Planning Proposal
Proposed Mixed Use Development

124-142 Beamish Street, Campsie

TRAFFIC AND PARKING ASSESSMENT REPORT

3 April 2020

Ref 18718

VARGA TRAFFIC PLANNING Pty Ltd
Transport, Traffic and Parking Consultants

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LIST OF ILLUSTRATIONS

1. INTRODUCTION

This report has been prepared to accompany a planning proposal for a mixed-use development to be located at 124-142 Beamish Street, Campsie (Figures 1 and 2)

The planning proposal seeks approval to amend the planning controls in order to permit a mixed-use development with an increased apartment yield. Off-street car parking will ultimately be provided in a new multi-level basement car parking area beneath the building in accordance with *SEPP 65* and Council requirements.

The site is located within the heart of the "Campsie Station Precinct" as outlined in the Department of Planning & Environment's *Sydenham to Bankstown Urban Renewal Corridor Strategy* document. The document details the redevelopment objectives of the corridor and comprises a range of uses, including low/medium/high residential, retail/commercial premises, schools and recreational facilities. The document also identifies improvements to alternate forms of travel including pedestrian and cycle paths as well as public transport.

The purpose of this report is to assess the traffic and parking implications of the planning proposal and to that end this report:

- describes the site and provides details of the planning proposal

- reviews the road network in the vicinity of the site, and the traffic conditions on that road network

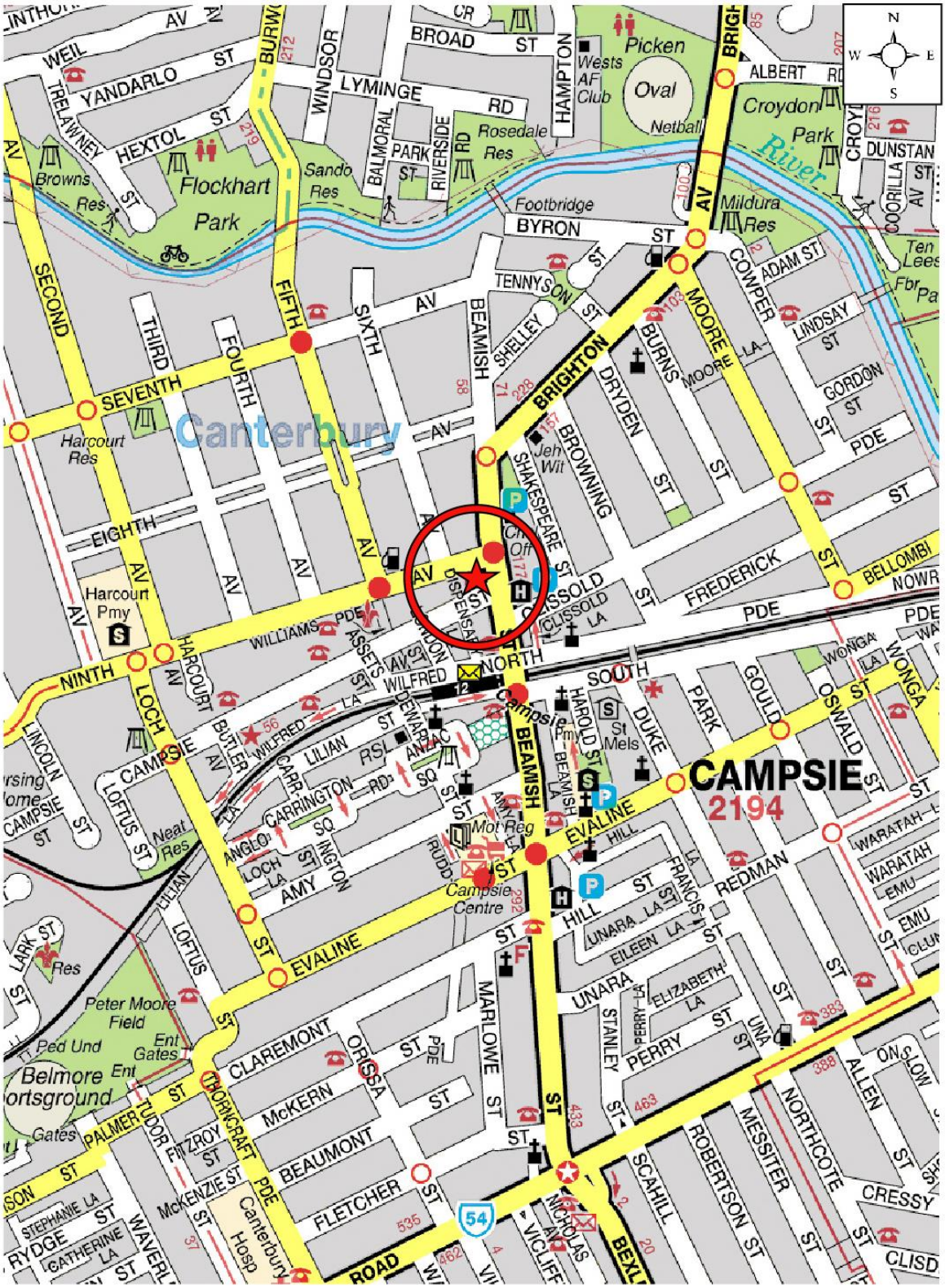
- reviews the alternate forms of transport available in the vicinity of the site

- estimates the traffic generation potential of the planning proposal, and assigns that traffic generation to the road network serving the site

- assesses the traffic implications of the development proposal in terms of road network capacity

- reviews the geometric design features of the proposed car parking and loading facilities for compliance with the relevant codes and standards

- assesses the adequacy and suitability of the quantum of off-street car parking and loading envisaged on the site.



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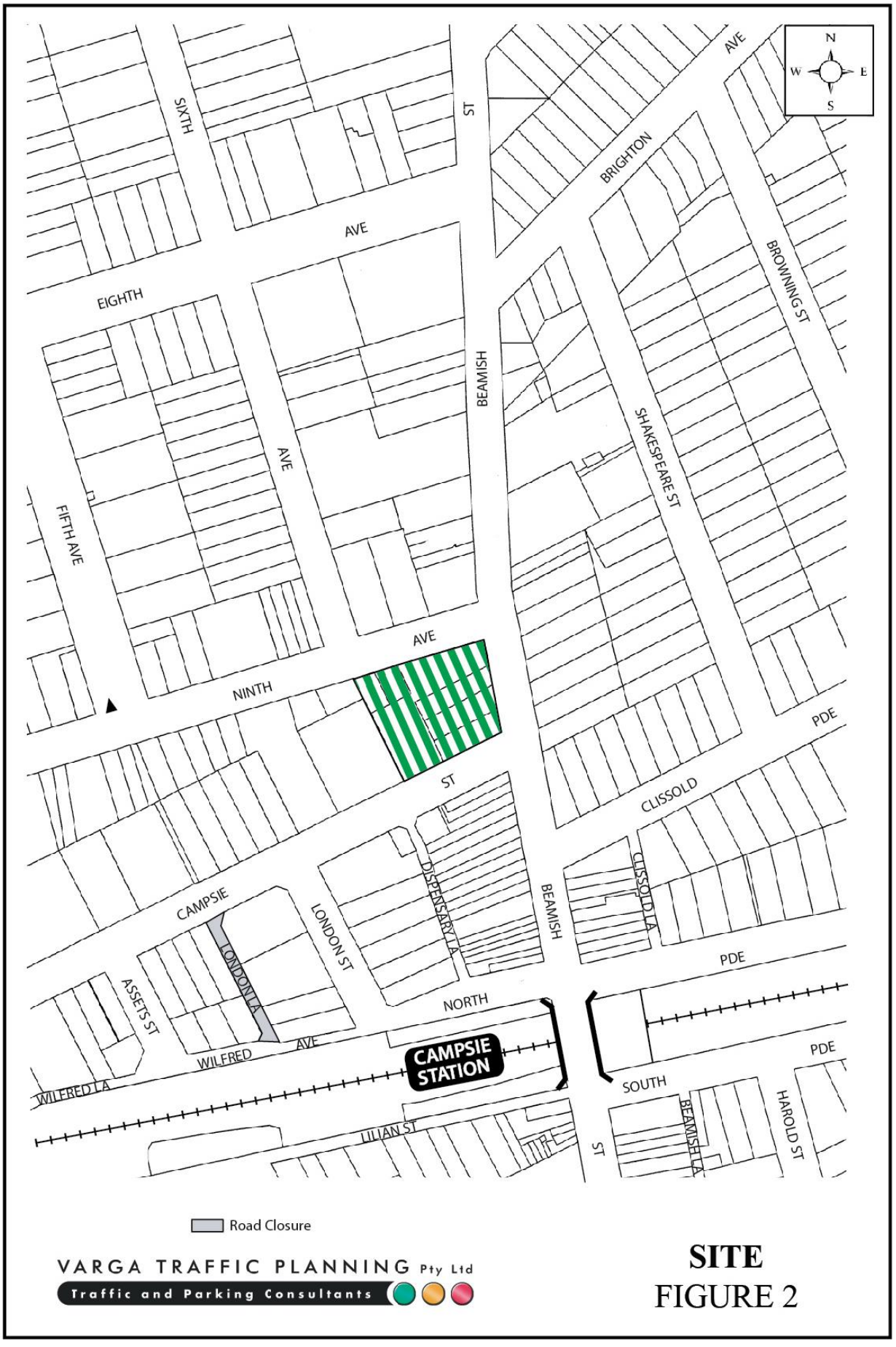
Traffic and Parking Consultants

LOCATION
FIGURE 1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EIGHTH
AVE
BEAMISH
BROWNING ST
SHAKESPEARE ST
FIFTH AVE
AVE
AVE
NINTH
ST
PDE
CLISSOLD
CAMPSIE
LONDON LA
LONDON ST
DISPENSARY LA
BEAMISH
CLISSOLD LA
PDE
ASSETS ST
NORTH
WILFRED
AVE
CAMPSIE STATION
PDE
WILFRED LA
SOUTH
LILIAN ST
BEAMISH LA
HAROLD ST
ST
Road Closure
VARGA TRAFFIC PLANNING Pty Ltd
Traffic and Parking Consultants
SITE
FIGURE 2

2. PLANNING PROPOSAL

Site

The subject site is located on the western side of Beamish Street, extending between Ninth Avenue and Campsie Street. The site occupies an area of approximately 3,845m^2 and has street frontages of approximately 75m in length to Ninth Avenue, 52m in length to Beamish Street and 60m in length to Campsie Street.

The subject site is currently occupied by a mix of two-storey retail and commercial buildings comprising a cumulative floor area of approximately 4,745m^2.

At-grade off-street parking is provided at the rear of the buildings, with vehicular access provided via driveways located off the Campsie Street, Beamish Street and Ninth Avenue site frontages.

A recent aerial image of the site and its surroundings is reproduced below.

Existing Planning Controls

The primary instrument that governs the mass and scale of the development on the site are contained within the *Canterbury Local Environment Plan 2012 (CLEP2012)*.

The subject site is zoned *B2 – Local Centre* and is not subject to any FSR control. The scale of any development on the site is currently constrained by a building height of 21m.

It is therefore envisaged that a mixed-use development comprising 240 apartments, 3,000m^2 of retail floor space and 2,500m^2 of commercial floor space is achievable under the existing planning controls of the site.

Sydenham to Bankstown Urban Renewal Corridor

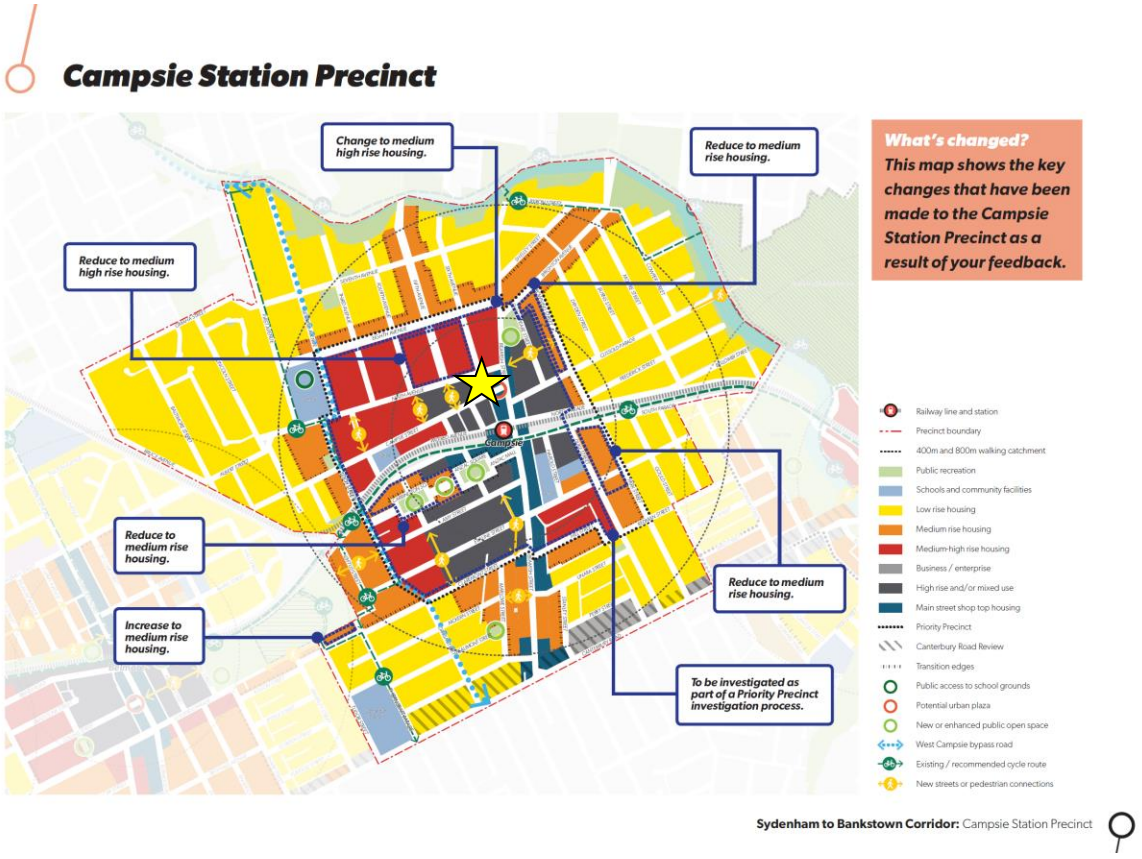
As outlined in the Department of Planning & Environment's *Sydenham to Bankstown Urban Renewal Corridor Strategy* document, the NSW Government plans for 35,400 new homes and 8,700 new jobs over the next 20 years and infrastructure to support the future community's needs. The strategy builds on the Sydney Metro City and Southwest project and provides a co-ordinated approach to infrastructure delivery and development across the corridor, with the project's priorities summarised below:

- provide a range of new homes to suit different lifestyles and budgets
- allow for new homes to be built close to the metro stations
- retail streets that contribute to the local character of the area and protect heritage areas
- retail the scale and character of popular local shopping areas
- ensure adequate schools and childcare centres are provided for the future increased population
- identify areas for pedestrian and cycle paths including the potential for GreenWay South West
- provide a significant increase in transport capacity with new, faster and more frequent services

Campsie Station Precinct

The site is located within the heart of the "Campsie Station Precinct" as outlined in Department of Planning & Environment's *Sydenham to Bankstown Urban Renewal Corridor Strategy* document.

The document details the redevelopment objectives of the corridor and comprises a range of uses, including low/medium/high residential, retail/commercial premises, schools and recreational facilities. The document also identifies improvements to alternate forms of travel including pedestrian and cycle paths as well as public transport.



Sydenham to Bankstown Corridor: Campsie Station Precinct

FIGURE 35: INFRASTRUCTURE – CAMPSIE STATION PRECINCT

32 Sydenham to Bankstown Urban Renewal Corridor Strategy

The Sydney Metro works include improvement to the existing entry of the railway station along with public domain and access improvements, with increased footpath widths which will encourage local retail activity surrounding the railway station.

Along with the new Metro service, the strategy proposes to introduce bus priority measures along Beamish Street, Seventh Avenue and Fifth Avenue for the 409 and M41 services, while increased service levels are also proposed for the 487 service between Canterbury local centre and Bankstown CBD. The modal changes between rail and bus networks will also be improved with an upgraded interchange at Campsie railway station.

The completion of the western "Campsie Bypass" at Loch Street will improve regional vehicle and bus connections to major roads and employment destinations and pedestrian amenity along Beamish Street.

Alternate forms of transport including walking, cycling and public transport will be further encouraged by improving the quality of the railway station for passengers with better access, facilities and signage as well as improving pedestrian and cycle access within the precinct. A new east-west regional cycle link along the rail corridor is also planned in order to improve pedestrian and cycle access between the town centres and railway stations along the corridor.

New streets and/or pedestrian connections are also proposed through larger blocks as they develop, enhancing the permeability of the current vehicular and pedestrian network within the Campsie Station Precinct, including a new link between Ninth Avenue and Campsie Street.

Planning Proposal

The planning proposal seeks approval to amend the current planning controls which apply to the site in order to increase the site's development yield, permitting a mixed-use development comprising buildings ranging in height from 4 storeys to 25 storeys.

For the purposes of this traffic assessment it has been assumed that the proposed mixed-use building could comprise in the order of 320 apartments on the upper levels as follows:

1 bedroom apartments:	134
2 bedroom apartments:	161
3 bedroom apartments:	25
TOTAL APARTMENTS:	**320**

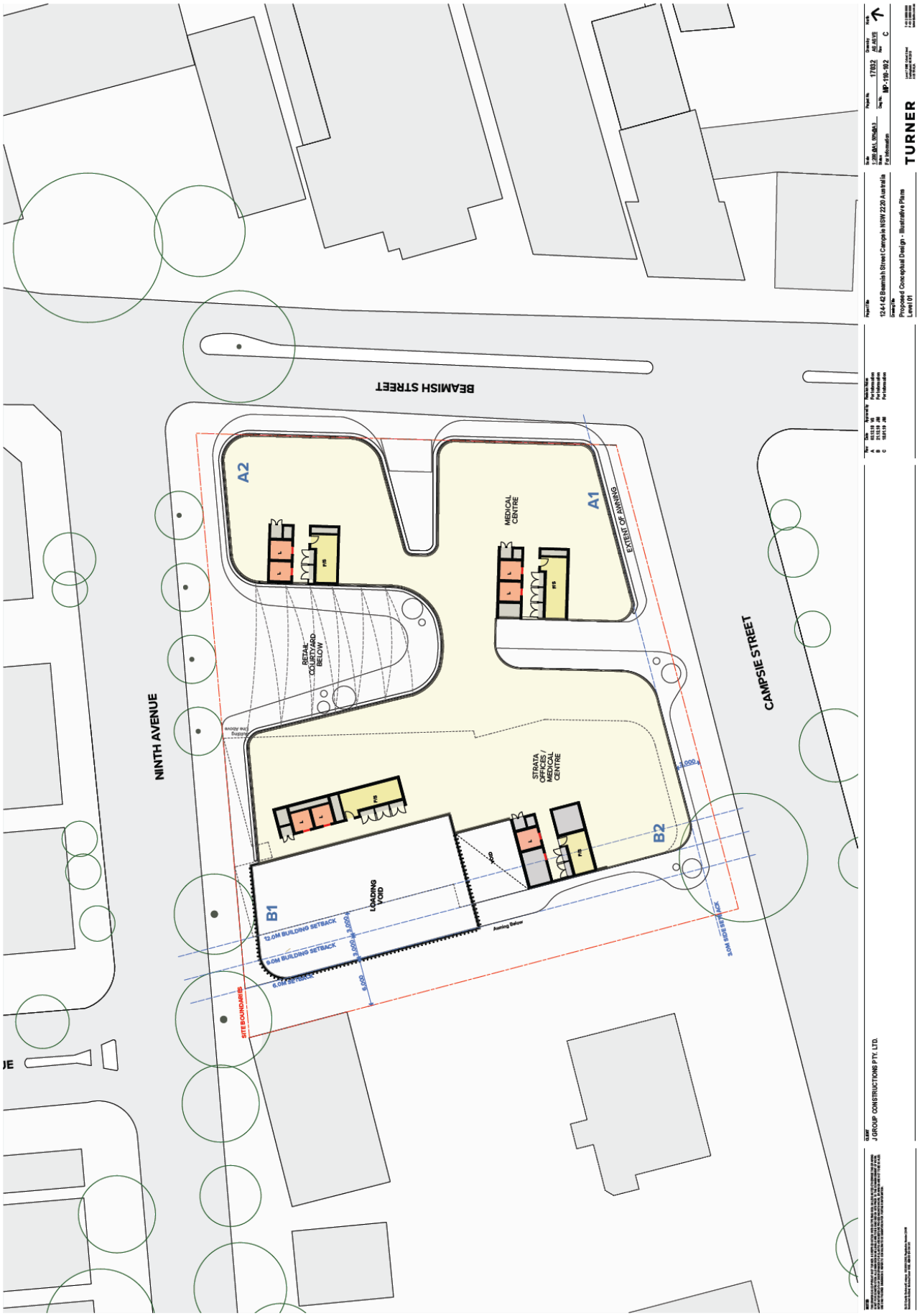
In addition, approximately 3,145m^2 of retail floor space and approximately 1,600m^2 of commercial floor space is also proposed on the lower levels.

Off-street car parking will ultimately be provided in a new multi-level basement car parking area beneath the buildings, designed to comply with *SEPP 65* and Council's requirements as well as the relevant Australian Standards. Vehicular access to the site is proposed to be provided via a new entry/exit driveway to be located at the western end of the Ninth Avenue site frontage.

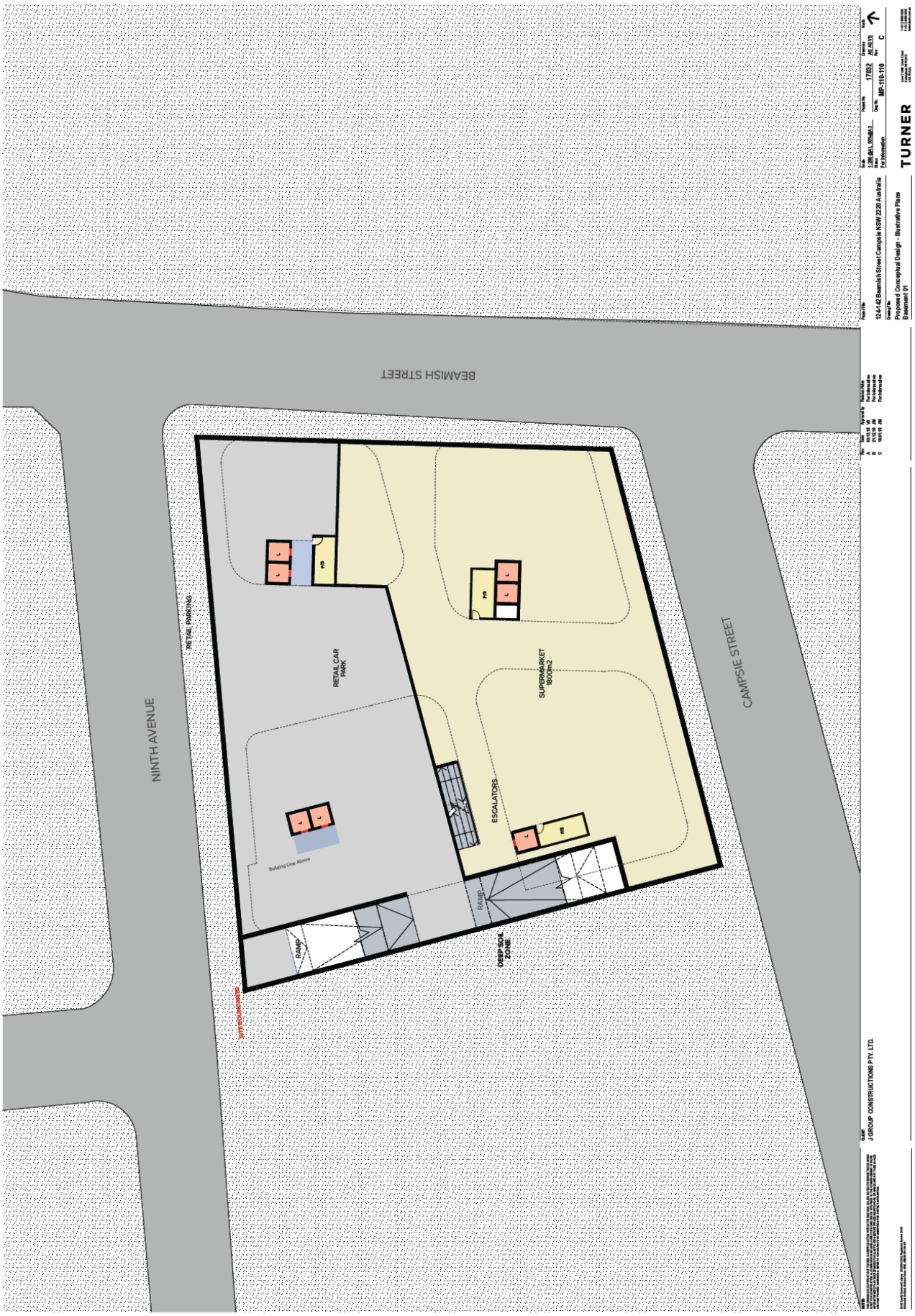
Loading/servicing for the proposed development is expected to be undertaken by a variety of commercial vehicles up to and including 8.8m long medium rigid trucks. A dedicated loading area is to be located on the ground level at the rear of the retail tenancies and fitted with a mechanical turntable, thereby allowing all trucks to enter and exit the site in a forward direction at all times. Vehicular access to the loading area is to be provided via a dedicated service driveway which is to be located adjacent to the abovementioned proposed basement site access driveway off Ninth Avenue.

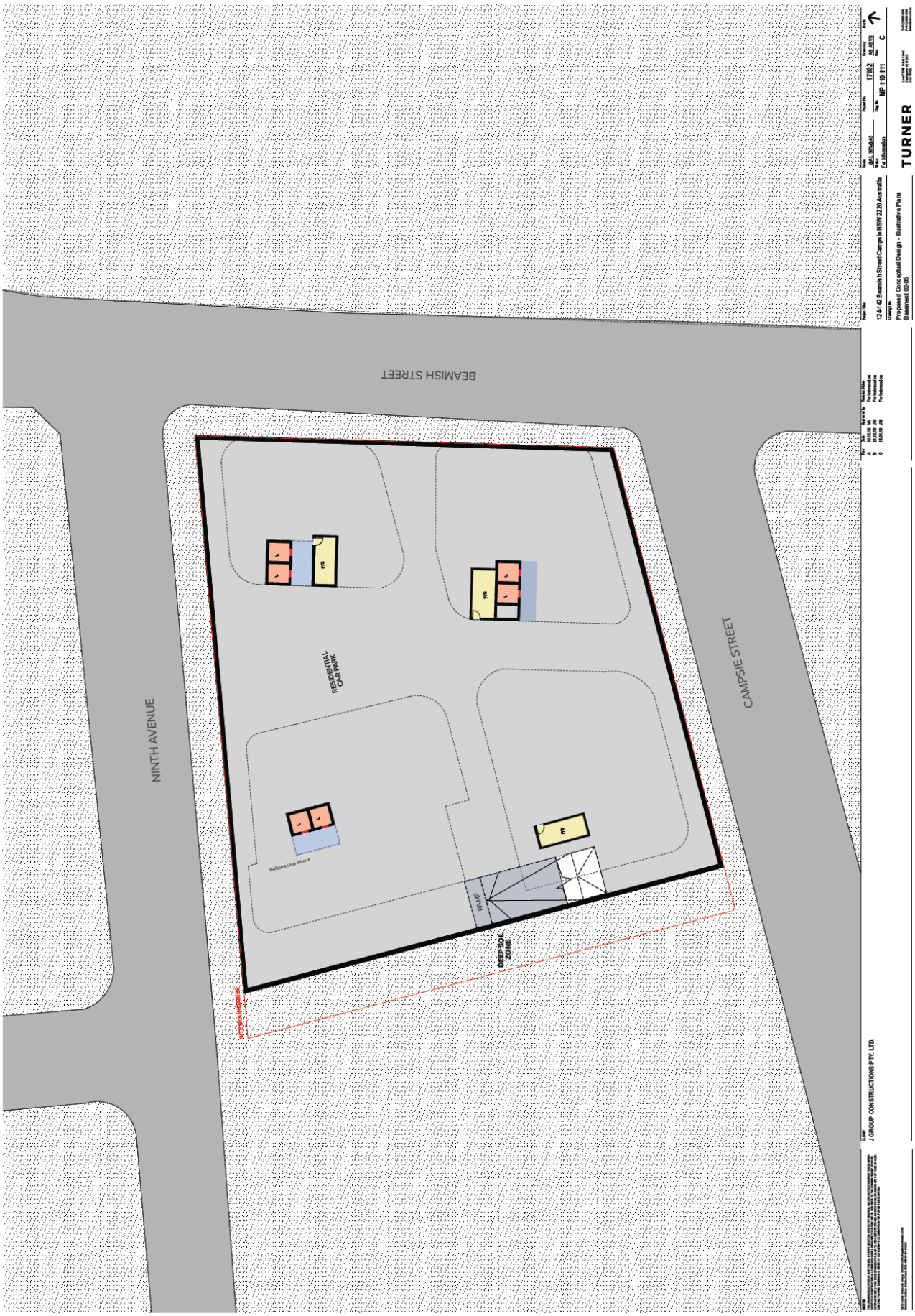
Plans for the purposes of this planning proposal have been prepared by *Turner Architects* and are reproduced in the following pages.

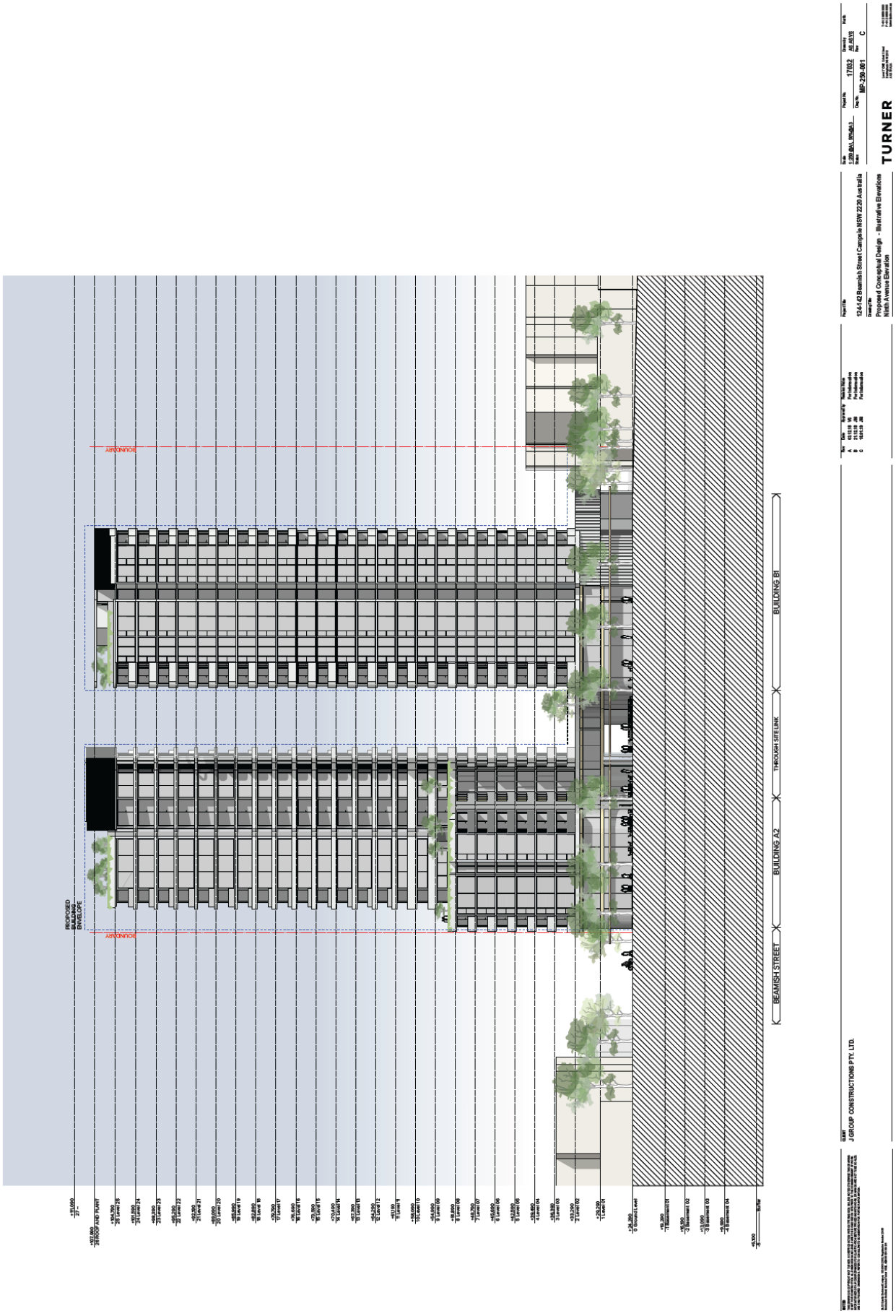

BEAMISH STREET
NINTH AVENUE
SIXTH AVENUE
CAMPSIE STREET
A2
A1
B1
B2
RETAIL/ RESTAURANT
RETAIL/ RESTAURANT
RETAIL/ RESTAURANT
RETAIL/ MEDICAL CENTRE
RETAIL COURTYARD
LOBBY
LOADING AREA
TRUCK TURNING CIRCLE
RAMP
ESCALATORS
SUPERMARKET ENTRY
DEEP SOIL ZONE
LIFT
J.GROUP CONSTRUCTIONS PTY. LTD.
TURNER
12-14-42 Beamish Street Campsie NSW 2220 Australia
Proposed Conceptual Design - Illustrative Plans
Ground Level
17032
MP-110-101

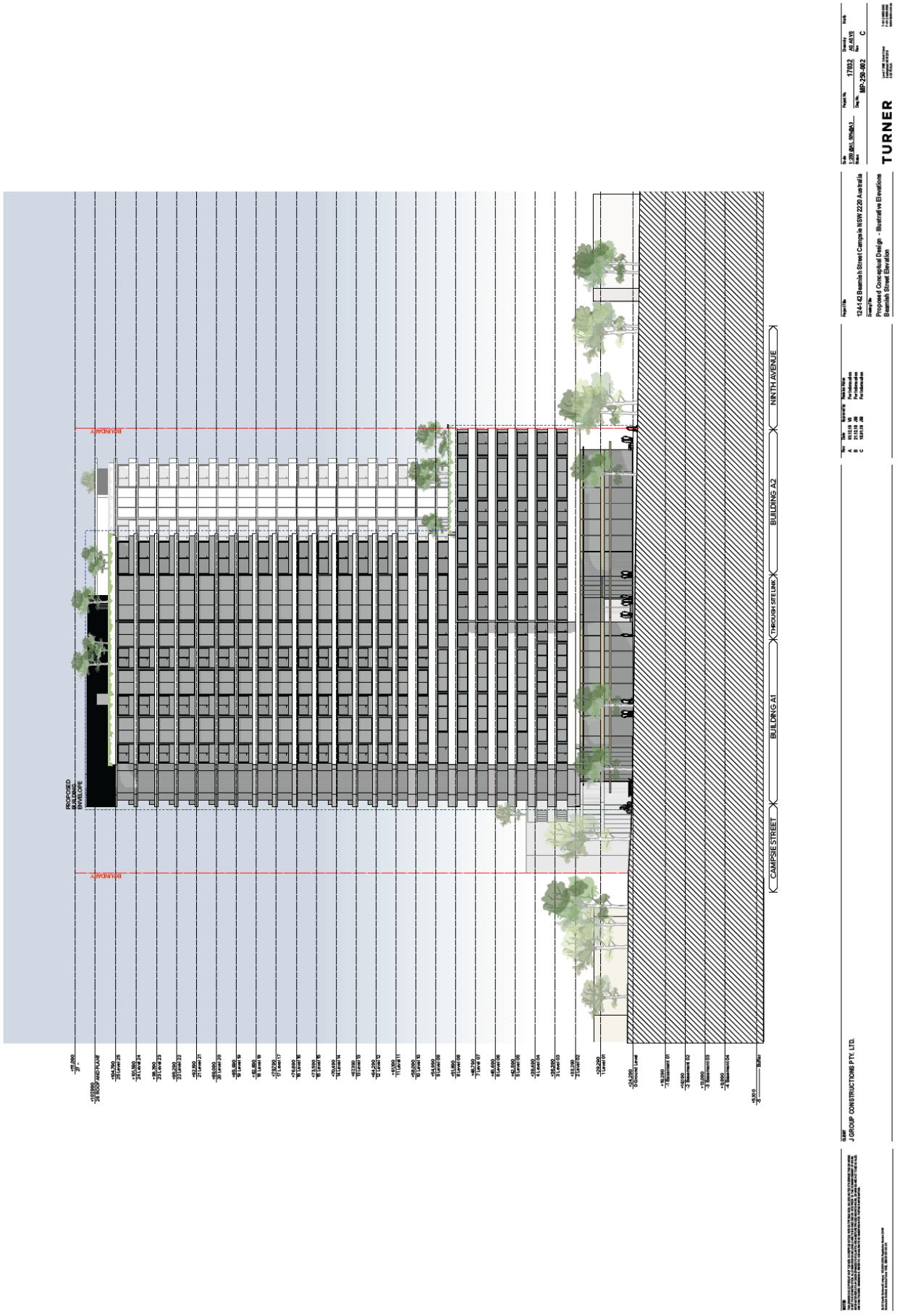

BEAMISH STREET
NINTH AVENUE
CAMPSIE STREET
A1
A2
B1
B2
MEDICAL CENTRE
EXTENT OF AWNING
RETAIL COURTYARD BELOW
STRATA OFFICES / MEDICAL CENTRE
LOADING DOCK
12.0M BUILDING SETBACK
9.0M BUILDING SETBACK
6.0M SETBACK
3.0M SETBACK
SITE BOUNDARIES
Awning Below
TURNER
J GROUP CONSTRUCTIONS PTY. LTD.
124-142 Beamish Street Campsie NSW 2220 Australia
Proposed Conceptual Design - Illustrative Plans
Level 01


BEAMISH STREET
NINTH AVENUE
CAMPSIE STREET
SITE BOUNDARIES
12.0M BUILDING SETBACK
9.0M BUILDING SETBACK
6.0M SETBACK
ROOF
Awning Below
TURNER
J GROUP CONSTRUCTIONS PTY. LTD.
124-142 Beamish Street Campsie NSW 2220 Australia
Proposed Conceptual Design – Illustrative Plans
Level 02 - Level 03 Typical


BEAMISH STREET
NINTH AVENUE
CAMPSIE STREET
RETAIL PARKING
RETAIL CAR PARK
SUPERMARKET 1800m2
ESCALATORS
RAMP
RAMP
DEEP SOIL ZONE
Building Line Above
SITE BOUNDARIES
J GROUP CONSTRUCTIONS PTY. LTD.
12-14 Beamish Street Campsie NSW 2194 Australia
Proposed Conceptual Design - Illustrative Plans
Basement 01
TURNER


BEAMISH STREET
NINTH AVENUE
CAMPSIE STREET
RESIDENTIAL CAR PARK
RAMP
DEEP SOIL ZONE
Building Line Above
SITE BOUNDARIE
J GROUP CONSTRUCTIONS PTY. LTD.
TURNER


BEAMISH STREET
BUILDING A2
THROUGH SITE LINK
BUILDING B1
PROPOSED BUILDING ENVELOPE
AIRSPACE
AIRSPACE
CLIENT
J GROUP CONSTRUCTIONS PTY. LTD.
Project No
17032
Dwg No
MP-29-001
Rev
C
TURNER
12-14 Q2 Beamish Street Campsie NSW 2239 Australia
Proposed Conceptual Design - Illustrative Elevations
Welsh Avenue Elevation


PROPOSED BUILDING ENVELOPE
BOUNDARY
BOUNDARY
CAMPSIE STREET
BUILDING A1
THROUGH SITE LINK
BUILDING A2
NINTH AVENUE
TURNER
Proposed Conceptual Design - Illustrative Elevations
Beamish Street Elevation
12-14 Beamish Street Campsie NSW 2239 Australia
J GROUP CONSTRUCTIONS PTY. LTD.

OPTION 6 - PROPOSED DESIGN

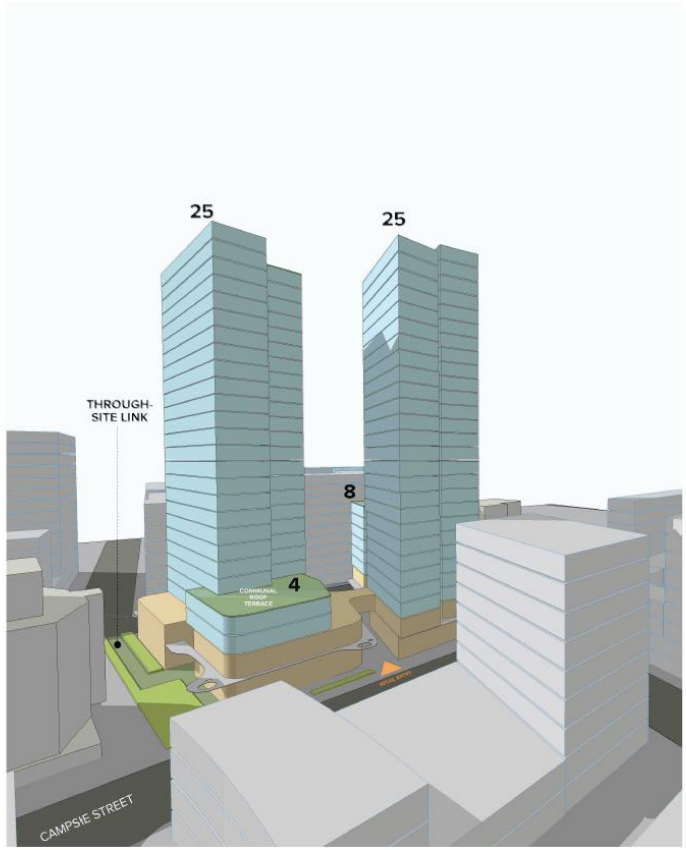
25 STOREY TOWER

Design Evolution:

- two tower proposal
- orientation of towers improves ADG compliance
- proposal frees up the ground level for improved public domain benefit
- improved solar access to retail central courtyard
- increased activation of Ninth Avenue

Conclusion:

- overall Option 5 provides a better relationship between buildings



View from North West

View from South West - Existing Context

View from South West - Possible Future Context

CLIENT
J GROUP CONSTRUCTIONS PTY. LTD.

Rev	Date	Approved by	Revision Notes
A	03.12.19	VS	For Information
B	21.12.19	JM	For Information

Project Title
124-142 Beamish Street Campsie NSW 2220 Australia

Drawing Title
Design Evolution
Design Concept Evolution - Option 6

Scale: 1:072 @A1, 50% @A3
Project No.: 17032
Drawing No.: MP-100-221
Drawn by: VS
North: A6 A6 VS
Rev:

TURNER

3. TRAFFIC ASSESSMENT

Road Hierarchy

The road hierarchy allocated to the road network in the vicinity of the site by the Roads and Maritime Services is illustrated on Figure 3.

Canterbury Road is classified by the RMS as a *State Road* and provides the key east-west road link in the area, linking Bankstown and Hurlstone Park. It typically carries two traffic lanes in each direction in the vicinity of the site, with clearway restrictions applying along both sides of the road during commuter peak periods.

Beamish Street and Brighton Avenue is classified by the RMS as a *Regional Road* which provides the key north-south road link in the area, linking Canterbury Road to Georges River Road. The route typically carries one traffic lane in each direction in the vicinity of the site and kerbside parking is permitted at selected locations along the road.

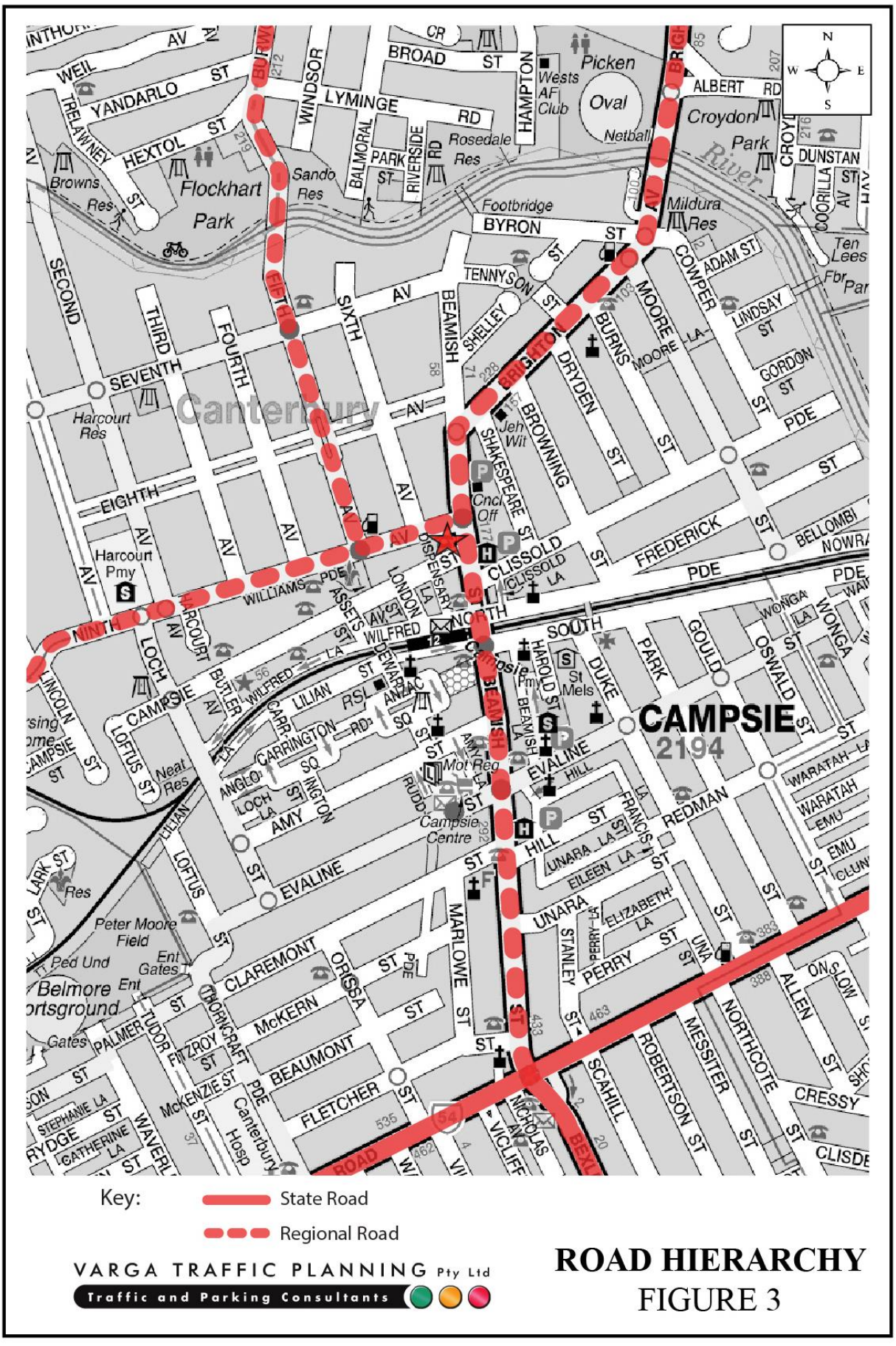
Ninth Avenue is also classified by the RMS as a *Regional Road* which provides the key east-west road link in the area, linking Campsie to Wiley Park via Albert Street and Lakemba Street. It typically carries one traffic lane in each direction in the vicinity of the site and kerbside parking is generally permitted on one or both sides of the road, subject to sign posted restrictions.

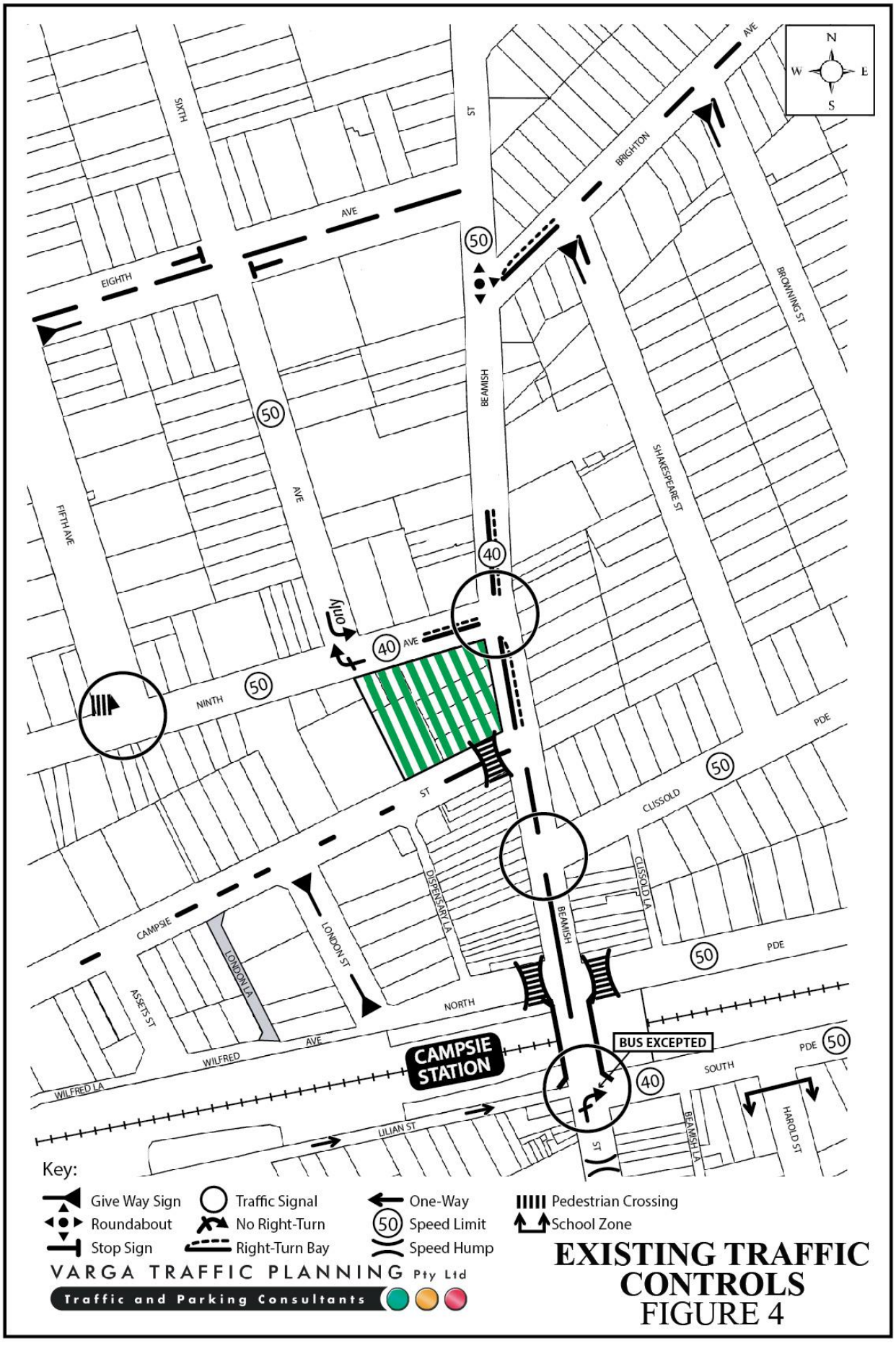
Campsie Street is a local, unclassified road which is primarily used to provide vehicular and pedestrian access to frontage properties. Kerbside parking is generally permitted along both sides the road, subject to sign posted restrictions.

Existing Traffic Controls

The existing traffic controls which apply to the road network in the vicinity of the site are illustrated on Figure 4. Key features of those traffic controls are:

- a 40 km/h SPEED LIMIT which applies to Beamish Street and all other local roads in the Campsie City Centre


CAMPSIE
2194
Canterbury
Key:
State Road
Regional Road
VARGA TRAFFIC PLANNING Pty Ltd
Traffic and Parking Consultants
ROAD HIERARCHY
FIGURE 3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CAMPSIE
DISPENSARY LA
CLISSOLD LA
LONDON ST
BEAMISH
LONDON LA
50
PDE
ASSETS ST
NORTH
AVE
BUS EXCEPTED
WILFRED
CAMPSIE STATION
PDE
50
SOUTH
WILFRED LA
40
LILIAN ST
BEAMISH LA
HAROLD ST
ST
Key:
Give Way Sign
Roundabout
Stop Sign
Traffic Signal
No Right-Turn
Right-Turn Bay
One-Way
50 Speed Limit
Speed Hump
Pedestrian Crossing
School Zone
VARGA TRAFFIC PLANNING Pty Ltd
Traffic and Parking Consultants
EXISTING TRAFFIC CONTROLS
FIGURE 4

- TRAFFIC SIGNALS in Beamish Street where it intersects with Ninth Avenue, Clissold Parade and also South Parade/Lilian Street

- RIGHT TURN HOLDING BAYS in Beamish Street where it intersects with Ninth Avenue and also Campsie Street

- a NO RIGHT-TURN westbound restriction in Ninth Avenue onto Sixth Avenue

- a LEFT-TURN ONLY southbound restriction in Sixth Avenue onto Ninth Avenue

- RAISED PEDESTRIAN CROSSINGS in Campsie Street and also North Parade in the vicinity of Beamish Street.

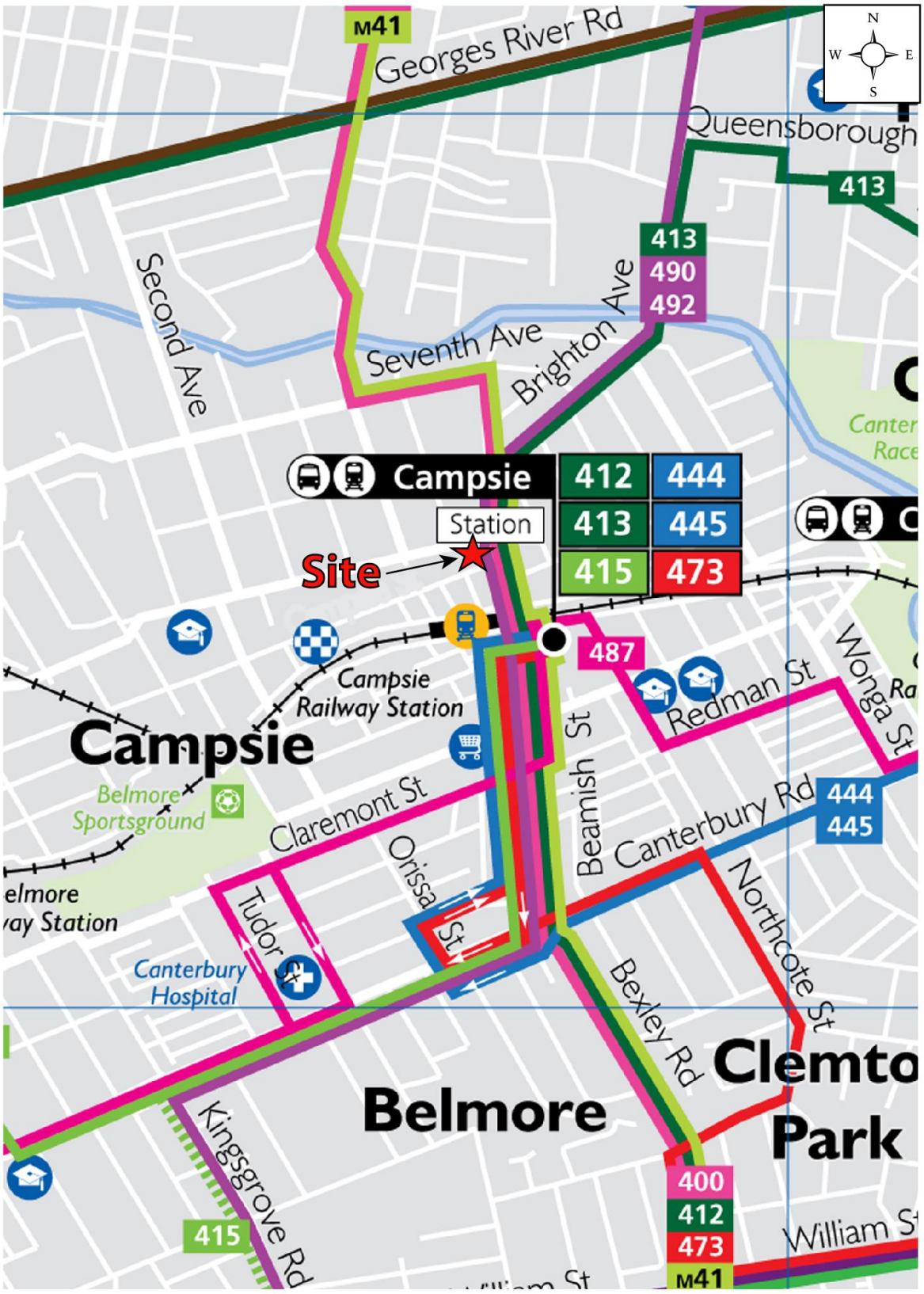
Existing Public Transport Services

The existing public transport services available to the site are illustrated on Figure 5.

The subject site is conveniently located within 200 metres of walking distance to the entrance of Campsie Railway Station. The station lies on the T3 Bankstown Line which operates between Bankstown and Sydney CBD. Services generally operate at a frequency of approximately 5-10 minutes during commuter peak periods and 15-30 minutes at other times.

In addition to the train services, a number of bus routes currently operate along Beamish Street with bus stops located within a 100 metres walking distance from the subject site. Notably, the M41 bus route currently operates along Beamish Street which is part of the Sydney's *Metrobus* network that provides high-frequency, high-capacity links between key employment and growth centres across Sydney. The M41 links between Hurstville, Bexley North, Campsie, Burwood, Concord, Rhodes, Ryde, Top Ryde, North Ryde, Macquarie park and Macquarie Centre operating at 10-minute intervals during commuter peak periods, 15-minute intervals during the day and 20-minute intervals at other times.

Other bus services available in the vicinity of the subject site includes route 400, 412, 413, 415, 444, 445, 473, 487, 490, 492 and 942.



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Traffic and Parking Consultants

PUBLIC TRANSPORT
FIGURE 5

The site lies within the heart of the Campsie town centre which includes a wide range of essential shops and services such as a mini-market, fruit market, butchery, bakery, seafood shop, bottle shop, post office, pharmacy, optometrist, newsagency, hair dresser and beautician.

The site is therefore considered to be highly accessible to essential services and public transport options.

Local Bicycle Routes

The location of the existing and proposed bicycle routes in the vicinity of the site are illustrated on the figure below, with the subject site marked with a star. These bicycle routes are readily accessible from the subject site and provide a number of on-road and off-road bicycle routes linking the local area with the greater surrounding area. The proposed development will make provision for a substantial bicycle parking area which is to be located within the basement level and will enhance the *active* transport options available to future occupants of the site.

Sydney Metro City & Southwest

As described on the Transport for NSW website, the new Sydney Metro City & Southwest rail line is one of the NSW Government's largest infrastructure projects being delivered to serve a growing Sydney. Regular services will be provided from early morning to late evening, including every 4 minutes during peak periods, and there will not be a timetable, customers simply turn up and go.

Stage 1 "Norwest" will deliver a new 36km line, connecting Cudgegong Road to Chatswood and include 8 new metro stations, five upgraded stations and 4,000 commuter car parking spaces. Stage 1 is expected to open in the first half of 2019.

Stage 2 "City & Southwest" will deliver a 30km extension of the metro rail from Chatswood under Sydney Harbour, through new CBD stations and south-west to Bankstown. Stage 2 is due to open in 2024, with 7 new metro stations and 11 upgraded stations.

Sydney Metro alignment map

Existing Traffic Conditions

An indication of the existing traffic conditions on the road network in the vicinity of the site is provided by peak period traffic surveys undertaken as part of this traffic study. The traffic surveys were during the morning and afternoon peak periods on Thursday 1st November, 2018 at the following intersections:

- Beamish Street and Ninth Avenue intersection
- Beamish Street and Campsie Street intersection.

The results of the traffic surveys are reproduced in full in Appendix A and reveal that:

- two-way traffic flows in Beamish Street are typically in the order of 1,300 vehicles per hour (vph) during peak periods
- two-way traffic flows in Ninth Avenue are typically in the order of 1,000 vph during peak periods
- two-way traffic flows in Campsie Street are typically in the order of 250 vph during peak periods.

Projected Traffic Generation

An indication of the traffic generation potential of the planning proposal is provided by reference to the Roads and Maritime Services publication *Guide to Traffic Generating Developments, Section 3 - Landuse Traffic Generation (October 2002)* and the updated traffic generation rates in the recently published RMS *Technical Direction (TDT 2013/04a)* document.

The *TDT 2013/04a* document specifies that it replaces those sections of the RMS *Guidelines* indicated, and that it must be followed when RMS is undertaken trip generation and/or parking demand assessments.

The RMS *Guidelines* and the updated *TDT 2013/04a* are based on extensive surveys of a wide range of land uses and nominate the following traffic generation rates which are applicable to the planning proposal:

Commercial Offices

AM: 1.6 peak hour vehicle trips per 100m^2 GFA

PM: 1.2 peak hour vehicle trips per 100m^2 GFA

High Density Residential Flat Dwellings

AM: 0.19 peak hour vehicle trips per unit

PM: 0.15 peak hour vehicle trips per unit

The RMS *Guidelines* also make the following observation in respect of high density residential flat buildings:

Definition

A *high density residential flat building* refers to a building containing 20 or more dwellings. This does not include aged or disabled persons housing. *High density residential flat buildings* are usually more than 5 levels, have basement level car parking and are located in close proximity to public transport services. The building may contain a component of commercial use.

Factors

The above rates include visitors, staff, service/delivery and on-street movements such as taxis and pick-up/set-down activities.

However, the RMS *Guidelines* and the updated *TDT 2013/04a* do not nominate a traffic generation rate for small, local shops, referring only to major regional shopping centres incorporating supermarkets and department stores. For the purpose of this assessment therefore, the commercial traffic generation rate has been adopted in respect of the retail component of the planning proposal.

Application of the above traffic generation rates to the various components of the development proposal yields a traffic generation potential of approximately 137 vph during the weekday AM peak period and approximately 105 vph during the weekday PM peak period, as set out below:

Planning Proposal - Projected Future Traffic Generation Potential

	AM	PM
Residential (320 apartments):	61 vph	48 vph
Retail shops (3,145m^2):	50 vph	38 vph
Commercial offices (1,600m^2):	26 vph	19 vph
TOTAL TRAFFIC GENERATION POTENTIAL:	**137 vph**	**105 vph**

That projected future level of traffic generation potential which is expected to occur as a consequence of the planning proposal should however, be offset or *discounted* by the volume of traffic which could reasonably be expected to be generated by a development permitted by the current *CLEP2012* planning controls (in terms of height).

Application of the above traffic generation rates to the 240 residential apartments, 3,000m^2 of retail floor space and 2,500m^2 of commercial floor space achievable under the current *LEP 2012* planning controls yields a traffic generation potential of approximately 134 vph during the weekday AM peak period and approximately 102 vph during the weekday PM peak period, as set out below:

Current CLEP 2012 Planning Controls - Projected Future Traffic Generation Potential

	AM	PM
Residential (240 apartments):	46 vph	36 vph
Retail shops (3,000m^2):	48 vph	36 vph
Commercial offices (2,500m^2):	40 vph	30 vph
TOTAL TRAFFIC GENERATION POTENTIAL:	**134 vph**	**102 vph**

Accordingly, it is likely that the planning proposal will result in a *nett* increase in the traffic generation potential of the site of just 3 vph during the weekday AM and PM peak periods, when compared with the existing planning controls that apply to the site, as set out below:

Projected Nett Increase in Peak Hour Traffic Generation Potential of the Site as a Consequence of the Planning Proposal

	AM	PM
Planning Proposal Traffic Generation Potential:	137 vph	105 vph
Existing Planning Controls Traffic Generation Potential:	-134 vph	-102 vph
NETT INCREASE IN TRAFFIC GENERATION POTENTIAL:	**+3 vph**	**+3 vph**

Notwithstanding, for the purposes of this assessment it has been assumed that *all* of the projected future traffic flows of 137 vph and 105 vph in the AM and PM commuter peak periods respectively, will be new or *additional* to the existing traffic flows currently using the adjacent road network.

That projected increase in the traffic generation potential of the site as a consequence of the planning proposal will not have any unacceptable traffic implications in terms of road network capacity, as is demonstrated by the following section of this report.

Traffic Implications - Road Network Capacity

The traffic implications of planning proposals primarily concern the effects that any *additional* traffic flows may have on the operational performance of the nearby road network. Those effects can be assessed using the SIDRA NETWORK 8 program which is widely used by the RMS and many LGA's for this purpose. Criteria for evaluating the results of SIDRA analysis are reproduced in the following pages. The Movement Summaries for the traffic analysis are reproduced in Appendix B.

The results of the SIDRA NETWORK analysis of the intersections are summarised in Tables 3.1 and Table 3.2 on the following pages, revealing that:

<u>Beamish Street and Ninth Avenue Intersection (Table 3.1)</u>

- the intersection currently operates at *Levels of Service "A" & "B"* under the existing traffic demands during the commuter peak periods with total average vehicle delays in the order of 14-15 seconds/vehicle

- under the projected future traffic demands expected to be generated by the planning proposal, the intersection is expected to continue to operate at *Level of Service "B"* during the commuter peak periods, with increases in total average vehicle delays of ***less than*** 1 second/vehicle.

TABLE 3.1 - RESULTS OF SIDRA ANALYSIS OF BEAMISH STREET & NINTH AVENUE					
Key Indicators		**Existing Traffic Demand**		**Projected Development Traffic Demand**	
		AM	**PM**	**AM**	**PM**
Level of Service		B	A	B	A
Degree of Saturation		0.787	0.797	0.839	0.827
Average Vehicle Delay (secs/veh)					
Beamish Street (south)	L T	7.7 17.9	7.6 15.4	7..7 17.9	7.7 15.4
Beamish Street (north)	T R	7.6 16.3	6.5 14.6	7.6 16.6	6.5 14.9
Ninth Avenue (west)	L R	12.1 26.9	12.8 28.6	12.2 29.5	12.8 30.0
TOTAL AVERAGE VEHICLE DELAY		**14.8**	**14.0**	**15.4**	**14.3**
		BEA_NINX		BEA_NINP	

Beamish Street and Campsie Street Intersection (Table 3.2)

- the intersection currently operates at *Level of Service "A"* under the existing traffic demands during the commuter peak periods with total average vehicle delays in the order of 1 second/vehicle. Notwithstanding, the right turn movement out of Campsie Street onto Beamish Street experience delays in the order of 20 seconds/vehicle.

- under the projected future traffic demands expected to be generated by the planning proposal, the intersection is expected to continue to operate at *Level of Service "A"* during the commuter peak periods, with *no change* in total average vehicle delays, whilst the right turn movement out of Campsie Street onto Beamish Street increases by just 1 second/vehicle.

TABLE 3.2 - RESULTS OF SIDRA ANALYSIS OF BEAMISH STREET & CAMPSIE STREET

Key Indicators		Existing Traffic Demand		Projected Development Traffic Demand	
		AM	**PM**	**AM**	**PM**
Level of Service		A	A	A	A
Degree of Saturation		0.324	0.309	0.336	0.314
Average Vehicle Delay (secs/veh)					
Beamish Street (south)	L	2.9	2.9	2.9	2.9
	T	0.0	0.0	0.0	0.0
Beamish Street (north)	T	0.0	0.0	0.0	0.0
	R	6.4	6.1	6.6	6.3
Campsie Street (west)	L	4.7	4.4	4.7	4.4
	R	20.0	19.1	21.5	20.1
TOTAL AVERAGE VEHICLE DELAY		**1.0**	**1.3**	**1.0**	**1.3**
		BEA_CAMX		BEA_CAMP	

In summary, those projected traffic flows as a consequence of the planning proposal will not have any unacceptable traffic implications in terms of road network capacity, nor will any road upgrades/improvements/widening be required.

Criteria for Interpreting Results of Sidra Analysis

1. Level of Service (LOS)

LOS	Traffic Signals and Roundabouts	Give Way and Stop Signs
'A'	Good operation.	Good operation.
'B'	Good with acceptable delays and spare capacity.	Acceptable delays and spare capacity.
'C'	Satisfactory.	Satisfactory but accident study required.
'D'	Operating near capacity.	Near capacity and accident study required.
'E'	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode.	At capacity and requires other control mode.
'F'	Unsatisfactory and requires additional capacity.	Unsatisfactory and requires other control mode.

2. Average Vehicle Delay (AVD)

The AVD provides a measure of the operational performance of an intersection as indicated on the table below which relates AVD to LOS. The AVD's listed in the table should be taken as a guide only as longer delays could be tolerated in some locations (ie inner city conditions) and on some roads (ie minor side street intersecting with a major arterial route).

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

3. Degree of Saturation (DS)

The DS is another measure of the operational performance of individual intersections.

For intersections controlled by traffic signals[1] both queue length and delay increase rapidly as DS approaches 1, and it is usual to attempt to keep DS to less than 0.9. Values of DS in the order of 0.7 generally represent satisfactory intersection operation. When DS exceeds 0.9 queues can be anticipated.

For intersections controlled by a roundabout or GIVE WAY or STOP signs, satisfactory intersection operation is indicated by a DS of 0.8 or less.

[1] *The values of DS for intersections under traffic signal control are only valid for cycle length of 120 secs.*

4. PARKING IMPLICATIONS

Existing Kerbside Parking Restrictions

The existing kerbside parking restrictions which apply to the road network in the vicinity of the site are illustrated on Figure 6. Key features of those parking restrictions are:

- ½ HOUR / 1 HOUR PARKING restrictions along selected locations on Beamish Street
- BUS ZONES located at regular intervals along both sides of Beamish Street
- 1 HOUR PARKING restrictions along the Ninth Avenue site frontage
- NO PARKING / LOADING ZONE restrictions along the southern side of Ninth Avenue in the vicinity of the site
- NO STOPPING restrictions along the northern side of Ninth Avenue in the vicinity of the site
- 1 HOUR / 2 HOUR PARKING restrictions along both sides of Campsie Street, including along the entire site frontage.

Off-Street Car Parking Provisions

The off-street car parking requirements applicable to the development proposal are specified in Council's *CDCP 2012, Part 6.8 – Parking and Vehicle Access* document in the following terms:

Shop Top Housing (B2 Zones – Large Centres)

Studio apartments:	0.25 spaces per dwelling
1 bedroom apartments:	0.8 spaces per dwelling
2 bedroom apartments:	1 space per dwelling
3 bedroom apartments:	1 space per dwelling
Visitors:	Not required

*Any developments containing 10 dwellings or more is to provide at least one car wash bay.


N
W
E
S
BZ
BEAMISH
SIXTH
AVE
AVE
NINTH
ST
ST
CAMPSIE
1P
LZ/NP
1/2P
2P
1P/NP
Key:
No Stopping
No Parking
Restricted Parking
BZ Bus Zone
LZ Loading Zone
VARGA TRAFFIC PLANNING Pty Ltd
Traffic and Parking Consultants
EXISTING PARKING RESTRICTIONS
FIGURE 6

Office Premises (B2 Zones – Large Centres)
1 space per 60m^2 (120m^2 – 1,000m^2)

Shops (B2 Zones – Large Centres)
1 space per 66.7m^2 (<120m^2)
1 space per 33m^2 (120m^2 – 1,000m^2)
1 space per 27m^2 (>1,000m^2)

Notwithstanding, the subject site is located within 800 metres of a railway station in the Sydney metropolitan area, and therefore the residential component of the development is also subject to the parking requirements specified in the *State Environmental Planning Policy No 65 – Design Quality of Residential Flat Development (Amendment No 3), 2015* in the following terms:

> **30 Standards that cannot be used to refuse development consent or modification of development consent**
>
> (1) If an application for the modification of a development consent or a development application for the carrying out of development to which this Policy applies satisfies the following design criteria, the consent authority must not refuse the application because of those matters:
>
> a) if the car parking for the building will be equal to, or greater than, the recommended minimum amount of car parking specified in Part 3J of the Apartment Design Guide.

Reference is therefore made to the *Apartment Design Guide 2015, Section 3J – Bicycle and Car Parking* document which nominates the following car parking requirements:

> **Objective 3J-1**
> Car parking is provided based on proximity to public transport in metropolitan Sydney and centres in regional areas
>
> For development in the following locations:
>
> - on sites that are within 800 metres of a railway station or light rail stop in the Sydney Metropolitan Area; or
> - on land zoned, and sites within 400 metres of land zoned, B3 Commercial Core, B4 Mixed Use or equivalent in a nominated regional centre

> the minimum car parking requirements for residents and visitors is set out in the Guide to Traffic Generating Developments, or the car parking requirement prescribed by the relevant council, whichever is less.
>
> The car parking needs for a development must be provided off street.

Comparison therefore needs to be drawn between the off-street car parking requirements for residential flat buildings outlined in the *Canterbury DCP 2011* and also the RMS *Guidelines* to determine the *lesser* requirement. The relevant car parking rates outlined in the RMS *Guidelines* are reproduced below:

> **RMS Guidelines–High Density Residential Flat Buildings in Metropolitan Regional (CBD) Centres**
> 0.4 spaces per 1 bedroom unit
> 0.7 spaces per 2 bedroom unit
> 1.2 spaces per 3 bedroom unit
> 1 space per 7 units for visitor parking

In any event, it is expected that the above numerical car parking requirements will ultimately be satisfied as part of any future development application.

The geometric design layout of the future car parking facilities will ultimately be designed to comply with Standards Australia publication *Parking Facilities Part 1 - Off-Street Car Parking AS2890.1* and *Parking Facilities Part 6 - Off-Street Parking for People with Disabilities AS2890.6*.

Off-Street Bicycle Parking Provisions

The off-street bicycle parking requirements applicable to the development proposal are also specified in the *Canterbury DCP 2012* document in the following terms:

> **Residential Accommodation**
> Residents: 1 space per 5 dwellings or part thereof
> Visitors: 1 space per 10 dwellings or part thereof
>
> **Shop, Restaurant or Cafe**
> Staff: 1 space per 200m^2 or part thereof
> Patrons: 1 space per 500m^2 over 1,000m^2 or part thereof

The proposed development will ultimately provide the required number of bicycle parking spaces, thereby ensuring the development's commitment to a more sustainable approach to travel.

Loading/Servicing Provisions

The proposed new development is expected to be serviced by a variety of light commercial vehicles and rigid trucks up to and including medium rigid trucks. The loading dock and manoeuvring area will ultimately be designed to accommodate the swept turning path requirements of these trucks, allowing them to enter and exit the site in a forward direction at all times, noting that the loading area will include a mechanical turntable.

The geometric design layout of the proposed loading facilities will ultimately be designed to comply with the relevant requirements specified in the Standards Australia publication *Parking Facilities Part 2 - Off-Street Commercial Vehicle Facilities AS2890.2* in respect of overhead clearances, loading dock dimensions and service area requirements for MRV trucks.

Conclusion

Based on the analysis and discussions presented within this report, the following conclusions are made:

- the planning proposal seeks approval to amend the planning controls of the site to permit the redevelopment of the site to comprise up to 320 apartments, approximately 3,145m^2 of retail floor space and 1,600m^2 of commercial floor space

- the capacity analysis of nearby intersections using the SIDRA capacity analysis program indicates that:

  - the projected additional traffic flows will not have any adverse effects on the operational performance of the nearby intersections, and

- no road improvements or intersection upgrades would be required as a consequence of the planning proposal

- the future car parking and loading facilities will be provided and designed in accordance with Council's requirements and the relevant Australian Standards

- the future bicycle parking facilities will be provided and designed in accordance with Council's requirements.

It is therefore reasonable to conclude that the planning proposal will not have any unacceptable implications in terms of road network capacity, access or off-street parking/loading requirements.

APPENDIX A

TRAFFIC SURVEY DATA

R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client : Varga Traffic Planning

Job No/Name : 6946 CAMPSIE Beamish St

Day/Date : Thursday 1st November 2018

PEDS	NORTH	WEST	SOUTH	
Time Per	*Beamish St*	*Ninth Ave*	*Beamish St*	TOT
0630 - 0645	3	18	2	**23**
0645 - 0700	1	27	0	**28**
0700 - 0715	1	28	0	**29**
0715 - 0730	1	27	1	**29**
0730 - 0745	2	30	0	**32**
0745 - 0800	0	45	0	**45**
0800 - 0815	1	52	0	**53**
0815 - 0830	2	35	0	**37**
0830 - 0845	7	55	0	**62**
0845 - 0900	8	57	0	**65**
0900 - 0915	7	32	0	**39**
0915 - 0930	5	38	0	**43**
Per End	**38**	**444**	**3**	**485**

PEDS	NORTH	WEST	SOUTH	
Peak Per	*Beamish St*	*Ninth Ave*	*Beamish St*	TOT
0630 - 0730	6	100	3	**109**
0645 - 0745	5	112	1	**118**
0700 - 0800	4	130	1	**135**
0715 - 0815	4	154	1	**159**
0730 - 0830	5	162	0	**167**
0745 - 0845	10	187	0	**197**
0800 - 0900	18	199	0	**217**
0815 - 0915	24	179	0	**203**
0830 - 0930	27	182	0	**209**
PEAK HR	**10**	**187**	**0**	**197**

Lights	NORTH		WEST		SOUTH		
	Beamish St		*Ninth Ave*		*Beamish St*		
Time Per	T	R	L	R	L	T	TOT
0630 - 0645	63	15	46	69	99	77	**369**
0645 - 0700	57	7	46	65	87	57	**319**
0700 - 0715	58	9	47	80	65	50	**309**
0715 - 0730	47	15	29	62	71	57	**281**
0730 - 0745	55	21	61	86	77	65	**365**
0745 - 0800	62	25	59	79	84	71	**380**
0800 - 0815	66	28	55	62	71	59	**341**
0815 - 0830	77	25	77	86	79	89	**433**
0830 - 0845	97	43	83	124	89	75	**511**
0845 - 0900	88	27	30	90	59	71	**365**
0900 - 0915	55	37	42	68	55	75	**332**
0915 - 0930	86	29	45	71	68	55	**354**
Per End	**811**	**281**	**620**	**942**	**904**	**801**	**4359**

Heavies	NORTH		WEST		SOUTH		
	Beamish St		*Ninth Ave*		*Beamish St*		
Time Per	T	R	L	R	L	T	TOT
0630 - 0645	5	0	0	1	0	5	**11**
0645 - 0700	5	0	0	0	1	5	**11**
0700 - 0715	5	0	0	1	0	6	**12**
0715 - 0730	5	0	0	0	2	5	**12**
0730 - 0745	6	0	0	0	1	4	**11**
0745 - 0800	6	0	0	0	2	9	**17**
0800 - 0815	6	0	0	0	0	5	**11**
0815 - 0830	3	0	0	0	0	7	**10**
0830 - 0845	5	0	0	0	0	6	**11**
0845 - 0900	4	0	0	2	1	1	**8**
0900 - 0915	7	0	0	0	1	2	**10**
0915 - 0930	2	0	0	1	0	5	**8**
Per End	**59**	**0**	**0**	**5**	**8**	**60**	**132**

Combined	NORTH		WEST		SOUTH		
	Beamish St		*Ninth Ave*		*Beamish St*		
Time Per	T	R	L	R	L	T	TOT
0630 - 0645	68	15	46	70	99	82	**380**
0645 - 0700	62	7	46	65	88	62	**330**
0700 - 0715	63	9	47	81	65	56	**321**
0715 - 0730	52	15	29	62	73	62	**293**
0730 - 0745	61	21	61	86	78	69	**376**
0745 - 0800	68	25	59	79	86	80	**397**
0800 - 0815	72	28	55	62	71	64	**352**
0815 - 0830	80	25	77	86	79	96	**443**
0830 - 0845	102	43	83	124	89	81	**522**
0845 - 0900	92	27	30	92	60	72	**373**
0900 - 0915	62	37	42	68	56	77	**342**
0915 - 0930	88	29	45	72	68	60	**362**
Per End	**870**	**281**	**620**	**947**	**912**	**861**	**4491**

Lights	NORTH		WEST		SOUTH		
	Beamish St		*Ninth Ave*		*Beamish St*		
Peak Per	T	R	L	R	L	T	TOT
0630 - 0730	225	46	168	276	322	241	**1278**
0645 - 0745	217	52	183	293	300	229	**1274**
0700 - 0800	222	70	196	307	297	243	**1335**
0715 - 0815	230	89	204	289	303	252	**1367**
0730 - 0830	260	99	252	313	311	284	**1519**
0745 - 0845	302	121	274	351	323	294	**1665**
0800 - 0900	328	123	245	362	298	294	**1650**
0815 - 0915	317	132	232	368	282	310	**1641**
0830 - 0930	326	136	200	353	271	276	**1562**
PEAK HR	**302**	**121**	**274**	**351**	**323**	**294**	**1665**

Heavies	NORTH		WEST		SOUTH		
	Beamish St		*Ninth Ave*		*Beamish St*		
Peak Per	T	R	L	R	L	T	TOT
0630 - 0730	20	0	0	2	3	21	**46**
0645 - 0745	21	0	0	1	4	20	**46**
0700 - 0800	22	0	0	1	5	24	**52**
0715 - 0815	23	0	0	0	5	23	**51**
0730 - 0830	21	0	0	0	3	25	**49**
0745 - 0845	20	0	0	0	2	27	**49**
0800 - 0900	18	0	0	2	1	19	**40**
0815 - 0915	19	0	0	2	2	16	**39**
0830 - 0930	18	0	0	3	2	14	**37**
PEAK HR	**20**	**0**	**0**	**0**	**2**	**27**	**49**

Combined	NORTH		WEST		SOUTH		
	Beamish St		*Ninth Ave*		*Beamish St*		
Peak Per	T	R	L	R	L	T	TOT
0630 - 0730	245	46	168	278	325	262	**1324**
0645 - 0745	238	52	183	294	304	249	**1320**
0700 - 0800	244	70	196	308	302	267	**1387**
0715 - 0815	253	89	204	289	308	275	**1418**
0730 - 0830	281	99	252	313	314	309	**1568**
0745 - 0845	322	121	274	351	325	321	**1714**
0800 - 0900	346	123	245	364	299	313	**1690**
0815 - 0915	336	132	232	370	284	326	**1680**
0830 - 0930	344	136	200	356	273	290	**1599**
PEAK HR	**322**	**121**	**274**	**351**	**325**	**321**	**1714**

R.O.A.R. DATA

Reliable, Original & Authentic Results

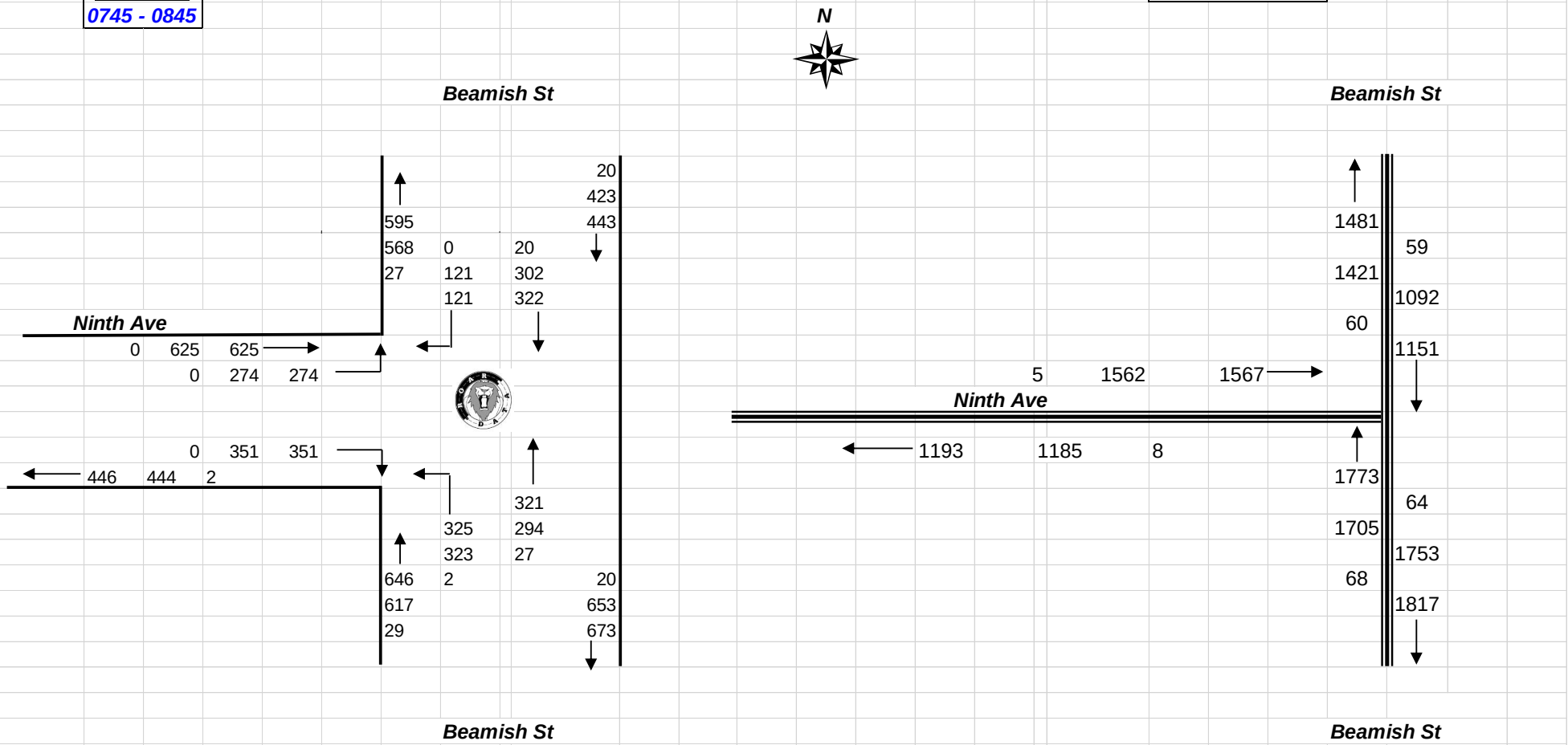
Ph.88196847, Mob.0418-239019

Client	: Varga Traffic Planning
Job No/Name	: 6946 CAMPSIE Beamish St
Day/Date	: Thursday 1st November 2018

1	2	3
4	5	6
7	8	9

AM PEAK
0745 - 0845

TOTAL VOLUMES FOR COUNT PERIOD



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client : Varga Traffic Planning

Job No/Name : 6946 CAMPSIE Beamish St

Day/Date : Thursday 1st November 2018

PEDS	NORTH	WEST	SOUTH	
Time Per	*Beamish St*	*Ninth Ave*	*Beamish St*	TOT
1530 - 1545	10	63	0	**73**
1545 - 1600	3	69	3	**75**
1600 - 1615	5	55	0	**60**
1615 - 1630	4	61	1	**66**
1630 - 1645	9	68	0	**77**
1645 - 1700	11	84	2	**97**
1700 - 1715	5	57	0	**62**
1715 - 1730	2	104	0	**106**
1730 - 1745	11	81	0	**92**
1745 - 1800	10	77	0	**87**
1800 - 1815	10	80	0	**90**
1815 - 1830	5	95	5	**105**
Per End	**85**	**894**	**11**	**990**

PEDS	NORTH	WEST	SOUTH	
Peak Per	*Beamish St*	*Ninth Ave*	*Beamish St*	TOT
1530 - 1630	22	248	4	**274**
1545 - 1645	21	253	4	**278**
1600 - 1700	29	268	3	**300**
1615 - 1715	29	270	3	**302**
1630 - 1730	27	313	2	**342**
1645 - 1745	29	326	2	**357**
1700 - 1800	28	319	0	**347**
1715 - 1815	33	342	0	**375**
1730 - 1830	36	333	5	**374**
PEAK HR	**29**	**326**	**2**	**357**

Lights	NORTH		WEST		SOUTH		
	Beamish St		*Ninth Ave*		*Beamish St*		
Time Per	T	R	L	R	L	T	TOT
1530 - 1545	95	36	43	68	82	49	**373**
1545 - 1600	86	45	33	68	59	57	**348**
1600 - 1615	68	59	37	75	63	68	**370**
1615 - 1630	95	50	35	55	67	71	**373**
1630 - 1645	93	42	39	92	88	73	**427**
1645 - 1700	103	32	42	75	68	68	**388**
1700 - 1715	69	43	44	61	74	77	**368**
1715 - 1730	83	59	33	68	67	79	**389**
1730 - 1745	110	53	47	86	99	34	**429**
1745 - 1800	68	29	36	61	68	95	**357**
1800 - 1815	53	44	39	50	61	82	**329**
1815 - 1830	95	37	43	61	63	86	**385**
Per End	**1018**	**529**	**471**	**820**	**859**	**839**	**4536**

Heavies	NORTH		WEST		SOUTH		
	Beamish St		*Ninth Ave*		*Beamish St*		
Time Per	T	R	L	R	L	T	TOT
1530 - 1545	5	1	0	0	0	4	**10**
1545 - 1600	8	0	0	0	0	5	**13**
1600 - 1615	8	0	0	0	0	4	**12**
1615 - 1630	8	0	0	0	0	5	**13**
1630 - 1645	6	0	0	0	0	4	**10**
1645 - 1700	2	0	0	0	0	2	**4**
1700 - 1715	7	0	0	0	0	2	**9**
1715 - 1730	4	0	0	0	2	7	**13**
1730 - 1745	6	0	0	1	1	6	**14**
1745 - 1800	2	1	0	0	0	6	**9**
1800 - 1815	4	0	0	0	0	4	**8**
1815 - 1830	2	0	0	1	2	5	**10**
Per End	**62**	**2**	**0**	**2**	**5**	**54**	**125**

Combined	NORTH		WEST		SOUTH		
	Beamish St		*Ninth Ave*		*Beamish St*		
Time Per	T	R	L	R	L	T	TOT
1530 - 1545	100	37	43	68	82	53	**383**
1545 - 1600	94	45	33	68	59	62	**361**
1600 - 1615	76	59	37	75	63	72	**382**
1615 - 1630	103	50	35	55	67	76	**386**
1630 - 1645	99	42	39	92	88	77	**437**
1645 - 1700	105	32	42	75	68	70	**392**
1700 - 1715	76	43	44	61	74	79	**377**
1715 - 1730	87	59	33	68	69	86	**402**
1730 - 1745	116	53	47	87	100	40	**443**
1745 - 1800	70	30	36	61	68	101	**366**
1800 - 1815	57	44	39	50	61	86	**337**
1815 - 1830	97	37	43	62	65	91	**395**
Per End	**1080**	**531**	**471**	**822**	**864**	**893**	**4661**

Lights	NORTH		WEST		SOUTH		
	Beamish St		*Ninth Ave*		*Beamish St*		
Peak Per	T	R	L	R	L	T	TOT
1530 - 1630	344	190	148	266	271	245	**1464**
1545 - 1645	342	196	144	290	277	269	**1518**
1600 - 1700	359	183	153	297	286	280	**1558**
1615 - 1715	360	167	160	283	297	289	**1556**
1630 - 1730	348	176	158	296	297	297	**1572**
1645 - 1745	365	187	166	290	308	258	**1574**
1700 - 1800	330	184	160	276	308	285	**1543**
1715 - 1815	314	185	155	265	295	290	**1504**
1730 - 1830	326	163	165	258	291	297	**1500**
PEAK HR	**365**	**187**	**166**	**290**	**308**	**258**	**1574**

Heavies	NORTH		WEST		SOUTH		
	Beamish St		*Ninth Ave*		*Beamish St*		
Peak Per	T	R	L	R	L	T	TOT
1530 - 1630	29	1	0	0	0	18	**48**
1545 - 1645	30	0	0	0	0	18	**48**
1600 - 1700	24	0	0	0	0	15	**39**
1615 - 1715	23	0	0	0	0	13	**36**
1630 - 1730	19	0	0	0	2	15	**36**
1645 - 1745	19	0	0	1	3	17	**40**
1700 - 1800	19	1	0	1	3	21	**45**
1715 - 1815	16	1	0	1	3	23	**44**
1730 - 1830	14	1	0	2	3	21	**41**
PEAK HR	**19**	**0**	**0**	**1**	**3**	**17**	**40**

Combined	NORTH		WEST		SOUTH		
	Beamish St		*Ninth Ave*		*Beamish St*		
Peak Per	T	R	L	R	L	T	TOT
1530 - 1630	373	191	148	266	271	263	**1512**
1545 - 1645	372	196	144	290	277	287	**1566**
1600 - 1700	383	183	153	297	286	295	**1597**
1615 - 1715	383	167	160	283	297	302	**1592**
1630 - 1730	367	176	158	296	299	312	**1608**
1645 - 1745	384	187	166	291	311	275	**1614**
1700 - 1800	349	185	160	277	311	306	**1588**
1715 - 1815	330	186	155	266	298	313	**1548**
1730 - 1830	340	164	165	260	294	318	**1541**
PEAK HR	**384**	**187**	**166**	**291**	**311**	**275**	**1614**

R.O.A.R. DATA

Reliable, Original & Authentic Results

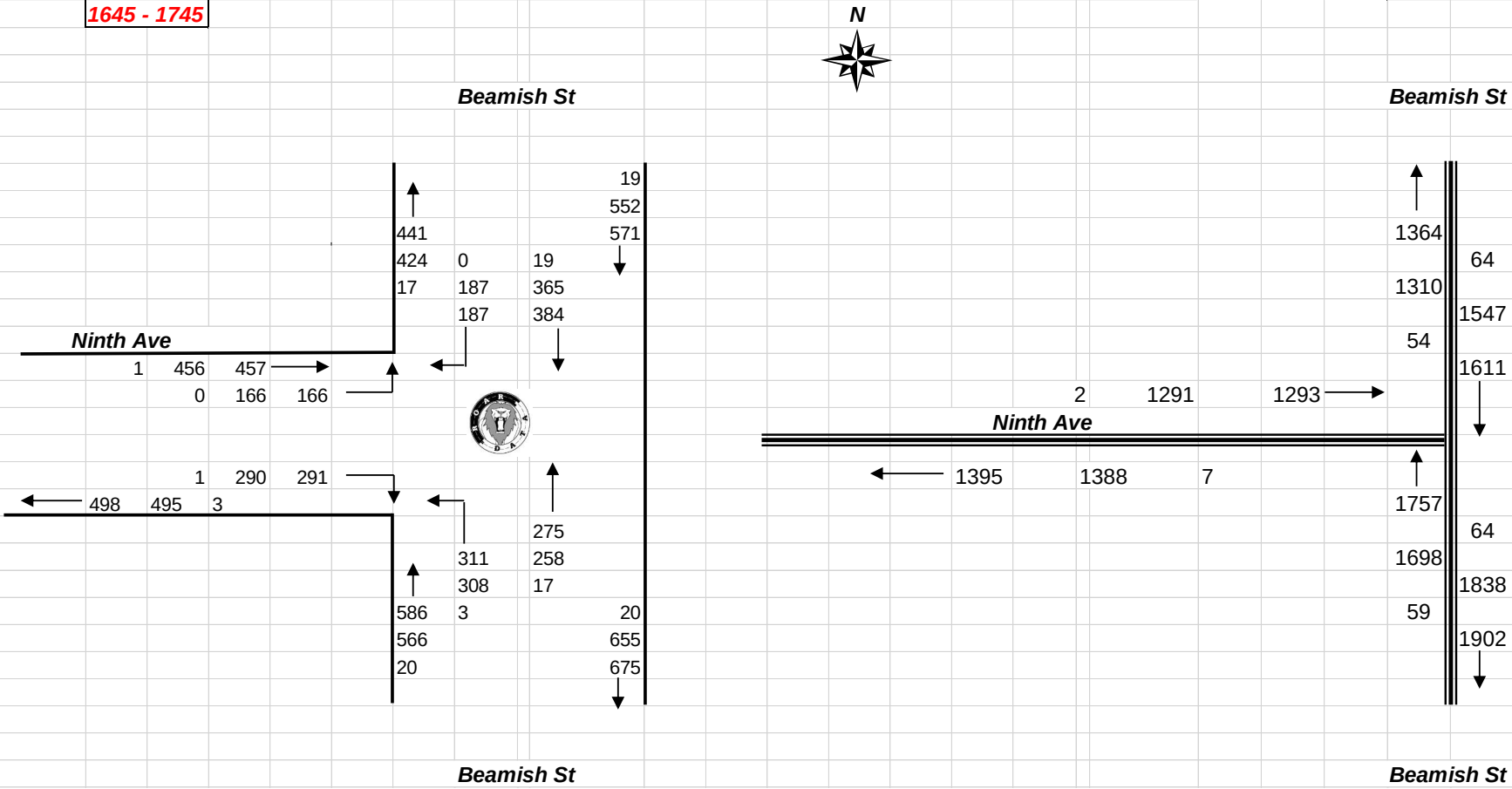
Ph.88196847, Mob.0418-239019

Client	: Varga Traffic Planning
Job No/Name	: 6946 CAMPSIE Beamish St
Day/Date	: Thursday 1st November 2018

1 2 3
4 5 6
7 8 9

PM PEAK
1645 - 1745

TOTAL VOLUMES FOR COUNT PERIOD



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client	: Varga Traffic Planning
Job No/Name	: 6946 CAMPSIE Beamish St
Day/Date	: Thursday 1st November 2018

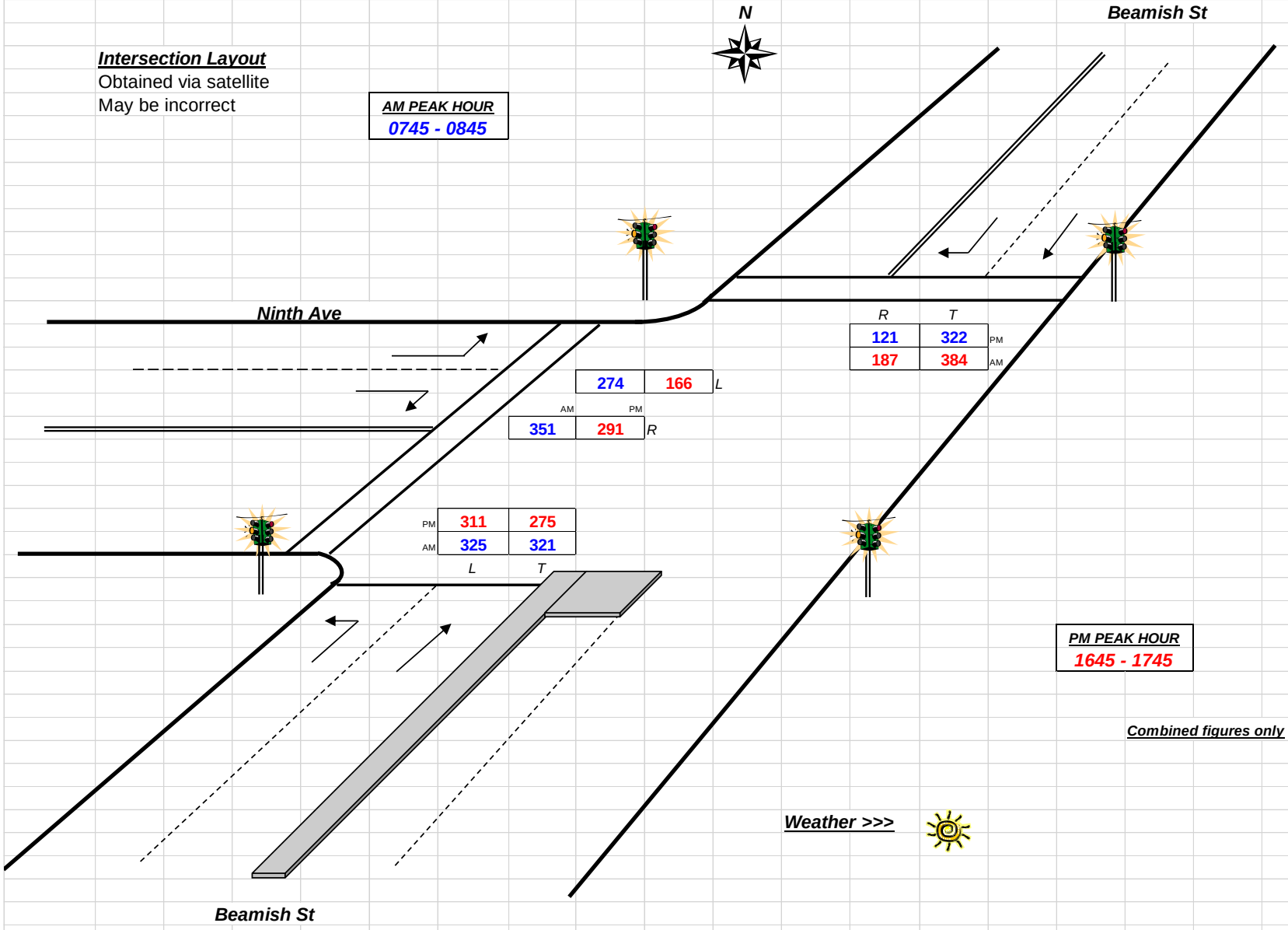
Intersection Layout

Obtained via satellite

May be incorrect

AM PEAK HOUR

0745 - 0845



PM PEAK HOUR

1645 - 1745

Combined figures only

Weather >>>

R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client : Varga Traffic Planning

Job No/Name : 6946 CAMPSIE Beamish St

Day/Date : Thursday 1st November 2018

PEDS	NORTH	WEST	SOUTH	
Time Per	*Beamish St*	*Campsie St*	*Beamish St*	TOT
0630 - 0645	0	35	0	**35**
0645 - 0700	0	25	0	**25**
0700 - 0715	0	40	0	**40**
0715 - 0730	0	47	0	**47**
0730 - 0745	0	45	0	**45**
0745 - 0800	1	72	1	**74**
0800 - 0815	0	84	0	**84**
0815 - 0830	2	64	0	**66**
0830 - 0845	0	66	0	**66**
0845 - 0900	1	76	1	**78**
0900 - 0915	1	83	1	**85**
0915 - 0930	2	69	0	**71**
Per End	**7**	**706**	**3**	**716**

PEDS	NORTH	WEST	SOUTH	
Peak Per	*Beamish St*	*Campsie St*	*Beamish St*	TOT
0630 - 0730	0	147	0	**147**
0645 - 0745	0	157	0	**157**
0700 - 0800	1	204	1	**206**
0715 - 0815	1	248	1	**250**
0730 - 0830	3	265	1	**269**
0745 - 0845	3	286	1	**290**
0800 - 0900	3	290	1	**294**
0815 - 0915	4	289	2	**295**
0830 - 0930	4	294	2	**300**
PEAK HR	**3**	**290**	**1**	**294**

Lights	NORTH		WEST		SOUTH		
	Beamish St		*Campsie St*		*Beamish St*		
Time Per	T	R	L	R	L	T	TOT
0630 - 0645	118	14	11	9	6	166	**324**
0645 - 0700	113	9	17	7	3	125	**274**
0700 - 0715	130	7	11	3	2	109	**262**
0715 - 0730	99	12	8	12	5	118	**254**
0730 - 0745	135	6	14	9	11	129	**304**
0745 - 0800	130	10	8	5	17	148	**318**
0800 - 0815	115	12	16	9	13	115	**280**
0815 - 0830	146	15	35	9	8	136	**349**
0830 - 0845	210	11	19	5	11	146	**402**
0845 - 0900	155	23	17	11	13	115	**334**
0900 - 0915	115	8	14	5	11	118	**271**
0915 - 0930	135	20	12	6	15	113	**301**
Per End	**1601**	**147**	**182**	**90**	**115**	**1538**	**3673**

Heavies	NORTH		WEST		SOUTH		
	Beamish St		*Campsie St*		*Beamish St*		
Time Per	T	R	L	R	L	T	TOT
0630 - 0645	5	1	0	0	1	5	**12**
0645 - 0700	4	1	1	0	0	5	**11**
0700 - 0715	5	1	0	0	1	6	**13**
0715 - 0730	5	0	1	0	0	6	**12**
0730 - 0745	5	1	0	0	0	5	**11**
0745 - 0800	6	0	0	0	1	10	**17**
0800 - 0815	3	3	0	0	0	5	**11**
0815 - 0830	3	0	0	0	0	7	**10**
0830 - 0845	4	1	0	0	2	6	**13**
0845 - 0900	6	0	0	0	2	5	**13**
0900 - 0915	6	1	0	0	1	3	**11**
0915 - 0930	3	0	0	0	2	5	**10**
Per End	**55**	**9**	**2**	**0**	**10**	**68**	**144**

Combined	NORTH		WEST		SOUTH		
	Beamish St		*Campsie St*		*Beamish St*		
Time Per	T	R	L	R	L	T	TOT
0630 - 0645	123	15	11	9	7	171	**336**
0645 - 0700	117	10	18	7	3	130	**285**
0700 - 0715	135	8	11	3	3	115	**275**
0715 - 0730	104	12	9	12	5	124	**266**
0730 - 0745	140	7	14	9	11	134	**315**
0745 - 0800	136	10	8	5	18	158	**335**
0800 - 0815	118	15	16	9	13	120	**291**
0815 - 0830	149	15	35	9	8	143	**359**
0830 - 0845	214	12	19	5	13	152	**415**
0845 - 0900	161	23	17	11	15	120	**347**
0900 - 0915	121	9	14	5	12	121	**282**
0915 - 0930	138	20	12	6	17	118	**311**
Per End	**1656**	**156**	**184**	**90**	**125**	**1606**	**3817**

Lights	NORTH		WEST		SOUTH		
	Beamish St		*Campsie St*		*Beamish St*		
Peak Per	T	R	L	R	L	T	TOT
0630 - 0730	460	42	47	31	16	518	**1114**
0645 - 0745	477	34	50	31	21	481	**1094**
0700 - 0800	494	35	41	29	35	504	**1138**
0715 - 0815	479	40	46	35	46	510	**1156**
0730 - 0830	526	43	73	32	49	528	**1251**
0745 - 0845	601	48	78	28	49	545	**1349**
0800 - 0900	626	61	87	34	45	512	**1365**
0815 - 0915	626	57	85	30	43	515	**1356**
0830 - 0930	615	62	62	27	50	492	**1308**
PEAK HR	**626**	**61**	**87**	**34**	**45**	**512**	**1365**

Heavies	NORTH		WEST		SOUTH		
	Beamish St		*Campsie St*		*Beamish St*		
Peak Per	T	R	L	R	L	T	TOT
0630 - 0730	19	3	2	0	2	22	**48**
0645 - 0745	19	3	2	0	1	22	**47**
0700 - 0800	21	2	1	0	2	27	**53**
0715 - 0815	19	4	1	0	1	26	**51**
0730 - 0830	17	4	0	0	1	27	**49**
0745 - 0845	16	4	0	0	3	28	**51**
0800 - 0900	16	4	0	0	4	23	**47**
0815 - 0915	19	2	0	0	5	21	**47**
0830 - 0930	19	2	0	0	7	19	**47**
PEAK HR	**16**	**4**	**0**	**0**	**4**	**23**	**47**

Combined	NORTH		WEST		SOUTH		
	Beamish St		*Campsie St*		*Beamish St*		
Peak Per	T	R	L	R	L	T	TOT
0630 - 0730	479	45	49	31	18	540	**1162**
0645 - 0745	496	37	52	31	22	503	**1141**
0700 - 0800	515	37	42	29	37	531	**1191**
0715 - 0815	498	44	47	35	47	536	**1207**
0730 - 0830	543	47	73	32	50	555	**1300**
0745 - 0845	617	52	78	28	52	573	**1400**
0800 - 0900	642	65	87	34	49	535	**1412**
0815 - 0915	645	59	85	30	48	536	**1403**
0830 - 0930	634	64	62	27	57	511	**1355**
PEAK HR	**642**	**65**	**87**	**34**	**49**	**535**	**1412**

R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client	: Varga Traffic Planning
Job No/Name	: 6946 CAMPSIE Beamish St
Day/Date	: Thursday 1st November 2018

1 2 3

4 5 6

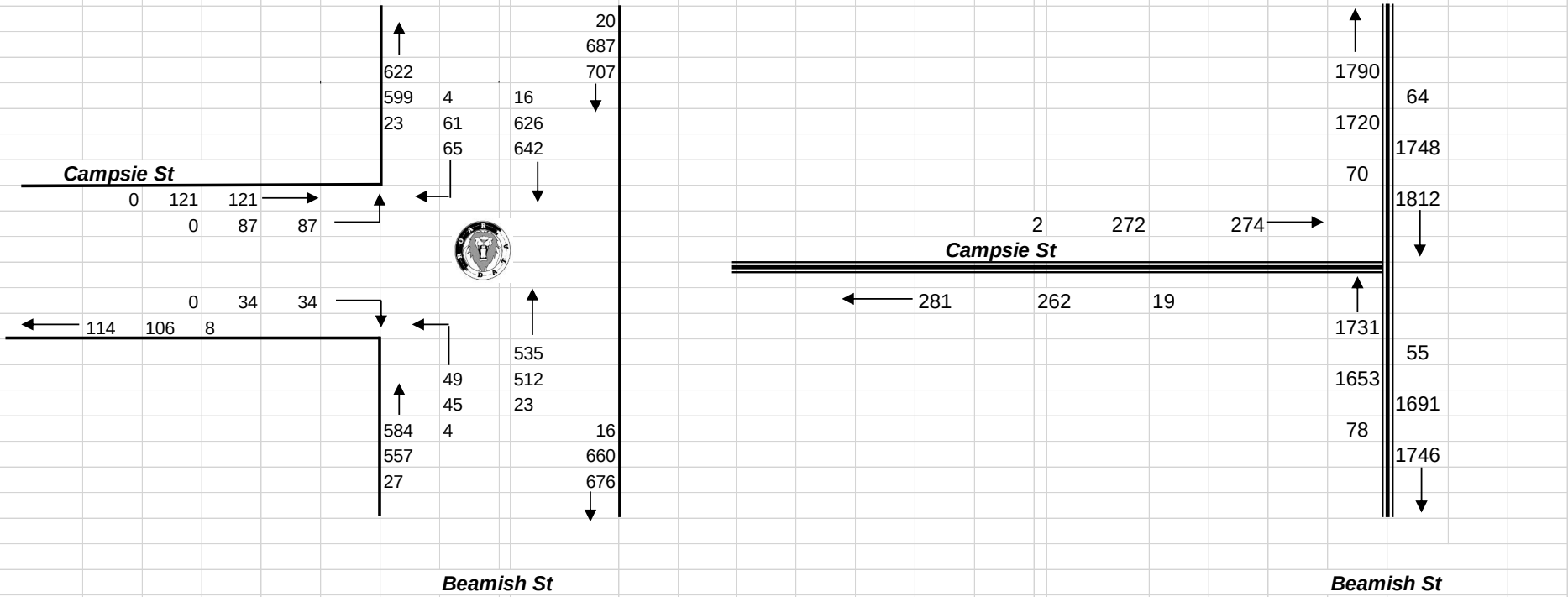
7 8 9

AM PEAK

0800 - 0900

TOTAL VOLUMES FOR COUNT PERIOD

N



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client : Varga Traffic Planning

Job No/Name : 6946 CAMPSIE Beamish St

Day/Date : Thursday 1st November 2018

PEDS	NORTH	WEST	SOUTH	
Time Per	*Beamish St*	*Campsie St*	*Beamish St*	TOT
1530 - 1545	0	103	0	**103**
1545 - 1600	3	114	0	**117**
1600 - 1615	1	93	0	**94**
1615 - 1630	2	115	0	**117**
1630 - 1645	0	107	1	**108**
1645 - 1700	0	122	7	**129**
1700 - 1715	5	117	1	**123**
1715 - 1730	1	139	0	**140**
1730 - 1745	0	137	0	**137**
1745 - 1800	0	163	1	**164**
1800 - 1815	1	142	0	**143**
1815 - 1830	5	140	2	**147**
Per End	**18**	**1492**	**12**	**1522**

PEDS	NORTH	WEST	SOUTH	
Peak Per	*Beamish St*	*Campsie St*	*Beamish St*	TOT
1530 - 1630	6	425	0	**431**
1545 - 1645	6	429	1	**436**
1600 - 1700	3	437	8	**448**
1615 - 1715	7	461	9	**477**
1630 - 1730	6	485	9	**500**
1645 - 1745	6	515	8	**529**
1700 - 1800	6	556	2	**564**
1715 - 1815	2	581	1	**584**
1730 - 1830	6	582	3	**591**
PEAK HR	**6**	**485**	**9**	**500**

Lights	NORTH		WEST		SOUTH		
	Beamish St		*Campsie St*		*Beamish St*		
Time Per	T	R	L	R	L	T	TOT
1530 - 1545	133	28	14	9	20	114	**318**
1545 - 1600	126	23	15	12	17	102	**295**
1600 - 1615	130	14	18	10	23	116	**311**
1615 - 1630	124	24	27	3	24	113	**315**
1630 - 1645	161	22	28	9	21	135	**376**
1645 - 1700	149	24	27	4	19	114	**337**
1700 - 1715	118	15	17	10	11	133	**304**
1715 - 1730	144	10	35	9	20	110	**328**
1730 - 1745	175	26	25	8	14	108	**356**
1745 - 1800	114	12	27	3	13	137	**306**
1800 - 1815	100	18	22	7	11	123	**281**
1815 - 1830	130	24	30	13	19	120	**336**
Per End	**1604**	**240**	**285**	**97**	**212**	**1425**	**3863**

Heavies	NORTH		WEST		SOUTH		
	Beamish St		*Campsie St*		*Beamish St*		
Time Per	T	R	L	R	L	T	TOT
1530 - 1545	5	1	0	0	2	4	**12**
1545 - 1600	6	2	0	0	0	5	**13**
1600 - 1615	8	0	0	0	0	4	**12**
1615 - 1630	7	1	0	0	0	5	**13**
1630 - 1645	5	1	0	0	1	4	**11**
1645 - 1700	1	1	0	0	0	2	**4**
1700 - 1715	5	1	0	0	1	2	**9**
1715 - 1730	5	0	0	0	1	9	**15**
1730 - 1745	4	2	0	0	1	7	**14**
1745 - 1800	4	0	0	0	0	6	**10**
1800 - 1815	3	1	0	0	2	4	**10**
1815 - 1830	3	0	0	0	1	7	**11**
Per End	**56**	**10**	**0**	**0**	**9**	**59**	**134**

Combined	NORTH		WEST		SOUTH		
	Beamish St		*Campsie St*		*Beamish St*		
Time Per	T	R	L	R	L	T	TOT
1530 - 1545	138	29	14	9	22	118	**330**
1545 - 1600	132	25	15	12	17	107	**308**
1600 - 1615	138	14	18	10	23	120	**323**
1615 - 1630	131	25	27	3	24	118	**328**
1630 - 1645	166	23	28	9	22	139	**387**
1645 - 1700	150	25	27	4	19	116	**341**
1700 - 1715	123	16	17	10	12	135	**313**
1715 - 1730	149	10	35	9	21	119	**343**
1730 - 1745	179	28	25	8	15	115	**370**
1745 - 1800	118	12	27	3	13	143	**316**
1800 - 1815	103	19	22	7	13	127	**291**
1815 - 1830	133	24	30	13	20	127	**347**
Per End	**1660**	**250**	**285**	**97**	**221**	**1484**	**3997**

Lights	NORTH		WEST		SOUTH		
	Beamish St		*Campsie St*		*Beamish St*		
Peak Per	T	R	L	R	L	T	TOT
1530 - 1630	513	89	74	34	84	445	**1239**
1545 - 1645	541	83	88	34	85	466	**1297**
1600 - 1700	564	84	100	26	87	478	**1339**
1615 - 1715	552	85	99	26	75	495	**1332**
1630 - 1730	572	71	107	32	71	492	**1345**
1645 - 1745	586	75	104	31	64	465	**1325**
1700 - 1800	551	63	104	30	58	488	**1294**
1715 - 1815	533	66	109	27	58	478	**1271**
1730 - 1830	519	80	104	31	57	488	**1279**
PEAK HR	**572**	**71**	**107**	**32**	**71**	**492**	**1345**

Heavies	NORTH		WEST		SOUTH		
	Beamish St		*Campsie St*		*Beamish St*		
Peak Per	T	R	L	R	L	T	TOT
1530 - 1630	26	4	0	0	2	18	**50**
1545 - 1645	26	4	0	0	1	18	**49**
1600 - 1700	21	3	0	0	1	15	**40**
1615 - 1715	18	4	0	0	2	13	**37**
1630 - 1730	16	3	0	0	3	17	**39**
1645 - 1745	15	4	0	0	3	20	**42**
1700 - 1800	18	3	0	0	3	24	**48**
1715 - 1815	16	3	0	0	4	26	**49**
1730 - 1830	14	3	0	0	4	24	**45**
PEAK HR	**16**	**3**	**0**	**0**	**3**	**17**	**39**

Combined	NORTH		WEST		SOUTH		
	Beamish St		*Campsie St*		*Beamish St*		
Peak Per	T	R	L	R	L	T	TOT
1530 - 1630	539	93	74	34	86	463	**1289**
1545 - 1645	567	87	88	34	86	484	**1346**
1600 - 1700	585	87	100	26	88	493	**1379**
1615 - 1715	570	89	99	26	77	508	**1369**
1630 - 1730	588	74	107	32	74	509	**1384**
1645 - 1745	601	79	104	31	67	485	**1367**
1700 - 1800	569	66	104	30	61	512	**1342**
1715 - 1815	549	69	109	27	62	504	**1320**
1730 - 1830	533	83	104	31	61	512	**1324**
PEAK HR	**588**	**74**	**107**	**32**	**74**	**509**	**1384**

R.O.A.R. DATA

Reliable, Original & Authentic Results

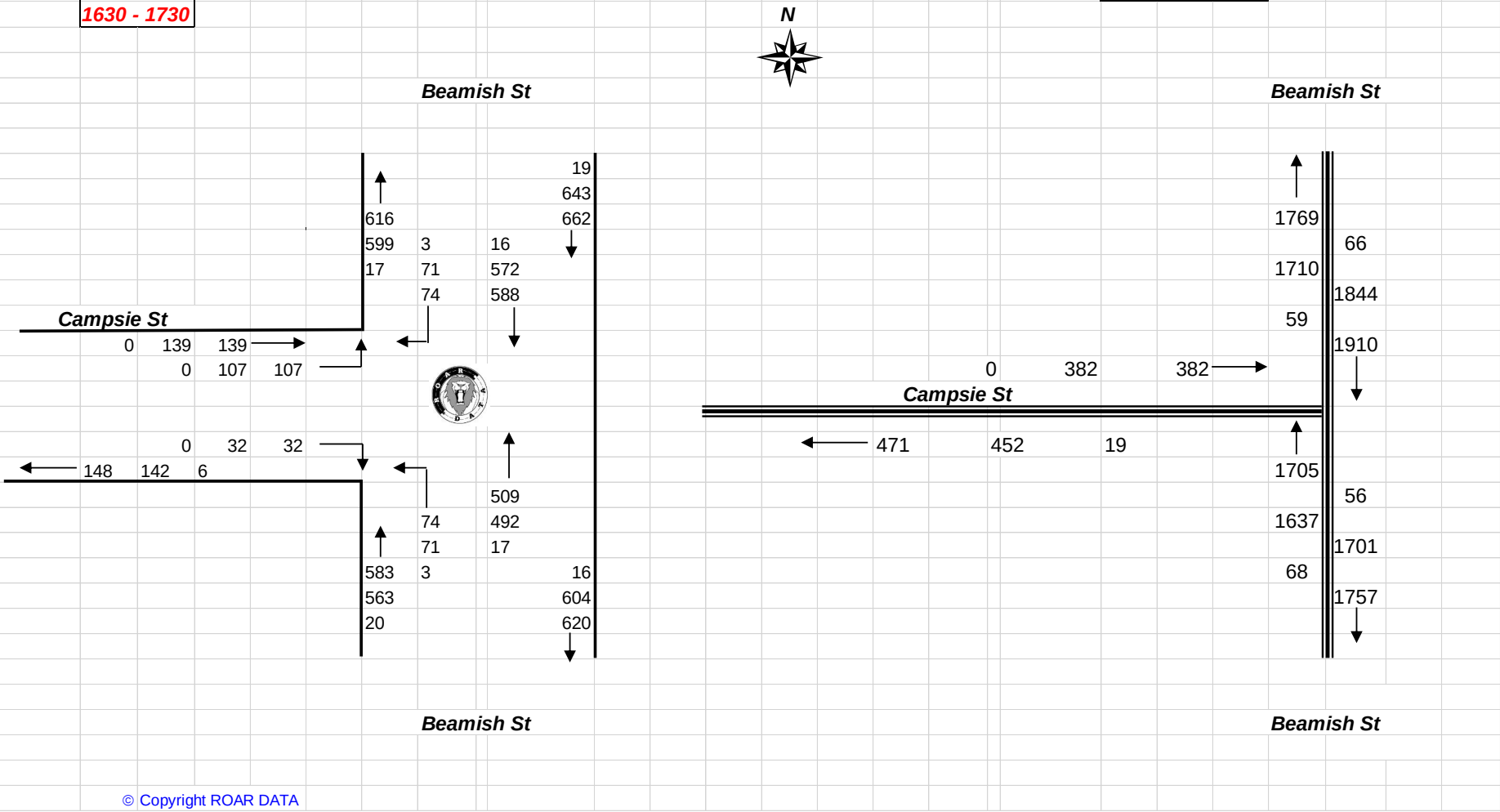
Ph.88196847, Mob.0418-239019

Client	: Varga Traffic Planning
Job No/Name	: 6946 CAMPSIE Beamish St
Day/Date	: Thursday 1st November 2018

1	2	3
4	5	6
7	8	9

PM PEAK
1630 - 1730

TOTAL VOLUMES FOR COUNT PERIOD



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client	: Varga Traffic Planning
Job No/Name	: 6946 CAMPSIE Beamish St
Day/Date	: Thursday 1st November 2018

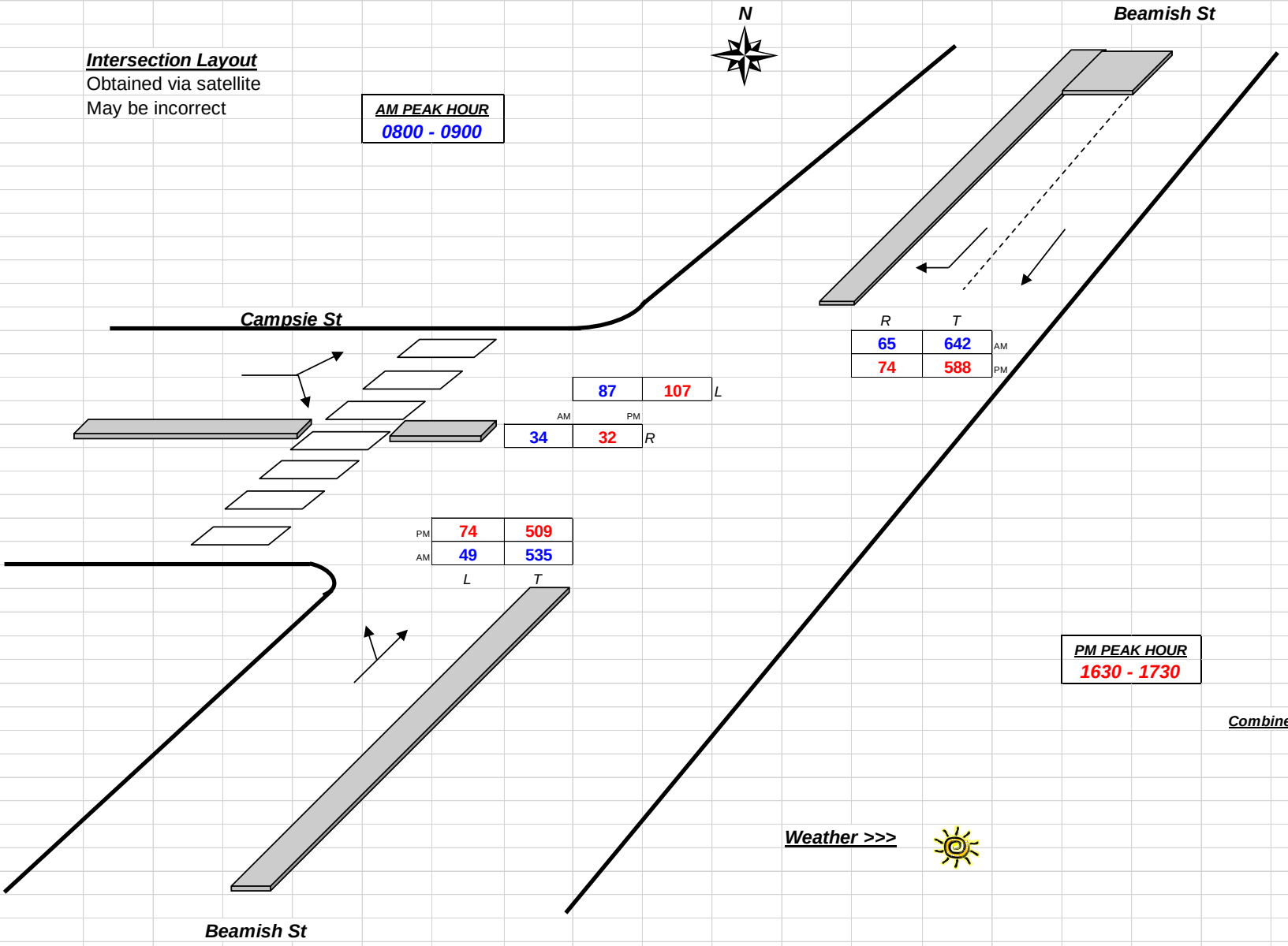
Intersection Layout

Obtained via satellite

May be incorrect

AM PEAK HOUR

0800 - 0900



PM PEAK HOUR

1630 - 1730

Combined figures only

Weather >>>

APPENDIX B

SIDRA MOVEMENT SUMMARIES

MOVEMENT SUMMARY

Site: 101 [BEA_NINX AM]

Network: N101 [Existing Network AM]

Beamish St & Ninth Ave, Campsie
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 50 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Beamish St (S)														
1	L2	325	0.6	325	0.6	0.275	7.7	LOS A	2.1	15.0	0.47	0.64	0.47	30.2
2	T1	321	8.4	321	8.4	0.620	17.9	LOS B	4.4	33.1	0.92	0.79	0.95	21.1
Approach		646	4.5	646	4.5	0.620	12.7	LOS A	4.4	33.1	0.69	0.72	0.70	25.1
North: Beamish St (N)														
8	T1	322	6.2	322	6.2	0.330	7.6	LOS A	2.8	20.9	0.62	0.53	0.62	26.8
9	R2	121	0.0	121	0.0	0.279	16.3	LOS B	1.3	9.4	0.84	0.74	0.84	26.4
Approach		443	4.5	443	4.5	0.330	10.0	LOS A	2.8	20.9	0.68	0.58	0.68	26.6
West: Ninth Ave (W)														
10	L2	274	0.0	274	0.0	0.307	12.1	LOS A	2.5	17.8	0.65	0.71	0.65	29.3
12	R2	351	0.0	351	0.0	0.787	26.9	LOS B	5.7	40.0	0.99	0.98	1.24	16.1
Approach		625	0.0	625	0.0	0.787	20.4	LOS B	5.7	40.0	0.84	0.86	0.98	21.8
All Vehicles		1714	2.9	1714	2.9	0.787	14.8	LOS B	5.7	40.0	0.74	0.74	0.80	24.0

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P3	North Full Crossing	10	19.4	LOS B	0.0	0.0	0.88	0.88
P4	West Full Crossing	187	19.5	LOS B	0.2	0.2	0.89	0.89
All Pedestrians		197	19.5	LOS B			0.89	0.89

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

MOVEMENT SUMMARY

Site: 101 [BEA_NINX PM]

Network: N101 [Existing Network PM]

Beamish St & Ninth Ave, Campsie
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 50 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Beamish St (S)														
1	L2	299	0.7	299	0.7	0.253	7.6	LOS A	1.9	13.6	0.46	0.64	0.46	30.3
2	T1	312	4.8	312	4.8	0.516	15.4	LOS B	3.9	28.7	0.86	0.73	0.86	22.5
Approach		611	2.8	611	2.8	0.516	11.6	LOS A	3.9	28.7	0.66	0.68	0.66	26.0
North: Beamish St (N)														
8	T1	367	5.2	367	5.2	0.347	6.5	LOS A	3.0	22.2	0.58	0.50	0.58	28.1
9	R2	176	0.0	176	0.0	0.365	14.6	LOS B	1.9	13.0	0.82	0.75	0.82	27.4
Approach		543	3.5	543	3.5	0.365	9.1	LOS A	3.0	22.2	0.66	0.58	0.66	27.7
West: Ninth Ave (W)														
10	L2	158	0.0	158	0.0	0.193	12.8	LOS A	1.5	10.3	0.65	0.69	0.65	28.8
12	R2	296	0.0	296	0.0	0.797	28.6	LOS C	4.9	34.5	1.00	1.00	1.30	15.5
Approach		454	0.0	454	0.0	0.797	23.1	LOS B	4.9	34.5	0.88	0.89	1.07	20.0
All Vehicles		1608	2.2	1608	2.2	0.797	14.0	LOS A	4.9	34.5	0.72	0.71	0.78	24.3

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P3	North Full Crossing	27	19.4	LOS B	0.0	0.0	0.88	0.88
P4	West Full Crossing	313	19.6	LOS B	0.4	0.4	0.89	0.89
All Pedestrians		340	19.6	LOS B			0.89	0.89

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

MOVEMENT SUMMARY

Site: 101 [BEA_NINP AM]

Network: N101 [Proposed Network AM]

Beamish St & Ninth Ave, Campsie
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 50 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Beamish St (S)														
1	L2	354	0.6	354	0.6	0.299	7.7	LOS A	2.4	16.7	0.47	0.65	0.47	30.1
2	T1	321	8.4	321	8.4	0.620	17.9	LOS B	4.4	33.1	0.92	0.79	0.95	21.1
Approach		675	4.3	675	4.3	0.620	12.6	LOS A	4.4	33.1	0.69	0.72	0.70	25.3
North: Beamish St (N)														
8	T1	322	6.2	322	6.2	0.330	7.6	LOS A	2.8	20.9	0.62	0.53	0.62	26.8
9	R2	146	0.0	146	0.0	0.338	16.6	LOS B	1.7	11.6	0.86	0.75	0.86	26.3
Approach		468	4.3	468	4.3	0.338	10.4	LOS A	2.8	20.9	0.69	0.60	0.69	26.5
West: Ninth Ave (W)														
10	L2	296	0.0	296	0.0	0.332	12.2	LOS A	2.8	19.5	0.66	0.71	0.66	29.2
12	R2	374	0.0	374	0.0	0.839	29.5	LOS C	6.5	45.6	1.00	1.06	1.37	15.2
Approach		670	0.0	670	0.0	0.839	21.9	LOS B	6.5	45.6	0.85	0.90	1.05	21.1
All Vehicles		1813	2.7	1813	2.7	0.839	15.4	LOS B	6.5	45.6	0.75	0.76	0.83	23.7

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P3	North Full Crossing	10	19.4	LOS B	0.0	0.0	0.88	0.88
P4	West Full Crossing	187	19.5	LOS B	0.2	0.2	0.89	0.89
All Pedestrians		197	19.5	LOS B			0.89	0.89

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

MOVEMENT SUMMARY

Site: 101 [BEA_NINP PM]

Network: N101 [Proposed Network PM]

Beamish St & Ninth Ave, Campsie
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 50 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Beamish St (S)														
1	L2	324	0.6	324	0.6	0.274	7.7	LOS A	2.1	15.0	0.47	0.64	0.47	30.2
2	T1	312	4.8	312	4.8	0.516	15.4	LOS B	3.9	28.7	0.86	0.73	0.86	22.5
Approach		636	2.7	636	2.7	0.516	11.5	LOS A	3.9	28.7	0.66	0.68	0.66	26.1
North: Beamish St (N)														
8	T1	367	5.2	367	5.2	0.347	6.5	LOS A	3.0	22.2	0.58	0.50	0.58	28.1
9	R2	201	0.0	201	0.0	0.419	14.9	LOS B	2.2	15.3	0.84	0.77	0.84	27.2
Approach		568	3.3	568	3.3	0.419	9.5	LOS A	3.0	22.2	0.67	0.60	0.67	27.6
West: Ninth Ave (W)														
10	L2	169	0.0	169	0.0	0.207	12.8	LOS A	1.6	11.1	0.65	0.69	0.65	28.8
12	R2	307	0.0	307	0.0	0.827	30.0	LOS C	5.3	37.0	1.00	1.05	1.37	15.0
Approach		476	0.0	476	0.0	0.827	23.9	LOS B	5.3	37.0	0.88	0.92	1.12	19.7
All Vehicles		1680	2.1	1680	2.1	0.827	14.3	LOS A	5.3	37.0	0.73	0.72	0.79	24.2

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P3	North Full Crossing	27	19.4	LOS B	0.0	0.0	0.88	0.88
P4	West Full Crossing	313	19.6	LOS B	0.4	0.4	0.89	0.89
All Pedestrians		340	19.6	LOS B			0.89	0.89

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

MOVEMENT SUMMARY

Site: 101 [BEA_CAMX AM]

Network: N101 [Existing Network AM]

Beamish St & Campsie St, Campsie
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Beamish St (S)														
1	L2	52	5.8	52	5.8	0.177	2.9	LOS A	0.0	0.0	0.00	0.07	0.00	39.9
2	T1	573	4.9	573	4.9	0.177	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	37.9
Approach		625	5.0	625	5.0	0.177	0.2	NA	0.0	0.0	0.00	0.04	0.00	38.9
North: Beamish St (N)														
8	T1	617	2.6	617	2.6	0.324	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
9	R2	52	7.7	52	7.7	0.066	6.4	LOS A	0.1	0.7	0.45	0.62	0.45	35.5
Approach		669	3.0	669	3.0	0.324	0.5	NA	0.1	0.7	0.04	0.05	0.04	38.3
West: Campsie St (W)														
10	L2	78	0.0	78	0.0	0.194	4.7	LOS A	0.3	2.1	0.48	0.61	0.48	33.7
12	R2	28	0.0	28	0.0	0.194	20.0	LOS B	0.3	2.1	0.48	0.61	0.48	33.3
Approach		106	0.0	106	0.0	0.194	8.7	LOS A	0.3	2.1	0.48	0.61	0.48	33.6
All Vehicles		1400	3.6	1400	3.6	0.324	1.0	NA	0.3	2.1	0.05	0.09	0.05	37.0

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

MOVEMENT SUMMARY

Site: 101 [BEA_CAMX PM]

Network: N101 [Existing Network PM]

Beamish St & Campsie St, Campsie
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Beamish St (S)														
1	L2	74	4.1	74	4.1	0.156	2.9	LOS A	0.0	0.0	0.00	0.12	0.00	39.6
2	T1	509	5.5	509	5.5	0.156	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	37.1
Approach		583	5.3	583	5.3	0.156	0.4	NA	0.0	0.0	0.00	0.06	0.00	38.7
North: Beamish St (N)														
8	T1	588	2.7	588	2.7	0.309	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
9	R2	74	5.4	74	5.4	0.089	6.1	LOS A	0.1	0.9	0.43	0.61	0.43	35.7
Approach		662	3.0	662	3.0	0.309	0.7	NA	0.1	0.9	0.05	0.07	0.05	38.0
West: Campsie St (W)														
10	L2	107	0.0	107	0.0	0.222	4.4	LOS A	0.4	2.6	0.41	0.56	0.41	34.3
12	R2	32	0.0	32	0.0	0.222	19.1	LOS B	0.4	2.6	0.41	0.56	0.41	33.9
Approach		139	0.0	139	0.0	0.222	7.8	LOS A	0.4	2.6	0.41	0.56	0.41	34.2
All Vehicles		1384	3.7	1384	3.7	0.309	1.3	NA	0.4	2.6	0.06	0.11	0.06	36.9

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

MOVEMENT SUMMARY

Site: 101 [BEA_CAMP AM]

Network: N101 [Proposed Network AM]

Beamish St & Campsie St, Campsie
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Beamish St (S)														
1	L2	52	5.8	52	5.8	0.184	2.9	LOS A	0.0	0.0	0.00	0.07	0.00	39.9
2	T1	599	4.7	599	4.7	0.184	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	38.0
Approach		651	4.8	651	4.8	0.184	0.2	NA	0.0	0.0	0.00	0.04	0.00	38.9
North: Beamish St (N)														
8	T1	640	2.5	640	2.5	0.336	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
9	R2	52	7.7	52	7.7	0.068	6.6	LOS A	0.1	0.7	0.47	0.63	0.47	35.4
Approach		692	2.9	692	2.9	0.336	0.5	NA	0.1	0.7	0.04	0.05	0.04	38.3
West: Campsie St (W)														
10	L2	78	0.0	78	0.0	0.204	4.7	LOS A	0.3	2.2	0.50	0.62	0.50	33.4
12	R2	28	0.0	28	0.0	0.204	21.5	LOS B	0.3	2.2	0.50	0.62	0.50	33.1
Approach		106	0.0	106	0.0	0.204	9.2	LOS A	0.3	2.2	0.50	0.62	0.50	33.3
All Vehicles		1449	3.5	1449	3.5	0.336	1.0	NA	0.3	2.2	0.05	0.08	0.05	36.9

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

MOVEMENT SUMMARY

Site: 101 [BEA_CAMP PM]

Network: N101 [Proposed Network PM]

Beamish St & Campsie St, Campsie
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Beamish St (S)														
1	L2	74	4.1	74	4.1	0.162	2.9	LOS A	0.0	0.0	0.00	0.11	0.00	39.6
2	T1	534	5.2	534	5.2	0.162	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	37.2
Approach		608	5.1	608	5.1	0.162	0.4	NA	0.0	0.0	0.00	0.06	0.00	38.7
North: Beamish St (N)														
8	T1	599	2.7	599	2.7	0.314	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
9	R2	74	5.4	74	5.4	0.091	6.3	LOS A	0.1	0.9	0.44	0.63	0.44	35.6
Approach		673	3.0	673	3.0	0.314	0.7	NA	0.1	0.9	0.05	0.07	0.05	38.0
West: Campsie St (W)														
10	L2	107	0.0	107	0.0	0.230	4.4	LOS A	0.4	2.6	0.43	0.57	0.43	34.1
12	R2	32	0.0	32	0.0	0.230	20.1	LOS B	0.4	2.6	0.43	0.57	0.43	33.7
Approach		139	0.0	139	0.0	0.230	8.0	LOS A	0.4	2.6	0.43	0.57	0.43	34.0
All Vehicles		1420	3.6	1420	3.6	0.314	1.3	NA	0.4	2.6	0.07	0.11	0.07	36.8

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