TRAFFIC AND TRANSPORT
ASSESSMENT REPORT
FOR
PROPOSED ADDITIONAL CAPACITY AND
INCREASED HOURS OF OPERATION
FOR GROSS POLLUTION TRAP FACILITY

6 SLEIGH PLACE
WETHERILL PARK

Ref. 19031-21R

29 November 2021

Prepared By

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1.0 INTRODUCTION

1.1 Introduction

Mainstream Recycling Pty Ltd (Mainstream) operate an existing waste transfer and storage facility at 6 Sleigh Place, Wetherill Park. **Figure 1** shows the location.

Mainstream are proposing to increase processing capacity from 29,500 tonnes per year to 65,000 tonnes per year and increase their hours of operation.

This report assesses the impacts of increasing the processing capacity of the facility to 65,000 tonnes per year, as well as the increased hours of operation.

As part of the proposal Mainstream are seeking to include street sweeper waste and hydro-excavated muds within the proposed increased capacity.

The increase in capacity to 65,000 tonnes per year is required due to the increase in demand for the treatment of gross pollutant trap and stormwater waste.

Mainstream use another site at Unit 2, 103 Cowpasture Road, Wetherill Park as a depot for overnight parking and storage of its trucks, as well as car parking for its drivers. This site has also been included in the traffic and transport assessment for the development application.

This report has been prepared to document the traffic and transport impacts of the proposal as part of the EIS for the proposal.

1.2 Authority Requirements

The Secretary's Environmental Assessment Requirements (SEARS) for traffic and transport, dated 11 December 2020 are summarised in Table 1.1, together where each requirement/matter is addressed in this report.

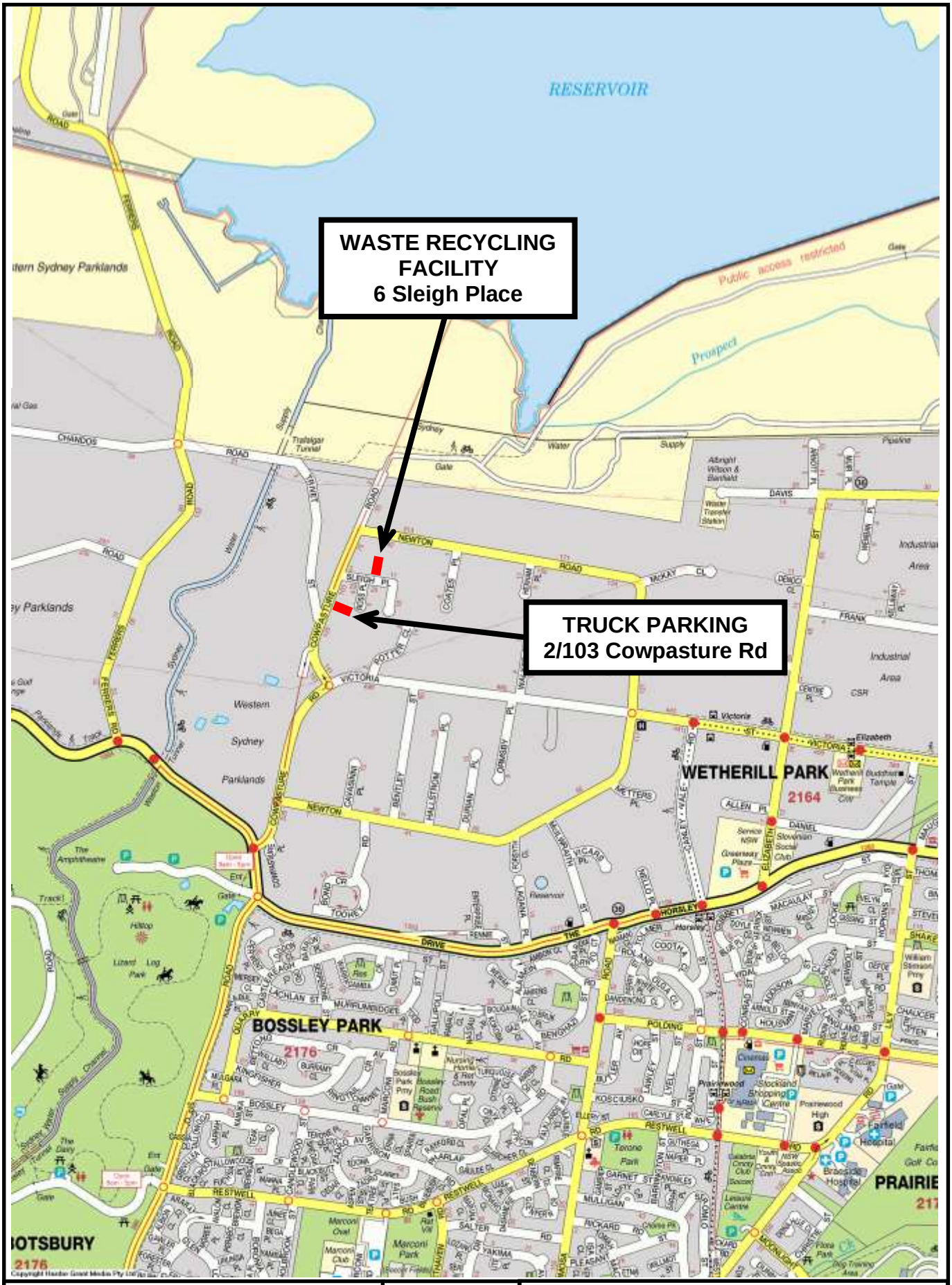

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FIGURE 1

MAINSTREAM
6 SLEIGH PLACE, WETHERILL PARK

LOCATION

JOB NO. 19031

11/11/19

TABLE 1.1

TRAFFIC AND ROAD TRANSPORT SEARS AND MATTERS RAISED BY FAIRFIELD COUNCIL

Stakeholder	EIS Requirement Traffic and Road Transport	Approach/Section Reference
Planning Industry and Environment	1. Details of road transport routes and access to the site.	- Section 2.5 and Figure 4.
	2. Road traffic predictions for the development during operation.	- Section 2.3 and Section 4.
	3. An assessment of impacts to the safety and function of the road network and the details of any road upgrades required for the development.	Section 4 - No road upgrades are required for the development.
Transport for NSW (TfNSW)	1. Requests that the detailed traffic and transport assessment addresses the relevant planning provisions, goals and strategic planning objectives for: • Future Transport Strategy 2056; • A Plan for Growing Sydney; • NSW State Priorities; • Guide to Traffic Generating Developments (Roads and Maritime Services); • Development Near Rail Corridors and Busy Roads – Interim Guideline (2008); • Austroads Guide to Traffic Management Part 12: Traffic Impacts of Development; and • NSW Freight and Ports Plans.	- Where applicable, the assessment has considered these documents and addressed all relevant matters.
	2. A detailed traffic impact assessment should be prepared and include, but not be limited to, the following:	- All of report.
	a) Details of all traffic types (including vehicle type and the likely arrival and departure times) and volumes likely to be generated during construction and operation, including a description of haul route origins and destinations;	- Section 2 and Figure 4.
	b) An assessment of the predicted impacts of this traffic on road safety and the capacity of the Regional road network (in particular the intersection of Victoria Street and Cowpasture Road), including consideration of cumulative traffic impacts at key intersections using SIDRA or similar traffic model as prescribed by Roads and Maritime Services;	- Section 4.

Stakeholder	EIS Requirement Traffic and Road Transport	Approach/Section Reference
	c) Detailed plans of the proposed layout of the internal road and pedestrian network and parking on site in accordance with the relevant Australian Standards; d) Plans of any proposed road upgrades, infrastructure works or new roads requires for the development; e) Plans demonstrating how all vehicles associated with construction and operation awaiting loading, unloading or servicing can be accommodated to avoid queueing in the street network; and f) Swept path diagrams depicting vehicles entering, exiting and manoeuvring throughout the site for both heavy and light vehicles.	Figure 3 - No road upgrades are required. Sections 4.3 and 5.0 - Figures 3, 9A, 9B and 10 Figures 9A, 9B and 10
Roads and Maritime Services (RMS)	Require the following issues to be included in the transport and traffic impact assessment of the proposed development: 1. Daily and peak traffic movements likely to be generated by the proposed development including the impact on nearby intersections and the need/associated funding for upgrading or road improvement works (if required). 2. Roads and Maritime requires the reports to assess the implications of the proposed development for non-car travel modes (including public transport use, walking and cycling); the potential for implementing a location-specific sustainable travel plan (eg. Green Travel Plan, 'Travelsmart' or other travel behaviour change initiative); and the provision of facilities to increase the non-car mode share for travel to and from the site. This will entail an assessment of the accessibility of the development site by public transport. 3. The transport and traffic study must properly ascertain the cumulative study area traffic impacts associated with the development (and any other known proposed developments in the area). This process provides an opportunity to identify a package of traffic and transport infrastructure measures required to support future development. Regional and local intersection and road improvements, vehicular access options for adjoining sites, public transport needs, the timing and cost of infrastructure works and the identification of funding responsibilities associated with the development should be identified.	Section 2 and Section 4. Section 3.3, 3.4, 4.6 and 4.8 Proposal will have relatively minor traffic impacts. Section 4 details traffic impacts.

Stakeholder	EIS Requirement Traffic and Road Transport	Approach/Section Reference
	4. Details of the proposed accesses and the parking provisions associated with the proposed development including compliance with the requirements of the relevant Australian Standards (i.e. turn paths, sight distance requirements, aisle widths, etc).	- Sections 2, 4 and 5.
	5. Proposed number of car parking spaces and compliance with the appropriate parking codes on site.	- Section 5.
	6. Details of light and heavy vehicle movements (including vehicle type and likely arrival and departure times).	- Section 4.

1.3 Structure of this Report

This report has been prepared to assess the traffic and transport impacts associated with the proposal and will inform the preparation of the Environmental Impact Statement (EIS).

The assessment has been undertaken in accordance with the requirements of Roads and Traffic Authority now Roads & Maritime Services (RMS) *Guide to Traffic Generating Developments October 2002*.

Other technical standards/publications referenced in this assessment include:

- Austroads Guide to Road Design and RMS supplements.
- Austroads Guide to Traffic Management and RMS supplements.
- Austroads Guide to Traffic Management Part 12. Traffic Impacts of Developments.
- AS/NZS2890.1 (2002), AS2890.2 (2018) and AS/NZS2890.6 (2009).

Other documents/publications considered include:

- Future Transport Strategy 2056;
- A Plan for Growing Sydney;
- NSW State Priorities;
- Development Near Rail Corridors and Busy Roads – Interim Guideline (2008); and
- NSW Freight and Ports Plans.

The remaining sections of this report document the following;

- Section 2 describes the site, existing operation and details of the proposal;
- Section 3 examines the existing traffic and transport conditions in the area;
- Section 4 documents the assessment of the traffic and transport impacts of the proposal
- Section 5 examines parking, on site circulation and other matters; and
- Section 6 presents the conclusions.

2.0 EXSTING OPERATION AND PROPOSAL

2.1 Site

The site (**Figure 2**), 6 Sleigh Place Wetherill Park is located on the northern side of Sleigh Place approximately 165 metres east of Cowpasture Road.

The site has a total area of 3,145m^2 (approximately) with a 48 metre frontage to Sleigh Place.

The building on the site is located on the northern portion and contains the waste transfer and processing facility.

The southern portion contains the car parking for 23 cars and truck and car manoeuvring areas.

The site has separate signposted entry and exit driveways 9.0 metres wide at the property boundary which are splayed to the kerbline in Sleigh Place. Sight distance at both driveways in Sleigh Place is satisfactory.

The adjoining development in Sleigh Place is industrial. Sleigh Place is located in the Wetherill Park industrial area.

2.2 Existing Operation and Current Development Approvals

The existing development approval (Modification No. 803.6/2014 PAN-36563) allows the facility at 6 Sleigh Place to process 29,500 tonnes of waste material per year.

Figure 3 shows the layout of the facility.

As noted above, the site has 23 car parking spaces.

The trucks that deliver the material to be processed enter the facility, unload and then depart. The trucks that remove the waste materials from the facility operate in the same manner. All truck unloading and loading occurs inside the building. The shaded area in **Figure 3** shows the loading and manoeuvring area for the trucks.

The trucks used by the facility include tankers up to a Heavy Rigid Vehicle (HRV) 10.3 metres long, a tipper HRV 11.0 metres long and a 19 metre long articulated truck and dog. The tipper and the truck and dog are the waste removal trucks.

The 19 metre articulated truck and dog vehicle does not require parking/storage by Mainstream, as it is operated by an external contractor.

Off site parking and storage for the trucks owned by Mainstream is provided at Unit 2, 103 Cowpasture Road.

There are 15 employees that work from the 6 Sleigh Place facility including operational personnel and office staff.

The truck drivers are additional to this number and start and finish off site at Unit 2, 103 Cowpasture Road. The car parking during the day associated with the truck drivers and other personnel is accommodated at Unit 2.

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FIGURE 2

MAINSTREAM
6 SLEIGH PLACE, WETHERILL PARK

SITE

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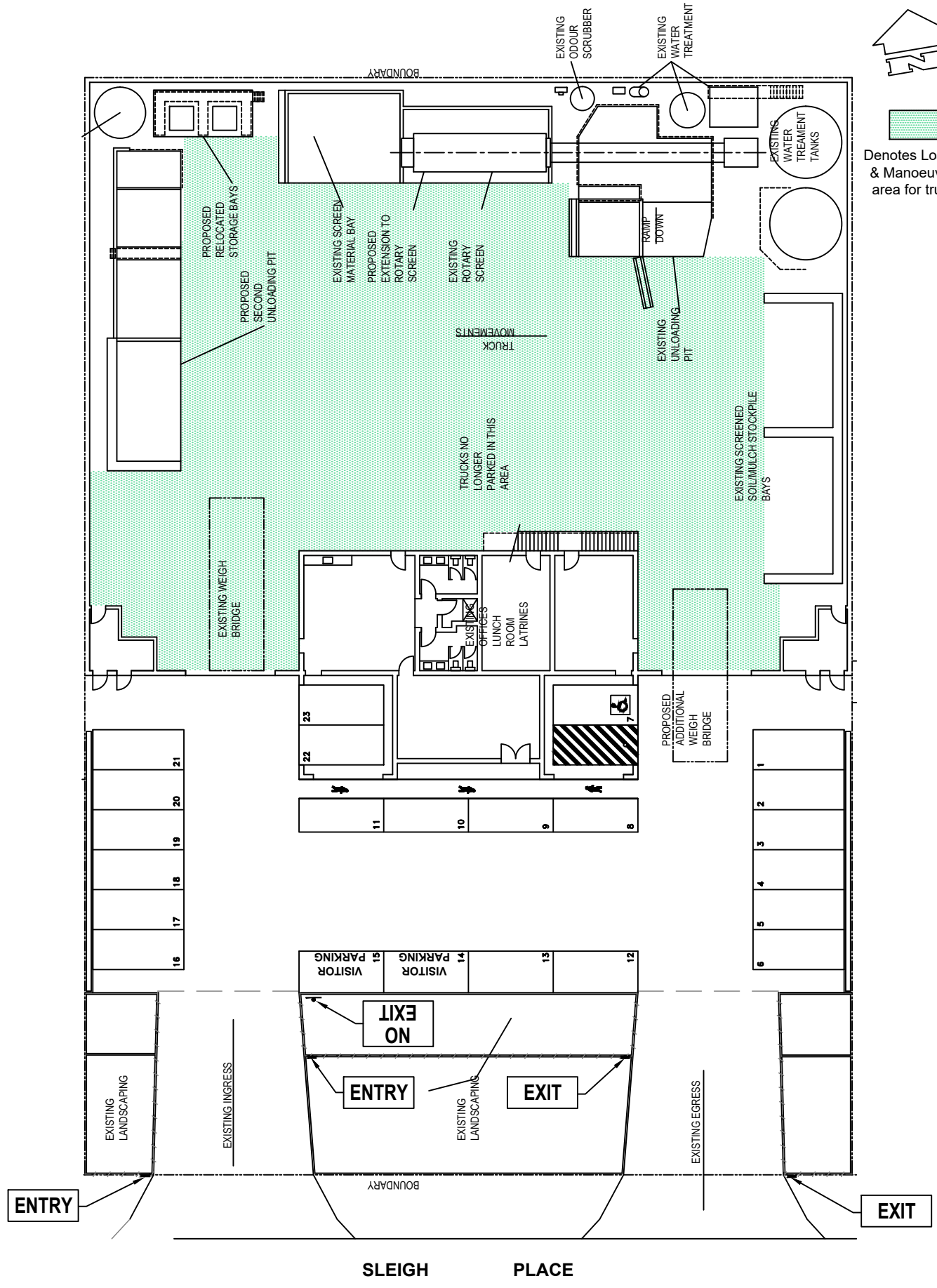

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FIGURE 3

MAINSTREAM
6 SLEIGH PLACE, WETHERILL PARK

SITE PLAN

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2.3 Offsite Truck Parking

Unit 2, 103 Cowpasture Road is approved for use as a truck depot (Development Approval 193.1/2020 refers).

Unit 2 is used by Mainstream to park the trucks overnight and at other times when not in use. The truck drivers and associated personnel also start and finish at Unit 2, 103 Cowpasture Road. Up to 30 drivers and associated personnel do/will work from Unit 2, including day time and night time personnel.

The truck fleet parked at this site includes:

- 15 x 10.3 metre long HRV trucks which collect the waste to be processed at the facility;
- 1 x 11.0 metre long HRV tipper;

Mainstream also park several Class 1 utes and vans at this site.

The site is shown in **Figure 4** and has an area of approximately 2,950m^2.

The site contains a building with a floor area of 1,756m^2 with an at grade basement car parking and an at grade manoeuvring area for cars and trucks, plus a loading dock.

Up to 24 cars can be parked in the basement and at grade car parking area along the frontage of the building. Up to 15 HRV's (plus several smaller vehicles) can be parked within the building.

The waste removal 19.0 metre long articulated truck and dog vehicle does not require storage at Unit 2, as it is operated by an external contractor.

Unit 2 is located on the southern side of the site. Unit 1, which is currently occupied by Olvivo Water Australia, is on the northern side of the site. Olvivo has its own at grade car parking and loading area.

The site has a combined entry/exit driveway to Cowpasture Road which is 10.2 metres wide at the property boundary with splays to the kerbline. The site is north of Trivett Street with the site's driveway located approximately 90 metres north of Trivett Street.

Cowpasture Road is 12.0 – 12.8 metres wide adjacent the site with kerb and gutter. The driveway to the site is located on a crest and sight distance to and from the north is 120 metres and to and from the south is 100 metres, which meets Austroad requirements for the posted speed limit.

2.4 Proposal

The proposal seeks to increase the gross pollutant trap material processed by the facility to 65,000 tonnes per year.

This increase in the amount of material processed does not require any change to the facility's layout as shown in **Figure 3**.

Whilst the application is to extend the hours of operation to 24 hours 7 days a week, Mainstream propose to operate 6 days a week. The proposed hours of operation for the processing of the waste are 5.00am to 10.00pm Monday to Saturday, with the facility receiving waste over 24 hours.

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FIGURE 4

MAINSTREAM

UNIT 2, 103 COWPASTURE RD
WETHERILL PARK

TRUCK PARKING SITE

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The facility will retain 23 parking spaces including one (1) accessible space and 2 visitor spaces.

The facility will continue to use the same size trucks which are;

- 15 x 10.3 metre long HRV tankers;
- 1 x 11.0 metre long HRV tipper; and
- 1 x 19.0 metre long articulated vehicle which is a truck and dog trailer.

Truck volumes entering and exiting the facility will increase as follows;

- Receipt of waste material in tankers (10.3 metres long) will increase from 15 trucks per day to 33 trucks per day. Night time operations between 10.00pm and 5.00am by tankers picking up waste will number 6 tanker loads.
- Waste removal trucks in 19.0 metre articulated truck and dog vehicle will increase from 2 trucks per week to 4 trucks per week.

Mainstream are increasing the office staff at 6 Sleigh Place and the total staff on this site at the same time will be a maximum of 20 people including office and operational staff.

Visitors to the facility are expected to be a maximum of two people at any time.

Mainstream will continue to use Unit 2, 103 Cowpasture Road for overnight parking of its trucks and utes and driver parking during the day.

Table 2.1 shows a comparison of the operation of the facility between the existing operation and the proposed operation with a capacity of 65,000 tonnes per year.

TABLE 2.1

COMPARISON OF EXISTING AND PROPOSED OPERATION WITH HIGHER CAPACITY OF 65,000 TONNES PER YEAR

	Existing	**Proposal**
Capacity (tonne per year)	29,500tpa	65,000tpa
Hours of Operation - Waste Processing Facility	7.00am to 6.00pm Monday to Saturday	5.00am to 10.00pm Monday to Saturday
Employees	15[1]	20[1]
On Site Car Parking	23	23
Waste Delivery (trucks per day)	15	33(6)[2]
Waste Removal (trucks per week)	2	4
Types of Trucks	10.3m long HRV tankers 1.0m long HRV tipper 1 x articulated 19 metre long truck and dog	No change

1. *Number of employees at 6 Sleigh Place. Truck drivers and associated personnel are additional and are stationed at Unit 2, 103 Cowpasture Road.*
2. *Up to 6 trucks may operate at night between 10.00pm and 5.00am*

Table 2.2 shows the estimated truck numbers ie. Heavy Rigid Vehicles and 19 metre articulated vehicles for the proposed 65,000 capacity, per hour, day and week.

TABLE 2.2

ESTIMATED NUMBER OF HEAVY RIGID VEHICLES (HRVS) AND 19 METRE ARTICULATED VEHICLES FOR PROPOSED 65,000 TONNE CAPACITY

Unit of Time	HRV Truck Numbers 10.3 Metre Long tankers and 11.0 Metre Trucks	19 Metre Articulated Vehicles
Average Hour	2	
Busy Hour	4	-
Day	33(6)[1]	<1
Week (6 days)[2]	330	4

1. *Up to 6 trucks may operate at night between 10.00pm and 5.00am*
2. *Sundays not included in the normal operation*

The Operations and Loading Management Plan for the facility at 6 Sleigh Place Wetherill Park has been updated and is included as Appendix 1 of this report.

2.5 Transport Routes

Transport routes to and from the facility include Sleigh Place, Cowpasture Road, Victoria Street, Horsley Drive, adjoining state road roads and the M7.

Other than Sleigh Place, the section of Cowpasture Road north of Horsley Drive and Victoria Street, west of Elizabeth Street which are local industrial roads in the Wetherill Park area, the other roads are all state roads.

Figure 5 shows the main transport routes to and from the site.

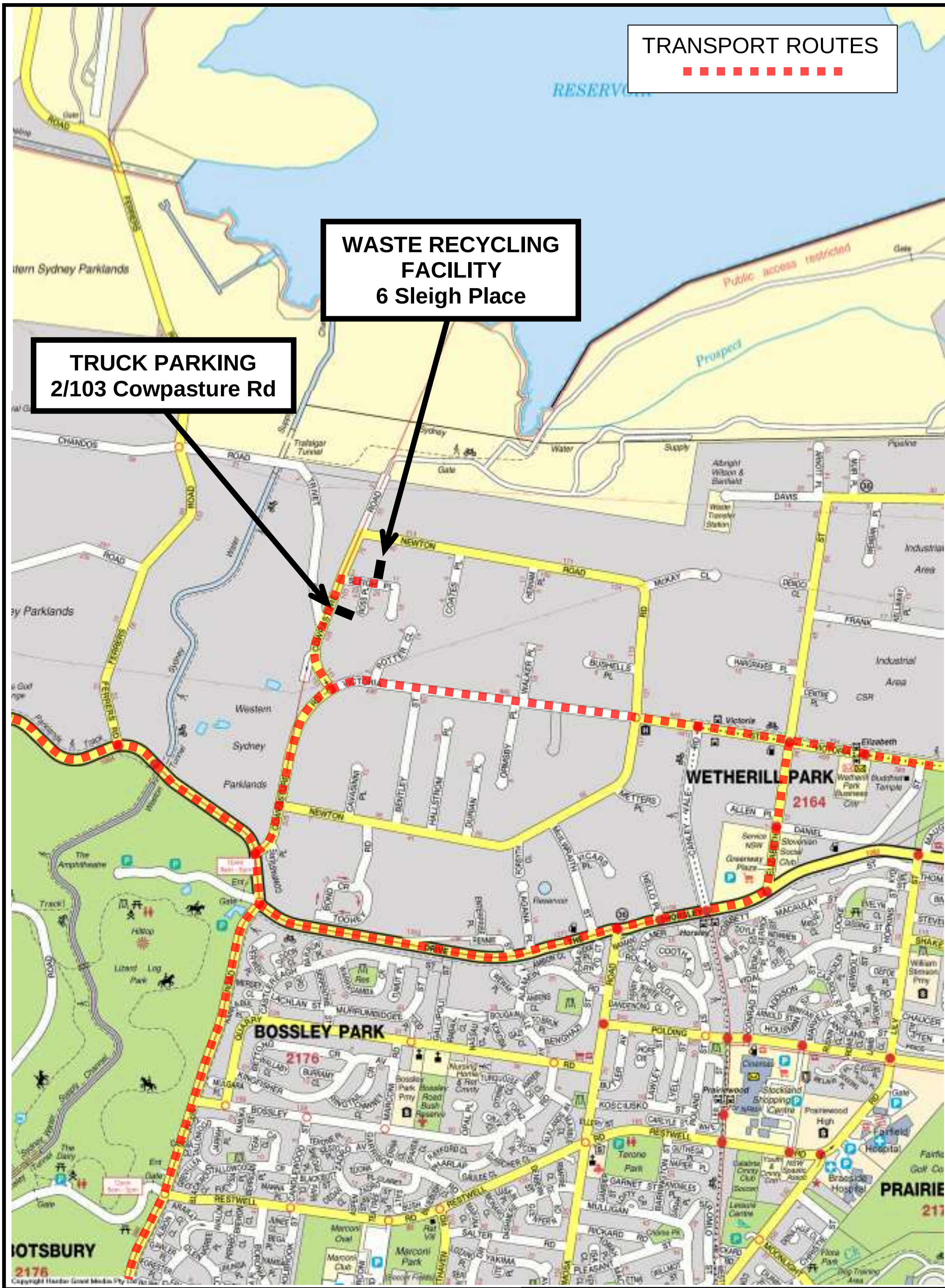

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FIGURE 5

MAINSTREAM
6 SLEIGH PLACE, WETHERILL PARK

TRANSPORT ROUTES

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3.0 EXISTING CONDITIONS

3.1 Existing Road Network

The road network that serves the site includes Sleigh Place, Cowpasture Road, Newton Road, Victoria Street and the Horsley Drive.

Sleigh Place is a local dead end street in the Wetherill Park industrial area. It has a 12.8 metre wide road carriageway and caters for two travel lanes plus parking lanes on both sides. Turning heads are provided at its eastern end (i.e. dead end) and Sleigh Place intersects Cowpasture Road as a T-junction at its western end.

Cowpasture Road is a local collector road in the industrial area which intersects with Victoria Street at its south end. Cowpasture Road intersects with Newton Road near its northern end. Cowpasture Road is generally 12.8 metres wide between kerbs and provides for a single lane of travel in each direction plus room for parking.

Newton Road is a local road in the Wetherill Park industrial area which provides for a single lane of travel in each direction, as well as room for parking on each side of the road. Newton Road loops around and intersects with Victoria Street approximately 1.25kms east of the Cowpasture Road intersection with Victoria Street.

Victoria Street is a sub-arterial road in the Wetherill Park area and is generally a four lane divided road that links between Cumberland Highway (Smithfield Road) in the east and Horsley Drive/Cowpasture Road in the west.

Horsley Drive west of Cowpasture Road is a four lane road (divided and undivided) that connects to the M7. East of Cowpasture Road, Horsley Drive is a four lane divided and undivided road that links to the Cumberland Highway (Smithfield Road) and ultimately travels via Fairfield to Hume Highway.

The traffic controls on the immediate road network adjacent the site include:

- Priority control on Sleigh Place at Cowpasture Road and on Newton Road at Cowpasture Road.

- Roundabout control at the intersections of:
  - Cowpasture Road/Victoria Street
  - Victoria Street/Newton Road

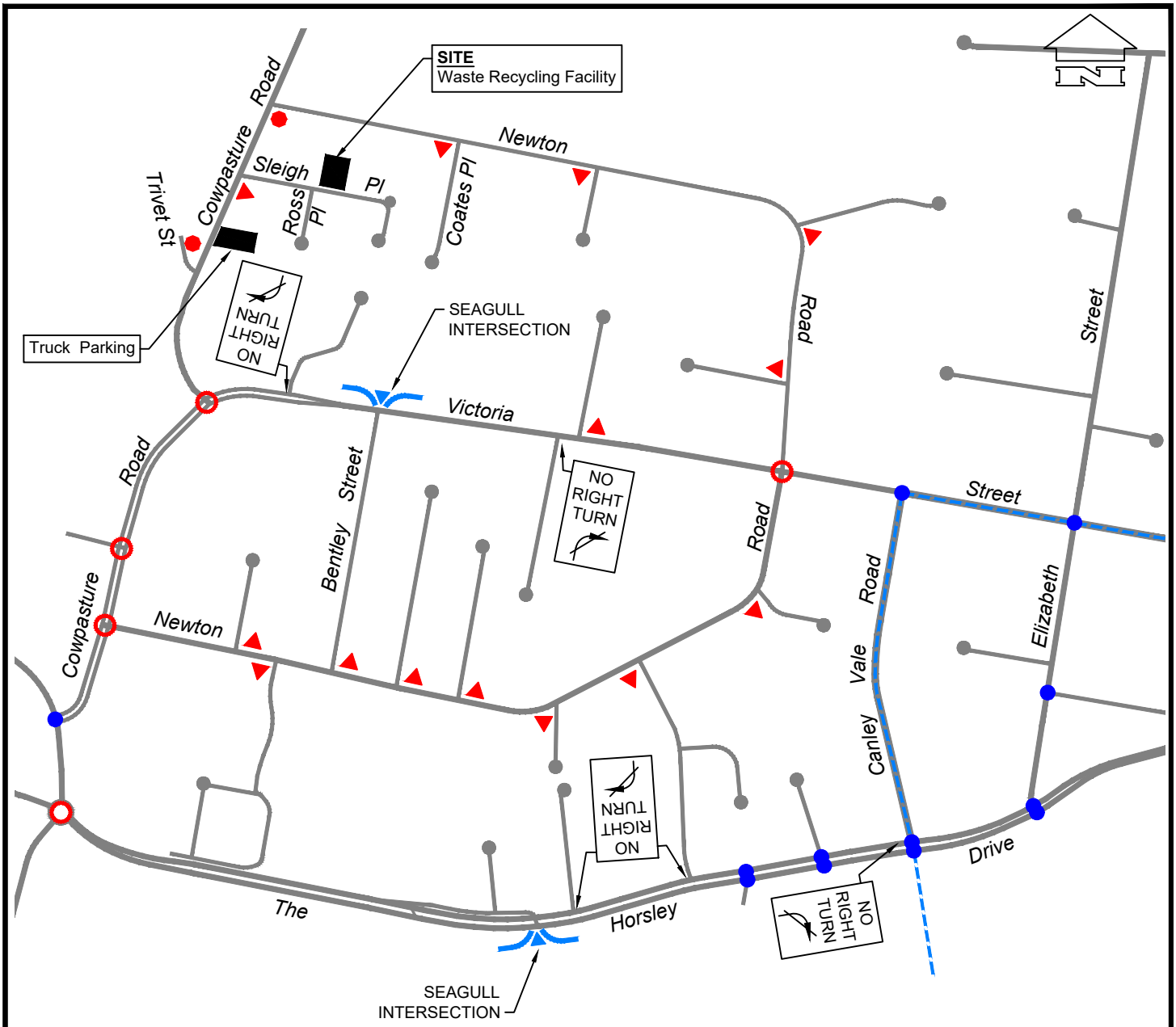
- Traffic signal control at the intersection of Cowpasture Road with Horsley Drive.

The speed limits include 50km/h on local streets including Sleigh Place and 60km/h and 70km/h on the sub arterial and arterial roads.

The sight distance at the intersection of Cowpasture Road/Sleigh Place is satisfactory and a minimum of 110 metres to and from the south and 130 metres to and from the north in Cowpasture Road.

The sight distance at the adjacent priority and roundabout controlled intersections have also been assessed and are considered to be satisfactory for the operating vehicle speeds and posted speed limit at the intersections.

Figure 6 shows the existing traffic controls and traffic management on the road network adjacent the site.



LEGEND

- Traffic Control Signals
- Roundabout
- Give Way Sign / Priority Control
- Stop Sign
- Transitway

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FIGURE 6

MAINSTREAM
6 SLEIGH PLACE, WETHERILL PARK

EXISTING TRAFFIC CONTROLS

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3.2 Existing Traffic Conditions

Figure 7 shows the weekday AM and PM peak hour traffic volumes at the intersection of Cowpasture Road/Sleigh Place and at the roundabout intersection of Victoria Street/Cowpasture Road as recorded in traffic counts undertaken on 24 October and 7 November 2019. The peak hours occurred between 8.00am – 9.00am and 4.30pm to 5.30pm.

Reference to **Figure 7** shows that:

- Cowpasture Road, at Sleigh Place carries two way volumes in the order of 469vph in the AM peak and 474vph in the PM.

- Right and left turning volumes into Sleigh Place are relatively light at 83vph and 6vph in the AM peak hour and 17vph and 0vph respectively in the PM peak hour.

- Left and right turning vehicles out of Sleigh Place number 27vph and 5vph in the AM peak hour and 106vph and 1vph in the PM peak hour.

Traffic conditions at the intersection are good with minimal vehicle delays for vehicles turning left or right out of Sleigh Place and are consistent with a Level of Service A operation.

At the Victoria Street/Cowpasture Road intersection the main traffic movements are between the eastern leg which is Victoria Street and the western leg which is Cowpasture Road. Both of these legs are constructed as four lane divided roads, with two lane approaches at the roundabout.

The northern leg of Cowpasture Road, has a single (one) lane approach and departure at the roundabout.

Reference to **Figure 7** shows that;

- Two way volumes in Victoria Street (eastern leg) are 1156vph in the AM peak hour and 1765vph in the PM peak hour;

- Two way volumes in the western leg of Cowpasture Road are 1006vph and 1446vph in the PM peak hour; and

- Two way volumes in the northern leg of Cowpasture Road are 988vph in the AM peak hour and 869vph in the PM peak hour.

A proportion of the traffic using the northern leg of Cowpasture Road has an origin and destination in Trivet Street which is located between Victoria Street and Sleigh Place.

Traffic conditions at the Victoria Street / Cowpasture Road roundabout intersection were observed to be good with satisfactory vehicle delays.

Traffic conditions on the wider road network are also assessed as satisfactory during the weekday AM and PM peak hours.

It should be noted that the November 2019 traffic counts are pre COVID 19 and therefore are considered to be representative of normal weekday traffic conditions.

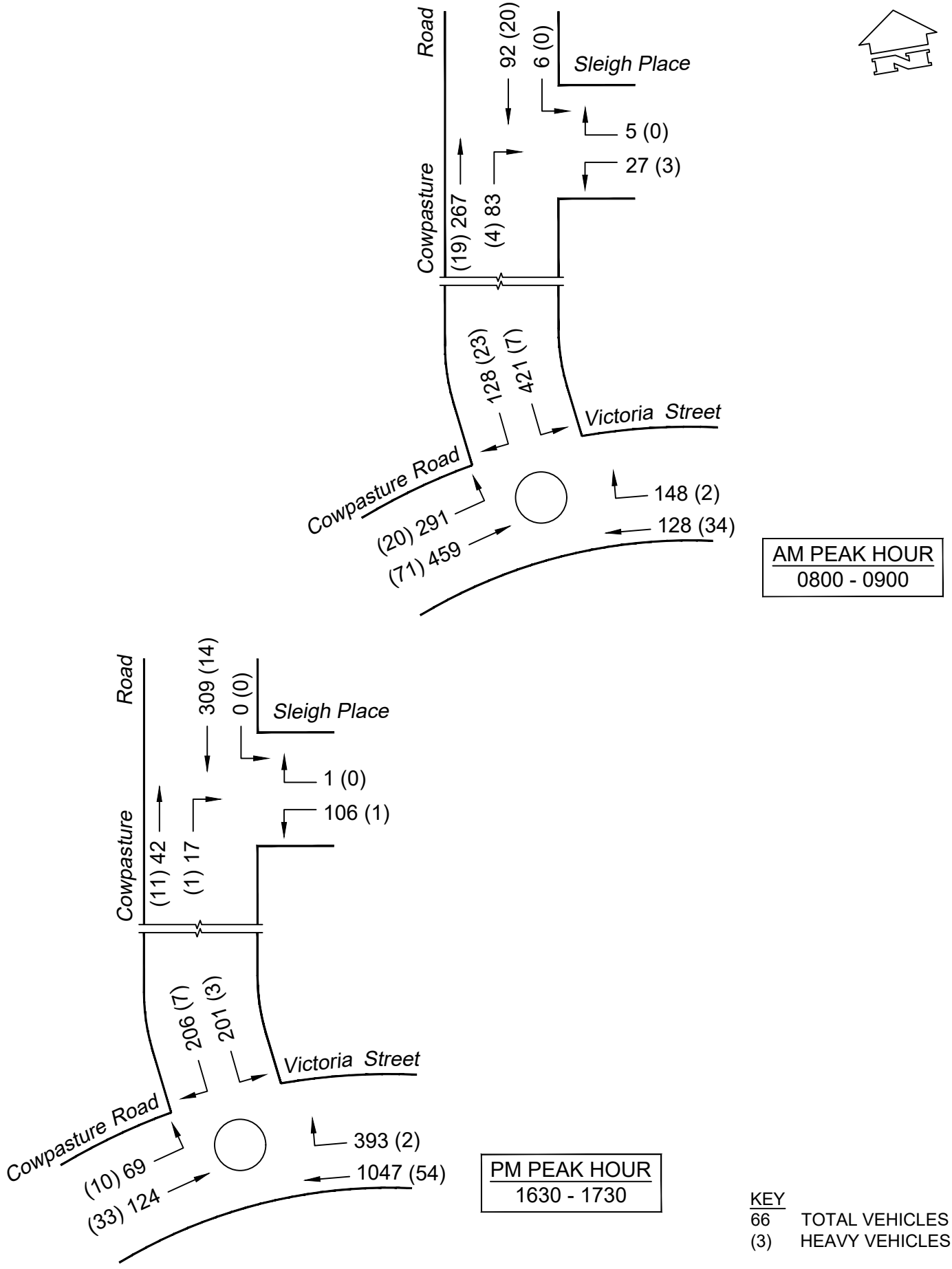

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FIGURE 7

MAINSTREAM
6 SLEIGH PLACE, WETHERILL PARK

EXISTING AM & PM TRAFFIC VOLUMES

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3.3 Public Transport

Public transport services in the area include a number of bus routes operated by Transit Systems.

The 835 bus service between Prairiewood and University of Western Sydney operates along Victoria Street. Bus stops for this service are located in Victoria Street, east of Cowpasture Road.

The 814 bus service between Fairfield and Smithfield operates a limited peak hour service which travels via Cowpasture Road and Newton Road. Bus stops for this service are located in Cowpasture Road, adjacent Sleigh Place.

Other bus services in the area operate via the Parramatta to Liverpool Transitway and use the section of Victoria Street between Elizabeth Drive and Canley Vale Road.

These bus services include:

- 800 route between Fairfield and Blacktown;
- 806 route between Parramatta and Liverpool;
- 812 route between Fairfield and Blacktown; and
- 813 route between Fairfield and Prairiewood

Bus stops for these routes are 2.2km from the site and not within convenient walking distance. Bus routes are contained in Appendix 2.

3.4 Bicycle Facilities

Bicycle facilities include the following off road bicycle routes, near Wetherill Park.

- Liverpool to Blacktown route that travels via Canley Vale Road, Victoria Street and Water Street;
- The Horsley Drive route;
- Orphan School Creek route; and
- Prospect Creek Route.

Bicycle routes are contained in Appendix 2.

4.0 ASSESSMENT OF TRAFFIC IMPACTS

4.1 Traffic Generation of Proposal

The increase in the traffic generation due to the proposal will be;

i) Increase from 15 trucks to 33 trucks (HRV) per day delivering waste material to the facility. This will generally occur over a 17 hour period, although up to 6 trucks could deliver waste material between 10.00pm and 5.00am; and

ii) Increase of 2 waste trucks per week to 4 trucks per week (19 metre articulated truck and dog).

Trucks delivering waste material (HRV's) during a busy hour will number 4 per hour and will result in 4 inbound and 4 outbound trucks entering and exiting the facility per hour.

Those trucks removing waste material from the site (typically 19.0 metre articulated truck and dog) which will number 4 per week, will not do so in weekday AM and PM peak.

It is not expected that there will be any increase in visitor trips to the facility.

Employee trips to 6 Sleigh Place may increase in the weekday AM and PM peak hours by an additional 5 inbound trips in the AM peak hour and 5 outbound trips in the PM peak hour.

Truck drivers start and finish at Unit 2, 103 Cowpasture Road but these trips do not overlap with the weekday AM peak hour. Their trips during the PM peak hour are captured in the intersection traffic counts undertaken for this assessment at the intersection of Victoria Street and Cowpasture Road. The existing trucks returning to Unit 2, 103 Cowpasture Road are also captured in these counts.

Table 4.1 shows the traffic generation of the proposal in the weekday AM and PM peak hours adopting the above assumptions.

TABLE 4.1

Additional Traffic Generation in the AM and PM Peak Hours Due to Proposal

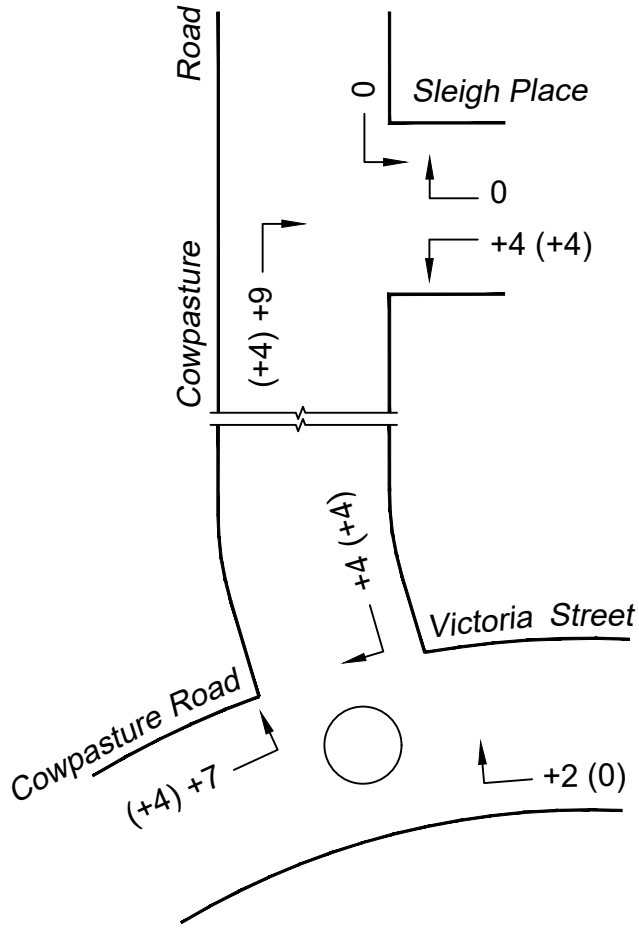
	AM Peak		PM Peak	
	Inbound	**Outbound**	**Inbound**	**Outbound**
Heavy Vehicles (HRV'S)	4	4	4	4
Office Staff	5	-	-	5
Total	**9**	**4**	**4**	**9**

4.2 Traffic Impacts on Road Network

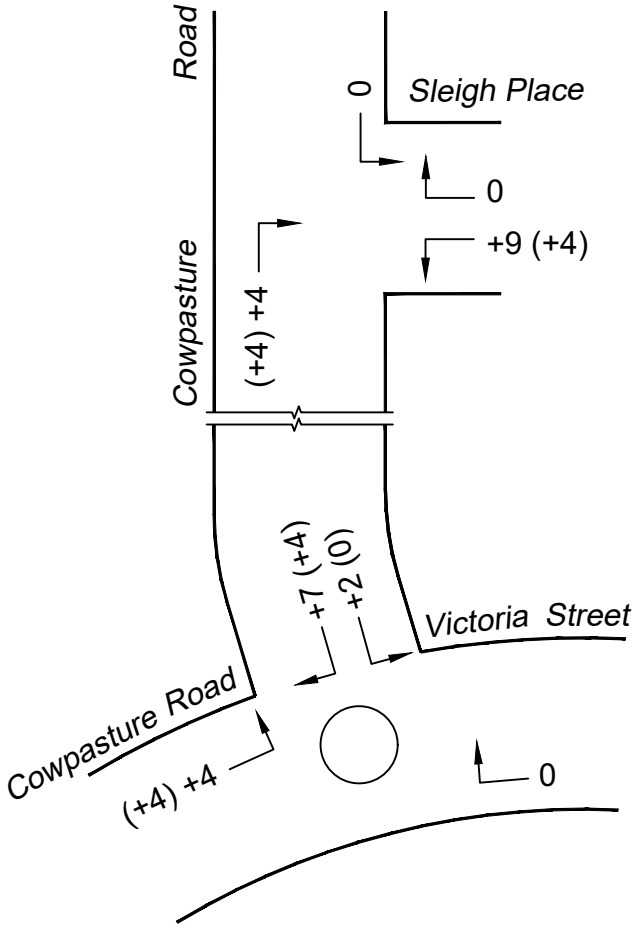
Figure 8 shows the additional traffic from the proposal during the weekday AM and PM peak hours assigned to the road network.

The impacts of these additional trips on the adjacent road network will be relatively minor.

To examine the impacts at the Cowpasture Road/Sleigh Place intersection and the Victoria Street/Cowpasture Road roundabout, traffic modelling using the SIDRA 9 software has been undertaken.



AM PEAK HOUR



PM PEAK HOUR

KEY
66 TOTAL VEHICLES
(3) HEAVY VEHICLES

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FIGURE 8

MAINSTREAM
6 SLEIGH PLACE, WETHERILL PARK
ADDITIONAL TRAFFIC GENERATION FROM PROPOSAL IN WEEKDAY AM & PM PEAK HOURS
JOB NO.19031 29/11/21

The modelling has adopted the existing traffic management and parking controls at the both intersections.

SIDRA assess the operational performance of intersections under traffic signal, roundabout or sign control. The best criteria for assessing intersections controlled by traffic signals are Level of Service (LS), Degree of Saturation (DS) and Average Vehicle Delay (AVD). Table 4.2 shows the Level of Service Criteria for intersections as reproduced from the RTA's Guide to Traffic Generating Developments. The desirable design criteria for intersections is a Level of Service D or better (i.e. A, B, C or D).

For intersections controlled by Give Way or Priority Control the Level of Service is determined by movement with the highest average vehicle delay (i.e. highest individual movement delay).

Figure 8 shows the additional traffic from the proposal during the weekday AM and PM peak hour assigned to the road network.

TABLE 4.2

LEVEL OF SERVICE CRITERIA FOR INTERSECTIONS

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way & Stop Signs
A	<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, requires other control mode
F	>70	Intersection is oversaturated	Oversaturated, requires other control mode

Source: Table 4.2 Guide to Traffic Generating Developments October 2002. Roads and Traffic Authority

The modelling has been undertaken for the existing conditions using the volumes shown on **Figure 7**, as well as for the proposal, using the additional volumes shown on **Figure 8**.

The results of the modelling are shown in Table 4.3 for the Cowpasture Road/Sleigh Place intersection and Table 4.4 for Victoria Street/Cowpasture Road intersection.

Reference to Tables 4.3 and 4.4, shows that the intersections will operate at Level of Service A operation (which is a very good level of service) in the AM and PM peak hours with low vehicle delays, with the proposal in place. When compared to the existing conditions at both intersections, there will be little change to the vehicle delay with the proposal in place.

The SIDRA modelling outputs are contained in **Appendix 3.**

TABLE 4.3

SIDRA MODELLING RESULTS FOR INTERSECTION OF COWPASTURE ROAD/SLEIGH PLACE FOR EXISTING CONDITIONS AND WITH PROPOSED ADDITIONAL CAPACITY AT THE WASTE FACILITY

Criteria	Existing		With Proposal	
	AM Peak	PM Peak	AM Peak	PM Peak
LS	A	A	A	A
DS	0.175	0.136	0.183	0.136
AVD	1.7	1.8	1.8	2.0
HMD	9.1	8.2	9.2	8.2

Where: LS - Level of Service
DS - Degree of Saturation
AVD - Average Vehicle Delay in seconds
HMD - Highest Movement Delay in seconds

TABLE 4.4

SIDRA MODELLING RESULTS FOR INTERSECTION OF VICTORIA STREET/COWPASTURE ROAD FOR EXISTING CONDITIONS AND WITH PROPOSED ADDITIONAL CAPACITY AT THE WASTE FACILITY

Criteria	Existing		With Proposal	
	AM Peak	PM Peak	AM Peak	PM Peak
LS	A	A	A	A
DS	0.608	0.576	0.616	0.579
AVD	6.6	6.6	6.7	6.7
HMD	13.8	10.6	14.0	10.7

Where: LS - Level of Service
DS - Degree of Saturation
AVD - Average Vehicle Delay in seconds
HMD - Highest Movement Delay in seconds

The traffic impacts on the wider road network will also be small with no measurable impact likely to occur at any of the adjacent intersections, given the small increase in truck movements associated with the proposal.

4.3 Internal Operation and Impacts

The proposed increase in capacity to 65,000 tonnes per year will result in up to 33 HRV trucks visiting the facility per day to deliver material to be processed and one (1) 19 metre articulated truck and dog removing waste from the facility per day (ie. 4 waste trucks per week).

These trucks will load and unload within the building, which takes less than 15 minutes per vehicle and then depart the site.

The facility will receive on average 2 waste delivery trucks per hour and up to 4 waste delivery trucks in a busy hour.

Up to three HRV trucks can operate or be stored inside the building at the same time.

The trucks use all of the manoeuvring area within the building to unload and load. This loading area is shaded green on the site plan (**Figure 3**).

Based on the service time of 15 minutes per truck and the capacity within the building to accommodate 3 waste delivery trucks at the time same, it is concluded that there is adequate capacity to easily accommodate the number of waste delivery trucks (ie. average 2 per hour and up to 4 trucks in a busy hour), without any impact on site manoeuvrability.

The waste removal truck, which is a 19.0 metre articulated truck and dog and numbers one per day (i.e. 4 per week) can be scheduled to occur at those times when there are no delivery waste trucks.

As there are no trucks that start and or finish at No. 6 Sleigh Avenue (i.e. parked on site) this is easily organised.

The truck loading area within the building is separated from the car parking which is located at the front of the site and outside the building.

Trucks arriving and departing the site will not impact on the car parking area. Other than two car spaces set aside for visitors, the rest of the car parking is for employees.

The two visitor spaces are located at the front of the site which allow visitors to enter and exit the site with minimal interaction with the trucks using the site.

The Operations and Loading Management Plan for the facility has been updated and is included as Appendix 1.

The internal operation of the facility has been checked using AUTOTURN software and swept path diagrams prepared for the HRV's and the 19.0 metre articulated truck and dog in accordance with AS2890.2.

Figures 9A and **9B** show the HRV trucks manoeuvring within the building. Up to 3 vehicles can work or be stored in the building at the same time.

Figure 10 shows the swept path for a 19 metre long truck and dog entering the site from Sleigh Place, manoeuvring within the site and exiting to Sleigh Place. Reference to **Figure 10** shows that the manoeuvring is satisfactory and fully compliant with AS2890.2. The manoeuvring does not affect any parked vehicles in Sleigh Place and is considered to be safe.

As noted above, the car parking and truck manoeuvring areas are separated and all trucks will enter and leave the site with no extended truck parking on site.

In summary, vehicles will not queue out of the site as all vehicles can enter and exit the site in a forward direction. In addition, the on site manoeuvring is satisfactory and fully compliant with AS2890.2.

4.4 Large Vehicle Swept Paths at Intersection of Cowpasture Road and Sleigh Place

One (1) 19 metre articulated truck and dog waste vehicle per day associated with the proposal will use the intersection of Cowpasture Road/Sleigh Place. These vehicles will turn right from Cowpasture Road into Sleigh Place when arriving at the facility and when departing turn left out of Sleigh Place into Cowpasture Road.

Both Cowpasture Road and Sleigh Place are industrial roads in the Wetherill Park industrial area. Both roads are 13.0 metres wide between kerbs, which is a typical width of two way roads in an industrial precinct to provide a single lane of travel in each

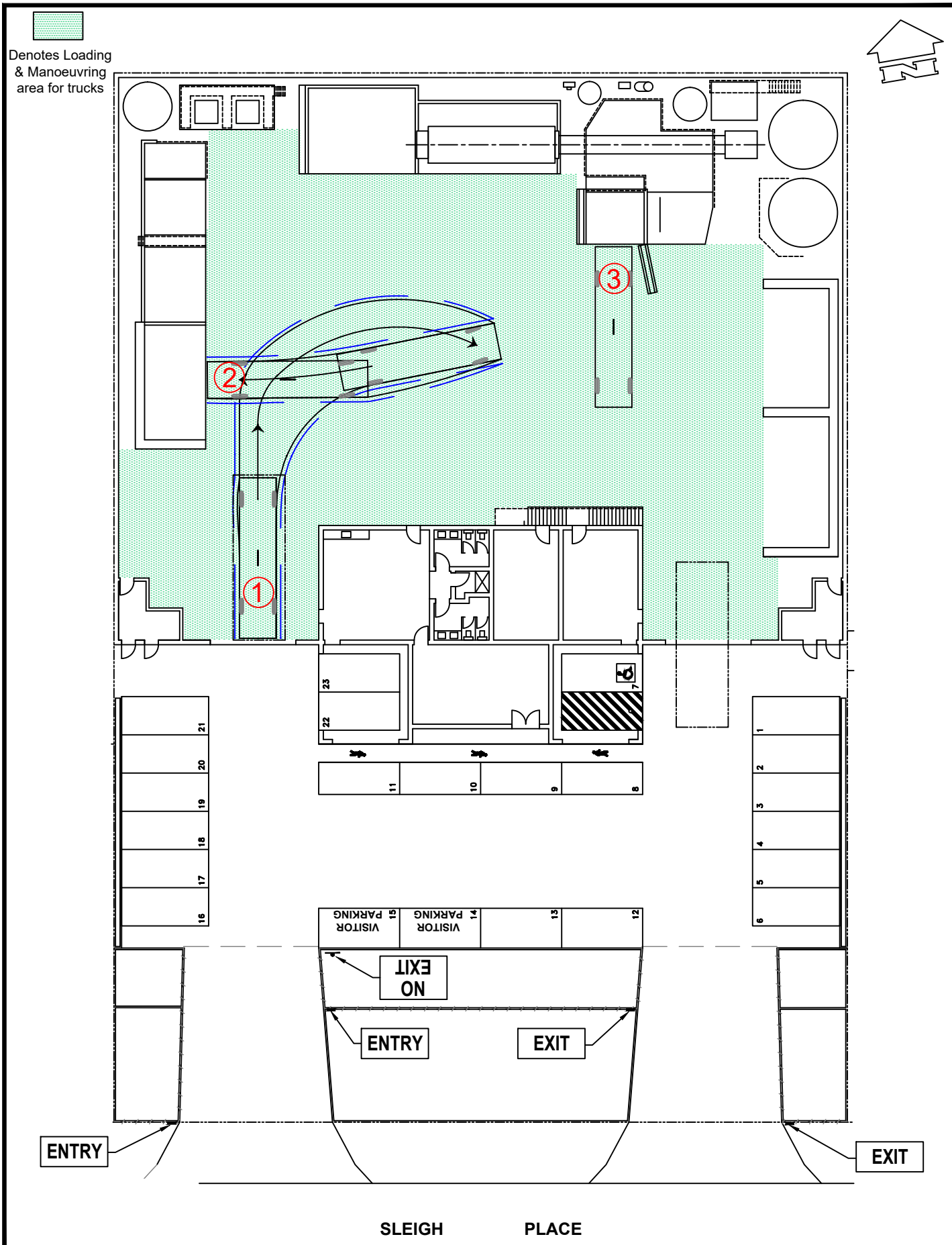

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FIGURE 9A

MAINSTREAM

6 SLEIGH PLACE, WETHERILL PARK

HEAVY RIGID VEHICLE MANOEUVRING AT WASTE RECYCLING FACILITY

JOB NO.19031

11/11/19

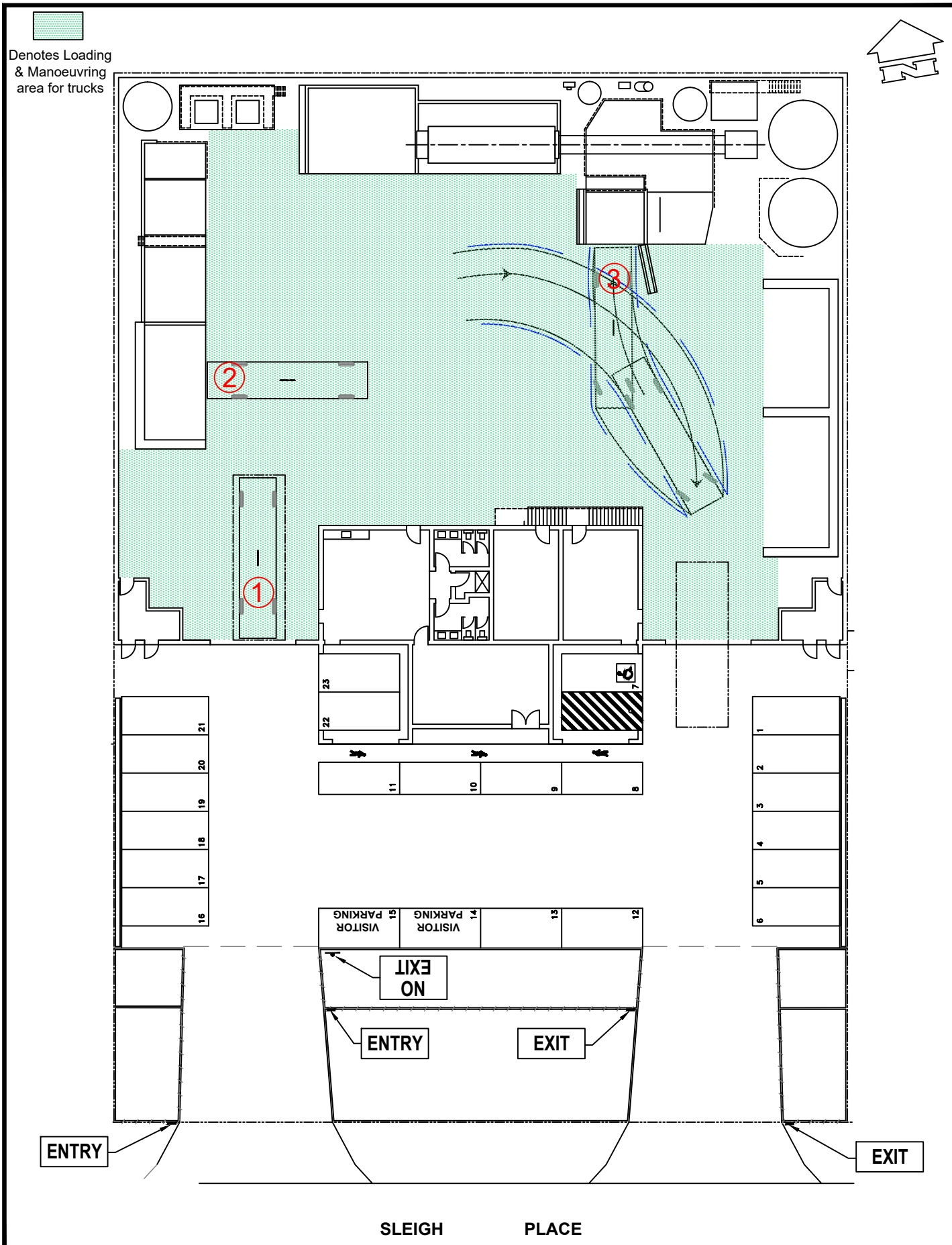

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FIGURE 9B

6 SLEIGH PLACE, WETHERILL PARK

HEAVY RIGID VEHICLE MANOEUVRING AT WASTE RECYCLING FACILITY

JOB NO.19031

11/11/19

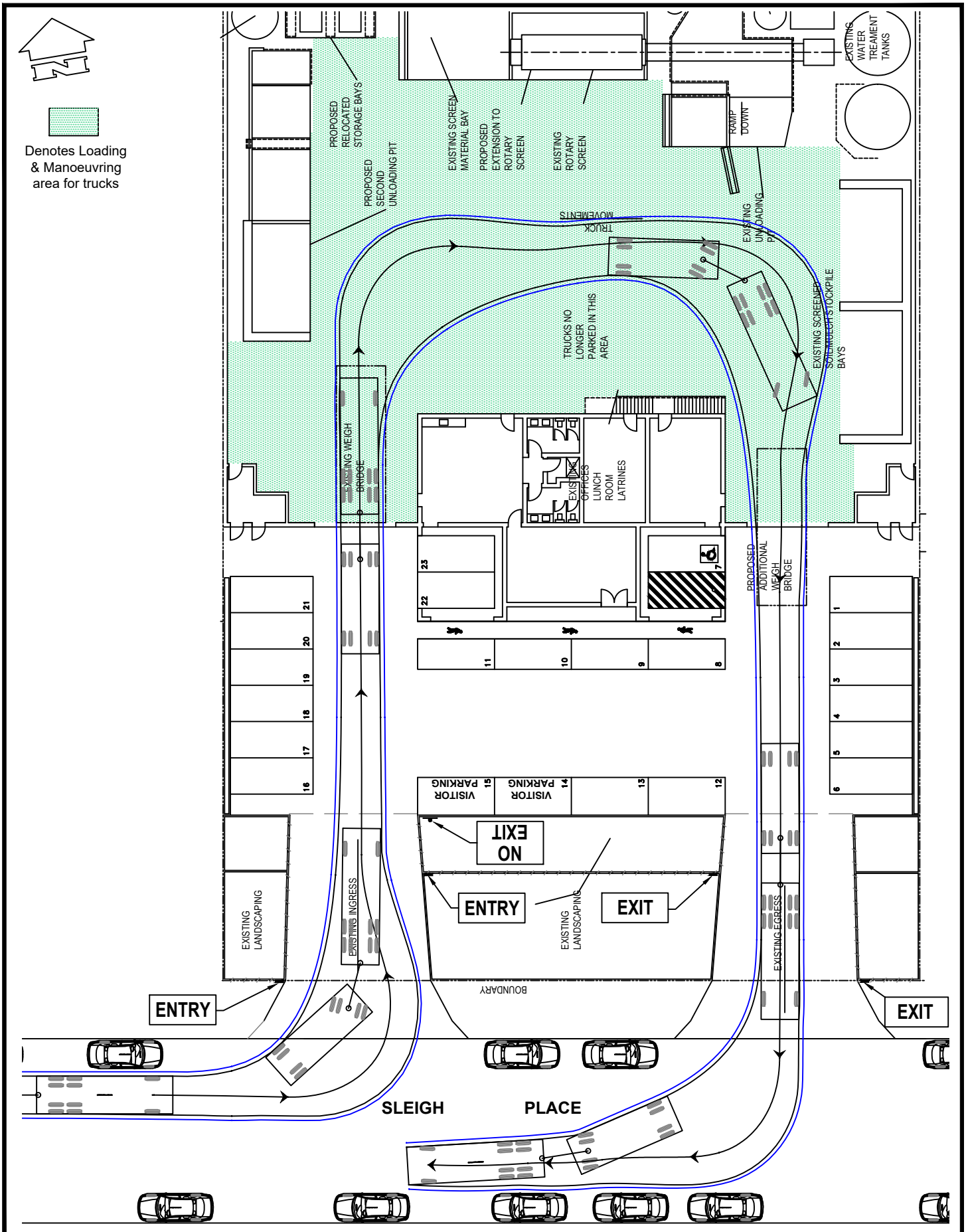

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FIGURE 10

MAINSTREAM

6 SLEIGH PLACE, WETHERILL PARK

19m TRUCK & DOG MANOEUVRING AT WASTE RECYCLING FACILITY

JOB NO.19031

11/11/19

direction. Industrial roads are expected to cater for all general access vehicles including 19 metre trucks.

Figures 11A and **11B** show the swept path of a 19 metre long truck and dog turning right into Sleigh Place from Cowpasture Road and turning left out of Sleigh Place into Cowpasture Road.

These swept paths have been prepared in accordance with Austroads Guidelines with the appropriate clearances.

All 19 metre long truck and dog vehicles arriving at the facility will turn right from Cowpasture Road into Sleigh Place. **Figure 11A** demonstrates that the right turn movement is safe and in accordance with Austroads Guidelines. In addition, the right turn manoeuvre does not affect other vehicles using the intersection including parked vehicles.

Figure 11B demonstrates the left turn out of Sleigh Place and also shows that this manoeuvre is satisfactory and fully compliant with Austroads Guidelines.

As noted above, the proposal is for a very small number of 19 metre articulated truck and dog vehicles to access the site per day (i.e. 1 per day) and use the intersection of Cowpasture Road / Sleigh Place. The use of the 19.0 metre articulated truck and dog vehicle is considered to be satisfactory.

4.5 Traffic Generation and Traffic Impacts of Unit 2, 103 Cowpasture Road with the Proposal

Unit 2, 103 Cowpasture Road operates as a depot and accommodates the truck driver and associated personnel parking during the day and truck parking overnight and at other times.

In the weekday AM period the truck drivers and associated personnel for the day time shift arrive before 6.00am and the trucks depart the site between 6.00am and 6.30am. This period does not overlap with the AM peak hour on the road network, which occurs between 8.00am – 9.00am.

Night time trucks will arrive at the depot between 5.00am and 6.00am, with the drivers departing the depot shortly after and generally before 6.00am.

During the weekday PM period trucks associated with the day shift arrive back at Unit 2 between 3.30pm and 6.00pm and the drivers and associated personnel go home during this period.

In the afternoons the night time shift personnel will arrive between 5.30pm to 6.00pm with the night shift trucks departing the depot after 6.00pm.

Under the proposal, during the PM peak hour between 4.30pm to 5.30pm up to 4 trucks may enter the Unit 2 site and between 4-8 cars may exit the Unit 2 site.

Based on the traffic volumes using this section of Cowpasture Road in the PM peak hour and the small number of vehicles that will be generated by Unit 2, the traffic impacts at the driveway entrance in Cowpasture Road are assessed as satisfactory.

There are no traffic, road safety or amenity issues associated with trucks entering or leaving the Unit 2 site, 24 hours a day, 7 days a week.

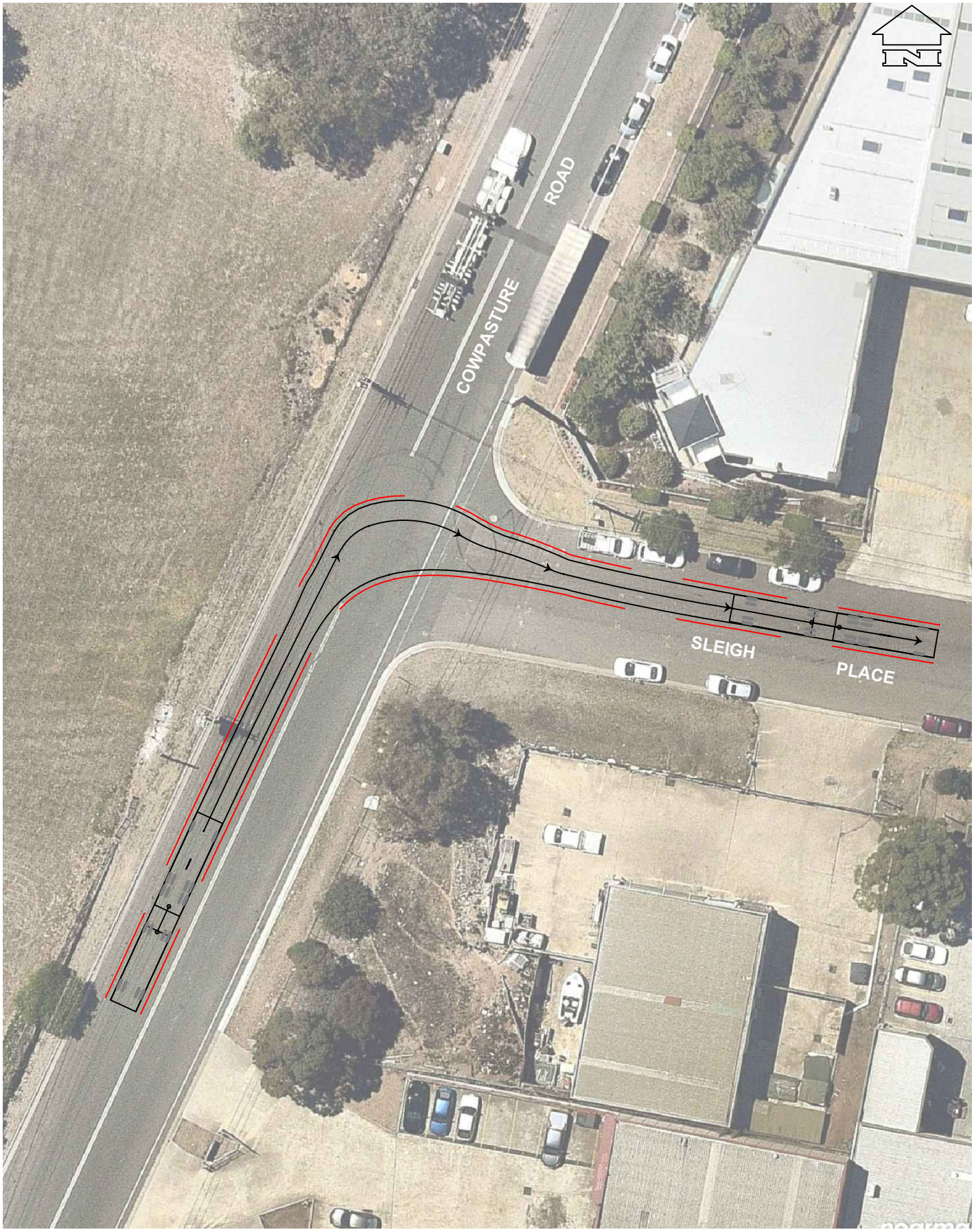

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FIGURE 11A

MAINSTREAM

6 SLEIGH PLACE, WETHERILL PARK

19m TRUCK & DOG - RIGHT TURN
COWPASTURE ROAD TO SLEIGH PLACE

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FIGURE 11B

MAINSTREAM

6 SLEIGH PLACE, WETHERILL PARK

19m TRUCK & DOG - LEFT TURN
SLEIGH PLACE TO COWPASTURE ROAD

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4.6 Bicycles and Public Transport

The proposal will have no impact on bicycles and or public transport.

4.7 Construction Impacts

There are no construction impacts associated with the proposal, as there are no physical changes required to the facility.

4.8 Implications of Proposal for Non-Car Travel Modes

As noted in Section 3.3, the site is located approximately 2.2km from the closest bus stop and not within convenient walking distance for either employees or visitors to the site. The distance to the nearest residential area is also approximately 2.0km.

In addition, most of the employees will work day and night shift times which do not coincide with the normal commuter times (i.e. 7.00am – 9.00am). The frequency of public transport services is lower, outside normal commuter times.

While the proposal is not expected to have any negative impacts on non car travel modes (i.e. bus, pedestrians and or cyclists) in the area, given the start times for employees and the distance from public transport, the potential for and benefits from implementing measures such as a location specific travel plan are considered to be very limited.

5.0 PARKING AND INTERNAL CIRCULATION AND OTHER MATTERS

5.1 Parking Assessment

Car Parking

Fairfield Citywide DCP does not provide a specific car parking rate for waste or resource recovery recycling facilities. Therefore, the parking assessment is a merits based assessment based on the operational characteristics of the facility.

The site at 6 Sleigh Place has 23 car parking spaces, including one (1) accessible parking space to current AS2890.6 requirements and two spaces for visitors.

The maximum number of employees at the Sleigh Place facility will be 20 persons. The maximum number of visitors to the facility are 2 persons at any one time.

Based on this, the maximum number of car spaces required is 22 car spaces.

Therefore, it is concluded that the parking provision of 23 car spaces at Sleigh Place is adequate for the facility with the proposed increase in capacity.

As noted previously, car parking associated with the truck drivers and associated personnel is accommodated at Unit 2, 103 Cowpasture Road. This location has 24 car parking spaces, which is sufficient to cater for the demand of the truck drivers and associated personnel.

5.2 Vehicle Access and Internal Circulation

The vehicle access to the facility is via separate entry and exit driveways (i.e. one way in and one way out) which are 9 metres wide. These driveways comply with AS2890.2 requirements.

Sight distance at vehicle entry and exit driveways in Sleigh Place is also satisfactory and compliant with AS2890.1 and 2 requirements.

Trucks entering and exiting the site follow a one way circulation pattern through the site. Once inside the building the trucks reverse to unload and drive out.

The manoeuvring into and out of the site, as well as within the site, for HRV tankers and the 19 metre articulated waste truck vehicle is fully compliant with AS2890.2 requirements.

Figures 9A-C and **10** show the manoeuvring for the trucks using the facility.

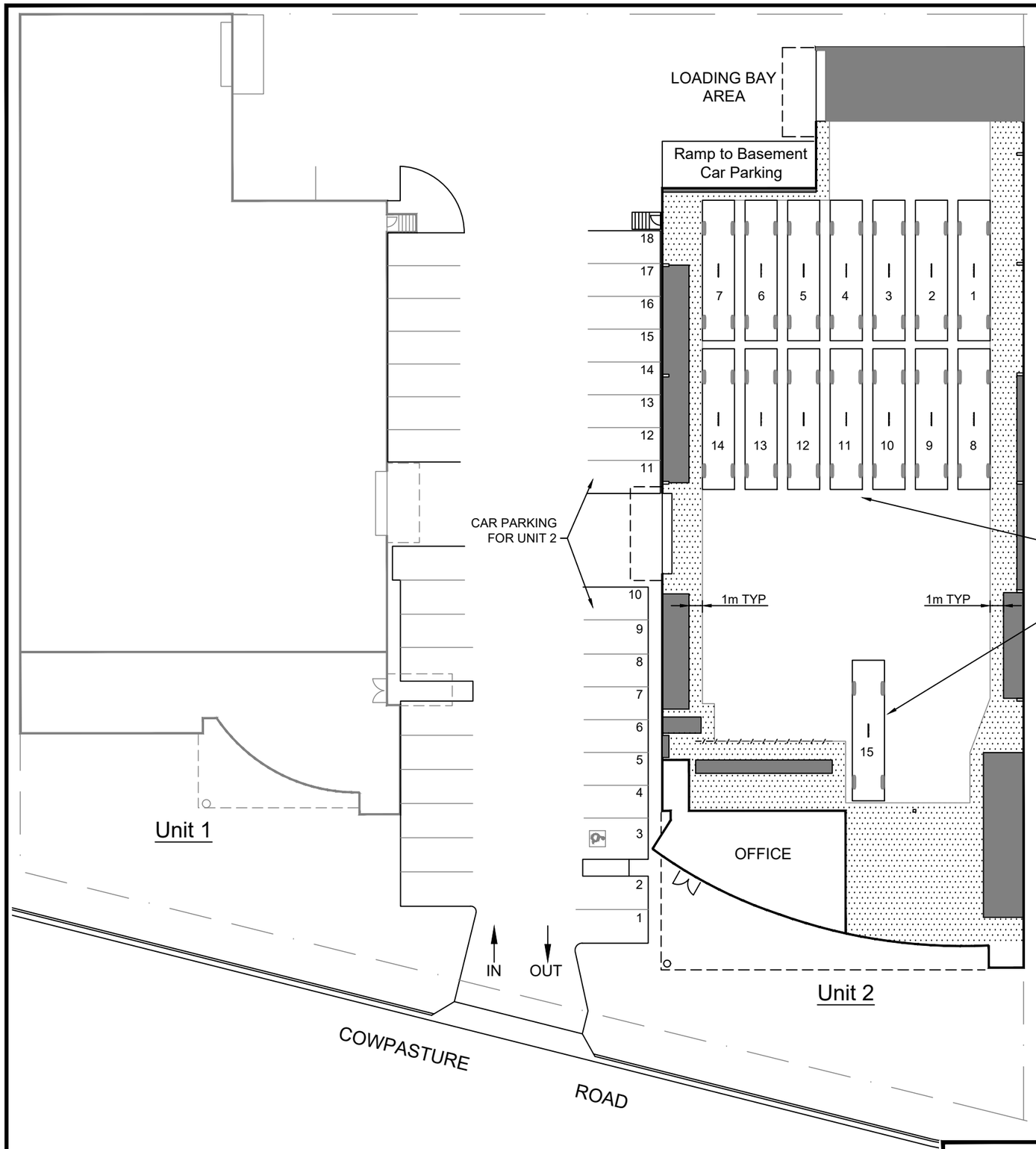
The car parking spaces and layout are also compliant with AS2890.1 requirements with regard to space sizes, aisle widths etc.

In concluding, the site layout and internal operation is considered to be satisfactory and compliant with AS2890.1 and AS2890.2 requirements.

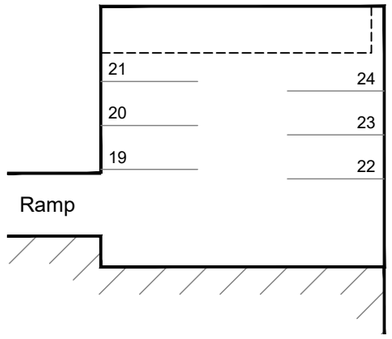
5.3 Truck Parking

As noted in Section 2.2, the trucks are parked off site at Unit 2, 103 Cowpasture Road, Wetherill Park, so no permanent truck parking spaces are required at 6 Sleigh Place.

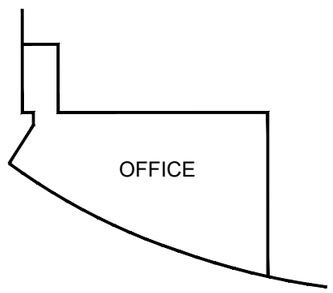
Figures 12A and **12B** show the site layout for Unit 2, 103 Cowpasture Road.



PLAN
Ground Floor



PLAN
Basement Car Parking
for Unit 2



PLAN
First Floor

PARKING CAPACITY

10.3m Heavy Rigid Trucks	15+
Car	24

LEGEND

STORAGE

NO PARKING

10.3m LONG TRUCK

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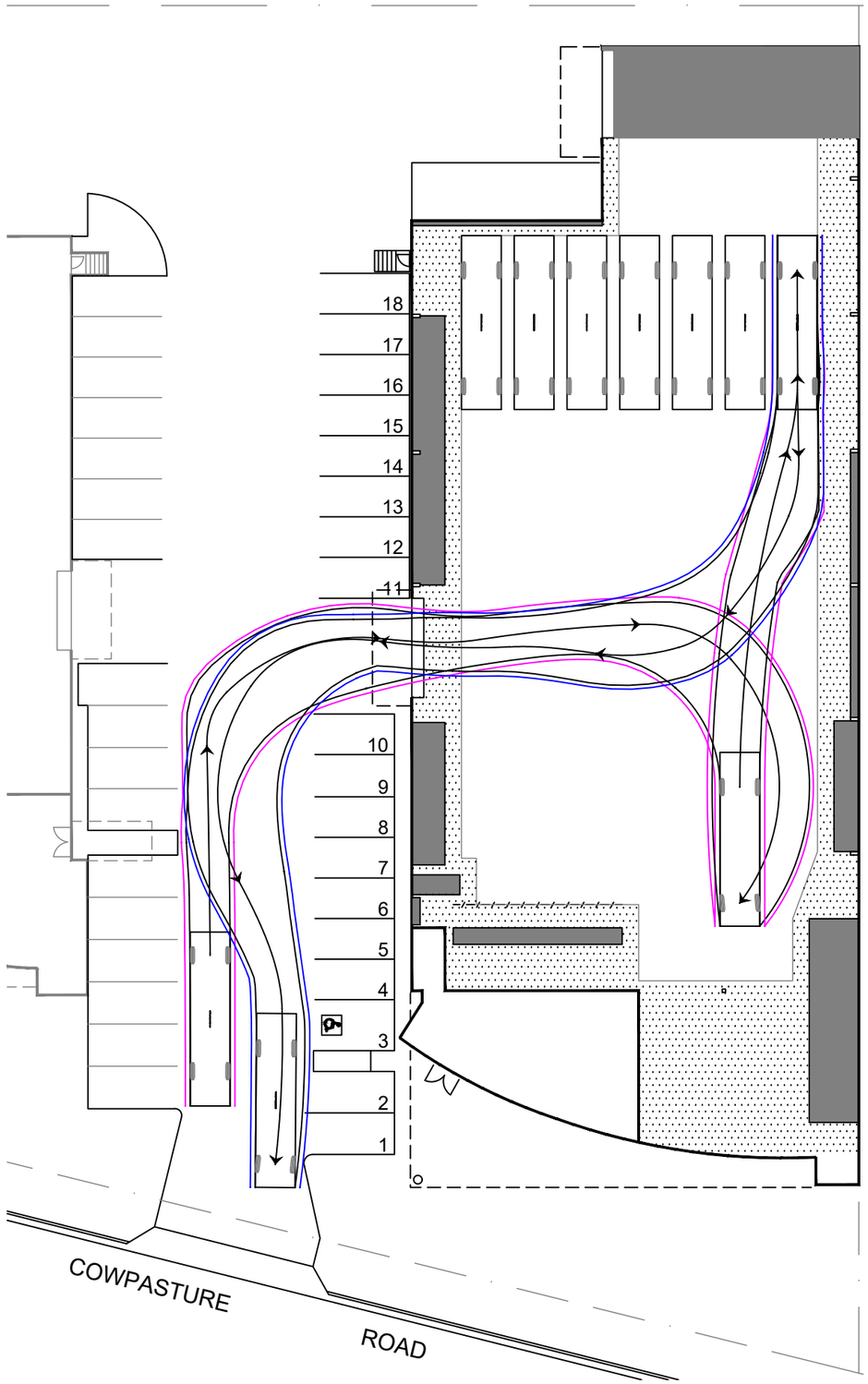
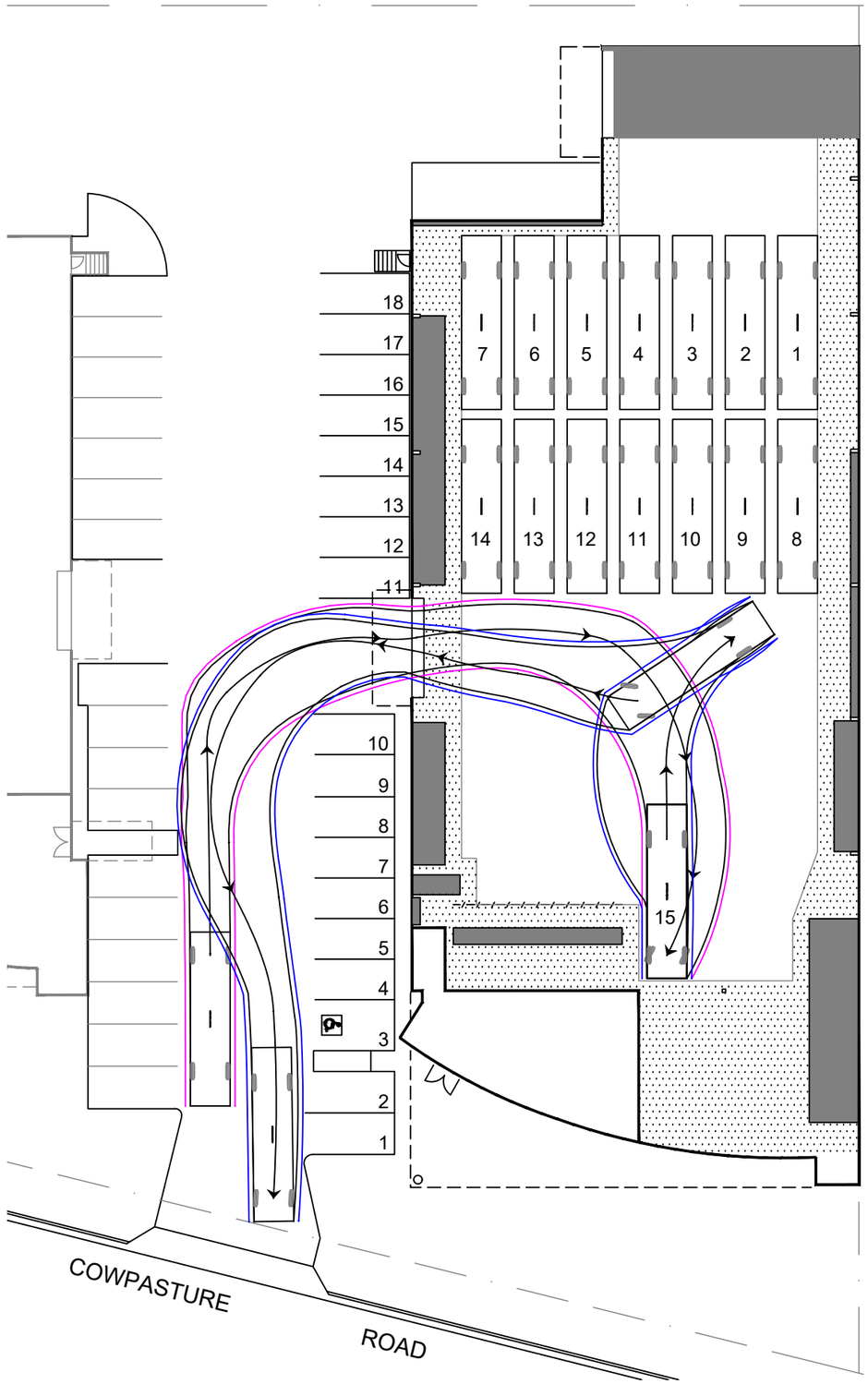
FIGURE 12A
MAINSTREAM
Unit 2, 103 COWPASTURE ROAD, WETHERILL PARK
SITE PLAN

JOB NO.19031 11/11/19





LEGEND

STORAGE

NO PARKING

10.3m LONG TRUCK

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FIGURE 12B

MAINSTREAM

Unit 2, 103 COWPASTURE ROAD, WETHERILL PARK

TURNPATHS

10.3m LONG HEAVY RIGID VEHICLE

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During the day the truck drivers for Mainstream park their vehicles at Unit 2. There are 24 car parking spaces at Unit 2 including 18 spaces at grade including an accessible space and 6 car spaces in the basement. These spaces are also used during the evenings by the night shift personnel.

During the evening the HRV trucks not associated with the night shift and several utes/vans are parked at Unit 2 within the building.

Reference to **Figure 12A** shows the site layout including the truck parking and **Figure 12B** shows the HRV'S manoeuvring within the building.

Unit 2, 103 Cowpasture Road including its on site parking is approved as an industrial use and its occupation and use by Mainstream is considered to be generally in accordance with its existing approval, as an industrial use.

There are no traffic, road safety or amenity issues with trucks entering or leaving the site 24 hours a day, 7 days a week.

6.0 CONCLUSIONS

This report documents the assessment of traffic, transport and parking impacts of a proposal to increase the capacity of an existing gross pollution trap facility at 6 Sleigh Place, Wetherill Park.

The assessment has found that;

i) The proposed increase in capacity at the facility will have relatively minor impacts on the road network adjacent the site and traffic conditions on the road network will be satisfactory, with the proposal in place;

ii) The facility, which has 23 off street car spaces including one (1) accessible parking space to AS2890.6 requirements, will have adequate car parking to accommodate its maximum car parking demand;

iii) There is no requirement for truck parking at the facility as the truck parking is accommodated off site.

iv) The driveways and internal operation with regard to trucks entering and exiting the site and manoeuvring within the site is fully compliant with AS2890.2.

v) The car park spaces and adjacent aisle widths on the site at 6 Sleigh Place are compliant with AS2890.1.

vi) The Operations and Loading Management Plan for the operation of the facility at 6 Sleigh Place has been updated and is included as Appendix 1.

All overnight parking for Mainstream, as well as the car parking for its truck drivers and associated personnel for both the day time and night time shifts, is accommodated at Unit 2, 103 Cowpasture Road. The continued use of Unit 2 by Mainstream will be in accordance with Unit 2 existing approval.

The review of the truck parking at Unit 2 has found that the parking is satisfactory and compliant with AS2890.2.

APPENDIX 1

OPERATIONS AND LOADING MANAGEMENT PLAN

APPENDIX 1

OPERATIONS AND

LOADING MANAGEMENT PLAN

FOR

GROSS POLLUTION TRAP

WASTE RECYCLING FACILITY

6 SLEIGH PLACE

WETHERILL PARK

Ref. 19031-21 LDMP

Revised 29 November 2021

Prepared By

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CONTENTS

FIGURES

1.0 INTRODUCTION

This Loading Management Plan applies to the Gross Pollution Trap Waste Recycling Facility at 6 Sleigh Place, Wetherill Park. A copy of the site plan for the facility is attached to this plan.

2.0 OPERATIONS PLANNING

Mainstream's internal materials report provides information on the number of planned waste pick ups for each day.

This report is prepared and circulated prior to each daily shift.

The report is to be reviewed by the Facility Supervisor and the Operations Manager to ensure that truck arrival times at the facility at 6 Sleigh Place are spaced at regular intervals (ie. not bunched).

3.0 LOADING MANAGEMENT PLAN

1. Loading and unloading is to occur within the Approved Hours of Operation based on the DA Consent Conditions.

2. All trucks are to enter the site in a forward direction via the entry driveway in Sleigh Place and to depart the site in a forward direction via the exit driveway in Sleigh Place (see attached Site Plan).

3. Trucks are not to queue out of the site and or block Sleigh Place.

4. All unloading and unloading is to occur inside the building facility. (See Site Plan).

5. All delivery trucks and the waste removal truck are to enter the site, unload/load and exit the site.

6. When not servicing the facility, all trucks are to be parked off site (at the separate truck parking location). There is to be no layover parking by trucks at the site.

7. The waste removal truck which is a 19.0 metre long articulated truck and dog is to be scheduled to occur at those times when the waste delivery trucks are not using the site.

8. Health and Safety Procedures are to be followed by all truck drivers and other personnel on the site when loading/unloading.

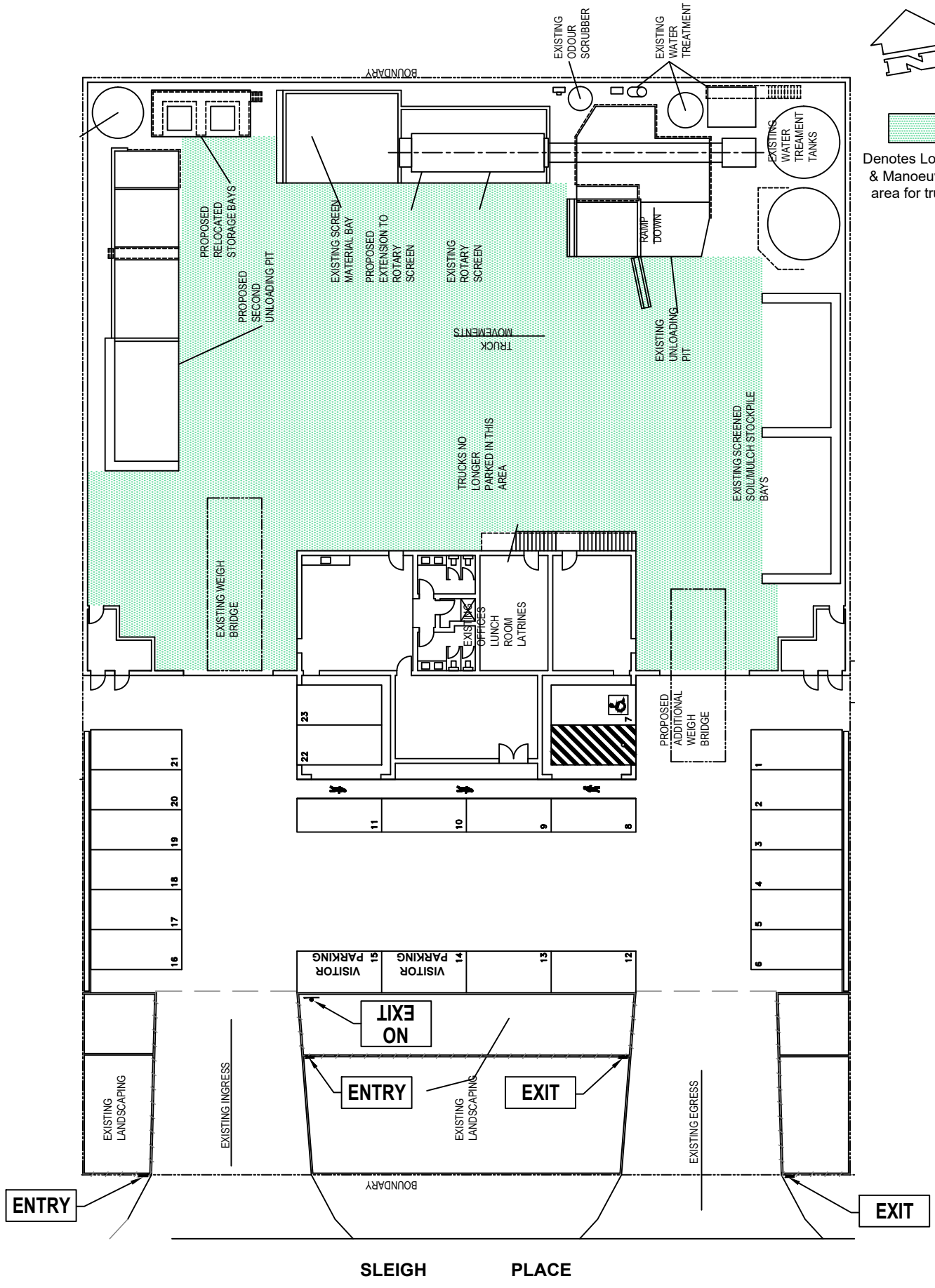

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FIGURE 1

MAINSTREAM
6 SLEIGH PLACE, WETHERILL PARK

SITE PLAN

JOB NO.19031 LDMP

11/11/19

APPENDIX 2

BUS ROUTES

BICYCLE ROUTES

Route 814

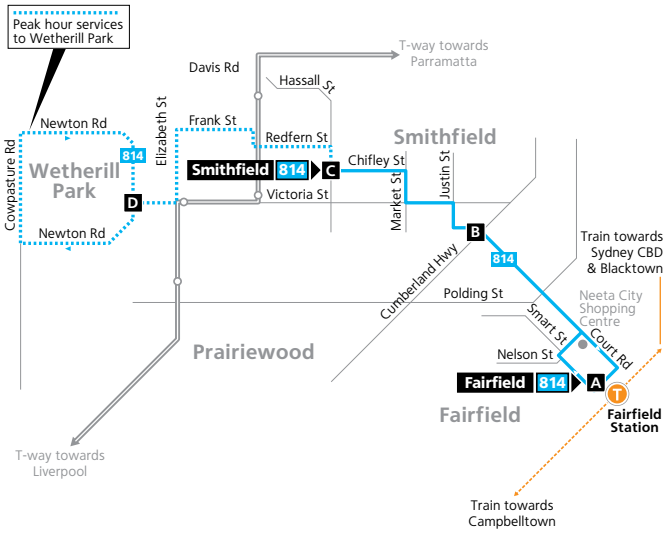
B

814

B

Fairfield to Smithfield (Chifley Street)

servicing The Horsley Drive & Wetherill Park



Legend

- Bus route
- 814 Bus route number
- A Timing point
- T Train line/station

Diagrammatic Map
Not to Scale
North

transportnsw.info

NSW GOVERNMENT | Transport

FAIRFIELD CITY CYCLEWAYS

Carwarra Place Park Playground. Artist: Joe Hurst.

CYCLE NETWORK

- PROPOSED REGIONAL CYCLEWAY ROUTE
- EXISTING REGIONAL CYCLEWAY ROUTE
- PROPOSED LOCAL CYCLEWAY ROUTE
- EXISTING LOCAL CYCLEWAY ROUTE
- M7 ROUTE CYCLEWAY ROUTE
- RAIL TRAIL/TRANSITWAY ROUTES
- TRANSITWAY
- TRANSITWAY STATIONS
- RAILWAY LINE
- OPEN SPACE
- SCHOOLS
- RETAIL OUTLETS
- EMPLOYMENT PRECINCTS
- TAFE
- POLICE
- HOSPITAL
- CYCLE SHOP
- LEISURE CENTRE
- SKATE PARKS
- WESTERN SYDNEY CYCLING NETWORK
- LIBRARIES
- MUSEUMS
- COUNCIL
- EXERCISE EQUIPMENT

PUBLIC ARTWORKS

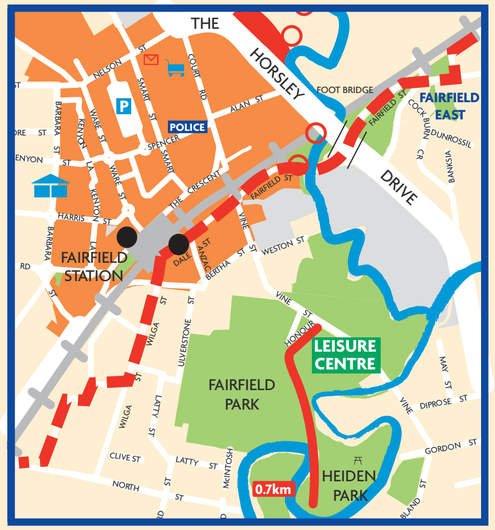
- 1A - 1B WARALI WALI (HOLROYD)
- 1C - 1D WARALI WALI (FAIRFIELD)
- 2A - 2D CYCLEWAY MARKERS
- 3A SEATING WALL
- 3B FISH HABITAT PROJECT
- 3C FISH AND DRAGONS PROJECT

Fairfield City
Celebrating diversity

FAIRFIELD CITY CYCLEWAYS

Carwarra Place Park Playground. Artist: Joe Hurst.

PROPOSED LOCATIONS FOR BICYCLE STORAGE FACILITIES



PROSPECT RESERVOIR
EASTERN CREEK
HORSLEY PARK
BAY TO MOUNTAINS
TO BLACKTOWN
T' WAY TO PARRAMATTA
TO HOLROYD
WETHERILL PARK
SMITHFIELD
ROSFORD STREET RESERVE
PROSPECT CREEK
1A
1B
1C
1D
2.5km
THE HORSLEY DRIVE
FERRERS ROAD
VICTORIA STREET
WETHERILL PARK RESERVE
WETHERILL PARK INSTITUTE OF TAFE
SKATE
EMERSON ST RESERVE
LILY STREET
BRENAN STREET
BOURKE STREET
1.6km
BRENAN PARK
CUMBERLAND HIGHWAY
CITY OF HOLROYD
YENNORA DISTRIBUTION PARK
RAIL TRAIL TO PARRAMATTA
WESTERN SYDNEY REGIONAL PARK
2.4km
WALLGROVE ROAD
COWPASTURE ROAD
WETHERILL PARK STOCKLAND CENTRE
POLDING STREET
THE HORSLEY DRIVE
SPRINGFIELD PARK
0.6km
BOSSLEY PARK
RESTWELL ROAD
MIMOSA ROAD
LEISURE CENTRE
PRAIRIE VALE ROAD
POLICE
FAIRFIELD GOLF COURSE
PRAIRIEWOOD
SMITHFIELD ROAD
CYCLE SHOP
1.3km
YENNORA STATION
OLD GUILDFORD
0.4km
KNIGHT PARK
WOODVILLE ROAD
CITY FARM
8.3km
PRAIRIE VALE ROAD
ORPHAN SCHOOL CREEK
FAIRFIELD SHOWGROUND
CLUB HOUSE
WAKELEY
KING ROAD
FAIRFIELD HEIGHTS
THE BOULEVARDE
SACKVILLE STREET
FAIRFIELD CITY CENTRE
POLICE
FAIRFIELD EAST
BURNS CREEK
2B
2C
2D
2A
STOCKDALE CRESENT RESERVE
KING PARK
FAIRFIELD WEST
14.2km
FAIRFIELD STATION
LEISURE CENTRE
FAIRFIELD
FAIRFIELD PARK
0.7km
1.7km
ABBOTSBURY
EDENSOR ROAD
1.8km
GREENFIELD PARK
SMITHFIELD ROAD
ST JOHNS PARK
CANLEY VALE ROAD
ENDEAVOUR RESERVE
AVOCA ROAD
GREEN VALLEY CREEK
CANLEY HEIGHTS
RAILWAY PARADE
VILLAWOOD
VILLAWOOD STATION
2.4km
CLEAR PADDOCK CREEK
ST JOHNS PARK RESERVE
2.4km
CARRAMAR
14.2km
FISH AND DRAGONS PROJECT
3C
TO M5 & M7
ELIZABETH DRIVE
EDENSOR PARK
BONNYRIGG TOWN CENTRE
HUMPHRIES ROAD
SEATING WALL
3A
3B
FISH HABITAT PROJECT
CARRAMAR STATION
CITY OF LIVERPOOL
SKATE
ST JOHNS ROAD
CANLEY VALE STATION
LONG CREEK
CARRAWOOD PARK
WOODVILLE ROAD
COWPASTURE ROAD
CABRAMATTA WEST
CABRAMATTA
CANLEY VALE
LEISURE CENTRE
1.1km
CABRAMATTA TOWN CENTRE
POLICE
CABRAMATTA STATION
HUME HIGHWAY
TO MIRAMBEENA REGIONAL PARK BANKSTOWN
BONNYRIGG HEIGHTS
CABRAMATTA ROAD WEST
CABRAMATTA ROAD EAST
LANSVALE
BONNYRIGG
HOLLYWOOD DRIVE
MT PRITCHARD
RAILWAY PARADE
HUME HIGHWAY
1.6km
CITY OF BANKSTOWN
PROUT PARK
1.2km
CABRAMATTA SPORTS GROUND
1.9km
CHIPPING NORTON LAKE
FLOYD BAY
PROSPECT CREEK
NORTH LIVERPOOL ROAD
ELIZABETH DRIVE
T' WAY TO LIVERPOOL
JOE BROAD MEMORIAL PARK
RESERVOIR ROAD
CABRAMATTA CREEK
CITY OF LIVERPOOL
RAIL TRAIL LIVERPOOL - CITY
GEORGES RIVER
GEORGES RIVER
N
1km (approx.) 0 1 (approx.) 2km (approx.)

CYCLE NETWORK

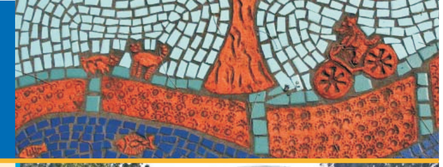
- PROPOSED REGIONAL CYCLEWAY ROUTE
- EXISTING REGIONAL CYCLEWAY ROUTE
- PROPOSED LOCAL CYCLEWAY ROUTE
- EXISTING LOCAL CYCLEWAY ROUTE
- M7 ROUTE CYCLEWAY ROUTE
- RAIL TRAIL/TRANSITWAY ROUTES
- TRANSITWAY
- TRANSITWAY STATIONS
- RAILWAY LINE
- OPEN SPACE
- SCHOOLS
- RETAIL OUTLETS
- EMPLOYMENT PRECINCTS
- TAFE
- POLICE — POLICE
- HOSPITAL
- CYCLE SHOP — CYCLE SHOP
- LEISURE CENTRE — LEISURE CENTRE
- SKATE — SKATE PARKS
- CLUB HOUSE — WESTERN SYDNEY CYCLING NETWORK
- LIBRARIES
- MUSEUMS
- COUNCIL

PUBLIC ARTWORKS

- 1A - 1B WARALI WALI (HOLROYD)
- 1C - 1D WARALI WALI (FAIRFIELD)
- 2A - 2D CYCLEWAY MARKERS
- 3A SEATING WALL
- 3B FISH HABITAT PROJECT
- 3C FISH AND DRAGONS PROJECT

FairfieldCity
Celebrating diversity

FAIRFIELD CITY CYCLEWAYS



Carwarra Place Park Playground. Artist: Joe Hurst.

PROPOSED SECTION OF CYCLEWAY FOR CONSTRUCTION

PROSPECT RESERVOIR

HORSLEY PARK

EASTERN CREEK

BAY TO MOUNTAINS

TO BLACKTOWN

T' WAY TO PARRAMATTA

WETHERILL PARK

FERRERS ROAD

THE HORSLEY DRIVE

VICTORIA STREET

PROSPECT CREEK

1A

1B

ROSFORD STREET RESERVE

SMITHFIELD

TO HOLROYD

WETHERILL PARK RESERVE

WETHERILL PARK INSTITUTE OF TAFE

SKATE

EMERSON ST RESERVE

LILY STREET

BRENAN STREET

BOURKE STREET

1.6km

BRENAN PARK

CUMBERLAND HIGHWAY

2.5km

1C

CITY OF HOLROYD

YENNORA DISTRIBUTION PARK

RAIL TRAIL TO PARRAMATTA

WESTERN SYDNEY REGIONAL PARK

2.4km

WALLGROVE ROAD

COWPASTURE ROAD

WETHERILL PARK STOCKLAND CENTRE

POLDING STREET

1D

BOSSLEY PARK

RESTWELL ROAD

MIMOSA ROAD

LEISURE CENTRE

PRAIRIE VALE ROAD

POLICE

PRAIRIEWOOD

SMITHFIELD ROAD

FAIRFIELD GOLF COURSE

CYCLE SHOP

SPRINGFIELD PARK

0.6km

OLD GUILDFORD

YENNORA STATION

0.4km

KNIGHT PARK

WOODVILLE ROAD

1.3km

FAIRFIELD CITY CENTRE

POLICE

FAIRFIELD HEIGHTS

SACKVILLE STREET

THE BOULEVARDE

FAIRFIELD EAST

BURNS CREEK

8.3km

PRAIRIE VALE ROAD

ORPHAN SCHOOL CREEK

FAIRFIELD SHOWGROUND

CLUB HOUSE

WAKELEY

KING ROAD

KING PARK

FAIRFIELD WEST

2B

2C

2D

2A

STOCKDALE CRESENT RESERVE

CANLEY VALE ROAD

1.7km

14.2km

ENDEAVOUR RESERVE

AVOCA ROAD

FAIRFIELD

FAIRFIELD STATION

FAIRFIELD PARK

0.7km

LEISURE CENTRE

THE HORSLEY DRIVE

VILLAWOOD

ABBOTSBURY

EDENSOR ROAD

1.8km

GREENFIELD PARK

SMITHFIELD ROAD

ST JOHNS PARK

CLEAR PADDOCK CREEK

GREEN VALLEY CREEK

CANLEY HEIGHTS

RAILWAY PARADE

CARRAMAR

FISH AND DRAGONS PROJECT

VILLAWOOD STATION

2.4km

ST JOHNS PARK RESERVE

HUMPHRIES ROAD

EDENSOR PARK

BONNYRIGG TOWN CENTRE

SKATE

SEATING WALL

FISH HABITAT PROJECT

3A

3B

3C

CANLEY VALE STATION

CARRAMAR STATION

ST JOHNS ROAD

CANLEY VALE

LONG CREEK

CARRAWOOD PARK

WOODVILLE ROAD

TO M5 & M7

ELIZABETH DRIVE

CITY OF LIVERPOOL

CABRAMATTA WEST

CABRAMATTA

CABRAMATTA TOWN CENTRE

POLICE

CABRAMATTA STATION

1.1km

HUME HIGHWAY

LANSVALE

TO MIRAMBEENA REGIONAL PARK BANKSTOWN

BONNYRIGG HEIGHTS

BONNYRIGG

CABRAMATTA ROAD WEST

CABRAMATTA ROAD EAST

HOLLYWOOD DRIVE

MT PRITCHARD

PROUT PARK

1.2km

CABRAMATTA SPORTS GROUND

1.9km

RAILWAY PARADE

1.6km

CHIPPING NORTON LAKE

FLOYD BAY

PROSPECT CREEK

CITY OF BANKSTOWN

NORTH LIVERPOOL ROAD

T' WAY TO LIVERPOOL

JOE BROAD MEMORIAL PARK

RESERVOIR ROAD

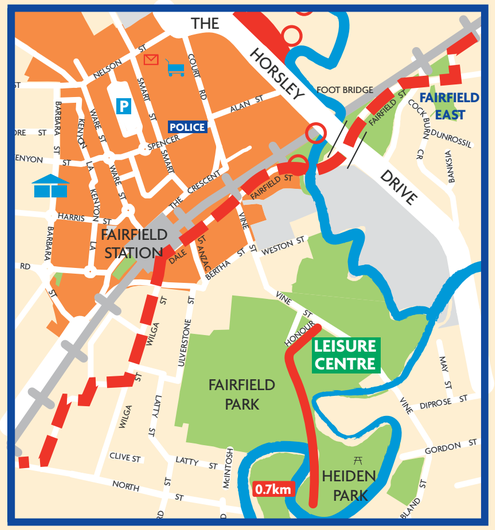
CABRAMATTA CREEK

RAIL TRAIL LIVERPOOL - CITY

GEORGES RIVER

N

1km (approx.) 0 1 (approx.) 2km (approx.)



CYCLE NETWORK

- PROPOSED REGIONAL CYCLEWAY ROUTE
- EXISTING REGIONAL CYCLEWAY ROUTE
- PROPOSED LOCAL CYCLEWAY ROUTE
- EXISTING LOCAL CYCLEWAY ROUTE
- M7 ROUTE CYCLEWAY ROUTE
- RAIL TRAIL/TRANSITWAY ROUTES
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PUBLIC ARTWORKS

- 1A - 1B WARALI WALI (HOLROYD)
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- 3B FISH HABITAT PROJECT
- 3C FISH AND DRAGONS PROJECT

FairfieldCity
Celebrating diversity

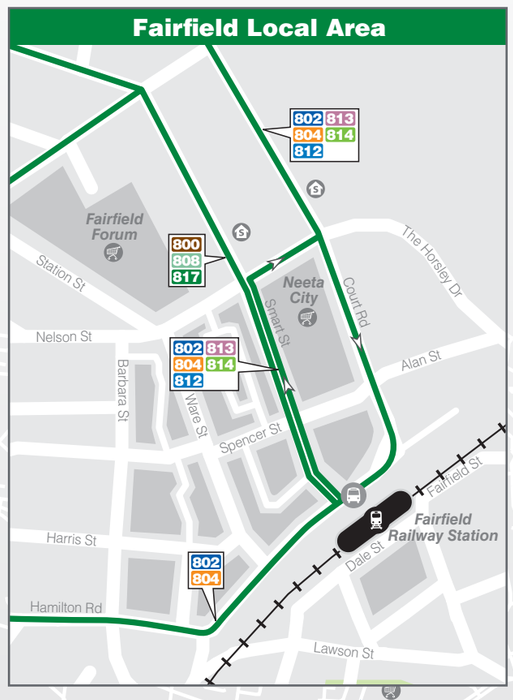
Transit Systems
Western Sydney Bus Network

Effective from:
26 November 2017

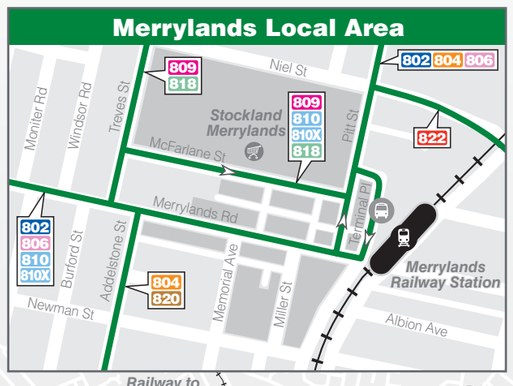
TRANSIT SYSTEMS

Blacktown Local Area

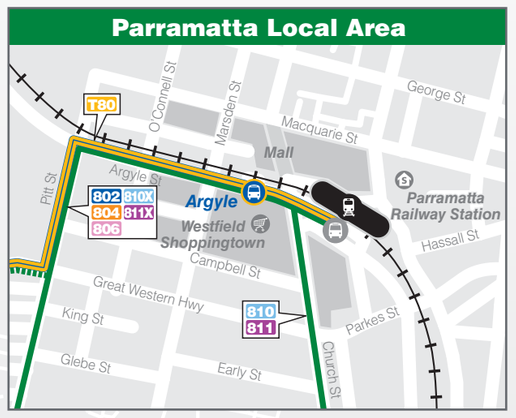
Fairfield Local Area

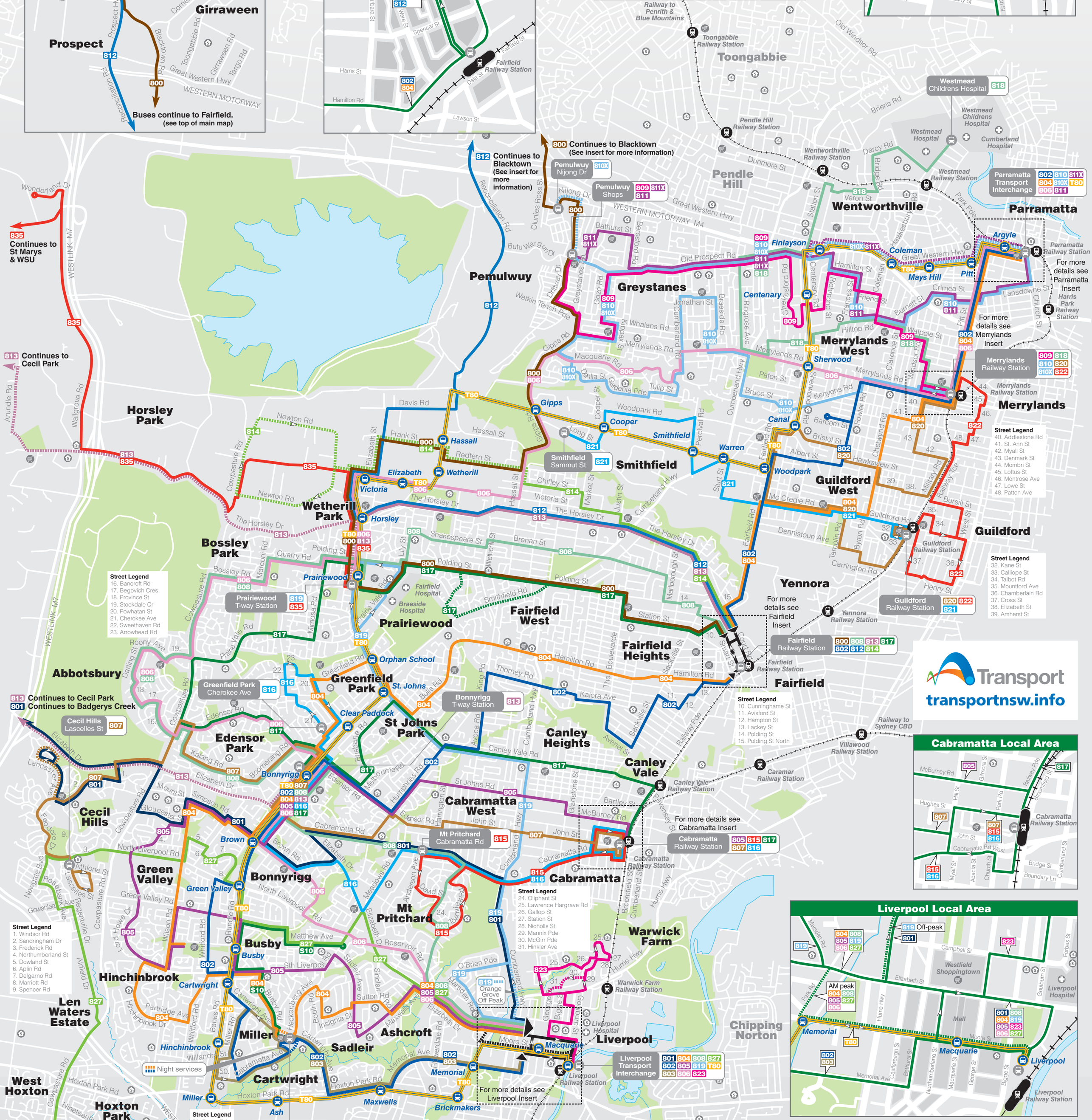


Merrylands Local Area



Parramatta Local Area





Cabramatta Local Area

Liverpool Local Area

Transport
transportnsw.info

APPENDIX 3

SIDRA MODELLING EXTRACTS

MOVEMENT SUMMARY

▽ Site: 101 [Cowpasture Rd & Sleigh Place- Ex AM (Site Folder: General)]

Ex AM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Cowpasture Rd														
2	T1	267	19	267	7.1	0.175	0.3	LOS A	0.6	4.6	0.11	0.13	0.11	58.3
3	R2	83	4	83	4.8	0.175	6.1	LOS A	0.6	4.6	0.15	0.17	0.15	56.1
Approach		350	23	350	6.6	0.175	1.6	NA	0.6	4.6	0.12	0.14	0.12	57.8
East: Sleigh Place														
4	L2	27	3	27	11.1	0.022	5.9	LOS A	0.1	0.6	0.05	0.55	0.05	53.0
6	R2	5	0	5	0.0	0.008	9.1	LOS A	0.0	0.2	0.51	0.64	0.51	51.0
Approach		32	3	32	9.4	0.022	6.4	LOS A	0.1	0.6	0.13	0.57	0.13	52.7
North: Cowpasture Rd														
7	L2	6	0	6	0.0	0.010	5.7	LOS A	0.0	0.0	0.00	0.21	0.00	56.3
8	T1	92	20	92	21.7	0.048	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	59.7
Approach		98	20	98	20.4	0.048	0.4	NA	0.0	0.0	0.00	0.04	0.00	59.5
All Vehicles		480	46	480	9.6	0.175	1.7	NA	0.6	4.6	0.10	0.15	0.10	57.7

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: 101 [Cowpasture Rd & Sleigh Place- Ex PM (Site Folder: General)]

Ex PM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Cowpasture Rd														
2	T1	42	11	42	26.2	0.035	0.6	LOS A	0.1	1.1	0.21	0.17	0.21	57.6
3	R2	17	1	17	5.9	0.035	7.0	LOS A	0.1	1.1	0.29	0.23	0.29	55.0
Approach		59	12	59	20.3	0.035	2.5	NA	0.1	1.1	0.23	0.18	0.23	56.8
East: Sleigh Place														
4	L2	106	1	106	0.9	0.084	6.2	LOS A	0.3	2.2	0.13	0.55	0.13	53.2
6	R2	1	0	1	0.0	0.001	8.2	LOS A	0.0	0.0	0.46	0.56	0.46	51.6
Approach		107	1	107	0.9	0.084	6.3	LOS A	0.3	2.2	0.14	0.55	0.14	53.1
North: Cowpasture Rd														
7	L2	1	0	1	0.0	0.027	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	58.3
8	T1	309	14	309	4.5	0.136	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		310	14	310	4.5	0.136	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.9
All Vehicles		476	27	476	5.7	0.136	1.8	NA	0.3	2.2	0.06	0.15	0.06	57.9

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.

MOVEMENT SUMMARY

▽ Site: 101 [Cowpasture Rd & Sleigh Place- AM & Prop (Site Folder: General)]

AM with Proposal
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Cowpasture Rd														
2	T1	267	19	267	7.1	0.183	0.3	LOS A	0.7	5.2	0.12	0.14	0.12	58.3
3	R2	92	8	92	8.7	0.183	6.2	LOS A	0.7	5.2	0.16	0.18	0.16	55.8
Approach		359	27	359	7.5	0.183	1.8	NA	0.7	5.2	0.13	0.15	0.13	57.6
East: Sleigh Place														
4	L2	31	7	31	22.6	0.026	6.0	LOS A	0.1	0.8	0.06	0.55	0.06	52.5
6	R2	5	0	5	0.0	0.009	9.2	LOS A	0.0	0.2	0.51	0.64	0.51	50.9
Approach		36	7	36	19.4	0.026	6.4	LOS A	0.1	0.8	0.12	0.56	0.12	52.3
North: Cowpasture Rd														
7	L2	6	0	6	0.0	0.010	5.7	LOS A	0.0	0.0	0.00	0.21	0.00	56.3
8	T1	92	20	92	21.7	0.048	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	59.7
Approach		98	20	98	20.4	0.048	0.4	NA	0.0	0.0	0.00	0.04	0.00	59.5
All Vehicles		493	54	493	11.0	0.183	1.8	NA	0.7	5.2	0.10	0.16	0.10	57.5

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.
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: 101 [Cowpasture Rd & Sleigh Place- PM & Prop (Site Folder: General)]

PM with Proposal
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Cowpasture Rd														
2	T1	42	11	42	26.2	0.040	0.8	LOS A	0.2	1.5	0.23	0.18	0.23	57.5
3	R2	21	5	21	23.8	0.040	7.5	LOS A	0.2	1.5	0.34	0.26	0.34	53.9
Approach		63	16	63	25.4	0.040	3.1	NA	0.2	1.5	0.27	0.21	0.27	56.2
East: Sleigh Place														
4	L2	115	5	115	4.3	0.092	6.3	LOS A	0.3	2.5	0.14	0.55	0.14	53.0
6	R2	1	0	1	0.0	0.002	8.2	LOS A	0.0	0.0	0.46	0.56	0.46	51.6
Approach		116	5	116	4.3	0.092	6.3	LOS A	0.3	2.5	0.14	0.55	0.14	53.0
North: Cowpasture Rd														
7	L2	1	0	1	0.0	0.027	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	58.3
8	T1	309	14	309	4.5	0.136	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		310	14	310	4.5	0.136	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.9
All Vehicles		489	35	489	7.2	0.136	2.0	NA	0.3	2.5	0.07	0.16	0.07	57.6

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.
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: 101 [Victoria St & Cowpasture Rd - Ex AM (Site Folder: General)]

Ex AM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Victoria St														
5	T1	128	34	128	26.6	0.117	4.7	LOS A	0.7	4.7	0.34	0.43	0.34	55.6
6	R2	148	2	148	1.4	0.117	9.6	LOS A	0.7	4.7	0.32	0.60	0.32	53.0
Approach		276	36	276	13.0	0.117	7.3	LOS A	0.7	5.4	0.33	0.52	0.33	54.1
North: Cowpasture Rd														
7	L2	421	7	421	1.7	0.608	7.6	LOS A	4.5	33.3	0.70	0.88	0.84	52.3
9	R2	128	23	128	18.0	0.608	13.8	LOS A	4.5	33.3	0.70	0.88	0.84	53.4
Approach		549	30	549	5.5	0.608	9.0	LOS A	4.5	33.3	0.70	0.88	0.84	52.5
West: Victoria St														
10	L2	291	20	291	6.9	0.303	4.5	LOS A	1.8	13.8	0.36	0.47	0.36	54.6
11	T1	459	71	459	15.5	0.303	4.7	LOS A	1.8	13.8	0.37	0.46	0.37	55.9
Approach		750	91	750	12.1	0.303	4.6	LOS A	1.8	14.2	0.36	0.46	0.36	55.4
All Vehicles		1575	157	1575	10.0	0.608	6.6	LOS A	4.5	33.3	0.48	0.62	0.53	54.1

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.

MOVEMENT SUMMARY

Site: 101 [Victoria St & Cowpasture Rd - Ex PM (Site Folder: General)]

Ex PM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Victoria St														
5	T1	1047	54	1047	5.2	0.576	5.2	LOS A	4.7	34.7	0.56	0.53	0.56	54.5
6	R2	393	2	393	0.5	0.576	10.6	LOS A	4.7	33.4	0.57	0.62	0.57	53.6
Approach		1440	56	1440	3.9	0.576	6.7	LOS A	4.7	34.7	0.56	0.56	0.56	54.3
North: Cowpasture Rd														
7	L2	206	7	206	3.4	0.338	4.2	LOS A	1.9	13.6	0.35	0.58	0.35	53.1
9	R2	201	3	201	1.5	0.338	9.8	LOS A	1.9	13.6	0.35	0.58	0.35	54.9
Approach		407	10	407	2.5	0.338	7.0	LOS A	1.9	13.6	0.35	0.58	0.35	54.0
West: Victoria St														
10	L2	69	10	69	14.5	0.106	5.6	LOS A	0.6	4.7	0.53	0.57	0.53	53.7
11	T1	124	33	124	26.6	0.106	6.0	LOS A	0.6	4.7	0.54	0.57	0.54	54.8
Approach		193	43	193	22.3	0.106	5.9	LOS A	0.6	4.8	0.53	0.57	0.53	54.4
All Vehicles		2040	109	2040	5.3	0.576	6.6	LOS A	4.7	34.7	0.52	0.56	0.52	54.2

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.

MOVEMENT SUMMARY

Site: 101 [Victoria St & Cowpasture Rd - AM Prop (Site Folder: General)]

AM with Proposal
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Victoria St														
5	T1	136	38	136	27.9	0.123	4.7	LOS A	0.7	5.0	0.35	0.44	0.35	55.4
6	R2	152	2	152	1.3	0.123	9.7	LOS A	0.7	5.0	0.33	0.60	0.33	53.0
Approach		288	40	288	13.9	0.123	7.3	LOS A	0.7	5.7	0.34	0.53	0.34	54.1
North: Cowpasture Rd														
7	L2	421	7	421	1.7	0.616	7.7	LOS A	4.7	34.4	0.71	0.88	0.86	52.2
9	R2	132	27	132	20.5	0.616	14.0	LOS A	4.7	34.4	0.71	0.88	0.86	53.2
Approach		553	34	553	6.1	0.616	9.2	LOS A	4.7	34.4	0.71	0.88	0.86	52.4
West: Victoria St														
10	L2	294	20	294	6.8	0.306	4.5	LOS A	1.8	13.9	0.36	0.48	0.36	54.6
11	T1	459	71	459	15.5	0.306	4.7	LOS A	1.8	13.9	0.38	0.46	0.38	55.8
Approach		753	91	753	12.1	0.306	4.6	LOS A	1.8	14.4	0.37	0.47	0.37	55.3
All Vehicles		1594	165	1594	10.4	0.616	6.7	LOS A	4.7	34.4	0.48	0.62	0.53	54.1

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.

MOVEMENT SUMMARY

Site: 101 [Victoria St & Cowpasture Rd - PM Prop (Site Folder: General)]

PM with Proposal
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Victoria St														
5	T1	1047	54	1047	5.2	0.579	5.2	LOS A	4.8	34.9	0.56	0.54	0.56	54.5
6	R2	393	2	393	0.5	0.579	10.7	LOS A	4.7	33.6	0.58	0.63	0.58	53.6
Approach		1440	56	1440	3.9	0.579	6.7	LOS A	4.8	34.9	0.57	0.56	0.57	54.2
North: Cowpasture Rd														
7	L2	210	7	210	3.3	0.345	4.2	LOS A	2.0	14.1	0.35	0.58	0.35	53.1
9	R2	204	7	204	3.4	0.345	9.8	LOS A	2.0	14.1	0.35	0.58	0.35	54.8
Approach		414	14	414	3.4	0.345	7.0	LOS A	2.0	14.1	0.35	0.58	0.35	54.0
West: Victoria St														
10	L2	73	14	73	19.2	0.109	5.7	LOS A	0.6	4.9	0.53	0.57	0.53	53.5
11	T1	124	33	124	26.6	0.109	6.0	LOS A	0.6	4.9	0.54	0.57	0.54	54.8
Approach		197	47	197	23.9	0.109	5.9	LOS A	0.6	4.9	0.54	0.57	0.54	54.3
All Vehicles		2051	117	2051	5.7	0.579	6.7	LOS A	4.8	34.9	0.52	0.57	0.52	54.2

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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