Access & Movement Assessment

PMP Printing Precinct

V170605

Prepared for
Victorian Planning Authority (VPA)

23 July 2019

Cardno

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Executive Summary

The PMP Printing Precinct is located within the wider Monash National Innovation & Employment Cluster (NEIC). Under the Monash NEIC Draft Framework Plan (2017), the PMP Printing Precinct is nominated as a strategic site for urban renewal with the potential to accommodate employment, housing and social needs for the wider community. The Draft Framework Plan identifies planning for a mixed use urban renewal development within the PMP Printing Precinct.

Accordingly, the Victorian Planning Authority (VPA) in partnership with Monash Council, have prepared a Comprehensive Development Plan (CDP) to address the future development of industrial land within the PMP Printing Precinct. The CDP will ensure the future development of PMP Printing Precinct is undertaken in a coordinated way and must be finalised prior to any land rezoning. When approved, the CDP will then be incorporated in the Planning Scheme through the application of a Comprehensive Development Zone (CDZ).

This report has been prepared to summarise the findings of an Access & Movement Assessment which has been undertaken on behalf of the VPA in consultation with Monash City Council, Transport for Victoria (TfV) and VicRoads. This Access & Movement Assessment informs and supports the preparation of the PMP Printing Precinct CDP, with outputs of this assessment to inform the Precinct Infrastructure Plan (PIP) and Development Contributions Plan (DCP) for the precinct.

The PMP Printing Precinct is proposed to include the following land uses and development summary:

Use	Description	Size / No.
Residential Dwellings	Townhouse	105 dwellings
	Apartment	1,030 dwellings
Commercial Office (20,000 sqm GFA, 950-1,050 workers)	General Office	8,000 sqm GFA
	Education (Tertiary)	8,000 sqm GFA
	Health / Health Care	4,000 sqm GFA

GFA – gross floor area, sqm – square metres

A key component of this report is to assess the likely transport impacts of the development of the PMP Printing Precinct and identify key mitigation works required to support the future development of the precinct.

Following consultation with Monash City Council and VicRoads, key mitigation works recommended to support the PMP Printing Precinct CDP include:

- Centre Road / Haughton Road / Carinish Road intersection lane lengthening;
- 30m extension of Centre Road east approach right turn lane,
- 40m extension of Carinish Road north approach right turn lane,
- Carinish Road / Browns Road intersection signalisation that will connect the precinct directly to the Dandenong Rail Corridor linear shared trail (includes pedestrian operation signal crossing (POS)),
- Browns Road POS adjacent Francis Street to connect to VicRoads' 'Clayton to Syndal' cycling corridor project[1],
- Local area traffic management treatment (flat top road hump) on Browns Road midblock between Carinish Road and Francis Street, and
- Local area traffic management treatments (Watts profile road humps) on Moriah Street and Kionga Street approximately every 100 m (a total of 12 road).

[1] Formerly Chirnside Park to Mordialloc cycling corridor project

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1 Introduction

1.1 Background

Cardno was engaged by the Victorian Planning Authority (VPA) to undertake a traffic and transport assessment of the proposed redevelopment of the PMP Printing Precinct generally located on the northeast corner of Browns Road and Carinish Road in Clayton.

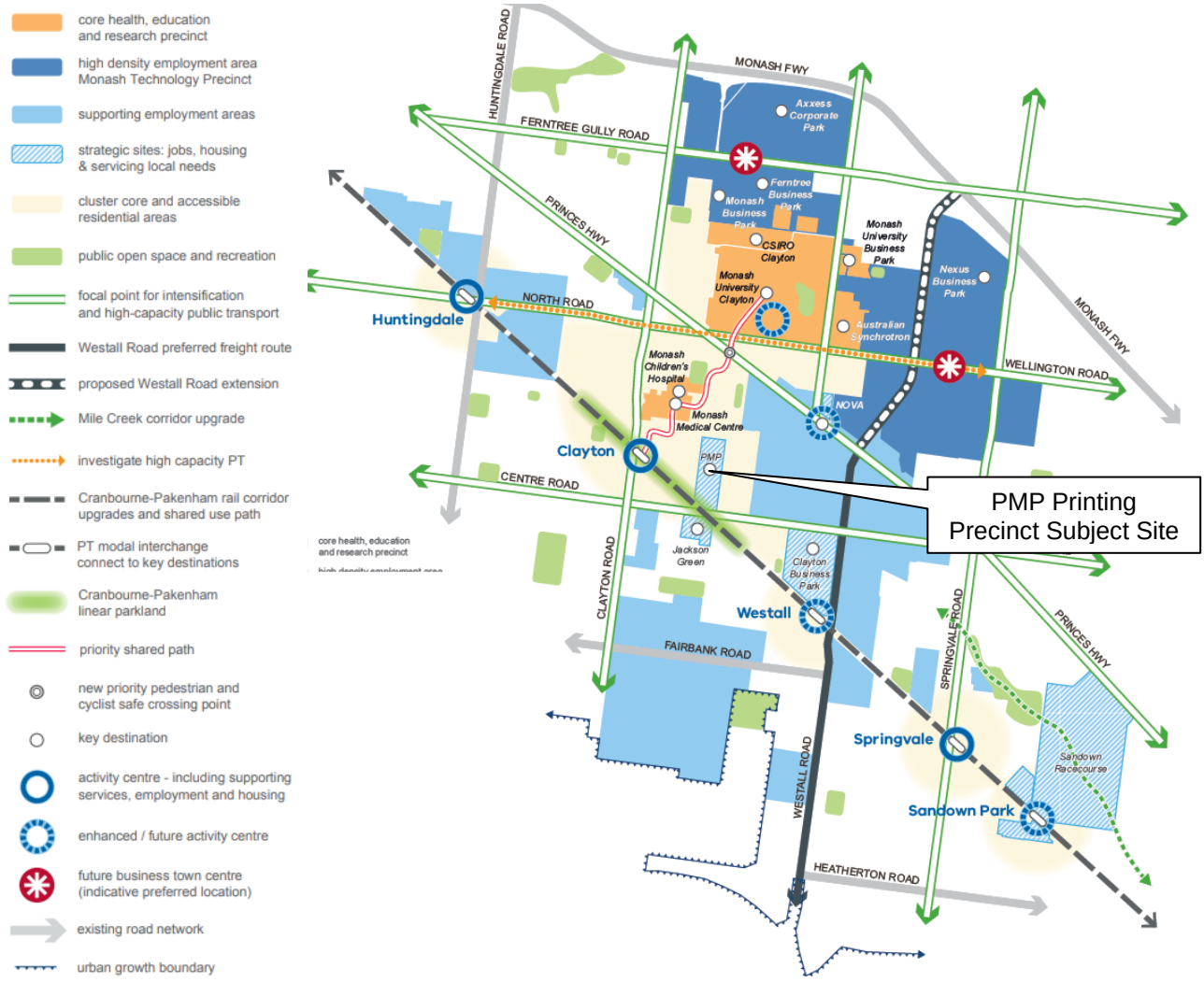
In the course of preparing this assessment, the subject site and its environs have been inspected, concept development plans have been reviewed and liaison with relevant stakeholders completed (VicRoads, Transport for Victoria, Monash City Council, the Victorian Planning Authority, etc.).

It is noted that during Cardno's engagement for this project, the Clayton Road and Centre Road level crossings were removed by the Level Crossing Removal Authority.

1.2 Monash National Employment & Innovation Cluster

The PMP Printing Precinct is located within the wider Monash National Innovation & Employment Cluster (NEIC). Under the Monash NEIC Draft Framework Plan (2017), the PMP Printing Precinct is nominated as a strategic site for urban renewal with the potential to accommodate employment, housing and social needs for the wider community. The PMP Printing Precinct in relation to the Monash NEIC is illustrated below in Figure 1-1.

Figure 1-1 Monash National Employment & Innovation Cluster (NEIC) Draft Framework Plan



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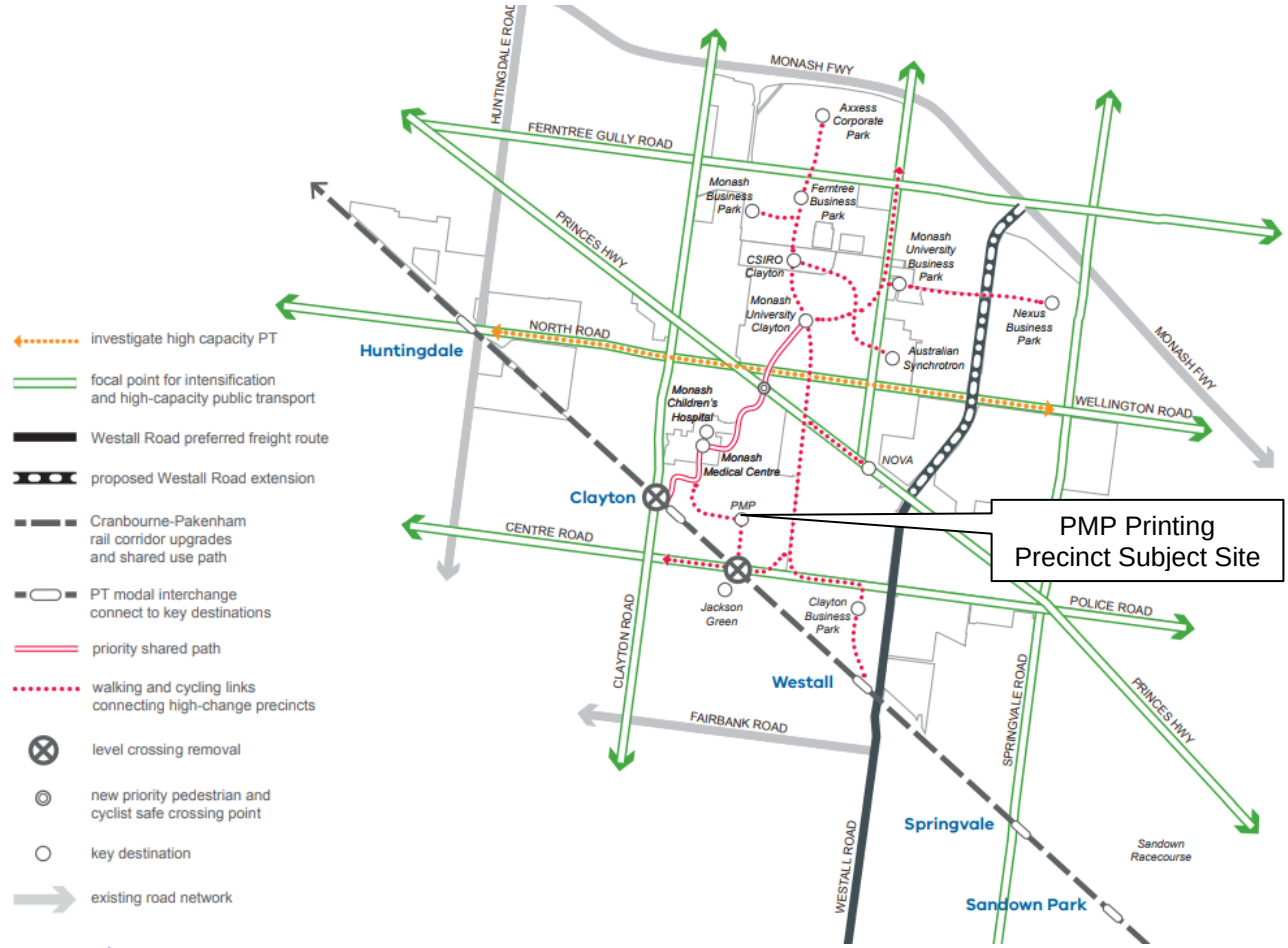
The Draft Framework Plan identifies planning for a mixed use urban renewal development at the PMP Printing Precinct.

Subsequently, VPA in partnership with Monash Council, have started work on preparing a Comprehensive Development Plan (DCP) to address the future development of industrial land at the PMP Printing Precinct.

The long term objectives for the PMP Printing / Centre Road precinct include:

"renewal of the industrial development to complement Clayton Activity Centre and the adjacent Centre Road commercial precinct with a range of employment opportunities, diverse housing and public open space will rejuvenate and enhance the character of the precinct. Regeneration of the adjacent Commercial 1 Zone will encourage shop-top housing and retain that serves the local community."

Figure 1-2 Monash NEIC Transport Plan



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With specific reference to transport planning, the Monash NEIC Transport Plan, illustrated in Figure 1-2 on the previous page, plans the following:

- Priority shared cyclist/pedestrian path linking Clayton Station / Activity Centre, Monash Medical Precinct and Monash University (current VicRoads project – refer Section Figure 2-9),
- Walking and cycling links connecting PMP Printing Precinct to Monash Medical Precinct, Clayton Business Park, Monash University Precinct, Monash University Business Park, Monash Business Park, and also the new linear trail aligned along the Dandenong Rail Corridor (as part of LXRA level crossing removal works, not shown below – refer Section 2.4), and
- Potential high capacity public transport route along North Road (Caulfield-Rowville tram route – refer Section 2.5.2).

The non-car based transport infrastructure items currently being implemented and planned, provides a high level of connectivity between the PMP Printing Precinct and surrounding key locations identified in the Monash NEIC Draft Framework Plan.

In addition to the above, the State Government recently announced the potential future Suburban Rail Loop which may also include a new regional super-hub upgrade of the current Clayton Station. Should this project be funded and implemented, this would further bolster public transport services and amenity in the area.

1.3 Comprehensive Development Plan Purpose

A Comprehensive Development Plan (CDP) is prepared to ensure the future development of strategic sites is undertaken in a coordinated way and must be completed prior to any land rezoning.

A CDP addresses land use, built form, landscaping, transport and access, drainage and other infrastructure requirements to support the delivery of the precinct. A CDP is incorporated in the Planning Scheme through the application of a Comprehensive Development Zone (CDZ). CDPs and the CDZ are most commonly applied to large or complex developments within established areas.

1.4 Purpose of this Report

This report has been prepared on behalf of the Victorian Planning Authority (VPA) in consultation with Monash City Council, Transport for Victoria (TfV) and VicRoads.

This Access & Movement Assessment which has been undertaken for the PMP Printing Precinct informs and supports the preparation of the PMP Printing Precinct CDP. The output of this assessment will inform the Precinct Infrastructure Plan (PIP) and Development Contributions Plan (DCP) for the precinct.

A key component of this report is to assess the likely transport impacts of the development of the PMP Printing Precinct and identify key mitigation works required to support the future development of the precinct.

2 Existing Conditions

The PMP Printing Precinct is generally located at 31-49 Browns Road and 209-211 Carinish Road in Clayton and is illustrated in Figure 2-1 with the existing land use zones illustrated in Figure 2-2.

The subject site is currently occupied by the PMP Printing Facility and several factoriettes and industrial uses along Bendix Drive. Land use surrounding the site is generally a mix residential type zones with the exception being industrial land use to the east of the site and the public use zone to the north west (Monash Medical Precinct).

The PMP Printing Precinct is primarily accessed via Browns Road on its western frontage which is a local street.

Figure 2-1 Site Location & Surrounds

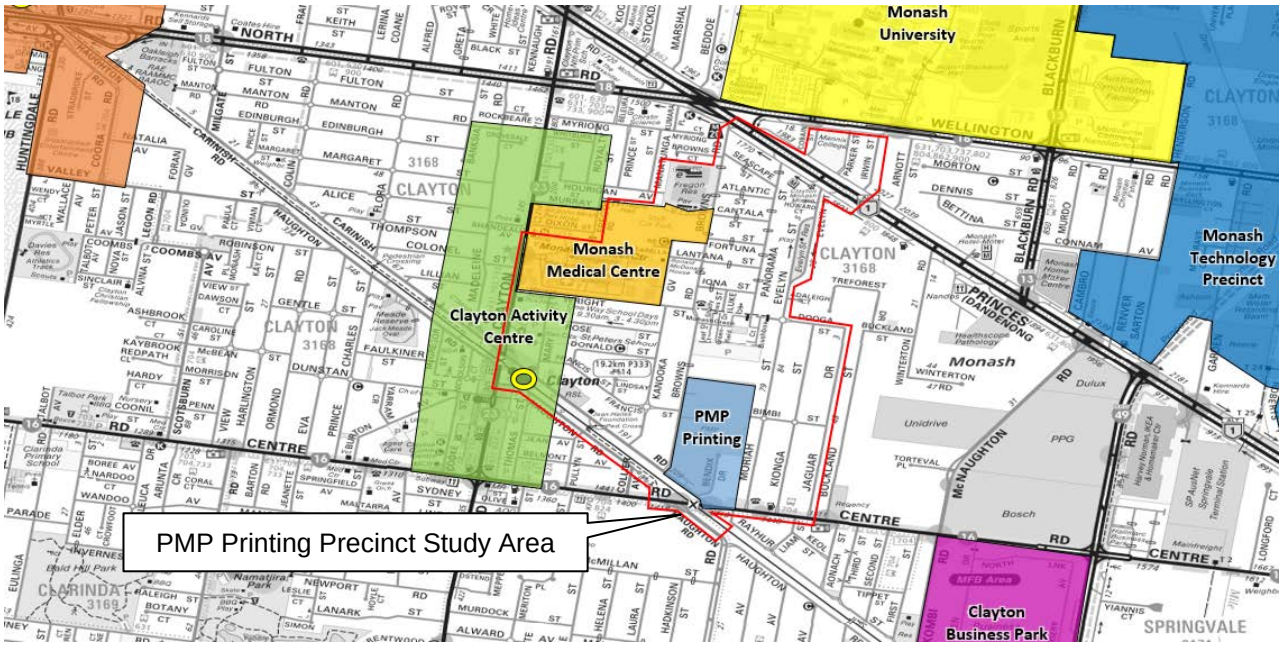
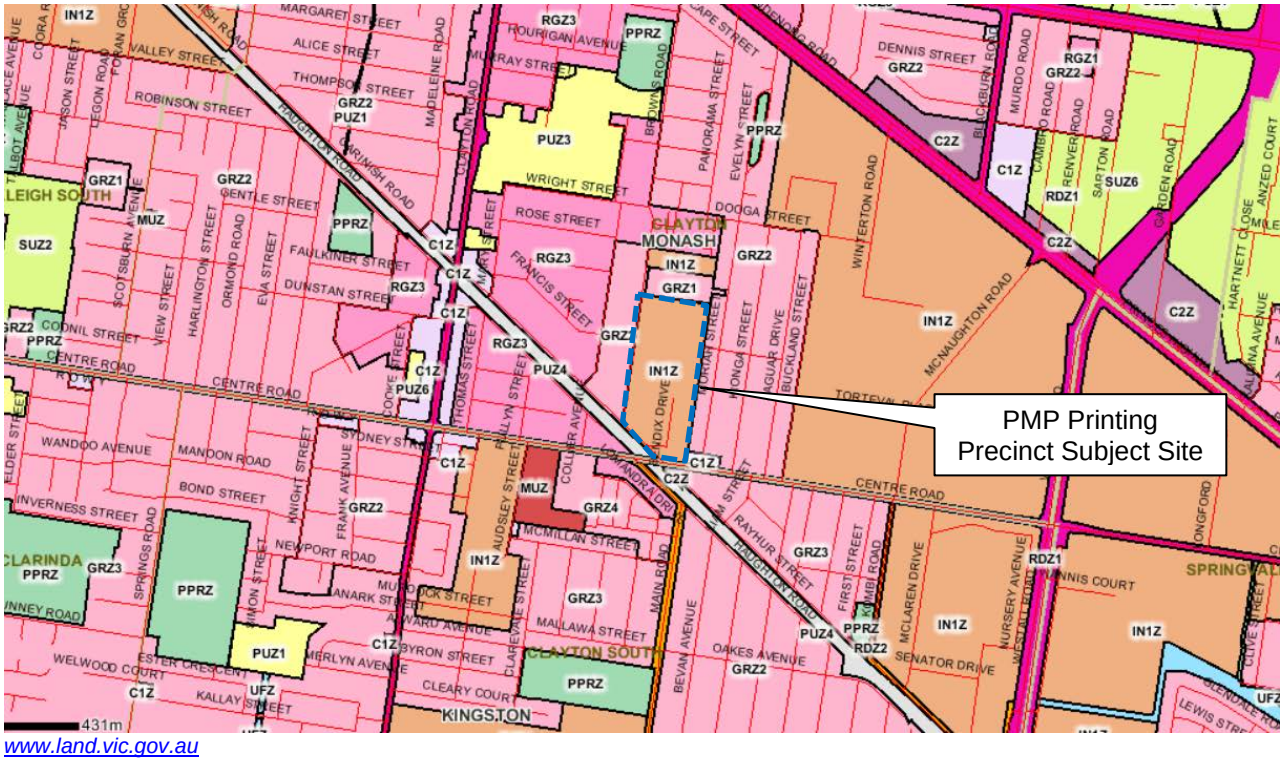


Figure 2-2 Planning Scheme Zones



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2.2 Transport Network

The following sets out a summary of the existing road network within and surrounding the PMP Printing Precinct study area. Cardno undertook site inspections and collected AM & PM turning movement counts, weeklong pneumatic classified tube counts and SCATS intersection data to inform the following on the following periods (with peak hour turning movements summarised and included in Appendix B):

- Site inspections: Thursday 18/05/17 (initial & various following)
- AM & PM turning movement counts: Thursday 18/05/17
- Weeklong pneumatic classified tube counts: Monday 15/05/17 – Sunday 21/05/17

Following Clayton Road and Centre Road level crossing removals (and settling of traffic distributions) additional traffic counts were undertaken, which have been used for this assessment:

- AM & PM turning movement counts: Thursday 29/11/18
- Weeklong pneumatic classified tube counts: Tuesday 27/11/18 – Tuesday 4/12/18

2.2.1 Road Network

Table 2-1 on the following page summarises key aspects of the roads within the PMP Printing Precinct study area, with more detailed descriptions and information provided for each within Appendix A. Amenity based threshold capacities shown are based on the Monash Planning Scheme and VPA Guidelines.

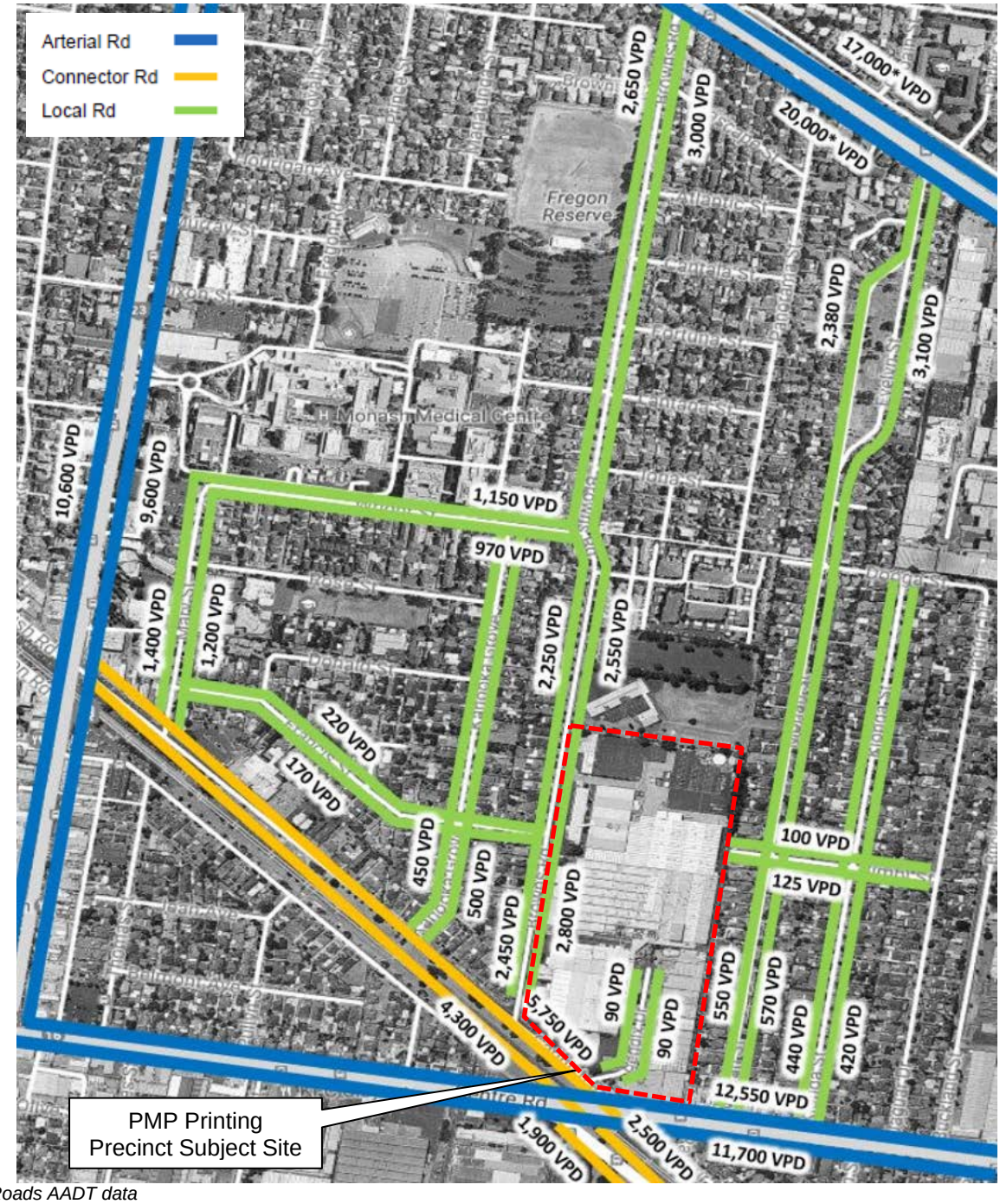
Figure 2-3 on the following page summarises daily traffic volumes on roads surrounding the PMP Printing Precinct study area (daily traffic volumes presented by direction and based on pneumatic tube counts, SCATS data and VicRoads published AADT data).

Table 2-1 Road Network Summary

Road Name	Authority (Type)	Rood Reserve [1]	Carriageway [1]	Footpath [1]	Parking	Parking Restriction	Daily Traffic Volume	Amenity Threshold [2]
Bendix Drive	Council (local)	20m	10m	1.4m both sides	parallel east side	Unrestricted	180	≤ 3,000
Bimbi Street	Council (local)	15m	6.8m	1.5m both sides	parallel both sides	Unrestricted	230	≤ 2,000
Browns Road	Council (local)	20m	7.3m - 9.8m	1.4m both sides	parallel both sides	1/2P / 2P	5,200-5,600	2,000-3,000
Carinish Road (N of Centre)	Council (Collector)	20m	11.3m	1.6m north verge	parallel both sides	2P	10,050	3,000-7,000
Centre Road	VicRoads (arterial)	20m	12m (varies)	1.5m-2.0m both sides	60° indented	1/2P	24,300	12,000-40,000
Clayton Road	VicRoads (arterial)	21m	11.8m (varies)	1.5m-2.0m both sides	60° / angle indented	1/2P	20,200	12,000-40,000
Dooga Street	Council (local)	15m	6.8m	1.5m both sides	parallel both sides	1P / Unrestricted	n/a	≤ 2,000
Evelyn Street	Council (local)	15m – 53m	5.0m-7.0m (varies)	1.5m both sides	parallel both sides (varies)	1P / Unrestricted	5,500	≤ 2,000
Francis Street	Council (local)	15m	6.5m	1.2m-1.5m both sides	parallel both sides	1/2P	410	≤ 2,000
Haughton Road (S of Centre)	Council (Collector)	15m	7.3m	1.5m south side	parallel both sides	Unrestricted / Permit	5,400	3,000-7,000
Jaguar Drive	Council (local)	15m	7m	1.5m both sides	parallel both sides	Unrestricted	n/a	≤ 2,000
Kanooka Grove	Council (local)	15m	6.8m	1.5m both sides	parallel both sides (varies)	1/2P / Permit	960	≤ 2,000
Kionga Street (N of Centre)	Council (local)	15m	7m	1.5m both sides	parallel both sides	1P / Unrestricted	860	≤ 2,000
Mary Street (N of Carinish)	Council (local)	15m	7.3m	1.4m both sides	parallel both sides	1P / Permit	2,600	≤ 2,000
Moriah Street (N of Centre)	Council (local)	15m	6.9m	1.5m both sides	parallel both sides	1P / 2P	1,100	≤ 2,000
Panorama Street	Council (local)	15m	7m	1.4m both sides	parallel both sides	Unrestricted	n/a	≤ 2,000
Princes Highway	VicRoads (arterial)	61m	2x 11.8m	1.5m both sides	parallel service road	1/2P	37,000	> 40,000
Rose Street	Council (local)	15m	7m	1.5m both sides	parallel both sides	1P	n/a	≤ 2,000
Wellington Road	VicRoads (arterial)	61m	2x 11.8m	1.5m both sides	parallel service road	1/2P	37,000	> 40,000
Wright Street (E of Browns)	Council (local)	15m	7.3m	1.5m both sides	parallel both sides	1P / Permit / 1/2P	2,100	≤ 2,000
Parker / Cobain / Irwin Streets	Council (local)	15m	7.0m	1.5m both sides	parallel both sides	1P / Permit	n/a	≤ 2,000
Seascape / Atlantic / Cantala / Fortuna / Lantana / Iona Streets	Council (local)	15m	7.0m	1.5m both sides	parallel both sides	1/2P	n/a	≤ 2,000

[1] – Approximate [2] – Based on VPA 'Our Roads: Connecting People' & Monash Planning Scheme Clause 56.06-8 n/a – not applicable / not surveyed

Figure 2-3 Existing Daily Traffic Volume Summary (one way volumes)



** VicRoads AADT data*

On the above basis, the following is noted:

- Traffic volumes on Carinish Road, Browns Road, Mary Street and Evelyn Street carry relatively high volumes of traffic compared to nearby streets and the Monash Planning Scheme / VPA Guidelines. This is expected to be primarily attributable to the Monash Medical Centre (staff and visitors) and also St Peter's & Clayton Primary Schools, and Monash University students regarding Evelyn Street.
- There is no road link connection between the west (Browns Road) and east (Bimbi / Moriah / Evelyn Street) sub-precincts adjacent the PMP Printing site, accordingly traffic volumes on the eastern side of the subject site are relatively low with the exception of Evelyn Street due to significant parking (expected to be related to Monash University (also refer Section 2.6 of this report)).

- Relatively high vehicle movements were observed turning right from Centre Road (east) to Carinish Road and then to Browns Road in the AM peak hour, with reverse direction of movement observed in the PM peak hour.

2.3 Travel Mode Share

It is noted that the PMP subject site, while wholly contained within the Monash local government area (LGA), is located adjacent the Kingston LGA. Journey to Work (JTW) data from the 2016 ABS Census has been analysed for the Monash and Kingston LGAs as summarised below in Figure 2-4 and Figure 2-5[2]. It is noted that the below summaries are considered to be a conservative reference point as they comprise broad areas, representing differing levels of access to public transport and distances to employment land uses.

Figure 2-4 Monash LGA – Journey to Work (ABS 2016)

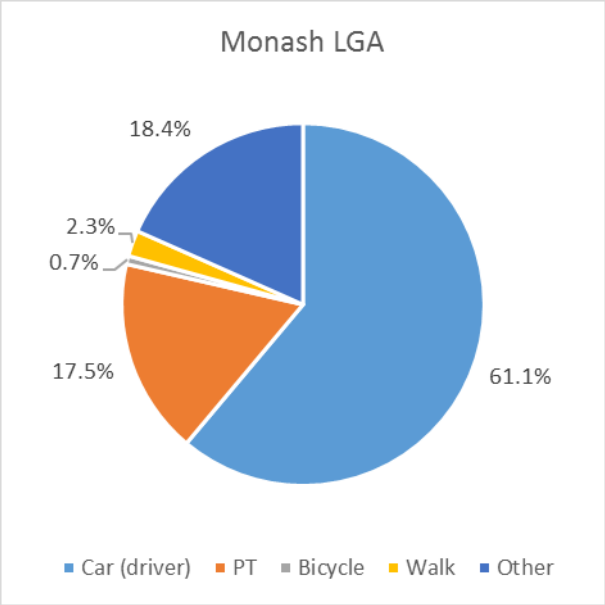


Figure 2-5 Kingston LGA – Journey to Work (ABS 2016)

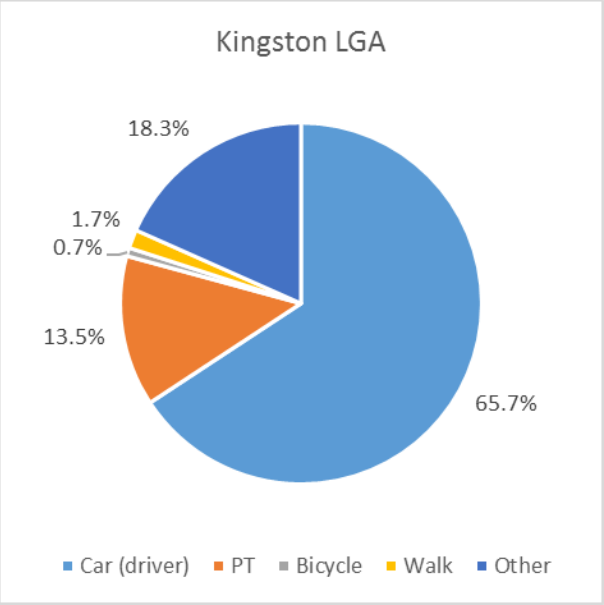


Figure 2-4 and Figure 2-5 indicate that (approximately):

- 60-65% of residents travel to work via private vehicle travel,
- 14-18% of residents travel to work on public transport,
- 2% of residents walk to work,
- <1% of residents ride to work, and
- 18% of residents are either car passengers, work from home, or did not go to work (on the day of the census).

The Monash LGA, and especially the Kingston LGA, comprise a number of suburbs and large areas that aren't specifically similar to the PMP Printing Precinct in terms of their access to public transport, and proximity to employment and education land uses.

To this end, the ABS 2016 JTW data has been collated specifically for an area within an approximate 2km radius[3] of the PMP Printing Precinct, as summarised in Figure 2-6 on the following page.

Notwithstanding, it is expected that mode share for residents and employees within the PMP Printing Precinct will differ to the above mode share figures given the PMP Printing Precinct is located (approximately):

- 700-800m to the LXRA upgraded Clayton Railway Station, bus interchange and off-road bike path;

[2] *Car (driver)* includes 'car (driver)', 'motorbike' and 'truck', *Other* includes 'other', 'worked at home', 'did not go to work' and 'not stated'. Data sourced from ABS Census and ID Social & Community Atlas.
[3] ABS SA1 areas: 2131002, 2131003, 2131004, 2131005, 2131009, 2131010, 2131011, 2131012, 2131013, 2131014, 2131015, 2131016, 2131017, 2131018, 2131019, 2131027, 2131028, 2131029, 02132001, 2132002, 2132003, 2132004, 2132011, 2132012, 2132013, 2132014, 2132015, 2132016, 2132017, 2132018, 2132020, 2132021, 2132022, 2132023, 2132024, 2132025, 2132026, 2132027, 2132029, 2132030, 2132031, 2132032, 2132033, 2132035, 2132036, 2132039, 2132042 and 2132610.

- 800m to the Monash Medical Precinct (employment use), which includes
  - Monash Medical Centre,
  - Jessie McPherson Private Hospital,
  - Monash House Private Hospital,
  - Melbourne Endoscopy,
  - Monash Children's Hospital,
  - Clayton Community Rehabilitation Centre,
  - Ronald McDonald House,
  - MHTP Medical Genomics Facility,
  - Hudson Institute of Medical Research.
- 900m to the Clayton Activity Centre, which includes
  - Clayton Library,
  - Clayton Aquatics & Health Club,
  - Coles Supermarket.
- 1.3km to the Clayton Business Park (employment use), which includes
  - Stillwell Motor Group (SMG),
  - Holden Special Vehicles,
  - Blue Star Direct.
- 1.7km to the Monash University Precinct (employment and education use), which includes
  - Monash University,
  - CSIRO Australia.

It is also noted that the LXRA shared trail (recently completed) is anticipated to encourage increased levels of cycling due to the stronger bicycle and pedestrian link to Clayton Railway Station (compared to the 2016 ABS Census results). Additionally, the proposed Clayton to Syndal Strategic Cycling Corridor (formerly Chirnside Park to Mordialloc) will provide better cyclist amenity and connectivity improving the link to Monash University and Clayton Station. For further detail on walking and cycling refer to Section 2.4.

On the above basis, it is expected that public transport and active travel (walking and cycling) will have an increased mode share given the proximity to the public transport hub, employment uses, education uses and the Clayton Activity Centre. To this end, Figure 2-7 below has been prepared to summarise the expected travel mode share for residents and workers within the PMP Printing Precinct. It is however noted that mode share will vary between residents and workers. Notwithstanding, for the purposes of this assessment, this approach is considered appropriate.

Figure 2-6 Site Surrounds – Journey to Work (ABS 2016)

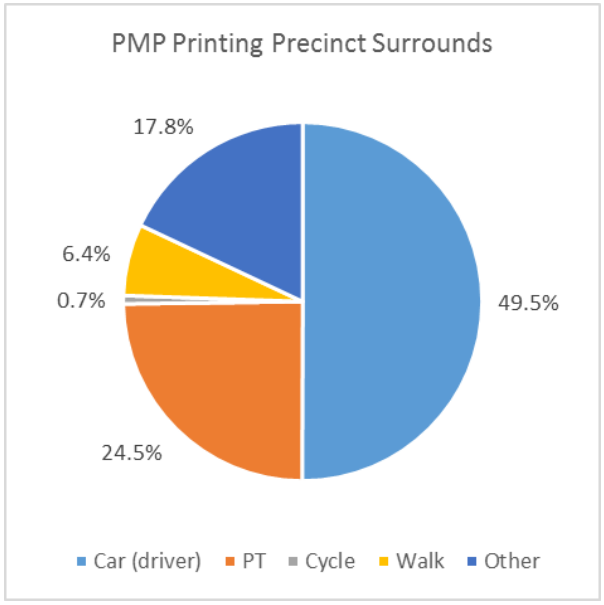
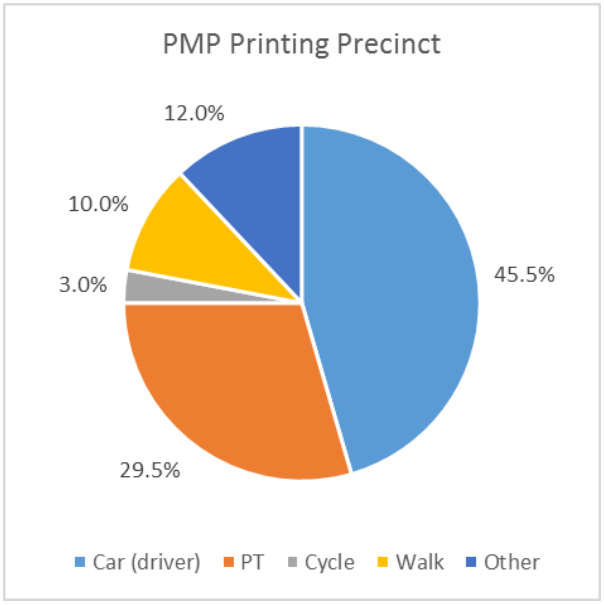


Figure 2-7 PMP Precinct Journey to Work Estimate



2.4 Walking & Cycling

Figure 2-8 on the following page summarises the existing pedestrian and cyclist facilities in the general PMP Printing Precinct study area (in addition to 'standard' pedestrian paths provided on surrounding roads). 400m (5min) and 800m (10min) walking catchments are also included[4].

A single pedestrian path link provides access from the west and east sub-precincts via Browns Road / Wright Street and Dooga Street.

Destinations for pedestrians and cyclists surrounding the general PMP Printing Precinct include (with approximate walking / riding distances shown):

- Clayton Railway Station (~800m)
- St Peter's Primary School (~800m)
- Monash Medical Centre (~900m)
- Clayton Activity Centre (~900m)
- Clayton Community Centre (~1.3km)
- Clayton Business Park (~1.8km)
- Clayton North Primary School (~1.9km)
- Monash Education Precinct (~1.9km)
- Nido Early Learning (~2.2km)
- Westall Primary School (~2.2km)
- Clayton South Primary School (~2.5km)
- Australian Synchrotron (~2.6km)
- M-City / Nova (~2.6km)
- Huntingdale Primary School (~2.8km)
- Huntingdale Activity Centre (~2.8km)
- South Oakleigh College (~3.9km)
- Nexus Business Park (~4.3km)
- Springvale Activity Centre (~3.6km)
- Minaret College (~3.9km)
- Oakleigh Activity Centre (~4.8km)
- Brentwood Secondary College (~6.8km)

VicRoads is currently planning a bicycle connection between Clayton Station, the Monash Medical Centre and the Monash Education Precinct, which is consistent with the Monash NEIC Draft Framework Transport Plan (2017).

The proposed bicycle link is currently in planning stage with capital works funding currently allocated but final approvals not yet achieved. The current proposed bicycle connection is illustrated in Figure 2-9. The safety treatments to be delivered include new on road and off road paths, safer crossings, new traffic lights and improved road markings and coloured paths. As part of this project, two pedestrian operated signalised crossing are proposed; one at Princes Highway / Cobain Street and Carinish Road / Kanooka Grove.

Lastly, as part of the Centre Road and Clayton Road level crossing removals, a linear shared path trail has been constructed along the Dandenong Rail Corridor with a new signalised pedestrian / cyclist operated signalised crossing on Centre Road between Carinish Road and Haughton Road. The recently completed LXRA shared trail provides more than 12 kilometres of new shared path, joining existing paths to create a continuous route from Monash University's Caulfield Campus to the EastLink Trail in Dandenong.

[4] 5km/hr average walking speed assumed

Figure 2-8 Existing Pedestrian & Cyclist Facilities

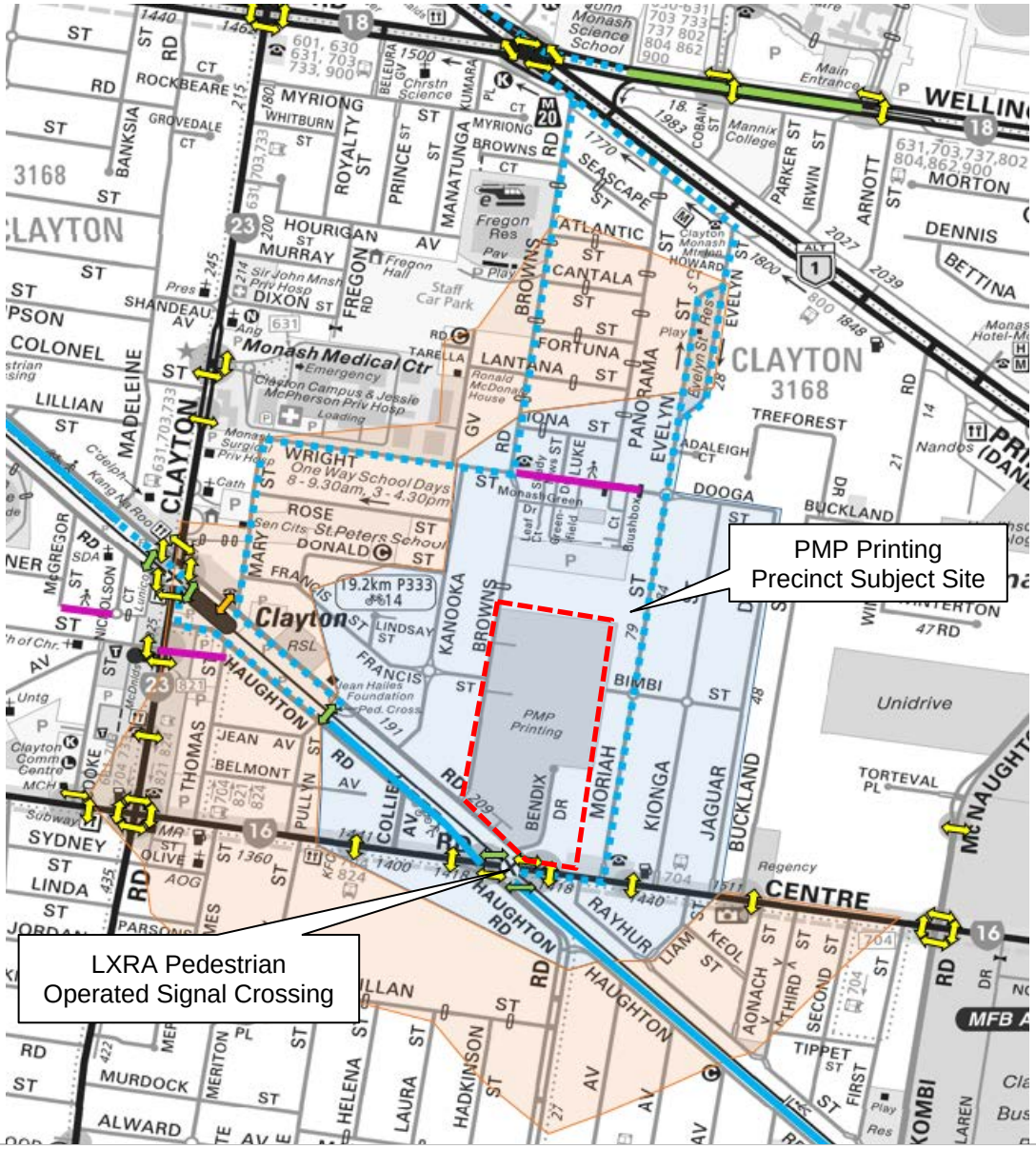
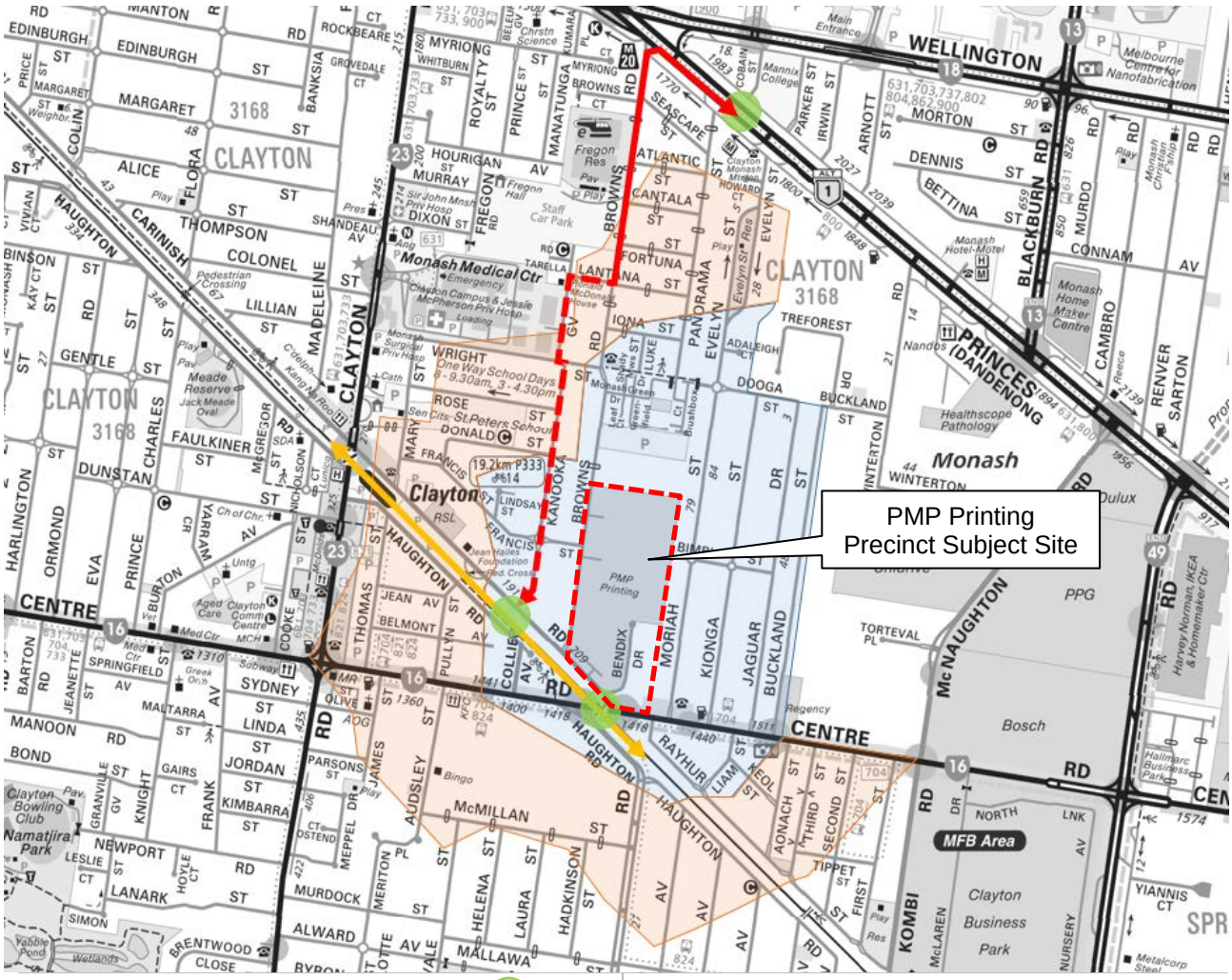


Figure 2-9 Proposed Bicycle Link

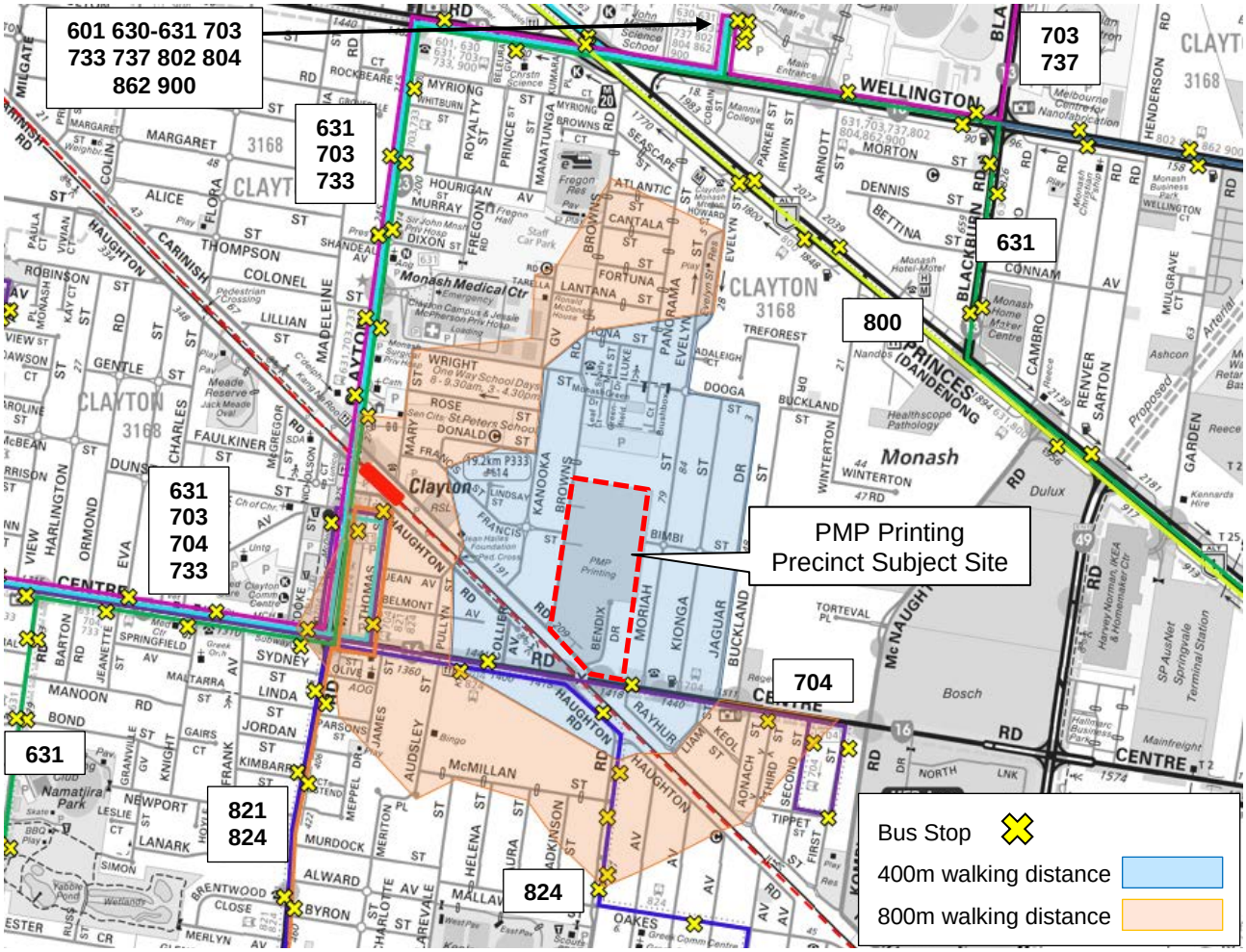


2.5 Public Transport

Figure 2-10 illustrates the existing public transport services in vicinity of the subject site, with approximate 400m (5min) & 800m (10min) walking distances from the site also illustrated below.

Table 2-2 on the following page summarises these routes, key destinations (incl. travel times), distance to the nearest stop and on and off peak frequencies.

Figure 2-10 Existing Public Transport Services

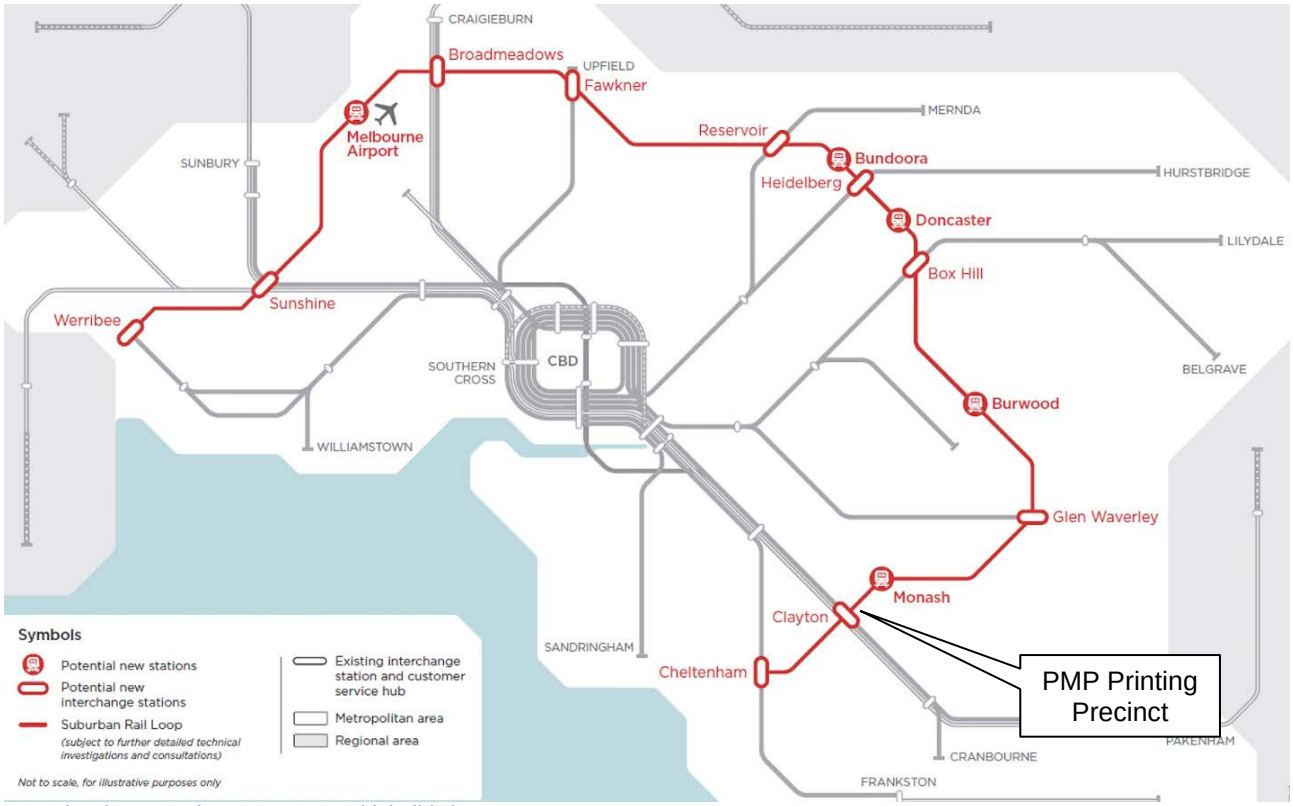


2.5.2 Future Public Transport Routes

In 2018 the State Government announced the unfunded 90km Suburban Rail Loop (SRL) which is estimated to carry in the order of 400,000 people per day. The SRL proposal includes a potential interchange station at Clayton Railway Station and a potential new station at Monash University. The current SRL proposal and it's connectivity to the wider rail network is illustrated in Figure 2-11 on the following page.

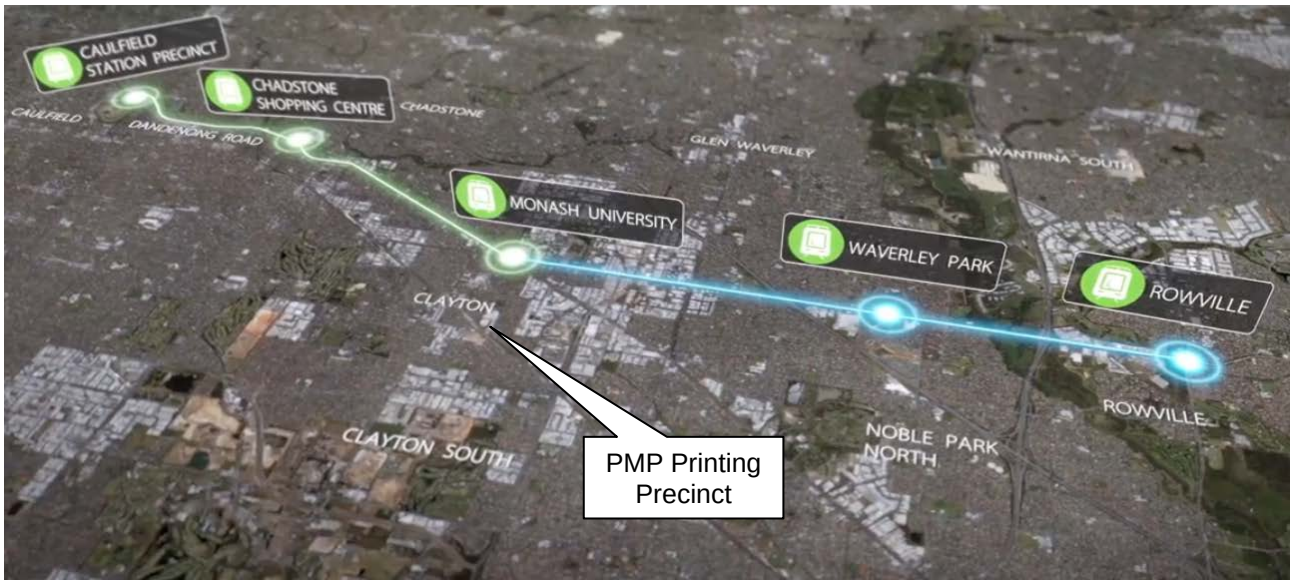
The State Government has also announced $3 million funding to plan for a new tram route between Caulfield and Rowville, including connections with Monash University and Chadstone Shopping Centre. The current concept route alignment runs approximately 1.4km north of PMP Printing Precinct along Princes Highway and Wellington Road, and is also illustrated in Figure 2-12 on the following page.

Figure 2-11 Potential Future Suburban Rail Loop



www.development.vic.gov.au & www.bigbuild.vic.gov.au

Figure 2-12 Potential Future Caulfield-Rowville Tram Route



www.transport.vic.gov.au

Table 2-2 Existing Public Transport Services

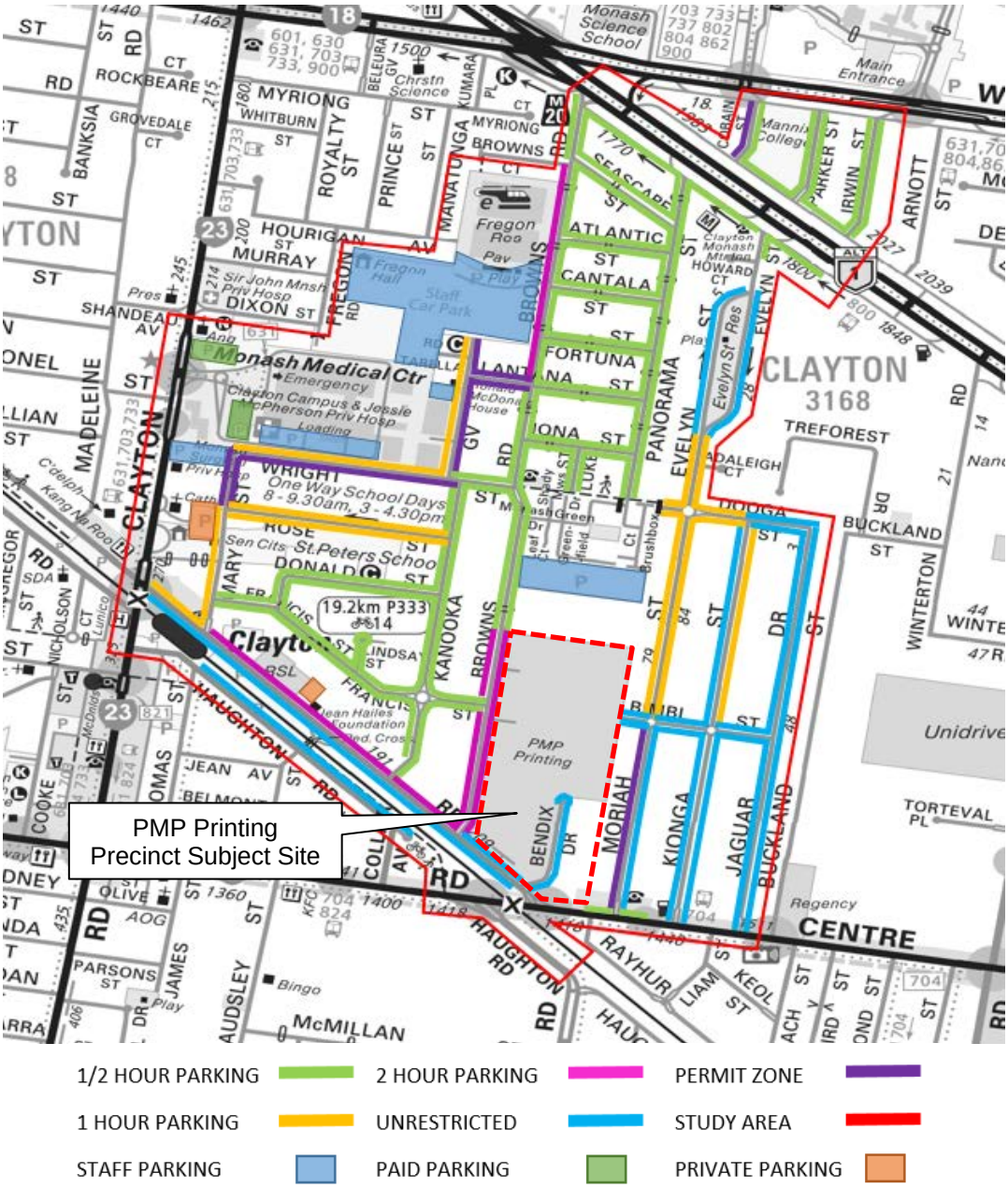
Route	Description	Distance to nearest stop [1]	Key Destinations on Route (travel time)	Frequency On / Off Peak
631 Bus	Southland - Waverley Gardens via Clayton, Monash Uni.	800m (Clayton Road)	Monash Uni. (12min), Waverley Gardens Shop. Ctr. (28min), Southland Shop. Ctr. (23min)	30 min / 30-60min
703 Bus	Middle Brighton - Blackburn via Bentleigh, Clayton, Monash Uni.	800m (Clayton Road)	Monash Uni. (11min), Waverley Private Hospital (23min), Forest Hill Shop. Ctr. (40min)	10-20min / 20-30min
704 Bus	East Clayton - Oakleigh via Clayton, Huntingdale	500m (Centre Road)	Oakleigh Central Shop. Ctr. (18min), Huntingdale Primary School (10min), Clayton Business Park (8min)	30min / 60min
733 Bus	Oakleigh - Box Hill via Clayton, Monash Uni., Mt Waverley	800m (Clayton Road)	Monash Uni. (9min), Burwood East Shop. Ctr. (31min), Mount Waverley Shop. Ctr. (23min), Oakleigh Sta. (19min), Box Hill Central (56min)	10-20min / 30-40min
800 Bus	Dandenong – Chadstone via Princes Highway, Oakleigh	1,100m (Princes Highway)	Chadstone Shop. Ctr. (18min), Sandown Racecourse (12min), Dandenong Sta. (26min)	15min / 20min
821 Bus	Southland - Clayton via Heatherton	800m (Clayton Road)	Kingston Centre (15min), Cheltenham Secondary College (19min), Southland Shop. Ctr. (25min)	60min
824 Bus	Moorabbin - Keysborough via Clayton, Westall	600m (Haughton Road)	Moorabbin Sta. (35min), Clarinda Shop. Ctr. (14min), Parkmore Shop. Ctr. (27min)	20min / 60min
Cranbourne Rail Line	-	750m - Clayton Station (Carinish Road)	Melbourne CBD (36min), Melbourne Sporting Precinct – MCG (23min), Caulfield Sta.* (14min), Sandown Racecourse (7min), Dandenong Sta.* (15min), Cranbourne Sta. (28min)	10min / 20min
Pakenham Rail Line	-	750m - Clayton Station (Carinish Road)	Melbourne CBD (36min), Melbourne Sporting Precinct – MCG (23min), Caulfield Sta.* (14min), Sandown Racecourse (7min), Pakenham Sta. (45min)	7-10min / 20min

*[1] – Approximate, * Key Transfer Station*

2.6 Car Parking

The typical existing day time car parking restrictions on roads within the PMP Printing Precinct study area are illustrated in Figure 2-13 below.

Figure 2-13 Existing Car Parking Restrictions



The following observations were made during a day time site inspection (18 May 2017):

- Unrestricted parking on Evelyn Street, Dooga Street (northern side) and Jaguar Drive (northern end) were all generally fully, or close to fully occupied. It is unclear where this long term car parking demand is being generated from, however it is expected that these parking demands are generated by a mix of:
  - Primarily students of Monash University (walking 500-1,000m to the university),
  - possibly staff from nearby adjacent warehouse developments to the east and north, and/or
  - possibly staff from the Monash Medical Centre.
- The majority of off-street car parking in the vicinity is dedicated staff parking for the Monash Medical Centre. These carparks are all located within the general vicinity of the Monash Medical Centre and primarily accessed from Browns Road, with access also available from Dixon and Murray Street via Clayton Road.

- Traffic movements associated with Monash Medical Centre car park generate significant traffic volumes on Browns Road and roads adjacent the Monash Medical Centre (it is noted that an approved development for the Monash Medical Centre includes an additional signalised access to Clayton Road, and is expected to reduce traffic volumes on Browns Road).
- Two multi story car parks provide paid visitor car parking for the Monash Medical Centre, accessed via Clayton Road and Wright Street.
- Private off-street parking is also provided at St Peter's Church and Clayton Senior Citizens Centre on Mary Street (2P restrictions).

3 PMP Printing Precinct Future Urban Structure

3.1 Land Use

Based on information provided by the VPA (12th June 2018), a summary of the indicative PMP land use development yield is provided below in Table 3-1, noting the following assumptions regarding 'general office', 'education' and 'health / health care' tenancies:

- Commercial Office (20,000sqm GFA) split between:
  - 40% 'general office',
  - 40% 'education (tertiary)', and
  - 20% 'health / health care'.

Table 3-1 PMP Printing Precinct Land Use Summary

Use	Description	Size / No.
Residential Dwellings	Townhouse	105 dwellings
	Apartment	1,030 dwellings
Commercial Office (20,000 sqm GFA, 950-1,050 workers)	General Office	8,000 sqm GFA
	Education (Tertiary)	8,000 sqm GFA
	Health / Health Care	4,000 sqm GFA

GFA – gross floor area, sqm – square metres

In regards to the residential component, it is expected that a portion of residents are expected to either work at nearby employment areas (Monash Medical Precinct, Monash University, Clayton Business Park, etc.) or attend the nearby Monash University.

3.2 Access

3.2.1 Vehicle Access

The proposed internal road network layout and access points are illustrated in Figure 3-1 on the following page. Primary access to the site is proposed via two access points to Browns Road, with secondary access via the existing Bendix Drive connection and a lower order connection to Bimbi Street.

While access is currently physically provided via Bimbi Street this access is closed and the potential use of this access presents a net increase in regards to access via the eastern portion of the PMP Printing Precinct study area. It is noted however that vehicle access via Bimbi Street is proposed to primarily provide pedestrian and cyclist access to the eastern portion of the PMP Printing Precinct study area (and beyond), while providing secondary vehicle access with a lower order connection with limited direct access through to Browns Road.

Access to/from the PMP Printing Precinct to the wider external road network is primarily provided via Centre, Clayton and Carinish Roads with full turning movement access and signalised intersections providing a high level of accessibility on the southern boundary of the PMP Printing Precinct.

Access to Princes Highway is available to the north via Browns Road and Evelyn Street which both provide left in / left out only access.

Figure 3-1 PMP Printing Precinct – Draft Future Urban Structure Plan

3.2.2 Pedestrian & Cyclist Access

All roads internal to the site are proposed with pedestrian paths (excluding laneways) with additional shared paths provided aligned north-south and east-west linking the site internally to the open space and mixed use areas, and externally to Browns Road, Carinish Road and Bimbi Street.

3.2.3 Internal Streetscape

The proposed internal street cross-sections are illustrated below in Figure 3-2 to Figure 3-4.

Figure 3-2 Local Access Street Level 2 – 20m Reserve (Draft)

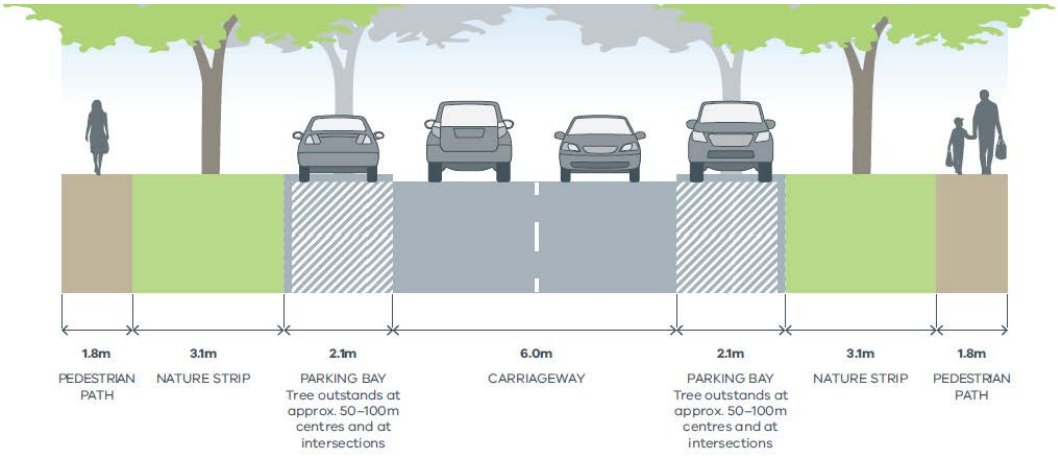


Figure 3-3 Local Access Street Level 1 – 16m Reserve (Draft)

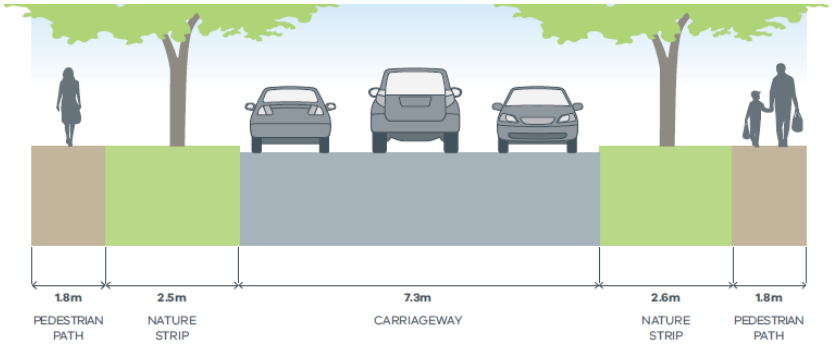
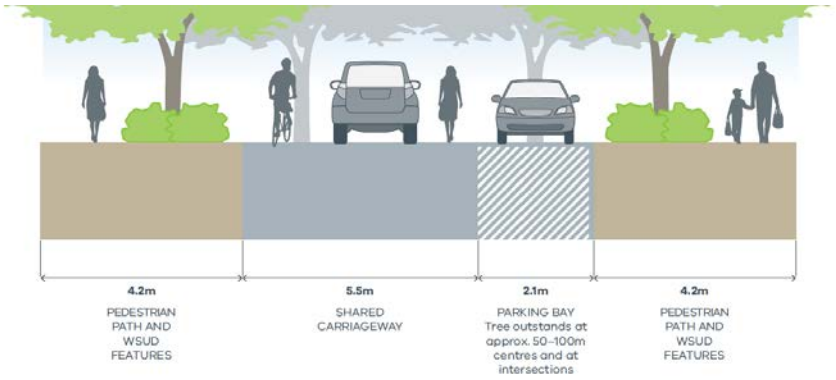


Figure 3-4 Local Access Street Level 1 *Alternate* – 16m Reserve (Draft)



3.3 Car Parking

Given the proposed cross-sections of the local access streets as well as considering that the majority of townhouses to be provided will be rear loaded, it is understood that the total on-street parking capacity within the precinct is in the order of up to 215 car spaces.

4 Traffic Impact Assessment

4.1 Methodology

4.1.1 Assessment Scenarios

A number of traffic volume scenarios have been assessed and presented in this report. Road network peak hours for each scenario have been assessed using SIDRA intersection. The assessment scenarios include:

- Existing Conditions Scenario,
- **2031 Base Case** Scenario – based on growth estimated from VITM (2011 'LXRA case' vs 2031 'project case' and inclusive of future developments – refer Section 4.1.2), including consideration of;
  - Monash Medical Centre expansion and access changes - based on transport assessment report provided by VicRoads and Monash Council,
  - Jackson Green development to the south east of the site - based on work previously completed by Cardno,
  - Residential development immediately north of the subject site - based on an assumed maximum development of 250 dwellings,
- **2031 Project Case** Scenario – based on the 2031 Base Case with additional traffic generated by the PMP Printing Precinct development. When assessing the 2031 land use assessment (Project Case), it is compared against the 2031 base case scenario.

In addition to the above, the road network access assessed for the 2031 Project Case scenario comprises access via Browns Road, Bendix Drive and Bimbi Street (to the east). This network access arrangement is the current preferred access scenario.

A second road network access scenario was also investigated, which involved access via Browns Road and Bendix Drive only (no access via Bimbi Street). The second road access scenario is presented as a 'sensitivity assessment' in this assessment and therefore has been compared against the preferred access scenario.

A spreadsheet model has been prepared to estimate traffic turning movements for each land use and access scenario, which have been used for the SIDRA intersection assessments included in this report. Each of the assessment scenarios are included in Appendix D (including existing peak hour turning movements).

4.1.2 Victorian Integrated Transport Model (VITM)

The Victorian Integrated Transport Model (VITM) was originally developed in the 90's as the Melbourne Strategic Highway Model for highways only and excluded public transport. This original model has been updated over time and has had a number of guises (Melbourne Integrated Transport Model (MITM) and now VITM and State Wide VITM (S-VITM)).

VITM and S-VITM are multi-model strategic transport models (private vehicles, public transport, freight, etc.) and are owned and operated by the Department of Economic Development, Jobs, Transport and Resources (DEDJTR).

VITM inputs include but are not limited to land use forecasts (population, employment and enrolment), highway and transport networks and DEDJTR's VISTA travel surveys (Victorian Integrated Survey of Travel and Activity). VITM and S-VITM use these and other inputs to estimate trip generation, trip distribution, mode choice and route assignment for the specific development scenarios or reference cases being assessed (for various model design years).

On the basis of DEDJTRs VITM, and in consultation with VPA, a number of scenarios have been reviewed, modelled and assessed to determine future traffic growth on key roads surrounding the study area, including[5]:

- **2011 'reference case'**,
- **2011 'LXRA case'** – based on DEDJTRs 2011 reference case with level crossing links removed (recoded as 'normal' road links) on the Dandenong Rail Corridor (including Clayton Road and Centre Road) as completed by the Level Crossing Removal Authority (LXRA),
- **2031 'reference case'** – it is noted that the reference case already includes removal of railway level crossings along the Dandenong Rail Corridor, and
- **2031 'project case'** – based on DEDJTRs 2031 reference case with additional population and employment forecasts for the Clayton Business Park (provided by VPA)[6].

Reference Case refers to 'standard' or 'reference' model design years prepared by DEDJTR primarily using state government future population and employment forecasts and planned transport infrastructure.

AM peak, PM peak (both two hour) and Daily volume plots for each of these scenarios are included in Appendix C of this report.

4.1.3 Land Use Assumptions

It is acknowledged that the current draft PMP Printing Precinct Future Urban Structure (FUS) contemplates approximately 34,000 sqm of commercial office on the subject site, while this report has assumed a figure of 20,000 sqm (refer to Section 3.1) based on the information previously provided by the VPA. Based on discussions with the VPA:

- The difference in commercial office floor space is the result from a recent update to the commercial yield assessment based on the inclusion of the area associated with existing uses along Bendix Drive, which comprises factoriettes, light industrial uses and warehousing.
- Considering the fragmented ownership of the Bendix Drive area and that these businesses are understood to still be in operation, considerable time would be required to consolidate these land parcels.
- While possible, it is not expected that redevelopment of this area would occur in the VPA nominated future post development year (2031).
- Redevelopment of these existing uses is therefore likely expected to take some time (compared to the PMP Printing Precinct portion of the FUS). Indeed, this additional development area may never be redeveloped, either partially or completely.

[5] Note that this modelling was completed prior to and during the level crossing removal works.
[6] VPA inputs: 2031 Population = 10,500 (+8,321), 2031 Households = 5,800 (+4,935), 2031 Employment = 8,500 (+6,971).

4.2 Existing Conditions Assessment

Based on the existing AM and PM peak hour turning movement counts included in Appendix B, existing conditions AM & PM SIDRA intersection[7] models have been prepared for the following key intersections within the PMP Printing Precinct study area and are summarised in the tables nominated below, with full SIDRA results available in Appendix E:

- Centre Road / Carinish Road / Haughton Road — Table 4-1
- Clayton Road / Carinish Road / Haughton Road — Table 4-2
- Carinish Road / Browns Road — Table 4-3
- Princes Highway / Browns Road — Table 4-4
- Centre Road / Moriah Street — Table 4-5

The following assessment is based on 2018 traffic volumes collected post level crossing removals. Information regarding new signal phase plans and cycle & phase timing has been obtained from Operation Sheets and Intersection Diagnostic Monitor (IDM) data provided by VicRoads.

Table 4-1 Centre Rd / Haughton Rd / Carinish Rd Intersection Existing Operation

Peak Hour	Intersection	Approach	DOS	Average Delay	95th %'ile Queue
AM	Centre Rd / Haughton Rd (signalised)	South	0.43	24 sec	19 m
		East	0.58	8 sec	33 m
		West	0.57	23 sec	79 m (T)
	Centre Rd / Carinish Rd (signalised)	East	#0.67	21 sec	57 m (R)
		North	0.20	15 sec	14 m
		West	0.65	9 sec	25 m
PM	Centre Rd / Haughton Rd (signalised)	South	0.34	23 sec	21 m
		East	0.84	18 sec	14 m
		West	0.51	22 sec	33 m
	Centre Rd / Carinish Rd (signalised)	East	#0.59	22 sec	66 m (T)
		North	0.53	27 sec	51 m
		West	0.36	8 sec	24 m

 # - Intersection DOS, AM = 73 sec cycle, PM = 70 sec cycle, T = through, R = right

On the above basis, the Centre Road / Haughton Road / Carinish Road intersection currently operates with very good service levels in the existing AM and PM peak hours, with 95th percentile queues contained within existing turn lane lengths.

[7] Using SIDRA Intersection 7 and network modelling mode for complex intersections.

LOS		signals	roundabouts	sign control
Excellent	A	x ≤ 0.60	x ≤ 0.60	x ≤ 0.60
Very Good	B	0.60 < x ≤ 0.70	0.60 < x ≤ 0.70	0.60 < x ≤ 0.70
Good	C	0.70 < x ≤ 0.90	0.70 < x ≤ 0.85	0.70 < x ≤ 0.80
Fair	D	0.90 < x ≤ 0.95	0.85 < x ≤ 0.95	0.80 < x ≤ 0.90
Poor	E	0.95 < x ≤ 1.00	0.95 < x ≤ 1.00	0.90 < x ≤ 1.00
Very Poor	F	1.00 < x	1.00 < x	1.00 < x

Table 4-2 Clayton Rd / Haughton Rd / Carinish Rd Intersection Existing Operation

Peak Hour	Intersection	Approach	DOS	Average Delay	95th %'ile Queue
AM	Clayton Rd / Carinish Rd (signalised)	South	#0.51	18 sec	57 m (T)
		East	0.50	40 sec	31 m
		North	0.36	16 sec	62 m (T)
		West	0.37	36 sec	37 m
	Clayton Rd / Haughton Rd (unsignalised)	South	0.24	-	31 m
		North	0.18	-	-
		West	0.29	8 sec	4 m
PM	Clayton Rd / Carinish Rd (signalised)	South	#0.57	25 sec	57 m
		East	0.38	38 sec	49 m
		North	0.58	23 sec	120 m (T)
		West	0.58	41 sec	44 m
	Clayton Rd / Haughton Rd (unsignalised)	South	0.24	-	48 m
		North	0.27	-	-
		West	0.21	8 sec	3 m

 # - Intersection DOS, AM = 86 sec cycle, PM = 95 sec cycle, T = through, R = right

On the above basis, the Clayton Road / Haughton Road / Carinish Road intersection currently operates with excellent service levels in the AM and PM peak hours, with 95th percentile queues contained within existing turn lanes.

Table 4-3 Carinish Rd / Browns Rd Intersection Existing Operation

Peak Hour	Intersection	Approach	DOS	Average Delay	95th %'ile Queue
AM	Carinish Rd / Browns Rd (unsignalised)	Southeast	#0.29	4 sec	-
		North	0.13	6 sec	4 m
		Northwest	0.12	4 sec	-
PM		Southeast	0.13	3 sec	-
		North	#0.31	6 sec	10 m
		Northwest	0.15	3 sec	-

 # - Intersection DOS

Table 4-4 Princes Hwy / Browns Rd Intersection Existing Operation

Peak Hour	Intersection	Approach	DOS	Average Delay	95th %'ile Queue
AM	Princes Hwy / Browns Rd (unsignalised)	South	0.19	7 sec	5 m
		Southeast	#0.49	1 sec	-
PM		South	0.34	8 sec	12 m
		Southeast	#0.39	1 sec	-

 # - Intersection DOS
Note: Additional queuing on Browns Road (compared to above) in the PM peak is expected due to downstream queueing from North Rd / Wellington Rd and on site observations

Table 4-5 Centre Rd / Moriah St Intersection Existing Operation

Peak Hour	Intersection	Approach	DOS	Average Delay	95th %'ile Queue
AM	Centre Rd / Moriah St (unsignalised)	East	#0.27	-	2 m
		North	0.06	16 sec	1 m
		West	0.23	-	-
PM		East	0.25	-	-
		North	0.36	47 sec	9 m
		West	#0.27	-	-

 # - Intersection DOS

The Carinish Road / Browns Road, Princes Highway / Browns Road and Centre Road / Moriah Street intersections currently operate with excellent service levels in the AM and PM peak hours.

It is noted that the operation of the Princes Highway / Browns Road intersection is expected to be marginally worse than indicated above due to downstream queueing on Princes Highway during the PM peak hour and relatively high volume of vehicles turning left from Browns Road to Princes Highway.

4.3 Post Development Assessment

4.3.1 Traffic Generation & Distribution

A summary of the traffic generation estimate for the PMP Printing Precinct proposal is summarised below. It is noted that VicRoads, Transport for Victoria, Monash Council and the VPA have been consulted through this process and the below rates have been agreed upon for this purposes of this assessment and in identifying impacts and mitigation works.

- 0.3 vph / apartment dwelling,
- 0.4 vph / townhouse dwelling,
- 1.4 vph / 100sqm GFA 'General Office' land use,
- 1 vph / 100sqm GFA 'Education (Tertiary)' land use, and
- 4 vph / 100sqm NFA 'Health / Healthcare' land use[8].

The general directional distributions to the wider road network are summarised below (noting site access connectivity scenarios affect traffic distributions on the local road network but do not affect them on the wider road network) and have been developed based on existing traffic distributions, road network connectivity and major trip origins and destinations:

- 45% to / from the northwest (i.e. Melbourne CBD, Chadstone, Box Hill, etc.),
- 35% to / from the east (i.e. Glen Waverley, Dandenong, etc.), and
- 20% to / from the southwest (i.e. Brighton, Frankston etc.).

At the local road network level, this equates to the following approximate directional distributions:

- 20% to / from Clayton Road North,
- 5% to / from Clayton Road South,
- 20% to / from Browns Road North (to / from Princes Highway),
- 15% to / from Moriah Street / Evelyn Street North,
- 25% to / from Centre Road East, and
- 15% to from Centre Road West (to / from west and south).

[8] Net Floor Area assumed as 80% of Gross Floor Area.

In addition to the above, the following in / out splits have been adopted for the proposed land uses:

- Townhouse / Apartment Dwellings — AM 20% in / 80% out — PM 60% in / 40% out
- Office (General) — AM 90% in / 10% out — PM 20% in / 80% out
- Education (Tertiary) — AM 90% in / 10% out — PM 40% in / 60% out
- Health / Healthcare — AM 60% in / 40% out — PM 50% in / 50% out

On the above basis, the traffic expected to be generated by the PMP Printing Precinct proposal is summarised in Table 4-6 on the following page.

Table 4-6 PMP Printing Precinct Traffic Generation Summary

Land Use	AM Peak			PM Peak		
	In	Out	TOTAL	In	Out	TOTAL
Dwellings (Apartments)	8 vph	34 vph	42 vph	25 vph	17 vph	42 vph
Dwellings (Townhouses)	62 vph	247 vph	309 vph	185 vph	124 vph	309 vph
Office (General)	101 vph	11 vph	112 vph	22 vph	90 vph	112 vph
Education (Tertiary)	72 vph	8 vph	80 vph	32 vph	48 vph	80 vph
Heath / Healthcare	77 vph	51 vph	128 vph	64 vph	64 vph	128 vph
TOTAL	**320 vph**	**351 vph**	**671 vph**	**329 vph**	**342 vph**	**671 vph**

4.3.2 Intersection Operation - Peak Hour Assessment

4.3.2.1 Preferred Access Scenario – Access vis Browns Road, Bendix Drive and Bimbi Street

Based on the '2031 base case' and '2031 project case' AM & PM traffic volume estimates included in Appendix D (under the preferred access scenario), key intersections surrounding the PMP Printing Precinct study area have been assessed using SIDRA Intersection[9].

SIDRA results are compared between 2031 base case and 2031 project case as follows:

- Centre Road / Carinish Road / Haughton Road — Table 4-7,
- Clayton Road / Carinish Road / Haughton Road — Table 4-8,
- Carinish Road / Browns Road — Table 4-9,
- Princes Highway / Browns Road — Table 4-10, and
- Centre Road / Moriah Street — Table 4-11.

It is noted the SIDRA analysis summarised in the below tables summarise overall approach performance, with further detailed SIDRA results included in Appendix E of this report (i.e. specific movement performance, phasing, etc.).

Existing 2018 cycle times (from existing IDM data) have been adopted for the purposes of this assessment, with small additional increases added where necessary for intersection operation performance.

[9] Using SIDRA Intersection 7 and network modelling for complex intersections.

LOS		signals	roundabouts	sign control
Excellent	A	x ≤ 0.60	x ≤ 0.60	x ≤ 0.60
Very Good	B	0.60 < x ≤ 0.70	0.60 < x ≤ 0.70	0.60 < x ≤ 0.70
Good	C	0.70 < x ≤ 0.90	0.70 < x ≤ 0.85	0.70 < x ≤ 0.80
Fair	D	0.90 < x ≤ 0.95	0.85 < x ≤ 0.95	0.80 < x ≤ 0.90
Poor	E	0.95 < x ≤ 1.00	0.95 < x ≤ 1.00	0.90 < x ≤ 1.00
Very Poor	F	1.00 < x	1.00 < x	1.00 < x

Table 4-7 Centre Rd / Haughton Rd / Carinish Rd Intersection - 2031 Base & 2031 Project Case - Preferred Access

Peak Hour	Intersection	Approach	2031 Base Case			2031 Project Case		
			DOS	Average Delay	95th %'ile Queue	DOS	Average Delay	95th %'ile Queue
AM	Centre Rd / Haughton Rd (signals)	South	#0.75	25 sec	41 m	0.75	25 sec	42 m
		East	0.38	11 sec	31 m	0.43	13 sec	33 m
		West	0.56	23 sec	77 m	0.60	24 sec	84 m (T)
	Centre Rd / Carinish Rd (signals)	East	0.72	21 sec	61 m (R)	#0.80	23 sec	73 m (R)
		North	0.35	17 sec	31 m	0.49	19 sec	39 m (L)
		West	0.71	13 sec	25 m	0.73	12 sec	25 m
PM	Centre Rd / Haughton Rd (signals)	South	0.58	24 sec	27 m	0.41	24 sec	30 m
		East	0.85	19 sec	33 m	0.88	25 sec	33 m
		West	0.83	32 sec	48 m	# 0.92	39 sec	59 m
	Centre Rd / Carinish Rd (signals)	East	0.63	25 sec	78 m (T)	0.67	28 sec	85 m (T)
		North	#0.91	25 sec	51 m (R)	0.87	25 sec	61 m (R)
		West	0.57	15 sec	25 m	0.65	18 sec	25 m

 # - Intersection DOS, 2031 Base AM = 73 sec cycle, 2031 Base PM = 70 sec cycle, 2031 PMP AM = 73 sec cycle, 2031 PMP PM = 75 sec cycle (+5 sec existing cycle), L = left, T = through, R = right

Table 4-7 indicates that the Centre Road / Haughton Road / Carinish Road intersection is expected to operate with good to fair service levels in the 2031 base case AM and PM peak hours. This level of intersection operation is expected to continue in the 2031 project case, with marginal impact from the traffic estimated to be generated by the PMP Printing Precinct.

In regards to vehicle queuing;

- 2031 base case 95th percentile queues extended beyond existing Centre Road east approach right turn lane, this extends under the 2031 project case (+13m beyond existing right turn lane storage in the AM and PM peaks), and
- 2031 base case 95th percentile queues extend beyond existing Carinish Road north approach right turn lane, this extends under the 2031 project case (+36m beyond existing right turn lane storage in the PM peak).

On the basis of the preceding SIDRA assessment, the following mitigation works are recommended to mitigate the project's impact at the Centre Road / Carinish Road / Haughton Road intersection under the 2031 project case:

- 15m extension of Centre Road east approach right turn lane, and
- 40m extension of Carinish Road north approach right turn lane.

Table 4-8 Clayton Rd / Haughton Rd / Carinish Rd Intersection - 2031 Base & 2031 Project Case - Preferred Access

Peak Hour	Intersection	Approach	2031 Base Case			2031 Project Case		
			DOS	Average Delay	95th %'ile Queue	DOS	Average Delay	95th %'ile Queue
AM	Clayton Rd / Carinish Rd (signals)	South	#0.80	25 sec	57 m (T)	#0.87	36 sec	57 m (T)
		East	0.78	40 sec	64 m (LT)	0.86	41 sec	82 m (R)
		North	0.42	19 sec	73 m (T)	0.53	23 sec	91 m(T)
		West	0.47	34 sec	62 m (LT)	0.42	31 sec	58 m (LT)
	Clayton Rd / Haughton Rd (unsignalised)	South	0.35	-	96 m	0.35	-	133 m
		North	0.18	-	-	0.18	-	-
		West	0.67	14 sec	19 m	0.68	14 sec	19 m
PM	Clayton Rd / Carinish Rd (signals)	South	0.81	28 sec	57 m (TR)	0.94	32 sec	57 m (TR)
		East	0.76	42 sec	99 m (LT)	0.94	56 sec	126 m (LT)
		North	#0.89	40 sec	260 m (T)	#0.94	55 sec	338 m (T)
		West	0.88	46 sec	106 m (LT)	0.89	47 sec	108 m (LT)
	Clayton Rd / Haughton Rd (unsignalised)	South	0.30	1 sec	64 m	0.30	1 sec	71 m
		North	0.37	-	-	0.37	-	-
		West	0.33	7 sec	5 m	0.32	7 sec	5 m

 # - Intersection DOS, 2031 Base AM = 86 sec cycle, 2031 Base PM = 95 sec cycle, 2031 PMP AM = 86 sec cycle, 2031 PMP PM = 100 sec cycle (+5 sec existing cycle), L = left, T = through, R = right

Table 4-8 indicates that the Clayton Road / Haughton Road / Carinish Road intersection is expected to operate with good service levels in the 2031 base case AM and PM peak hours. This level of intersection operation is expected to continue in the 2031 project case with good to fair service levels, with marginal operational impact from the traffic estimated to be generated by the PMP Printing Precinct.

In regards to vehicle queues, there are moderate increases in 95th percentile queues as a result of the traffic volumes estimated to be generated by the PMP Printing Precinct development.

On the basis of the 2031 base case and 2031 project case SIRA analysis above, no mitigation works are recommended at the Clayton Road / Haughton Road / Carinish Road intersection.

Table 4-9 Carinish Rd / Browns Rd Intersection – 2031 Base & 2031 Project Case – Preferred Access

Peak Hour	Intersection	Approach	2031 Base Case			2031 Project Case		
			DOS	Average Delay	95th %'ile Queue	DOS	Average Delay	95th %'ile Queue
AM	Carinish Rd / Browns Rd (unsignalised)	Southeast	#0.36	3 sec	-	0.41	3 sec	-
		North	0.25	7 sec	7 m	#0.51	12 sec	22 m
		Northwest	0.18	4 sec	-	0.24	4 sec	-
PM		Southeast	0.25	3 sec	-	0.28	3 sec	-
		North	#0.44	9 sec	19 m	#0.69	14 sec	41 m
		Northwest	0.26	3 sec	-	0.32	4 sec	-

 # - Intersection DOS

Table 4-9 indicates that the Carinish Road / Browns Road intersection is expected to operate with excellent and very good service levels with minimal queues and delays in the AM and PM peak hours under the 2031 base case and 2031 project case.

Table 4-10 Princes Hwy / Browns Rd Intersection – 2031 Base & 2031 Project Case – Preferred Access

Peak Hour	Intersection	Approach	2031 Base Case			2031 Project Case		
			DOS	Average Delay	95th %'ile Queue	DOS	Average Delay	95th %'ile Queue
AM	Princes Hwy / Browns Rd (unsignalised)	South	0.32	10 sec	11 m	0.44	10 sec	17 m
		Southeast	#0.44	-	-	#0.46	1 sec	-
PM		South	0.29	8 sec	9 m	0.38	8 sec	15 m
		Southeast	#0.47	1 sec	-	#0.48	1 sec	-

 # - Intersection DOS
Note: Additional queuing on Browns Road in the PM peak is expected due to upstream queueing from the North Rd / Wellington Rd intersection and on site observations.

Table 4-10 indicates that the Princes Highway / Browns Road intersection is expected to continue to operate with excellent service levels with minimal queues and delays in the AM and PM peak hours under the 2031 base case and 2031 project case.

Table 4-11 Centre Rd / Moriah St Intersection – 2031 Base & 2031 Project Case – Preferred Access

Peak Hour	Intersection	Approach	2031 Base Case			2031 Project Case		
			DOS	Average Delay	95th %'ile Queue	DOS	Average Delay	95th %'ile Queue
AM	Centre Rd / Moriah St (unsignalised)	East	0.19	1 sec	3 m	0.21	1 sec	5 m
		North	0.05	13 sec	1 m	0.08	11 sec	2 m
		West	#0.27	-	-	#0.28	-	-
PM		East	0.24	-	-	0.26	-	2 m
		North	#0.29	32 sec	7 m	#0.36	32 sec	10 m
		West	0.23	-	-	0.24	-	-

 # - Intersection DOS

Table 4-11 indicates that the Centre Road / Moriah Street intersection is expected to continue to operate with excellent service levels with minimal queues and delays in the AM and PM peak hours under the 2031 base case and 2031 project case.

4.3.2.2 Sensitivity Access Scenario – Access via Browns Road and Bendix Drive

A sensitivity assessment assuming no access via Bimbi Street has also been assessed. This is based on the '2031 project case' AM & PM traffic volume estimates included in Appendix D, and includes assessment of key intersections surrounding the PMP Printing Precinct study area.

SIDRA results are compared between the preferred access scenario and the sensitivity access scenario as follows, to illustrate the relative impacts of each access scenario against each other (as opposed to the 2031 base case):

- Centre Road / Carinish Road / Haughton Road — Table 4-12,
- Carinish Road / Browns Road — Table 4-13,
- Princes Highway / Browns Road — Table 4-14, and
- Centre Road / Moriah Street — Table 4-15.

The 2031 project case traffic volume estimates at the Clayton Road / Haughton Road / Carinish Road intersection remain the same in the sensitivity assessment. The Clayton Road / Haughton Road / Carinish Road intersection SIDRA analysis results are therefore not included in this section of the report (refer previous Section 4.3.2.1, Table 4-8).

It is noted the SIDRA analysis summarised in the below tables summarise overall approach performance, with further detailed SIDRA results included in Appendix E of this report (i.e. specific movement performance, phasing, etc.).

Table 4-12 Centre Rd / Haughton Rd / Carinish Rd Intersection – 2031 Project Case – Preferred & Sensitivity Access

Peak Hour	Intersection	Approach	2031 Project Case			2031 Project Case Sensitivity Assessment		
			DOS	Average Delay	95th %'ile Queue	DOS	Average Delay	95th %'ile Queue
AM	Centre Rd / Haughton Rd (signals)	South	#0.75	25 sec	41 m	#0.86	28 sec	45 m
		East	0.38	11 sec	31 m	0.73	13 sec	36 m
		West	0.56	23 sec	77 m	0.60	24 sec	84 m (T)
	Centre Rd / Carinish Rd (signals)	East	0.72	21 sec	61 m (R)	0.83	23 sec	85 m (R)
		North	0.35	17 sec	31 m	0.56	19 sec	53 m
		West	0.71	13 sec	25 m	0.73	12 sec	25 m
PM	Centre Rd / Haughton Rd (signals)	South	0.58	24 sec	27 m	0.41	24 sec	30 m
		East	0.85	19 sec	33 m	0.88	25 sec	33 m
		West	0.83	32 sec	48 m	#0.92	41 sec	61 m
	Centre Rd / Carinish Rd (signals)	East	0.63	25 sec	78 m (T)	0.71	28 sec	86 m (TR)
		North	#0.91	25 sec	51 m	0.87	24 sec	61 m
		West	0.57	15 sec	25 m	0.69	19 sec	25 m

 # - Intersection DOS, PMP Access AM = 73 sec cycle, PMP Access PM = 75 sec cycle (+5 sec existing cycle), L = left, T = through, R = right

Table 4-12 indicates that the Centre Road / Haughton Road / Carinish Road intersection is expected to continue to operate with similar good to fair service levels in the AM and PM peak hours should access not be provided to Bimbi Street.

On the basis of the above SIDRA Intersection assessment, the following mitigation works are also considered applicable to the sensitivity assessment:

- 30m extension of Centre Road east approach right turn lane, and
- 40m extension of Carinish Road north approach right turn lane.

Table 4-13 Carinish Rd /Browns Rd Intersection – 2031 Project Case – Preferred & Sensitivity Access

Peak Hour	Intersection	Approach	2031 Project Case			2031 Project Case Sensitivity Assessment		
			DOS	Average Delay	95th %'ile Queue	DOS	Average Delay	95th %'ile Queue
AM	Carinish Rd / Browns Rd (unsignalised)	Southeast	0.41	3 sec	-	0.41	3 sec	-
		North	#0.51	12 sec	22 m	#0.55	12 sec	27 m
		Northwest	0.24	4 sec	-	0.24	4 sec	-
PM		Southeast	0.28	3 sec	-	0.28	3 sec	-
		North	#0.69	14 sec	41 m	#0.74	15 sec	51 m
		Northwest	0.32	4 sec	-	0.32	4 sec	-

 # - Intersection DOS

Table 4-13 indicates that the Carinish Road / Browns Road intersection is expected to operate with good service levels with minimal queues and delays in the AM and PM peak hours under the sensitivity assessment. While delays remain minimal, 95th percentile queues on Browns Road north approach increase marginally compared to the preferred access scenario.

Table 4-14 Princes Hwy / Browns Rd Intersection – 2031 Project Case – Preferred & Sensitivity Access

Peak Hour	Intersection	Approach	2031 Project Case			2031 Project Case Sensitivity Assessment		
			DOS	Average Delay	95th %'ile Queue	DOS	Average Delay	95th %'ile Queue
AM	Princes Hwy / Browns Rd (unsignalised)	South	0.44	10 sec	17 m	0.40	9 sec	15 m
		Southeast	#0.46	1 sec	-	#0.46	1 sec	-
PM		South	0.38	8 sec	15 m	0.35	8 sec	13 m
		Southeast	#0.48	1 sec	-	#0.49	1 sec	-

 # - Intersection DOS
Note: Additional queuing on Browns Road in the PM peak is expected due to upstream queueing from the North Rd / Wellington Rd intersection and on site observations.

Table 4-14 indicates that the Princes Highway / Browns Road intersection is expected to continue to operate with excellent service levels with minimal queues and delays in the AM and PM peak hours under the sensitivity assessment.

Table 4-15 Centre Rd / Moriah St Intersection – 2031 Project Case – Preferred & Sensitivity Access

Peak Hour	Intersection	Approach	2031 Project Case			2031 Project Case Sensitivity Assessment		
			DOS	Average Delay	95th %'ile Queue	DOS	Average Delay	95th %'ile Queue
AM	Centre Rd / Moriah St (unsignalised)	East	0.21	1 sec	5 m	0.21	1 sec	4 m
		North	0.08	11 sec	2 m	0.07	17 sec	2 m
		West	#0.28	-	-	#0.31	-	-
PM		East	0.26	-	2 m	0.26	-	-
		North	#0.36	32 sec	10 m	#0.43	51 sec	11 m
		West	0.24	-	-	0.27	-	-

 # - Intersection DOS

Table 4-15 indicates that the Centre Road / Moriah Street intersection is expected to continue to operate with excellent service levels with minimal queues and delays in the AM and PM peak hours under the sensitivity assessment.

It is noted however that the Moriah Street north approach to Centre Road is impacted the most significantly in the PM peak hour with an average delay of approximately 51 seconds on account of increased traffic volumes on Centre Road providing less capacity (i.e. 'gaps') for vehicles to access Centre Road from Moriah

Street (regardless of no PMP Printing Precinct vehicle access to Bimbi Street). Notwithstanding, this level of vehicle delay is considered satisfactory, but may result in vehicles redistributing to adjacent nearby streets (i.e. Kionga Street and Jaguar Street).

4.3.3 Recommended Intersection Mitigation Works

With specific regards to intersection upgrades (for vehicular traffic), the following mitigation works have been developed in consultation with VicRoads and Council for the Centre Road / Haughton Road / Carinish Road intersection:

- 15m extension (minimum) of Centre Road east approach right turn lane *(a 30m extension is required under the sensitivity assessment)*, and
- 40m extension of Carinish Road north approach right turn lane.

The operation of Centre Road / Carinish Road / Haughton Road under 2031 project case is presented below in Table 4-16 assuming implementation of the above turn lane lengthening described above.

Table 4-16 Centre Rd / Haughton Rd / Carinish Rd Intersection – Recommended Mitigation Works

Peak Hour	Intersection	Approach	2031 Project Case Access 1			2031 Project Case Access 2		
			DOS	Average Delay	95th %'ile Queue	DOS	Average Delay	95th %'ile Queue
AM	Centre Rd / Haughton Rd (signals)	South	#0.75	25 sec	41 m	#0.86	28 sec	45 m
		East	0.38	11 sec	31 m	0.73	13 sec	36 m
		West	0.56	23 sec	77 m	0.60	24 sec	84 m (T)
	Centre Rd / Carinish Rd (signals)	East	0.72	21 sec	61 m (R)	0.83	23 sec	85 m (R)
		North	0.35	17 sec	31 m	0.56	19 sec	53 m
		West	0.71	13 sec	25 m	0.73	12 sec	25 m
PM	Centre Rd / Haughton Rd (signals)	South	0.58	24 sec	27 m	0.41	24 sec	30 m
		East	0.85	19 sec	33 m	0.88	25 sec	33 m
		West	0.83	32 sec	48 m	#0.92	41 sec	61 m
	Centre Rd / Carinish Rd (signals)	East	0.63	25 sec	78 m (T)	0.71	28 sec	86 m (TR)
		North	#0.91	25 sec	51 m	0.87	24 sec	61 m
		West	0.57	15 sec	25 m	0.69	19 sec	25 m

 # - Intersection DOS, PMP Access AM = 73 sec cycle, PMP Access PM = 75 sec cycle (+5 sec existing cycle), L = left, T = through, R = right

As part of the consultation process between Council, TfV, VicRoads and the VPA, Council requested that a signalised intersection be provided at the Carinish Road / Browns Road intersection as part of the mitigation works. The signalised intersection has been reviewed and is proposed to comprise:

- A shared path crossing across Carinish Road to link to the existing path along the Dandenong Rail Corridor with future path to be provided within the subject site,
- A dedicated right turn lane from Carinish Road to Browns Road, and
- Separated left turn and right turn lanes on the Browns Road approach.

Accordingly, the operation of Carinish Road / Browns Road signalised intersection under 2031 project case is presented below in Table 4-17 on the following page assuming signalisation and implementation of the above intersection configuration. It has been assumed that this intersection will share a common cycle time with Centre Road / Haughton Road / Carinish Road.

Table 4-17 Carinish Rd / Browns Rd Intersection – Signalisation

Peak Hour	Intersection	Approach	2031 Project Case			2031 Project Case Sensitivity Assessment		
			DOS	Average Delay	95th %'ile Queue	DOS	Average Delay	95th %'ile Queue
AM	Carinish Rd / Browns Rd (signals)	Southeast	0.49	5 sec	32 m	0.49	6 sec	34 m
		North	0.56	24 sec	41 m	0.56	23 sec	48 m
		Northwest	#0.66	23 sec	95 m	#0.68	24 sec	98 m
PM		Southeast	0.37	5 sec	19 m	0.38	5 sec	22 m
		North	#0.69	29 sec	86 m	#0.73	29 sec	99 m
		Northwest	0.69	18 sec	122 m	0.71	19 sec	126 m

 # - Intersection DOS, PMP Access AM = 73 sec cycle, PMP Access PM = 75 sec cycle to link to the Centre Rd / Haughton Rd / Carinish Road signals (same cycle time).

The above indicates that a signalised Carinish Road / Browns Road intersection could be expected to operate with very good service levels in both the 2031 project case and sensitivity assessment scenarios.

4.4 Road Network Assessment

The 2031 base case and 2031 project case (including sensitivity assessment) two way daily traffic volume estimates for key roads surrounding the PMP Printing Precinct have been summarised against existing volumes in Table 4-18.

Table 4-18 Existing 2018, 2031 Base Case & 2031 Project Case Daily Traffic Volume Summary

Road	Daily Traffic Volume [1]				
	2018	2031 Base Case [2]	2031 Project case [3]		Amenity Based Threshold [4]
			Preferred Access	Sensitivity Assessment	
Clayton Rd (N of Carinish Rd)	20,200 vpd	24,900 vpd	26,200 vpd	26,200 vpd	12,000 - 40,000 vpd
Centre Rd (E of Carinish Rd)	24,250 vpd	22,150 vpd	23,000 vpd	24,150 vpd	
Carinish Rd (N of Centre Rd)	10,050 vpd	14,200 vpd	16,050 vpd	17,250 vpd	3,000 - 7,000 vpd
Haughton Rd (S of Centre Rd)	5,350 vpd	8,950 vpd	8,950 vpd	8,950 vpd	
Browns Rd (N of Carinish Rd)	5,250 vpd	5,850 vpd	7,800 vpd	8,400 vpd	2,000-3,000 vpd
Browns Rd (S of Princes Hwy)	5,650 vpd	5,100 vpd	6,450 vpd	7,100 vpd	
Bendix Drv (N of Carinish Rd)	200 vpd	200 vpd	1,750 vpd	2,350 vpd	≤ 3,000 vpd
Moriah St (N of Centre Rd)	1,100 vpd	1,200 vpd	1,450 vpd	1,200 vpd	≤ 2,000 vpd
Evelyn St (S of Princes Hwy)	5,500 vpd	6,050 vpd	7,050 vpd	6,050 vpd	
Princes Hwy	37,000 vpd	42,650 vpd	43,850 vpd	43,500 vpd	>40,000 vpd

[1] – Generally rounded to the nearest 100 vehicles
[2] – Absolute growth adopted for daily traffic volume estimates, includes growth from Monash Medical Precinct, Jacksons Green, etc.
[3] – Based on a peak to daily ratio of 10% for development generated traffic
[4] – Based on VPA 'Our Roads: Connecting People & Monash Planning Scheme Clause 56.06-8

The highlighted sections indicate daily traffic volumes which exceed the road's *'amenity based threshold'*. It is noted that while a number of roads are estimated to carry traffic volumes greater than their amenity based

threshold, all of these roads already carry volumes higher than their nominated threshold under 2018 existing conditions scenario.

These roads include Carinish Road (between Centre Road and Clayton Road), Browns Road and Evelyn Street. Existing traffic volumes on these roads are primarily associated with the Monash Medical Precinct (accessed from Carinish Road and Browns Road) and what appears to be parking associated with Monash University (accessed from Evelyn Street). As part of a recent approved Monash Hospital development, a new signalised access intersection to Clayton Road is expected to reduce volumes along Browns Road and Carinish Road.

It is noted that these are not strict traffic volume capacities, rather they are a guide to the 'threshold' on various street types (local roads and connector roads) at which traffic volumes result in varying levels of undesirable amenity based impacts if exceeded.

Indeed, traffic volumes on a given local or connector road may exceed these thresholds and operate satisfactorily from a capacity and safety perspective. The perception of this road however will be that it is 'busy' (highly trafficked) and residents may observe higher levels of delay exiting their driveways as opposed to less trafficked streets and roads.

5 Parking Considerations

It is noted that parking for each of the components within the PMP Printing Precinct will be provided in accordance with Council requirements, or to Council's discretion, at the time of subsequent development application(s).

Notwithstanding, the following sets out a high level assessment of applicable statutory parking rates and expected parking requirements (from an empirical perspective) for the currently considered development uses. The latter being provided for discussion purposes, however noting that they could potentially be used as nominated rates in an incorporated document for the PMP Printing Precinct should one be prepared.

The following considers the PMP Printing Precinct's close proximity to public transport and active travel options as discussed in this report.

5.1 Car Parking Requirements

The statutory car parking rates applicable to the currently considered Future Urban Structure (FUS) are summarised below in Table 5-1, including 'standard' column A and alternate 'parking overlay' column B rates.

It is noted that the site is not located within the Principle Public Transport Network and that therefore column B rates do not automatically apply. The site is however considered to be located in close proximity to the Clayton Railway Station (approximately 650m as the crow flies to the centre of the site) and therefore Column B rates may be considered appropriate.

Table 5-1 Monash Planning Scheme – Clause 52.06 Statutory Parking Rates

Use / Description	Column A Rate	Column B Rate	Car Parking Measure
Residential (Dwelling)	1	1	To each one two bedroom dwelling, plus
	2	2	To each three or more bedroom dwelling (with studies or studios that are separate rooms counted as bedrooms, plus
	1	0	For visitors to every 5 dwellings for developments of 5 or more dwellings
Office	3.5	3	To each 100 sqm of net floor area (NFA)
Medical Centre [1]	5	-	To the first person providing health services, plus
	3	-	To every other person providing health services
Shop other than listed in this table	4	3.5	To each 100 sqm of leasable floor area (LFA)

[1] It is unclear at this stage if the 'health care / health' use will include practitioners or primarily be office associated with health / health care, however these rates have been included for completeness.

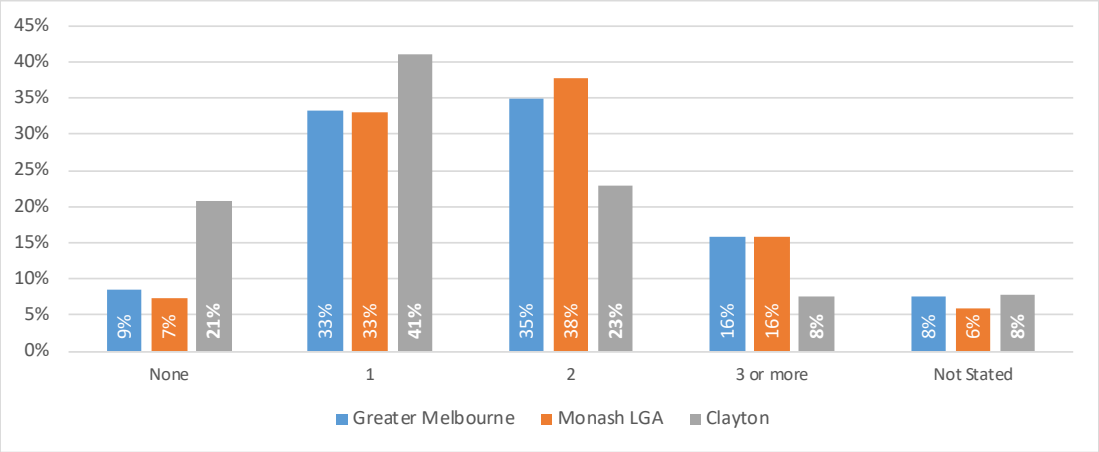
5.2 Empirical Data

5.2.1 Resident Parking

The percentage of dwellings with no car in the Monash LGA is relatively low at 7% (based on the 2016 ABS Census which is lower than Greater Melbourne with 9%). For the suburb of Clayton however this is significantly higher at 21% which reflects the higher proportion of student housing in the area and residents without a car.

Average car ownership per dwelling for Greater Melbourne, the Monash LGA and suburb of Clayton (2016 ABS Census) are illustrated below in Figure 5-1 on the following page. The figure indicates there is shift in car ownership levels (towards lower ownership) per dwelling in Clayton compared to Greater Melbourne and the Monash LGA.

Figure 5-1 Average Car Ownership per Dwelling (ABS Census 2016)



For reference average car ownership rates for the Monash LGA and the suburb of Clayton have also been analysed as summarised in Figure 5-2 and Figure 5-3 below. The below figures also indicates parking provisions at rates less than statutory requirements and Monash guidelines, especially for one bedroom dwellings, and three or more bedroom dwellings.

On this basis, provision of car parking for residents at a rate lower than statutory requirements and Council guidelines may possibly be considered appropriate.

Figure 5-2 Average Car Ownership *Rates* per Bedroom Dwelling (ABS Census 2016)

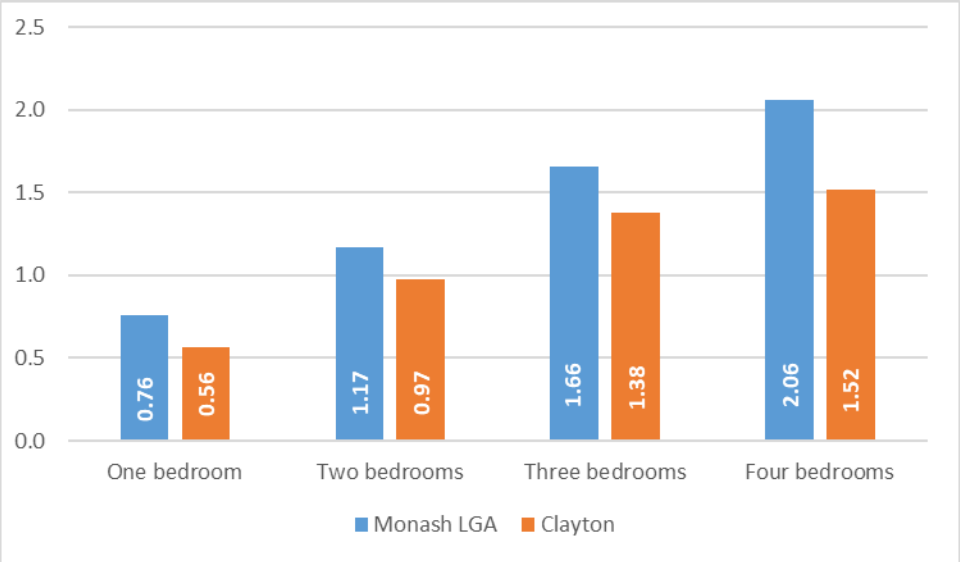
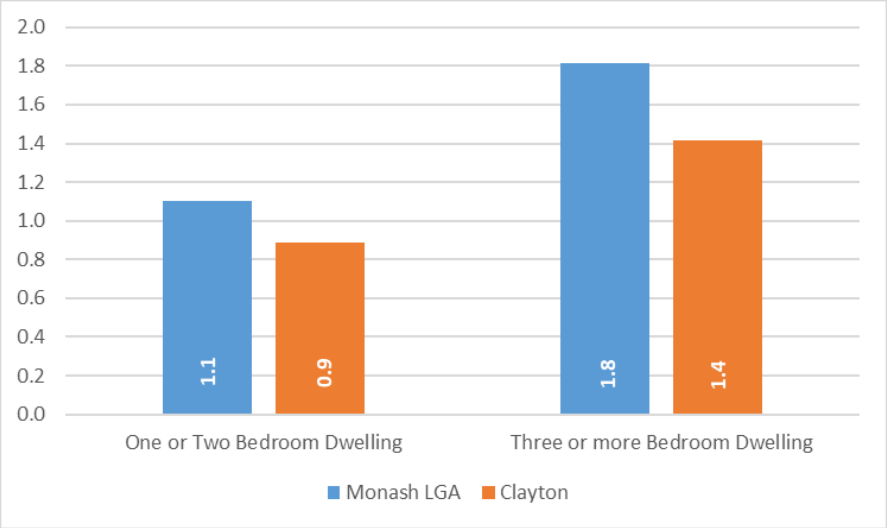


Figure 5-3 Average Car Ownership *Rates* per Bedroom Dwelling Range (ABS Census 2016)



5.2.2 Residential Visitors

Application of the statutory Clause 52.06 resident visitor rate results in a requirement of 227 residential visitor car parking spaces[10]. It is noted that resident visitor parking is expected to be provided on internal local streets, the site's street frontages *and within internal parking areas* (i.e. apartment building parking areas).

Notwithstanding, it is expected that a lower rate is appropriate for residential visitors in a shared precinct parking arrangement, noting the expected mix of 'residents' and 'students' and a site with close proximity to public transport and the Clayton Activity / Shopping Centre.

To this end, an overall residential visitor rate of in the order of 0.12-0.15 spaces per dwelling is considered appropriate for the PMP Printing Precinct, which equates to a total of 140-170 residential visitor spaces.

Given the proposed provision of local access streets as well as considering that the majority of townhouses will be rear loaded, the total on-street parking capacity within the precinct is understood to be in the order of 215 spaces. On this basis, the expected demand of up to 140-170 residential visitor spaces is expected to be comfortably accommodated within the precinct.

5.2.3 Office (Commercial)

Given the site's proximity to the Clayton Railway Station, and Clayton's relatively high existing public transport mode share of 25% and the PMP Printing Precinct's expected mode share of 30%, application of the parking overlay rate of 3 spaces per 100sqm LFA (and possibly lower) to the FUS office use is considered appropriate.

Indeed, empirical rates of office typically vary between 2-3 spaces per 100sqm LFA depending on the site's location, size, proximity to public transport and surrounding parking conditions (i.e. unrestricted and/or alternate off-site parking being available, etc.).

On this basis, an office car parking rate in the order of 2-3 spaces per 100sqm LFA is considered appropriate for the PMP Printing Precinct FUS office land use, with further assessment to be undertaken in due course with subsequent development applications.

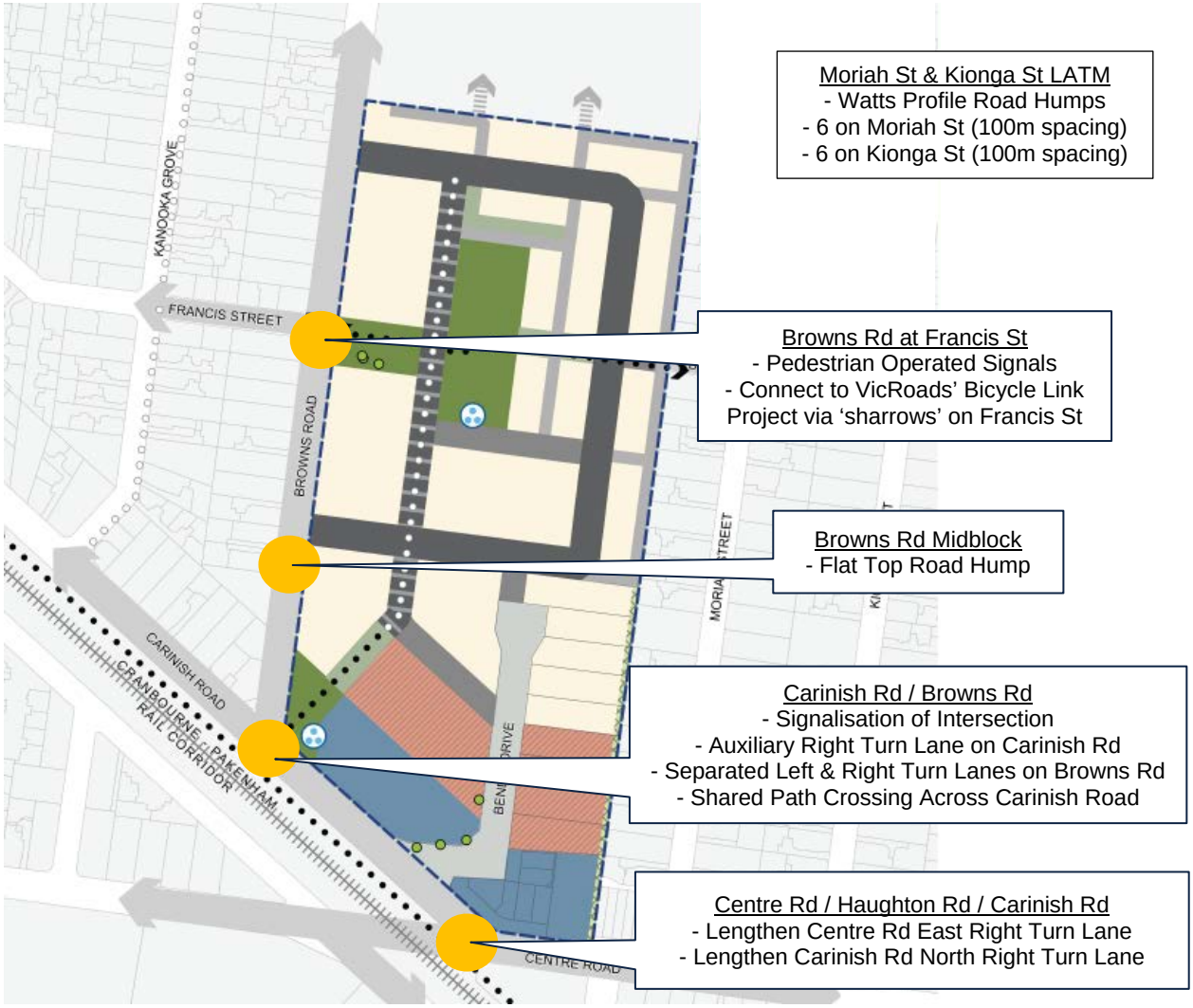
[10] Application of the visitor requirement based on Council guidelines is not possible as a breakdown of FUS dwellings by number of bedrooms is not available. It is noted however that Council guidelines apply the visitor parking requirement to one bedroom dwellings only, and it will therefore result in lower visitor parking requirement compared to Clause 52.06.

The long term office car parking demands (i.e. for employees) is expected to be able to be accommodated on-site in podium and/or basement parking, with short term visitors anticipated to be accommodated on internal local streets and/or within on-site parking areas.

6 Recommended Mitigation Works

On the basis of the preceding discussions and analysis the following mitigation works are recommended to support the development of the PMP Printing Precinct site. Subsequent discussions and multiple workshops between Cardno, VPA, VicRoads and Council has identified agreed mitigation works to be implemented to support the FUS summarised in Figure 6-1.

Figure 6-1 PMP Printing Precinct – Recommended Mitigation Works



Concept designs for each mitigation item recommended to support the development of a PMP Printing Precinct Development Contributions Plan (DCP) have been prepared and are included in Appendix F as follows:

- Centre Road / Haughton Road / Carinish Road intersection lane lengthening (refer to V170605-TR-SK-0015-3).

  The proposed scenario requires a 15m right turn lane extension to mitigate the development proposal's impact to this movement's vehicle queue. In consultation with VicRoads and following the sensitivity scenario assessment, a 30m right turn lane extension is proposed and considered to be an appropriate turn lane extension. The concept layout for the 30m right turn lane extension has been prepared with consideration of minimising service / utility relocation (noting an existing Telstra pit is located close to proposed kerb works which will require further investigation during the functional and detail design stages).

- Carinish Road / Browns Road intersection signalisation (refer to V170605-TR-SK-0020-1 to SK-0022-1).

Signalisation is not strictly considered necessary from a capacity perspective, however signalisation of this intersection will provide a far superior and safer pedestrian and cyclist crossing of Carinish Road, and also provide Council with the potential to manage traffic movements into and out of Browns Road.

> Browns Road pedestrian operated signals (POS) adjacent Francis Street (refer to V170605-TR-SK-0019-1).

A POS is to be provided on Browns Road adjacent Francis Street, with associated 'sharrow' line marking treatment to connect the site to VicRoads' bicycle link project. Specifically, a Puffin (**P**edestrian **U**ser **F**riendly **IN**telligent) crossing facility is recommended to be provided in accordance with VicRoads guidelines.

> Local area traffic management treatments;

- Flat top road hump (bus capable) on Browns Road midblock between Carinish Road and Francis Street (refer to V170605-TR-SK-0023-1), and
- Watts profile road humps on Moriah Street and Kionga Street approximately every 100 m (a total of 12 to be provided, refer to V170605-TR-SK-0017-1 to SK-0018-1).

Local area traffic management (LATM) treatments are recommended on local streets (Browns Road, Moriah Street and Kionga Street) to encourage lower vehicle speeds and promote local vehicle trips over 'through' movements.

APPENDIX

A

EXISTING ROAD CONDITIONS

Centre Road

Centre Road is a primary arterial road running east-west between Hampton Road and the Monash Freeway and is managed by VicRoads.

Centre Road is constructed with a 12.2m wide (approximate) sealed carriageway within a 20m road reserve that provides two traffic lanes in each direction. Pedestrian footpaths are provided on both sides of Centre Road.

On-street parking is generally not permitted, however, indented 60 degree angled parking is provided in front of local shops and is generally subject to 30 minute parking restrictions generally throughout the whole day.

Centre Road carries in the order of 24,300 vehicles per day.

Clayton Road

Clayton Road is a primary arterial road running north-south between Ferntree Gully Road and Kingston Road and is managed by VicRoads.

Clayton Road is constructed with an 11.8m wide (approximate) sealed carriageway within a 21m road reserve that provides two traffic lanes in each direction. Pedestrian footpaths are provided on both sides of Centre Road.

On-street parking is generally not permitted, however, indented parallel parking and 60 degree angled parking is provided in front of local shops and is generally subject to 30 minute parking restrictions during the day.

Clayton Road carries in the order of 20,200 vehicles per day.

Princes Highway

Princes Highway is a primary arterial road running northwest - southeast between Dandenong Road and Princes Freeway and is managed by VicRoads.

Princes Highway is constructed with 11.8m wide (approximate) sealed carriageways in both directions within a 61m road reserve that provide three traffic lanes in each direction, divided by a central median. Service roads are located on both sides of Princes Highway with a 7.3m wide (approximate) sealed carriageway that provides one-way traffic lanes on each side, all within a 21m road reserve. Pedestrian footpaths are provided on both sides of Princes Highway.

On-street parking is generally not permitted, however, parallel parking is provided along the adjacent service roads and is generally subject to 30 minute parking restrictions during the day (weekdays only).

Princes Highway carries in the order of 37,000 vehicles per day.

Browns Road

Browns Road is a local Council road running north-south between Princes Highway and Carinish Road and fronts the subject site.

Browns Road is constructed with a 9.8m wide (approximate) sealed carriageway within a 20m road reserve in the vicinity of Carinish Road and narrows to 7.3m wide (approximate) sealed carriageway within a 19.4m road reserve heading towards Princes Highway. Pedestrian footpaths are provided on both sides of Browns Road.

Parallel car parking is generally permitted on both sides of Browns Road and is generally subject to 30 minute and two-hour parking restrictions during the day.

Browns Road carries in the order of 5,600 vehicles per day towards Princes Highway, and 5,200 vehicles per day towards Carinish Road.

A high number of vehicles were observed to access the precinct from the northern ends of Browns Road to access the Monash Medical Precinct.

Carinish Road

Carinish Road is a Council Collector Road running northwest - southeast on the northern side of the train line between Milgate Street and Centre Road.

Carinish Road is constructed with an 11.0m wide (approximate) sealed carriageway within a 20m road reserve that provides a single traffic lane in each direction. A pedestrian footpath is provided on the northern side of Carinish Road (noting level crossing removal works are currently underway in the southern verge).

Parallel car parking is generally permitted on both sides of Carinish Road and is generally subject to two-hour parking restrictions during the day on the northern side and is currently restricted due to level crossing removal workers parking on the southern verge.

Carinish Road carries in the order of 10,050 vehicles per day.

Moriah Street

Moriah Street is a local Council road running north-south between Centre Road and Dooga Street before becoming Evelyn Street.

Moriah Street is constructed with a 6.9m wide (approximate) sealed carriageway within a 15m road reserve. Pedestrian footpaths are provided on both sides of Moriah Street.

Parallel car parking is generally permitted on both sides of Moriah Street and is generally subject to one-hour and two-hour parking restrictions during the day (weekdays only) with the eastern side closer to Centre Road being permit parking.

Moriah Street carries in the order of 1,100 vehicles per day.

Evelyn Street

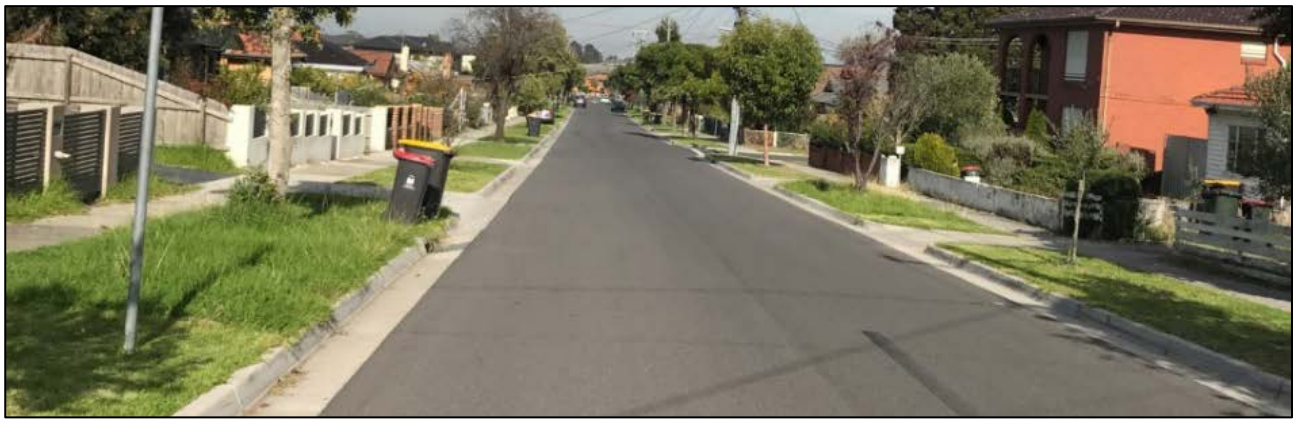
Evelyn Street is a local Council running north-south between Princes Highway and Dooga Street before becoming Moriah Street.

Evelyn Street is generally constructed with a 7.0m wide (approximate) sealed carriageway within a 15m road reserve. Evelyn Street diverges around either side of Evelyn Street Reserve with one-way 5.0m wide (approximate) sealed carriageways on each side (with a road reserve of 53.0m in this area (approximate)). Pedestrian footpaths are provided on both sides of Evelyn Street.

Parallel car parking is generally permitted on both sides of Evelyn Street and is generally subject to one-hour parking restrictions during the day (weekdays only) on the southern end closer to Moriah Street and unrestricted parking either side of Evelyn Street Reserve.

Evelyn Street carries in the order of 5,500 vehicles per day south of Princes Highway.

Kanooka Grove



Kanooka Grove is a local Council road running north-south between Wright Street and Carinish Street.

Kanooka Grove is constructed with a 6.8m wide (approximate) sealed carriageway within a 15m road reserve. Pedestrian footpaths are provided on both sides of Kanooka Grove.

Parallel car parking is generally permitted on both sides of Kanooka Grove and is generally subject to 30 minute parking restrictions during the day with the northern end closer to Monash Medical Centre being permit parking.

Kanooka Grove carries in the order of 960 vehicles per day.

Bendix Drive

Bendix Drive is a local Council road running north-south from Carinish Street and terminating in a cul-de-sac treatment.

Bendix Drive is constructed with a 10.1m wide (approximate) sealed carriageway within a 20m road reserve. Pedestrian footpaths are provided on both sides of Bendix Drive.

Parallel car parking is generally permitted on the eastern side of Bendix Drive which is unrestricted parking, with no parking allowed on the western side of Bendix Drive below the cul-de-sac.

Bendix Drive carries in the order of 180 vehicles per day.

Haughton Road

Haughton Road is a Council collector road north of, and a major road south of, Centre Road running northwest - southeast on the southern side of the train line between Warrigal Road and Browning Road.

Haughton Road is constructed with a 7.3m wide (approximate) sealed carriageway within a 20m wide road reserve. A pedestrian footpath is provided on the southern side and a shared access trail on the northern side of Haughton Road connecting to the nearby Clayton Railway Station.

Parallel car parking is generally permitted on the southern side of Haughton Road and is generally subject to permit zone parking restrictions during the day, with all day parking permitted on-street on the northern side of Haughton Road and within commuter car parks located near Clayton Station.

Haughton Road carries in the order of 5,400 vehicles per day south of Centre Road.

Bimbi Street

Bimbi Street is a local Council road running east-west between PMP Printing Precinct and Jaguar Drive.

Bimbi Street is constructed with a 7.0m wide (approximate) sealed carriageway within a 15m road reserve. Pedestrian footpaths are provided on both sides of Bimbi Street.

Parallel unrestricted car parking is generally permitted on both sides of Bimbi Street.

Bimbi Street carries in the order of 230 vehicles per day.

Dooga Street

Dooga Street is a local Council road running east-west between the Wright St/Dooga St pedestrian link and Jaguar Drive.

Dooga Street is constructed with a 6.9m wide (approximate) sealed carriageway within a 14.4m road reserve. Pedestrian footpaths are provided on both sides of Dooga Street.

Parallel car parking is generally permitted on both sides of Dooga Street, east of Kionga Street is unrestricted parking and west is all subject to one-hour parking restrictions during the day (weekdays only).

Mary Street

Mary Street is a Local Council road running north-south between Wright Street and Carinish Street.

Mary Street is constructed with a 7.3m wide (approximate) sealed carriageway within a 15m road reserve. Pedestrian footpaths are provided on both sides of Mary Street.

Parallel car parking is generally permitted on the western side of Mary Street and is generally subject to one-hour parking restrictions during the day south of Rose Street with the northern end closer to Monash Medical Centre being permit parking on both sides.

Mary Street carries in the order of 2,900 vehicles per day.

Wright Street

Wright Street is a Local Council road running east-west between Mary Street and Browns Road.

Wright Street is constructed with a 7.3m wide (approximate) sealed carriageway within a 15m road reserve. Pedestrian footpaths are provided on both sides Wright Street.

Parallel car parking is generally permitted on both sides of Wright Street and is generally subject to one-hour parking restrictions during the day on the northern side of Rose Street with the southern side having permit zone restrictions, east of Kanooka Grove is subject to 30 minute parking restrictions on both sides of the road during the day.

Wright Street is carries in the order of 2,100 vehicles per day.

Kionga Street

Kionga Street is a Local Council road running north-south between Centre Road and Dooga Street.

Kionga Street is constructed with a 7.0m wide (approximate) sealed carriageway within a 15m road reserve. Pedestrian footpaths are provided on both sides of Kionga Street.

Parallel car parking is generally permitted on both sides of Kionga Street and is generally subject to unrestricted parking with the eastern side closer to Dooga Street having one hour parking restrictions during the day (weekdays only).

Kionga Street carries in the order of 900 vehicles per day.

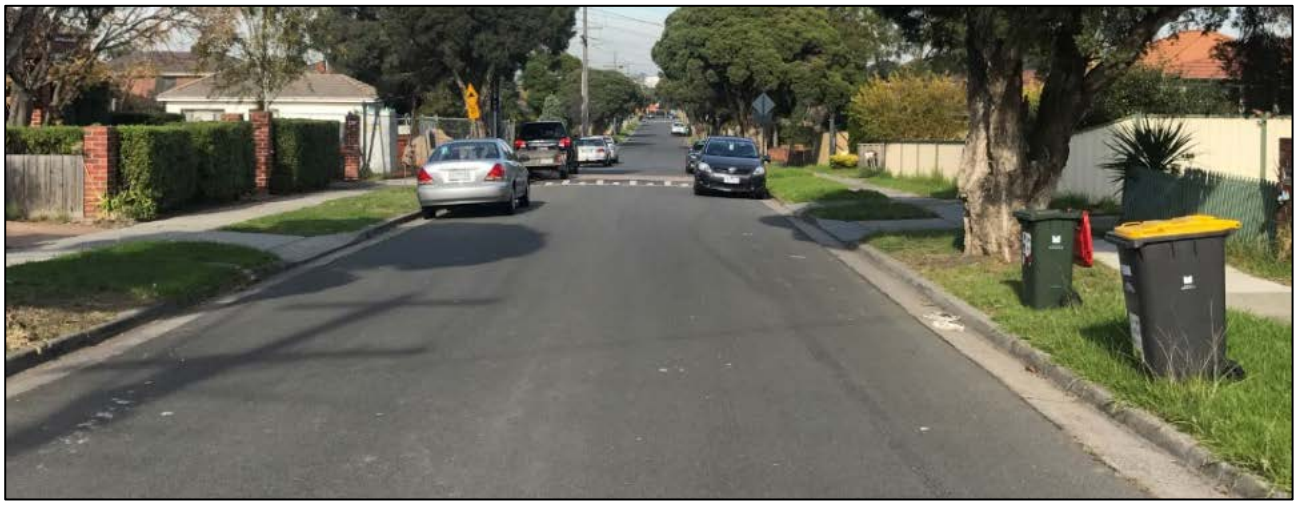
Jaguar Drive

Jaguar Drive is a local road running north-south between Centre Road and Dooga Street managed by Council.

Jaguar Drive is constructed with a 7.0m wide (approximate) sealed carriageway that provides a single traffic lane in each direction. Pedestrian footpaths are provided on both sides of Jaguar Drive.

Parallel car parking is generally permitted on both sides of Jaguar Drive and is subject to all day unrestricted parking.

Panorama Street



Panorama Street is a Local Council road running north-south between Princes Highway and becomes a dead end road when it meets the Wright St/Dooga St pedestrian link, located at the south end of Panorama Street.

Panorama Street is constructed with a 7.0m wide (approximate) sealed within a 15m road reserve. Pedestrian footpaths are provided on both sides of Panorama Street.

Parallel car parking is generally permitted on both sides of Panorama Street and is subject to 30 minute parking restrictions during the day (weekdays only).

Francis Street

Francis Street is a Local Council road running east-west between Mary Street and Browns Road.

Francis Street is constructed with a 6.7m wide (approximate) sealed carriageway in the vicinity of Mary Street and widens to a 7.1m wide (approximate) sealed carriageway when heading towards Browns Road within a 15m road reserve. Pedestrian footpaths are provided on both sides of Francis Street.

Parallel car parking is generally permitted on both sides of Rose Street and is generally subject to 30 minute parking restrictions on both sides of the road during the day.

Francis Street carries in the order 400 vehicles per day.

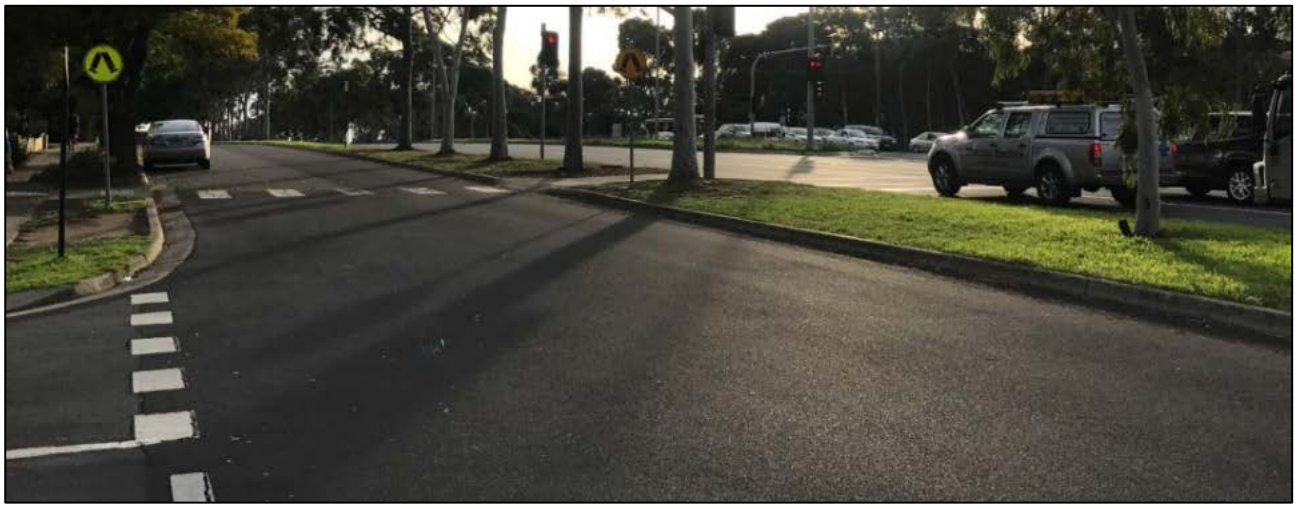
Rose Street

Rose Street is a Local Council road running east-west between Mary Street and Kanooka Grove.

Rose Street is constructed with a 7.3m wide (approximate) sealed carriageway within a 15m road reserve. During school day peak times (8:00-9:30am and 3:00-4:30pm) Rose Street is restricted to single way flow from east to west. Pedestrian footpaths are provided on both sides Rose Street.

Parallel car parking is generally permitted on both sides of Rose Street and is generally subject to one-hour parking restrictions on both sides of the road during the day.

Wellington Road



Wellington Road is a primary arterial road running east-west between North Road and Belgrave-Gembrook Road managed by VicRoads.

Wellington Road is constructed with an 11.1m wide (approximate) sealed carriageway in both directions that provides three traffic lanes in each direction, divided by a central median, a service road is located on the southern side of Wellington Road with a 7.3m wide (approximate) sealed carriageway that provides one single flow traffic lane, all within a 61m road reserve. Pedestrian footpaths are provided on both sides of Wellington Road.

On-street parking is not permitted, however, parallel parking is provided along the southern side of the service road and is generally subject to 30 minute restrictions during the day (weekdays only).

Wellington Road carries in the order of 37,000 vehicles per day.

Parker, Cobain and Irwin Street

Parker, Cobain and Irwin Street are all Local Council roads running north-south between Princes Highway service road and Wellington Road service road.

Parker, Cobain and Irwin Street are constructed with a 7.0m wide (approximate) sealed carriageway within a 15m road reserve. Pedestrian footpaths are provided on both sides of all streets.

Parallel car parking is generally permitted on both sides of Parker, Cobain and Irwin Street and are subject to 30 minute parking restrictions during the day (weekdays only) with Cobain Street having permit zone restrictions on the eastern side.

Seascape, Atlantic, Cantala, Fortuna, Lantana and Iona Street

Seascape, Atlantic, Cantala, Lantana, Fortuna and Iona Street are all Local Council roads running east-west between Browns Road and Panorama Street with Lantana Street running between Kanooka Grove and Panorama Street.

Seascape, Atlantic, Cantala, Lantana, Fortuna and Iona Street are all constructed with a 7.0m wide (approximate) sealed carriageway within a 15m road reserve. Pedestrian footpaths are provided on both sides of all streets.

Parallel car parking is generally permitted on both sides of Seascape, Atlantic, Cantala, Lantana, Fortuna and Iona Street and are subject to 30 minute parking restrictions during the day with Lantana Street having permit zone restrictions west of Browns Road near the Monash Medical Centre.

APPENDIX

B

EXISTING TRAFFIC VOLUMES

APPENDIX C

VITM AM, PM, Daily Volumes

Peak Period (2HR) / Daily

AM = 2hr, PM = 2hr

VITM Plot Vols

Road	Location	Direction	2011 LXRA case AM	2011 LXRA case PM	2011 LXRA case Daily	2031 BASE (ref + VPA) AM	2031 BASE (ref + VPA) PM	2031 BASE (ref + VPA) Daily	2031 Project (incl NEIC) AM	2031 Project (incl NEIC) PM	2031 Project (incl NEIC) Daily
Centre Road	W of Xing	E	982	2,009	7,277	958	1,363	5,062	1,017	1,554	5,074
		W	1,611	1,439	7,084	1,115	1,195	5,844	1,313	1,273	5,866
	E of Xing / Carinish Rd	E	1,282	2,248	8,682	1,333	1,765	7,661	1,500	2,187	7,870
		W	1,844	1,767	8,595	1,561	1,660	8,359	1,895	1,834	8,562
	E of Moriah Road	E	1,054	2,392	8,567	1,426	2,101	8,905	1,566	2,395	8,829
		W	2,049	1,543	8,487	1,925	1,809	10,048	2,227	1,928	10,110
Clayton Road	N of Xing	N	2,413	1,658	9,968	2,877	1,539	11,271	2,928	1,880	10,872
		S	1,403	2,245	9,399	1,239	2,721	10,566	1,504	2,884	10,275
	S of Xing	N	2,171	1,424	8,859	2,455	1,659	11,577	3,448	2,288	11,874
		S	1,328	2,105	7,013	1,327	2,472	10,860	1,809	3,609	11,246
Haughton Road	W of Clayton Road	NW	40	82	266	145	385	1,118	155	418	1,147
		SE	196	196	773	408	300	1,419	441	324	1,469
	E of Clayton Road	NW									
		SE									
Carinish Road	S of Centre Road	NW	398	354	2,046	632	405	2,614	813	427	2,603
		SE	331	444	2,152	322	761	2,983	348	908	2,989
	W of Clayton Road	NW	238	75	669	300	531	2,994	580	600	2,991
		SE	57	210	673	245	666	2,650	260	732	2,593
	E of Clayton Road	NW	366	167	1,230	771	495	3,412	1,132	610	4,107
		SE	141	363	1,285	379	809	3,878	478	1,222	3,686
	N of Centre Road	NW	315	111	907	703	407	2,896	982	506	3,144
		SE	104	298	957	322	700	3,349	418	1,060	3,629
Princes Highway	S of Wellington Road	NW	4,743	3,482	25,771	4,660	4,119	29,316	5,421	4,712	
		SE	3,324	4,570	25,285	3,827	4,525	28,295	4,435	5,261	
	W of Moriah Street	NW	4,617	3,382	25,066	4,480	3,947	28,210	5,200	4,527	
		SE	3,253	4,436	24,611	3,711	4,341	27,341	4,294	5,008	

Peak Hour (1HR) / Daily

AM = 1hr, PM = 1hr

AM factor 0.55, PM factor 0.55

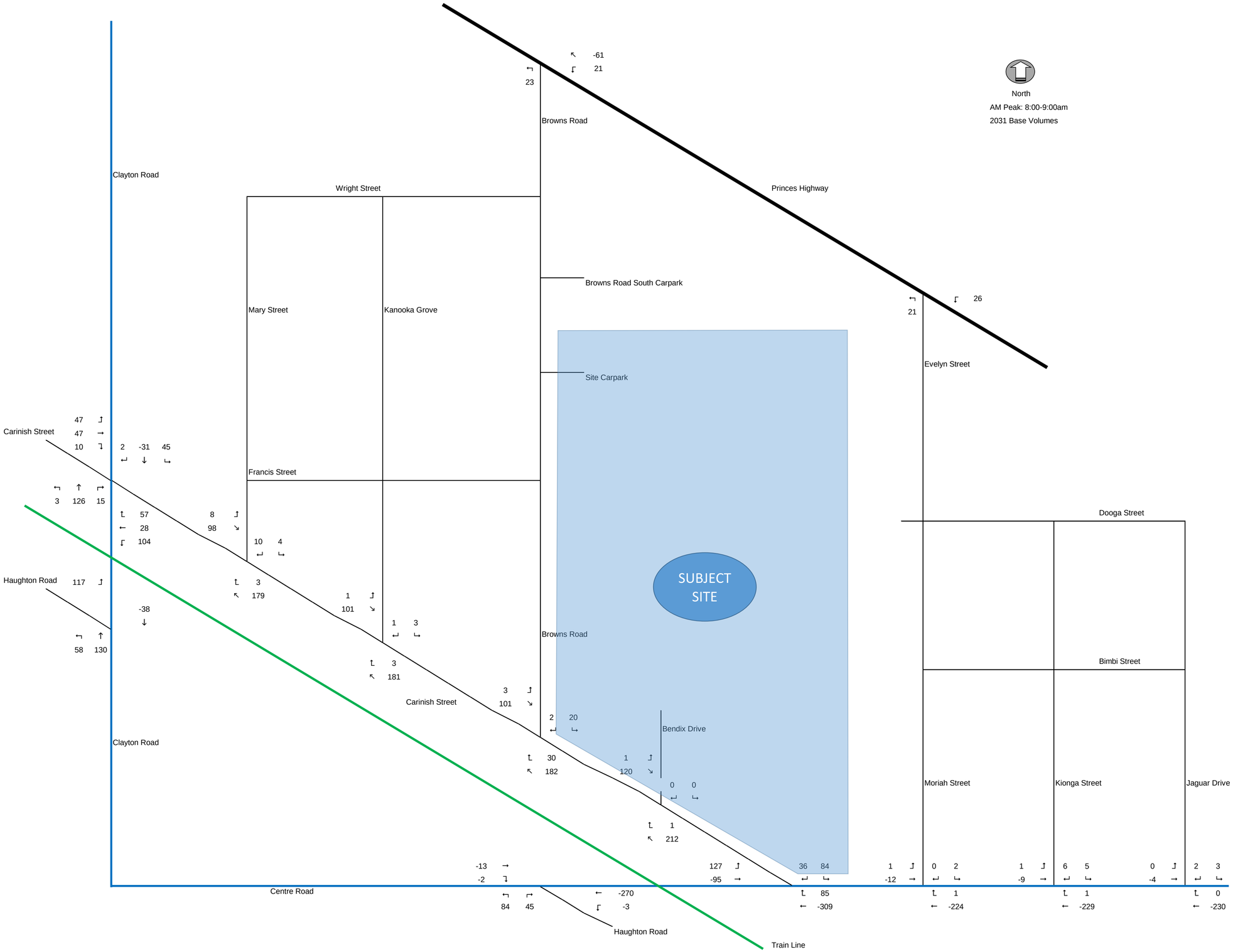
VITM Plot Vols

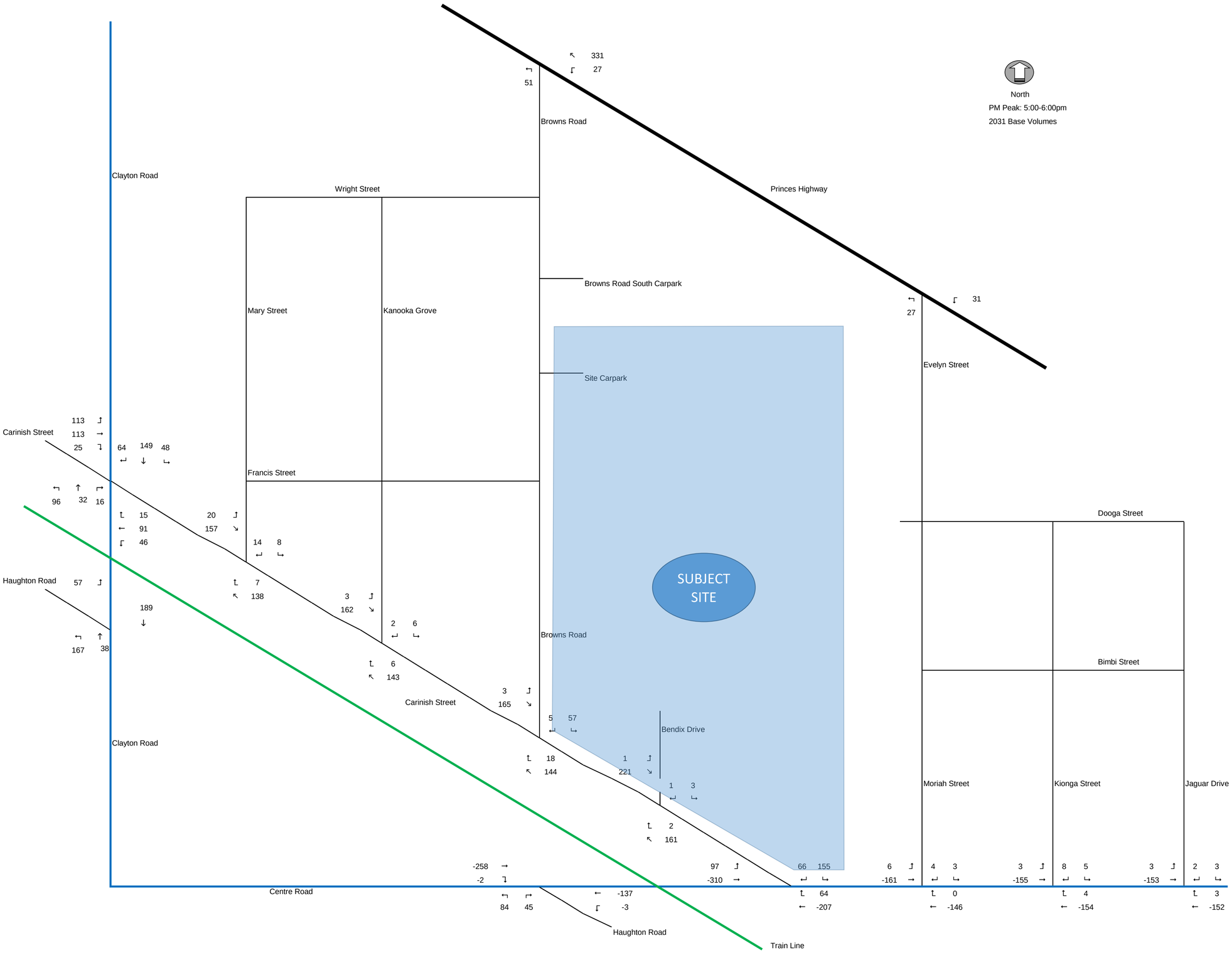
Road	Location	Direction	2011 LXRA case AM	2011 LXRA case PM	2011 LXRA case Daily	2031 BASE (ref + VPA) AM	2031 BASE (ref + VPA) PM	2031 BASE (ref + VPA) Daily	2031 Project (incl NEIC) AM	2031 Project (incl NEIC) PM	2031 Project (incl NEIC) Daily
Centre Road	W of Xing	E	540	1,105	7,277	527	750	5,062	559	855	5,074
		W	886	791	7,084	613	657	5,844	722	700	5,866
	E of Xing / Carinish Rd	E	705	1,236	8,682	733	971	7,661	825	1,203	7,870
		W	1,014	972	8,595	859	913	8,359	1,042	1,009	8,562
	E of Moriah Road	E	580	1,316	8,567	784	1,156	8,905	861	1,317	8,829
		W	1,127	849	8,487	1,059	995	10,048	1,225	1,060	10,110
Clayton Road	N of Xing	N	1,327	912	9,968	1,582	846	11,271	1,610	1,034	10,872
		S	772	1,235	9,399	681	1,497	10,566	827	1,586	10,275
	S of Xing	N	1,194	783	8,859	1,350	912	11,577	1,896	1,258	11,874
		S	730	1,158	7,013	730	1,360	10,860	995	1,985	11,246
Haughton Road	W of Clayton Road	NW	22	45	266	80	212	1,118	85	230	1,147
		SE	108	108	773	224	165	1,419	243	178	1,469
	E of Clayton Road	NW									
		SE									
Carinish Road	S of Centre Road	NW	219	195	2,046	348	223	2,614	447	235	2,603
		SE	182	244	2,152	177	419	2,983	191	499	2,989
	W of Clayton Road	NW	131	41	669	165	292	2,994	319	330	2,991
		SE	31	116	673	135	366	2,650	143	403	2,593
	E of Clayton Road	NW	201	92	1,230	424	272	3,412	623	336	4,107
		SE	78	200	1,285	208	445	3,878	263	672	3,686
	N of Centre Road	NW	173	61	907	387	224	2,896	540	278	3,144
		SE	57	164	957	177	385	3,349	230	583	3,629
Princes Highway	S of Wellington Road	NW	2,609	1,915	25,771	2,563	2,265	29,316	2,982	2,592	
		SE	1,828	2,514	25,285	2,105	2,489	28,295	2,439	2,894	
	W of Moriah Street	NW	2,539	1,860	25,066	2,464	2,171	28,210	2,860	2,490	
		SE	1,789	2,440	24,611	2,041	2,388	27,341	2,362	2,754	

APPENDIX

D

2031 BASE CASE & PMP SCENARIOS TRAFFIC VOLUMES


North
AM Peak: 8:00-9:00am
2031 Base Volumes
Clayton Road
Wright Street
Princes Highway
Browns Road
Browns Road South Carpark
Mary Street
Kanooka Grove
Site Carpark
Evelyn Street
Francis Street
Dooga Street
SUBJECT SITE
Bimbi Street
Carinish Street
Haughton Road
Bendix Drive
Moriah Street
Kionga Street
Jaguar Drive
Centre Road
Train Line

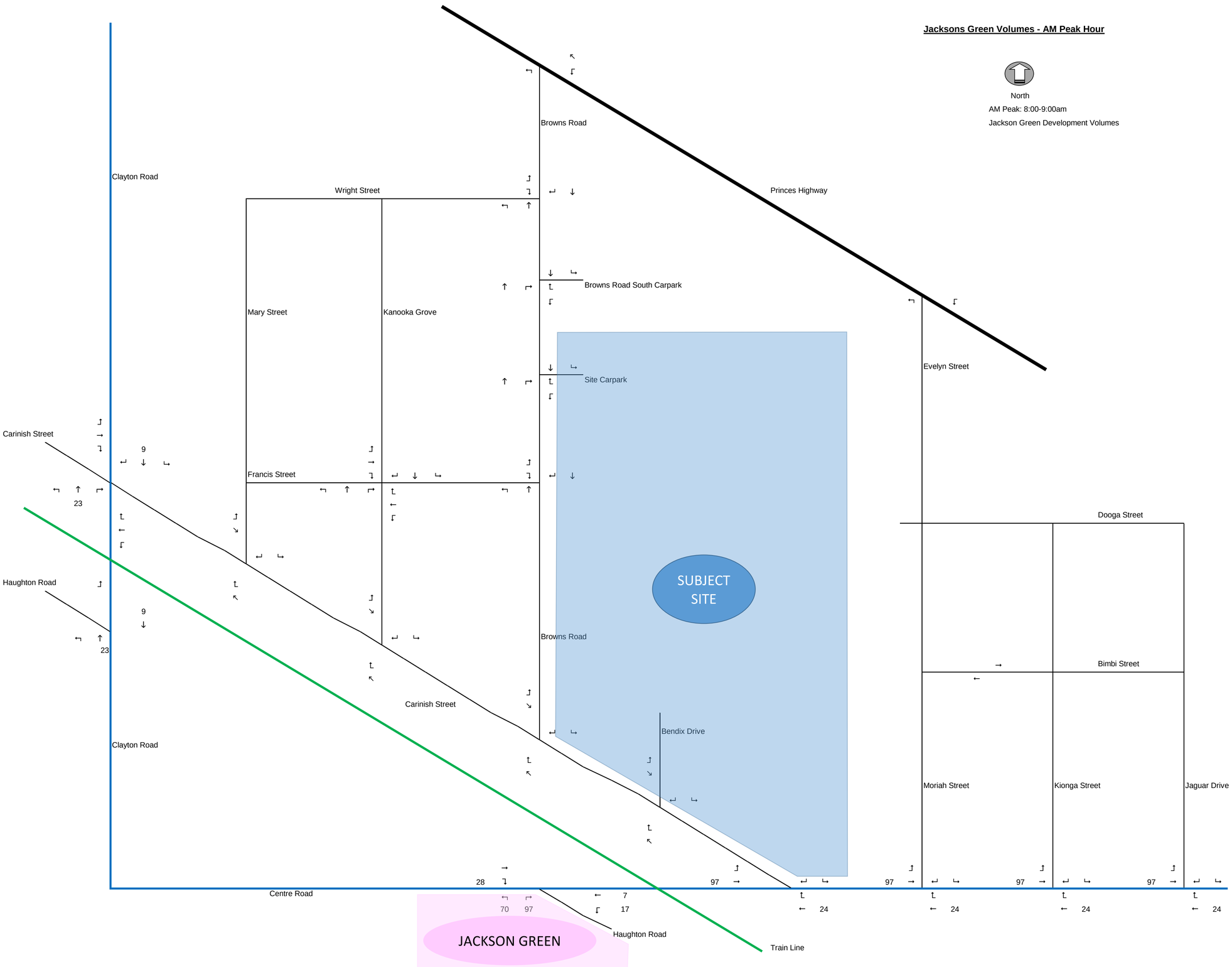

North
PM Peak: 5:00-6:00pm
2031 Base Volumes
Clayton Road
Wright Street
Browns Road
Princes Highway
Browns Road South Carpark
Mary Street
Kanooka Grove
Site Carpark
Evelyn Street
Carinish Street
Francis Street
Dooga Street
Bimbi Street
SUBJECT SITE
Haughton Road
Bendix Drive
Moriah Street
Kionga Street
Jaguar Drive
Centre Road
Train Line
331
27
51
31
27
113
113
25
64
149
48
96
32
16
15
91
46
20
157
14
8
57
189
167
38
7
138
3
162
2
6
6
143
3
165
5
57
18
144
1
221
1
3
2
161
-258
-2
84
45
-137
-3
97
-310
66
155
64
-207
6
-161
4
3
0
-146
3
-155
8
5
4
-154
3
-153
2
3
3
-152

Jacksons Green Volumes - AM Peak Hour

North

AM Peak: 8:00-9:00am

Jackson Green Development Volumes



Jacksons Green Volumes - PM Peak Hour

North

PM Peak: 5:00-6:00pm

Jackson Green Development Volumes

Clayton Road

Wright Street

Browns Road

Princes Highway

Mary Street

Kanooka Grove

Browns Road South Carpark

Site Carpark

Evelyn Street

Carinish Street

Francis Street

Dooga Street

Haughton Road

SUBJECT SITE

Browns Road

Bimbi Street

Carinish Street

Bendix Drive

Clayton Road

Moriah Street

Kionga Street

Jaguar Drive

Centre Road

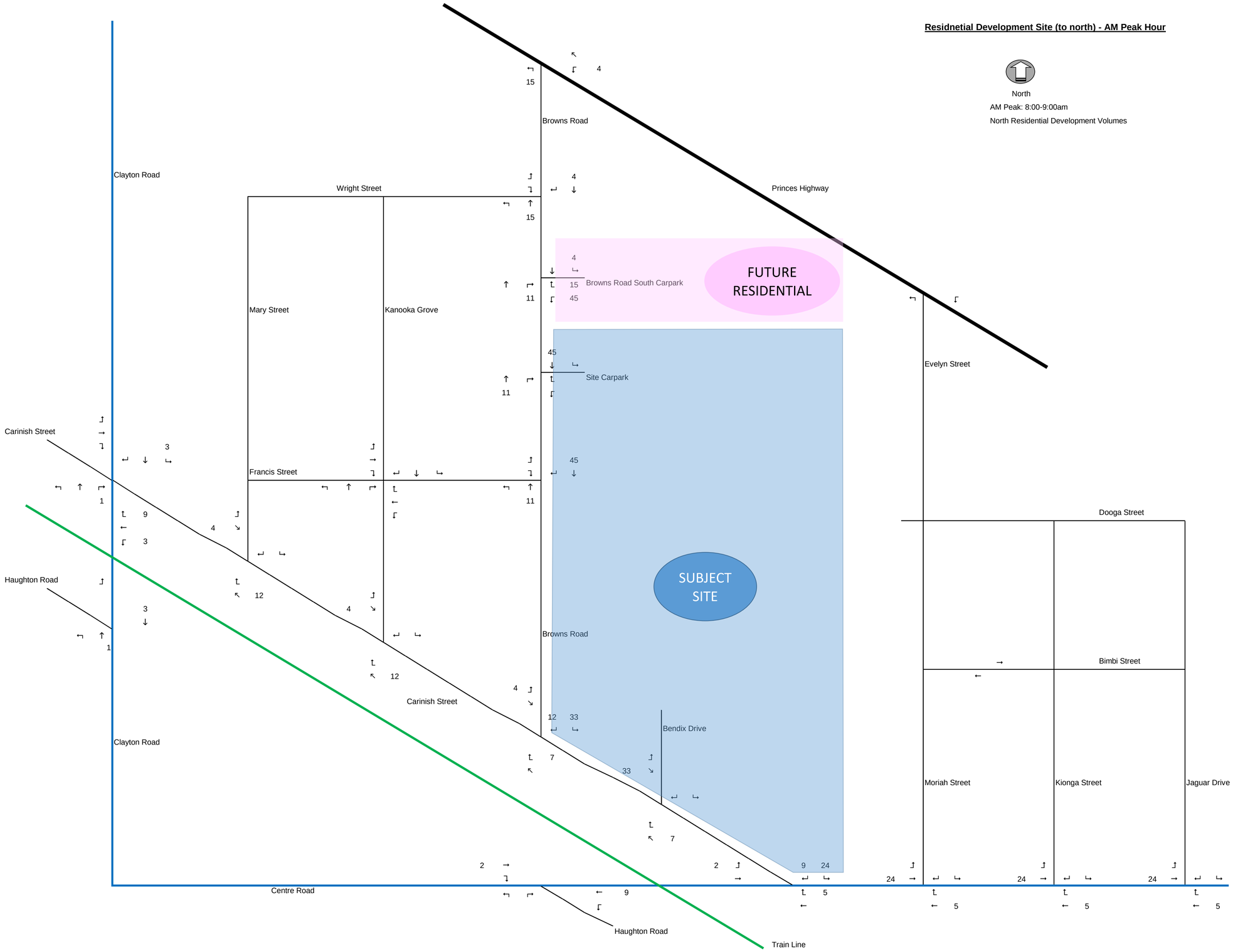
JACKSON GREEN

Haughton Road

Train Line

Residnetial Development Site (to north) - AM Peak Hour

North
AM Peak: 8:00-9:00am
North Residential Development Volumes

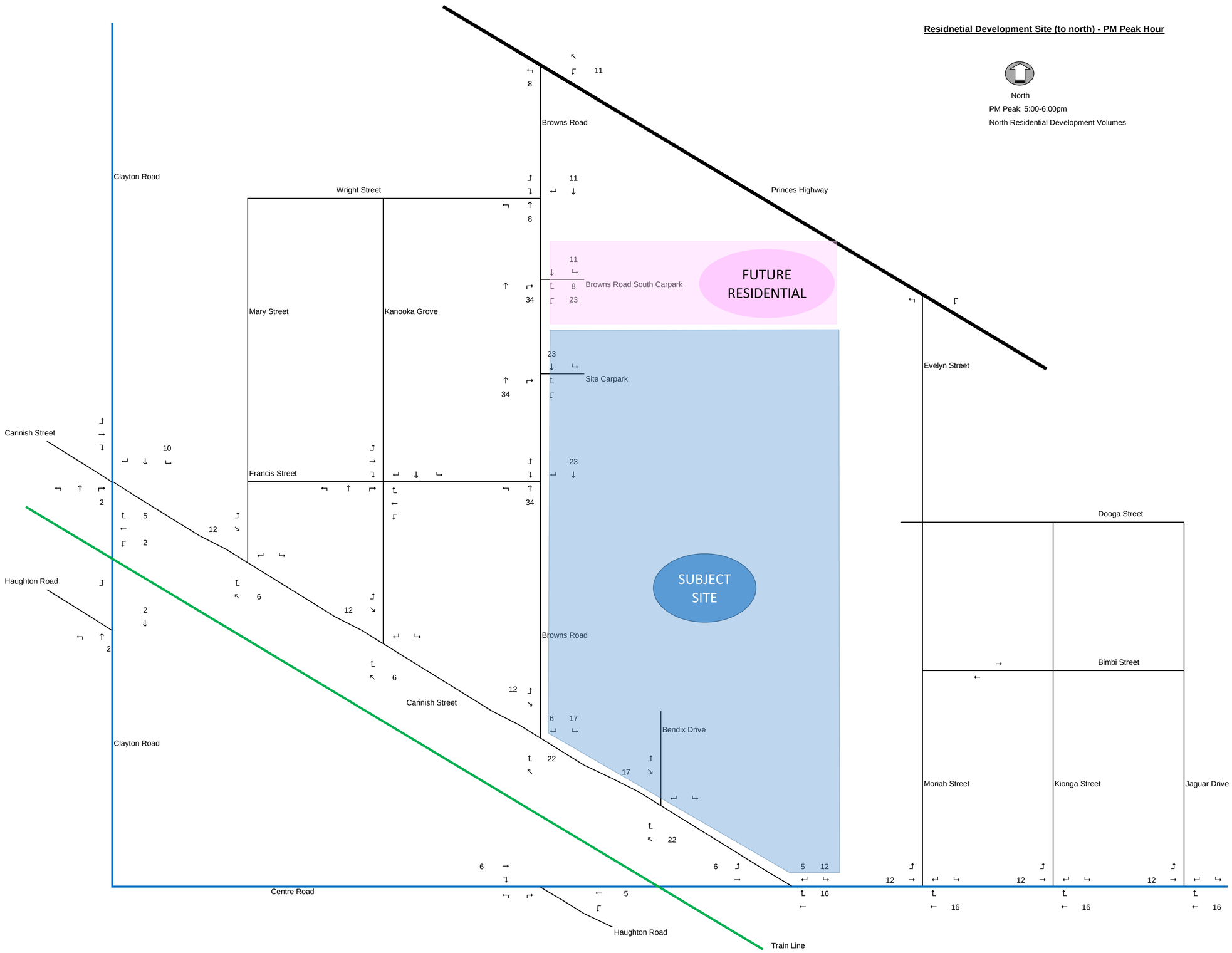


Residnetial Development Site (to north) - PM Peak Hour

North

PM Peak: 5:00-6:00pm

North Residential Development Volumes



Monash Medical Centre Development Site - AM Peak Hour

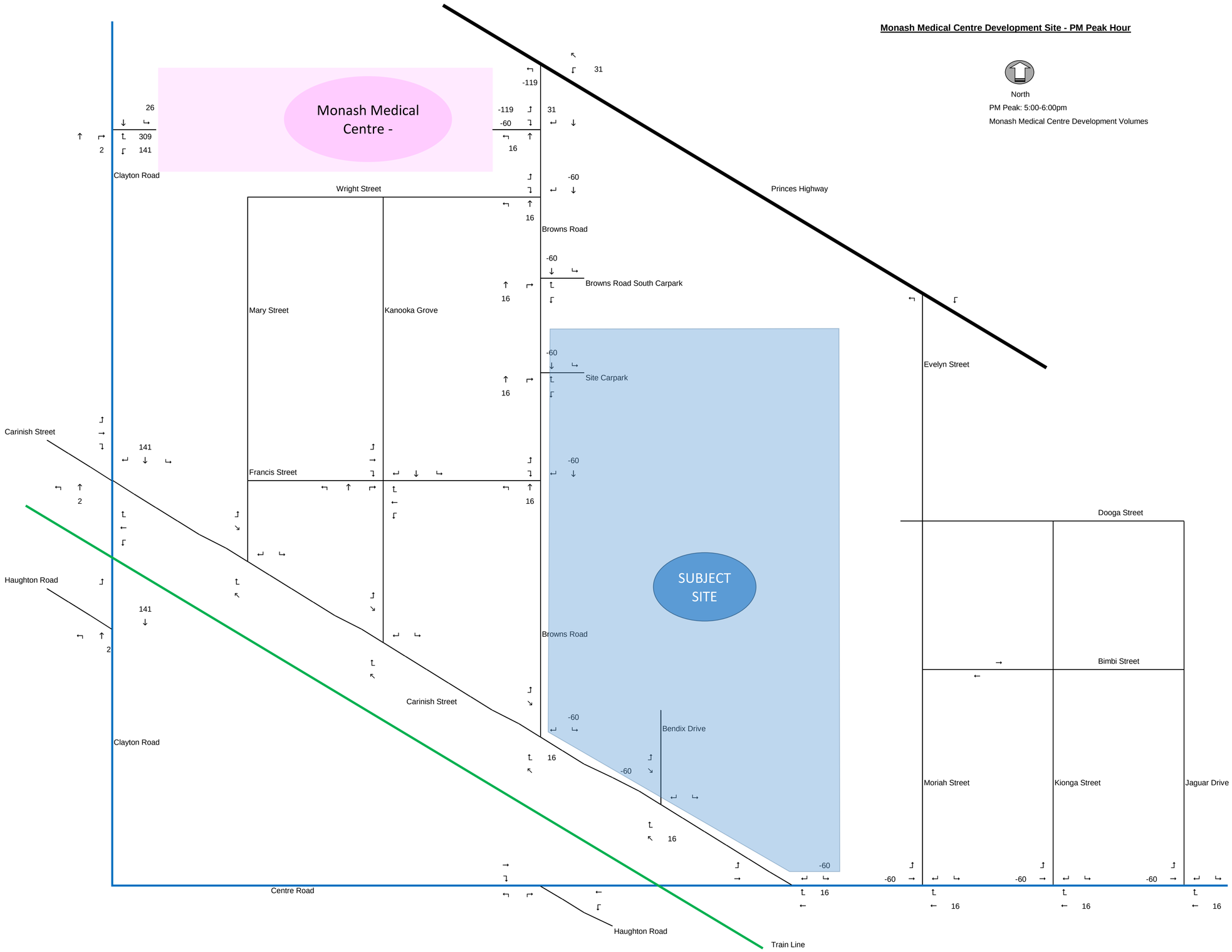
North
AM Peak: 8:00-9:00am
Monash Medical Centre Development Volumes

Monash Medical Centre -

SUBJECT SITE

Clayton Road
Wright Street
Princes Highway
Browns Road
Browns Road South Carpark
Mary Street
Kanooka Grove
Site Carpark
Evelyn Street
Carinish Street
Francis Street
Dooga Street
Haughton Road
Bimbi Street
Bendix Drive
Moriah Street
Kionga Street
Jaguar Drive
Centre Road
Train Line

Monash Medical Centre Development Site - PM Peak Hour



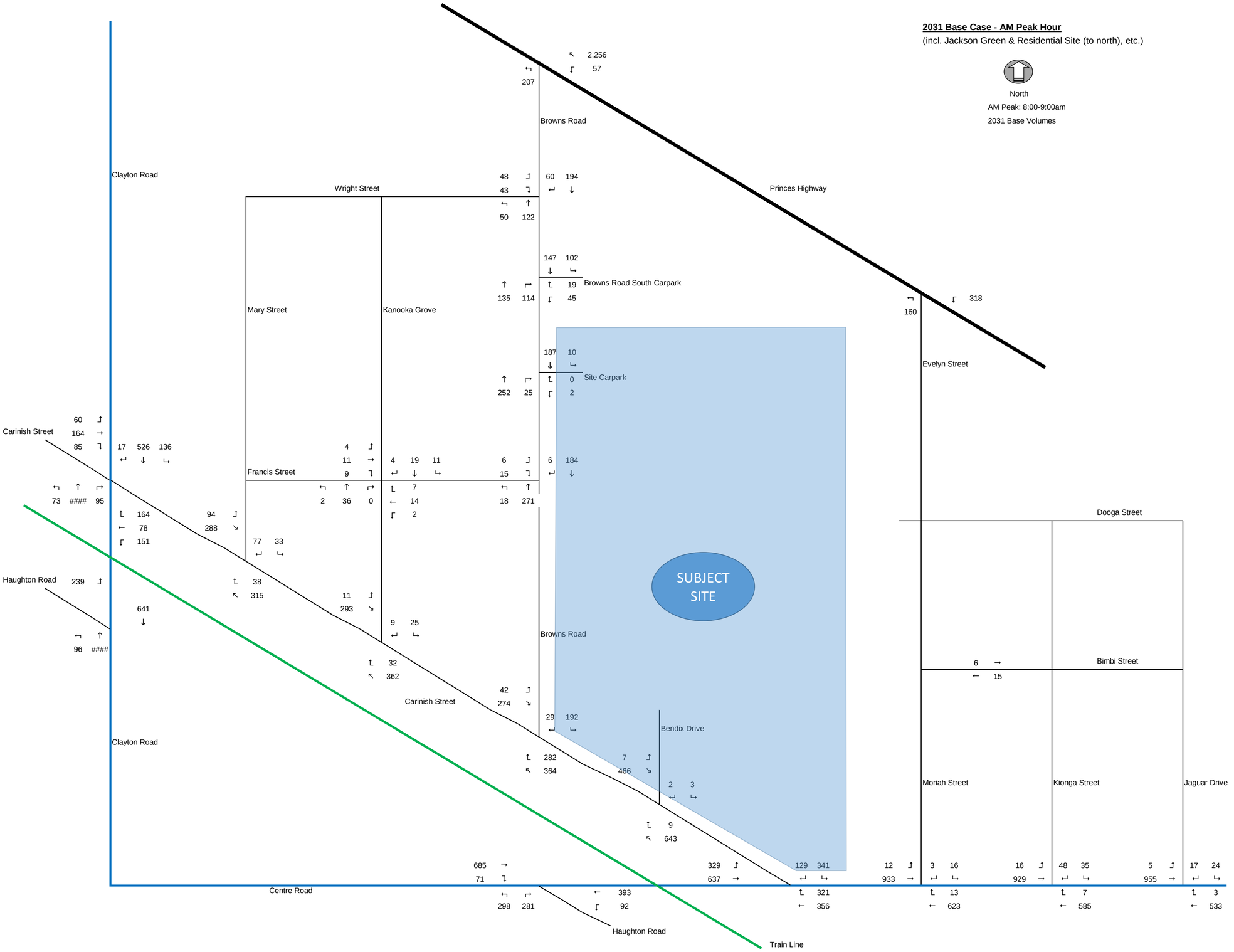
North

PM Peak: 5:00-6:00pm

Monash Medical Centre Development Volumes

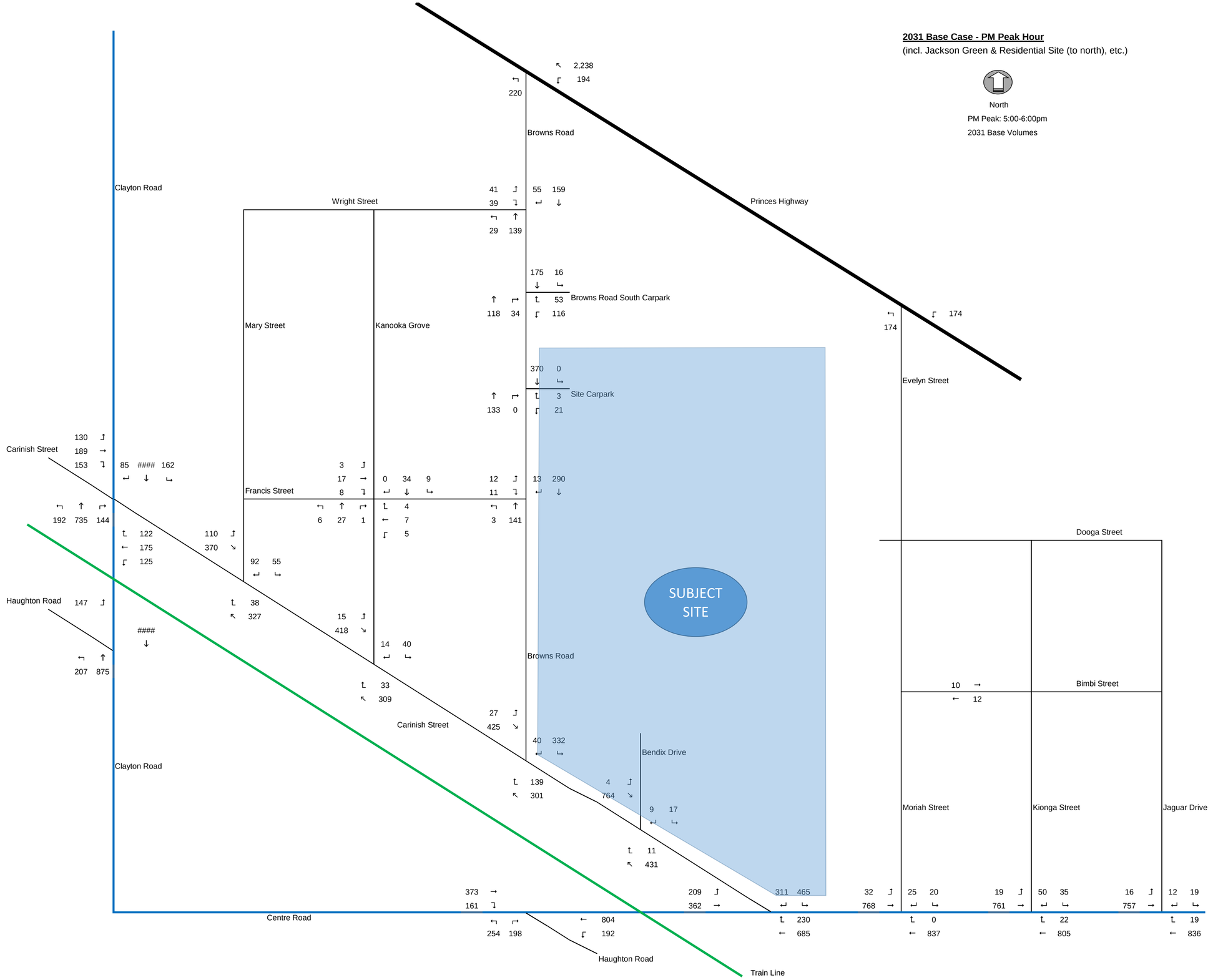
2031 Base Case - AM Peak Hour
(incl. Jackson Green & Residential Site (to north), etc.)

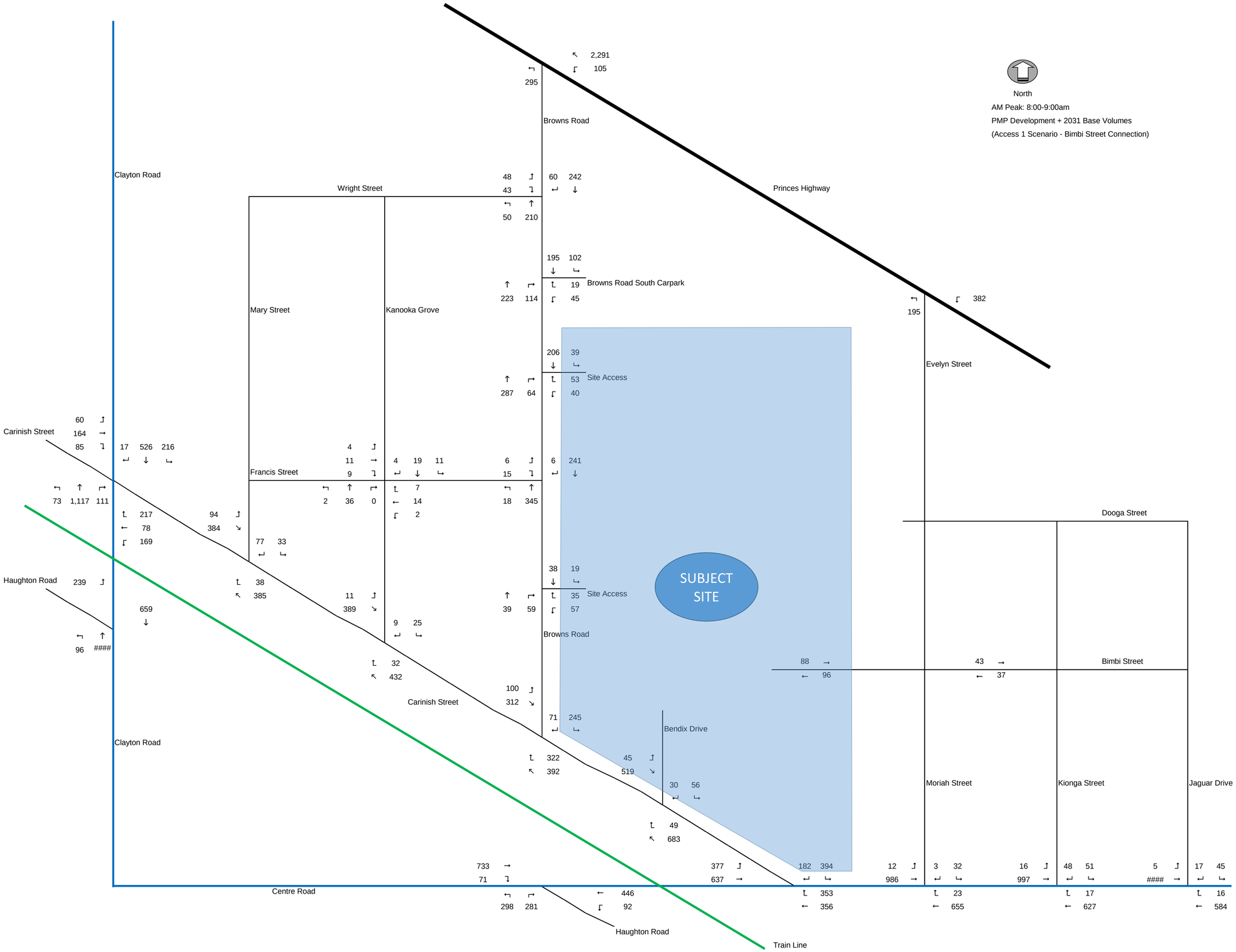
North
AM Peak: 8:00-9:00am
2031 Base Volumes



2031 Base Case - PM Peak Hour
(incl. Jackson Green & Residential Site (to north), etc.)

North
PM Peak: 5:00-6:00pm
2031 Base Volumes




North
AM Peak: 8:00-9:00am
PMP Development + 2031 Base Volumes
(Access 1 Scenario - Bimbi Street Connection)
SUBJECT SITE
Princes Highway
Clayton Road
Wright Street
Mary Street
Kanooka Grove
Francis Street
Browns Road
Browns Road South Carpark
Site Access
Site Access
Browns Road
Carinish Street
Carinish Street
Bendix Drive
Evelyn Street
Dooga Street
Bimbi Street
Moriah Street
Kionga Street
Jaguar Drive
Haughton Road
Haughton Road
Centre Road
Train Line
2,291
105
295
48
43
50
210
60
242
195
102
19
223
114
45
382
195
206
39
53
287
64
40
60
164
85
17
526
216
4
11
9
4
19
11
6
15
6
241
73
1,117
111
2
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0
7
14
2
18
345
217
78
169
94
384
77
33
38
385
38
19
35
57
239
659
96
####
11
389
9
25
32
432
100
312
71
245
322
392
45
519
30
56
49
683
88
96
43
37
733
71
298
281
446
92
377
637
182
394
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5
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16
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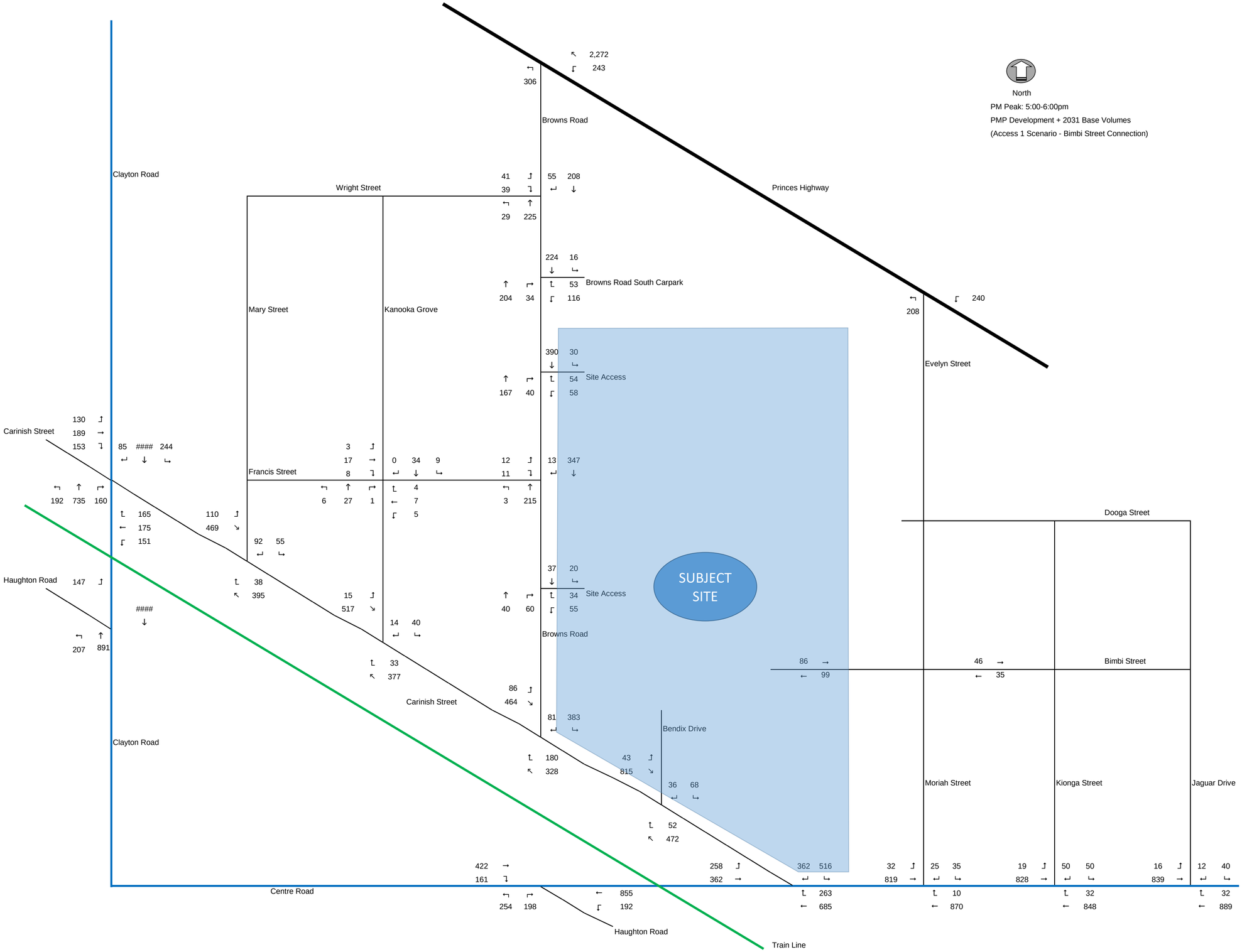
North
PM Peak: 5:00-6:00pm
PMP Development + 2031 Base Volumes
(Access 1 Scenario - Bimbi Street Connection)
SUBJECT SITE
Princes Highway
Browns Road
Clayton Road
Wright Street
Mary Street
Kanooka Grove
Francis Street
Carinish Street
Haughton Road
Browns Road South Carpark
Site Access
Evelyn Street
Dooga Street
Bimbi Street
Bendix Drive
Moriah Street
Kionga Street
Jaguar Drive
Centre Road
Train Line
2,272
243
306
41
39
29
225
55
208
224
16
53
204
34
116
240
208
390
30
54
167
40
58
130
189
153
85
####
244
3
17
8
0
34
9
12
11
13
347
192
735
160
6
27
1
4
7
5
3
215
165
175
151
110
469
92
55
37
20
34
40
60
55
147
38
395
15
517
####
14
40
207
891
33
377
86
464
81
383
180
328
43
815
36
68
52
472
422
161
254
198
855
192
258
362
362
516
263
685
32
819
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35
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32
848
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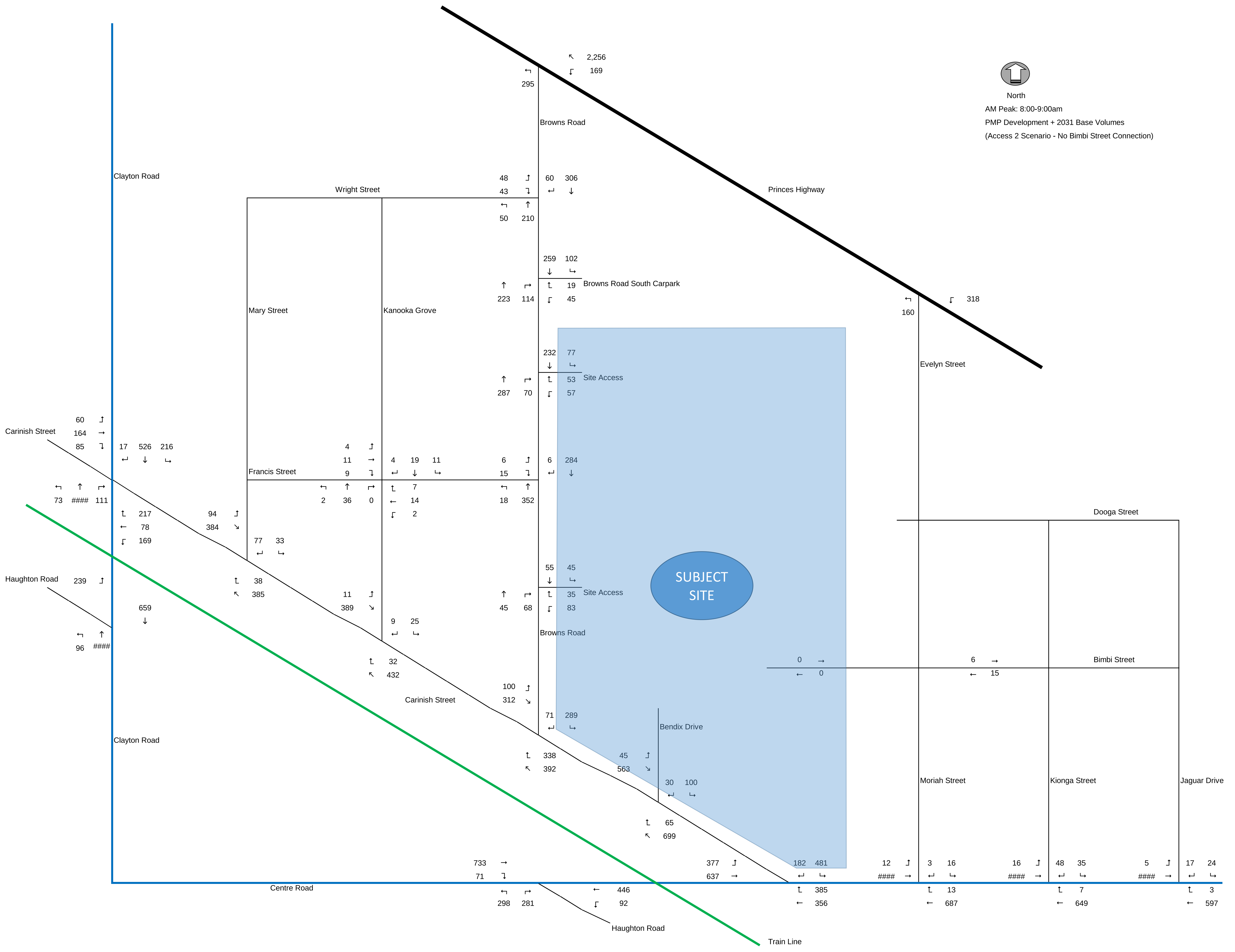
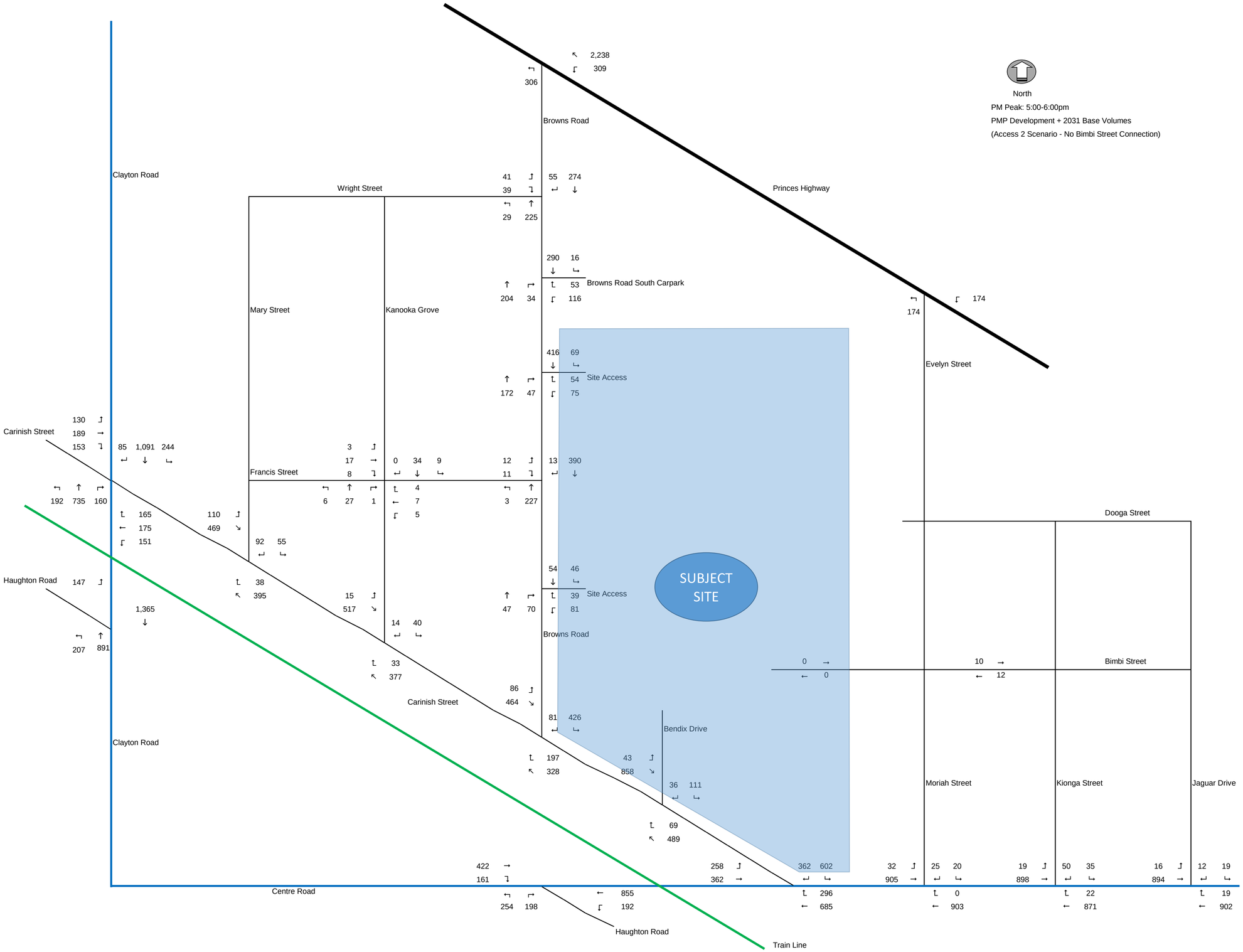
839
12
40
32
889


North
AM Peak: 8:00-9:00am
PMP Development + 2031 Base Volumes
(Access 2 Scenario - No Bimbi Street Connection)
Clayton Road
Wright Street
Browns Road
Princes Highway
Browns Road South Carpark
Mary Street
Kanooka Grove
Evelyn Street
Site Access
Carinish Street
Francis Street
Dooga Street
Haughton Road
SUBJECT SITE
Bimbi Street
Bendix Drive
Moriah Street
Kionga Street
Jaguar Drive
Centre Road
Train Line


North
PM Peak: 5:00-6:00pm
PMP Development + 2031 Base Volumes
(Access 2 Scenario - No Bimbi Street Connection)
SUBJECT SITE
Princes Highway
Clayton Road
Browns Road
Wright Street
Mary Street
Kanooka Grove
Francis Street
Carinish Street
Haughton Road
Browns Road South Carpark
Site Access
Evelyn Street
Dooga Street
Bimbi Street
Bendix Drive
Moriah Street
Kionga Street
Jaguar Drive
Centre Road
Train Line
2,238
309
306
41
39
29
225
55
274
290
16
53
204
34
116
174
174
416
69
54
172
47
75
130
189
153
85
1,091
244
3
17
8
0
34
9
12
11
13
390
192
735
160
6
27
1
4
7
5
3
227
165
175
151
110
469
92
55
54
46
39
81
147
38
395
15
517
47
70
1,365
14
40
207
891
33
377
86
464
81
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602
296
685
32
905
25
20
0
903
19
898
50
35
22
871
16
894
12
19
902
0
10
12

APPENDIX

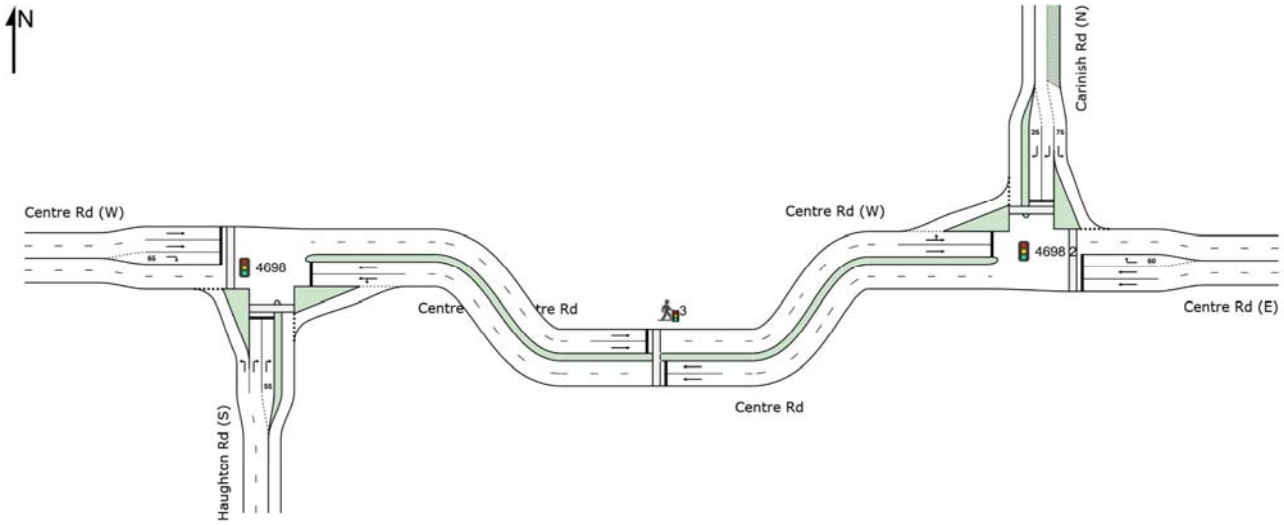
E

SIDRA RESULTS

NETWORK LAYOUT

Network: N101 [EXAM]

New Network
Network Category: (None)



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
4698	CCG1	Centre-Haughton EXAM
3	CCG1	PedCrossing AM
4698 2	CCG1	Centre-Carnish EXAM

Organisation: CARDNO (QLD) PTY LTD | Created: Tuesday, 12 February 2019 11:19:45 AM
Project: M:\2017\0501_1000\V170605_PMP_Printing_Precinct,_Clayton\Traffic\Engineering\SIDRA\V170605-SID003 - Carinish-Centre-Haughton V6.sip8

MOVEMENT SUMMARY

Site: 4698 [Centre-Haughton EXAM]

Network: N101 [EXAM]

Centre Rd / Haughton Rd
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 73 seconds (CCG User-Given Cycle Time)
Common Control Group: CCG1 [Vicroads TSP]

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Haughton Rd (S)														
1	L2	152	5.0	152	5.0	0.131	6.8	LOS A	0.9	6.8	0.23	0.61	0.23	54.5
3	R2	146	5.0	146	5.0	0.425	41.5	LOS D	2.6	19.2	0.98	0.76	0.98	29.4
Approach		298	5.0	298	5.0	0.425	23.8	LOS C	2.6	19.2	0.60	0.68	0.60	42.6
East: Centre Rd (E)														
4	L2	82	5.0	82	5.0	0.581	11.3	LOS B	4.5	32.6	0.41	0.48	0.88	48.2
5	T1	681	5.0	681	5.0	0.581	7.7	LOS A	4.5	32.6	0.42	0.42	0.63	50.3
Approach		763	5.0	763	5.0	0.581	8.1	LOS A	4.5	32.6	0.42	0.42	0.66	50.0
West: Centre Rd (W)														
11	T1	733	5.0	733	5.0	0.566	21.4	LOS C	10.8	79.0	0.87	0.75	0.87	39.1
12	R2	47	5.0	47	5.0	0.321	42.3	LOS D	1.7	12.5	0.98	0.74	0.98	38.6
Approach		780	5.0	780	5.0	0.566	22.7	LOS C	10.8	79.0	0.88	0.75	0.88	39.0
All Vehicles		1841	5.0	1841	5.0	0.581	16.8	LOS B	10.8	79.0	0.64	0.60	0.74	43.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	22.3	LOS C	0.1	0.1	0.78	0.78
P4	West Full Crossing	16	26.3	LOS C	0.0	0.0	0.85	0.85
All Pedestrians		68	23.2	LOS C			0.80	0.80

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: 4698 2 [Centre-Carnish EXAM]

Network: N101 [EXAM]

Centre Road / Carnish Road
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 73 seconds (CCG User-Given Cycle Time)
Common Control Group: CCG1 [Vicroads TSP]

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Centre Rd (E)														
5	T1	675	5.0	675	5.0	0.522	21.0	LOS C	9.8	71.3	0.85	0.73	0.85	31.7
6	R2	329	5.0	329	5.0	0.671	21.6	LOS C	7.8	56.8	0.94	0.84	0.97	46.1
Approach		1004	5.0	1004	5.0	0.671	21.2	LOS C	9.8	71.3	0.88	0.76	0.89	39.2
North: Carinish Rd (N)														
7	L2	234	5.0	234	5.0	0.196	7.5	LOS A	1.9	14.1	0.29	0.63	0.29	53.9
9	R2	67	5.0	67	5.0	0.196	40.3	LOS D	1.2	8.6	0.95	0.72	0.95	34.4
Approach		301	5.0	301	5.0	0.196	14.8	LOS B	1.9	14.1	0.44	0.65	0.44	49.3
West: Centre Rd (W)														
10	L2	211	5.0	211	5.0	0.646	10.1	LOS B	3.4	24.5	0.58	0.63	0.69	51.1
11	T1	668	5.0	668	5.0	0.646	8.9	LOS A	3.4	24.5	0.57	0.55	0.62	43.4
Approach		879	5.0	879	5.0	0.646	9.2	LOS A	3.4	24.5	0.58	0.57	0.63	46.3
All Vehicles		2184	5.0	2184	5.0	0.671	15.5	LOS B	9.8	71.3	0.70	0.67	0.73	43.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P2	East Full Crossing	16	30.8	LOS D	0.0	0.0	0.92	0.92
P3	North Full Crossing	53	22.3	LOS C	0.1	0.1	0.78	0.78
All Pedestrians		68	24.3	LOS C			0.81	0.81

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.

CCG PHASING SUMMARY

Common Control Group: CCG1 [Vicroads TSP] — Network: N101 [EXAM]

Fixed Time Isolated Cycle Time = 73 seconds (CCG User-Given Cycle Time)

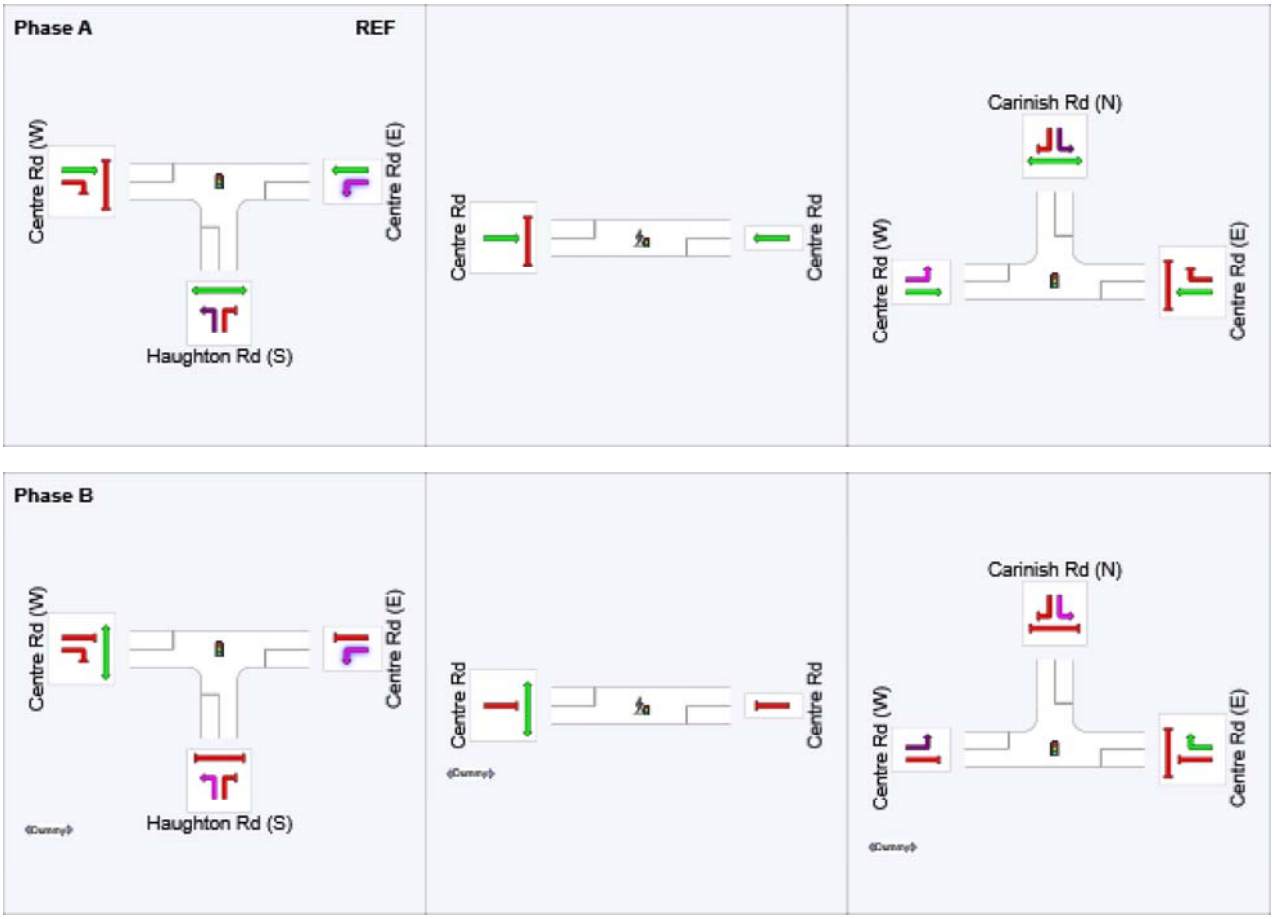
Timings based on settings in the CCG Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Updated phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C1*, C2*, C3*, D1, D2*, D3*
Output Phase Sequence: A, B, C1*, D1
(* Variable Phase)

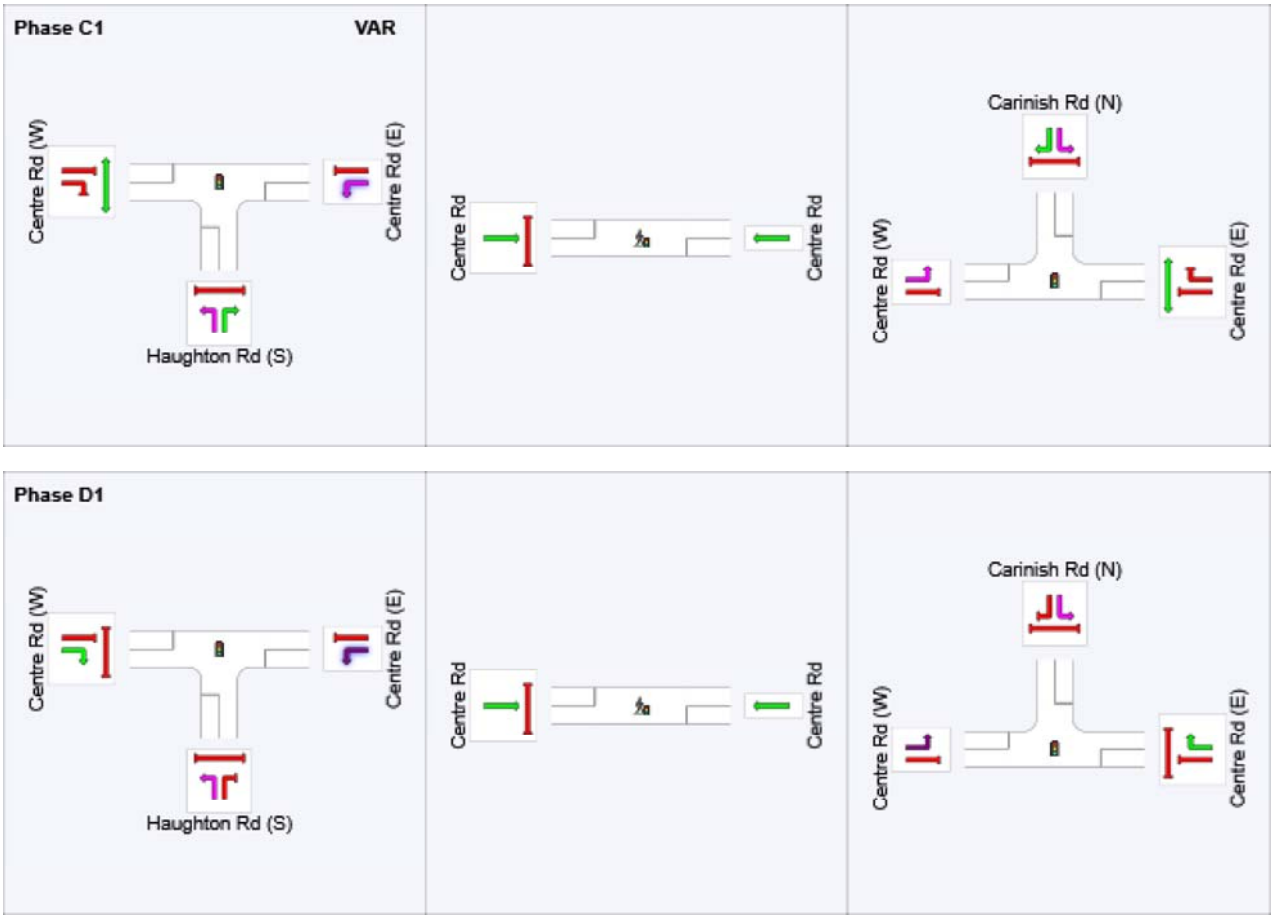
Phase Timing Summary (CCG)

Phase	A	B	C1	D1
Phase Change Time (sec)	0	31	51	61
Green Time (sec)	25	14	7	6
Phase Time (sec)	31	17	13	12
Phase Split	42%	23%	18%	16%

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

Output Phase Sequence (CCG)





REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class (MC) Running	Undetected Movement
Mixed Running & Stopped MCs	Continuous Movement
Other Movement Class (MC) Stopped	Phase Transition Applied

MOVEMENT SUMMARY

Site: 4698 [Centre-Haughton EXPM]

Network: N101 [EXPM]

Centre Rd / Haughton Rd
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 70 seconds (CCG User-Given Cycle Time)
Common Control Group: CCG1 [Vicroads TSP]

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Haughton Rd (S)														
1	L2	142	5.0	142	5.0	0.142	9.6	LOS A	1.7	12.2	0.40	0.65	0.40	52.8
3	R2	109	5.0	109	5.0	0.356	40.7	LOS D	1.9	13.9	0.98	0.74	0.98	29.7
Approach		252	5.0	252	5.0	0.356	23.1	LOS C	1.9	13.9	0.65	0.69	0.65	43.4
East: Centre Rd (E)														
4	L2	151	5.0	151	5.0	0.843	21.2	LOS C	4.5	32.6	0.83	0.89	1.42	40.3
5	T1	964	5.0	964	5.0	0.843	17.3	LOS B	4.5	32.6	0.84	0.85	1.16	42.1
Approach		1115	5.0	1115	5.0	0.843	17.8	LOS B	4.5	32.6	0.84	0.86	1.19	41.8
West: Centre Rd (W)														
11	T1	658	5.0	658	5.0	0.508	20.0	LOS C	9.1	66.4	0.85	0.72	0.85	40.0
12	R2	83	5.0	83	5.0	0.464	40.0	LOS D	2.9	21.0	0.98	0.76	0.98	39.3
Approach		741	5.0	741	5.0	0.508	22.3	LOS C	9.1	66.4	0.86	0.73	0.86	39.8
All Vehicles		2107	5.0	2107	5.0	0.843	20.0	LOS C	9.1	66.4	0.82	0.79	1.01	41.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	21.7	LOS C	0.1	0.1	0.79	0.79
P4	West Full Crossing	16	27.5	LOS C	0.0	0.0	0.89	0.89
All Pedestrians		68	23.0	LOS C			0.81	0.81

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: 4698 2 [Centre-Carnish EXPM]

Network: N101 [EXPM]

Centre Road / Carnish Road
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 70 seconds (CCG User-Given Cycle Time)
Common Control Group: CCG1 [Vicroads TSP]

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Centre Rd (E)														
5	T1	862	5.0	862	5.0	0.666	21.5	LOS C	12.8	93.4	0.91	0.79	0.91	31.3
6	R2	141	5.0	141	5.0	0.787	44.3	LOS D	5.4	39.2	1.00	0.92	1.33	37.6
Approach		1003	5.0	1003	5.0	0.787	24.7	LOS C	12.8	93.4	0.92	0.81	0.97	33.3
North: Carinish Rd (N)														
7	L2	377	5.0	377	5.0	0.329	7.4	LOS A	3.2	23.3	0.32	0.64	0.32	54.0
9	R2	253	5.0	253	5.0	0.822	46.3	LOS D	4.9	36.1	1.00	0.95	1.44	32.4
Approach		629	5.0	629	5.0	0.822	23.0	LOS C	4.9	36.1	0.59	0.76	0.77	44.5
West: Centre Rd (W)														
10	L2	112	5.0	112	5.0	0.568	11.3	LOS B	3.4	24.5	0.46	0.57	0.91	50.6
11	T1	662	5.0	662	5.0	0.568	8.7	LOS A	3.4	24.5	0.49	0.49	0.69	43.8
Approach		774	5.0	774	5.0	0.568	9.1	LOS A	3.4	24.5	0.48	0.51	0.72	45.5
All Vehicles		2406	5.0	2406	5.0	0.822	19.2	LOS B	12.8	93.4	0.69	0.70	0.84	40.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P2	East Full Crossing	16	27.5	LOS C	0.0	0.0	0.89	0.89
P3	North Full Crossing	53	21.7	LOS C	0.1	0.1	0.79	0.79
All Pedestrians		68	23.0	LOS C			0.81	0.81

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.

CCG PHASING SUMMARY

Common Control Group: CCG1 [Vicroads TSP]

Network: N101 [EXPM]

Fixed Time Isolated Cycle Time = 70 seconds (CCG User-Given Cycle Time)

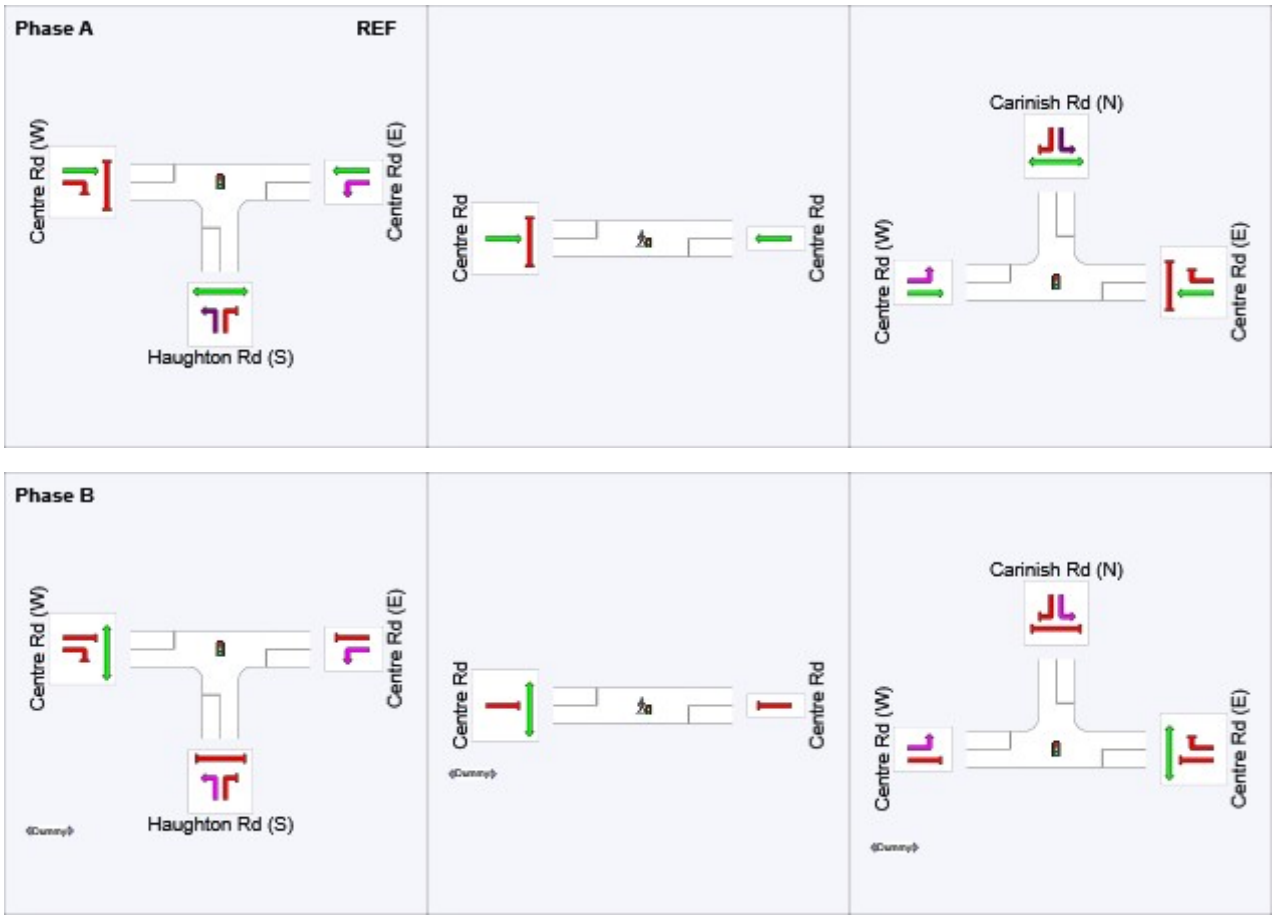
Timings based on settings in the CCG Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: updated phase
Reference Phase: Phase A
Input Phase Sequence: A, B, C1*, C2*, C3*, D1, D2*, D3*
Output Phase Sequence: A, B, C1*, D1
(* Variable Phase)

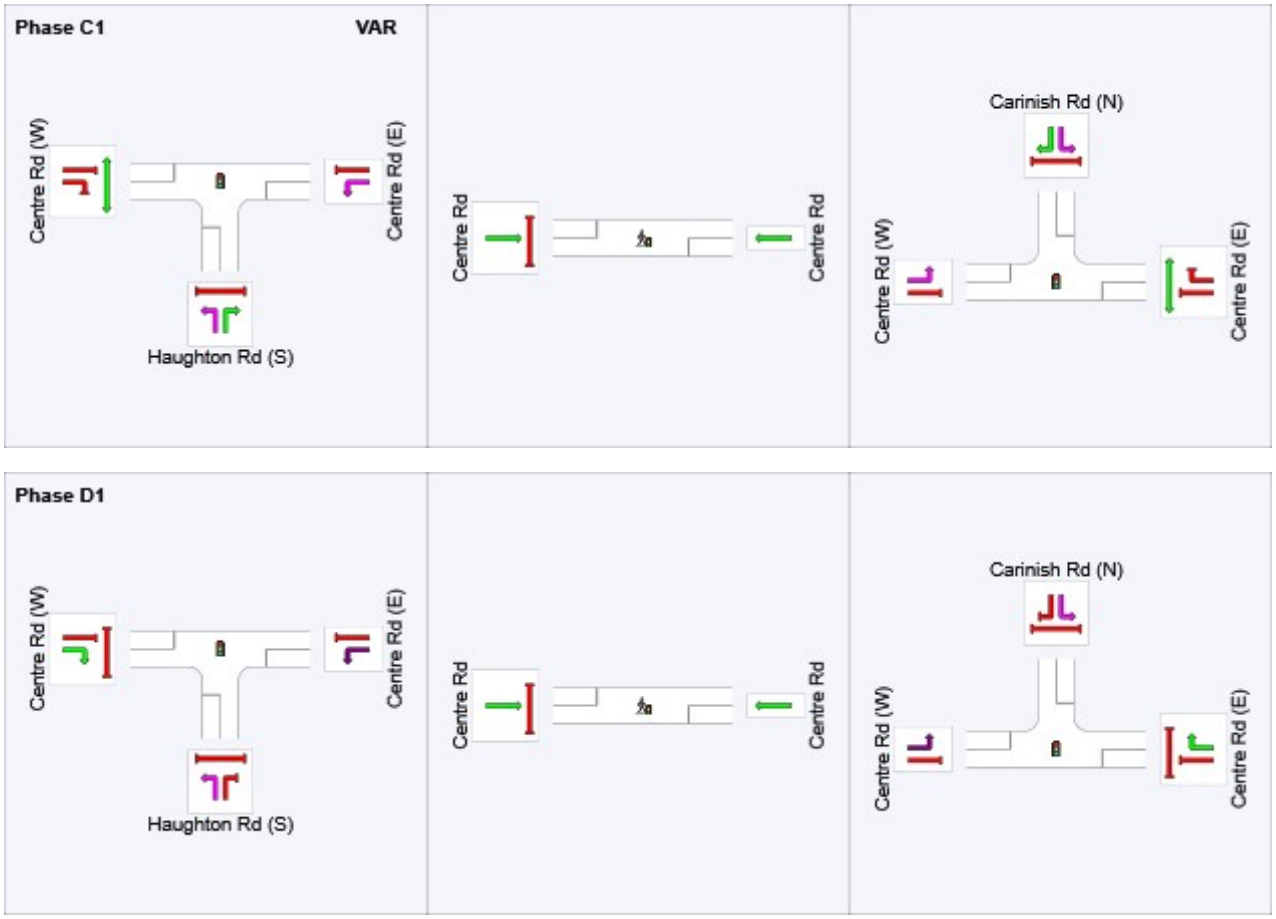
Phase Timing Summary (CCG)

Phase	A	B	C1	D1
Phase Change Time (sec)	0	30	48	57
Green Time (sec)	24	12	6	7
Phase Time (sec)	30	15	12	13
Phase Split	43%	21%	17%	19%

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

Output Phase Sequence (CCG)





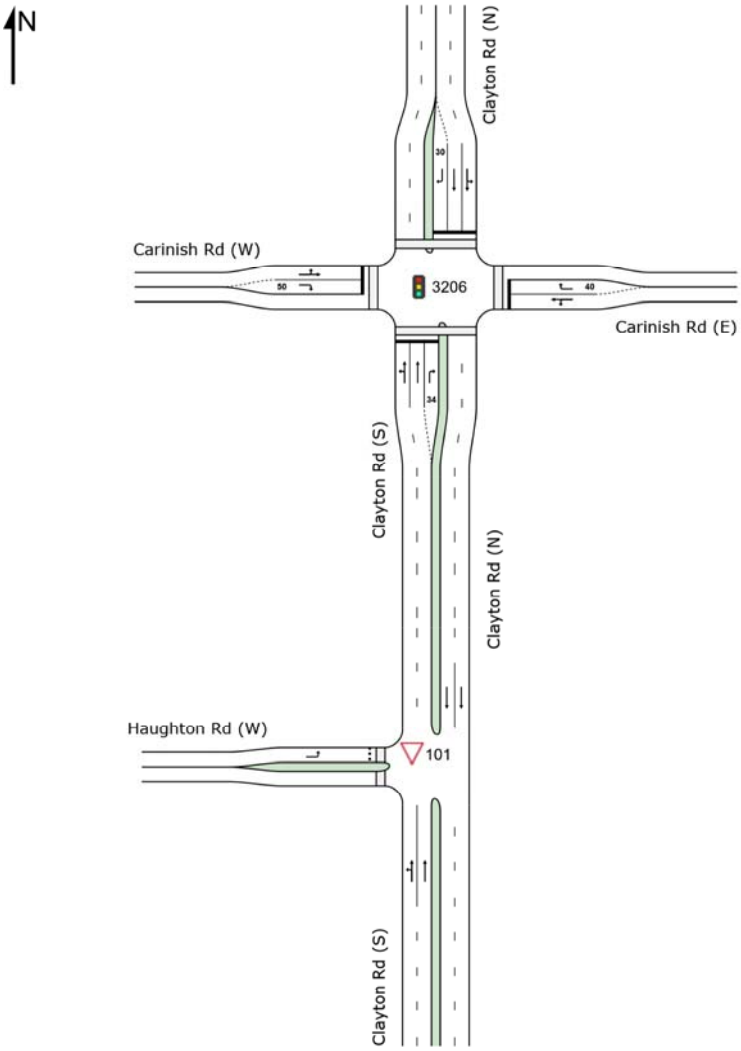
REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class (MC) Running	Undetected Movement
Mixed Running & Stopped MCs	Continuous Movement
Other Movement Class (MC) Stopped	Phase Transition Applied

NETWORK LAYOUT

Network: N101 [EXAM Vols]

Clayton Road / Carinish Road / Haughton Road
Network Category: (None)



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
3206	NA	EXAM
101	NA	EXAM Vols

MOVEMENT SUMMARY

Site: 3206 [EXAM]

Network: N101 [EXAM Vols]

Clayton Road / Carinish Road
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 86 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Clayton Rd (S)														
1	L2	74	5.0	74	5.0	0.511	18.8	LOS B	7.8	57.1	0.72	0.66	0.72	38.8
2	T1	820	5.0	820	5.0	0.511	15.1	LOS B	7.8	57.1	0.70	0.63	0.70	37.7
3	R2	83	5.0	83	5.0	0.499	45.9	LOS D	3.5	25.8	0.99	0.77	0.99	24.5
Approach		977	5.0	977	5.0	0.511	18.0	LOS B	7.8	57.1	0.73	0.64	0.73	35.8
East: Carinish Rd (E)														
4	L2	46	5.0	46	5.0	0.272	37.8	LOS D	3.6	26.3	0.89	0.73	0.89	28.3
5	T1	53	5.0	53	5.0	0.272	32.2	LOS C	3.6	26.3	0.89	0.73	0.89	38.2
6	R2	103	5.0	103	5.0	0.495	44.5	LOS D	4.2	30.9	0.97	0.78	0.97	32.3
Approach		202	5.0	202	5.0	0.495	39.8	LOS D	4.2	30.9	0.93	0.76	0.93	33.3
North: Clayton Rd (N)														
7	L2	93	5.0	93	5.0	0.356	19.6	LOS B	8.4	61.5	0.65	0.62	0.65	45.3
8	T1	562	5.0	562	5.0	0.356	13.9	LOS B	8.4	61.5	0.65	0.58	0.65	37.3
9	R2	16	5.0	16	5.0	0.095	45.7	LOS D	0.6	4.6	0.94	0.69	0.94	31.9
Approach		671	5.0	671	5.0	0.356	15.5	LOS B	8.4	61.5	0.65	0.59	0.65	38.7
West: Carinish Rd (W)														
10	L2	14	5.0	14	5.0	0.368	38.5	LOS D	5.1	37.2	0.91	0.74	0.91	36.3
11	T1	123	5.0	123	5.0	0.368	32.9	LOS C	5.1	37.2	0.91	0.74	0.91	38.8
12	R2	79	5.0	79	5.0	0.337	41.5	LOS D	3.1	22.4	0.93	0.77	0.93	25.7
Approach		216	5.0	216	5.0	0.368	36.4	LOS D	5.1	37.2	0.92	0.75	0.92	34.6
All Vehicles		2065	5.0	2065	5.0	0.511	21.2	LOS C	8.4	61.5	0.74	0.65	0.74	36.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	37.3	LOS D	0.1	0.1	0.93	0.93
P2	East Full Crossing	53	14.6	LOS B	0.1	0.1	0.58	0.58
P3	North Full Crossing	53	37.3	LOS D	0.1	0.1	0.93	0.93
P4	West Full Crossing	53	14.6	LOS B	0.1	0.1	0.58	0.58
All Pedestrians		211	25.9	LOS C			0.76	0.76

MOVEMENT SUMMARY

Site: 101 [EXAM Vols]

Network: N101 [EXAM Vols]

Clayton Road / Haughton Road
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Clayton Rd (S)														
1	L2	40	2.0	40	2.0	0.236	5.6	LOS A	4.3	31.0	0.00	0.05	0.00	56.4
2	T1	848	5.0	848	5.0	0.236	0.0	LOS A	4.3	31.0	0.00	0.03	0.00	58.0
Approach		888	4.9	888	4.9	0.236	0.3	NA	4.3	31.0	0.00	0.03	0.00	57.7
North: Clayton Rd (N)														
8	T1	687	5.0	687	5.0	0.182	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		687	5.0	687	5.0	0.182	0.0	NA	0.0	0.0	0.00	0.00	0.00	60.0
West: Haughton Rd (W)														
10	L2	128	2.0	128	2.0	0.286	7.7	LOS A	0.6	4.3	0.46	0.70	0.46	48.1
Approach		128	2.0	128	2.0	0.286	7.7	LOS A	0.6	4.3	0.46	0.70	0.46	48.1
All Vehicles		1704	4.7	1704	4.7	0.286	0.7	NA	4.3	31.0	0.03	0.07	0.03	55.9

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

PHASING SUMMARY

Site: 3206 [EXAM]

Network: N101 [EXAM Vols]

Clayton Road / Carinish Road
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 86 seconds (Site User-Given Cycle Time)

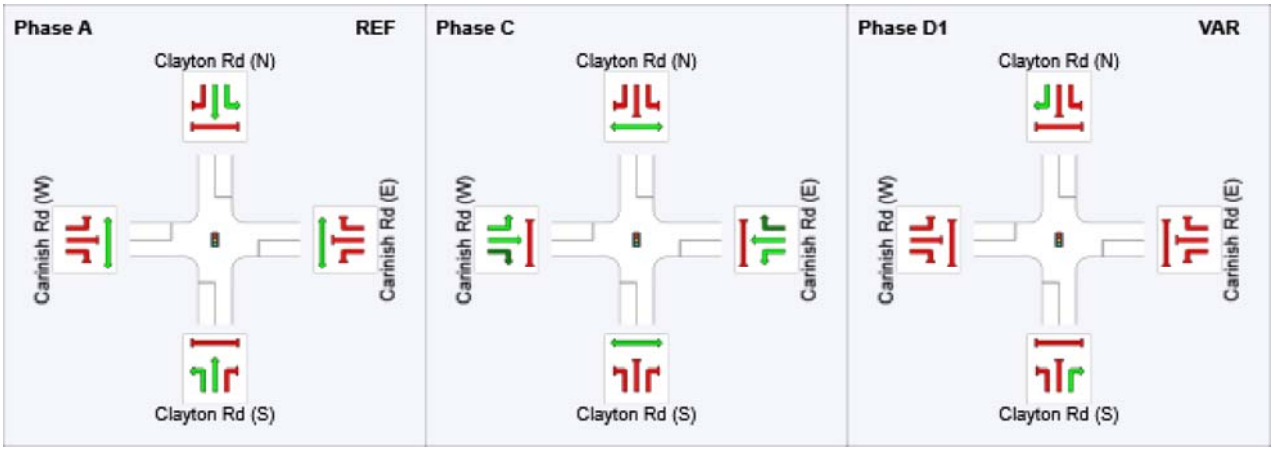
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Vicroads (updated)
Reference Phase: Phase A
Input Phase Sequence: A, B1*, B2*, B3*, C, D1*, D2*, D3*
Output Phase Sequence: A, C, D1*
(* Variable Phase)

Phase Timing Summary

Phase	A	C	D1
Phase Change Time (sec)	0	49	72
Green Time (sec)	43	17	8
Phase Time (sec)	49	23	14
Phase Split	57%	27%	16%

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

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class (MC) Running	Undetected Movement
Mixed Running & Stopped MCs	Continuous Movement
Other Movement Class (MC) Stopped	Phase Transition Applied

MOVEMENT SUMMARY

Site: 3206 [EXPM]

Network: N101 [EXPM Vols]

Clayton Road / Carinish Road
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 95 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Clayton Rd (S)														
1	L2	101	5.0	101	5.0	0.568	25.2	LOS C	7.8	57.1	0.81	0.73	0.81	34.4
2	T1	725	5.0	725	5.0	0.568	21.2	LOS C	7.8	57.1	0.78	0.69	0.78	32.8
3	R2	133	5.0	133	5.0	0.540	46.1	LOS D	6.0	43.6	0.98	0.79	0.98	24.4
Approach		959	5.0	959	5.0	0.568	25.0	LOS C	7.8	57.1	0.81	0.71	0.81	31.2
East: Carinish Rd (E)														
4	L2	82	5.0	82	5.0	0.382	38.4	LOS D	6.7	48.9	0.88	0.76	0.88	28.0
5	T1	88	5.0	88	5.0	0.382	32.8	LOS C	6.7	48.9	0.88	0.76	0.88	37.9
6	R2	107	5.0	107	5.0	0.371	41.3	LOS D	4.4	32.2	0.90	0.78	0.90	33.4
Approach		278	5.0	278	5.0	0.382	37.8	LOS D	6.7	48.9	0.89	0.77	0.89	33.8
North: Clayton Rd (N)														
7	L2	109	5.0	109	5.0	0.581	27.6	LOS C	16.4	120.1	0.81	0.74	0.81	40.8
8	T1	814	5.0	814	5.0	0.581	21.9	LOS C	16.4	120.1	0.81	0.72	0.81	31.0
9	R2	22	5.0	22	5.0	0.090	45.1	LOS D	0.9	6.7	0.90	0.70	0.90	32.1
Approach		945	5.0	945	5.0	0.581	23.1	LOS C	16.4	120.1	0.81	0.72	0.81	32.8
West: Carinish Rd (W)														
10	L2	18	5.0	18	5.0	0.216	36.9	LOS D	3.7	26.7	0.84	0.68	0.84	36.8
11	T1	80	5.0	80	5.0	0.216	31.3	LOS C	3.7	26.7	0.84	0.68	0.84	39.3
12	R2	135	5.0	135	5.0	0.577	46.6	LOS D	6.0	44.0	0.97	0.80	0.97	24.0
Approach		233	5.0	233	5.0	0.577	40.6	LOS D	6.0	44.0	0.91	0.75	0.92	30.9
All Vehicles		2415	5.0	2415	5.0	0.581	27.2	LOS C	16.4	120.1	0.83	0.73	0.83	32.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	39.9	LOS D	0.1	0.1	0.92	0.92
P2	East Full Crossing	53	19.6	LOS B	0.1	0.1	0.64	0.64
P3	North Full Crossing	53	39.9	LOS D	0.1	0.1	0.92	0.92
P4	West Full Crossing	53	19.6	LOS B	0.1	0.1	0.64	0.64
All Pedestrians		211	29.8	LOS C			0.78	0.78

MOVEMENT SUMMARY

Site: 101 [EXPM Vols]

Network: N101 [EXPM Vols]

Clayton Road / Haughton Road
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Clayton Rd (S)														
1	L2	42	2.0	42	2.0	0.240	5.6	LOS A	6.6	48.2	0.00	0.06	0.00	56.4
2	T1	864	5.0	864	5.0	0.240	0.0	LOS A	6.6	48.2	0.00	0.03	0.00	57.9
Approach		906	4.9	906	4.9	0.240	0.3	NA	6.6	48.2	0.00	0.03	0.00	57.6
North: Clayton Rd (N)														
8	T1	1031	5.0	1031	5.0	0.273	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		1031	5.0	1031	5.0	0.273	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Haughton Rd (W)														
10	L2	95	2.0	95	2.0	0.213	7.6	LOS A	0.4	3.1	0.45	0.69	0.45	48.2
Approach		95	2.0	95	2.0	0.213	7.6	LOS A	0.4	3.1	0.45	0.69	0.45	48.2
All Vehicles		2032	4.8	2032	4.8	0.273	0.5	NA	6.6	48.2	0.02	0.04	0.02	57.0

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

PHASING SUMMARY

Site: 3206 [EXPM]

Network: N101 [EXPM Vols]

Clayton Road / Carinish Road
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 95 seconds (Site User-Given Cycle Time)

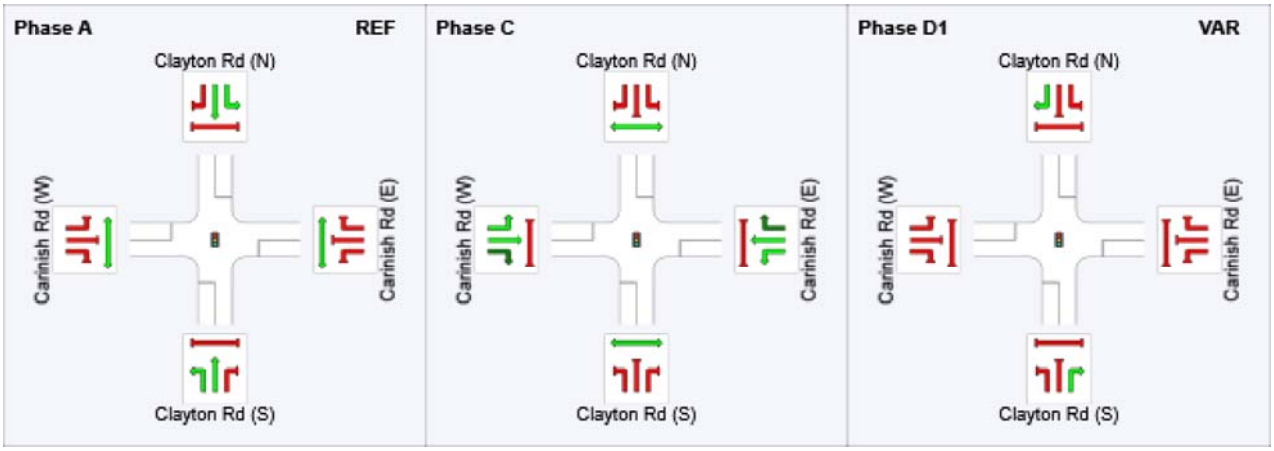
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Vicroads (updated)
Reference Phase: Phase A
Input Phase Sequence: A, B1*, B2*, B3*, C, D1*, D2*, D3*
Output Phase Sequence: A, C, D1*
(* Variable Phase)

Phase Timing Summary

Phase	A	C	D1
Phase Change Time (sec)	0	47	76
Green Time (sec)	41	23	13
Phase Time (sec)	47	29	19
Phase Split	49%	31%	20%

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

Output Phase Sequence



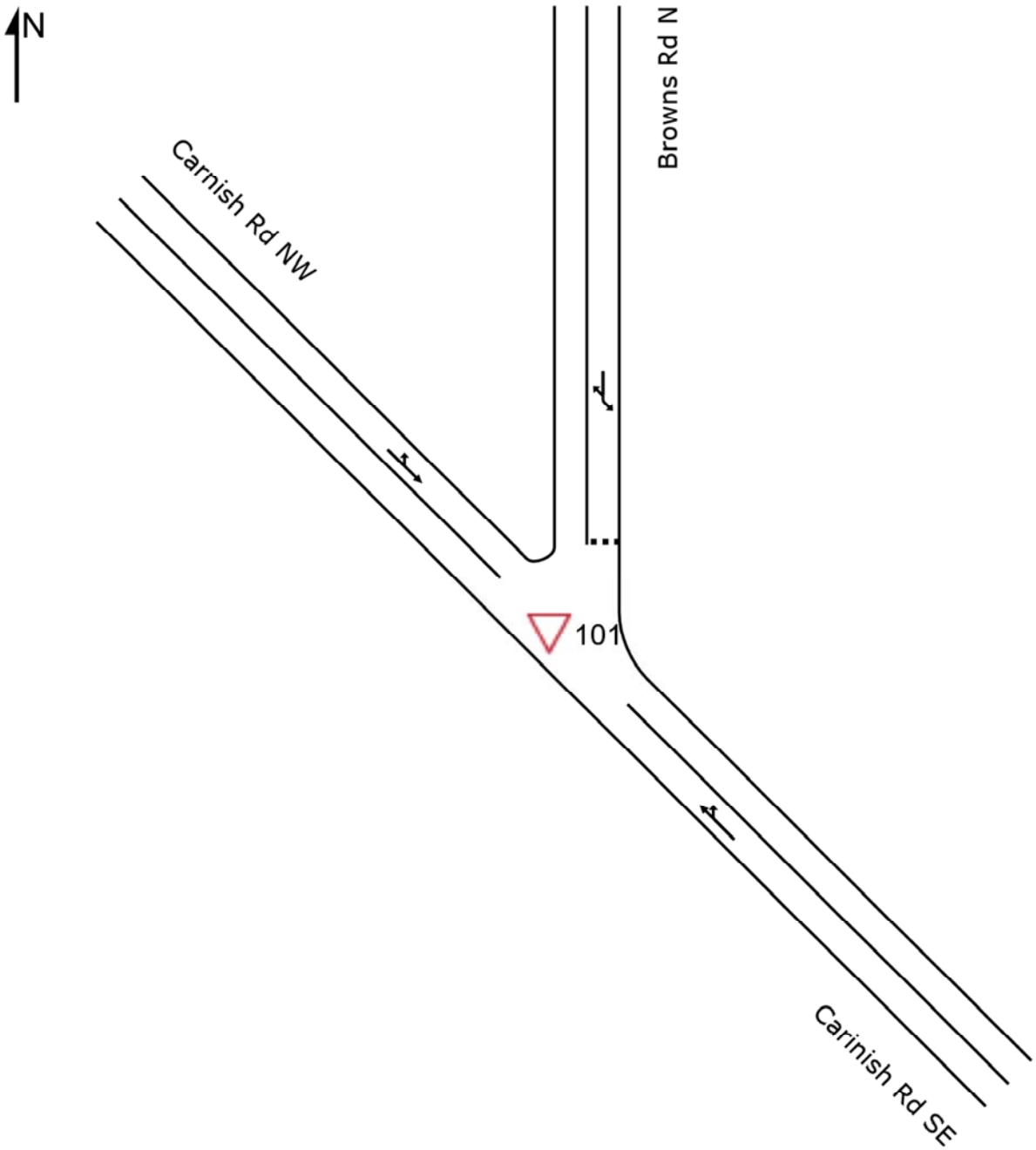
REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class (MC) Running	Undetected Movement
Mixed Running & Stopped MCs	Continuous Movement
Other Movement Class (MC) Stopped	Phase Transition Applied

SITE LAYOUT

Site: 101 [Carinish/Browns Rd AM Exg]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)



MOVEMENT SUMMARY

Site: 101 [Carinish/Browns Rd AM Exg]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Carinish Rd SE												
22	T1	192	5.0	0.285	3.2	LOS A	0.0	0.0	0.00	0.48	0.00	46.0
23a	R1	344	3.0	0.285	3.6	LOS A	0.0	0.0	0.00	0.48	0.00	45.8
Approach		536	3.7	0.285	3.5	NA	0.0	0.0	0.00	0.48	0.00	45.9
North: Browns Rd N												
7a	L1	135	0.0	0.129	5.1	LOS A	0.5	3.6	0.30	0.57	0.30	43.6
9b	R3	16	0.0	0.129	10.9	LOS B	0.5	3.6	0.30	0.57	0.30	45.5
Approach		151	0.0	0.129	5.7	LOS A	0.5	3.6	0.30	0.57	0.30	43.9
NorthWest: Carnish Rd NW												
27b	L3	37	3.0	0.120	5.4	LOS A	0.0	0.0	0.00	0.48	0.00	47.5
28	T1	182	5.0	0.120	3.2	LOS A	0.0	0.0	0.00	0.48	0.00	45.9
Approach		219	4.7	0.120	3.6	NA	0.0	0.0	0.00	0.48	0.00	46.3
All Vehicles		905	3.3	0.285	3.9	NA	0.5	3.6	0.05	0.50	0.05	45.6

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

MOVEMENT SUMMARY

Site: 101 [Carinish/Browns Rd PM Exg]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

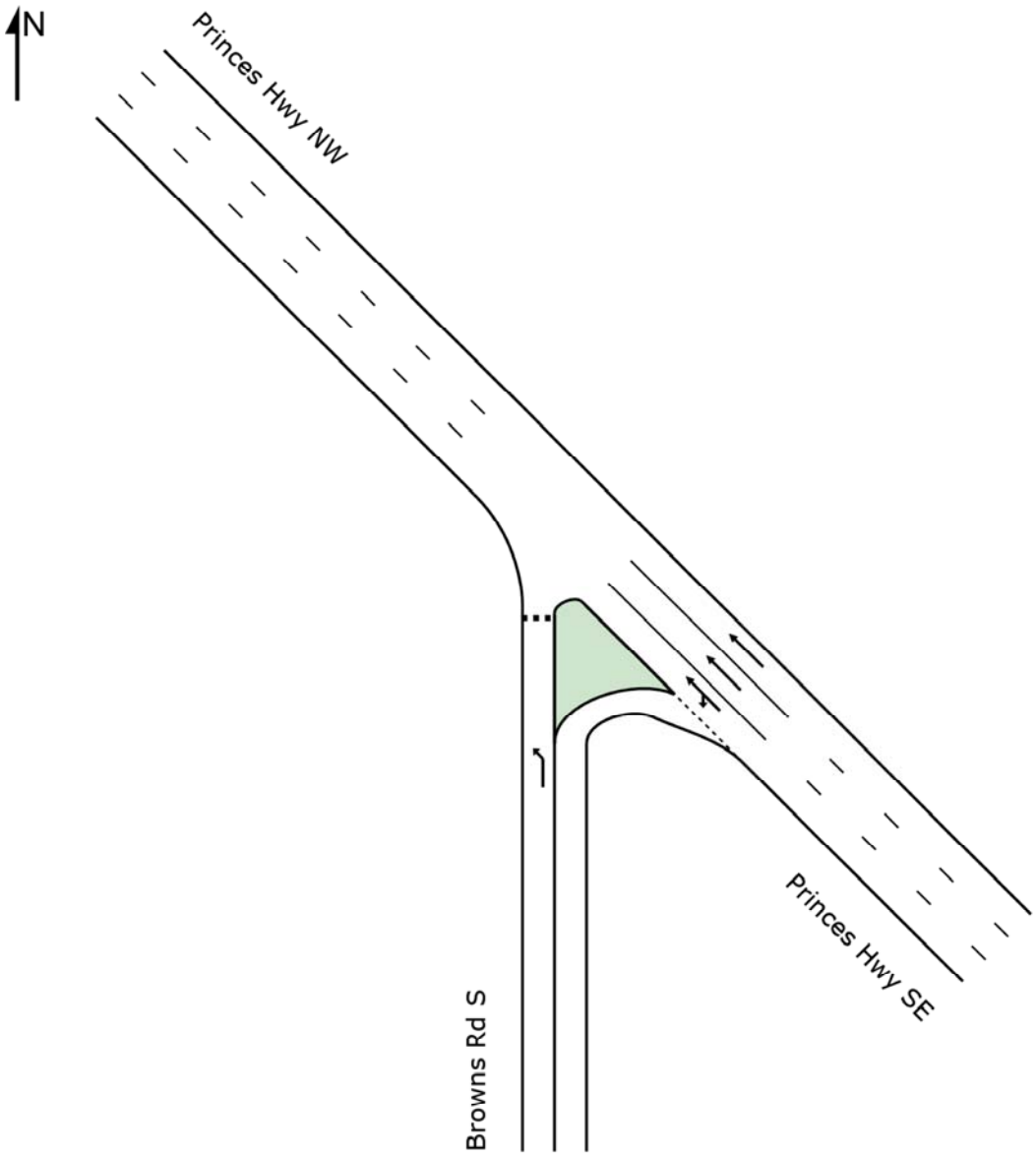
Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Carinish Rd SE												
22	T1	165	5.0	0.134	3.2	LOS A	0.0	0.0	0.00	0.47	0.00	46.1
23a	R1	87	3.0	0.134	3.6	LOS A	0.0	0.0	0.00	0.47	0.00	46.0
Approach		253	4.3	0.134	3.4	NA	0.0	0.0	0.00	0.47	0.00	46.1
North: Browns Rd N												
7a	L1	335	0.0	0.311	5.6	LOS A	1.4	10.1	0.43	0.64	0.43	43.3
9b	R3	31	0.0	0.311	9.3	LOS A	1.4	10.1	0.43	0.64	0.43	45.3
Approach		365	0.0	0.311	5.9	LOS A	1.4	10.1	0.43	0.64	0.43	43.5
NorthWest: Carnish Rd NW												
27b	L3	13	3.0	0.153	5.4	LOS A	0.0	0.0	0.00	0.47	0.00	47.7
28	T1	274	5.0	0.153	3.2	LOS A	0.0	0.0	0.00	0.47	0.00	46.2
Approach		286	4.9	0.153	3.3	NA	0.0	0.0	0.00	0.47	0.00	46.3
All Vehicles		904	2.8	0.311	4.4	NA	1.4	10.1	0.17	0.54	0.17	45.0

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

SITE LAYOUT

Site: 101 [Princes Hwy/Browns Rd AM Exg]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)



MOVEMENT SUMMARY

Site: 101 [Princes Hwy/Browns Rd AM Exg]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Browns Rd S												
1a	L1	155	3.0	0.192	7.4	LOS A	0.8	5.4	0.58	0.79	0.58	51.2
Approach		155	3.0	0.192	7.4	LOS A	0.8	5.4	0.58	0.79	0.58	51.2
SouthEast: Princes Hwy SE												
21b	L3	241	3.0	0.489	9.1	LOS A	0.0	0.0	0.00	0.20	0.00	72.3
22	T1	2439	8.0	0.489	0.1	LOS A	0.0	0.0	0.00	0.05	0.00	78.6
Approach		2680	7.6	0.489	0.9	NA	0.0	0.0	0.00	0.07	0.00	77.9
All Vehicles		2835	7.3	0.489	1.3	NA	0.8	5.4	0.03	0.11	0.03	75.8

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

MOVEMENT SUMMARY

Site: 101 [Princes Hwy/Browns Rd PM Exg]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

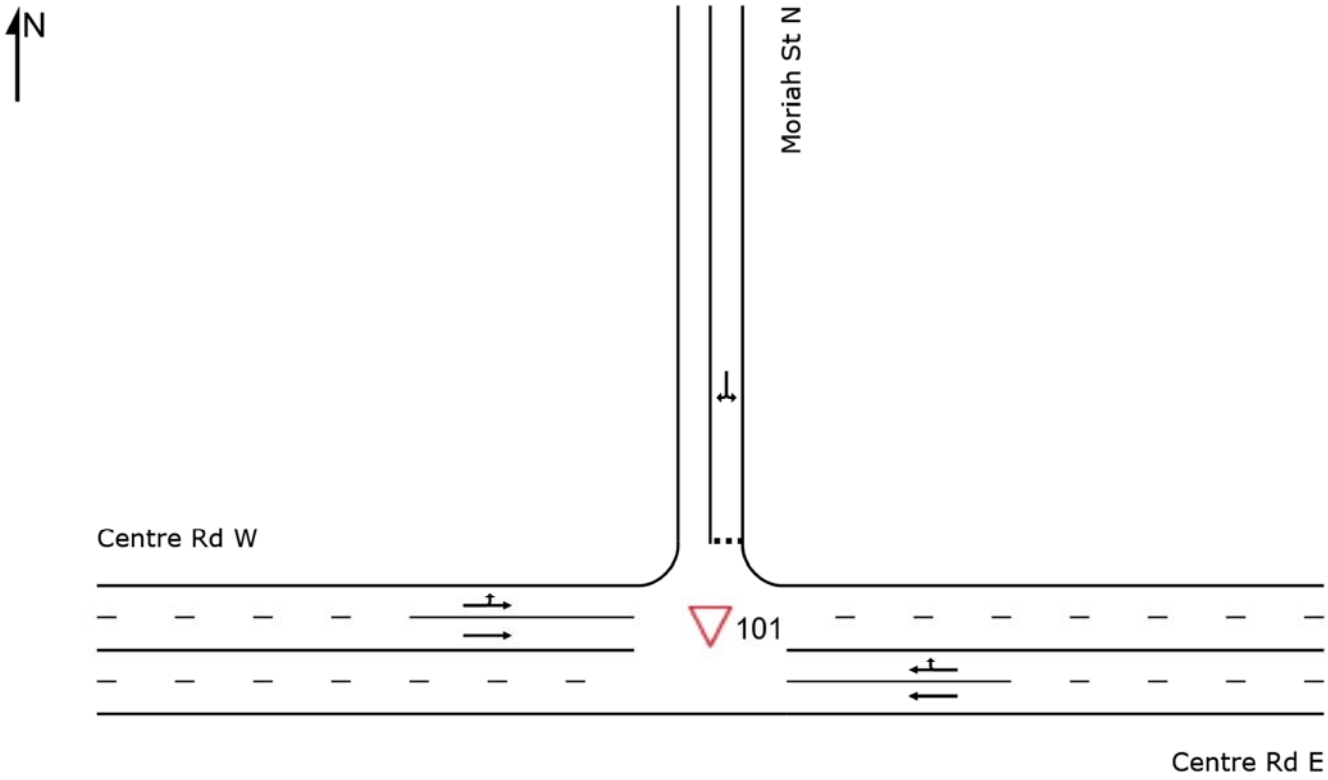
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Browns Rd S												
1a	L1	296	3.0	0.337	7.7	LOS A	1.7	12.1	0.60	0.85	0.71	51.0
Approach		296	3.0	0.337	7.7	LOS A	1.7	12.1	0.60	0.85	0.71	51.0
SouthEast: Princes Hwy SE												
21b	L3	132	3.0	0.389	9.1	LOS A	0.0	0.0	0.00	0.14	0.00	73.5
22	T1	2007	8.0	0.389	0.1	LOS A	0.0	0.0	0.00	0.04	0.00	78.9
Approach		2139	7.7	0.389	0.6	NA	0.0	0.0	0.00	0.05	0.00	78.6
All Vehicles		2435	7.1	0.389	1.5	NA	1.7	12.1	0.07	0.14	0.09	73.7

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

SITE LAYOUT

Site: 101 [Centre Rd / Moriah St AM Exg]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)



MOVEMENT SUMMARY

Site: 101 [Centre Rd / Moriah St AM Exg]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Centre Rd E												
5	T1	947	8.0	0.266	0.2	LOS A	0.3	2.4	0.03	0.01	0.04	59.0
6	R2	13	3.0	0.266	12.3	LOS B	0.3	2.4	0.07	0.02	0.08	55.6
Approach		960	7.9	0.266	0.4	NA	0.3	2.4	0.03	0.01	0.04	58.9
North: Moriah St N												
7	L2	15	3.0	0.058	7.6	LOS A	0.2	1.3	0.64	0.71	0.64	40.9
9	R2	3	3.0	0.058	52.2	LOS F	0.2	1.3	0.64	0.71	0.64	38.0
Approach		18	3.0	0.058	15.5	LOS C	0.2	1.3	0.64	0.71	0.64	40.4
West: Centre Rd W												
10	L2	12	3.0	0.234	5.6	LOS A	0.0	0.0	0.00	0.02	0.00	56.2
11	T1	856	8.0	0.234	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.7
Approach		867	7.9	0.234	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.7
All Vehicles		1845	7.9	0.266	0.4	NA	0.3	2.4	0.02	0.01	0.03	58.8

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

MOVEMENT SUMMARY

Site: 101 [Centre Rd / Moriah St PM Exg]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

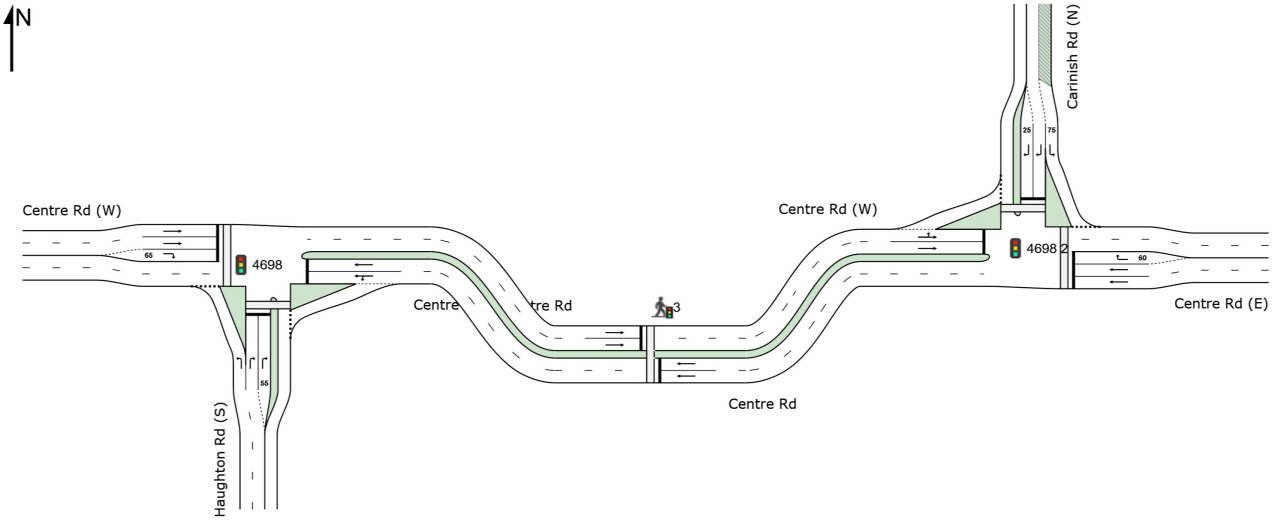
Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Centre Rd E												
5	T1	924	8.0	0.250	0.0	LOS A	0.0	0.3	0.00	0.00	0.00	59.9
6	R2	1	3.0	0.250	14.3	LOS B	0.0	0.3	0.01	0.00	0.01	56.6
Approach		925	8.0	0.250	0.1	NA	0.0	0.3	0.00	0.00	0.00	59.9
North: Moriah St N												
7	L2	18	3.0	0.358	16.7	LOS C	1.2	8.7	0.87	0.97	1.05	26.0
9	R2	22	3.0	0.358	71.4	LOS F	1.2	8.7	0.87	0.97	1.05	22.9
Approach		40	3.0	0.358	46.9	LOS E	1.2	8.7	0.87	0.97	1.05	24.3
West: Centre Rd W												
10	L2	27	3.0	0.271	5.6	LOS A	0.0	0.0	0.00	0.03	0.00	55.9
11	T1	977	8.0	0.271	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	59.5
Approach		1004	7.9	0.271	0.2	NA	0.0	0.0	0.00	0.02	0.00	59.4
All Vehicles		1969	7.8	0.358	1.1	NA	1.2	8.7	0.02	0.03	0.02	57.1

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

NETWORK LAYOUT

Network: N101 [2031 AM]

New Network
Network Category: (None)



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
4698	CCG1	Centre-Haughton 2031 AM
3	CCG1	PedCrossing 2031 AM
4698 2	CCG1	Centre-Carnish 2031 AM

Organisation: CARDNO (QLD) PTY LTD | Created: Tuesday, 12 February 2019 2:45:45 PM
Project: M:\2017\0501_1000\V170605_PMP_Printing_Precinct,_Clayton\Traffic\Engineering\SIDRA\V170605-SID003 - Carinish-Centre-Haughton V6.sip8

MOVEMENT SUMMARY

Site: 4698 [Centre-Haughton 2031 AM]

Network: N101 [2031 AM]

Centre Rd / Haughton Rd
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 73 seconds (CCG User-Given Cycle Time)
Common Control Group: CCG1 [Vicroads TSP]

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Haughton Rd (S)														
1	L2	314	5.0	314	5.0	0.254	6.7	LOS A	2.0	14.7	0.24	0.62	0.24	54.6
3	R2	296	5.0	296	5.0	0.753	44.1	LOS D	5.7	41.8	1.00	0.89	1.24	28.5
Approach		609	5.0	609	5.0	0.753	24.9	LOS C	5.7	41.8	0.61	0.75	0.73	42.2
East: Centre Rd (E)														
4	L2	97	5.0	97	5.0	0.383	13.7	LOS B	4.0	29.4	0.45	0.56	0.88	45.7
5	T1	414	5.0	414	5.0	0.383	10.6	LOS B	4.2	30.5	0.48	0.48	0.65	47.3
Approach		511	5.0	511	5.0	0.383	11.2	LOS B	4.2	30.5	0.47	0.49	0.69	47.0
West: Centre Rd (W)														
11	T1	721	5.0	721	5.0	0.557	21.3	LOS C	10.6	77.4	0.87	0.74	0.87	39.1
12	R2	75	5.0	75	5.0	0.507	43.1	LOS D	2.8	20.2	1.00	0.76	1.00	38.3
Approach		796	5.0	796	5.0	0.557	23.4	LOS C	10.6	77.4	0.88	0.74	0.88	39.0
All Vehicles		1916	5.0	1916	5.0	0.753	20.6	LOS C	10.6	77.4	0.69	0.68	0.78	41.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	22.3	LOS C	0.1	0.1	0.78	0.78
P4	West Full Crossing	16	26.3	LOS C	0.0	0.0	0.85	0.85
All Pedestrians		68	23.2	LOS C			0.80	0.80

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: 4698 2 [Centre-Carnish 2031 AM]

Network: N101 [2031 AM]

Centre Road / Carnish Road
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 73 seconds (CCG User-Given Cycle Time)
Common Control Group: CCG1 [Vicroads TSP]

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Centre Rd (E)														
5	T1	375	5.0	375	5.0	0.290	19.1	LOS B	4.9	35.9	0.77	0.64	0.77	33.1
6	R2	338	5.0	338	5.0	0.724	23.1	LOS C	8.4	61.0	0.97	0.87	1.05	45.4
Approach		713	5.0	713	5.0	0.724	21.0	LOS C	8.4	61.0	0.86	0.75	0.90	41.5
North: Carinish Rd (N)														
7	L2	359	5.0	359	5.0	0.310	8.9	LOS A	4.2	30.6	0.40	0.67	0.40	53.1
9	R2	136	5.0	136	5.0	0.345	40.0	LOS D	2.4	17.4	0.96	0.75	0.96	34.5
Approach		495	5.0	495	5.0	0.345	17.4	LOS B	4.2	30.6	0.55	0.69	0.55	47.7
West: Centre Rd (W)														
10	L2	346	5.0	346	5.0	0.710	12.4	LOS B	3.4	24.5	0.74	0.76	0.81	49.0
11	T1	671	5.0	671	5.0	0.710	13.2	LOS B	3.4	24.5	0.75	0.70	0.79	38.4
Approach		1017	5.0	1017	5.0	0.710	12.9	LOS B	3.4	24.5	0.75	0.72	0.80	43.5
All Vehicles		2224	5.0	2224	5.0	0.724	16.5	LOS B	8.4	61.0	0.74	0.72	0.78	44.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P2	East Full Crossing	16	30.8	LOS D	0.0	0.0	0.92	0.92
P3	North Full Crossing	53	22.3	LOS C	0.1	0.1	0.78	0.78
All Pedestrians		68	24.3	LOS C			0.81	0.81

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.

CCG PHASING SUMMARY

Common Control Group: CCG1 [Vicroads TSP]

Network: N101 [2031 AM]

Fixed Time Isolated Cycle Time = 73 seconds (CCG User-Given Cycle Time)

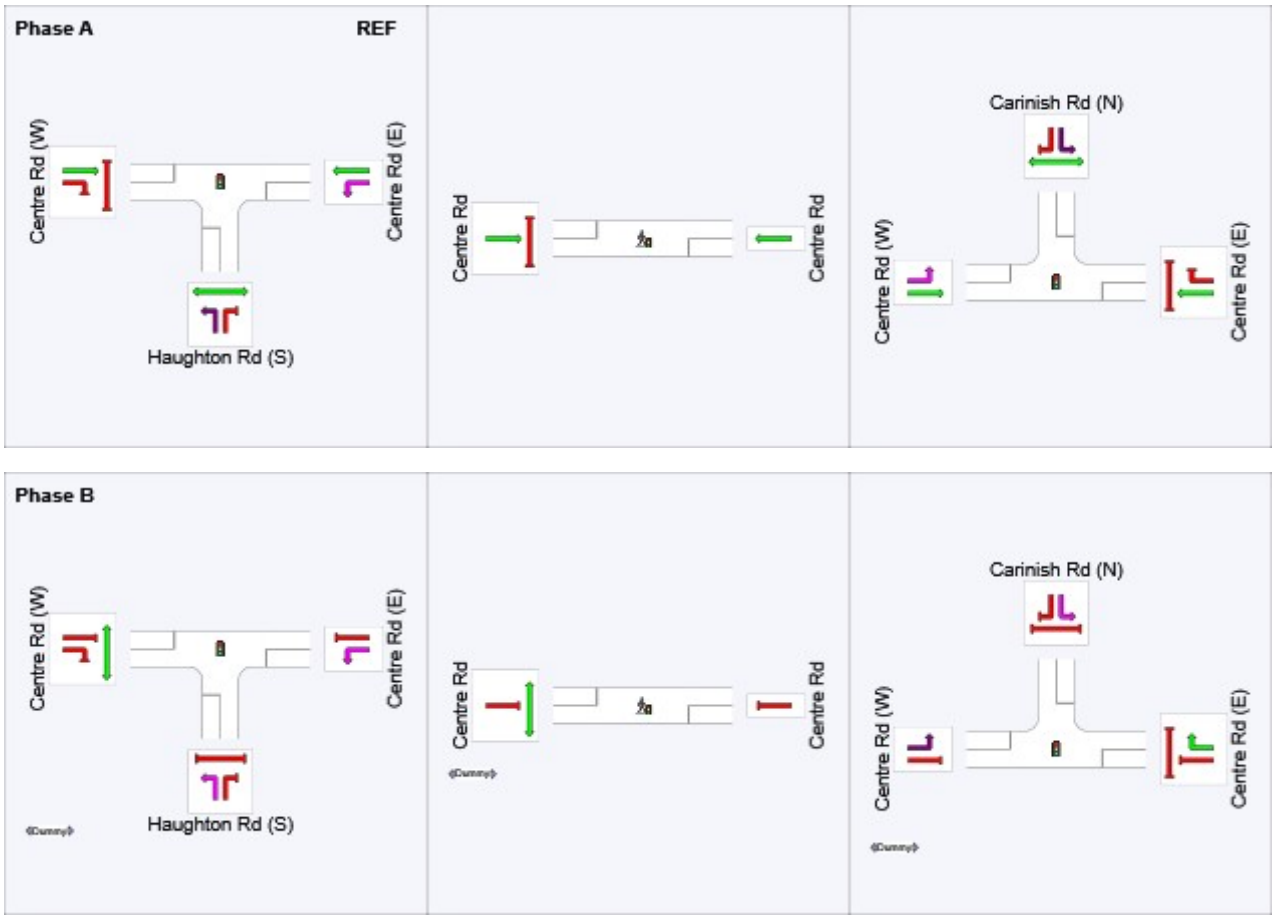
Timings based on settings in the CCG Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: updated phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C1*, C2*, C3*, D1, D2*, D3*
Output Phase Sequence: A, B, C1*, D1
(* Variable Phase)

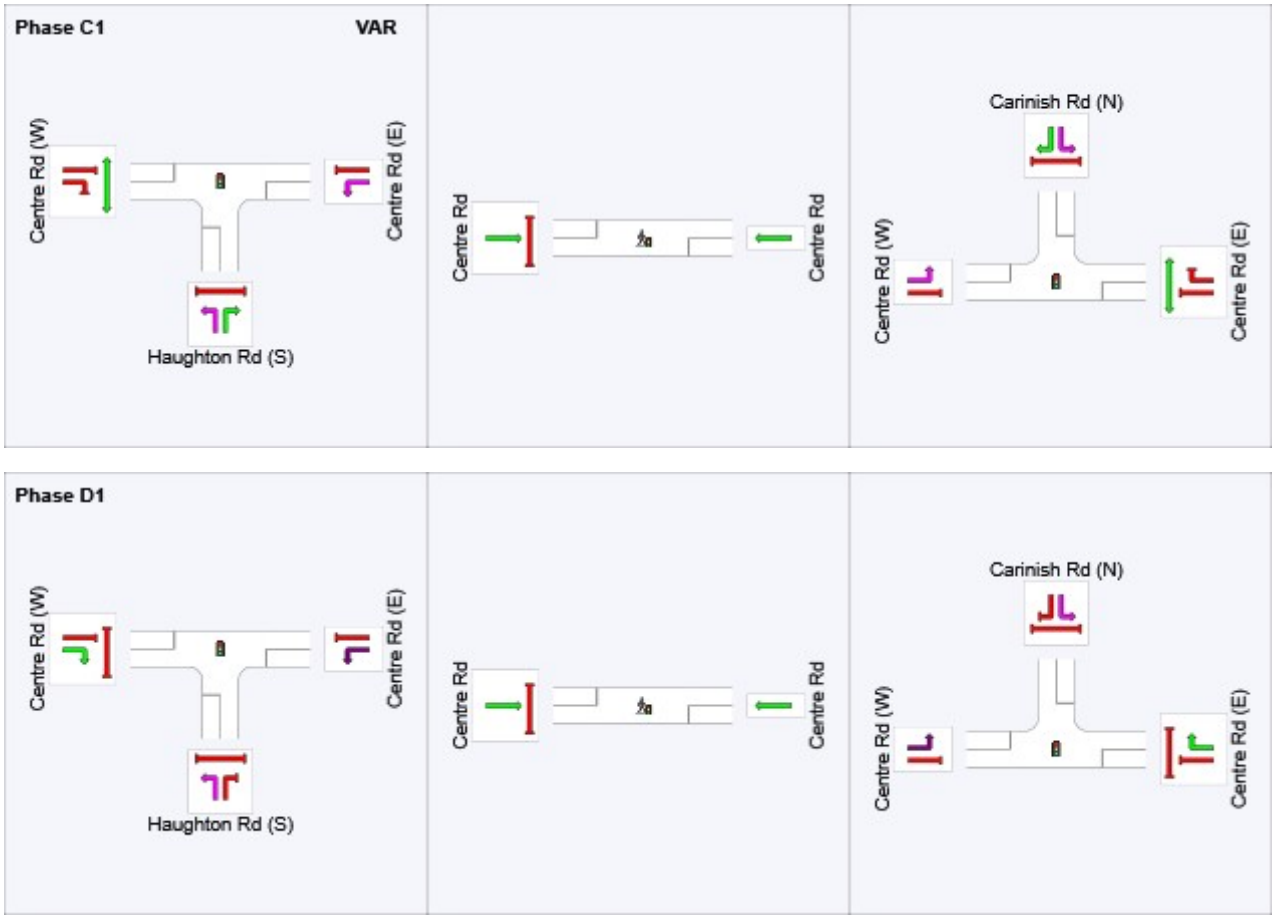
Phase Timing Summary (CCG)

Phase	A	B	C1	D1
Phase Change Time (sec)	0	31	50	61
Green Time (sec)	25	13	8	6
Phase Time (sec)	31	16	14	12
Phase Split	42%	22%	19%	16%

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

Output Phase Sequence (CCG)





REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class (MC) Running	Undetected Movement
Mixed Running & Stopped MCs	Continuous Movement
Other Movement Class (MC) Stopped	Phase Transition Applied

MOVEMENT SUMMARY

Site: 4698 [Centre-Haughton 2031 PM]

Network: N101 [2031 PM]

Centre Rd / Haughton Rd
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 70 seconds (CCG User-Given Cycle Time)
Common Control Group: CCG1 [Vicroads TSP]

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Haughton Rd (S)														
1	L2	267	5.0	267	5.0	0.255	10.0	LOS B	3.5	25.3	0.45	0.68	0.45	52.6
3	R2	208	5.0	208	5.0	0.581	40.8	LOS D	3.7	27.0	1.00	0.80	1.06	29.7
Approach		476	5.0	476	5.0	0.581	23.5	LOS C	3.7	27.0	0.69	0.73	0.71	43.2
East: Centre Rd (E)														
4	L2	202	5.0	202	5.0	0.852	22.0	LOS C	4.5	32.6	0.85	0.94	1.48	39.6
5	T1	846	5.0	846	5.0	0.852	18.2	LOS B	4.5	32.6	0.86	0.88	1.19	41.3
Approach		1048	5.0	1048	5.0	0.852	18.9	LOS B	4.5	32.6	0.86	0.89	1.25	41.0
West: Centre Rd (W)														
11	T1	393	5.0	393	5.0	0.485	26.9	LOS C	6.1	44.4	0.92	0.76	0.92	35.9
12	R2	169	5.0	169	5.0	0.827	45.1	LOS D	6.6	48.1	1.00	0.97	1.39	37.7
Approach		562	5.0	562	5.0	0.827	32.4	LOS C	6.6	48.1	0.95	0.82	1.07	36.7
All Vehicles		2086	5.0	2086	5.0	0.852	23.6	LOS C	6.6	48.1	0.84	0.84	1.08	40.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	23.3	LOS C	0.1	0.1	0.82	0.82
P4	West Full Crossing	16	26.6	LOS C	0.0	0.0	0.87	0.87
All Pedestrians		68	24.0	LOS C			0.83	0.83

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: 4698 2 [Centre-Carnish 2031 PM]

Network: N101 [2031 PM]

Centre Road / Carnish Road
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 70 seconds (CCG User-Given Cycle Time)
Common Control Group: CCG1 [Vicroads TSP]

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Centre Rd (E)														
5	T1	721	5.0	721	5.0	0.607	22.4	LOS C	10.7	77.8	0.90	0.77	0.90	30.7
6	R2	242	5.0	242	5.0	0.630	33.9	LOS C	7.9	57.5	0.96	0.83	0.99	41.1
Approach		963	5.0	963	5.0	0.630	25.3	LOS C	10.7	77.8	0.92	0.79	0.92	35.4
North: Carinish Rd (N)														
7	L2	489	5.0	489	5.0	0.377	7.2	LOS A	4.1	29.8	0.32	0.64	0.32	54.1
9	R2	327	5.0	327	5.0	0.913	52.4	LOS D	7.0	51.2	1.00	1.07	1.72	30.5
Approach		817	5.0	817	5.0	0.913	25.3	LOS C	7.0	51.2	0.59	0.82	0.88	43.4
West: Centre Rd (W)														
10	L2	220	5.0	220	5.0	0.566	15.2	LOS B	3.4	24.5	0.67	0.77	0.95	47.1
11	T1	381	5.0	381	5.0	0.566	14.5	LOS B	3.4	24.5	0.69	0.65	0.80	37.1
Approach		601	5.0	601	5.0	0.566	14.7	LOS B	3.4	24.5	0.68	0.69	0.85	42.2
All Vehicles		2381	5.0	2381	5.0	0.913	22.6	LOS C	10.7	77.8	0.75	0.77	0.89	40.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P2	East Full Crossing	16	26.6	LOS C	0.0	0.0	0.87	0.87
P3	North Full Crossing	53	29.3	LOS C	0.1	0.1	0.92	0.92
All Pedestrians		68	28.7	LOS C			0.91	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.

CCG PHASING SUMMARY

Common Control Group: CCG1 [Vicroads TSP]

Network: N101 [2031 PM]

Fixed Time Isolated Cycle Time = 70 seconds (CCG User-Given Cycle Time)

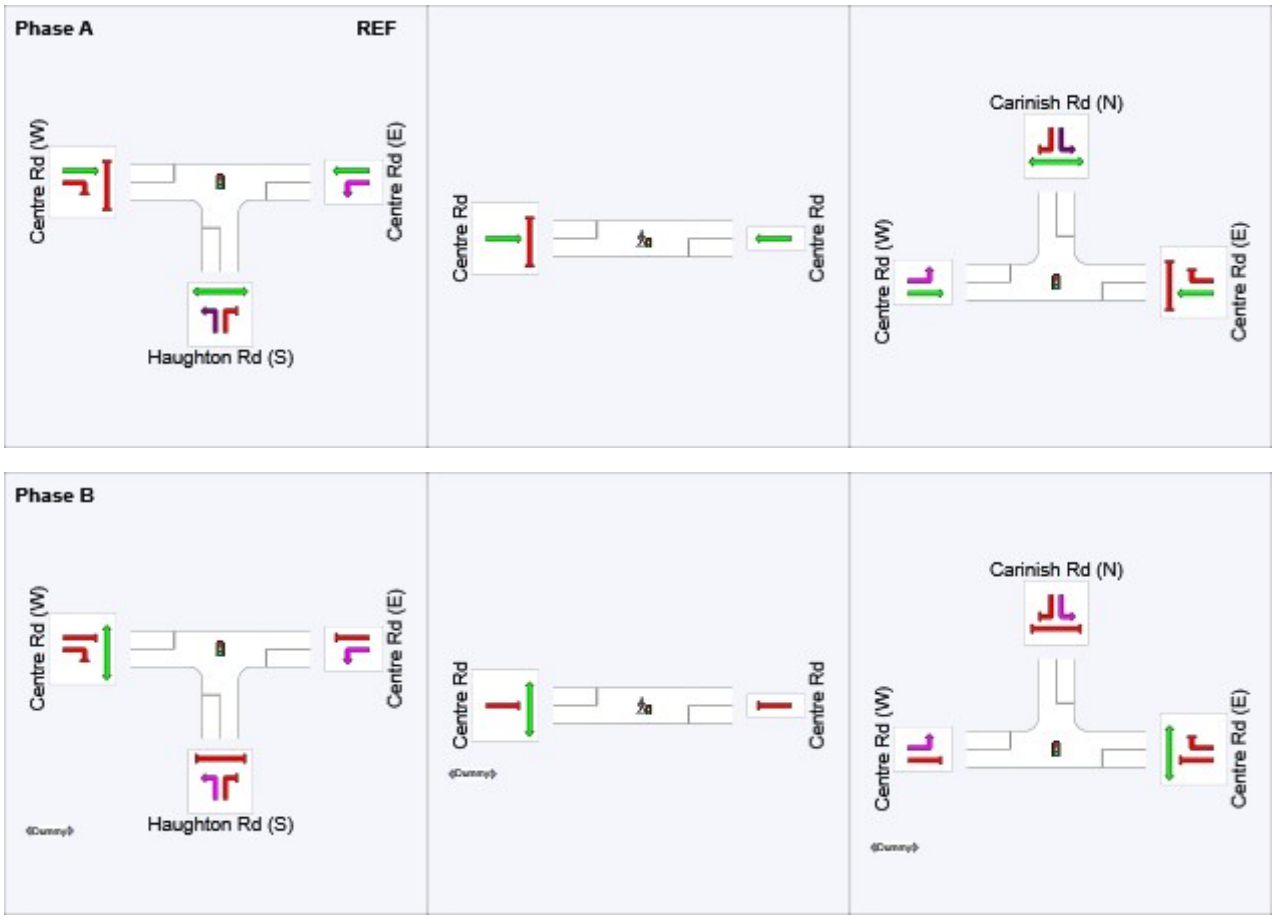
Timings based on settings in the CCG Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: updated phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C1*, C2*, C3*, D1, D2*, D3*
Output Phase Sequence: A, B, C1*, D1, D3*
(* Variable Phase)

Phase Timing Summary (CCG)

Phase	A	B	C1	D1	D3
Phase Change Time (sec)	0	21	39	49	63
Green Time (sec)	15	12	7	8	1
Phase Time (sec)	21	15	13	14	7
Phase Split	30%	21%	19%	20%	10%

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

Output Phase Sequence (CCG)



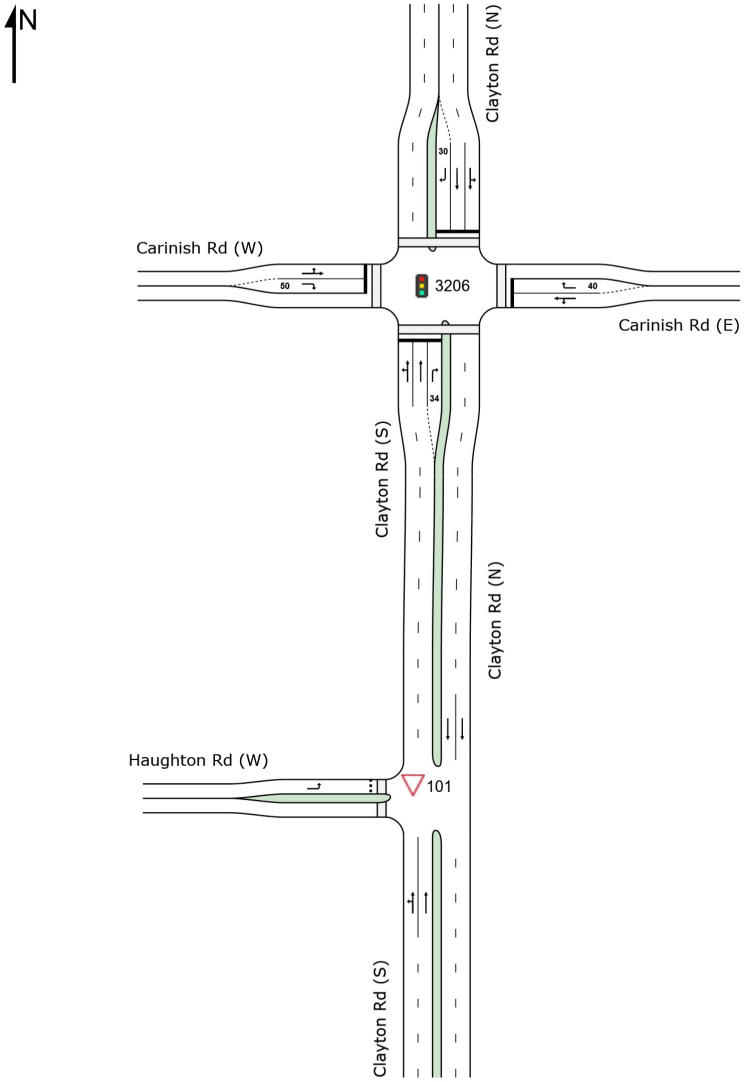
REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class (MC) Running	Undetected Movement
Mixed Running & Stopped MCs	Continuous Movement
Other Movement Class (MC) Stopped	Phase Transition Applied

NETWORK LAYOUT

Network: N101 [2031 AM Vols]

New Network
Network Category: (None)



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
3206	NA	2031 AM Base Vols
101	NA	2031 AM Base Vols

Organisation: CARDNO (QLD) PTY LTD | Created: Tuesday, 12 February 2019 3:00:22 PM
Project: M:\2017\0501_1000\V170605_PMP_Printing_Precinct,_Clayton\Traffic\Engineering\SIDRA\V170605-SID004 - Clayton-Carinish V5.sip8

MOVEMENT SUMMARY

Site: 3206 [2031 AM Base Vols]

Network: N101 [2031 AM Vols]

Clayton Road / Carinish Road
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 86 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Clayton Rd (S)														
1	L2	77	5.0	77	5.0	0.779	26.5	LOS C	7.8	57.1	0.91	0.85	0.95	33.8
2	T1	1176	5.0	1176	5.0	0.779	22.8	LOS C	7.8	57.1	0.88	0.83	0.93	31.8
3	R2	100	5.0	100	5.0	0.799	52.5	LOS D	4.7	34.3	1.00	0.91	1.36	22.6
Approach		1353	5.0	1353	5.0	0.799	25.2	LOS C	7.8	57.1	0.89	0.84	0.96	30.8
East: Carinish Rd (E)														
4	L2	160	5.0	160	5.0	0.496	34.8	LOS C	8.7	63.8	0.90	0.79	0.90	29.2
5	T1	82	5.0	82	5.0	0.496	29.2	LOS C	8.7	63.8	0.90	0.79	0.90	39.0
6	R2	176	5.0	176	5.0	0.784	49.0	LOS D	8.0	58.6	1.00	0.92	1.25	30.9
Approach		418	5.0	418	5.0	0.784	39.7	LOS D	8.7	63.8	0.94	0.85	1.04	32.1
North: Clayton Rd (N)														
7	L2	145	5.0	145	5.0	0.421	22.7	LOS C	10.0	73.0	0.72	0.69	0.72	43.0
8	T1	554	5.0	554	5.0	0.421	17.0	LOS B	10.0	73.0	0.72	0.64	0.72	34.4
9	R2	18	5.0	18	5.0	0.143	48.7	LOS D	0.8	5.5	0.97	0.69	0.97	31.0
Approach		717	5.0	717	5.0	0.421	18.9	LOS B	10.0	73.0	0.72	0.66	0.72	36.8
West: Carinish Rd (W)														
10	L2	63	5.0	63	5.0	0.473	34.5	LOS C	8.4	61.6	0.89	0.76	0.89	37.6
11	T1	173	5.0	173	5.0	0.473	28.9	LOS C	8.4	61.6	0.89	0.76	0.89	40.1
12	R2	89	5.0	89	5.0	0.412	42.2	LOS D	3.5	25.9	0.94	0.78	0.94	25.4
Approach		325	5.0	325	5.0	0.473	33.7	LOS C	8.4	61.6	0.90	0.76	0.90	36.1
All Vehicles		2813	5.0	2813	5.0	0.799	26.7	LOS C	10.0	73.0	0.86	0.78	0.91	33.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	35.4	LOS D	0.1	0.1	0.91	0.91
P2	East Full Crossing	53	17.0	LOS B	0.1	0.1	0.63	0.63
P3	North Full Crossing	53	35.4	LOS D	0.1	0.1	0.91	0.91
P4	West Full Crossing	53	17.0	LOS B	0.1	0.1	0.63	0.63
All Pedestrians		211	26.2	LOS C			0.77	0.77

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

PHASING SUMMARY

Site: 3206 [2031 AM Base Vols]

Network: N101 [2031 AM Vols]

Clayton Road / Carinish Road
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 86 seconds (Site User-Given Cycle Time)

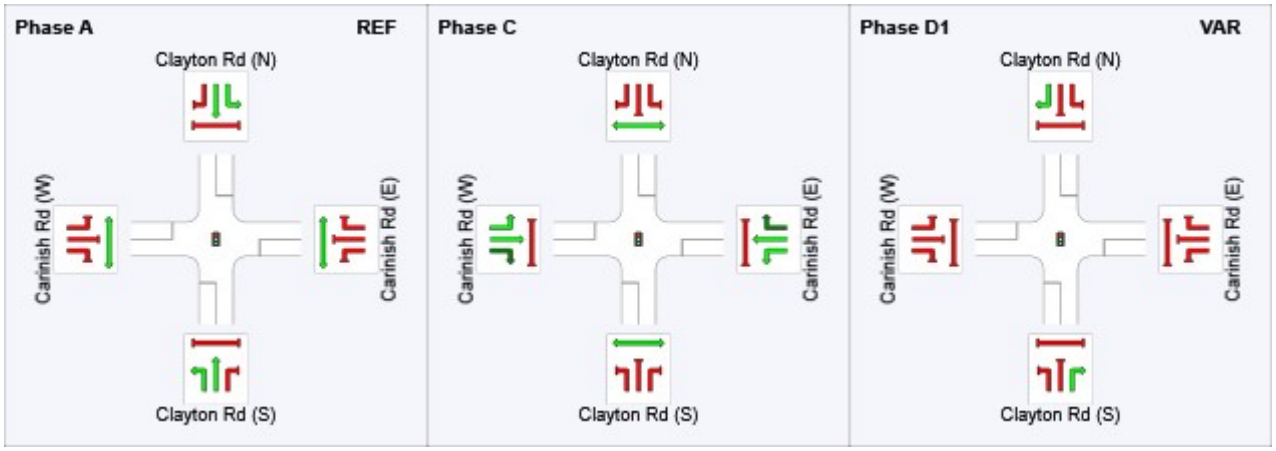
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Vicroads (updated)
Reference Phase: Phase A
Input Phase Sequence: A, B1*, B2*, B3*, C, D1*, D2*, D3*
Output Phase Sequence: A, C, D1*
(* Variable Phase)

Phase Timing Summary

Phase	A	C	D1
Phase Change Time (sec)	0	45	74
Green Time (sec)	39	23	6
Phase Time (sec)	45	29	12
Phase Split	52%	34%	14%

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

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class (MC) Running	Undetected Movement
Mixed Running & Stopped MCs	Continuous Movement
Other Movement Class (MC) Stopped	Phase Transition Applied

MOVEMENT SUMMARY

Site: 101 [2031 AM Base Vols]

Network: N101 [2031 AM Vols]

Clayton Road / Haughton Road
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Clayton Rd (S)														
1	L2	101	2.0	101	2.0	0.348	5.6	LOS A	11.6	84.1	0.00	0.09	0.00	55.9
2	T1	1211	5.0	1211	5.0	0.348	0.0	LOS A	13.1	95.7	0.00	0.04	0.00	56.8
Approach		1312	4.8	1312	4.8	0.348	0.4	NA	13.1	95.7	0.00	0.05	0.00	56.5
North: Clayton Rd (N)														
8	T1	676	5.0	676	5.0	0.179	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		676	5.0	676	5.0	0.179	0.0	NA	0.0	0.0	0.00	0.00	0.00	60.0
West: Haughton Rd (W)														
10	L2	252	2.0	252	2.0	0.669	13.7	LOS B	2.6	18.7	0.59	1.01	1.10	41.6
Approach		252	2.0	252	2.0	0.669	13.7	LOS B	2.6	18.7	0.59	1.01	1.10	41.6
All Vehicles		2239	4.5	2239	4.5	0.669	1.8	NA	13.1	95.7	0.07	0.14	0.12	51.7

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

MOVEMENT SUMMARY

Site: 3206 [2031 PM Base Vols]

Network: N101 [2031 PM Vols]

Clayton Road / Carinish Road
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 95 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Clayton Rd (S)														
1	L2	202	5.0	202	5.0	0.693	27.5	LOS C	7.8	57.1	0.88	0.81	0.88	32.7
2	T1	774	5.0	774	5.0	0.693	23.1	LOS C	7.8	57.1	0.84	0.75	0.84	31.4
3	R2	153	5.0	153	5.0	0.809	54.6	LOS D	7.8	56.6	1.00	0.92	1.28	22.1
Approach		1128	5.0	1128	5.0	0.809	28.2	LOS C	7.8	57.1	0.87	0.78	0.91	29.7
East: Carinish Rd (E)														
4	L2	133	5.0	133	5.0	0.756	40.3	LOS D	13.6	99.2	0.92	0.86	1.02	27.4
5	T1	184	5.0	184	5.0	0.756	34.7	LOS C	13.6	99.2	0.92	0.86	1.02	37.4
6	R2	129	5.0	129	5.0	0.761	54.9	LOS D	6.5	47.4	1.00	0.90	1.23	29.3
Approach		446	5.0	446	5.0	0.761	42.2	LOS D	13.6	99.2	0.94	0.87	1.08	32.4
North: Clayton Rd (N)														
7	L2	176	5.0	176	5.0	0.885	43.9	LOS D	35.6	259.8	0.99	1.03	1.18	33.9
8	T1	1148	5.0	1148	5.0	0.885	38.0	LOS D	35.6	259.8	0.96	1.02	1.16	22.9
9	R2	89	5.0	89	5.0	0.474	50.9	LOS D	4.1	30.0	0.98	0.77	0.98	30.3
Approach		1414	5.0	1414	5.0	0.885	39.6	LOS D	35.6	259.8	0.97	1.00	1.15	25.5
West: Carinish Rd (W)														
10	L2	137	5.0	137	5.0	0.758	40.6	LOS D	14.5	106.2	0.93	0.87	1.02	34.8
11	T1	199	5.0	199	5.0	0.758	35.0	LOS D	14.5	106.2	0.93	0.87	1.02	37.3
12	R2	161	5.0	161	5.0	0.883	62.8	LOS E	8.9	65.3	1.00	1.02	1.49	19.8
Approach		497	5.0	497	5.0	0.883	45.6	LOS D	14.5	106.2	0.95	0.92	1.17	31.0
All Vehicles		3485	5.0	3485	5.0	0.885	37.1	LOS D	35.6	259.8	0.93	0.90	1.07	28.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	36.3	LOS D	0.1	0.1	0.88	0.88
P2	East Full Crossing	53	20.3	LOS C	0.1	0.1	0.65	0.65
P3	North Full Crossing	53	36.3	LOS D	0.1	0.1	0.88	0.88
P4	West Full Crossing	53	20.3	LOS C	0.1	0.1	0.65	0.65
All Pedestrians		211	28.3	LOS C			0.76	0.76

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

PHASING SUMMARY

Site: 3206 [2031 PM Base Vols]

Network: N101 [2031 PM Vols]

Clayton Road / Carinish Road
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 95 seconds (Site User-Given Cycle Time)

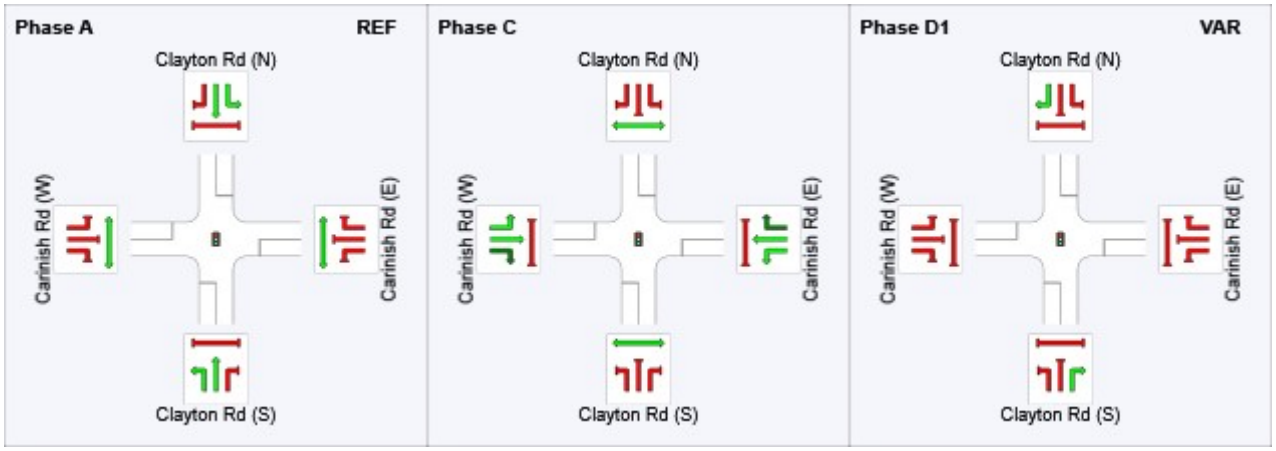
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects not included in determining phase times
Phase Sequence: VicRoads (updated)
Reference Phase: Phase A
Input Phase Sequence: A, B1*, B2*, B3*, C, D1*, D2*, D3*
Output Phase Sequence: A, C, D1*
(* Variable Phase)

Phase Timing Summary

Phase	A	C	D1
Phase Change Time (sec)	0	46	79
Green Time (sec)	40	27	10
Phase Time (sec)	46	33	16
Phase Split	48%	35%	17%

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

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class (MC) Running	Undetected Movement
Mixed Running & Stopped MCs	Continuous Movement
Other Movement Class (MC) Stopped	Phase Transition Applied

MOVEMENT SUMMARY

Site: 101 [2031 PM Base Vols]

Network: N101 [2031 PM Vols]

Clayton Road / Haughton Road
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

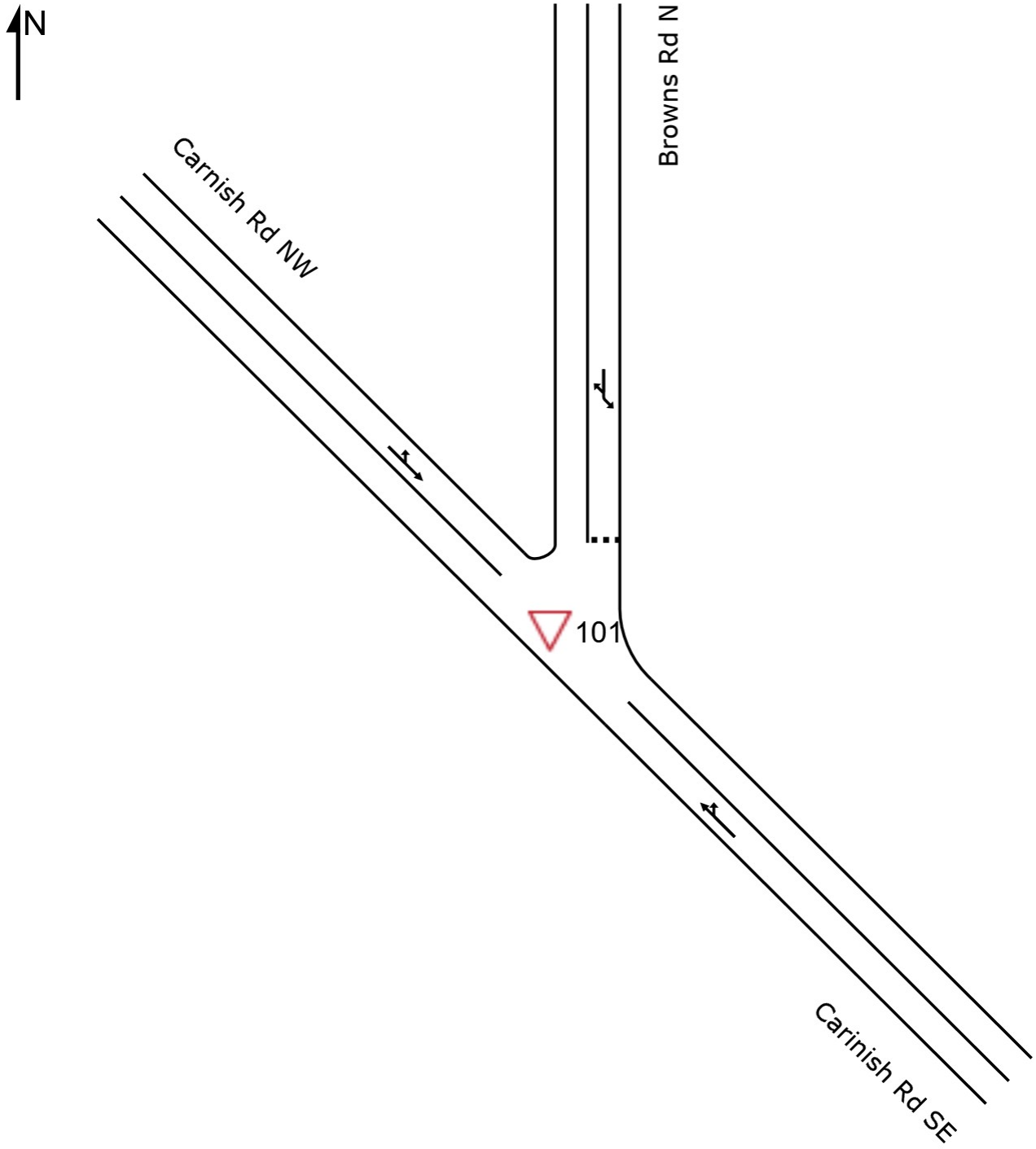
Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Clayton Rd (S)														
1	L2	218	2.0	218	2.0	0.304	5.6	LOS A	8.8	63.5	0.00	0.23	0.00	54.2
2	T1	922	5.0	922	5.0	0.304	0.0	LOS A	8.8	63.5	0.00	0.09	0.00	53.8
Approach		1140	4.4	1140	4.4	0.304	1.1	NA	8.8	63.5	0.00	0.11	0.00	54.0
North: Clayton Rd (N)														
8	T1	1409	5.0	1409	5.0	0.373	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		1409	5.0	1409	5.0	0.373	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Haughton Rd (W)														
10	L2	155	2.0	155	2.0	0.325	7.4	LOS A	0.7	5.0	0.43	0.67	0.43	48.5
Approach		155	2.0	155	2.0	0.325	7.4	LOS A	0.7	5.0	0.43	0.67	0.43	48.5
All Vehicles		2704	4.6	2704	4.6	0.373	0.9	NA	8.8	63.5	0.02	0.09	0.02	55.2

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

SITE LAYOUT

Site: 101 [Carinish/Browns Rd AM 2031]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)



Organisation: CARDNO (QLD) PTY LTD | Created: Tuesday, 12 February 2019 3:07:05 PM
Project: M:\2017\0501_1000\V170605_PMP_Printing_Precinct,_Clayton\Traffic\Engineering\SIDRA\V170605-SID001 - Browns V4.sip8

MOVEMENT SUMMARY

Site: 101 [Carinish/Browns Rd AM 2031]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Carinish Rd SE												
22	T1	383	5.0	0.361	3.2	LOS A	0.0	0.0	0.00	0.47	0.00	46.1
23a	R1	297	3.0	0.361	3.6	LOS A	0.0	0.0	0.00	0.47	0.00	45.9
Approach		680	4.1	0.361	3.4	NA	0.0	0.0	0.00	0.47	0.00	46.0
North: Browns Rd N												
7a	L1	202	0.0	0.253	5.6	LOS A	1.0	7.2	0.44	0.65	0.44	42.6
9b	R3	31	0.0	0.253	16.1	LOS C	1.0	7.2	0.44	0.65	0.44	44.8
Approach		233	0.0	0.253	7.0	LOS A	1.0	7.2	0.44	0.65	0.44	43.0
NorthWest: Carnish Rd NW												
27b	L3	44	3.0	0.180	5.4	LOS A	0.0	0.0	0.00	0.48	0.00	47.6
28	T1	288	5.0	0.180	3.2	LOS A	0.0	0.0	0.00	0.48	0.00	46.0
Approach		333	4.7	0.180	3.5	NA	0.0	0.0	0.00	0.48	0.00	46.3
All Vehicles		1245	3.5	0.361	4.1	NA	1.0	7.2	0.08	0.51	0.08	45.5

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

MOVEMENT SUMMARY

Site: 101 [Carinish/Browns Rd PM 2031]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

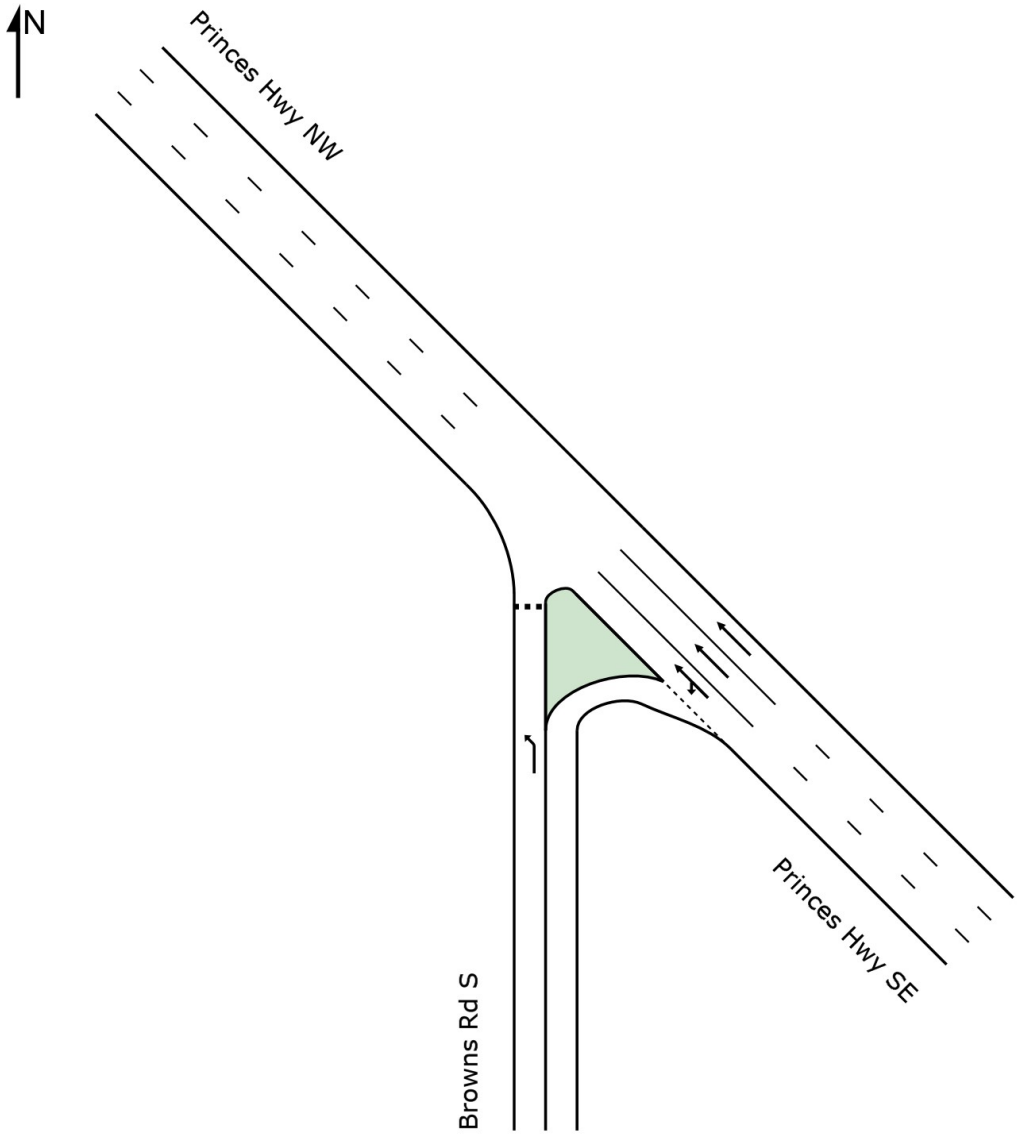
Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Carinish Rd SE												
22	T1	317	5.0	0.246	3.2	LOS A	0.0	0.0	0.00	0.47	0.00	46.1
23a	R1	146	3.0	0.246	3.6	LOS A	0.0	0.0	0.00	0.47	0.00	46.0
Approach		463	4.4	0.246	3.3	NA	0.0	0.0	0.00	0.47	0.00	46.1
North: Browns Rd N												
7a	L1	349	0.0	0.443	7.7	LOS A	2.7	18.6	0.59	0.87	0.81	41.4
9b	R3	42	0.0	0.443	16.5	LOS C	2.7	18.6	0.59	0.87	0.81	43.9
Approach		392	0.0	0.443	8.6	LOS A	2.7	18.6	0.59	0.87	0.81	41.8
NorthWest: Carnish Rd NW												
27b	L3	28	3.0	0.255	5.5	LOS A	0.0	0.0	0.00	0.47	0.00	47.7
28	T1	447	5.0	0.255	3.2	LOS A	0.0	0.0	0.00	0.47	0.00	46.1
Approach		476	4.9	0.255	3.4	NA	0.0	0.0	0.00	0.47	0.00	46.3
All Vehicles		1331	3.3	0.443	4.9	NA	2.7	18.6	0.17	0.59	0.24	44.7

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

SITE LAYOUT

Site: 101 [Princes Hwy/Browns Rd AM 2031]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)



MOVEMENT SUMMARY

Site: 101 [Princes Hwy/Browns Rd AM 2031]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Browns Rd S												
1a	L1	218	3.0	0.323	9.5	LOS A	1.5	10.5	0.67	0.90	0.82	49.7
Approach		218	3.0	0.323	9.5	LOS A	1.5	10.5	0.67	0.90	0.82	49.7
SouthEast: Princes Hwy SE												
21b	L3	60	3.0	0.440	9.1	LOS A	0.0	0.0	0.00	0.06	0.00	75.1
22	T1	2375	8.0	0.440	0.1	LOS A	0.0	0.0	0.00	0.02	0.00	79.4
Approach		2435	7.9	0.440	0.3	NA	0.0	0.0	0.00	0.02	0.00	79.3
All Vehicles		2653	7.5	0.440	1.0	NA	1.5	10.5	0.06	0.09	0.07	75.6

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

MOVEMENT SUMMARY

Site: 101 [Princes Hwy/Browns Rd PM 2031]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

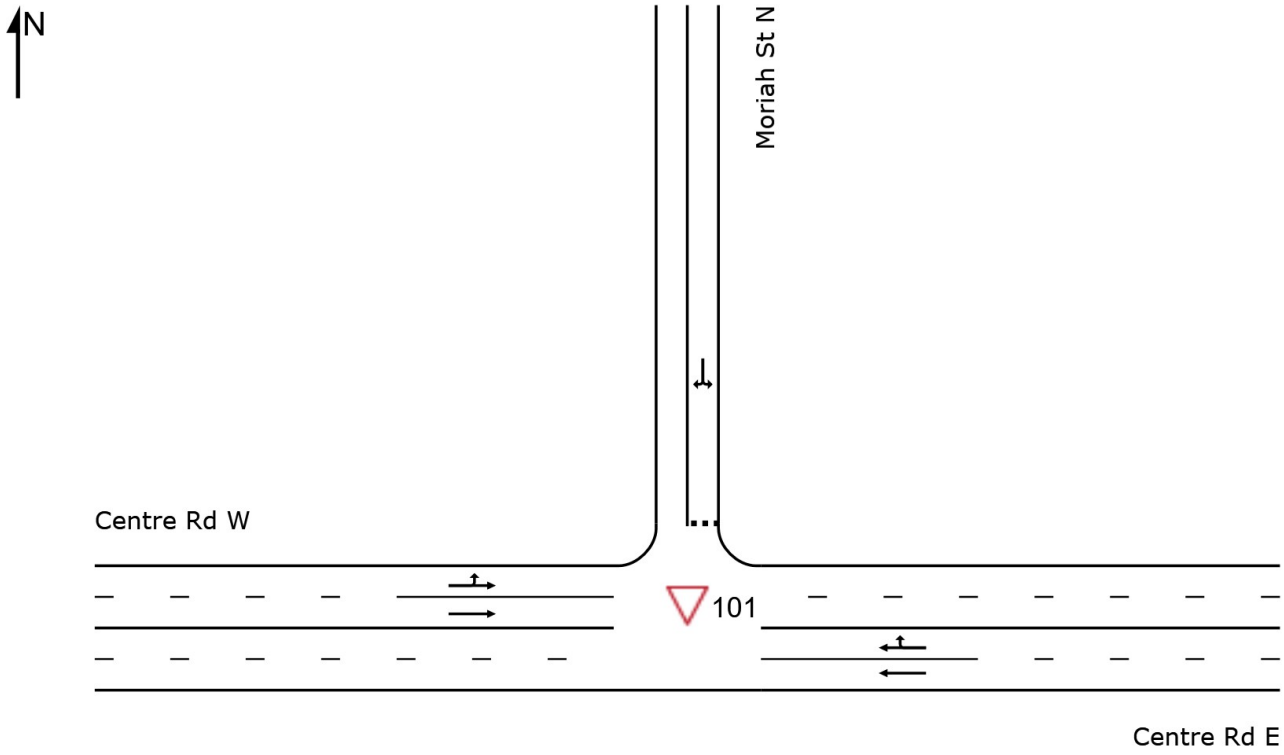
Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Browns Rd S												
1a	L1	232	3.0	0.287	7.9	LOS A	1.3	9.2	0.61	0.84	0.68	50.8
Approach		232	3.0	0.287	7.9	LOS A	1.3	9.2	0.61	0.84	0.68	50.8
SouthEast: Princes Hwy SE												
21b	L3	204	3.0	0.466	9.1	LOS A	0.0	0.0	0.00	0.18	0.00	72.7
22	T1	2356	8.0	0.466	0.1	LOS A	0.0	0.0	0.00	0.05	0.00	78.7
Approach		2560	7.6	0.466	0.8	NA	0.0	0.0	0.00	0.06	0.00	78.2
All Vehicles		2792	7.2	0.466	1.4	NA	1.3	9.2	0.05	0.12	0.06	74.8

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

SITE LAYOUT

Site: 101 [Centre Rd / Moriah St AM 2031]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)



Organisation: CARDNO (QLD) PTY LTD | Created: Tuesday, 12 February 2019 3:12:07 PM
Project: M:\2017\0501_1000\V170605_PMP_Printing_Precinct,_Clayton\Traffic\Engineering\SIDRA\V170605-SID002 - Moriah V4.sip8

MOVEMENT SUMMARY

Site: 101 [Centre Rd / Moriah St AM 2031]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Centre Rd E												
5	T1	661	8.0	0.192	0.4	LOS A	0.4	2.7	0.06	0.01	0.06	58.3
6	R2	14	3.0	0.192	13.3	LOS B	0.4	2.7	0.12	0.03	0.12	54.7
Approach		675	7.9	0.192	0.7	NA	0.4	2.7	0.06	0.01	0.06	58.1
North: Moriah St N												
7	L2	17	3.0	0.052	8.0	LOS A	0.2	1.2	0.61	0.72	0.61	42.6
9	R2	3	3.0	0.052	41.1	LOS E	0.2	1.2	0.61	0.72	0.61	39.8
Approach		20	3.0	0.052	13.2	LOS B	0.2	1.2	0.61	0.72	0.61	42.2
West: Centre Rd W												
10	L2	13	3.0	0.268	5.6	LOS A	0.0	0.0	0.00	0.02	0.00	56.2
11	T1	982	8.0	0.268	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.7
Approach		995	7.9	0.268	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.7
All Vehicles		1689	7.9	0.268	0.5	NA	0.4	2.7	0.03	0.02	0.03	58.6

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

MOVEMENT SUMMARY

Site: 101 [Centre Rd / Moriah St PM 2031]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

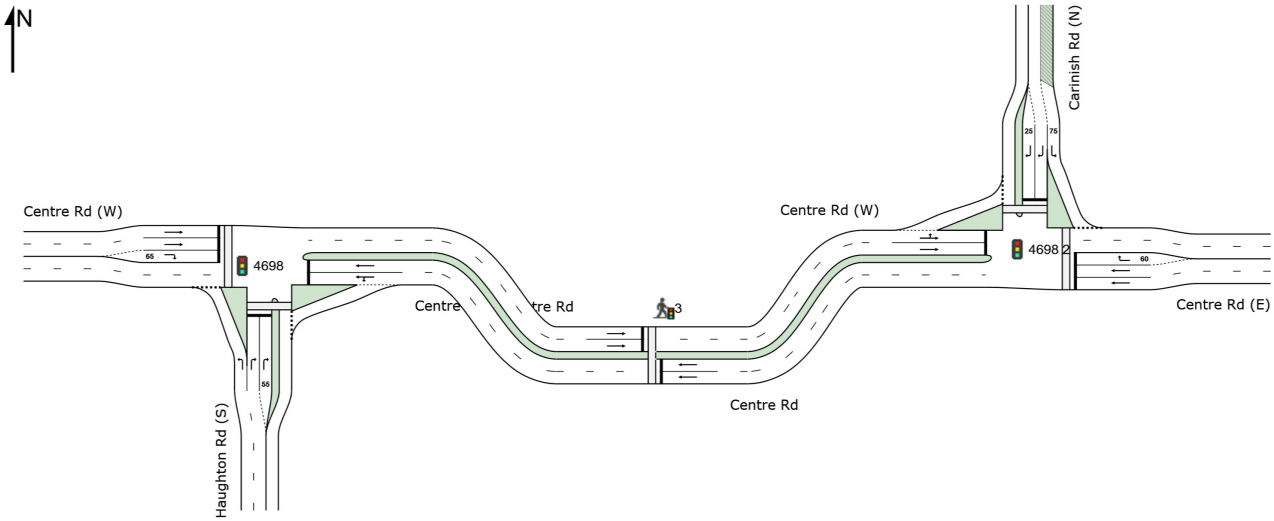
Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Centre Rd E												
5	T1	881	8.0	0.239	0.0	LOS A	0.0	0.2	0.00	0.00	0.00	59.9
6	R2	1	3.0	0.239	11.8	LOS B	0.0	0.2	0.01	0.00	0.01	56.6
Approach		882	8.0	0.239	0.0	NA	0.0	0.2	0.00	0.00	0.00	59.9
North: Moriah St N												
7	L2	21	3.0	0.292	10.9	LOS B	1.0	7.3	0.80	0.89	0.92	31.6
9	R2	26	3.0	0.292	47.9	LOS E	1.0	7.3	0.80	0.89	0.92	28.4
Approach		47	3.0	0.292	31.5	LOS D	1.0	7.3	0.80	0.89	0.92	29.9
West: Centre Rd W												
10	L2	34	3.0	0.227	5.6	LOS A	0.0	0.0	0.00	0.05	0.00	55.6
11	T1	808	8.0	0.227	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	59.4
Approach		842	7.8	0.227	0.2	NA	0.0	0.0	0.00	0.02	0.00	59.1
All Vehicles		1772	7.8	0.292	1.0	NA	1.0	7.3	0.02	0.04	0.03	57.3

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

NETWORK LAYOUT

Network: N101 [2031 AM + PMP]

New Network
Network Category: (None)



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
4698	CCG1	Centre-Haughton 2031 AM + PMP
3	CCG1	PedCrossing 2031 AM + PMP
4698 2	CCG1	Centre-Carnish 2031 AM + PMP

Organisation: CARDNO (QLD) PTY LTD | Created: Tuesday, 12 February 2019 2:55:19 PM
Project: M:\2017\0501_1000\V170605_PMP_Printing_Precinct,_Clayton\Traffic\Engineering\SIDRA\V170605-SID003 - Carinish-Centre-Haughton V6.sip8

MOVEMENT SUMMARY

Site: 4698 [Centre-Haughton 2031 AM + PMP]

Network: N101 [2031 AM + PMP]

Centre Rd / Haughton Rd
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 73 seconds (CCG User-Given Cycle Time)
Common Control Group: CCG1 [Vicroads TSP]

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Haughton Rd (S)														
1	L2	314	5.0	314	5.0	0.260	6.9	LOS A	2.2	16.3	0.26	0.62	0.26	54.4
3	R2	296	5.0	296	5.0	0.753	44.1	LOS D	5.7	41.8	1.00	0.89	1.24	28.5
Approach		609	5.0	609	5.0	0.753	25.0	LOS C	5.7	41.8	0.62	0.75	0.74	42.1
East: Centre Rd (E)														
4	L2	97	5.0	97	5.0	0.426	15.8	LOS B	4.5	32.6	0.53	0.60	0.97	44.1
5	T1	469	5.0	469	5.0	0.426	12.4	LOS B	4.5	32.6	0.55	0.53	0.73	45.8
Approach		566	5.0	566	5.0	0.426	13.0	LOS B	4.5	32.6	0.54	0.54	0.77	45.5
West: Centre Rd (W)														
11	T1	772	5.0	772	5.0	0.596	21.7	LOS C	11.5	84.3	0.88	0.76	0.88	38.9
12	R2	75	5.0	75	5.0	0.507	43.1	LOS D	2.8	20.2	1.00	0.76	1.00	38.3
Approach		846	5.0	846	5.0	0.596	23.6	LOS C	11.5	84.3	0.89	0.76	0.89	38.8
All Vehicles		2022	5.0	2022	5.0	0.753	21.0	LOS C	11.5	84.3	0.71	0.70	0.81	41.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	22.3	LOS C	0.1	0.1	0.78	0.78
P4	West Full Crossing	16	26.3	LOS C	0.0	0.0	0.85	0.85
All Pedestrians		68	23.2	LOS C			0.80	0.80

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: 4698 2 [Centre-Carnish 2031 AM + PMP]

Network: N101 [2031 AM + PMP]

Centre Road / Carnish Road
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 73 seconds (CCG User-Given Cycle Time)
Common Control Group: CCG1 [Vicroads TSP]

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Centre Rd (E)														
5	T1	375	5.0	375	5.0	0.290	19.1	LOS B	4.9	35.9	0.77	0.64	0.77	33.1
6	R2	372	5.0	372	5.0	0.796	25.9	LOS C	10.1	73.4	0.99	0.92	1.17	44.2
Approach		746	5.0	746	5.0	0.796	22.5	LOS C	10.1	73.4	0.88	0.78	0.97	41.0
North: Carinish Rd (N)														
7	L2	415	5.0	415	5.0	0.384	9.3	LOS A	5.4	39.4	0.44	0.68	0.44	52.8
9	R2	192	5.0	192	5.0	0.487	40.7	LOS D	3.4	25.0	0.98	0.77	0.98	34.3
Approach		606	5.0	606	5.0	0.487	19.2	LOS B	5.4	39.4	0.61	0.71	0.61	46.7
West: Centre Rd (W)														
10	L2	397	5.0	397	5.0	0.728	11.2	LOS B	3.4	24.5	0.69	0.75	0.78	49.8
11	T1	671	5.0	671	5.0	0.728	12.8	LOS B	3.4	24.5	0.74	0.70	0.78	38.9
Approach		1067	5.0	1067	5.0	0.728	12.2	LOS B	3.4	24.5	0.72	0.72	0.78	44.5
All Vehicles		2420	5.0	2420	5.0	0.796	17.1	LOS B	10.1	73.4	0.74	0.74	0.80	44.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P2	East Full Crossing	16	30.8	LOS D	0.0	0.0	0.92	0.92
P3	North Full Crossing	53	22.3	LOS C	0.1	0.1	0.78	0.78
All Pedestrians		68	24.3	LOS C			0.81	0.81

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.

CCG PHASING SUMMARY

Common Control Group: CCG1 [Vicroads TSP]

Network: N101 [2031 AM + PMP]

Fixed Time Isolated Cycle Time = 73 seconds (CCG User-Given Cycle Time)

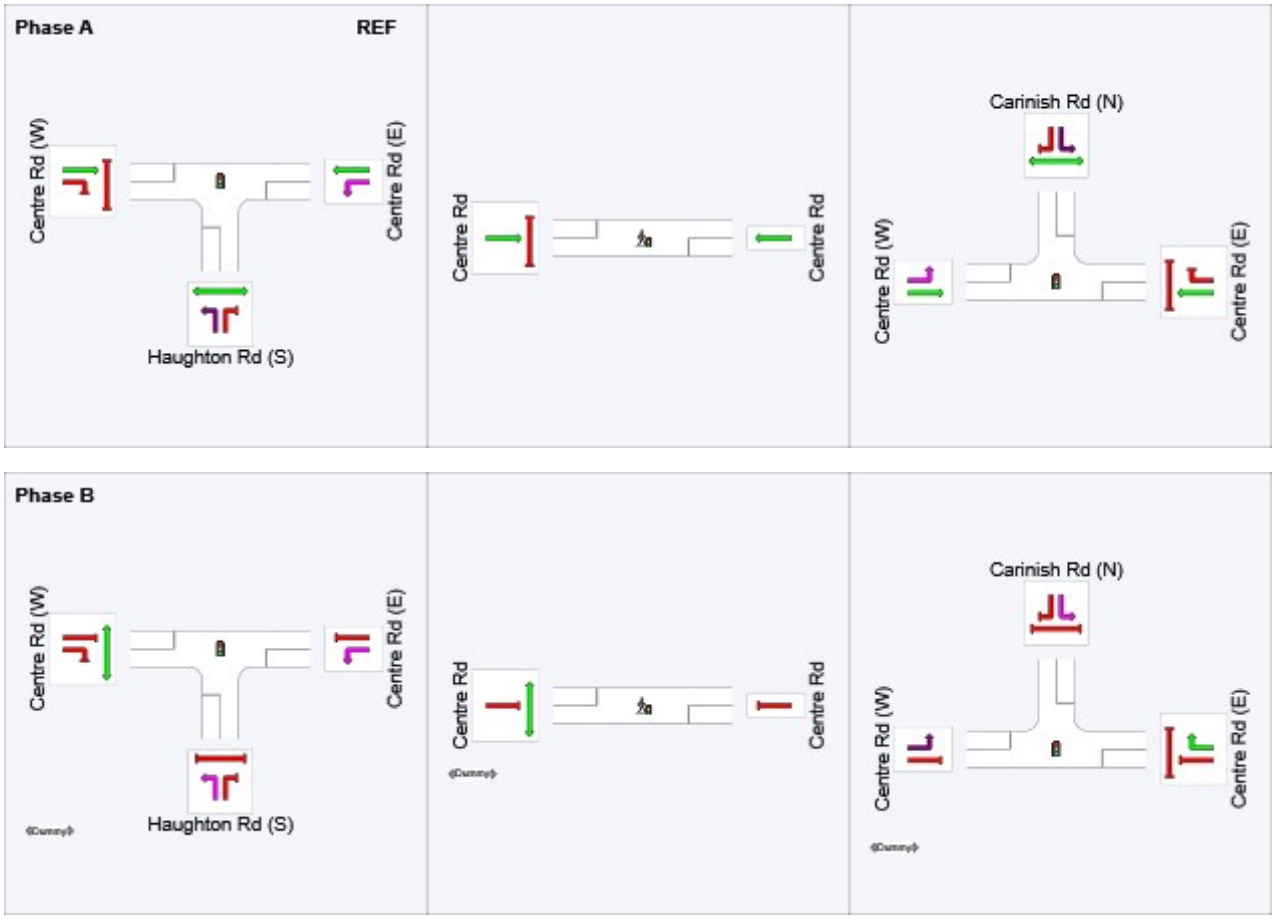
Timings based on settings in the CCG Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: updated phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C1*, C2*, C3*, D1, D2*, D3*
Output Phase Sequence: A, B, C1*, D1
(* Variable Phase)

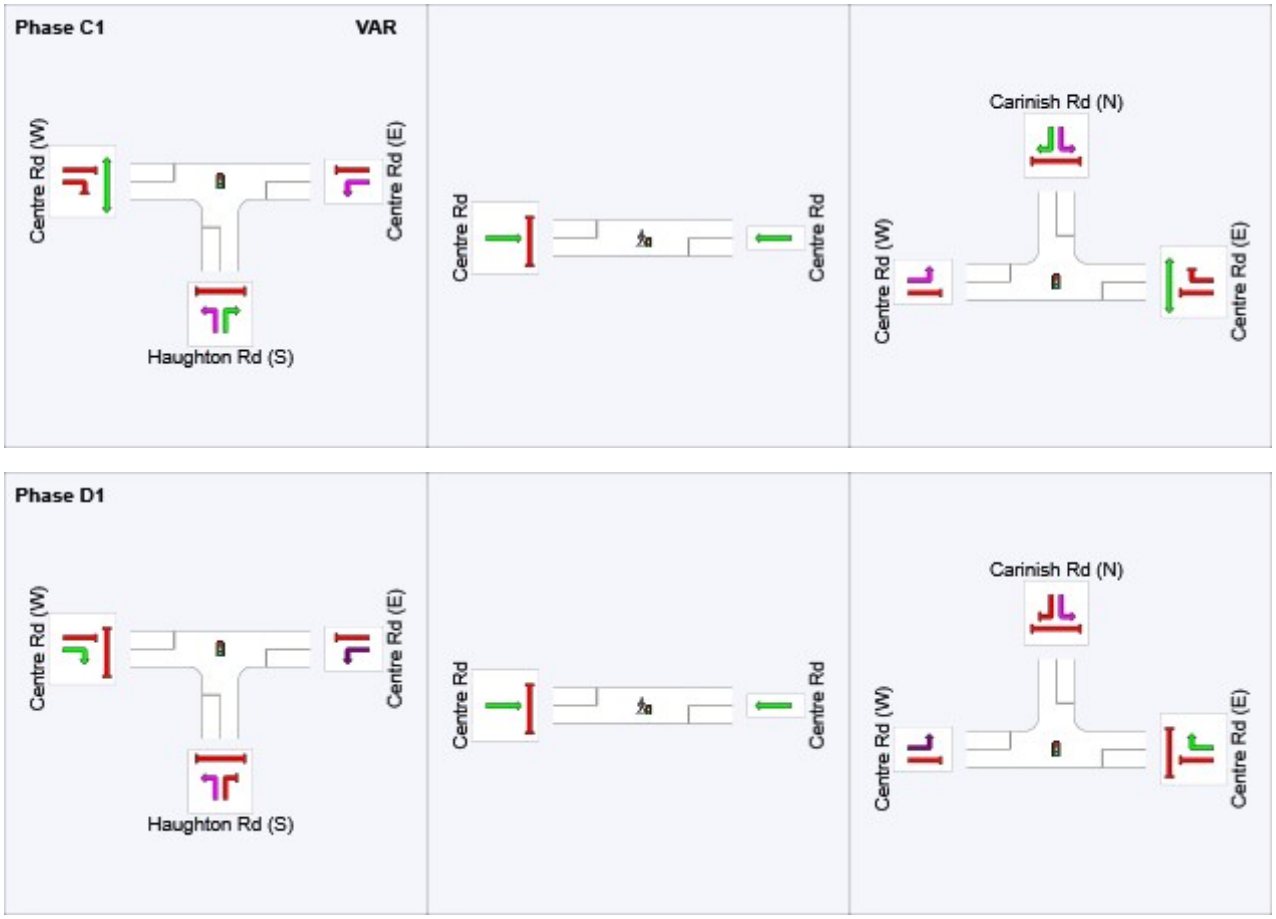
Phase Timing Summary (CCG)

Phase	A	B	C1	D1
Phase Change Time (sec)	0	31	50	61
Green Time (sec)	25	13	8	6
Phase Time (sec)	31	16	14	12
Phase Split	42%	22%	19%	16%

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

Output Phase Sequence (CCG)





REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class (MC) Running	Undetected Movement
Mixed Running & Stopped MCs	Continuous Movement
Other Movement Class (MC) Stopped	Phase Transition Applied

MOVEMENT SUMMARY

Site: 4698 [Centre-Haughton 2031 PM + PMP]

Network: N101 [2031 PM + PMP]

Centre Rd / Haughton Rd
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 78 seconds (CCG Practical Cycle Time)
Common Control Group: CCG1 [Vicroads TSP]

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Haughton Rd (S)														
1	L2	267	5.0	267	5.0	0.258	11.2	LOS B	4.1	30.1	0.47	0.68	0.47	51.9
3	R2	208	5.0	208	5.0	0.412	40.0	LOS D	3.8	27.7	0.95	0.78	0.95	29.9
Approach		476	5.0	476	5.0	0.412	23.8	LOS C	4.1	30.1	0.68	0.72	0.68	43.0
East: Centre Rd (E)														
4	L2	202	5.0	202	5.0	0.884	28.9	LOS C	4.5	32.6	0.92	1.02	1.59	35.7
5	T1	900	5.0	900	5.0	0.884	24.6	LOS C	4.5	32.6	0.93	0.97	1.29	37.3
Approach		1102	5.0	1102	5.0	0.884	25.4	LOS C	4.5	32.6	0.93	0.98	1.35	37.0
West: Centre Rd (W)														
11	T1	444	5.0	444	5.0	0.612	32.2	LOS C	8.0	58.6	0.97	0.80	0.97	33.2
12	R2	169	5.0	169	5.0	0.921	58.1	LOS E	8.1	59.1	1.00	1.09	1.69	34.2
Approach		614	5.0	614	5.0	0.921	39.4	LOS D	8.1	59.1	0.98	0.88	1.17	33.6
All Vehicles		2192	5.0	2192	5.0	0.921	29.0	LOS C	8.1	59.1	0.89	0.89	1.15	37.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	24.7	LOS C	0.1	0.1	0.80	0.80
P4	West Full Crossing	16	26.3	LOS C	0.0	0.0	0.82	0.82
All Pedestrians		68	25.1	LOS C			0.80	0.80

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: 4698 2 [Centre-Carnish 2031 PM + PMP]

Network: N101 [2031 PM + PMP]

Centre Road / Carnish Road
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 78 seconds (CCG Practical Cycle Time)
Common Control Group: CCG1 [Vicroads TSP]

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Centre Rd (E)														
5	T1	721	5.0	721	5.0	0.596	24.3	LOS C	11.7	85.5	0.89	0.77	0.89	29.5
6	R2	277	5.0	277	5.0	0.669	36.5	LOS D	10.0	73.3	0.96	0.85	1.00	40.1
Approach		998	5.0	998	5.0	0.669	27.7	LOS C	11.7	85.5	0.91	0.79	0.92	34.6
North: Carinish Rd (N)														
7	L2	543	5.0	543	5.0	0.412	7.6	LOS A	5.6	40.9	0.34	0.65	0.34	53.8
9	R2	381	5.0	381	5.0	0.868	50.3	LOS D	8.4	61.1	1.00	0.99	1.47	31.1
Approach		924	5.0	924	5.0	0.868	25.2	LOS C	8.4	61.1	0.61	0.79	0.81	43.4
West: Centre Rd (W)														
10	L2	272	5.0	272	5.0	0.650	17.5	LOS B	3.4	24.5	0.72	0.83	1.05	45.5
11	T1	381	5.0	381	5.0	0.650	18.3	LOS B	3.4	24.5	0.76	0.72	0.89	33.8
Approach		653	5.0	653	5.0	0.650	18.0	LOS B	3.4	24.5	0.75	0.77	0.96	40.2
All Vehicles		2575	5.0	2575	5.0	0.868	24.4	LOS C	11.7	85.5	0.76	0.79	0.89	39.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P2	East Full Crossing	16	26.3	LOS C	0.0	0.0	0.82	0.82
P3	North Full Crossing	53	33.3	LOS D	0.1	0.1	0.93	0.93
All Pedestrians		68	31.7	LOS D			0.90	0.90

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.

CCG PHASING SUMMARY

Common Control Group: CCG1 [Vicroads TSP]

Network: N101 [2031 PM + PMP]

Fixed Time Isolated Cycle Time = 78 seconds (CCG Practical Cycle Time)

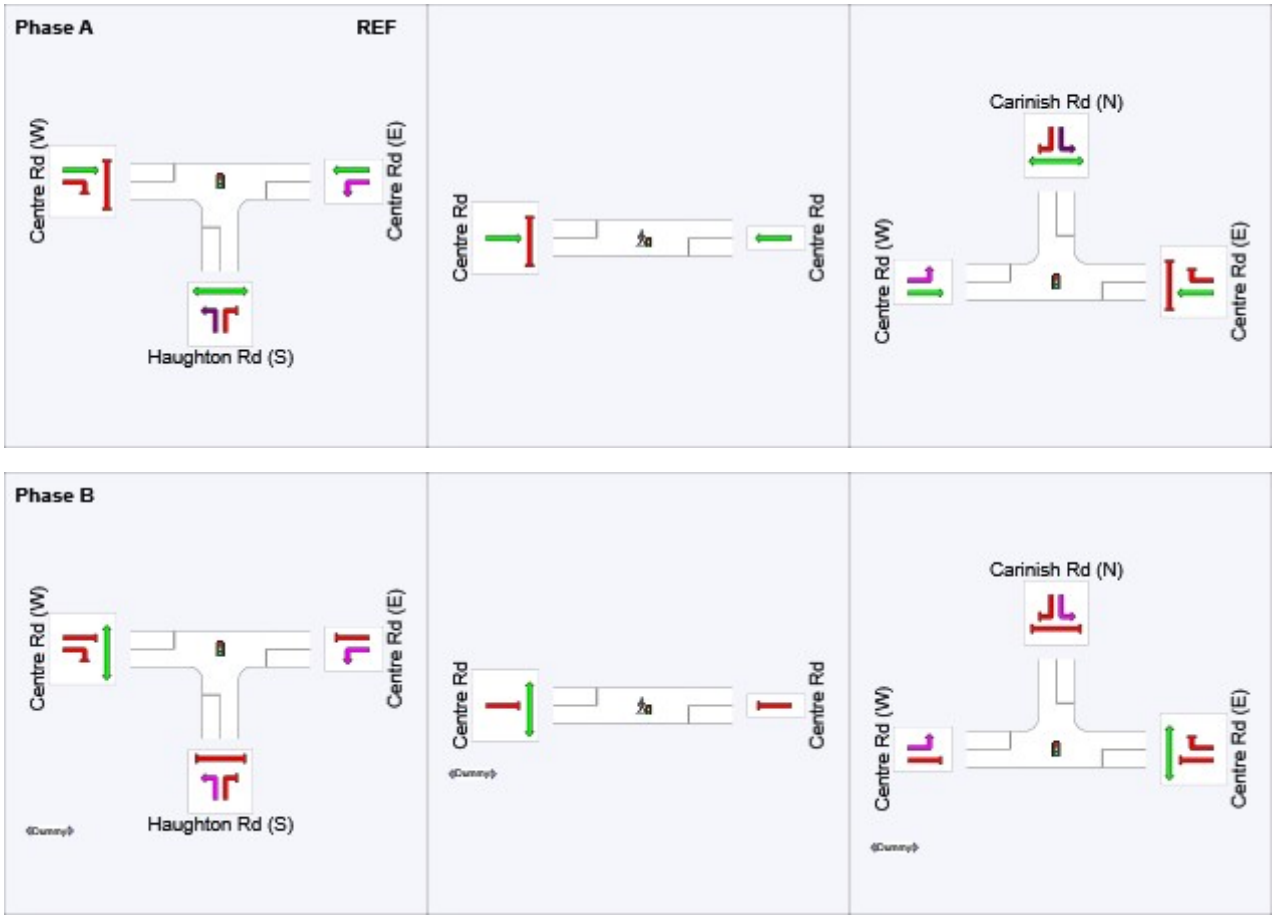
Timings based on settings in the CCG Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects not included in determining phase times
Phase Sequence: updated phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C1*, C2*, C3*, D1, D2*, D3
Output Phase Sequence: A, B, C1*, D1, D3
(* Variable Phase)

Phase Timing Summary (CCG)

Phase	A	B	C1	D1	D3
Phase Change Time (sec)	0	21	40	54	68
Green Time (sec)	15	13	11	8	4
Phase Time (sec)	21	16	17	14	10
Phase Split	27%	21%	22%	18%	13%

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

Output Phase Sequence (CCG)



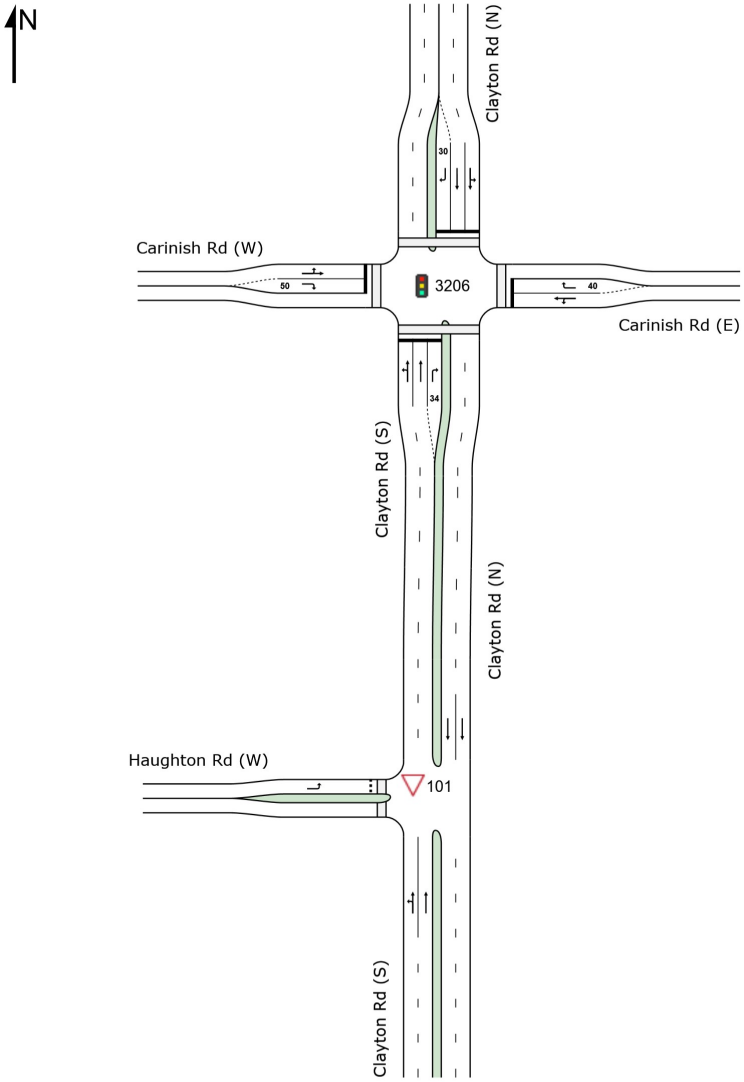
REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class (MC) Running	Undetected Movement
Mixed Running & Stopped MCs	Continuous Movement
Other Movement Class (MC) Stopped	Phase Transition Applied

NETWORK LAYOUT

Network: N101 [2031 AM Vols + PMP (& - Bimbi)]

New Network
Network Category: (None)



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
3206	NA	2031 AM Base Vols + PMP
101	NA	2031 AM Base Vols + PMP

Organisation: CARDNO (QLD) PTY LTD | Created: Tuesday, 12 February 2019 3:03:15 PM
Project: M:\2017\0501_1000\V170605_PMP_Printing_Precinct,_Clayton\Traffic\Engineering\SIDRA\V170605-SID004 - Clayton-Carinish V5.sip8

MOVEMENT SUMMARY

Site: 3206 [2031 AM Base Vols + PMP]

Network: N101 [2031 AM Vols + PMP (& - Bimbi)]

Clayton Road / Carinish Road
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 86 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Clayton Rd (S)														
1	L2	77	5.0	77	5.0	0.874	38.3	LOS D	7.8	57.1	0.99	1.04	1.19	28.1
2	T1	1176	5.0	1176	5.0	0.874	34.8	LOS C	7.8	57.1	0.96	1.01	1.17	25.6
3	R2	117	5.0	117	5.0	0.801	51.6	LOS D	5.5	39.9	1.00	0.92	1.34	22.9
Approach		1369	5.0	1369	5.0	0.874	36.4	LOS D	7.8	57.1	0.96	1.01	1.18	25.4
East: Carinish Rd (E)														
4	L2	178	5.0	178	5.0	0.472	32.2	LOS C	9.0	65.7	0.86	0.78	0.86	30.3
5	T1	82	5.0	82	5.0	0.472	26.6	LOS C	9.0	65.7	0.86	0.78	0.86	40.0
6	R2	228	5.0	228	5.0	0.857	52.4	LOS D	11.2	82.0	1.00	1.00	1.38	30.0
Approach		488	5.0	488	5.0	0.857	40.7	LOS D	11.2	82.0	0.93	0.88	1.10	31.8
North: Clayton Rd (N)														
7	L2	227	5.0	227	5.0	0.525	26.4	LOS C	12.5	90.9	0.81	0.77	0.81	40.5
8	T1	554	5.0	554	5.0	0.525	20.6	LOS C	12.5	90.9	0.80	0.71	0.80	31.5
9	R2	18	5.0	18	5.0	0.123	47.2	LOS D	0.7	5.4	0.96	0.69	0.96	31.4
Approach		799	5.0	799	5.0	0.525	22.9	LOS C	12.5	90.9	0.81	0.73	0.81	35.1
West: Carinish Rd (W)														
10	L2	63	5.0	63	5.0	0.419	31.7	LOS C	8.0	58.4	0.85	0.73	0.85	38.8
11	T1	173	5.0	173	5.0	0.419	26.1	LOS C	8.0	58.4	0.85	0.73	0.85	41.3
12	R2	89	5.0	89	5.0	0.363	39.2	LOS D	3.4	24.8	0.91	0.78	0.91	26.5
Approach		325	5.0	325	5.0	0.419	30.8	LOS C	8.0	58.4	0.86	0.75	0.86	37.4
All Vehicles		2982	5.0	2982	5.0	0.874	32.9	LOS C	12.5	90.9	0.90	0.88	1.03	30.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	32.8	LOS D	0.1	0.1	0.87	0.87
P2	East Full Crossing	53	19.6	LOS B	0.1	0.1	0.68	0.68
P3	North Full Crossing	53	32.8	LOS D	0.1	0.1	0.87	0.87
P4	West Full Crossing	53	19.6	LOS B	0.1	0.1	0.68	0.68
All Pedestrians		211	26.2	LOS C			0.77	0.77

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

PHASING SUMMARY

Site: 3206 [2031 AM Base Vols + PMP]

Network: N101 [2031 AM Vols + PMP (& - Bimbi)]

Clayton Road / Carinish Road
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 86 seconds (Site User-Given Cycle Time)

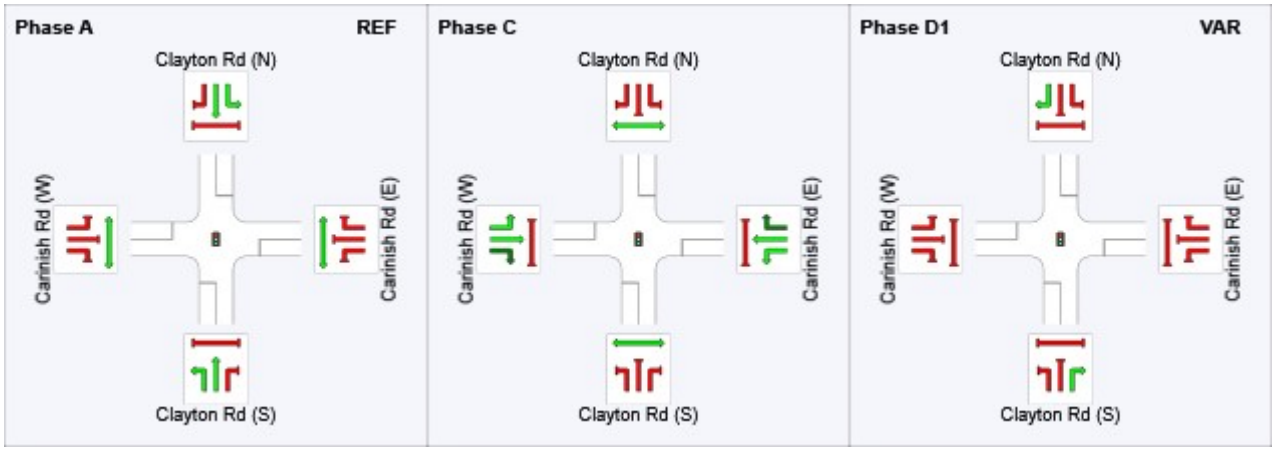
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Vicroads (updated)
Reference Phase: Phase A
Input Phase Sequence: A, B1*, B2*, B3*, C, D1*, D2*, D3*
Output Phase Sequence: A, C, D1*
(* Variable Phase)

Phase Timing Summary

Phase	A	C	D1
Phase Change Time (sec)	0	41	73
Green Time (sec)	35	26	7
Phase Time (sec)	41	32	13
Phase Split	48%	37%	15%

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

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class (MC) Running	Undetected Movement
Mixed Running & Stopped MCs	Continuous Movement
Other Movement Class (MC) Stopped	Phase Transition Applied

MOVEMENT SUMMARY

Site: 101 [2031 AM Base Vols + PMP]

Network: N101 [2031 AM Vols + PMP (& - Bimbi)]

Clayton Road / Haughton Road
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Clayton Rd (S)														
1	L2	101	2.0	101	2.0	0.352	5.6	LOS A	15.9	115.8	0.00	0.09	0.00	55.9
2	T1	1226	5.0	1226	5.0	0.352	0.0	LOS A	18.2	132.8	0.00	0.04	0.00	56.8
Approach		1327	4.8	1327	4.8	0.352	0.4	NA	18.2	132.8	0.00	0.05	0.00	56.5
North: Clayton Rd (N)														
8	T1	694	5.0	694	5.0	0.184	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		694	5.0	694	5.0	0.184	0.0	NA	0.0	0.0	0.00	0.00	0.00	60.0
West: Haughton Rd (W)														
10	L2	252	2.0	252	2.0	0.676	14.0	LOS B	2.7	19.0	0.60	1.02	1.12	41.3
Approach		252	2.0	252	2.0	0.676	14.0	LOS B	2.7	19.0	0.60	1.02	1.12	41.3
All Vehicles		2273	4.5	2273	4.5	0.676	1.8	NA	18.2	132.8	0.07	0.14	0.12	51.6

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

MOVEMENT SUMMARY

Site: 3206 [2031 PM Base Vols + PMP]

Network: N101 [2031 PM Vols + PMP (& - Bimbi)]

Clayton Road / Carinish Road
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Clayton Rd (S)														
1	L2	202	5.0	202	5.0	0.703	29.0	LOS C	7.8	57.1	0.88	0.81	0.88	32.0
2	T1	774	5.0	774	5.0	0.703	24.4	LOS C	7.8	57.1	0.84	0.75	0.84	30.6
3	R2	168	5.0	168	5.0	0.939	71.2	LOS E	7.8	57.1	1.00	1.07	1.64	18.7
Approach		1144	5.0	1144	5.0	0.939	32.1	LOS C	7.8	57.1	0.87	0.81	0.96	27.8
East: Carinish Rd (E)														
4	L2	159	5.0	159	5.0	0.858	48.9	LOS D	17.2	125.6	0.92	0.97	1.17	24.2
5	T1	184	5.0	184	5.0	0.858	43.3	LOS D	17.2	125.6	0.92	0.97	1.17	34.3
6	R2	174	5.0	174	5.0	0.936	75.8	LOS E	11.2	81.4	1.00	1.10	1.65	24.6
Approach		517	5.0	517	5.0	0.936	55.9	LOS E	17.2	125.6	0.94	1.01	1.33	28.0
North: Clayton Rd (N)														
7	L2	257	5.0	257	5.0	0.942	59.5	LOS E	46.3	337.7	1.00	1.13	1.33	29.0
8	T1	1148	5.0	1148	5.0	0.942	53.7	LOS D	46.3	337.7	0.98	1.14	1.33	18.3
9	R2	89	5.0	89	5.0	0.499	53.9	LOS D	4.4	31.8	0.99	0.77	0.99	29.5
Approach		1495	5.0	1495	5.0	0.942	54.7	LOS D	46.3	337.7	0.99	1.12	1.31	21.5
West: Carinish Rd (W)														
10	L2	137	5.0	137	5.0	0.749	40.4	LOS D	14.8	108.1	0.91	0.85	0.98	34.9
11	T1	199	5.0	199	5.0	0.749	34.8	LOS C	14.8	108.1	0.91	0.85	0.98	37.4
12	R2	161	5.0	161	5.0	0.894	67.1	LOS E	9.5	69.6	1.00	1.03	1.51	19.0
Approach		497	5.0	497	5.0	0.894	46.8	LOS D	14.8	108.1	0.94	0.91	1.15	30.7
All Vehicles		3653	5.0	3653	5.0	0.942	46.7	LOS D	46.3	337.7	0.94	0.98	1.18	25.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	36.2	LOS D	0.1	0.1	0.85	0.85
P2	East Full Crossing	53	21.2	LOS C	0.1	0.1	0.65	0.65
P3	North Full Crossing	53	36.2	LOS D	0.1	0.1	0.85	0.85
P4	West Full Crossing	53	21.2	LOS C	0.1	0.1	0.65	0.65
All Pedestrians		211	28.7	LOS C			0.75	0.75

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

PHASING SUMMARY

Site: 3206 [2031 PM Base Vols + PMP]

Network: N101 [2031 PM Vols + PMP (& - Bimbi)]

Clayton Road / Carinish Road
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site Practical Cycle Time)

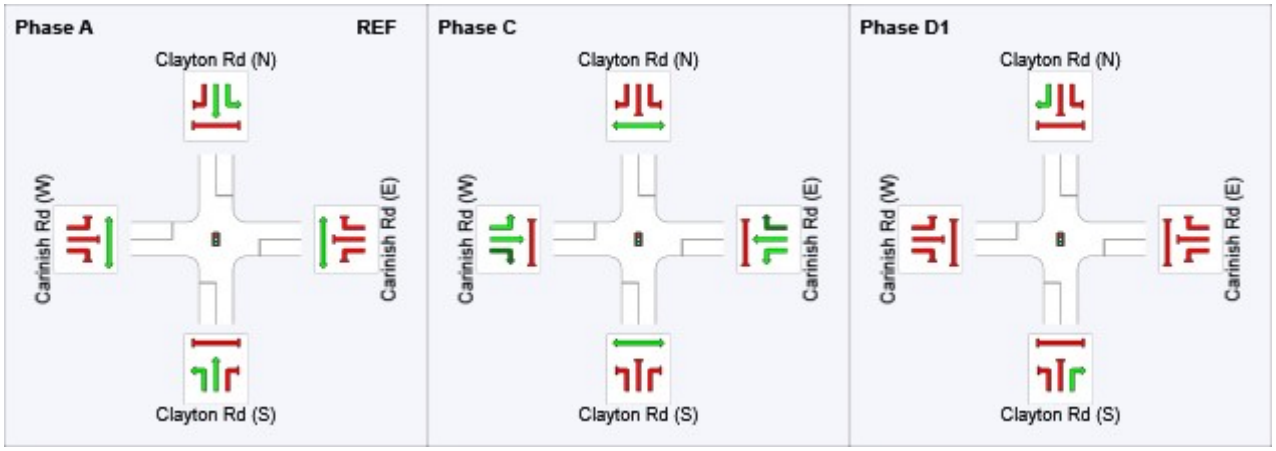
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects not included in determining phase times
Phase Sequence: VicRoads (updated)
Reference Phase: Phase A
Input Phase Sequence: A, B1*, B2*, B3*, C, D1, D2*, D3
Output Phase Sequence: A, C, D1
(* Variable Phase)

Phase Timing Summary

Phase	A	C	D1
Phase Change Time (sec)	0	48	84
Green Time (sec)	42	30	10
Phase Time (sec)	48	36	16
Phase Split	48%	36%	16%

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

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class (MC) Running	Undetected Movement
Mixed Running & Stopped MCs	Continuous Movement
Other Movement Class (MC) Stopped	Phase Transition Applied

MOVEMENT SUMMARY

Site: 101 [2031 PM Base Vols + PMP]

Network: N101 [2031 PM Vols + PMP (& - Bimbi)]

Clayton Road / Haughton Road
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

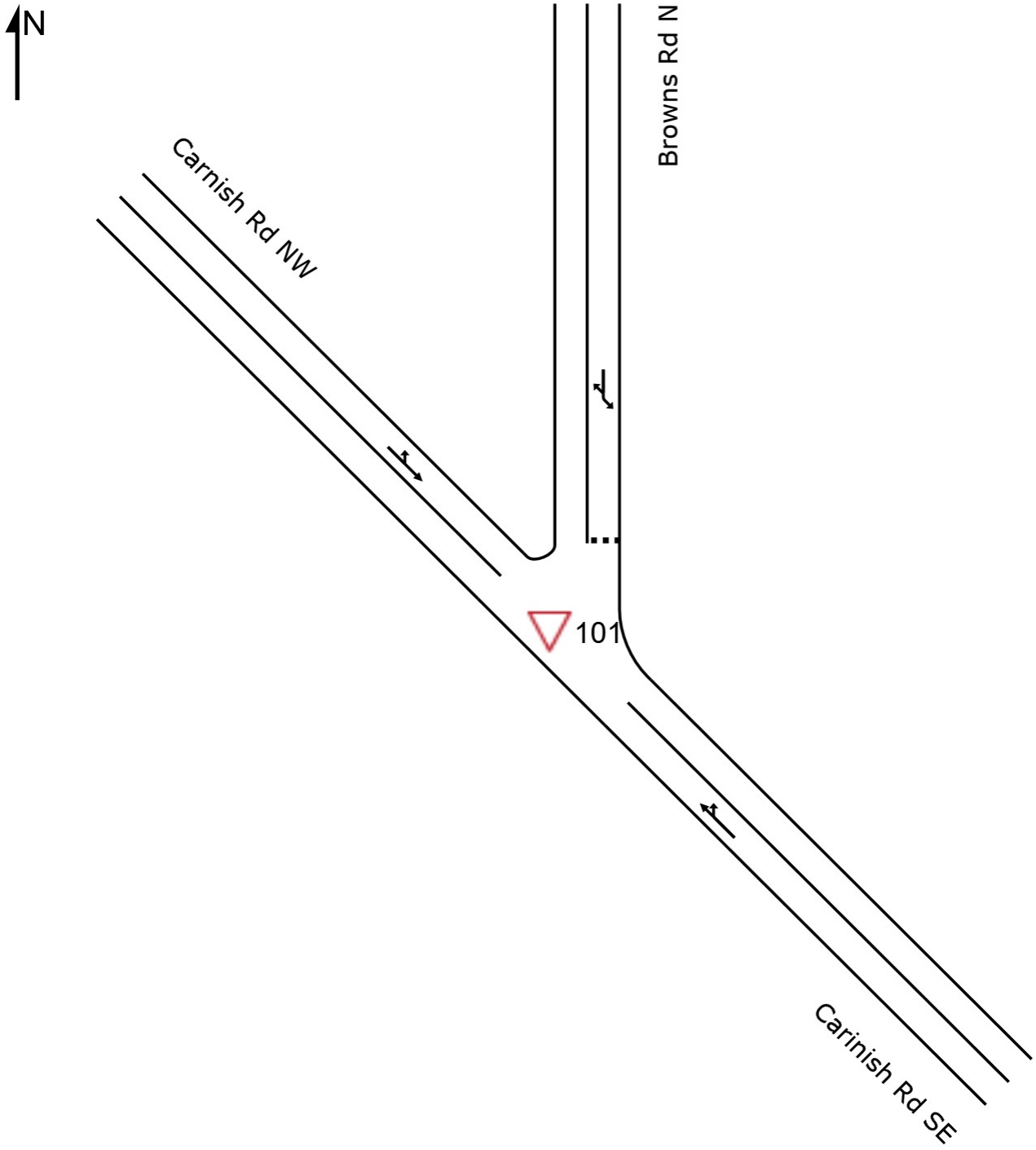
Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Clayton Rd (S)														
1	L2	218	2.0	218	2.0	0.304	5.6	LOS A	9.8	70.8	0.00	0.23	0.00	54.2
2	T1	922	5.0	922	5.0	0.304	0.0	LOS A	9.8	70.8	0.00	0.09	0.00	53.8
Approach		1140	4.4	1140	4.4	0.304	1.1	NA	9.8	70.8	0.00	0.11	0.00	54.0
North: Clayton Rd (N)														
8	T1	1409	5.0	1409	5.0	0.373	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		1409	5.0	1409	5.0	0.373	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Haughton Rd (W)														
10	L2	155	2.0	155	2.0	0.325	7.4	LOS A	0.7	5.0	0.43	0.67	0.43	48.5
Approach		155	2.0	155	2.0	0.325	7.4	LOS A	0.7	5.0	0.43	0.67	0.43	48.5
All Vehicles		2704	4.6	2704	4.6	0.373	0.9	NA	9.8	70.8	0.02	0.09	0.02	55.2

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

SITE LAYOUT

Site: 101 [Carinish/Browns Rd AM 2031 + PMP]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)



MOVEMENT SUMMARY

Site: 101 [Carinish/Browns Rd AM 2031 + PMP]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Carinish Rd SE												
22	T1	413	5.0	0.405	3.2	LOS A	0.0	0.0	0.00	0.47	0.00	46.0
23a	R1	349	3.0	0.405	3.6	LOS A	0.0	0.0	0.00	0.47	0.00	45.9
Approach		762	4.1	0.405	3.4	NA	0.0	0.0	0.00	0.47	0.00	46.0
North: Browns Rd N												
7a	L1	258	0.0	0.506	8.1	LOS A	3.2	22.2	0.58	0.87	0.92	39.3
9b	R3	75	0.0	0.506	24.1	LOS C	3.2	22.2	0.58	0.87	0.92	42.3
Approach		333	0.0	0.506	11.7	LOS B	3.2	22.2	0.58	0.87	0.92	40.2
NorthWest: Carnish Rd NW												
27b	L3	105	3.0	0.240	5.4	LOS A	0.0	0.0	0.00	0.49	0.00	47.4
28	T1	328	5.0	0.240	3.2	LOS A	0.0	0.0	0.00	0.49	0.00	45.8
Approach		434	4.5	0.240	3.8	NA	0.0	0.0	0.00	0.49	0.00	46.3
All Vehicles		1528	3.3	0.506	5.3	NA	3.2	22.2	0.13	0.57	0.20	44.6

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

MOVEMENT SUMMARY

Site: 101 [Carinish/Browns Rd PM 2031 + PMP]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

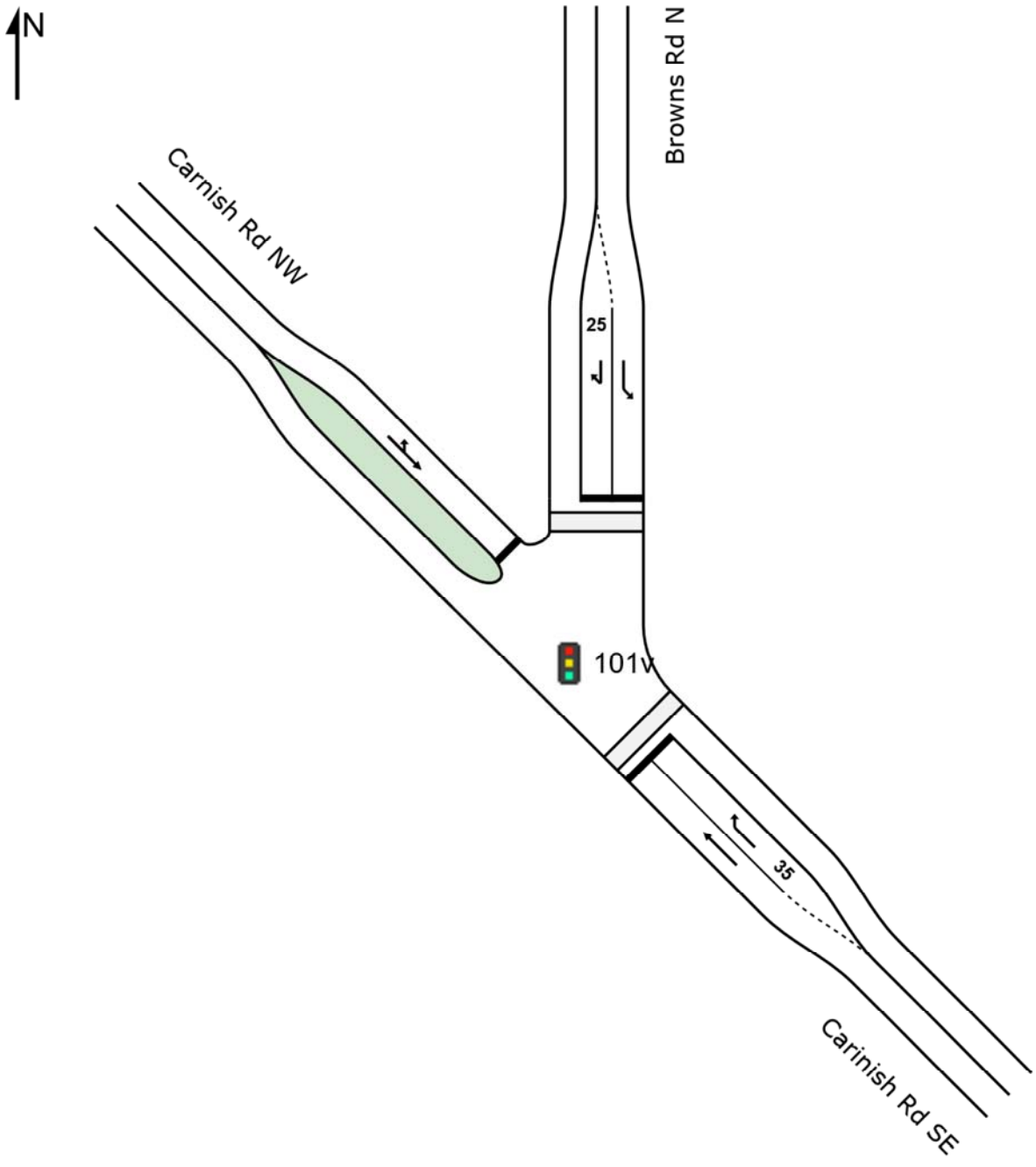
Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Carinish Rd SE												
22	T1	345	5.0	0.284	3.2	LOS A	0.0	0.0	0.00	0.47	0.00	46.1
23a	R1	189	3.0	0.284	3.6	LOS A	0.0	0.0	0.00	0.47	0.00	45.9
Approach		535	4.3	0.284	3.4	NA	0.0	0.0	0.00	0.47	0.00	46.0
North: Browns Rd N												
7a	L1	403	0.0	0.682	11.1	LOS B	5.8	40.8	0.71	1.18	1.49	38.2
9b	R3	85	0.0	0.682	24.5	LOS C	5.8	40.8	0.71	1.18	1.49	41.5
Approach		488	0.0	0.682	13.5	LOS B	5.8	40.8	0.71	1.18	1.49	38.9
NorthWest: Carnish Rd NW												
27b	L3	91	3.0	0.315	5.5	LOS A	0.0	0.0	0.00	0.48	0.00	47.5
28	T1	488	5.0	0.315	3.2	LOS A	0.0	0.0	0.00	0.48	0.00	45.9
Approach		579	4.7	0.315	3.6	NA	0.0	0.0	0.00	0.48	0.00	46.3
All Vehicles		1602	3.1	0.682	6.5	NA	5.8	40.8	0.22	0.69	0.45	43.6

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

SITE LAYOUT

Site: 101v [Carinish/Browns Rd AM 2031 + PMP - 73s cycle time]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated



LANE SUMMARY

Site: 101v [Carinish/Browns Rd AM 2031 + PMP - 73s cycle time]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 73 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
SouthEast: Carinish Rd SE													
Lane 1	413	5.0	1371	0.301	100	0.5	LOS A	0.7	4.8	Full	160	0.0	0.0
Lane 2	349	3.0	715	0.489	100	10.9	LOS B	4.4	31.9	Short	35	0.0	NA
Approach	762	4.1		0.489		5.3	LOS A	4.4	31.9				
North: Browns Rd N													
Lane 1	258	0.0	864	0.298	100	17.7	LOS B	5.8	40.8	Full	500	0.0	0.0
Lane 2	75	0.0	134	0.560	100	43.4	LOS D	2.8	19.7	Short	25	0.0	NA
Approach	333	0.0		0.560		23.5	LOS C	5.8	40.8				
NorthWest: Carnish Rd NW													
Lane 1	434	4.5	660	0.658	100	22.3	LOS C	13.1	95.1	Full	500	0.0	0.0
Approach	434	4.5		0.658		22.3	LOS C	13.1	95.1				
Intersection	1528	3.3		0.658		14.1	LOS B	13.1	95.1				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

PHASING SUMMARY

Site: 101v [Carinish/Browns Rd AM 2031 + PMP - 73s cycle time]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 73 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

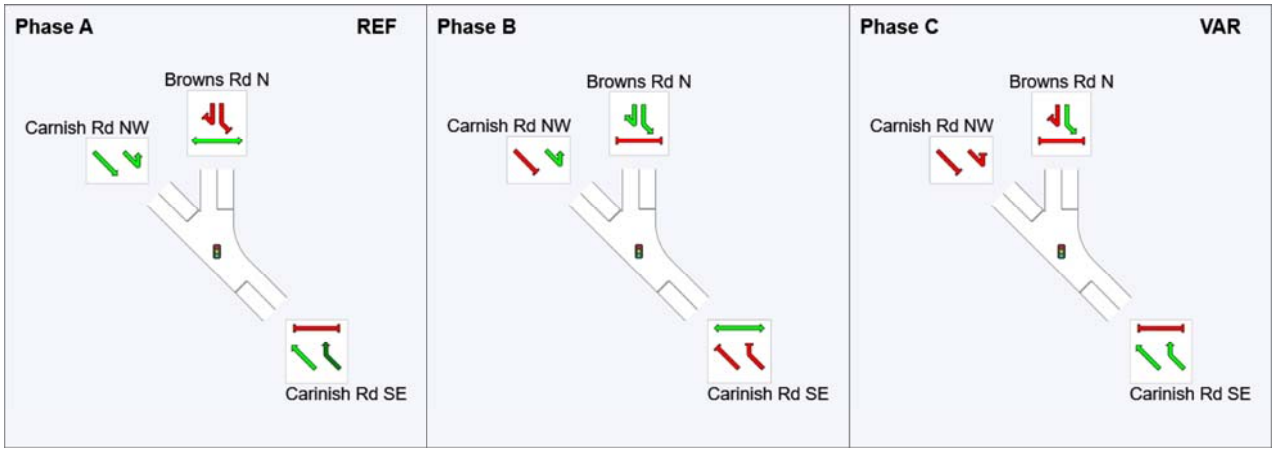
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Opposed Turns
Reference Phase: Phase A
Input Phase Sequence: A, B, C*
Output Phase Sequence: A, B, C*
(* Variable Phase)

Phase Timing Summary

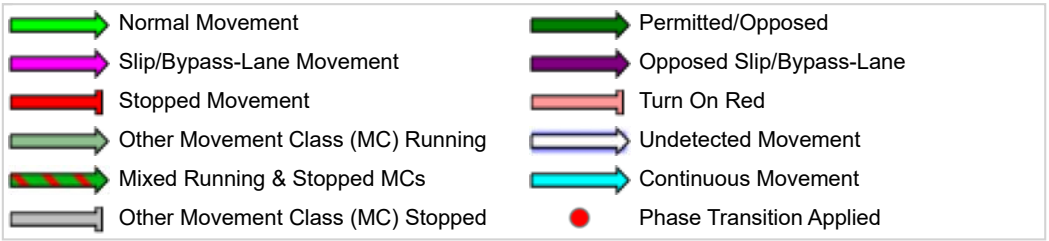
Phase	A	B	C
Phase Change Time (sec)	0	33	46
Green Time (sec)	26	6	20
Phase Time (sec)	33	13	27
Phase Split	45%	18%	37%

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

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



LANE SUMMARY

Site: 101v [Carinish/Browns Rd PM 2031 + PMP - 75s cycle time]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 75 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
SouthEast: Carinish Rd SE													
Lane 1	345	5.0	1335	0.259	100	1.0	LOS A	1.0	7.0	Full	160	0.0	0.0
Lane 2	189	3.0	513	0.369	100	12.8	LOS B	2.6	18.7	Short	35	0.0	NA
Approach	535	4.3		0.369		5.1	LOS A	2.6	18.7				
North: Browns Rd N													
Lane 1	403	0.0	585[1]	0.689	100	25.8	LOS C	12.3	86.2	Full	500	0.0	0.0
Lane 2	85	0.0	173	0.492	100	41.7	LOS D	3.2	22.1	Short	25	0.0	NA
Approach	488	0.0		0.689		28.6	LOS C	12.3	86.2				
NorthWest: Carnish Rd NW													
Lane 1	579	4.7	841	0.688	100	17.9	LOS B	16.8	122.2	Full	500	0.0	0.0
Approach	579	4.7		0.688		17.9	LOS B	16.8	122.2				
Intersection	1602	3.1		0.689		16.9	LOS B	16.8	122.2				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

PHASING SUMMARY

Site: 101v [Carinish/Browns Rd PM 2031 + PMP - 75s cycle time]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 75 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

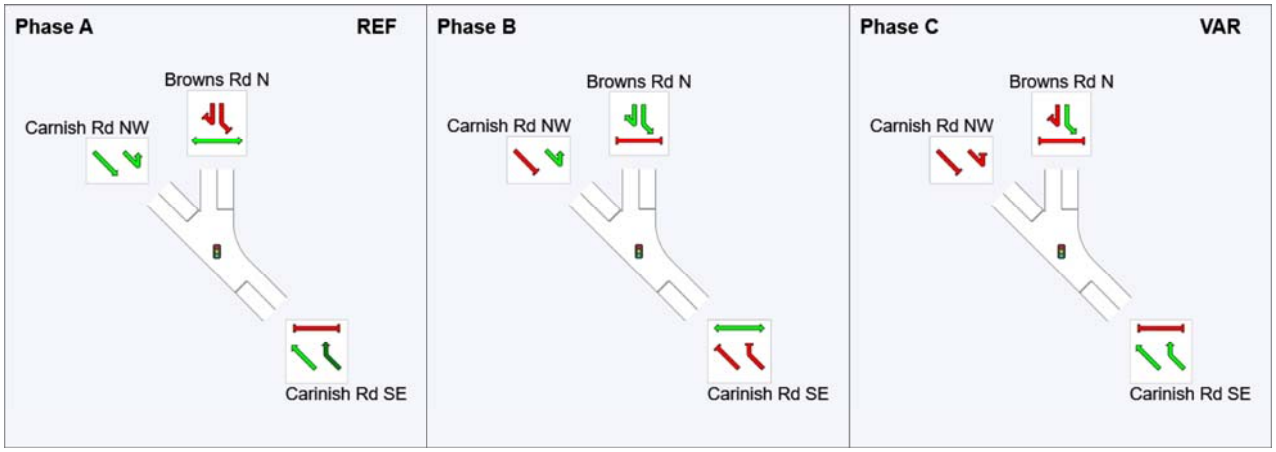
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Opposed Turns
Reference Phase: Phase A
Input Phase Sequence: A, B, C*
Output Phase Sequence: A, B, C*
(* Variable Phase)

Phase Timing Summary

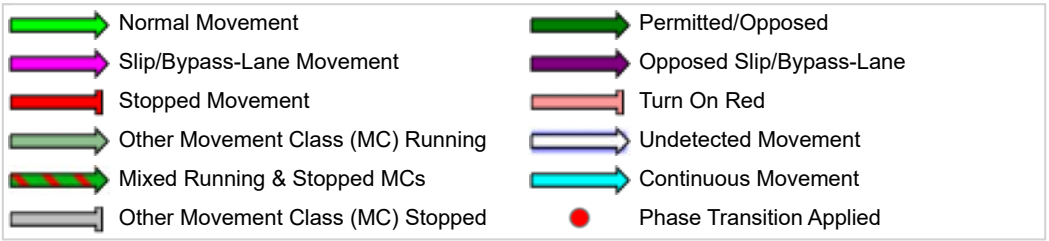
Phase	A	B	C
Phase Change Time (sec)	0	41	56
Green Time (sec)	34	8	12
Phase Time (sec)	41	15	19
Phase Split	55%	20%	25%

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

Output Phase Sequence



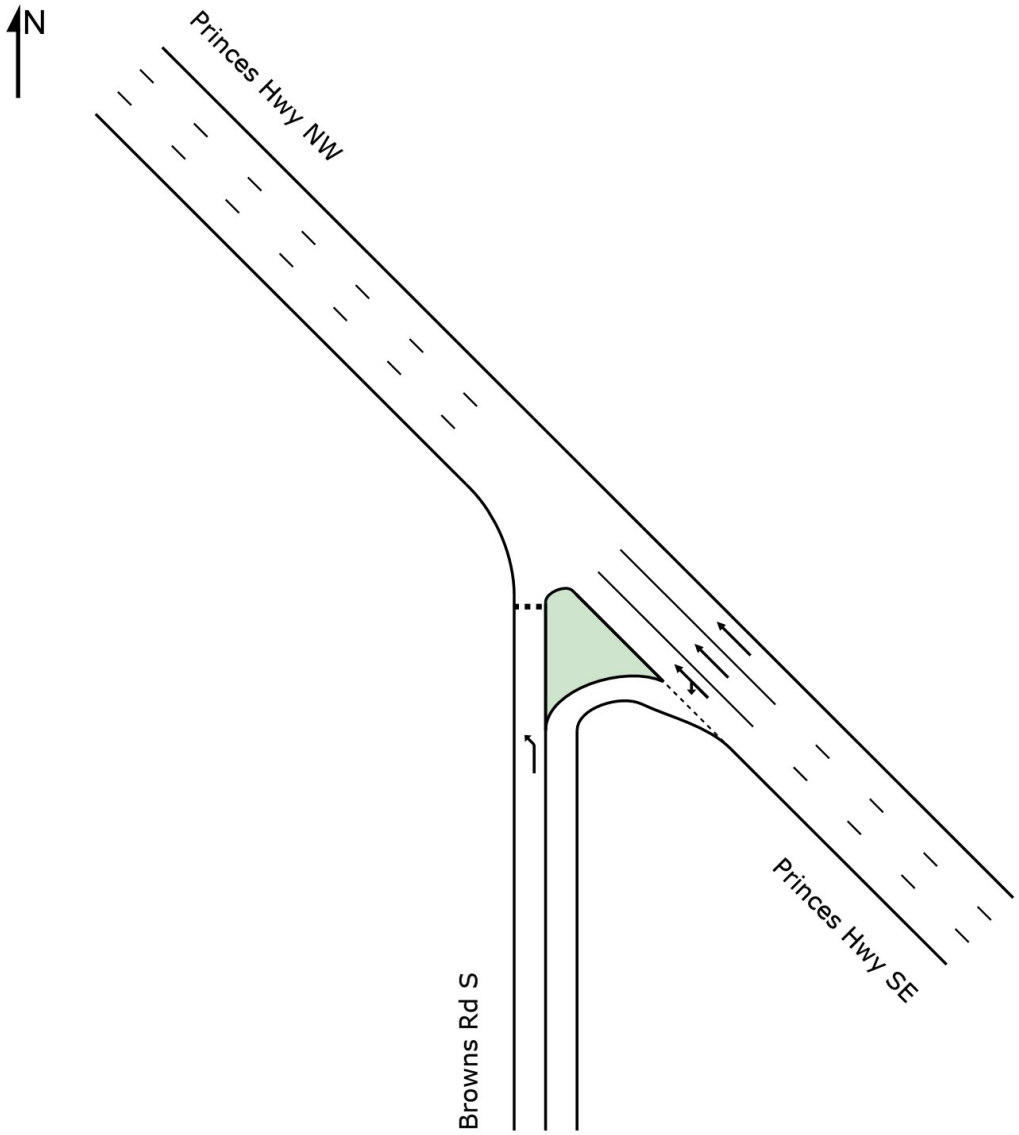
REF: Reference Phase
VAR: Variable Phase



SITE LAYOUT

Site: 101 [Princes Hwy/Browns Rd AM 2031 + PMP]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)



MOVEMENT SUMMARY

Site: 101 [Princes Hwy/Browns Rd AM 2031 + PMP]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Browns Rd S												
1a	L1	311	3.0	0.442	10.2	LOS B	2.4	17.1	0.70	0.96	0.99	49.3
Approach		311	3.0	0.442	10.2	LOS B	2.4	17.1	0.70	0.96	0.99	49.3
SouthEast: Princes Hwy SE												
21b	L3	111	3.0	0.457	9.1	LOS A	0.0	0.0	0.00	0.10	0.00	74.2
22	T1	2412	8.0	0.457	0.1	LOS A	0.0	0.0	0.00	0.03	0.00	79.1
Approach		2522	7.8	0.457	0.5	NA	0.0	0.0	0.00	0.03	0.00	78.9
All Vehicles		2833	7.3	0.457	1.5	NA	2.4	17.1	0.08	0.13	0.11	74.0

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

MOVEMENT SUMMARY

Site: 101 [Princes Hwy/Browns Rd PM 2031 + PMP]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

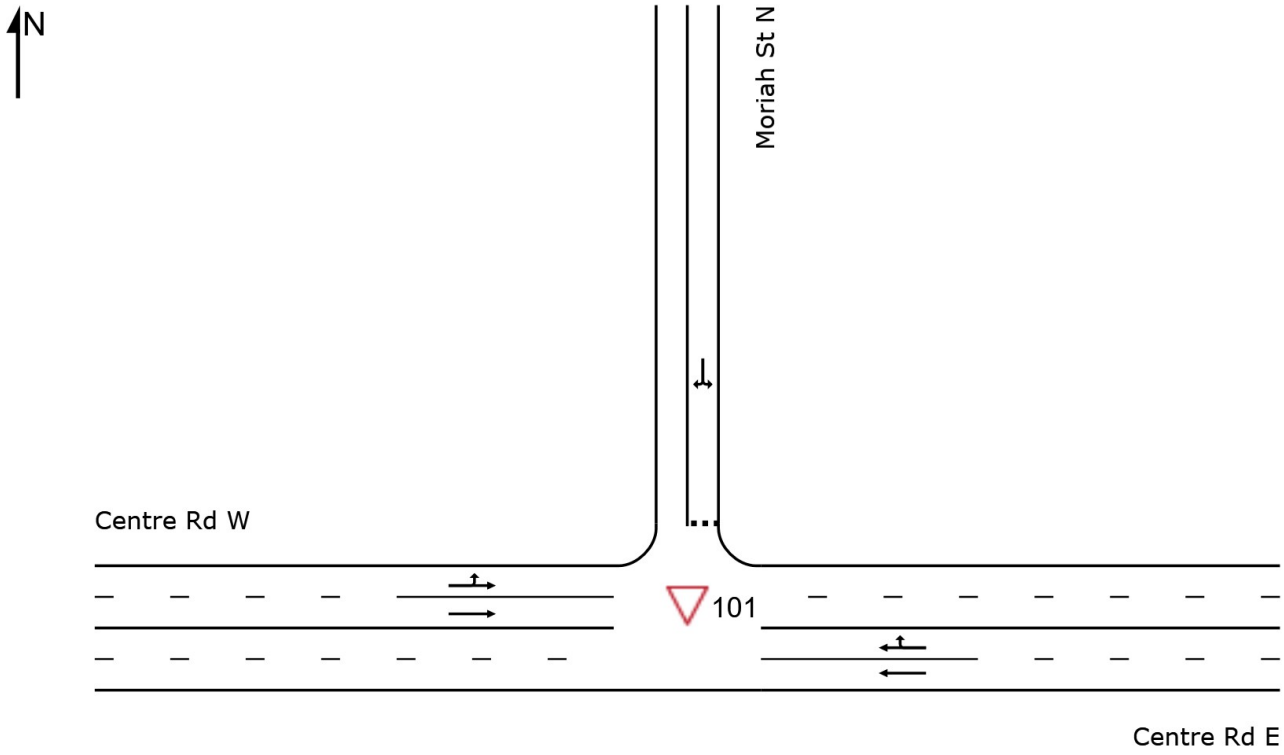
Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Browns Rd S												
1a	L1	322	3.0	0.384	8.3	LOS A	2.0	14.7	0.63	0.89	0.81	50.5
Approach		322	3.0	0.384	8.3	LOS A	2.0	14.7	0.63	0.89	0.81	50.5
SouthEast: Princes Hwy SE												
21b	L3	256	3.0	0.484	9.1	LOS A	0.0	0.0	0.00	0.22	0.00	72.0
22	T1	2392	8.0	0.484	0.1	LOS A	0.0	0.0	0.00	0.05	0.00	78.5
Approach		2647	7.5	0.484	1.0	NA	0.0	0.0	0.00	0.07	0.00	77.8
All Vehicles		2969	7.0	0.484	1.8	NA	2.0	14.7	0.07	0.16	0.09	73.5

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

SITE LAYOUT

Site: 101 [Centre Rd / Moriah St AM 2031 + PMP]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)



Organisation: CARDNO (QLD) PTY LTD | Created: Tuesday, 12 February 2019 3:13:06 PM
Project: M:\2017\0501_1000\V170605_PMP_Printing_Precinct,_Clayton\Traffic\Engineering\SIDRA\V170605-SID002 - Moriah V4.sip8

MOVEMENT SUMMARY

Site: 101 [Centre Rd / Moriah St AM 2031 + PMP]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Centre Rd E												
5	T1	689	8.0	0.211	0.8	LOS A	0.7	5.2	0.09	0.02	0.10	56.9
6	R2	24	3.0	0.211	14.2	LOS B	0.7	5.2	0.22	0.05	0.23	53.0
Approach		714	7.8	0.211	1.2	NA	0.7	5.2	0.10	0.02	0.10	56.7
North: Moriah St N												
7	L2	34	3.0	0.080	8.3	LOS A	0.3	2.0	0.60	0.73	0.60	43.8
9	R2	3	3.0	0.080	48.9	LOS E	0.3	2.0	0.60	0.73	0.60	41.1
Approach		37	3.0	0.080	11.8	LOS B	0.3	2.0	0.60	0.73	0.60	43.6
West: Centre Rd W												
10	L2	13	3.0	0.283	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	56.2
11	T1	1038	8.0	0.283	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.7
Approach		1051	7.9	0.283	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.7
All Vehicles		1801	7.8	0.283	0.8	NA	0.7	5.2	0.05	0.03	0.05	57.8

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

MOVEMENT SUMMARY

Site: 101 [Centre Rd / Moriah St PM 2031 + PMP]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

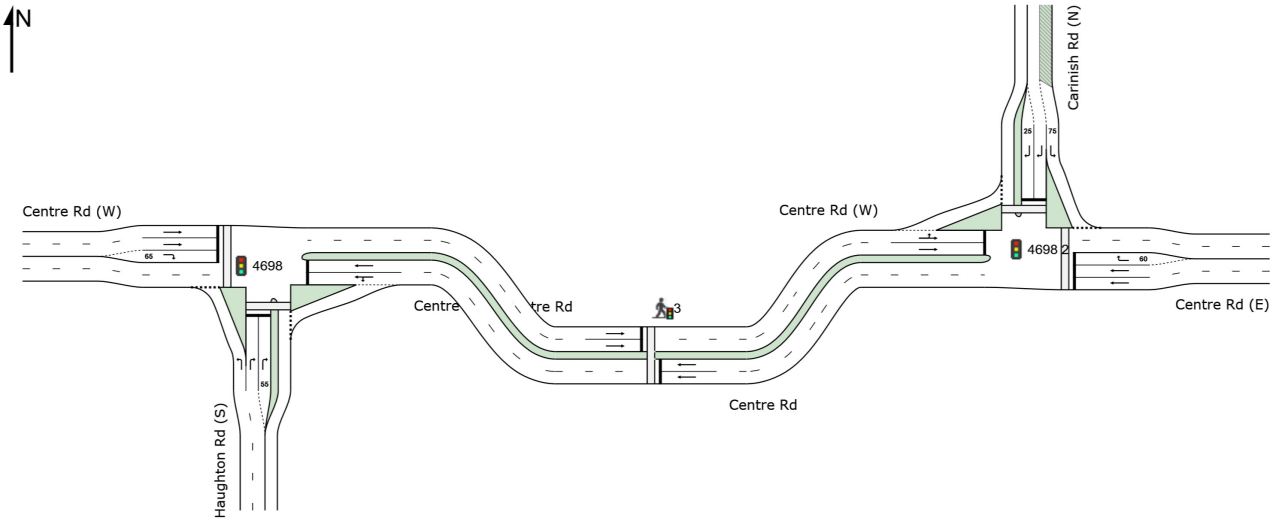
Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Centre Rd E												
5	T1	916	8.0	0.256	0.2	LOS A	0.3	2.1	0.03	0.01	0.03	59.1
6	R2	11	3.0	0.256	12.6	LOS B	0.3	2.1	0.06	0.01	0.07	55.7
Approach		926	7.9	0.256	0.4	NA	0.3	2.1	0.03	0.01	0.03	59.0
North: Moriah St N												
7	L2	37	3.0	0.364	13.4	LOS B	1.4	9.8	0.78	0.92	0.99	31.2
9	R2	26	3.0	0.364	59.0	LOS F	1.4	9.8	0.78	0.92	0.99	28.0
Approach		63	3.0	0.364	32.4	LOS D	1.4	9.8	0.78	0.92	0.99	30.0
West: Centre Rd W												
10	L2	34	3.0	0.242	5.6	LOS A	0.0	0.0	0.00	0.04	0.00	55.7
11	T1	862	8.0	0.242	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	59.4
Approach		896	7.8	0.242	0.2	NA	0.0	0.0	0.00	0.02	0.00	59.2
All Vehicles		1885	7.7	0.364	1.4	NA	1.4	9.8	0.04	0.04	0.05	56.3

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

NETWORK LAYOUT

Network: N101 [2031 AM + PMP - Bimbi]

New Network
Network Category: (None)



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
4698	CCG1	Centre-Haughton 2031 AM + PMP - Bimbi
3	CCG1	PedCrossing 2031 AM + PMP - Bimbi
4698 2	CCG1	Centre-Carnish 2031 AM + PMP - Bimbi

Organisation: CARDNO (QLD) PTY LTD | Created: Tuesday, 12 February 2019 2:56:50 PM
Project: M:\2017\0501_1000\V170605_PMP_Printing_Precinct,_Clayton\Traffic\Engineering\SIDRA\V170605-SID003 - Carinish-Centre-Haughton V6.sip8

MOVEMENT SUMMARY

Site: 4698 [Centre-Haughton 2031 AM + PMP - Bimbi]

Network: N101 [2031 AM + PMP - Bimbi]

Centre Rd / Haughton Rd
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 73 seconds (CCG User-Given Cycle Time)
Common Control Group: CCG1 [Vicroads TSP]

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Haughton Rd (S)														
1	L2	314	5.0	314	5.0	0.261	6.9	LOS A	2.2	16.2	0.26	0.62	0.26	54.4
3	R2	296	5.0	296	5.0	0.860	49.2	LOS D	6.2	45.0	1.00	0.99	1.51	26.8
Approach		609	5.0	609	5.0	0.860	27.5	LOS C	6.2	45.0	0.62	0.80	0.87	40.9
East: Centre Rd (E)														
4	L2	97	5.0	97	5.0	0.426	15.6	LOS B	4.5	32.6	0.52	0.60	0.97	44.3
5	T1	469	5.0	469	5.0	0.426	12.2	LOS B	4.5	32.6	0.54	0.52	0.72	46.0
Approach		566	5.0	566	5.0	0.426	12.8	LOS B	4.5	32.6	0.54	0.54	0.77	45.7
West: Centre Rd (W)														
11	T1	772	5.0	772	5.0	0.596	21.7	LOS C	11.5	84.3	0.88	0.76	0.88	38.9
12	R2	75	5.0	75	5.0	0.507	43.1	LOS D	2.8	20.2	1.00	0.76	1.00	38.3
Approach		846	5.0	846	5.0	0.596	23.6	LOS C	11.5	84.3	0.89	0.76	0.89	38.8
All Vehicles		2022	5.0	2022	5.0	0.860	21.7	LOS C	11.5	84.3	0.71	0.71	0.85	41.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	22.3	LOS C	0.1	0.1	0.78	0.78
P4	West Full Crossing	16	26.3	LOS C	0.0	0.0	0.85	0.85
All Pedestrians		68	23.2	LOS C			0.80	0.80

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: 4698 2 [Centre-Carnish 2031 AM + PMP - Bimbi]

Network: N101 [2031 AM + PMP - Bimbi]

Centre Road / Carnish Road
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 73 seconds (CCG User-Given Cycle Time)
Common Control Group: CCG1 [Vicroads TSP]

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Centre Rd (E)														
5	T1	375	5.0	375	5.0	0.290	19.1	LOS B	4.9	35.9	0.77	0.64	0.77	33.1
6	R2	405	5.0	405	5.0	0.825	27.4	LOS C	11.6	84.7	1.00	0.94	1.21	43.6
Approach		780	5.0	780	5.0	0.825	23.4	LOS C	11.6	84.7	0.89	0.79	1.00	40.7
North: Carinish Rd (N)														
7	L2	506	5.0	506	5.0	0.470	9.7	LOS A	7.3	53.3	0.49	0.70	0.49	52.6
9	R2	192	5.0	192	5.0	0.557	42.3	LOS D	3.5	25.7	1.00	0.79	1.03	33.7
Approach		698	5.0	698	5.0	0.557	18.6	LOS B	7.3	53.3	0.63	0.73	0.64	47.1
West: Centre Rd (W)														
10	L2	397	5.0	397	5.0	0.729	11.5	LOS B	3.4	24.5	0.69	0.76	0.79	49.6
11	T1	671	5.0	671	5.0	0.729	12.8	LOS B	3.4	24.5	0.74	0.70	0.78	38.9
Approach		1067	5.0	1067	5.0	0.729	12.3	LOS B	3.4	24.5	0.72	0.72	0.79	44.4
All Vehicles		2545	5.0	2545	5.0	0.825	17.4	LOS B	11.6	84.7	0.75	0.75	0.81	44.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P2	East Full Crossing	16	30.8	LOS D	0.0	0.0	0.92	0.92
P3	North Full Crossing	53	22.3	LOS C	0.1	0.1	0.78	0.78
All Pedestrians		68	24.3	LOS C			0.81	0.81

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.

CCG PHASING SUMMARY

Common Control Group: CCG1 [Vicroads TSP]

Network: N101 [2031 AM + PMP - Bimbi]

Fixed Time Isolated Cycle Time = 73 seconds (CCG User-Given Cycle Time)

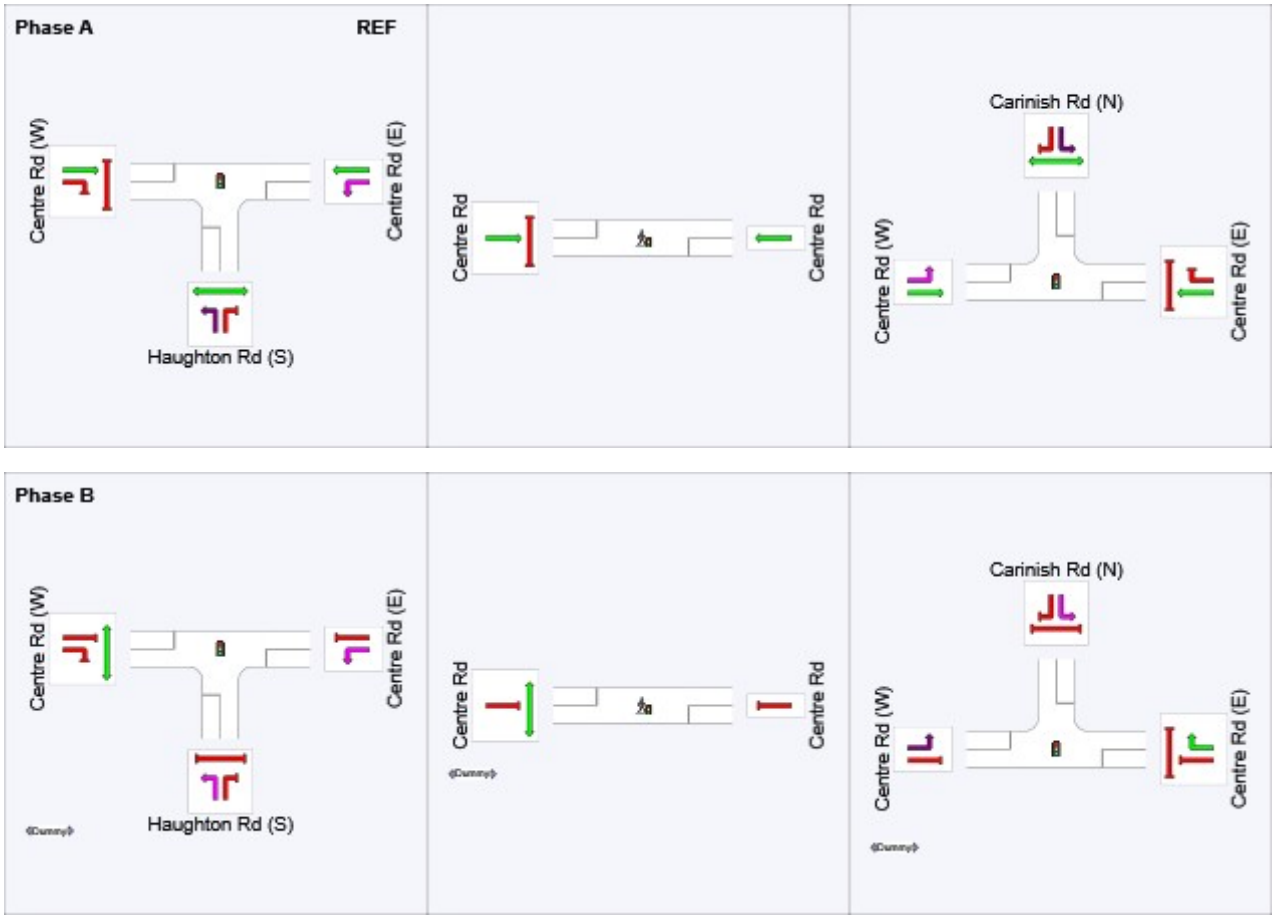
Timings based on settings in the CCG Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects not included in determining phase times
Phase Sequence: updated phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C1*, C2*, C3*, D1, D2*, D3*
Output Phase Sequence: A, B, C1*, D1
(* Variable Phase)

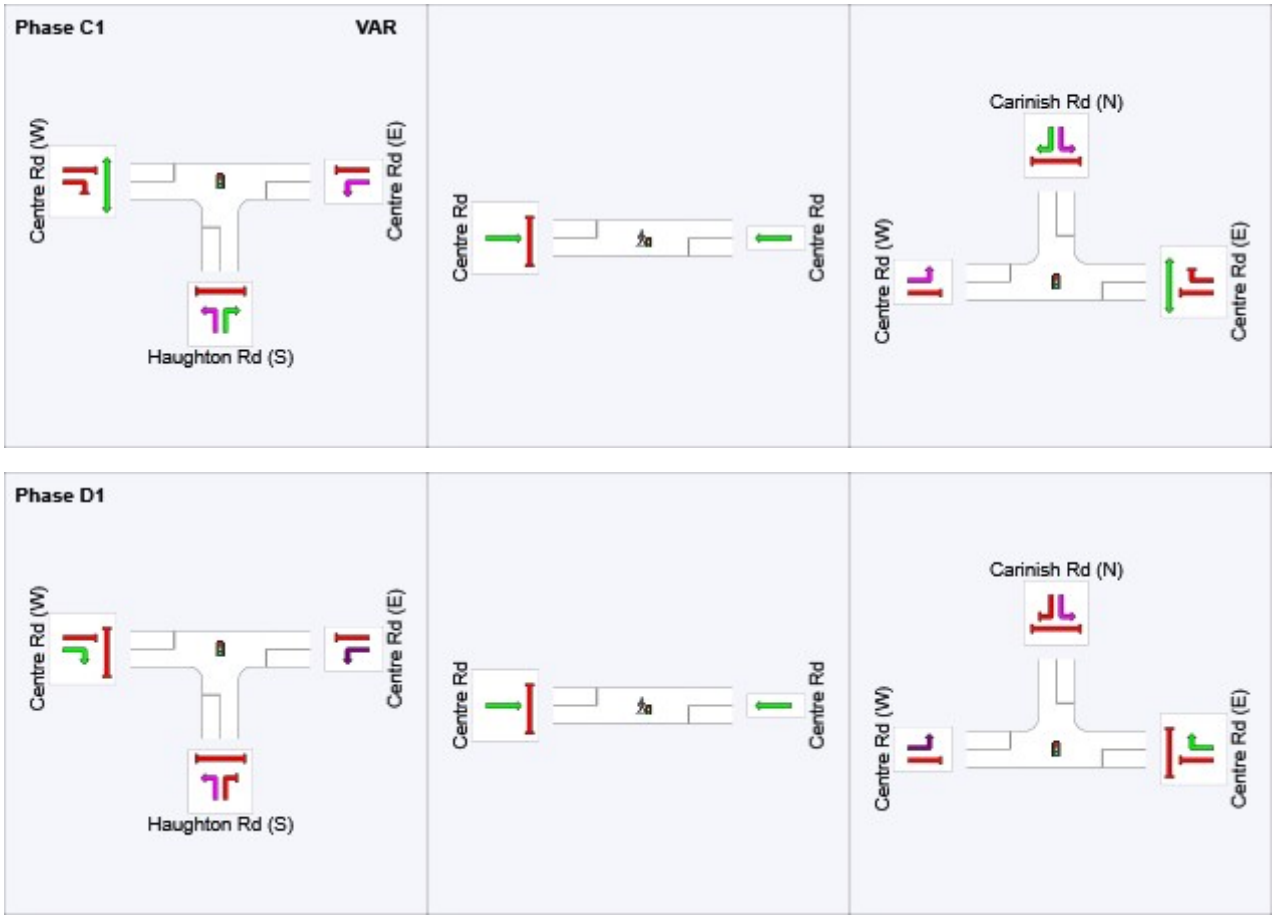
Phase Timing Summary (CCG)

Phase	A	B	C1	D1
Phase Change Time (sec)	0	31	51	61
Green Time (sec)	25	14	7	6
Phase Time (sec)	31	17	13	12
Phase Split	42%	23%	18%	16%

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

Output Phase Sequence (CCG)





REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class (MC) Running	Undetected Movement
Mixed Running & Stopped MCs	Continuous Movement
Other Movement Class (MC) Stopped	Phase Transition Applied

MOVEMENT SUMMARY

Site: 4698 [Centre-Haughton 2031 PM + PMP - Bimbi]

Network: N101 [2031 PM + PMP - Bimbi]

Centre Rd / Haughton Rd
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 78 seconds (CCG Practical Cycle Time)
Common Control Group: CCG1 [Vicroads TSP]

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Haughton Rd (S)														
1	L2	267	5.0	267	5.0	0.258	11.2	LOS B	4.1	30.1	0.47	0.68	0.47	51.9
3	R2	208	5.0	208	5.0	0.412	40.0	LOS D	3.8	27.7	0.95	0.78	0.95	29.9
Approach		476	5.0	476	5.0	0.412	23.8	LOS C	4.1	30.1	0.68	0.72	0.68	43.0
East: Centre Rd (E)														
4	L2	202	5.0	202	5.0	0.884	28.9	LOS C	4.5	32.6	0.92	1.02	1.59	35.7
5	T1	900	5.0	900	5.0	0.884	24.6	LOS C	4.5	32.6	0.93	0.97	1.29	37.3
Approach		1102	5.0	1102	5.0	0.884	25.4	LOS C	4.5	32.6	0.93	0.98	1.35	37.0
West: Centre Rd (W)														
11	T1	444	5.0	444	5.0	0.655	33.8	LOS C	8.3	60.5	0.98	0.83	1.03	32.5
12	R2	169	5.0	169	5.0	0.921	58.1	LOS E	8.1	59.1	1.00	1.09	1.69	34.2
Approach		614	5.0	614	5.0	0.921	40.5	LOS D	8.3	60.5	0.99	0.91	1.21	33.2
All Vehicles		2192	5.0	2192	5.0	0.921	29.3	LOS C	8.3	60.5	0.89	0.90	1.16	37.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	24.7	LOS C	0.1	0.1	0.80	0.80
P4	West Full Crossing	16	26.3	LOS C	0.0	0.0	0.82	0.82
All Pedestrians		68	25.1	LOS C			0.80	0.80

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: 4698 2 [Centre-Carnish 2031 PM + PMP - Bimbi]

Network: N101 [2031 PM + PMP - Bimbi]

Centre Road / Carnish Road
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 78 seconds (CCG Practical Cycle Time)
Common Control Group: CCG1 [Vicroads TSP]

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Centre Rd (E)														
5	T1	721	5.0	721	5.0	0.596	24.3	LOS C	11.7	85.5	0.89	0.77	0.89	29.5
6	R2	312	5.0	312	5.0	0.713	36.9	LOS D	11.5	84.2	0.97	0.87	1.04	40.0
Approach		1033	5.0	1033	5.0	0.713	28.1	LOS C	11.7	85.5	0.92	0.80	0.94	34.9
North: Carinish Rd (N)														
7	L2	634	5.0	634	5.0	0.481	7.9	LOS A	7.3	53.2	0.38	0.67	0.38	53.7
9	R2	381	5.0	381	5.0	0.868	50.3	LOS D	8.4	61.1	1.00	0.99	1.47	31.1
Approach		1015	5.0	1015	5.0	0.868	23.8	LOS C	8.4	61.1	0.61	0.79	0.79	44.2
West: Centre Rd (W)														
10	L2	272	5.0	272	5.0	0.685	18.2	LOS B	3.4	24.5	0.75	0.85	1.10	45.1
11	T1	381	5.0	381	5.0	0.685	20.1	LOS C	3.4	24.5	0.81	0.77	0.96	32.4
Approach		653	5.0	653	5.0	0.685	19.3	LOS B	3.4	24.5	0.78	0.80	1.02	39.2
All Vehicles		2700	5.0	2700	5.0	0.868	24.4	LOS C	11.7	85.5	0.77	0.80	0.90	40.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P2	East Full Crossing	16	26.3	LOS C	0.0	0.0	0.82	0.82
P3	North Full Crossing	53	33.3	LOS D	0.1	0.1	0.93	0.93
All Pedestrians		68	31.7	LOS D			0.90	0.90

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.

CCG PHASING SUMMARY

Common Control Group: CCG1 [Vicroads TSP]

Network: N101 [2031 PM + PMP - Bimbi]

Fixed Time Isolated Cycle Time = 78 seconds (CCG Practical Cycle Time)

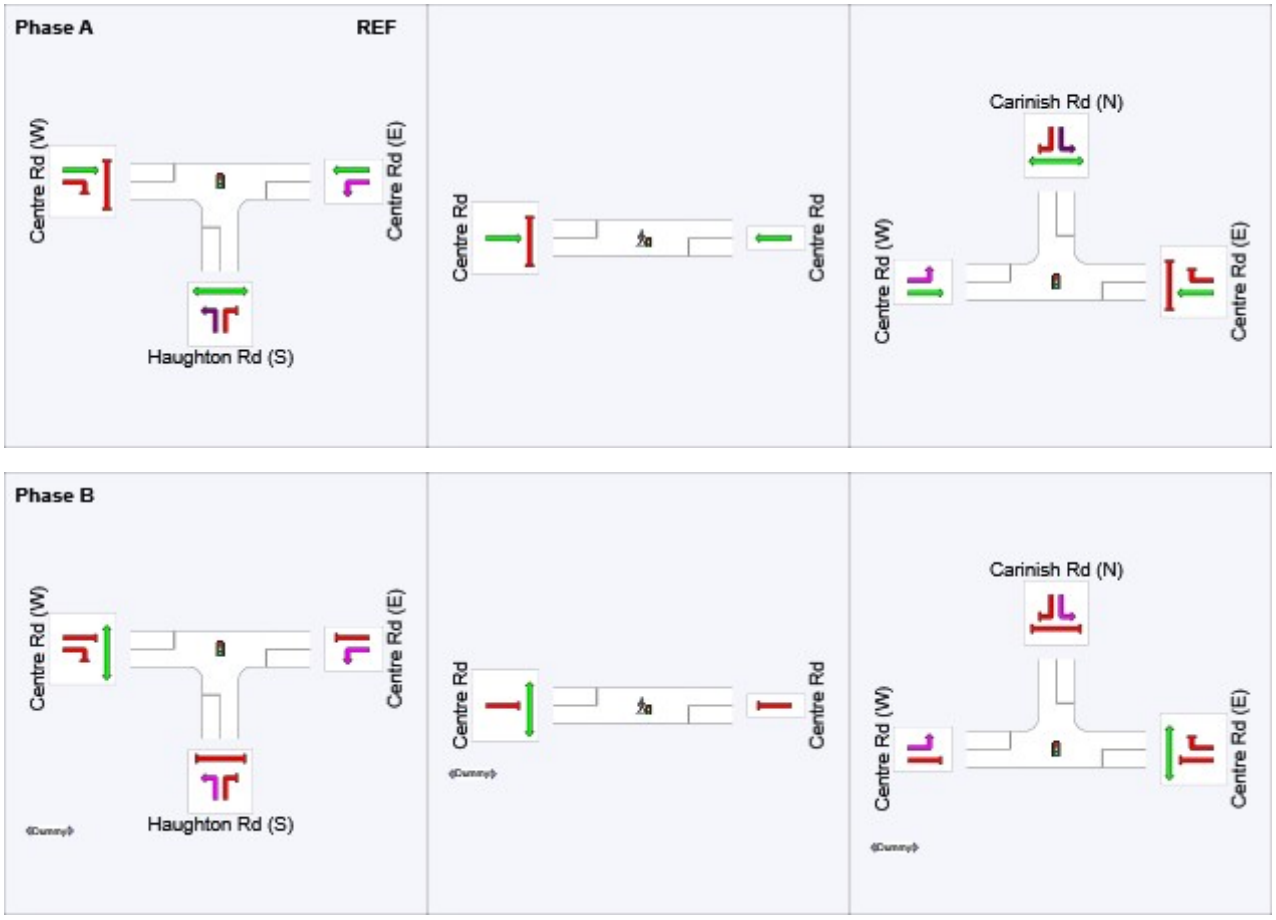
Timings based on settings in the CCG Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects not included in determining phase times
Phase Sequence: updated phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C1*, C2*, C3*, D1, D2*, D3
Output Phase Sequence: A, B, C1*, D1, D3
(* Variable Phase)

Phase Timing Summary (CCG)

Phase	A	B	C1	D1	D3
Phase Change Time (sec)	0	20	39	53	67
Green Time (sec)	14	13	11	8	5
Phase Time (sec)	20	16	17	14	11
Phase Split	26%	21%	22%	18%	14%

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

Output Phase Sequence (CCG)



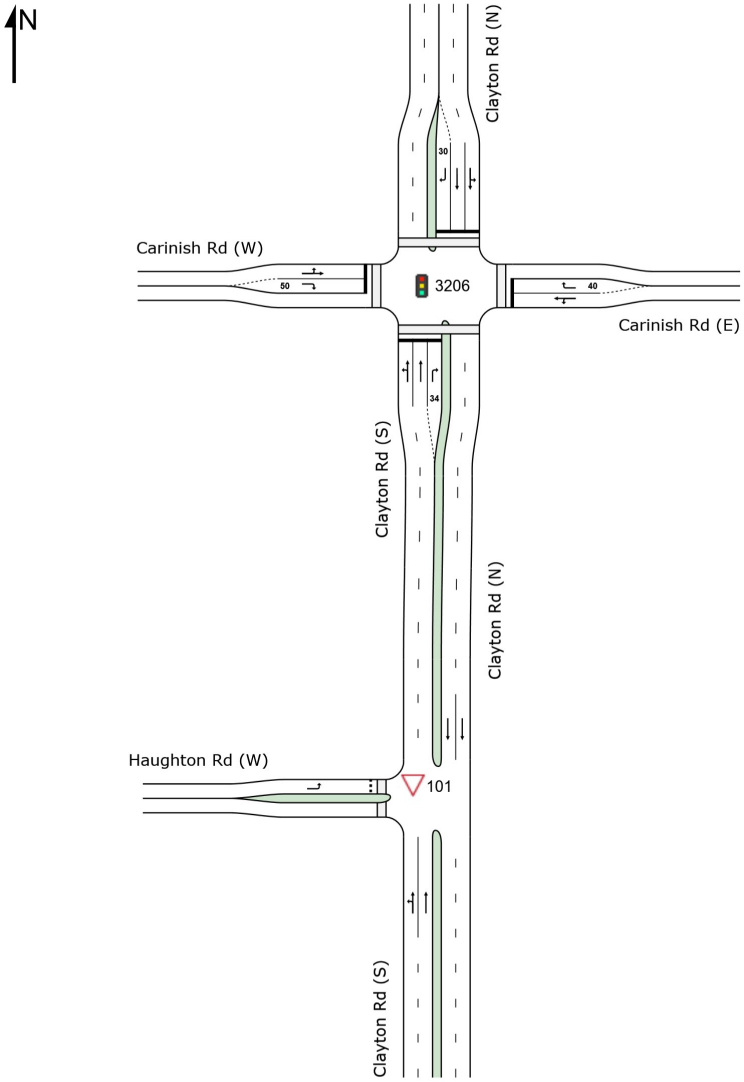
REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class (MC) Running	Undetected Movement
Mixed Running & Stopped MCs	Continuous Movement
Other Movement Class (MC) Stopped	Phase Transition Applied

NETWORK LAYOUT

Network: N101 [2031 AM Vols + PMP (& - Bimbi)]

New Network
Network Category: (None)



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
3206	NA	2031 AM Base Vols + PMP
101	NA	2031 AM Base Vols + PMP

Organisation: CARDNO (QLD) PTY LTD | Created: Tuesday, 12 February 2019 3:03:15 PM
Project: M:\2017\0501_1000\V170605_PMP_Printing_Precinct,_Clayton\Traffic\Engineering\SIDRA\V170605-SID004 - Clayton-Carinish V5.sip8

MOVEMENT SUMMARY

Site: 3206 [2031 AM Base Vols + PMP]

Network: N101 [2031 AM Vols + PMP (& - Bimbi)]

Clayton Road / Carinish Road
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 86 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Clayton Rd (S)														
1	L2	77	5.0	77	5.0	0.874	38.3	LOS D	7.8	57.1	0.99	1.04	1.19	28.1
2	T1	1176	5.0	1176	5.0	0.874	34.8	LOS C	7.8	57.1	0.96	1.01	1.17	25.6
3	R2	117	5.0	117	5.0	0.801	51.6	LOS D	5.5	39.9	1.00	0.92	1.34	22.9
Approach		1369	5.0	1369	5.0	0.874	36.4	LOS D	7.8	57.1	0.96	1.01	1.18	25.4
East: Carinish Rd (E)														
4	L2	178	5.0	178	5.0	0.472	32.2	LOS C	9.0	65.7	0.86	0.78	0.86	30.3
5	T1	82	5.0	82	5.0	0.472	26.6	LOS C	9.0	65.7	0.86	0.78	0.86	40.0
6	R2	228	5.0	228	5.0	0.857	52.4	LOS D	11.2	82.0	1.00	1.00	1.38	30.0
Approach		488	5.0	488	5.0	0.857	40.7	LOS D	11.2	82.0	0.93	0.88	1.10	31.8
North: Clayton Rd (N)														
7	L2	227	5.0	227	5.0	0.525	26.4	LOS C	12.5	90.9	0.81	0.77	0.81	40.5
8	T1	554	5.0	554	5.0	0.525	20.6	LOS C	12.5	90.9	0.80	0.71	0.80	31.5
9	R2	18	5.0	18	5.0	0.123	47.2	LOS D	0.7	5.4	0.96	0.69	0.96	31.4
Approach		799	5.0	799	5.0	0.525	22.9	LOS C	12.5	90.9	0.81	0.73	0.81	35.1
West: Carinish Rd (W)														
10	L2	63	5.0	63	5.0	0.419	31.7	LOS C	8.0	58.4	0.85	0.73	0.85	38.8
11	T1	173	5.0	173	5.0	0.419	26.1	LOS C	8.0	58.4	0.85	0.73	0.85	41.3
12	R2	89	5.0	89	5.0	0.363	39.2	LOS D	3.4	24.8	0.91	0.78	0.91	26.5
Approach		325	5.0	325	5.0	0.419	30.8	LOS C	8.0	58.4	0.86	0.75	0.86	37.4
All Vehicles		2982	5.0	2982	5.0	0.874	32.9	LOS C	12.5	90.9	0.90	0.88	1.03	30.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	32.8	LOS D	0.1	0.1	0.87	0.87
P2	East Full Crossing	53	19.6	LOS B	0.1	0.1	0.68	0.68
P3	North Full Crossing	53	32.8	LOS D	0.1	0.1	0.87	0.87
P4	West Full Crossing	53	19.6	LOS B	0.1	0.1	0.68	0.68
All Pedestrians		211	26.2	LOS C			0.77	0.77

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

PHASING SUMMARY

Site: 3206 [2031 AM Base Vols + PMP]

Network: N101 [2031 AM Vols + PMP (& - Bimbi)]

Clayton Road / Carinish Road
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 86 seconds (Site User-Given Cycle Time)

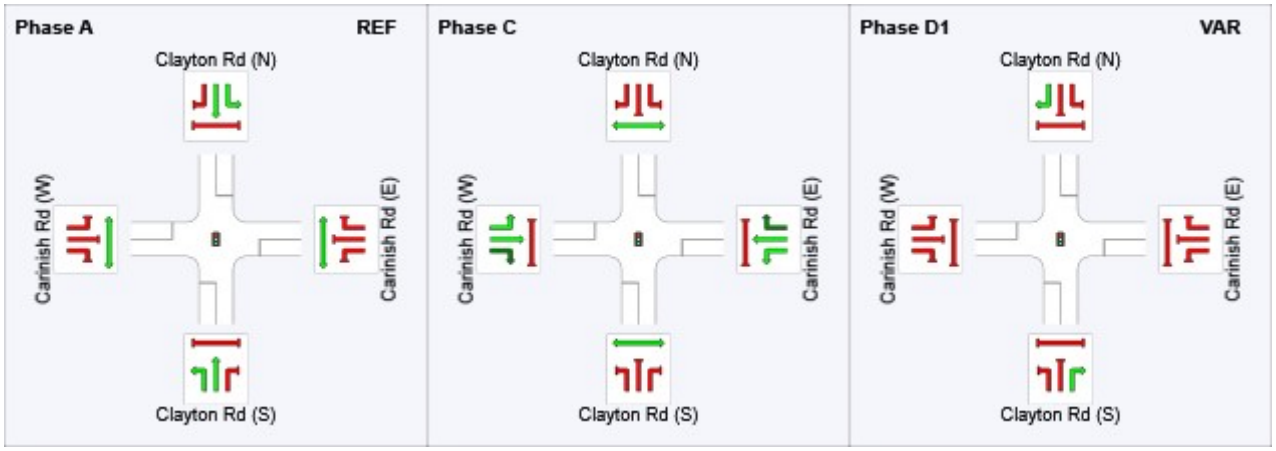
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Vicroads (updated)
Reference Phase: Phase A
Input Phase Sequence: A, B1*, B2*, B3*, C, D1*, D2*, D3*
Output Phase Sequence: A, C, D1*
(* Variable Phase)

Phase Timing Summary

Phase	A	C	D1
Phase Change Time (sec)	0	41	73
Green Time (sec)	35	26	7
Phase Time (sec)	41	32	13
Phase Split	48%	37%	15%

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

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class (MC) Running	Undetected Movement
Mixed Running & Stopped MCs	Continuous Movement
Other Movement Class (MC) Stopped	Phase Transition Applied

MOVEMENT SUMMARY

Site: 101 [2031 AM Base Vols + PMP]

Network: N101 [2031 AM Vols + PMP (& - Bimbi)]

Clayton Road / Haughton Road
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Clayton Rd (S)														
1	L2	101	2.0	101	2.0	0.352	5.6	LOS A	15.9	115.8	0.00	0.09	0.00	55.9
2	T1	1226	5.0	1226	5.0	0.352	0.0	LOS A	18.2	132.8	0.00	0.04	0.00	56.8
Approach		1327	4.8	1327	4.8	0.352	0.4	NA	18.2	132.8	0.00	0.05	0.00	56.5
North: Clayton Rd (N)														
8	T1	694	5.0	694	5.0	0.184	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		694	5.0	694	5.0	0.184	0.0	NA	0.0	0.0	0.00	0.00	0.00	60.0
West: Haughton Rd (W)														
10	L2	252	2.0	252	2.0	0.676	14.0	LOS B	2.7	19.0	0.60	1.02	1.12	41.3
Approach		252	2.0	252	2.0	0.676	14.0	LOS B	2.7	19.0	0.60	1.02	1.12	41.3
All Vehicles		2273	4.5	2273	4.5	0.676	1.8	NA	18.2	132.8	0.07	0.14	0.12	51.6

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

MOVEMENT SUMMARY

Site: 3206 [2031 PM Base Vols + PMP]

Network: N101 [2031 PM Vols + PMP (& - Bimbi)]

Clayton Road / Carinish Road
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Clayton Rd (S)														
1	L2	202	5.0	202	5.0	0.703	29.0	LOS C	7.8	57.1	0.88	0.81	0.88	32.0
2	T1	774	5.0	774	5.0	0.703	24.4	LOS C	7.8	57.1	0.84	0.75	0.84	30.6
3	R2	168	5.0	168	5.0	0.939	71.2	LOS E	7.8	57.1	1.00	1.07	1.64	18.7
Approach		1144	5.0	1144	5.0	0.939	32.1	LOS C	7.8	57.1	0.87	0.81	0.96	27.8
East: Carinish Rd (E)														
4	L2	159	5.0	159	5.0	0.858	48.9	LOS D	17.2	125.6	0.92	0.97	1.17	24.2
5	T1	184	5.0	184	5.0	0.858	43.3	LOS D	17.2	125.6	0.92	0.97	1.17	34.3
6	R2	174	5.0	174	5.0	0.936	75.8	LOS E	11.2	81.4	1.00	1.10	1.65	24.6
Approach		517	5.0	517	5.0	0.936	55.9	LOS E	17.2	125.6	0.94	1.01	1.33	28.0
North: Clayton Rd (N)														
7	L2	257	5.0	257	5.0	0.942	59.5	LOS E	46.3	337.7	1.00	1.13	1.33	29.0
8	T1	1148	5.0	1148	5.0	0.942	53.7	LOS D	46.3	337.7	0.98	1.14	1.33	18.3
9	R2	89	5.0	89	5.0	0.499	53.9	LOS D	4.4	31.8	0.99	0.77	0.99	29.5
Approach		1495	5.0	1495	5.0	0.942	54.7	LOS D	46.3	337.7	0.99	1.12	1.31	21.5
West: Carinish Rd (W)														
10	L2	137	5.0	137	5.0	0.749	40.4	LOS D	14.8	108.1	0.91	0.85	0.98	34.9
11	T1	199	5.0	199	5.0	0.749	34.8	LOS C	14.8	108.1	0.91	0.85	0.98	37.4
12	R2	161	5.0	161	5.0	0.894	67.1	LOS E	9.5	69.6	1.00	1.03	1.51	19.0
Approach		497	5.0	497	5.0	0.894	46.8	LOS D	14.8	108.1	0.94	0.91	1.15	30.7
All Vehicles		3653	5.0	3653	5.0	0.942	46.7	LOS D	46.3	337.7	0.94	0.98	1.18	25.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	36.2	LOS D	0.1	0.1	0.85	0.85
P2	East Full Crossing	53	21.2	LOS C	0.1	0.1	0.65	0.65
P3	North Full Crossing	53	36.2	LOS D	0.1	0.1	0.85	0.85
P4	West Full Crossing	53	21.2	LOS C	0.1	0.1	0.65	0.65
All Pedestrians		211	28.7	LOS C			0.75	0.75

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

PHASING SUMMARY

Site: 3206 [2031 PM Base Vols + PMP]

Network: N101 [2031 PM Vols + PMP (& - Bimbi)]

Clayton Road / Carinish Road
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site Practical Cycle Time)

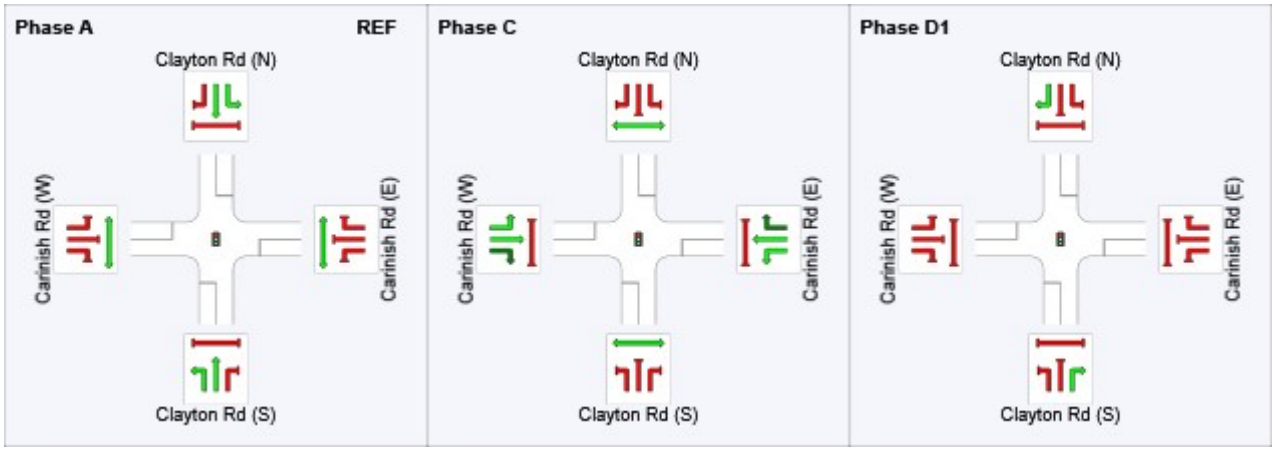
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects not included in determining phase times
Phase Sequence: VicRoads (updated)
Reference Phase: Phase A
Input Phase Sequence: A, B1*, B2*, B3*, C, D1, D2*, D3
Output Phase Sequence: A, C, D1
(* Variable Phase)

Phase Timing Summary

Phase	A	C	D1
Phase Change Time (sec)	0	48	84
Green Time (sec)	42	30	10
Phase Time (sec)	48	36	16
Phase Split	48%	36%	16%

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

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class (MC) Running	Undetected Movement
Mixed Running & Stopped MCs	Continuous Movement
Other Movement Class (MC) Stopped	Phase Transition Applied

MOVEMENT SUMMARY

Site: 101 [2031 PM Base Vols + PMP]

Network: N101 [2031 PM Vols + PMP (& - Bimbi)]

Clayton Road / Haughton Road
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

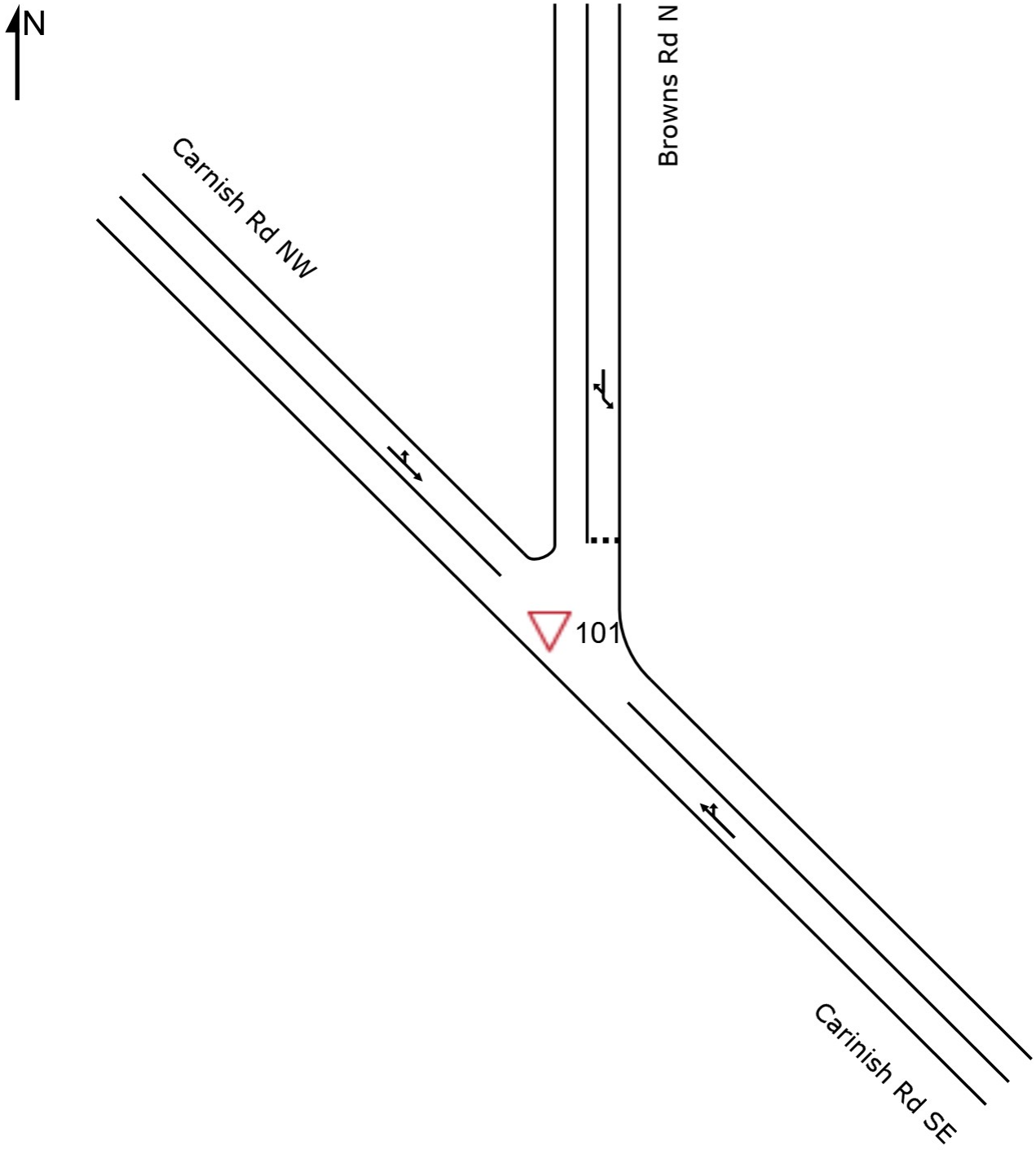
Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Clayton Rd (S)														
1	L2	218	2.0	218	2.0	0.304	5.6	LOS A	9.8	70.8	0.00	0.23	0.00	54.2
2	T1	922	5.0	922	5.0	0.304	0.0	LOS A	9.8	70.8	0.00	0.09	0.00	53.8
Approach		1140	4.4	1140	4.4	0.304	1.1	NA	9.8	70.8	0.00	0.11	0.00	54.0
North: Clayton Rd (N)														
8	T1	1409	5.0	1409	5.0	0.373	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		1409	5.0	1409	5.0	0.373	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Haughton Rd (W)														
10	L2	155	2.0	155	2.0	0.325	7.4	LOS A	0.7	5.0	0.43	0.67	0.43	48.5
Approach		155	2.0	155	2.0	0.325	7.4	LOS A	0.7	5.0	0.43	0.67	0.43	48.5
All Vehicles		2704	4.6	2704	4.6	0.373	0.9	NA	9.8	70.8	0.02	0.09	0.02	55.2

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

SITE LAYOUT

Site: 101 [Carinish/Browns Rd AM 2031 + PMP - No Bimbi Connection]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)



Organisation: CARDNO (QLD) PTY LTD | Created: Tuesday, 12 February 2019 3:09:58 PM
Project: M:\2017\0501_1000\V170605_PMP_Printing_Precinct,_Clayton\Traffic\Engineering\SIDRA\V170605-SID001 - Browns V4.sip8

MOVEMENT SUMMARY

Site: 101 [Carinish/Browns Rd AM 2031 + PMP - No Bimbi Connection]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Carinish Rd SE												
22	T1	413	5.0	0.408	3.2	LOS A	0.0	0.0	0.00	0.47	0.00	46.0
23a	R1	356	3.0	0.408	3.6	LOS A	0.0	0.0	0.00	0.47	0.00	45.9
Approach		768	4.1	0.408	3.4	NA	0.0	0.0	0.00	0.47	0.00	46.0
North: Browns Rd N												
7a	L1	304	0.0	0.548	8.5	LOS A	3.8	26.9	0.59	0.90	0.99	39.2
9b	R3	75	0.0	0.548	25.5	LOS D	3.8	26.9	0.59	0.90	0.99	42.2
Approach		379	0.0	0.548	11.9	LOS B	3.8	26.9	0.59	0.90	0.99	40.0
NorthWest: Carnish Rd NW												
27b	L3	105	3.0	0.240	5.4	LOS A	0.0	0.0	0.00	0.49	0.00	47.4
28	T1	328	5.0	0.240	3.2	LOS A	0.0	0.0	0.00	0.49	0.00	45.8
Approach		434	4.5	0.240	3.8	NA	0.0	0.0	0.00	0.49	0.00	46.3
All Vehicles		1581	3.2	0.548	5.5	NA	3.8	26.9	0.14	0.58	0.24	44.4

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

MOVEMENT SUMMARY

Site: 101 [Carinish/Browns Rd PM 2031 + PMP - No Bimbi Connection]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

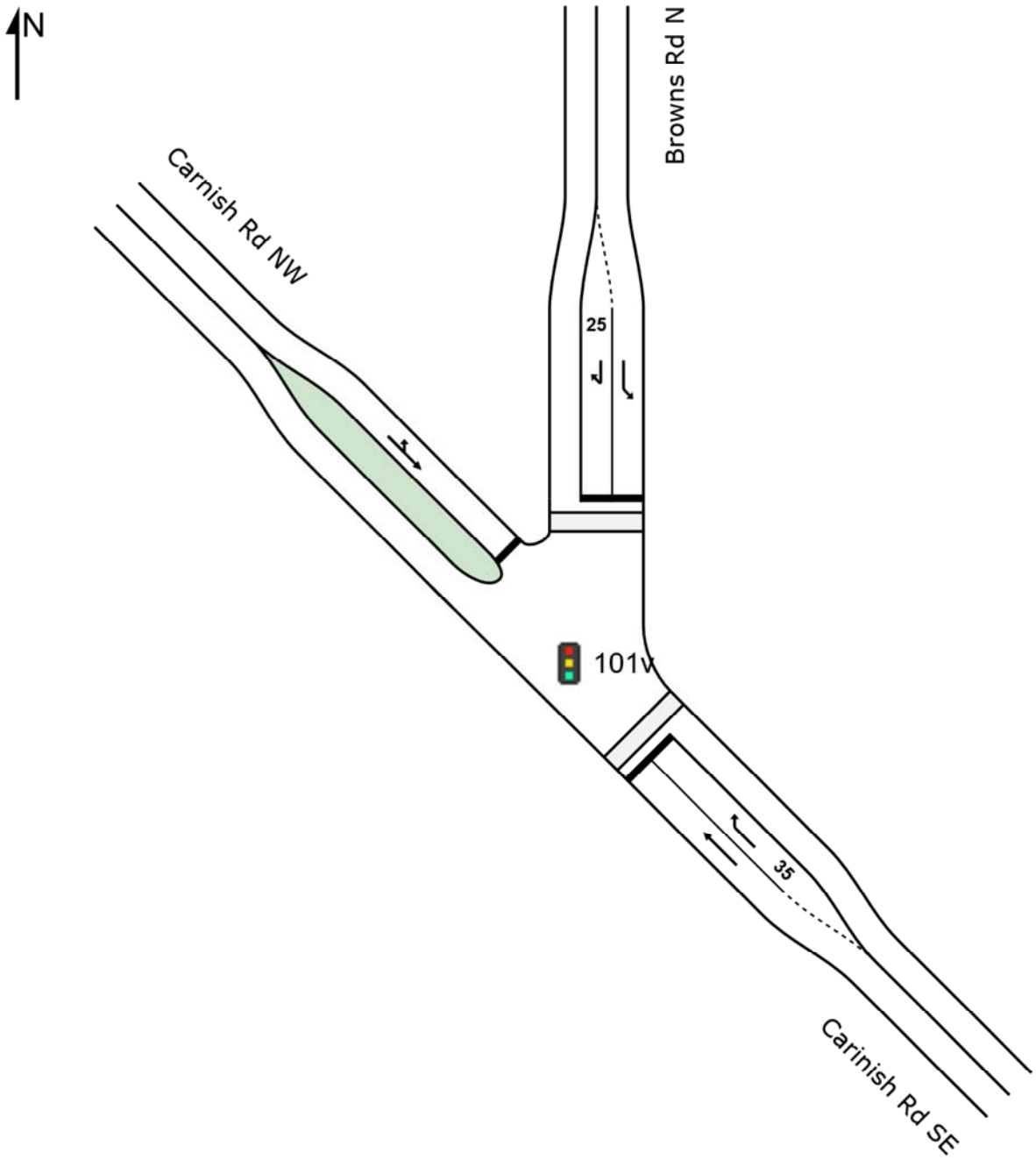
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Carinish Rd SE												
22	T1	345	5.0	0.294	3.2	LOS A	0.0	0.0	0.00	0.47	0.00	46.1
23a	R1	207	3.0	0.294	3.6	LOS A	0.0	0.0	0.00	0.47	0.00	45.9
Approach		553	4.2	0.294	3.4	NA	0.0	0.0	0.00	0.47	0.00	46.0
North: Browns Rd N												
7a	L1	448	0.0	0.737	12.3	LOS B	7.2	50.5	0.73	1.27	1.72	37.5
9b	R3	85	0.0	0.737	26.9	LOS D	7.2	50.5	0.73	1.27	1.72	40.9
Approach		534	0.0	0.737	14.6	LOS B	7.2	50.5	0.73	1.27	1.72	38.2
NorthWest: Carnish Rd NW												
27b	L3	91	3.0	0.315	5.5	LOS A	0.0	0.0	0.00	0.48	0.00	47.5
28	T1	488	5.0	0.315	3.2	LOS A	0.0	0.0	0.00	0.48	0.00	45.9
Approach		579	4.7	0.315	3.6	NA	0.0	0.0	0.00	0.48	0.00	46.3
All Vehicles		1665	3.0	0.737	7.1	NA	7.2	50.5	0.24	0.73	0.55	43.2

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

SITE LAYOUT

Site: 101v [Carinish/Browns Rd AM 2031 + PMP - 73s cycle time]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated



LANE SUMMARY

Site: 101v [Carinish/Browns Rd AM 2031 + PMP - No Bimbi Connection - 73s cycle time]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 73 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
SouthEast: Carinish Rd SE													
Lane 1	413	5.0	1371	0.301	100	0.5	LOS A	0.7	4.8	Full	160	0.0	0.0
Lane 2	356	3.0	725	0.491	100	11.4	LOS B	4.7	33.6	Short	35	0.0	NA
Approach	768	4.1		0.491		5.5	LOS A	4.7	33.6				
North: Browns Rd N													
Lane 1	304	0.0	730[1]	0.417	100	17.4	LOS B	6.9	48.3	Full	500	0.0	0.0
Lane 2	75	0.0	134	0.560	100	43.4	LOS D	2.8	19.7	Short	25	0.0	NA
Approach	379	0.0		0.560		22.6	LOS C	6.9	48.3				
NorthWest: Carnish Rd NW													
Lane 1	434	4.5	635	0.683	100	23.5	LOS C	13.5	98.2	Full	500	0.0	0.0
Approach	434	4.5		0.683		23.5	LOS C	13.5	98.2				
Intersection	1581	3.2		0.683		14.5	LOS B	13.5	98.2				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

PHASING SUMMARY

Site: 101v [Carinish/Browns Rd AM 2031 + PMP - No Bimbi Connection - 73s cycle time]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 73 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

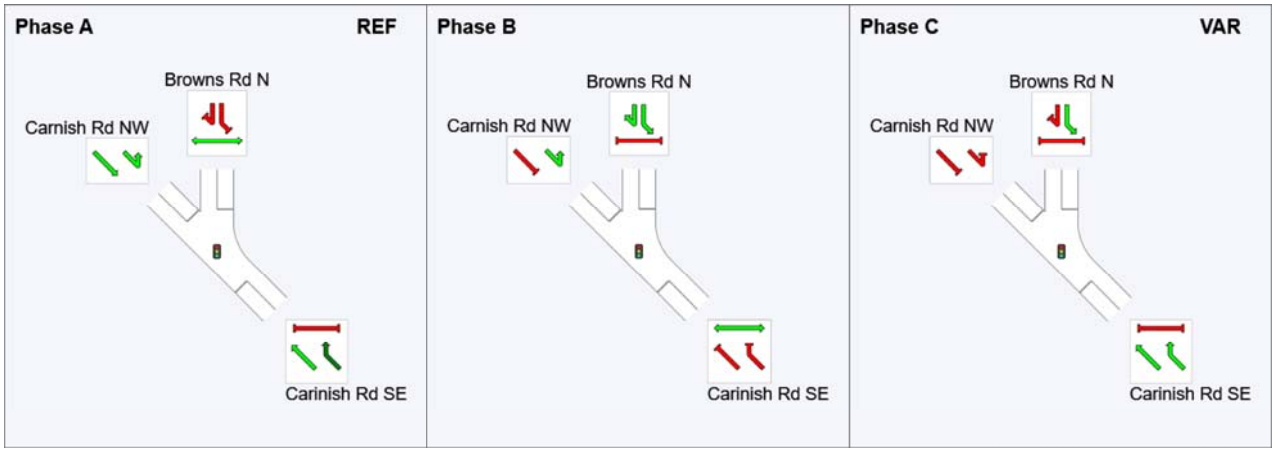
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Opposed Turns
Reference Phase: Phase A
Input Phase Sequence: A, B, C*
Output Phase Sequence: A, B, C*
(* Variable Phase)

Phase Timing Summary

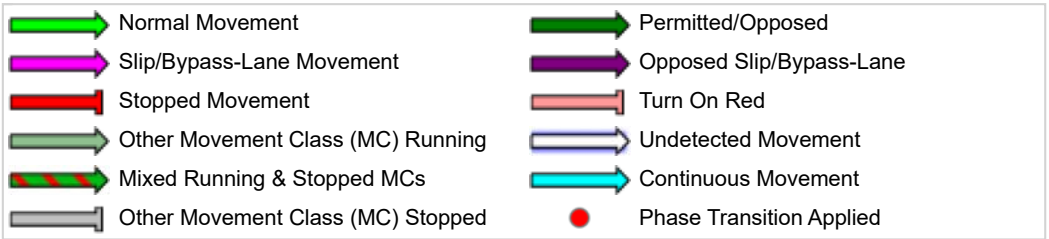
Phase	A	B	C
Phase Change Time (sec)	0	32	45
Green Time (sec)	25	6	21
Phase Time (sec)	32	13	28
Phase Split	44%	18%	38%

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

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



LANE SUMMARY

Site: 101v [Carinish/Browns Rd PM 2031 + PMP - No Bimbi Connection - 75s cycle time]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 75 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total	HV						Veh	Dist				
	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
SouthEast: Carinish Rd SE													
Lane 1	345	5.0	1360	0.254	100	0.6	LOS A	0.7	4.8	Full	160	0.0	0.0
Lane 2	207	3.0	550	0.377	100	13.0	LOS B	3.0	21.5	Short	35	0.0	NA
Approach	553	4.2		0.377		5.3	LOS A	3.0	21.5				
North: Browns Rd N													
Lane 1	448	0.0	615[1]	0.730	100	26.4	LOS C	14.2	99.2	Full	500	0.0	0.0
Lane 2	85	0.0	152	0.562	100	43.4	LOS D	3.3	22.8	Short	25	0.0	NA
Approach	534	0.0		0.730		29.1	LOS C	14.2	99.2				
NorthWest: Carnish Rd NW													
Lane 1	579	4.7	817	0.709	100	18.9	LOS B	17.3	125.8	Full	500	0.0	0.0
Approach	579	4.7		0.709		18.9	LOS B	17.3	125.8				
Intersection	1665	3.0		0.730		17.6	LOS B	17.3	125.8				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

PHASING SUMMARY

Site: 101v [Carinish/Browns Rd PM 2031 + PMP - No Bimbi Connection - 75s cycle time]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 75 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

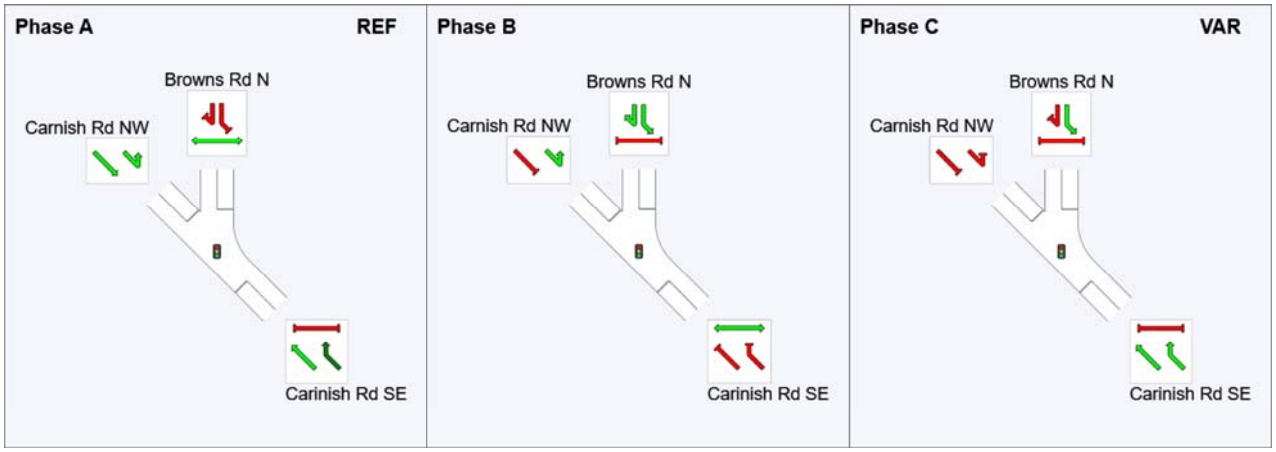
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Opposed Turns
Reference Phase: Phase A
Input Phase Sequence: A, B, C*
Output Phase Sequence: A, B, C*
(* Variable Phase)

Phase Timing Summary

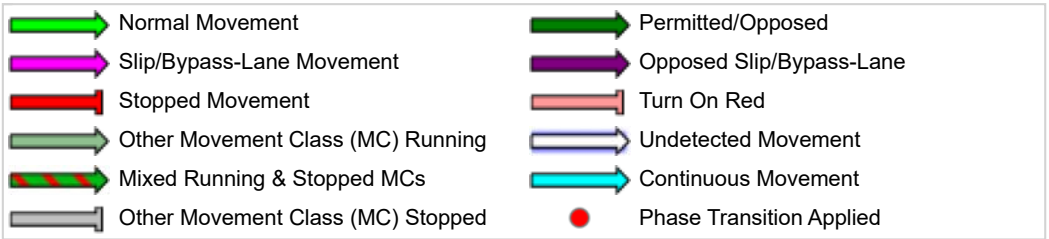
Phase	A	B	C
Phase Change Time (sec)	0	40	54
Green Time (sec)	33	7	14
Phase Time (sec)	40	14	21
Phase Split	53%	19%	28%

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

Output Phase Sequence



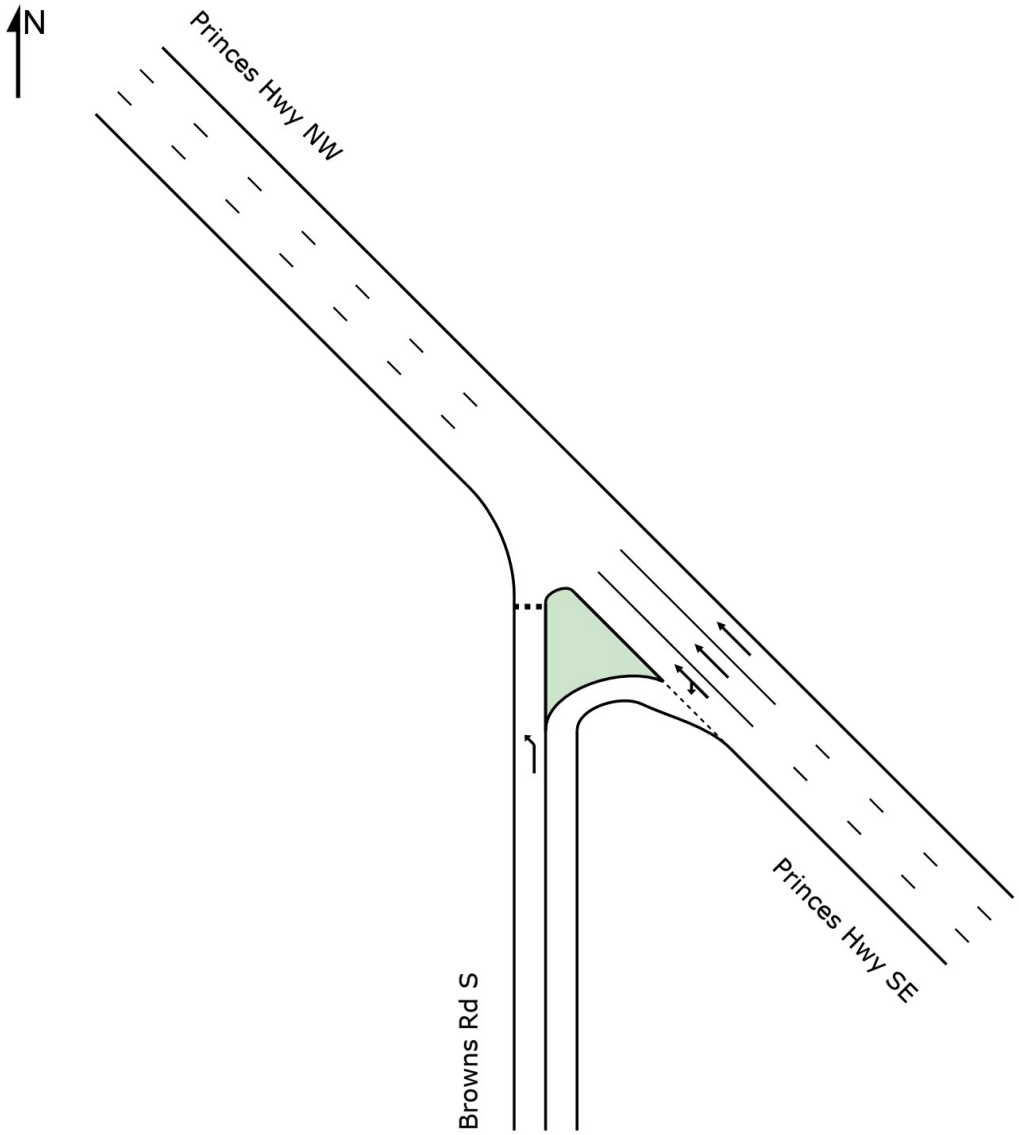
REF: Reference Phase
VAR: Variable Phase



SITE LAYOUT

Site: 101 [Princes Hwy/Browns Rd AM 2031 + PMP - No Bimbi Connection]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)



MOVEMENT SUMMARY

Site: 101 [Princes Hwy/Browns Rd AM 2031 + PMP - No Bimbi Connection]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Browns Rd S												
1a	L1	311	3.0	0.400	9.0	LOS A	2.1	15.2	0.65	0.92	0.87	50.0
Approach		311	3.0	0.400	9.0	LOS A	2.1	15.2	0.65	0.92	0.87	50.0
SouthEast: Princes Hwy SE												
21b	L3	178	3.0	0.464	9.1	LOS A	0.0	0.0	0.00	0.16	0.00	73.1
22	T1	2375	8.0	0.464	0.1	LOS A	0.0	0.0	0.00	0.04	0.00	78.8
Approach		2553	7.7	0.464	0.7	NA	0.0	0.0	0.00	0.05	0.00	78.4
All Vehicles		2863	7.1	0.464	1.6	NA	2.1	15.2	0.07	0.15	0.09	73.8

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

MOVEMENT SUMMARY

Site: 101 [Princes Hwy/Browns Rd PM 2031 + PMP - No Bimbi Connection]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Browns Rd S												
1a	L1	322	3.0	0.351	7.5	LOS A	1.8	13.0	0.59	0.84	0.71	51.1
Approach		322	3.0	0.351	7.5	LOS A	1.8	13.0	0.59	0.84	0.71	51.1
SouthEast: Princes Hwy SE												
21b	L3	325	3.0	0.492	9.1	LOS A	0.0	0.0	0.00	0.27	0.00	71.0
22	T1	2356	8.0	0.492	0.1	LOS A	0.0	0.0	0.00	0.06	0.00	78.3
Approach		2681	7.4	0.492	1.2	NA	0.0	0.0	0.00	0.09	0.00	77.4
All Vehicles		3003	6.9	0.492	1.9	NA	1.8	13.0	0.06	0.17	0.08	73.3

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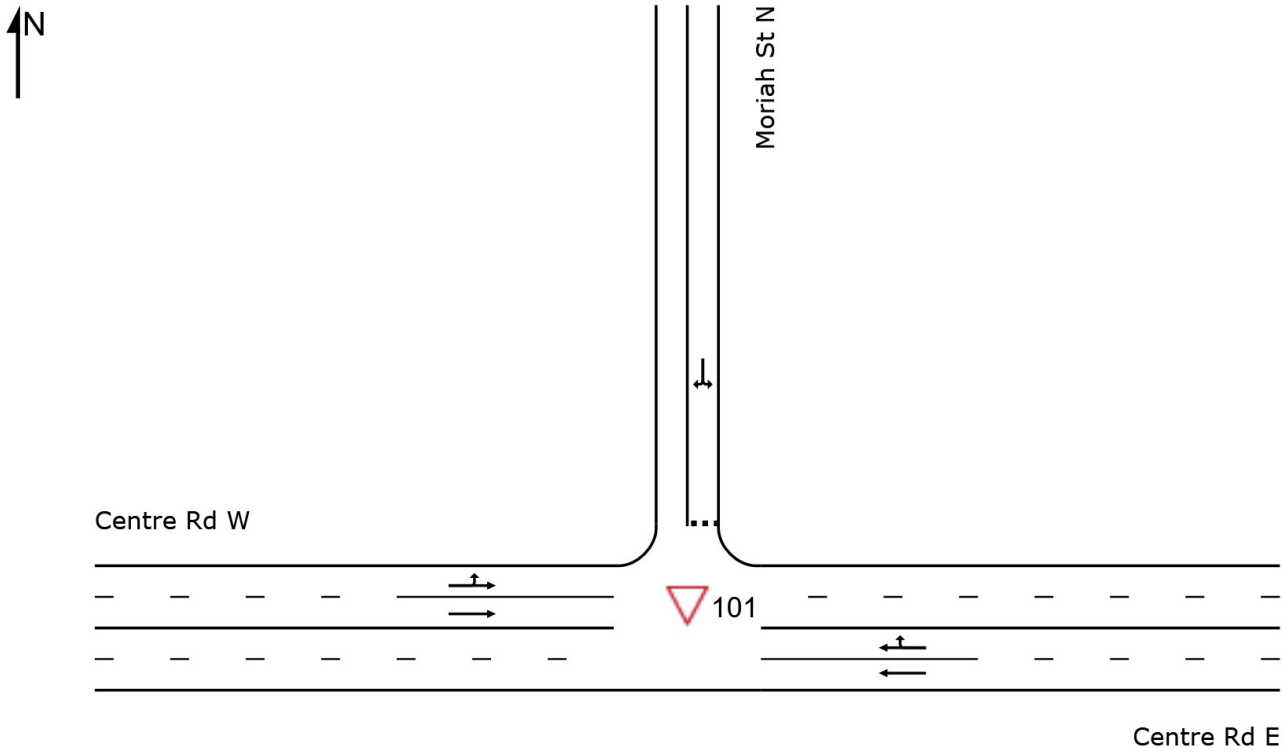
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

Site: 101 [Centre Rd / Moriah St AM 2031 + PMP - No Bimbi Connection]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)



Organisation: CARDNO (QLD) PTY LTD | Created: Tuesday, 12 February 2019 3:13:59 PM
Project: M:\2017\0501_1000\V170605_PMP_Printing_Precinct,_Clayton\Traffic\Engineering\SIDRA\V170605-SID002 - Moriah V4.sip8

MOVEMENT SUMMARY

Site: 101 [Centre Rd / Moriah St AM 2031 + PMP - No Bimbi Connection]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Centre Rd E												
5	T1	723	8.0	0.211	0.6	LOS A	0.5	3.7	0.06	0.01	0.07	57.8
6	R2	14	3.0	0.211	15.9	LOS C	0.5	3.7	0.14	0.03	0.14	54.1
Approach		737	7.9	0.211	0.9	NA	0.5	3.7	0.06	0.01	0.07	57.6
North: Moriah St N												
7	L2	17	3.0	0.070	8.6	LOS A	0.2	1.6	0.68	0.77	0.68	40.1
9	R2	3	3.0	0.070	58.7	LOS F	0.2	1.6	0.68	0.77	0.68	37.2
Approach		20	3.0	0.070	16.5	LOS C	0.2	1.6	0.68	0.77	0.68	39.7
West: Centre Rd W												
10	L2	13	3.0	0.308	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	56.2
11	T1	1127	8.0	0.308	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
Approach		1140	7.9	0.308	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.7
All Vehicles		1897	7.9	0.308	0.6	NA	0.5	3.7	0.03	0.02	0.03	58.4

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

MOVEMENT SUMMARY

Site: 101 [Centre Rd / Moriah St PM 2031 + PMP - No Bimbi Connection]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

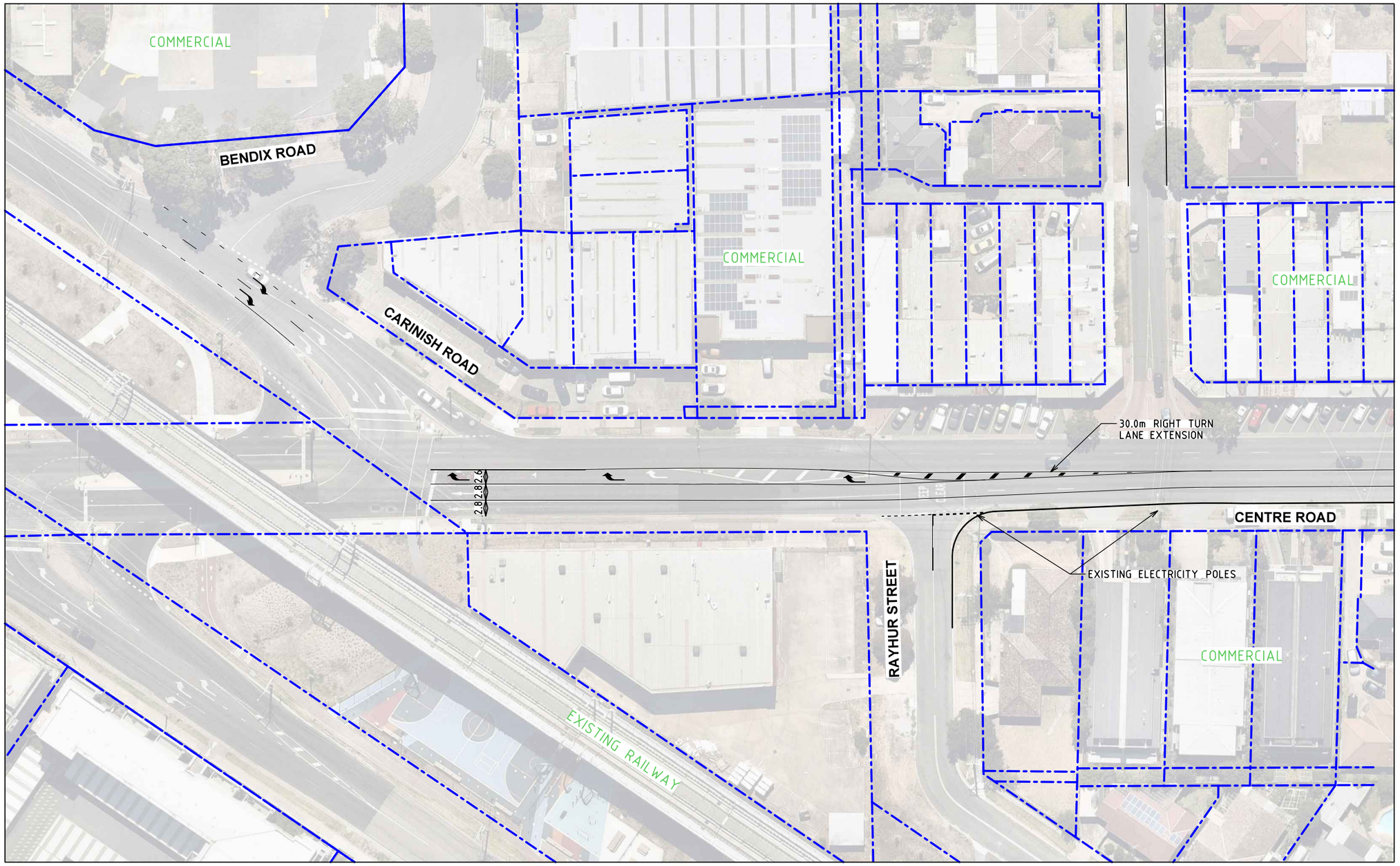
Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Centre Rd E												
5	T1	951	8.0	0.257	0.0	LOS A	0.0	0.3	0.00	0.00	0.00	59.9
6	R2	1	3.0	0.257	14.1	LOS B	0.0	0.3	0.01	0.00	0.01	56.6
Approach		952	8.0	0.257	0.0	NA	0.0	0.3	0.00	0.00	0.00	59.9
North: Moriah St N												
7	L2	21	3.0	0.425	20.3	LOS C	1.5	10.8	0.87	0.99	1.13	24.8
9	R2	26	3.0	0.425	75.6	LOS F	1.5	10.8	0.87	0.99	1.13	21.8
Approach		47	3.0	0.425	51.0	LOS F	1.5	10.8	0.87	0.99	1.13	23.2
West: Centre Rd W												
10	L2	34	3.0	0.266	5.6	LOS A	0.0	0.0	0.00	0.04	0.00	55.8
11	T1	953	8.0	0.266	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	59.4
Approach		986	7.8	0.266	0.2	NA	0.0	0.0	0.00	0.02	0.00	59.2
All Vehicles		1985	7.8	0.425	1.3	NA	1.5	10.8	0.02	0.03	0.03	56.4

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

APPENDIX

F

CONCEPT DESIGNS



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MELWAY MAP REF 79 E3

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VICTORIA PLANNING AUTHORITY

PMP PRINTING PRECINCT, CLAYTON
CARNISH ROAD AND PRECINCT, CLAYTON
CONCEPT LAYOUT PLAN

Drawn/Check	Date	Scale	Size
NB / COB	12.04.2019	1:750	A3

Drawing Number	Revision
V170605-TR-SK-0015	3

SUBJECT SITE:
PMP PRINTING PRECINCT

PROPOSED WATTS PROFILE SPEED HUMP (TYP.)

3.7 (TYP.)

6.8 (TYP.)

MORIAH STREET

ROAD

CENTRE

KIONGA STREET

STREET

BIMBI

FOR CONTINUATION REFER TO CARDNO DRAWING No. V170605-TR-SK-0018

MELWAY MAP REF 79 E3

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VICTORIAN PLANNING AUTHORITY
PMP PRINTING PRECINCT, CLAYTON
MORIAH STREET & KIONGA STREET, CLAYTON
LOCAL AREA TRAFFIC MANAGEMENT
CONCEPT LAYOUT

Drawn/Check	Date	Scale	Size
LS / SGM	21.05.2019	1:1000	A3

Drawing Number	Revision
V170605-TR-SK-0017	1

BY: User:luke.simpson
DATE PLOTTED: 21/05/2019 3:54:09 PM
CAD File: M:\20170501_1000\V170605_PMP_Printing_Precinct_Clayton\Traffic\Drafting\03 Sketches\01 CAD\V170605-TR-SK-0017.dgn

SUBJECT SITE:
PMP PRINTING PRECINCT

PROPOSED WATTS PROFILE SPEED HUMP (TYP.)

3.7 (TYP.)

6.8 (TYP.)

MORIAH STREET

STREET

BIMBI

KIONGA STREET

MELWAY MAP REF 79 E2

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VICTORIAN PLANNING AUTHORITY
PMP PRINTING PRECINCT, CLAYTON
MORIAH STREET & KIONGA STREET, CLAYTON
LOCAL AREA TRAFFIC MANAGEMENT
CONCEPT LAYOUT

Drawn/Check	Date	Scale	Size
LS / SGM	21.05.2019	1:1000	A3

Drawing Number	Revision
V170605-TR-SK-0018	1

FOR CONTINUATION REFER TO CARDNO DRAWING No. V170605-TR-SK-0017

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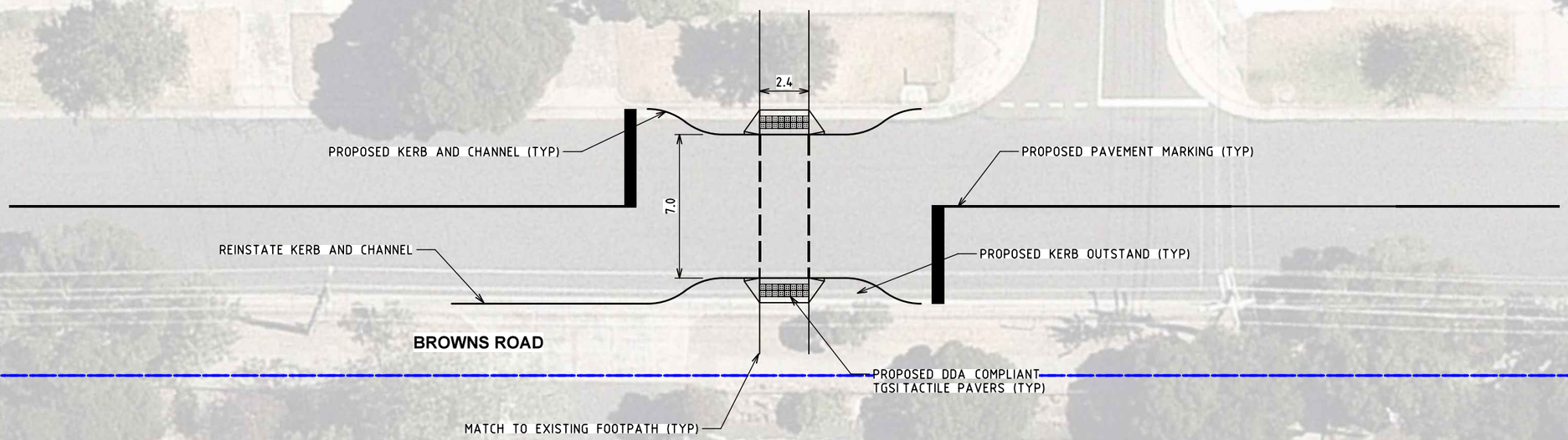
RESIDENTIAL

BOUNDARY LINE

FRANCIS STREET

RESIDENTIAL



COMMERCIAL

N

MELWAY MAP REF 79 E3

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VICTORIAN PLANNING AUTHORITY
PMP PRINTING PRECINCT, CLAYTON
BROWNS ROAD, CLAYTON
PROPOSED PEDESTRIAN OPERATED SIGNALS
CONCEPT LAYOUT

Drawn/Check	Date	Scale	Size
LS / SGM	21.05.2019	1:250	A3

Drawing Number	Revision
V170605-TR-SK-0019	1

BY: User:luke.simpson
DATE PLOTTED: 05/21/19 18:27:06
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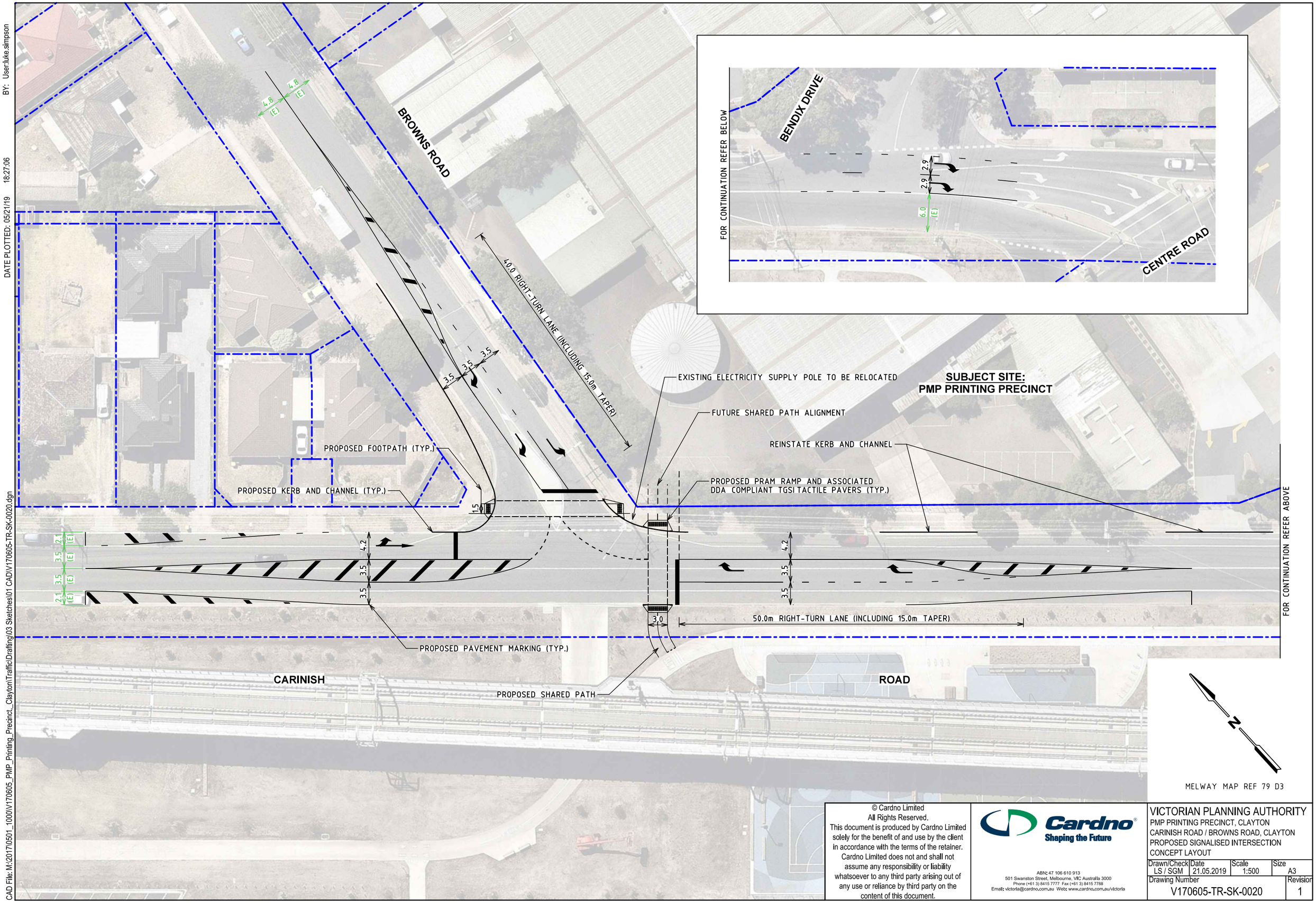

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VICTORIAN PLANNING AUTHORITY
PMP PRINTING PRECINCT, CLAYTON
CARINISH ROAD / BROWNS ROAD, CLAYTON
PROPOSED SIGNALISED INTERSECTION
CONCEPT LAYOUT

Drawn/Check	Date	Scale	Size
LS / SGM	21.05.2019	1:500	A3

Drawing Number	Revision
V170605-TR-SK-0020	1

BY: User:luke.simpson

DATE PLOTTED: 05/21/19 18:39:02

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BOUNDARY LINE

1.5 6.0 1.5

9.5

4.8 (E)

4.8 (E)

BROWNS ROAD

PROPOSED FLAT-TOP ROAD HUMP

SUBJECT SITE
PMP PRINTING PRECINCT

MELWAY MAP REF 79 E3

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VICTORIAN PLANNING AUTHORITY
PMP PRINTING PRECINCT, CLAYTON
BROWNS ROAD, CLAYTON
LOCAL AREA TRAFFIC MANAGEMENT
CONCEPT LAYOUT

Drawn/Check	Date	Scale	Size
LS / CS	21.05.2019	1:250	A3

Drawing Number	Revision
V170605-TR-SK-0023	1

About Cardno

Cardno is a professional infrastructure and environmental services company, with expertise in the development and improvement of physical and social infrastructure for communities around the world. Cardno's team includes leading professionals who plan, design, manage and deliver sustainable projects and community programs. Cardno is an international company listed on the Australian Securities Exchange [ASX:CDD].

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