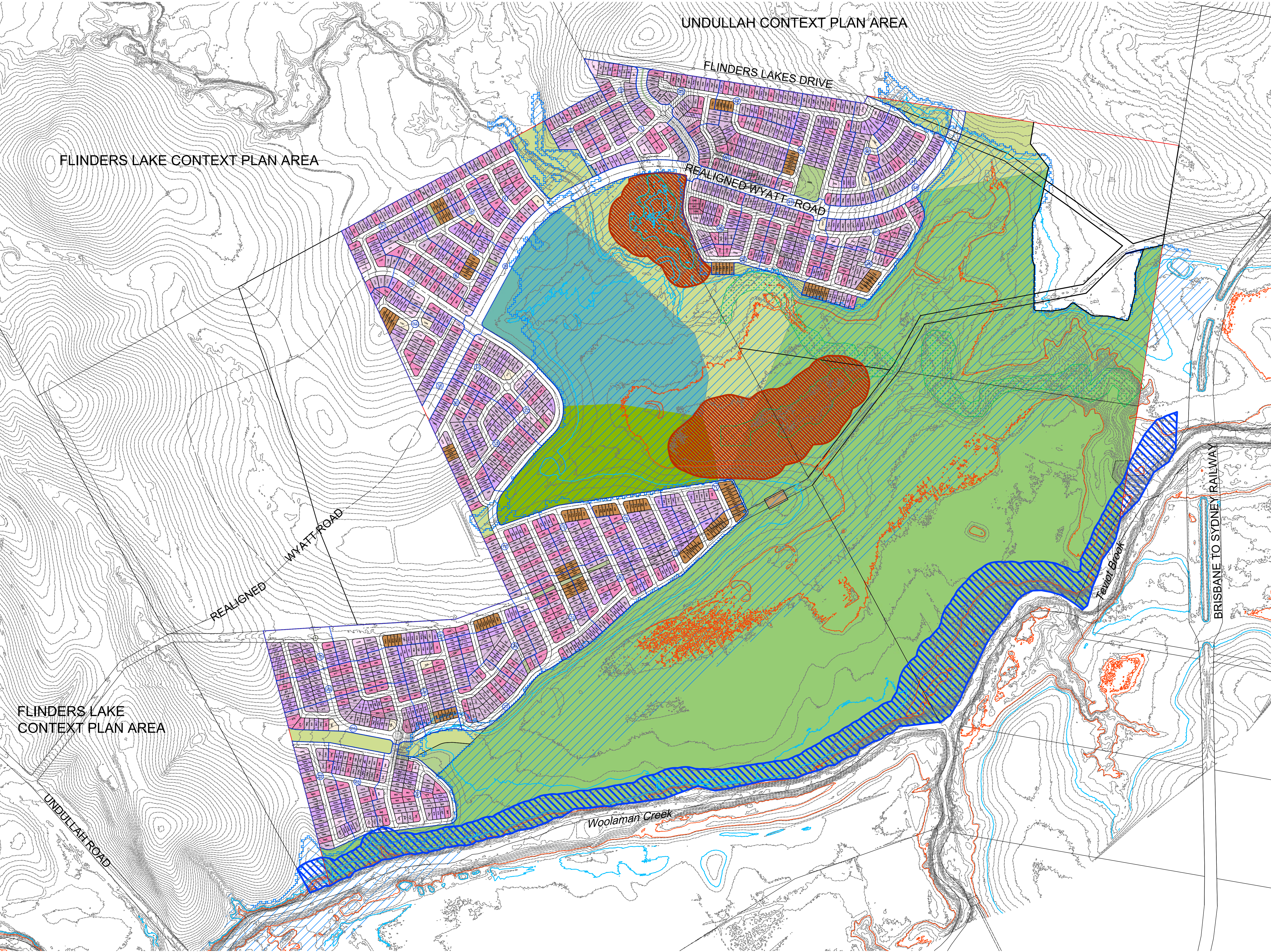
LEGEND

- Context Plan Area
- Major Contour (1.0m interval)
- ARI 20 - RL 32.6 AHD
- ARI 5 - RL 29.8 AHD
- Pre-Development DFE Flood Extents
- State Wetland
- SHG_Wetlands Rehabilitation Areas
- SHG_Woolaman Creek Rehabilitation Area

DEVELOPMENT STATISTICS			
RESIDENTIAL ALLOTMENTS	No. Lots	%	Net Area
Terrace	129	7.4%	3.860 ha
10.5m - < 12.5m Frontage	549	31.4%	18.338 ha
12.5m - < 14.0m Frontage	723	41.4%	29.027 ha
14.0m - < 16.0m Frontage	289	16.5%	13.069 ha
16.0m - < 18.0m Frontage	42	2.4%	2.230 ha
18.0m + Frontage	15	0.9%	0.886 ha
Total Residential Allotments	1747	100.0%	67.410 ha

Land Budget	Area (Ha)	%	
Area of Subject Site / Stage	309.350 ha		
Net Residential Area (no roads)	67.410 ha	21.8%	
Regional Recreation Park	10.285 ha	3.3%	
Regional Sports Park	16.994 ha	5.5%	
Local Park	1.052 ha	0.3%	
Local Linear Park	24.119 ha	7.8%	
Major Linear Park	137.187 ha	44.3%	
Pedestrian Links	0.455 ha	0.1%	
Road Areas	37.383 ha	12.1%	
Balance Lots (8000, 8001 & 8002)	12.985 ha	4.2%	
Sewer Pump Station Lot	0.148 ha	0.0%	
Exist Road Reserve (Balance Area)	1.332 ha	0.4%	
Total	309.350 ha	100.0%	

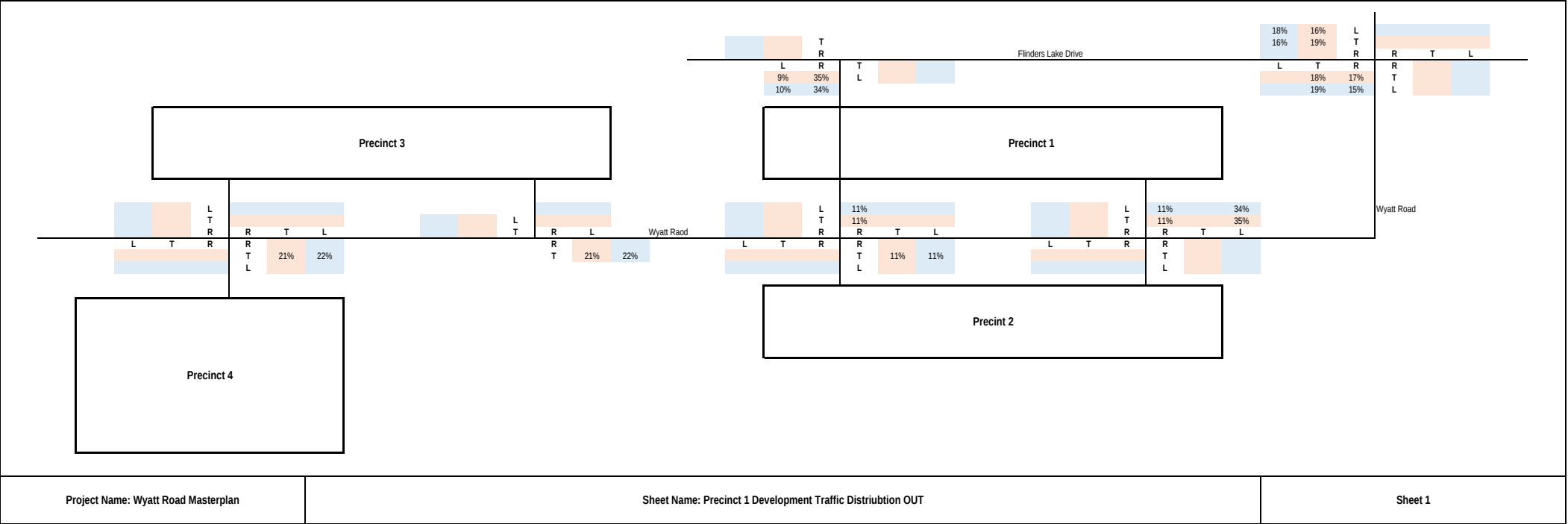
SCALE @A1 1:2000 @A3 1:4000 - LENGTHS ARE IN METRES



WELCO GROUP PTY LTD

Appendix B: Network Diagrams

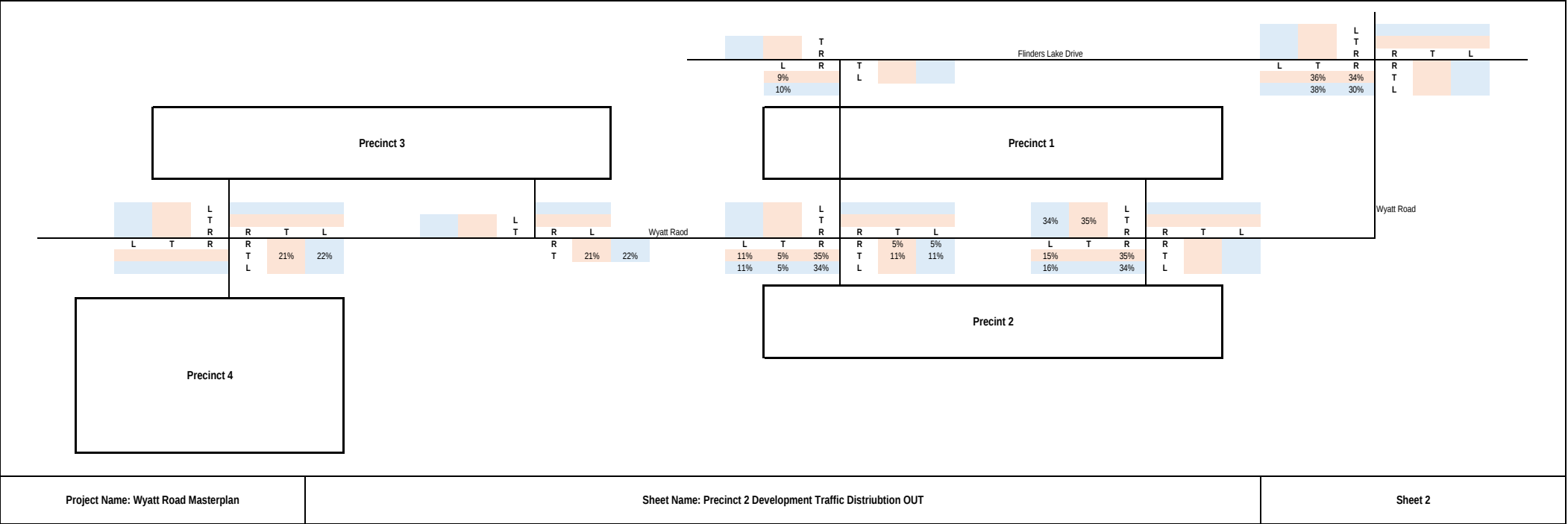


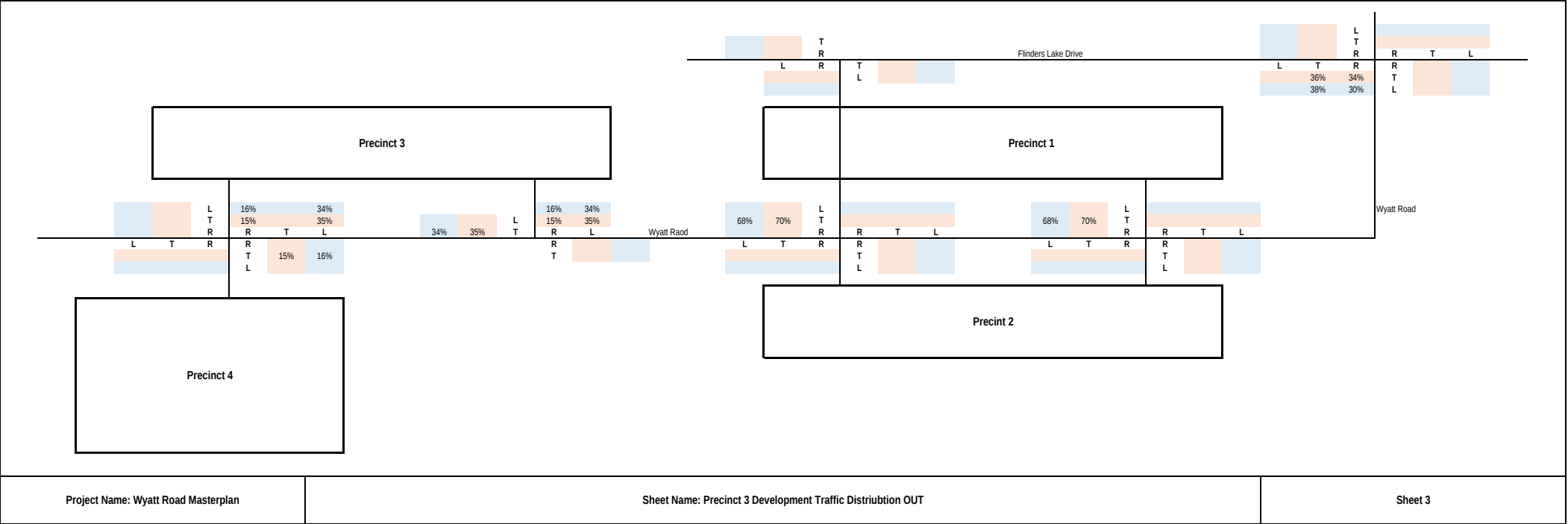


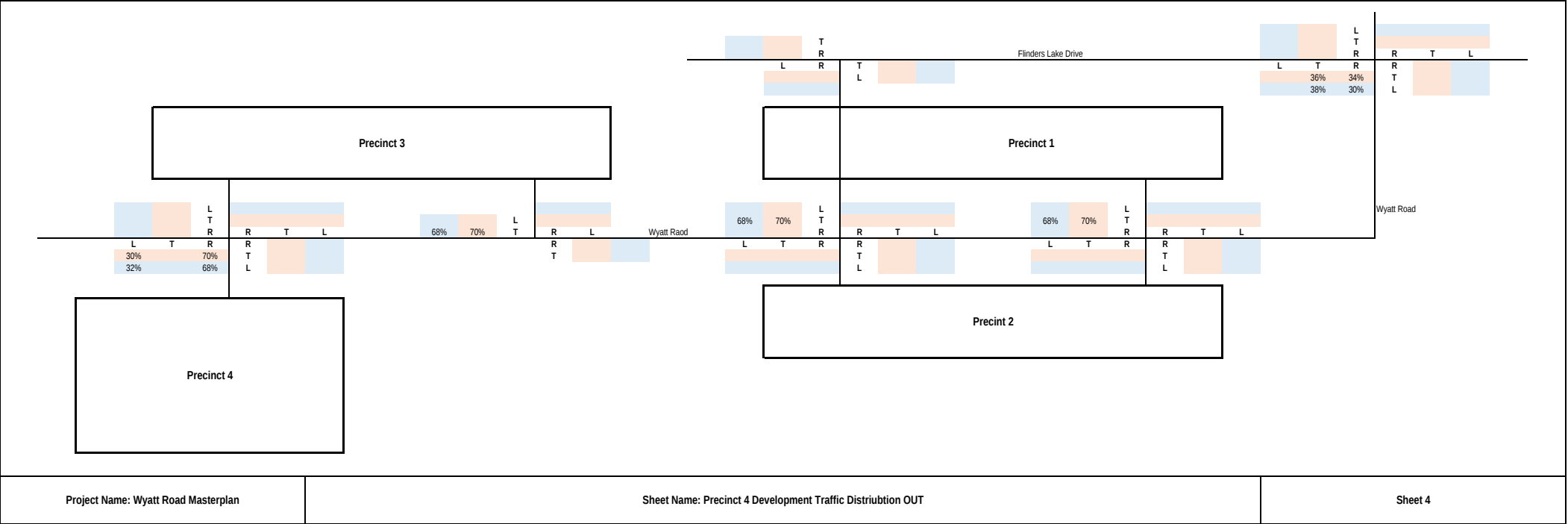
Project Name: Wyatt Road Masterplan

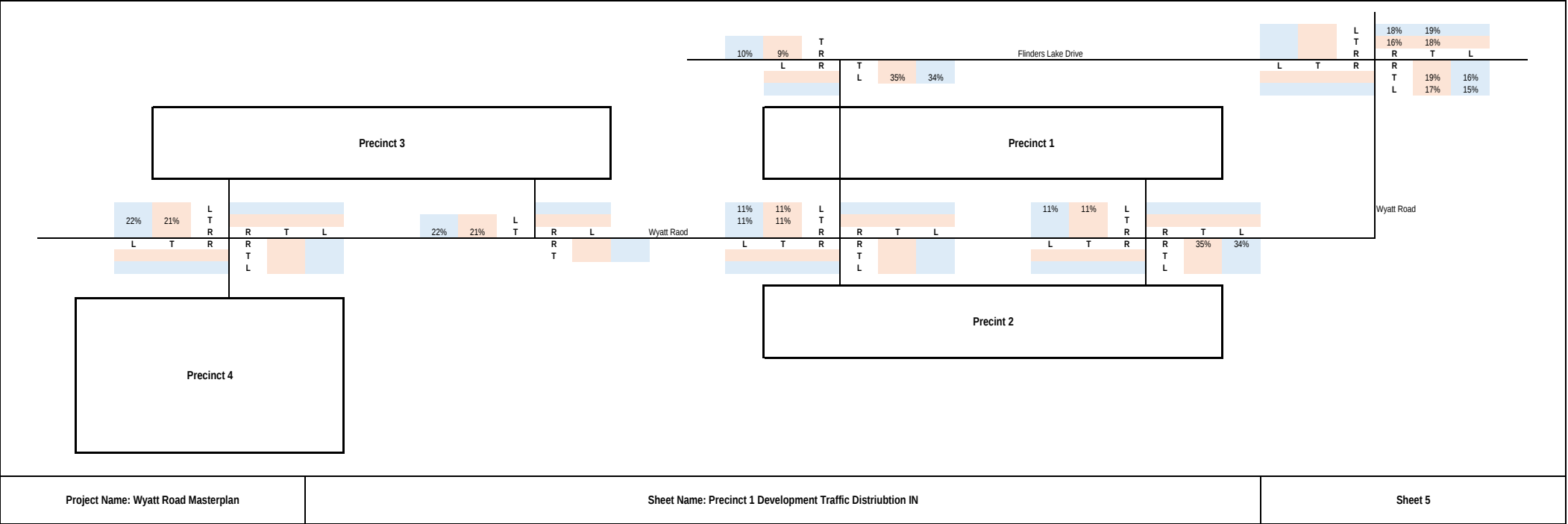
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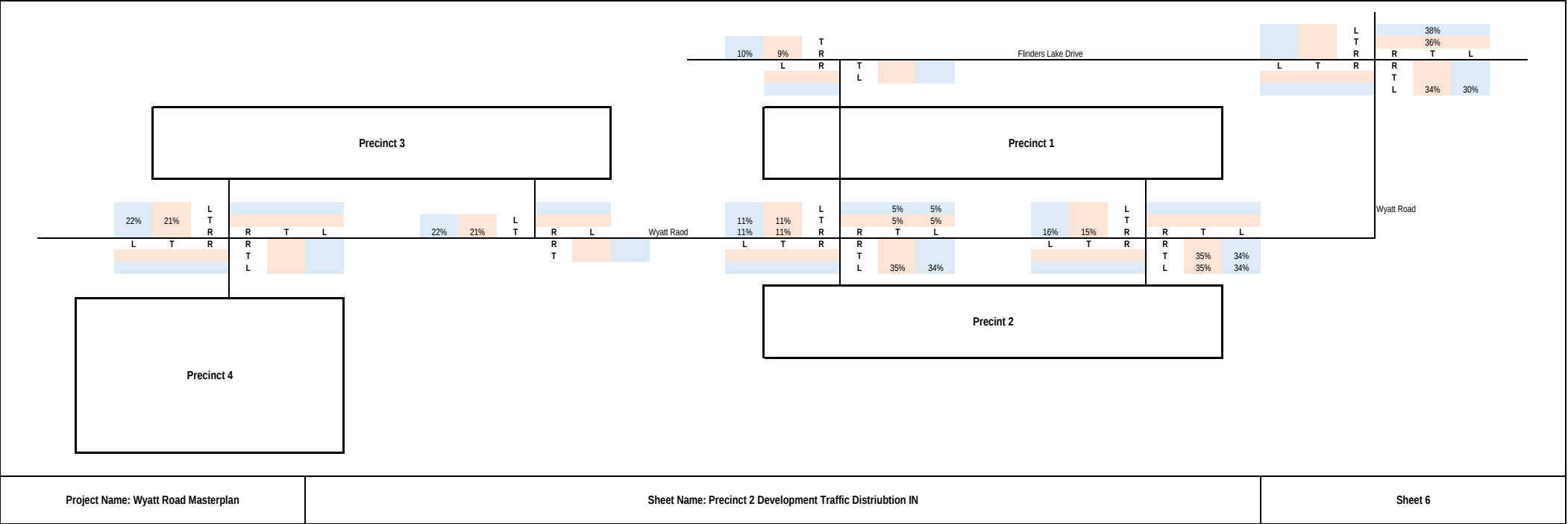
Sheet 1

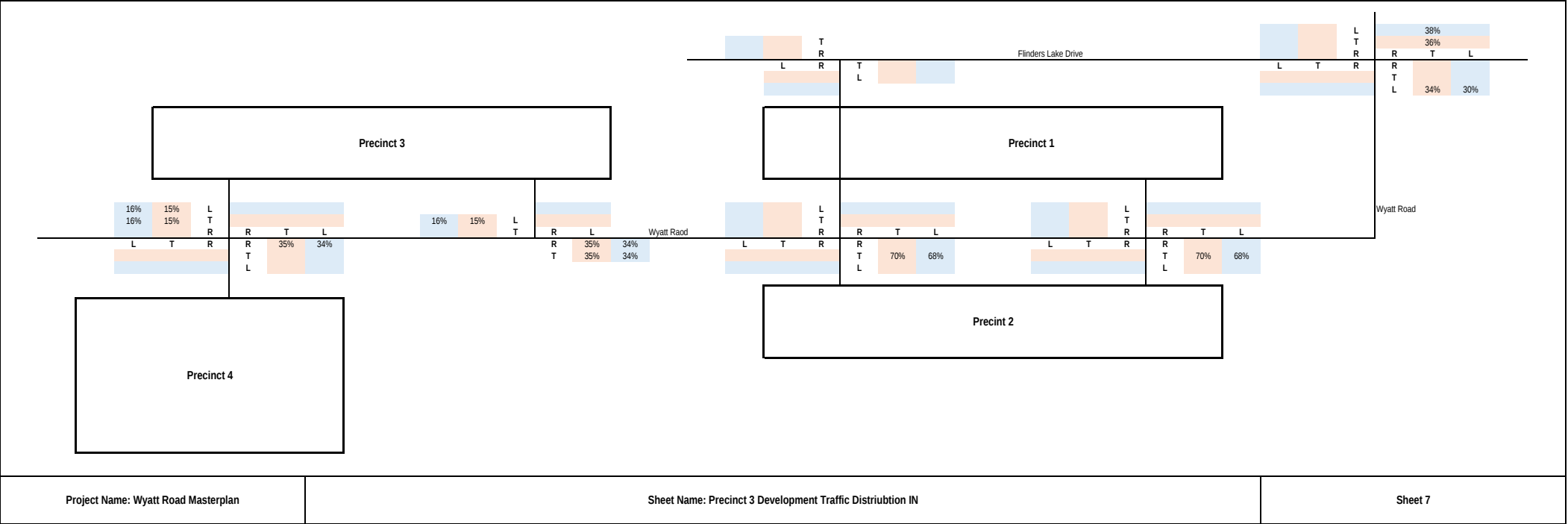


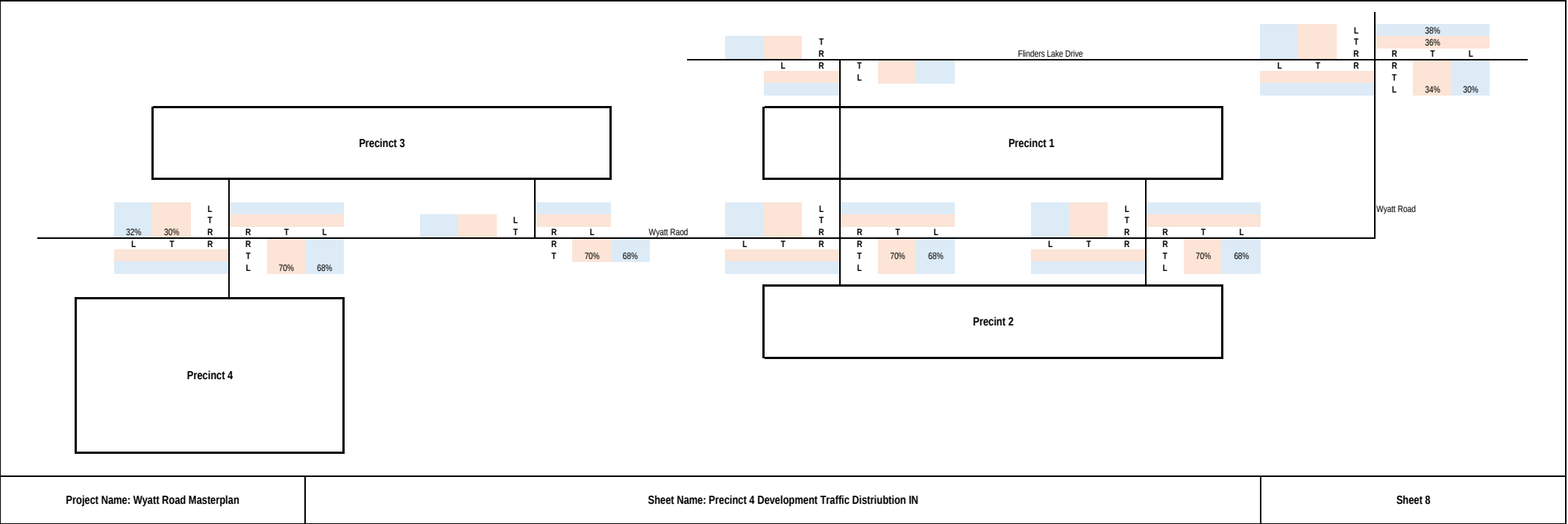


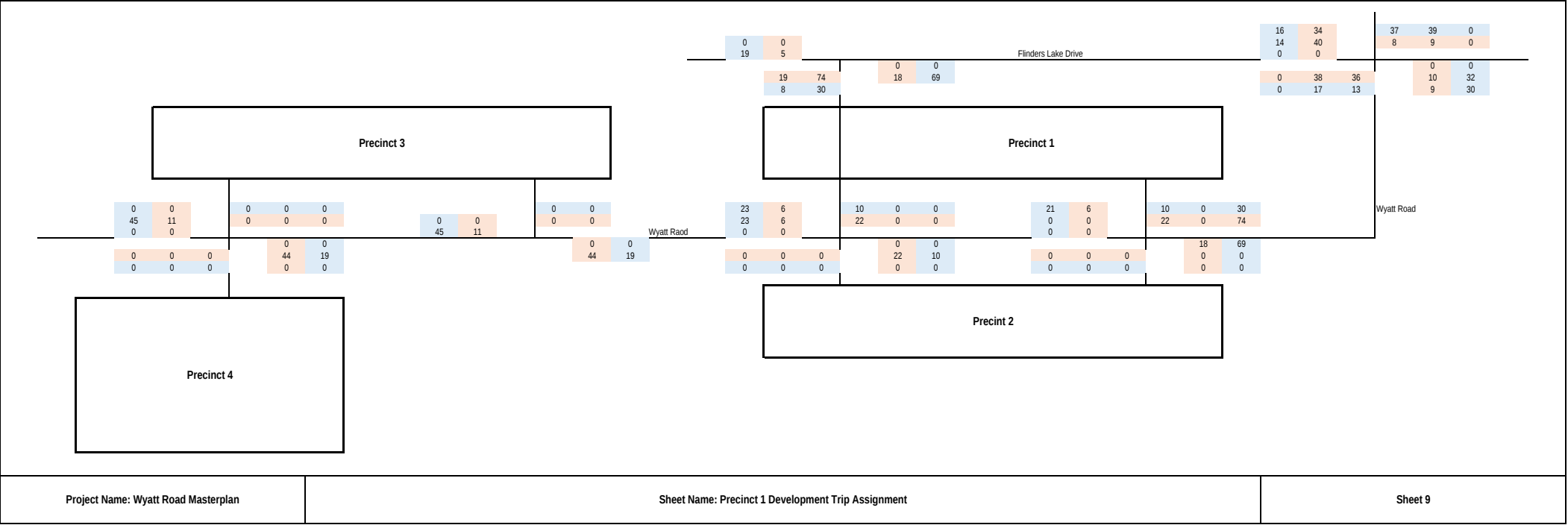


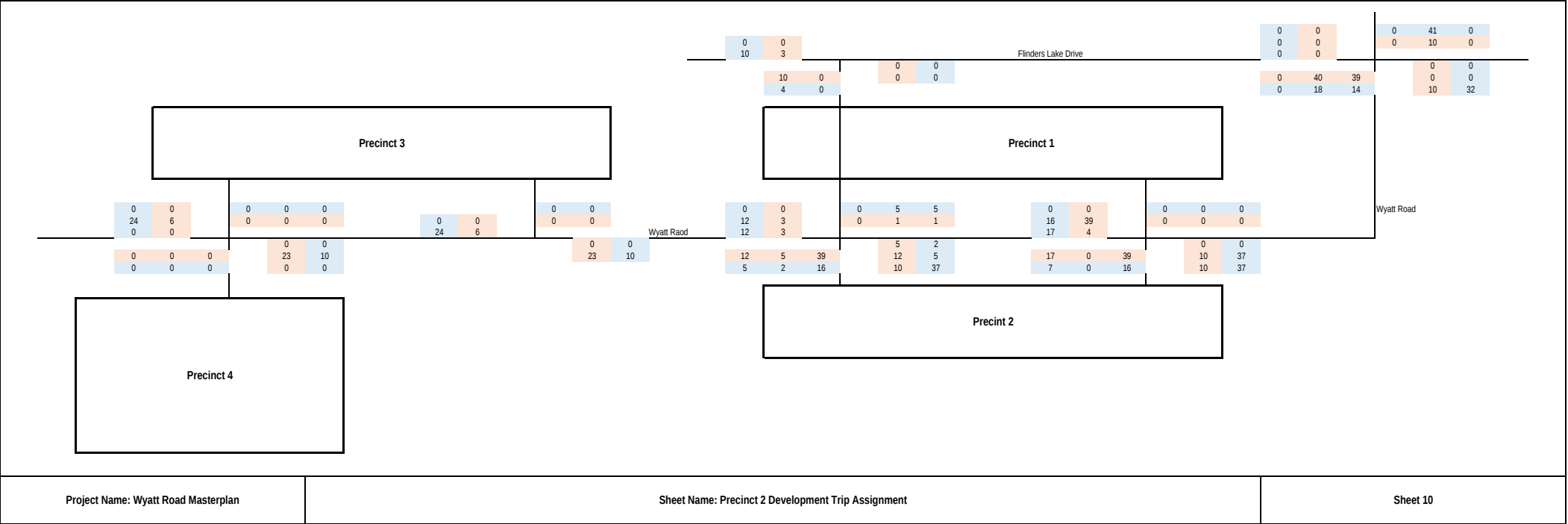


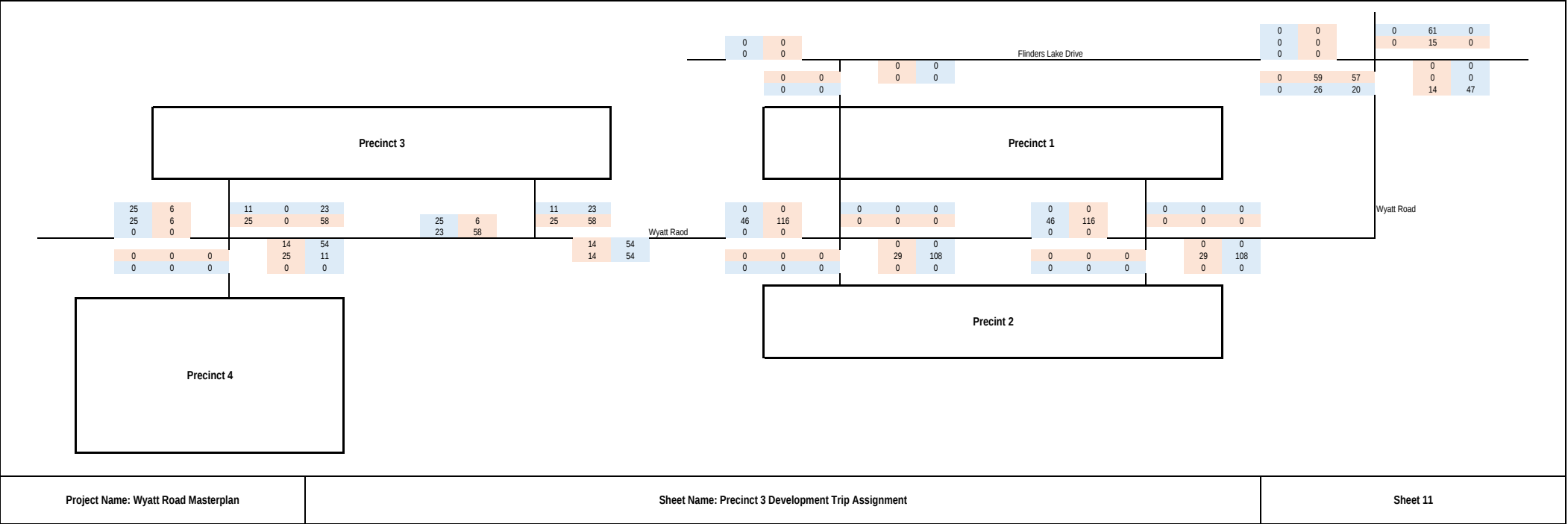


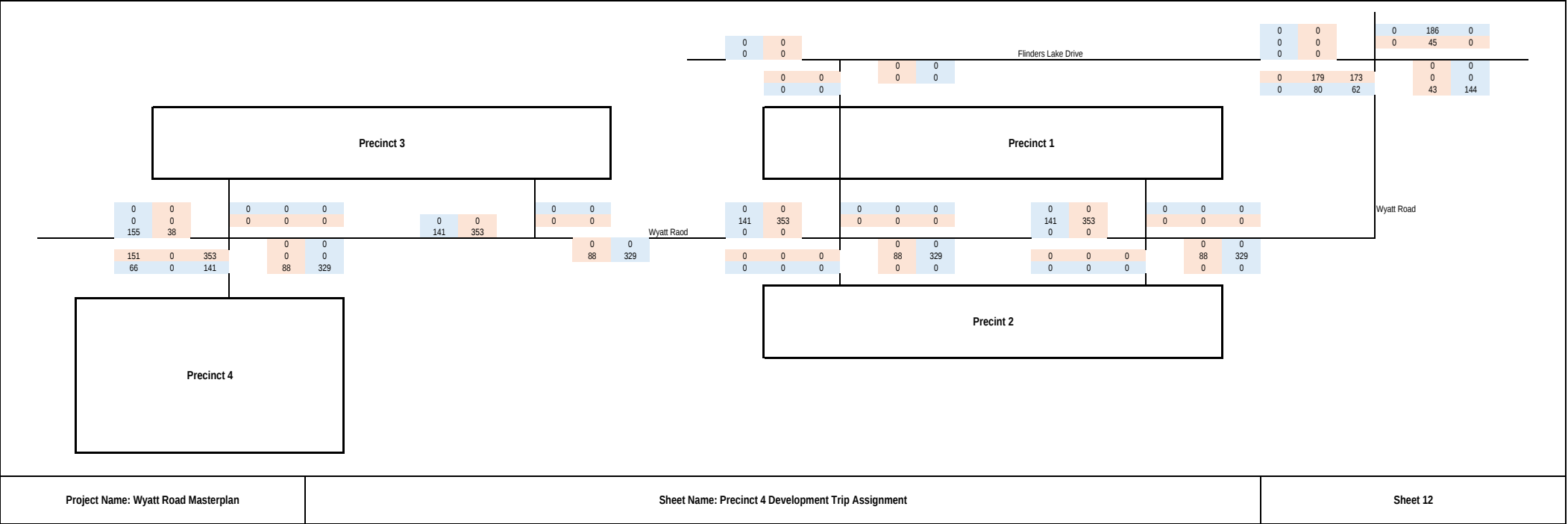


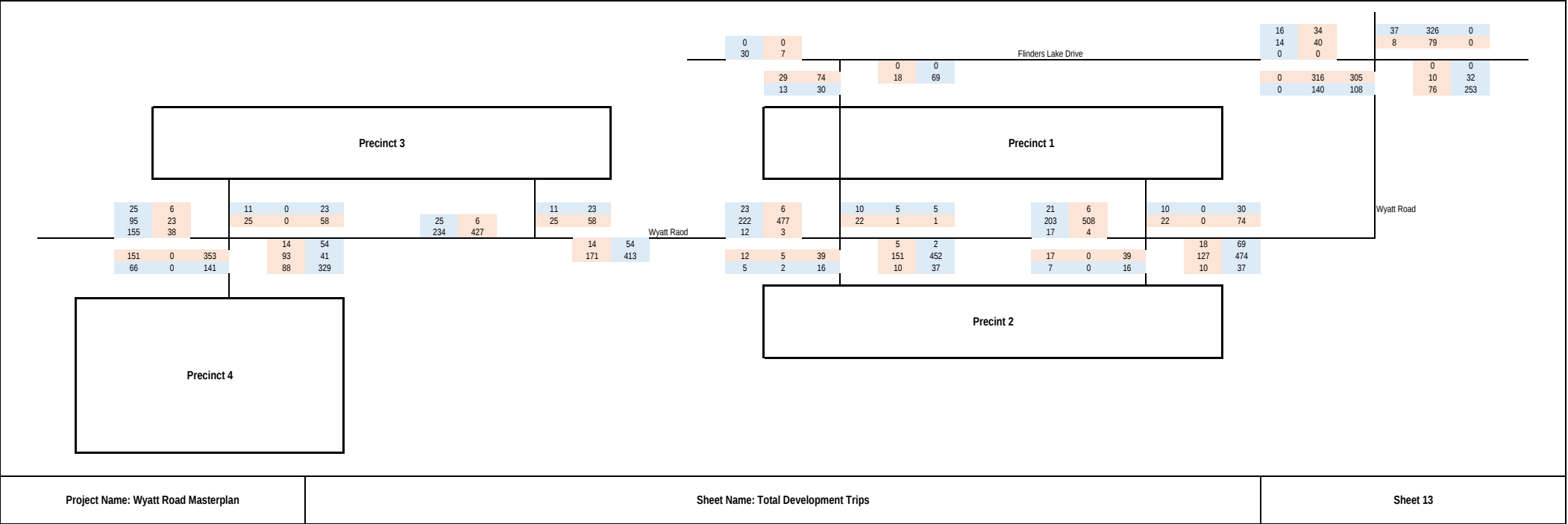


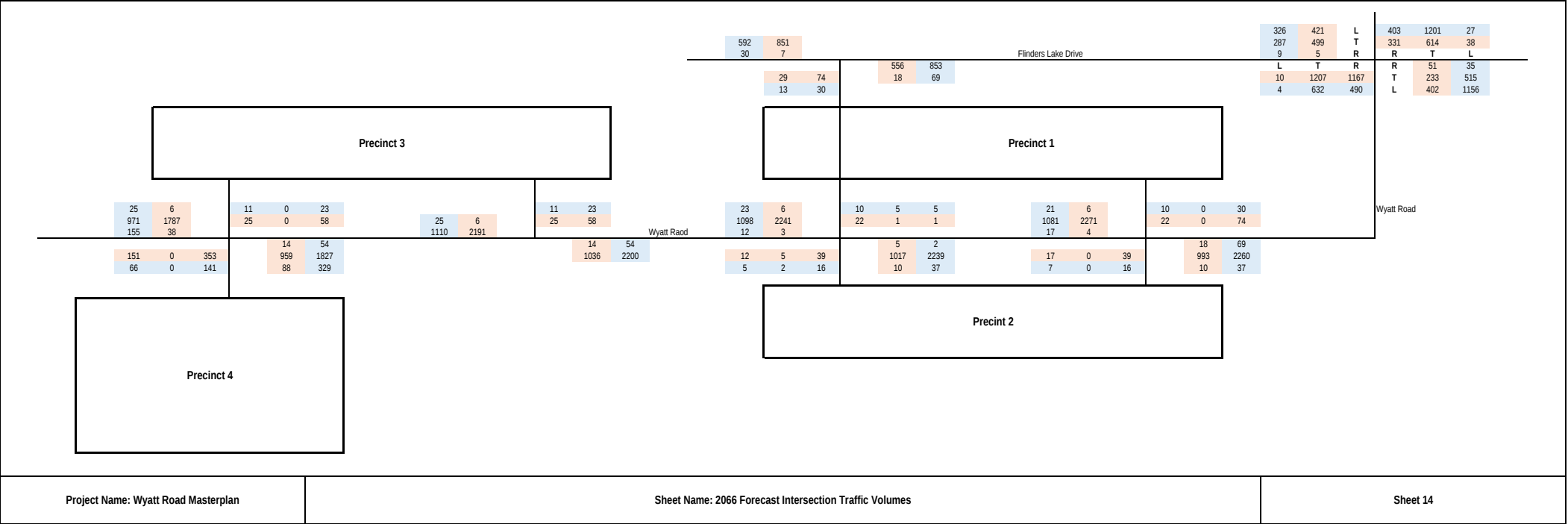












Appendix C: SIDRA Outputs

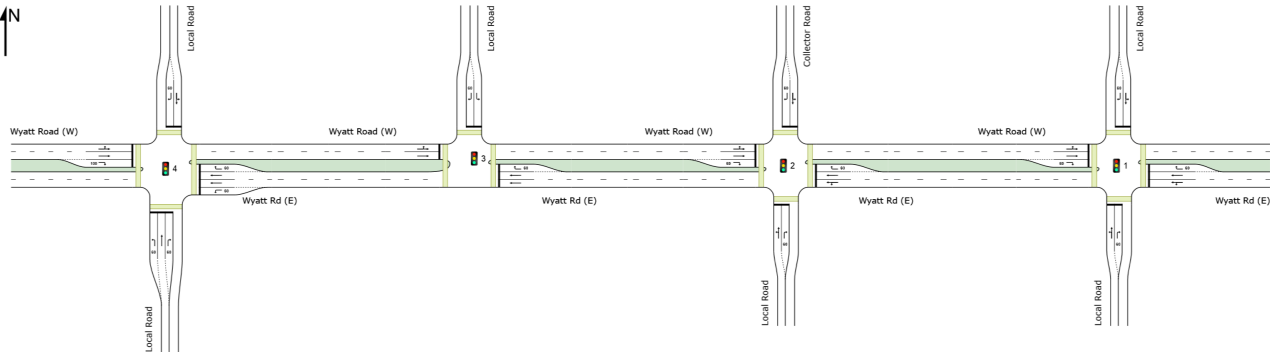


NETWORK LAYOUT

Network: N101 [2066 AM (Network Folder: General)]

New Network
Network Category: (None)

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



SITES IN NETWORK		
Site ID	CCG ID	Site Name
1	NA	1_2066 AM
2	NA	2_2066 AM
3	NA	3_2066 AM
4	NA	4_2066 AM

DEGREE OF SATURATION

Ratio of Arrival Flow to Capacity, v/c ratio (worst lane for the approach)

■ Network: N101 [2066 AM (Network Folder: General)]

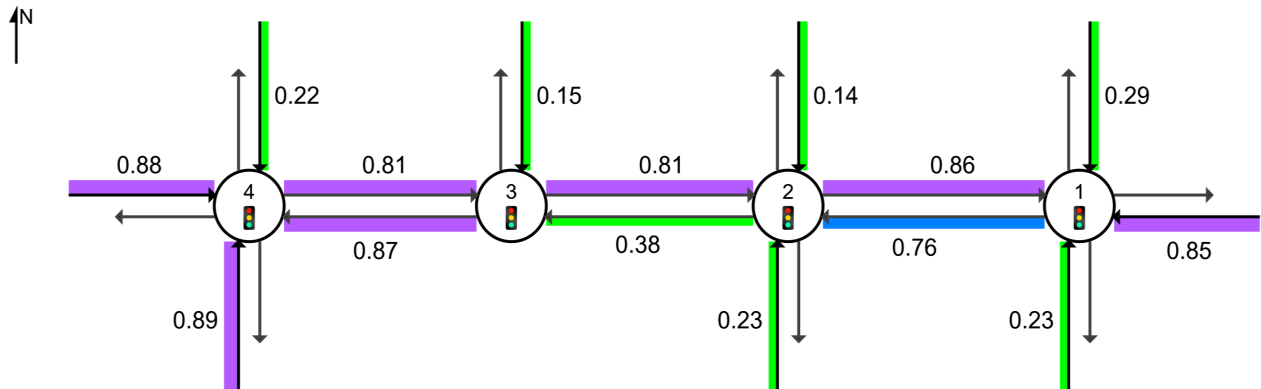
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Network

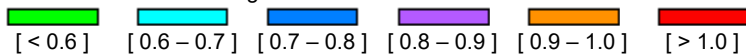
Network Category: (None)

Network Cycle Time = 120 seconds (Network Practical Cycle Time)

Critical Site / Common Control Group that determines the Network Cycle Time (for Coordinated Sites): 4 [4_2066 AM]



Colour code based on Degree of Saturation



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Project: P:\P6592 Kagaru Flagstone IMP and ROL TIA\Technical\Models\P6592.001M TIA SIDRA Models.sip9

APPROACH LEVEL OF SERVICE

Approach Level of Service

■ Network: N101 [2066 AM (Network Folder: General)]

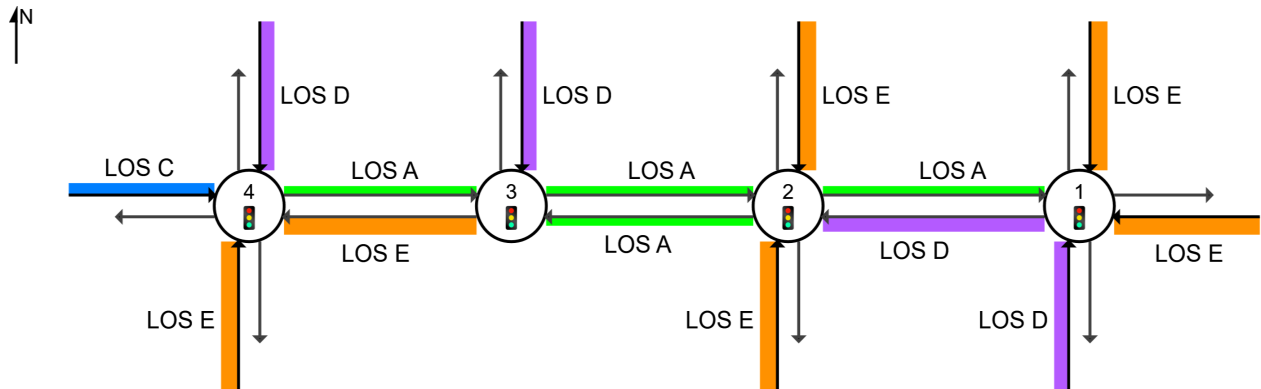
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Network

Network Category: (None)

Network Cycle Time = 120 seconds (Network Practical Cycle Time)

Critical Site / Common Control Group that determines the Network Cycle Time (for Coordinated Sites): 4 [4_2066 AM]



Colour code based on Level of Service



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

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

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Project: P:\P6592 Kagaru Flagstone IMP and ROL TIA\Technical\Models\P6592.001M TIA SIDRA Models.sip9

QUEUE STORAGE RATIO (PERCENTILE)

Largest Ratio of the 95% Back of Queue Distance to the available queue storage distance for any lane on the approach

■ ■ Network: N101 [2066 AM (Network Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

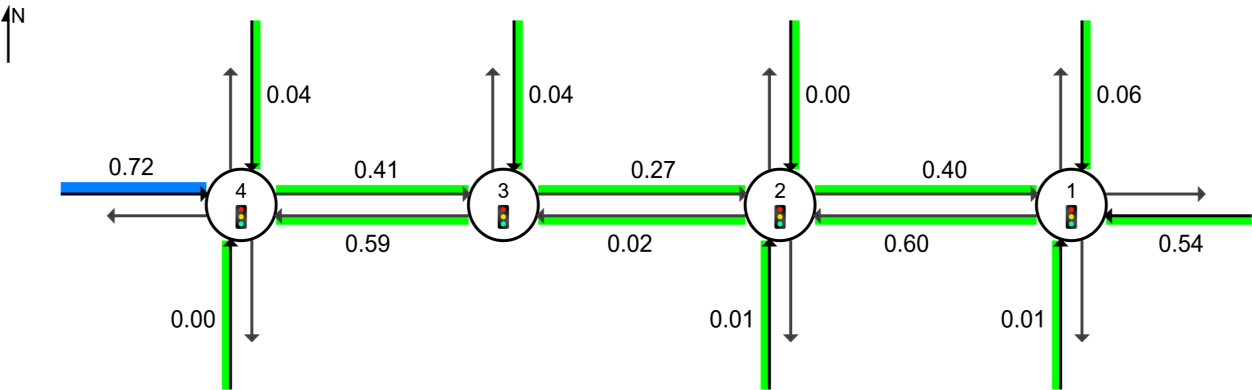
New Network

Network Category: (None)

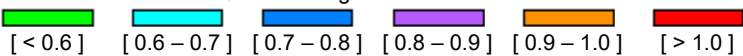
Network Cycle Time = 120 seconds (Network Practical Cycle Time)

Critical Site / Common Control Group that determines the Network Cycle Time (for Coordinated Sites): 4 [4_2066 AM]

Short Lanes are not included in determining Queue Storage Ratios.



Colour code based on Queue Storage Ratio



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

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Project: P:\P6592 Kagaru Flagstone IMP and ROL TIA\Technical\Models\P6592.001M TIA SIDRA Models.sip9

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Local Road											
P1	Full	15	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
East: Wyatt Rd (E)											

P2 Full	15	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
North: Local Road										
P3 Full	15	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
West: Wyatt Road (W)										
P4 Full	15	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
All Pedestrians	60	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96

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.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Local Road											
P1	Full	15	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
East: Wyatt Rd (E)											

P2 Full	15	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
North: Collector Road										
P3 Full	15	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
West: Wyatt Road (W)										
P4 Full	15	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
All Pedestrians	60	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96

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

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

 Network: N101 [2066 AM
(Network Folder: General)]

Key Intersection 3

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Practical Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]		[Total HV]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Wyatt Rd (E)														
5	T1	All MCs	1036	2.0	1036	2.0	0.380	0.4	LOS A	0.6	4.1	0.03	0.03	68.7
6	R2	All MCs	14	2.0	14	2.0	*0.092	66.7	LOS E	0.5	3.6	1.00	1.00	25.9
Approach			1050	2.0	1050	2.0	0.380	1.3	LOS A	0.6	4.1	0.05	0.05	65.5
North: Local Road														
7	L2	All MCs	58	2.0	58	2.0	0.152	46.5	LOS D	1.7	12.1	0.85	0.73	22.2
9	R2	All MCs	25	2.0	25	2.0	*0.149	60.3	LOS E	0.9	6.1	0.95	0.71	19.1
Approach			83	2.0	83	2.0	0.152	50.6	LOS D	1.7	12.1	0.88	0.73	21.2
West: Wyatt Road (W)														
10	L2	All MCs	6	2.0	6	2.0	0.806	6.8	LOS A	10.0	70.9	0.28	0.27	53.6
11	T1	All MCs	2191	2.0	2191	2.0	*0.806	2.3	LOS A	13.2	93.9	0.33	0.31	62.7
Approach			2197	2.0	2197	2.0	0.806	2.3	LOS A	13.2	93.9	0.33	0.31	62.7
All Vehicles			3330	2.0	3330	2.0	0.806	3.2	LOS A	13.2	93.9	0.25	0.23	59.7

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

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

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	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist]			sec	m	m/sec
East: Wyatt Rd (E)											
P2	Full	15	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
North: Local Road											
P3	Full	15	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
West: Wyatt Road (W)											
P4	Full	15	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
All Pedestrians		45	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96

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.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Local Road											
P1	Full	15	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
East: Wyatt Rd (E)											

P2 Full	15	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
North: Local Road										
P3 Full	15	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
West: Wyatt Road (W)										
P4 Full	15	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
All Pedestrians	60	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96

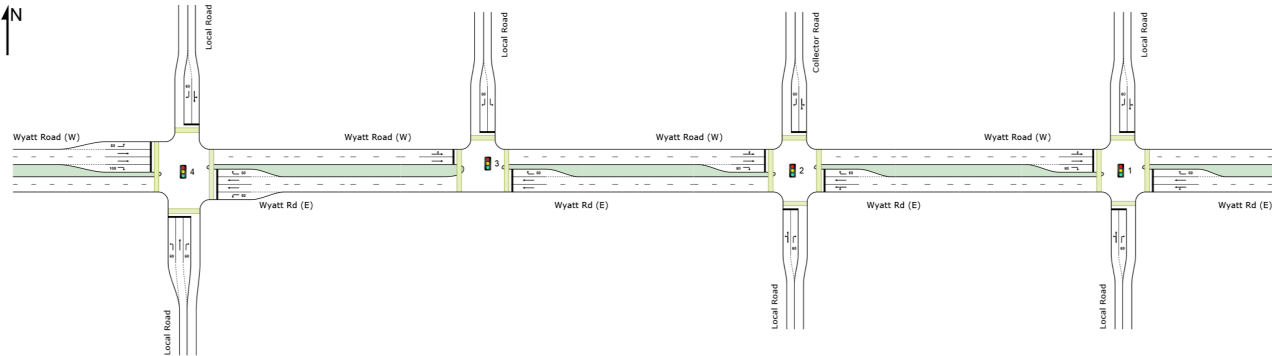
Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

NETWORK LAYOUT

Network: N101 [2066 AM (Network Folder: General)]

New Network
Network Category: (None)

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



SITES IN NETWORK		
Site ID	CCG ID	Site Name
1	NA	1_2066 AM
2	NA	2_2066 AM
3	NA	3_2066 AM
4	NA	4_2066 AM

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DEGREE OF SATURATION

Ratio of Arrival Flow to Capacity, v/c ratio (worst lane for the approach)

■ Network: N101 [2066 PM (Network Folder: General)]

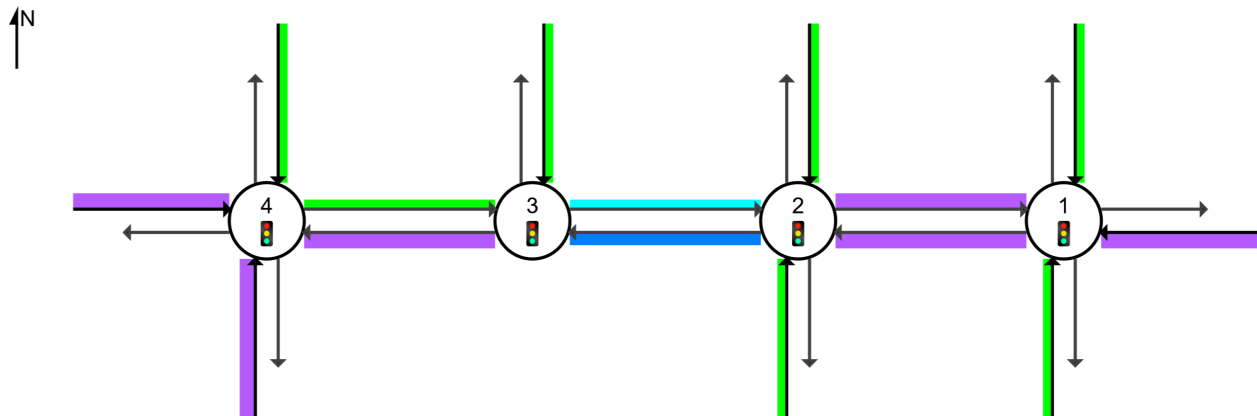
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Network

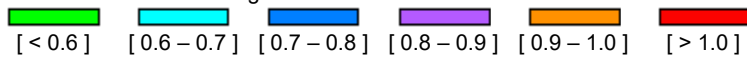
Network Category: (None)

Network Cycle Time = 150 seconds (Network Practical Cycle Time)

Critical Site / Common Control Group that determines the Network Cycle Time (for Coordinated Sites): 4 [4_2066 PM]



Colour code based on Degree of Saturation



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Project: P:\P6592 Kagaru Flagstone IMP and ROL TIA\Technical\Models\P6592.001M TIA SIDRA Models.sip9

DEGREE OF SATURATION

Ratio of Arrival Flow to Capacity, v/c ratio (worst lane for the approach)

■ Network: N101 [2066 AM (Network Folder: General)]

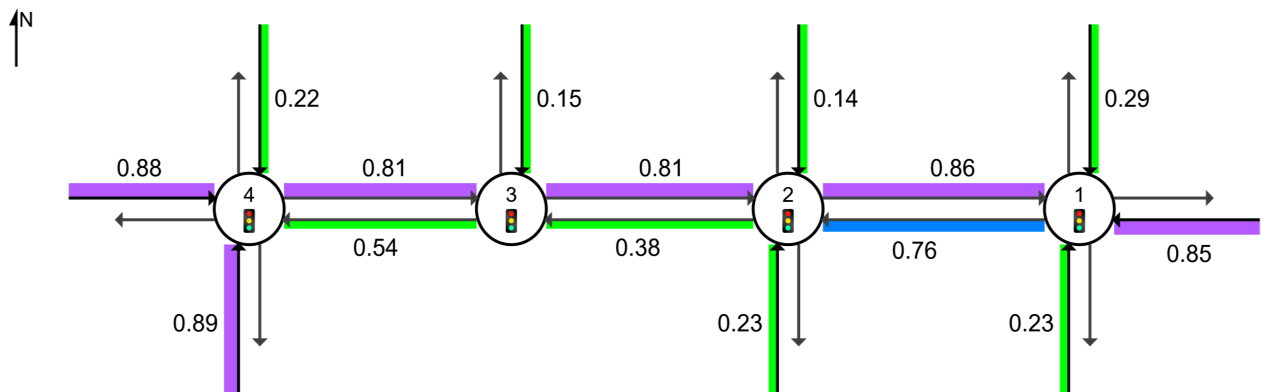
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Network

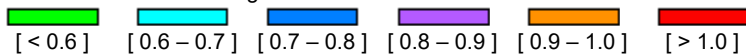
Network Category: (None)

Network Cycle Time = 120 seconds (Network Practical Cycle Time)

Critical Site / Common Control Group that determines the Network Cycle Time (for Coordinated Sites): 4 [4_2066 AM]



Colour code based on Degree of Saturation



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Project: P:\P6592 Kagaru Flagstone IMP and ROL TIA\Technical\Models\P6592.001M TIA SIDRA Models.sip9

APPROACH LEVEL OF SERVICE

Approach Level of Service

■ Network: N101 [2066 AM (Network Folder: General)]

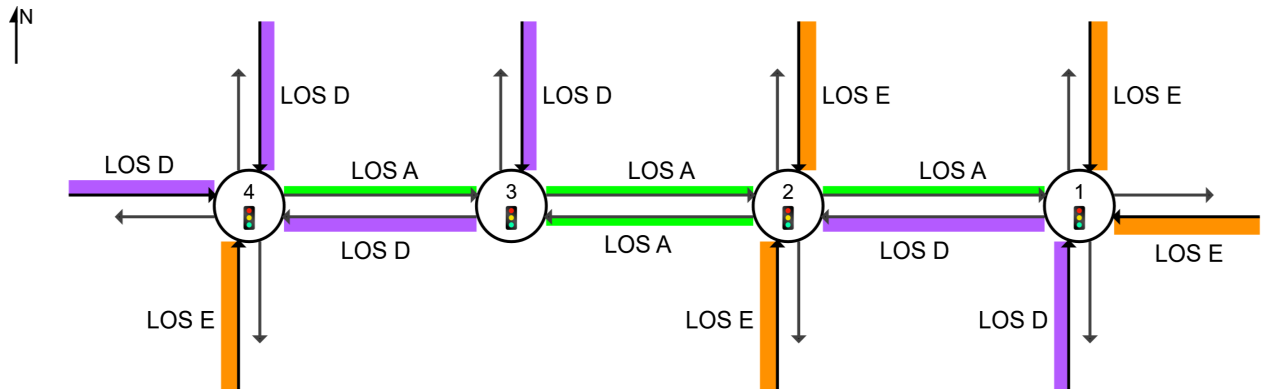
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Network

Network Category: (None)

Network Cycle Time = 120 seconds (Network Practical Cycle Time)

Critical Site / Common Control Group that determines the Network Cycle Time (for Coordinated Sites): 4 [4_2066 AM]



Colour code based on Level of Service



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

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

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QUEUE STORAGE RATIO (PERCENTILE)

Largest Ratio of the 95% Back of Queue Distance to the available queue storage distance for any lane on the approach

■ Network: N101 [2066 AM (Network Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

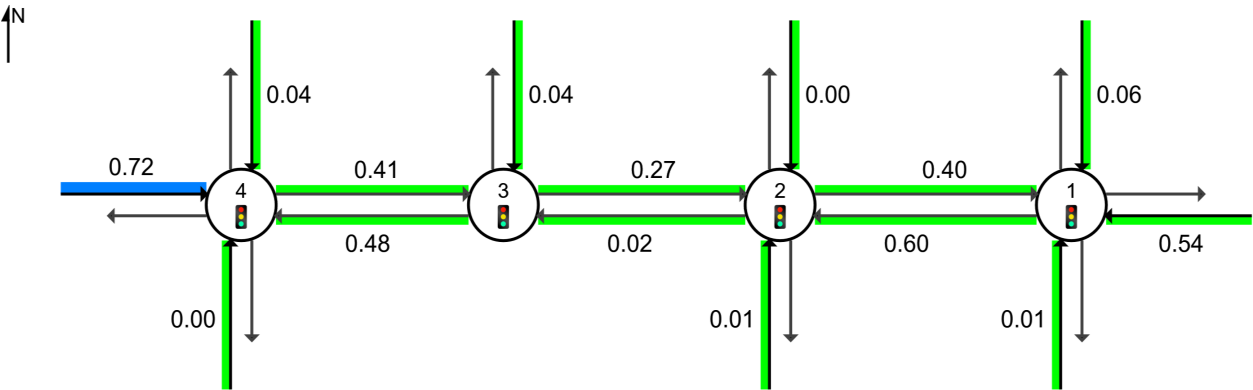
New Network

Network Category: (None)

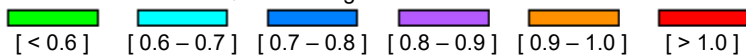
Network Cycle Time = 120 seconds (Network Practical Cycle Time)

Critical Site / Common Control Group that determines the Network Cycle Time (for Coordinated Sites): 4 [4_2066 AM]

Short Lanes are not included in determining Queue Storage Ratios.



Colour code based on Queue Storage Ratio



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

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Project: P:\P6592 Kagaru Flagstone IMP and ROL TIA\Technical\Models\P6592.001M TIA SIDRA Models.sip9

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Local Road											
P1	Full	15	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
East: Wyatt Rd (E)											

P2 Full	15	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
North: Local Road										
P3 Full	15	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
West: Wyatt Road (W)										
P4 Full	15	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
All Pedestrians	60	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96

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.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Local Road											
P1	Full	15	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
East: Wyatt Rd (E)											

P2 Full	15	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
North: Collector Road										
P3 Full	15	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
West: Wyatt Road (W)										
P4 Full	15	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
All Pedestrians	60	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96

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

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

 Network: N101 [2066 AM
(Network Folder: General)]

Key Intersection 3

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Practical Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]		[Total HV]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Wyatt Rd (E)														
5	T1	All MCs	1036	2.0	1036	2.0	0.380	0.4	LOS A	0.6	4.1	0.03	0.03	68.7
6	R2	All MCs	14	2.0	14	2.0	*0.092	66.7	LOS E	0.5	3.6	1.00	1.00	25.9
Approach			1050	2.0	1050	2.0	0.380	1.3	LOS A	0.6	4.1	0.05	0.05	65.5
North: Local Road														
7	L2	All MCs	58	2.0	58	2.0	0.152	46.5	LOS D	1.7	12.1	0.85	0.73	22.2
9	R2	All MCs	25	2.0	25	2.0	*0.149	60.3	LOS E	0.9	6.1	0.95	0.71	19.1
Approach			83	2.0	83	2.0	0.152	50.6	LOS D	1.7	12.1	0.88	0.73	21.2
West: Wyatt Road (W)														
10	L2	All MCs	6	2.0	6	2.0	0.806	6.8	LOS A	10.0	70.9	0.28	0.27	53.6
11	T1	All MCs	2191	2.0	2191	2.0	*0.806	2.3	LOS A	13.2	94.0	0.33	0.31	62.7
Approach			2197	2.0	2197	2.0	0.806	2.3	LOS A	13.2	94.0	0.33	0.31	62.7
All Vehicles			3330	2.0	3330	2.0	0.806	3.2	LOS A	13.2	94.0	0.25	0.23	59.7

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

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

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	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist]			sec	m	m/sec
East: Wyatt Rd (E)											
P2	Full	15	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
North: Local Road											
P3	Full	15	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
West: Wyatt Road (W)											
P4	Full	15	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
All Pedestrians		45	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96

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.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Local Road											
P1	Full	15	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
East: Wyatt Rd (E)											

P2 Full	15	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
North: Local Road										
P3 Full	15	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
West: Wyatt Road (W)										
P4 Full	15	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
All Pedestrians	60	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96

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

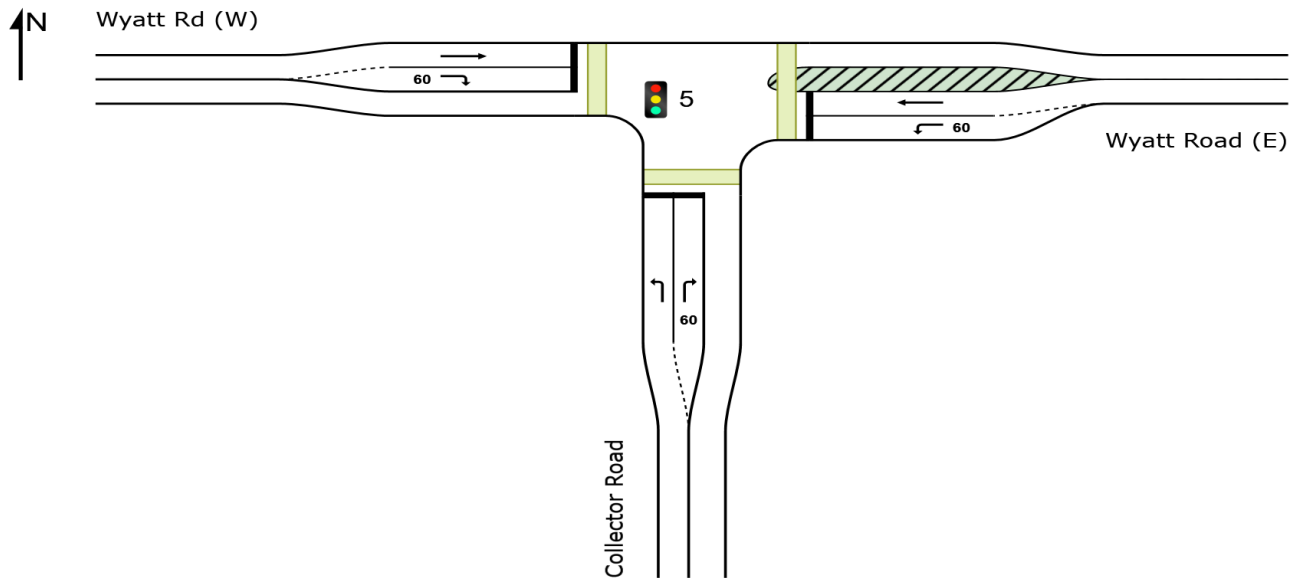
 **Site: 5 [5_2066 AM (Site Folder: AM)]**

Key Intersection 5

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated

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



MOVEMENT SUMMARY

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

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Key Intersection 5

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 40 seconds (Site Practical Cycle Time)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: Collector Road															
7	L2	All MCs	29	2.0	29	2.0	0.058	16.5	LOS B	0.4	3.1	0.76	0.68	0.76	42.2
9	R2	All MCs	74	2.0	74	2.0	* 0.323	23.4	LOS B	1.4	10.3	0.95	0.74	0.95	37.9
Approach			103	2.0	103	2.0	0.323	21.5	LOS B	1.4	10.3	0.90	0.73	0.90	39.0
East: Wyatt Road (E)															
10	L2	All MCs	18	2.0	18	2.0	0.012	7.0	LOS A	0.1	0.4	0.18	0.63	0.18	48.8
11	T1	All MCs	556	2.0	556	2.0	0.525	6.3	LOS A	7.0	50.1	0.68	0.59	0.68	60.4
Approach			574	2.0	574	2.0	0.525	6.3	LOS A	7.0	50.1	0.66	0.60	0.66	59.9
West: Wyatt Rd (W)															
5	T1	All MCs	851	2.0	851	2.0	* 0.804	11.8	LOS A	16.4	116.5	0.87	0.88	1.04	53.8
6	R2	All MCs	7	2.0	7	2.0	* 0.051	26.7	LOS B	0.1	1.0	0.95	0.65	0.95	38.3
Approach			858	2.0	858	2.0	0.804	12.0	LOS A	16.4	116.5	0.87	0.88	1.03	53.6
All Vehicles			1535	2.0	1535	2.0	0.804	10.5	LOS A	16.4	116.5	0.79	0.76	0.89	54.1

Site Level of Service (LOS) Method: Delay (RTA NSW). 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.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Collector Road												
P3	Full	15	15	14.5	LOS B	0.0	0.0	0.85	0.85	168.3	200.0	1.19
East: Wyatt Road (E)												
P4	Full	15	15	14.5	LOS B	0.0	0.0	0.85	0.85	168.3	200.0	1.19
West: Wyatt Rd (W)												
P2	Full	15	15	14.5	LOS B	0.0	0.0	0.85	0.85	168.3	200.0	1.19
All Pedestrians		45	45	14.5	LOS B	0.0	0.0	0.85	0.85	168.3	200.0	1.19

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

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Key Intersection 5

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 40 seconds (Site Practical Cycle Time)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
			veh/h	%	veh/h	%	v/c	sec							km/h
South: Collector Road															
7	L2	All MCs	13	2.0	13	2.0	0.028	17.1	LOS B	0.2	1.4	0.78	0.65	0.78	41.9
9	R2	All MCs	30	2.0	30	2.0	* 0.164	24.1	LOS B	0.6	4.2	0.95	0.70	0.95	37.6
Approach			43	2.0	43	2.0	0.164	22.0	LOS B	0.6	4.2	0.89	0.69	0.89	38.8
East: Wyatt Road (E)															
10	L2	All MCs	69	2.0	69	2.0	0.047	7.3	LOS A	0.3	2.0	0.22	0.65	0.22	48.7
11	T1	All MCs	853	2.0	853	2.0	* 0.806	11.9	LOS A	16.5	117.4	0.87	0.88	1.04	53.7
Approach			922	2.0	922	2.0	0.806	11.6	LOS A	16.5	117.4	0.82	0.86	0.98	53.2
West: Wyatt Rd (W)															
5	T1	All MCs	592	2.0	592	2.0	0.559	6.5	LOS A	7.7	54.8	0.70	0.61	0.70	60.1
6	R2	All MCs	30	2.0	30	2.0	* 0.164	25.8	LOS B	0.6	4.2	0.95	0.71	0.95	38.7
Approach			622	2.0	622	2.0	0.559	7.4	LOS A	7.7	54.8	0.71	0.62	0.71	58.3
All Vehicles			1587	2.0	1587	2.0	0.806	10.2	LOS A	16.5	117.4	0.78	0.76	0.87	54.4

Site Level of Service (LOS) Method: Delay (RTA NSW). 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.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Collector Road												
P3	Full	15	15	14.5	LOS B	0.0	0.0	0.85	0.85	168.3	200.0	1.19
East: Wyatt Road (E)												
P4	Full	15	15	14.5	LOS B	0.0	0.0	0.85	0.85	168.3	200.0	1.19
West: Wyatt Rd (W)												
P2	Full	15	15	14.5	LOS B	0.0	0.0	0.85	0.85	168.3	200.0	1.19
All Pedestrians		45	45	14.5	LOS B	0.0	0.0	0.85	0.85	168.3	200.0	1.19

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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