APPENDIX L –
TRAFFIC IMPACT ASSESSMENT

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Luddenham Advanced Resource Recovery Centre

Traffic impact assessment

Prepared for Coombes Property Group and KLF Holdings
July 2020



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Luddenham Advanced Resource Recovery Centre

Traffic impact assessment

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Executive Summary

Coombes Property Group (CPG) in partnership with KLF Holdings Pty Ltd (KLF) propose to develop an advanced resource recovery centre (ARRC) at 275 Adams Road, Luddenham, New South Wales (NSW), legally defined as Lot 3, DP 623799 (the subject property).

There is an existing clay and shale quarry on the subject property approved under Development Consent DA 315-7-2003, as modified. CPG and KLF have commenced the application process to modify the quarry's consent to allow quarry operations to recommence, in parallel to the ARRC development application (DA) process. It is proposed to develop the project in an area to the north of the existing quarry void. The ARRC site will share the Adams Road access with the quarry.

The ARRC will process up to 600,000 tonnes per annum (tpa) of general solid waste and is classified as a State significant development (SSD).

This traffic impact assessment (TIA) has been prepared by EMM Consulting Pty Limited (EMM) to assess the potential traffic impacts associated with the project. The TIA accompanies the Environmental Impact Statement (EIS), which will accompany the SSD application for the project, required to be submitted to the Department of Planning, Industry and Environment (DPIE) under Division 4.1 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

The TIA has taken into consideration traffic and transport matters addressed in the Planning Secretary's Environmental Assessment Requirements (SEARs) for the project, which were issued on 24 April 2020. It has also been prepared in accordance with the requirements of RTA *Guide to Traffic Generating Developments* (RTA 2002).

The TIA has considered cumulative traffic impacts using the Transport for New South Wales (TfNSW) Strategic Travel Forecasting Model (STFM) 2029 locality traffic levels (ie including existing land uses such as the approved quarry and the future traffic levels forecast generated by the staged Western Sydney Airport and Aerotropolis development).

Heavy vehicles are currently restricted on Adams Road. The northern section of Adams Road, between the subject property access road and Elizabeth Drive, will be upgraded by the applicant prior to the start of ARRC operations as part of the proposed development so that the pavement is suitable for use by larges trucks, up to B-doubles, and so that the lane and shoulder widths meet Austroads Guidelines and, until the load limit is lifted is lifted along the whole of Adams Road, ARRC-related heavy vehicles will only access/depart the ARRC using the northern section of Adams Road. On this basis, traffic impacts are assessed on two scenarios:

- even traffic distribution: where the load limit restriction is removed along the entire section of Adams Road; and
- alternative traffic distribution, where the load limit restriction is only removed on Adams Road between Elizabeth Drive and the site access.

The outcomes of the assessment are as follows:

- Although Liverpool City Council's (Council) Development Control Plan (DCP) does not stipulate a car parking rate for a resource recovery facility, the proposed car parking provision of 45 car parking spaces will meet the car parking demand for project-related staff and visitors.

- The Northern Road/Adams Road intersection is currently operating at LOS A or B. The intersection will be upgraded as part of The Northern Road upgrade project, and with future signalisation it will operate at LOS C and B for the AM and PM peak hours respectively. The additional traffic generated by the project will not deteriorate the performance of the intersection;

- The Elizabeth Drive/Adams Road intersection is currently operating at LOS A with significant capacity to accommodate additional traffic. With project traffic, the intersection will have a LOS A or B in all the analysed years up to 2039 for the even traffic distribution scenario. In the case where the Adams Road heavy vehicle restriction is not lifted south of the ARRC site, all heavy vehicle traffic will travel through this intersection and the intersection will have a LOS C in the AM peak hour.

- The Elizabeth Drive/Luddenham Road intersection is currently operating at LOS B. By 2029, intersection performance is expected to deteriorate to a LOS F with significant traffic queuing, due to traffic anticipated from the Western Sydney Aerotropolis development. The baseline performance of the intersection will continue to worsen by 2034 and 2039, without the project traffic, which will consist of up to 4.1% of the overall traffic in 2029. An intersection upgrade will be required with or without the project-related traffic.

- In 2039, the mid-block capacity analysis indicates additional development traffic from the ARRC site will represent up to 9%, 8% and 2% of the future total forecast traffic volume using Adams Road, Elizabeth Drive, and The Northern Road respectively, but this is not expected to have a significant impact in terms of either traffic flow or traffic safety.

- Swept path analyses of the existing Adams Road site access intersection, the Elizabeth Drive/Adams Road intersection and The Northern Road/Adams Road intersection show these intersections can accommodate vehicles up to 19 m in length, while the internal road network is capable to accommodate up to 26 m long articulated vehicles.

- Upgrades to the northern section of Adams Road will include upgrades to the Adams Road site access intersection and the Elizabeth Drive/Adams Road intersection so that it is suitable for B-doubles.

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1 Introduction

1.1 Overview

CFT No 13 Pty Ltd, a member of Coombes Property Group (CPG), has recently acquired the property at 275 Adams Road, Luddenham NSW (Lot 3 in DP 623799, 'the site') within the Liverpool City Council municipality (Figure 1.1). The site is host to an existing shale/clay quarry.

CPG owns, develops, and manages a national portfolio of office, retail, entertainment, land, and other assets. The company's business model is to retain long-term ownership and control of all its assets. CPG has the following staged vision to the long-term development of the site:

- Stage 1 Quarry reactivation: **Solving a problem**. CPG intends to responsibly avoid the sterilisation of the remaining natural resource by completing the extraction of shale which is important to the local construction industry as raw material used by brick manufacturers in Western Sydney. This is the first step to preparing the quarry site for rehabilitation.

- Stage 2 Next Gen Resource Recovery Centre and Quarry Rehabilitation: **A smart way to fill the void**: CPG in partnership with KLF Holdings Pty Ltd (KLF) and in collaboration between the circular economy industry and the material science research sector, intends to establish a technology-led approach to resource recovery, management, and reuse of Western Sydney's construction waste, and repurposing those materials that cannot be recovered for use to rehabilitate the void. This will provide a sustainable and economically viable method of rehabilitating the void for development.

- Stage 3 High Value Employment Generating Development: **Transform the land to deliver high value agribusiness jobs**. CPG intends to develop the rehabilitated site into a sustainable and high-tech agribusiness hub supporting food production, processing, freight transport, warehousing, and distribution, whilst continuing to invest in the resource recovery R&D initiatives. This will deliver the vision of a technology-led agribusiness precinct as part of the Aerotropolis that balances its valuable assets including proximity to the future Western Sydney Airport (WSA) and Outer Sydney Orbital.

This report relates to a new development application relating to the delivery of Stage 2 above.

KLF is an Australian-owned and operated waste management company that operates two strategically located resource recovery and recycling facilities in Sydney; one at Camellia and another at Asquith. KLF has 20 years' experience in the waste recycling and resource recovery industry. KLF facilities are licensed by the NSW Environment Protection Authority (EPA) and have full International Organisation for Standardisation (ISO) accreditation.

1.2 The site

There is an existing clay and shale quarry on the site approved under Development Consent DA-315-7-2003, as modified. The quarry is currently inactive. CPG and KLF (the 'applicants') have commenced the application process to modify the quarry's consent to allow quarry operations to recommence, with the primary intention of changing the approved site access to allow quarry operations (Modification 5, also referred to as MOD 5).

It is proposed to develop an advanced resource recovery centre (ARRC) within the same lot to the north of the existing quarry void. The ARRC site is shown in Figure 1.2.

The project is integral in achieving the intended future commercial/industrial land use for the subject property as the project provides a commercially viable means to infill the quarry void (subject to separate development consent). This will support the Western Sydney Airport and ongoing development of the Western Sydney Aerotropolis.

A new State significant development (SSD) consent under Division 4.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) is required to establish the ARRC. On 24 April 2020, the Department of Planning, Industry and Environment (DPIE) issued Secretary's Environmental Assessment Requirements (SEARs) for the environmental impact statement (EIS) for the project. The SSD consent application number is SSD-10446.

This report has been prepared by EMM Consulting Pty Ltd (EMM) on behalf of the applicants.

1.3 Project overview

The key components of the ARRC project are as follows:

- construction and operation of an advanced construction and demolition resource recovery centre;
- accepting and processing up to 600,000 tonnes per annum (tpa) of waste for recycling;
- despatch of approximately 540,000 tpa of recycled product;
- despatch of approximately 60,000–120,000 tpa of unrecyclable material either to an offsite licensed waste facility or to the adjacent quarry void (the later would be subject to separate approval);
- if required, upgrade the quarry access road to Adams Road;
- use of the quarry access road to Adams Road;
- the ARRC would not accept putrescibles, liquid or hazardous waste; and
- the ARRC would operate up to 24 hours a day, 7 days per week.

The ARRC will accept general solid waste comprising building and demolition waste as well as selected commercial and industrial waste. No special, liquid, hazardous, restricted solid water, putrescible solid waste, or odorous waste will be accepted at the ARRC.

The vast majority of materials accepted will be recovered, the remaining minor amount (10–20%) of unrecyclable materials will be disposed of at an offsite licensed landfill or to the quarry void on the site as part of rehabilitating the void.

The proposed project layout is shown in Figure 1.2.

1.4 Report objectives

This traffic impact assessment (TIA) has been prepared by EMM to assess the potential traffic impacts associated with the proposed ARRC.

This TIA addresses the traffic and transport related Secretary's Environmental Assessment Requirement (SEARs) (refer to Section 0) and has been prepared in accordance with the requirements of the RTA *Guide to Traffic Generating Developments* (RTA 2002). The *Austroads Guide to Traffic Management Part 3: Traffic Studies and Analysis* (Austroads 2016) have also been considered.

The TIA uses the Transport for New South Wales (TfNSW) Strategic Travel Forecasting Model (STFM) for 2026, 2031, and 2036 which provides traffic levels in the region including from existing land uses and future land uses related to the staged Western Sydney Airport and Aerotropolis development.

This TIA has been prepared in consultation with the relevant government authorities. A meeting with TfNSW was held on 4 February 2020 to confirm the assessment scope (refer meeting minutes contained in Appendix A). A meeting was held with Liverpool City Council on 18 February which confirmed the current heavy vehicle load restriction on Adams Road will need to be removed. Consultation with Council is continuing with regard to the removal of this load restriction.

1.5 Secretary's Environmental Assessment Requirements

The SEARs for the ARRC development were issued on 24 April 2020. The SEARs related to traffic and transport are provided in Table 1.1.

Table 1.1 SEARs traffic and transport requirements

SEARs	Report section
Details of all traffic types and volumes likely to be generated during construction and operation, including a description of haul routes. Traffic flows are to be shown diagrammatically to a level of detail sufficient for easy interpretation	Operational traffic details are provided in sections 3.2 and 3.3. Construction traffic is discussed in Section 4.5.
An assessment of the predicted impacts of this traffic on road safety and the capacity of the road network, including consideration of cumulative traffic impacts at key intersections using SIDRA or similar traffic model. This is to include the identification and consideration of approved and/or proposed developments in the vicinity	A road safety impact assessment is provided in Section 4.6. The road network capacity is discussed in sections 4.1 and 4.2. Cumulative traffic impacts are discussed in Section 1.4.
Plans demonstrating how all vehicles likely to be generated during construction and operation and awaiting loading, unloading or servicing can be accommodated on the site to avoid queuing in the street network	The proposed site layout is provided in Figure 1.2. Onsite vehicle movements are discussed in Section 4.4.
Detailed plans of the proposed layout of the internal road and pedestrian network and parking on site in accordance with the relevant Australian Standards and Council's DCP	The proposed site layout is provided in Figure 1.2. The pedestrian network and parking are discussed in Section 4.4.
Swept path diagrams depicting vehicles entering, exiting and manoeuvring throughout the site	The swept path assessment is provided in Section 3.6 and 4.4 and the diagrams are provided in Appendix D.
Details of road upgrades, infrastructure works or new roads or access points required for the development if necessary	Road upgrades are discussed in Section 3.5.
Details of the adequacy of existing public transport or any future public transport infrastructure within the vicinity of the site, pedestrian and bicycle networks and associated infrastructure to meet the likely future demand of the proposed development.	Public transport, pedestrian and bicycle networks are discussed in section 4.8.

KEY

- Subject property
- ARRC site
- Western Sydney Airport
- Major road
- Minor road
- Vehicular track
- Watercourse/drainage line
- NPWS reserve (see inset)
- State forest (see inset)

Source: EMM (2020); DFSI (2017); Nearmap (2020)

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Regional context

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Figure 1.1

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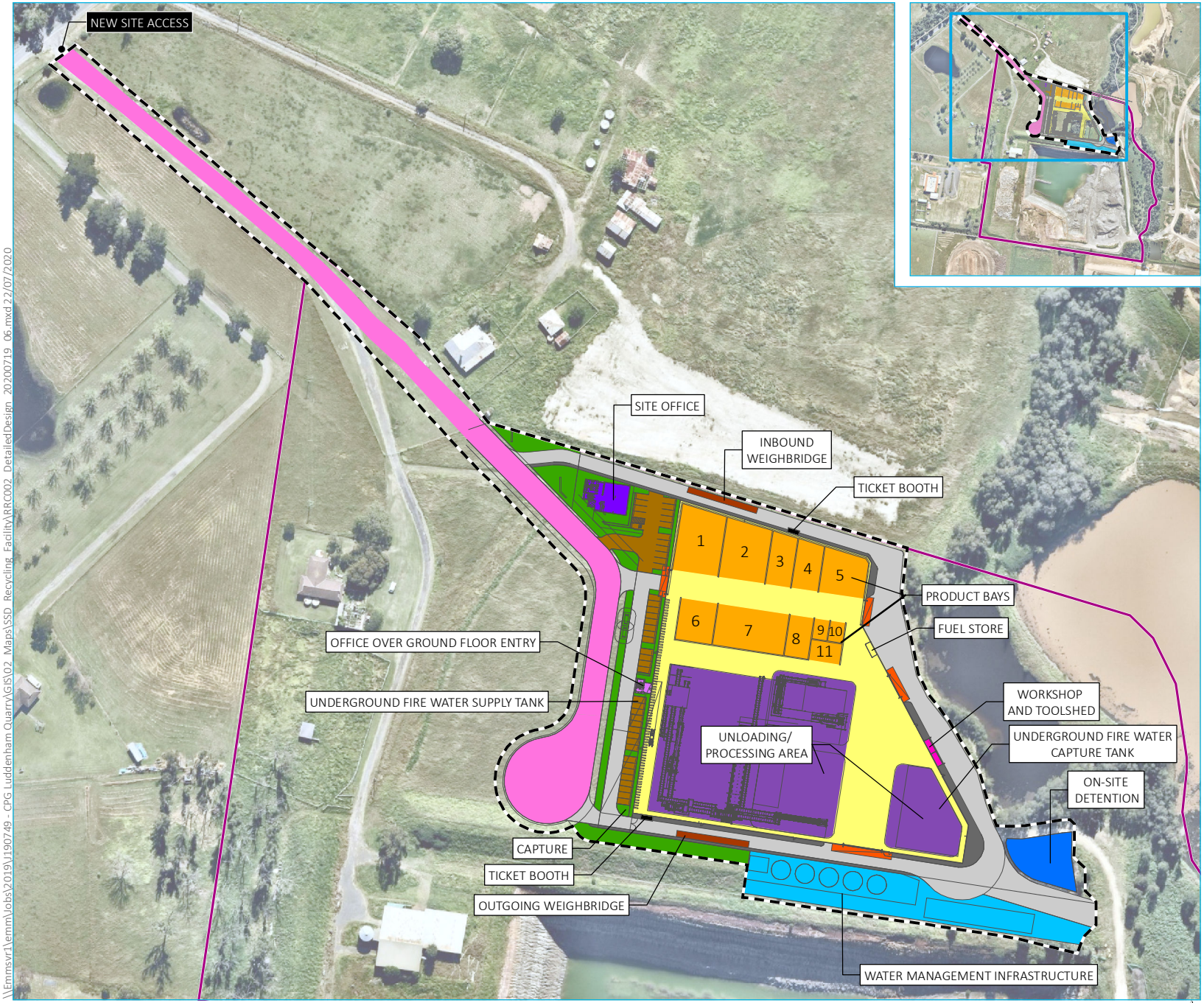

KEY

- Subject property
- ARRC site
- Indicative detailed layout

Proposed element

- Awning
- Carpark
- Hardstand
- ARRC access road
- Kerb/pedestrian area
- Landscaping
- Office over ground floor
- On-site detention
- ARRC warehouse
- Product bay
- Site office
- Ticketbooth
- Tool shed, workshop
- Unloading/processing
- Water management infrastructure, including treatment plant and storage
- Weighbridge

Product bays

1. Concrete/ rubble masonry
2. Clean timber
3. Rigid plastics
4. Paper/cardboard/film
5. Stumps/asphalt/metal
6. Heavy residual
7. Fines screened
8. Soil audit
9. Ferrous
10. Non-ferrous
11. Non-recyclables

Source: EMM (2020); DFSI (2017); GA (2011); Nearmap (2020); Reid Campbell (2020)

0 50 100 m

GDA 1994 MGA Zone 56

N

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Project overview

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Traffic Impact Assessment
Figure 1.2

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2 Existing conditions

2.1 Site location and access

The site is located at 275 Adams Road, Luddenham, NSW (legally described as Lot 3 in DP 623799) within the Liverpool local government area (LGA). The whole site is approximately 19 hectares (ha) and the ARRC site is approximately 3 ha within the site. The site is adjacent to the Western Sydney Airport site, which is on Commonwealth-owned land to the east and the south. Construction of the airport (including road infrastructure upgrades and bulk earthworks) has commenced. The area surrounding the site is sparsely populated, with the closest urban area being the suburb of Luddenham, approximately 2.2 kilometres (km) south-west of the site. The closest occupied residence is about 70 metres (m) east of the site access road. Hubertus Country Club and pistol range is immediately west of the site.

The site has a narrow frontage on Adams Road with a fenced access road connecting the bulk of the site to Adams Road (Figure 1.2). Adams Road is a local road which intersects with Elizabeth Drive about 500 m north of the site and The Northern Road about 2.5 km south of the site. Elizabeth Drive and The Northern Road are the closest state roads to the site. The existing access road is generally unsealed and there is no constructed intersection currently on Adams Road, as shown in Plate 2.1.

Plate 2.1 Existing site access off Adams Road

2.2 Road network

The NSW administrative road hierarchy comprises the following road classifications, which align with the generic road hierarchy as follows:

- state roads – freeways and primary arterials (TfNSW managed);
- regional roads – secondary or sub arterials (council managed and part funded by the State); and
- local roads – collector and local access roads (council managed).

An overview of each of the key roads is provided in Figure 2.1.

The alignment, number of lanes, carriageway type/width, posted speed limit, heavy vehicle access and traffic function for each of these roads are summarised in Tables 2.1 to 2.6. Images of the roads are provided in Plates 2.2 to Plate 2.6.

The site location, 275 Adams Road, Luddenham, is shown by a star.
Source: carto

Figure 2.1 Road hierarchy near the site

Table 2.1 Adams Road

Aspect	Description
Road classification and connectivity	Local road between Elizabeth Drive (north-east) and The Northern Road (south-west)
Alignment	North-east – south-west between Elizabeth Drive, Luddenham and The Northern Road, Luddenham
Number of lanes	One lane each way
Carriageway type	Sealed road without road shoulder
Carriageway width	Generally, carriageway approximately 7-m wide Travel lanes approximately 3.5-m wide
Posted speed limit	70 kilometres per hour (km/h) currently which may change in the future
Heavy vehicle access	Prohibited for vehicles over 3 tonnes (t). This restriction will need to be lifted to allow heavy vehicles to access the site
Traffic function	Predominantly carries local traffic at present, if realigned with Luddenham Road will act as a thoroughfare for regional traffic

Plate 2.2 Adams Road looking south-west from north of the site access

Table 2.2 Elizabeth Drive

Aspect	Description
Road classification and connectivity	State road between The Northern Road (west) and Hume Highway (east)
Alignment	Generally east–west between The Northern Road, Luddenham and M7, Cecil Park
Number of lanes	Varying number of travel lanes. One lane each way close to Adams Road
Carriageway type	Sealed road with road shoulder
Carriageway width	Carriageway varies between 7-m and 10-m wide Generally, travel lanes are approximately 3.5-m wide with 1-m wide shoulder on each side
Posted speed limit	80 km/h in the vicinity of the site
Heavy vehicle access	TfNSW approved 25/26 m B-double route between The Northern Road and Hume Highway
Traffic function	Provides east-west arterial connection

Source: GoogleEarth

Plate 2.3 Elizabeth Drive looking west from Luddenham Road

Table 2.3 The Northern Road

Aspect	Description
Road classification and connectivity	State road between Blacktown Road (north) and Camden Valley Way (south) This road is currently being upgraded.
Alignment	Generally north–south between Blacktown Road, Windsor South and Camden Valley Way, Narellan
Number of lanes	Varying number of travel lanes. One lane each way close to Luddenham. Travel lane will increase once the road upgrade is completed
Carriageway type	Sealed road
Carriageway width	Carriageway varies between 7.5-m and 11-m wide Generally, travel lanes approximately 3.7-m wide with parking lanes on both sides
Posted speed limit	80 km/h
Heavy vehicle access	TfNSW approved 25/26 m B-double route between Blacktown Road and Camden Valley Way
Traffic function	Provides north-south arterial connection

Source: GoogleEarth

Plate 2.4 The Northern Road looking north from Blaxland Avenue

Table 2.4 Luddenham Road

Aspect	Description
Road classification and connectivity	Regional road between Mamre Road (north) and Elizabeth Drive (south)
Alignment	Generally north–south between Mamre Road, St Clair and Elizabeth Drive, Luddenham
Number of lanes	One lane each way
Carriageway type	Sealed road with road shoulder
Carriageway width	Generally, carriageway 7-m wide Travel lanes approximately 3.5-m wide with 1-m wide shoulders on each side
Posted speed limit	80 km/h
Heavy vehicle access	Prohibited for vehicles over 5 t
Traffic function	Carries local and regional traffic

Plate 2.5 Luddenham Road looking north from Elizabeth Drive

2.3 Key intersection

There are three key intersections in the vicinity of the site which will be most impacted by development traffic:

- Elizabeth Drive/Adams Road intersection;
- Elizabeth Drive/Luddenham Road intersection; and
- The Northern Road/Adams Road intersection.

Currently all three intersections are priority-controlled T-intersections. However, TfNSW will upgrade The Northern Road/Adams Road intersection as part of the Western Sydney Aerotropolis development as discussed in Section 2.8.

KEY

- Subject property
- ARRC site
- Major road
- Minor road
- Vehicular track
- Watercourse
- Waterbody
- Key intersection

Source: EMM (2020); DFSI (2017); GA (2011); Nearmap (2020)

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Key intersections

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Figure 2.2

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2.4 Existing traffic volumes

2.4.1 Intersection counts

Intersection traffic was surveyed between 6.00 am and 9.00 am, as well as between 3.00 pm and 6.00 pm, on 27 November 2019 at the three key intersections. Further details are provided in Appendix B.

The survey results indicate that the network peak hours are:

- AM peak hour: 6.30 am to 7.30 am; and
- PM peak hour: 4.45 pm to 5.45 pm.

The surveyed traffic volumes during the AM and PM peak hours are summarised in Figure 2.3.

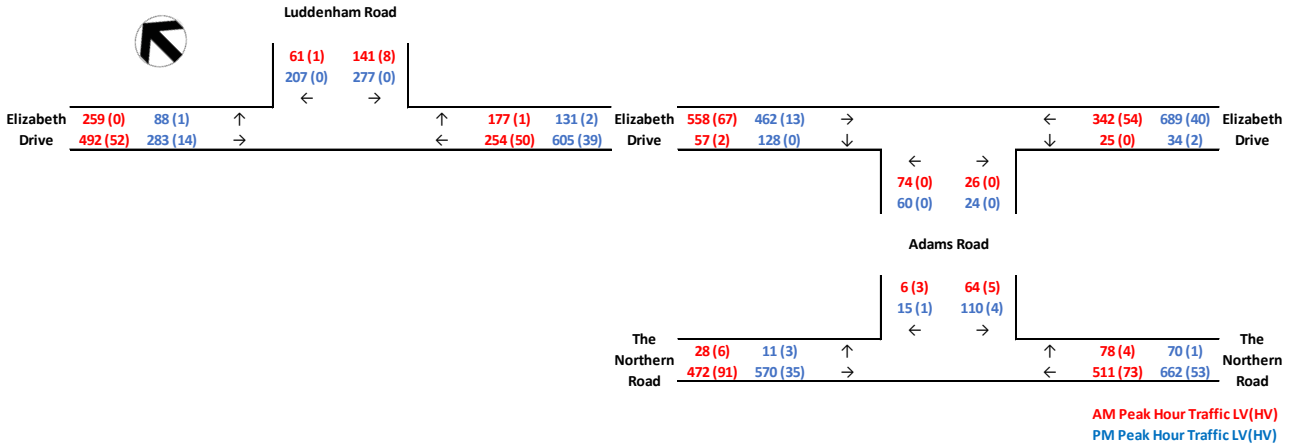


Figure 2.3 2020 AM & PM peak surveyed traffic volume

As noted in Section 1.2, it is proposed to reactivate the quarry, including dispatching up to 300,000 tpa of clay and shale from the site. Therefore, the quarry traffic is included as part of the baseline traffic data for the assessment of the ARRC. In the absence of the approval to reactivate the quarry, there will be less total traffic from the site and the traffic impacts will be lower.

The traffic that will be generated by the quarry is shown in Figure 2.4. This data was presented in the MOD5 Traffic Impact Assessment (EMM Consulting 2020).

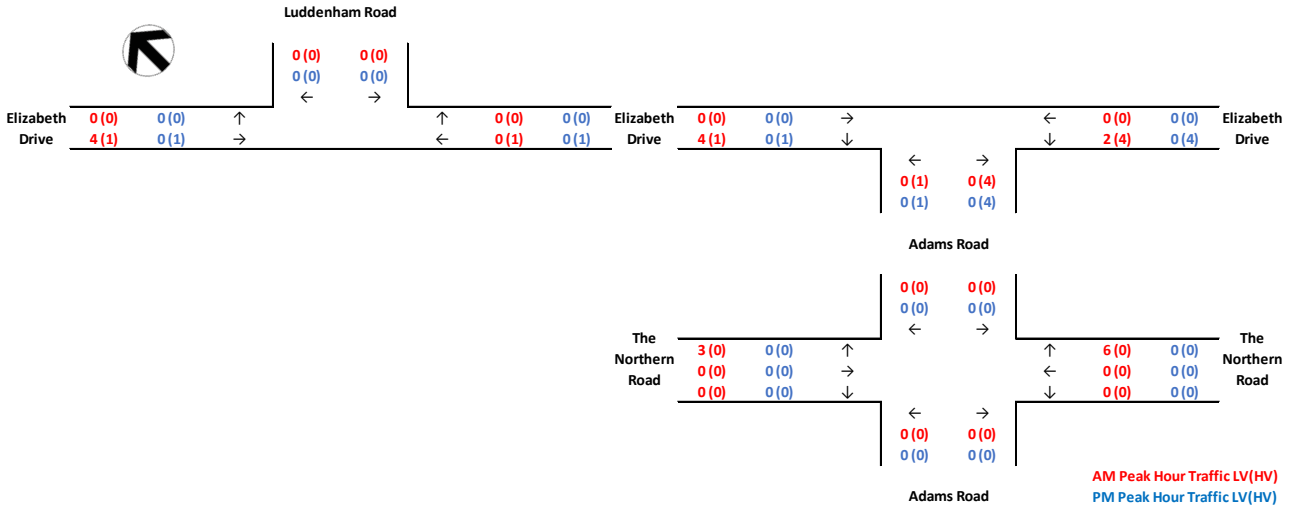


Figure 2.4 Quarry traffic volume

The baseline traffic volume in 2020, which is sum of the surveyed traffic and the quarry traffic, is presented in Figure 2.5.

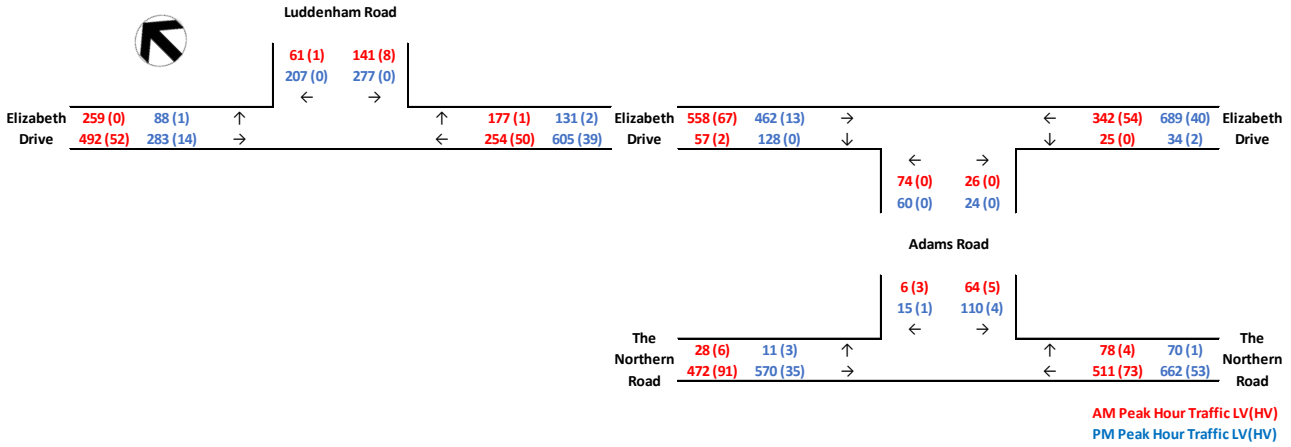


Figure 2.5 2020 AM & PM peak baseline traffic volume

2.4.2 Tube counts

A tube traffic count was undertaken on Adams Road north of Anton Road for a 7-day period between 27 November 2019 and 3 December 2019. The annual average daily traffic (AADT), weekly 85th percentile speed, and heavy vehicle percentage were recorded (refer to Table 2.5).

The traffic count shows that Adams Road carried about 2,100 vehicles per day with an average of 7% heavy vehicles. Given the rural nature of the road, the high heavy vehicle proportion is considered acceptable. However, the 85th percentile speed of this road was well above the posted speed limit (70 km/h).

It should be noted that there is an existing heavy vehicle load restriction on Adams Road (3 t and over). Consultation is in progress with Liverpool City Council (Council) regarding lifting the load limit restriction. In this process, a formal review of the speed in this road is likely to take place.

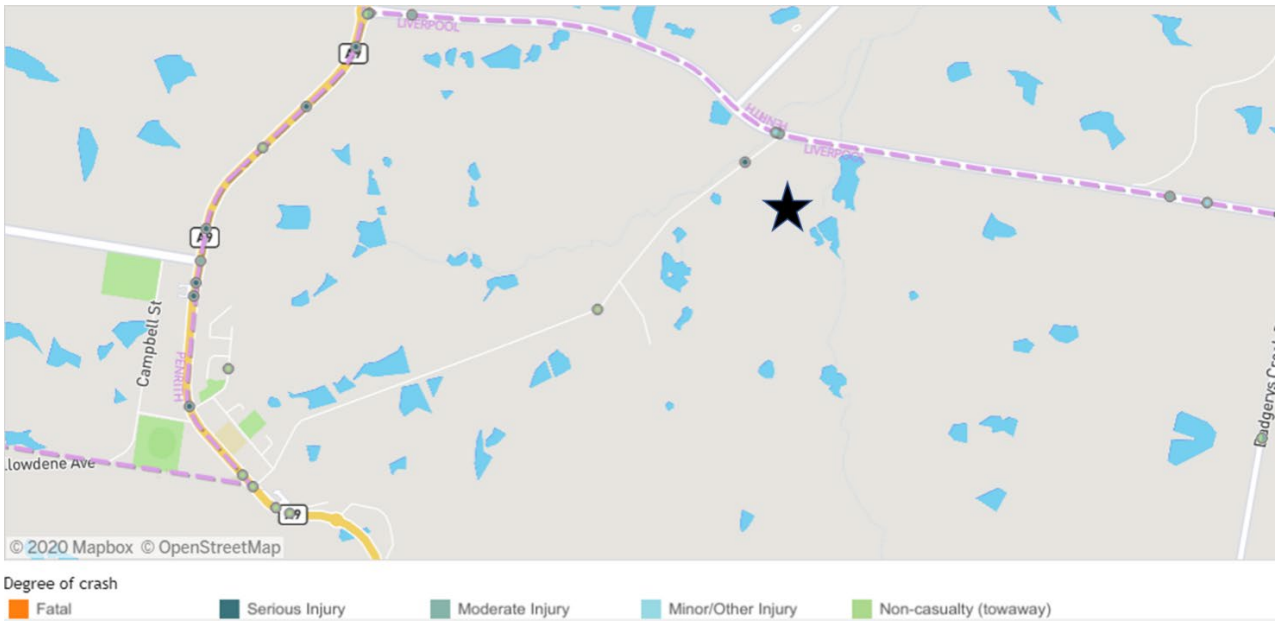
Table 2.5 Summary of tube count results – Adams Road

	5-day AADT	Heavy vehicle percentage (%)	Weekly 85th percentile speed (km/h)
North-eastbound	1,089	7.4	81
South-westbound	1,009	6.9	82
Combined	2,099	7.2	81

2.5 Crash analysis

Crash data from TfNSW Centre for Road Safety interactive history database between 2014 and 2018 has been studied in the vicinity of the ARRC site and is presented in Figure 2.6. The crashes are categorised based on the severity of the crashes as follows:

- fatal;
- serious injury;
- moderate injury;
- minor/other injury; or
- non-casualty (eg towaway).



The site location, 275 Adams Road, Luddenham, is shown by a star.

Figure 2.6 Crash data between 2014 and 2018

Overall, there were five crashes on Adams Road including at its intersections with Elizabeth Drive and The Northern Road. These crashes involved the following severity:

- one serious injury;
- one moderate injury;
- one minor/other injury; and
- two non-casualty (towaway).

There were no fatal incidents. This overall crash rate is considered low over the 5-year period, which indicates that the road can be considered safe currently. However, due to the development of the Western Sydney Airport, the future land uses and road network in the locality are expected to change significantly, with significant growth of traffic which is likely to generate different statistics.

2.6 Public transport

There are currently no public transport services accessible to the site.

The Western Sydney Airport EIS (Department of Infrastructure and Regional Development 2016) noted that bus routes 789 and 801 will be altered in consultation with the bus operator and TfNSW. The altered bus stops may be accessible to/from the site with more frequent services in the future. These bus routes currently service the following areas:

- bus route 789 – Luddenham to Penrith (one service in the morning and one in the afternoon in weekdays only); and
- bus route 801 – Badgerys Creek to Liverpool (three services towards Badgerys Creek in the afternoon and two services towards Liverpool in the morning).

In terms of rail transport, the Federal and NSW State Governments have undertaken a scoping study for Western Sydney rail needs. In future, the Western Sydney Airport will be supported by direct rail links to Schofields, Parramatta, Macarthur, and Leppington.

The recently announced Sydney Metro Train Greater West will include a station at Luddenham, about 5 km north of the site, and two stations within the Western Sydney Airport site.

2.7 Active transport

Pedestrian and cycling infrastructure in the area is currently limited, reflecting the predominantly rural character of the area.

As the Western Sydney Priority Growth Area and South West Priority Growth Area develop, additional cycleway links will be provided and integrated within the Liverpool cycleway network.

2.8 Future road improvements

The *Western Sydney Infrastructure Plan* (Department of Infrastructure, Transport, Regional Development and Communications 2019) has outlined the upcoming infrastructure upgrade works to accommodate the expected traffic generated from the Western Sydney Airport. The following upgrades are relevant to the locality of Adams Road:

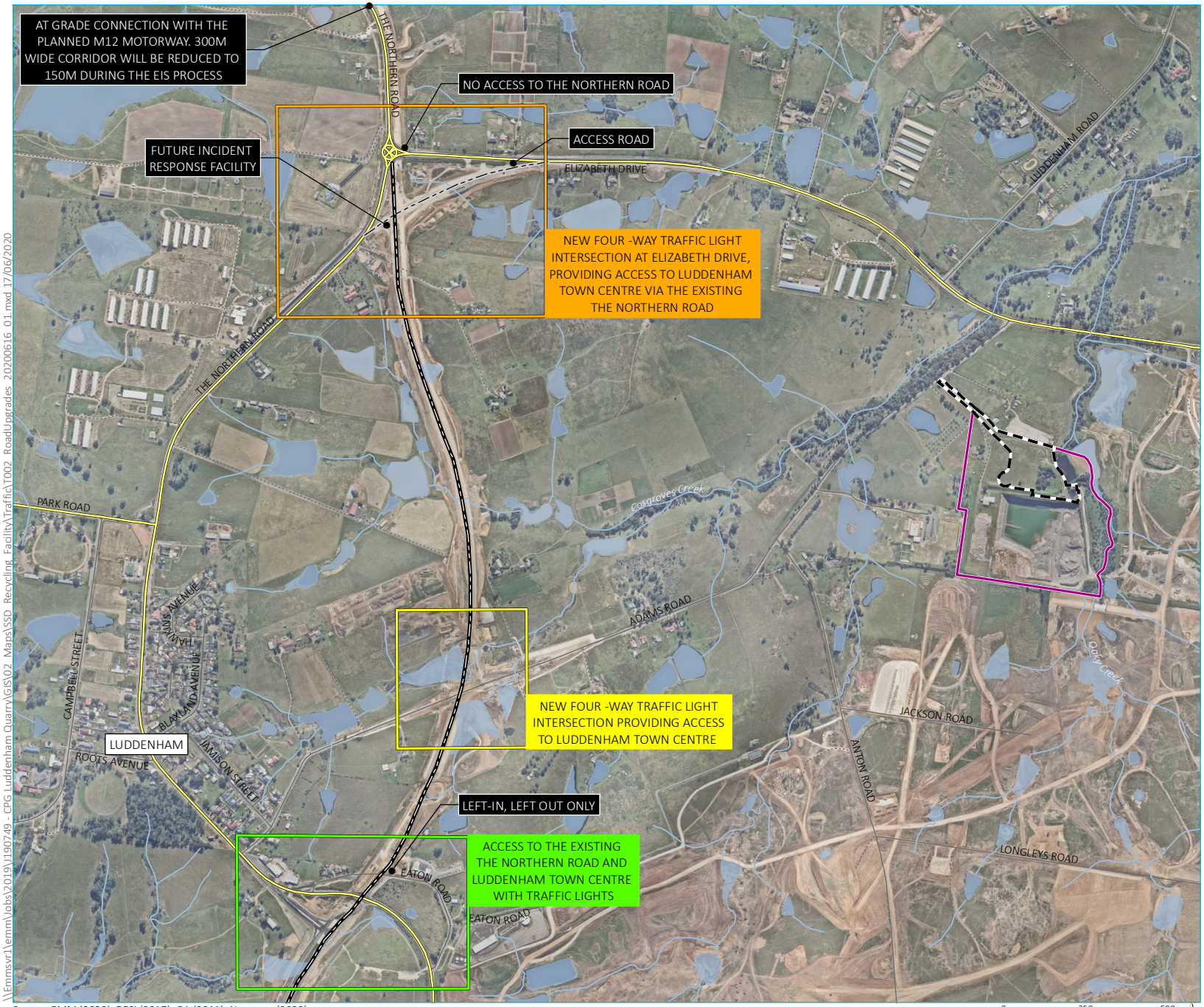
- The Northern Road upgrade – the realigned The Northern Road will intersect Adams Road at a location closer to the site and will have a four-way intersection instead of the current T-intersection; and

- M12 Motorway – The new motorway will provide a direct access from the M7 Motorway to the Western Sydney Airport as well as to The Northern Road. As a result, Elizabeth Drive will be partly relieved from regional traffic.

The Northern Road upgrade is currently being undertaken by TfNSW and is anticipated to be completed in 2022. A summary of the intersection upgrade works in the vicinity of the ARRC site is presented in Figure 2.7.

A review of *The Northern Road Upgrade – Glenmore Park to Bringelly MOD 1 - Adams Road Signalised Intersection* (SSI-7127-Mod-1) (Road and Maritime Services 2018) indicates that Adams Road south/west of The Northern Road will have a reduced speed limit from 70 km/h to 60 km/h while north/east of The Northern Road, Adams Road will retain its existing speed limit of 70 km/h.

The *Draft Western Sydney Aerotropolis Plan* (Western Sydney Planning Partnership 2019) provides a structure plan for the land uses surrounding the proposed Western Sydney Airport (Figure 2.8). This indicates that, in the long-term, Adams Road will be realigned at its northern end to connect directly into Luddenham Road at a new four-way intersection which will replace the existing Elizabeth Drive/Adams Road intersection. However, no details of this realignment are presently available.



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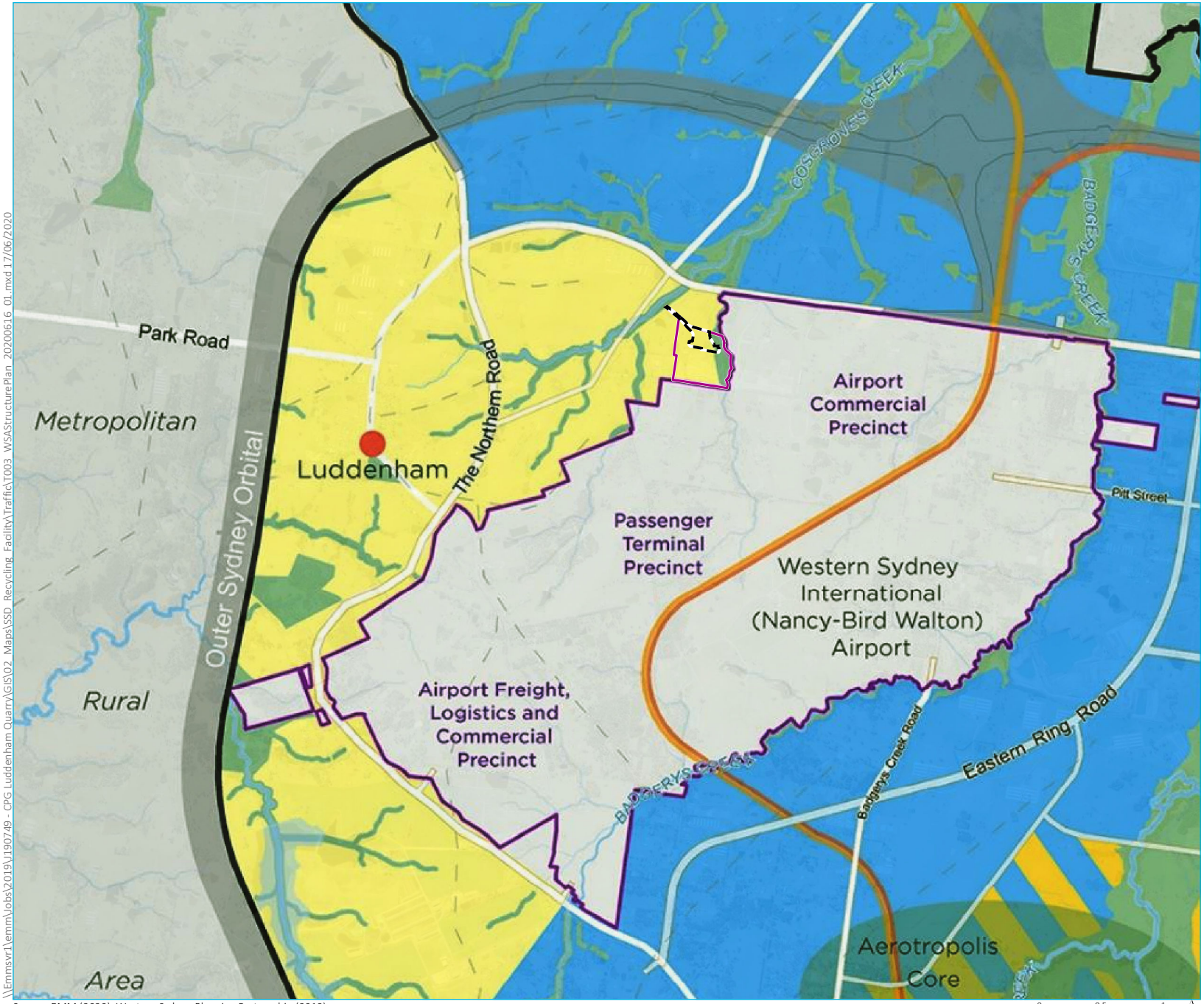
Source: EMM (2020); DFSI (2017); GA (2011); Nearmap (2020)

Road upgrade works

Luddenham Advanced Resource Recovery Centre
Traffic Impact Assessment
Figure 2.7

EMM
creating opportunities



KEY

- Subject property
- ARRC site

Structure plan

- Centre
- Western Sydney International (Nancy-Bird Walton) Airport
- Proposed transport corridor
- Agribusiness
- Environment and recreation
- Flexible employment
- Mixed flexible emplyment & urban land

Source: EMM (2020); Western Sydney Planning Partnership (2019)

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Western Sydney Aerotropolis
Structure Plan

Luddenham Advanced Resource Recovery Centre
Traffic Impact Assessment
Figure 2.8

EMM
creating opportunities

2.9 Future traffic volumes

The future baseline traffic volumes in the locality incorporating the generated traffic associated with Western Sydney Airport staged development, have been provided by TfNSW in the form of their Strategic Travel Forecasting Model (STFM) 'link" traffic volume outputs for the years 2026, 2031 and 2036. Due to the lack of detailed intersection information, the higher future 'link' volumes have been used to factor future intersection traffic movements from the existing intersection count data.

It is also noted that The Northern Road/Adams Road intersection will transform from its current 3-leg to a 4-leg intersection. In the calculations of future intersection traffic movements, it is assumed that traffic will either enter or exit Adams Road via The Northern Road (ie with no through traffic movements to/from the other section of Adams Road). In addition, the future traffic splits for the new approach (via Adams Road west) have been assumed to be 50/50 to and from the north and south.

The future TfNSW model-derived 2026, 2031 and 2036 intersection turning movements have been interpolated/extrapolated to yield 2029, 2034 and 2039 traffic volumes. The 2029, 2034 and 2039 baseline traffic volumes for each intersection are presented in Figure 2.9, Figure 2.10 and Figure 2.11 respectively. There are no known specific developments that would alter these STFM forecasts.

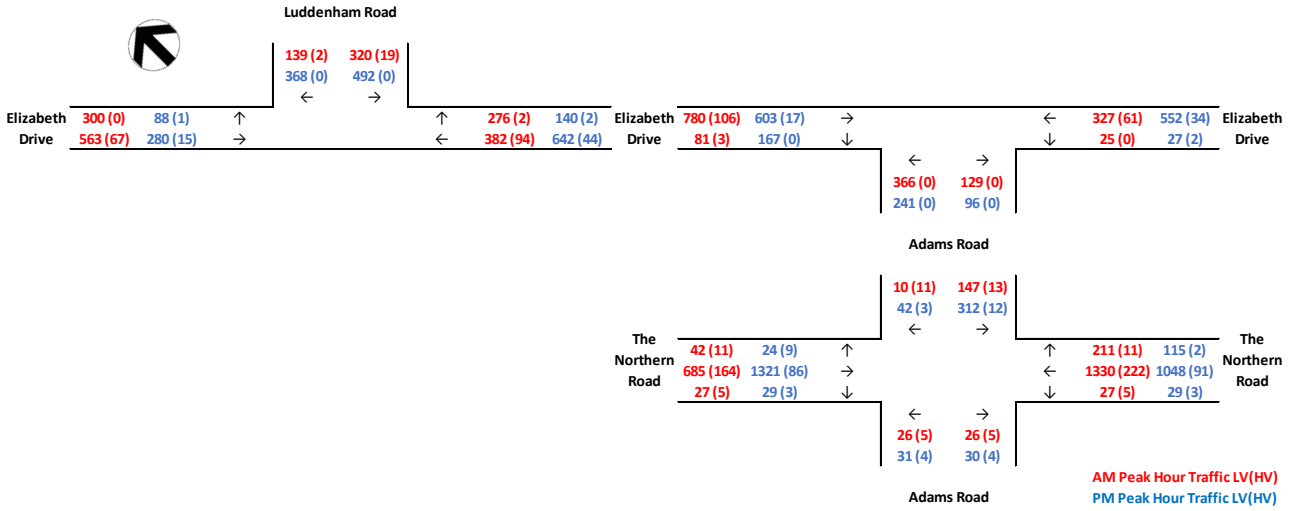

Figure 2.9 2029 STFM traffic volume

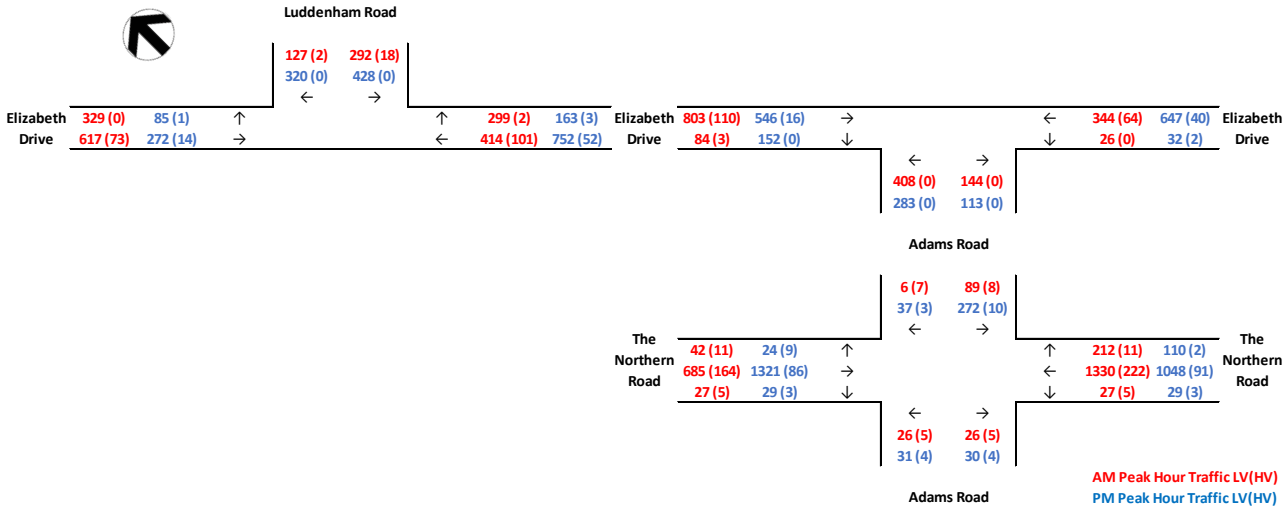

Figure 2.10 2034 STFM traffic volume

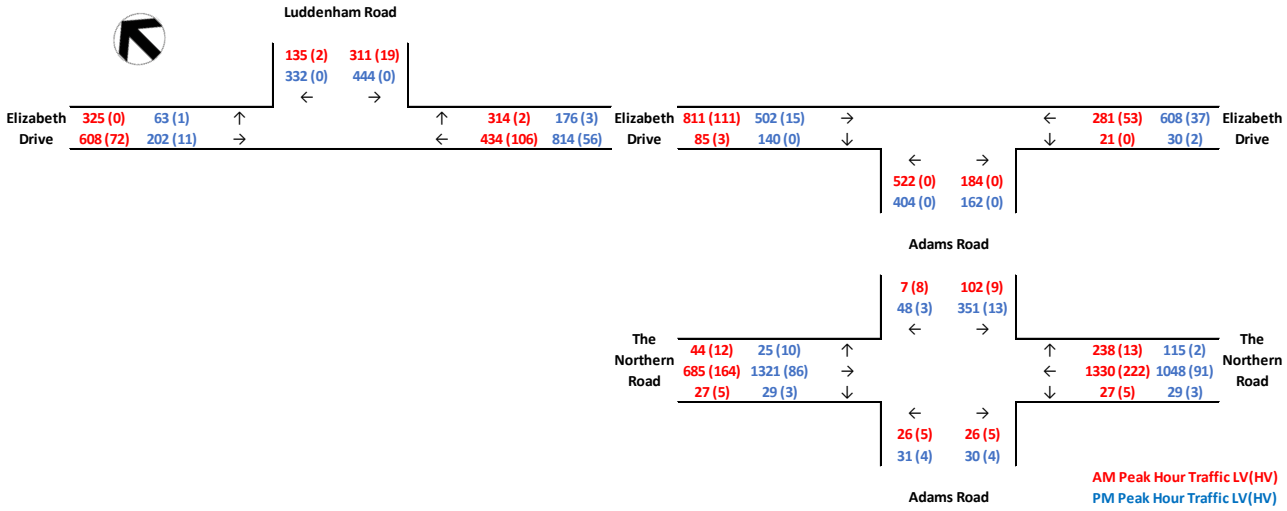

Figure 2.11 2039 STFM traffic volume

3 Proposal

3.1 Site layout

The project consists of the construction and operation of an ARRC. The ARRC and quarry will share the same access road to Adams Road.

The ARRC construction will consist of installing the following site components and infrastructure:

- Construction of:
  - sealed site access via Adams Road;
  - internal sealed roads;
  - hard surfacing for the warehouse floor and external areas;
  - a 13,230 m^2 metal clad warehouse, with an elevation of 16 m;
  - two site offices with the larger office (400 m^2) located in the outside parking area and the smaller office (140 m^2) located over the car parking area on the western side of the ARRC warehouse; and
  - surface water drainage system.
- Installing:
  - marked traffic and pedestrian areas;
  - approximately 47 parking spaces for staff and customers located to the west and north-west of the ARRC warehouse;
  - two weighbridges: an inbound and an outbound weighbridge;
  - two ticket booths, one for incoming and one for outgoing vehicles;
  - a wheel wash for outbound vehicles;
  - awnings attached to the warehouse at each warehouse entry/exit point to the east, west and south;
  - fire suppression system;
  - a stormwater management system including rainwater tanks and an onsite detention basin;
  - an on-site surface water management system consisting of a water treatment plant, onsite leachate and water detention areas;
  - an on-site wastewater management system comprising of a septic tank;
  - connection to services;
  - fencing at the front of the site; and
  - landscaping.

A site layout showing the components of the proposed ARRC is provided in Figure 1.2.

3.2 Traffic generation

The *Guide to Traffic Generating Developments* (RTA 2002) does not stipulate traffic generation rates for an ARRC site. Therefore, the operational traffic generation has been determined based on the following assumptions:

- the ARRC will process up to 600,000 tpa of waste;
- all incoming waste will be transported off site, either as recycled materials for sale or further processing or as unrecyclable materials that will be disposed at an EPA-licenced facility;
- waste is delivered by a range of vehicles, including utes, skip bin trucks and larger trucks, with an average of 4.4 tonnes of waste delivered in each vehicle[1] and that light vehicles such as utes and cars with trailers have been assessed as heavy vehicles (ie greater than 3 t)[2];
- recycled material and unrecyclable material are dispatched from the site by large trucks, including B-doubles, with an average of 33.5 tonnes of waste dispatched in each vehicle;
- while it is proposed to operate the site seven days per week, the average daily site traffic has been calculated based on weekday operations (ie 252 days per year, excluding public holidays) as weekend and public holiday traffic volumes will be lower;
- AM and PM peak hour ARRC traffic (ie for the periods when the potential for impacts on the road network to be greatest) represents 15% and 5% of the daily traffic respectively; and
- each delivery or dispatch consists of two vehicle movements – one inbound and one outbound.

In the long-term, the volume of unrecyclable materials dispatched from site will be reduced if their use in the rehabilitation of the quarry is approved.

Based on the above assumptions, the ARRC will have (600,000 / 4.4) + (600,000 / 33.5) = 154,274 heavy vehicles per annum or 612.2 heavy vehicles per day, which equates to 91.8 heavy vehicles or 183.7 (approximately 184) movements in the AM peak hour and 30.6 heavy vehicles or 61.2 (approximately 62) movements in the PM peak hour. These heavy vehicles including B-doubles will be accessing and exiting the site via Adams Road.

In terms of car trips, there will be a maximum of 42 staff on site at any given time. It is noted that staff arrivals may align with the AM network peak hour. Some staff car arrivals will be included in the AM peak hour traffic forecasts. There will also be a maximum of 15 quarry employees where 17 marked parking spaces will be provided within the site entry infrastructure area.

3.3 Traffic distribution

Recycled products will generally be dispatched to customers, generally in the western Sydney region, by heavy vehicles.

Some waste (10%–20%) will not be able to be recycled. Rejects will be stockpiled in bays prior to being sent to an Environment Protection Authority (EPA)-licensed facility. Rejects will be loaded to trucks in the same manner as recycled products.

[1] The average loading of utes/trucks in KLF Camelia facility between 1 July 2018 and 31 June 2019.

[2] Light vehicles made up 6.6% of all incoming vehicles in KLF Camelia facility between 1 July 2018 and 31 June 2019 which is negligible for our assessment

The Western Sydney Aerotropolis development would allow the realigned The Northern Road, M12 motorway and Elizabeth Drive to provide a north-south and an east-west arterial connection to other parts of Sydney (Figure 3.1). It should be noted that some sections of The Northern Road are already upgraded and operational[3].

It is expected that Elizabeth Drive will be upgraded as part of the M12 construction which will provide the major arterial connections between M7 motorway and the realigned The Northern Road. Both M12 construction and Elizabeth Drive upgrade are expected to be completed before the operation of Western Sydney Airport in 2026. Therefore, it is considered that, ultimately, incoming waste and outgoing products will be dispatched to various parts of Sydney will be able to utilise these upgraded road networks.

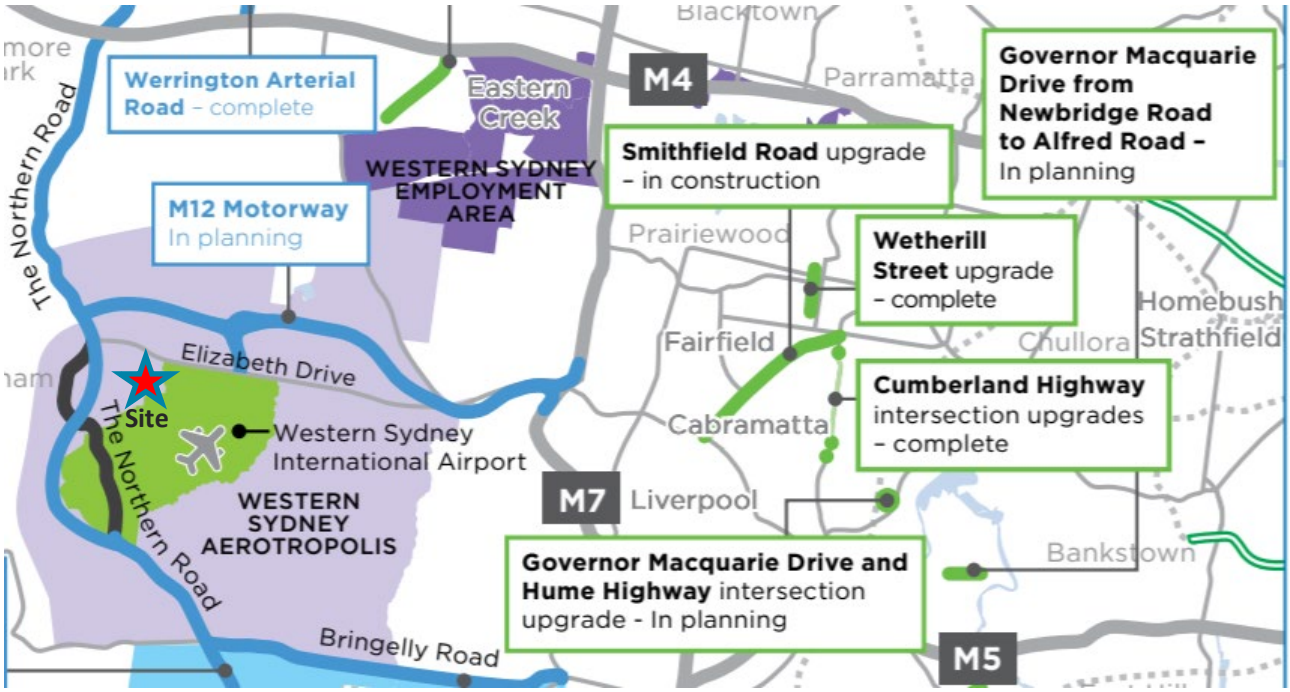

Figure 3.1 **Proposed road upgrade as part of the aerotropolis development (Department of Infrastructure, Transport, Regional Development and Communications 2019)**

The whole of Adams Road will need to be upgraded and the 3-tonne heavy vehicle load limit would need to be lifted, before this even distribution scenario is possible (ie for ARRC-related heavy vehicles to use the Adams Road south of the subject property). While the road upgrades are expected to occur as part of the development of the area, it is not known when they will occur.

The applicant is proposing to upgrade the northern section of Adams Road, between the subject property access road and Elizabeth Drive, to allow the load limit on this section of Adams Road to be lifted. Until the load limit is lifted along the whole of Adams Road, ARRC-related heavy vehicles will only access/depart the ARRC using this northern section of Adams Road and Elizabeth Drive. This has been assessed as the 'alternative distribution'.

[3] https://www.rms.nsw.gov.au/projects/the-northern-road/index.html

3.3.1 Even distribution

It is assumed that heavy vehicle traffic will be distributed evenly in all directions via the major road network north and south from Adams Road. Furthermore, it is assumed all future staff car trips will follow the intersection turn movement proportions of the existing road network.

The future project-related car and truck traffic movements at the key intersections have been assessed based on the volumes presented in Figure 3.2. This assumes that the load limit on Adams Road north and south of the subject property is lifted following road upgrades.

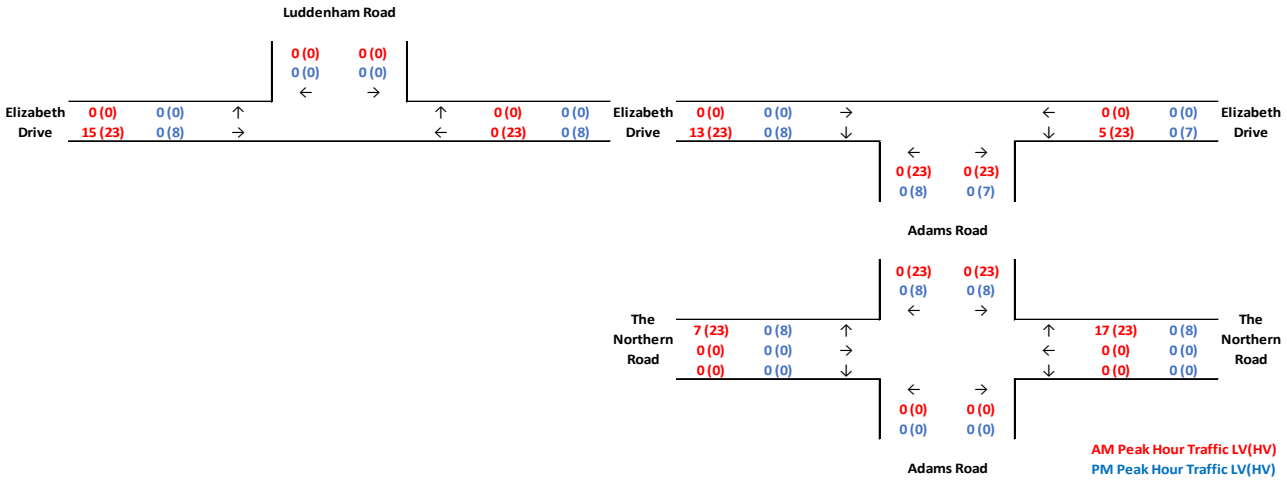

Figure 3.2 Project-related traffic volume

3.3.2 Alternative distribution

The future project-related car and truck traffic movements at the key intersections for this alternative distribution are presented in Figure 3.3. This assumes that the load limit on Adams Road north of the subject property is lifted following road upgrades but that the load limit on Adams Road south of the subject property remains.

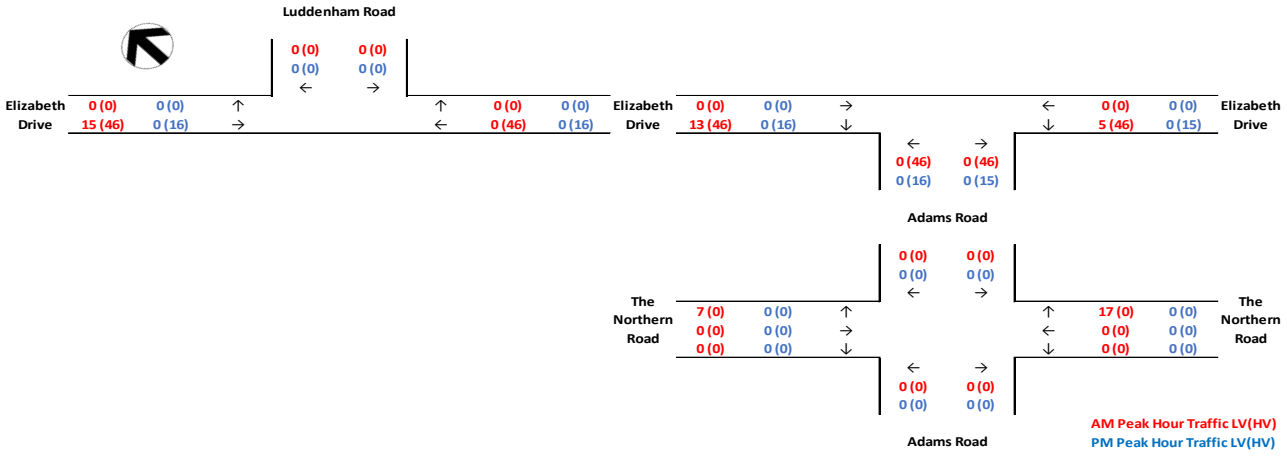

Figure 3.3 Project-related traffic volume (alternative distribution)

3.4 Development traffic

3.4.1 Even distribution

The post-development traffic at the key intersections has been calculated including the baseline traffic (discussed in section 2.4.1 and 2.9) and the site generated traffic. The post-development intersection traffic movements for the years 2020, 2029, 2034, and 2039 are shown in Figure 3.4, Figure 3.5, Figure 3.6 and Figure 3.7 respectively.

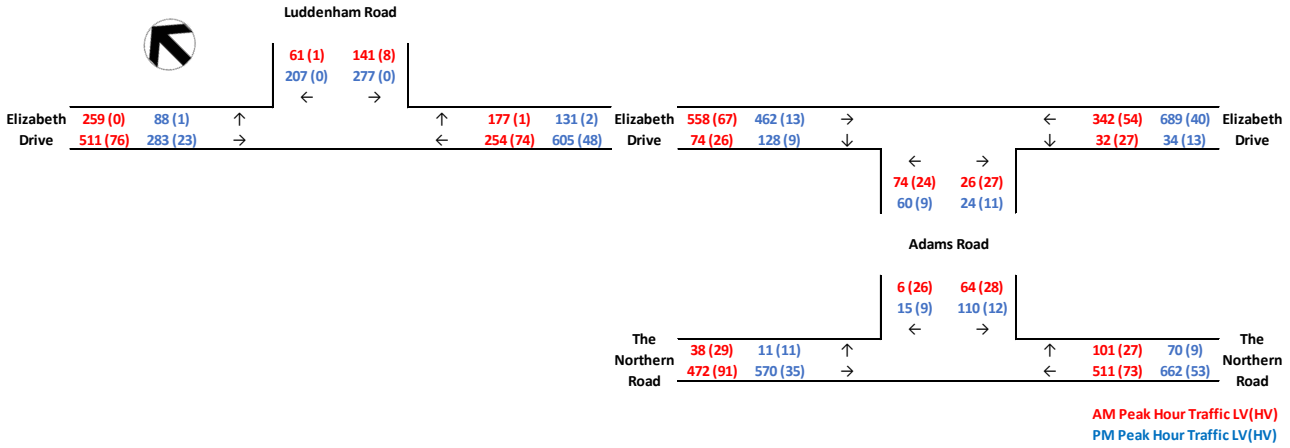

Figure 3.4 Post-development traffic volume (2020)

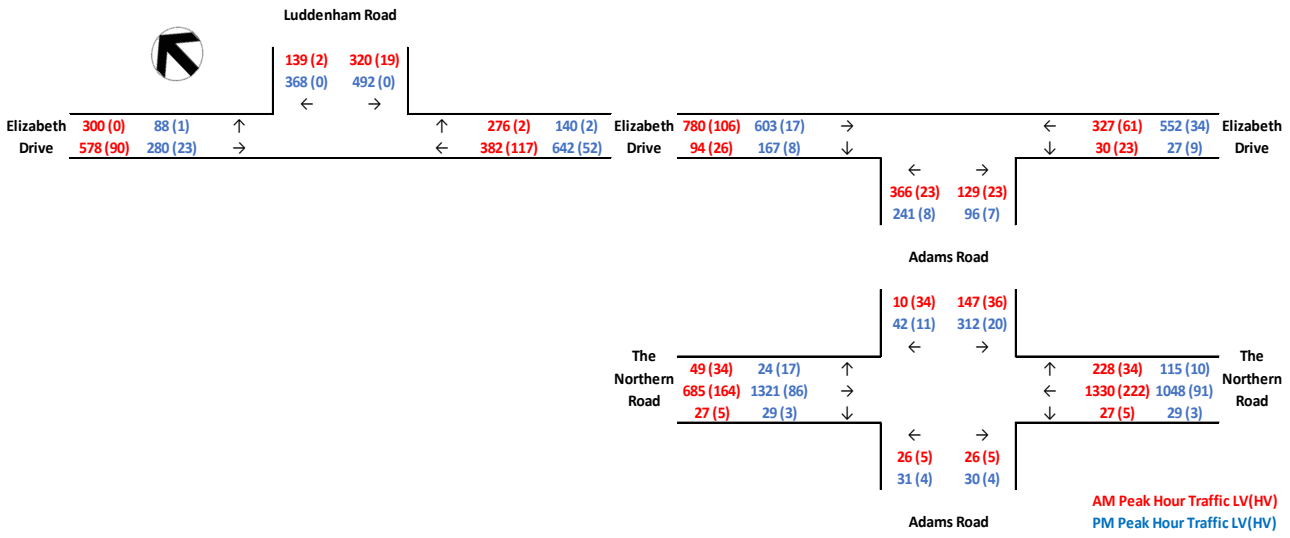

Figure 3.5 Post-development traffic volume (2029)

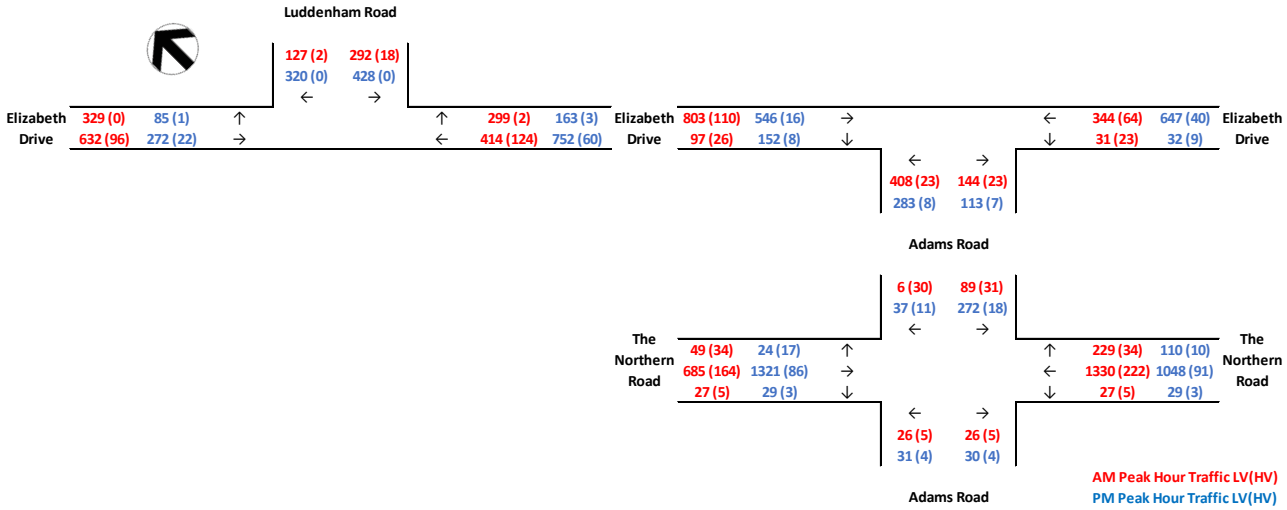

Figure 3.6 Post-development traffic volume (2034)

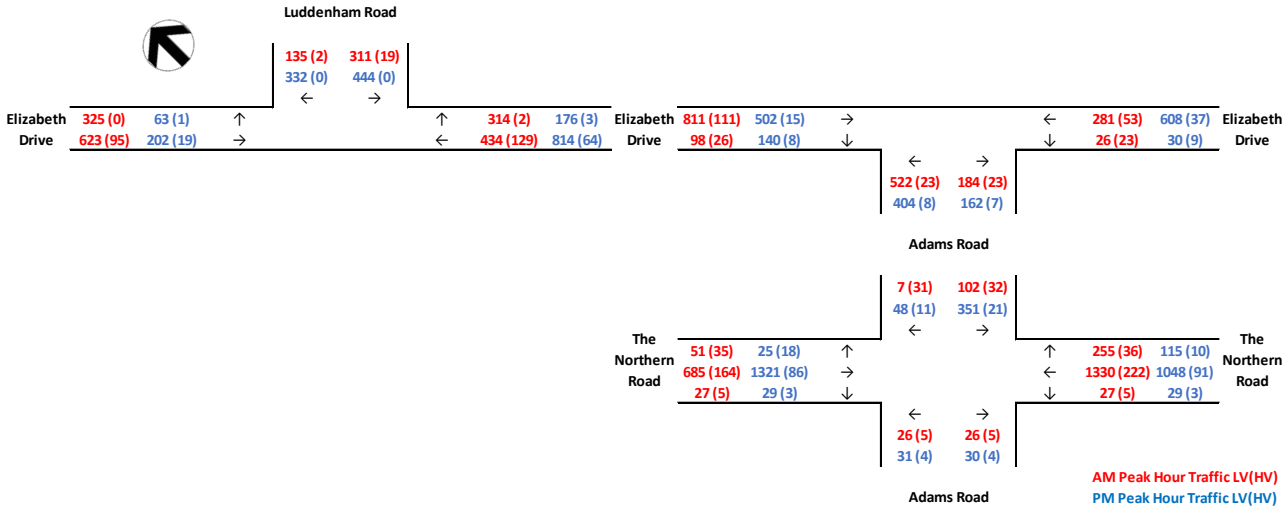

Figure 3.7 Post-development traffic volume (2039)

3.4.2 Alternative distribution

The post-development traffic with the alternative traffic distribution are presented in Figure 3.8, Figure 3.9, Figure 3.10 and Figure 3.11.

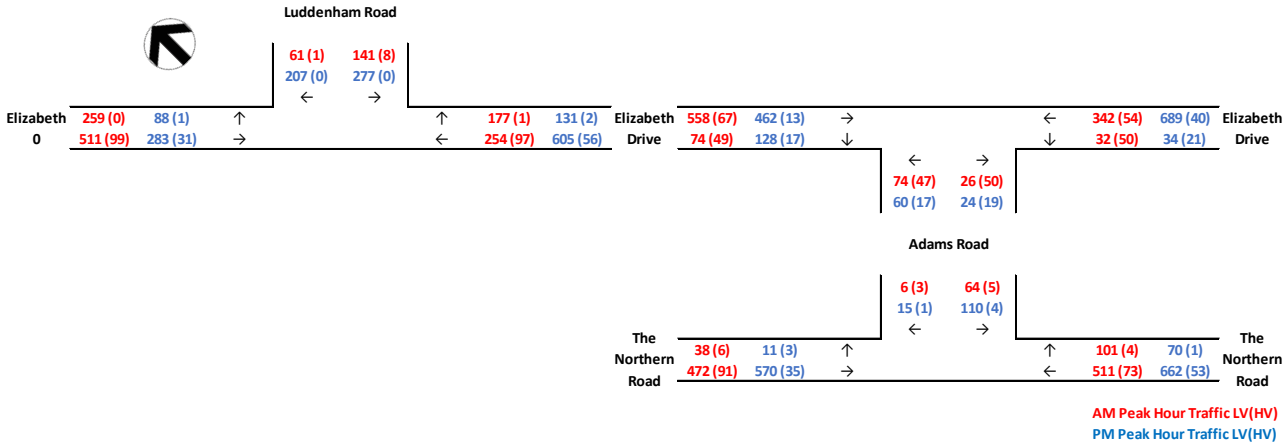

Figure 3.8 Post-development traffic volume (2020) – alternative distribution

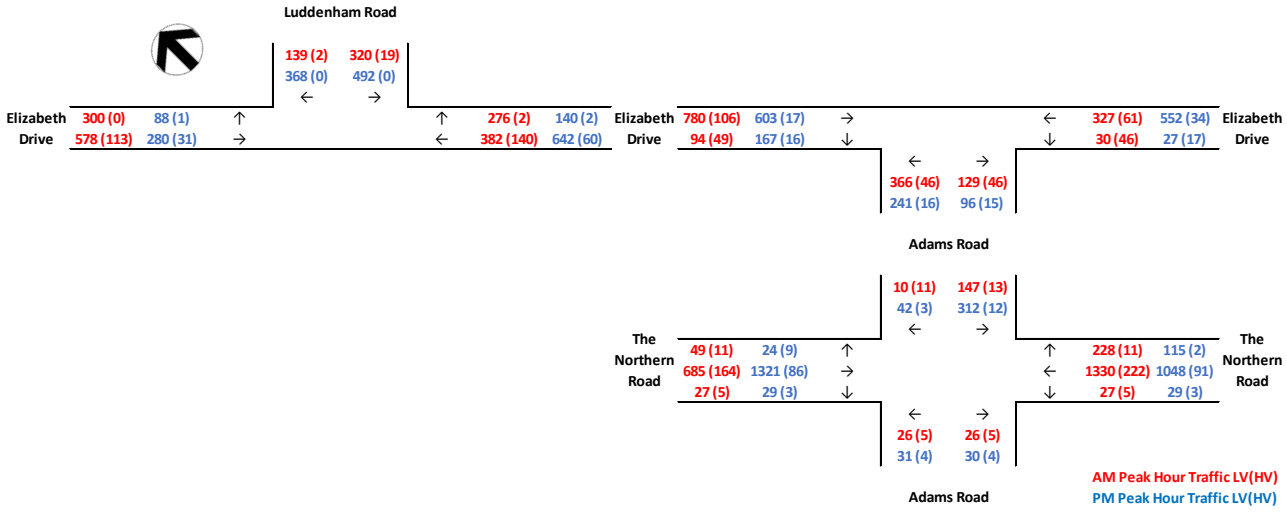

Figure 3.9 Post-development traffic volume (2029) – alternative distribution

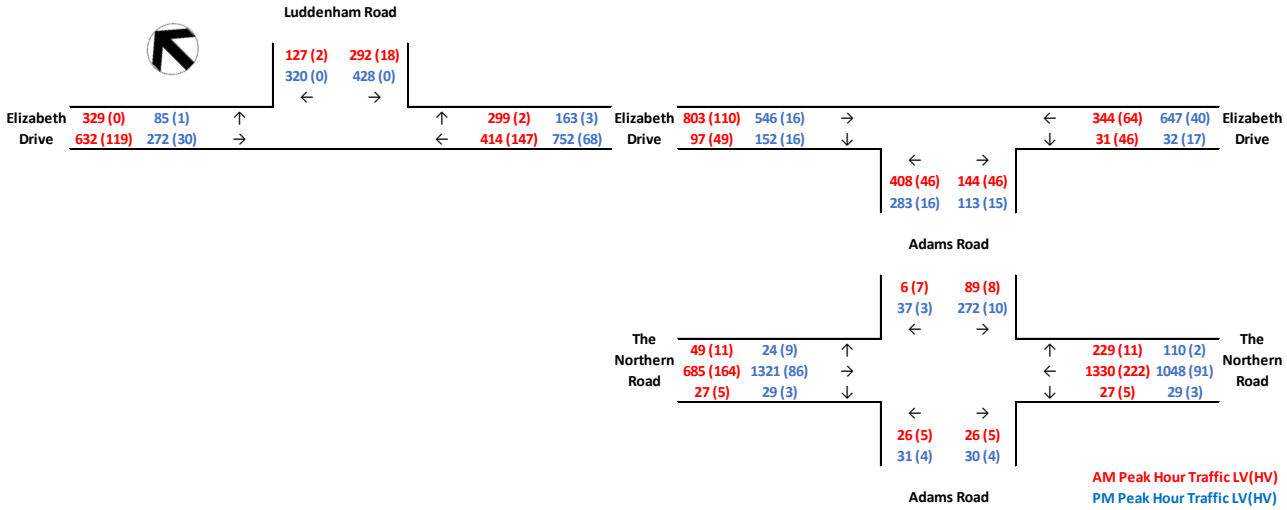

Figure 3.10 Post-development traffic volume (2034) – alternative distribution

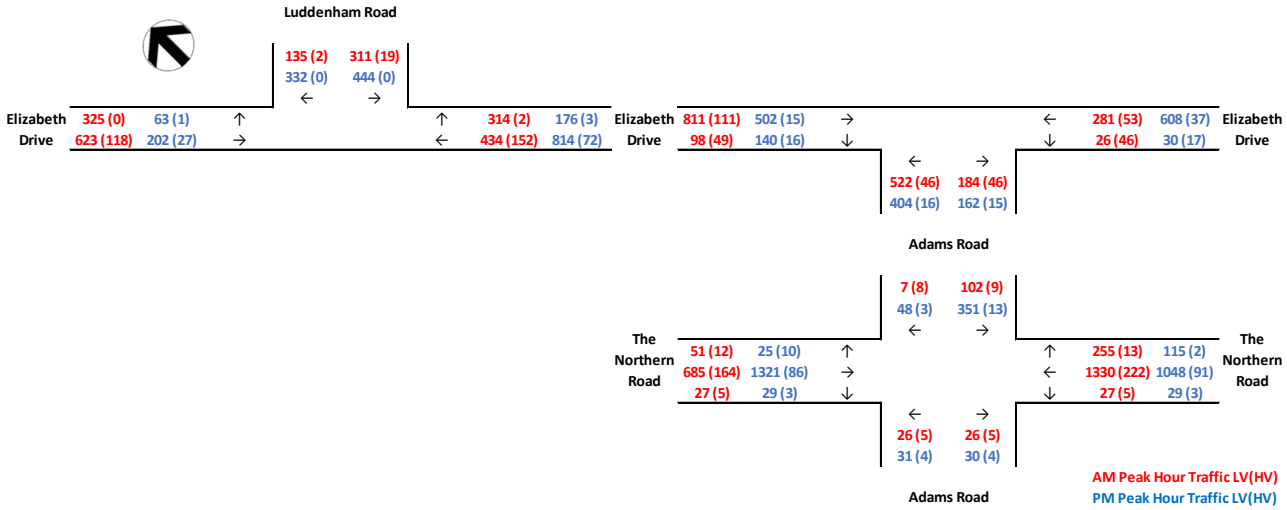

Figure 3.11 Post-development traffic volume (2039) – alternative distribution

3.5 Car parking

The proposal provides 45 car parking spaces across two car parks, located to the west and south-west of the main warehouse shown in Figure 1.2.

3.6 Road upgrade work

Swept path assessments have been undertaken to ensure adequacy of the proposed internal ARRC site road network and the relevant intersections, being:

- Elizabeth Drive/Adams Road intersection;
- The Northern Road/Adams Road intersection; and
- Adams Road/site access intersection.

The swept path assessment (Appendix D) indicates that the Elizabeth Drive/Adams Road and The Northern Road/Adams Road intersections can currently accommodate 19-m-long truck and dog turning movements. Upgrades to the northern section of Adams Road will include upgrades to this intersection so that it is suitable for B-doubles.

The swept path assessment (Appendix D) indicates that minor splaying at the site access is required to accommodate the left turn of a 19-m-long truck and dog into the site. This will be within the existing access road corridor. It will be upgraded prior to B-doubles accessing the site to deliver waste or dispatch products or non-recyclable residues.

The Northern Road/Adams Road intersection is being upgraded as part of The Northern Road Upgrade project and will be able to accommodate 26-m-long trucks (ie B-doubles).

4 Impact assessment

4.1 Intersection performance

4.1.1 Even distribution

The key intersections have been modelled with the SIDRA Intersection 8.0 software, a micro-analytical tool for individual intersections and linked intersection-network modelling. The modelling is based on the traffic survey data detailed in Section 2.4.1 as well as on the STFM outputs discussed in Section 3.4. SIDRA provides the following performance indicators:

- Degree of saturation (DOS) – the total usage of the intersection expressed as a factor of 1 with 1 representing 100% use/saturation (eg 0.8 = 80% saturation).
- Average delay (DEL) – the average delay in seconds encountered by all vehicles passing through the intersection. It is often important to review the average delay of each approach as a side road could have a long delay time, while the large free flowing major traffic will provide an overall low average delay.
- Level of service (LOS) – this is a categorisation of average delay, intended for simple reference.
- 95% queue lengths (Q95) – is defined to be the queue length in metres that has only a 5% probability of being exceeded during the analysed time period. It transforms the average delay into measurable distance units.

The LOS is a good indicator of overall performance for individual intersections, with each level summarised in Table 4.1.

Table 4.1 Intersection LOS standards

Level of service	Average delay (seconds per vehicle)	Traffic signals, roundabout	Priority intersection ('Stop' and 'Give Way')
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 traffic signals, incidents will cause extensive delays. Roundabouts require other control mode.	At capacity; required other control mode
F	>71	Unsatisfactory with excessive queuing	Unsatisfactory with excessive queuing; required other control mode

Source: *RTA Guide to Traffic Generating Developments* (RTA 2002)

The SIDRA results for the three key intersections are presented in Table 4.2, Table 4.3 and Table 4.4. The tables present the average delay for the most delayed movement at a priority-controlled intersection (usually the longest delay occurs for the right turning movement from the minor road) and the average delay over all movements for a signalised intersection.

Table 4.2 SIDRA results for The Northern Road/Adams Road intersection

Model year	Peak hour	DOS		LOS		DEL (seconds)		Q95 (metres)	
		baseline	development	baseline	development	baseline	development	baseline	development
2020 (no traffic signals)[1]	AM	0.406	-	A	-	13.2	-	12.4	-
	PM	0.452	-	A	-	12.2	-	11.0	-
2029 (with traffic signals)	AM	0.882	0.890	C	C	32.0	33.7	361.5	374.7
	PM	0.826	0.826	B	B	26.9	27.3	226.2	226.2
2034 (with traffic signals)	AM	0.882	0.890	C	C	31.8	33.7	361.0	374.2
	PM	0.826	0.826	B	B	26.4	26.7	226.2	226.2
2039 (with traffic signals)	AM	0.886	0.833	C	C	32.7	29.0	368.3	345.9
	PM	0.826	0.833	B	B	27.5	28.1	226.2	226.2

1. The signalised Northern Road/Adams Road intersection will be completed prior to the start of ARRC operations.

The Northern Road/Adams Road intersection is currently a priority-controlled T-intersection with a LOS A. However, the new signalised in Northern Road/Adams Road is currently being constructed and will be operational well before the ARRC is operational. Therefore, ARRC traffic will not use the existing Northern Road/Adams Road intersection.

In 2029, 2034 and 2039, with the signalisation of the intersection catering for the additional forecast TfNSW locality growth, the intersection will be operating at a LOS C in the AM peak hour and a LOS B in the PM peak hour across all years modelled. In 2039 with ARRC traffic, the intersection will have a queue length of approximately 350 m for the south approach (The Northern Road northbound) and 230 m for the north approach (The Northern Road southbound) in the AM and PM peak hours respectively. However, as stated above, the greater impact of the road network in the area will occur as part of the aerotropolis development and the net impact of the ARRC traffic will be relatively minor. Nevertheless, the intersection will still have over 10% spare capacity even with development traffic for the years modelled to 2039.

Table 4.3 SIDRA results for Elizabeth Drive/Adams Road intersection (no traffic signals)

Model year[1]	Peak hour	DOS		LOS		DEL (seconds)		Q95 (metres)	
		baseline	development	baseline	development	baseline	development	baseline	development
2020	AM	0.392	0.442	A	A	9.9	13.9	6.7	16.0
	PM	0.417	0.423	A	A	11.5	13.5	18.3	22.0
2029	AM	0.558	0.609	A	B	13.4	18.1	14.9	29.2
	PM	0.476	0.493	A	A	11.8	12.8	23.2	26.7
2034	AM	0.574	0.625	A	B	14.0	19.4	15.7	30.9
	PM	0.451	0.472	A	A	12.1	12.8	22.4	26.3
2039	AM	0.574	0.623	A	B	13.7	18.5	14.5	28.3
	PM	0.406	0.425	A	A	11.2	11.9	17.8	21.1

1. Assuming that the intersection is not upgraded.

The Elizabeth Drive/Adams Road intersection is currently operating at LOS A with significant capacity to accommodate additional traffic. Project-related traffic will not deteriorate the operations of the intersection.

With the additional forecast TfNSW locality growth, the intersection will continue to operate at LOS A in 2029, 2034 and 2039, without the ARRC traffic. Project-related traffic will decrease the intersection performance in the AM peak hour in the respective analysed years to a LOS B. The average delay for the right turning vehicles would be approximately 20 seconds in the future AM peak which is considered acceptable. The 95th percentile queuing will be about three to four vehicles.

In all the modelled years, there will continue to be over 35% spare capacity at the intersection.

Table 4.4 SIDRA results for Elizabeth Drive/Luddenham Road intersection (no traffic signals)

Model year[1]	Peak hour	DOS		LOS		DEL (seconds)		Q95 (metres)	
		baseline	development	baseline	development	baseline	development	baseline	development
2020	AM	0.303	0.323	B	B	18.3	20.2	8.6	9.2
	PM	0.664	0.691	B	B	24.4	25.9	22.6	23.9
2029	AM	0.934	1.069	F	F	81.5	153.8	43.4	88.7
	PM	1.294	1.347	F	F	294.5	341.0	435.0	484.7
2034	AM	1.118	1.294	F	F	195.1	336.2	103.3	171.1
	PM	1.448	1.513	F	F	433.9	491.8	500.0	543.5
2039	AM	1.231	1.425	F	F	280.5	446.0	156.0	225.4
	PM	1.542	1.612	F	F	516.7	579.7	581.5	625.0

1. Assuming that the intersection is not upgraded.

The Elizabeth Drive/Luddenham Road intersection is currently operating at LOS B in the peak hours, with or without the development traffic. If the intersection is not upgraded, the forecast baseline TfNSW locality traffic increases in 2029, 2034 and 2039 will mean that the intersection will operate at, or over, capacity in all scenarios, with or without the project-related traffic, with significant queue lengths on the Luddenham Road approach to the intersection.

As noted in Section 2.8, the *Draft Western Sydney Aerotropolis Plan* (Western Sydney Planning Partnership 2019) indicates that Adams Road will be realigned at its northern end to connect directly into Luddenham Road at a new four-way intersection which will replace the existing Elizabeth Drive/Luddenham Road intersection and Elizabeth Drive/Adams Road intersections. However, no details of this realignment or intersection are presently available. Further analysis is presented in Section 4.1.3.

4.1.2 Alternative distribution

In addition to the even north/south distribution from the quarry presented above, SIDRA analysis has been conducted for the alternative distribution (all heavy vehicles travel via Elizabeth Drive north of the site). In this scenario only employee vehicles travel on Adams Road south of the quarry. The results for the key three intersections are presented Table 4.5, Table 4.6 and Table 4.7.

Table 4.5 SIDRA results for The Northern Road/Adams Road intersection (alternative distribution)

Model year	Peak hour	DOS		LOS		DEL (seconds)		Q95 (metres)	
		baseline	development	baseline	development	baseline	development	baseline	development
2020 (No traffic signals)[1]	AM	0.406	0.424	A	-	13.2	-	12.4	-
	PM	0.452	0.452	A	-	12.2	-	11.0	-
2029 (with traffic signals)	AM	0.882	0.885	C	C	32.0	32.3	361.5	366.0
	PM	0.826	0.826	B	B	26.9	26.9	226.2	226.2
2034 (with traffic signals)	AM	0.882	0.885	C	C	31.8	32.3	361.0	365.5
	PM	0.826	0.826	B	B	26.4	26.4	226.2	226.2
2039 (with traffic signals)	AM	0.886	0.889	C	C	32.7	33.1	368.3	372.1
	PM	0.826	0.826	B	B	27.5	27.5	226.2	226.2

1. The signalised Northern Road/Adams Road intersection will be completed prior to the start of ARRC operations.

The Northern Road/Adams Road intersection is currently operating at LOS A. With additional increase in local traffic, the intersection will operate at LOS C and B in the AM and PM peak hours in 2029, 2034 and 2039.

The additional traffic does not have a noticeable impact on the performance of the intersection in all the modelled future year traffic scenarios.

Table 4.6 SIDRA results for Elizabeth Drive/Adams Road intersection (alternative distribution)

Model year[1]	Peak hour	DOS		LOS		DEL (seconds)		Q95 (metres)	
		baseline	development	baseline	development	baseline	development	baseline	development
2020	AM	0.392	0.486	A	B	9.9	17.4	6.7	25.8
	PM	0.417	0.441	A	B	11.5	15.4	18.3	26.2
2029	AM	0.558	0.739	A	B	13.4	26.7	14.9	44.3
	PM	0.476	0.512	A	A	11.8	13.9	23.2	30.6
2034	AM	0.574	0.827	A	C	14.0	32.2	15.7	47.0
	PM	0.451	0.495	A	A	12.1	13.6	22.4	30.6
2039	AM	0.574	0.856	A	C	13.7	30.4	14.5	42.5
	PM	0.406	0.446	A	A	11.2	12.6	17.8	24.7

2. Assuming that the intersection is not upgraded.

The alternative traffic distribution allocates more traffic to the Elizabeth Drive/Adams Road intersection. While delays and queue lengths will increase, the intersection will still perform adequately in all the future years to 2039, with LOS C and A in the AM and PM peak hours respectively in 2039.

Table 4.7 SIDRA results for Elizabeth Drive/Luddenham Road intersection (alternative distribution)

Model year[1]	Peak hour	DOS		LOS		DEL (seconds)		Q95 (metres)	
		baseline	development	baseline	development	baseline	development	baseline	development
2020	AM	0.303	0.342	B	B	18.3	22.5	8.6	9.8
	PM	0.664	0.684	B	B	24.4	25.5	22.6	23.6
2029	AM	0.934	1.230	F	F	81.5	277.3	43.4	159.1
	PM	1.294	1.402	F	F	294.5	390.3	435.0	533.5
2034	AM	1.118	1.505	F	F	195.1	519.6	103.3	236.8
	PM	1.448	1.582	F	F	433.9	553.3	500.0	585.9
2039	AM	1.231	1.659	F	F	280.5	652.4	156.0	290.3
	PM	1.542	1.687	F	F	516.7	646.8	581.5	667.3

1. Assuming that the intersection is not upgraded.

The alternative traffic distribution would result in greater ARRC traffic volumes using the Elizabeth Drive/Luddenham Road intersection. The intersection will fail by 2029 with the local increase in traffic, regardless of project-related traffic. An intersection upgrade will be necessary for this intersection, with or without project-related traffic. As noted above, this intersection is proposed to be replaced. Further analysis is presented in Section 4.1.3.

4.1.3 Additional traffic composition on Elizabeth Drive/Luddenham Road intersection

The future composition of additional traffic at the Elizabeth Drive/Luddenham Road intersection, including the future project-related traffic (as discussed in Section 3.3 and 3.4) is provided in Table 4.8.

Table 4.8 Additional traffic on Elizabeth Drive/Luddenham Road intersection

	Peak hour	Additional ARRC traffic	2020 development		2029 development		2034 development		2039 development	
			Traffic	Percentage	Traffic	Percentage	Traffic	Percentage	Traffic	Percentage
Even distribution	AM	46	1,546	3.0%	2,214	2.1%	2,320	2.0%	2,374	1.9%
	PM	16	1,665	1.0%	2,090	0.8%	2,106	0.8%	2,118	0.8%
Alternative distribution	AM	92	1,592	5.8%	2,260	4.1%	2,366	3.9%	2,420	3.8%
	PM	32	1,681	1.9%	2,106	1.5%	2,122	1.5%	2,134	1.5%

The additional project-related traffic will contribute of up to 4.1% project traffic at the Elizabeth Drive/Luddenham Road intersection in 2029, when the intersection is expected to fail. With even distribution, where the existing load limit restriction is lifted for the entire section of Adams Road, the additional project-related traffic represents only up to 2.1% development traffic from 2029.

4.2 Mid-block capacity analysis

The mid-block level of service on rural and urban roads is assessed based on a vehicle's average travel speed. At low traffic volumes and under ideal conditions, drivers are able to travel at their desired speed without interference. As traffic volumes increase, and as roadway, terrain and traffic conditions become less than ideal, drivers are affected by the presence of other vehicles on the road and bunches form in the traffic stream.

Elizabeth Drive and The Northern Road are state arterial roads which carry regional traffic. These two roads are currently either being upgraded or planning to be upgraded (Department of Planning, Industry, and Environment 2019), which should have adequate mid-block capacities. The project-related traffic generation will only contribute a small proportion to the baseline traffic volumes. Therefore, mid-block analysis has only been conducted for Adams Road.

Adams Road is currently a rural road with moderate traffic volume. However, this road will be urbanised following the operation of the Western Sydney Airport. Therefore, for the current 2020 scenario, mid-block capacity analysis has been undertaken as a rural road and for the future 2029, 2034 and 2039 scenarios, the capacity analysis has been undertaken as an urbanised road.

4.2.1 Road capacity

i Existing rural nature (2020)

Table 4.5 of *Guide to Traffic Generating Developments* (RTA 2002) provides the two-way hourly traffic capacities (ie number of vehicles per hour) for two-lane roads for different Levels of Service with a design speed of 100 km/h based on different terrain types. The capacities assume 60% of traffic is travelling in one direction and 40% is travelling in the other direction. For an 80 km/h design speed, the capacities are between 85–95% of the capacity for a 100 km/h design speed.

The existing posted speed limit along Adams Road is 70 km/h which indicates a design speed of 80 km/h as the design speed is generally 10 km/h higher than operating speed. Thus, the capacity of Adams Road is 90% of the capacity for a 100 km/h design speed.

The capacities for each LOS transition (ie the combined number of vehicles travelling in both directions at where the LOS decreases) are provided in Table 4.9.

Table 4.9 RMS roadway hourly capacity for a two-lane two-way rural road (70 km/h speed limit)

Terrain	Level of service transition	Effect of percentage of heavy vehicles (in traffic flow)			
		0%	5%	10%	15%
Level	A/B*	284	266	252	239
	B/C	567	531	504	477
	C/D	927	873	828	783
	D/E	1,467	1,395	1,332	1,269
	E/F	2,367	2,250	2,151	2,061

Notes: *Assumed to be 50% of upper limit of B/C LOS.

ii Future urban nature (2029)

The Austroads *Guide to Traffic Management Part 3: Traffic Studies and Analysis* (Austroads 2016) provides typical mid-block capacities for various types of urban roads. These are provided in Table 4.10.

Table 4.10 Typical mid-block capacities for urban roads with interrupted flow

Type of lane		One-way mid-block capacity per lane (passenger cars per hour)
Median or inner lane	Divided road	1,000
	Undivided road	900
Middle lane (of a 3-lane carriageway)	Divided road	900
	Undivided road	1,000
Kerb lane	Adjacent to parking lane	900
	Occasional parked vehicles	600
	Clearway conditions	900

Source: Austroads (2016).

Based on its existing configuration as an undivided road, Adams Road has a capacity of 900 vehicles per hour per lane for clearway conditions (ie with no parked vehicles).

The maximum peak hour flow for each LOS, for one lane of unidirectional travel, based on volume/capacity ratios applicable for rural roads in level terrain with no sight distance restriction on overtaking are provided in Table 4.11. These are indicative figures based on the rural volume/capacity ratios for a maximum lane capacity of 900 vehicles per hour in each direction.

Table 4.11 Urban road peak hour lane flows per direction

Level of service	Flow (passenger cars per hour
A	120
B	240
C	380
D	570
E	900

4.2.2 Adams Road compliance

The mid-block capacities of Adams Road in 2020 are provided in Table 4.12 for the even distribution scenario. The mid-block capacities of Adams Road in 2029–2039 are provided in Table 4.13. The existing traffic volumes on Adams Road are extracted from the recent traffic survey (refer to Section 2.4.1) and the 2020 volumes are extracted from STFM outputs (refer to Section 2.9).

Table 4.12 Adams Road Mid-block capacity – even distribution (2020)

Scenario	Peak hour volume	Heavy vehicle percentage	Level of Service
Existing	198 (AM) / 246 (PM)	10.0% (AM) / 4.1% (PM)	A
Post development	319 (AM) / 286 (PM)	3.4% (AM) / 14.0% (PM)	B

In 2020, Adams Road will operate at a LOS A and B in the existing and post-development scenarios, respectively (Table 4.12).

Table 4.13 Adams Road Mid-block capacity – even distribution (2029, 2034, 2039)

Year	Scenario	Direction	Capacity per lane per direction per hour	Peak hour volume	Level of Service
2029	Existing	Northbound	900	499 (AM) / 341 (PM)	D
		Southbound		181 (AM) / 369 (PM)	C
	Post-development	Northbound		545 (AM) / 356 (PM)	D
		Southbound		227 (AM) / 385 (PM)	D
2034	Existing	Northbound		552 (AM) / 396 (PM)	D
		Southbound		113 (AM) / 322 (PM)	C
	Post-development	Northbound		598 (AM) / 411 (PM)	E
		Southbound		180 (AM) / 338 (PM)	C
2039	Existing	Northbound		706 (AM) / 566 (PM)	E
		Southbound		126 (AM) / 415 (PM)	D
	Post-development	Northbound		752 (AM) / 581 (PM)	E
		Southbound		173 (AM) / 431 (PM)	D

For all future scenarios, the capacity of Adams Road will still comply with the maximum urban threshold of 900 vehicles per lane per hour. However, the LOS will deteriorate to E (northbound) and D (southbound) during the AM and PM peak hours in 2039 with locality traffic growth (Table 4.13). The LOS E is still considered generally acceptable for the peak hourly traffic flows in urbanised areas in Sydney.

It is noted that the configuration of Adams Road may change when it is realigned to connect directly into Luddenham Road (refer to Section2.8). Notwithstanding, the applicant will upgrade the northern section of Adams Road, including shoulder widening if required to meet the Austroads Guidelines.

4.3 Car and truck parking provision

Council's DCP does not stipulate a car parking rate for a resource recovery facility. However, as discussed in Section 3.2, there will be up to 42 staff members at any given time, with some employees expected to carpool or utilise public transport. Therefore, car parking provision of 45 spaces would be adequate.

The car parking spaces will be designed in accordance with relevant Australian Standard (AS 2890.1:2004).

4.4 Onsite vehicle and pedestrian movements

As mentioned in Section 3.6, swept path assessment has been undertaken by a 26-m long articulated vehicle for the internal roads to ensure adequate manoeuvrability. These swept paths are provided in Appendix D.

The internal road from Adams Road to the ARRC building footprint is over 200 m long. Loading area and unloading area are provided within the ARRC building footprint which would be adequate to accommodate waste vehicles without queuing on the public road (Adams Road).

Internal road and pedestrian network, as well as on site parking are detailed in the concept design drawing prepared by Reid Campbell. A copy of the site plan is provided in Appendix D.

4.5 Construction traffic impact

The operational traffic volumes of the ARRC (42 light vehicle movements and 184 heavy vehicle movements in the AM peak hour and 62 heavy vehicle movements in the PM peak hour) will be significantly more than the comparable construction traffic in the respective peak hours. Therefore, the relative construction stage impacts to the traffic capacity or amenity on Adams Road or the broader network will be minimal. As such, any quantitative analysis such as intersection modelling is not warranted for the ARRC construction stage traffic.

4.6 Impact on road safety

4.6.1 Adams Road

All vehicle access to the site will be via Adams Road. As discussed in Section 2.5, the most recent five year accident history for Adams Road is very low. However, by 2029 as the Western Sydney Aerotropolis-related development increases, this will potentially change the locality traffic volumes and traffic conditions for Adams Road. The current surveyed baseline traffic volumes and future TfNSW forecast baseline traffic volumes as discussed in Table 4.12 and Table 4.13 are summarised in Table 4.14.

Table 4.14 Forecast peak hour traffic volume growth on Adams Road

		Baseline traffic volumes (two-way)			
Peak hour	**Project related traffic**	**2020 Survey**	**2029 Forecast**	**2034 Forecast**	**2039 Forecast**
AM	113 (north)/121 (south)	198	874	1,027	1,377
PM	30 (north)/32 (south)	246	774	812	1,104

By 2039, the baseline traffic will be approximately six times the existing traffic. The land uses along Adams Road are expected to change dramatically with the Aerotropolis development. Over time, the additional project-related traffic will make up a lower proportion of the overall route traffic. By 2039, the additional project-related traffic will be 9% of the overall AM peak hour traffic and 3% of the overall PM peak hour traffic travelling on Adams Road based on TfNSW forecast baseline traffic volumes. Given the road upgrades that will occur prior to ARRC-related heavy vehicles using the northern or south sections of Adams Road, ARRC-related traffic is not expected to have a significant adverse impact in terms of either traffic flow or traffic safety along Adams Road.

4.6.2 Elizabeth Drive

Depending on the load limit restriction of Adams Road, either half or all heavy vehicles would utilise Elizabeth Drive to access the site. Similar to Adams Road, the most recent five year crash history for Elizabeth Drive is very low.

Table 4.15 Forecast peak hour traffic volume growth on Elizabeth Drive

		Baseline traffic volumes (two-way)			
Peak hour	**Project related traffic**	**2020 Survey**	**2029 Forecast**	**2034 Forecast**	**2039 Forecast**
AM	61 (even)/107 (alternative)	1,005	1,286	1,369	1,284
PM	16 (even)/32 (alternative)	1,115	1,257	1,349	1,271

By 2039, the project related traffic will be 8% and 3% of the overall AM and PM peak hour traffic travelling on Elizabeth Drive respectively. Hence, the additional project-related traffic is not expected to have a significant adverse impact in terms of either traffic flow or traffic safety along Elizabeth Drive.

4.6.3 The Northern Road

The Northern Road upgrade project will change the alignment of The Northern Road to a straighter section which will bypass the Luddenham town centre. Therefore, it is expected that the crash rate would be lower than the historic values.

Table 4.16 Forecast peak hour traffic volume growth on The Northern Road

	Baseline traffic volumes (two-way)				
Peak hour	**Project related traffic**	**2020 Survey**	**2029 Forecast**	**2034 Forecast**	**2039 Forecast**
AM	66 (even)	1,298	2,869	2,776	3,056
PM	16 (even)	1,505	3,085	2,951	3,158

By 2039, the project related traffic will be 2% and 0.5% of the overall AM and PM peak hour traffic travelling on The Northern Road respectively. Hence, the additional project-related traffic is not expected to have a significant adverse impact in terms of either traffic flow or traffic safety along The Northern Road.

4.7 Road safety assessment at the site entrance on Adams Road

The access to the site on Adams Road is located at a straight section, hence there is no sight distance or safety issues for entering or existing vehicles to/from the site. In accordance with *Austroads Guide to Road Design Part 4A (Unsignalised and Signalised Intersections)* (Austroads 2017), for a 70 km/h road, the minimum safe intersection sight distance (SISD) required for a general minimum 2 second driver reaction time is 151 m.

The sight distances on Adams Road at the ARRC access road have been estimated based on the line of sight and observation, as shown in Plate 4.1. Based on the sight distance analysis, the sight distances to the left and right meets the minimum requirement (151 m) as stipulated in the Austroads Guide to Road Design.

Sight distance to the left (216 m)

Sight distance to the right (158 m)

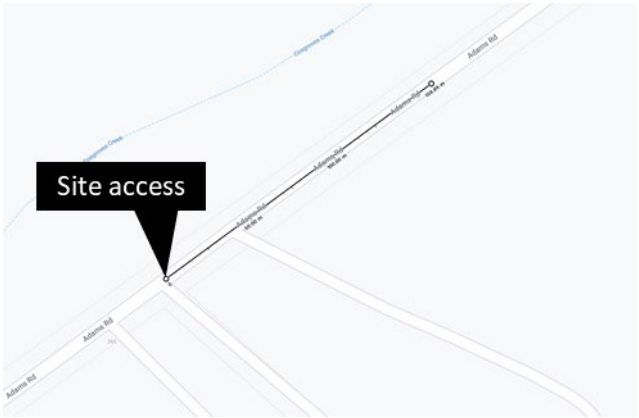

Plate 4.1 Sight distance from ARRC access

4.8 Impact on public transport, pedestrians, and cyclists

Currently there is no designated pedestrian or cycling infrastructure along Adams Road or Elizabeth Drive in the vicinity of the site. The construction of pedestrian and/or cycling facilities may follow overall Western Sydney Aerotropolis development. Any future pedestrian or cycling infrastructure along Adams Road is supported as it would encourage site staff members to consider using active transport modes, rather than driving.

5 Concept construction traffic management plan

It will take approximately 18 months to construct the ARRC. Construction will require a range of vehicles accessing the site. These vehicle movements will be managed through a detailed construction traffic management plan (CTMP). The detailed CTMP will be prepared following project approval in consultation with the relevant authorities and the nominated construction contractor. A concept construction traffic management plan (CCTMP) is provided below. This will form the basis of the detailed CTMP.

5.1 Objective

This CCTMP aims to ensure the safety of all workers and road users within the vicinity of the construction site.

5.2 Hours of Work

All construction works associated will be restricted to the following working hours:

- Monday to Friday 7 am to 6 pm;
- Saturday 7 am to 1 pm; and
- Sunday or public holidays No works to be undertaken without prior approval.

5.3 General requirements

In accordance with TfNSW requirements, all vehicles transporting loose materials will have the entire load covered and/or secured to prevent any large items, excess dust or dirt particles depositing onto the roadway during travel to and from the site. All subcontractors will be inducted by the lead contractor to ensure that the procedures are met for all vehicles entering and exiting the construction site. The lead contractors will monitor the roads leading to and from the site and take all necessary steps to rectify any road deposits caused by site vehicles.

Vehicles operating to, from and within the site, will do so in a manner which does not create unreasonable or unnecessary noise or vibration. No tracked vehicles will be permitted or required on any paved roads. Public roads and the access road will not be obstructed by any materials, vehicles, refuse skips or the like.

5.4 Construction vehicle types

The construction of the ARRC will require removal and delivery of mixed materials. This will involve the use of articulated trucks up to 19-m long.

For any oversized vehicle that is required to travel to the site, a separate application of the required permits will be prepared for submission and determination by Liverpool City Council, prior to any delivery.

5.5 Construction vehicle routes

Construction vehicle routes will be provided in the detailed construction traffic management plan.

5.6 Stakeholder consultation

The following stakeholders will be informed of the proposed works, potential timing, and possible impacts:

- Department of Planning, Industry and Environment;
- Liverpool City Council;
- Transport for NSW
- Western Sydney Airport; and
- the site's neighbours.

5.7 Traffic control measures

Traffic Control Plans (TCPs) will be developed in accordance with the Australian Standards and the RMS Traffic Control at Work Sites Manual (RMS 2018).

All traffic controllers engaged on-site shall be accredited by TfNSW, and act in accordance with TfNSW Standard Conditions, including:

- no stopping of traffic on Adams Road; and
- there is little pedestrian traffic on Adams Road, nonetheless, pedestrians will only be stopped for their safety, while a truck is entering or leaving the site and will only be held for short periods.

No marshalling or queuing of trucks will be permitted on Adams Road.

5.8 Pedestrian access

Temporary fencing will be established to define the extents of the works site to provide segregation and protection for pedestrians.

5.9 Works zone requirements

Upgrades to the Elizabeth Drive/Adams Road intersection, Adams Road site access intersection, and the northern section of Adams Road will require a works zone on Adams Road. Details of the works zone will be provided in the detailed CTMP.

5.10 Road occupancy licences

Upgrades to the Elizabeth Drive/Adams Road intersection, Adams Road site access intersection, and the northern section of Adams Road will require lane or road closures, the proponent shall submit a Road Occupancy Licence application to the Transport Management Centre for approval, prior to carrying out the associated works.

5.11 Staff parking

Car parking will be provided within the site to eliminate any on-street parking. Car sharing of workers will be encouraged.

5.12 Works site security

Temporary road barriers and fences will be used to secure the extent of the site. All access points are to be securely locked when construction activities are not in progress.

5.13 Staff induction

All staff and subcontractors will be required to undergo a site induction on entry. The induction will include permitted access routes to and from the construction site for all vehicles, as well as standard environmental, occupation health and safety, driver protocols, and emergency procedures. Additionally, the lead contractor will discuss traffic management requirements regularly as part of a toolbox talks.

5.14 Workplace health and safety

Any personnel required to undertake works or traffic control within the public domain will be suitably trained and covered by appropriate insurances. All traffic controllers will be TfNSW accredited.

6 Summary and conclusion

The ARRC site at 275 Adams Road, Luddenham contains an inactive quarry with former access to Elizabeth Drive, which is no longer available. A development consent application (SSD-10446) is in the process of being submitted for the continuation of the quarry use with access off Adams Road. The ARRC is also now proposed at an area north of the existing quarry within the subject property which will share the Adams Road access with the quarry. The ARRC will process up to 600,000 tonnes tpa of general solid waste. No materials will be landfilled or disposed of within the ARRC site.

Heavy vehicles are currently restricted on Adams Road. The northern section of Adams Road, between the subject property access road and Elizabeth Drive, will be upgraded by the applicant prior to the start of ARRC operations as part of the proposed development so that the pavement is suitable for use by larges trucks, up to B-doubles, and so that the lane and shoulder widths meet Austroads Guidelines and, until the load limit is lifted is lifted along the whole of Adams Road, ARRC-related heavy vehicles will only access/depart the ARRC using the northern section of Adams Road.

The associated traffic impacts for the development of the ARRC and potential cumulative traffic impacts as a result of the development of the Western Sydney Aerotropolis have been assessed.

The outcomes of the assessment are as follows:

- although Council's DCP does not stipulate a car parking rate for a resource recovery facility, the proposed car parking provision of 45 car spaces will meet the car parking demand of staff and visitors;
- The Northern Road/Adams Road intersection is currently operating at LOS A or B. The intersection will be upgraded as part of The Northern Road upgrade project and with future signalisation will operate at LOS C and B for the AM and PM peak hours respectively. The additional traffic from the project will not deteriorate the performance of the intersection;
- the Elizabeth Drive/Adams Road intersection is currently operating at LOS A with significant capacity to accommodate additional traffic. With development traffic, the intersection will have a LOS A or B in all the analysed years up to 2039 for the even traffic distribution scenario. In the case where the Adams Road heavy vehicle restriction is not lifted south of the site, all heavy vehicle traffic will travel through this intersection and the intersection will have a LOS C in the AM peak hour;
- the Elizabeth Drive/Luddenham Road intersection is currently operating at LOS B. By 2029, with the locality traffic growth from the Western Sydney Aerotropolis development, the intersection will deteriorate to a LOS F with significant traffic queuing. The baseline performance of the intersection will continue to worsen in 2034 and 2039, without the SSD development traffic, which will consist of up to 4.1% of the overall traffic in 2029. An intersection upgrade will be required with or without the SSD development traffic;
- in 2039, the mid-block capacity analysis indicates additional development traffic from the project will represent up to 9%, 8% and 2% of the future total forecast traffic volume using Adams Road, Elizabeth Drive, and The Northern Road respectively, but this is not expected to have a significant impact in terms of either traffic flow or traffic safety;
- swept path analyses of the existing Adams Road site access intersection, the Elizabeth Drive/Adams Road intersection and The Northern Road/Adams Road intersection show these intersections can accommodate vehicles up to 19 m in length, while the internal road network is capable of accommodating up to 26 m long articulated vehicles; and
- upgrades to the northern section of Adams Road will include upgrades to the Adams Road site access intersection and the Elizabeth Drive/Adams Road intersection so that it is suitable for B-doubles.

7 References

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Appendix A

Meeting minutes

Eric Lei

From: Janet Krick
Sent: Thursday, February 6, 2020 5:20 PM
To: Felix.Liu@transport.nsw.gov.au
Cc: Abdullah Uddin; Phil Towler; John Scarlis; Pascal Bobillier; Michael Coombes; Peter Coombes; Harry Scarlis; George Scarlis
Subject: Traffic impact assessments for 275 Adams Road Luddenham, proposed modification to reactivate the quarry and new SSD project - quarrying, recycling and landfilling
Attachments: RE: Luddenham Clay/Shale Quarry

Hi Felix,

Thank you very much for you and your teams time on Tuesday to discuss the Luddenham Quarry reactivation and new SSD approval. Please see below key outcomes from the meeting and our understanding of TfNSW's assessment requirements for the proposed modification of the existing quarry consent to enable reactivation of the quarry. We have also noted our understanding of the anticipated assessment requirements for a new SSD project which would seek approval for continued extraction in the short term, establishment of a C&D recycling facility and landfilling of unrecyclables in the quarry void with the ultimate objective of rehabilitating the void to enable the long term industrial or commercial use of the site. I have attached my previous email with relevant background information for the proposals.
Could you please circulate to the other meeting participants.

- EMM to undertake SIDRA modelling work based on the existing road network, except the updated intersection layout for The Northern Road/ Adams Road intersection. The updated layout is available at the DPIE website;
- EMM to send an email to TfNSW requesting the output of EMME model. Turn movement data is required for the following intersections which will be analysed. TfNSW to provide EMME data for future nominated years (eg 2020, 2029, 2034, 2039) or advise per annum growth of background traffic that needs to be adopted:
    - The Northern Road/ Adams Road (upgraded layout)
    - Elizabeth Drive/ Adams Road (existing layout)
    - Elizabeth Drive/ Luddenham Road (existing layout)

- Proposed modification – quarry reactivation and establishment of Adams Rd site access:
    - EMM to undertake intersection modelling for existing and 2029 (extension of the quarry)
    - TfNSW to advise EMM for what level of sensitivity testing would be required for the traffic analysis;

- New SSD project to continue quarrying operations, C&D recycling and landfilling:
    - EMM to undertake intersection modelling for existing and 2029, 2034 & 2039 (recycling facility) with a five year increment;
    - Quarry related traffic will be excluded for the analysis beyond 2029;
    - TfNSW to advise EMM for what level of sensitivity testing would be required for the traffic analysis;
- EMM to consider traffic safety matters in the respective traffic impact assessment. Swept path analysis will be required for heavy vehicle movements;
- TfNSW has suggested to send them the traffic report beforehand for their comments before the formal Modification report and EIS submissions. This is to minimise residual work after the respective submission; and
- TfNSW acknowledges that the project team is meeting with Liverpool City Council for their traffic input for the respective traffic impact assessment.

Please let me know if I have overlooked any aspect of our discussion.

Thanks again

Janet Krick
Senior Environmental Planner

EMM
creating opportunities

T 02 4907 4800
M 0456 664 212
D 02 4907 4815
Connect with us

NEWCASTLE | Level 3, 175 Scott Street, Newcastle NSW 2300

Please note my working days are Monday to Thursday


Appendix B

Intersection survey




Project Name: Adams Road intesection with The Northern Road
Project Date: 11/27/2019

		NORTHERN ROAD WESTBOUND						ADAMS ROAD SOUTHBOUND						NORTHERN ROAD EASTBOUND						
		STRAIGHT			RIGHT			LEFT			RIGHT			LEFT			STRAIGHT			
	15 Mins	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	Totals
27-Nov-19	600-614	100	15	**115**	14	0	**14**	8	2	**10**	0	0	**0**	0	0	**0**	118	24	**142**	281
27-Nov-19	615-629	130	17	**147**	11	2	**13**	19	0	**19**	0	0	**0**	3	0	**3**	166	28	**194**	376
27-Nov-19	630-644	117	24	**141**	23	2	**25**	26	1	**27**	2	0	**2**	3	0	**3**	117	27	**144**	342
27-Nov-19	645-659	121	22	**143**	12	1	**13**	16	1	**17**	1	0	**1**	2	2	**4**	93	24	**117**	295
27-Nov-19	700-714	133	15	**148**	17	0	**17**	9	2	**11**	2	1	**3**	13	1	**14**	120	20	**140**	333
27-Nov-19	715-729	140	12	**152**	26	1	**27**	13	1	**14**	1	2	**3**	10	3	**13**	142	20	**162**	371
27-Nov-19	730-744	150	10	**160**	27	0	**27**	7	0	**7**	2	2	**4**	8	1	**9**	133	19	**152**	359
27-Nov-19	745-759	113	13	**126**	19	0	**19**	21	2	**23**	3	0	**3**	4	0	**4**	127	18	**145**	320
27-Nov-19	800-814	102	20	**122**	22	1	**23**	9	1	**10**	1	0	**1**	3	0	**3**	109	14	**123**	282
27-Nov-19	815-829	107	18	**125**	12	0	**12**	19	1	**20**	1	0	**1**	2	2	**4**	82	16	**98**	260
27-Nov-19	830-844	108	18	**126**	17	0	**17**	16	2	**18**	1	0	**1**	4	3	**7**	98	22	**120**	289
27-Nov-19	845-859	97	23	**120**	10	2	**12**	8	4	**12**	2	1	**3**	8	0	**8**	73	19	**92**	247
		1418	207	**1625**	210	9	**219**	171	17	**188**	16	6	**22**	60	12	**72**	1378	251	**1629**	

	NORTHERN ROAD WESTBOUND						ADAMS ROAD SOUTHBOUND						NORTHERN ROAD EASTBOUND						
	STRAIGHT			RIGHT			LEFT			RIGHT			LEFT			STRAIGHT			
Hourly	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	Totals
600-700	468	78	**546**	60	5	**65**	69	4	**73**	3	0	**3**	8	2	**10**	494	103	**597**	1294
615-715	501	78	**579**	63	5	**68**	70	4	**74**	5	1	**6**	21	3	**24**	496	99	**595**	1346
630-730	511	73	**584**	78	4	**82**	64	5	**69**	6	3	**9**	28	6	**34**	472	91	**563**	1341
645-745	544	59	**603**	82	2	**84**	45	4	**49**	6	5	**11**	33	7	**40**	488	83	**571**	1358
700-800	536	50	**586**	89	1	**90**	50	5	**55**	8	5	**13**	35	5	**40**	522	77	**599**	1383
715-815	505	55	**560**	94	2	**96**	50	4	**54**	7	4	**11**	25	4	**29**	511	71	**582**	1332
730-830	472	61	**533**	80	1	**81**	56	4	**60**	7	2	**9**	17	3	**20**	451	67	**518**	1221
745-845	430	69	**499**	70	1	**71**	65	6	**71**	6	0	**6**	13	5	**18**	416	70	**486**	1151
800-900	414	79	**493**	61	3	**64**	52	8	**60**	5	1	**6**	17	5	**22**	362	71	**433**	1078

Project Name: Adams Road intesection with The Northern Road
Project Date: 11/27/2019

		NORTHERN ROAD WESTBOUND						ADAMS ROAD SOUTHBOUND						NORTHERN ROAD EASTBOUND						
		LEFT			STRAIGHT			STRAIGHT			RIGHT			LEFT			RIGHT			
	15 Mins	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	Totals
27-Nov-19	1500-1514	102	15	**117**	9	2	**11**	19	2	**21**	3	1	**4**	0	2	**2**	99	11	**110**	265
27-Nov-19	1515-1529	114	25	**139**	18	1	**19**	15	3	**18**	3	1	**4**	3	1	**4**	128	16	**144**	328
27-Nov-19	1530-1544	108	20	**128**	11	2	**13**	27	3	**30**	4	0	**4**	5	0	**5**	107	13	**120**	300
27-Nov-19	1545-1559	136	20	**156**	10	2	**12**	24	0	**24**	1	0	**1**	2	0	**2**	144	18	**162**	357
27-Nov-19	1600-1614	144	16	**160**	15	0	**15**	21	0	**21**	2	1	**3**	2	1	**3**	129	19	**148**	350
27-Nov-19	1615-1629	156	10	**166**	12	2	**14**	31	1	**32**	4	4	**8**	2	0	**2**	147	11	**158**	380
27-Nov-19	1630-1644	128	17	**145**	9	1	**10**	24	4	**28**	2	0	**2**	0	0	**0**	137	10	**147**	332
27-Nov-19	1645-1659	144	15	**159**	12	0	**12**	28	3	**31**	2	0	**2**	1	1	**2**	136	11	**147**	353
27-Nov-19	1700-1714	181	17	**198**	18	0	**18**	39	0	**39**	5	0	**5**	3	0	**3**	130	8	**138**	401
27-Nov-19	1715-1729	169	11	**180**	16	0	**16**	27	0	**27**	3	1	**4**	2	0	**2**	165	9	**174**	403
27-Nov-19	1730-1744	168	10	**178**	24	1	**25**	16	1	**17**	5	0	**5**	5	2	**7**	139	7	**146**	378
27-Nov-19	1745-1759	119	4	**123**	16	0	**16**	11	0	**11**	4	0	**4**	5	0	**5**	120	11	**131**	290
		1669	180	**1849**	170	11	**181**	282	17	**299**	38	8	**46**	30	7	**37**	1581	144	**1725**	

	NORTHERN ROAD WESTBOUND						ADAMS ROAD SOUTHBOUND						NORTHERN ROAD EASTBOUND						
	STRAIGHT			RIGHT			LEFT			RIGHT			LEFT			STRAIGHT			
Hourly	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	Totals
1500-1600	460	80	**540**	48	7	**55**	85	8	**93**	11	2	**13**	10	3	**13**	478	58	**536**	1250
1515-1615	502	81	**583**	54	5	**59**	87	6	**93**	10	2	**12**	12	2	**14**	508	66	**574**	1335
1530-1630	544	66	**610**	48	6	**54**	103	4	**107**	11	5	**16**	11	1	**12**	527	61	**588**	1387
1545-1645	564	63	**627**	46	5	**51**	100	5	**105**	9	5	**14**	6	1	**7**	557	58	**615**	1419
1600-1700	572	58	**630**	48	3	**51**	104	8	**112**	10	5	**15**	5	2	**7**	549	51	**600**	1415
1615-1715	609	59	**668**	51	3	**54**	122	8	**130**	13	4	**17**	6	1	**7**	550	40	**590**	1466
1630-1730	622	60	**682**	55	1	**56**	118	7	**125**	12	1	**13**	6	1	**7**	568	38	**606**	1489
1645-1745	662	53	**715**	70	1	**71**	110	4	**114**	15	1	**16**	11	3	**14**	570	35	**605**	1535
1700-1800	637	42	**679**	74	1	**75**	93	1	**94**	17	1	**18**	15	2	**17**	554	35	**589**	1472

Project Name: Adams Road intesection with Elizabeth Road
Project Date: 11/27/2019

		ELIZABETH DRIVE WESTBOUND						ELIZABETH DRIVE EASTBOUND						ADAMS ROAD NORTHBOUND						
		LEFT			STRAIGHT			STRAIGHT			RIGHT			LEFT			RIGHT			
	15mins	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	Totals
27-Nov-19	600-614	4	0	**4**	73	5	**78**	*115*	*15*	**130**	*7*	*2*	**9**	12	0	**12**	4	0	**4**	237
27-Nov-19	615-629	7	0	**7**	82	3	**85**	*155*	*28*	**183**	*17*	*1*	**18**	16	0	**16**	1	0	**1**	310
27-Nov-19	630-644	7	0	**7**	114	5	**119**	*138*	*27*	**165**	*26*	*1*	**27**	23	0	**23**	9	0	**9**	350
27-Nov-19	645-659	9	0	**9**	70	8	**78**	*131*	*12*	**143**	*19*	*1*	**20**	11	0	**11**	6	0	**6**	267
27-Nov-19	700-714	5	0	**5**	77	19	**96**	*131*	*10*	**141**	*5*	*0*	**5**	17	0	**17**	7	0	**7**	271
27-Nov-19	715-729	4	0	**4**	81	22	**103**	*158*	*18*	**176**	*7*	*0*	**7**	23	0	**23**	4	0	**4**	317
27-Nov-19	730-744	3	0	**3**	77	6	**83**	*158*	*7*	**165**	*8*	*0*	**8**	26	0	**26**	15	1	**16**	301
27-Nov-19	745-759	6	0	**6**	107	7	**114**	*108*	*13*	**121**	*11*	*1*	**12**	24	0	**24**	5	0	**5**	282
27-Nov-19	800-814	3	0	**3**	77	5	**82**	*105*	*13*	**118**	*10*	*0*	**10**	25	0	**25**	9	0	**9**	247
27-Nov-19	815-829	5	1	**6**	94	21	**115**	*95*	*16*	**111**	*14*	*3*	**17**	10	0	**10**	8	0	**8**	267
27-Nov-19	830-844	4	0	**4**	71	11	**82**	*81*	*13*	**94**	*9*	*0*	**9**	15	0	**15**	2	0	**2**	206
27-Nov-19	845-859	0	1	**1**	70	8	**78**	*62*	*17*	**79**	*7*	*4*	**11**	14	0	**14**	5	0	**5**	188
		57	2	**59**	993	120	**1113**	1437	189	**1626**	140	13	**153**	216	0	**216**	75	1	**76**	

	ELIZABETH DRIVE WESTBOUND						ELIZABETH DRIVE EASTBOUND						ADAMS ROAD NORTHBOUND						
	LEFT			STRAIGHT			STRAIGHT			RIGHT			LEFT			RIGHT			
Hourly	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	Totals
600-700	27	0	**27**	339	21	**360**	539	82	**621**	69	5	**74**	62	0	**62**	20	0	**20**	1164
615-715	28	0	**28**	343	35	**378**	555	77	**632**	67	3	**70**	67	0	**67**	23	0	**23**	1198
630-730	25	0	**25**	342	54	**396**	558	67	**625**	57	2	**59**	74	0	**74**	26	0	**26**	1205
645-745	21	0	**21**	305	55	**360**	578	47	**625**	39	1	**40**	77	0	**77**	32	1	**33**	1156
700-800	18	0	**18**	342	54	**396**	555	48	**603**	31	1	**32**	90	0	**90**	31	1	**32**	1171
715-815	16	0	**16**	342	40	**382**	529	51	**580**	36	1	**37**	98	0	**98**	33	1	**34**	1147
730-830	17	1	**18**	355	39	**394**	466	49	**515**	43	4	**47**	85	0	**85**	37	1	**38**	1097
745-845	18	1	**19**	349	44	**393**	389	55	**444**	44	4	**48**	74	0	**74**	24	0	**24**	1002
800-900	12	2	**14**	312	45	**357**	343	59	**402**	40	7	**47**	64	0	**64**	24	0	**24**	908

Project Name: Adams Road intesection with Elizabeth Road
Project Date: 11/27/2019

		ELIZABETH DRIVE WESTBOUND						ELIZABETH DRIVE EASTBOUND						ADAMS ROAD NORTHBOUND						
		LEFT			STRAIGHT			STRAIGHT			RIGHT			LEFT			RIGHT			
	15 Mins	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	Totals
27-Nov-19	1500-1514	5	0	**5**	81	19	**100**	79	17	**96**	15	0	**15**	15	1	**16**	5	0	**5**	237
27-Nov-19	1515-1529	5	0	**5**	108	5	**113**	101	7	**108**	21	0	**21**	15	2	**17**	4	0	**4**	268
27-Nov-19	1530-1544	7	0	**7**	115	13	**128**	98	6	**104**	24	1	**25**	12	0	**12**	5	0	**5**	281
27-Nov-19	1545-1559	8	0	**8**	128	13	**141**	111	6	**117**	25	0	**25**	11	0	**11**	4	0	**4**	306
27-Nov-19	1600-1614	5	1	**6**	108	12	**120**	131	7	**138**	14	0	**14**	21	0	**21**	3	0	**3**	302
27-Nov-19	1615-1629	3	0	**3**	168	6	**174**	123	4	**127**	23	0	**23**	26	0	**26**	9	0	**9**	362
27-Nov-19	1630-1644	10	0	**10**	189	9	**198**	108	8	**116**	20	1	**21**	15	1	**16**	6	0	**6**	367
27-Nov-19	1645-1659	6	1	**7**	170	16	**186**	107	1	**108**	34	0	**34**	8	0	**8**	7	0	**7**	350
27-Nov-19	1700-1714	13	0	**13**	183	8	**191**	114	4	**118**	37	0	**37**	12	0	**12**	5	0	**5**	376
27-Nov-19	1715-1729	5	0	**5**	164	7	**171**	122	3	**125**	32	0	**32**	15	0	**15**	6	0	**6**	354
27-Nov-19	1730-1744	10	1	**11**	172	9	**181**	119	5	**124**	25	0	**25**	25	0	**25**	6	0	**6**	372
27-Nov-19	1745-1759	5	0	**5**	94	4	**98**	109	3	**112**	14	0	**14**	11	0	**11**	2	0	**2**	242
		82	3	**85**	1680	121	**1801**	1322	71	**1393**	284	2	**286**	186	4	**190**	62	0	**62**	

	ELIZABETH DRIVE WESTBOUND						ELIZABETH DRIVE EASTBOUND						ADAMS ROAD NORTHBOUND						
	LEFT			STRAIGHT			STRAIGHT			RIGHT			LEFT			RIGHT			
Hourly	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	Totals
1500-1600	25	0	**25**	432	50	**482**	389	36	**425**	85	1	**86**	53	3	**56**	18	0	**18**	1092
1515-1615	25	1	**26**	459	43	**502**	441	26	**467**	84	1	**85**	59	2	**61**	16	0	**16**	1157
1530-1630	23	1	**24**	519	44	**563**	463	23	**486**	86	1	**87**	70	0	**70**	21	0	**21**	1251
1545-1645	26	1	**27**	593	40	**633**	473	25	**498**	82	1	**83**	73	1	**74**	22	0	**22**	1337
1600-1700	24	2	**26**	635	43	**678**	469	20	**489**	91	1	**92**	70	1	**71**	25	0	**25**	1381
1615-1715	32	1	**33**	710	39	**749**	452	17	**469**	114	1	**115**	61	1	**62**	27	0	**27**	**1455**
1630-1730	34	1	**35**	706	40	**746**	451	16	**467**	123	1	**124**	50	1	**51**	24	0	**24**	1447
1645-1745	34	2	**36**	689	40	**729**	462	13	**475**	128	0	**128**	60	0	**60**	24	0	**24**	1452
1700-1800	33	1	**34**	613	28	**641**	464	15	**479**	108	0	**108**	63	0	**63**	19	0	**19**	1344

Project Name: Luddenham Road Intesection with Elizabeth Road
Project Date: 11/27/2019

		ELIZABETH DRIVE WESTBOUND						LUDDENHAM SOUTHBOUND						ELIZABETH DRIVE EASTBOUND						
		STRIAGHT			RIGHT			LEFT			RIGHT			LEFT			*STRAIGHT*			
	15 Mins	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	*LV*	*HV*	***LV+HV***	Totals
27-Nov-19	600-614	53	6	**59**	33	0	**33**	*39*	*3*	**42**	16	1	**17**	49	1	**50**	*88*	*13*	***101***	302
27-Nov-19	615-629	68	3	**71**	36	0	**36**	*56*	*3*	**59**	10	0	**10**	47	0	**47**	*128*	*21*	***149***	372
27-Nov-19	630-644	92	4	**96**	53	0	**53**	*54*	*5*	**59**	19	0	**19**	69	0	**69**	*114*	*20*	***134***	430
27-Nov-19	645-659	47	7	**54**	34	1	**35**	*35*	*2*	**37**	17	0	**17**	49	0	**49**	*117*	*9*	***126***	318
27-Nov-19	700-714	58	17	**75**	43	0	**43**	*24*	*0*	**24**	9	1	**10**	57	0	**57**	*118*	*8*	***126***	335
27-Nov-19	715-729	57	22	**79**	47	0	**47**	*28*	*1*	**29**	16	0	**16**	84	0	**84**	*143*	*15*	***158***	413
27-Nov-19	730-744	55	7	**62**	46	0	**46**	*32*	*0*	**32**	17	0	**17**	72	0	**72**	*135*	*7*	***142***	371
27-Nov-19	745-759	65	9	**74**	69	0	**69**	*26*	*3*	**29**	17	0	**17**	65	1	**66**	*97*	*10*	***107***	362
27-Nov-19	800-814	48	6	**54**	57	1	**58**	*31*	*1*	**32**	11	0	**11**	53	0	**53**	*88*	*8*	***96***	304
27-Nov-19	815-829	60	29	**89**	29	1	**30**	*27*	*2*	**29**	16	0	**16**	40	0	**40**	*84*	*16*	***100***	304
27-Nov-19	830-844	58	9	**67**	37	5	**42**	*23*	*0*	**23**	11	0	**11**	39	3	**42**	*64*	*13*	***77***	262
27-Nov-19	845-859	37	13	**50**	34	2	**36**	*17*	*3*	**20**	20	0	**20**	38	0	**38**	*55*	*17*	***72***	236
		698	132	**830**	518	10	**528**	392	23	**415**	179	2	**181**	662	5	**667**	1231	157	**1388**	

	ELIZABETH DRIVE WESTBOUND						LUDDENHAM SOUTHBOUND						ELIZABETH DRIVE EASTBOUND						
	STRIAGHT			RIGHT			LEFT			RIGHT			LEFT			STRAIGHT			
Hourly	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	Totals
600-700	260	20	**280**	156	1	**157**	184	13	**197**	62	1	**63**	214	1	**215**	447	63	**510**	1422
615-715	265	31	**296**	166	1	**167**	169	10	**179**	55	1	**56**	222	0	**222**	477	58	**535**	1455
630-730	254	50	**304**	177	1	**178**	141	8	**149**	61	1	**62**	259	0	**259**	492	52	**544**	1496
645-745	217	53	**270**	170	1	**171**	119	3	**122**	59	1	**60**	262	0	**262**	513	39	**552**	1437
700-800	235	55	**290**	205	0	**205**	110	4	**114**	59	1	**60**	278	1	**279**	493	40	**533**	1481
715-815	225	44	**269**	219	1	**220**	117	5	**122**	61	0	**61**	274	1	**275**	463	40	**503**	1450
730-830	228	51	**279**	201	2	**203**	116	6	**122**	61	0	**61**	230	1	**231**	404	41	**445**	1341
745-845	231	53	**284**	192	7	**199**	107	6	**113**	55	0	**55**	197	4	**201**	333	47	**380**	1232
800-900	203	57	**260**	157	9	**166**	98	6	**104**	58	0	**58**	170	3	**173**	291	54	**345**	1106

Project Name: Luddenham Road Intesection with Elizabeth Road
Project Date: 11/27/2019

		ELIZABETH DRIVE WESTBOUND						LUDDENHAM SOUTHBOUND						ELIZABETH DRIVE EASTBOUND						
		STRIAGHT			RIGHT			LEFT			RIGHT			LEFT			STRAIGHT			
	15 Mins	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	Totals
27-Nov-19	1500-1514	67	16	**83**	22	3	**25**	37	0	**37**	30	1	**31**	13	0	**13**	57	21	**78**	267
27-Nov-19	1515-1529	85	6	**91**	24	1	**25**	50	0	**50**	42	0	**42**	28	1	**29**	71	11	**82**	319
27-Nov-19	1530-1544	73	9	**82**	30	3	**33**	51	3	**54**	33	3	**36**	20	0	**20**	66	5	**71**	296
27-Nov-19	1545-1559	100	16	**116**	48	0	**48**	63	0	**63**	52	0	**52**	19	1	**20**	65	9	**74**	373
27-Nov-19	1600-1614	96	9	**105**	26	1	**27**	66	1	**67**	46	0	**46**	29	1	**30**	70	7	**77**	352
27-Nov-19	1615-1629	135	7	**142**	44	0	**44**	79	2	**81**	61	2	**63**	21	1	**22**	66	1	**67**	419
27-Nov-19	1630-1644	156	6	**162**	28	3	**31**	54	1	**55**	54	0	**54**	23	1	**24**	60	8	**68**	394
27-Nov-19	1645-1659	143	16	**159**	19	1	**20**	61	0	**61**	45	0	**45**	23	0	**23**	68	1	**69**	377
27-Nov-19	1700-1714	140	7	**147**	34	1	**35**	65	0	**65**	64	0	**64**	21	0	**21**	75	4	**79**	411
27-Nov-19	1715-1729	158	8	**166**	38	0	**38**	84	0	**84**	52	0	**52**	14	1	**15**	70	4	**74**	429
27-Nov-19	1730-1744	164	8	**172**	40	0	**40**	67	0	**67**	46	0	**46**	30	0	**30**	70	5	**75**	430
27-Nov-19	1745-1759	82	4	**86**	27	0	**27**	41	0	**41**	46	3	**49**	23	0	**23**	72	2	**74**	300
		1399	112	**1511**	380	13	**393**	718	7	**725**	571	9	**580**	264	6	**270**	810	78	**888**	

	ELIZABETH DRIVE WESTBOUND						LUDDENHAM SOUTHBOUND						ELIZABETH DRIVE EASTBOUND						
	STRIAGHT			RIGHT			LEFT			RIGHT			LEFT			STRAIGHT			
Hourly	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	LV	HV	**LV+HV**	Totals
1500-1600	325	47	**372**	124	7	**131**	201	3	**204**	157	4	**161**	80	2	**82**	259	46	**305**	1255
1515-1615	354	40	**394**	128	5	**133**	230	4	**234**	173	3	**176**	96	3	**99**	272	32	**304**	1340
1530-1630	404	41	**445**	148	4	**152**	259	6	**265**	192	5	**197**	89	3	**92**	267	22	**289**	1440
1545-1645	487	38	**525**	146	4	**150**	262	4	**266**	213	2	**215**	92	4	**96**	261	25	**286**	1538
1600-1700	530	38	**568**	117	5	**122**	260	4	**264**	206	2	**208**	96	3	**99**	264	17	**281**	1542
1615-1715	574	36	**610**	125	5	**130**	259	3	**262**	224	2	**226**	88	2	**90**	269	14	**283**	1601
1630-1730	597	37	**634**	119	5	**124**	264	1	**265**	215	0	**215**	81	2	**83**	273	17	**290**	1611
1645-1745	605	39	**644**	131	2	**133**	277	0	**277**	207	0	**207**	88	1	**89**	283	14	**297**	1647
1700-1800	544	27	**571**	139	1	**140**	257	0	**257**	208	3	**211**	88	1	**89**	287	15	**302**	1570


Appendix C

STFM traffic volumes




TRAFFIC VOLUMES__

2011TZ SYDNEY GMA STRATEGIC TRAFFIC FORECASTING MODEL
Scenario 2026: 2026 SYDTRAFFICFORECASTMODELTZ11LU16V151STMV362-7-9AM(mf34)
2020-02-13 08:13

TRAFFIC VOLUMES__

2011TZ SYDNEY GMA STRATEGIC TRAFFIC FORECASTING MODEL
Scenario 20260: 2026 SYDTRAFFICFORECASTMODELTZ11LU16V151STMV362-4-6PM(mf54)
2020-02-13 08:14

LANE (1WAY):
1
2
3
4
5

TRAFFIC VOLUMES__

2011TZ SYDNEY GMA STRATEGIC TRAFFIC FORECASTING MODEL
Scenario 2031: 2031 SYDTRAFFICFORECASTMODELTZ11LU16V151STMV362-7-9AM(mf35)
2020-02-13 08:13

TRAFFIC VOLUMES__

2011TZ SYDNEY GMA STRATEGIC TRAFFIC FORECASTING MODEL
Scenario 20310: 2031 SYDTRAFFICFORECASTMODELTZ11LU16V151STMV362-4-6PM(mf55)
2020-02-13 08:14

TRAFFIC VOLUMES__

2011TZ SYDNEY GMA STRATEGIC TRAFFIC FORECASTING MODEL
Scenario 2036: 2036 SYDTRAFFICFORECASTMODELTZ11LU16V151STMV362-7-9AM(mf36)
2020-02-13 08:13

TRAFFIC VOLUMES__

2011TZ SYDNEY GMA STRATEGIC TRAFFIC FORECASTING MODEL
Scenario 20360: 2036 SYDTRAFFICFORECASTMODELTZ11LU16V151STMV362-4-6PM(mf56)
2020-02-13 08:14

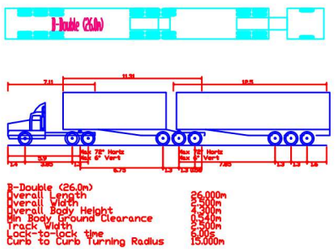

Appendix D

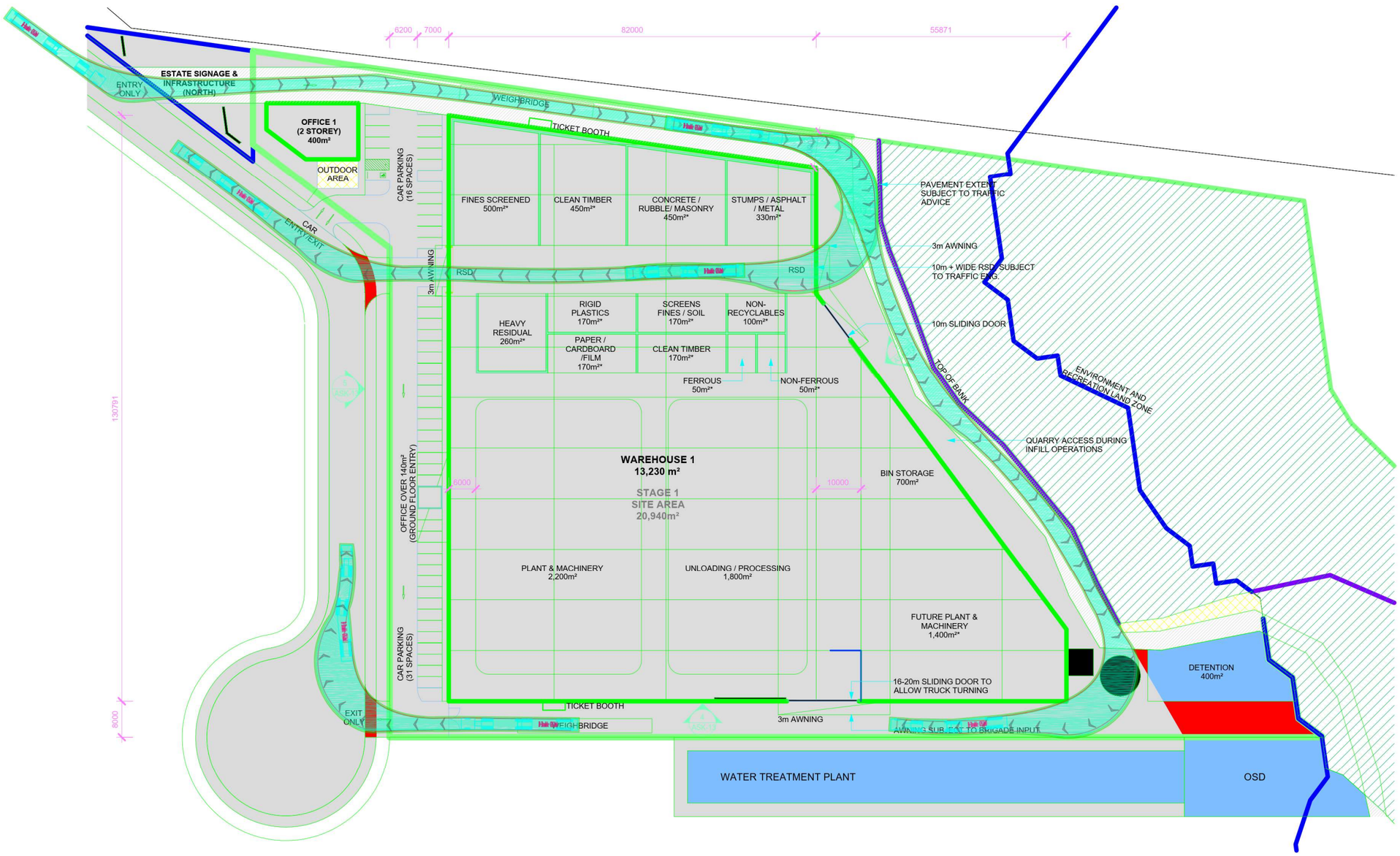
Swept path assessment




COMMENTS

A3





EMM creating opportunities

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Ground Floor
20 Chandos Street,
St Leonards NSW 2065

Phone # 02 9493 9500

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REV	DATE	COMMENT	DRAWN	REVIEWED
1	09/06/20	FOR INFORMATION	EL	AU

PROJECT: Luddenham ARRC

DRAWING TITLE: 26m B-Double Site Manoevurability

CLIENT:	CPG
DRG. #:	EMM-001
PROJECT #:	J190749
SCALE:	1:1000

REV: 1

Boundary Line

19M TRUCK AND DOG

19M TRUCK AND DOG

19M TRUCK AND DOG

19M TRUCK AND DOG

19M TRUCK AND DOG

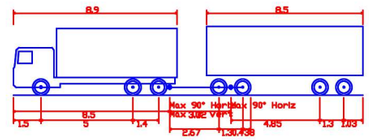
19M TRUCK AND DOG

6110

Stopline to be setback to accommodate the left inbound wide turn movement

COMMENTS

A3



19M TRUCK AND DOG	
Overall Length	19.000m
Overall Width	2.600m
Overall Body Height	3.738m
Min Body Ground Clearance	0.427m
Track Width	2.500m
Lock-to-Lock time	4.00s
Wall to Wall Turning Radius	12.000m

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REV	DATE	COMMENT	DRAWN	REVIEWED	REV	DATE	COMMENT	DRAWN	REVIEWED
5	04/03/20	FOR INFORMATION	EL	AU					
4	27/02/20	FOR INFORMATION	EL	AU					
3	26/02/20	FOR INFORMATION	EL	AU					
2	21/02/20	FOR INFORMATION	EL	AU					
1	12/02/20	FOR INFORMATION	EL	AU					

PROJECT: Luddenham RRC

DRAWING TITLE: Site Access

19m Truck and Dog Manoeuvrability

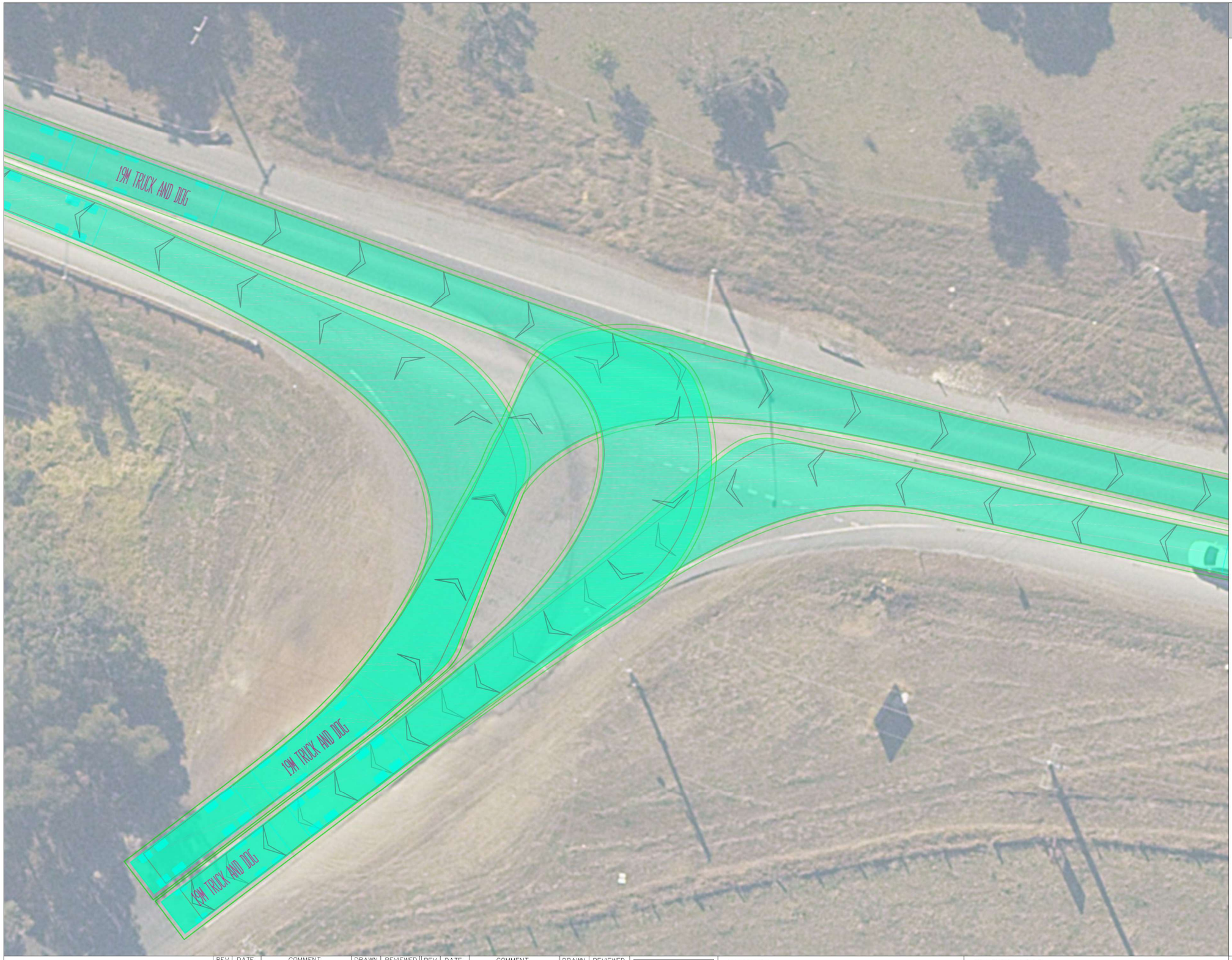
CLIENT: CPG

DRG. #: EMM-102d

PROJECT #: J190749

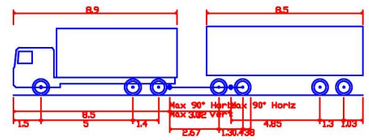
SCALE: 1:250

REV: 5



COMMENTS

A3



19M TRUCK AND DOG	
Overall Length	19.000m
Overall Width	2.600m
Overall Body Height	3.738m
Min Body Ground Clearance	0.427m
Track Width	2.500m
Lock-to-Lock time	4.00s
Wall to Wall Turning Radius	12.000m

EMM creating opportunities

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REV	DATE	COMMENT	DRAWN	REVIEWED	REV	DATE	COMMENT	DRAWN	REVIEWED
5	04/03/20	FOR INFORMATION	EL	AU					
4	27/02/20	FOR INFORMATION	EL	AU					
3	26/02/20	FOR INFORMATION	EL	AU					
2	21/02/20	FOR INFORMATION	EL	AU					
1	12/02/20	FOR INFORMATION	EL	AU					

PROJECT:
Luddenham RRC

DRAWING TITLE:
Intersection of Elizabeth Drive with Adams Road

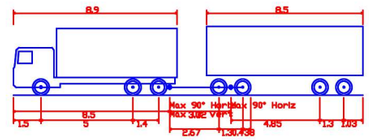
19m Truck and Dog Manoeuvrability

CLIENT:	CPG
DRG. #:	EMM-103b
PROJECT #:	J190749
SCALE:	1:250

REV: 5

COMMENTS

A3



19M TRUCK AND DOG	
Overall Length	19.000m
Overall Width	2.600m
Overall Body Height	3.738m
Min Body Ground Clearance	0.427m
Track Width	2.500m
Lock-to-Lock time	4.00s
Wall to Wall Turning Radius	12.000m

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REV	DATE	COMMENT	DRAWN	REVIEWED
5	04/03/20	FOR INFORMATION	EL	AU
4	27/02/20	FOR INFORMATION	EL	AU
3	26/02/20	FOR INFORMATION	EL	AU
2	21/02/20	FOR INFORMATION	EL	AU
1	12/02/20	FOR INFORMATION	EL	AU

REV	DATE	COMMENT	DRAWN	REVIEWED

PROJECT:
Luddenham RRC

DRAWING TITLE:
Intersection of The Northern Road with Adams Road

19m Truck and Dog Manoeuvrability

CLIENT: CPG
DRG. #: EMM-106b
PROJECT #: J190749
SCALE: 1:250

REV: 5


Appendix E

SIDRA results (even distribution)




MOVEMENT SUMMARY

Site: 101 [2020 baseline The Northern Rd/ Adams Rd AM]

Network: N101 [2020 baseline AM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: The Northern Road														
22	T1	615	12.5	615	12.5	0.406	1.1	LOS A	1.6	12.4	0.27	0.10	0.35	57.9
23	R2	89	4.7	89	4.7	0.406	9.7	LOS A	1.6	12.4	0.27	0.10	0.35	56.0
Approach		704	11.5	704	11.5	0.406	2.2	NA	1.6	12.4	0.27	0.10	0.35	57.8
NorthEast: Adams Road														
24	L2	73	7.2	73	7.2	0.090	8.7	LOS A	0.3	2.6	0.55	0.75	0.55	54.0
26	R2	9	33.3	9	33.3	0.090	13.2	LOS A	0.3	2.6	0.55	0.75	0.55	52.4
Approach		82	10.3	82	10.3	0.090	9.3	LOS A	0.3	2.6	0.55	0.75	0.55	53.8
NorthWest: The Northern Road														
27	L2	37	17.1	37	17.1	0.346	5.8	LOS A	0.0	0.0	0.00	0.03	0.00	59.3
28	T1	593	16.2	593	16.2	0.346	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	59.6
Approach		629	16.2	629	16.2	0.346	0.4	NA	0.0	0.0	0.00	0.03	0.00	59.6
All Vehicles		1416	13.5	1416	13.5	0.406	1.8	NA	1.6	12.4	0.17	0.11	0.21	58.3

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.
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: 102 [2020 baseline Elizabeth Dr/ Adams Rd AM]

Network: N101 [2020 baseline AM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
21	L2	31	10.3	31	10.3	0.242	3.5	LOS A	0.0	0.0	0.00	0.03	0.00	39.8
22	T1	417	13.6	417	13.6	0.242	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	39.8
Approach		447	13.4	447	13.4	0.242	0.3	NA	0.0	0.0	0.00	0.03	0.00	39.8
NorthWest: Elizabeth Drive														
28	T1	658	10.7	658	10.7	0.392	0.4	LOS A	0.9	6.7	0.15	0.05	0.18	39.4
29	R2	65	4.8	65	4.8	0.392	5.9	LOS A	0.9	6.7	0.15	0.05	0.18	38.3
Approach		723	10.2	723	10.2	0.392	0.9	NA	0.9	6.7	0.15	0.05	0.18	39.4
SouthWest: Adams Road														
30	L2	79	1.3	79	1.3	0.055	7.6	LOS A	0.2	1.7	0.45	0.64	0.45	53.5
32	R2	31	10.3	31	10.3	0.050	9.9	LOS A	0.1	0.9	0.60	0.85	0.60	44.7
Approach		109	3.8	109	3.8	0.055	8.3	LOS A	0.2	1.7	0.49	0.70	0.49	49.3
All Vehicles		1280	10.8	1280	10.8	0.392	1.3	NA	0.9	6.7	0.13	0.10	0.14	40.2

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.
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: 103 [2020 baseline Elizabeth Dr/ Luddenham Rd AM]

Network: N101 [2020 baseline AM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
22	T1	321	16.7	321	16.7	0.177	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
23	R2	187	0.6	187	0.6	0.270	8.8	LOS A	1.2	8.6	0.69	0.86	0.77	47.3
Approach		508	10.8	508	10.8	0.270	3.2	NA	1.2	8.6	0.25	0.32	0.28	42.4
NorthEast: Luddenham Road														
24	L2	157	5.4	157	5.4	0.188	10.1	LOS A	0.7	5.3	0.56	0.82	0.56	55.9
26	R2	65	1.6	65	1.6	0.216	18.3	LOS B	0.7	4.9	0.80	0.94	0.87	42.5
Approach		222	4.3	222	4.3	0.216	12.5	LOS A	0.7	5.3	0.63	0.85	0.65	48.9
NorthWest: Elizabeth Drive														
27	L2	273	0.0	273	0.0	0.142	3.4	LOS A	0.0	0.0	0.00	0.45	0.00	38.7
28	T1	576	9.7	576	9.7	0.303	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		848	6.6	848	6.6	0.303	1.1	NA	0.0	0.0	0.00	0.15	0.00	39.3
All Vehicles		1579	7.6	1579	7.6	0.303	3.4	NA	1.2	8.6	0.17	0.30	0.18	41.5

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: 111 [2020 baseline The Northern Rd/ Adams Rd PM]

Network: N111 [2020 baseline PM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: The Northern Road														
22	T1	753	7.4	753	7.4	0.452	0.8	LOS A	1.5	11.0	0.20	0.07	0.28	58.4
23	R2	75	1.4	75	1.4	0.452	9.8	LOS A	1.5	11.0	0.20	0.07	0.28	56.9
Approach		827	6.9	827	6.9	0.452	1.6	NA	1.5	11.0	0.20	0.07	0.28	58.3
NorthEast: Adams Road														
24	L2	120	3.5	120	3.5	0.145	8.8	LOS A	0.6	4.0	0.56	0.78	0.56	54.1
26	R2	17	6.3	17	6.3	0.145	12.2	LOS A	0.6	4.0	0.56	0.78	0.56	53.6
Approach		137	3.8	137	3.8	0.145	9.2	LOS A	0.6	4.0	0.56	0.78	0.56	54.1
NorthWest: The Northern Road														
27	L2	15	21.4	15	21.4	0.336	5.8	LOS A	0.0	0.0	0.00	0.01	0.00	59.7
28	T1	637	5.8	637	5.8	0.336	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
Approach		652	6.1	652	6.1	0.336	0.2	NA	0.0	0.0	0.00	0.01	0.00	59.8
All Vehicles		1616	6.3	1616	6.3	0.452	1.7	NA	1.5	11.0	0.15	0.10	0.19	58.5

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: 112 [2020 baseline Elizabeth Dr/ Adams Rd PM]

Network: N111 [2020 baseline PM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
21	L2	41	12.8	41	12.8	0.417	3.5	LOS A	0.0	0.0	0.00	0.02	0.00	39.8
22	T1	767	5.5	767	5.5	0.417	0.1	LOS A	0.0	0.0	0.00	0.02	0.00	39.8
Approach		808	5.9	808	5.9	0.417	0.2	NA	0.0	0.0	0.00	0.02	0.00	39.8
NorthWest: Elizabeth Drive														
28	T1	500	2.7	500	2.7	0.393	2.4	LOS A	2.6	18.3	0.47	0.17	0.64	37.9
29	R2	136	0.8	136	0.8	0.393	8.8	LOS A	2.6	18.3	0.47	0.17	0.64	34.1
Approach		636	2.3	636	2.3	0.393	3.8	NA	2.6	18.3	0.47	0.17	0.64	37.5
SouthWest: Adams Road														
30	L2	64	1.6	64	1.6	0.069	9.4	LOS A	0.3	1.9	0.60	0.78	0.60	51.7
32	R2	28	11.1	28	11.1	0.059	11.5	LOS A	0.1	1.1	0.69	0.88	0.69	43.9
Approach		93	4.5	93	4.5	0.069	10.0	LOS A	0.3	1.9	0.63	0.81	0.63	47.8
All Vehicles		1537	4.3	1537	4.3	0.417	2.3	NA	2.6	18.3	0.23	0.13	0.30	39.2

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.
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: 113 [2020 baseline Elizabeth Dr/ Luddenham Rd PM]

Network: N111 [2020 baseline PM]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
22	T1	679	6.2	679	6.2	0.351	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
23	R2	140	1.5	140	1.5	0.116	5.0	LOS A	0.5	3.7	0.47	0.59	0.47	50.1
Approach		819	5.4	819	5.4	0.351	0.9	NA	0.5	3.7	0.08	0.10	0.08	41.4
NorthEast: Luddenham Road														
24	L2	292	0.0	292	0.0	0.239	8.3	LOS A	1.1	7.4	0.43	0.68	0.43	58.2
26	R2	218	0.0	218	0.0	0.664	24.4	LOS B	3.2	22.6	0.90	1.11	1.62	39.7
Approach		509	0.0	509	0.0	0.664	15.2	LOS B	3.2	22.6	0.63	0.87	0.94	45.5
NorthWest: Elizabeth Drive														
27	L2	94	1.1	94	1.1	0.049	3.4	LOS A	0.0	0.0	0.00	0.45	0.00	38.7
28	T1	314	5.0	314	5.0	0.160	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		407	4.1	407	4.1	0.160	0.8	NA	0.0	0.0	0.00	0.10	0.00	39.5
All Vehicles		1736	3.5	1736	3.5	0.664	5.0	NA	3.2	22.6	0.22	0.33	0.31	42.1

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: 201 [2029 baseline The Northern Rd/ Adams Rd AM]

Network: N201 [2029 baseline AM]

Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 110 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: The Northern Road														
1b	L3	34	15.6	34	15.6	0.037	16.3	LOS B	0.7	5.4	0.38	0.67	0.38	52.8
2	T1	1635	14.4	1635	14.4	0.882	32.3	LOS C	46.0	361.5	0.91	0.93	1.03	46.8
3a	R1	237	4.9	237	4.9	0.641	30.0	LOS C	7.3	53.6	0.97	0.81	0.97	35.3
Approach		1905	13.2	1905	13.2	0.882	31.7	LOS C	46.0	361.5	0.91	0.91	1.01	45.9
NorthEast: Adams Road														
24a	L1	168	8.1	168	8.1	0.263	23.0	LOS B	5.0	37.5	0.75	0.75	0.75	47.6
8	T1	1	0.0	1	0.0	0.005	49.1	LOS D	0.1	0.4	0.92	0.56	0.92	34.7
26b	R3	22	52.4	22	52.4	0.334	67.7	LOS E	1.3	12.8	1.00	0.72	1.00	27.4
Approach		192	13.2	192	13.2	0.334	28.3	LOS B	5.0	37.5	0.78	0.74	0.78	43.8
North: The Northern Road														
7b	L3	57	20.4	57	20.4	0.093	19.4	LOS B	1.1	9.0	0.61	0.71	0.61	44.9
8	T1	895	19.4	895	19.4	0.692	31.4	LOS C	20.3	165.8	0.91	0.80	0.91	47.4
9a	R1	34	15.6	34	15.6	0.239	59.7	LOS E	1.8	14.1	0.97	0.73	0.97	32.4
Approach		985	19.3	985	19.3	0.692	31.7	LOS C	20.3	165.8	0.89	0.79	0.89	46.5
SouthWest: Adams Road														
30a	L1	33	16.1	33	16.1	0.080	39.7	LOS C	1.4	10.9	0.81	0.70	0.81	36.6
2	T1	1	0.0	1	0.0	0.005	48.0	LOS D	0.1	0.4	0.92	0.54	0.92	23.6
32b	R3	33	16.1	33	16.1	0.407	65.7	LOS E	1.8	14.7	1.00	0.73	1.00	29.0
Approach		66	15.9	66	15.9	0.407	52.7	LOS D	1.8	14.7	0.91	0.71	0.91	32.2
All Vehicles		3148	15.2	3148	15.2	0.882	32.0	LOS C	46.0	361.5	0.90	0.86	0.96	45.5

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
P11	South Stage 1	53	49.3	LOS E	0.2	0.2	0.95	0.95
P12	South Stage 2	53	23.0	LOS C	0.1	0.1	0.89	0.89
P1B	South Slip/Bypass Lane Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P3	NorthEast Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P31	North Stage 1	53	49.3	LOS E	0.2	0.2	0.95	0.95

P32	North Stage 2	53	49.3	LOS E	0.2	0.2	0.95	0.95
P3B	North Slip/Bypass Lane Crossing	53	23.0	LOS C	0.1	0.1	0.89	0.89
P1	SouthWest Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		421	42.7	LOS E			0.93	0.93

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: 202 [2029 baseline Elizabeth Dr/ Adams Rd AM]

Network: N201 [2029 baseline AM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
21	L2	31	10.3	31	10.3	0.240	7.2	LOS A	0.0	0.0	0.00	0.05	0.00	78.2
22	T1	408	15.7	408	15.7	0.240	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	78.2
Approach		439	15.3	439	15.3	0.240	0.5	NA	0.0	0.0	0.00	0.05	0.00	78.2
NorthWest: Elizabeth Drive														
28	T1	933	12.0	933	12.0	0.558	0.6	LOS A	1.9	14.9	0.19	0.07	0.27	76.4
29	R2	92	4.6	92	4.6	0.558	10.3	LOS A	1.9	14.9	0.19	0.07	0.27	69.8
Approach		1024	11.3	1024	11.3	0.558	1.5	NA	1.9	14.9	0.19	0.07	0.27	76.1
SouthWest: Adams Road														
30	L2	386	0.3	386	0.3	0.268	7.9	LOS A	1.2	8.5	0.45	0.69	0.45	53.5
32	R2	139	2.3	139	2.3	0.320	13.4	LOS A	0.8	5.8	0.79	0.95	0.93	54.8
Approach		525	0.8	525	0.8	0.320	9.3	LOS A	1.2	8.5	0.54	0.76	0.58	54.0
All Vehicles		1988	9.4	1988	9.4	0.558	3.4	NA	1.9	14.9	0.24	0.24	0.29	69.0

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: 203 [2029 baseline Elizabeth Dr/ Luddenham Rd AM]

Network: N201 [2029 baseline AM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
22	T1	502	19.9	502	19.9	0.283	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
23	R2	293	0.7	293	0.7	0.522	17.0	LOS B	3.0	21.2	0.82	1.04	1.29	49.8
Approach		795	12.8	795	12.8	0.522	6.3	NA	3.0	21.2	0.30	0.38	0.48	65.3
NorthEast: Luddenham Road														
24	L2	357	5.6	357	5.6	0.495	13.3	LOS A	2.9	21.0	0.71	0.99	1.07	51.1
26	R2	148	1.4	148	1.4	0.934	81.5	LOS F	6.1	43.4	0.99	1.39	3.10	28.0
Approach		505	4.4	505	4.4	0.934	33.3	LOS C	6.1	43.4	0.79	1.10	1.67	37.2
NorthWest: Elizabeth Drive														
27	L2	316	0.0	316	0.0	0.164	7.0	LOS A	0.0	0.0	0.00	0.63	0.00	65.4
28	T1	666	10.7	666	10.7	0.353	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.8
Approach		982	7.3	982	7.3	0.353	2.3	NA	0.0	0.0	0.00	0.20	0.00	72.1
All Vehicles		2282	8.6	2282	8.6	0.934	10.5	NA	6.1	43.4	0.28	0.47	0.54	58.3

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.
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: 211 [2029 baseline The Northern Rd/ Adams Rd PM]

Network: N211 [2029 baseline PM]

Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 90 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: The Northern Road														
1b	L3	34	9.4	34	9.4	0.038	16.5	LOS B	0.6	4.7	0.43	0.68	0.43	52.7
2	T1	1200	8.1	1200	8.1	0.677	19.5	LOS B	20.3	151.9	0.83	0.74	0.83	56.0
3a	R1	123	1.7	123	1.7	0.733	53.7	LOS D	5.8	41.1	1.00	0.85	1.19	24.4
Approach		1357	7.5	1357	7.5	0.733	22.5	LOS B	20.3	151.9	0.84	0.75	0.85	52.6
NorthEast: Adams Road														
24a	L1	341	3.7	341	3.7	0.716	39.9	LOS C	14.2	102.8	0.97	0.87	1.02	39.5
8	T1	1	0.0	1	0.0	0.005	40.7	LOS C	0.0	0.3	0.92	0.56	0.92	37.7
26b	R3	47	6.7	47	6.7	0.456	55.0	LOS D	2.2	16.2	1.00	0.74	1.00	33.8
Approach		389	4.1	389	4.1	0.716	41.7	LOS C	14.2	102.8	0.97	0.85	1.01	38.7
North: The Northern Road														
7b	L3	35	27.3	35	27.3	0.043	16.4	LOS B	0.6	5.4	0.42	0.67	0.42	48.5
8	T1	1482	6.2	1482	6.2	0.826	25.9	LOS B	30.7	226.2	0.93	0.90	1.01	51.0
9a	R1	34	9.4	34	9.4	0.211	49.4	LOS D	1.4	10.9	0.96	0.72	0.96	35.7
Approach		1551	6.7	1551	6.7	0.826	26.2	LOS B	30.7	226.2	0.92	0.89	1.00	50.5
SouthWest: Adams Road														
30a	L1	37	11.4	37	11.4	0.081	32.0	LOS C	1.2	9.5	0.79	0.70	0.79	40.2
2	T1	1	0.0	1	0.0	0.005	39.6	LOS C	0.0	0.3	0.92	0.54	0.92	26.4
32b	R3	36	11.8	36	11.8	0.356	53.7	LOS D	1.6	12.6	0.99	0.73	0.99	32.4
Approach		74	11.4	74	11.4	0.356	42.7	LOS D	1.6	12.6	0.89	0.71	0.89	35.8
All Vehicles		3371	6.8	3371	6.8	0.826	26.9	LOS B	30.7	226.2	0.89	0.83	0.94	49.1

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
P11	South Stage 1	53	39.3	LOS D	0.1	0.1	0.94	0.94
P12	South Stage 2	53	39.3	LOS D	0.1	0.1	0.94	0.94
P1B	South Slip/Bypass Lane Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
P3	NorthEast Full Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
P31	North Stage 1	53	39.3	LOS D	0.1	0.1	0.94	0.94

P32	North Stage 2	53	39.3	LOS D	0.1	0.1	0.94	0.94
P3B	North Slip/Bypass Lane Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
P1	SouthWest Full Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
All Pedestrians		421	39.3	LOS D			0.94	0.94

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: 212 [2029 baseline Elizabeth Dr/ Adams Rd PM]

Network: N211 [2029 baseline PM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
21	L2	34	15.6	34	15.6	0.336	7.3	LOS A	0.0	0.0	0.00	0.03	0.00	78.8
22	T1	617	5.8	617	5.8	0.336	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	78.8
Approach		651	6.3	651	6.3	0.336	0.4	NA	0.0	0.0	0.00	0.03	0.00	78.8
NorthWest: Elizabeth Drive														
28	T1	653	2.7	653	2.7	0.476	1.9	LOS A	3.2	23.2	0.43	0.18	0.62	71.6
29	R2	177	0.6	177	0.6	0.476	11.2	LOS A	3.2	23.2	0.43	0.18	0.62	59.0
Approach		829	2.3	829	2.3	0.476	3.9	NA	3.2	23.2	0.43	0.18	0.62	70.4
SouthWest: Adams Road														
30	L2	255	0.4	255	0.4	0.220	8.7	LOS A	0.9	6.4	0.53	0.77	0.53	52.7
32	R2	104	3.0	104	3.0	0.209	11.8	LOS A	0.5	3.7	0.72	0.91	0.78	56.0
Approach		359	1.2	359	1.2	0.220	9.6	LOS A	0.9	6.4	0.59	0.81	0.60	54.1
All Vehicles		1839	3.5	1839	3.5	0.476	3.8	NA	3.2	23.2	0.31	0.25	0.40	68.2

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.
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: 213 [2029 baseline Elizabeth Dr/ Luddenham Rd PM]

Network: N211 [2029 baseline PM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
22	T1	723	6.6	723	6.6	0.375	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.8
23	R2	149	1.4	149	1.4	0.124	8.6	LOS A	0.6	4.0	0.47	0.68	0.47	58.2
Approach		873	5.7	873	5.7	0.375	1.5	NA	0.6	4.0	0.08	0.12	0.08	75.1
NorthEast: Luddenham Road														
24	L2	518	0.0	518	0.0	0.424	8.9	LOS A	2.7	18.6	0.49	0.74	0.57	57.7
26	R2	387	0.0	387	0.0	1.294	294.5	LOS F	62.1	435.0	1.00	3.93	15.55	10.6
Approach		905	0.0	905	0.0	1.294	131.1	LOS F	62.1	435.0	0.71	2.10	6.98	15.8
NorthWest: Elizabeth Drive														
27	L2	94	1.1	94	1.1	0.049	7.0	LOS A	0.0	0.0	0.00	0.63	0.00	65.0
28	T1	312	5.4	312	5.4	0.160	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
Approach		405	4.4	405	4.4	0.160	1.6	NA	0.0	0.0	0.00	0.15	0.00	73.6
All Vehicles		2183	3.1	2183	3.1	1.294	55.2	NA	62.1	435.0	0.33	0.95	2.93	29.0

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: 201 [2034 baseline The Northern Rd/ Adams Rd AM]

Network: N201 [2034 baseline AM]

Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 110 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: The Northern Road														
1b	L3	34	15.6	34	15.6	0.037	16.3	LOS B	0.7	5.4	0.38	0.67	0.38	52.8
2	T1	1635	14.4	1635	14.4	0.882	32.2	LOS C	45.9	361.0	0.91	0.93	1.03	46.9
3a	R1	235	4.9	235	4.9	0.665	30.9	LOS C	7.5	54.8	0.98	0.82	0.99	34.7
Approach		1903	13.2	1903	13.2	0.882	31.8	LOS C	45.9	361.0	0.91	0.91	1.01	45.9
NorthEast: Adams Road														
24a	L1	102	8.2	102	8.2	0.164	22.9	LOS B	3.0	22.3	0.73	0.72	0.73	47.7
8	T1	1	0.0	1	0.0	0.005	49.1	LOS D	0.1	0.4	0.92	0.56	0.92	34.7
26b	R3	14	53.8	14	53.8	0.208	66.9	LOS E	0.8	7.9	0.99	0.70	0.99	27.5
Approach		117	13.5	117	13.5	0.208	28.3	LOS B	3.0	22.3	0.76	0.72	0.76	43.8
North: The Northern Road														
7b	L3	56	20.8	56	20.8	0.090	19.1	LOS B	1.1	8.9	0.60	0.71	0.60	45.2
8	T1	895	19.4	895	19.4	0.676	30.5	LOS C	20.0	163.2	0.89	0.79	0.89	47.9
9a	R1	34	15.6	34	15.6	0.239	59.7	LOS E	1.8	14.1	0.97	0.73	0.97	32.4
Approach		984	19.4	984	19.4	0.676	30.8	LOS C	20.0	163.2	0.88	0.78	0.88	47.1
SouthWest: Adams Road														
30a	L1	33	16.1	33	16.1	0.080	39.7	LOS C	1.4	10.9	0.81	0.70	0.81	36.6
2	T1	1	0.0	1	0.0	0.005	48.0	LOS D	0.1	0.4	0.92	0.54	0.92	23.6
32b	R3	33	16.1	33	16.1	0.407	65.7	LOS E	1.8	14.7	1.00	0.73	1.00	29.0
Approach		66	15.9	66	15.9	0.407	52.7	LOS D	1.8	14.7	0.91	0.71	0.91	32.2
All Vehicles		3071	15.3	3071	15.3	0.882	31.8	LOS C	45.9	361.0	0.89	0.86	0.96	45.7

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
P11	South Stage 1	53	49.3	LOS E	0.2	0.2	0.95	0.95
P12	South Stage 2	53	23.0	LOS C	0.1	0.1	0.89	0.89
P1B	South Slip/Bypass Lane Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P3	NorthEast Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P31	North Stage 1	53	49.3	LOS E	0.2	0.2	0.95	0.95

P32	North Stage 2	53	49.3	LOS E	0.2	0.2	0.95	0.95
P3B	North Slip/Bypass Lane Crossing	53	23.0	LOS C	0.1	0.1	0.89	0.89
P1	SouthWest Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		421	42.7	LOS E			0.93	0.93

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: 202 [2034 baseline Elizabeth Dr/ Adams Rd AM]

Network: N201 [2034 baseline AM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
21	L2	27	0.0	27	0.0	0.248	7.0	LOS A	0.0	0.0	0.00	0.04	0.00	78.2
22	T1	429	15.7	429	15.7	0.248	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	78.2
Approach		457	14.7	457	14.7	0.248	0.4	NA	0.0	0.0	0.00	0.04	0.00	78.2
NorthWest: Elizabeth Drive														
28	T1	961	12.0	961	12.0	0.574	0.7	LOS A	2.0	15.7	0.19	0.06	0.28	76.3
29	R2	92	3.4	92	3.4	0.574	10.5	LOS A	2.0	15.7	0.19	0.06	0.28	69.8
Approach		1053	11.3	1053	11.3	0.574	1.5	NA	2.0	15.7	0.19	0.06	0.28	76.1
SouthWest: Adams Road														
30	L2	429	0.0	429	0.0	0.304	8.0	LOS A	1.4	9.9	0.47	0.71	0.47	53.3
32	R2	152	0.0	152	0.0	0.363	14.0	LOS A	1.0	6.7	0.81	0.97	0.99	54.8
Approach		581	0.0	581	0.0	0.363	9.6	LOS A	1.4	9.9	0.56	0.78	0.61	53.9
All Vehicles		2091	8.9	2091	8.9	0.574	3.5	NA	2.0	15.7	0.25	0.26	0.31	68.6

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: 203 [2034 baseline Elizabeth Dr/ Luddenham Rd AM]

Network: N201 [2034 baseline AM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
22	T1	542	19.6	542	19.6	0.305	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
23	R2	317	0.7	317	0.7	0.655	21.5	LOS B	4.2	29.6	0.89	1.14	1.67	45.9
Approach		859	12.6	859	12.6	0.655	7.9	NA	4.2	29.6	0.33	0.42	0.62	62.8
NorthEast: Luddenham Road														
24	L2	326	5.8	326	5.8	0.501	14.2	LOS A	2.8	20.4	0.74	1.00	1.14	49.8
26	R2	136	1.6	136	1.6	1.118	195.1	LOS F	14.6	103.3	1.00	1.85	5.67	14.8
Approach		462	4.6	462	4.6	1.118	67.3	LOS E	14.6	103.3	0.82	1.25	2.47	24.1
NorthWest: Elizabeth Drive														
27	L2	346	0.0	346	0.0	0.180	7.0	LOS A	0.0	0.0	0.00	0.63	0.00	65.4
28	T1	726	10.6	726	10.6	0.384	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.8
Approach		1073	7.2	1073	7.2	0.384	2.3	NA	0.0	0.0	0.00	0.20	0.00	72.1
All Vehicles		2394	8.6	2394	8.6	1.118	16.9	NA	14.6	103.3	0.28	0.48	0.70	50.7

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.
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: 211 [2034 baseline The Northern Rd/ Adams Rd PM]

Network: N211 [2034 baseline PM]

Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 90 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: The Northern Road														
1b	L3	34	9.4	34	9.4	0.038	16.5	LOS B	0.6	4.7	0.43	0.68	0.43	52.7
2	T1	1200	8.1	1200	8.1	0.677	19.5	LOS B	20.3	151.9	0.83	0.74	0.83	56.0
3a	R1	118	1.8	118	1.8	0.702	53.1	LOS D	5.5	39.0	1.00	0.84	1.15	24.6
Approach		1352	7.6	1352	7.6	0.702	22.4	LOS B	20.3	151.9	0.84	0.75	0.85	52.8
NorthEast: Adams Road														
24a	L1	297	3.5	297	3.5	0.623	37.9	LOS C	11.8	84.8	0.94	0.83	0.94	40.4
8	T1	1	0.0	1	0.0	0.005	40.7	LOS C	0.0	0.3	0.92	0.56	0.92	37.7
26b	R3	42	7.5	42	7.5	0.408	54.8	LOS D	1.9	14.4	1.00	0.74	1.00	33.8
Approach		340	4.0	340	4.0	0.623	40.0	LOS C	11.8	84.8	0.95	0.82	0.95	39.5
North: The Northern Road														
7b	L3	35	27.3	35	27.3	0.043	16.4	LOS B	0.6	5.4	0.42	0.67	0.42	48.5
8	T1	1482	6.2	1482	6.2	0.826	25.9	LOS B	30.7	226.2	0.93	0.90	1.01	51.0
9a	R1	34	9.4	34	9.4	0.211	49.4	LOS D	1.4	10.9	0.96	0.72	0.96	35.7
Approach		1551	6.7	1551	6.7	0.826	26.2	LOS B	30.7	226.2	0.92	0.89	1.00	50.5
SouthWest: Adams Road														
30a	L1	37	11.4	37	11.4	0.081	32.0	LOS C	1.2	9.5	0.79	0.70	0.79	40.2
2	T1	1	0.0	1	0.0	0.005	39.6	LOS C	0.0	0.3	0.92	0.54	0.92	26.4
32b	R3	36	11.8	36	11.8	0.356	53.7	LOS D	1.6	12.6	0.99	0.73	0.99	32.4
Approach		74	11.4	74	11.4	0.356	42.7	LOS D	1.6	12.6	0.89	0.71	0.89	35.8
All Vehicles		3316	6.9	3316	6.9	0.826	26.4	LOS B	30.7	226.2	0.89	0.82	0.93	49.4

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
P11	South Stage 1	53	39.3	LOS D	0.1	0.1	0.94	0.94
P12	South Stage 2	53	39.3	LOS D	0.1	0.1	0.94	0.94
P1B	South Slip/Bypass Lane Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
P3	NorthEast Full Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
P31	North Stage 1	53	39.3	LOS D	0.1	0.1	0.94	0.94

P32	North Stage 2	53	39.3	LOS D	0.1	0.1	0.94	0.94
P3B	North Slip/Bypass Lane Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
P1	SouthWest Full Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
All Pedestrians		421	39.3	LOS D			0.94	0.94

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: 212 [2034 baseline Elizabeth Dr/ Adams Rd PM]

Network: N211 [2034 baseline PM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
21	L2	36	5.9	36	5.9	0.391	7.1	LOS A	0.0	0.0	0.00	0.03	0.00	78.7
22	T1	723	5.8	723	5.8	0.391	0.1	LOS A	0.0	0.0	0.00	0.03	0.00	78.7
Approach		759	5.8	759	5.8	0.391	0.4	NA	0.0	0.0	0.00	0.03	0.00	78.7
NorthWest: Elizabeth Drive														
28	T1	592	2.8	592	2.8	0.451	2.3	LOS A	3.1	22.4	0.47	0.19	0.68	70.6
29	R2	160	0.0	160	0.0	0.451	12.1	LOS A	3.1	22.4	0.47	0.19	0.68	56.9
Approach		752	2.2	752	2.2	0.451	4.4	NA	3.1	22.4	0.47	0.19	0.68	69.2
SouthWest: Adams Road														
30	L2	298	0.0	298	0.0	0.296	9.7	LOS A	1.4	9.5	0.61	0.87	0.69	51.2
32	R2	119	0.0	119	0.0	0.229	11.6	LOS A	0.6	4.1	0.72	0.91	0.79	56.9
Approach		417	0.0	417	0.0	0.296	10.3	LOS A	1.4	9.5	0.64	0.88	0.72	53.6
All Vehicles		1927	3.2	1927	3.2	0.451	4.1	NA	3.1	22.4	0.32	0.28	0.42	67.3

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.
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: 213 [2034 baseline Elizabeth Dr/ Luddenham Rd PM]

Network: N211 [2034 baseline PM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
22	T1	846	6.5	846	6.5	0.439	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.8
23	R2	175	1.8	175	1.8	0.143	8.5	LOS A	0.7	4.7	0.47	0.68	0.47	58.1
Approach		1021	5.7	1021	5.7	0.439	1.5	NA	0.7	4.7	0.08	0.12	0.08	75.0
NorthEast: Luddenham Road														
24	L2	451	0.0	451	0.0	0.364	8.5	LOS A	1.9	13.3	0.46	0.70	0.48	58.0
26	R2	337	0.0	337	0.0	1.448	433.9	LOS F	71.4	500.0	1.00	4.15	17.27	7.5
Approach		787	0.0	787	0.0	1.448	190.5	LOS F	71.4	500.0	0.69	2.18	7.66	11.6
NorthWest: Elizabeth Drive														
27	L2	91	1.2	91	1.2	0.047	7.0	LOS A	0.0	0.0	0.00	0.63	0.00	65.0
28	T1	301	4.9	301	4.9	0.154	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
Approach		392	4.0	392	4.0	0.154	1.6	NA	0.0	0.0	0.00	0.15	0.00	73.6
All Vehicles		2200	3.3	2200	3.3	1.448	69.1	NA	71.4	500.0	0.28	0.86	2.78	25.0

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: 201 [2039 baseline The Northern Rd/ Adams Rd AM]

Network: N201 [2039 baseline AM]

Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 110 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: The Northern Road														
1b	L3	34	15.6	34	15.6	0.037	16.3	LOS B	0.7	5.4	0.38	0.67	0.38	52.8
2	T1	1635	14.4	1635	14.4	0.886	33.2	LOS C	46.9	368.3	0.91	0.94	1.04	46.3
3a	R1	267	5.1	267	5.1	0.693	30.4	LOS C	8.4	61.6	0.98	0.83	1.00	35.0
Approach		1936	13.1	1936	13.1	0.886	32.5	LOS C	46.9	368.3	0.91	0.92	1.02	45.3
NorthEast: Adams Road														
24a	L1	117	8.1	117	8.1	0.178	21.8	LOS B	3.3	24.6	0.71	0.72	0.71	48.4
8	T1	1	0.0	1	0.0	0.005	49.1	LOS D	0.1	0.4	0.92	0.56	0.92	34.7
26b	R3	16	53.3	16	53.3	0.240	67.1	LOS E	0.9	9.1	0.99	0.70	0.99	27.5
Approach		134	13.4	134	13.4	0.240	27.3	LOS B	3.3	24.6	0.75	0.72	0.75	44.3
North: The Northern Road														
7b	L3	60	21.1	60	21.1	0.101	19.7	LOS B	1.1	9.6	0.63	0.72	0.63	44.5
8	T1	895	19.4	895	19.4	0.709	32.4	LOS C	20.6	168.3	0.92	0.81	0.92	46.8
9a	R1	34	15.6	34	15.6	0.239	59.7	LOS E	1.8	14.1	0.97	0.73	0.97	32.4
Approach		988	19.4	988	19.4	0.709	32.5	LOS C	20.6	168.3	0.90	0.80	0.90	46.0
SouthWest: Adams Road														
30a	L1	33	16.1	33	16.1	0.080	39.7	LOS C	1.4	10.9	0.81	0.70	0.81	36.6
2	T1	1	0.0	1	0.0	0.005	48.0	LOS D	0.1	0.4	0.92	0.54	0.92	23.6
32b	R3	33	16.1	33	16.1	0.407	65.7	LOS E	1.8	14.7	1.00	0.73	1.00	29.0
Approach		66	15.9	66	15.9	0.407	52.7	LOS D	1.8	14.7	0.91	0.71	0.91	32.2
All Vehicles		3124	15.2	3124	15.2	0.886	32.7	LOS C	46.9	368.3	0.90	0.87	0.97	45.1

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
P11	South Stage 1	53	49.3	LOS E	0.2	0.2	0.95	0.95
P12	South Stage 2	53	23.0	LOS C	0.1	0.1	0.89	0.89
P1B	South Slip/Bypass Lane Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P3	NorthEast Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P31	North Stage 1	53	49.3	LOS E	0.2	0.2	0.95	0.95

P32	North Stage 2	53	49.3	LOS E	0.2	0.2	0.95	0.95
P3B	North Slip/Bypass Lane Crossing	53	23.0	LOS C	0.1	0.1	0.89	0.89
P1	SouthWest Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		421	42.7	LOS E			0.93	0.93

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: 202 [2039 baseline Elizabeth Dr/ Adams Rd AM]

Network: N201 [2039 baseline AM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
21	L2	22	0.0	22	0.0	0.203	7.0	LOS A	0.0	0.0	0.00	0.04	0.00	78.3
22	T1	352	15.9	352	15.9	0.203	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	78.3
Approach		374	14.9	374	14.9	0.203	0.4	NA	0.0	0.0	0.00	0.04	0.00	78.3
NorthWest: Elizabeth Drive														
28	T1	971	12.0	971	12.0	0.574	0.5	LOS A	1.9	14.5	0.17	0.06	0.23	76.6
29	R2	93	3.4	93	3.4	0.574	9.7	LOS A	1.9	14.5	0.17	0.06	0.23	70.4
Approach		1063	11.3	1063	11.3	0.574	1.3	NA	1.9	14.5	0.17	0.06	0.23	76.4
SouthWest: Adams Road														
30	L2	549	0.0	549	0.0	0.358	7.8	LOS A	1.9	13.0	0.45	0.68	0.46	53.5
32	R2	194	0.0	194	0.0	0.428	13.7	LOS A	1.2	8.4	0.81	0.98	1.05	55.1
Approach		743	0.0	743	0.0	0.428	9.3	LOS A	1.9	13.0	0.55	0.76	0.62	54.1
All Vehicles		2180	8.1	2180	8.1	0.574	3.9	NA	1.9	14.5	0.27	0.30	0.32	67.2

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.
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: 203 [2039 baseline Elizabeth Dr/ Luddenham Rd AM]

Network: N201 [2039 baseline AM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
22	T1	568	19.6	568	19.6	0.320	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
23	R2	333	0.6	333	0.6	0.670	21.5	LOS B	4.5	31.4	0.89	1.15	1.73	45.9
Approach		901	12.6	901	12.6	0.670	7.9	NA	4.5	31.4	0.33	0.42	0.64	62.7
NorthEast: Luddenham Road														
24	L2	347	5.8	347	5.8	0.524	14.3	LOS A	3.0	22.2	0.75	1.01	1.18	49.7
26	R2	144	1.5	144	1.5	1.231	280.5	LOS F	22.0	156.0	1.00	2.18	7.52	10.9
Approach		492	4.5	492	4.5	1.231	92.4	LOS F	22.0	156.0	0.82	1.36	3.04	19.1
NorthWest: Elizabeth Drive														
27	L2	342	0.0	342	0.0	0.178	7.0	LOS A	0.0	0.0	0.00	0.63	0.00	65.4
28	T1	716	10.6	716	10.6	0.379	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.8
Approach		1058	7.2	1058	7.2	0.379	2.3	NA	0.0	0.0	0.00	0.20	0.00	72.1
All Vehicles		2451	8.6	2451	8.6	1.231	22.4	NA	22.0	156.0	0.29	0.52	0.84	45.4

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: 211 [2039 baseline The Northern Rd/ Adams Rd PM]

Network: N211 [2039 baseline PM]

Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 90 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: The Northern Road														
1b	L3	34	9.4	34	9.4	0.038	16.5	LOS B	0.6	4.7	0.43	0.68	0.43	52.7
2	T1	1200	8.1	1200	8.1	0.677	19.5	LOS B	20.3	151.9	0.83	0.74	0.83	56.0
3a	R1	123	1.7	123	1.7	0.733	53.7	LOS D	5.8	41.1	1.00	0.85	1.19	24.4
Approach		1357	7.5	1357	7.5	0.733	22.5	LOS B	20.3	151.9	0.84	0.75	0.85	52.6
NorthEast: Adams Road														
24a	L1	383	3.6	383	3.6	0.804	43.9	LOS D	17.3	125.1	1.00	0.93	1.14	37.9
8	T1	1	0.0	1	0.0	0.005	40.7	LOS C	0.0	0.3	0.92	0.56	0.92	37.7
26b	R3	54	5.9	54	5.9	0.514	55.3	LOS D	2.5	18.3	1.00	0.76	1.02	33.7
Approach		438	3.8	438	3.8	0.804	45.3	LOS D	17.3	125.1	1.00	0.90	1.13	37.4
North: The Northern Road														
7b	L3	37	28.6	37	28.6	0.046	16.5	LOS B	0.7	5.8	0.42	0.67	0.42	48.4
8	T1	1482	6.2	1482	6.2	0.826	25.9	LOS B	30.7	226.2	0.93	0.90	1.01	51.0
9a	R1	34	9.4	34	9.4	0.211	49.4	LOS D	1.4	10.9	0.96	0.72	0.96	35.7
Approach		1553	6.8	1553	6.8	0.826	26.2	LOS B	30.7	226.2	0.92	0.89	0.99	50.5
SouthWest: Adams Road														
30a	L1	37	11.4	37	11.4	0.081	32.0	LOS C	1.2	9.5	0.79	0.70	0.79	40.2
2	T1	1	0.0	1	0.0	0.005	39.6	LOS C	0.0	0.3	0.92	0.54	0.92	26.4
32b	R3	36	11.8	36	11.8	0.356	53.7	LOS D	1.6	12.6	0.99	0.73	0.99	32.4
Approach		74	11.4	74	11.4	0.356	42.7	LOS D	1.6	12.6	0.89	0.71	0.89	35.8
All Vehicles		3421	6.8	3421	6.8	0.826	27.5	LOS B	30.7	226.2	0.90	0.83	0.95	48.6

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
P11	South Stage 1	53	39.3	LOS D	0.1	0.1	0.94	0.94
P12	South Stage 2	53	39.3	LOS D	0.1	0.1	0.94	0.94
P1B	South Slip/Bypass Lane Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
P3	NorthEast Full Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
P31	North Stage 1	53	39.3	LOS D	0.1	0.1	0.94	0.94

P32	North Stage 2	53	39.3	LOS D	0.1	0.1	0.94	0.94
P3B	North Slip/Bypass Lane Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
P1	SouthWest Full Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
All Pedestrians		421	39.3	LOS D			0.94	0.94

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: 212 [2039 baseline Elizabeth Dr/ Adams Rd PM]

Network: N211 [2039 baseline PM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
21	L2	34	6.3	34	6.3	0.367	7.1	LOS A	0.0	0.0	0.00	0.03	0.00	78.7
22	T1	679	5.7	679	5.7	0.367	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	78.7
Approach		713	5.8	713	5.8	0.367	0.4	NA	0.0	0.0	0.00	0.03	0.00	78.7
NorthWest: Elizabeth Drive														
28	T1	544	2.9	544	2.9	0.406	1.9	LOS A	2.5	17.8	0.42	0.18	0.57	71.6
29	R2	147	0.0	147	0.0	0.406	11.2	LOS A	2.5	17.8	0.42	0.18	0.57	59.0
Approach		692	2.3	692	2.3	0.406	3.9	NA	2.5	17.8	0.42	0.18	0.57	70.4
SouthWest: Adams Road														
30	L2	425	0.0	425	0.0	0.397	10.0	LOS A	2.2	15.7	0.62	0.91	0.81	50.8
32	R2	171	0.0	171	0.0	0.294	11.2	LOS A	0.8	5.8	0.71	0.92	0.83	57.3
Approach		596	0.0	596	0.0	0.397	10.3	LOS A	2.2	15.7	0.64	0.91	0.81	53.5
All Vehicles		2000	2.8	2000	2.8	0.406	4.6	NA	2.5	17.8	0.34	0.35	0.44	65.7

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.
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: 213 [2039 baseline Elizabeth Dr/ Luddenham Rd PM]

Network: N211 [2039 baseline PM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
22	T1	916	6.4	916	6.4	0.476	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.7
23	R2	188	1.7	188	1.7	0.139	8.1	LOS A	0.7	4.6	0.40	0.64	0.40	58.5
Approach		1104	5.6	1104	5.6	0.476	1.4	NA	0.7	4.6	0.07	0.11	0.07	75.1
NorthEast: Luddenham Road														
24	L2	467	0.0	467	0.0	0.350	8.0	LOS A	1.8	12.4	0.39	0.65	0.39	58.5
26	R2	349	0.0	349	0.0	1.542	516.7	LOS F	83.1	581.5	1.00	4.46	18.97	6.4
Approach		817	0.0	817	0.0	1.542	225.6	LOS F	83.1	581.5	0.65	2.28	8.34	10.0
NorthWest: Elizabeth Drive														
27	L2	67	1.6	67	1.6	0.035	7.0	LOS A	0.0	0.0	0.00	0.63	0.00	64.9
28	T1	224	5.2	224	5.2	0.115	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	80.0
Approach		292	4.3	292	4.3	0.115	1.6	NA	0.0	0.0	0.00	0.15	0.00	73.6
All Vehicles		2213	3.4	2213	3.4	1.542	84.2	NA	83.1	581.5	0.28	0.92	3.11	21.9

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 [2020 dev The Northern Rd/ Adams Rd AM]

Network: N101 [2020 dev AM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: The Northern Road														
22	T1	615	12.5	615	12.5	0.478	2.5	LOS A	3.4	26.5	0.44	0.15	0.66	56.2
23	R2	135	21.1	135	21.1	0.478	11.9	LOS A	3.4	26.5	0.44	0.15	0.66	53.0
Approach		749	14.0	749	14.0	0.478	4.2	NA	3.4	26.5	0.44	0.15	0.66	55.9
NorthEast: Adams Road														
24	L2	97	30.4	97	30.4	0.260	10.4	LOS A	0.9	8.9	0.67	0.88	0.75	50.3
26	R2	34	81.2	34	81.2	0.260	22.1	LOS B	0.9	8.9	0.67	0.88	0.75	47.9
Approach		131	43.5	131	43.5	0.260	13.4	LOS A	0.9	8.9	0.67	0.88	0.75	49.7
NorthWest: The Northern Road														
27	L2	71	43.3	71	43.3	0.372	6.1	LOS A	0.0	0.0	0.00	0.06	0.00	59.1
28	T1	593	16.2	593	16.2	0.372	0.1	LOS A	0.0	0.0	0.00	0.06	0.00	59.5
Approach		663	19.0	663	19.0	0.372	0.7	NA	0.0	0.0	0.00	0.06	0.00	59.5
All Vehicles		1543	18.7	1543	18.7	0.478	3.5	NA	3.4	26.5	0.27	0.17	0.38	56.7

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.
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: 102 [2020 dev Elizabeth Dr/ Adams Rd AM]

Network: N101 [2020 dev AM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
21	L2	61	44.8	61	44.8	0.266	3.7	LOS A	0.0	0.0	0.00	0.06	0.00	39.7
22	T1	417	13.6	417	13.6	0.266	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	39.7
Approach		478	17.6	478	17.6	0.266	0.5	NA	0.0	0.0	0.00	0.06	0.00	39.7
NorthWest: Elizabeth Drive														
28	T1	658	10.7	658	10.7	0.442	1.1	LOS A	2.1	16.0	0.28	0.08	0.37	38.9
29	R2	105	26.0	105	26.0	0.442	7.4	LOS A	2.1	16.0	0.28	0.08	0.37	36.9
Approach		763	12.8	763	12.8	0.442	1.9	NA	2.1	16.0	0.28	0.08	0.37	38.8
SouthWest: Adams Road														
30	L2	103	24.5	103	24.5	0.085	8.3	LOS A	0.4	3.2	0.48	0.67	0.48	53.3
32	R2	55	50.0	55	50.0	0.144	13.9	LOS A	0.4	3.6	0.73	0.90	0.73	42.7
Approach		158	33.3	158	33.3	0.144	10.3	LOS A	0.4	3.6	0.57	0.75	0.57	47.3
All Vehicles		1399	16.8	1399	16.8	0.442	2.4	NA	2.1	16.0	0.22	0.15	0.26	40.0

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: 103 [2020 dev Elizabeth Dr/ Luddenham Rd AM]

Network: N101 [2020 dev AM]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
22	T1	345	22.6	345	22.6	0.197	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
23	R2	187	0.6	187	0.6	0.286	9.3	LOS A	1.3	9.2	0.71	0.89	0.82	46.8
Approach		533	14.8	533	14.8	0.286	3.3	NA	1.3	9.2	0.25	0.31	0.29	42.1
NorthEast: Luddenham Road														
24	L2	157	5.4	157	5.4	0.198	10.4	LOS A	0.8	5.6	0.58	0.84	0.58	55.4
26	R2	65	1.6	65	1.6	0.242	20.2	LOS B	0.8	5.5	0.83	0.95	0.92	41.6
Approach		222	4.3	222	4.3	0.242	13.3	LOS A	0.8	5.6	0.65	0.88	0.68	48.2
NorthWest: Elizabeth Drive														
27	L2	273	0.0	273	0.0	0.142	3.4	LOS A	0.0	0.0	0.00	0.45	0.00	38.7
28	T1	600	13.3	600	13.3	0.323	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		873	9.2	873	9.2	0.323	1.1	NA	0.0	0.0	0.00	0.14	0.00	39.4
All Vehicles		1627	10.3	1627	10.3	0.323	3.5	NA	1.3	9.2	0.17	0.30	0.19	41.3

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.
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: 111 [2020 dev The Northern Rd/ Adams Rd PM]

Network: N111 [2020 dev PM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: The Northern Road														
22	T1	753	7.4	753	7.4	0.469	1.1	LOS A	1.9	14.4	0.24	0.07	0.35	58.1
23	R2	83	11.4	83	11.4	0.469	10.7	LOS A	1.9	14.4	0.24	0.07	0.35	56.3
Approach		836	7.8	836	7.8	0.469	2.1	NA	1.9	14.4	0.24	0.07	0.35	58.0
NorthEast: Adams Road														
24	L2	128	9.8	128	9.8	0.203	9.1	LOS A	0.7	5.8	0.59	0.81	0.59	53.1
26	R2	25	37.5	25	37.5	0.203	16.2	LOS B	0.7	5.8	0.59	0.81	0.59	51.5
Approach		154	14.4	154	14.4	0.203	10.3	LOS A	0.7	5.8	0.59	0.81	0.59	52.8
NorthWest: The Northern Road														
27	L2	23	50.0	23	50.0	0.343	6.2	LOS A	0.0	0.0	0.00	0.02	0.00	59.7
28	T1	637	5.8	637	5.8	0.343	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	59.8
Approach		660	7.3	660	7.3	0.343	0.3	NA	0.0	0.0	0.00	0.02	0.00	59.8
All Vehicles		1649	8.2	1649	8.2	0.469	2.1	NA	1.9	14.4	0.18	0.12	0.23	58.1

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: 112 [2020 dev Elizabeth Dr/ Adams Rd PM]

Network: N111 [2020 dev PM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
21	L2	48	26.1	48	26.1	0.423	3.6	LOS A	0.0	0.0	0.00	0.03	0.00	39.8
22	T1	767	5.5	767	5.5	0.423	0.1	LOS A	0.0	0.0	0.00	0.03	0.00	39.8
Approach		816	6.7	816	6.7	0.423	0.3	NA	0.0	0.0	0.00	0.03	0.00	39.8
NorthWest: Elizabeth Drive														
28	T1	500	2.7	500	2.7	0.416	3.0	LOS A	3.1	22.0	0.51	0.18	0.73	37.5
29	R2	144	6.6	144	6.6	0.416	9.5	LOS A	3.1	22.0	0.51	0.18	0.73	33.3
Approach		644	3.6	644	3.6	0.416	4.4	NA	3.1	22.0	0.51	0.18	0.73	37.1
SouthWest: Adams Road														
30	L2	73	13.0	73	13.0	0.087	10.0	LOS A	0.3	2.7	0.62	0.81	0.62	51.0
32	R2	36	29.4	36	29.4	0.093	13.5	LOS A	0.2	2.0	0.74	0.90	0.74	42.9
Approach		108	18.4	108	18.4	0.093	11.2	LOS A	0.3	2.7	0.66	0.84	0.66	46.7
All Vehicles		1568	6.2	1568	6.2	0.423	2.7	NA	3.1	22.0	0.26	0.15	0.35	39.0

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: 113 [2020 dev Elizabeth Dr/ Luddenham Rd PM]

Network: N111 [2020 dev PM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
22	T1	687	7.4	687	7.4	0.358	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
23	R2	140	1.5	140	1.5	0.118	5.1	LOS A	0.5	3.7	0.48	0.60	0.48	50.0
Approach		827	6.4	827	6.4	0.358	0.9	NA	0.5	3.7	0.08	0.10	0.08	41.4
NorthEast: Luddenham Road														
24	L2	292	0.0	292	0.0	0.242	8.3	LOS A	1.1	7.5	0.43	0.69	0.43	58.1
26	R2	218	0.0	218	0.0	0.691	25.9	LOS B	3.4	23.9	0.91	1.13	1.71	39.0
Approach		509	0.0	509	0.0	0.691	15.9	LOS B	3.4	23.9	0.64	0.88	0.98	45.0
NorthWest: Elizabeth Drive														
27	L2	94	1.1	94	1.1	0.049	3.4	LOS A	0.0	0.0	0.00	0.45	0.00	38.7
28	T1	322	7.5	322	7.5	0.167	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		416	6.1	416	6.1	0.167	0.8	NA	0.0	0.0	0.00	0.10	0.00	39.5
All Vehicles		1753	4.4	1753	4.4	0.691	5.2	NA	3.4	23.9	0.22	0.33	0.32	42.0

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: 201 [2029 dev The Northern Rd/ Adams Rd AM]

Network: N201 [2029 dev AM]

Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 110 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: The Northern Road														
1b	L3	34	15.6	34	15.6	0.037	16.3	LOS B	0.7	5.4	0.38	0.67	0.38	52.8
2	T1	1635	14.4	1635	14.4	0.890	34.0	LOS C	47.7	374.7	0.91	0.94	1.05	45.8
3a	R1	282	12.7	282	12.7	0.736	31.4	LOS C	9.1	70.9	0.99	0.86	1.05	34.4
Approach		1951	14.1	1951	14.1	0.890	33.4	LOS C	47.7	374.7	0.91	0.93	1.04	44.7
NorthEast: Adams Road														
24a	L1	193	19.7	193	19.7	0.307	22.3	LOS B	5.6	46.2	0.75	0.75	0.75	46.2
8	T1	1	0.0	1	0.0	0.005	49.1	LOS D	0.1	0.4	0.92	0.56	0.92	34.7
26b	R3	46	77.3	46	77.3	0.785	74.4	LOS F	2.9	33.5	1.00	0.89	1.42	24.9
Approach		240	30.7	240	30.7	0.785	32.5	LOS C	5.6	46.2	0.80	0.78	0.88	39.6
North: The Northern Road														
7b	L3	91	39.5	91	39.5	0.170	20.7	LOS B	1.8	16.8	0.66	0.74	0.66	43.8
8	T1	895	19.4	895	19.4	0.727	33.6	LOS C	21.0	171.7	0.93	0.82	0.94	46.1
9a	R1	34	15.6	34	15.6	0.239	59.7	LOS E	1.8	14.1	0.97	0.73	0.97	32.4
Approach		1019	21.1	1019	21.1	0.727	33.3	LOS C	21.0	171.7	0.91	0.81	0.91	45.3
SouthWest: Adams Road														
30a	L1	33	16.1	33	16.1	0.080	39.7	LOS C	1.4	10.9	0.81	0.70	0.81	36.6
2	T1	1	0.0	1	0.0	0.005	48.0	LOS D	0.1	0.4	0.92	0.54	0.92	23.6
32b	R3	33	16.1	33	16.1	0.407	65.7	LOS E	1.8	14.7	1.00	0.73	1.00	29.0
Approach		66	15.9	66	15.9	0.407	52.7	LOS D	1.8	14.7	0.91	0.71	0.91	32.2
All Vehicles		3276	17.5	3276	17.5	0.890	33.7	LOS C	47.7	374.7	0.90	0.88	0.99	44.1

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
P11	South Stage 1	53	49.3	LOS E	0.2	0.2	0.95	0.95
P12	South Stage 2	53	23.0	LOS C	0.1	0.1	0.89	0.89
P1B	South Slip/Bypass Lane Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P3	NorthEast Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P31	North Stage 1	53	49.3	LOS E	0.2	0.2	0.95	0.95

P32	North Stage 2	53	49.3	LOS E	0.2	0.2	0.95	0.95
P3B	North Slip/Bypass Lane Crossing	53	23.0	LOS C	0.1	0.1	0.89	0.89
P1	SouthWest Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		421	42.7	LOS E			0.93	0.93

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: 202 [2029 dev Elizabeth Dr/ Adams Rd]

Network: N201 [2029 dev AM]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
21	L2	61	44.8	61	44.8	0.265	7.8	LOS A	0.0	0.0	0.00	0.08	0.00	77.8
22	T1	408	15.7	408	15.7	0.265	0.0	LOS A	0.0	0.0	0.00	0.08	0.00	77.8
Approach		469	19.5	469	19.5	0.265	1.0	NA	0.0	0.0	0.00	0.08	0.00	77.8
NorthWest: Elizabeth Drive														
28	T1	933	12.0	933	12.0	0.609	1.4	LOS A	3.8	29.2	0.31	0.09	0.48	74.1
29	R2	132	21.6	132	21.6	0.609	12.3	LOS A	3.8	29.2	0.31	0.09	0.48	64.5
Approach		1064	13.2	1064	13.2	0.609	2.8	NA	3.8	29.2	0.31	0.09	0.48	73.7
SouthWest: Adams Road														
30	L2	411	6.2	411	6.2	0.297	8.1	LOS A	1.3	9.9	0.45	0.70	0.45	53.5
32	R2	163	16.8	163	16.8	0.507	18.1	LOS B	1.4	11.2	0.88	1.02	1.18	48.3
Approach		574	9.2	574	9.2	0.507	10.9	LOS A	1.4	11.2	0.57	0.79	0.66	51.1
All Vehicles		2107	13.5	2107	13.5	0.609	4.6	NA	3.8	29.2	0.31	0.28	0.42	66.1

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: 203 [2029 dev Elizabeth Dr/ Luddenham Rd AM]

Network: N201 [2029 dev AM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
22	T1	526	23.6	526	23.6	0.302	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
23	R2	293	0.7	293	0.7	0.555	18.2	LOS B	3.2	22.8	0.84	1.07	1.38	48.7
Approach		819	15.4	819	15.4	0.555	6.5	NA	3.2	22.8	0.30	0.38	0.49	65.0
NorthEast: Luddenham Road														
24	L2	357	5.6	357	5.6	0.524	14.0	LOS A	3.1	22.5	0.74	1.01	1.16	50.0
26	R2	148	1.4	148	1.4	1.069	153.8	LOS F	12.5	88.7	1.00	1.76	5.15	17.8
Approach		505	4.4	505	4.4	1.069	55.1	LOS D	12.5	88.7	0.81	1.23	2.34	27.6
NorthWest: Elizabeth Drive														
27	L2	316	0.0	316	0.0	0.164	7.0	LOS A	0.0	0.0	0.00	0.63	0.00	65.4
28	T1	691	13.9	691	13.9	0.372	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.8
Approach		1006	9.5	1006	9.5	0.372	2.2	NA	0.0	0.0	0.00	0.20	0.00	72.2
All Vehicles		2331	10.5	2331	10.5	1.069	15.2	NA	12.5	88.7	0.28	0.49	0.68	52.5

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: 211 [2029 dev The Northern Rd/ Adams Rd PM]

Network: N211 [2029 dev PM]

Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 90 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: The Northern Road														
1b	L3	34	9.4	34	9.4	0.038	16.5	LOS B	0.6	4.7	0.43	0.68	0.43	52.7
2	T1	1200	8.1	1200	8.1	0.677	19.5	LOS B	20.3	151.9	0.83	0.74	0.83	56.0
3a	R1	132	8.0	132	8.0	0.818	56.6	LOS E	6.4	48.1	1.00	0.91	1.34	23.6
Approach		1365	8.1	1365	8.1	0.818	23.0	LOS B	20.3	151.9	0.84	0.76	0.87	52.2
NorthEast: Adams Road														
24a	L1	349	6.0	349	6.0	0.745	41.0	LOS C	15.0	110.2	0.98	0.88	1.05	38.8
8	T1	1	0.0	1	0.0	0.005	40.7	LOS C	0.0	0.3	0.92	0.56	0.92	37.7
26b	R3	56	20.8	56	20.8	0.584	56.5	LOS E	2.6	21.8	1.00	0.78	1.10	32.2
Approach		406	8.0	406	8.0	0.745	43.2	LOS D	15.0	110.2	0.98	0.87	1.06	37.7
North: The Northern Road														
7b	L3	43	41.5	43	41.5	0.057	16.8	LOS B	0.8	7.4	0.42	0.68	0.42	48.3
8	T1	1482	6.2	1482	6.2	0.826	25.9	LOS B	30.7	226.2	0.93	0.90	1.01	51.0
9a	R1	34	9.4	34	9.4	0.211	49.4	LOS D	1.4	10.9	0.96	0.72	0.96	35.7
Approach		1559	7.2	1559	7.2	0.826	26.2	LOS B	30.7	226.2	0.92	0.89	0.99	50.5
SouthWest: Adams Road														
30a	L1	37	11.4	37	11.4	0.081	32.0	LOS C	1.2	9.5	0.79	0.70	0.79	40.2
2	T1	1	0.0	1	0.0	0.005	39.6	LOS C	0.0	0.3	0.92	0.54	0.92	26.4
32b	R3	36	11.8	36	11.8	0.356	53.7	LOS D	1.6	12.6	0.99	0.73	0.99	32.4
Approach		74	11.4	74	11.4	0.356	42.7	LOS D	1.6	12.6	0.89	0.71	0.89	35.8
All Vehicles		3404	7.8	3404	7.8	0.826	27.3	LOS B	30.7	226.2	0.89	0.83	0.95	48.6

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
P11	South Stage 1	53	39.3	LOS D	0.1	0.1	0.94	0.94
P12	South Stage 2	53	39.3	LOS D	0.1	0.1	0.94	0.94
P1B	South Slip/Bypass Lane Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
P3	NorthEast Full Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
P31	North Stage 1	53	39.3	LOS D	0.1	0.1	0.94	0.94

P32	North Stage 2	53	39.3	LOS D	0.1	0.1	0.94	0.94
P3B	North Slip/Bypass Lane Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
P1	SouthWest Full Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
All Pedestrians		421	39.3	LOS D			0.94	0.94

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: 212 [2029 dev Elizabeth Dr/ Adams Rd PM]

Network: N211 [2029 dev PM]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
21	L2	41	30.8	41	30.8	0.343	7.5	LOS A	0.0	0.0	0.00	0.04	0.00	78.7
22	T1	617	5.8	617	5.8	0.343	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	78.7
Approach		658	7.4	658	7.4	0.343	0.5	NA	0.0	0.0	0.00	0.04	0.00	78.7
NorthWest: Elizabeth Drive														
28	T1	653	2.7	653	2.7	0.493	2.2	LOS A	3.7	26.7	0.47	0.19	0.69	70.9
29	R2	185	5.1	185	5.1	0.493	11.8	LOS A	3.7	26.7	0.47	0.19	0.69	57.4
Approach		838	3.3	838	3.3	0.493	4.4	NA	3.7	26.7	0.47	0.19	0.69	69.5
SouthWest: Adams Road														
30	L2	263	3.6	263	3.6	0.233	8.9	LOS A	1.0	7.0	0.54	0.78	0.54	52.6
32	R2	112	9.4	112	9.4	0.246	12.8	LOS A	0.6	4.7	0.75	0.93	0.84	53.7
Approach		375	5.3	375	5.3	0.246	10.0	LOS A	1.0	7.0	0.60	0.82	0.63	53.1
All Vehicles		1871	5.1	1871	5.1	0.493	4.1	NA	3.7	26.7	0.33	0.27	0.44	67.2

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.
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: 213 [2029 dev Elizabeth Dr/ Luddenham Rd PM]

Network: N211 [2029 dev PM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
22	T1	732	7.6	732	7.6	0.382	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.8
23	R2	149	1.4	149	1.4	0.126	8.6	LOS A	0.6	4.0	0.48	0.69	0.48	58.2
Approach		881	6.6	881	6.6	0.382	1.5	NA	0.6	4.0	0.08	0.12	0.08	75.1
NorthEast: Luddenham Road														
24	L2	518	0.0	518	0.0	0.430	9.0	LOS A	2.7	19.2	0.50	0.75	0.59	57.6
26	R2	387	0.0	387	0.0	1.347	341.0	LOS F	69.2	484.7	1.00	4.16	16.82	9.3
Approach		905	0.0	905	0.0	1.347	151.0	LOS F	69.2	484.7	0.72	2.21	7.53	14.1
NorthWest: Elizabeth Drive														
27	L2	94	1.1	94	1.1	0.049	7.0	LOS A	0.0	0.0	0.00	0.63	0.00	65.0
28	T1	320	7.9	320	7.9	0.166	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
Approach		414	6.4	414	6.4	0.166	1.6	NA	0.0	0.0	0.00	0.14	0.00	73.7
All Vehicles		2200	3.8	2200	3.8	1.347	63.0	NA	69.2	484.7	0.33	0.98	3.13	26.6

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: 201 [2034 dev The Northern Rd/ Adams Rd AM]

Network: N201 [2034 dev AM]

Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 110 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: The Northern Road														
1b	L3	34	15.6	34	15.6	0.037	16.3	LOS B	0.7	5.4	0.38	0.67	0.38	52.8
2	T1	1635	14.4	1635	14.4	0.890	34.0	LOS C	47.6	374.2	0.91	0.94	1.05	45.8
3a	R1	280	12.8	280	12.8	0.731	31.2	LOS C	9.0	70.1	0.98	0.86	1.04	34.6
Approach		1948	14.2	1948	14.2	0.890	33.3	LOS C	47.6	374.2	0.91	0.93	1.04	44.8
NorthEast: Adams Road														
24a	L1	126	25.8	126	25.8	0.209	21.7	LOS B	3.5	30.3	0.72	0.73	0.72	45.7
8	T1	1	0.0	1	0.0	0.005	49.1	LOS D	0.1	0.4	0.92	0.56	0.92	34.7
26b	R3	38	83.3	38	83.3	0.659	71.8	LOS F	2.3	27.4	1.00	0.82	1.22	25.0
Approach		165	38.9	165	38.9	0.659	33.4	LOS C	3.5	30.3	0.78	0.75	0.83	38.3
North: The Northern Road														
7b	L3	89	40.0	89	40.0	0.169	20.7	LOS B	1.8	16.7	0.66	0.74	0.66	43.8
8	T1	895	19.4	895	19.4	0.727	33.6	LOS C	21.0	171.7	0.93	0.82	0.94	46.1
9a	R1	34	15.6	34	15.6	0.239	59.7	LOS E	1.8	14.1	0.97	0.73	0.97	32.4
Approach		1018	21.1	1018	21.1	0.727	33.3	LOS C	21.0	171.7	0.91	0.81	0.91	45.3
SouthWest: Adams Road														
30a	L1	33	16.1	33	16.1	0.080	39.7	LOS C	1.4	10.9	0.81	0.70	0.81	36.6
2	T1	1	0.0	1	0.0	0.005	48.0	LOS D	0.1	0.4	0.92	0.54	0.92	23.6
32b	R3	33	16.1	33	16.1	0.407	65.7	LOS E	1.8	14.7	1.00	0.73	1.00	29.0
Approach		66	15.9	66	15.9	0.407	52.7	LOS D	1.8	14.7	0.91	0.71	0.91	32.2
All Vehicles		3198	17.7	3198	17.7	0.890	33.7	LOS C	47.6	374.2	0.91	0.88	0.98	44.2

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
P11	South Stage 1	53	49.3	LOS E	0.2	0.2	0.95	0.95
P12	South Stage 2	53	23.0	LOS C	0.1	0.1	0.89	0.89
P1B	South Slip/Bypass Lane Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P3	NorthEast Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P31	North Stage 1	53	49.3	LOS E	0.2	0.2	0.95	0.95

P32	North Stage 2	53	49.3	LOS E	0.2	0.2	0.95	0.95
P3B	North Slip/Bypass Lane Crossing	53	23.0	LOS C	0.1	0.1	0.89	0.89
P1	SouthWest Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		421	42.7	LOS E			0.93	0.93

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: 202 [2034 dev Elizabeth Dr/ Adams Rd AM]

Network: N201 [2034 dev AM]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
21	L2	58	41.8	58	41.8	0.273	7.7	LOS A	0.0	0.0	0.00	0.08	0.00	77.9
22	T1	429	15.7	429	15.7	0.273	0.0	LOS A	0.0	0.0	0.00	0.08	0.00	77.9
Approach		487	18.8	487	18.8	0.273	0.9	NA	0.0	0.0	0.00	0.08	0.00	77.9
NorthWest: Elizabeth Drive														
28	T1	961	12.0	961	12.0	0.625	1.5	LOS A	4.0	30.9	0.31	0.09	0.51	73.9
29	R2	132	20.8	132	20.8	0.625	12.7	LOS A	4.0	30.9	0.31	0.09	0.51	64.0
Approach		1093	13.1	1093	13.1	0.625	2.9	NA	4.0	30.9	0.31	0.09	0.51	73.4
SouthWest: Adams Road														
30	L2	454	5.3	454	5.3	0.334	8.3	LOS A	1.7	12.1	0.48	0.73	0.51	53.3
32	R2	176	13.8	176	13.8	0.570	19.4	LOS B	1.6	12.8	0.90	1.04	1.27	48.0
Approach		629	7.7	629	7.7	0.570	11.4	LOS A	1.7	12.8	0.60	0.82	0.72	50.9
All Vehicles		2209	12.8	2209	12.8	0.625	4.9	NA	4.0	30.9	0.32	0.30	0.46	65.6

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: 203 [2034 dev Elizabeth Dr/ Luddenham Rd AM]

Network: N201 [2034 dev AM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
22	T1	566	23.0	566	23.0	0.325	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.8
23	R2	317	0.7	317	0.7	0.700	23.9	LOS B	4.6	32.7	0.91	1.17	1.84	44.1
Approach		883	15.0	883	15.0	0.700	8.6	NA	4.6	32.7	0.33	0.42	0.66	61.9
NorthEast: Luddenham Road														
24	L2	326	5.8	326	5.8	0.533	15.1	LOS B	3.0	21.9	0.77	1.03	1.23	48.6
26	R2	136	1.6	136	1.6	1.294	336.2	LOS F	24.1	171.1	1.00	2.24	7.91	9.3
Approach		462	4.6	462	4.6	1.294	109.5	LOS F	24.1	171.1	0.84	1.38	3.19	16.7
NorthWest: Elizabeth Drive														
27	L2	346	0.0	346	0.0	0.180	7.0	LOS A	0.0	0.0	0.00	0.63	0.00	65.4
28	T1	751	13.5	751	13.5	0.404	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.8
Approach		1097	9.2	1097	9.2	0.404	2.2	NA	0.0	0.0	0.00	0.20	0.00	72.2
All Vehicles		2442	10.4	2442	10.4	1.294	24.8	NA	24.1	171.1	0.28	0.50	0.84	43.5

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: 211 [2034 dev The Northern Rd/ Adams Rd PM]

Network: N211 [2034 dev PM]

Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 90 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: The Northern Road														
1b	L3	34	9.4	34	9.4	0.038	16.5	LOS B	0.6	4.7	0.43	0.68	0.43	52.7
2	T1	1200	8.1	1200	8.1	0.677	19.5	LOS B	20.3	151.9	0.83	0.74	0.83	56.0
3a	R1	126	8.3	126	8.3	0.787	55.4	LOS D	6.1	45.6	1.00	0.88	1.28	23.9
Approach		1360	8.1	1360	8.1	0.787	22.8	LOS B	20.3	151.9	0.84	0.75	0.86	52.4
NorthEast: Adams Road														
24a	L1	305	6.2	305	6.2	0.652	38.2	LOS C	12.2	90.0	0.95	0.83	0.95	40.0
8	T1	1	0.0	1	0.0	0.005	40.7	LOS C	0.0	0.3	0.92	0.56	0.92	37.7
26b	R3	51	22.9	51	22.9	0.536	56.2	LOS D	2.4	19.9	1.00	0.77	1.05	32.1
Approach		357	8.6	357	8.6	0.652	40.8	LOS C	12.2	90.0	0.96	0.82	0.96	38.6
North: The Northern Road														
7b	L3	43	41.5	43	41.5	0.057	16.8	LOS B	0.8	7.4	0.42	0.68	0.42	48.3
8	T1	1482	6.2	1482	6.2	0.826	25.9	LOS B	30.7	226.2	0.93	0.90	1.01	51.0
9a	R1	34	9.4	34	9.4	0.211	49.4	LOS D	1.4	10.9	0.96	0.72	0.96	35.7
Approach		1559	7.2	1559	7.2	0.826	26.2	LOS B	30.7	226.2	0.92	0.89	0.99	50.5
SouthWest: Adams Road														
30a	L1	37	11.4	37	11.4	0.081	32.0	LOS C	1.2	9.5	0.79	0.70	0.79	40.2
2	T1	1	0.0	1	0.0	0.005	39.6	LOS C	0.0	0.3	0.92	0.54	0.92	26.4
32b	R3	36	11.8	36	11.8	0.356	53.7	LOS D	1.6	12.6	0.99	0.73	0.99	32.4
Approach		74	11.4	74	11.4	0.356	42.7	LOS D	1.6	12.6	0.89	0.71	0.89	35.8
All Vehicles		3349	7.8	3349	7.8	0.826	26.7	LOS B	30.7	226.2	0.89	0.82	0.93	49.1

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
P11	South Stage 1	53	39.3	LOS D	0.1	0.1	0.94	0.94
P12	South Stage 2	53	39.3	LOS D	0.1	0.1	0.94	0.94
P1B	South Slip/Bypass Lane Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
P3	NorthEast Full Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
P31	North Stage 1	53	39.3	LOS D	0.1	0.1	0.94	0.94

P32	North Stage 2	53	39.3	LOS D	0.1	0.1	0.94	0.94
P3B	North Slip/Bypass Lane Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
P1	SouthWest Full Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
All Pedestrians		421	39.3	LOS D			0.94	0.94

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: 212 [2034 dev Elizabeth Dr/ Adams Rd PM]

Network: N211 [2034 dev PM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
21	L2	43	22.0	43	22.0	0.397	7.4	LOS A	0.0	0.0	0.00	0.04	0.00	78.7
22	T1	723	5.8	723	5.8	0.397	0.1	LOS A	0.0	0.0	0.00	0.04	0.00	78.7
Approach		766	6.7	766	6.7	0.397	0.5	NA	0.0	0.0	0.00	0.04	0.00	78.7
NorthWest: Elizabeth Drive														
28	T1	592	2.8	592	2.8	0.472	2.8	LOS A	3.7	26.3	0.51	0.20	0.77	69.6
29	R2	168	5.0	168	5.0	0.472	12.8	LOS A	3.7	26.3	0.51	0.20	0.77	55.0
Approach		760	3.3	760	3.3	0.472	5.0	NA	3.7	26.3	0.51	0.20	0.77	68.1
SouthWest: Adams Road														
30	L2	306	2.7	306	2.7	0.312	10.0	LOS A	1.5	10.5	0.62	0.88	0.72	50.9
32	R2	126	5.8	126	5.8	0.266	12.5	LOS A	0.7	5.2	0.75	0.93	0.85	54.7
Approach		433	3.6	433	3.6	0.312	10.7	LOS A	1.5	10.5	0.66	0.90	0.76	52.5
All Vehicles		1959	4.7	1959	4.7	0.472	4.5	NA	3.7	26.3	0.34	0.29	0.47	66.3

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.
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: 213 [2034 dev Elizabeth Dr/ Luddenham Rd PM]

Network: N211 [2034 dev PM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
22	T1	855	7.4	855	7.4	0.446	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.8
23	R2	175	1.8	175	1.8	0.145	8.6	LOS A	0.7	4.7	0.48	0.69	0.48	58.1
Approach		1029	6.4	1029	6.4	0.446	1.5	NA	0.7	4.7	0.08	0.12	0.08	75.0
NorthEast: Luddenham Road														
24	L2	451	0.0	451	0.0	0.369	8.6	LOS A	2.0	13.8	0.47	0.71	0.50	57.9
26	R2	337	0.0	337	0.0	1.513	491.8	LOS F	77.6	543.5	1.00	4.30	18.15	6.7
Approach		787	0.0	787	0.0	1.513	215.3	LOS F	77.6	543.5	0.70	2.25	8.05	10.4
NorthWest: Elizabeth Drive														
27	L2	91	1.2	91	1.2	0.047	7.0	LOS A	0.0	0.0	0.00	0.63	0.00	65.0
28	T1	309	7.5	309	7.5	0.161	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
Approach		400	6.1	400	6.1	0.161	1.6	NA	0.0	0.0	0.00	0.14	0.00	73.7
All Vehicles		2217	4.1	2217	4.1	1.513	77.4	NA	77.6	543.5	0.29	0.88	2.90	23.1

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: 201 [2039 dev The Northern Rd/ Adams Rd AM]

Network: N201 [2039 dev AM]

Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 130 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: The Northern Road														
1b	L3	34	15.6	34	15.6	0.035	15.8	LOS B	0.7	5.6	0.34	0.66	0.34	53.2
2	T1	1635	14.4	1635	14.4	0.833	22.0	LOS B	44.0	345.9	0.81	0.76	0.82	54.0
3a	R1	309	12.2	309	12.2	0.714	33.4	LOS C	11.8	91.0	0.97	0.84	0.98	33.2
Approach		1978	14.1	1978	14.1	0.833	23.6	LOS B	44.0	345.9	0.83	0.77	0.84	51.2
NorthEast: Adams Road														
24a	L1	141	23.9	141	23.9	0.224	24.9	LOS B	4.8	40.2	0.71	0.74	0.71	44.2
8	T1	1	0.0	1	0.0	0.006	58.6	LOS E	0.1	0.4	0.93	0.56	0.93	31.8
26b	R3	40	81.6	40	81.6	0.816	87.9	LOS F	3.0	35.1	1.00	0.90	1.47	22.6
Approach		182	36.4	182	36.4	0.816	38.9	LOS C	4.8	40.2	0.77	0.77	0.88	36.5
North: The Northern Road														
7b	L3	93	39.8	93	39.8	0.166	21.7	LOS B	1.9	18.1	0.64	0.73	0.64	42.8
8	T1	895	19.4	895	19.4	0.671	35.5	LOS C	23.4	190.9	0.89	0.79	0.89	45.0
9a	R1	34	15.6	34	15.6	0.254	69.8	LOS E	2.1	16.7	0.98	0.73	0.98	29.8
Approach		1021	21.1	1021	21.1	0.671	35.4	LOS C	23.4	190.9	0.87	0.78	0.87	44.1
SouthWest: Adams Road														
30a	L1	33	16.1	33	16.1	0.088	48.3	LOS D	1.7	13.2	0.83	0.70	0.83	33.7
2	T1	1	0.0	1	0.0	0.006	57.5	LOS E	0.1	0.4	0.93	0.55	0.93	21.1
32b	R3	33	16.1	33	16.1	0.481	77.7	LOS F	2.2	17.6	1.00	0.73	1.00	26.5
Approach		66	15.9	66	15.9	0.481	62.9	LOS E	2.2	17.6	0.92	0.71	0.92	29.6
All Vehicles		3247	17.6	3247	17.6	0.833	29.0	LOS C	44.0	345.9	0.84	0.77	0.85	46.9

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.
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
P11	South Stage 1	53	59.3	LOS E	0.2	0.2	0.96	0.96
P12	South Stage 2	53	29.6	LOS C	0.1	0.1	0.91	0.91
P1B	South Slip/Bypass Lane Crossing	53	59.3	LOS E	0.2	0.2	0.96	0.96
P3	NorthEast Full Crossing	53	59.3	LOS E	0.2	0.2	0.96	0.96
P31	North Stage 1	53	59.3	LOS E	0.2	0.2	0.96	0.96

P32	North Stage 2	53	59.3	LOS E	0.2	0.2	0.96	0.96
P3B	North Slip/Bypass Lane Crossing	53	29.6	LOS C	0.1	0.1	0.91	0.91
P1	SouthWest Full Crossing	53	59.3	LOS E	0.2	0.2	0.96	0.96
All Pedestrians		421	51.9	LOS E			0.94	0.94

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: 202 [2039 dev Elizabeth Dr/ Adams Rd AM]

Network: N201 [2039 dev AM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
21	L2	53	46.0	53	46.0	0.228	7.8	LOS A	0.0	0.0	0.00	0.08	0.00	77.9
22	T1	352	15.9	352	15.9	0.228	0.0	LOS A	0.0	0.0	0.00	0.08	0.00	77.9
Approach		404	19.8	404	19.8	0.228	1.0	NA	0.0	0.0	0.00	0.08	0.00	77.9
NorthWest: Elizabeth Drive														
28	T1	971	12.0	971	12.0	0.620	1.2	LOS A	3.6	28.3	0.28	0.09	0.42	74.9
29	R2	133	20.6	133	20.6	0.620	11.5	LOS A	3.6	28.3	0.28	0.09	0.42	66.1
Approach		1103	13.1	1103	13.1	0.620	2.4	NA	3.6	28.3	0.28	0.09	0.42	74.4
SouthWest: Adams Road														
30	L2	574	4.2	574	4.2	0.384	8.0	LOS A	2.2	15.7	0.46	0.70	0.50	53.4
32	R2	218	11.1	218	11.1	0.623	18.5	LOS B	1.9	14.9	0.90	1.06	1.38	49.2
Approach		792	6.1	792	6.1	0.623	10.9	LOS A	2.2	15.7	0.58	0.80	0.74	51.5
All Vehicles		2299	11.9	2299	11.9	0.623	5.1	NA	3.6	28.3	0.33	0.33	0.46	64.8

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.

MOVEMENT SUMMARY

Site: 203 [2039 dev Elizabeth Dr/ Luddenham Rd AM]

Network: N201 [2039 dev AM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
22	T1	593	22.9	593	22.9	0.340	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.8
23	R2	333	0.6	333	0.6	0.716	24.0	LOS B	5.0	34.9	0.91	1.19	1.91	44.1
Approach		925	14.9	925	14.9	0.716	8.6	NA	5.0	34.9	0.33	0.43	0.69	61.8
NorthEast: Luddenham Road														
24	L2	347	5.8	347	5.8	0.557	15.2	LOS B	3.2	23.9	0.78	1.04	1.28	48.4
26	R2	144	1.5	144	1.5	1.425	446.0	LOS F	31.8	225.4	1.00	2.51	9.41	7.2
Approach		492	4.5	492	4.5	1.425	141.6	LOS F	31.8	225.4	0.84	1.47	3.66	13.6
NorthWest: Elizabeth Drive														
27	L2	342	0.0	342	0.0	0.178	7.0	LOS A	0.0	0.0	0.00	0.63	0.00	65.4
28	T1	740	13.5	740	13.5	0.398	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.8
Approach		1082	9.2	1082	9.2	0.398	2.2	NA	0.0	0.0	0.00	0.20	0.00	72.2
All Vehicles		2499	10.4	2499	10.4	1.425	32.0	NA	31.8	225.4	0.29	0.53	0.98	38.6

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: 211 [2039 dev The Northern Rd/ Adams Rd PM]

Network: N211 [2039 dev PM]

Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 90 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: The Northern Road														
1b	L3	34	9.4	34	9.4	0.038	16.5	LOS B	0.6	4.7	0.43	0.68	0.43	52.7
2	T1	1200	8.1	1200	8.1	0.677	19.5	LOS B	20.3	151.9	0.83	0.74	0.83	56.0
3a	R1	132	8.0	132	8.0	0.818	56.6	LOS E	6.4	48.1	1.00	0.91	1.34	23.6
Approach		1365	8.1	1365	8.1	0.818	23.0	LOS B	20.3	151.9	0.84	0.76	0.87	52.2
NorthEast: Adams Road														
24a	L1	392	5.6	392	5.6	0.833	46.1	LOS D	18.4	135.0	1.00	0.95	1.19	36.9
8	T1	1	0.0	1	0.0	0.005	40.7	LOS C	0.0	0.3	0.92	0.56	0.92	37.7
26b	R3	62	18.6	62	18.6	0.643	57.1	LOS E	3.0	24.1	1.00	0.81	1.16	32.2
Approach		455	7.4	455	7.4	0.833	47.6	LOS D	18.4	135.0	1.00	0.93	1.19	36.1
North: The Northern Road														
7b	L3	45	41.9	45	41.9	0.060	16.8	LOS B	0.8	7.8	0.42	0.68	0.42	48.3
8	T1	1482	6.2	1482	6.2	0.826	25.9	LOS B	30.7	226.2	0.93	0.90	1.01	51.0
9a	R1	34	9.4	34	9.4	0.211	49.4	LOS D	1.4	10.9	0.96	0.72	0.96	35.7
Approach		1561	7.3	1561	7.3	0.826	26.2	LOS B	30.7	226.2	0.92	0.89	0.99	50.5
SouthWest: Adams Road														
30a	L1	37	11.4	37	11.4	0.081	32.0	LOS C	1.2	9.5	0.79	0.70	0.79	40.2
2	T1	1	0.0	1	0.0	0.005	39.6	LOS C	0.0	0.3	0.92	0.54	0.92	26.4
32b	R3	36	11.8	36	11.8	0.356	53.7	LOS D	1.6	12.6	0.99	0.73	0.99	32.4
Approach		74	11.4	74	11.4	0.356	42.7	LOS D	1.6	12.6	0.89	0.71	0.89	35.8
All Vehicles		3455	7.7	3455	7.7	0.833	28.1	LOS B	30.7	226.2	0.90	0.84	0.97	48.1

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
P11	South Stage 1	53	39.3	LOS D	0.1	0.1	0.94	0.94
P12	South Stage 2	53	39.3	LOS D	0.1	0.1	0.94	0.94
P1B	South Slip/Bypass Lane Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
P3	NorthEast Full Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
P31	North Stage 1	53	39.3	LOS D	0.1	0.1	0.94	0.94

P32	North Stage 2	53	39.3	LOS D	0.1	0.1	0.94	0.94
P3B	North Slip/Bypass Lane Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
P1	SouthWest Full Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
All Pedestrians		421	39.3	LOS D			0.94	0.94

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: 212 [2039 dev Elizabeth Dr/ Adams Rd PM]

Network: N211 [2039 dev PM]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
21	L2	41	23.1	41	23.1	0.373	7.4	LOS A	0.0	0.0	0.00	0.04	0.00	78.7
22	T1	679	5.7	679	5.7	0.373	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	78.7
Approach		720	6.7	720	6.7	0.373	0.5	NA	0.0	0.0	0.00	0.04	0.00	78.7
NorthWest: Elizabeth Drive														
28	T1	544	2.9	544	2.9	0.425	2.3	LOS A	2.9	21.1	0.46	0.19	0.65	70.8
29	R2	156	5.4	156	5.4	0.425	11.9	LOS A	2.9	21.1	0.46	0.19	0.65	57.2
Approach		700	3.5	700	3.5	0.425	4.4	NA	2.9	21.1	0.46	0.19	0.65	69.3
SouthWest: Adams Road														
30	L2	434	1.9	434	1.9	0.412	10.2	LOS A	2.4	16.9	0.63	0.92	0.84	50.6
32	R2	178	4.1	178	4.1	0.326	11.8	LOS A	0.9	6.8	0.73	0.93	0.88	55.7
Approach		612	2.6	612	2.6	0.412	10.7	LOS A	2.4	16.9	0.66	0.92	0.85	52.7
All Vehicles		2032	4.4	2032	4.4	0.425	4.9	NA	2.9	21.1	0.36	0.36	0.48	64.9

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: 213 [2039 dev Elizabeth Dr/ Luddenham Rd PM]

Network: N211 [2039 dev PM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
22	T1	924	7.3	924	7.3	0.483	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.7
23	R2	188	1.7	188	1.7	0.141	8.1	LOS A	0.7	4.7	0.41	0.65	0.41	58.4
Approach		1113	6.3	1113	6.3	0.483	1.4	NA	0.7	4.7	0.07	0.11	0.07	75.1
NorthEast: Luddenham Road														
24	L2	467	0.0	467	0.0	0.354	8.0	LOS A	1.8	12.6	0.41	0.66	0.41	58.4
26	R2	349	0.0	349	0.0	1.612	579.7	LOS F	89.3	625.0	1.00	4.59	19.71	5.8
Approach		817	0.0	817	0.0	1.612	252.6	LOS F	89.3	625.0	0.66	2.34	8.67	9.1
NorthWest: Elizabeth Drive														
27	L2	67	1.6	67	1.6	0.035	7.0	LOS A	0.0	0.0	0.00	0.63	0.00	64.9
28	T1	233	8.6	233	8.6	0.122	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	80.0
Approach		300	7.0	300	7.0	0.122	1.6	NA	0.0	0.0	0.00	0.14	0.00	73.7
All Vehicles		2229	4.1	2229	4.1	1.612	93.5	NA	89.3	625.0	0.28	0.93	3.21	20.3

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

Appendix F

SIDRA results (alternative distribution)

MOVEMENT SUMMARY

Site: 101 [2020 dev The Northern Rd/ Adams Rd AM]

Network: N101 [2020 dev AM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: The Northern Road														
22	T1	615	12.5	615	12.5	0.424	1.3	LOS A	2.0	15.5	0.32	0.12	0.44	57.5
23	R2	111	3.8	111	3.8	0.424	9.8	LOS A	2.0	15.5	0.32	0.12	0.44	55.2
Approach		725	11.2	725	11.2	0.424	2.6	NA	2.0	15.5	0.32	0.12	0.44	57.3
NorthEast: Adams Road														
24	L2	73	7.2	73	7.2	0.091	8.7	LOS A	0.3	2.6	0.55	0.75	0.55	54.0
26	R2	9	33.3	9	33.3	0.091	13.5	LOS A	0.3	2.6	0.55	0.75	0.55	52.4
Approach		82	10.3	82	10.3	0.091	9.3	LOS A	0.3	2.6	0.55	0.75	0.55	53.8
NorthWest: The Northern Road														
27	L2	46	13.6	46	13.6	0.350	5.7	LOS A	0.0	0.0	0.00	0.04	0.00	59.1
28	T1	593	16.2	593	16.2	0.350	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	59.5
Approach		639	16.0	639	16.0	0.350	0.5	NA	0.0	0.0	0.00	0.04	0.00	59.5
All Vehicles		1446	13.2	1446	13.2	0.424	2.0	NA	2.0	15.5	0.19	0.12	0.25	58.0

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: 102 [2020 dev Elizabeth Dr/ Adams Rd AM]

Network: N101 [2020 dev AM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
21	L2	85	60.5	85	60.5	0.288	3.8	LOS A	0.0	0.0	0.00	0.08	0.00	39.7
22	T1	417	13.6	417	13.6	0.288	0.0	LOS A	0.0	0.0	0.00	0.08	0.00	39.7
Approach		502	21.6	502	21.6	0.288	0.7	NA	0.0	0.0	0.00	0.08	0.00	39.7
NorthWest: Elizabeth Drive														
28	T1	658	10.7	658	10.7	0.486	1.9	LOS A	3.3	25.8	0.38	0.10	0.54	38.4
29	R2	129	39.8	129	39.8	0.486	8.8	LOS A	3.3	25.8	0.38	0.10	0.54	35.4
Approach		787	15.5	787	15.5	0.486	3.0	NA	3.3	25.8	0.38	0.10	0.54	38.2
SouthWest: Adams Road														
30	L2	127	38.8	127	38.8	0.115	8.8	LOS A	0.5	4.8	0.51	0.69	0.51	53.1
32	R2	79	65.3	79	65.3	0.261	17.4	LOS B	0.7	7.8	0.80	0.95	0.90	41.1
Approach		206	49.0	206	49.0	0.261	12.1	LOS A	0.7	7.8	0.62	0.79	0.66	45.8
All Vehicles		1496	22.2	1496	22.2	0.486	3.5	NA	3.3	25.8	0.28	0.19	0.38	39.6

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: 103 [2020 dev Elizabeth Dr/ Luddenham Rd AM]

Network: N101 [2020 dev AM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
22	T1	369	27.6	369	27.6	0.217	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
23	R2	187	0.6	187	0.6	0.302	9.9	LOS A	1.4	9.8	0.73	0.91	0.87	46.3
Approach		557	18.5	557	18.5	0.302	3.3	NA	1.4	9.8	0.25	0.31	0.29	41.9
NorthEast: Luddenham Road														
24	L2	157	5.4	157	5.4	0.209	10.8	LOS A	0.8	5.8	0.59	0.85	0.59	54.8
26	R2	65	1.6	65	1.6	0.272	22.5	LOS B	0.9	6.2	0.86	0.97	0.97	40.5
Approach		222	4.3	222	4.3	0.272	14.2	LOS A	0.9	6.2	0.67	0.88	0.71	47.3
NorthWest: Elizabeth Drive														
27	L2	273	0.0	273	0.0	0.142	3.4	LOS A	0.0	0.0	0.00	0.45	0.00	38.7
28	T1	624	16.7	624	16.7	0.342	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		897	11.6	897	11.6	0.342	1.1	NA	0.0	0.0	0.00	0.14	0.00	39.4
All Vehicles		1676	12.9	1676	12.9	0.342	3.6	NA	1.4	9.8	0.17	0.29	0.19	41.1

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: 111 [2020 dev The Northern Rd/ Adams Rd PM]

Network: N111 [2020 dev PM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: The Northern Road														
22	T1	753	7.4	753	7.4	0.452	0.8	LOS A	1.5	11.0	0.20	0.07	0.28	58.4
23	R2	75	1.4	75	1.4	0.452	9.8	LOS A	1.5	11.0	0.20	0.07	0.28	56.9
Approach		827	6.9	827	6.9	0.452	1.6	NA	1.5	11.0	0.20	0.07	0.28	58.3
NorthEast: Adams Road														
24	L2	120	3.5	120	3.5	0.145	8.8	LOS A	0.6	4.0	0.56	0.78	0.56	54.1
26	R2	17	6.3	17	6.2	0.145	12.2	LOS A	0.6	4.0	0.56	0.78	0.56	53.6
Approach		137	3.8	137	3.8	0.145	9.2	LOS A	0.6	4.0	0.56	0.78	0.56	54.1
NorthWest: The Northern Road														
27	L2	15	21.4	15	21.4	0.336	5.8	LOS A	0.0	0.0	0.00	0.01	0.00	59.7
28	T1	637	5.8	637	5.8	0.336	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
Approach		652	6.1	652	6.1	0.336	0.2	NA	0.0	0.0	0.00	0.01	0.00	59.8
All Vehicles		1616	6.3	1616	6.3	0.452	1.7	NA	1.5	11.0	0.15	0.10	0.19	58.5

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: 112 [2020 dev Elizabeth Dr/ Adams Rd PM]

Network: N111 [2020 dev PM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
21	L2	57	37.0	57	37.0	0.431	3.7	LOS A	0.0	0.0	0.00	0.03	0.00	39.8
22	T1	767	5.5	767	5.5	0.431	0.1	LOS A	0.0	0.0	0.00	0.03	0.00	39.8
Approach		824	7.7	824	7.7	0.431	0.3	NA	0.0	0.0	0.00	0.03	0.00	39.8
NorthWest: Elizabeth Drive														
28	T1	500	2.7	500	2.7	0.441	3.6	LOS A	3.6	26.2	0.57	0.20	0.83	37.2
29	R2	153	11.7	153	11.7	0.441	10.4	LOS A	3.6	26.2	0.57	0.20	0.83	32.4
Approach		653	4.8	653	4.8	0.441	5.2	NA	3.6	26.2	0.57	0.20	0.83	36.7
SouthWest: Adams Road														
30	L2	81	22.1	81	22.1	0.105	10.6	LOS A	0.4	3.5	0.63	0.83	0.63	50.4
32	R2	44	42.9	44	42.9	0.136	15.4	LOS B	0.3	3.3	0.78	0.92	0.78	42.0
Approach		125	29.4	125	29.4	0.136	12.3	LOS A	0.4	3.5	0.68	0.86	0.68	45.7
All Vehicles		1602	8.2	1602	8.2	0.441	3.2	NA	3.6	26.2	0.28	0.16	0.39	38.8

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.

MOVEMENT SUMMARY

Site: 113 [2020 dev Elizabeth Dr/ Luddenham Rd PM]

Network: N111 [2020 dev PM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
22	T1	685	7.1	685	7.1	0.357	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
23	R2	140	1.5	140	1.5	0.118	5.0	LOS A	0.5	3.7	0.47	0.59	0.47	50.0
Approach		825	6.1	825	6.1	0.357	0.9	NA	0.5	3.7	0.08	0.10	0.08	41.4
NorthEast: Luddenham Road														
24	L2	292	0.0	292	0.0	0.241	8.3	LOS A	1.1	7.5	0.43	0.69	0.43	58.2
26	R2	218	0.0	218	0.0	0.684	25.5	LOS B	3.4	23.6	0.91	1.12	1.69	39.2
Approach		509	0.0	509	0.0	0.684	15.7	LOS B	3.4	23.6	0.63	0.87	0.97	45.1
NorthWest: Elizabeth Drive														
27	L2	94	1.1	94	1.1	0.049	3.4	LOS A	0.0	0.0	0.00	0.45	0.00	38.7
28	T1	320	6.9	320	6.9	0.165	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		414	5.6	414	5.6	0.165	0.8	NA	0.0	0.0	0.00	0.10	0.00	39.5
All Vehicles		1748	4.2	1748	4.2	0.684	5.2	NA	3.4	23.6	0.22	0.33	0.32	42.0

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: 201 [2029 dev The Northern Rd/ Adams Rd AM]

Network: N201 [2029 dev AM]

Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 110 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: The Northern Road														
1b	L3	34	15.6	34	15.6	0.037	16.3	LOS B	0.7	5.4	0.38	0.67	0.38	52.8
2	T1	1635	14.4	1635	14.4	0.885	32.9	LOS C	46.6	366.0	0.91	0.93	1.04	46.5
3a	R1	258	4.5	258	4.5	0.696	31.0	LOS C	8.3	60.2	0.98	0.84	1.01	34.6
Approach		1926	13.1	1926	13.1	0.885	32.3	LOS C	46.6	366.0	0.91	0.92	1.02	45.4
NorthEast: Adams Road														
24a	L1	168	8.1	168	8.1	0.263	23.0	LOS B	5.0	37.5	0.75	0.75	0.75	47.6
8	T1	1	0.0	1	0.0	0.005	49.1	LOS D	0.1	0.4	0.92	0.56	0.92	34.7
26b	R3	22	52.4	22	52.4	0.334	67.7	LOS E	1.3	12.8	1.00	0.72	1.00	27.4
Approach		192	13.2	192	13.2	0.334	28.3	LOS B	5.0	37.5	0.78	0.74	0.78	43.8
North: The Northern Road														
7b	L3	66	17.5	66	17.5	0.107	19.4	LOS B	1.3	10.3	0.62	0.72	0.62	44.8
8	T1	895	19.4	895	19.4	0.692	31.4	LOS C	20.3	165.8	0.91	0.80	0.91	47.4
9a	R1	34	15.6	34	15.6	0.239	59.7	LOS E	1.8	14.1	0.97	0.73	0.97	32.4
Approach		995	19.2	995	19.2	0.692	31.6	LOS C	20.3	165.8	0.89	0.79	0.89	46.5
SouthWest: Adams Road														
30a	L1	33	16.1	33	16.1	0.080	39.7	LOS C	1.4	10.9	0.81	0.70	0.81	36.6
2	T1	1	0.0	1	0.0	0.005	48.0	LOS D	0.1	0.4	0.92	0.54	0.92	23.6
32b	R3	33	16.1	33	16.1	0.407	65.7	LOS E	1.8	14.7	1.00	0.73	1.00	29.0
Approach		66	15.9	66	15.9	0.407	52.7	LOS D	1.8	14.7	0.91	0.71	0.91	32.2
All Vehicles		3179	15.0	3179	15.0	0.885	32.3	LOS C	46.6	366.0	0.90	0.86	0.96	45.3

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
P11	South Stage 1	53	49.3	LOS E	0.2	0.2	0.95	0.95
P12	South Stage 2	53	23.0	LOS C	0.1	0.1	0.89	0.89
P1B	South Slip/Bypass Lane Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P3	NorthEast Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P31	North Stage 1	53	49.3	LOS E	0.2	0.2	0.95	0.95

P32	North Stage 2	53	49.3	LOS E	0.2	0.2	0.95	0.95
P3B	North Slip/Bypass Lane Crossing	53	23.0	LOS C	0.1	0.1	0.89	0.89
P1	SouthWest Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		421	42.7	LOS E			0.93	0.93

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: 202 [2029 dev Elizabeth Dr/ Adams Rd]

Network: N201 [2029 dev AM]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
21	L2	85	60.5	85	60.5	0.286	8.1	LOS A	0.0	0.0	0.00	0.11	0.00	77.8
22	T1	408	15.7	408	15.7	0.286	0.0	LOS A	0.0	0.0	0.00	0.11	0.00	77.8
Approach		494	23.5	494	23.5	0.286	1.4	NA	0.0	0.0	0.00	0.11	0.00	77.8
NorthWest: Elizabeth Drive														
28	T1	933	12.0	933	12.0	0.652	2.4	LOS A	5.6	44.3	0.41	0.11	0.70	71.9
29	R2	156	33.8	156	33.8	0.652	14.4	LOS A	5.6	44.3	0.41	0.11	0.70	59.5
Approach		1088	15.1	1088	15.1	0.652	4.1	NA	5.6	44.3	0.41	0.11	0.70	71.1
SouthWest: Adams Road														
30	L2	435	11.4	435	11.4	0.326	8.3	LOS A	1.6	12.2	0.48	0.72	0.50	53.3
32	R2	187	27.5	187	27.5	0.739	26.7	LOS B	2.5	21.3	0.94	1.14	1.67	41.9
Approach		622	16.2	622	16.2	0.739	13.9	LOS A	2.5	21.3	0.62	0.84	0.85	47.4
All Vehicles		2204	17.3	2204	17.3	0.739	6.3	NA	5.6	44.3	0.38	0.32	0.59	62.8

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.

MOVEMENT SUMMARY

Site: 203 [2029 dev Elizabeth Dr/ Luddenham Rd AM]

Network: N201 [2029 dev AM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
22	T1	551	27.0	551	27.0	0.322	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.8
23	R2	293	0.7	293	0.7	0.591	19.6	LOS B	3.5	24.7	0.87	1.09	1.48	47.4
Approach		843	17.9	843	17.9	0.591	6.8	NA	3.5	24.7	0.30	0.38	0.51	64.5
NorthEast: Luddenham Road														
24	L2	357	5.6	357	5.6	0.556	15.0	LOS B	3.3	24.2	0.77	1.04	1.27	48.8
26	R2	148	1.4	148	1.4	1.230	277.3	LOS F	22.5	159.1	1.00	2.21	7.64	11.0
Approach		505	4.4	505	4.4	1.230	92.0	LOS F	22.5	159.1	0.84	1.38	3.14	19.2
NorthWest: Elizabeth Drive														
27	L2	316	0.0	316	0.0	0.164	7.0	LOS A	0.0	0.0	0.00	0.63	0.00	65.4
28	T1	715	16.8	715	16.8	0.392	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.8
Approach		1031	11.6	1031	11.6	0.392	2.2	NA	0.0	0.0	0.00	0.19	0.00	72.4
All Vehicles		2379	12.3	2379	12.3	1.230	22.9	NA	22.5	159.1	0.28	0.51	0.85	45.0

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: 211 [2029 dev The Northern Rd/ Adams Rd PM]

Network: N211 [2029 dev PM]

Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 90 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: The Northern Road														
1b	L3	34	9.4	34	9.4	0.038	16.5	LOS B	0.6	4.7	0.43	0.68	0.43	52.7
2	T1	1200	8.1	1200	8.1	0.677	19.5	LOS B	20.3	151.9	0.83	0.74	0.83	56.0
3a	R1	123	1.7	123	1.7	0.733	53.7	LOS D	5.8	41.1	1.00	0.85	1.19	24.4
Approach		1357	7.5	1357	7.5	0.733	22.5	LOS B	20.3	151.9	0.84	0.75	0.85	52.6
NorthEast: Adams Road														
24a	L1	341	3.7	341	3.7	0.716	39.9	LOS C	14.2	102.8	0.97	0.87	1.02	39.5
8	T1	1	0.0	1	0.0	0.005	40.7	LOS C	0.0	0.3	0.92	0.56	0.92	37.7
26b	R3	47	6.7	47	6.7	0.456	55.0	LOS D	2.2	16.2	1.00	0.74	1.00	33.8
Approach		389	4.1	389	4.1	0.716	41.7	LOS C	14.2	102.8	0.97	0.85	1.01	38.7
North: The Northern Road														
7b	L3	35	27.3	35	27.3	0.043	16.4	LOS B	0.6	5.4	0.42	0.67	0.42	48.5
8	T1	1482	6.2	1482	6.2	0.826	25.9	LOS B	30.7	226.2	0.93	0.90	1.01	51.0
9a	R1	34	9.4	34	9.4	0.211	49.4	LOS D	1.4	10.9	0.96	0.72	0.96	35.7
Approach		1551	6.7	1551	6.7	0.826	26.2	LOS B	30.7	226.2	0.92	0.89	1.00	50.5
SouthWest: Adams Road														
30a	L1	37	11.4	37	11.4	0.081	32.0	LOS C	1.2	9.5	0.79	0.70	0.79	40.2
2	T1	1	0.0	1	0.0	0.005	39.6	LOS C	0.0	0.3	0.92	0.54	0.92	26.4
32b	R3	36	11.8	36	11.8	0.356	53.7	LOS D	1.6	12.6	0.99	0.73	0.99	32.4
Approach		74	11.4	74	11.4	0.356	42.7	LOS D	1.6	12.6	0.89	0.71	0.89	35.8
All Vehicles		3371	6.8	3371	6.8	0.826	26.9	LOS B	30.7	226.2	0.89	0.83	0.94	49.1

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
P11	South Stage 1	53	39.3	LOS D	0.1	0.1	0.94	0.94
P12	South Stage 2	53	39.3	LOS D	0.1	0.1	0.94	0.94
P1B	South Slip/Bypass Lane Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
P3	NorthEast Full Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
P31	North Stage 1	53	39.3	LOS D	0.1	0.1	0.94	0.94

P32	North Stage 2	53	39.3	LOS D	0.1	0.1	0.94	0.94
P3B	North Slip/Bypass Lane Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
P1	SouthWest Full Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
All Pedestrians		421	39.3	LOS D			0.94	0.94

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: 212 [2029 dev Elizabeth Dr/ Adams Rd PM]

Network: N211 [2029 dev PM]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
21	L2	49	42.6	49	42.6	0.350	7.8	LOS A	0.0	0.0	0.00	0.05	0.00	78.7
22	T1	617	5.8	617	5.8	0.350	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	78.7
Approach		666	8.5	666	8.5	0.350	0.6	NA	0.0	0.0	0.00	0.05	0.00	78.7
NorthWest: Elizabeth Drive														
28	T1	653	2.7	653	2.7	0.512	2.6	LOS A	4.2	30.6	0.50	0.20	0.77	70.0
29	R2	194	9.2	194	9.2	0.512	12.4	LOS A	4.2	30.6	0.50	0.20	0.77	55.8
Approach		846	4.2	846	4.2	0.512	4.9	NA	4.2	30.6	0.50	0.20	0.77	68.5
SouthWest: Adams Road														
30	L2	272	6.6	272	6.6	0.247	9.0	LOS A	1.0	7.7	0.55	0.79	0.55	52.4
32	R2	120	15.8	120	15.8	0.292	13.9	LOS A	0.8	6.1	0.78	0.95	0.91	51.4
Approach		392	9.4	392	9.4	0.292	10.5	LOS A	1.0	7.7	0.62	0.84	0.66	51.9
All Vehicles		1904	6.8	1904	6.8	0.512	4.5	NA	4.2	30.6	0.35	0.28	0.48	66.2

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.
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: 213 [2029 dev Elizabeth Dr/ Luddenham Rd PM]

Network: N211 [2029 dev PM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
22	T1	740	8.7	740	8.7	0.389	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.8
23	R2	149	1.4	149	1.4	0.127	8.7	LOS A	0.6	4.1	0.49	0.70	0.49	58.2
Approach		889	7.5	889	7.5	0.389	1.5	NA	0.6	4.1	0.08	0.12	0.08	75.1
NorthEast: Luddenham Road														
24	L2	518	0.0	518	0.0	0.435	9.1	LOS A	2.8	19.7	0.51	0.76	0.61	57.4
26	R2	387	0.0	387	0.0	1.402	390.3	LOS F	76.2	533.5	1.00	4.37	17.97	8.2
Approach		905	0.0	905	0.0	1.402	172.2	LOS F	76.2	533.5	0.72	2.31	8.04	12.6
NorthWest: Elizabeth Drive														
27	L2	94	1.1	94	1.1	0.049	7.0	LOS A	0.0	0.0	0.00	0.63	0.00	65.0
28	T1	328	10.3	328	10.3	0.173	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
Approach		422	8.2	422	8.2	0.173	1.6	NA	0.0	0.0	0.00	0.14	0.00	73.8
All Vehicles		2217	4.6	2217	4.6	1.402	71.2	NA	76.2	533.5	0.33	1.02	3.32	24.5

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: 201 [2034 dev The Northern Rd/ Adams Rd AM]

Network: N201 [2034 dev AM]

Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 110 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: The Northern Road														
1b	L3	34	15.6	34	15.6	0.037	16.3	LOS B	0.7	5.4	0.38	0.67	0.38	52.8
2	T1	1635	14.4	1635	14.4	0.885	32.8	LOS C	46.5	365.5	0.91	0.93	1.04	46.5
3a	R1	256	4.5	256	4.5	0.690	30.9	LOS C	8.2	59.5	0.98	0.83	1.01	34.7
Approach		1924	13.1	1924	13.1	0.885	32.3	LOS C	46.5	365.5	0.91	0.92	1.02	45.5
NorthEast: Adams Road														
24a	L1	102	8.2	102	8.2	0.159	22.2	LOS B	2.9	21.8	0.72	0.72	0.72	48.1
8	T1	1	0.0	1	0.0	0.005	49.1	LOS D	0.1	0.4	0.92	0.56	0.92	34.7
26b	R3	14	53.8	14	53.8	0.208	66.9	LOS E	0.8	7.9	0.99	0.70	0.99	27.5
Approach		117	13.5	117	13.5	0.208	27.7	LOS B	2.9	21.8	0.75	0.71	0.75	44.1
North: The Northern Road														
7b	L3	65	17.7	65	17.7	0.105	19.4	LOS B	1.2	10.2	0.62	0.72	0.62	44.8
8	T1	895	19.4	895	19.4	0.692	31.4	LOS C	20.3	165.8	0.91	0.80	0.91	47.4
9a	R1	34	15.6	34	15.6	0.239	59.7	LOS E	1.8	14.1	0.97	0.73	0.97	32.4
Approach		994	19.2	994	19.2	0.692	31.6	LOS C	20.3	165.8	0.89	0.79	0.89	46.5
SouthWest: Adams Road														
30a	L1	33	16.1	33	16.1	0.080	39.7	LOS C	1.4	10.9	0.81	0.70	0.81	36.6
2	T1	1	0.0	1	0.0	0.005	48.0	LOS D	0.1	0.4	0.92	0.54	0.92	23.6
32b	R3	33	16.1	33	16.1	0.407	65.7	LOS E	1.8	14.7	1.00	0.73	1.00	29.0
Approach		66	15.9	66	15.9	0.407	52.7	LOS D	1.8	14.7	0.91	0.71	0.91	32.2
All Vehicles		3101	15.1	3101	15.1	0.885	32.3	LOS C	46.5	365.5	0.90	0.86	0.97	45.3

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
P11	South Stage 1	53	49.3	LOS E	0.2	0.2	0.95	0.95
P12	South Stage 2	53	23.0	LOS C	0.1	0.1	0.89	0.89
P1B	South Slip/Bypass Lane Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P3	NorthEast Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P31	North Stage 1	53	49.3	LOS E	0.2	0.2	0.95	0.95

P32	North Stage 2	53	49.3	LOS E	0.2	0.2	0.95	0.95
P3B	North Slip/Bypass Lane Crossing	53	23.0	LOS C	0.1	0.1	0.89	0.89
P1	SouthWest Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		421	42.7	LOS E			0.93	0.93

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: 202 [2034 dev Elizabeth Dr/ Adams Rd AM]

Network: N201 [2034 dev AM]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
21	L2	82	59.0	82	59.0	0.295	8.1	LOS A	0.0	0.0	0.00	0.10	0.00	77.9
22	T1	429	15.7	429	15.7	0.295	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	77.9
Approach		512	22.6	512	22.6	0.295	1.3	NA	0.0	0.0	0.00	0.10	0.00	77.9
NorthWest: Elizabeth Drive														
28	T1	961	12.0	961	12.0	0.670	2.5	LOS A	5.9	47.0	0.43	0.11	0.75	71.5
29	R2	156	33.1	156	33.1	0.670	14.9	LOS B	5.9	47.0	0.43	0.11	0.75	58.7
Approach		1117	15.0	1117	15.0	0.670	4.3	NA	5.9	47.0	0.43	0.11	0.75	70.7
SouthWest: Adams Road														
30	L2	478	10.1	478	10.1	0.364	8.6	LOS A	2.0	15.2	0.51	0.75	0.57	53.0
32	R2	200	24.2	200	24.2	0.827	32.2	LOS C	3.1	26.6	0.97	1.22	2.07	39.8
Approach		678	14.3	678	14.3	0.827	15.6	LOS B	3.1	26.6	0.64	0.89	1.01	46.1
All Vehicles		2306	16.5	2306	16.5	0.827	6.9	NA	5.9	47.0	0.40	0.34	0.66	61.6

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: 203 [2034 dev Elizabeth Dr/ Luddenham Rd AM]

Network: N201 [2034 dev AM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
22	T1	591	26.2	591	26.2	0.345	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.8
23	R2	317	0.7	317	0.7	0.749	27.1	LOS B	5.2	36.9	0.93	1.22	2.07	41.9
Approach		907	17.3	907	17.3	0.749	9.5	NA	5.2	36.9	0.32	0.43	0.72	60.6
NorthEast: Luddenham Road														
24	L2	326	5.8	326	5.8	0.568	16.2	LOS B	3.2	23.7	0.80	1.05	1.34	47.2
26	R2	136	1.6	136	1.6	1.505	519.6	LOS F	33.4	236.8	1.00	2.51	9.50	6.3
Approach		462	4.6	462	4.6	1.505	164.1	LOS F	33.4	236.8	0.86	1.48	3.73	12.0
NorthWest: Elizabeth Drive														
27	L2	346	0.0	346	0.0	0.180	7.0	LOS A	0.0	0.0	0.00	0.63	0.00	65.4
28	T1	775	16.2	775	16.2	0.424	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.8
Approach		1121	11.2	1121	11.2	0.424	2.2	NA	0.0	0.0	0.00	0.19	0.00	72.3
All Vehicles		2491	12.2	2491	12.2	1.505	34.9	NA	33.4	236.8	0.28	0.52	0.96	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.

MOVEMENT SUMMARY

Site: 211 [2034 dev The Northern Rd/ Adams Rd PM]

Network: N211 [2034 dev PM]

Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 90 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: The Northern Road														
1b	L3	34	9.4	34	9.4	0.038	16.5	LOS B	0.6	4.7	0.43	0.68	0.43	52.7
2	T1	1200	8.1	1200	8.1	0.677	19.5	LOS B	20.3	151.9	0.83	0.74	0.83	56.0
3a	R1	118	1.8	118	1.8	0.702	53.1	LOS D	5.5	39.0	1.00	0.84	1.15	24.6
Approach		1352	7.6	1352	7.6	0.702	22.4	LOS B	20.3	151.9	0.84	0.75	0.85	52.8
NorthEast: Adams Road														
24a	L1	297	3.5	297	3.5	0.623	37.9	LOS C	11.8	84.8	0.94	0.83	0.94	40.4
8	T1	1	0.0	1	0.0	0.005	40.7	LOS C	0.0	0.3	0.92	0.56	0.92	37.7
26b	R3	42	7.5	42	7.5	0.408	54.8	LOS D	1.9	14.4	1.00	0.74	1.00	33.8
Approach		340	4.0	340	4.0	0.623	40.0	LOS C	11.8	84.8	0.95	0.82	0.95	39.5
North: The Northern Road														
7b	L3	35	27.3	35	27.3	0.043	16.4	LOS B	0.6	5.4	0.42	0.67	0.42	48.5
8	T1	1482	6.2	1482	6.2	0.826	25.9	LOS B	30.7	226.2	0.93	0.90	1.01	51.0
9a	R1	34	9.4	34	9.4	0.211	49.4	LOS D	1.4	10.9	0.96	0.72	0.96	35.7
Approach		1551	6.7	1551	6.7	0.826	26.2	LOS B	30.7	226.2	0.92	0.89	1.00	50.5
SouthWest: Adams Road														
30a	L1	37	11.4	37	11.4	0.081	32.0	LOS C	1.2	9.5	0.79	0.70	0.79	40.2
2	T1	1	0.0	1	0.0	0.005	39.6	LOS C	0.0	0.3	0.92	0.54	0.92	26.4
32b	R3	36	11.8	36	11.8	0.356	53.7	LOS D	1.6	12.6	0.99	0.73	0.99	32.4
Approach		74	11.4	74	11.4	0.356	42.7	LOS D	1.6	12.6	0.89	0.71	0.89	35.8
All Vehicles		3316	6.9	3316	6.9	0.826	26.4	LOS B	30.7	226.2	0.89	0.82	0.93	49.4

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
P11	South Stage 1	53	39.3	LOS D	0.1	0.1	0.94	0.94
P12	South Stage 2	53	39.3	LOS D	0.1	0.1	0.94	0.94
P1B	South Slip/Bypass Lane Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
P3	NorthEast Full Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
P31	North Stage 1	53	39.3	LOS D	0.1	0.1	0.94	0.94

P32	North Stage 2	53	39.3	LOS D	0.1	0.1	0.94	0.94
P3B	North Slip/Bypass Lane Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
P1	SouthWest Full Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
All Pedestrians		421	39.3	LOS D			0.94	0.94

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: 212 [2034 dev Elizabeth Dr/ Adams Rd PM]

Network: N211 [2034 dev PM]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
21	L2	52	34.7	52	34.7	0.405	7.6	LOS A	0.0	0.0	0.00	0.04	0.00	78.7
22	T1	723	5.8	723	5.8	0.405	0.1	LOS A	0.0	0.0	0.00	0.04	0.00	78.7
Approach		775	7.7	775	7.7	0.405	0.6	NA	0.0	0.0	0.00	0.04	0.00	78.7
NorthWest: Elizabeth Drive														
28	T1	592	2.8	592	2.8	0.495	3.4	LOS A	4.2	30.6	0.56	0.21	0.87	68.5
29	R2	177	9.5	177	9.5	0.495	13.6	LOS A	4.2	30.6	0.56	0.21	0.87	52.9
Approach		768	4.4	768	4.4	0.495	5.7	NA	4.2	30.6	0.56	0.21	0.87	66.8
SouthWest: Adams Road														
30	L2	315	5.4	315	5.4	0.328	10.2	LOS A	1.6	11.7	0.63	0.89	0.75	50.6
32	R2	135	11.7	135	11.7	0.311	13.6	LOS A	0.9	6.5	0.78	0.95	0.92	52.5
Approach		449	7.3	449	7.3	0.328	11.2	LOS A	1.6	11.7	0.67	0.91	0.80	51.5
All Vehicles		1993	6.3	1993	6.3	0.495	5.0	NA	4.2	30.6	0.37	0.30	0.52	65.2

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.
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: 213 [2034 dev Elizabeth Dr/ Luddenham Rd PM]

Network: N211 [2034 dev PM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
22	T1	863	8.3	863	8.3	0.453	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.8
23	R2	175	1.8	175	1.8	0.147	8.7	LOS A	0.7	4.8	0.48	0.70	0.48	58.0
Approach		1038	7.2	1038	7.2	0.453	1.5	NA	0.7	4.8	0.08	0.12	0.08	75.0
NorthEast: Luddenham Road														
24	L2	451	0.0	451	0.0	0.374	8.7	LOS A	2.0	14.3	0.48	0.73	0.52	57.8
26	R2	337	0.0	337	0.0	1.582	553.3	LOS F	83.7	585.9	1.00	4.43	18.93	6.0
Approach		787	0.0	787	0.0	1.582	241.7	LOS F	83.7	585.9	0.70	2.31	8.39	9.4
NorthWest: Elizabeth Drive														
27	L2	91	1.2	91	1.2	0.047	7.0	LOS A	0.0	0.0	0.00	0.63	0.00	65.0
28	T1	318	9.9	318	9.9	0.167	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
Approach		408	8.0	408	8.0	0.167	1.6	NA	0.0	0.0	0.00	0.14	0.00	73.8
All Vehicles		2234	4.8	2234	4.8	1.582	86.2	NA	83.7	585.9	0.29	0.89	3.00	21.4

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: 201 [2039 dev The Northern Rd/ Adams Rd AM]

Network: N201 [2039 dev AM]

Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 110 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: The Northern Road														
1b	L3	34	15.6	34	15.6	0.037	16.3	LOS B	0.7	5.4	0.38	0.67	0.38	52.8
2	T1	1635	14.4	1635	14.4	0.889	33.7	LOS C	47.4	372.1	0.91	0.94	1.05	46.0
3a	R1	285	4.8	285	4.8	0.738	31.6	LOS C	9.3	68.0	0.99	0.86	1.05	34.2
Approach		1954	13.0	1954	13.0	0.889	33.1	LOS C	47.4	372.1	0.91	0.92	1.04	44.9
NorthEast: Adams Road														
24a	L1	117	8.1	117	8.1	0.178	21.8	LOS B	3.3	24.6	0.71	0.72	0.71	48.4
8	T1	1	0.0	1	0.0	0.005	49.1	LOS D	0.1	0.4	0.92	0.56	0.92	34.7
26b	R3	16	53.3	16	53.3	0.240	67.1	LOS E	0.9	9.1	0.99	0.70	0.99	27.5
Approach		134	13.4	134	13.4	0.240	27.3	LOS B	3.3	24.6	0.75	0.72	0.75	44.3
North: The Northern Road														
7b	L3	68	18.5	68	18.5	0.113	19.7	LOS B	1.3	10.8	0.63	0.72	0.63	44.5
8	T1	895	19.4	895	19.4	0.709	32.4	LOS C	20.6	168.3	0.92	0.81	0.92	46.8
9a	R1	34	15.6	34	15.6	0.239	59.7	LOS E	1.8	14.1	0.97	0.73	0.97	32.4
Approach		997	19.2	997	19.2	0.709	32.4	LOS C	20.6	168.3	0.90	0.80	0.90	46.0
SouthWest: Adams Road														
30a	L1	33	16.1	33	16.1	0.080	39.7	LOS C	1.4	10.9	0.81	0.70	0.81	36.6
2	T1	1	0.0	1	0.0	0.005	48.0	LOS D	0.1	0.4	0.92	0.54	0.92	23.6
32b	R3	33	16.1	33	16.1	0.407	65.7	LOS E	1.8	14.7	1.00	0.73	1.00	29.0
Approach		66	15.9	66	15.9	0.407	52.7	LOS D	1.8	14.7	0.91	0.71	0.91	32.2
All Vehicles		3151	15.0	3151	15.0	0.889	33.1	LOS C	47.4	372.1	0.90	0.87	0.98	44.8

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.
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
P11	South Stage 1	53	49.3	LOS E	0.2	0.2	0.95	0.95
P12	South Stage 2	53	23.0	LOS C	0.1	0.1	0.89	0.89
P1B	South Slip/Bypass Lane Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P3	NorthEast Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P31	North Stage 1	53	49.3	LOS E	0.2	0.2	0.95	0.95

P32	North Stage 2	53	49.3	LOS E	0.2	0.2	0.95	0.95
P3B	North Slip/Bypass Lane Crossing	53	23.0	LOS C	0.1	0.1	0.89	0.89
P1	SouthWest Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		421	42.7	LOS E			0.93	0.93

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: 202 [2039 dev Elizabeth Dr/ Adams Rd AM]

Network: N201 [2039 dev AM]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
21	L2	77	63.0	77	63.0	0.250	8.1	LOS A	0.0	0.0	0.00	0.11	0.00	77.8
22	T1	352	15.9	352	15.9	0.250	0.0	LOS A	0.0	0.0	0.00	0.11	0.00	77.8
Approach		428	24.3	428	24.3	0.250	1.5	NA	0.0	0.0	0.00	0.11	0.00	77.8
NorthWest: Elizabeth Drive														
28	T1	971	12.0	971	12.0	0.660	1.9	LOS A	5.4	42.5	0.37	0.10	0.61	72.9
29	R2	157	32.9	157	32.9	0.660	13.4	LOS A	5.4	42.5	0.37	0.10	0.61	61.7
Approach		1127	14.9	1127	14.9	0.660	3.5	NA	5.4	42.5	0.37	0.10	0.61	72.3
SouthWest: Adams Road														
30	L2	598	8.1	598	8.1	0.411	8.3	LOS A	2.5	19.1	0.48	0.72	0.54	53.3
32	R2	242	20.0	242	20.0	0.856	30.4	LOS C	3.7	30.3	0.97	1.28	2.36	41.1
Approach		840	11.5	840	11.5	0.856	14.6	LOS B	3.7	30.3	0.62	0.88	1.07	47.1
All Vehicles		2396	15.4	2396	15.4	0.856	7.1	NA	5.4	42.5	0.39	0.38	0.66	61.1

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: 203 [2039 dev Elizabeth Dr/ Luddenham Rd AM]

Network: N201 [2039 dev AM]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
22	T1	617	25.9	617	25.9	0.359	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.8
23	R2	333	0.6	333	0.6	0.765	27.4	LOS B	5.6	39.6	0.93	1.25	2.17	41.7
Approach		949	17.1	949	17.1	0.765	9.6	NA	5.6	39.6	0.33	0.44	0.76	60.4
NorthEast: Luddenham Road														
24	L2	347	5.8	347	5.8	0.593	16.4	LOS B	3.5	25.8	0.81	1.07	1.39	47.1
26	R2	144	1.5	144	1.5	1.659	652.4	LOS F	41.0	290.3	1.00	2.70	10.59	5.1
Approach		492	4.5	492	4.5	1.659	202.9	LOS F	41.0	290.3	0.86	1.55	4.09	10.0
NorthWest: Elizabeth Drive														
27	L2	342	0.0	342	0.0	0.178	7.0	LOS A	0.0	0.0	0.00	0.63	0.00	65.4
28	T1	764	16.3	764	16.3	0.418	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.8
Approach		1106	11.2	1106	11.2	0.418	2.2	NA	0.0	0.0	0.00	0.19	0.00	72.3
All Vehicles		2547	12.1	2547	12.1	1.659	43.7	NA	41.0	290.3	0.29	0.55	1.07	32.5

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: 211 [2039 dev The Northern Rd/ Adams Rd PM]

Network: N211 [2039 dev PM]

Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 90 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: The Northern Road														
1b	L3	34	9.4	34	9.4	0.038	16.5	LOS B	0.6	4.7	0.43	0.68	0.43	52.7
2	T1	1200	8.1	1200	8.1	0.677	19.5	LOS B	20.3	151.9	0.83	0.74	0.83	56.0
3a	R1	123	1.7	123	1.7	0.733	53.7	LOS D	5.8	41.1	1.00	0.85	1.19	24.4
Approach		1357	7.5	1357	7.5	0.733	22.5	LOS B	20.3	151.9	0.84	0.75	0.85	52.6
NorthEast: Adams Road														
24a	L1	383	3.6	383	3.6	0.804	43.9	LOS D	17.3	125.1	1.00	0.93	1.14	37.9
8	T1	1	0.0	1	0.0	0.005	40.7	LOS C	0.0	0.3	0.92	0.56	0.92	37.7
26b	R3	54	5.9	54	5.9	0.514	55.3	LOS D	2.5	18.3	1.00	0.76	1.02	33.7
Approach		438	3.8	438	3.8	0.804	45.3	LOS D	17.3	125.1	1.00	0.90	1.13	37.4
North: The Northern Road														
7b	L3	37	28.6	37	28.6	0.046	16.5	LOS B	0.7	5.8	0.42	0.67	0.42	48.4
8	T1	1482	6.2	1482	6.2	0.826	25.9	LOS B	30.7	226.2	0.93	0.90	1.01	51.0
9a	R1	34	9.4	34	9.4	0.211	49.4	LOS D	1.4	10.9	0.96	0.72	0.96	35.7
Approach		1553	6.8	1553	6.8	0.826	26.2	LOS B	30.7	226.2	0.92	0.89	0.99	50.5
SouthWest: Adams Road														
30a	L1	37	11.4	37	11.4	0.081	32.0	LOS C	1.2	9.5	0.79	0.70	0.79	40.2
2	T1	1	0.0	1	0.0	0.005	39.6	LOS C	0.0	0.3	0.92	0.54	0.92	26.4
32b	R3	36	11.8	36	11.8	0.356	53.7	LOS D	1.6	12.6	0.99	0.73	0.99	32.4
Approach		74	11.4	74	11.4	0.356	42.7	LOS D	1.6	12.6	0.89	0.71	0.89	35.8
All Vehicles		3421	6.8	3421	6.8	0.826	27.5	LOS B	30.7	226.2	0.90	0.83	0.95	48.6

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
P11	South Stage 1	53	39.3	LOS D	0.1	0.1	0.94	0.94
P12	South Stage 2	53	39.3	LOS D	0.1	0.1	0.94	0.94
P1B	South Slip/Bypass Lane Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
P3	NorthEast Full Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
P31	North Stage 1	53	39.3	LOS D	0.1	0.1	0.94	0.94

P32	North Stage 2	53	39.3	LOS D	0.1	0.1	0.94	0.94
P3B	North Slip/Bypass Lane Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
P1	SouthWest Full Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94
All Pedestrians		421	39.3	LOS D			0.94	0.94

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: 212 [2039 dev Elizabeth Dr/ Adams Rd PM]

Network: N211 [2039 dev PM]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
21	L2	49	36.2	49	36.2	0.381	7.6	LOS A	0.0	0.0	0.00	0.04	0.00	78.7
22	T1	679	5.7	679	5.7	0.381	0.1	LOS A	0.0	0.0	0.00	0.04	0.00	78.7
Approach		728	7.8	728	7.8	0.381	0.6	NA	0.0	0.0	0.00	0.04	0.00	78.7
NorthWest: Elizabeth Drive														
28	T1	544	2.9	544	2.9	0.446	2.8	LOS A	3.4	24.7	0.50	0.20	0.73	69.8
29	R2	164	10.3	164	10.3	0.446	12.6	LOS A	3.4	24.7	0.50	0.20	0.73	55.3
Approach		708	4.6	708	4.6	0.446	5.0	NA	3.4	24.7	0.50	0.20	0.73	68.2
SouthWest: Adams Road														
30	L2	442	3.8	442	3.8	0.427	10.4	LOS A	2.5	18.2	0.64	0.93	0.87	50.3
32	R2	186	8.5	186	8.5	0.365	12.6	LOS A	1.1	8.1	0.75	0.95	0.95	54.0
Approach		628	5.2	628	5.2	0.427	11.1	LOS A	2.5	18.2	0.67	0.94	0.89	51.9
All Vehicles		2065	5.9	2065	5.9	0.446	5.3	NA	3.4	24.7	0.38	0.37	0.52	64.0

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: 213 [2039 dev Elizabeth Dr/ Luddenham Rd PM]

Network: N211 [2039 dev PM]

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

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Elizabeth Drive														
22	T1	933	8.1	933	8.1	0.490	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.7
23	R2	188	1.7	188	1.7	0.142	8.2	LOS A	0.7	4.7	0.42	0.65	0.42	58.4
Approach		1121	7.0	1121	7.0	0.490	1.4	NA	0.7	4.7	0.07	0.11	0.07	75.1
NorthEast: Luddenham Road														
24	L2	467	0.0	467	0.0	0.358	8.1	LOS A	1.8	12.7	0.42	0.67	0.42	58.3
26	R2	349	0.0	349	0.0	1.687	646.8	LOS F	95.3	667.3	1.00	4.69	20.35	5.2
Approach		817	0.0	817	0.0	1.687	281.4	LOS F	95.3	667.3	0.67	2.39	8.95	8.2
NorthWest: Elizabeth Drive														
27	L2	67	1.6	67	1.6	0.035	7.0	LOS A	0.0	0.0	0.00	0.63	0.00	64.9
28	T1	241	11.8	241	11.8	0.128	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	80.0
Approach		308	9.6	308	9.6	0.128	1.5	NA	0.0	0.0	0.00	0.14	0.00	73.8
All Vehicles		2246	4.8	2246	4.8	1.687	103.2	NA	95.3	667.3	0.28	0.94	3.29	18.8

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.


Turbot St
Exit


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