

TRANSPORT IMPACT ASSESSMENT

Westfield Booragoon Expansion

Prepared for:

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BASIS OF REPORT

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1 Introduction

1.1 Context

SLR Consulting Australia Pty Ltd (SLR) has been engaged by Scentre Group (Scentre) to prepare a Transport Impact Assessment (TIA) for the proposed expansion of the Westfield Booragoon shopping centre (Westfield Booragoon), located at Booragoon. Plans for the development have been prepared by Gensler and are included at Appendix A.

Westfield Booragoon is a major regional shopping centre with an existing Net Leasable Area (NLA) of 72,539sq.m located on land zoned as 'Centre' (C1) within the City of Melville (CoM) Local Planning Scheme No. 6 (LPS6).

The Development Application (DA) for Westfield Booragoon seeks approval for a 44,849sq.m NLA staged expansion of the existing shopping centre to 117,388sq.m NLA.

1.2 Assessment Scope

This TIA report assesses the consistency of the redevelopment with previously approved development schemes (refer to Section 2 of this report), Council and State planning, and the evaluates the impacts of the proposed redevelopment on the surrounding transport networks. The TIA identifies the transport infrastructure required to support the development and provides an assessment of the traffic and transport aspects of the development for the benefit of the assessment authority, the State Development Assessment Unit (SDAU). It is understood that as part of the assessment process, SDAU will seek input from relevant transport authorities including the CoM and Main Roads Western Australia (MRWA).

This TIA report has been prepared in accordance with the Western Australian Planning Commission (WAPC) *Transport Impact Assessment Guidelines*. A checklist demonstrating inclusion of all elements recommended by the WAPC *Transport Impact Assessment Guidelines* within this TIA report is included at is Appendix B.

2 Background

2.1 Structure Plan

The Melville City Centre Structure Plan (Structure Plan), initially submitted in 2013 and endorsed in 2015, was prepared in accordance with the *State Planning Policy 4.2 - Activity Centres for Perth and Peel* (SPP 4.2), and considered the future development of the Melville City Centre, of which a key component is Westfield Booragoon (note, Westfield Booragoon was known as 'Garden City Booragoon' at the time the Structure Plan was prepared).

The key design elements of the Structure Plan were summarised as follows:

- *"Encouragement of a range of commercial, retail, community and residential;*
- *A more suitable retail component including discount department stores, supermarkets and associated specialty shops;*
- *Main streets will connect Almondbury Road, through the City Square with Davy Street and Marmion Street;*
- *Marmion Street, Riseley Street and Almondbury Road - development and redevelopment to allow for secondary active street development and act as a transition from the high street with medium to high residential density to low density residential areas beyond the Centre;*
- *The creation of public spaces particularly along the high-street;*
- *Development that is focused on public spaces;*
- *Flexibility of residential development to help encourage the redevelopment of poorly designed sites and to increase the potential for after-hours activity; and*
- *Landmark Buildings – Encourage the creation of suitable landmarks to frame and define the key sites."*

From a movement perspective, the key benefits of the structure plan were noted as being:

- *"Better integration of public transport infrastructure with retail and commercial uses;*
- *Improvements to the existing bus station, with direct access planned to the retail component;*
- *Improvements to pedestrian paths and connections within the centre;*
- *Inclusion of end of trip facilities and bicycle parking/storage areas;*
- *Improved parking layout and provision, including park assist;*
- *Co-ordination and rationalisation of access to the surrounding streets;*
- *Significant upgrades to a large number of intersections which will include improvements for pedestrian access."*

Of note, the Structure Plan included the *Melville City Centre Structure Plan: Movement Strategy* report dated 14 November 2013 prepared by Aurecon (Movement Strategy). The Movement Strategy documented AIMSUN mesoscopic/microsimulation modelling and SIDRA Intersection modelling undertaken to inform the Structure Plan. The Movement Strategy indicated that substantial input was received from the CoM and MRWA throughout the assessment process. The modelling reported in the Movement Strategy identified a number of intersections, some of which were proximate to Westfield Booragoon and the fronting roads, and others which were more remote from the Melville City Centre (i.e. 'peripheral intersections').

For reference, the transport modelling documented within the Movement Strategy considered the Structure Plan development yields detailed in Table 1.

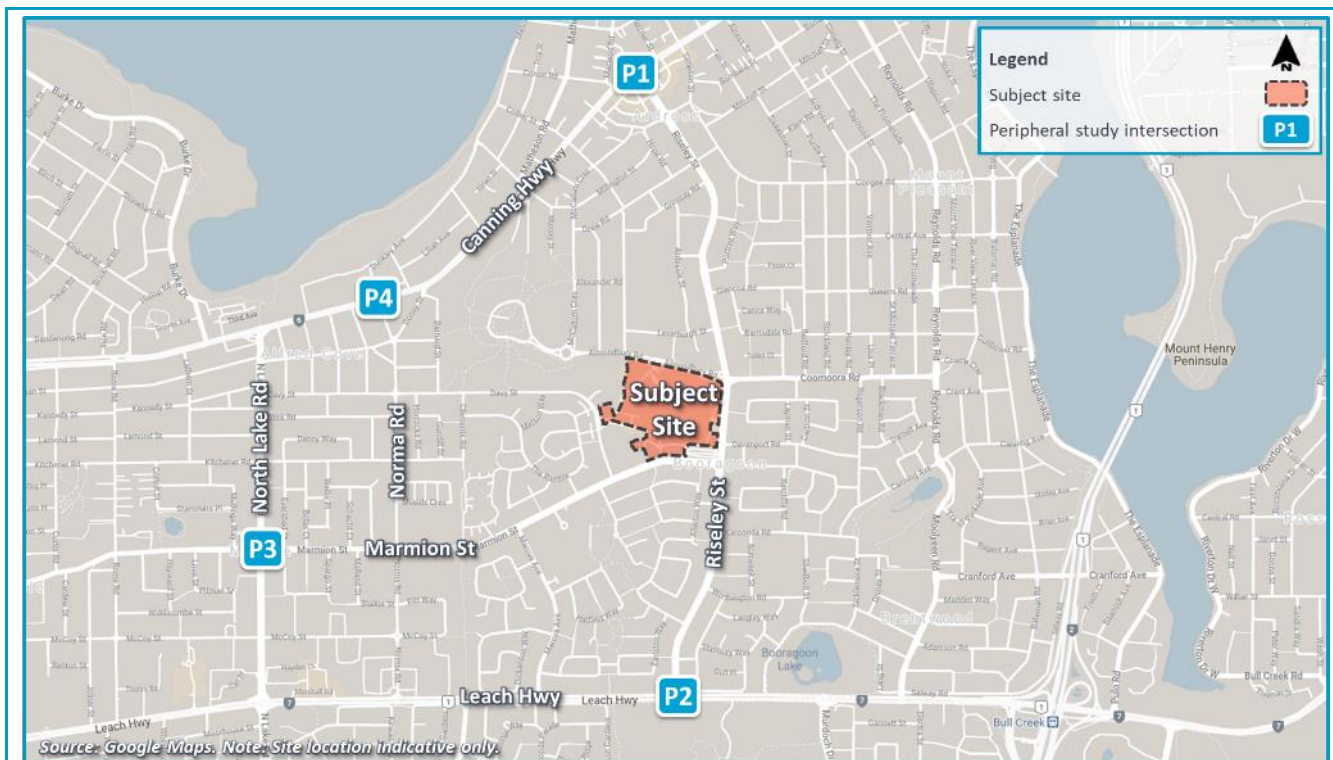
Table 1 Assessed Structure Plan Development Yield

Development Type	Land Use	Yield
Non-residential	Service	237sq.m
	Shop/Retail	120,000sq.m
	Office/Business	35,502sq.m
	Health/Welfare/Community	2,500sq.m
	Entertainment/Recreation/Culture	16,895sq.m
	Subtotal	175,134sq.m
Residential	Apartments	1,400 units

Source: Movement Strategy

The Structure Plan identified a number of 'critical' (i.e. site frontage/access) intersection upgrades and four 'peripheral' road and intersection upgrades, the location and details of which are described in Table 2.

Table 2 Structure Plan Peripheral Road and Intersection Upgrades



ID	Intersection	General Extent of Works
P1	Riseley Street/Canning Highway intersection	<ul style="list-style-type: none"> - To be determined. - Minimum requirement to be the closure of access from the north except for left turn only, and modification to traffic signals.
P2	Riseley Street/Leach Highway intersection	<ul style="list-style-type: none"> - Additional right turn lane on Riseley Street towards Leach Highway - Extension of left turn lane on Riseley Street towards Leach Highway - Extension of right turn pocket on Leach Highway.
P3	Marmion Street/North Lake Road intersection	<ul style="list-style-type: none"> - Minor modifications to line-marking and traffic signals
P4	Canning Highway/Norma Road intersection	<ul style="list-style-type: none"> - Installation of new traffic signals

Source: Structure Plan

The Stucture Plan indicates that the peripheral road upgrades detailed in Table 2 are:

“required to be completed within 5 years of the commencement of operation of the retail floorspace expansions. The landowner of the retail development is to either, prior to the commencement of operation of the retail floorspace mentioned above provide a contribution to the City (so that the City can undertake the construction), or undertake the works within this period. (Although the extent and staging of works should be subject to a re-assessment should there be a significant reduction in the amount of proposed retail floorspace developed).”

It is understood that subsequent to the endorsement of the Stucture Plan, MRWA advised CoM that upgrade item P4 at the Canning Highway/Norma Road intersection (i.e. signalisation) was not supported. This view has been reiterated by MRWA officers in pre-lodgement discussions held throughout September and October 2020.

2.2 Site History and Previous Development Approvals

The subject site, which was previously known as Garden City Booragoon and wholly owned by AMP Capital, has had a number of planning approvals for various redevelopment schemes following endorsement of the Structure Plan. These development approvals are described as follows:

- Conditional planning approval for the redevelopment of the Garden City Booragoon was granted by the Metro Central Joint Development Assessment Panel ('MCJDAP') on 18 December 2015;
- An extension of time request relating to the above development was approved by MCJDAP in April 2017;
- A modified Garden City Booragoon development scheme received conditional planning approval from MCJDAP on 12 September 2017 ('2017 Approved Development').

It is understood that AMP Capital progressed detailed design for the 2017 Approved Development and some external transport infrastructure works to satisfy approval conditions, however, design and construction of the 2017 Approved Development was discontinued due to commercial reasons. It is noted that no building works (i.e. expansion of existing shopping centre floor area) associated with any of the above development approvals (including the 2017 Approved Development) have been completed, although a number of the conditioned external (i.e. peripheral and frontage) upgrading works have been constructed as described in Section 2.4.1 below.

In December 2019, Scentre Group entered a joint venture partnership with AMP Capital and became a joint owner of Garden City. Shortly thereafter, the Garden City Booragoon was rebranded as Westfield Booragoon.

2.3 2017 Approved Development Summary

The 2017 Approved Development comprised an expansion of the existing shopping centre to 126,891sq.m NLA (i.e. net increase of 54,352sq.m) and proposed a total of 5,958 car parking spaces across the site (i.e. an increase of 1,708 spaces compared with the 4,250 existing spaces) at a rate of 4.7 spaces per 100sq.m NLA.

The assessment of transport matters associated with the 2017 Approved Development was documented in the *Garden City Shopping Centre Expansion: Transport Assessment for Development Application* dated 12 July 2017 prepared by Aurecon (Aurecon Transport Assessment). The Aurecon Transport Assessment documented an update of the AIMSUN microsimulation modelling and SIDRA Intersection modelling originally conducted for the Structure Plan based on the following development yields:

- Expansion of the existing Garden City Booragoon shopping centre to 126,891sq.m NLA;
- An allowance was made for 422 dwellings (described as the 'TRG development') on the northeast corner of Marmion Street and Davey Street.

A summary of the external access arrangements proposed for the 2017 Approved Development is indicatively shown on Figure 1, whilst the conditional external intersection upgrades are indicated on Figure 2 and described in Table 3 (site frontage intersections).

Figure 1 2017 Approved Development Vehicular Access Arrangements

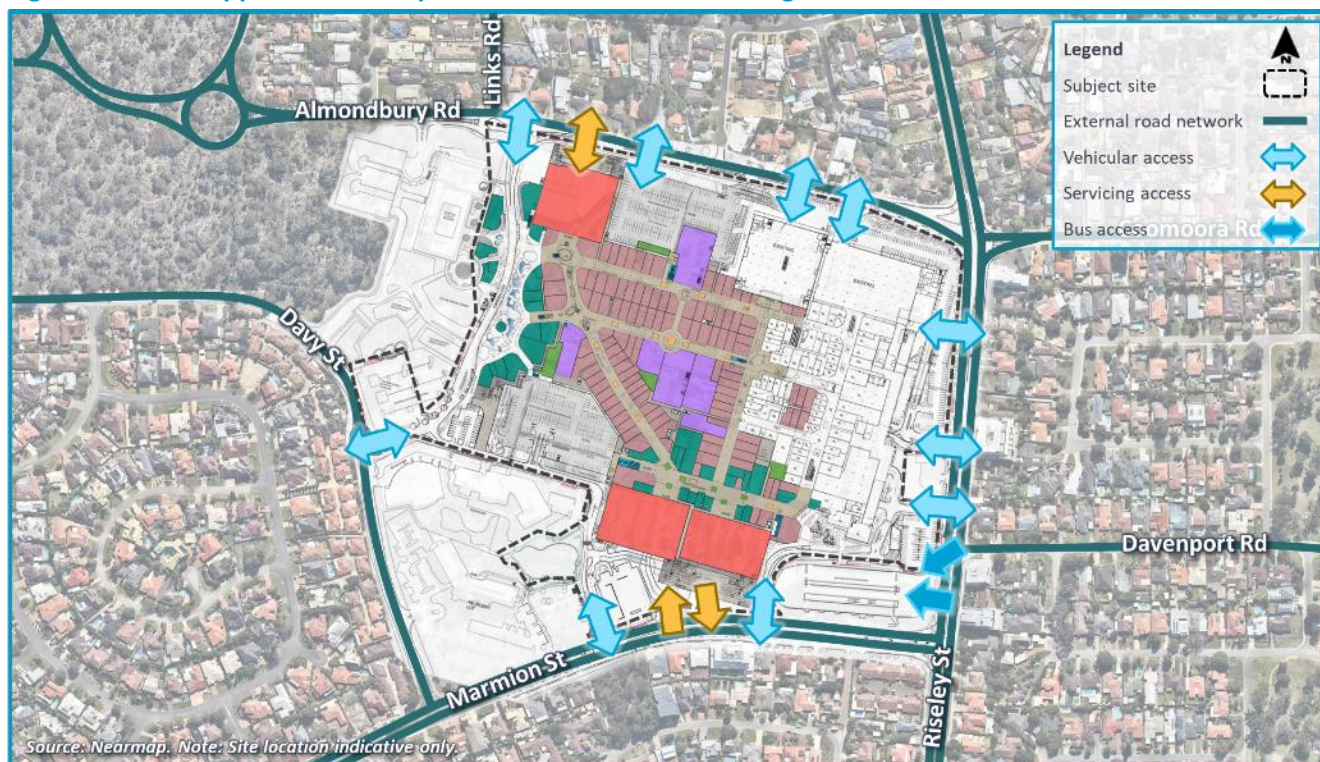


Figure 2 2017 Approved Development conditioned Frontage Intersection Upgrades

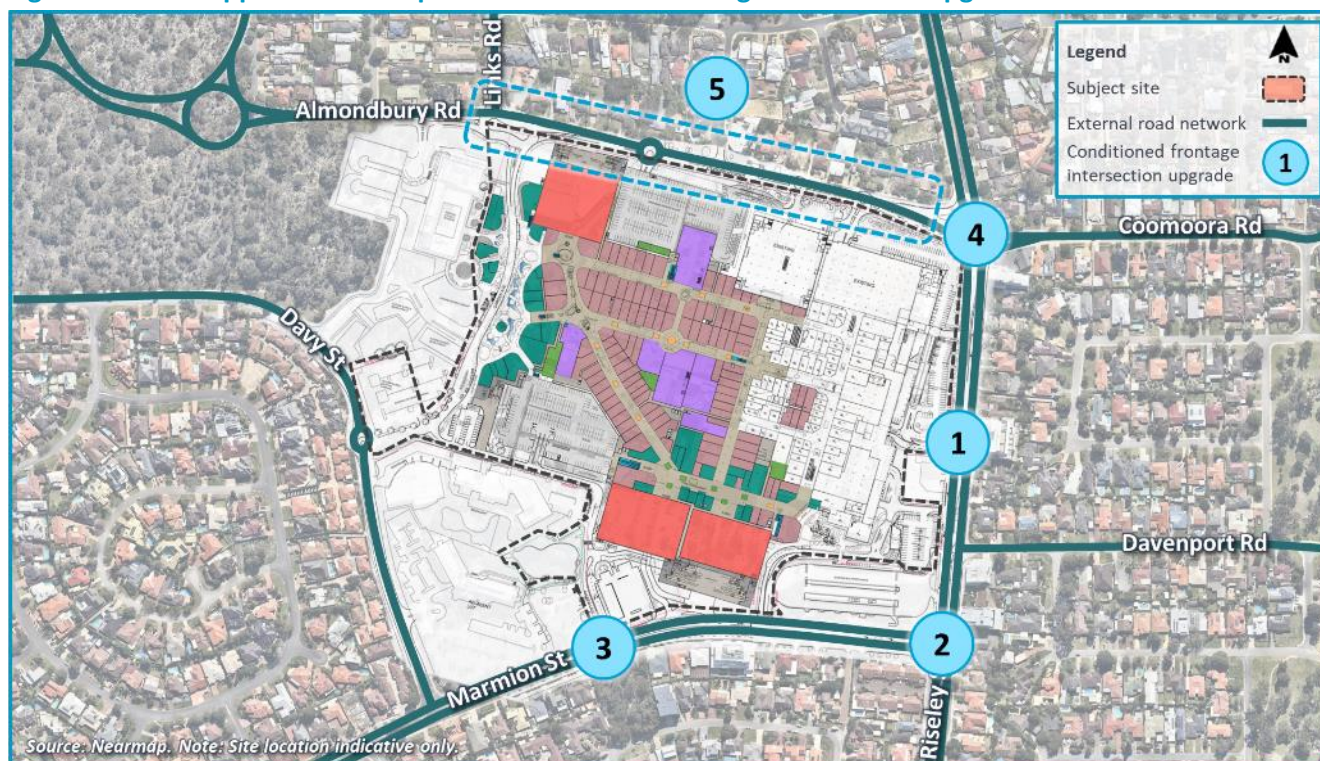


Table 3 Conditioned Frontage Intersection Upgrades

ID	Intersection	Description of works
1	Riseley Street/Main Site Access intersection	<ul style="list-style-type: none"> - 100m extension of right turn lane on the northern approach. - Modification of internal arrangements on eastern approach (conversion of existing roundabout to priority-controlled T-intersection). - 120m extension of the left turn lane on the southern approach.
2	Riseley Street/Marmion Street intersection	<ul style="list-style-type: none"> - 50m extension of the left turn lane on the southern approach. - Relocate on-road cycle lane on southern approach to a shared path on the western footpath.
3	Marmion Street/Andrea Lane intersection (works completed)	<ul style="list-style-type: none"> - Relocation of intersection 100m to the west. - Signalisation of intersection. - Two stand up lanes on northern approach. Separate left and right. - 80m extension of the left turn lane on the western approach.
4	Riseley Street/Almondbury Road/Coomoora Road intersection	<ul style="list-style-type: none"> - 30m extension of the right turn lane on the northern approach. - Linemarking changes on eastern approach – separate through and right lanes (currently unmarked). - Change to western exit lane arrangement – two full length lanes to one full length lane.
5	Almondbury Road (various)	<p><u>Roundabout (easternmost):</u></p> <ul style="list-style-type: none"> - New single lane roundabout 90m (between intersection approaches) west of Riseley street. - 85m left turn lane on eastern approach (currently full-length lane). <p><u>Roundabout 2:</u></p> <ul style="list-style-type: none"> - New single lane roundabout 47m west (between intersection approaches) west of roundabout 1. <p><u>Roundabout 3:</u></p> <ul style="list-style-type: none"> - Retain existing single lane roundabout 125m west (between intersection approaches) west of roundabout 2. <p><u>Roundabout 4:</u></p> <ul style="list-style-type: none"> - New kidney bean shaped single lane roundabout 15m east (between intersection approaches) west of roundabout 3 incorporating 'Garden Avenue' (High Street) and Links Road approaches.

In addition, the above intersection upgrades, the 2017 Approved Development was conditioned to submit detailed designs for the Structure Plan peripheral intersections (i.e. as per Table 2), with the exception of the Canning Highway/Norma Road intersection (P4). Whilst not specifically stated in the conditions, it is expected that the delivery of these upgrading works would have been required within five years of the commencement of the 2017 Approved Development consistent with the Structure Plan timing requirements.

2.4 Post Development Approval Commentary

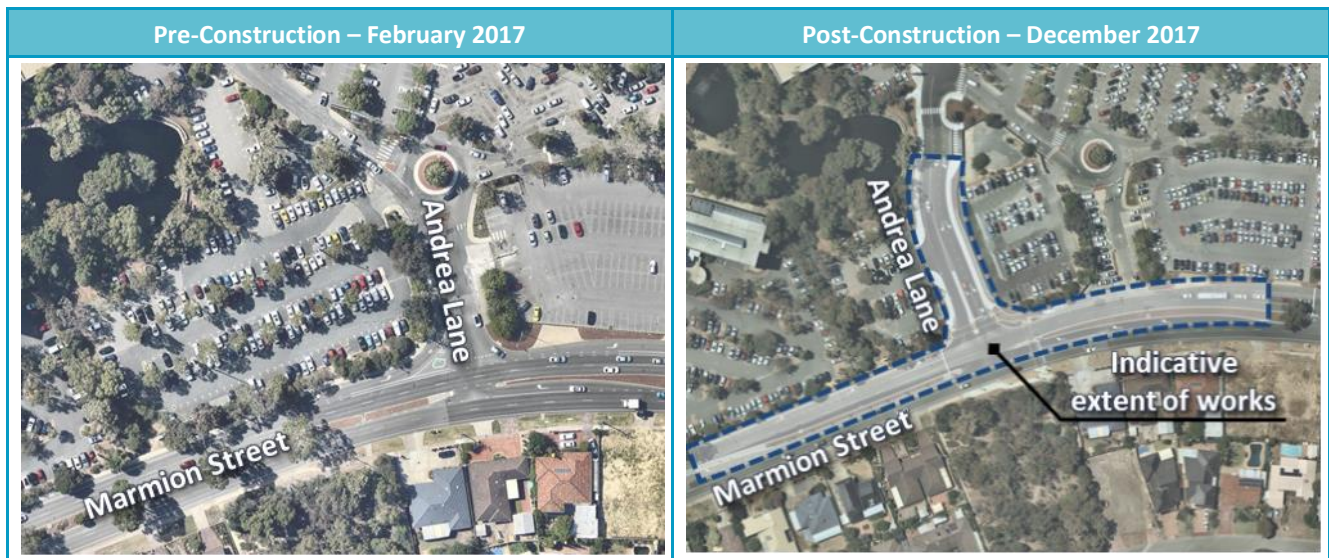
2.4.1 Constructed Upgrading Works

As previously mentioned, building works associated with the expansion of the shopping centre for the 2017 Approved Development did not proceed, however, the conditioned upgrading works were constructed at the following intersections:

- **#3** (Table 3): Marmion Street/Andrea Lane intersection relocation/upgrade and shared path along portion of Marmion Street site frontage (site frontage/access intersection);
- **#P1** (Table 2): Leach Highway/Riseley Street intersection (peripheral intersection);
- **#P2** (Table 2): Canning Highway/Riseley Street intersection (peripheral intersection).

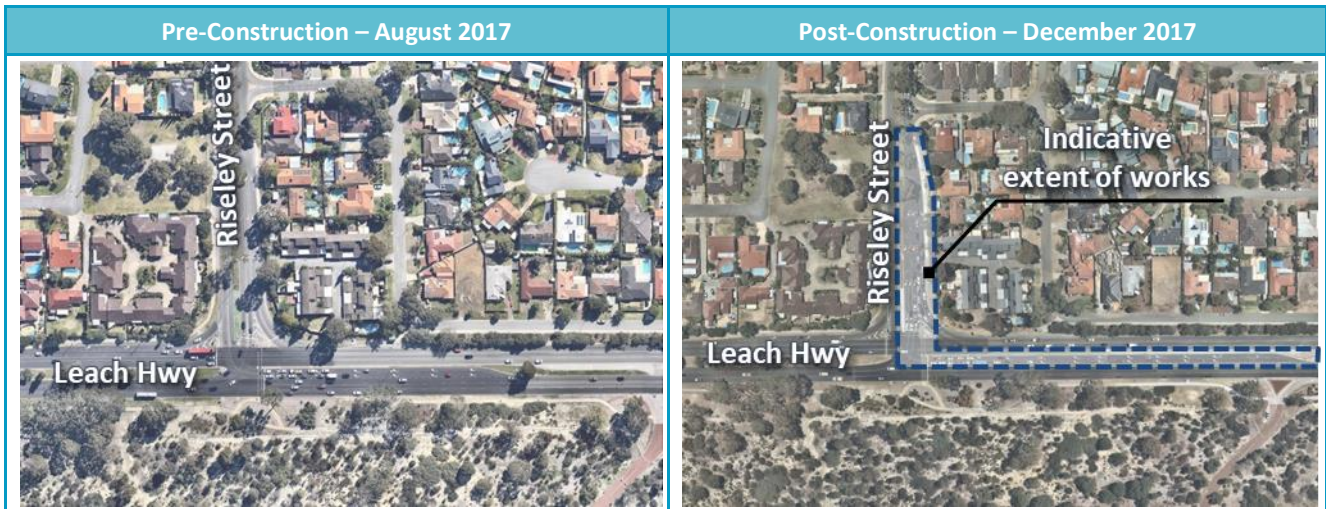
The extent of the completed intersection upgrading works at the above intersections is shown on Figure 3, Figure 4 and Figure 5.

Figure 3 Completed Intersection Upgrading Works – Marmion Street/Andrea Lane Intersection



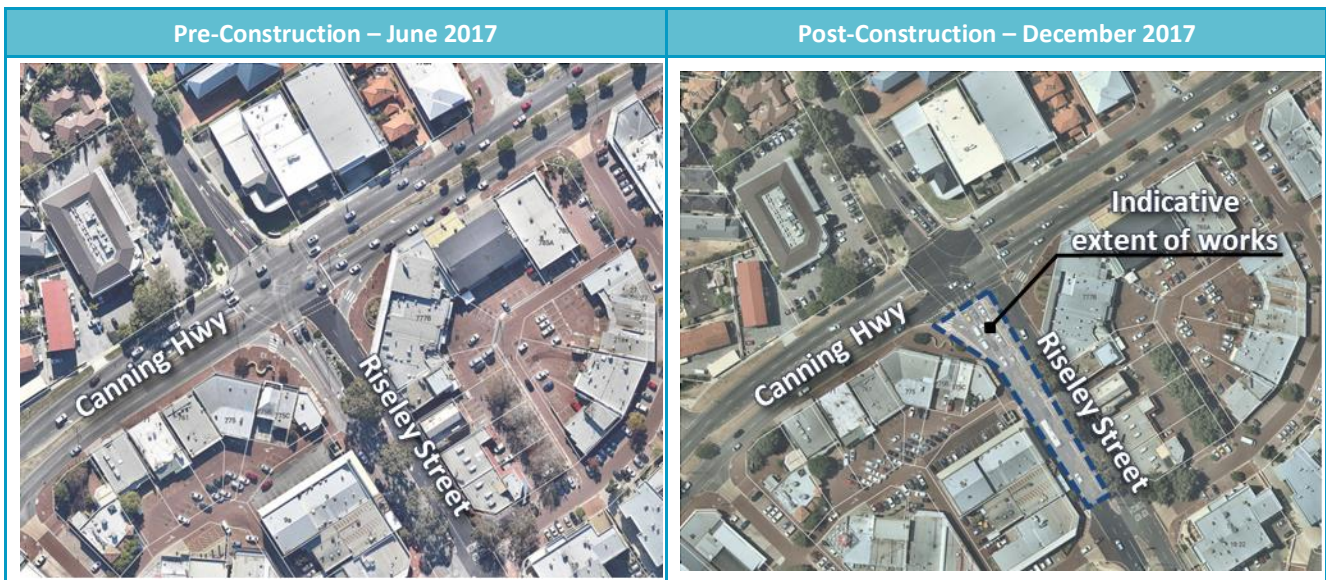
Source: Nearmap

Figure 4 Completed Intersection Upgrading Works – Leach Highway/Riseley Street Intersection



Source: Nearmap

Figure 5 Completed Intersection Upgrading Works – Canning Highway/Riseley Street Intersection



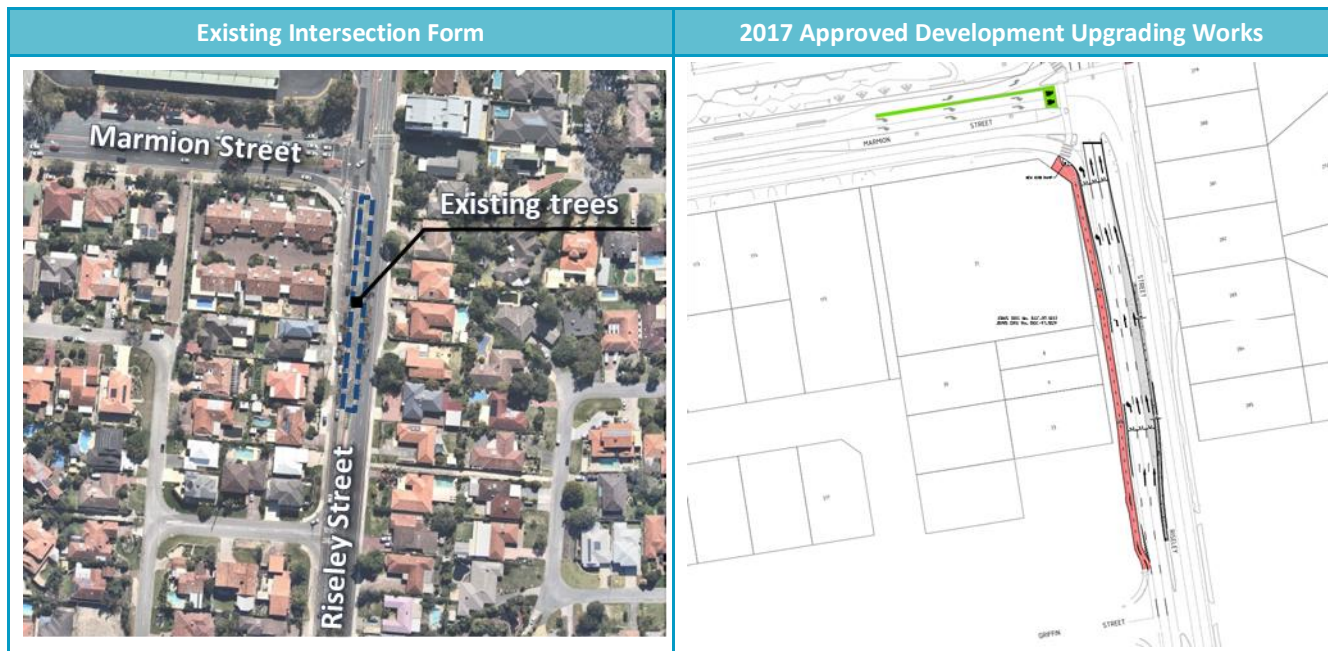
Source: Nearmap

Based on the above, a 'capacity credit' exists at the above intersections, whereby additional capacity has been created by the upgrading works, however, not consumed by associated land use expansions. The implications of this matter are considered in the operational analysis documented herein.

2.4.2 Riseley Street/Marmion Street Intersection Upgrade Works

As indicated in Table 3, the proposed upgrading works on the southern Riseley Street approach to the Riseley Street/Marmion Street intersection entailed an extension of the left turn lane by approximately 50m. The existing intersection form and the upgrading works proposed as part of the 2017 Approved Development are presented on Figure 6.

Figure 6 Marmion Street/Andrea Lane Intersection



Source: Nearmap, BG&E

As indicated on Figure 6, to facilitate the extension of the southern approach left turn lane at the subject intersection, the following works were proposed:

- Transition of the northbound on-road cycle lane to a new widened (2.5m) shared path on the western side of Riseley Street (i.e. on-road cycle lane removed after start of left turn lane);
- Narrowing of the existing 4.5m median island, and removal of two juvenile and four mature eucalyptus trees;
- Narrowing and realignment of the northbound through traffic lanes.

Scentre has advised that during the detailed design phase, the CoM advised that the retention of the existing eucalyptus trees located in the median was highly desirable, and that it was a preferred outcome to any capacity enhancement.

SLR notes the following in relation to the proposed upgrading works at the Riseley Street/Marmion Street intersection:

- The left turn lane extension on the southern intersection approach is likely to only provide marginal benefit to the performance of the intersection. It is therefore proposed that the left turn lane extension, narrowing and realignment of the northbound through traffic lanes, and median narrowing (and associated tree removals) be removed from any future external upgrading works;

- Given that the on-road cycle lane on Riseley Street to the north of the intersection will now be retained (i.e. a northbound shared through/left lane on Riseley Street to the north of Marmion Street is no longer proposed), the on-road cycle lane will be retained on the southern approach to the intersection for continuity of the bicycle network.

The above strategy is considered to represent a balanced approach which considers the competing operational, safety and environmental issues relating to the upgrade of the Riseley Street/Marmion Street intersection in order to accommodate the proposed expansion of Westfield Booragoon, whilst still maintaining the amenity/environmental value of the surrounding area.

3 Existing Situation

3.1 Site Context

The subject site is located within the 'Centre' (C1) zone of LPS6 and encompasses a total of five properties which are described in Table 4.

Table 4 Site Description

Lot	Plan/Diagram	Address
Lot 52 (part of)	D064936	10 Almondbury Road, Booragoon
Lot 500	DP411271	Westfield Booragoon
Strata Lot on Plan S023769	Strata Plan 23769	173 Davy Street, Booragoon

The site is located approximately 10km southwest of the Perth CBD, and is bound by Almondbury Road to the north, Riseley Street and a commercial property to the east, the Booragoon bus station to the southeast, Marmion Street to the south, commercial properties to the southeast, and the CoM Civic Centre and Davy Street to the west. The site is shown in the context of the broader area on Figure 7 and the local area on Figure 8.

Figure 7 Site Location – Regional Context

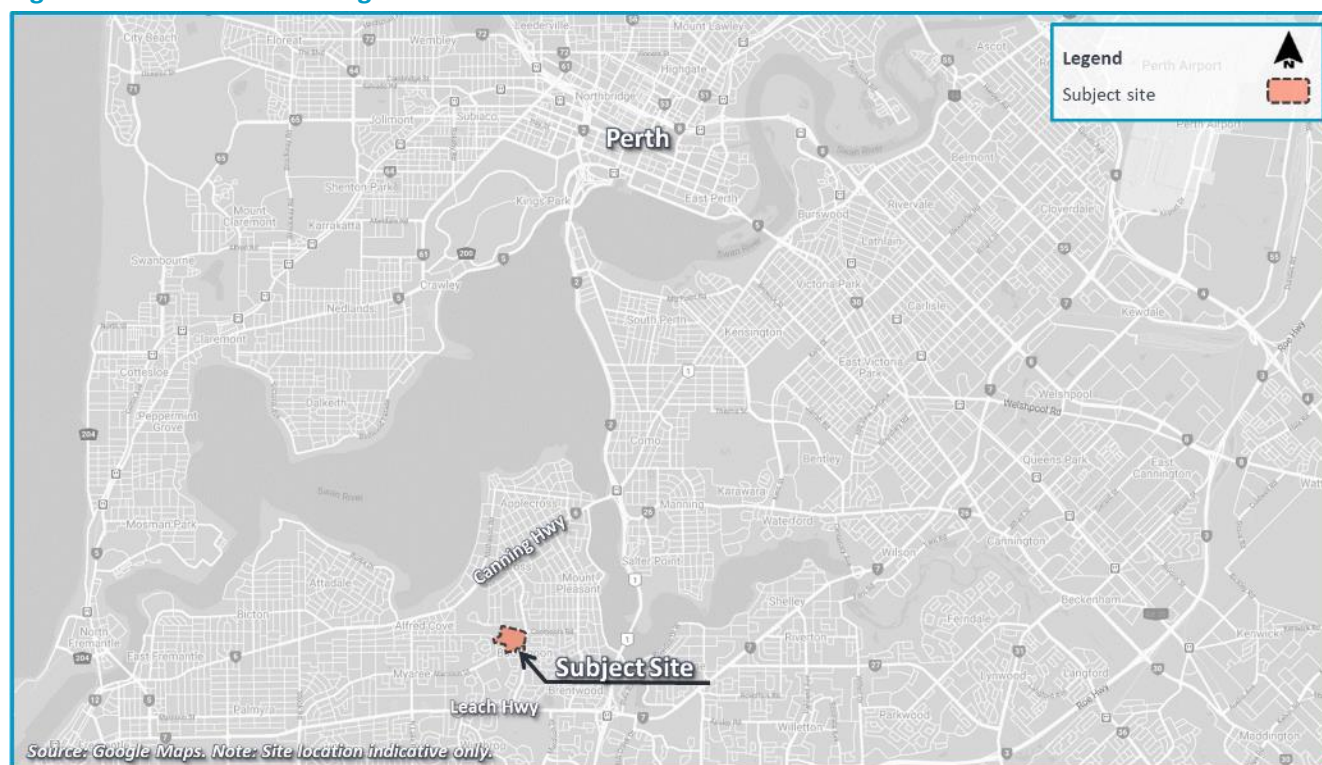
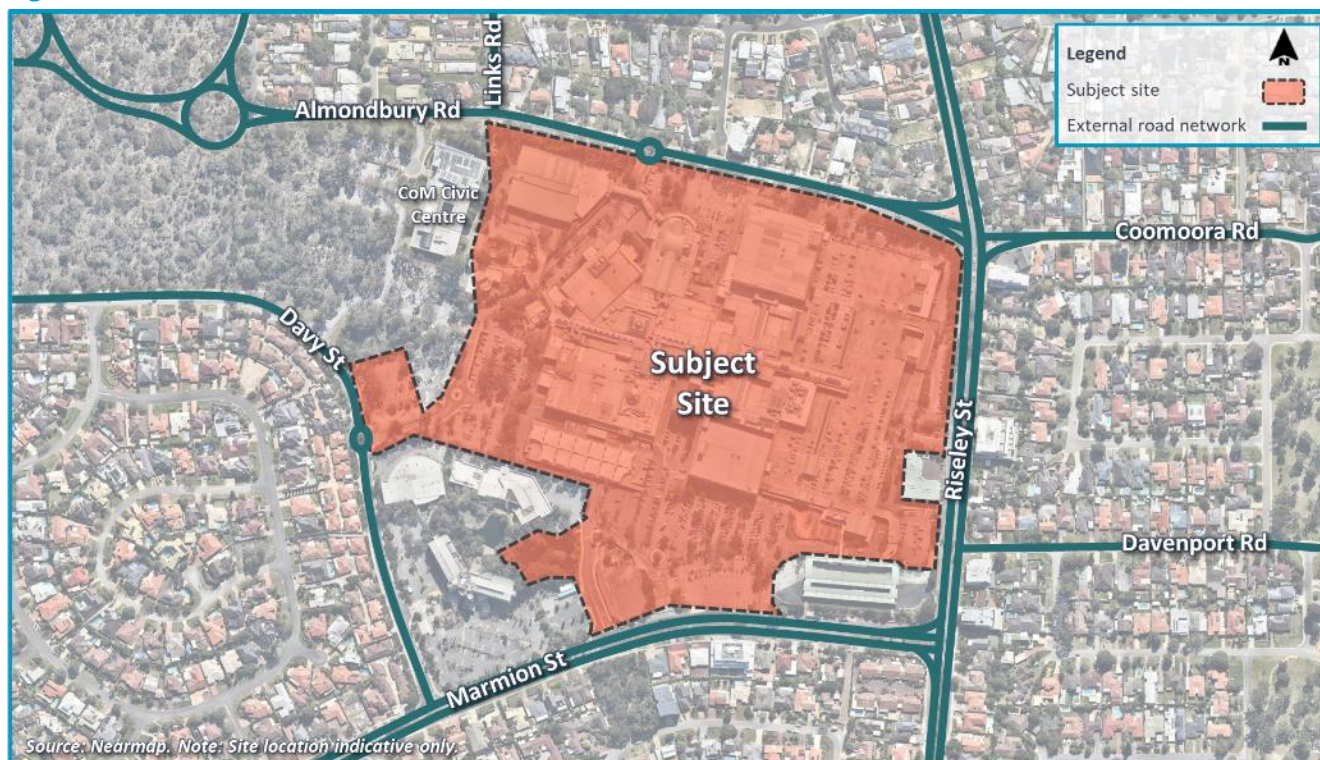


Figure 8 Site Location – Local Context



3.2 Existing Site Use, Access and Car Parking

The subject site is occupied by Westfield Booragoon, a major regional shopping centre with an existing floor area of 72,539sq.m NLA and 4,250 car parking spaces. A summary of existing tenancies at Westfield Booragoon is provided in Table 5, whilst the existing external access arrangements for vehicles are indicated on Figure 9.

Table 5 Existing Westfield Booragoon Tenancies

Category	Description
Major Tenancies	ALDI Woolworths Coles Kmart Myer David Jones
Specialty Tenancies	180 tenancies
Other Tenancies	Hoyts Cinemas Silver Sponge Hand Car Wash

Figure 9 Existing Vehicular Access Arrangements



3.3 Surrounding Land Uses

A summary of the land uses located within 800m of the subject site is illustrated on Figure 10.

Figure 10 Surrounding Land Uses

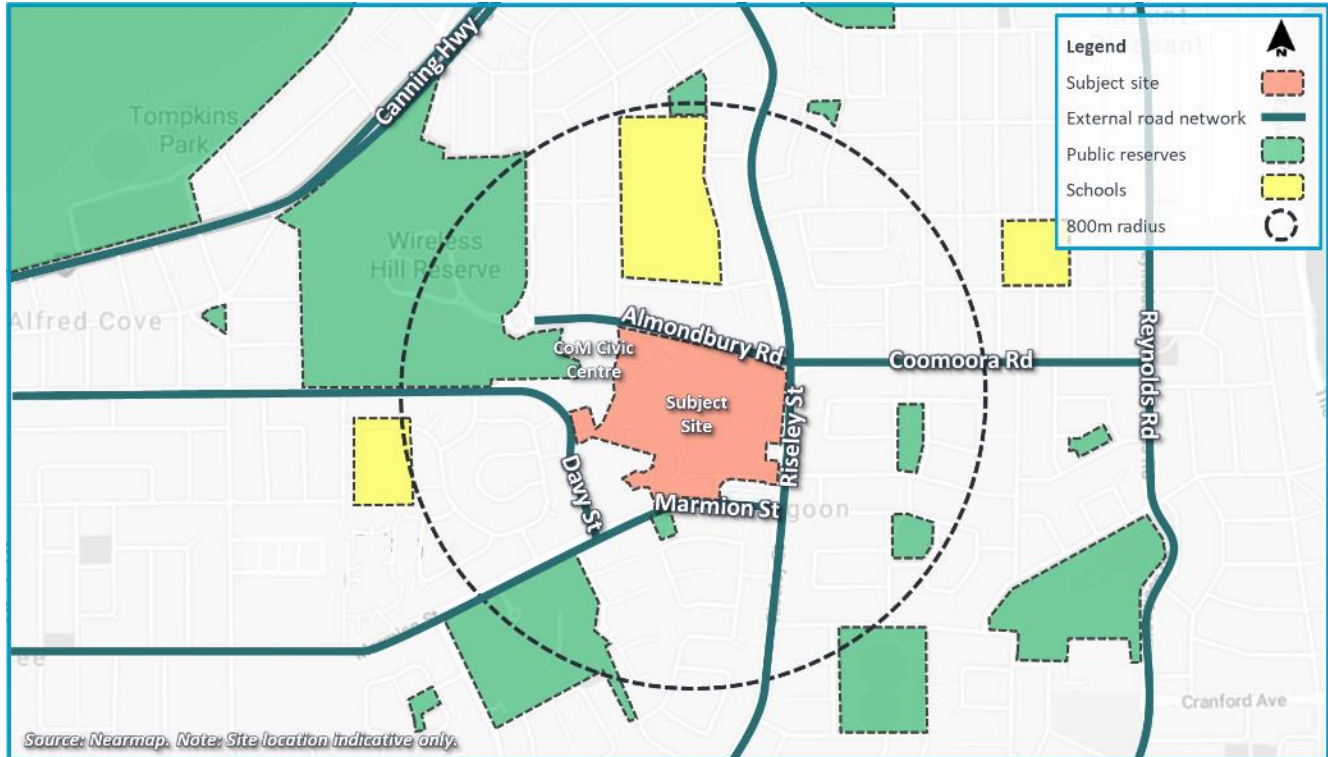


Figure 10 indicates that the subject site is surrounded by:

- Predominantly residential dwellings;
- The CoM Civic Centre;
- Several public reserves including Wireless Hill Reserve, Karoonda Reserve and Len Shearer Reserve amongst other smaller reserves;
- Several schools including Applecross Senior High School, Applecross Primary School, Booragoon Primary School and Mount Pleasant Primary School.

3.4 Surrounding Road Network

3.4.1 Key Roads

The typical characteristics of the key roads surrounding the subject site are provided in Figure 11 and Table 6.

Figure 11 Surrounding Key Roads

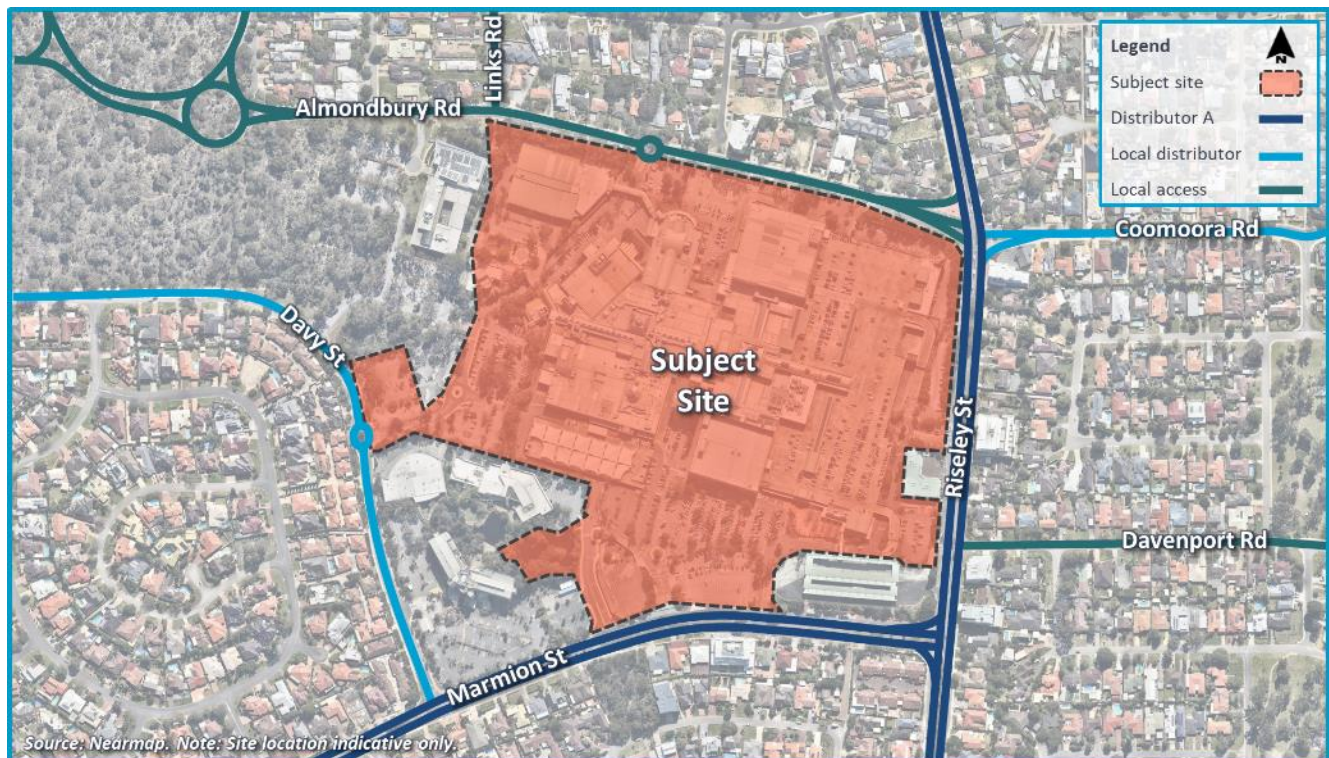


Table 6 Surrounding Key Roads

Road Name	Authority	Hierarchical Classification ¹	Existing Form	Posted Speed ^[2]
Riseley Street	CoM	Distributor A	Four lanes, bidirectional, median-separated, bicycle lanes, no on-street parking.	60km/h
Marmion Street	CoM	Distributor A	Four lanes, bidirectional, median-separated, bicycle lanes, no on-street parking.	60 km/h
Coomoora Road	CoM	Local Distributor	Two lanes, bidirectional, undivided, no on-street parking.	Unposted (50 km/h ¹)
Davy Street	CoM	Local Distributor	Two lanes, bidirectional, some median-separated and some undivided sections, no on-street parking.	Unposted (50 km/h ¹)
Almondbury Road	CoM	Local Access	Two lanes, bidirectional, median-separated, no on-street parking.	Unposted (50 km/h ¹)

Source: Road Information Mapping System, MRWA.

¹The speed limit has been taken as 50km/h for roads with no posted speed limit as per the WA Road Rules.

3.4.2 Road Network Planning

In addition to the Structure Plan, the following sources were reviewed to ascertain any planned transport infrastructure improvements in the vicinity of the subject site:

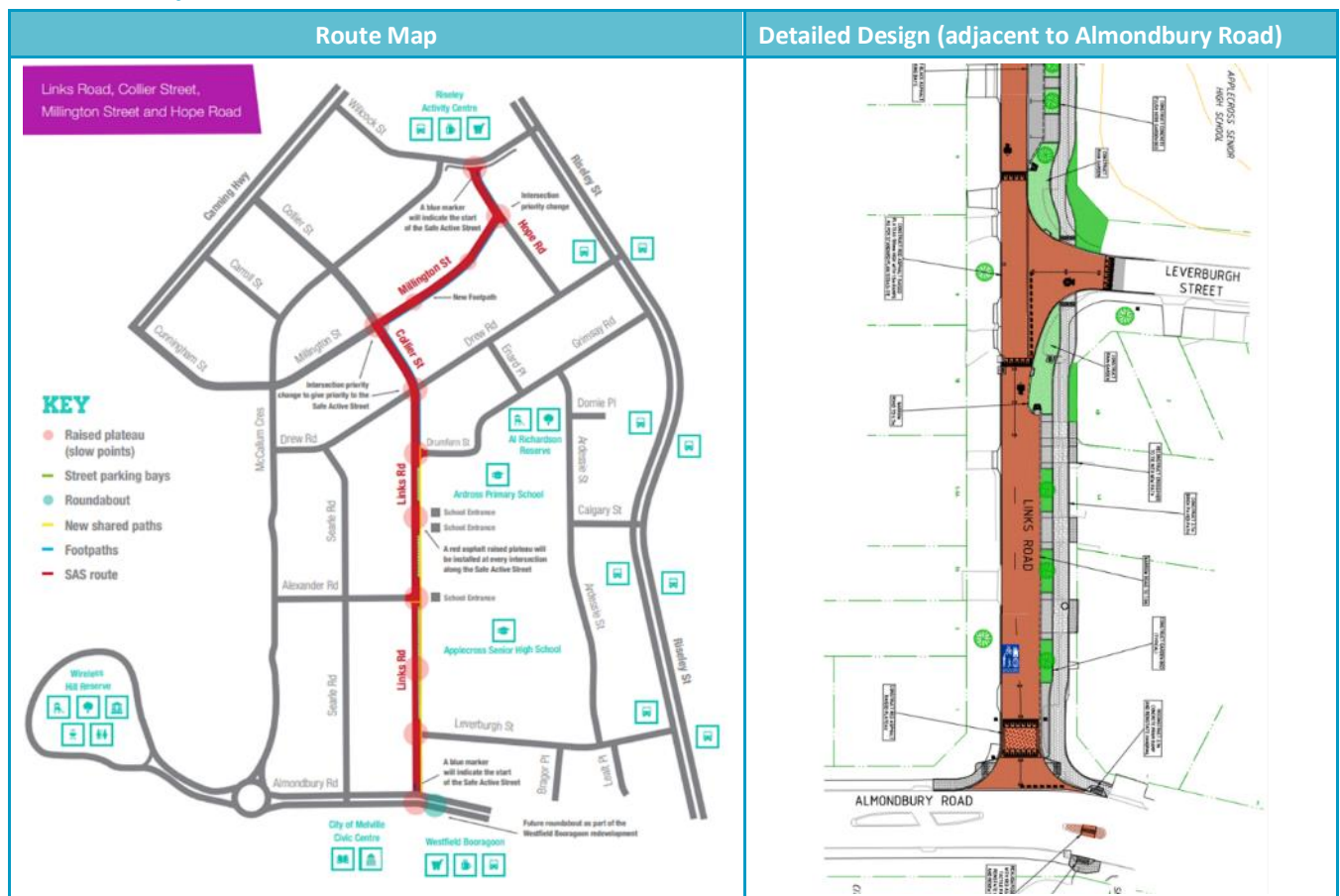
- MRWA 'Projects' interactive mapping tool which maps the latest projects across the state;
- CoM website.

From the review, there are no MRWA projects planned within the vicinity of the subject site, however, the CoM, in conjunction with the Department of Transport (DoT), are planning to construct a 'safe active street' linking Westfield Booragoon and the Riseley Street Activity Centre to the north. Safe active streets are described by the CoM website as:

"local streets with few cars, travelling at low speeds that prioritise bicycling and enhance conditions for walking. They are an important, new part of Perth's transport network offering safe and comfortable routes for people riding bikes."

The planned route of the safe active street and detailed design for the southern end of Link Road towards Almondbury Street (i.e. adjacent to the northwest corner of Westfield Booragoon) are presented in Table 7.

Table 7 City of Melville Safe Active Street



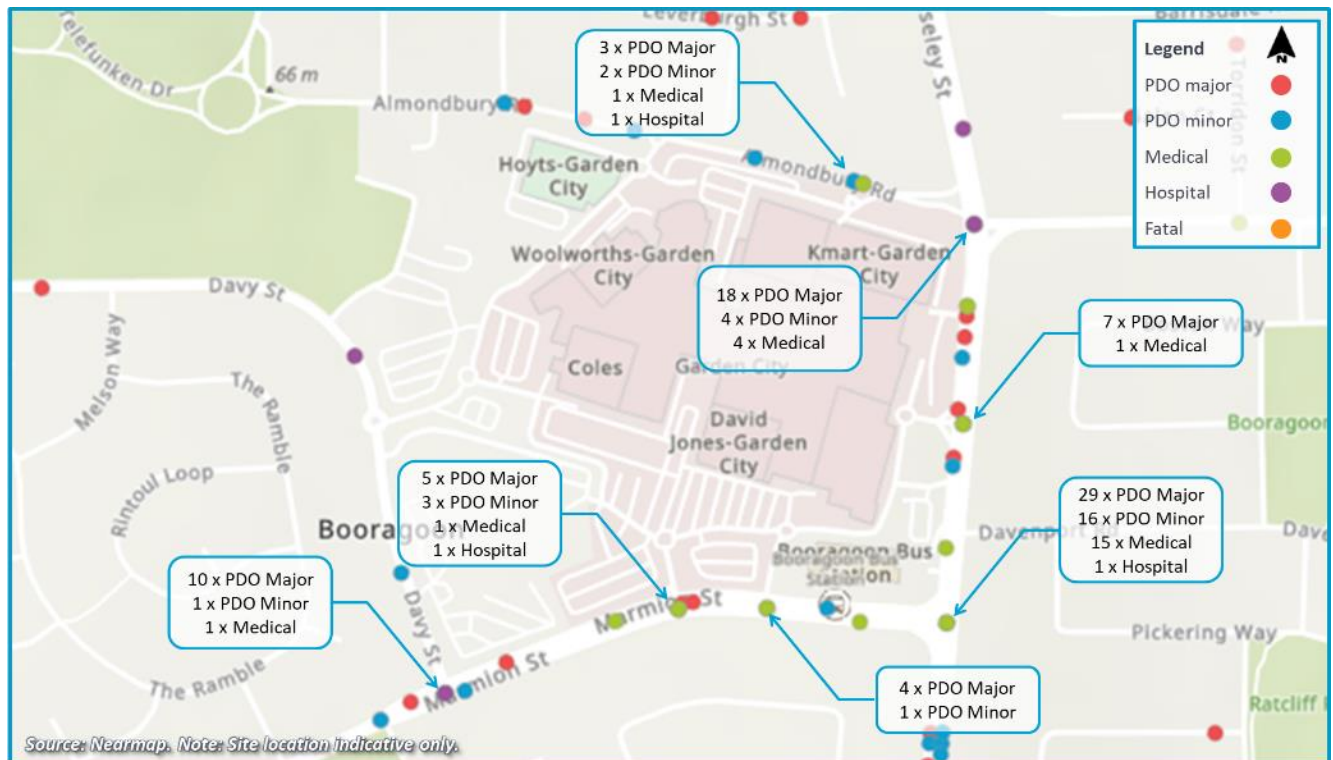
Source: <https://www.melvillecity.com.au/our-city/about-our-city/projects-and-works/links-road-safe-active-streets-project>

3.4.3 Crash History

In order to highlight any safety deficiencies on the existing road network within the vicinity of the subject site, SLR carried out a review of MRWA crash data for the study area (available at: https://portal-mainroads.opendata.arcgis.com/datasets/cd0b2ef39c6e4e71b1aa922942d316cc_2). Crashes (all severities) are reported for the five years of data available at the time that this assessment was prepared (i.e. 1 January 2015 to 31 December 2019).

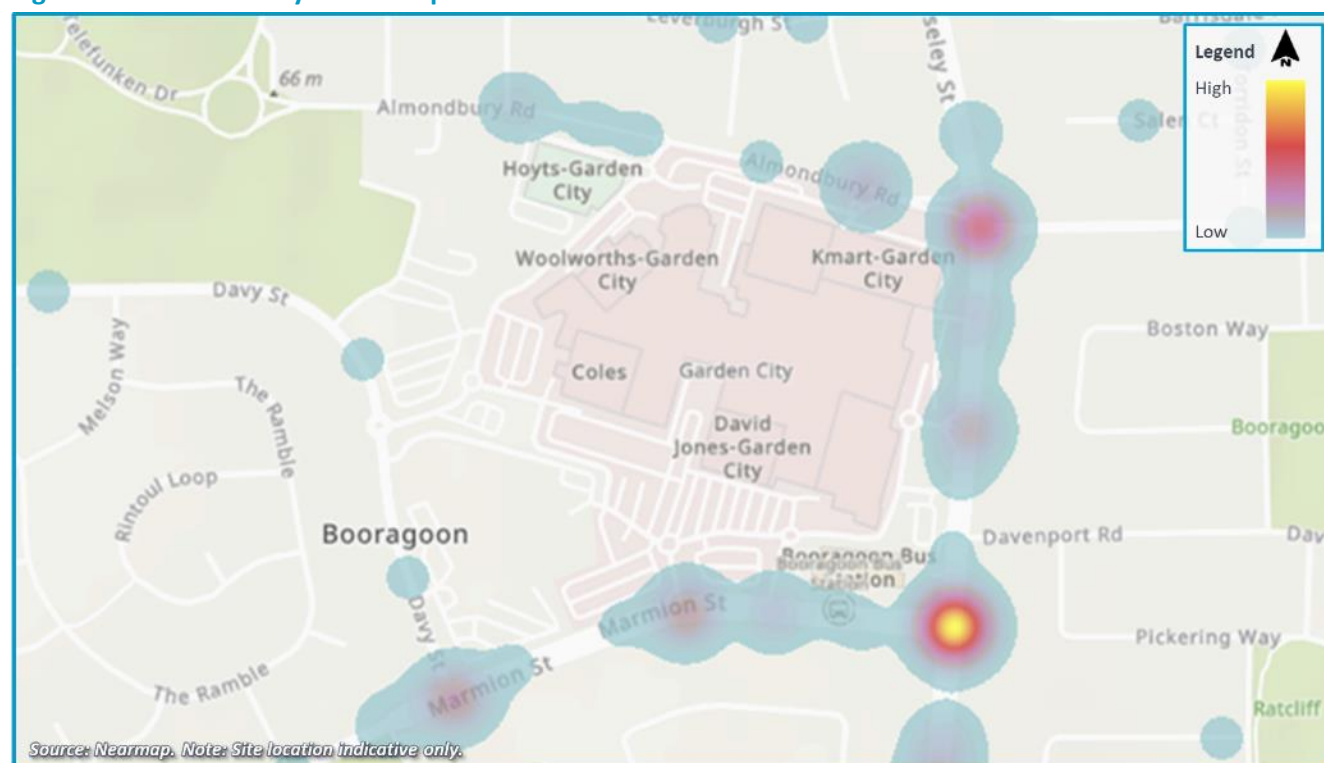
Reflective of the above, MRWA crash data for the study area in terms of location and severity is summarised in Figure 12. A heatmap showing the concentration of crashes is presented in Figure 13.

Figure 12 Crash History – Location and Severity



Source: Crash Information, MRWA Open Data Portal

Figure 13 Crash History – Heatmap



Source: Crash Information, MRWA Open Data Portal

Figure 12 and Figure 13 indicate that the majority of recorded crashes occurred at intersections rather than at midblock locations and that no fatal crashes occurred over the last five year period. The crash data in the vicinity of the site is summarised in Table 8.

Table 8 Crash History Data Summary

Location Type	Location Description	Crashes
Intersection	Riseley St/Marmion St	60
	Marmion St/Andrea Ln	10
	Marmion St/Davy St	12
	Riseley St/Site Access	8
	Riseley St/Almondbury Rd/Coomoora Rd	26
	Marmion St/Site Access	5
	Almondbury Rd/Site Access	7
Midblock	Riseley St	12
	Marmion St	8
	Davy St	2
	Almondbury Rd	6
Total		156

Table 8 indicates that there was a total of 156 crashes recorded over the five year period in the vicinity of the site. A summary of the yearly crash history data is shown in Figure 14.

Figure 14 Crash History – Summary by Year

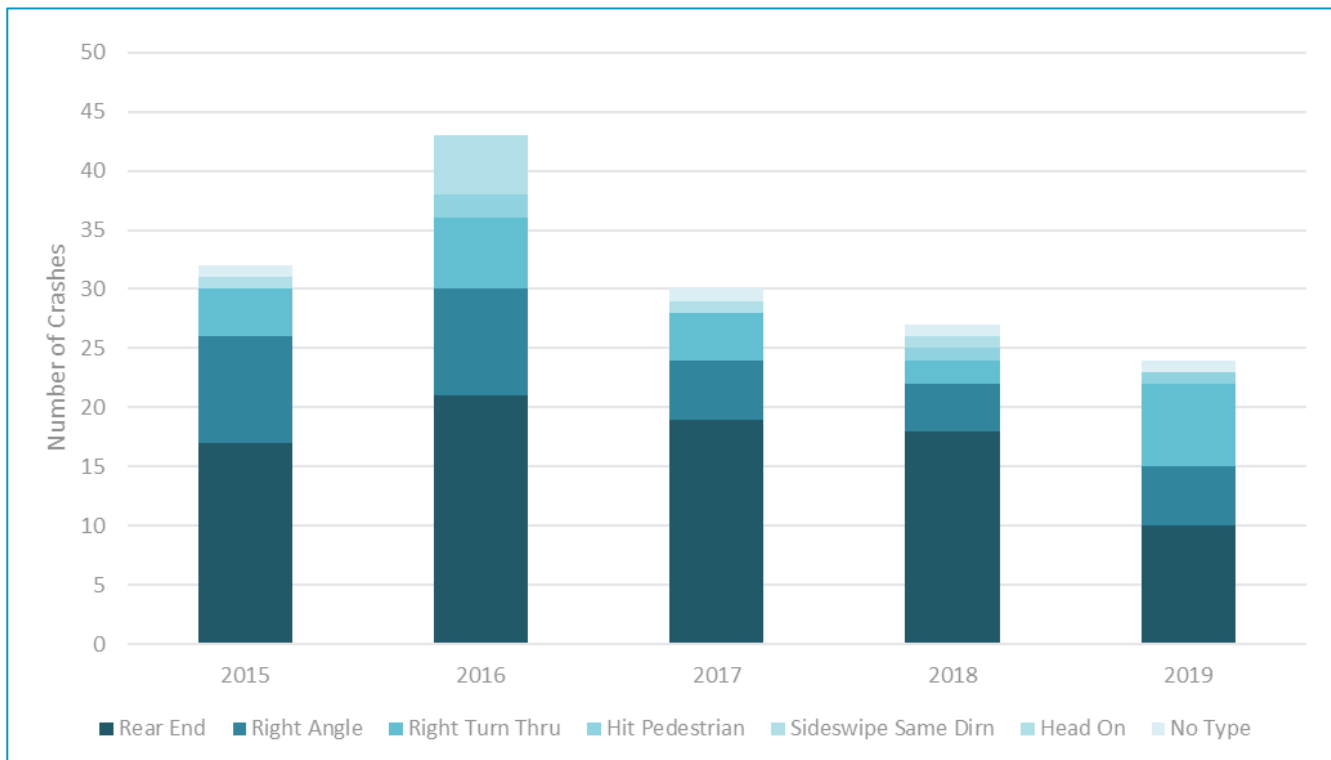


Figure 14 indicates that over the five year period, the number of crashes per year has been declining with the number of crashes recorded in 2019 representing a five year low. The data summarised on Figure 14 also indicates that and only six recorded crashes involved either a pedestrian or cyclist (five crashes involved a pedestrian; one crash involved a cyclist).

The following is a summary of the key points from the review of the historic crash data in the vicinity of the site:

- The times of recorded crashes are representative of a typical urban environment with incidents split between crashes occurring during daytime and night-time. As such, no inherent road safety concerns pertaining to daytime/night-time trends were noted;
- There were zero fatal crashes and three hospitalisation crashes recorded over the five year period, indicating that the majority of incidents are of lesser severity. This aligns with the crash type findings presented on Figure 14, whereby the majority of incidents are rear-end crashes;
- The five recorded crashes involving pedestrians and the single recorded crash involving a cyclist were not characteristic of any one location. They were also not characteristic of any one time period as they were spread across the five year period. As such, there was no discernible trend or data that would indicate explicit or recurrent safety deficiency on the road network pertaining to pedestrians/cyclists;
- The number of recorded crashes in 2019 reached a five year low after steadily declining for the most recent three years within the data period. This is also indicative that there are no major safety deficiencies in existing the road network.

3.5 Existing Active Transport Provisions

3.5.1 Walking

The subject site is surrounded by mainly residential land uses and therefore is within walking distance for many residents. Existing pedestrian access to the development is facilitated by the following types of facilities:

- Pedestrian footpaths;
- Signalised pedestrian crossings;
- Unsignalised pedestrian crossings in the form of zebra crossings.

The existing pedestrian facilities surrounding the site are shown in Figure 15 along with the existing pedestrian entrances to the shopping centre.

Figure 15 Existing Pedestrian Facilities



Figure 15 also indicates that there are multiple signalised crossing locations on the major fronting roads of Riseley Street and Marmion Street. There is also an unsignalised zebra crossing on Almondbury Road.

It is noted that majority of the surrounding road network has existing footpaths, including the most important pedestrian access routes. The parts of the road network which currently do not have footpaths are all local residential access roads characterised by their relatively low vehicular traffic volumes and speed environments. For this reason, the absence of footpaths on these roads is not considered to present any major pedestrian safety concerns.

As identified within previous traffic assessments completed for the Structure Plan and 2017 Approved Development, the primary deficiency from a pedestrian perspective is the lack of direct connections between the external pedestrian network and the pedestrian entrances for the shopping centre via car parking areas.

3.5.2 Cycling

The existing cycling facilities provided on the road network surrounding the development are generally considered to be of a good standard. Cyclist access to the site is currently facilitated by the following types of facilities:

- On-road bicycle lanes (with sealed road shoulders);
- Off-road paths (separated or shared with pedestrians);
- Unmarked within general traffic lanes (for low speed residential environments).

The existing cycling facilities surrounding the site as per the DoT's Perth/Fremantle Bike Map are shown in Figure 16.

Figure 16 Existing Cycling Facilities



Figure 16 indicates the following:

- There are existing on-road bicycle lanes on Riseley Street and Marmion Street;
- There are sealed shoulders provided on Davy Street, which is defined as a 'Good Road Riding Environment';
- Almondbury Road is not defined as a 'Good Road Riding Environment'.

In terms of end of trip facilities, there is some existing bicycle parking available at multiple entrances to the shopping centre.

As identified within previous traffic assessments prepared for the Structure Plan and 2017 Approved Development, the main concerns from a cycling perspective are the lack of direct connections between the external cycling network and the bicycle parking at the entrances to the shopping centre. Cyclists are currently generally required to cycle through car parking areas and navigate through internal roundabouts to reach the shopping centre entrances.

3.6 Existing Public Transport Access

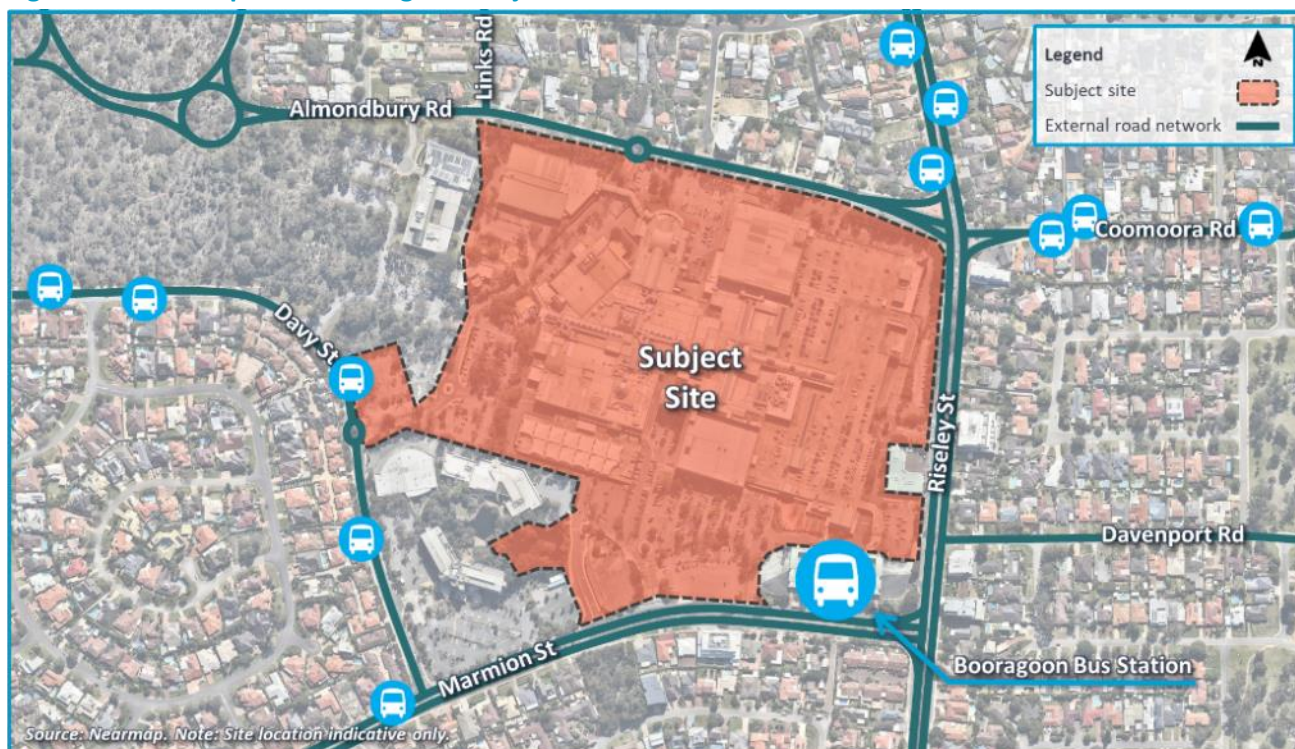
The subject site is serviced by several bus routes, all of which stop at the Booragoon Bus Station located at the southeast corner of the site. The information for these routes, obtained from Transperth, is summarised in Table 9. It should be noted that changes to some routes were implemented in late September 2020.

Table 9 Existing Bus Services – Booragoon Bus Station

Route	Description	Frequency
114	Elizabeth Quay to Munster via Riseley St, Booragoon Bus Station, Marmion St, Carrington St and Rockingham Rd	Weekday Peaks: 15 minutes Saturday Peak: 30 minutes Sunday Peak: 60 minutes
115	Elizabeth Quay to Hamilton Hill via Riseley St, Booragoon Bus Station, Jackson Ave, Somerville Blvd and Kardinya	Weekday Peaks: 15 minutes Saturday Peak: 30 minutes Sunday Peak: 30 minutes
160	Fremantle Station to East Perth via Booragoon Bus Station, Reynolds Rd, North Lake Rd and South St	Weekday Peaks: 15 minutes Saturday Peak: 60 minutes Sunday Peak: 60 minutes
500	Bull Creek Station to Booragoon Bus Station via Bateman Rd and Canning Ave	Weekday Peaks: 30 minutes Saturday Peak: 60 minutes Sunday Peak: 120 minutes
510	Murdoch Station to Booragoon Bus Station via Murdoch Dr and Riseley St	Weekday Peaks: 15 minutes Saturday Peak: 60 minutes Sunday Peak: 60 minutes
915	Bull Creek Station to Fremantle Station via Booragoon Bus Station	Weekday Peaks: 10 minutes Saturday Peak: 15 minutes Sunday Peak: 15 minutes

Bus stops located in the vicinity of the subject site are shown in Figure 17. It is noted that all of the bus stops indicated on Figure 17 are serviced by bus routes which stop at the Booragoon Bus Station.

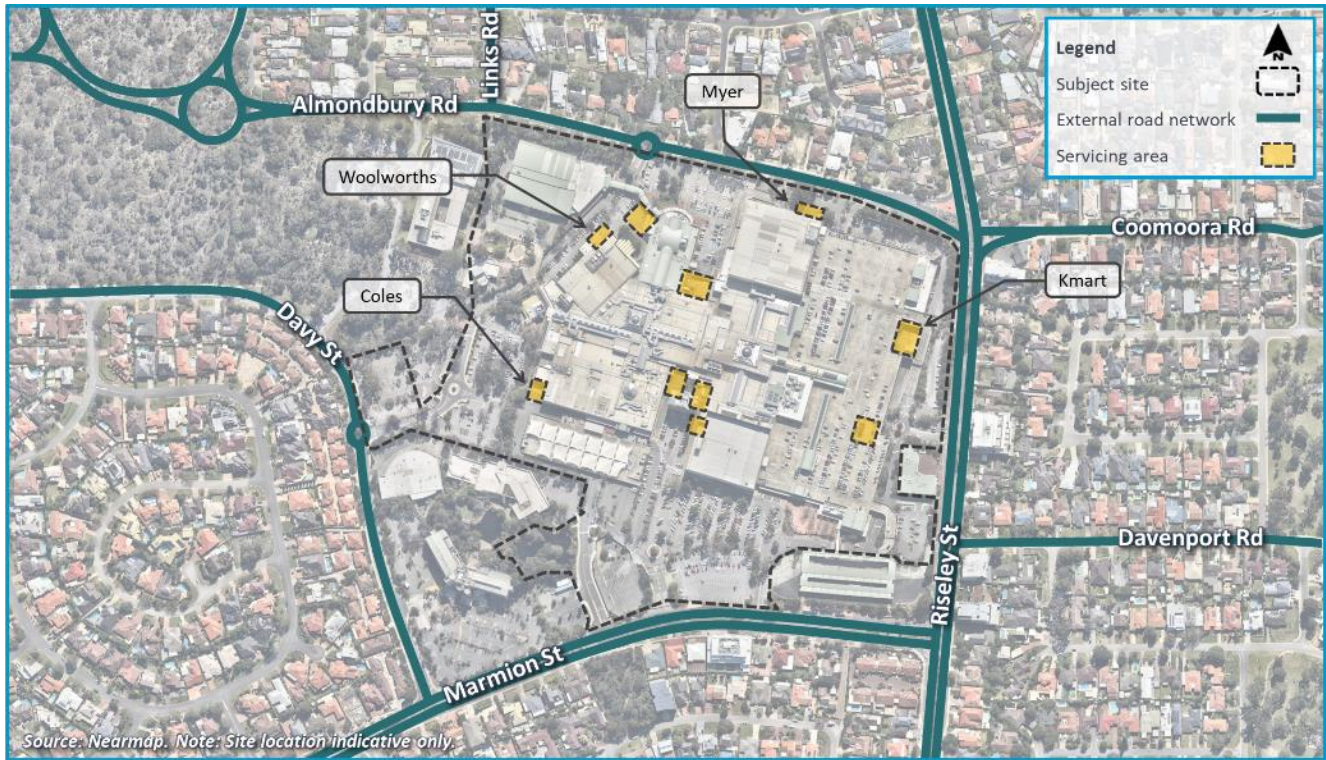
Figure 17 Bus Stops Surrounding the Subject Site



3.7 Existing Servicing Provisions

The existing Westfield Booragoon site incorporates several servicing areas located throughout the site, as shown in Figure 18.

Figure 18 Existing Servicing Areas



3.8 Committed Developments

From a review of publicly available information, there are no major approved developments within the immediate vicinity of the subject site.

4 Development Overview

4.1 Proposed Development

Based on the development plans prepared by Gensler, which are included at Appendix A, it is proposed to redevelop and expand the existing Westfield Booragoon over two stages. The land uses and associated yields, and quantum of car parking proposed as part of the redevelopment are described in Table 10.

Table 10 Development Summary

Stage	Land Use	Existing Yield	Proposed Yield	Incremental Change
Stage 1	Shopping centre	72,539sq.m NLA	103,090sq.m NLA	+30,551sq.m NLA
	Car Parking	4,250 spaces	4,263spaces	+13 spaces
Ultimate development (Stages 1 & 2)	Shopping centre	72,539sq.m NLA	117,388sq.m NLA	+44,849sq.m NLA
	Car Parking	4,250 spaces	4,424 spaces	+174 spaces

It is noted that the proposed development (i.e. total of Stages 1 and 2) represents a 9,503sq.m NLA reduction in proposed shopping centre floor area compared to the previous 2017 Approved Development (i.e. 126,891sq.m), which is a significant (8%) reduction in floor area from a traffic engineering perspective.

The proposed Stage 1 and Stage 2 development extents are indicated on Figure 19.

Figure 19 Stage 1 and 2 Development Areas



4.2 Site Access

The proposed site access arrangements for the vehicles are generally consistent with the 2017 Approved Development as illustrated on Figure 20 and summarised in Table 11.

Figure 20 Proposed Site Access Arrangements

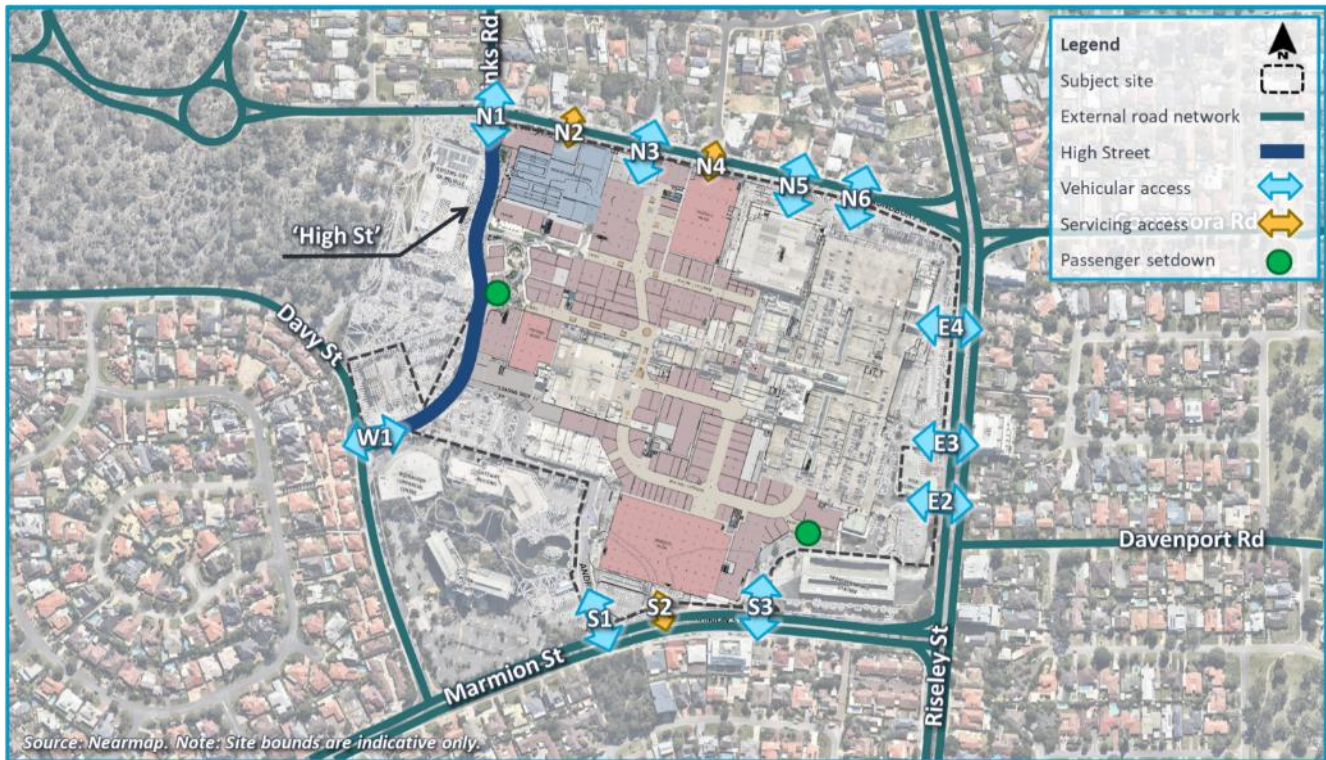


Table 11 Proposed Site Access Arrangements

Access Type	Access ID	Description	Consistent with 2017 Approved Development
General traffic	S1	All movements signalised intersection to Marmion Street.	✓
	S3	All movements signalised intersection to Marmion Street.	✓
	E2	Left in/left out only priority-controlled driveway to Riseley Street.	✓
	E3	All movements signalised intersection to Riseley Street.	✓
	E4	Left in/left out only priority-controlled driveway to Riseley Street.	✓
	N1	All movements roundabout to Almondbury Road.	✓
	N3	All movements roundabout to Almondbury Road.	✓
	N5	All movements roundabout to Almondbury Road.	✓
	N6	All movements roundabout to Almondbury Road.	✓
Servicing	W1	All movements roundabout to Davy Street.	✓
	S2	Left in/left out only priority-controlled driveway to Marmion Street.	✓
	N2	All movements priority-controlled driveway to Almondbury Road.	✓
	N4	All movements priority-controlled driveway to Almondbury Road.	NEW

The Stage 1 development vehicular access arrangements are generally consistent with the above, however, the following changes will be in place prior to the completion of the Stage 2 development:

- Access S2 to Marmion Street (i.e. service vehicles only) will be constructed as part of the Stage 2 development and hence will not be in place for the Stage 1 development;
- The previous Marmion Street/Andrea Lane priority-controlled intersection (note, this access was temporarily closed when the new signalised Marmion Street/Andrea Lane intersection was constructed approximately 50m to the west) will be reopened to left in/left out only movements to Marmion Street.

4.3 Car Parking

4.3.1 Overview

A summary of the car parking provision proposed across the site for each stage of the redevelopment is provided in Table 12.

Table 12 Development Car Parking Summary

Level	Stage		
	Existing (72,539sq.m NLA)	Stage 1 (103,090sq.m NLA)	Stage 2 (117,388sq.m NLA)
Car parking spaces	4,250 spaces	4,263 spaces	4,424 spaces
Parking Rate	5.86 spaces/100sq.m NLA	4.14 spaces/100sq.m NLA	3.77 spaces/100sq.m NLA

As illustrated in Table 12, the rate of car parking is proposed to be progressively reduced from the existing rate of 5.86 spaces per 100sq.m NLA to:

- 4.14 spaces per 100sq.m NLA for the Stage 1 development;
- 3.77 spaces per 100sq.m NLA for the Stage 2 development.

The above car parking rates also represent a substantial reduction compared with the 2017 Approved Development (i.e. 5,958 spaces for 126,891sq.m at a rate of 4.70 spaces per 100sq.m). Aside from the lower rate of car parking proposed, the proposed accessibility and distribution of car parking across the site is generally consistent with that of the 2017 Approved Development.

4.3.2 Stage 1 Car Parking Areas

The Stage 1 development will deliver the new northern basement and rooftop car parking levels (i.e. generally orientated towards Almondbury Street), however, will generally retain the existing at-grade car parking provision towards Marmion Street (albeit with modifications required to implement ticketless parking control) until the Stage 2 development is delivered.

The new and modified car parking areas proposed as part of the Stage 1 development are illustrated on Figure 21 and Figure 22.

Figure 21 New or Modified Basement and Ground Car Parking Areas (Stage 1)

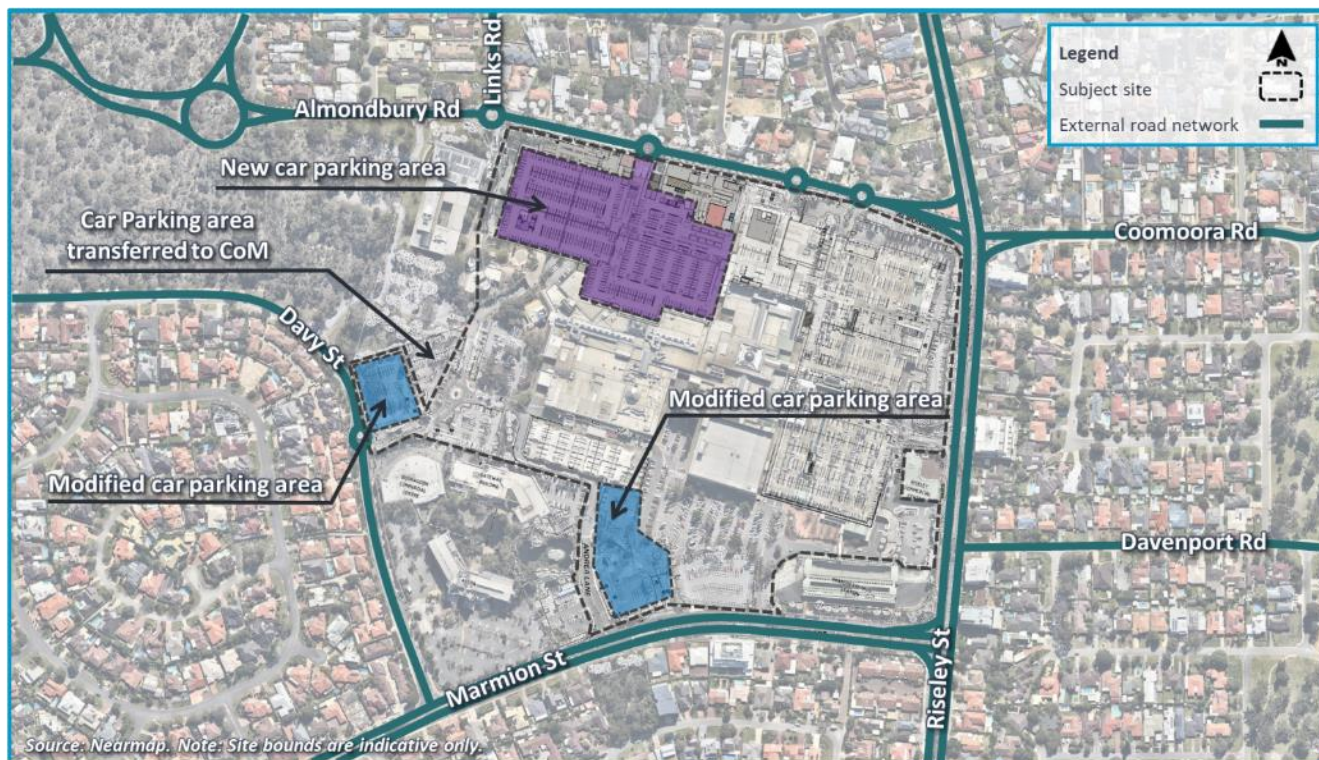
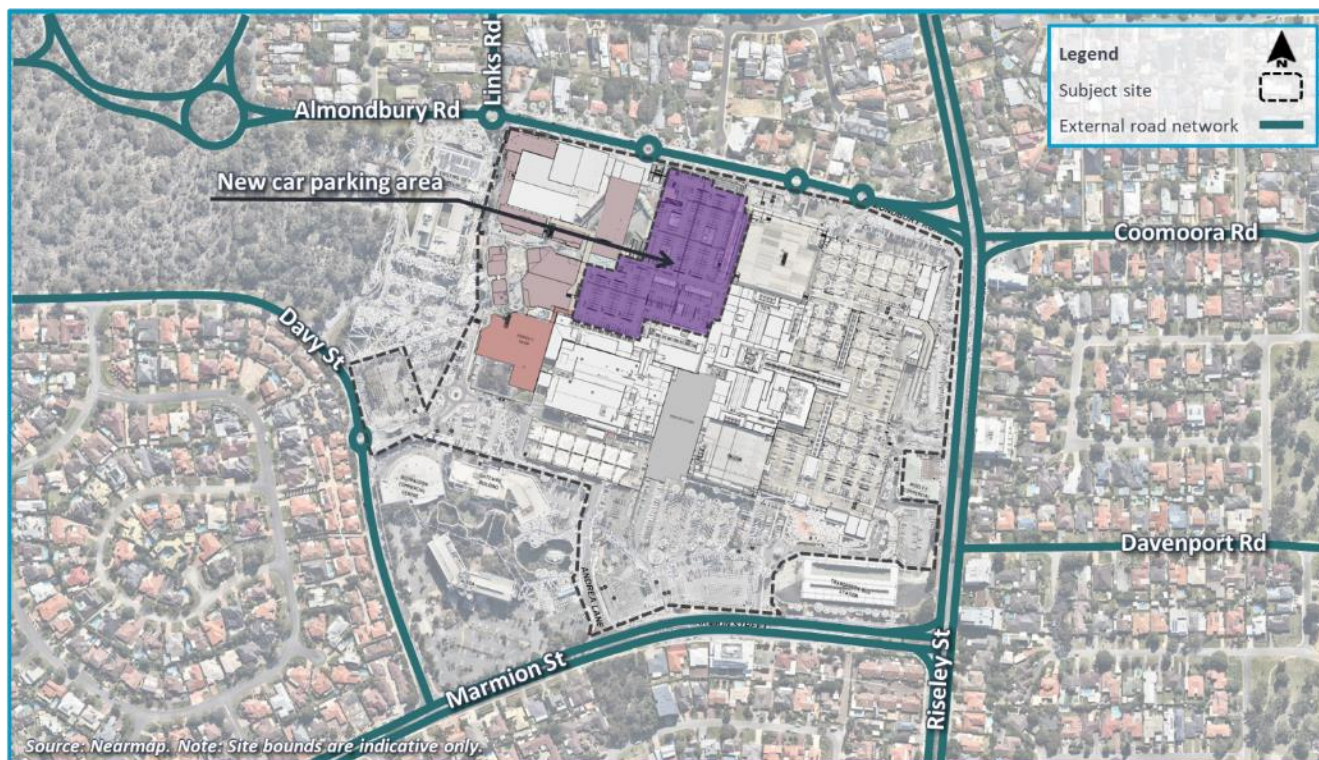


Figure 22 New Rooftop Car Parking Areas (Stage 1)



4.3.3 Stage 2 Car Parking Areas

The Stage 2 development will deliver the new southern basement and rooftop car parking areas as on Figure 23 and Figure 24.

Figure 23 New or Modified Basement and Ground Car Parking Areas (Stage 2)

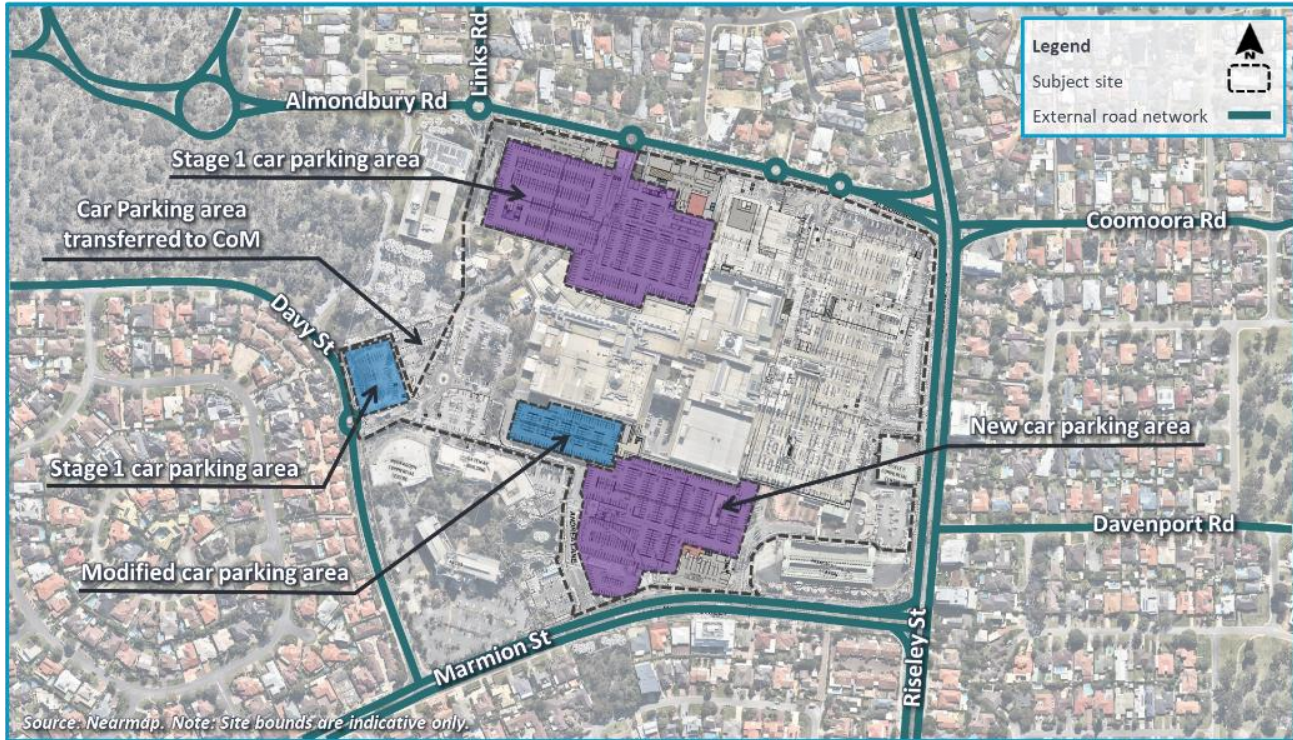
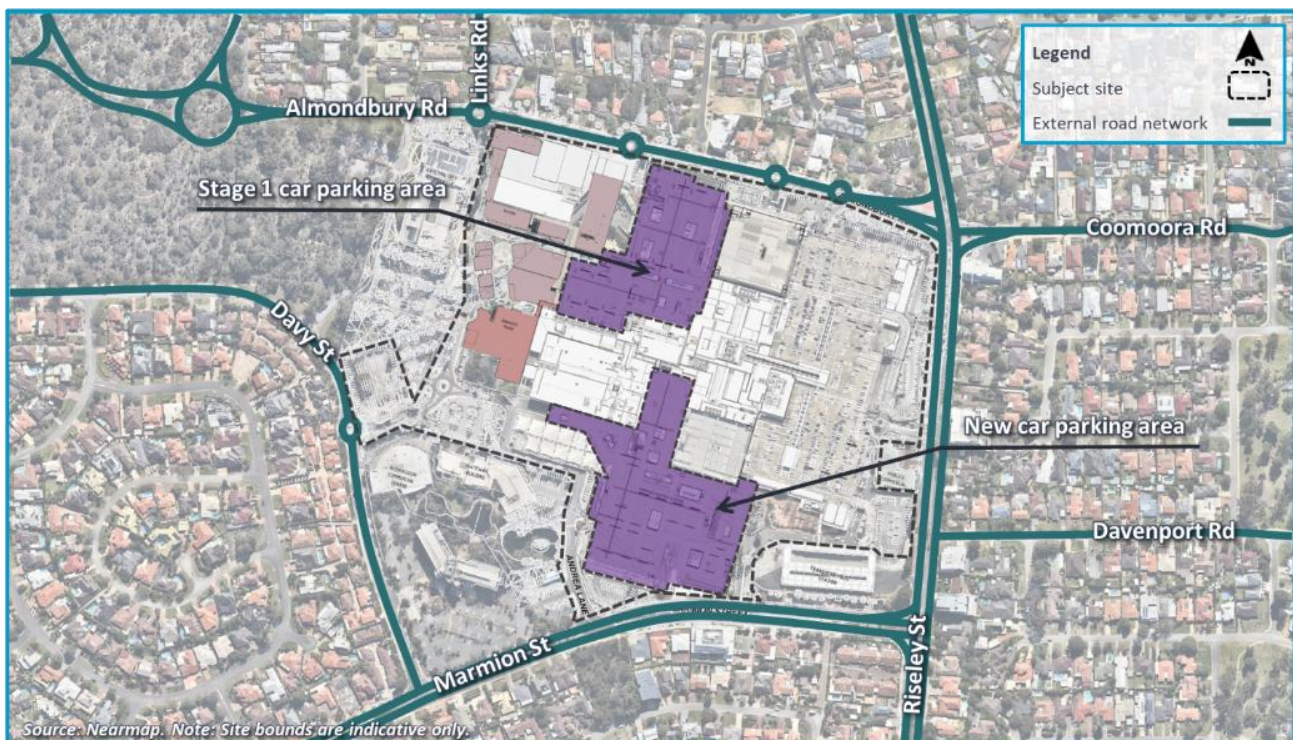


Figure 24 New Rooftop Car Parking Areas (Stage 2)



4.3.4 Ticketless Parking Control

As part of the development, all new car parking areas and the majority of existing car parking areas will be fitted with a ticketless car parking control system. Further details of ticketless parking control systems are provided in Section 5.6 herein.

4.4 New High Street

As illustrated on Figure 20, a new 'High Street' will be delivered as part of the proposed Stage 01 development in the northwest corner of the site, linking Almondbury Road (opposite Links Road) to the north with Davy Street to the southwest. From a transport perspective, the new High Street is described as follows:

- A 6.5m carriageway is proposed to support High Street being a low speed, low traffic volume environment for vehicles. A roundabout with Almondbury Road and Link Road at the northern end will reduce vehicle speeds and assist in integrating the High Street with the 'safe active street' along Link Road to the north;
- The High Street will provide a high quality environment for pedestrians, with generous pathways (generally 4m+ pathways on the eastern side between Almondbury Street and Andrea Lane) and abundant landscaping to provide shade and high amenity value;
- Formalised crossings will be provided at strategic midblock locations along the High Street to allow safe, defined crossing points for pedestrians between the Entertainment and Leisure Precinct (ELP) on the eastern side (i.e. within Westfield Booragoon) and the CoM Civic Centre on the western side. Pedestrian refuges will be integrated into the roundabout at the northern end of the High Street to accommodate safe pedestrian movements across the High Street, Almondbury Street and Link Road;
- Public bicycle parking spaces in the form of horizontal racks and/or rails will be provided in the vicinity of the pedestrian entrances to the ELP in order to encourage bicycle use by patrons of the ELP;
- The low speed, low traffic volume environment along the High Street will provide suitable conditions for cyclists to share the carriageway with vehicles. Less experienced/confident cyclists will be able to share pathways on the eastern side of the High Street with pedestrians;
- A passenger setdown area will be provided at the southern end of the ELP on the eastern side of the High Street to accommodate passenger drop-off and pick-ups by private vehicles, taxis, and rideshare;
- A loading zone (intended bays) will be provided at the northern end of the High Street on the eastern side to accommodate the loading demands of tenancies located within the vicinity of the ELP and High Street;
- It is understood that the High Street and roundabout at Almondbury Street have been designed by the project civil engineering consultants, BG&E, to accommodate potential future bus routes. This would enable existing bus routes to be re-routed through the High Street (i.e. to new on-road bus stops along the High Street), which would be desirable for patrons of the ELP, particularly on the weekends and weekday evenings when demand for the ELP for is anticipated to be highest.

4.5 Pedestrian Access

With the aim of improving safety and amenity to encourage more walking trips to the development, it is proposed to provide substantial improvements to existing pedestrian arrangements provided within and surrounding the site. The following is a summary of the improvements to the pedestrian network proposed as part of the development:

1. A new 2.5m shared path along the Almondbury Road and Marmion Street frontages of the site;
2. Pedestrian refuges provided across all unsignalised site accesses;
3. Pedestrian refuges provided on all approaches to the Almondbury Road/Link Road/High Street roundabout;
4. Improvements to the pedestrian arrangements on the Almondbury Road approach to the Riseley Street/Almondbury Road/Coomoora Road signalised intersection (i.e. signalised crossing and zebra crossing on slip lane);
5. New zebra crossing on the southern approach slip lane at the Riseley Street/site access signalised intersection;
6. Relocation of the existing zebra crossing on Almondbury Street to align with the new shopping centre entrance;
7. New high quality walking environment along the 'High Street', including zebra crossings between the CoM Civic Centre and Westfield Booragoon;
8. New pedestrian connections and crossings within car parking areas.

Reflective of the above, the proposed arrangements for pedestrians are indicated on Figure 25.

Figure 25 Proposed Pedestrian Arrangements



4.6 Bicycle Parking and End of Trip Facilities

To encourage bicycle trips by employees and visitors to the site, bicycle parking and End of Trip (EoT) facilities will be provided as part of the expansion. The bicycle parking and EoT provisions to be provided as part of each stage of the development are detailed in Table 13. The locations of bicycle parking and EoT facilities are indicatively shown on Figure 26.

Table 13 Proposed Bicycle Parking and EoT Facilities

Stage	Bicycle Parking	EoT Facilities
Stage 1 (~90% of Stage 2 NLA)	<ul style="list-style-type: none"> - 45 publicly accessible spaces for visitors; - 45 secure spaces for employees; - 90 spaces total 	<ul style="list-style-type: none"> - One locker per secure space (45 total); - 5 male and 5 female showers/change rooms; - 1 unisex accessible toilet.
Stage 2	<ul style="list-style-type: none"> - 50 publicly accessible spaces for visitors; - 50 secure spaces for employees; - 100 spaces total - <i>Potential expansion of bicycle parking if high utilisation observed.</i> 	<ul style="list-style-type: none"> - One locker per secure space (50 total); - 5 male and 5 female showers/change rooms; - 1 unisex accessible toilet.

Figure 26 Proposed Bicycle Parking and EoT Facilities



4.7 Servicing

A summary of the new servicing areas proposed as part of the development is provided in Table 14. The locations of the new servicing areas proposed to be provided as part of the Stage 1 and Stage 2 developments over basement and ground levels are presented on Figure 27 and Figure 28 respectively.

Table 14 Proposed Servicing Areas

Service Area	Level	Access	Main Tenants	Service Bays
1	Ground	High Street (on-street loading zone)	ELP	2 x HRV
2	Basement	Direct access off Almondbury Road	Cinema	5 x HRV 1 x MRV
3	Basement	Direct access off Almondbury Road	Woolworths	2 x AV 2 x HRV 3 x MRV
4	Ground	Entry via Davy Street and exit via Andrea Lane.	Coles, Aldi	2 x AV 4 x HRV
5 (Stage 2 only)	Basement	Direct access off Marmion Street	David Jones	4 x HRV 6 x MRV
6 (Stage 1 only)	Ground	Via left in/left site access to Marmion Street and internal roundabout	David Jones	2 x HRV 2 x HRV

Figure 27 Proposed Servicing Areas – Ground and Basement Levels (Stage 1)

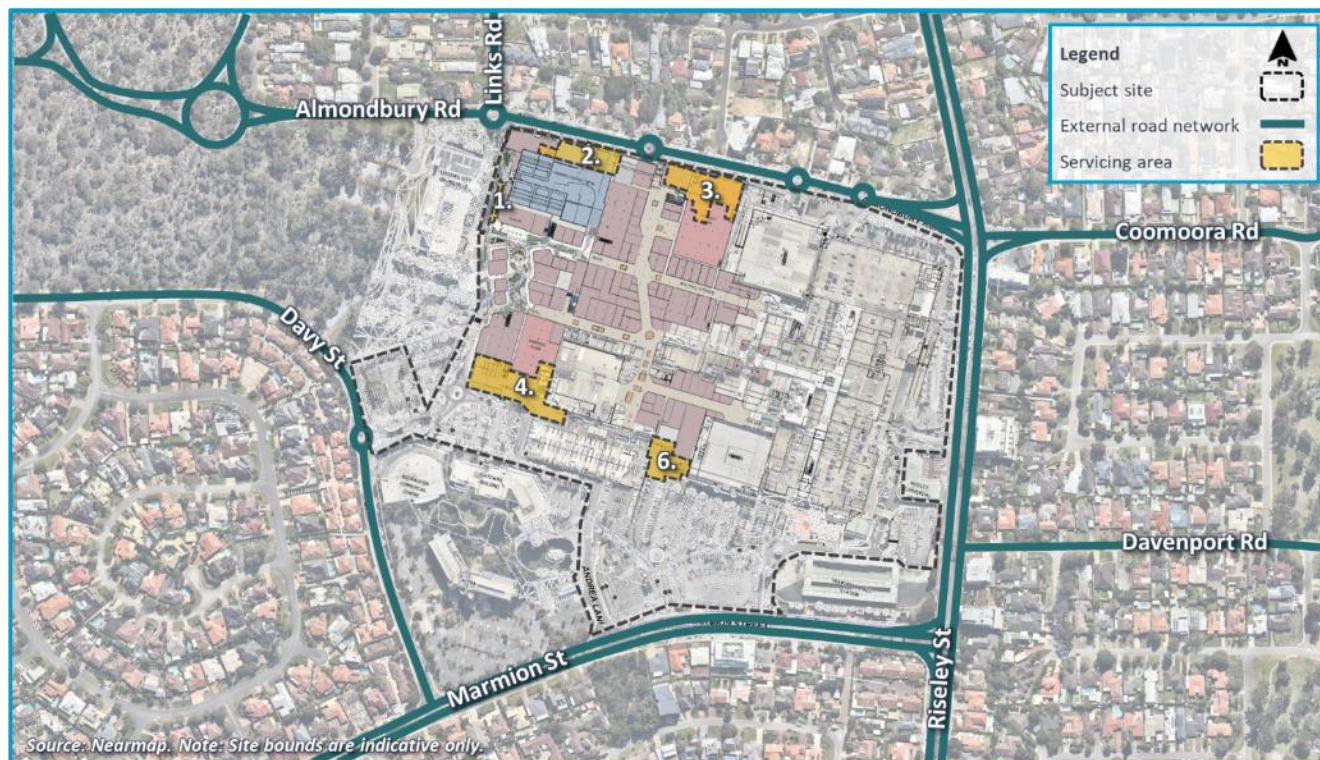
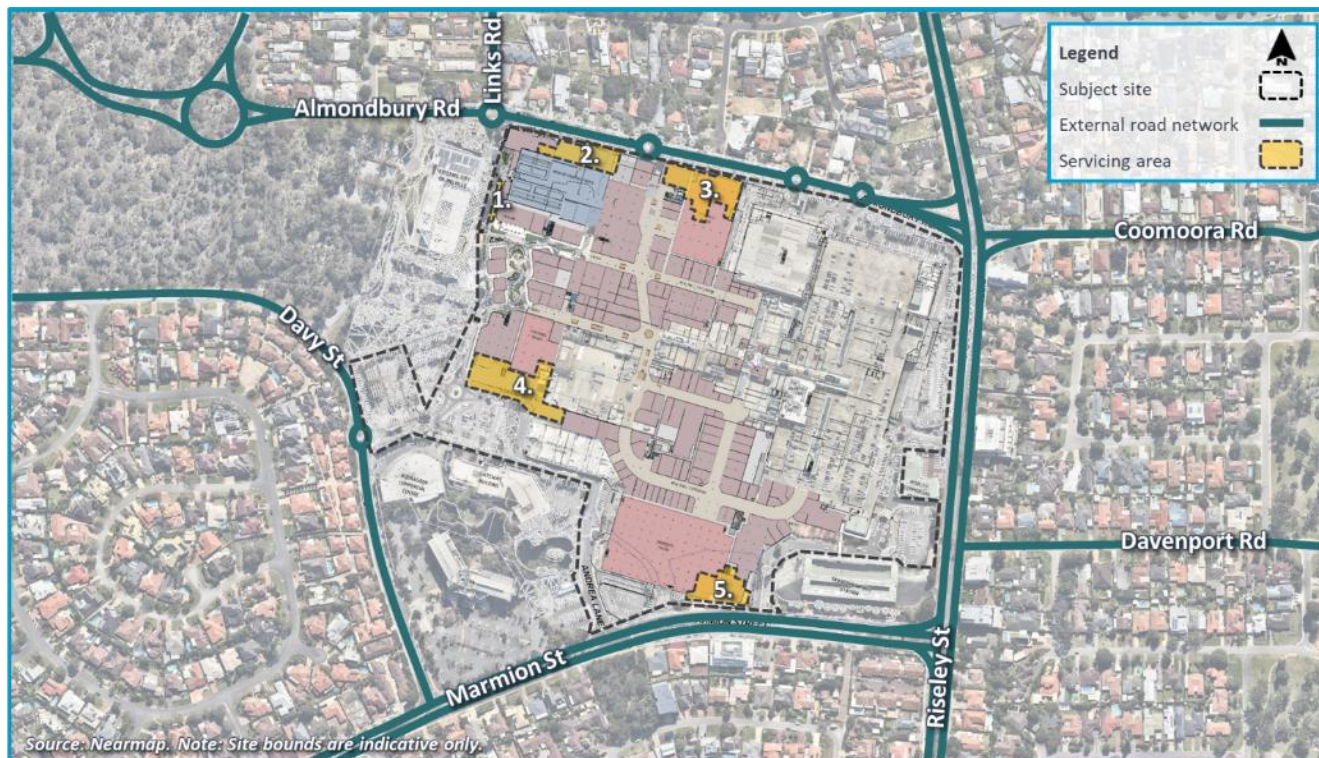


Figure 28 Proposed Servicing Areas – Ground and Basement Levels (Stage 2)



5 Car Parking Considerations

5.1 Structure Plan Recommendations

The car parking strategy detailed with the Structure Plan recommends the following rates of car and motorcycle parking retail developments within the Melville City Centre:

- Car parking to be provided at a maximum rate of 5 spaces per 100sq.m NLA;
- Motorcycle parking provision of 1% of total car parking spaces provided.

5.2 SPP4.2 Recommendations

Westfield Booragoon is defined as an Activity Centre (Secondary Centre) by SPP4.2. Accordingly, the car parking requirements of SPP4.2 are considered to be of direct relevance to the expansion of Westfield Booragoon.

SPP 4.2 states the following with respect to the provision of car parking for activity centres:

“As a guide, two bays per 100m² for showrooms and offices and 4-5 bays per 100m² for shops. Minimums may be required, however, there should be flexibility for developers to provide less or no parking on-site and contribute cash-in-lieu towards facilities and services for common-use parking, public transport and alternative modes.”

5.3 Proposed Car Parking Provision

As part of the Westfield Booragoon expansion, it is proposed to progressively reduce the rate of car parking provision across the site from the existing rate of 5.86 spaces per 100sq.m NLA (4,250 spaces total) to:

- 4.14 spaces per 100sq.m NLA (4,263 spaces total) for the Stage 1 development (inclusive of cinemas and commercial tenancies);
- 3.77 spaces per 100sq.m NLA (4,424 spaces total) for the Stage 2 development (inclusive of cinemas and commercial tenancies).

Excluding the cinemas and commercial tenancies (existing and proposed), the following car parking provision will be provided for the retail ('shop') component of the development:

- Stage 1 (94,956sq.m NLA) retail: 4.49 spaces per 100sq.m NLA;
- Stage 2 (109,375sq.m NLA) retail: 4.04 spaces per 100sq.m NLA.

The following is noted in relation to the proposed car parking rates:

- The proposed Stage 1 car parking provision is within the maximum of 5 spaces per 100sq.m recommended by the Structure Plan and also within the range of 4-5 spaces per 100sq.m recommended by SPP4.2;
- The proposed Stage 2 parking provision is also within the maximum of 5 spaces per 100sq.m recommended by the Structure Plan and marginally below the 4-5 spaces per 100sq.m recommended by SPP4.2;

- SLR notes that a car parking provision at the lower end of the SPP4.2 range will advance the transport related outcomes envisaged by SPP4.2 and the Structure Plan, particularly by reducing the developments reliance on private vehicles and encouraging a shift towards active and public transport modes;
- The proposed car parking rate of less than 4 spaces per 100sq.m is comparable to that recently conditioned for other Perth activity centres owned and operated by Scentre.

The proposed car parking rate will be supported by:

- The implementation of ticketless car parking control. The addition of ticketless parking control will ensure that the efficiency of existing and proposed car parking areas is maximised;
- As detailed herein, the development will provide a number of improvements to walking and cycling facilitate both internal and external to the site, encouraging travel to the site by active transport modes;
- Staff will be encouraged to use active transport modes by the provision of high quality EoT facilities as part of the redevelopment. Furthermore, a green travel plan will be prepared post development approval through the detailed design phase to encourage sustainable travel by employees.

Based on the above, the car parking provision proposed for the Stage 1 and 2 development is consistent with the Structure Plan and SPP4.2 recommendations with respect to car parking. The provision of a lower car parking rate coupled with the implementation of managed car parking facilities and improved active transport provisions is considered a highly desirable transport outcome, as it will reduce the reliance of the development on private vehicle travel, generating shifts to other sustainable modes of travel including active and public transport.

5.4 PWD Car Parking Provision

The Building Code of Australia ('BCA') stipulates the Persons with a Disability ('PWD') car parking requirements for a building based on the class. All uses proposed as part of the development are categorised as Class 6 buildings by the BCA, and as such, require one PWD space for every 50 car parking spaces or part thereof (for up to 1,000 parking spaces).

Reflective of the above, the following PWD car parking provision should be provision as part of each stage of the development:

- Stage 1 (4,263 spaces total): A minimum of 86 PWD spaces should be provided;
- Stage 2 (4,424 spaces total): A minimum of 89 PWD spaces should be provided.

5.5 Motorcycle Parking

Based on the Structure Plan recommendations with respect to motorcycle parking (i.e. 1% of the total parking supply), the following provisions are recommended to be provided as part of each stage of the development:

- Stage 1 (4,263 spaces total): 43 motorcycle parking spaces should be provided;
- Stage 2 (4,424 spaces total): 45 motorcycle parking spaces should be provided.

5.6 Ticketless Parking Control

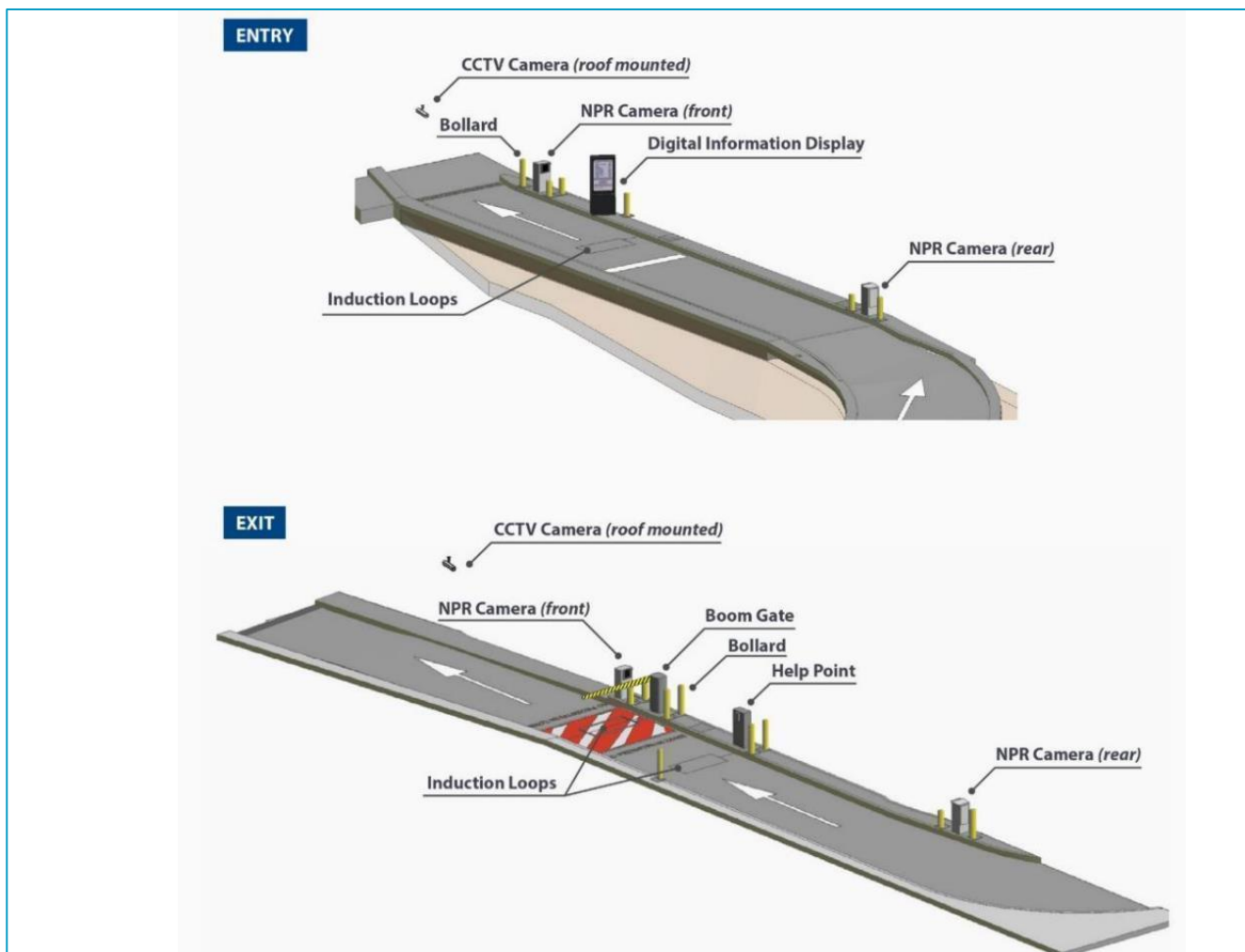
A conceptual ticketless car parking control arrangement is shown on the development plans included at Appendix A. Ticketless car parking control systems use Number Plate Recognition ('NPR') technology to create 'virtual' tickets to manage customer and staff duration of stay.

The operation of the system on entry and exit is as follows:

- **On entry:** NPR ticketless parking control scans an entering vehicle's registration plate while the vehicle is in motion, therefore significantly increasing vehicle throughput and reducing congestion at vehicular access points. It is noted that ticketless entry lanes are effectively 'freeflow' conditions, with no boomgate restricting vehicles entering a car parking area (note, see commentary on 'reverse logic' gates below);
- **On exit:** NPR ticketless parking control incorporates a boom gate which lifts for the majority of site users as a vehicle approaches such that only users of the car park that have stayed beyond the defined free period are required to make payment.

The typical components and layout of a ticketless car parking control are indicated on Figure 29, noting that a ticketless access arrangements for a car parking area would typically provide one entry lane and two exit lanes.

Figure 29 Typical Ticketless Parking Control System Layout



It is noted that on occasion, 'reverse logic' boomgates may also be installed on entry lanes. These boomgates remain in the open position during normal operation, only closing (triggered by an induction loop) when a vehicle attempts to exit the car park through an entry lane (i.e. in the reverse direction) to avoid payment. The inclusion of reverse logic boomgates is based on a site-specific assessment of the potential for errant driver behaviour and the risks associated with such behaviour.

6 Bicycle Parking Considerations

6.1 Bicycle Parking Rate Guidance

The following is noted in relation to the bicycle parking provision for the development:

- LPP 1.6 indicates a bicycle parking requirement of two spaces per 10 car parking bays (i.e. 20%) for 'shop'. For the 4,424 car parking spaces proposed as part of the Stage 2 development, this would entail provision of 885 bicycle parking spaces;
- SPP 4.2 outlines a bicycle parking provision accounting for 5-10% of the total car parking supply. For the Stage 2 development, between 222 and 443 bicycle parking spaces would be required applying the SPP 4.2 rates;
- The 2017 Approved Development was conditioned to provide bicycle parking at rate of 0.28 spaces per 100sq.m NLA (i.e. combined rate for employee visitor parking). The application of this rate to the proposed expansion would equate to 329 spaces for the Stage 2 development.

6.2 Bicycle Parking Use at Major Shopping Centres

SLR notes that whilst bicycle parking is typically well utilised for commercial uses in CBD locations, bicycle parking for major shopping centres in suburban locations is often not well utilised. There are several possible reasons for this including:

- Retail customers at larger shopping centres will typically visit multiple stores, purchasing multiple products. Commuting home from the shopping centre with multiple purchases on a bicycle is often not practical;
- Employees may work shift work (i.e. finishing in dark conditions) or live outside a reasonable cycling catchment of the site.

Scentre operates over 30 major shopping centres across Australia and has advised that bicycle parking and EoT facilities across their portfolio are predominantly underutilised. This includes recently expanded centres with high quality publicly accessible and secure bicycle parking and EoT facilities, irrespective of the surrounding development, density, population demographics and transport network facilities.

As an example, Scentre has provided bicycle parking and utilisation data for Westfield Carousel, located in Cannington. An expansion of Westfield Carousel was completed in 2018 (total floor area ~109,000sq.m NLA) of a similar scale to that proposed. As part of the expansion, the following secure bicycle parking and EoT facilities were provided at Westfield Carousel:

- 20 secure spaces (i.e. 0.02 spaces per 100sq.m NLA);
- EoT facility with:
 - One locker per secure space (20 total);
 - 1 male and 1 female shower/change room;
 - 1 unisex accessible toilet.

Scentre have monitored utilisation of the bicycle parking and EoT facilities and have advised that only of the five of the 20 secure spaces (i.e. 25%) are consistently utilised.

6.3 Proposed Bicycle Parking Provision

Whilst it is highly desirable for visitors and employees to access the development via bicycle for sustainability reasons, based on the demands observed by Scentre at comparable shopping centres, the provision of bicycle parking at any of the rates detailed in Section 6.1 is likely to result in high degree of underutilisation of bicycle parking. It is also noted that the bicycle parking provisions discussed in Section 6.1 would take up a substantial quantum of floor area which could otherwise be used for productive purposes (i.e. secure spaces) or public realm (i.e. visitor spaces).

Notwithstanding the above, it is recommended that the development should provide some high quality bicycle parking and EoT facilities in order to make cycling an attractive transport mode choice. The key opportunities with the proposed expansion would be to attract trips by employees, and trips by visitors to the ELP (i.e. where visitors are likely to consume goods/service on-site and are unlikely to need to transport bulky items home).

Based on the above, it is proposed to initially provide 90 bicycle parking spaces (50% publicly accessible, 50% secure) as part of the Stage 1 development, which equates to 2.1% of the proposed Stage 1 car parking provision ($90/4,263 \times 100 = 2.1\%$). It is then proposed to deliver a further 10 spaces as part of the Stage 2 development commensurate with the increase in NLA (i.e. $\sim 10\%$). This would provide a total of 100 bicycle parking spaces for the Stage 2 development, which equates to 2.3% of the proposed Stage 2 car parking provision ($100/4,424 \times 100 = 2.3\%$).

As a sense check, SLR reviewed ABS Journey to Work (JTW) data from the 2016 Census to determine the existing local bicycle mode share for the entire Melville Statistical Area level 2 (SA2). The JTW data indicates an existing 'active transport' mode share of 2.4%, incorporating both walking and cycling (i.e. cycling makes up a proportion of the existing 2.4% active transport mode share). On this basis, a proposed bicycle parking equalling 2.3% of the total car parking provision proposed for the Stage 2 development, which is approximately equal to the existing Melville SA2 transport mode share for both walking and cycling, would require an increase in bicycle use across the Melville SA2 to ensure that all bicycle parking spaces are fully utilised. It is therefore considered that the proposed bicycle parking provision would encourage a reasonable and achievable mode share shift from private vehicles to bicycles.

Reflective of the above commentary, the proposed bicycle parking and EoT facility provision proposed for the development is detailed in Table 15.

Table 15 Proposed Bicycle Parking and EoT Facilities

Stage	Bicycle Parking	EoT Facilities
Stage 1 (~90% of Stage 2 NLA)	<ul style="list-style-type: none"> - 45 publicly accessible spaces for visitors; - 45 secure spaces for employees; - 90 spaces total 	<ul style="list-style-type: none"> - One locker per secure space (45 total); - 5 male and 5 female showers/change rooms; - 1 unisex accessible toilet.
Stage 2	<ul style="list-style-type: none"> - 50 publicly accessible spaces for visitors; - 50 secure spaces for employees; - 100 spaces total - <i>Potential expansion of bicycle parking if high utilisation observed.</i> 	<ul style="list-style-type: none"> - One locker per secure space (50 total); - 5 male and 5 female showers/change rooms; - 1 unisex accessible toilet.

6.4 Supporting Measures

To support the proposed bicycle parking and EoT facility provision, the following additional measures are recommended to be implemented as part of the development:

- It is recommended that a Green Travel Plan or similar be prepared post-approval but prior to construction of the Stage 1 development to provide further details of how visitors and employees could be encouraged to cycle to the development;
- Utilisation of the Stage 1 bicycle parking provision should be monitored. This could include periodic surveys of parking usage and questionnaires for employees and visitors;
- Should the utilisation of the Stage 1 bicycle parking be observed to be high (e.g. >80%), consideration to provision of additional bicycle parking as part of the Stage 2 development should be made. Such a trigger for monitoring, reporting and upgrading could form part of the Green Travel Plan. A review of the development plans indicate that additional bicycle parking spaces could readily be provided if required (i.e. secure parking facility could readily be expanded into the adjoining basement car parking area, additional visitor spaces could be provided adjacent to entrances).

7 Design Considerations

7.1 Overview

A review of the proposed site layout was undertaken against the following relevant documents:

- CoM *Car Parking and Access - Local Planning Policy LPP 1.6* ('LPP 1.6');
- Australian Standard for Parking Facilities *Part 1: Off-street car parking* ('AS2890.1');
- Australian Standard for Parking Facilities *Part 2: Off-street commercial vehicle facilities* ('AS2890.2');
- Australian Standards for Parking Facilities *Part 6: Off-street parking for people with disabilities* ('AS2890.6').

Each aspect of the review is discussed in detail below.

7.2 Access

All new driveway accesses have been designed by Gensler in conjunction with SLR based on the swept path requirements of the relevant design vehicles. A detailed assessment of the access geometry has not been undertaken, however, at a high level, the following is noted in relation to the proposed site accesses:

- Driveway crossovers have been designed to accommodate the swept paths of the largest intended design vehicles. A swept path assessment demonstrating appropriate manoeuvring for design vehicles is provided at Appendix C;
- All proposed accesses provide the sight splays required for pedestrian safety as per *Figure 3.3* (Minimum sight lines for pedestrian safety) of AS2890.1;
- The proposed new driveway crossovers provide sightlines that are consistent with AS2890.1 and AS2890.2 requirements and generally provide adequate separation from neighbouring properties, adjacent crossovers and intersections;
- Grades for driveway crossovers will be provided in accordance with the relevant requirements of AS2890.1 and AS2890.2.

Based on the above, the development satisfies the relevant requirements of the AS2890 with regard to access.

7.3 Car Parking and Circulation

The design of the proposed car parking and circulation areas have been assessed against the requirements of AS2890.1. The results of the assessment are summarised in Table 16.

Table 16 Car Parking Layout Design Compliance

Element	Proposed Design	AS2890.1 Compliant
90° car parking space dimensions (User Class 3A)	2.7m x 5.4m with 6.2m aisle; or 2.6m x 5.4m with 6.6m aisle.	✓
Parallel car parking space dimensions (User Class 3A)	6.3m+	✓
Parking aisle (User Class 3A) and circulating roadway width	Minimum 6.5m	✓
Car park clearance envelope	As per Figure 5.2 of AS2890.1	✓
Height clearance	2.2m+	✓

As demonstrated in Table 16, all assessed car park elements comply with the relevant requirements of AS2890.1. Swept paths have been prepared and are included at Appendix C, demonstrating appropriate circulation for a B99 design vehicle.

Linemarking is shown on the development plans to clearly delineate traffic circulation and priority within car parking areas. Appropriate pedestrian pathways and crossings are provided throughout car parking areas, prioritising pedestrian movements to key building access locations.

The development is required to provide up to 85 PWD car parking spaces throughout the various stages. The dimensions of the proposed spaces satisfy the requirements of AS2890.6 (2.4m x 5.4m parking space plus 2.4m x 5.4m shared space with 2.5m headroom) and are therefore considered to be appropriate.

A high level review of the proposed site grading indicates that all new ramps proposed across the site can readily be provided in accordance with the requirements of *Clause 2.5.3* (Circulation roadway and ramp grades) of AS2890.1.

Based on the above, it is anticipated that the car parking and circulation design proposed for the development could be conditioned to satisfy the relevant requirements of AS2890.1.

7.4 Servicing

The proposed design of servicing arrangements was reviewed against the requirements of AS2890.2. Swept path assessments have been prepared for the anticipated design vehicles and are included at Appendix C. The swept path assessments show that all design vehicles are able to manoeuvre within the site maintaining the minimum clearance required by the AS2890.2 (i.e. 300mm on both sides of the vehicle for low speed manoeuvres).

All loading bays meet the minimum dimensions and height clearance (i.e. 4.5m+ height clearance over the proposed loading bays) required by *Table 4.1* (Service bay dimensions) of AS2890.2 for the respective design vehicles. All service design vehicles are able to enter and exit the site in a forward direction.

A detailed review of the proposed site grading has not been undertaken; however, it is understood that grades of manoeuvring and loading areas, including ramps to loading areas, have been designed in accordance with AS2890.2.

Based on the above, the proposed development satisfies the requirements AS2890.2 with respect to provision of service vehicle loading and manoeuvring areas.

8 Assessed Traffic Demands

8.1 Overview

As discussed in Section 4.1 herein, the proposed expansion of Westfield Booragoon represents an 18,702sq.m NLA reduction in proposed floor area compared with the previous 2017 Approved Development (i.e. 126,891sq.m). Commensurate to the significant reduction in floor area, the level of traffic demand generated by the proposed expansion is anticipated to reduce substantially from that previously considered in the Aurecon Transport Assessment conducted for the 2017 Approved Development.

If the 2017 Approved Development access and intersection upgrading works were to be implemented for the proposed development, it is reasonable that no operational analysis would be required on the basis that the proposed development is substantially smaller in size and hence would have a proportionally lesser impact on the operation of the surrounding road network compared with the 2017 Approved Development.

Notwithstanding, as highlighted in Section 2.4 herein, a number of 2017 Approved Development intersection upgrading works have already been constructed (i.e. with no construction of additional floor area associated with the 2017 Approved Development constructed), and the progression of the detailed design process has indicated that a number of the conditioned upgrades are either not supported by MRWA, or by CoM given they have undesirable impacts (e.g. removal of significant vegetation).

Given the proposed to modification of a number of the intersection upgrades that were proposed as part of the 2017 Approved Development, some sort of comparative operational assessment would typically be expected. It is, however, noted that at the time this assessment was undertaken, the COVID-19 pandemic was in effect. Of note from a transport perspective, public health directions and restrictions were in place, which heavily impacted on typical travel behaviours and demands, particularly with a significant number of people working from home (i.e. not or commuting to their workplace) and avoiding public areas where possible (i.e. such as shopping centres). Reflective of the above, collection of new traffic survey data to ascertain the existing background traffic demands of the subject site and surrounding road network during the COVID-19 pandemic is unlikely to produce reliable traffic data, and therefore no new traffic surveys of the intersections fronting the site have been undertaken (Note, traffic surveys of peripheral intersections have been undertaken at the request of MRWA. These are discussed in Section 10.1 of this report)

Reflective of the above, the following process has been undertaken in order to establish the 'Background' and 'With Development' traffic demands in order to assess the effectiveness of the proposed modified access and intersection upgrades:

- A review of the traffic demands modelled for the 2017 Approved Development in the Aurecon Transport Assessment for the 'Background' and 'With Development' scenarios for the 2021 and 2031 design years was undertaken;
- Traffic volume data (extracted from in-ground signal loops) was obtained from MRWA's publicly available 'Trafficmap' resource for pre-COVID dates (February 2020) to compare and 'validate' against the Aurecon Transport Assessment modelled '2021 Background' traffic demands. The rationale of this step was to ensure that conservative background traffic demands were adopted to assess the effectiveness of the proposed access and intersection upgrades;
- As detailed in Section 8.2.1, the Aurecon modelled '2021 Background' traffic demands were found to be substantially higher than that indicated by the 2020 signal loop volumes. Therefore, the Aurecon Transport Assessment volumes reported for the 'Background' traffic scenarios have been adopted as part of this assessment;

- The incremental traffic demand for the proposed expansion was estimated based on the decay forecasting method for large retail establishments including shopping centres and compared to that previously adopted in the Aurecon Transport Assessment;
- The external traffic distribution adopted in the Aurecon Transport Assessment was reviewed and subsequently utilised to distribute the adopted expansion traffic demand to the external network;
- A desktop traffic model was prepared that included the 'Background' and 'With Development' scenarios for the 2021 and 2031 design years for input to SIDRA Intersection in order to assess the effectiveness of the proposed modified access and intersection upgrades.

Reflective of the above commentary, the adopted assessment traffic volumes are included at Appendix D. Further detail in Relation to each step of the above process is provided in the subsequent sections of this report.

8.2 Background Traffic Demands

8.2.1 Validation of Background Traffic Demands

SLR has sought to validate the use of the Aurecon modelled 'Background' traffic demands as part of this assessment. Traffic count data was obtained from MRWA's publicly available 'Trafficmap' resource (available at: trafficmap.mainroads.wa.gov.au/map) to compare against and assist in the validation of the Aurecon background traffic demands. The traffic count data available at this resource is recorded by MRWA through the in-ground signal loop detectors installed at signalised intersections. Signal loop detector traffic count data was obtained for the following intersections in the immediate vicinity of the site:

- Marmion Street/Davy Street (X1);
- Riseley Street/Marmion Street (X2);
- Riseley Street/Almondbury Road/Coomoora Road (X3).

These three intersections are located along the major frontage roads and are navigated by the majority of the traffic arriving to the site or passing through the road network in the immediate vicinity of the site. Therefore, these intersections are considered to be suitable for comparison against the Aurecon modelled background traffic demands for validation purposes.

The signal loop detector traffic count data (2020 Signal Loop Volumes) obtained was for Monday 17 February to Sunday 23 February 2020 and was analysed to result in the following peak hour periods:

- Thursday PM peak hour: 4:15pm – 5:15pm, 20 February 2020;
- Saturday midday peak hour: 11:45am – 12:45pm, 22 February 2020.

SLR has compared the 2020 Signal Loop Volumes to the Aurecon modelled 2021 background traffic demands (2021 Aurecon Modelled Volumes), with results presented in Figure 30, Figure 31 and Figure 32 respectively for intersections X1, X2 and X3.

Figure 30 2021 Aurecon Modelled vs 2020 Signal Loop Volumes – Marmion Street/Davy Street (X1)

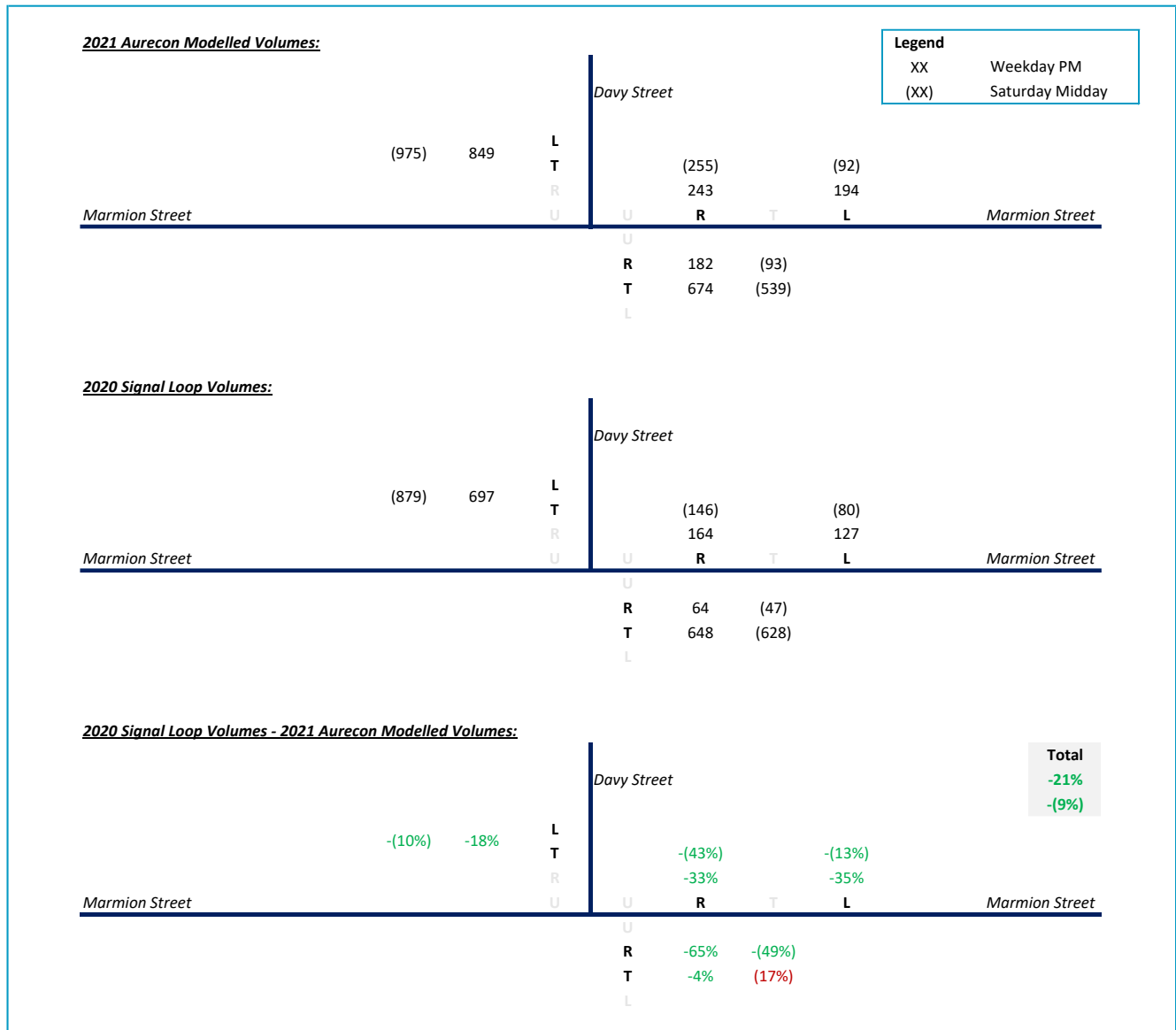


Figure 30 indicates that the 2020 Signal Loop Volumes were 21% and 9% lower than the 2021 Aurecon Modelled Volumes for the weekday PM and Saturday midday peak periods respectively.

Figure 31 2021 Aurecon Modelled vs 2020 Signal Loop Volumes – Riseley Street/Marmion Street (X2)

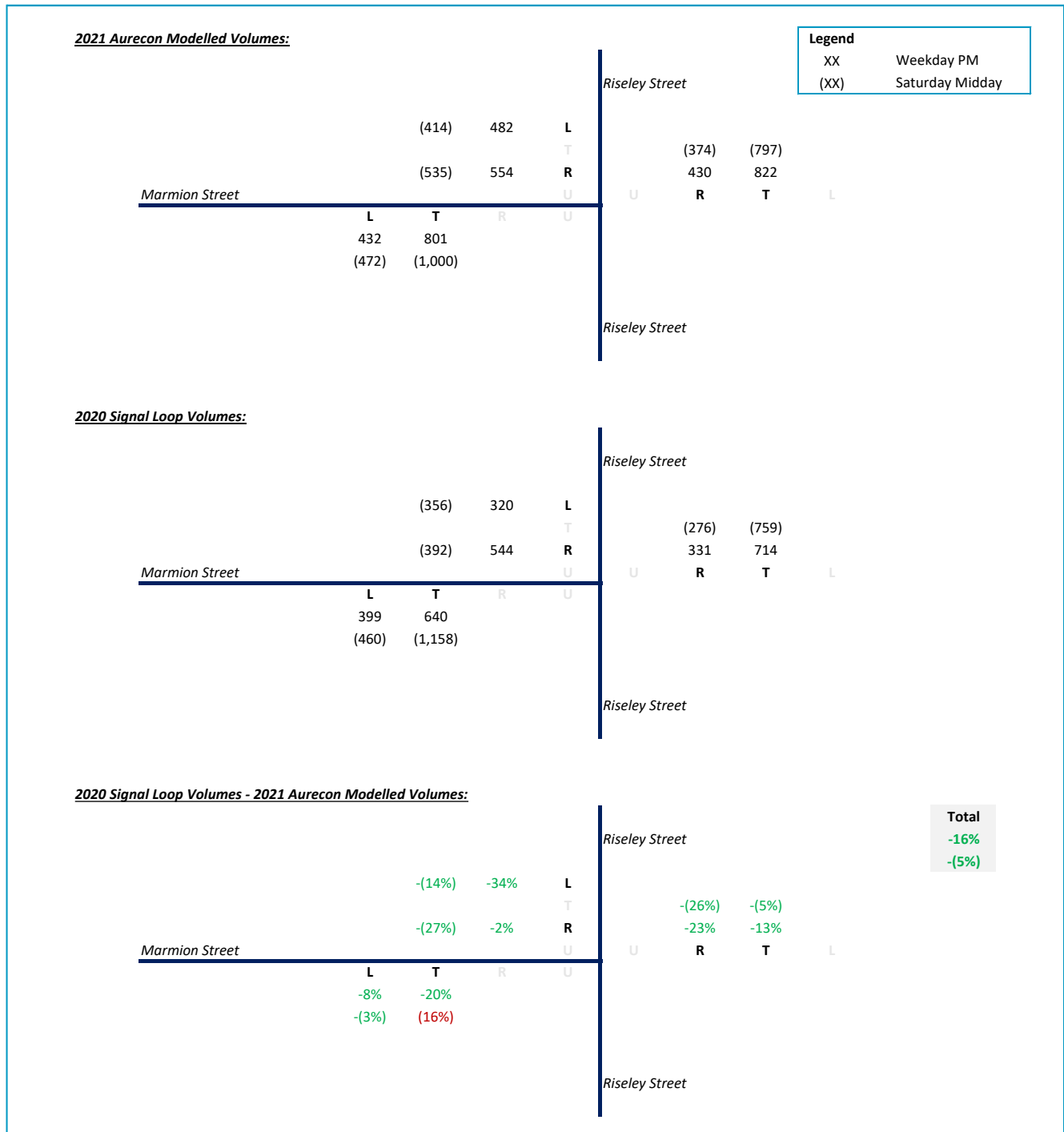


Figure 31 indicates that the 2020 Signal Loop Volumes were 16% and 5% lower than the 2021 Aurecon Modelled Volumes for the weekday PM and Saturday midday peak periods respectively.

Figure 32 2021 Aurecon Modelled vs 2020 Signal Loop Volumes – Riseley Street/Almondbury Road (X3)

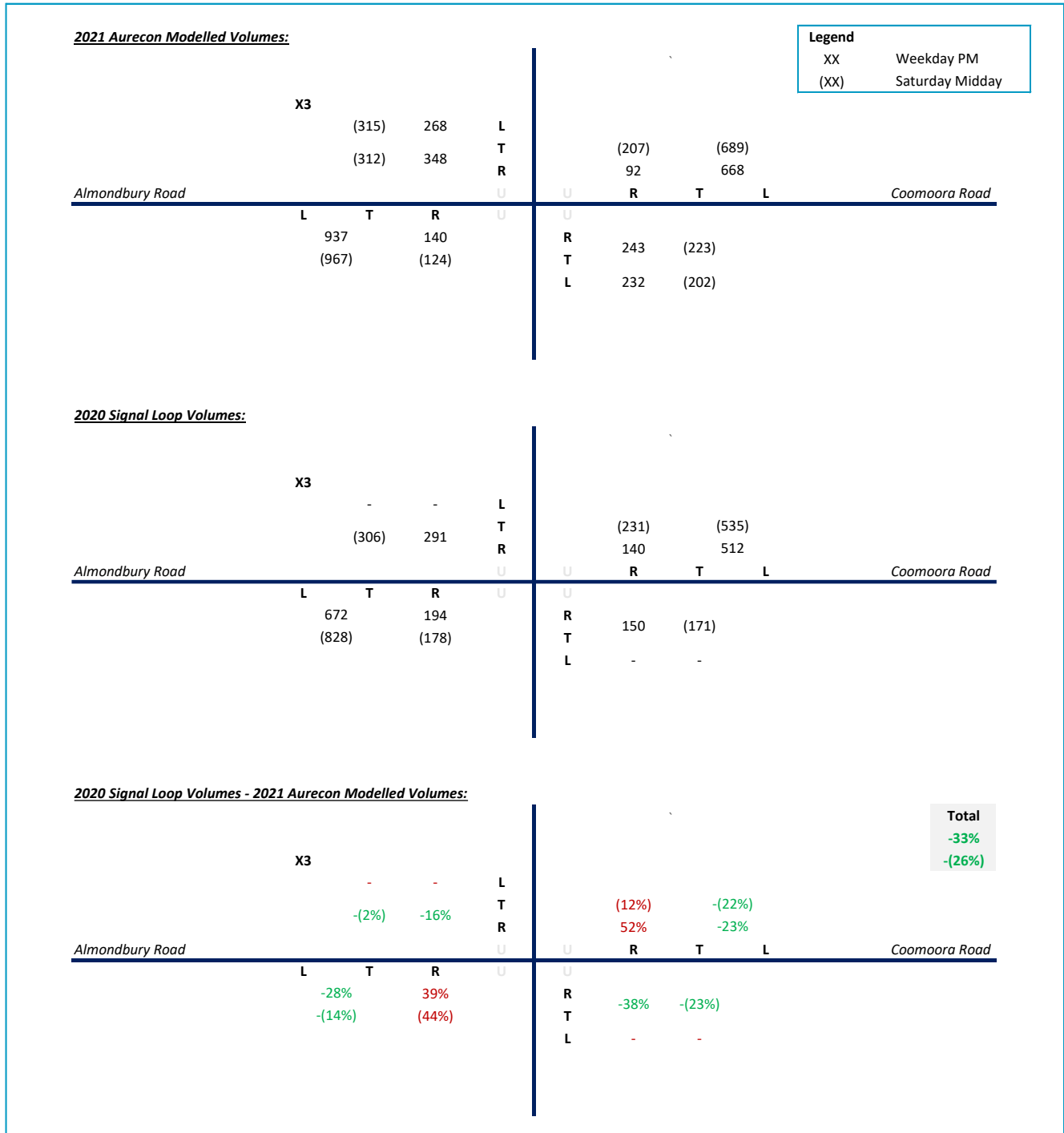


Figure 32 indicates that the 2020 Signal Loop Volumes were 33% and 26% lower than the 2021 Aurecon Modelled Volumes for the weekday PM and Saturday midday peak periods respectively.

Given that the 2021 Aurecon Modelled Volumes were consistently and substantially higher (5-33%) than the 2020 Signal Loop Volumes, these conservative traffic volumes have been adopted by SLR to use as the 'Background' traffic demands for the operational assessment documented herein.

8.2.2 Adopted Background Traffic Demands

SLR has adopted the 'Background' traffic demands as reported for the 2021 and 2031 design years in the Aurecon Transport Assessment for the 2017 Approved Development ('Aurecon Modelled Volumes').

The following is a summary of the methodology employed by Aurecon developing the Aurecon Modelled Volumes:

- Traffic volumes were collected via surveys for major intersections within the modelled area surrounding the subject site, resulting in the following peak hour periods being identified for the weekday PM and Saturday midday peak periods:
 - Weekday PM (surveyed Thursday 28 May 2015): 4:30pm - 5:30pm;
 - Saturday Midday (surveyed Saturday 16 March 2013): 11:30am - 12:30pm.
- A calibrated base model (AIMSUN hybrid mesoscopic/microsimulation model) was prepared using the surveyed traffic demands. The calibrated based model was then used to create 2021 and 2031 base models, with the respective model demand matrices modified based on outputs of the MRWA Regional Operations Model (ROM) (i.e. to determine growth of background traffic volumes between the various scenarios).

8.3 Expansion Traffic Demands

8.3.1 Review of 2017 Approved Development Traffic Demands

The traffic demands derived for the 2017 Approved Development are summarised in Table 17.

Table 17 Development Traffic Demands – 2017 Approved Development

Design Year	Weekday AM		Weekday PM		Saturday Midday	
	Trip Rate (vph/100sq.m NLA)	Trips (vph)	Trip Rate (vph/100sq.m NLA)	Trips (vph)	Trip Rate (vph/100sq.m NLA)	Trips (vph)
2021	2.30	2,373	5.56	5,619	6.49	6,564
2031	1.85	2,285	4.39	5,411	5.13	6,321

The following is a summary of the methodology employed by Aurecon to determine the 2017 Approved Development traffic demands:

- Determine the existing traffic generation of the site from the traffic volume surveys;
- Estimate the existing traffic generation of the site using Institute of Transportation Engineers ('ITE') trip rates;
- Determine the difference between the surveyed and ITE estimated existing traffic generation of the site to determine the magnitude of centre over/undertrading;
- Estimate the traffic generation of the proposed development using ITE trip rates;
- Calibrate the ITE estimated traffic generation of the proposed development to account for centre over/undertrading;

- Adjust the estimated traffic generation to account for the mode split adjustments in accordance with the mode share targets:
 - 2% mode shift from private motor vehicle to other modes by 2021;
 - 5% mode shift from private motor vehicle to other modes by 2031.
- Apply 15% bypass trips (i.e. 85% new trips).

8.3.2 Adopted Expansion Traffic Demands

SLR advocates the use of the traffic generation decay forecasting method for large retail establishments including shopping centres. This approach is widely recognised by the traffic engineering industry and is referenced in the following guidelines:

- *Land Use Traffic Generation Guidelines*, March 1987 – Director General of Transport, South Australia
- *Guide to Traffic Generating Developments Version 2.2*, October 2002 – Roads and Traffic Authority, New South Wales;
- *Guide to Traffic Generating Developments – Updated Traffic Surveys, TDT 2013/04a*, August 2013 – NSW RMS;
- *Trip Generation 7th edition, 2003* – Institute of Transportation Engineers, Washington, USA.

The incremental retail traffic generation has been estimated in accordance with the widely accepted traffic generation decay curve for shopping centres larger than 30,000sq.m. The total traffic generation curve and traffic generation rate curve presented on Figure 33 and 34 have been calibrated using the existing surveyed site traffic demands as reported in the Aurecon Transport Assessment. This approach ensures that the decay curve is standardised as much as possible to account for local conditions.

Figure 33 Retail Traffic Demand Decay Curve – Total Trips

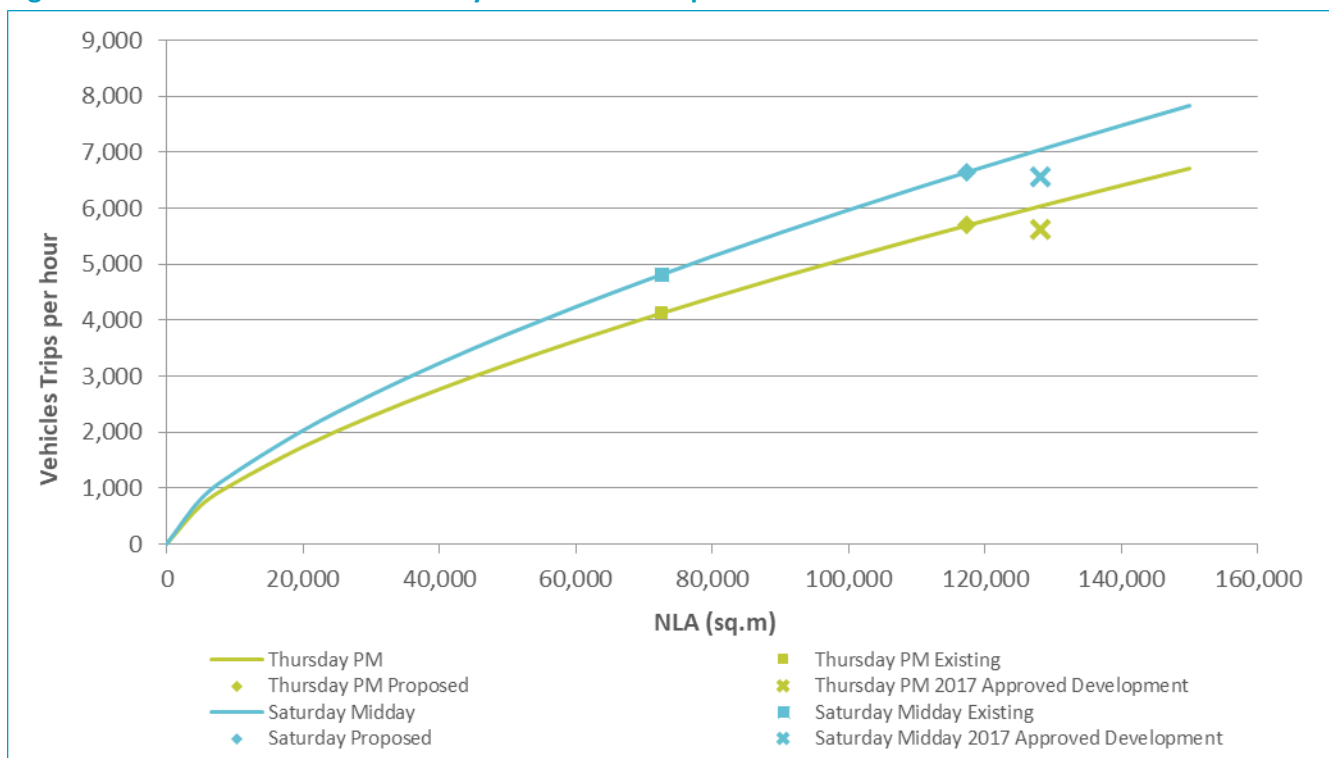


Figure 34 Retail Traffic Demand Decay Curve – Trip Rate

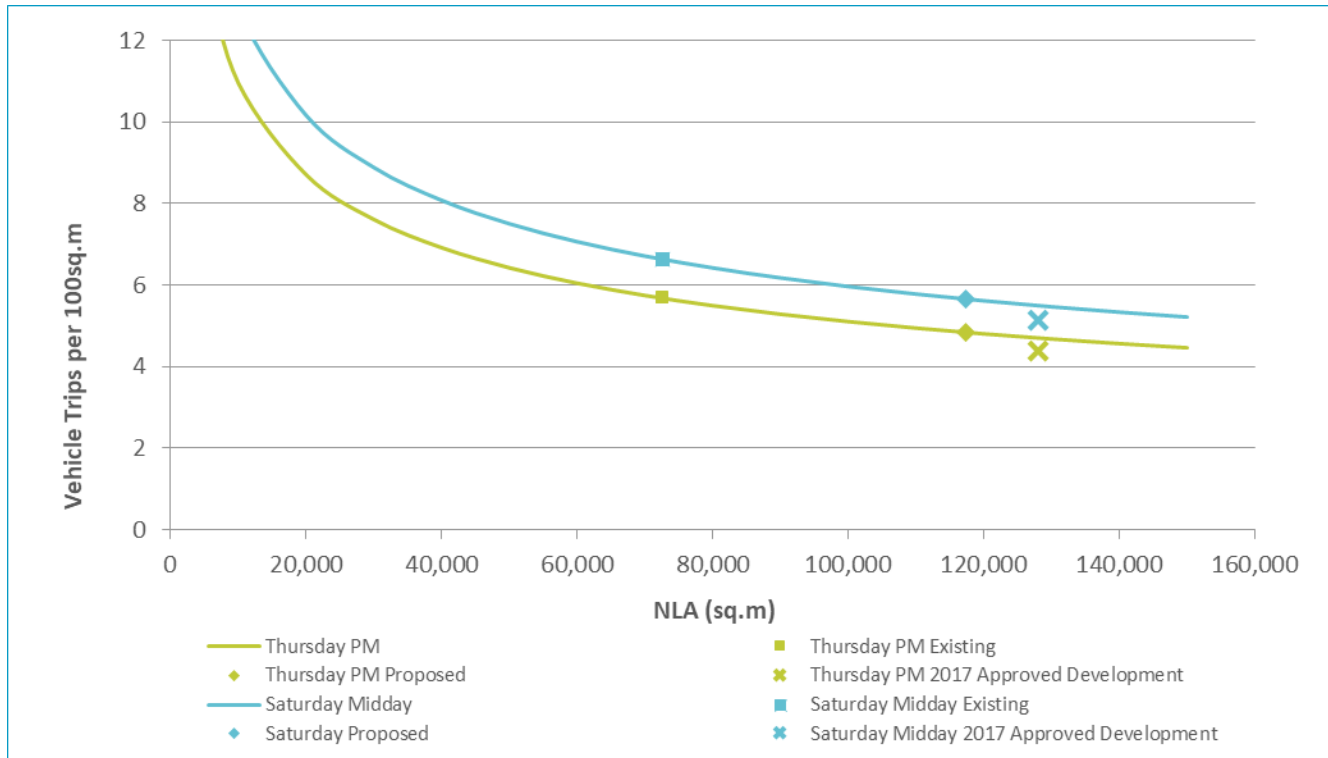


Table 18 summarises the resultant trip rates and total traffic demand estimated using the process described above. The trip rates and total traffic demands for the existing site and 2017 Approved Development are also presented for comparison.

Table 18 Westfield Booragoon Expansion – Traffic Demand Estimate and Comparison

Development Scenario	Yield (sq.m NLA)	TPM		SAT	
		Trip Rate (vph/100sq.m NLA)	Trips (vph)	Trip Rate (vph/100sq.m NLA)	Trips (vph)
Existing	72,539	5.69	4,127	6.64	4,818
Proposed expansion	117,388	4.85	5,697	5.67	6,652
<i>2017 Approved Development</i>	<i>128,034¹</i>	<i>4.39</i>	<i>5,619</i>	<i>5.13</i>	<i>6,564</i>
Net Change from 'Existing' to Proposed Expansion		-	+1,571	-	+1,834
Net Change from '2017 Approved Development' to Proposed Expansion		-	+78	-	+88

¹Ultimately approved for 126,891sq.m NLA.

Table 18 indicates that the proposed expansion represents a minor increase in peak hour traffic demand compared with the 2017 Approved Development by approximately 78 to 88 trips. The conservative traffic demands estimate detailed in Table 18 have been adopted for the operational assessment reported herein.

Note, no further reductions to the above demand estimate have been applied, although it would be reasonable to further discount the above estimate using the mode share factors applied in the Aurecon Transport Assessment (i.e. 2% trip reduction in 2021 and 5% trip reduction in 2031).

8.3.3 Drop-In Trips

Conservatively, only 10% of trips have been assumed to be 'drop-in' trips (i.e. 90% of trips assumed to be 'new trips'), which is broadly consistent with the Aurecon Transport Assessment (i.e. where 15% drop-in trips were assumed). Based on guidance provided at *Commentary 8* of the *Austroads Guide to Traffic Management Part 12: Integrated Transport Assessments for Developments* ('AGTM12-20'), for shopping centres greater than 20,000sq.m in size, a drop-in trip proportion of up to 37% (i.e. 63% new trips) would be supportable based on research undertaken by various road authorities within Australia.

8.4 External Distribution

8.4.1 Review of 2017 Approved Development External Distribution

The Aurecon Transport Assessment external distribution was estimated based on ROM model extracts, with minor adjustments made based on the site traffic surveys. The proportions of development traffic arriving from and departing towards each major direction as per the Approved Development is summarised in Table 19.

Table 19 Development Traffic Distribution – Aurecon Transport Assessment (2017 Approved Development)

Direction	From (Entry)		To (Exit)	
	PM	SAT	PM	SAT
Marmion Street (West)	31%	28%	30%	27%
Riseley Street (South)	34%	35%	27%	30%
Davy Street (West)	6%	8%	7%	5%
Riseley Street (North)	13%	15%	20%	22%
Davenport Road (East)	4%	3%	4%	4%
Coomoora Road (East)	9%	8%	9%	8%
Links Road (North)	1%	1%	2%	2%
McCallum Crescent (North)	2%	2%	1%	2%
Total	100%	100%	100%	100%

Table 19 indicates that the 2017 Approved Development traffic assessment assumed the majority of traffic would arrive from and depart to south and west of the site.

The proportions of development traffic utilising each site access as per the Aurecon Transport Assessment is summarised in Figure 35 and Figure 36 for entry and exit movements respectively.

Figure 35 Development Access Entry Distribution – 2017 Approved Development

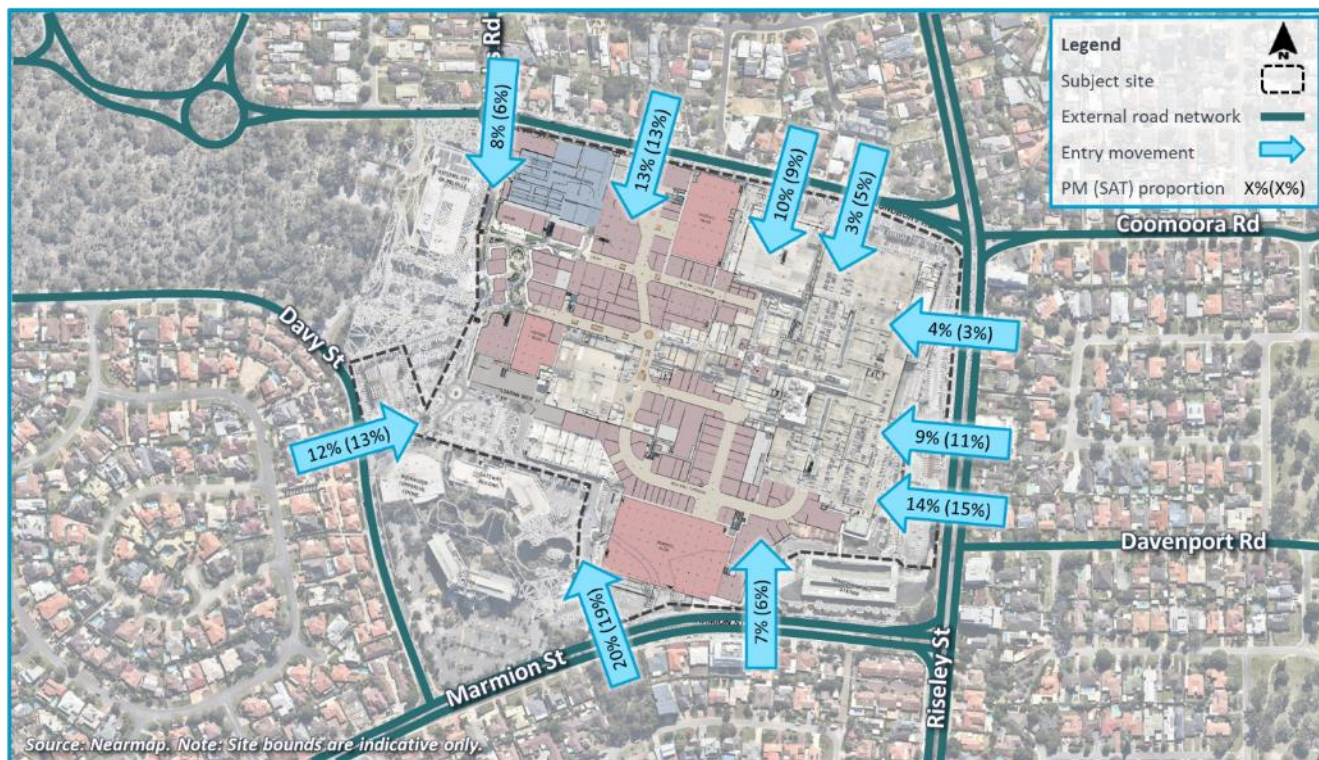
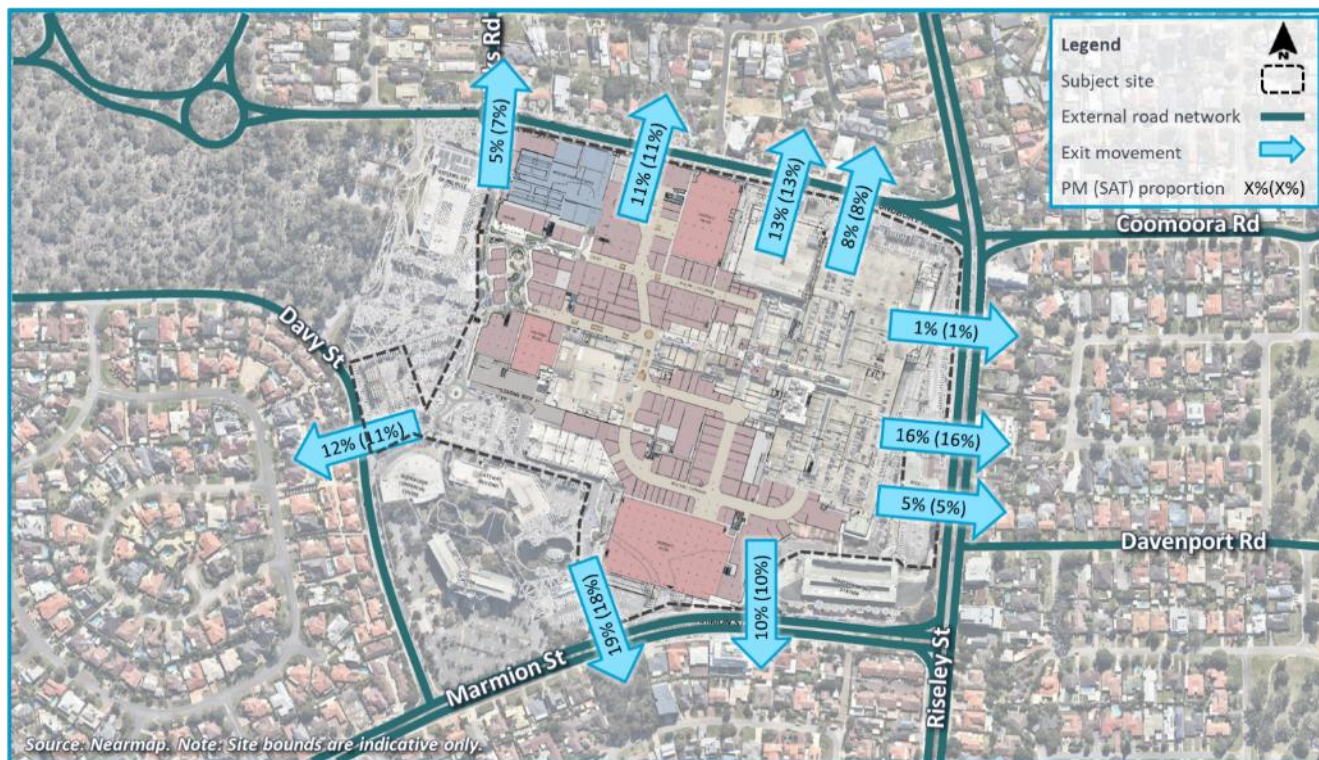


Figure 36 Development Access Exit Distribution – 2017 Approved Development



8.4.2 Review of Westfield Booragoon Retail Trade Catchment

SLR has sought to validate the Aurecon Transport Assessment traffic distribution by comparing it to the trade catchment areas provided by Scentre Group for the existing Westfield Booragoon centre which is shown in Figure 37.

Figure 37 Retail Trade Area Catchment

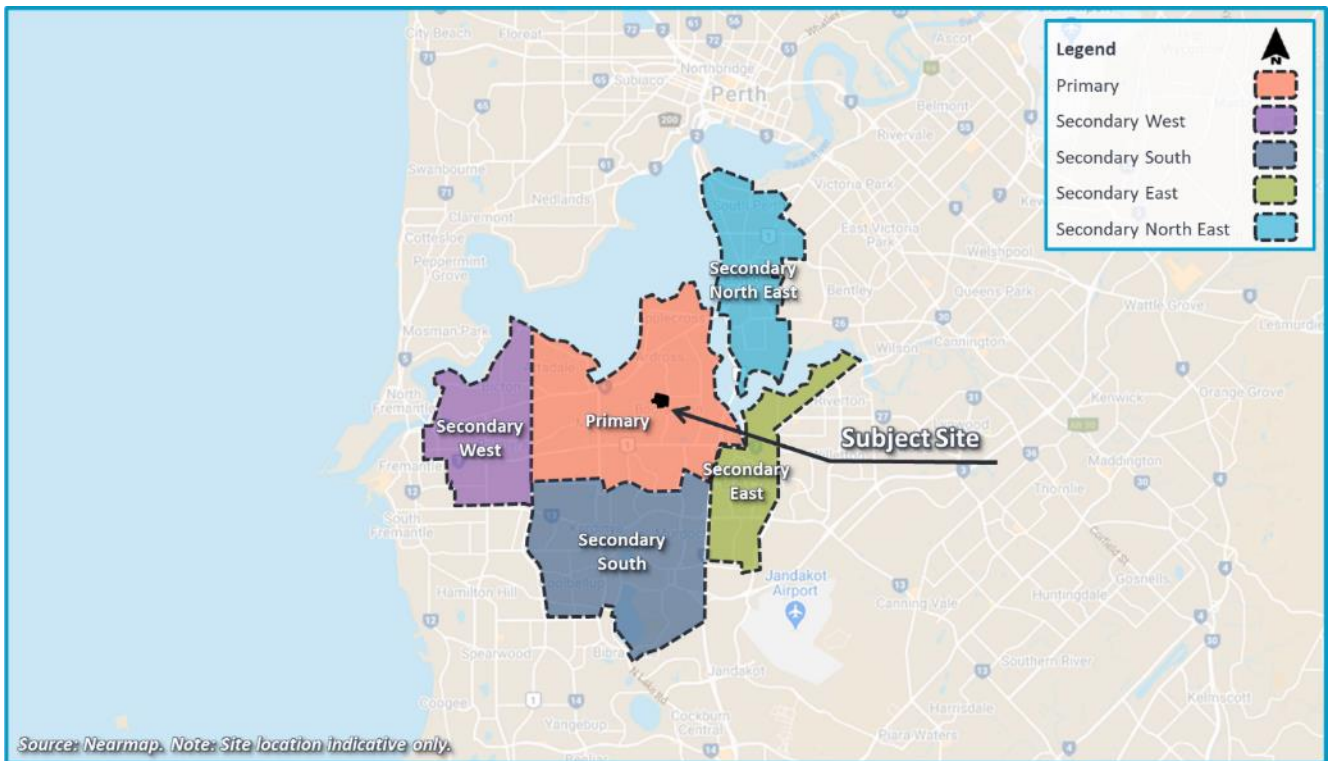


Figure 37 indicates that the trade catchment areas are more prominent south and west of the site and traffic generated by the site would be more likely to arrive to and from the south and west. This generally aligns with the Aurecon Transport Assessment traffic distribution assumptions. Furthermore, the proposed development has the following characteristics which align with the 2017 Approved Development:

- The proposed site access locations and arrangements for general traffic are the same, albeit a lower car parking provision is now proposed;
- The additional development proposed is located in similar areas on the northern and southern boundaries of the subject site;
- The additional car parking areas proposed are located in similar areas on the northern and southern boundaries of the subject site, however there is a marginally higher proportion of parking situated on the eastern side of the site.

8.4.3 Adopted External Distribution

Based on the similarities between the proposed development and the 2017 Approved Development, the external traffic distribution for the proposed development has been adopted consistent with the Aurecon Transport Assessment, albeit that 5% of total entering and exiting traffic has been shifted from the two easternmost Almondbury Road site accesses to the Riseley Street signalised access in order to account for the marginally higher proportion of car parking now proposed on the eastern portion of the site.

Reflective of all of the above discussion, the adopted assessment traffic volumes are included at Appendix D.

9 Operational Assessment

9.1 Assessment Scenarios

The performance of the road network has been considered for the following design years:

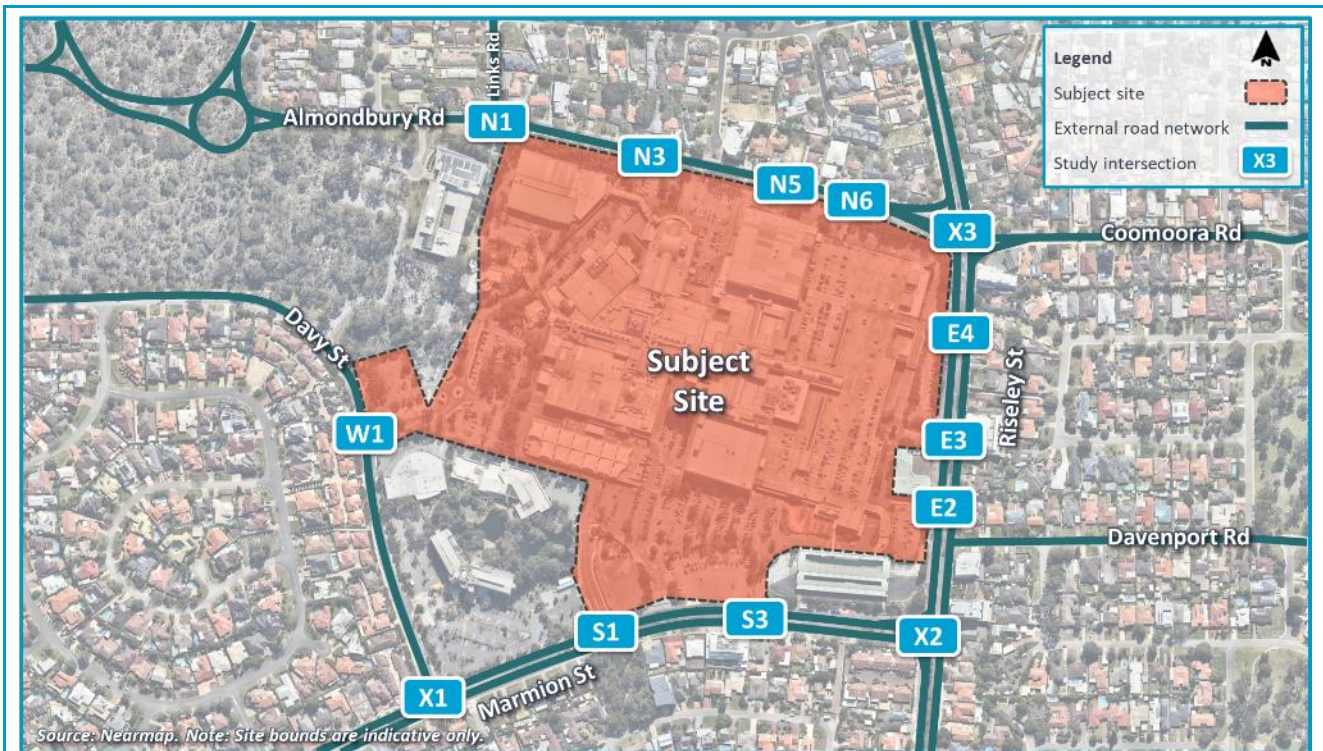
- **2021 'Base':** To establish the baseline operational performance at the year 2021 in the absence of the development;
- **2021 'With Development':** In line with the 2017 Approved Development 'Future Year 2021' scenario to identify the impact of development generated traffic demands;
- **2031 'Base':** To establish the baseline operational performance at the year 2031 in the absence of the development;
- **2031 'With Development':** In line with the 2017 Approved Development 'Ultimate Year 2031' scenario to identify the impact of development generated traffic demands.

The operation of the road network during both the weekday PM and Saturday midday peak hour periods was assessed for all of the above scenarios.

9.2 Study Intersections

Consistent with the Aurecon Transport Assessment, a detailed analysis of the potential traffic impacts of the development on the operation of the external road network has been undertaken at the locations identified in Table 20.

Table 20 Study Intersections

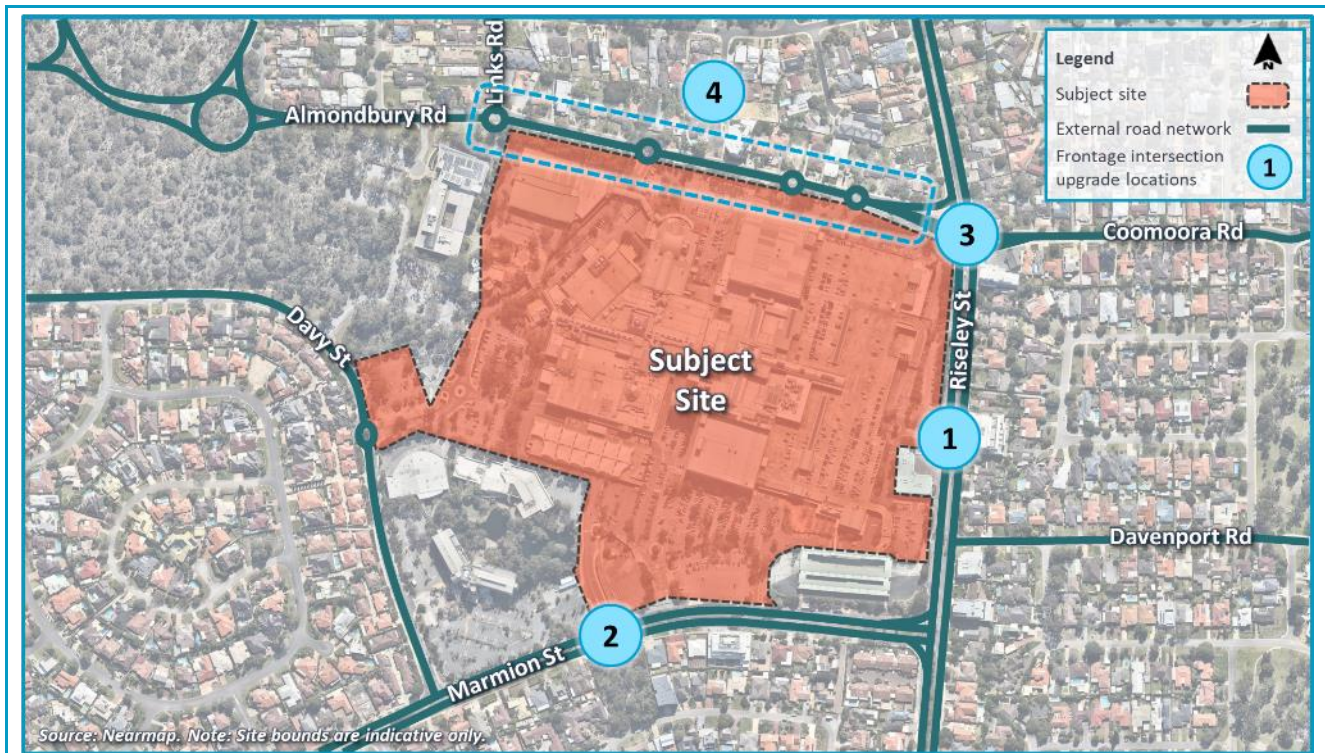


ID	Intersection	Existing Form	Future Form	Authority
X1	Marmion Street/Davy Street			CoM
X2	Riseley Street/Marmion Street			CoM
X3	Riseley Street/Almondbury Road/Coomoora Road			CoM
S1	Marmion Street/Andrea Lane			CoM
S3	Marmion Street/Signalised Site Access			CoM
E2	Riseley Street/Site Access			CoM
E3	Riseley Street/Site Access			CoM
E4	Riseley Street/Site Access			CoM
N1	Almondbury Road/Links Road/Site Access			CoM
N3	Almondbury Road/Site Access			CoM
N5	Almondbury Road/Site Access	-		CoM
N6	Almondbury Road/Site Access			CoM
W1	Davy Street/Site Access			CoM

9.3 Assessed Intersection Upgrades

The intersection upgrades assessed herein are summarised in Table 21.

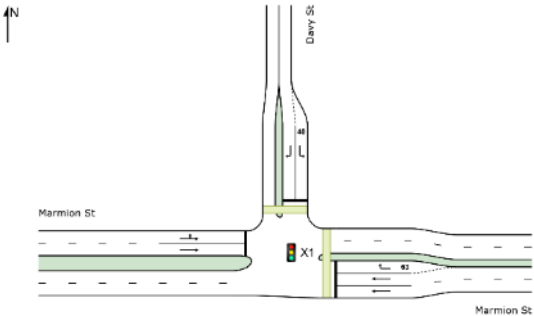
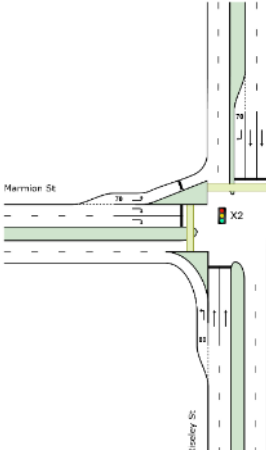
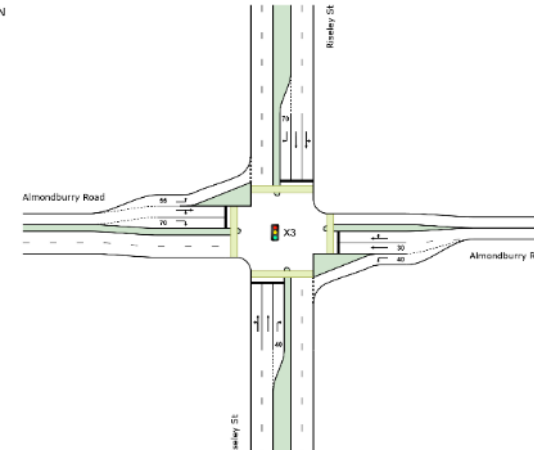
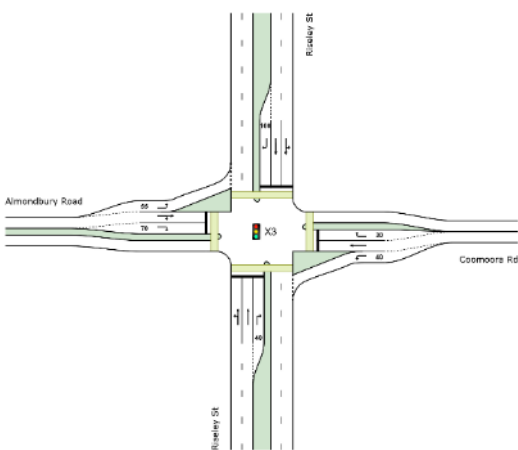
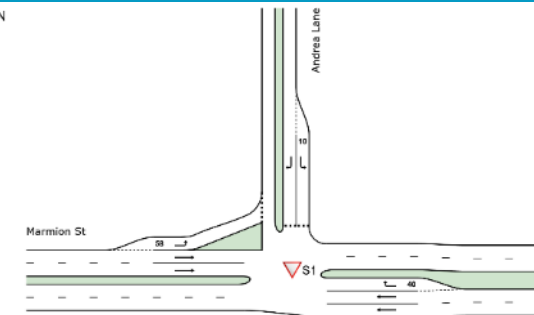
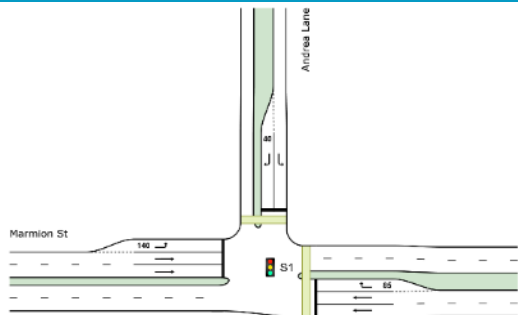
Table 21 Assessed Intersection Upgrades

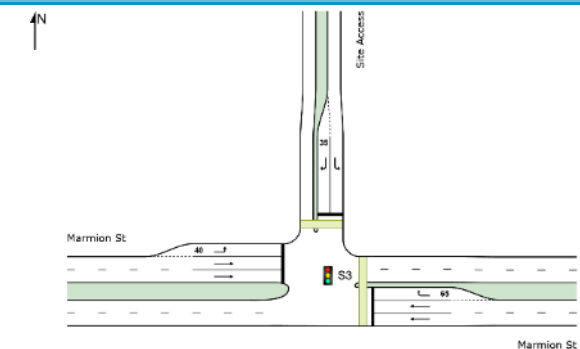
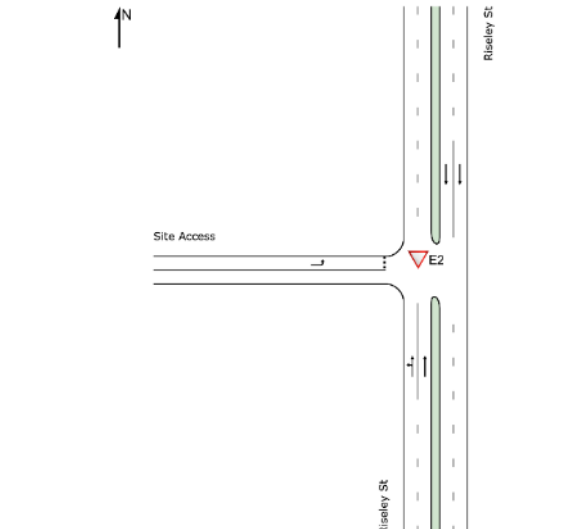
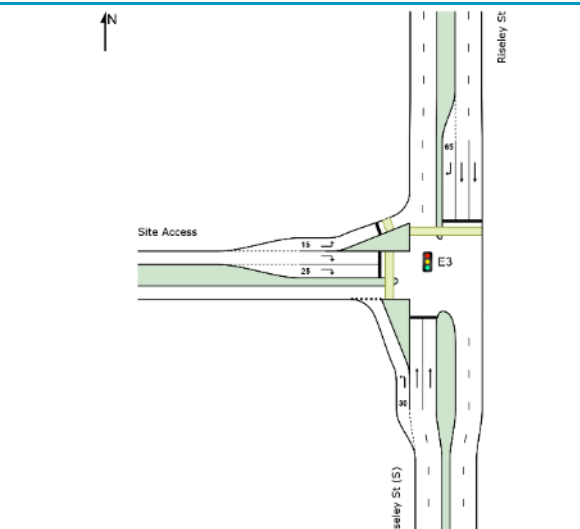
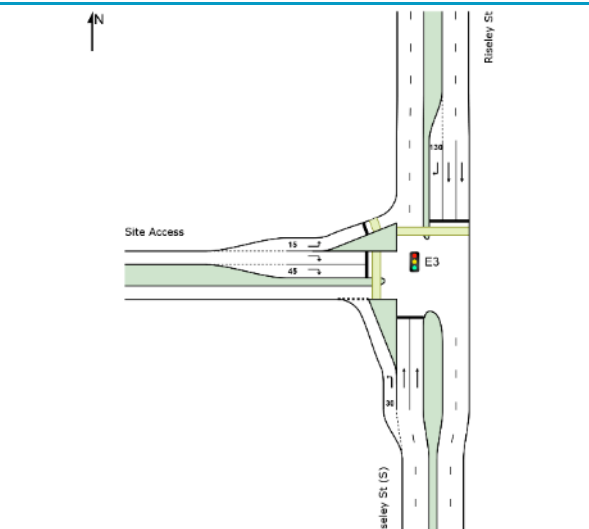


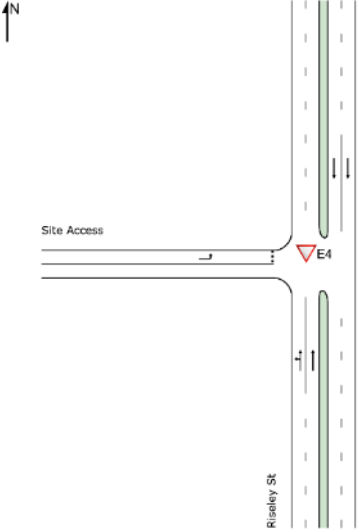
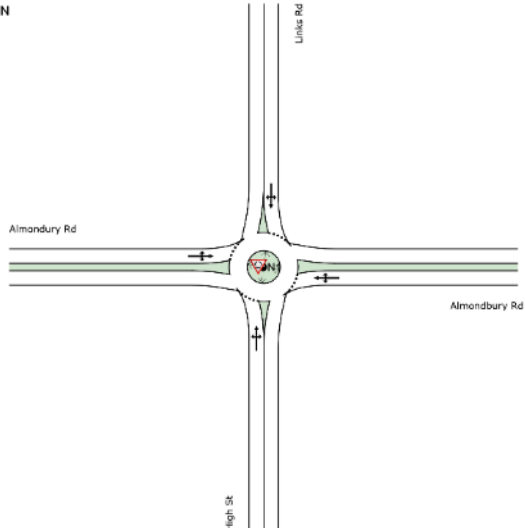
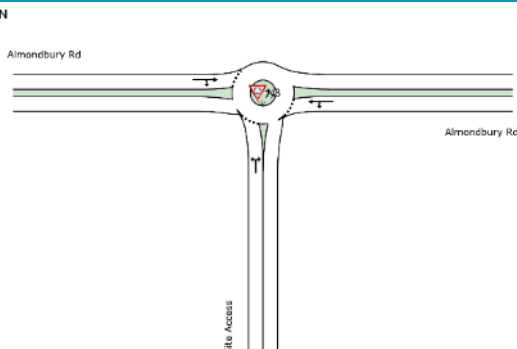
ID	Location	Description of Upgrade
1	Riseley Street/Signalised Site Access intersection	<ul style="list-style-type: none"> - Extension of the right turn lane on the northern approach; - Modification of internal site arrangements on western approach.
2	Marmion Street/Andrea Lane intersection (upgrade constructed)	<ul style="list-style-type: none"> - Relocation of intersection 70m to the west; - Signalisation of intersection; - Two stand up lanes on northern approach; - Extension of the right turn lane on the eastern approach; - Extension of the left turn lane on the western approach.
3	Riseley Street/Almondbury Road/ Coomoora Road intersection	<ul style="list-style-type: none"> - Extension of the right turn lane on the northern approach; - Linemarking changes on the eastern approach – definition of lane disciplines and provision of right turn lane; - Changes to western exit lane arrangement.
4	Almondbury Road site access intersections	<ul style="list-style-type: none"> - Introduction of three new roundabouts along Almondbury Road to facilitate site access.

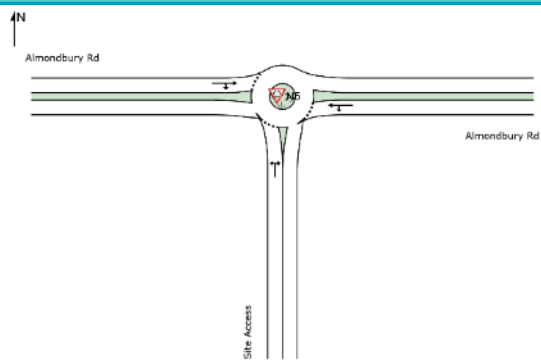
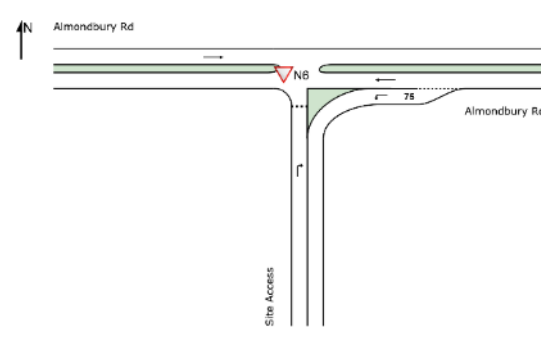

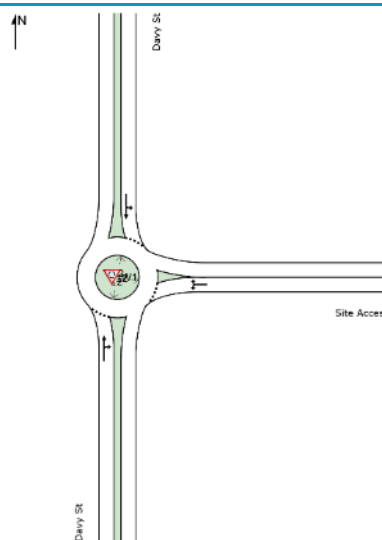
Reflective of the commentary provided in Table 21, the assessed SIDRA intersection layouts of the study intersections are Presented in Table 22.

Table 22 Assessed Intersection Forms

ID	Existing Form	Proposed Form
X1		No changes proposed to existing form.
X2		No changes proposed to existing form.
X3		
S1		

ID	Existing Form	Proposed Form
S3		No changes proposed to existing form.
E2		No changes proposed to existing form.
E3		

ID	Existing Form	Proposed Form
E4		<p>No changes proposed to existing form.</p>
N1	<p>Not an existing intersection.</p>	
N3		<p>No changes proposed to existing form.</p>

ID	Existing Form	Proposed Form
N5	Not an existing intersection.	
N6		
W1		No changes proposed to existing form.

9.4 Intersection Performance Criteria

Study intersections were analysed for each of the aforementioned scenarios using SIDRA Intersection 9.0 (SIDRA). SIDRA is an industry recognised analysis tool used to estimate the capacity and performance of intersections based on input parameters, including geometry and traffic volumes. SIDRA provides an estimate of an intersection's Degree of Saturation ('DOS'), queues and delays. The maximum DOS thresholds identified by AGTM12-20 for each intersection type are reproduced in Table 23.

Table 23 Intersection Performance Thresholds

Intersection Type	DOS Threshold
Signalised intersections	Less than or equal to 0.90
Roundabouts	Less than or equal to 0.85
Priority controlled intersections	Less than or equal to 0.80

DOS values exceeding those presented in Table 23 indicate that an intersection is nearing its practical capacity and upgrade works may be required. Above these threshold values, users of the intersection are likely to experience rapidly increasing delays and queuing.

In addition to DOS metrics, delay should also be considered when assessing the performance of an intersection. Transport for NSW ('TfNSW') recommends the use of the critical movement delay for assessing the performance of priority-controlled intersections. The TfNSW *Guide to Traffic Generating Developments* states that the average delay statistic for the critical movement provides a better indication of intersection performance and safety for roundabouts and priority-controlled intersections than DOS. A summary of the delay thresholds recommended by the RMS is provided in Table 24.

Table 24 LOS Criteria for Intersections

Level of Service	Average Delay	Traffic Signals	Priority Intersections
A	< 14 sec	Good operation	Good operation
B	15 – 28 sec	Good operation with acceptable delays	Acceptable delays & spare capacity
C	29 – 42 sec	Satisfactory	Satisfactory, but accident study required
D	43 – 56 sec	Operating near capacity	Near capacity and accident study required
E	57 - 70 sec	At capacity	At capacity, requires other control mode

The operational assessment documented herein will be conducted in consideration of the aforementioned performance criteria.

9.5 Frontage Intersection Assessment

Table 25, Table 26, Table 27 and Table 28 summarise the Level of Service ('LOS') and DOS performance metrics reported by SIDRA for each assessed intersection over the various design years and peak hour periods. For reference, the average LOS is reported for signalised intersections whereas for unsignalised intersections the critical LOS (i.e. worst approach) is reported. Detailed SIDRA outputs are included at Appendix E.

Table 25 Intersection Performance – 2021 Weekday PM

ID	Intersection	Base		With Development (No Upgrades)		With Development (+ Upgrades)	
		LOS	DOS	LOS	DOS	LOS	DOS
X1	Marmion Street/Davy Street	C	0.86	C	0.93	-	-
X2	Riseley Street/Marmion Street	D	0.90	C	0.93	-	-
X3	Riseley Street/Almondbury Road/Coomoora Road	D	0.78	D	0.89	D	0.89
S1	Marmion Street/Andrea Lane	F	3.03	-	-	B	0.79
S3	Marmion Street/Signalised Site Access	B	0.68	A	0.62	-	-
E2	Riseley Street/Site Access	A	0.35	A	0.43	-	-
E3	Riseley Street/Signalised Site Access	B	0.78	B	0.72	B	0.73
E4	Riseley Street/Site Access	A	0.31	A	0.40	-	-
N1	Almondbury Road/Links Rd/Site Access	-	-	-	-	A	0.30
N3	Almondbury Road/Site Access	A	0.25	A	0.38	-	-
N5	Almondbury Road/Site Access	-	-	-	-	A	0.38
N6	Almondbury Road/Site Access	A	0.42	-	-	A	0.54
W1	Davy Street/Site Access	A	0.26	A	0.30	-	-

Table 26 Intersection Performance – 2021 Saturday Midday

ID	Intersection	Base		With Development (No Upgrades)		With Development (+ Upgrades)	
		LOS	DOS	LOS	DOS	LOS	DOS
X1	Marmion Street/Davy Street	C	0.85	B	0.67	-	-
X2	Riseley Street/Marmion Street	D	0.95	C	0.94	-	-
X3	Riseley Street/Almondbury Road/Coomoora Road	D	0.83	D	0.96	D	0.98
S1	Marmion Street/Andrea Lane	F	1.24	-	-	B	0.69
S3	Marmion Street/Signalised Site Access	B	0.73	A	0.57	-	-
E2	Riseley Street/Site Access	A	0.39	A	0.45	-	-
E3	Riseley Street/Signalised Site Access	B	0.80	C	0.91	B	0.75
E4	Riseley Street/Site Access	A	0.33	A	0.40	-	-
N1	Almondbury Road/Links Rd/Site Access	-	-	-	-	A	0.35
N3	Almondbury Road/Site Access	A	0.25	A	0.54	-	-
N5	Almondbury Road/Site Access	-	-	-	-	A	0.52
N6	Almondbury Road/Site Access	A	0.50	-	-	A	0.72
W1	Davy Street/Site Access	A	0.27	A	0.34	-	-

Table 27 Intersection Performance – 2031 Weekday PM

ID	Intersection	Base		With Development (No Upgrades)		With Development (+ Upgrades)	
		LOS	DOS	LOS	DOS	LOS	DOS
X1	Marmion Street/Davy Street	C	0.96	C	0.95	-	-
X2	Riseley Street/Marmion Street	D	0.99	D	0.99	-	-
X3	Riseley Street/Almondbury Road/Coomoora Road	D	0.84	D	0.93	D	0.93
S1	Marmion Street/Andrea Lane	F	4.00	-	-	B	0.85
S3	Marmion Street/Signalised Site Access	B	0.70	A	0.67	-	-
E2	Riseley Street/Site Access	A	0.39	A	0.45	-	-
E3	Riseley Street/Signalised Site Access	B	0.85	B	0.75	B	0.76
E4	Riseley Street/Site Access	A	0.33	A	0.43	-	-
N1	Almondbury Road/Links Rd/Site Access	-	-	-	-	A	0.30
N3	Almondbury Road/Site Access	A	0.23	A	0.39	-	-
N5	Almondbury Road/Site Access	-	-	-	-	A	0.39
N6	Almondbury Road/Site Access	A	0.42	-	-	A	0.55
W1	Davy Street/Site Access	A	0.26	A	0.31	-	-

Table 28 Intersection Performance – 2031 Saturday Midday

ID	Intersection	Base		With Development (No Upgrades)		With Development (+ Upgrades)	
		LOS	DOS	LOS	DOS	LOS	DOS
X1	Marmion Street/Davy Street	C	0.88	B	0.68	-	-
X2	Riseley Street/Marmion Street	D	1.01	D	0.97	-	-
X3	Riseley Street/Almondbury Road/Coomoora Road	D	0.88	E	1.02	E	1.02
S1	Marmion Street/Andrea Lane	F	1.49	-	-	B	0.71
S3	Marmion Street/Signalised Site Access	B	0.71	A	0.58	-	-
E2	Riseley Street/Site Access	A	0.42	A	0.48	-	-
E3	Riseley Street/Signalised Site Access	B	0.70	C	0.93	B	0.78
E4	Riseley Street/Site Access	A	0.35	A	0.43	-	-
N1	Almondbury Road/Links Rd/Site Access	-	-	-	-	A	0.35
N3	Almondbury Road/Site Access	A	0.26	A	0.54	-	-
N5	Almondbury Road/Site Access	-	-	-	-	A	0.54
N6	Almondbury Road/Site Access	A	0.51	-	-	A	0.72
W1	Davy Street/Site Access	A	0.28	A	0.35	-	-

The following is noted in relation to the intersection performance metrics reported above:

- The intersection metrics reported above show a reasonable level of correlation to those reported in the Aurecon Transport Assessment prepared for the 2017 Approved Development;
- The assessed upgrading works generally offset the impact of development traffic demands (i.e. compared with the Base scenarios), with intersection performance levels typically within acceptable performance thresholds;
- It is noted that the proposed upgrade of the Riseley Street/Almondbury Street/Coomoora Road intersection (X3) results in a slight worsening in conditions as a result of the upgrade and additional development traffic demands. The following is noted of relevance:
 - The SIDRA results in the Aurecon Transport Assessment conducted for the 2017 Approved development also reported a DOS of >1.0 and LOS of E;
 - The previously conditioned upgrade on the eastern Coomoora Road approach and western Almondbury Street departure leg to the intersection is a safety upgrade. The two stand up lanes on the western approach are currently not allocated a lane discipline, and hence both lanes can currently travel straight onto Almondbury Street. The key safety issues associated with this are the current risk of a rear end type crash in the right stand up lane on the Coomoora Road approach (i.e. collision between through traffic and right turning traffic), and that vehicles traffic travelling straight from the left stand up lane are forced either into the subject site by the current 'trap lane' on the Almondbury Street departure leg, or to merge back into the through lane within a short distance;
 - The upgrade, which provides separate through (full length) and right (auxiliary) turn lanes on the eastern Coomoora Road approach and adjustments to the Almondbury Street departure leg to the intersection, is considered to provide a substantial safety improvement compared with the existing situation, and therefore a slight worsening in intersection performance as a result of the safety upgrade is considered to be reasonable.

Based on the above, the proposed frontage intersection upgrades are considered to offset the traffic impacts of the expansion and also provide a number of safety improvements compared with the existing situation.

10 Peripheral Intersection Upgrades

10.1 Overview

As per the commentary provided at Section 2.4 herein, upgrading works have previously been constructed at the following peripheral intersections:

- P1: Canning Highway/Riseley Street intersection;
- P2: Leach Highway/Riseley Street intersection.

SLR also notes that an intersection upgrade (i.e. signalisation) was also previously proposed at the Canning Highway/Norma Street intersection (i.e. P4), however, the 2017 Approved Development was not ultimately required to construct this upgrade, as signalisation of the intersection was not supported by MRWA. On this basis, no assessment of intersection P4 has been undertaken.

It was originally proposed to undertake analysis of peripheral intersections P1 and P2 using the same methodology as per that adopted for the site frontage intersections. Following project team engagement, however, MRWA requested that new traffic and vehicle queuing surveys were undertaken at the above intersections. It was also requested that SIDRA intersection models used for future traffic scenarios were validated to existing conditions.

Reflective of the above, SLR commissioned Surveytech to undertake surveys at the study peripheral intersections for the following peak periods:

- Thursday 24th September 2020: 4.00PM – 6.00PM;
- Saturday 26th September 2020: 11.00AM – 1.00PM;

The following methodology was undertaken for each of the assessed peripheral intersection:

- A SIDRA layout was coded for each intersection based on the existing (i.e. upgraded) intersection geometry;
- The surveyed traffic volumes and signal phasing data were input from each peak period;
- Area factors and saturation flow for each intersection approach were adjusted until the modelled vehicle queues showed a reasonable level of calibration to the observed vehicle queues;
- Results for the validated base SIDRA models were recorded. The validated base SIDRA layouts were then copied, and the intersection layout was reverted to the pre-2017 upgrade layout to show the incremental performance benefit resulting from the upgrading works;
- The validated base SIDRA layouts were also used to test future traffic demand scenarios consistent with the methodology adopted for the site frontage intersections:
 - Aurecon modelled volumes were adopted for the background traffic scenarios. The previous intersection layout was adopted for SIDRA analysis;
 - SLR expansion traffic demand was added and distributed as per the Aurecon Traffic Assessment to create the With Development traffic scenarios. The existing intersection layout was adopted for SIDRA analysis.

Reflective of the above commentary, the results of the SIDRA Intersection assessment of the assessed peripheral intersections is presented below. Assessment traffic volumes and vehicle queue survey results are included at Appendix F.

10.2 Intersection P1 – Canning Highway/Riseley Street

10.2.1 2020 Surveyed Traffic Volumes

The assessed SIDRA Intersection layouts for the Canning Highway/Riseley Street intersection are presented in Table 29, with the constructed upgrading works highlighted in blue. SIDRA outputs are presented in Table 30 demonstrating the performance benefit of the constructed intersection upgrading works. Detailed SIDRA outputs are included at Appendix F.

Table 29 Intersection P1 – Assessed SIDRA Layouts

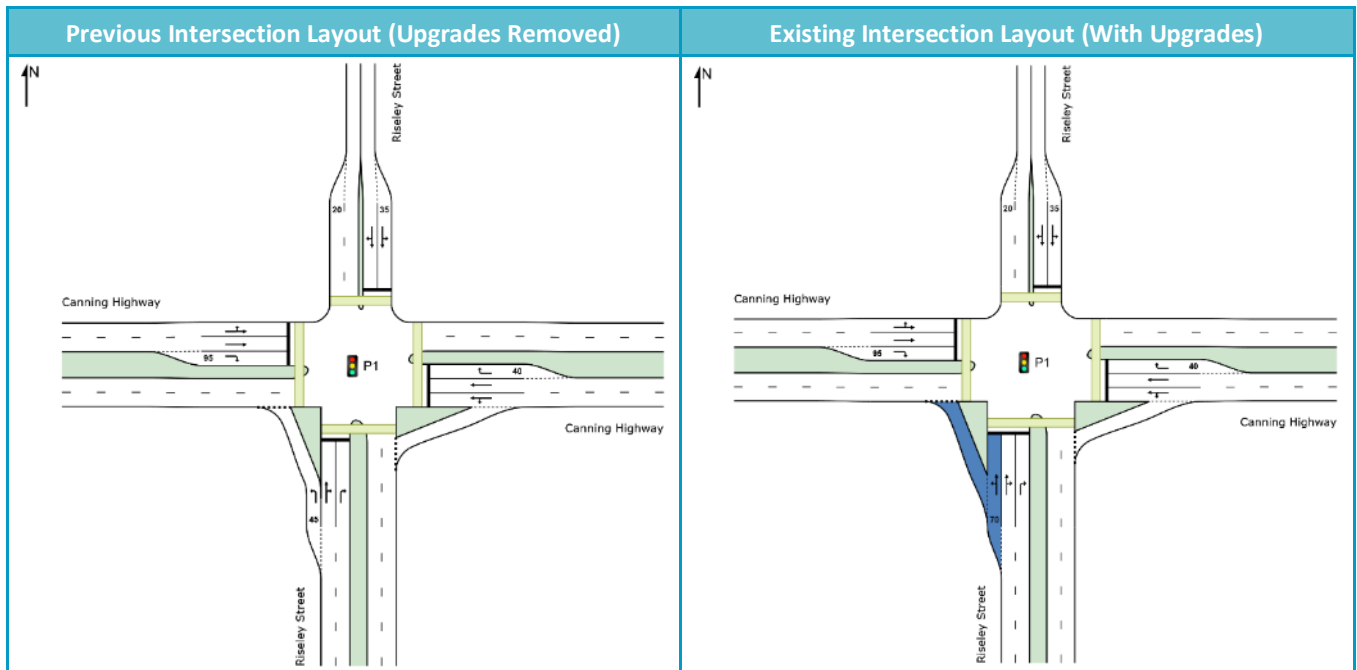


Table 30 Intersection P1 – SIDRA Outputs – 2020 Surveyed Traffic Volumes

Scenario	Weekday PM			Saturday Midday		
	DOS	Delay	95 th %ile Queue	DOS	Delay	95 th %ile Queue
Existing Intersection Layout (With Upgrades) – Validated Base Model						
2020 surveyed	0.91	48 sec	440m (E)	0.76	38 sec	298m (E)
Previous Intersection Layout (Upgrades Removed)						
2020 surveyed	0.94	56 sec	510m (E)	0.83	39 sec	302m (E)

As per the SIDRA results presented in Table 30, the constructed intersection upgrading works show a reasonable benefit to the performance of the intersection when compared to the previous intersection layout.

10.2.2 Design Traffic Scenarios

SIDRA outputs are presented in Table 31 design traffic scenarios. Detailed SIDRA outputs are included at Appendix F.

Table 31 Intersection P1 – SIDRA Outputs – Design Traffic Scenarios

Scenario	Weekday PM			Saturday Middy		
	DOS	Delay	95 th %ile Queue	DOS	Delay	95 th %ile Queue
<i>Previous Intersection Layout (Upgrades Removed)</i>						
2021 Background	0.91	55 sec	463m (E)	0.86	44 sec	320m (E)
2031 Background	0.96	62 sec	499m (E)	0.92	47 sec	346m (E)
<i>Existing Intersection Layout (With Upgrades)</i>						
2021 With Development	1.00	76 sec	629m (E)	0.97	56 sec	402m (E)
2031 With Development	1.03	84 sec	675m (E)	1.00	63 sec	480m (E)

The results of the SIDRA analysis presented in Table 31 indicate that, when compared to the background traffic scenarios assessing the pre-2017 intersection layout, the completed upgrading works at the Canning Highway/Riseley Street intersection do not fully offset the impacts of development traffic (i.e. there is a modest increase in DOS, delay and vehicle queues). In relation to this slight reduction in intersection performance, the following is noted:

- The intersection DOS exceeds the typically adopted performance threshold of 0.90 in the background traffic scenarios. The development results in a DOS of 1.0 at the 2031 design horizon, which is marginally higher than the background traffic scenarios;
- SLR has not discounted the development traffic demand estimated for mode share shift as per the Aurecon Traffic Assessment (i.e. 2% at 2021 and 5% at 2031). Application of the above trip discounts would result in a reduction in development traffic demands of 2% in the 2021 design year and 5% at the 2031 design year, which would further reduce the impact of development traffic at this intersection;
- It is further noted that a modest 15% drop-in trip proportion has been assumed, whereas a much larger drop-in trip proportion (i.e. up to 37%) could reasonably be assumed based on Austroads guidance. Application of a higher drop-in trip proportion is likely to further would further reduce the impact of development traffic demands at this location;
- The proposed upgrading works were previously accepted for a substantially larger development yield (i.e. additional 18,702sq.m NLA). Given that that the proposed development is substantially smaller compared to the 2017 Approved development, and hence will have a commensurately lower operational impact on intersection performance, it would be reasonable to expect that the completed intersection upgrade of the Canning Highway/Riseley Street intersection fulfills the obligations of the proposed development with regard to upgrading works at this location.

10.3 Intersection P2 – Leach Highway/Riseley Street

10.3.1 2020 Surveyed Traffic Volumes

The assessed SIDRA Intersection layouts for the Leach Highway/Riseley Street intersection are presented in Table 32, with the constructed upgrading works highlighted in blue. SIDRA outputs are presented in Table 32 demonstrating the performance benefit of the constructed intersection upgrading works. Detailed SIDRA outputs are included at Appendix F.

Table 32 Intersection P2 – Assessed SIDRA Layouts

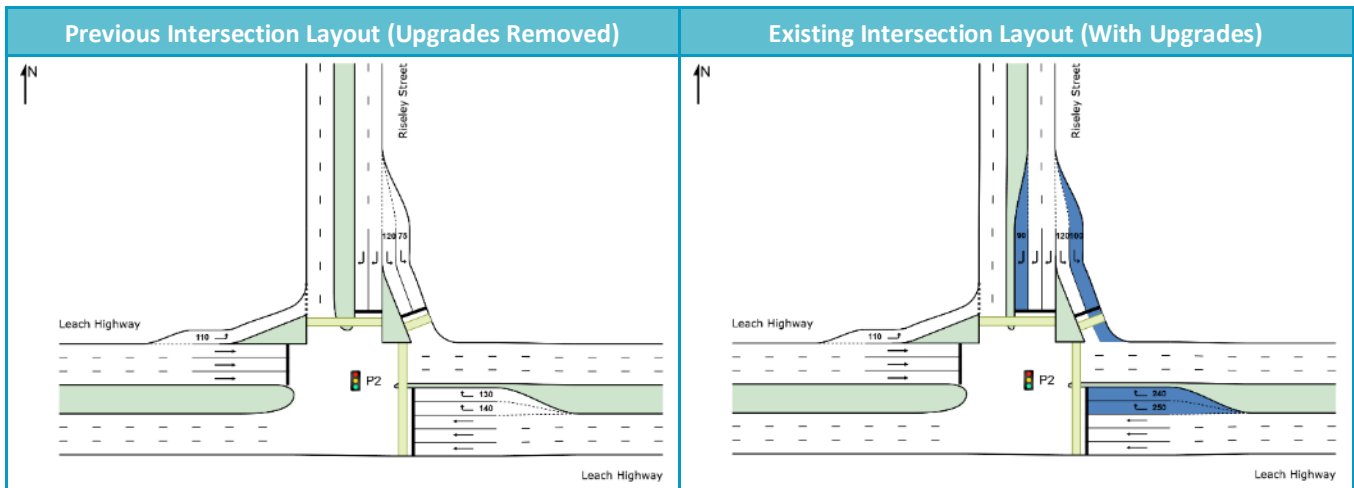


Table 33 Intersection P2 – SIDRA Outputs – 2020 Surveyed Traffic Volumes

Scenario	Weekday PM			Saturday Midday		
	DOS	Delay	95 th %ile Queue	DOS	Delay	95 th %ile Queue
Existing Intersection Layout (With Upgrades) – Validated Base Model						
2020 surveyed	0.82	30 sec	380m (W)	0.81	31 sec	366m (W)
Previous Intersection Layout (Upgrades Removed)						
2020 surveyed	0.86	32 sec	406m (W)	0.85	33 sec	385m (W)

As per the SIDRA results presented in Table 33, the constructed intersection upgrading works show a reasonable benefit to the performance of the intersection when compared to the previous intersection layout.

10.3.2 Design Traffic Scenarios

SIDRA outputs are presented in Table 34 design traffic scenarios. Detailed SIDRA outputs are included at Appendix F.

Table 34 Intersection P1 – SIDRA Outputs – Design Traffic Scenarios

Scenario	Weekday PM			Saturday Middy		
	DOS	Delay	95 th %ile Queue	DOS	Delay	95 th %ile Queue
<i>Previous Intersection Layout (Upgrades Removed)</i>						
2021 Background	0.88	39 sec	407m (W)	0.84	35 sec	350m (W)
2031 Background	0.92	46 sec	457m (W)	0.81	34 sec	314m W)
<i>Existing Intersection Layout (With Upgrades)</i>						
2021 With Development	0.91	42 sec	451m (W)	0.85	36 sec	358m (W)
2031 With Development	0.91	43 sec	445m (W)	0.81	34 sec	317m (W)

The results of the SIDRA analysis presented in Table 34 indicated that the previously completed upgrading works at the Leach Highway/Riseley Street intersection fully offsets the operational impacts of development traffic demands at this location.

11 Road Safety Assessment

11.1 Overview

A high level assessment was undertaken to establish the road safety impacts of the development. The scope of the road safety assessment carried out for the subject development has been limited to the roads fronting the site.

As part of the road safety assessment, a risk assessment was undertaken to establish the risk score for any existing safety risks, the level of impact of the subject development on those existing risks, and assessment of any risks introduced by the subject development.

11.2 Existing Conditions Review

Reference is made to Section 3.4.3 of this document for a review of existing conditions and crash history.

11.3 Risk Assessment of External Works

A risk assessment was carried out in order to evaluate existing safety risks within the study area and also any safety risks introduced or exacerbated by the subject development. The risk score for any safety issue is assessed using the safety risk score matrix presented on Figure 38.

Figure 38 Safety Risk Score Matrix

		Potential consequence				
		Property only (1)	Minor injury (2)	Medical treatment (3)	Hospitalisation (4)	Fatality (5)
Potential likelihood	Almost certain (5)	M	M	H	H	H
	Likely (4)	M	M	M	H	H
	Moderate (3)	L	M	M	M	H
	Unlikely (2)	L	L	M	M	M
	Rare (1)	L	L	L	M	M

L: Low risk
M: Medium risk
H: High risk

The following criteria were adopted for the mitigation of safety risks:

- The object of the assessment is return the 'With Development' risk score to the 'Without Development Risk Score' and below the 'high' risk score with mitigation measures;
- Any risk item in the 'high' category requires mitigation, regardless of whether this risk is a pre-existing condition.

The safety risks associated with the subject development within the study area are evaluated in Table 35.

Table 35 Development Risk Assessment Matrix

Risk Item	Without Development			With Development			Mitigation Measures	With Development and Mitigation Measures		
	Likelihood	Consequence	Risk Score	Likelihood	Consequence	Risk Score		Likelihood	Consequence	Risk Score
Increased traffic demands generated by the development at site access and external intersections - may generally increase the likelihood of crashes.	1	2	L	2	2	L	Proposed intersection upgrades adequately accommodate additional vehicle movements, offsetting any increase in the likelihood of crashes.	1	2	L
Increased traffic demands generated by the development at site accesses – increases potential for pedestrian conflicts.	1	3	L	2	3	M	Provide pedestrian sight splays, pedestrian refuges, and zebra crossings on slip lanes.	1	3	L
New service vehicle accesses to Almondbury Road – may increase risk of pedestrian conflicts.	-	-	-	2	3	M	Provide pedestrian sight splays, warning signage, relocate Almondbury Road zebra crossing. Provide pedestrian refuge at Marmon Street access and reduce crossing distance compared to existing situation.	1	3	L
Modified site access to Marmion Street – may increase risk of pedestrian conflicts.	2	3	M	2	3	M	Provide pedestrian sight splays, warning signage, pedestrian refuge and reduce crossing distance compared to existing situation.	1	3	L
New four-way intersection of Almondbury Road, Links Road and High Street – potential increase in vehicle – vehicle and vehicle – pedestrian conflicts.	-	-	-	2	3	M	Provide roundabout to lower vehicle speeds on approaches. Provide pedestrian refuges on all approaches to roundabout.	1	3	L

The risk assessment presented in Table 35 indicates that with the proposed mitigation treatments implemented, the subject development is not anticipated to have any significant impact on the safety of the surrounding road network.

12 Management Plans/Audits

CoM has requested that interim details of the following items of relevance from a transport perspective be provided as part of the DA:

- A travel management plan, including car parking management plan;
- A Road Safety Audit as per CoM Policy CP-034.

SLR notes that above items would not typically be addressed at the DA stage (i.e. these items would typically be conditioned and addressed post-approval), and therefore a detailed assessment of these matters has not been undertaken as part of this TIA. Notwithstanding, SLR has considered these items at a high level below.

12.1 Green Travel Plan

Following development approval, it is recommended that a Green Travel Plan (or similar) be prepared and submitted for approval prior to opening of the Stage 1 development in order to encourage sustainable travel choices by visitors and employees to the development. The *Travel Plan Guidelines for Large Shopping Centres* document prepared by the DoT provides 'best practice' guidance on developing travel plans for activity centres. It is recommended that a Green Travel Plan is prepared for the subject development in accordance with *Section 7* (Travel plan document) of the DoT guideline, the requirements of which are reproduced below for reference:

- *"Summarises transport context including:*
 - *Public transport access;*
 - *Bicycle access and end of trip facilities;*
 - *Pedestrian access;*
 - *Car park management arrangements (number of bays, time and constraints on staff use);*
 - *Current or modelled mode split for customers and employees*
- *Defines transport objectives for the centre*
- *States target mode shares for car and active modes for customers and employees*
- *Describes strategies and actions to be implemented including:*
 - *A table listing actions and who will be responsible for each action and when implementation of the action will occur;*
 - *Actions that apply to customers and employees*
 - *A package of actions from across the strategies listed in the table under section 6.6*
 - *Actions to be delivered at or around the time of centre opening and actions that will be delivered later or ongoing*
- *Outlines the implementation framework for the plan, e.g. steering group, six monthly progress review;*
- *Outlines monitoring, evaluation and reporting arrangements including:*
 - *How implementation will be monitored;*
 - *How impact on travel behaviour will be monitored;*
 - *How findings will be reported and applied."*

12.2 Road Safety Audit

The CoM *Road Safety Audit* policy (CP-034) indicates the following requirements for a road safety audits for 'land developments:

"Road safety audits shall be conducted on land use developments that intersect the City of Melville road network in accordance with the requirements of this policy. The road project value warrants above shall be used to determine audit requirements, with the exception of projects with an estimated project value less than \$150,000 that meet any of the following warrants:

- *Subdivisions of more than 20 lots;*
- *Car parks providing access for more than 50 vehicles;*
- *Developments that are likely to generate traffic movements in excess of 100 movements per day;*
- *Projects that are likely to generate increased pedestrian or cycle movements, or where significant numbers of pedestrians or cyclists are nearby; or*
- *Project locations where potential road safety risks are identified by the City of Melville.*

Land use developments that involve a permanent change to the public road network with an estimated project value less than \$150,000 that meet any of the above warrants shall have a road safety audit undertaken at the following 2 stages as a minimum:

- *Stage 3 - Detailed design;*
- *Stage 4 - Pre-opening (when the project is substantially complete and prior to opening to the public) The road safety audit shall include the internal road network and parking area within the development.*

The road safety audit shall include the internal road network and parking area within the development."

In relation to the above requirements, SLR notes that:

- The value of the proposed development will exceed \$150,000;
- The development will provide car parks with >50 spaces, will generate in excess of 100 vehicles per day, and is likely to generate increased pedestrian demands;
- The development will involve permanent changes to the public road network.

Based on the above, Stage 3 (Detailed design) and Stage 4 (Pre-opening) road safety audits of proposed external works and internal works (i.e. car parking areas and internal roads) would be required in accordance with CP-034. In relation to this requirement, SLR notes that:

- Detailed design and pre-opening stage road safety audits of all proposed external upgrading works located within the public road reserve are a typical and reasonable post-approval requirement;

- Application of a formal road safety audit to privately owned car parking areas and internal roads, for which Council carries no liability or responsibility for any potential incidents, is considered too onerous at this stage of the DA. Through the detailed design process, risk assessments of all internal car parking, circulation and service areas will be conducted as part of the mandatory 'safety in design' process, which is required to be documented by the project architect and other consultants. It is in the interests of Scentre as both the asset owner and project architect to ensure that all potential risks associated with internal car parking, circulation and service areas are addressed during the detailed design stage. Notwithstanding the above position, a condition of approval to complete a road safety audit/risk assessment of new/modified internal car parking areas and circulation roads at the detailed design stage may be reasonable.

13 Summary and Conclusions

SLR has been engaged by Scentre to prepare a TIA for the proposed expansion of Westfield Booragoon. Plans for the development have been prepared by Gensler and are included at Appendix A.

Based on the analysis and discussion documented herein, the following is concluded:

- The proposed 44,849sq.m NLA expansion (i.e. total increase as part of Stages 1 and 2) of the existing shopping centre represents a substantial reduction in proposed floor area (i.e. 9,503sq.m or 8%) compared to the 2017 Approved Development, which is a significant from a traffic engineering perspective;
- The development will provide car parking at a rate of 4.14 spaces per 100sq.m NLA for the Stage 1 development and 3.77 spaces per 100sq.m NLA for the Stage 2 development, which aligns with the Structure Plan and SPP4.2 recommendations with respect to car parking. Excluding the cinema and commercial tenancies (i.e. retail component only), the development will provide car parking at a rate of 4.49 spaces per 100sq.m NLA for the Stage 1 and 4.04 spaces per 100sq.m NLA for Stage 2;
- The proposed car parking provision will be supported by the implementation of ticketless parking control, ensuring that the efficiency of existing and proposed car parking areas is maximised;
- A number of measures to improve pedestrian accessibility to the site are proposed including new 2.5m shared paths along site frontages, a high quality walking environment along the new High Street, pedestrian refuges at accesses and new crossings at various midblock locations around the site, as well as improvements at several external signalised intersections;
- To encourage bicycle trips by employees and visitors to the site, it is ultimately proposed to provide 100 bicycle parking spaces and supporting EoT facilities as part of the Stage 2 development, with 90% of this quantum provided at Stage 1;
- The design of access, car parking and servicing arrangements satisfies the relevant AS2890 and LPP 1.6 criteria;
- The assessment documented herein demonstrates, with the implementation of the proposed external upgrading works prior to commencement of the proposed development, development generated traffic will not have a significant impact on the operation or safety of the surrounding road network;
- It is recommended that a Green Travel Plan be prepared and submitted for approval prior to opening of the Stage 1 development in order to encourage sustainable travel choices by visitors and employees to the development;
- Detailed design and pre-opening stage road safety audits of all proposed external upgrading works located within the public road reserve would be a reasonable post-approval requirement. A condition of approval to complete a road safety audit/risk assessment of new/modified internal car parking areas and circulation roads at the detailed design stage may be reasonable.

APPENDIX A

Development Plans



SCENTRE GROUP

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Sydney, NSW
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2000

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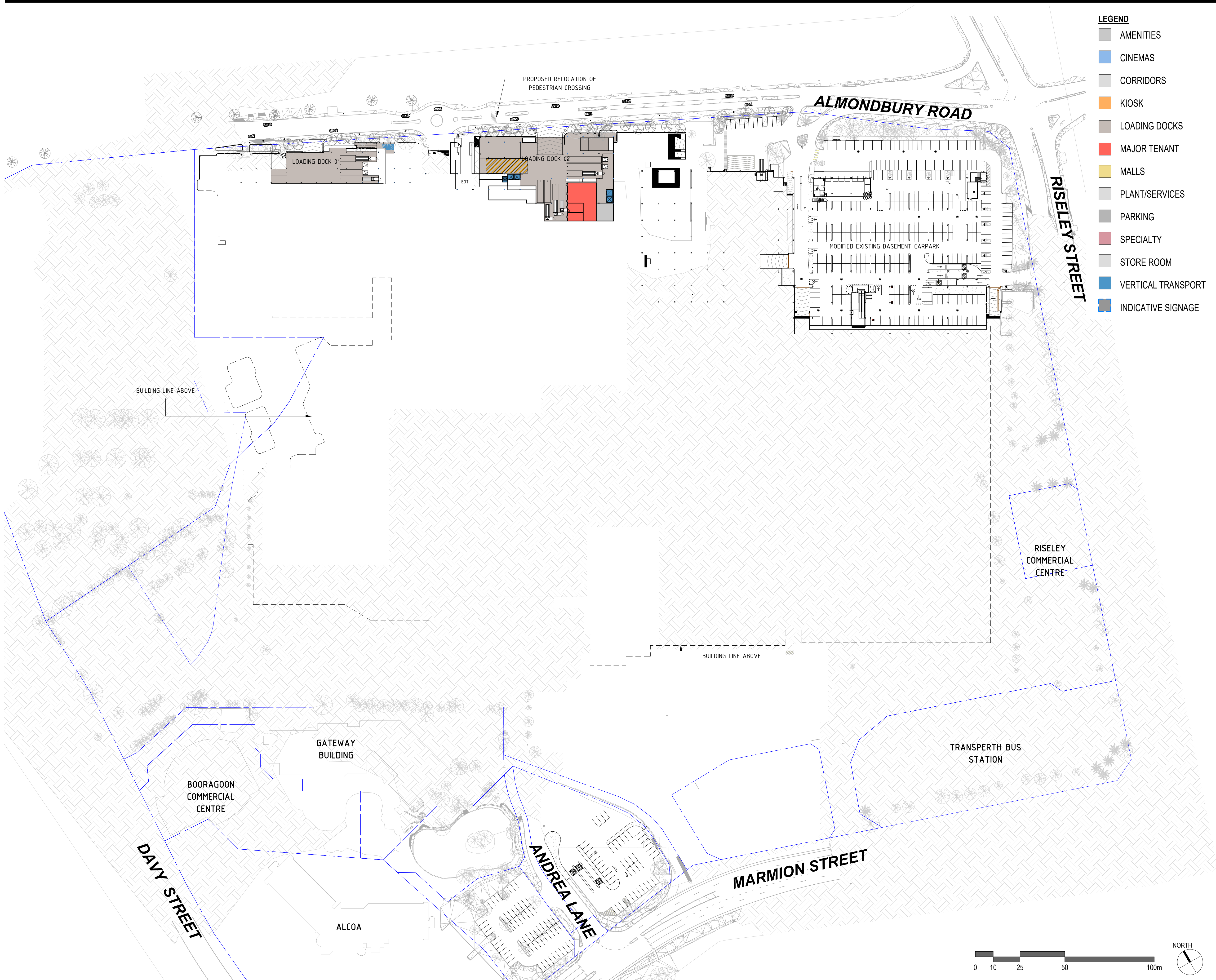
SCENTRE GROUP

WESTFIELD BOORAGOON DEVELOPMENT

125 Riseley Street, Booragoon, Western Australia, 6154

Development Application Package

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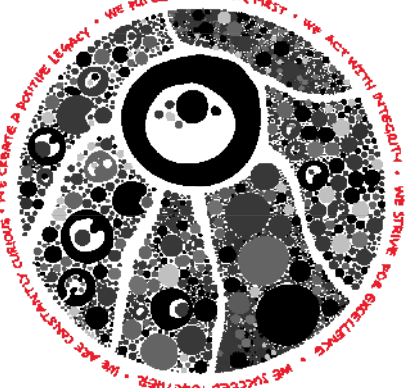


1 PROPOSED STAGE 1 GENERAL ARRANGEMENT PLAN AT BASEMENT 01
SCALE: 1 : 1000

- LEGEND**
- AMENITIES
 - CINEMAS
 - CORRIDORS
 - KIOSK
 - LOADING DOCKS
 - MAJOR TENANT
 - MALLS
 - PLANT/SERVICES
 - PARKING
 - SPECIALTY
 - STORE ROOM
 - VERTICAL TRANSPORT
 - INDICATIVE SIGNAGE

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Australia 2000
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△ Date	Description
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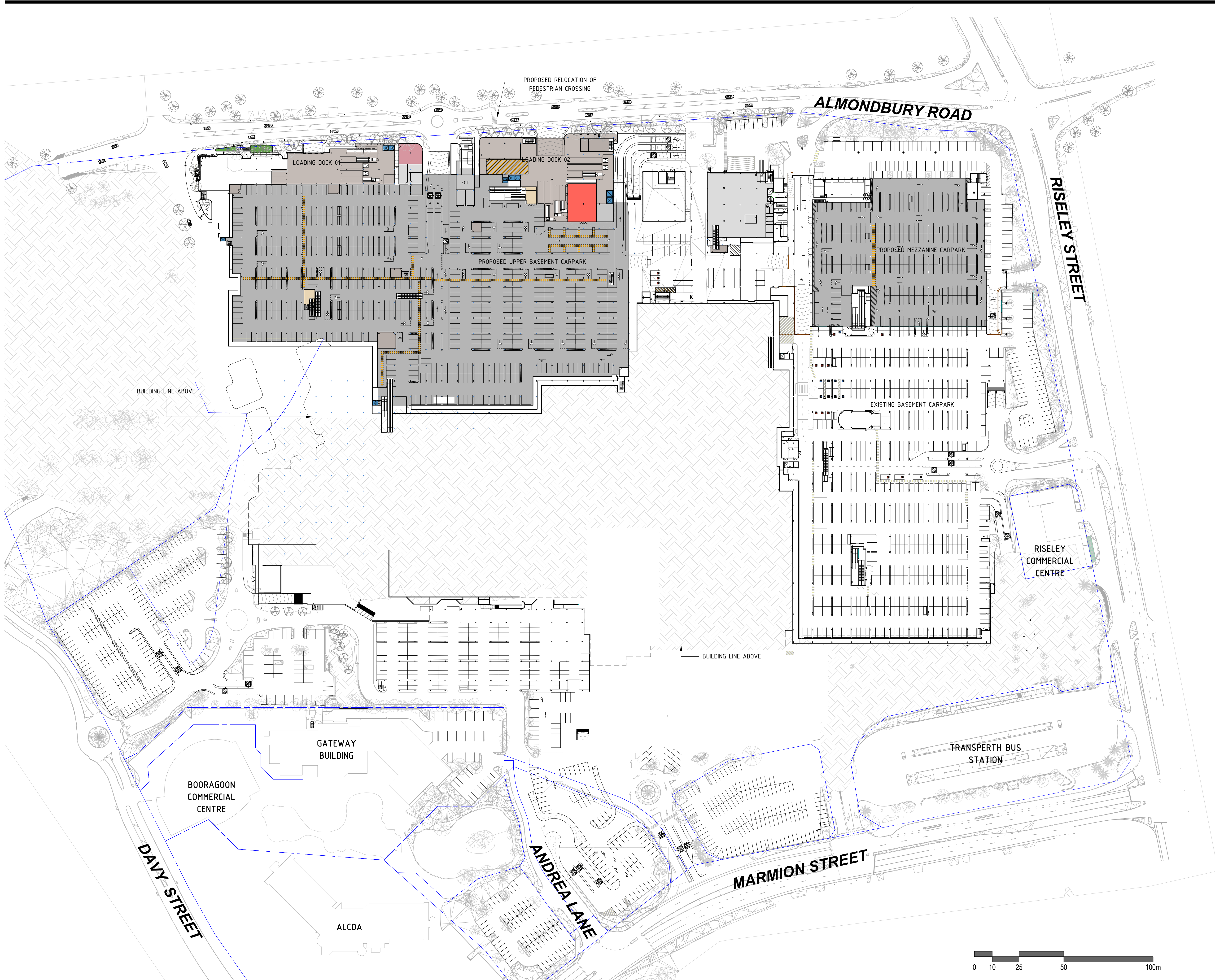
- NOTES:**
- This document describes a Design Intent only.
 - Boundary setout indicated as per surveyor's drawing. Subject to onsite confirmation.
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 - All perimeter landscape shown is indicative only. Refer to landscape masterplan for locations, sizes and details.

Seal / Signature

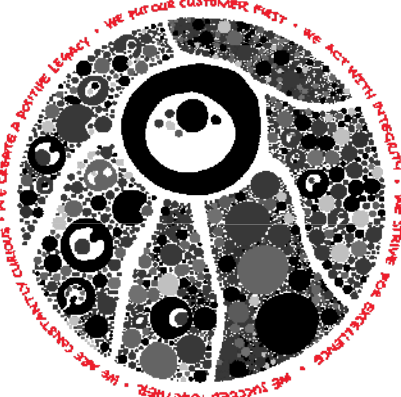
DEVELOPMENT APPLICATION

Project Name	WESTFIELD BOORAGOON DEVELOPMENT
Project Number	066.0266.000
Description	PROPOSED STAGE 1 GENERAL ARRANGEMENT PLAN AT BASEMENT 01 (LOWER)
Scale	1 : 1000

01.0811



1 PROPOSED STAGE 1 GENERAL ARRANGEMENT PLAN AT BASEMENT 01
SCALE: 1 : 1000



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DEVELOPMENT
APPLICATION

Project Name

WESTFIELD BOORAGOON
DEVELOPMENT

Project Number

066.0266.000

Description

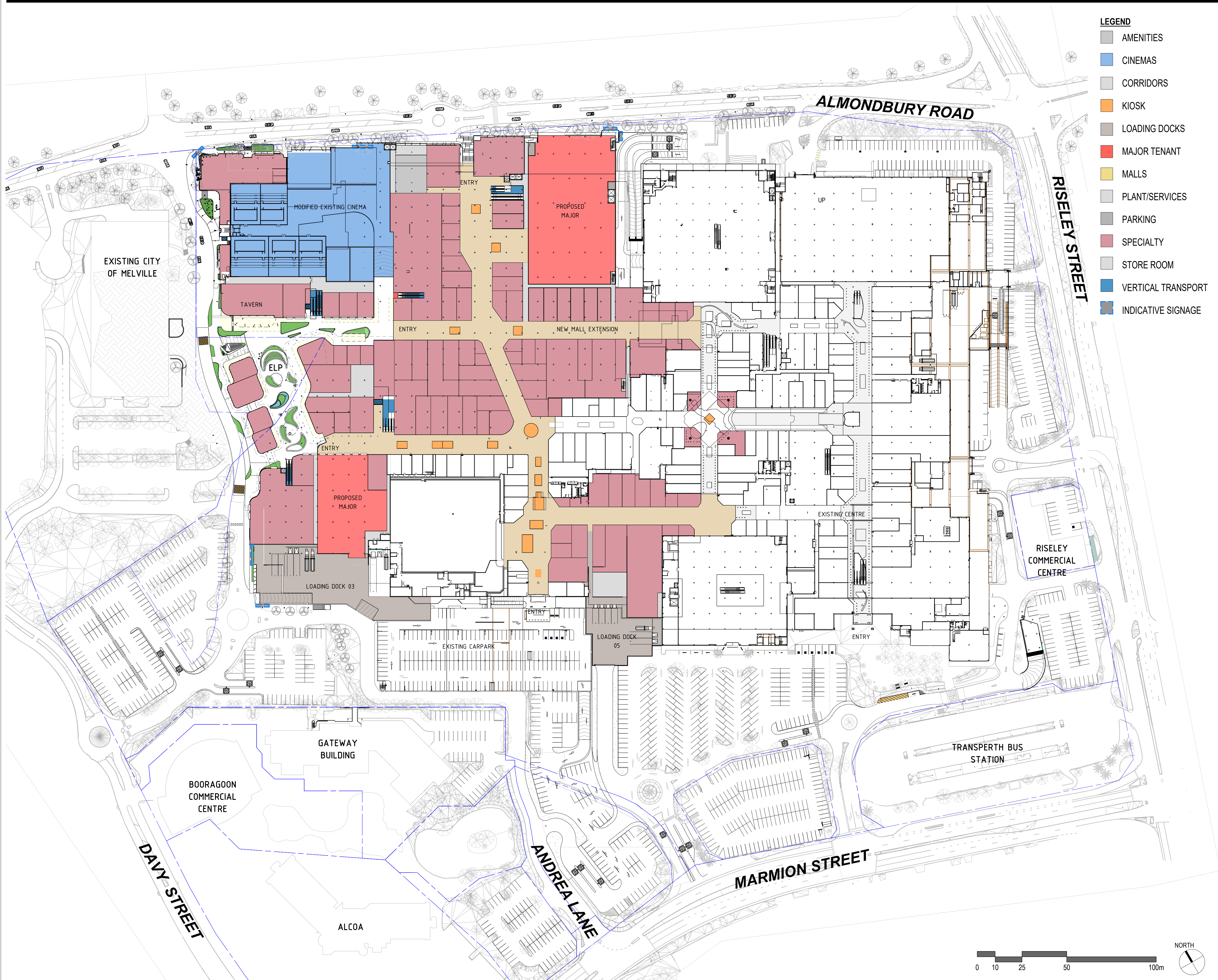
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ARRANGEMENT PLAN AT BASEMENT
01 (UPPER)

Scale

1 : 1000

01.0812

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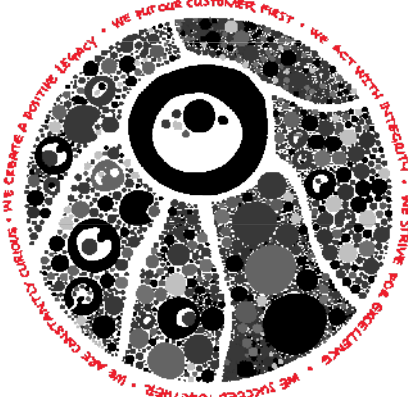


- LEGEND**
- AMENITIES
 - CINEMAS
 - CORRIDORS
 - KIOSK
 - LOADING DOCKS
 - MAJOR TENANT
 - MALLS
 - PLANT/SERVICES
 - PARKING
 - SPECIALTY
 - STORE ROOM
 - VERTICAL TRANSPORT
 - INDICATIVE SIGNAGE

1 PROPOSED STAGE 1 GENERAL ARRANGEMENT PLAN AT GROUND FLOOR
SCALE: 1 : 1000

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Sydney, NSW
Australia 2000
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Date	Description
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Seal / Signature

DEVELOPMENT APPLICATION

Project Name
WESTFIELD BOORAGOON DEVELOPMENT

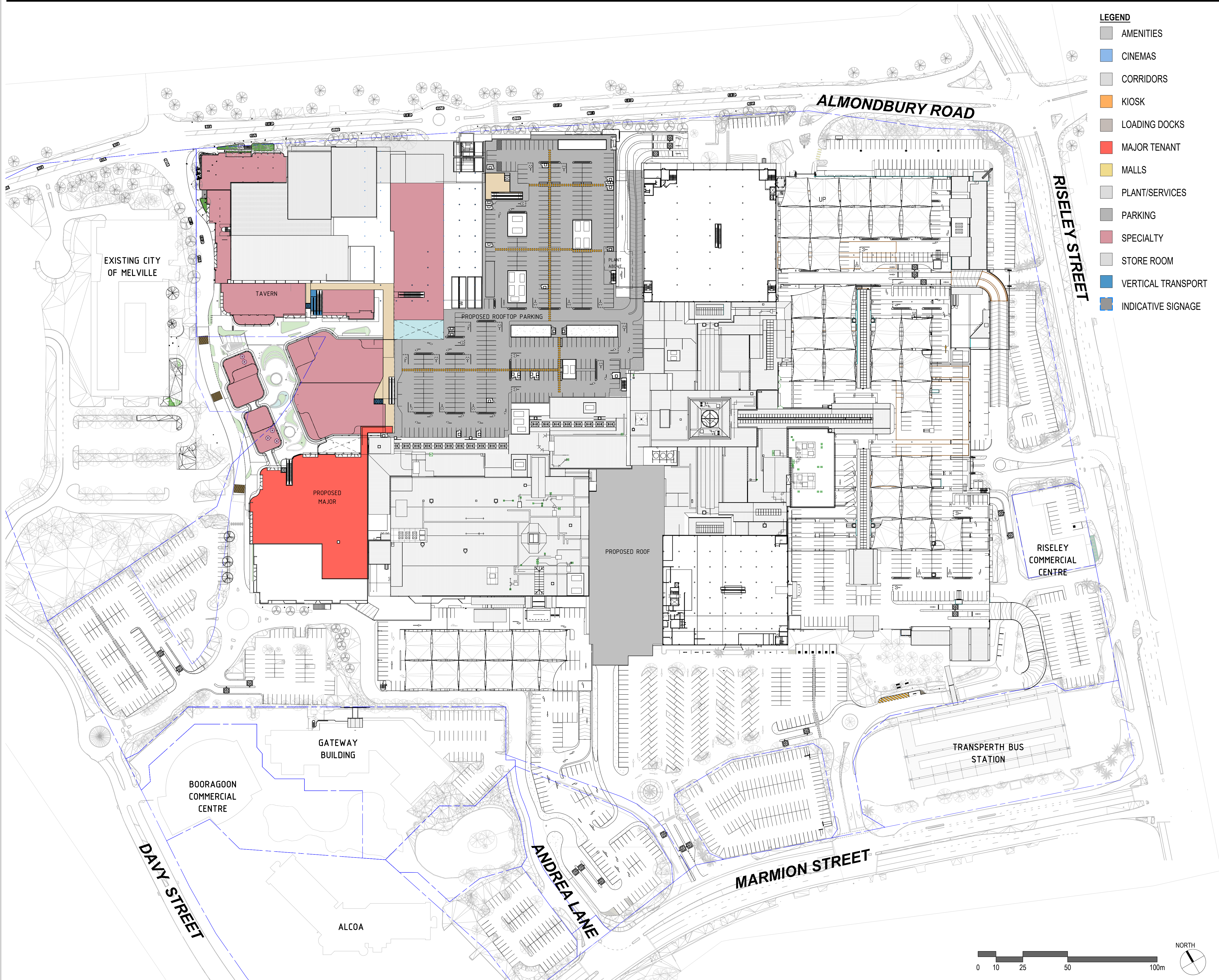
Project Number
066.0266.000

Description
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Scale
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01.0813

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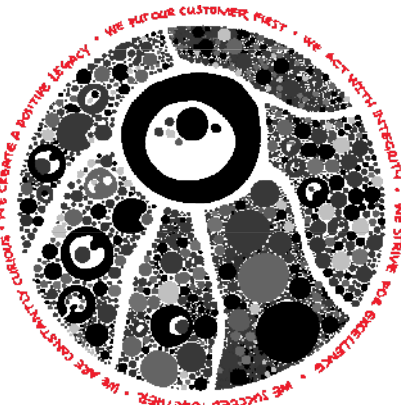


1

PROPOSED STAGE 1 GENERAL ARRANGEMENT PLAN AT LEVEL 01 / ROOF
SCALE: 1 : 1000

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Seal / Signature

DEVELOPMENT APPLICATION

Project Name
WESTFIELD BOORAGOON DEVELOPMENT

Project Number
066.0266.000

Description
PROPOSED STAGE 1 GENERAL ARRANGEMENT PLAN AT LEVEL 01 / ROOF

Scale
1 : 1000

01.0815

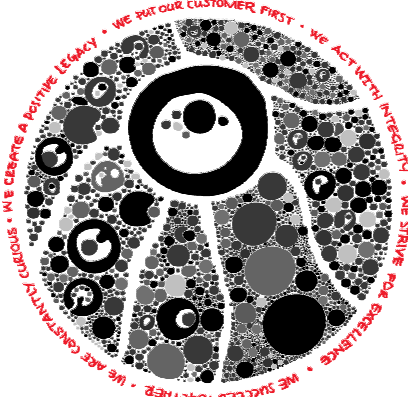


LEGEND

- AMENITIES
- CINEMAS
- CORRIDORS
- KIOSK
- LOADING DOCKS
- MAJOR TENANT
- MALLS
- PLANT/SERVICES
- PARKING
- SPECIALTY
- STORE ROOM
- VERTICAL TRANSPORT
- INDICATIVE SIGNAGE

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DEVELOPMENT
APPLICATION

Project Name

WESTFIELD BOORAGOON
DEVELOPMENT

Project Number

066.0266.000

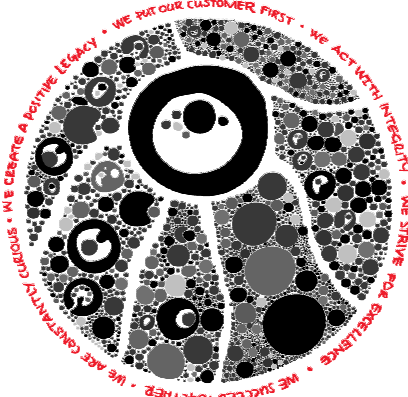
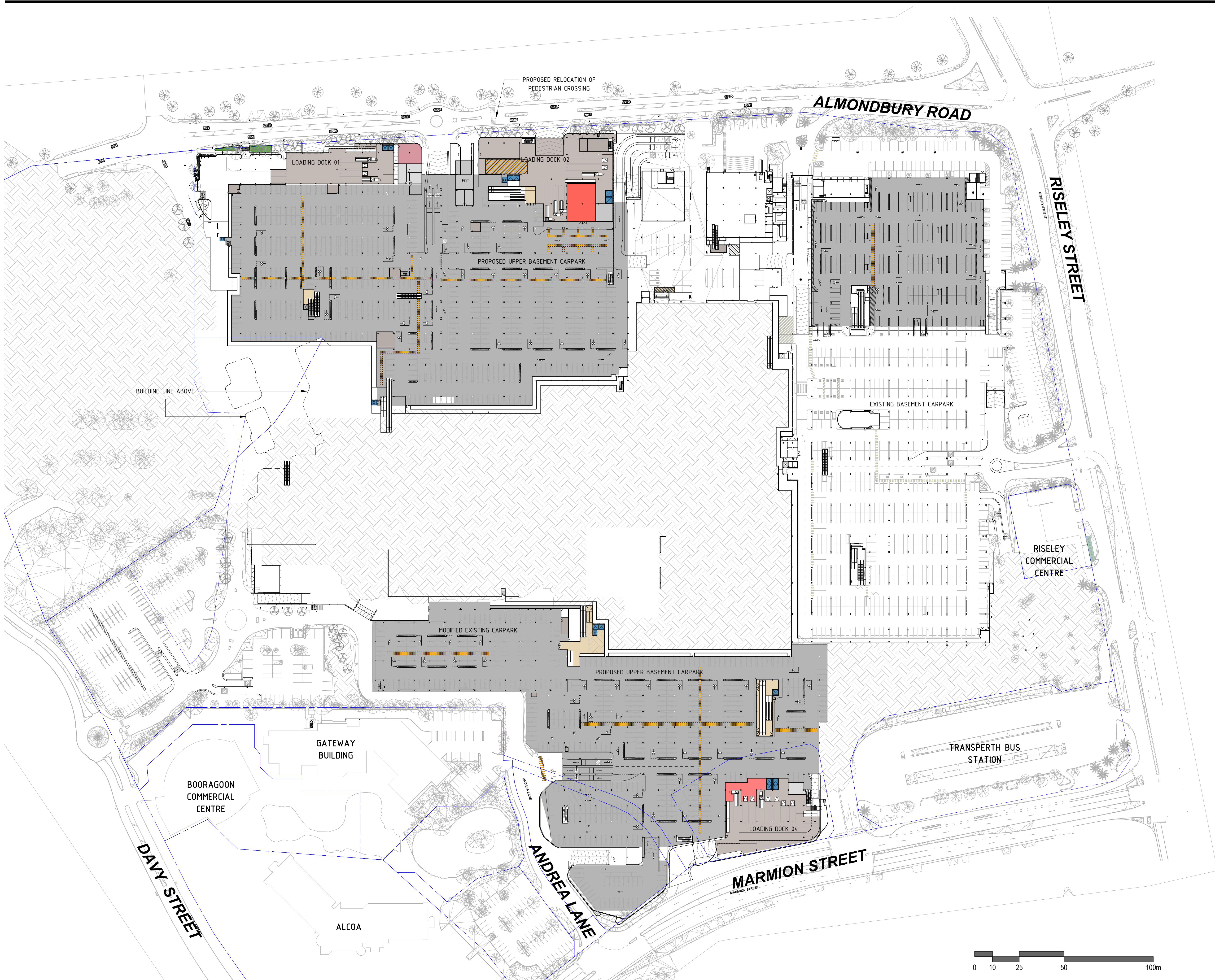
Description

PROPOSED STAGE 2 GENERAL
ARRANGEMENT PLAN AT BASEMENT
01 (LOWER)

Scale

1 : 1000

01.0801



Date	Description
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DEVELOPMENT APPLICATION

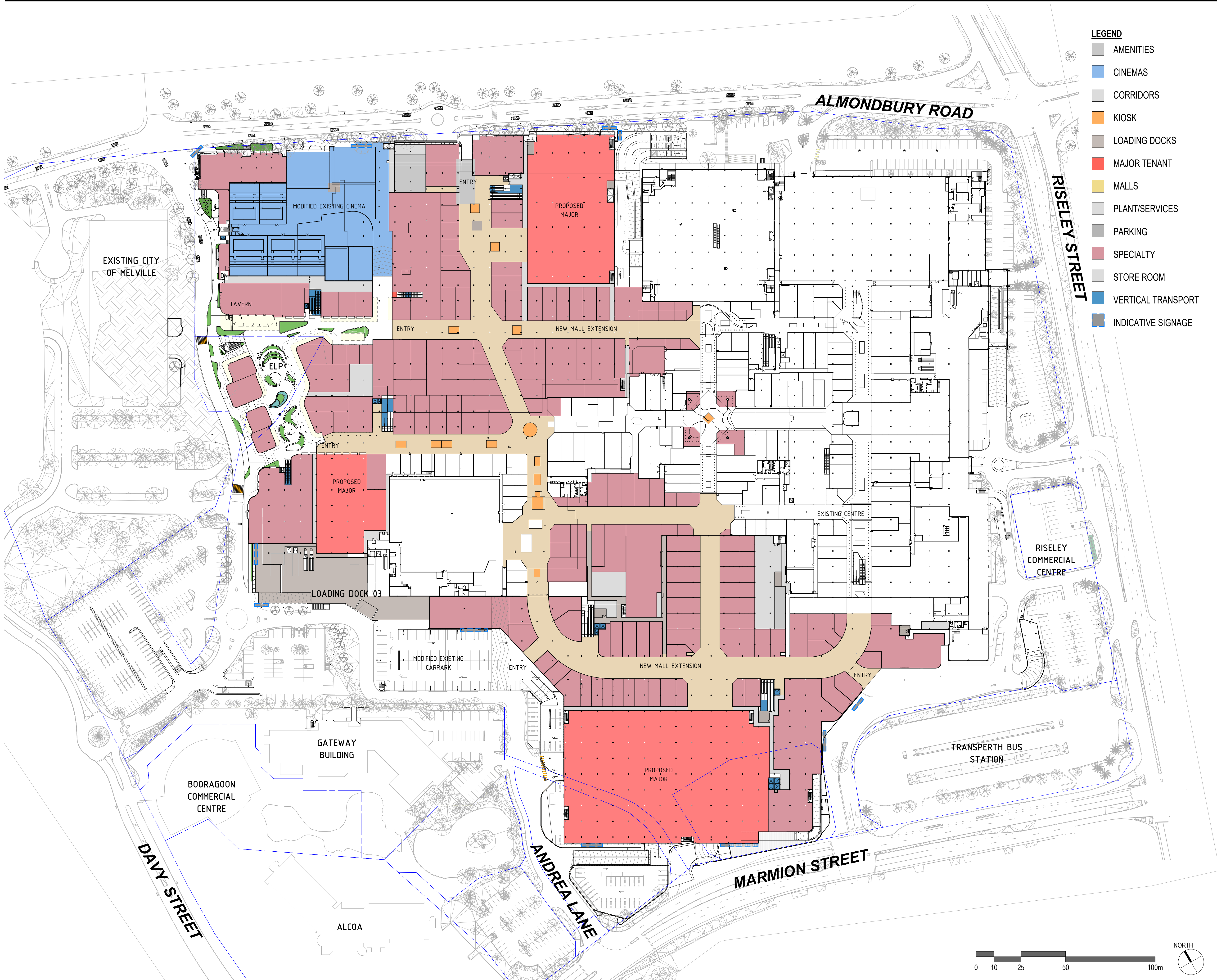
Project Name
WESTFIELD BOORAGOON DEVELOPMENT

Project Number
066.0266.000

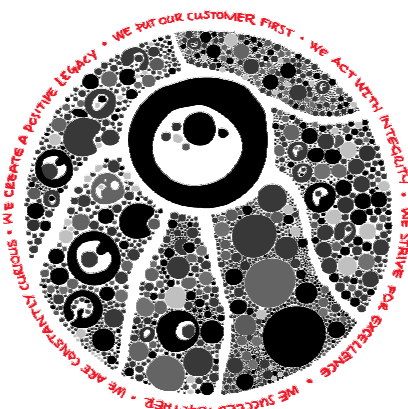
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Scale
1 : 1000

01.0802



1 PROPOSED STAGE 2 GENERAL ARRANGEMENT PLAN AT GROUND FLOOR
SCALE: 1 : 1000



Date	Description
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DEVELOPMENT APPLICATION

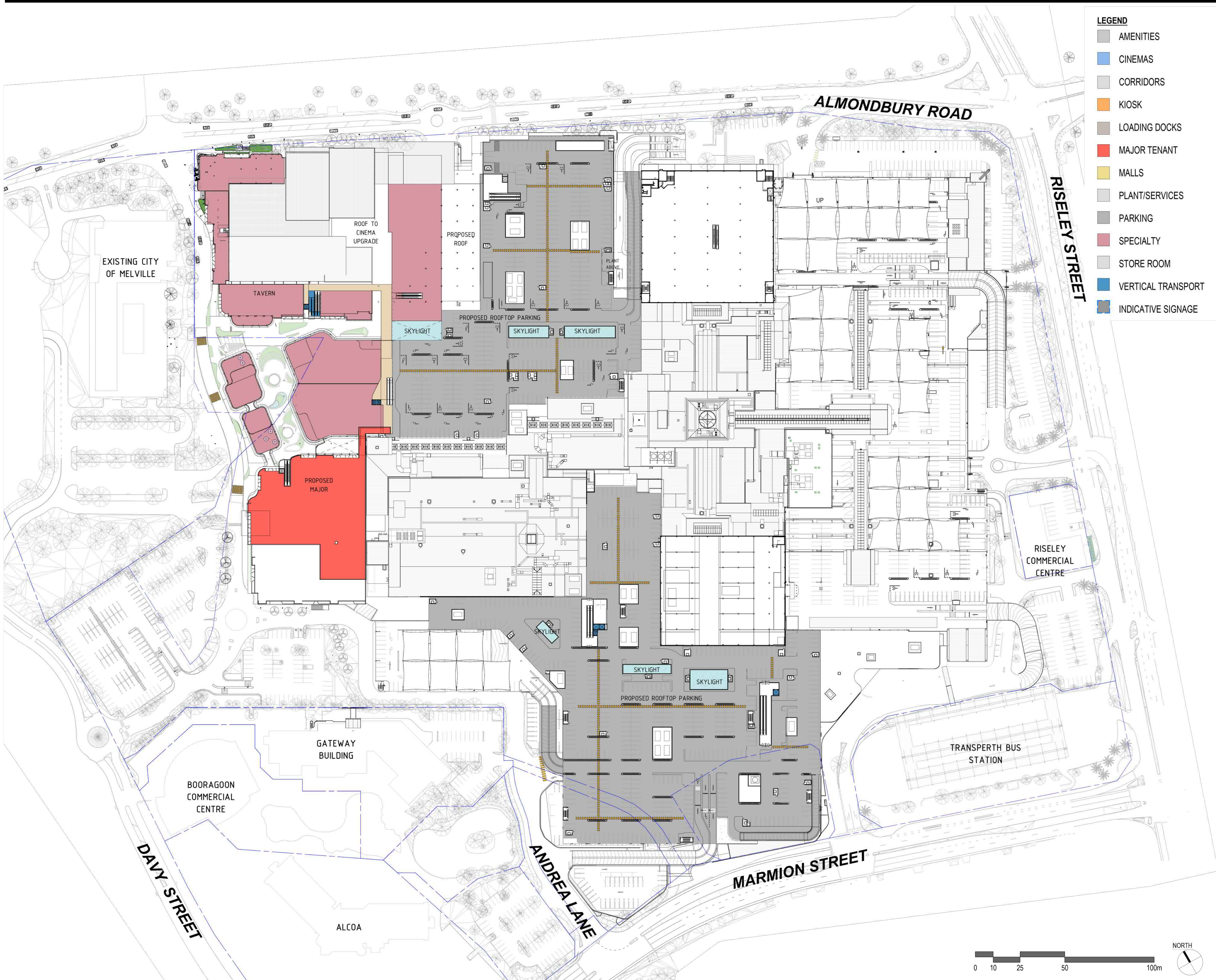
Project Name
WESTFIELD BOORAGOON DEVELOPMENT

Project Number
066.0266.000

Description
PROPOSED STAGE 2 GENERAL ARRANGEMENT PLAN AT GROUND FLOOR

Scale
1 : 1000

01.0803



- LEGEND**
- AMENITIES
 - CINEMAS
 - CORRIDORS
 - KIOSK
 - LOADING DOCKS
 - MAJOR TENANT
 - MALLS
 - PLANT/SERVICES
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DEVELOPMENT APPLICATION

Project Name
WESTFIELD BOORAGOON DEVELOPMENT

Project Number
066.0266.000

Description
PROPOSED STAGE 2 GENERAL ARRANGEMENT PLAN AT LEVEL 01 / ROOF

Scale
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01.0805

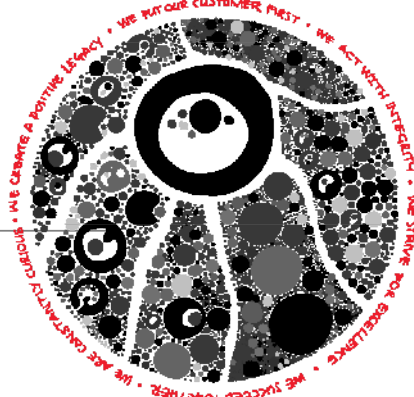
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1 PROPOSED STAGE 1 DETAILED PLAN AT GROUND FLOOR ELP PRECINCT
SCALE: 1 : 250

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Seal / Signature

DEVELOPMENT APPLICATION

Project Name
WESTFIELD BOORAGOON DEVELOPMENT
Project Number
066.0266.000
Description
PROPOSED STAGE 1 DETAILED PLAN AT GROUND FLOOR ELP PRECINCT

Scale
As indicated

01.1000

APPENDIX B

WAPC Transport Impact Assessment Guidelines Checklist

Checklist for a transport impact assessment for individual development

- Tick the provided column for items for which information is provided.
- Enter N/A in the provided column if the item is not appropriate and enter reason in comment column.
- Provide brief comments on any relevant issues.
- Provide brief description of any proposed transport improvements, for example, new bus routes or signalisation of an existing intersection.

ITEM	PROVIDED	COMMENTS/PROPOSALS
Summary	✓	See Section 13 of report
Introduction/Background	✓	See below sections of report
name of applicant and consultant	✓	See Section 1.1 of report
development location and context	✓	See Section 1.1 of report
brief description of development proposal	✓	See Section 1.1 of report
key issues	✓	See Section 1 of report
background information	✓	See Section 2 of report
Existing situation	✓	See below sections of report
existing site uses (if any)	✓	See Section 3.2 of report
existing parking and demand (if appropriate)	✓	See Section 3.2 of report
existing access arrangements	✓	See Section 3.2 of report
existing site traffic	✓	See Section 8.3 of report
surrounding land uses	✓	See Section 3.3 of report
surrounding road network	✓	See Section 3.4 of report
traffic management on frontage roads	✓	See Section 9.2 of report
traffic flows on surrounding roads (usually AM and PM peak hours)	✓	See Section 8.2 of report
traffic flows at major intersections (usually AM and PM peak hours)	✓	See Section 8.2 of report
operation of surrounding intersections	✓	See Section 9.5 of report
existing pedestrian/cycle networks	✓	See Section 3.5 of report
existing public transport services surrounding the development	✓	See Section 3.6 of report
crash data	✓	See Section 3.4.3 of report

TRANSPORT IMPACT ASSESSMENT GUIDELINES

ITEM	PROVIDED	COMMENTS/PROPOSALS
Development proposal	✓	See below sections of report
regional context	✓	See Section 3.1 of report
proposed land uses	✓	See Section 4.1 of report
table of land uses and quantities	✓	See Section 4.1 of report
access arrangements	✓	See Section 4.2 of report
parking provision	✓	See Section 4.3 of report
end of trip facilities	✓	See Section 4.6 of report
any specific issues	✓	See Section 4 of report
road network	✓	See Section 4.2 of report
intersection layouts and controls	✓	See Section 9.2 of report
pedestrian/cycle networks and crossing facilities	✓	See Section 4.5 & 4.6 of report
public transport services	✓	See Section 3.6 of report
Integration with surrounding area	✓	See below sections of report
surrounding major attractors/ generators	✓	See Section 8 of report
committed developments and transport proposals	✓	See Section 2 & Section 3.4.2 of report
proposed changes to land uses within 1200 metres	✓	See Section 2 & 3.4.2 of report
travel desire lines from development to these attractors/ generators	✓	See Section 8 of report
adequacy of existing transport networks	✓	See Section 9 & 10 of report
deficiencies in existing transport networks	✓	See Section 9 & 10 of report
remedial measures to address deficiencies	✓	See Section 9 & 10 of report
Analysis of transport networks	✓	See below sections of report
assessment years	✓	See Section 9.1 of report
time periods	✓	See Section 8.2 of report
development generated traffic	✓	See Section 8.3 of report
distribution of generated traffic	✓	See Section 8.4 of report
parking supply and demand	✓	See Section 5 of report
base and 'with development' traffic flows	✓	See Section 8 of report
analysis of development accesses	✓	See Section 9 of report
impact on surrounding roads	✓	See Section 9 of report
impact on intersections	✓	See Section 9 & 10 of report

TRANSPORT IMPACT ASSESSMENT GUIDELINES

ITEM	PROVIDED	COMMENTS/PROPOSALS
Analysis of transport networks (cont.)	✓	See below sections of report
impact on neighbouring areas	✓	See Section 9 & 10 of report
road safety	✓	See Section 11 of report
public transport access	✓	See Section 3.6 of report
pedestrian access/amenity	✓	See Section 4.5 of report
cycle access/amenity	✓	See Section 4.6 of report
analysis of pedestrian/cycle networks	✓	See Section 4.5 & 4.6 of report
safe walk/cycle to school (for residential and school site developments only)	n/a	n/a
traffic management plan (where appropriate)	n/a	n/a
Conclusions	✓	See Section 13 of report

Proponent's name

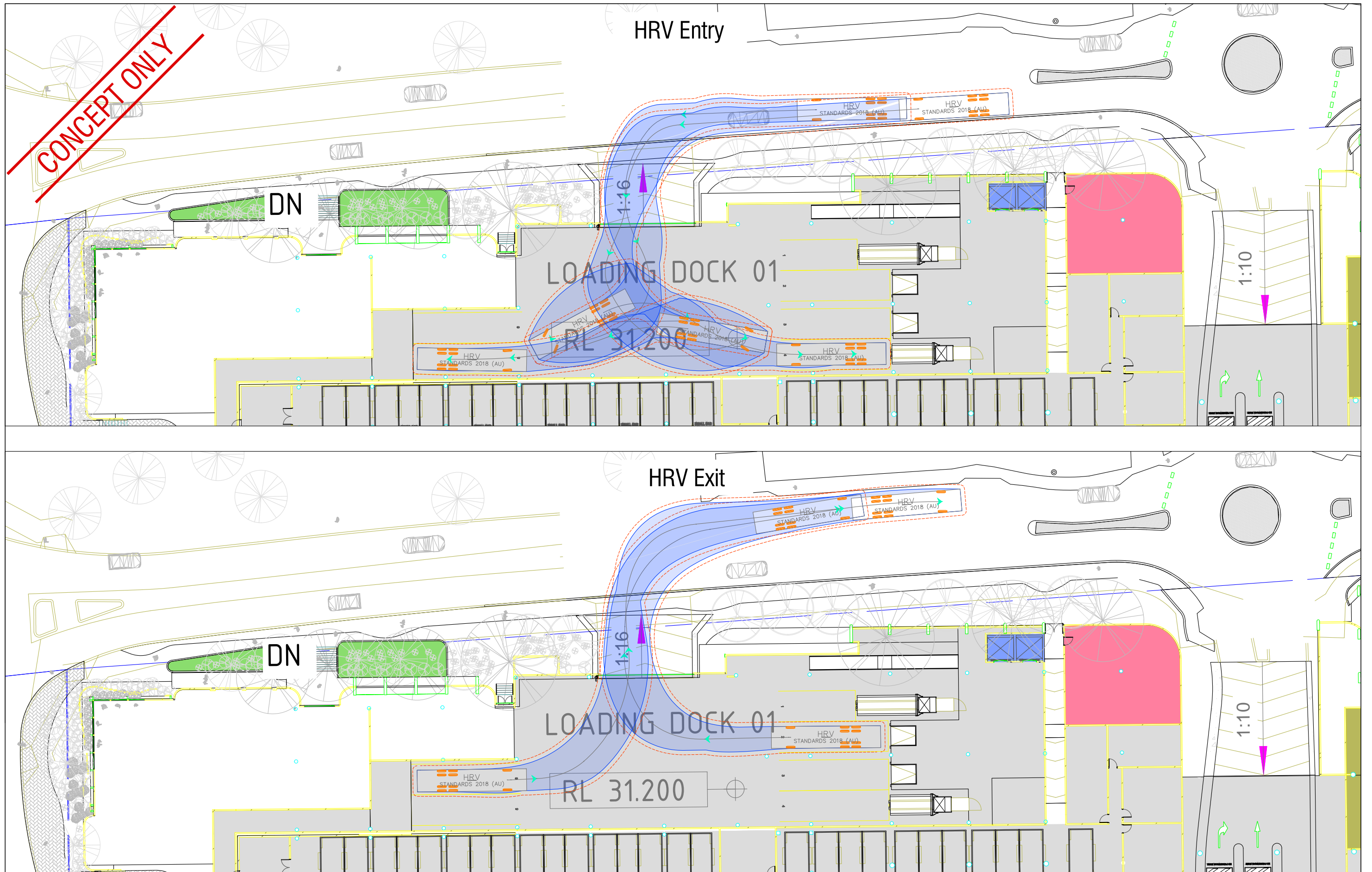
Company **Date** 11/08/2021

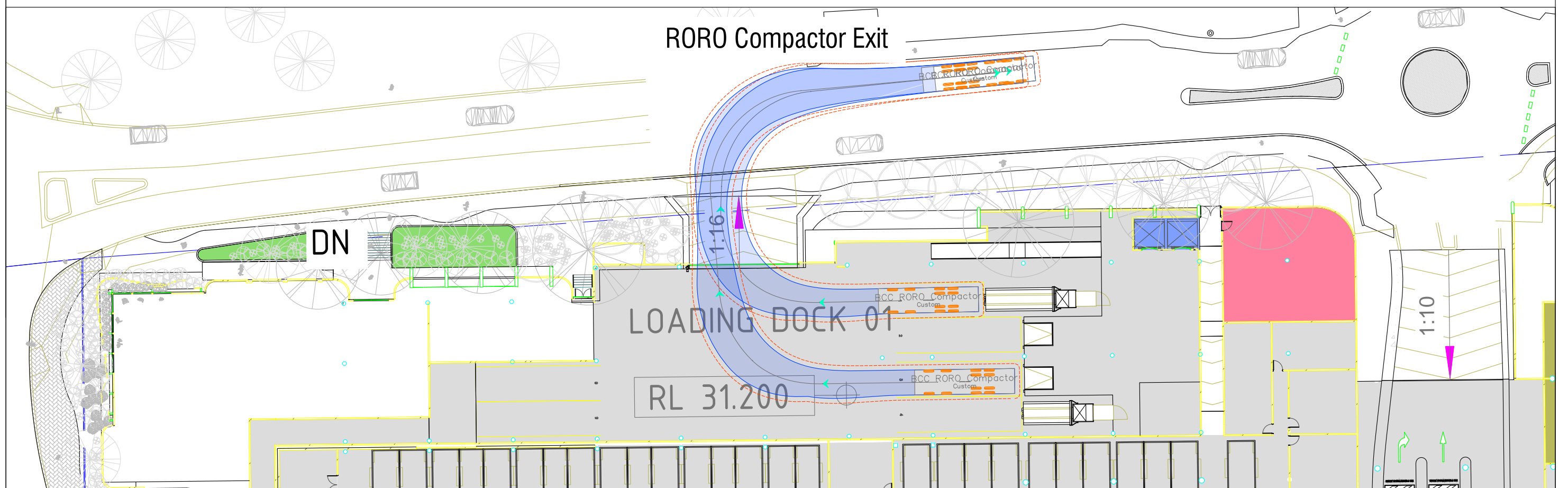
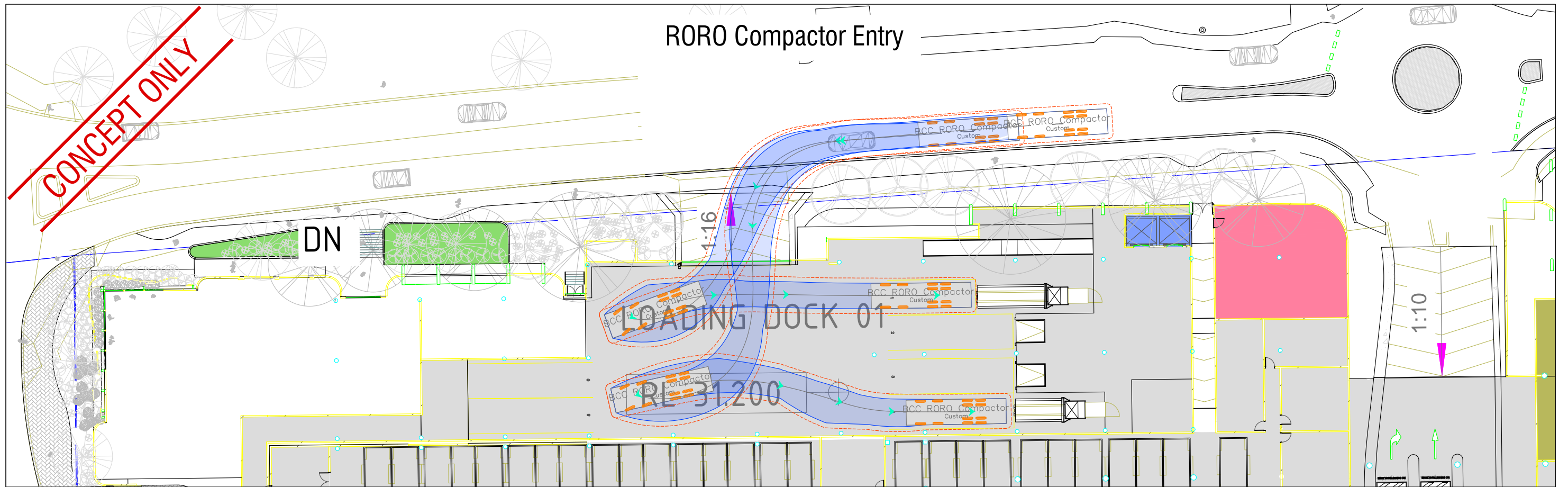
Transport assessor's name Chris Lawlor

Company SLR Consulting Australia Pty Ltd **Date** 11/08/2021

APPENDIX C

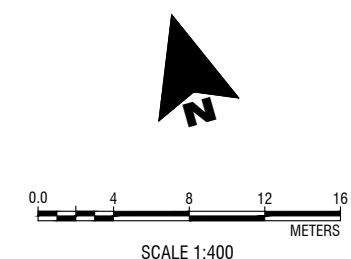
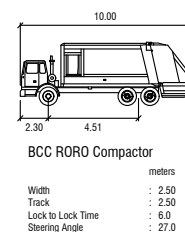
Swept Path Assessment





SWEPT PATH LEGEND

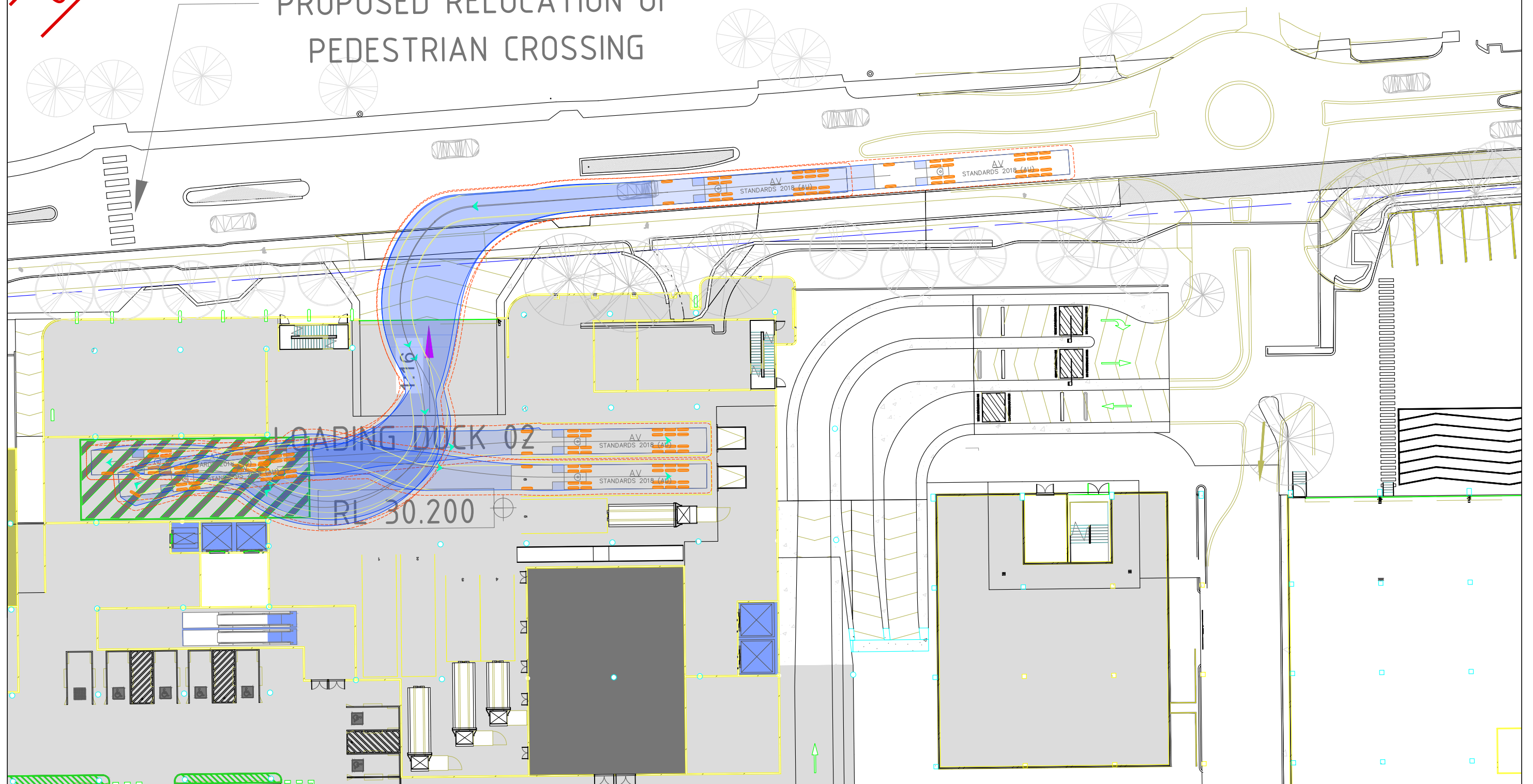
- Vehicle Path
- Vehicle Body
- - - Body Clearance



CONCEPT ONLY

AV Entry

PROPOSED RELOCATION OF PEDESTRIAN CROSSING

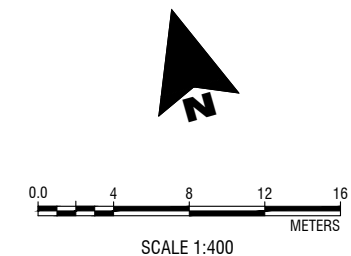
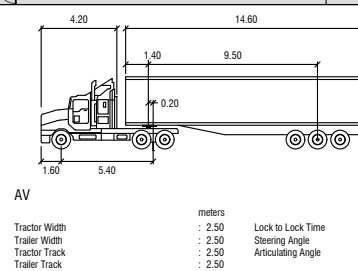


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Date: 23/10/2020
Drawn by: DM
Scale: AS SHOWN
Sheet Size: A3
Projection: -

SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance
- Front Wheels



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Westfield Booragoon Redevelopment

**Loading Dock 2 (Stage 1 & 2)
Swept Path Assessments**

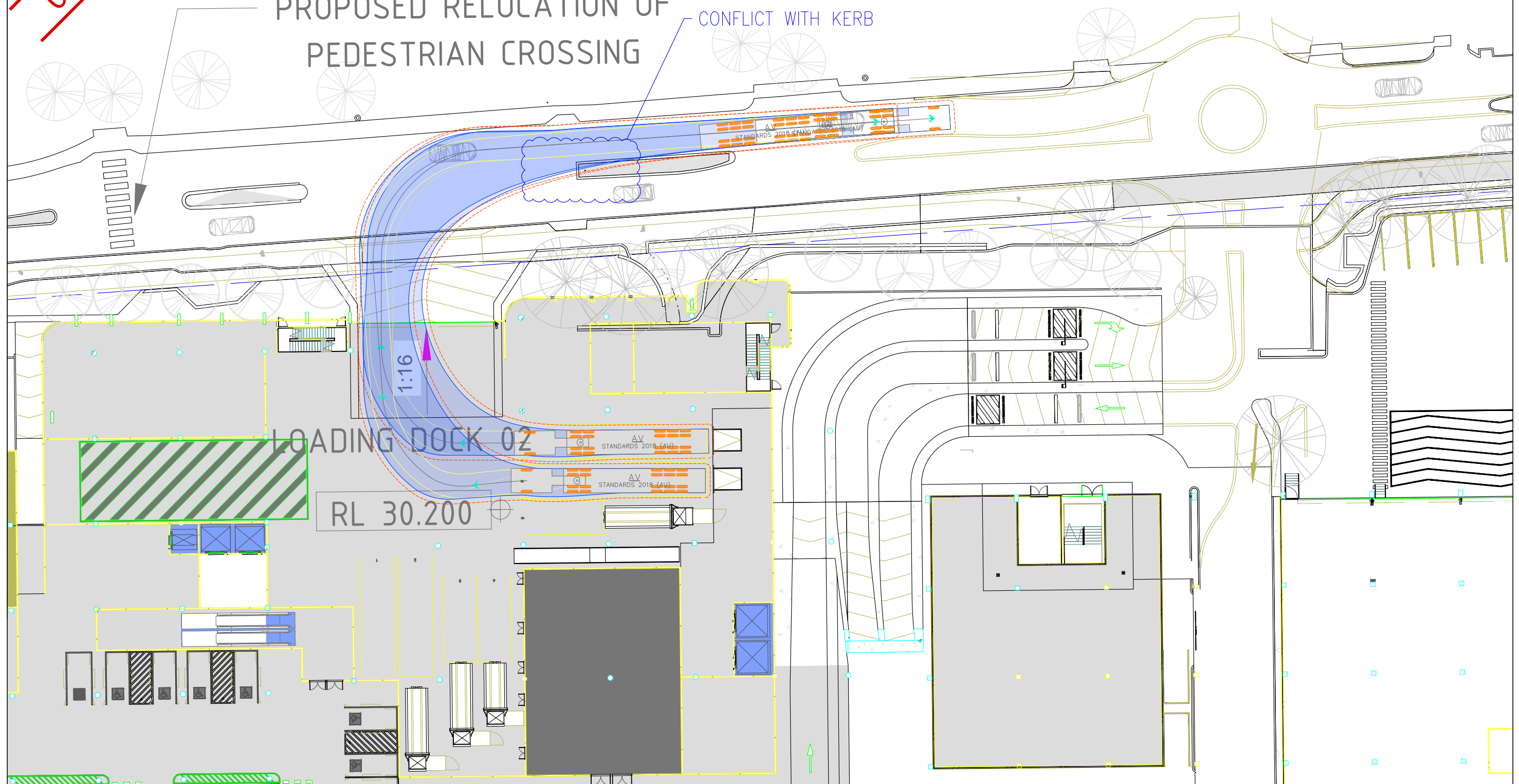
FIGURE SK201


CONCEPT ONLY

AV Exit

PROPOSED RELOCATION OF PEDESTRIAN CROSSING

CONFLICT WITH KERB





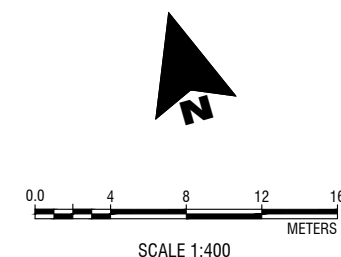
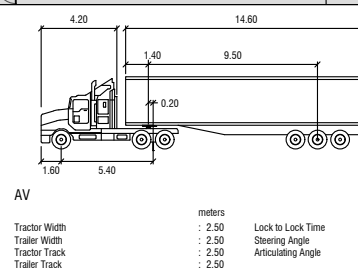
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AUSTRALIA
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Sheet Size:	A3
Projection:	-

SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance
- Front Wheels

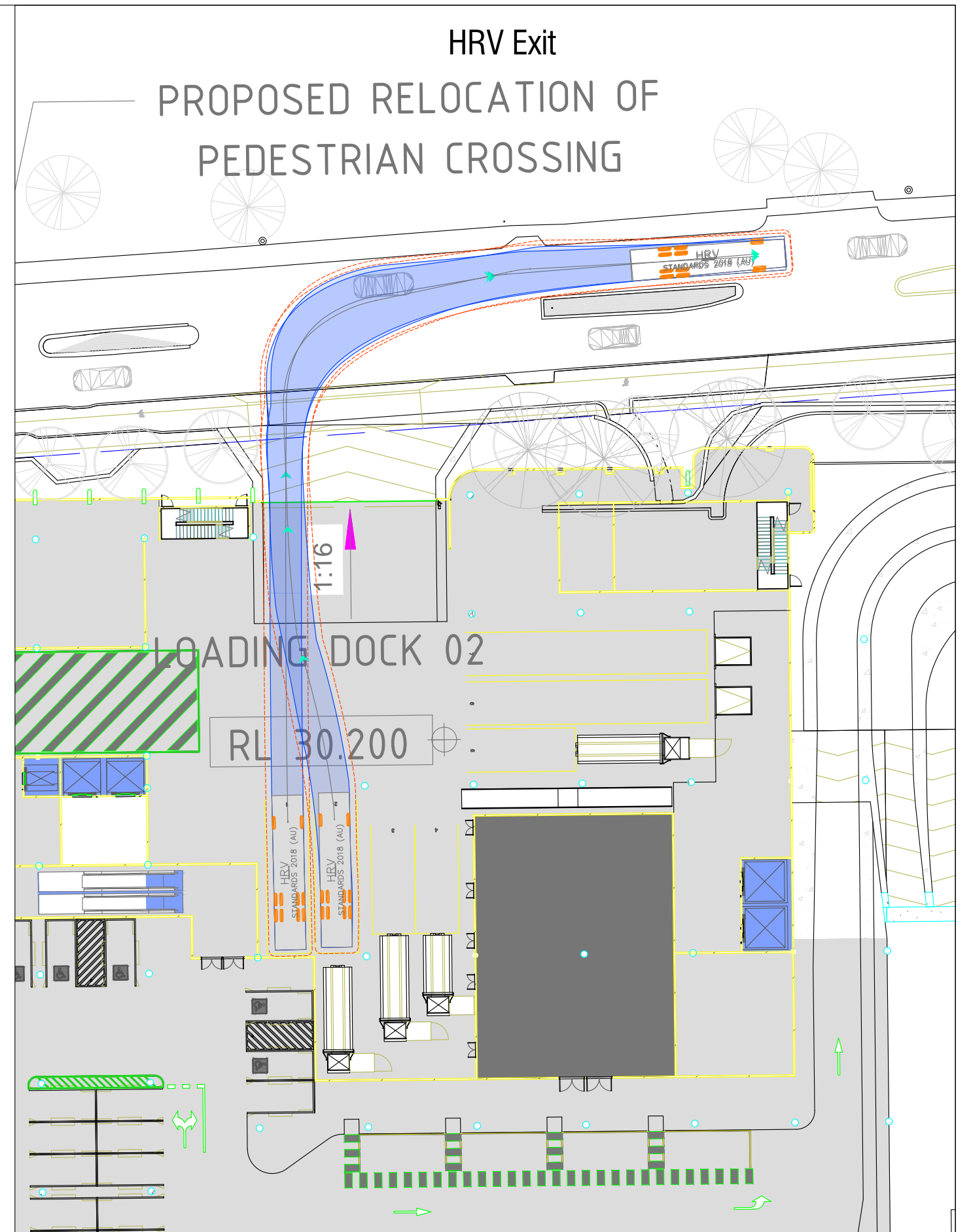
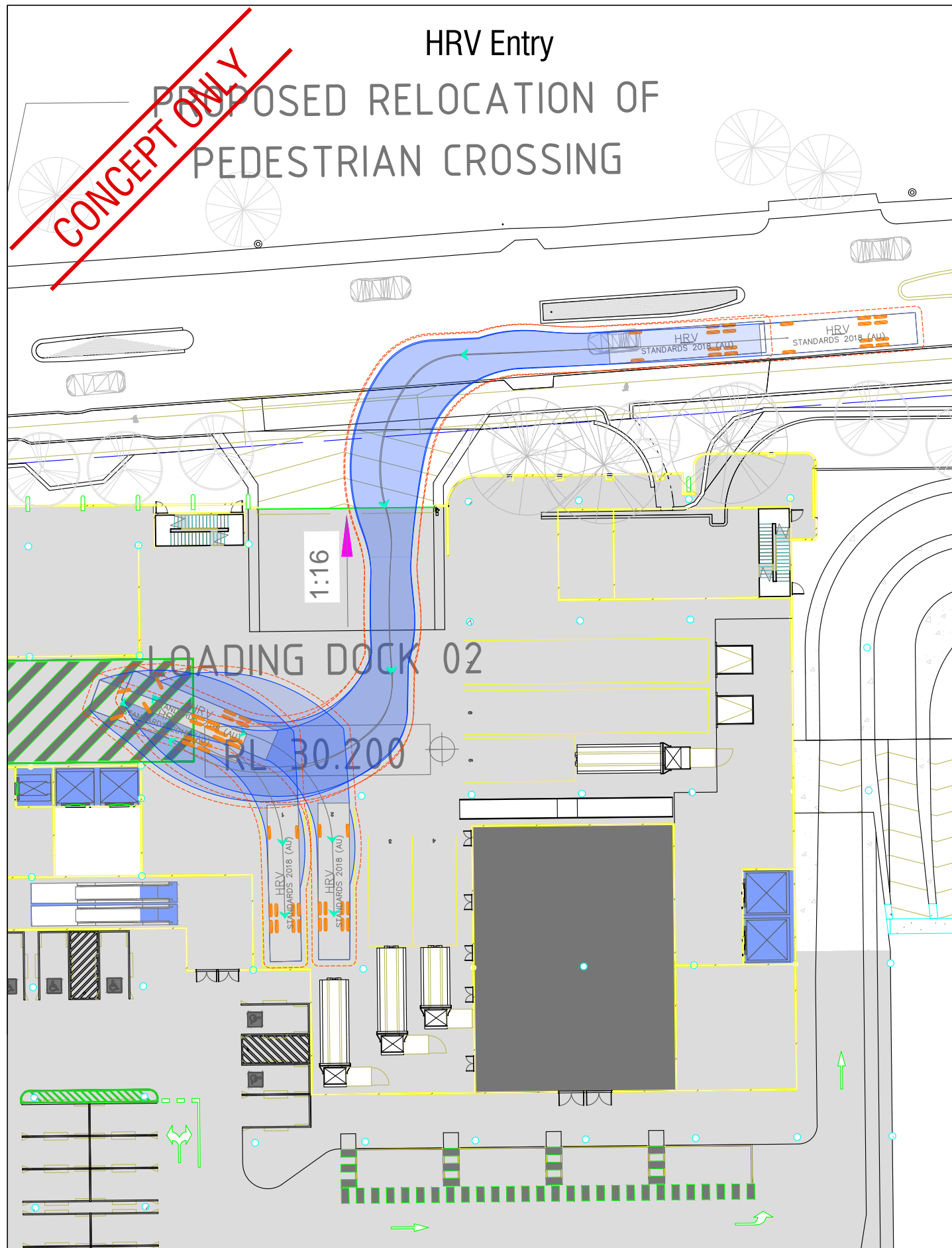


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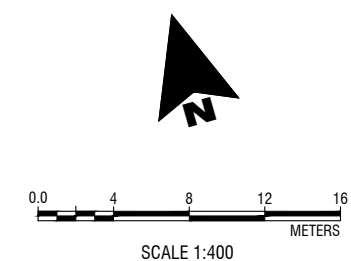
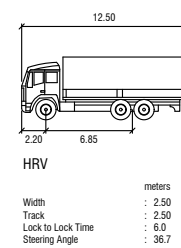
Loading Dock 2 (Stage 1 & 2)
Swept Path Assessments

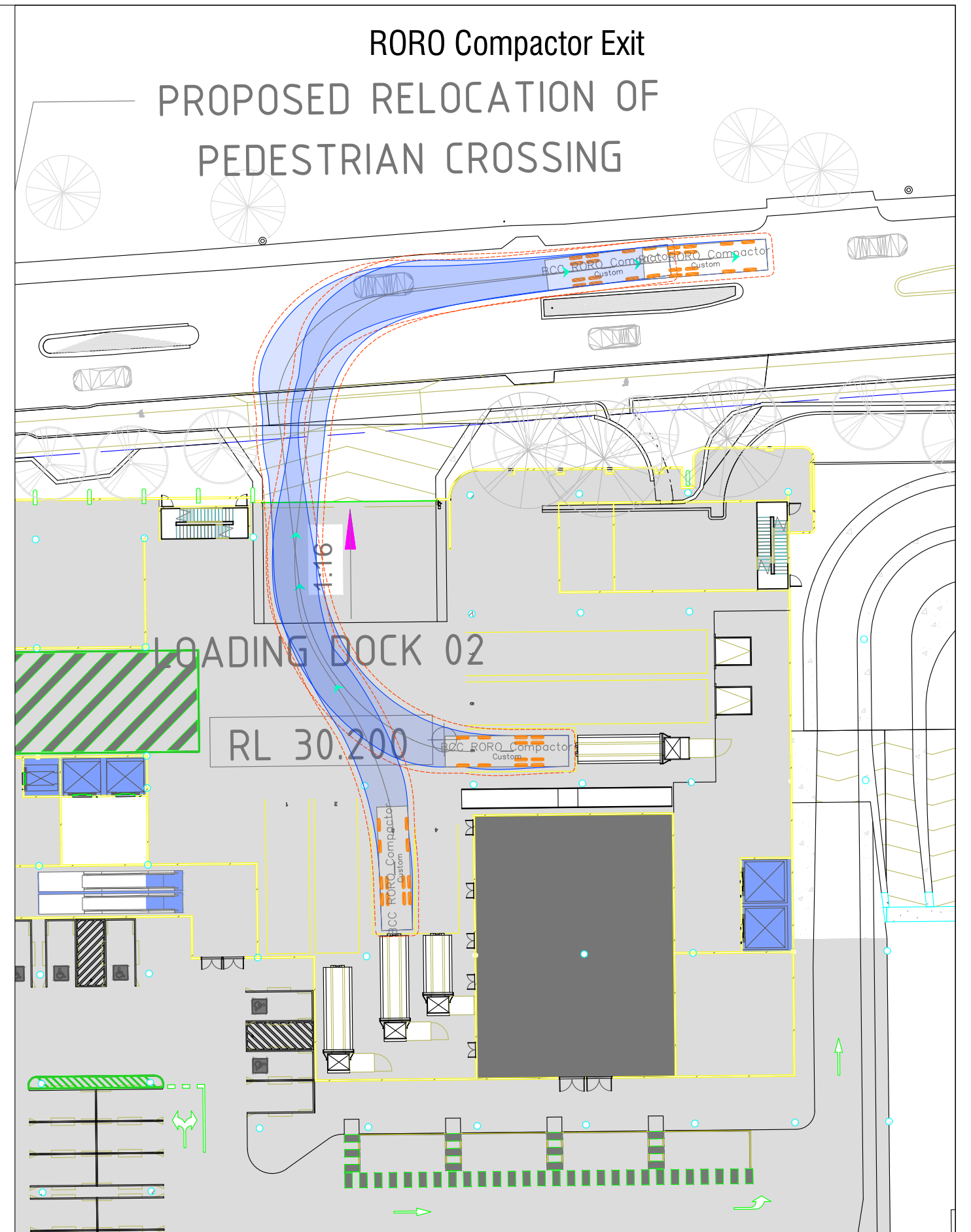
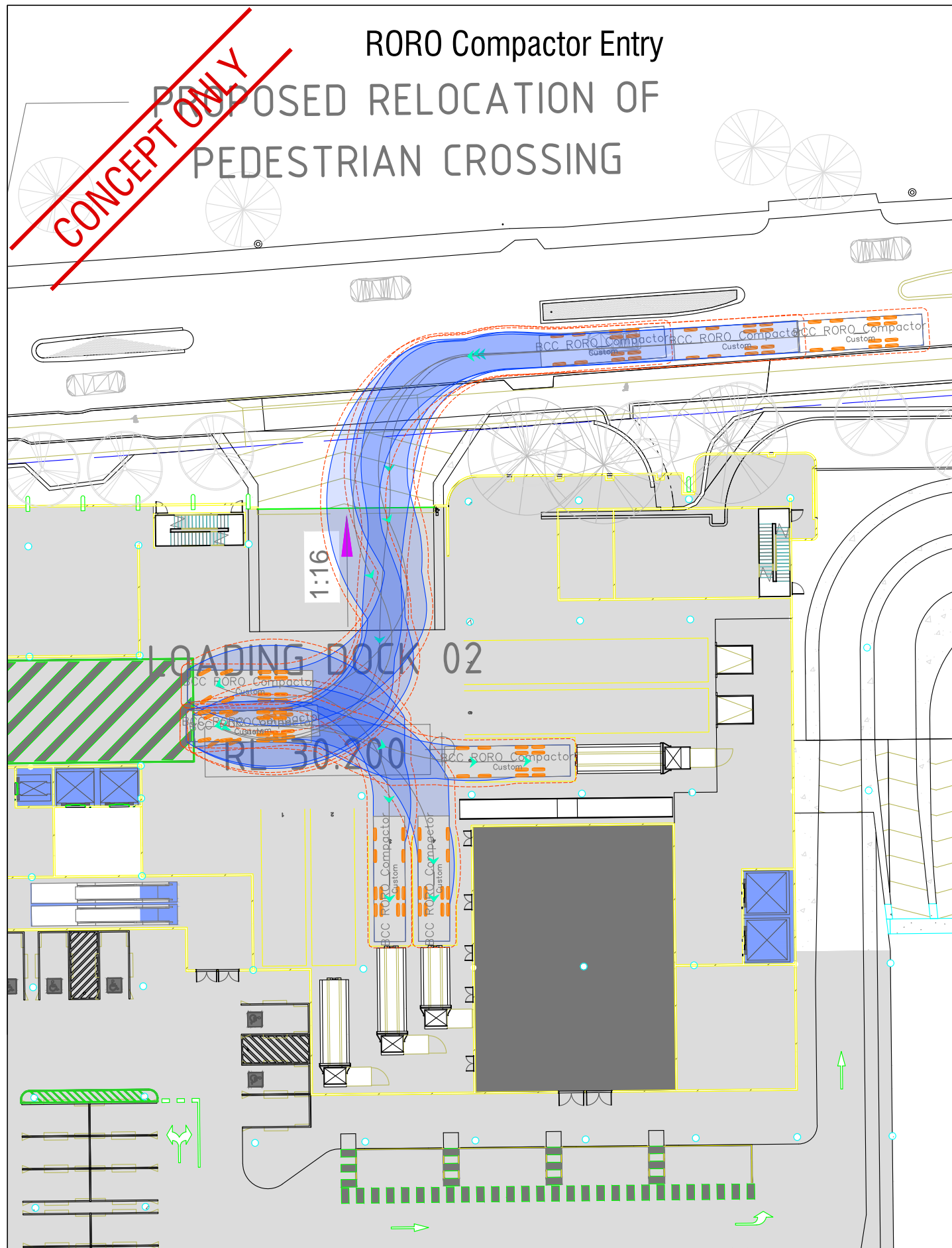
FIGURE SK202



SWEPT PATH LEGEND

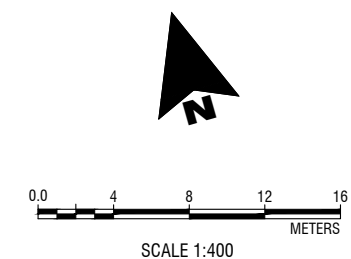
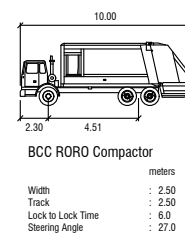
- Vehicle Path
- Vehicle Body
- Body Clearance

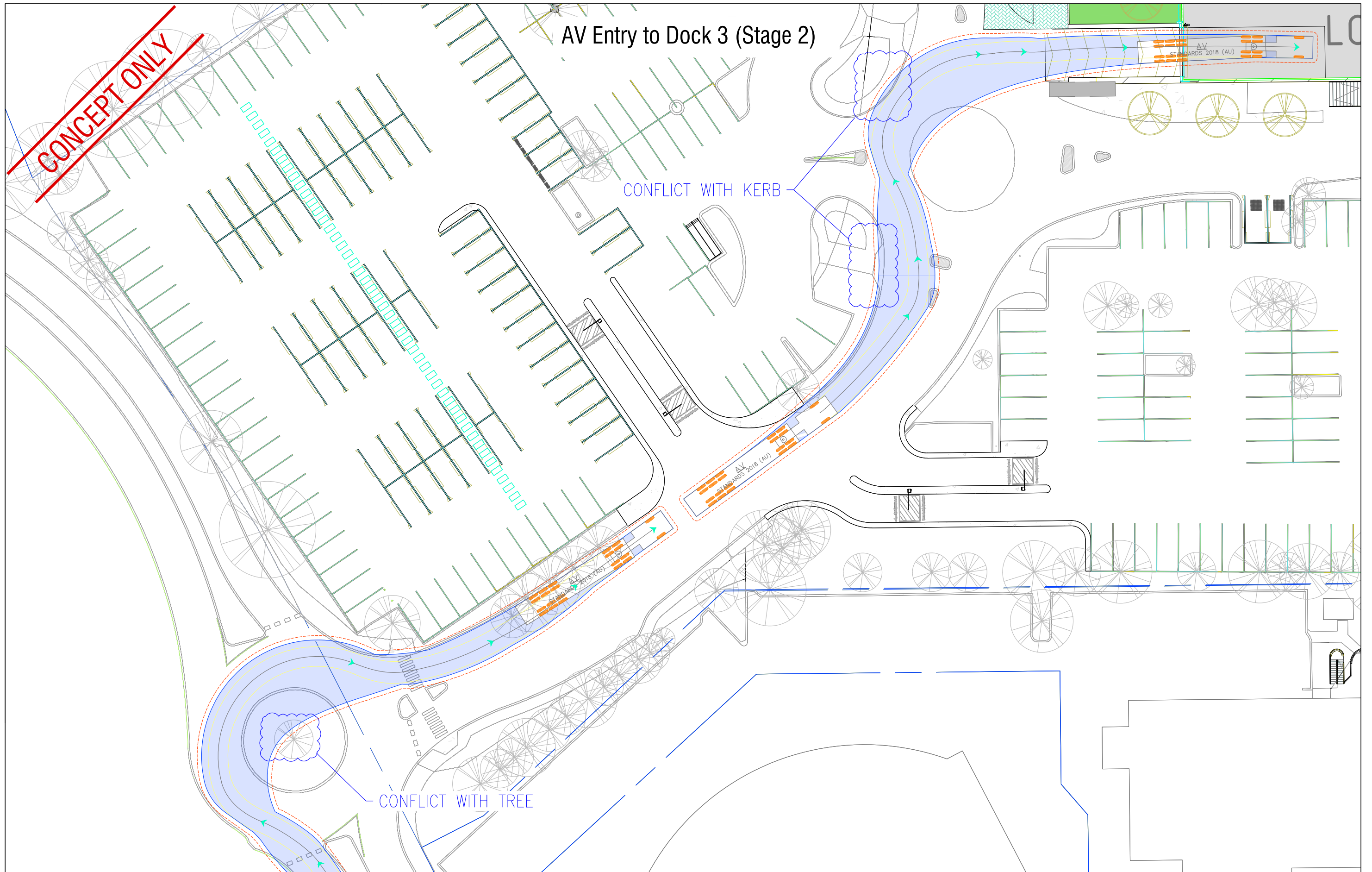




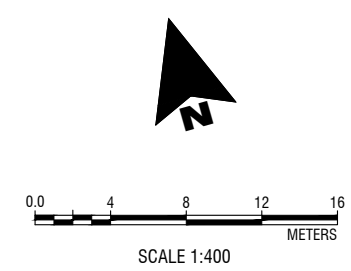
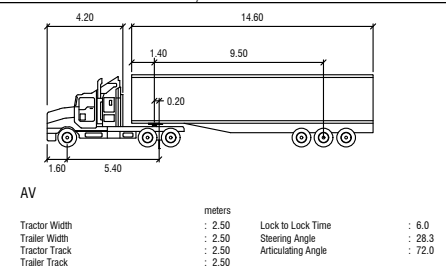
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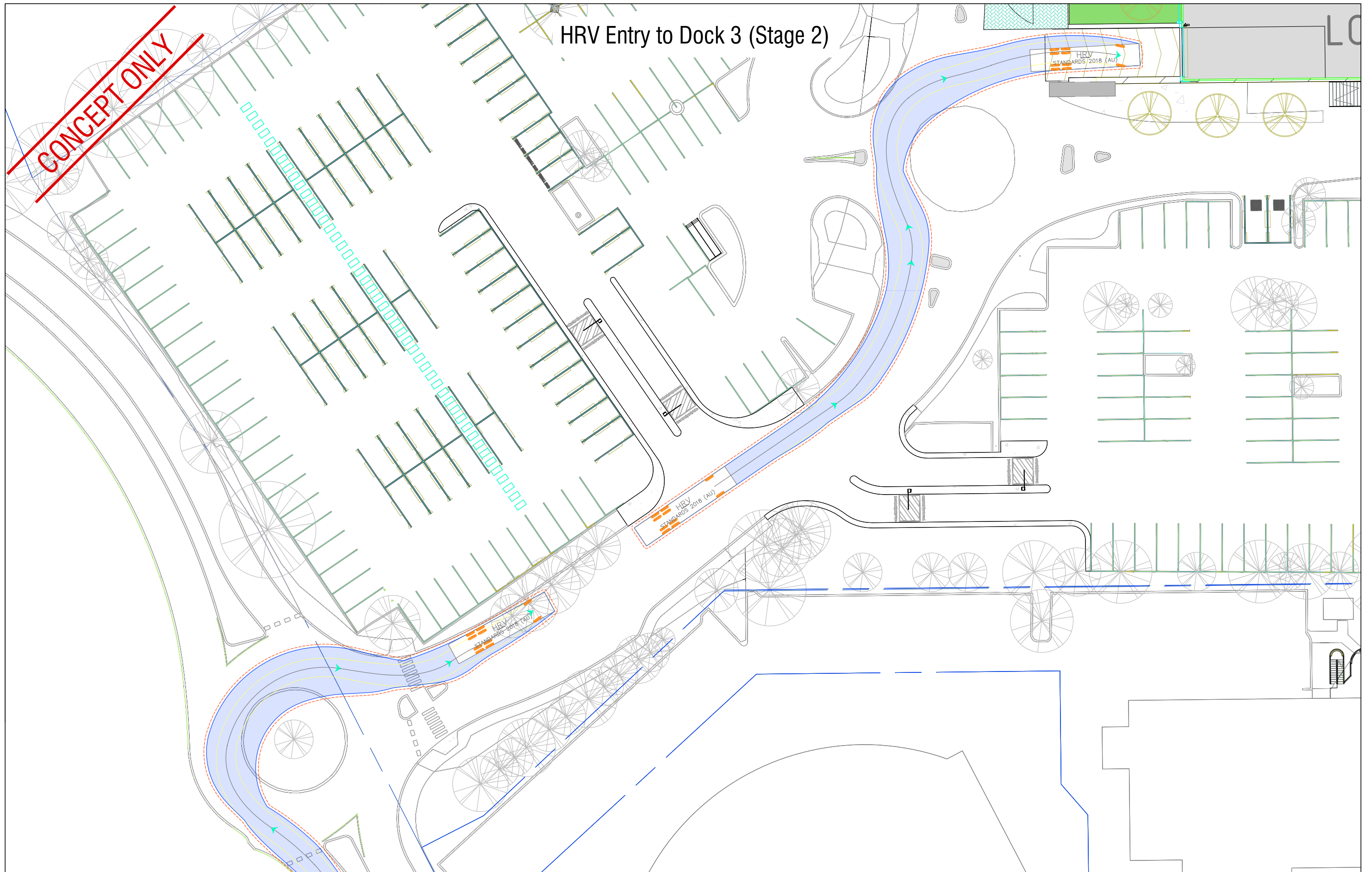
- Vehicle Path
- Vehicle Body
- Body Clearance

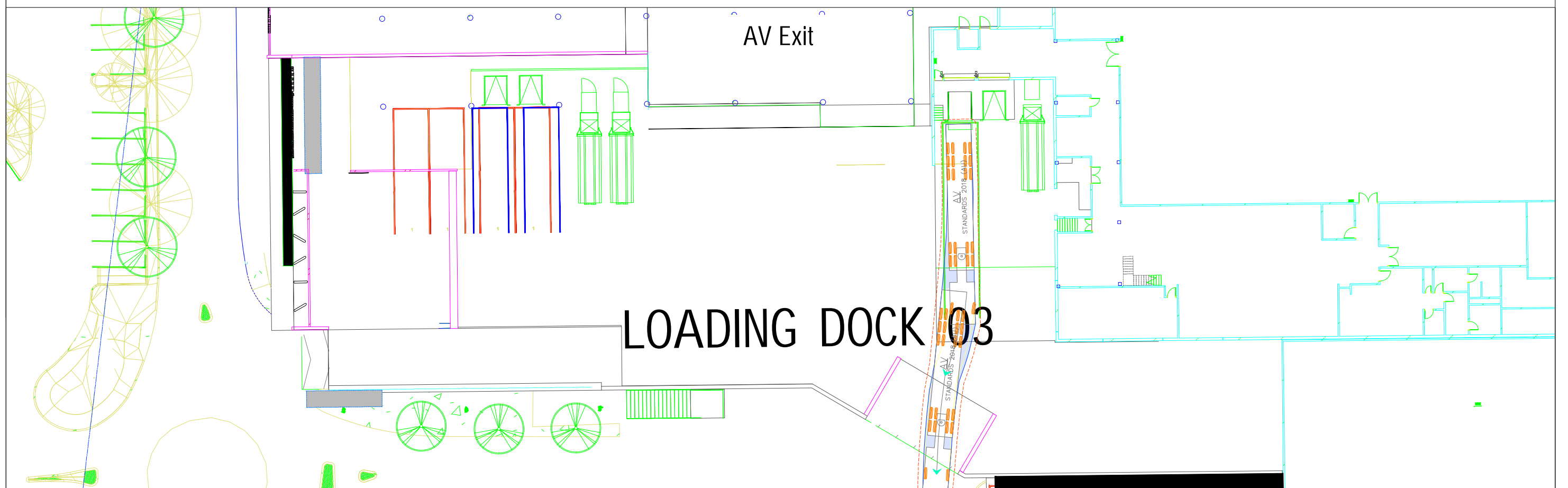
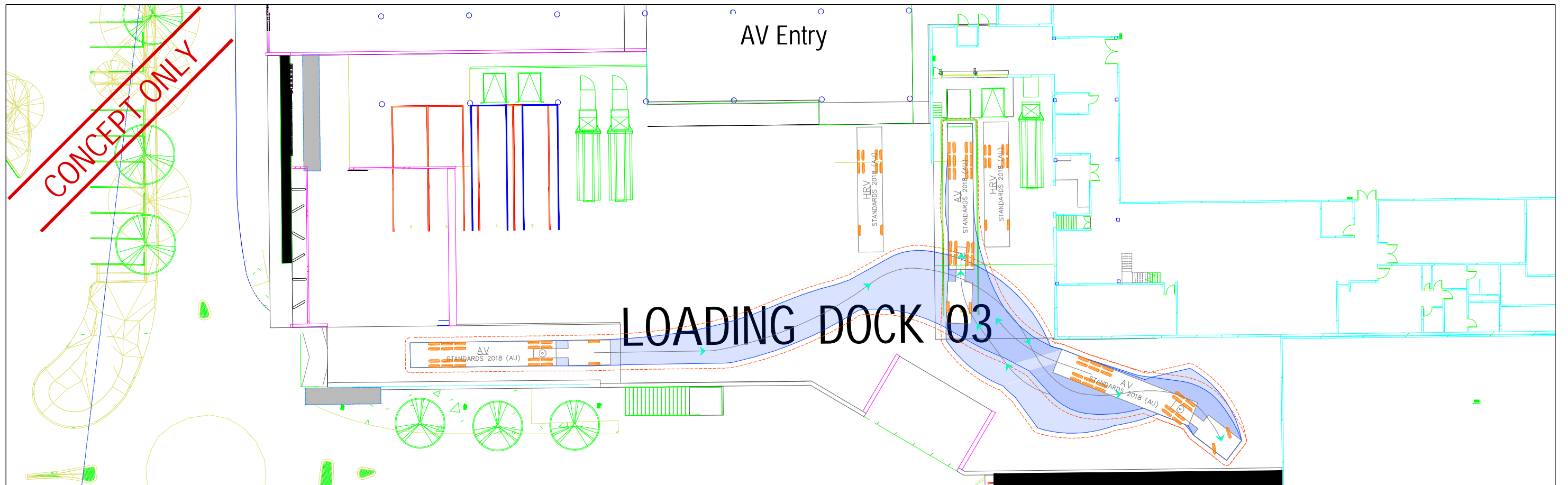




SWEPT PATH LEGEND
— Vehicle Path
— Vehicle Body
- - - Body Clearance
— Front Wheels







SLR

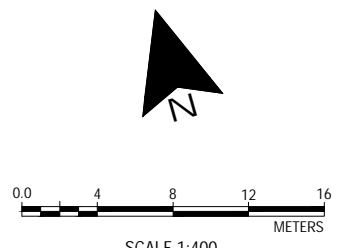
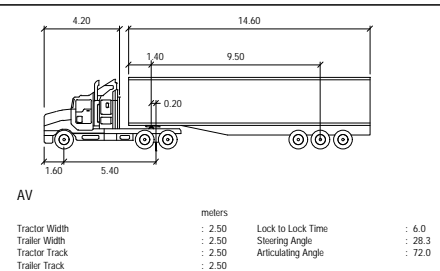
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Sheet Size:	A3
Projection:	-

SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance

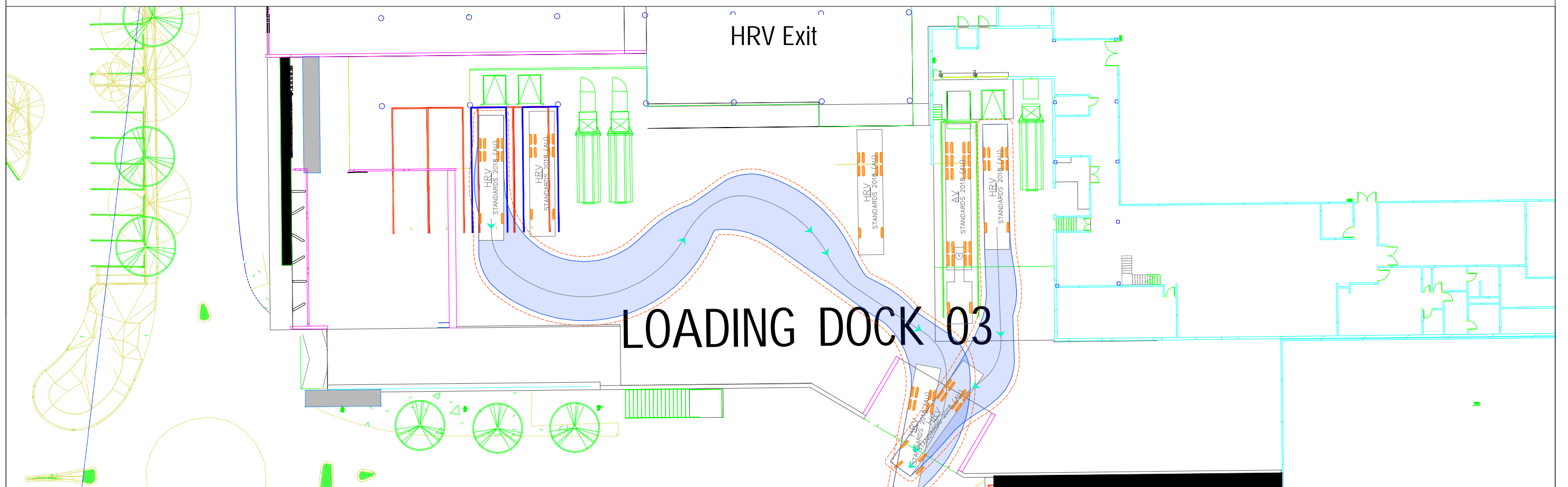
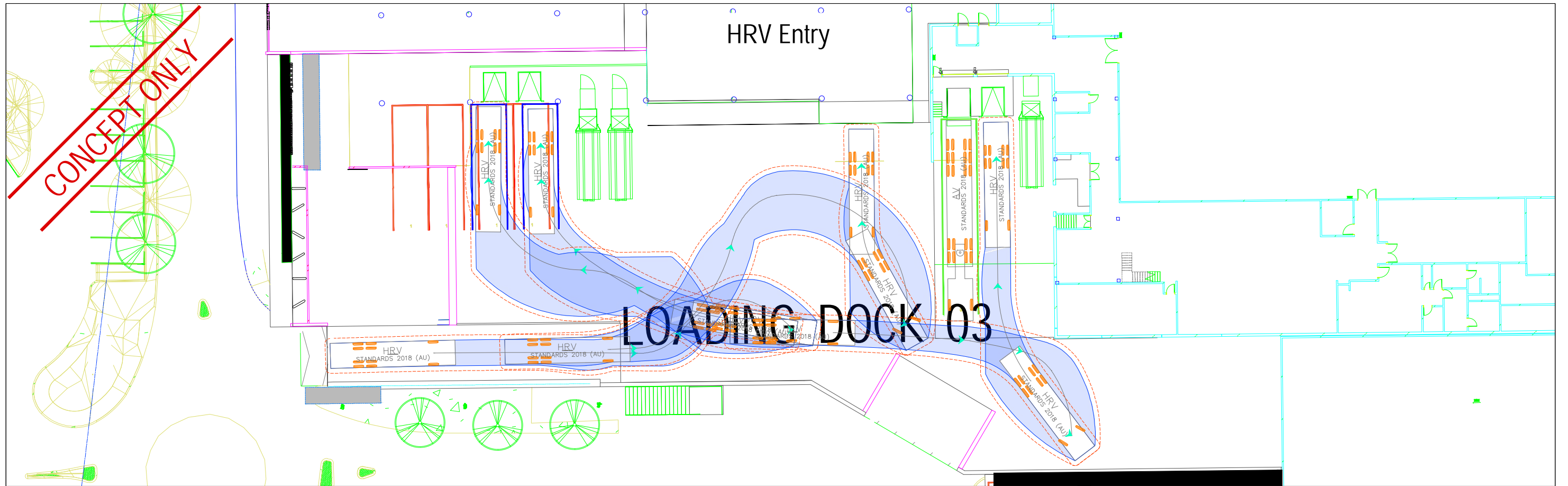


Scentre Group

Westfield Booragoon Redevelopment

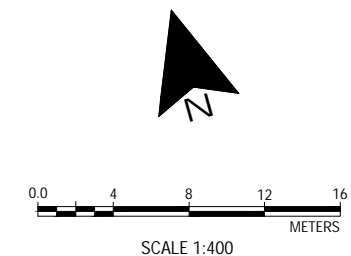
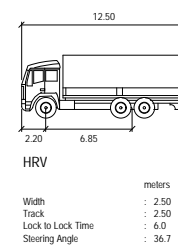
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Swept Path Assessments

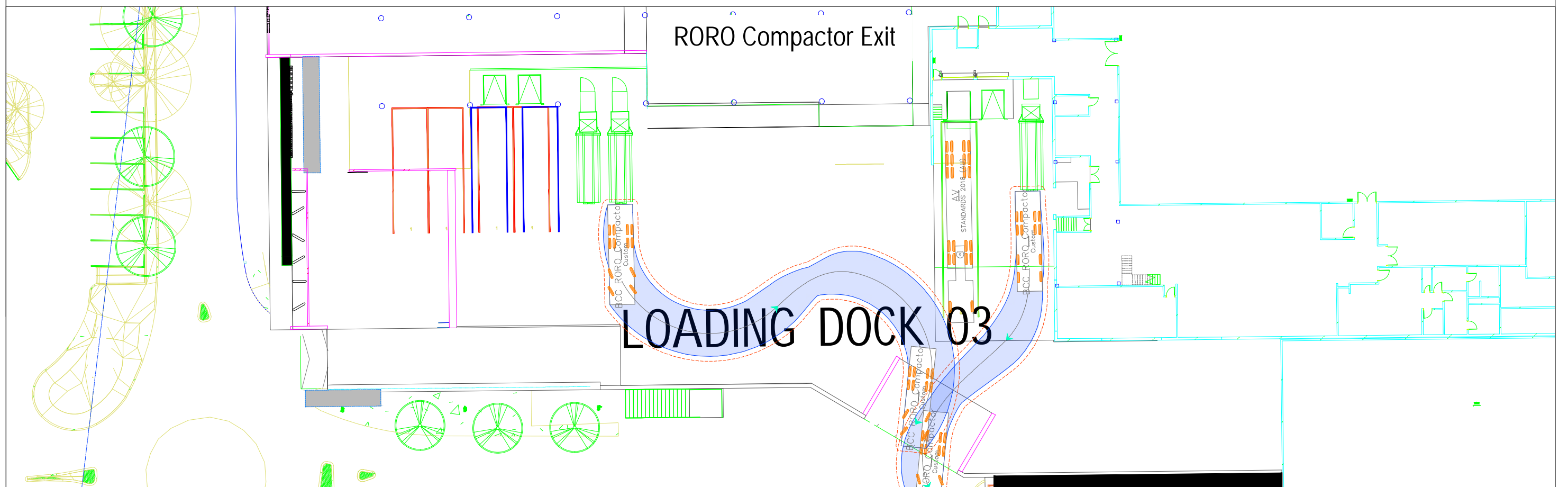
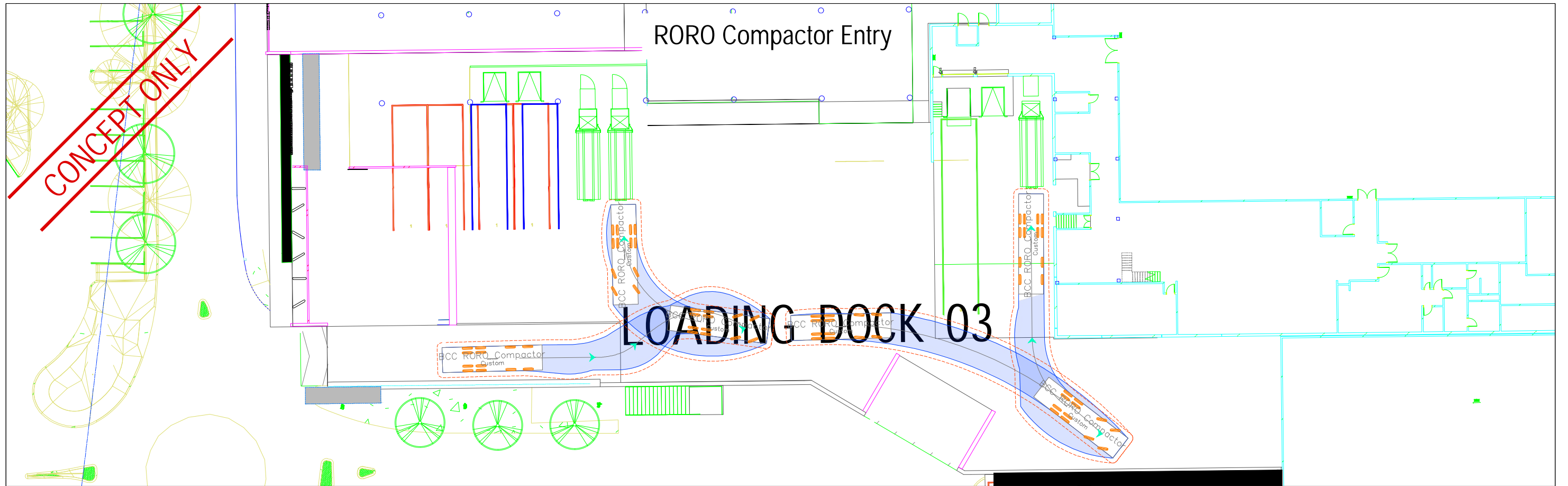
FIGURE SK303



SWEPT PATH LEGEND

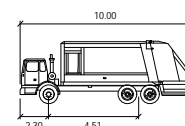
- Vehicle Path
- Vehicle Body
- Body Clearance





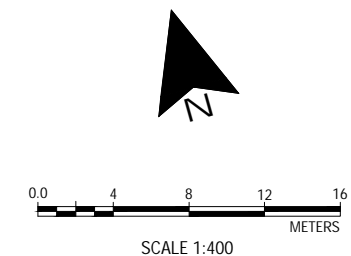
SWEPT PATH LEGEND

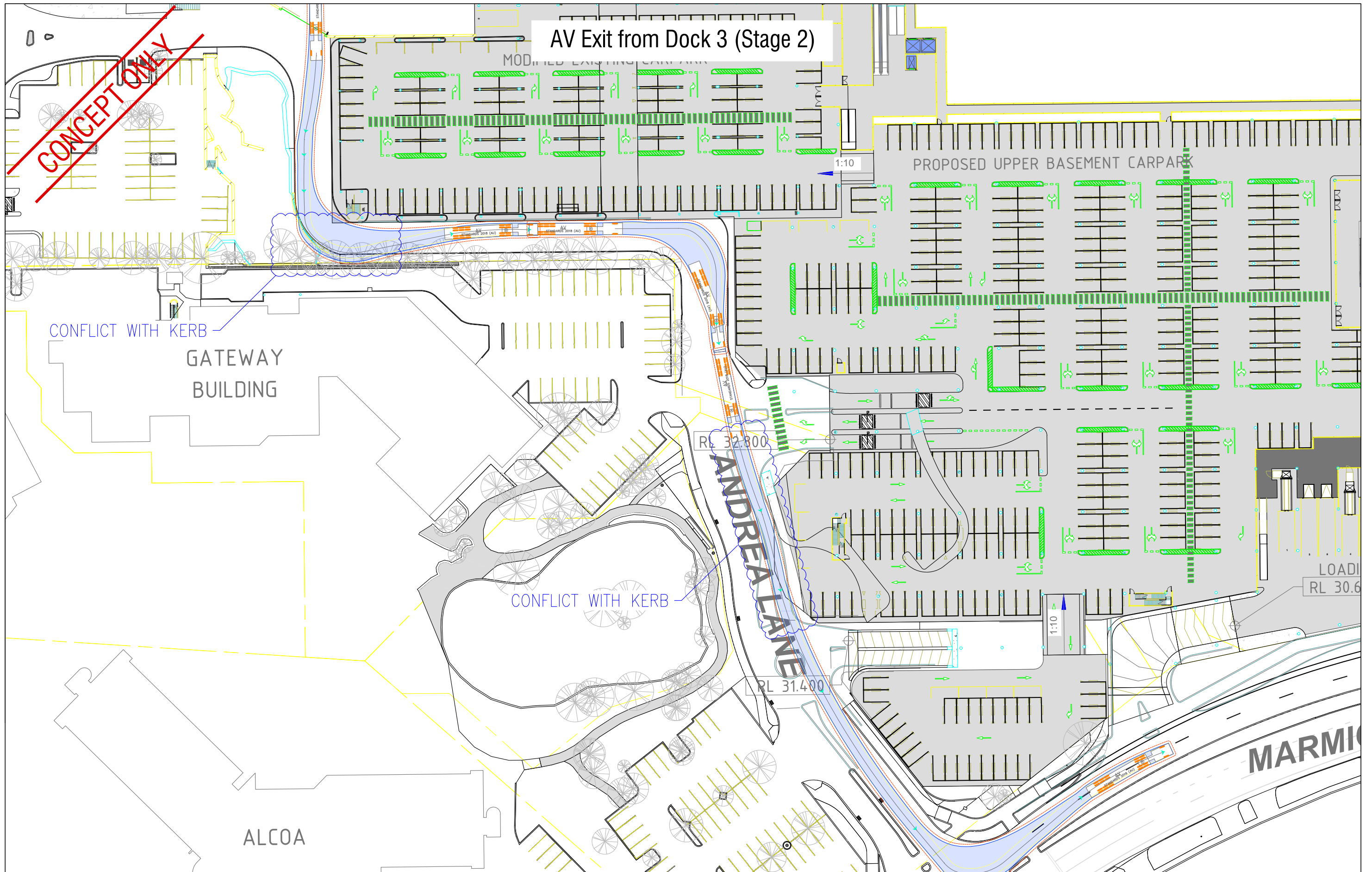
- Vehicle Path
- Vehicle Body
- - - Body Clearance



BCC RORO Compactor

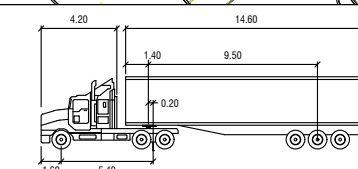
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Track	2.50
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Steering Angle	27.0



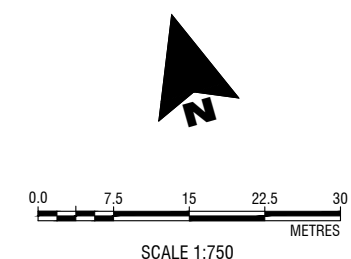


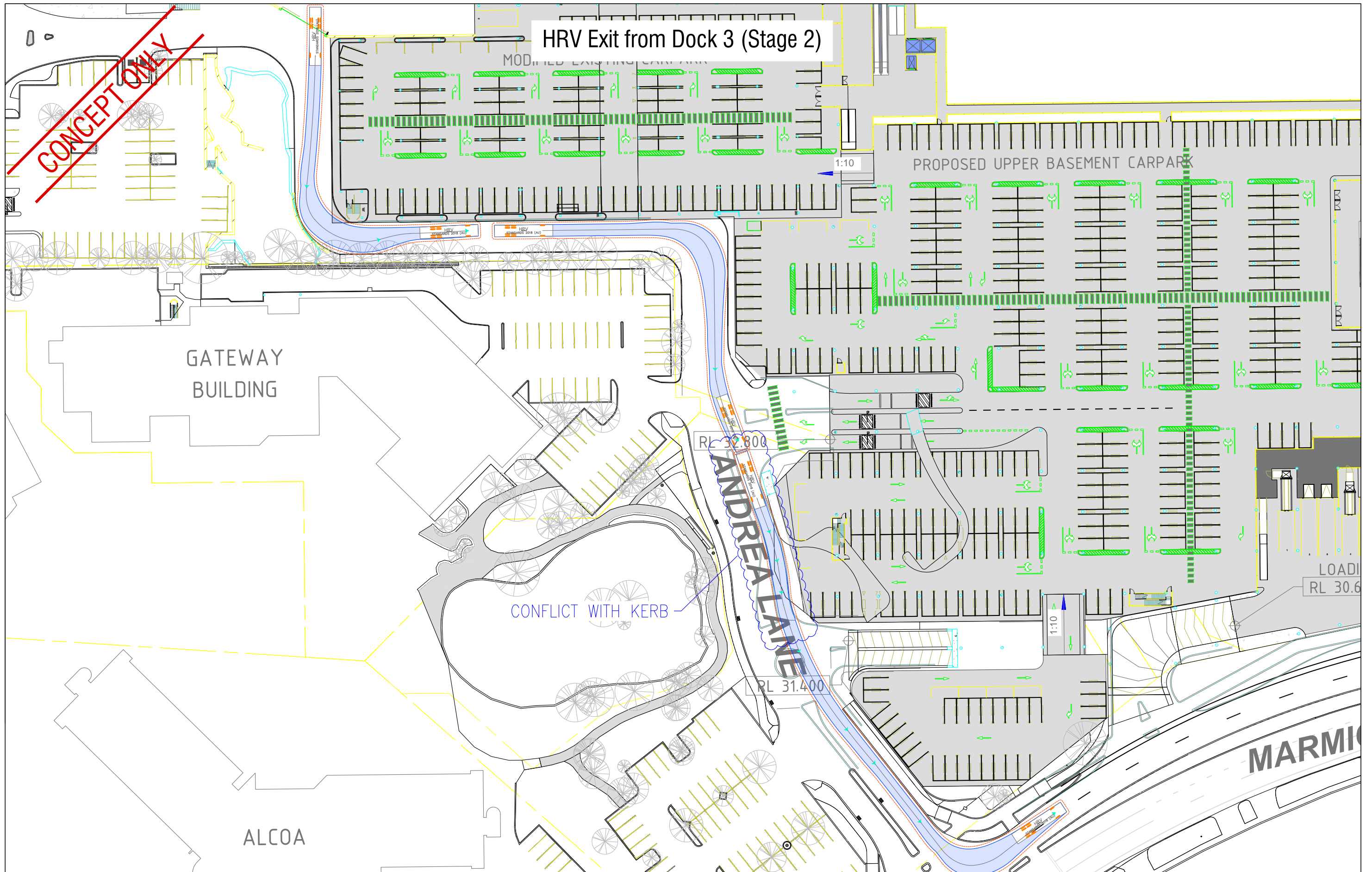
SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance
- Front Wheels



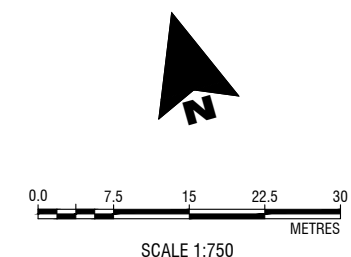
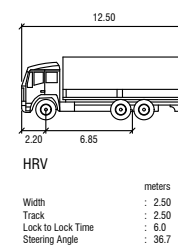
AV	metres	Lock to Lock Time	: 6.0
Tractor Width	: 2.50	Steering Angle	: 28.3
Tractor Track	: 2.50	Articulating Angle	: 72.0
Trailer Track	: 2.50		

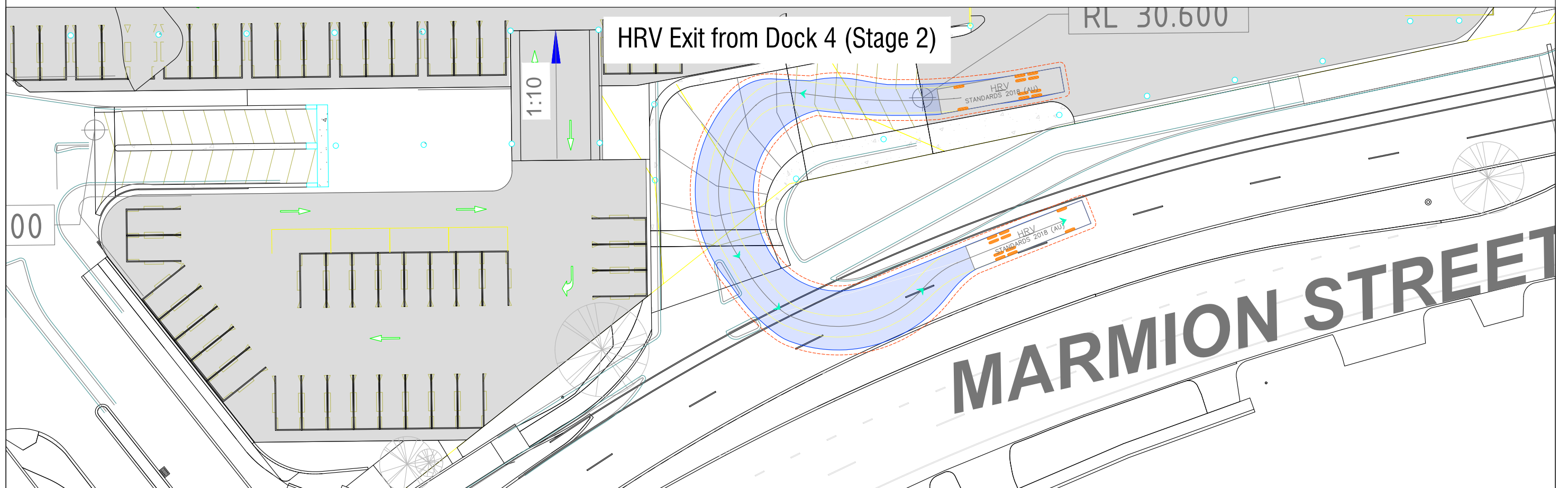
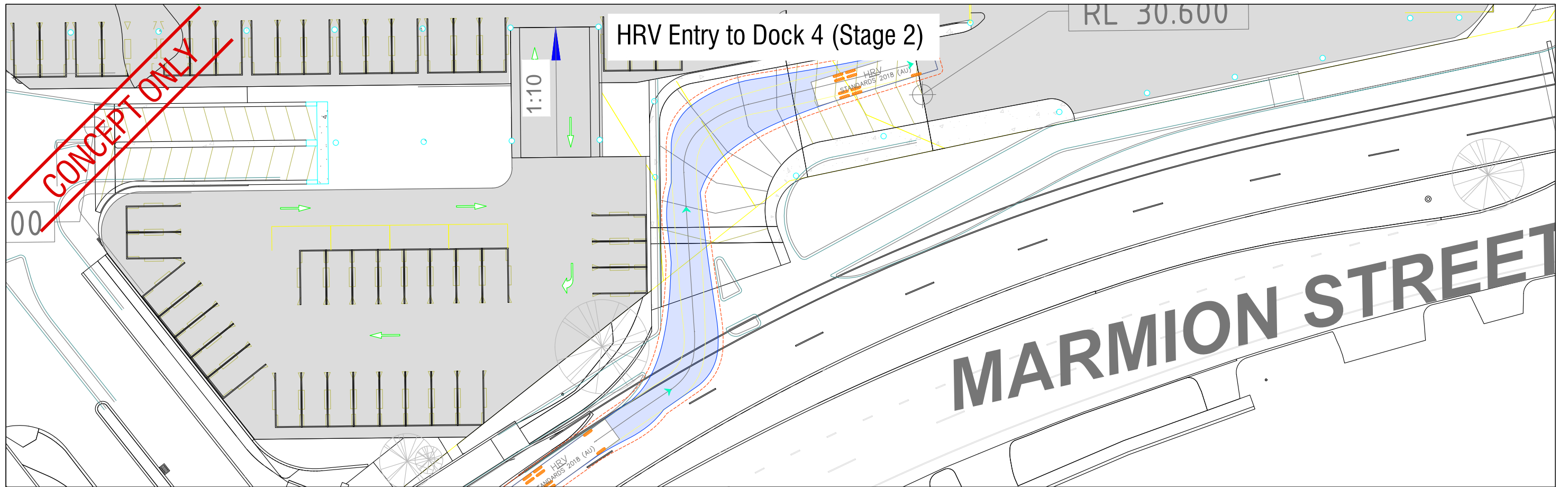




SWEPT PATH LEGEND

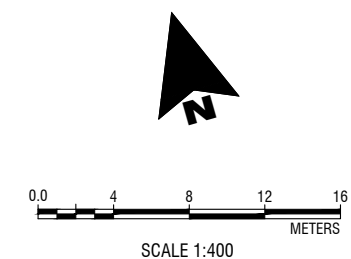
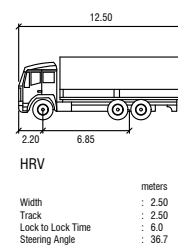
- Vehicle Path
- Vehicle Body
- Body Clearance

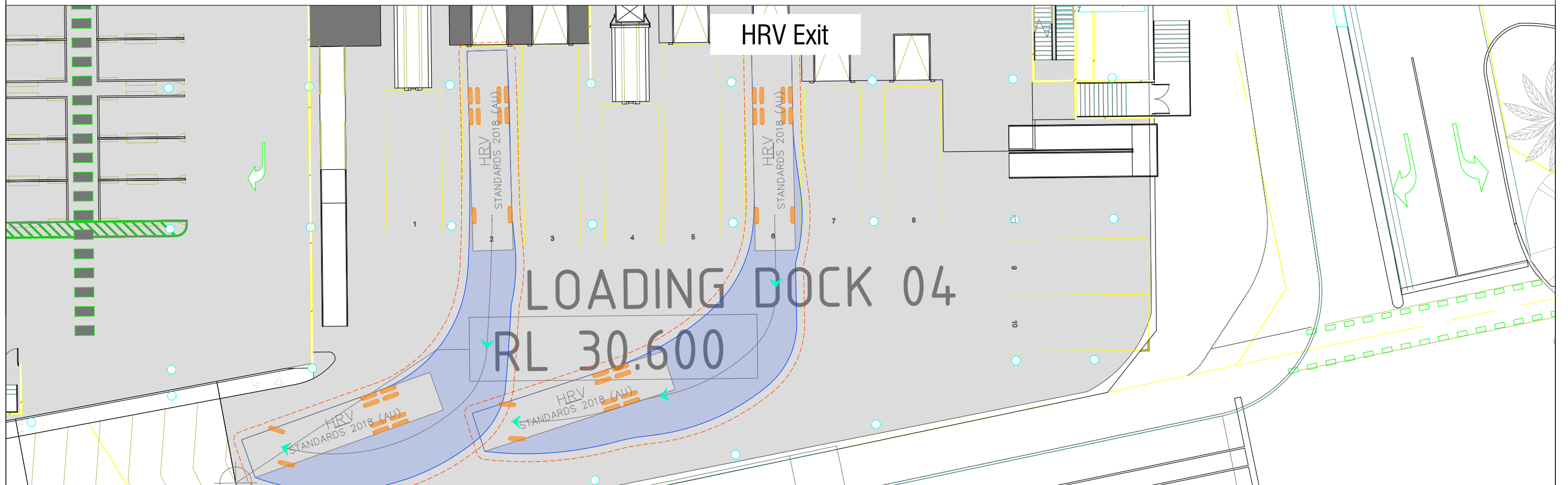
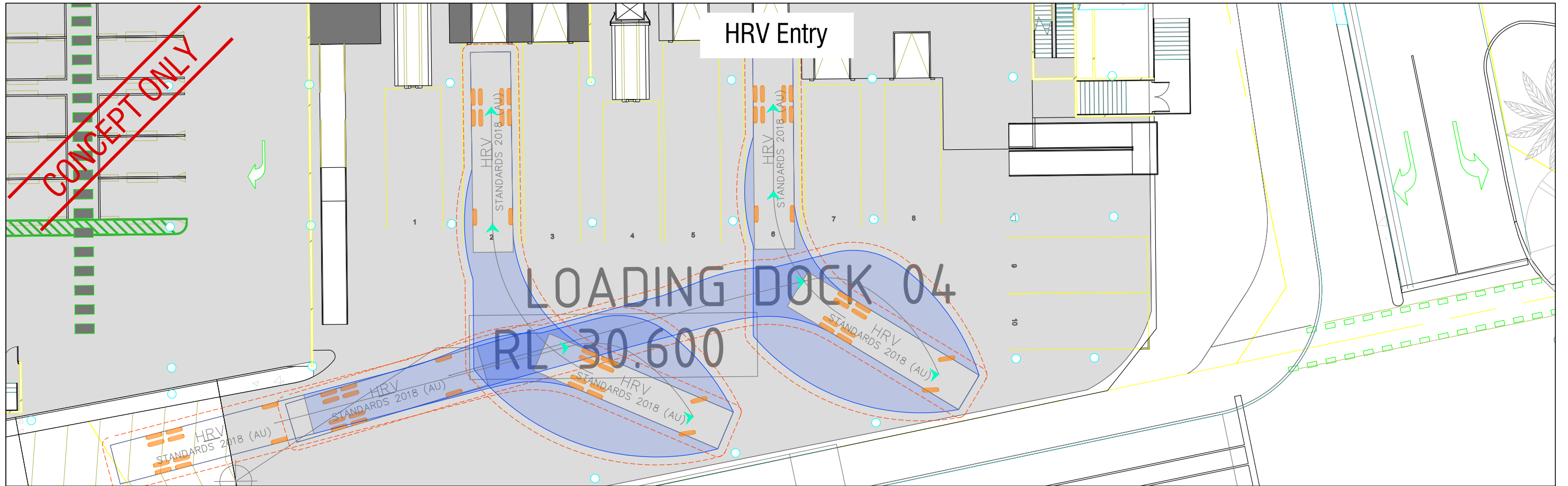


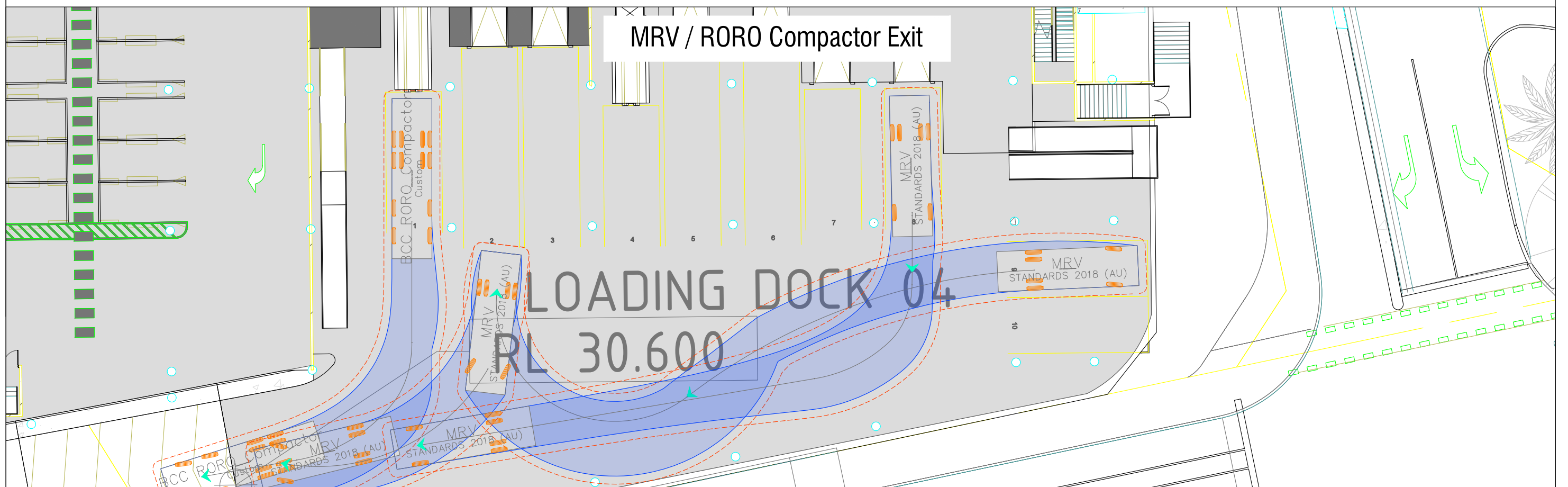
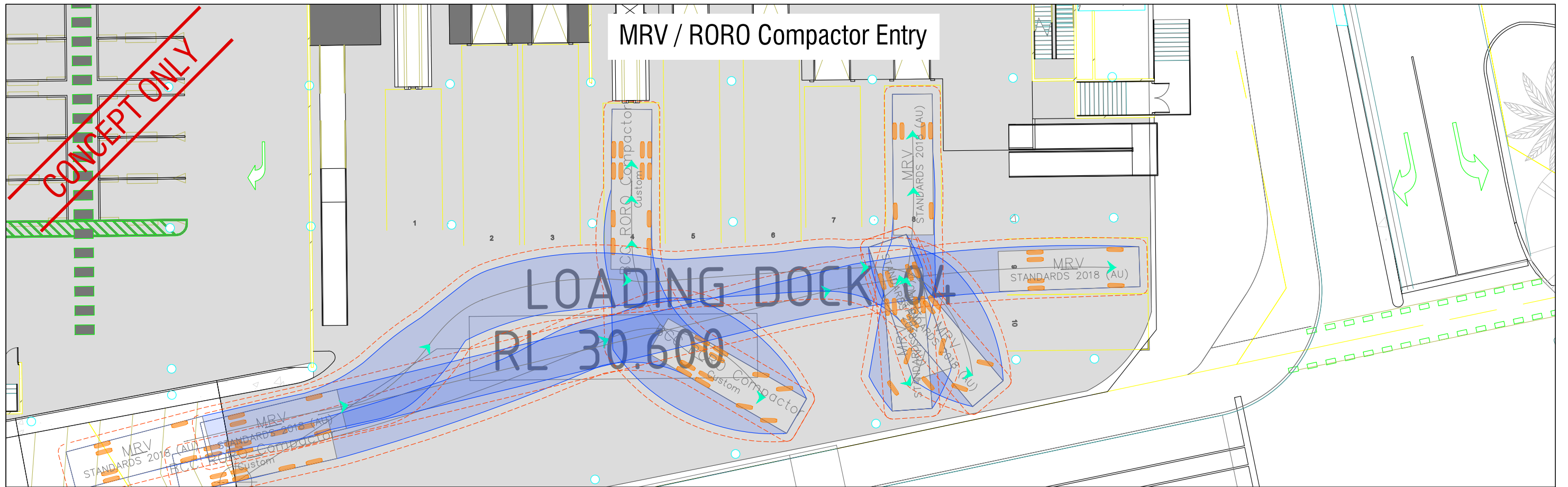


SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance
- Front Wheels

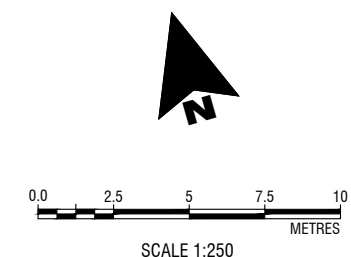
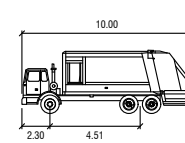
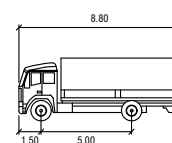


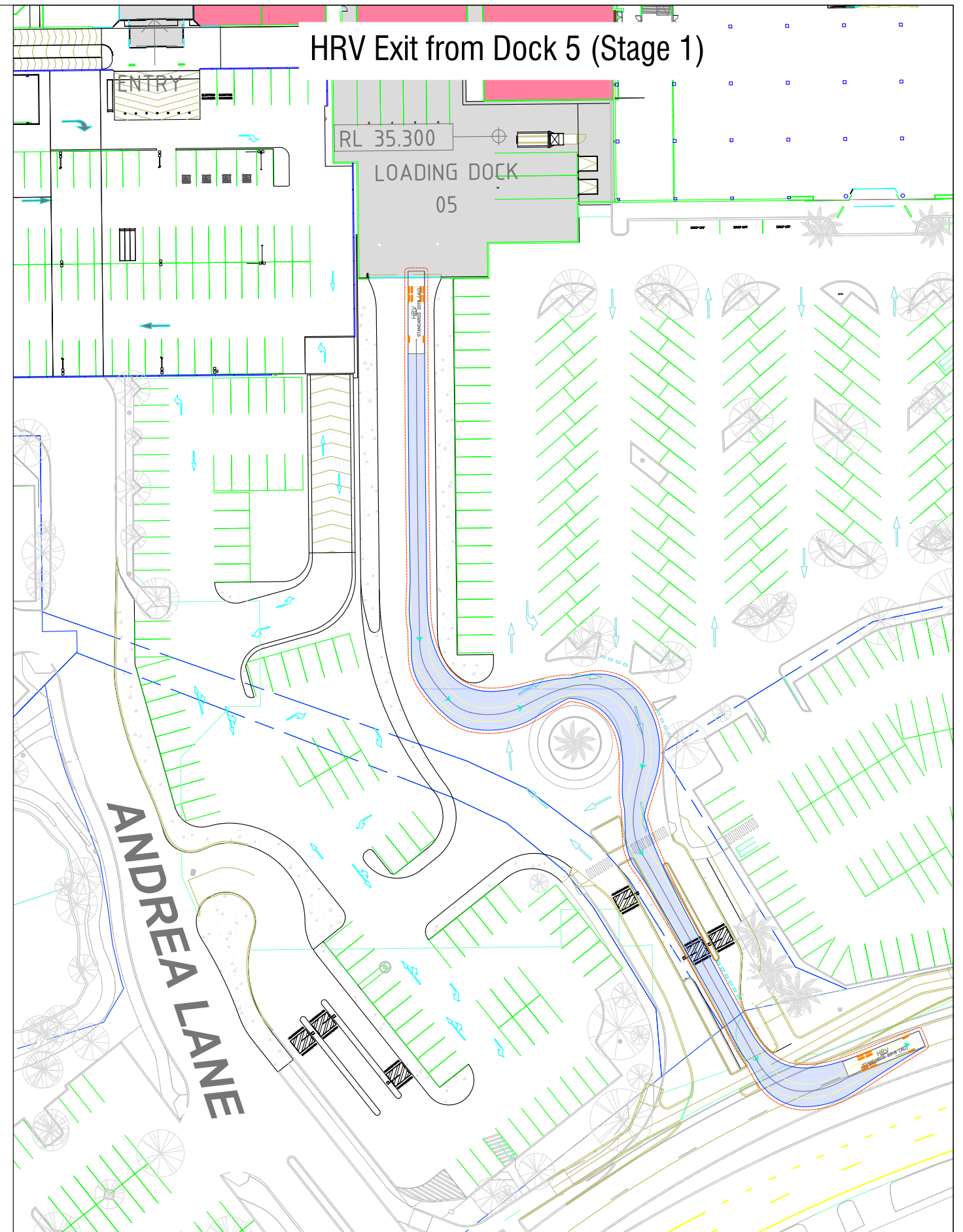
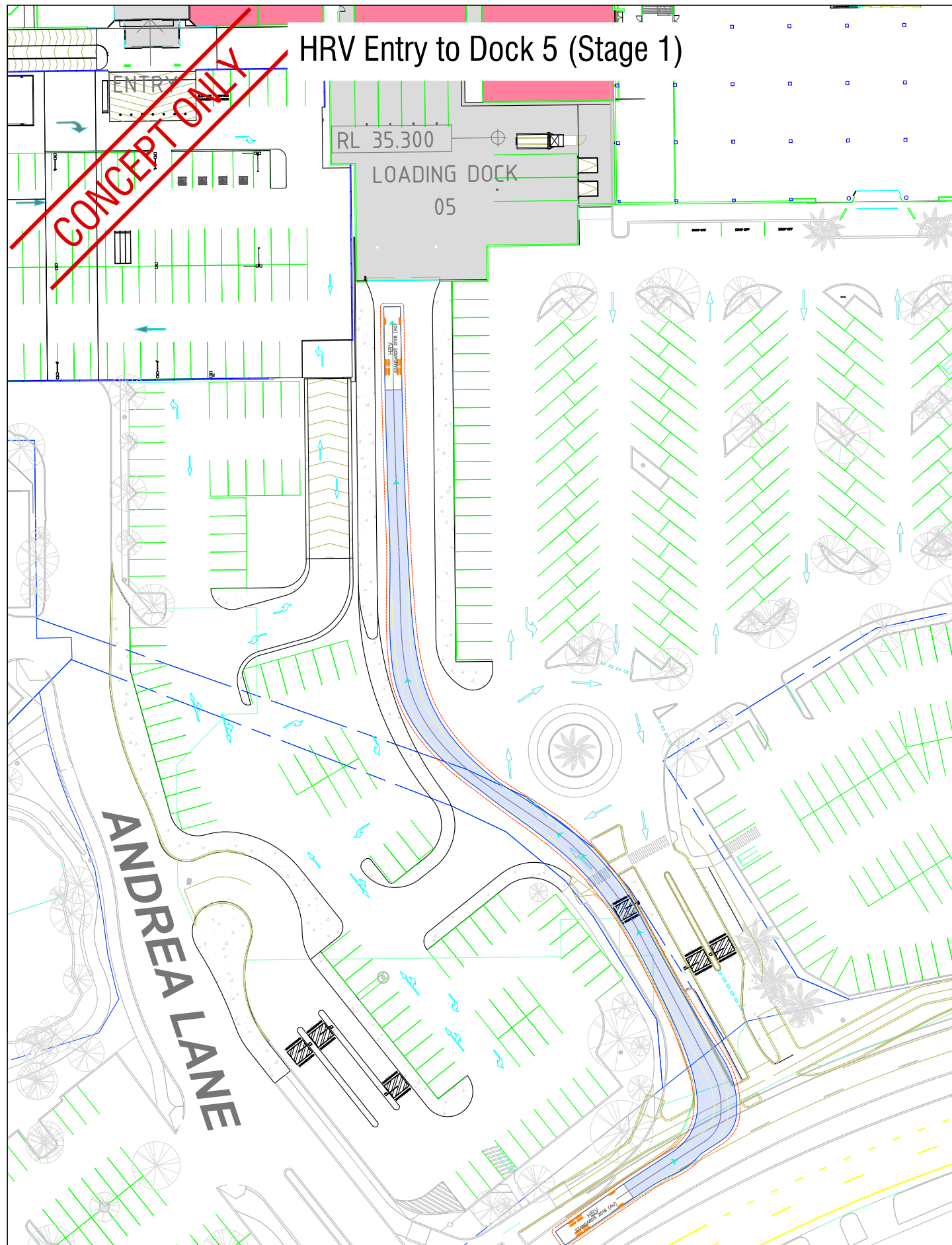




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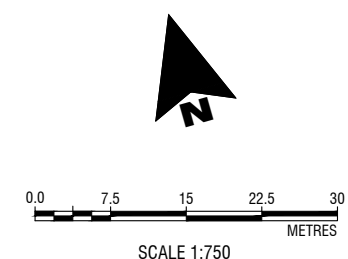
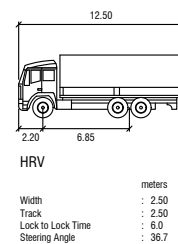
- Vehicle Path
- - - Vehicle Body
- - - Body Clearance

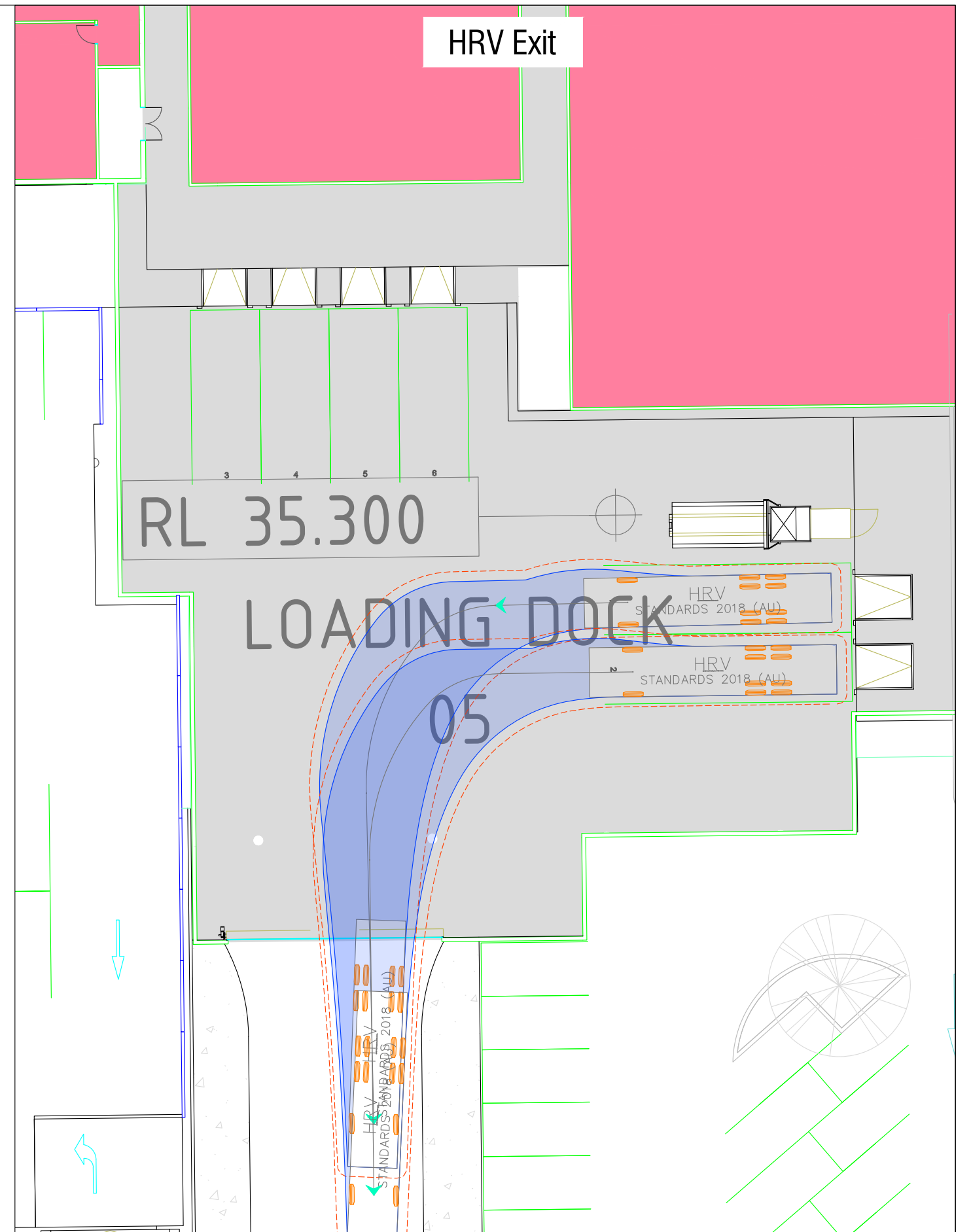
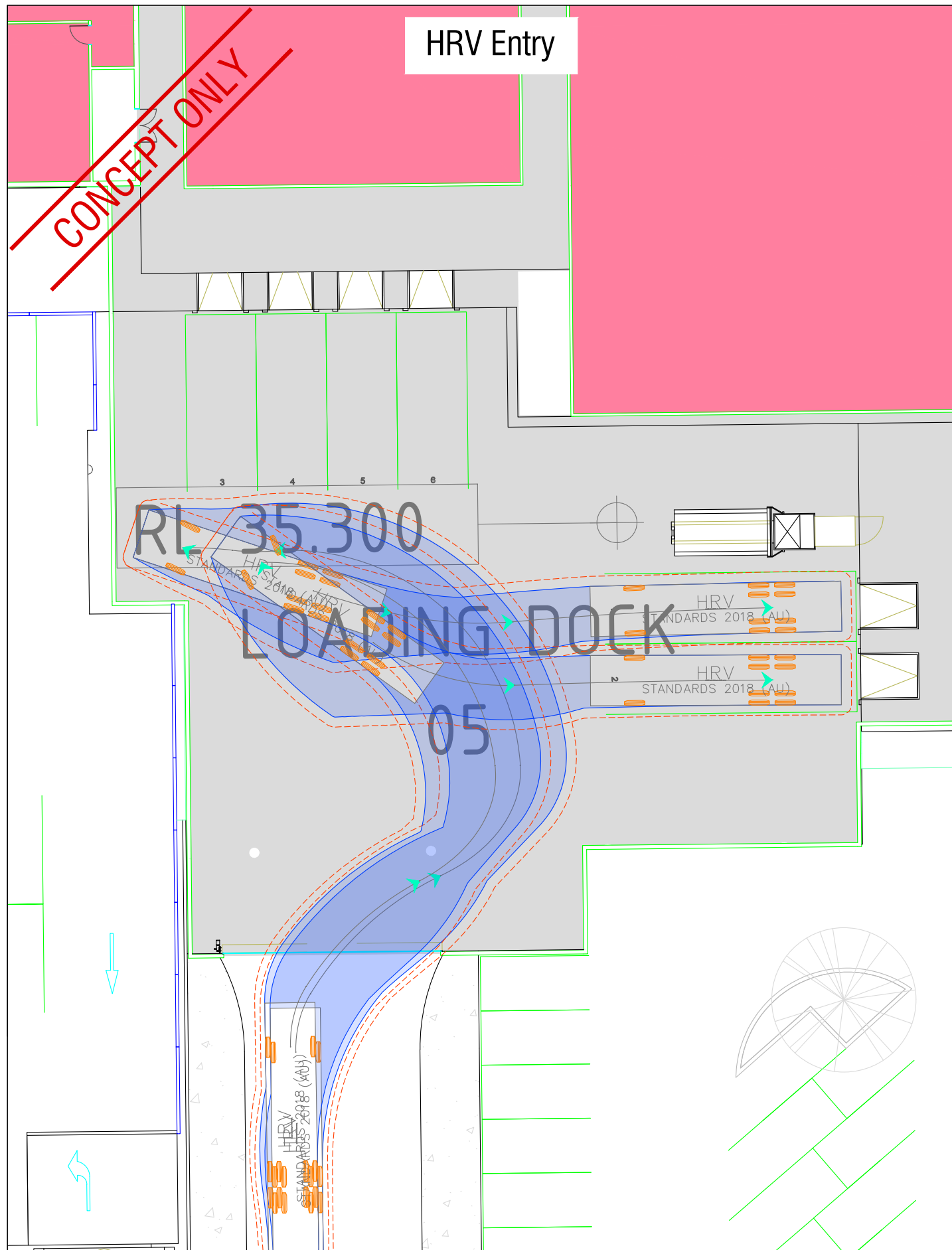


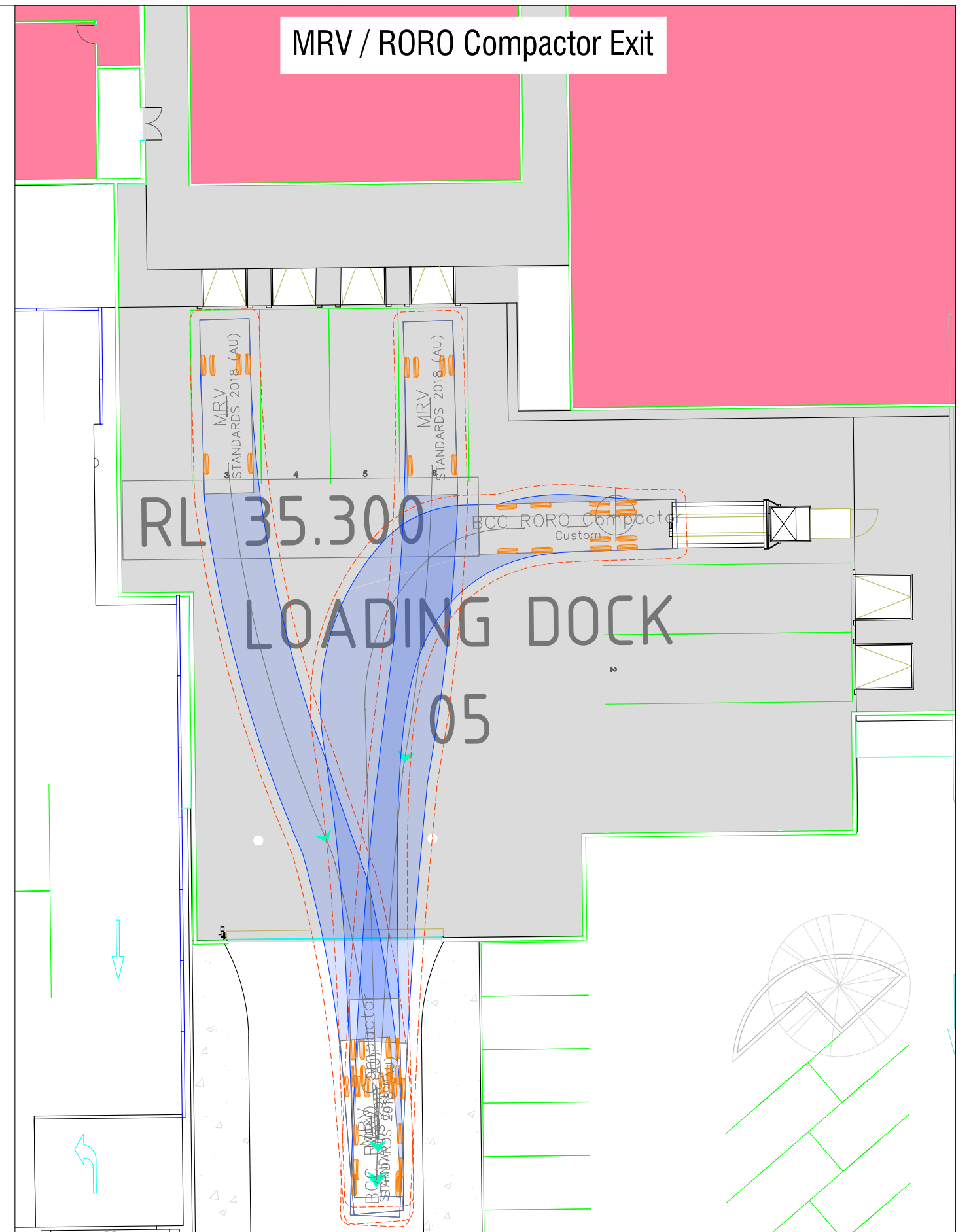
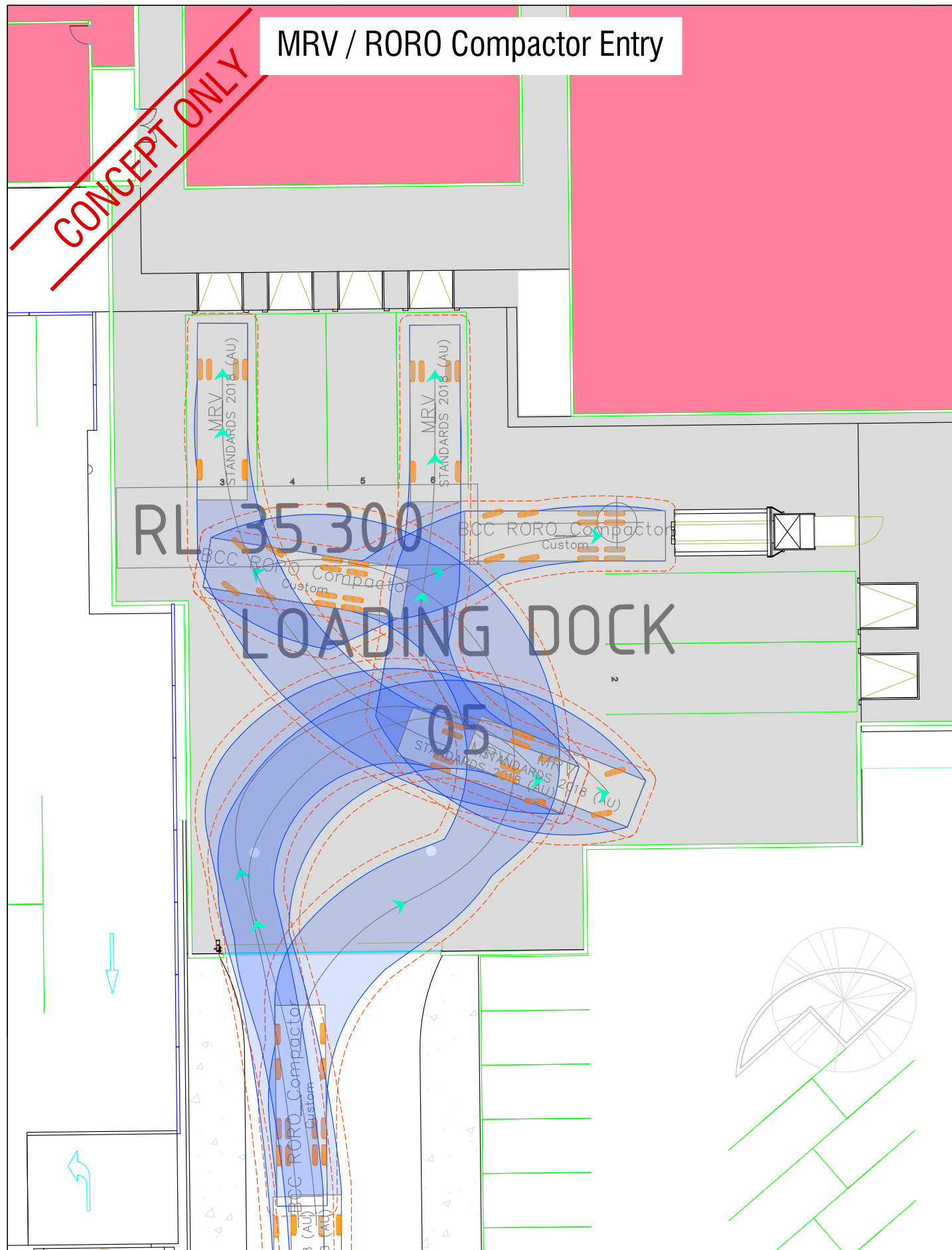


SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance

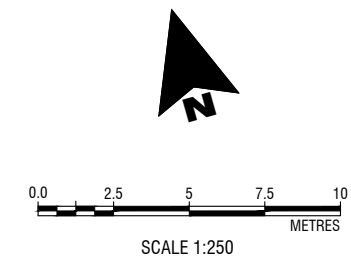
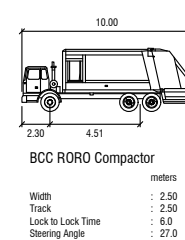
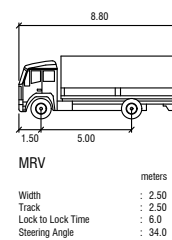


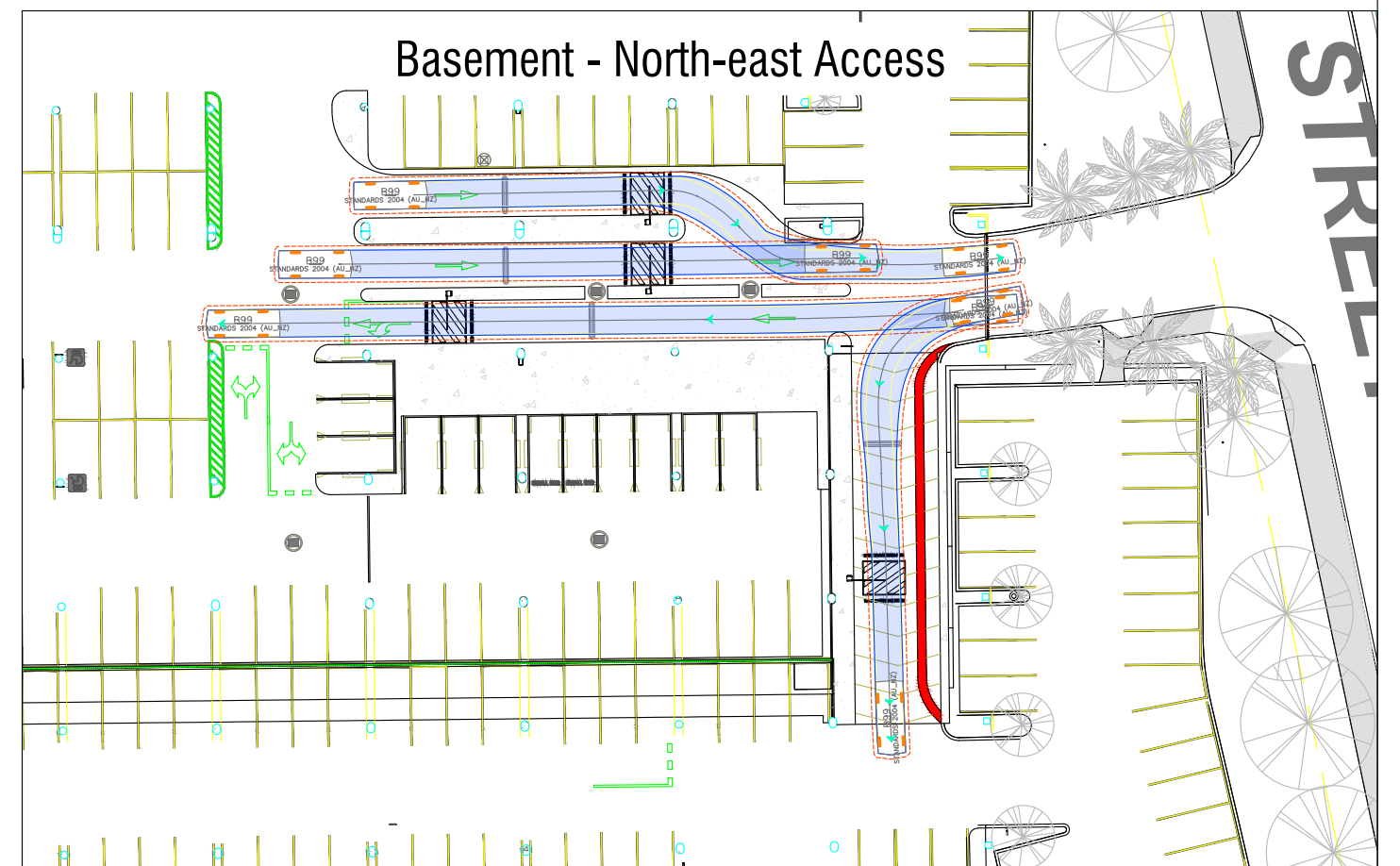
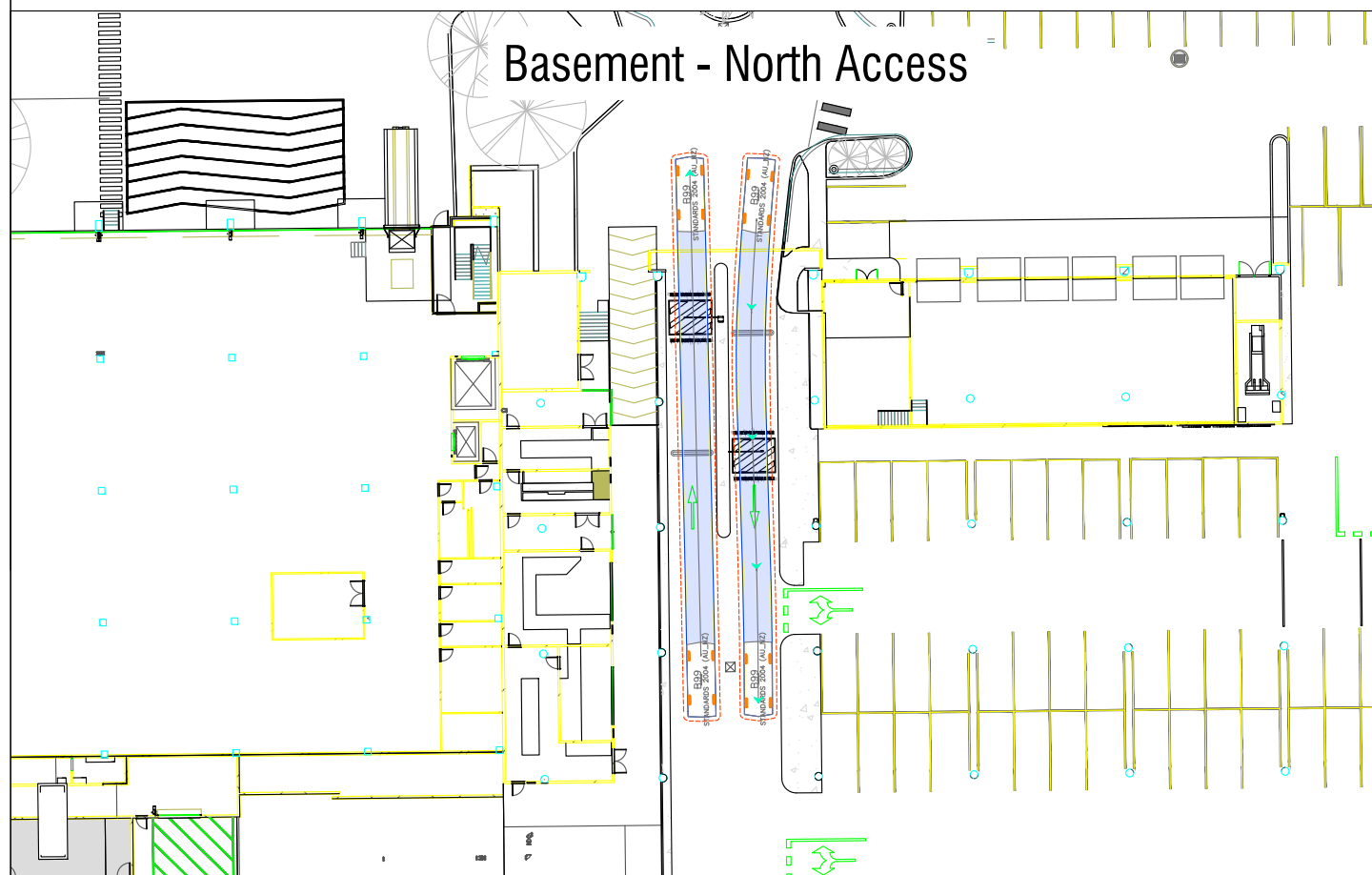
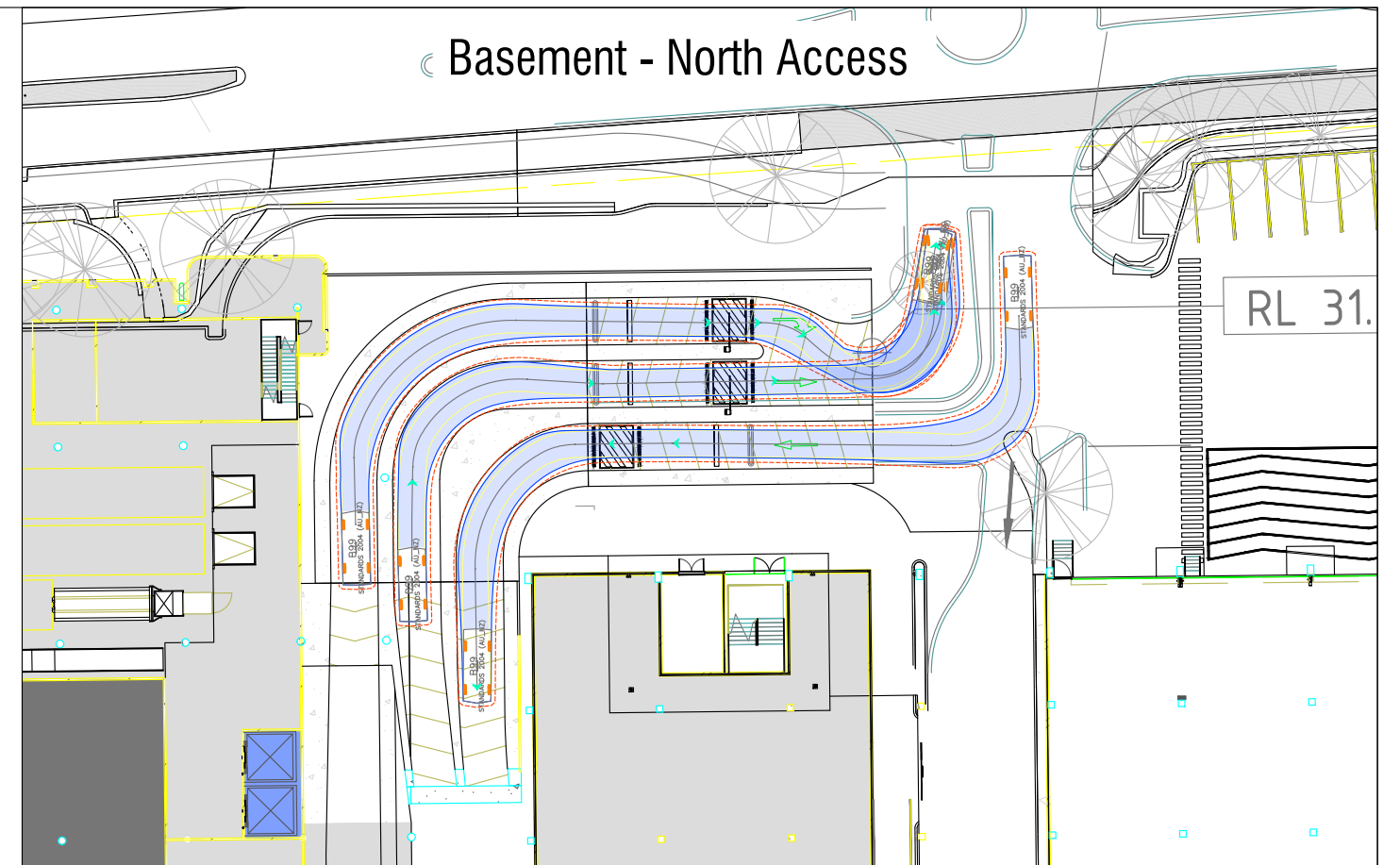
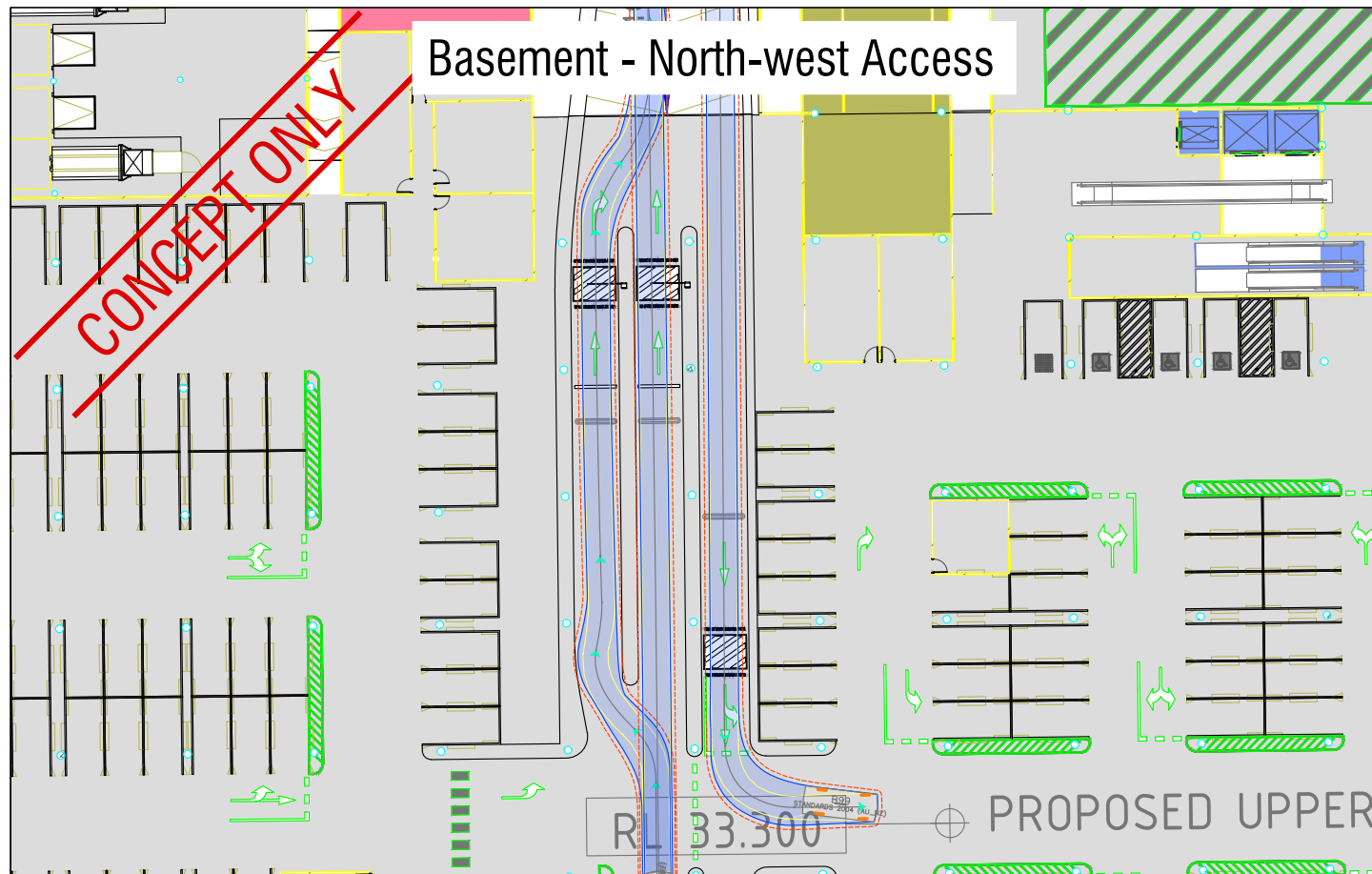




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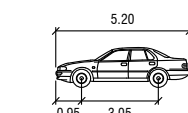
- Vehicle Path
- Vehicle Body
- Body Clearance





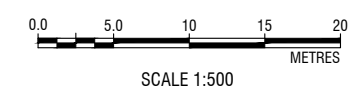
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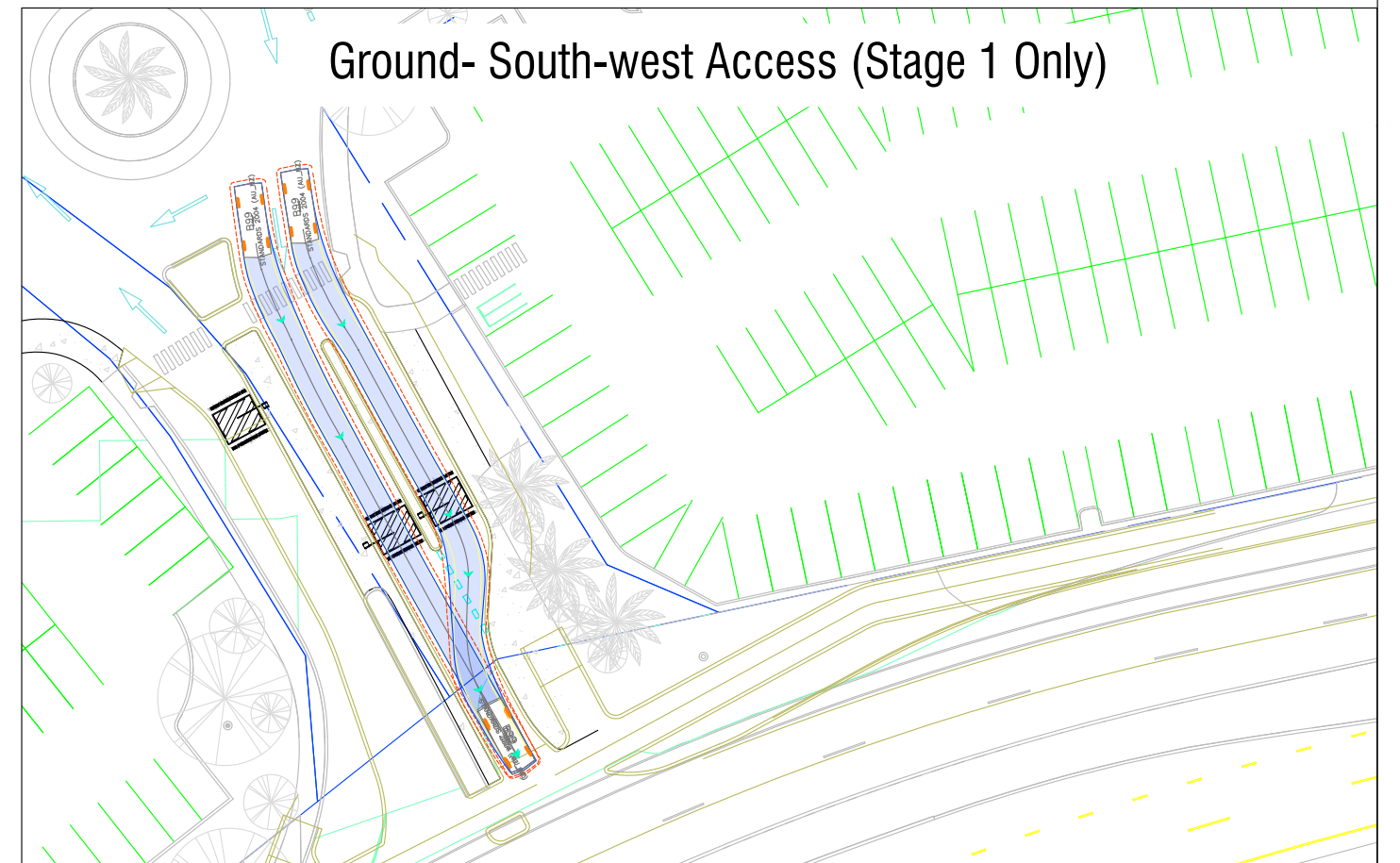
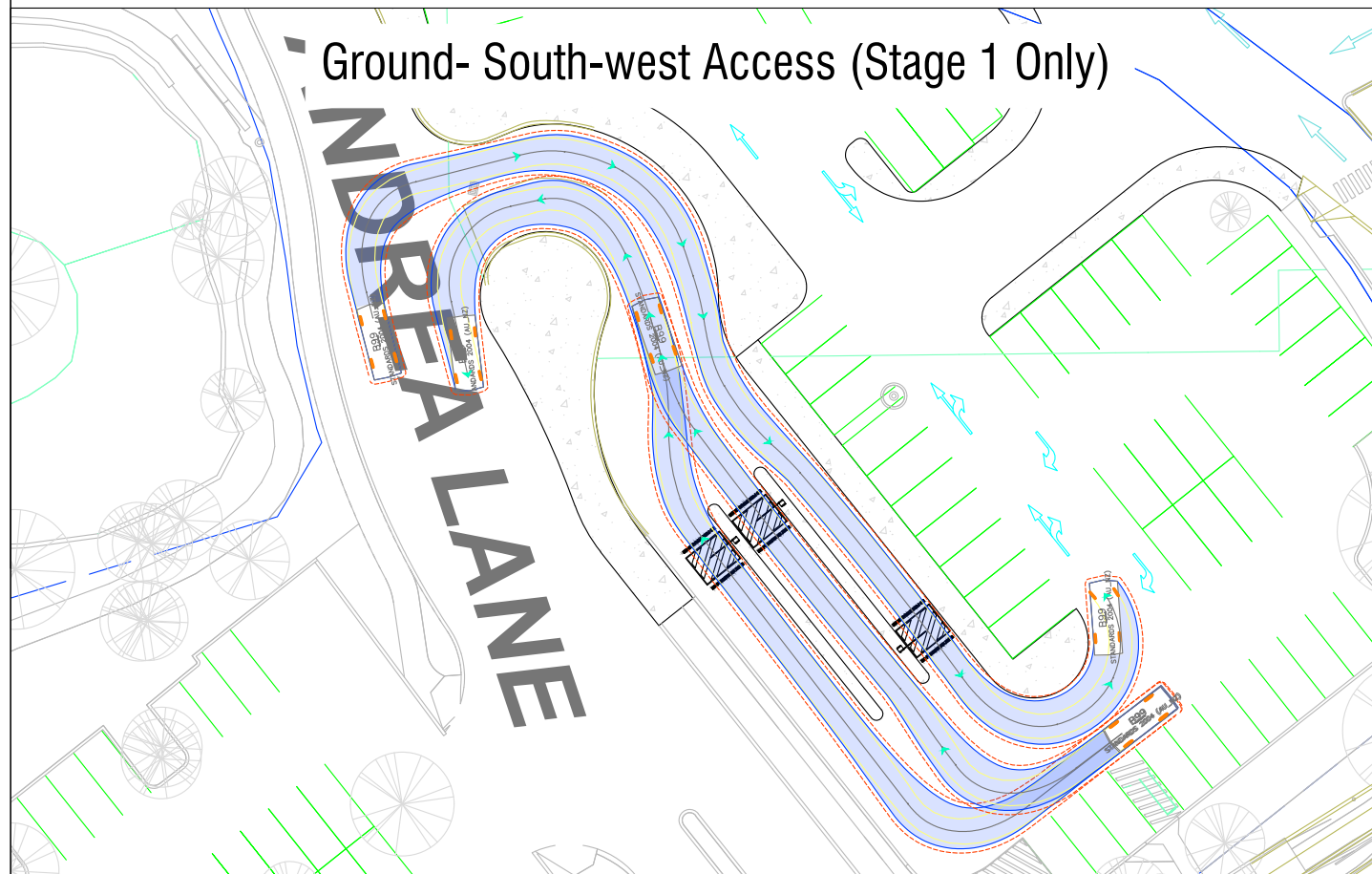
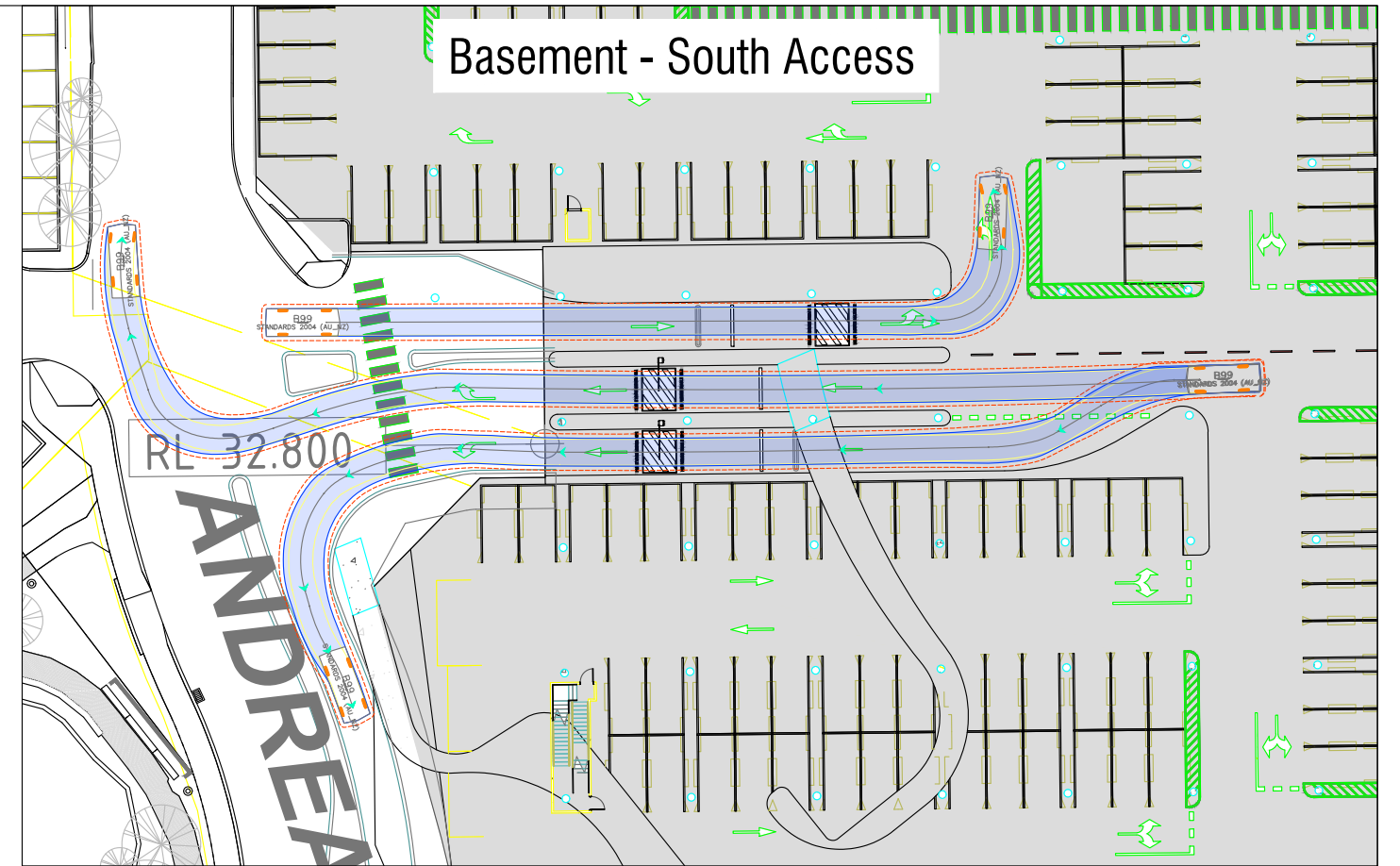
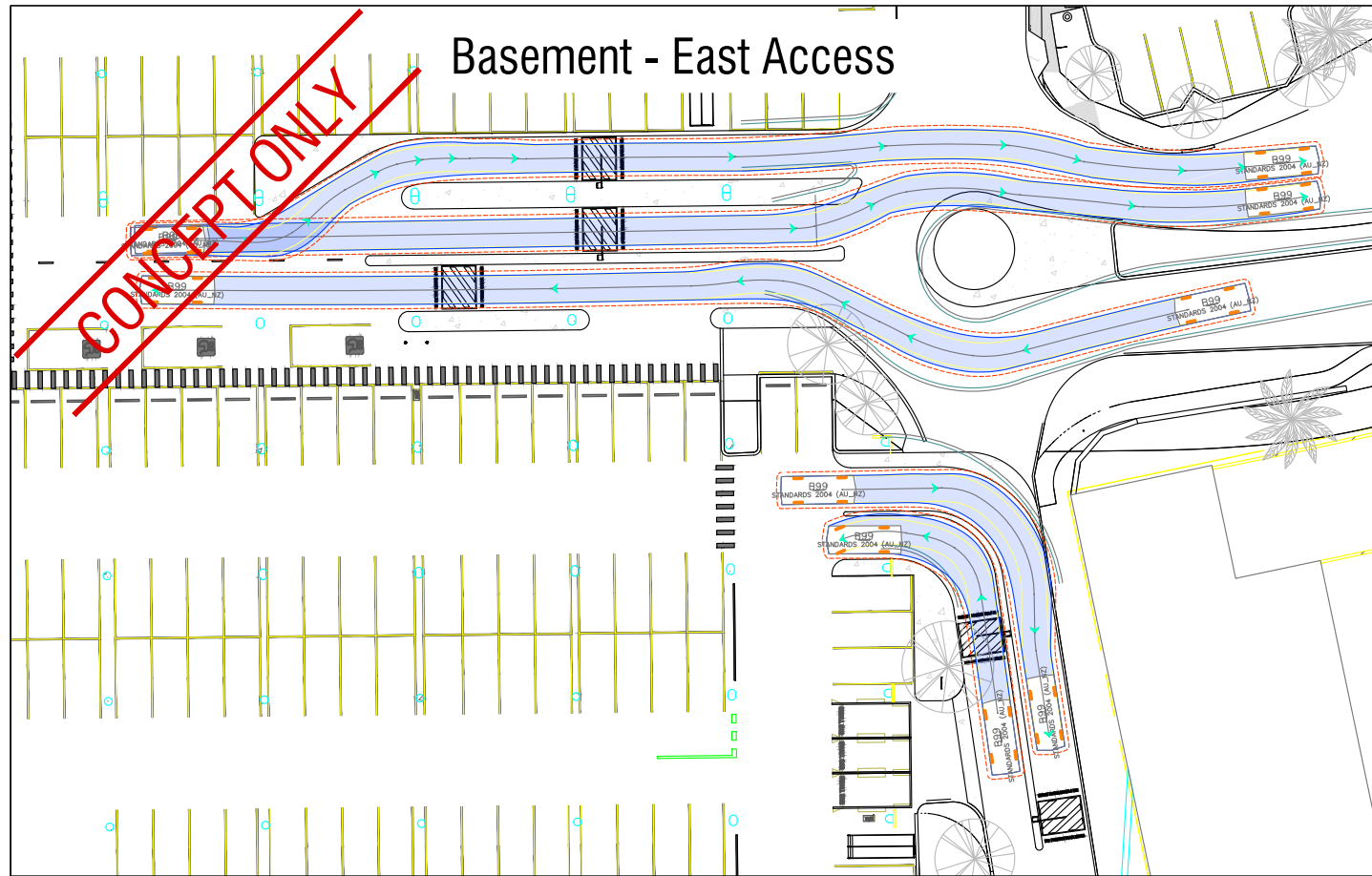
- Vehicle Path
- Vehicle Body
- Body Clearance
- Front Wheels



B99

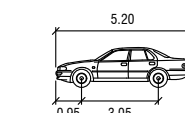
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Track	1.84
Lock to Lock Time	6.0
Steering Angle	33.9





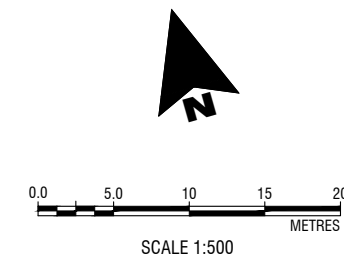
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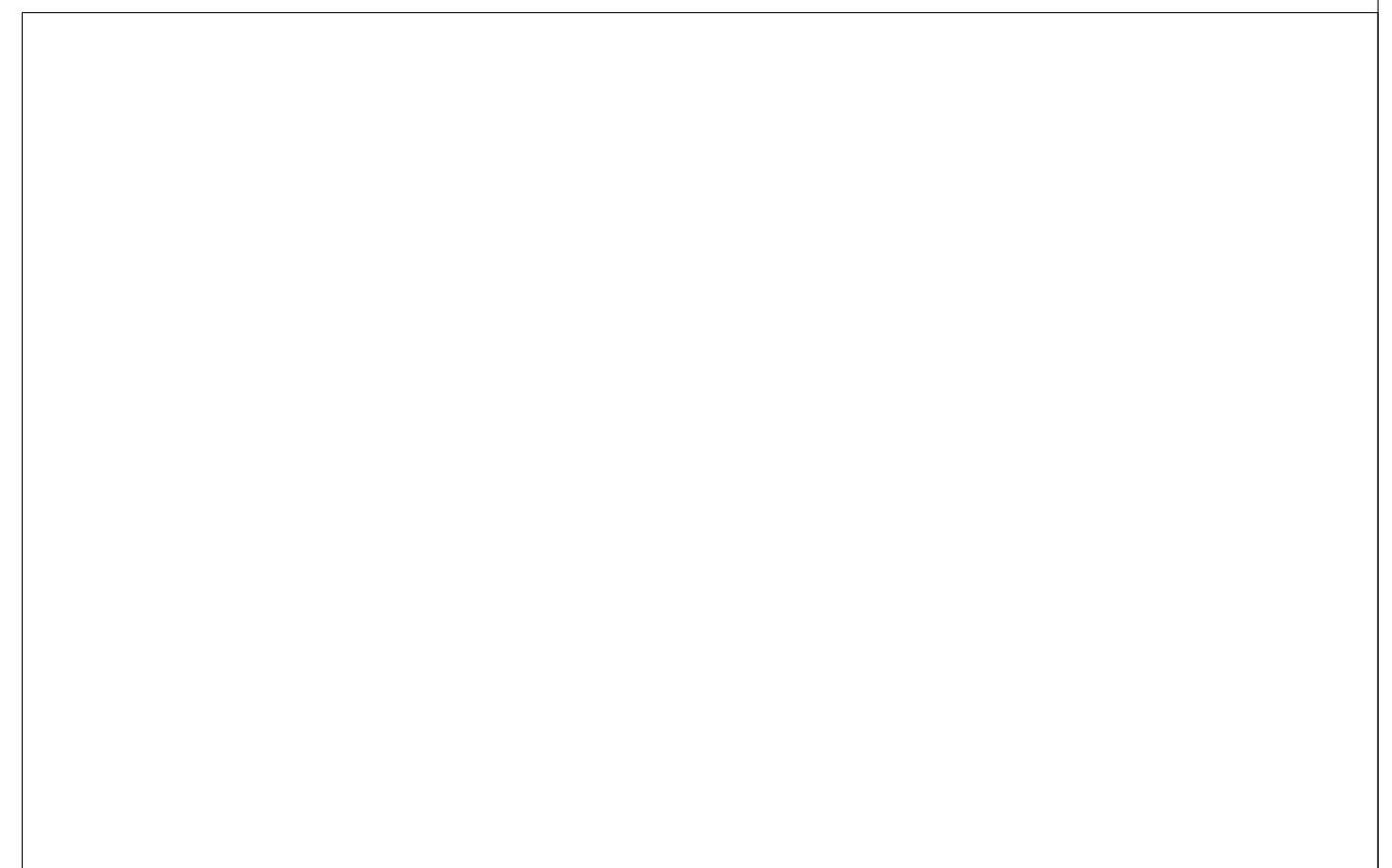
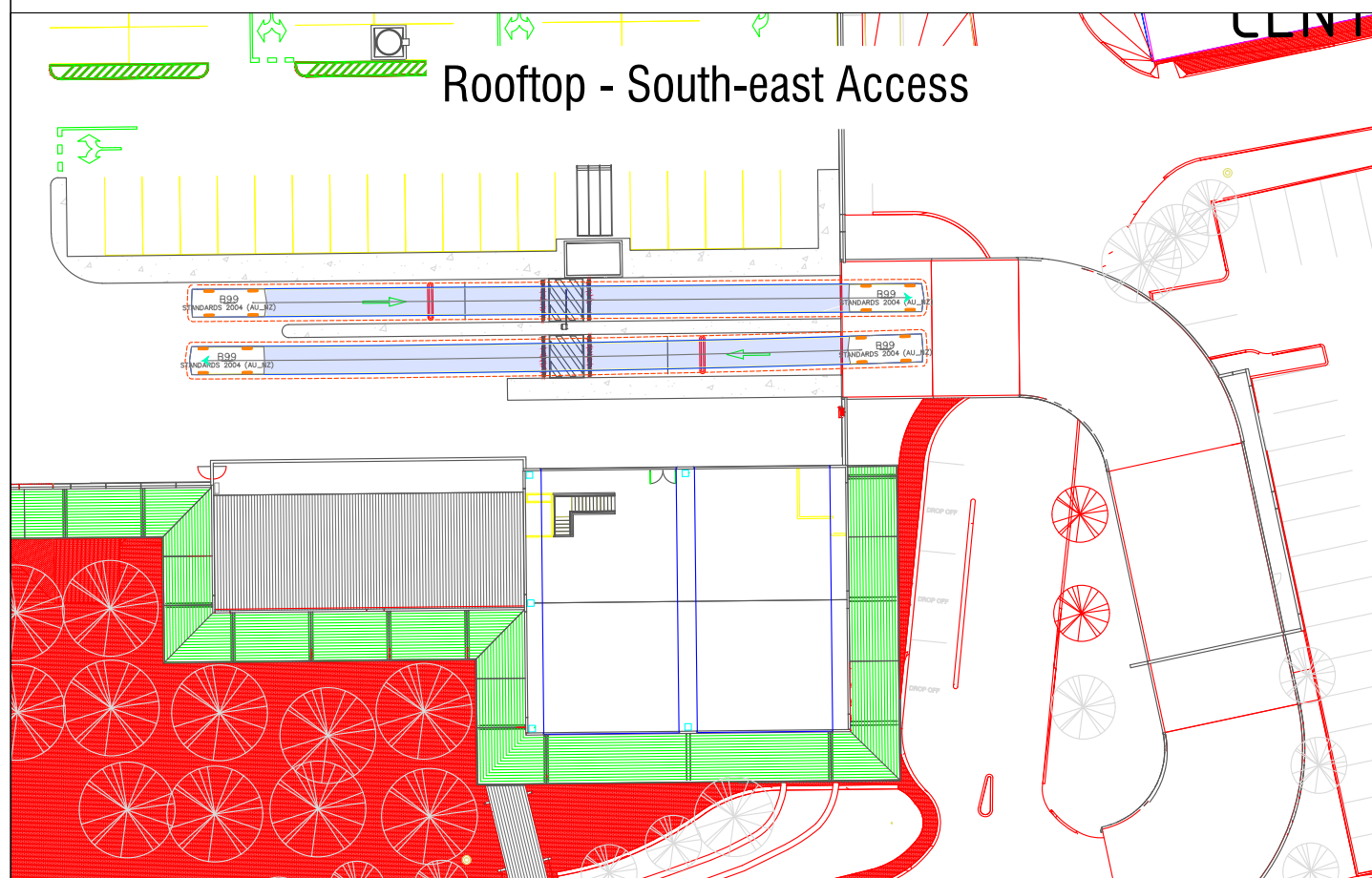
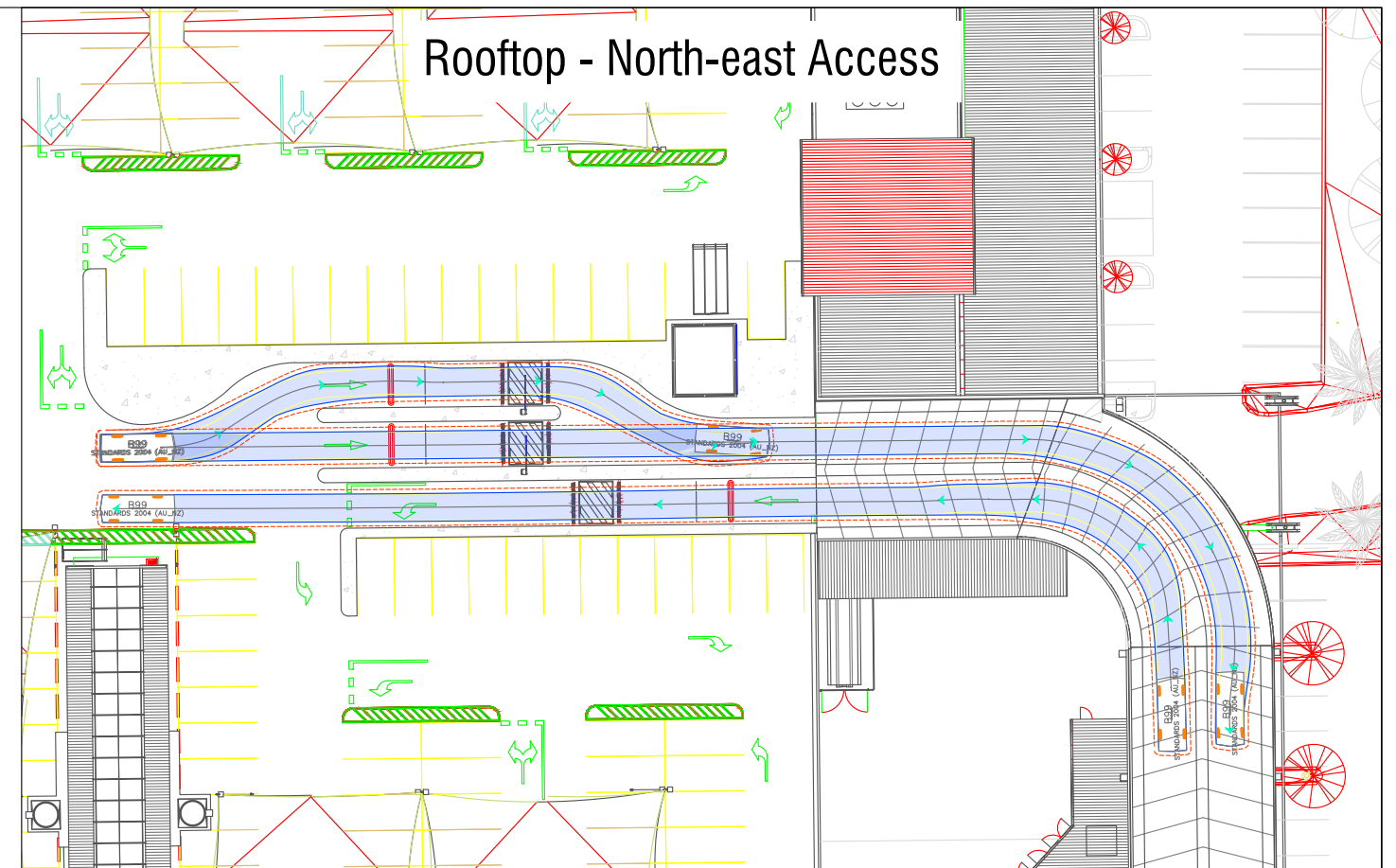
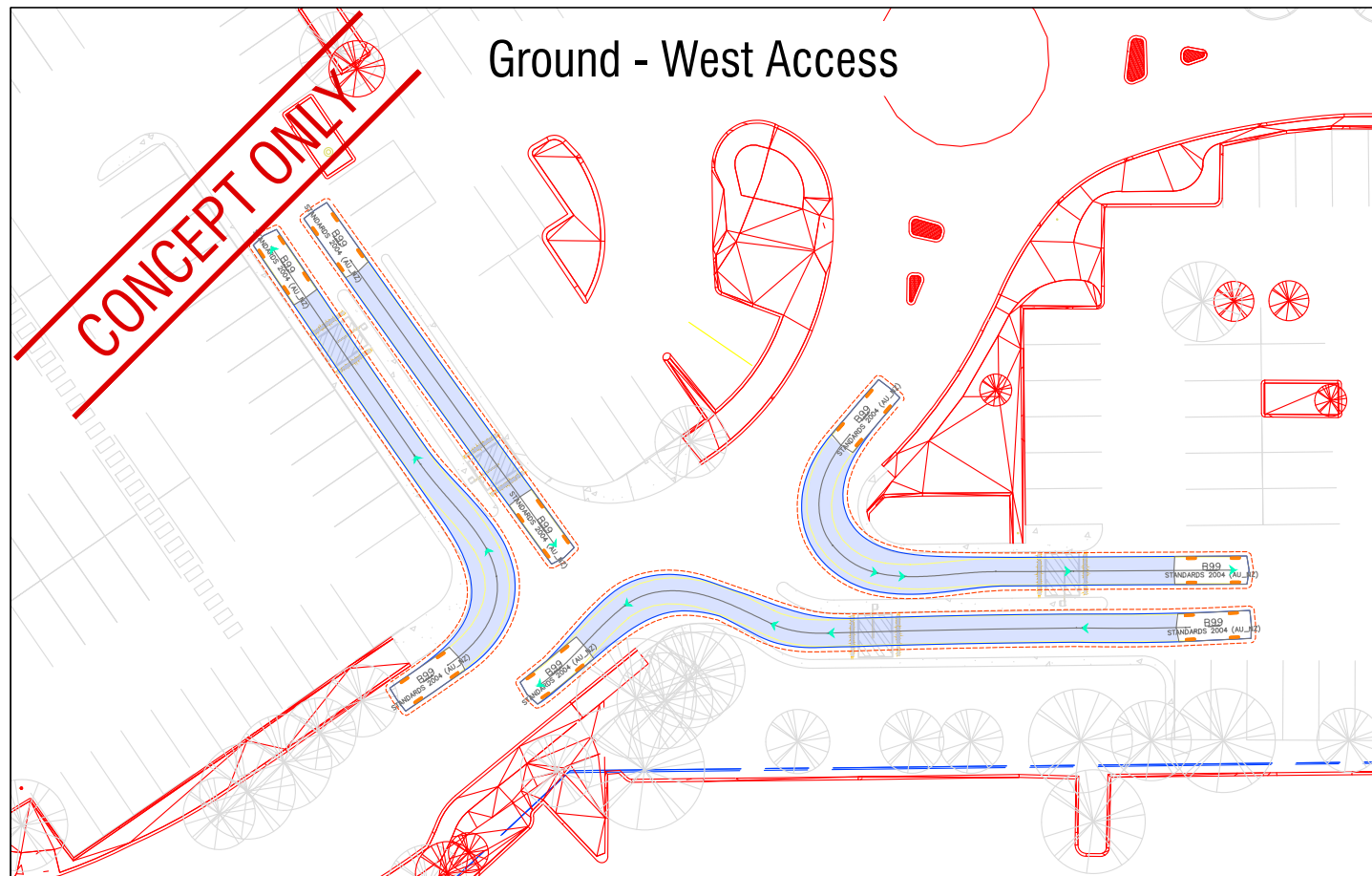
- Vehicle Path
- Vehicle Body
- Body Clearance
- Front Wheels



B99

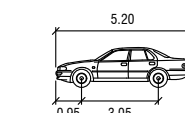
Width	1.94
Track	1.84
Lock to Lock Time	6.0
Steering Angle	33.9



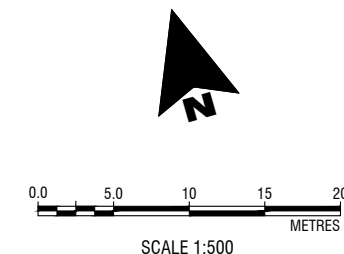


SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance
- Front Wheels

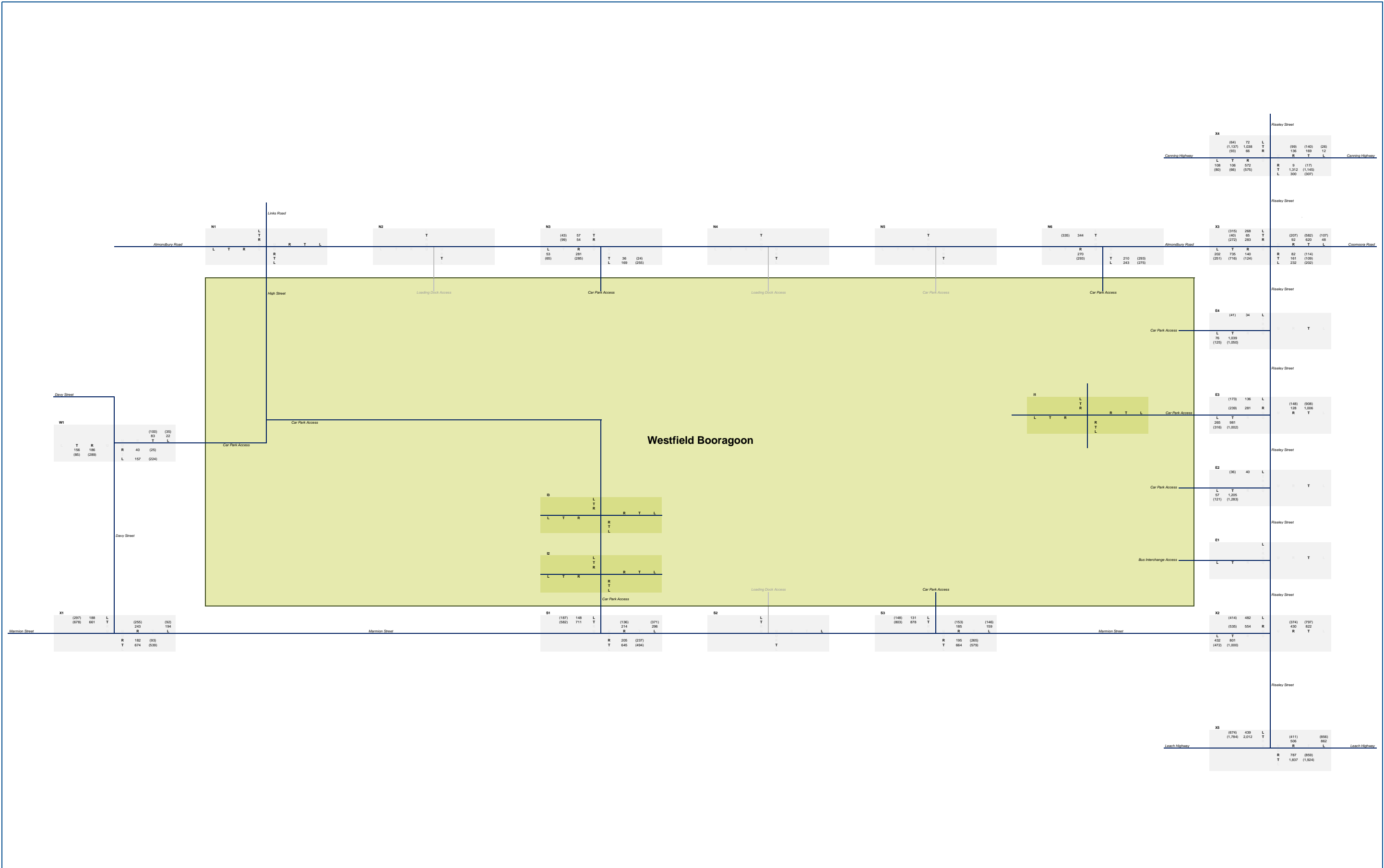


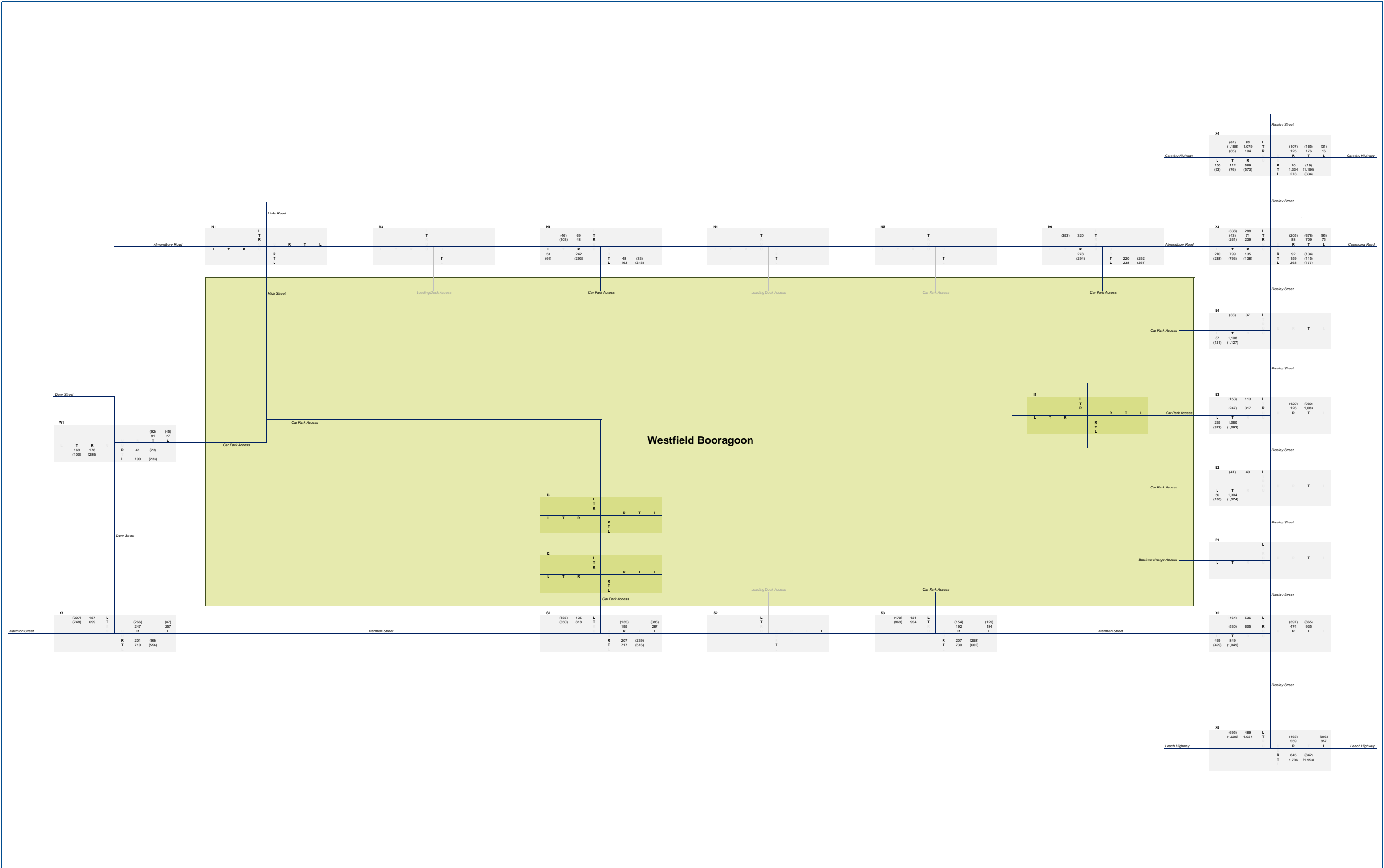
B99	meters
Width	: 1.94
Track	: 1.84
Lock to Lock Time	: 6.0
Steering Angle	: 33.9



APPENDIX D

Assessment Traffic Volumes



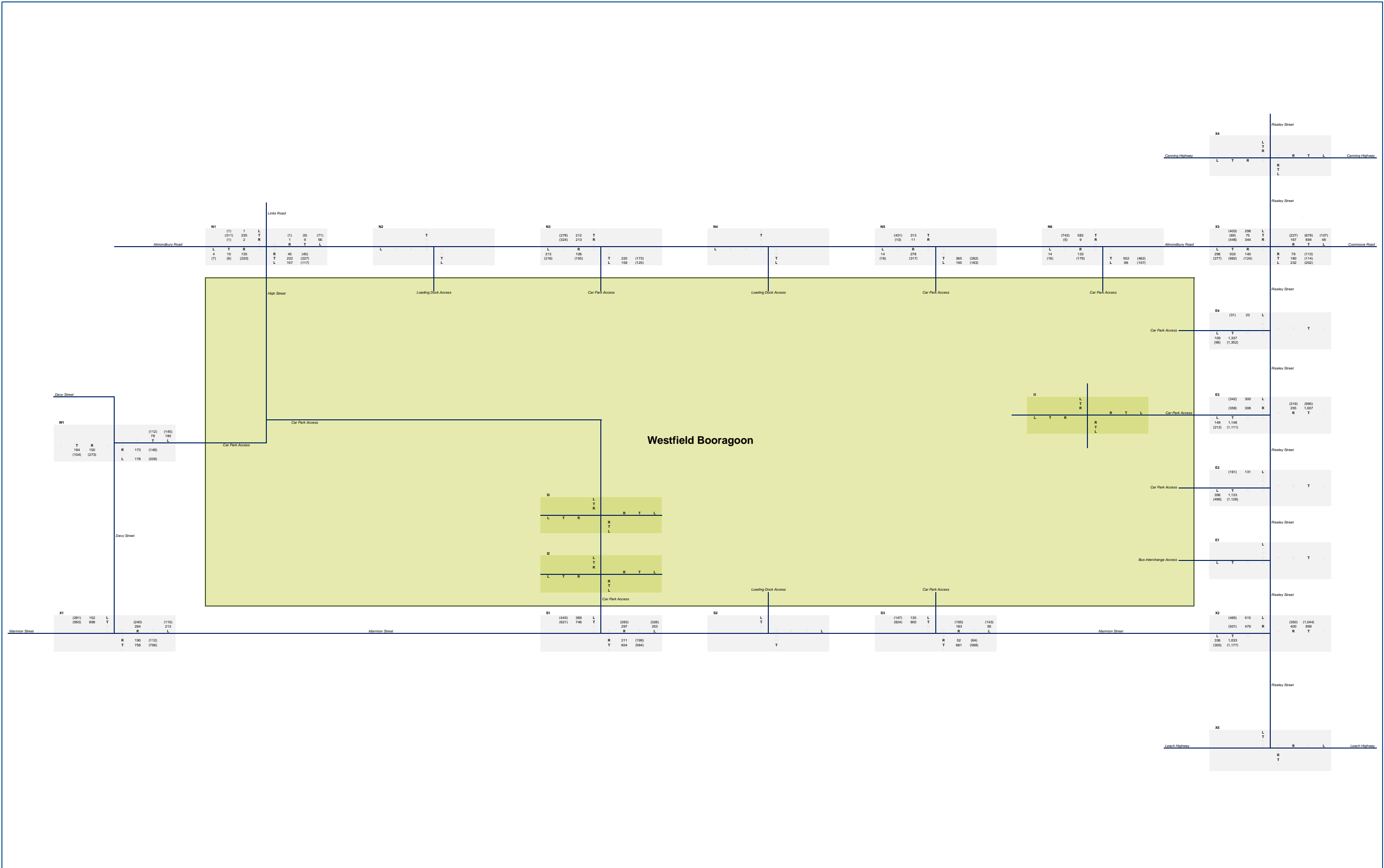


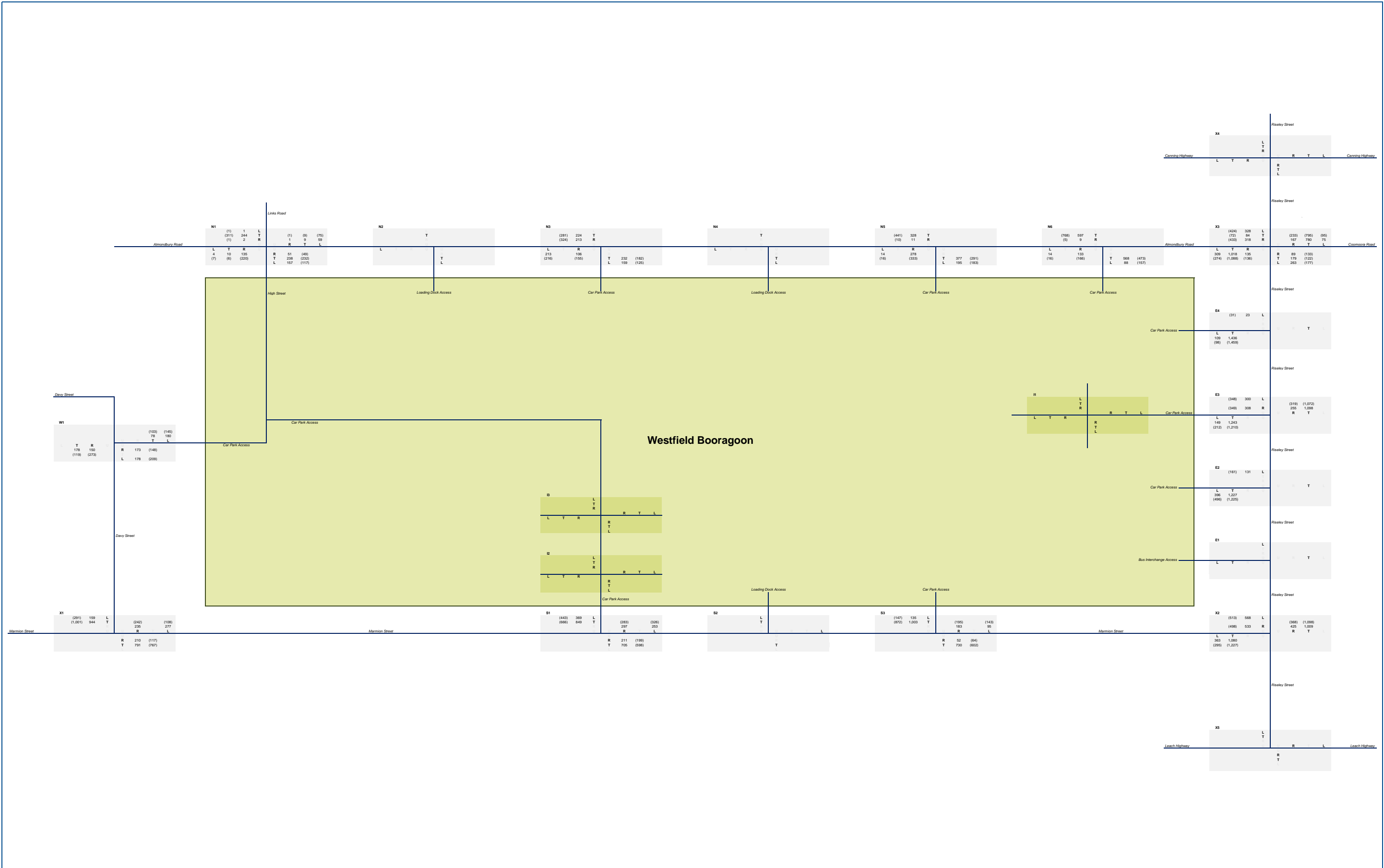
Legend			
L	Left Turn	00	Thursday PM Peak Hour Volumes
T	Through	(00)	Saturday Peak Hour Volumes
R	Right turn		
U	U-turn		

Figure: D2

2031 Background Traffic Volumes







APPENDIX E

Detailed SIDRA Outputs

SITE LAYOUT

 **Site: X1 [X1 (2021 BG) (PM) (Site Folder: (2021 BG))]**

Intersection: Marmion Street / Davy Street

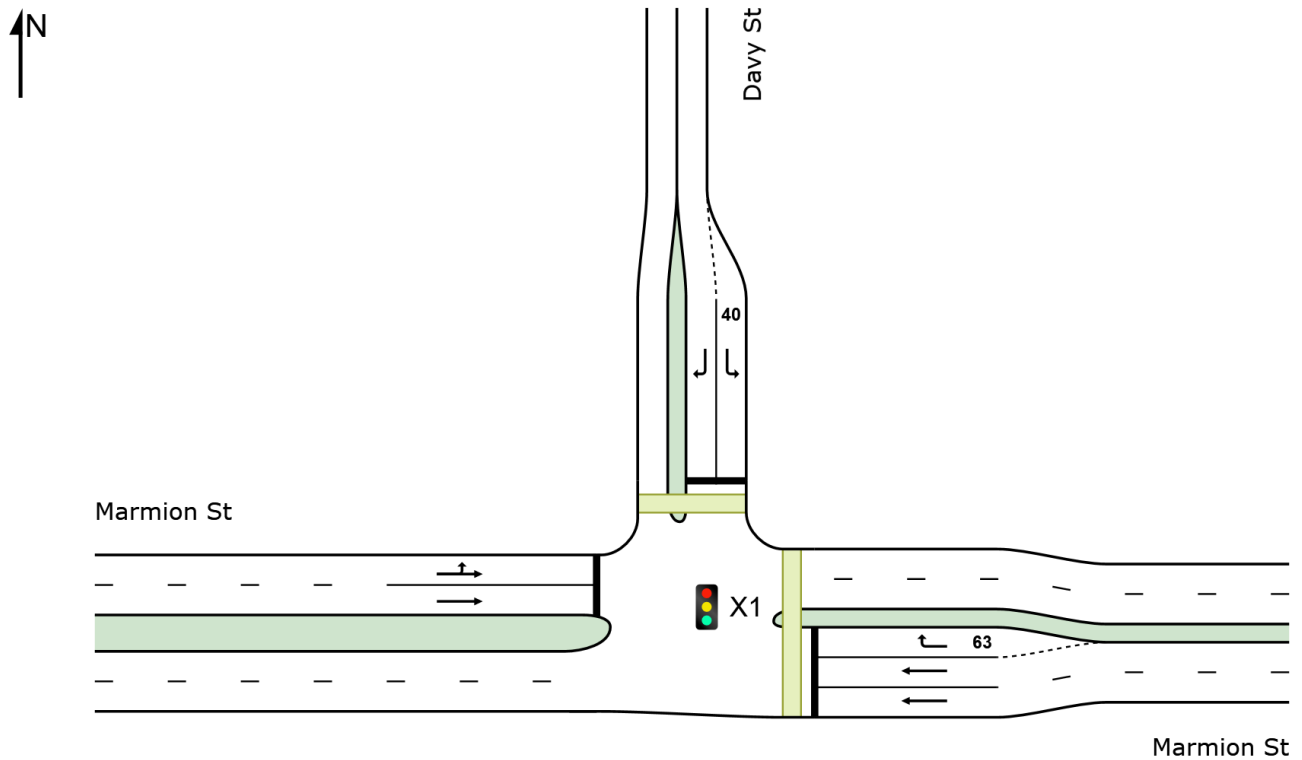
Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated

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



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Project: Z:\BNE\Projects-SLR\620-BNE\620.30141.00000 Westfield Booragoon Redevelopment\02 Analysis\2021 07 - Updated SIDRA Analysis\620.30141-SIDRA Analysis-BG.sip9

MOVEMENT SUMMARY

 **Site: X1 [X1 (2021 BG) (PM) (Site Folder: (2021 BG))]**

Intersection: Marmion Street / Davy Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 126 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
East: Marmion St														
5	T1	674	3.0	709	3.0	0.269	7.8	LOS A	8.1	58.0	0.41	0.36	0.41	50.3
6	R2	182	3.0	192	3.0	* 0.830	70.7	LOS E	12.7	90.8	1.00	0.91	1.23	15.2
Approach		856	3.0	901	3.0	0.830	21.2	LOS C	12.7	90.8	0.53	0.48	0.58	37.6
North: Davy St														
7	L2	194	3.0	204	3.0	0.308	35.1	LOS D	8.9	63.9	0.76	0.77	0.76	23.1
9	R2	243	3.0	256	3.0	* 0.860	64.3	LOS E	16.5	118.4	0.97	0.94	1.22	23.8
Approach		437	3.0	460	3.0	0.860	51.3	LOS D	16.5	118.4	0.88	0.86	1.02	23.6
West: Marmion St														
10	L2	188	3.0	198	3.0	0.458	25.5	LOS C	16.8	120.3	0.67	0.68	0.67	38.2
11	T1	661	3.0	696	3.0	* 0.458	20.3	LOS C	17.3	124.4	0.68	0.63	0.68	39.3
Approach		849	3.0	894	3.0	0.458	21.4	LOS C	17.3	124.4	0.68	0.64	0.68	39.0
All Vehicles		2142	3.0	2255	3.0	0.860	27.4	LOS C	17.3	124.4	0.66	0.62	0.71	34.2

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.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Marmion St												
P2	Full	50	53	57.3	LOS E	0.2	0.2	0.95	0.95	226.9	220.5	0.97
North: Davy St												
P3	Full	50	53	57.3	LOS E	0.2	0.2	0.95	0.95	221.8	213.9	0.96
All Pedestrians		100	105	57.3	LOS E	0.2	0.2	0.95	0.95	224.3	217.2	0.97

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: X1 [X1 (2021 BG) (PM) (Site Folder: (2021 BG))]

Intersection: Marmion Street / Davy Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 126 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, B, C

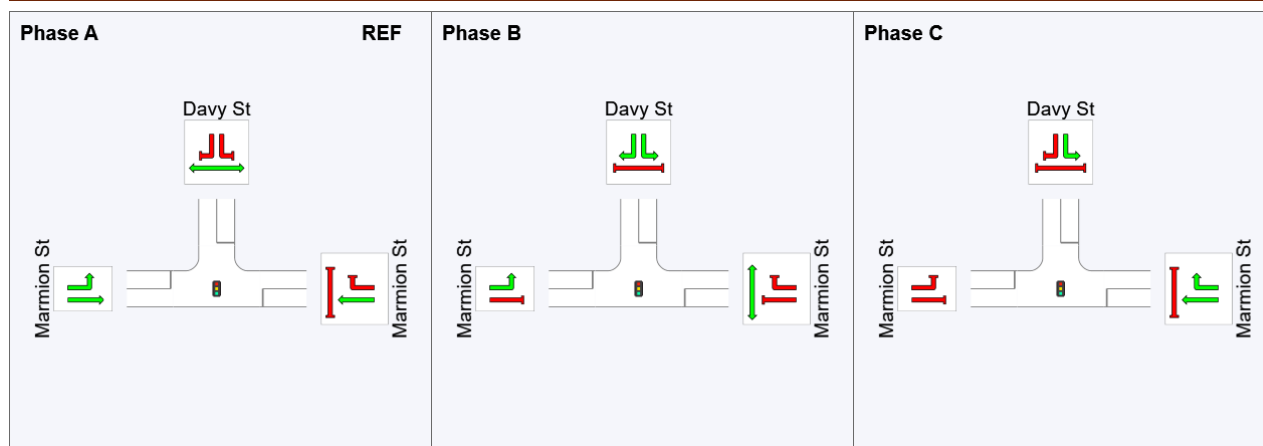
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	71	104
Green Time (sec)	65	27	16
Phase Time (sec)	71	33	22
Phase Split	56%	26%	17%

See the Timing Analysis 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, Minor 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: X1 [X1 (2021 BG) (SAT) (Site Folder: (2021 BG))]**

Intersection: Marmion Street / Davy Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 130 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
East: Marmion St														
5	T1	539	3.0	567	3.0	0.210	6.8	LOS A	6.0	43.1	0.37	0.32	0.37	51.3
6	R2	93	3.0	98	3.0	* 0.778	76.2	LOS E	6.7	47.9	1.00	0.87	1.22	14.4
Approach		632	3.0	665	3.0	0.778	17.0	LOS B	6.7	47.9	0.46	0.40	0.49	41.0
North: Davy St														
7	L2	92	3.0	97	3.0	0.182	41.3	LOS D	4.6	32.7	0.79	0.74	0.79	21.1
9	R2	255	3.0	268	3.0	* 0.848	65.9	LOS E	17.8	128.1	1.00	0.93	1.20	23.5
Approach		347	3.0	365	3.0	0.848	59.4	LOS E	17.8	128.1	0.94	0.88	1.09	23.1
West: Marmion St														
10	L2	297	3.0	313	3.0	0.457	20.2	LOS C	17.2	123.4	0.59	0.68	0.59	40.7
11	T1	678	3.0	714	3.0	* 0.457	15.4	LOS B	18.0	129.2	0.60	0.58	0.60	42.7
Approach		975	3.0	1026	3.0	0.457	16.8	LOS B	18.0	129.2	0.59	0.61	0.59	42.0
All Vehicles		1954	3.0	2057	3.0	0.848	24.5	LOS C	18.0	129.2	0.61	0.59	0.65	36.4

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.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Marmion St												
P2	Full	50	53	59.3	LOS E	0.2	0.2	0.96	0.96	228.9	220.5	0.96
North: Davy St												
P3	Full	50	53	59.3	LOS E	0.2	0.2	0.96	0.96	223.8	213.9	0.96
All Pedestrians		100	105	59.3	LOS E	0.2	0.2	0.96	0.96	226.3	217.2	0.96

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: X1 [X1 (2021 BG) (SAT) (Site Folder: (2021 BG))]

Intersection: Marmion Street / Davy Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 130 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, B, C

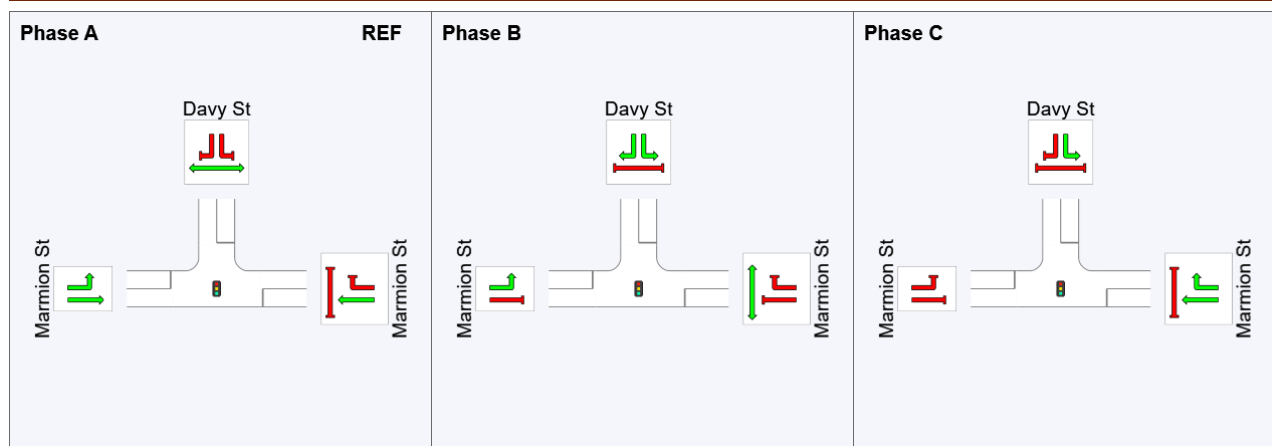
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	83	115
Green Time (sec)	77	26	9
Phase Time (sec)	83	32	15
Phase Split	64%	25%	12%

See the Timing Analysis 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, Minor 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: X1 [X1 (2031 BG) (PM) (Site Folder: (2031 BG))]**

Intersection: Marmion Street / Davy Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 126 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
East: Marmion St														
5	T1	710	3.0	747	3.0	0.290	8.7	LOS A	9.1	65.1	0.43	0.38	0.43	49.3
6	R2	201	3.0	212	3.0	* 0.815	68.2	LOS E	13.7	98.6	1.00	0.90	1.18	15.6
Approach		911	3.0	959	3.0	0.815	21.8	LOS C	13.7	98.6	0.56	0.50	0.60	37.1
North: Davy St														
7	L2	257	3.0	271	3.0	0.473	33.3	LOS C	11.7	83.8	0.76	0.77	0.76	23.8
9	R2	247	3.0	260	3.0	* 0.889	67.5	LOS E	17.3	124.1	0.95	0.97	1.28	23.2
Approach		504	3.0	531	3.0	0.889	50.1	LOS D	17.3	124.1	0.85	0.87	1.01	23.4
West: Marmion St														
10	L2	187	3.0	197	3.0	0.509	28.6	LOS C	19.0	136.1	0.73	0.72	0.73	36.7
11	T1	699	3.0	736	3.0	* 0.509	23.4	LOS C	19.6	140.5	0.73	0.68	0.73	37.4
Approach		886	3.0	933	3.0	0.509	24.5	LOS C	19.6	140.5	0.73	0.68	0.73	37.2
All Vehicles		2301	3.0	2422	3.0	0.889	29.0	LOS C	19.6	140.5	0.69	0.65	0.74	33.2

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.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Marmion St												
P2	Full	50	53	57.3	LOS E	0.2	0.2	0.95	0.95	226.9	220.5	0.97
North: Davy St												
P3	Full	50	53	57.3	LOS E	0.2	0.2	0.95	0.95	221.8	213.9	0.96
All Pedestrians		100	105	57.3	LOS E	0.2	0.2	0.95	0.95	224.3	217.2	0.97

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: X1 [X1 (2031 BG) (PM) (Site Folder: (2031 BG))]

Intersection: Marmion Street / Davy Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 126 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, B, C

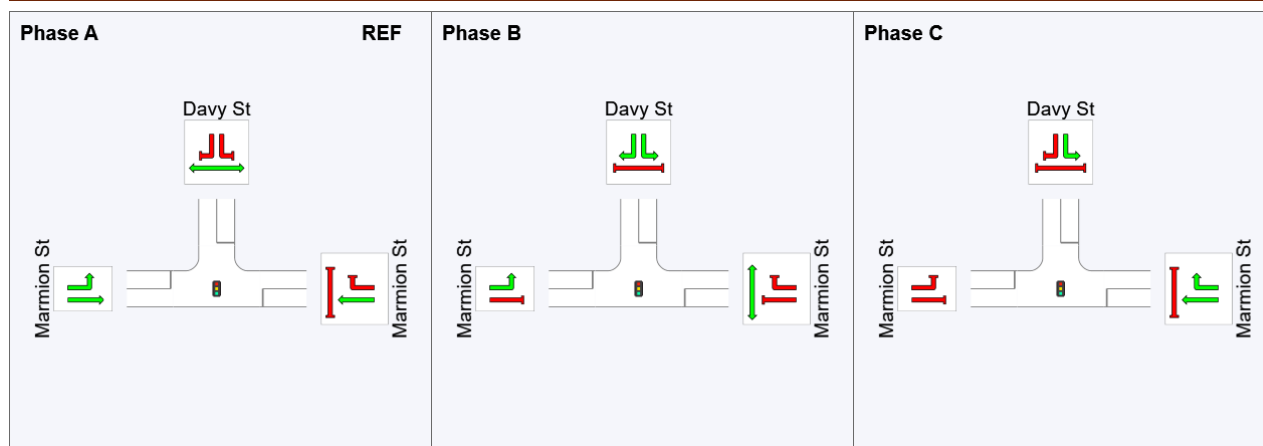
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	67	102
Green Time (sec)	61	29	18
Phase Time (sec)	67	35	24
Phase Split	53%	28%	19%

See the Timing Analysis 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, Minor 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

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Project: Z:\BNE\Projects-SLR\620-BNE\620.30141.00000 Westfield Booragoon Redevelopment\02 Analysis\2021 07 - Updated SIDRA Analysis\620.30141-SIDRA Analysis-2031-BG.sip9

MOVEMENT SUMMARY

 **Site: X1 [X1 (2031 BG) (SAT) (Site Folder: (2031 BG))]**

Intersection: Marmion Street / Davy Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 130 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
East: Marmion St														
5	T1	556	3.0	585	3.0	0.216	6.9	LOS A	6.2	44.8	0.37	0.32	0.37	51.2
6	R2	98	3.0	103	3.0	* 0.819	77.9	LOS E	7.1	51.3	1.00	0.90	1.29	14.2
Approach		654	3.0	688	3.0	0.819	17.5	LOS B	7.1	51.3	0.46	0.41	0.51	40.6
North: Davy St														
7	L2	87	3.0	92	3.0	0.172	41.2	LOS D	4.3	30.8	0.78	0.74	0.78	21.2
9	R2	266	3.0	280	3.0	* 0.881	70.2	LOS E	19.4	139.4	1.00	0.97	1.27	22.7
Approach		353	3.0	372	3.0	0.881	63.0	LOS E	19.4	139.4	0.95	0.91	1.15	22.4
West: Marmion St														
10	L2	307	3.0	323	3.0	0.495	21.2	LOS C	19.5	139.8	0.61	0.69	0.61	40.2
11	T1	748	3.0	787	3.0	* 0.495	16.0	LOS B	20.1	144.4	0.62	0.60	0.62	42.2
Approach		1055	3.0	1111	3.0	0.495	17.5	LOS B	20.1	144.4	0.62	0.62	0.62	41.5
All Vehicles		2062	3.0	2171	3.0	0.881	25.3	LOS C	20.1	144.4	0.63	0.60	0.67	36.0

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.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Marmion St												
P2	Full	50	53	59.3	LOS E	0.2	0.2	0.96	0.96	228.9	220.5	0.96
North: Davy St												
P3	Full	50	53	59.3	LOS E	0.2	0.2	0.96	0.96	223.8	213.9	0.96
All Pedestrians		100	105	59.3	LOS E	0.2	0.2	0.96	0.96	226.3	217.2	0.96

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: X1 [X1 (2031 BG) (SAT) (Site Folder: (2031 BG))]

Intersection: Marmion Street / Davy Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 130 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, B, C

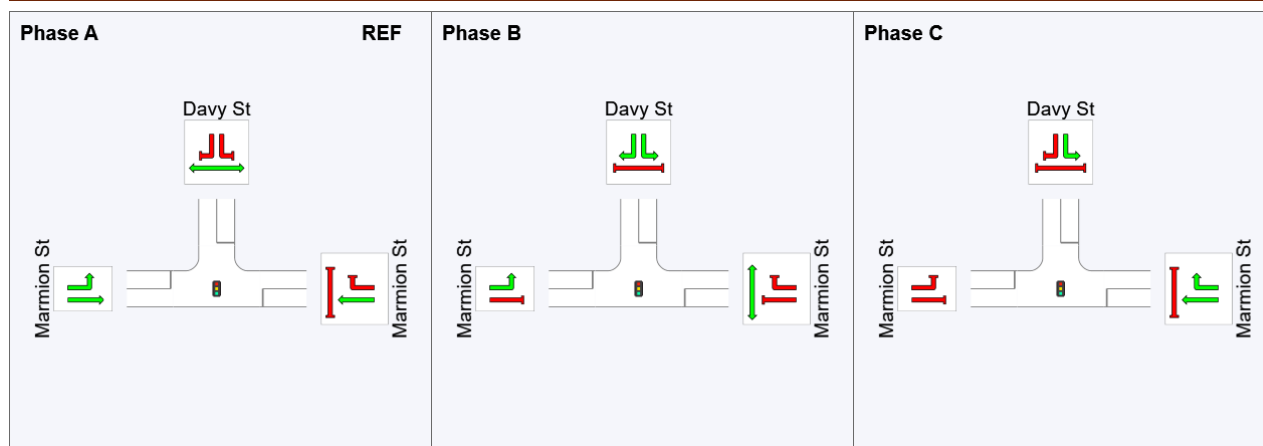
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	83	115
Green Time (sec)	77	26	9
Phase Time (sec)	83	32	15
Phase Split	64%	25%	12%

See the Timing Analysis 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, Minor 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: X1 [X1 (2021 BG + DEV) (PM) (Site Folder: (2031 BG + DEV))]

Intersection: Marmion Street / Davy Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 125 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
East: Marmion St														
5	T1	758	3.0	798	3.0	0.307	8.5	LOS A	9.6	69.0	0.43	0.38	0.43	49.5
6	R2	190	3.0	200	3.0	* 0.859	72.6	LOS F	13.4	96.4	1.00	0.94	1.28	14.9
Approach		948	3.0	998	3.0	0.859	21.3	LOS B	13.4	96.4	0.55	0.49	0.60	37.6
North: Davy St														
7	L2	213	3.0	224	3.0	0.328	34.2	LOS C	9.6	69.3	0.76	0.77	0.76	23.5
9	R2	264	3.0	278	3.0	* 0.927	76.2	LOS F	19.8	142.5	0.97	1.02	1.39	21.6
Approach		477	3.0	502	3.0	0.927	57.4	LOS E	19.8	142.5	0.88	0.91	1.11	22.1
West: Marmion St														
10	L2	152	3.0	160	3.0	0.561	27.1	LOS B	22.3	160.1	0.73	0.70	0.73	37.8
11	T1	898	3.0	945	3.0	* 0.561	21.6	LOS B	22.7	163.1	0.73	0.67	0.73	38.6
Approach		1050	3.0	1105	3.0	0.561	22.4	LOS B	22.7	163.1	0.73	0.68	0.73	38.5
All Vehicles		2475	3.0	2605	3.0	0.927	28.7	LOS C	22.7	163.1	0.69	0.65	0.76	33.6

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Marmion St												
P2	Full	50	53	56.8	LOS E	0.2	0.2	0.95	0.95	226.4	220.5	0.97
North: Davy St												
P3	Full	50	53	56.8	LOS E	0.2	0.2	0.95	0.95	221.3	213.9	0.97
All Pedestrians		100	105	56.8	LOS E	0.2	0.2	0.95	0.95	223.8	217.2	0.97

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: X1 [X1 (2021 BG + DEV) (PM) (Site Folder: (2031 BG + DEV))]

Intersection: Marmion Street / Davy Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 125 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, B, C

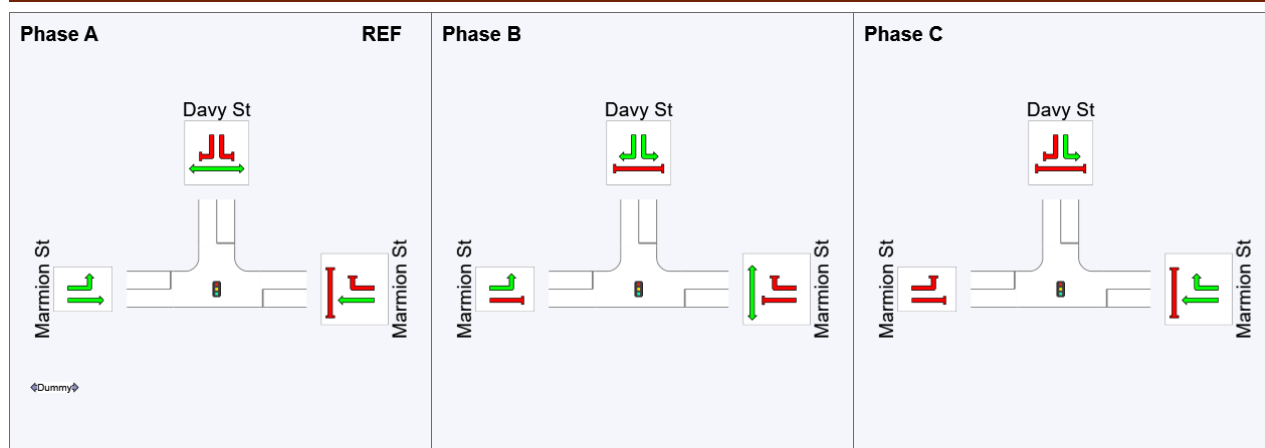
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	69	103
Green Time (sec)	65	28	16
Phase Time (sec)	71	34	20
Phase Split	57%	27%	16%

See the Timing Analysis 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, Minor 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: X1 [X1 (2021 BG + DEV) (SAT) (Site Folder: (2031 BG + DEV))]

Intersection: Marmion Street / Davy Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 130 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
East: Marmion St														
5	T1	756	3.0	796	3.0	0.314	9.9	LOS A	10.5	75.6	0.46	0.41	0.46	48.1
6	R2	112	3.0	118	3.0	* 0.648	69.1	LOS E	7.5	54.1	1.00	0.81	1.05	15.4
Approach		868	3.0	914	3.0	0.648	17.5	LOS B	10.5	75.6	0.53	0.46	0.54	40.8
North: Davy St														
7	L2	115	3.0	121	3.0	0.180	34.0	LOS C	5.1	36.8	0.71	0.73	0.71	23.5
9	R2	240	3.0	253	3.0	* 0.655	51.0	LOS D	14.1	101.2	0.93	0.82	0.93	26.9
Approach		355	3.0	374	3.0	0.655	45.5	LOS D	14.1	101.2	0.86	0.79	0.86	26.1
West: Marmion St														
10	L2	281	3.0	296	3.0	0.665	29.6	LOS C	29.3	210.2	0.79	0.77	0.79	36.1
11	T1	950	3.0	1000	3.0	* 0.665	24.4	LOS B	30.2	216.7	0.79	0.74	0.79	36.8
Approach		1231	3.0	1296	3.0	0.665	25.6	LOS B	30.2	216.7	0.79	0.75	0.79	36.6
All Vehicles		2454	3.0	2583	3.0	0.665	25.6	LOS B	30.2	216.7	0.71	0.65	0.71	35.8

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Marmion St												
P2	Full	50	53	59.3	LOS E	0.2	0.2	0.96	0.96	228.9	220.5	0.96
North: Davy St												
P3	Full	50	53	59.3	LOS E	0.2	0.2	0.96	0.96	223.8	213.9	0.96
All Pedestrians		100	105	59.3	LOS E	0.2	0.2	0.96	0.96	226.3	217.2	0.96

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: X1 [X1 (2021 BG + DEV) (SAT) (Site Folder: (2031 BG + DEV))]

Intersection: Marmion Street / Davy Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 130 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, B, C

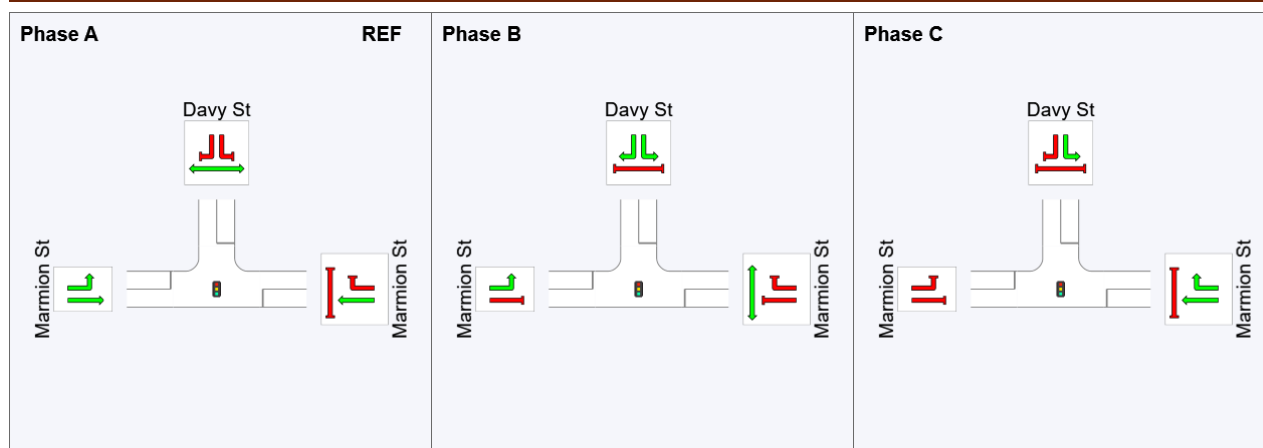
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	73	111
Green Time (sec)	67	32	13
Phase Time (sec)	73	38	19
Phase Split	56%	29%	15%

See the Timing Analysis 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, Minor 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: X1 [X1 (2031 BG + DEV) (PM) (Site Folder: (2031 BG + DEV))]

Intersection: Marmion Street / Davy Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 125 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
						v/c	sec							km/h
East: Marmion St														
5	T1	786	3.0	827	3.0	0.311	7.7	LOS A	9.6	68.6	0.42	0.37	0.42	50.3
6	R2	210	3.0	221	3.0	* 0.950	88.4	LOS F	16.8	121.0	1.00	1.04	1.52	12.9
Approach		996	3.0	1048	3.0	0.950	24.7	LOS B	16.8	121.0	0.54	0.51	0.65	35.5
North: Davy St														
7	L2	277	3.0	292	3.0	0.591	37.2	LOS C	13.5	96.7	0.81	0.79	0.81	22.4
9	R2	234	3.0	246	3.0	* 0.947	83.6	LOS F	18.3	131.7	0.97	1.05	1.48	20.4
Approach		511	3.0	538	3.0	0.947	58.4	LOS E	18.3	131.7	0.89	0.91	1.12	21.1
West: Marmion St														
10	L2	157	3.0	165	3.0	0.585	27.5	LOS B	23.7	170.2	0.74	0.71	0.74	37.6
11	T1	939	3.0	988	3.0	* 0.585	22.0	LOS B	24.1	173.4	0.74	0.69	0.74	38.4
Approach		1096	3.0	1154	3.0	0.585	22.8	LOS B	24.1	173.4	0.74	0.69	0.74	38.2
All Vehicles		2603	3.0	2740	3.0	0.950	30.5	LOS C	24.1	173.4	0.69	0.67	0.78	32.6

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Marmion St												
P2	Full	50	53	56.8	LOS E	0.2	0.2	0.95	0.95	226.4	220.5	0.97
North: Davy St												
P3	Full	50	53	56.8	LOS E	0.2	0.2	0.95	0.95	221.3	213.9	0.97
All Pedestrians		100	105	56.8	LOS E	0.2	0.2	0.95	0.95	223.8	217.2	0.97

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: X1 [X1 (2031 BG + DEV) (PM) (Site Folder: (2031 BG + DEV))]

Intersection: Marmion Street / Davy Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 125 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, B, C

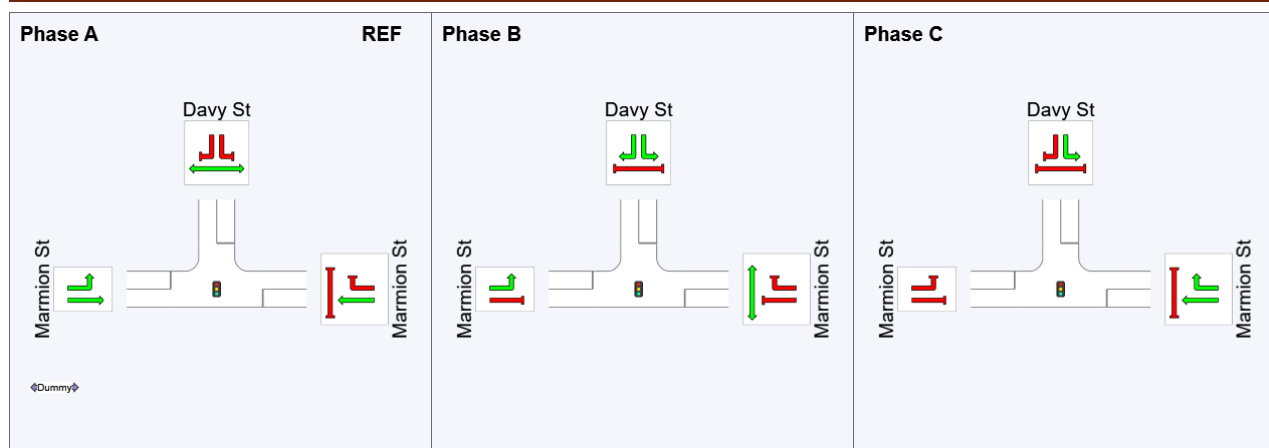
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	71	103
Green Time (sec)	65	26	16
Phase Time (sec)	71	32	22
Phase Split	57%	26%	18%

See the Timing Analysis 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, Minor 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: X1 [X1 (2031 BG + DEV) (SAT) (Site Folder: (2031 BG + DEV))]**

Intersection: Marmion Street / Davy Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 130 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
						v/c	sec							km/h
East: Marmion St														
5	T1	762	3.0	802	3.0	0.313	9.5	LOS A	10.4	74.6	0.45	0.40	0.45	48.6
6	R2	117	3.0	123	3.0	* 0.677	69.7	LOS E	7.9	57.0	1.00	0.82	1.07	15.3
Approach		879	3.0	925	3.0	0.677	17.5	LOS B	10.4	74.6	0.52	0.45	0.53	40.8
North: Davy St														
7	L2	108	3.0	114	3.0	0.173	34.6	LOS C	4.8	34.8	0.72	0.73	0.72	23.3
9	R2	240	3.0	253	3.0	* 0.672	52.0	LOS D	14.3	102.4	0.94	0.82	0.94	26.6
Approach		348	3.0	366	3.0	0.672	46.6	LOS D	14.3	102.4	0.87	0.80	0.87	25.9
West: Marmion St														
10	L2	288	3.0	303	3.0	0.683	29.4	LOS C	30.7	220.5	0.80	0.78	0.80	36.2
11	T1	995	3.0	1047	3.0	* 0.683	24.2	LOS B	31.6	227.2	0.80	0.75	0.80	36.9
Approach		1283	3.0	1351	3.0	0.683	25.3	LOS B	31.6	227.2	0.80	0.75	0.80	36.8
All Vehicles		2510	3.0	2642	3.0	0.683	25.5	LOS B	31.6	227.2	0.71	0.65	0.72	35.9

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Marmion St												
P2	Full	50	53	59.3	LOS E	0.2	0.2	0.96	0.96	228.9	220.5	0.96
North: Davy St												
P3	Full	50	53	59.3	LOS E	0.2	0.2	0.96	0.96	223.8	213.9	0.96
All Pedestrians		100	105	59.3	LOS E	0.2	0.2	0.96	0.96	226.3	217.2	0.96

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: X1 [X1 (2031 BG + DEV) (SAT) (Site Folder: (2031 BG + DEV))]

Intersection: Marmion Street / Davy Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 130 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, B, C

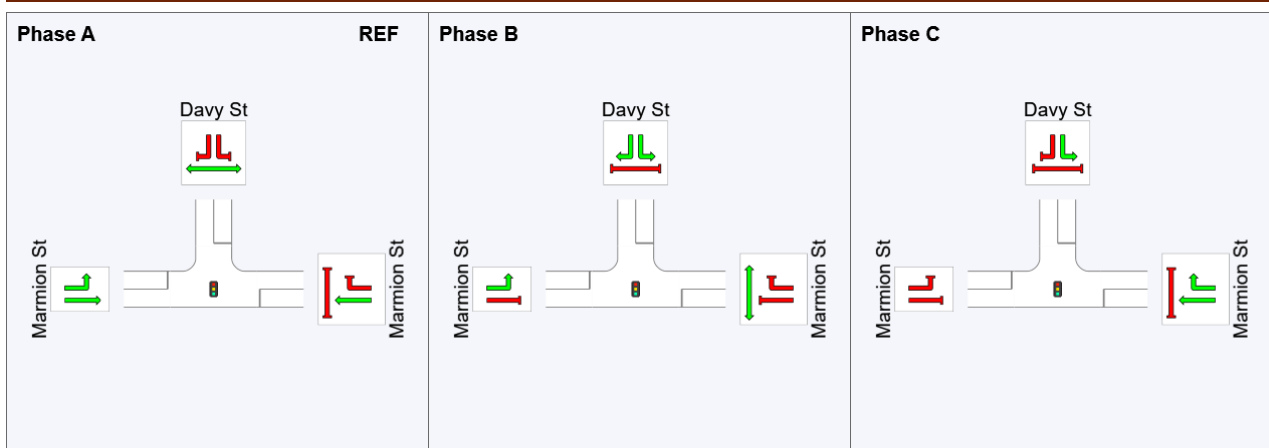
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	74	111
Green Time (sec)	68	31	13
Phase Time (sec)	74	37	19
Phase Split	57%	28%	15%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase

VAR: Variable Phase

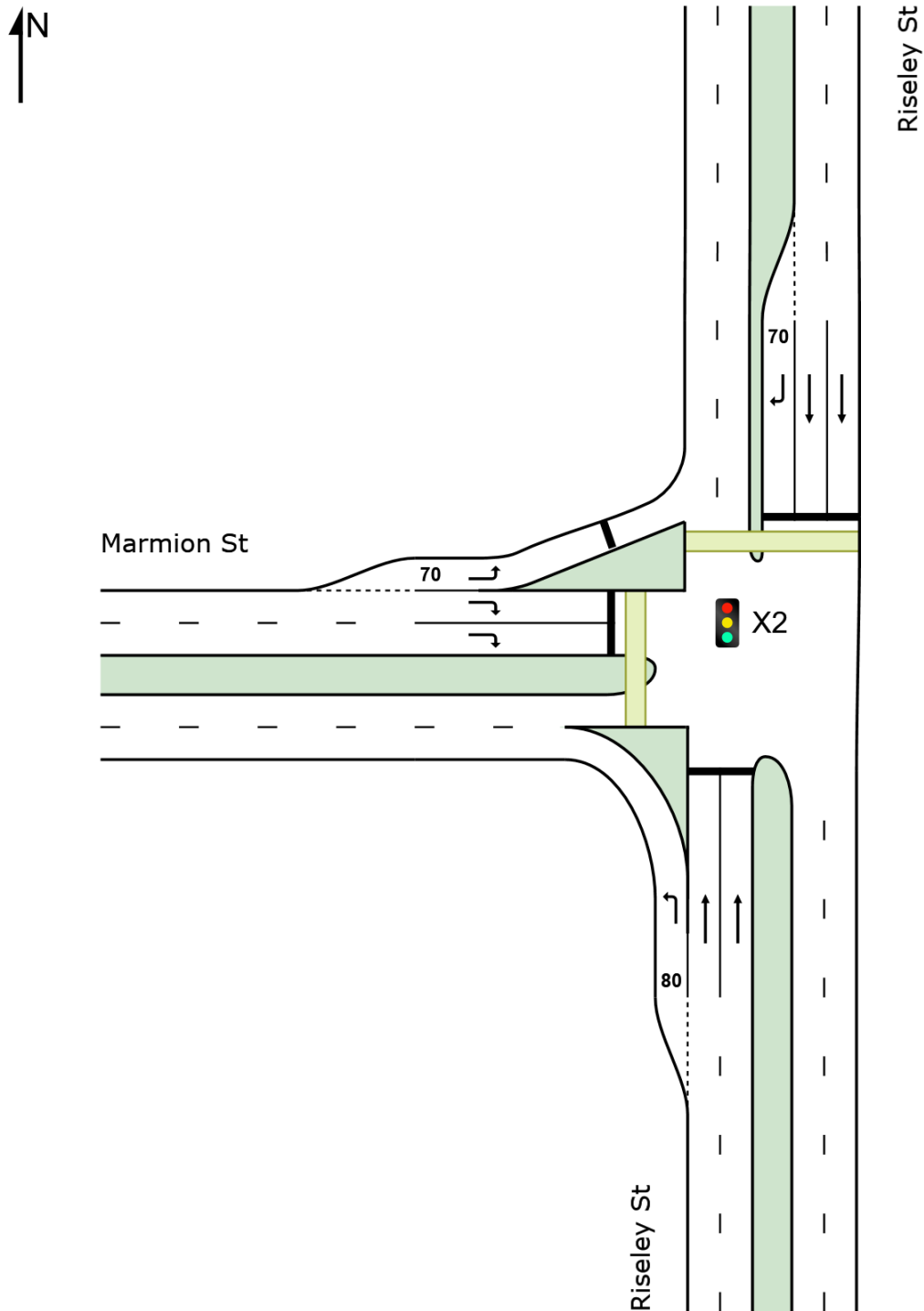
	Normal Movement		Permitted/Opposed
	Slip/Bypass-Lane Movement		Opposed Slip/Bypass-Lane
	Stopped Movement		Turn On Red
	Other Movement Class (MC) Running		Undetected Movement
	Mixed Running & Stopped MCs		Continuous Movement
	Other Movement Class (MC) Stopped		Phase Transition Applied

SITE LAYOUT

 **Site: X2 [X2 (2021 BG) (PM) (Existing) (Site Folder: (2021 BG))]**

Intersection: Riseley Street / Marmion Street
Project: 620.30141 - Westfield Booragoon Redevelopment
Prepared by: MP
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

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



MOVEMENT SUMMARY

 **Site: X2 [X2 (2021 BG) (PM) (Existing) (Site Folder: (2021 BG))]**

Intersection: Riseley Street / Marmion Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 127 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Riseley St														
1	L2	432	3.0	455	3.0	0.250	5.7	LOS A	0.0	0.0	0.00	0.53	0.00	52.3
2	T1	801	3.0	843	3.0	* 0.882	57.0	LOS E	32.2	231.1	0.98	1.00	1.18	25.3
Approach		1233	3.0	1298	3.0	0.882	39.1	LOS D	32.2	231.1	0.63	0.84	0.77	30.8
North: Riseley St														
8	T1	822	3.0	865	3.0	0.312	6.5	LOS A	9.3	66.8	0.38	0.34	0.38	51.9
9	R2	430	3.0	453	3.0	* 0.893	56.1	LOS E	28.2	202.5	0.87	0.93	1.10	15.6
Approach		1252	3.0	1318	3.0	0.893	23.6	LOS C	28.2	202.5	0.55	0.54	0.63	35.3
West: Marmion St														
10	L2	482	3.0	507	3.0	0.634	20.6	LOS C	17.2	123.5	0.60	0.75	0.60	29.2
12	R2	554	3.0	583	3.0	* 0.893	73.5	LOS E	20.7	148.5	1.00	0.97	1.29	20.8
Approach		1036	3.0	1091	3.0	0.893	48.9	LOS D	20.7	148.5	0.81	0.87	0.97	22.8
All Vehicles		3521	3.0	3706	3.0	0.893	36.4	LOS D	32.2	231.1	0.66	0.74	0.78	29.5

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.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
North: Riseley St												
P3	Full	50	53	57.8	LOS E	0.2	0.2	0.95	0.95	226.8	219.8	0.97
West: Marmion St												
P4	Full	50	53	57.8	LOS E	0.2	0.2	0.95	0.95	226.4	219.2	0.97
All Pedestrians		100	105	57.8	LOS E	0.2	0.2	0.95	0.95	226.6	219.5	0.97

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: X2 [X2 (2021 BG) (PM) (Existing) (Site Folder: (2021 BG))]

Intersection: Riseley Street / Marmion Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 127 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, B, C

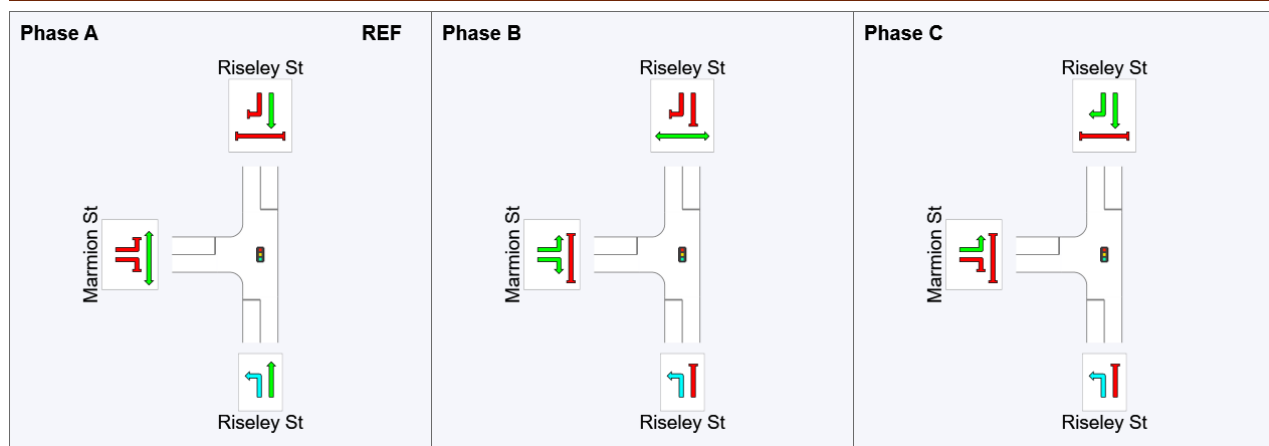
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	42	71
Green Time (sec)	36	23	50
Phase Time (sec)	42	29	56
Phase Split	33%	23%	44%

See the Timing Analysis 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, Minor 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

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Project: Z:\BNE\Projects-SLR\620-BNE\620.30141.00000 Westfield Booragoon Redevelopment\02 Analysis\2021 07 - Updated SIDRA Analysis\620.30141-SIDRA Analysis-BG.sip9

MOVEMENT SUMMARY

 Site: X2 [X2 (2021 BG) (SAT) (Existing) (Site Folder: (2021 BG))]

Intersection: Riseley Street / Marmion Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 130 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Riseley St														
1	L2	472	3.0	497	3.0	0.273	5.7	LOS A	0.0	0.0	0.00	0.53	0.00	52.3
2	T1	1000	3.0	1053	3.0	* 0.897	54.1	LOS D	42.8	307.4	0.95	1.00	1.15	26.1
Approach		1472	3.0	1549	3.0	0.897	38.6	LOS D	42.8	307.4	0.65	0.85	0.78	31.0
North: Riseley St														
8	T1	797	3.0	839	3.0	0.300	6.3	LOS A	8.9	64.2	0.37	0.33	0.37	52.1
9	R2	374	3.0	394	3.0	* 0.920	69.8	LOS E	27.8	199.4	0.92	0.98	1.25	13.3
Approach		1171	3.0	1233	3.0	0.920	26.6	LOS C	27.8	199.4	0.55	0.54	0.65	33.8
West: Marmion St														
10	L2	414	3.0	436	3.0	0.496	26.2	LOS C	17.1	122.5	0.67	0.78	0.67	25.8
12	R2	535	3.0	563	3.0	* 0.885	73.9	LOS E	20.2	145.1	1.00	0.96	1.27	20.7
Approach		949	3.0	999	3.0	0.885	53.1	LOS D	20.2	145.1	0.86	0.88	1.01	22.0
All Vehicles		3592	3.0	3781	3.0	0.920	38.5	LOS D	42.8	307.4	0.67	0.75	0.80	29.0

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.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
North: Riseley St												
P3	Full	50	53	59.3	LOS E	0.2	0.2	0.96	0.96	228.3	219.8	0.96
West: Marmion St												
P4	Full	50	53	59.3	LOS E	0.2	0.2	0.96	0.96	227.9	219.2	0.96
All Pedestrians		100	105	59.3	LOS E	0.2	0.2	0.96	0.96	228.1	219.5	0.96

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: X2 [X2 (2021 BG) (SAT) (Existing) (Site Folder: (2021 BG))]

Intersection: Riseley Street / Marmion Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 130 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, B, C

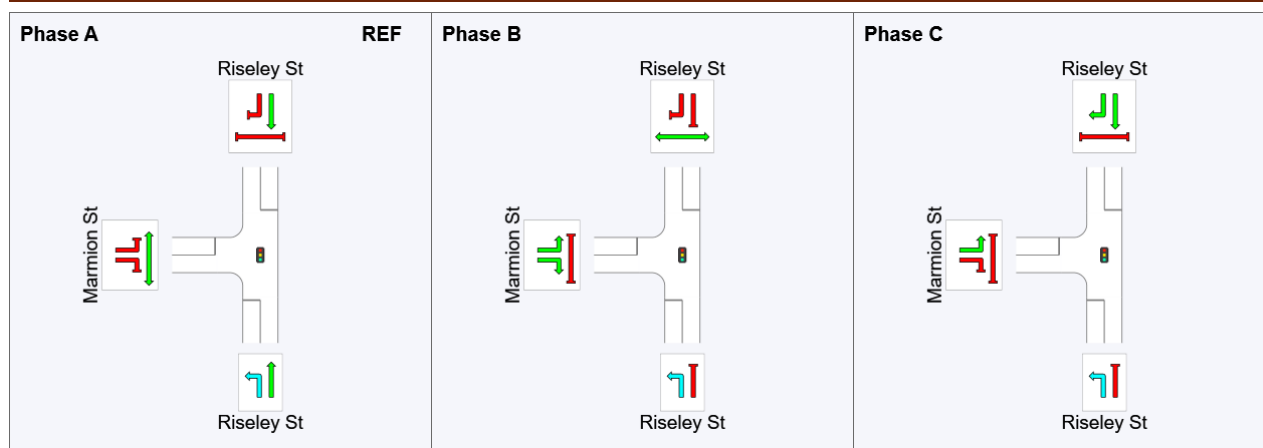
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	53	82
Green Time (sec)	47	23	42
Phase Time (sec)	53	29	48
Phase Split	41%	22%	37%

See the Timing Analysis 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, Minor 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: X2 [X2 (2031 BG) (PM) (Existing) (Site Folder: (2031 BG))]**

Intersection: Riseley Street / Marmion Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 127 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Riseley St														
1	L2	469	3.0	494	3.0	0.272	5.7	LOS A	0.0	0.0	0.00	0.53	0.00	52.3
2	T1	849	3.0	894	3.0	* 0.957	77.8	LOS E	40.1	288.2	0.99	1.17	1.40	20.9
Approach		1318	3.0	1387	3.0	0.957	52.1	LOS D	40.1	288.2	0.64	0.94	0.90	26.5
North: Riseley St														
8	T1	935	3.0	984	3.0	0.359	7.2	LOS A	11.4	81.5	0.41	0.37	0.41	51.1
9	R2	474	3.0	499	3.0	* 0.992	94.3	LOS F	41.2	296.0	0.90	1.08	1.43	10.5
Approach		1409	3.0	1483	3.0	0.992	36.5	LOS D	41.2	296.0	0.58	0.61	0.76	28.9
West: Marmion St														
10	L2	536	3.0	564	3.0	0.690	20.7	LOS C	19.6	140.7	0.62	0.76	0.62	29.1
12	R2	605	3.0	637	3.0	* 0.990	103.7	LOS F	29.4	210.9	1.00	1.11	1.60	16.5
Approach		1141	3.0	1201	3.0	0.990	64.7	LOS E	29.4	210.9	0.82	0.95	1.14	19.1
All Vehicles		3868	3.0	4072	3.0	0.992	50.1	LOS D	41.2	296.0	0.67	0.82	0.92	24.8

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.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
North: Riseley St												
P3	Full	50	53	57.8	LOS E	0.2	0.2	0.95	0.95	226.8	219.8	0.97
West: Marmion St												
P4	Full	50	53	57.8	LOS E	0.2	0.2	0.95	0.95	226.4	219.2	0.97
All Pedestrians		100	105	57.8	LOS E	0.2	0.2	0.95	0.95	226.6	219.5	0.97

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: X2 [X2 (2031 BG) (PM) (Existing) (Site Folder: (2031 BG))]

Intersection: Riseley Street / Marmion Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 127 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, B, C

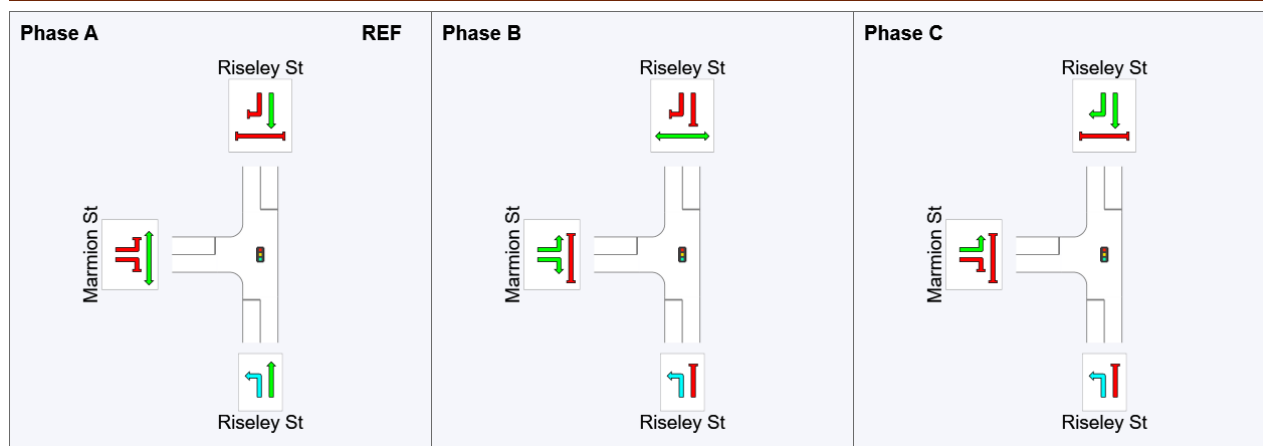
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	41	71
Green Time (sec)	35	24	50
Phase Time (sec)	41	30	56
Phase Split	32%	24%	44%

See the Timing Analysis 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, Minor 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

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Project: Z:\BNE\Projects-SLR\620-BNE\620.30141.00000 Westfield Booragoon Redevelopment\02 Analysis\2021 07 - Updated SIDRA Analysis\620.30141-SIDRA Analysis-2031-BG.sip9

MOVEMENT SUMMARY

 Site: X2 [X2 (2031 BG) (SAT) (Existing) (Site Folder: (2031 BG))]

Intersection: Riseley Street / Marmion Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 130 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Riseley St														
1	L2	459	3.0	483	3.0	0.266	5.7	LOS A	0.0	0.0	0.00	0.53	0.00	52.3
2	T1	1049	3.0	1104	3.0	* 0.952	71.1	LOS E	51.2	367.5	0.96	1.12	1.30	22.2
Approach		1508	3.0	1587	3.0	0.952	51.2	LOS D	51.2	367.5	0.67	0.94	0.91	26.8
North: Riseley St														
8	T1	865	3.0	911	3.0	0.329	6.9	LOS A	10.2	73.4	0.39	0.35	0.39	51.5
9	R2	397	3.0	418	3.0	* 0.981	94.0	LOS F	34.7	249.1	0.94	1.07	1.46	10.5
Approach		1262	3.0	1328	3.0	0.981	34.3	LOS C	34.7	249.1	0.56	0.58	0.73	30.1
West: Marmion St														
10	L2	464	3.0	488	3.0	0.686	26.4	LOS C	19.6	140.5	0.69	0.78	0.69	25.7
12	R2	530	3.0	558	3.0	* 0.831	67.3	LOS E	18.6	133.5	1.00	0.92	1.17	22.0
Approach		994	3.0	1046	3.0	0.831	48.2	LOS D	19.6	140.5	0.86	0.85	0.94	23.0
All Vehicles		3764	3.0	3962	3.0	0.981	44.7	LOS D	51.2	367.5	0.68	0.80	0.86	26.8

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.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m					
North: Riseley St												
P3	Full	50	53	59.3	LOS E	0.2	0.2	0.96	0.96	228.3	219.8	0.96
West: Marmion St												
P4	Full	50	53	59.3	LOS E	0.2	0.2	0.96	0.96	227.9	219.2	0.96
All Pedestrians		100	105	59.3	LOS E	0.2	0.2	0.96	0.96	228.1	219.5	0.96

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: X2 [X2 (2031 BG) (SAT) (Existing) (Site Folder: (2031 BG))]

Intersection: Riseley Street / Marmion Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 130 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, B, C

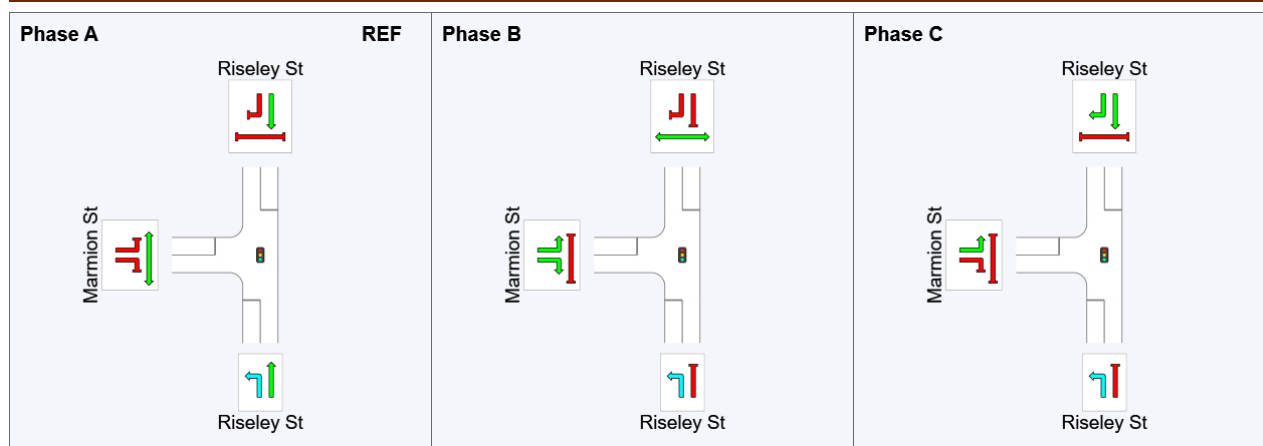
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	52	82
Green Time (sec)	46	24	42
Phase Time (sec)	52	30	48
Phase Split	40%	23%	37%

See the Timing Analysis 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, Minor 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: X2 [X2 (2021 BG + DEV) (PM) (Existing) (Site Folder: (2031 BG + DEV))]**

Intersection: Riseley Street / Marmion Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 127 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Riseley St														
1	L2	336	3.0	354	3.0	0.195	5.7	LOS A	0.0	0.0	0.00	0.53	0.00	52.3
2	T1	1033	3.0	1087	3.0	* 0.909	56.6	LOS E	43.0	309.0	0.96	1.03	1.19	25.5
Approach		1369	3.0	1441	3.0	0.909	44.1	LOS D	43.0	309.0	0.73	0.91	0.90	29.0
North: Riseley St														
8	T1	899	3.0	946	3.0	0.327	5.3	LOS A	9.3	66.5	0.35	0.31	0.35	53.3
9	R2	400	3.0	421	3.0	* 0.927	68.5	LOS E	29.2	209.4	0.90	0.98	1.24	13.5
Approach		1299	3.0	1367	3.0	0.927	24.7	LOS B	29.2	209.4	0.52	0.52	0.62	34.9
West: Marmion St														
10	L2	515	3.0	542	3.0	0.730	27.1	LOS B	22.3	160.0	0.73	0.80	0.73	25.4
12	R2	479	3.0	504	3.0	* 0.927	82.2	LOS F	18.7	134.4	1.00	1.01	1.41	19.3
Approach		994	3.0	1046	3.0	0.927	53.6	LOS D	22.3	160.0	0.86	0.90	1.06	21.1
All Vehicles		3662	3.0	3855	3.0	0.927	39.8	LOS C	43.0	309.0	0.69	0.77	0.84	28.3

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m					
North: Riseley St												
P3	Full	50	53	57.8	LOS E	0.2	0.2	0.95	0.95	226.8	219.8	0.97
West: Marmion St												
P4	Full	50	53	57.8	LOS E	0.2	0.2	0.95	0.95	226.4	219.2	0.97
All Pedestrians		100	105	57.8	LOS E	0.2	0.2	0.95	0.95	226.6	219.5	0.97

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: X2 [X2 (2021 BG + DEV) (PM) (Existing) (Site Folder: (2031 BG + DEV))]

Intersection: Riseley Street / Marmion Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 127 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, B, C

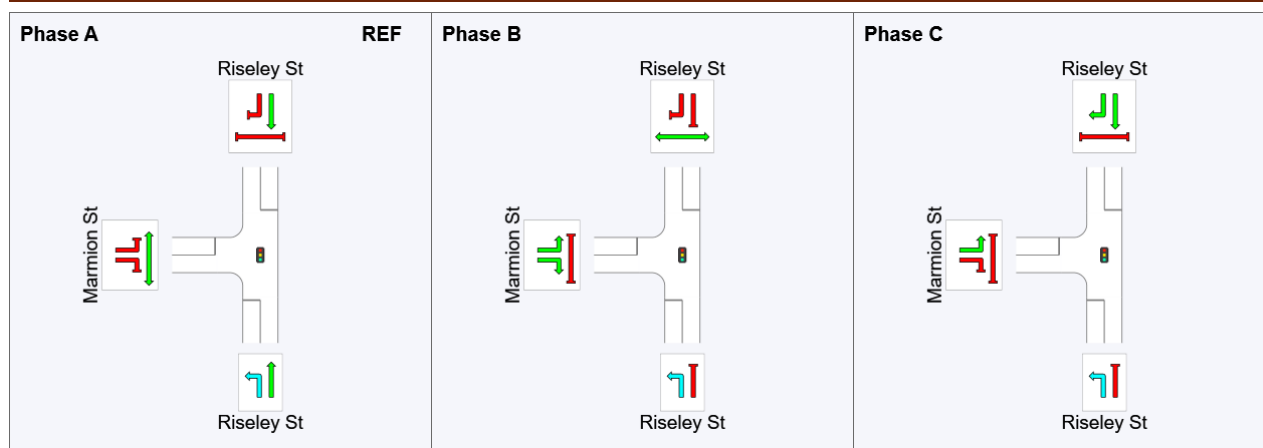
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	51	76
Green Time (sec)	45	19	45
Phase Time (sec)	51	25	51
Phase Split	40%	20%	40%

See the Timing Analysis 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, Minor 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: X2 [X2 (2021 BG + DEV) (SAT) (Existing) (Site Folder: (2031 BG + DEV))]

Intersection: Riseley Street / Marmion Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 129 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Riseley St														
1	L2	305	3.0	321	3.0	0.177	5.7	LOS A	0.0	0.0	0.00	0.53	0.00	52.3
2	T1	1177	3.0	1239	3.0	* 0.924	57.6	LOS E	50.7	363.9	0.96	1.05	1.19	25.2
Approach		1482	3.0	1560	3.0	0.924	46.9	LOS D	50.7	363.9	0.76	0.94	0.95	28.1
North: Riseley St														
8	T1	1044	3.0	1099	3.0	0.382	5.8	LOS A	11.7	84.2	0.38	0.34	0.38	52.6
9	R2	350	3.0	368	3.0	* 0.938	76.3	LOS F	27.0	193.9	0.92	1.01	1.32	12.4
Approach		1394	3.0	1467	3.0	0.938	23.5	LOS B	27.0	193.9	0.51	0.51	0.61	36.2
West: Marmion St														
10	L2	465	3.0	489	3.0	0.728	30.2	LOS C	21.3	152.8	0.75	0.80	0.75	23.8
12	R2	501	3.0	527	3.0	* 0.935	85.0	LOS F	20.2	144.8	1.00	1.02	1.43	18.9
Approach		966	3.0	1017	3.0	0.935	58.6	LOS E	21.3	152.8	0.88	0.92	1.10	20.3
All Vehicles		3842	3.0	4044	3.0	0.938	41.4	LOS C	50.7	363.9	0.70	0.78	0.86	28.1

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
North: Riseley St												
P3	Full	50	53	58.8	LOS E	0.2	0.2	0.96	0.96	227.8	219.8	0.96
West: Marmion St												
P4	Full	50	53	58.8	LOS E	0.2	0.2	0.96	0.96	227.4	219.2	0.96
All Pedestrians		100	105	58.8	LOS E	0.2	0.2	0.96	0.96	227.6	219.5	0.96

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: X2 [X2 (2021 BG + DEV) (SAT) (Existing) (Site Folder: (2031 BG + DEV))]

Intersection: Riseley Street / Marmion Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 129 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, B, C

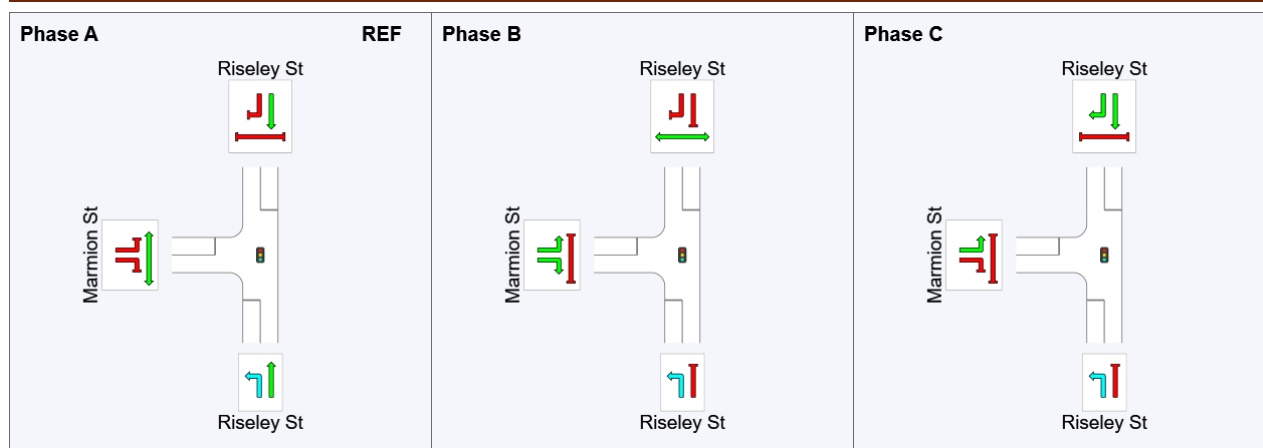
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	57	83
Green Time (sec)	51	20	40
Phase Time (sec)	57	26	46
Phase Split	44%	20%	36%

See the Timing Analysis 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, Minor 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: X2 [X2 (2031 BG + DEV) (PM) (Existing) (Site Folder: (2031 BG + DEV))]

Intersection: Riseley Street / Marmion Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 127 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Riseley St														
1	L2	362	3.0	381	3.0	0.210	5.7	LOS A	0.0	0.0	0.00	0.53	0.00	52.3
2	T1	1075	3.0	1132	3.0	* 0.987	87.7	LOS F	55.5	398.4	0.98	1.24	1.46	19.3
Approach		1437	3.0	1513	3.0	0.987	67.0	LOS E	55.5	398.4	0.73	1.06	1.09	22.9
North: Riseley St														
8	T1	1004	3.0	1057	3.0	0.369	5.8	LOS A	11.1	79.8	0.38	0.34	0.38	52.6
9	R2	423	3.0	445	3.0	* 0.977	88.4	LOS F	35.4	254.0	0.91	1.06	1.40	11.0
Approach		1427	3.0	1502	3.0	0.977	30.3	LOS C	35.4	254.0	0.53	0.55	0.68	32.1
West: Marmion St														
10	L2	566	3.0	596	3.0	0.782	27.1	LOS B	25.0	179.8	0.73	0.81	0.74	25.3
12	R2	531	3.0	559	3.0	* 0.982	100.6	LOS F	23.6	169.1	1.00	1.09	1.59	16.8
Approach		1097	3.0	1155	3.0	0.982	62.7	LOS E	25.0	179.8	0.86	0.95	1.15	19.1
All Vehicles		3961	3.0	4169	3.0	0.987	52.6	LOS D	55.5	398.4	0.70	0.85	0.96	24.2

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
North: Riseley St												
P3	Full	50	53	57.8	LOS E	0.2	0.2	0.95	0.95	226.8	219.8	0.97
West: Marmion St												
P4	Full	50	53	57.8	LOS E	0.2	0.2	0.95	0.95	226.4	219.2	0.97
All Pedestrians		100	105	57.8	LOS E	0.2	0.2	0.95	0.95	226.6	219.5	0.97

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: X2 [X2 (2031 BG + DEV) (PM) (Existing) (Site Folder: (2031 BG + DEV))]

Intersection: Riseley Street / Marmion Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 127 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, B, C

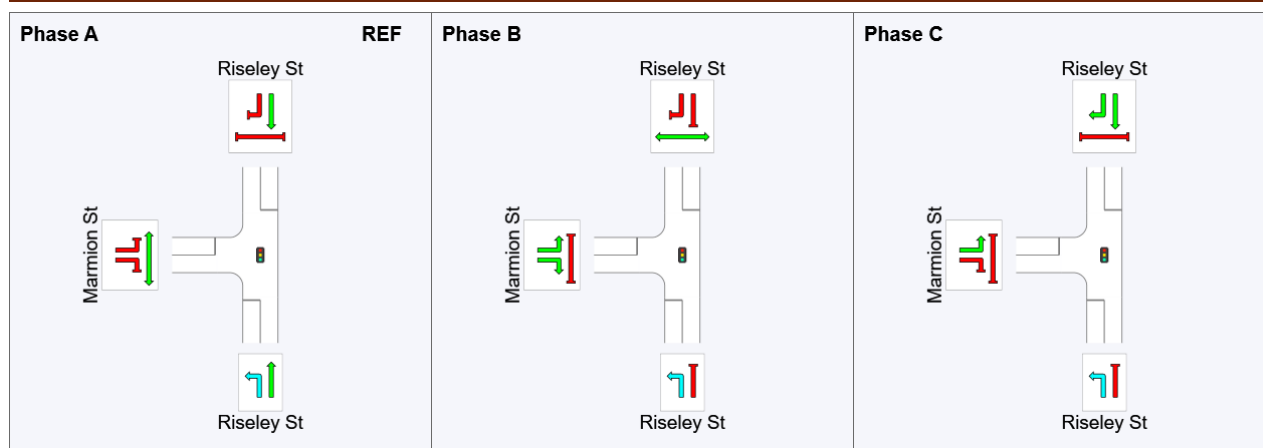
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	49	75
Green Time (sec)	43	20	46
Phase Time (sec)	49	26	52
Phase Split	39%	20%	41%

See the Timing Analysis 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, Minor 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: X2 [X2 (2031 BG + DEV) (SAT) (Existing) (Site Folder: (2031 BG + DEV))]

Intersection: Riseley Street / Marmion Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 129 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Riseley St														
1	L2	294	3.0	309	3.0	0.170	5.7	LOS A	0.0	0.0	0.00	0.53	0.00	52.3
2	T1	1221	3.0	1285	3.0	* 0.970	75.9	LOS F	59.8	429.2	0.97	1.17	1.35	21.3
Approach		1515	3.0	1595	3.0	0.970	62.2	LOS E	59.8	429.2	0.78	1.05	1.08	24.0
North: Riseley St														
8	T1	1093	3.0	1151	3.0	0.400	6.0	LOS A	12.5	89.9	0.38	0.35	0.38	52.5
9	R2	366	3.0	385	3.0	* 0.967	87.4	LOS F	30.4	218.5	0.93	1.05	1.41	11.1
Approach		1459	3.0	1536	3.0	0.967	26.4	LOS B	30.4	218.5	0.52	0.52	0.64	34.5
West: Marmion St														
10	L2	510	3.0	537	3.0	0.771	30.8	LOS C	24.1	173.1	0.77	0.82	0.78	23.5
12	R2	495	3.0	521	3.0	* 0.924	82.3	LOS F	19.5	140.2	1.00	1.01	1.39	19.3
Approach		1005	3.0	1058	3.0	0.924	56.2	LOS D	24.1	173.1	0.88	0.91	1.08	20.6
All Vehicles		3979	3.0	4188	3.0	0.970	47.6	LOS D	59.8	429.2	0.71	0.82	0.92	26.0

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
North: Riseley St												
P3	Full	50	53	58.8	LOS E	0.2	0.2	0.96	0.96	227.8	219.8	0.96
West: Marmion St												
P4	Full	50	53	58.8	LOS E	0.2	0.2	0.96	0.96	227.4	219.2	0.96
All Pedestrians		100	105	58.8	LOS E	0.2	0.2	0.96	0.96	227.6	219.5	0.96

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: X2 [X2 (2031 BG + DEV) (SAT) (Existing) (Site Folder: (2031 BG + DEV))]

Intersection: Riseley Street / Marmion Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 129 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, B, C

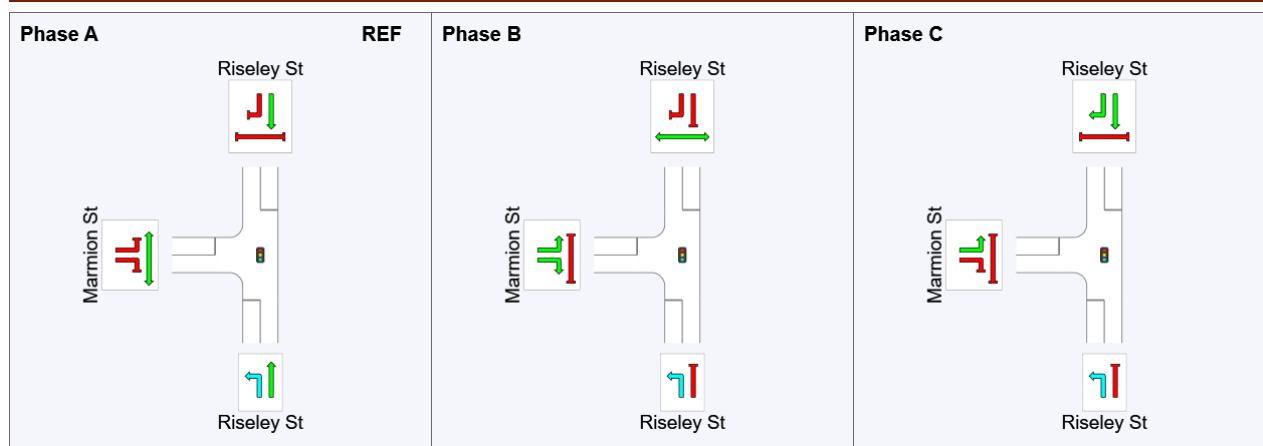
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	56	82
Green Time (sec)	50	20	41
Phase Time (sec)	56	26	47
Phase Split	43%	20%	36%

See the Timing Analysis 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, Minor 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: X3 [X3 (2021 BG) (PM) (Existing) (Site Folder: (2021 BG))]**

Intersection: Riseley Street / Almondbury Road

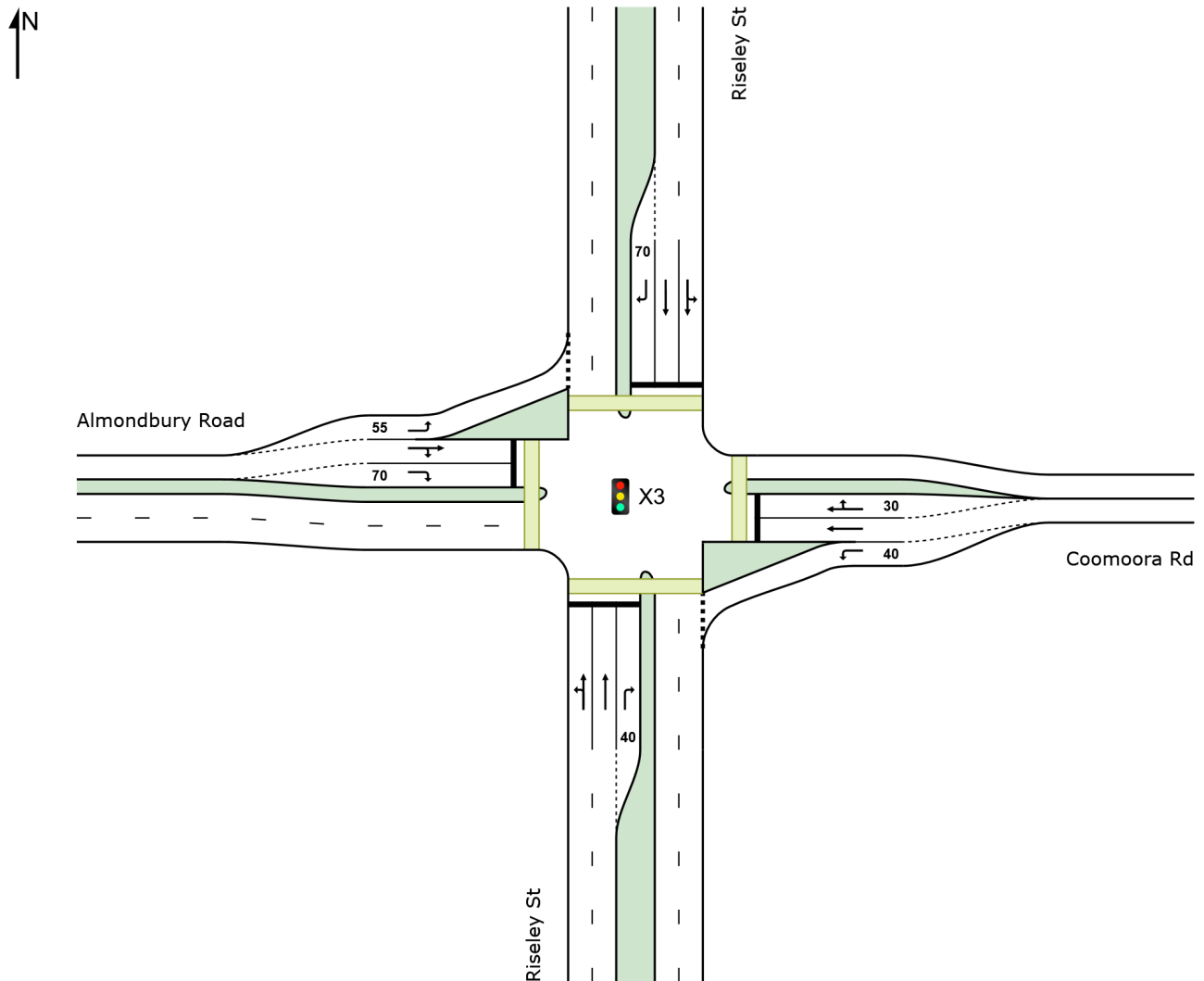
Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated

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



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Project: Z:\BNE\Projects-SLR\620-BNE\620.30141.00000 Westfield Booragoon Redevelopment\02 Analysis\2021 07 - Updated SIDRA Analysis\620.30141-SIDRA Analysis-BG.sip9

MOVEMENT SUMMARY

 **Site: X3 [X3 (2021 BG) (PM) (Existing) (Site Folder: (2021 BG))]**

Intersection: Riseley Street / Almondbury Road

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 127 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Riseley St														
1	L2	202	3.0	213	3.0	0.783	44.6	LOS D	30.2	217.1	0.95	0.87	0.97	16.5
2	T1	735	3.0	774	3.0	* 0.783	38.1	LOS D	30.2	217.1	0.91	0.83	0.94	30.9
3	R2	140	3.0	147	3.0	* 0.468	57.2	LOS E	8.3	59.9	0.95	0.80	0.95	23.6
Approach		1077	3.0	1134	3.0	0.783	41.8	LOS D	30.2	217.1	0.92	0.84	0.95	27.6
East: Coomoora Rd														
4	L2	232	3.0	244	3.0	0.250	11.0	LOS B	5.0	36.2	0.42	0.65	0.42	41.6
5	T1	161	3.0	169	3.0	* 0.512	56.3	LOS E	7.6	54.7	0.98	0.78	0.98	21.6
6	R2	82	3.0	86	3.0	0.512	61.0	LOS E	7.5	53.7	0.98	0.79	0.98	28.5
Approach		475	3.0	500	3.0	0.512	35.0	LOS C	7.6	54.7	0.70	0.72	0.70	30.2
North: Riseley St														
7	L2	48	3.0	51	3.0	0.499	38.6	LOS D	16.6	119.4	0.83	0.73	0.83	36.1
8	T1	620	3.0	653	3.0	0.499	33.0	LOS C	16.8	120.3	0.83	0.72	0.83	33.2
9	R2	92	3.0	97	3.0	0.307	55.6	LOS E	5.3	38.1	0.92	0.77	0.92	23.3
Approach		760	3.0	800	3.0	0.499	36.1	LOS D	16.8	120.3	0.84	0.73	0.84	32.0
West: Almondbury Road														
10	L2	268	3.0	282	3.0	0.254	11.2	LOS B	6.1	43.7	0.42	0.64	0.42	43.7
11	T1	65	3.0	68	3.0	* 0.704	58.5	LOS E	11.4	81.7	1.00	0.86	1.06	20.7
12	R2	283	3.0	298	3.0	0.704	63.1	LOS E	11.4	81.7	1.00	0.85	1.06	12.0
Approach		616	3.0	648	3.0	0.704	40.0	LOS D	11.4	81.7	0.75	0.76	0.78	23.2
All Vehicles		2928	3.0	3082	3.0	0.783	38.8	LOS D	30.2	217.1	0.83	0.77	0.84	28.4

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.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Riseley St												
P1	Full	50	53	57.8	LOS E	0.2	0.2	0.95	0.95	227.4	220.5	0.97
East: Coomoora Rd												
P2	Full	50	53	57.8	LOS E	0.2	0.2	0.95	0.95	222.3	213.9	0.96

North: Riseley St												
P3	Full	50	53	57.8	LOS E	0.2	0.2	0.95	0.95	227.4	220.5	0.97
West: Almondbury Road												
P4	Full	50	53	57.8	LOS E	0.2	0.2	0.95	0.95	224.8	217.2	0.97
All		200	211	57.8	LOS E	0.2	0.2	0.95	0.95	225.5	218.0	0.97
Pedestrians												

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: X3 [X3 (2021 BG) (PM) (Existing) (Site Folder: (2021 BG))]**

Intersection: Riseley Street / Almondbury Road
Project: 620.30141 - Westfield Booragoon Redevelopment
Prepared by: MP
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 127 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

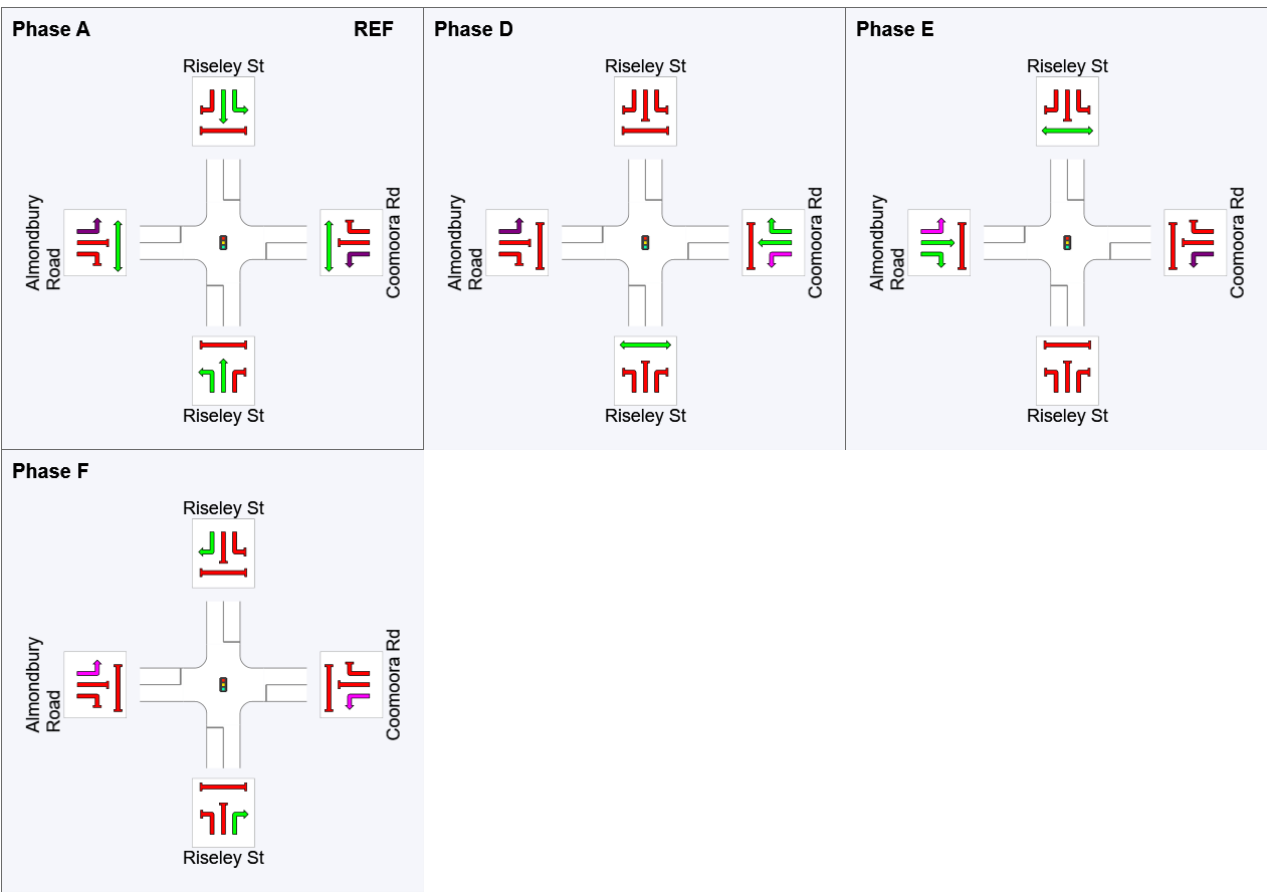
Phase Times specified by the user
Phase Sequence: Leading Right Turn
Reference Phase: Phase A
Input Phase Sequence: A, D, E, F
Output Phase Sequence: A, D, E, F

Phase Timing Summary

Phase	A	D	E	F
Phase Change Time (sec)	0	53	76	99
Green Time (sec)	47	17	18	22
Phase Time (sec)	53	22	24	28
Phase Split	42%	17%	19%	22%

See the Timing Analysis 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, Minor 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

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Project: Z:\BNE\Projects-SLR\620-BNE\620.30141.00000 Westfield Booragoon Redevelopment\02 Analysis\2021 07 - Updated SIDRA Analysis
 \620.30141-SIDRA Analysis-BG.sip9

MOVEMENT SUMMARY

 Site: X3 [X3 (2021 BG) (SAT) (Existing) (Site Folder: (2021 BG))]

Intersection: Riseley Street / Almondbury Road

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 129 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Riseley St														
1	L2	251	3.0	264	3.0	0.828	50.2	LOS D	33.5	240.2	0.98	0.92	1.05	15.0
2	T1	716	3.0	754	3.0	* 0.828	43.8	LOS D	33.5	240.2	0.94	0.89	1.02	28.8
3	R2	124	3.0	131	3.0	0.370	54.7	LOS D	7.2	51.7	0.91	0.79	0.91	24.2
Approach		1091	3.0	1148	3.0	0.828	46.5	LOS D	33.5	240.2	0.95	0.89	1.02	25.7
East: Coomoora Rd														
4	L2	202	3.0	213	3.0	0.212	10.3	LOS B	4.1	29.6	0.39	0.63	0.39	42.0
5	T1	109	3.0	115	3.0	0.455	56.9	LOS E	6.8	49.0	0.97	0.77	0.97	21.7
6	R2	114	3.0	120	3.0	* 0.501	62.1	LOS E	7.2	51.7	0.98	0.79	0.98	27.9
Approach		425	3.0	447	3.0	0.501	36.2	LOS D	7.2	51.7	0.70	0.71	0.70	30.6
North: Riseley St														
7	L2	107	3.0	113	3.0	0.549	41.1	LOS D	18.4	132.3	0.86	0.77	0.86	34.9
8	T1	582	3.0	613	3.0	0.549	35.2	LOS D	18.4	132.3	0.85	0.75	0.85	32.1
9	R2	207	3.0	218	3.0	* 0.618	57.6	LOS E	12.7	91.4	0.97	0.83	0.97	22.8
Approach		896	3.0	943	3.0	0.618	41.1	LOS D	18.4	132.3	0.88	0.77	0.88	30.1
West: Almondbury Road														
10	L2	315	3.0	332	3.0	0.307	13.4	LOS B	8.5	61.2	0.48	0.67	0.48	41.9
11	T1	40	3.0	42	3.0	* 0.643	58.1	LOS E	10.1	72.6	1.00	0.82	1.01	20.7
12	R2	272	3.0	286	3.0	0.643	62.7	LOS E	10.1	72.6	1.00	0.82	1.01	12.1
Approach		627	3.0	660	3.0	0.643	37.7	LOS D	10.1	72.6	0.74	0.74	0.74	24.4
All Vehicles		3039	3.0	3199	3.0	0.828	41.6	LOS D	33.5	240.2	0.85	0.80	0.87	27.6

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.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Riseley St												
P1	Full	50	53	58.8	LOS E	0.2	0.2	0.96	0.96	228.4	220.5	0.97
East: Coomoora Rd												
P2	Full	50	53	58.8	LOS E	0.2	0.2	0.96	0.96	223.3	213.9	0.96

North: Riseley St												
P3	Full	50	53	58.8	LOS E	0.2	0.2	0.96	0.96	228.4	220.5	0.97
West: Almondbury Road												
P4	Full	50	53	58.8	LOS E	0.2	0.2	0.96	0.96	225.8	217.2	0.96
All		200	211	58.8	LOS E	0.2	0.2	0.96	0.96	226.5	218.0	0.96
Pedestrians												

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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\620.30141-SIDRA Analysis-BG.sip9

PHASING SUMMARY

Site: X3 [X3 (2021 BG) (SAT) (Existing) (Site Folder: (2021 BG))]

Intersection: Riseley Street / Almondbury Road

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 129 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, D, E, F

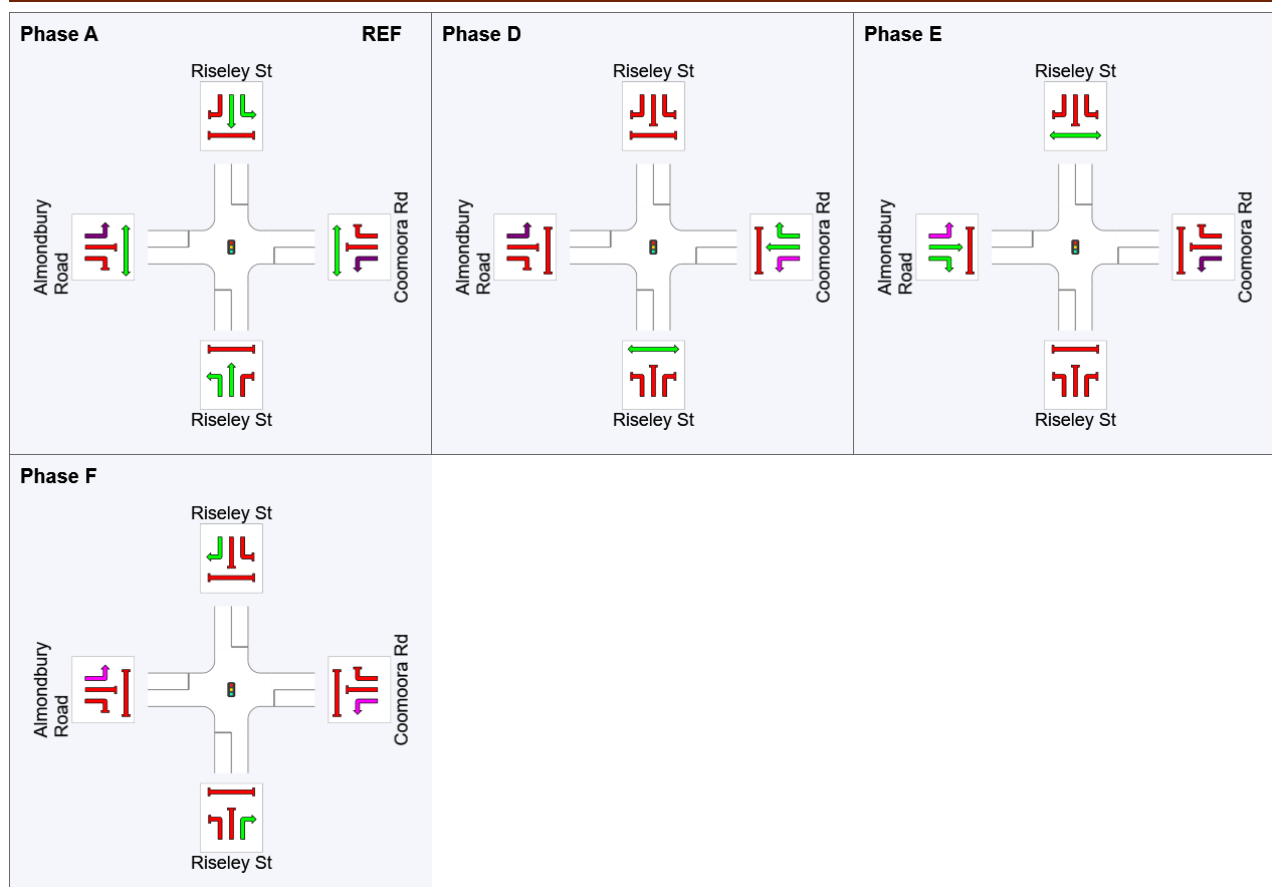
Output Phase Sequence: A, D, E, F

Phase Timing Summary

Phase	A	D	E	F
Phase Change Time (sec)	0	52	75	98
Green Time (sec)	46	17	18	25
Phase Time (sec)	52	22	24	31
Phase Split	40%	17%	19%	24%

See the Timing Analysis 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, Minor 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

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MOVEMENT SUMMARY

 **Site: X3 [X3 (2031 BG) (PM) (Existing) (Site Folder: (2031 BG))]**

Intersection: Riseley Street / Almondbury Road

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 127 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Riseley St														
1	L2	210	3.0	221	3.0	0.835	49.1	LOS D	34.8	249.9	0.98	0.93	1.05	15.4
2	T1	799	3.0	841	3.0	* 0.835	42.7	LOS D	34.8	249.9	0.94	0.90	1.02	29.2
3	R2	135	3.0	142	3.0	* 0.451	57.1	LOS E	8.0	57.6	0.94	0.80	0.94	23.6
Approach		1144	3.0	1204	3.0	0.835	45.6	LOS D	34.8	249.9	0.95	0.89	1.02	26.4
East: Coomoora Rd														
4	L2	263	3.0	277	3.0	0.293	11.6	LOS B	6.1	43.9	0.44	0.66	0.44	41.1
5	T1	159	3.0	167	3.0	* 0.547	56.5	LOS E	7.9	56.6	0.98	0.79	0.98	21.6
6	R2	92	3.0	97	3.0	0.547	61.2	LOS E	7.8	55.7	0.98	0.79	0.98	28.4
Approach		514	3.0	541	3.0	0.547	34.4	LOS C	7.9	56.6	0.71	0.72	0.71	30.6
North: Riseley St														
7	L2	75	3.0	79	3.0	0.607	40.3	LOS D	21.3	153.0	0.87	0.78	0.87	35.4
8	T1	709	3.0	746	3.0	0.607	34.4	LOS C	21.3	153.0	0.86	0.76	0.86	32.6
9	R2	88	3.0	93	3.0	0.294	55.4	LOS E	5.1	36.3	0.91	0.77	0.91	23.3
Approach		872	3.0	918	3.0	0.607	37.0	LOS D	21.3	153.0	0.87	0.76	0.87	31.8
West: Almondbury Road														
10	L2	288	3.0	303	3.0	0.283	12.9	LOS B	7.4	53.3	0.47	0.66	0.47	42.3
11	T1	71	3.0	75	3.0	* 0.626	56.6	LOS E	9.9	70.9	0.99	0.81	0.99	21.2
12	R2	239	3.0	252	3.0	0.626	61.3	LOS E	9.9	70.9	0.99	0.81	0.99	12.3
Approach		598	3.0	629	3.0	0.626	37.4	LOS D	9.9	70.9	0.74	0.74	0.74	24.7
All Vehicles		3128	3.0	3293	3.0	0.835	39.8	LOS D	34.8	249.9	0.84	0.80	0.87	28.4

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.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Riseley St												
P1	Full	50	53	57.8	LOS E	0.2	0.2	0.95	0.95	227.4	220.5	0.97
East: Coomoora Rd												
P2	Full	50	53	57.8	LOS E	0.2	0.2	0.95	0.95	222.3	213.9	0.96

North: Riseley St												
P3	Full	50	53	57.8	LOS E	0.2	0.2	0.95	0.95	227.4	220.5	0.97
West: Almondbury Road												
P4	Full	50	53	57.8	LOS E	0.2	0.2	0.95	0.95	224.8	217.2	0.97
All		200	211	57.8	LOS E	0.2	0.2	0.95	0.95	225.5	218.0	0.97
Pedestrians												

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: X3 [X3 (2031 BG) (PM) (Existing) (Site Folder: (2031 BG))]**

Intersection: Riseley Street / Almondbury Road
Project: 620.30141 - Westfield Booragoon Redevelopment
Prepared by: MP
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 127 seconds (Site User-Given Phase Times)

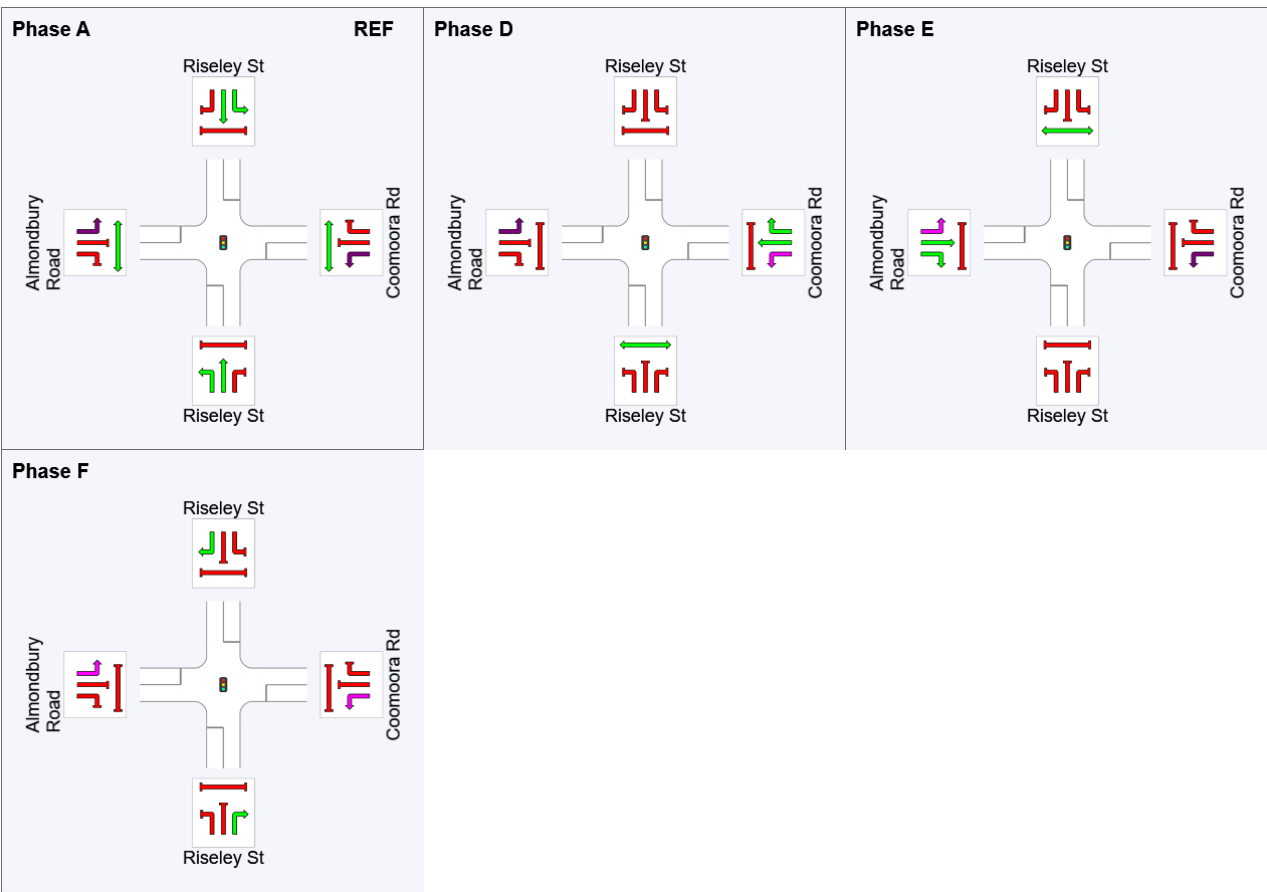
Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: Leading Right Turn
Reference Phase: Phase A
Input Phase Sequence: A, D, E, F
Output Phase Sequence: A, D, E, F

Phase Timing Summary

Phase	A	D	E	F
Phase Change Time (sec)	0	53	76	99
Green Time (sec)	47	17	18	22
Phase Time (sec)	53	22	24	28
Phase Split	42%	17%	19%	22%

See the Timing Analysis 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, Minor 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

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MOVEMENT SUMMARY

 Site: X3 [X3 (2031 BG) (SAT) (Existing) (Site Folder: (2031 BG))]

Intersection: Riseley Street / Almondbury Road

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 129 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Riseley St														
1	L2	238	3.0	251	3.0	0.885	57.8	LOS E	39.7	284.7	1.00	0.99	1.15	13.5
2	T1	793	3.0	835	3.0	* 0.885	51.7	LOS D	39.7	284.7	0.96	0.98	1.13	26.4
3	R2	136	3.0	143	3.0	0.406	55.1	LOS E	8.0	57.2	0.92	0.79	0.92	24.1
Approach		1167	3.0	1228	3.0	0.885	53.4	LOS D	39.7	284.7	0.96	0.96	1.11	24.0
East: Coomoora Rd														
4	L2	177	3.0	186	3.0	0.191	10.9	LOS B	3.7	26.9	0.40	0.64	0.40	41.6
5	T1	115	3.0	121	3.0	0.480	57.1	LOS E	7.2	51.9	0.97	0.78	0.97	21.6
6	R2	134	3.0	141	3.0	* 0.651	63.4	LOS E	8.7	62.1	0.99	0.82	1.02	27.7
Approach		426	3.0	448	3.0	0.651	39.9	LOS D	8.7	62.1	0.74	0.73	0.75	29.6
North: Riseley St														
7	L2	95	3.0	100	3.0	0.640	42.6	LOS D	22.5	161.4	0.89	0.80	0.89	34.5
8	T1	678	3.0	714	3.0	0.640	36.3	LOS D	22.5	161.4	0.88	0.77	0.88	31.7
9	R2	205	3.0	216	3.0	* 0.612	57.5	LOS E	12.6	90.4	0.97	0.82	0.97	22.8
Approach		978	3.0	1029	3.0	0.640	41.4	LOS D	22.5	161.4	0.90	0.79	0.90	30.0
West: Almondbury Road														
10	L2	338	3.0	356	3.0	0.343	15.6	LOS B	10.3	74.2	0.53	0.69	0.53	40.2
11	T1	43	3.0	45	3.0	* 0.626	57.8	LOS E	9.8	70.4	0.99	0.81	1.00	20.8
12	R2	261	3.0	275	3.0	0.626	62.4	LOS E	9.8	70.4	0.99	0.81	1.00	12.1
Approach		642	3.0	676	3.0	0.626	37.4	LOS D	10.3	74.2	0.75	0.75	0.75	24.7
All Vehicles		3213	3.0	3382	3.0	0.885	44.7	LOS D	39.7	284.7	0.87	0.83	0.93	26.7

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.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Riseley St												
P1	Full	50	53	58.8	LOS E	0.2	0.2	0.96	0.96	228.4	220.5	0.97
East: Coomoora Rd												
P2	Full	50	53	58.8	LOS E	0.2	0.2	0.96	0.96	223.3	213.9	0.96

North: Riseley St												
P3	Full	50	53	58.8	LOS E	0.2	0.2	0.96	0.96	228.4	220.5	0.97
West: Almondbury Road												
P4	Full	50	53	58.8	LOS E	0.2	0.2	0.96	0.96	225.8	217.2	0.96
All		200	211	58.8	LOS E	0.2	0.2	0.96	0.96	226.5	218.0	0.96
Pedestrians												

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

 **Site: X3 [X3 (2031 BG) (SAT) (Existing) (Site Folder: (2031 BG))]**

Intersection: Riseley Street / Almondbury Road
Project: 620.30141 - Westfield Booragoon Redevelopment
Prepared by: MP
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 129 seconds (Site User-Given Phase Times)

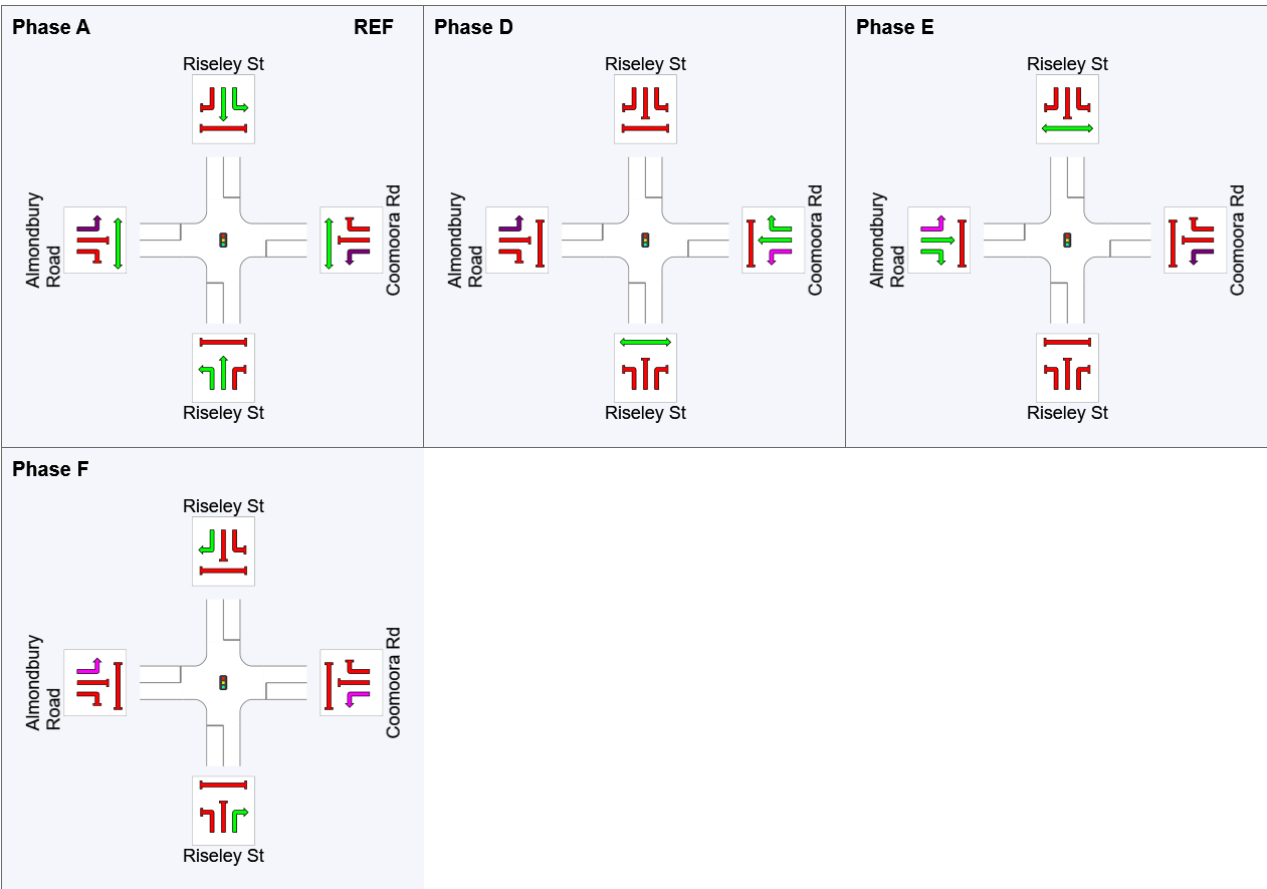
Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: Leading Right Turn
Reference Phase: Phase A
Input Phase Sequence: A, D, E, F
Output Phase Sequence: A, D, E, F

Phase Timing Summary

Phase	A	D	E	F
Phase Change Time (sec)	0	52	75	98
Green Time (sec)	46	17	18	25
Phase Time (sec)	52	22	24	31
Phase Split	40%	17%	19%	24%

See the Timing Analysis 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, Minor 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

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MOVEMENT SUMMARY

 Site: X3 [X3 (2021 BG + DEV) (PM) (Existing) (Site Folder: (2031 BG + DEV))]

Intersection: Riseley Street / Almondbury Road

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 126 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Riseley St														
1	L2	296	3.0	312	3.0	0.871	48.2	LOS D	43.2	310.5	0.99	0.96	1.08	15.5
2	T1	933	3.0	982	3.0	* 0.871	42.1	LOS C	43.2	310.5	0.93	0.92	1.05	29.4
3	R2	140	3.0	147	3.0	0.729	67.9	LOS E	9.3	66.8	1.00	0.85	1.11	21.4
Approach		1369	3.0	1441	3.0	0.871	46.0	LOS D	43.2	310.5	0.95	0.92	1.06	26.0
East: Coomoora Rd														
4	L2	232	3.0	244	3.0	0.278	12.8	LOS A	5.8	41.4	0.47	0.67	0.47	40.4
5	T1	180	3.0	189	3.0	* 0.572	56.0	LOS D	8.1	57.9	0.98	0.79	0.98	21.7
6	R2	79	3.0	83	3.0	0.572	60.7	LOS E	8.0	57.1	0.98	0.79	0.98	28.6
Approach		491	3.0	517	3.0	0.572	36.3	LOS C	8.1	57.9	0.74	0.73	0.74	29.6
North: Riseley St														
7	L2	48	3.0	51	3.0	0.481	33.1	LOS C	17.1	122.9	0.77	0.69	0.77	38.1
8	T1	694	3.0	731	3.0	0.481	27.5	LOS B	17.1	122.9	0.77	0.68	0.77	35.9
9	R2	167	3.0	176	3.0	* 0.870	75.5	LOS F	12.0	86.5	1.00	0.95	1.32	19.2
Approach		909	3.0	957	3.0	0.870	36.6	LOS C	17.1	122.9	0.81	0.73	0.87	31.6
West: Almondbury Road														
10	L2	298	3.0	314	3.0	0.323	15.1	LOS B	8.6	61.9	0.53	0.69	0.53	40.6
11	T1	75	3.0	79	3.0	* 0.891	70.4	LOS E	15.5	111.5	1.00	1.03	1.34	18.6
12	R2	344	3.0	362	3.0	0.891	75.1	LOS F	15.5	111.5	1.00	1.01	1.34	10.5
Approach		717	3.0	755	3.0	0.891	49.6	LOS D	15.5	111.5	0.81	0.88	1.00	20.2
All Vehicles		3486	3.0	3669	3.0	0.891	43.0	LOS D	43.2	310.5	0.85	0.84	0.95	26.8

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Riseley St												
P1	Full	50	53	57.3	LOS E	0.2	0.2	0.95	0.95	226.9	220.5	0.97
East: Coomoora Rd												
P2	Full	50	53	57.3	LOS E	0.2	0.2	0.95	0.95	221.8	213.9	0.96

North: Riseley St												
P3	Full	50	53	57.3	LOS E	0.2	0.2	0.95	0.95	226.9	220.5	0.97
West: Almondbury Road												
P4	Full	50	53	57.3	LOS E	0.2	0.2	0.95	0.95	224.3	217.2	0.97
All		200	211	57.3	LOS E	0.2	0.2	0.95	0.95	225.0	218.0	0.97
Pedestrians												

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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 \620.30141-SIDRA Analysis-BG+DEV.sip9

PHASING SUMMARY

 **Site: X3 [X3 (2021 BG + DEV) (PM) (Existing) (Site Folder: (2031 BG + DEV))]**

Intersection: Riseley Street / Almondbury Road

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 126 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, D, E, F

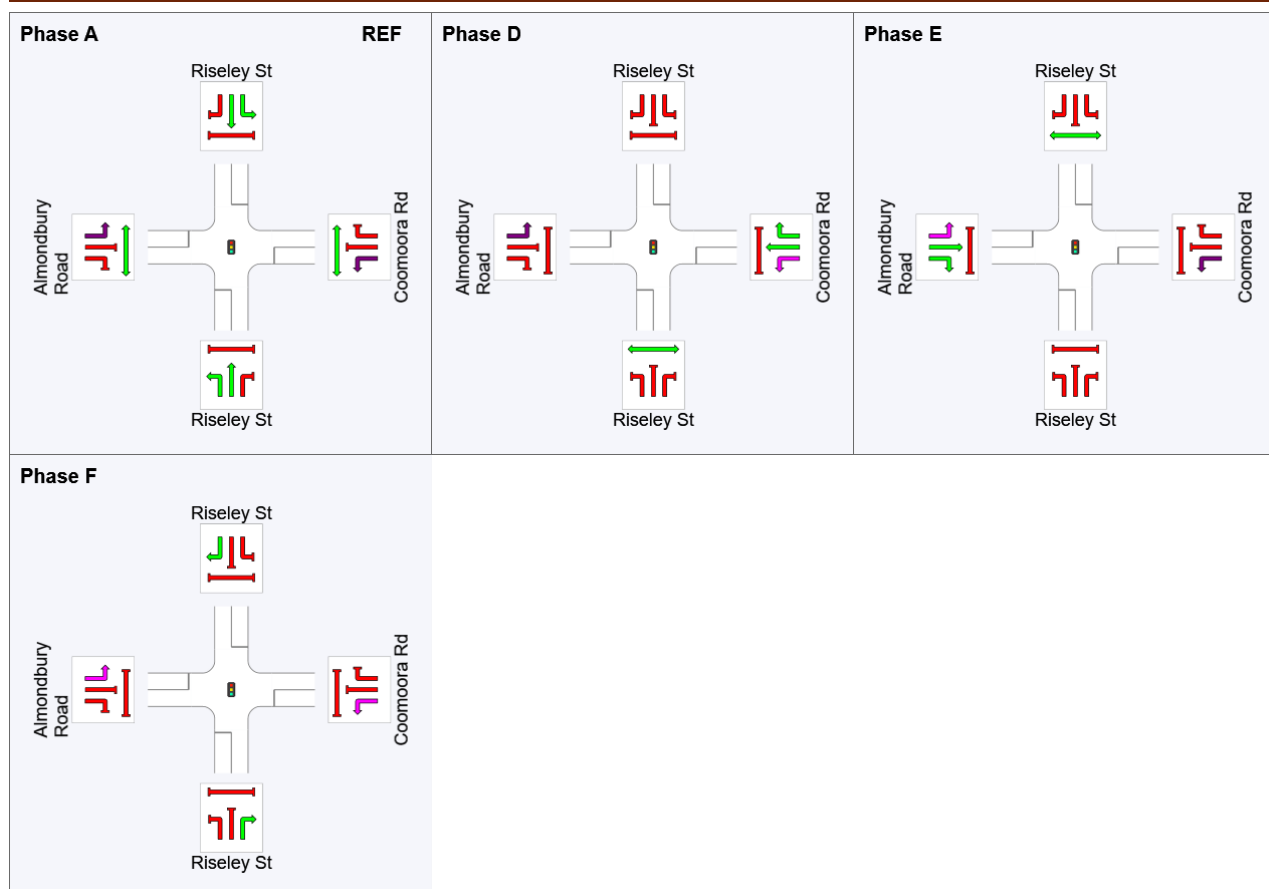
Output Phase Sequence: A, D, E, F

Phase Timing Summary

Phase	A	D	E	F
Phase Change Time (sec)	0	60	83	106
Green Time (sec)	54	17	17	14
Phase Time (sec)	60	23	23	20
Phase Split	48%	18%	18%	16%

See the Timing Analysis 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, Minor 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

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 \620.30141-SIDRA Analysis-BG+DEV.sip9

MOVEMENT SUMMARY

 Site: X3 [X3 (2021 BG + DEV) (SAT) (Existing) (Site Folder: (2031 BG + DEV))]

Intersection: Riseley Street / Almondbury Road
Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP
Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 130 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Riseley St														
1	L2	277	3.0	292	3.0	0.963	78.4	LOS F	58.1	417.0	1.00	1.11	1.32	10.5
2	T1	982	3.0	1034	3.0	* 0.963	72.6	LOS F	58.1	417.0	0.98	1.14	1.32	21.6
3	R2	124	3.0	131	3.0	0.424	58.4	LOS E	7.5	54.0	0.94	0.79	0.94	23.3
Approach		1383	3.0	1456	3.0	0.963	72.5	LOS F	58.1	417.0	0.98	1.10	1.29	19.9
East: Coomoora Rd														
4	L2	202	3.0	213	3.0	0.245	13.7	LOS A	5.3	37.8	0.48	0.67	0.48	39.8
5	T1	114	3.0	120	3.0	0.683	64.9	LOS E	7.8	55.8	1.00	0.84	1.08	20.1
6	R2	113	3.0	119	3.0	* 0.709	70.4	LOS E	7.8	55.9	1.00	0.84	1.11	26.3
Approach		429	3.0	452	3.0	0.709	42.3	LOS C	7.8	55.9	0.75	0.76	0.80	28.6
North: Riseley St														
7	L2	107	3.0	113	3.0	0.596	39.0	LOS C	22.0	158.1	0.85	0.77	0.85	35.7
8	T1	679	3.0	715	3.0	0.596	32.7	LOS C	22.0	158.1	0.83	0.74	0.83	33.2
9	R2	227	3.0	239	3.0	* 0.777	65.2	LOS E	15.4	110.4	1.00	0.88	1.11	21.1
Approach		1013	3.0	1066	3.0	0.777	40.6	LOS C	22.0	158.1	0.87	0.77	0.90	30.2
West: Almondbury Road														
10	L2	403	3.0	424	3.0	0.433	20.3	LOS B	15.5	111.0	0.63	0.72	0.63	37.0
11	T1	69	3.0	73	3.0	* 0.934	77.8	LOS F	18.9	135.6	1.00	1.09	1.44	17.5
12	R2	448	3.0	472	3.0	0.934	82.3	LOS F	22.5	161.2	1.00	1.06	1.42	9.7
Approach		920	3.0	968	3.0	0.934	54.8	LOS D	22.5	161.2	0.84	0.92	1.07	19.0
All Vehicles		3745	3.0	3942	3.0	0.963	56.1	LOS D	58.1	417.0	0.89	0.93	1.07	23.1

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Riseley St												
P1	Full	50	53	59.3	LOS E	0.2	0.2	0.96	0.96	228.9	220.5	0.96
East: Coomoora Rd												
P2	Full	50	53	59.3	LOS E	0.2	0.2	0.96	0.96	223.8	213.9	0.96

North: Riseley St												
P3	Full	50	53	59.3	LOS E	0.2	0.2	0.96	0.96	228.9	220.5	0.96
West: Almondbury Road												
P4	Full	50	53	59.3	LOS E	0.2	0.2	0.96	0.96	226.3	217.2	0.96
All		200	211	59.3	LOS E	0.2	0.2	0.96	0.96	227.0	218.0	0.96
Pedestrians												

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: X3 [X3 (2021 BG + DEV) (SAT) (Existing) (Site Folder: (2031 BG + DEV))]**

Intersection: Riseley Street / Almondbury Road
Project: 620.30141 - Westfield Booragoon Redevelopment
Prepared by: MP
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 130 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: Leading Right Turn
Reference Phase: Phase A
Input Phase Sequence: A, D, E, F
Output Phase Sequence: A, D, E, F

Phase Timing Summary

Phase	A	D	E	F
Phase Change Time (sec)	0	57	75	102
Green Time (sec)	51	12	24	22
Phase Time (sec)	57	15	30	28
Phase Split	44%	12%	23%	22%

See the Timing Analysis 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, Minor 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

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MOVEMENT SUMMARY

 Site: X3 [X3 (2031 BG + DEV) (PM) (Existing) (Site Folder: (2031 BG + DEV))]

Intersection: Riseley Street / Almondbury Road

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 126 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Riseley St														
1	L2	307	3.0	323	3.0	0.912	56.0	LOS D	51.0	365.9	1.00	1.02	1.17	13.8
2	T1	1014	3.0	1067	3.0	* 0.912	50.0	LOS D	51.0	365.9	0.95	1.00	1.14	26.9
3	R2	135	3.0	142	3.0	0.757	69.6	LOS E	9.1	65.5	1.00	0.87	1.15	21.1
Approach		1456	3.0	1533	3.0	0.912	53.1	LOS D	51.0	365.9	0.97	0.99	1.15	24.0
East: Coomoora Rd														
4	L2	263	3.0	277	3.0	0.331	14.0	LOS A	7.2	51.7	0.51	0.69	0.51	39.6
5	T1	178	3.0	187	3.0	* 0.609	56.2	LOS D	8.3	59.9	0.98	0.79	0.98	21.7
6	R2	89	3.0	94	3.0	0.609	60.9	LOS E	8.2	59.1	0.98	0.80	0.99	28.5
Approach		530	3.0	558	3.0	0.609	36.1	LOS C	8.3	59.9	0.75	0.74	0.75	29.8
North: Riseley St														
7	L2	75	3.0	79	3.0	0.603	34.5	LOS C	23.3	167.0	0.82	0.75	0.82	37.5
8	T1	778	3.0	819	3.0	0.603	27.9	LOS B	23.3	167.0	0.79	0.71	0.79	35.6
9	R2	165	3.0	174	3.0	* 0.926	84.1	LOS F	12.7	91.3	1.00	1.02	1.48	17.8
Approach		1018	3.0	1072	3.0	0.926	37.5	LOS C	23.3	167.0	0.83	0.76	0.91	31.4
West: Almondbury Road														
10	L2	326	3.0	343	3.0	0.373	17.9	LOS B	10.8	77.6	0.60	0.72	0.60	38.6
11	T1	84	3.0	88	3.0	* 0.847	65.6	LOS E	14.1	101.6	1.00	0.98	1.24	19.5
12	R2	315	3.0	332	3.0	0.847	70.3	LOS E	14.1	101.6	1.00	0.96	1.25	11.1
Approach		725	3.0	763	3.0	0.847	46.2	LOS D	14.1	101.6	0.82	0.85	0.96	21.6
All Vehicles		3729	3.0	3925	3.0	0.926	45.1	LOS D	51.0	365.9	0.87	0.87	0.99	26.3

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m					
South: Riseley St												
P1	Full	50	53	57.3	LOS E	0.2	0.2	0.95	0.95	226.9	220.5	0.97
East: Coomoora Rd												
P2	Full	50	53	57.3	LOS E	0.2	0.2	0.95	0.95	221.8	213.9	0.96

North: Riseley St												
P3	Full	50	53	57.3	LOS E	0.2	0.2	0.95	0.95	226.9	220.5	0.97
West: Almondbury Road												
P4	Full	50	53	57.3	LOS E	0.2	0.2	0.95	0.95	224.3	217.2	0.97
All		200	211	57.3	LOS E	0.2	0.2	0.95	0.95	225.0	218.0	0.97
Pedestrians												

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: X3 [X3 (2031 BG + DEV) (PM) (Existing) (Site Folder: (2031 BG + DEV))]

Intersection: Riseley Street / Almondbury Road
Project: 620.30141 - Westfield Booragoon Redevelopment
Prepared by: MP
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 126 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Leading Right Turn
Reference Phase: Phase A
Input Phase Sequence: A, D, E, F
Output Phase Sequence: A, D, E, F

Phase Timing Summary

Phase	A	D	E	F
Phase Change Time (sec)	0	61	84	107
Green Time (sec)	55	17	17	13
Phase Time (sec)	61	23	23	19
Phase Split	48%	18%	18%	15%

See the Timing Analysis 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, Minor 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

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MOVEMENT SUMMARY

 Site: X3 [X3 (2031 BG + DEV) (SAT) (Existing) (Site Folder: (2031 BG + DEV))]

Intersection: Riseley Street / Almondbury Road

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 130 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Riseley St														
1	L2	271	3.0	285	3.0	1.016	107.2	LOS F	73.7	529.1	1.00	1.26	1.53	8.0
2	T1	1083	3.0	1140	3.0	* 1.016	103.4	LOS F	73.7	529.1	1.00	1.31	1.54	17.0
3	R2	136	3.0	143	3.0	0.465	58.8	LOS E	8.3	59.7	0.95	0.80	0.95	23.3
Approach		1490	3.0	1568	3.0	1.016	100.1	LOS F	73.7	529.1	1.00	1.25	1.49	16.0
East: Coomoora Rd														
4	L2	177	3.0	186	3.0	0.224	14.8	LOS B	4.8	34.7	0.49	0.67	0.49	39.1
5	T1	122	3.0	128	3.0	0.794	68.0	LOS E	8.6	61.7	1.00	0.92	1.22	19.5
6	R2	133	3.0	140	3.0	* 0.958	94.0	LOS F	11.0	79.3	1.00	1.09	1.62	22.4
Approach		432	3.0	455	3.0	0.958	54.2	LOS D	11.0	79.3	0.79	0.87	1.04	25.6
North: Riseley St														
7	L2	95	3.0	100	3.0	0.685	40.0	LOS C	27.0	193.6	0.89	0.80	0.89	35.5
8	T1	792	3.0	834	3.0	0.685	33.1	LOS C	27.0	193.6	0.86	0.76	0.86	33.1
9	R2	232	3.0	244	3.0	* 0.794	66.2	LOS E	15.9	114.1	1.00	0.89	1.13	20.9
Approach		1119	3.0	1178	3.0	0.794	40.6	LOS C	27.0	193.6	0.89	0.79	0.91	30.2
West: Almondbury Road														
10	L2	422	3.0	444	3.0	0.528	32.1	LOS C	17.8	127.6	0.76	0.93	0.76	30.9
11	T1	71	3.0	75	3.0	* 0.931	77.6	LOS F	17.6	126.5	1.00	1.10	1.44	17.5
12	R2	429	3.0	452	3.0	0.931	82.1	LOS F	22.2	159.5	1.00	1.06	1.41	9.8
Approach		922	3.0	971	3.0	0.931	58.8	LOS E	22.2	159.5	0.89	1.00	1.12	18.3
All Vehicles		3963	3.0	4172	3.0	1.016	68.7	LOS E	73.7	529.1	0.92	1.02	1.19	20.6

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m					
South: Riseley St												
P1	Full	50	53	59.3	LOS E	0.2	0.2	0.96	0.96	228.9	220.5	0.96
East: Coomoora Rd												
P2	Full	50	53	59.3	LOS E	0.2	0.2	0.96	0.96	223.8	213.9	0.96

North: Riseley St												
P3	Full	50	53	59.3	LOS E	0.2	0.2	0.96	0.96	228.9	220.5	0.96
West: Almondbury Road												
P4	Full	50	53	59.3	LOS E	0.2	0.2	0.96	0.96	226.3	217.2	0.96
All		200	211	59.3	LOS E	0.2	0.2	0.96	0.96	227.0	218.0	0.96
Pedestrians												

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.


Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

 **Site: X3 [X3 (2031 BG + DEV) (SAT) (Existing) (Site Folder: (2031 BG + DEV))]**

Intersection: Riseley Street / Almondbury Road
Project: 620.30141 - Westfield Booragoon Redevelopment
Prepared by: MP
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 130 seconds (Site User-Given Phase Times)

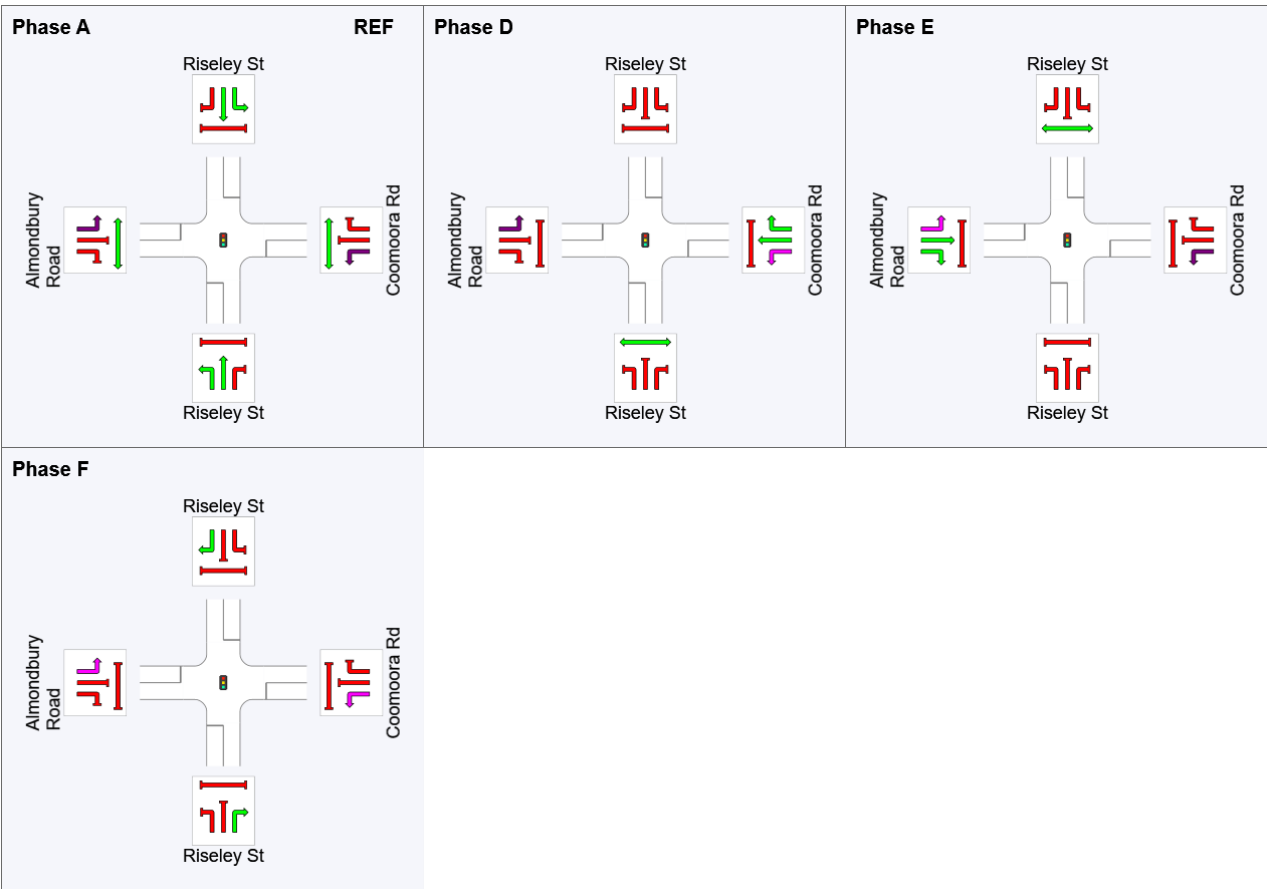
Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: Leading Right Turn
Reference Phase: Phase A
Input Phase Sequence: A, D, E, F
Output Phase Sequence: A, D, E, F

Phase Timing Summary

Phase	A	D	E	F
Phase Change Time (sec)	0	58	76	102
Green Time (sec)	52	12	23	22
Phase Time (sec)	58	15	29	28
Phase Split	45%	12%	22%	22%

See the Timing Analysis 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, Minor 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

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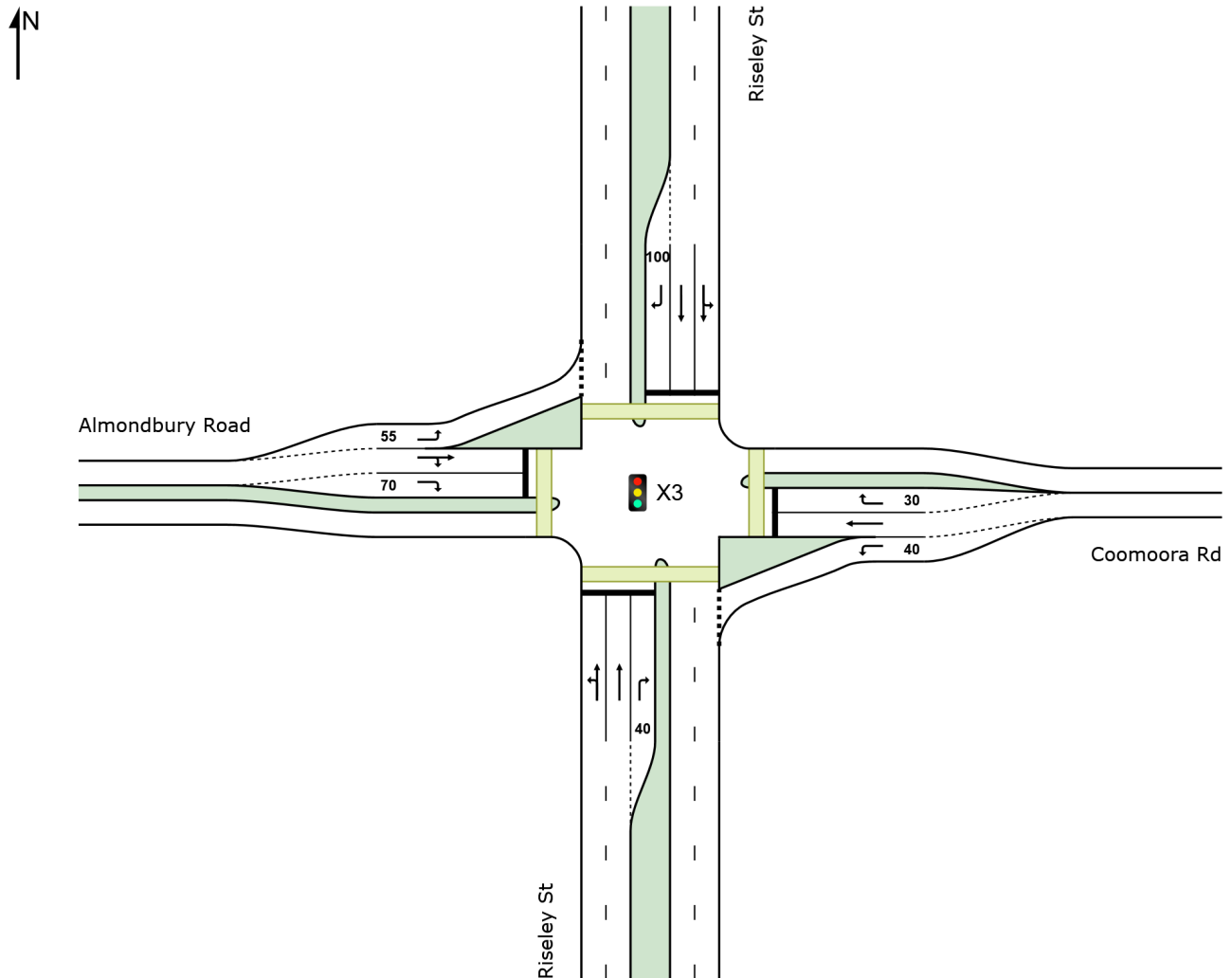
Project: Z:\BNE\Projects-SLR\620-BNE\620.30141.00000 Westfield Booragoon Redevelopment\02 Analysis\2021 07 - Updated SIDRA Analysis
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SITE LAYOUT

 Site: X3 [X3 (2021 BG + DEV) (PM) (Upgraded) (Site Folder: (2031 BG + DEV))]

Intersection: Riseley Street / Almondbury Road
Project: 620.30141 - Westfield Booragoon Redevelopment
Prepared by: MP
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

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



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MOVEMENT SUMMARY

 **Site: X3 [X3 (2021 BG + DEV) (PM) (Upgraded) (Site Folder: (2031 BG + DEV))]**

Intersection: Riseley Street / Almondbury Road

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 126 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Riseley St														
1	L2	296	3.0	312	3.0	0.871	48.2	LOS D	43.2	310.5	0.99	0.96	1.08	15.4
2	T1	933	3.0	982	3.0	* 0.871	42.1	LOS C	43.2	310.5	0.93	0.92	1.05	29.3
3	R2	140	3.0	147	3.0	0.729	67.9	LOS E	9.3	66.8	1.00	0.85	1.11	21.4
Approach		1369	3.0	1441	3.0	0.871	46.0	LOS D	43.2	310.5	0.95	0.92	1.06	25.9
East: Coomoora Rd														
4	L2	232	3.0	244	3.0	0.279	12.8	LOS A	5.8	41.4	0.47	0.67	0.47	40.4
5	T1	180	3.0	189	3.0	* 0.855	65.7	LOS E	12.5	90.0	1.00	1.00	1.28	19.9
6	R2	79	3.0	83	3.0	0.339	58.9	LOS E	4.7	34.0	0.95	0.77	0.95	28.6
Approach		491	3.0	517	3.0	0.855	39.6	LOS C	12.5	90.0	0.74	0.80	0.85	28.6
North: Riseley St														
7	L2	48	3.0	51	3.0	0.478	33.1	LOS C	17.0	122.0	0.77	0.69	0.77	38.1
8	T1	694	3.0	731	3.0	0.478	27.5	LOS B	17.1	122.8	0.77	0.68	0.77	35.8
9	R2	167	3.0	176	3.0	* 0.870	75.5	LOS F	12.0	86.5	1.00	0.95	1.32	19.2
Approach		909	3.0	957	3.0	0.870	36.6	LOS C	17.1	122.8	0.81	0.73	0.87	31.5
West: Almondbury Road														
10	L2	298	3.0	314	3.0	0.323	15.0	LOS B	8.6	61.9	0.53	0.69	0.53	40.6
11	T1	75	3.0	79	3.0	* 0.891	70.4	LOS E	15.5	111.5	1.00	1.03	1.34	18.6
12	R2	344	3.0	362	3.0	0.891	75.1	LOS F	15.5	111.5	1.00	1.00	1.34	10.4
Approach		717	3.0	755	3.0	0.891	49.6	LOS D	15.5	111.5	0.81	0.88	1.00	20.2
All Vehicles		3486	3.0	3669	3.0	0.891	43.4	LOS D	43.2	310.5	0.85	0.85	0.97	26.6

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Riseley St												
P1	Full	50	53	57.3	LOS E	0.2	0.2	0.95	0.95	226.9	220.5	0.97
East: Coomoora Rd												
P2	Full	50	53	57.3	LOS E	0.2	0.2	0.95	0.95	221.8	213.9	0.96

North: Riseley St												
P3	Full	50	53	57.3	LOS E	0.2	0.2	0.95	0.95	226.9	220.5	0.97
West: Almondbury Road												
P4	Full	50	53	57.3	LOS E	0.2	0.2	0.95	0.95	221.8	213.9	0.96
All		200	211	57.3	LOS E	0.2	0.2	0.95	0.95	224.3	217.2	0.97
Pedestrians												

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

 **Site: X3 [X3 (2021 BG + DEV) (PM) (Upgraded) (Site Folder: (2031 BG + DEV))]**

Intersection: Riseley Street / Almondbury Road

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 126 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, D, E, F

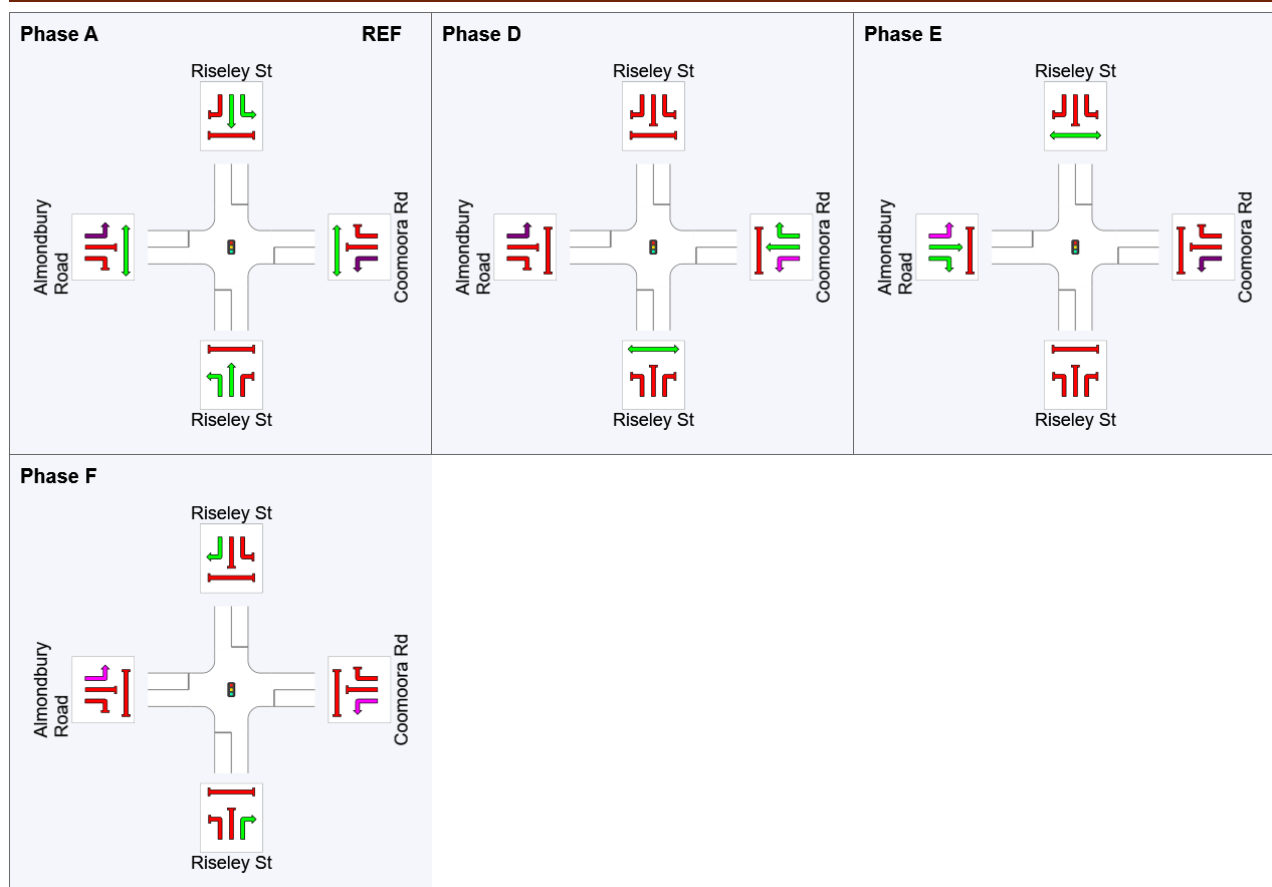
Output Phase Sequence: A, D, E, F

Phase Timing Summary

Phase	A	D	E	F
Phase Change Time (sec)	0	60	83	106
Green Time (sec)	54	17	17	14
Phase Time (sec)	60	23	23	20
Phase Split	48%	18%	18%	16%

See the Timing Analysis 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, Minor 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

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MOVEMENT SUMMARY

 Site: X3 [X3 (2021 BG + DEV) (SAT) (Upgraded) (Site Folder: (2031 BG + DEV))]

Intersection: Riseley Street / Almondbury Road

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 130 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Riseley St														
1	L2	277	3.0	292	3.0	0.945	70.3	LOS E	55.0	394.5	1.00	1.08	1.26	11.5
2	T1	982	3.0	1034	3.0	* 0.945	64.5	LOS E	55.0	394.5	0.97	1.08	1.26	23.2
3	R2	124	3.0	131	3.0	0.424	58.4	LOS E	7.5	54.0	0.94	0.79	0.94	23.3
Approach		1383	3.0	1456	3.0	0.945	65.1	LOS E	55.0	394.5	0.98	1.06	1.23	21.2
East: Coomoora Rd														
4	L2	202	3.0	213	3.0	0.247	14.6	LOS B	5.5	39.5	0.49	0.67	0.49	39.2
5	T1	114	3.0	120	3.0	0.683	64.9	LOS E	7.8	55.8	1.00	0.84	1.08	20.1
6	R2	113	3.0	119	3.0	* 0.709	70.4	LOS E	7.8	55.9	1.00	0.84	1.11	26.3
Approach		429	3.0	452	3.0	0.709	42.6	LOS D	7.8	55.9	0.76	0.76	0.81	28.5
North: Riseley St														
7	L2	107	3.0	113	3.0	0.545	37.5	LOS C	19.8	142.1	0.82	0.75	0.82	36.2
8	T1	679	3.0	715	3.0	0.545	31.9	LOS C	20.1	144.1	0.82	0.73	0.82	33.5
9	R2	227	3.0	239	3.0	* 0.777	65.2	LOS E	15.4	110.4	1.00	0.88	1.11	21.1
Approach		1013	3.0	1066	3.0	0.777	39.9	LOS C	20.1	144.1	0.86	0.77	0.89	30.4
West: Almondbury Road														
10	L2	403	3.0	424	3.0	0.434	20.3	LOS B	15.4	110.6	0.62	0.72	0.62	37.0
11	T1	69	3.0	73	3.0	* 0.980	95.6	LOS F	20.9	149.8	1.00	1.18	1.60	15.3
12	R2	448	3.0	472	3.0	0.980	99.9	LOS F	25.1	180.0	1.00	1.14	1.58	8.2
Approach		920	3.0	968	3.0	0.980	64.7	LOS E	25.1	180.0	0.84	0.96	1.16	16.9
All Vehicles		3745	3.0	3942	3.0	0.980	55.6	LOS D	55.0	394.5	0.89	0.92	1.07	23.2

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Riseley St												
P1	Full	50	53	59.3	LOS E	0.2	0.2	0.96	0.96	228.9	220.5	0.96
East: Coomoora Rd												
P2	Full	50	53	59.3	LOS E	0.2	0.2	0.96	0.96	223.8	213.9	0.96

North: Riseley St												
P3	Full	50	53	59.3	LOS E	0.2	0.2	0.96	0.96	228.9	220.5	0.96
West: Almondbury Road												
P4	Full	50	53	59.3	LOS E	0.2	0.2	0.96	0.96	223.8	213.9	0.96
All		200	211	59.3	LOS E	0.2	0.2	0.96	0.96	226.3	217.2	0.96
Pedestrians												

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

 **Site: X3 [X3 (2021 BG + DEV) (SAT) (Upgraded) (Site Folder: (2031 BG + DEV))]**

Intersection: Riseley Street / Almondbury Road
Project: 620.30141 - Westfield Booragoon Redevelopment
Prepared by: MP
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 130 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: Leading Right Turn
Reference Phase: Phase A
Input Phase Sequence: A, D, E, F
Output Phase Sequence: A, D, E, F

Phase Timing Summary

Phase	A	D	E	F
Phase Change Time (sec)	0	58	76	102
Green Time (sec)	52	12	23	22
Phase Time (sec)	58	15	29	28
Phase Split	45%	12%	22%	22%

See the Timing Analysis 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, Minor 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

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MOVEMENT SUMMARY

 **Site: X3 [X3 (2031 BG + DEV) (PM) (Upgraded) (Site Folder: (2031 BG + DEV))]**

Intersection: Riseley Street / Almondbury Road

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 126 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Riseley St														
1	L2	307	3.0	323	3.0	0.912	56.0	LOS D	51.0	365.9	1.00	1.02	1.17	13.8
2	T1	1014	3.0	1067	3.0	* 0.912	50.0	LOS D	51.0	365.9	0.95	1.00	1.14	26.8
3	R2	135	3.0	142	3.0	0.757	69.6	LOS E	9.1	65.5	1.00	0.87	1.15	21.1
Approach		1456	3.0	1533	3.0	0.912	53.1	LOS D	51.0	365.9	0.97	0.99	1.15	24.0
East: Coomoora Rd														
4	L2	263	3.0	277	3.0	0.333	14.1	LOS A	7.2	51.8	0.51	0.69	0.51	39.5
5	T1	178	3.0	187	3.0	* 0.859	66.1	LOS E	12.4	89.3	1.00	1.00	1.30	19.9
6	R2	89	3.0	94	3.0	0.382	59.3	LOS E	5.4	38.6	0.96	0.77	0.96	28.5
Approach		530	3.0	558	3.0	0.859	39.2	LOS C	12.4	89.3	0.75	0.81	0.85	28.8
North: Riseley St														
7	L2	75	3.0	79	3.0	0.540	33.4	LOS C	20.0	143.8	0.79	0.72	0.79	37.9
8	T1	778	3.0	819	3.0	0.540	27.9	LOS B	20.2	145.1	0.79	0.71	0.79	35.6
9	R2	165	3.0	174	3.0	* 0.926	84.1	LOS F	12.7	91.3	1.00	1.02	1.48	17.8
Approach		1018	3.0	1072	3.0	0.926	37.4	LOS C	20.2	145.1	0.83	0.76	0.90	31.4
West: Almondbury Road														
10	L2	326	3.0	343	3.0	0.373	17.9	LOS B	10.8	77.6	0.60	0.72	0.60	38.6
11	T1	84	3.0	88	3.0	* 0.847	65.6	LOS E	14.1	101.6	1.00	0.97	1.24	19.4
12	R2	315	3.0	332	3.0	0.847	70.3	LOS E	14.1	101.6	1.00	0.95	1.25	11.0
Approach		725	3.0	763	3.0	0.847	46.2	LOS D	14.1	101.6	0.82	0.85	0.96	21.5
All Vehicles		3729	3.0	3925	3.0	0.926	45.5	LOS D	51.0	365.9	0.87	0.87	1.00	26.2

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Riseley St												
P1	Full	50	53	57.3	LOS E	0.2	0.2	0.95	0.95	226.9	220.5	0.97
East: Coomoora Rd												
P2	Full	50	53	57.3	LOS E	0.2	0.2	0.95	0.95	221.8	213.9	0.96

North: Riseley St												
P3	Full	50	53	57.3	LOS E	0.2	0.2	0.95	0.95	226.9	220.5	0.97
West: Almondbury Road												
P4	Full	50	53	57.3	LOS E	0.2	0.2	0.95	0.95	221.8	213.9	0.96
All		200	211	57.3	LOS E	0.2	0.2	0.95	0.95	224.3	217.2	0.97
Pedestrians												

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

 **Site: X3 [X3 (2031 BG + DEV) (PM) (Upgraded) (Site Folder: (2031 BG + DEV))]**

Intersection: Riseley Street / Almondbury Road
Project: 620.30141 - Westfield Booragoon Redevelopment
Prepared by: MP
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 126 seconds (Site User-Given Cycle Time)

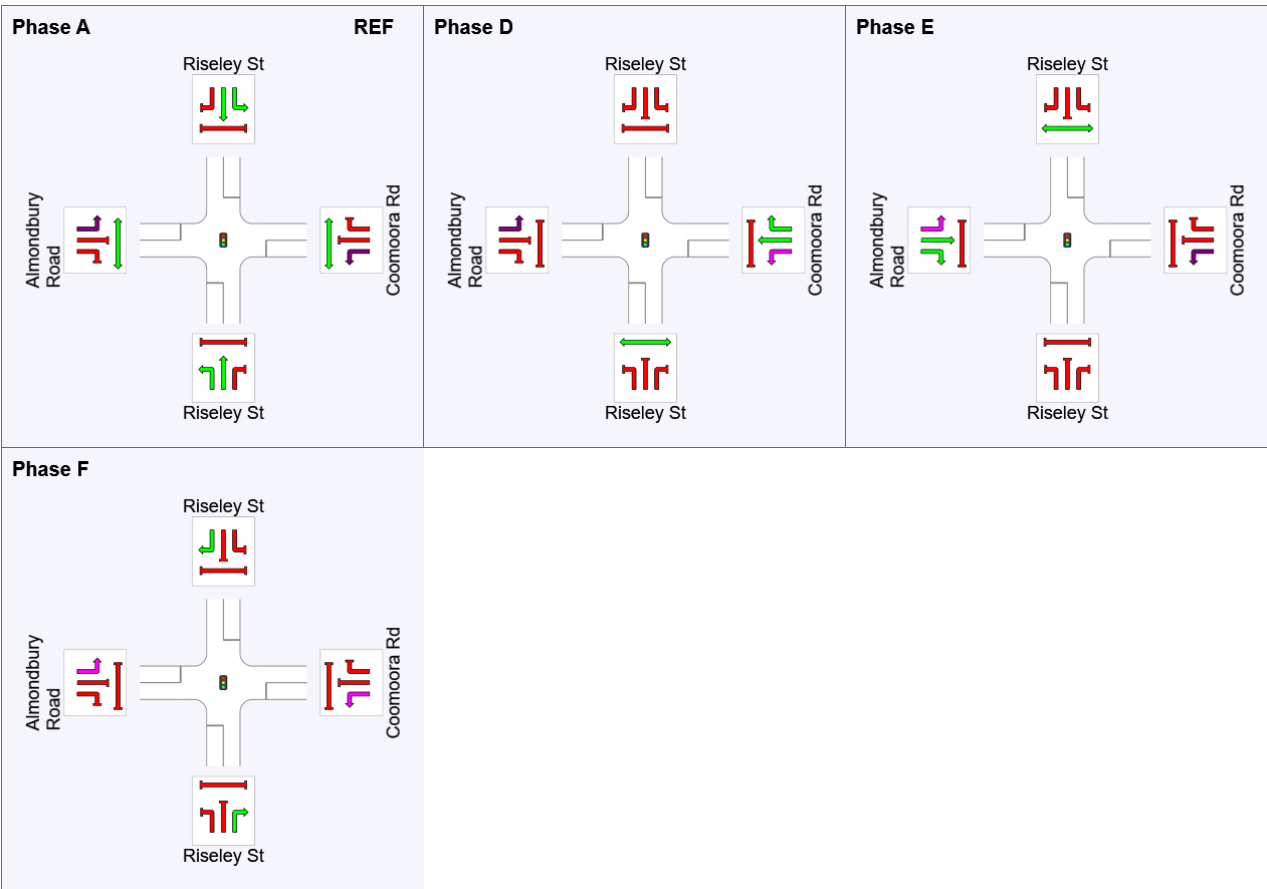
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Leading Right Turn
Reference Phase: Phase A
Input Phase Sequence: A, D, E, F
Output Phase Sequence: A, D, E, F

Phase Timing Summary








Phase	A	D	E	F
Phase Change Time (sec)	0	61	84	107
Green Time (sec)	55	17	17	13
Phase Time (sec)	61	23	23	19
Phase Split	48%	18%	18%	15%

See the Timing Analysis 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, Minor 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

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 \620.30141-SIDRA Analysis-2031-BG+DEV.sip9

MOVEMENT SUMMARY

 Site: X3 [X3 (2031 BG + DEV) (SAT) (Upgraded) (Site Folder: (2031 BG + DEV))]

Intersection: Riseley Street / Almondbury Road

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 130 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Riseley St														
1	L2	271	3.0	285	3.0	1.016	107.2	LOS F	73.7	529.1	1.00	1.26	1.53	8.0
2	T1	1083	3.0	1140	3.0	* 1.016	103.4	LOS F	73.7	529.1	1.00	1.31	1.54	16.9
3	R2	136	3.0	143	3.0	0.465	58.8	LOS E	8.3	59.7	0.95	0.80	0.95	23.3
Approach		1490	3.0	1568	3.0	1.016	100.1	LOS F	73.7	529.1	1.00	1.25	1.49	15.9
East: Coomoora Rd														
4	L2	177	3.0	186	3.0	0.227	15.7	LOS B	5.0	36.1	0.51	0.67	0.51	38.5
5	T1	122	3.0	128	3.0	0.794	68.0	LOS E	8.6	61.7	1.00	0.92	1.22	19.5
6	R2	133	3.0	140	3.0	* 0.958	94.0	LOS F	11.0	79.3	1.00	1.09	1.62	22.4
Approach		432	3.0	455	3.0	0.958	54.6	LOS D	11.0	79.3	0.80	0.87	1.05	25.5
North: Riseley St														
7	L2	95	3.0	100	3.0	0.614	38.7	LOS C	23.2	166.6	0.85	0.77	0.85	35.9
8	T1	792	3.0	834	3.0	0.614	33.1	LOS C	23.5	168.4	0.85	0.76	0.85	33.0
9	R2	232	3.0	244	3.0	* 0.794	66.2	LOS E	15.9	114.1	1.00	0.89	1.13	20.9
Approach		1119	3.0	1178	3.0	0.794	40.4	LOS C	23.5	168.4	0.88	0.79	0.91	30.2
West: Almondbury Road														
10	L2	422	3.0	444	3.0	0.528	32.1	LOS C	17.8	127.6	0.76	0.93	0.76	30.9
11	T1	71	3.0	75	3.0	* 0.931	77.6	LOS F	17.6	126.5	1.00	1.09	1.44	17.5
12	R2	429	3.0	452	3.0	0.931	82.1	LOS F	22.2	159.5	1.00	1.05	1.41	9.7
Approach		922	3.0	971	3.0	0.931	58.9	LOS E	22.2	159.5	0.89	1.00	1.12	18.3
All Vehicles		3963	3.0	4172	3.0	1.016	68.7	LOS E	73.7	529.1	0.92	1.02	1.19	20.5

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Riseley St												
P1	Full	50	53	59.3	LOS E	0.2	0.2	0.96	0.96	228.9	220.5	0.96
East: Coomoora Rd												
P2	Full	50	53	59.3	LOS E	0.2	0.2	0.96	0.96	223.8	213.9	0.96

North: Riseley St												
P3	Full	50	53	59.3	LOS E	0.2	0.2	0.96	0.96	228.9	220.5	0.96
West: Almondbury Road												
P4	Full	50	53	59.3	LOS E	0.2	0.2	0.96	0.96	223.8	213.9	0.96
All		200	211	59.3	LOS E	0.2	0.2	0.96	0.96	226.3	217.2	0.96
Pedestrians												

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

 **Site: X3 [X3 (2031 BG + DEV) (SAT) (Upgraded) (Site Folder: (2031 BG + DEV))]**

Intersection: Riseley Street / Almondbury Road
Project: 620.30141 - Westfield Booragoon Redevelopment
Prepared by: MP
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 130 seconds (Site User-Given Phase Times)

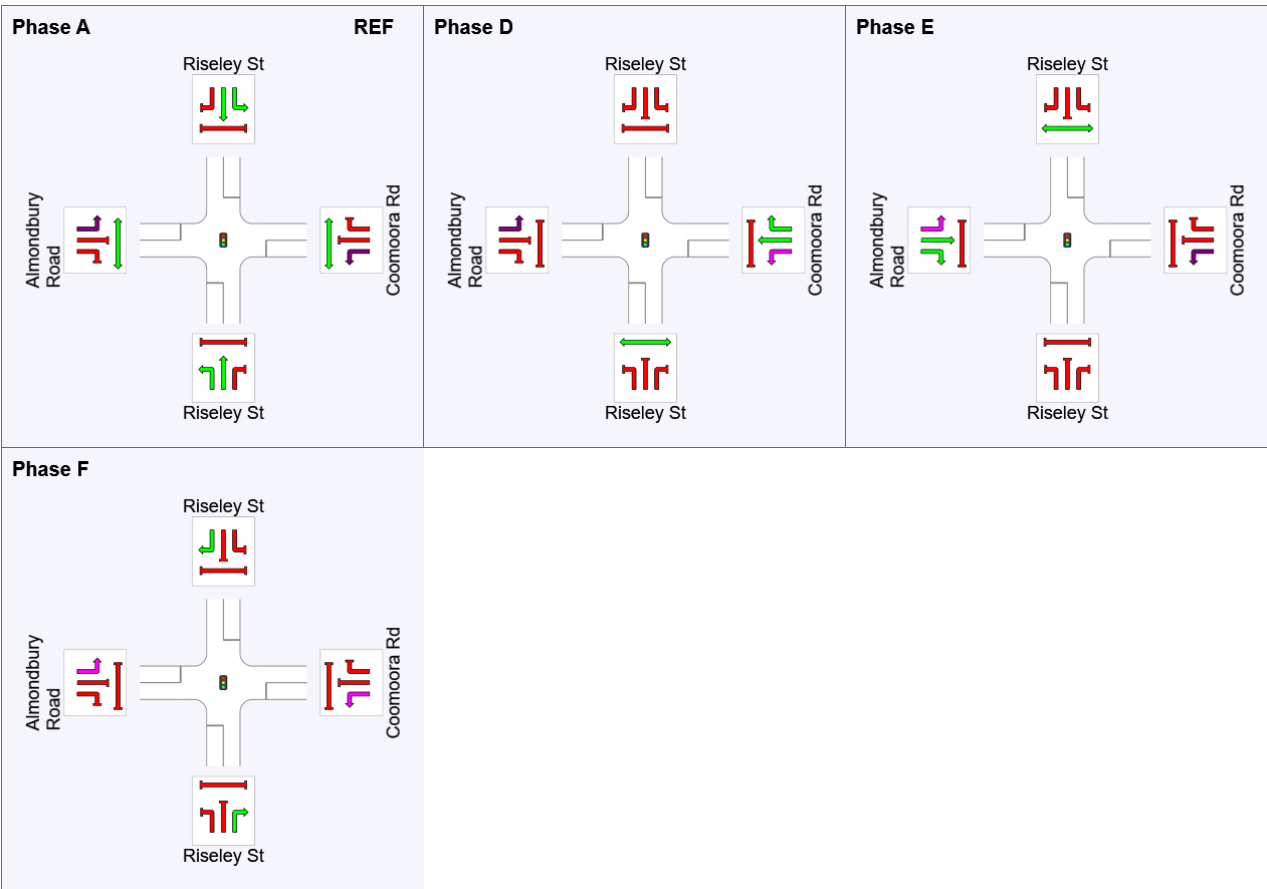
Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: Leading Right Turn
Reference Phase: Phase A
Input Phase Sequence: A, D, E, F
Output Phase Sequence: A, D, E, F

Phase Timing Summary

Phase	A	D	E	F
Phase Change Time (sec)	0	58	76	102
Green Time (sec)	52	12	23	22
Phase Time (sec)	58	15	29	28
Phase Split	45%	12%	22%	22%

See the Timing Analysis 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, Minor 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

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SITE LAYOUT

▽ Site: S1 [S1 (2021 BG) (PM) (Existing) (Site Folder: (2021 BG))]

Intersection: Marmion Street / Site Access

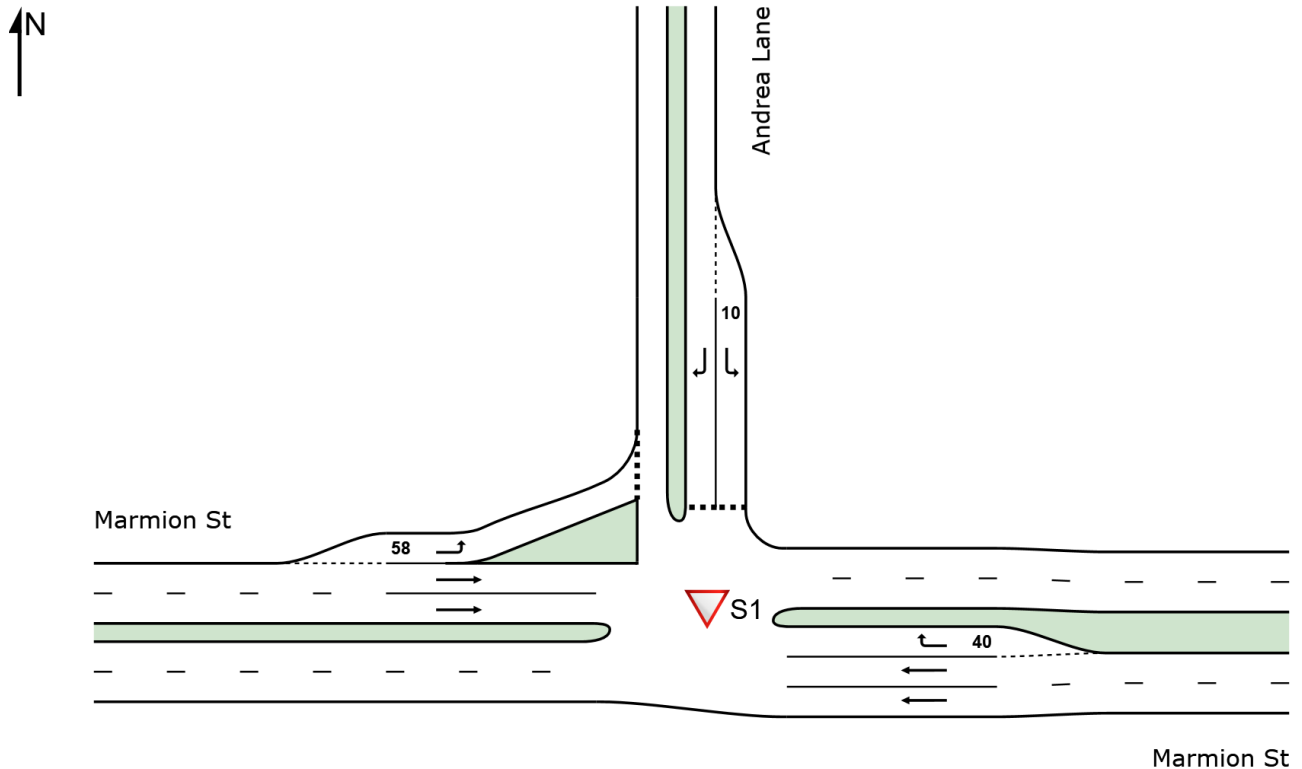
Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Give-Way (Two-Way)

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MOVEMENT SUMMARY

▽ Site: S1 [S1 (2021 BG) (PM) (Existing) (Site Folder: (2021 BG))]

Intersection: Marmion Street / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
East: Marmion St														
5	T1	645	3.0	679	3.0	0.178	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
6	R2	205	3.0	216	3.0	0.320	9.8	LOS A	1.3	9.5	0.62	0.87	0.72	20.4
Approach		850	3.0	895	3.0	0.320	2.4	NA	1.3	9.5	0.15	0.21	0.17	48.2
North: Andrea Lane														
7	L2	296	3.0	312	3.0	0.341	2.5	LOS A	1.7	12.5	0.51	0.46	0.54	23.0
9	R2	214	3.0	225	3.0	3.028	1860.8	LOS F	103.8	745.0	1.00	8.06	13.31	0.5
Approach		510	3.0	537	3.0	3.028	782.3	LOS F	103.8	745.0	0.71	3.65	5.90	0.9
West: Marmion St														
10	L2	148	3.0	156	3.0	0.115	7.3	LOS A	0.5	3.5	0.27	0.60	0.27	33.8
11	T1	711	3.0	748	3.0	0.196	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		859	3.0	904	3.0	0.196	1.3	LOS A	0.5	3.5	0.05	0.10	0.05	53.0
All Vehicles		2219	3.0	2336	3.0	3.028	181.2	NA	103.8	745.0	0.24	0.96	1.44	4.6

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.
 Delay Model: SIDRA Standard (Geometric Delay is included).
 Queue Model: SIDRA Standard.
 Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: S1 [S1 (2021 BG) (SAT) (Existing) (Site Folder: (2021 BG))]

Intersection: Marmion Street / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
East: Marmion St														
5	T1	494	3.0	520	3.0	0.137	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
6	R2	237	3.0	249	3.0	0.317	8.6	LOS A	1.4	9.7	0.54	0.81	0.60	21.5
Approach		731	3.0	769	3.0	0.317	2.8	NA	1.4	9.7	0.17	0.26	0.20	45.5
North: Andrea Lane														
7	L2	371	3.0	391	3.0	0.397	2.2	LOS A	2.3	16.7	0.48	0.43	0.54	23.3
9	R2	136	3.0	143	3.0	1.242	288.6	LOS F	23.6	169.7	1.00	4.61	7.03	3.2
Approach		507	3.0	534	3.0	1.242	79.0	LOS F	23.6	169.7	0.62	1.55	2.28	6.2
West: Marmion St														
10	L2	187	3.0	197	3.0	0.150	7.5	LOS A	0.6	4.6	0.30	0.61	0.30	33.7
11	T1	582	3.0	613	3.0	0.160	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		769	3.0	809	3.0	0.160	1.8	LOS A	0.6	4.6	0.07	0.15	0.07	50.6
All Vehicles		2007	3.0	2113	3.0	1.242	21.7	NA	23.6	169.7	0.25	0.54	0.68	21.9

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.
 Delay Model: SIDRA Standard (Geometric Delay is included).
 Queue Model: SIDRA Standard.
 Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

▽ Site: S1 [S1 (2031 BG) (PM) (Existing) (Site Folder: (2031 BG))]

Intersection: Marmion Street / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
East: Marmion St														
5	T1	717	3.0	755	3.0	0.198	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
6	R2	207	3.0	218	3.0	0.371	11.5	LOS B	1.6	11.4	0.69	0.92	0.86	19.1
Approach		924	3.0	973	3.0	0.371	2.6	NA	1.6	11.4	0.16	0.21	0.19	48.1
North: Andrea Lane														
7	L2	267	3.0	281	3.0	0.328	2.9	LOS A	1.6	11.7	0.53	0.52	0.58	22.6
9	R2	195	3.0	205	3.0	4.009	2748.5	LOS F	107.8	774.3	1.00	6.62	11.07	0.4
Approach		462	3.0	486	3.0	4.009	1161.8	LOS F	107.8	774.3	0.73	3.10	5.01	0.6
West: Marmion St														
10	L2	135	3.0	142	3.0	0.106	7.3	LOS A	0.4	3.1	0.27	0.60	0.27	33.8
11	T1	818	3.0	861	3.0	0.225	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		953	3.0	1003	3.0	0.225	1.1	LOS A	0.4	3.1	0.04	0.08	0.04	54.1
All Vehicles		2339	3.0	2462	3.0	4.009	230.9	NA	107.8	774.3	0.22	0.73	1.08	3.8

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.
 Delay Model: SIDRA Standard (Geometric Delay is included).
 Queue Model: SIDRA Standard.
 Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

▽ Site: S1 [S1 (2031 BG) (SAT) (Existing) (Site Folder: (2031 BG))]

Intersection: Marmion Street / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
v/csec														
East: Marmion St														
5	T1	516	3.0	543	3.0	0.143	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
6	R2	239	3.0	252	3.0	0.346	9.4	LOS A	1.5	11.0	0.59	0.86	0.70	20.7
Approach		755	3.0	795	3.0	0.346	3.0	NA	1.5	11.0	0.19	0.27	0.22	45.2
North: Andrea Lane														
7	L2	386	3.0	406	3.0	0.429	2.8	LOS A	2.8	19.8	0.52	0.54	0.63	22.7
9	R2	135	3.0	142	3.0	1.490	501.8	LOS F	35.1	252.1	1.00	5.61	8.85	1.9
Approach		521	3.0	548	3.0	1.490	132.1	LOS F	35.1	252.1	0.65	1.85	2.76	4.0
West: Marmion St														
10	L2	185	3.0	195	3.0	0.149	7.5	LOS A	0.6	4.5	0.30	0.61	0.30	33.7
11	T1	650	3.0	684	3.0	0.179	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		835	3.0	879	3.0	0.179	1.7	LOS A	0.6	4.5	0.07	0.14	0.07	51.3
All Vehicles		2111	3.0	2222	3.0	1.490	34.3	NA	35.1	252.1	0.25	0.61	0.79	16.7

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.
 Delay Model: SIDRA Standard (Geometric Delay is included).
 Queue Model: SIDRA Standard.
 Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

 Site: S1 [S1 (2021 BG) (PM) (Upgraded) (Site Folder: (2021 BG))]

Intersection: Marmion Street / Site Access

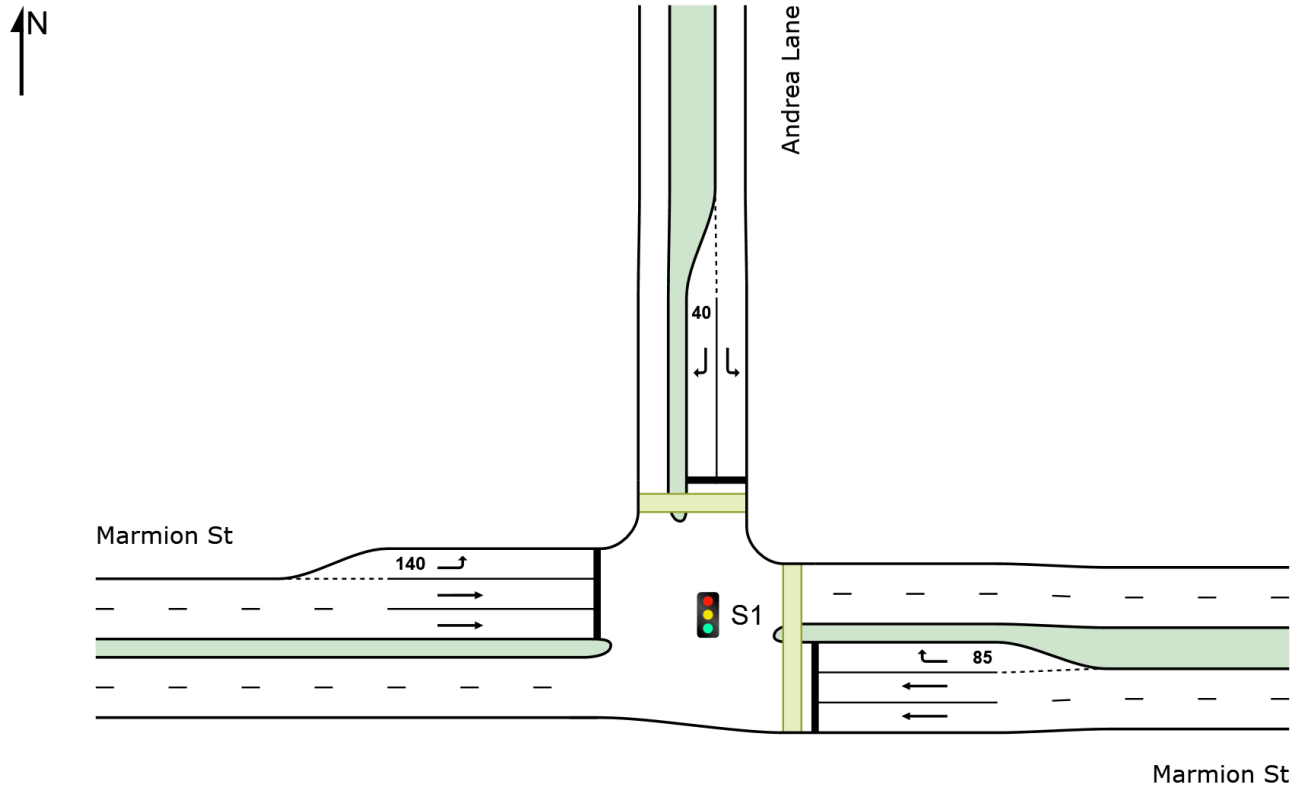
Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated

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



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MOVEMENT SUMMARY

 Site: S1 [S1 (2021 BG) (PM) (Upgraded) (Site Folder: (2021 BG))]

Intersection: Marmion Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 50 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
East: Marmion St														
5	T1	645	3.0	679	3.0	0.296	5.3	LOS A	4.1	29.1	0.52	0.44	0.52	45.8
6	R2	205	3.0	216	3.0	* 0.848	35.2	LOS D	6.3	45.1	1.00	1.02	1.52	13.5
Approach		850	3.0	895	3.0	0.848	12.5	LOS B	6.3	45.1	0.63	0.58	0.76	30.9
North: Andrea Lane														
7	L2	296	3.0	312	3.0	0.428	12.0	LOS B	5.7	40.6	0.77	0.65	0.77	20.0
9	R2	214	3.0	225	3.0	* 0.619	21.3	LOS C	5.4	38.9	0.96	0.85	1.02	18.2
Approach		510	3.0	537	3.0	0.619	15.9	LOS B	5.7	40.6	0.85	0.73	0.87	19.1
West: Marmion St														
10	L2	148	3.0	156	3.0	0.126	8.6	LOS A	1.3	9.5	0.37	0.67	0.37	26.6
11	T1	711	3.0	748	3.0	* 0.515	13.2	LOS B	7.2	52.0	0.82	0.70	0.82	33.7
Approach		859	3.0	904	3.0	0.515	12.4	LOS B	7.2	52.0	0.74	0.70	0.74	32.3
All Vehicles		2219	3.0	2336	3.0	0.848	13.3	LOS B	7.2	52.0	0.73	0.66	0.78	27.8

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.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m					
East: Marmion St												
P2	Full	50	53	19.4	LOS B	0.1	0.1	0.88	0.88	189.0	220.5	1.17
North: Andrea Lane												
P3	Full	50	53	19.4	LOS B	0.1	0.1	0.88	0.88	183.9	213.9	1.16
All Pedestrians		100	105	19.4	LOS B	0.1	0.1	0.88	0.88	186.5	217.2	1.16

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: S1 [S1 (2021 BG) (PM) (Upgraded) (Site Folder: (2021 BG))]

Intersection: Marmion Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 50 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, C, D

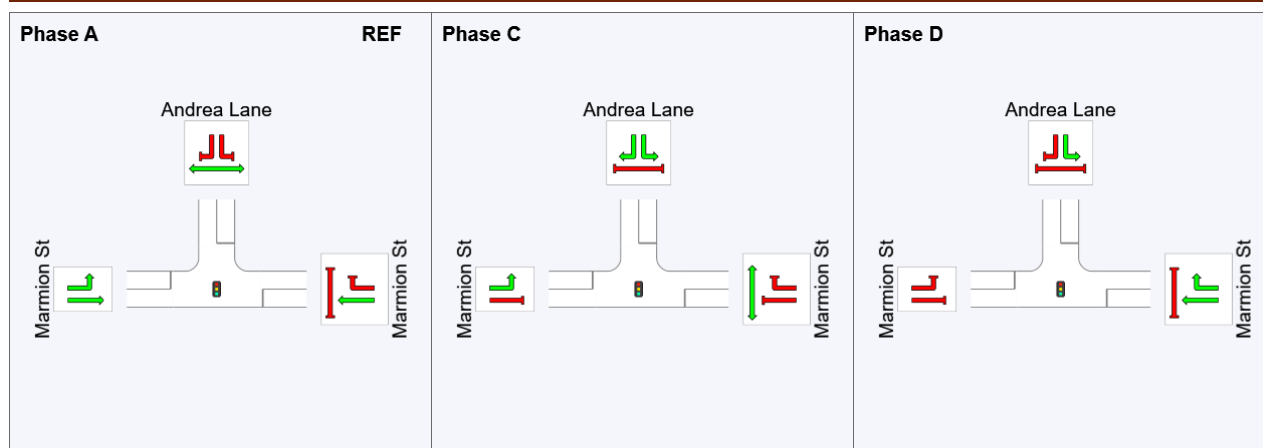
Output Phase Sequence: A, C, D

Phase Timing Summary

Phase	A	C	D
Phase Change Time (sec)	0	23	39
Green Time (sec)	19	10	7
Phase Time (sec)	25	14	11
Phase Split	50%	28%	22%

See the Timing Analysis 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, Minor 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: S1 [S1 (2021 BG) (SAT) (Upgraded) (Site Folder: (2021 BG))]

Intersection: Marmion Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 53 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
East: Marmion St														
5	T1	494	3.0	520	3.0	0.206	3.8	LOS A	2.6	19.0	0.42	0.35	0.42	49.0
6	R2	237	3.0	249	3.0	* 0.808	33.7	LOS C	7.3	52.4	1.00	0.96	1.35	13.8
Approach		731	3.0	769	3.0	0.808	13.5	LOS B	7.3	52.4	0.61	0.55	0.72	28.8
North: Andrea Lane														
7	L2	371	3.0	391	3.0	0.569	14.5	LOS B	8.2	59.2	0.84	0.73	0.84	18.8
9	R2	136	3.0	143	3.0	* 0.464	22.7	LOS C	3.6	25.5	0.95	0.75	0.95	17.8
Approach		507	3.0	534	3.0	0.569	16.7	LOS B	8.2	59.2	0.87	0.73	0.87	18.5
West: Marmion St														
10	L2	187	3.0	197	3.0	0.169	9.7	LOS A	2.0	14.7	0.43	0.69	0.43	25.8
11	T1	582	3.0	613	3.0	* 0.424	13.5	LOS B	6.0	43.2	0.79	0.67	0.79	33.5
Approach		769	3.0	809	3.0	0.424	12.6	LOS B	6.0	43.2	0.70	0.67	0.70	31.3
All Vehicles		2007	3.0	2113	3.0	0.808	14.0	LOS B	8.2	59.2	0.71	0.64	0.75	26.3

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.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m					
East: Marmion St												
P2	Full	50	53	20.9	LOS C	0.1	0.1	0.89	0.89	190.5	220.5	1.16
North: Andrea Lane												
P3	Full	50	53	20.9	LOS C	0.1	0.1	0.89	0.89	185.4	213.9	1.15
All Pedestrians		100	105	20.9	LOS C	0.1	0.1	0.89	0.89	188.0	217.2	1.16

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: S1 [S1 (2021 BG) (SAT) (Upgraded) (Site Folder: (2021 BG))]

Intersection: Marmion Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 53 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, C, D

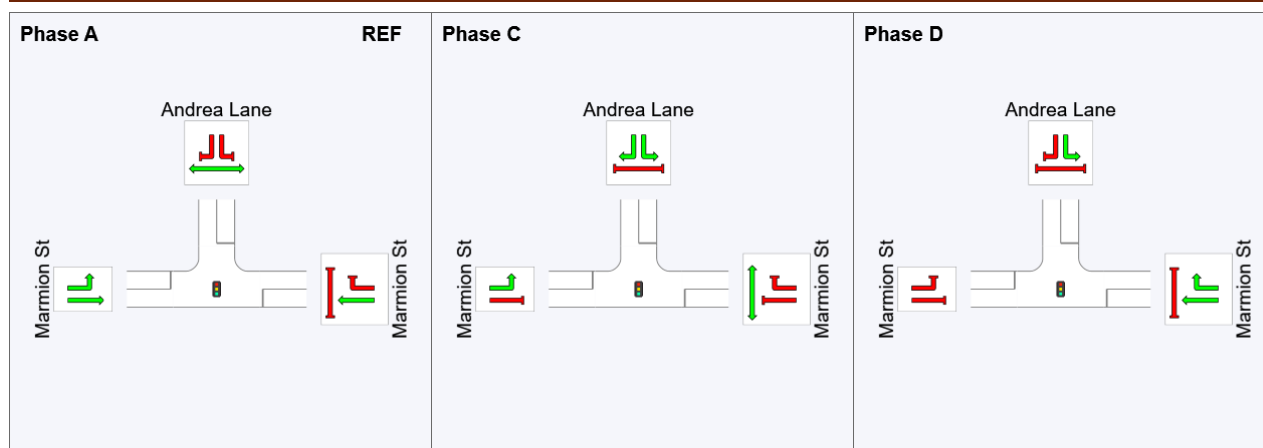
Output Phase Sequence: A, C, D

Phase Timing Summary

Phase	A	C	D
Phase Change Time (sec)	0	26	41
Green Time (sec)	20	9	9
Phase Time (sec)	26	12	15
Phase Split	49%	23%	28%

See the Timing Analysis 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, Minor 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: S1 [S1 (2031 BG) (PM) (Upgraded) (Site Folder: (2031 BG))]

Intersection: Marmion Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 50 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
East: Marmion St														
5	T1	717	3.0	755	3.0	0.329	5.4	LOS A	4.6	33.2	0.53	0.46	0.53	45.5
6	R2	207	3.0	218	3.0	* 0.856	35.7	LOS D	6.4	46.0	1.00	1.03	1.55	13.4
Approach		924	3.0	973	3.0	0.856	12.2	LOS B	6.4	46.0	0.64	0.59	0.76	31.4
North: Andrea Lane														
7	L2	267	3.0	281	3.0	0.386	11.8	LOS B	5.0	35.9	0.75	0.63	0.75	20.1
9	R2	195	3.0	205	3.0	* 0.564	20.7	LOS C	4.8	34.5	0.95	0.78	0.96	18.5
Approach		462	3.0	486	3.0	0.564	15.5	LOS B	5.0	35.9	0.84	0.70	0.84	19.3
West: Marmion St														
10	L2	135	3.0	142	3.0	0.115	8.6	LOS A	1.2	8.6	0.37	0.67	0.37	26.6
11	T1	818	3.0	861	3.0	* 0.592	13.7	LOS B	8.7	62.1	0.85	0.73	0.85	33.2
Approach		953	3.0	1003	3.0	0.592	13.0	LOS B	8.7	62.1	0.78	0.73	0.78	32.1
All Vehicles		2339	3.0	2462	3.0	0.856	13.2	LOS B	8.7	62.1	0.74	0.67	0.79	28.5

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.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m					
East: Marmion St												
P2	Full	50	53	19.4	LOS B	0.1	0.1	0.88	0.88	189.0	220.5	1.17
North: Andrea Lane												
P3	Full	50	53	19.4	LOS B	0.1	0.1	0.88	0.88	183.9	213.9	1.16
All Pedestrians		100	105	19.4	LOS B	0.1	0.1	0.88	0.88	186.5	217.2	1.16

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: S1 [S1 (2031 BG) (PM) (Upgraded) (Site Folder: (2031 BG))]

Intersection: Marmion Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 50 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, C, D

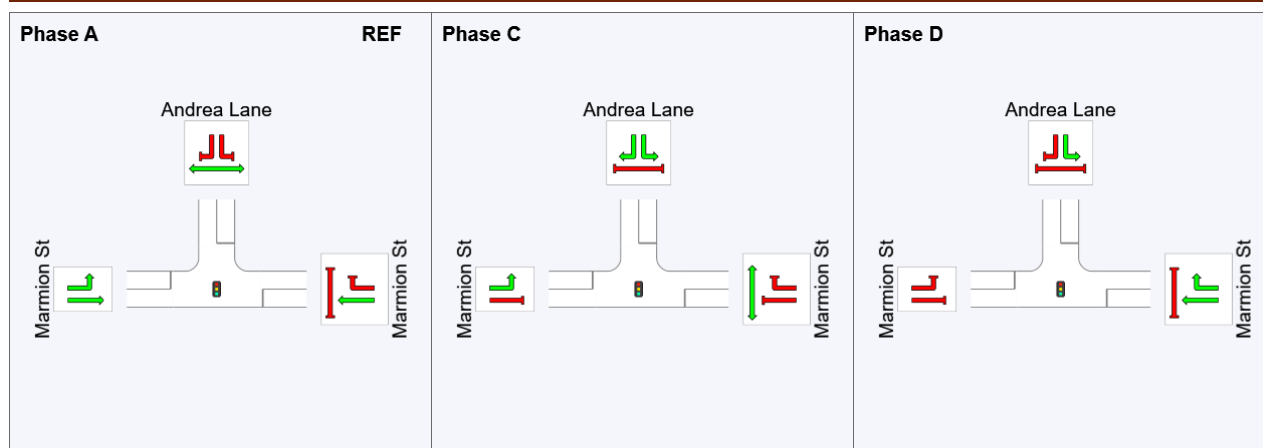
Output Phase Sequence: A, C, D

Phase Timing Summary

Phase	A	C	D
Phase Change Time (sec)	0	23	39
Green Time (sec)	19	10	7
Phase Time (sec)	25	14	11
Phase Split	50%	28%	22%

See the Timing Analysis 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, Minor 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: S1 [S1 (2031 BG) (SAT) (Upgraded) (Site Folder: (2031 BG))]

Intersection: Marmion Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 53 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
East: Marmion St														
5	T1	516	3.0	543	3.0	0.215	3.8	LOS A	2.8	20.0	0.42	0.36	0.42	49.0
6	R2	239	3.0	252	3.0	* 0.815	34.0	LOS C	7.4	53.2	1.00	0.97	1.36	13.8
Approach		755	3.0	795	3.0	0.815	13.4	LOS B	7.4	53.2	0.60	0.55	0.72	29.0
North: Andrea Lane														
7	L2	386	3.0	406	3.0	0.592	14.7	LOS B	8.7	62.3	0.85	0.74	0.85	18.7
9	R2	135	3.0	142	3.0	* 0.460	22.7	LOS C	3.5	25.3	0.94	0.75	0.94	17.8
Approach		521	3.0	548	3.0	0.592	16.7	LOS B	8.7	62.3	0.88	0.74	0.88	18.4
West: Marmion St														
10	L2	185	3.0	195	3.0	0.167	9.7	LOS A	2.0	14.5	0.43	0.69	0.43	25.8
11	T1	650	3.0	684	3.0	* 0.474	13.8	LOS B	6.9	49.4	0.81	0.69	0.81	33.1
Approach		835	3.0	879	3.0	0.474	12.9	LOS B	6.9	49.4	0.72	0.69	0.72	31.3
All Vehicles		2111	3.0	2222	3.0	0.815	14.0	LOS B	8.7	62.3	0.72	0.65	0.76	26.4

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.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m					
East: Marmion St												
P2	Full	50	53	20.9	LOS C	0.1	0.1	0.89	0.89	190.5	220.5	1.16
North: Andrea Lane												
P3	Full	50	53	20.9	LOS C	0.1	0.1	0.89	0.89	185.4	213.9	1.15
All Pedestrians		100	105	20.9	LOS C	0.1	0.1	0.89	0.89	188.0	217.2	1.16

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: S1 [S1 (2031 BG) (SAT) (Upgraded) (Site Folder: (2031 BG))]

Intersection: Marmion Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 53 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, C, D

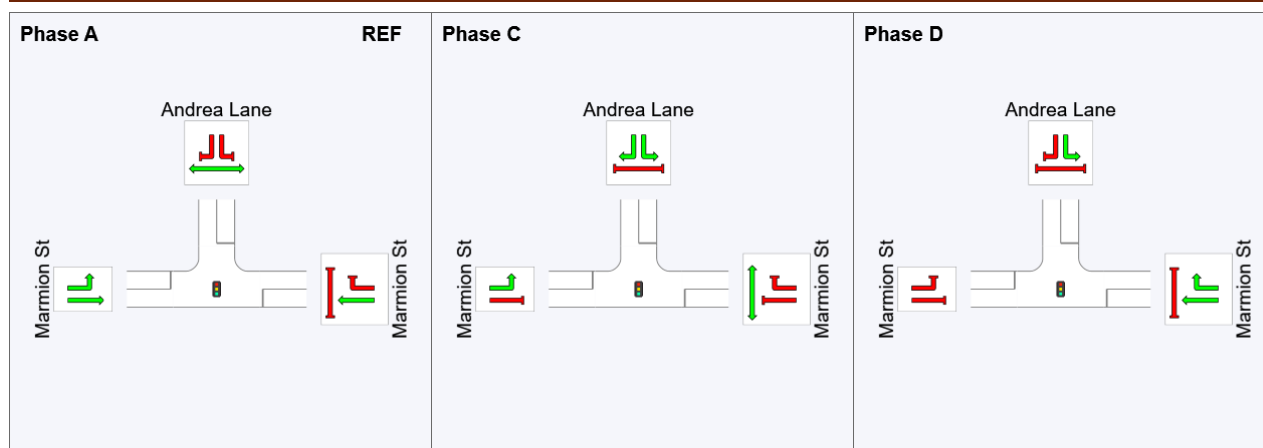
Output Phase Sequence: A, C, D

Phase Timing Summary

Phase	A	C	D
Phase Change Time (sec)	0	26	41
Green Time (sec)	20	9	9
Phase Time (sec)	26	12	15
Phase Split	49%	23%	28%

See the Timing Analysis 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, Minor 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: S1 [S1 (2021 BG + DEV) (PM) (Upgraded) (Site Folder: (2031 BG + DEV))]**

Intersection: Marmion Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 50 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
						v/c	sec							km/h
East: Marmion St														
5	T1	654	3.0	688	3.0	0.333	7.0	LOS A	4.8	34.2	0.60	0.51	0.60	42.5
6	R2	211	3.0	222	3.0	* 0.763	31.2	LOS C	6.0	42.9	1.00	0.93	1.28	14.5
Approach		865	3.0	911	3.0	0.763	12.9	LOS A	6.0	42.9	0.70	0.61	0.76	30.4
North: Andrea Lane														
7	L2	253	3.0	266	3.0	0.305	8.7	LOS A	4.0	28.9	0.65	0.55	0.65	21.7
9	R2	297	3.0	313	3.0	* 0.782	24.0	LOS B	8.3	59.8	1.00	1.09	1.25	17.3
Approach		550	3.0	579	3.0	0.782	17.0	LOS B	8.3	59.8	0.84	0.84	0.98	18.9
West: Marmion St														
10	L2	369	3.0	388	3.0	0.368	11.7	LOS A	5.1	36.8	0.57	0.74	0.57	24.5
11	T1	746	3.0	785	3.0	* 0.790	22.7	LOS B	10.3	74.3	0.99	0.96	1.22	25.7
Approach		1115	3.0	1174	3.0	0.790	19.1	LOS B	10.3	74.3	0.85	0.89	1.01	25.3
All Vehicles		2530	3.0	2663	3.0	0.790	16.5	LOS B	10.3	74.3	0.79	0.78	0.92	25.1

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Marmion St												
P2	Full	50	53	19.4	LOS B	0.1	0.1	0.88	0.88	189.0	220.5	1.17
North: Andrea Lane												
P3	Full	50	53	19.4	LOS B	0.1	0.1	0.88	0.88	183.9	213.9	1.16
All Pedestrians		100	105	19.4	LOS B	0.1	0.1	0.88	0.88	186.5	217.2	1.16

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: S1 [S1 (2021 BG + DEV) (PM) (Upgraded) (Site Folder: (2031 BG + DEV))]

Intersection: Marmion Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 50 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, C, D

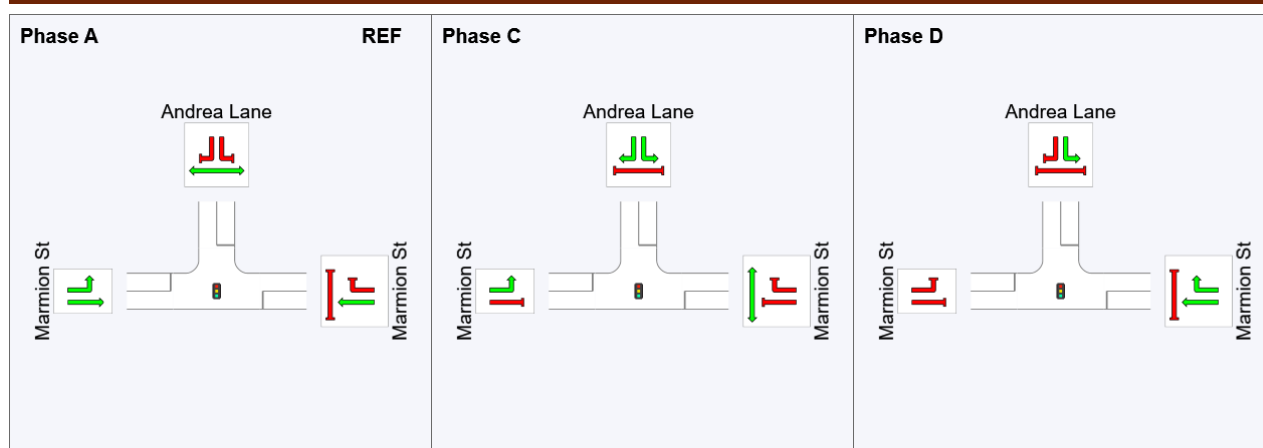
Output Phase Sequence: A, C, D

Phase Timing Summary

Phase	A	C	D
Phase Change Time (sec)	0	19	36
Green Time (sec)	13	11	8
Phase Time (sec)	19	17	14
Phase Split	38%	34%	28%

See the Timing Analysis 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, Minor 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: S1 [S1 (2021 BG + DEV) (SAT) (Upgraded) (Site Folder: (2031 BG + DEV))]**

Intersection: Marmion Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 54 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
						v/c	sec							km/h
East: Marmion St														
5	T1	584	3.0	615	3.0	0.299	7.5	LOS A	4.5	32.3	0.59	0.50	0.59	41.7
6	R2	199	3.0	209	3.0	* 0.691	31.1	LOS C	5.8	41.3	0.99	0.87	1.14	14.5
Approach		783	3.0	824	3.0	0.691	13.5	LOS A	5.8	41.3	0.69	0.59	0.73	29.8
North: Andrea Lane														
7	L2	326	3.0	343	3.0	0.377	9.1	LOS A	5.7	40.6	0.66	0.56	0.66	21.5
9	R2	283	3.0	298	3.0	* 0.681	22.0	LOS B	7.7	55.5	0.96	0.89	1.05	18.0
Approach		609	3.0	641	3.0	0.681	15.1	LOS B	7.7	55.5	0.80	0.72	0.84	19.6
West: Marmion St														
10	L2	443	3.0	466	3.0	0.433	12.2	LOS A	6.8	48.8	0.59	0.75	0.59	24.2
11	T1	621	3.0	654	3.0	* 0.659	20.6	LOS B	8.2	58.8	0.95	0.83	1.00	27.1
Approach		1064	3.0	1120	3.0	0.659	17.1	LOS B	8.2	58.8	0.80	0.80	0.83	25.9
All Vehicles		2456	3.0	2585	3.0	0.691	15.4	LOS B	8.2	58.8	0.76	0.71	0.80	25.1

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Marmion St												
P2	Full	50	53	21.4	LOS C	0.1	0.1	0.89	0.89	191.0	220.5	1.15
North: Andrea Lane												
P3	Full	50	53	21.4	LOS C	0.1	0.1	0.89	0.89	185.9	213.9	1.15
All Pedestrians		100	105	21.4	LOS C	0.1	0.1	0.89	0.89	188.5	217.2	1.15

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: S1 [S1 (2021 BG + DEV) (SAT) (Upgraded) (Site Folder: (2031 BG + DEV))]

Intersection: Marmion Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 54 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, C, D

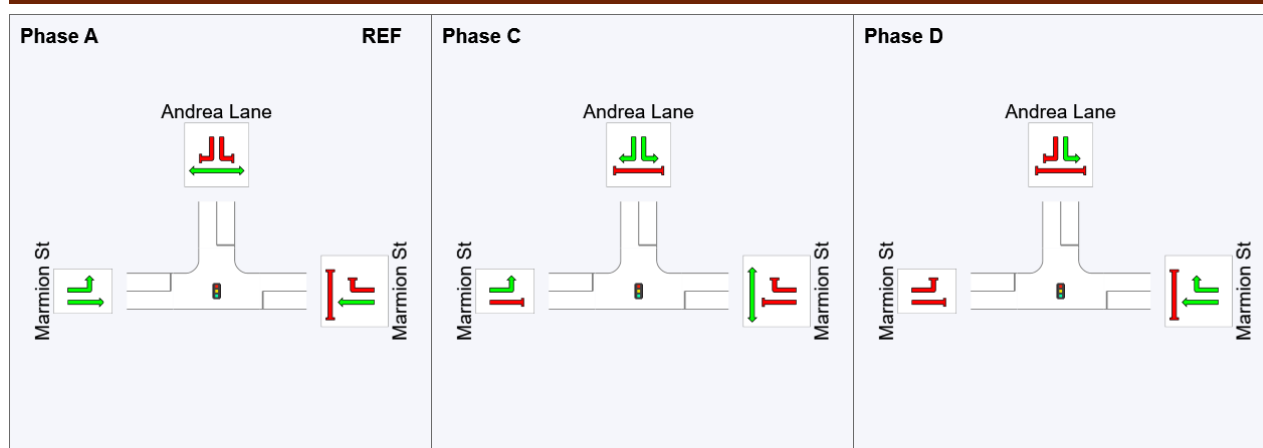
Output Phase Sequence: A, C, D

Phase Timing Summary

Phase	A	C	D
Phase Change Time (sec)	0	20	39
Green Time (sec)	14	13	9
Phase Time (sec)	20	19	15
Phase Split	37%	35%	28%

See the Timing Analysis 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, Minor 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: S1 [S1 (2031 BG + DEV) (PM) (Upgraded) (Site Folder: (2031 BG + DEV))]**

Intersection: Marmion Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 50 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
East: Marmion St														
5	T1	702	3.0	739	3.0	0.345	6.5	LOS A	5.0	35.7	0.58	0.50	0.58	43.3
6	R2	209	3.0	220	3.0	* 0.756	31.1	LOS C	5.9	42.3	1.00	0.92	1.27	14.5
Approach		911	3.0	959	3.0	0.756	12.2	LOS A	5.9	42.3	0.68	0.60	0.74	31.4
North: Andrea Lane														
7	L2	251	3.0	264	3.0	0.316	9.4	LOS A	4.1	29.8	0.67	0.56	0.67	21.3
9	R2	295	3.0	311	3.0	* 0.854	28.3	LOS B	9.1	65.2	1.00	1.30	1.46	16.1
Approach		546	3.0	575	3.0	0.854	19.6	LOS B	9.1	65.2	0.85	0.96	1.10	17.9
West: Marmion St														
10	L2	366	3.0	385	3.0	0.365	11.7	LOS A	5.1	36.4	0.57	0.74	0.57	24.5
11	T1	847	3.0	892	3.0	* 0.832	24.3	LOS B	12.4	89.0	1.00	1.03	1.31	24.7
Approach		1213	3.0	1277	3.0	0.832	20.5	LOS B	12.4	89.0	0.87	0.94	1.09	24.6
All Vehicles		2670	3.0	2811	3.0	0.854	17.5	LOS B	12.4	89.0	0.80	0.83	0.97	24.7

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Marmion St												
P2	Full	50	53	19.4	LOS B	0.1	0.1	0.88	0.88	189.0	220.5	1.17
North: Andrea Lane												
P3	Full	50	53	19.4	LOS B	0.1	0.1	0.88	0.88	183.9	213.9	1.16
All Pedestrians		100	105	19.4	LOS B	0.1	0.1	0.88	0.88	186.5	217.2	1.16

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: S1 [S1 (2031 BG + DEV) (PM) (Upgraded) (Site Folder: (2031 BG + DEV))]

Intersection: Marmion Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 50 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, C, D

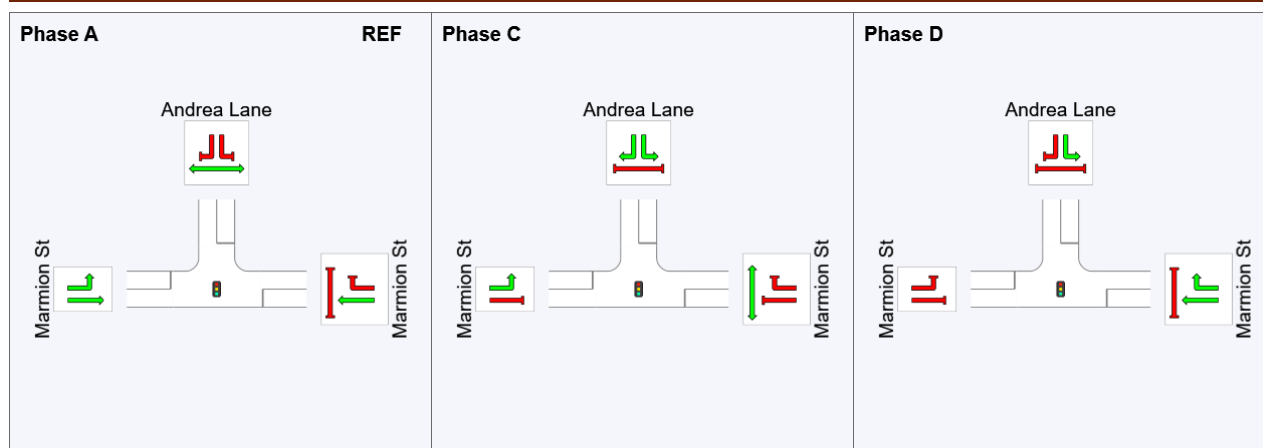
Output Phase Sequence: A, C, D

Phase Timing Summary

Phase	A	C	D
Phase Change Time (sec)	0	20	36
Green Time (sec)	14	10	8
Phase Time (sec)	20	16	14
Phase Split	40%	32%	28%

See the Timing Analysis 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, Minor 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: S1 [S1 (2031 BG + DEV) (SAT) (Upgraded) (Site Folder: (2031 BG + DEV))]

Intersection: Marmion Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 54 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
East: Marmion St														
5	T1	595	3.0	626	3.0	0.305	7.5	LOS A	4.6	33.1	0.59	0.50	0.59	41.6
6	R2	197	3.0	207	3.0	* 0.684	31.0	LOS C	5.7	40.8	0.99	0.87	1.13	14.5
Approach		792	3.0	834	3.0	0.684	13.3	LOS A	5.7	40.8	0.69	0.59	0.72	30.0
North: Andrea Lane														
7	L2	323	3.0	340	3.0	0.374	9.1	LOS A	5.6	40.1	0.65	0.56	0.65	21.5
9	R2	281	3.0	296	3.0	* 0.676	21.9	LOS B	7.6	54.9	0.96	0.89	1.04	18.0
Approach		604	3.0	636	3.0	0.676	15.0	LOS B	7.6	54.9	0.80	0.71	0.84	19.6
West: Marmion St														
10	L2	439	3.0	462	3.0	0.429	12.1	LOS A	6.7	48.2	0.58	0.75	0.58	24.2
11	T1	664	3.0	699	3.0	* 0.705	21.6	LOS B	9.1	65.1	0.96	0.87	1.06	26.4
Approach		1103	3.0	1161	3.0	0.705	17.8	LOS B	9.1	65.1	0.81	0.82	0.87	25.6
All Vehicles		2499	3.0	2631	3.0	0.705	15.7	LOS B	9.1	65.1	0.77	0.72	0.82	25.0

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m					
East: Marmion St												
P2	Full	50	53	21.4	LOS C	0.1	0.1	0.89	0.89	191.0	220.5	1.15
North: Andrea Lane												
P3	Full	50	53	21.4	LOS C	0.1	0.1	0.89	0.89	185.9	213.9	1.15
All Pedestrians		100	105	21.4	LOS C	0.1	0.1	0.89	0.89	188.5	217.2	1.15

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: S1 [S1 (2031 BG + DEV) (SAT) (Upgraded) (Site Folder: (2031 BG + DEV))]

Intersection: Marmion Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 54 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, C, D

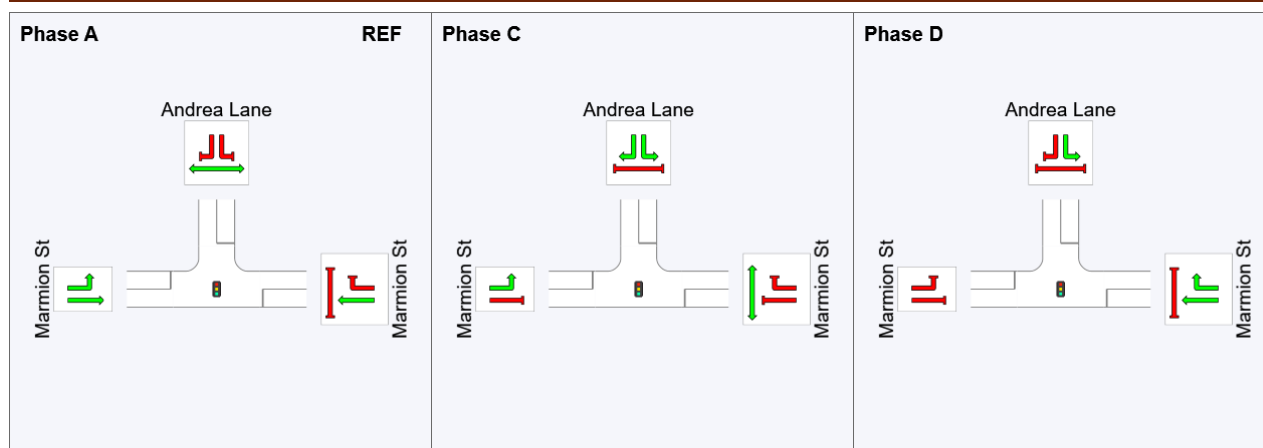
Output Phase Sequence: A, C, D

Phase Timing Summary

Phase	A	C	D
Phase Change Time (sec)	0	20	39
Green Time (sec)	14	13	9
Phase Time (sec)	20	19	15
Phase Split	37%	35%	28%

See the Timing Analysis 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, Minor 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: S3 [S3 (2021 BG) (PM) (Site Folder: (2021 BG))]

Intersection: Marmion Street / Site Access

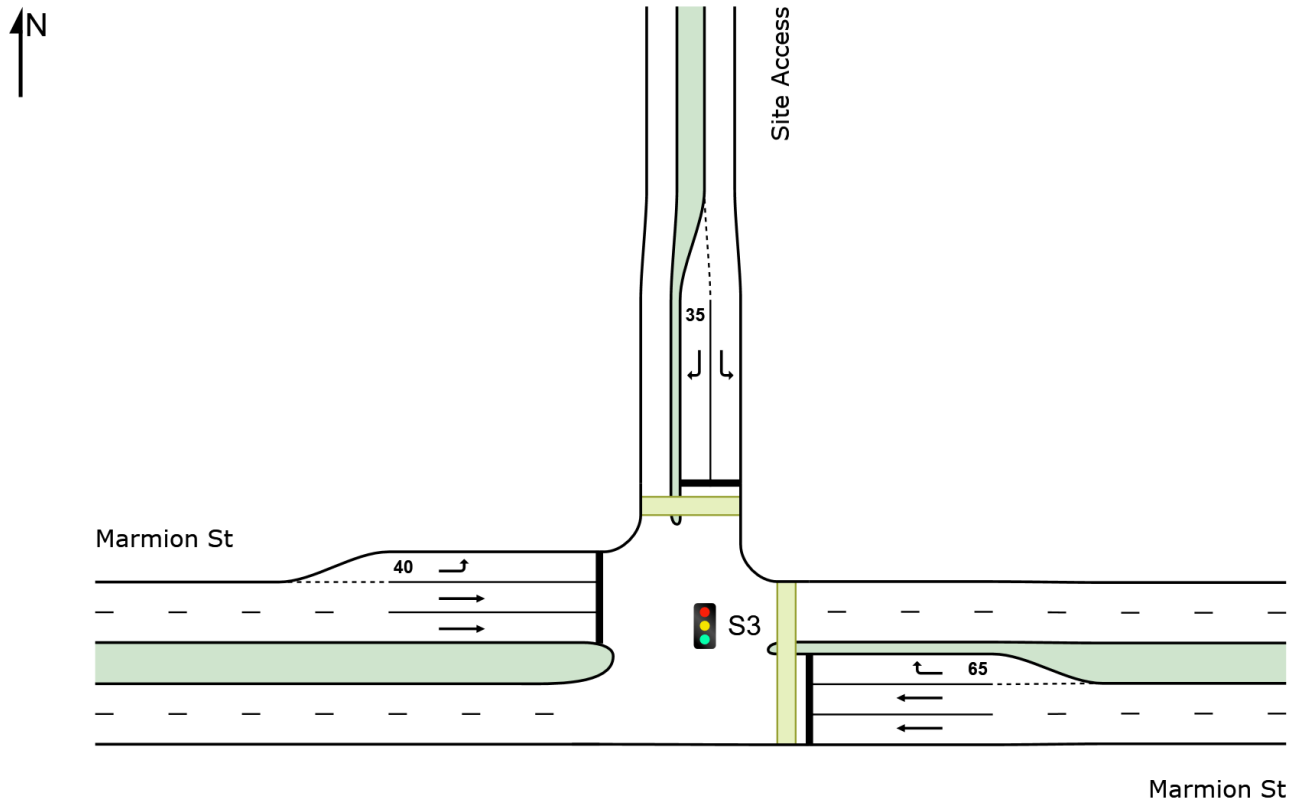
Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated

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



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Project: Z:\BNE\Projects-SLR\620-BNE\620.30141.00000 Westfield Booragoon Redevelopment\02 Analysis\2021 07 - Updated SIDRA Analysis\620.30141-SIDRA Analysis-BG.sip9

MOVEMENT SUMMARY

 **Site: S3 [S3 (2021 BG) (PM) (Site Folder: (2021 BG))]**

Intersection: Marmion Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 57 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
East: Marmion St														
5	T1	664	3.0	699	3.0	0.267	3.7	LOS A	3.7	26.9	0.41	0.36	0.41	48.9
6	R2	195	3.0	205	3.0	* 0.585	29.5	LOS C	5.5	39.5	0.96	0.81	0.98	16.7
Approach		859	3.0	904	3.0	0.585	9.6	LOS A	5.5	39.5	0.54	0.46	0.54	33.5
North: Site Access														
7	L2	159	3.0	167	3.0	0.250	13.7	LOS B	3.3	23.7	0.73	0.60	0.73	20.7
9	R2	185	3.0	195	3.0	* 0.678	27.0	LOS C	5.6	40.3	0.99	0.93	1.12	15.2
Approach		344	3.0	362	3.0	0.678	20.9	LOS C	5.6	40.3	0.87	0.78	0.94	17.4
West: Marmion St														
10	L2	131	3.0	138	3.0	0.120	10.1	LOS B	1.5	10.9	0.42	0.68	0.42	22.7
11	T1	878	3.0	924	3.0	* 0.602	14.7	LOS B	10.4	74.6	0.84	0.73	0.84	31.6
Approach		1009	3.0	1062	3.0	0.602	14.1	LOS B	10.4	74.6	0.79	0.72	0.79	30.2
All Vehicles		2212	3.0	2328	3.0	0.678	13.4	LOS B	10.4	74.6	0.70	0.63	0.71	28.1

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.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Marmion St												
P2	Full	50	53	22.9	LOS C	0.1	0.1	0.90	0.90	191.9	219.8	1.15
North: Site Access												
P3	Full	50	53	22.9	LOS C	0.1	0.1	0.90	0.90	186.6	212.9	1.14
All Pedestrians		100	105	22.9	LOS C	0.1	0.1	0.90	0.90	189.3	216.4	1.14

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: S3 [S3 (2021 BG) (PM) (Site Folder: (2021 BG))]

Intersection: Marmion Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 57 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, B, C

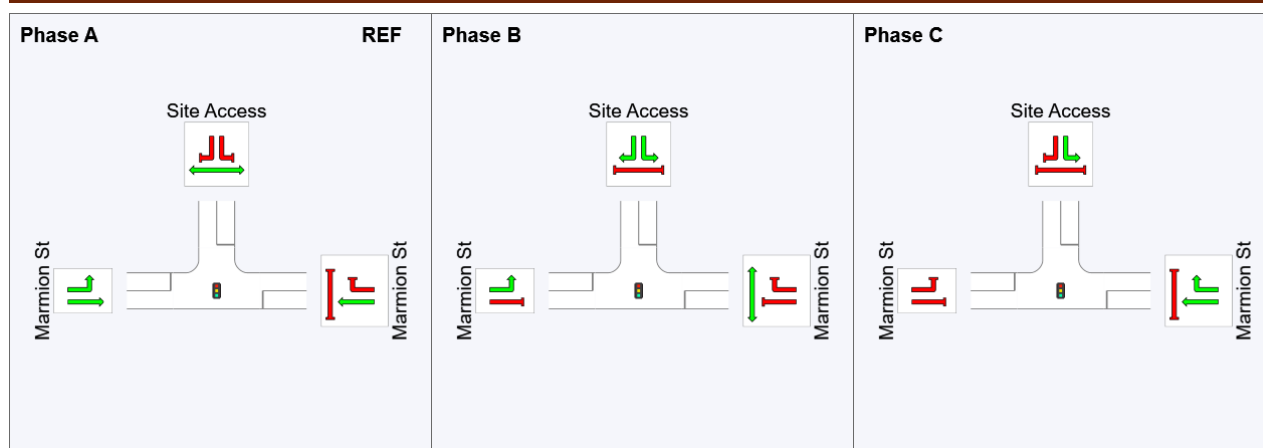
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	28	43
Green Time (sec)	23	9	11
Phase Time (sec)	29	12	16
Phase Split	51%	21%	28%

See the Timing Analysis 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, Minor 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

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Project: Z:\BNE\Projects-SLR\620-BNE\620.30141.00000 Westfield Booragoon Redevelopment\02 Analysis\2021 07 - Updated SIDRA Analysis\620.30141-SIDRA Analysis-BG.sip9

MOVEMENT SUMMARY

 **Site: S3 [S3 (2021 BG) (SAT) (Site Folder: (2021 BG))]**

Intersection: Marmion Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 62 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
East: Marmion St														
5	T1	579	3.0	609	3.0	0.241	4.5	LOS A	3.7	26.5	0.43	0.37	0.43	47.0
6	R2	265	3.0	279	3.0	* 0.732	33.2	LOS C	8.7	62.3	0.99	0.89	1.13	15.8
Approach		844	3.0	888	3.0	0.732	13.5	LOS B	8.7	62.3	0.60	0.53	0.65	28.5
North: Site Access														
7	L2	146	3.0	154	3.0	0.202	12.4	LOS B	3.0	21.4	0.67	0.55	0.67	21.2
9	R2	153	3.0	161	3.0	* 0.458	24.9	LOS C	4.5	32.4	0.93	0.75	0.93	15.7
Approach		299	3.0	315	3.0	0.458	18.8	LOS B	4.5	32.4	0.80	0.65	0.80	18.1
West: Marmion St														
10	L2	148	3.0	156	3.0	0.136	10.6	LOS B	1.9	13.7	0.43	0.68	0.43	22.4
11	T1	803	3.0	845	3.0	* 0.602	17.3	LOS B	10.7	76.7	0.86	0.74	0.86	29.2
Approach		951	3.0	1001	3.0	0.602	16.3	LOS B	10.7	76.7	0.79	0.73	0.79	27.9
All Vehicles		2094	3.0	2204	3.0	0.732	15.5	LOS B	10.7	76.7	0.72	0.64	0.74	26.1

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.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Marmion St												
P2	Full	50	53	25.3	LOS C	0.1	0.1	0.91	0.91	194.4	219.8	1.13
North: Site Access												
P3	Full	50	53	25.3	LOS C	0.1	0.1	0.91	0.91	189.1	212.9	1.13
All Pedestrians		100	105	25.3	LOS C	0.1	0.1	0.91	0.91	191.8	216.4	1.13

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: S3 [S3 (2021 BG) (SAT) (Site Folder: (2021 BG))]

Intersection: Marmion Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 62 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, B, C

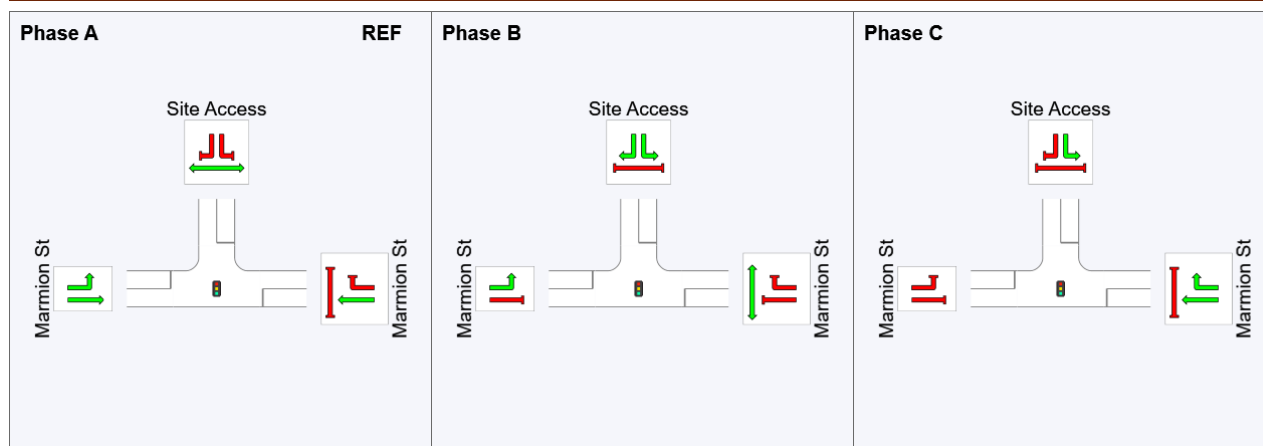
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	28	46
Green Time (sec)	23	12	13
Phase Time (sec)	29	15	18
Phase Split	47%	24%	29%

See the Timing Analysis 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, Minor 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: S3 [S3 (2031 BG) (PM) (Site Folder: (2031 BG))]**

Intersection: Marmion Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 57 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
East: Marmion St														
5	T1	730	3.0	768	3.0	0.294	3.8	LOS A	4.2	30.3	0.42	0.37	0.42	48.7
6	R2	207	3.0	218	3.0	* 0.621	29.9	LOS C	5.9	42.7	0.97	0.83	1.01	16.6
Approach		937	3.0	986	3.0	0.621	9.6	LOS A	5.9	42.7	0.54	0.47	0.55	33.6
North: Site Access														
7	L2	184	3.0	194	3.0	0.289	14.0	LOS B	3.9	27.9	0.75	0.62	0.75	20.6
9	R2	192	3.0	202	3.0	* 0.704	27.5	LOS C	5.9	42.4	1.00	0.97	1.16	15.0
Approach		376	3.0	396	3.0	0.704	20.9	LOS C	5.9	42.4	0.87	0.80	0.96	17.5
West: Marmion St														
10	L2	131	3.0	138	3.0	0.120	10.1	LOS B	1.5	10.9	0.42	0.68	0.42	22.7
11	T1	954	3.0	1004	3.0	* 0.664	15.2	LOS B	11.9	85.4	0.86	0.76	0.87	31.1
Approach		1085	3.0	1142	3.0	0.664	14.6	LOS B	11.9	85.4	0.81	0.75	0.82	29.8
All Vehicles		2398	3.0	2524	3.0	0.704	13.6	LOS B	11.9	85.4	0.72	0.65	0.74	28.0

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.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Marmion St												
P2	Full	50	53	22.9	LOS C	0.1	0.1	0.90	0.90	191.9	219.8	1.15
North: Site Access												
P3	Full	50	53	22.9	LOS C	0.1	0.1	0.90	0.90	186.6	212.9	1.14
All Pedestrians		100	105	22.9	LOS C	0.1	0.1	0.90	0.90	189.3	216.4	1.14

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: S3 [S3 (2031 BG) (PM) (Site Folder: (2031 BG))]

Intersection: Marmion Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 57 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, B, C

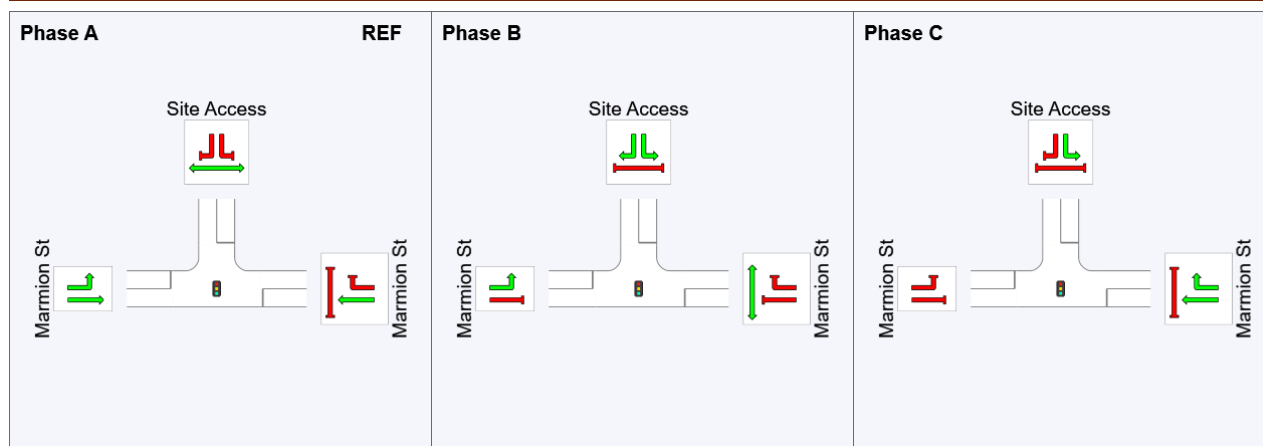
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	28	43
Green Time (sec)	23	9	11
Phase Time (sec)	29	12	16
Phase Split	51%	21%	28%

See the Timing Analysis 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, Minor 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: S3 [S3 (2031 BG) (SAT) (Site Folder: (2031 BG))]**

Intersection: Marmion Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 62 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
East: Marmion St														
5	T1	602	3.0	634	3.0	0.250	4.6	LOS A	3.9	27.8	0.43	0.37	0.43	46.9
6	R2	258	3.0	272	3.0	* 0.712	32.7	LOS C	8.3	59.8	0.98	0.88	1.10	15.9
Approach		860	3.0	905	3.0	0.712	13.0	LOS B	8.3	59.8	0.60	0.52	0.63	29.1
North: Site Access														
7	L2	129	3.0	136	3.0	0.178	12.3	LOS B	2.6	18.7	0.66	0.54	0.66	21.3
9	R2	154	3.0	162	3.0	* 0.461	25.0	LOS C	4.5	32.7	0.93	0.75	0.93	15.7
Approach		283	3.0	298	3.0	0.461	19.2	LOS B	4.5	32.7	0.81	0.65	0.81	18.0
West: Marmion St														
10	L2	170	3.0	179	3.0	0.156	10.7	LOS B	2.2	15.9	0.44	0.69	0.44	22.4
11	T1	869	3.0	915	3.0	* 0.665	17.9	LOS B	12.2	87.7	0.88	0.77	0.89	28.7
Approach		1039	3.0	1094	3.0	0.665	16.7	LOS B	12.2	87.7	0.81	0.76	0.82	27.5
All Vehicles		2182	3.0	2297	3.0	0.712	15.6	LOS B	12.2	87.7	0.73	0.65	0.74	26.3

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.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Marmion St												
P2	Full	50	53	25.3	LOS C	0.1	0.1	0.91	0.91	194.4	219.8	1.13
North: Site Access												
P3	Full	50	53	25.3	LOS C	0.1	0.1	0.91	0.91	189.1	212.9	1.13
All Pedestrians		100	105	25.3	LOS C	0.1	0.1	0.91	0.91	191.8	216.4	1.13

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: S3 [S3 (2031 BG) (SAT) (Site Folder: (2031 BG))]

Intersection: Marmion Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 62 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, B, C

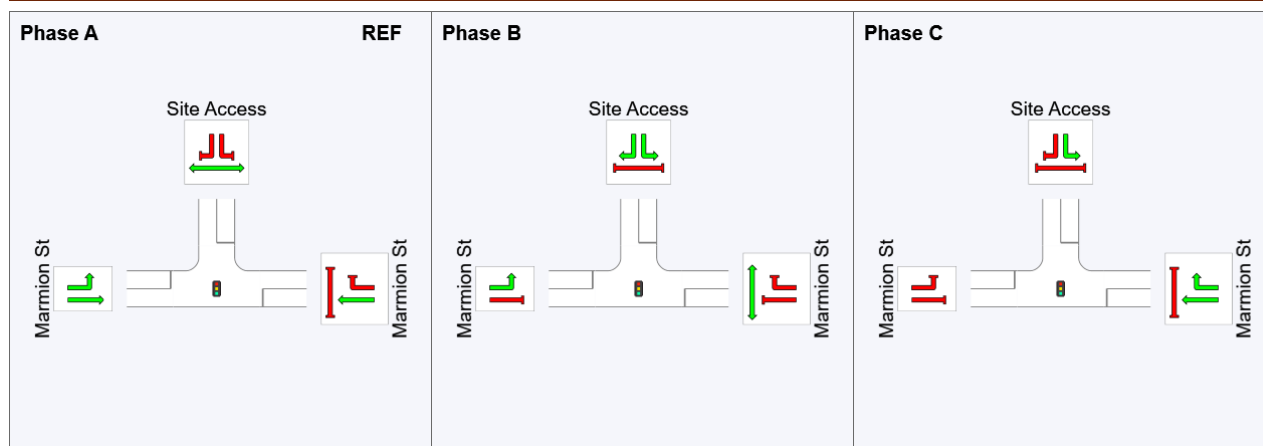
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	28	46
Green Time (sec)	23	12	13
Phase Time (sec)	29	15	18
Phase Split	47%	24%	29%

See the Timing Analysis 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, Minor 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: S3 [S3 (2021 BG + DEV) (PM) (Site Folder: (2031 BG + DEV))]

Intersection: Marmion Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 57 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
East: Marmion St														
5	T1	681	3.0	717	3.0	0.305	5.6	LOS A	4.7	34.1	0.51	0.44	0.51	44.7
6	R2	52	3.0	55	3.0	* 0.286	32.9	LOS C	1.5	10.9	0.96	0.74	0.96	15.9
Approach		733	3.0	772	3.0	0.305	7.6	LOS A	4.7	34.1	0.54	0.46	0.54	39.3
North: Site Access														
7	L2	95	3.0	100	3.0	0.149	13.1	LOS A	1.9	13.5	0.70	0.56	0.70	20.9
9	R2	183	3.0	193	3.0	* 0.604	25.0	LOS B	5.3	38.0	0.97	0.83	1.01	15.6
Approach		278	3.0	293	3.0	0.604	21.0	LOS B	5.3	38.0	0.88	0.74	0.91	17.2
West: Marmion St														
10	L2	135	3.0	142	3.0	0.120	9.7	LOS A	1.5	10.8	0.40	0.68	0.40	22.9
11	T1	900	3.0	947	3.0	* 0.620	14.8	LOS B	10.8	77.7	0.85	0.74	0.85	31.5
Approach		1035	3.0	1089	3.0	0.620	14.2	LOS A	10.8	77.7	0.79	0.73	0.79	30.1
All Vehicles		2046	3.0	2154	3.0	0.620	12.7	LOS A	10.8	77.7	0.71	0.63	0.72	29.6

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Marmion St												
P2	Full	50	53	22.9	LOS C	0.1	0.1	0.90	0.90	191.9	219.8	1.15
North: Site Access												
P3	Full	50	53	22.9	LOS C	0.1	0.1	0.90	0.90	186.6	212.9	1.14
All Pedestrians		100	105	22.9	LOS C	0.1	0.1	0.90	0.90	189.3	216.4	1.14

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: S3 [S3 (2021 BG + DEV) (PM) (Site Folder: (2031 BG + DEV))]

Intersection: Marmion Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 57 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, B, C

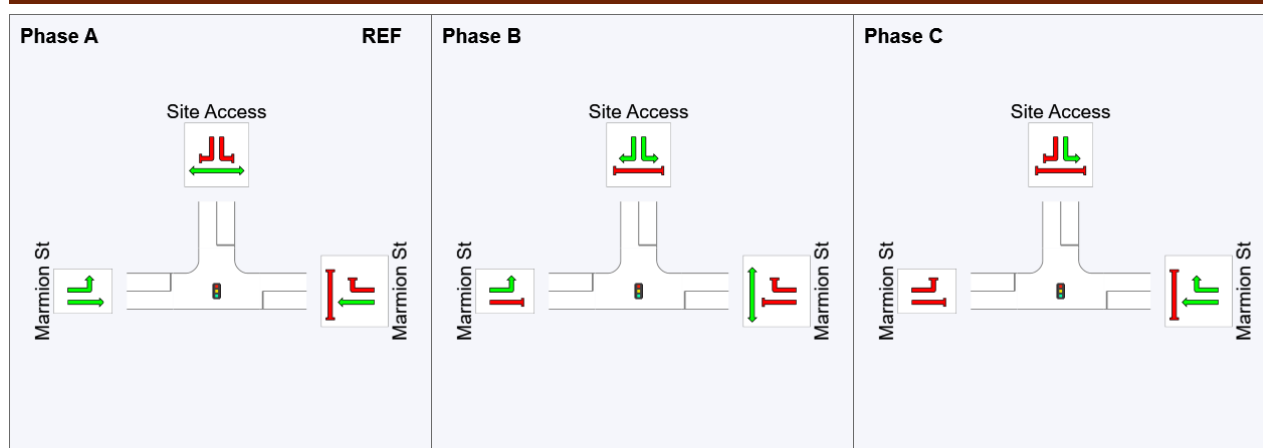
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	29	45
Green Time (sec)	23	10	6
Phase Time (sec)	29	16	12
Phase Split	51%	28%	21%

See the Timing Analysis 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, Minor 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: S3 [S3 (2021 BG + DEV) (SAT) (Site Folder: (2031 BG + DEV))]**

Intersection: Marmion Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 62 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
						v/c	sec							km/h
East: Marmion St														
5	T1	588	3.0	619	3.0	0.271	6.5	LOS A	4.5	32.3	0.51	0.44	0.51	43.0
6	R2	64	3.0	67	3.0	* 0.383	36.2	LOS C	2.1	14.9	0.98	0.75	0.98	15.1
Approach		652	3.0	686	3.0	0.383	9.4	LOS A	4.5	32.3	0.56	0.47	0.56	36.1
North: Site Access														
7	L2	143	3.0	151	3.0	0.223	14.6	LOS B	3.2	22.7	0.72	0.59	0.72	20.3
9	R2	195	3.0	205	3.0	* 0.538	24.6	LOS B	5.8	41.5	0.94	0.77	0.94	15.8
Approach		338	3.0	356	3.0	0.538	20.3	LOS B	5.8	41.5	0.85	0.69	0.85	17.5
West: Marmion St														
10	L2	147	3.0	155	3.0	0.126	9.4	LOS A	1.6	11.8	0.37	0.67	0.37	23.1
11	T1	824	3.0	867	3.0	* 0.566	15.6	LOS B	10.4	74.5	0.82	0.71	0.82	30.7
Approach		971	3.0	1022	3.0	0.566	14.7	LOS B	10.4	74.5	0.76	0.71	0.76	29.3
All Vehicles		1961	3.0	2064	3.0	0.566	13.9	LOS A	10.4	74.5	0.71	0.63	0.71	27.8

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Marmion St												
P2	Full	50	53	25.3	LOS C	0.1	0.1	0.91	0.91	194.4	219.8	1.13
North: Site Access												
P3	Full	50	53	25.3	LOS C	0.1	0.1	0.91	0.91	189.1	212.9	1.13
All Pedestrians		100	105	25.3	LOS C	0.1	0.1	0.91	0.91	191.8	216.4	1.13

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: S3 [S3 (2021 BG + DEV) (SAT) (Site Folder: (2031 BG + DEV))]

Intersection: Marmion Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 62 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, B, C

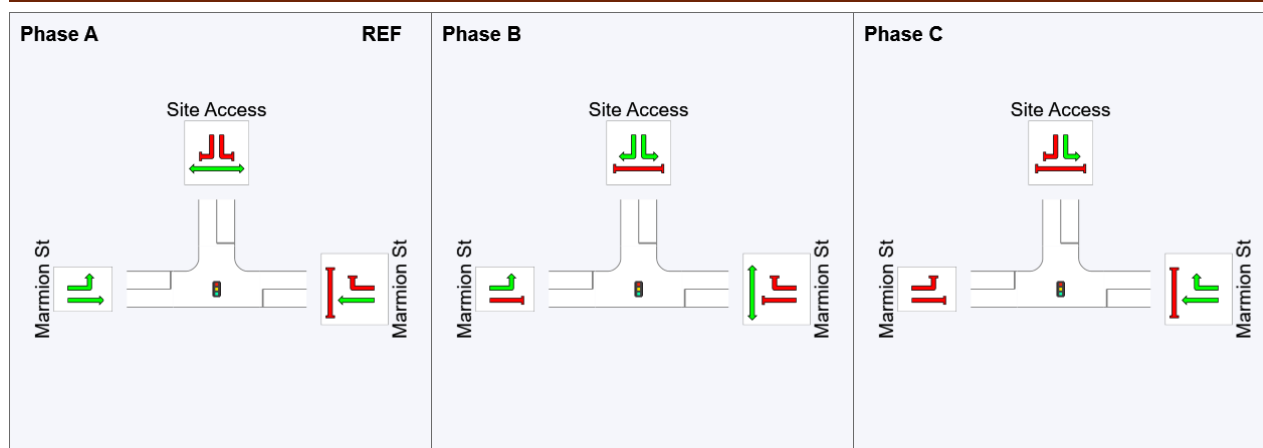
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	31	50
Green Time (sec)	25	13	6
Phase Time (sec)	31	19	12
Phase Split	50%	31%	19%

See the Timing Analysis 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, Minor 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: S3 [S3 (2031 BG + DEV) (PM) (Site Folder: (2031 BG + DEV))]

Intersection: Marmion Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 57 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
						v/c	sec							km/h
East: Marmion St														
5	T1	728	3.0	766	3.0	0.317	5.2	LOS A	4.9	35.3	0.49	0.43	0.49	45.5
6	R2	51	3.0	54	3.0	* 0.280	32.9	LOS C	1.5	10.7	0.96	0.74	0.96	15.9
Approach		779	3.0	820	3.0	0.317	7.0	LOS A	4.9	35.3	0.52	0.45	0.52	40.3
North: Site Access														
7	L2	94	3.0	99	3.0	0.163	14.7	LOS B	2.0	14.2	0.74	0.58	0.74	20.3
9	R2	182	3.0	192	3.0	* 0.667	26.8	LOS B	5.5	39.5	0.99	0.92	1.11	15.2
Approach		276	3.0	291	3.0	0.667	22.7	LOS B	5.5	39.5	0.90	0.81	0.98	16.7
West: Marmion St														
10	L2	134	3.0	141	3.0	0.120	9.7	LOS A	1.5	10.7	0.40	0.67	0.40	22.9
11	T1	1000	3.0	1053	3.0	* 0.669	14.6	LOS B	12.4	88.8	0.85	0.75	0.86	31.8
Approach		1134	3.0	1194	3.0	0.669	14.0	LOS A	12.4	88.8	0.80	0.74	0.81	30.4
All Vehicles		2189	3.0	2304	3.0	0.669	12.6	LOS A	12.4	88.8	0.72	0.65	0.73	30.0

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Marmion St												
P2	Full	50	53	22.9	LOS C	0.1	0.1	0.90	0.90	191.9	219.8	1.15
North: Site Access												
P3	Full	50	53	22.9	LOS C	0.1	0.1	0.90	0.90	186.6	212.9	1.14
All Pedestrians		100	105	22.9	LOS C	0.1	0.1	0.90	0.90	189.3	216.4	1.14

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: S3 [S3 (2031 BG + DEV) (PM) (Site Folder: (2031 BG + DEV))]

Intersection: Marmion Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 57 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, B, C

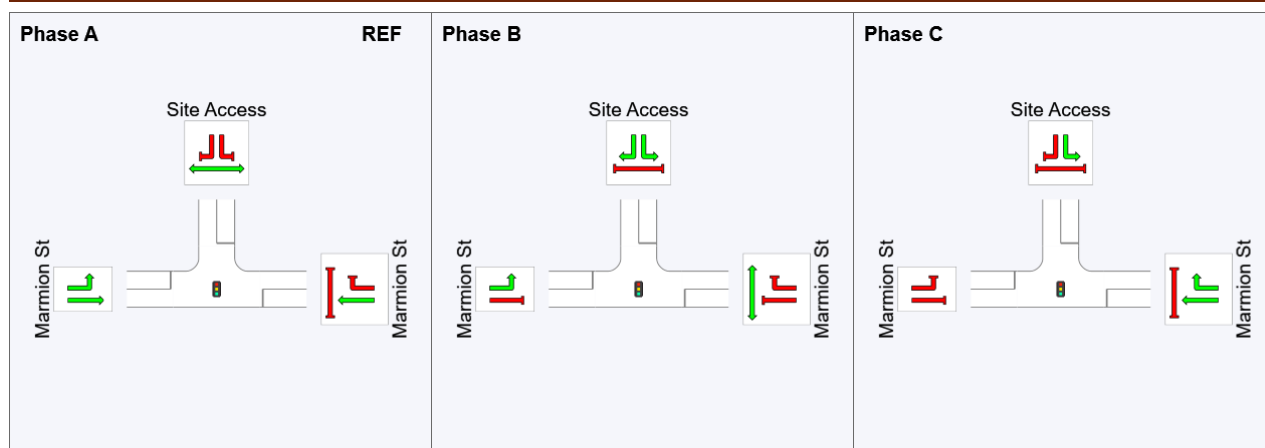
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	30	45
Green Time (sec)	24	9	6
Phase Time (sec)	30	15	12
Phase Split	53%	26%	21%

See the Timing Analysis 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, Minor 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: S3 [S3 (2031 BG + DEV) (SAT) (Site Folder: (2031 BG + DEV))]**

Intersection: Marmion Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 62 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
						v/c	sec							km/h
East: Marmion St														
5	T1	600	3.0	632	3.0	0.269	6.0	LOS A	4.4	31.7	0.49	0.42	0.49	44.0
6	R2	64	3.0	67	3.0	* 0.383	36.2	LOS C	2.1	14.9	0.98	0.75	0.98	15.1
Approach		664	3.0	699	3.0	0.383	8.9	LOS A	4.4	31.7	0.54	0.46	0.54	36.8
North: Site Access														
7	L2	142	3.0	149	3.0	0.232	15.4	LOS B	3.2	23.2	0.74	0.60	0.74	20.0
9	R2	194	3.0	204	3.0	* 0.580	25.7	LOS B	5.9	42.4	0.96	0.79	0.96	15.5
Approach		336	3.0	354	3.0	0.580	21.3	LOS B	5.9	42.4	0.87	0.71	0.87	17.2
West: Marmion St														
10	L2	146	3.0	154	3.0	0.125	9.4	LOS A	1.6	11.7	0.37	0.67	0.37	23.1
11	T1	867	3.0	913	3.0	* 0.576	15.0	LOS B	10.9	78.1	0.81	0.71	0.81	31.3
Approach		1013	3.0	1066	3.0	0.576	14.2	LOS A	10.9	78.1	0.75	0.70	0.75	29.9
All Vehicles		2013	3.0	2119	3.0	0.580	13.6	LOS A	10.9	78.1	0.70	0.62	0.70	28.2

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Marmion St												
P2	Full	50	53	25.3	LOS C	0.1	0.1	0.91	0.91	194.4	219.8	1.13
North: Site Access												
P3	Full	50	53	25.3	LOS C	0.1	0.1	0.91	0.91	189.1	212.9	1.13
All Pedestrians		100	105	25.3	LOS C	0.1	0.1	0.91	0.91	191.8	216.4	1.13

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: S3 [S3 (2031 BG + DEV) (SAT) (Site Folder: (2031 BG + DEV))]

Intersection: Marmion Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 62 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, B, C

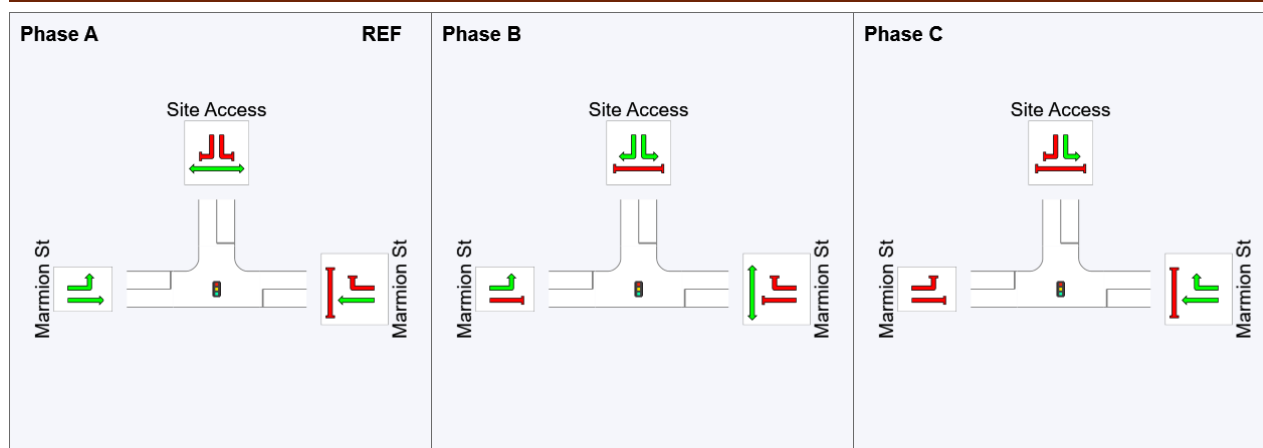
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	32	50
Green Time (sec)	26	12	6
Phase Time (sec)	32	18	12
Phase Split	52%	29%	19%

See the Timing Analysis 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, Minor 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: E2 [E2 (2021 BG) (PM) (Site Folder: (2021 BG))]

Intersection: Riseley Street / Site Access

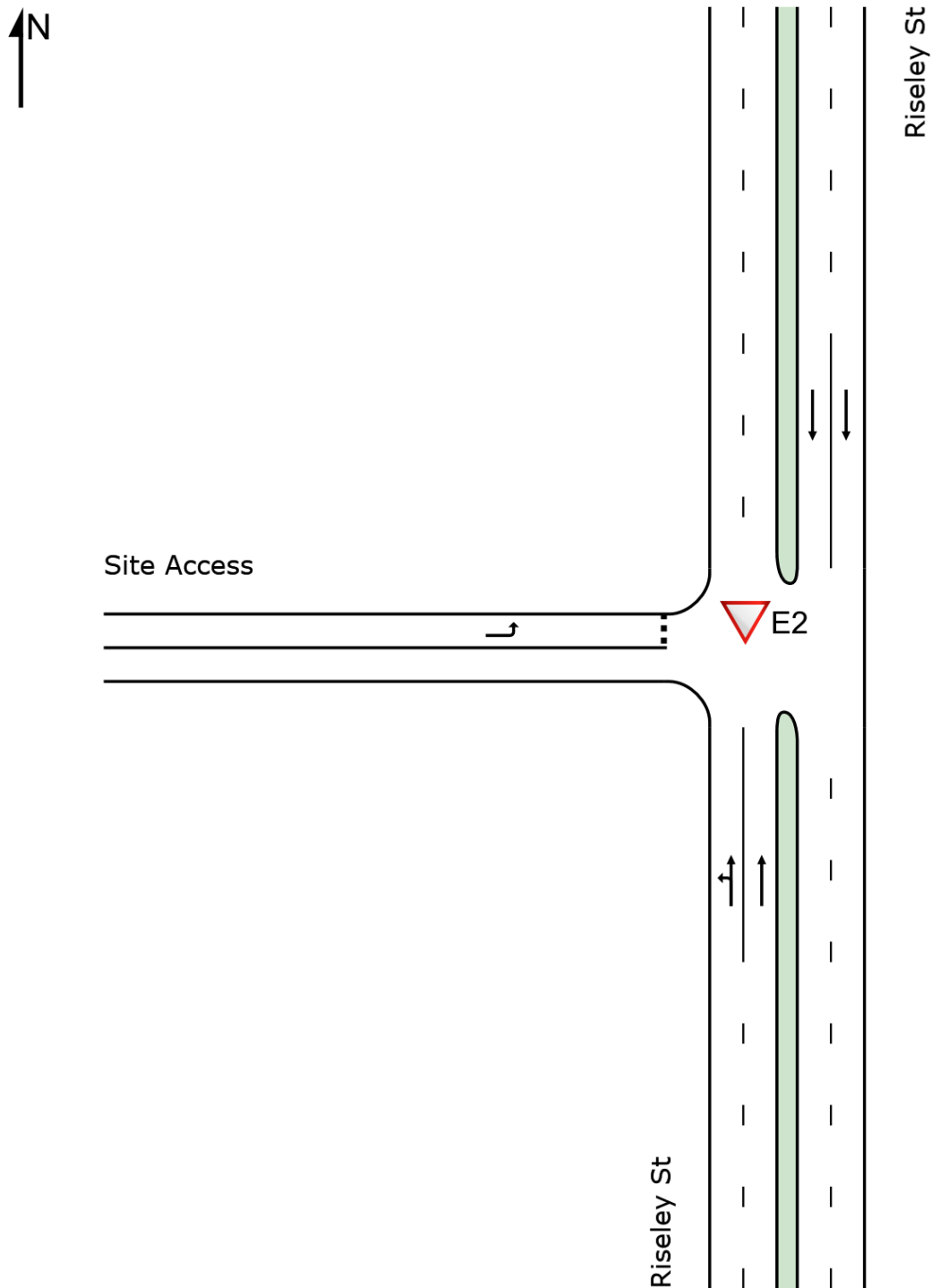
Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Give-Way (Two-Way)

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



MOVEMENT SUMMARY

▼ Site: E2 [E2 (2021 BG) (PM) (Site Folder: (2021 BG))]

Intersection: Riseley Street / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Riseley St														
1	L2	57	3.0	60	3.0	0.348	5.6	LOS A	0.0	0.0	0.00	0.05	0.00	37.3
2	T1	1205	3.0	1268	3.0	0.348	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	58.4
Approach		1262	3.0	1328	3.0	0.348	0.3	NA	0.0	0.0	0.00	0.03	0.00	57.0
North: Riseley St														
8	T1	1287	3.0	1355	3.0	0.354	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach		1287	3.0	1355	3.0	0.354	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.8
West: Site Access														
10	L2	40	3.0	42	3.0	0.060	3.4	LOS A	0.2	1.4	0.48	0.40	0.48	20.2
Approach		40	3.0	42	3.0	0.060	3.4	LOS A	0.2	1.4	0.48	0.40	0.48	20.2
All Vehicles		2589	3.0	2725	3.0	0.354	0.2	NA	0.2	1.4	0.01	0.02	0.01	57.2

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.
 Delay Model: SIDRA Standard (Geometric Delay is included).
 Queue Model: SIDRA Standard.
 Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

▼ Site: E2 [E2 (2021 BG) (SAT) (Site Folder: (2021 BG))]

Intersection: Riseley Street / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Riseley St														
1	L2	121	3.0	127	3.0	0.388	5.6	LOS A	0.0	0.0	0.00	0.10	0.00	36.2
2	T1	1283	3.0	1351	3.0	0.388	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	57.3
Approach		1404	3.0	1478	3.0	0.388	0.5	NA	0.0	0.0	0.00	0.05	0.00	54.6
North: Riseley St														
8	T1	1147	3.0	1207	3.0	0.316	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach		1147	3.0	1207	3.0	0.316	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.8
West: Site Access														
10	L2	36	3.0	38	3.0	0.054	3.4	LOS A	0.2	1.2	0.48	0.40	0.48	20.2
Approach		36	3.0	38	3.0	0.054	3.4	LOS A	0.2	1.2	0.48	0.40	0.48	20.2
All Vehicles		2587	3.0	2723	3.0	0.388	0.3	NA	0.2	1.2	0.01	0.03	0.01	55.9

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.
 Delay Model: SIDRA Standard (Geometric Delay is included).
 Queue Model: SIDRA Standard.
 Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

▼ Site: E2 [E2 (2031 BG) (PM) (Site Folder: (2031 BG))]

Intersection: Riseley Street / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Riseley St														
1	L2	56	3.0	59	3.0	0.375	5.6	LOS A	0.0	0.0	0.00	0.05	0.00	37.4
2	T1	1304	3.0	1373	3.0	0.375	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	58.5
Approach		1360	3.0	1432	3.0	0.375	0.3	NA	0.0	0.0	0.00	0.02	0.00	57.2
North: Riseley St														
8	T1	1400	3.0	1474	3.0	0.385	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
Approach		1400	3.0	1474	3.0	0.385	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.7
West: Site Access														
10	L2	40	3.0	42	3.0	0.064	3.9	LOS A	0.2	1.5	0.52	0.45	0.52	19.7
Approach		40	3.0	42	3.0	0.064	3.9	LOS A	0.2	1.5	0.52	0.45	0.52	19.7
All Vehicles		2800	3.0	2947	3.0	0.385	0.2	NA	0.2	1.5	0.01	0.02	0.01	57.4

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.
 Delay Model: SIDRA Standard (Geometric Delay is included).
 Queue Model: SIDRA Standard.
 Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: E2 [E2 (2031 BG) (SAT) (Site Folder: (2031 BG))]

Intersection: Riseley Street / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Riseley St														
1	L2	130	3.0	137	3.0	0.416	5.6	LOS A	0.0	0.0	0.00	0.10	0.00	36.2
2	T1	1374	3.0	1446	3.0	0.416	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	57.2
Approach		1504	3.0	1583	3.0	0.416	0.5	NA	0.0	0.0	0.00	0.05	0.00	54.6
North: Riseley St														
8	T1	1236	3.0	1301	3.0	0.340	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach		1236	3.0	1301	3.0	0.340	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.8
West: Site Access														
10	L2	41	3.0	43	3.0	0.065	3.8	LOS A	0.2	1.5	0.51	0.45	0.51	19.8
Approach		41	3.0	43	3.0	0.065	3.8	LOS A	0.2	1.5	0.51	0.45	0.51	19.8
All Vehicles		2781	3.0	2927	3.0	0.416	0.3	NA	0.2	1.5	0.01	0.03	0.01	55.8

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.
 Delay Model: SIDRA Standard (Geometric Delay is included).
 Queue Model: SIDRA Standard.
 Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: E2 [E2 (2021 BG + DEV) (PM) (Existing) (Site Folder: (2031 BG + DEV))]

Intersection: Riseley Street / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Riseley St														
1	L2	396	3.0	417	3.0	0.426	5.6	LOS A	0.0	0.0	0.00	0.31	0.00	32.5
2	T1	1133	3.0	1193	3.0	0.426	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	54.7
Approach		1529	3.0	1609	3.0	0.426	1.5	NA	0.0	0.0	0.00	0.15	0.00	46.5
North: Riseley St														
8	T1	1334	3.0	1404	3.0	0.367	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach		1334	3.0	1404	3.0	0.367	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.8
West: Site Access														
10	L2	131	3.0	138	3.0	0.150	1.9	LOS A	0.5	3.8	0.33	0.25	0.33	21.8
Approach		131	3.0	138	3.0	0.150	1.9	LOS A	0.5	3.8	0.33	0.25	0.33	21.8
All Vehicles		2994	3.0	3152	3.0	0.426	0.8	NA	0.5	3.8	0.01	0.09	0.01	49.8

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

MOVEMENT SUMMARY

Site: E2 [E2 (2021 BG + DEV) (SAT) (Existing) (Site Folder: (2031 BG + DEV))]

Intersection: Riseley Street / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Riseley St														
1	L2	496	3.0	522	3.0	0.453	5.6	LOS A	0.0	0.0	0.00	0.37	0.00	31.6
2	T1	1126	3.0	1185	3.0	0.453	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	54.6
Approach		1622	3.0	1707	3.0	0.453	1.7	NA	0.0	0.0	0.00	0.18	0.00	44.7
North: Riseley St														
8	T1	1370	3.0	1442	3.0	0.377	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach		1370	3.0	1442	3.0	0.377	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.8
West: Site Access														
10	L2	161	3.0	169	3.0	0.173	1.6	LOS A	0.6	4.6	0.31	0.22	0.31	22.2
Approach		161	3.0	169	3.0	0.173	1.6	LOS A	0.6	4.6	0.31	0.22	0.31	22.2
All Vehicles		3153	3.0	3319	3.0	0.453	1.0	NA	0.6	4.6	0.02	0.10	0.02	48.4

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

MOVEMENT SUMMARY

Site: E2 [E2 (2031 BG + DEV) (PM) (Existing) (Site Folder: (2031 BG + DEV))]

Intersection: Riseley Street / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Riseley St														
1	L2	393	3.0	414	3.0	0.450	5.6	LOS A	0.0	0.0	0.00	0.29	0.00	32.8
2	T1	1223	3.0	1287	3.0	0.450	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	54.7
Approach		1616	3.0	1701	3.0	0.450	1.4	NA	0.0	0.0	0.00	0.14	0.00	47.1
North: Riseley St														
8	T1	1419	3.0	1494	3.0	0.390	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
Approach		1419	3.0	1494	3.0	0.390	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.7
West: Site Access														
10	L2	130	3.0	137	3.0	0.157	2.3	LOS A	0.6	4.0	0.37	0.30	0.37	21.4
Approach		130	3.0	137	3.0	0.157	2.3	LOS A	0.6	4.0	0.37	0.30	0.37	21.4
All Vehicles		3165	3.0	3332	3.0	0.450	0.8	NA	0.6	4.0	0.02	0.09	0.02	50.3

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

MOVEMENT SUMMARY

Site: E2 [E2 (2031 BG + DEV) (SAT) (Existing) (Site Folder: (2031 BG + DEV))]

Intersection: Riseley Street / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Riseley St														
1	L2	492	3.0	518	3.0	0.478	5.6	LOS A	0.0	0.0	0.00	0.34	0.00	31.9
2	T1	1220	3.0	1284	3.0	0.478	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	54.6
Approach		1712	3.0	1802	3.0	0.478	1.6	NA	0.0	0.0	0.00	0.17	0.00	45.4
North: Riseley St														
8	T1	1432	3.0	1507	3.0	0.394	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
Approach		1432	3.0	1507	3.0	0.394	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.7
West: Site Access														
10	L2	159	3.0	167	3.0	0.180	1.9	LOS A	0.7	4.7	0.34	0.26	0.34	21.8
Approach		159	3.0	167	3.0	0.180	1.9	LOS A	0.7	4.7	0.34	0.26	0.34	21.8
All Vehicles		3303	3.0	3477	3.0	0.478	1.0	NA	0.7	4.7	0.02	0.10	0.02	48.8

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

SITE LAYOUT

 **Site: E3 [E3 (2021 BG) (PM) (Existing) (Site Folder: (2021 BG))]**

Intersection: Riseley Street / Site Access

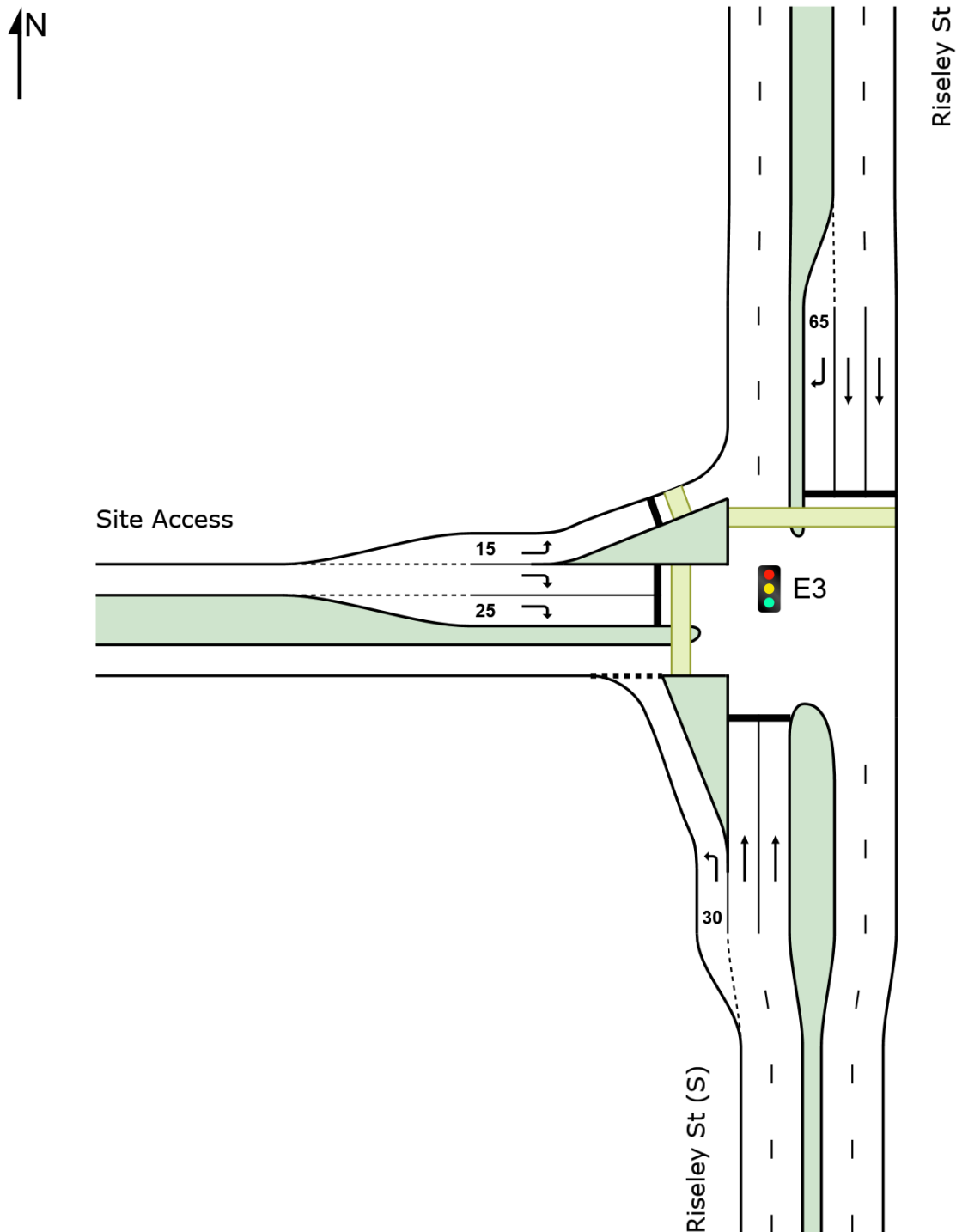
Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated

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



MOVEMENT SUMMARY

 **Site: E3 [E3 (2021 BG) (PM) (Existing) (Site Folder: (2021 BG))]**

Intersection: Riseley Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 127 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Riseley St (S)														
1	L2	265	3.0	279	3.0	0.179	7.9	LOS A	2.5	18.2	0.19	0.65	0.19	32.6
2	T1	981	3.0	1033	3.0	* 0.497	13.2	LOS B	19.6	140.9	0.56	0.51	0.56	37.3
Approach		1246	3.0	1312	3.0	0.497	12.1	LOS B	19.6	140.9	0.48	0.54	0.48	36.5
North: Riseley St														
8	T1	1006	3.0	1059	3.0	0.366	5.5	LOS A	10.8	77.5	0.36	0.33	0.36	47.9
9	R2	128	3.0	135	3.0	* 0.784	72.4	LOS E	8.9	63.6	1.00	0.88	1.20	8.8
Approach		1134	3.0	1194	3.0	0.784	13.0	LOS B	10.8	77.5	0.44	0.39	0.46	36.4
West: Site Access														
10	L2	136	3.0	143	3.0	0.451	39.7	LOS D	7.0	50.6	0.84	0.68	0.84	13.2
12	R2	281	3.0	296	3.0	* 0.706	56.7	LOS E	8.9	63.8	0.97	0.87	1.06	10.3
Approach		417	3.0	439	3.0	0.706	51.1	LOS D	8.9	63.8	0.93	0.81	0.99	11.1
All Vehicles		2797	3.0	2944	3.0	0.784	18.3	LOS B	19.6	140.9	0.53	0.52	0.55	29.5

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.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE [Ped ped Dist] m		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec						sec	m	m/sec
North: Riseley St												
P3	Full	50	53	57.8	LOS E	0.2	0.2	0.95	0.95	227.0	220.0	0.97
West: Site Access												
P4	Full	50	53	57.8	LOS E	0.2	0.2	0.95	0.95	222.3	213.9	0.96
P4B	Slip/ Bypass	50	53	57.8	LOS E	0.2	0.2	0.95	0.95	214.9	204.3	0.95
All Pedestrians		150	158	57.8	LOS E	0.2	0.2	0.95	0.95	221.4	212.7	0.96

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: E3 [E3 (2021 BG) (PM) (Existing) (Site Folder: (2021 BG))]

Intersection: Riseley Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 127 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, B, C

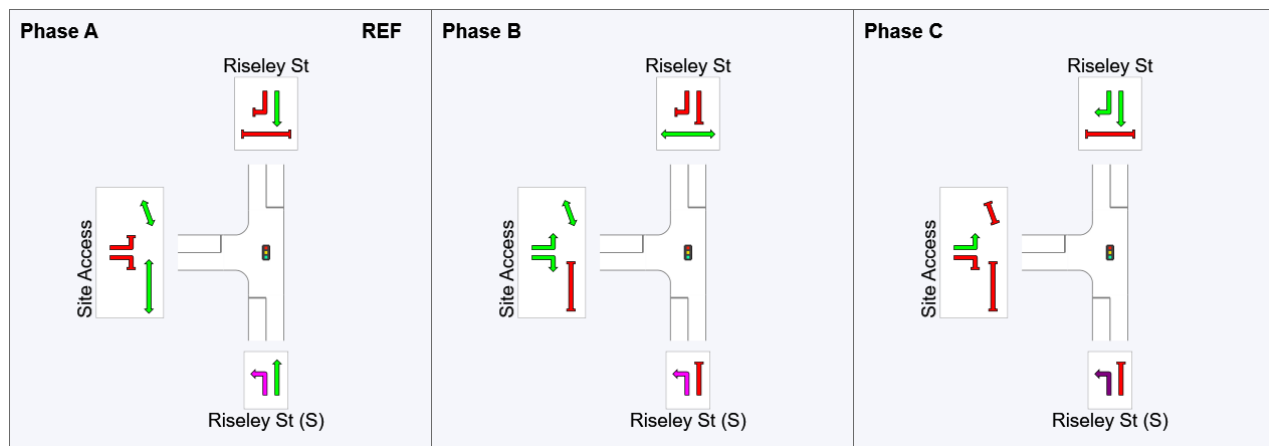
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	84	109
Green Time (sec)	79	19	12
Phase Time (sec)	85	25	17
Phase Split	67%	20%	13%

See the Timing Analysis 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, Minor 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

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Project: Z:\BNE\Projects-SLR\620-BNE\620.30141.00000 Westfield Booragoon Redevelopment\02 Analysis\2021 07 - Updated SIDRA Analysis\620.30141-SIDRA Analysis-BG.sip9

MOVEMENT SUMMARY

 Site: E3 [E3 (2021 BG) (SAT) (Existing) (Site Folder: (2021 BG))]

Intersection: Riseley Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 131 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Riseley St (S)														
1	L2	316	3.0	333	3.0	0.216	8.1	LOS A	3.4	24.6	0.20	0.66	0.20	32.4
2	T1	1002	3.0	1055	3.0	* 0.548	15.9	LOS B	23.5	168.8	0.61	0.55	0.61	34.6
Approach		1318	3.0	1387	3.0	0.548	14.0	LOS B	23.5	168.8	0.51	0.58	0.51	34.2
North: Riseley St														
8	T1	908	3.0	956	3.0	0.337	6.2	LOS A	10.3	73.9	0.37	0.33	0.37	46.7
9	R2	148	3.0	156	3.0	* 0.802	73.7	LOS E	10.6	75.8	1.00	0.89	1.20	8.7
Approach		1056	3.0	1112	3.0	0.802	15.6	LOS B	10.6	75.8	0.46	0.41	0.49	33.6
West: Site Access														
10	L2	173	3.0	182	3.0	0.482	38.5	LOS D	9.0	64.9	0.83	0.68	0.83	13.4
12	R2	239	3.0	252	3.0	* 0.477	53.2	LOS D	7.3	52.3	0.94	0.75	0.94	10.8
Approach		412	3.0	434	3.0	0.482	47.0	LOS D	9.0	64.9	0.89	0.72	0.89	11.8
All Vehicles		2786	3.0	2933	3.0	0.802	19.5	LOS B	23.5	168.8	0.55	0.54	0.56	28.4

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.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
North: Riseley St												
P3	Full	50	53	59.8	LOS E	0.2	0.2	0.96	0.96	229.0	220.0	0.96
West: Site Access												
P4	Full	50	53	59.8	LOS E	0.2	0.2	0.96	0.96	224.3	213.9	0.95
P4B	Slip/ Bypass	50	53	59.8	LOS E	0.2	0.2	0.96	0.96	216.9	204.3	0.94
All Pedestrians		150	158	59.8	LOS E	0.2	0.2	0.96	0.96	223.4	212.7	0.95

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: E3 [E3 (2021 BG) (SAT) (Existing) (Site Folder: (2021 BG))]

Intersection: Riseley Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 131 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, B, C

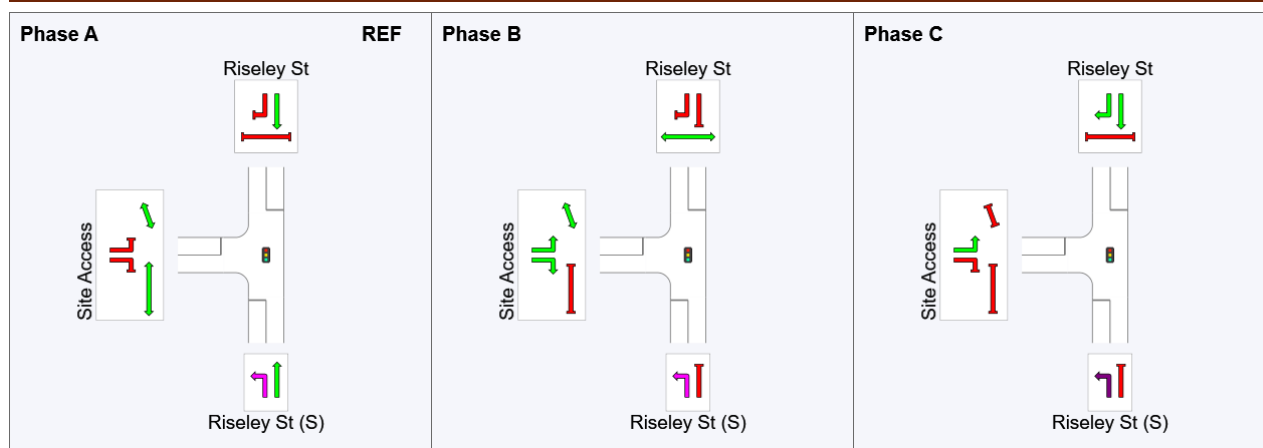
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	83	111
Green Time (sec)	78	22	14
Phase Time (sec)	84	28	19
Phase Split	64%	21%	15%

See the Timing Analysis 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, Minor 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: E3 [E3 (2031 BG) (PM) (Existing) (Site Folder: (2031 BG))]**

Intersection: Riseley Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 127 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Riseley St (S)														
1	L2	265	3.0	279	3.0	0.179	7.9	LOS A	2.5	18.1	0.19	0.65	0.19	32.6
2	T1	1080	3.0	1137	3.0	* 0.544	13.8	LOS B	22.5	161.3	0.59	0.53	0.59	36.7
Approach		1345	3.0	1416	3.0	0.544	12.6	LOS B	22.5	161.3	0.51	0.55	0.51	36.1
North: Riseley St														
8	T1	1083	3.0	1140	3.0	0.394	5.7	LOS A	12.0	86.0	0.38	0.34	0.38	47.6
9	R2	126	3.0	133	3.0	* 0.772	71.9	LOS E	8.7	62.3	1.00	0.87	1.18	8.9
Approach		1209	3.0	1273	3.0	0.772	12.6	LOS B	12.0	86.0	0.44	0.40	0.46	37.0
West: Site Access														
10	L2	113	3.0	119	3.0	0.382	39.1	LOS D	5.8	41.4	0.83	0.66	0.83	13.3
12	R2	317	3.0	334	3.0	* 0.855	65.1	LOS E	11.0	79.0	0.99	1.11	1.30	9.3
Approach		430	3.0	453	3.0	0.855	58.3	LOS E	11.0	79.0	0.94	0.99	1.18	10.1
All Vehicles		2984	3.0	3141	3.0	0.855	19.2	LOS B	22.5	161.3	0.54	0.55	0.58	29.0

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.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
North: Riseley St												
P3	Full	50	53	57.8	LOS E	0.2	0.2	0.95	0.95	227.0	220.0	0.97
West: Site Access												
P4	Full	50	53	57.8	LOS E	0.2	0.2	0.95	0.95	222.3	213.9	0.96
P4B	Slip/ Bypass	50	53	57.8	LOS E	0.2	0.2	0.95	0.95	214.9	204.3	0.95
All Pedestrians		150	158	57.8	LOS E	0.2	0.2	0.95	0.95	221.4	212.7	0.96

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: E3 [E3 (2031 BG) (PM) (Existing) (Site Folder: (2031 BG))]

Intersection: Riseley Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 127 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, B, C

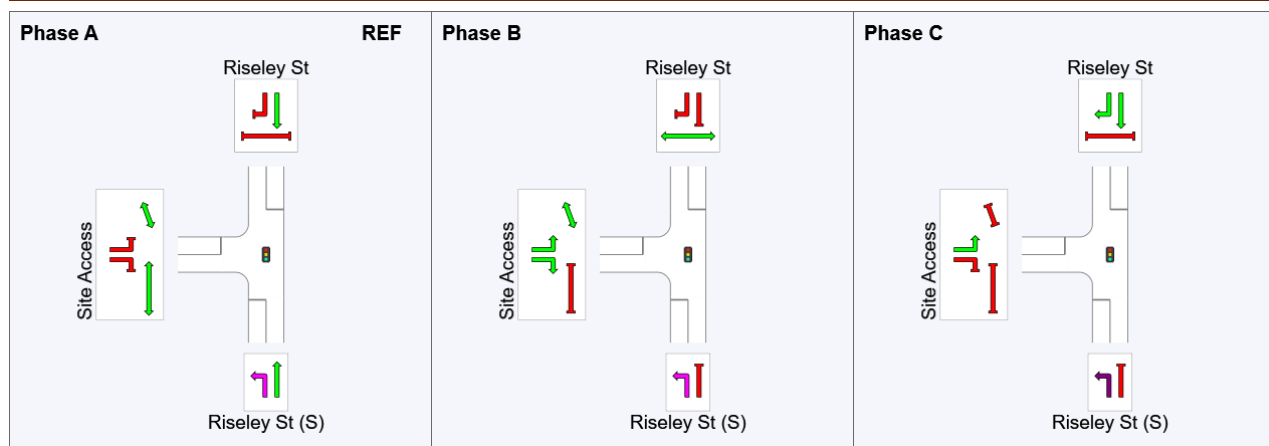
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	84	109
Green Time (sec)	79	19	12
Phase Time (sec)	85	25	17
Phase Split	67%	20%	13%

See the Timing Analysis 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, Minor 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

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Project: Z:\BNE\Projects-SLR\620-BNE\620.30141.00000 Westfield Booragoon Redevelopment\02 Analysis\2021 07 - Updated SIDRA Analysis\620.30141-SIDRA Analysis-2031-BG.sip9

MOVEMENT SUMMARY

 **Site: E3 [E3 (2031 BG) (SAT) (Existing) (Site Folder: (2031 BG))]**

Intersection: Riseley Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 131 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Riseley St (S)														
1	L2	323	3.0	340	3.0	0.219	7.9	LOS A	3.3	23.4	0.19	0.66	0.19	32.6
2	T1	1093	3.0	1151	3.0	* 0.601	16.5	LOS B	27.0	194.0	0.64	0.58	0.64	34.0
Approach		1416	3.0	1491	3.0	0.601	14.6	LOS B	27.0	194.0	0.54	0.59	0.54	33.8
North: Riseley St														
8	T1	989	3.0	1041	3.0	0.368	6.4	LOS A	11.6	83.0	0.39	0.35	0.39	46.4
9	R2	129	3.0	136	3.0	* 0.699	70.1	LOS E	8.8	63.4	1.00	0.83	1.08	9.1
Approach		1118	3.0	1177	3.0	0.699	13.7	LOS B	11.6	83.0	0.46	0.40	0.47	35.7
West: Site Access														
10	L2	153	3.0	161	3.0	0.434	38.0	LOS D	7.9	56.7	0.82	0.67	0.82	13.6
12	R2	247	3.0	260	3.0	* 0.507	53.3	LOS D	7.6	54.3	0.94	0.76	0.94	10.7
Approach		400	3.0	421	3.0	0.507	47.5	LOS D	7.9	56.7	0.89	0.72	0.89	11.7
All Vehicles		2934	3.0	3088	3.0	0.699	18.7	LOS B	27.0	194.0	0.56	0.54	0.56	29.2

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.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
North: Riseley St												
P3	Full	50	53	59.8	LOS E	0.2	0.2	0.96	0.96	229.0	220.0	0.96
West: Site Access												
P4	Full	50	53	59.8	LOS E	0.2	0.2	0.96	0.96	224.3	213.9	0.95
P4B	Slip/ Bypass	50	53	59.8	LOS E	0.2	0.2	0.96	0.96	216.9	204.3	0.94
All Pedestrians		150	158	59.8	LOS E	0.2	0.2	0.96	0.96	223.4	212.7	0.95

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: E3 [E3 (2031 BG) (SAT) (Existing) (Site Folder: (2031 BG))]

Intersection: Riseley Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 131 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, B, C

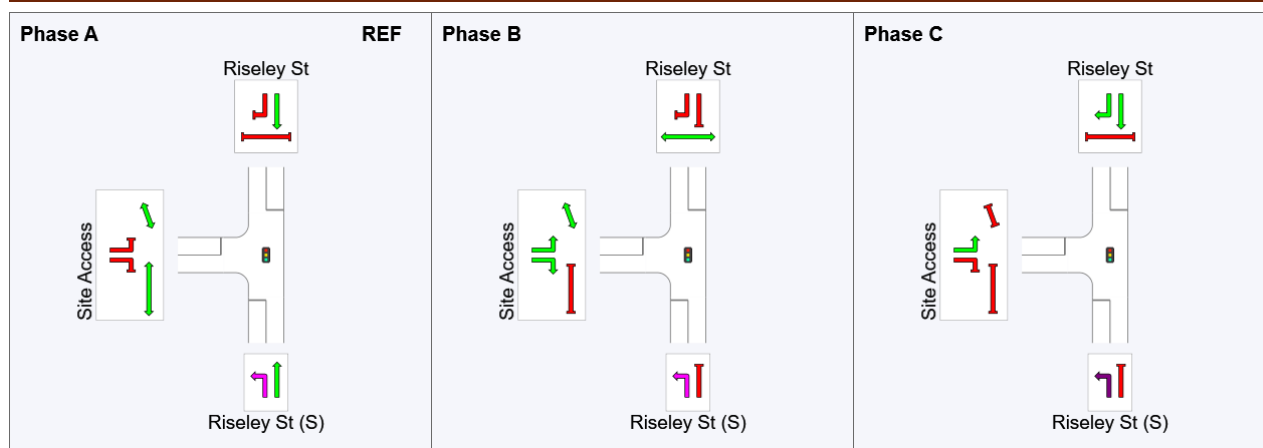
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	83	111
Green Time (sec)	78	22	14
Phase Time (sec)	84	28	19
Phase Split	64%	21%	15%

See the Timing Analysis 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, Minor 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: E3 [E3 (2021 BG + DEV) (PM) (Existing) (Site Folder: (2031 BG + DEV))]

Intersection: Riseley Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 127 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Riseley St (S)														
1	L2	149	3.0	157	3.0	0.112	9.4	LOS A	2.1	14.9	0.26	0.67	0.26	30.8
2	T1	1148	3.0	1208	3.0	* 0.723	26.8	LOS B	32.4	232.4	0.83	0.74	0.83	26.8
Approach		1297	3.0	1365	3.0	0.723	24.8	LOS B	32.4	232.4	0.76	0.73	0.76	27.1
North: Riseley St														
8	T1	1007	3.0	1060	3.0	0.378	6.6	LOS A	11.9	85.2	0.40	0.36	0.40	46.0
9	R2	255	3.0	268	3.0	* 0.721	58.3	LOS E	16.0	114.7	0.99	0.86	1.03	10.5
Approach		1262	3.0	1328	3.0	0.721	17.1	LOS B	16.0	114.7	0.52	0.46	0.53	31.7
West: Site Access														
10	L2	300	3.0	316	3.0	0.612	29.3	LOS C	14.0	100.8	0.77	0.66	0.77	15.9
12	R2	308	3.0	324	3.0	* 0.696	53.6	LOS D	9.5	68.0	0.96	0.85	1.03	10.7
Approach		608	3.0	640	3.0	0.696	41.6	LOS C	14.0	100.8	0.87	0.76	0.90	12.8
All Vehicles		3167	3.0	3334	3.0	0.723	24.9	LOS B	32.4	232.4	0.68	0.63	0.69	24.9

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
North: Riseley St												
P3	Full	50	53	57.8	LOS E	0.2	0.2	0.95	0.95	227.0	220.0	0.97
West: Site Access												
P4	Full	50	53	57.8	LOS E	0.2	0.2	0.95	0.95	222.3	213.9	0.96
P4B	Slip/ Bypass	50	53	57.8	LOS E	0.2	0.2	0.95	0.95	214.9	204.3	0.95
All Pedestrians		150	158	57.8	LOS E	0.2	0.2	0.95	0.95	221.4	212.7	0.96

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: E3 [E3 (2021 BG + DEV) (PM) (Existing) (Site Folder: (2031 BG + DEV))]

Intersection: Riseley Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 127 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, B, C

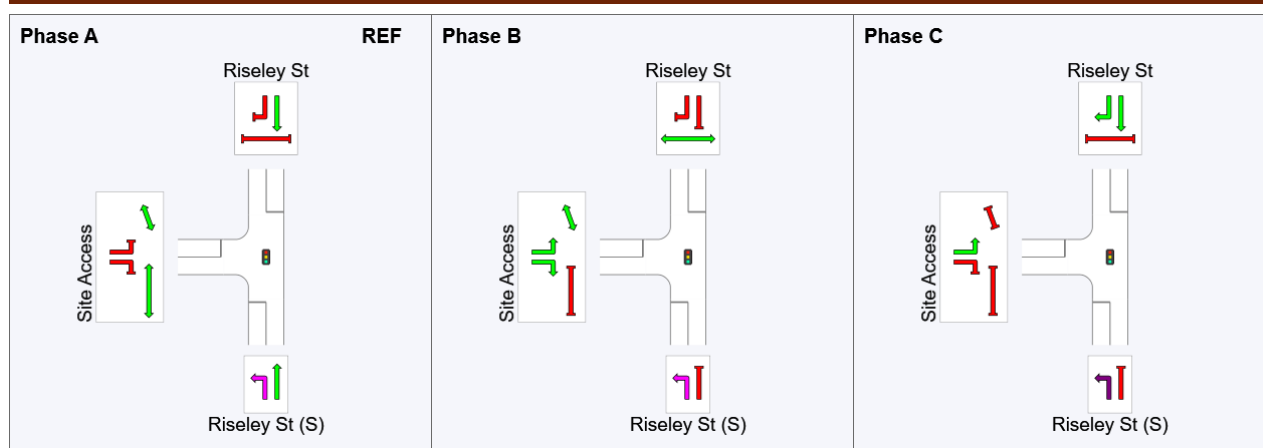
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	67	95
Green Time (sec)	61	22	26
Phase Time (sec)	67	28	32
Phase Split	53%	22%	25%

See the Timing Analysis 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, Minor 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: E3 [E3 (2021 BG + DEV) (SAT) (Existing) (Site Folder: (2031 BG + DEV))]**

Intersection: Riseley Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 130 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Riseley St (S)														
1	L2	212	3.0	223	3.0	0.171	10.2	LOS A	3.5	25.3	0.31	0.69	0.31	29.9
2	T1	1111	3.0	1169	3.0	* 0.898	51.4	LOS D	46.1	330.7	0.95	0.99	1.13	17.8
Approach		1323	3.0	1393	3.0	0.898	44.8	LOS D	46.1	330.7	0.85	0.94	0.99	18.6
North: Riseley St														
8	T1	995	3.0	1047	3.0	0.371	6.4	LOS A	11.7	83.7	0.39	0.35	0.39	46.3
9	R2	319	3.0	336	3.0	* 0.909	69.1	LOS E	23.1	166.1	0.92	0.96	1.24	9.2
Approach		1314	3.0	1383	3.0	0.909	21.6	LOS B	23.1	166.1	0.52	0.50	0.60	27.9
West: Site Access														
10	L2	342	3.0	360	3.0	0.584	22.1	LOS B	14.2	102.2	0.68	0.59	0.68	18.5
12	R2	358	3.0	377	3.0	* 0.905	72.6	LOS F	13.4	96.4	0.98	1.22	1.40	8.5
Approach		700	3.0	737	3.0	0.905	47.9	LOS D	14.2	102.2	0.83	0.91	1.05	11.6
All Vehicles		3337	3.0	3513	3.0	0.909	36.3	LOS C	46.1	330.7	0.71	0.76	0.85	19.5

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
North: Riseley St												
P3	Full	50	53	59.3	LOS E	0.2	0.2	0.96	0.96	228.5	220.0	0.96
West: Site Access												
P4	Full	50	53	59.3	LOS E	0.2	0.2	0.96	0.96	223.8	213.9	0.96
P4B	Slip/ Bypass	50	53	59.3	LOS E	0.2	0.2	0.96	0.96	216.4	204.3	0.94
All Pedestrians		150	158	59.3	LOS E	0.2	0.2	0.96	0.96	222.9	212.7	0.95

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: E3 [E3 (2021 BG + DEV) (SAT) (Existing) (Site Folder: (2031 BG + DEV))]

Intersection: Riseley Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 130 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, B, C

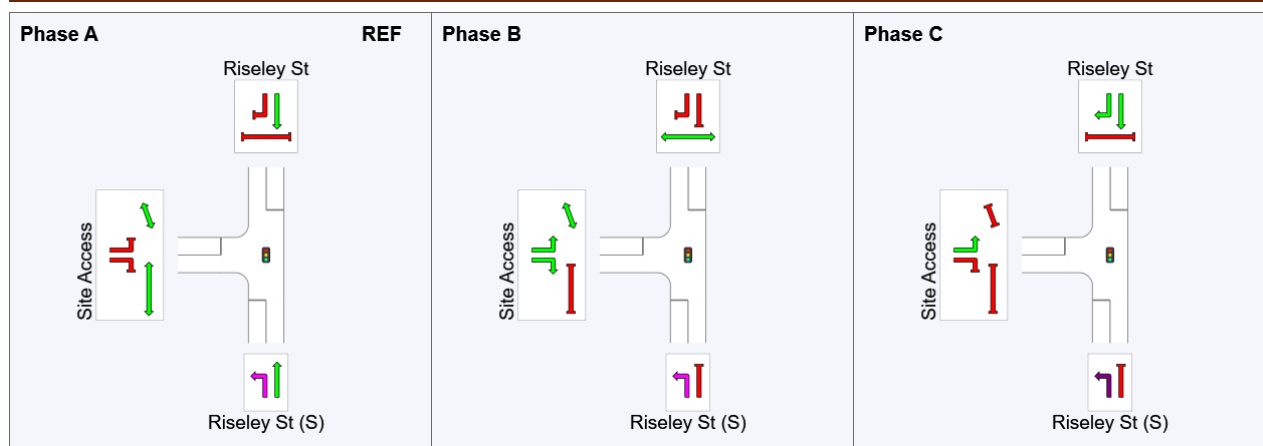
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	57	85
Green Time (sec)	51	22	39
Phase Time (sec)	57	28	45
Phase Split	44%	22%	35%

See the Timing Analysis 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, Minor 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: E3 [E3 (2031 BG + DEV) (PM) (Existing) (Site Folder: (2031 BG + DEV))]**

Intersection: Riseley Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 127 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Riseley St (S)														
1	L2	148	3.0	156	3.0	0.111	9.4	LOS A	2.1	14.8	0.26	0.67	0.26	30.8
2	T1	1239	3.0	1304	3.0	* 0.752	26.2	LOS B	35.1	252.0	0.83	0.75	0.83	27.2
Approach		1387	3.0	1460	3.0	0.752	24.4	LOS B	35.1	252.0	0.77	0.74	0.77	27.4
North: Riseley St														
8	T1	1094	3.0	1152	3.0	0.407	6.4	LOS A	12.9	92.9	0.40	0.36	0.40	46.3
9	R2	253	3.0	266	3.0	* 0.744	60.1	LOS E	16.2	116.1	1.00	0.87	1.06	10.2
Approach		1347	3.0	1418	3.0	0.744	16.5	LOS B	16.2	116.1	0.51	0.46	0.53	32.3
West: Site Access														
10	L2	298	3.0	314	3.0	0.633	30.9	LOS C	14.3	102.7	0.79	0.68	0.79	15.4
12	R2	306	3.0	322	3.0	* 0.725	55.4	LOS D	9.6	69.0	0.97	0.88	1.07	10.5
Approach		604	3.0	636	3.0	0.725	43.3	LOS D	14.3	102.7	0.88	0.78	0.93	12.4
All Vehicles		3338	3.0	3514	3.0	0.752	24.6	LOS B	35.1	252.0	0.69	0.64	0.70	25.2

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
North: Riseley St												
P3	Full	50	53	57.8	LOS E	0.2	0.2	0.95	0.95	227.0	220.0	0.97
West: Site Access												
P4	Full	50	53	57.8	LOS E	0.2	0.2	0.95	0.95	222.3	213.9	0.96
P4B	Slip/ Bypass	50	53	57.8	LOS E	0.2	0.2	0.95	0.95	214.9	204.3	0.95
All Pedestrians		150	158	57.8	LOS E	0.2	0.2	0.95	0.95	221.4	212.7	0.96

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: E3 [E3 (2031 BG + DEV) (PM) (Existing) (Site Folder: (2031 BG + DEV))]

Intersection: Riseley Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 127 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, B, C

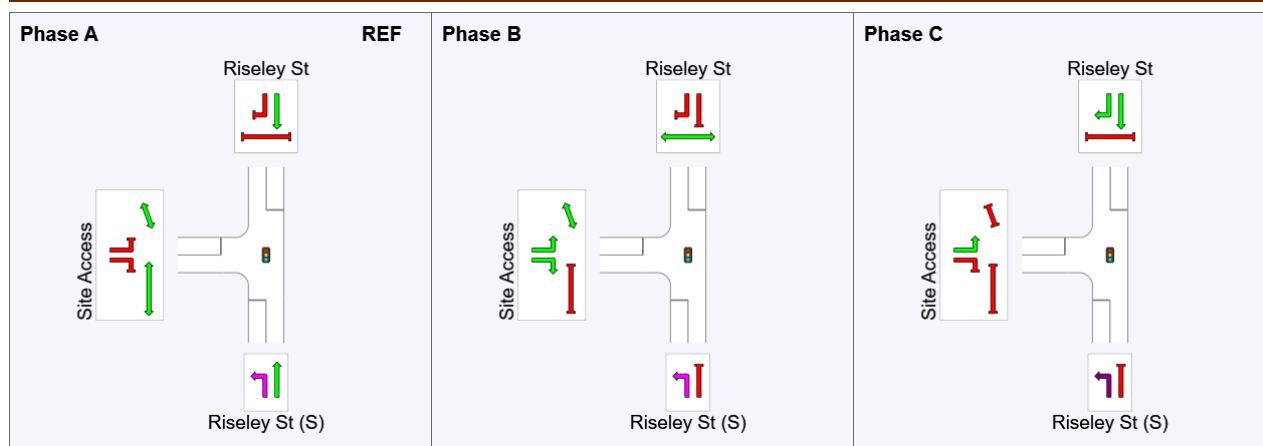
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	69	96
Green Time (sec)	63	21	25
Phase Time (sec)	69	27	31
Phase Split	54%	21%	24%

See the Timing Analysis 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, Minor 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: E3 [E3 (2031 BG + DEV) (SAT) (Existing) (Site Folder: (2031 BG + DEV))]**

Intersection: Riseley Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 130 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Riseley St (S)														
1	L2	211	3.0	222	3.0	0.169	10.2	LOS A	3.5	25.2	0.31	0.68	0.31	29.9
2	T1	1205	3.0	1268	3.0	* 0.931	59.0	LOS E	53.8	386.3	0.95	1.05	1.20	16.1
Approach		1416	3.0	1491	3.0	0.931	51.7	LOS D	53.8	386.3	0.86	1.00	1.06	16.9
North: Riseley St														
8	T1	1067	3.0	1123	3.0	0.393	6.2	LOS A	12.5	89.6	0.39	0.35	0.39	46.6
9	R2	317	3.0	334	3.0	* 0.930	75.9	LOS F	24.2	173.9	0.92	0.99	1.31	8.5
Approach		1384	3.0	1457	3.0	0.930	22.2	LOS B	24.2	173.9	0.51	0.50	0.60	27.7
West: Site Access														
10	L2	345	3.0	363	3.0	0.603	23.6	LOS B	14.8	106.5	0.70	0.61	0.70	17.9
12	R2	346	3.0	364	3.0	* 0.906	73.2	LOS F	13.0	93.5	0.98	1.23	1.41	8.5
Approach		691	3.0	727	3.0	0.906	48.4	LOS D	14.8	106.5	0.84	0.92	1.05	11.5
All Vehicles		3491	3.0	3675	3.0	0.931	39.3	LOS C	53.8	386.3	0.72	0.78	0.88	18.7

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
North: Riseley St												
P3	Full	50	53	59.3	LOS E	0.2	0.2	0.96	0.96	228.5	220.0	0.96
West: Site Access												
P4	Full	50	53	59.3	LOS E	0.2	0.2	0.96	0.96	223.8	213.9	0.96
P4B	Slip/ Bypass	50	53	59.3	LOS E	0.2	0.2	0.96	0.96	216.4	204.3	0.94
All Pedestrians		150	158	59.3	LOS E	0.2	0.2	0.96	0.96	222.9	212.7	0.95

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: E3 [E3 (2031 BG + DEV) (SAT) (Existing) (Site Folder: (2031 BG + DEV))]

Intersection: Riseley Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 130 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, B, C

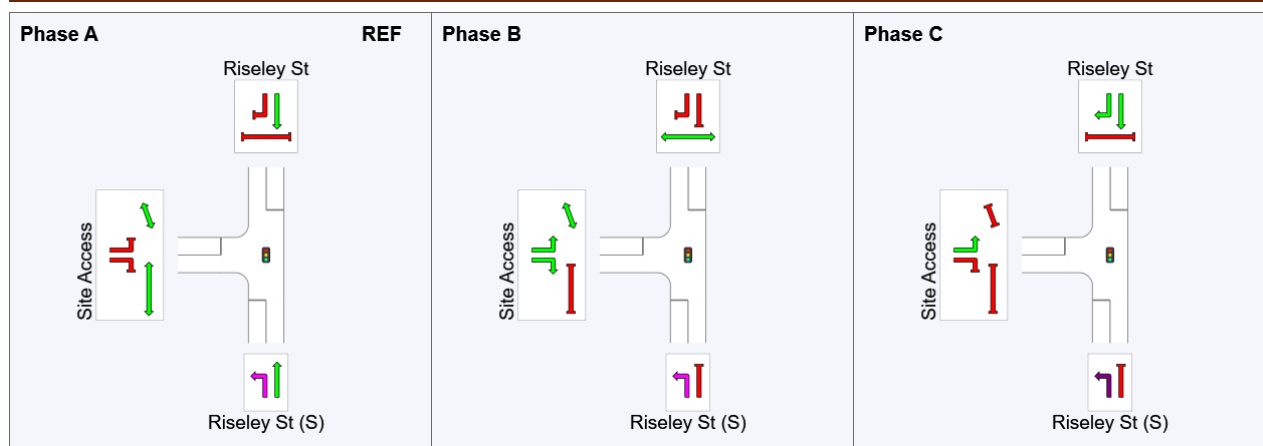
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	59	86
Green Time (sec)	53	21	38
Phase Time (sec)	59	27	44
Phase Split	45%	21%	34%

See the Timing Analysis 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, Minor 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: E3 [E3 (2021 BG + DEV) (PM) (Upgraded) (Site Folder: (2031 BG + DEV))]

Intersection: Riseley Street / Site Access

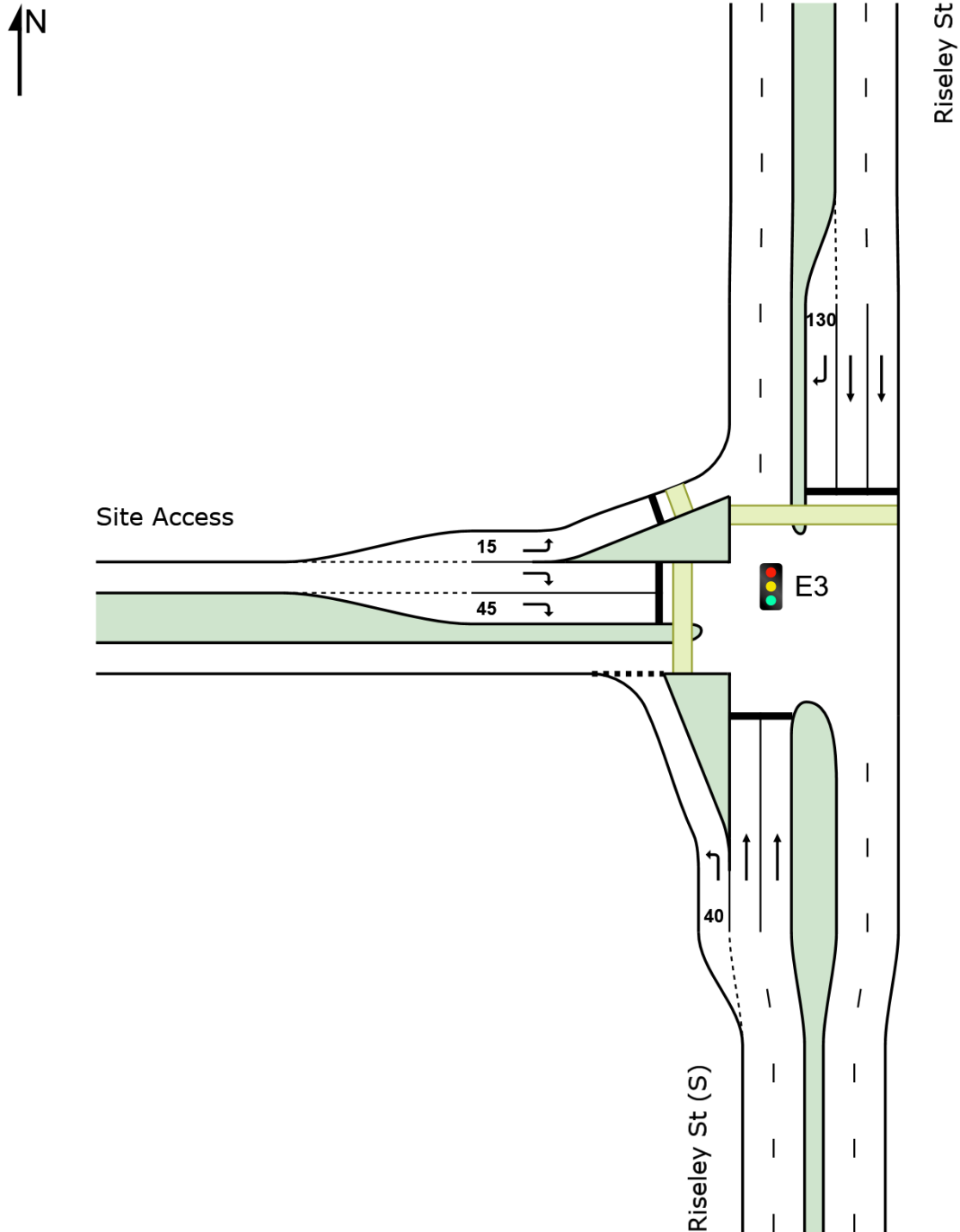
Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated

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



MOVEMENT SUMMARY

 **Site: E3 [E3 (2021 BG + DEV) (PM) (Upgraded) (Site Folder: (2031 BG + DEV))]**

Intersection: Riseley Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 127 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Riseley St (S)														
1	L2	149	3.0	157	3.0	0.112	9.4	LOS A	2.1	14.9	0.26	0.67	0.26	29.5
2	T1	1148	3.0	1208	3.0	* 0.728	27.6	LOS B	32.4	232.5	0.84	0.75	0.84	26.4
Approach		1297	3.0	1365	3.0	0.728	25.5	LOS B	32.4	232.5	0.77	0.74	0.77	26.6
North: Riseley St														
8	T1	1007	3.0	1060	3.0	0.383	7.0	LOS A	12.2	87.7	0.41	0.37	0.41	45.3
9	R2	255	3.0	268	3.0	* 0.721	58.3	LOS E	16.0	114.7	0.99	0.86	1.03	10.9
Approach		1262	3.0	1328	3.0	0.721	17.4	LOS B	16.0	114.7	0.53	0.47	0.54	31.2
West: Site Access														
10	L2	300	3.0	316	3.0	0.531	28.6	LOS C	13.8	99.4	0.76	0.66	0.76	16.4
12	R2	308	3.0	324	3.0	* 0.725	54.1	LOS D	13.4	96.3	0.96	0.88	1.06	11.1
Approach		608	3.0	640	3.0	0.725	41.5	LOS C	13.8	99.4	0.87	0.77	0.91	13.2
All Vehicles		3167	3.0	3334	3.0	0.728	25.3	LOS B	32.4	232.5	0.69	0.64	0.70	24.5

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
North: Riseley St												
P3	Full	50	53	57.8	LOS E	0.2	0.2	0.95	0.95	227.0	220.0	0.97
West: Site Access												
P4	Full	50	53	57.8	LOS E	0.2	0.2	0.95	0.95	222.3	213.9	0.96
P4B	Slip/ Bypass	50	53	57.8	LOS E	0.2	0.2	0.95	0.95	214.9	204.3	0.95
All Pedestrians		150	158	57.8	LOS E	0.2	0.2	0.95	0.95	221.4	212.7	0.96

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: E3 [E3 (2021 BG + DEV) (PM) (Upgraded) (Site Folder: (2031 BG + DEV))]

Intersection: Riseley Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 127 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, B, C

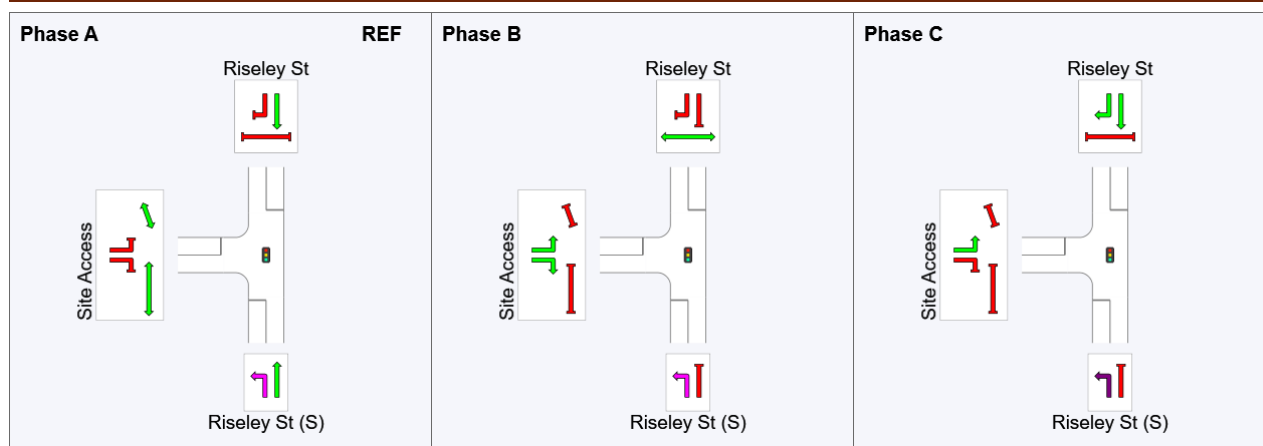
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	66	95
Green Time (sec)	60	23	26
Phase Time (sec)	66	29	32
Phase Split	52%	23%	25%

See the Timing Analysis 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, Minor 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: E3 [E3 (2021 BG + DEV) (SAT) (Upgraded) (Site Folder: (2031 BG + DEV))]**

Intersection: Riseley Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 131 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Riseley St (S)														
1	L2	212	3.0	223	3.0	0.168	10.7	LOS A	3.8	27.1	0.32	0.68	0.32	28.3
2	T1	1111	3.0	1169	3.0	* 0.741	28.9	LOS C	34.0	243.9	0.84	0.75	0.84	25.7
Approach		1323	3.0	1393	3.0	0.741	26.0	LOS B	34.0	243.9	0.76	0.74	0.76	26.0
North: Riseley St														
8	T1	995	3.0	1047	3.0	0.359	5.3	LOS A	10.6	76.3	0.35	0.32	0.35	48.2
9	R2	319	3.0	336	3.0	* 0.733	55.4	LOS D	20.1	144.0	0.98	0.86	1.00	11.3
Approach		1314	3.0	1383	3.0	0.733	17.5	LOS B	20.1	144.0	0.50	0.45	0.51	30.8
West: Site Access														
10	L2	342	3.0	360	3.0	0.690	29.3	LOS C	16.5	118.2	0.77	0.67	0.77	16.2
12	R2	358	3.0	377	3.0	* 0.748	61.1	LOS E	12.1	87.0	1.00	0.92	1.10	10.2
Approach		700	3.0	737	3.0	0.748	45.6	LOS D	16.5	118.2	0.89	0.80	0.94	12.4
All Vehicles		3337	3.0	3513	3.0	0.748	26.7	LOS B	34.0	243.9	0.68	0.64	0.70	23.4

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
North: Riseley St												
P3	Full	50	53	59.8	LOS E	0.2	0.2	0.96	0.96	229.0	220.0	0.96
West: Site Access												
P4	Full	50	53	59.8	LOS E	0.2	0.2	0.96	0.96	224.3	213.9	0.95
P4B	Slip/ Bypass	50	53	59.8	LOS E	0.2	0.2	0.96	0.96	216.9	204.3	0.94
All Pedestrians		150	158	59.8	LOS E	0.2	0.2	0.96	0.96	223.4	212.7	0.95

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: E3 [E3 (2021 BG + DEV) (SAT) (Upgraded) (Site Folder: (2031 BG + DEV))]

Intersection: Riseley Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 131 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, B, C

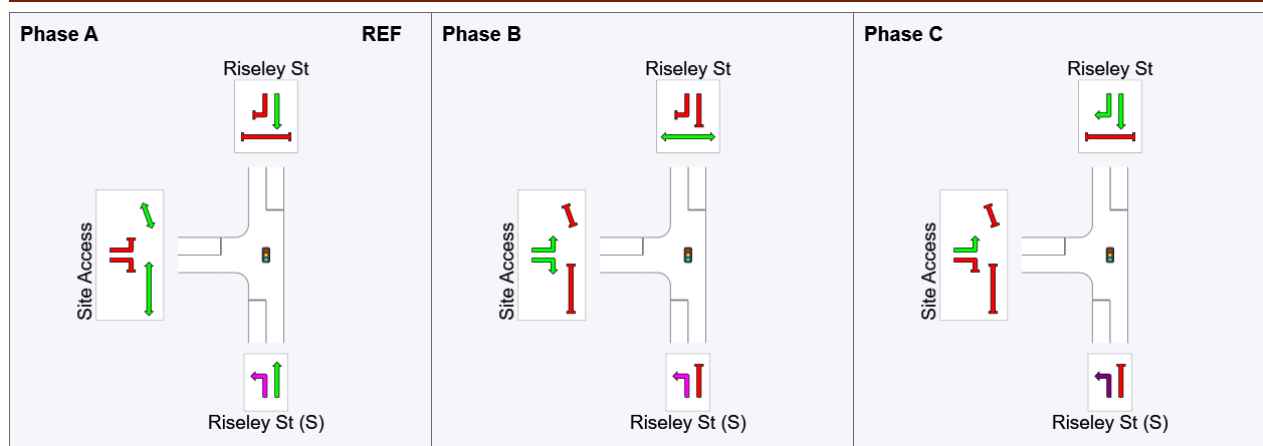
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	67	92
Green Time (sec)	61	19	33
Phase Time (sec)	67	25	39
Phase Split	51%	19%	30%

See the Timing Analysis 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, Minor 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: E3 [E3 (2031 BG + DEV) (PM) (Upgraded) (Site Folder: (2031 BG + DEV))]**

Intersection: Riseley Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 127 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Riseley St (S)														
1	L2	148	3.0	156	3.0	0.111	9.4	LOS A	2.1	14.8	0.26	0.67	0.26	29.5
2	T1	1239	3.0	1304	3.0	* 0.758	27.0	LOS B	35.2	252.6	0.84	0.76	0.84	26.7
Approach		1387	3.0	1460	3.0	0.758	25.1	LOS B	35.2	252.6	0.78	0.75	0.78	26.9
North: Riseley St														
8	T1	1094	3.0	1152	3.0	0.411	6.8	LOS A	13.3	95.8	0.41	0.37	0.41	45.6
9	R2	253	3.0	266	3.0	* 0.744	60.1	LOS E	16.2	116.1	1.00	0.87	1.06	10.7
Approach		1347	3.0	1418	3.0	0.744	16.8	LOS B	16.2	116.1	0.52	0.47	0.54	31.8
West: Site Access														
10	L2	298	3.0	314	3.0	0.550	30.1	LOS C	14.1	101.4	0.78	0.67	0.78	15.9
12	R2	306	3.0	322	3.0	* 0.754	56.2	LOS D	13.6	97.9	0.97	0.93	1.11	10.8
Approach		604	3.0	636	3.0	0.754	43.3	LOS D	14.1	101.4	0.88	0.80	0.95	12.8
All Vehicles		3338	3.0	3514	3.0	0.758	25.1	LOS B	35.2	252.6	0.70	0.65	0.71	24.9

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
North: Riseley St												
P3	Full	50	53	57.8	LOS E	0.2	0.2	0.95	0.95	227.0	220.0	0.97
West: Site Access												
P4	Full	50	53	57.8	LOS E	0.2	0.2	0.95	0.95	222.3	213.9	0.96
P4B	Slip/ Bypass	50	53	57.8	LOS E	0.2	0.2	0.95	0.95	214.9	204.3	0.95
All Pedestrians		150	158	57.8	LOS E	0.2	0.2	0.95	0.95	221.4	212.7	0.96

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: E3 [E3 (2031 BG + DEV) (PM) (Upgraded) (Site Folder: (2031 BG + DEV))]

Intersection: Riseley Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 127 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, B, C

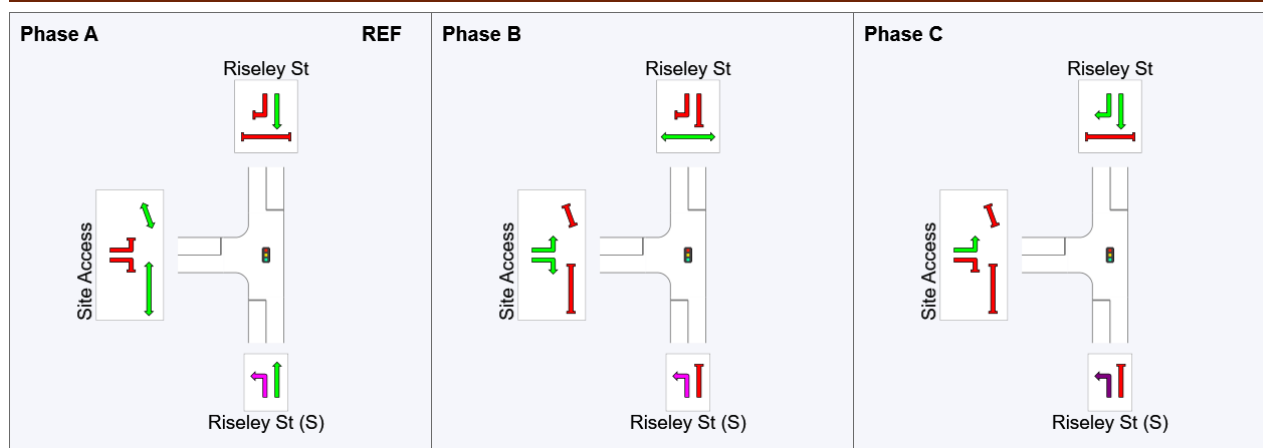
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	68	96
Green Time (sec)	62	22	25
Phase Time (sec)	68	28	31
Phase Split	54%	22%	24%

See the Timing Analysis 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, Minor 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: E3 [E3 (2031 BG + DEV) (SAT) (Upgraded) (Site Folder: (2031 BG + DEV))]

Intersection: Riseley Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 131 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Riseley St (S)														
1	L2	211	3.0	222	3.0	0.166	10.7	LOS A	3.8	27.1	0.32	0.68	0.32	28.3
2	T1	1205	3.0	1268	3.0	* 0.762	27.5	LOS B	36.6	262.9	0.84	0.75	0.84	26.4
Approach		1416	3.0	1491	3.0	0.762	25.0	LOS B	36.6	262.9	0.76	0.74	0.76	26.6
North: Riseley St														
8	T1	1067	3.0	1123	3.0	0.381	5.1	LOS A	11.3	81.4	0.35	0.32	0.35	48.6
9	R2	317	3.0	334	3.0	* 0.776	59.1	LOS E	20.8	149.4	1.00	0.88	1.06	10.8
Approach		1384	3.0	1457	3.0	0.776	17.5	LOS B	20.8	149.4	0.50	0.45	0.51	30.9
West: Site Access														
10	L2	345	3.0	363	3.0	0.726	32.2	LOS C	17.5	125.5	0.81	0.71	0.82	15.3
12	R2	346	3.0	364	3.0	* 0.740	61.8	LOS E	11.8	84.4	1.00	0.91	1.09	10.1
Approach		691	3.0	727	3.0	0.740	47.0	LOS D	17.5	125.5	0.90	0.81	0.96	12.2
All Vehicles		3491	3.0	3675	3.0	0.776	26.4	LOS B	36.6	262.9	0.68	0.64	0.70	23.8

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
North: Riseley St												
P3	Full	50	53	59.8	LOS E	0.2	0.2	0.96	0.96	229.0	220.0	0.96
West: Site Access												
P4	Full	50	53	59.8	LOS E	0.2	0.2	0.96	0.96	224.3	213.9	0.95
P4B	Slip/ Bypass	50	53	59.8	LOS E	0.2	0.2	0.96	0.96	216.9	204.3	0.94
All Pedestrians		150	158	59.8	LOS E	0.2	0.2	0.96	0.96	223.4	212.7	0.95

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: E3 [E3 (2031 BG + DEV) (SAT) (Upgraded) (Site Folder: (2031 BG + DEV))]

Intersection: Riseley Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 131 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, B, C

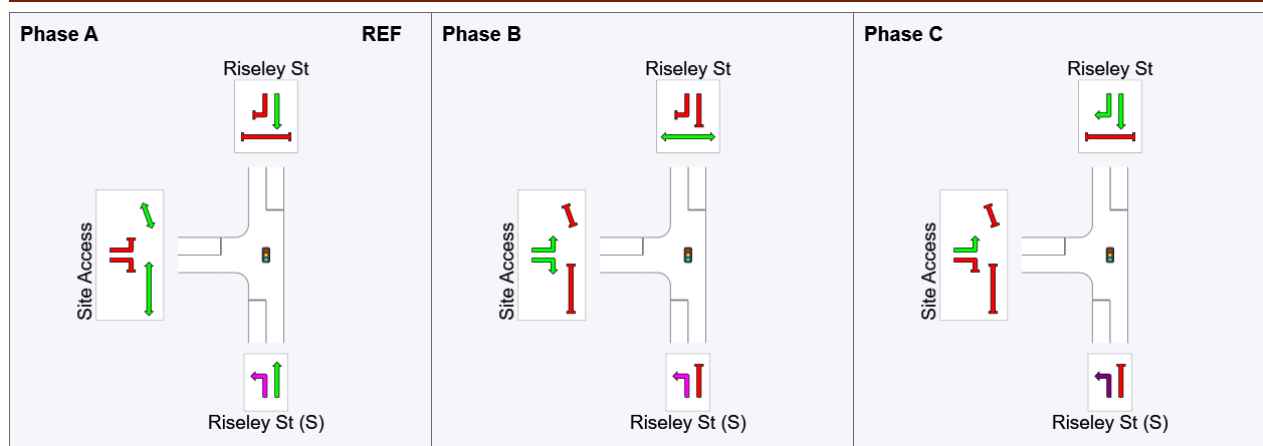
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	70	94
Green Time (sec)	64	18	31
Phase Time (sec)	70	24	37
Phase Split	53%	18%	28%

See the Timing Analysis 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, Minor 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: E4 [E4 (2021 BG) (PM) (Site Folder: (2021 BG))]

Intersection: Riseley Street / Site Access

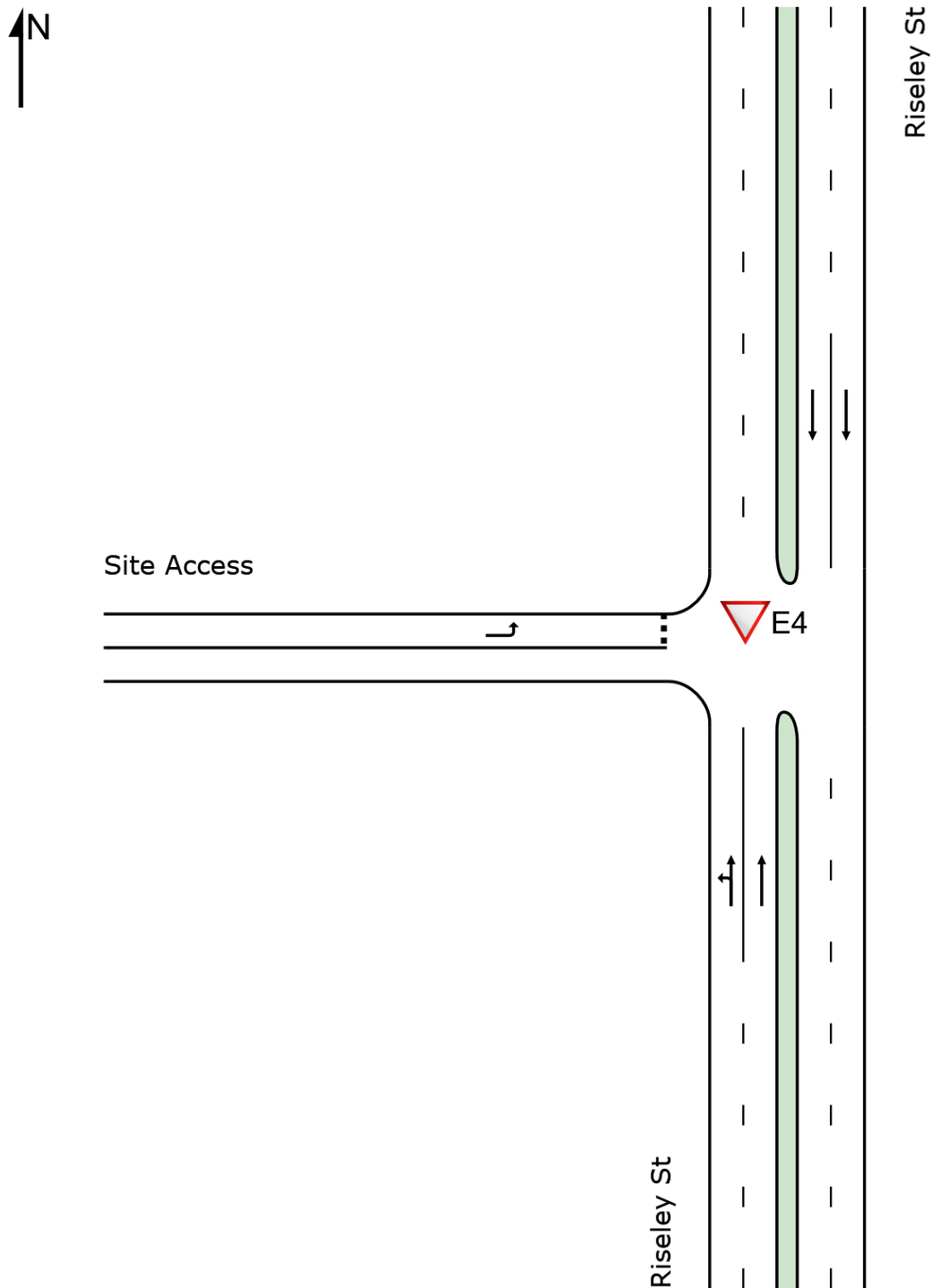
Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Give-Way (Two-Way)

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



MOVEMENT SUMMARY

▼ Site: E4 [E4 (2021 BG) (PM) (Site Folder: (2021 BG))]

Intersection: Riseley Street / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Riseley St														
1	L2	76	3.0	80	3.0	0.308	5.4	LOS A	0.0	0.0	0.00	0.08	0.00	31.1
2	T1	1039	3.0	1094	3.0	0.308	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	57.8
Approach		1115	3.0	1174	3.0	0.308	0.4	NA	0.0	0.0	0.00	0.04	0.00	55.5
North: Riseley St														
8	T1	1134	3.0	1194	3.0	0.312	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach		1134	3.0	1194	3.0	0.312	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.8
West: Site Access														
10	L2	34	3.0	36	3.0	0.044	2.5	LOS A	0.2	1.3	0.48	0.36	0.48	24.0
Approach		34	3.0	36	3.0	0.044	2.5	LOS A	0.2	1.3	0.48	0.36	0.48	24.0
All Vehicles		2283	3.0	2403	3.0	0.312	0.2	NA	0.2	1.3	0.01	0.03	0.01	56.8

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.
 Delay Model: SIDRA Standard (Geometric Delay is included).
 Queue Model: SIDRA Standard.
 Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

▼ Site: E4 [E4 (2021 BG) (SAT) (Site Folder: (2021 BG))]

Intersection: Riseley Street / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Riseley St														
1	L2	125	3.0	132	3.0	0.325	5.4	LOS A	0.0	0.0	0.00	0.13	0.00	30.2
2	T1	1050	3.0	1105	3.0	0.325	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	56.9
Approach		1175	3.0	1237	3.0	0.325	0.6	NA	0.0	0.0	0.00	0.06	0.00	53.3
North: Riseley St														
8	T1	1056	3.0	1112	3.0	0.291	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach		1056	3.0	1112	3.0	0.291	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.8
West: Site Access														
10	L2	41	3.0	43	3.0	0.052	2.4	LOS A	0.2	1.5	0.47	0.35	0.47	24.2
Approach		41	3.0	43	3.0	0.052	2.4	LOS A	0.2	1.5	0.47	0.35	0.47	24.2
All Vehicles		2272	3.0	2392	3.0	0.325	0.4	NA	0.2	1.5	0.01	0.04	0.01	55.4

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.
 Delay Model: SIDRA Standard (Geometric Delay is included).
 Queue Model: SIDRA Standard.
 Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

▼ Site: E4 [E4 (2031 BG) (PM) (Site Folder: (2031 BG))]

Intersection: Riseley Street / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Riseley St														
1	L2	87	3.0	92	3.0	0.330	5.4	LOS A	0.0	0.0	0.00	0.09	0.00	30.9
2	T1	1108	3.0	1166	3.0	0.330	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	57.7
Approach		1195	3.0	1258	3.0	0.330	0.4	NA	0.0	0.0	0.00	0.04	0.00	55.2
North: Riseley St														
8	T1	1209	3.0	1273	3.0	0.333	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach		1209	3.0	1273	3.0	0.333	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.8
West: Site Access														
10	L2	37	3.0	39	3.0	0.050	2.8	LOS A	0.2	1.4	0.50	0.38	0.50	23.7
Approach		37	3.0	39	3.0	0.050	2.8	LOS A	0.2	1.4	0.50	0.38	0.50	23.7
All Vehicles		2441	3.0	2569	3.0	0.333	0.3	NA	0.2	1.4	0.01	0.03	0.01	56.7

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.
 Delay Model: SIDRA Standard (Geometric Delay is included).
 Queue Model: SIDRA Standard.
 Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

▼ Site: E4 [E4 (2031 BG) (SAT) (Site Folder: (2031 BG))]

Intersection: Riseley Street / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Riseley St														
1	L2	121	3.0	127	3.0	0.345	5.4	LOS A	0.0	0.0	0.00	0.12	0.00	30.4
2	T1	1127	3.0	1186	3.0	0.345	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	57.1
Approach		1248	3.0	1314	3.0	0.345	0.5	NA	0.0	0.0	0.00	0.06	0.00	53.8
North: Riseley St														
8	T1	1118	3.0	1177	3.0	0.308	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach		1118	3.0	1177	3.0	0.308	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.8
West: Site Access														
10	L2	33	3.0	35	3.0	0.044	2.7	LOS A	0.2	1.3	0.49	0.37	0.49	23.8
Approach		33	3.0	35	3.0	0.044	2.7	LOS A	0.2	1.3	0.49	0.37	0.49	23.8
All Vehicles		2399	3.0	2525	3.0	0.345	0.3	NA	0.2	1.3	0.01	0.04	0.01	55.8

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.
 Delay Model: SIDRA Standard (Geometric Delay is included).
 Queue Model: SIDRA Standard.
 Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: E4 [E4 (2021 BG + DEV) (PM) (Site Folder: (2031 BG + DEV))]

Intersection: Riseley Street / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Riseley St														
1	L2	109	3.0	115	3.0	0.399	5.4	LOS A	0.0	0.0	0.00	0.09	0.00	30.8
2	T1	1337	3.0	1407	3.0	0.399	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	57.6
Approach		1446	3.0	1522	3.0	0.399	0.4	NA	0.0	0.0	0.00	0.05	0.00	55.0
North: Riseley St														
8	T1	1280	3.0	1347	3.0	0.352	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach		1280	3.0	1347	3.0	0.352	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.8
West: Site Access														
10	L2	23	3.0	24	3.0	0.035	3.6	LOS A	0.1	1.0	0.54	0.43	0.54	22.5
Approach		23	3.0	24	3.0	0.035	3.6	LOS A	0.1	1.0	0.54	0.43	0.54	22.5
All Vehicles		2749	3.0	2894	3.0	0.399	0.3	NA	0.1	1.0	0.00	0.03	0.00	56.7

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

MOVEMENT SUMMARY

Site: E4 [E4 (2021 BG + DEV) (SAT) (Site Folder: (2031 BG + DEV))]

Intersection: Riseley Street / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Riseley St														
1	L2	98	3.0	103	3.0	0.400	5.4	LOS A	0.0	0.0	0.00	0.08	0.00	31.0
2	T1	1352	3.0	1423	3.0	0.400	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	57.8
Approach		1450	3.0	1526	3.0	0.400	0.4	NA	0.0	0.0	0.00	0.04	0.00	55.5
North: Riseley St														
8	T1	1332	3.0	1402	3.0	0.367	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach		1332	3.0	1402	3.0	0.367	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.8
West: Site Access														
10	L2	31	3.0	33	3.0	0.049	3.8	LOS A	0.2	1.4	0.55	0.46	0.55	22.3
Approach		31	3.0	33	3.0	0.049	3.8	LOS A	0.2	1.4	0.55	0.46	0.55	22.3
All Vehicles		2813	3.0	2961	3.0	0.400	0.3	NA	0.2	1.4	0.01	0.03	0.01	56.8

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

MOVEMENT SUMMARY

Site: E4 [E4 (2031 BG + DEV) (PM) (Site Folder: (2031 BG + DEV))]

Intersection: Riseley Street / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %]	[Total veh/h	HV %]				[Veh. veh	Dist] m				
South: Riseley St														
1	L2	108	3.0	114	3.0	0.425	5.4	LOS A	0.0	0.0	0.00	0.08	0.00	31.0
2	T1	1430	3.0	1505	3.0	0.425	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	57.7
Approach		1538	3.0	1619	3.0	0.425	0.4	NA	0.0	0.0	0.00	0.04	0.00	55.3
North: Riseley St														
8	T1	1366	3.0	1438	3.0	0.376	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach		1366	3.0	1438	3.0	0.376	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.8
West: Site Access														
10	L2	23	3.0	24	3.0	0.038	4.1	LOS A	0.1	1.0	0.56	0.46	0.56	21.9
Approach		23	3.0	24	3.0	0.038	4.1	LOS A	0.1	1.0	0.56	0.46	0.56	21.9
All Vehicles		2927	3.0	3081	3.0	0.425	0.3	NA	0.1	1.0	0.00	0.03	0.00	56.8

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

MOVEMENT SUMMARY

Site: E4 [E4 (2031 BG + DEV) (SAT) (Site Folder: (2031 BG + DEV))]

Intersection: Riseley Street / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Riseley St														
1	L2	97	3.0	102	3.0	0.428	5.4	LOS A	0.0	0.0	0.00	0.08	0.00	31.1
2	T1	1452	3.0	1528	3.0	0.428	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	57.9
Approach		1549	3.0	1631	3.0	0.428	0.4	NA	0.0	0.0	0.00	0.04	0.00	55.7
North: Riseley St														
8	T1	1403	3.0	1477	3.0	0.386	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
Approach		1403	3.0	1477	3.0	0.386	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.7
West: Site Access														
10	L2	31	3.0	33	3.0	0.052	4.3	LOS A	0.2	1.4	0.57	0.49	0.57	21.6
Approach		31	3.0	33	3.0	0.052	4.3	LOS A	0.2	1.4	0.57	0.49	0.57	21.6
All Vehicles		2983	3.0	3140	3.0	0.428	0.2	NA	0.2	1.4	0.01	0.02	0.01	56.9

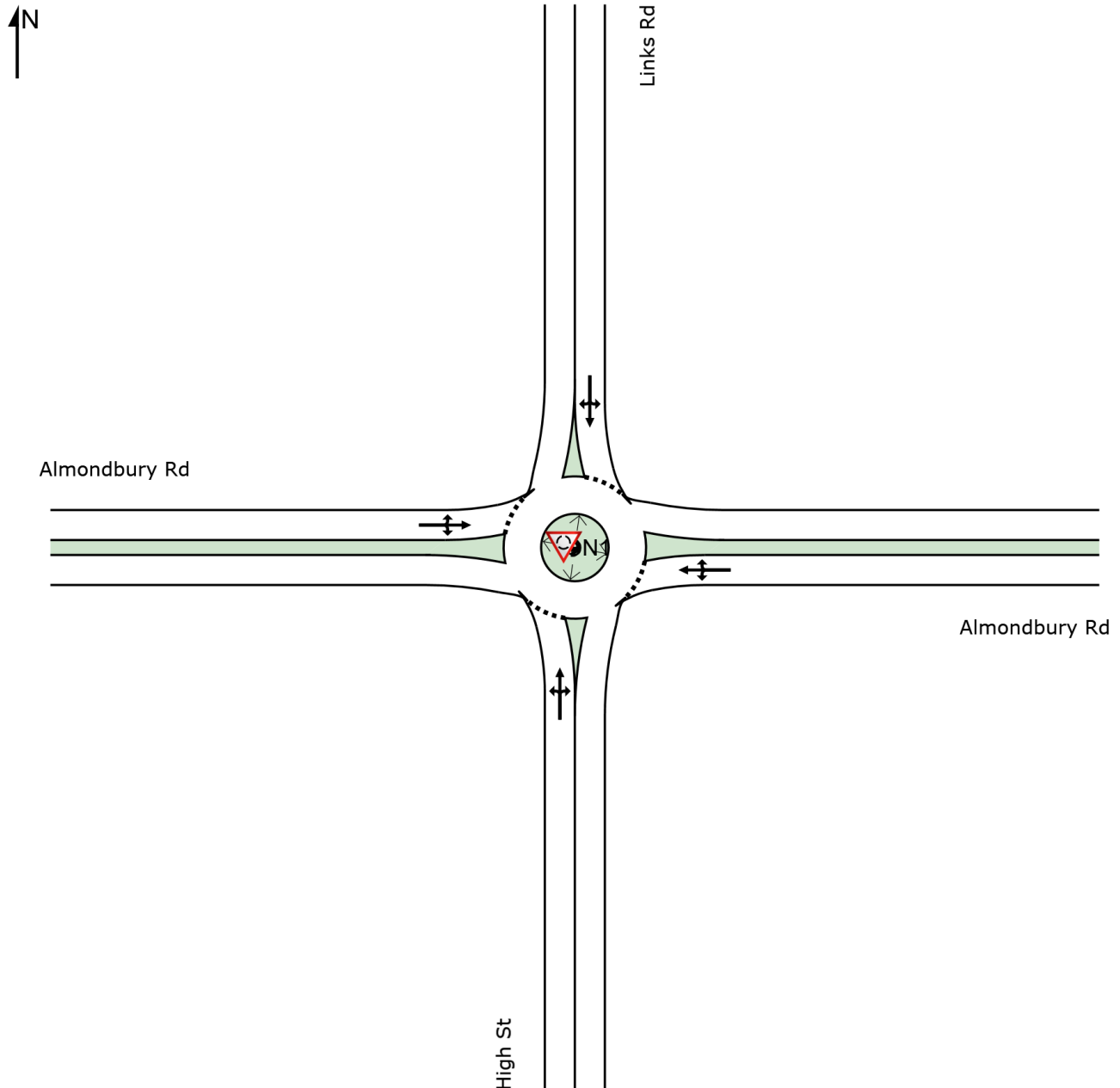
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Vehicle movement LOS values are based on average delay per movement.
 Minor Road Approach LOS values are based on average delay for all vehicle movements.
 NA: Intersection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

SITE LAYOUT

 **Site: N1 [N1 (2021 BG + DEV) (PM) (Upgraded) (Site Folder: (2031 BG + DEV))]**

Intersection: Almondbury Road / Links Road / High Street
Project: 620.30141 - Westfield Booragoon Redevelopment
Prepared by: MP
Site Category: (None)
Roundabout

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



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Project: Z:\BNE\Projects-SLR\620-BNE\620.30141.00000 Westfield Booragoon Redevelopment\02 Analysis\2021 07 - Updated SIDRA Analysis\620.30141-SIDRA Analysis-BG+DEV.sip9

MOVEMENT SUMMARY

 **Site: N1 [N1 (2021 BG + DEV) (PM) (Upgraded) (Site Folder: (2031 BG + DEV))]**

Intersection: Almondbury Road / Links Road / High Street
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: High St														
1	L2	4	3.0	4	3.0	0.161	1.8	LOSA	0.8	6.0	0.47	0.44	0.47	24.6
2	T1	10	3.0	11	3.0	0.161	1.8	LOSA	0.8	6.0	0.47	0.44	0.47	29.2
3	R2	135	3.0	142	3.0	0.161	2.8	LOSA	0.8	6.0	0.47	0.44	0.47	22.6
Approach		149	3.0	157	3.0	0.161	2.7	LOSA	0.8	6.0	0.47	0.44	0.47	23.2
East: Almondbury Rd														
4	L2	157	3.0	165	3.0	0.299	4.1	LOSA	2.1	14.8	0.10	0.46	0.10	22.8
5	T1	232	3.0	244	3.0	0.299	3.5	LOSA	2.1	14.8	0.10	0.46	0.10	43.1
6	R2	45	3.0	47	3.0	0.299	6.8	LOSA	2.1	14.8	0.10	0.46	0.10	45.4
Approach		434	3.0	457	3.0	0.299	4.1	LOSA	2.1	14.8	0.10	0.46	0.10	31.7
North: Links Rd														
7	L2	56	3.0	59	3.0	0.079	6.5	LOSA	0.4	2.9	0.52	0.63	0.52	42.5
8	T1	9	3.0	9	3.0	0.079	7.1	LOSA	0.4	2.9	0.52	0.63	0.52	28.8
9	R2	1	3.0	1	3.0	0.079	9.0	LOSA	0.4	2.9	0.52	0.63	0.52	44.2
Approach		66	3.0	69	3.0	0.079	6.6	LOSA	0.4	2.9	0.52	0.63	0.52	39.2
West: Almondbury Rd														
10	L2	1	3.0	1	3.0	0.246	5.4	LOSA	1.4	10.3	0.45	0.54	0.45	44.2
11	T1	235	3.0	247	3.0	0.246	5.2	LOSA	1.4	10.3	0.45	0.54	0.45	40.7
12	R2	2	3.0	2	3.0	0.246	8.0	LOSA	1.4	10.3	0.45	0.54	0.45	25.8
Approach		238	3.0	251	3.0	0.246	5.2	LOSA	1.4	10.3	0.45	0.54	0.45	40.4
All Vehicles		887	3.0	934	3.0	0.299	4.3	LOSA	2.1	14.8	0.29	0.49	0.29	31.6

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA Standard.

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

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

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MOVEMENT SUMMARY

 **Site: N1 [N1 (2021 BG + DEV) (SAT) (Upgraded) (Site Folder: (2031 BG + DEV))]**

Intersection: Almondbury Road / Links Road / High Street
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: High St														
1	L2	7	3.0	7	3.0	0.251	1.9	LOS A	1.4	10.0	0.50	0.47	0.50	24.5
2	T1	6	3.0	6	3.0	0.251	1.9	LOS A	1.4	10.0	0.50	0.47	0.50	29.1
3	R2	220	3.0	232	3.0	0.251	2.9	LOS A	1.4	10.0	0.50	0.47	0.50	22.5
Approach		233	3.0	245	3.0	0.251	2.9	LOS A	1.4	10.0	0.50	0.47	0.50	22.8
East: Almondbury Rd														
4	L2	117	3.0	123	3.0	0.268	4.1	LOS A	1.9	13.4	0.10	0.46	0.10	22.8
5	T1	227	3.0	239	3.0	0.268	3.5	LOS A	1.9	13.4	0.10	0.46	0.10	43.2
6	R2	45	3.0	47	3.0	0.268	6.8	LOS A	1.9	13.4	0.10	0.46	0.10	45.4
Approach		389	3.0	409	3.0	0.268	4.1	LOS A	1.9	13.4	0.10	0.46	0.10	33.2
North: Links Rd														
7	L2	71	3.0	75	3.0	0.113	7.8	LOS A	0.6	4.4	0.64	0.71	0.64	41.5
8	T1	9	3.0	9	3.0	0.113	8.4	LOS A	0.6	4.4	0.64	0.71	0.64	28.5
9	R2	1	3.0	1	3.0	0.113	10.3	LOS A	0.6	4.4	0.64	0.71	0.64	43.3
Approach		81	3.0	85	3.0	0.113	7.9	LOS A	0.6	4.4	0.64	0.71	0.64	39.0
West: Almondbury Rd														
10	L2	1	3.0	1	3.0	0.353	6.2	LOS A	2.2	16.1	0.57	0.63	0.57	43.7
11	T1	311	3.0	327	3.0	0.353	6.0	LOS A	2.2	16.1	0.57	0.63	0.57	40.0
12	R2	1	3.0	1	3.0	0.353	8.9	LOS A	2.2	16.1	0.57	0.63	0.57	25.7
Approach		313	3.0	329	3.0	0.353	6.0	LOS A	2.2	16.1	0.57	0.63	0.57	39.9
All Vehicles		1016	3.0	1069	3.0	0.353	4.7	LOS A	2.2	16.1	0.38	0.53	0.38	31.3

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA Standard.

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

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

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MOVEMENT SUMMARY

 **Site: N1 [N1 (2031 BG + DEV) (PM) (Upgraded) (Site Folder: (2031 BG + DEV))]**

Intersection: Almondbury Road / Links Road / High Street
Project: 620.30141 - Westfield Booragoon Redevelopment
Prepared by: MP
Site Category: (None)
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: High St														
1	L2	4	3.0	4	3.0	0.161	1.9	LOS A	0.8	6.0	0.47	0.44	0.47	24.5
2	T1	10	3.0	11	3.0	0.161	1.9	LOS A	0.8	6.0	0.47	0.44	0.47	29.2
3	R2	134	3.0	141	3.0	0.161	2.9	LOS A	0.8	6.0	0.47	0.44	0.47	22.6
Approach		148	3.0	156	3.0	0.161	2.8	LOS A	0.8	6.0	0.47	0.44	0.47	23.2
East: Almondbury Rd														
4	L2	155	3.0	163	3.0	0.304	4.1	LOS A	2.1	15.2	0.10	0.46	0.10	22.8
5	T1	236	3.0	248	3.0	0.304	3.5	LOS A	2.1	15.2	0.10	0.46	0.10	43.1
6	R2	51	3.0	54	3.0	0.304	6.8	LOS A	2.1	15.2	0.10	0.46	0.10	45.4
Approach		442	3.0	465	3.0	0.304	4.1	LOS A	2.1	15.2	0.10	0.46	0.10	32.0
North: Links Rd														
7	L2	59	3.0	62	3.0	0.083	6.6	LOS A	0.4	3.1	0.53	0.63	0.53	42.5
8	T1	9	3.0	9	3.0	0.083	7.1	LOS A	0.4	3.1	0.53	0.63	0.53	28.8
9	R2	1	3.0	1	3.0	0.083	9.0	LOS A	0.4	3.1	0.53	0.63	0.53	44.2
Approach		69	3.0	73	3.0	0.083	6.7	LOS A	0.4	3.1	0.53	0.63	0.53	39.3
West: Almondbury Rd														
10	L2	1	3.0	1	3.0	0.255	5.4	LOS A	1.5	10.7	0.45	0.55	0.45	44.1
11	T1	242	3.0	255	3.0	0.255	5.2	LOS A	1.5	10.7	0.45	0.55	0.45	40.6
12	R2	2	3.0	2	3.0	0.255	8.1	LOS A	1.5	10.7	0.45	0.55	0.45	25.8
Approach		245	3.0	258	3.0	0.255	5.3	LOS A	1.5	10.7	0.45	0.55	0.45	40.3
All Vehicles		904	3.0	952	3.0	0.304	4.4	LOS A	2.1	15.2	0.29	0.49	0.29	31.8

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA Standard.

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

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

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MOVEMENT SUMMARY

 **Site: N1 [N1 (2031 BG + DEV) (SAT) (Upgraded) (Site Folder: (2031 BG + DEV))]**

Intersection: Almondbury Road / Links Road / High Street
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: High St														
1	L2	6	3.0	6	3.0	0.250	2.0	LOSA	1.4	9.9	0.50	0.47	0.50	24.5
2	T1	6	3.0	6	3.0	0.250	2.0	LOSA	1.4	9.9	0.50	0.47	0.50	29.1
3	R2	219	3.0	231	3.0	0.250	3.0	LOSA	1.4	9.9	0.50	0.47	0.50	22.5
Approach		231	3.0	243	3.0	0.250	2.9	LOSA	1.4	9.9	0.50	0.47	0.50	22.8
East: Almondbury Rd														
4	L2	116	3.0	122	3.0	0.272	4.1	LOSA	1.9	13.7	0.10	0.46	0.10	22.8
5	T1	230	3.0	242	3.0	0.272	3.5	LOSA	1.9	13.7	0.10	0.46	0.10	43.1
6	R2	49	3.0	52	3.0	0.272	6.8	LOSA	1.9	13.7	0.10	0.46	0.10	45.4
Approach		395	3.0	416	3.0	0.272	4.1	LOSA	1.9	13.7	0.10	0.46	0.10	33.4
North: Links Rd														
7	L2	75	3.0	79	3.0	0.118	7.8	LOSA	0.6	4.6	0.64	0.71	0.64	41.6
8	T1	9	3.0	9	3.0	0.118	8.4	LOSA	0.6	4.6	0.64	0.71	0.64	28.5
9	R2	1	3.0	1	3.0	0.118	10.3	LOSA	0.6	4.6	0.64	0.71	0.64	43.3
Approach		85	3.0	89	3.0	0.118	7.9	LOSA	0.6	4.6	0.64	0.71	0.64	39.1
West: Almondbury Rd														
10	L2	1	3.0	1	3.0	0.351	6.2	LOSA	2.2	16.0	0.57	0.63	0.57	43.7
11	T1	308	3.0	324	3.0	0.351	6.0	LOSA	2.2	16.0	0.57	0.63	0.57	40.0
12	R2	1	3.0	1	3.0	0.351	8.9	LOSA	2.2	16.0	0.57	0.63	0.57	25.7
Approach		310	3.0	326	3.0	0.351	6.0	LOSA	2.2	16.0	0.57	0.63	0.57	39.9
All Vehicles		1021	3.0	1075	3.0	0.351	4.7	LOSA	2.2	16.0	0.38	0.53	0.38	31.4

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA Standard.

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

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

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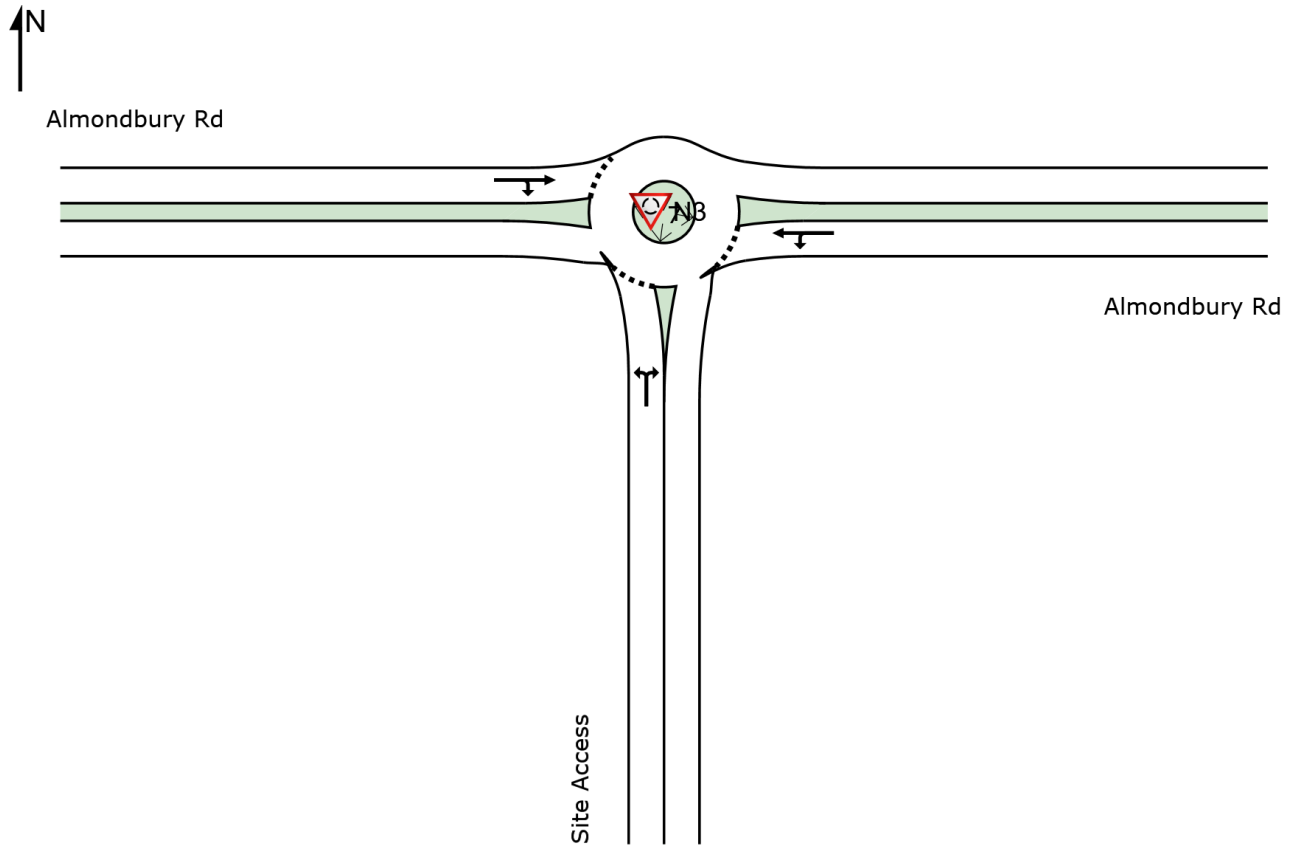
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SITE LAYOUT

 **Site: N3 [N3 (2021 BG) (PM) (Site Folder: (2021 BG))]**

Intersection: Almondbury Road / Site Access
Project: 620.30141 - Westfield Booragoon Redevelopment
Prepared by: MP
Site Category: (None)
Roundabout

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



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MOVEMENT SUMMARY

 **Site: N3 [N3 (2021 BG) (PM) (Site Folder: (2021 BG))]**

Intersection: Almondbury Road / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Site Access														
1	L2	53	3.0	56	3.0	0.251	0.2	LOS A	1.5	10.8	0.17	0.21	0.17	28.8
3	R2	281	3.0	296	3.0	0.251	1.2	LOS A	1.5	10.8	0.17	0.21	0.17	29.8
Approach		334	3.0	352	3.0	0.251	1.1	LOS A	1.5	10.8	0.17	0.21	0.17	29.6
East: Almondbury Rd														
4	L2	169	3.0	178	3.0	0.167	4.3	LOS A	1.0	7.0	0.22	0.48	0.22	28.8
5	T1	36	3.0	38	3.0	0.167	4.0	LOS A	1.0	7.0	0.22	0.48	0.22	39.9
Approach		205	3.0	216	3.0	0.167	4.3	LOS A	1.0	7.0	0.22	0.48	0.22	30.7
West: Almondbury Rd														
11	T1	57	3.0	60	3.0	0.120	5.4	LOS A	0.6	4.4	0.46	0.62	0.46	36.8
12	R2	54	3.0	57	3.0	0.120	8.4	LOS A	0.6	4.4	0.46	0.62	0.46	32.5
Approach		111	3.0	117	3.0	0.120	6.9	LOS A	0.6	4.4	0.46	0.62	0.46	34.9
All Vehicles		650	3.0	684	3.0	0.251	3.1	LOS A	1.5	10.8	0.24	0.37	0.24	30.9

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

Roundabout LOS Method: SIDRA Roundabout LOS.

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA Standard.

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

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

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MOVEMENT SUMMARY

 **Site: N3 [N3 (2021 BG) (SAT) (Site Folder: (2021 BG))]**

Intersection: Almondbury Road / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Site Access														
1	L2	65	3.0	68	3.0	0.252	0.1	LOS A	1.6	11.3	0.14	0.20	0.14	29.0
3	R2	285	3.0	300	3.0	0.252	1.2	LOS A	1.6	11.3	0.14	0.20	0.14	30.0
Approach		350	3.0	368	3.0	0.252	1.0	LOS A	1.6	11.3	0.14	0.20	0.14	29.8
East: Almondbury Rd														
4	L2	255	3.0	268	3.0	0.243	4.6	LOS A	1.5	10.8	0.32	0.51	0.32	28.2
5	T1	24	3.0	25	3.0	0.243	4.4	LOS A	1.5	10.8	0.32	0.51	0.32	39.2
Approach		279	3.0	294	3.0	0.243	4.6	LOS A	1.5	10.8	0.32	0.51	0.32	29.2
West: Almondbury Rd														
11	T1	43	3.0	45	3.0	0.153	5.5	LOS A	0.8	5.7	0.47	0.65	0.47	36.1
12	R2	99	3.0	104	3.0	0.153	8.5	LOS A	0.8	5.7	0.47	0.65	0.47	31.7
Approach		142	3.0	149	3.0	0.153	7.6	LOS A	0.8	5.7	0.47	0.65	0.47	33.2
All Vehicles		771	3.0	812	3.0	0.252	3.5	LOS A	1.6	11.3	0.27	0.39	0.27	30.2

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

Roundabout LOS Method: SIDRA Roundabout LOS.

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA Standard.

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

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

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MOVEMENT SUMMARY

 **Site: N3 [N3 (2031 BG) (PM) (Site Folder: (2031 BG))]**

Intersection: Almondbury Road / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Site Access														
1	L2	53	3.0	56	3.0	0.230	0.3	LOS A	1.3	9.6	0.20	0.22	0.20	28.7
3	R2	242	3.0	255	3.0	0.230	1.3	LOS A	1.3	9.6	0.20	0.22	0.20	29.7
Approach		295	3.0	311	3.0	0.230	1.1	LOS A	1.3	9.6	0.20	0.22	0.20	29.5
East: Almondbury Rd														
4	L2	163	3.0	172	3.0	0.169	4.3	LOS A	1.0	7.0	0.20	0.47	0.20	28.9
5	T1	48	3.0	51	3.0	0.169	4.0	LOS A	1.0	7.0	0.20	0.47	0.20	40.0
Approach		211	3.0	222	3.0	0.169	4.2	LOS A	1.0	7.0	0.20	0.47	0.20	31.4
West: Almondbury Rd														
11	T1	69	3.0	73	3.0	0.122	5.2	LOS A	0.6	4.5	0.43	0.59	0.43	37.3
12	R2	48	3.0	51	3.0	0.122	8.2	LOS A	0.6	4.5	0.43	0.59	0.43	33.0
Approach		117	3.0	123	3.0	0.122	6.4	LOS A	0.6	4.5	0.43	0.59	0.43	35.7
All Vehicles		623	3.0	656	3.0	0.230	3.2	LOS A	1.3	9.6	0.24	0.38	0.24	31.4

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

Roundabout LOS Method: SIDRA Roundabout LOS.

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA Standard.

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

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

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MOVEMENT SUMMARY

 **Site: N3 [N3 (2031 BG) (SAT) (Site Folder: (2031 BG))]**

Intersection: Almondbury Road / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Site Access														
1	L2	64	3.0	67	3.0	0.265	0.2	LOS A	1.7	12.0	0.17	0.21	0.17	28.8
3	R2	293	3.0	308	3.0	0.265	1.2	LOS A	1.7	12.0	0.17	0.21	0.17	29.8
Approach		357	3.0	376	3.0	0.265	1.0	LOS A	1.7	12.0	0.17	0.21	0.17	29.7
East: Almondbury Rd														
4	L2	243	3.0	256	3.0	0.242	4.7	LOS A	1.5	10.7	0.33	0.51	0.33	28.2
5	T1	33	3.0	35	3.0	0.242	4.4	LOS A	1.5	10.7	0.33	0.51	0.33	39.2
Approach		276	3.0	291	3.0	0.242	4.6	LOS A	1.5	10.7	0.33	0.51	0.33	29.5
West: Almondbury Rd														
11	T1	46	3.0	48	3.0	0.162	5.6	LOS A	0.9	6.1	0.48	0.66	0.48	36.0
12	R2	103	3.0	108	3.0	0.162	8.6	LOS A	0.9	6.1	0.48	0.66	0.48	31.7
Approach		149	3.0	157	3.0	0.162	7.7	LOS A	0.9	6.1	0.48	0.66	0.48	33.2
All Vehicles		782	3.0	823	3.0	0.265	3.6	LOS A	1.7	12.0	0.29	0.40	0.29	30.3

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

Roundabout LOS Method: SIDRA Roundabout LOS.

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA Standard.

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

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

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MOVEMENT SUMMARY

 **Site: N3 [N3 (2021 BG + DEV) (PM) (Site Folder: (2031 BG + DEV))]**

Intersection: Almondbury Road / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Site Access														
1	L2	213	3.0	224	3.0	0.328	1.6	LOS A	2.1	15.2	0.52	0.40	0.52	28.5
3	R2	106	3.0	112	3.0	0.328	2.6	LOS A	2.1	15.2	0.52	0.40	0.52	29.5
Approach		319	3.0	336	3.0	0.328	2.0	LOS A	2.1	15.2	0.52	0.40	0.52	28.8
East: Almondbury Rd														
4	L2	159	3.0	167	3.0	0.378	5.7	LOS A	2.5	18.1	0.52	0.59	0.52	27.5
5	T1	220	3.0	232	3.0	0.378	5.4	LOS A	2.5	18.1	0.52	0.59	0.52	38.0
Approach		379	3.0	399	3.0	0.378	5.5	LOS A	2.5	18.1	0.52	0.59	0.52	33.6
West: Almondbury Rd														
11	T1	212	3.0	223	3.0	0.364	4.5	LOS A	2.6	18.6	0.38	0.56	0.38	37.4
12	R2	213	3.0	224	3.0	0.364	7.5	LOS A	2.6	18.6	0.38	0.56	0.38	33.2
Approach		425	3.0	447	3.0	0.364	6.0	LOS A	2.6	18.6	0.38	0.56	0.38	35.5
All Vehicles		1123	3.0	1182	3.0	0.378	4.7	LOS A	2.6	18.6	0.47	0.52	0.47	33.0

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA Standard.

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

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

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MOVEMENT SUMMARY

 **Site: N3 [N3 (2021 BG + DEV) (SAT) (Site Folder: (2031 BG + DEV))]**

Intersection: Almondbury Road / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Site Access														
1	L2	216	3.0	227	3.0	0.356	1.3	LOS A	2.5	17.7	0.49	0.37	0.49	28.4
3	R2	155	3.0	163	3.0	0.356	2.3	LOS A	2.5	17.7	0.49	0.37	0.49	29.4
Approach		371	3.0	391	3.0	0.356	1.7	LOS A	2.5	17.7	0.49	0.37	0.49	28.8
East: Almondbury Rd														
4	L2	125	3.0	132	3.0	0.344	6.5	LOS A	2.2	16.0	0.62	0.67	0.62	27.0
5	T1	173	3.0	182	3.0	0.344	6.2	LOS A	2.2	16.0	0.62	0.67	0.62	37.3
Approach		298	3.0	314	3.0	0.344	6.3	LOS A	2.2	16.0	0.62	0.67	0.62	33.0
West: Almondbury Rd														
11	T1	278	3.0	293	3.0	0.543	5.2	LOS A	4.6	33.2	0.55	0.61	0.55	36.4
12	R2	324	3.0	341	3.0	0.543	8.2	LOS A	4.6	33.2	0.55	0.61	0.55	32.1
Approach		602	3.0	634	3.0	0.543	6.8	LOS A	4.6	33.2	0.55	0.61	0.55	34.3
All Vehicles		1271	3.0	1338	3.0	0.543	5.2	LOS A	4.6	33.2	0.55	0.55	0.55	32.4

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA Standard.

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

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

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MOVEMENT SUMMARY

 **Site: N3 [N3 (2031 BG + DEV) (PM) (Site Folder: (2031 BG + DEV))]**

Intersection: Almondbury Road / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Site Access														
1	L2	211	3.0	222	3.0	0.330	1.7	LOSA	2.1	15.3	0.53	0.41	0.53	28.4
3	R2	106	3.0	112	3.0	0.330	2.7	LOSA	2.1	15.3	0.53	0.41	0.53	29.4
Approach		317	3.0	334	3.0	0.330	2.1	LOSA	2.1	15.3	0.53	0.41	0.53	28.8
East: Almondbury Rd														
4	L2	158	3.0	166	3.0	0.386	5.6	LOSA	2.6	18.6	0.52	0.59	0.52	27.5
5	T1	230	3.0	242	3.0	0.386	5.4	LOSA	2.6	18.6	0.52	0.59	0.52	38.0
Approach		388	3.0	408	3.0	0.386	5.5	LOSA	2.6	18.6	0.52	0.59	0.52	33.8
West: Almondbury Rd														
11	T1	223	3.0	235	3.0	0.372	4.5	LOSA	2.7	19.2	0.38	0.55	0.38	37.4
12	R2	211	3.0	222	3.0	0.372	7.5	LOSA	2.7	19.2	0.38	0.55	0.38	33.2
Approach		434	3.0	457	3.0	0.372	6.0	LOSA	2.7	19.2	0.38	0.55	0.38	35.6
All Vehicles		1139	3.0	1199	3.0	0.386	4.7	LOSA	2.7	19.2	0.47	0.53	0.47	33.1

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA Standard.

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

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

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MOVEMENT SUMMARY

 **Site: N3 [N3 (2031 BG + DEV) (SAT) (Site Folder: (2031 BG + DEV))]**

Intersection: Almondbury Road / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Site Access														
1	L2	214	3.0	225	3.0	0.357	1.3	LOS A	2.5	17.7	0.50	0.38	0.50	28.4
3	R2	154	3.0	162	3.0	0.357	2.4	LOS A	2.5	17.7	0.50	0.38	0.50	29.4
Approach		368	3.0	387	3.0	0.357	1.8	LOS A	2.5	17.7	0.50	0.38	0.50	28.8
East: Almondbury Rd														
4	L2	124	3.0	131	3.0	0.351	6.5	LOS A	2.3	16.4	0.62	0.67	0.62	27.0
5	T1	181	3.0	191	3.0	0.351	6.2	LOS A	2.3	16.4	0.62	0.67	0.62	37.3
Approach		305	3.0	321	3.0	0.351	6.3	LOS A	2.3	16.4	0.62	0.67	0.62	33.1
West: Almondbury Rd														
11	T1	280	3.0	295	3.0	0.542	5.1	LOS A	4.6	33.2	0.55	0.61	0.55	36.4
12	R2	322	3.0	339	3.0	0.542	8.1	LOS A	4.6	33.2	0.55	0.61	0.55	32.1
Approach		602	3.0	634	3.0	0.542	6.7	LOS A	4.6	33.2	0.55	0.61	0.55	34.3
All Vehicles		1275	3.0	1342	3.0	0.542	5.2	LOS A	4.6	33.2	0.55	0.56	0.55	32.5

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA Standard.

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

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

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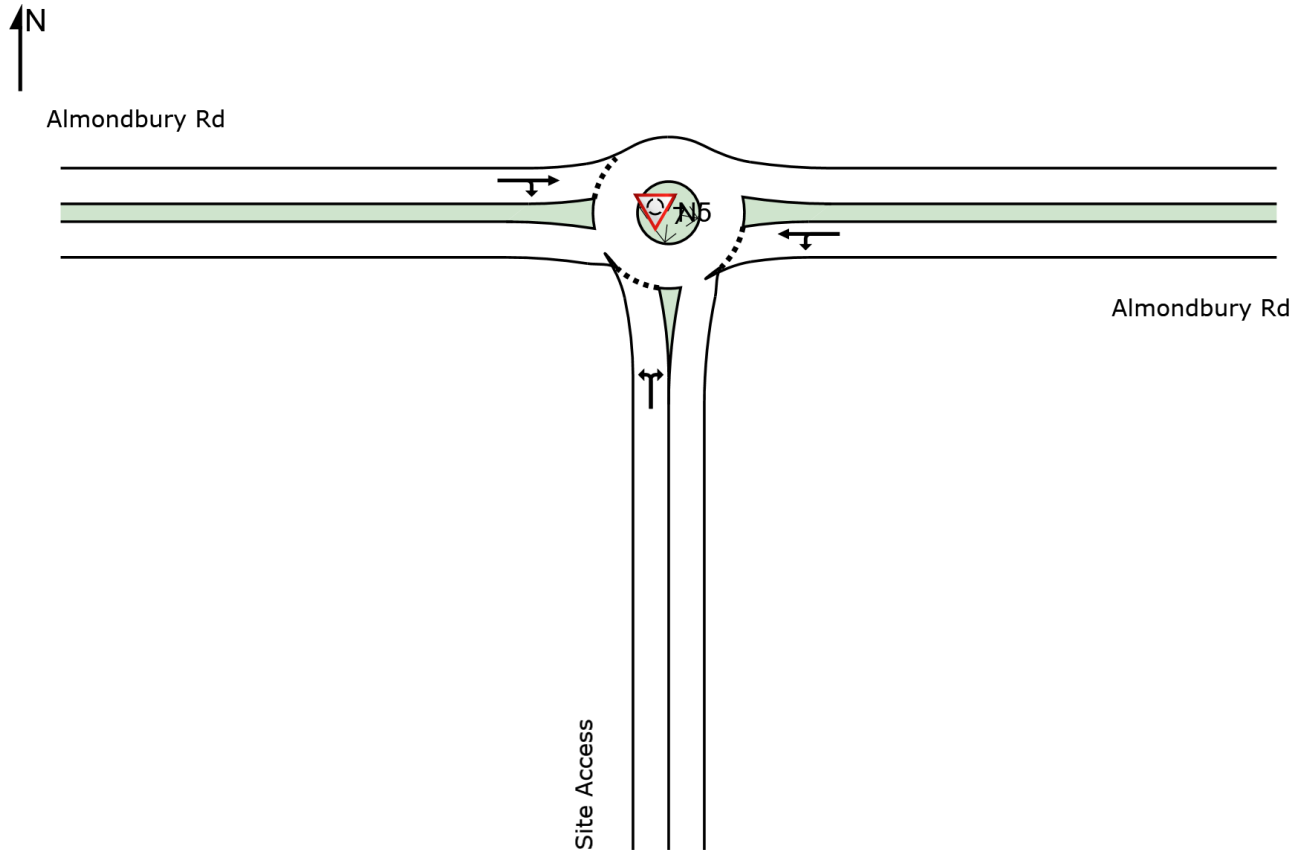
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SITE LAYOUT

 **Site: N5 [N5 (2021 BG + DEV) (PM) (Upgraded) (Site Folder: (2031 BG + DEV))]**

Intersection: Almondbury Road / Site Access
Project: 620.30141 - Westfield Booragoon Redevelopment
Prepared by: MP
Site Category: (None)
Roundabout

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



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MOVEMENT SUMMARY

 **Site: N5 [N5 (2021 BG + DEV) (PM) (Upgraded) (Site Folder: (2031 BG + DEV))]**

Intersection: Almondbury Road / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Site Access														
1	L2	14	3.0	15	3.0	0.350	3.2	LOSA	2.1	14.9	0.61	0.61	0.61	25.9
3	R2	278	3.0	293	3.0	0.350	4.3	LOSA	2.1	14.9	0.61	0.61	0.61	18.6
Approach		292	3.0	307	3.0	0.350	4.2	LOSA	2.1	14.9	0.61	0.61	0.61	19.0
East: Almondbury Rd														
4	L2	195	3.0	205	3.0	0.379	3.3	LOSA	3.1	22.1	0.11	0.43	0.11	26.3
5	T1	365	3.0	384	3.0	0.379	3.0	LOSA	3.1	22.1	0.11	0.43	0.11	38.8
Approach		560	3.0	589	3.0	0.379	3.1	LOSA	3.1	22.1	0.11	0.43	0.11	34.9
West: Almondbury Rd														
11	T1	313	3.0	329	3.0	0.373	6.1	LOSA	2.5	17.9	0.61	0.65	0.61	26.9
12	R2	11	3.0	12	3.0	0.373	8.9	LOSA	2.5	17.9	0.61	0.65	0.61	31.8
Approach		324	3.0	341	3.0	0.373	6.2	LOSA	2.5	17.9	0.61	0.65	0.61	27.1
All Vehicles		1176	3.0	1238	3.0	0.379	4.3	LOSA	3.1	22.1	0.37	0.54	0.37	27.8

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA Standard.

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

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

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MOVEMENT SUMMARY

 **Site: N5 [N5 (2021 BG + DEV) (SAT) (Upgraded) (Site Folder: (2031 BG + DEV))]**

Intersection: Almondbury Road / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Site Access														
1	L2	16	3.0	17	3.0	0.370	2.6	LOS A	2.3	16.2	0.56	0.55	0.56	26.5
3	R2	317	3.0	334	3.0	0.370	3.7	LOS A	2.3	16.2	0.56	0.55	0.56	19.1
Approach		333	3.0	351	3.0	0.370	3.6	LOS A	2.3	16.2	0.56	0.55	0.56	19.5
East: Almondbury Rd														
4	L2	183	3.0	193	3.0	0.316	3.3	LOS A	2.4	17.6	0.10	0.44	0.10	26.3
5	T1	282	3.0	297	3.0	0.316	3.0	LOS A	2.4	17.6	0.10	0.44	0.10	38.8
Approach		465	3.0	489	3.0	0.316	3.1	LOS A	2.4	17.6	0.10	0.44	0.10	34.4
West: Almondbury Rd														
11	T1	431	3.0	454	3.0	0.521	7.1	LOS A	4.1	29.2	0.71	0.74	0.74	26.4
12	R2	10	3.0	11	3.0	0.521	9.9	LOS A	4.1	29.2	0.71	0.74	0.74	31.1
Approach		441	3.0	464	3.0	0.521	7.2	LOS A	4.1	29.2	0.71	0.74	0.74	26.5
All Vehicles		1239	3.0	1304	3.0	0.521	4.7	LOS A	4.1	29.2	0.44	0.58	0.45	26.8

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA Standard.

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

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

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MOVEMENT SUMMARY

 **Site: N5 [N5 (2031 BG + DEV) (PM) (Upgraded) (Site Folder: (2031 BG + DEV))]**

Intersection: Almondbury Road / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Site Access														
1	L2	14	3.0	15	3.0	0.350	3.3	LOS A	2.1	15.0	0.61	0.62	0.61	25.8
3	R2	276	3.0	291	3.0	0.350	4.4	LOS A	2.1	15.0	0.61	0.62	0.61	18.5
Approach		290	3.0	305	3.0	0.350	4.3	LOS A	2.1	15.0	0.61	0.62	0.61	18.9
East: Almondbury Rd														
4	L2	193	3.0	203	3.0	0.384	3.3	LOS A	3.1	22.6	0.11	0.43	0.11	26.3
5	T1	375	3.0	395	3.0	0.384	3.0	LOS A	3.1	22.6	0.11	0.43	0.11	38.8
Approach		568	3.0	598	3.0	0.384	3.1	LOS A	3.1	22.6	0.11	0.43	0.11	35.0
West: Almondbury Rd														
11	T1	326	3.0	343	3.0	0.387	6.1	LOS A	2.6	18.8	0.61	0.65	0.61	26.9
12	R2	11	3.0	12	3.0	0.387	8.9	LOS A	2.6	18.8	0.61	0.65	0.61	31.7
Approach		337	3.0	355	3.0	0.387	6.2	LOS A	2.6	18.8	0.61	0.65	0.61	27.0
All Vehicles		1195	3.0	1258	3.0	0.387	4.3	LOS A	3.1	22.6	0.37	0.54	0.37	27.9

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA Standard.

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

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

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MOVEMENT SUMMARY

 **Site: N5 [N5 (2031 BG + DEV) (SAT) (Upgraded) (Site Folder: (2031 BG + DEV))]**

Intersection: Almondbury Road / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Site Access														
1	L2	16	3.0	17	3.0	0.386	2.7	LOSA	2.4	17.1	0.57	0.56	0.57	26.4
3	R2	330	3.0	347	3.0	0.386	3.8	LOSA	2.4	17.1	0.57	0.56	0.57	19.0
Approach		346	3.0	364	3.0	0.386	3.7	LOSA	2.4	17.1	0.57	0.56	0.57	19.4
East: Almondbury Rd														
4	L2	181	3.0	191	3.0	0.319	3.3	LOSA	2.5	17.9	0.10	0.44	0.10	26.3
5	T1	288	3.0	303	3.0	0.319	3.0	LOSA	2.5	17.9	0.10	0.44	0.10	38.8
Approach		469	3.0	494	3.0	0.319	3.1	LOSA	2.5	17.9	0.10	0.44	0.10	34.5
West: Almondbury Rd														
11	T1	438	3.0	461	3.0	0.538	7.5	LOSA	4.4	31.5	0.73	0.77	0.78	26.0
12	R2	10	3.0	11	3.0	0.538	10.2	LOSA	4.4	31.5	0.73	0.77	0.78	30.6
Approach		448	3.0	472	3.0	0.538	7.6	LOSA	4.4	31.5	0.73	0.77	0.78	26.1
All Vehicles		1263	3.0	1329	3.0	0.538	4.9	LOSA	4.4	31.5	0.45	0.59	0.47	26.6

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA Standard.

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

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

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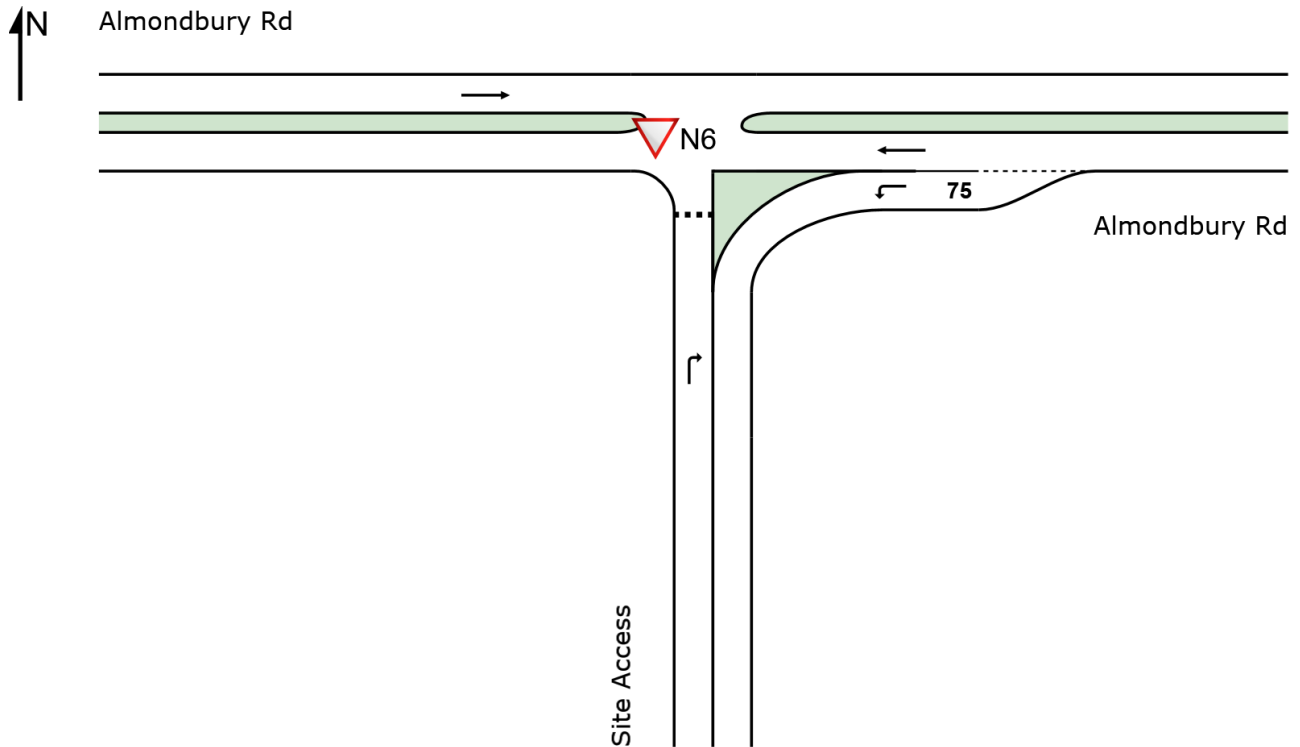
Project: Z:\BNE\Projects-SLR\620-BNE\620.30141.00000 Westfield Booragoon Redevelopment\02 Analysis\2021 07 - Updated SIDRA Analysis\620.30141-SIDRA Analysis-2031-BG+DEV.sip9

SITE LAYOUT

▽ Site: N6 [N6 (2021 BG) (PM) (Existing) (Site Folder: (2021 BG))]

Intersection: Almondbury Road / Site Access
Project: 620.30141 - Westfield Booragoon Redevelopment
Prepared by: MP
Site Category: (None)
Give-Way (Two-Way)

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MOVEMENT SUMMARY

▼ Site: N6 [N6 (2021 BG) (PM) (Existing) (Site Folder: (2021 BG))]

Intersection: Almondbury Road / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Site Access														
3	R2	270	3.0	284	3.0	0.423	5.2	LOS A	2.1	15.2	0.61	0.80	0.84	22.7
Approach		270	3.0	284	3.0	0.423	5.2	LOS A	2.1	15.2	0.61	0.80	0.84	22.7
East: Almondbury Rd														
4	L2	243	3.0	256	3.0	0.136	6.3	LOS A	0.0	0.0	0.00	0.61	0.00	29.7
5	T1	210	3.0	221	3.0	0.112	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		453	3.0	477	3.0	0.136	3.4	NA	0.0	0.0	0.00	0.33	0.00	35.9
West: Almondbury Rd														
11	T1	344	3.0	362	3.0	0.183	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		344	3.0	362	3.0	0.183	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.9
All Vehicles		1067	3.0	1123	3.0	0.423	2.7	NA	2.1	15.2	0.15	0.34	0.21	33.7

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.
 Delay Model: SIDRA Standard (Geometric Delay is included).
 Queue Model: SIDRA Standard.
 Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

▽ Site: N6 [N6 (2021 BG) (SAT) (Existing) (Site Folder: (2021 BG))]

Intersection: Almondbury Road / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Site Access														
3	R2	293	3.0	308	3.0	0.495	6.5	LOS A	2.7	19.3	0.67	0.94	1.02	21.4
Approach		293	3.0	308	3.0	0.495	6.5	LOS A	2.7	19.3	0.67	0.94	1.02	21.4
East: Almondbury Rd														
4	L2	275	3.0	289	3.0	0.154	6.3	LOS A	0.0	0.0	0.00	0.61	0.00	29.7
5	T1	293	3.0	308	3.0	0.156	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		568	3.0	598	3.0	0.156	3.1	NA	0.0	0.0	0.00	0.29	0.00	36.8
West: Almondbury Rd														
11	T1	335	3.0	353	3.0	0.178	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		335	3.0	353	3.0	0.178	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.9
All Vehicles		1196	3.0	1259	3.0	0.495	3.1	NA	2.7	19.3	0.16	0.37	0.25	33.2

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.
 Delay Model: SIDRA Standard (Geometric Delay is included).
 Queue Model: SIDRA Standard.
 Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

▼ Site: N6 [N6 (2031 BG) (PM) (Existing) (Site Folder: (2031 BG))]

Intersection: Almondbury Road / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Site Access														
3	R2	278	3.0	293	3.0	0.425	5.0	LOS A	2.2	15.5	0.61	0.79	0.83	22.8
Approach		278	3.0	293	3.0	0.425	5.0	LOS A	2.2	15.5	0.61	0.79	0.83	22.8
East: Almondbury Rd														
4	L2	238	3.0	251	3.0	0.133	6.3	LOS A	0.0	0.0	0.00	0.61	0.00	29.7
5	T1	220	3.0	232	3.0	0.117	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		458	3.0	482	3.0	0.133	3.3	NA	0.0	0.0	0.00	0.31	0.00	36.2
West: Almondbury Rd														
11	T1	320	3.0	337	3.0	0.170	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		320	3.0	337	3.0	0.170	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.9
All Vehicles		1056	3.0	1112	3.0	0.425	2.7	NA	2.2	15.5	0.16	0.34	0.22	33.6

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.
 Delay Model: SIDRA Standard (Geometric Delay is included).
 Queue Model: SIDRA Standard.
 Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

▽ Site: N6 [N6 (2031 BG) (SAT) (Existing) (Site Folder: (2031 BG))]

Intersection: Almondbury Road / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Site Access														
3	R2	294	3.0	309	3.0	0.507	6.8	LOS A	2.8	19.9	0.69	0.97	1.06	21.2
Approach		294	3.0	309	3.0	0.507	6.8	LOS A	2.8	19.9	0.69	0.97	1.06	21.2
East: Almondbury Rd														
4	L2	267	3.0	281	3.0	0.149	6.3	LOS A	0.0	0.0	0.00	0.61	0.00	29.7
5	T1	292	3.0	307	3.0	0.155	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		559	3.0	588	3.0	0.155	3.0	NA	0.0	0.0	0.00	0.29	0.00	36.9
West: Almondbury Rd														
11	T1	353	3.0	372	3.0	0.187	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		353	3.0	372	3.0	0.187	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.9
All Vehicles		1206	3.0	1269	3.0	0.507	3.1	NA	2.8	19.9	0.17	0.37	0.26	33.2

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.
 Delay Model: SIDRA Standard (Geometric Delay is included).
 Queue Model: SIDRA Standard.
 Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

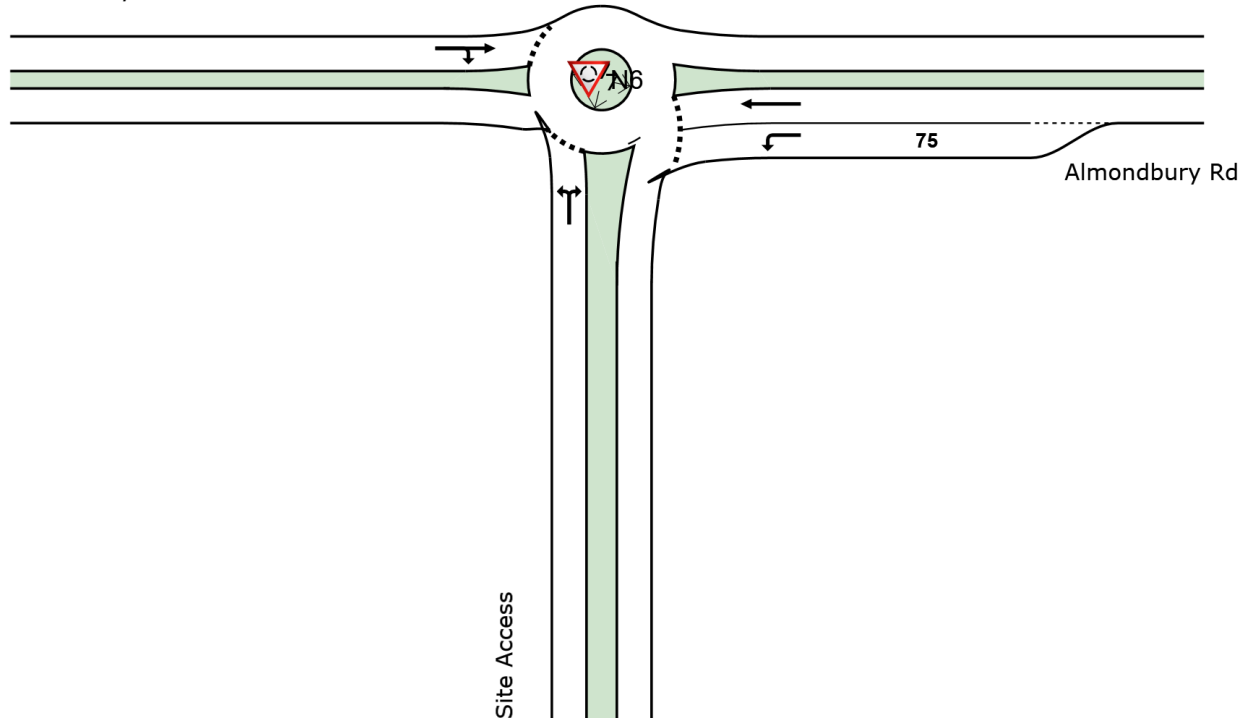
 **Site: N6 [N6 (2021 BG + DEV) (PM) (Upgraded) (Site Folder: (2031 BG + DEV))]**

Intersection: Almondbury Road / Site Access
Project: 620.30141 - Westfield Booragoon Redevelopment
Prepared by: MP
Site Category: (None)
Roundabout

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



Almondbury Rd



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MOVEMENT SUMMARY

 **Site: N6 [N6 (2021 BG + DEV) (PM) (Upgraded) (Site Folder: (2031 BG + DEV))]**

Intersection: Almondbury Road / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Site Access														
1	L2	14	3.0	15	3.0	0.189	5.7	LOSA	1.6	11.8	0.72	0.57	0.72	16.9
3	R2	133	3.0	140	3.0	0.189	6.8	LOSA	1.6	11.8	0.72	0.57	0.72	21.2
Approach		147	3.0	155	3.0	0.189	6.7	LOSA	1.6	11.8	0.72	0.57	0.72	20.8
East: Almondbury Rd														
4	L2	88	3.0	93	3.0	0.087	5.0	LOSA	0.4	2.8	0.06	0.57	0.06	27.1
5	T1	552	3.0	581	3.0	0.346	3.9	LOSA	2.4	16.9	0.06	0.44	0.06	32.7
Approach		640	3.0	674	3.0	0.346	4.0	LOSA	2.4	16.9	0.06	0.46	0.06	31.8
West: Almondbury Rd														
11	T1	582	3.0	613	3.0	0.541	4.2	LOSA	4.9	34.9	0.55	0.54	0.55	32.8
12	R2	9	3.0	9	3.0	0.541	6.8	LOSA	4.9	34.9	0.55	0.54	0.55	27.3
Approach		591	3.0	622	3.0	0.541	4.3	LOSA	4.9	34.9	0.55	0.54	0.55	32.8
All Vehicles		1378	3.0	1451	3.0	0.541	4.4	LOSA	4.9	34.9	0.34	0.51	0.34	30.4

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA Standard.

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

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

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MOVEMENT SUMMARY

 **Site: N6 [N6 (2021 BG + DEV) (SAT) (Upgraded) (Site Folder: (2031 BG + DEV))]**

Intersection: Almondbury Road / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Site Access														
1	L2	16	3.0	17	3.0	0.235	4.5	LOS A	1.9	13.7	0.67	0.55	0.67	17.7
3	R2	179	3.0	188	3.0	0.235	5.6	LOS A	1.9	13.7	0.67	0.55	0.67	22.2
Approach		195	3.0	205	3.0	0.235	5.5	LOS A	1.9	13.7	0.67	0.55	0.67	21.8
East: Almondbury Rd														
4	L2	157	3.0	165	3.0	0.132	4.9	LOS A	0.7	4.9	0.05	0.58	0.05	27.2
5	T1	462	3.0	486	3.0	0.285	3.9	LOS A	1.9	13.9	0.05	0.45	0.05	32.8
Approach		619	3.0	652	3.0	0.285	4.1	LOS A	1.9	13.9	0.05	0.48	0.05	31.2
West: Almondbury Rd														
11	T1	743	3.0	782	3.0	0.721	5.9	LOS A	8.7	62.8	0.78	0.67	0.81	31.1
12	R2	5	3.0	5	3.0	0.721	8.5	LOS A	8.7	62.8	0.78	0.67	0.81	25.8
Approach		748	3.0	787	3.0	0.721	5.9	LOS A	8.7	62.8	0.78	0.67	0.81	31.1
All Vehicles		1562	3.0	1644	3.0	0.721	5.1	LOS A	8.7	62.8	0.47	0.58	0.49	29.5

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA Standard.

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

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

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MOVEMENT SUMMARY

 **Site: N6 [N6 (2031 BG + DEV) (PM) (Upgraded) (Site Folder: (2031 BG + DEV))]**

Intersection: Almondbury Road / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Site Access														
1	L2	14	3.0	15	3.0	0.189	6.0	LOS A	1.7	12.0	0.74	0.57	0.74	16.7
3	R2	132	3.0	139	3.0	0.189	7.0	LOS A	1.7	12.0	0.74	0.57	0.74	21.0
Approach		146	3.0	154	3.0	0.189	6.9	LOS A	1.7	12.0	0.74	0.57	0.74	20.6
East: Almondbury Rd														
4	L2	88	3.0	93	3.0	0.087	5.0	LOS A	0.4	2.8	0.06	0.57	0.06	27.1
5	T1	564	3.0	594	3.0	0.353	3.9	LOS A	2.4	17.5	0.07	0.44	0.07	32.7
Approach		652	3.0	686	3.0	0.353	4.0	LOS A	2.4	17.5	0.06	0.46	0.06	31.8
West: Almondbury Rd														
11	T1	593	3.0	624	3.0	0.550	4.2	LOS A	5.0	36.1	0.55	0.54	0.55	32.8
12	R2	9	3.0	9	3.0	0.550	6.8	LOS A	5.0	36.1	0.55	0.54	0.55	27.3
Approach		602	3.0	634	3.0	0.550	4.3	LOS A	5.0	36.1	0.55	0.54	0.55	32.7
All Vehicles		1400	3.0	1474	3.0	0.550	4.4	LOS A	5.0	36.1	0.34	0.51	0.34	30.4

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA Standard.

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

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

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MOVEMENT SUMMARY

 **Site: N6 [N6 (2031 BG + DEV) (SAT) (Upgraded) (Site Folder: (2031 BG + DEV))]**

Intersection: Almondbury Road / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Site Access														
1	L2	16	3.0	17	3.0	0.220	4.6	LOSA	1.8	12.7	0.67	0.55	0.67	17.7
3	R2	165	3.0	174	3.0	0.220	5.7	LOSA	1.8	12.7	0.67	0.55	0.67	22.1
Approach		181	3.0	191	3.0	0.220	5.6	LOSA	1.8	12.7	0.67	0.55	0.67	21.8
East: Almondbury Rd														
4	L2	156	3.0	164	3.0	0.132	4.9	LOSA	0.7	4.9	0.04	0.58	0.04	27.2
5	T1	470	3.0	495	3.0	0.290	3.9	LOSA	2.0	14.2	0.05	0.45	0.05	32.8
Approach		626	3.0	659	3.0	0.290	4.1	LOSA	2.0	14.2	0.05	0.48	0.05	31.2
West: Almondbury Rd														
11	T1	762	3.0	802	3.0	0.722	5.4	LOSA	8.7	62.2	0.76	0.64	0.78	31.3
12	R2	5	3.0	5	3.0	0.722	8.0	LOSA	8.7	62.2	0.76	0.64	0.78	25.9
Approach		767	3.0	807	3.0	0.722	5.5	LOSA	8.7	62.2	0.76	0.64	0.78	31.3
All Vehicles		1574	3.0	1657	3.0	0.722	4.9	LOSA	8.7	62.2	0.47	0.56	0.48	29.7

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA Standard.

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

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

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SITE LAYOUT

 **Site: W1 [W1 (2021 BG) (PM) (Site Folder: (2021 BG))]**

Intersection: Davy Street / Site Access

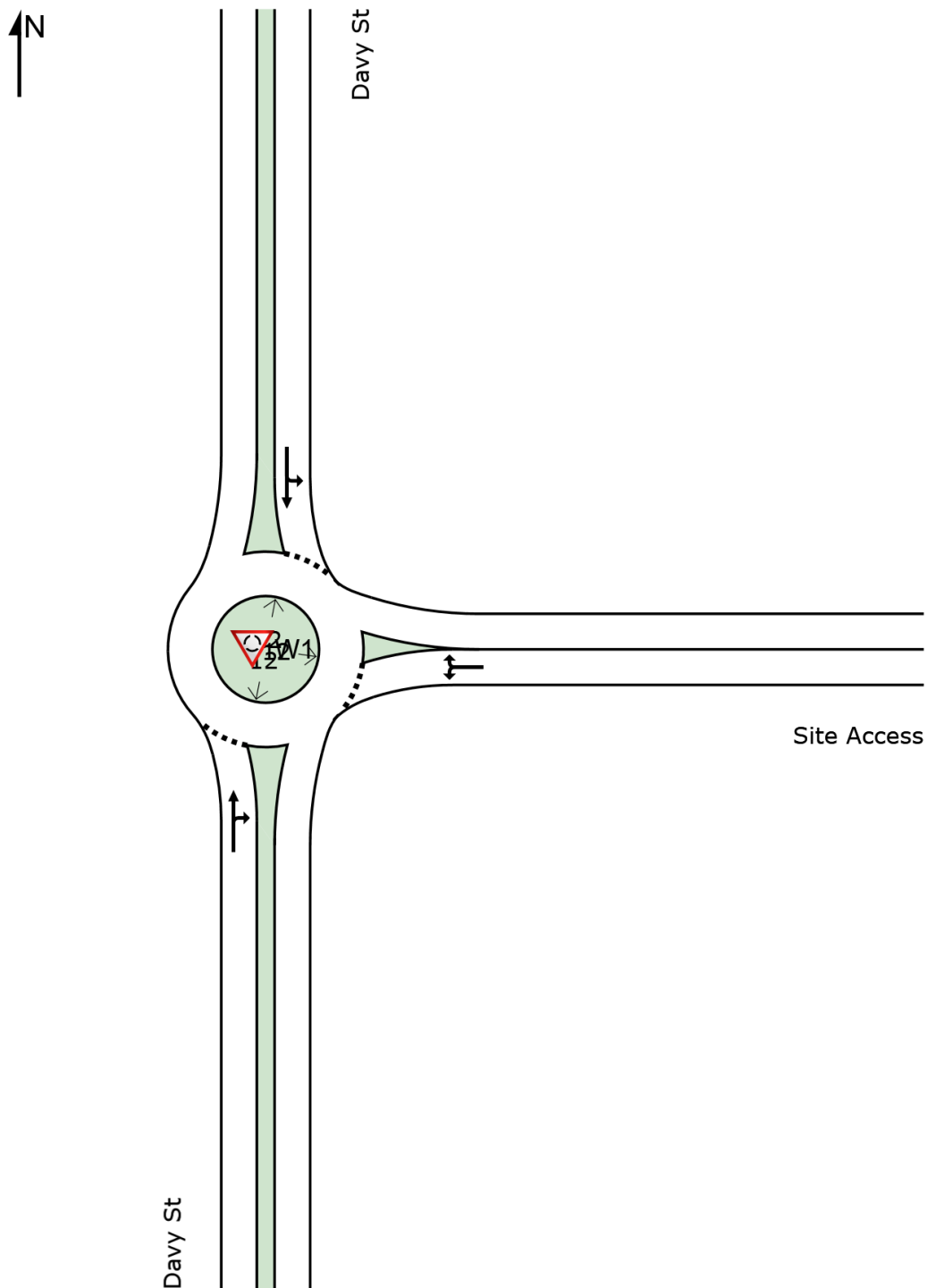
Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Roundabout

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



MOVEMENT SUMMARY

 **Site: W1 [W1 (2021 BG) (PM) (Site Folder: (2021 BG))]**

Intersection: Davy Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Davy St														
2	T1	156	3.0	164	3.0	0.258	3.7	LOS A	1.4	9.8	0.16	0.53	0.16	45.6
3	R2	186	3.0	196	3.0	0.258	7.2	LOS A	1.4	9.8	0.16	0.53	0.16	26.9
Approach		342	3.0	360	3.0	0.258	5.6	LOS A	1.4	9.8	0.16	0.53	0.16	33.9
East: Site Access														
4	L2	157	3.0	165	3.0	0.169	0.5	LOS A	0.9	6.8	0.27	0.14	0.27	25.5
6	R2	40	3.0	42	3.0	0.169	1.0	LOS A	0.9	6.8	0.27	0.14	0.27	30.0
Approach		197	3.0	207	3.0	0.169	0.6	LOS A	0.9	6.8	0.27	0.14	0.27	26.6
North: Davy St														
7	L2	22	3.0	23	3.0	0.102	5.1	LOS A	0.6	4.0	0.37	0.47	0.37	29.3
8	T1	83	3.0	87	3.0	0.102	4.5	LOS A	0.6	4.0	0.37	0.47	0.37	46.0
Approach		105	3.0	111	3.0	0.102	4.6	LOS A	0.6	4.0	0.37	0.47	0.37	40.6
All Vehicles		644	3.0	678	3.0	0.258	3.9	LOS A	1.4	9.8	0.23	0.40	0.23	32.2

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

Roundabout LOS Method: SIDRA Roundabout LOS.

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA Standard.

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

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

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MOVEMENT SUMMARY

 **Site: W1 [W1 (2021 BG) (SAT) (Site Folder: (2021 BG))]**

Intersection: Davy Street / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Davy St														
2	T1	85	3.0	89	3.0	0.268	3.6	LOSA	1.5	10.7	0.12	0.57	0.12	45.1
3	R2	289	3.0	304	3.0	0.268	7.1	LOSA	1.5	10.7	0.12	0.57	0.12	26.8
Approach		374	3.0	394	3.0	0.268	6.3	LOSA	1.5	10.7	0.12	0.57	0.12	30.0
East: Site Access														
4	L2	224	3.0	236	3.0	0.217	0.6	LOSA	1.3	9.4	0.32	0.17	0.32	25.5
6	R2	25	3.0	26	3.0	0.217	1.1	LOSA	1.3	9.4	0.32	0.17	0.32	30.0
Approach		249	3.0	262	3.0	0.217	0.7	LOSA	1.3	9.4	0.32	0.17	0.32	26.0
North: Davy St														
7	L2	35	3.0	37	3.0	0.141	5.8	LOSA	0.8	6.0	0.48	0.53	0.48	29.1
8	T1	100	3.0	105	3.0	0.141	5.3	LOSA	0.8	6.0	0.48	0.53	0.48	45.6
Approach		135	3.0	142	3.0	0.141	5.4	LOSA	0.8	6.0	0.48	0.53	0.48	39.2
All Vehicles		758	3.0	798	3.0	0.268	4.3	LOSA	1.5	10.7	0.25	0.43	0.25	30.0

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

Roundabout LOS Method: SIDRA Roundabout LOS.

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA Standard.

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

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

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MOVEMENT SUMMARY

 **Site: W1 [W1 (2031 BG) (PM) (Site Folder: (2031 BG))]**

Intersection: Davy Street / Site Access

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: MP

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Davy St														
2	T1	169	3.0	178	3.0	0.262	3.7	LOS A	1.4	10.0	0.16	0.52	0.16	45.6
3	R2	178	3.0	187	3.0	0.262	7.2	LOS A	1.4	10.0	0.16	0.52	0.16	27.0
Approach		347	3.0	365	3.0	0.262	5.5	LOS A	1.4	10.0	0.16	0.52	0.16	34.5
East: Site Access														
4	L2	190	3.0	200	3.0	0.195	0.5	LOS A	1.1	8.1	0.27	0.14	0.27	25.5
6	R2	41	3.0	43	3.0	0.195	1.0	LOS A	1.1	8.1	0.27	0.14	0.27	30.0
Approach		231	3.0	243	3.0	0.195	0.6	LOS A	1.1	8.1	0.27	0.14	0.27	26.4
North: Davy St														
7	L2	27	3.0	28	3.0	0.104	5.1	LOS A	0.6	4.1	0.37	0.47	0.37	29.3
8	T1	81	3.0	85	3.0	0.104	4.5	LOS A	0.6	4.1	0.37	0.47	0.37	46.0
Approach		108	3.0	114	3.0	0.104	4.6	LOS A	0.6	4.1	0.37	0.47	0.37	39.7
All Vehicles		686	3.0	722	3.0	0.262	3.7	LOS A	1.4	10.0	0.23	0.38	0.23	32.1

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

Roundabout LOS Method: SIDRA Roundabout LOS.

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA Standard.

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

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

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MOVEMENT SUMMARY

 **Site: W1 [W1 (2031 BG) (SAT) (Site Folder: (2031 BG))]**

Intersection: Davy Street / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Davy St														
2	T1	100	3.0	105	3.0	0.277	3.5	LOS A	1.5	11.1	0.12	0.56	0.12	45.2
3	R2	289	3.0	304	3.0	0.277	7.1	LOS A	1.5	11.1	0.12	0.56	0.12	26.8
Approach		389	3.0	409	3.0	0.277	6.2	LOS A	1.5	11.1	0.12	0.56	0.12	30.4
East: Site Access														
4	L2	233	3.0	245	3.0	0.220	0.6	LOS A	1.3	9.6	0.31	0.16	0.31	25.5
6	R2	23	3.0	24	3.0	0.220	1.0	LOS A	1.3	9.6	0.31	0.16	0.31	30.1
Approach		256	3.0	269	3.0	0.220	0.6	LOS A	1.3	9.6	0.31	0.16	0.31	26.0
North: Davy St														
7	L2	45	3.0	47	3.0	0.143	5.8	LOS A	0.8	6.0	0.48	0.54	0.48	29.1
8	T1	92	3.0	97	3.0	0.143	5.3	LOS A	0.8	6.0	0.48	0.54	0.48	45.6
Approach		137	3.0	144	3.0	0.143	5.5	LOS A	0.8	6.0	0.48	0.54	0.48	37.9
All Vehicles		782	3.0	823	3.0	0.277	4.2	LOS A	1.5	11.1	0.24	0.43	0.24	30.1

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

Roundabout LOS Method: SIDRA Roundabout LOS.

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA Standard.

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

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

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MOVEMENT SUMMARY

 Site: W1 [W1 (2021 BG + DEV) (PM) (Site Folder: (2031 BG + DEV))]

Intersection: Davy Street / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Davy St														
2	T1	164	3.0	173	3.0	0.298	4.6	LOS A	1.6	11.4	0.36	0.58	0.36	45.1
3	R2	150	3.0	158	3.0	0.298	8.2	LOS A	1.6	11.4	0.36	0.58	0.36	26.7
Approach		314	3.0	331	3.0	0.298	6.3	LOS A	1.6	11.4	0.36	0.58	0.36	34.7
East: Site Access														
4	L2	178	3.0	187	3.0	0.288	0.5	LOS A	1.8	13.3	0.29	0.17	0.29	25.4
6	R2	173	3.0	182	3.0	0.288	1.0	LOS A	1.8	13.3	0.29	0.17	0.29	29.9
Approach		351	3.0	369	3.0	0.288	0.7	LOS A	1.8	13.3	0.29	0.17	0.29	27.8
North: Davy St														
7	L2	180	3.0	189	3.0	0.239	5.0	LOS A	1.5	10.9	0.39	0.52	0.39	29.2
8	T1	78	3.0	82	3.0	0.239	4.4	LOS A	1.5	10.9	0.39	0.52	0.39	45.9
Approach		258	3.0	272	3.0	0.239	4.8	LOS A	1.5	10.9	0.39	0.52	0.39	32.4
All Vehicles		923	3.0	972	3.0	0.298	3.8	LOS A	1.8	13.3	0.34	0.41	0.34	31.1

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA Standard.

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

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

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MOVEMENT SUMMARY

 **Site: W1 [W1 (2021 BG + DEV) (SAT) (Site Folder: (2031 BG + DEV))]**

Intersection: Davy Street / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Davy St														
2	T1	104	3.0	109	3.0	0.343	4.5	LOS A	2.0	14.1	0.36	0.60	0.36	44.6
3	R2	273	3.0	287	3.0	0.343	8.0	LOS A	2.0	14.1	0.36	0.60	0.36	26.5
Approach		377	3.0	397	3.0	0.343	7.0	LOS A	2.0	14.1	0.36	0.60	0.36	30.4
East: Site Access														
4	L2	209	3.0	220	3.0	0.311	0.8	LOS A	2.1	15.0	0.37	0.23	0.37	25.3
6	R2	148	3.0	156	3.0	0.311	1.2	LOS A	2.1	15.0	0.37	0.23	0.37	29.8
Approach		357	3.0	376	3.0	0.311	1.0	LOS A	2.1	15.0	0.37	0.23	0.37	27.4
North: Davy St														
7	L2	145	3.0	153	3.0	0.272	6.0	LOS A	1.8	12.8	0.53	0.59	0.53	29.0
8	T1	112	3.0	118	3.0	0.272	5.4	LOS A	1.8	12.8	0.53	0.59	0.53	45.4
Approach		257	3.0	271	3.0	0.272	5.7	LOS A	1.8	12.8	0.53	0.59	0.53	33.9
All Vehicles		991	3.0	1043	3.0	0.343	4.5	LOS A	2.1	15.0	0.41	0.47	0.41	30.1

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA Standard.

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

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

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MOVEMENT SUMMARY

 Site: W1 [W1 (2031 BG + DEV) (PM) (Site Folder: (2031 BG + DEV))]

Intersection: Davy Street / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Davy St														
2	T1	178	3.0	187	3.0	0.308	4.6	LOS A	1.7	11.9	0.37	0.57	0.37	45.1
3	R2	148	3.0	156	3.0	0.308	8.2	LOS A	1.7	11.9	0.37	0.57	0.37	26.7
Approach		326	3.0	343	3.0	0.308	6.2	LOS A	1.7	11.9	0.37	0.57	0.37	35.2
East: Site Access														
4	L2	177	3.0	186	3.0	0.286	0.5	LOS A	1.8	13.2	0.29	0.17	0.29	25.4
6	R2	172	3.0	181	3.0	0.286	1.0	LOS A	1.8	13.2	0.29	0.17	0.29	29.9
Approach		349	3.0	367	3.0	0.286	0.7	LOS A	1.8	13.2	0.29	0.17	0.29	27.8
North: Davy St														
7	L2	178	3.0	187	3.0	0.237	5.0	LOS A	1.5	10.8	0.39	0.51	0.39	29.2
8	T1	78	3.0	82	3.0	0.237	4.4	LOS A	1.5	10.8	0.39	0.51	0.39	45.9
Approach		256	3.0	269	3.0	0.237	4.8	LOS A	1.5	10.8	0.39	0.51	0.39	32.4
All Vehicles		931	3.0	980	3.0	0.308	3.8	LOS A	1.8	13.2	0.34	0.41	0.34	31.3

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA Standard.

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

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

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MOVEMENT SUMMARY

 Site: W1 [W1 (2031 BG + DEV) (SAT) (Site Folder: (2031 BG + DEV))]

Intersection: Davy Street / Site Access
 Project: 620.30141 - Westfield Booragoon Redevelopment
 Prepared by: MP
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Davy St														
2	T1	119	3.0	125	3.0	0.352	4.5	LOS A	2.0	14.6	0.36	0.60	0.36	44.7
3	R2	270	3.0	284	3.0	0.352	8.0	LOS A	2.0	14.6	0.36	0.60	0.36	26.6
Approach		389	3.0	409	3.0	0.352	6.9	LOS A	2.0	14.6	0.36	0.60	0.36	30.9
East: Site Access														
4	L2	207	3.0	218	3.0	0.304	0.7	LOS A	2.0	14.6	0.35	0.21	0.35	25.3
6	R2	147	3.0	155	3.0	0.304	1.2	LOS A	2.0	14.6	0.35	0.21	0.35	29.8
Approach		354	3.0	373	3.0	0.304	0.9	LOS A	2.0	14.6	0.35	0.21	0.35	27.4
North: Davy St														
7	L2	144	3.0	152	3.0	0.261	5.9	LOS A	1.7	12.1	0.53	0.59	0.53	29.0
8	T1	103	3.0	108	3.0	0.261	5.3	LOS A	1.7	12.1	0.53	0.59	0.53	45.5
Approach		247	3.0	260	3.0	0.261	5.7	LOS A	1.7	12.1	0.53	0.59	0.53	33.7
All Vehicles		990	3.0	1042	3.0	0.352	4.5	LOS A	2.0	14.6	0.40	0.46	0.40	30.2

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA Standard.

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

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

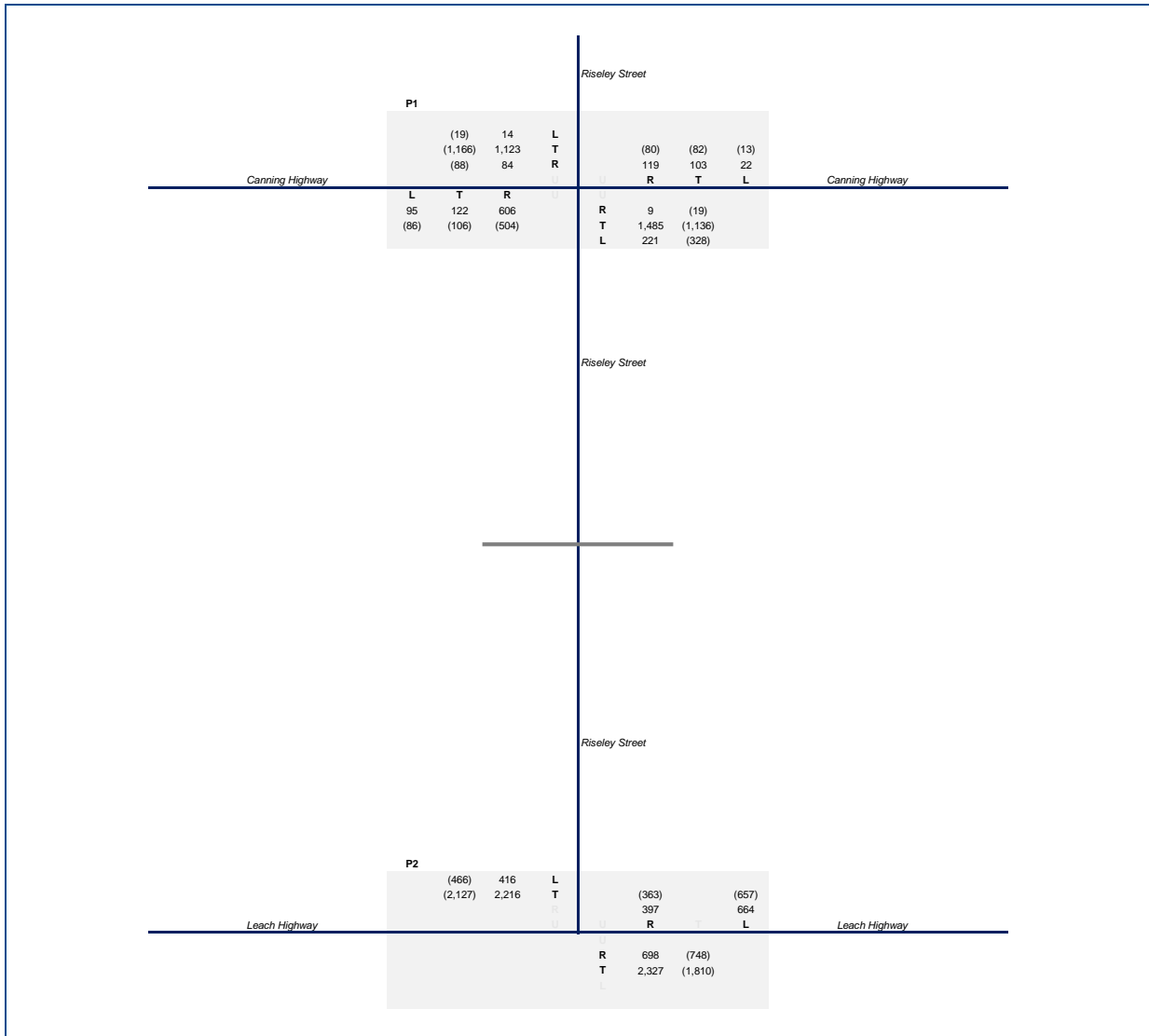
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APPENDIX F

Peripheral Intersections – Assessment Traffic Volumes, Queue Surveys and Detailed SIDRA Outputs



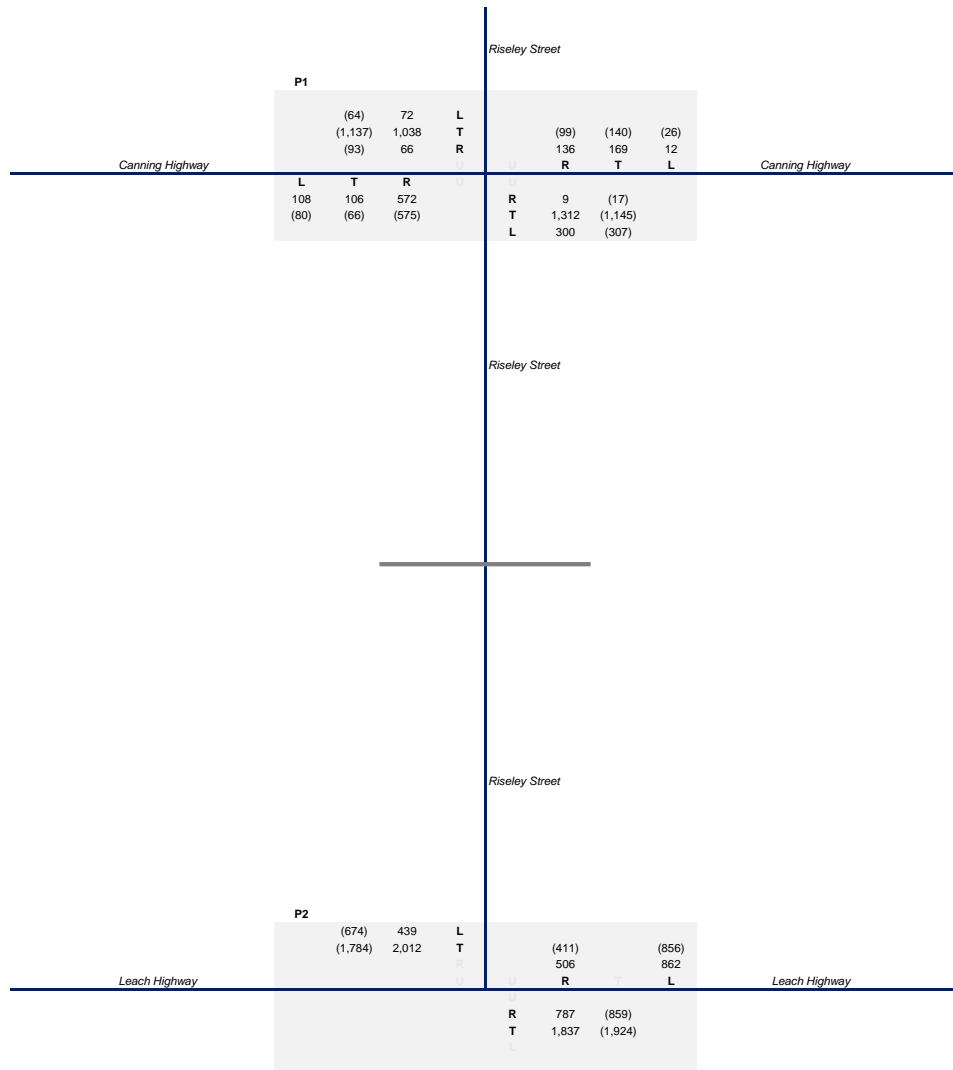
Legend

L	Left Turn	00	Thursday PM Peak Hour Volumes
T	Through	(00)	Saturday Peak Hour Volumes
R	Right turn		
U	U-turn		

Figure F1

2020 Survey Traffic Volumes





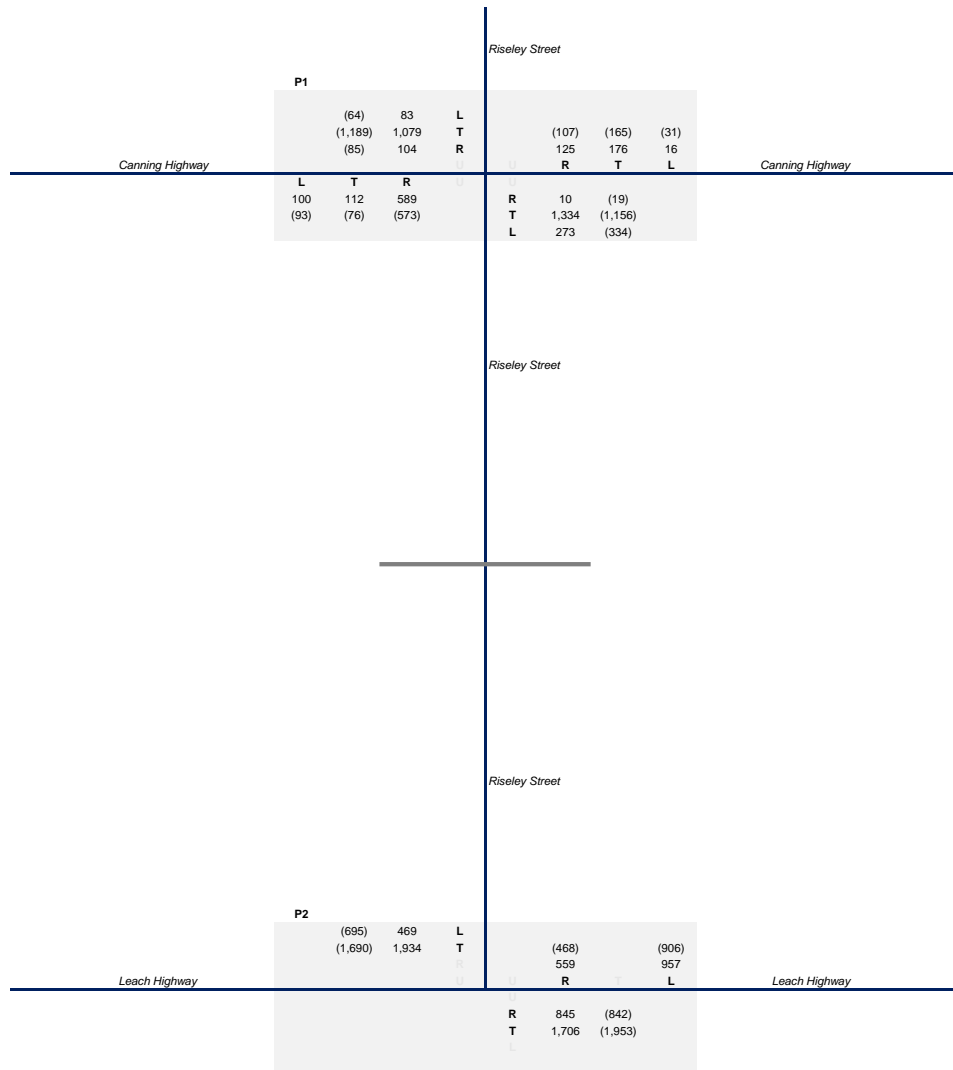
Legend

L	Left Turn	00	Thursday PM Peak Hour Volumes
T	Through	(00)	Saturday Peak Hour Volumes
R	Right turn		
U	U-turn		

Figure F2

2021 Background Traffic Volumes





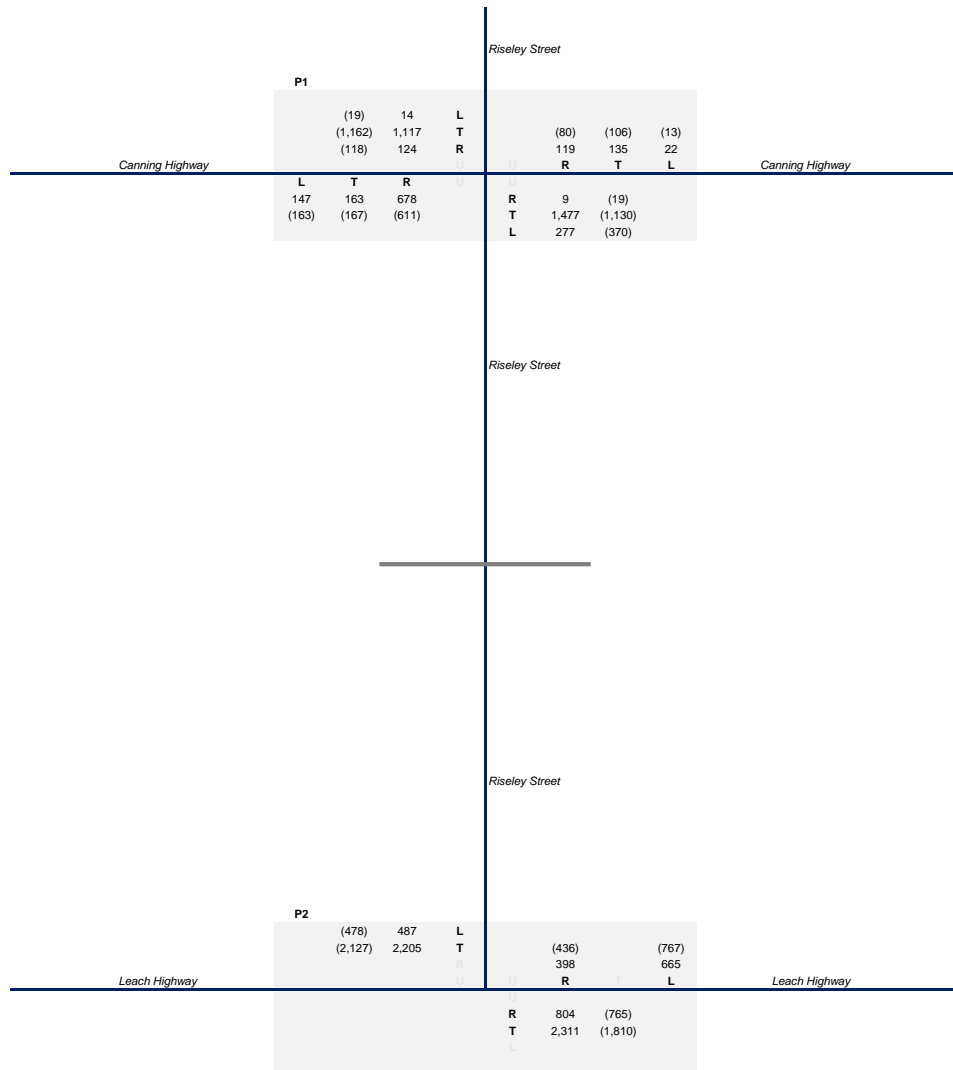
Legend

L	Left Turn	00	Thursday PM Peak Hour Volumes
T	Through	(00)	Saturday Peak Hour Volumes
R	Right turn		
U	U-turn		

Figure F3

2031 Background Traffic Volumes





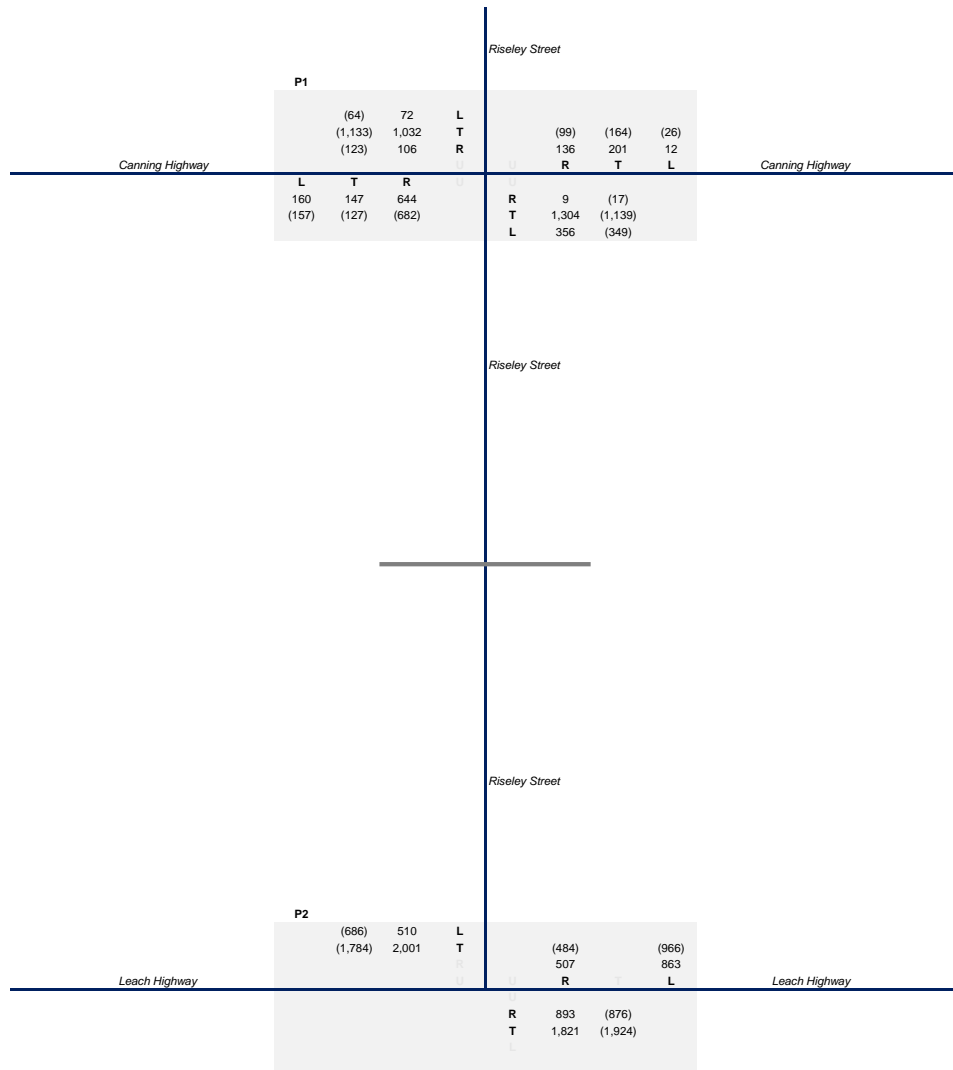
Legend

L	Left Turn	00	Thursday PM Peak Hour Volumes
T	Through	(00)	Saturday Peak Hour Volumes
R	Right turn		
U	U-turn		

Figure F4

2020 Survey + Development Traffic Volumes





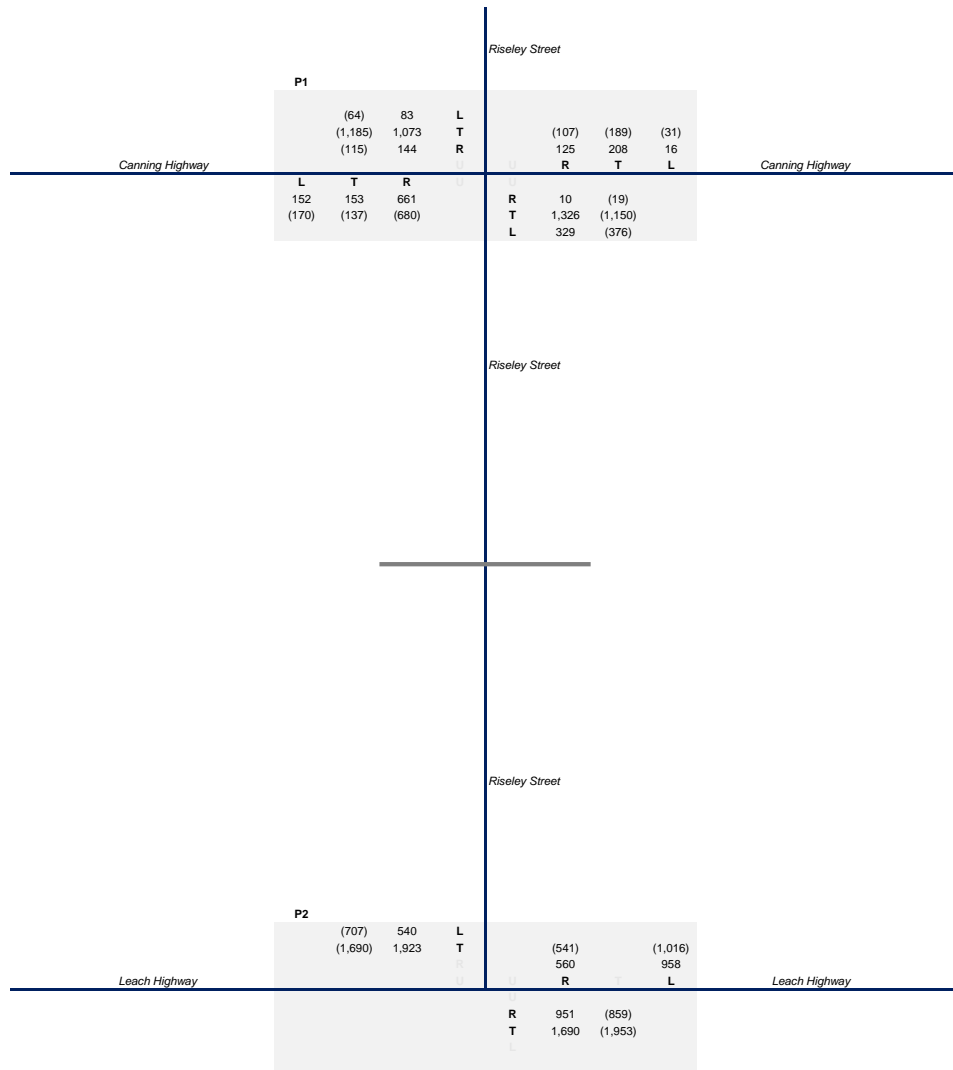
Legend

L	Left Turn	00	Thursday PM Peak Hour Volumes
T	Through	(00)	Saturday Peak Hour Volumes
R	Right turn		
U	U-turn		

Figure F5

2021 Background + Development Traffic Volumes





Legend

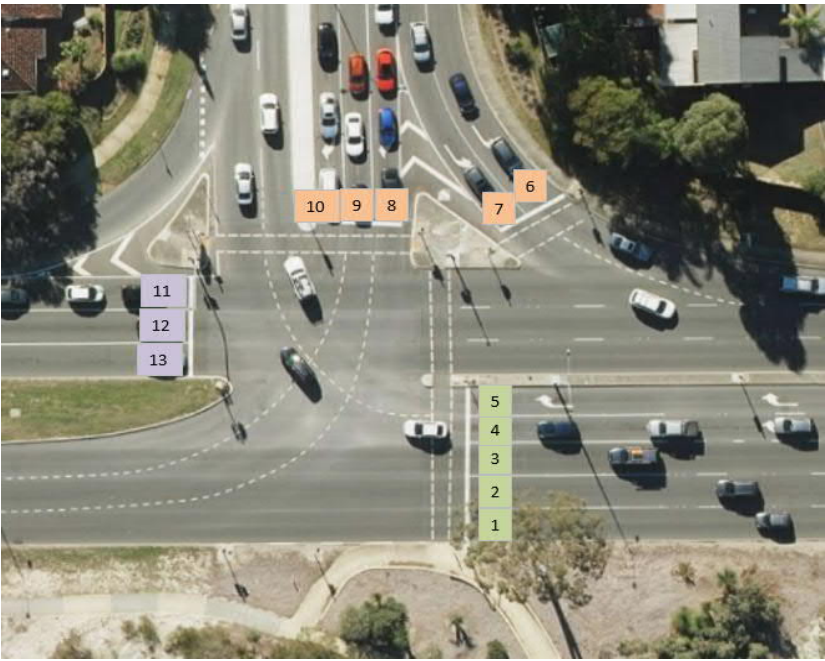
L	Left Turn	00	Thursday PM Peak Hour Volumes
T	Through	(00)	Saturday Peak Hour Volumes
R	Right turn		
U	U-turn		

Figure F6

2031 Background + Development Traffic Volumes



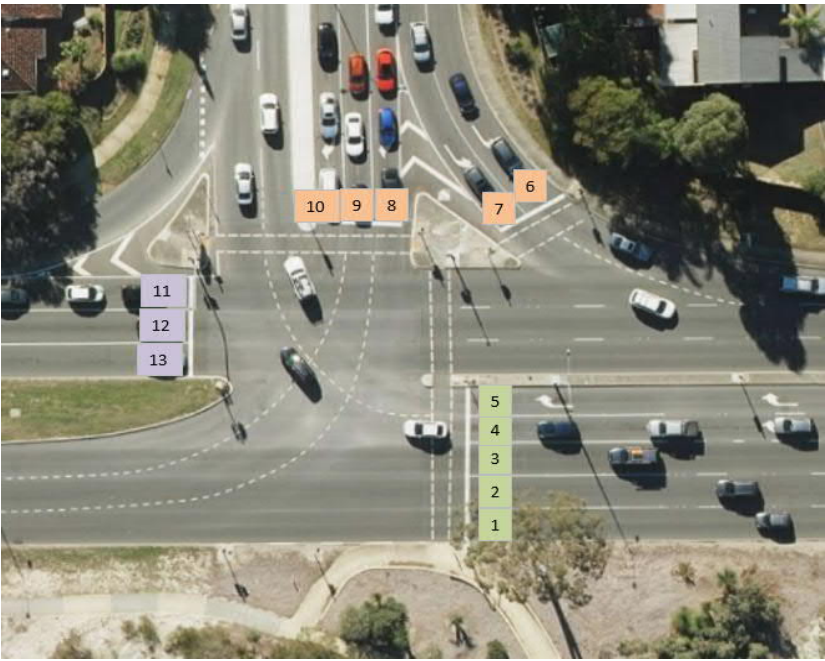
TIME	PEAK (QUEUES PCUs)				
	EAST (1)	EAST (2)	EAST (3)	EAST (4)	EAST (5)
	THROUGH	THROUGH	THROUGH	RIGHT	RIGHT
16:31:07	3	3	3	15+	15+
16:34:17	2	2	4	15+	15+
16:37:17	1	2	5	14	10
16:40:02	4	6	10	15+	15
16:43:09	5	5	6	15+	15+
16:46:09	2	4	7	15+	9
16:49:05	2	4	4	15+	15+
16:52:15	3	2	4	15+	15+
16:55:08	5	5	4	15	13
16:58:10	2	2	4	14	11
17:01:09	1	4	4	15+	15+
17:04:09	5	6	6	15+	15+
17:07:12	2	3	4	15+	15+
17:10:06	1	1	3	11	13
17:13:04	5	4	12	15	13
17:16:13	1	1	3	13	8
17:19:00	3	3	7	15+	15+
17:22:09	2	4	5	15+	15+
17:25:06	5	2	5	8	6
17:27:52	5	6	12	15+	15+



TIME	PEAK (QUEUES PCUs)				
	NORTH (6)	NORTH (7)	NORTH (8)	NORTH (9)	NORTH (10)
	LEFT	LEFT	RIGHT	RIGHT	RIGHT
16:29:53	12+	12+	8	7	2
16:32:55	7	7	9	8	5
16:35:54	9	10	6	7	3
16:38:53	9	10	10	10	4
16:41:52	11	12	9	9	2
16:44:53	10	12+	7	8	2
16:47:52	5	8	6	3	2
16:50:54	10	12+	8	9	7
16:53:53	11	12+	11	9	4
16:56:54	6	8	11	6	3
16:59:54	11	12	11	9	4
17:02:53	8	10	9	5	2
17:05:55	12	12+	12	7	5
17:08:54	11	12+	9	7	4
17:11:54	12	12	7	7	1
17:14:52	12+	12+	12	8	2
17:17:52	12+	12+	12	8	3
17:20:50	11	12+	11	11	3
17:23:48	10	11	8	6	2
17:26:49	8	10	7	1	0
17:29:54	7	11	5	7	3

TIME	PEAK (QUEUES PCUs)		
	WEST (11)	WEST (12)	WEST (13)
	THROUGH	THROUGH	THROUGH
16:31:08	15+	15+	11
16:34:17	13	15+	14
16:37:19	15+	15+	8
16:40:03	11	10	14
16:43:10	7	8	9
16:46:08	12	14	15+
16:49:06	6	11	13
16:52:18	9	9	10
16:55:09	14	9	8
16:58:11	13	11	12
17:01:09	7	15	15+
17:04:12	9	13	14
17:07:12	8	15	12
17:10:07	15+	13	15+
17:13:06	14	10	13
17:16:15	10	15	14
17:19:02	8	9	9
17:22:11	15+	12	10
17:25:08	13	11	12
17:27:54	5	6	8

TIME	PEAK (QUEUES PCUs)				
	EAST (1)	EAST (2)	EAST (3)	EAST (4)	EAST (5)
	THROUGH	THROUGH	THROUGH	RIGHT	RIGHT
12:02:25	1	1	3	15+	15
12:05:14	0	3	2	15+	10
12:08:17	2	2	0	14	12
12:11:15	1	3	3	14	12
12:14:02	3	1	0	15	10
12:17:04	3	2	5	15	13
12:19:49	4	2	2	15+	15+
12:22:47	2	2	3	15+	15+
12:25:35	1	2	2	15	15
12:28:31	1	2	2	15+	15+
12:31:25	2	1	3	15+	15
12:34:26	1	1	1	15+	15+
12:37:11	1	3	5	13	11
12:40:08	2	3	3	13	12
12:42:53	3	8	7	15+	14
12:46:10	0	2	2	13	10
12:49:11	1	3	3	15+	8
12:52:16	2	2	3	14	13
12:54:56	2	2	2	14	15+
12:58:02	3	3	3	15+	15+



TIME	PEAK (QUEUES PCUs)				
	NORTH (6)	NORTH (7)	NORTH (8)	NORTH (9)	NORTH (10)
	LEFT	LEFT	RIGHT	RIGHT	RIGHT
12:01:09	10	12+	7	6	3
12:04:03	9	12+	6	4	2
12:06:57	8	10	3	4	1
12:09:55	12+	12+	5	7	3
12:12:55	12	12	7	6	2
12:15:47	6	8	5	5	4
12:18:36	10	7	5	7	8
12:21:29	11	12+	7	10	4
12:24:22	12+	12+	6	9	4
12:27:16	12+	12+	4	8	3
12:30:09	11	12+	8	6	3
12:33:02	11	12	6	7	3
12:35:53	7	10	7	8	4
12:38:49	12+	12+	6	5	7
12:41:50	12+	12+	9	9	8
12:44:49	12	12+	10	9	4
12:47:50	12	12+	12+	12	8
12:50:48	12+	12+	9	7	3
12:53:49	10	12+	7	5	2
12:56:50	7	12+	6	7	7
12:59:49	11	12	4	5	2

TIME	PEAK (QUEUES PCUs)		
	WEST (11)	WEST (12)	WEST (13)
	THROUGH	THROUGH	THROUGH
12:02:21	13	11	13
12:05:13	15+	15+	9
12:08:15	15+	14	10
12:11:11	15+	14	12
12:14:02	15+	11	12
12:17:04	15+	15	12
12:19:49	11	8	11
12:22:44	15+	13	12
12:25:35	15+	15+	11
12:28:29	9	6	7
12:31:23	15+	15+	11
12:34:23	14	13	14
12:37:08	12	9	7
12:40:06	15+	15+	8
12:42:50	9	8	11
12:46:08	13	13	15
12:49:07	10	10	9
12:52:13	11	10	9
12:54:53	15	10	10
12:57:59	6	6	8

TIME	PEAK (QUEUES PCUs)		
	SOUTH (1)	SOUTH (2)	SOUTH (3)
	THROUGH	THROUGH	RIGHT
16:01:11	4	7	6
16:03:41	3	10	10
16:06:11	9	8	12
16:08:43	4	9	8
16:11:08	6	11	10
16:13:36	1	11	14
16:15:58	6	11	11
16:18:27	1	12	10
16:20:48	2	8	7
16:23:19	3	6	6
16:25:56	1	12	13
16:28:32	2	11	9
16:31:00	4	6	9
16:33:18	5	13	10
16:35:42	5	13	12
16:38:05	12	9	11
16:40:44	0	11	11
16:43:11	7	5	11
16:45:49	6	9	9
16:48:20	8	7	7
16:50:56	11	13	11
16:53:20	9	9	8
16:55:50	4	10	8
16:58:12	5	13	13

TIME	PEAK (QUEUES PCUs)	
	NORTH (7)	NORTH (8)
	THROUGH / LEFT	THROUGH / RIGHT
16:00:46	4	4
16:03:20	1	8
16:05:50	3	8
16:08:18	3	14
16:10:41	6	6
16:13:10	8	10
16:15:32	2	13
16:18:02	3	4
16:20:23	2	8
16:22:55	3	5
16:25:30	6	6
16:28:06	3	3
16:30:34	4	5
16:32:58	4	3
16:35:19	6	6
16:40:22	5	5
16:42:46	2	6
16:45:24	6	7
16:47:54	1	8
16:50:32	3	3
16:52:55	3	7
16:55:26	1	8
16:57:54	2	3
17:00:25	5	2

TIME	PEAK (QUEUES PCUs)		
	EAST (4)	EAST (5)	EAST (6)
	THROUGH	THROUGH	RIGHT
16:01:53	9	12+	4
16:04:21	12	12+	0
16:06:58	4	4	0
16:09:29	12+	12+	1
16:11:58	12+	12+	0
16:14:25	12+	12+	1
16:16:50	12+	12+	0
16:19:16	12+	12+	0
16:21:44	12+	12+	1
16:24:07	12+	12+	0
16:26:47	12+	12+	0
16:29:19	12+	12+	2
16:31:44	12+	12+	2
16:34:07	12+	12+	1
16:36:40	12+	12+	0
16:39:08	12+	12+	2
16:41:32	12+	12+	0
16:44:02	12+	12+	0
16:46:43	12+	12+	0
16:49:08	12+	12+	0
16:51:34	12+	12+	2
16:54:04	12+	12+	0
16:56:38	12+	12+	0
16:59:00	12+	12+	0

TIME	PEAK (QUEUES PCUs)		
	WEST (9)	WEST (10)	WEST (11)
	THROUGH / LEFT	THROUGH	RIGHT
16:02:01	14	12	1
16:04:09	7	8	1
16:07:01	15+	15+	0
16:09:24	13	14	4
16:11:43	15+	15+	3
16:14:08	9	6	5
16:16:29	9	9	6
16:19:02	15+	14	2
16:21:21	15+	15+	6
16:23:48	8	6	3
16:26:29	8	13	3
16:29:15	14	12	4
16:31:48	15+	15+	4
16:34:05	15+	15+	1
16:36:20	15+	15+	6
16:39:05	12	11	6
16:41:19	14	14	1
16:43:47	15+	15+	3
16:46:25	4	5	2
16:49:03	15+	15+	3
16:51:38	7	9	2
16:53:48	12	11	3
16:56:17	8	9	6
16:58:50	15+	15+	1



TIME	PEAK (QUEUES PCUs)		
	SOUTH (1)	SOUTH (2)	SOUTH (3)
	THROUGH	THROUGH	RIGHT
11:16:06	11	11	11
11:18:03	13	11	10
11:20:08	3	6	8
11:22:26	1	6	4
11:24:43	3	6	8
11:27:08	0	15+	15+
11:29:28	2	15+	15+
11:31:38	2	15+	15+
11:34:00	1	10	11
11:36:06	4	5	7
11:38:28	1	8	10
11:40:57	1	10	11
11:43:18	4	9	7
11:45:46	1	10	9
11:48:20	6	10	10
11:50:50	10	15+	15+
11:53:07	0	12	11
11:55:26	2	9	9
11:57:52	2	6	12
12:00:09	5	9	9
12:02:35	2	12	10
12:04:45	1	6	10
12:06:54	2	12	10
12:08:58	2	4	6
12:11:15	1	8	4
12:13:21	4	8	9

TIME	PEAK (QUEUES PCUs)	
	NORTH (7)	NORTH (8)
	THROUGH / LEFT	THROUGH / RIGHT
11:15:42	3	2
11:17:43	3	2
11:19:49	3	5
11:22:01	2	3
11:24:18	3	2
11:26:43	4	6
11:29:01	2	3
11:31:16	3	1
11:33:34	1	8
11:35:46	1	3
11:38:06	3	5
11:40:33	6	4
11:42:57	4	5
11:45:27	3	3
11:50:26	2	5
11:52:51	1	2
11:55:07	2	8
11:57:26	2	3
11:59:49	4	4
12:02:11	2	5
12:04:24	0	6
12:06:34	3	3
12:08:42	1	1
12:10:56	3	6
12:13:04	3	4
12:15:07	0	3

TIME	PEAK (QUEUES PCUs)		
	EAST (4)	EAST (5)	EAST (6)
	THROUGH	THROUGH	RIGHT
11:14:43	12+	12+	0
11:16:51	12+	12+	0
11:18:52	12+	12+	2
11:20:48	12+	12+	0
11:23:13	12+	12+	0
11:25:28	12+	12+	1
11:27:53	8	7	0
11:30:13	12+	12+	0
11:32:32	12+	12+	0
11:34:55	12+	12+	0
11:36:52	12+	12+	0
11:39:29	12+	12+	0
11:41:53	12+	12+	1
11:44:12	12+	12+	0
11:46:30	12+	12+	0
11:49:13	12+	12+	0
11:51:34	12+	12+	2
11:53:54	12+	12+	0
11:56:26	12+	12+	2
11:58:27	12+	12+	0
12:01:03	12+	12+	2
12:03:19	12+	12+	2
12:05:27	12+	11	1
12:07:46	12+	12+	0
12:09:48	12+	12+	0
12:12:07	12+	12+	1
12:14:10	12+	12+	0

TIME	PEAK (QUEUES PCUs)		
	WEST (9)	WEST (10)	WEST (11)
	THROUGH / LEFT	THROUGH	RIGHT
11:14:30	12	10	4
11:16:36	10	9	3
11:18:53	15	14	2
11:20:36	7	5	1
11:22:54	10	8	3
11:25:16	8	3	6
11:27:35	6	7	3
11:29:55	12	9	4
11:32:12	9	8	9
11:34:49	13	12	6
11:36:37	11	6	2
11:39:06	13	12	11
11:41:49	15+	15+	4
11:43:57	14	11	3
11:46:31	15+	13	1
11:48:54	15+	15+	5
11:51:35	12	10	3
11:53:38	9	10	3
11:56:19	10	5	6
11:58:27	7	7	1
12:01:01	15+	15+	3
12:03:18	10	9	3
12:05:28	14	13	1
12:07:29	15+	14	3
12:09:28	5	5	5
12:11:48	10	13	5
12:14:07	12	9	2

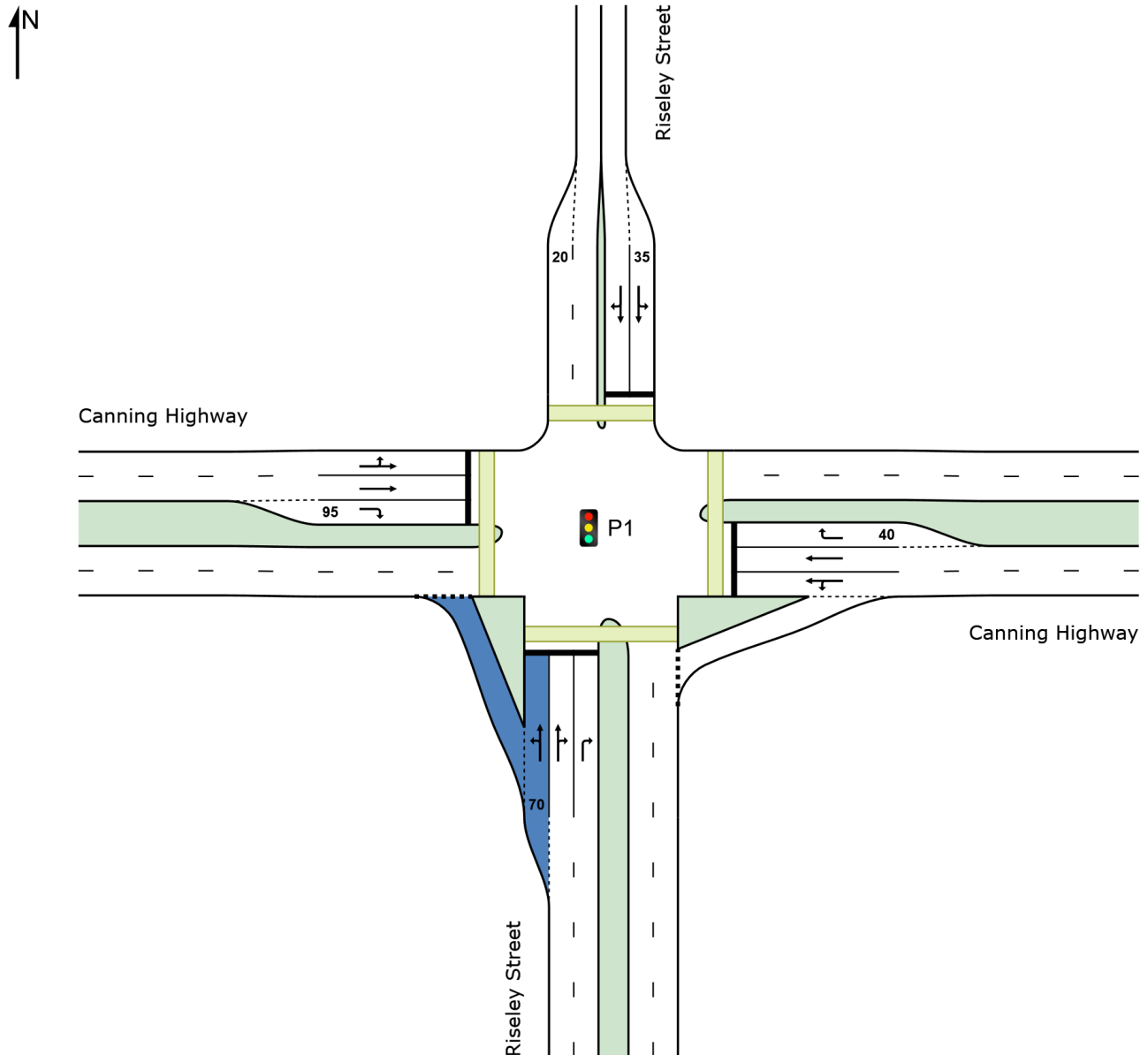


SITE LAYOUT

 Site: P1 [P1 (2020 BG) (PM) - Existing volumes and layout (Site Folder: General)]

Intersection: Canning Highway / Riseley Street
Project: 620.30141 - Westfield Booragoon Redevelopment
Prepared by: VL
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

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



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Project: Z:\BNE\Projects-SLR\620-BNE\620.30141.00000 Westfield Booragoon Redevelopment\02 Analysis\2021 07 - Updated SIDRA Analysis
620.30141-Peripheral SIDRA Analysis.sip9

MOVEMENT SUMMARY

 Site: P1 [P1 (2020 BG) (PM) - Existing volumes and layout (Site Folder: General)]

Intersection: Canning Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 160 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Riseley Street														
1	L2	95	3.0	100	3.0	0.454	58.8	LOS E	12.5	89.7	0.91	0.92	0.91	42.6
2	T1	122	3.0	128	3.0	0.454	54.4	LOS D	12.5	89.7	0.91	0.92	0.91	17.0
3	R2	606	3.0	638	3.0	* 0.908	88.6	LOS F	29.9	215.0	1.00	0.95	1.25	20.8
Approach		823	3.0	866	3.0	0.908	80.1	LOS F	29.9	215.0	0.98	0.94	1.16	24.1
East: Canning Highway														
4	L2	221	3.0	233	3.0	0.879	39.7	LOS C	60.1	431.5	0.95	0.93	0.97	34.0
5	T1	1485	3.0	1563	3.0	* 0.879	36.0	LOS C	61.3	440.2	0.95	0.91	0.97	48.9
6	R2	9	3.0	9	3.0	0.093	85.1	LOS F	0.7	5.2	0.98	0.67	0.98	20.1
Approach		1715	3.0	1805	3.0	0.879	36.7	LOS C	61.3	440.2	0.95	0.91	0.97	47.9
North: Riseley Street														
7	L2	22	3.0	23	3.0	0.904	97.1	LOS F	11.3	81.2	1.00	1.02	1.39	18.8
8	T1	103	3.0	108	3.0	* 0.904	92.5	LOS F	11.3	81.2	1.00	1.02	1.39	11.6
9	R2	119	3.0	125	3.0	0.904	97.4	LOS F	11.2	80.2	1.00	0.99	1.39	34.5
Approach		244	3.0	257	3.0	0.904	95.3	LOS F	11.3	81.2	1.00	1.01	1.39	27.0
West: Canning Highway														
10	L2	14	3.0	15	3.0	0.620	33.2	LOS C	33.6	241.3	0.76	0.69	0.76	49.0
11	T1	1123	3.0	1182	3.0	0.620	27.0	LOS B	33.6	241.3	0.74	0.67	0.74	51.4
12	R2	84	3.0	88	3.0	* 0.865	97.5	LOS F	7.6	54.7	1.00	0.92	1.35	35.1
Approach		1221	3.0	1285	3.0	0.865	31.9	LOS C	33.6	241.3	0.76	0.69	0.78	50.0
All Vehicles		4003	3.0	4214	3.0	0.908	47.7	LOS D	61.3	440.2	0.90	0.86	0.98	43.5

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Riseley Street												
P1	Full	10	11	74.1	LOS F	0.0	0.0	0.96	0.96	244.9	222.0	0.91
East: Canning Highway												
P2	Full	10	11	74.1	LOS F	0.0	0.0	0.96	0.96	245.7	223.0	0.91

North: Riseley Street												
P3	Full	10	11	74.1	LOS F	0.0	0.0	0.96	0.96	241.8	218.0	0.90
West: Canning Highway												
P4	Full	10	11	74.1	LOS F	0.0	0.0	0.96	0.96	245.7	223.0	0.91
All		40	42	74.1	LOS F	0.0	0.0	0.96	0.96	244.5	221.5	0.91
Pedestrians												

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: P1 [P1 (2020 BG) (PM) - Existing volumes and layout (Site Folder: General)]**

Intersection: Canning Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 160 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, D, E, F

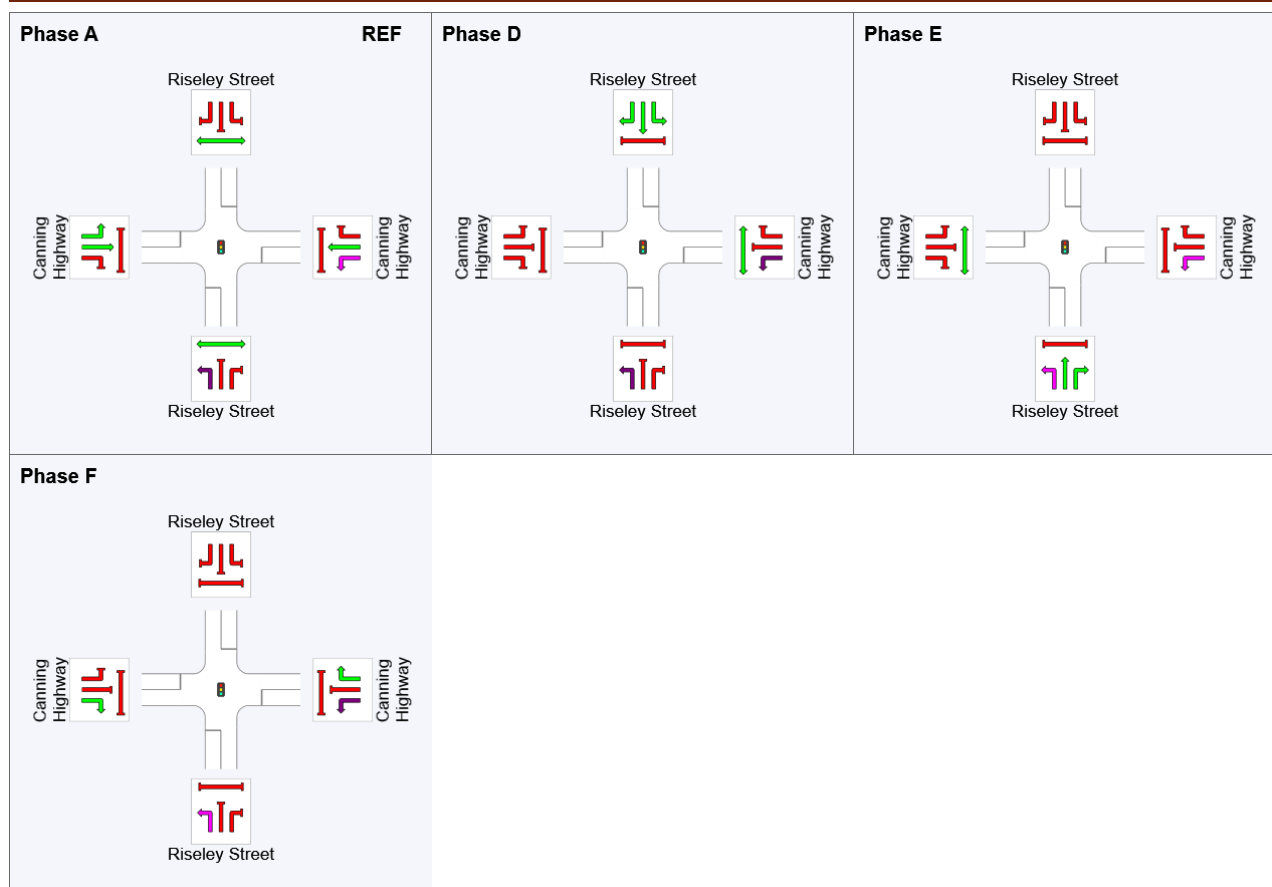
Output Phase Sequence: A, D, E, F

Phase Timing Summary

Phase	A	D	E	F
Phase Change Time (sec)	0	91	111	145
Green Time (sec)	85	14	28	9
Phase Time (sec)	91	20	34	15
Phase Split	57%	13%	21%	9%

See the Timing Analysis 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, Minor 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

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 \620.30141-Peripheral SIDRA Analysis.sip9

MOVEMENT SUMMARY

 **Site: P1 [P1 (2020 BG) (SAT) - Existing volumes and layout (Site Folder: General)]**

Intersection: Canning Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Riseley Street														
1	L2	86	3.0	91	3.0	0.343	42.9	LOS D	7.8	56.2	0.87	0.83	0.87	46.2
2	T1	106	3.0	112	3.0	* 0.686	42.0	LOS C	18.2	130.7	0.88	0.83	0.88	19.9
3	R2	504	3.0	531	3.0	0.686	66.8	LOS E	19.1	137.3	0.99	0.84	0.99	24.8
Approach		696	3.0	733	3.0	0.686	60.1	LOS E	19.1	137.3	0.96	0.83	0.96	28.4
East: Canning Highway														
4	L2	328	3.0	345	3.0	0.761	27.4	LOS B	38.2	274.2	0.83	0.83	0.83	39.3
5	T1	1136	3.0	1196	3.0	* 0.761	26.7	LOS B	41.5	297.9	0.84	0.80	0.84	51.2
6	R2	19	3.0	20	3.0	0.165	79.1	LOS F	1.4	10.3	0.98	0.71	0.98	21.0
Approach		1483	3.0	1561	3.0	0.761	27.5	LOS B	41.5	297.9	0.84	0.80	0.84	49.7
North: Riseley Street														
7	L2	13	3.0	14	3.0	* 0.746	84.3	LOS F	7.2	51.7	1.00	0.86	1.16	20.7
8	T1	82	3.0	86	3.0	0.746	79.7	LOS F	7.2	51.7	1.00	0.86	1.16	13.1
9	R2	80	3.0	84	3.0	0.746	84.4	LOS F	7.0	50.3	1.00	0.86	1.16	36.5
Approach		175	3.0	184	3.0	0.746	82.2	LOS F	7.2	51.7	1.00	0.86	1.16	28.4
West: Canning Highway														
10	L2	19	3.0	20	3.0	0.660	33.4	LOS C	34.4	247.0	0.79	0.72	0.79	49.0
11	T1	1166	3.0	1227	3.0	0.660	27.1	LOS B	34.4	247.0	0.77	0.70	0.77	51.3
12	R2	88	3.0	93	3.0	* 0.764	86.0	LOS F	7.2	51.6	1.00	0.86	1.18	36.8
Approach		1273	3.0	1340	3.0	0.764	31.3	LOS C	34.4	247.0	0.79	0.71	0.80	50.1
All Vehicles		3627	3.0	3818	3.0	0.764	37.7	LOS C	41.5	297.9	0.85	0.78	0.86	46.0

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Riseley Street												
P1	Full	10	11	69.2	LOS F	0.0	0.0	0.96	0.96	239.9	222.0	0.93
East: Canning Highway												
P2	Full	10	11	69.2	LOS F	0.0	0.0	0.96	0.96	240.7	223.0	0.93

North: Riseley Street												
P3	Full	10	11	69.2	LOS F	0.0	0.0	0.96	0.96	236.8	218.0	0.92
West: Canning Highway												
P4	Full	10	11	69.2	LOS F	0.0	0.0	0.96	0.96	240.7	223.0	0.93
All		40	42	69.2	LOS F	0.0	0.0	0.96	0.96	239.5	221.5	0.92
Pedestrians												

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: P1 [P1 (2020 BG) (SAT) - Existing volumes and layout (Site Folder: General)]**

Intersection: Canning Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, D, E, F

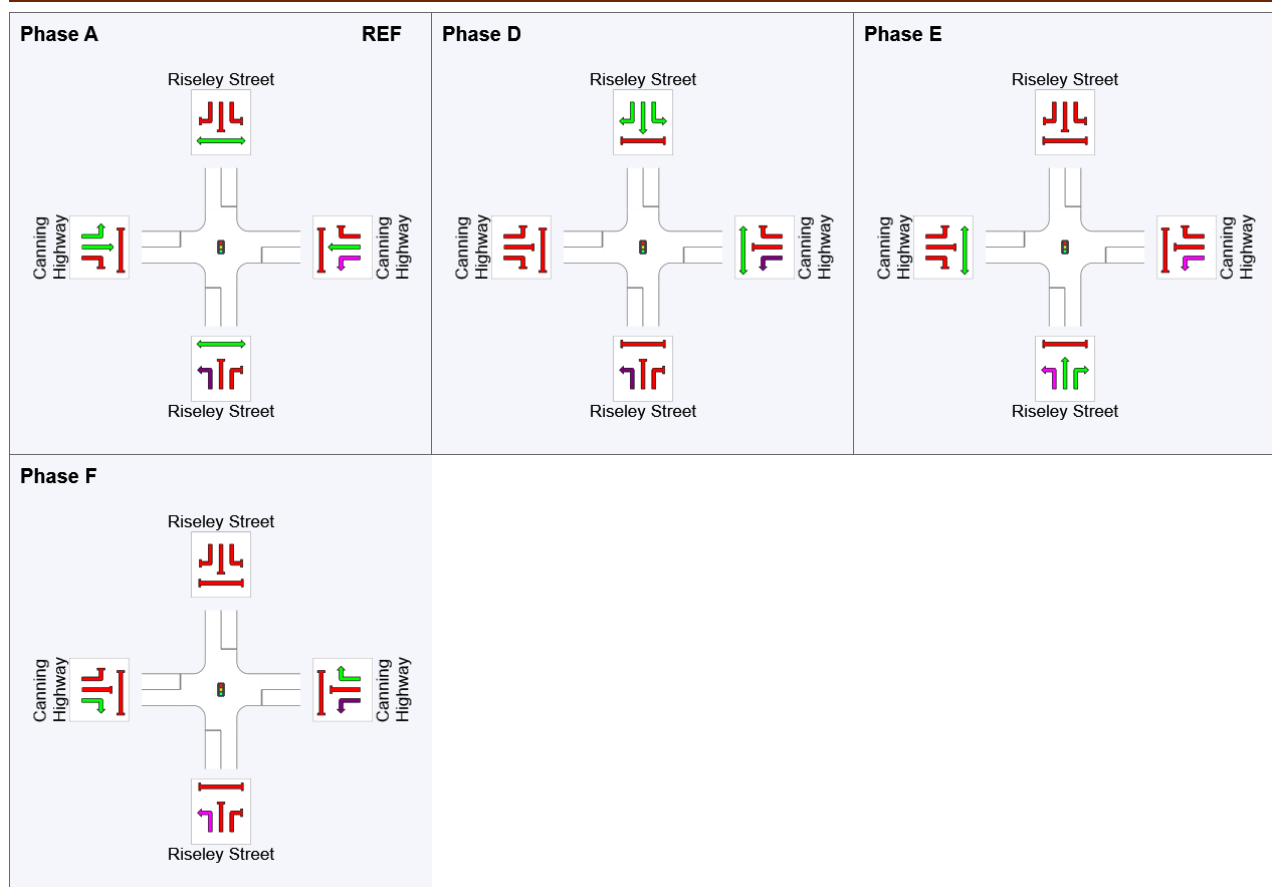
Output Phase Sequence: A, D, E, F

Phase Timing Summary

Phase	A	D	E	F
Phase Change Time (sec)	0	84	100	134
Green Time (sec)	78	10	28	10
Phase Time (sec)	84	16	34	16
Phase Split	56%	11%	23%	11%

See the Timing Analysis 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, Minor 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

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MOVEMENT SUMMARY

 **Site: P1 [P1 (2021 BG + DEV) (PM) (Site Folder: General)]**

Intersection: Canning Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 160 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Riseley Street														
1	L2	160	3.0	168	3.0	0.457	55.0	LOS D	16.6	119.3	0.87	0.94	0.87	43.3
2	T1	147	3.0	155	3.0	* 0.915	58.2	LOS E	26.8	192.2	0.90	0.95	0.96	16.0
3	R2	644	3.0	678	3.0	0.915	87.5	LOS F	34.7	249.2	1.00	0.96	1.24	21.0
Approach		951	3.0	1001	3.0	0.915	77.5	LOS F	34.7	249.2	0.96	0.96	1.14	25.8
East: Canning Highway														
4	L2	356	3.0	375	3.0	0.989	88.8	LOS F	87.6	629.0	1.00	1.18	1.29	21.4
5	T1	1304	3.0	1373	3.0	* 0.989	86.8	LOS F	87.6	629.0	1.00	1.17	1.30	38.9
6	R2	9	3.0	9	3.0	0.083	83.7	LOS F	0.7	5.1	0.97	0.68	0.97	20.3
Approach		1669	3.0	1757	3.0	0.989	87.2	LOS F	87.6	629.0	1.00	1.17	1.29	36.6
North: Riseley Street														
7	L2	12	3.0	13	3.0	1.002	130.9	LOS F	19.7	141.4	1.00	1.22	1.62	15.2
8	T1	201	3.0	212	3.0	* 1.002	126.4	LOS F	19.7	141.4	1.00	1.21	1.62	9.0
9	R2	136	3.0	143	3.0	1.002	131.3	LOS F	19.4	139.3	1.00	1.17	1.63	30.2
Approach		349	3.0	367	3.0	1.002	128.5	LOS F	19.7	141.4	1.00	1.20	1.62	20.5
West: Canning Highway														
10	L2	72	3.0	76	3.0	0.719	43.5	LOS D	38.3	275.3	0.88	0.80	0.88	46.0
11	T1	1032	3.0	1086	3.0	0.719	36.8	LOS C	38.3	275.3	0.85	0.77	0.85	48.8
12	R2	106	3.0	112	3.0	* 0.982	120.6	LOS F	11.0	78.7	1.00	1.05	1.62	32.0
Approach		1210	3.0	1274	3.0	0.982	44.6	LOS D	38.3	275.3	0.87	0.80	0.92	46.7
All Vehicles		4179	3.0	4399	3.0	1.002	76.1	LOS F	87.6	629.0	0.95	1.02	1.18	36.5

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Riseley Street												
P1	Full	10	11	74.1	LOS F	0.0	0.0	0.96	0.96	244.9	222.0	0.91
East: Canning Highway												
P2	Full	10	11	74.1	LOS F	0.0	0.0	0.96	0.96	245.7	223.0	0.91

North: Riseley Street												
P3	Full	10	11	74.1	LOS F	0.0	0.0	0.96	0.96	241.8	218.0	0.90
West: Canning Highway												
P4	Full	10	11	74.1	LOS F	0.0	0.0	0.96	0.96	245.7	223.0	0.91
All		40	42	74.1	LOS F	0.0	0.0	0.96	0.96	244.5	221.5	0.91
Pedestrians												

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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 \620.30141-Peripheral SIDRA Analysis.sip9

PHASING SUMMARY

 **Site: P1 [P1 (2021 BG + DEV) (PM) (Site Folder: General)]**

Intersection: Canning Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 160 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, D, E, F

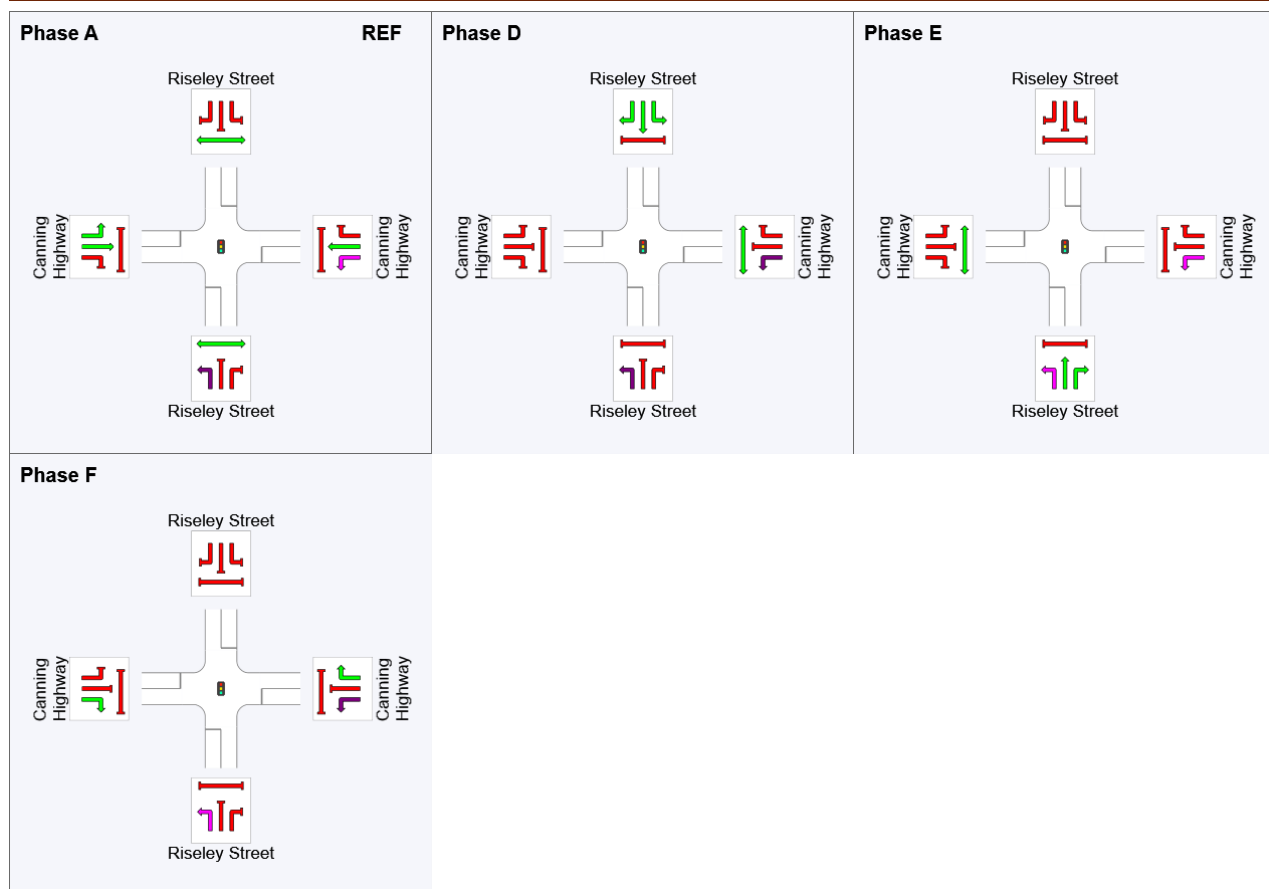
Output Phase Sequence: A, D, E, F

Phase Timing Summary

Phase	A	D	E	F
Phase Change Time (sec)	0	78	106	144
Green Time (sec)	72	22	32	10
Phase Time (sec)	78	28	38	16
Phase Split	49%	18%	24%	10%

See the Timing Analysis 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, Minor 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

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 \620.30141-Peripheral SIDRA Analysis.sip9

MOVEMENT SUMMARY

 Site: P1 [P1 (2021 BG + DEV) (SAT) (Site Folder: General)]

Intersection: Canning Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Riseley Street														
1	L2	157	3.0	165	3.0	0.421	43.6	LOS D	13.1	94.4	0.84	0.88	0.84	46.0
2	T1	127	3.0	134	3.0	* 0.843	42.2	LOS C	23.8	170.7	0.86	0.89	0.87	19.7
3	R2	682	3.0	718	3.0	0.843	70.5	LOS F	30.0	215.7	0.99	0.91	1.11	24.0
Approach		966	3.0	1017	3.0	0.843	62.4	LOS E	30.0	215.7	0.95	0.90	1.03	29.0
East: Canning Highway														
4	L2	349	3.0	367	3.0	0.903	48.1	LOS D	55.0	394.7	0.99	1.01	1.08	30.6
5	T1	1139	3.0	1199	3.0	* 0.903	48.5	LOS D	56.0	402.1	0.99	1.00	1.09	45.9
6	R2	17	3.0	18	3.0	0.134	77.6	LOS F	1.3	9.1	0.97	0.70	0.97	21.3
Approach		1505	3.0	1584	3.0	0.903	48.8	LOS D	56.0	402.1	0.99	1.00	1.09	43.9
North: Riseley Street														
7	L2	26	3.0	27	3.0	0.938	97.7	LOS F	13.1	94.2	1.00	1.09	1.48	18.7
8	T1	164	3.0	173	3.0	* 0.938	93.2	LOS F	13.1	94.2	1.00	1.09	1.48	11.5
9	R2	99	3.0	104	3.0	0.938	97.9	LOS F	13.0	93.6	1.00	1.09	1.48	34.6
Approach		289	3.0	304	3.0	0.938	95.2	LOS F	13.1	94.2	1.00	1.09	1.48	23.7
West: Canning Highway														
10	L2	64	3.0	67	3.0	0.799	44.1	LOS D	41.6	299.0	0.93	0.85	0.93	45.9
11	T1	1133	3.0	1193	3.0	0.799	37.5	LOS C	41.6	299.0	0.90	0.82	0.91	48.6
12	R2	123	3.0	129	3.0	* 0.971	110.6	LOS F	11.8	85.0	1.00	1.05	1.60	33.3
Approach		1320	3.0	1389	3.0	0.971	44.6	LOS D	41.6	299.0	0.91	0.84	0.97	46.7
All Vehicles		4080	3.0	4295	3.0	0.971	53.9	LOS D	56.0	402.1	0.96	0.93	1.07	41.1

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Riseley Street												
P1	Full	10	11	69.2	LOS F	0.0	0.0	0.96	0.96	239.9	222.0	0.93
East: Canning Highway												
P2	Full	10	11	69.2	LOS F	0.0	0.0	0.96	0.96	240.7	223.0	0.93

North: Riseley Street												
P3	Full	10	11	69.2	LOS F	0.0	0.0	0.96	0.96	236.8	218.0	0.92
West: Canning Highway												
P4	Full	10	11	69.2	LOS F	0.0	0.0	0.96	0.96	240.7	223.0	0.93
All		40	42	69.2	LOS F	0.0	0.0	0.96	0.96	239.5	221.5	0.92
Pedestrians												

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: P1 [P1 (2021 BG + DEV) (SAT) (Site Folder: General)]**

Intersection: Canning Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, D, E, F

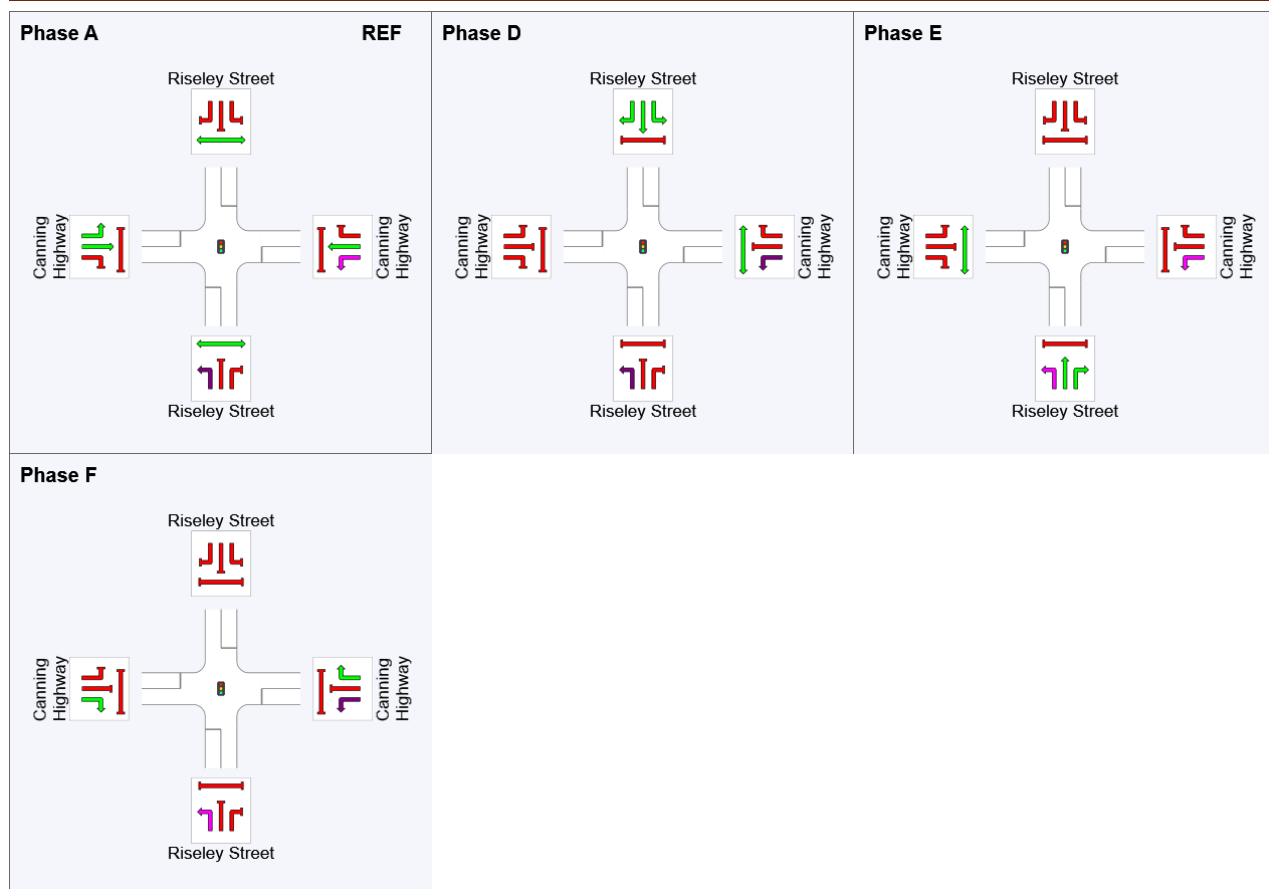
Output Phase Sequence: A, D, E, F

Phase Timing Summary

Phase	A	D	E	F
Phase Change Time (sec)	0	72	94	133
Green Time (sec)	66	16	33	11
Phase Time (sec)	72	22	39	17
Phase Split	48%	15%	26%	11%

See the Timing Analysis 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, Minor 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

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MOVEMENT SUMMARY

 **Site: P1 [P1 (2031 BG + DEV) (PM) (Site Folder: General)]**

Intersection: Canning Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 160 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Riseley Street														
1	L2	152	3.0	160	3.0	0.469	57.8	LOS E	17.3	123.9	0.88	0.96	0.88	42.7
2	T1	153	3.0	161	3.0	* 0.938	60.8	LOS E	28.3	203.2	0.90	0.97	0.97	15.6
3	R2	661	3.0	696	3.0	0.938	93.5	LOS F	37.0	265.9	1.00	0.99	1.30	20.1
Approach		966	3.0	1017	3.0	0.938	82.7	LOS F	37.0	265.9	0.97	0.98	1.18	24.6
East: Canning Highway														
4	L2	329	3.0	346	3.0	1.018	91.6	LOS F	82.0	589.1	1.00	1.15	1.40	18.1
5	T1	1326	3.0	1396	3.0	* 1.018	99.5	LOS F	93.9	674.6	1.00	1.21	1.41	35.7
6	R2	10	3.0	11	3.0	0.071	79.8	LOS F	0.8	5.5	0.95	0.68	0.95	20.9
Approach		1665	3.0	1753	3.0	1.018	97.8	LOS F	93.9	674.6	1.00	1.19	1.40	33.4
North: Riseley Street														
7	L2	16	3.0	17	3.0	1.034	148.2	LOS F	21.1	151.2	1.00	1.29	1.73	13.7
8	T1	208	3.0	219	3.0	* 1.034	143.7	LOS F	21.1	151.2	1.00	1.28	1.73	8.0
9	R2	125	3.0	132	3.0	1.034	148.5	LOS F	20.8	149.3	1.00	1.24	1.73	28.2
Approach		349	3.0	367	3.0	1.034	145.6	LOS F	21.1	151.2	1.00	1.27	1.73	18.0
West: Canning Highway														
10	L2	83	3.0	87	3.0	0.786	46.5	LOS D	43.0	308.5	0.93	0.85	0.93	45.2
11	T1	1073	3.0	1129	3.0	0.786	39.4	LOS C	43.0	308.5	0.89	0.81	0.89	48.1
12	R2	144	3.0	152	3.0	* 1.026	142.0	LOS F	16.5	118.5	1.00	1.11	1.71	29.4
Approach		1300	3.0	1368	3.0	1.026	51.2	LOS D	43.0	308.5	0.91	0.85	0.99	45.1
All Vehicles		4280	3.0	4505	3.0	1.034	84.2	LOS F	93.9	674.6	0.96	1.05	1.25	34.3

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Riseley Street												
P1	Full	10	11	74.1	LOS F	0.0	0.0	0.96	0.96	244.9	222.0	0.91
East: Canning Highway												
P2	Full	10	11	74.1	LOS F	0.0	0.0	0.96	0.96	245.7	223.0	0.91

North: Riseley Street												
P3	Full	10	11	74.1	LOS F	0.0	0.0	0.96	0.96	241.8	218.0	0.90
West: Canning Highway												
P4	Full	10	11	74.1	LOS F	0.0	0.0	0.96	0.96	245.7	223.0	0.91
All		40	42	74.1	LOS F	0.0	0.0	0.96	0.96	244.5	221.5	0.91
Pedestrians												

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

 **Site: P1 [P1 (2031 BG + DEV) (PM) (Site Folder: General)]**

Intersection: Canning Highway / Riseley Street
Project: 620.30141 - Westfield Booragoon Redevelopment
Prepared by: VL
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 160 seconds (Site User-Given Cycle Time)

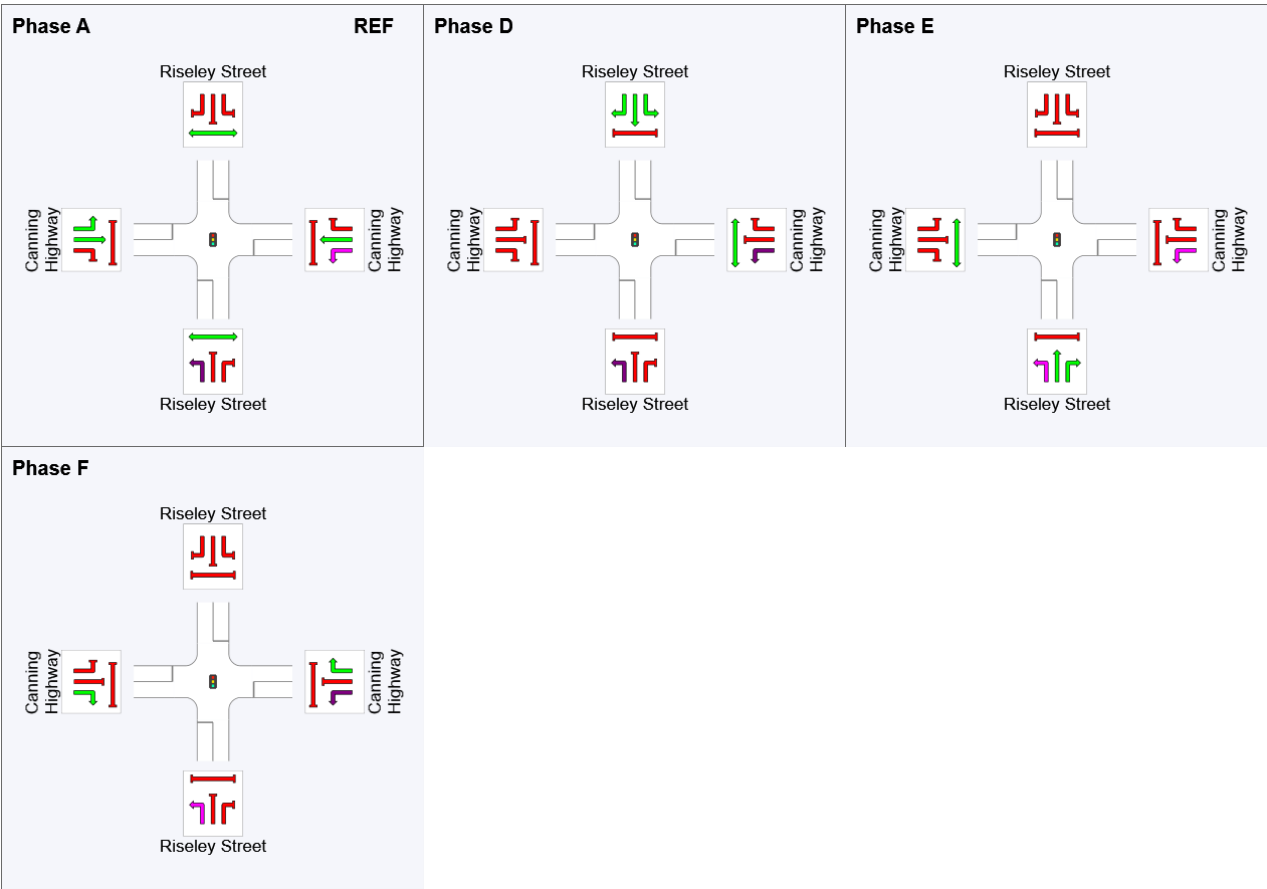
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Leading Right Turn
Reference Phase: Phase A
Input Phase Sequence: A, D, E, F
Output Phase Sequence: A, D, E, F

Phase Timing Summary

Phase	A	D	E	F
Phase Change Time (sec)	0	76	103	141
Green Time (sec)	70	21	32	13
Phase Time (sec)	76	27	38	19
Phase Split	48%	17%	24%	12%

See the Timing Analysis 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, Minor 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

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MOVEMENT SUMMARY

 **Site: P1 [P1 (2031 BG + DEV) (SAT) (Site Folder: General)]**

Intersection: Canning Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Riseley Street														
1	L2	170	3.0	179	3.0	0.430	44.2	LOS D	14.0	100.8	0.84	0.89	0.84	45.8
2	T1	137	3.0	144	3.0	* 0.859	45.3	LOS D	24.4	175.4	0.87	0.90	0.90	18.9
3	R2	680	3.0	716	3.0	0.859	72.3	LOS F	31.2	224.0	0.99	0.92	1.13	23.6
Approach		987	3.0	1039	3.0	0.859	63.7	LOS E	31.2	224.0	0.95	0.91	1.05	28.8
East: Canning Highway														
4	L2	376	3.0	396	3.0	0.951	65.1	LOS E	66.9	480.1	1.00	1.09	1.20	25.9
5	T1	1150	3.0	1211	3.0	* 0.951	65.6	LOS E	66.9	480.1	1.00	1.09	1.21	42.5
6	R2	19	3.0	20	3.0	0.165	79.1	LOS F	1.4	10.3	0.98	0.71	0.98	21.0
Approach		1545	3.0	1626	3.0	0.951	65.7	LOS E	66.9	480.1	1.00	1.09	1.21	40.0
North: Riseley Street														
7	L2	31	3.0	33	3.0	0.959	103.4	LOS F	15.4	110.5	1.00	1.14	1.53	18.0
8	T1	189	3.0	199	3.0	* 0.959	98.9	LOS F	15.4	110.5	1.00	1.14	1.53	11.0
9	R2	107	3.0	113	3.0	0.959	103.6	LOS F	15.3	109.8	1.00	1.13	1.53	33.8
Approach		327	3.0	344	3.0	0.959	100.9	LOS F	15.4	110.5	1.00	1.14	1.53	22.5
West: Canning Highway														
10	L2	64	3.0	67	3.0	0.854	50.6	LOS D	47.4	340.4	0.98	0.92	1.02	44.3
11	T1	1185	3.0	1247	3.0	0.854	44.5	LOS D	47.4	340.4	0.95	0.90	1.00	47.0
12	R2	115	3.0	121	3.0	* 0.999	122.8	LOS F	11.7	84.0	1.00	1.09	1.70	31.7
Approach		1364	3.0	1436	3.0	0.999	51.4	LOS D	47.4	340.4	0.95	0.91	1.06	45.2
All Vehicles		4223	3.0	4445	3.0	0.999	63.3	LOS E	66.9	480.1	0.97	0.99	1.15	38.9

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Riseley Street												
P1	Full	10	11	69.2	LOS F	0.0	0.0	0.96	0.96	239.9	222.0	0.93
East: Canning Highway												
P2	Full	10	11	69.2	LOS F	0.0	0.0	0.96	0.96	240.7	223.0	0.93

North: Riseley Street												
P3	Full	10	11	69.2	LOS F	0.0	0.0	0.96	0.96	236.8	218.0	0.92
West: Canning Highway												
P4	Full	10	11	69.2	LOS F	0.0	0.0	0.96	0.96	240.7	223.0	0.93
All		40	42	69.2	LOS F	0.0	0.0	0.96	0.96	239.5	221.5	0.92
Pedestrians												

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

 **Site: P1 [P1 (2031 BG + DEV) (SAT) (Site Folder: General)]**

Intersection: Canning Highway / Riseley Street
Project: 620.30141 - Westfield Booragoon Redevelopment
Prepared by: VL
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150 seconds (Site User-Given Cycle Time)

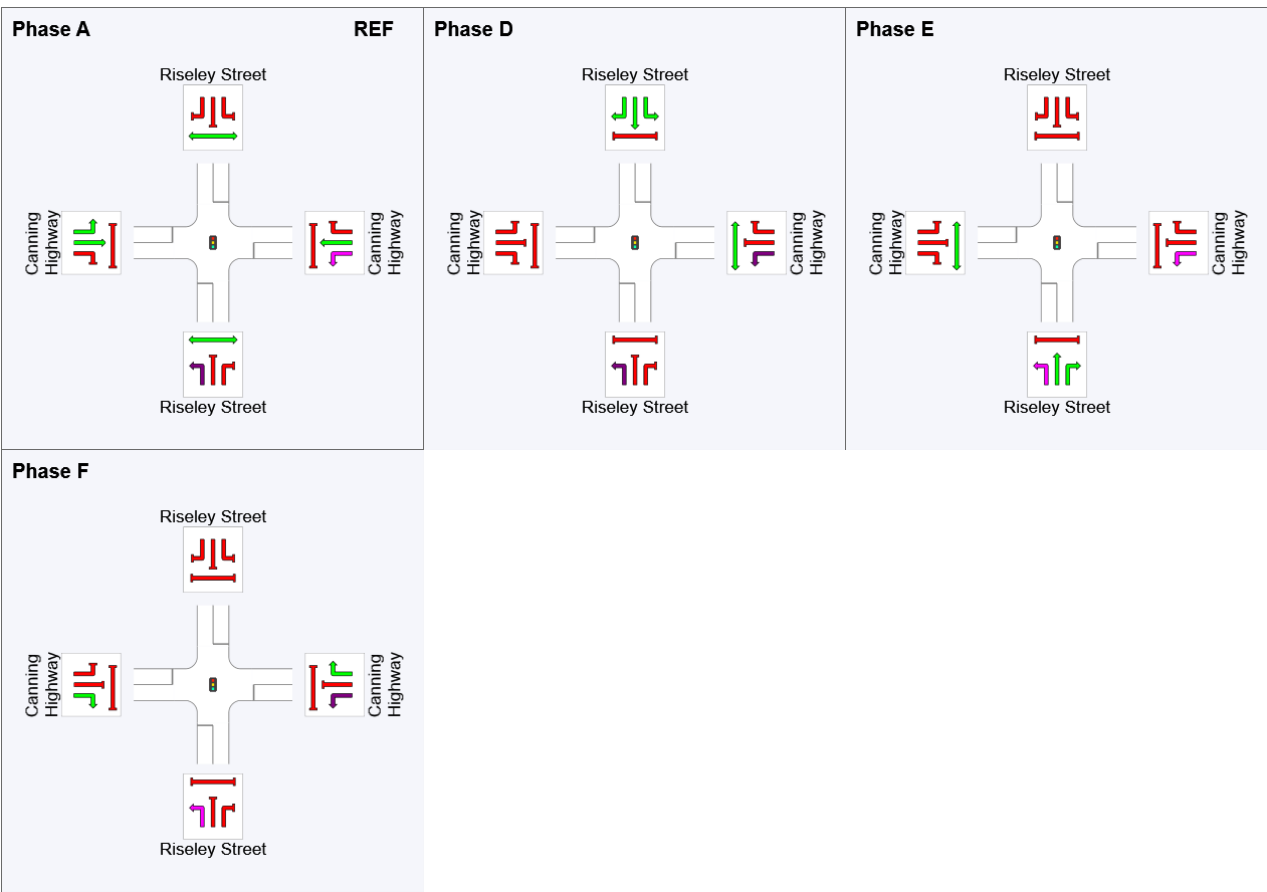
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Leading Right Turn
Reference Phase: Phase A
Input Phase Sequence: A, D, E, F
Output Phase Sequence: A, D, E, F

Phase Timing Summary

Phase	A	D	E	F
Phase Change Time (sec)	0	70	95	134
Green Time (sec)	64	19	33	10
Phase Time (sec)	70	25	39	16
Phase Split	47%	17%	26%	11%

See the Timing Analysis 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, Minor 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

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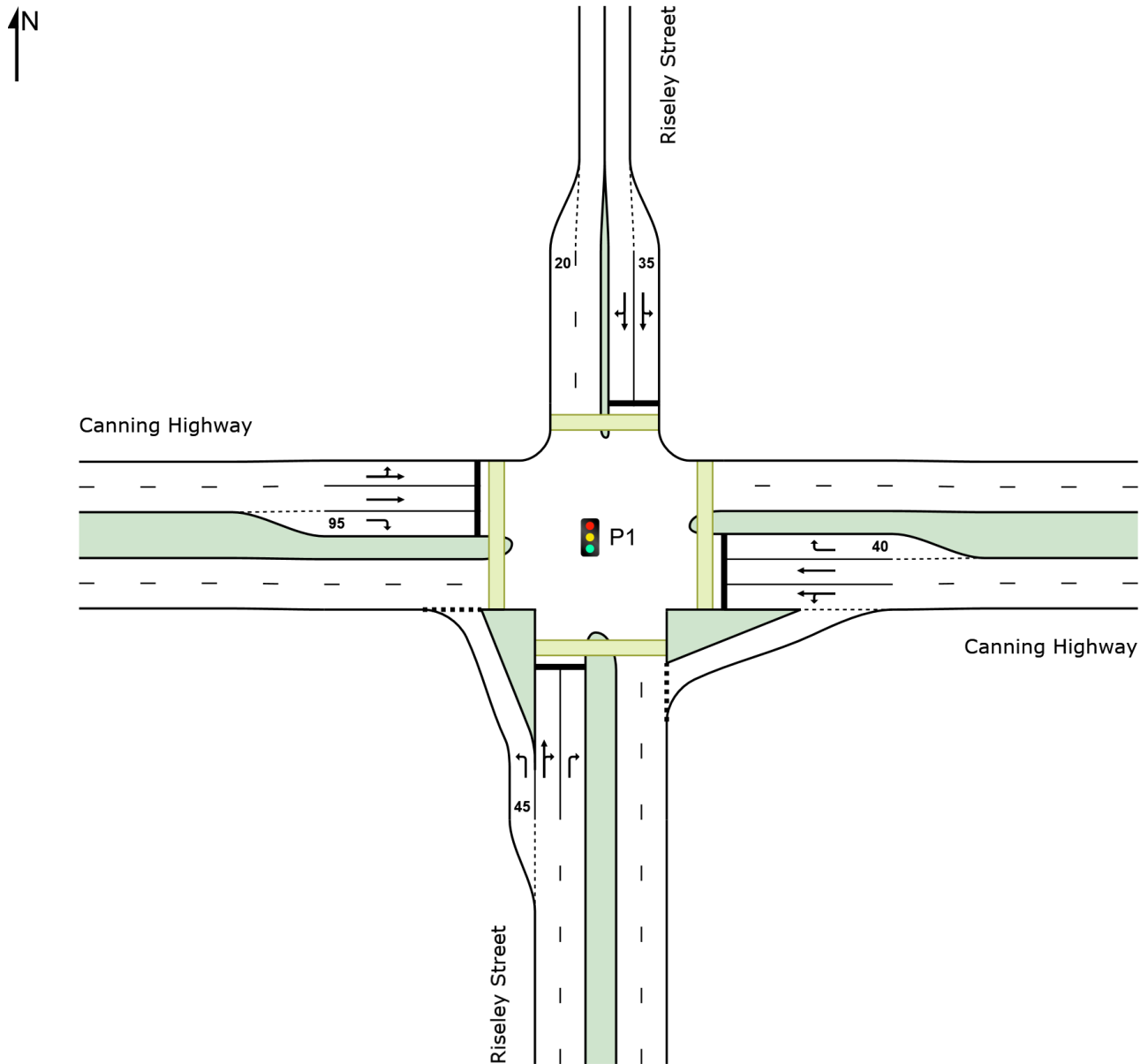
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SITE LAYOUT

 Site: P1 [P1 (2020 BG) (PM) - Existing volumes, upgrades removed (Site Folder: General)]

Intersection: Canning Highway / Riseley Street
Project: 620.30141 - Westfield Booragoon Redevelopment
Prepared by: VL
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

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




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MOVEMENT SUMMARY

 Site: P1 [P1 (2020 BG) (PM) - Existing volumes, upgrades removed (Site Folder: General)]

Intersection: Canning Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 160 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Riseley Street														
1	L2	95	3.0	100	3.0	0.119	31.9	LOS C	4.5	32.4	0.64	0.71	0.64	48.6
2	T1	122	3.0	128	3.0	* 0.940	89.4	LOS F	31.8	228.3	1.00	1.03	1.31	11.7
3	R2	606	3.0	638	3.0	0.940	93.9	LOS F	37.3	267.5	1.00	1.00	1.29	20.1
Approach		823	3.0	866	3.0	0.940	86.1	LOS F	37.3	267.5	0.96	0.97	1.22	23.1
East: Canning Highway														
4	L2	221	3.0	233	3.0	0.921	53.3	LOS D	70.7	507.4	1.00	1.02	1.09	29.3
5	T1	1485	3.0	1563	3.0	* 0.921	49.6	LOS D	71.0	510.0	1.00	1.01	1.09	45.8
6	R2	9	3.0	9	3.0	0.093	85.1	LOS F	0.7	5.2	0.98	0.67	0.98	20.1
Approach		1715	3.0	1805	3.0	0.921	50.3	LOS D	71.0	510.0	1.00	1.01	1.09	44.6
North: Riseley Street														
7	L2	22	3.0	23	3.0	0.904	97.1	LOS F	11.3	81.2	1.00	1.02	1.39	18.8
8	T1	103	3.0	108	3.0	* 0.904	92.5	LOS F	11.3	81.2	1.00	1.02	1.39	11.6
9	R2	119	3.0	125	3.0	0.904	97.4	LOS F	11.2	80.2	1.00	0.99	1.39	34.5
Approach		244	3.0	257	3.0	0.904	95.3	LOS F	11.3	81.2	1.00	1.01	1.39	27.0
West: Canning Highway														
10	L2	14	3.0	15	3.0	0.650	36.3	LOS C	35.4	254.1	0.80	0.73	0.80	48.1
11	T1	1123	3.0	1182	3.0	0.650	30.0	LOS C	35.4	254.1	0.78	0.71	0.78	50.6
12	R2	84	3.0	88	3.0	* 0.865	97.5	LOS F	7.6	54.7	1.00	0.92	1.35	35.1
Approach		1221	3.0	1285	3.0	0.865	34.7	LOS C	35.4	254.1	0.79	0.72	0.82	49.2
All Vehicles		4003	3.0	4214	3.0	0.940	55.6	LOS D	71.0	510.0	0.93	0.91	1.05	41.6

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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


* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Riseley Street												
P1	Full	10	11	74.1	LOS F	0.0	0.0	0.96	0.96	244.9	222.0	0.91
East: Canning Highway												
P2	Full	10	11	74.1	LOS F	0.0	0.0	0.96	0.96	245.7	223.0	0.91

North: Riseley Street												
P3	Full	10	11	74.1	LOS F	0.0	0.0	0.96	0.96	241.8	218.0	0.90
West: Canning Highway												
P4	Full	10	11	74.1	LOS F	0.0	0.0	0.96	0.96	245.7	223.0	0.91
All		40	42	74.1	LOS F	0.0	0.0	0.96	0.96	244.5	221.5	0.91
Pedestrians												

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: P1 [P1 (2020 BG) (PM) - Existing volumes, upgrades removed (Site Folder: General)]**

Intersection: Canning Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 160 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, D, E, F

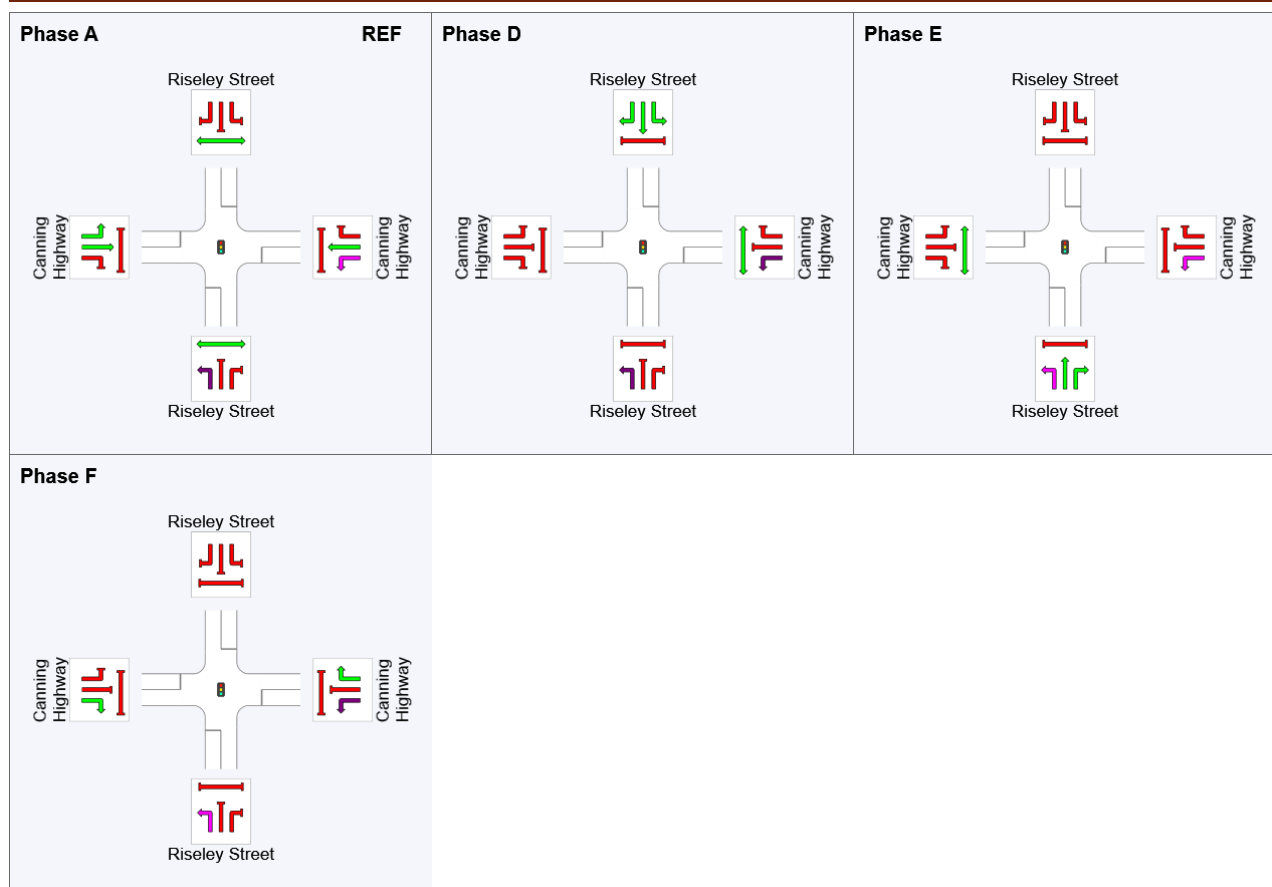
Output Phase Sequence: A, D, E, F

Phase Timing Summary

Phase	A	D	E	F
Phase Change Time (sec)	0	87	107	145
Green Time (sec)	81	14	32	9
Phase Time (sec)	87	20	38	15
Phase Split	54%	13%	24%	9%

See the Timing Analysis 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, Minor 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

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MOVEMENT SUMMARY

 **Site: P1 [P1 (2020 BG) (SAT) - Existing volumes, upgrades removed (Site Folder: General)]**

Intersection: Canning Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: Riseley Street														
1	L2	86	3.0	91	3.0	0.089	18.8	LOS B	2.8	19.9	0.48	0.67	0.48	52.6
2	T1	106	3.0	112	3.0	* 0.779	63.3	LOS E	21.1	151.4	0.98	0.87	1.05	15.1
3	R2	504	3.0	531	3.0	0.779	68.4	LOS E	24.2	173.5	0.99	0.87	1.05	24.5
Approach		696	3.0	733	3.0	0.779	61.5	LOS E	24.2	173.5	0.93	0.85	0.98	28.1
East: Canning Highway														
4	L2	328	3.0	345	3.0	0.770	28.1	LOS B	38.9	279.5	0.84	0.84	0.84	38.9
5	T1	1136	3.0	1196	3.0	* 0.770	27.5	LOS B	42.0	301.9	0.85	0.81	0.85	51.0
6	R2	19	3.0	20	3.0	0.165	79.1	LOS F	1.4	10.3	0.98	0.71	0.98	21.0
Approach		1483	3.0	1561	3.0	0.770	28.3	LOS B	42.0	301.9	0.85	0.81	0.85	49.5
North: Riseley Street														
7	L2	13	3.0	14	3.0	* 0.830	88.4	LOS F	7.4	53.3	1.00	0.93	1.29	20.0
8	T1	82	3.0	86	3.0	0.830	83.8	LOS F	7.4	53.3	1.00	0.93	1.29	12.6
9	R2	80	3.0	84	3.0	0.830	88.6	LOS F	7.2	52.0	1.00	0.93	1.29	35.8
Approach		175	3.0	184	3.0	0.830	86.4	LOS F	7.4	53.3	1.00	0.93	1.29	27.7
West: Canning Highway														
10	L2	19	3.0	20	3.0	0.669	34.2	LOS C	34.9	250.4	0.80	0.73	0.80	48.7
11	T1	1166	3.0	1227	3.0	0.669	27.9	LOS B	34.9	250.4	0.78	0.71	0.78	51.1
12	R2	88	3.0	93	3.0	* 0.764	86.0	LOS F	7.2	51.6	1.00	0.86	1.18	36.8
Approach		1273	3.0	1340	3.0	0.764	32.0	LOS C	34.9	250.4	0.80	0.72	0.81	49.9
All Vehicles		3627	3.0	3818	3.0	0.830	38.7	LOS C	42.0	301.9	0.85	0.79	0.88	45.7

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Riseley Street												
P1	Full	10	11	69.2	LOS F	0.0	0.0	0.96	0.96	239.9	222.0	0.93
East: Canning Highway												
P2	Full	10	11	69.2	LOS F	0.0	0.0	0.96	0.96	240.7	223.0	0.93

North: Riseley Street												
P3	Full	10	11	69.2	LOS F	0.0	0.0	0.96	0.96	236.8	218.0	0.92
West: Canning Highway												
P4	Full	10	11	69.2	LOS F	0.0	0.0	0.96	0.96	240.7	223.0	0.93
All		40	42	69.2	LOS F	0.0	0.0	0.96	0.96	239.5	221.5	0.92
Pedestrians												

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.


Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

 **Site: P1 [P1 (2020 BG) (SAT) - Existing volumes, upgrades removed (Site Folder: General)]**

Intersection: Canning Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, D, E, F

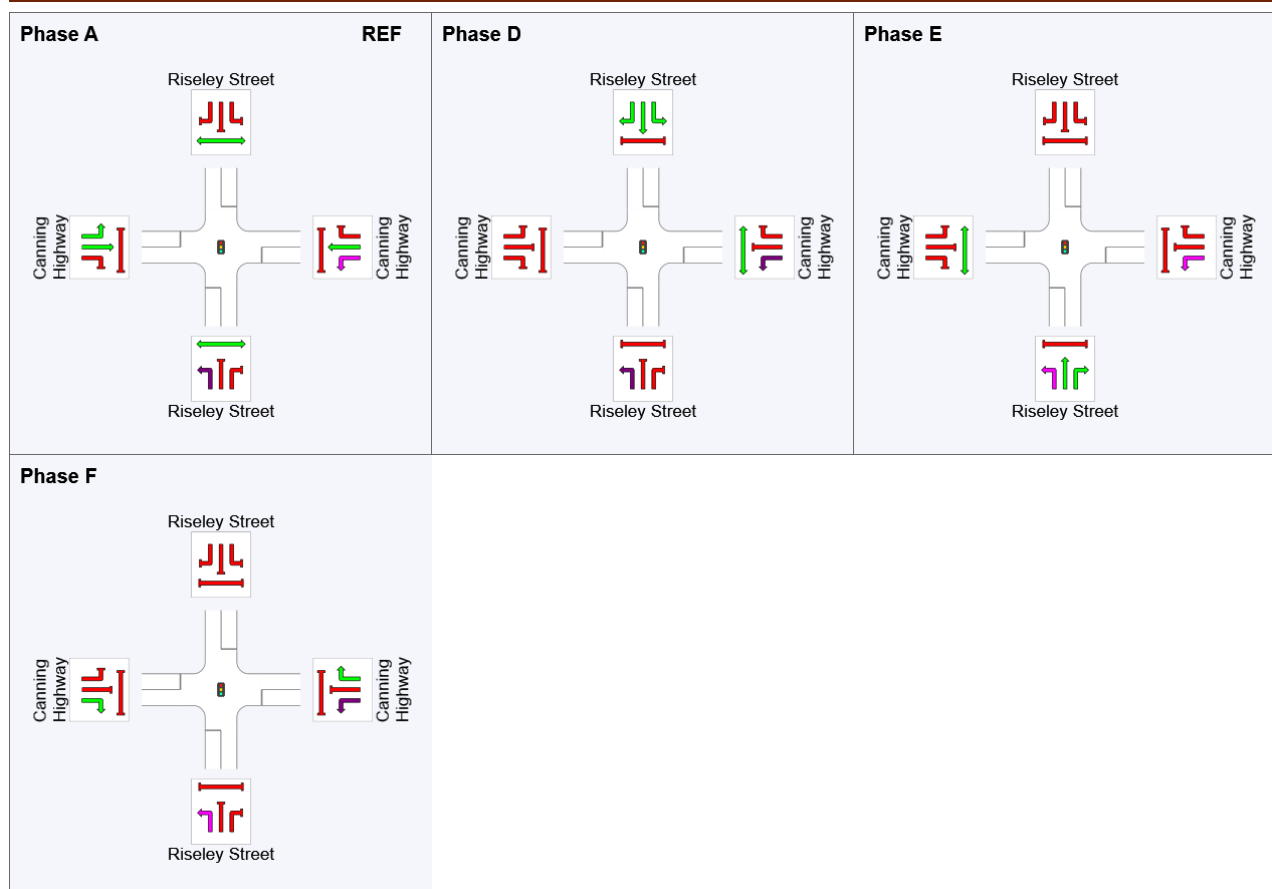
Output Phase Sequence: A, D, E, F

Phase Timing Summary

Phase	A	D	E	F
Phase Change Time (sec)	0	83	98	134
Green Time (sec)	77	9	30	10
Phase Time (sec)	83	15	36	16
Phase Split	55%	10%	24%	11%

See the Timing Analysis 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, Minor 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

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MOVEMENT SUMMARY

 **Site: P1 [P1 (2021 BG) (PM) (Site Folder: General)]**

Intersection: Canning Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 160 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Riseley Street														
1	L2	108	3.0	114	3.0	0.141	34.1	LOS C	5.4	38.6	0.66	0.72	0.66	48.0
2	T1	106	3.0	112	3.0	* 0.914	83.1	LOS F	27.9	200.3	1.00	0.99	1.26	12.3
3	R2	572	3.0	602	3.0	0.914	87.8	LOS F	33.5	240.8	1.00	0.97	1.24	21.0
Approach		786	3.0	827	3.0	0.914	79.8	LOS F	33.5	240.8	0.95	0.94	1.16	24.8
East: Canning Highway														
4	L2	300	3.0	316	3.0	0.906	49.1	LOS D	63.0	452.6	0.99	1.00	1.06	30.4
5	T1	1312	3.0	1381	3.0	* 0.906	47.3	LOS D	64.4	462.7	0.99	0.99	1.07	46.2
6	R2	9	3.0	9	3.0	0.119	88.4	LOS F	0.7	5.3	0.99	0.67	0.99	19.6
Approach		1621	3.0	1706	3.0	0.906	47.9	LOS D	64.4	462.7	0.99	0.99	1.06	44.6
North: Riseley Street														
7	L2	12	3.0	13	3.0	0.909	94.0	LOS F	14.6	104.8	1.00	1.05	1.37	19.3
8	T1	169	3.0	178	3.0	* 0.909	89.4	LOS F	14.6	104.8	1.00	1.05	1.37	12.0
9	R2	136	3.0	143	3.0	0.909	94.4	LOS F	14.4	103.2	1.00	1.01	1.37	35.0
Approach		317	3.0	334	3.0	0.909	91.7	LOS F	14.6	104.8	1.00	1.03	1.37	26.1
West: Canning Highway														
10	L2	72	3.0	76	3.0	0.663	39.0	LOS C	35.3	253.7	0.82	0.76	0.82	47.2
11	T1	1038	3.0	1093	3.0	0.663	32.8	LOS C	35.3	253.7	0.81	0.74	0.81	49.8
12	R2	66	3.0	69	3.0	* 0.873	99.9	LOS F	6.1	43.5	1.00	0.92	1.41	34.7
Approach		1176	3.0	1238	3.0	0.873	36.9	LOS C	35.3	253.7	0.82	0.75	0.84	48.6
All Vehicles		3900	3.0	4105	3.0	0.914	54.6	LOS D	64.4	462.7	0.93	0.91	1.04	41.4

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Riseley Street												
P1	Full	10	11	74.1	LOS F	0.0	0.0	0.96	0.96	244.9	222.0	0.91
East: Canning Highway												
P2	Full	10	11	74.1	LOS F	0.0	0.0	0.96	0.96	245.7	223.0	0.91

North: Riseley Street												
P3	Full	10	11	74.1	LOS F	0.0	0.0	0.96	0.96	241.8	218.0	0.90
West: Canning Highway												
P4	Full	10	11	74.1	LOS F	0.0	0.0	0.96	0.96	245.7	223.0	0.91
All		40	42	74.1	LOS F	0.0	0.0	0.96	0.96	244.5	221.5	0.91
Pedestrians												

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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 \620.30141-Peripheral SIDRA Analysis.sip9

PHASING SUMMARY

 **Site: P1 [P1 (2021 BG) (PM) (Site Folder: General)]**

Intersection: Canning Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 160 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, D, E, F

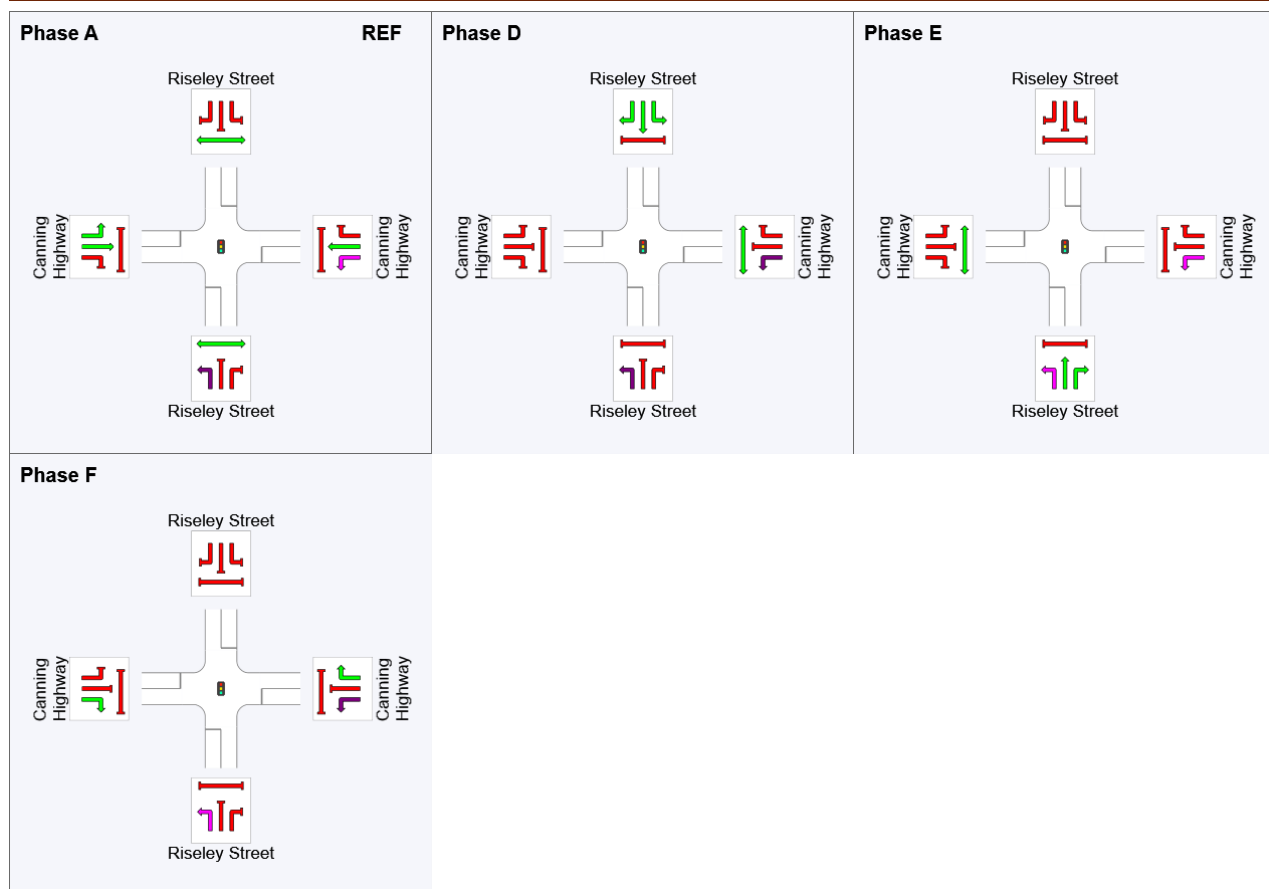
Output Phase Sequence: A, D, E, F

Phase Timing Summary

Phase	A	D	E	F
Phase Change Time (sec)	0	83	110	147
Green Time (sec)	77	21	31	7
Phase Time (sec)	83	27	37	13
Phase Split	52%	17%	23%	8%

See the Timing Analysis 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, Minor 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

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 \620.30141-Peripheral SIDRA Analysis.sip9

MOVEMENT SUMMARY

 **Site: P1 [P1 (2021 BG) (SAT) (Site Folder: General)]**

Intersection: Canning Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Riseley Street														
1	L2	80	3.0	84	3.0	0.085	20.6	LOS B	2.7	19.6	0.51	0.68	0.51	52.0
2	T1	66	3.0	69	3.0	* 0.847	69.2	LOS E	23.6	169.2	1.00	0.92	1.15	14.0
3	R2	575	3.0	605	3.0	0.847	74.0	LOS F	26.9	193.5	1.00	0.91	1.13	23.4
Approach		721	3.0	759	3.0	0.847	67.6	LOS E	26.9	193.5	0.95	0.89	1.07	26.8
East: Canning Highway														
4	L2	307	3.0	323	3.0	0.816	33.0	LOS C	42.4	304.7	0.90	0.89	0.90	36.6
5	T1	1145	3.0	1205	3.0	* 0.816	31.9	LOS C	44.6	319.9	0.91	0.86	0.91	49.9
6	R2	17	3.0	18	3.0	0.148	79.0	LOS F	1.3	9.2	0.97	0.70	0.97	21.0
Approach		1469	3.0	1546	3.0	0.816	32.7	LOS C	44.6	319.9	0.91	0.86	0.91	48.3
North: Riseley Street														
7	L2	26	3.0	27	3.0	* 0.862	85.8	LOS F	11.1	79.6	1.00	0.98	1.30	20.4
8	T1	140	3.0	147	3.0	0.862	81.2	LOS F	11.1	79.6	1.00	0.98	1.30	12.8
9	R2	99	3.0	104	3.0	0.862	85.9	LOS F	11.0	79.0	1.00	0.97	1.30	36.4
Approach		265	3.0	279	3.0	0.862	83.4	LOS F	11.1	79.6	1.00	0.98	1.30	26.4
West: Canning Highway														
10	L2	64	3.0	67	3.0	0.726	38.6	LOS C	38.1	273.4	0.86	0.79	0.86	47.4
11	T1	1137	3.0	1197	3.0	0.726	32.1	LOS C	38.1	273.4	0.84	0.77	0.84	50.0
12	R2	93	3.0	98	3.0	* 0.808	87.7	LOS F	7.7	55.3	1.00	0.89	1.24	36.6
Approach		1294	3.0	1362	3.0	0.808	36.4	LOS C	38.1	273.4	0.85	0.78	0.87	48.7
All Vehicles		3749	3.0	3946	3.0	0.862	44.3	LOS D	44.6	319.9	0.90	0.84	0.95	44.0

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Riseley Street												
P1	Full	10	11	69.2	LOS F	0.0	0.0	0.96	0.96	239.9	222.0	0.93
East: Canning Highway												
P2	Full	10	11	69.2	LOS F	0.0	0.0	0.96	0.96	240.7	223.0	0.93

North: Riseley Street												
P3	Full	10	11	69.2	LOS F	0.0	0.0	0.96	0.96	236.8	218.0	0.92
West: Canning Highway												
P4	Full	10	11	69.2	LOS F	0.0	0.0	0.96	0.96	240.7	223.0	0.93
All		40	42	69.2	LOS F	0.0	0.0	0.96	0.96	239.5	221.5	0.92
Pedestrians												

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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 \620.30141-Peripheral SIDRA Analysis.sip9

PHASING SUMMARY

 **Site: P1 [P1 (2021 BG) (SAT) (Site Folder: General)]**

Intersection: Canning Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, D, E, F

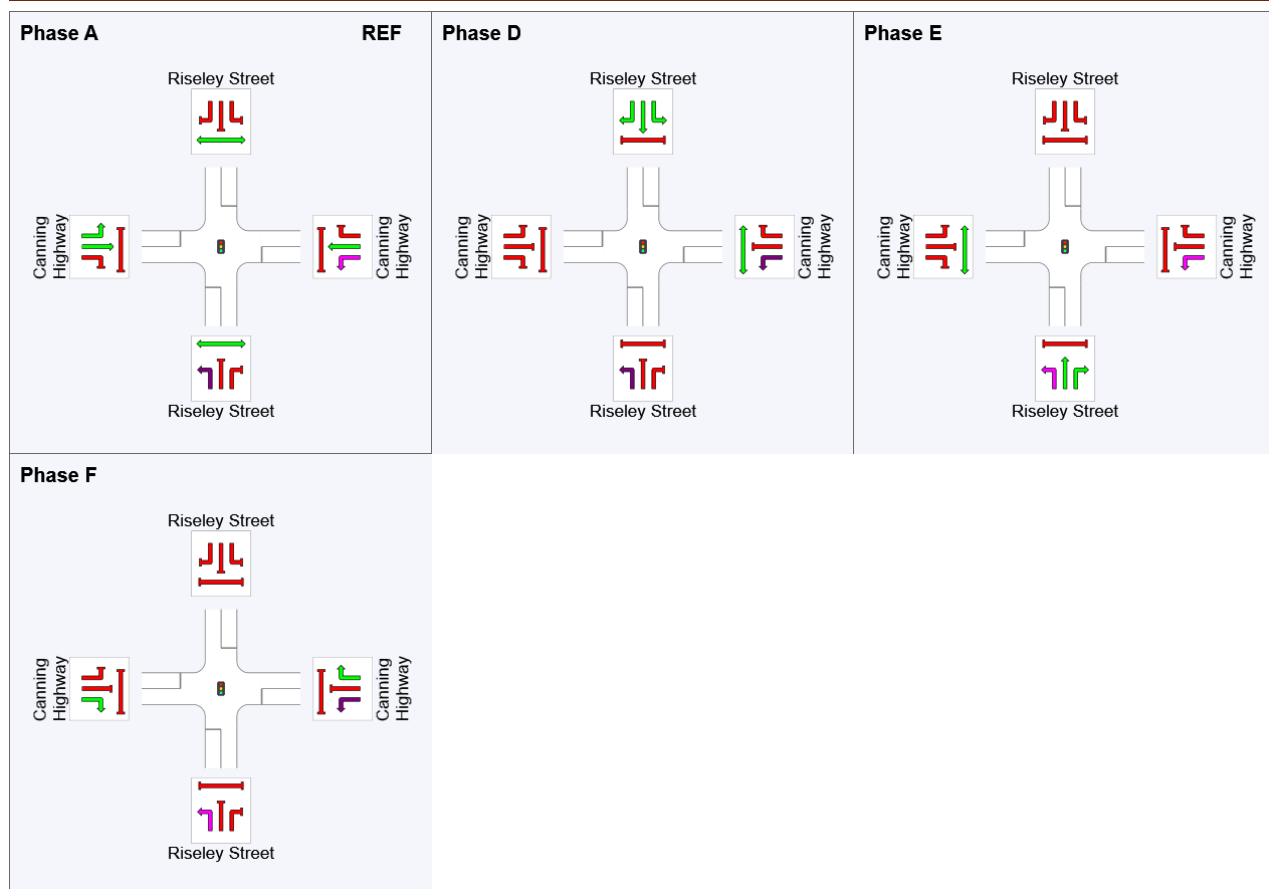
Output Phase Sequence: A, D, E, F

Phase Timing Summary

Phase	A	D	E	F
Phase Change Time (sec)	0	78	99	134
Green Time (sec)	72	15	29	10
Phase Time (sec)	78	21	35	16
Phase Split	52%	14%	23%	11%

See the Timing Analysis 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, Minor 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

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MOVEMENT SUMMARY

 **Site: P1 [P1 (2031 BG) (PM) (Site Folder: General)]**

Intersection: Canning Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 160 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Riseley Street														
1	L2	100	3.0	105	3.0	0.119	29.9	LOS C	4.5	32.6	0.61	0.71	0.61	49.2
2	T1	112	3.0	118	3.0	* 0.939	89.7	LOS F	30.4	218.3	1.00	1.03	1.32	11.7
3	R2	589	3.0	620	3.0	0.939	94.2	LOS F	36.0	258.5	1.00	1.00	1.30	20.1
Approach		801	3.0	843	3.0	0.939	85.6	LOS F	36.0	258.5	0.95	0.97	1.21	23.5
East: Canning Highway														
4	L2	273	3.0	287	3.0	0.930	59.1	LOS E	69.2	496.7	1.00	1.05	1.12	27.6
5	T1	1334	3.0	1404	3.0	* 0.930	56.6	LOS E	69.6	499.4	1.00	1.04	1.13	44.3
6	R2	10	3.0	11	3.0	0.093	83.8	LOS F	0.8	5.7	0.97	0.68	0.97	20.3
Approach		1617	3.0	1702	3.0	0.930	57.2	LOS E	69.6	499.4	1.00	1.04	1.13	42.7
North: Riseley Street														
7	L2	16	3.0	17	3.0	0.957	107.9	LOS F	15.8	113.1	1.00	1.13	1.50	17.5
8	T1	176	3.0	185	3.0	* 0.957	103.4	LOS F	15.8	113.1	1.00	1.12	1.50	10.6
9	R2	125	3.0	132	3.0	0.957	108.3	LOS F	15.6	111.7	1.00	1.09	1.50	33.1
Approach		317	3.0	334	3.0	0.957	105.5	LOS F	15.8	113.1	1.00	1.11	1.50	23.3
West: Canning Highway														
10	L2	83	3.0	87	3.0	0.725	41.8	LOS C	39.8	285.8	0.87	0.80	0.87	46.5
11	T1	1079	3.0	1136	3.0	0.725	35.2	LOS C	39.8	285.8	0.85	0.77	0.85	49.2
12	R2	104	3.0	109	3.0	* 0.963	113.7	LOS F	10.4	74.7	1.00	1.03	1.57	32.9
Approach		1266	3.0	1333	3.0	0.963	42.0	LOS C	39.8	285.8	0.86	0.79	0.91	47.3
All Vehicles		4001	3.0	4212	3.0	0.963	61.9	LOS E	69.6	499.4	0.95	0.95	1.10	39.9

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m					
South: Riseley Street												
P1	Full	10	11	74.1	LOS F	0.0	0.0	0.96	0.96	244.9	222.0	0.91
East: Canning Highway												
P2	Full	10	11	74.1	LOS F	0.0	0.0	0.96	0.96	245.7	223.0	0.91

North: Riseley Street												
P3	Full	10	11	74.1	LOS F	0.0	0.0	0.96	0.96	241.8	218.0	0.90
West: Canning Highway												
P4	Full	10	11	74.1	LOS F	0.0	0.0	0.96	0.96	245.7	223.0	0.91
All		40	42	74.1	LOS F	0.0	0.0	0.96	0.96	244.5	221.5	0.91
Pedestrians												

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: P1 [P1 (2031 BG) (PM) (Site Folder: General)]**

Intersection: Canning Highway / Riseley Street
Project: 620.30141 - Westfield Booragoon Redevelopment
Prepared by: VL
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 160 seconds (Site User-Given Cycle Time)

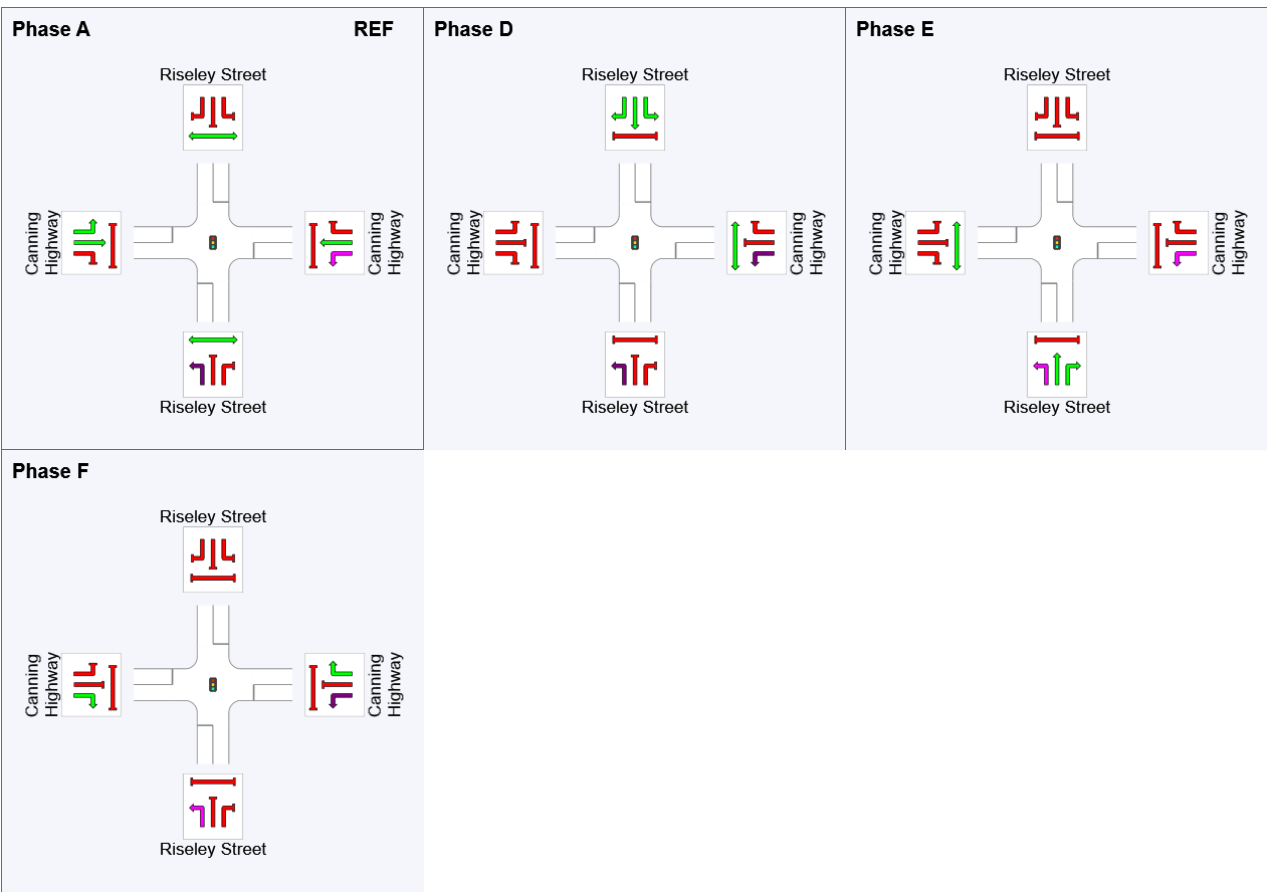
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Leading Right Turn
Reference Phase: Phase A
Input Phase Sequence: A, D, E, F
Output Phase Sequence: A, D, E, F

Phase Timing Summary

Phase	A	D	E	F
Phase Change Time (sec)	0	81	107	144
Green Time (sec)	75	20	31	10
Phase Time (sec)	81	26	37	16
Phase Split	51%	16%	23%	10%

See the Timing Analysis 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, Minor 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

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MOVEMENT SUMMARY

 **Site: P1 [P1 (2031 BG) (SAT) (Site Folder: General)]**

Intersection: Canning Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Riseley Street														
1	L2	93	3.0	98	3.0	0.111	26.7	LOS B	3.8	27.4	0.60	0.70	0.60	50.1
2	T1	76	3.0	80	3.0	* 0.865	71.1	LOS F	24.0	172.6	1.00	0.94	1.18	13.8
3	R2	573	3.0	603	3.0	0.865	75.9	LOS F	28.1	201.4	1.00	0.93	1.16	23.0
Approach		742	3.0	781	3.0	0.865	69.3	LOS E	28.1	201.4	0.95	0.90	1.09	26.7
East: Canning Highway														
4	L2	334	3.0	352	3.0	0.847	34.8	LOS C	45.6	327.2	0.93	0.92	0.94	35.7
5	T1	1156	3.0	1217	3.0	* 0.847	34.8	LOS C	48.1	345.7	0.94	0.89	0.95	49.1
6	R2	19	3.0	20	3.0	0.206	82.2	LOS F	1.5	10.5	0.99	0.70	0.99	20.5
Approach		1509	3.0	1588	3.0	0.847	35.4	LOS C	48.1	345.7	0.94	0.89	0.95	47.4
North: Riseley Street														
7	L2	31	3.0	33	3.0	0.897	88.2	LOS F	13.0	93.2	1.00	1.04	1.37	20.0
8	T1	165	3.0	174	3.0	* 0.897	83.7	LOS F	13.0	93.2	1.00	1.03	1.37	12.5
9	R2	107	3.0	113	3.0	0.897	88.4	LOS F	12.9	92.6	1.00	1.02	1.37	36.0
Approach		303	3.0	319	3.0	0.897	85.8	LOS F	13.0	93.2	1.00	1.03	1.37	25.5
West: Canning Highway														
10	L2	64	3.0	67	3.0	0.764	40.1	LOS C	40.8	293.1	0.89	0.82	0.89	47.0
11	T1	1189	3.0	1252	3.0	0.764	33.7	LOS C	40.8	293.1	0.87	0.79	0.87	49.6
12	R2	85	3.0	89	3.0	* 0.923	99.1	LOS F	7.6	54.6	1.00	0.99	1.51	34.8
Approach		1338	3.0	1408	3.0	0.923	38.1	LOS C	40.8	293.1	0.88	0.81	0.91	48.3
All Vehicles		3892	3.0	4097	3.0	0.923	46.7	LOS D	48.1	345.7	0.92	0.88	1.00	43.3

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
						[Ped ped	Dist] m					
		ped/h	ped/h	sec						sec	m	m/sec
South: Riseley Street												
P1	Full	10	11	69.2	LOS F	0.0	0.0	0.96	0.96	239.9	222.0	0.93
East: Canning Highway												
P2	Full	10	11	69.2	LOS F	0.0	0.0	0.96	0.96	240.7	223.0	0.93

North: Riseley Street												
P3	Full	10	11	69.2	LOS F	0.0	0.0	0.96	0.96	236.8	218.0	0.92
West: Canning Highway												
P4	Full	10	11	69.2	LOS F	0.0	0.0	0.96	0.96	240.7	223.0	0.93
All		40	42	69.2	LOS F	0.0	0.0	0.96	0.96	239.5	221.5	0.92
Pedestrians												

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

 **Site: P1 [P1 (2031 BG) (SAT) (Site Folder: General)]**

Intersection: Canning Highway / Riseley Street
Project: 620.30141 - Westfield Booragoon Redevelopment
Prepared by: VL
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150 seconds (Site User-Given Cycle Time)

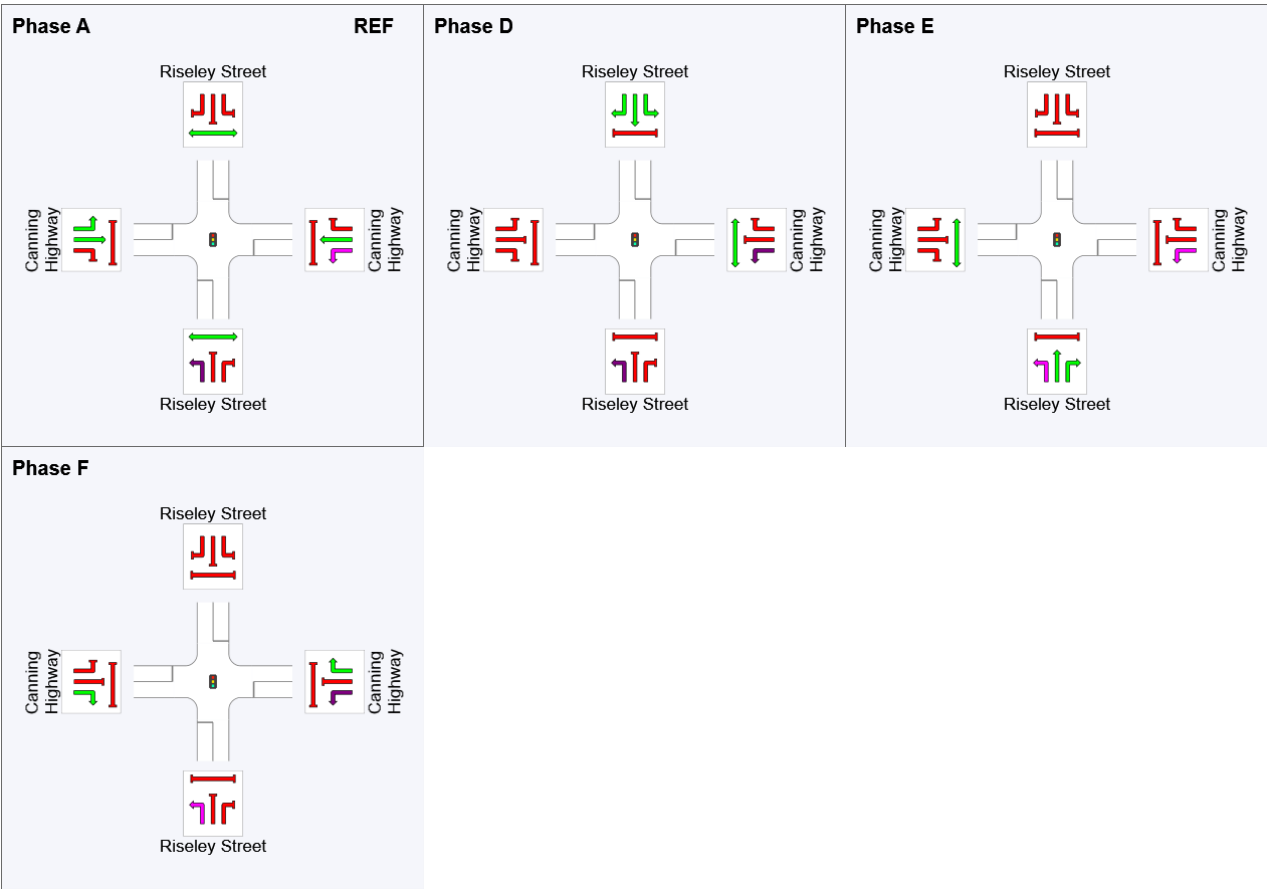
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Leading Right Turn
Reference Phase: Phase A
Input Phase Sequence: A, D, E, F
Output Phase Sequence: A, D, E, F

Phase Timing Summary

Phase	A	D	E	F
Phase Change Time (sec)	0	77	101	136
Green Time (sec)	71	18	29	8
Phase Time (sec)	77	24	35	14
Phase Split	51%	16%	23%	9%

See the Timing Analysis 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, Minor 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

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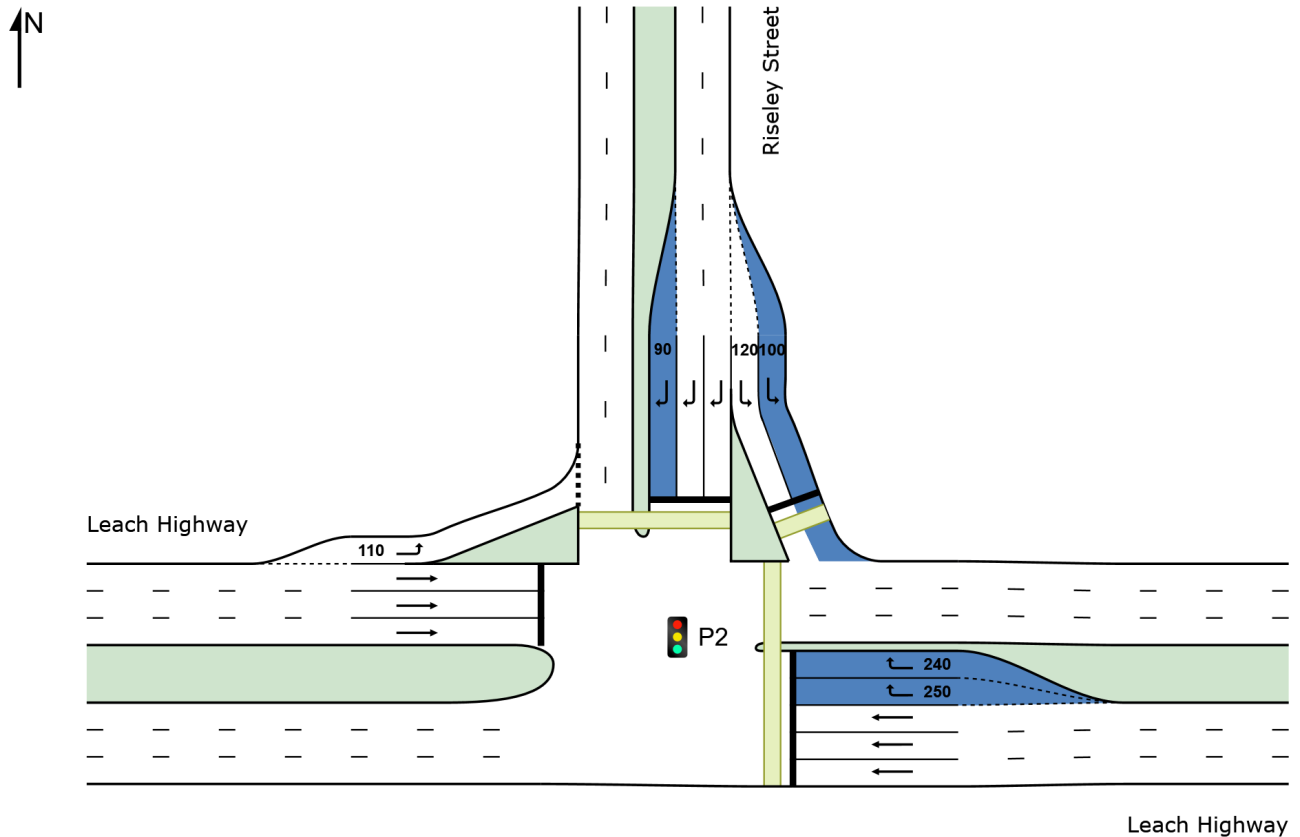
Project: Z:\BNE\Projects-SLR\620-BNE\620.30141.00000 Westfield Booragoon Redevelopment\02 Analysis\2021 07 - Updated SIDRA Analysis
 \620.30141-Peripheral SIDRA Analysis.sip9

SITE LAYOUT

 **Site: P2 [P2 (2020 BG) (PM) - Existing volumes and layout (Site Folder: General)]**

Intersection: Leach Highway / Riseley Street
Project: 620.30141 - Westfield Booragoon Redevelopment
Prepared by: VL
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

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



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Project: Z:\BNE\Projects-SLR\620-BNE\620.30141.00000 Westfield Booragoon Redevelopment\02 Analysis\2021 07 - Updated SIDRA Analysis
620.30141-Peripheral SIDRA Analysis.sip9

MOVEMENT SUMMARY

 Site: P2 [P2 (2020 BG) (PM) - Existing volumes and layout (Site Folder: General)]

Intersection: Leach Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 162 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
East: Leach Highway														
5	T1	2327	3.0	2449	3.0	0.516	4.4	LOS A	18.9	135.5	0.33	0.31	0.33	66.5
6	R2	698	3.0	735	3.0	* 0.818	72.6	LOS F	28.7	205.8	1.00	0.90	1.07	35.9
Approach		3025	3.0	3184	3.0	0.818	20.1	LOS B	28.7	205.8	0.48	0.44	0.50	55.3
North: Riseley Street														
7	L2	664	3.0	699	3.0	0.502	46.2	LOS D	20.8	149.3	0.82	0.81	0.82	42.1
9	R2	397	3.0	418	3.0	* 0.776	87.6	LOS F	11.4	81.9	1.00	0.87	1.14	35.3
Approach		1061	3.0	1117	3.0	0.776	61.7	LOS E	20.8	149.3	0.89	0.83	0.94	39.0
West: Leach Highway														
10	L2	416	3.0	438	3.0	0.332	14.4	LOS A	10.8	77.7	0.39	0.73	0.39	56.5
11	T1	2216	3.0	2333	3.0	* 0.807	30.4	LOS C	52.8	379.3	0.85	0.78	0.85	51.2
Approach		2632	3.0	2771	3.0	0.807	27.9	LOS B	52.8	379.3	0.77	0.77	0.77	52.1
All Vehicles		6718	3.0	7072	3.0	0.818	29.7	LOS C	52.8	379.3	0.66	0.63	0.68	50.5

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Leach Highway												
P2	Full	10	11	75.1	LOS F	0.0	0.0	0.96	0.96	251.7	229.5	0.91
North: Riseley Street												
P3	Full	10	11	75.1	LOS F	0.0	0.0	0.96	0.96	245.1	221.0	0.90
P3B	Slip/ Bypass	10	11	75.1	LOS F	0.0	0.0	0.96	0.96	236.3	209.5	0.89
All Pedestrians		30	32	75.1	LOS F	0.0	0.0	0.96	0.96	244.4	220.0	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.

PHASING SUMMARY

Site: P2 [P2 (2020 BG) (PM) - Existing volumes and layout (Site Folder: General)]

Intersection: Leach Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 162 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, C, D

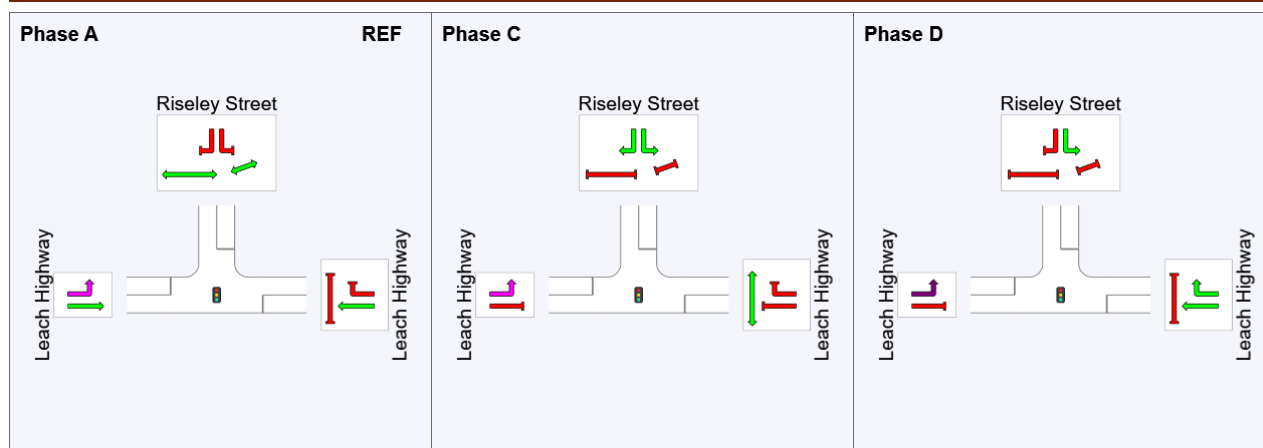
Output Phase Sequence: A, C, D

Phase Timing Summary

Phase	A	C	D
Phase Change Time (sec)	0	94	116
Green Time (sec)	88	16	40
Phase Time (sec)	94	22	46
Phase Split	58%	14%	28%

See the Timing Analysis 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, Minor 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: P2 [P2 (2020 BG) (SAT) - Existing volumes and layout (Site Folder: General)]**

Intersection: Leach Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 161 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
East: Leach Highway														
5	T1	1810	3.0	1905	3.0	0.396	3.3	LOS A	11.7	83.9	0.26	0.24	0.26	67.3
6	R2	748	3.0	787	3.0	* 0.792	66.9	LOS E	29.3	210.5	0.99	0.89	1.03	37.2
Approach		2558	3.0	2693	3.0	0.792	21.9	LOS B	29.3	210.5	0.48	0.43	0.49	54.1
North: Riseley Street														
7	L2	657	3.0	692	3.0	0.478	43.9	LOS D	19.9	142.8	0.80	0.81	0.80	42.8
9	R2	363	3.0	382	3.0	* 0.806	90.2	LOS F	10.6	75.9	1.00	0.88	1.19	34.8
Approach		1020	3.0	1074	3.0	0.806	60.4	LOS E	19.9	142.8	0.87	0.83	0.94	39.3
West: Leach Highway														
10	L2	466	3.0	491	3.0	0.384	16.1	LOS B	13.1	94.1	0.44	0.76	0.44	55.8
11	T1	2127	3.0	2239	3.0	* 0.801	31.4	LOS C	50.9	365.6	0.85	0.78	0.85	50.7
Approach		2593	3.0	2729	3.0	0.801	28.7	LOS C	50.9	365.6	0.78	0.78	0.78	51.7
All Vehicles		6171	3.0	6496	3.0	0.806	31.1	LOS C	50.9	365.6	0.67	0.64	0.68	49.8

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Leach Highway												
P2	Full	10	11	74.6	LOS F	0.0	0.0	0.96	0.96	251.2	229.5	0.91
North: Riseley Street												
P3	Full	10	11	74.6	LOS F	0.0	0.0	0.96	0.96	244.6	221.0	0.90
P3B	Slip/ Bypass	10	11	74.6	LOS F	0.0	0.0	0.96	0.96	235.8	209.5	0.89
All Pedestrians		30	32	74.6	LOS F	0.0	0.0	0.96	0.96	243.9	220.0	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.

PHASING SUMMARY

Site: P2 [P2 (2020 BG) (SAT) - Existing volumes and layout (Site Folder: General)]

Intersection: Leach Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 161 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, C, D

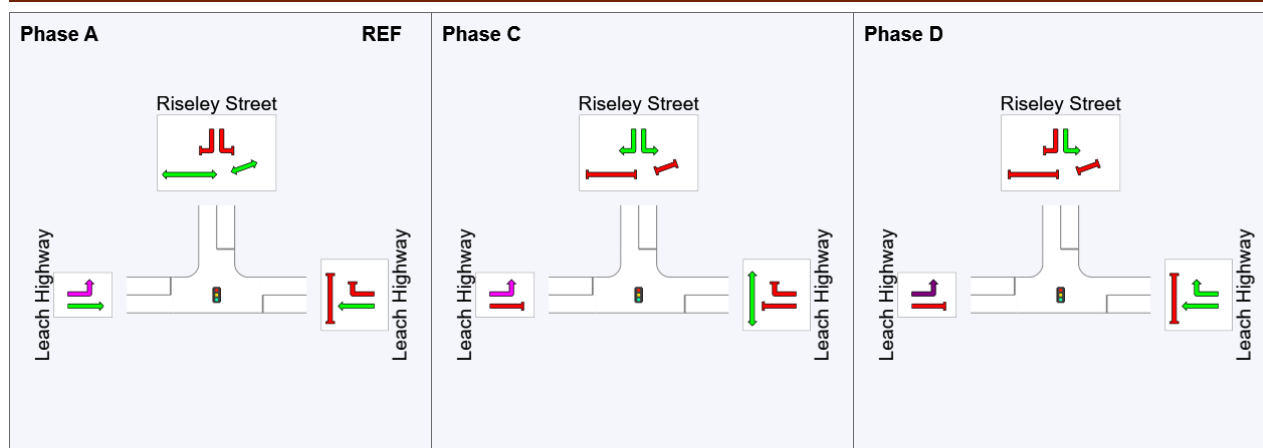
Output Phase Sequence: A, C, D

Phase Timing Summary

Phase	A	C	D
Phase Change Time (sec)	0	91	111
Green Time (sec)	85	14	44
Phase Time (sec)	91	20	50
Phase Split	57%	12%	31%

See the Timing Analysis 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, Minor 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: P2 [P2 (2021 BG + DEV) (PM) (Site Folder: General)]**

Intersection: Leach Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 162 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
East: Leach Highway														
5	T1	1821	3.0	1917	3.0	0.433	6.6	LOS A	16.8	120.6	0.37	0.34	0.37	64.8
6	R2	893	3.0	940	3.0	* 0.910	82.4	LOS F	41.2	295.8	1.00	0.96	1.19	33.9
Approach		2714	3.0	2857	3.0	0.910	31.6	LOS C	41.2	295.8	0.58	0.55	0.64	49.5
North: Riseley Street														
7	L2	863	3.0	908	3.0	0.546	37.0	LOS C	24.6	176.9	0.75	0.81	0.75	45.0
9	R2	507	3.0	534	3.0	* 0.634	75.6	LOS F	13.3	95.8	0.99	0.82	0.99	37.6
Approach		1370	3.0	1442	3.0	0.634	51.3	LOS D	24.6	176.9	0.84	0.81	0.84	41.6
West: Leach Highway														
10	L2	510	3.0	537	3.0	0.436	19.7	LOS B	15.3	109.9	0.49	0.80	0.49	54.2
11	T1	2001	3.0	2106	3.0	* 0.906	54.1	LOS D	62.9	451.4	0.96	0.96	1.06	42.3
Approach		2511	3.0	2643	3.0	0.906	47.1	LOS D	62.9	451.4	0.86	0.93	0.95	44.6
All Vehicles		6595	3.0	6942	3.0	0.910	41.6	LOS C	62.9	451.4	0.74	0.75	0.80	45.7

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE [Ped ped Dist] m		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec						sec	m	m/sec
East: Leach Highway												
P2	Full	50	53	75.3	LOS F	0.2	0.2	0.97	0.97	251.8	229.5	0.91
North: Riseley Street												
P3	Full	50	53	75.3	LOS F	0.2	0.2	0.97	0.97	245.3	221.0	0.90
P3B	Slip/ Bypass	50	53	75.3	LOS F	0.2	0.2	0.97	0.97	236.4	209.5	0.89
All Pedestrians		150	158	75.3	LOS F	0.2	0.2	0.97	0.97	244.5	220.0	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.

PHASING SUMMARY

Site: P2 [P2 (2021 BG + DEV) (PM) (Site Folder: General)]

Intersection: Leach Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 162 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, C, D

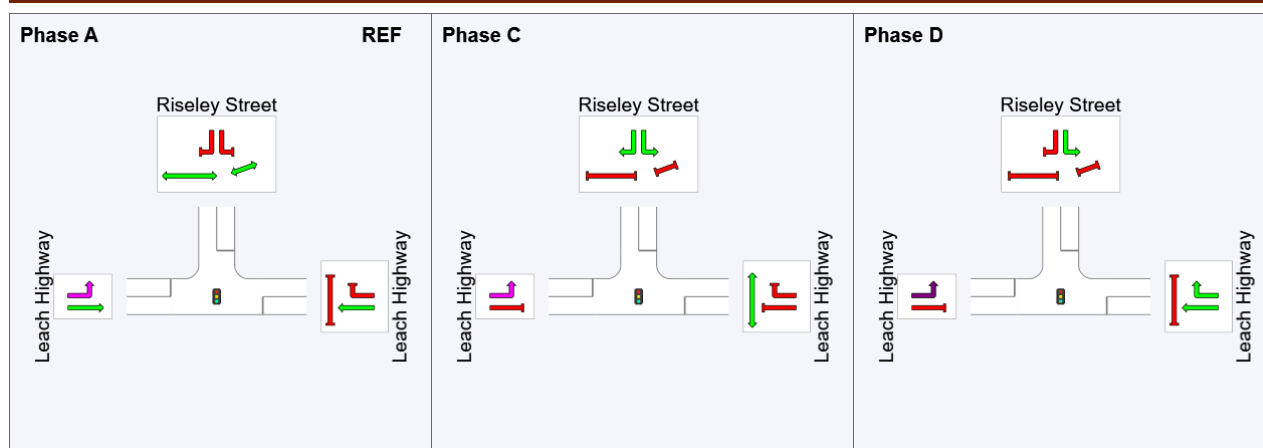
Output Phase Sequence: A, C, D

Phase Timing Summary

Phase	A	C	D
Phase Change Time (sec)	0	79	110
Green Time (sec)	73	25	46
Phase Time (sec)	79	31	52
Phase Split	49%	19%	32%

See the Timing Analysis 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, Minor 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: P2 [P2 (2021 BG + DEV) (SAT) (Site Folder: General)]**

Intersection: Leach Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 161 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
East: Leach Highway														
5	T1	1924	3.0	2025	3.0	0.458	6.9	LOS A	18.3	131.2	0.39	0.35	0.39	64.6
6	R2	876	3.0	922	3.0	* 0.833	66.8	LOS E	35.3	253.3	1.00	0.91	1.06	37.2
Approach		2800	3.0	2947	3.0	0.833	25.6	LOS B	35.3	253.3	0.58	0.53	0.60	52.2
North: Riseley Street														
7	L2	966	3.0	1017	3.0	0.668	35.5	LOS C	27.4	196.4	0.75	0.81	0.75	45.5
9	R2	484	3.0	509	3.0	* 0.601	74.6	LOS F	12.6	90.3	0.98	0.82	0.98	37.8
Approach		1450	3.0	1526	3.0	0.668	48.5	LOS D	27.4	196.4	0.83	0.81	0.83	42.3
West: Leach Highway														
10	L2	686	3.0	722	3.0	0.595	22.4	LOS B	24.0	172.7	0.60	0.86	0.60	53.1
11	T1	1784	3.0	1878	3.0	* 0.849	45.8	LOS D	49.9	358.1	0.93	0.88	0.97	45.0
Approach		2470	3.0	2600	3.0	0.849	39.3	LOS C	49.9	358.1	0.84	0.87	0.87	47.3
All Vehicles		6720	3.0	7074	3.0	0.849	35.6	LOS C	49.9	358.1	0.73	0.72	0.75	47.8

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Leach Highway												
P2	Full	50	53	74.8	LOS F	0.2	0.2	0.96	0.96	251.3	229.5	0.91
North: Riseley Street												
P3	Full	50	53	74.8	LOS F	0.2	0.2	0.96	0.96	244.8	221.0	0.90
P3B	Slip/ Bypass	50	53	74.8	LOS F	0.2	0.2	0.96	0.96	235.9	209.5	0.89
All Pedestrians		150	158	74.8	LOS F	0.2	0.2	0.96	0.96	244.0	220.0	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.

PHASING SUMMARY

Site: P2 [P2 (2021 BG + DEV) (SAT) (Site Folder: General)]

Intersection: Leach Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 161 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, C, D

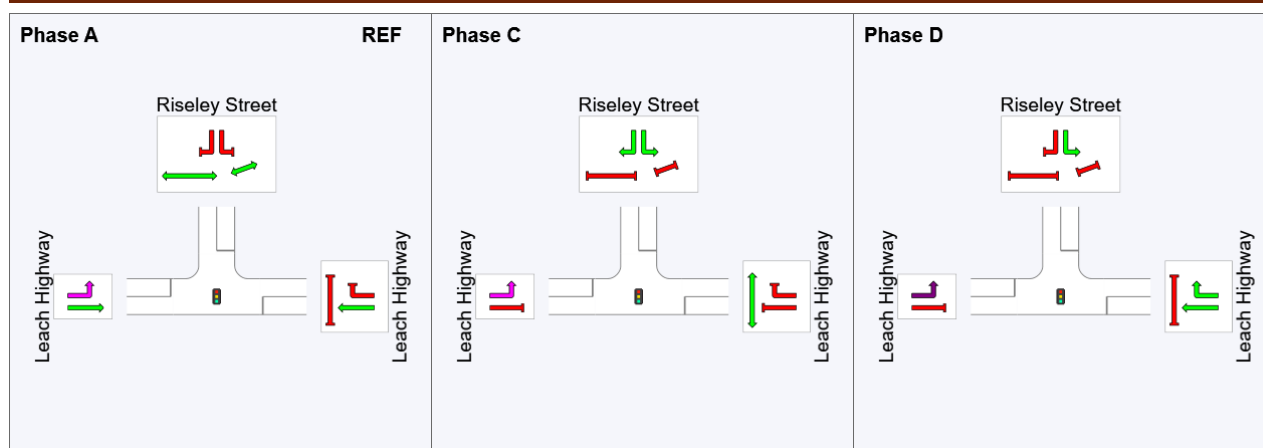
Output Phase Sequence: A, C, D

Phase Timing Summary

Phase	A	C	D
Phase Change Time (sec)	0	75	106
Green Time (sec)	69	25	49
Phase Time (sec)	75	31	55
Phase Split	47%	19%	34%

See the Timing Analysis 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, Minor 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: P2 [P2 (2031 BG + DEV) (PM) (Site Folder: General)]**

Intersection: Leach Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 162 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
East: Leach Highway														
5	T1	1690	3.0	1779	3.0	0.402	6.4	LOS A	15.0	108.0	0.36	0.33	0.36	65.0
6	R2	951	3.0	1001	3.0	* 0.910	80.3	LOS F	43.6	313.4	1.00	0.96	1.18	34.3
Approach		2641	3.0	2780	3.0	0.910	33.0	LOS C	43.6	313.4	0.59	0.56	0.65	48.9
North: Riseley Street														
7	L2	958	3.0	1008	3.0	0.666	35.9	LOS C	27.4	196.5	0.76	0.81	0.76	45.3
9	R2	560	3.0	589	3.0	* 0.700	77.0	LOS F	15.0	107.9	1.00	0.84	1.02	37.3
Approach		1518	3.0	1598	3.0	0.700	51.1	LOS D	27.4	196.5	0.85	0.82	0.85	41.7
West: Leach Highway														
10	L2	540	3.0	568	3.0	0.474	21.6	LOS B	17.2	123.3	0.53	0.83	0.53	53.4
11	T1	1923	3.0	2024	3.0	* 0.910	57.7	LOS E	61.9	444.6	0.96	0.97	1.08	41.2
Approach		2463	3.0	2593	3.0	0.910	49.8	LOS D	61.9	444.6	0.87	0.94	0.96	43.8
All Vehicles		6622	3.0	6971	3.0	0.910	43.4	LOS D	61.9	444.6	0.75	0.76	0.81	45.0

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Leach Highway												
P2	Full	50	53	75.3	LOS F	0.2	0.2	0.97	0.97	251.8	229.5	0.91
North: Riseley Street												
P3	Full	50	53	75.3	LOS F	0.2	0.2	0.97	0.97	245.3	221.0	0.90
P3B	Slip/ Bypass	50	53	75.3	LOS F	0.2	0.2	0.97	0.97	236.4	209.5	0.89
All Pedestrians		150	158	75.3	LOS F	0.2	0.2	0.97	0.97	244.5	220.0	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.

PHASING SUMMARY

Site: P2 [P2 (2031 BG + DEV) (PM) (Site Folder: General)]

Intersection: Leach Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 162 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, C, D

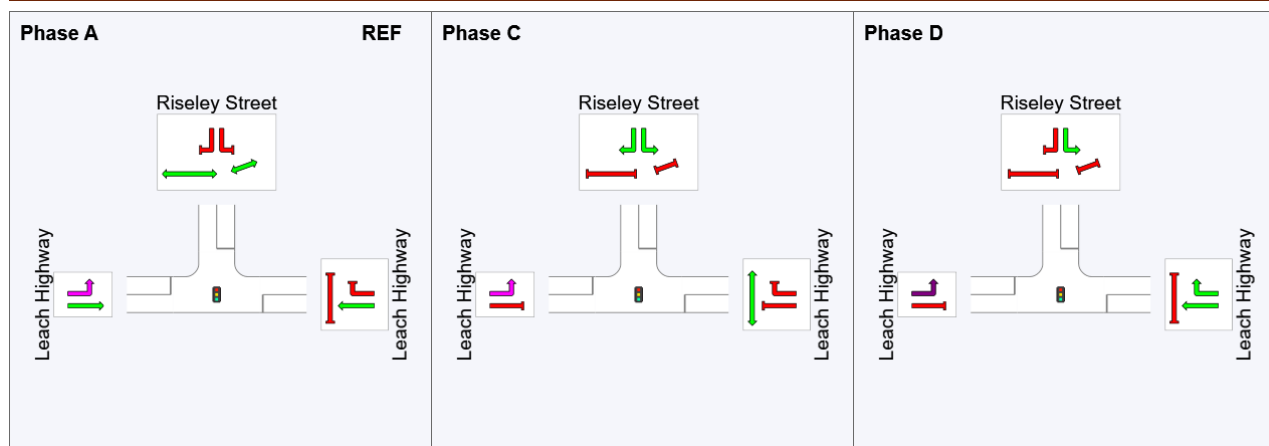
Output Phase Sequence: A, C, D

Phase Timing Summary

Phase	A	C	D
Phase Change Time (sec)	0	76	107
Green Time (sec)	70	25	49
Phase Time (sec)	76	31	55
Phase Split	47%	19%	34%

See the Timing Analysis 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, Minor 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: P2 [P2 (2031 BG + DEV) (SAT) (Site Folder: General)]**

Intersection: Leach Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 161 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
East: Leach Highway														
5	T1	1953	3.0	2056	3.0	0.465	6.9	LOS A	18.7	134.3	0.39	0.36	0.39	64.6
6	R2	859	3.0	904	3.0	* 0.801	62.9	LOS E	33.1	237.9	0.98	0.89	1.01	38.1
Approach		2812	3.0	2960	3.0	0.801	24.0	LOS B	33.1	237.9	0.57	0.52	0.58	53.0
North: Riseley Street														
7	L2	1016	3.0	1069	3.0	0.706	35.4	LOS C	30.0	215.2	0.76	0.81	0.76	45.5
9	R2	541	3.0	569	3.0	* 0.672	75.6	LOS F	14.3	102.4	1.00	0.83	1.00	37.6
Approach		1557	3.0	1639	3.0	0.706	49.4	LOS D	30.0	215.2	0.84	0.82	0.84	42.1
West: Leach Highway														
10	L2	707	3.0	744	3.0	0.614	22.6	LOS B	25.0	179.6	0.61	0.87	0.61	53.1
11	T1	1690	3.0	1779	3.0	* 0.807	42.4	LOS C	44.2	317.3	0.92	0.83	0.92	46.2
Approach		2397	3.0	2523	3.0	0.807	36.6	LOS C	44.2	317.3	0.83	0.84	0.83	48.3
All Vehicles		6766	3.0	7122	3.0	0.807	34.3	LOS C	44.2	317.3	0.72	0.70	0.73	48.3

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Leach Highway												
P2	Full	50	53	74.8	LOS F	0.2	0.2	0.96	0.96	251.3	229.5	0.91
North: Riseley Street												
P3	Full	50	53	74.8	LOS F	0.2	0.2	0.96	0.96	244.8	221.0	0.90
P3B	Slip/ Bypass	50	53	74.8	LOS F	0.2	0.2	0.96	0.96	235.9	209.5	0.89
All Pedestrians		150	158	74.8	LOS F	0.2	0.2	0.96	0.96	244.0	220.0	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.

PHASING SUMMARY

Site: P2 [P2 (2031 BG + DEV) (SAT) (Site Folder: General)]

Intersection: Leach Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 161 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, C, D

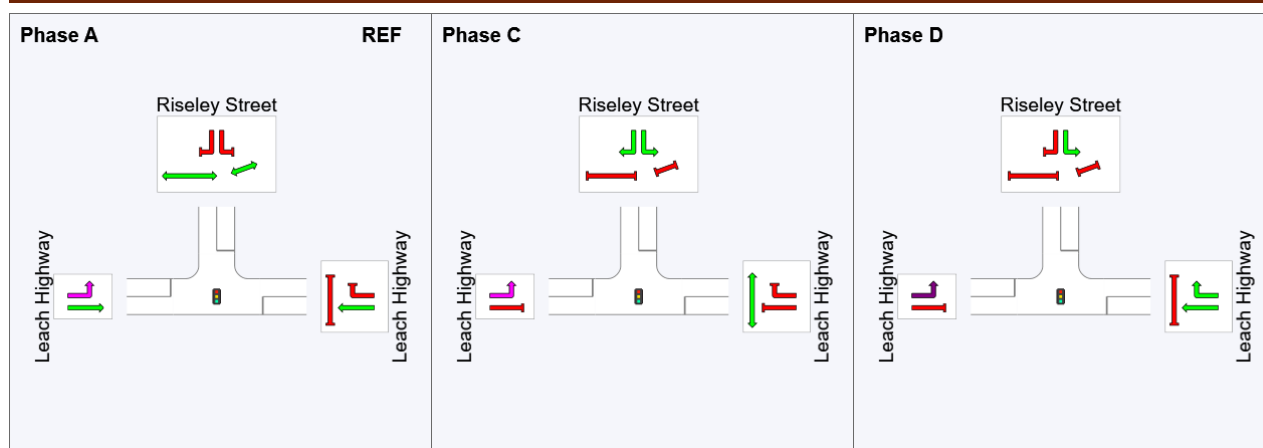
Output Phase Sequence: A, C, D

Phase Timing Summary

Phase	A	C	D
Phase Change Time (sec)	0	74	105
Green Time (sec)	68	25	50
Phase Time (sec)	74	31	56
Phase Split	46%	19%	35%

See the Timing Analysis 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, Minor 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

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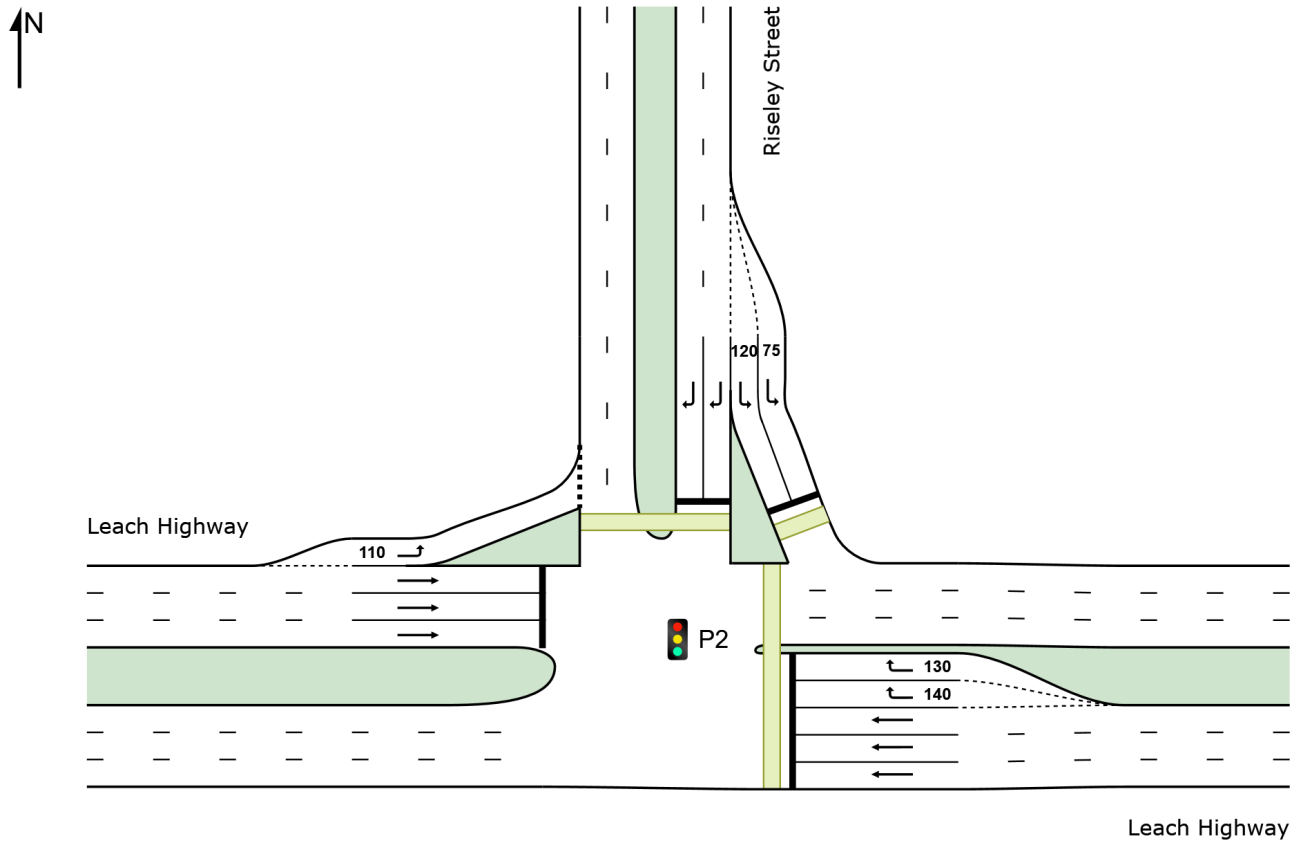
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SITE LAYOUT

 Site: P2 [P2 (2020 BG) (PM) - Existing volumes, upgrades removed (Site Folder: General)]

Intersection: Leach Highway / Riseley Street
Project: 620.30141 - Westfield Booragoon Redevelopment
Prepared by: VL
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

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




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Project: Z:\BNE\Projects-SLR\620-BNE\620.30141.00000 Westfield Booragoon Redevelopment\02 Analysis\2021 07 - Updated SIDRA Analysis
620.30141-Peripheral SIDRA Analysis.sip9

MOVEMENT SUMMARY

 **Site: P2 [P2 (2020 BG) (PM) - Existing volumes, upgrades removed (Site Folder: General)]**

Intersection: Leach Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 162 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
						v/c	sec							km/h
East: Leach Highway														
5	T1	2327	3.0	2449	3.0	0.540	6.5	LOS A	22.9	164.7	0.40	0.37	0.40	64.9
6	R2	698	3.0	735	3.0	* 0.861	78.8	LOS F	30.3	217.3	1.00	0.92	1.14	34.5
Approach		3025	3.0	3184	3.0	0.861	23.2	LOS B	30.3	217.3	0.54	0.50	0.57	53.6
North: Riseley Street														
7	L2	664	3.0	699	3.0	0.529	42.9	LOS D	19.9	143.1	0.79	0.80	0.79	43.1
9	R2	397	3.0	418	3.0	* 0.846	87.5	LOS F	17.5	125.8	1.00	0.92	1.19	35.3
Approach		1061	3.0	1117	3.0	0.846	59.6	LOS E	19.9	143.1	0.87	0.85	0.94	39.5
West: Leach Highway														
10	L2	416	3.0	438	3.0	0.330	14.4	LOS A	10.4	75.0	0.38	0.73	0.38	56.5
11	T1	2216	3.0	2333	3.0	* 0.853	35.2	LOS C	56.5	405.9	0.90	0.83	0.91	49.1
Approach		2632	3.0	2771	3.0	0.853	31.9	LOS C	56.5	405.9	0.81	0.82	0.82	50.3
All Vehicles		6718	3.0	7072	3.0	0.861	32.4	LOS C	56.5	405.9	0.70	0.68	0.73	49.4

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Leach Highway												
P2	Full	10	11	75.1	LOS F	0.0	0.0	0.96	0.96	251.7	229.5	0.91
North: Riseley Street												
P3	Full	10	11	75.1	LOS F	0.0	0.0	0.96	0.96	245.1	221.0	0.90
P3B	Slip/ Bypass	10	11	75.1	LOS F	0.0	0.0	0.96	0.96	236.3	209.5	0.89
All Pedestrians		30	32	75.1	LOS F	0.0	0.0	0.96	0.96	244.4	220.0	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.

PHASING SUMMARY

Site: P2 [P2 (2020 BG) (PM) - Existing volumes, upgrades removed (Site Folder: General)]

Intersection: Leach Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 162 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, C, D

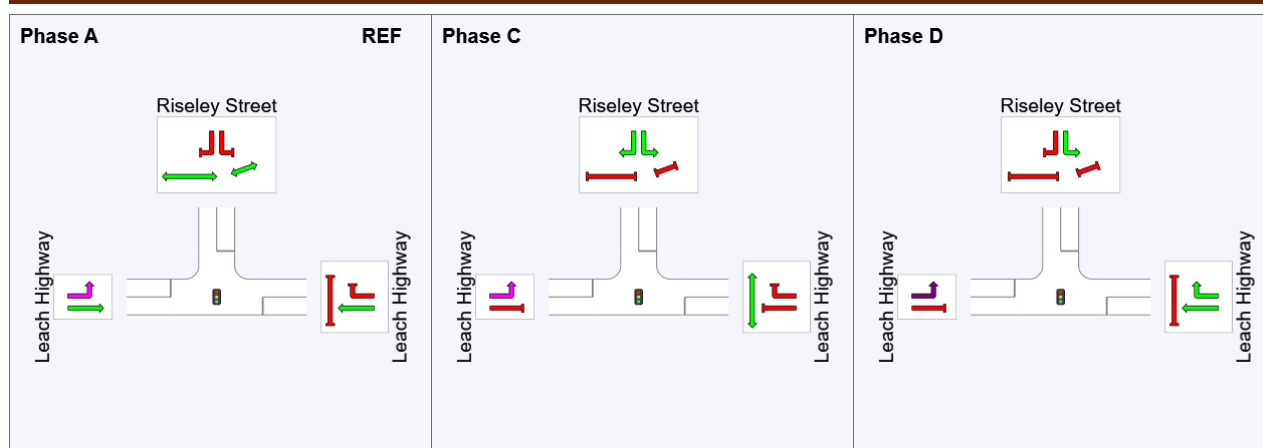
Output Phase Sequence: A, C, D

Phase Timing Summary

Phase	A	C	D
Phase Change Time (sec)	0	90	118
Green Time (sec)	84	22	38
Phase Time (sec)	90	28	44
Phase Split	56%	17%	27%

See the Timing Analysis 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, Minor 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: P2 [P2 (2020 BG) (SAT) - Existing volumes, upgrades removed (Site Folder: General)]**

Intersection: Leach Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 161 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
East: Leach Highway														
5	T1	1810	3.0	1905	3.0	0.414	5.0	LOS A	14.4	103.3	0.32	0.30	0.32	66.0
6	R2	748	3.0	787	3.0	* 0.850	74.7	LOS F	31.6	226.5	1.00	0.92	1.11	35.4
Approach		2558	3.0	2693	3.0	0.850	25.3	LOS B	31.6	226.5	0.52	0.48	0.55	52.4
North: Riseley Street														
7	L2	657	3.0	692	3.0	0.494	41.5	LOS C	19.3	138.3	0.77	0.80	0.77	43.5
9	R2	363	3.0	382	3.0	* 0.846	88.3	LOS F	16.0	114.8	1.00	0.92	1.20	35.2
Approach		1020	3.0	1074	3.0	0.846	58.2	LOS E	19.3	138.3	0.85	0.84	0.93	39.8
West: Leach Highway														
10	L2	466	3.0	491	3.0	0.378	16.0	LOS B	12.5	89.5	0.42	0.76	0.42	55.8
11	T1	2127	3.0	2239	3.0	* 0.836	34.9	LOS C	53.6	384.8	0.89	0.82	0.90	49.2
Approach		2593	3.0	2729	3.0	0.836	31.5	LOS C	53.6	384.8	0.80	0.81	0.81	50.4
All Vehicles		6171	3.0	6496	3.0	0.850	33.4	LOS C	53.6	384.8	0.69	0.68	0.72	48.9

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Leach Highway												
P2	Full	10	11	74.6	LOS F	0.0	0.0	0.96	0.96	251.2	229.5	0.91
North: Riseley Street												
P3	Full	10	11	74.6	LOS F	0.0	0.0	0.96	0.96	244.6	221.0	0.90
P3B	Slip/ Bypass	10	11	74.6	LOS F	0.0	0.0	0.96	0.96	235.8	209.5	0.89
All Pedestrians		30	32	74.6	LOS F	0.0	0.0	0.96	0.96	243.9	220.0	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.

PHASING SUMMARY

Site: P2 [P2 (2020 BG) (SAT) - Existing volumes, upgrades removed (Site Folder: General)]

Intersection: Leach Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 161 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, C, D

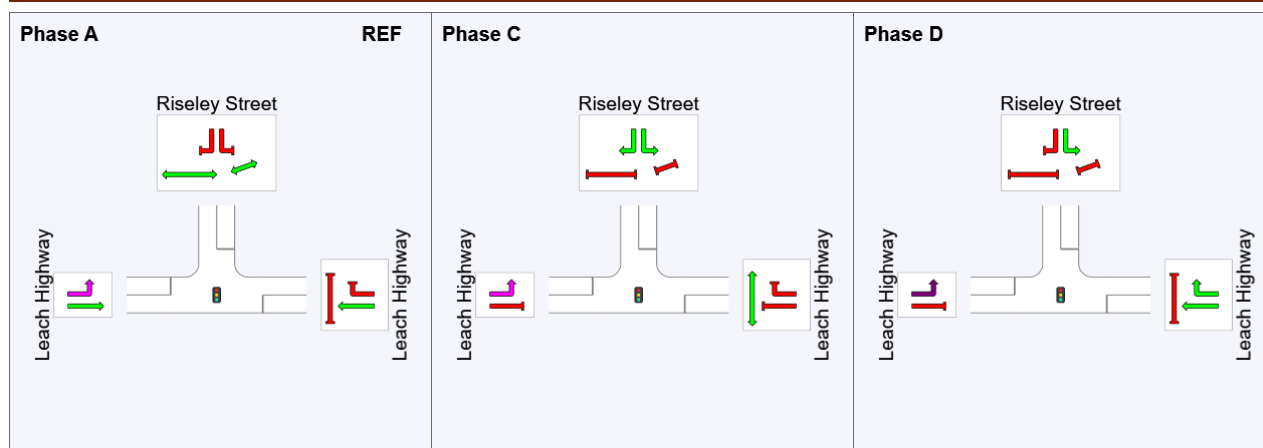
Output Phase Sequence: A, C, D

Phase Timing Summary

Phase	A	C	D
Phase Change Time (sec)	0	88	114
Green Time (sec)	82	20	41
Phase Time (sec)	88	26	47
Phase Split	55%	16%	29%

See the Timing Analysis 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, Minor 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: P2 [P2 (2021 BG) (PM) (Site Folder: General)]**

Intersection: Leach Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 162 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
East: Leach Highway														
5	T1	1837	3.0	1934	3.0	0.444	7.4	LOS A	18.0	128.9	0.39	0.36	0.39	64.2
6	R2	787	3.0	828	3.0	* 0.879	78.6	LOS F	34.6	248.7	1.00	0.94	1.15	34.6
Approach		2624	3.0	2762	3.0	0.879	28.7	LOS C	34.6	248.7	0.58	0.53	0.62	50.8
North: Riseley Street														
7	L2	862	3.0	907	3.0	0.740	38.5	LOS C	25.2	180.9	0.77	0.81	0.77	44.5
9	R2	506	3.0	533	3.0	* 0.879	87.9	LOS F	22.8	164.1	1.00	0.94	1.22	35.3
Approach		1368	3.0	1440	3.0	0.879	56.8	LOS E	25.2	180.9	0.86	0.86	0.93	40.2
West: Leach Highway														
10	L2	439	3.0	462	3.0	0.360	16.5	LOS B	12.1	86.6	0.42	0.76	0.42	55.6
11	T1	2012	3.0	2118	3.0	* 0.872	45.2	LOS D	56.7	407.4	0.94	0.89	0.99	45.2
Approach		2451	3.0	2580	3.0	0.872	40.1	LOS C	56.7	407.4	0.84	0.87	0.89	47.1
All Vehicles		6443	3.0	6782	3.0	0.879	39.0	LOS C	56.7	407.4	0.74	0.73	0.79	46.6

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Leach Highway												
P2	Full	10	11	75.1	LOS F	0.0	0.0	0.96	0.96	251.7	229.5	0.91
North: Riseley Street												
P3	Full	10	11	75.1	LOS F	0.0	0.0	0.96	0.96	245.1	221.0	0.90
P3B	Slip/ Bypass	10	11	75.1	LOS F	0.0	0.0	0.96	0.96	236.3	209.5	0.89
All Pedestrians		30	32	75.1	LOS F	0.0	0.0	0.96	0.96	244.4	220.0	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.

PHASING SUMMARY

Site: P2 [P2 (2021 BG) (PM) (Site Folder: General)]

Intersection: Leach Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 162 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, C, D

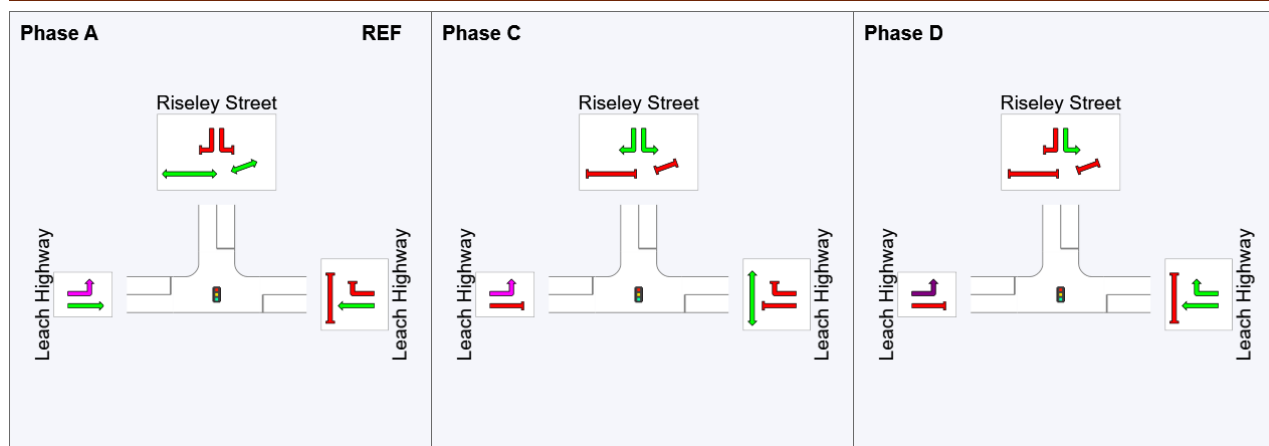
Output Phase Sequence: A, C, D

Phase Timing Summary

Phase	A	C	D
Phase Change Time (sec)	0	81	114
Green Time (sec)	75	27	42
Phase Time (sec)	81	33	48
Phase Split	50%	20%	30%

See the Timing Analysis 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, Minor 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: P2 [P2 (2021 BG) (SAT) (Site Folder: General)]**

Intersection: Leach Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 161 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
East: Leach Highway														
5	T1	1924	3.0	2025	3.0	0.451	6.1	LOS A	17.3	124.1	0.37	0.34	0.37	65.1
6	R2	859	3.0	904	3.0	* 0.829	65.2	LOS E	34.0	244.2	0.98	0.90	1.05	37.5
Approach		2783	3.0	2929	3.0	0.829	24.4	LOS B	34.0	244.2	0.56	0.51	0.58	52.8
North: Riseley Street														
7	L2	856	3.0	901	3.0	0.663	34.9	LOS C	23.5	168.7	0.73	0.79	0.73	45.7
9	R2	411	3.0	433	3.0	* 0.833	85.0	LOS F	17.8	127.8	1.00	0.91	1.17	35.8
Approach		1267	3.0	1334	3.0	0.833	51.2	LOS D	23.5	168.7	0.82	0.83	0.87	41.6
West: Leach Highway														
10	L2	674	3.0	709	3.0	0.585	22.0	LOS B	22.5	161.9	0.59	0.86	0.59	53.3
11	T1	1784	3.0	1878	3.0	* 0.839	43.6	LOS D	48.7	349.6	0.92	0.86	0.95	45.8
Approach		2458	3.0	2587	3.0	0.839	37.7	LOS C	48.7	349.6	0.83	0.86	0.85	47.9
All Vehicles		6508	3.0	6851	3.0	0.839	34.6	LOS C	48.7	349.6	0.71	0.70	0.74	48.2

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Leach Highway												
P2	Full	10	11	74.6	LOS F	0.0	0.0	0.96	0.96	251.2	229.5	0.91
North: Riseley Street												
P3	Full	10	11	74.6	LOS F	0.0	0.0	0.96	0.96	244.6	221.0	0.90
P3B	Slip/ Bypass	10	11	74.6	LOS F	0.0	0.0	0.96	0.96	235.8	209.5	0.89
All Pedestrians		30	32	74.6	LOS F	0.0	0.0	0.96	0.96	243.9	220.0	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.

PHASING SUMMARY

Site: P2 [P2 (2021 BG) (SAT) (Site Folder: General)]

Intersection: Leach Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 161 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, C, D

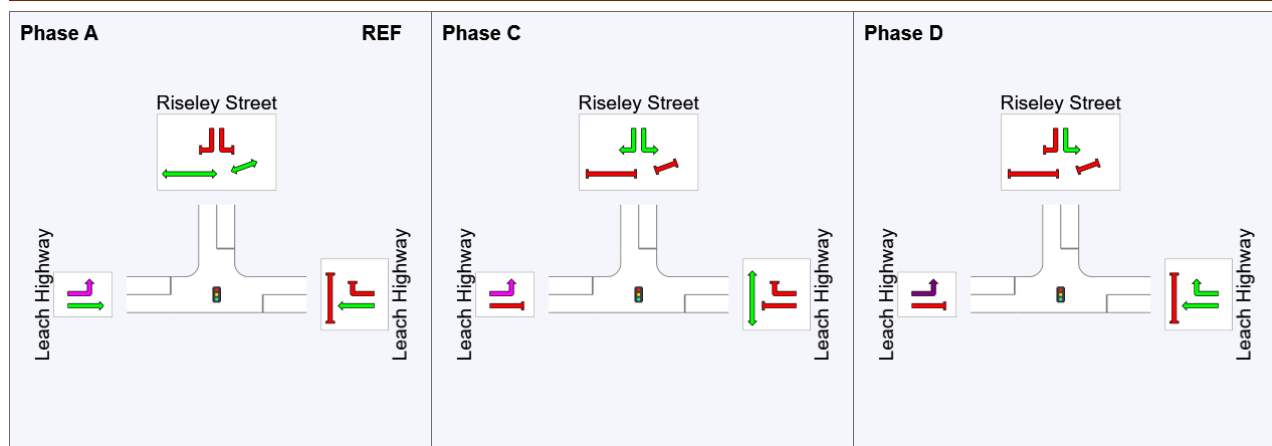
Output Phase Sequence: A, C, D

Phase Timing Summary

Phase	A	C	D
Phase Change Time (sec)	0	76	105
Green Time (sec)	70	23	50
Phase Time (sec)	76	29	56
Phase Split	47%	18%	35%

See the Timing Analysis 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, Minor 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: P2 [P2 (2031 BG) (PM) (Site Folder: General)]**

Intersection: Leach Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 162 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
East: Leach Highway														
5	T1	1706	3.0	1796	3.0	0.419	7.9	LOS A	16.9	121.4	0.40	0.36	0.40	63.9
6	R2	845	3.0	889	3.0	* 0.918	84.2	LOS F	39.1	281.0	1.00	0.97	1.22	33.5
Approach		2551	3.0	2685	3.0	0.918	33.2	LOS C	39.1	281.0	0.60	0.56	0.67	48.8
North: Riseley Street														
7	L2	957	3.0	1007	3.0	0.802	36.9	LOS C	27.8	199.5	0.75	0.81	0.76	45.0
9	R2	559	3.0	588	3.0	* 0.904	90.9	LOS F	26.0	186.8	1.00	0.96	1.25	34.7
Approach		1516	3.0	1596	3.0	0.904	56.8	LOS E	27.8	199.5	0.84	0.87	0.94	40.2
West: Leach Highway														
10	L2	469	3.0	494	3.0	0.397	18.3	LOS B	13.9	99.9	0.47	0.79	0.47	54.8
11	T1	1934	3.0	2036	3.0	* 0.921	61.4	LOS E	63.7	457.3	0.96	0.99	1.11	40.1
Approach		2403	3.0	2529	3.0	0.921	53.0	LOS D	63.7	457.3	0.87	0.95	0.98	42.7
All Vehicles		6470	3.0	6811	3.0	0.921	46.1	LOS D	63.7	457.3	0.75	0.78	0.85	44.1

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Leach Highway												
P2	Full	10	11	75.1	LOS F	0.0	0.0	0.96	0.96	251.7	229.5	0.91
North: Riseley Street												
P3	Full	10	11	75.1	LOS F	0.0	0.0	0.96	0.96	245.1	221.0	0.90
P3B	Slip/ Bypass	10	11	75.1	LOS F	0.0	0.0	0.96	0.96	236.3	209.5	0.89
All Pedestrians		30	32	75.1	LOS F	0.0	0.0	0.96	0.96	244.4	220.0	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.

PHASING SUMMARY

Site: P2 [P2 (2031 BG) (PM) (Site Folder: General)]

Intersection: Leach Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 162 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, C, D

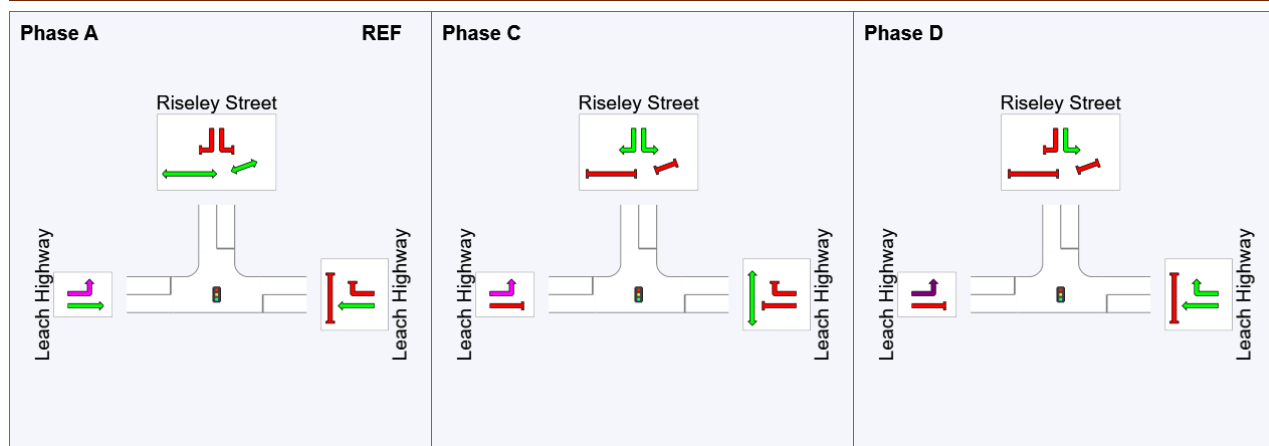
Output Phase Sequence: A, C, D

Phase Timing Summary

Phase	A	C	D
Phase Change Time (sec)	0	75	110
Green Time (sec)	69	29	46
Phase Time (sec)	75	35	52
Phase Split	46%	22%	32%

See the Timing Analysis 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, Minor 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: P2 [P2 (2031 BG) (SAT) (Site Folder: General)]**

Intersection: Leach Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 161 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
East: Leach Highway														
5	T1	1953	3.0	2056	3.0	0.473	7.7	LOS A	19.7	141.6	0.41	0.38	0.41	64.0
6	R2	842	3.0	886	3.0	* 0.809	64.3	LOS E	32.8	235.8	0.99	0.89	1.03	37.7
Approach		2795	3.0	2942	3.0	0.809	24.7	LOS B	32.8	235.8	0.58	0.53	0.60	52.6
North: Riseley Street														
7	L2	906	3.0	954	3.0	0.699	33.3	LOS C	24.4	175.2	0.72	0.79	0.72	46.3
9	R2	468	3.0	493	3.0	* 0.808	80.1	LOS F	19.7	141.4	1.00	0.89	1.11	36.7
Approach		1374	3.0	1446	3.0	0.808	49.3	LOS D	24.4	175.2	0.81	0.83	0.85	42.1
West: Leach Highway														
10	L2	695	3.0	732	3.0	0.598	21.8	LOS B	23.6	169.3	0.59	0.86	0.59	53.4
11	T1	1690	3.0	1779	3.0	* 0.807	43.1	LOS D	43.7	313.5	0.92	0.84	0.93	46.0
Approach		2385	3.0	2511	3.0	0.807	36.9	LOS C	43.7	313.5	0.83	0.84	0.83	48.2
All Vehicles		6554	3.0	6899	3.0	0.809	34.3	LOS C	43.7	313.5	0.72	0.71	0.73	48.3

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Leach Highway												
P2	Full	10	11	74.6	LOS F	0.0	0.0	0.96	0.96	251.2	229.5	0.91
North: Riseley Street												
P3	Full	10	11	74.6	LOS F	0.0	0.0	0.96	0.96	244.6	221.0	0.90
P3B	Slip/ Bypass	10	11	74.6	LOS F	0.0	0.0	0.96	0.96	235.8	209.5	0.89
All Pedestrians		30	32	74.6	LOS F	0.0	0.0	0.96	0.96	243.9	220.0	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.

PHASING SUMMARY

Site: P2 [P2 (2031 BG) (SAT) (Site Folder: General)]

Intersection: Leach Highway / Riseley Street

Project: 620.30141 - Westfield Booragoon Redevelopment

Prepared by: VL

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 161 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Leading Right Turn

Reference Phase: Phase A

Input Phase Sequence: A, C, D

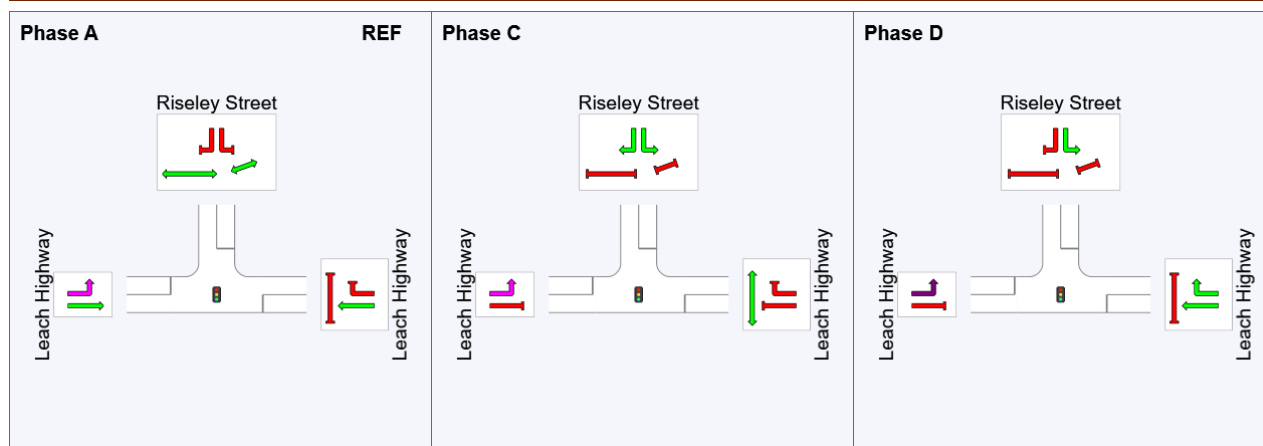
Output Phase Sequence: A, C, D

Phase Timing Summary

Phase	A	C	D
Phase Change Time (sec)	0	73	106
Green Time (sec)	67	27	49
Phase Time (sec)	73	33	55
Phase Split	45%	20%	34%

See the Timing Analysis 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, Minor 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

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