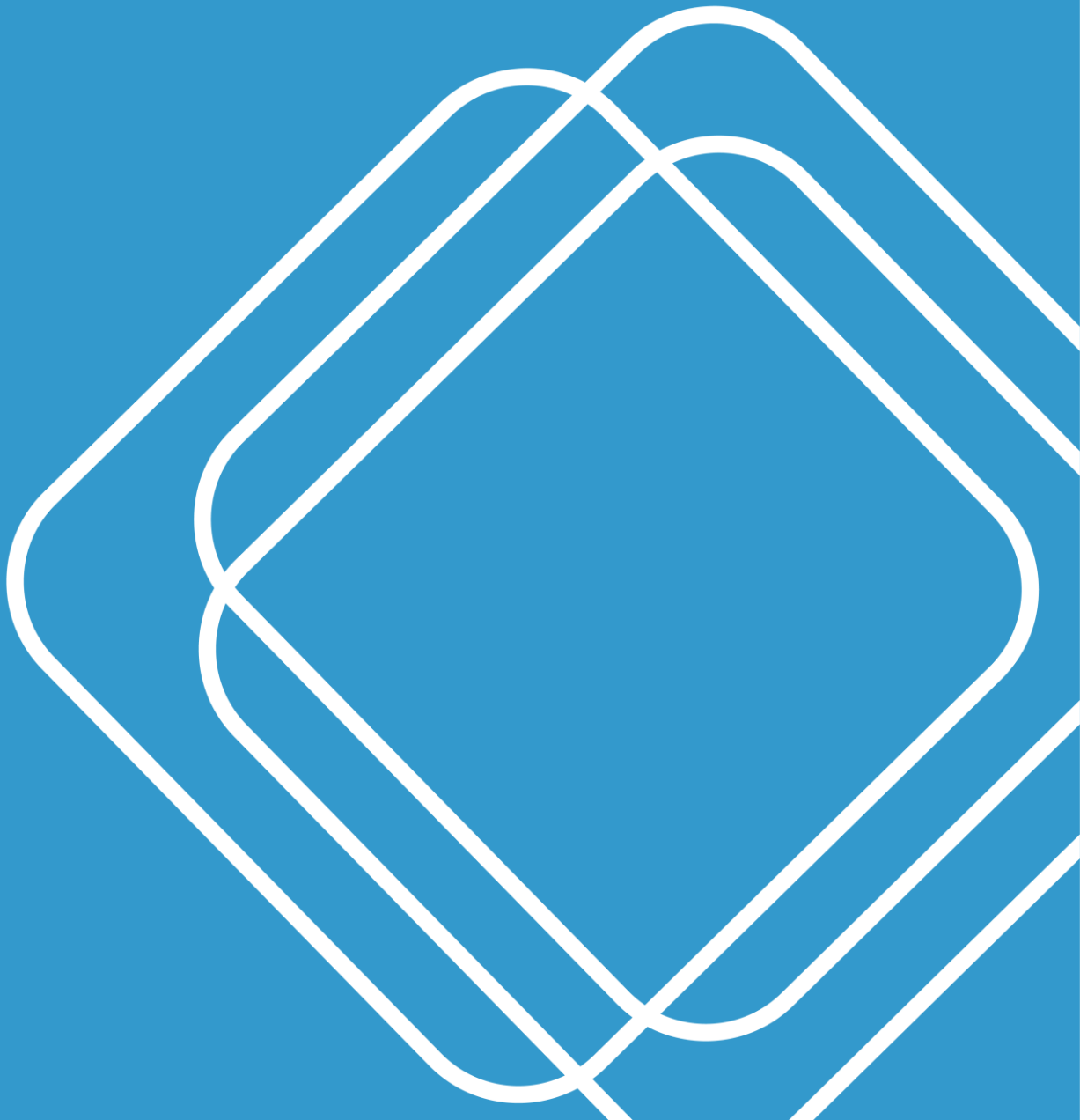


HILLS SHOWGROUND STATION PRECINCT

Updated Traffic and Transport Assessment

16 SEPTEMBER 2020





Quality Assurance

Project:	Hills Showground Station Precinct		
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Executive Summary

Background and introduction

Sydney Metro is Australia's biggest public transport project. This new standalone railway will deliver 31 metro stations and more than 66 kilometres of new metro rail, revolutionising the way Sydney travels. The Metro North West Line opened in May 2019 between Tallawong and Chatswood.

When Sydney Metro is extended into the central business district (CBD) and beyond in 2024, metro rail will run from Sydney's North West region under Sydney Harbour, through new underground stations in the CBD and beyond to the south west.

Landcom and Sydney Metro are working in collaboration to develop walkable, attractive, mixed use places around the Metro North West Line stations. This includes using government owned land located adjacent to the Hills Showground Station. The subject site, the Hills Showground Station Precinct is bounded by De Clambe Drive to the north and west, Carrington Road to the south and Showground Road to the east.

This report has been updated to address all relevant feedback for transport, traffic, parking and access provided after the public exhibition of the SSDA. This report and the updated traffic assessment also reflected the updated Concept Proposal and the associated development yield

The proposal

SCT Consulting was engaged to carry out a Traffic and Transport Assessment to support a State Significant Development Application (SSDA) for the subject site. The updated Concept Proposal is a transit-oriented mixed-use development that could comprise up to 1,620 dwellings and up to a maximum of 13,940 m² of non-residential including commercial, retail and community space.

Up to 1,957 car parking spaces and 705 bicycle parking spaces are also proposed, based on the yield and land use mix of the proposed development and the recommended maximum car parking rates and minimum bicycle parking rates for each type of uses respectively.

The SSDA would facilitate development which supports best practice transit-oriented development principles, by providing increased residential and employment density in proximity to existing and planned transport infrastructure upgrades that provides employees with greater access to public transport and employment options, while promoting the use of sustainable travel options.

The updated Concept Proposal responds to the opportunity to create a transit-oriented centre by reducing the amount of car parking, reflecting the higher level of public transport services and providing walking and cycling facilities to enhance seamless connections with the regional facilities, in this case the Metro North West Line and its connecting bus network. Hence the need to predict and provide parking provision based on historical data / trends does not align with the principle of the Hills Showground Station Precinct.

The recommended parking rates is part of the proposal to encourage public transport use and minimise traffic impacts, as shown below:

Land use		Minimum car parking rates	Maximum car parking rates	Bicycle parking rates (minimum)
Market housing	1 Bed	0.4 space per dwelling	An average of 1 space per market housing apartment (as an overall cap) *	One space per three apartments for resident and one visitor space per 12 apartments
	2 Bed	0.7 space per dwelling		
	3 Bed	1.0 space per dwelling		
	Visitor	0.1 spaces per dwelling		
Affordable housing	1 Bed	0.4 space per dwelling		
	2 Bed	0.5 space per dwelling		
	3 Bed	1.0 space per dwelling		
	Visitor	-	0.1 spaces per dwelling	

Land use	Minimum car parking rates	Maximum car parking rates	Bicycle parking rates (minimum)
Retail	1 space per 130 m ² – 60 m ² GFA		One space per 450 m ² GFA for staff
Office / commercial	1 space per 145 m ² – 100 m ² GFA		One space per 600 m ² GFA for staff
Car share spaces	One space per 150 car spaces for residential and one space per 80 car parking spaces for commercial		-

Source: SCT Consulting, 2020

*- Future developers will have the flexibility to distribute the car park provision across the different-sized market housing products without going below the minimum rates but also not exceeding the overall cap based on an average of 1 space per market housing apartment. This approach is to ensure residential parking rates allow for flexibility to meet the future demographic needs and ongoing modal shift towards more sustainable transport outcomes.

Trip generation and traffic impacts

The updated Concept Proposal would generate 702 and 964 peak hour vehicular trips during the AM and PM peak hours respectively. The proposed cap on vehicular parking spaces significantly below the requirements of the rates suggested in The Hills Development Control Plan as well as the location of the site's proximity to frequent metro services are tools used to reduce the traffic impacts of this proposal.

As a result of the further reduced parking provision from the previously exhibited parking rates for the residential component of the proposal, the traffic generation could also be reduced proportionally. However, we have retained the same peak hour trip generation rates of the residential component as per previously exhibited as a conservative approach to consider the likely traffic and mitigation measures required.

Key roads servicing the development are Showground Road and Carrington Road. The intersections modelled in SIDRA Network were:

- Showground Road / Gilbert Road;
- Showground Road / De Clambe Drive;
- Showground Road / Carrington Road;
- Carrington Road / Andalusian Way / Middleton Avenue;
- Carrington Road / Doran Drive;
- Carrington Road / De Clambe Drive; and
- Carrington Road / Victoria Avenue.

The modelled road network currently operates with a performance of Level of Service D or better. The traffic modelling suggests that the following infrastructure upgrades may be required to cater for background traffic growth and the development traffic by 2031:

- Additional eastbound lane on Showground Road between the approach to Gilbert Avenue and the approach to De Clambe Drive;
- Additional lane on Carrington Road in both directions between Showground Road and Andalusian Way;
- Additional turning lanes from Showground Road to Carrington Road;
- Additional left turn slip lane from Carrington Road to Showground Road; and
- Signalisation of Carrington Road / Victoria Avenue intersection with additional turning lanes.

According to the Showground Station Precinct Contributions Plan No. 19, the signalisation of Carrington Road and Victoria Avenue has already been included to meet the future demand, whilst ensuring an acceptable level of access, safety and convenience for all street and road users within the Showground Precinct. Hence, the upgrade of this intersection, as confirmed by the traffic modelling to cater for background traffic growth and development traffic, should be paid off by all relevant Section 7.11 contributions. A traffic signals warrant has also been undertaken to confirm that this intersection should warrant a traffic signal based the expected traffic demand in 2031.

On the other hand, as also stated in the Contributions Plan No. 19, the upgrade of Showground Road / Carrington Road will be provided by parties other than Council (including Transport for NSW and future individual developers within the Precincts) as development occurs. It should be noted that the Showground Road / Carrington Road intersection upgrades had secured funding through the Federal and State Governments. This was announced on 29 June 2020 as part of the Stimulus Package.

It is also estimated the development would generate approximately 583 and 464 person-trips during the weekday AM and PM peak hours respectively – i.e. trips across all modes of transport. Given the site is located adjacent to the Hills Showground Station, most of the walking trips are expected to be using surrounding public transport services and a small proportion would be walking / cycling to / from local origins. Given the high frequency of train services, the pedestrian demand between the proposed development and the station would be very well-spread across the peak hours, hence reducing the likely crowding levels and the need for additional upgrade of current footpaths and shared paths which are delivered for significantly higher demand and are currently observed to have significant spare capacities.

The additional public transport trips generated during the peak hours can be accommodated through the current high frequency Metro services (4-minute frequency during the peak hours) and up to 35 bus services per hour across seven bus routes in both directions during AM and PM peak hour periods.

Conclusion

This Traffic and Transport Assessment concludes that:

- The location of the site directly adjacent to Hills Showground Station will provide future residents and employees with improved access to high frequency public transport services, which will provide an alternative to private vehicle use especially for commuter trips;
- Footpath and pedestrian crossing facilities are well provided around the site to support safe and convenient walk to / from Hills Showground Station;
- Dedicated cycle routes around the site connecting to the regional routes will cater for more short trips by cycling to nearby activities and destinations;
- Parking rates are proposed for the updated Concept Proposal to create a transit-oriented centre in line with metro's vision, reflecting the higher level of public transport services and to minimise additional congestion to the surrounding road network; and
- The total number of parking spaces is appropriate for this transit-oriented development and in line with Roads and Maritime Service Guide to Traffic Generating Developments (2002) and will naturally limit the traffic impacts of this proposal. The additional vehicle trips will not have any significant adverse traffic implications on the public road network.

1.0 Introduction

1.1 Context

SCT Consulting was engaged to carry out a Traffic and Transport Assessment to support the concept State Significant Development Application (SSDA) for the Hills Showground Station Precinct site (the site) located in The Hills Local Government Area (LGA). This SSDA is for a concept plan and seeks consent for building envelopes and Gross Floor Area (GFA) for residential and non-residential development on the three development lots located at the newly opened Hills Showground Station. The site is bounded by Carrington Road to the south, Showground Road to the east, De Clambe Drive to the north and west, as shown in **Figure 1–1**.

The updated Concept Proposal is a transit-oriented mixed-use development that could comprise up to 1,620 dwellings and up to a maximum of 13,940 m² of non-residential space.

Figure 1–1 Location of the subject site



Source: Cox, June 2019

1.2 Planning background

Sydney Metro is Australia's biggest public transport project. As a new standalone railway, this 21st century network will revolutionise the way Sydney travels.

The Sydney Metro program of works includes:

1. Metro North West Line

Passenger services started in May 2019 between Tallawong and Chatswood, with a driverless metro train every four minutes in the peak.

2. Sydney Metro City & Southwest

A new 30km line extending metro rail from Chatswood, under Sydney Harbour, through new CBD stations and southwest to Bankstown. It is due to open in 2024 with the ultimate capacity to run a metro train every two minutes each way through the centre of Sydney.

Sydney Metro City & Southwest will deliver new metro stations at Crows Nest, Victoria Cross, Barangaroo, Martin Place, Pitt Street, Waterloo and new underground metro platforms at Central Station. In addition, it will upgrade and convert all 11 stations between Sydenham and Bankstown to metro standards.

3. Sydney Metro West

Sydney Metro West is a new underground railway between Greater Parramatta and Sydney. This once-in-a-century infrastructure investment will transform Sydney for generations to come, doubling rail capacity between these two areas, linking new communities to rail services and unlocking housing supply and employment growth between the two CBDs.

Sydney Metro West will service key precincts, with stations at Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock, The Bays and the Sydney CBD. A potential station at Pyrmont is being investigated.

4. Sydney Metro Greater West

Metro rail will also service Greater Western Sydney and the new Western Sydney International (Nancy Bird Walton) Airport. The new railway line will become the transport spine for the Western Parkland City's growth for generations to come, connecting communities and travellers with the rest of Sydney's public transport system with a fast, safe and easy metro service. The Australian and NSW governments are equal partners in the delivery of this new railway.

The Metro North West Line, with 13 stations is a catalyst for urban renewal, providing connections to areas that will be transformed through both NSW Government and private investment.

NSW Government-owned land surrounding the metro stations includes land that is no longer required to support operation. These sites have been made available for development that supports NSW Government priorities of housing affordability, local infrastructure delivery and economic development.

Landcom is the master developer for government land around new stations. As a master developer, Landcom is leading studies to support planning for project sites, work with local councils, DPIE and other government agencies, local business and communities to shape plans for projects. Landcom will appoint private sector development partners to deliver projects across the program.

The Showground Station Precinct is one of eight urban transformation projects under the Sydney Metro Northwest Places (SMNWP) Program, with the other seven sites around new metro stations being Cherrybrook, Castle Hill, Norwest, Bella Vista, Kellyville and Tallawong, as well as around the existing Epping Station. The context of the Showground Station Precinct site is shown in **Figure 1–2**.

Figure 1–2 Sydney Metro Northwest Places map



Source: Landcom, 2018

The site forms part of the wider Showground Station Precinct that was rezoned in 2017 by the Department of Planning, Industry and Environment (DPIE) as part of the Planned Precincts Program (formerly known as a priority precinct). The precinct covers 271 hectares and is bounded by Showground Road and Kathleen Avenue to the north, and Windsor Road to the west and south. The eastern boundary runs along a number of local residential streets including Fishburn Crescent, Anthony Road and Parsonage Road.

The rezoning of the wider Showground Station Precinct, along with changes to height, density, and lot size controls, as well as other supporting controls will:

- Transform the area around the Hills Showground Station into a vibrant urban centre;
- Provide for a maximum of 5,000 new dwellings and 2,300 new jobs over the next 20 years;
- Deliver nearly two hectares of parks and new open space; and
- Provide community facilities, recreation areas and a mix of housing choice for people at all life stages.

The Hills Showground Station Precinct site is currently envisaged as a transit-oriented mixed-use development that links with the station and may include residential, retail, community and commercial office land uses. Car parking provision will recognise the transit-oriented development nature of the development.

Once the SSDA is approved, the successful purchasers of the development lots from Sydney Metro, will be responsible for submitting subsequent detailed development applications (DAs) for the design and construction of the buildings in accordance with the concept approval.

A literature review of other relevant planning documents and their implications on the development of the updated Concept Proposal as well as the Traffic and Transport Assessment is included in Section 2 of the report.

1.3 Purpose of report

The purpose of this Traffic and Transport Assessment is to support the SSDA for a proposed mixed-use development at the Hills Showground Station Precinct site.

This report has addressed the Secretary's Environmental Assessment Requirements for the concept proposal for a mixed-use development at Hills Showground Station Precinct site, issued on 9 October 2019, for transport, traffic, parking and access.

The report has particularly addressed / provided:

- The projected additional yields and traffic volumes for the Precinct and assess the cumulative impacts of the proposal in its developing context;
- Accurate details of the current daily and peak hour vehicle, public transport, point to point transport services, pedestrian and bicycle movements from existing or former buildings/uses on the site using the adjacent and surrounding road network;
- Forecast total daily and peak hour trips likely to be generated by the proposed development including vehicle, public transport, point to point transport services, pedestrian and bicycle trips, together with cumulative impacts of existing, proposed and approved developments in the area and any transport/traffic changes anticipated for the road network;
- Detailed assessment of the existing and future performance of key intersections providing access to the site, supported by appropriate modelling and analysis to the satisfaction of the relevant road authorities and TfNSW;
- Proposed measures to mitigate impacts of the proposed development on the operation of existing and future traffic, public transport, pedestrian and bicycle networks including any required upgrades;
- Proposed measures to be implemented to encourage users of the development to make sustainable travel choices, including walking, cycling, public transport and car sharing, such as the integration with rail and bus infrastructure and provision of adequate bicycle parking and end of trip facilities;
- Proposed car and bicycle parking provision for residents, workers and visitors, including consideration of the availability of public transport and the requirements of the relevant parking codes and Australian Standards;
- Proposed provision of any bus service infrastructure and pedestrian connections to support the bus/rail interchange function of the station, including an assessment of the public domain surrounding the site to accommodate the future pedestrian demands safely and adequately and mitigation measures identified;

- Proposed vehicle access arrangements, including for service and loading activities and measures to mitigate impacts to bus services and passengers interchanging between bus and rail; and
- Describe preliminary construction traffic arrangements and management measures, including consideration of the cumulative construction traffic impacts from infrastructure works in the surrounding road / transport network.

This report has been updated to address all relevant feedback for transport, traffic, parking and access provided after the public exhibition of the SSDA. This report and the updated traffic assessment also reflected the updated Concept Proposal and the associated development yield (see **Section 4.0**). A summary of the key changes from the original Concept Proposal to the updated Concept Proposal is shown in **Table 1-1**.

Table 1-1 Comparison of original concept proposal with amended concept proposal

Item	SSDA Submission	Concept proposal as amended (RtS Report)	Justification for changes in amended concept proposal	Reference
Development yield				
Total GFA	175,796 m ²	166,486 m ²	<p>The amended Concept Plan has an overall reduction in GFA with 1,620 residential dwellings (reduced from 1,800-1,900 dwellings) with similar scale of non-residential GFA. The mix of apartments have also been amended with provision of more 3-bedroom apartments.</p> <p>Refer to RtS and Urban Design report for justification of these changes in detailed.</p>	
Commercial/retail GFA	6,700-13,600 m ²	13,940 m ²		
Residential dwellings	1,800-1,900	1,620		
Apartment mix	35% 1 bedroom, 55% 2-bedroom and 10% 3-bedroom	25% 1 bedroom, 55% 2-bedroom and 20% 3-bedroom		
Affordable housing	a minimum of five percent of affordable housing for a 10-year term across the precinct	a minimum of five percent of affordable housing for a 10-year term across the precinct		
Total car parking	1,804-2,273 spaces	1,357-1,957 spaces	<p>As a result of submissions received, parking rates for residential development are recommended with a cap of an average of one space per market housing apartment in order to encourage public transport and other sustainable transport options and minimise the impact to road traffic.</p> <p>The maximum rate proposed has been <u>reduced</u> from the rates that were previously exhibited while the minimum rates are guided by the requirements of the SEPP and Apartment Design Guide.</p>	Refer to section 4.4.1 and 4.4.2
Residential	1,515-1,888 spaces	1,111-1,620 spaces (based on total capped residential yield of 1,620 dwellings with respective minimum and maximum rates of market housing products, which will be further reduced when the quantity and location of affordable housing is confirmed at detailed design stage)		
Visitor	181-188 spaces	162 spaces		
Non-residential	101-197 spaces	104-203 spaces		

Item	SSDA Submission	Concept proposal as amended (RtS Report)	Justification for changes in amended concept proposal	Reference
Shared Vehicle	13-16 spaces that offset 39-48 normal parking spaces	10-14 spaces that offset 30-42 normal parking spaces	The shared vehicle parking rate remains unchanged. The parking spaces have been amended based on the latest non-residential GFA and residential dwelling yield.	Refer to section 4.4.1.2
Bicycle parking	799	705	The bicycle parking rate remains unchanged. The parking spaces have been amended based on the latest non-residential GFA and residential dwelling yield.	Refer to section 4.4.1.3
Trip generation rates				
Residential	0.19 and 0.15 trips per apartment for AM and PM peak, 0.57 trips per townhouse	0.19 and 0.15 trips per apartment for AM and PM peak, 0.57 trips per townhouse	The residential trip rates remain unchanged. As a result of the further reduced parking provision from the previously exhibited parking rates for the residential component of the proposal, the traffic generation could also be reduced proportionally. However, we have retained the same peak hour trip generation rates of the residential component as per previously exhibited as a conservative approach to consider the likely traffic and mitigation measures required.	Refer to section 4.6.1
Commercial	1.6 and 1.2 trips per 100m ² GFA for AM and PM peak	1.6 and 1.2 trips per 100m ² GFA for AM and PM peak	The commercial trip rates remain unchanged.	Refer to section 4.6.2
Retail	5.9 and 12.3 trips per 100m ² GFA for AM and PM peak	5.9 and 12.3 trips per 100m ² GFA for AM and PM peak	The retail trip rates remain unchanged.	Refer to section 4.6.3

Source: SCT Consulting, 2020

1.4 Report structure

This report has been structured into the following sections:

- **Section 2** considers the transport planning context;
- **Section 3** describes the existing transport conditions for all modes of transport;
- **Section 4** describes the proposed development and its access strategy as well as the likely trip generation as a result of the proposed development;
- **Section 5** describes the likely cumulative impacts for all transport modes and parking impacts as a result of the proposed development; and
- **Section 6** summarises the report content and presents the final conclusions.

2.0 Transport planning context

This section of the report provides a summary of key planning and transport context that are relevant for the planning of traffic and transport infrastructure and services to support the development of the Hills Showground Station Precinct site. Hence the majority of discussion of the context relates to wider area outside of the DGL site, such as the wider Showground Station Precinct (that includes the Castle Hill Showground site), The Hills Corridor Strategy along the Metro North West Line, the draft Local Strategic Planning Strategy for The Hills LGA, the Central City District Plan as well as State Government plans and strategies.

These planning documents contain principles and strategies of potential traffic and transport infrastructure and services to guide the planning of land use and transport changes within the study area and in the wider surrounding context. The specific traffic and transport infrastructure and services discussed in this chapter should be read as planning context and they may not be infrastructure and services proposed to service the site and the development as proposed in this SSDA. In some cases, previous proposals (such as a proposed street network for the wider area that connects to Gilbert Road), the proposals may no longer be relevant.

The specific traffic and transport infrastructure and services proposed to service the site and the development as proposed in this SSDA, are further discussed and included in **Section 4.0** of this report.

2.1 The NSW Government Future Transport 2056 Strategy

The Future Transport Strategy 2056 (The NSW Government, 2018) is an update of NSW's Long-Term Transport Master Plan. It is a vision for how transport can support growth and the economy of New South Wales over the next 40 years. The strategy is underpinned by the Regional Services and Infrastructure Plan and the Greater Sydney Services and Infrastructure Plan, as well as a number of supporting plans including Road Safety and Tourism.

The Future Transport Strategy 2056 sets the long-term vision for mobility and transport provision in NSW, explains how the customer experience of transport will change and what this means for NSW. The Future Transport Strategy 2056 identifies that Sydney will grow as a global metropolis with benefits distributed more evenly across the City. It sets out a vision of three cities to guide many of the planning, investment and customer outcomes including faster, convenient and reliable travel times to major centres, as shown in **Figure 2-1**.

Existing and potential transit connections, together with new technology and innovation, will make the network surrounding the Site more responsive to demand and better able to manage congestion in the future. For the three cities identified, more specific outcomes listed as part of the Strategy which will benefit the Site's transport context, include:

- A 30-minute access for customers to their nearest Centre by public transport 7-days a week;
- Fast and convenient interchanging with walking times no longer than 5 minutes between services;
- Walking or cycling is the most convenient option for short trips around centres and local areas, supported by a safe road environment and attractive paths; and
- Fully accessible transport for all customers.

Figure 2-1 A future metropolis of three cities



Source: The NSW Government Future Transport 2056 Strategy, 2018

The following historic transport strategies were superseded by Future Transport 2056, so no longer have any relevant requirements for this site:

- Sydney's Walking Future;
- Sydney's Cycling Future; and
- Sydney's Bus Future.

2.2 State Infrastructure Strategy

The Future Transport Strategy 2056 was released in coordination with the State Infrastructure Strategy. One of the strategic directions of the strategy was integrating land use and infrastructure planning. The strategy notes that "Further action needs to be taken to identify and protect major infrastructure corridors and supporting and coordinating housing supply plans that align with Regional Plans." (INSW, 2018). One of the key challenges and opportunities is that "the State's growing population and tightening fiscal position make it imperative that we get the most from our current infrastructure stock and that investment in new infrastructure is targeted effectively to meet and shape demand."

Implications for Hills Showground Station Precinct site: Managing the impacts of the development while maximising the use of current infrastructure is critical at this location. With major new investment into the Sydney Metro, Showground and Carrington road upgrades, the site is well placed to benefit from current capacity without the need for significant additional expenditure.

2.3 Central City District Plan

The vision for the Central City District is to help residents have quicker and easier access to a wider range of jobs, housing types and activities as part of the transformation of their District. The vision will improve the District's lifestyle and environmental assets as shown in **Figure 2-2**.

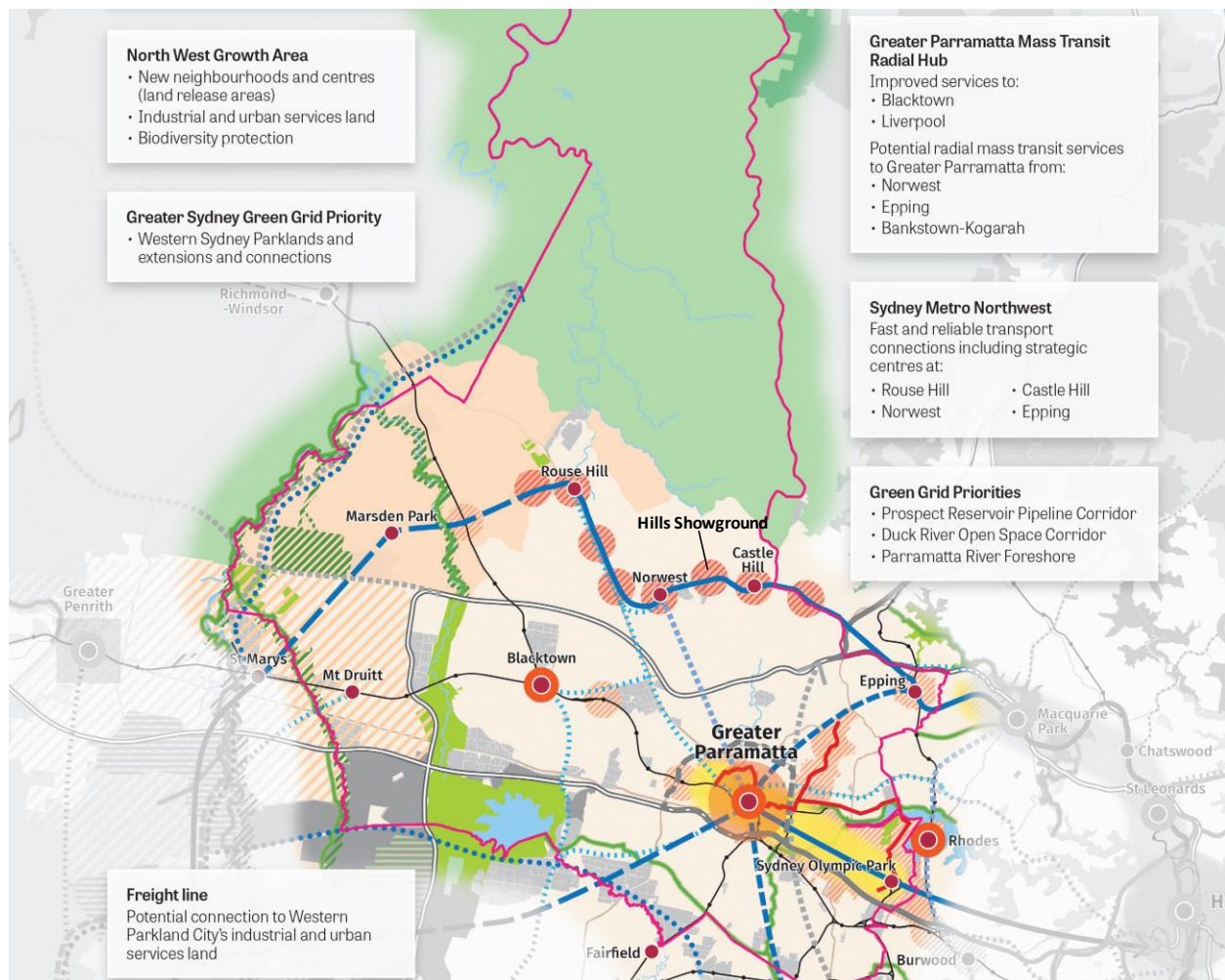
The Central City District covers Blacktown, Cumberland, Parramatta and The Hills local government areas. The Central City District Plan is a 20-year plan to manage growth in the context of economic, social and environmental matters to achieve the 40-year version of Greater Sydney.

The District Plan informs local strategic planning statements and local environmental plans, the assessment of planning proposals as well as community strategic plans and policies. The District Plan also assists councils to plan for and support growth and change and align their local planning strategies to place-based outcomes. It guides the decisions of State agencies and informs the private sector and the wider community of approaches to manage for growth and change. Community engagement on the District Plan has contributed to a plan for growth that reflects local values and aspirations, in a way that balances regional and local considerations.

The Hills Showground Station Precinct site is identified as a Transit Oriented Development area that has direct access to fast and reliable transport connections to the network. The Metro North West Line and new station at Hills Showground will provide the opportunity to transform the existing area into a transit-oriented, more vibrant and diversified centre with a mix of residential uses and supporting services. The Metro North West Line will also enable faster and more reliable business-to-business connections to other centres such as Macquarie Park and Chatswood.

The vision for Greater Sydney is one where people can access jobs and services in their nearest metropolitan and strategic centre. The 30-minute city is a long-term aspiration that will guide decision-making on locations for new transport, housing, jobs, tertiary education, hospitals and other amenities. It means that they will be planned for metropolitan and strategic centres and more people will have public transport access to their closest metropolitan or strategic centre within 30 minutes. This will enable more efficient access to workplaces, services and community facilities.

Figure 2–2 Future of the Central City District



Source: <https://www.greater.sydney/central-city-district-plan/future-of-central-city%20district>, 2018

As the population of the Central City District grows, land use, transport and infrastructure planning will be integrated. Initiatives to support integration in line with population and economic growth include:

- City-shaping transport providing faster services for a larger number of commuters to better connect people to centres and services – committed and proposed links to the Harbour CBD and the Western Sydney Airport and Badgerys Creek Aerotropolis;
- Capacity and reliability improvements on existing transport corridors serving Greater Parramatta and surrounding centres;
- Improved city-serving and centre-serving transport links between strategic centres, and as feeders into city-shaping corridors including bus priority infrastructure to support new services;
- Improvements to the strategic road network which may include both new roads and road space reallocation to prioritise the efficient movement of people and goods on transport corridors and key intersections to improve movement through the District and access to strategic centres;
- Strategic freight network improvements including the Northern Sydney Freight Line and the Southern Sydney Freight Line;
- Travel behaviour change programs to help manage demand on the transport network;
- On-demand bus services on selected local bus routes, currently being trialled in Greystanes, to provide more convenience and choice for customers, and improving the efficiency of the transport network and providing more choice for first and last mile access to the train network; and
- Investment in Smart Roads, which will support the financial sustainability of the transport system by better using existing road infrastructure and enable future forms of mobility such as connected and automated vehicles.

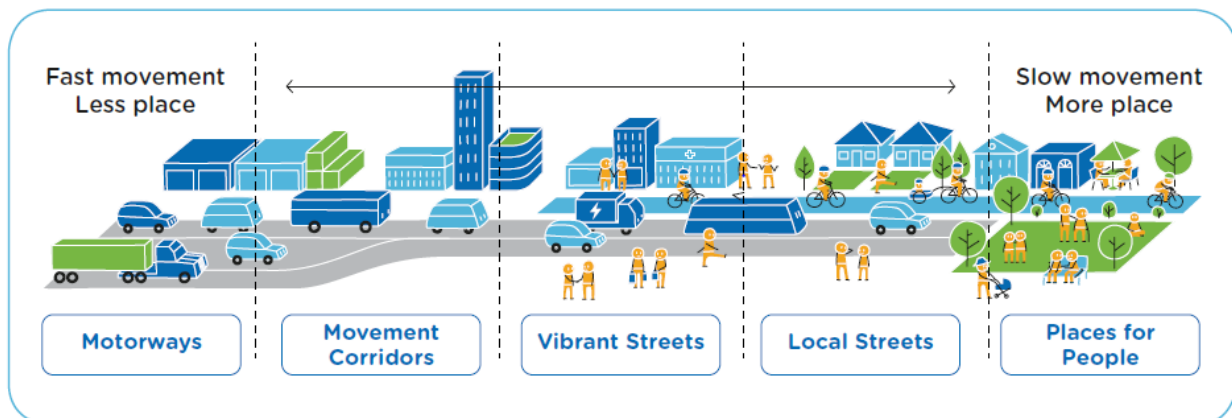
Implications for Hills Showground Station Precinct site: Given the excellent access to the Metro North West Line, Hills Showground can play an important role as a transit-oriented development. Transit-oriented developments must aim to adopt car parking rates that provide a balance between meeting car parking demand whilst encouraging sustainable and active transport use. New developments are encouraged to minimise car parking provision and demonstrate the inclusion of supportive mix of land uses and transport alternatives or strategies to reduce trip generation and discourage private motor vehicle use. The updated Concept Proposal will support future residents who choose to live in a transit-oriented centre with low parking provision and excellent access to public and active transport.

2.4 Greater Sydney Services Infrastructure Plan

The Greater Sydney Services and Infrastructure Plan is a 40-year plan for transport in Sydney. It is designed to support the land use vision for Sydney. Building on the state-wide transport outcomes identified in the Future Transport Strategy 2056, the Plan establishes the specific outcomes transport customers in Greater Sydney can expect and identifies the policy, service and infrastructure initiatives to achieve these.

To support the liveability, productivity and sustainability of places for the transport network, a Movement and Place Framework was developed. The Framework acknowledges that transport networks have different functions and roles and serve as both a destination and as a means to move people and goods. The Movement and Place Framework will enable us to plan, design and operate the transport network to meet these different needs by providing greater transparency, supporting collaboration between those responsible for land use, transport and roads while also encouraging input from the community. Through the framework we will be able to design a future network that is better used and supports the safe, efficient and reliable movement of goods and the need for liveability of places along it.

Figure 2-3 Different movement environments under the Movement and Place Framework



Source: https://future.transport.nsw.gov.au/sites/default/files/media/documents/2018/Future_Transport_2056_Strategy.pdf, 2018

Implication for Hills Showground Station Precinct site: De Clambe Drive, Andalusian Way, Doran Drive would be classified as places for people as they are part of the fabric of the suburban neighbourhood where customers live their lives. The streets will also facilitate local community access to the station.

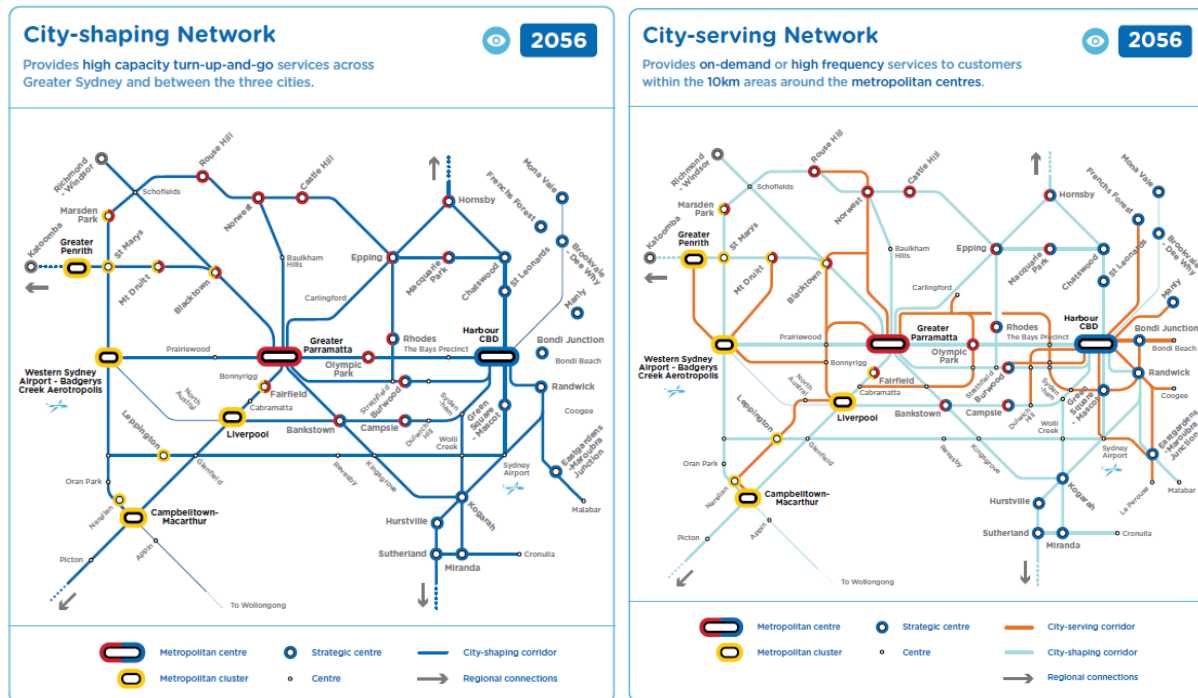
2.4.1 Future Transport Network

2.4.1.1 City-shaping network

The city-shaping network includes higher speed and volume linkages between our cities and centres (**Figure 2-4**). The function of this network is to enable people living in any of the three cities to access their nearest metropolitan centre within 30 minutes and to be able to travel efficiently between these metropolitan centres.

As Greater Sydney transitions to a metropolis of three cities, the city-shaping network will need to expand to provide improved access to and between each metropolitan city/centre, particularly Greater Parramatta and centres in the Metropolitan cluster in the Western Parkland City.

Figure 2–4 City-shaping and City Serving networks - 2056



Source: https://future.transport.nsw.gov.au/wp-content/uploads/2018/plans/Greater_Sydney_Services_Infrastructure_Plan.pdf (April, 2018)

2.4.1.2 City-serving network

The city-serving network will provide high-frequency services within a ~10km radii of the three metropolitan cities/centres (**Figure 2–4**). This will support access within some of the densest land use in Greater Sydney where demand for travel is most concentrated. As these urban areas in each of the three cities develop and become denser, the Government will investigate the prioritisation of on-street public transport services and invest in higher frequency services, providing more travel options for employees and visitors to Hills Showground Station Precinct and the site.

Implication for Hills Showground Station Precinct site: Hills Showground is part of both city-shaping and city-serving networks that would connect Hills Showground to Campbelltown via Western Sydney airport, Parramatta as well as the Harbour CBD. This would bring Hills showground into reach of all three cities by high frequency and high capacity public transport links.

2.4.1.3 Bicycle Network

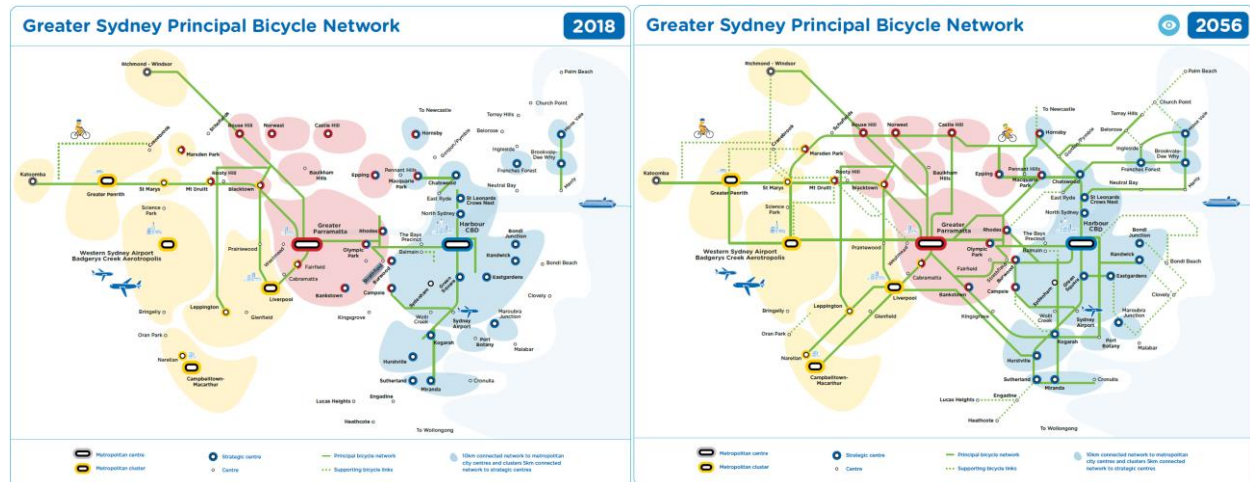
Building on the existing network, the immediate focus for State Government is working with local councils to deliver committed Priority Cycleway projects to address key missing links around the Harbour CBD, Greater Parramatta, Greater Penrith, Blacktown and Liverpool, such as the Nepean River Green Bridge and Inner West Greenway. Council partnership programs are delivering local bicycle infrastructure. Bicycle parking is also being rolled out at interchanges.

By 2056:

- Walking and cycling network coverage will be improved by using state held corridors for public transport, pipelines, waterways, crown land and service easements for bicycle network infrastructure;
- That all strategic centres have connected walking and cycling networks, including strategic centres across the Western Parkland City; and
- Further investment in connections to strategic centres and in the Principal Bicycle Network will support walking or cycling being the most convenient option for short trips, improving health outcomes, safety and convenience for customers as well as boosting the productivity, liveability and sustainability of Greater Sydney.

Figure 2–5 shows the current/committed Greater Sydney Bicycle Network alongside the envisioned 2056 Bicycle Network.

Figure 2-5 Current / committed and 2056 Greater Sydney Principal Bicycle Network



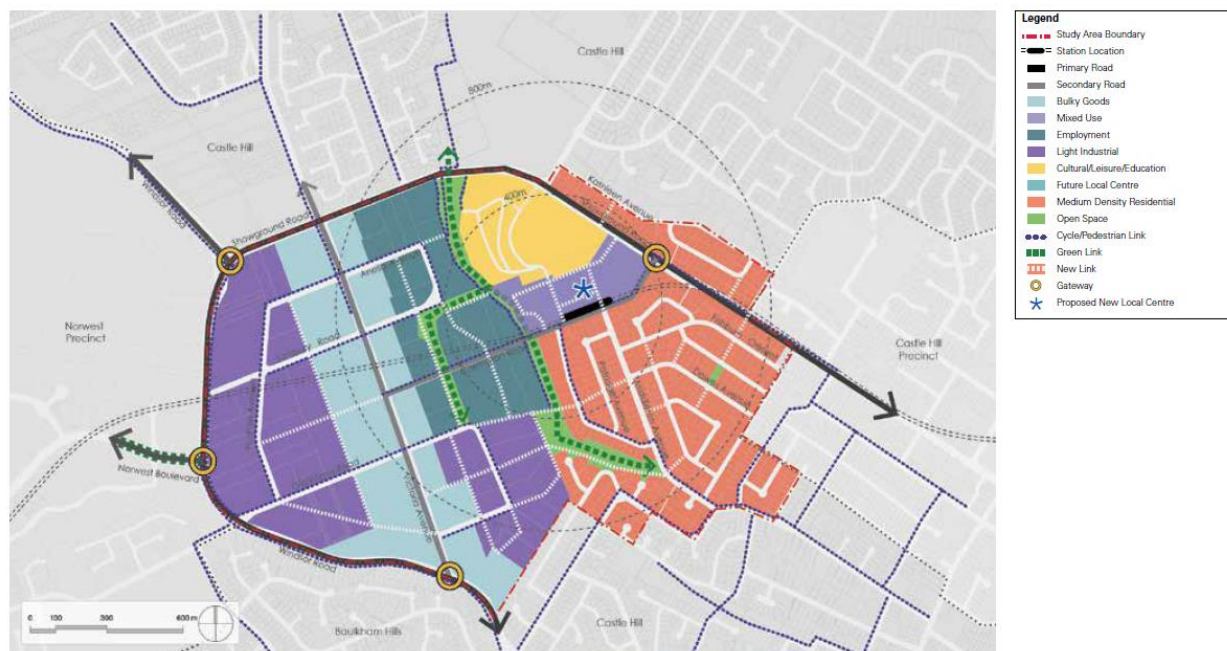
Source: https://future.transport.nsw.gov.au/wp-content/uploads/2018/plans/Greater_Sydney_Services_Infrastructure_Plan.pdf (April, 2018)

Implication for Hills Showground Station Precinct site: Transport for NSW and Council will work together to investigate the delivery of Principle Bicycle Network that connects Hills Showground with surrounding centres including Rouse Hill, Castle Hill and also Greater Parramatta.

2.5 North West Rail Link Corridor Strategy

The North West Rail Link (NWRL – now the Metro North West Line) Corridor Strategy was prepared in 2013 to identify future visions for precincts surrounding NWRL stations and establish frameworks for managing future land use change. This strategy enables infrastructure agencies to identify, prioritise and co-ordinate the delivery of infrastructure upgrades in accordance with each precinct's long-term growth potential, providing increased transparency about the area's growth infrastructure pipeline.

Figure 2-6 Hills Showground Station Structure Plan



Source: North West Rail Link Corridor Strategy (NSW Department of Planning and Transport for NSW, 2013)

Note: This planning document and this specific map reference contains principles and strategies of potential traffic and transport infrastructure and services to guide the planning of land use and transport changes within the study area and in the wider surrounding context. The specific traffic and transport infrastructure and services shown in this figure should be read as planning context and they may not be infrastructure and services proposed to service the site and the development as proposed in this SSDA. For instance, the local street network that connects to Gilbert Road is not a proposal in this SSDA.

The Strategy highlights the role of transit-oriented development in maximising the benefits of the rail investment in delivering dwelling and employment growth for the area. It identifies objectives to grow patronage, increase access to public transport, help communities access jobs and services closer to home, build liveable centres and improve housing affordability.

The document states that the Metro North West Line supports positive changes in travel behaviour arising from mode shift to rail. The project facilitates reduced private vehicle movements, in turn addressing capacity constraints on the road network and reducing traffic congestion, including reduced bus congestion in the CBD in the longer term. The Metro North West Line also provides increased opportunities for sustainable transport alternatives, through the provision of cycling and walking networks to the Metro North West Line stations.

The introduction of the Metro North West Line and a station at Hills Showground has the potential to further reinforce Hills Showground Station Precinct as a mixed-use centre for Sydney's North West. The expected residential dwellings and jobs will be 4,350 dwellings and 15,200 jobs in 2036 within the study area. The new station has provided further impetus for Hills Showground to evolve as a vibrant and active centre of business and residence for the region, comprising offices, retail, community facilities, recreation, cultural, education and housing to serve the 650,000 people of the North West by 2036.

2.6 The Hills Corridor Strategy

The Hills Corridor Strategy identifies the Metro North West Line as a significant transport project that enhances the liveability of The Hills Shire. It is transformational in that it provides a fast and efficient connection to the global arc but importantly within The Hills Shire itself. It is important that the land used around the station support each station's role, achieve housing and jobs targets and create vibrant and safe places.

A key consideration is the capacity of roads and intersections to take more growth whilst accounting for mode shift. As a result of the Metro North West Line, there could be a shift from private vehicles to public transport modes. This is based upon a review of other key transit centres within the Sydney Metropolitan Region such as Chatswood, Hurstville and Meadowbank-West Ryde and indicates there is likely to be an increase in the proportion of employed residents catching public transportation to work in the areas closest to the station.

The strategy notes that such a mode shift will take time and a careful response will be needed to ensure the additional yield does not compromise residents' ability to get where they need to go in a reasonable time.

2.7 Hills Future 2036 – Local Strategic Planning Statement (LSPS)

The Hills Future 2036 - Local Strategic Planning Statement (LSPS) provides details upon which to base planning decisions and drive future land use planning and the management of growth in the Shire based on our economic, social and environmental needs over the next 20 years. The LSPS sets out planning priorities and corresponding actions to be delivered over the next 5 years that will provide for more housing, jobs, parks and services for our growing population.

The LSPS recognises The Hills Shire's place in the Greater Sydney Region and its mix of urban and rural environments that provide a number of challenges and opportunities in the delivery of housing, jobs and services to allow Sydney to grow as a metropolis. It builds on previous local strategies as well as key strategic planning documents such as Council's Community Strategic Plan, The Hills Corridor Strategy and various detailed Precinct Plans. It will be used to inform future changes to Council's Local Environmental Plan (LEP), Development Control Plan (DCP) and Contributions Plans.

The Hills Shire will be a significant contributor to achieving outcomes identified under the Central City District Plan, 18 percent of additional dwellings in Central City (38,000 of 207,500) and up to 30 percent of additional jobs (32,200) in 2036.

The Hills Future 2036 Vision is:






"To shape exceptional living, working and leisure places where expected growth brings vibrancy, diversity, liveability and prosperity for the Hills."

In conjunction with the Metro North West Line, careful planning for new dwellings and employment opportunities close to transport nodes and bus links will contribute to the 30-minute city vision for Greater Sydney.

Five related themes form the basis for our community's vision of The Hills: a vibrant community and prosperous economy, shaping growth, delivering and maintaining infrastructure, valuing our surroundings and proactive

leadership. These themes will be monitored against identified measures and implemented through 23 planning priorities.

Figure 2–7 Hills Future 2036 Planning Priorities

 A Vibrant Community & Prosperous Economy	 Shaping Growth	 Delivering & Maintaining Infrastructure	 Valuing Our Surroundings	 Proactive Leadership
<p>Planning Priority 1 Plan for sufficient jobs, targeted to the skills of our workforce</p> <p>Planning Priority 2 Build our strategic centres to realise their potential</p> <p>Planning Priority 3 Retain and manage valuable industrial & urban services land</p> <p>Planning Priority 4 Retain and manage the Shire's rural productive capacity</p> <p>Planning Priority 5 Encourage support activities & tourism in rural areas</p>	<p>Planning Priority 6 Plan for housing supply to support Sydney's growing population</p> <p>Planning Priority 7 Facilitate housing in the right locations</p> <p>Planning Priority 8 Deliver a diversity of housing</p> <p>Planning Priority 9 Renew and create great places</p> <p>Planning Priority 10 Provide services and social infrastructure to meet residents' needs</p>	<p>Planning Priority 11 Plan for convenient, connected and accessible public transport</p> <p>Planning Priority 12 Manage travel behaviour to promote sustainable choices</p> <p>Planning Priority 13 Expand and improve our active transport network</p> <p>Planning Priority 14 Plan for a safe and efficient regional road network</p> <p>Planning Priority 15 Provide new and upgraded passive and active open spaces</p>	<p>Planning Priority 16 Manage and protect the rural/urban interface</p> <p>Planning Priority 17 Protect areas of high environmental value and significance</p> <p>Planning Priority 18 Promote increased urban tree canopy cover</p> <p>Planning Priority 19 Manage natural resources and waste responsibly</p> <p>Planning Priority 20 Prepare residents for environmental and urban risks and hazards</p>	<p>Planning Priority 21 Prepare our residents for growth and change</p> <p>Planning Priority 22 Initiate and deliver solutions to growth and change challenges</p> <p>Planning Priority 23 Collaborate with other LGAs & Government to improve our places</p>

Source: Hills Future 2036 – Local Strategic Planning Statement, June 2019

2.7.1 Hills Future 2036 – Integrated Transport and Land Use Strategy

The Integrated Transport and Land Use Strategy provides an overall strategic context for planning for growth and movement in The Hills.

The completion of the Metro North West Line is a catalyst for a considerable portion of the Shire's population growth. The master planning process for station precincts is identifying the amount and locations of key supporting infrastructure including traffic and transport infrastructure.

The Integrated Transport and Land Use Strategy provides an overall strategic context for planning for growth and movement in The Hills:

- Renew and create great places;
- Plan for convenient, connected and accessible public transport;
- Manage travel behaviour to promote sustainable choices;
- Expand and improve our active transport network; and
- Plan for a safe and efficient regional road network.

2.7.1.1 Renew and Create Great Places

Whilst there is capacity across the urban area of the Shire for 62,400 extra dwellings, The Hills is expecting to deliver an additional 38,000 dwellings between 2016 and 2036. Remaining capacity will service growth beyond 2036.

The majority of housing growth to 2036 is expected to occur within the Metro North West Line station precincts (69 percent) and new release areas within the North West Growth Area (29 percent). The majority of new dwellings will be in high density areas, with good access to public transport options.

The integration of transport, infrastructure and land-use planning is critical to achieving the vision of the 30-minute city. The way that we move to and through a place influences our interactions, perceptions, choices and general enjoyment of the places we live and work.

2.7.1.2 Managing Travel Behaviour to Promote Sustainable Choices

Car ownership levels in The Hills are typically high at approximately 2.1 vehicles per household and nearly 80 percent of trips are made by private vehicle. The majority of people travel as either driver or passenger in a private vehicle, whether out of necessity or preference. Compared to Greater Sydney, The Hills has fewer people who do not own a car, and more people who own 2 or more cars.

As population increases, so too will the numbers of cars that will be using the existing road network, as well as the demand for car parking. Based on existing levels of car ownership, it could reasonably be expected that an additional 72,000 vehicles could be located in The Hills by 2030. Future Transport 2056 does not identify any major new road connections to or through The Hills within the next 20 years. As a result, any additional vehicles will be added to the existing road network, increasing the need to address issues of congestion and mode share to ensure that Hills residents can get to where they need to go safely and efficiently.

Managing travel behaviour through parking and transport availability and accessibility can encourage travel choices and meaningful mode shift. This means that the environment is managed in such a way that encourages more alternative travel choices by making them convenient and attractive while still ensuring that private vehicle travel is accommodated and supported appropriately.

Opportunities exist for reconsideration of existing car parking rates for residential and commercial developments in close proximity to public transport, where car ownership levels are typically lower. Reducing parking opportunities at both origin and destination will influence travel choices.

Car sharing is a convenient, affordable and sustainable transport option for residents and businesses located in close proximity to public transport. Car sharing enables more sustainable travel habits and helps keep businesses and residents connected. It is an efficient use of parking space, allowing a single vehicle to be used by a large number of people. This reduces congestion and the competition for parking spaces, which ultimately benefits all road users.

Encouraging car sharing in high density residential and commercial areas within close proximity to transport hubs may be supported through targeted development controls. These could include:

- Reduced car parking rates for developments incorporating shared parking facilities in station precincts;
- Requirements for dedicated car sharing spaces for new developments; or
- Provision of dedicated on-street parking for shared vehicles.

2.7.1.3 Expand and improve our active transport network

Walking is an important travel mode in journeys and is often associated with trips which also involve travel by bus, rail or car. Communities and town centres with walking and cycling at the forefront of design provide attractive, liveable areas with high levels of street activity, improved safety and a high-quality public environment. Walkable and cycle friendly environments contribute to greater public transport use and contribute to healthier communities by encouraging physical activity.

As part of the development of the Metro North West Line, a pedestrian and cycle strategy¹ was developed which identified preliminary options for improvements to on and off-road cycle and pedestrian networks. Some of these improvements were provided by the Metro North West Line, with others to be provided by other bodies including Council. Development of fine grain public domain plans around new station precincts will give further detailed consideration to any new on and off-road cycle and pedestrian links and these will be incorporated into Council's Bike Plan review.

2.8 The Showground Station Precinct Plan

2.8.1 The Showground Station Precinct Plan – Finalisation Report

The Showground Station Precinct, along with the Bella Vista and Kellyville Station Precincts, were announced as Priority Precincts by the NSW Government in August 2014, following a unanimous decision to nominate these precincts by The Hills Shire Council.

The SMNWP has become the catalyst for urban transformation in Sydney's northwest, opening up new connections and economic benefits for the region, and providing opportunities for new attractive and vibrant town centres around the stations. A focus on place-making has underpinned the planning for the precinct for the creation of a healthy, safe and sustainable community.

The Showground Station Precinct will see a new town centre focused around the station, the Castle Hill Showground site continue its role as an important cultural and recreation facility, provide for more homes and more housing choice close to the station, and provide for a range of business uses, with better connections to transport. It will provide additional open space and facilitate the rehabilitation of and improve access to Cattai Creek.

¹ Sydney Metro Northwest Interchange Access Plan, September 2018

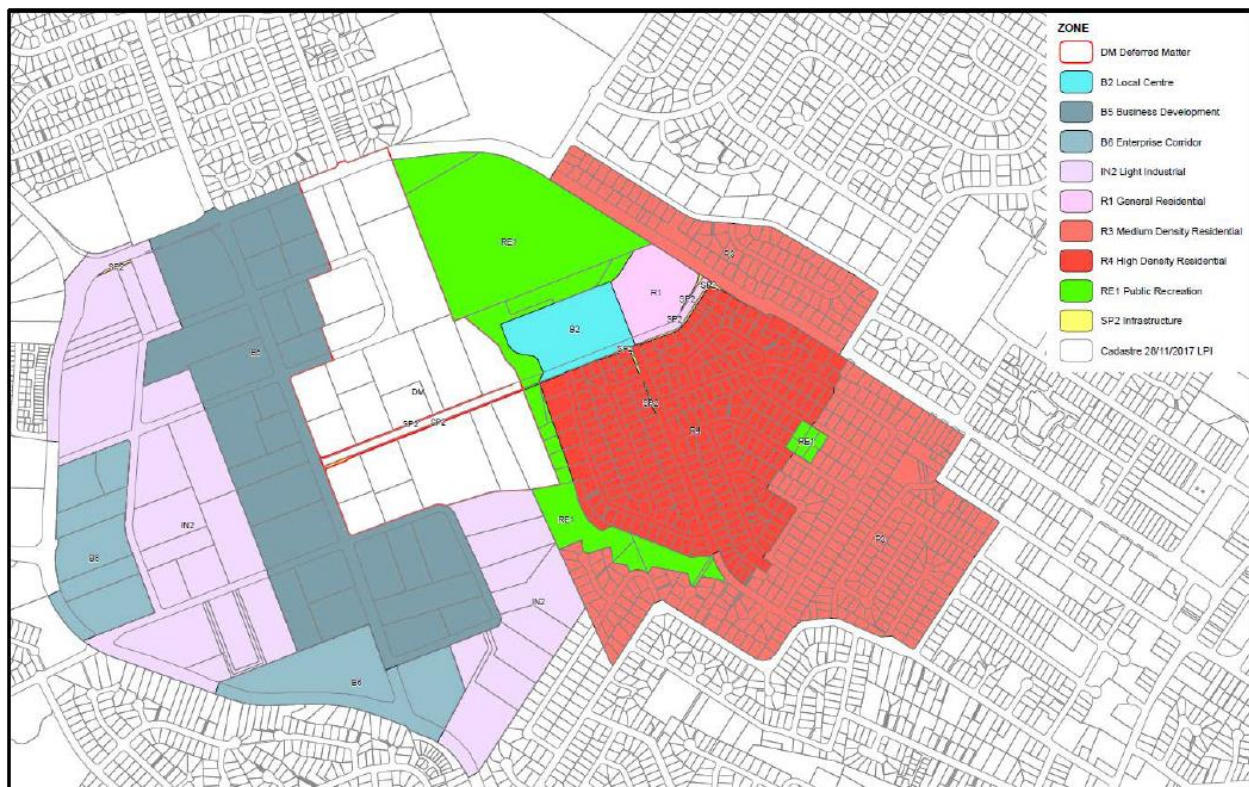
The rezoning investigations has involved an incredibly comprehensive body of evidence based strategic planning, underpinned by extensive community and stakeholder consultation that will establish a long term and holistic land use and infrastructure plan for the area.

This Finalisation Report provides an overview of the Showground Station Precinct and details the planning amendments that are proposed by State Environmental Planning Policy Amendment (Showground Station Precinct) 2017. The finalisation Report summarises the public consultation undertaken and responds to issues raised in the submissions.

Figure 2–8 provides the updated zones including post exhibition amendments. The rezoning plan is forecast to deliver approximately 5,000 new homes and 2,300 jobs over the next 20 years, transforming the area around Showground Station Precinct into a vibrant local centre.

This dwelling number is capped through a clause in the SEPP to align with the local and state infrastructure that has been planned to support the precinct's growth and is consistent with the level of growth forecast during public exhibition of the draft plans.

Figure 2–8 Showground Station Precinct proposed zoning



Source: The Showground Precinct Plan Finalisation Report (December 2017)

2.8.2 The Showground Station Precinct Plan – Transport Plan²

The proposed land use of the precinct comprises a local centre, commercial and light industrial areas, an employment spine along Carrington Road as well as town houses and detached dwellings. The 2036 yields of residential, employment and retail will be 5,000 dwellings, 8,640 jobs and 10,000 m² GFA respectively.

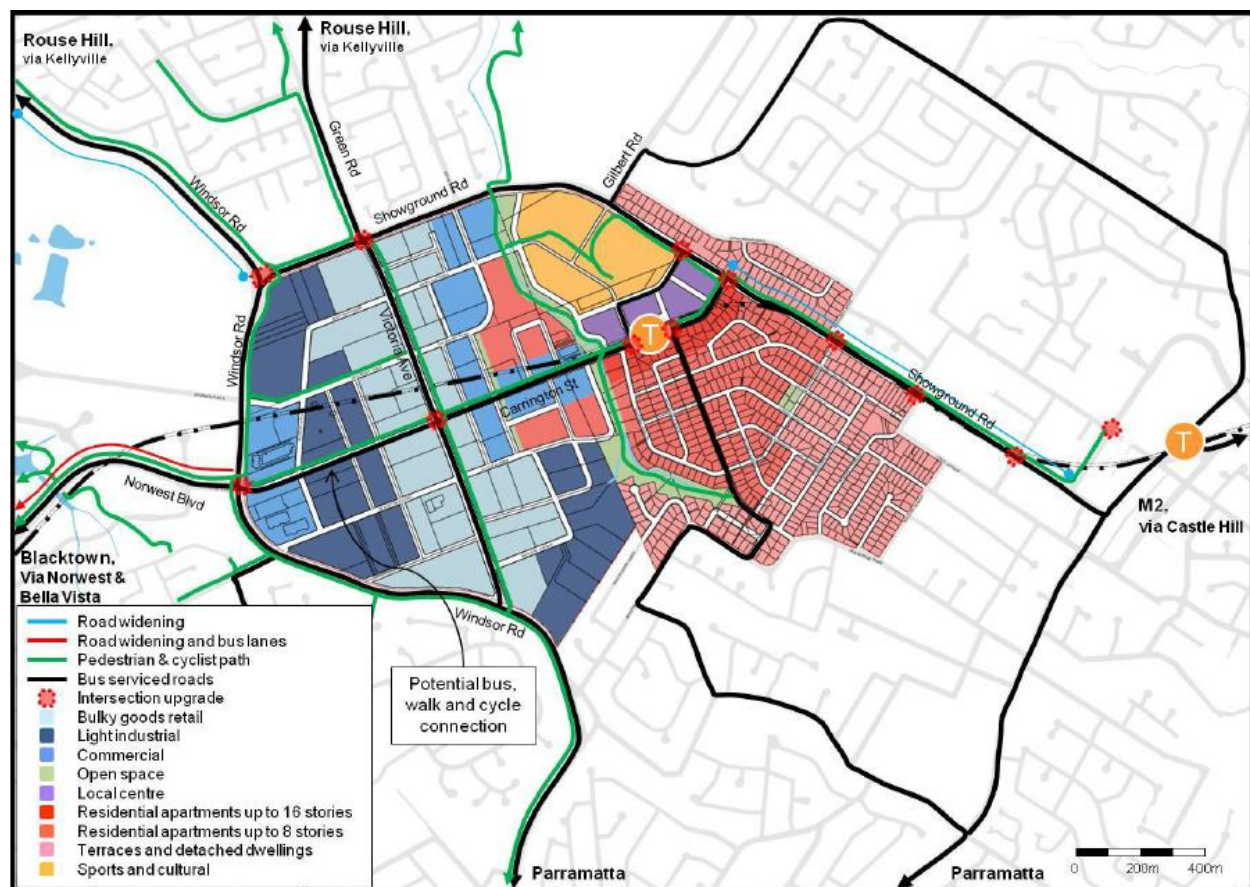
The SMNWP transforms the Precinct and enables an activated transit-oriented precinct, resulting in a diversity of activities that create and shape the travel demand for residents, workers and visitors. The Plan suggested that 53 percent of trips made both to and from the Precinct are to be public and active transport trips, higher than many well-established station precincts across Sydney. The remaining 47 percent would be private vehicle trips.

² This planning document contains principles and strategies of potential traffic and transport infrastructure and services to guide the planning of land use and transport changes within the study area and in the wider surrounding context. The road network hierarchy, active transport network and bus network (Figure 2-9 to Figure 2-13) should be read as planning context and they may not be infrastructure and services proposed to service the site and the development as proposed in this SSDA.

This shift to public transport will happen over time, and will need to be reinforced with the proposed integrated future network, including:

- Delivery of the Metro North West Line;
- Focused investment in the road network to manage movement and place functions;
- Significantly improving walking connectivity and amenity;
- Providing cycling links and facilities;
- Facilitating a network of bus corridors that connect the Precinct to surrounding centres outside the rail corridor; and
- Longer distance private vehicle travel and key road freight movements will be prioritised on primary roads, and access provided for local freight, including deliveries, on local roads.

Figure 2–9 Infrastructure improvement plan



Source: The Showground Station Precinct Plan – Transport Plan (December 2015)

Note: This specific map reference contains principles and strategies of potential traffic and transport infrastructure and services to guide the planning of land use and transport changes within the study area and in the wider surrounding context. The specific traffic and transport infrastructure and services shown in this figure should be read as planning context and they may not be infrastructure and services proposed to service the site and the development as proposed in this SSDA. The specific traffic and transport infrastructure and services proposed to service the site and the development as proposed in this SSDA, are further discussed and included in Section 4.0 of this report. For instance, the street network that connects to Gilbert Road is not proposed in this SSDA.

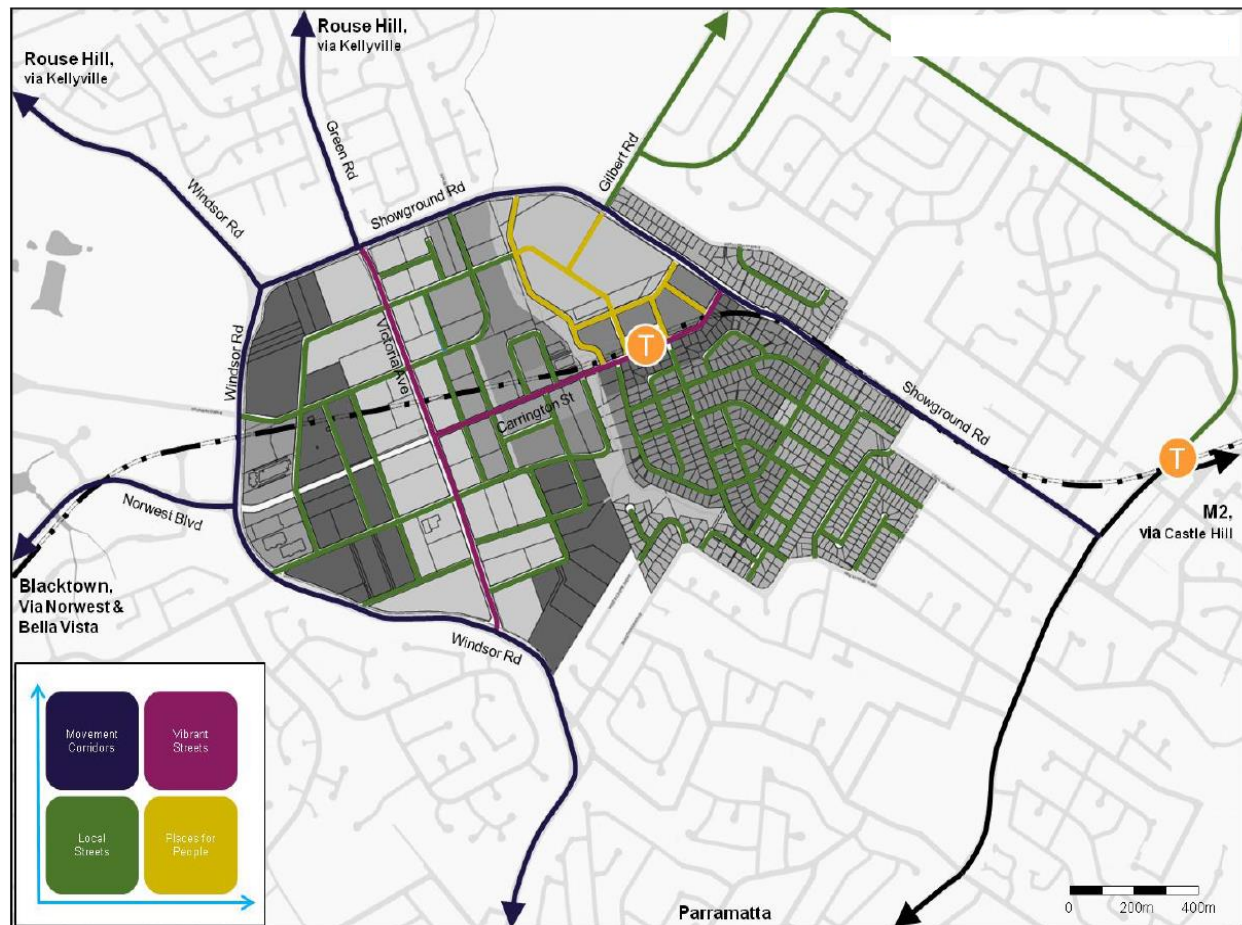
2.8.2.1 Street function

The future road network has been defined in the context of the movement and place functions that it will serve, consistent with desired urban renewal and transport outcomes. The future street functions are illustrated in **Figure 2–10** and illustrate the planned movement and place function of each of the roads in the precinct.

Key road functions as a result of the Metro North West Line and the land use proposal will be:

- Windsor Road will remain as a primary movement corridor connecting areas northwest of the Precinct to Parramatta;
- Showground Road will remain as a primary movement corridor and will accommodate regional trips away from the streets interfacing with the station precinct;
- Carrington Road and Victoria Avenue will have a greater place function as urban renewal occurs within the precinct, and operate as a vibrant street;
- This planning proposal proposes to retain bulky goods uses within the Precinct, as well as provide an increase in commercial land uses. This will require continued access by light freight to, from and within the Precinct;
- The primary access points for freight will be via Victoria Road from Showground Road and Windsor Road which have a high movement function. Access for heavy freight via Carrington Road will be discouraged through design and urban form outcomes; and
- Local roads including new links will provide local permeable access for vehicles, walking and cycling, and accommodate the local freight task.

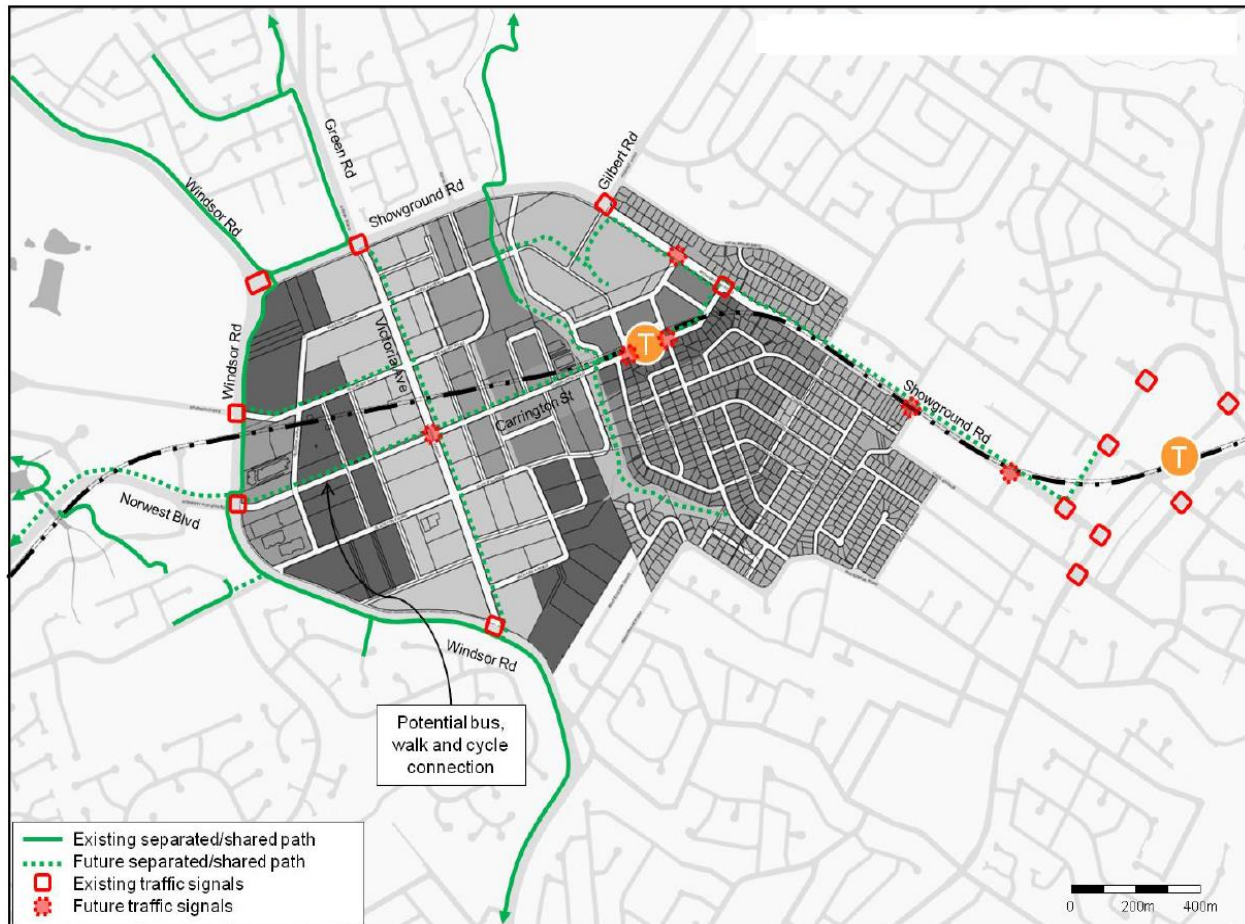
Figure 2–10 Street function



Source: The Showground Station Precinct Plan – Transport Plan (December 2015)

Note: This specific map reference contains principles and strategies of potential traffic and transport infrastructure and services to guide the planning of land use and transport changes within the study area and in the wider surrounding context. The specific traffic and transport infrastructure and services shown in this figure should be read as planning context and they may not be infrastructure and services proposed to service the site and the development as proposed in this SSDA. The specific traffic and transport infrastructure and services proposed to service the site and the development as proposed in this SSDA, are further discussed and included in Section 4.0 of this report. For instance, the street network that connects to Gilbert Road is not proposed in this SSDA.

Figure 2–11 Proposed walking and cycling facilities



Source: The Showground Station Precinct Plan – Transport Plan (December 2015)

Note: This specific map reference contains principles and strategies of potential traffic and transport infrastructure and services to guide the planning of land use and transport changes within the study area and in the wider surrounding context. The specific traffic and transport infrastructure and services shown in this figure should be read as planning context and they may not be infrastructure and services proposed to service the site and the development as proposed in this SSDA. The specific traffic and transport infrastructure and services proposed to service the site and the development as proposed in this SSDA, are further discussed and included in Section 4.0 of this report. For instance, the street network that connects to Gilbert Road is not proposed in this SSDA.

2.8.2.2 Walking and cycling

The future proposed urban renewal will facilitate improved pedestrian connectivity through a finer grained street network that provides greater permeability.

Carrington Road and Victoria Avenue will have greater place function as a result of the proposed future land use changes. This will create a demand for improved walking amenity within the precinct, accessing the mix of land uses and the rail station. To support the demand for improved amenity traffic signals will be required on Carrington Road, Victoria Avenue and Showground Road to provide safe locations for pedestrians to move across high movement corridors.

Increased cycling trips will also result from the future proposed urban renewal with a greater population of residents and workers requiring a mix of cycling facilities for commuting and recreational purposes.

Future cycling facilities would cater for both local and subregional travel demand. Existing facilities currently serve demand between the Precinct and the residential areas to the north and south. Increased off-road facilities will be required to improve accessibility between the adjacent centres as Castle Hill and Norwest, as well as the residential areas to the northwest.

The proposed walking and cycling network improvements are outlined in **Figure 2–11**. These proposed improvements provide the main network structure that will be further integrated with the fine grain road network that will be developed to support residential, commercial, retail and other business land uses.

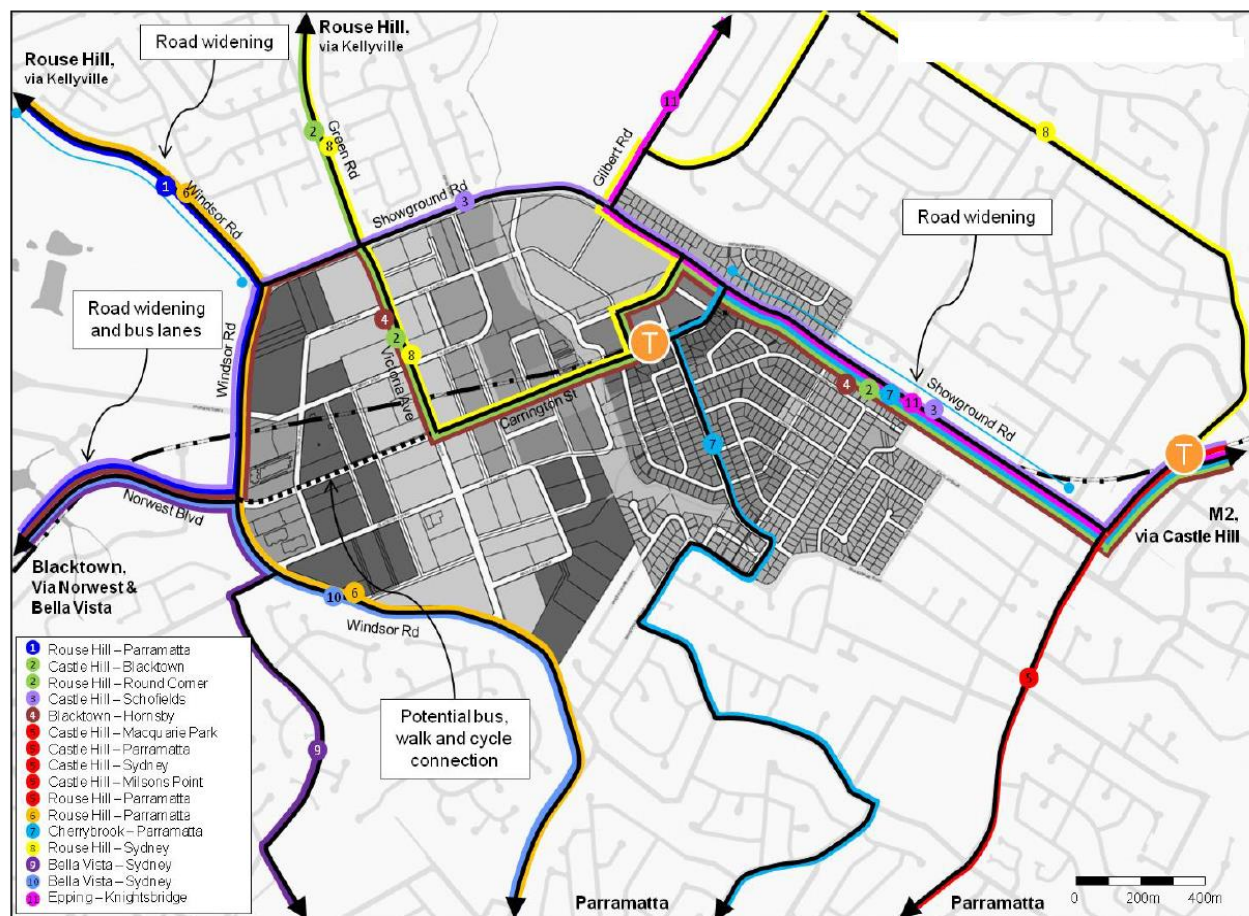
2.8.2.3 Bus

Utilising Sydney's Bus Future, a bus network is illustrated in **Figure 2-12**. The bus network are encouraged to use the new precinct streets, additional bus priority measures, servicing improvements across North West Sydney, local precinct development and the interchange capabilities of the Metro North West Line.

The main considerations for the proposed bus network include:

- Bus stops located every 800 metres on rapid bus routes;
- Bus priority measures along rapid bus routes;
- Provision of bus services within 400 metres of at least 90 percent of homes;
- Peak service frequencies of four to six services per hour per route; and
- Off-peak service frequencies of at least two services per hour per route.

Figure 2-12 Proposed bus network



Source: The Showground Station Precinct Plan – Transport Plan (December 2015)

Note: This specific map reference contains principles and strategies of potential traffic and transport infrastructure and services to guide the planning of land use and transport changes within the study area and in the wider surrounding context. The specific traffic and transport infrastructure and services shown in this figure should be read as planning context and they may not be infrastructure and services proposed to service the site and the development as proposed in this SSDA. The specific traffic and transport infrastructure and services proposed to service the site and the development as proposed in this SSDA, are further discussed and included in Section 4.0 of this report. For instance, the street network that connects to Gilbert Road is not proposed in this SSDA.

2.8.2.4 Road

The road network is the main artery of the transport system in the region which provides access to, from and within the Precinct for pedestrians, cyclists, buses and private vehicles. The road network will mainly serve subregional and regional travel demand for a range of trip purposes.

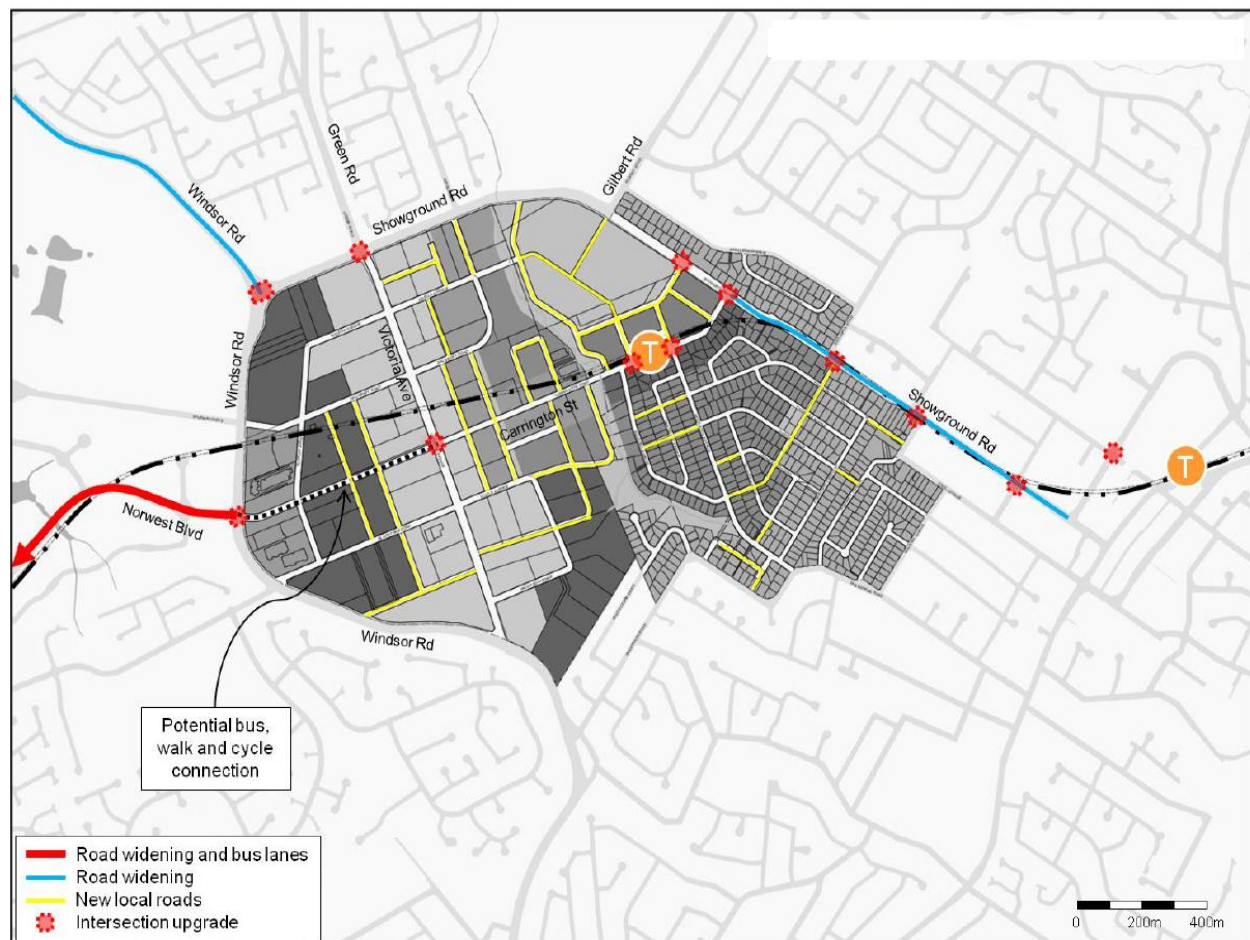
To support customers living outside the walking, cycling and bus catchments, some parking will be provided at the Showground Station. Currently 600 spaces are provided for these customers to provide equitable access for potential metro customers.

Showground Road will continue to be a primary link between the precinct, Castle Towers and M7 Motorways. The planned widening of the road between Carrington Road and Castle Hill will help to accommodate future demand and potentially provide bus priority measures to support the objectives of the bus network.

A finer grain street network in the Precinct will have an important role in improving accessibility for pedestrian and cyclists to move within the Precinct, as well as for motorists to access the arterial road network. Proposed intersection improvements would facilitate access to the Precinct and provide safe crossing points for pedestrians and cyclists, as well as bus priority measures where required.

The proposed road improvements are illustrated in **Figure 2–13**.

Figure 2–13 Proposed road network improvements



Source: The Showground Station Precinct Plan – Transport Plan (December 2015)

Note: This specific map reference contains principles and strategies of potential traffic and transport infrastructure and services to guide the planning of land use and transport changes within the study area and in the wider surrounding context. The specific traffic and transport infrastructure and services shown in this figure should be read as planning context and they may not be infrastructure and services proposed to service the site and the development as proposed in this SSDA. The specific traffic and transport infrastructure and services proposed to service the site and the development as proposed in this SSDA, are further discussed and included in Section 4.0 of this report. For instance, the street network that connects to Gilbert Road is not proposed in this SSDA.

2.9 Apartment Design Guide

The Apartment Design Guide (Department of Planning, Industry and Environment) provides design criteria and general guidance about how development proposals can achieve the nine design quality principles identified in SEPP 65 (State Environmental Planning Policy No 65 - Design Quality of Residential Apartment Development). The SEPP 65 legislation states:

(1) If an application for the modification of a development consent or a development application for the carrying out of development to which this Policy applies satisfies the following design criteria, the consent authority must not refuse the application because of those matters:

(a) if the car parking for the building will be equal to, or greater than, the recommended minimum amount of car parking specified in Part 3J of the Apartment Design Guide

The specific term of the Apartment Design Guide that captures parking provision is repeated below:

Objective 3J-1

Car parking is provided based on proximity to public transport in metropolitan Sydney and centres in regional areas

Design criteria

1. For development in the following locations:

- on sites that are within 800 metres of a railway station or light rail stop in the Sydney Metropolitan Area; or
- on land zoned, and sites within 400 metres of land zoned, B3 Commercial Core, B4 Mixed Use or equivalent in a nominated regional centre

the minimum car parking requirement for residents and visitors is set out in the Guide to Traffic Generating Developments, or the car parking requirement prescribed by the relevant council, whichever is less

The car parking needs for a development must be provided off street

Source: Department of Planning, Environment and Industry (2015)

The rates provided in the Guide to Traffic Generating Developments are shown in **Table 2-1**.

Table 2-1 Roads and Maritime Services Guide to Traffic Generating Developments (2002) parking rates

Dwelling type	Number of parking spaces required (minimum)	
	Metro Regional CBD Centres	Metro Sub-Regional CBD Centres
1 Bed	0.4 spaces	0.6 spaces
2 Bed	0.7 spaces	0.9 spaces
3 Bed	1.2 spaces	1.4 spaces
Visitor	0.14 spaces	0.2 spaces

Source: Roads and Maritime Service, 2002

As per SEPP 65, the parking rates that comply with the above rates cannot be used as grounds to refuse consent of this SSDA. The Apartment Design Guide stipulates that the rates for Metro Sub-Regional CBD Centres should be applied to Hills Showground as a centre in Sydney serviced by railway stations but not a CBD, Regional City Centre or Strategic Centre as defined in A Plan for Growing Sydney.

2.10 Showground Station Precinct DCP³

The Showground Station Precinct DCP (Part D Section 19) in force from 11 September 2018, identifies that the Showground Station Precinct will become an attractive and well-connected neighbourhood that achieves housing targets, creates vibrant, safe and desirable places, reinforces the garden shire character and lifestyle, and is supported by necessary infrastructure. It is anticipated the Precinct will provide up to 9,000 additional dwellings (with a 5,000-dwelling cap for planned and funded infrastructure) and 2,300 additional jobs by 2036 (excluding potential growth within the deferred area on the western side of Cattai Creek).

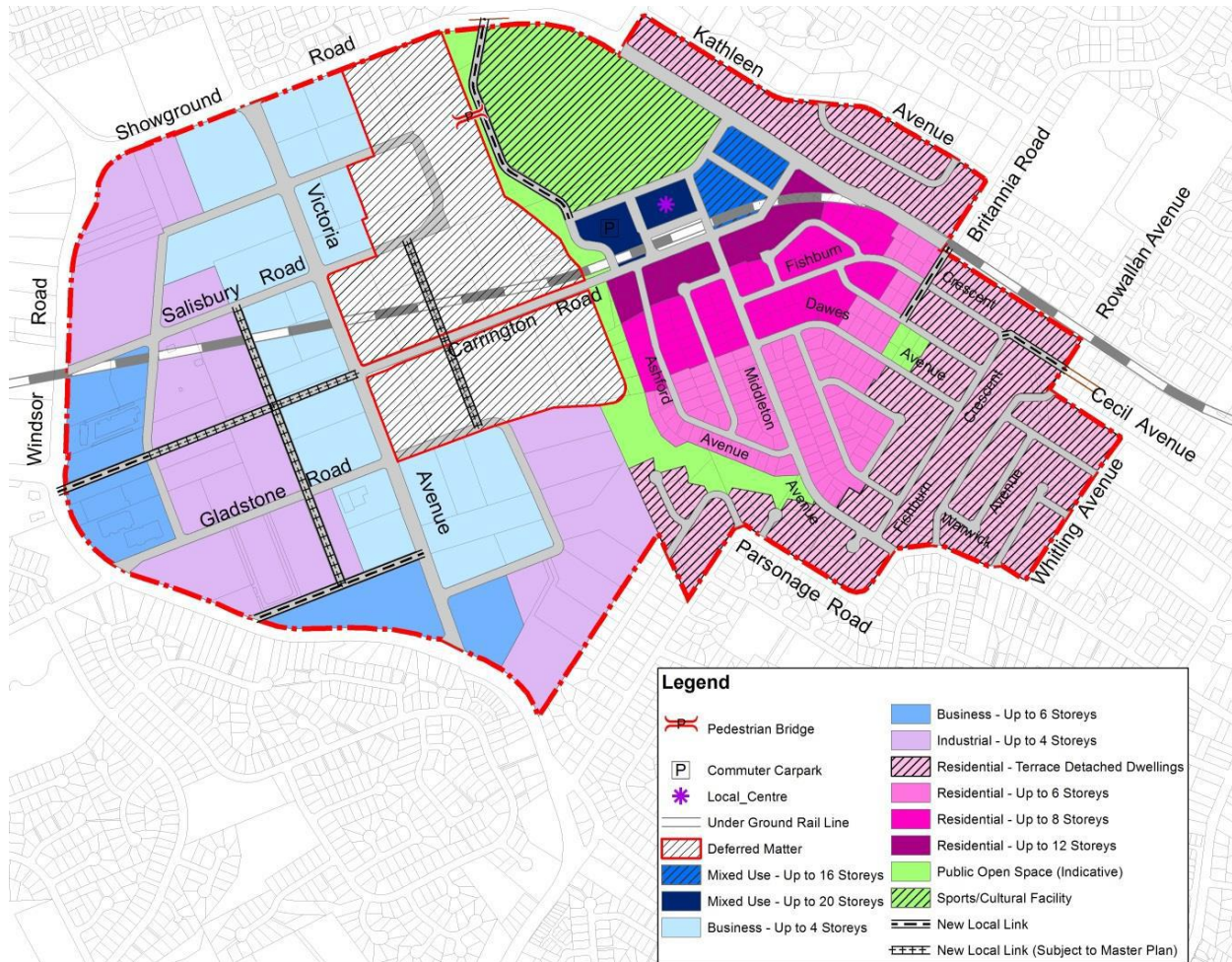
To achieve the vision, future development within the Precinct must address the following key principles and strategic priorities of Council:

- Transit oriented development involves the creation of compact, walkable, mixed-use communities around public transport nodes. A key goal of TODs is to increase the number of people who walk, cycle or use public transport as their main form of transport. TODs have densities that result in increased patronage of public transport and provide more opportunities for people to live near the station and reduce their reliance on vehicles;
- The need to locate high density housing in centres with good access to services, community facilities and transport is well recognised and will support the on-going operation of the Metro North West Line. Density at the core allows for a scale and character suitable for pedestrian connectivity. Centres should provide a mixture of residential, retail and commercial activities that are centred around transport and create an environment where services, recreation, entertainment, jobs and housing provide a lifestyle alternative to the traditional suburban context, consistent with the principles of TODs; and
- This DCP Section supports the provision of TODs by helping to deliver the highest densities in key strategic locations close to centres and existing and proposed transport infrastructure. This will ensure a sensible balance can be achieved between delivering on housing targets whilst ensuring an appropriate transition in residential densities and maintaining residential character.

The DCP highlights some of the key elements of the Precinct for land use and transport. A Showground Station Precinct Structure Plan is shown in **Figure 2-14**.

³ This planning document contains principles and strategies of potential traffic and transport infrastructure and services to guide the planning of land use and transport changes within the study area and in the wider surrounding context. The structure plan, street network hierarchy, cycleway network and local centre street layout (Figure 2-14 to Figure 2-18) should be read as planning context and they may not be infrastructure and services proposed to service the site and the development as proposed in this SSDA. For instance, the street network that connects to Gilbert Road is not proposed in this SSDA.

Figure 2-14 Showground Precinct Structure Plan



Source: Showground Station Precinct DCP (11 September 2018)

Note: This specific map reference contains principles and strategies of potential traffic and transport infrastructure and services to guide the planning of land use and transport changes within the study area and in the wider surrounding context. The specific traffic and transport infrastructure and services shown in this figure should be read as planning context and they may not be infrastructure and services proposed to service the site and the development as proposed in this SSDA. The specific traffic and transport infrastructure and services proposed to service the site and the development as proposed in this SSDA, are further discussed and included in Section 4.0 of this report.

2.10.1 Land use

- A mixed-use local centre immediately surrounding the station with shops, cafes, restaurants, plazas, local services and some commercial premises and apartments at upper levels;
- Employment areas on the western side of the precinct to generally retain existing bulky goods spine along Victoria Avenue and light industrial areas;
- New commercial office development on Windsor Road adjacent to Norwest Business Park;
- Residential areas on the eastern side of the precinct to comprise highest density apartment buildings immediately surrounding the station and south of Carrington Road;
- Buildings to transition to lower scale apartments further south of Carrington Road; and
- Medium density housing forms such as townhouses and terraces on the edges of the precinct to Whitling Avenue and Kathleen Avenue.

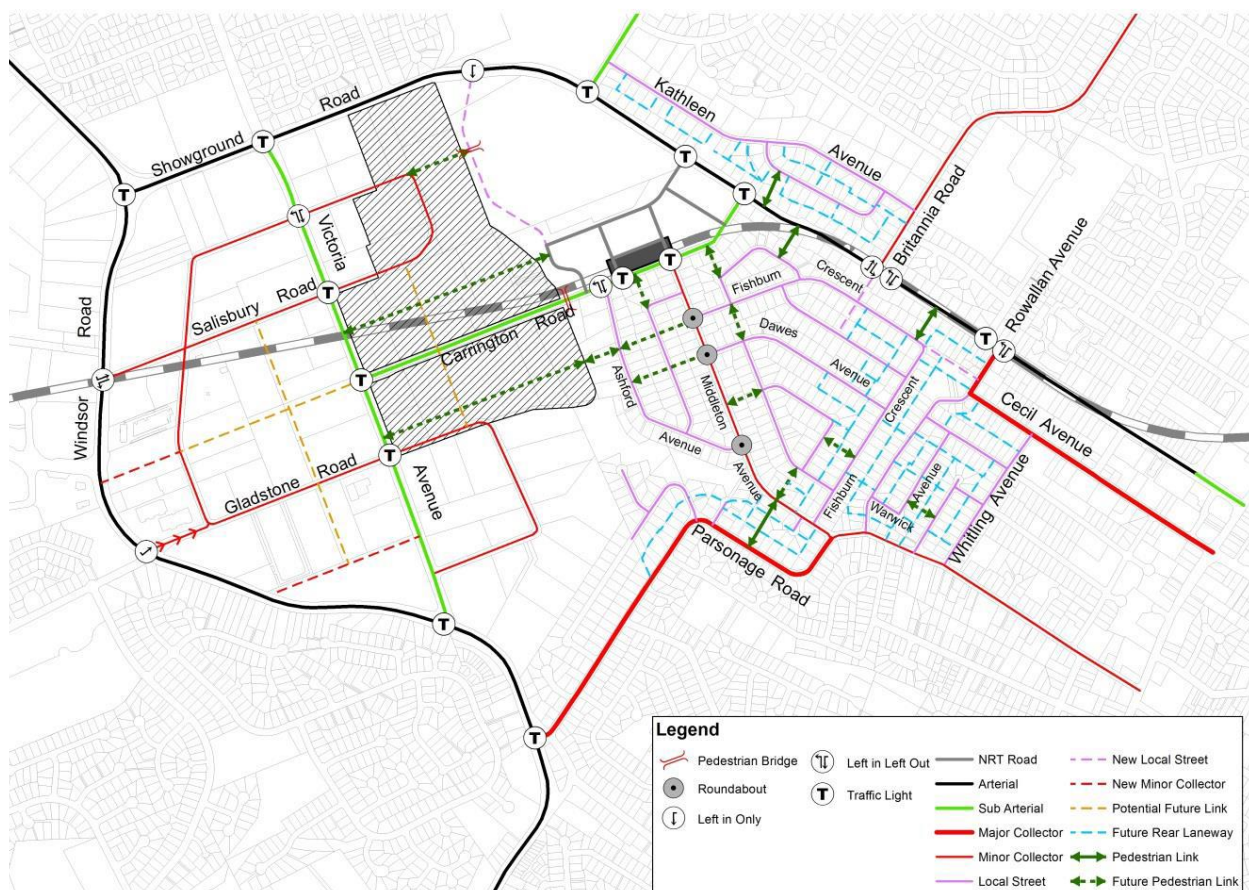
2.10.2 Transport

- Precinct is generally bound by arterial roads including Windsor Road to the west and Showground Road to the north and east;

- Two sub-arterial roads traverse the precinct including Carrington Road (east-west) and Victoria Avenue (north-south);
- Existing roads to be generally retained with new connections to be delivered by Council to enhance access and permeability including:
 - New connections surrounding the station;
 - New road between Carrington Road and Showground Road;
 - New roads throughout employment areas including connections between Salisbury and Gladstone Roads and a long-term potential connection from Victoria Avenue to Windsor Road;
 - New roads within residential areas including extension of Fishburn Crescent to Cecil Avenue and new road between Chapman Avenue and Showground Road.
- New and upgraded shared paths along key routes and new cycleways associated with Cattai Creek and connecting open spaces.

The street network is to be consistent with the indicative street network and hierarchy in **Figure 2–15**. The cycleway network is to be generally consistent with the existing and proposed cycleway network in **Figure 2–16**. Street profiles of Carrington Road and Victoria Avenue are to be consistent with the street profiles in **Figure 2–17**.

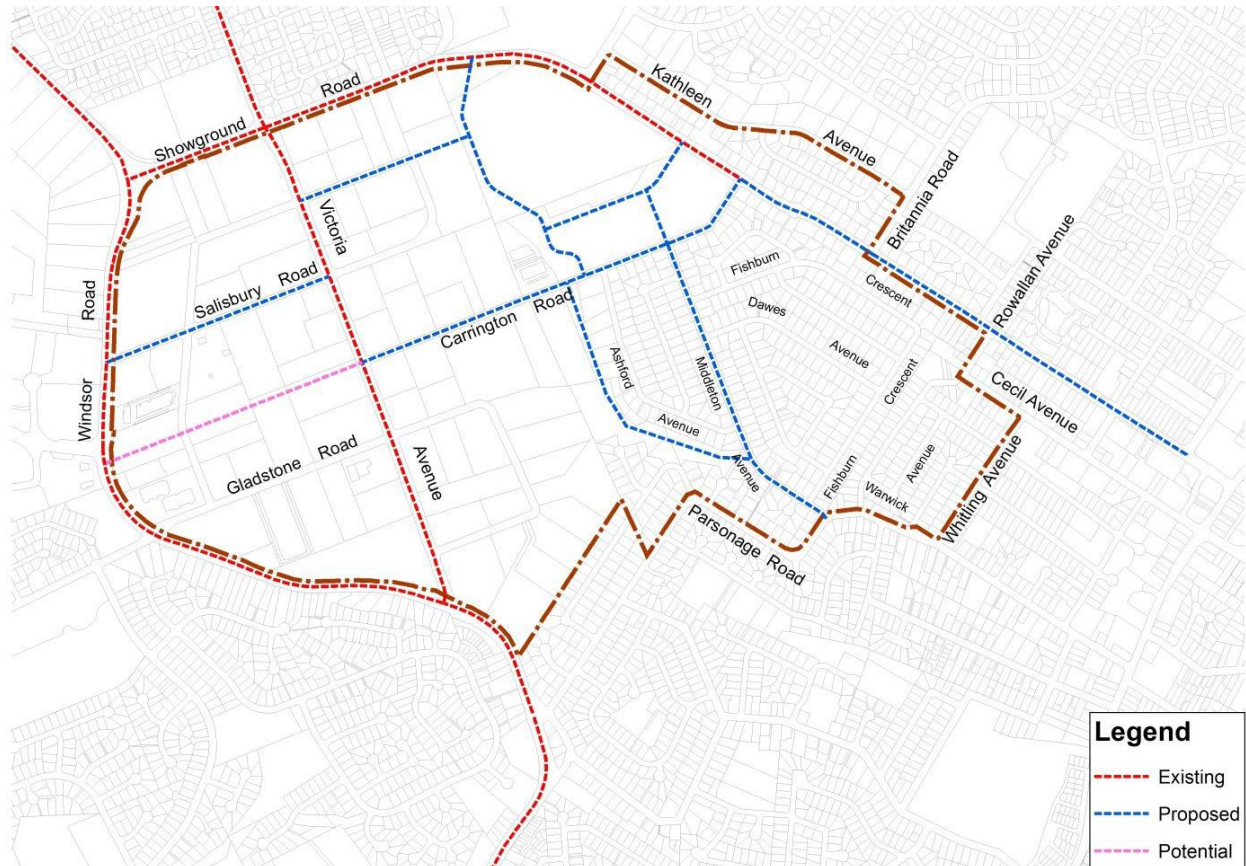
Figure 2–15 Indicative street network and hierarchy



Source: Showground Station Precinct DCP (11 September 2018)

Note: This specific map reference contains principles and strategies of potential traffic and transport infrastructure and services to guide the planning of land use and transport changes within the study area and in the wider surrounding context. The specific traffic and transport infrastructure and services shown in this figure should be read as planning context and they may not be infrastructure and services proposed to service the site and the development as proposed in this SSDA. The specific traffic and transport infrastructure and services proposed to service the site and the development as proposed in this SSDA, are further discussed and included in Section 4.0 of this report.

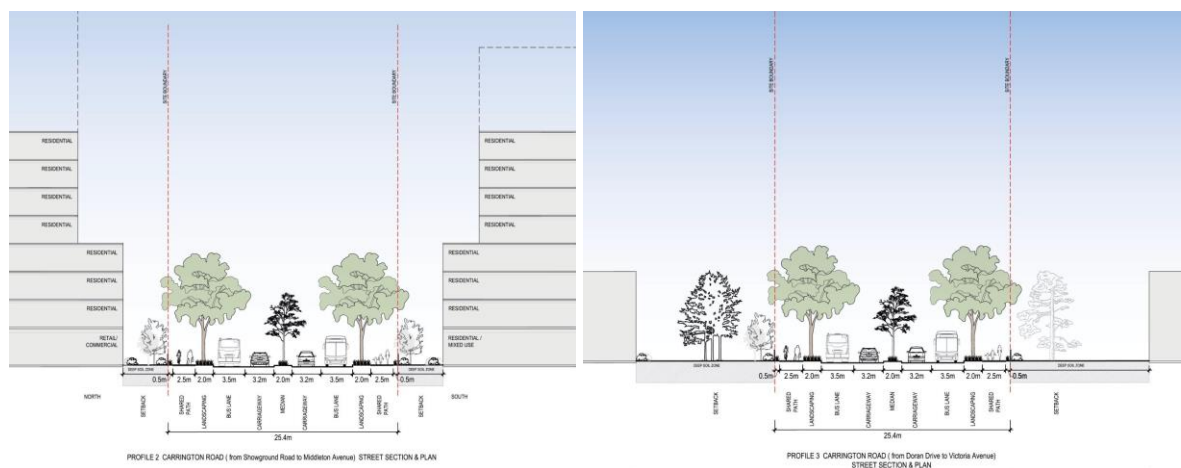
Figure 2-16 DCP suggested cycleway network



Source: Showground Station Precinct DCP (11 September 2018)

Note: This specific map reference contains principles and strategies of potential traffic and transport infrastructure and services to guide the planning of land use and transport changes within the study area and in the wider surrounding context. The specific traffic and transport infrastructure and services shown in this figure should be read as planning context and they may not be infrastructure and services proposed to service the site and the development as proposed in this SSDA. The specific traffic and transport infrastructure and services proposed to service the site and the development as proposed in this SSDA, are further discussed and included in Section 4.0 of this report.

Figure 2-17 Street profile for Carrington Road and Victoria Avenue





The development of the local centre at Hills Showground Station Precinct is expected to be consistent with the layout plan in **Figure 2-18**.

Figure 2-18 Indicative Layout Plan – Local Centre



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The DCP further specifies the car and bicycle parking rates for different land uses in **Table 2-2**.

Table 2-2 Car and bicycle parking rates

Mode	Land Use	Parking rates
Car ⁴	Residential flat buildings and dwellings in shop top housing	1 resident space per unit. 1 visitor space per 5 units.
	Retail and commercial use in B2 Local Centre zone	To be determined by a merit-based assessment. Development applications are to be accompanied by a traffic and parking study which demonstrates that the parking provision is sufficient to meet the forecast demand.
	All other uses	To comply with the rates in The Hills DCP 2012 Part C Section 1 – Parking.
Bicycle ⁵	Residential flat buildings	1 resident space per three apartments. 1 visitor space per 12 apartments.
	Commercial use	1 space per 600 m ² GFA for staff.
	Retail use	1 space per 450 m ² for staff.

Source: Showground Station Precinct DCP (11 September 2018)

It is noted that the residential parking rates are not binding as minimums due to SEPP 65.

It is also required that loading areas and vehicular access points for development in the B2 Local Centre zone must avoid conflicts with pedestrian activity areas including waiting zones for bus, taxi and kiss and ride activities.

Car share spaces are encouraged within residential flat buildings and shop top housing developments. Car share spaces are to be for the exclusive use of car share scheme vehicles and included in the number of car parking spaces permitted on a site. The car share parking spaces are to be:

- Exclusive of visitor car parking;
- Retained as common property by the Owners Corporation of the site, and not sold or leased to an individual owner/occupier at any time;
- Made available for use by operators of car share schemes without a fee or charge;
- Grouped together in the most convenient locations relative to car parking entrances and pedestrian lifts or access points;
- Located in well-lit spaces that allow for casual surveillance;
- Signposted for use only by car share vehicles; and
- Made known to building occupants and car share members through appropriate signage which indicates the availability of the scheme and promotes its use as an alternative mode of transport.

2.11 The Hills Development Control Plan (DCP) 2012

In Part C of the DCP, the required minimum car parking provision and disabled parking proportion of the relevant land uses of the site are specified as shown in **Table 2-3** and **Table 2-4** respectively.

⁴ The car parking rates proposed have no reference as minimum or maximum

⁵ The bicycle parking rates proposed are minimum rates

Table 2-3 Required minimum car parking provisions

Land Use Class	Land Use	Required Minimum Provision
Residential	Residential Flat Buildings	1 space per 1-bedroom unit 2 spaces per 2-bedroom unit 2 spaces per 3-bedroom unit 2 visitor spaces per 5 units
Commercial	Centre Commercial	1 space per 40 m ² GFA
Retail	Shops ** (including shopping centres and general business retail)	1 space per 18.5 m ² GLFA

Source: The Hills DCP 2012

* Bicycle parking is also required.

Set down areas are to be provided for these land uses.

Table 2-4 Disabled persons parking provisions

Land Use	Required Provision
<u>Retail/Commercial</u> A shopping centre with or without commercial premises (banks, credit union, restaurants or cafes, offices etc), or an office area. Includes strip shopping centres or CBD areas, shopping complexes, supermarkets, and variety stores. May include post office, entertainment, community, recreation venues and the like.	2% of total car parking
<u>Community</u> Civic centres, town halls, community centres, senior citizen's clubs, and health care.	3% of total car parking
<u>Recreation</u> Leisure centres, gymnasiums, swimming pools, parks, gardens, foreshore, and sporting venue.	

Source: The Hills Development Control Plan (DCP) 2012

Motorcycle parking is to be provided for all developments with on-site parking of more than 50 car parking spaces, at a rate of 1 motorcycle parking space for every 50 car parking spaces or part thereof.

For loading and delivery, the Hills Shire Parking DCP (Part C -Parking) requirements include:

- Supermarket at two for the first 930sqm of GLFA, two for the next 930sqm, one for each extra 930sqm;
- Mixed small shops at two for the first 4,645sqm of GLFA, two for the next 4,645sqm, one for each extra 4,645sqm; and
- Offices at one for the first 1,860sqm of GFA, one for the next 3,720sqm, one for the next 3,720sqm, one for each extra 9,250sqm.

Other requirements related to loading include:

- All loading and delivery areas are to be provided on-site;
- The use of loading and delivery areas must not conflict with the safe efficient circulation of pedestrians and other vehicles on-site; and
- In larger developments loading and delivery areas should operate independently of other parking areas.

2.12 State Environmental Planning Policy (Affordable Rental Housing) 2009

The *State Environmental Planning Policy (Affordable Rental Housing) 2009* has different parking requirements depending on the nature of delivery of the new affordable rental housing.

Table 2-5 SEPP (Affordable Rental Housing) parking requirements

Context	Div 1: In-fill affordable housing	Div 5: Residential flat buildings—social housing providers, public authorities and joint ventures	Div 6: Residential development - Land and Housing Corporation
Type of development	If development is permitted by an environmental planning instrument and there is no heritage	<u>Not</u> if residential flat building development is permissible under an environmental planning instrument	Residential development, if any building will have a height of 8.5 metres or less and the development will result in 20 dwellings or less on a single site
Parking spaces required for land in accessible areas	<ul style="list-style-type: none"> – ≥0.4 space for each 1-bedroom dwelling; – ≥0.5 spaces are for each 2-bedroom dwelling; and – ≥1 space for each 3 or more-bedroom dwelling. 	“Car parking is not required to be provided”	<ul style="list-style-type: none"> – ≥0.4 space for each 1-bedroom dwelling; – ≥0.5 spaces are for each 2-bedroom dwelling; and – ≥1 space for each 3 or more-bedroom dwelling.
Parking spaces required in any other case	<ul style="list-style-type: none"> – ≥0.5 spaces for each 1-bedroom dwelling; – ≥1 space for each 2-bedroom dwelling; and – ≥1.5 spaces are for each 3 or more-bedroom dwelling. 		<ul style="list-style-type: none"> – ≥0.5 spaces for each 1-bedroom dwelling; – ≥1 space for each 2-bedroom dwelling; and – ≥1.5 spaces are for each 3 or more-bedroom dwelling.
Relevant	✓	* residential flat building development is permissible	* height and number of dwellings

Source: State Environmental Planning Policy (Affordable Rental Housing) 2009

Due to the proximity with the Hills Showground Station, it is concluded that the area is in an accessible area, so the lower minimum rates apply (as shown in **bold** in the table).

These parking requirements are listed as “Standards that cannot be used to refuse consent”, meaning that it is possible to provide less parking than specified, but it would be a matter requiring consent.

2.13 Guide to Traffic Generating Developments

The RMS Guide to Traffic Generating Developments (2002) (RTA Guide) sets out traffic generation rates based on survey data collected in New South Wales for a range of land uses. This guide is referred to in the Austroads Guide which is used by Roads and Maritime Services and is generally regarded as the standard for metropolitan development characteristics.

The RMS Guide to Traffic Generating Development, in particular Section 2 should be used as a guide to the detail required in the Transport Assessment Study.

In relation to trip generation by vehicles, reference should be made to the ‘RMS Guide to Traffic Generating Developments’ which provides a summary of basic vehicular trip generating rates for both daily and peak hour vehicle trips. Surveys of existing developments similar to the proposal, can also be taken and comparisons drawn.

Over the past few years a number of surveys have been undertaken to update trip generation and parking information as part of the Guide. The Technical Direction: TDT 2013/04a provides a summary of the updated information. Of particular relevance to this Traffic and Transport Assessment are the reference trip rates for high density residential flat dwellings (greater than six storeys) where traffic surveys were undertaken for developments that are close to public transport and greater than six storeys.

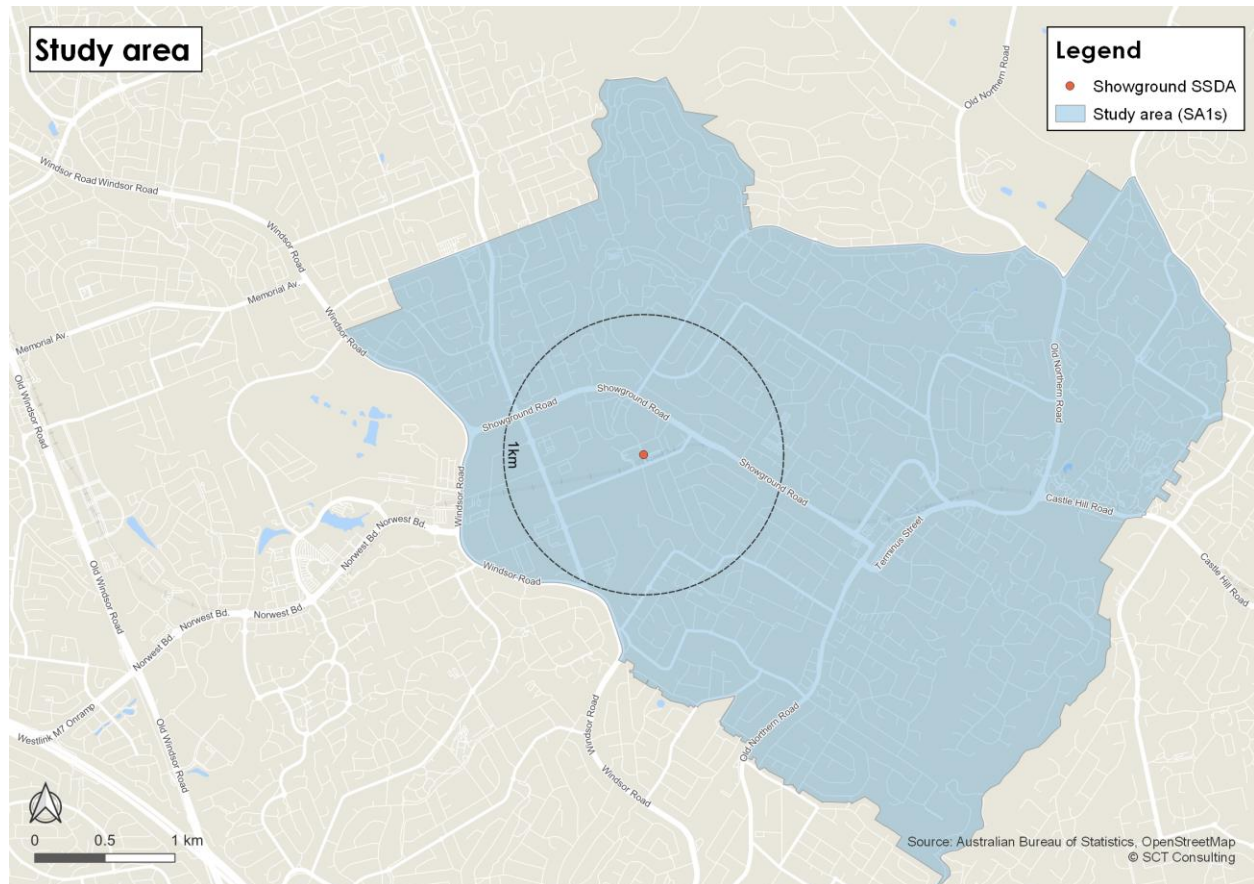
3.0 Existing conditions

3.1 Travel behaviour

3.1.1 Method of travel to work data

2016 Method of travel to work data from Castle Hill was analysed to determine travel behaviour of the existing residents in the vicinity of the site as shown in **Figure 3–1**.

Figure 3–1 Study area for method of travel to work analysis



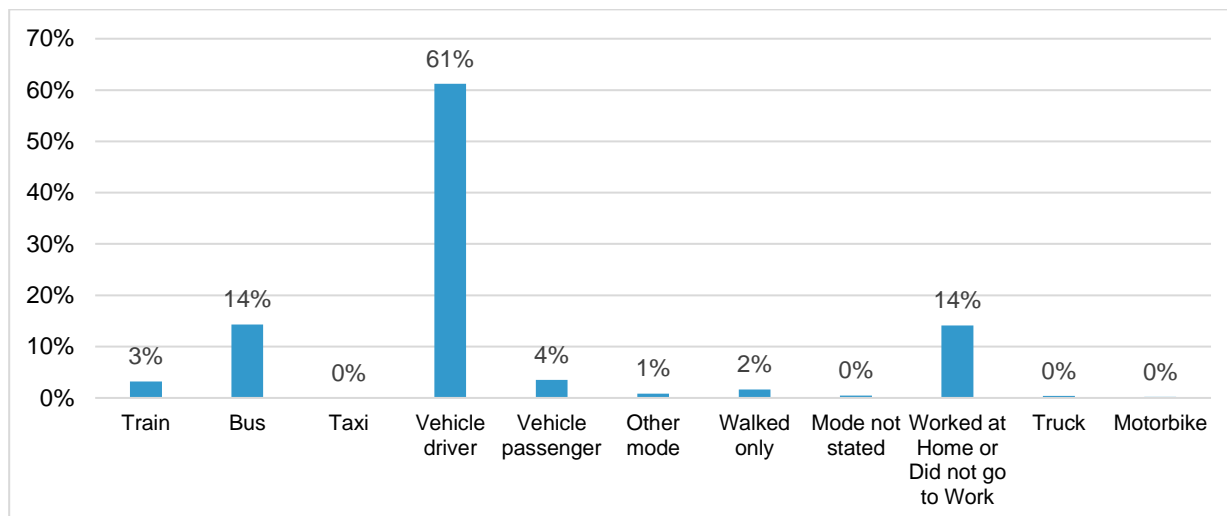
Source: Australian Bureau of Statistics, OpenStreetMap Contributors, SCT Consulting, 2019

At the time of the journey-to-work (JTW) data being collected in 2016, approximately 17,000 trip samples were included in the survey for Castle Hill. According to the Australian Bureau of Statistics, a person in employment are those of working age who, during a short reference period, were engaged in any activity to produce goods or provide services for pay or profit.

The travel mode split is shown in **Figure 3–2**, where vehicle driver travel mode is the dominant travel mode being greater than 61 percent, followed by a dramatic reduction to 14 percent of bus usage, implying a less developed public transport infrastructure back in 2016 in the local area.

The low public transport mode share at Castle Hill area is expected to change significantly with the introduction of the Metro North West Line – as larger catchment of residential areas along the Sydney Metro / Rail network would now have direct and frequent access to employment areas via improved public transport.

Figure 3-2 Travel modes for journey to work in Castle Hill



Source: <https://profile.id.com.au/the-hills/travel-to-work?WebID=150>

The demand for point to point (i.e. including taxi services) is indicatively 0.02 percent of total journey to work mode share. It is therefore concluded that point to point demand is unlikely to be significant and does not require additional surveys beyond that of the Method of Travel to Work survey. This is also true for the existing conditions for cycling demands. Cycling demands are included in the mode not stated category response. With a total proportion of 0.46 percent of trips via 'mode not stated', cycling demand is considered a small part of the overall demand and does not require additional surveys beyond that of the method of travel to work survey.

Table 3-1 lists the Journey to Work 2016 destinations for departures from Castle Hill by LGA. Local destinations in The Hills Shire attract the highest percentage of commuters at 31 percent, followed by Sydney (12.4 percent) and Parramatta (11.7 percent). The remainder of departures from Castle Hill are very fragmented throughout the NSW LGAs, which reflects the vehicle driver travel modes shown in **Figure 3-2**.

Table 3-1 Departures LGA Destination

LGA	Number of Trips	Percentage
The Hills Shire (A)	24,870	31.0%
Sydney (C)	9,927	12.4%
Parramatta (C)	9,357	11.7%
Blacktown (C)	6,589	8.2%
Ryde (C)	4,259	5.3%
Hornsby (A)	4,014	5.0%
No Fixed Address (NSW)	2,969	3.7%
Cumberland (A)	2,450	3.1%
North Sydney (A)	1,896	2.4%
Willoughby (C)	1,587	2.0%
Total	67,918	84.8%

Source: <https://profile.id.com.au/the-hills/workers?WebID=150>

Table 3-2 shows the Journey to Work 2016 origins of arrivals at Castle Hill by LGA. The arrivals into Castle Hill are extremely dominated from The Hills Shire (39 percent), followed by around 20 percent of people from Blacktown. There are around 7 percent and 6 percent of the workers coming from Parramatta and Hornsby respectively whereas the remaining origins are fragmented similar to the employment destinations.

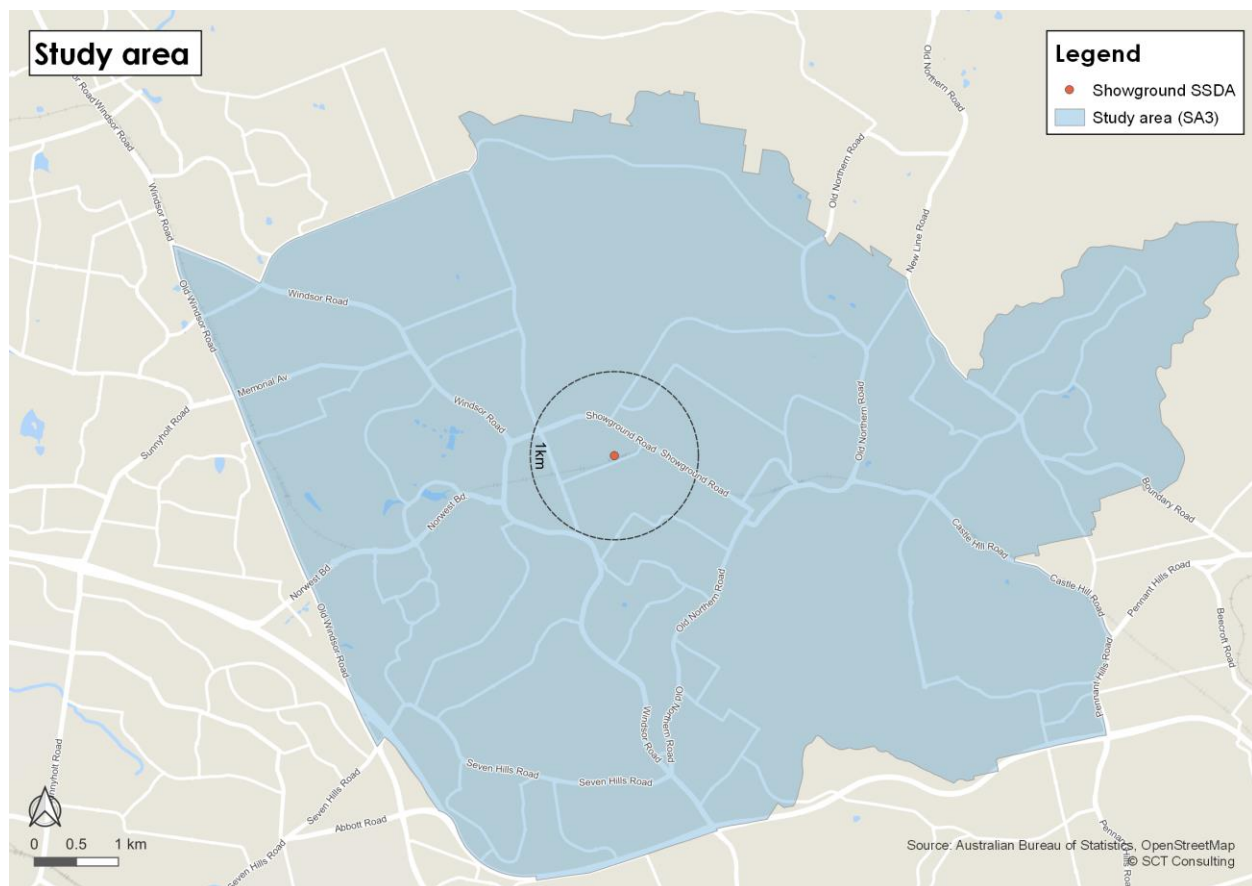
Table 3-2 Arrivals LGA Origin

LGA	Number of Trips	Percentage
The Hills Shire (A)	24,870	39.0%
Blacktown (C)	12,179	19.1%
Parramatta (C)	4,601	7.2%
Hornsby (A)	3,962	6.2%
Hawkesbury (C)	2,452	3.8%
Penrith (C)	2,113	3.3%
Cumberland (A)	1,959	3.1%
Total	52,136	81.7%

Source: <https://profile.id.com.au/the-hills/workers?WebID=150>

3.1.2 Household Travel Survey

The proposed Hills Showground Station Precinct site sits within the statistical area “Baulkham Hills”⁶ as defined by the Australian Bureau of Statistics, 2017/2018 Household Travel Survey (HTS).

Figure 3–3 Study area for household travel survey analysis

Source: Australian Bureau of Statistics, OpenStreetMap Contributors, SCT Consulting, 2019

⁶ Baulkham Hills is a “Statistical Area 3”.

For the purpose of analysis, it has been assumed that JTW data provides a suitable reflection of the travel characteristics during AM and PM peak hour periods, due to the high proportion of trips during this timeframe associated with journey to work trips.

Analysis of the 2017/2018 Household Travel Survey (HTS), which is reflective of travel characteristics of residents throughout an average weekday, indicates that the majority (approximately 22, 21, 15 and 14 percent respectively) of daily trips made by residents of statistical area "Baulkham Hills" are likely to be associated with Serve Passenger, Social/recreation, shopping and commuting.

The majority (83 percent) of all daily trips are undertaken by car, either as driver or passenger. Train and bus trips account for approximately two and five per cent of daily trips respectively. Walk only trips account for nine per cent of all daily trips.

Table 3-3 and **Table 3-4** provide a summary of the purpose of travel and overall mode choice by residents of Baulkham Hills associated with these trip purposes.

Table 3-3 Household Travel Survey – residents within Baulkham Hills, trip purpose

Mode of Travel	Number of Trips	Proportion of Total
Serve passenger	144,691	22%
Social/recreation	136,159	21%
Shopping	96,331	15%
Commute	91,574	14%
Education/childcare	62,248	9%
Change mode of travel	62,187	9%
Personal business	25,808	4%
Work related business	19,991	3%
Other	17,882	3%

Source: <https://www.transport.nsw.gov.au/performance-and-analytics/passenger-travel/surveys/household-travel-survey>, 2019

Table 3-4 Household Travel Survey – residents within Baulkham Hills, mode choice

Mode of Travel	Number of Trips	Proportion of Total
Vehicle Driver	362,447	55%
Vehicle Passenger	183,355	28%
Train	12,967	2%
Bus	35,619	5%
Walk Only	59,577	9%
Other	2,906	0%

Source: <https://www.transport.nsw.gov.au/performance-and-analytics/passenger-travel/surveys/household-travel-survey>

3.2 Hills Showground Station

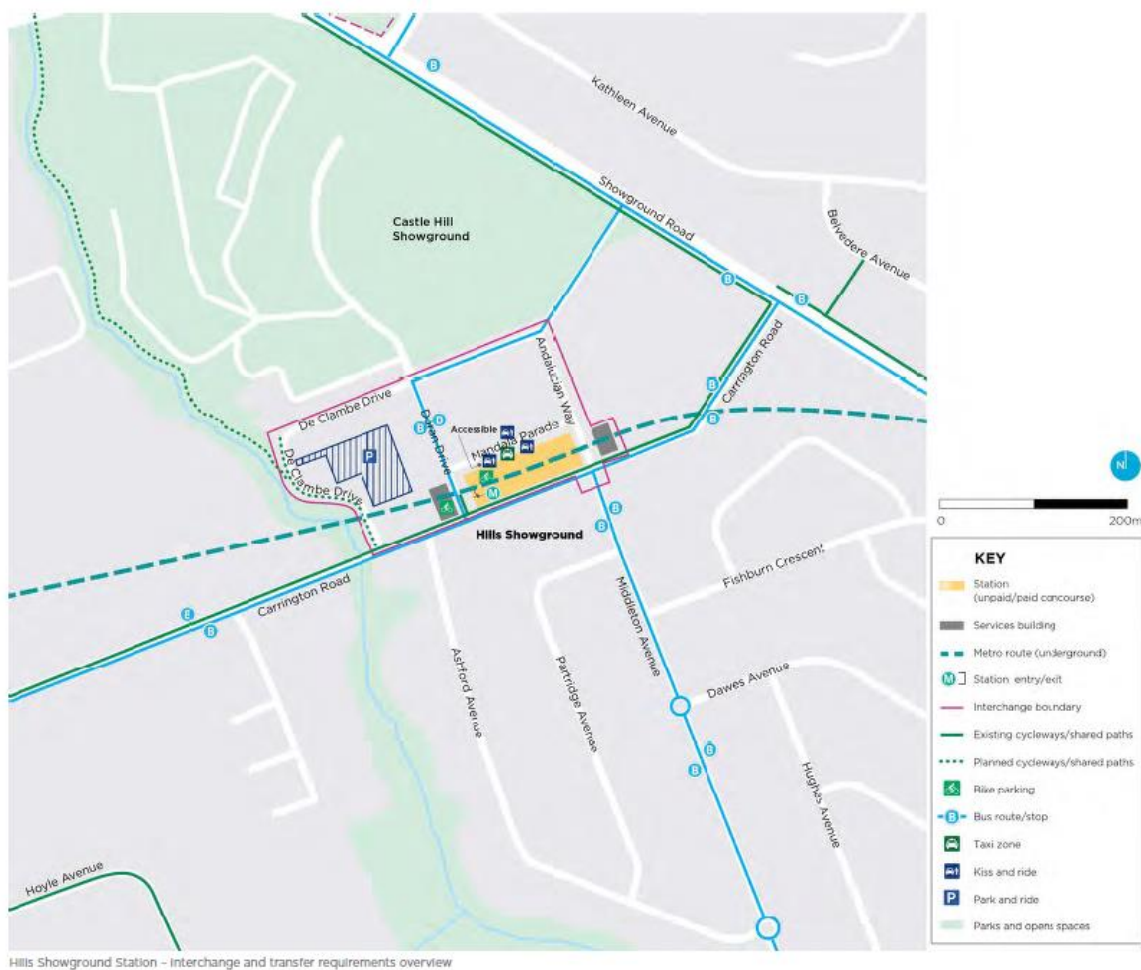
Hills Showground Station is a underground metro station located on Doran Drive, north of Carrington Road between Showground Road and Cattai Creek. It is an interchange and park-and-ride station with 600 park-and-ride spaces that provides access to surrounding employment, recreational and residential areas. The entrance to the station is from a plaza on Doran Drive.

Hills Showground Station is the catalyst for the evolution of the Showground Station Precinct into a village centre. A metro station at Hills Showground supports the Castle Hill Showground, and provides access to current and future employment, as well as existing and future residential development in the area. Major station strategy includes:

- Provide easy, safe and intuitive transfer to and from the metro station within the existing network and road environment;
- Increase public transport access to the surrounding existing and future employment, recreational and residential areas;
- Maximise legibility and connectivity with the local urban structure; and
- Integrate the station with local improvement plans and make a positive contribution to the sense of place.

As shown in **Figure 3–4**, the station has a bus interchange on Doran Drive, a bicycle storage facility as well as bike racks located close to the entrance plaza as well as kiss and ride spaces and taxi ranks along Mandala Parade.

Figure 3–4 Hills Showground Station interchange and transfer requirement overview



Source: Sydney Metro Interchange Access Plan, October 2018

Hills Showground Station has the following urban design opportunity:

- Integrate the metro station with the existing road network to facilitate safe transfers to and from the station and customers' destinations;

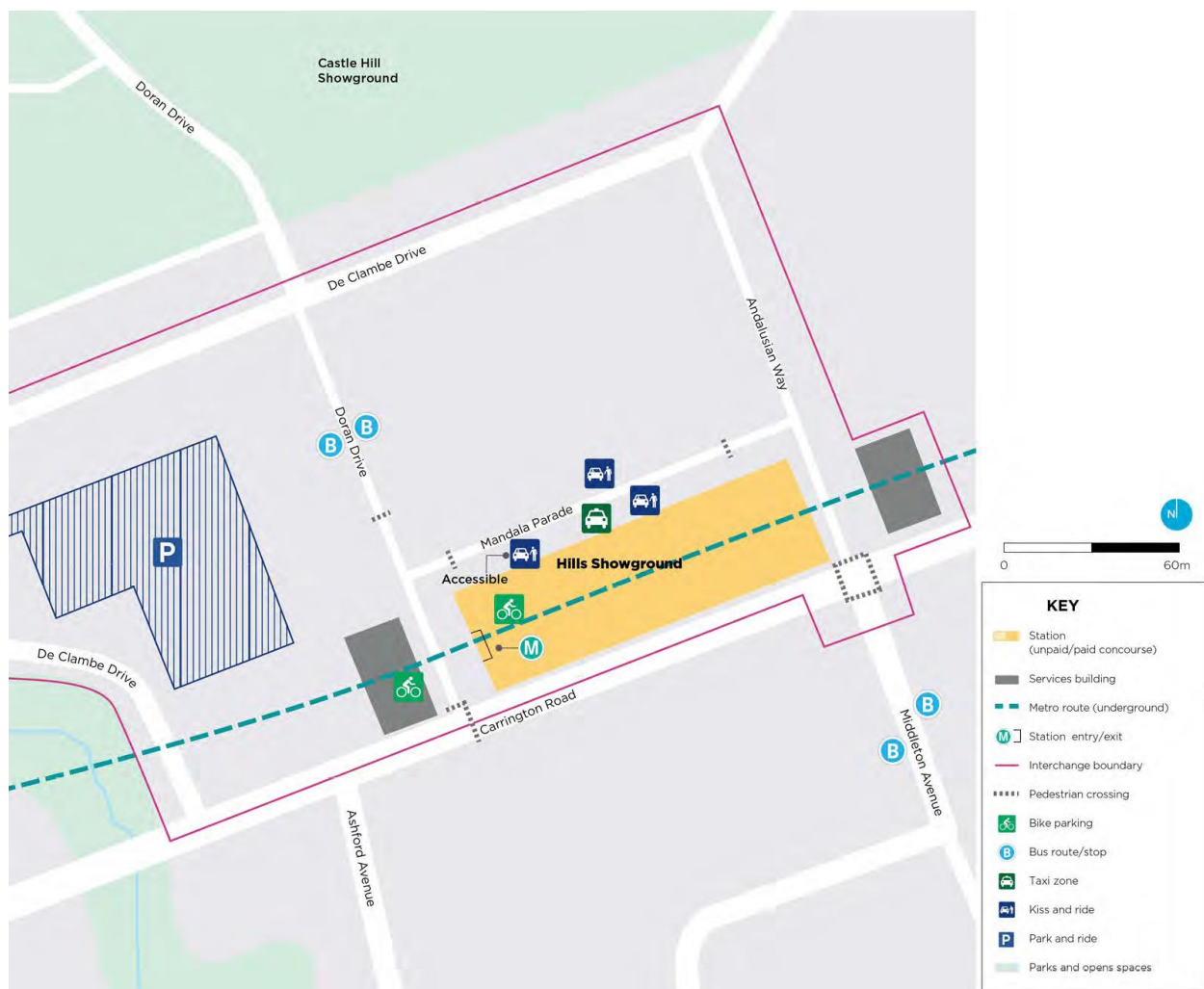
- Recognise the cultural setting of the Showground facilities and curtilage as initiating the potential for “place-making”;
- Improve access to the precinct with a new street network that accommodates high-quality pedestrian and cycle access;
- Create a clear sense of place at the station entry that responds to its context as a gateway to the Showground Station Precinct;
- Integrate future development sites into an efficient and connected precinct plan;
- Modify existing topography to help integrate the station to the precinct and natural ground levels; and
- Minimise any adverse impacts on Castle Hill Showground facilities and maintain existing Showground Station Precinct circulation patterns and uses.

3.3 Walking

Hills Showground Station is an origin station, meaning that in the morning peak, majority of trips are from Hills Showground Station to other stations on the metro due to the predominately residential nature of land uses around the station. Pedestrian activity clusters around station entry points and dissipates further afield from entrance points. Adequate pedestrian facilities are provided to connect to the surrounding land uses in a safe and convenient manner.

The Hills Showground Interchange Access Plan describes walking access requirements for the station precinct as shown in **Figure 3–5**.

Figure 3–5 Walking access arrangements and facilities at Hills Showground Station



Source: Sydney Metro Interchange Access Plan, October 2018

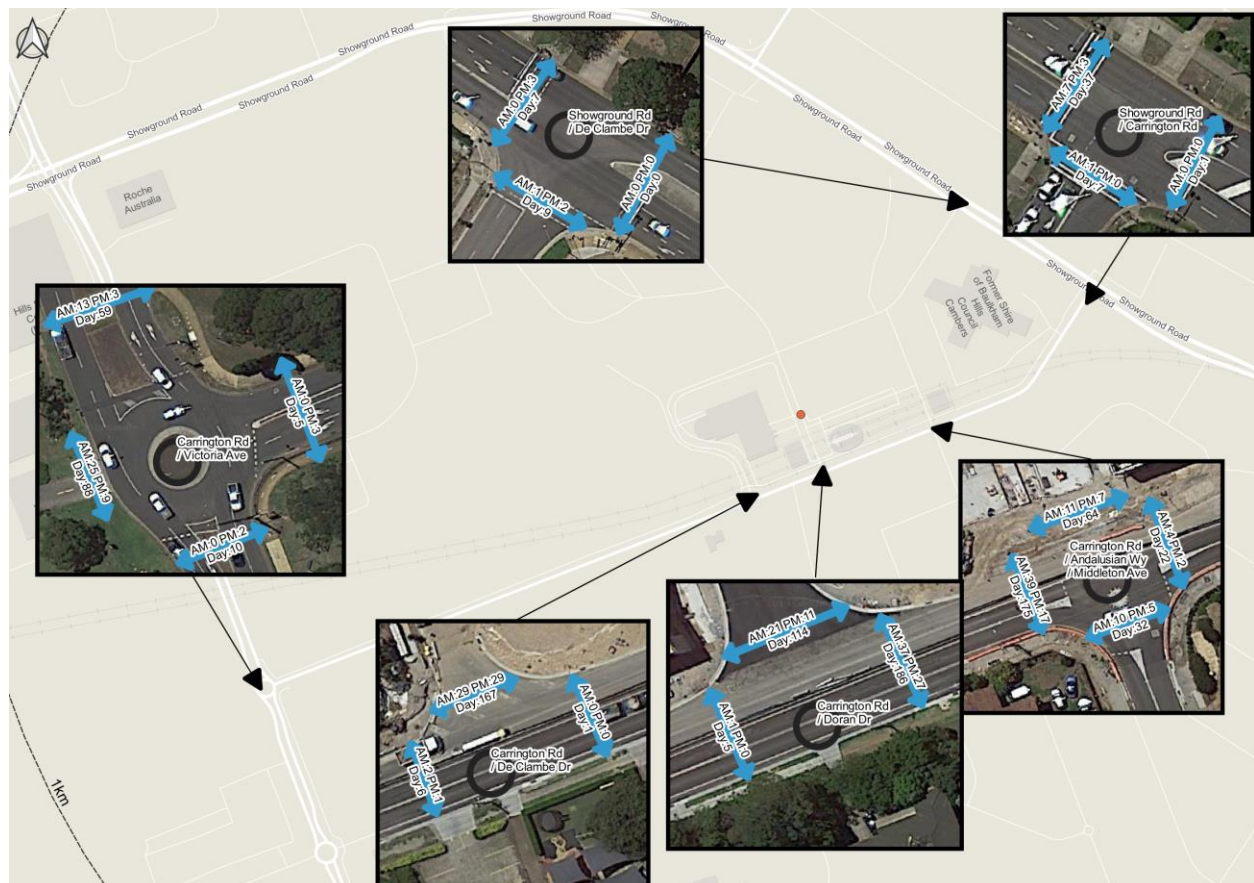
Pedestrian infrastructure includes a footpath network that provides safe and accessible access for pedestrians to station entry points, including:

- Footpaths exist on both sides of new streets created surrounding the metro station including Doran Drive, Andalusian Way and Mandala Parade;
- A shared path (off road), linking Carrington Road to Cattai Creek in the west;
- A shared 2.5-metre-wide pathway from Carrington Road at De Clambe Drive to existing pathway at northern boundary of site;
- Multiple crossings on Doran Drive and Mandala Parade; and
- Signalised pedestrian crossings at the intersection of Showground Road / De Clambe Drive, Showground Road / Carrington Road, Doran Drive / Carrington Road, Andalusian Way / Carrington Road, connecting residents from surrounding areas to the station via these crossing points along Showground Road and Carrington Road.

Pedestrian surveys undertaken recently in June 2019 (as shown in **Figure 3–6**) after the opening of the Hills Showground Station indicate that the majority of pedestrian demands use Carrington Road for accessing the Station. Crossing movements are very limited on Showground Road and more significant on Carrington Road. The largest crossing demand occurs at:

- Carrington Road / Andalusian Way, with a crossing demand of 43 in the AM peak and 197 over the day; and
- Carrington Road / Doran Drive, with a crossing demand of 38 in the AM peak and 191 over the day.

Figure 3–6 Pedestrian count data



Source: SCT Consulting, Datacorp Traffic, OpenStreetMap Contributors, 2019

3.4 Cycling

The Hills Showground Interchange Access Plan describes cycling access between the bike parking area and station entry, as shown in **Figure 3–7**. An off-road cycle path exists on Carrington Road and main cycling routes connecting to the station are along Cattai Creek to the west of the site. New cycle routes include a 2.5-metre shared path from Carrington Road at De Clambe Drive to the existing pathway at the northern boundary of the site. There is a bike shed for 35 bicycles, with electronic access facility and bike racks for 10 bicycles, located in the vicinity of the station entrance. According to the Interchange Access Plan, the number of bike parking spaces surrounding the station should increase to, where possible:

- Bike shed for 50 bicycles, with electronic access facility; and
- Bike racks for 20 bicycles.

Figure 3–7 Cycling facilities and access between bike parking and station entry at Hills Showground Station

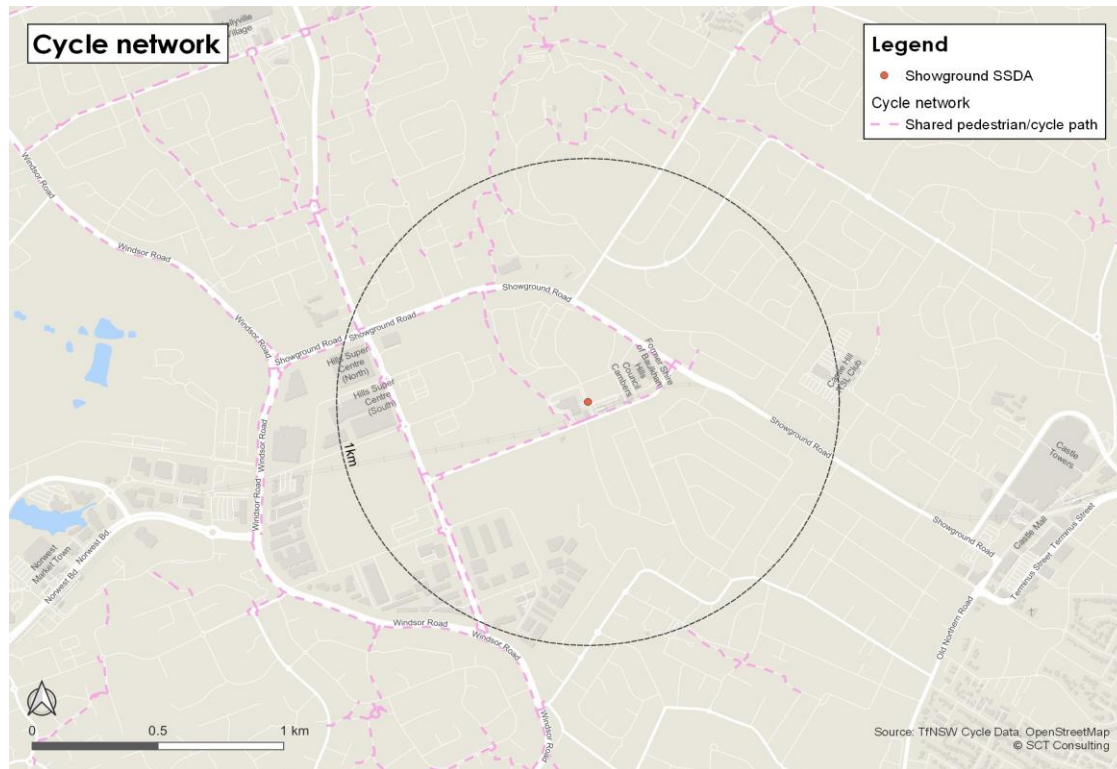


Source: Sydney Metro Interchange Access Plan, October 2018

Within the vicinity of the site there are a number of shared paths provided, offering connectivity of the connections between the metro station and a wide variety of local and regional facilities. Carrington Road, De Clambe Drive (along Cattai Creek) and Showground Road in the vicinity of the site all have off-road shared paths.

The existing cycle network in proximity of the site is presented in **Figure 3–8**.

Figure 3–8 Existing cycle paths in proximity of the site



Source: Transport for NSW, OpenStreetMap Contributors, SCT Consulting, 2019

3.5 Public transport

The Metro North West Line was opened in May 2019 and the site has direct access to the Hills Showground Station. The station entry is accessed via Doran Drive as shown in **Figure 3–9**.

The Metro North West Line delivers fast travel time to major destinations. For example, it only takes approximately two minutes to access Castle Hill station, 11 minutes to Epping station, 17 minutes to Macquarie Park station, 26 minutes to Chatswood station, and 46 minutes to Wynyard station⁷.

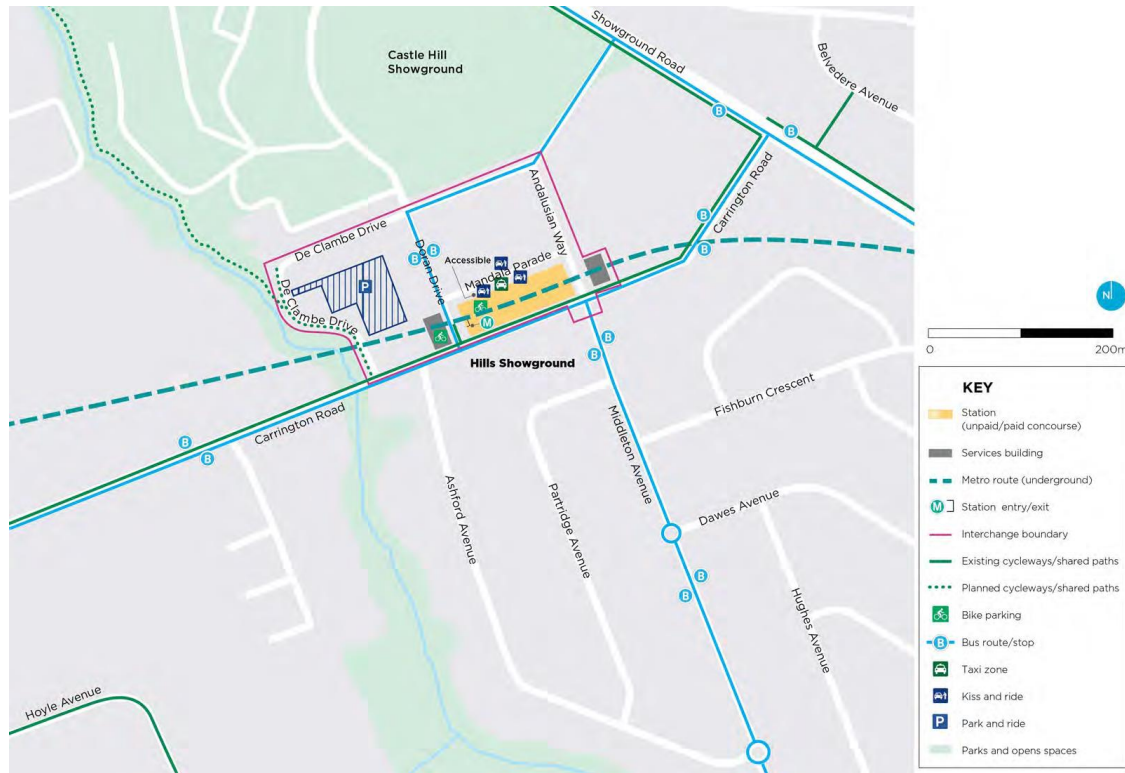
The increased network coverage, train frequency, journey-time reliability and improved customer offering of Sydney Metro, has been shown to encourage rail network usage and increase journey to work trips by non-car modes. The Metro patronage published by Transport for New South Wales has risen to a total monthly trip of 2,085,000⁸ in August 2019, indicated a typical weekday patronage over 70,000.

Hills Showground Station is a bus-rail interchange station serving the local residents and multi storey park-and-ride facility, that will reduce vehicle kilometres travelled and promote switching to sustainable transport.

⁷ These are indicative travel times source from publicly available travel apps

⁸ <https://www.transport.nsw.gov.au/data-and-research/passenger-travel/metro-patronage/metro-patronage-top-level-chart>

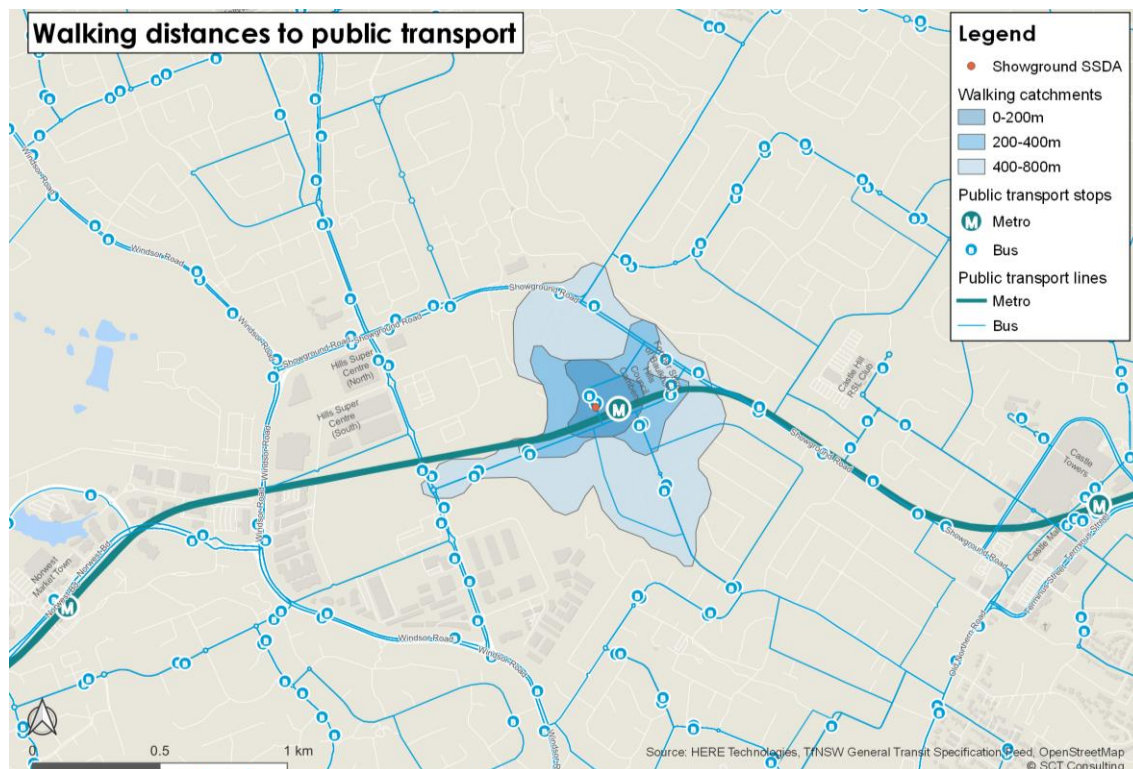
Figure 3–9 Hills Showground Station of Sydney Metro



Source: Sydney Metro North West Interchange Access Plan

Bus stops are generally within short walking distance on Doran Drive and Showground Road as shown in **Figure 3–10**.

Figure 3–10 Bus services in proximity of the site



Source: HERE Technologies, TfNSW GTFS feed, OpenStreetMap Contributors, SCT Consulting, 2019

The bus routes that operate around Hills Showground Station, following the opening of the Metro North West Line, typically run between a variety of places such as Dural, Rouse Hill, Castle Hill, Pennant Hills, Kellyville, Epping, Castlewood, Blacktown and Parramatta, via Castle Hill, Cherrybrook, Kellyville, Norwest, Glenwood, Baulkham Hills, and other adjacent suburbs providing a wide array of local accessibility. The frequency of seven bus services available in proximity of the site, being routes 601, 604, 626, 633, 651, 660 and 730, are shown in **Table 3-5**. There are up to an average of 35 bus services (in both directions) that is currently serving the Hills Showground Station during the weekday AM and PM peak hour.

Table 3-5 Existing bus routes and service frequencies in proximity of the site

Route	Corridor	To / From		Total number of services		
				Weekday		Weekend
				6am-10am	3am-7pm	10am-2pm
601	Showground Rd	Parramatta	Rouse Hill	30	32	16
604	Showground Rd	Dural	Parramatta	19	12	8
626	Showground Rd	Pennant Hills	Kellyville	16	16	16
633	Carrington Rd	Rouse Hill	Pennant Hills	22	19	16
651	Showground Rd	Epping	Rouse Hill	18	17	8
660	Showground Rd	Castlewood	Parramatta	19	21	8
730	Showground Rd	Castle Hill	Blacktown	20	22	16
Total				144	139	88

Source: TfNSW GTFS, September 2020

3.6 Street network

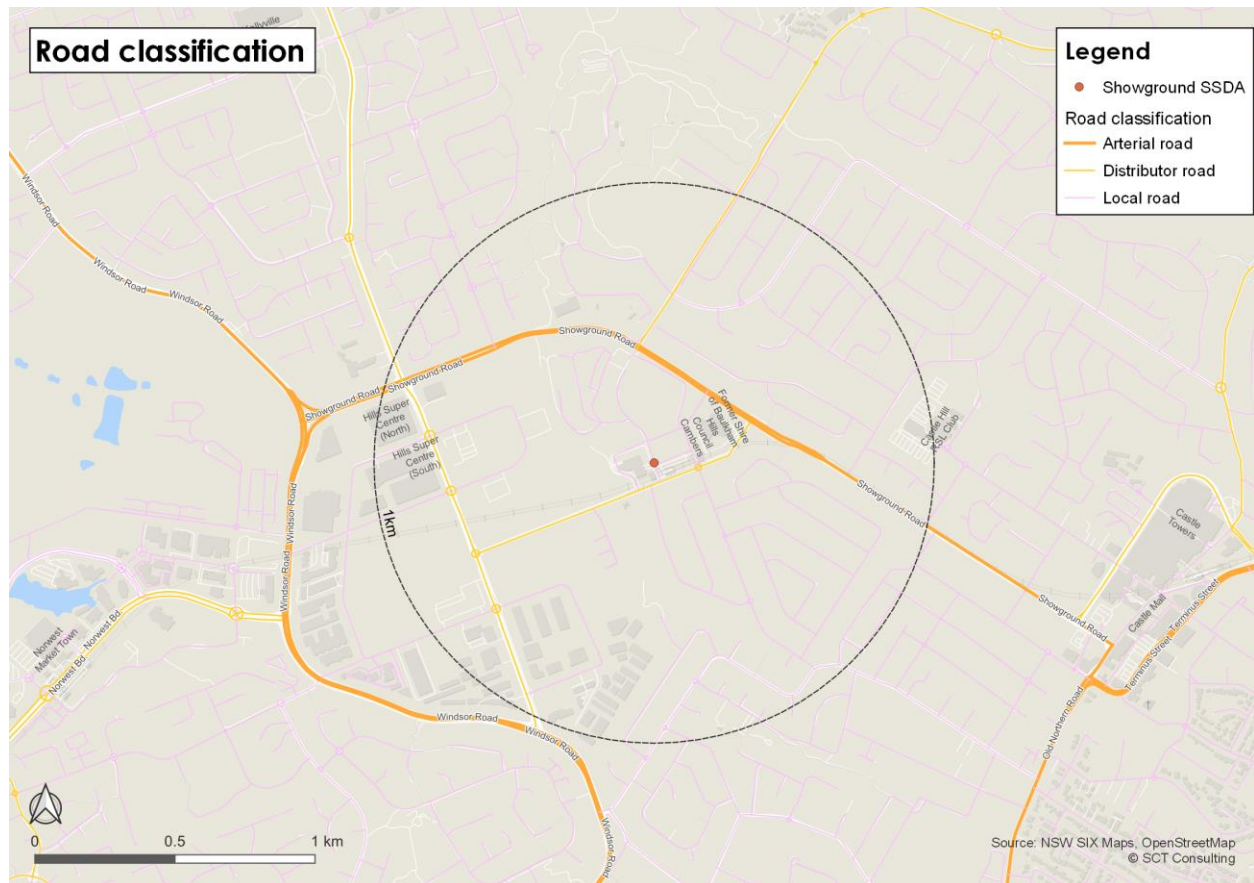
The site is bounded by Carrington Road to the south, Showground Road to the east, De Clambe Drive to the north and west. New internal roads within the precinct were constructed as part of the Metro North West Line named Doran Drive, De Clambe Drive, Andalusian Way and Mandala Parade.

The characteristics of the key road network, as shown in **Figure 3-11**, surrounding the subject site are:

- Carrington Road is a 4-lane sub-arterial road which provides connection between Showground Road and Victoria Avenue. Carrington Road between Victoria Avenue and De Clambe Drive has a bus lane in each direction improving access to Hills Showground Station;
- Victoria Avenue is 4-lane sub-arterial between Showground Road and Windsor Road. A shoulder lane is provided on each side of the road which caters for on-street parking and bus stops. It provides access to substantial number of access roads, industrial retail stores and recreational facilities;
- Showground Road is 4-lane arterial road which runs from Windsor Road to Old Northern Road. Showground Road provides regional connections to Windsor Road in the west, Old Northern Road to the east and to Gilbert Road to the north. The site can be accessed from Showground Road via the signalised intersections at De Clambe Drive and Carrington Road;
- Windsor Road is a 4-lane arterial road in the vicinity of the site. Windsor Road provides a direct north-south connection to the wider road network such as Parramatta to the south, A2 the north and to suburbs such as Baulkham Hills, Kellyville and Beaumont Hills;
- Gilbert Road is 2-lane sub-arterial road connecting Showground Road to Old Northern Road providing access to suburbs such as Glenhaven and Dural;
- De Clambe Drive is a local street with one lane in each direction that connects Carrington Road with Showground Road, while providing access to the commuter car park as well as accesses to future development within the precinct. It connects with Carrington Road as a left-in left-out priority intersection, intersects with Doran Drive and Andalusian Way as priority intersections and with a signalised intersection at Showground Road. The section of De Clambe Drive between Doran Drive and Showground Road services all bus route access to Hills Showground Station;

- Doran Drive and Mandala Parade are local streets that provide interchange function to support access to Hills Showground Station by buses and vehicular pick-up drop-off respectively. Disabled parking spaces are also located on Mandala Parade. Both streets are designated as high pedestrian zones with 40km/hr speed limit; and
- Andalusian Way is also a local street that connects between De Clambe Drive and Carrington Road, with one traffic lane and one parking lane in each direction.

Figure 3–11 Road network surrounding the site



Source: NSW SIX Maps, OpenStreetMap Contributors, SCT Consulting, 2019

3.7 Existing traffic conditions

A SIDRA Network model was prepared for the key intersections in the study area to understand the existing network performance and to test the impacts of the development.

The intersections contained in the traffic modelling cover those stipulated in the Secretary's Environmental Assessment Requirements including:

- Showground Road / Gilbert Road;
- Showground Road / De Clambe Drive;
- Showground Road / Carrington Road;
- Carrington Road / Andalusian Way / Middleton Avenue;
- Carrington Road / Doran Drive;
- Carrington Road / De Clambe Drive; and
- Carrington Road / Victoria Avenue.

Figure 3–12 shows the intersections included in the SIDRA Network modelling.

Figure 3–12 Intersections included in SIDRA Network model



Source: OpenStreetMap Contributors, SCT Consulting, 2020

Intersections were modelled using a single 'network' within SIDRA due to the close spacing of junctions.

3.7.1 Input data

Traffic and pedestrian surveys undertaken between 17 and 23 June 2019, were obtained from Sydney Metro. Thursday 20 June was selected as the date for modelling purposes as the development includes a component of retail uses, for which the Thursday evening peak is typically the most constrained.

Intersection layouts were derived from a combination of site visits, Sixmaps imagery and traffic signal design drawings. In the case of many of the intersections, the satellite imagery did not reflect the latest intersection layouts, so the drawings were required to supplement.

Traffic signal data was obtained from Transport for NSW for all of the signalised intersections for 18, 19, 20 and 22 June 2019. Data provided included 15-minute summary signal timing data, detector counts, LX files and SCATS summary images.

3.7.2 Model calibration

Models were calibrated using the input data to reflect observations of traffic behaviours on site. One of the key goals is to calibrate the models such that the degree of saturation⁹ of all movements was 1.0 or below. This is a standard procedure to ensure that the models aren't over-predicting congestion. Key assumptions made were:

- Use of a roundabout calibration factor for Carrington Road (east approach) to Carrington Road / Victoria Avenue as this approach was recorded as a degree of saturation of greater than 1.0;
- Use of a standard six seconds for pedestrian start loss for all intersections on Carrington Road based on the pedestrian surveys. While the traffic signal data did not record calling of pedestrian crossings, the pedestrian count surveys indicated that pedestrian crossings were used; and

⁹ Degree of saturation refers to the volume of a turning movement divided by its capacity. A degree of saturation of 1.0 is when a turning movement is 'at capacity' so that no more traffic could do this turn.

- The network timing was set to capture coordination on Showground Road but not Carrington Road. A review of the cycle times for the signals indicated highly similar cycle times for the three junctions on Showground Road. The LX file also specified an offset for intersections on Showground Road, which was adopted. By contrast, the intersections on Carrington Road had very different cycle times and an offset of zero seconds. The network timing option was set so that the Showground Road junctions were modelled using their pre-specified phase times plus a cycle time that was the average of three junctions. The Carrington Road junctions were specified as uncoordinated sites, so that they ran at their typical cycle time.

3.7.3 Network performance

Operational performance is typically measured through an assessment of the throughput of vehicles across a traffic network, with average delay per vehicle used to assess the performance of an individual intersection. The average delay per vehicle measure is linked to a Level of Service (LoS) index which characterises the intersection's operational performance. **Table 3-6** provides a summary of the LoS performance bands.

Table 3-6 Level of Service index

Level of Service	Average Delay per Vehicles (sec/h)	Performance explanation
A	Less than 14.5	Good operation
B	14.5 to 28.4	Good with acceptable delays and spare capacity
C	28.5 to 42.4	Satisfactory
D	42.5 to 56.4	Operating near capacity
E	56.5 to 70.4	At capacity, at signals incidents will cause excessive delays. Roundabouts require other control method.
F	70.5 or greater	At capacity, at signals incidents will cause excessive delays. Roundabouts require other control method.

Source: Guide to Traffic Generating Developments; RMS; 2002

In addition, intersection performance is measured using degree of saturation, which is a measure of the spare capacity of each intersection. These measures enable clearer target setting, with future performance of degree of saturation greater than one being unacceptable. The intersection performance per the SIDRA Network results is shown in **Table 3-7**.

Table 3-7 Network performance for existing conditions (2019)

Intersection	AM Peak			PM Peak		
	Delay	LoS	DoS	Delay	LoS	DoS
Showground Road / Gilbert Road	30.2s	C	0.86	22.6s	B	0.83
Showground Road / De Clambe Drive	4.6s	A	0.60	5.4s	A	0.55
Showground Road / Carrington Road	23.8s	B	1.00	43.5s	D	0.99
Carrington Road / Middleton Avenue / Andalusian Way	17.6s	B	0.81	29.2s	C	0.96
Carrington Road / Doran Drive	6.5s	A	0.63	7.0s	A	0.52
Carrington Road / De Clambe Drive	4.7s	A	0.26	4.7s	A	0.45
Carrington Road / Victoria Avenue	17.4s	B	0.76	27.6s	B	0.88

Source: SCT Consulting, 2020

Delay = worst movement for priority and roundabout controlled intersections and DoS = degree of saturation of worst movement

The SIDRA results show that while majority of intersections operate at a typically deemed acceptable level of service, the degree of saturation of Carrington Road / Showground Road, Carrington Road / Victoria Avenue and Carrington Road / Middleton Avenue / Andalusian Way indicates that the intersections are approaching capacity.

4.0 The Proposal

4.1 Proposed development

The updated Concept Proposal (as shown in **Figure 4–1**) is a transit-oriented mixed-use development that could comprise up to 1,620 dwellings and up to a maximum of 13,940 m² of non-residential including commercial, retail and community space. The proposal yields a total GFA of 166,486 m² across three development lots (known as Hills Showground Precinct West, Doran Drive Precinct and Hills Showground Precinct East).

Up to 1,957 car parking spaces and 705 bicycle parking spaces are also proposed, based on the yield and land use mix of the proposed development and the recommended range of parking rates for each type of uses.

Figure 4–1 Showground Station Precinct Site Concept Plan



Source: COX, 2020

The SSDA would facilitate development which supports best practice transit-oriented development principles, by providing increased employment density in proximity to existing and planned transport infrastructure upgrades that provides employees with greater access to public transport and employment options, while promoting the use of sustainable travel options.

4.2 Proposed access arrangements

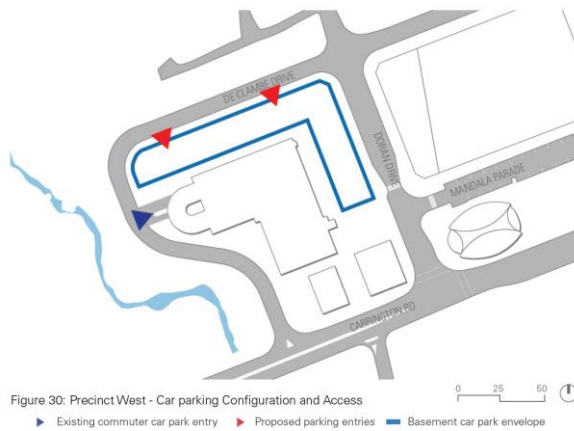
4.2.1 Vehicular access

As shown in **Figure 4–2**, the updated Concept Proposal is divided to the three precincts from the west to the east namely:

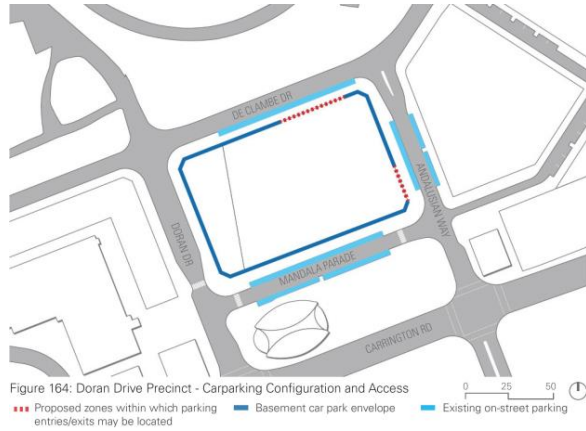
- Hills Showground Station Precinct West;
- Doran Drive Precinct; and
- Hills Showground Station Precinct East.

Figure 4–2 Potential car parking configuration and access arrangements

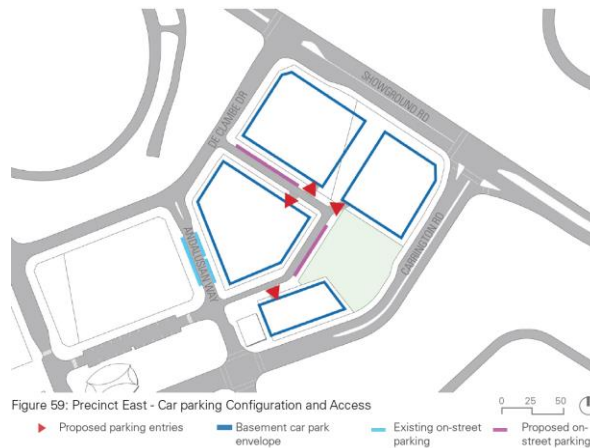
Precinct West



Doran Drive Precinct



Precinct East



Source: COX, 2020

Each precinct will have individual accesses:

- **Hills Showground Station Precinct West** has two accesses on the northern edge of De Clambe Drive. The eastern access connects to an internal loading area and waste collection area as well as a car park at lower ground level; The western access ramps down to basement parking;
- **Doran Drive Precinct** has vehicular access to the car park for residential and non-residential uses via De Clambe Drive. The other vehicular access is located on Andalusian Way which provides access to the waste collection and service vehicles. The service dock area is designed adequate turning circles and a turntable so that service vehicles may enter and exit from a forward direction on to Andalusian Way; and
- **Hills Showground Station Precinct East** proposes an internal street that connects between Andalusian Way to the west and De Clambe Drive to the north. Multiple car park accesses are proposed along this internal street, with one access allowed for each superlot with separated basement car parks. Service vehicle and waste collection vehicle access to each superlot will be provided via the same car park driveways.

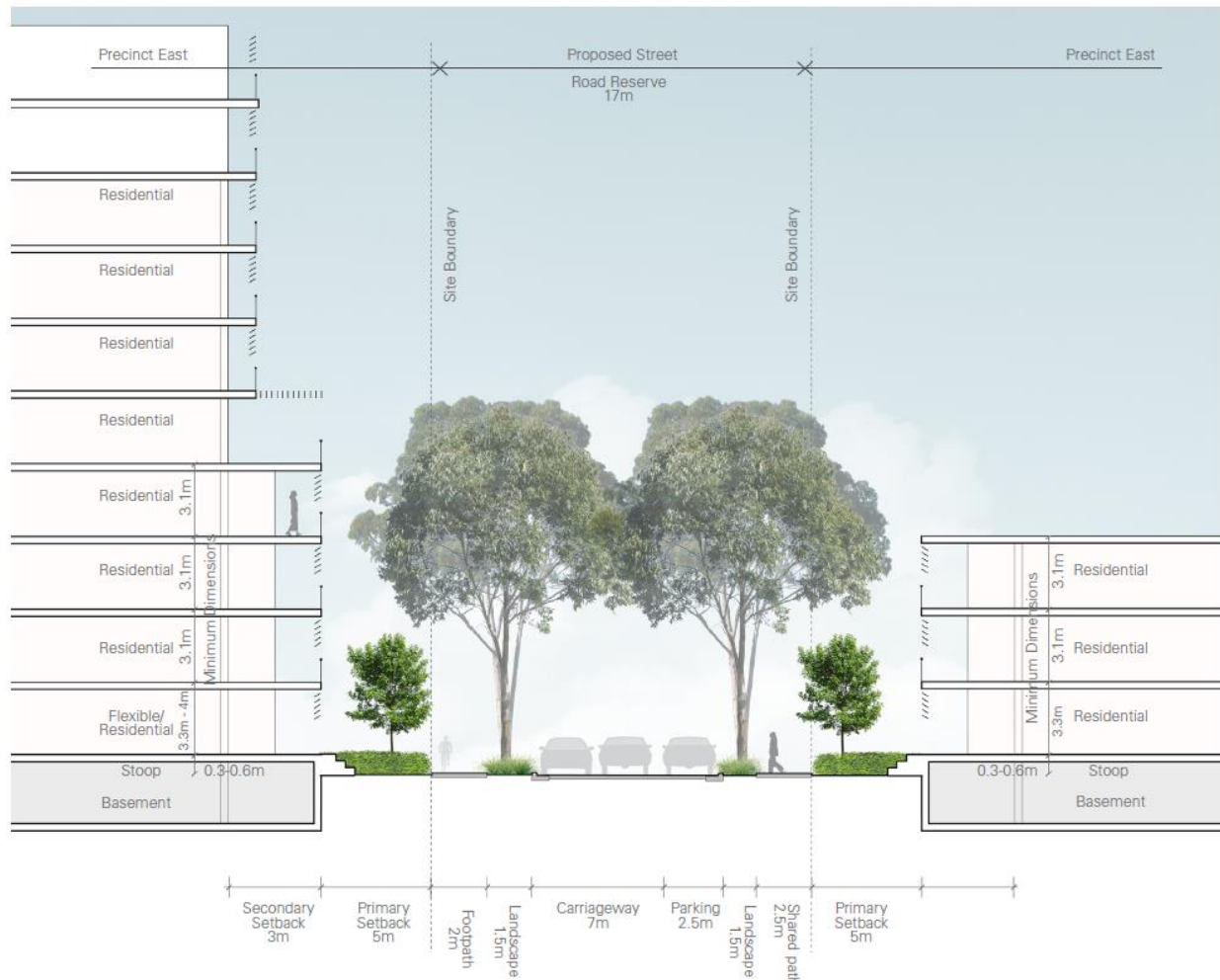
The location of the car park and loading dock accesses have been designed to minimise interface with high pedestrian areas such as Doran Drive and Mandala Parade, while providing the most direct access to the surrounding street network.

As discussed above, a new internal street is created as part of the Precinct East, namely the Precinct East Road. This new road is intended to be a local road to provide vehicular and service access to and from the residential buildings, and maintenance access to the local park within Precinct East and will provide a connection between De Clambe Drive and join Mandala Parade at Andalusian Way.

Key features of the Precinct East Road (as shown in **Figure 4–3**) are:

- Road reserve of 17 m wide;
- Two lanes of general traffic from De Clambe Drive to the Precinct East Park. One way (west only) from the park to Andalusian Way;
- On-street parking on the northern side from De Clambe Drive and the southern side adjoining the park; and
- Minimum 2 m wide footpath on the southern side of the street and 2.5 m shared path on the northern side to provide access to the park.

Figure 4–3 Precinct East Road



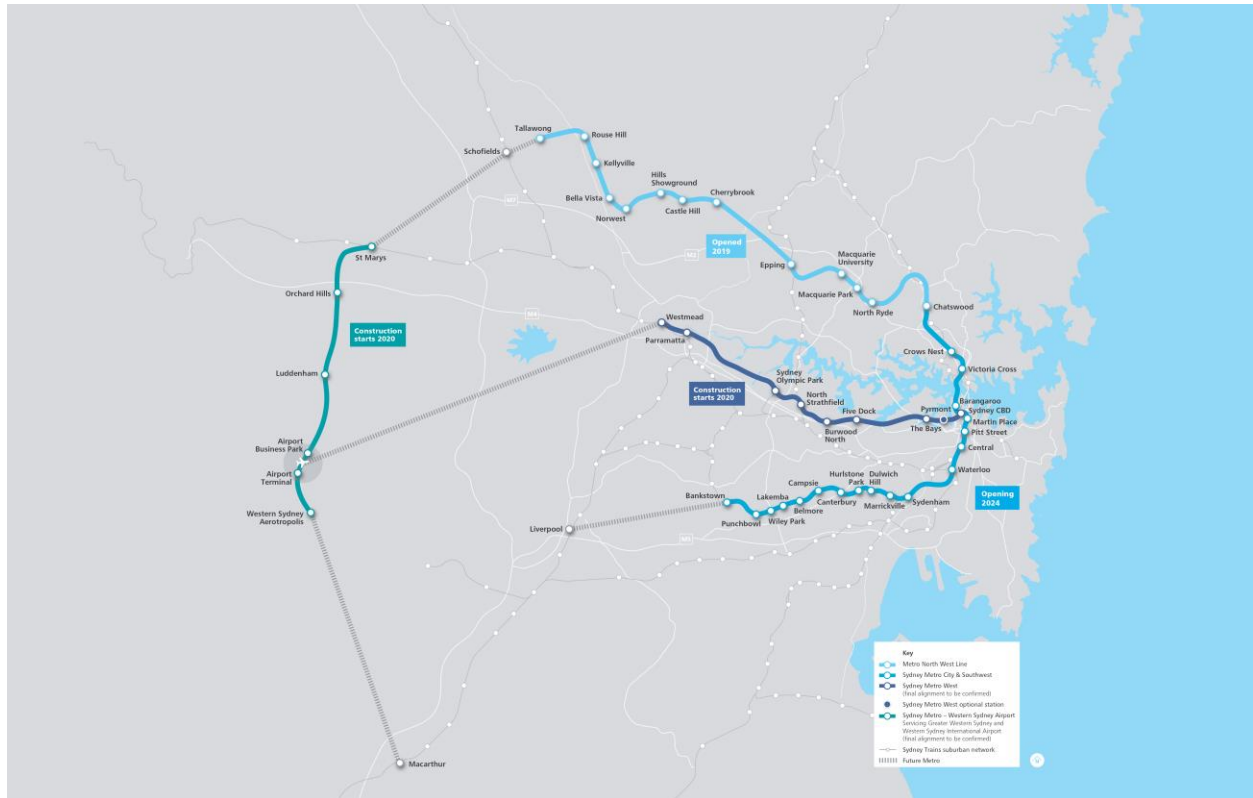
Source: Cox, 2020

4.2.2 Public transport access

Sydney Metro provides existing and future residents and employees with high quality access to public transport and employment options and promotes sustainable travel options. The Hills Showground Station of the Metro North West Line is shown in **Figure 4–4**, which provides direct access to Chatswood to the south east and Rouse Hill and Tallawong Station to the north west, with fifteen services in an hour during the peak.

The Metro North West Line opened in May 2019 between Tallawong and Chatswood. When Sydney Metro is extended into the central business district (CBD) and beyond in 2024, metro rail will run from Sydney's North West region under Sydney Harbour, through new underground stations in the CBD and beyond to the south west. Access to a wide range of employment locations within 30 minutes will attract more people to live at Hills Showground.

Figure 4–4 Sydney Metro Network



Source: Sydney Metro, 2020

The bus interchange located on both sides of Doran Drive and will continue to service bus routes that operate along Carrington Road and Showground Road connecting residents and employees between the station and other surrounding centres.

Other bus stops in the vicinity of the site are located in pair on Middleton Avenue (around 50 metres south of the Carrington Road / Middleton Avenue intersection) and Showground Road (around 70 metres upstream / downstream of the Carrington Road / Showground Road intersection).

The proximity to bus stops to the station allows efficient access of future residents and patrons to the Hills Showground Station site. The updated Concept Proposal has been developed to facilitate efficient access by bus and metro passengers through the station plaza and surrounding road network.

4.2.3 Active transport access

The vast majority of trips to, through and within the site will be taken on foot and the experience of the pedestrian is a critical consideration. Pedestrian footpath, through site link and mid-block connections has been proposed to ensure permeability and activity within all precincts of the site, as shown in **Figure 4–5**.

Footpaths within the proposed development are proposed according to the DCP requirements to ensure capacity to cater for a high number of walking trips and all major circulation spaces will be provided with shelter from the weather. In particular, opportunities exist within Precinct East to create a number of through-site links to increase permeability between the street networks surrounding this part of the site as well as improve access to the new park on Carrington Road.

Figure 4–5 Proposed active transport network



Source: Cox, 2020

A shared path is also proposed through Precinct East to connect De Clambe Drive with Carrington Road which provides connection along the existing shared path network.

To connect the shared path along Showground Road and ensure safe and compliant crossing by cyclists of Showground Road, it is proposed that bicycle lanterns are installed along Showground Road intersections at Victoria Avenue and Carrington Road as part of future intersection upgrade.

On-site bicycle parking will be provided for residents and employees, which will have accesses to the existing pedestrian and cycle path network.

4.3 Travel Demand Management

Sustainable transport and Travel Demand Management (TDM) strategies involve the application of policies, objectives, measures and targets to influence travel behaviour, to encourage uptake of sustainable forms of transport, i.e. non-car modes, wherever possible. TDM measures have proven to reduce congestion created by growth within urban areas and unlock urban renewal opportunities. They result in travel behaviour that uses less road space than a single occupant vehicle commute and takes advantage of spare transport capacity outside the morning and afternoon peaks.

TDM strategies generally guide all relevant customers (residents, employees and visitors) in changing the travel behaviour in the following ways:

- Reduce travel;

- Re-mode (consideration of travel via alternative modes);
- Re-time (consideration of travel at alternative times); and
- Re-route.

Landcom and Sydney Metro set up a framework for encouraging more sustainable travel, which has been used as a key principle of planning for the development. A Travel Plan should be developed by future developers and monitored by strata management for the Hills Showground Station Precinct community to deliver best practice travel programs and initiatives to manage travel demand for a transit-oriented development. Key initiatives and measures of Travel Demand Management Strategies should be strongly suggested and further developed into a Travel Plan to:

- Reduce the need to travel
 - Planning of wider Showground Station Precinct as a mixed-use community to maximise trip containment within the precinct and encourage use of active transport (walking and cycling) for short trips.
- Re-think the mode of travel
 - Walking and cycling:
 - A highly permeable and safe pedestrian network throughout the development;
 - Dedicated cycle routes that connect to the regional routes and major transport hubs;
 - Key design principles to integrate walking and cycling network and facilities into the planning and delivery of the development;
 - High quality, safe and accessible end-of-trip facilities (centralised cycle hubs that are integrated within development at convenient locations, on-street secure bicycle storage located conveniently at end of cycle destinations, parking hubs for shared bikes, lockers and showers);
 - Promotion of bicycle initiatives – such as NSW Bicycle Week, cycle to work day, free bike check-up events.
 - Public transport:
 - Provision of frequent public transport services to establish a non-car travel behaviour;
 - Good quality public transport stops in the vicinity of the development;
 - Tailored information with clear mapping and walking catchments at public transport stops;
 - Provision of public transport information from home via television channel or community app.
 - Parking measures to encourage alternative modes of travel:
 - Reduced parking rates with flexibility in parking arrangements such as shared parking between non-conflicting uses, shared vehicles parking and / or carpooling to accommodate parking needs of all employees;
 - Parking spaces dedicated to electric vehicles, with charging stations; The design to consider the future ability of spaces to link to electrical systems / power supply within the structure;
 - Parking spaces dedicated to car share scheme and community car-share vehicles, both on-street and incorporated in easily accessed public car parks.
 - Development and use of carpooling app for the wider precinct and community.
- Re-time and Re-route journeys:
 - Development of specific community app / community engagement program to enable changing travel behaviour which includes:
 - Active and public transport maps;
 - Personalised journey planner;
 - Notifications to latest travel information;
 - Shared vehicles information;
 - Car-pooling opportunities;

- Other precinct-related information.
- Real-time information embedded into development and public transport stops.
- Employers to promote and encourage flexible working hours and arrangements.

While it is important to develop a Travel Plan that is aimed at managing travel demand and reducing reliance on car travel, it is more important to monitor and evaluate the effectiveness of individual measures and the need to adjust the measures. The planning and implementation of a targeted Travel Plan with the above green travel initiatives / principles could support the delivery of a transit-oriented development at Hills Showground Station that provides significant opportunities for alternative travel options and reduces the need for car travel.

At the SSDA stage, there is no means to enforce the delivery of Green Travel Plan actions. It is recommended that subsequent development applications be given the requirement to develop green travel plans to realise the benefits of access to Metro North West Line.

4.4 Parking requirements and provision

4.4.1 Parking guidelines and DCP requirements

4.4.1.1 Car parking facilities

Transit-oriented developments aim to adopt car parking rates that provide a balance between meeting car parking demand whilst encouraging sustainable and active transport by residents. New developments are encouraged to reduce car parking provision and demonstrate the inclusion of transport alternatives or strategies to discourage and minimise private motor vehicle use.

As a principle, Landcom is committed to reduced car parking provision for Hills Showground Station Precinct to facilitate:

- An exemplar transit-oriented development (maximising the benefits of fast frequent metro connections with services every four minutes in the peak and 10 minutes in off-peak);
- A town centre not dominated by cars;
- Activation and life on the street; and
- A reduction in the congestion of precinct roads.

As highlighted in **Section 2.7.1**, lower parking rates also align with Council LSPS:

Opportunities exist for reconsideration of existing car parking rates for residential and commercial developments in close proximity to public transport, where car ownership levels are typically lower. Reducing parking opportunities at both origin and destination will influence travel choices.

The Hills Showground Station Precinct is located within 800 m of the metro station, considered as an industry accepted 10-minute walking catchment for public transport patrons. In fact, research by University of Sydney¹⁰ indicates that travel lengths even up to 1 km attract a similar (70%) proportion of walking trips.

The SSDA would facilitate development which supports best practice transit-oriented development principles, by providing increased residential density in proximity to Hills Showground Station and complimentary feeder bus services that provides residents with greater access to public transport and employment options, while promoting the use of sustainable travel options. Future residents of the precinct would benefit from the increased network coverage, train frequency, journey-time reliability and improved customer offering of the Metro North West Line, significantly reduce their reliance on private vehicle usage.

As a result of submissions received, parking rates for residential has been reduced from the rates that were previously exhibited, to a cap of an average of one space per market housing apartment, as shown in **Table 4-1**. This is in line with the rates suggested in the Showground Precinct DCP and the RMS minimum rates for Metropolitan Sub-Regional Centres, in order to encourage public transport and other sustainable transport options and minimise the impact to road traffic.

¹⁰ Explaining walking distance to public transport: the dominance of public transport supply World Symposium on Transport and Land Use Research, 28-30 July 2011

The minimum rates are guided by the requirements of the SEPP and Apartment Design Guide. The visitor car parking rate remains unchanged at 1 space per 10 dwellings.

Future developers will have the flexibility to distribute the car park provision across market housing of different size, within the range of parking rates specified as shown in **Table 4-1**. This approach is to ensure residential parking rates allow for flexibility to meet the future demographic needs and ongoing modal shift towards more sustainable transport outcomes. *For example, developers can propose 0.8 space for 1-bedroom, 1.0 space for 2-bedroom and 1.2 spaces for 3-bedroom dwellings and yield a total of 1,605 car parking spaces (excluding the visitor spaces), without exceeding the cap of 1,620 spaces.*

It should also be noted that this SSDA is seeking consent for a minimum of five percent of affordable housing for a 10-year term across the precinct. The rates of 0.4 space per 1-bedroom unit, 0.5 space per 2-bedroom dwelling and 1 space per 3-bedroom dwelling will be applicable for the affordable dwellings. The cap of 1,620 car parking spaces (not including visitor parking) determined based on total capped residential yield of 1,620 dwellings with respective minimum and maximum rates of market housing products, will be further reduced when the quantity, configuration of 1, 2 and 3 bedrooms as well as location of affordable housing is confirmed at detailed design stage.

Table 4-1 Car parking requirements for residential developments

Dwelling type		Proposed no. of units*	Number of parking spaces required for Hills Showground sites	
			Proposal Minimum Rates	Proposed Maximum Rates
Residential	1 Bed	402 units	0.4	An average of 1 space per market housing apartment
	2 Bed	892 units	0.7	
	3 Bed	310 units & 16 townhouses	1.0	
Sub-total spaces for 1,620 dwellings			1,111	1,620
Visitor		1,620 dwellings	0.1	0.1
Sub-total visitor spaces			162	162
Total		1,620 dwellings	1,273	1,782

Source: SCT Consulting, 2020

*- According to the updated Concept Plan across the precinct, a 25 percent, 55 percent and 20 percent ratio was applied for the proportion of one bed, two bed and three bed dwellings for all dwelling types.

The estimated number of parking spaces to be provided should be around 1,273 to 1,782 spaces for the residential component of the proposed development, which is based on the range for similar TOD sites and are still lower rates than The Hills Shire DCP and Showground Station Precinct DCP.

A comparison of the recommended residential car parking rates against other relevant parking rates applicable to the residential component of the proposed development is presented in **Table 4-2**. The recommended maximum car parking provision for the residential component is slightly lower than those suggested as minimum rate for the Metropolitan Sub-Regional Centres and the rate prescribed in the Showground Precinct DCP.

Reduced car parking provision would encourage a balance between meeting car parking demand whilst encouraging sustainable and active transport by residents. The car parking needs of future residents can still be met through a number of flexible and sustainable parking management measures / options such as:

- Decoupled parking, shared vehicles parking to accommodate parking needs of all residents.
- Car travel needs can be addressed via carpooling and / or using shared vehicles.
- Parking spaces dedicated to electric vehicles, with charging stations.
- Parking spaces dedicated to car share scheme and community car-share vehicles, both on-street and incorporated in easily accessed public car parks.

Table 4-2 Comparison of recommended residential car parking rates with other relevant rates

Dwelling type		Proposed no. of units*	Proposal Minimum Rates	Proposed Maximum Rates	Showground Precinct DCP ¹¹	The Hills Shire DCP (minimum rates)	Metropolitan Sub-Regional Centres (minimum rates)	Previously exhibited rates (maximum rates)
Residential	1 Bed	402 units	0.4	An average of 1 space per market housing apartment	1.0	1.0	0.6	1.0
	2 Bed	892 units	0.7		1.0	2.0	0.9	1.0
	3 Bed	310 units & 16 townhouses	1.0		1.0	2.0	1.4	1.5
Sub-total spaces for 1,620 dwellings			1,111	1,620	1,620	2,838	1,500	1,783
Visitor		1,620 dwellings	0.1	0.1	0.2	0.4	0.2	0.1
Sub-total visitor spaces			162	162	324	648	3,24	162
Total		1,620 dwellings	1,273	1,782	1,944	3,486	1,824	1,945
Percentage difference of other comparison rates to the proposed maximum rates			-	-	+9%	+96%	+2%	+9%

Source: SCT Consulting, 2020

*- According to the updated Concept Plan across the precinct, a 25 percent, 55 percent and 20 percent ratio was applied for the proportion of one bed, two bed and three bed dwellings for all dwelling types.

¹¹ The car parking rates proposed in the Showground Precinct DCP have no reference as minimum or maximum

The non-residential component of the site is expected to be relatively minor and will most likely be used by residents and passing trade within the local walking catchment, accessing the premises by foot or cycle, hence not highly reliant on cars. A comparison of the relevant parking rates applicable to the non-residential component of the proposed development is presented in **Table 4.3**.

Table 4-3 Comparison of relevant non-residential car parking rates

Type of use	GFA	Guide to Traffic Generating Developments (minimum rates)	The Hills Shire DCP 2012 (minimum rates)	Tallawong Station Precinct South (minimum rates)	Macquarie Park Corridor Precincts (maximum)
Retail	9,573 m ²	1 space per 16.4m ² GLFA ^	1 space per 18.5m ² GLFA ^	1 space per 60m ² GFA	1 space per 25m ² GFA
Commercial	4,367 m ²	1 space per 40m ² GFA	1 space per 40m ² GFA	1 space per 70m ² GFA	1 space per 100m ² GFA
Total	13,940 m²	548 spaces	498 spaces	223 spaces	427 spaces

Source: SCT Consulting, 2020

^Assuming GLFA: GFA=0.75:1 (refer to Section 5.7 Guide to Generating Traffic Development).

As described for the residential car parking component, it is considered acceptable to adopt the lower rates given the transit-oriented nature of the development and retail's main target customer group, i.e. local walk-up catchment. It is recommended that for the retail and commercial component that the car parking rate be set at the range with a maximum of 1 space per 60m² for retail and 1 space per 100m² for commercial. Given the proximity of these services to the metro station, a more ambitious approach would be to adopt the minimum rates proposed (as shown in **Table 4.4**) to further reduce the impacts of the non-residential component of the development.

The estimated number of parking spaces provided is 104 to 203 spaces for the non-residential component of the proposed development, which is based on the range for similar TOD sites.

Table 4-4 Car parking requirements for non-residential developments

Type of use	GFA	Number of parking spaces required for Hills Showground DGL sites	
		Min	Max
Retail	9,573 m ²	1 space per 130m ² GFA	1 space per 60m ² GFA
Commercial	4,367 m ²	1 space per 145m ² GFA	1 space per 100m ² GFA
Total	13,940 m²	104 spaces	203 spaces

Source: SCT Consulting, 2020

4.4.1.2 Shared vehicle parking

Further opportunities are considered to minimise parking provision by introducing shared vehicle parking spaces within the development that fully leverage the opportunities offered by the Metro North West Line and the principles of a transit-oriented development. Car share is a recent parking management option that is being increasingly considered for developments in Sydney as part of a travel demand management plan to reduce the number of parking spaces required to be provided in new developments.

Development applications are to demonstrate how the car share parking space(s) is to be accessed, including where access is through a security gate. A covenant is to be registered with the strata plan advising of any car share parking space. The covenant is to include provisions that the car share parking space(s) cannot be revoked or modified without prior approval of Council.

These requirements support the notion of using car share schemes, such as Go Get, to encourage reductions in private vehicle ownership. They also allow for action to be taken regarding parking provision and a review of existing parking controls.

SCT consulting was engaged by Landcom in a study to review DCPs and guidelines from other locations in Sydney to identify reasonable number of car share spaces. Given the increase in density and quantity of development surrounding the station and limited provision of car share locations around the site, a ratio of one per 150 car spaces for residential and one per 80 car parking spaces for commercial developments for the site is proposed, in lieu of 3 car parking spaces per car share parking space as suggested by some Councils. **This results in 10-14 car share**

spaces which could further offset 30-42 spaces from the total parking provision. It would capitalise on the precincts' excellent public transport access through the new Sydney Metro, but also reflect the area's more suburban character compared to the City of Sydney, North Sydney and Parramatta.

The car parking spaces for the overall development proposal are shown in **Table 4.5**.

Table 4-5 Total car parking spaces for overall development

Type of use	Overall development
Non-residential	104-203 spaces
Residential	1,111-1,620 spaces
Visitor	162 spaces
Sub-total	1,377-1,985 spaces
Shared vehicle	10-14 spaces
<i>Offsetting of normal parking spaces</i>	<i>minus 30-42 spaces</i>
Total	1,357-1,957 spaces

Source: SCT Consulting, 2020

Hence, it is recommended that **1,357-1,957** parking spaces be provided for the residential and non-residential components of the development, which includes 10-14 shared vehicle parking spaces.

4.4.1.3 Bicycle parking facilities

Based on the Showground Precinct DCP, the required bicycle parking is calculated in **Table 4.6**. A total of 705 bicycle parking spaces is required for the site according to proposed development mix and yield.

Table 4-6 Bicycle parking for the site

Type of use	Yield	Showground Precinct DCP requirements	Number of bicycle parking spaces required
Residential	1,620 dwellings	One space per three apartments for resident and one visitor space per 12 apartments	675
Retail	9,573 m ²	One space per 450 m ² GFA for staff	22
Commercial	4,367 m ²	One space per 600 m ² GFA for staff	8
Total	-	-	705 spaces

Source: SCT Consulting, 2020

Both The Hills Shire DCP and Showground Precinct DCP requires the provision of shower and change facilities for commercial and retail premises but there were no specific rates provided in the DCP. It is proposed to adopt North Sydney Council DCP changing / shower facilities provision rates for non-residential development as shown in **Table 4.7**.

Table 4-7 Recommended changing / shower facilities for the site

Type of facility	Proposed SSDA requirements	Number of facilities required
Locker	1 personal locker for each bike parking space	30
Shower and change cubicle	1 shower and change cubicle for up to 10 bike parking spaces; 2 shower and change cubicles for 11 to 20 or more bike parking spaces are provided; 2 additional shower and change cubicles for each additional 20 bike parking spaces or part thereof;	4

Source: SCT Consulting, 2020

It is suggested that showers and change facilities be provided in the form of shower and change cubicles in a unisex area or in both female and male change rooms. Lockers, change rooms and shower facilities are to be located close to the bicycle parking area, entry/exit points, and within an area of security camera surveillance where there are such building security systems.

4.4.1.4 Other parking requirements

Based on the development scale described in the preferred option and the requirements from The Hills Shire DCP, parking provision for service parking, motorcycle parking and accessible parking are summarised in **Table 4.8**.

Table 4-8 Other parking requirements for the site

Type of parking	The Hills Shire DCP 2012 requirement		Total spaces
	Residential	Non-residential	
Service parking	Not specified	Supermarket: Two for the first 930m ² of GLFA [^] , two for the next 930m ² , one for each extra 930m ² ;	5
		Mixed small shops: Two for the first 4,645m ² of GLFA [^] , two for the next 4,645m ² , and one for each extra 4,645m ² ; and	2
		Office: One for the first 1,860m ² , one for next 3,720m ² , one for the next 3,720m ² , one for each extra 9,250m ² .	1
Motorcycle parking	Provided for all developments with on-site parking of more than 50 car parking spaces, at a rate of one space for every 50 car parking spaces or part thereof		27-40
Accessible parking	Two percent of the total car parking		27-40

Source: SCT Consulting, 2020

^Assuming GLFA: GFA=0.75:1 (refer to Section 5.7 Guide to Generating Traffic Development).

4.4.2 Parking summary

According to The Hills Shire Council DCP, the Concept Proposal would require to provide approximately 4,000 spaces which does not reflect its strategic location adjacent to a metro station.

Additional mode share analysis suggests that there could be a significant shift to public transport use, from currently less than 10 percent to between 24 percent and 61 percent depending on the types of transport and built form policies implemented for this development given its location and density, which then complements a proposed reduction in parking supply. The increase in public transport services at the Hills Showground Station Precinct site enables reduction of car parking provision as there is significantly less reliance on private vehicles.

Restrained parking is proposed for the updated Concept Proposal to create a transit-oriented centre, reflecting the higher level of public transport services and to minimise additional congestion to the surrounding road network. Based on a parking review of other relevant DCPs and similar development examples that are located close to train station, it is proposed that the following car parking rates be adopted and applied to the updated Concept Proposal of the Hills Showground Station Precinct site as shown in **Table 4.9**.

Table 4-9 Recommended parking rates for Hills Showground Station Precinct site

Land use		Minimum car parking rates	Maximum car parking rates	Bicycle parking rates (minimum)
Market housing	1 Bed	0.4 space per dwelling	An average of 1 space per market housing apartment (as an overall cap) *	One space per three apartments for resident and one visitor space per 12 apartments
	2 Bed	0.7 space per dwelling		
	3 Bed	1.0 space per dwelling		
	Visitor	0.1 spaces per dwelling		
Affordable housing	1 Bed	0.4 space per dwelling		
	2 Bed	0.5 space per dwelling		
	3 Bed	1.0 space per dwelling		
	Visitor	-	0.1 spaces per dwelling	
Retail		1 space per 130 m ² – 60 m ² GFA		One space per 450 m ² GFA for staff
Office / commercial		1 space per 145 m ² – 100 m ² GFA		One space per 600 m ² GFA for staff
Car share spaces		One space per 150 car spaces for residential and one space per 80 car parking spaces for commercial		-

Source: SCT Consulting, 2020

*- Future developers will have the flexibility to distribute the car park provision across the different-sized market housing products without going below the minimum rates but also not exceeding the overall cap based on an average of 1 space per market housing apartment. This approach is to ensure residential parking rates allow for flexibility to meet the future demographic needs and ongoing modal shift towards more sustainable transport outcomes.

Based on the yield and land use mix and the recommended maximum parking rates for each type of uses as well as the requirements for the provision of car share parking spaces, the updated Concept Proposal would supply up to 1,957 car parking spaces and the required service and motorcycle parking. When compared to The Hills Shire DCP, this represents around 50 percent reduction in car parking space to maximise the full potential of its strategic location adjacent to the metro station and to reduce trip generation and discourage private motor vehicle use.

As part of the mandatory ESD control, it is also recommended that at least 10 percent of total parking spaces are to have Electric Vehicle charging stations.

4.5 AS 2890 car park review

A car park review and related swept path assessment has been conducted based on the current concept drawings. The review confirmed that all the car park and loading dock accesses are generally appropriately designed given the potential for further refinements in subsequent Development Application stages. Further refinements may be required as the design of the buildings evolve.

4.6 Trip generation

The site at Hills Showground Station Precinct is characterised by a mix of residential, retail and commercial uses within immediate proximity of the Hills Showground Station as well as low parking rates. Research indicates that these types of built environment variables lead to higher public transport mode share. Work by Matthew McKibbin (McKibbin, 2011) indicates that there are several factors that influence travel behaviour and that the strongest relationships are associated with demographics, car ownership and public transport access. A summary of the findings is provided in **Table 4.10**.

Table 4-10 Findings of built environment variables and their influence on public transport mode share

Category	Built environment variables	Model coefficient	Elasticity
Density	Residential density (pop/ha)	0.0004	0.05
	Employment density (jobs/ha)	0.0003	0.02
Diversity	Jobs/housing diversity (0 = single use, 1 = mixed use)	0.0247	0.03
Design	Street density (m/ha) <i>Not statistically significant</i>	-	-
Destination accessibility	% of jobs accessible by public transport in 30 mins	0.4019	0.11
	% of jobs accessible by car in 30 mins	-0.1044	-0.05
Distance to transit	Distance to the nearest CityRail station (log km)	-0.0537	-0.02
Control variables	Weekly income per person (\$ per week)	0.0001	0.17
	Cars per household	-0.2216	-0.98
	% workers travelling to Sydney CBD	0.5415	0.24

Note: The model intercept coefficient was 0.4313. The number of locations (Travel Zones) analysed was 1553
Source: McKibbin, 2011

McKibbin's work also provides a relationship between the level of car ownership and the non-car mode share / car trip generation. The relationship between these variables is an elasticity of -0.98, indicating that a 100 percent decrease in car ownership would result in a 98 percent increase in non-car mode share or vice-versa (all else being equal). When viewed together with research that indicates that low parking supply for households results in less car ownership, it can be concluded that parking supply can influence travel behaviour.

Given the site's access to frequent transit services, lower proposed parking and mixed-use nature, trip generation rates have been tailored to the proposal as per the following sections.

4.6.1 Residential vehicle trip generation

The average trip rate for high density residential flat dwellings that have good access to public transport services within Sydney urban areas, as published by the Roads and Maritime Services¹², is identified as 0.19 and 0.15 trips per dwelling within the AM and PM peak hour periods respectively and 1.52 daily trips per dwelling.

As a result of the further reduced parking provision from the previously exhibited parking rates for the residential component of the proposal, the traffic generation could also be reduced proportionally. However, we have retained the same peak hour trip generation rates of the residential component as per previously exhibited as a conservative approach to consider the likely traffic and mitigation measures required.

Table 4.11 show a summary of a number of selected sites that Roads and Maritime has surveyed for residential developments that are located close to public transport services, including their parking provision, mode share and trip generation (to indicate actual car use).

¹² Technical Direction TDT 2013/04a, Guide to Traffic Generating Developments – Updated traffic surveys (Roads and Maritime Services, 2013)

Table 4-11 Findings of built environment variables and their influence on public transport mode share

Site No. and location	Site 1 St Leonards	Site 2 Chatswood	Site 3 Cronulla	Site 5 Parramatta	Site 7 Strathfield	Site 10 Pyrmont	Average
Total units	70	129	28	83	31	131	
Parking spaces	97	206	18	108	30	199	
Parking ratio	1.39	1.60	0.64	1.30	0.97	1.52	1.24
% Mode Split							
Car driver & passenger	27%	35%	32%	42%	31%	40%	35%
Non-car	73%	64%	67%	57%	69%	60%	65%
Vehicular Trip Generation (vehicle trips per unit)							
AM Peak	0.14	0.14	0.07	0.27	0.10	0.18	0.15
PM Peak	0.07	0.12	0.11	0.12	0.06	0.10	0.10

Source: Roads and Maritime Service, Technical Direction 2013/14

The data in the table shows that these sites all achieve 35-40 percent car mode share and low weekday peak hour trip generation rates. However, all these developments offer a range of parking provision (ranging between 0.64 and 1.6 and on average of 1.24 spaces per dwelling) but still achieve low car uses. This also suggests that the trip generation rates are also dependent on other factors such as good access to frequent public transport services, access to jobs in key employment centres.

Hence, proposed peak hour car trip rates (0.19 and 0.15 trips per dwelling in the AM and PM peak hour) are considered the appropriate for this development for the following reasons:

- The site is in proximity to frequent public transport services;
- The site has constrained parking provision in line with transit-oriented development principles; and
- The site has access to large number of key employment centres within a reasonable travel time. This will further expand with the delivery of Sydney Metro City & Southwest by 2024.

These trip generation rates are also consistent with the rates used for a number of nearby residential developments including Tallawong Station Precinct South SSDA.

As a conservative assumption, we have adopted a higher vehicular trip rate for the proposed townhouses at a rate of 0.57 trips per dwelling based on typical rates as published by the Roads and Maritime Services Guide to Trip Generating Developments for medium density dwellings which are between 0.5 and 0.6 trips per dwelling.

4.6.2 Commercial vehicle trip generation

The RMS Technical Direction¹³ also described vehicular trip rates for commercial developments where traffic surveys were undertaken for developments that are close to public transport. Included in this Technical Direction were surveys at North Sydney, Chatswood, Macquarie Park and Parramatta, which are similar in terms of scale of development and proximity to the train stations. As such, the standard trip generation for office blocks was adopted:

- 1.6 vehicles per hour per 100m² GFA in the AM peak;
- 1.2 vehicles per hour per 100m² GFA in the PM peak; and
- 11 vehicles per day per 100m² GFA.

¹³ Technical Direction TDT 2013/04a, Guide to Traffic Generating Developments – Updated traffic surveys (Roads and Maritime Services, 2013)

4.6.3 Retail vehicle trip generation

Roads and Maritime Service's Technical Direction¹⁴ specified vehicle trip generation for the evening or midday peak of Thursday through to Sunday, however, does not specify the morning trip generation rate. Analysis was undertaken of the raw survey information to estimate the typical Thursday AM peak generation, all of which is shown in **Table 4.12**.

Table 4-12 Retail trip generation rates

Range in floor area (m ² GLFA)	Trip generation rate per 100m ² GLFA				
	Thursday PM peak	Friday PM peak	Saturday midday	Sunday midday	Thursday AM peak
0-10,000	12.3	12.5	16.3	-	5.9
10,000 – 20,000	7.6	6.2	7.5	6.6	Not estimated
20,000 – 30,000	5.9	5.6	7.5	6.3	Not estimated
30,000 – 40,000	4.6	3.7	6.1	-	Not estimated

Source: Roads and Maritime Service, analysis by SCT Consulting (Thursday AM peak), 2019

With the total quantity of retail floor space being under 10,000m² GLFA, the relevant band is the 0 – 10,000m² GLFA band. It is normal industry practice for retail to consider “linked trips” – i.e. passing trade. Given the location of the retail area in proximity to a large number of residential units within the precinct, not all of those trips leaving the supermarket will be leaving the precinct, and vice versa a proportion of residents visiting the supermarket comes within the precinct as part of their trip to school drop off or work trips. Also, given the retail offer's proximity to the metro station, the trip generation would also be expected to be lower. Hence a 25 percent trip reduction factor has also been applied to these retail vehicular trip rates to account for high passing trade expected given the location of these retail next to metro station.

4.6.4 Total vehicle trip generation

The likely estimated peak hour vehicle trip generation of the Hills Showground Station Precinct site is shown in **Table 4.13**.

Table 4-13 Peak hour vehicle trip generation of Hills Showground Station Precinct site

Land Use	Indicative Yield	Proposed AM Peak trip rates	AM Peak trips	Proposed PM Peak trip rates	PM Peak trips
Apartment	1,604 units	0.19 per unit	305 veh/h	0.15 per unit	241 veh/h
Townhouse	16 dwellings	0.57 per dwelling	9 veh/h	0.57 per dwelling	9 veh/h
Commercial	4,367m ²	1.6 / 100m ² GFA	70 veh/h	1.2 / 100m ² GFA	52 veh/h
Retail	7,180m ² ^	5.9 / 100m ² GLFA *	318 veh/h	12.3 / 100m ² GLFA *	662 veh/h
Total	-	-	702 veh/h	-	964 veh/h

Source: SCT Consulting, 2018

^Assuming GLFA: GFA=0.75:1 (refer to Section 5.7 Guide to Generating Traffic Development).

*A 25% reduction factor has also been applied to retail vehicular trip rates to account for high passing trade expected given the location of these retail next to metro station.

Based on the adopted trip generation rates of the respective land uses, it is estimated the updated Concept Proposal would generate 702 and 964 peak hour vehicular trips during the AM and PM peak respectively. Total point to point trip generation is considered negligible given the low journey to work mode share in the area for point to point.

¹⁴ Technical Direction TDT 2013/04a, Guide to Traffic Generating Developments – Updated traffic surveys (Roads and Maritime Services, 2013)

4.6.5 Person trip generation

Surveys at several locations were chosen from the Roads and Maritime Service Technical Direction, for person trip generation estimation. Person trip generation for apartments is an average of 0.66 and 0.56 trips per unit in the AM and PM peak, respectively per the average of the Technical Direction.

The average peak hour person trip rates were estimated to be 1.45 and 1.14 trips per 100m² during the AM and PM network peak hour respectively for similar office areas. Average peak hour trip rates were 3.05 and 6.94 person-trips per 100m² during the AM and PM network peak hour respectively for retail sites. The surveyed data for these sites is highlighted in **Table 4.14** and **Table 4.15**.

Table 4-14 Peak hour person trip generation of similar office sites (commercial)

Surveyed location	North Sydney	Chatswood	Macquarie Park	Parramatta	Average
AM peak hour trips	391	111	142	266	-
PM peak hour trips	338	90	86	298	-
GFA (m ²)	31,400	10,214	5,748	27,000	-
AM trip rate / 100 m²	1.25	1.09	2.47	0.99	1.45
PM trip rate / 100 m²	1.08	0.88	1.50	1.10	1.14

Source: Roads and Maritime Service, Technical Direction 2013/14

Table 4-15 Peak hour person trip generation of similar retail sites

Surveyed location	Burwood	Liverpool	Rouse Hill	Warriewood	Average
GFA (m ²)	63,404	91,115	69,000	22,143	-
AM trip rate / 100 m²	3.27	3.68	2.08	3.18	3.05
PM trip rate / 100 m²	8.00	6.65	6.30	6.80	6.94

Source: Roads and Maritime Service, Technical Direction 2013/14

It should be noted that these retail areas are significantly larger than the retail component of the updated development concept, but this approach provides an estimation of likely person trip generation by the retail component.

Person trip generation for the site was estimated as shown in the **Table 4-16** below with the peak hour trip generation rates estimated in the previous tables.

Table 4-16 Peak hour person trip generation of Hills Showground Station Precinct site

Land Use	Indicative Yield	AM Peak person trip rates	AM Peak person trip generation	PM Peak person trip rates	PM Peak person trip generation
Residential	1,620 units	0.66 per unit	1,070	0.56 per unit	907
Commercial Community uses	4,367m ²	1.45 per 100m ² GFA	63	1.14 per 100m ² GFA	50
Retail	9,573m ²	3.05 per 100m ² GFA	292	6.94 per 100m ² GFA	664
Total	-	-	1,425	-	1,621
Less persons in vehicle trips	-	-	-842[^]	-	-1,157[^]
Total person trips	-	-	583	-	464

Source: SCT Consulting, 2020

[^]Assuming the car occupancy for the vehicle trip generation is 1.2 person / vehicles. AM Peak trip generation = 702*1.2 = 842 persons and PM Peak trip generation = 964*1.2 = 1,157 persons.

Given its location directly adjacent to Hills Showground Station and peak hour travel purposes, most of these person-trips associated with the Hills Showground Station Precinct site will be using surrounding public transport services, some will be to other businesses and some would be walking / cycling from trip origins. Hence, it is estimated the updated Concept Proposal is forecast to generate approximately 583 and 464 person-trips during the AM and PM peak hours respectively, of which the majority of them will be associated with metro and bus customers. A small proportion would be walking / cycling to or from the origins of their trips.

It is not possible to estimate cycling demand accurately given the changing nature of the precinct. The site is currently characterised by construction, bulky goods and detached dwellings. With the introduction of high-density mixed use and street activation, this is expected to change significantly. Cycling demand could be up to two percent of the total person demand, indicatively 32 trips per hour.

5.0 Traffic and transport impact assessment

5.1 Public and active transport

5.1.1 Public transport impacts

The site is located immediately adjacent to Hills Showground Station, which provides direct access to Chatswood, Rouse Hill, Macquarie Park and other employment centres via connecting rail services. The wide network coverage, train frequency, journey-time reliability and improved customer offering of Sydney Metro, will encourage public transport usage and increase journey to work trips by non-car modes.

The delivery of this site would support best practice transit-oriented development principles, by providing increased mixed-use density in proximity to high frequency and capacity public transport services. Sydney Metro will provide employees with greater access to public transport and employment options, while promoting the use of sustainable travel options.

On this basis, **Section 4.6.5** estimated the majority of an additional 583 person-trips during the peak hour that generated by the updated Concept Proposal will be using public transport or active transport to access the development. These additional trips during the peak hours can be accommodated through the high frequency metro services and frequent bus services.

Impacts on the metro system are expected to be limited, with the subject site intended to capitalise on benefits of the new metro service, increasing patronage. With a current total of up to 35 bus services in each of the AM and PM one-hour peak, respectively, the impact on individual routes is expected to be limited. Bus trips are expected to be demanded only for locations not covered by the metro, such as Parramatta or Blacktown. Based on the breakdown of current destinations from **Table 3-1**, indicatively 30 percent of destinations would be more easily accessible by bus than metro. Assuming no destination shift towards more accessible locations (a conservative assumption), buses are forecast to experience an increase in demand by 476 trips per hour, predominately to Parramatta and Blacktown. Bus services may need to increase in frequency if this demand can't be catered for with the current services.

With bus stops interchanging directly with Hills Showground Station, no changes to bus service patterns are considered necessary to service the development.

5.1.2 Active transport impacts

Pedestrian and cyclist access to the site has been identified in the Interchange Access Plan via the cycle and pedestrian paths on De Clambe Drive, Andalusian Way and Doran Drive. These routes will connect cyclists and pedestrians to station, Showground Road and Carrington Road.

As discussed in **Section 4.6.5**, the increased yield of the updated Concept Proposal could generate approximately 589 person-trips per peak hour, of which only a small proportion would be walking / cycling to / from the origins of their trips.

The station layout and interface with the updated Concept Proposal has several features to support the expected large amount of pedestrian volumes. There are multiple access points to the station, reducing pressure on each of the access points. There is also spacious public domain with multiple plazas, which provides waiting or meet and greet space for customers, which reduces queue build-up near station gates. Lastly, with the large frequency of train services, the peak factor for pedestrian demands is more balanced compared with a conventional heavy rail station.

Given the high frequency of metro services, the pedestrian demand between the proposed development and the station would be very well-spread across the peak hours, hence reducing the likely crowding levels and additional upgrade of current footpaths and shared paths which are delivered for significantly higher demand and are currently observed to have significant spare capacities.

The vast majority of trips to, through and within the site will be taken on foot and the experience of the pedestrian is a critical consideration in the development of the concept master plan. Within the network of streets, a finer grain of mid-block connections has been proposed to ensure permeability and activity within all blocks of the Showground Station Precinct.

Street wall heights and primary setbacks have been incorporated into the concept master plan to ensure the scale of buildings is an appropriate experience for pedestrians at the street level. Upper level setbacks to towers provide a sense of space and openness to the sky and the podiums shield pedestrians from down-drafts. Footpaths throughout

the site are designed according to DCP requirements to ensure capacity to cater for a high number of walking trips and all major circulation spaces will be provided with shelter from the weather.

Crossing locations on Showground Road are considered appropriate, being spaced at 180m distance from each other. It would not be safe to introduce an additional signalised crossing on Showground Road between De Clambe Drive and Carrington Road, as the close spacing of intersections could lead to rear-end crashes due to “look through” effects, where drivers confuse which traffic lights they are looking at.

5.2 Road network

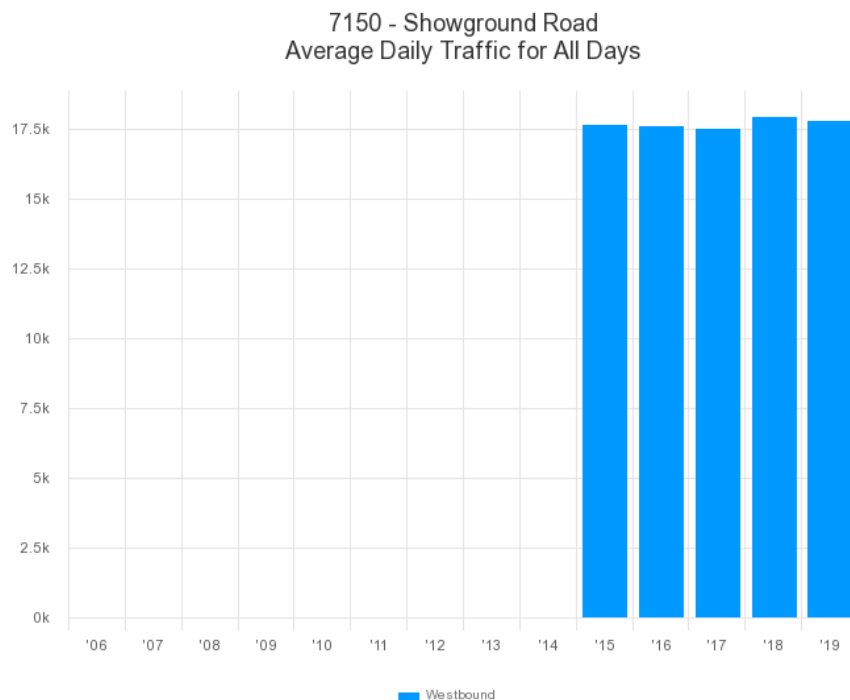
As discussed in **Section 4.6.4**, the updated Concept Proposal would generate between 682 and 929 peak hour vehicular trips during the AM and PM peak hours respectively.

5.2.1 Background growth

Roads and Maritime provided a copy of the Showground Road concept design including the supporting traffic memo. This memo identified growth rates of the surrounding road network assumed in the development of the road upgrade. These growth rates were extracted from the STFM in 2017, after the time of the exhibition of the Showground Station Precinct rezoning and the North West Rail Link Corridor Strategy, both of which provided forecast growth precinct-by-precinct.

Historical traffic volumes are shown in **Figure 5–1** for the count station of Showground Road, east of Victoria Avenue.

Figure 5–1 Showground Road average daily traffic



Exported on Mon Oct 14 2019 at 11:15:59. © Roads and Maritime Services 2015.

Source: Roads and Maritime Service, <https://www.rms.nsw.gov.au/about/corporate-publications/statistics/traffic-volumes/aadt-map/index.html/?z=13&f=0&yr=2018&lat=-33.76007830827463&lon=151.01082843200197&id=7150&tb=1>, 2019

The historical growth on the corridor is flat, with 17,680 average vehicles per day in 2015 and 17,831 vehicles per day in 2019, a compound growth rate of 0.2 percent per annum.

The rates identified in the STFM modelling is significantly above these rates, so is concluded as including regional growth – a cumulative impact assessment. The adopted background traffic growth is shown in **Table 5-1**.

Table 5-1 Adopted growth rates by location

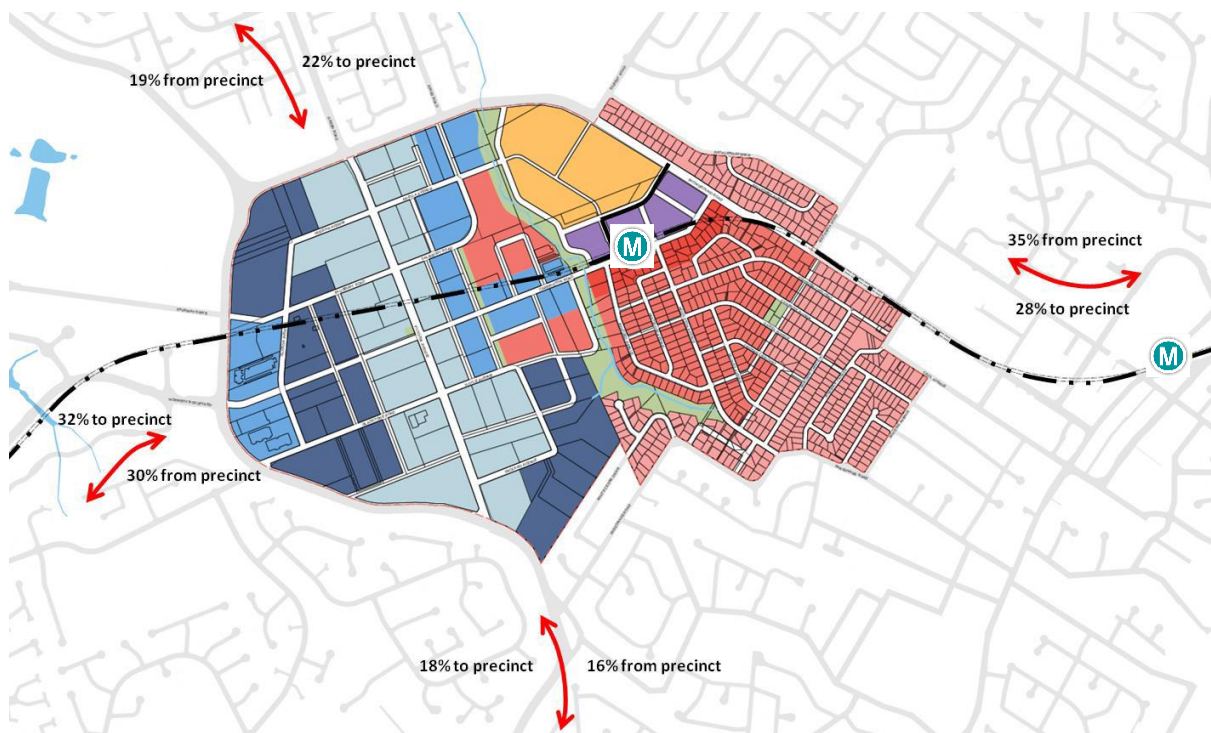
Road	Direction	AM peak growth p.a.	PM peak growth p.a.
Carrington Road	EB	2.4%	1.0%
	WB	1.0%	2.4%
Showground Road	SB	2.9%	2.4%
	NB	2.6%	3.0%
Victoria Avenue	SB	2.0%	1.4%
	NB	3.3%	1.9%
Gilbert Road [^]	EB	0.5%	0.5%
	WB	0.5%	0.5%

Source: SCT Consulting based on Easing Sydney's Congestion, AECOM, 2019

[^]It is assumed that minimal traffic growth will be expected on distributor within a constrained corridor and no plan for future upgrade.

5.2.2 Traffic distribution

The traffic distribution was adopted from the Transport for NSW transport plan, which has the best distribution information available in the area as it accounts for the benefits of Sydney Metro. This is shown in **Figure 5-2**.

Figure 5-2 Showground Station Precinct Transport Plan trip distribution

Source: Transport for NSW, 2019

5.2.3 Future year traffic forecast

The development trip generation as estimated in **Section 4.6.4** as well as background traffic growth derived from **Section 5.2.1** have been applied to the 2019 traffic volumes. The resultant 2031 peak hour traffic volumes on Showground Road and Carrington Road are summarised in **Table 5-2**.

Table 5-2 2031 forecast traffic volumes on Showground Road and Carrington Road

Location	2019 AM	2019 PM	2031 AM base with background traffic	2031 PM base with background traffic	2031 AM with development traffic	2031 PM with development traffic
Showground Road between Gilbert Road and De Clambe Drive	2,280 (95)	2,480 (48)	3,160 (130)	3,370 (63)	3,240 (130)	3,520 (63)
Showground Road between De Clambe Drive and Carrington Road	2,200 (106)	2,330 (64)	3,050 (141)	3,220 (85)	3,060 (141)	3,260 (85)
Showground Road between Carrington Road and Britannia Road	2,470 (111)	2,830 (65)	3,400 (153)	3,780 (90)	3,600 (151)	4,040 (90)
Carrington Road between Showground Road and Andalusian Way	1,140 (22)	1,270 (4)	1,550 (30)	1,600 (8)	1,740 (30)	1,810 (8)
Carrington Road between Doran Drive and De Clambe Drive	1,250 (34)	1,530 (26)	1,460 (41)	1,840 (34)	1,770 (41)	2,220 (34)

Source: SCT Consulting, 2020

Note: Total peak (1-hour) traffic volumes are shown in table with forecast heavy vehicles shown in brackets.

5.2.4 Future year network performance

The performance of the traffic network under the various scenarios in 2031 is shown in **Table 5-3**. The scenarios tested for 2031 AM and PM peak include:

- Background growth & no infrastructure upgrades (with existing road network);
- Background growth with infrastructure upgrades (to achieve acceptable LoS);
- Background growth and development traffic & no infrastructure upgrades (with existing road network); and
- Background growth and development traffic with infrastructure upgrades (to to achieve acceptable LoS).

During consultation with The Hills Shire Council, it is also acknowledged that the bus lanes on Carrington Road between Victoria Avenue and De Clambe Drive are temporary in nature. Council is preparing engineering design to finalise the footprint of the future widening including the bus lane. However, for modelling purposes, Council confirms that there will be no changes to the intersection layout of Carrington Road with Doran Drive. The traffic modelling indicates that the intersections of Showground Road / Gilbert Avenue, Showground Road / Carrington Road and Carrington Road / Victoria Avenue will fail during the peak hours in 2031, under existing network configuration.

Figure 5-3 highlights the infrastructure upgrades that may be required to cater for the background traffic growth along the Showground Road and Carrington Road corridors and the full development traffic by 2031. The infrastructure upgrades could include:

1. Additional eastbound lane on Showground Road between the approach to Gilbert Avenue and the approach to De Clambe Drive;
2. Additional lane on Carrington Road in both directions between Showground Road and Andalusian Way;
3. Additional turning lanes from Showground Road to Carrington Road;

4. Additional left turn slip lane from Carrington Road to Showground Road; and
5. Signalisation of Carrington Road / Victoria Avenue intersection with additional turning lanes.

According to the Showground Station Precinct Contributions Plan No. 19, the signalisation of Carrington Road and Victoria Avenue has already been included to meet the future demand, whilst ensuring an acceptable level of access, safety and convenience for all street and road users within the Showground Precinct. Hence, the upgrade of this intersection, as confirmed by the traffic modelling to cater for background traffic growth and development traffic, should be paid off by all relevant Section 7.11 contributions. A traffic signals warrant has also been undertaken to confirm that this intersection should warrant a traffic signal based the expected traffic demand in 2031 (See **Section 5.2.4.2**).

On the other hand, as also stated in the Contributions Plan No. 19, the upgrade of Showground Road / Carrington Road will be provided by parties other than Council (including Transport for NSW and future individual developers within the Precincts) as development occurs. It should be noted that the Showground Road / Carrington Road intersection upgrades had secured funding through the Federal and State Governments. This was announced on 29 June 2020 as part of the Stimulus Package.

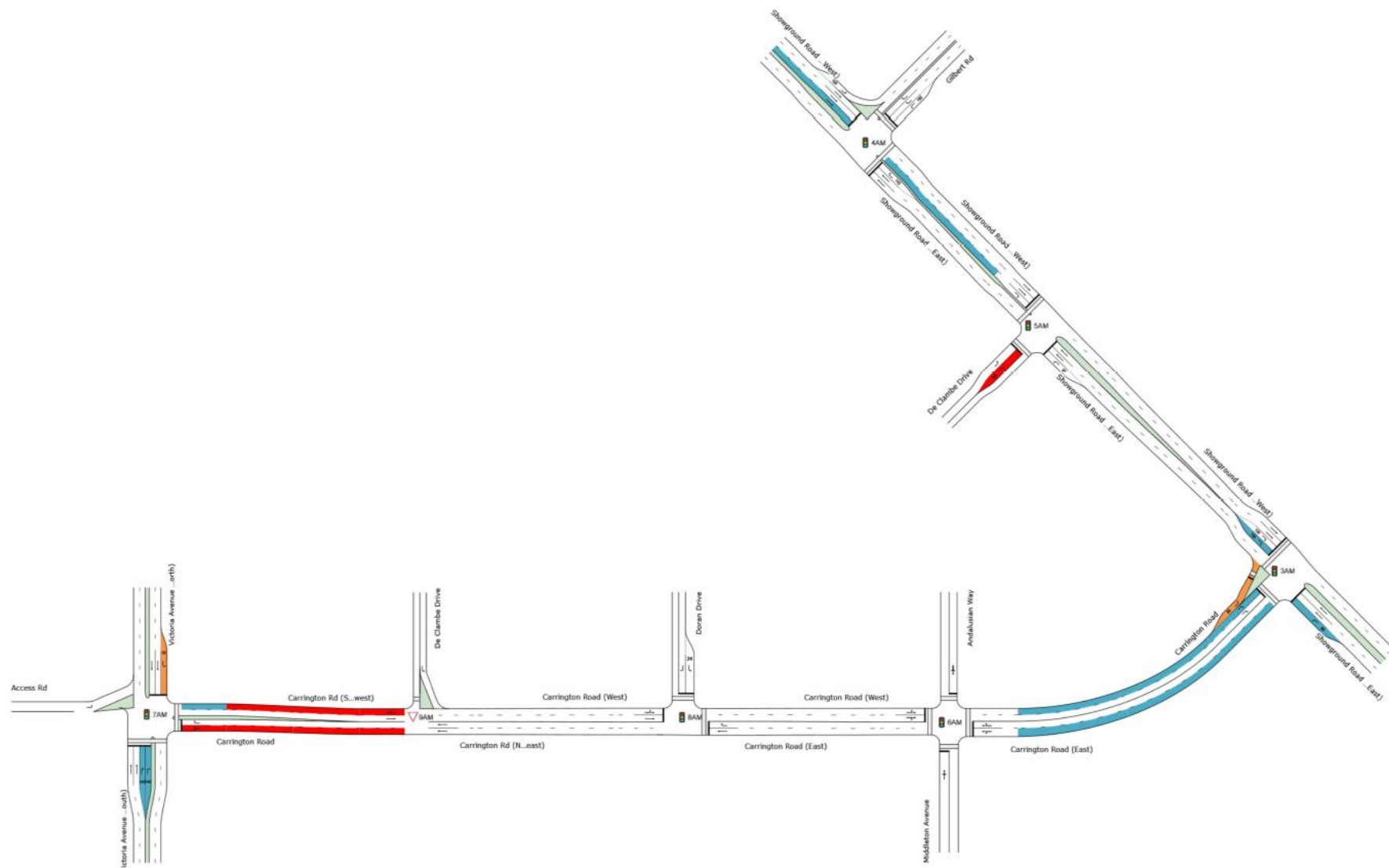
Table 5-3 Network performance in 2031 under modelled scenarios

Intersection performance in 2031	Background growth & no infrastructure upgrades			Background growth with infrastructure upgrades			Background growth and development & no infrastructure upgrades			Background growth and development with infrastructure upgrades		
	Delay	LoS	DoS	Delay	LoS	DoS	Delay	LoS	DoS	Delay	LoS	DoS
2031 AM Peak												
Showground Rd / Gilbert Rd	131.2	F	1.17	31.3	C	0.83	107.8	F	1.20	31.5	C	0.83
Showground Rd / De Clambe Dr	8.6	A	0.86	3.8	A	0.71	12.3	A	0.9	5.7	A	0.74
Showground Rd / Carrington Rd	93.0	F	1.71	19.8	B	0.67	121.1	F	1.79	20.4	B	0.76
Carrington Rd / Middleton Ave / Andalusian Wy	20.4	B	0.81	31.4	C	1.00	47	D	1.03	38.8	D	0.96
Carrington Rd / Victoria Ave	24.9	B	0.90	38.5	C	0.86	113.7	F	1.09	43.5	D	0.90
Carrington Rd / Doran Dr	6.5	A	0.59	18	B	0.89	9	A	0.70	16.6	B	0.88
Carrington Rd / De Clambe Dr	4.7	A	0.24	4.7	A	0.29	4.7	A	0.29	4.7	A	0.33
2031 PM Peak												
Showground Rd / Gilbert Rd	31.4	C	1.02	20.7	B	0.66	21.7	B	0.78	21.3	B	0.69
Showground Rd / De Clambe Dr	8.4	A	0.68	5.9	A	0.71	9	A	0.66	5.8	A	0.75
Showground Rd / Carrington Rd	152.2	F	1.43	54.9	D	0.99	174.9	F	1.43	51.0	D	0.98
Carrington Rd / Middleton Ave / Andalusian Wy	53.5	D	1.07	22.8	B	0.85	120	F	1.33	27.7	B	0.84
Carrington Rd / Victoria Ave	228.4	F	1.22	50.6	D	0.92	345.9	F	1.36	55.3	D	0.98
Carrington Rd / Doran Dr	6.9	A	0.53	14.5	A	0.80	39.5	C	1.23	22.4	B	0.87
Carrington Rd / De Clambe Dr	4.7	A	0.45	4.7	A	0.53	4.7	A	0.51	4.7	A	0.61

Source: SCT Consulting, 2020

Delay = worst movement for priority and roundabout controlled intersections and DoS = degree of saturation of worst movement.

Figure 5-3 2031 infrastructure upgrades



Source: SCT Consulting, 2020

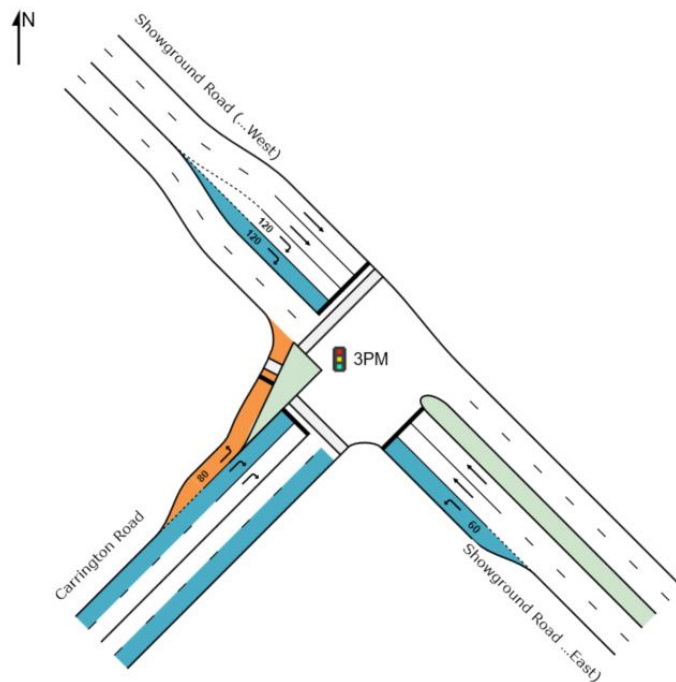
Note: Blue sections represent the upgrades needed for background growth while orange sections are upgrades needed for development traffic, while red sections represent bus lanes that have been implemented under existing conditions. It should be noted that the Showground Road / Carrington Road intersection upgrades had secured funding through the Federal and State Governments. This was announced on 29 June 2020 as part of the Stimulus Package.

5.2.4.1 Sensitivity for increased crossing movements at Showground Road

Transport for NSW requested a sensitivity test for additional pedestrian crossing movements of Showground Road given the expected continual growth for pedestrian access to Hills Showground Station over time.

The primary access for pedestrians would likely be Carrington Road, due to its proximity to the metro station. The primary crossing facility for pedestrians wishing to cross Showground Road is located on the north-western side of the intersection, as shown in **Figure 5-4**.

Figure 5-4 Showground Road with planned upgrade layout (2031)



Source: SCT Consulting, 2020

This pedestrian crossing does not have any conflicting vehicle turning movements. The pedestrian crossing runs at the same time as the right turn out of Carrington Road (Phase C), which requires a significant amount of green time due to the scale of the movement. As there are no vehicle conflicts with any turning movements, there were no changes to the model under the situation that the pedestrian crossing is called more frequently. The model assumes that the crossing is called every cycle.

A similar case occurs with the pedestrian crossing of the left turn slip on Carrington Road. The left turn slip pedestrian crossing is given a green light during the phase where both sides of Showground Road are given a green light (Phase A). As this phase is called every cycle, this pedestrian crossing is called every cycle. With no conflicting movements there were no changes required to be made in the models to align with greater pedestrian crossing demands.

In short, the infrastructure is well placed as an at grade signalised crossing in that conflicting movements are limited with pedestrians, promoting safety and running every cycle. No testing of any changes to the infrastructure is required in SIDRA Network.

5.2.4.2 Signal warrants assessment for Carrington Road / Victoria Avenue

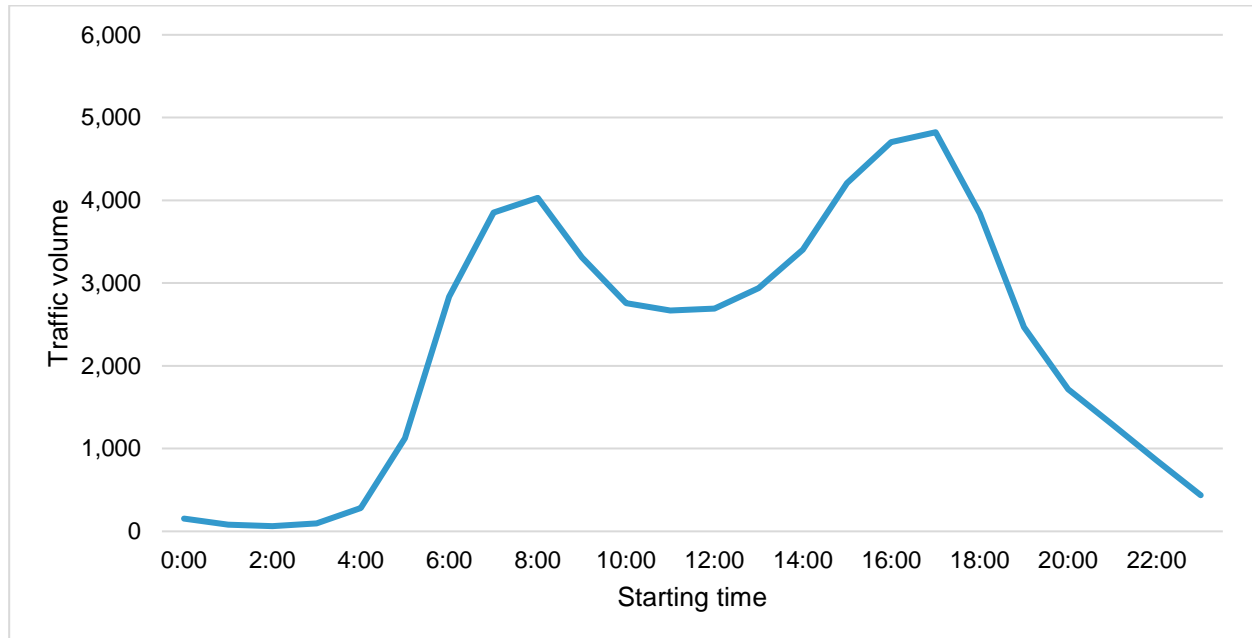
A traffic signal warrants assessment was undertaken for Carrington Road / Victoria Avenue, since this intersection is proposed to be upgraded from a roundabout to a new set of traffic signals as a result of regional traffic growth.

TfNSW lists general warrants for installation of traffic signals in the Traffic Signal Design – Section 2 Warrants document (issued by RTA). The document stresses that the list is a guide and that traffic signals may not be the most optimal solution, even if the site satisfies the warrants. Conversely, traffic signals be installed irrespective of general warrants due to external factors.

It should be noted that the warrant criteria must be satisfied for each of four one-hour periods of an average day. Hence, the two one-hour peak period traffic volumes for 8:00-9:00 AM and 4:30-5:30 PM, were expanded to hourly

traffic volume of 24 hours based on typical daily traffic profile at nearby traffic count station¹⁵. The estimated daily traffic profile for Victoria Avenue and Carrington Road intersection is shown in **Figure 5-5**. The road network peak hours occur during 7:00-10:00 AM and 3:00-6:00 PM.

Figure 5-5 Daily traffic profile assumed for Victoria Avenue and Carrington Road intersection



Source: SCT Consulting, 2020

The expected approach volumes during the AM and PM peak periods are shown below in **Table 5-4**. Traffic volumes that are higher than 600 veh/hr in each direction were highlighted in bold and it confirmed that there are more than four hourly periods where traffic volumes exceeds 600 veh/hr on two approaches to the intersection.

Table 5-4 Traffic volumes on each approach during 2031 AM and PM peak period (six hours)

Peak period	Time	Traffic volumes for all approaches				Total throughput
		N	E	S	W	
AM	7:00-8:00	1,292	1,154	1,292	74	3,812
	8:00-9:00	1,351	1,207	1,351	77	3,987
	9:00-10:00	1,111	992	1,111	63	3,277
PM	3:00-4:00	1,178	1,149	1,782	56	4,165
	4:00-5:00	1,316	1,284	1,990	63	4,653
	5:00-6:00	1,350	1,317	2,042	64	4,773

Source: SCT Consulting, 2020

The peak period traffic volumes for all approaches are reviewed against the TfNSW warrant criteria to establish whether signals are required at the intersection of Victoria Avenue and Carrington Road. **Table 5-5** presents the findings of the review. It is understood that the definition of major road for a signalised intersection is associated with approaches with highest traffic demand but not associated with road hierarchy.

Since a signalised intersection may be considered if one of the below warrants is met, the Victoria Avenue and Carrington Road intersection may warrant a traffic signal based on criteria (a) Traffic Demand.

¹⁵ Daily traffic profile for 2019 weekday both directions of all vehicles for Windsor Road (Station ID: 72027) were derived to estimate the traffic profile for the intersection ; AM (0:00-12:00) and PM (12:00-24:00) volumes were expanded separately due to the original traffic volume for 8:00-9:00AM and 4:30-5:30PM were not proportional to the survey count.
Hills Showground Station Precinct

Table 5-5 Warrant criteria review results

Warrant	Criteria	AM	PM	Warrants met?
a) Traffic demand	(i) The major road flow exceeds 600 vehs / h in each direction; and	Yes	Yes	Yes
	(ii) The minor road flow exceeds 200 vehs / h in one direction.	Yes	Yes	
b) Continuous traffic	(i) The major road flow exceeds 900 vehs / h in each direction; and	Yes	Yes	Unknown
	(ii) The minor road flow exceeds 100 vehs / h in one direction; and	Yes	Yes	
	(iii) The speed of traffic on the major road or limited sight distance from the minor road causes undue delay or hazard to the minor road vehicles; and	Unknown	Unknown	
	(iv) There is no other nearby traffic signal site easily accessible to the minor road vehicles.	Yes	Yes	
c) Pedestrian safety	(i) The pedestrian flow crossing the major road exceeds 150 persons / hr; and	Unknown	Unknown	Unknown
	(ii) The major road flow exceeds 600 vehicles / hr in each direction or, where there is a central median of at least 1.2m wide, 1,000 vehicles / hr in each direction.	Yes	Yes	
d) Pedestrian safety – high speed road	(i) The pedestrian flow crossing the major road exceeds 150 persons / hr; and	Unknown	Unknown	Unknown
	(ii) The major road flow exceeds 450 vehicles / hr in each direction or, where there is a central median of at least 1.2m wide, 750 vehicles / hr in each direction; and	Yes	Yes	
	(iii) The 85th percentile speed on the major road exceeds 75km / hr.	Unknown	Unknown	
e) Crashes	(i) The intersection has been the site of an average of three or more reported towaway or casualty traffic accidents per year over a three-year period, where the traffic accidents could have been prevented by traffic signals; and	N/A	N/A	N/A
	(ii) The traffic flows are at least 80% of the appropriate flow warrants.	Yes	Yes	

Source: SCT Consulting, 2020

5.2.5 Staging assessment and network performance

It is envisaged that the three precincts will be developed in stages. The earliest occupation is anticipated in mid-2023 for Doran Drive Precinct, followed by Precinct West by 2026-2029 and Precinct East to be completed by 2031. Hence, an assessment has been undertaken according to the proposed staging of development to inform any intermediate infrastructure upgrades that would be required prior to the full development.

The performance of the surrounding road network under the staging assessment (2023 with Doran Precinct only) and (2029 with Doran Precinct and Precinct West) are summarised in **Table 5-6** and **Table 5-7**.

The assessment suggested that the infrastructure upgrades may be required as follows and as shown in **Figure 5-6** and **Figure 5-7**:

By 2023:

- Additional lane on Carrington Road in both directions between Showground Road and Andalusian Way; and
- Signalisation of Carrington Road / Victoria Avenue intersection with additional turning lanes.

By 2029:

- Additional eastbound lane on Showground Road between the approach to Gilbert Avenue and the approach to De Clambe Drive;
- Additional turning lanes from Showground Road to Carrington Road;
- Additional left turn slip lane from Carrington Road to Showground Road; and
- Additional northbound right turn lane from Victoria Avenue to Carrington Road.

Once these upgrades are delivered by 2031, there are no further upgrades required in 2031 upon the completion of development in Precinct East.

Table 5-6 Network performance in 2023 under modelled scenarios

Intersection performance in 2023	Background growth & no infrastructure upgrades			Background growth with infrastructure upgrades			Background growth and development ¹⁶ with infrastructure upgrades		
	Delay	LoS	DoS	Delay	LoS	DoS	Delay	LoS	DoS
2023 AM Peak									
Showground Rd / Gilbert Rd	37.4	D	0.94	36.4	D	0.91	36.4	C	0.91
Showground Rd / De Clambe Dr	4.9	A	0.77	2.8	A	0.56	3.1	A	0.56
Showground Rd / Carrington Rd	44.7	D	1.24	25	B	0.75	26	B	0.77
Carrington Rd / Middleton Ave / Andalusian Wy	17.8	B	0.81	20.3	B	0.73	22.8	B	0.81
Carrington Rd / Victoria Ave	18.7	B	0.79	28.2	B	0.82	29.1	C	0.85
Carrington Rd / Doran Dr	6.5	A	0.61	12.9	A	0.82	14	A	0.88
Carrington Rd / De Clambe Dr	4.7	A	0.25	4.7	A	0.27	4.7	A	0.28
2023 PM Peak									
Showground Rd / Gilbert Rd	20.7	B	0.75	21.5	B	0.56	21.8	B	0.58
Showground Rd / De Clambe Dr	5.2	A	0.62	5.8	A	0.57	7	A	0.60
Showground Rd / Carrington Rd	55.6	D	1.41	39	C	0.89	51.4	D	0.95
Carrington Rd / Middleton Ave / Andalusian Wy	41.2	C	1.02	19.1	B	0.76	19.5	B	0.72
Carrington Rd / Victoria Ave	53.9	D	0.98	50.1	D	0.94	52.7	D	0.99
Carrington Rd / Doran Dr	7.0	A	0.55	12.5	A	0.69	19.3	B	0.90
Carrington Rd / De Clambe Dr	4.7	A	0.47	4.7	A	0.47	4.7	A	0.62

Source: SCT Consulting, 2020

Delay = worst movement for priority and roundabout controlled intersections and DoS = degree of saturation of worst movement.

¹⁶ This scenario is modelled with Doran Drive Precinct development only

Table 5-7 Network performance in 2029 under modelled scenarios

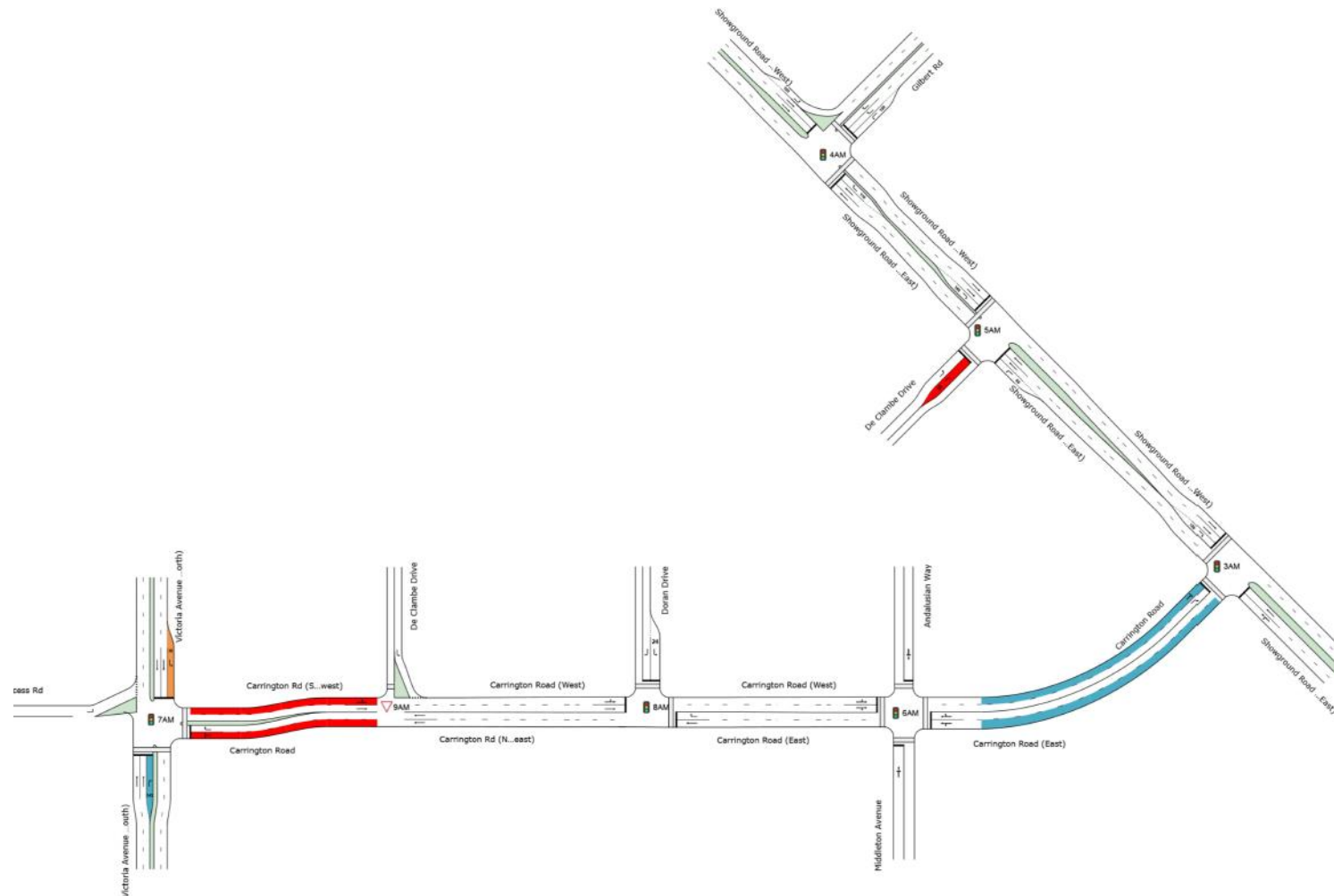
Intersection performance in 2029	Background growth & no infrastructure upgrades			Background growth with infrastructure upgrades			Background growth and development ¹⁷ with infrastructure upgrades		
	Delay	LoS	DoS	Delay	LoS	DoS	Delay	LoS	DoS
2029 AM Peak									
Showground Rd / Gilbert Rd	79.7	E	1.10	23.1	B	0.74	30.7	C	0.80
Showground Rd / De Clambe Dr	7.3	A	0.85	4.1	A	0.67	4.9	A	0.67
Showground Rd / Carrington Rd	81.9	F	1.60	30.8	C	0.80	19.5	B	0.7
Carrington Rd / Middleton Ave / Andalusian Wy	19.4	B	0.81	26.8	B	0.86	29.6	C	0.86
Carrington Rd / Victoria Ave	22.9	B	0.88	25.4	B	0.88	30.7	C	0.90
Carrington Rd / Doran Dr	6.5	A	0.59	16.3	B	0.87	17.2	B	0.87
Carrington Rd / De Clambe Dr	4.7	A	0.24	4.7	A	0.28	4.7	A	0.31
2029 PM Peak									
Showground Rd / Gilbert Rd	21	B	0.78	20.7	B	0.63	21.2	B	0.69
Showground Rd / De Clambe Dr	8	A	0.68	5.6	A	0.68	5.6	A	0.71
Showground Rd / Carrington Rd	119.8	F	1.37	56.4	D	0.98	46.9	D	0.98
Carrington Rd / Middleton Ave / Andalusian Wy	54.1	D	1.07	20.5	B	0.79	26.5	B	0.84
Carrington Rd / Victoria Ave	179.8	F	1.17	31.1	C	0.91	50.4	D	0.96
Carrington Rd / Doran Dr	6.9	A	0.53	13.2	A	0.74	20.5	B	0.82
Carrington Rd / De Clambe Dr	4.7	A	0.46	4.7	A	0.50	4.7	A	0.57

Source: SCT Consulting, 2020

Delay = worst movement for priority and roundabout controlled intersections and DoS = degree of saturation of worst movement.

¹⁷ This scenario is modelled with Doran Drive Precinct and Precinct West only

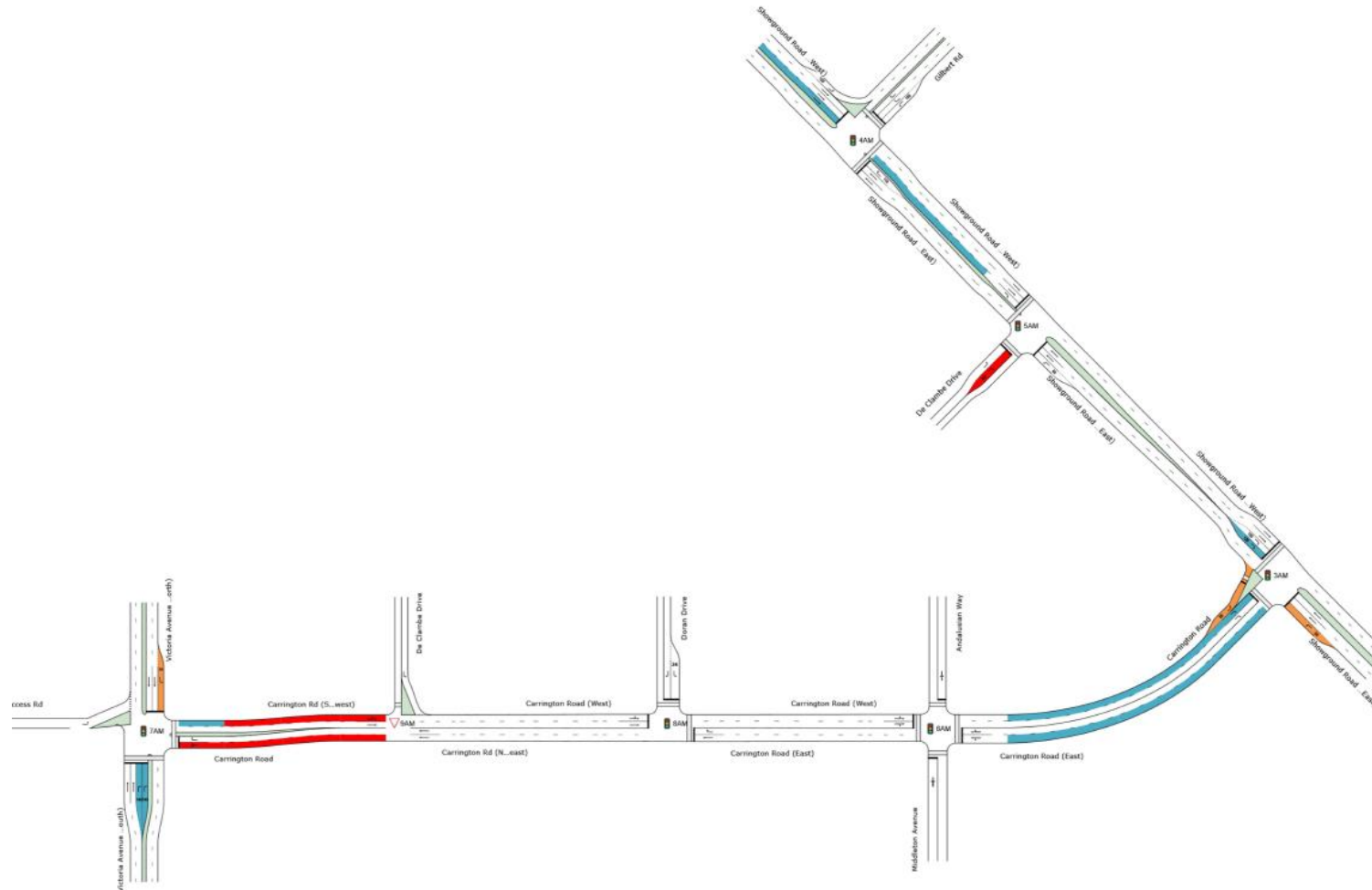
Figure 5–6 2023 Infrastructure upgrades



Source: SCT Consulting, 2020

Note: Blue sections represent the upgrades needed for background growth while orange sections are upgrades needed for development traffic, while red sections represent bus lanes that have been implemented under existing conditions. It should be noted that the Showground Road / Carrington Road intersection upgrades had secured funding through the Federal and State Governments. This was announced on 29 June 2020 as part of the Stimulus Package.

Figure 5–7 2029 Infrastructure upgrades



Source: SCT Consulting, 2020

Note: Blue sections represent the upgrades needed for background growth while orange sections are upgrades needed for development traffic, while red sections represent bus lanes that have been implemented under existing conditions. It should be noted that the Showground Road / Carrington Road intersection upgrades had secured funding through the Federal and State Governments. This was announced on 29 June 2020 as part of the Stimulus Package.

5.3 Parking

The number of car parking spaces provided as part of the proposal is complemented by the excellent level of access to frequent public transport (metro and buses) within short walking distance to the site and good access to alternative cycle parking and facilities provided within the development.

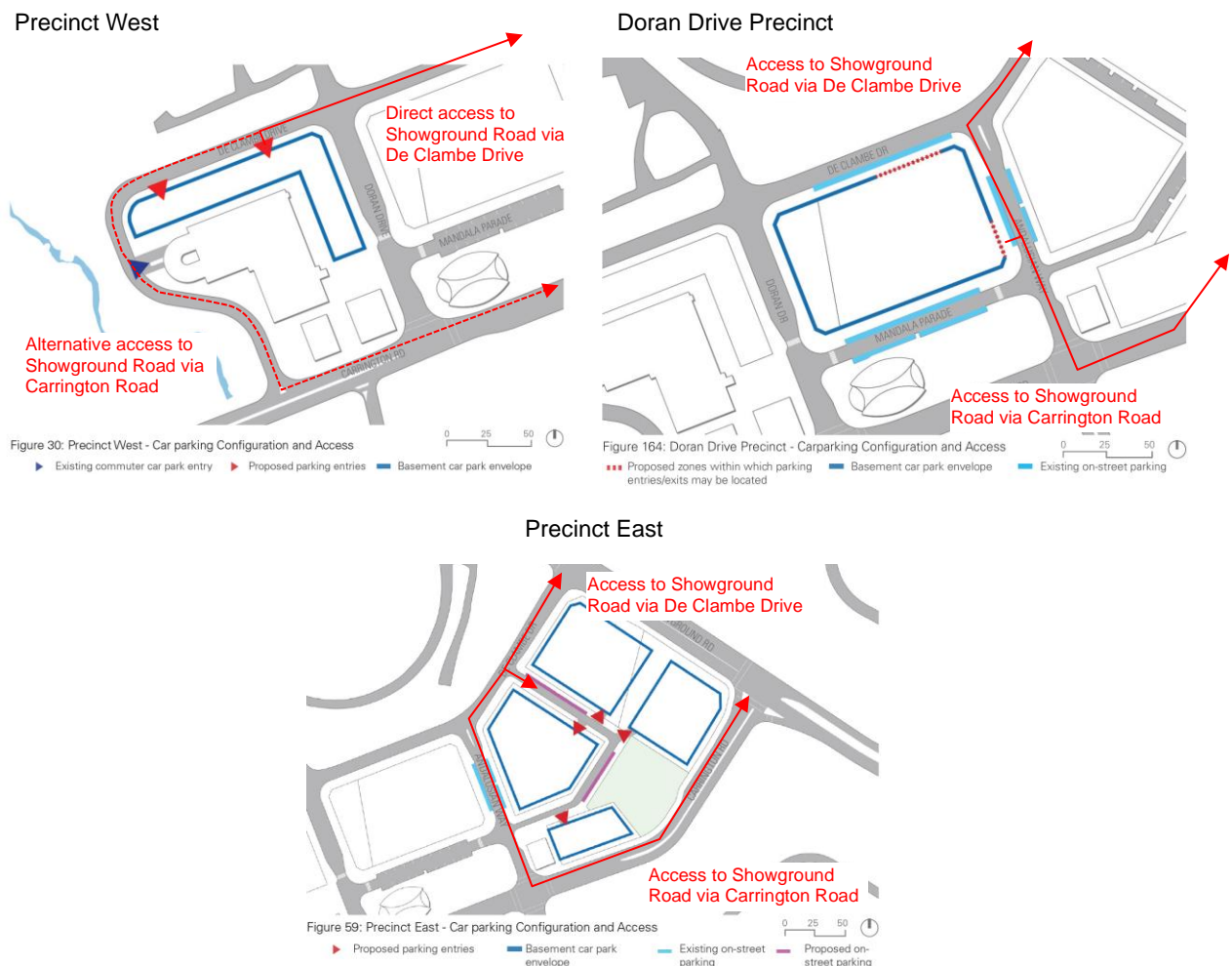
As a result of the opening of Hills Showground Station, on-street parking surrounding the station has been converted to short-term parking such that they will not be available for long-term users or commuters. Hence the reduced parking rates of the Illustrated Concept Proposal, combined with the limited availability of long-term on-street parking, will further encourage the uptake of public transport use and assist in reducing the traffic generating impacts of the proposal.

705 secure bicycle parking spaces for the overall development with end-of-trip facilities such as lockers and showers with change cubicles for the commercial and retail component (refer to **Table 4-7**) are required to provide an alternative to driving for shorter distance trips and to encourage residents and employees to adopt sustainable transport modes.

5.4 Service vehicle access

According to SEARS, “Proposed vehicle access arrangements, including for service and loading activities and measures to mitigate impacts to bus services and passengers interchanging between bus and rail”. The current servicing accesses for the three precincts are kept away from the major activity of bus and metro users on Doran Drive and Mandala Parade, as shown in **Figure 5-8**.

Figure 5-8 Proposed service vehicle access routes



Source: SCT Consulting, 2020

5.5 Preliminary construction approach

Since there are no physical works proposed as part of the SSDA, the construction task has not been fully defined. Further engineering design work is required before this could be completed. A construction traffic management plan will be prepared in the development application stage in accordance with the Traffic control at work sites manual (Roads and Maritime Service, 2010).

Construction haulage routes would likely have to be limited to access via the north of the precinct via De Clambe Drive, directly from Showground Road. Road access points on Carrington Road should be via Andalusian Way to minimise impacts to pedestrians and bus operations on Doran Drive. While the primary station interchange function is on Mandala Parade, there could be a conflict between heavy vehicles and passengers accessing the station.

This construction route will still interact with bus movements exiting the station via De Clambe Drive. This is unavoidable as there are no alternative construction routes.

Cumulative construction impacts would therefore be limited to overlapping demands for Showground Road, with construction vehicles using Showground Road and Carrington Road to access development sites south of Carrington Road. Use of De Clambe Drive directly onto Showground Road minimises overlap and reduces impacts.

6.0 Summary and conclusions

6.1 Summary

This report has been prepared by SCT Consulting, to support a SSDA for the Hills Showground Station Precinct site located in The Hills Shire. The updated Concept Proposal is a transit-oriented mixed-use development that comprise approximately 166,486 sqm of GFA. This may include up to 13,940 sqm of non-residential space and up to 1,620 apartments. Underground car park area comprising a maximum of 1,957 car parking spaces are also proposed.

In summary:

- The proposal is supported by TDM strategies with a number of green travel initiatives / principles developed specifically for a transit-oriented development at this location that provide significant opportunities for alternative travel options and reduce the need of car travel. A Travel Plan will be developed by the future developers to deliver best practice travel programs and initiatives to manage travel demand for a transit-oriented development;
- The updated Concept Proposal will have excellent access to the public transport system, with the Hills Showground Station located directly adjacent to the site. The increased network coverage, journey-time reliability and improved customer offering of Sydney Metro services together with nearby frequent bus services, will encourage public transport patronage and increase all trips to be made by non-car modes;
- The updated Concept Proposal promotes pedestrian and cyclist movements that could provide good connection to the surrounding cycling and walking network, and to public transport;
- A total of six vehicular access points to the site are proposed to service three individual precincts; They are located on De Clambe Drive, Andalusian Way, which minimise the impact on major pedestrian activity around the metro station and interchange (at Doran Drive and Mandala Parade).
- The SSDA would facilitate development which responds to the opportunity to create a transit-oriented centre by reducing the amount of employee parking, reflecting the higher level of public transport services. The best approach to facilitate / influence reduced car use and to minimise additional congestion to the surrounding road network is to restrain parking provision (while offering attractive public transport alternative in this case Sydney Metro and its connecting bus network). Hence the need to predict and provide parking provision based on historical data / trends does not align with the principle of the Hills Showground Station site. The recommended range of restrained car parking rates as shown in **Table 4.9**, is part of the proposal to discourage private vehicle use and minimise traffic impacts;
- The updated Concept Proposal would generate between 702 and 964 peak hour vehicular trips during the AM and PM peak hours respectively. The traffic modelling suggests that the following infrastructure upgrades may be required to cater for background traffic growth and the development traffic by 2031:
 - Additional eastbound lane on Showground Road between the approach to Gilbert Avenue and the approach to De Clambe Drive;
 - Additional lane on Carrington Road in both directions between Showground Road and Andalusian Way;
 - Additional turning lanes from Showground Road to Carrington Road;
 - Additional left turn slip lane from Carrington Road to Showground Road; and
 - Signalisation of Carrington Road / Victoria Avenue intersection with additional turning lanes.
- According to the Showground Station Precinct Contributions Plan No. 19, the signalisation of Carrington Road and Victoria Avenue has already been included to meet the future demand, whilst ensuring an acceptable level of access, safety and convenience for all street and road users within the Showground Precinct. Hence, the upgrade of this intersection, as confirmed by the traffic modelling to cater for background traffic growth and development traffic, should be paid off by all relevant Section 7.11 contributions. A traffic signals warrant has also been undertaken to confirm that this intersection should warrant a traffic signal based the expected traffic demand in 2031.
- On the other hand, as also stated in the Contributions Plan No. 19, the upgrade of Showground Road / Carrington Road will be provided by parties other than Council (including Transport for NSW and future individual developers within the Precincts) as development occurs. It should be noted that the Showground Road / Carrington Road intersection upgrades had secured funding through the Federal and State Governments. This was announced on 29 June 2020 as part of the Stimulus Package.

6.2 Conclusions

- The location of the site directly adjacent to Hills Showground Station will provide future residents and employees with improved access to high frequency public transport services, which will provide an alternative to private vehicle use especially for commuter trips;
- Footpath and pedestrian crossing facilities are well provided around the site to support safe and convenient walk to / from Hills Showground Station;
- Dedicated cycle routes around the site connecting to the regional routes will cater for more short trips by cycling to nearby activities and destinations;
- Parking rates are proposed for the updated Concept Proposal to create a transit-oriented centre in line with metro's vision, reflecting the higher level of public transport services and to minimise additional congestion to the surrounding road network; and
- The total number of parking spaces is appropriate for this transit-oriented development and in line with Roads and Maritime Service Guide to Traffic Generating Developments (2002) and will naturally limit the traffic impacts of this proposal. The additional vehicle trips will not have any significant adverse traffic implications on the public road network.

7.0 Bibliography

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APPENDIX A

SIDRA Modelling Outputs

2019 Base year

MOVEMENT SUMMARY

 Site: 3AM [3AM Showground Rd/Carrington Rd BY AM]

 Network: N101
[Network_am]

TCS2666

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 128 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. Cycles	No. Average Speed	
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h	
SouthEast: Showground Road (South East)														
21	L2	519	1.4	519	1.4	0.480	16.9	LOS B	17.4	123.9	0.53	0.72	0.53	25.9
22	T1	651	7.8	651	7.8	0.480	11.6	LOS B	18.0	134.5	0.54	0.51	0.54	30.4
Approach		1169	5.0	1169	5.0	0.480	13.9	LOS B	18.0	134.5	0.54	0.61	0.54	28.2
NorthWest: Showground Road (North West)														
28	T1	1208	4.2	1208	4.2	0.341	1.7	LOS A	4.3	31.2	0.11	0.10	0.11	56.1
29	R2	363	1.4	363	1.4	0.999	97.1	LOS F	34.8	246.9	1.00	1.25	1.88	6.8
Approach		1572	3.5	1572	3.5	0.999	23.7	LOS C	34.8	246.9	0.32	0.36	0.52	28.3
SouthWest: Carrington Road														
30	L2	89	2.4	89	2.4	0.611	60.1	LOS E	9.9	71.3	0.98	0.81	0.98	12.4
32	R2	223	3.8	223	3.8	0.611	61.7	LOS E	9.9	71.3	0.99	0.81	0.99	17.6
Approach		313	3.4	313	3.4	0.611	61.3	LOS E	9.9	71.3	0.99	0.81	0.99	16.3
All Vehicles		3054	4.1	3054	4.1	0.999	23.8	LOS C	34.8	246.9	0.47	0.50	0.57	25.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian	Back of Queue Distance m	Prop. Queued	Effective Stop Rate	
P7	NorthWest Full Crossing	4	58.2	LOS E	0.0	0.0	0.95	0.95	
P8	SouthWest Full Crossing	2	58.1	LOS E	0.0	0.0	0.95	0.95	
All Pedestrians		6	58.1	LOS E			0.95	0.95	

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

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

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

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MOVEMENT SUMMARY

 Site: 3PM [3PM Showground Rd/Carrington Rd BY PM]

 Network: N101
[Network_pm]

TCS2666

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 131 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed			
		veh/h	%	veh/h	%	v/c	sec	veh	m		km/h			
SouthEast: Showground Road (South East)														
21	L2	365	1.2	365	1.2	0.812	33.8	LOS C	39.8	284.0	0.89	0.84	17.2	
22	T1	1194	3.0	1194	3.0	0.812	28.7	LOS C	41.6	298.9	0.90	0.84	17.7	
Approach		1559	2.6	1559	2.6	0.812	29.9	LOS C	41.6	298.9	0.90	0.84	17.6	
NorthWest: Showground Road (North West)														
28	T1	832	3.4	832	3.4	0.303	9.1	LOS A	8.2	59.0	0.33	0.29	43.5	
29	R2	174	0.0	174	0.0	0.953	83.9	LOS F	13.6	95.1	1.00	1.14	7.7	
Approach		1005	2.8	1005	2.8	0.953	22.0	LOS B	13.6	95.1	0.44	0.43	29.9	
SouthWest: Carrington Road														
30	L2	209	0.0	209	0.0	0.988	96.4	LOS F	34.8	243.6	0.92	1.10	1.46	8.5
32	R2	589	0.0	589	0.0	0.988	97.1	LOS F	34.8	243.6	0.92	1.10	1.47	12.9
Approach		799	0.0	799	0.0	0.988	96.9	LOS F	34.8	243.6	0.92	1.10	1.47	11.8
All Vehicles		3363	2.0	3363	2.0	0.988	43.5	LOS D	41.6	298.9	0.77	0.78	0.94	17.4

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	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P7	NorthWest Full Crossing	4	59.6	LOS E	0.0	0.0	0.95	0.95
P8	SouthWest Full Crossing	1	59.6	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		5	59.6	LOS E			0.95	0.95

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

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

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

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MOVEMENT SUMMARY

 Site: 4AM [4AM Showground Rd/ Gilbert Rd BY AM]

 Network: N101
[Network_am]

TCS2844

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 128 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Showground Road (South East)													
22	T1	626	6.7	626	6.7	0.281	7.2	LOS A	5.7	42.0	0.27	0.23	54.4
23	R2	143	4.4	143	4.4	0.863	77.5	LOS E	9.9	72.3	1.00	1.34	16.6
Approach		769	6.3	769	6.3	0.863	20.3	LOS C	9.9	72.3	0.40	0.37	45.1
NorthEast: Gilbert Rd													
24	L2	394	3.2	394	3.2	0.515	32.8	LOS C	17.5	126.1	0.77	0.81	18.3
26	R2	880	1.8	880	1.8	0.833	56.0	LOS E	27.8	197.4	1.00	1.11	32.4
Approach		1274	2.2	1274	2.2	0.833	48.9	LOS D	27.8	197.4	0.93	0.89	30.4
NorthWest: Showground Road (North West)													
27	L2	651	4.7	651	4.7	0.368	5.8	LOS A	0.0	0.0	0.00	0.53	55.3
28	T1	1275	3.1	1275	3.1	0.746	30.0	LOS C	32.9	236.2	0.88	0.79	38.7
Approach		1925	3.7	1925	3.7	0.746	21.8	LOS C	32.9	236.2	0.58	0.70	43.8
All Vehicles		3968	3.7	3968	3.7	0.863	30.2	LOS C	32.9	236.2	0.66	0.70	39.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P5	SouthEast Full Crossing	4	58.2	LOS E	0.0	0.0	0.95	0.95
P6	NorthEast Full Crossing	2	58.1	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		6	58.1	LOS E			0.95	0.95

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

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

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

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MOVEMENT SUMMARY

 Site: 4PM [4PM Showground Rd/ Gilbert Rd BY PM]

 Network: N101
[Network_pm]

TCS2844

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 131 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Showground Road (South East)													
22	T1	1178	2.2	1178	2.2	0.440	3.5	LOS A	10.2	73.0	0.18	0.16	57.1
23	R2	332	1.0	332	1.0	0.827	49.3	LOS D	20.0	141.0	0.96	0.87	22.3
Approach		1509	2.0	1509	2.0	0.827	13.6	LOS A	20.0	141.0	0.35	0.32	48.9
NorthEast: Gilbert Rd													
24	L2	268	1.6	268	1.6	0.327	28.3	LOS B	10.5	74.7	0.67	0.77	20.3
26	R2	525	2.8	525	2.8	0.741	60.4	LOS E	16.3	117.2	1.00	0.87	31.3
Approach		794	2.4	794	2.4	0.741	49.6	LOS D	16.3	117.2	0.88	0.83	29.7
NorthWest: Showground Road (North West)													
27	L2	744	1.4	744	1.4	0.411	5.7	LOS A	0.0	0.0	0.00	0.53	55.3
28	T1	817	1.8	817	1.8	0.495	28.3	LOS B	18.6	131.9	0.77	0.68	39.5
Approach		1561	1.6	1561	1.6	0.495	17.5	LOS B	18.6	131.9	0.40	0.61	46.6
All Vehicles		3864	1.9	3864	1.9	0.827	22.6	LOS B	20.0	141.0	0.48	0.54	43.2

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	Back of Queue Distance m	Prop. Queued	Effective Stop Rate	
P5	SouthEast Full Crossing	3	59.6	LOS E	0.0	0.0	0.95	0.95	
P6	NorthEast Full Crossing	3	59.6	LOS E	0.0	0.0	0.95	0.95	
All Pedestrians		6	59.6	LOS E			0.95	0.95	

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

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

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

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MOVEMENT SUMMARY



Site: 5AM [5AM Showground Rd/ De Clambe Drive BY AM]

Network: N101
[Network_am]

TCS4569

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 128 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h	
SouthEast: Showground Road (South East)														
21	L2	22	47.6	22	47.6	0.020	7.6	LOS A	0.2	1.6	0.13	0.59	0.13	36.3
22	T1	714	6.3	714	6.3	0.284	5.2	LOS A	5.1	37.5	0.24	0.21	0.24	42.2
Approach		736	7.6	736	7.6	0.284	5.3	LOS A	5.1	37.5	0.23	0.22	0.23	41.9
NorthWest: Showground Road (North West)														
28	T1	1563	2.8	1563	2.8	0.601	2.4	LOS A	12.1	86.5	0.21	0.19	0.21	52.2
29	R2	81	9.1	81	9.1	0.144	7.8	LOS A	0.6	4.7	0.16	0.61	0.16	41.4
Approach		1644	3.1	1644	3.1	0.601	2.7	LOS A	12.1	86.5	0.21	0.21	0.21	51.3
SouthWest: De Clambe Drive														
30	L2	46	9.1	46	9.1	0.108	45.9	LOS D	2.3	17.1	0.82	0.72	0.82	7.7
32	R2	13	100.0	13	100.0	0.170	65.4	LOS E	0.8	9.9	0.95	0.69	0.95	5.7
Approach		59	28.6	59	28.6	0.170	50.1	LOS D	2.3	17.1	0.85	0.71	0.85	7.2
All Vehicles		2439	5.0	2439	5.0	0.601	4.6	LOS A	12.1	86.5	0.23	0.23	0.23	45.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian	Back of Queue Distance m	Prop. Queued	Effective Stop Rate	
P7	NorthWest Full Crossing	1	58.1	LOS E	0.0	0.0	0.95	0.95	
P8	SouthWest Full Crossing	1	58.1	LOS E	0.0	0.0	0.95	0.95	
All Pedestrians		2	58.1	LOS E			0.95	0.95	

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

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

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

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MOVEMENT SUMMARY

 Site: 5PM [5PM Showground Rd/ De Clambe Drive BY PM]

 Network: N101
[Network_pm]

TCS4569

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 131 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		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: Showground Road (South East)														
21	L2	24	56.5	24	56.5	0.023	6.8	LOS A	0.1	0.8	0.06	0.58	0.06	36.6
22	T1	1402	2.0	1402	2.0	0.551	4.0	LOS A	13.8	98.4	0.19	0.18	0.19	45.3
Approach		1426	2.9	1426	2.9	0.551	4.0	LOS A	13.8	98.4	0.19	0.19	0.19	45.0
NorthWest: Showground Road (North West)														
28	T1	1017	1.6	1017	1.6	0.334	0.9	LOS A	2.1	15.0	0.07	0.06	0.07	56.9
29	R2	61	5.2	61	5.2	0.187	9.5	LOS A	0.6	4.7	0.19	0.62	0.19	39.7
Approach		1078	1.8	1078	1.8	0.334	1.4	LOS A	2.1	15.0	0.08	0.10	0.08	55.1
SouthWest: De Clambe Drive														
30	L2	128	1.6	128	1.6	0.292	49.5	LOS D	6.8	48.1	0.87	0.77	0.87	7.2
32	R2	11	100.0	11	100.0	0.113	68.2	LOS E	0.7	8.5	0.95	0.69	0.95	5.5
Approach		139	9.1	139	9.1	0.292	50.9	LOS D	6.8	48.1	0.88	0.77	0.88	7.0
All Vehicles		2643	2.7	2643	2.7	0.551	5.4	LOS A	13.8	98.4	0.18	0.18	0.18	42.8

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	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P7	NorthWest Full Crossing	2	59.6	LOS E	0.0	0.0	0.95	0.95
P8	SouthWest Full Crossing	1	59.6	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		3	59.6	LOS E			0.95	0.95

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

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

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

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MOVEMENT SUMMARY

 Site: 6AM [6AM Carrington Rd/ Middleton Ave/ Andalusian Way BY AM]

 Network: N101
[Network_am]

TCS4700

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 64 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. Cycles	No.Average Speed	
		veh/h	%	veh/h	%	v/c	sec		veh	m			km/h	
South: Middleton Avenue														
1	L2	169	3.7	169	3.7	0.808	35.7	LOS D	10.7	77.1	1.00	0.98	1.26	17.4
2	T1	37	0.0	37	0.0	0.808	31.0	LOS C	10.7	77.1	1.00	0.98	1.26	21.3
3	R2	107	2.9	107	2.9	0.808	35.6	LOS D	10.7	77.1	1.00	0.98	1.26	17.4
Approach		314	3.0	314	3.0	0.808	35.1	LOS D	10.7	77.1	1.00	0.98	1.26	17.9
East: Carrington Road (East)														
4	L2	116	3.6	116	3.6	0.596	16.4	LOS B	8.7	61.8	0.70	0.65	0.70	36.1
5	T1	754	1.3	754	1.3	0.596	11.1	LOS B	9.0	63.8	0.69	0.62	0.69	31.4
6	R2	4	0.0	4	0.0	0.596	15.2	LOS B	9.0	63.8	0.68	0.59	0.68	35.0
Approach		874	1.6	874	1.6	0.596	11.8	LOS B	9.0	63.8	0.69	0.62	0.69	32.4
North: Andalusian Way														
7	L2	6	0.0	6	0.0	0.116	25.9	LOS C	1.2	8.3	0.82	0.68	0.82	12.9
8	T1	19	5.6	19	5.6	0.116	21.3	LOS C	1.2	8.3	0.82	0.68	0.82	25.9
9	R2	21	0.0	21	0.0	0.116	25.9	LOS C	1.2	8.3	0.82	0.68	0.82	12.9
Approach		46	2.3	46	2.3	0.116	24.0	LOS C	1.2	8.3	0.82	0.68	0.82	19.6
West: Carrington Road (West)														
10	L2	3	0.0	3	0.0	0.106	13.1	LOS B	1.6	11.7	0.54	0.44	0.54	33.3
11	T1	212	3.5	212	3.5	0.470	12.7	LOS B	4.9	35.6	0.67	0.59	0.67	22.7
12	R2	91	3.5	91	3.5	0.470	20.9	LOS C	4.9	35.6	0.79	0.72	0.79	29.8
Approach		305	3.4	305	3.4	0.470	15.1	LOS B	4.9	35.6	0.71	0.63	0.71	25.9
All Vehicles		1539	2.3	1539	2.3	0.808	17.6	LOS B	10.7	77.1	0.76	0.70	0.81	26.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	14	26.3	LOS C	0.0	0.0	0.91	0.91
P2	East Full Crossing	6	26.3	LOS C	0.0	0.0	0.91	0.91
P3	North Full Crossing	7	26.3	LOS C	0.0	0.0	0.91	0.91
P4	West Full Crossing	44	26.3	LOS C	0.1	0.1	0.91	0.91
All Pedestrians		72	26.3	LOS C			0.91	0.91

MOVEMENT SUMMARY

 Site: 6PM [6PM Carrington Rd/ Middleton Ave/ Andalusian Way BY PM]

 Network: N101
[Network_pm]

TCS4700

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 62 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Total HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. Cycles	No. Average Speed	
		veh/h	%	veh/h	%	v/c	sec	veh	m			km/h	
South: Middleton Avenue													
1	L2	139	3.0	139	3.0	0.664	30.8	LOS C	7.3	51.8	0.97	0.86	1.04 19.1
2	T1	18	0.0	18	0.0	0.664	26.2	LOS B	7.3	51.8	0.97	0.86	1.04 23.0
3	R2	87	0.0	87	0.0	0.664	30.7	LOS C	7.3	51.8	0.97	0.86	1.04 19.1
Approach		244	1.7	244	1.7	0.664	30.4	LOS C	7.3	51.8	0.97	0.86	1.04 19.4
East: Carrington Road (East)													
4	L2	93	1.1	93	1.1	0.302	15.7	LOS B	5.3	37.3	0.66	0.62	0.66 36.7
5	T1	488	0.9	488	0.9	0.302	10.0	LOS A	5.3	37.3	0.63	0.56	0.63 32.5
6	R2	1	0.0	1	0.0	0.302	13.9	LOS A	5.2	37.0	0.61	0.52	0.61 36.2
Approach		582	0.9	582	0.9	0.302	10.9	LOS A	5.3	37.3	0.63	0.57	0.63 33.5
North: Andalusian Way													
7	L2	9	0.0	9	0.0	0.087	25.4	LOS B	0.9	6.3	0.82	0.65	0.82 13.4
8	T1	20	0.0	20	0.0	0.087	20.8	LOS B	0.9	6.3	0.82	0.65	0.82 26.6
9	R2	7	0.0	7	0.0	0.087	25.4	LOS B	0.9	6.3	0.82	0.65	0.82 13.4
Approach		37	0.0	37	0.0	0.087	22.9	LOS B	0.9	6.3	0.82	0.65	0.82 21.9
West: Carrington Road (West)													
10	L2	12	9.1	12	9.1	0.217	13.4	LOS A	3.5	24.4	0.58	0.49	0.58 32.3
11	T1	723	0.1	723	0.1	0.960	38.7	LOS C	33.7	237.4	0.88	1.15	1.38 11.3
12	R2	154	3.4	154	3.4	0.960	54.5	LOS D	33.7	237.4	1.00	1.40	1.69 17.8
Approach		888	0.8	888	0.8	0.960	41.1	LOS C	33.7	237.4	0.90	1.18	1.42 13.1
All Vehicles		1752	1.0	1752	1.0	0.960	29.2	LOS C	33.7	237.4	0.82	0.92	1.10 19.0

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

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	4	25.3	LOS C	0.0	0.0	0.90	0.90
P2	East Full Crossing	2	25.3	LOS C	0.0	0.0	0.90	0.90
P3	North Full Crossing	8	25.3	LOS C	0.0	0.0	0.90	0.90
P4	West Full Crossing	26	25.3	LOS C	0.0	0.0	0.90	0.90
All Pedestrians		41	25.3	LOS C			0.90	0.90

MOVEMENT SUMMARY

 Site: 7AM [7AM Carrington Road/ Victoria Avenue BY AM]

 Network: N101
[Network_am]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h
South: Victoria Avenue (South)													
2	T1	601	3.3	601	3.3	0.483	6.6	LOS A	4.3	31.1	0.82	0.74	40.8
3	R2	282	2.6	282	2.6	0.483	10.8	LOS B	4.1	29.6	0.82	0.79	31.4
3u	U	16	0.0	16	0.0	0.483	12.3	LOS B	4.1	29.6	0.82	0.79	39.6
Approach		899	3.0	899	3.0	0.483	8.0	LOS A	4.3	31.1	0.82	0.75	38.6
East: Carrington Road													
4	L2	594	1.8	594	1.8	0.760	13.0	LOS B	8.1	57.6	0.95	1.18	40.5
6	R2	378	3.3	378	3.3	0.639	15.9	LOS B	5.1	36.5	0.89	1.09	40.3
6u	U	3	0.0	3	0.0	0.639	17.4	LOS B	5.1	36.5	0.89	1.09	37.4
Approach		975	2.4	975	2.4	0.760	14.2	LOS B	8.1	57.6	0.93	1.15	40.4
North: Victoria Avenue (North)													
7	L2	221	3.3	221	3.3	0.519	6.1	LOS A	4.7	33.9	0.77	0.68	35.8
8	T1	813	2.7	813	2.7	0.519	6.4	LOS A	4.7	33.9	0.78	0.70	41.5
9u	U	14	0.0	14	0.0	0.519	11.8	LOS B	4.5	32.4	0.79	0.71	42.7
Approach		1047	2.8	1047	2.8	0.519	6.4	LOS A	4.7	33.9	0.78	0.70	40.7
West: Access Rd													
10	L2	33	6.5	33	6.5	0.115	3.8	LOS A	0.5	3.4	0.67	0.67	22.3
11	T1	13	0.0	13	0.0	0.115	3.6	LOS A	0.5	3.4	0.67	0.67	8.7
12	R2	16	6.7	16	6.7	0.115	3.8	LOS A	0.5	3.4	0.67	0.67	22.0
Approach		61	5.2	61	5.2	0.115	3.8	LOS A	0.5	3.4	0.67	0.67	20.3
All Vehicles		2982	2.8	2982	2.8	0.760	9.4	LOS A	8.1	57.6	0.84	0.86	39.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

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

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

Roundabout Capacity Model: SIDRA Standard.

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.

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Project: C:\Users\Shawn Cen\SCT_00061_Showground Precinct SSDA\3. Technical Work Area\1. Network Optimisation\RtS\0.SCT_00061_2019 Base.sip8

MOVEMENT SUMMARY

 Site: 7PM [7PM Carrington Road/ Victoria Avenue BY PM]

 Network: N101
[Network_pm]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h
South: Victoria Avenue (South)													
2	T1	1081	1.5	1081	1.5	0.878	19.8	LOS B	21.1	149.5	1.00	1.28	31.4
3	R2	513	1.6	513	1.6	0.878	26.1	LOS B	20.0	142.2	1.00	1.33	20.1
3u	U	16	0.0	16	0.0	0.878	27.6	LOS B	20.0	142.2	1.00	1.33	28.7
Approach		1609	1.5	1609	1.5	0.878	21.9	LOS B	21.1	149.5	1.00	1.29	28.3
East: Carrington Road													
4	L2	498	3.0	498	3.0	0.646	10.3	LOS A	5.9	42.5	0.92	1.07	42.1
6	R2	392	2.4	392	2.4	0.626	14.9	LOS B	5.2	37.3	0.90	1.08	40.8
6u	U	3	0.0	3	0.0	0.626	16.4	LOS B	5.2	37.3	0.90	1.08	38.0
Approach		893	2.7	893	2.7	0.646	12.3	LOS A	5.9	42.5	0.91	1.08	41.5
North: Victoria Avenue (North)													
7	L2	360	1.8	360	1.8	0.732	14.0	LOS A	10.7	76.2	1.00	1.10	27.9
8	T1	718	1.9	718	1.9	0.732	15.4	LOS B	10.7	76.2	1.00	1.14	34.3
9u	U	35	6.1	35	6.1	0.732	21.7	LOS B	10.0	71.5	1.00	1.16	35.0
Approach		1113	2.0	1113	2.0	0.732	15.2	LOS B	10.7	76.2	1.00	1.13	32.8
West: Access Rd													
10	L2	37	2.9	37	2.9	0.203	7.9	LOS A	0.9	6.8	0.85	0.85	20.7
11	T1	12	9.1	12	9.1	0.203	8.2	LOS A	0.9	6.8	0.85	0.85	7.6
12	R2	12	0.0	12	0.0	0.203	7.7	LOS A	0.9	6.8	0.85	0.85	20.4
Approach		60	3.5	60	3.5	0.203	7.9	LOS A	0.9	6.8	0.85	0.85	18.9
All Vehicles		3675	2.0	3675	2.0	0.878	17.3	LOS B	21.1	149.5	0.98	1.18	33.7

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.

Roundabout Capacity Model: SIDRA Standard.

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.

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MOVEMENT SUMMARY

 Site: 8AM [8AM Carrington Rd/ Doran Drive BY AM]

 Network: N101
[Network_am]

TCS4699

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 85 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Carrington Road (East)														
5	T1	955	1.2	955	1.2	0.629	4.4	LOS A	17.1	120.8	0.47	0.44	0.47	36.2
6	R2	9	44.4	9	44.4	0.017	9.7	LOS A	0.1	1.1	0.39	0.59	0.39	29.0
Approach		964	1.6	964	1.6	0.629	4.5	LOS A	17.1	120.8	0.47	0.44	0.47	36.1
North: Doran Drive														
7	L2	22	14.3	22	14.3	0.059	32.9	LOS C	0.7	5.8	0.83	0.69	0.83	6.3
9	R2	41	25.6	41	25.6	0.183	39.9	LOS D	1.6	13.3	0.92	0.73	0.92	5.1
Approach		63	21.7	63	21.7	0.183	37.5	LOS D	1.6	13.3	0.89	0.71	0.89	5.5
West: Carrington Road (West)														
10	L2	37	20.0	37	20.0	0.134	10.7	LOS B	2.4	17.9	0.41	0.41	0.41	18.6
11	T1	280	2.3	280	2.3	0.134	6.1	LOS A	2.5	18.2	0.41	0.37	0.41	27.5
Approach		317	4.3	317	4.3	0.134	6.6	LOS A	2.5	18.2	0.41	0.38	0.41	25.5
All Vehicles		1344	3.2	1344	3.2	0.629	6.5	LOS A	17.1	120.8	0.48	0.44	0.48	30.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate	
P2	East Full Crossing	17	36.7	LOS D	0.0	0.0	0.93	0.93	
P3	North Full Crossing	34	36.8	LOS D	0.1	0.1	0.93	0.93	
All Pedestrians		51	36.8	LOS D			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.

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MOVEMENT SUMMARY

 Site: 8PM [8PM Carrington Rd/ Doran Drive BY PM]

 Network: N101
[Network_pm]

TCS4699

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 64 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Carrington Road (East)														
5	T1	637	0.8	637	0.8	0.424	2.8	LOS A	6.9	48.4	0.37	0.34	0.37	40.3
6	R2	7	42.9	7	42.9	0.025	11.9	LOS A	0.1	1.0	0.54	0.62	0.54	26.8
Approach		644	1.3	644	1.3	0.424	2.9	LOS A	6.9	48.4	0.38	0.34	0.38	40.0
North: Doran Drive														
7	L2	27	15.4	27	15.4	0.076	26.6	LOS B	0.7	5.6	0.84	0.69	0.84	7.5
9	R2	66	17.5	66	17.5	0.318	33.2	LOS C	2.0	16.2	0.95	0.75	0.95	6.1
Approach		94	16.9	94	16.9	0.318	31.3	LOS C	2.0	16.2	0.92	0.73	0.92	6.4
West: Carrington Road (West)														
10	L2	36	20.6	36	20.6	0.524	12.2	LOS A	10.7	75.6	0.61	0.56	0.61	18.0
11	T1	866	0.4	866	0.4	0.524	7.2	LOS A	10.7	75.6	0.57	0.51	0.57	26.0
Approach		902	1.2	902	1.2	0.524	7.4	LOS A	10.7	75.6	0.57	0.51	0.57	25.4
All Vehicles		1640	2.1	1640	2.1	0.524	7.0	LOS A	10.7	75.6	0.52	0.46	0.52	28.1

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	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P2	East Full Crossing	20	26.3	LOS C	0.0	0.0	0.91	0.91
P3	North Full Crossing	27	26.3	LOS C	0.0	0.0	0.91	0.91
All Pedestrians		47	26.3	LOS C			0.91	0.91

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

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

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

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MOVEMENT SUMMARY

Site: 9AM [9AM Carrington Rd/ De Clambe Drive BY AM]

Network: N101
[Network_am]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	
		veh/h	%	veh/h	%	v/c	sec		veh	m			km/h	
East: Carrington Rd (Northeast)														
5	T1	983	2.1	983	2.1	0.256	0.0	LOS A	0.0	0.0	0.00	0.00	50.0	
Approach		983	2.1	983	2.1	0.256	0.0	NA	0.0	0.0	0.00	0.00	50.0	
North: De Clambe Drive														
7	L2	20	0.0	20	0.0	0.015	3.2	LOS A	0.0	0.0	0.00	0.41	33.3	
Approach		20	0.0	20	0.0	0.015	3.2	LOS A	0.0	0.0	0.00	0.41	33.3	
West: Carrington Rd (Southwest)														
10	L2	24	4.3	24	4.3	0.018	4.7	LOS A	0.1	0.5	0.09	0.50	44.2	
11	T1	298	4.9	298	4.9	0.158	0.0	LOS A	0.0	0.0	0.00	0.00	50.0	
Approach		322	4.9	322	4.9	0.158	0.4	NA	0.1	0.5	0.01	0.04	49.4	
All Vehicles		1325	2.8	1325	2.8	0.256	0.1	NA	0.1	0.5	0.00	0.02	49.3	

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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.

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MOVEMENT SUMMARY

Site: 9PM [9PM Carrington Rd/ De Clambe Drive BY PM]

Network: N101
[Network_pm]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows HV Total		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Carrington Rd (Northeast)														
5	T1	693	2.6	693	2.6	0.181	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		693	2.6	693	2.6	0.181	0.0	NA	0.0	0.0	0.00	0.00	0.00	50.0
North: De Clambe Drive														
7	L2	31	0.0	31	0.0	0.023	3.2	LOS A	0.0	0.0	0.00	0.41	0.00	33.3
Approach		31	0.0	31	0.0	0.023	3.2	LOS A	0.0	0.0	0.00	0.41	0.00	33.3
West: Carrington Rd (Southwest)														
10	L2	16	0.0	16	0.0	0.011	4.7	LOS A	0.0	0.3	0.09	0.50	0.09	44.3
11	T1	872	1.2	872	1.2	0.450	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		887	1.2	887	1.2	0.450	0.2	NA	0.0	0.3	0.00	0.01	0.00	49.8
All Vehicles		1611	1.8	1611	1.8	0.450	0.2	NA	0.0	0.3	0.00	0.01	0.00	49.6

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.

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2031 Background growth & no infrastructure upgrades

MOVEMENT SUMMARY

 Site: 3AM [3AM Showground Rd/Carrington Rd 2031]

 Network: N101
[Network_am]

TCS2666

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 128 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h
SouthEast: Showground Road (South East)													
21	L2	701	1.4	701	1.4	0.648	18.9	LOS B	27.6	196.7	0.62	0.77	24.2
22	T1	879	7.7	879	7.7	0.648	13.8	LOS B	29.1	216.7	0.65	0.62	27.8
Approach		1580	4.9	1580	4.9	0.648	16.1	LOS B	29.1	216.7	0.64	0.68	26.1
NorthWest: Showground Road (North West)													
28	T1	1702	4.1	1515	4.3	0.428	1.9	LOS A	6.3	45.4	0.13	0.12	55.5
29	R2	512	1.4	455	1.5	1.708	685.5	LOS F	43.7	310.1	1.00	2.18	4.06
Approach		2214	3.5	1969 ^{N1}	3.6	1.708	159.8	LOS F	43.7	310.1	0.33	0.60	1.04
SouthWest: Carrington Road													
30	L2	118	1.8	118	1.8	0.825	67.7	LOS E	14.3	102.1	1.00	0.92	1.20
32	R2	296	3.6	296	3.6	0.825	69.2	LOS E	14.3	102.1	1.00	0.92	1.21
Approach		414	3.1	414	3.1	0.825	68.8	LOS E	14.3	102.1	1.00	0.92	1.21
All Vehicles		4207	4.0	3963 ^{N1}	4.2	1.708	93.0	LOS F	43.7	310.1	0.52	0.67	0.90

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P7	NorthWest Full Crossing	4	58.2	LOS E	0.0	0.0	0.95	0.95
P8	SouthWest Full Crossing	2	58.1	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		6	58.1	LOS E			0.95	0.95

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

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

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

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MOVEMENT SUMMARY

 Site: 3PM [3PM Showground Rd/Carrington Rd 2031]

 Network: N101
[Network_pm]

TCS2666

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 131 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h
SouthEast: Showground Road (South East)													
21	L2	517	1.0	517	1.0	1.164	214.2	LOS F	150.7	1073.3	1.00	1.66	3.2
22	T1	1692	3.0	1692	3.0	1.164	208.1	LOS F	156.9	1126.4	1.00	1.79	3.3
Approach		2208	2.5	2208	2.5	1.164	209.5	LOS F	156.9	1126.4	1.00	1.76	3.3
NorthWest: Showground Road (North West)													
28	T1	1104	3.3	1104	3.3	0.403	9.2	LOS A	11.6	83.2	0.34	0.31	43.2
29	R2	231	0.0	231	0.0	1.432	423.1	LOS F	44.0	307.8	1.00	1.55	1.5
Approach		1335	2.8	1335	2.8	1.432	80.7	LOS F	44.0	307.8	0.46	0.52	11.7
SouthWest: Carrington Road													
30	L2	236	0.0	211	0.0	1.006	113.1	LOS F	40.4	282.8	1.00	1.16	7.4
32	R2	664	0.0	593	0.0	1.006	113.7	LOS F	40.4	282.8	1.00	1.16	11.4
Approach		900	0.0	804 ^{N1}	0.0	1.006	113.5	LOS F	40.4	282.8	1.00	1.16	10.4
All Vehicles		4443	2.1	4347 ^{N1}	2.1	1.432	152.2	LOS F	156.9	1126.4	0.83	1.27	6.0

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

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P7	NorthWest Full Crossing	4	59.6	LOS E	0.0	0.0	0.95	0.95
P8	SouthWest Full Crossing	1	59.6	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		5	59.6	LOS E			0.95	0.95

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

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

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

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MOVEMENT SUMMARY

 Site: 4AM [4AM Showground Rd/ Gilbert Rd 2031]

 Network: N101
[Network_am]

TCS2844

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 128 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed			
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Showground Road (South East)														
22	T1	846	6.7	846	6.7	0.379	7.2	LOS A	7.7	56.6	0.28	0.25	0.28	54.4
23	R2	193	4.4	193	4.4	1.162	219.9	LOS F	24.8	179.8	1.00	1.37	2.31	6.9
Approach		1039	6.3	1039	6.3	1.162	46.6	LOS D	24.8	179.8	0.41	0.46	0.66	33.8
NorthEast: Gilbert Rd														
24	L2	542	3.1	542	3.1	0.709	36.3	LOS D	27.2	195.8	0.87	0.86	0.87	17.1
26	R2	1214	1.7	1214	1.7	1.156	215.5	LOS F	81.6	579.5	1.00	1.42	2.23	14.0
Approach		1756	2.2	1756	2.2	1.156	160.1	LOS F	81.6	579.5	0.96	1.24	1.81	14.2
NorthWest: Showground Road (North West)														
27	L2	916	4.6	916	4.6	0.517	5.8	LOS A	0.0	0.0	0.00	0.53	0.00	55.2
28	T1	1796	3.1	1796	3.1	1.169	215.7	LOS F	140.7	1011.3	1.00	1.91	2.25	11.8
Approach		2712	3.6	2712	3.6	1.169	144.8	LOS F	140.7	1011.3	0.66	1.44	1.49	17.1
All Vehicles		5506	3.7	5506	3.7	1.169	131.2	LOS F	140.7	1011.3	0.71	1.19	1.43	17.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Prop. Queued	Effective Stop Rate		
P5	SouthEast Full Crossing	4	58.2	LOS E	0.0	0.0	0.95	0.95	
P6	NorthEast Full Crossing	2	58.1	LOS E	0.0	0.0	0.95	0.95	
All Pedestrians		6	58.1	LOS E			0.95	0.95	

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

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

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

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MOVEMENT SUMMARY

 Site: 4PM [4PM Showground Rd/ Gilbert Rd 2031]

 Network: N101
[Network_pm]

TCS2844

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 131 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Arrival Flows Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Showground Road (South East)														
22	T1	1668	2.2	1457	2.3	0.544	4.0	LOS A	14.0	100.2	0.21	0.19	0.21	56.8
23	R2	202	4.2	177	4.3	0.450	44.2	LOS D	8.6	62.2	0.80	0.77	0.80	23.8
Approach		1871	2.4	1633 ^{N1}	2.5	0.544	8.3	LOS A	14.0	100.2	0.28	0.26	0.28	53.1
NorthEast: Gilbert Rd														
24	L2	379	4.4	379	4.4	0.471	30.4	LOS C	16.2	117.9	0.73	0.80	0.73	19.3
26	R2	721	2.8	721	2.8	1.016	119.5	LOS F	34.4	246.9	1.00	1.14	1.66	21.4
Approach		1100	3.3	1100	3.3	1.016	88.8	LOS F	34.4	246.9	0.91	1.02	1.34	21.2
NorthWest: Showground Road (North West)														
27	L2	988	1.4	988	1.4	0.546	5.8	LOS A	0.0	0.0	0.00	0.53	0.00	55.2
28	T1	1084	1.7	1084	1.7	0.656	31.1	LOS C	27.1	192.5	0.85	0.76	0.85	38.1
Approach		2073	1.6	2073	1.6	0.656	19.1	LOS B	27.1	192.5	0.45	0.65	0.45	45.7
All Vehicles		5043	2.3	4806 ^{N1}	2.4	1.016	31.4	LOS C	34.4	246.9	0.49	0.60	0.59	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.

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P5	SouthEast Full Crossing	3	59.6	LOS E	0.0	0.0	0.95	0.95
P6	NorthEast Full Crossing	3	59.6	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		6	59.6	LOS E			0.95	0.95

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

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

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

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MOVEMENT SUMMARY

 Site: 5AM [5AM Showground Rd/ De Clambe Drive 2031]

 Network: N101
[Network_am]

TCS4569

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 128 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total	HV	Total	HV				Vehicles	Distance				
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Showground Road (South East)														
21	L2	28	48.1	28	48.1	0.025	7.6	LOS A	0.2	2.1	0.13	0.59	0.13	36.2
22	T1	965	6.3	965	6.3	0.384	5.5	LOS A	7.3	53.6	0.26	0.23	0.26	41.5
Approach		994	7.5	994	7.5	0.384	5.5	LOS A	7.3	53.6	0.26	0.24	0.26	41.2
NorthWest: Showground Road (North West)														
28	T1	2201	2.7	1956	2.7	0.857	8.8	LOS A	41.0	294.1	0.44	0.44	0.47	39.0
29	R2	113	8.4	100	8.4	0.226	10.4	LOS B	1.5	11.6	0.31	0.65	0.31	38.4
Approach		2314	3.0	2056 ^{N1}	3.0	0.857	8.9	LOS A	41.0	294.1	0.44	0.45	0.47	39.0
SouthWest: De Clambe Drive														
30	L2	46	9.1	46	9.1	0.108	45.9	LOS D	2.3	17.1	0.82	0.72	0.82	7.7
32	R2	13	100.0	13	100.0	0.242	65.4	LOS E	0.8	9.9	0.95	0.69	0.95	5.7
Approach		59	28.6	59	28.6	0.242	50.1	LOS D	2.3	17.1	0.85	0.71	0.85	7.2
All Vehicles		3366	4.8	3109 ^{N1}	5.2	0.857	8.6	LOS A	41.0	294.1	0.39	0.39	0.41	38.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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
P7	NorthWest Full Crossing	1	58.1	LOS E	0.0	0.0	0.95	0.95
P8	SouthWest Full Crossing	1	58.1	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		2	58.1	LOS E			0.95	0.95

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

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

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

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MOVEMENT SUMMARY

 Site: 5PM [5PM Showground Rd/ De Clambe Drive 2031]

 Network: N101
[Network_pm]

TCS4569

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 131 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Showground Road (South East)														
21	L2	34	56.3	29	56.4	0.028	8.5	LOS A	0.3	3.0	0.17	0.60	0.17	34.7
22	T1	1986	1.9	1719	1.9	0.682	9.6	LOS A	26.6	189.1	0.47	0.43	0.47	33.7
Approach		2020	2.8	1749 ^{N1}	2.8	0.682	9.6	LOS A	26.6	189.1	0.46	0.44	0.46	33.7
NorthWest: Showground Road (North West)														
28	T1	1351	1.5	1351	1.5	0.587	1.9	LOS A	9.6	67.8	0.16	0.15	0.16	53.7
29	R2	80	3.9	80	3.9	0.304	17.3	LOS B	2.0	14.2	0.40	0.69	0.40	32.4
Approach		1431	1.6	1431	1.6	0.587	2.8	LOS A	9.6	67.8	0.18	0.18	0.18	51.1
SouthWest: De Clambe Drive														
30	L2	128	1.6	128	1.6	0.292	49.5	LOS D	6.8	48.1	0.87	0.77	0.87	7.2
32	R2	11	100.0	11	100.0	0.222	68.2	LOS E	0.7	8.5	0.95	0.68	0.95	5.5
Approach		139	9.1	139	9.1	0.292	50.9	LOS D	6.8	48.1	0.88	0.77	0.88	7.0
All Vehicles		3589	2.6	3318 ^{N1}	2.8	0.682	8.4	LOS A	26.6	189.1	0.36	0.34	0.36	37.3

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P7	NorthWest Full Crossing	2	59.6	LOS E	0.0	0.0	0.95	0.95
P8	SouthWest Full Crossing	1	59.6	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		3	59.6	LOS E			0.95	0.95

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

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

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

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MOVEMENT SUMMARY

 Site: 6AM [6AM Carrington Rd/ Middleton Ave/ Andalusian Way 2031]

 Network: N101
[Network_am]

TCS4700

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 64 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Total HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. Cycles	No. Average Speed	
		veh/h	%	veh/h	%	v/c	sec	veh	m			km/h	
South: Middleton Avenue													
1	L2	169	3.7	169	3.7	0.808	35.7	LOS D	10.7	77.1	1.00	0.98	1.26 17.4
2	T1	37	0.0	37	0.0	0.808	31.0	LOS C	10.7	77.1	1.00	0.98	1.26 21.3
3	R2	107	2.9	107	2.9	0.808	35.6	LOS D	10.7	77.1	1.00	0.98	1.26 17.4
Approach		314	3.0	314	3.0	0.808	35.1	LOS D	10.7	77.1	1.00	0.98	1.26 17.9
East: Carrington Road (East)													
4	L2	306	2.1	243	2.1	0.752	21.1	LOS C	10.8	76.4	0.75	0.80	0.87 32.5
5	T1	901	1.2	715	1.2	0.752	14.5	LOS B	12.3	86.9	0.73	0.72	0.82 28.2
6	R2	4	0.0	3	0.0	0.752	18.4	LOS B	12.3	86.9	0.72	0.69	0.80 32.3
Approach		1212	1.4	961 ^{N1}	1.4	0.752	16.2	LOS B	12.3	86.9	0.73	0.74	0.83 29.7
North: Andalusian Way													
7	L2	6	0.0	6	0.0	0.116	25.9	LOS C	1.2	8.3	0.82	0.68	0.82 12.9
8	T1	19	5.6	19	5.6	0.116	21.3	LOS C	1.2	8.3	0.82	0.68	0.82 25.9
9	R2	21	0.0	21	0.0	0.116	25.9	LOS C	1.2	8.3	0.82	0.68	0.82 12.9
Approach		46	2.3	46	2.3	0.116	24.0	LOS C	1.2	8.3	0.82	0.68	0.82 19.6
West: Carrington Road (West)													
10	L2	1	0.0	1	0.0	0.156	13.3	LOS B	2.5	17.9	0.56	0.46	0.56 33.1
11	T1	280	3.4	280	3.4	0.690	15.1	LOS B	7.5	53.6	0.72	0.65	0.77 20.8
12	R2	119	2.7	119	2.7	0.690	27.0	LOS C	7.5	53.6	0.91	0.87	1.02 26.5
Approach		400	3.2	400	3.2	0.690	18.6	LOS B	7.5	53.6	0.78	0.71	0.85 23.4
All Vehicles		1972	2.0	1721 ^{N1}	2.3	0.808	20.4	LOS C	12.3	86.9	0.79	0.77	0.91 25.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Prop. Queued	Effective Stop Rate		
P1	South Full Crossing	14	26.3	LOS C	0.0	0.0	0.91	0.91	
P2	East Full Crossing	6	26.3	LOS C	0.0	0.0	0.91	0.91	
P3	North Full Crossing	7	26.3	LOS C	0.0	0.0	0.91	0.91	
P4	West Full Crossing	44	26.3	LOS C	0.1	0.1	0.91	0.91	

MOVEMENT SUMMARY

 Site: 6PM [6PM Carrington Rd/ Middleton Ave/ Andalusian Way 2031]

 Network: N101
[Network_pm]

TCS4700

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 62 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Middleton Avenue														
1	L2	199	2.6	199	2.6	0.857	38.4	LOS C	10.8	76.5	1.00	1.04	1.41	16.5
2	T1	18	0.0	18	0.0	0.857	33.8	LOS C	10.8	76.5	1.00	1.04	1.41	20.3
3	R2	87	0.0	87	0.0	0.857	38.3	LOS C	10.8	76.5	1.00	1.04	1.41	16.5
Approach		304	1.7	304	1.7	0.857	38.1	LOS C	10.8	76.5	1.00	1.04	1.41	16.7
East: Carrington Road (East)														
4	L2	122	0.9	99	0.9	0.325	15.8	LOS B	5.8	40.7	0.67	0.63	0.67	36.6
5	T1	648	0.8	527	0.9	0.325	10.1	LOS A	5.8	40.7	0.64	0.57	0.64	32.4
6	R2	1	0.0	1	0.0	0.325	14.0	LOS A	5.7	40.5	0.62	0.53	0.62	36.1
Approach		772	0.8	627 ^{N1}	0.9	0.325	11.0	LOS A	5.8	40.7	0.64	0.58	0.64	33.4
North: Andalusian Way														
7	L2	9	0.0	9	0.0	0.087	25.4	LOS B	0.9	6.3	0.82	0.65	0.82	13.4
8	T1	20	0.0	20	0.0	0.087	20.9	LOS B	0.9	6.3	0.82	0.65	0.82	26.5
9	R2	7	0.0	7	0.0	0.087	25.4	LOS B	0.9	6.3	0.82	0.65	0.82	13.4
Approach		37	0.0	37	0.0	0.087	22.9	LOS B	0.9	6.3	0.82	0.65	0.82	21.9
West: Carrington Road (West)														
10	L2	13	8.3	11	8.8	0.242	13.5	LOS A	3.9	27.7	0.59	0.50	0.59	32.2
11	T1	815	0.1	733	0.1	1.071	84.1	LOS F	33.8	238.3	0.87	1.60	2.01	5.9
12	R2	172	3.1	155	3.3	1.071	121.6	LOS F	33.8	238.3	1.00	2.07	2.63	9.7
Approach		999	0.7	899 ^{N1}	0.8	1.071	89.7	LOS F	33.8	238.3	0.89	1.66	2.10	6.9
All Vehicles		2112	0.9	1867 ^{N1}	1.0	1.071	53.5	LOS D	33.8	238.3	0.82	1.18	1.47	12.5

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	4	25.3	LOS C	0.0	0.0	0.90	0.90
P2	East Full Crossing	2	25.3	LOS C	0.0	0.0	0.90	0.90
P3	North Full Crossing	8	25.3	LOS C	0.0	0.0	0.90	0.90
P4	West Full Crossing	26	25.3	LOS C	0.0	0.0	0.90	0.90

MOVEMENT SUMMARY

 Site: 7AM [7AM Carrington Road/ Victoria Avenue 2031]

 Network: N101
[Network_am]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Queue Distance	Prop. Queued	Effective Stop Rate	Aver. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h
South: Victoria Avenue (South)													
2	T1	886	3.3	886	3.3	0.695	9.6	LOS A	9.5	68.7	0.96	0.91	39.0
3	R2	416	2.5	416	2.5	0.695	14.4	LOS B	9.3	66.6	0.96	0.95	27.9
3u	U	23	0.0	23	0.0	0.695	15.9	LOS B	9.3	66.6	0.96	0.95	36.5
Approach		1325	3.0	1325	3.0	0.695	11.2	LOS B	9.5	68.7	0.96	0.92	36.2
East: Carrington Road													
4	L2	668	1.7	556	1.9	0.898	24.9	LOS C	12.8	91.2	1.00	1.47	34.9
6	R2	425	3.2	355	3.6	0.782	23.1	LOS C	7.1	51.3	0.97	1.23	36.9
6u	U	3	0.0	3	0.0	0.782	24.5	LOS C	7.1	51.3	0.97	1.23	33.5
Approach		1097	2.3	913 ^{N1}	2.6	0.898	24.2	LOS C	12.8	91.2	0.99	1.38	35.7
North: Victoria Avenue (North)													
7	L2	277	3.0	277	3.0	0.784	14.5	LOS B	13.2	94.5	1.00	1.12	27.6
8	T1	1023	2.7	1023	2.7	0.784	15.7	LOS B	13.2	94.5	1.00	1.15	34.2
9u	U	17	0.0	17	0.0	0.784	21.8	LOS C	12.5	89.4	1.00	1.18	34.8
Approach		1317	2.7	1317	2.7	0.784	15.6	LOS B	13.2	94.5	1.00	1.14	33.2
West: Access Rd													
10	L2	42	5.0	42	5.0	0.205	5.6	LOS A	0.9	6.7	0.79	0.79	21.5
11	T1	16	0.0	16	0.0	0.205	5.4	LOS A	0.9	6.7	0.79	0.79	8.2
12	R2	20	5.3	20	5.3	0.205	5.7	LOS A	0.9	6.7	0.79	0.79	21.1
Approach		78	4.1	78	4.1	0.205	5.6	LOS A	0.9	6.7	0.79	0.79	19.6
All Vehicles		3817	2.7	3633 ^{N1}	2.9	0.898	15.9	LOS B	13.2	94.5	0.98	1.11	34.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

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

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

Roundabout Capacity Model: SIDRA Standard.

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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Project: C:\Users\Shawn Cen\SCT_00061_Showground Precinct SSDA\3. Technical Work Area\1. Network Optimisation\RtS\1.SCT_00061_2031 FY0 I-B.sip8

MOVEMENT SUMMARY

 Site: 7PM [7PM Carrington Road/ Victoria Avenue 2031]

 Network: N101
[Network_pm]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h	
South: Victoria Avenue (South)														
2	T1	1354	1.4	1354	1.4	1.223	220.6	LOS F	151.9	1076.2	1.00	5.53	9.81	6.4
3	R2	642	1.6	642	1.6	1.223	226.9	LOS F	128.4	911.0	1.00	5.18	9.41	3.5
3u	U	19	0.0	19	0.0	1.223	228.4	LOS F	128.4	911.0	1.00	5.18	9.41	6.1
Approach		2015	1.5	2015	1.5	1.223	222.7	LOS F	151.9	1076.2	1.00	5.42	9.68	5.5
East: Carrington Road														
4	L2	661	2.9	593	3.2	0.856	19.4	LOS B	11.6	83.7	1.00	1.36	1.84	37.3
6	R2	519	2.2	465	2.5	0.844	25.1	LOS B	10.1	71.8	1.00	1.34	1.84	36.1
6u	U	3	0.0	3	0.0	0.844	26.6	LOS B	10.1	71.8	1.00	1.34	1.84	32.6
Approach		1183	2.6	1061 ^{N1}	2.8	0.856	21.9	LOS B	11.6	83.7	1.00	1.36	1.84	36.7
North: Victoria Avenue (North)														
7	L2	422	1.7	422	1.7	0.881	25.1	LOS B	19.9	141.6	1.00	1.43	1.99	20.6
8	T1	842	1.9	842	1.9	0.881	27.6	LOS B	19.9	141.6	1.00	1.47	2.04	27.3
9u	U	40	5.3	40	5.3	0.881	34.4	LOS C	18.3	130.1	1.00	1.49	2.07	27.8
Approach		1304	1.9	1304	1.9	0.881	27.0	LOS B	19.9	141.6	1.00	1.46	2.03	25.6
West: Access Rd														
10	L2	41	2.6	41	2.6	0.251	9.6	LOS A	1.2	8.4	0.87	0.87	0.87	20.0
11	T1	13	8.3	13	8.3	0.251	9.9	LOS A	1.2	8.4	0.87	0.87	0.87	7.2
12	R2	13	0.0	13	0.0	0.251	9.5	LOS A	1.2	8.4	0.87	0.87	0.87	19.6
Approach		66	3.2	66	3.2	0.251	9.6	LOS A	1.2	8.4	0.87	0.87	0.87	18.2
All Vehicles		4568	1.9	4446 ^{N1}	2.0	1.223	114.2	LOS F	151.9	1076.2	1.00	3.22	5.43	11.8

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.

Roundabout Capacity Model: SIDRA Standard.

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

 Site: 8AM [8AM Carrington Rd/ Doran Drive 2031]

 Network: N101
[Network_am]

TCS4699

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 85 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Carrington Road (East)														
5	T1	1075	1.2	890	1.2	0.587	4.1	LOS A	15.0	105.8	0.45	0.41	0.45	36.8
6	R2	9	44.4	8	45.7	0.016	9.7	LOS A	0.1	1.0	0.39	0.59	0.39	29.0
Approach		1084	1.6	898 ^{N1}	1.6	0.587	4.2	LOS A	15.0	105.8	0.45	0.41	0.45	36.7
North: Doran Drive														
7	L2	22	14.3	22	14.3	0.059	32.9	LOS C	0.7	5.8	0.83	0.69	0.83	6.3
9	R2	41	25.6	41	25.6	0.183	39.9	LOS D	1.6	13.3	0.92	0.73	0.92	5.1
Approach		63	21.7	63	21.7	0.183	37.5	LOS D	1.6	13.3	0.89	0.71	0.89	5.5
West: Carrington Road (West)														
10	L2	42	25.0	42	25.0	0.174	10.8	LOS B	3.2	24.1	0.42	0.42	0.42	18.5
11	T1	371	2.0	370	2.0	0.174	6.3	LOS A	3.4	24.4	0.42	0.38	0.42	27.3
Approach		413	4.3	412 ^{N1}	4.3	0.174	6.8	LOS A	3.4	24.4	0.42	0.39	0.42	25.6
All Vehicles		1560	3.1	1374 ^{N1}	3.5	0.587	6.5	LOS A	15.0	105.8	0.46	0.42	0.46	30.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P2	East Full Crossing	17	36.7	LOS D	0.0	0.0	0.93	0.93
P3	North Full Crossing	34	36.8	LOS D	0.1	0.1	0.93	0.93
All Pedestrians		51	36.8	LOS D			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.

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MOVEMENT SUMMARY

 Site: 8PM [8PM Carrington Rd/ Doran Drive 2031]

 Network: N101
[Network_pm]

TCS4699

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 64 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Total	Flows HV	Arrival Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Carrington Road (East)														
5	T1	845	0.7	724	0.8	0.483	3.0	LOS A	8.4	58.9	0.40	0.36	0.40	39.7
6	R2	8	37.5	7	39.7	0.025	11.8	LOS A	0.1	0.9	0.54	0.62	0.54	26.8
Approach		854	1.1	732 ^{N1}	1.2	0.483	3.1	LOS A	8.4	58.9	0.40	0.37	0.40	39.5
North: Doran Drive														
7	L2	27	15.4	27	15.4	0.076	26.6	LOS B	0.7	5.6	0.84	0.69	0.84	7.5
9	R2	66	17.5	66	17.5	0.318	33.2	LOS C	2.0	16.2	0.95	0.75	0.95	6.1
Approach		94	16.9	94	16.9	0.318	31.3	LOS C	2.0	16.2	0.92	0.73	0.92	6.4
West: Carrington Road (West)														
10	L2	39	18.9	35	19.0	0.528	12.3	LOS A	10.8	76.6	0.62	0.56	0.62	18.0
11	T1	975	0.3	873	0.3	0.528	7.2	LOS A	10.8	76.6	0.57	0.51	0.57	26.0
Approach		1014	1.0	908 ^{N1}	1.0	0.528	7.4	LOS A	10.8	76.6	0.58	0.51	0.58	25.4
All Vehicles		1961	1.8	1734 ^{N1}	2.1	0.528	6.9	LOS A	10.8	76.6	0.52	0.46	0.52	28.5

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P2	East Full Crossing	20	26.3	LOS C	0.0	0.0	0.91	0.91
P3	North Full Crossing	27	26.3	LOS C	0.0	0.0	0.91	0.91
All Pedestrians		47	26.3	LOS C			0.91	0.91

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

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

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

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MOVEMENT SUMMARY

Site: 9AM [9AM Carrington Rd/ De Clambe Drive 2031]

Network: N101
[Network_am]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Total HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	
		veh/h	%	veh/h	%	v/c	sec		veh	m			km/h	
East: Carrington Rd (Northeast)														
5	T1	1106	2.1	922	2.3	0.240	0.0	LOS A	0.0	0.0	0.00	0.00	50.0	
Approach		1106	2.1	922 ^{N1}	2.3	0.240	0.0	NA	0.0	0.0	0.00	0.00	50.0	
North: De Clambe Drive														
7	L2	20	0.0	20	0.0	0.015	3.2	LOS A	0.0	0.0	0.00	0.41	0.00	33.3
Approach		20	0.0	20	0.0	0.015	3.2	LOS A	0.0	0.0	0.00	0.41	0.00	33.3
West: Carrington Rd (Southwest)														
10	L2	32	3.3	32	3.3	0.023	4.7	LOS A	0.1	0.7	0.09	0.50	0.09	44.2
11	T1	395	4.8	394	4.8	0.209	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		426	4.7	426	4.7	0.209	0.4	NA	0.1	0.7	0.01	0.04	0.01	49.4
All Vehicles		1553	2.8	1368 ^{N1}	3.2	0.240	0.2	NA	0.1	0.7	0.00	0.02	0.00	49.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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Project: C:\Users\Shawn Cen\SCT_00061_Showground Precinct SSDA\3. Technical Work Area\1. Network Optimisation\RtS\1.SCT_00061_2031 FY0 I-B.sip8

MOVEMENT SUMMARY

Site: 9PM [9PM Carrington Rd/ De Clambe Drive 2031]

Network: N101
[Network_pm]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Carrington Rd (Northeast)														
5	T1	920	2.5	798	2.9	0.208	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		920	2.5	798 ^{N1}	2.9	0.208	0.0	NA	0.0	0.0	0.00	0.00	0.00	50.0
North: De Clambe Drive														
7	L2	31	0.0	31	0.0	0.023	3.2	LOS A	0.0	0.0	0.00	0.41	0.00	33.3
Approach		31	0.0	31	0.0	0.023	3.2	LOS A	0.0	0.0	0.00	0.41	0.00	33.3
West: Carrington Rd (Southwest)														
10	L2	17	0.0	15	0.0	0.011	4.7	LOS A	0.0	0.3	0.09	0.50	0.09	44.3
11	T1	981	1.2	875	1.2	0.452	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		998	1.2	890 ^{N1}	1.2	0.452	0.2	NA	0.0	0.3	0.00	0.01	0.00	49.8
All Vehicles		1948	1.8	1719 ^{N1}	2.0	0.452	0.1	NA	0.0	0.3	0.00	0.01	0.00	49.6

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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2031 Background growth with infrastructure upgrades

MOVEMENT SUMMARY

 Site: 3AM [3AM Showground Rd/Carrington Rd 2031]

 Network: N101
[Network_am]

TCS2666

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. Cycles	No.Average Speed		
		veh/h	%	veh/h	%	v/c	sec		veh	m			km/h	
SouthEast: Showground Road (South East)														
21	L2	701	1.4	701	1.4	0.658	13.3	LOS B	17.8	126.1	0.48	0.74	0.48	28.9
22	T1	879	7.7	879	7.7	0.592	23.4	LOS C	22.2	165.6	0.75	0.66	0.75	20.8
Approach		1580	4.9	1580	4.9	0.658	18.9	LOS B	22.2	165.6	0.63	0.69	0.63	23.7
NorthWest: Showground Road (North West)														
28	T1	1702	4.1	1702	4.1	0.531	2.4	LOS A	8.0	57.7	0.15	0.13	0.15	54.6
29	R2	512	1.4	512	1.4	0.673	56.1	LOS E	14.0	99.0	0.97	0.83	0.98	10.8
Approach		2214	3.5	2214	3.5	0.673	14.8	LOS B	14.0	99.0	0.34	0.29	0.34	35.3
SouthWest: Carrington Road														
30	L2	118	1.8	118	1.8	0.545	49.3	LOS D	11.4	81.3	0.94	0.82	0.94	14.4
32	R2	296	3.6	296	3.6	0.545	50.9	LOS D	11.4	81.3	0.95	0.81	0.95	20.0
Approach		414	3.1	414	3.1	0.545	50.4	LOS D	11.4	81.3	0.94	0.81	0.94	18.6
All Vehicles		4207	4.0	4207	4.0	0.673	19.8	LOS B	22.2	165.6	0.51	0.50	0.51	28.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Prop. Queued	Effective Stop Rate	
P7	NorthWest Full Crossing	4	54.2	LOS E	0.0	0.0	0.95	0.95
P8	SouthWest Full Crossing	2	54.2	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		6	54.2	LOS E			0.95	0.95

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

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

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

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MOVEMENT SUMMARY

 Site: 3PM [3PM Showground Rd/Carrington Rd 2031]

 Network: N101
[Network_pm]

TCS2666

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 130 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h
SouthEast: Showground Road (South East)													
21	L2	517	1.0	517	1.0	0.327	7.6	LOS A	6.5	45.6	0.22	0.65	37.2
22	T1	1692	3.0	1692	3.0	0.981	69.8	LOS E	90.5	650.0	0.89	1.10	9.0
Approach		2208	2.5	2208	2.5	0.981	55.3	LOS D	90.5	650.0	0.73	1.00	11.0
NorthWest: Showground Road (North West)													
28	T1	1104	3.3	1104	3.3	0.363	11.2	LOS A	18.5	133.0	0.53	0.48	40.8
29	R2	231	0.0	231	0.0	0.976	79.2	LOS F	8.3	58.0	1.00	0.90	8.1
Approach		1335	2.8	1335	2.8	0.976	22.9	LOS B	18.5	133.0	0.61	0.55	29.3
SouthWest: Carrington Road													
30	L2	236	0.0	236	0.0	0.992	100.9	LOS F	39.8	278.6	1.00	1.13	8.3
32	R2	664	0.0	664	0.0	0.992	101.4	LOS F	40.1	281.0	1.00	1.13	12.6
Approach		900	0.0	900	0.0	0.992	101.3	LOS F	40.1	281.0	1.00	1.13	11.5
All Vehicles		4443	2.1	4443	2.1	0.992	54.9	LOS D	90.5	650.0	0.75	0.89	14.5

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	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P7	NorthWest Full Crossing	4	59.1	LOS E	0.0	0.0	0.95	0.95
P8	SouthWest Full Crossing	1	59.1	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		5	59.1	LOS E			0.95	0.95

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

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

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

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MOVEMENT SUMMARY

 Site: 4AM [4AM Showground Rd/ Gilbert Rd 2031]

 Network: N101
[Network_am]

TCS2844
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Vehicles	Queue Distance	Prop. Queued	Effective Stop Rate	Aver. Cycles	No.Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Showground Road (South East)														
22	T1	846	6.7	846	6.7	0.397	19.9	LOS B	18.5	136.8	0.78	0.69	0.78	46.7
23	R2	193	4.4	193	4.4	0.817	58.5	LOS E	11.4	83.1	1.00	0.87	1.11	20.2
Approach		1039	6.3	1039	6.3	0.817	27.1	LOS C	18.5	136.8	0.82	0.72	0.84	41.8
NorthEast: Gilbert Rd														
24	L2	418	3.3	418	3.3	0.479	26.0	LOS C	15.7	113.2	0.70	0.79	0.70	21.5
26	R2	935	1.8	935	1.8	0.830	51.4	LOS D	27.5	195.5	0.99	0.93	1.10	33.8
Approach		1353	2.3	1353	2.3	0.830	43.6	LOS D	27.5	195.5	0.90	0.88	0.97	32.2
NorthWest: Showground Road (North West)														
27	L2	916	4.6	916	4.6	0.517	5.8	LOS A	0.0	0.0	0.00	0.53	0.00	55.2
28	T1	1796	3.1	1796	3.1	0.812	37.6	LOS D	32.6	234.0	0.96	0.90	1.01	35.5
Approach		2712	3.6	2712	3.6	0.812	26.8	LOS C	32.6	234.0	0.64	0.77	0.67	41.3
All Vehicles		5103	3.8	5103	3.8	0.830	31.3	LOS C	32.6	234.0	0.74	0.79	0.78	38.8

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Prop. Queued	Effective Stop Rate		
P5	SouthEast Full Crossing	4	54.2	LOS E	0.0	0.0	0.95	0.95	
P6	NorthEast Full Crossing	2	54.2	LOS E	0.0	0.0	0.95	0.95	
All Pedestrians		6	54.2	LOS E			0.95	0.95	

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

MOVEMENT SUMMARY

 Site: 4PM [4PM Showground Rd/ Gilbert Rd 2031]

 Network: N101
[Network_pm]

TCS2844

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 130 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h
SouthEast: Showground Road (South East)													
22	T1	1668	2.2	1668	2.2	0.661	6.4	LOS A	22.0	157.2	0.33	0.31	54.9
23	R2	202	4.2	202	4.2	0.494	52.7	LOS D	10.8	78.7	0.89	0.89	21.6
Approach		1871	2.4	1871	2.4	0.661	11.4	LOS A	22.0	157.2	0.39	0.39	51.0
NorthEast: Gilbert Rd													
24	L2	294	4.7	294	4.7	0.331	24.5	LOS B	10.6	77.0	0.62	0.76	22.3
26	R2	558	2.8	558	2.8	0.659	53.4	LOS D	16.1	115.1	0.96	0.96	33.2
Approach		852	3.5	852	3.5	0.659	43.4	LOS D	16.1	115.1	0.84	0.84	31.6
NorthWest: Showground Road (North West)													
27	L2	988	1.4	988	1.4	0.546	5.8	LOS A	0.0	0.0	0.00	0.53	55.2
28	T1	1084	1.7	1084	1.7	0.495	32.4	LOS C	17.3	122.6	0.81	0.71	37.6
Approach		2073	1.6	2073	1.6	0.546	19.7	LOS B	17.3	122.6	0.43	0.62	45.3
All Vehicles		4795	2.2	4795	2.2	0.661	20.7	LOS B	22.0	157.2	0.49	0.55	44.6

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	Back of Queue Distance m	Prop. Queued	Effective Stop Rate	
P5	SouthEast Full Crossing	3	59.1	LOS E	0.0	0.0	0.95	0.95	
P6	NorthEast Full Crossing	3	59.1	LOS E	0.0	0.0	0.95	0.95	
All Pedestrians		6	59.1	LOS E			0.95	0.95	

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

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

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

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MOVEMENT SUMMARY

 Site: 5AM [5AM Showground Rd/ De Clambe Drive 2031]

 Network: N101
[Network_am]

TCS4569

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Showground Road (South East)														
21	L2	28	48.1	28	48.1	0.029	7.3	LOS A	0.1	1.1	0.07	0.58	0.07	36.5
22	T1	965	6.3	965	6.3	0.418	4.2	LOS A	6.7	49.3	0.19	0.17	0.19	44.8
Approach		994	7.5	994	7.5	0.418	4.3	LOS A	6.7	49.3	0.19	0.18	0.19	44.4
NorthWest: Showground Road (North West)														
28	T1	2201	2.7	2201	2.7	0.706	2.2	LOS A	15.2	108.9	0.24	0.23	0.24	52.9
29	R2	113	8.4	113	8.4	0.207	9.5	LOS A	1.6	11.7	0.30	0.65	0.30	39.4
Approach		2314	3.0	2314	3.0	0.706	2.6	LOS A	15.2	108.9	0.25	0.25	0.25	51.7
SouthWest: De Clambe Drive														
30	L2	46	9.1	46	9.1	0.095	40.1	LOS D	2.0	15.3	0.79	0.71	0.79	8.6
32	R2	13	100.0	13	100.0	0.227	70.3	LOS E	0.8	10.2	0.99	0.69	0.99	5.4
Approach		59	28.6	59	28.6	0.227	46.5	LOS D	2.0	15.3	0.83	0.71	0.83	7.6
All Vehicles		3366	4.8	3366	4.8	0.706	3.8	LOS A	15.2	108.9	0.24	0.24	0.24	47.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P7	NorthWest Full Crossing	1	54.2	LOS E	0.0	0.0	0.95	0.95
P8	SouthWest Full Crossing	1	54.2	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		2	54.2	LOS E			0.95	0.95

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

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

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

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MOVEMENT SUMMARY

 Site: 5PM [5PM Showground Rd/ De Clambe Drive 2031]

 Network: N101
[Network_pm]

TCS4569

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 130 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Showground Road (South East)														
21	L2	34	56.3	34	56.3	0.031	6.9	LOS A	0.2	1.6	0.08	0.58	0.08	36.5
22	T1	1986	1.9	1986	1.9	0.717	5.5	LOS A	28.8	205.0	0.34	0.31	0.34	41.3
Approach		2020	2.8	2020	2.8	0.717	5.6	LOS A	28.8	205.0	0.33	0.32	0.33	41.2
NorthWest: Showground Road (North West)														
28	T1	1351	1.5	1351	1.5	0.424	0.8	LOS A	4.6	32.6	0.08	0.07	0.08	57.3
29	R2	80	3.9	80	3.9	0.415	6.7	LOS A	0.3	2.0	0.06	0.59	0.06	43.2
Approach		1431	1.6	1431	1.6	0.424	1.1	LOS A	4.6	32.6	0.08	0.10	0.08	55.9
SouthWest: De Clambe Drive														
30	L2	128	1.6	128	1.6	0.414	58.0	LOS E	7.4	52.7	0.95	0.79	0.95	6.3
32	R2	11	100.0	11	100.0	0.205	75.9	LOS F	0.7	9.2	0.99	0.69	0.99	5.0
Approach		139	9.1	139	9.1	0.414	59.4	LOS E	7.4	52.7	0.95	0.78	0.95	6.2
All Vehicles		3589	2.6	3589	2.6	0.717	5.9	LOS A	28.8	205.0	0.25	0.25	0.25	41.9

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	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P7	NorthWest Full Crossing	2	59.1	LOS E	0.0	0.0	0.95	0.95
P8	SouthWest Full Crossing	1	59.1	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		3	59.1	LOS E			0.95	0.95

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

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

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

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Organisation: SCT CONSULTING PTY LTD | Processed: Monday, 11 May 2020 3:03:36 PM

Project: C:\Users\Shawn Cen\SCT_00061_Showground Precinct SSDA\3. Technical Work Area\1. Network Optimisation\RtS\2.SCT_00061_2031 FY01.sip8

MOVEMENT SUMMARY

 Site: 6AM [6AM Carrington Rd/ Middleton Ave/ Andalusian Way 2031]

 Network: N101
[Network_am]

TCS4700

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 80 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows HV Total	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. Cycles	No.Average Speed		
		veh/h	%	veh/h	%	v/c	sec	veh	m			km/h		
South: Middleton Avenue														
1	L2	169	3.7	169	3.7	0.687	27.8	LOS C	10.0	71.8	0.83	0.81	0.88	20.4
2	T1	37	0.0	37	0.0	0.687	23.2	LOS C	10.0	71.8	0.83	0.81	0.88	24.4
3	R2	107	2.9	107	2.9	0.687	27.8	LOS C	10.0	71.8	0.83	0.81	0.88	20.4
Approach		314	3.0	314	3.0	0.687	27.3	LOS C	10.0	71.8	0.83	0.81	0.88	20.9
East: Carrington Road (East)														
4	L2	306	2.1	306	2.1	0.849	35.3	LOS D	19.2	136.2	0.88	0.94	1.11	26.0
5	T1	901	1.2	901	1.2	0.849	28.7	LOS C	29.1	205.9	0.95	0.97	1.11	20.1
6	R2	4	0.0	4	0.0	0.849	32.8	LOS C	29.1	205.9	0.96	0.98	1.11	24.0
Approach		1212	1.4	1212	1.4	0.849	30.4	LOS C	29.1	205.9	0.93	0.97	1.11	22.0
North: Andalusian Way														
7	L2	6	0.0	6	0.0	0.075	22.5	LOS C	1.2	8.4	0.68	0.62	0.68	14.4
8	T1	19	5.6	19	5.6	0.075	18.0	LOS B	1.2	8.4	0.68	0.62	0.68	27.8
9	R2	21	0.0	21	0.0	0.075	22.5	LOS C	1.2	8.4	0.68	0.62	0.68	14.4
Approach		46	2.3	46	2.3	0.075	20.7	LOS C	1.2	8.4	0.68	0.62	0.68	21.4
West: Carrington Road (West)														
10	L2	1	0.0	1	0.0	0.342	20.6	LOS C	7.3	52.3	0.70	0.60	0.70	26.3
11	T1	280	3.4	280	3.4	0.342	16.0	LOS B	7.3	52.3	0.70	0.60	0.70	20.8
12	R2	119	2.7	119	2.7	1.006	92.5	LOS F	7.8	55.7	1.00	1.32	2.27	11.8
Approach		400	3.2	400	3.2	1.006	38.8	LOS D	7.8	55.7	0.79	0.81	1.17	15.0
All Vehicles		1972	2.0	1972	2.0	1.006	31.4	LOS C	29.1	205.9	0.88	0.90	1.07	20.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	14	34.2	LOS D	0.0	0.0	0.93	0.93
P2	East Full Crossing	6	34.2	LOS D	0.0	0.0	0.93	0.93
P3	North Full Crossing	7	34.2	LOS D	0.0	0.0	0.93	0.93
P4	West Full Crossing	44	34.3	LOS D	0.1	0.1	0.93	0.93
All Pedestrians		72	34.3	LOS D			0.93	0.93

MOVEMENT SUMMARY

 Site: 6PM [6PM Carrington Rd/ Middleton Ave/ Andalusian Way 2031]

 Network: N101
[Network_pm]

TCS4700

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 70 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Total HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. Cycles	No. Average Speed	
		veh/h	%	veh/h	%	v/c	sec	veh	m			km/h	
South: Middleton Avenue													
1	L2	199	2.6	199	2.6	0.641	29.5	LOS C	9.4	67.0	0.93	0.83	19.5
2	T1	18	0.0	18	0.0	0.641	24.9	LOS B	9.4	67.0	0.93	0.83	23.5
3	R2	87	0.0	87	0.0	0.641	29.5	LOS C	9.4	67.0	0.93	0.83	19.5
Approach		304	1.7	304	1.7	0.641	29.3	LOS C	9.4	67.0	0.93	0.83	19.8
East: Carrington Road (East)													
4	L2	122	0.9	122	0.9	0.423	19.0	LOS B	8.8	61.9	0.73	0.68	34.4
5	T1	648	0.8	648	0.8	0.423	13.3	LOS A	8.8	62.3	0.71	0.63	29.3
6	R2	1	0.0	1	0.0	0.423	17.2	LOS B	8.8	62.3	0.69	0.60	33.3
Approach		772	0.8	772	0.8	0.423	14.2	LOS A	8.8	62.3	0.71	0.64	30.5
North: Andalusian Way													
7	L2	9	0.0	9	0.0	0.071	24.3	LOS B	0.9	6.5	0.76	0.62	13.9
8	T1	20	0.0	20	0.0	0.071	19.7	LOS B	0.9	6.5	0.76	0.62	27.2
9	R2	7	0.0	7	0.0	0.071	24.3	LOS B	0.9	6.5	0.76	0.62	13.9
Approach		37	0.0	37	0.0	0.071	21.8	LOS B	0.9	6.5	0.76	0.62	22.6
West: Carrington Road (West)													
10	L2	13	8.3	13	8.3	0.847	27.8	LOS B	23.8	166.9	0.88	0.93	21.6
11	T1	815	0.1	815	0.1	0.847	25.0	LOS B	23.8	166.9	0.89	0.95	15.5
12	R2	172	3.1	172	3.1	0.847	39.1	LOS C	11.9	84.9	0.97	1.08	21.5
Approach		999	0.7	999	0.7	0.847	27.5	LOS B	23.8	166.9	0.90	0.97	17.3
All Vehicles		2112	0.9	2112	0.9	0.847	22.8	LOS B	23.8	166.9	0.83	0.82	22.1

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	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	4	29.3	LOS C	0.0	0.0	0.91	0.91
P2	East Full Crossing	2	29.3	LOS C	0.0	0.0	0.91	0.91
P3	North Full Crossing	8	29.3	LOS C	0.0	0.0	0.91	0.91
P4	West Full Crossing	26	29.3	LOS C	0.0	0.0	0.92	0.92
All Pedestrians		41	29.3	LOS C			0.92	0.92

MOVEMENT SUMMARY

 Site: 7AM [7AM Carrington Road/ Victoria Avenue 2031]

 Network: N101
[Network_am]

New Site

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. Cycles	No.Average Speed		
		veh/h	%	veh/h	%	v/c	sec	veh	m			km/h		
South: Victoria Avenue (South)														
2	T1	886	3.3	886	3.3	0.388	12.7	LOS B	13.0	93.9	0.55	0.49	0.55	35.7
3	R2	416	2.5	416	2.5	0.817	65.0	LOS E	13.0	92.7	1.00	0.92	1.20	9.6
Approach		1302	3.1	1302	3.1	0.817	29.4	LOS C	13.0	93.9	0.69	0.63	0.76	23.8
East: Carrington Road														
4	L2	668	1.7	668	1.7	0.854	43.4	LOS D	38.5	273.3	0.97	0.93	1.06	28.8
6	R2	425	3.2	425	3.2	0.816	51.8	LOS D	24.9	178.8	0.99	0.92	1.09	27.0
Approach		1094	2.3	1094	2.3	0.854	46.7	LOS D	38.5	273.3	0.98	0.93	1.07	28.0
North: Victoria Avenue (North)														
7	L2	277	3.0	277	3.0	0.857	46.1	LOS D	36.8	264.1	0.98	0.95	1.08	14.3
8	T1	1023	2.7	1023	2.7	0.857	40.6	LOS D	39.0	279.6	0.98	0.95	1.07	21.8
Approach		1300	2.8	1300	2.8	0.857	41.8	LOS D	39.0	279.6	0.98	0.95	1.07	20.4
West: Access Rd														
10	L2	42	5.0	42	5.0	0.076	6.8	LOS A	0.7	5.0	0.47	0.36	0.47	21.1
Approach		42	5.0	42	5.0	0.076	6.8	LOS A	0.7	5.0	0.47	0.36	0.47	21.1
All Vehicles		3738	2.8	3738	2.8	0.857	38.5	LOS D	39.0	279.6	0.87	0.83	0.96	24.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95	
P2	East Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95	
All Pedestrians		105	54.3	LOS E			0.95	0.95	

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

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

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

MOVEMENT SUMMARY

 Site: 7PM [7PM Carrington Road/ Victoria Avenue 2031]

 Network: N101
[Network_pm]

New Site

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 150 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. Cycles	No. Average Speed	
		veh/h	%	veh/h	%	v/c	sec	veh	m			km/h	
South: Victoria Avenue (South)													
2	T1	1354	1.4	1354	1.4	0.586	18.9	LOS B	29.6	209.4	0.66	0.60	31.3
3	R2	642	1.6	642	1.6	0.919	86.7	LOS F	27.2	192.9	1.00	0.99	7.5
Approach		1996	1.5	1996	1.5	0.919	40.8	LOS C	29.6	209.4	0.77	0.73	19.7
East: Carrington Road													
4	L2	661	2.9	661	2.9	0.728	35.2	LOS C	37.2	266.9	0.85	0.85	31.2
6	R2	519	2.2	519	2.2	0.920	76.1	LOS F	43.4	309.3	1.00	0.99	22.2
Approach		1180	2.6	1180	2.6	0.920	53.2	LOS D	43.4	309.3	0.91	0.91	26.4
North: Victoria Avenue (North)													
7	L2	423	1.7	423	1.7	0.915	68.6	LOS E	50.2	356.5	1.00	1.00	10.3
8	T1	842	1.9	842	1.9	0.915	63.2	LOS E	52.2	371.4	1.00	1.02	16.6
Approach		1265	1.8	1265	1.8	0.915	65.0	LOS E	52.2	371.4	1.00	1.02	14.7
West: Access Rd													
10	L2	41	2.6	41	2.6	0.100	8.6	LOS A	1.0	7.2	0.40	0.32	20.4
Approach		41	2.6	41	2.6	0.100	8.6	LOS A	1.0	7.2	0.40	0.32	20.4
All Vehicles		4482	1.9	4482	1.9	0.920	50.6	LOS D	52.2	371.4	0.87	0.85	20.6

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	
P1	South Full Crossing	53	69.3	LOS F	0.2	0.2	0.96	0.96	
P2	East Full Crossing	53	69.3	LOS F	0.2	0.2	0.96	0.96	
All Pedestrians		105	69.3	LOS F			0.96	0.96	

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

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

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

MOVEMENT SUMMARY

 Site: 8AM [8AM Carrington Rd/ Doran Drive 2031]

 Network: N101
[Network_am]

TCS4699

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 50 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h	
East: Carrington Road (East)														
5	T1	1075	1.2	1075	1.2	0.887	19.6	LOS B	31.2	220.4	0.91	1.06	1.19	18.5
6	R2	9	44.4	9	44.4	0.022	13.1	LOS B	0.1	1.2	0.67	0.63	0.67	25.7
Approach		1084	1.6	1084	1.6	0.887	19.6	LOS B	31.2	220.4	0.91	1.06	1.19	18.6
North: Doran Drive														
7	L2	22	14.3	22	14.3	0.033	14.4	LOS B	0.3	2.7	0.65	0.65	0.65	12.4
9	R2	41	25.6	41	25.6	0.216	27.1	LOS C	1.0	8.4	0.94	0.72	0.94	7.2
Approach		63	21.7	63	21.7	0.216	22.7	LOS C	1.0	8.4	0.84	0.70	0.84	8.5
West: Carrington Road (West)														
10	L2	42	25.0	42	25.0	0.313	17.2	LOS B	3.6	26.8	0.76	0.65	0.76	15.4
11	T1	371	2.0	371	2.0	0.313	12.7	LOS B	3.8	27.1	0.76	0.64	0.76	19.0
Approach		413	4.3	413	4.3	0.313	13.2	LOS B	3.8	27.1	0.76	0.64	0.76	18.4
All Vehicles		1560	3.1	1560	3.1	0.887	18.0	LOS B	31.2	220.4	0.87	0.93	1.06	18.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P2	East Full Crossing	17	19.4	LOS B	0.0	0.0	0.88	0.88
P3	North Full Crossing	34	19.4	LOS B	0.0	0.0	0.88	0.88
All Pedestrians		51	19.4	LOS B			0.88	0.88

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

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

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

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Project: C:\Users\Shawn Cen\SCT_00061_Showground Precinct SSDA\3. Technical Work Area\1. Network Optimisation\RtS\2.SCT_00061_2031 FY0 I.sip8

MOVEMENT SUMMARY

 Site: 8PM [8PM Carrington Rd/ Doran Drive 2031]

 Network: N101
[Network_pm]

TCS4699

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 50 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Carrington Road (East)														
5	T1	845	0.7	845	0.7	0.695	6.9	LOS A	13.9	98.2	0.72	0.65	0.72	31.3
6	R2	8	37.5	8	37.5	0.025	17.1	LOS B	0.1	1.3	0.79	0.64	0.79	22.6
Approach		854	1.1	854	1.1	0.695	7.0	LOS A	13.9	98.2	0.72	0.65	0.72	31.1
North: Doran Drive														
7	L2	27	15.4	27	15.4	0.047	14.5	LOS A	0.4	3.4	0.65	0.65	0.65	12.3
9	R2	66	17.5	66	17.5	0.331	27.5	LOS B	1.6	13.0	0.95	0.75	0.95	7.1
Approach		94	16.9	94	16.9	0.331	23.7	LOS B	1.6	13.0	0.87	0.72	0.87	8.2
West: Carrington Road (West)														
10	L2	39	18.9	39	18.9	0.801	24.1	LOS B	11.6	82.5	0.90	0.94	1.14	13.1
11	T1	975	0.3	975	0.3	0.801	19.8	LOS B	14.1	98.8	0.94	0.96	1.15	14.3
Approach		1014	1.0	1014	1.0	0.801	19.9	LOS B	14.1	98.8	0.94	0.96	1.15	14.2
All Vehicles		1961	1.8	1961	1.8	0.801	14.5	LOS A	14.1	98.8	0.84	0.81	0.95	19.6

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	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P2	East Full Crossing	20	19.4	LOS B	0.0	0.0	0.88	0.88
P3	North Full Crossing	27	19.4	LOS B	0.0	0.0	0.88	0.88
All Pedestrians		47	19.4	LOS B			0.88	0.88

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

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

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

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MOVEMENT SUMMARY

Site: 9AM [9AM Carrington Rd/ De Clambe Drive 2031]

Network: N101
[Network_am]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Carrington Rd (Northeast)														
5	T1	1106	2.1	1106	2.1	0.288	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		1106	2.1	1106	2.1	0.288	0.0	NA	0.0	0.0	0.00	0.00	0.00	50.0
North: De Clambe Drive														
7	L2	20	0.0	20	0.0	0.015	3.2	LOS A	0.0	0.0	0.00	0.41	0.00	33.3
Approach		20	0.0	20	0.0	0.015	3.2	LOS A	0.0	0.0	0.00	0.41	0.00	33.3
West: Carrington Rd (Southwest)														
10	L2	32	3.3	32	3.3	0.023	4.7	LOS A	0.1	0.5	0.08	0.51	0.08	44.3
11	T1	395	4.8	395	4.8	0.209	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		426	4.7	426	4.7	0.209	0.4	NA	0.1	0.5	0.01	0.04	0.01	49.4
All Vehicles		1553	2.8	1553	2.8	0.288	0.1	NA	0.1	0.5	0.00	0.02	0.00	49.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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.

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MOVEMENT SUMMARY

Site: 9PM [9PM Carrington Rd/ De Clambe Drive 2031]

Network: N101
[Network_pm]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Carrington Rd (Northeast)														
5	T1	920	2.5	920	2.5	0.240	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		920	2.5	920	2.5	0.240	0.0	NA	0.0	0.0	0.00	0.00	0.00	50.0
North: De Clambe Drive														
7	L2	31	0.0	31	0.0	0.023	3.2	LOS A	0.0	0.0	0.00	0.41	0.00	33.3
Approach		31	0.0	31	0.0	0.023	3.2	LOS A	0.0	0.0	0.00	0.41	0.00	33.3
West: Carrington Rd (Southwest)														
10	L2	17	0.0	17	0.0	0.012	4.7	LOS A	0.0	0.3	0.08	0.50	0.08	44.3
11	T1	981	1.2	981	1.2	0.529	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		998	1.2	998	1.2	0.529	0.2	NA	0.0	0.3	0.00	0.01	0.00	49.7
All Vehicles		1948	1.8	1948	1.8	0.529	0.2	NA	0.0	0.3	0.00	0.01	0.00	49.6

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.

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2031 With development & no infrastructure upgrades

MOVEMENT SUMMARY

 Site: 3AM [3AM Showground Rd/Carrington Rd 2031]

 Network: N101
[Network_am]

TCS2666

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 128 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h
SouthEast: Showground Road (South East)													
21	L2	776	1.2	776	1.2	0.680	19.3	LOS B	30.0	213.0	0.65	0.79	23.6
22	T1	883	7.6	883	7.6	0.680	14.4	LOS B	31.7	236.2	0.67	0.63	27.4
Approach		1659	4.6	1659	4.6	0.680	16.7	LOS B	31.7	236.2	0.66	0.71	25.5
NorthWest: Showground Road (North West)													
28	T1	1703	4.1	1521	4.2	0.429	2.0	LOS A	6.5	46.9	0.14	0.13	55.4
29	R2	512	1.4	457	1.5	1.790	758.5	LOS F	43.7	310.1	1.00	2.24	0.9
Approach		2215	3.5	1977 ^{N1}	3.6	1.790	176.7	LOS F	43.7	310.1	0.34	0.61	1.09
SouthWest: Carrington Road													
30	L2	119	1.8	118	1.8	1.182	239.4	LOS F	37.8	269.8	1.00	1.52	2.44
32	R2	419	2.5	417	2.5	1.182	239.2	LOS F	37.8	269.8	1.00	1.52	2.45
Approach		538	2.3	536 ^{N1}	2.3	1.182	239.3	LOS F	37.8	269.8	1.00	1.52	2.44
All Vehicles		4412	3.8	4172 ^{N1}	4.0	1.790	121.1	LOS F	43.7	310.1	0.55	0.77	1.09

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P7	NorthWest Full Crossing	4	58.2	LOS E	0.0	0.0	0.95	0.95
P8	SouthWest Full Crossing	2	58.1	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		6	58.1	LOS E			0.95	0.95

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

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

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

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MOVEMENT SUMMARY

 Site: 3PM [3PM Showground Rd/Carrington Rd 2031]

 Network: N101
[Network_pm]

TCS2666

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 131 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h	
SouthEast: Showground Road (South East)														
21	L2	586	0.9	586	0.9	1.205	248.3	LOS F	172.0	1223.4	1.00	1.75	2.35	2.8
22	T1	1727	2.9	1727	2.9	1.205	242.6	LOS F	175.1	1256.7	1.00	1.93	2.35	2.8
Approach		2314	2.4	2314	2.4	1.205	244.0	LOS F	175.1	1256.7	1.00	1.88	2.35	2.8
NorthWest: Showground Road (North West)														
28	T1	1104	3.3	1104	3.3	0.403	9.1	LOS A	11.4	82.1	0.34	0.30	0.34	43.4
29	R2	231	0.0	231	0.0	1.432	420.9	LOS F	43.8	306.3	1.00	1.53	3.25	1.5
Approach		1335	2.8	1335	2.8	1.432	80.2	LOS F	43.8	306.3	0.45	0.52	0.84	11.8
SouthWest: Carrington Road														
30	L2	236	0.0	185	0.0	1.041	134.1	LOS F	46.0	321.8	1.00	1.23	1.76	6.4
32	R2	828	0.0	651	0.0	1.041	134.7	LOS F	46.0	321.8	1.00	1.23	1.76	9.9
Approach		1064	0.0	836 ^{N1}	0.0	1.041	134.5	LOS F	46.0	321.8	1.00	1.23	1.76	9.2
All Vehicles		4713	2.0	4484 ^{N1}	2.1	1.432	174.9	LOS F	175.1	1256.7	0.84	1.35	1.79	5.3

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian	Back of Queue Distance m	Prop. Queued	Effective Stop Rate	
P7	NorthWest Full Crossing	4	59.6	LOS E	0.0	0.0	0.95	0.95	
P8	SouthWest Full Crossing	1	59.6	LOS E	0.0	0.0	0.95	0.95	
All Pedestrians		5	59.6	LOS E			0.95	0.95	

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

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

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

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MOVEMENT SUMMARY

 Site: 4AM [4AM Showground Rd/ Gilbert Rd 2031]

 Network: N101
[Network_am]

TCS2844

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 128 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h	
SouthEast: Showground Road (South East)														
22	T1	914	6.2	899	6.3	0.402	9.3	LOS A	11.7	86.2	0.35	0.31	0.35	53.0
23	R2	193	4.4	189	4.4	1.143	197.4	LOS F	22.9	166.7	1.00	1.29	2.13	7.6
Approach		1106	5.9	1088 ^{N1}	6.0	1.143	42.0	LOS D	22.9	166.7	0.46	0.48	0.66	35.4
NorthEast: Gilbert Rd														
24	L2	417	3.0	417	3.0	0.576	33.3	LOS C	18.9	135.7	0.79	0.82	0.79	18.2
26	R2	933	1.7	933	1.7	0.883	62.7	LOS E	31.9	226.3	1.00	0.96	1.19	30.8
Approach		1349	2.1	1349	2.1	0.883	53.6	LOS D	31.9	226.3	0.93	0.92	1.06	29.0
NorthWest: Showground Road (North West)														
27	L2	917	4.6	917	4.6	0.518	5.8	LOS A	0.0	0.0	0.00	0.53	0.00	55.2
28	T1	1799	3.1	1799	3.1	1.198	240.3	LOS F	152.2	1093.4	1.00	2.02	2.38	10.8
Approach		2716	3.6	2716	3.6	1.198	161.1	LOS F	152.2	1093.4	0.66	1.51	1.58	15.8
All Vehicles		5172	3.7	5153 ^{N1}	3.7	1.198	107.8	LOS F	152.2	1093.4	0.69	1.14	1.25	20.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian	Back of Queue Distance m	Prop. Queued	Effective Stop Rate	
P5	SouthEast Full Crossing	4	58.2	LOS E	0.0	0.0	0.95	0.95	
P6	NorthEast Full Crossing	2	58.1	LOS E	0.0	0.0	0.95	0.95	
All Pedestrians		6	58.1	LOS E			0.95	0.95	

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

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

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

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MOVEMENT SUMMARY

 Site: 4PM [4PM Showground Rd/ Gilbert Rd 2031]

 Network: N101
[Network_pm]

TCS2844

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 131 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h
SouthEast: Showground Road (South East)													
22	T1	1758	2.1	1472	2.2	0.549	5.5	LOS A	19.2	137.2	0.27	0.25	55.7
23	R2	202	4.2	169	4.3	0.432	44.0	LOS D	8.2	59.2	0.79	0.77	23.9
Approach		1960	2.3	1641 ^{N1}	2.4	0.549	9.4	LOS A	19.2	137.2	0.33	0.30	52.4
NorthEast: Gilbert Rd													
24	L2	293	4.3	293	4.3	0.363	28.8	LOS C	11.7	85.2	0.68	0.77	20.0
26	R2	556	2.7	556	2.7	0.783	62.6	LOS E	17.8	127.6	1.00	0.89	30.8
Approach		848	3.2	848	3.2	0.783	50.9	LOS D	17.8	127.6	0.89	0.85	29.2
NorthWest: Showground Road (North West)													
27	L2	988	1.4	988	1.4	0.546	5.8	LOS A	0.0	0.0	0.00	0.53	55.2
28	T1	1114	1.7	1114	1.7	0.674	31.5	LOS C	28.1	199.8	0.86	0.77	38.0
Approach		2102	1.6	2102	1.6	0.674	19.4	LOS B	28.1	199.8	0.46	0.66	45.5
All Vehicles		4911	2.1	4592 ^{N1}	2.3	0.783	21.7	LOS B	28.1	199.8	0.49	0.57	44.0

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

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P5	SouthEast Full Crossing	3	59.6	LOS E	0.0	0.0	0.95	0.95
P6	NorthEast Full Crossing	3	59.6	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		6	59.6	LOS E			0.95	0.95

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

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

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

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MOVEMENT SUMMARY

 Site: 5AM [5AM Showground Rd/ De Clambe Drive 2031]

 Network: N101
[Network_am]

TCS4569

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 128 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total	HV	Total	HV				Vehicles	Distance				
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Showground Road (South East)														
21	L2	28	48.1	28	48.5	0.025	7.7	LOS A	0.2	2.2	0.13	0.59	0.13	36.1
22	T1	969	6.3	951	6.4	0.379	5.0	LOS A	6.8	50.0	0.24	0.21	0.24	42.5
Approach		998	7.5	979 ^{N1}	7.6	0.379	5.1	LOS A	6.8	50.0	0.24	0.23	0.24	42.2
NorthWest: Showground Road (North West)														
28	T1	2306	2.6	2055	2.6	0.900	13.5	LOS B	48.2	345.1	0.46	0.49	0.52	33.0
29	R2	127	7.4	113	7.4	0.248	9.8	LOS A	1.6	11.7	0.27	0.65	0.27	39.2
Approach		2434	2.9	2169 ^{N1}	2.8	0.900	13.3	LOS B	48.2	345.1	0.45	0.50	0.51	33.4
SouthWest: De Clambe Drive														
30	L2	123	3.4	123	3.4	0.277	47.8	LOS D	6.3	45.4	0.86	0.77	0.86	7.4
32	R2	13	100.0	13	100.0	0.242	65.4	LOS E	0.8	9.9	0.95	0.69	0.95	5.7
Approach		136	12.4	136	12.4	0.277	49.4	LOS D	6.3	45.4	0.87	0.76	0.87	7.2
All Vehicles		3567	4.5	3284 ^{N1}	4.9	0.900	12.3	LOS B	48.2	345.1	0.40	0.43	0.44	32.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P7	NorthWest Full Crossing	1	58.1	LOS E	0.0	0.0	0.95	0.95
P8	SouthWest Full Crossing	1	58.1	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		2	58.1	LOS E			0.95	0.95

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

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

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

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Organisation: SCT CONSULTING PTY LTD | Processed: Monday, 4 May 2020 3:52:50 PM

Project: C:\Users\Shawn Cen\SCT_00061_Showground Precinct SSDA\3. Technical Work Area\1. Network Optimisation\RtS\3.SCT_00061_2031 FY1 I-B.sip8

MOVEMENT SUMMARY

 Site: 5PM [5PM Showground Rd/ De Clambe Drive 2031]

 Network: N101
[Network_pm]

TCS4569

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 131 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total	HV	Total	HV				Vehicles	Distance				
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Showground Road (South East)														
21	L2	34	56.3	28	56.8	0.027	8.5	LOS A	0.3	2.9	0.17	0.60	0.17	34.7
22	T1	2022	1.9	1661	1.9	0.658	9.1	LOS A	24.1	171.6	0.44	0.41	0.44	34.5
Approach		2056	2.8	1689 ^{N1}	2.8	0.658	9.1	LOS A	24.1	171.6	0.44	0.41	0.44	34.5
NorthWest: Showground Road (North West)														
28	T1	1351	1.5	1351	1.5	0.585	1.1	LOS A	5.6	39.6	0.09	0.09	0.09	56.3
29	R2	108	2.9	108	2.9	0.394	13.8	LOS A	2.1	15.3	0.32	0.67	0.32	35.3
Approach		1459	1.6	1459	1.6	0.585	2.0	LOS A	5.6	39.6	0.11	0.13	0.11	53.1
SouthWest: De Clambe Drive														
30	L2	217	1.0	217	1.0	0.490	52.0	LOS D	12.1	85.3	0.92	0.81	0.92	6.9
32	R2	11	100.0	11	100.0	0.220	68.2	LOS E	0.7	8.5	0.95	0.68	0.95	5.5
Approach		227	5.6	227	5.6	0.490	52.7	LOS D	12.1	85.3	0.92	0.80	0.92	6.8
All Vehicles		3742	2.5	3375 ^{N1}	2.7	0.658	9.0	LOS A	24.1	171.6	0.33	0.32	0.33	36.3

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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
P7	NorthWest Full Crossing	2	59.6	LOS E	0.0	0.0	0.95	0.95
P8	SouthWest Full Crossing	1	59.6	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		3	59.6	LOS E			0.95	0.95

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

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

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

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Organisation: SCT CONSULTING PTY LTD | Processed: Tuesday, 9 June 2020 1:47:39 PM

Project: C:\Users\Shawn Cen\SCT_00061_Showground Precinct SSDA\3. Technical Work Area\1. Network Optimisation\RtS\3.SCT_00061_2031 FY1 I-B.sip8

MOVEMENT SUMMARY

 Site: 6AM [6AM Carrington Rd/ Middleton Ave/ Andalusian Way 2031]

 Network: N101
[Network_am]

TCS4700

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 64 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Total HV	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m			km/h
South: Middleton Avenue													
1	L2	169	3.7	169	3.7	1.027	89.9	LOS F	24.3	173.7	1.00	1.60	8.7
2	T1	121	0.0	121	0.0	1.027	85.2	LOS F	24.3	173.7	1.00	1.60	11.3
3	R2	107	2.9	107	2.9	1.027	89.8	LOS F	24.3	173.7	1.00	1.60	8.7
Approach		398	2.4	398	2.4	1.027	88.4	LOS F	24.3	173.7	1.00	1.60	9.5
East: Carrington Road (East)													
4	L2	306	2.1	244	2.0	0.945	49.3	LOS D	20.9	148.3	0.79	1.18	21.9
5	T1	919	1.1	733	1.1	0.945	44.6	LOS D	22.4	158.0	0.80	1.18	15.1
6	R2	61	0.0	49	0.0	0.945	49.1	LOS D	22.4	158.0	0.80	1.18	18.5
Approach		1286	1.3	1027 ^{N1}	1.3	0.945	46.0	LOS D	22.4	158.0	0.79	1.18	17.2
North: Andalusian Way													
7	L2	129	0.0	129	0.0	0.774	35.5	LOS D	8.8	61.6	1.00	0.94	9.6
8	T1	37	2.9	37	2.9	0.774	30.9	LOS C	8.8	61.6	1.00	0.94	21.3
9	R2	96	0.0	96	0.0	0.774	35.5	LOS D	8.8	61.6	1.00	0.94	9.6
Approach		262	0.4	262	0.4	0.774	34.8	LOS C	8.8	61.6	1.00	0.94	11.8
West: Carrington Road (West)													
10	L2	1	0.0	1	0.0	0.141	13.3	LOS B	2.2	16.0	0.55	0.45	33.2
11	T1	280	3.4	280	3.4	0.625	13.7	LOS B	7.0	50.4	0.71	0.62	21.9
12	R2	120	2.6	120	2.6	0.625	23.0	LOS C	7.0	50.4	0.86	0.78	28.6
Approach		401	3.1	401	3.2	0.625	16.5	LOS B	7.0	50.4	0.75	0.67	24.9
All Vehicles		2347	1.7	2087 ^{N1}	1.9	1.027	47.0	LOS D	24.3	173.7	0.85	1.13	15.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Prop. Queued	Effective Stop Rate		
P1	South Full Crossing	14	26.3	LOS C	0.0	0.0	0.91	0.91	
P2	East Full Crossing	6	26.3	LOS C	0.0	0.0	0.91	0.91	
P3	North Full Crossing	7	26.3	LOS C	0.0	0.0	0.91	0.91	
P4	West Full Crossing	44	26.3	LOS C	0.1	0.1	0.91	0.91	

MOVEMENT SUMMARY

 Site: 6PM [6PM Carrington Rd/ Middleton Ave/ Andalusian Way 2031]

 Network: N101 [Network_pm]

TCS4700

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 62 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Total HV	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m			km/h
South: Middleton Avenue													
1	L2	199	2.6	199	2.6	1.129	164.3	LOS F	29.9	212.3	1.00	2.06	5.0
2	T1	56	0.0	56	0.0	1.129	159.7	LOS F	29.9	212.3	1.00	2.06	6.7
3	R2	87	0.0	87	0.0	1.129	164.2	LOS F	29.9	212.3	1.00	2.06	5.0
Approach		342	1.5	342	1.5	1.129	163.5	LOS F	29.9	212.3	1.00	2.06	5.3
East: Carrington Road (East)													
4	L2	122	0.9	97	0.9	0.505	15.8	LOS B	8.0	56.1	0.69	0.64	36.9
5	T1	667	0.8	529	0.8	0.505	15.1	LOS B	8.0	56.1	0.77	0.68	27.6
6	R2	51	0.0	40	0.0	0.505	24.9	LOS B	6.8	48.0	0.88	0.75	27.5
Approach		840	0.8	666 ^{N1}	0.8	0.505	15.8	LOS B	8.0	56.1	0.77	0.68	29.4
North: Andalusian Way													
7	L2	174	0.0	174	0.0	0.847	36.6	LOS C	12.5	87.7	1.00	1.05	9.8
8	T1	174	0.0	174	0.0	0.847	32.1	LOS C	12.5	87.7	1.00	1.05	21.5
9	R2	14	0.0	14	0.0	0.847	36.6	LOS C	12.5	87.7	1.00	1.05	9.8
Approach		361	0.0	361	0.0	0.847	34.4	LOS C	12.5	87.7	1.00	1.05	16.4
West: Carrington Road (West)													
10	L2	13	8.3	11	9.1	0.300	13.9	LOS A	5.1	35.7	0.61	0.53	31.9
11	T1	815	0.1	693	0.1	1.326	199.7	LOS F	33.8	238.3	0.84	2.17	2.7
12	R2	172	3.1	146	3.4	1.326	334.1	LOS F	33.8	238.3	1.00	3.30	4.0
Approach		999	0.7	851 ^{N1}	0.8	1.326	220.5	LOS F	33.8	238.3	0.87	2.35	3.1
All Vehicles		2542	0.7	2220 ^{N1}	0.9	1.326	120.0	LOS F	33.8	238.3	0.88	1.59	6.5

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	4	25.3	LOS C	0.0	0.0	0.90	0.90
P2	East Full Crossing	2	25.3	LOS C	0.0	0.0	0.90	0.90
P3	North Full Crossing	8	25.3	LOS C	0.0	0.0	0.90	0.90
P4	West Full Crossing	26	25.3	LOS C	0.0	0.0	0.90	0.90

MOVEMENT SUMMARY

 Site: 7AM [7AM Carrington Road/ Victoria Avenue 2031]

 Network: N101
[Network_am]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Victoria Avenue (South)														
2	T1	886	3.3	886	3.3	0.802	14.5	LOS B	14.5	104.7	1.00	1.11	1.45	35.0
3	R2	513	2.1	513	2.1	0.802	20.1	LOS C	13.9	99.1	1.00	1.15	1.50	23.3
3u	U	23	0.0	23	0.0	0.802	21.6	LOS C	13.9	99.1	1.00	1.15	1.50	32.0
Approach		1422	2.8	1422	2.8	0.802	16.6	LOS B	14.5	104.7	1.00	1.12	1.47	31.4
East: Carrington Road														
4	L2	777	1.5	672	1.6	1.093	113.7	LOS F	53.2	377.8	1.00	3.44	6.84	17.1
6	R2	478	2.9	414	3.1	0.921	39.5	LOS D	12.8	91.7	1.00	1.57	2.45	31.0
6u	U	3	0.0	3	0.0	0.921	40.9	LOS D	12.8	91.7	1.00	1.57	2.45	27.2
Approach		1258	2.0	1088 ^{N1}	2.2	1.093	85.3	LOS F	53.2	377.8	1.00	2.72	5.16	20.8
North: Victoria Avenue (North)														
7	L2	382	2.2	382	2.2	0.960	42.3	LOS D	32.5	232.0	1.00	1.89	2.87	14.7
8	T1	1023	2.7	1023	2.7	0.960	45.5	LOS D	32.5	232.0	1.00	1.91	2.91	21.0
9u	U	17	0.0	17	0.0	0.960	52.6	LOS E	29.2	208.9	1.00	1.92	2.94	21.5
Approach		1422	2.5	1422	2.5	0.960	44.8	LOS D	32.5	232.0	1.00	1.90	2.90	19.6
West: Access Rd														
10	L2	42	5.0	42	5.0	0.234	6.9	LOS A	1.1	7.8	0.82	0.82	0.82	21.0
11	T1	16	0.0	16	0.0	0.234	6.6	LOS A	1.1	7.8	0.82	0.82	0.82	7.9
12	R2	20	5.3	20	5.3	0.234	6.9	LOS A	1.1	7.8	0.82	0.82	0.82	20.6
Approach		78	4.1	78	4.1	0.234	6.8	LOS A	1.1	7.8	0.82	0.82	0.82	19.0
All Vehicles		4180	2.5	4010 ^{N1}	2.6	1.093	45.0	LOS D	53.2	377.8	1.00	1.83	2.96	22.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

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

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

Roundabout Capacity Model: SIDRA Standard.

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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Project: C:\Users\Shawn Cen\SCT_00061_Showground Precinct SSDA\3. Technical Work Area\1. Network Optimisation\RtS\3.SCT_00061_2031 FY1 I-B.sip8

MOVEMENT SUMMARY

 Site: 7PM [7PM Carrington Road/ Victoria Avenue 2031]

 Network: N101
[Network_pm]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	95% Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h
South: Victoria Avenue (South)													
2	T1	1354	1.4	1354	1.4	1.357	338.3	LOS F	218.0	1544.0	1.00	7.27	13.27
3	R2	771	1.4	771	1.4	1.357	344.4	LOS F	182.1	1289.7	1.00	6.70	12.59
3u	U	19	0.0	19	0.0	1.357	345.9	LOS F	182.1	1289.7	1.00	6.70	12.59
Approach		2143	1.4	2143	1.4	1.357	340.6	LOS F	218.0	1544.0	1.00	7.06	13.02
East: Carrington Road													
4	L2	806	2.3	683	2.5	0.976	42.2	LOS C	25.0	179.0	1.00	1.98	3.25
6	R2	589	2.0	499	2.1	0.903	32.8	LOS C	13.7	98.0	1.00	1.52	2.26
6u	U	3	0.0	3	0.0	0.903	34.3	LOS C	13.7	98.0	1.00	1.52	2.26
Approach		1399	2.2	1185 ^{N1}	2.3	0.976	38.2	LOS C	25.0	179.0	1.00	1.79	2.83
North: Victoria Avenue (North)													
7	L2	538	1.4	538	1.4	1.010	65.7	LOS E	44.7	317.1	1.00	2.40	3.89
8	T1	842	1.9	842	1.9	1.010	69.8	LOS E	44.7	317.1	1.00	2.38	3.88
9u	U	40	5.3	40	5.3	1.010	77.0	LOS F	38.9	277.5	1.00	2.37	3.88
Approach		1420	1.8	1420	1.8	1.010	68.4	LOS E	44.7	317.1	1.00	2.39	3.88
West: Access Rd													
10	L2	41	2.6	41	2.6	0.243	9.5	LOS A	1.1	8.2	0.86	0.86	0.86
11	T1	13	8.3	13	8.3	0.243	9.8	LOS A	1.1	8.2	0.86	0.86	0.86
12	R2	13	0.0	13	0.0	0.243	9.3	LOS A	1.1	8.2	0.86	0.86	0.86
Approach		66	3.2	66	3.2	0.243	9.5	LOS A	1.1	8.2	0.86	0.86	0.86
All Vehicles		5028	1.7	4815 ^{N1}	1.8	1.357	181.3	LOS F	218.0	1544.0	1.00	4.30	7.65

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.

Roundabout Capacity Model: SIDRA Standard.

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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Organisation: SCT CONSULTING PTY LTD | Processed: Tuesday, 9 June 2020 1:47:39 PM

Project: C:\Users\Shawn Cen\SCT_00061_Showground Precinct SSDA\3. Technical Work Area\1. Network Optimisation\RtS\3.SCT_00061_2031 FY1 I-B.sip8

MOVEMENT SUMMARY

 Site: 8AM [8AM Carrington Rd/ Doran Drive 2031]

 Network: N101
[Network_am]

TCS4699

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 85 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Total HV	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Carrington Road (East)														
5	T1	1256	1.0	1070	1.0	0.704	5.0	LOS A	21.6	152.6	0.54	0.50	0.54	34.9
6	R2	27	15.4	23	15.4	0.043	9.3	LOS A	0.3	2.3	0.40	0.61	0.40	29.1
Approach		1283	1.3	1093 ^{N1}	1.3	0.704	5.1	LOS A	21.6	152.6	0.53	0.50	0.53	34.7
North: Doran Drive														
7	L2	22	14.3	22	14.3	0.059	32.9	LOS C	0.7	5.8	0.83	0.69	0.83	6.3
9	R2	127	8.3	127	8.3	0.509	41.9	LOS D	5.1	38.3	0.97	0.79	0.97	4.9
Approach		149	9.2	149	9.2	0.509	40.6	LOS D	5.1	38.3	0.95	0.77	0.95	5.1
West: Carrington Road (West)														
10	L2	198	5.3	198	5.3	0.240	11.1	LOS B	4.7	33.9	0.44	0.59	0.44	17.1
11	T1	371	2.0	370	2.0	0.240	6.6	LOS A	5.0	35.5	0.44	0.43	0.44	26.0
Approach		568	3.1	568	3.1	0.240	8.2	LOS A	5.0	35.5	0.44	0.49	0.44	21.2
All Vehicles		2001	2.4	1811 ^{N1}	2.7	0.704	9.0	LOS A	21.6	152.6	0.54	0.52	0.54	24.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P2	East Full Crossing	17	36.7	LOS D	0.0	0.0	0.93	0.93
P3	North Full Crossing	34	36.8	LOS D	0.1	0.1	0.93	0.93
All Pedestrians		51	36.8	LOS D			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.

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MOVEMENT SUMMARY

 Site: 8PM [8PM Carrington Rd/ Doran Drive 2031]

 Network: N101
[Network_pm]

TCS4699

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 64 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Carrington Road (East)														
5	T1	852	0.7	694	0.8	0.462	2.9	LOS A	7.8	55.1	0.39	0.35	0.39	39.9
6	R2	26	12.0	22	12.7	0.068	12.5	LOS A	0.3	2.5	0.59	0.65	0.59	25.9
Approach		878	1.1	716 ^{N1}	1.1	0.462	3.2	LOS A	7.8	55.1	0.40	0.36	0.40	39.1
North: Doran Drive														
7	L2	27	15.4	27	15.4	0.076	26.6	LOS B	0.7	5.6	0.84	0.69	0.84	7.5
9	R2	276	4.2	276	4.2	1.232	250.0	LOS F	31.8	230.9	1.00	2.24	4.14	0.9
Approach		303	5.2	303	5.2	1.232	229.8	LOS F	31.8	230.9	0.99	2.10	3.84	1.0
West: Carrington Road (West)														
10	L2	236	3.1	200	3.1	0.600	12.8	LOS A	12.9	91.4	0.65	0.64	0.65	17.3
11	T1	975	0.3	826	0.3	0.600	7.5	LOS A	12.9	91.4	0.59	0.56	0.59	24.6
Approach		1211	0.9	1026 ^{N1}	0.9	0.600	8.5	LOS A	12.9	91.4	0.61	0.57	0.61	22.2
All Vehicles		2392	1.5	2044 ^{N1}	1.8	1.232	39.5	LOS C	31.8	230.9	0.59	0.73	1.01	9.0

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

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate	
P2	East Full Crossing	20	26.3	LOS C	0.0	0.0	0.91	0.91	
P3	North Full Crossing	27	26.3	LOS C	0.0	0.0	0.91	0.91	
All Pedestrians		47	26.3	LOS C			0.91	0.91	

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

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

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

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MOVEMENT SUMMARY

Site: 9AM [9AM Carrington Rd/ De Clambe Drive 2031]

Network: N101
[Network_am]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Flows HV	Arrival Flows Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Carrington Rd (Northeast)														
5	T1	1268	1.8	1098	1.9	0.285	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		1268	1.8	1098 ^{N1}	1.9	0.285	0.0	NA	0.0	0.0	0.00	0.00	0.00	50.0
North: De Clambe Drive														
7	L2	20	0.0	20	0.0	0.015	3.2	LOS A	0.0	0.0	0.00	0.41	0.00	33.3
Approach		20	0.0	20	0.0	0.015	3.2	LOS A	0.0	0.0	0.00	0.41	0.00	33.3
West: Carrington Rd (Southwest)														
10	L2	78	1.4	78	1.4	0.056	4.7	LOS A	0.2	1.6	0.10	0.50	0.10	44.2
11	T1	560	3.4	560	3.4	0.293	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		638	3.1	638	3.1	0.293	0.6	NA	0.2	1.6	0.01	0.06	0.01	49.0
All Vehicles		1926	2.2	1755 ^{N1}	2.5	0.293	0.3	NA	0.2	1.6	0.00	0.03	0.00	49.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

Site: 9PM [9PM Carrington Rd/ De Clambe Drive 2031]

Network: N101
[Network_pm]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h	
East: Carrington Rd (Northeast)														
5	T1	1136	2.0	925	2.2	0.240	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		1136	2.0	925 ^{N1}	2.2	0.240	0.0	NA	0.0	0.0	0.00	0.00	0.00	50.0
North: De Clambe Drive														
7	L2	31	0.0	31	0.0	0.023	3.2	LOS A	0.0	0.0	0.00	0.41	0.00	33.3
Approach		31	0.0	31	0.0	0.023	3.2	LOS A	0.0	0.0	0.00	0.41	0.00	33.3
West: Carrington Rd (Southwest)														
10	L2	65	0.0	55	0.0	0.039	4.7	LOS A	0.2	1.1	0.10	0.50	0.10	44.2
11	T1	1178	1.0	992	1.0	0.512	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		1243	0.9	1047 ^{N1}	0.9	0.512	0.3	NA	0.2	1.1	0.01	0.03	0.01	49.5
All Vehicles		2409	1.4	2003 ^{N1}	1.7	0.512	0.2	NA	0.2	1.1	0.00	0.02	0.00	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.

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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2031 With development with infrastructure upgrades

MOVEMENT SUMMARY

 Site: 3AM [3AM Showground Rd/Carrington Rd 2031]

 Network: N101
[Network_am]

TCS2666

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows 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: Showground Road (South East)														
21	L2	776	1.2	776	1.2	0.755	12.8	LOS B	19.8	140.0	0.48	0.74	0.48	29.4
22	T1	883	7.6	883	7.6	0.606	22.8	LOS C	23.1	172.5	0.74	0.66	0.74	21.3
Approach		1659	4.6	1659	4.6	0.755	18.2	LOS B	23.1	172.5	0.62	0.70	0.62	24.4
NorthWest: Showground Road (North West)														
28	T1	1703	4.1	1703	4.1	0.538	2.8	LOS A	8.6	62.3	0.17	0.16	0.17	53.7
29	R2	512	1.4	512	1.4	0.744	59.5	LOS E	14.6	103.3	0.99	0.85	1.05	10.4
Approach		2215	3.5	2215	3.5	0.744	15.9	LOS B	14.6	103.3	0.36	0.32	0.37	34.4
SouthWest: Carrington Road														
30	L2	119	1.8	119	1.8	0.156	27.7	LOS C	4.3	30.4	0.66	0.71	0.66	21.2
32	R2	419	2.5	419	2.5	0.554	51.0	LOS D	11.1	79.5	0.95	0.82	0.95	20.1
Approach		538	2.3	538	2.3	0.554	45.8	LOS D	11.1	79.5	0.88	0.79	0.88	20.2
All Vehicles		4412	3.8	4412	3.8	0.755	20.4	LOS C	23.1	172.5	0.52	0.52	0.53	28.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Prop. Queued	Effective Stop Rate	
P7	NorthWest Full Crossing	4	54.2	LOS E	0.0	0.0	0.95	0.95
P8	SouthWest Full Crossing	2	54.2	LOS E	0.0	0.0	0.95	0.95
P8B	SouthWest Slip/Bypass Lane Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		59	54.3	LOS E			0.95	0.95

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

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

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

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MOVEMENT SUMMARY

 Site: 3PM [3PM Showground Rd/Carrington Rd 2031]

 Network: N101
[Network_pm]

TCS2666

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 130 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c		veh	m				km/h
SouthEast: Showground Road (South East)													
21	L2	586	0.9	586	0.9	0.370	LOS A	7.7	54.5	0.23	0.65	0.23	37.0
22	T1	1727	2.9	1727	2.9	0.984	LOS F	91.8	658.6	0.89	1.11	1.26	9.0
Approach		2314	2.4	2314	2.4	0.984	LOS D	91.8	658.6	0.73	1.00	1.00	11.1
NorthWest: Showground Road (North West)													
28	T1	1104	3.3	1104	3.3	0.363	LOS A	18.8	135.5	0.52	0.47	0.52	41.2
29	R2	231	0.0	231	0.0	0.976	LOS F	8.3	58.0	1.00	0.91	1.31	8.2
Approach		1335	2.8	1335	2.8	0.976	LOS B	18.8	135.5	0.60	0.54	0.66	29.5
SouthWest: Carrington Road													
30	L2	236	0.0	236	0.0	0.369	LOS C	11.1	77.8	0.80	0.78	0.80	17.3
32	R2	828	0.0	828	0.0	0.964	LOS F	36.3	254.0	1.00	1.09	1.44	13.9
Approach		1064	0.0	1064	0.0	0.964	LOS F	36.3	254.0	0.96	1.02	1.30	14.3
All Vehicles		4713	2.0	4713	2.0	0.984	LOS D	91.8	658.6	0.74	0.87	0.97	15.5

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	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P7	NorthWest Full Crossing	4	59.1	LOS E	0.0	0.0	0.95	0.95
P8	SouthWest Full Crossing	1	59.1	LOS E	0.0	0.0	0.95	0.95
P8B	SouthWest Slip/Bypass Lane Crossing	53	59.3	LOS E	0.2	0.2	0.96	0.96
All Pedestrians		58	59.3	LOS E			0.96	0.96

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

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

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

MOVEMENT SUMMARY

 Site: 4AM [4AM Showground Rd/ Gilbert Rd 2031]

 Network: N101
[Network_am]

TCS2844

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. Cycles	No. Average Speed	
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h	
SouthEast: Showground Road (South East)														
22	T1	914	6.2	914	6.2	0.427	20.4	LOS C	20.1	148.4	0.79	0.70	0.79	46.5
23	R2	193	4.4	193	4.4	0.817	65.6	LOS E	11.7	85.1	1.00	0.89	1.16	18.7
Approach		1106	5.9	1106	5.9	0.817	28.3	LOS C	20.1	148.4	0.83	0.73	0.85	41.3
NorthEast: Gilbert Rd														
24	L2	417	3.0	417	3.0	0.477	25.9	LOS C	15.7	112.5	0.70	0.79	0.70	21.5
26	R2	933	1.7	933	1.7	0.827	51.2	LOS D	27.3	194.1	0.99	0.92	1.09	33.8
Approach		1349	2.1	1349	2.1	0.827	43.4	LOS D	27.3	194.1	0.90	0.88	0.97	32.2
NorthWest: Showground Road (North West)														
27	L2	917	4.6	917	4.6	0.518	5.8	LOS A	0.0	0.0	0.00	0.53	0.00	55.2
28	T1	1799	3.1	1799	3.1	0.814	37.7	LOS D	32.7	234.9	0.96	0.90	1.01	35.4
Approach		2716	3.6	2716	3.6	0.814	26.9	LOS C	32.7	234.9	0.64	0.77	0.67	41.2
All Vehicles		5172	3.7	5172	3.7	0.827	31.5	LOS C	32.7	234.9	0.75	0.79	0.79	38.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian	Back of Queue Distance m	Prop. Queued	Effective Stop Rate	
P5	SouthEast Full Crossing	4	54.2	LOS E	0.0	0.0	0.95	0.95	
P6	NorthEast Full Crossing	2	54.2	LOS E	0.0	0.0	0.95	0.95	
All Pedestrians		6	54.2	LOS E			0.95	0.95	

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

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

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

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MOVEMENT SUMMARY

 Site: 4PM [4PM Showground Rd/ Gilbert Rd 2031]

 Network: N101
[Network_pm]

TCS2844

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 130 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h
SouthEast: Showground Road (South East)													
22	T1	1758	2.1	1758	2.1	0.688	8.5	LOS A	29.5	210.6	0.42	0.39	53.5
23	R2	202	4.2	202	4.2	0.494	52.7	LOS D	10.8	78.3	0.89	0.80	21.6
Approach		1960	2.3	1960	2.3	0.688	13.1	LOS A	29.5	210.6	0.47	0.43	50.0
NorthEast: Gilbert Rd													
24	L2	293	4.3	293	4.3	0.333	25.1	LOS B	10.7	77.6	0.63	0.76	21.9
26	R2	556	2.7	556	2.7	0.677	54.4	LOS D	16.2	115.7	0.97	0.84	32.9
Approach		848	3.2	848	3.2	0.677	44.3	LOS D	16.2	115.7	0.85	0.81	31.4
NorthWest: Showground Road (North West)													
27	L2	988	1.4	988	1.4	0.546	5.8	LOS A	0.0	0.0	0.00	0.53	55.2
28	T1	1114	1.7	1114	1.7	0.498	31.8	LOS C	17.6	125.1	0.81	0.70	37.9
Approach		2102	1.6	2102	1.6	0.546	19.6	LOS B	17.6	125.1	0.43	0.62	45.4
All Vehicles		4911	2.1	4911	2.1	0.688	21.3	LOS B	29.5	210.6	0.52	0.58	44.4

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	Back of Queue Distance m	Prop. Queued	Effective Stop Rate	
P5	SouthEast Full Crossing	3	59.1	LOS E	0.0	0.0	0.95	0.95	
P6	NorthEast Full Crossing	3	59.1	LOS E	0.0	0.0	0.95	0.95	
All Pedestrians		6	59.1	LOS E			0.95	0.95	

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

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

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

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Organisation: SCT CONSULTING PTY LTD | Processed: Tuesday, 9 June 2020 1:56:59 PM

Project: C:\Users\Shawn Cen\SCT_00061_Showground Precinct SSDA\3. Technical Work Area\1. Network Optimisation\RtS\4.SCT_00061_2031 FY1 I.sip8

MOVEMENT SUMMARY

 Site: 5AM [5AM Showground Rd/ De Clambe Drive 2031]

 Network: N101
[Network_am]

TCS4569

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Showground Road (South East)														
21	L2	28	48.1	28	48.1	0.029	10.3	LOS B	0.3	3.3	0.22	0.61	0.22	33.3
22	T1	969	6.3	969	6.3	0.431	7.2	LOS A	10.9	80.8	0.30	0.27	0.30	37.8
Approach		998	7.5	998	7.5	0.431	7.3	LOS A	10.9	80.8	0.30	0.28	0.30	37.6
NorthWest: Showground Road (North West)														
28	T1	2306	2.6	2306	2.6	0.740	2.5	LOS A	17.9	127.8	0.28	0.26	0.28	52.1
29	R2	127	7.4	127	7.4	0.231	11.8	LOS B	2.7	19.9	0.43	0.69	0.43	37.0
Approach		2434	2.9	2434	2.9	0.740	3.0	LOS A	17.9	127.8	0.29	0.29	0.29	50.7
SouthWest: De Clambe Drive														
30	L2	123	3.4	123	3.4	0.229	39.9	LOS D	5.5	39.7	0.81	0.76	0.81	8.6
32	R2	13	100.0	13	100.0	0.227	70.3	LOS E	0.8	10.2	0.99	0.69	0.99	5.4
Approach		136	12.4	136	12.4	0.229	42.8	LOS D	5.5	39.7	0.82	0.75	0.82	8.2
All Vehicles		3567	4.5	3567	4.5	0.740	5.7	LOS A	17.9	127.8	0.31	0.30	0.31	43.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P7	NorthWest Full Crossing	1	54.2	LOS E	0.0	0.0	0.95	0.95
P8	SouthWest Full Crossing	1	54.2	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		2	54.2	LOS E			0.95	0.95

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

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

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

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Project: C:\Users\Shawn Cen\SCT_00061_Showground Precinct SSDA\3. Technical Work Area\1. Network Optimisation\RtS\4.SCT_00061_2031 FY1 I.sip8

MOVEMENT SUMMARY

 Site: 5PM [5PM Showground Rd/ De Clambe Drive 2031]

 Network: N101
[Network_pm]

TCS4569

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 130 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Showground Road (South East)														
21	L2	34	56.3	34	56.3	0.032	6.6	LOS A	0.1	0.9	0.04	0.58	0.04	36.9
22	T1	2022	1.9	2022	1.9	0.749	3.1	LOS A	17.7	125.7	0.22	0.21	0.22	48.0
Approach		2056	2.8	2056	2.8	0.749	3.1	LOS A	17.7	125.7	0.22	0.21	0.22	47.6
NorthWest: Showground Road (North West)														
28	T1	1351	1.5	1351	1.5	0.424	0.8	LOS A	4.6	32.5	0.08	0.07	0.08	57.3
29	R2	108	2.9	108	2.9	0.460	7.0	LOS A	0.5	3.5	0.07	0.61	0.11	42.9
Approach		1459	1.6	1459	1.6	0.460	1.2	LOS A	4.6	32.5	0.08	0.11	0.08	55.5
SouthWest: De Clambe Drive														
30	L2	217	1.0	217	1.0	0.613	57.6	LOS E	12.8	90.3	0.97	0.82	0.97	6.3
32	R2	11	100.0	11	100.0	0.205	75.9	LOS F	0.7	9.2	0.99	0.69	0.99	5.0
Approach		227	5.6	227	5.6	0.613	58.5	LOS E	12.8	90.3	0.97	0.82	0.97	6.2
All Vehicles		3742	2.5	3742	2.5	0.749	5.8	LOS A	17.7	125.7	0.21	0.21	0.21	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.

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	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P7	NorthWest Full Crossing	2	59.1	LOS E	0.0	0.0	0.95	0.95
P8	SouthWest Full Crossing	1	59.1	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		3	59.1	LOS E			0.95	0.95

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

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

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

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Project: C:\Users\Shawn Cen\SCT_00061_Showground Precinct SSDA\3. Technical Work Area\1. Network Optimisation\RtS\4.SCT_00061_2031 FY1 I.sip8

MOVEMENT SUMMARY

 Site: 6AM [6AM Carrington Rd/ Middleton Ave/ Andalusian Way 2031]

 Network: N101 [Network_am]

TCS4700

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Total HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. Cycles	No. Average Speed	
		veh/h	%	veh/h	%	v/c	sec	veh	m			km/h	
South: Middleton Avenue													
1	L2	169	3.7	169	3.7	0.869	46.0	LOS D	19.7	141.0	0.88	0.95	1.14 14.8
2	T1	121	0.0	121	0.0	0.869	41.4	LOS D	19.7	141.0	0.88	0.95	1.14 18.4
3	R2	107	2.9	107	2.9	0.869	46.0	LOS D	19.7	141.0	0.88	0.95	1.14 14.8
Approach		398	2.4	398	2.4	0.869	44.6	LOS D	19.7	141.0	0.88	0.95	1.14 16.0
East: Carrington Road (East)													
4	L2	306	2.1	306	2.1	0.884	42.4	LOS D	25.6	181.8	0.83	0.93	1.07 23.7
5	T1	919	1.1	919	1.1	0.884	36.8	LOS D	39.7	280.6	0.94	0.99	1.12 17.2
6	R2	61	0.0	61	0.0	0.884	41.0	LOS D	39.7	280.6	0.98	1.01	1.14 20.8
Approach		1286	1.3	1286	1.3	0.884	38.3	LOS D	39.7	280.6	0.92	0.98	1.11 19.3
North: Andalusian Way													
7	L2	129	0.0	129	0.0	0.477	34.2	LOS C	10.3	72.6	0.85	0.79	0.85 9.9
8	T1	37	2.9	37	2.9	0.477	29.6	LOS C	10.3	72.6	0.85	0.79	0.85 21.8
9	R2	96	0.0	96	0.0	0.477	34.2	LOS C	10.3	72.6	0.85	0.79	0.85 9.9
Approach		262	0.4	262	0.4	0.477	33.5	LOS C	10.3	72.6	0.85	0.79	0.85 12.2
West: Carrington Road (West)													
10	L2	1	0.0	1	0.0	0.312	21.5	LOS C	8.3	59.8	0.65	0.56	0.65 25.7
11	T1	280	3.4	280	3.4	0.312	17.0	LOS B	8.3	59.8	0.65	0.56	0.65 20.1
12	R2	120	2.6	120	2.6	0.956	87.1	LOS F	8.5	61.0	1.00	1.22	1.86 12.4
Approach		401	3.1	401	3.1	0.956	38.0	LOS D	8.5	61.0	0.76	0.76	1.01 15.2
All Vehicles		2347	1.7	2347	1.7	0.956	38.8	LOS D	39.7	280.6	0.88	0.92	1.07 17.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	14	44.2	LOS E	0.0	0.0	0.94	0.94
P2	East Full Crossing	6	44.2	LOS E	0.0	0.0	0.94	0.94
P3	North Full Crossing	7	44.2	LOS E	0.0	0.0	0.94	0.94
P4	West Full Crossing	44	44.3	LOS E	0.1	0.1	0.94	0.94
All Pedestrians		72	44.2	LOS E			0.94	0.94

MOVEMENT SUMMARY

 Site: 6PM [6PM Carrington Rd/ Middleton Ave/ Andalusian Way 2031]

 Network: N101
[Network_pm]

TCS4700

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 80 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	
		veh/h	%	veh/h	%	v/c	sec		veh	m			km/h	
South: Middleton Avenue														
1	L2	199	2.6	199	2.6	0.815	41.3	LOS C	14.2	100.8	1.00	0.96	1.21	15.8
2	T1	56	0.0	56	0.0	0.815	36.7	LOS C	14.2	100.8	1.00	0.96	1.21	19.5
3	R2	87	0.0	87	0.0	0.815	41.2	LOS C	14.2	100.8	1.00	0.96	1.21	15.8
Approach		342	1.5	342	1.5	0.815	40.5	LOS C	14.2	100.8	1.00	0.96	1.21	16.5
East: Carrington Road (East)														
4	L2	122	0.9	122	0.9	0.621	20.8	LOS B	17.5	123.1	0.79	0.73	0.79	33.7
5	T1	667	0.8	667	0.8	0.621	20.1	LOS B	17.5	123.1	0.83	0.75	0.84	24.2
6	R2	51	0.0	51	0.0	0.621	35.1	LOS C	8.4	59.1	0.95	0.80	0.96	22.7
Approach		840	0.8	840	0.8	0.621	21.1	LOS B	17.5	123.1	0.83	0.75	0.84	25.8
North: Andalusian Way														
7	L2	174	0.0	174	0.0	0.660	32.1	LOS C	12.6	88.4	0.94	0.82	0.94	11.0
8	T1	174	0.0	174	0.0	0.660	27.5	LOS B	12.6	88.4	0.94	0.82	0.94	23.3
9	R2	14	0.0	14	0.0	0.660	32.1	LOS C	12.6	88.4	0.94	0.82	0.94	11.0
Approach		361	0.0	361	0.0	0.660	29.9	LOS C	12.6	88.4	0.94	0.82	0.94	18.0
West: Carrington Road (West)														
10	L2	13	8.3	13	8.3	0.844	28.2	LOS B	31.6	221.4	0.93	0.93	1.04	21.5
11	T1	815	0.1	815	0.1	0.844	23.7	LOS B	31.6	221.4	0.93	0.93	1.04	16.2
12	R2	172	3.1	172	3.1	0.844	49.2	LOS D	8.1	58.4	1.00	1.04	1.44	18.3
Approach		999	0.7	999	0.7	0.844	28.2	LOS B	31.6	221.4	0.94	0.95	1.11	17.0
All Vehicles		2542	0.7	2542	0.7	0.844	27.7	LOS B	31.6	221.4	0.91	0.87	1.01	19.8

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	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	4	34.2	LOS D	0.0	0.0	0.93	0.93
P2	East Full Crossing	2	34.2	LOS D	0.0	0.0	0.93	0.93
P3	North Full Crossing	8	34.2	LOS D	0.0	0.0	0.93	0.93
P4	West Full Crossing	26	34.3	LOS D	0.1	0.1	0.93	0.93
All Pedestrians		41	34.3	LOS D			0.93	0.93

MOVEMENT SUMMARY

 Site: 7AM [7AM Carrington Road/ Victoria Avenue 2031]

 Network: N101
[Network_am]

New Site

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 140 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. Cycles	No. Average Speed		
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h
South: Victoria Avenue (South)													
2	T1	886	3.3	886	3.3	0.393	15.4	LOS B	15.5	111.5	0.56	0.50	33.7
3	R2	513	2.1	513	2.1	0.866	75.9	LOS E	19.1	135.7	1.00	0.95	8.4
Approach		1399	2.9	1399	2.9	0.866	37.6	LOS D	19.1	135.7	0.72	0.66	20.4
East: Carrington Road													
4	L2	777	1.5	777	1.5	0.897	50.7	LOS D	54.6	387.1	0.99	0.96	26.9
6	R2	478	2.9	478	2.9	0.849	59.3	LOS E	33.0	236.9	1.00	0.93	25.4
Approach		1255	2.0	1255	2.0	0.897	54.0	LOS D	54.6	387.1	0.99	0.95	26.3
North: Victoria Avenue (North)													
7	L2	382	2.2	382	2.2	0.419	12.6	LOS B	9.5	67.4	0.40	0.67	29.1
8	T1	1023	2.7	1023	2.7	0.883	51.5	LOS D	46.0	329.7	0.93	0.95	19.1
Approach		1405	2.5	1405	2.5	0.883	40.9	LOS D	46.0	329.7	0.79	0.87	20.3
West: Access Rd													
10	L2	42	5.0	42	5.0	0.083	8.7	LOS A	0.9	6.3	0.49	0.38	20.4
Approach		42	5.0	42	5.0	0.083	8.7	LOS A	0.9	6.3	0.49	0.38	20.4
All Vehicles		4101	2.5	4101	2.5	0.897	43.5	LOS D	54.6	387.1	0.83	0.82	22.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96	
P2	East Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96	
All Pedestrians		105	64.3	LOS F			0.96	0.96	

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

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

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

MOVEMENT SUMMARY

 Site: 7PM [7PM Carrington Road/ Victoria Avenue 2031]

 Network: N101
[Network_pm]

New Site

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 150 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Total HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. Cycles	No. Average Speed	
		veh/h	%	veh/h	%	v/c	sec	veh	m			km/h	
South: Victoria Avenue (South)													
2	T1	1354	1.4	1354	1.4	0.613	21.6	LOS B	31.6	223.9	0.71	0.65	29.8
3	R2	771	1.4	771	1.4	0.967	100.6	LOS F	36.0	254.9	1.00	1.05	6.6
Approach		2124	1.4	2124	1.4	0.967	50.3	LOS D	36.0	254.9	0.81	0.79	17.0
East: Carrington Road													
4	L2	806	2.3	806	2.3	0.801	32.4	LOS C	46.2	330.1	0.87	0.87	32.2
6	R2	589	2.0	589	2.0	0.962	88.5	LOS F	54.3	386.6	1.00	1.05	20.5
Approach		1396	2.2	1396	2.2	0.962	56.1	LOS D	54.3	386.6	0.92	0.94	25.8
North: Victoria Avenue (North)													
7	L2	538	1.4	538	1.4	0.610	17.5	LOS B	18.6	131.6	0.52	0.72	25.0
8	T1	842	1.9	842	1.9	0.975	92.8	LOS F	56.2	399.4	0.95	1.15	12.8
Approach		1380	1.7	1380	1.7	0.975	63.4	LOS E	56.2	399.4	0.78	0.98	14.6
West: Access Rd													
10	L2	41	2.6	41	2.6	0.109	11.3	LOS A	1.2	8.3	0.45	0.36	19.4
Approach		41	2.6	41	2.6	0.109	11.3	LOS A	1.2	8.3	0.45	0.36	19.4
All Vehicles		4941	1.7	4941	1.7	0.975	55.3	LOS D	56.2	399.4	0.83	0.88	19.6

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	
P1	South Full Crossing	53	69.3	LOS F	0.2	0.2	0.96	0.96	
P2	East Full Crossing	53	69.3	LOS F	0.2	0.2	0.96	0.96	
All Pedestrians		105	69.3	LOS F			0.96	0.96	

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

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

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

MOVEMENT SUMMARY

 Site: 8AM [8AM Carrington Rd/ Doran Drive 2031]

 Network: N101
[Network_am]

TCS4699

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 70 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h	
East: Carrington Road (East)														
5	T1	1256	1.0	1256	1.0	0.881	16.3	LOS B	33.7	238.3	0.82	0.88	0.96	20.7
6	R2	27	15.4	27	15.4	0.051	10.3	LOS B	0.4	2.8	0.49	0.63	0.49	28.0
Approach		1283	1.3	1283	1.3	0.881	16.2	LOS B	33.7	238.3	0.82	0.87	0.95	20.9
North: Doran Drive														
7	L2	22	14.3	22	14.3	0.046	24.2	LOS C	0.6	4.4	0.76	0.67	0.76	8.2
9	R2	127	8.3	127	8.3	0.839	45.4	LOS D	5.0	37.8	1.00	1.00	1.49	4.6
Approach		149	9.2	149	9.2	0.839	42.2	LOS D	5.0	37.8	0.97	0.95	1.38	4.9
West: Carrington Road (West)														
10	L2	198	5.3	198	5.3	0.287	13.8	LOS B	5.0	36.6	0.57	0.65	0.57	15.9
11	T1	371	2.0	371	2.0	0.287	9.3	LOS A	5.4	38.3	0.58	0.53	0.58	22.2
Approach		568	3.1	568	3.1	0.287	10.8	LOS B	5.4	38.3	0.57	0.57	0.57	18.9
All Vehicles		2001	2.4	2001	2.4	0.881	16.6	LOS B	33.7	238.3	0.76	0.79	0.87	18.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P2	East Full Crossing	17	29.3	LOS C	0.0	0.0	0.91	0.91
P3	North Full Crossing	34	29.3	LOS C	0.1	0.1	0.92	0.92
All Pedestrians		51	29.3	LOS C			0.92	0.92

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

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

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

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MOVEMENT SUMMARY

 Site: 8PM [8PM Carrington Rd/ Doran Drive 2031]

 Network: N101
[Network_pm]

TCS4699

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 70 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Carrington Road (East)														
5	T1	852	0.7	852	0.7	0.691	9.2	LOS A	19.1	134.4	0.71	0.65	0.71	27.9
6	R2	26	12.0	26	12.0	0.097	25.9	LOS B	0.7	5.4	0.85	0.70	0.85	17.8
Approach		878	1.1	878	1.1	0.691	9.7	LOS A	19.1	134.4	0.71	0.65	0.71	27.3
North: Doran Drive														
7	L2	27	15.4	27	15.4	0.073	18.9	LOS B	0.6	4.7	0.66	0.66	0.66	10.0
9	R2	276	4.2	276	4.2	0.870	43.1	LOS D	11.0	79.9	1.00	1.03	1.43	4.8
Approach		303	5.2	303	5.2	0.870	40.9	LOS C	11.0	79.9	0.97	0.99	1.36	5.0
West: Carrington Road (West)														
10	L2	236	3.1	236	3.1	0.853	30.7	LOS C	16.6	117.8	0.81	0.93	1.08	11.1
11	T1	975	0.3	975	0.3	0.853	26.1	LOS B	22.3	156.7	0.92	0.99	1.13	11.5
Approach		1211	0.9	1211	0.9	0.853	27.0	LOS B	22.3	156.7	0.90	0.98	1.12	11.4
All Vehicles		2392	1.5	2392	1.5	0.870	22.4	LOS B	22.3	156.7	0.84	0.86	1.00	14.1

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	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P2	East Full Crossing	20	29.3	LOS C	0.0	0.0	0.92	0.92
P3	North Full Crossing	27	29.3	LOS C	0.0	0.0	0.92	0.92
All Pedestrians		47	29.3	LOS C			0.92	0.92

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

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

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

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MOVEMENT SUMMARY

Site: 9AM [9AM Carrington Rd/ De Clambe Drive 2031]

Network: N101
[Network_am]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Carrington Rd (Northeast)														
5	T1	1268	1.8	1268	1.8	0.329	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		1268	1.8	1268	1.8	0.329	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.9
North: De Clambe Drive														
7	L2	20	0.0	20	0.0	0.015	3.2	LOS A	0.0	0.0	0.00	0.41	0.00	33.3
Approach		20	0.0	20	0.0	0.015	3.2	LOS A	0.0	0.0	0.00	0.41	0.00	33.3
West: Carrington Rd (Southwest)														
10	L2	78	1.4	78	1.4	0.056	4.7	LOS A	0.2	1.5	0.09	0.50	0.09	44.3
11	T1	560	3.4	560	3.4	0.293	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		638	3.1	638	3.1	0.293	0.6	NA	0.2	1.5	0.01	0.06	0.01	49.0
All Vehicles		1926	2.2	1926	2.2	0.329	0.2	NA	0.2	1.5	0.00	0.02	0.00	49.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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.

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MOVEMENT SUMMARY

Site: 9PM [9PM Carrington Rd/ De Clambe Drive 2031]

Network: N101
[Network_pm]

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

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queue	Effective Stop Rate	Aver. No. Cycles	Average Speed		
		veh/h	%	veh/h	%	v/c	sec	veh	m			km/h	
East: Carrington Rd (Northeast)													
5	T1	1136	2.0	1136	2.0	0.295	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		1136	2.0	1136	2.0	0.295	0.0	NA	0.0	0.0	0.00	0.00	50.0
North: De Clambe Drive													
7	L2	31	0.0	31	0.0	0.030	3.2	LOS A	0.0	0.0	0.00	0.41	33.3
Approach		31	0.0	31	0.0	0.030	3.2	LOS A	0.0	0.0	0.00	0.41	33.3
West: Carrington Rd (Southwest)													
10	L2	65	0.0	65	0.0	0.047	4.7	LOS A	0.2	1.2	0.08	0.50	44.3
11	T1	1178	1.0	1178	1.0	0.608	0.2	LOS A	2.5	17.7	0.00	0.00	49.8
Approach		1243	0.9	1243	0.9	0.608	0.4	NA	2.5	17.7	0.00	0.03	49.4
All Vehicles		2409	1.4	2409	1.4	0.608	0.2	NA	2.5	17.7	0.00	0.02	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.

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.

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2023 Background growth & no infrastructure upgrades

MOVEMENT SUMMARY

 Site: 3AM [3AM Showground Rd/Carrington Rd 2023]

 Network: N101
[Network_am]

TCS2666
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 128 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. Cycles	No. Average Speed	
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h	
SouthEast: Showground Road (South East)														
21	L2	573	1.3	573	1.3	0.529	17.4	LOS B	20.1	143.2	0.55	0.73	0.55	25.4
22	T1	719	7.8	719	7.8	0.529	12.2	LOS B	20.9	156.0	0.57	0.54	0.57	29.6
Approach		1292	4.9	1292	4.9	0.529	14.5	LOS B	20.9	156.0	0.56	0.63	0.56	27.6
NorthWest: Showground Road (North West)														
28	T1	1354	4.1	1354	4.1	0.382	1.6	LOS A	4.6	33.5	0.11	0.10	0.11	56.2
29	R2	406	1.3	406	1.3	1.239	269.5	LOS F	43.8	310.1	1.00	1.58	2.62	2.5
Approach		1760	3.5	1760	3.5	1.239	63.5	LOS E	43.8	310.1	0.32	0.44	0.69	14.5
SouthWest: Carrington Road														
30	L2	98	2.2	98	2.2	0.668	61.1	LOS E	11.1	79.3	0.99	0.83	1.02	12.3
32	R2	244	3.4	244	3.4	0.668	62.8	LOS E	11.1	79.3	1.00	0.83	1.03	17.4
Approach		342	3.1	342	3.1	0.668	62.3	LOS E	11.1	79.3	1.00	0.83	1.03	16.1
All Vehicles		3394	4.0	3394	4.0	1.239	44.7	LOS D	43.8	310.1	0.48	0.55	0.67	16.8

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate	
P7	NorthWest Full Crossing	4	58.2	LOS E	0.0	0.0	0.95	0.95	
P8	SouthWest Full Crossing	2	58.1	LOS E	0.0	0.0	0.95	0.95	
All Pedestrians		6	58.1	LOS E			0.95	0.95	

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

MOVEMENT SUMMARY

 Site: 3PM [3PM Showground Rd/Carrington Rd 2023]

 Network: N101
[Network_pm]

TCS2666

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 131 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Arrival Flows Total	Arrival Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Showground Road (South East)														
21	L2	409	1.0	409	1.0	0.911	49.2	LOS D	57.4	409.0	0.97	0.98	1.09	12.7
22	T1	1340	3.0	1340	3.0	0.911	44.0	LOS D	59.8	429.1	0.99	1.00	1.11	13.0
Approach		1749	2.5	1749	2.5	0.911	45.2	LOS D	59.8	429.1	0.98	1.00	1.11	12.9
NorthWest: Showground Road (North West)														
28	T1	913	3.3	913	3.3	0.333	8.9	LOS A	9.0	64.5	0.32	0.29	0.32	43.6
29	R2	191	0.0	191	0.0	1.141	180.4	LOS F	24.2	169.2	1.00	1.28	2.31	3.1
Approach		1103	2.8	1103	2.8	1.141	38.5	LOS C	24.2	169.2	0.44	0.46	0.67	19.3
SouthWest: Carrington Road														
30	L2	218	0.0	211	0.0	0.997	101.2	LOS F	35.9	251.6	0.92	1.11	1.49	8.2
32	R2	613	0.0	593	0.0	0.997	102.0	LOS F	35.9	251.6	0.92	1.11	1.51	12.4
Approach		831	0.0	804 ^{N1}	0.0	0.997	101.8	LOS F	35.9	251.6	0.92	1.11	1.50	11.4
All Vehicles		3683	2.0	3657 ^{N1}	2.0	1.141	55.6	LOS D	59.8	429.1	0.80	0.86	1.06	14.0

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

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P7	NorthWest Full Crossing	4	59.6	LOS E	0.0	0.0	0.95	0.95
P8	SouthWest Full Crossing	1	59.6	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		5	59.6	LOS E			0.95	0.95

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

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

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

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MOVEMENT SUMMARY

 Site: 4AM [4AM Showground Rd/ Gilbert Rd 2023]

 Network: N101
[Network_am]

TCS2844
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 128 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Arrival Flows Total	Arrival Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. Cycles	No.Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Showground Road (South East)														
22	T1	692	6.7	692	6.7	0.310	7.1	LOS A	6.2	46.2	0.27	0.23	0.27	54.5
23	R2	157	4.0	157	4.0	0.944	89.6	LOS F	12.0	86.8	1.00	1.04	1.55	14.9
Approach		848	6.2	848	6.2	0.944	22.4	LOS C	12.0	86.8	0.40	0.38	0.51	44.1
NorthEast: Gilbert Rd														
24	L2	401	3.1	401	3.1	0.525	32.9	LOS C	18.0	129.1	0.78	0.81	0.78	18.3
26	R2	897	1.8	897	1.8	0.849	57.8	LOS E	29.0	205.8	1.00	0.93	1.13	32.0
Approach		1298	2.2	1298	2.2	0.849	50.1	LOS D	29.0	205.8	0.93	0.90	1.02	30.0
NorthWest: Showground Road (North West)														
27	L2	728	4.6	728	4.6	0.412	5.8	LOS A	0.0	0.0	0.00	0.53	0.00	55.3
28	T1	1428	3.1	1428	3.1	0.920	50.9	LOS D	56.0	402.7	0.94	1.01	1.14	31.0
Approach		2157	3.6	2157	3.6	0.920	35.6	LOS D	56.0	402.7	0.63	0.85	0.76	37.4
All Vehicles		4303	3.7	4303	3.7	0.944	37.4	LOS D	56.0	402.7	0.67	0.77	0.79	36.2

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate	
P5	SouthEast Full Crossing	4	58.2	LOS E	0.0	0.0	0.95	0.95	
P6	NorthEast Full Crossing	2	58.1	LOS E	0.0	0.0	0.95	0.95	
All Pedestrians		6	58.1	LOS E			0.95	0.95	

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

MOVEMENT SUMMARY

 Site: 4PM [4PM Showground Rd/ Gilbert Rd 2023]

 Network: N101
[Network_pm]

TCS2844
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 131 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Showground Road (South East)														
22	T1	1322	2.2	1317	2.2	0.492	4.0	LOS A	12.5	89.2	0.20	0.19	0.20	56.8
23	R2	160	3.9	159	4.0	0.406	40.4	LOS C	7.1	51.4	0.73	0.75	0.73	25.1
Approach		1482	2.4	1476 ^{N1}	2.4	0.492	7.9	LOS A	12.5	89.2	0.26	0.25	0.26	53.4
NorthEast: Gilbert Rd														
24	L2	274	1.5	274	1.5	0.333	28.4	LOS B	10.8	76.5	0.67	0.77	0.67	20.2
26	R2	535	2.8	535	2.8	0.754	61.0	LOS E	16.8	120.3	1.00	0.88	1.07	31.2
Approach		808	2.3	808	2.3	0.754	50.0	LOS D	16.8	120.3	0.89	0.84	0.93	29.6
NorthWest: Showground Road (North West)														
27	L2	817	1.3	817	1.3	0.451	5.7	LOS A	0.0	0.0	0.00	0.53	0.00	55.3
28	T1	897	1.8	897	1.8	0.543	29.1	LOS C	20.9	148.8	0.79	0.70	0.79	39.1
Approach		1714	1.5	1714	1.5	0.543	18.0	LOS B	20.9	148.8	0.42	0.62	0.42	46.3
All Vehicles		4004	2.0	3999 ^{N1}	2.0	0.754	20.7	LOS B	20.9	148.8	0.45	0.53	0.46	44.5

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P5	SouthEast Full Crossing	3	59.6	LOS E	0.0	0.0	0.95	0.95
P6	NorthEast Full Crossing	3	59.6	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		6	59.6	LOS E			0.95	0.95

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

MOVEMENT SUMMARY

Site: 5AM [5AM Showground Rd/ De Clambe Drive 2023]

Network: N101
[Network_am]

TCS4569
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 128 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Showground Road (South East)														
21	L2	24	47.8	24	47.8	0.022	7.6	LOS A	0.2	1.8	0.13	0.59	0.13	36.2
22	T1	788	6.3	788	6.3	0.314	5.3	LOS A	5.7	42.0	0.24	0.22	0.24	42.0
Approach		813	7.5	813	7.5	0.314	5.3	LOS A	5.7	42.0	0.24	0.23	0.24	41.7
NorthWest: Showground Road (North West)														
28	T1	1751	2.7	1751	2.7	0.767	3.0	LOS A	22.4	160.5	0.28	0.26	0.28	50.8
29	R2	89	8.2	89	8.2	0.170	7.9	LOS A	0.7	5.3	0.16	0.61	0.16	41.4
Approach		1840	3.0	1840	3.0	0.767	3.2	LOS A	22.4	160.5	0.27	0.28	0.27	50.1
SouthWest: De Clambe Drive														
30	L2	46	9.1	46	9.1	0.108	45.9	LOS D	2.3	17.1	0.82	0.72	0.82	7.7
32	R2	13	100.0	13	100.0	0.242	65.4	LOS E	0.8	9.9	0.95	0.69	0.95	5.7
Approach		59	28.6	59	28.6	0.242	50.1	LOS D	2.3	17.1	0.85	0.71	0.85	7.2
All Vehicles		2712	4.9	2712	4.9	0.767	4.9	LOS A	22.4	160.5	0.27	0.27	0.27	45.2

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate	
P7	NorthWest Full Crossing	1	58.1	LOS E	0.0	0.0	0.95	0.95	
P8	SouthWest Full Crossing	1	58.1	LOS E	0.0	0.0	0.95	0.95	
All Pedestrians		2	58.1	LOS E			0.95	0.95	

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

MOVEMENT SUMMARY

 Site: 5PM [5PM Showground Rd/ De Clambe Drive 2023]

 Network: N101
[Network_pm]

TCS4569

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 131 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Showground Road (South East)														
21	L2	26	56.0	26	56.1	0.025	6.8	LOS A	0.1	0.9	0.05	0.58	0.05	36.7
22	T1	1575	1.9	1567	1.9	0.617	4.0	LOS A	16.1	114.6	0.21	0.19	0.21	45.2
Approach		1601	2.8	1593 ^{N1}	2.8	0.617	4.1	LOS A	16.1	114.6	0.20	0.20	0.20	45.0
NorthWest: Showground Road (North West)														
28	T1	1117	1.5	1117	1.5	0.367	0.9	LOS A	2.4	16.9	0.07	0.07	0.07	56.8
29	R2	66	4.8	66	4.8	0.226	10.0	LOS A	0.8	5.7	0.21	0.63	0.21	39.0
Approach		1183	1.7	1183	1.7	0.367	1.4	LOS A	2.4	16.9	0.08	0.10	0.08	55.0
SouthWest: De Clambe Drive														
30	L2	128	1.6	128	1.6	0.292	49.5	LOS D	6.8	48.1	0.87	0.77	0.87	7.2
32	R2	11	100.0	11	100.0	0.113	68.2	LOS E	0.7	8.5	0.95	0.69	0.95	5.5
Approach		139	9.1	139	9.1	0.292	50.9	LOS D	6.8	48.1	0.88	0.77	0.88	7.0
All Vehicles		2923	2.7	2915 ^{N1}	2.7	0.617	5.2	LOS A	16.1	114.6	0.19	0.18	0.19	43.3

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P7	NorthWest Full Crossing	2	59.6	LOS E	0.0	0.0	0.95	0.95
P8	SouthWest Full Crossing	1	59.6	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		3	59.6	LOS E			0.95	0.95

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

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

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

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Organisation: SCT CONSULTING PTY LTD | Processed: Tuesday, 9 June 2020 2:05:37 PM

Project: C:\Users\Shawn Cen\SCT_00061_Showground Precinct SSDA\3. Technical Work Area\1. Network Optimisation\RtS\5.SCT_00061_2023 FY0 I-B.sip8

MOVEMENT SUMMARY

 Site: 6AM [6AM Carrington Rd/ Middleton Ave/ Andalusian Way 2023]

 Network: N101
[Network_am]

TCS4700

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 64 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	
		veh/h	%	veh/h	%	v/c	sec		veh	m			km/h	
South: Middleton Avenue														
1	L2	169	3.7	169	3.7	0.808	35.7	LOS D	10.7	77.1	1.00	0.98	1.26	17.4
2	T1	37	0.0	37	0.0	0.808	31.0	LOS C	10.7	77.1	1.00	0.98	1.26	21.3
3	R2	107	2.9	107	2.9	0.808	35.6	LOS D	10.7	77.1	1.00	0.98	1.26	17.4
Approach		314	3.0	314	3.0	0.808	35.1	LOS D	10.7	77.1	1.00	0.98	1.26	17.9
East: Carrington Road (East)														
4	L2	138	2.3	127	2.3	0.636	17.0	LOS B	9.0	63.9	0.72	0.67	0.72	35.7
5	T1	836	1.1	769	1.1	0.636	11.4	LOS B	9.6	67.7	0.70	0.63	0.70	31.1
6	R2	4	0.0	4	0.0	0.636	15.3	LOS B	9.6	67.7	0.69	0.60	0.69	34.8
Approach		978	1.3	900 ^{N1}	1.3	0.636	12.2	LOS B	9.6	67.7	0.70	0.63	0.70	32.1
North: Andalusian Way														
7	L2	6	0.0	6	0.0	0.116	25.9	LOS C	1.2	8.3	0.82	0.68	0.82	12.9
8	T1	19	5.6	19	5.6	0.116	21.3	LOS C	1.2	8.3	0.82	0.68	0.82	25.9
9	R2	21	0.0	21	0.0	0.116	25.9	LOS C	1.2	8.3	0.82	0.68	0.82	12.9
Approach		46	2.3	46	2.3	0.116	24.0	LOS C	1.2	8.3	0.82	0.68	0.82	19.6
West: Carrington Road (West)														
10	L2	1	0.0	1	0.0	0.120	13.2	LOS B	1.9	13.4	0.54	0.44	0.54	33.3
11	T1	232	3.2	232	3.2	0.530	13.1	LOS B	5.5	39.5	0.69	0.59	0.69	22.4
12	R2	99	3.2	99	3.2	0.530	22.2	LOS C	5.5	39.5	0.83	0.75	0.83	29.0
Approach		332	3.2	332	3.2	0.530	15.8	LOS B	5.5	39.5	0.73	0.64	0.73	25.4
All Vehicles		1669	2.0	1591 ^{N1}	2.1	0.808	17.8	LOS B	10.7	77.1	0.77	0.70	0.82	26.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Prop. Queued	Effective Stop Rate		
P1	South Full Crossing	14	26.3	LOS C	0.0	0.0	0.91	0.91	
P2	East Full Crossing	6	26.3	LOS C	0.0	0.0	0.91	0.91	
P3	North Full Crossing	7	26.3	LOS C	0.0	0.0	0.91	0.91	
P4	West Full Crossing	44	26.3	LOS C	0.1	0.1	0.91	0.91	

MOVEMENT SUMMARY

 Site: 6PM [6PM Carrington Rd/ Middleton Ave/ Andalusian Way 2023]

 Network: N101 [Network_pm]

TCS4700

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 62 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Total HV	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m			km/h
South: Middleton Avenue													
1	L2	163	2.6	163	2.6	0.733	32.4	LOS C	8.4	59.4	0.99	0.90	18.5
2	T1	18	0.0	18	0.0	0.733	27.7	LOS B	8.4	59.4	0.99	0.90	22.4
3	R2	87	0.0	87	0.0	0.733	32.3	LOS C	8.4	59.4	0.99	0.90	18.5
Approach		268	1.6	268	1.6	0.733	32.0	LOS C	8.4	59.4	0.99	0.90	18.8
East: Carrington Road (East)													
4	L2	101	1.0	97	1.1	0.319	15.8	LOS B	5.6	39.8	0.67	0.62	36.6
5	T1	536	0.8	516	0.8	0.319	10.1	LOS A	5.6	39.8	0.64	0.57	32.4
6	R2	1	0.0	1	0.0	0.319	14.0	LOS A	5.6	39.4	0.62	0.53	36.1
Approach		638	0.8	614 ^{N1}	0.9	0.319	11.0	LOS A	5.6	39.8	0.64	0.57	33.4
North: Andalusian Way													
7	L2	9	0.0	9	0.0	0.087	25.4	LOS B	0.9	6.3	0.82	0.65	13.4
8	T1	20	0.0	20	0.0	0.087	20.8	LOS B	0.9	6.3	0.82	0.65	26.6
9	R2	7	0.0	7	0.0	0.087	25.4	LOS B	0.9	6.3	0.82	0.65	13.4
Approach		37	0.0	37	0.0	0.087	22.9	LOS B	0.9	6.3	0.82	0.65	21.9
West: Carrington Road (West)													
10	L2	12	9.1	12	9.1	0.231	13.5	LOS A	3.7	26.2	0.58	0.50	32.3
11	T1	752	0.1	752	0.1	1.020	61.0	LOS E	33.8	238.3	0.88	1.38	7.8
12	R2	159	3.3	159	3.3	1.020	86.0	LOS F	33.8	238.3	1.00	1.73	12.8
Approach		922	0.8	922	0.8	1.020	64.7	LOS E	33.8	238.3	0.90	1.43	9.1
All Vehicles		1865	0.9	1842 ^{N1}	0.9	1.020	41.2	LOS C	33.8	238.3	0.82	1.05	15.1

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	4	25.3	LOS C	0.0	0.0	0.90	0.90
P2	East Full Crossing	2	25.3	LOS C	0.0	0.0	0.90	0.90
P3	North Full Crossing	8	25.3	LOS C	0.0	0.0	0.90	0.90
P4	West Full Crossing	26	25.3	LOS C	0.0	0.0	0.90	0.90

MOVEMENT SUMMARY

 Site: 7AM [7AM Carrington Road/ Victoria Avenue 2023]

 Network: N101
[Network_am]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h
South: Victoria Avenue (South)													
2	T1	683	3.2	683	3.2	0.543	7.1	LOS A	5.3	38.2	0.85	0.77	40.6
3	R2	320	2.3	320	2.3	0.543	11.5	LOS B	5.2	37.5	0.86	0.83	30.7
3u	U	18	0.0	18	0.0	0.543	13.1	LOS B	5.2	37.5	0.86	0.83	39.1
Approach		1021	2.9	1021	2.9	0.543	8.6	LOS A	5.3	38.2	0.85	0.79	38.2
East: Carrington Road													
4	L2	617	1.7	578	1.8	0.791	14.7	LOS B	8.8	62.5	0.98	1.24	39.7
6	R2	393	3.2	368	3.4	0.672	17.2	LOS B	5.5	39.3	0.92	1.12	39.6
6u	U	3	0.0	3	0.0	0.672	18.7	LOS B	5.5	39.3	0.92	1.12	36.6
Approach		1013	2.3	949 ^{N1}	2.4	0.791	15.7	LOS B	8.8	62.5	0.95	1.19	39.6
North: Victoria Avenue (North)													
7	L2	238	3.1	238	3.1	0.587	7.3	LOS A	6.1	43.9	0.85	0.77	34.9
8	T1	877	2.6	877	2.6	0.587	7.9	LOS A	6.1	43.9	0.86	0.80	40.8
9u	U	15	0.0	15	0.0	0.587	13.5	LOS B	6.1	43.3	0.86	0.82	41.9
Approach		1129	2.7	1129	2.7	0.587	7.8	LOS A	6.1	43.9	0.85	0.80	40.0
West: Access Rd													
10	L2	35	6.1	35	6.1	0.134	4.2	LOS A	0.6	4.1	0.71	0.71	22.1
11	T1	14	0.0	14	0.0	0.134	4.1	LOS A	0.6	4.1	0.71	0.71	8.6
12	R2	17	6.3	17	6.3	0.134	4.2	LOS A	0.6	4.1	0.71	0.71	21.8
Approach		65	4.8	65	4.8	0.134	4.2	LOS A	0.6	4.1	0.71	0.71	20.1
All Vehicles		3228	2.7	3165 ^{N1}	2.7	0.791	10.4	LOS B	8.8	62.5	0.88	0.91	39.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

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

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

Roundabout Capacity Model: SIDRA Standard.

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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Project: C:\Users\Shawn Cen\SCT_00061_Showground Precinct SSDA\3. Technical Work Area\1. Network Optimisation\RtS\5.SCT_00061_2023 FY0 I-B.sip8

MOVEMENT SUMMARY

 Site: 7PM [7PM Carrington Road/ Victoria Avenue 2023]

 Network: N101
[Network_pm]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	95% Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h
South: Victoria Avenue (South)													
2	T1	1165	1.4	1165	1.4	0.984	44.5	LOS D	41.8	296.5	1.00	1.97	21.3
3	R2	552	1.5	552	1.5	0.984	52.4	LOS D	38.2	271.0	1.00	2.01	12.4
3u	U	17	0.0	17	0.0	0.984	53.9	LOS D	38.2	271.0	1.00	2.01	19.4
Approach		1734	1.5	1734	1.5	0.984	47.1	LOS D	41.8	296.5	1.00	1.98	18.7
East: Carrington Road													
4	L2	546	2.9	536	2.9	0.716	12.1	LOS A	7.3	52.2	0.96	1.14	41.1
6	R2	429	2.2	421	2.3	0.697	16.8	LOS B	6.4	45.5	0.94	1.14	39.8
6u	U	3	0.0	3	0.0	0.697	18.4	LOS B	6.4	45.5	0.94	1.14	36.8
Approach		979	2.6	960 ^{N1}	2.6	0.716	14.2	LOS A	7.3	52.2	0.95	1.14	40.5
North: Victoria Avenue (North)													
7	L2	379	1.7	379	1.7	0.810	19.2	LOS B	14.4	102.5	1.00	1.26	23.9
8	T1	756	1.8	756	1.8	0.810	21.2	LOS B	14.4	102.5	1.00	1.29	30.6
9u	U	36	5.9	36	5.9	0.810	27.8	LOS B	13.3	94.7	1.00	1.32	31.2
Approach		1171	1.9	1171	1.9	0.810	20.7	LOS B	14.4	102.5	1.00	1.28	29.0
West: Access Rd													
10	L2	38	2.8	38	2.8	0.233	9.5	LOS A	1.1	7.9	0.87	0.87	20.1
11	T1	12	9.1	12	9.1	0.233	9.9	LOS A	1.1	7.9	0.87	0.87	7.2
12	R2	12	0.0	12	0.0	0.233	9.4	LOS A	1.1	7.9	0.87	0.87	19.7
Approach		61	3.4	61	3.4	0.233	9.6	LOS A	1.1	7.9	0.87	0.87	18.3
All Vehicles		3944	1.9	3925 ^{N1}	1.9	0.984	30.6	LOS C	41.8	296.5	0.99	1.55	27.0

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

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

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

Roundabout Capacity Model: SIDRA Standard.

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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Organisation: SCT CONSULTING PTY LTD | Processed: Tuesday, 9 June 2020 2:05:37 PM

Project: C:\Users\Shawn Cen\SCT_00061_Showground Precinct SSDA\3. Technical Work Area\1. Network Optimisation\RtS\5.SCT_00061_2023 FY0 I-B.sip8

MOVEMENT SUMMARY

Site: 8AM [8AM Carrington Rd/ Doran Drive 2023]

Network: N101
[Network_am]

TCS4699
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 85 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Carrington Road (East)														
5	T1	993	1.2	928	1.2	0.611	4.3	LOS A	16.2	114.2	0.46	0.43	0.46	36.5
6	R2	9	44.4	9	44.9	0.016	9.7	LOS A	0.1	1.1	0.39	0.59	0.39	29.0
Approach		1002	1.6	937 ^{N1}	1.6	0.611	4.3	LOS A	16.2	114.2	0.46	0.43	0.46	36.3
North: Doran Drive														
7	L2	22	14.3	22	14.3	0.059	32.9	LOS C	0.7	5.8	0.83	0.69	0.83	6.3
9	R2	41	25.6	41	25.6	0.183	39.9	LOS D	1.6	13.3	0.92	0.73	0.92	5.1
Approach		63	21.7	63	21.7	0.183	37.5	LOS D	1.6	13.3	0.89	0.71	0.89	5.5
West: Carrington Road (West)														
10	L2	38	22.2	38	22.2	0.145	10.7	LOS B	2.7	19.7	0.41	0.41	0.41	18.6
11	T1	306	2.1	306	2.1	0.145	6.2	LOS A	2.8	19.9	0.41	0.37	0.41	27.5
Approach		344	4.3	344	4.3	0.145	6.7	LOS A	2.8	19.9	0.41	0.38	0.41	25.6
All Vehicles		1409	3.1	1344 ^{N1}	3.3	0.611	6.5	LOS A	16.2	114.2	0.47	0.43	0.47	30.2

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

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate	
P2	East Full Crossing	17	36.7	LOS D	0.0	0.0	0.93	0.93	
P3	North Full Crossing	34	36.8	LOS D	0.1	0.1	0.93	0.93	
All Pedestrians		51	36.8	LOS D			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: 8PM [8PM Carrington Rd/ Doran Drive 2023]

Network: N101
[Network_pm]

TCS4699
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 64 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Total	Flows HV	Arrival Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Carrington Road (East)														
5	T1	699	0.8	679	0.8	0.453	2.9	LOS A	7.6	53.3	0.39	0.35	0.39	40.0
6	R2	7	42.9	7	43.6	0.026	12.4	LOS A	0.1	1.0	0.56	0.62	0.56	26.3
Approach		706	1.2	687 ^{N1}	1.2	0.453	3.0	LOS A	7.6	53.3	0.39	0.35	0.39	39.7
North: Doran Drive														
7	L2	27	15.4	27	15.4	0.076	26.6	LOS B	0.7	5.6	0.84	0.69	0.84	7.5
9	R2	66	17.5	66	17.5	0.318	33.2	LOS C	2.0	16.2	0.95	0.75	0.95	6.1
Approach		94	16.9	94	16.9	0.318	31.3	LOS C	2.0	16.2	0.92	0.73	0.92	6.4
West: Carrington Road (West)														
10	L2	37	20.0	37	20.0	0.546	12.4	LOS A	11.3	80.3	0.63	0.57	0.63	18.0
11	T1	901	0.4	901	0.4	0.546	7.3	LOS A	11.3	80.3	0.58	0.52	0.58	25.8
Approach		938	1.1	938	1.1	0.546	7.5	LOS A	11.3	80.3	0.58	0.52	0.58	25.2
All Vehicles		1738	2.0	1718 ^{N1}	2.0	0.546	7.0	LOS A	11.3	80.3	0.52	0.47	0.52	28.1

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate	
P2	East Full Crossing	20	26.3	LOS C	0.0	0.0	0.91	0.91	
P3	North Full Crossing	27	26.3	LOS C	0.0	0.0	0.91	0.91	
All Pedestrians		47	26.3	LOS C			0.91	0.91	

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

MOVEMENT SUMMARY

Site: 9AM [9AM Carrington Rd/ De Clambe Drive 2023]

Network: N101
[Network_am]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Carrington Rd (Northeast)														
5	T1	1022	2.1	958	2.1	0.249	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		1022	2.1	958 ^{N1}	2.1	0.249	0.0	NA	0.0	0.0	0.00	0.00	0.00	50.0
North: De Clambe Drive														
7	L2	20	0.0	20	0.0	0.015	3.2	LOS A	0.0	0.0	0.00	0.41	0.00	33.3
Approach		20	0.0	20	0.0	0.015	3.2	LOS A	0.0	0.0	0.00	0.41	0.00	33.3
West: Carrington Rd (Southwest)														
10	L2	26	4.0	26	4.0	0.019	4.7	LOS A	0.1	0.5	0.09	0.50	0.09	44.2
11	T1	326	4.8	326	4.8	0.173	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		353	4.8	353	4.8	0.173	0.4	NA	0.1	0.5	0.01	0.04	0.01	49.4
All Vehicles		1395	2.7	1330 ^{N1}	2.8	0.249	0.2	NA	0.1	0.5	0.00	0.02	0.00	49.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

Site: 9PM [9PM Carrington Rd/ De Clambe Drive 2023]

Network: N101
[Network_pm]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Carrington Rd (Northeast)														
5	T1	760	2.5	741	2.6	0.193	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		760	2.5	741 ^{N1}	2.6	0.193	0.0	NA	0.0	0.0	0.00	0.00	0.00	50.0
North: De Clambe Drive														
7	L2	31	0.0	31	0.0	0.023	3.2	LOS A	0.0	0.0	0.00	0.41	0.00	33.3
Approach		31	0.0	31	0.0	0.023	3.2	LOS A	0.0	0.0	0.00	0.41	0.00	33.3
West: Carrington Rd (Southwest)														
10	L2	16	0.0	16	0.0	0.011	4.7	LOS A	0.0	0.3	0.09	0.50	0.09	44.3
11	T1	906	1.2	906	1.2	0.468	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		922	1.1	922	1.1	0.468	0.2	NA	0.0	0.3	0.00	0.01	0.00	49.8
All Vehicles		1713	1.7	1693 ^{N1}	1.7	0.468	0.2	NA	0.0	0.3	0.00	0.01	0.00	49.6

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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Project: C:\Users\Shawn Cen\SCT_00061_Showground Precinct SSDA\3. Technical Work Area\1. Network Optimisation\RtS\5.SCT_00061_2023 FY0 I-B.sip8

2023 Background growth with infrastructure upgrades

MOVEMENT SUMMARY

Site: 3AM [3AM Showground Rd/Carrington Rd 2023]

Network: N101
[Network_am]

TCS2666
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. Cycles	No. Average Speed	
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h	
SouthEast: Showground Road (South East)														
21	L2	573	1.3	573	1.3	0.731	31.8	LOS C	29.1	207.2	0.84	0.84	0.84	17.0
22	T1	719	7.8	719	7.8	0.731	26.9	LOS C	30.3	225.8	0.87	0.79	0.87	18.7
Approach		1292	4.9	1292	4.9	0.731	29.1	LOS C	30.3	225.8	0.86	0.81	0.86	17.9
NorthWest: Showground Road (North West)														
28	T1	1354	4.1	1354	4.1	0.377	1.2	LOS A	3.2	23.2	0.09	0.08	0.09	57.1
29	R2	406	1.3	406	1.3	0.724	59.1	LOS E	23.2	164.1	1.00	0.86	1.00	10.4
Approach		1760	3.5	1760	3.5	0.724	14.6	LOS B	23.2	164.1	0.30	0.26	0.30	35.5
SouthWest: Carrington Road														
30	L2	98	2.2	98	2.2	0.751	61.9	LOS E	11.1	79.2	1.00	0.88	1.12	12.1
32	R2	244	3.4	244	3.4	0.751	63.4	LOS E	11.1	79.2	1.00	0.87	1.13	17.3
Approach		342	3.1	342	3.1	0.751	63.0	LOS E	11.1	79.2	1.00	0.88	1.13	16.0
All Vehicles		3394	4.0	3394	4.0	0.751	25.0	LOS C	30.3	225.8	0.58	0.53	0.60	25.0

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate	
P7	NorthWest Full Crossing	4	54.2	LOS E	0.0	0.0	0.95	0.95	
P8	SouthWest Full Crossing	2	54.2	LOS E	0.0	0.0	0.95	0.95	
All Pedestrians		6	54.2	LOS E			0.95	0.95	

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

MOVEMENT SUMMARY

Site: 3PM [3PM Showground Rd/Carrington Rd 2023]

Network: N101
[Network_pm]

TCS2666
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 130 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	
		veh/h	%	veh/h	%	v/c	sec		veh	m			km/h	
SouthEast: Showground Road (South East)														
21	L2	409	1.0	409	1.0	0.890	43.1	LOS D	53.2	379.1	0.94	0.94	1.03	14.1
22	T1	1340	3.0	1340	3.0	0.890	37.9	LOS C	55.5	398.1	0.96	0.95	1.05	14.5
Approach		1749	2.5	1749	2.5	0.890	39.2	LOS C	55.5	398.1	0.96	0.95	1.04	14.4
NorthWest: Showground Road (North West)														
28	T1	913	3.3	913	3.3	0.300	9.6	LOS A	11.9	85.5	0.45	0.40	0.45	42.8
29	R2	191	0.0	191	0.0	0.868	59.7	LOS E	12.2	85.1	1.00	0.84	1.09	10.3
Approach		1103	2.8	1103	2.8	0.868	18.2	LOS B	12.2	85.5	0.54	0.47	0.56	32.7
SouthWest: Carrington Road														
30	L2	218	0.0	218	0.0	0.885	65.4	LOS E	29.9	209.4	1.00	0.97	1.20	11.6
32	R2	613	0.0	613	0.0	0.885	66.5	LOS E	29.9	209.4	1.00	0.97	1.21	16.9
Approach		831	0.0	831	0.0	0.885	66.2	LOS E	29.9	209.4	1.00	0.97	1.21	15.6
All Vehicles		3683	2.0	3683	2.0	0.890	39.0	LOS C	55.5	398.1	0.84	0.81	0.93	18.6

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	Prop. Queued	Effective Stop Rate		
P7	NorthWest Full Crossing	4	59.1	LOS E	0.0	0.0	0.95	0.95	
P8	SouthWest Full Crossing	1	59.1	LOS E	0.0	0.0	0.95	0.95	
All Pedestrians		5	59.1	LOS E			0.95	0.95	

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

MOVEMENT SUMMARY

Site: 4AM [4AM Showground Rd/ Gilbert Rd 2023]

Network: N101
[Network_am]

TCS2844
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h
SouthEast: Showground Road (South East)													
22	T1	692	6.7	692	6.7	0.302	15.4	LOS B	13.4	99.4	0.69	0.69	49.2
23	R2	157	4.0	157	4.0	0.885	59.3	LOS E	9.6	69.3	1.00	1.12	19.9
Approach		848	6.2	848	6.2	0.885	23.5	LOS C	13.4	99.4	0.74	0.77	43.5
NorthEast: Gilbert Rd													
24	L2	401	3.1	401	3.1	0.539	32.4	LOS C	17.3	124.0	0.79	0.79	18.5
26	R2	897	1.8	897	1.8	0.913	67.8	LOS E	31.0	220.4	1.00	1.29	29.6
Approach		1298	2.2	1298	2.2	0.913	56.9	LOS E	31.0	220.4	0.94	1.13	28.2
NorthWest: Showground Road (North West)													
27	L2	728	4.6	728	4.6	0.412	5.8	LOS A	0.0	0.0	0.00	0.53	55.3
28	T1	1428	3.1	1428	3.1	0.889	41.0	LOS D	47.7	342.4	0.94	1.08	34.2
Approach		2157	3.6	2157	3.6	0.889	29.1	LOS C	47.7	342.4	0.62	0.71	40.2
All Vehicles		4303	3.7	4303	3.7	0.913	36.4	LOS D	47.7	342.4	0.74	0.85	36.6

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

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P5	SouthEast Full Crossing	4	54.2	LOS E	0.0	0.0	0.95	0.95
P6	NorthEast Full Crossing	2	54.2	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		6	54.2	LOS E			0.95	0.95

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

MOVEMENT SUMMARY

Site: 4PM [4PM Showground Rd/ Gilbert Rd 2023]

Network: N101
[Network_pm]

TCS2844
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 130 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h
SouthEast: Showground Road (South East)													
22	T1	1322	2.2	1322	2.2	0.549	7.3	LOS A	16.9	120.6	0.32	0.29	54.3
23	R2	160	3.9	160	3.9	0.558	69.1	LOS E	10.2	73.8	1.00	0.82	17.9
Approach		1482	2.4	1482	2.4	0.558	14.0	LOS A	16.9	120.6	0.39	0.39	49.4
NorthEast: Gilbert Rd													
24	L2	274	1.5	274	1.5	0.325	27.3	LOS B	10.5	74.2	0.65	0.76	20.8
26	R2	535	2.8	535	2.8	0.561	49.0	LOS D	14.6	104.4	0.91	0.83	34.3
Approach		808	2.3	808	2.3	0.561	41.7	LOS C	14.6	104.4	0.82	0.81	32.3
NorthWest: Showground Road (North West)													
27	L2	817	1.3	817	1.3	0.451	5.7	LOS A	0.0	0.0	0.00	0.53	55.3
28	T1	897	1.8	897	1.8	0.558	30.1	LOS C	21.2	151.0	0.81	0.72	38.6
Approach		1714	1.5	1714	1.5	0.558	18.5	LOS B	21.2	151.0	0.42	0.63	46.0
All Vehicles		4004	2.0	4004	2.0	0.561	21.5	LOS B	21.2	151.0	0.49	0.56	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	Back of Queue Distance m	Prop. Queued	Effective Stop Rate	
P5	SouthEast Full Crossing	3	59.1	LOS E	0.0	0.0	0.95	0.95	
P6	NorthEast Full Crossing	3	59.1	LOS E	0.0	0.0	0.95	0.95	
All Pedestrians		6	59.1	LOS E			0.95	0.95	

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

MOVEMENT SUMMARY

 Site: 5AM [5AM Showground Rd/ De Clambe Drive 2023]

 Network: N101
[Network_am]

TCS4569
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Total	Flows HV	Arrival Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Showground Road (South East)														
21	L2	24	47.8	24	47.8	0.024	7.2	LOS A	0.1	0.9	0.07	0.58	0.07	36.7
22	T1	788	6.3	788	6.3	0.341	2.0	LOS A	2.3	16.7	0.10	0.08	0.10	51.7
Approach		813	7.5	813	7.5	0.341	2.1	LOS A	2.3	16.7	0.09	0.10	0.09	50.8
NorthWest: Showground Road (North West)														
28	T1	1751	2.7	1751	2.7	0.562	1.4	LOS A	7.6	54.8	0.15	0.14	0.15	55.3
29	R2	89	8.2	89	8.2	0.141	6.9	LOS A	0.5	3.7	0.13	0.60	0.13	42.7
Approach		1840	3.0	1840	3.0	0.562	1.7	LOS A	7.6	54.8	0.15	0.16	0.15	54.2
SouthWest: De Clambe Drive														
30	L2	46	9.1	46	9.1	0.095	40.1	LOS D	2.0	15.3	0.79	0.71	0.79	8.6
32	R2	13	100.0	13	100.0	0.227	70.3	LOS E	0.8	10.2	0.99	0.69	0.99	5.4
Approach		59	28.6	59	28.6	0.227	46.5	LOS D	2.0	15.3	0.83	0.71	0.83	7.6
All Vehicles		2712	4.9	2712	4.9	0.562	2.8	LOS A	7.6	54.8	0.15	0.15	0.15	50.3

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

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P7	NorthWest Full Crossing	1	54.2	LOS E	0.0	0.0	0.95	0.95
P8	SouthWest Full Crossing	1	54.2	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		2	54.2	LOS E			0.95	0.95

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

MOVEMENT SUMMARY

 Site: 5PM [5PM Showground Rd/ De Clambe Drive 2023]

 Network: N101
[Network_pm]

TCS4569

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 130 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Showground Road (South East)														
21	L2	26	56.0	26	56.0	0.024	7.3	LOS A	0.2	1.6	0.10	0.59	0.10	36.1
22	T1	1575	1.9	1575	1.9	0.572	4.7	LOS A	20.4	145.5	0.29	0.27	0.29	43.4
Approach		1601	2.8	1601	2.8	0.572	4.8	LOS A	20.4	145.5	0.29	0.27	0.29	43.1
NorthWest: Showground Road (North West)														
28	T1	1117	1.5	1117	1.5	0.351	0.6	LOS A	2.9	20.6	0.06	0.06	0.06	57.8
29	R2	66	4.8	66	4.8	0.258	7.6	LOS A	0.4	2.7	0.10	0.60	0.10	42.0
Approach		1183	1.7	1183	1.7	0.351	1.0	LOS A	2.9	20.6	0.06	0.09	0.06	56.2
SouthWest: De Clambe Drive														
30	L2	128	1.6	128	1.6	0.395	56.9	LOS E	7.3	52.1	0.94	0.79	0.94	6.4
32	R2	11	100.0	11	100.0	0.205	75.9	LOS F	0.7	9.2	0.99	0.69	0.99	5.0
Approach		139	9.1	139	9.1	0.395	58.4	LOS E	7.3	52.1	0.94	0.78	0.94	6.3
All Vehicles		2923	2.7	2923	2.7	0.572	5.8	LOS A	20.4	145.5	0.23	0.22	0.23	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.

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	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P7	NorthWest Full Crossing	2	59.1	LOS E	0.0	0.0	0.95	0.95
P8	SouthWest Full Crossing	1	59.1	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		3	59.1	LOS E			0.95	0.95

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

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

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

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Project: C:\Users\Shawn Cen\SCT_00061_Showground Precinct SSDA\3. Technical Work Area\1. Network Optimisation\RtS\6.SCT_00061_2023 FY01.sip8

MOVEMENT SUMMARY

 Site: 6AM [6AM Carrington Rd/ Middleton Ave/ Andalusian Way 2023]

 Network: N101
[Network_am]

TCS4700

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 60 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Total HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. Cycles	No. Average Speed	
		veh/h	%	veh/h	%	v/c	sec	veh	m			km/h	
South: Middleton Avenue													
1	L2	169	3.7	169	3.7	0.560	22.5	LOS C	7.6	54.6	0.86	0.79	0.86 23.1
2	T1	37	0.0	37	0.0	0.560	17.8	LOS B	7.6	54.6	0.86	0.79	0.86 27.1
3	R2	107	2.9	107	2.9	0.560	22.4	LOS C	7.6	54.6	0.86	0.79	0.86 23.1
Approach		314	3.0	314	3.0	0.560	21.9	LOS C	7.6	54.6	0.86	0.79	0.86 23.6
East: Carrington Road (East)													
4	L2	138	2.3	138	2.3	0.727	25.0	LOS C	11.8	83.7	0.91	0.86	0.99 30.9
5	T1	836	1.1	836	1.1	0.727	19.2	LOS B	14.4	101.9	0.91	0.85	0.98 24.9
6	R2	4	0.0	4	0.0	0.727	23.1	LOS C	14.4	101.9	0.91	0.85	0.97 29.0
Approach		978	1.3	978	1.3	0.727	20.1	LOS C	14.4	101.9	0.91	0.85	0.98 26.2
North: Andalusian Way													
7	L2	6	0.0	6	0.0	0.077	18.7	LOS B	0.9	6.5	0.70	0.63	0.70 16.5
8	T1	19	5.6	19	5.6	0.077	14.2	LOS B	0.9	6.5	0.70	0.63	0.70 30.2
9	R2	21	0.0	21	0.0	0.077	18.7	LOS B	0.9	6.5	0.70	0.63	0.70 16.5
Approach		46	2.3	46	2.3	0.077	16.9	LOS B	0.9	6.5	0.70	0.63	0.70 23.9
West: Carrington Road (West)													
10	L2	1	0.0	1	0.0	0.323	18.8	LOS B	4.9	35.0	0.75	0.62	0.75 27.7
11	T1	232	3.2	232	3.2	0.323	14.2	LOS B	4.9	35.0	0.75	0.62	0.75 22.3
12	R2	99	3.2	99	3.2	0.577	33.1	LOS C	3.0	21.6	0.97	0.82	1.06 22.9
Approach		332	3.2	332	3.2	0.577	19.9	LOS B	4.9	35.0	0.81	0.68	0.84 22.6
All Vehicles		1669	2.0	1669	2.0	0.727	20.3	LOS C	14.4	101.9	0.88	0.80	0.92 25.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	14	24.3	LOS C	0.0	0.0	0.90	0.90
P2	East Full Crossing	6	24.3	LOS C	0.0	0.0	0.90	0.90
P3	North Full Crossing	7	24.3	LOS C	0.0	0.0	0.90	0.90
P4	West Full Crossing	44	24.3	LOS C	0.1	0.1	0.90	0.90
All Pedestrians		72	24.3	LOS C			0.90	0.90

MOVEMENT SUMMARY

 Site: 6PM [6PM Carrington Rd/ Middleton Ave/ Andalusian Way 2023]

 Network: N101
[Network_pm]

TCS4700

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 60 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. Cycles	No. Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m			km/h
South: Middleton Avenue													
1	L2	163	2.6	163	2.6	0.528	24.8	LOS B	6.9	48.6	0.89	0.80	21.7
2	T1	18	0.0	18	0.0	0.528	20.2	LOS B	6.9	48.6	0.89	0.80	25.7
3	R2	87	0.0	87	0.0	0.528	24.7	LOS B	6.9	48.6	0.89	0.80	21.7
Approach		268	1.6	268	1.6	0.528	24.5	LOS B	6.9	48.6	0.89	0.80	22.0
East: Carrington Road (East)													
4	L2	101	1.0	101	1.0	0.399	19.3	LOS B	6.6	46.2	0.77	0.70	34.2
5	T1	536	0.8	536	0.8	0.399	13.5	LOS A	6.8	48.0	0.75	0.65	29.2
6	R2	1	0.0	1	0.0	0.399	17.3	LOS B	6.8	48.0	0.73	0.62	33.2
Approach		638	0.8	638	0.8	0.399	14.4	LOS A	6.8	48.0	0.75	0.66	30.4
North: Andalusian Way													
7	L2	9	0.0	9	0.0	0.065	20.9	LOS B	0.8	5.4	0.74	0.62	15.7
8	T1	20	0.0	20	0.0	0.065	16.3	LOS B	0.8	5.4	0.74	0.62	29.3
9	R2	7	0.0	7	0.0	0.065	20.9	LOS B	0.8	5.4	0.74	0.62	15.7
Approach		37	0.0	37	0.0	0.065	18.4	LOS B	0.8	5.4	0.74	0.62	24.7
West: Carrington Road (West)													
10	L2	12	9.1	12	9.1	0.762	22.4	LOS B	16.9	118.8	0.91	0.87	24.8
11	T1	752	0.1	752	0.1	0.762	19.0	LOS B	16.9	118.8	0.92	0.88	18.5
12	R2	159	3.3	159	3.3	0.762	29.3	LOS C	9.1	64.6	0.96	0.95	25.3
Approach		922	0.8	922	0.8	0.762	20.9	LOS B	16.9	118.8	0.92	0.90	20.4
All Vehicles		1865	0.9	1865	0.9	0.762	19.1	LOS B	16.9	118.8	0.86	0.80	24.2

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

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	4	24.3	LOS C	0.0	0.0	0.90	0.90
P2	East Full Crossing	2	24.3	LOS C	0.0	0.0	0.90	0.90
P3	North Full Crossing	8	24.3	LOS C	0.0	0.0	0.90	0.90
P4	West Full Crossing	26	24.3	LOS C	0.0	0.0	0.90	0.90
All Pedestrians		41	24.3	LOS C			0.90	0.90

MOVEMENT SUMMARY

 Site: 7AM [7AM Carrington Road/ Victoria Avenue 2023]

 Network: N101
[Network_am]

New Site

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 90 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Flows HV	Arrival Flows Total	Flows 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: Victoria Avenue (South)														
2	T1	683	3.2	683	3.2	0.309	9.9	LOS A	7.5	53.6	0.54	0.47	0.54	38.2
3	R2	320	2.3	320	2.3	0.822	47.8	LOS D	13.8	98.6	1.00	1.12	1.65	12.2
Approach		1003	2.9	1003	2.9	0.822	22.0	LOS C	13.8	98.6	0.68	0.67	0.89	27.4
East: Carrington Road														
4	L2	617	1.7	617	1.7	0.683	23.0	LOS C	20.6	146.0	0.82	0.83	0.82	35.8
6	R2	393	3.2	393	3.2	0.791	41.1	LOS D	17.4	125.3	0.99	0.91	1.11	29.7
Approach		1009	2.3	1009	2.3	0.791	30.0	LOS C	20.6	146.0	0.88	0.86	0.93	33.1
North: Victoria Avenue (North)														
7	L2	238	3.1	238	3.1	0.815	36.3	LOS D	23.6	169.3	0.95	0.93	1.06	17.1
8	T1	877	2.6	877	2.6	0.815	31.9	LOS C	24.5	175.4	0.96	0.93	1.07	24.7
Approach		1115	2.7	1115	2.7	0.815	32.9	LOS C	24.5	175.4	0.96	0.93	1.07	23.3
West: Access Rd														
10	L2	35	6.1	35	6.1	0.059	4.9	LOS A	0.4	3.1	0.46	0.35	0.46	21.9
Approach		35	6.1	35	6.1	0.059	4.9	LOS A	0.4	3.1	0.46	0.35	0.46	21.9
All Vehicles		3162	2.7	3162	2.7	0.822	28.2	LOS C	24.5	175.4	0.84	0.82	0.96	28.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94	
P2	East Full Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94	
All Pedestrians		105	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: 7PM [7PM Carrington Road/ Victoria Avenue 2023]

 Network: N101
[Network_pm]

New Site

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 150 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows HV Total		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	
		veh/h	%	veh/h	%	v/c	sec		veh	m			km/h	
South: Victoria Avenue (South)														
2	T1	1165	1.4	1165	1.4	0.464	13.1	LOS A	20.4	144.4	0.53	0.48	0.53	35.4
3	R2	552	1.5	552	1.5	0.939	85.6	LOS F	44.0	312.3	1.00	1.22	1.82	7.6
Approach		1717	1.5	1717	1.5	0.939	36.4	LOS C	44.0	312.3	0.68	0.72	0.94	21.1
East: Carrington Road														
4	L2	546	2.9	546	2.9	0.514	23.4	LOS B	22.9	164.2	0.63	0.77	0.63	35.6
6	R2	429	2.2	429	2.2	0.918	80.5	LOS F	36.0	257.0	1.00	0.99	1.24	21.6
Approach		976	2.6	976	2.6	0.918	48.5	LOS D	36.0	257.0	0.79	0.86	0.90	27.6
North: Victoria Avenue (North)														
7	L2	379	1.7	379	1.7	0.931	76.5	LOS F	46.7	331.4	1.00	1.03	1.23	9.4
8	T1	756	1.8	756	1.8	0.931	72.2	LOS F	48.8	347.1	1.00	1.06	1.22	15.2
Approach		1135	1.8	1135	1.8	0.931	73.6	LOS F	48.8	347.1	1.00	1.05	1.22	13.4
West: Access Rd														
10	L2	38	2.8	38	2.8	0.094	9.3	LOS A	0.8	5.6	0.50	0.40	0.50	20.2
Approach		38	2.8	38	2.8	0.094	9.3	LOS A	0.8	5.6	0.50	0.40	0.50	20.2
All Vehicles		3865	1.9	3865	1.9	0.939	50.1	LOS D	48.8	347.1	0.80	0.85	1.01	20.5

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	
P1	South Full Crossing	53	69.3	LOS F	0.2	0.2	0.96	0.96	
P2	East Full Crossing	53	69.3	LOS F	0.2	0.2	0.96	0.96	
All Pedestrians		105	69.3	LOS F			0.96	0.96	

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

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

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

MOVEMENT SUMMARY

Site: 8AM [8AM Carrington Rd/ Doran Drive 2023]

Network: N101
[Network_am]

TCS4699
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 50 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total	HV	Total	HV									
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Carrington Road (East)														
5	T1	993	1.2	993	1.2	0.819	12.3	LOS B	22.5	158.9	0.83	0.86	0.96	24.3
6	R2	9	44.4	9	44.4	0.022	13.1	LOS B	0.1	1.2	0.66	0.63	0.66	25.7
Approach		1002	1.6	1002	1.6	0.819	12.3	LOS B	22.5	158.9	0.83	0.86	0.96	24.3
North: Doran Drive														
7	L2	22	14.3	22	14.3	0.033	14.4	LOS B	0.3	2.7	0.65	0.65	0.65	12.4
9	R2	41	25.6	41	25.6	0.216	27.1	LOS C	1.0	8.4	0.94	0.72	0.94	7.2
Approach		63	21.7	63	21.7	0.216	22.7	LOS C	1.0	8.4	0.84	0.70	0.84	8.5
West: Carrington Road (West)														
10	L2	38	22.2	38	22.2	0.261	16.9	LOS B	3.0	21.8	0.74	0.64	0.74	15.5
11	T1	306	2.1	306	2.1	0.261	12.4	LOS B	3.1	22.1	0.74	0.62	0.74	19.2
Approach		344	4.3	344	4.3	0.261	12.9	LOS B	3.1	22.1	0.74	0.62	0.74	18.5
All Vehicles		1409	3.1	1409	3.1	0.819	12.9	LOS B	22.5	158.9	0.81	0.80	0.90	22.1

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate	
P2	East Full Crossing	17	19.4	LOS B	0.0	0.0	0.88	0.88	
P3	North Full Crossing	34	19.4	LOS B	0.0	0.0	0.88	0.88	
All Pedestrians		51	19.4	LOS B			0.88	0.88	

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: 8PM [8PM Carrington Rd/ Doran Drive 2023]

Network: N101
[Network_pm]

TCS4699
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 50 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	
		veh/h	%	veh/h	%	v/c	sec		veh	m			km/h	
East: Carrington Road (East)														
5	T1	699	0.8	699	0.8	0.575	6.1	LOS A	10.2	71.7	0.64	0.57	0.64	32.7
6	R2	7	42.9	7	42.9	0.022	15.7	LOS B	0.1	1.1	0.75	0.64	0.75	23.6
Approach		706	1.2	706	1.2	0.575	6.2	LOS A	10.2	71.7	0.64	0.57	0.64	32.5
North: Doran Drive														
7	L2	27	15.4	27	15.4	0.041	14.5	LOS A	0.4	3.4	0.65	0.66	0.65	12.3
9	R2	66	17.5	66	17.5	0.331	27.5	LOS B	1.6	13.0	0.95	0.75	0.95	7.1
Approach		94	16.9	94	16.9	0.331	23.7	LOS B	1.6	13.0	0.87	0.72	0.87	8.2
West: Carrington Road (West)														
10	L2	37	20.0	37	20.0	0.693	20.5	LOS B	10.3	73.4	0.90	0.83	0.96	14.3
11	T1	901	0.4	901	0.4	0.693	16.0	LOS B	10.5	73.9	0.91	0.83	0.96	16.5
Approach		938	1.1	938	1.1	0.693	16.2	LOS B	10.5	73.9	0.91	0.83	0.96	16.4
All Vehicles		1738	2.0	1738	2.0	0.693	12.5	LOS A	10.5	73.9	0.79	0.72	0.83	21.1

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	Prop. Queued	Effective Stop Rate		
P2	East Full Crossing	20	19.4	LOS B	0.0	0.0	0.88	0.88	
P3	North Full Crossing	27	19.4	LOS B	0.0	0.0	0.88	0.88	
All Pedestrians		47	19.4	LOS B			0.88	0.88	

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: 9AM [9AM Carrington Rd/ De Clambe Drive 2023]

Network: N101
[Network_am]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Vehicles	Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Carrington Rd (Northeast)														
5	T1	1022	2.1	1022	2.1	0.266	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		1022	2.1	1022	2.1	0.266	0.0	NA	0.0	0.0	0.00	0.00	0.00	50.0
North: De Clambe Drive														
7	L2	20	0.0	20	0.0	0.015	3.2	LOS A	0.0	0.0	0.00	0.41	0.00	33.3
Approach		20	0.0	20	0.0	0.015	3.2	LOS A	0.0	0.0	0.00	0.41	0.00	33.3
West: Carrington Rd (Southwest)														
10	L2	26	4.0	26	4.0	0.019	4.7	LOS A	0.1	0.5	0.08	0.51	0.08	44.3
11	T1	326	4.8	326	4.8	0.173	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		353	4.8	353	4.8	0.173	0.4	NA	0.1	0.5	0.01	0.04	0.01	49.4
All Vehicles		1395	2.7	1395	2.7	0.266	0.1	NA	0.1	0.5	0.00	0.02	0.00	49.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
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: 9PM [9PM Carrington Rd/ De Clambe Drive 2023]

Network: N101
[Network_pm]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Carrington Rd (Northeast)														
5	T1	760	2.5	760	2.5	0.198	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		760	2.5	760	2.5	0.198	0.0	NA	0.0	0.0	0.00	0.00	0.00	50.0
North: De Clambe Drive														
7	L2	31	0.0	31	0.0	0.023	3.2	LOS A	0.0	0.0	0.00	0.41	0.00	33.3
Approach		31	0.0	31	0.0	0.023	3.2	LOS A	0.0	0.0	0.00	0.41	0.00	33.3
West: Carrington Rd (Southwest)														
10	L2	16	0.0	16	0.0	0.011	4.7	LOS A	0.0	0.3	0.08	0.50	0.08	44.3
11	T1	906	1.2	906	1.2	0.468	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		922	1.1	922	1.1	0.468	0.2	NA	0.0	0.3	0.00	0.01	0.00	49.8
All Vehicles		1713	1.7	1713	1.7	0.468	0.1	NA	0.0	0.3	0.00	0.01	0.00	49.6

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.

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Project: C:\Users\Shawn Cen\SCT_00061_Showground Precinct SSDA\3. Technical Work Area\1. Network Optimisation\RtS\6.SCT_00061_2023 FY01.sip8

2023 With development with infrastructure upgrades

MOVEMENT SUMMARY

Site: 3AM [3AM Showground Rd/Carrington Rd 2023]

Network: N101
[Network_am]

TCS2666
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	
		veh/h	%	veh/h	%	v/c	sec		veh	m			km/h	
SouthEast: Showground Road (South East)														
21	L2	629	1.2	629	1.2	0.763	32.3	LOS C	31.1	220.4	0.86	0.86	0.86	16.7
22	T1	719	7.8	719	7.8	0.763	27.6	LOS C	32.3	241.4	0.89	0.81	0.89	18.4
Approach		1348	4.7	1348	4.7	0.763	29.8	LOS C	32.3	241.4	0.88	0.83	0.88	17.6
NorthWest: Showground Road (North West)														
28	T1	1354	4.1	1354	4.1	0.385	1.4	LOS A	3.6	26.3	0.10	0.09	0.10	56.7
29	R2	406	1.3	406	1.3	0.773	61.4	LOS E	23.7	167.5	1.00	0.87	1.02	10.0
Approach		1760	3.5	1760	3.5	0.773	15.2	LOS B	23.7	167.5	0.31	0.27	0.31	34.9
SouthWest: Carrington Road														
30	L2	98	2.2	98	2.2	0.752	60.9	LOS E	12.1	86.5	1.00	0.88	1.11	12.3
32	R2	286	2.9	286	2.9	0.752	62.0	LOS E	12.1	86.5	1.00	0.88	1.12	17.6
Approach		384	2.7	384	2.7	0.752	61.7	LOS E	12.1	86.5	1.00	0.88	1.11	16.4
All Vehicles		3493	3.9	3493	3.9	0.773	26.0	LOS C	32.3	241.4	0.60	0.55	0.62	24.4

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Prop. Queued	Effective Stop Rate		
P7	NorthWest Full Crossing	4	54.2	LOS E	0.0	0.0	0.95	0.95	
P8	SouthWest Full Crossing	2	54.2	LOS E	0.0	0.0	0.95	0.95	
All Pedestrians		6	54.2	LOS E			0.95	0.95	

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

MOVEMENT SUMMARY

Site: 3PM [3PM Showground Rd/Carrington Rd 2023]

Network: N101
[Network_pm]

TCS2666
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 130 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Vehicles	Queue Distance	Prop. Queued	Effective Stop Rate	Aver. Cycles	No.Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Showground Road (South East)														
21	L2	460	0.9	460	0.9	0.945	60.5	LOS E	65.9	468.6	1.00	1.05	1.21	10.6
22	T1	1340	3.0	1340	3.0	0.945	55.3	LOS D	68.6	492.7	1.00	1.08	1.21	10.8
Approach		1800	2.5	1800	2.5	0.945	56.7	LOS E	68.6	492.7	1.00	1.07	1.21	10.7
NorthWest: Showground Road (North West)														
28	T1	913	3.3	913	3.3	0.310	11.4	LOS A	14.2	102.2	0.51	0.45	0.51	40.5
29	R2	191	0.0	191	0.0	0.941	65.0	LOS E	12.9	90.3	1.00	0.88	1.18	9.6
Approach		1103	2.8	1103	2.8	0.941	20.7	LOS B	14.2	102.2	0.60	0.53	0.63	30.8
SouthWest: Carrington Road														
30	L2	218	0.0	218	0.0	0.938	76.4	LOS F	37.8	264.5	1.00	1.03	1.32	10.3
32	R2	736	0.0	736	0.0	0.938	77.0	LOS F	37.8	264.5	1.00	1.03	1.32	15.2
Approach		954	0.0	954	0.0	0.938	76.9	LOS F	37.8	264.5	1.00	1.03	1.32	14.2
All Vehicles		3857	1.9	3857	1.9	0.945	51.4	LOS D	68.6	492.7	0.88	0.90	1.07	15.5

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	Prop. Queued	Effective Stop Rate		
P7	NorthWest Full Crossing	4	59.1	LOS E	0.0	0.0	0.95	0.95	
P8	SouthWest Full Crossing	1	59.1	LOS E	0.0	0.0	0.95	0.95	
All Pedestrians		5	59.1	LOS E			0.95	0.95	

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

MOVEMENT SUMMARY

 Site: 4AM [4AM Showground Rd/ Gilbert Rd 2023]

 Network: N101
[Network_am]

TCS2844

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. Cycles	No. Average Speed	
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h	
SouthEast: Showground Road (South East)														
22	T1	715	6.5	715	6.5	0.312	15.9	LOS B	14.2	104.8	0.71	0.62	0.71	48.9
23	R2	157	4.0	157	4.0	0.885	60.2	LOS E	9.6	69.4	1.00	0.86	1.12	19.7
Approach		872	6.0	872	6.0	0.885	23.9	LOS C	14.2	104.8	0.76	0.66	0.78	43.3
NorthEast: Gilbert Rd														
24	L2	401	3.1	401	3.1	0.539	32.4	LOS C	17.3	124.0	0.79	0.82	0.79	18.5
26	R2	897	1.8	897	1.8	0.913	67.8	LOS E	31.0	220.4	1.00	1.00	1.29	29.6
Approach		1298	2.2	1298	2.2	0.913	56.9	LOS E	31.0	220.4	0.94	0.94	1.13	28.2
NorthWest: Showground Road (North West)														
27	L2	728	4.6	728	4.6	0.412	5.8	LOS A	0.0	0.0	0.00	0.53	0.00	55.3
28	T1	1428	3.1	1428	3.1	0.889	41.0	LOS D	47.7	342.4	0.94	0.96	1.08	34.2
Approach		2157	3.6	2157	3.6	0.889	29.1	LOS C	47.7	342.4	0.62	0.81	0.71	40.2
All Vehicles		4326	3.7	4326	3.7	0.913	36.4	LOS D	47.7	342.4	0.74	0.82	0.85	36.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian	Back of Queue Distance m	Prop. Queued	Effective Stop Rate	
P5	SouthEast Full Crossing	4	54.2	LOS E	0.0	0.0	0.95	0.95	
P6	NorthEast Full Crossing	2	54.2	LOS E	0.0	0.0	0.95	0.95	
All Pedestrians		6	54.2	LOS E			0.95	0.95	

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

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

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

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Organisation: SCT CONSULTING PTY LTD | Processed: Wednesday, 6 May 2020 11:24:54 AM

Project: C:\Users\Shawn Cen\SCT_00061_Showground Precinct SSDA\3. Technical Work Area\1. Network Optimisation\RtS\7.SCT_00061_2023 FY1 I.sip8

MOVEMENT SUMMARY

Site: 4PM [4PM Showground Rd/ Gilbert Rd 2023]

Network: N101
[Network_pm]

TCS2844
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 130 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h
SouthEast: Showground Road (South East)													
22	T1	1389	2.1	1389	2.1	0.577	9.2	LOS A	21.6	154.2	0.39	0.35	53.1
23	R2	160	3.9	160	3.9	0.558	66.8	LOS E	10.0	72.5	1.00	1.00	18.4
Approach		1549	2.3	1549	2.3	0.577	15.1	LOS B	21.6	154.2	0.45	0.45	48.7
NorthEast: Gilbert Rd													
24	L2	274	1.5	274	1.5	0.325	27.3	LOS B	10.5	74.2	0.65	0.76	20.8
26	R2	535	2.8	535	2.8	0.561	49.0	LOS D	14.6	104.4	0.91	0.91	34.3
Approach		808	2.3	808	2.3	0.561	41.7	LOS C	14.6	104.4	0.82	0.81	32.3
NorthWest: Showground Road (North West)													
27	L2	817	1.3	817	1.3	0.451	5.7	LOS A	0.0	0.0	0.00	0.53	55.3
28	T1	897	1.8	897	1.8	0.558	30.1	LOS C	21.2	151.0	0.81	0.72	38.6
Approach		1714	1.5	1714	1.5	0.558	18.5	LOS B	21.2	151.0	0.42	0.63	46.0
All Vehicles		4072	2.0	4072	2.0	0.577	21.8	LOS B	21.6	154.2	0.51	0.58	44.0

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate	
P5	SouthEast Full Crossing	3	59.1	LOS E	0.0	0.0	0.95	0.95	
P6	NorthEast Full Crossing	3	59.1	LOS E	0.0	0.0	0.95	0.95	
All Pedestrians		6	59.1	LOS E			0.95	0.95	

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

MOVEMENT SUMMARY

Site: 5AM [5AM Showground Rd/ De Clambe Drive 2023]

Network: N101
[Network_am]

TCS4569
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Total	Flows HV	Arrival Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back Vehicles	of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Showground Road (South East)														
21	L2	24	47.8	24	47.8	0.024	7.2	LOS A	0.1	0.9	0.07	0.58	0.07	36.7
22	T1	788	6.3	788	6.3	0.341	2.0	LOS A	2.3	16.7	0.10	0.08	0.10	51.7
Approach		813	7.5	813	7.5	0.341	2.1	LOS A	2.3	16.7	0.09	0.10	0.09	50.8
NorthWest: Showground Road (North West)														
28	T1	1751	2.7	1751	2.7	0.562	1.4	LOS A	7.6	54.8	0.15	0.14	0.15	55.3
29	R2	89	8.2	89	8.2	0.141	6.9	LOS A	0.5	3.7	0.13	0.60	0.13	42.7
Approach		1840	3.0	1840	3.0	0.562	1.7	LOS A	7.6	54.8	0.15	0.16	0.15	54.2
SouthWest: De Clambe Drive														
30	L2	68	6.2	68	6.2	0.138	40.5	LOS D	3.0	22.4	0.80	0.73	0.80	8.5
32	R2	13	100.0	13	100.0	0.227	70.3	LOS E	0.8	10.2	0.99	0.69	0.99	5.4
Approach		81	20.8	81	20.8	0.227	45.1	LOS D	3.0	22.4	0.83	0.72	0.83	7.8
All Vehicles		2734	4.9	2734	4.9	0.562	3.1	LOS A	7.6	54.8	0.15	0.16	0.15	49.4

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

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P7	NorthWest Full Crossing	1	54.2	LOS E	0.0	0.0	0.95	0.95
P8	SouthWest Full Crossing	1	54.2	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		2	54.2	LOS E			0.95	0.95

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

MOVEMENT SUMMARY

 Site: 5PM [5PM Showground Rd/ De Clambe Drive 2023]

 Network: N101
[Network_pm]

TCS4569

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 130 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h	
SouthEast: Showground Road (South East)														
21	L2	26	56.0	26	56.0	0.024	7.2	LOS A	0.1	1.5	0.09	0.58	0.09	36.2
22	T1	1575	1.9	1575	1.9	0.572	4.5	LOS A	19.9	141.7	0.28	0.26	0.28	43.8
Approach		1601	2.8	1601	2.8	0.572	4.6	LOS A	19.9	141.7	0.28	0.26	0.28	43.6
NorthWest: Showground Road (North West)														
28	T1	1117	1.5	1117	1.5	0.351	0.6	LOS A	2.9	20.6	0.06	0.06	0.06	57.8
29	R2	66	4.8	66	4.8	0.257	7.6	LOS A	0.4	2.7	0.10	0.60	0.10	42.0
Approach		1183	1.7	1183	1.7	0.351	1.0	LOS A	2.9	20.6	0.06	0.09	0.06	56.2
SouthWest: De Clambe Drive														
30	L2	195	1.1	195	1.1	0.596	59.1	LOS E	11.6	81.9	0.98	0.82	0.98	6.2
32	R2	11	100.0	11	100.0	0.205	75.9	LOS F	0.7	9.2	0.99	0.69	0.99	5.0
Approach		205	6.2	205	6.2	0.596	60.0	LOS E	11.6	81.9	0.98	0.81	0.98	6.1
All Vehicles		2989	2.6	2989	2.6	0.596	7.0	LOS A	19.9	141.7	0.24	0.23	0.24	39.5

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	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P7	NorthWest Full Crossing	2	59.1	LOS E	0.0	0.0	0.95	0.95
P8	SouthWest Full Crossing	1	59.1	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		3	59.1	LOS E			0.95	0.95

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

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

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

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Organisation: SCT CONSULTING PTY LTD | Processed: Wednesday, 6 May 2020 11:38:07 AM

Project: C:\Users\Shawn Cen\SCT_00061_Showground Precinct SSDA\3. Technical Work Area\1. Network Optimisation\RtS\7.SCT_00061_2023 FY1 I.sip8

MOVEMENT SUMMARY

 Site: 6AM [6AM Carrington Rd/ Middleton Ave/ Andalusian Way 2023]

 Network: N101
[Network_am]

TCS4700

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 60 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Total HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. Cycles	No. Average Speed	
		veh/h	%	veh/h	%	v/c	sec	veh	m			km/h	
South: Middleton Avenue													
1	L2	169	3.7	169	3.7	0.662	23.6	LOS C	9.9	71.1	0.90	0.82	22.9
2	T1	111	0.0	111	0.0	0.662	19.0	LOS B	9.9	71.1	0.90	0.82	26.9
3	R2	107	2.9	107	2.9	0.662	23.6	LOS C	9.9	71.1	0.90	0.82	22.9
Approach		387	2.4	387	2.4	0.662	22.3	LOS C	9.9	71.1	0.90	0.82	24.2
East: Carrington Road (East)													
4	L2	138	2.3	138	2.3	0.812	28.2	LOS C	14.8	105.0	0.93	0.96	29.4
5	T1	836	1.1	836	1.1	0.812	23.6	LOS C	16.6	117.6	0.95	0.98	22.3
6	R2	61	0.0	61	0.0	0.812	28.1	LOS C	16.6	117.6	0.96	0.98	25.9
Approach		1035	1.2	1035	1.2	0.812	24.5	LOS C	16.6	117.6	0.95	0.97	23.8
North: Andalusian Way													
7	L2	48	0.0	48	0.0	0.174	20.0	LOS C	2.2	15.8	0.74	0.68	15.6
8	T1	37	2.9	37	2.9	0.174	15.5	LOS B	2.2	15.8	0.74	0.68	29.2
9	R2	21	0.0	21	0.0	0.174	20.1	LOS C	2.2	15.8	0.74	0.68	15.6
Approach		106	1.0	106	1.0	0.174	18.5	LOS B	2.2	15.8	0.74	0.68	21.9
West: Carrington Road (West)													
10	L2	1	0.0	1	0.0	0.323	18.8	LOS B	4.9	35.0	0.75	0.62	27.7
11	T1	232	3.2	232	3.2	0.323	14.2	LOS B	4.9	35.0	0.75	0.62	22.3
12	R2	99	3.2	99	3.2	0.533	32.4	LOS C	2.9	21.1	0.97	0.80	23.2
Approach		332	3.2	332	3.2	0.533	19.7	LOS B	4.9	35.0	0.81	0.67	22.7
All Vehicles		1860	1.8	1860	1.8	0.812	22.8	LOS C	16.6	117.6	0.90	0.87	23.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	14	24.3	LOS C	0.0	0.0	0.90	0.90
P2	East Full Crossing	6	24.3	LOS C	0.0	0.0	0.90	0.90
P3	North Full Crossing	7	24.3	LOS C	0.0	0.0	0.90	0.90
P4	West Full Crossing	44	24.3	LOS C	0.1	0.1	0.90	0.90
All Pedestrians		72	24.3	LOS C			0.90	0.90

MOVEMENT SUMMARY

 Site: 6PM [6PM Carrington Rd/ Middleton Ave/ Andalusian Way 2023]

 Network: N101
[Network_pm]

TCS4700

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 60 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Flows HV	Arrival Flows Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. Cycles	No.Average Speed	
		veh/h	%	veh/h	%	v/c	sec		veh	m			km/h	
South: Middleton Avenue														
1	L2	163	2.6	163	2.6	0.717	29.9	LOS C	9.0	63.7	0.97	0.89	1.09	19.6
2	T1	56	0.0	56	0.0	0.717	25.3	LOS B	9.0	63.7	0.97	0.89	1.09	23.6
3	R2	87	0.0	87	0.0	0.717	29.8	LOS C	9.0	63.7	0.97	0.89	1.09	19.6
Approach		306	1.4	306	1.4	0.717	29.0	LOS C	9.0	63.7	0.97	0.89	1.09	20.4
East: Carrington Road (East)														
4	L2	101	1.0	101	1.0	0.486	17.9	LOS B	8.8	62.3	0.77	0.69	0.77	35.4
5	T1	536	0.8	536	0.8	0.486	14.8	LOS B	8.8	62.3	0.79	0.70	0.79	27.7
6	R2	51	0.0	51	0.0	0.486	21.5	LOS B	6.4	45.3	0.83	0.72	0.83	29.5
Approach		687	0.8	687	0.8	0.486	15.8	LOS B	8.8	62.3	0.79	0.70	0.79	29.4
North: Andalusian Way														
7	L2	133	0.0	133	0.0	0.618	26.0	LOS B	8.3	58.1	0.93	0.80	0.93	13.2
8	T1	174	0.0	174	0.0	0.618	21.4	LOS B	8.3	58.1	0.93	0.80	0.93	26.3
9	R2	7	0.0	7	0.0	0.618	26.0	LOS B	8.3	58.1	0.93	0.80	0.93	13.2
Approach		314	0.0	314	0.0	0.618	23.4	LOS B	8.3	58.1	0.93	0.80	0.93	21.8
West: Carrington Road (West)														
10	L2	12	9.1	12	9.1	0.720	19.1	LOS B	14.3	100.4	0.83	0.77	0.87	27.1
11	T1	752	0.1	752	0.1	0.720	16.1	LOS B	14.3	100.4	0.86	0.80	0.91	20.4
12	R2	159	3.3	159	3.3	0.720	26.3	LOS B	9.3	65.7	0.93	0.89	1.05	26.7
Approach		922	0.8	922	0.8	0.720	17.9	LOS B	14.3	100.4	0.87	0.81	0.93	22.3
All Vehicles		2229	0.8	2229	0.8	0.720	19.5	LOS B	14.3	100.4	0.87	0.79	0.91	24.1

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	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	4	24.3	LOS C	0.0	0.0	0.90	0.90
P2	East Full Crossing	2	24.3	LOS C	0.0	0.0	0.90	0.90
P3	North Full Crossing	8	24.3	LOS C	0.0	0.0	0.90	0.90
P4	West Full Crossing	26	24.3	LOS C	0.0	0.0	0.90	0.90
All Pedestrians		41	24.3	LOS C			0.90	0.90

MOVEMENT SUMMARY

 Site: 7AM [7AM Carrington Road/ Victoria Avenue 2023]

 Network: N101
[Network_am]

New Site

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Flows HV	Arrival Flows Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Victoria Avenue (South)														
2	T1	683	3.2	683	3.2	0.298	9.8	LOS A	7.8	56.3	0.51	0.44	0.51	38.2
3	R2	388	1.9	388	1.9	0.818	49.1	LOS D	17.4	123.4	1.00	1.12	1.63	11.9
Approach		1072	2.8	1072	2.8	0.818	24.1	LOS C	17.4	123.4	0.69	0.69	0.92	25.9
East: Carrington Road														
4	L2	655	1.8	655	1.8	0.672	22.3	LOS C	22.9	162.8	0.78	0.82	0.78	36.1
6	R2	411	3.1	411	3.1	0.850	49.8	LOS D	21.6	155.4	1.00	0.96	1.20	27.5
Approach		1065	2.3	1065	2.3	0.850	32.9	LOS C	22.9	162.8	0.86	0.88	0.94	32.2
North: Victoria Avenue (North)														
7	L2	315	2.3	315	2.3	0.261	11.6	LOS B	6.0	43.1	0.43	0.67	0.43	30.1
8	T1	877	2.6	877	2.6	0.832	37.8	LOS D	26.4	189.0	0.94	0.93	1.09	22.9
Approach		1192	2.6	1192	2.6	0.832	30.9	LOS C	26.4	189.0	0.80	0.87	0.91	23.8
West: Access Rd														
10	L2	35	6.1	35	6.1	0.060	5.2	LOS A	0.5	3.5	0.44	0.34	0.44	21.8
Approach		35	6.1	35	6.1	0.060	5.2	LOS A	0.5	3.5	0.44	0.34	0.44	21.8
All Vehicles		3363	2.6	3363	2.6	0.850	29.1	LOS C	26.4	189.0	0.78	0.81	0.92	28.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94	
P2	East Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94	
All Pedestrians		105	44.3	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: 7PM [7PM Carrington Road/ Victoria Avenue 2023]

 Network: N101
[Network_pm]

New Site

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 150 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. Cycles	No. Average Speed	
		veh/h	%	veh/h	%	v/c	sec	veh	m			km/h	
South: Victoria Avenue (South)													
2	T1	1165	1.4	1165	1.4	0.474	14.2	LOS A	21.2	150.1	0.55	0.50	34.6
3	R2	614	1.4	614	1.4	0.935	79.9	LOS F	48.7	344.8	1.00	1.19	8.1
Approach		1779	1.4	1779	1.4	0.935	36.8	LOS C	48.7	344.8	0.71	0.74	20.8
East: Carrington Road													
4	L2	657	2.4	657	2.4	0.565	20.1	LOS B	26.2	186.9	0.60	0.76	37.1
6	R2	483	2.2	483	2.2	0.982	103.8	LOS F	47.0	335.2	1.00	1.08	18.6
Approach		1140	2.3	1140	2.3	0.982	55.6	LOS D	47.0	335.2	0.77	0.90	25.9
North: Victoria Avenue (North)													
7	L2	448	1.4	448	1.4	0.584	22.5	LOS B	17.6	124.9	0.59	0.74	21.9
8	T1	756	1.8	756	1.8	0.993	105.5	LOS F	51.2	363.9	0.96	1.21	11.6
Approach		1204	1.7	1204	1.7	0.993	74.6	LOS F	51.2	363.9	0.83	1.04	13.1
West: Access Rd													
10	L2	39	2.7	39	2.7	0.098	11.1	LOS A	0.9	6.5	0.54	0.43	19.5
Approach		39	2.7	39	2.7	0.098	11.1	LOS A	0.9	6.5	0.54	0.43	19.5
All Vehicles		4162	1.7	4162	1.7	0.993	52.7	LOS D	51.2	363.9	0.76	0.87	20.1

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	
P1	South Full Crossing	53	69.3	LOS F	0.2	0.2	0.96	0.96	
P2	East Full Crossing	53	69.3	LOS F	0.2	0.2	0.96	0.96	
All Pedestrians		105	69.3	LOS F			0.96	0.96	

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

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

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

MOVEMENT SUMMARY

Site: 8AM [8AM Carrington Rd/ Doran Drive 2023]

Network: N101
[Network_am]

TCS4699
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 50 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Carrington Road (East)														
5	T1	993	1.2	993	1.2	0.819	12.3	LOS B	22.5	158.9	0.83	0.86	0.96	24.3
6	R2	9	44.4	9	44.4	0.024	13.1	LOS B	0.1	1.2	0.67	0.64	0.67	25.6
Approach		1002	1.6	1002	1.6	0.819	12.3	LOS B	22.5	158.9	0.83	0.86	0.96	24.3
North: Doran Drive														
7	L2	22	14.3	22	14.3	0.033	14.4	LOS B	0.3	2.7	0.65	0.65	0.65	12.4
9	R2	97	10.9	97	10.9	0.463	28.0	LOS C	2.4	18.4	0.97	0.77	0.97	7.0
Approach		119	11.5	119	11.5	0.463	25.4	LOS C	2.4	18.4	0.91	0.74	0.91	7.7
West: Carrington Road (West)														
10	L2	184	4.6	184	4.6	0.373	17.5	LOS B	4.4	31.7	0.77	0.74	0.77	14.3
11	T1	306	2.1	306	2.1	0.373	13.1	LOS B	4.7	33.3	0.78	0.67	0.78	18.4
Approach		491	3.0	491	3.0	0.373	14.7	LOS B	4.7	33.3	0.78	0.69	0.78	16.2
All Vehicles		1612	2.7	1612	2.7	0.819	14.0	LOS B	22.5	158.9	0.82	0.80	0.90	20.1

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate	
P2	East Full Crossing	17	19.4	LOS B	0.0	0.0	0.88	0.88	
P3	North Full Crossing	34	19.4	LOS B	0.0	0.0	0.88	0.88	
All Pedestrians		51	19.4	LOS B			0.88	0.88	

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: 8PM [8PM Carrington Rd/ Doran Drive 2023]

Network: N101
[Network_pm]

TCS4699
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 50 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Total	Flows HV	Arrival Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Carrington Road (East)														
5	T1	699	0.8	699	0.8	0.594	6.8	LOS A	10.7	75.6	0.67	0.60	0.67	31.5
6	R2	7	42.9	7	42.9	0.023	18.6	LOS B	0.1	1.2	0.82	0.63	0.82	21.6
Approach		706	1.2	706	1.2	0.594	6.9	LOS A	10.7	75.6	0.67	0.60	0.67	31.3
North: Doran Drive														
7	L2	27	15.4	27	15.4	0.039	13.8	LOS A	0.4	3.2	0.63	0.65	0.63	12.8
9	R2	228	5.1	228	5.1	0.901	37.7	LOS C	7.2	52.6	1.00	1.15	1.75	5.4
Approach		256	6.2	256	6.2	0.901	35.1	LOS C	7.2	52.6	0.96	1.10	1.63	5.8
West: Carrington Road (West)														
10	L2	168	4.4	168	4.4	0.840	27.6	LOS B	14.6	103.7	0.98	1.06	1.28	12.0
11	T1	901	0.4	901	0.4	0.840	23.0	LOS B	15.1	105.9	0.98	1.06	1.28	12.6
Approach		1069	1.0	1069	1.0	0.840	23.8	LOS B	15.1	105.9	0.98	1.06	1.28	12.5
All Vehicles		2032	1.7	2032	1.7	0.901	19.3	LOS B	15.1	105.9	0.87	0.90	1.11	15.5

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	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P2	East Full Crossing	20	19.4	LOS B	0.0	0.0	0.88	0.88
P3	North Full Crossing	27	19.4	LOS B	0.0	0.0	0.88	0.88
All Pedestrians		47	19.4	LOS B			0.88	0.88

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: 9AM [9AM Carrington Rd/ De Clambe Drive 2023]

Network: N101
[Network_am]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Flows HV	Arrival Flows Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Carrington Rd (Northeast)														
5	T1	1078	2.0	1078	2.0	0.280	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		1078	2.0	1078	2.0	0.280	0.0	NA	0.0	0.0	0.00	0.00	0.00	50.0
North: De Clambe Drive														
7	L2	20	0.0	20	0.0	0.015	3.2	LOS A	0.0	0.0	0.00	0.41	0.00	33.3
Approach		20	0.0	20	0.0	0.015	3.2	LOS A	0.0	0.0	0.00	0.41	0.00	33.3
West: Carrington Rd (Southwest)														
10	L2	26	4.0	26	4.0	0.019	4.7	LOS A	0.1	0.5	0.08	0.50	0.08	44.3
11	T1	473	3.3	473	3.3	0.248	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		499	3.4	499	3.4	0.248	0.3	NA	0.1	0.5	0.00	0.03	0.00	49.5
All Vehicles		1597	2.4	1597	2.4	0.280	0.1	NA	0.1	0.5	0.00	0.01	0.00	49.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
 Vehicle movement LOS values are based on average delay per movement.
 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: 9PM [9PM Carrington Rd/ De Clambe Drive 2023]

Network: N101
[Network_pm]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Flows HV	Arrival Flows Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Carrington Rd (Northeast)														
5	T1	922	2.1	922	2.1	0.240	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		922	2.1	922	2.1	0.240	0.0	NA	0.0	0.0	0.00	0.00	0.00	50.0
North: De Clambe Drive														
7	L2	31	0.0	31	0.0	0.026	3.2	LOS A	0.0	0.0	0.00	0.41	0.00	33.3
Approach		31	0.0	31	0.0	0.026	3.2	LOS A	0.0	0.0	0.00	0.41	0.00	33.3
West: Carrington Rd (Southwest)														
10	L2	16	0.0	16	0.0	0.011	4.7	LOS A	0.0	0.3	0.08	0.50	0.08	44.3
11	T1	1038	1.0	1038	1.0	0.622	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
Approach		1054	1.0	1054	1.0	0.622	0.3	NA	0.0	0.3	0.00	0.01	0.00	49.7
All Vehicles		2006	1.5	2006	1.5	0.622	0.2	NA	0.0	0.3	0.00	0.01	0.00	49.5

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.

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Organisation: SCT CONSULTING PTY LTD | Processed: Wednesday, 6 May 2020 11:38:07 AM

Project: C:\Users\Shawn Cen\SCT_00061_Showground Precinct SSDA\3. Technical Work Area\1. Network Optimisation\RtS\7.SCT_00061_2023 FY1 I.sip8

2029 Background growth & no infrastructure upgrades

MOVEMENT SUMMARY

 Site: 3AM [3AM Showground Rd/Carrington Rd 2029]

 Network: N101
[Network_am]

TCS2666

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 128 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h
SouthEast: Showground Road (South East)													
21	L2	667	1.4	667	1.4	0.616	18.5	LOS B	25.4	181.2	0.60	0.76	24.5
22	T1	836	7.7	836	7.7	0.616	13.4	LOS B	26.7	199.1	0.62	0.59	28.3
Approach		1503	4.9	1503	4.9	0.616	15.6	LOS B	26.7	199.1	0.61	0.67	26.5
NorthWest: Showground Road (North West)													
28	T1	1607	4.1	1491	4.2	0.421	2.0	LOS A	6.1	44.5	0.14	0.12	55.4
29	R2	482	1.3	447	1.3	1.597	585.8	LOS F	43.8	310.1	1.00	2.07	1.2
Approach		2089	3.5	1938 ^{N1}	3.5	1.597	136.6	LOS F	43.8	310.1	0.33	0.57	7.8
SouthWest: Carrington Road													
30	L2	113	1.9	113	1.9	0.773	64.8	LOS E	13.4	96.1	1.00	0.89	11.7
32	R2	282	3.7	282	3.7	0.773	66.3	LOS E	13.4	96.1	1.00	0.89	16.8
Approach		395	3.2	395	3.2	0.773	65.8	LOS E	13.4	96.1	1.00	0.89	15.5
All Vehicles		3987	4.0	3836 ^{N1}	4.1	1.597	81.9	LOS F	43.8	310.1	0.51	0.64	10.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P7	NorthWest Full Crossing	4	58.2	LOS E	0.0	0.0	0.95	0.95
P8	SouthWest Full Crossing	2	58.1	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		6	58.1	LOS E			0.95	0.95

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

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

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

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Organisation: SCT CONSULTING PTY LTD | Processed: Tuesday, 5 May 2020 2:49:49 PM

Project: C:\Users\Shawn Cen\SCT_00061_Showground Precinct SSDA\3. Technical Work Area\1. Network Optimisation\RtS\8.SCT_00061_2029 FY0 I-B.sip8

MOVEMENT SUMMARY

 Site: 3PM [3PM Showground Rd/Carrington Rd 2029]

 Network: N101
[Network_pm]

TCS2666

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 131 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Arrival Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h	
SouthEast: Showground Road (South East)														
21	L2	487	1.1	487	1.1	1.095	157.8	LOS F	122.7	874.4	1.00	1.46	1.85	4.4
22	T1	1596	3.0	1596	3.0	1.095	151.7	LOS F	127.1	912.0	1.00	1.55	1.84	4.4
Approach		2083	2.5	2083	2.5	1.095	153.1	LOS F	127.1	912.0	1.00	1.53	1.84	4.4
NorthWest: Showground Road (North West)														
28	T1	1054	3.4	1054	3.4	0.384	9.3	LOS A	10.9	78.8	0.34	0.31	0.34	43.2
29	R2	220	0.0	220	0.0	1.367	363.2	LOS F	38.8	271.7	1.00	1.46	3.04	1.7
Approach		1274	2.8	1274	2.8	1.367	70.4	LOS E	38.8	271.7	0.46	0.50	0.81	12.9
SouthWest: Carrington Road														
30	L2	231	0.0	210	0.0	1.003	111.4	LOS F	40.1	280.6	1.00	1.15	1.60	7.6
32	R2	651	0.0	593	0.0	1.003	112.0	LOS F	40.1	280.6	1.00	1.15	1.61	11.6
Approach		881	0.0	803 ^{N1}	0.0	1.003	111.8	LOS F	40.1	280.6	1.00	1.15	1.61	10.6
All Vehicles		4238	2.1	4160 ^{N1}	2.1	1.367	119.8	LOS F	127.1	912.0	0.83	1.14	1.48	7.4

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P7	NorthWest Full Crossing	4	59.6	LOS E	0.0	0.0	0.95	0.95
P8	SouthWest Full Crossing	1	59.6	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		5	59.6	LOS E			0.95	0.95

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

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

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

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Project: C:\Users\Shawn Cen\SCT_00061_Showground Precinct SSDA\3. Technical Work Area\1. Network Optimisation\RtS\8.SCT_00061_2029 FY0 I-B.sip8

MOVEMENT SUMMARY

 Site: 4AM [4AM Showground Rd/ Gilbert Rd 2029]

 Network: N101
[Network_am]

TCS2844
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 128 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. Cycles	No.Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Showground Road (South East)														
22	T1	804	6.7	804	6.7	0.360	7.2	LOS A	7.2	53.5	0.28	0.24	0.28	54.4
23	R2	183	4.0	183	4.0	1.102	176.4	LOS F	20.8	150.6	1.00	1.30	2.15	8.4
Approach		987	6.2	987	6.2	1.102	38.6	LOS D	20.8	150.6	0.41	0.44	0.62	36.6
NorthEast: Gilbert Rd														
24	L2	413	3.1	413	3.1	0.539	33.2	LOS C	18.6	133.9	0.78	0.82	0.78	18.2
26	R2	923	1.7	923	1.7	0.874	61.3	LOS E	31.0	220.5	1.00	0.95	1.17	31.1
Approach		1336	2.1	1336	2.1	0.874	52.6	LOS D	31.0	220.5	0.93	0.91	1.05	29.3
NorthWest: Showground Road (North West)														
27	L2	864	4.6	864	4.6	0.488	5.8	LOS A	0.0	0.0	0.00	0.53	0.00	55.2
28	T1	1696	3.1	1696	3.1	1.104	162.7	LOS F	115.6	830.8	1.00	1.67	1.94	14.8
Approach		2560	3.6	2560	3.6	1.104	109.7	LOS F	115.6	830.8	0.66	1.28	1.29	20.7
All Vehicles		4883	3.7	4883	3.7	1.104	79.7	LOS E	115.6	830.8	0.69	1.01	1.09	24.9

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Prop. Queued	Effective Stop Rate		
P5	SouthEast Full Crossing	4	58.2	LOS E	0.0	0.0	0.95	0.95	
P6	NorthEast Full Crossing	2	58.1	LOS E	0.0	0.0	0.95	0.95	
All Pedestrians		6	58.1	LOS E			0.95	0.95	

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

MOVEMENT SUMMARY

 Site: 4PM [4PM Showground Rd/ Gilbert Rd 2029]

 Network: N101
[Network_pm]

TCS2844

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 131 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h
SouthEast: Showground Road (South East)													
22	T1	1575	2.2	1447	2.2	0.540	4.0	LOS A	13.9	99.2	0.21	0.19	56.8
23	R2	191	4.4	175	4.5	0.448	44.1	LOS D	8.5	61.7	0.80	0.77	23.9
Approach		1765	2.4	1622 ^{N1}	2.5	0.540	8.3	LOS A	13.9	99.2	0.27	0.26	53.1
NorthEast: Gilbert Rd													
24	L2	289	4.4	289	4.4	0.359	28.8	LOS C	11.6	84.1	0.68	0.77	20.0
26	R2	551	2.7	551	2.7	0.775	62.1	LOS E	17.6	125.7	1.00	0.89	30.9
Approach		840	3.3	840	3.3	0.775	50.6	LOS D	17.6	125.7	0.89	0.85	29.3
NorthWest: Showground Road (North West)													
27	L2	942	1.3	942	1.3	0.520	5.8	LOS A	0.0	0.0	0.00	0.53	55.3
28	T1	1034	1.7	1034	1.7	0.626	30.6	LOS C	25.4	180.1	0.84	0.74	38.4
Approach		1976	1.5	1976	1.5	0.626	18.7	LOS B	25.4	180.1	0.44	0.64	45.9
All Vehicles		4581	2.2	4438 ^{N1}	2.3	0.775	21.0	LOS B	25.4	180.1	0.46	0.54	44.4

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P5	SouthEast Full Crossing	3	59.6	LOS E	0.0	0.0	0.95	0.95
P6	NorthEast Full Crossing	3	59.6	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		6	59.6	LOS E			0.95	0.95

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

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

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

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Project: C:\Users\Shawn Cen\SCT_00061_Showground Precinct SSDA\3. Technical Work Area\1. Network Optimisation\RtS\8.SCT_00061_2029 FY0 I-B.sip8

MOVEMENT SUMMARY

 Site: 5AM [5AM Showground Rd/ De Clambe Drive 2029]

 Network: N101
[Network_am]

TCS4569

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 128 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		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: Showground Road (South East)														
21	L2	27	46.2	27	46.2	0.024	7.6	LOS A	0.2	2.0	0.13	0.59	0.13	36.3
22	T1	917	6.3	917	6.3	0.365	5.4	LOS A	6.8	50.3	0.25	0.23	0.25	41.6
Approach		944	7.5	944	7.5	0.365	5.5	LOS A	6.8	50.3	0.25	0.24	0.25	41.4
NorthWest: Showground Road (North West)														
28	T1	2079	2.7	1927	2.7	0.845	6.8	LOS A	32.9	236.0	0.36	0.36	0.38	42.6
29	R2	107	8.8	100	8.8	0.215	9.5	LOS A	1.3	9.6	0.26	0.64	0.26	39.4
Approach		2186	3.0	2026 ^{N1}	3.0	0.845	6.9	LOS A	32.9	236.0	0.35	0.37	0.38	42.3
SouthWest: De Clambe Drive														
30	L2	46	9.1	46	9.1	0.108	45.9	LOS D	2.3	17.1	0.82	0.72	0.82	7.7
32	R2	13	100.0	13	100.0	0.242	65.4	LOS E	0.8	9.9	0.95	0.69	0.95	5.7
Approach		59	28.6	59	28.6	0.242	50.1	LOS D	2.3	17.1	0.85	0.71	0.85	7.2
All Vehicles		3189	4.8	3029 ^{N1}	5.1	0.845	7.3	LOS A	32.9	236.0	0.33	0.34	0.35	40.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P7	NorthWest Full Crossing	1	58.1	LOS E	0.0	0.0	0.95	0.95
P8	SouthWest Full Crossing	1	58.1	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		2	58.1	LOS E			0.95	0.95

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

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

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

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Project: C:\Users\Shawn Cen\SCT_00061_Showground Precinct SSDA\3. Technical Work Area\1. Network Optimisation\RtS\8.SCT_00061_2029 FY0 I-B.sip8

MOVEMENT SUMMARY

 Site: 5PM [5PM Showground Rd/ De Clambe Drive 2029]

 Network: N101
[Network_pm]

TCS4569

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 131 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total	HV	Total	HV								
		veh/h	%	veh/h	%	v/c	sec		veh	m			km/h
SouthEast: Showground Road (South East)													
21	L2	32	56.7	29	56.9	0.028	8.5	LOS A	0.3	3.0	0.17	0.60	34.7
22	T1	1874	1.9	1712	1.9	0.679	9.5	LOS A	26.3	187.1	0.46	0.43	33.8
Approach		1905	2.8	1741 ^{N1}	2.8	0.679	9.5	LOS A	26.3	187.1	0.46	0.43	33.9
NorthWest: Showground Road (North West)													
28	T1	1288	1.6	1288	1.6	0.520	1.0	LOS A	4.4	31.5	0.09	0.08	56.4
29	R2	76	4.2	76	4.2	0.287	15.6	LOS B	1.6	11.6	0.35	0.67	33.7
Approach		1364	1.7	1364	1.7	0.520	1.8	LOS A	4.4	31.5	0.10	0.11	53.7
SouthWest: De Clambe Drive													
30	L2	128	1.6	128	1.6	0.292	49.5	LOS D	6.8	48.1	0.87	0.77	7.2
32	R2	11	100.0	11	100.0	0.181	68.2	LOS E	0.7	8.5	0.95	0.68	5.5
Approach		139	9.1	139	9.1	0.292	50.9	LOS D	6.8	48.1	0.88	0.77	7.0
All Vehicles		3408	2.6	3244 ^{N1}	2.8	0.679	8.0	LOS A	26.3	187.1	0.33	0.31	37.9

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Prop. Queued	Effective Stop Rate	
P7	NorthWest Full Crossing	2	59.6	LOS E	0.0	0.0	0.95	0.95
P8	SouthWest Full Crossing	1	59.6	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		3	59.6	LOS E			0.95	0.95

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

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

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

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Project: C:\Users\Shawn Cen\SCT_00061_Showground Precinct SSDA\3. Technical Work Area\1. Network Optimisation\RtS\8.SCT_00061_2029 FY0 I-B.sip8

MOVEMENT SUMMARY

 Site: 6AM [6AM Carrington Rd/ Middleton Ave/ Andalusian Way 2029]

 Network: N101
[Network_am]

TCS4700

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 64 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. Cycles	No. Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m			km/h
South: Middleton Avenue													
1	L2	169	3.7	169	3.7	0.808	35.7	LOS D	10.7	77.1	1.00	0.98	17.4
2	T1	37	0.0	37	0.0	0.808	31.0	LOS C	10.7	77.1	1.00	0.98	21.3
3	R2	107	2.9	107	2.9	0.808	35.6	LOS D	10.7	77.1	1.00	0.98	17.4
Approach		314	3.0	314	3.0	0.808	35.1	LOS D	10.7	77.1	1.00	0.98	17.9
East: Carrington Road (East)													
4	L2	260	2.0	214	2.1	0.724	19.8	LOS B	10.2	72.4	0.75	0.76	33.4
5	T1	883	1.1	728	1.1	0.724	13.4	LOS B	11.4	80.8	0.72	0.69	29.2
6	R2	4	0.0	3	0.0	0.724	17.1	LOS B	11.4	80.8	0.71	0.66	33.3
Approach		1147	1.3	945 ^{N1}	1.3	0.724	14.8	LOS B	11.4	80.8	0.73	0.71	30.6
North: Andalusian Way													
7	L2	6	0.0	6	0.0	0.116	25.9	LOS C	1.2	8.3	0.82	0.68	12.9
8	T1	19	5.6	19	5.6	0.116	21.3	LOS C	1.2	8.3	0.82	0.68	25.9
9	R2	21	0.0	21	0.0	0.116	25.9	LOS C	1.2	8.3	0.82	0.68	12.9
Approach		46	2.3	46	2.3	0.116	24.0	LOS C	1.2	8.3	0.82	0.68	19.6
West: Carrington Road (West)													
10	L2	1	0.0	1	0.0	0.146	13.3	LOS B	2.3	16.6	0.55	0.45	33.1
11	T1	266	3.2	266	3.2	0.645	14.2	LOS B	6.8	48.6	0.71	0.63	21.5
12	R2	114	2.8	114	2.8	0.645	24.8	LOS C	6.8	48.6	0.89	0.82	27.5
Approach		381	3.0	381	3.0	0.645	17.4	LOS B	6.8	48.6	0.76	0.68	24.3
All Vehicles		1888	2.0	1686 ^{N1}	2.2	0.808	19.4	LOS B	11.4	80.8	0.79	0.75	25.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Prop. Queued	Effective Stop Rate		
P1	South Full Crossing	14	26.3	LOS C	0.0	0.0	0.91	0.91	
P2	East Full Crossing	6	26.3	LOS C	0.0	0.0	0.91	0.91	
P3	North Full Crossing	7	26.3	LOS C	0.0	0.0	0.91	0.91	
P4	West Full Crossing	44	26.3	LOS C	0.1	0.1	0.91	0.91	

MOVEMENT SUMMARY

 Site: 6PM [6PM Carrington Rd/ Middleton Ave/ Andalusian Way 2029]

 Network: N101
[Network_pm]

TCS4700

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 62 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Total HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. Cycles	No. Average Speed	
		veh/h	%	veh/h	%	v/c	sec	veh	m			km/h	
South: Middleton Avenue													
1	L2	189	2.8	189	2.8	0.830	36.4	LOS C	10.1	71.4	1.00	1.00	17.1
2	T1	18	0.0	18	0.0	0.830	31.8	LOS C	10.1	71.4	1.00	1.00	20.9
3	R2	87	0.0	87	0.0	0.830	36.4	LOS C	10.1	71.4	1.00	1.00	17.1
Approach		295	1.8	295	1.8	0.830	36.1	LOS C	10.1	71.4	1.00	1.00	17.3
East: Carrington Road (East)													
4	L2	117	0.9	101	1.0	0.329	15.8	LOS B	5.8	41.2	0.67	0.63	36.6
5	T1	619	0.9	532	0.9	0.329	10.1	LOS A	5.8	41.2	0.64	0.57	32.4
6	R2	1	0.0	1	0.0	0.329	14.0	LOS A	5.8	41.0	0.62	0.53	36.1
Approach		737	0.9	634 ^{N1}	0.9	0.329	11.0	LOS A	5.8	41.2	0.64	0.58	33.4
North: Andalusian Way													
7	L2	9	0.0	9	0.0	0.087	25.4	LOS B	0.9	6.3	0.82	0.65	13.4
8	T1	20	0.0	20	0.0	0.087	20.8	LOS B	0.9	6.3	0.82	0.65	26.5
9	R2	7	0.0	7	0.0	0.087	25.4	LOS B	0.9	6.3	0.82	0.65	13.4
Approach		37	0.0	37	0.0	0.087	22.9	LOS B	0.9	6.3	0.82	0.65	21.9
West: Carrington Road (West)													
10	L2	13	8.3	12	8.7	0.243	13.5	LOS A	3.9	27.8	0.59	0.50	32.2
11	T1	798	0.1	736	0.1	1.074	85.9	LOS F	33.8	238.3	0.87	1.61	5.8
12	R2	168	3.1	156	3.3	1.074	124.0	LOS F	33.8	238.3	1.00	2.10	9.5
Approach		979	0.8	903 ^{N1}	0.8	1.074	91.5	LOS F	33.8	238.3	0.89	1.68	6.8
All Vehicles		2047	0.9	1868 ^{N1}	1.0	1.074	54.1	LOS D	33.8	238.3	0.82	1.18	12.4

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian	Prop. Queued	Effective Stop Rate	
					ped			
P1	South Full Crossing	4	25.3	LOS C	0.0	0.0	0.90	0.90
P2	East Full Crossing	2	25.3	LOS C	0.0	0.0	0.90	0.90
P3	North Full Crossing	8	25.3	LOS C	0.0	0.0	0.90	0.90
P4	West Full Crossing	26	25.3	LOS C	0.0	0.0	0.90	0.90

MOVEMENT SUMMARY

 Site: 7AM [7AM Carrington Road/ Victoria Avenue 2029]

 Network: N101
[Network_am]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows HV Total		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: Victoria Avenue (South)														
2	T1	831	3.3	831	3.3	0.655	8.8	LOS A	8.2	58.9	0.93	0.87	1.06	39.8
3	R2	389	2.4	389	2.4	0.655	13.5	LOS B	8.0	57.2	0.93	0.92	1.10	28.8
3u	U	21	0.0	21	0.0	0.655	15.0	LOS B	8.0	57.2	0.93	0.92	1.10	37.3
Approach		1241	3.0	1241	3.0	0.655	10.4	LOS B	8.2	58.9	0.93	0.88	1.08	37.0
East: Carrington Road														
4	L2	655	1.8	563	2.0	0.879	21.9	LOS C	11.9	84.4	1.00	1.41	1.98	36.2
6	R2	417	3.3	359	3.6	0.760	21.5	LOS C	6.8	48.9	0.97	1.21	1.52	37.6
6u	U	3	0.0	3	0.0	0.760	22.9	LOS C	6.8	48.9	0.97	1.21	1.52	34.3
Approach		1075	2.4	925 ^{N1}	2.6	0.879	21.7	LOS C	11.9	84.4	0.99	1.33	1.80	36.7
North: Victoria Avenue (North)														
7	L2	267	3.1	267	3.1	0.725	11.6	LOS B	10.5	75.4	1.00	1.01	1.29	30.3
8	T1	984	2.7	984	2.7	0.725	12.6	LOS B	10.5	75.4	1.00	1.05	1.32	36.7
9u	U	16	0.0	16	0.0	0.725	18.5	LOS B	10.1	72.1	1.00	1.07	1.34	37.4
Approach		1267	2.7	1267	2.7	0.725	12.4	LOS B	10.5	75.4	1.00	1.04	1.31	35.7
West: Access Rd														
10	L2	40	5.3	40	5.3	0.183	5.2	LOS A	0.8	5.9	0.77	0.77	0.77	21.7
11	T1	16	0.0	16	0.0	0.183	5.0	LOS A	0.8	5.9	0.77	0.77	0.77	8.3
12	R2	19	5.6	19	5.6	0.183	5.2	LOS A	0.8	5.9	0.77	0.77	0.77	21.3
Approach		75	4.2	75	4.2	0.183	5.2	LOS A	0.8	5.9	0.77	0.77	0.77	19.6
All Vehicles		3658	2.7	3508 ^{N1}	2.9	0.879	14.0	LOS B	11.9	84.4	0.97	1.06	1.35	36.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

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

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

Roundabout Capacity Model: SIDRA Standard.

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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Project: C:\Users\Shawn Cen\SCT_00061_Showground Precinct SSDA\3. Technical Work Area\1. Network Optimisation\RtS\8.SCT_00061_2029 FY0 I-B.sip8

MOVEMENT SUMMARY

 Site: 7PM [7PM Carrington Road/ Victoria Avenue 2029]

 Network: N101
[Network_pm]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h
South: Victoria Avenue (South)													
2	T1	1304	1.5	1304	1.5	1.165	171.6	LOS F	122.1	865.0	1.00	4.67	8.15
3	R2	618	1.5	618	1.5	1.165	178.3	LOS F	104.1	738.0	1.00	4.42	7.87
3u	U	19	0.0	19	0.0	1.165	179.8	LOS F	104.1	738.0	1.00	4.42	7.87
Approach		1941	1.5	1941	1.5	1.165	173.8	LOS F	122.1	865.0	1.00	4.59	8.06
East: Carrington Road													
4	L2	629	2.8	581	3.1	0.823	16.8	LOS B	10.2	73.4	1.00	1.29	1.68
6	R2	496	2.3	457	2.5	0.811	22.4	LOS B	9.0	64.1	1.00	1.28	1.68
6u	U	3	0.0	3	0.0	0.811	23.9	LOS B	9.0	64.1	1.00	1.28	1.68
Approach		1128	2.6	1041 ^{N1}	2.8	0.823	19.3	LOS B	10.2	73.4	1.00	1.29	1.68
North: Victoria Avenue (North)													
7	L2	411	1.5	411	1.5	0.863	23.2	LOS B	18.2	129.0	1.00	1.37	1.88
8	T1	820	1.8	820	1.8	0.863	25.5	LOS B	18.2	129.0	1.00	1.41	1.93
9u	U	39	5.4	39	5.4	0.863	32.3	LOS C	16.7	118.8	1.00	1.43	1.96
Approach		1269	1.8	1269	1.8	0.863	25.0	LOS B	18.2	129.0	1.00	1.40	1.92
West: Access Rd													
10	L2	40	2.6	40	2.6	0.248	9.6	LOS A	1.2	8.3	0.87	0.87	0.87
11	T1	13	8.3	13	8.3	0.248	10.0	LOS A	1.2	8.3	0.87	0.87	0.87
12	R2	13	0.0	13	0.0	0.248	9.5	LOS A	1.2	8.3	0.87	0.87	0.87
Approach		65	3.2	65	3.2	0.248	9.7	LOS A	1.2	8.3	0.87	0.87	0.87
All Vehicles		4404	1.9	4317 ^{N1}	1.9	1.165	90.3	LOS F	122.1	865.0	1.00	2.80	4.61

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.

Roundabout Capacity Model: SIDRA Standard.

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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Project: C:\Users\Shawn Cen\SCT_00061_Showground Precinct SSDA\3. Technical Work Area\1. Network Optimisation\RtS\8.SCT_00061_2029 FY0 I-B.sip8

MOVEMENT SUMMARY

 Site: 8AM [8AM Carrington Rd/ Doran Drive 2029]

 Network: N101
[Network_am]

TCS4699

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 85 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Carrington Road (East)														
5	T1	1054	1.2	901	1.3	0.594	4.2	LOS A	15.3	108.2	0.45	0.42	0.45	36.7
6	R2	9	44.4	8	45.9	0.016	9.7	LOS A	0.1	1.0	0.39	0.59	0.39	29.0
Approach		1063	1.6	909 ^{N1}	1.7	0.594	4.2	LOS A	15.3	108.2	0.45	0.42	0.45	36.6
North: Doran Drive														
7	L2	22	14.3	22	14.3	0.059	32.9	LOS C	0.7	5.8	0.83	0.69	0.83	6.3
9	R2	41	25.6	41	25.6	0.183	39.9	LOS D	1.6	13.3	0.92	0.73	0.92	5.1
Approach		63	21.7	63	21.7	0.183	37.5	LOS D	1.6	13.3	0.89	0.71	0.89	5.5
West: Carrington Road (West)														
10	L2	42	25.0	42	25.0	0.167	10.8	LOS B	3.1	23.0	0.42	0.42	0.42	18.5
11	T1	354	2.1	353	2.1	0.167	6.3	LOS A	3.3	23.3	0.42	0.38	0.42	27.3
Approach		396	4.5	396	4.5	0.167	6.8	LOS A	3.3	23.3	0.42	0.39	0.42	25.5
All Vehicles		1522	3.2	1368 ^{N1}	3.5	0.594	6.5	LOS A	15.3	108.2	0.46	0.42	0.46	30.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate	
P2	East Full Crossing	17	36.7	LOS D	0.0	0.0	0.93	0.93	
P3	North Full Crossing	34	36.8	LOS D	0.1	0.1	0.93	0.93	
All Pedestrians		51	36.8	LOS D			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.

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MOVEMENT SUMMARY

 Site: 8PM [8PM Carrington Rd/ Doran Drive 2029]

 Network: N101
[Network_pm]

TCS4699

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 64 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Total HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h	
East: Carrington Road (East)														
5	T1	806	0.8	720	0.8	0.480	3.0	LOS A	8.3	58.4	0.40	0.36	0.40	39.8
6	R2	8	37.5	8	39.3	0.026	11.8	LOS A	0.1	1.0	0.54	0.62	0.54	26.8
Approach		815	1.2	728 ^{N1}	1.3	0.480	3.1	LOS A	8.3	58.4	0.40	0.36	0.40	39.5
North: Doran Drive														
7	L2	27	15.4	27	15.4	0.076	26.6	LOS B	0.7	5.6	0.84	0.69	0.84	7.5
9	R2	66	17.5	66	17.5	0.318	33.2	LOS C	2.0	16.2	0.95	0.75	0.95	6.1
Approach		94	16.9	94	16.9	0.318	31.3	LOS C	2.0	16.2	0.92	0.73	0.92	6.4
West: Carrington Road (West)														
10	L2	38	19.4	35	19.5	0.531	12.3	LOS A	10.9	77.3	0.62	0.56	0.62	18.0
11	T1	956	0.3	879	0.3	0.531	7.2	LOS A	10.9	77.3	0.58	0.51	0.58	26.0
Approach		994	1.1	914 ^{N1}	1.1	0.531	7.4	LOS A	10.9	77.3	0.58	0.52	0.58	25.4
All Vehicles		1902	1.9	1735 ^{N1}	2.1	0.531	6.9	LOS A	10.9	77.3	0.52	0.46	0.52	28.4

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P2	East Full Crossing	20	26.3	LOS C	0.0	0.0	0.91	0.91
P3	North Full Crossing	27	26.3	LOS C	0.0	0.0	0.91	0.91
All Pedestrians		47	26.3	LOS C			0.91	0.91

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

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

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

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MOVEMENT SUMMARY

Site: 9AM [9AM Carrington Rd/ De Clambe Drive 2029]

Network: N101
[Network_am]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Total HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h	
East: Carrington Rd (Northeast)														
5	T1	1085	2.1	934	2.4	0.243	0.0	LOS A	0.0	0.0	0.00	0.00	50.0	
Approach		1085	2.1	934 ^{N1}	2.4	0.243	0.0	NA	0.0	0.0	0.00	0.00	50.0	
North: De Clambe Drive														
7	L2	20	0.0	20	0.0	0.015	3.2	LOS A	0.0	0.0	0.00	0.41	33.3	
Approach		20	0.0	20	0.0	0.015	3.2	LOS A	0.0	0.0	0.00	0.41	33.3	
West: Carrington Rd (Southwest)														
10	L2	29	3.6	29	3.6	0.021	4.7	LOS A	0.1	0.6	0.09	0.50	44.2	
11	T1	376	4.8	376	4.8	0.199	0.0	LOS A	0.0	0.0	0.00	0.00	50.0	
Approach		405	4.7	405	4.7	0.199	0.4	NA	0.1	0.6	0.01	0.04	49.4	
All Vehicles		1511	2.8	1359 ^{N1}	3.1	0.243	0.2	NA	0.1	0.6	0.00	0.02	49.3	

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

Site: 9PM [9PM Carrington Rd/ De Clambe Drive 2029]

Network: N101
[Network_pm]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Arrival Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h	
East: Carrington Rd (Northeast)														
5	T1	877	2.5	790	2.8	0.206	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		877	2.5	790 ^{N1}	2.8	0.206	0.0	NA	0.0	0.0	0.00	0.00	0.00	50.0
North: De Clambe Drive														
7	L2	31	0.0	31	0.0	0.023	3.2	LOS A	0.0	0.0	0.00	0.41	0.00	33.3
Approach		31	0.0	31	0.0	0.023	3.2	LOS A	0.0	0.0	0.00	0.41	0.00	33.3
West: Carrington Rd (Southwest)														
10	L2	17	0.0	15	0.0	0.011	4.7	LOS A	0.0	0.3	0.09	0.50	0.09	44.3
11	T1	962	1.2	882	1.2	0.456	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		979	1.2	897 ^{N1}	1.2	0.456	0.2	NA	0.0	0.3	0.00	0.01	0.00	49.8
All Vehicles		1886	1.8	1718 ^{N1}	2.0	0.456	0.1	NA	0.0	0.3	0.00	0.01	0.00	49.6

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.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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2029 Background growth with infrastructure upgrades

MOVEMENT SUMMARY

 Site: 3AM [3AM Showground Rd/Carrington Rd 2029]

 Network: N101
[Network_am]

TCS2666

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed		
		veh/h	%	veh/h	%	v/c	sec	veh	m			km/h		
SouthEast: Showground Road (South East)														
21	L2	667	1.4	667	1.4	0.724	25.6	LOS C	30.8	219.6	0.77	0.82	0.77	19.8
22	T1	836	7.7	836	7.7	0.724	20.8	LOS C	32.3	241.3	0.80	0.74	0.80	22.1
Approach		1503	4.9	1503	4.9	0.724	22.9	LOS C	32.3	241.3	0.79	0.78	0.79	21.0
NorthWest: Showground Road (North West)														
28	T1	1607	4.1	1607	4.1	0.463	1.5	LOS A	5.0	36.3	0.10	0.10	0.10	56.5
29	R2	482	1.3	482	1.3	0.739	65.7	LOS E	14.3	101.4	1.00	0.84	1.04	9.5
Approach		2089	3.5	2089	3.5	0.739	16.3	LOS B	14.3	101.4	0.31	0.27	0.32	33.9
SouthWest: Carrington Road														
30	L2	113	1.9	113	1.9	0.723	58.4	LOS E	12.3	87.8	1.00	0.86	1.07	12.7
32	R2	282	3.7	282	3.7	0.723	60.0	LOS E	12.3	87.8	1.00	0.86	1.08	18.0
Approach		395	3.2	395	3.2	0.723	59.5	LOS E	12.3	87.8	1.00	0.86	1.08	16.6
All Vehicles		3987	4.0	3987	4.0	0.739	23.1	LOS C	32.3	241.3	0.56	0.52	0.57	26.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Prop. Queued	Effective Stop Rate		
P7	NorthWest Full Crossing	4	54.2	LOS E	0.0	0.0	0.95	0.95	
P8	SouthWest Full Crossing	2	54.2	LOS E	0.0	0.0	0.95	0.95	
All Pedestrians		6	54.2	LOS E			0.95	0.95	

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

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

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

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MOVEMENT SUMMARY

 Site: 3PM [3PM Showground Rd/Carrington Rd 2029]

 Network: N101
[Network_pm]

TCS2666

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 130 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h
SouthEast: Showground Road (South East)													
21	L2	487	1.1	487	1.1	0.969	65.2	LOS E	79.7	567.9	0.98	1.08	9.9
22	T1	1596	3.0	1596	3.0	0.969	60.1	LOS E	86.0	617.6	0.99	1.12	10.1
Approach		2083	2.5	2083	2.5	0.969	61.3	LOS E	86.0	617.6	0.99	1.11	10.1
NorthWest: Showground Road (North West)													
28	T1	1054	3.4	1054	3.4	0.342	10.9	LOS A	17.9	128.7	0.53	0.47	41.2
29	R2	220	0.0	220	0.0	0.931	74.5	LOS F	7.6	53.0	1.00	0.86	8.5
Approach		1274	2.8	1274	2.8	0.931	21.9	LOS B	17.9	128.7	0.61	0.54	30.0
SouthWest: Carrington Road													
30	L2	231	0.0	231	0.0	0.977	94.2	LOS F	38.7	270.7	1.00	1.10	8.7
32	R2	651	0.0	651	0.0	0.977	94.7	LOS F	38.7	270.7	1.00	1.10	13.1
Approach		881	0.0	881	0.0	0.977	94.6	LOS F	38.7	270.7	1.00	1.10	12.1
All Vehicles		4238	2.1	4238	2.1	0.977	56.4	LOS D	86.0	617.6	0.88	0.94	14.2

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	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P7	NorthWest Full Crossing	4	59.1	LOS E	0.0	0.0	0.95	0.95
P8	SouthWest Full Crossing	1	59.1	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		5	59.1	LOS E			0.95	0.95

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

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

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

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MOVEMENT SUMMARY

 Site: 4AM [4AM Showground Rd/ Gilbert Rd 2029]

 Network: N101
[Network_am]

TCS2844

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows HV Total		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: Showground Road (South East)														
22	T1	804	6.7	804	6.7	0.388	20.6	LOS C	17.8	132.0	0.78	0.69	0.78	46.3
23	R2	183	4.0	183	4.0	0.775	64.3	LOS E	11.1	80.7	1.00	0.89	1.15	19.0
Approach		987	6.2	987	6.2	0.775	28.7	LOS C	17.8	132.0	0.82	0.72	0.85	41.0
NorthEast: Gilbert Rd														
24	L2	413	3.1	413	3.1	0.458	24.5	LOS C	14.9	107.2	0.67	0.78	0.67	22.3
26	R2	923	1.7	923	1.7	0.779	45.8	LOS D	25.1	178.5	0.96	0.89	1.00	35.4
Approach		1336	2.1	1336	2.1	0.779	39.2	LOS D	25.1	178.5	0.87	0.86	0.90	33.7
NorthWest: Showground Road (North West)														
27	L2	864	4.6	864	4.6	0.488	5.8	LOS A	0.0	0.0	0.00	0.53	0.00	55.2
28	T1	1696	3.1	1696	3.1	0.801	38.1	LOS D	30.6	219.9	0.96	0.89	1.00	35.3
Approach		2560	3.6	2560	3.6	0.801	27.2	LOS C	30.6	219.9	0.64	0.77	0.66	41.1
All Vehicles		4883	3.7	4883	3.7	0.801	30.8	LOS C	30.6	219.9	0.74	0.78	0.77	39.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Prop. Queued	Effective Stop Rate		
P5	SouthEast Full Crossing	4	54.2	LOS E	0.0	0.0	0.95	0.95	
P6	NorthEast Full Crossing	2	54.2	LOS E	0.0	0.0	0.95	0.95	
All Pedestrians		6	54.2	LOS E			0.95	0.95	

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

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

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

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MOVEMENT SUMMARY

Site: 4PM [4PM Showground Rd/ Gilbert Rd 2029]

Network: N101
[Network_pm]

TCS2844
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 130 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h
SouthEast: Showground Road (South East)													
22	T1	1575	2.2	1575	2.2	0.631	6.5	LOS A	20.3	144.9	0.32	0.30	54.9
23	R2	191	4.4	191	4.4	0.483	53.3	LOS D	10.3	74.6	0.89	0.80	21.4
Approach		1765	2.4	1765	2.4	0.631	11.6	LOS A	20.3	144.9	0.38	0.35	50.9
NorthEast: Gilbert Rd													
24	L2	289	4.4	289	4.4	0.325	24.4	LOS B	10.4	75.4	0.61	0.75	22.3
26	R2	551	2.7	551	2.7	0.630	52.3	LOS D	15.6	111.8	0.94	0.84	33.5
Approach		840	3.3	840	3.3	0.630	42.7	LOS D	15.6	111.8	0.83	0.81	31.9
NorthWest: Showground Road (North West)													
27	L2	942	1.3	942	1.3	0.520	5.8	LOS A	0.0	0.0	0.00	0.53	55.3
28	T1	1034	1.7	1034	1.7	0.472	32.0	LOS C	16.3	115.6	0.80	0.70	37.7
Approach		1976	1.5	1976	1.5	0.520	19.5	LOS B	16.3	115.6	0.42	0.62	45.5
All Vehicles		4581	2.2	4581	2.2	0.631	20.7	LOS B	20.3	144.9	0.48	0.55	44.6

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	Back of Queue Distance m	Prop. Queued	Effective Stop Rate	
P5	SouthEast Full Crossing	3	59.1	LOS E	0.0	0.0	0.95	0.95	
P6	NorthEast Full Crossing	3	59.1	LOS E	0.0	0.0	0.95	0.95	
All Pedestrians		6	59.1	LOS E			0.95	0.95	

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

MOVEMENT SUMMARY

 Site: 5AM [5AM Showground Rd/ De Clambe Drive 2029]

 Network: N101
[Network_am]

TCS4569

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Showground Road (South East)														
21	L2	27	46.2	27	46.2	0.027	8.6	LOS A	0.2	2.1	0.14	0.59	0.14	35.2
22	T1	917	6.3	917	6.3	0.397	5.1	LOS A	6.1	44.7	0.23	0.20	0.23	42.4
Approach		944	7.5	944	7.5	0.397	5.2	LOS A	6.1	44.7	0.23	0.22	0.23	42.0
NorthWest: Showground Road (North West)														
28	T1	2079	2.7	2079	2.7	0.667	2.1	LOS A	13.3	95.2	0.23	0.21	0.23	53.2
29	R2	107	8.8	107	8.8	0.191	9.1	LOS A	1.4	10.2	0.27	0.65	0.27	39.9
Approach		2186	3.0	2186	3.0	0.667	2.4	LOS A	13.3	95.2	0.23	0.23	0.23	52.1
SouthWest: De Clambe Drive														
30	L2	46	9.1	46	9.1	0.095	40.1	LOS D	2.0	15.3	0.79	0.71	0.79	8.6
32	R2	13	100.0	13	100.0	0.227	70.3	LOS E	0.8	10.2	0.99	0.69	0.99	5.4
Approach		59	28.6	59	28.6	0.227	46.5	LOS D	2.0	15.3	0.83	0.71	0.83	7.6
All Vehicles		3189	4.8	3189	4.8	0.667	4.1	LOS A	13.3	95.2	0.24	0.24	0.24	47.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate	
P7	NorthWest Full Crossing	1	54.2	LOS E	0.0	0.0	0.95	0.95	
P8	SouthWest Full Crossing	1	54.2	LOS E	0.0	0.0	0.95	0.95	
All Pedestrians		2	54.2	LOS E			0.95	0.95	

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

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

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

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MOVEMENT SUMMARY

 Site: 5PM [5PM Showground Rd/ De Clambe Drive 2029]

 Network: N101
[Network_pm]

TCS4569

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 130 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Showground Road (South East)														
21	L2	32	56.7	32	56.7	0.029	7.0	LOS A	0.2	1.6	0.08	0.58	0.08	36.4
22	T1	1874	1.9	1874	1.9	0.676	4.8	LOS A	26.3	186.8	0.32	0.29	0.32	43.1
Approach		1905	2.8	1905	2.8	0.676	4.8	LOS A	26.3	186.8	0.31	0.30	0.31	42.9
NorthWest: Showground Road (North West)														
28	T1	1288	1.6	1288	1.6	0.405	0.8	LOS A	4.3	30.8	0.08	0.07	0.08	57.3
29	R2	76	4.2	76	4.2	0.374	6.4	LOS A	0.2	1.4	0.04	0.58	0.04	43.7
Approach		1364	1.7	1364	1.7	0.405	1.1	LOS A	4.3	30.8	0.08	0.10	0.08	56.0
SouthWest: De Clambe Drive														
30	L2	128	1.6	128	1.6	0.414	58.0	LOS E	7.4	52.7	0.95	0.79	0.95	6.3
32	R2	11	100.0	11	100.0	0.205	75.9	LOS F	0.7	9.2	0.99	0.69	0.99	5.0
Approach		139	9.1	139	9.1	0.414	59.4	LOS E	7.4	52.7	0.95	0.78	0.95	6.2
All Vehicles		3408	2.6	3408	2.6	0.676	5.6	LOS A	26.3	186.8	0.24	0.24	0.24	42.6

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	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P7	NorthWest Full Crossing	2	59.1	LOS E	0.0	0.0	0.95	0.95
P8	SouthWest Full Crossing	1	59.1	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		3	59.1	LOS E			0.95	0.95

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

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

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

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MOVEMENT SUMMARY

 Site: 6AM [6AM Carrington Rd/ Middleton Ave/ Andalusian Way 2029]

 Network: N101
[Network_am]

TCS4700

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 70 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Total HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. Cycles	No. Average Speed	
		veh/h	%	veh/h	%	v/c	sec	veh	m			km/h	
South: Middleton Avenue													
1	L2	169	3.7	169	3.7	0.644	24.9	LOS C	8.7	62.7	0.84	0.79	21.8
2	T1	37	0.0	37	0.0	0.644	20.3	LOS C	8.7	62.7	0.84	0.79	25.8
3	R2	107	2.9	107	2.9	0.644	24.9	LOS C	8.7	62.7	0.84	0.79	21.8
Approach		314	3.0	314	3.0	0.644	24.3	LOS C	8.7	62.7	0.84	0.79	22.3
East: Carrington Road (East)													
4	L2	260	2.0	260	2.0	0.842	33.2	LOS C	16.6	117.5	0.91	0.97	26.8
5	T1	883	1.1	883	1.1	0.842	26.8	LOS C	24.4	172.6	0.95	0.99	20.9
6	R2	4	0.0	4	0.0	0.842	30.8	LOS C	24.4	172.6	0.97	1.00	24.9
Approach		1147	1.3	1147	1.3	0.842	28.3	LOS C	24.4	172.6	0.94	0.99	22.7
North: Andalusian Way													
7	L2	6	0.0	6	0.0	0.076	20.6	LOS C	1.1	7.5	0.69	0.62	15.4
8	T1	19	5.6	19	5.6	0.076	16.1	LOS B	1.1	7.5	0.69	0.62	29.0
9	R2	21	0.0	21	0.0	0.076	20.6	LOS C	1.1	7.5	0.69	0.62	15.4
Approach		46	2.3	46	2.3	0.076	18.8	LOS B	1.1	7.5	0.69	0.62	22.6
West: Carrington Road (West)													
10	L2	1	0.0	1	0.0	0.343	19.7	LOS B	6.3	45.2	0.73	0.61	27.0
11	T1	266	3.2	266	3.2	0.343	15.2	LOS B	6.3	45.2	0.73	0.61	21.5
12	R2	114	2.8	114	2.8	0.864	49.0	LOS D	4.8	34.3	1.00	1.05	18.4
Approach		381	3.0	381	3.0	0.864	25.3	LOS C	6.3	45.2	0.81	0.75	19.7
All Vehicles		1888	2.0	1888	2.0	0.864	26.8	LOS C	24.4	172.6	0.89	0.90	22.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	14	29.3	LOS C	0.0	0.0	0.91	0.91
P2	East Full Crossing	6	29.3	LOS C	0.0	0.0	0.91	0.91
P3	North Full Crossing	7	29.3	LOS C	0.0	0.0	0.91	0.91
P4	West Full Crossing	44	29.3	LOS C	0.1	0.1	0.92	0.92
All Pedestrians		72	29.3	LOS C			0.92	0.92

MOVEMENT SUMMARY

 Site: 6PM [6PM Carrington Rd/ Middleton Ave/ Andalusian Way 2029]

 Network: N101
[Network_pm]

TCS4700

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 70 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Total HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. Cycles	No. Average Speed	
		veh/h	%	veh/h	%	v/c	sec	veh	m			km/h	
South: Middleton Avenue													
1	L2	189	2.8	189	2.8	0.609	29.2	LOS C	9.0	64.1	0.92	0.82	19.7
2	T1	18	0.0	18	0.0	0.609	24.6	LOS B	9.0	64.1	0.92	0.82	23.6
3	R2	87	0.0	87	0.0	0.609	29.2	LOS C	9.0	64.1	0.92	0.82	19.7
Approach		295	1.8	295	1.8	0.609	28.9	LOS C	9.0	64.1	0.92	0.82	19.9
East: Carrington Road (East)													
4	L2	117	0.9	117	0.9	0.404	18.9	LOS B	8.3	58.5	0.72	0.67	34.5
5	T1	619	0.9	619	0.9	0.404	13.2	LOS A	8.3	58.8	0.70	0.62	29.4
6	R2	1	0.0	1	0.0	0.404	17.0	LOS B	8.3	58.8	0.68	0.59	33.4
Approach		737	0.9	737	0.9	0.404	14.1	LOS A	8.3	58.8	0.70	0.63	30.6
North: Andalusian Way													
7	L2	9	0.0	9	0.0	0.070	24.3	LOS B	0.9	6.5	0.76	0.62	13.9
8	T1	20	0.0	20	0.0	0.070	19.7	LOS B	0.9	6.5	0.76	0.62	27.2
9	R2	7	0.0	7	0.0	0.070	24.3	LOS B	0.9	6.5	0.76	0.62	13.9
Approach		37	0.0	37	0.0	0.070	21.8	LOS B	0.9	6.5	0.76	0.62	22.6
West: Carrington Road (West)													
10	L2	13	8.3	13	8.3	0.794	23.4	LOS B	20.3	142.7	0.86	0.84	24.1
11	T1	798	0.1	798	0.1	0.794	20.5	LOS B	20.3	142.7	0.87	0.86	17.6
12	R2	168	3.1	168	3.1	0.794	33.2	LOS C	11.2	79.5	0.95	0.98	23.6
Approach		979	0.8	979	0.8	0.794	22.8	LOS B	20.3	142.7	0.89	0.88	19.4
All Vehicles		2047	0.9	2047	0.9	0.794	20.5	LOS B	20.3	142.7	0.82	0.78	23.4

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	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	4	29.3	LOS C	0.0	0.0	0.91	0.91
P2	East Full Crossing	2	29.3	LOS C	0.0	0.0	0.91	0.91
P3	North Full Crossing	8	29.3	LOS C	0.0	0.0	0.91	0.91
P4	West Full Crossing	26	29.3	LOS C	0.0	0.0	0.92	0.92
All Pedestrians		41	29.3	LOS C			0.92	0.92

MOVEMENT SUMMARY

 Site: 7AM [7AM Carrington Road/ Victoria Avenue 2029]

 Network: N101
[Network_am]

New Site

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 70 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Flows HV	Arrival Flows Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Victoria Avenue (South)														
2	T1	831	3.3	831	3.3	0.397	9.5	LOS A	8.1	58.0	0.61	0.53	0.61	38.5
3	R2	389	2.4	389	2.4	0.843	44.2	LOS D	7.6	54.6	1.00	1.00	1.41	12.9
Approach		1220	3.0	1220	3.0	0.843	20.6	LOS C	8.1	58.0	0.73	0.68	0.86	28.2
East: Carrington Road														
4	L2	655	1.8	655	1.8	0.747	21.5	LOS C	18.9	134.4	0.87	0.86	0.90	36.5
6	R2	417	3.3	417	3.3	0.860	39.6	LOS D	16.4	118.0	1.00	1.01	1.31	30.3
Approach		1072	2.4	1072	2.4	0.860	28.5	LOS C	18.9	134.4	0.92	0.92	1.06	33.7
North: Victoria Avenue (North)														
7	L2	267	3.1	267	3.1	0.214	8.5	LOS A	3.2	23.0	0.38	0.65	0.38	33.6
8	T1	984	2.7	984	2.7	0.875	33.3	LOS C	22.5	161.3	0.96	1.07	1.28	24.4
Approach		1252	2.8	1252	2.8	0.875	28.0	LOS C	22.5	161.3	0.83	0.98	1.09	25.3
West: Access Rd														
10	L2	40	5.3	40	5.3	0.070	5.3	LOS A	0.4	3.2	0.54	0.41	0.54	21.8
Approach		40	5.3	40	5.3	0.070	5.3	LOS A	0.4	3.2	0.54	0.41	0.54	21.8
All Vehicles		3583	2.8	3583	2.8	0.875	25.4	LOS C	22.5	161.3	0.82	0.85	1.00	29.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	53	29.3	LOS C	0.1	0.1	0.92	0.92	
P2	East Full Crossing	53	29.3	LOS C	0.1	0.1	0.92	0.92	
All Pedestrians		105	29.3	LOS C			0.92	0.92	

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: 7PM [7PM Carrington Road/ Victoria Avenue 2029]

 Network: N101
[Network_pm]

New Site

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 90 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. Cycles	No.Average Speed	
		veh/h	%	veh/h	%	v/c	sec		veh	m			km/h	
South: Victoria Avenue (South)														
2	T1	1304	1.5	1304	1.5	0.617	14.5	LOS A	19.3	136.5	0.73	0.66	0.73	34.4
3	R2	618	1.5	618	1.5	0.904	57.4	LOS E	16.4	116.4	1.00	1.04	1.43	10.6
Approach		1922	1.5	1922	1.5	0.904	28.3	LOS B	19.3	136.5	0.82	0.78	0.95	24.2
East: Carrington Road														
4	L2	629	2.8	629	2.8	0.620	18.5	LOS B	18.4	131.8	0.72	0.80	0.72	37.8
6	R2	496	2.3	496	2.3	0.886	48.4	LOS D	25.2	180.2	1.00	1.01	1.27	27.9
Approach		1125	2.6	1125	2.6	0.886	31.7	LOS C	25.2	180.2	0.84	0.89	0.96	32.6
North: Victoria Avenue (North)														
7	L2	411	1.5	411	1.5	0.345	11.0	LOS A	7.4	52.6	0.45	0.69	0.45	30.7
8	T1	820	1.8	820	1.8	0.908	48.1	LOS D	27.4	194.9	0.96	1.11	1.34	19.9
Approach		1231	1.7	1231	1.7	0.908	35.7	LOS C	27.4	194.9	0.79	0.97	1.04	21.5
West: Access Rd														
10	L2	40	2.6	40	2.6	0.093	9.9	LOS A	0.6	4.3	0.66	0.50	0.66	20.0
Approach		40	2.6	40	2.6	0.093	9.9	LOS A	0.6	4.3	0.66	0.50	0.66	20.0
All Vehicles		4318	1.9	4318	1.9	0.908	31.1	LOS C	27.4	194.9	0.81	0.86	0.98	26.5

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	
P1	South Full Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94	
P2	East Full Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94	
All Pedestrians		105	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: 8AM [8AM Carrington Rd/ Doran Drive 2029]

 Network: N101
[Network_am]

TCS4699

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 50 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Carrington Road (East)														
5	T1	1054	1.2	1054	1.2	0.869	17.2	LOS B	28.5	201.6	0.89	1.00	1.12	20.1
6	R2	9	44.4	9	44.4	0.023	13.1	LOS B	0.1	1.2	0.67	0.63	0.67	25.6
Approach		1063	1.6	1063	1.6	0.869	17.2	LOS B	28.5	201.6	0.89	1.00	1.12	20.2
North: Doran Drive														
7	L2	22	14.3	22	14.3	0.033	14.4	LOS B	0.3	2.7	0.65	0.65	0.65	12.4
9	R2	41	25.6	41	25.6	0.216	27.1	LOS C	1.0	8.4	0.94	0.72	0.94	7.2
Approach		63	21.7	63	21.7	0.216	22.7	LOS C	1.0	8.4	0.84	0.70	0.84	8.5
West: Carrington Road (West)														
10	L2	42	25.0	42	25.0	0.300	17.1	LOS B	3.4	25.6	0.75	0.65	0.75	15.4
11	T1	354	2.1	354	2.1	0.300	12.6	LOS B	3.6	25.9	0.76	0.63	0.76	19.0
Approach		396	4.5	396	4.5	0.300	13.1	LOS B	3.6	25.9	0.75	0.64	0.75	18.4
All Vehicles		1522	3.2	1522	3.2	0.869	16.3	LOS B	28.5	201.6	0.85	0.89	1.01	19.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate	
P2	East Full Crossing	17	19.4	LOS B	0.0	0.0	0.88	0.88	
P3	North Full Crossing	34	19.4	LOS B	0.0	0.0	0.88	0.88	
All Pedestrians		51	19.4	LOS B			0.88	0.88	

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

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

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

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MOVEMENT SUMMARY

 Site: 8PM [8PM Carrington Rd/ Doran Drive 2029]

 Network: N101
[Network_pm]

TCS4699

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 50 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Average Cycles Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m			km/h
East: Carrington Road (East)													
5	T1	806	0.8	806	0.8	0.663	6.7	LOS A	12.8	90.5	0.70	0.63	0.70 31.7
6	R2	8	37.5	8	37.5	0.025	16.3	LOS B	0.1	1.2	0.77	0.64	0.77 23.1
Approach		815	1.2	815	1.2	0.663	6.8	LOS A	12.8	90.5	0.70	0.63	0.70 31.5
North: Doran Drive													
7	L2	27	15.4	27	15.4	0.042	14.5	LOS A	0.4	3.4	0.65	0.66	0.65 12.3
9	R2	66	17.5	66	17.5	0.331	27.5	LOS B	1.6	13.0	0.95	0.75	0.95 7.1
Approach		94	16.9	94	16.9	0.331	23.7	LOS B	1.6	13.0	0.87	0.72	0.87 8.2
West: Carrington Road (West)													
10	L2	38	19.4	38	19.4	0.741	21.8	LOS B	11.4	81.0	0.92	0.88	1.03 13.9
11	T1	956	0.3	956	0.3	0.741	17.3	LOS B	11.9	83.8	0.93	0.88	1.04 15.7
Approach		994	1.1	994	1.1	0.741	17.5	LOS B	11.9	83.8	0.93	0.88	1.04 15.5
All Vehicles		1902	1.9	1902	1.9	0.741	13.2	LOS A	12.8	90.5	0.82	0.77	0.88 20.6

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	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P2	East Full Crossing	20	19.4	LOS B	0.0	0.0	0.88	0.88
P3	North Full Crossing	27	19.4	LOS B	0.0	0.0	0.88	0.88
All Pedestrians		47	19.4	LOS B			0.88	0.88

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

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

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

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MOVEMENT SUMMARY

▽ Site: 9AM [9AM Carrington Rd/ De Clambe Drive 2029]

Network: N101
[Network_am]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows HV Total		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Carrington Rd (Northeast)														
5	T1	1085	2.1	1085	2.1	0.282	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		1085	2.1	1085	2.1	0.282	0.0	NA	0.0	0.0	0.00	0.00	0.00	50.0
North: De Clambe Drive														
7	L2	20	0.0	20	0.0	0.015	3.2	LOS A	0.0	0.0	0.00	0.41	0.00	33.3
Approach		20	0.0	20	0.0	0.015	3.2	LOS A	0.0	0.0	0.00	0.41	0.00	33.3
West: Carrington Rd (Southwest)														
10	L2	29	3.6	29	3.6	0.021	4.7	LOS A	0.1	0.6	0.08	0.50	0.08	44.3
11	T1	376	4.8	376	4.8	0.199	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		405	4.7	405	4.7	0.199	0.4	NA	0.1	0.6	0.01	0.04	0.01	49.4
All Vehicles		1511	2.8	1511	2.8	0.282	0.1	NA	0.1	0.6	0.00	0.02	0.00	49.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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.

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MOVEMENT SUMMARY

Site: 9PM [9PM Carrington Rd/ De Clambe Drive 2029]

Network: N101
[Network_pm]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Carrington Rd (Northeast)														
5	T1	877	2.5	877	2.5	0.229	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		877	2.5	877	2.5	0.229	0.0	NA	0.0	0.0	0.00	0.00	0.00	50.0
North: De Clambe Drive														
7	L2	31	0.0	31	0.0	0.023	3.2	LOS A	0.0	0.0	0.00	0.41	0.00	33.3
Approach		31	0.0	31	0.0	0.023	3.2	LOS A	0.0	0.0	0.00	0.41	0.00	33.3
West: Carrington Rd (Southwest)														
10	L2	17	0.0	17	0.0	0.012	4.7	LOS A	0.0	0.3	0.08	0.50	0.08	44.3
11	T1	962	1.2	962	1.2	0.497	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		979	1.2	979	1.2	0.497	0.2	NA	0.0	0.3	0.00	0.01	0.00	49.8
All Vehicles		1886	1.8	1886	1.8	0.497	0.1	NA	0.0	0.3	0.00	0.01	0.00	49.6

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.

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2029 With development with infrastructure upgrades

MOVEMENT SUMMARY

 Site: 3AM [3AM Showground Rd/Carrington Rd 2029]

 Network: N101
[Network_am]

TCS2666

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Total Flows 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: Showground Road (South East)														
21	L2	742	1.3	742	1.3	0.681	12.6	LOS B	18.4	129.9	0.47	0.73	0.47	29.7
22	T1	836	7.7	836	7.7	0.477	21.9	LOS C	16.7	124.7	0.71	0.63	0.71	21.9
Approach		1578	4.7	1578	4.7	0.681	17.6	LOS B	18.4	129.9	0.60	0.68	0.60	24.9
NorthWest: Showground Road (North West)														
28	T1	1607	4.1	1607	4.1	0.507	2.5	LOS A	7.7	55.5	0.15	0.13	0.15	54.4
29	R2	482	1.3	482	1.3	0.700	58.6	LOS E	13.7	97.2	1.00	0.84	1.03	10.5
Approach		2089	3.5	2089	3.5	0.700	15.4	LOS B	13.7	97.2	0.34	0.30	0.35	34.8
SouthWest: Carrington Road														
30	L2	113	1.9	113	1.9	0.148	27.6	LOS C	4.0	28.7	0.66	0.70	0.66	21.3
32	R2	348	3.0	348	3.0	0.462	49.9	LOS D	9.0	64.9	0.93	0.80	0.93	20.3
Approach		461	2.7	461	2.7	0.462	44.5	LOS D	9.0	64.9	0.86	0.78	0.86	20.5
All Vehicles		4128	3.9	4128	3.9	0.700	19.5	LOS B	18.4	129.9	0.50	0.50	0.50	28.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Prop. Queued	Effective Stop Rate	
P7	NorthWest Full Crossing	4	54.2	LOS E	0.0	0.0	0.95	0.95
P8	SouthWest Full Crossing	2	54.2	LOS E	0.0	0.0	0.95	0.95
P8B	SouthWest Slip/Bypass Lane Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		59	54.3	LOS E			0.95	0.95

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

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

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

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MOVEMENT SUMMARY

 Site: 3PM [3PM Showground Rd/Carrington Rd 2029]

 Network: N101
[Network_pm]

TCS2666

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 130 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h	
SouthEast: Showground Road (South East)														
21	L2	586	0.9	586	0.9	0.370	7.7	LOS A	7.7	54.5	0.23	0.65	0.23	37.0
22	T1	1692	3.0	1692	3.0	0.967	61.8	LOS E	84.3	605.1	0.89	1.06	1.19	10.1
Approach		2278	2.4	2278	2.4	0.967	47.9	LOS D	84.3	605.1	0.72	0.96	0.94	12.4
NorthWest: Showground Road (North West)														
28	T1	1104	3.3	1104	3.3	0.363	10.8	LOS A	18.6	133.9	0.52	0.46	0.52	41.3
29	R2	231	0.0	231	0.0	0.976	79.4	LOS F	8.3	58.0	1.00	0.91	1.31	8.2
Approach		1335	2.8	1335	2.8	0.976	22.7	LOS B	18.6	133.9	0.60	0.54	0.65	29.5
SouthWest: Carrington Road														
30	L2	236	0.0	236	0.0	0.369	38.5	LOS C	11.1	77.8	0.80	0.78	0.80	17.3
32	R2	823	0.0	823	0.0	0.957	85.6	LOS F	35.3	247.1	1.00	1.07	1.41	14.2
Approach		1059	0.0	1059	0.0	0.957	75.1	LOS F	35.3	247.1	0.95	1.01	1.28	14.6
All Vehicles		4672	2.0	4672	2.0	0.976	46.9	LOS D	84.3	605.1	0.74	0.85	0.94	16.5

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	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P7	NorthWest Full Crossing	4	59.1	LOS E	0.0	0.0	0.95	0.95
P8	SouthWest Full Crossing	1	59.1	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		5	59.1	LOS E			0.95	0.95

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

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

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

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MOVEMENT SUMMARY

 Site: 4AM [4AM Showground Rd/ Gilbert Rd 2029]

 Network: N101
[Network_am]

TCS2844

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h
SouthEast: Showground Road (South East)													
22	T1	841	6.4	841	6.4	0.405	20.6	LOS C	18.5	136.6	0.78	0.69	46.3
23	R2	183	4.0	183	4.0	0.775	63.9	LOS E	10.9	78.7	1.00	1.12	19.1
Approach		1024	6.0	1024	6.0	0.775	28.4	LOS C	18.5	136.6	0.82	0.72	41.2
NorthEast: Gilbert Rd													
24	L2	413	3.1	413	3.1	0.458	24.5	LOS C	14.9	107.2	0.67	0.78	22.3
26	R2	923	1.7	923	1.7	0.779	45.8	LOS D	25.1	178.5	0.96	1.00	35.4
Approach		1336	2.1	1336	2.1	0.779	39.2	LOS D	25.1	178.5	0.87	0.86	33.7
NorthWest: Showground Road (North West)													
27	L2	864	4.6	864	4.6	0.488	5.8	LOS A	0.0	0.0	0.00	0.53	55.2
28	T1	1696	3.1	1696	3.1	0.801	38.1	LOS D	30.6	219.9	0.96	1.00	35.3
Approach		2560	3.6	2560	3.6	0.801	27.2	LOS C	30.6	219.9	0.64	0.77	41.1
All Vehicles		4920	3.7	4920	3.7	0.801	30.7	LOS C	30.6	219.9	0.74	0.78	39.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P5	SouthEast Full Crossing	4	54.2	LOS E	0.0	0.0	0.95	0.95
P6	NorthEast Full Crossing	2	54.2	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		6	54.2	LOS E			0.95	0.95

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

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

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

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MOVEMENT SUMMARY

 Site: 4PM [4PM Showground Rd/ Gilbert Rd 2029]

 Network: N101
[Network_pm]

TCS2844

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 130 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Arrival Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec	veh	m				km/h
SouthEast: Showground Road (South East)													
22	T1	1756	2.1	1756	2.1	0.687	8.8	LOS A	29.8	212.7	0.43	0.40	53.3
23	R2	202	4.2	202	4.2	0.494	52.7	LOS D	11.0	79.6	0.90	0.81	21.6
Approach		1958	2.3	1958	2.3	0.687	13.3	LOS A	29.8	212.7	0.48	0.44	49.8
NorthEast: Gilbert Rd													
24	L2	293	4.3	293	4.3	0.333	25.1	LOS B	10.7	77.6	0.63	0.76	21.9
26	R2	556	2.7	556	2.7	0.677	54.4	LOS D	16.2	115.7	0.97	0.84	32.9
Approach		848	3.2	848	3.2	0.677	44.3	LOS D	16.2	115.7	0.85	0.81	31.4
NorthWest: Showground Road (North West)													
27	L2	988	1.4	988	1.4	0.546	5.8	LOS A	0.0	0.0	0.00	0.53	55.2
28	T1	1084	1.7	1084	1.7	0.485	31.6	LOS C	17.0	121.0	0.80	0.70	37.9
Approach		2073	1.6	2073	1.6	0.546	19.3	LOS B	17.0	121.0	0.42	0.62	45.6
All Vehicles		4879	2.2	4879	2.2	0.687	21.2	LOS B	29.8	212.7	0.52	0.58	44.4

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	Back of Queue Distance m	Prop. Queued	Effective Stop Rate	
P5	SouthEast Full Crossing	3	59.1	LOS E	0.0	0.0	0.95	0.95	
P6	NorthEast Full Crossing	3	59.1	LOS E	0.0	0.0	0.95	0.95	
All Pedestrians		6	59.1	LOS E			0.95	0.95	

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

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

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

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MOVEMENT SUMMARY

 Site: 5AM [5AM Showground Rd/ De Clambe Drive 2029]

 Network: N101
[Network_am]

TCS4569

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows 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: Showground Road (South East)														
21	L2	27	46.2	27	46.2	0.027	9.6	LOS A	0.3	2.8	0.20	0.61	0.20	34.1
22	T1	917	6.3	917	6.3	0.397	6.2	LOS A	9.1	67.1	0.27	0.24	0.27	39.8
Approach		944	7.5	944	7.5	0.397	6.3	LOS A	9.1	67.1	0.27	0.25	0.27	39.5
NorthWest: Showground Road (North West)														
28	T1	2079	2.7	2079	2.7	0.667	2.1	LOS A	13.3	95.2	0.23	0.21	0.23	53.2
29	R2	107	8.8	107	8.8	0.196	10.7	LOS B	2.0	14.8	0.39	0.68	0.39	38.1
Approach		2186	3.0	2186	3.0	0.667	2.5	LOS A	13.3	95.2	0.23	0.24	0.23	51.9
SouthWest: De Clambe Drive														
30	L2	82	5.1	82	5.1	0.164	40.8	LOS D	3.7	26.8	0.80	0.74	0.80	8.5
32	R2	13	100.0	13	100.0	0.227	70.3	LOS E	0.8	10.2	0.99	0.69	0.99	5.4
Approach		95	17.8	95	17.8	0.227	44.7	LOS D	3.7	26.8	0.83	0.73	0.83	7.9
All Vehicles		3225	4.8	3225	4.8	0.667	4.9	LOS A	13.3	95.2	0.26	0.25	0.26	45.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P7	NorthWest Full Crossing	1	54.2	LOS E	0.0	0.0	0.95	0.95
P8	SouthWest Full Crossing	1	54.2	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		2	54.2	LOS E			0.95	0.95

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

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

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

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MOVEMENT SUMMARY

 Site: 5PM [5PM Showground Rd/ De Clambe Drive 2029]

 Network: N101
[Network_pm]

TCS4569

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 130 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Showground Road (South East)														
21	L2	34	56.3	34	56.3	0.031	6.4	LOS A	0.1	0.7	0.04	0.57	0.04	37.1
22	T1	1986	1.9	1986	1.9	0.710	2.5	LOS A	14.0	99.6	0.18	0.17	0.18	49.9
Approach		2020	2.8	2020	2.8	0.710	2.5	LOS A	14.0	99.6	0.18	0.18	0.18	49.5
NorthWest: Showground Road (North West)														
28	T1	1351	1.5	1351	1.5	0.424	0.8	LOS A	4.6	32.6	0.08	0.07	0.08	57.3
29	R2	80	3.9	80	3.9	0.399	6.4	LOS A	0.2	1.7	0.05	0.59	0.05	43.7
Approach		1431	1.6	1431	1.6	0.424	1.1	LOS A	4.6	32.6	0.08	0.10	0.08	56.0
SouthWest: De Clambe Drive														
30	L2	215	1.0	215	1.0	0.697	61.6	LOS E	13.2	93.3	1.00	0.84	1.03	6.0
32	R2	11	100.0	11	100.0	0.205	75.9	LOS F	0.7	9.2	0.99	0.69	0.99	5.0
Approach		225	5.6	225	5.6	0.697	62.3	LOS E	13.2	93.3	1.00	0.84	1.03	5.9
All Vehicles		3676	2.5	3676	2.5	0.710	5.6	LOS A	14.0	99.6	0.19	0.19	0.19	42.2

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	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P7	NorthWest Full Crossing	2	59.1	LOS E	0.0	0.0	0.95	0.95
P8	SouthWest Full Crossing	1	59.1	LOS E	0.0	0.0	0.95	0.95
All Pedestrians		3	59.1	LOS E			0.95	0.95

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

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

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

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MOVEMENT SUMMARY

 Site: 6AM [6AM Carrington Rd/ Middleton Ave/ Andalusian Way 2029]

 Network: N101
[Network_am]

TCS4700

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 80 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Total HV	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. Cycles	No. Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m			km/h
South: Middleton Avenue													
1	L2	169	3.7	169	3.7	0.752	31.2	LOS C	13.6	97.3	0.89	0.86	19.3
2	T1	111	0.0	111	0.0	0.752	26.6	LOS C	13.6	97.3	0.89	0.86	23.3
3	R2	107	2.9	107	2.9	0.752	31.2	LOS C	13.6	97.3	0.89	0.86	19.3
Approach		387	2.4	387	2.4	0.752	29.9	LOS C	13.6	97.3	0.89	0.86	20.6
East: Carrington Road (East)													
4	L2	260	2.0	260	2.0	0.861	35.7	LOS D	21.2	150.0	0.88	0.95	26.0
5	T1	902	1.1	902	1.1	0.861	30.5	LOS C	28.9	204.3	0.94	0.99	19.3
6	R2	61	0.0	61	0.0	0.861	34.7	LOS C	28.9	204.3	0.97	1.01	23.0
Approach		1223	1.2	1223	1.2	0.861	31.8	LOS C	28.9	204.3	0.93	0.99	21.3
North: Andalusian Way													
7	L2	72	0.0	72	0.0	0.213	25.1	LOS C	3.6	25.6	0.75	0.70	13.0
8	T1	37	2.9	37	2.9	0.213	20.5	LOS C	3.6	25.6	0.75	0.70	26.1
9	R2	21	0.0	21	0.0	0.213	25.1	LOS C	3.6	25.6	0.75	0.70	13.0
Approach		129	0.8	129	0.8	0.213	23.8	LOS C	3.6	25.6	0.75	0.70	18.0
West: Carrington Road (West)													
10	L2	1	0.0	1	0.0	0.316	19.7	LOS B	6.7	48.1	0.68	0.58	27.0
11	T1	266	3.2	266	3.2	0.316	15.2	LOS B	6.7	48.1	0.68	0.58	21.5
12	R2	114	2.8	114	2.8	0.751	46.0	LOS D	4.9	35.4	1.00	0.94	19.1
Approach		381	3.0	381	3.0	0.751	24.4	LOS C	6.7	48.1	0.78	0.69	20.2
All Vehicles		2121	1.7	2121	1.7	0.861	29.6	LOS C	28.9	204.3	0.89	0.89	20.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	14	34.2	LOS D	0.0	0.0	0.93	0.93
P2	East Full Crossing	6	34.2	LOS D	0.0	0.0	0.93	0.93
P3	North Full Crossing	7	34.2	LOS D	0.0	0.0	0.93	0.93
P4	West Full Crossing	44	34.3	LOS D	0.1	0.1	0.93	0.93
All Pedestrians		72	34.3	LOS D			0.93	0.93

MOVEMENT SUMMARY

 Site: 6PM [6PM Carrington Rd/ Middleton Ave/ Andalusian Way 2029]

 Network: N101
[Network_pm]

TCS4700

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 80 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. Cycles	No.Average Speed	
		veh/h	%	veh/h	%	v/c	sec		veh	m			km/h	
South: Middleton Avenue														
1	L2	199	2.6	199	2.6	0.835	43.4	LOS D	14.7	104.1	1.00	0.98	1.25	15.3
2	T1	56	0.0	56	0.0	0.835	38.8	LOS C	14.7	104.1	1.00	0.98	1.25	18.9
3	R2	87	0.0	87	0.0	0.835	43.4	LOS D	14.7	104.1	1.00	0.98	1.25	15.3
Approach		342	1.5	342	1.5	0.835	42.7	LOS D	14.7	104.1	1.00	0.98	1.25	15.9
East: Carrington Road (East)														
4	L2	122	0.9	122	0.9	0.590	19.8	LOS B	16.4	115.3	0.76	0.71	0.76	34.3
5	T1	667	0.8	667	0.8	0.590	19.2	LOS B	16.4	115.3	0.81	0.73	0.81	24.7
6	R2	51	0.0	51	0.0	0.590	33.1	LOS C	8.7	61.3	0.93	0.79	0.93	23.5
Approach		840	0.8	840	0.8	0.590	20.1	LOS B	16.4	115.3	0.81	0.73	0.81	26.4
North: Andalusian Way														
7	L2	168	0.0	168	0.0	0.661	32.9	LOS C	12.4	86.5	0.94	0.82	0.95	10.8
8	T1	174	0.0	174	0.0	0.661	28.3	LOS B	12.4	86.5	0.94	0.82	0.95	23.0
9	R2	7	0.0	7	0.0	0.661	32.9	LOS C	12.4	86.5	0.94	0.82	0.95	10.8
Approach		349	0.0	349	0.0	0.661	30.6	LOS C	12.4	86.5	0.94	0.82	0.95	17.9
West: Carrington Road (West)														
10	L2	13	8.3	13	8.3	0.815	24.9	LOS B	28.8	202.3	0.90	0.87	0.96	23.3
11	T1	815	0.1	815	0.1	0.815	20.6	LOS B	28.8	202.3	0.90	0.87	0.97	17.8
12	R2	172	3.1	172	3.1	0.815	45.8	LOS D	8.2	58.7	1.00	1.01	1.35	19.2
Approach		999	0.7	999	0.7	0.815	24.9	LOS B	28.8	202.3	0.92	0.90	1.03	18.3
All Vehicles		2531	0.7	2531	0.7	0.835	26.5	LOS B	28.8	202.3	0.90	0.84	0.98	20.4

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	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	4	34.2	LOS D	0.0	0.0	0.93	0.93
P2	East Full Crossing	2	34.2	LOS D	0.0	0.0	0.93	0.93
P3	North Full Crossing	8	34.2	LOS D	0.0	0.0	0.93	0.93
P4	West Full Crossing	26	34.3	LOS D	0.1	0.1	0.93	0.93
All Pedestrians		41	34.3	LOS D			0.93	0.93

MOVEMENT SUMMARY

 Site: 7AM [7AM Carrington Road/ Victoria Avenue 2029]

 Network: N101
[Network_am]

New Site

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 90 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Total HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. Cycles	No. Average Speed	
		veh/h	%	veh/h	%	v/c	sec	veh	m			km/h	
South: Victoria Avenue (South)													
2	T1	831	3.3	831	3.3	0.375	10.4	LOS B	9.5	68.6	0.57	0.50	37.7
3	R2	480	2.0	480	2.0	0.856	53.2	LOS D	11.9	84.7	1.00	0.98	11.2
Approach		1311	2.8	1311	2.8	0.856	26.1	LOS C	11.9	84.7	0.72	0.67	24.9
East: Carrington Road													
4	L2	714	1.6	714	1.6	0.790	26.4	LOS C	27.1	192.4	0.89	0.88	34.4
6	R2	445	3.1	445	3.1	0.896	51.9	LOS D	23.3	167.1	1.00	1.03	27.0
Approach		1159	2.2	1159	2.2	0.896	36.2	LOS D	27.1	192.4	0.93	0.94	31.1
North: Victoria Avenue (North)													
7	L2	369	2.3	369	2.3	0.289	9.6	LOS A	5.8	41.5	0.39	0.66	32.3
8	T1	984	2.7	984	2.7	0.878	39.1	LOS D	29.8	213.4	0.94	1.02	22.4
Approach		1354	2.6	1354	2.6	0.878	31.1	LOS C	29.8	213.4	0.79	0.92	23.7
West: Access Rd													
10	L2	40	5.3	40	5.3	0.078	6.3	LOS A	0.6	4.1	0.52	0.40	21.3
Approach		40	5.3	40	5.3	0.078	6.3	LOS A	0.6	4.1	0.52	0.40	21.3
All Vehicles		3863	2.6	3863	2.6	0.896	30.7	LOS C	29.8	213.4	0.81	0.84	27.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Prop. Queued	Effective Stop Rate		
P1	South Full Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94	
P2	East Full Crossing	53	39.3	LOS D	0.1	0.1	0.94	0.94	
All Pedestrians		105	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: 7PM [7PM Carrington Road/ Victoria Avenue 2029]

 Network: N101
[Network_pm]

New Site

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 150 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Total HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. Cycles	No. Average Speed	
		veh/h	%	veh/h	%	v/c	sec	veh	m			km/h	
South: Victoria Avenue (South)													
2	T1	1354	1.4	1354	1.4	0.613	21.6	LOS B	31.6	223.9	0.71	0.65	29.8
3	R2	726	1.4	726	1.4	0.941	91.2	LOS F	32.0	226.8	1.00	1.02	7.2
Approach		2080	1.4	2080	1.4	0.941	45.9	LOS D	32.0	226.8	0.81	0.77	18.1
East: Carrington Road													
4	L2	802	2.4	802	2.4	0.752	28.2	LOS B	42.3	301.8	0.80	0.84	33.7
6	R2	587	2.0	587	2.0	0.958	87.0	LOS F	53.6	381.8	1.00	1.04	20.7
Approach		1389	2.2	1389	2.2	0.958	53.1	LOS D	53.6	381.8	0.88	0.93	26.5
North: Victoria Avenue (North)													
7	L2	517	1.4	517	1.4	0.548	14.0	LOS A	15.1	107.2	0.44	0.69	27.7
8	T1	842	1.9	842	1.9	0.951	81.1	LOS F	52.4	372.4	0.95	1.09	14.1
Approach		1359	1.7	1359	1.7	0.951	55.6	LOS D	52.4	372.4	0.76	0.94	16.1
West: Access Rd													
10	L2	41	2.6	41	2.6	0.133	17.4	LOS B	1.1	8.1	0.68	0.53	17.5
Approach		41	2.6	41	2.6	0.133	17.4	LOS B	1.1	8.1	0.68	0.53	17.5
All Vehicles		4869	1.7	4869	1.7	0.958	50.4	LOS D	53.6	381.8	0.81	0.86	20.7

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	
P1	South Full Crossing	53	69.3	LOS F	0.2	0.2	0.96	0.96	
P2	East Full Crossing	53	69.3	LOS F	0.2	0.2	0.96	0.96	
All Pedestrians		105	69.3	LOS F			0.96	0.96	

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

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

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

MOVEMENT SUMMARY

 Site: 8AM [8AM Carrington Rd/ Doran Drive 2029]

 Network: N101
[Network_am]

TCS4699

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 50 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed		
		veh/h	%	veh/h	%	v/c	sec	veh	m			km/h		
East: Carrington Road (East)														
5	T1	1054	1.2	1054	1.2	0.869	17.2	LOS B	28.5	201.6	0.89	1.00	1.12	20.1
6	R2	27	15.4	27	15.4	0.058	12.7	LOS B	0.4	2.9	0.68	0.67	0.68	25.7
Approach		1081	1.6	1081	1.6	0.869	17.1	LOS B	28.5	201.6	0.89	0.99	1.11	20.2
North: Doran Drive														
7	L2	22	14.3	22	14.3	0.033	14.4	LOS B	0.3	2.7	0.65	0.65	0.65	12.4
9	R2	127	8.3	127	8.3	0.599	28.8	LOS C	3.3	24.5	0.99	0.83	1.09	6.9
Approach		149	9.2	149	9.2	0.599	26.7	LOS C	3.3	24.5	0.94	0.80	1.02	7.3
West: Carrington Road (West)														
10	L2	188	5.6	188	5.6	0.413	17.7	LOS B	4.9	35.8	0.79	0.74	0.79	14.4
11	T1	354	2.1	354	2.1	0.413	13.3	LOS B	5.3	37.4	0.79	0.68	0.79	18.2
Approach		542	3.3	542	3.3	0.413	14.8	LOS B	5.3	37.4	0.79	0.70	0.79	16.3
All Vehicles		1773	2.7	1773	2.7	0.869	17.2	LOS B	28.5	201.6	0.86	0.89	1.01	17.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Prop. Queued	Effective Stop Rate	
P2	East Full Crossing	17	19.4	LOS B	0.0	0.0	0.88	0.88
P3	North Full Crossing	34	19.4	LOS B	0.0	0.0	0.88	0.88
All Pedestrians		51	19.4	LOS B			0.88	0.88

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

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

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

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MOVEMENT SUMMARY

 Site: 8PM [8PM Carrington Rd/ Doran Drive 2029]

 Network: N101
[Network_pm]

TCS4699

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 70 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Carrington Road (East)														
5	T1	845	0.7	845	0.7	0.702	9.8	LOS A	19.6	137.8	0.73	0.67	0.73	27.0
6	R2	26	12.0	26	12.0	0.094	25.0	LOS B	0.7	5.3	0.83	0.70	0.83	18.2
Approach		872	1.1	872	1.1	0.702	10.3	LOS A	19.6	137.8	0.74	0.67	0.74	26.5
North: Doran Drive														
7	L2	27	15.4	27	15.4	0.062	18.2	LOS B	0.6	4.6	0.65	0.65	0.65	10.3
9	R2	276	4.2	276	4.2	0.799	37.5	LOS C	10.1	73.3	1.00	0.94	1.24	5.4
Approach		303	5.2	303	5.2	0.799	35.8	LOS C	10.1	73.3	0.97	0.92	1.19	5.7
West: Carrington Road (West)														
10	L2	171	4.3	171	4.3	0.818	27.7	LOS B	15.1	107.6	0.82	0.88	1.01	11.9
11	T1	975	0.3	975	0.3	0.818	23.5	LOS B	22.3	156.7	0.91	0.93	1.05	12.5
Approach		1145	0.9	1145	0.9	0.818	24.1	LOS B	22.3	156.7	0.89	0.92	1.05	12.3
All Vehicles		2320	1.5	2320	1.5	0.818	20.5	LOS B	22.3	156.7	0.84	0.82	0.95	15.0

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

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P2	East Full Crossing	20	29.3	LOS C	0.0	0.0	0.92	0.92
P3	North Full Crossing	27	29.3	LOS C	0.0	0.0	0.92	0.92
All Pedestrians		47	29.3	LOS C			0.92	0.92

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

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

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

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MOVEMENT SUMMARY

Site: 9AM [9AM Carrington Rd/ De Clambe Drive 2029]

Network: N101
[Network_am]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	Arrival Flows HV	Flows Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Carrington Rd (Northeast)														
5	T1	1173	2.0	1173	2.0	0.305	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		1173	2.0	1173	2.0	0.305	0.0	NA	0.0	0.0	0.00	0.00	0.00	50.0
North: De Clambe Drive														
7	L2	20	0.0	20	0.0	0.015	3.2	LOS A	0.0	0.0	0.00	0.41	0.00	33.3
Approach		20	0.0	20	0.0	0.015	3.2	LOS A	0.0	0.0	0.00	0.41	0.00	33.3
West: Carrington Rd (Southwest)														
10	L2	77	1.4	77	1.4	0.055	4.7	LOS A	0.2	1.4	0.09	0.50	0.09	44.3
11	T1	522	3.4	522	3.4	0.274	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		599	3.2	599	3.2	0.274	0.6	NA	0.2	1.4	0.01	0.06	0.01	49.0
All Vehicles		1792	2.4	1792	2.4	0.305	0.3	NA	0.2	1.4	0.00	0.03	0.00	49.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

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

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.

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MOVEMENT SUMMARY

Site: 9PM [9PM Carrington Rd/ De Clambe Drive 2029]

Network: N101
[Network_pm]

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

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total	Arrival Flows HV Total	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	
		veh/h	% veh/h	v/c	sec		veh	m				km/h	
East: Carrington Rd (Northeast)													
5	T1	1129	2.1	1129	2.1	0.293	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		1129	2.1	1129	2.1	0.293	0.0	NA	0.0	0.0	0.00	0.00	50.0
North: De Clambe Drive													
7	L2	31	0.0	31	0.0	0.027	3.2	LOS A	0.0	0.0	0.00	0.41	33.3
Approach		31	0.0	31	0.0	0.027	3.2	LOS A	0.0	0.0	0.00	0.41	33.3
West: Carrington Rd (Southwest)													
10	L2	65	0.0	65	0.0	0.047	4.7	LOS A	0.2	1.2	0.09	0.50	44.3
11	T1	1113	1.0	1113	1.0	0.574	0.1	LOS A	0.0	0.0	0.00	0.00	49.8
Approach		1178	1.0	1178	1.0	0.574	0.4	NA	0.2	1.2	0.00	0.03	49.4
All Vehicles		2338	1.5	2338	1.5	0.574	0.2	NA	0.2	1.2	0.00	0.02	49.3

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.

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