GTAconsultants

New Maitland Hospital
State Significant Infrastructure Stage 2
Transport Impact Assessment

Client //	NSW Health Infrastructure
Office //	NSW
Reference //	N149421
Date //	27/09/19

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Quality Record

Issue	Date	Description	Prepared By	Checked By	Approved By	Signed
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Executive Summary

GTA Consultants (GTA) was commissioned by Health Infrastructure to undertake a transport impact assessment for the New Maitland Hospital (NMH) to provide advice on traffic, access and parking impacts and mitigation measures associated with the proposed new regional hospital development at Metford Road, Metford.

This report sets out an assessment of the anticipated transport implications of the Stage 2 Main Works for the NMH. Enabling works have recently been completed to provide road improvements and access to the NMH site to support the future development. This transport assessment has considered the transport conditions on the surrounding road network at the proposed year of opening and ten-year horizon to ensure it can accommodate the operation of the proposed NMH.

Summary of Existing Assets

The NMH site is located around 25 kilometres northwest of Newcastle, located along Metford Road, Metford. The site has a western frontage of 500 metres to Metford Road. The site has been declared State Significant Infrastructure and is generally cleared and disturbed land with an existing forest in the south western corner of the site.

Intersection analysis of the existing operation of the Metford Road/ Fieldsend Street, Metford Road/ Raymond Terrace Road and Metford Road/ Chelmsford Drive was undertaken as part of the Stage 1 State Significant Infrastructure (SSI) Transport Assessment and has been updated in this report to reflect road changes implemented as part of the enabling works and also to reflect revised proposed operation of the NMH. The existing intersections of Metford Road/ Fieldsend Street and Metford Road / Raymond Terrace currently operate well with spare capacity. An outcome of consultation with Maitland City Council during the Stage 2 response to submissions process included additional analysis of the Metford Road/ Chelmsford Drive intersection to incorporate traffic surveys undertaken by Maitland City Council post completion of the Green Hills Shopping Centre redevelopment. This has been undertaken and analysis shows the intersection operates well however it is noted that the Chelmsford Drive south east approach queues in the AM peak. Results and observations indicate that vehicles are currently getting through the roundabout, however, under the current lane arrangements it is approaching capacity.

An outcome of consultation with Roads and Maritime during the Stage 1 process included additional analysis of some intersections on the New England Highway to incorporate traffic associated with the recent completion of the Green Hills Shopping Centre. This has been undertaken and analysis shows that the intersections of New England Highway/ Chelmsford Drive and New England Highway/ Mitchell Drive currently overall operate satisfactory in peak conditions, however the Chelmsford Drive north west approach indicates queuing in peak conditions. The intersection of New England Highway/ Chisholm Road currently operates well and with spare capacity in peak conditions.

The existing public transport in the area currently consists of bus and train services, with the nearest stops located around 650 metres and 1.4 kilometres away from the NMH site, respectively. Bus services provide local connections to the outer areas of Metford, including East Maitland and Thornton. Victoria Street Station is part of the Hunter Line, with rail services alternately running from Newcastle to Telarah, Dungong and Scone. Services at Victoria Street

Station are generally provided every 30 minutes while bus services for surrounding bus stops generally operating every hour or two hours.

Stage 2 Concept Assessment

The proposed NMH would consist of 339 beds and is projected to employ around 893 FTE staff at the proposed year of opening, 1,106 FTE staff five years after opening and 1,162 FTE staff ten years after opening. The NMH will be a regional hospital providing predominantly Level 4 health services.

Three site access locations are proposed along Metford Road. These include a primary site access at the Metford Road/ Fieldsend Street intersection, a secondary site access (left in/ left out) around 60 metres north of the Metford Road/ Fieldsend Street intersection and an emergency vehicle access around 130 metres south of the Metford Road/ Fieldsend Street intersection.

The primary site access will service all vehicle movements including general traffic, staff, service vehicles and public transport, providing access to the front entrance for drop off, emergency and visitor parking. The secondary site access provides access to the northern car park (visitor and staff) and the emergency vehicle access would be restricted to emergency vehicle movements only. The internal road network for the site has been designed to discourage general vehicle movements through the emergency vehicle access.

A parking demand study for the NMH has been prepared by GTA (October 2018), which determined the parking requirements to accommodate for all staff, visitors and patients. The NMH proposes to provide a total of 682 on-site parking spaces at the year of opening, including 595 staff and long-term patient/ visitor parking spaces and 87 public/visitor parking spaces. It is proposed that the hospital will have an at grade car park to the north of the hospital building for staff and long-term patient/visitors and an at-grade short stay car park on the western side of the hospital. The project proposes a staged infrastructure approach to address the longer term car parking demand assessment for the NMH and is committed to delivering the residual 140 car parks, beyond the early 2021 supply needs, to satisfy the incremental 10 year peak parking demand to 2031/2032.

The pedestrian connections within the NMH site are being designed to connect with Council's recently constructed shared path along Fieldsend Street, through the site and to the proposed two metre wide shared path along Metford Road to Chelmsford Drive. By providing a connection to Fieldsend Street and the proposed Metford Road shared path, the NMH site will be maximising the opportunity for cyclists to access the Victoria Street Railway Station and Green Hills Shopping Centre.

The proposal also includes an on-site bus zone capable of accommodating two buses for incorporation into Hunter Valley bus routes. Bus services will access the site via the Metford Road/ Fieldsend Street roundabout and use internal roundabouts to access the bus stop located near the Hospital entry on the northern side of the building. The internal road network has been designed to accommodate bus movements.

Based on the surveys of the surrounding network, it is assumed that the peak hour for the road network will occur in the evening period. It is expected that at full operation the site will generate a total of 454 vehicle movements (318 vehicles exiting and 136 vehicles entering) during the PM peak hour.

Forecast traffic volumes for 2021 and 2031 have been provided by Roads and Maritime Services (Roads and Maritime) and the forecast growth rates used to determine background traffic growth in this assessment.

Analysis shows that the intersection of Fieldsend Street/ Metford Road/ hospital access would operate well with spare capacity in the year of opening and future 10-year horizon. The existing roundabout at Chelmsford Drive/ Metford Road would operate over capacity in both the AM and PM peaks due to the increased movements on Metford Road providing insufficient opportunities for Chelmsford Drive (northbound) traffic to enter the roundabout. The Chelmsford Drive/ Metford Road roundabout operates at capacity with and without the impact of the proposed development. Based on this, the following improvements are recommended to be implemented at the Chelmsford Drive/ Metford Road roundabout to minimise the adverse effects of additional traffic:

- Increase the number of circulating lanes on the east and south side of the roundabout to two lanes
- Provision of an additional 50 metre lane on the Chelmsford Drive east approach and Metford Road north approach

A concept design for the proposed upgrade to the Chelmsford Drive/ Metford Road roundabout has been developed and included in Appendix D of this report. Analysis of the Chelmsford Drive/Metford Road roundabout, utilising the updated traffic surveys provided by Maitland City Council, indicates that with the recommended improvements to the roundabout, the proposed NMH would have an acceptable impact on the capacity of the surrounding road network. Health Infrastructure will be making a separate application under Part 5 of the EP&A Act for the upgrade of the Chelmsford Drive/Metford Road roundabout and is committed to completing the upgrade prior to the hospital becoming operational. The detailed design will be done in consultation with Maitland City Council.

The intersection of Raymond Terrace Road and Metford Road is currently controlled by a roundabout. With the expected traffic increase from the Thornton North and Chisholm residential developments, the roundabout is expected to be at capacity by 2032.

Analysis of the New England Highway between Mitchell Road and Chisholm Road (inclusive of the Chelmsford Road intersection) indicates that by 2032 the intersection of New England Highway/ Chelmsford Drive is likely to be operating at an overall level of service D. There is likely to be several movements operating at capacity particularly in the PM peak, with and without the NMH development traffic. Common Roads and Maritime practice indicates that an overall level of service D is considered acceptable.

Analysis of the midblock analysis for Metford Road indicates that Metford Road would reach a volume/capacity ratio of 0.9 (Level of Service E) in 2024 with the hospital development in the PM peak. It is noted however that the traffic assessment assumes all traffic associated with the completed hospital development would occur from the year of opening (2022) however in reality the hospital will not be operating at full development at the year of opening. Therefore, the year in which Metford Road reaches capacity would also be later. Regardless of the hospital development it is likely that Metford Road would not require upgrading prior to 2029.

The Hunter and Central Coast Development Corporation (HCCDC) has established the East Maitland Catalyst Area Steering Group to support the work of Maitland City Council and key NSW Government agencies in achieving the vision and outcomes of the East Maitland Catalyst Area. The Catalyst Area program will identify the need to plan for, fund and deliver the infrastructure (including Metford Road) needed to support growth of new homes and jobs in the area.

Construction Traffic Management

Multiplex have prepared a Construction Traffic Management Plan for the Main Works, this is provided in Appendix F.

During peak construction (concrete pours), there could be up to a total of 460 vehicles arriving and departing the site per day, with 352 within the PM peak hour.

The analysis of the road network surrounding the NMH has been assessed based on the peak expected traffic generation and background traffic growth for the NMH once it is fully operational. This indicates the proposed NMH would generate an additional 454 vehicles in the peak hour, which is greater than the expected worst-case during construction.

Therefore, analysis outlines that with the proposed NMH development traffic the intersections of Fieldsend Street/ Metford Road/ Hospital Access and Metford Road/ Raymond Terrace Road would continue to operate well and with spare capacity. The existing roundabout at Chelmsford Drive/ Metford Road would operate at capacity during the peak period due to the increased movements on Metford Road not providing sufficient opportunities for Chelmsford Drive (northbound) traffic to enter the roundabout. The intersections of New England Highway/ Chelmsford Drive and New England Highway/ Mitchell Drive would overall operate satisfactory in peak conditions however New England Highway/ Chelmsford Drive would operate near to capacity in the PM peak hour.

Generally, the majority of construction workers would finish prior to the PM road network peak and therefore it is expected that the road network would continue to operate well throughout the construction period. The expected timing of the upgrade to the Chelmsford Road/ Metford Road is yet to be determined but would assist during the peak construction periods.

Summary

The Stage 1 SSI transport assessment concluded that road improvements are required at the intersection of Chelmsford Road and Metford Road to accommodate the forecast background traffic growth in the area and the NMH development. Health Infrastructure has made a commitment to these works and with these improvements the proposed NMH would have an acceptable impact on the capacity of the surrounding road network.

While it is recognised that the site's location somewhat limits the practicality of using sustainable transport modes, there remains potential for improved utilisation of public transport and associated provision of sustainable transport infrastructure.

A Green Travel Plan has been prepared to identify opportunities to provide staff with incentives to consider alternative modes of travel to and from work.

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1. Introduction

1.1 Background

A traffic and accessibility impact assessment is required to inform the development of the proposed New Maitland Hospital (NMH) development on land located at Metford Road, Metford.

GTA Consultants (GTA) was commissioned by Health Infrastructure to undertake a transport and accessibility impact assessment of the internal road operations and the surrounding road network to inform the NMH proposal of potential impact and mitigation measures associated with the proposed development.

1.2 Project description

Health Infrastructure has committed to undertaking a Staged Infrastructure Application in accordance with Section 115ZD (1) of the Environmental Planning and Assessment Act 1979 (EP&A Act) for the following works:

- Stage 1: Site clearance and preparatory works, approved under SSI9022 and works have commenced
- Stage 2: Design and construction of the hospital Main Works.

Stage 2 includes the design and construction work generally comprising:

- A new seven storey Acute Services Building, including:
  - Emergency services
  - Medical, surgical, paediatric and maternity services
  - Critical care services for adults and babies, including a special care nursery
  - Operating theatres, delivery suites and assessment rooms
  - Palliative care and rehabilitation services
  - Mental health services
  - Satellite renal dialysis
  - New chemotherapy services
  - Oral health service
  - A range of ambulatory care and outpatient clinics.
- Internal road network and car parking for staff, patients and visitors
- Signage
- Site landscaping and open space improvements
- Tree removal
- Utility and services connection and amplifications works.

1.3 Scope of this assessment

This report sets out an assessment of the anticipated transport implications of the proposed NMH and has considered the transport conditions on Raymond Terrace, Metford Road, Chelmsford Drive and the New England Highway in the proposed year of opening and future 10-year horizon to ensure the surrounding road network can accommodate the operation of the proposed NMH.

This report addresses the Department of Planning and Environment - NSW Government (DPE) requirements for transport and accessibility impacts (construction and operational) that are included in Secretary's Environmental Assessment Requirements (SEARs) – Schedule 2 of the Environmental Planning and Assessment Regulation 2000, as referenced in Table 1.1.

Table 1.1: Secretary's Environmental Assessment Requirements

Key traffic/ transport issue	Requirement	Relevant report Section
Policies, Guidelines and Planning Agreements		
Address the relevant planning provisions, goals and strategic planning objectives in the following:		
o	*Guide to Traffic Generating Developments (Roads and Maritime Services)*	See Section 6.1
o	*Cycling Aspects of Austroads Guides*	See Section 4.5
o	*NSW Planning Guidelines for Walking and Cycling*	See Section 5.1
o	*Austroads Guide to Traffic Management Part 12: Traffic Impacts of Development*	
o	*Australia Standards AS2890.3 (Bicycle Parking Facilities)*	See Section 3.2.3
Transport and Accessibility Impacts (Construction and Operational)		
Include a transport and accessibility impact assessment, which details, but not limited to the following:		
o	the current daily and peak hour vehicle, public transport, pedestrian and cycle movement and existing traffic and transport facilities provided on the road network located adjacent to the proposed development;	See Section 2.1.2, 2.2.2, 2.3, 2.5, 2.6
o	the future daily and peak hour vehicle, public transport, pedestrian and cycle movement for the 10-year horizon with and without the proposed development. These traffic projections are to factor in the local area urban development growth, and road hierarchy and function based on its connectivity between two state roads (New England Highway and Raymond Terrace Road)	See Section 5.1, 5.2.3, 6.1, 6.2, 6.3, 6.4.2
o	an assessment of the operation of existing and future transport networks including the bus network and their ability to accommodate the forecast number of trips to and from the development;	See Section 2.4, 2.5, 2.6, 5.1, 5.3, 6.4
o	details of estimated total daily and peak hour trips generated by the proposal, including vehicle, public transport, pedestrian and bicycle trips	See Section 5.1, 5.3, 6.1
o	the adequacy of public transport, pedestrian and bicycle networks and infrastructure to meet the likely future demand of the proposed development (this includes safe connections to Victoria Street railway station and Council's pedestrian and bicycle network)	See Section 5.1, 5.3
o	the impact of the proposed development on existing and future public transport infrastructure within the vicinity of the site and identify measures to integrate the development with the transport network (this includes consultation with TfNSW on connections to Victoria Street railway station)	See Section 5.3
o	provision of bus capable infrastructure for the internal road network of the hospital site, including but not limited to swept path analysis and DDA compliant bus stop design	See Section 5.3, Appendix B
o	details of any upgrading or road improvement works required to accommodate the proposed development (including details or scope and timing of upgrades)	See Section 6.5, 10.1
o	details of travel demand management measures, including the preparation of a Green Travel Plan, to encourage sustainable travel choices and details of programs for implementation	See Section 8.3, 8.4
o	the impact of trips generated by the development on nearby intersections, with consideration of the cumulative impacts from other approved developments in the vicinity and for a 10-year horizon, and the need/associated funding for upgrading or road improvement works, if required	See Section 6, 10.1
o	the proposed active transport access arrangements and connections to public transport services (including the requirements for connections to be safe – i.e. shared paths, traffic controls and /or calming measures and lighting requirements)	See Section 3.2.3, 5.1, 5.3, 7
o	the proposed access arrangements, including car and bus pickup/drop-off facilities, and measures to mitigate any associated traffic impacts and impacts on public transport, pedestrian and bicycle networks, including pedestrian crossings and refuges and speed control devices and zones	See Section 5.1, 5.3, 7
o	the number of proposed car parking spaces and compliance with appropriate parking codes, justifying the level of car parking provided on-site	See Section 4
o	measures to maintain road and personal safety in line with CPTED principles	See Section 5.4
o	proposed bicycle parking facilities in secure, convenient, accessible areas close to main entries incorporating lighting and passive surveillance	See Section 4.5, 5.2.3

Key traffic/ transport issue	Requirement	Relevant report Section
o	proposed end-of-trip facilities	See Section 5.2.3
o	a Pedestrian Access and Mobility Plan	See Section 5.1
o	details of emergency vehicle access arrangements	See Section 7.2
o	an assessment of road and pedestrian safety adjacent to the proposed development and the details of required road safety measures.	See Section 5.1
o	service vehicle access, delivery and loading arrangements and estimated service vehicle movements (including vehicle type and the likely arrival and departure times)	See Section 3.2.5, 7.4
o o o o o o o o o	in relation to construction traffic: assessment of cumulative impacts associated with other construction activities; an assessment of road safety at key intersection and locations subject to heavy vehicle construction traffic movements and high pedestrian activity; details of construction program detailing the anticipated construction duration and highlighting significant and milestone stages and events during the construction process; details of anticipated peak hour and daily construction vehicle movements to and from the site; details of access arrangements of construction vehicles, construction workers to and from the site, emergency vehicles and service vehicle; details of temporary cycling and pedestrian access during construction; details of proposed construction vehicle access arrangements at all stages of construction; and traffic and transport impacts during construction, including cumulative impacts associated with other construction activities, and how these impacts will be mitigated for any associated traffic, pedestrian, cyclists, parking and public transport, including the preparation of a draft Construction Traffic Management Plan to demonstrate the proposed management of the impact (which must include vehicle routes, number of trucks, hours of operation, access arrangements and traffic control measures for all demolition/construction activities)	See Section 9

1.4 References

In preparing this report, reference has been made to the following:

- An inspection of the site and its surrounds
- Maitland City Council (Council) Development Control Plan (DCP) 2011
- Roads and Maritime Services (Roads and Maritime) Schedule of Classified Roads and State and Regional Roads versions 2011/1
- Roads and Maritime, Guide to Traffic Generating Developments 2002
- Australian Standard/ New Zealand Standard, Parking Facilities, Part 1: Off-Street Car Parking AS/NZS 2890.1:2004
- Australian Standard, Parking Facilities, Part 2: Off-Street Commercial Vehicle Facilities AS 2890.2:2002
- Australian Standard, Parking Facilities, Part 3: Bicycle parking AS2890.3:2015
- Australian Standard / New Zealand Standard, Parking Facilities, Part 6: Off-Street Parking for People with Disabilities AS/NZS 2890.6:2009
- Traffic and car parking surveys undertaken by Matrix Traffic and Transport Data Pty Ltd as referenced in the context of this report
- Traffic surveys undertaken by Roads and Maritime Services and Maitland City Council as referenced in the context of this report
- Mid-block traffic survey data provided by Maitland City Council as referenced in the context of this report
- Base Source: Site Plan, Drawing No. BVN-ARH-01A-AX0-102, Issue 2, prepared by BVN, dated 17 September 2019
- *New Maitland Hospital - Traffic and Transport Assessment (2020 - Year of Opening)* (AECOM, December 2015)

- *New Maitland Hospital and Health Precinct- Traffic and Transport Assessment* (AECOM, November 2014)
- *New Maitland Hospital – Strategic Workforce Plan* (NSW Health, November 2015)
- *New Maitland Hospital – State Significant Infrastructure Transport Impact Statement* (GTA Consultants, 2018)
- *New Maitland Hospital Parking Demand Study* (GTA Consultants, October 2018)
- *New Maitland Hospital Traffic Management Plan Main Works (Draft)* (Multiplex, February 2019)
- Roads and Maritime Strategic Traffic Forecast Model outputs provided November 2017
- Austroads Guide to Traffic Management – Part 3: Traffic Studies and Analysis
- Austroads Guide to Traffic Management - Part 12: Traffic Impacts of Development
- Cycling Aspects of Austroads Guides (Austroads, June 2017)
- NSW Planning Guidelines for Walking and Cycling
- EIS Guidelines – Road and Related Facilities (DoPI)
- Other documents and data as referenced in this report.

2. Existing conditions

It is proposed that the NMH will be located on Lot 7314 and Part Lot 401 within the south-western portion of the 'Metford Triangle' along Metford Road, Metford. The site has a western frontage of 500 metres to Metford Road. The site has been declared State Significant Infrastructure and is generally cleared and disturbed land with an existing forest in the south western corner of the site.

The surrounding properties include:

- Council Sports Fields opposite the site on the corner of Fieldsend Street and Metford Road
- Council's depot on Metford Road
- Redundant brickworks site to the northeast of the site
- Bushland and residential to the south of the site.

The location of the subject site and its surrounding environs is shown in Figure 2.1.

Figure 2.1: Subject site and its environs

Source: Fitzpatrick+Partners 16 February 2018

2.1 Road network

This section provides an understanding of the current road network surrounding the site in terms of characteristics and operational performance.

2.1.1 Road hierarchy

Roads are classified according to the functions they perform. The main purpose of defining a road's functional class is to provide a basis for establishing the policies which guide the management of the road according to their intended service or qualities.

In terms of functional road classification, State roads are strategically important as they form the primary network used for the movement of people and goods between regions within Sydney, and throughout the State. Roads and Maritime is responsible for funding, prioritising and carrying out works on State roads. State roads generally include roads classified as freeways, state highways, and main roads under the 1993 Roads Act, and the regulation to manage the road system is stated in the Australian Road Rules (1999).

Roads and Maritime defines four levels in a typical functional road hierarchy, ranking from high mobility and low accessibility, to high accessibility and low mobility. These road classes are:

Arterial Roads – Controlled by Roads and Maritime, typically no limit in flow and designed to carry vehicles long distance between regional centres.

Sub-Arterial Roads – Managed by either Council or Roads and Maritime under a joint agreement. Typically, their operating capacity ranges between 10,000 and 20,000 vehicles per day, and their purpose is to carry through traffic between specific areas in a sub region or provide connectivity from arterial road routes (regional links).

Collector Roads – Provide connectivity between local sites and the sub-arterial road network, and typically carry between 2,000 and 10,000 vehicles per day.

Local Roads – Provide direct access to properties and the collector road system and typically carry between 500 and 4,000 vehicles per day.

2.1.2 Surrounding road network

Metford Road

Metford Road functions as a sub-arterial road and is aligned in a north-east, south-west direction on the western boundary of the site. It is a two-way road with one traffic lane in each direction, configured with a nine-metre wide carriageway.

A roundabout has recently been constructed at the Metford Road/ Fieldsend Street intersection, intended to provide the primary access for the NMH.

Metford Road is shown in Figure 2.2 and carries around 13,000 vehicles per day[1].

Fieldsend Street

Fieldsend Street functions as a local road and intersects Metford Road at the northern corner of the site. It is aligned in a north-west, south-east direction and is two-way with one traffic lane in each direction. 15 angle parking spaces have recently been constructed on Fieldsend Street adjacent to the sports fields.

Fieldsend Street provides access to the Council Sports Fields on the corner of Fieldsend Street and Metford Road.

1 Based on the peak hour traffic counts undertaken by GTA in May 2017 and assuming a peak-to-daily ratio of 10 per cent for arterial roads and 10 per cent for local roads. `

Council recently constructed a shared path on Fieldsend Street between Metford Road and Brunswick Street connecting to an off-road shared path to Victoria Station. Fieldsend Street is shown in Figure 2.3 and carries around 2,000 vehicles per day[2].

Figure 2.2: Metford Road (looking north-east)

Figure 2.3: Fieldsend Street (looking north-west)

Raymond Terrace Road

Raymond Terrace Road is classified as a State road in the Roads and Maritime *Schedule of Classified Roads and State and Regional Roads* versions 2011/1. Near the site it is aligned in a north-west, south-east direction and is two-way with one traffic lane in each direction. No kerbside parking is permitted.

Chelmsford Drive

Chelmsford Drive is classified as a sub-arterial road and is aligned in the north-west, south-east direction. It is a two-way road separated by a median, with one traffic lane as well as one bicycle lane and one parking lane in each direction east of Metford Road and two traffic lanes in each direction west of Metford Road, configured in a carriageway of 20 metres wide. Unrestricted kerbside parking is permitted on both sides of the road east of Metford Road, and no kerbside parking is permitted on Chelmsford Drive west of Metford Road.

New England Highway

The New England Highway is classified as a State road in the Roads and Maritime *Schedule of Classified Roads and State and Regional Roads* versions 2011/1. Near the site it is aligned in a north-west, south-east direction and is two-way with two traffic lanes in each direction. No kerbside parking is permitted.

2.1.3 Surrounding intersections

The following intersections currently exist near the site:

- Metford Road/ Raymond Terrace Road (roundabout)
- Metford Road/ Fieldsend Street (roundabout)
- Metford Road/ Chelmsford Drive (roundabout)
- New England Highway/ Chelmsford Drive (signalised)
- New England Highway/ Mitchell Drive (signalised)
- New England Highway/ Chisholm Road (signalised).

2 Based on the peak hour traffic counts undertaken by GTA in May 2017 and assuming a peak-to-daily ratio of 10 per cent for arterial roads and 10 per cent for local roads.

2.2 Local context

This section provides an overview of current and expected population for the area, including an understanding of current modes of transport used by those working in the surrounding area.

2.2.1 Population

AECOM (December 2015) provided a summary of the expected population growth in the Maitland Local Government Area (LGA), with an overall predicted growth of around 31,000 residents by 2031. Since then, updated population growth statistics have become available and can be accessed via HealthStats NSW. These forecasts show a similar overall growth of around 30,600 residents by 2031. A comparison of these statistics is presented in Table 2.1.

Table 2.1: Current and projected population, Maitland LGA

Source	2011	2016 [1]	2021	2026	2031	Change 2011-2031	% Change 2011-2031
AECOM (December 2015)	73,506	82,415	90,297	-	104,404	30,898	42
HealthStats NSW [2]	69,924	78,199	85,758	93,509	101,554	31,630	45

[1] Based on forecasts from 2011 Census data. 2016 Census data currently not available.
[2] Source: http://www.healthstats.nsw.gov.au/Indicator/dem_pop_lgamap/dem_pop_proj_age_trend

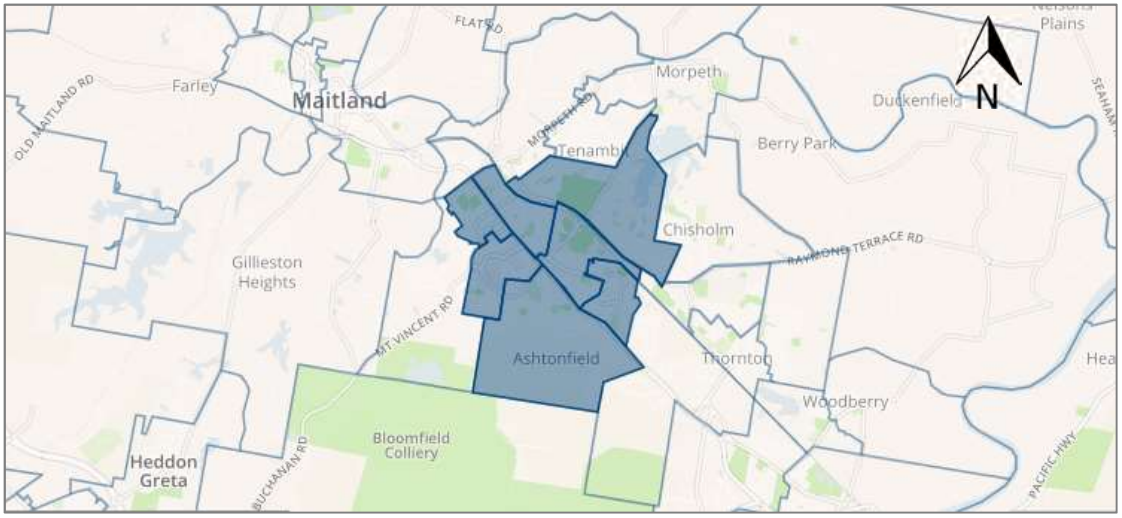
2.2.2 Journey to work data

Proposed Hospital Site

The Journey to Work (JTW) data published by the Bureau of Transport Statistics[3](BTS) from 2011 Census data provides an understanding of travel patterns to/ from the site and the surrounding area.

The smallest geographical area for which JTW data is available is a Travel Zone. The relevant Travel Zones used for the purposes of this assessment are 6609, 6610, 6611, 6612, 6613, 6614 and 6616 and are shown in Figure 2.4.

Figure 2.4: Travel Zones



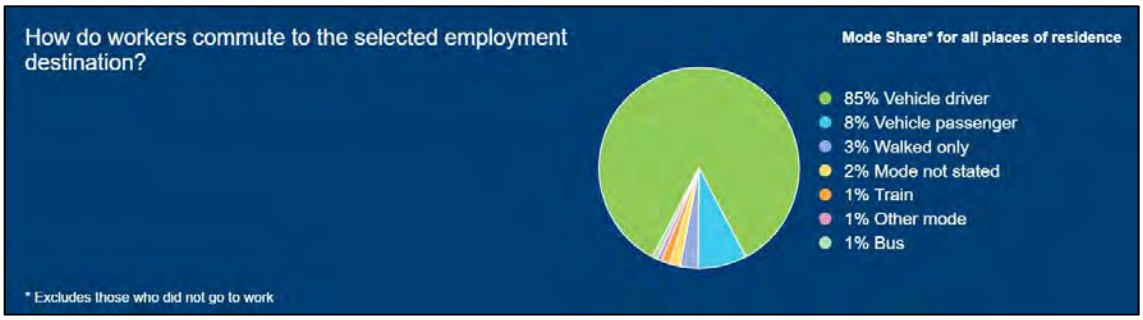
Source: Bureau of Transport Statistics, http://visual.bts.nsw.gov.au/jtwbasic/#6612,6613,6611,6610,6609,6616,6614, accessed 22 June 2017

[3] Now the "Transport Performance and Analytics" section of Transport for NSW

The JTW data indicates that a total of 6,603 people work within the selected Travel Zones.

Figure 2.5 shows the distribution of travel modes by the workers employed in the Travel Zones, which indicates that around 93 per cent of workers travel to the area by private vehicle as a driver or passenger. In addition, the JTW data indicates that six per cent of workers travelling to the area choose an alternate mode of transport such as walking, bus or train.

Figure 2.5: JTW travel modes by workers to the selected Travel Zones



Data source: Bureau of Transport Statistics, http://visual.bts.nsw.gov.au/jtwbasic/#6612,6613,6611,6610,6609,6616,6614, accessed 22 June 2017

The JTW data also indicates that around 62 per cent of workers travelling to the Travel Zone originate from the Maitland Area, while Newcastle accounts for 13 per cent, the Lower Hunter for nine per cent and the remaining areas for 16 per cent.

Existing Maitland Hospital

GTA Consultants (GTA) prepared a parking demand study in October 2018. This assessment included a review of the current mode share of staff at the existing Maitland Hospital, located at 560 High Street, Maitland. The hospital currently has 779 full time equivalent (FTE) staff and a total of 198 beds.

The site is well-serviced by public transport, with a bus stop located along the site frontage to High Street with bus services every 20 minutes. Furthermore, Telarah Railway Station is located around 600 metres west of the site.

Staff Surveys

An online staff questionnaire was distributed to all hospital staff in August 2018 to understand existing staff travel patterns, and a total of 74 responses were received. The results of the survey indicate that car travel was generally the main mode of travel to/from the hospital, with over 95 per cent of responses travelling by private vehicle (including car passengers and motorcyclists) with an average vehicle occupancy of 1.1 persons per vehicle according to those surveyed. It is noted that this value excluded people who travelled by car for a portion of the trip to/from the hospital, such as parking near a railway station or other public transport facilities as part of their commute.

The survey responses relating to current staff modes of transportation is summarised in Table 2.2.

Table 2.2: Mode of travel of staff

Mode of transport	Responses (%)
Car – As a driver	91.9
Car – As a passenger	1.35
Motorcycle / scooter	2.7
Bus	0
Bicycle	0
Walk	1.35
Train	1.35
Taxi	0
Split - Car/ Public Transport	1.35

It was found that the two main reasons for staff selection of these modes of transportation to/from the hospital was due to:

- Travel distance
- Convenience.

JTW Data

The mode of travel for hospital staff was generally consistent with the 2011 JTW data for Travel Zone 6600, shown in Figure 2.6.

Figure 2.6: Travel Zone containing Maitland Hospital

Base map source: https://www.transport.nsw.gov.au/data-and-research/forecasts-and-projections/travel-zone-explorer, accessed 23 August 2018.

The JTW data indicates that a total of 1,268 persons work within the selected Travel Zone.

Table 2.3 shows the distribution of travel modes by the workers employed in the Travel Zone, which indicates that of the people that travel to work around 93 percent of workers travel to the area by private vehicle as a driver or passenger.

Table 2.3: TW travel modes by workers within the Travel Zone

Travel Mode	Mode Share Split (%) [1]	
Vehicle Driver	88	93
Vehicle Passenger	5	
Train	2	
Bus	0	
Walked	1	
Other	1	
Not Stated	2	

[1] Excludes those who did not travel to work

2.3 Traffic volumes

Traffic movement surveys were undertaken on Thursday 18 May, Thursday 25 May and Saturday 27 May 2017 during the following peak periods:

- Thursday 7am to 9am
- Thursday 3pm to 6pm
- Saturday 8:30am to 3pm.

The following intersections were included in the traffic survey:

- Metford Road/ Raymond Terrace Road (roundabout)
- Metford Road/ Fieldsend Street (give way)
- Metford Road/ Chelmsford Drive (roundabout).

Following consultation with Roads and Maritime it was concluded on 21 March 2018 that traffic surveys of New England Highway should be completed after the final stage of the Stockland Green Hills Shopping Centre development opens and traffic patterns have adjusted.

Subsequently, traffic movement surveys were undertaken by Roads and Maritime on Tuesday 26 July 2018 during the following peak periods:

- Thursday 6am to 10am
- Thursday 2pm to 6pm.

The following intersections were included in the traffic surveys:

- New England Highway/ Chisholm Road
- New England Highway/ Chelmsford Drive
- New England Highway/ Mitchell Drive.

Similarly, Council provided GTA Consultants with updated traffic survey data for the intersection of Metford Road/ Chelmsford Drive to capture the increase in traffic volumes since the final stage of the Stockland Green Hills Shopping Centre development opened and traffic patterns have adjusted. The survey data was captured on 17 May 2019 during the following peak periods:

- Thursday 7:30am to 9:30am
- Thursday 4pm to 6pm.

The actual AM and PM peak hours are provided in Table 2.4.

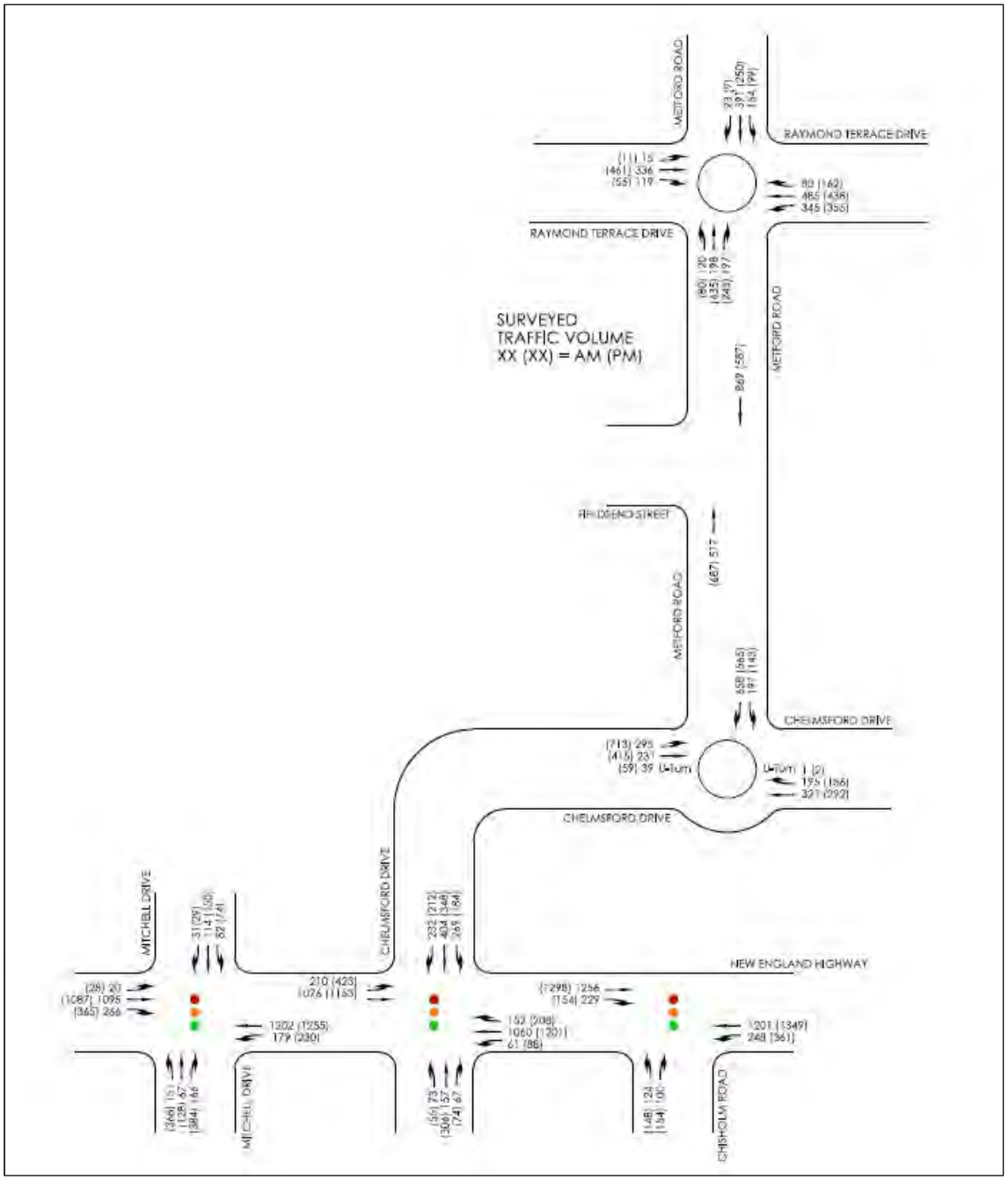
Table 2.4: Peak hours[1]

	Metford Rd/ Chelmsford Dr	Metford Rd/ Fieldsend St	Metford Rd/ Raymond Terrace Rd	New England Hwy/ Chisholm Rd	New England Hwy/ Chelmsford Dr	New England Hwy/ Mitchell Dr
Survey Period	**May 2019**	**May 2017**	**May 2017**	**July 2018**	**July 2018**	**July 2018**
Thursday AM	8am – 9am	8am – 9am	8am – 9am	7:45am – 8:45am	8:15am – 9:15am	8:15am – 9:15am
Thursday PM	4:30pm – 5:30pm	4:30pm – 5:30pm	4:30pm – 5:30pm	3:30pm – 4:30pm	3:30pm – 4:30pm	3:30pm – 4:30pm
Saturday	10:45am – 11:45am	10:45am – 11:45am	11am – 12pm	n/a	n/a	n/a

The May 2017 Metford Road/ Fieldsend Street and Metford Road/ Raymond Terrace Road, July 2018 New England Highway and May 2019 Metford Road/ Chelmsford Drive traffic volumes are summarised in Figure 2.7, with full results contained in Appendix A.

It is noted that Council was undertaking road works on Fieldsend Street between Turton Street and Metford Road during the traffic surveys. This work resulted in the closure of this section of Fieldsend Street during the survey period. Due to the closure of Fieldsend Street, historical data was provided by Council to determine an appropriate estimation of traffic flows for Fieldsend Street, this was outlined in the Stage 1 SSI Transport Assessment.

Figure 2.7: Existing AM and PM peak hour traffic volumes (May 2017/ July 2018/ May 2019)



The intersection of Metford Road/ Fieldsend Street has recently been upgraded to a roundabout in association with the enabling works for the NMH. The updated layout is shown in Figure 2.8.

Figure 2.8: Metford Road/ Fieldsend Street upgraded intersection layout

Source: Nearmap

2.4 Intersection operation

The operation of the key intersections within the study area have been assessed using SIDRA Intersection[4], a computer-based modelling package which calculates intersection performance.

The commonly used measure of intersection performance, as defined by Roads and Maritime, is vehicle delay. SIDRA Intersection determines the average delay that vehicles encounter and provides a measure of the level of service. A level of service of D or better is generally considered acceptable operation.

Table 2.5 shows the criteria that SIDRA Intersection adopts in assessing the level of service.

Table 2.5: SIDRA Intersection level of service criteria

Level of service	Average delay per vehicle (secs/veh)	Traffic signals, roundabouts	Give way and stop signs
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Near capacity	Near capacity, accident study required
E	57 to 70	At capacity, at signals incidents will cause excessive delays	At capacity, requires other control mode
F	Greater than 70	Extra capacity required	Extreme delay, major treatment required

[4] Program used under license from Akcelik & Associates Pty Ltd.

2.4.1 Metford Road

Table 2.6 presents a summary of the existing operation of the intersections along Metford Road, with full results presented in Appendix B of this report.

Table 2.6: Existing operating conditions – Metford Road (2017/ 2019)

Intersection	Peak	Leg	Degree of saturation	Average delay (sec)	95th percentile queue (m)	Level of service
Chelmsford Drive/ Metford Road	AM	South East	0.99	54	168	D
		North East	0.87	18	122	B
		North West	0.26	12	13	A
	PM	South East	0.75	23	66	B
		North East	0.91	28	137	B
		North West	0.44	12	26	A
Metford Road/ Fieldsend Street (roundabout)	AM	South East	0.00	5	0	A
		North East	0.57	9	34	A
		North West	0.12	11	4	A
		South West	0.40	11	16	A
	PM	North East	0	3	0	A
		North East	0.45	9	24	A
		North West	0.14	13	5	A
		South West	0.52	11	24	A
Metford Road/ Raymond Terrace Road	AM	South East	0.60	16	40	B
		North East	0.44	12	19	A
		North West	0.38	11	18	A
		South West	0.46	13	25	A
	PM	South East	0.53	13	28	A
		North East	0.30	12	12	A
		North West	0.54	14	30	B
		South West	0.67	16	52	B

Based on the results outlined in Table 2.6, the intersections of Metford Road/ Chelmsford Drive, Metford Road/ Fieldsend Street and Metford Road/ Raymond Terrace Road currently operate satisfactorily in peak conditions.

It is noted that the Chelmsford Drive south east approach to the Metford Road roundabout does queue in the AM peak and results and observations show that it is nearing capacity.

2.4.2 New England Highway

Table 2.7 presents a summary of the existing operation of the intersections along New England Highway, with full results presented in Appendix B of this report.

Table 2.7: Existing operating conditions – New England Highway (2018)

Intersection	Peak	Leg	Degree of saturation	Average delay (sec)	95th percentile queue (m)	Level of service
Chelmsford Drive/ New England Highway	AM	South East	0.60	25	152	LOS B
		North East	0.50	39	90	LOS C
		North West	0.83	35	240	LOS C
		South West	0.41	60	34	LOS E
		Overall	**0.83**	**35**	**240**	**LOS C**
	PM	South East	0.60	20	150	LOS B
		North East	0.87	47	103	LOS D
		North West	0.87	36	265	LOS C
		South West	0.58	54	67	LOS D
		Overall	**0.87**	**34**	**265**	**LOS C**
Mitchell Drive/ New England Highway	AM	South East	0.47	14	115	LOS A
		North East	0.40	58	36	LOS E
		North West	0.63	20	117	LOS B
		South West	0.54	51	38	LOS D
		Overall	**0.63**	**23**	**117**	**LOS B**
	PM	South East	0.55	21	146	LOS B
		North East	0.33	54	31	LOS D
		North West	0.80	25	123	LOS B
		South West	0.94	56	105	LOS D
		Overall	**0.94**	**32**	**146**	**LOS C**
Chisholm Road/ New England Highway	AM	South East	0.51	12	146	LOS A
		North West	0.97	14	129	LOS A
		South West	0.71	55	48	LOS D
		Overall	**0.97**	**16**	**146**	**LOS B**
	PM	South East	0.57	11	165	LOS A
		North West	0.89	8	76	LOS A
		South West	0.80	56	73	LOS D
		Overall	**0.89**	**14**	**165**	**LOS A**

Based on the results outlined in Table 2.7, the intersections of New England Highway/ Chelmsford Drive and New England Highway/ Mitchell Drive currently overall operate satisfactory in peak conditions, however the Chelmsford Drive north west approach indicates queuing in peak conditions.

The intersection of New England Highway/ Chisholm Road currently operates well and with spare capacity in peak conditions.

2.5 Public transport

Bus services provide local connections to the outer areas of Metford, including East Maitland and Thornton.

Victoria Street Railway Station is located around 1.4 kilometres from the NMH site. It is part of the Hunter Line, with services alternately servicing Newcastle to Telarah, Dungong and Scone. Services at Victoria Street Railway Station are generally provided every 30 minutes.

A review of the public transport available near the site is summarised in Table 2.8 and illustrated in Figure 2.9.

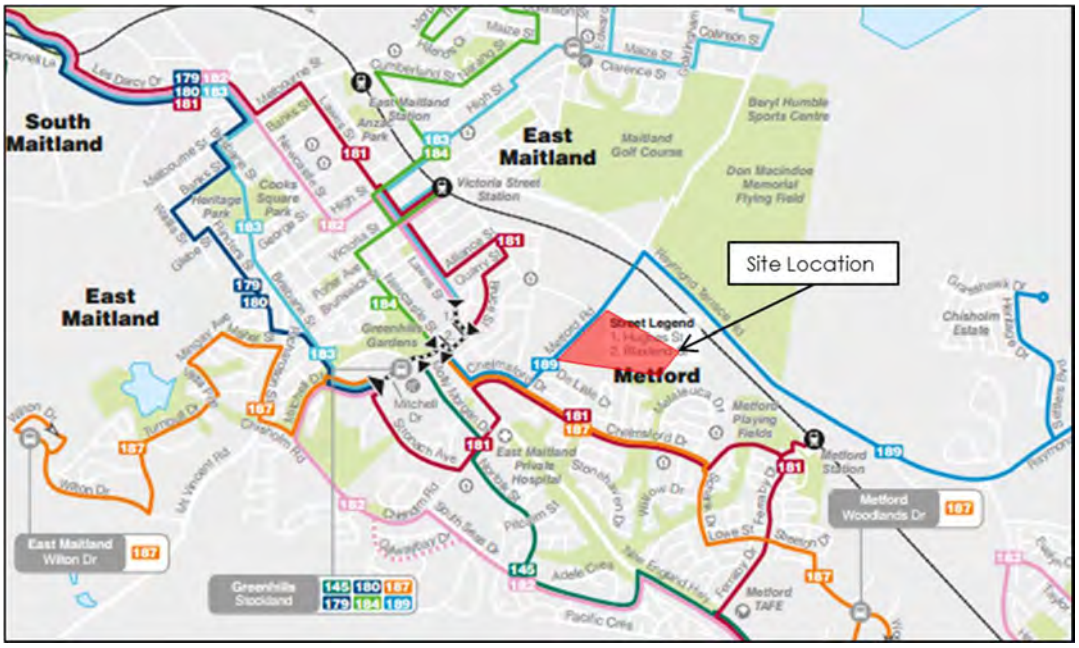
Table 2.8: Public transport routes and frequencies

Service	Route number	Route description	Location of stop	Distance to nearest stop[1]	Frequency on/ off-peak
Bus	181	Rutherford to Woodberry	Metford Road/Chelmsford	650 m	Hourly
	187	East Maitland and Metford Loop			Hourly peak / every 2 hours off peak
	189	Stockland Green Hills to Thornton			Hourly peak / every 2 hours off peak
Train	n/a	Hunter Line	Victoria Street Station	1.4 km	Every 30 min
			Metford Station	2.7 km	

[1] Distance taken from the Metford Road/Fieldsend Street intersection

Currently the only bus services using Metford Road is the 189-bus service, private operators and school bus services.

Figure 2.9: Hunter Valley train and bus network – Metford/ East Maitland



Basemap Source: http://www.cdcbus.com.au/images/files/maps/hunter-valley/Maitland_and_Raymond_Terrace_Region_Map.pdf (accessed 5 May 2017)

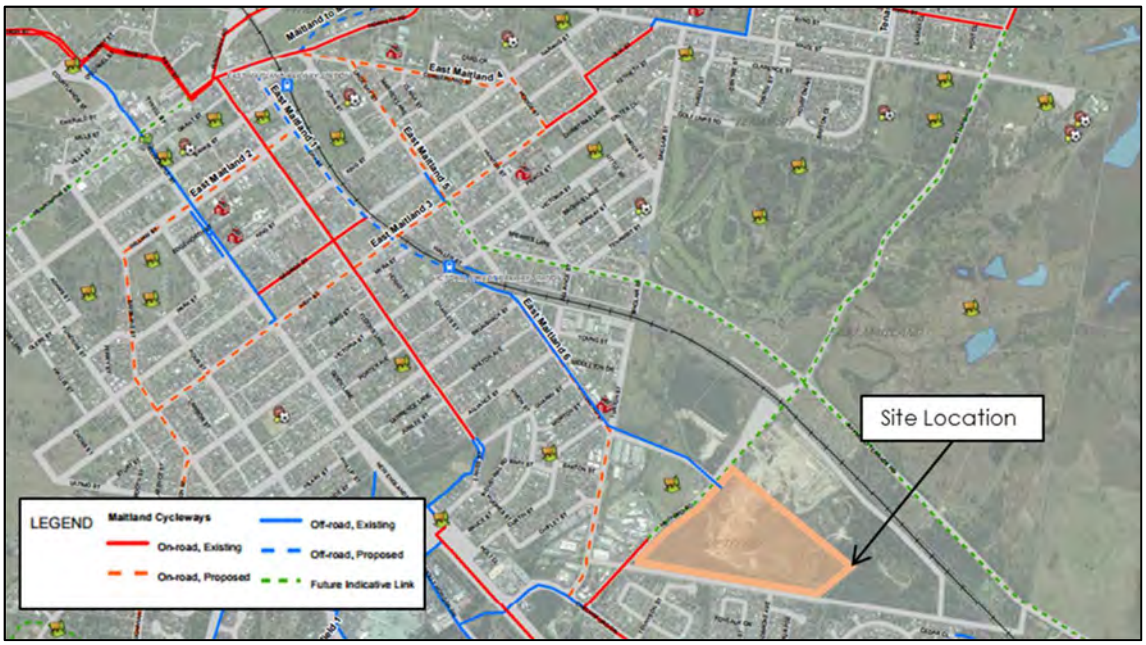
2.6 Pedestrian and bicycle infrastructure

Council has recently constructed a shared path on Fieldsend Street connecting Metford Road through to Victoria Street Station. This also connects to a new footpath provided on the north western side of Metford Road between Fieldsend Street and the Council Depot.

The cycling network of East Maitland, including proposed on-road and off-road cycleways is shown in Figure 2.10.

During several site visits undertaken by GTA there were no pedestrian or cyclist activity observed along Metford Road.

Figure 2.10: Maitland bike network

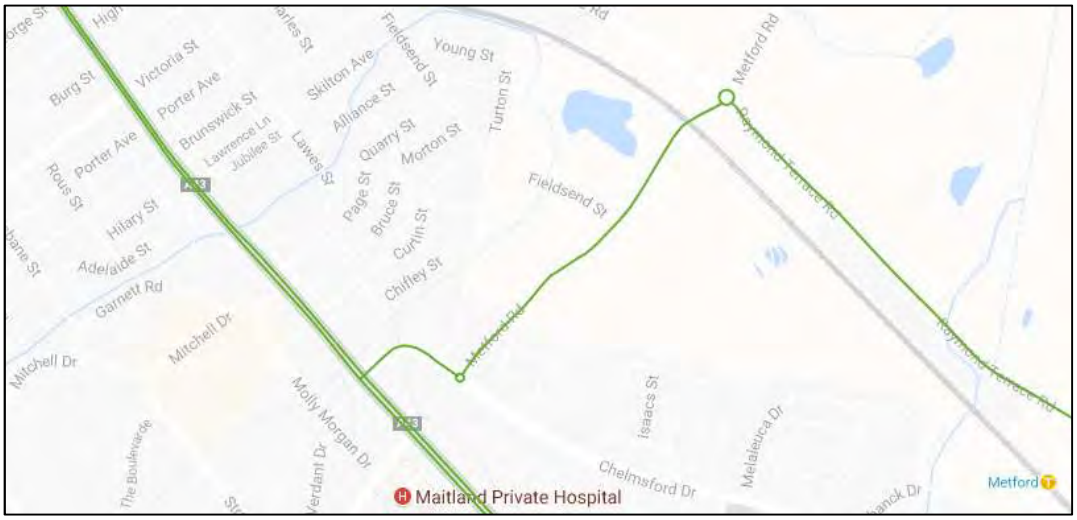


Basemap Source: https://www.maitland.nsw.gov.au (accessed 1 March 2018)

2.7 Heavy vehicle routes

It is noted that Metford Road between Chelmsford Street and Raymond Terrace Road is a Roads and Maritime approved 25-metre, B-double route. As such, any changes to road design and intersection layout proposed for the NMH must continue to accommodate 25-metre, B-double movements.

Figure 2.11: Roads and Maritime – B-double routes



Source: http://www.rms.nsw.gov.au/business-industry/heavy-vehicles/maps/restricted-access-vehicles-map/map/index.html (accessed 5 July 2017)

2.8 Crash analysis

Crash data for the roads near the site has been obtained from Roads and Maritime. The crash data relates to the five-year period to June 2016.

Within this period, two crashes occurred on Fieldsend Street (between Metford Road and Turton Street) and nine crashes occurred on Metford Road (between Chelmsford Drive and Raymond Terrace Road). A summary of the crash history is provided as follows:

- Of the two crashes on Fieldsend Street, one crash resulted in a moderate injury on an overcast day at the intersection of Turton Street and Fieldsend Street.
- Of the nine crashes on Metford Road, two crashes resulted in moderate injuries. The first occurred at the intersection of Metford Road and Raymond Terrace Road on a fine day and the second occurred on Metford Road with the vehicle travelling off the road and into a roadside utility pole during a rainy day.

3. Development proposal

This section provides an overview of the enabling works recently completed; the Stage 2 works as well as the NMH development to provide context in relation to this assessment.

3.1 Approved Works

3.1.1 Overview of enabling works (completed)

It is noted that the enabling works were delivered outside of the State Significant Infrastructure (SSI) project and have been assessed under Part 5 of the EP&A Act and the provisions of State Environmental Planning Policy (Infrastructure) 2007. An Assessment of Review of Environmental Factors (REF) was approved on 12 October 2017 and the works have recently been completed.

To provide access to the site and prepare the site for the potential development of the NMH an upgrade of Metford Road between the Council depot and Fieldsend Street was recently completed.

This included the following two accesses:

- Roundabout to accommodate the primary site access at the Metford Road/ Fieldsend Street intersection
- Emergency vehicle access around 130 metres south of the Metford Road/ Fieldsend Street intersection on Metford Road.

An overview of the site access locations and changes to the Metford Road corridor are shown in Figure 3.1.

Figure 3.1: Enabling Works - Metford Road upgrade (recently constructed)

Source: Nearmap

3.1.2 Overview of Stage 1 Early Works (approved and in progress)

Stage 1 includes site clearance and preparatory works generally comprising;

- bulk earthworks
- utility connections
- in-ground infrastructure works
- vegetation removal
- building foundations
- drainage infrastructure
- construction of temporary roads, temporary car parking area, temporary fencing and site office/ compound.

3.2 Proposed Works

3.2.1 Overview of the Stage 2 Main Works

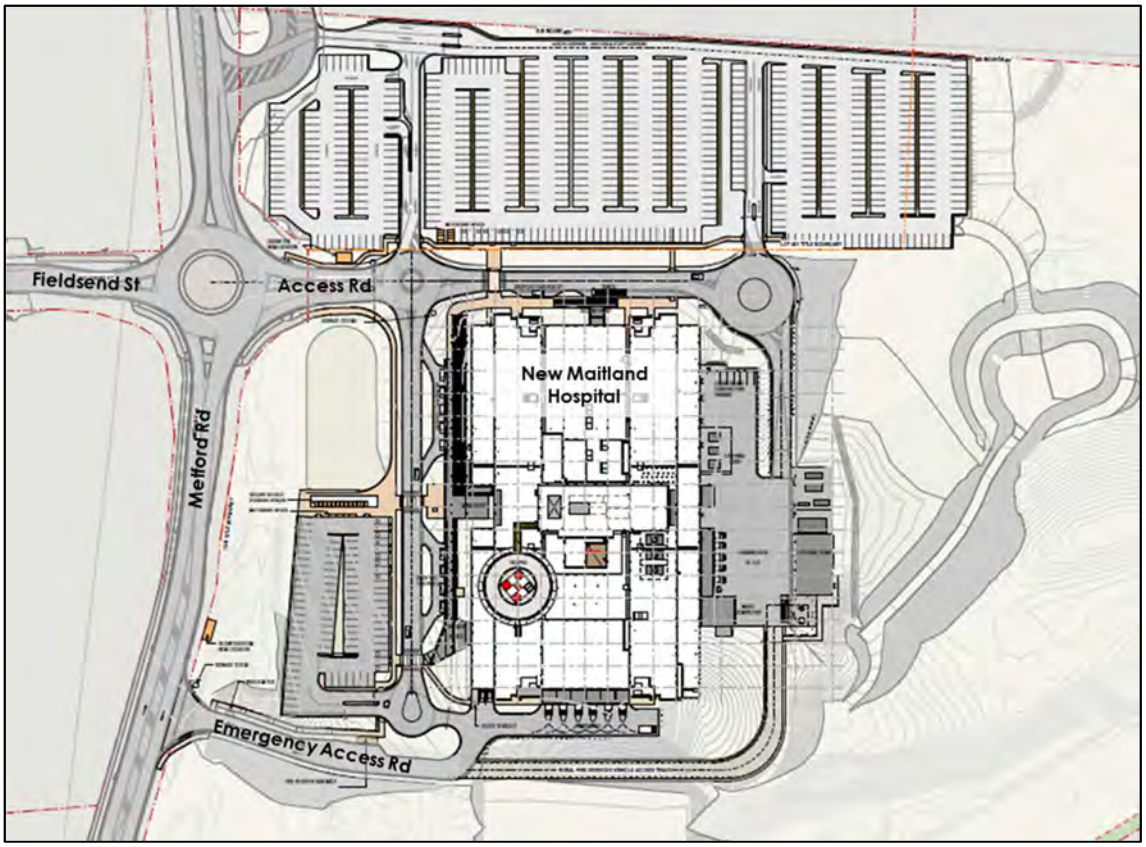
Stage 2 includes the design and construction of the NMH generally comprising of:

- A new seven storey Acute Services Building, including:
  - Emergency services
  - Medical, surgical, paediatric and maternity services
  - Critical care services for adults and babies, including a special care nursery
  - Operating theatres, delivery suites and assessment rooms
  - Palliative care and rehabilitation services
  - Mental health services
  - Satellite renal dialysis
  - New chemotherapy services
  - Oral health service
  - A range of ambulatory care and outpatient clinics.
- Internal road network and car parking for staff, patients and visitors;
- Signage
- Site landscaping and open space improvements
- Tree removal
- Utility and services connection and amplifications works.

It is proposed that the NMH would consist of 339 beds and is projected to employ around 893 FTE staff at the proposed year of opening, 1,106 FTE staff five years after opening and 1,162 FTE staff ten years after opening.

An indicative layout of the proposed hospital is provided in Figure 3.2.

Figure 3.2: Proposed NMH Site Plan



Base Source: Site Plan, Drawing No. BVN-ARH-01A-AX0-102, Issue 2, prepared by BVN, dated 17 September 2019

3.2.2 Car parking

A parking demand study for the NMH has been prepared by GTA (October 2018), which determined the parking requirements to accommodate for all staff, visitors and patients. The NMH proposes to provide a total of 682 on-site parking spaces at the year of opening, including 595 staff and long-term patient/ visitor parking spaces and 87 short term public/visitor parking spaces.

It is proposed that the hospital will have an at grade car park to the north of the hospital building for staff and long-term patient/visitors and an at-grade short stay car park on the western side of the hospital. The proposed design provides the flexibility for allocation of staff/visitor car park 'long stay' and 'short stay' parking in any configuration to meet demand. This would be managed through signage and boom gate controls.

The project proposes a staged infrastructure approach to address the longer-term car parking demand assessment for the NMH and is committed to delivering the residual 140 car parks, beyond the early 2021 supply needs, to satisfy the incremental 10-year peak parking demand to 2031/ 2032.

The additional 140 car parks are proposed to be constructed on-grade within the 19.57 ha. site. This staged approach will allow the opportunity to accommodate broader planning and design efficiencies to be considered ahead of the additional car parking infrastructure being constructed as needed.

The car parking provision requirement is discussed in Section 4.

3.2.3 Pedestrian and bicycle facilities

The proposed pedestrian facilities within the NMH site connect with the northern and western car parks, Metford Road and the Main Hospital Building. This includes associated pedestrian crossings on the internal access roads.

Pedestrian connections within the NMH site are being designed to connect with Council's recently constructed shared path along Fieldsend Street and footpath on Metford Road. By providing these connections, the NMH site will be maximising the opportunity for active connections to the Victoria Street Railway Station.

24 secure bicycle spaces are proposed to be located on site to the north of the western car park with access to end of trip facilities and designed in accordance with AS2890.3 (Bicycle Parking Facilities). At least 12 bicycle racks will also be provided at the same location for visitor use with easily access from Metford Road.

The suitability of the proposed pedestrian facilities is discussed in Section 5.1 of this report.

3.2.4 Bus Zone

There is one bus zone proposed on the northern side of the hospital, accessed via the Metford Road roundabout, capable of accommodating two buses.

The suitability of the proposed bus zone is discussed in Section 5.3 of this report.

3.2.5 Loading areas

A loading area is proposed on the lower ground level at the rear of the hospital, accessed through the eastern internal access roundabout as shown in Figure 3.2. The loading area is proposed to accommodate vehicles up to and including 12.5-metre vehicles within six loading bays.

The refuse storage area will be located adjacent to the loading area within the lower ground level of the hospital site.

3.2.6 Emergency Vehicle Area

There is one emergency vehicle area with six drop off bays proposed on the ground level at the southern side of the hospital, accessed through the emergency vehicle access.

4. Car parking

4.1 Car parking requirements

GTA prepared the *New Maitland Hospital Parking Demand Study* in October 2018 which provided the parking recommendations for the proposed hospital as outlined in Table 4.1 and is provided in Appendix G.

Table 4.1: Recommended car parking demand (peak)

Source	Existing Hospital	Opening Year	5-year horizon	10-year horizon	Sensitivity Scenario
	2018	2021/22	2026/27	2031/32	2031/32
Staff	222	461	554	578	578
VMOs	7	24	30	30	30
Public (hospital users)	195	164	175	184	197
LHD & Fleet vehicles	18	30	30	30	30
Total demand	**442**	**679**	**789**	**822**	**835**
Total incremental peak parking demand		-	110	143	156

Table 4.1 indicates that on the year of opening, the NMH requires a total of 679 parking spaces.

4.2 Adequacy of parking supply

The parking layout proposes to accommodate 682 spaces at the year of opening, comprised of 595 staff and long-term patient/ visitor parking spaces and 87 short-term public/ visitor parking spaces. This parking provision meets the parking demand for the year of opening as outlined in the Parking Demand Study prepared by GTA (October 2018) for the proposed NMH.

The proposed design provides the flexibility for allocation of staff/visitor car park 'long stay' and 'short stay' parking in any configuration to meet demand. This would be managed through signage and boom gate controls.

The additional 140 car parks are proposed to be constructed on-grade within the 19.57 ha. site. This staged approach will allow the opportunity to accommodate broader planning and design efficiencies to be considered ahead of the additional car parking infrastructure being constructed as needed.

The Local Health District plan to monitor the car park utilisation and will commence constructing the additional car parking spaces when required. A review of parking demand is therefore proposed to be undertaken within three years of opening to verify the parking demand estimated in the Parking Demand Study.

4.3 Disabled parking

The disabled car parking requirements for different development types are set out in the Building Code of Australia (BCA), 2014.

Table 4.2: Disabled parking requirement (BCA 2004)

Class 9a [1]	No. of car parking spaces required
(a) Hospital (non-outpatient area)	1 space for every 100 car parking spaces or part thereof
(b) Hospital (outpatient area)	
(i) up to 1000 car parking spaces; and	1 space for every 50 car parking spaces or part thereof
(ii) for each additional 100 car parking spaces or part thereof in excess of 1000 car parking spaces	1 space
(c) Nursing home	1 space for every 100 car parking spaces or part thereof
(d) Clinic of day surgery not forming part of a hospital	1 space for every 100 car parking spaces or part thereof

[1] Class 9a is defined in the BDA 2004 as a *health care building*

Based on 682 spaces, the proposal will be required to provide between 7 and 14 accessible spaces to be compliant with the BCA. The proposed development provides 14 disabled spaces in accordance with the BCA, eight within the at-grade western car park and eight in the north

4.4 Motorcycle parking

DCP 2011 does not provide specific guidance on motorcycle parking provision requirements. The proposal provides 12 motorcycle spaces, four within the western car park and eight within the northern car park.

4.5 Bicycle parking

DCP 2011 refers to the Austroads Guide to Traffic Engineering, Part 14 for bike parking rate and facilities. A review of the bicycle parking requirements is summarised in Table 4.3.

Table 4.3: Bicycle parking requirement (Austroads)

Defined Use	Description	Size	Parking Rate	Parking Requirement	Class
General Hospital	Long Term (Staff Parking)	339 beds	1 space per 15 beds	23 spaces	1 or 2 Facilities
	Short Term (Visitor Parking)		1 space per 30 beds	12 spaces	3 Facilities

Based on the Austroads requirements, the NMH would be required to provide 35 bicycle parking spaces, including 23 staff and 12 visitor spaces.

24 secure bicycle spaces are proposed to be located on site to the north of the western car park with access to end of trip facilities, discussed in Section 5.2.3. At least 12 bicycle racks will also be provided at the same location for visitor use with easily access from Metford Road and in well-lit areas with good active and passive surveillance.

4.6 Car park layout review

Overall, the site access arrangements and car park layout have been designed in accordance with the Australian Standard for Off Street Car Parking (AS/NZS2890.1:2004 and AS/NZS2890.6:2009). Public/ visitor car parking spaces are required to be a minimum of 2.6 metres wide and 5.4 metres long and staff car parking spaces are required to be a reduced minimum of 2.4 metres wide and 5.4 metres long. Car spaces have been designed to be at least 2.6 metres wide by 5.4 metres long which would cater for both staff and visitor parking requirements.

Internal aisle widths are proposed to be a minimum of 6 metres which meets the minimum requirement of 5.8 metres. A swept path assessment and design review is provided in Appendix C.

5. Sustainable transport infrastructure

5.1 Pedestrian and cycle policy

5.1.1 Better Placed – An Integrated Design Policy for the Build Environment of NSW 2007

Multiple environmental and health benefits are created through walkable access, cycling and public transport by reducing private car usage, traffic impacts and household transport costs. Better Placed has been developed by the Government Architect to deliver the strategic approach needed to ensure that as our cities and towns grow bigger they get even better.

As transport is responsible for around 14 per cent of the state's greenhouse gas emissions, there is a need to provide people with public transport options, and promote walking and cycling for short trips, in order to meet environmental objectives. This is further detailed in the Work Travel Plan in Section 8.

5.1.2 NSW Planning Guidelines for Walking and Cycling

The Planning Guidelines for Walking and Cycling provide guidance to land-use planners to ensure that walking and cycling improvements are taken into consideration in planning policy and practice. The guidelines provide a walking and cycling focus to the NSW Government's Integrating Land Use & Transport Planning Policy Package.

The guidelines suggest that "when making planning instruments, councils are encouraged to integrate relevant state and local policies related to walking and cycling". This includes development policies in the DCPs and LEPs that encourage walking and/or cycling that would be considered during the development assessment stage thereby encourage improvements to walking and cycling facilities.

The proposed bicycle parking facilities are discussed in Section 3.2.3, Section 4.5 and Section 5.2 of this report.

5.2 Proposed pedestrian and cycling network

5.2.1 External network

Council's recently constructed shared path along the northern side of Fieldsend Street, between Metford Road and Curtin Street, is shown in Figure 5.1. It is noted the path extends to Brunswick Street where it connects to the existing shared path traveling adjacent to the railway line towards Victoria Street Station.

Furthermore, as part of the enabling works, the Metford Road upgrades included the construction of a pedestrian path on the north-western side of Metford Road between Fieldsend Street and the Council depot. The upgrades also included the construction of pedestrian refuges on the western, southern and eastern leg of the upgraded Metford Road/ Fieldsend Street intersection, as illustrated in Figure 5.1.

Figure 5.1: Recently constructed pedestrian/ cycle facilities

Source: Nearmap

Based on the proposed future mode share of the NMH outlined in the Green Travel Plan (GTP), prepared by GTA Consultants in March 2019, it is likely that there would be five to 10 bicycle trips respectively in the AM and PM peak hours, and up to five walking trips in any peak hour.

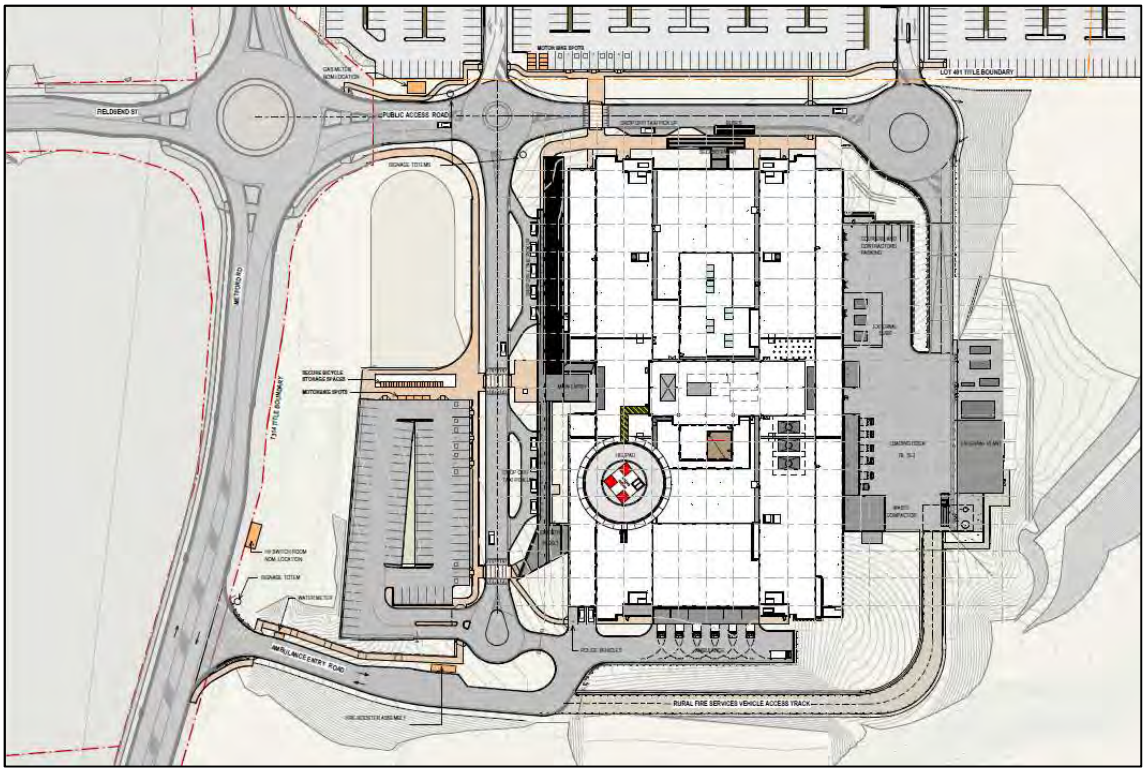
Pedestrian volumes across Metford Road are therefore expected to be relatively low. This is primarily due to the railway station being 1.4 kilometres from the NMH. Parking for staff and visitors would be provided on site and those travelling by bus or taxi would arrive and depart from within the NMH site accessing the hospital through internal pedestrian connections.

A pedestrian refuge has been constructed on Metford Road, as shown in Figure 5.1, at the new roundabout to safely accommodate these pedestrian movements. It is noted that the expected future pedestrian volumes do not warrant any form of formalised pedestrian crossing at this location, even with the potential mode shift outlined in the GTP (GTA 2019).

5.2.2 Internal network

The pedestrian connections within the NMH site are being designed to connect with Council's recently constructed shared path along Fieldsend Street, through the site and to the proposed two metre wide shared path along Metford Road to Chelmsford Drive. By providing a connection to Fieldsend Street and the proposed Metford Road shared path, the NMH site will be maximising the opportunity for cyclists to access the Victoria Street Railway Station and Green Hills Shopping Centre. The proposed pedestrian facilities within the NMH site connect with the northern and western car parks, Metford Road and the hospital building. This includes associated pedestrian crossings across the internal access roads as shown in Figure 5.2.

Figure 5.2: Proposed NMH pedestrian network



Base Source: Site Plan, Drawing No. BVN-ARH-01A-AX0-102, Issue 2, prepared by BVN, dated 17 September 2019

5.2.3 End of Trip Facilities

Given that DCP 2011 does not specify any requirements for end of trip facilities, it is recommended that end of trip facilities are provided in accordance with the following:

- One bathroom and change area shall be provided and shall contain at least one toilet, wash basin, mirror, clothing hooks and power points (including shaving plugs).
- One bathroom and change area(s) per 10 required bicycle parking spaces.
- Clothes lockers to be provided at the rate of one clothes locker for every required bicycle parking space.

Based on the provision of 24 bicycle spaces for staff, the development proposes to extend the back of house change facilities to accommodate a total of seven showers rather than provide a standalone facility. This approach provides greater flexibility and increased amenity and efficiencies.

5.3 Proposed public transport

The site is accessible by public transport with a bus stop within 650 metres for local connections. The train station is around 1.4 kilometres away from the NMH for connections outside the local Maitland area. Existing services are discussed in Section 2.5.

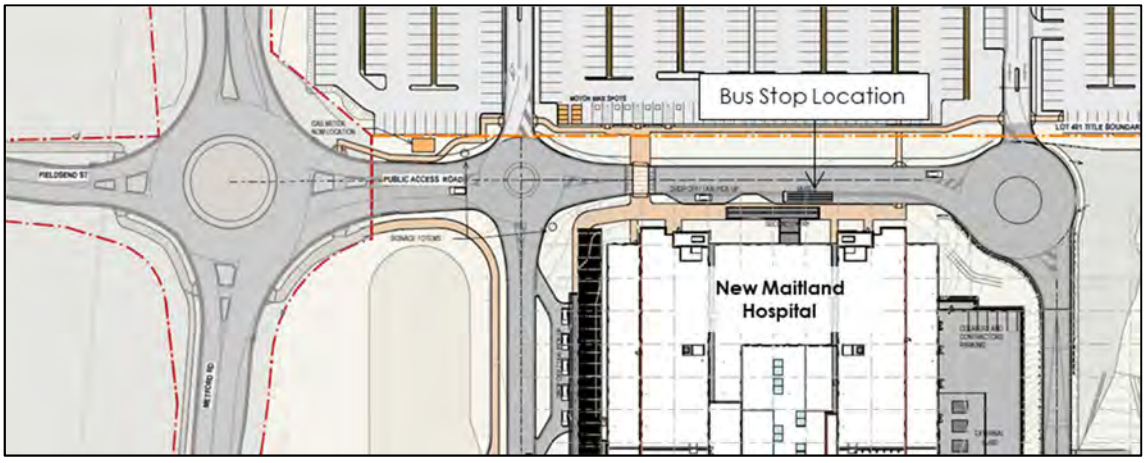
The integration of the proposed NMH with local public transport services is discussed in the following sections.

5.3.1 Internal facilities

The proposed NMH includes the provision for two bus bays for incorporation into Hunter Valley bus routes. As illustrated in Figure 5.3, bus routes will access the site via the Metford Road/ Fieldsend

Street roundabout and circulate around the eastern-most internal roundabout to access the bus stop located near the Main Hospital entry on the southern edge of the internal access road.

Figure 5.3: Proposed NMH bus stop location



Base Source: Site Plan, Drawing No. BVN-ARH-01A-AX0-102, Issue 2, prepared by BVN, dated 17 September 2019

Two bus stop bays are proposed which exceeds the expected capacity of one bus stop bay as outlined in the *State Transit Bus Infrastructure Guide (BI Guide)*. Section 3.10 of the BI Guide provides guidance on bus stop capacity based on the frequency of bus arrival and the dwell time at the stop. Table 5.1 is provided as a guideline to the number of spaces required.

Table 5.1: Bus Infrastructure Guide - minimum bus stop capacity

Buses Passing Stop in Busiest Hour	Number of Bus Spaces
Up to 15	1
30 – 45	2
69 – 75	3
75 – 90	4
90 – 120	5
120 - 180	6

Table 5.1 is based on a 20 – 30 second dwell time. One designated bus stop would provide sufficient capacity to accommodate the expected future bus services however two bus bays are proposed to potentially allow for longer dwell times if required.

Both internal roundabouts have been designed to accommodate bus movements, as illustrated in the swept path assessment included in Appendix C. Furthermore, the raised pedestrian crossing across the internal road, illustrated in Figure 5.3, has been designed with a maximum profile of 75mm, suitable for buses to traverse. The design is in accordance with the Guidelines for Public Transport Capable Infrastructure in Greenfield Sites.

Providing two bus stops within the development site will encourage public transport use and remove safety concerns that could occur by implementing a bus stop location within the Metford Road corridor. It is anticipated that community buses will pick up and drop off at the NMH and they will utilise the bus bays to drop off/pick up. The expected number of community buses per hour/day is likely to be minimal and could easily be scheduled and accommodated in the proposed bus bay area.

5.3.2 Future Bus Services

Considering the level of activity expected from the hospital, it is reasonable to assume that the proposed NMH would generate a demand for public transport if convenient routes and

schedules are proposed. To further encourage staff and visitors to use these services, it is recommended that public transport trips be arranged to align with hospital shifts.

As discussed in Section 2.5, currently only the 189 bus service travels past the NMH site, from Thornton Station to Green Hills, however, this service does not connect to Victoria Street Station. The service runs hourly on weekdays and does not operate on weekends.

Health Infrastructure met with Hunter Valley Buses, the contractor to Transport for NSW for bus services to the Lower Hunter, in October 2018. Hunter Valley buses reviewed the proposed NMH on-site bus stop access and layout and noted they were comfortable with the design.

Health Infrastructure are currently lobbying Hunter Valley Buses and Transport for NSW for the inclusion of the NMH proposed bus stop and Victoria Street Station into the 189 and/or 181bus routes, in addition to the extension of services to weekends. It is Health Infrastructures intention for these service changes to occur by the proposed year of opening for the NMH. Given the distance to Victoria St station is 1.4 kilometres, the connection of the site to the train station via bus is important.

A meeting with Transport for NSW was held on Wednesday 3 April 2019 to present the updated site layout and discuss bus stop requirements within the site. On-going consultation with Transport for NSW will be held through the detailed design process to ensure suitable bus infrastructure requirements are accommodated for the 10-year horizon. The Green Travel Plan (GTP) identifies that a potential mode shift of one per cent may be achieved for the NMH. Current arrangements would result in the NMH receiving two buses per peak hour. Even if services for the 181 were increased to half hourly to align with train services at Victoria Station and route 189 also increased to half hourly to provide increased services this would still only equate to a maximum of four buses per peak hour. Based on the expected GTP mode shift, this number of buses would more than service the expected patronage in the ten-year horizon.

5.4 Crime Prevention through Environmental Design (CPTED)

There are four main principles of CPTED – natural surveillance, access control, territorial reinforcement and space management. The principles of CPTED can help create a safe and secure environment and assist in minimising the incidence of crime and contribute to perceptions of increased public safety within the hospital site.

Health Infrastructure has generally considered the CPTED principles as a tool in the infrastructure design. It is proposed that the car park be designed in accordance to the NSW Car Park Guidelines for Crime Prevention. The design guidelines which incorporates the CPTED principles are provided in Table 5.2.

Table 5.2: NSW Car Park Guidelines for Crime Prevention

Category	Sub Category	Guidelines
Natural surveillance	Sightlines	○ Configure the layout so cars are parked in grid like rows to allow for good sightlines between vehicles and through the car park. Do this in a way to maximise sightlines from areas with the most pedestrian and vehicular traffic, such as a nearby business or street. ○ Trim or remove foliage that is blocking sightlines into and through the car park. Any landscaping should be above head height, below waist height and set back from pedestrian pathways. ○ Remove or block secluded areas or hidden recesses, such as areas under stairs. ○ Ensure there is minimal obstruction to lines of sight including vehicles, pillars and concrete columns.

Category	Sub Category	Guidelines
	Surveillance	○ Provide a mixture of long term and short-term parking to enhance natural surveillance where practical. ○ Incorporate additional security for long term parking areas, such as patrols. ○ Locate long term parking areas in the most visible location in the car park. ○ Schedule maintenance at the most vulnerable times for offending, as the maintenance staff are a form of surveillance.
	Lighting	○ Lighting should at least meet minimum requirements under Australian Standards (AS 1158 for external lighting and AS 1680 for interior lighting). ○ Light fixtures should be reliable, easy to maintain, able to withstand the elements and vandal resistant. ○ Incorporate lighting into a regular maintenance plan so as to ensure lights are working, maintaining lux levels and are not obstructed in any way by signs, landscaping or other objects. ○ When selecting and positioning light fixtures, be considerate of glare. Also consider the brightness of the light and effect of passing from light to dark areas. ○ White' light is best for natural surveillance as it allows for clarity of vision. Parked cars can be identified by colour and other details, which is important for crime reporting. Direct lighting to the car park so that guardians or passers-by can see inside the area. Ensure the lighting extends to the edges of the parking areas, not just vehicle and pedestrian routes. ○ Lights should be bright enough to enable the rear seat of a parked vehicle to be seen before entering and enable the face of a person to be seen 15 metres away. ○ Ensure there is sufficient lighting to complement the CCTV system (if in place) so that images are captured. ○ Consider the use of sensor lights in certain darker areas.
	Closed Circuit Television (CCTV)	○ Install a quality, vandal resistant system which staff are thoroughly trained to use. ○ Display signage identifying that CCTV is operating. ○ Ensure the cameras are installed so as to maximise surveillance opportunities. ○ Ensure the camera views are not obstructed by anything such as landscaping or signposts. ○ Ensure that cameras are constantly, actively monitored near the site. If a crime is occurring this can make it possible for a perpetrator to be apprehended or interrupted. ○ Camera feeds should be recorded and stored.
Access Control	Vehicle Access	○ Provide a dedicated singular point of entry and a dedicated singular point of exit to the car park. ○ Install boom gates, ticketed entry, one-way spikes or other access control devices to regulate vehicle movement. ○ Locate entry and exit points near guardians in the car park, such as ticket sellers / machines, businesses, or other adjoining properties. ○ Provide clear line marking or parking spaces and clearly number or colour-code the parking bays.
	Pedestrian Access	○ Provide minimal number of pedestrian access / exit points. ○ Provide clearly marked, open, visible pedestrian access ways within the car park to busy destination points. ○ Maintain landscaping along and near pedestrian access ways to ensure clear sightlines. Any landscaping should be above head height, below waist height and set back from pedestrian pathways.
	Design	○ Delineate the boundary and perimeter of the car park in some way. This could be through low shrubbery or dark coloured, see-through fencing around the perimeter of the car park. ○ Implement circular movement of traffic around the car park so that vehicles cannot simply take the shortest route to and from the entry and exit.

Category	Sub Category	Guidelines
Space and Activity Management	-	○ Clearly number or colour-code the floor levels and parking bays. ○ Ensure a regular maintenance plan is in place including rubbish removal, graffiti removal, repair of light fixtures, maintenance of lux levels, trimming of vegetation and other necessary repairs. ○ All staff should undergo crime awareness training - what is suspicious behaviour and what are the reporting procedures for the location. ○ Crime statistics for the car park should be monitored by management and should inform crime prevention initiatives such as the timing and frequency of security patrols.
	Signage	○ Highly visible (should be able to be seen clearly at night – use reflective material). ○ Advise users of installed security measures and where to find them (such as help points or intercom systems). ○ Remind people to secure their vehicle and remove valuables. These signs should be simple to understand – use of images is best.

Furthermore, DCP 2011 outlines the following principles of crime prevention relating to residential subdivisions that are also considered appropriate for the proposed NMH:

- Clear sightlines between public and private places.
- Landscaping that makes places attractive but does not provide offenders with places to hide or entrap victims.
- Dense vegetation or structures should not be located beside bicycle routes or pedestrian walking paths. A safety convention is to have three to five metres of cleared space on either side of pathways and bicycle routes. Pedestrians feel more comfortable sharing wide paths than narrow paths.
- Natural surveillance should focus on orientation of buildings and strategic use of windows, balconies, entrances, permeable fencing and street design. Tactical location of living areas, workstations, offices and recreation areas help surveillance opportunities.
- Lighting of public places such as public streets, car parks and pedestrian areas should meet the relevant Australian Standards. Effective lighting reduces fear and can increase community activity. The types of lighting should also be considered (different lights are used in different situations).

6. Traffic impact assessment

6.1 Traffic generation

6.1.1 Design rates

Traffic generation rates have been estimated using the Roads and Maritime *Guide to Traffic Generating Developments*, 2002 (the Guide) to understand the impact of the proposed development on the surrounding traffic network. For private hospitals, the Guide sets out two separate trip generation rates as follows:

Calculated on staff and beds (recommended)

This is the preferred method where both bed numbers (B) and average staff per day shift (ASDS) are known. The trip generation rates are as follows:

- Peak Vehicle Trips (PVT) = -14.69 + 0.69B + 0.31ASDS
- Morning Vehicle Trips (MVT) = -10.21 + 0.47B + 0.06ASDS
- Evening Vehicle Trips (EVT) = -2.84 + 0.25B + 0.40ASDS.

Calculated on beds only

This method is recommended for usage only where staff numbers are unknown. The trip generation rates are as follows:

- Peak Vehicle Trips (PVT) = -22.07 +1.04*B
- Morning Vehicle Trips (MVT) = -12.41 + 0.57*B
- Evening Vehicle Trips (EVT) = -11.96 + 0.69*B.

Bed and Staffing Numbers

This assessment calculates the traffic generation based on 339 beds and 1,162 FTE (930 ASDS), where ASDS has been estimated as 80 per cent of FTE staff.

The traffic generation assessment has been based on the completed development in terms of bed and staff numbers.

Based on the surveys of the surrounding network, it is expected that the peak impact would occur in the evening period. Therefore, the EVT has been utilised as the design traffic generation rate to overlap with the network peak.

The following trip distribution has been applied:

- AM peak – 80 per cent in/ 20 per cent out
- PM peak – 30 per cent in/ 70 per cent out.

The ratio of staff trips to visitor trips for the peak hour have been calculated based on the proposed number of car parking spaces provided for staff compared to visitors, as follows:

- Staff – 76 per cent of total trips
- Visitors – 24 per cent of total trips.

Estimates of peak hour traffic volumes for the AM and PM peak periods as outlined above are set out in Table 6.1.

Table 6.1: Traffic generation estimates

Peak period	Traffic generation (vehicles per hour)				
	In		Out		Total
	Staff	Visitor	Staff	Visitor	
AM	125	39	31	10	205
PM	104	33	242	76	454

Based on Table 6.1, it is expected that the site will generate a peak hour total of 454 vehicle movements (318 vehicles exiting and 136 vehicles entering) during the PM peak hour.

6.2 Background growth

6.2.1 Roads and Maritime forecasted growth

Roads and Maritime provided GTA with outputs for the Maitland area from their Strategic Traffic Forecasting Model (STFM). These outputs included forecasted mid-block traffic volumes for 2021, 2026, and 2031, accounting for the growth in traffic volumes as result of the development of the surrounding areas. Using these volumes, the growth rates for the individual links near the site were calculated and applied to the GTA surveyed 2017 traffic volumes.

6.3 Distribution and assignment

The distribution of traffic within the surrounding network is based on the transport impact assessment prepared for Stage 1 of the State Significant Infrastructure Application for the proposed NMH in May 2018 by GTA Consultants.

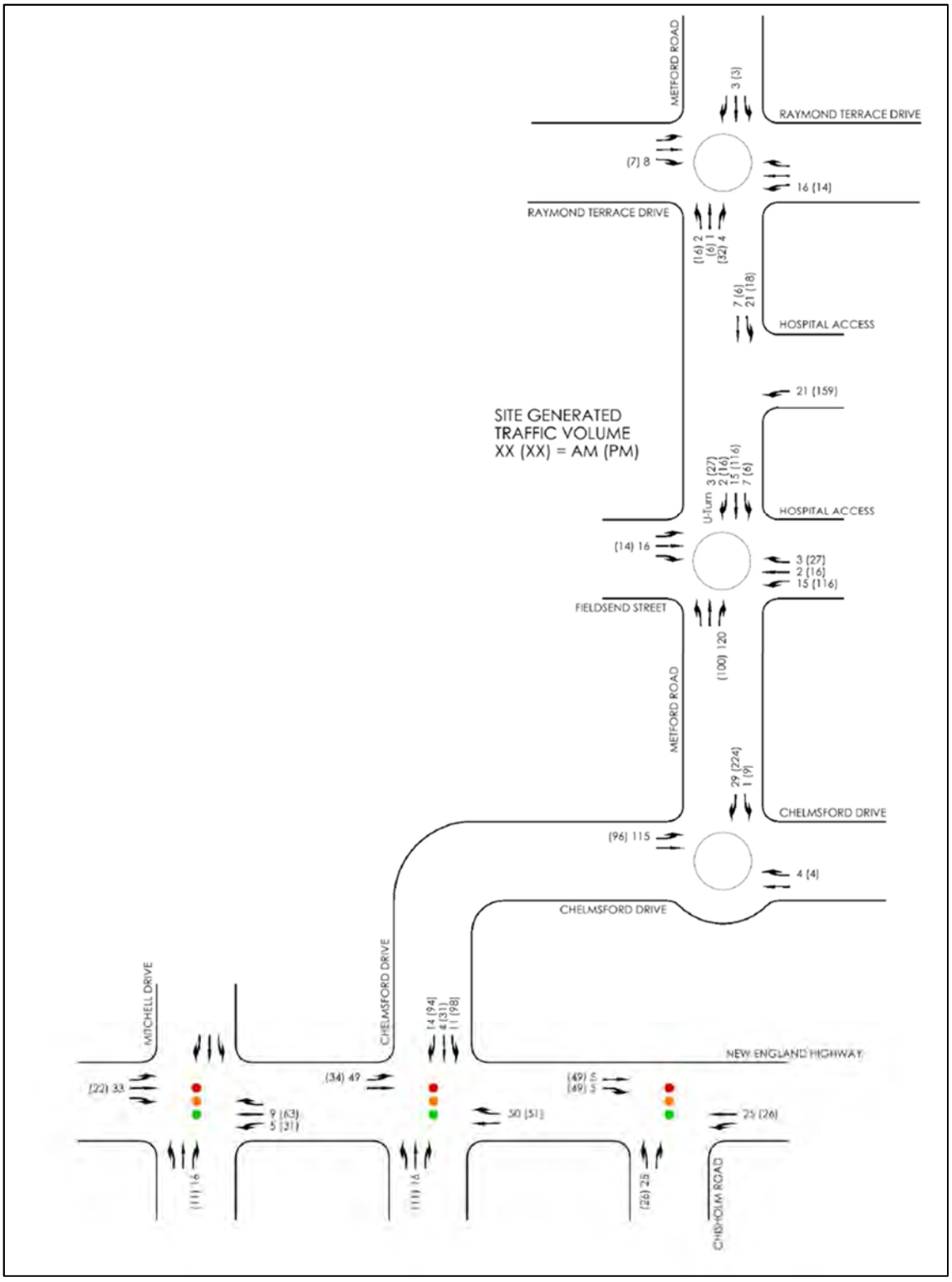
On advice from Roads and Maritime, the traffic distribution traveling to/ from Fieldsend Street has been increased from two per cent to 10 per cent, and respectively the traffic distribution traveling to/ from Metford Road (south) has been reduced from 81 per cent to 73 per cent.

Furthermore, the following traffic distribution assumptions regarding the primary and secondary site access locations have been applied:

- 100 per cent of staff traveling from the north enter through the secondary site access directly to the northern car park, all staff from Fieldsend Street or Metford Road south enter through the primary site access
- 50 per cent of staff exit from the secondary site access, 50 per cent of staff exit from the primary site access, all northbound vehicles would turn around at the Metford Road/ Fieldsend Street roundabout
- 100 per cent of visitors enter through the primary site access
- 50 per cent of visitors travel to the northern visitor car park, 50 per cent of visitors travel to the western visitor car park and drop off area
- 50 per cent of visitors (all visitors from the northern car park) exit from the secondary site access, 50 per cent of visitors exit from the primary site access (western visitor car park and drop off area).

Figure 6.1 has been prepared to show the expected traffic volumes surrounding the site following full site development.

Figure 6.1: AM and PM peak hour site generated traffic volumes



6.4 Traffic impact

6.4.1 Intersection Performance

Metford Road

The impacts on Metford Road during peak periods for the 2022 growth scenarios, without the NMH development, are detailed in Table 6.2.

Table 6.2: Metford Road 2022 operating conditions – Without development

Intersection	Peak period	Leg	Degree of saturation	Average delay (sec)	95th percentile queue (m)	Level of service
Chelmsford Drive/ Metford Road (Roundabout)[1]	AM	South East	1.14	104	297	F
		North East	0.96	28	200	B
		North West	0.28	11	14	A
	PM	South East	0.86	32	99	C
		North East	0.98	40	194	C
		North West	0.47	12	28	A
Metford Road/ Fieldsend Street (Roundabout)	AM	South East	0.00	8	0	A
		North East	0.66	9	48	A
		North West	0.12	11	4	A
		South West	0.43	11	18	A
	PM	South East	0.00	4	0	A
		North East	0.48	9	27	A
		North West	0.15	13	6	A
		South West	0.59	11	31	A
Metford Road/ Raymond Terrace Road (Roundabout)	AM	South East	0.74	19	66	B
		North East	0.50	13	24	A
		North West	0.41	12	20	A
		South West	0.58	15	40	B
	PM	South East	0.61	14	38	B
		North East	0.34	12	14	A
		North West	0.58	15	35	B
		South West	0.76	20	72	B

[1] SIDRA results have been updated with Council's 2019 data, discussed in Section 2.3.

The results in Table 6.2 show that with the expected background traffic growth the intersections of Fieldsend Street/ Metford Road and Metford Road/ Raymond Terrace Road would operate well and with spare capacity. The intersection of Chelmsford Drive/ Metford Road would operate at capacity in the AM peak due to the increased movements on Metford Road.

Table 6.3 provides an understanding of the expected operating conditions of Metford Road once the NMH is operational.

Table 6.3: Metford Road 2022 operating conditions – With development

Intersection	Peak period	Leg	Degree of saturation	Average delay (sec)	95th percentile queue (m)	Level of service
Chelmsford Drive/ Metford Road (Roundabout)[1]	AM	South East	1.21	131	355	F
		North East	0.99	34	241	C
		North West	0.29	12	14	A
	PM	South East	0.96	49	146	D
		North East	1.26	140	624	F
		North West	0.48	12	29	A
Metford Road/ Fieldsend Road (Roundabout)	AM	South East	0.04	9	2	A
		North East	0.77	12	59	A
		North West	0.16	12	6	A
		South West	0.53	11	29	A
	PM	South East	0.20	6	11	A
		North East	0.65	12	41	A
		North West	0.23	16	11	B
		South West	0.73	12	53	A
Metford Road/ Raymond Terrace Road (Roundabout)	AM	South East	0.75	20	68	B
		North East	0.50	13	25	A
		North West	0.42	12	20	A
		South West	0.58	16	41	B
	PM	South East	0.61	14	40	B
		North East	0.36	13	15	A
		North West	0.61	16	38	B
		South West	0.81	22	88	B

[1] SIDRA results have been updated with Council's 2019 data, discussed in Section 2.3.

The results in Table 6.3 show that with the proposed NMH development traffic the intersections of Fieldsend Street/ Metford Road/ Hospital Access and Metford Road/ Raymond Terrace Road would continue to operate well and with spare capacity.

The existing roundabout at Chelmsford Drive/ Metford Road would operate at capacity in both the AM and PM peaks due to the increased movements on Metford Road not providing sufficient opportunities for Chelmsford Drive (northbound) traffic to enter the roundabout. It is noted however that the assessment assumes all traffic associated with the completed hospital development would occur from the year of opening (2022) however in reality the hospital will not be operating at full development at the year of opening. Therefore, the year the roundabout reaches capacity in the PM peak hour would also be later.

The impacts on the surrounding road network during peak periods for the 2032 growth scenarios, without the NMH development, are detailed in Table 6.4.

Table 6.4: Metford Road 2032 operating conditions – Without development

Intersection	Peak period	Leg	Degree of saturation	Average delay (sec)	95th percentile queue (m)	Level of service
Chelmsford Drive/ Metford Road (Roundabout)[1]	AM	South East	1.39	206	572	F
		North East	1.21	115	633	F
		North West	0.32	12	17	A
	PM	South East	1.02	58	204	E
		North East	1.29	152	607	F
		North West	0.56	12	36	A
Metford Road/ Fieldsend Street (Roundabout)	AM	South East	0.01	16	0	B
		North East	0.78	9	86	A
		North West	0.16	12	7	A
		South West	0.54	11	27	A
	PM	South East	0.00	6	0	A
		North East	0.59	9	42	A
		North West	0.21	15	10	B
		South West	0.68	11	43	A
Metford Road/ Raymond Terrace Road (Roundabout)	AM	South East	0.89	27	123	B
		North East	0.55	14	30	A
		North West	0.53	14	32	A
		South West	0.87	31	107	C
	PM	South East	0.73	16	64	B
		North East	0.45	14	22	A
		North West	0.76	21	59	B
		South West	1.08	73	282	F

[1] SIDRA results have been updated with Council's 2019 data, discussed in Section 2.3. All intersections have not been updated to reflect potential future road widening of Metford Road

The results in Table 6.4 show that with the expected background traffic growth and without the NMH development, the 2032 operating conditions are similar to the 2022 operating conditions detailed in Table 6.2. However, the intersection of Raymond Terrace Road/ Metford Road and Chelmsford Drive/ Metford Road will be operating at capacity in the PM peak.

Table 6.5: Metford Road 2032 operating conditions – With development

Intersection	Peak period	Leg	Degree of saturation	Average delay (sec)	95th Percentile Queue (m)	Level of service
Chelmsford Drive/ Metford Road (Roundabout)[1]	AM	South East	1.42	217	596	F
		North East	1.24	126	687	F
		North West	0.34	12	18	A
	PM	South East	1.07	73	247	F
		North East	1.60	289	1133	F
		North West	0.57	12	37	A
Metford Road/ Fieldsend Street (Roundabout)	AM	South East	0.07	18	4	B
		North East	0.91	15	138	B
		North West	0.22	14	10	A
		South West	0.65	12	46	A
	PM	South East	0.30	11	19	A
		North East	0.78	12	69	A
		North West	0.35	18	20	B
		South West	0.84	14	95	B
Metford Road/ Raymond Terrace Road (Roundabout)	AM	South East	0.95	35	163	C
		North East	0.61	15	36	B
		North West	0.55	14	34	A
		South West	0.89	33	113	C
	PM	South East	0.74	17	65	B
		North East	0.46	14	23	B
		North West	0.77	21	61	B
		South West	1.14	97	370	F

[1] SIDRA results have been updated with Council's 2019 data, discussed in Section 2.3. All intersections have not been updated to reflect potential future road widening of Metford Road

Table 6.5 shows that with the proposed NMH development traffic the intersection of Fieldsend Street/ Metford Road/ Hospital Access would operate at an acceptable level of service with spare capacity. The existing roundabout at Metford Road/ Raymond Terrace Road would operate at capacity in the PM peak period. The existing roundabout at Chelmsford Drive/ Metford Road would operate at capacity in both the AM and PM peaks due to the increased movements on Metford Road not providing sufficient opportunities for Chelmsford Drive (northbound) traffic to enter the roundabout.

New England Highway

The impacts on the New England Highway (NEH) during peak periods for the 2022 growth scenarios, without the NMH development, are detailed in Table 6.6.

Table 6.6: NEH 2022 operating conditions – Without NMH development

Intersection	Peak	Leg	Degree of saturation	Average delay (sec)	95th percentile queue (m)	Level of service
Chelmsford Drive/ New England Highway	AM	South East	0.65	15	116	B
		North East	0.91	46	99	D
		North West	0.93	46	257	D
		South West	0.34	42	25	C
		Overall	**0.93**	**35**	**257**	**C**
	PM	South East	0.90	18	144	B
		North East	0.87	45	75	D
		North West	0.90	33	251	C
		South West	0.85	49	64	D
		Overall	**0.90**	**31**	**251**	**C**
Mitchell Drive/ New England Highway	AM	South East	0.54	19	127	B
		North East	0.55	46	30	D
		North West	0.92	21	117	B
		South West	0.49	39	28	C
		Overall	**0.92**	**24**	**127**	**B**
	PM	South East	0.67	24	148	B
		North East	0.62	46	35	D
		North West	0.90	24	114	B
		South West	0.87	42	78	C
		Overall	**0.90**	**30**	**148**	**C**
Chisholm Road/ New England Highway	AM	South East	0.63	15	146	A
		North West	0.62	6	77	A
		South West	0.96	47	49	D
		Overall	**0.96**	**13**	**146**	**A**
	PM	South East	0.69	13	172	A
		North West	0.67	5	53	A
		South West	0.89	45	68	D
		Overall	**0.89**	**13**	**172**	**A**

The results in Table 6.6 show that with the expected background traffic growth the intersections of New England Highway/ Chelmsford Drive and New England Highway/ Mitchell Drive would overall operate satisfactory in peak conditions.

The intersection of New England Highway/ Chisholm Road would operate well and with spare capacity in peak conditions.

Table 6.7 provides an understanding of the expected operating conditions of New England Highway once the NMH is operational.

Table 6.7: NEH 2022 operating conditions – With NMH development

Intersection	Peak	Leg	Degree of saturation	Average delay (sec)	95th percentile queue (m)	Level of service
Chelmsford Drive/ New England Highway	AM	South East	0.64	16	115	B
		North East	0.98	59	118	E
		North West	0.93	45	257	D
		South West	0.40	42	28	C
		Overall	**0.98**	**38**	**257**	**C**
	PM	South East	0.95	22	165	B
		North East	0.96	61	145	E
		North West	0.97	52	346	D
		South West	0.90	56	77	D
		Overall	**0.97**	**43**	**346**	**D**
Mitchell Drive/ New England Highway	AM	South East	0.54	19	129	B
		North East	0.55	46	30	D
		North West	0.92	21	122	B
		South West	0.53	40	31	C
		Overall	**0.92**	**24**	**129**	**B**
	PM	South East	0.65	23	164	B
		North East	0.69	52	40	D
		North West	0.91	26	133	B
		South West	0.94	51	98	D
		Overall	**0.94**	**32**	**164**	**C**
Chisholm Road/ New England Highway	AM	South East	0.65	15	151	B
		North West	0.64	6	78	A
		South West	0.96	46	49	D
		Overall	**0.96**	**13**	**151**	**A**
	PM	South East	0.71	15	199	B
		North West	0.71	6	76	A
		South West	0.89	48	75	D
		Overall	**0.89**	**14**	**199**	**B**

Table 6.7 shows that with the proposed NMH development traffic in 2022, the intersections of New England Highway/ Chelmsford Drive and New England Highway/ Mitchell Drive would overall operate satisfactory in peak conditions however New England Highway/ Chelmsford Drive would operate near to capacity in the PM peak hour.

The intersection of New England Highway/ Chisholm Road overall would continue to operate well and with spare capacity in peak conditions.

The impacts on the surrounding road network during peak periods for the 2032 growth scenarios, without the NMH development, are detailed in Table 6.8.

Table 6.8: NEH 2032 operating conditions – Without NMH development

Intersection	Peak	Leg	Degree of saturation	Average delay (sec)	95th percentile queue (m)	Level of service
Chelmsford Drive/ New England Highway	AM	South East	0.81	16	137	B
		North East	0.95	59	112	E
		North West	0.98	61	352	E
		South West	0.37	42	28	C
		Overall	**0.98**	**44**	**352**	**D**
	PM	South East	0.87	18	175	B
		North East	0.96	61	104	E
		North West	0.95	44	360	D
		South West	0.96	66	91	E
		Overall	**0.96**	**40**	**360**	**C**
Mitchell Drive/ New England Highway	AM	South East	0.63	21	149	B
		North East	0.69	47	36	D
		North West	0.87	22	166	B
		South West	0.60	39	32	C
		Overall	**0.87**	**25**	**166**	**B**
	PM	South East	0.80	31	198	C
		North East	0.62	49	43	D
		North West	0.87	28	170	B
		South West	0.92	48	113	D
		Overall	**0.92**	**35**	**198**	**C**
Chisholm Road/ New England Highway	AM	South East	0.69	15	170	B
		North West	0.70	6	80	A
		South West	0.90	43	49	D
		Overall	**0.90**	**13**	**170**	**A**
	PM	South East	0.77	15	233	B
		North West	0.74	5	59	A
		South West	0.91	51	86	D
		Overall	**0.91**	**14**	**233**	**A**

Table 6.8 shows that with the proposed background traffic growth, the intersection of New England Highway/ Chelmsford Drive would overall operate satisfactory in the PM peak, however, would operate near to capacity in the AM peak hour. It is noted that most approaches for the intersection would operate near to or at capacity in peak conditions, aside from the south east approach that would operate well and with spare capacity.

The intersection New England Highway/ Mitchell Drive would overall operate satisfactory in peak conditions.

The intersection of New England Highway/ Chisholm Road would continue to operate well overall with spare capacity in peak conditions.

The impacts on the surrounding road network during peak periods for the 2032 growth scenarios, with the NMH development, are detailed in Table 6.9.

Table 6.9: NEH 2032 operating conditions – With NMH development

Intersection	Peak	Leg	Degree of saturation	Average delay (sec)	95th percentile queue (m)	Level of service
Chelmsford Drive/ New England Highway	AM	South East	0.95	22	156	B
		North East	0.96	69	141	E
		North West	0.93	45	348	D
		South West	0.40	49	37	D
		Overall	**0.96**	**43**	**348**	**D**
	PM	South East	0.93	30	284	C
		North East	0.97	69	176	E
		North West	1.00	68	435	E
		South West	0.92	64	96	E
		Overall	**1.00**	**54**	**435**	**D**
Mitchell Drive/ New England Highway	AM	South East	0.56	19	155	B
		North East	0.78	58	44	E
		North West	0.88	23	185	B
		South West	0.59	48	43	D
		Overall	**0.88**	**27**	**185**	**B**
	PM	South East	0.87	36	239	C
		North East	0.68	55	48	D
		North West	0.90	49	308	D
		South West	0.95	53	125	D
		Overall	**0.95**	**45**	**308**	**D**
Chisholm Road/ New England Highway	AM	South East	0.68	17	204	B
		North West	0.67	7	97	A
		South West	0.85	48	56	D
		Overall	**0.85**	**15**	**204**	B
	PM	South East	0.93	36	464	C
		North West	0.92	8	89	A
		South West	0.93	58	96	E
		Overall	**0.93**	**26**	**464**	**B**

Table 6.9 shows that with the proposed NMH development traffic in 2032, the intersection of New England Highway/ Chelmsford Drive would overall operate near to capacity in both the AM and PM peaks.

The intersections of New England Highway/ Mitchell Drive and New England Highway/ Chisholm Road would overall operate satisfactory in peak conditions.

It is noted that most approaches for the Chelmsford Drive intersection would operate near to or at capacity in peak conditions, aside from the south east approach that would operate well and with spare capacity.

6.4.2 Mid-block capacity

Analysing the expected through-traffic on key roads near the site provides an understanding of the performance characteristics of these roads following the development of the NMH.

An assessment of the mid-block performance of the following road corridors has therefore been completed:

- Raymond Terrace Road south-east of the intersection with Metford Road
- Metford Road between Fieldsend Street and Chelmsford Drive
- Chelmsford Drive between Metford Road and New England Highway.

The *Austroads Guide to Traffic Management – Part 3: Traffic Studies and Analysis* provides typical mid-block capacities for urban roads. This is summarised in Table 6.10.

Table 6.10: Typical mid-block capacity – Urban roads

Type of lane	One-way mid-block capacity (passenger cars per lane, per hour)
Median or Inner Lane	
Divided Road	1,000
Undivided Road	900
Middle Lane (of a 3 Lane Carriageway)	
Divided Road	900
Undivided Road	1,000
Kerb Lane	
Adjacent to Parking Lane	900
Occasional Parked Vehicles	600
Clearway Condition	900

Source: Table 5.1 of Austroads Guide to Traffic management – Part 3: Traffic Studies and Analysis

In addition, peak-period mid-block capacities may increase to 1,200 or 1,400 passenger cars per lane per hour when the following conditions exist or can be implemented:

- Adequate flaring at major upstream intersections
- Uninterrupted flow from a wider carriageway upstream of an intersection approach and flowing at capacity
- Control or absence of crossing or entering traffic at minor intersections by major road priority controls
- Control or absence of parking
- Control or absence of right turns by banning turning at difficult intersections
- High volume flows of traffic from upstream intersections during more than one phase of a signal cycle
- Good coordination of traffic signals along the route.

Therefore, the assumed traffic capacity for key roads near the NMH are summarised in Table 6.11. A capacity of 1,200 passenger cars per lane per hour has been adopted. This is considered appropriate, since each road exhibits the following:

- Absence of crossing or entering traffic at minor intersections by major road priority control
- Adequate flaring at major upstream intersections
- Control or absence of parking and control.

Table 6.11: Mid-block capacity

Road	Lanes (per direction)	Capacity (passenger cars/ lane/ hour)
Raymond Terrace Road (east of Fieldsend Street)	1	1,200
Metford Road (north of Chelmsford Street)	1	1,200
Chelmsford Road (west of Metford Road)	2	2,400

Analysis of mid-block level of service was conducted based on criteria set by Roads and Maritime and experience with comparable developments, with a summary provided in Table 6.12.

Table 6.12: Mid-block level of service criteria

Level of service	Description	Volume to capacity ratio (VCR) range
A	A condition of free flow in which individual drivers are virtually unaffected by the presence of others in the traffic stream. Freedom to select desired speeds and to manoeuvre within the traffic stream is extremely high, and the general level of comfort and convenience provided is excellent.	0.00 – 0.34
B	In the zone of stable flow and drivers still have the reasonable freedom to select their desired speed and to manoeuvre within the traffic stream, although the general level of comfort and convenience is a little less than LoS A.	0.35 – 0.50
C	Also, in the zone of stable flow, but most drivers are restricted to some extent in their freedom to select their desired speed and to manoeuvre within the traffic stream. The general level of comfort and convenience declines noticeably at this level.	0.51 – 0.74
D	Close to the limit of stable flow and approaching unstable flow. All drivers are severely restricted in their freedom to select their desired speed and to manoeuvre within the traffic stream. The general level of comfort and convenience is poor, and small increases in traffic flow will generally cause operational problems.	0.75 – 0.89
E	Occurs when traffic volumes are at or close to capacity, and there is virtually no freedom to select desired speeds or to manoeuvre within the traffic stream. Flow is unstable and minor disturbances within the traffic stream will cause break-down.	0.90 – 0.99
F	In the zone of forced flow. With LOS F, the amount of traffic approaching the point under consideration exceeds that which can pass it. Flow breakdown occurs, and queuing and delays result.	1.0 or greater

Source: Based on values as supplied in Guide to Traffic Generating Developments (RMS, 2002)

Based on Table 6.12, an assessment of the mid-block capacity for each direction (northbound (NB)/ eastbound (EB) or southbound (SB)/ westbound (WB)) of the surrounding road network during peak periods for the 2022 growth scenarios, with and without the NMH development, is outlined in Table 6.13.

Table 6.13: Summary of traffic capacity – 2022 growth scenario

Scenario	Location[1]	Traffic volumes				Volume/ capacity			
		AM		PM		AM		PM	
		EB/NB		WB/SB		EB/NB	WB/SB	EB/NB	WB/SB
Without Development	Raymond Terrace Road	729	1066	870	1075	0.61(C)	0.89(D)	0.73(C)	0.9(D)
	Metford Road	581	1046	823	738	0.49(B)	0.88(D)	0.69(C)	0.62(C)
	Chelmsford Road	636	1107	1105	847	0.27(A)	0.47(B)	0.47(B)	0.36(B)
With Development	Raymond Terrace Road	733	1082	902	1089	0.62(C)	0.91(E)	0.76(D)	0.91(E)
	Metford Road	701	1076	923	970	0.59(C)	0.9(D)	0.77(D)	0.81(D)
	Chelmsford Road	751	1136	1201	1071	0.32(A)	0.48(B)	0.51(B)	0.45(B)

[1] Initial assessment completed with 2017 Metford Road volumes discussed in Section 2.3

The results in Table 6.13 show that with the expected background traffic growth and proposed NMH development, the road network will operate with some spare capacity during the AM and PM peak hours.

An assessment of the mid-block capacity of the surrounding road network during peak periods for the 2032 growth scenarios, with and without the NMH development, is outlined in Table 6.14.

Table 6.14: Summary of traffic capacity – 2032 growth scenario

Scenario	Location[1]	Traffic volumes				Volume/ capacity			
		AM		PM		AM		PM	
		EB/NB		WB/SB		EB/NB	WB/SB	EB/NB	WB/SB
Without Development	Raymond Terrace Road	844	1251	1023	1226	0.71(C)	1.05(F)	0.86(D)	1.03(F)
	Metford Road	720	1229	936	918	0.6(C)	1.03(F)	0.78(D)	0.77(D)
	Chelmsford Road	774	1316	1256	997	0.33(A)	0.55(C)	0.53(C)	0.42(B)
With Development	Raymond Terrace Road	848	1267	1055	1240	0.71(C)	1.06(F)	0.88(D)	1.04(F)
	Metford Road	840	1259	1036	1150	0.7(C)	1.05(F)	0.87(D)	0.96(E)
	Chelmsford Road	889	1345	1352	1221	0.38(B)	0.57(C)	0.57(C)	0.51(B)

[1] Initial assessment completed with 2017 Metford Road volumes discussed in Section 2.3

Table 6.14 indicates that by 2032, Raymond Terrace Road westbound/ Metford Road southbound will be approaching or at capacity during the AM and PM peak, irrespective of the NMH development. However, Raymond Terrace Road eastbound/ Metford Road northbound will be operating with some spare capacity during the AM and PM peak.

Chelmsford Road is expected to operate well, with spare capacity during both peak hours.

As outlined in Table 6.13, the Metford Road 2022 AM westbound/southbound (without the NMH development) volume/capacity ratio is 0.88 and marginally increases to 0.9 with the development. Similarly, in 2032 it is over capacity without the NMH development. GTA has therefore completed further investigation around the future performance of Metford Road. This includes updating the midblock analysis for Metford Road based on the updated traffic volume data provided by Maitland City Council. The midblock analysis has considered each growth year between 2022 and 2032, with and without the development, and the results are provided in Appendix H of this report.

In summary, Metford Road would reach a volume/capacity ratio of 0.9 (Level of Service E) in 2024 with the hospital development in the PM peak. Level of Service E indicates that the traffic volumes are close to capacity and therefore minor disturbances within the traffic stream could cause breakdown. It is noted however that the traffic assessment assumes all traffic associated with the completed hospital development would occur from the year of opening (2022) however in reality the hospital will not be operating at full development at the year of opening. Therefore, the year in which Metford Road reaches capacity would also be later.

Regardless of the hospital development it is likely that Metford Road would not require upgrading prior to 2029.

The Hunter and Central Coast Development Corporation (HCCDC) has established the East Maitland Catalyst Area Steering Group. This Steering Group has been established to support the work of Maitland City Council and key NSW Government agencies in achieving the vision and outcomes of the East Maitland Catalyst Area in accordance with the Hunter Regional Plan 2036

and Greater Newcastle Metropolitan Plan 2036. The Steering group will be convened by the end of September 2019 and includes representatives from:

- Maitland City Council
- Department of Planning Industry and Environment
- Transport for NSW (including former RMS)
- Health Infrastructure.

The Catalyst Area program will identify the need to plan for, fund and deliver the infrastructure (including Metford Road) needed to support growth of new homes and jobs in the area.

6.5 Mitigating measures and intersection works

6.5.1 Chelmsford Drive/ Metford Road roundabout

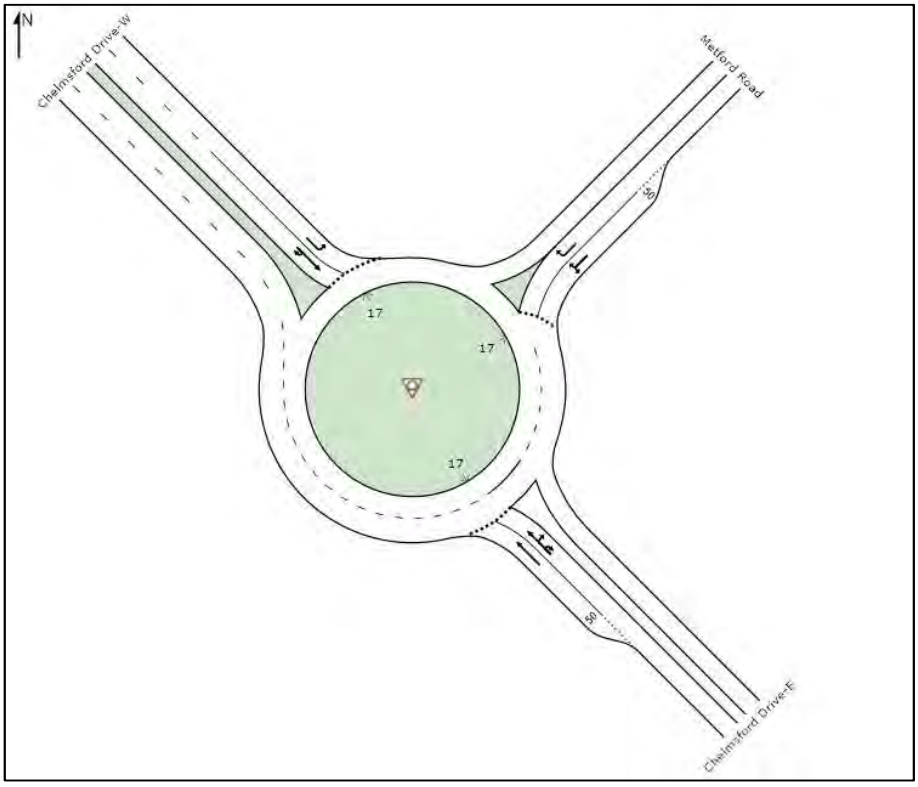
As outlined in Section 6.4.1, the Chelmsford Drive/ Metford Road roundabout operates at capacity with and without the impact of the proposed development; with the south-east and north-east approaches of the intersection operating with high degrees of saturation and delays.

The following treatments are recommended for the Chelmsford Drive/ Metford Road roundabout to minimise the adverse effects of forecast additional traffic:

- Increasing the number of circulating lanes on the east and south side of the roundabout to two lanes
- Provision of an additional 50-metre lane on the Chelmsford Drive east approach and Metford Road north approach

The expected layout of the proposed intersections is shown in Figure 6.2.

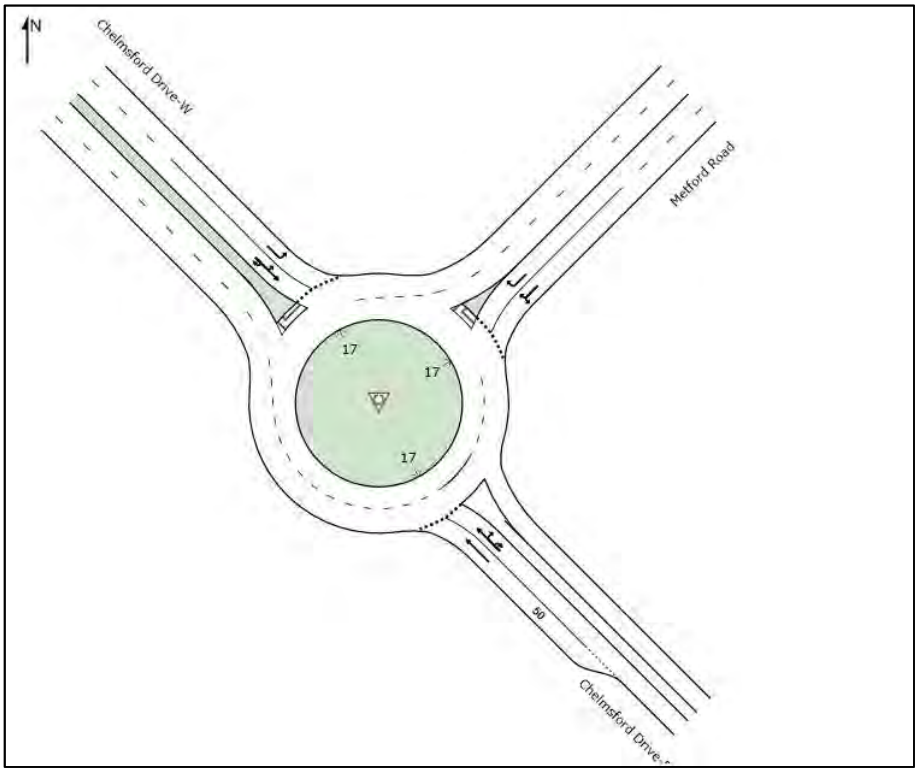
Figure 6.2: Proposed layout of Chelmsford Drive/ Metford Road roundabout (indicative layout only) 2022 growth scenario



Source: SIDRA Intersection 8.0

As discussed in Section 6.4.2, future road widening of Metford Road to four lanes will be required prior to 2032. The expected layout of the proposed intersection for the 2032 growth scenarios therefore includes four lanes along Metford Road, as shown in Figure 6.3.

Figure 6.3: Proposed layout of Chelmsford Drive/ Metford Road roundabout (indicative layout only) 2032 growth scenario



Source: SIDRA Intersection 8.0

The performance of this proposed intersection layout without the development is outlined in Table 6.15 for both 2022 and 2032 growth scenarios and for both the AM and PM peak periods.

Table 6.15: 2022 and 2032 proposed intersection operating conditions - Without development

Year	Peak period	Leg	Degree of saturation	Average delay (sec)	95th percentile queue (m)	Level of service
2022	AM	South East	0.39	14	14	A
		North East	0.44	11	23	A
		North West	0.28	12	13	A
	PM	South East	0.33	13	11	A
		North East	0.43	12	22	A
		North West	0.46	12	26	A
2032	AM	South East	0.54	16	24	B
		North East	0.56	12	35	A
		North West	0.35	12	18	A
	PM	South East	0.45	14	18	B
		North East	0.57	15	40	B
		North West	0.65	13	47	A

The results in Table 6.15 show that the proposed upgrades to the Chelmsford Drive/ Metford Road intersection results in good intersection operation with spare capacity in all peak periods for both 2022 and 2032 growth scenarios.

The performance of the proposed intersection layout with the development is outlined in Table 6.16 for both 2022 and 2032 growth scenarios and for both the AM and PM peak periods.

Table 6.16: 2022 and 2032 proposed intersection operating conditions - With development

Year	Peak period	Leg	Degree of saturation	Average delay (sec)	95th percentile queue (m)	Level of service
2022	AM	South East	0.40	14	15	B
		North East	0.45	11	24	A
		North West	0.29	12	14	A
	PM	South East	0.40	14	15	B
		North East	0.56	14	37	A
		North West	0.48	12	27	A
2032	AM	South East	0.55	16	25	B
		North East	0.58	12	37	A
		North West	0.40	12	21	A
	PM	South East	0.56	17	25	B
		North East	0.73	18	69	B
		North West	0.70	13	58	A

Comparing the results in Table 6.15, to Table 6.16 it is evident that with the development of the NMH, the Chelmsford Road / Metford Road roundabout with the proposed upgrade would continue to provide good intersection operation with spare capacity in all peak periods for both 2022 and 2032 growth scenarios.

Therefore, it is expected that with the recommended improvements to the Chelmsford Road/ Metford Road roundabout, the proposed NMH would have an acceptable impact on the capacity of the surrounding road network.

The intersection upgrade is discussed further in Section 10.1 and a concept design has been developed and included as Appendix D of this report.

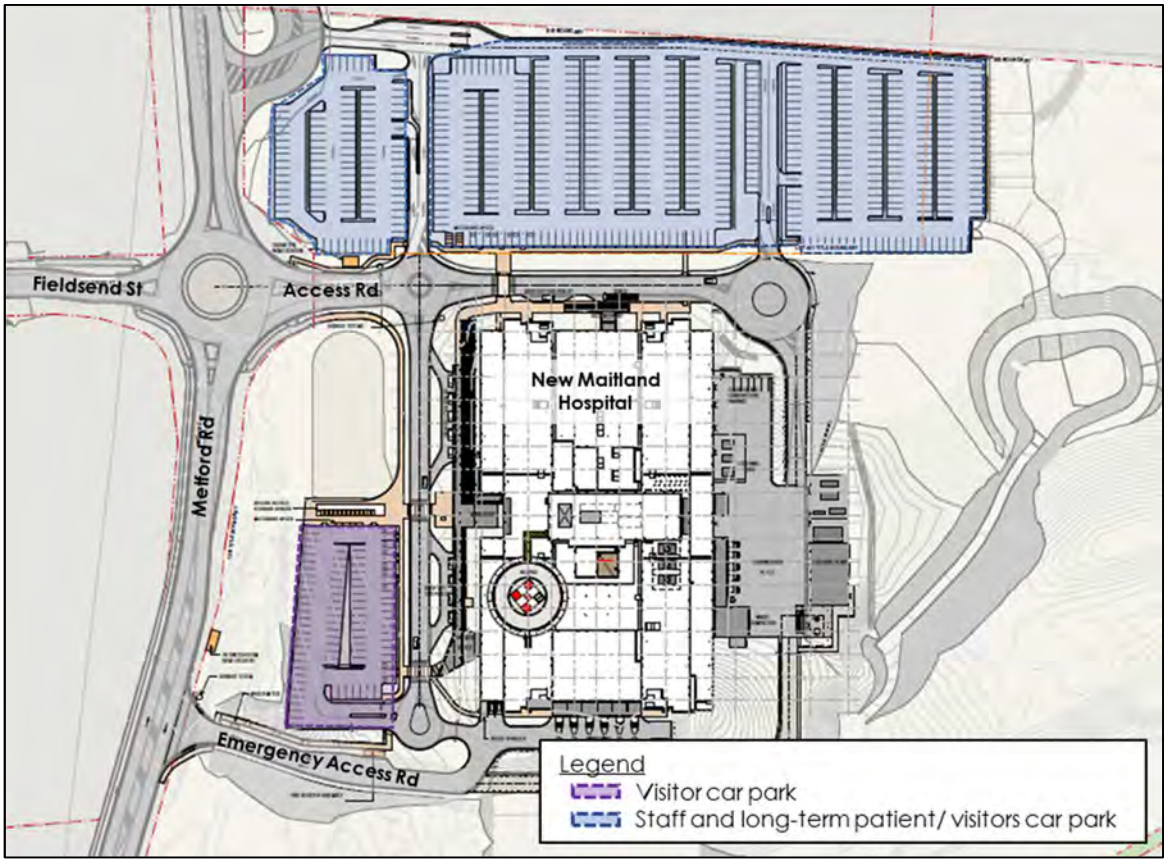
7. New Maitland Hospital – Internal transport operation

7.1 Car parking arrangements

The proposed hospital will provide an at-grade carpark to the north of the hospital building for staff and long-term patient/visitors and an at-grade carpark to west of the hospital building for short stay public/ visitors as shown in Figure 7.1.

Vehicles will access the main entrance and emergency department (ED) drop-off areas, located on the western side of the hospital building, and then progress to either the short term or long tern visitor parking areas.

Figure 7.1: Proposed staff, visitor, service and bus vehicular circulation on site



Base Source: Site Plan, Drawing No. BVN-ARH-01A-AX0-102, Issue 2, prepared by BVN, dated 17 September 2019

7.2 Vehicular circulation

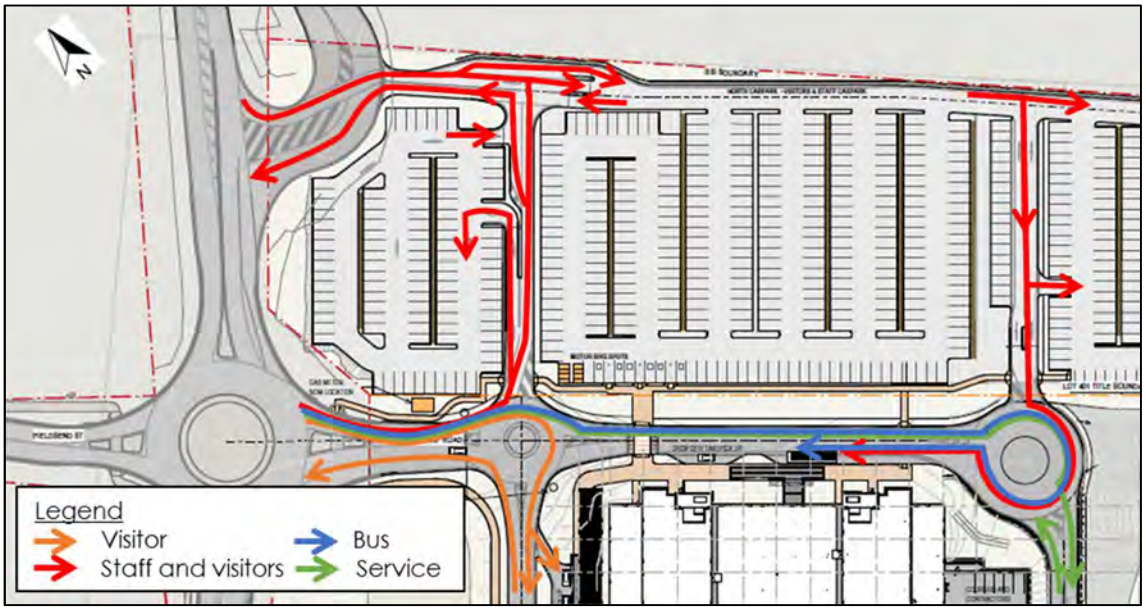
Access and circulation have been designed to minimise queuing or congestion within the site that could potentially impact the operation of the external road network. Figure 7.1 provides an overview of the proposed access arrangements with Figure 7.2 outlining the proposed vehicular circulation on the NMH site. Three vehicle accesses from Metford Road are proposed as follows:

- Metford Road/ Fieldsend Street roundabout (recently constructed) to accommodate the primary site access.
- Emergency vehicle access, from Metford Road around 130 metres south of the Metford Road/ Fieldsend Street intersection. This access accommodates authorised emergency vehicles only.
- Secondary (left in/left out) site access around 60 metres north of the Metford Road/ Fieldsend Street intersection on Metford Road.

The Metford Road roundabout (roundabout 1) provides the primary access to the hospital site. Internally two roundabouts are proposed with the first internal roundabout (roundabout 2) providing entry only access to the northern car park (visitor and staff), as well as access to the front entrance for drop off, emergency and visitor parking. The eastern roundabout (roundabout 3) provides for buses to turn around to access the bus zone on the northern side of the hospital building and provides access to the proposed loading dock and an exit point for vehicles from the northern car park.

It is important to note that the internal roundabouts operate as separated entry and exit points for the main northern car park. This is to ensure that there is no impact to the operation of the Metford Road / Fieldsend Street roundabout through any potential congestion or queuing internally on site.

Figure 7.2: Proposed staff, visitor, service and bus vehicular circulation on site



Base Source: Site Plan, Drawing No. BVN-ARH-01A-AX0-102, Issue 2, prepared by BVN, dated 17 September 2019

7.3 Bus services

The proposed NMH includes an onsite bus stop and two bus bays for incorporation into Hunter Valley bus routes. Bus routes will access the site via the Metford Road/ Fieldsend Street roundabout and circulate around the eastern-most internal roundabout to access the bus stops located near the hospital entry on the northern side of the hospital building, as shown in Figure 7.1 and Figure 7.2. The Metford Road and northern internal roundabouts have been designed to accommodate bus movements, as discussed in Section 5.3.

7.4 Services vehicles and loading dock

One loading and servicing area is proposed on the lower ground level at the rear (eastern side) of the hospital, with direct access to the hospital building. The loading area can be accessed through the eastern internal access roundabout, as shown in Figure 7.1 and Figure 7.2, and is proposed to accommodate vehicles up to and including 12.5-metre vehicles with at least six loading bays.

8. Work Travel Plan

8.1 Purpose of a Work Travel Plan

A facility such as a hospital generates a significant level of transport demand, primarily for private vehicle trips. Travel demand management (TDM) aims to modify travel decisions rather than providing costly infrastructure and additional transport services to support the current and future transport demands. TDM has the following key objectives:

i Reduce the need to travel
i Reduce the amount of travel
ii Reduce the impact of travel.

In this regard, a Work Travel Plan (WTP) is a tool that hospitals can use to manage the transport mode choices of their staff. The plan aims to promote and encourage sustainable travel and reduce reliance on the private vehicle. The WTP comprises a list of strategies aimed at encouraging walking, cycling, public transport and car-pooling for travel to and from work and aims at a shift away from the reliance on single occupant vehicle travel.

8.2 Typical challenges for regional hospitals

Most staff activity associated with regional hospitals occurs via vehicles due to the nature of staff shift times and the limited availability of convenient public transport. Walking and cycling often proves difficult due to the distance between the home and work place as well as a lack of quality facilities. In this regard, the following factors are typically attributed to a high mode share for private vehicles at regional hospitals:

- Residential locations and hospital locations can have limited access to public transport services.
- Driving presents attractive travel time advantages for many key staff origins.
- Limited number of locations have access to direct public transport connections that do not require interchanging. This typically results in longer travel times, as well as influencing the perception of a lack of convenience and reliability.
- Time of arrival/ departure, due to shift work, potentially limits the access to frequent public transport services. Staff that work in shifts with start/ end times outside peak hours might also experience personal security issues.
- Time of arrival/ departure influences perceived comfort of traveling via alternate modes of transport, in particular outside peak hours.
- Unpredictable hospital activities may extend staff shift finish times. This can leave staff 'stranded' if public transport options are limited.
- Staff may need to drive to efficiently conduct other activities on their way to/ from the hospital such as school set-down/ pick-up activities.

Strategies can be implemented to encourage staff to reduce their reliance on private vehicles.

8.3 Travel demand strategies

Several opportunities exist to provide the NMH staff with incentives to consider alternative modes of travel to and from work. The following recommendations are high level strategies that will need to be developed in greater detail and through consultation with relevant stakeholders closer to the opening of the hospital.

- **Staff accommodation**
  - Provide staff accommodation near the site. This may encourage:
    - Walking and/ or cycling to work
    - Car-pooling between staff working the same shifts.
  - Provide a shuttle bus service between staff accommodation and the hospital to further reduce reliance on private vehicles.
- **Shuttle bus service**
  - Provide a shuttle bus service between the hospital and key public transport interchanges, such as Victoria Street Station, aligned with staff shifts. A regular, flexible service is likely to increase staff perception of convenience and reliability.
  - Develop shuttle bus routes targeting key residential areas near the hospital with low public transport connectivity.
- **Public transport**
  - Communicate with bus operators to amend bus routes (where possible) to connect public transport nodes with the hospital using the proposed on-site bus stop discussed in Section 5.2.3.
  - Communicate with bus operators to arrange public transport trips to be aligned with hospital shifts through consultation with public transport operators.
- **Active travel**
  - Provide high quality and prominent bicycle parking and change/ shower facilities.
  - Provide clear pedestrian and cyclist wayfinding.
  - Provide shelters along walkways or near bus stops and street lighting.
  - Encourage cultural change through:
    - Creating a bicycle user group (targeting staff living within five kilometres of the hospital)
    - Events such as annual 'ride to work' day
    - Providing information detailing opportunities and facilities available to staff. This may include providing maps of the available cycling routes to and within the hospital site.
- **Promote car-pooling**
  - Provide prioritised car pool parking spaces on-site, including consideration for incentives such as prices, location and proximity to services.

8.4 Green Travel Plan

A Green Travel Plan (GTP) for the NMH site has been developed, building upon the principles discussed in this section. The GTP intends to influence travel behaviour for both staff and visitors to the hospital and is included as Appendix E.

9. Construction Traffic Management Plan

9.1 Construction Traffic Management

The preparation of the Construction Traffic Management Plan (CTMP) for Stage 2 of the NMH has been completed by Multiplex and is provided in Appendix F.

This section refers to the CTMP and provides a summary of the works and an understanding of the impact the construction of the Stage 2 Main Works may have on the surrounding road network.

9.2 Works programme

The CTMP indicates the following main works programme:

- Main Works total programme is expected to be September 2019 to April 2021
  - Structure – September 2019 to July 2020
  - Façade – July 2021 to February 2021
  - Fit out – March 2020 to April 2021
  - Car park – October 2019 to March 2021.

The anticipated peak construction is expected between March 2020 and July 2020.

9.3 Work hours

Construction work would be undertaken in accordance to development consent conditions. The typical work hours are expected to be:

- Monday to Friday: 7am to 6pm
- Saturday: 7am to 5pm (subject to DA approval)
- Sundays and public holidays: No work.

9.4 Site access

Site access will be provided via the recently constructed Metford Road/ Fieldsend Street/ site access roundabout. The roundabout has been designed to cater for truck movements. All construction vehicles will enter and exit the site in a forward direction.

9.5 Heavy vehicle generation

The number of daily truck movements will vary depending on the works being conducted on the specific day or timeframe in the construction programme.

Concrete pour days would expect an increase in truck movements with the delivery timing to be managed to avoid peak periods. On average concrete pour days, it is expected that there would be one truck every five to 10 minutes. All trucks would be contained wholly within the site and there would not be any waiting areas on the surrounding road network. During the period of October 2019 to July 2020 there is an estimated three concrete pours per week.

On days outside of concrete pour days it is anticipated that there would be an average of one to two truck deliveries per hour between 7am to 5pm Monday to Saturday.

9.6 Light vehicle generation

Light vehicle traffic generation would be largely generated by construction worker traffic movements to and from the site.

It is expected in the worst-case scenario there could be up to 400 construction workers on any one day. Multiplex has indicated that workers will be encouraged to car pool to ensure that construction worker parking can be accommodated wholly within the site. Based on an assumption that 15 per cent car pool it is expected that 340 light vehicles per day could be expected. It is expected that all workers would arrive to the site prior to 7am and therefore before the AM peak period, however, depart around 6pm, potentially coinciding with the PM peak period.

9.7 Summary of construction traffic generation

The estimated number of construction vehicles per day is detailed in the Table 9.1.

Table 9.1: Daily construction traffic volumes (worst-case)

Vehicle type	Total number of vehicles per day (on average)	Total peak vehicle movements per day (on average)	Total peak vehicle movements per hour
Light vehicles	340	340	340
Heavy vehicles/ Trucks	20	120	12
Total	360	460	352

Table 9.1 shows that during peak construction (concrete pours), there could be up to a total of 460 vehicles arriving and departing the site per day, with 352 within the PM peak hour.

9.8 Construction traffic impact

The analysis of the road network surrounding the NMH has been assessed based on the peak expected traffic generation and background traffic growth for the NMH once it is fully operational. Table 6.1 indicates the proposed NMH would generate an additional 454 vehicles in the peak hour, which is greater than the expected worst-case during construction.

Analysis outlined in Table 6.3 outlines that with the proposed NMH development traffic in the year 2022 the intersections of Fieldsend Street/ Metford Road/ Hospital Access and Metford Road/ Raymond Terrace Road would continue to operate well and with spare capacity. The existing roundabout at Chelmsford Drive/ Metford Road would operate at capacity during the peak period due to the increased movements on Metford Road not providing sufficient opportunities for Chelmsford Drive (northbound) traffic to enter the roundabout. Table 6.7 shows that the intersections of New England Highway/ Chelmsford Drive and New England Highway/ Mitchell Drive would overall operate satisfactory in peak conditions however New England Highway/ Chelmsford Drive would operate near to capacity in the PM peak hour. The intersection of New England Highway/ Chisholm Road overall would continue to operate well and with spare capacity in peak conditions.

Generally, the majority of construction workers finish prior to the PM road network peak and therefore it is expected that the road network would continue to operate well throughout the construction period.

10. Health Infrastructure project commitments

10.1 Metford Road/ Chelmsford Drive intersection upgrade

To improve access to the site, the Chelmsford Drive/ Metford Road intersection will be upgraded as part of the NMH works. The proposed upgrade includes increasing the number of circulating lanes on the east and south side of the roundabout to two lanes and the provision of an additional 50-metre lane on the Chelmsford Drive east approach and Metford Road north approach and 50 metre departure lane on the Metford Road north approach.

Health Infrastructure will be making a separate application under Part 5 of the EP&A Act for the upgrade of the Chelmsford Drive/Metford Road roundabout and is committed to completing the upgrade prior to the hospital becoming operational. The detailed design will be done in consultation with Maitland City Council.

A concept design has been developed and included in Appendix D of this report.

11. Conclusion

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

i The proposed NMH includes:
   - A total of 339 beds/ chairs/ rooms.
   - A total of 893 full time equivalent (FTE) staff at the proposed year of opening with up to 1,162 FTE ten years after opening.

ii The site will include a total of 682 onsite parking spaces, accommodating 595 staff and long-term patient/ visitor parking spaces and 87 short-term public/visitor parking spaces. An additional 140 car parking spaces are committed to be provided on site to meet the expected 2021/ 2031 parking demand. The parking provision has been determined through a separate Parking Demand Study.

iii The NMH site when completely developed is expected to generate around 454 vehicle movements in the peak hour.

iv There is adequate capacity in the recently constructed roundabout at Metford Road/ Fieldsend Street/ NMH access to cater for the traffic generated by the proposed NMH development at the year of opening and the ten-year horizon.

v Mitigating works are recommended at the existing roundabout of Metford Road/ Chelmsford Drive to accommodate forecast background traffic growth and the proposed NMH development traffic.

vi The majority of construction workers are likely to finish prior to the PM road network peak and therefore it is expected that the road network would continue to operate well throughout the construction period.

vii A Green Travel Plan for the NMH has been developed.

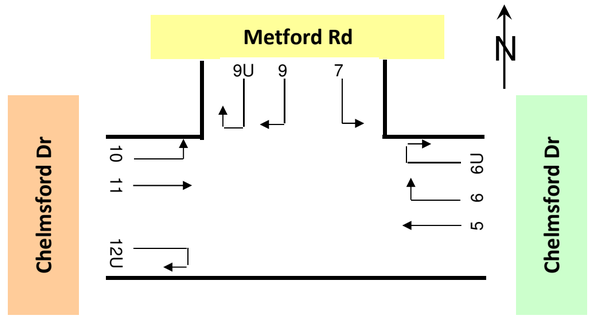
viii This traffic assessment concludes that road improvements are required at the intersection of Chelmsford Road and Metford Road to accommodate the forecast background traffic growth in the area and the NMH development. With the recommended improvements to the Chelmsford Road/ Metford Road roundabout the proposed NMH would have an acceptable impact on the capacity of the surrounding road network.

Appendix A

Survey results

Job No. : N3242
Client : GTA
Suburb : Metford Road
Location : 1. Metford Road / Chelmsford Drive

Day/Date : Thu, 25th May 2017
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary



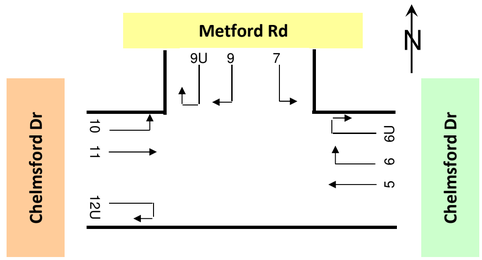
MATRIX Traffic and Transport Data

	Approach		Chelmsford Dr			Metford Rd			Chelmsford Dr			Grand Total
	Time Period		Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	
AM	8:00 to 9:00		490	19	**509**	851	27	**878**	574	37	**611**	**1,998**
PM	16:45 to 17:45		398	6	**404**	599	10	**609**	1,030	14	**1,044**	**2,057**

Time Period		Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Grand Total
7:00 to 8:00		222	4	**226**	505	27	**532**	319	21	**340**	**1,098**
7:15 to 8:15		278	5	**283**	569	28	**597**	371	27	**398**	**1,278**
7:30 to 8:30		358	11	**369**	665	25	**690**	464	35	**499**	**1,558**
7:45 to 8:45		455	15	**470**	768	23	**791**	548	37	**585**	**1,846**
8:00 to 9:00		490	19	**509**	851	27	**878**	574	37	**611**	**1,998**
AM Totals		**712**	**23**	**735**	**1,356**	**54**	**1,410**	**893**	**58**	**951**	**3,096**
15:00 to 16:00		393	21	**414**	646	16	**662**	900	43	**943**	**2,019**
15:15 to 16:15		362	10	**372**	609	12	**621**	932	45	**977**	**1,970**
15:30 to 16:30		362	7	**369**	604	11	**615**	954	24	**978**	**1,962**
15:45 to 16:45		367	5	**372**	605	11	**616**	943	15	**958**	**1,946**
16:00 to 17:00		380	4	**384**	562	9	**571**	1,004	14	**1,018**	**1,973**
16:15 to 17:15		380	4	**384**	560	6	**566**	1,004	8	**1,012**	**1,962**
16:30 to 17:30		375	5	**380**	579	10	**589**	1,037	10	**1,047**	**2,016**
16:45 to 17:45		398	6	**404**	599	10	**609**	1,030	14	**1,044**	**2,057**
17:00 to 18:00		414	4	**418**	597	10	**607**	989	11	**1,000**	**2,025**
PM Totals		**1,187**	**29**	**1,216**	**1,805**	**35**	**1,840**	**2,893**	**68**	**2,961**	**6,017**

Job No. : N3242
Client : GTA
Suburb : Metford Road
Location : 1. Metford Road / Chelmsford Drive

Day/Date : Sat, 27th May 2017
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary



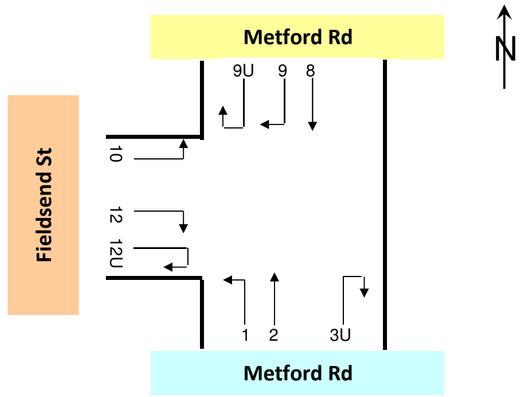
MATRIX Traffic and Transport Data

Approach		Chelmsford Dr			Metford Rd			Chelmsford Dr			Grand Total
Time Period		Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	
10:45 to 11:45		386	2	**388**	637	6	**643**	840	9	**849**	**1,880**

Approach		Chelmsford Dr			Metford Rd			Chelmsford Dr			Grand Total
Time Period		Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	
8:30 to 9:30		295	3	**298**	566	11	**577**	606	10	**616**	**1,491**
8:45 to 9:45		319	3	**322**	648	11	**659**	632	12	**644**	**1,625**
9:00 to 10:00		317	3	**320**	675	11	**686**	636	10	**646**	**1,652**
9:15 to 10:15		321	2	**323**	727	8	**735**	651	8	**659**	**1,717**
9:30 to 10:30		337	4	**341**	682	9	**691**	711	8	**719**	**1,751**
9:45 to 10:45		335	6	**341**	646	9	**655**	772	6	**778**	**1,774**
10:00 to 11:00		359	5	**364**	624	10	**634**	839	5	**844**	**1,842**
10:15 to 11:15		391	6	**397**	621	12	**633**	841	5	**846**	**1,876**
10:30 to 11:30		404	4	**408**	595	9	**604**	854	6	**860**	**1,872**
10:45 to 11:45		386	2	**388**	637	6	**643**	840	9	**849**	**1,880**
11:00 to 12:00		372	2	**374**	667	2	**669**	825	10	**835**	**1,878**
11:15 to 12:15		325	1	**326**	635	2	**637**	840	11	**851**	**1,814**
11:30 to 12:30		306	2	**308**	658	2	**660**	888	11	**899**	**1,867**
11:45 to 12:45		313	2	**315**	619	3	**622**	917	8	**925**	**1,862**
12:00 to 13:00		289	2	**291**	610	3	**613**	889	11	**900**	**1,804**
12:15 to 13:15		313	2	**315**	639	5	**644**	889	10	**899**	**1,858**
12:30 to 13:30		308	1	**309**	596	6	**602**	857	9	**866**	**1,777**
12:45 to 13:45		293	1	**294**	553	6	**559**	825	8	**833**	**1,686**
13:00 to 14:00		309	1	**310**	525	6	**531**	814	7	**821**	**1,662**
13:15 to 14:15		296	2	**298**	521	2	**523**	842	11	**853**	**1,674**
13:30 to 14:30		291	4	**295**	529	3	**532**	792	13	**805**	**1,632**
13:45 to 14:45		288	6	**294**	544	3	**547**	771	15	**786**	**1,627**
14:00 to 15:00		289	6	**295**	545	4	**549**	787	13	**800**	**1,644**
Totals		**2,081**	**20**	**2,101**	**3,889**	**42**	**3,931**	**5,089**	**61**	**5,150**	**11,182**

Job No. : N3242
Client : GTA
Suburb : Metford Road
Location : 2. Metford Road / Fieldsend Street

Day/Date : Thu, 25th May 2017
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary



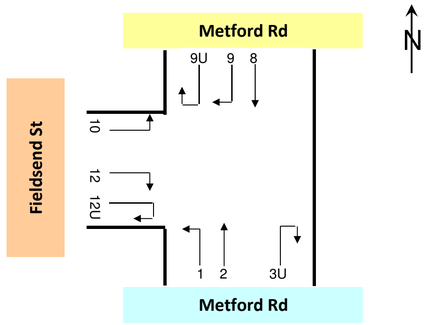
MATRIX Traffic and Transport Data

	Approach	Metford Rd				Metford Rd			Fieldsend St			Grand Total
	Time Period	Lights	Heavies	Total		Lights	Heavies	Total	Lights	Heavies	Total	
AM	8:00 to 9:00	532	29	**561**		850	26	**876**	22	5	**27**	**1,464**
PM	16:30 to 17:30	710	8	**718**		653	12	**665**	77	0	**77**	**1,460**

Approach	Metford Rd				Metford Rd			Fieldsend St			Grand Total
Time Period	Lights	Heavies	Total		Lights	Heavies	Total	Lights	Heavies	Total	
7:00 to 8:00	254	28	**282**		509	21	**530**	8	5	**13**	**825**
7:15 to 8:15	309	20	**329**		576	24	**600**	9	4	**13**	**942**
7:30 to 8:30	374	24	**398**		688	20	**708**	14	5	**19**	**1,125**
7:45 to 8:45	483	32	**515**		764	19	**783**	19	5	**24**	**1,322**
8:00 to 9:00	532	29	**561**		850	26	**876**	22	5	**27**	**1,464**
AM Totals	**786**	**57**	**843**		**1,359**	**47**	**1,406**	**30**	**10**	**40**	**2,289**
15:00 to 16:00	700	18	**718**		608	27	**635**	58	7	**65**	**1,418**
15:15 to 16:15	697	14	**711**		582	21	**603**	64	5	**69**	**1,383**
15:30 to 16:30	692	14	**706**		596	16	**612**	72	3	**75**	**1,393**
15:45 to 16:45	692	12	**704**		609	12	**621**	84	0	**84**	**1,409**
16:00 to 17:00	692	9	**701**		601	10	**611**	84	0	**84**	**1,396**
16:15 to 17:15	680	7	**687**		628	8	**636**	85	0	**85**	**1,408**
16:30 to 17:30	710	8	**718**		653	12	**665**	77	0	**77**	**1,460**
16:45 to 17:45	698	13	**711**		648	13	**661**	64	0	**64**	**1,436**
17:00 to 18:00	697	11	**708**		652	11	**663**	59	0	**59**	**1,430**
PM Totals	**2,089**	**38**	**2,127**		**1,861**	**48**	**1,909**	**201**	**7**	**208**	**4,244**

Job No. : N3242
Client : GTA
Suburb : Metford Road
Location : 2. Metford Road / Fieldsend Street

Day/Date : Sat, 27th May 2017
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary



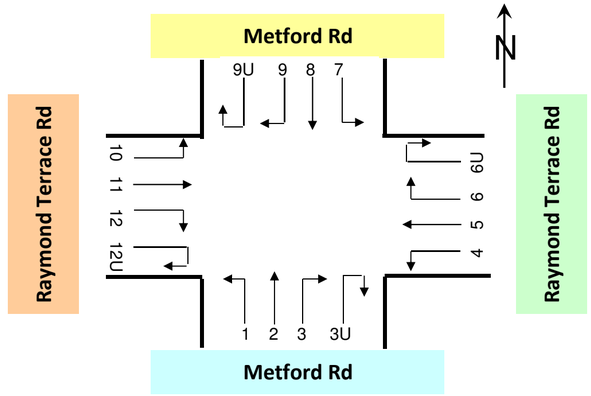
MATRIX Traffic and Transport Data

Approach	Metford Rd				Metford Rd			Fieldsend St			Grand Total
Time Period	Lights	Heavies	Total		Lights	Heavies	Total	Lights	Heavies	Total	
10:45 to 11:45	656	7	**663**		622	5	**627**	112	0	**112**	**1,402**

Approach	Metford Rd				Metford Rd			Fieldsend St			Grand Total
Time Period	Lights	Heavies	Total		Lights	Heavies	Total	Lights	Heavies	Total	
8:30 to 9:30	479	12	**491**		538	10	**548**	173	1	**174**	**1,213**
8:45 to 9:45	507	15	**522**		601	13	**614**	185	3	**188**	**1,324**
9:00 to 10:00	526	15	**541**		624	10	**634**	164	4	**168**	**1,343**
9:15 to 10:15	547	9	**556**		658	8	**666**	133	4	**137**	**1,359**
9:30 to 10:30	567	8	**575**		638	11	**649**	88	4	**92**	**1,316**
9:45 to 10:45	599	6	**605**		619	10	**629**	59	3	**62**	**1,296**
10:00 to 11:00	650	7	**657**		599	12	**611**	79	2	**81**	**1,349**
10:15 to 11:15	665	8	**673**		593	12	**605**	90	2	**92**	**1,370**
10:30 to 11:30	650	7	**657**		593	8	**601**	79	2	**81**	**1,339**
10:45 to 11:45	656	7	**663**		622	5	**627**	112	0	**112**	**1,402**
11:00 to 12:00	623	6	**629**		626	2	**628**	105	1	**106**	**1,363**
11:15 to 12:15	607	4	**611**		596	3	**599**	91	1	**92**	**1,302**
11:30 to 12:30	659	6	**665**		608	4	**612**	94	1	**95**	**1,372**
11:45 to 12:45	659	5	**664**		597	3	**600**	62	2	**64**	**1,328**
12:00 to 13:00	647	7	**654**		575	3	**578**	65	1	**66**	**1,298**
12:15 to 13:15	653	8	**661**		607	4	**611**	67	1	**68**	**1,340**
12:30 to 13:30	619	7	**626**		566	5	**571**	67	1	**68**	**1,265**
12:45 to 13:45	576	7	**583**		520	10	**530**	67	0	**67**	**1,180**
13:00 to 14:00	559	4	**563**		530	10	**540**	77	0	**77**	**1,180**
13:15 to 14:15	582	4	**586**		492	7	**499**	102	0	**102**	**1,187**
13:30 to 14:30	555	7	**562**		506	7	**513**	91	0	**91**	**1,166**
13:45 to 14:45	535	8	**543**		521	3	**524**	84	0	**84**	**1,151**
14:00 to 15:00	558	7	**565**		505	4	**509**	66	2	**68**	**1,142**
Totals	**3,788**	**49**	**3,837**		**3,699**	**47**	**3,746**	**616**	**11**	**627**	**8,210**

Job No. : N3242
Client : GTA
Suburb : Metford Road
Location : 3. Metford Road / Raymond Terrace Road

Day/Date : Thu, 25th May 2017
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary



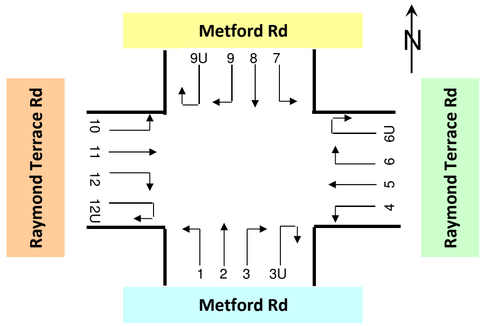
MATRIX Traffic and Transport Data

	Approach	Metford Rd			Raymond Terrace Rd			Metford Rd			Raymond Terrace Rd			Grand Total
	Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	
AM	8:00 to 9:00	489	27	**516**	890	20	**910**	550	18	**568**	446	24	**470**	**2,464**
PM	16:30 to 17:30	752	8	**760**	933	23	**956**	354	4	**358**	520	7	**527**	**2,601**

Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Grand Total
7:00 to 8:00	247	26	**273**	523	28	**551**	442	11	**453**	281	19	**300**	**1,577**
7:15 to 8:15	290	23	**313**	656	22	**678**	467	11	**478**	310	21	**331**	**1,800**
7:30 to 8:30	346	26	**372**	755	18	**773**	518	12	**530**	375	19	**394**	**2,069**
7:45 to 8:45	449	32	**481**	833	14	**847**	540	14	**554**	405	17	**422**	**2,304**
8:00 to 9:00	489	27	**516**	890	20	**910**	550	18	**568**	446	24	**470**	**2,464**
AM Totals	**736**	**53**	**789**	**1,413**	**48**	**1,461**	**992**	**29**	**1,021**	**727**	**43**	**770**	**4,041**
15:00 to 16:00	704	19	**723**	746	40	**786**	401	19	**420**	495	17	**512**	**2,441**
15:15 to 16:15	693	14	**707**	737	37	**774**	404	14	**418**	551	18	**569**	**2,468**
15:30 to 16:30	701	14	**715**	775	31	**806**	399	8	**407**	547	19	**566**	**2,494**
15:45 to 16:45	730	11	**741**	828	26	**854**	382	7	**389**	539	18	**557**	**2,541**
16:00 to 17:00	747	9	**756**	827	22	**849**	361	5	**366**	532	12	**544**	**2,515**
16:15 to 17:15	746	7	**753**	884	19	**903**	345	4	**349**	511	9	**520**	**2,525**
16:30 to 17:30	752	8	**760**	933	23	**956**	354	4	**358**	520	7	**527**	**2,601**
16:45 to 17:45	728	11	**739**	916	17	**933**	382	3	**385**	522	4	**526**	**2,583**
17:00 to 18:00	719	10	**729**	881	15	**896**	402	3	**405**	498	4	**502**	**2,532**
PM Totals	**2,170**	**38**	**2,208**	**2,454**	**77**	**2,531**	**1,164**	**27**	**1,191**	**1,525**	**33**	**1,558**	**7,488**

Job No. : N3242
Client : GTA
Suburb : Metford Road
Location : 3. Metford Road / Raymond Terrace Road

Day/Date : Sat, 27th May 2017
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary



MATRIX Traffic and Transport Data

Approach	Metford Rd			Raymond Terrace Rd			Metford Rd			Raymond Terrace Rd			Grand Total
Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	
11:00 to 12:00	624	7	**631**	739	7	**746**	432	1	**433**	381	4	**385**	2,195

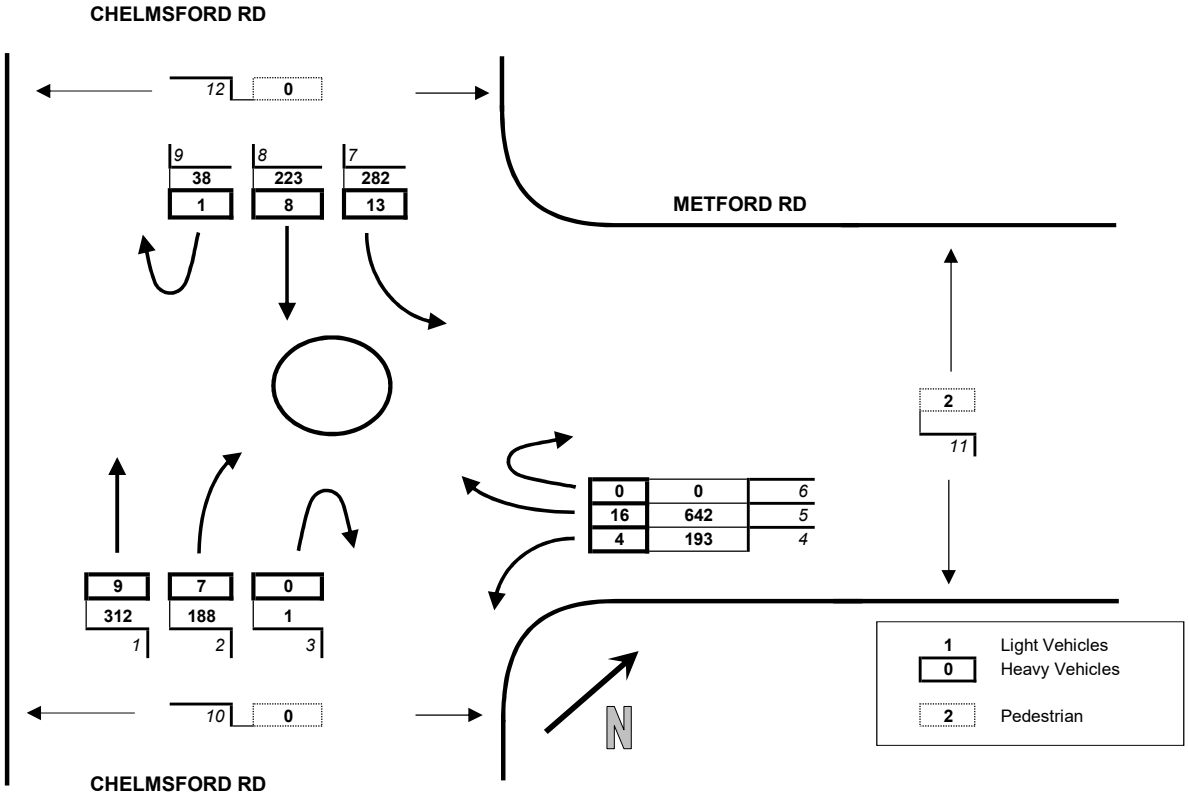
Approach	Metford Rd			Raymond Terrace Rd			Metford Rd			Raymond Terrace Rd			Grand Total
Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	
8:30 to 9:30	426	11	**437**	642	5	**647**	375	8	**383**	269	7	**276**	1,743
8:45 to 9:45	503	14	**517**	660	9	**669**	376	8	**384**	268	9	**277**	1,847
9:00 to 10:00	539	15	**554**	669	7	**676**	419	7	**426**	279	9	**288**	1,944
9:15 to 10:15	565	10	**575**	698	9	**707**	437	6	**443**	315	8	**323**	2,048
9:30 to 10:30	567	9	**576**	678	11	**689**	432	6	**438**	340	5	**345**	2,048
9:45 to 10:45	550	7	**557**	672	9	**681**	445	4	**449**	363	2	**365**	2,052
10:00 to 11:00	577	9	**586**	685	11	**696**	415	4	**419**	372	4	**376**	2,077
10:15 to 11:15	609	9	**618**	679	12	**691**	429	3	**432**	356	4	**360**	2,101
10:30 to 11:30	592	8	**600**	703	11	**714**	454	3	**457**	379	4	**383**	2,154
10:45 to 11:45	619	8	**627**	726	9	**735**	447	2	**449**	375	4	**379**	2,190
11:00 to 12:00	624	7	**631**	739	7	**746**	432	1	**433**	381	4	**385**	2,195
11:15 to 12:15	612	5	**617**	706	5	**711**	429	3	**432**	385	4	**389**	2,149
11:30 to 12:30	647	6	**653**	707	8	**715**	406	3	**409**	382	4	**386**	2,163
11:45 to 12:45	643	5	**648**	696	11	**707**	410	4	**414**	381	4	**385**	2,154
12:00 to 13:00	627	6	**633**	638	9	**647**	407	4	**411**	403	1	**404**	2,095
12:15 to 13:15	627	7	**634**	641	12	**653**	432	3	**435**	417	2	**419**	2,141
12:30 to 13:30	608	6	**614**	611	9	**620**	418	4	**422**	407	5	**412**	2,068
12:45 to 13:45	550	7	**557**	596	6	**602**	396	3	**399**	394	6	**400**	1,958
13:00 to 14:00	545	4	**549**	619	7	**626**	390	3	**393**	395	7	**402**	1,970
13:15 to 14:15	570	5	**575**	608	3	**611**	354	2	**356**	399	6	**405**	1,947
13:30 to 14:30	536	8	**544**	589	2	**591**	380	0	**380**	395	4	**399**	1,914
13:45 to 14:45	536	8	**544**	590	1	**591**	407	0	**407**	415	2	**417**	1,959
14:00 to 15:00	537	8	**545**	558	1	**559**	412	1	**413**	396	1	**397**	1,914
Totals	**3,624**	**51**	**3,675**	**4,207**	**47**	**4,254**	**2,666**	**25**	**2,691**	**2,364**	**29**	**2,393**	**13,013**

17/5/2019 - CHELMSFORD RD / METFORD RD, METFORD

9:00 <<< HOUR ENDING **Friday**

Summary: CHELMSFORD RD / METFORD RD	
1879	Total Light Vehicles
58	Total Heavy Vehicles
2	Total Pedestrians

Quality Surveys
192944



17/5/2019 - CHELMSFORD RD / METFORD RD, METFORD

Light Vehicles

	1	2	3	4	5	6	7	8	9	Total Vehicles 15 MIN HOUR		Pedestrians 10	11	12
07:45	58	16	0	19	105	0	42	25	3	268		0	0	0
08:00	51	24	0	31	136	1	61	34	9	347		0	0	0
08:15	54	41	0	35	126	0	75	60	7	398		0	0	0
08:30	92	60	0	63	152	0 <	65	79	9	520	1533	0	0	0
08:45	83	56	0	45	175	0 <	77	51 <	8	495	1760	0	1	0
09:00	83	31 <	1	50 <	189	0	65 <	33	14	466	1879	0	1 <	0
09:15	78 <	35	2 <	25	133 <	0	60	52	19 <	404	1885 <	0	0 <	0
09:30	59	23	0 <	34	117	0	76	49	9 <	367	1732	0	0 <	0

Heavy Vehicles

	1	2	3	4	5	6	7	8	9	Total Vehicles 15 MIN HOUR	
07:45	3	1	0	0	5	0	3	1	1	14	
08:00	0	0	0	0	3	0	4	3	0	10	
08:15	3	2	0	2	6	0	3	2	0	18	
08:30	4 <	2	0	1	1	0	3	2 <	0	13	55
08:45	2	2	0	0	4	0	4	1 <	1	14	55
09:00	0	1 <	0	1 <	5 <	0	3	3 <	0	13	58 <
09:15	2	1	0	0	4	0	3	0	1	11	51
09:30	1	1	0	3 <	1	0	5 <	2	1 <	14	52

All Vehicles

	1	2	3	4	5	6	7	8	9	Total Vehicles 15 MIN HOUR	
07:45	61	17	0	19	110	0	45	26	4	282	
08:00	51	24	0	31	139	1	65	37	9	357	
08:15	57	43	0	37	132	0	78	62	7	416	
08:30	96	62	0	64	153	0 <	68	81	9	533	1588
08:45	85	58	0	45	179	0 <	81	52 <	9	509	1815
09:00	83	32 <	1	51 <	194	0	68 <	36	14	479	1937 <
09:15	80 <	36	2 <	25	137 <	0	63	52	20	415	1936
09:30	60	24	0 <	37	118	0	81	51	10 <	381	1784

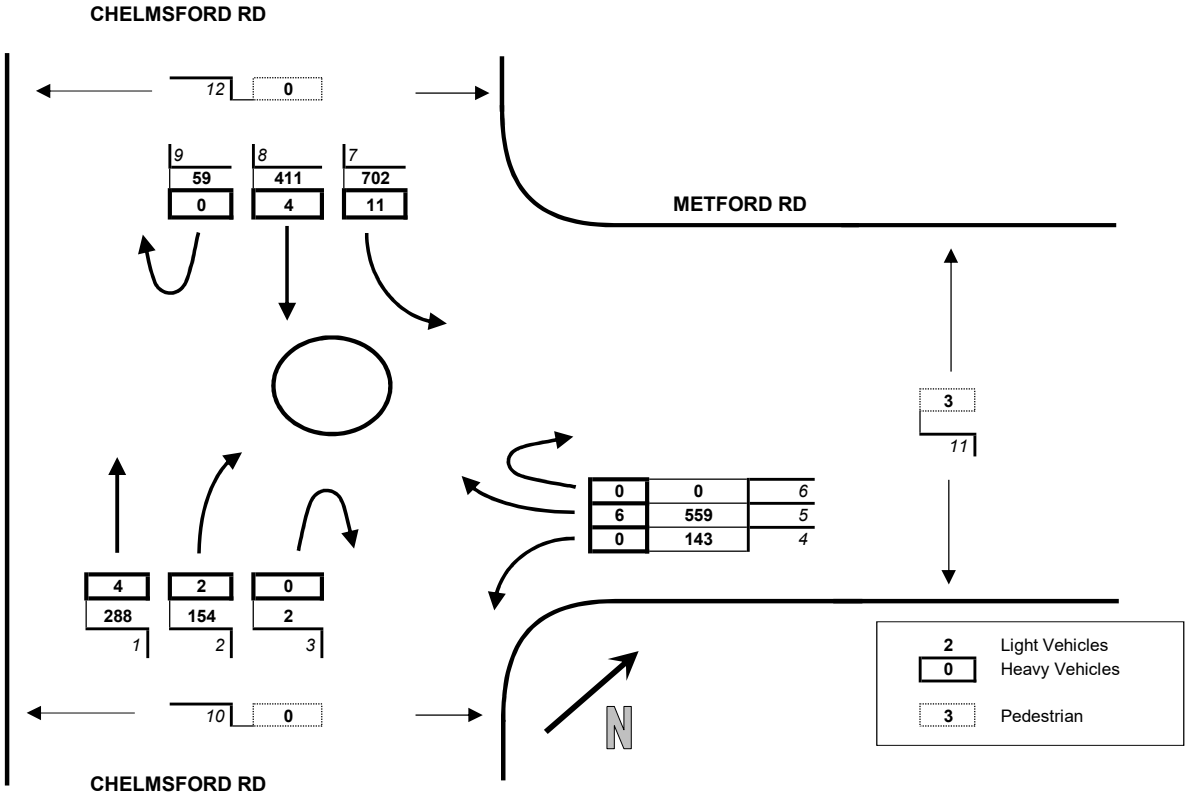
Note : Arrows "<" indicate the end time for the peak hour for each turning movement.

16/5/2019 - CHELMSFORD RD / METFORD RD, METFORD

17:30 <<< HOUR ENDING **Thursday**

Summary: CHELMSFORD RD / METFORD RD	
2318	Total Light Vehicles
27	Total Heavy Vehicles
3	Total Pedestrians

Quality Surveys
192944



16/5/2019 - CHELMSFORD RD / METFORD RD, METFORD

Light Vehicles

	1	2	3	4	5	6	7	8	9	Total Vehicles 15 MIN HOUR		Pedestrians 10	11	12
16:15	57	31	1	31	124	0	143	100	24	511		0	0	0
16:30	72	39	1	31	122	0	168	88	16	537		0	0	0
16:45	61	35	0	30	128	0	185	120	20	579		0	3	0
17:00	86	45	0	38	145	0	169	105 <	10 <	598	2225	0	0 <	0
17:15	72 <	38 <	2 <	42	132	0	176	93	15	570	2284	0	0 <	0
17:30	69	36	0	33 <	154	0	172 <	93	14	571	2318 <	0	0 <	0
17:45	64 <	32	1 <	30 <	150 <	0	156	93	15	541	2280	0	0	0
18:00	73	37	0 <	31	136	0	156	78	7	518	2200	0	1	0

Heavy Vehicles

	1	2	3	4	5	6	7	8	9	Total Vehicles 15 MIN HOUR	
16:15	1	0	0	2	2	0	3	3	0	11	
16:30	1	0	0	0	3	0	1	0	0	5	
16:45	0	1	0	0	1	0	1	1	0	4	
17:00	3 <	1 <	0	0 <	2 <	0	5	1 <	0	12	32 <
17:15	1 <	0 <	0	0	0	0	2	1	0	4	25
17:30	0	0 <	0	0	3	0	3 <	1	0	7	27
17:45	0	0	0	0	2	0	0	1	0	3	26
18:00	1	0	0	0	1	0	3	1	0	6	20

All Vehicles

	1	2	3	4	5	6	7	8	9	Total Vehicles 15 MIN HOUR	
16:15	58	31	1	33	126	0	146	103	24	522	
16:30	73	39	1	31	125	0	169	88	16	542	
16:45	61	36	0	30	129	0	186	121	20	583	
17:00	89	46	0	38	147	0	174	106 <	10 <	610	2257
17:15	73 <	38 <	2 <	42	132	0	178	94	15	574	2309
17:30	69	36	0	33 <	157	0	175 <	94	14	578	2345 <
17:45	64	32	1 <	30 <	152 <	0	156	94	15	544	2306
18:00	74	37	0 <	31	137	0	159	79	7	524	2220

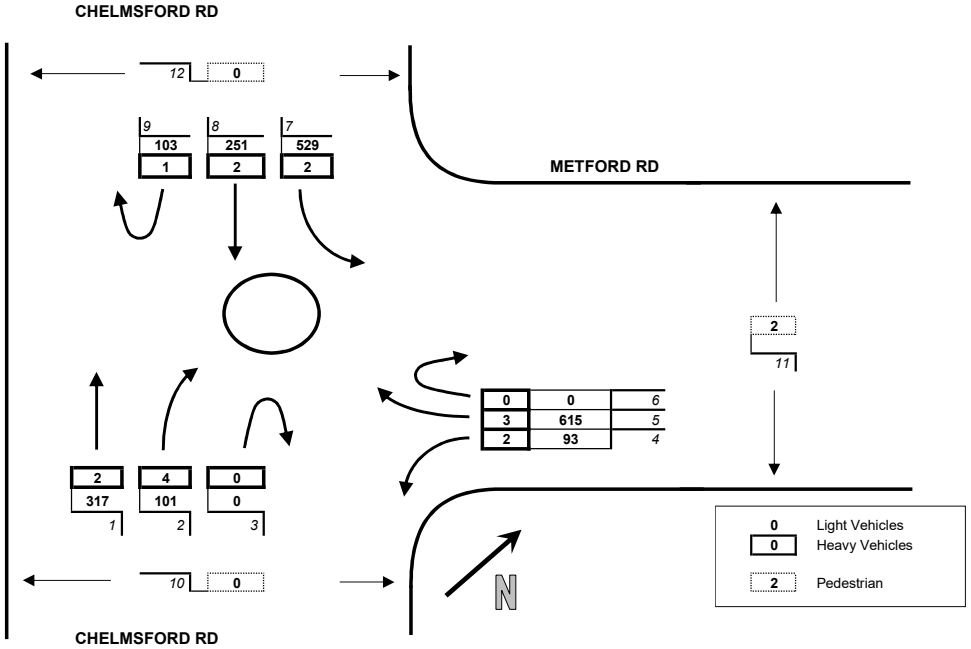
Note : Arrows "<" indicate the end time for the peak hour for each turning movement.

18/5/2019 - CHELMSFORD RD / METFORD RD, METFORD

11:45 <<< HOUR ENDING **Saturday**

Summary: CHELMSFORD RD / METFORD RD	
2009	Total Light Vehicles
16	Total Heavy Vehicles
2	Total Pedestrians

Quality Surveys
192944



18/5/2019 - CHELMSFORD RD / METFORD RD, METFORD

Light Vehicles

	1	2	3	4	5	6	7	8	9	Total Vehicles 15 MIN	HOUR	Pedestrians 10	11	12
09:15	59	19	1	24	135	0	88	36	8	370		0	0	0
09:30	59	26	0	34	117	0	110	54	11	411		0	0	0
09:45	53	20	0	20	110	0	112	63	16	394		0	0	0
10:00	63	21	0	22	161	0	100	57	12	436	1611	0	0	0
10:15	61	23	0	28	166	1	117	39	17	452	1693	0	0	0
10:30	57	15	1	28	177	1 <	121	77	17	494	1776	0	1	0
10:45	68	20	0	30	154 <	0 <	117	63	23	475	1857	0	0	0
11:00	91	31	0	24	135	0 <	116	74	33	504	1925	0	1	0
11:15	87	24	0	19	144	0	121	53	23	471	1944	0	0	0
11:30	60	19	0	25	161	0	139	59	23	486	1936	0	1	0
11:45	79 <	27 <	0	25	175	0	153	65	24 <	548	2009 <	0	0	0
12:00	74	21	2 <	18	136	0	148	66	13	478	1983	0	3	0
12:15	69	27	0 <	19	121	1	132	76	21	466	1978	0	0	0
12:30	61	23	0 <	35	148	0	141 <	64 <	16	488	1980	0	1	0
12:45	67	23	0 <	32	154	1 <	127	63	14	481	1913	0	3 <	0
13:00	57	17	1	31 <	138	0 <	143	59	19	465	1900	0	0	0

Heavy Vehicles

	1	2	3	4	5	6	7	8	9	Total Vehicles 15 MIN	HOUR
09:15	1	2	0	1	5	0	1	0	0	10	
09:30	2	1	0	3	1	0	2	1	0	10	
09:45	0	2	0	2	7	0	1	0	0	12	
10:00	0 <	1 <	0	1 <	0 <	0	1 <	0	0	3	35 <
10:15	0	1	0	0	0	0	0	1	0	2	27
10:30	2	1	0	2	1	0	2	1	0	9	26
10:45	0	0	0	1	2	0	2 <	1 <	0	6	20
11:00	1 <	0	0	1	1	0	0	0 <	1 <	4	21
11:15	0 <	2	0	0	1	0	1 <	0	0 <	4	23
11:30	1	0	0	0	1	0	0	2 <	0 <	4	18
11:45	0	2	0	1	0	0	1	0	0 <	4	16
12:00	0	0	0	2	1	0	0	0	0	3	15
12:15	1	1	0	0	1	0	0	1 <	0	4	15
12:30	2 <	1	0	0	2	0	2	1	1 <	9	20
12:45	0 <	0	0	0	0	0	1	0	0 <	1	17
13:00	0 <	0	0	0	3	0	0	0	0 <	3	17

All Vehicles

	1	2	3	4	5	6	7	8	9	Total Vehicles 15 MIN	HOUR
09:15	60	21	1	25	140	0	89	36	8	380	
09:30	61	27	0	37	118	0	112	55	11	421	
09:45	53	22	0	22	117	0	113	63	16	406	
10:00	63	22	0	23	161	0	101	57	12	439	1646
10:15	61	24	0	28	166	1	117	40	17	454	1720
10:30	59	16	1	30	178	1 <	123	78	17	503	1802
10:45	68	20	0	31	156 <	0 <	119	64	23	481	1877
11:00	92	31	0	25	136	0 <	116	74	34	508	1946
11:15	87	26	0	19	145	0	122	53	23	475	1967
11:30	61	19	0	25	162	0	139	61	23	490	1954
11:45	79 <	29 <	0	26	175	0	154	65	24 <	552	2025 <
12:00	74	21	2 <	20	137	0	148	66	13	481	1998
12:15	70	28	0 <	19	122	1	132	77	21	470	1993
12:30	63	24	0 <	35	150	0	143 <	65 <	17	497	2000
12:45	67	23	0 <	32	154	1 <	128	63	14	482	1930
13:00	57	17	1	31 <	141	0 <	143	59	19	468	1917

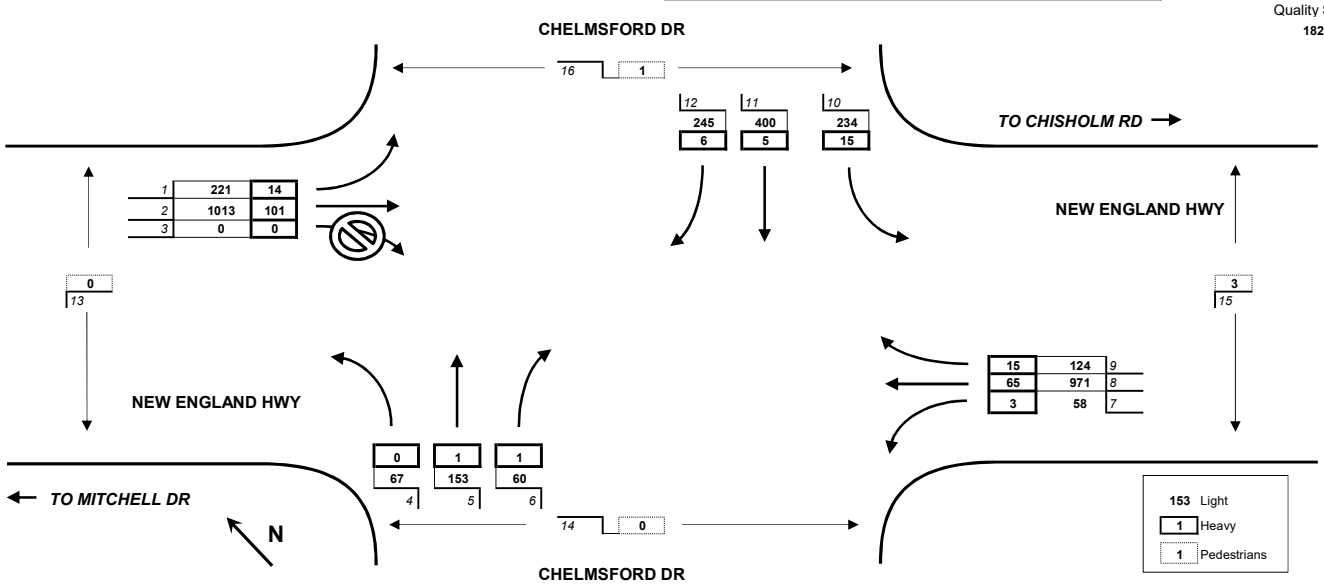
Note : Arrows "<" indicate the end time for the peak hour for each turning movement.

26/7/2018 - CHELMSFORD DR / NEW ENGLAND HWY, GREENHILLS

9:15 <<< HOUR ENDING **Thursday**

Summary:	CHELMSFORD DR / NEW ENGLAND HWY
3546	Total Light Vehicles
226	Total Heavy Vehicles
4	Total Pedestrians

Quality Surveys
182825



26/7/2018 - CHELMSFORD DR / NEW ENGLAND HWY, GREENHILLS

Light Vehicles — **Total Vehicles** — **Pedestrians**

	1	2	3	4	5	6	7	8	9	10	11	12	15 MIN HOUR		13	14	15	16
06:15	31	205	0	3	2	7	6	83	23	32	5	18	415		0	0	0	0
06:30	25	265	0	3	22	11	3	96	26	46	23	21	541		0	0	0	0
06:45	16	263	0	5	16	9	8	159	27	64	26	27	620		0	0	1	0
07:00	24	260	0	8	17	10	4	128	29	37	34	27	578	2154	0	0	1	0
07:15	21	287	0	6	17	18	5	111	18	48	29	28	588	2327	0	0	0	1 <
07:30	24	364	0	8	13	19	5	154	25	61	29	30	732	2518	0	0	0	0 <
07:45	37	287 <	0	7	26	11	10	231	25	58	46	46	784	2682	0	0	1	0 <
08:00	35	259	0	13	21	13	11	258	27	69	69	38	813	2917	0	0	1	0 <
08:15	38	217	0	17	40	10	9	217	34	59	86	50	777	3106	0	0	0	0
08:30	38	313	0	20	35	18	18	279	33	79 <	104	51	988	3362	0	0	2 <	0
08:45	53	251	0	17	47	18	19	262 <	34	57	91	73	922	3500	0	0	1 <	0
09:00	66	212	0	19 <	34 <	19 <	13	246	33 <	57	118	50	867	3554 <	0	0	0	1 <
09:15	64	237	0	11	37	5	8	184	24	41	87 <	71	769	3546	0	0	0	0 <
09:30	52 <	212	0	23	34	10	20	196	34	34	69	53 <	737	3295	1	1 <	0	0 <
09:45	48	215	0	10	21	15	20	184	32	38	75	51	709	3082	3 <	0 <	2	0 <
10:00	58	137	0	7	48	18	15 <	167	30	26	71	50	627	2842	0 <	0 <	0	0

Heavy Vehicles — **Total Vehicles**

	1	2	3	4	5	6	7	8	9	10	11	12	15 MIN HOUR	
06:15	1	9	0	1	0	0	0	14	1	2	0	1	29	
06:30	0	9	0	0	0	1	1	9	6	5	0	1	32	
06:45	0	18	0	0	0	0	2	32	3	6	2	4	67	
07:00	2	20	0	0 <	1 <	1 <	2	21	2	4	2	12	67	195
07:15	2	19	0	0	0 <	0 <	1 <	22	3	4 <	2 <	3	56	222
07:30	2	21	0	0	0 <	0	0	22 <	4	4	0 <	5 <	58	248 <
07:45	3	27	0	1 <	0 <	0	0	20	2	7 <	1	1	62	243
08:00	4	16	0	0 <	0	0	0	23	4	1	0	4	52	228
08:15	2	10	0	0 <	0	1	0	11	4	5	0	3	36	208
08:30	7 <	34	0	0 <	0	0	1	20	5	4	2	0	73	223
08:45	3 <	14	0	0	0	1 <	1	10	7 <	3	1	2	42	203
09:00	3	25	0	0	1 <	0 <	0	15	2	5	2	3	56	207
09:15	1	28 <	0	0	0 <	0	1	20	1	3	0	1	55	226
09:30	6	23	0	0	0 <	0	0	17	3	2	2	1	54	207
09:45	4	14	0	1 <	0 <	0	1	13	5	2	2 <	5	47	212
10:00	5 <	15	0	0 <	0	1	0	10	4	6	1	4	46	202

All Vehicles — **Total Vehicles**

	1	2	3	4	5	6	7	8	9	10	11	12	15 MIN HOUR	
06:15	32	214	0	4	2	7	6	97	24	34	5	19	444	
06:30	25	274	0	3	22	12	4	105	32	51	23	22	573	
06:45	16	281	0	5	16	9	10	191	30	70	28	31	687	
07:00	26	280	0	8	18	11	6	149	31	41	36	39	645	2349
07:15	23	306	0	6	17	18	6	133	21	52	31	31	644	2549
07:30	26	385	0	8	13	19	5	176	29	65	29	35	790	2766
07:45	40	314 <	0	8	26	11	10	251	27	65	47	47	846	2925
08:00	39	275	0	13	21	13	11	281	31	70	69	42	865	3145
08:15	40	227	0	17	40	11	9	228	38	64	86	53	813	3314
08:30	45	347	0	20	35	18	19	299	38	83 <	106	51	1061	3585
08:45	56	265	0	17	47	19	20	272 <	41	60	92	75	964	3703
09:00	69	237	0	19 <	35 <	19 <	13	261	35 <	62	120	53	923	3761
09:15	65	265	0	11	37	5	9	204	25	44	87 <	72	824	3772 <
09:30	58 <	235	0	23	34	10	20	213	37	36	71	54 <	791	3502
09:45	52	229	0	11	21	15	21	197	37	40	77	56	756	3294
10:00	63	152	0	7	48	19	15 <	177	34	32	72	54	673	3044

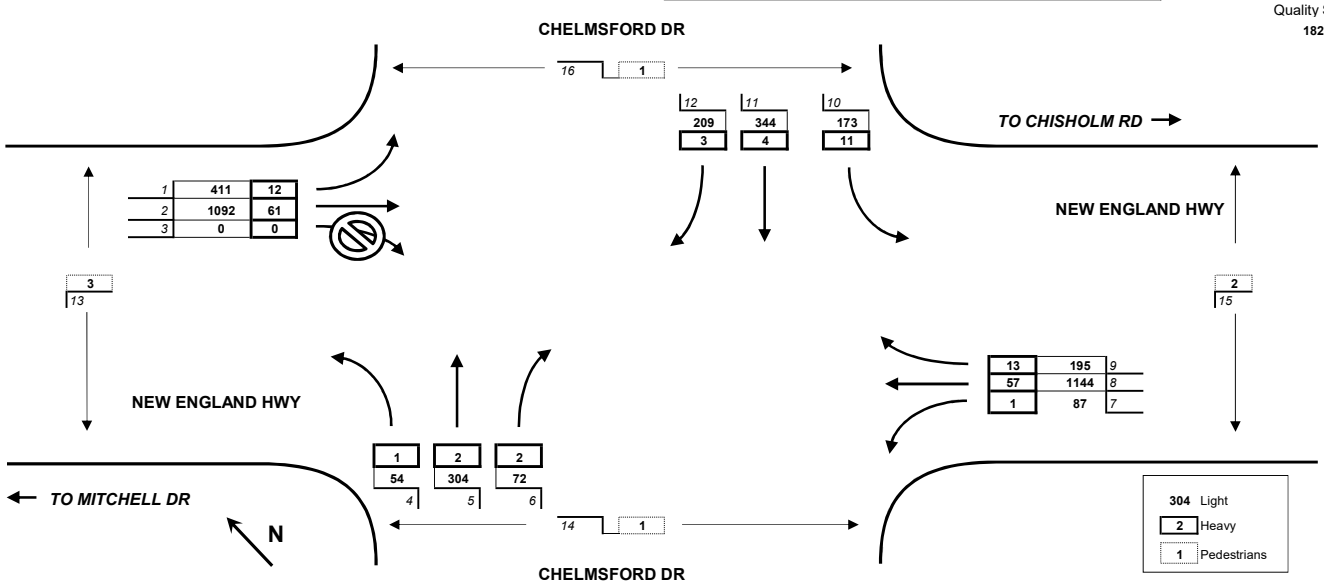
Note : Arrows "<" indicate the end time for the peak hour for each turning movement.

26/7/2018 - CHELMSFORD DR / NEW ENGLAND HWY, GREENHILLS

16:30 <<< HOUR ENDING **Thursday**

Summary:	CHELMSFORD DR / NEW ENGLAND HWY
4085	Total Light Vehicles
167	Total Heavy Vehicles
7	Total Pedestrians

Quality Surveys
182825



26/7/2018 - CHELMSFORD DR / NEW ENGLAND HWY, GREENHILLS

Light Vehicles

	1	2	3	4	5	6	7	8	9	10	11	12	Total Vehicles 15 MIN HOUR		Pedestrians 13	14	15	16
14:15	50	243	0	19	62	28	11	171	52	49	62	40	787		1	1	0	0
14:30	86	223	0	5	47	31	13	225	55	41	75	46	847		2	0	0	0
14:45	66	267	0	17	64	18	23	221	68	36	46	48	874		1	0	0	0
15:00	77	170	0	14	52	30	14	269	36	50	71	59	842	3350	3	0 <	0	0
15:15	54	213	0	11	61	27	23	273	76	44	93	48	923	3486	2	0	1	0
15:30	68	258	0	15	77	31	21	228	60	44	92	19	913	3552	0	0	3	0
15:45	132	292	0	22 <	81	25 <	25	298	10	42	98	44	1069	3747	0	0	2 <	0
16:00	94	262	0	10	71	17	18	261	54	51 <	89	46	973	3878	0	0	0 <	0
16:15	111	264	0	11	68	19	18	274	59	39	96	69	1028	3983	3	0	0	1
16:30	74	274 <	0	11	84 <	11	26	311 <	72	41	61	50	1015	4085 <	0	1 <	0	0
16:45	85	255	0	17	59	24	8	256	83	32	116	62	997	4013	2	0 <	0	1 <
17:00	100	227	0	10	68	25	19	241	62	34	102	60 <	948	3988	4 <	0 <	3	0 <
17:15	127	239	0	10	59	30	36	250	73 <	28	125	40	1017	3977	2	0 <	0	0
17:30	138	318	0	12	67	26	21	269	61	36	101 <	45	1094	4056	0	0	0	0
17:45	117	206	0	13	48	20	16	263	42	39	115	59	938	3997	1	0	1	0
18:00	109 <	157	0	7	54	23	29 <	228	88	30	95	65	885	3934	2	0	1	0

Heavy Vehicles

	1	2	3	4	5	6	7	8	9	10	11	12	Total Vehicles 15 MIN HOUR	
14:15	2	17	0	0	1	1	0	16	1	2	0	4	44	
14:30	0	25	0	0	0	0	0	18	6	1	0	3	53	
14:45	11	19	0	1	0	0	2	27	1	2	1	0	64	
15:00	5	10	0	0	1	1	0	31 <	3	4	0	3 <	58	219
15:15	2	21	0	1 <	2	0	1	12	1	7	2	3	52	227
15:30	6 <	23	0	0 <	1 <	1	2 <	15	5	5	0	0	58	232 <
15:45	7	26 <	0	0	0 <	1 <	0	21	2	4 <	1	2	64	232 <
16:00	1	9	0	1 <	0	0	0	18	4	4 <	3 <	0	40	214
16:15	0	12	0	0	0	0	0	11	3	1	0	1	28	190
16:30	4	14	0	0	2	1	1	7	4	2	0	0	35	167
16:45	5	22	0	0	0	1	0	5	4	1	0	0	38	141
17:00	0	14	0	0	0	0	0	7	6 <	2	0	3	32	133
17:15	2	13	0	0	0	0	0	5	1	2	0	0	23	128
17:30	3	8	0	0	0	0	0	7	3	1	0	0	22	115
17:45	2	1	0	0	0	0	0	8	1	2	1	2	17	94
18:00	-1	3	0	0	0	0	0	2	2	1	0	1	8	70

All Vehicles

	1	2	3	4	5	6	7	8	9	10	11	12	Total Vehicles 15 MIN HOUR	
14:15	52	260	0	19	63	29	11	187	53	51	62	44	831	
14:30	86	248	0	5	47	31	13	243	61	42	75	49	900	
14:45	77	286	0	18	64	18	25	248	69	38	47	48	938	
15:00	82	180	0	14	53	31	14	300	39	54	71	62	900	3569
15:15	56	234	0	12	63	27	24	285	77	51	95	51	975	3713
15:30	74	281	0	15	78	32	23	243	65	49	92	19	971	3784
15:45	139	318	0	22 <	81	26 <	25	319	12	46	99	46	1133	3979
16:00	95	271	0	11	71	17	18	279	58	55 <	92	46	1013	4092
16:15	111	276	0	11	68	19	18	285	62	40	96	70	1056	4173
16:30	78	288 <	0	11	86 <	12	27	318 <	76	43	61	50	1050	4252 <
16:45	90	277	0	17	59	25	8	261	87	33	116	62	1035	4154
17:00	100	241	0	10	68	25	19	248	68	36	102	63 <	980	4121
17:15	129	252	0	10	59	30	36	255	74 <	30	125	40	1040	4105
17:30	141	326	0	12	67	26	21	276	64	37	101 <	45	1116	4171
17:45	119	207	0	13	48	20	16	271	43	41	116 <	61	955	4091
18:00	108 <	160	0	7	54	23	29 <	230	90	31	95	66	893	4004

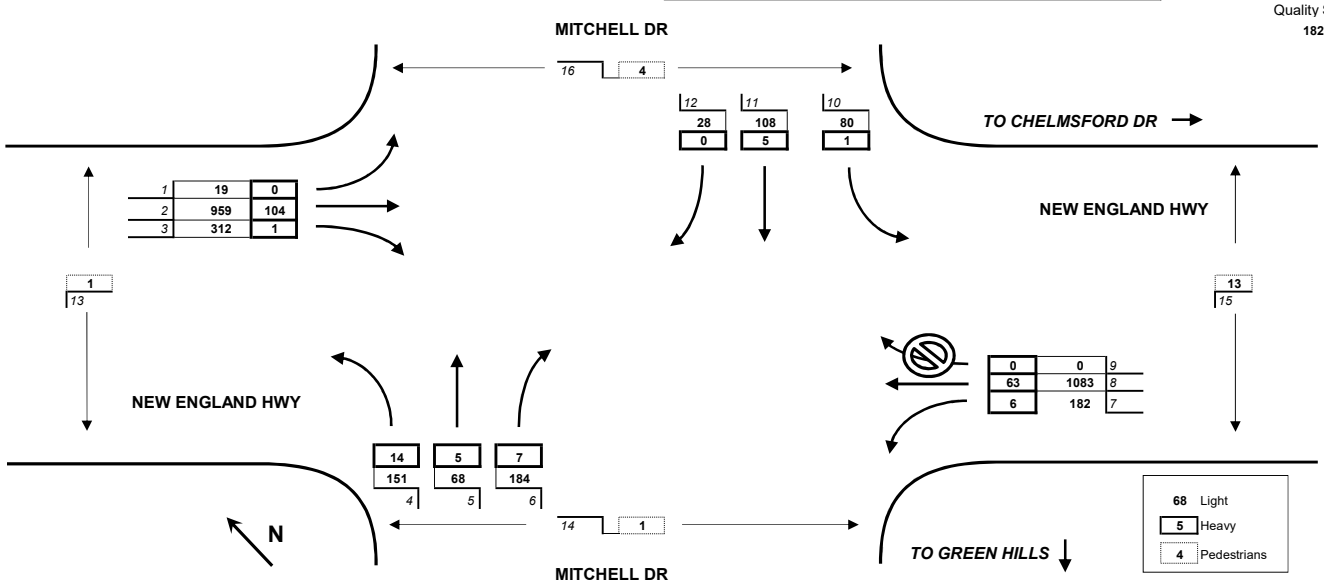
Note : Arrows "<" indicate the end time for the peak hour for each turning movement.

26/7/2018 - MITCHELL DR / NEW ENGLAND HWY, GREENHILLS

9:15 <<< HOUR ENDING **Thursday**

Summary:	MITCHELL DR / NEW ENGLAND HWY
3174	Total Light Vehicles
206	Total Heavy Vehicles
19	Total Pedestrians

Quality Surveys
182825



26/7/2018 - MITCHELL DR / NEW ENGLAND HWY, GREENHILLS

Light Vehicles — **Total Vehicles** — **Pedestrians**

	1	2	3	4	5	6	7	8	9	10	11	12	15 MIN HOUR		13	14	15	16
06:15	0	196	19	13	0	34	10	105	0	19	4	3	403		0	0	0	0
06:30	1	279	9	11	3	15	8	104	0	6	8	2	446		0	1	0	0
06:45	1	247	13	12	7	19	6	183	0	11	11	4	514		1	0	0	0
07:00	0	250	16	11	10	30	17	144	0	18	7	3	506	1869	1 <	0	0	0
07:15	3	278	18	16	7	39	11	141	0	15	5	2	535	2001	0 <	0	0	0
07:30	2	311	16	11	7	38	15	177	0	31	16	4	628	2183	0 <	0	1	0
07:45	1	256	27	22	7	40	19	247	0	23	9	5	656	2325	0	0	2	0
08:00	0	277	46	27	3	38	34	295	0	17	22	3	762	2581	0	0	2	0
08:15	4	281 <	40	30	11	29	38	296	0	21 <	33	8	791	2837	0	0	1	1
08:30	5	246	61	32	17	45	40	294	0	16	29	5	790	2999	0	0	1	0
08:45	6	239	77	47	12	47	42	295 <	0	23	18	13	819	3162	1	1	8	4
09:00	4 <	238	87	27	22	39	52	258	0	20	30	5 <	782	3182 <	0	0	3	0
09:15	4 <	236	87	45	17 <	53	48	236	0	21	31	5	783	3174	0	0	1	0
09:30	5 <	174	84	57	14	53	51 <	217	0	16	29	5	705	3089	0	0	5 <	3
09:45	3	197	87	43	15 <	61	31	211	0	12	24 <	6	690	2960	1	1	4	5
10:00	6	147	95 <	60 <	17	47 <	42	177	0	11	29	9	640	2818	0	1 <	5	3 <

Heavy Vehicles — **Total Vehicles**

	1	2	3	4	5	6	7	8	9	10	11	12	15 MIN HOUR	
06:15	0	11	0	1	1	0	1	15	0	0	0	0	29	
06:30	0	7	0	0	1	0	0	10	0	0	2	1	21	
06:45	0	17	1	0	1	2	2	23	0	0	1	1	48	
07:00	0	17	0	0	1	1	4	31	0	1	1	0 <	56	154
07:15	1 <	15	0	3	0	2	3	21	0	1 <	0	0 <	46	171
07:30	0 <	19	2	0	1	0	5 <	20 <	0	0 <	0	0	47	197
07:45	0 <	19	1	1	2	2	2 <	17	0	0 <	2	0	46	195
08:00	0 <	16	3 <	2	1	4	3	19	0	0	2	1	51	190
08:15	1 <	16	0 <	3	0	0	2	16	0	1	1 <	0	40	184
08:30	0 <	32	1	5	3 <	4	0	18	0	0	0 <	0	63	200
08:45	0 <	14	0	3	0	1	2	10	0	1 <	1	0	32	186
09:00	0 <	29	0	4 <	2	1	3	15	0	0 <	2	0	56	191
09:15	0	29 <	0	2	0	1	1	20	0	0	2 <	0	55	206 <
09:30	0	25	0	1	1	5	0	14	0	0	0 <	0	46	189
09:45	0	15	1	3	0	2	4	13	0	0	1 <	2 <	41	198
10:00	0	19	2	1	2	3 <	1	16	0	0	1	0 <	45	187

All Vehicles — **Total Vehicles**

	1	2	3	4	5	6	7	8	9	10	11	12	15 MIN HOUR	
06:15	0	207	19	14	1	34	11	120	0	19	4	3	432	
06:30	1	286	9	11	4	15	8	114	0	6	10	3	467	
06:45	1	264	14	12	8	21	8	206	0	11	12	5	562	
07:00	0	267	16	11	11	31	21	175	0	19	8	3	562	2023
07:15	4	293	18	19	7	41	14	162	0	16	5	2	581	2172
07:30	2	330	18	11	8	38	20	197	0	31	16	4	675	2380
07:45	1	275	28	23	9	42	21	264	0	23	11	5	702	2520
08:00	0	293	49	29	4	42	37	314	0	17	24	4	813	2771
08:15	5	297 <	40	33	11	29	40	312	0	22 <	34	8	831	3021
08:30	5	278	62	37	20	49	40	312	0	16	29	5	853	3199
08:45	6	253	77	50	12	48	44	305 <	0	24	19	13	851	3348
09:00	4 <	267	87	31	24	40	55	273	0	20	32	5 <	838	3373
09:15	4	265	87	47	17 <	54	49	256	0	21	33	5	838	3380 <
09:30	5	199	84	58	15	58	51 <	231	0	16	29	5	751	3278
09:45	3	212	88	46	15	63	35	224	0	12	25 <	8	731	3158
10:00	6	166	97 <	61 <	19	50 <	43	193	0	11	30	9	685	3005

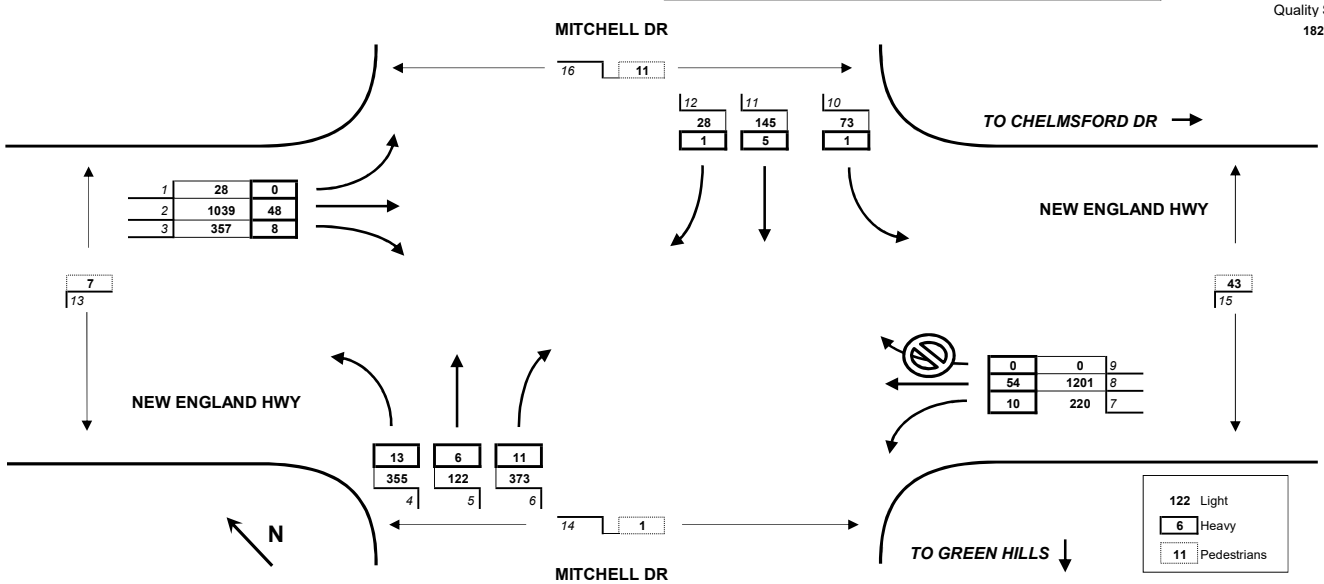
Note : Arrows "<" indicate the end time for the peak hour for each turning movement.

26/7/2018 - MITCHELL DR / NEW ENGLAND HWY, GREENHILLS

16:30 <<< HOUR ENDING **Thursday**

Summary:	MITCHELL DR / NEW ENGLAND HWY
3941	Total Light Vehicles
157	Total Heavy Vehicles
62	Total Pedestrians

Quality Surveys
182825



26/7/2018 - MITCHELL DR / NEW ENGLAND HWY, GREENHILLS

Light Vehicles

	1	2	3	4	5	6	7	8	9	10	11	12	Total Vehicles 15 MIN HOUR	
14:15	3	235	73	106	26	95	21	212	0	14	39	4	828	
14:30	2	219	80	67	16	81	28	266	0	9	23	3	794	
14:45	3	208	50	104	27	95	37	248	0	16	33	10	831	
15:00	2	227	67	100	20	66	43	294	0	18	39	3	879	3332
15:15	10	205	82	87	23	72	51	302	0	13	31	8	884	3388
15:30	7	281	84	78	20	81	54	225	0	19	35	10	894	3488
15:45	7	279	68	72	30	86	51	312	0	18	46	7	976	3633
16:00	13 <	266	84	89	30	85	56	290	0	23	27	8 <	971	3725
16:15	4	238 <	103	97	27	100	62	276	0	14 <	34	7	962	3803
16:30	4	256	102	97	35 <	102	51	323 <	0	18	38	6	1032	3941 <
16:45	6	261	82	90	25	84	50	288	0	12	37	8	943	3908
17:00	4	255	107	118	22	80	44	253	0	19	38	2	942	3879
17:15	7	232	121	107 <	23	127	55	255	0	18	47	8	1000	3917
17:30	5	294	84	85	25	96	58	301	0	12	39 <	2	1001	3886
17:45	9	216	90	101	29	101	57	252	0	8	30	2	895	3838
18:00	3	179	135 <	94	27	100 <	67 <	253	0	9	28	3	898	3794

Pedestrians

	13	14	15	16
14:15	5	3	7	3
14:30	1	0	4	0
14:45	7	4	6	2
15:00	0	0	5	0
15:15	3	2	6	3
15:30	9 <	12 <	10	2
15:45	6	0	11	5
16:00	1 <	1	10	3 <
16:15	0	0	13 <	3 <
16:30	0	0	9	0
16:45	2	3	4	1
17:00	2	3	6	0
17:15	1	1	12	5
17:30	4	2	5	3
17:45	2	3	3	0
18:00	0	0	4	1

Heavy Vehicles

	1	2	3	4	5	6	7	8	9	10	11	12	Total Vehicles 15 MIN HOUR	
14:15	0	14	0	1	0	5	2	16	0	0	1	0	39	
14:30	0	22	2	2	0	1	3	16	0	0	1	0	47	
14:45	1	16	3	0	3	4	3	22	0	0	1	0	53	
15:00	0 <	14	1	2	1	4 <	2 <	29	0	0	1	0	54	193
15:15	0 <	19	1	2	0	3	2 <	18 <	0	1	2	1	49	203 <
15:30	0 <	20	1	3	1	3 <	0	13	0	1	2	1 <	45	201
15:45	0	20 <	4	4	2	2	2	20	0	0	0	0 <	54	202
16:00	0	6	3 <	3	2	4	6 <	16	0	1 <	3 <	0 <	44	192
16:15	0	13	1 <	2	0	0	2 <	12	0	0	0	0	30	173
16:30	0	9	0	4 <	2 <	5	0 <	6	0	0	2	1	29	157
16:45	0	21	0	0	0	3	1	5	0	0	0	0	30	133
17:00	0	14	2	0	1	2	1	8	0	0	1	0	29	118
17:15	0	14	0	0	2	1	2	4	0	0	0	0	23	111
17:30	0	6	0	2	1	0	0	6	0	1	3	0	19	101
17:45	0	0	0	1	0	2	1	7	0	0	0	0	11	82
18:00	0	1	0	1	1	1	0	3	0	0	2	0	9	62

All Vehicles

	1	2	3	4	5	6	7	8	9	10	11	12	Total Vehicles 15 MIN HOUR	
14:15	3	249	73	107	26	100	23	228	0	14	40	4	867	
14:30	2	241	82	69	16	82	31	282	0	9	24	3	841	
14:45	4	224	53	104	30	99	40	270	0	16	34	10	884	
15:00	2	241	68	102	21	70	45	323	0	18	40	3	933	3525
15:15	10	224	83	89	23	75	53	320	0	14	33	9	933	3591
15:30	7	301	85	81	21	84	54	238	0	20	37	11	939	3689
15:45	7	299	72	76	32	88	53	332	0	18	46	7	1030	3835
16:00	13 <	272	87	92	32	89	62	306	0	24 <	30	8 <	1015	3917
16:15	4	251 <	104	99	27	100	64	288	0	14 <	34	7	992	3976
16:30	4	265	102	101	37 <	107	51	329 <	0	18	40	7	1061	4098 <
16:45	6	282	82	90	25	87	51	293	0	12	37	8	973	4041
17:00	4	269	109	118	23	82	45	261	0	19	39	2	971	3997
17:15	7	246	121	107 <	25	128	57	259	0	18	47	8	1023	4028
17:30	5	300	84	87	26	96	58	307	0	13	42 <	2	1020	3987
17:45	9	216	90	102	29	103	58	259	0	8	30	2	906	3920
18:00	3	180	135 <	95	28	101 <	67 <	256	0	9	30	3	907	3856

Note : Arrows "<" indicate the end time for the peak hour for each turning movement.

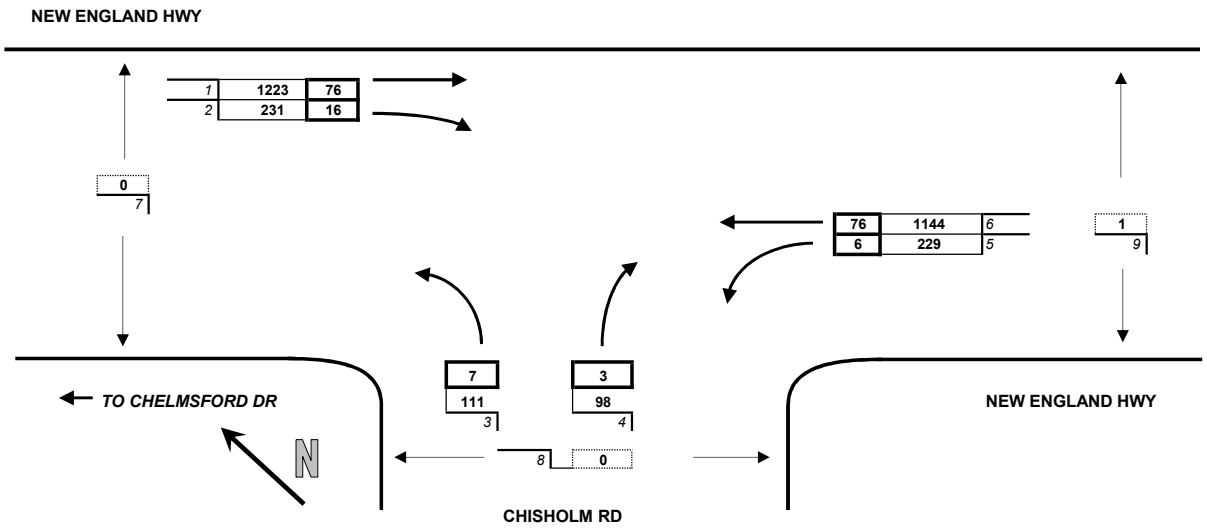
26/7/2018 - NEW ENGLAND HWY / CHISHOLM RD, GREENHILLS

8:45 <<< HOUR ENDING **Thursday**

Summary: NEW ENGLAND HWY / CHISHOLM RD	
3036	Total Light Vehicles
184	Total Heavy Vehicles
1	Total Pedestrians

Quality Surveys
182825

1223	Light Vehicles
76	Heavy Vehicles
0	Pedestrians



26/7/2018 - NEW ENGLAND HWY / CHISHOLM RD, GREENHILLS

Light Vehicles

	1	2	3	4	5	6	15 MIN	HOUR
06:15	235	3	8	4	11	107	368	
06:30	329	3	5	9	14	124	484	
06:45	331	19	4	6	10	189	559	
07:00	300	16	4	10	28	165	523	1934
07:15	368	15	5	20	18	144	570	2136
07:30	409	16	10	12	32	179	658	2310
07:45	342	27	21	14	32	243	679	2430
08:00	334 <	55	19	19	49	285	761	2668
08:15	277	62	26	25	63	294	747	2845
08:30	320	78	34	27	62	285	806	2993
08:45	292	36 <	32	27 <	55	280 <	722	3036 <
09:00	277	38	25 <	17	62 <	272	691	2966
09:15	269	24	21	14	46	214	588	2807
09:30	219	28	15	11	47	226	546	2547
09:45	233	23	18	19	57	209	559	2384
10:00	195	20	22	15	46	197	495	2188

Pedestrians

	7	8	9
06:15	0	0	0
06:30	0	0	0
06:45	0	0	0
07:00	0	0	0
07:15	0	0	0
07:30	0	0	0
07:45	0	0	0
08:00	0	0	1 <
08:15	0	0	0 <
08:30	0	0	0 <
08:45	0	0	0 <
09:00	0	0	0
09:15	1 <	0	0
09:30	0 <	0	0
09:45	0 <	0	0
10:00	0 <	0	0

Heavy Vehicles

	1	2	3	4	5	6	15 MIN	HOUR
06:15	14	1	1	0	0	16	32	
06:30	21	0	1	0	1	17	40	
06:45	26	0	0	1	1	31	59	
07:00	22	0	0	0	3	24	49	180
07:15	16	1	0	0	0	26	43	191
07:30	20	3	0	1	0	22 <	46	197
07:45	23	1	1	0	2	19	46	184
08:00	17	1	1	0	0	22	41	176
08:15	17	2	0	0	1	17	37	170
08:30	26	11	1	0	2	25	65	189
08:45	16	2 <	5	3	3	12	41	184
09:00	31	0	1	1 <	0	16	49	192
09:15	30	2	1 <	0 <	2	24	59	214 <
09:30	26	1	1 <	0 <	3	18	49	198
09:45	17 <	0	0	0	2	18	37	194
10:00	15	2	0	1	3 <	16	37	182

All Vehicles

	1	2	3	4	5	6	15 MIN	HOUR
06:15	249	4	9	4	11	123	400	
06:30	350	3	6	9	15	141	524	
06:45	357	19	4	7	11	220	618	
07:00	322	16	4	10	31	189	572	2114
07:15	384	16	5	20	18	170	613	2327
07:30	429	19	10	13	32	201	704	2507
07:45	365	28	22	14	34	262	725	2614
08:00	351 <	56	20	19	49	307	802	2844
08:15	294	64	26	25	64	311	784	3015
08:30	346	89	35	27	64	310	871	3182
08:45	308	38 <	37	30 <	58	292 <	763	3220 <
09:00	308	38	26 <	18	62 <	288	740	3158
09:15	299	26	22	14	48	238	647	3021
09:30	245	29	16	11	50	244	595	2745
09:45	250	23	18	19	59	227	596	2578
10:00	210	22	22	16	49	213	532	2370

Note : Arrows "<" indicate the end time for the peak hour for each turning movement.

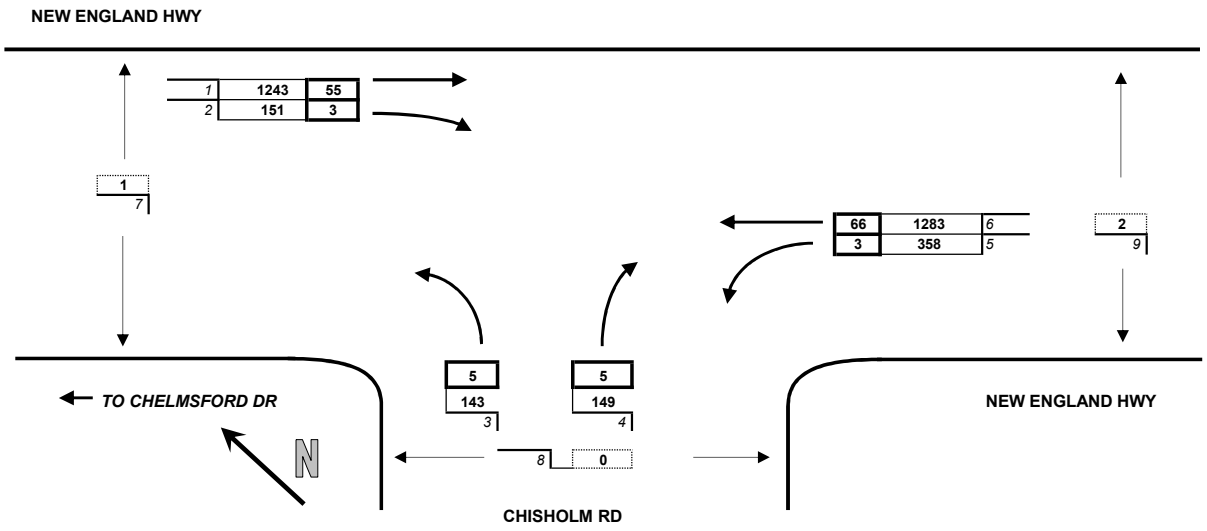
26/7/2018 - NEW ENGLAND HWY / CHISHOLM RD, GREENHILLS

16:30 <<< HOUR ENDING **Thursday**

Summary: NEW ENGLAND HWY / CHISHOLM RD	
3327	Total Light Vehicles
137	Total Heavy Vehicles
3	Total Pedestrians

Quality Surveys
182825

1243	Light Vehicles
55	Heavy Vehicles
1	Pedestrians



26/7/2018 - NEW ENGLAND HWY / CHISHOLM RD, GREENHILLS

	Light Vehicles 1	2	3	4	5	6	Total Vehicles 15 MIN HOUR		Pedestrians 7	8	9
14:15	301	25	32	47	44	202	651		0	0	0
14:30	278	30	22	36	63	271	700		0	0	0
14:45	248	42	41	39	61	271	702		0	0	0
15:00	245	47	29	35 <	63	290	709	2762	0	0	0
15:15	253	42 <	54	43	71	318	781	2892	0	0	0
15:30	320	27	44 <	37	82	265	775	2967	0	0	0
15:45	330	33	26	39	88	307	823	3088	0	0	1
16:00	291	49	31	30	93	302	796	3175	1 <	0	1 <
16:15	313 <	34	40	39	84	311	821	3215	0 <	0	0 <
16:30	309	35	46	41	93 <	363	887	3327 <	0 <	0	0 <
16:45	292	35	47	39	86	300	799	3303	0 <	0	0
17:00	279	25	22	25	84	300	735	3242	0	0	0
17:15	280	28	28	20	84	331 <	771	3192	0	0	0
17:30	314	33	25	30	90	326	818	3123	0	0	0
17:45	280	33	26	25	62	295	721	3045	0	0	0
18:00	185	35	30	20	82	315	667	2977	0	0	0

	Heavy Vehicles 1	2	3	4	5	6	Total Vehicles 15 MIN HOUR	
14:15	16	0	0	1	1	15	33	
14:30	18	1	1	2	1	25	48	
14:45	17	2	0	2	3	27	51	
15:00	18	1	0	0 <	2	34 <	55	187
15:15	21	9	6	1 <	2 <	8	47	201
15:30	25	2 <	4	2 <	0	18	51	204 <
15:45	19 <	2 <	1	0	2	22	46	199
16:00	10	0	2 <	1	0	20	33	177
16:15	12	0	0	2 <	1	14	29	159
16:30	14	1	2	2 <	0	10	29	137
16:45	20	1	1	0 <	1	8	31	122
17:00	14	1	0	0	0	13	28	117
17:15	14	1	0	0	0	4	19	107
17:30	8	0	1	1	1	9	20	98
17:45	4	0	0	0	1	9	14	81
18:00	4	1	0	0	0	4	9	62

	All Vehicles 1	2	3	4	5	6	Total Vehicles 15 MIN HOUR	
14:15	317	25	32	48	45	217	684	
14:30	296	31	23	38	64	296	748	
14:45	265	44	41	41	64	298	753	
15:00	263	48	29	35 <	65	324	764	2949
15:15	274	51 <	60	44	73	326	828	3093
15:30	345	29	48 <	39	82	283	826	3171
15:45	349	35	27	39	90	329	869	3287
16:00	301	49	33	31	93	322	829	3352
16:15	325 <	34	40	41	85	325	850	3374
16:30	323	36	48	43	93 <	373 <	916	3464 <
16:45	312	36	48	39	87	308	830	3425
17:00	293	26	22	25	84	313	763	3359
17:15	294	29	28	20	84	335	790	3299
17:30	322	33	26	31	91	335	838	3221
17:45	284	33	26	25	63	304	735	3126
18:00	189	36	30	20	82	319	676	3039

Note : Arrows "<" indicate the end time for the peak hour for each turning movement.

Appendix B

SIDRA Intersection results

MOVEMENT SUMMARY

Site: [Site 2: Fieldsend Street_Metford_AM - Roundabout]

Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Hospital Access												
21	L2	1	0.0	0.003	3.2	LOS A	0.0	0.1	0.63	0.33	0.63	42.2
22	T1	1	0.0	0.003	2.9	LOS A	0.0	0.1	0.63	0.34	0.63	42.9
23	R2	1	0.0	0.003	2.9	LOS A	0.0	0.1	0.63	0.34	0.63	44.0
Approach		3	0.0	0.003	3.0	LOS A	0.0	0.1	0.63	0.34	0.63	43.1
NorthEast: Metford Road												
24	L2	1	0.0	0.001	5.6	LOS A	0.0	0.0	0.12	0.53	0.12	44.3
2	T1	705	1.5	0.449	4.0	LOS A	3.3	23.6	0.16	0.41	0.16	56.1
3	R2	83	5.1	0.449	9.0	LOS A	3.3	23.6	0.16	0.41	0.16	56.0
Approach		789	1.9	0.449	4.5	LOS A	3.3	23.6	0.16	0.41	0.16	56.1
NorthWest: Fieldsend Street												
4	L2	83	5.1	0.135	7.3	LOS A	0.7	5.4	0.65	0.73	0.65	52.0
28	T1	1	0.0	0.135	11.5	LOS A	0.7	5.4	0.65	0.73	0.65	42.2
6	R2	28	7.4	0.135	12.5	LOS A	0.7	5.4	0.65	0.73	0.65	53.3
Approach		113	5.6	0.135	8.7	LOS A	0.7	5.4	0.65	0.73	0.65	52.3
SouthWest: Metford Road												
7	L2	29	10.7	0.522	4.3	LOS A	3.4	24.4	0.28	0.42	0.28	54.1
8	T1	740	1.1	0.522	4.3	LOS A	3.4	24.4	0.28	0.42	0.28	55.9
32	R2	1	0.0	0.522	11.0	LOS A	3.4	24.4	0.28	0.42	0.28	45.1
Approach		771	1.5	0.522	4.3	LOS A	3.4	24.4	0.28	0.42	0.28	55.8
All Vehicles		1676	1.9	0.522	4.7	LOS A	3.4	24.4	0.25	0.44	0.25	55.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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: [Site 2: Fieldsend Street_Metford_AM - Roundabout]

Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Hospital Access												
21	L2	1	0.0	0.003	5.4	LOS A	0.0	0.1	0.76	0.42	0.76	40.4
22	T1	1	0.0	0.003	5.0	LOS A	0.0	0.1	0.77	0.44	0.77	41.1
23	R2	1	0.0	0.003	5.0	LOS A	0.0	0.1	0.77	0.44	0.77	42.2
Approach		3	0.0	0.003	5.2	LOS A	0.0	0.1	0.77	0.43	0.77	41.2
NorthEast: Metford Road												
24	L2	1	0.0	0.001	5.6	LOS A	0.0	0.0	0.12	0.53	0.12	44.3
2	T1	925	1.1	0.570	4.0	LOS A	4.8	34.3	0.19	0.40	0.19	56.1
3	R2	83	5.1	0.570	9.1	LOS A	4.8	34.3	0.19	0.40	0.19	56.0
Approach		1009	1.5	0.570	4.5	LOS A	4.8	34.3	0.19	0.40	0.19	56.1
NorthWest: Fieldsend Street												
4	L2	83	5.1	0.116	6.0	LOS A	0.6	4.1	0.53	0.66	0.53	52.9
28	T1	1	0.0	0.116	10.2	LOS A	0.6	4.1	0.53	0.66	0.53	43.3
6	R2	28	7.4	0.116	11.2	LOS A	0.6	4.1	0.53	0.66	0.53	54.2
Approach		113	5.6	0.116	7.4	LOS A	0.6	4.1	0.53	0.66	0.53	53.2
SouthWest: Metford Road												
7	L2	29	10.7	0.402	4.3	LOS A	2.3	16.0	0.24	0.41	0.24	54.3
8	T1	553	1.5	0.402	4.3	LOS A	2.3	16.0	0.24	0.41	0.24	56.1
32	R2	1	0.0	0.402	11.0	LOS A	2.3	16.0	0.24	0.41	0.24	45.3
Approach		583	2.0	0.402	4.3	LOS A	2.3	16.0	0.24	0.41	0.24	56.0
All Vehicles		1708	1.9	0.570	4.6	LOS A	4.8	34.3	0.23	0.42	0.23	55.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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: [Site 3: Chelmsford Drive_Metford Road_AM - 2019]

Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Chelmsford Drive-E												
22	T1	338	2.8	0.987	48.2	LOS D	23.4	168.0	1.00	1.68	2.75	30.6
23	R2	205	3.6	0.987	52.5	LOS D	23.4	168.0	1.00	1.68	2.75	33.2
23u	U	1	0.0	0.987	54.2	LOS D	23.4	168.0	1.00	1.68	2.75	33.5
Approach		544	3.1	0.987	49.8	LOS D	23.4	168.0	1.00	1.68	2.75	31.7
NorthEast: Metford Road												
24	L2	207	2.0	0.867	13.6	LOS A	17.2	122.4	1.00	0.97	1.37	46.3
26	R2	693	2.4	0.867	18.1	LOS B	17.2	122.4	1.00	0.97	1.37	45.1
Approach		900	2.3	0.867	17.0	LOS B	17.2	122.4	1.00	0.97	1.37	45.4
NorthWest: Chelmsford Drive-W												
27	L2	311	4.4	0.256	5.4	LOS A	1.8	13.0	0.49	0.58	0.49	51.9
28	T1	243	3.5	0.257	5.3	LOS A	1.8	12.6	0.50	0.57	0.50	52.4
29u	U	41	2.6	0.257	11.5	LOS A	1.8	12.6	0.50	0.57	0.50	51.3
Approach		595	3.9	0.257	5.8	LOS A	1.8	13.0	0.49	0.58	0.49	52.1
All Vehicles		2039	3.0	0.987	22.5	LOS B	23.4	168.0	0.85	1.04	1.48	41.8

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

MOVEMENT SUMMARY

Site: 101 [Site 3: Chelmsford Drive_Metford Road_PM - 2019]

Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Chelmsford Drive-E												
22	T1	307	1.4	0.748	17.3	LOS B	9.4	66.4	1.00	1.19	1.48	44.1
23	R2	164	1.3	0.748	21.6	LOS B	9.4	66.4	1.00	1.19	1.48	45.9
23u	U	2	0.0	0.748	23.4	LOS B	9.4	66.4	1.00	1.19	1.48	46.5
Approach		474	1.4	0.748	18.8	LOS B	9.4	66.4	1.00	1.19	1.48	44.8
NorthEast: Metford Road												
24	L2	151	0.0	0.909	23.7	LOS B	19.4	136.8	1.00	1.36	1.95	41.1
26	R2	595	1.1	0.909	28.1	LOS B	19.4	136.8	1.00	1.36	1.95	39.3
Approach		745	0.9	0.909	27.2	LOS B	19.4	136.8	1.00	1.36	1.95	39.7
NorthWest: Chelmsford Drive-W												
27	L2	751	1.5	0.558	5.4	LOS A	5.6	39.4	0.59	0.58	0.59	51.7
28	T1	437	1.0	0.440	5.3	LOS A	3.6	25.6	0.54	0.57	0.54	52.4
29u	U	62	0.0	0.440	11.5	LOS A	3.6	25.6	0.54	0.57	0.54	51.7
Approach		1249	1.3	0.558	5.7	LOS A	5.6	39.4	0.57	0.58	0.57	51.9
All Vehicles		2468	1.2	0.909	14.7	LOS B	19.4	136.8	0.78	0.93	1.16	46.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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: 5 [Site 4: NEH & Mitchell Drive 2018_AM]

Network: N101 [AM Network - Existing - User Phasing]

Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 124 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: New England Highway														
1	L2	188	3.9	188	3.9	0.171	8.8	LOS A	1.4	9.9	0.22	0.61	0.22	42.0
2	T1	1265	4.9	1265	4.9	0.468	14.2	LOS A	15.7	114.6	0.46	0.40	0.46	47.1
Approach		1454	4.8	1454	4.8	0.468	13.5	LOS A	15.7	114.6	0.43	0.43	0.43	46.7
NorthEast: Mitchell Drive														
4	L2	86	2.4	86	2.4	0.400	59.5	LOS E	5.0	35.7	0.97	0.77	0.97	2.5
5	T1	120	3.5	120	3.5	0.276	55.6	LOS D	3.4	24.6	0.95	0.73	0.95	7.4
6	R2	33	0.0	33	0.0	0.196	61.2	LOS E	1.9	13.2	0.96	0.72	0.96	20.7
Approach		239	2.6	239	2.6	0.400	57.8	LOS E	5.0	35.7	0.96	0.74	0.96	8.3
NorthWest: New England Highway														
7	L2	21	5.0	21	5.0	0.019	11.0	LOS A	0.3	2.1	0.41	0.64	0.41	43.3
8	T1	1153	8.3	1153	8.3	0.454	9.4	LOS A	15.6	116.9	0.49	0.45	0.49	46.4
9	R2	280	0.4	280	0.4	0.632	63.6	LOS E	8.4	59.0	1.00	0.81	1.02	21.6
Approach		1454	6.7	1454	6.7	0.632	19.8	LOS B	15.6	116.9	0.59	0.52	0.59	37.2
SouthWest: Mitchell Drive														
10	L2	159	9.9	159	9.9	0.140	31.8	LOS C	2.2	16.7	0.82	0.72	0.82	31.3
11	T1	71	7.5	71	7.5	0.332	56.1	LOS D	4.0	30.1	0.96	0.74	0.96	7.3
12	R2	175	3.6	175	3.6	0.538	66.0	LOS E	5.3	38.1	1.00	0.78	1.00	5.1
Approach		404	6.8	404	6.8	0.538	50.8	LOS D	5.3	38.1	0.92	0.75	0.92	15.7
All Vehicles		3551	5.7	3551	5.7	0.632	23.3	LOS B	15.7	116.9	0.59	0.52	0.59	36.2

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P11	SouthEast Stage 1	14	27.1	LOS C	0.0	0.0	0.66	0.66
P12	SouthEast Stage 2	14	52.4	LOS E	0.0	0.0	0.92	0.92
P1S	SouthEast Slip/Bypass Lane Crossing	14	25.0	LOS C	0.0	0.0	0.80	0.80
P2	NorthEast Full Crossing	5	10.9	LOS B	0.0	0.0	0.42	0.42
P2S	NorthEast Slip/Bypass Lane Crossing	5	2.3	LOS A	0.0	0.0	0.19	0.19
P3	NorthWest Full Crossing	14	56.2	LOS E	0.0	0.0	0.95	0.95
P4	SouthWest Full Crossing	1	23.3	LOS C	0.0	0.0	0.61	0.61
P4S	SouthWest Slip/Bypass Lane Crossing	1	8.0	LOS A	0.0	0.0	0.51	0.51

All Pedestrians	67	34.2	LOS D	0.74	0.74

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: 5 [Site 4: NEH & Mitchell Drive 2018_PM]

Network: N101 [PM Network - Existing - User Phasing]

Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: New England Highway														
1	L2	242	4.4	242	4.4	0.231	12.4	LOS A	3.4	25.0	0.45	0.68	0.45	38.2
2	T1	1321	4.3	1321	4.3	0.548	22.8	LOS B	20.1	145.6	0.68	0.60	0.68	41.6
Approach		1563	4.3	1563	4.3	0.548	21.2	LOS B	20.1	145.6	0.65	0.62	0.65	41.3
NorthEast: Mitchell Drive														
4	L2	78	1.4	78	1.4	0.324	55.7	LOS D	4.3	30.2	0.95	0.76	0.95	2.7
5	T1	158	3.3	158	3.3	0.327	52.8	LOS D	4.3	31.1	0.95	0.74	0.95	7.7
6	R2	31	3.4	31	3.4	0.143	55.3	LOS D	1.6	11.8	0.93	0.72	0.93	22.0
Approach		266	2.8	266	2.8	0.327	53.9	LOS D	4.3	31.1	0.95	0.74	0.95	8.7
NorthWest: New England Highway														
7	L2	29	0.0	29	0.0	0.028	11.5	LOS A	0.4	2.9	0.45	0.65	0.45	42.7
8	T1	1144	4.4	1144	4.4	0.470	11.6	LOS A	16.9	122.5	0.55	0.50	0.55	44.0
9	R2	384	2.2	384	2.2	0.796	65.5	LOS E	11.9	84.8	1.00	0.91	1.18	21.2
Approach		1558	3.8	1558	3.8	0.796	24.9	LOS B	16.9	122.5	0.66	0.60	0.71	34.0
SouthWest: Mitchell Drive														
10	L2	387	3.5	387	3.5	0.295	28.6	LOS C	4.9	35.6	0.84	0.76	0.84	33.0
11	T1	135	4.7	135	4.7	0.564	54.8	LOS D	7.6	55.7	0.99	0.79	0.99	7.5
12	R2	404	2.9	404	2.9	0.942	83.6	LOS F	14.6	104.8	1.00	1.06	1.53	4.1
Approach		926	3.4	926	3.4	0.942	56.4	LOS D	14.6	104.8	0.93	0.90	1.16	15.0
All Vehicles		4314	3.8	4314	3.8	0.942	32.1	LOS C	20.1	145.6	0.73	0.68	0.80	30.6

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P11	SouthEast Stage 1	14	22.2	LOS C	0.0	0.0	0.61	0.61
P12	SouthEast Stage 2	14	49.5	LOS E	0.0	0.0	0.91	0.91
P1S	SouthEast Slip/Bypass Lane Crossing	14	21.2	LOS C	0.0	0.0	0.78	0.78
P2	NorthEast Full Crossing	5	13.1	LOS B	0.0	0.0	0.47	0.47
P2S	NorthEast Slip/Bypass Lane Crossing	5	2.6	LOS A	0.0	0.0	0.21	0.21
P3	NorthWest Full Crossing	14	54.2	LOS E	0.0	0.0	0.95	0.95
P4	SouthWest Full Crossing	1	27.3	LOS C	0.0	0.0	0.68	0.68
P4S	SouthWest Slip/Bypass Lane Crossing	1	9.7	LOS A	0.0	0.0	0.57	0.57

All Pedestrians	67	31.7	LOS D	0.73	0.73

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: [Site 5: NEH & Chelmsford Drive 2018_AM]

Network: N101 [AM Network - Existing - User Phasing]

Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 124 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: New England Highway														
21	L2	64	3.3	64	3.3	0.054	12.7	LOS A	1.0	7.4	0.29	0.62	0.29	34.3
2	T1	1116	5.3	1116	5.3	0.603	19.1	LOS B	20.7	151.7	0.62	0.55	0.62	25.5
3	R2	160	11.8	160	11.8	0.584	68.4	LOS E	5.0	38.2	1.00	0.79	1.03	19.5
Approach		1340	6.0	1340	6.0	0.603	24.6	LOS B	20.7	151.7	0.65	0.58	0.65	24.0
NorthEast: Chelmsford Drive														
4	L2	283	6.3	283	6.3	0.451	26.8	LOS B	9.8	72.6	0.83	0.79	0.83	26.4
25	T1	425	1.2	425	1.2	0.440	42.3	LOS C	10.9	76.8	0.89	0.74	0.89	23.4
6	R2	244	3.4	244	3.4	0.496	46.4	LOS D	12.5	89.7	0.89	0.81	0.89	18.5
Approach		953	3.3	953	3.3	0.496	38.7	LOS C	12.5	89.7	0.87	0.78	0.87	22.7
NorthWest: New England Highway														
7	L2	221	7.1	221	7.1	0.192	10.3	LOS A	2.3	17.1	0.36	0.65	0.36	46.8
8	T1	1133	7.7	1133	7.7	0.833	40.3	LOS C	32.1	239.7	0.93	0.88	0.99	20.5
Approach		1354	7.6	1354	7.6	0.833	35.4	LOS C	32.1	239.7	0.84	0.84	0.89	24.2
SouthWest: Chelmsford Drive Extension														
30	L2	77	0.0	77	0.0	0.371	62.9	LOS E	4.5	31.2	0.97	0.76	0.97	6.3
31	T1	165	0.6	165	0.6	0.406	57.6	LOS E	4.8	33.9	0.98	0.76	0.98	19.2
32	R2	71	3.0	71	3.0	0.347	62.0	LOS E	4.1	29.2	0.96	0.76	0.96	6.5
Approach		313	1.0	313	1.0	0.406	59.9	LOS E	4.8	33.9	0.97	0.76	0.97	13.8
All Vehicles		3959	5.5	3959	5.5	0.833	34.5	LOS C	32.1	239.7	0.79	0.73	0.81	22.6

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	SouthEast Full Crossing	3	47.9	LOS E	0.0	0.0	0.88	0.88
P1S	SouthEast Slip/Bypass Lane Crossing	3	36.4	LOS D	0.0	0.0	0.77	0.77
P2	NorthEast Full Crossing	1	35.6	LOS D	0.0	0.0	0.76	0.76
P2S	NorthEast Slip/Bypass Lane Crossing	1	10.5	LOS B	0.0	0.0	0.56	0.56
P3	NorthWest Full Crossing	1	56.1	LOS E	0.0	0.0	0.95	0.95
P3S	NorthWest Slip/Bypass Lane Crossing	1	51.5	LOS E	0.0	0.0	0.91	0.91
P8	SouthWest Full Crossing	1	24.5	LOS C	0.0	0.0	0.63	0.63
P8S	SouthWest Slip/Bypass Lane	1	2.5	LOS A	0.0	0.0	0.20	0.20

Crossing					
All Pedestrians	13	36.1	LOS D	0.75	0.75

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: [Site 5: NEH & Chelmsford Drive 2018_PM]

Network: N101 [PM Network - Existing - User Phasing]

Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: New England Highway														
21	L2	93	1.1	93	1.1	0.074	11.5	LOS A	1.4	9.6	0.27	0.62	0.27	35.6
2	T1	1264	4.7	1264	4.7	0.600	14.0	LOS A	20.6	150.3	0.54	0.49	0.54	30.1
3	R2	219	6.3	219	6.3	0.466	58.9	LOS E	6.1	45.1	0.97	0.79	0.97	21.5
Approach		1576	4.7	1576	4.7	0.600	20.1	LOS B	20.6	150.3	0.58	0.54	0.58	27.4
NorthEast: Chelmsford Drive														
4	L2	194	6.0	194	6.0	0.291	24.6	LOS B	6.2	45.5	0.76	0.76	0.76	27.6
25	T1	366	1.1	366	1.1	0.437	44.1	LOS D	9.3	66.1	0.91	0.75	0.91	22.8
6	R2	223	1.4	223	1.4	0.866	69.8	LOS E	14.5	102.7	1.00	0.95	1.29	13.7
Approach		783	2.4	783	2.4	0.866	46.6	LOS D	14.5	102.7	0.90	0.81	0.98	20.3
NorthWest: New England Highway														
7	L2	445	2.8	445	2.8	0.464	15.7	LOS B	8.0	57.7	0.64	0.76	0.64	42.5
8	T1	1214	5.3	1214	5.3	0.867	42.9	LOS D	36.2	265.0	0.96	0.94	1.06	19.7
Approach		1659	4.6	1659	4.6	0.867	35.6	LOS C	36.2	265.0	0.87	0.89	0.94	25.3
SouthWest: Chelmsford Drive Extension														
30	L2	58	1.8	58	1.8	0.188	53.3	LOS D	3.0	21.1	0.91	0.74	0.91	7.3
31	T1	322	0.7	322	0.7	0.560	50.9	LOS D	9.5	66.9	0.97	0.78	0.97	20.9
32	R2	78	2.7	78	2.7	0.576	66.8	LOS E	4.7	33.5	1.00	0.78	1.03	6.0
Approach		458	1.2	458	1.2	0.576	53.9	LOS D	9.5	66.9	0.97	0.78	0.97	17.0
All Vehicles		4476	3.9	4476	3.9	0.867	33.9	LOS C	36.2	265.0	0.79	0.74	0.83	23.6

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	SouthEast Full Crossing	3	50.4	LOS E	0.0	0.0	0.92	0.92
P1S	SouthEast Slip/Bypass Lane Crossing	3	38.4	LOS D	0.0	0.0	0.80	0.80
P2	NorthEast Full Crossing	1	33.8	LOS D	0.0	0.0	0.75	0.75
P2S	NorthEast Slip/Bypass Lane Crossing	1	10.4	LOS B	0.0	0.0	0.58	0.58
P3	NorthWest Full Crossing	1	54.2	LOS E	0.0	0.0	0.95	0.95
P3S	NorthWest Slip/Bypass Lane Crossing	1	44.2	LOS E	0.0	0.0	0.86	0.86
P8	SouthWest Full Crossing	1	19.3	LOS B	0.0	0.0	0.57	0.57
P8S	SouthWest Slip/Bypass Lane	1	4.3	LOS A	0.0	0.0	0.27	0.27

Crossing					
All Pedestrians	13	36.0	LOS D	0.76	0.76

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: 7 [Site 6: NEH & Chisholm Rd 2018_AM]

Network: N101 [AM Network - Existing - User Phasing]

Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 124 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: New England Highway														
21	L2	261	2.4	261	2.4	0.182	8.2	LOS A	3.3	23.4	0.27	0.63	0.27	48.7
2	T1	1264	5.8	1264	5.8	0.511	12.3	LOS A	19.8	145.8	0.57	0.52	0.57	42.9
Approach		1525	5.2	1525	5.2	0.511	11.6	LOS A	19.8	145.8	0.52	0.54	0.52	44.3
NorthWest: New England Highway														
8	T1	1322	7.2	1322	7.2	0.348	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
29	R2	241	6.6	241	6.6	0.968	88.7	LOS F	17.5	129.2	1.00	1.01	1.37	17.2
Approach		1563	7.1	1563	7.1	0.968	13.7	LOS A	17.5	129.2	0.15	0.16	0.21	44.8
SouthWest: Chisholm Road														
30	L2	131	5.6	131	5.6	0.276	44.1	LOS D	6.3	46.3	0.84	0.76	0.84	20.5
32	R2	105	4.0	105	4.0	0.705	68.8	LOS E	6.6	48.1	1.00	0.84	1.12	25.3
Approach		236	4.9	236	4.9	0.705	55.1	LOS D	6.6	48.1	0.91	0.80	0.97	23.3
All Vehicles		3324	6.1	3324	6.1	0.968	15.7	LOS B	19.8	145.8	0.38	0.38	0.41	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 SUMMARY

Site: 7 [Site 6: NEH & Chisholm Rd 2018_PM]

Network: N101 [PM Network - Existing - User Phasing]

Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: New England Highway														
21	L2	380	0.8	380	0.8	0.251	7.2	LOS A	3.7	26.3	0.24	0.62	0.24	49.4
2	T1	1420	4.9	1420	4.9	0.566	12.3	LOS A	22.6	164.8	0.60	0.55	0.60	42.9
Approach		1800	4.0	1800	4.0	0.566	11.2	LOS A	22.6	164.8	0.52	0.56	0.52	44.8
NorthWest: New England Highway														
8	T1	1366	4.2	1366	4.2	0.353	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
29	R2	162	1.9	162	1.9	0.887	73.8	LOS F	10.7	76.4	1.00	0.99	1.39	19.5
Approach		1528	4.0	1528	4.0	0.887	7.8	LOS A	10.7	76.4	0.11	0.11	0.15	50.2
SouthWest: Chisholm Road														
30	L2	156	3.4	156	3.4	0.335	44.3	LOS D	7.5	53.9	0.86	0.78	0.86	20.4
32	R2	162	3.2	162	3.2	0.803	67.0	LOS E	10.1	72.8	1.00	0.91	1.21	25.7
Approach		318	3.3	318	3.3	0.803	55.9	LOS D	10.1	72.8	0.93	0.84	1.04	23.8
All Vehicles		3646	3.9	3646	3.9	0.887	13.7	LOS A	22.6	164.8	0.38	0.40	0.41	43.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
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 SUMMARY

Site: [Site 1: Raymond Terrace_Metford_AM - 2022 Without Development]

Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Raymond Terrace Road												
21	L2	425	2.2	0.554	9.3	LOS A	4.5	32.2	0.82	0.92	0.96	51.9
22	T1	598	1.4	0.738	11.3	LOS A	9.2	65.8	0.93	1.05	1.28	51.6
23	R2	99	6.4	0.738	17.2	LOS B	9.2	65.8	0.93	1.05	1.28	51.7
23u	U	1	0.0	0.738	19.3	LOS B	9.2	65.8	0.93	1.05	1.28	53.2
Approach		1123	2.2	0.738	11.1	LOS A	9.2	65.8	0.89	1.00	1.16	51.7
NorthEast: Metford Road												
24	L2	181	11.5	0.281	7.6	LOS A	1.3	10.4	0.66	0.81	0.66	52.9
25	T1	458	0.2	0.495	7.0	LOS A	3.4	24.0	0.73	0.74	0.82	54.2
26	R2	27	0.0	0.495	12.6	LOS A	3.4	24.0	0.73	0.74	0.82	54.6
Approach		666	3.3	0.495	7.4	LOS A	3.4	24.0	0.71	0.75	0.77	53.9
NorthWest: Raymond Terrace Road												
27	L2	17	0.0	0.167	7.0	LOS A	0.8	6.0	0.63	0.69	0.63	53.3
28	T1	363	1.7	0.409	6.2	LOS A	2.8	19.7	0.70	0.67	0.70	54.0
29	R2	128	0.8	0.409	11.6	LOS A	2.8	19.7	0.72	0.67	0.72	54.0
Approach		508	1.4	0.409	7.6	LOS A	2.8	19.7	0.70	0.67	0.70	54.0
SouthWest: Metford Road												
30	L2	136	0.0	0.261	8.5	LOS A	1.6	11.1	0.79	0.85	0.79	52.5
31	T1	224	1.4	0.575	9.6	LOS A	5.6	39.6	0.94	0.99	1.11	51.4
32	R2	223	2.4	0.575	15.3	LOS B	5.6	39.6	0.94	0.99	1.11	51.7
Approach		583	1.4	0.575	11.6	LOS A	5.6	39.6	0.91	0.96	1.04	51.7
All Vehicles		2881	2.2	0.738	9.7	LOS A	9.2	65.8	0.82	0.88	0.96	52.6

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

MOVEMENT SUMMARY

Site: 101 [Site 1: Raymond Terrace_Metford_PM - 2022 Without Development]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Raymond Terrace Road												
21	L2	420	2.5	0.442	5.8	LOS A	2.8	20.1	0.61	0.67	0.61	54.0
22	T1	519	1.8	0.609	6.0	LOS A	5.4	38.4	0.70	0.67	0.75	53.9
23	R2	193	3.7	0.609	11.8	LOS A	5.4	38.4	0.70	0.67	0.75	54.1
23u	U	1	0.0	0.609	14.0	LOS A	5.4	38.4	0.70	0.67	0.75	55.6
Approach		1133	2.4	0.609	6.9	LOS A	5.4	38.4	0.67	0.67	0.70	53.9
NorthEast: Metford Road												
24	L2	115	3.0	0.188	7.8	LOS A	0.9	6.6	0.69	0.81	0.69	53.0
25	T1	287	0.4	0.341	6.6	LOS A	2.0	14.3	0.74	0.67	0.74	54.3
26	R2	11	0.0	0.341	12.3	LOS A	2.0	14.3	0.74	0.67	0.74	54.6
Approach		413	1.1	0.341	7.1	LOS A	2.0	14.3	0.73	0.71	0.73	53.9
NorthWest: Raymond Terrace Road												
27	L2	13	0.0	0.237	8.7	LOS A	1.2	8.5	0.75	0.84	0.75	52.5
28	T1	501	1.3	0.579	9.3	LOS A	4.9	34.6	0.86	0.98	1.02	53.2
29	R2	60	1.8	0.579	15.1	LOS B	4.9	34.6	0.89	1.01	1.09	53.3
Approach		574	1.3	0.579	9.9	LOS A	4.9	34.6	0.86	0.98	1.02	53.2
SouthWest: Metford Road												
30	L2	98	0.0	0.345	8.8	LOS A	2.1	14.5	0.79	0.86	0.79	52.3
31	T1	422	0.7	0.758	12.9	LOS A	10.1	71.5	0.95	1.09	1.31	49.7
32	R2	300	2.0	0.758	19.9	LOS B	10.1	71.5	1.00	1.16	1.47	48.8
Approach		820	1.1	0.758	15.0	LOS B	10.1	71.5	0.95	1.09	1.31	49.6
All Vehicles		2939	1.7	0.758	9.8	LOS A	10.1	71.5	0.79	0.85	0.94	52.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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: [Site 3: Chelmsford Drive_Metford Road_AM - 2022 Without Development]

Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Chelmsford Drive-E												
22	T1	359	2.8	1.140	98.0	LOS F	41.4	296.5	1.00	2.28	4.34	20.4
23	R2	218	2.8	1.140	102.3	LOS F	41.4	296.5	1.00	2.28	4.34	22.8
23u	U	2	2.8	1.140	104.2	LOS F	41.4	296.5	1.00	2.28	4.34	22.9
Approach		579	2.8	1.140	99.6	LOS F	41.4	296.5	1.00	2.28	4.34	21.4
NorthEast: Metford Road												
24	L2	223	2.0	0.957	23.4	LOS B	28.1	200.3	1.00	1.22	1.86	41.2
26	R2	745	2.4	0.957	27.8	LOS B	28.1	200.3	1.00	1.22	1.86	39.5
Approach		968	2.3	0.957	26.8	LOS B	28.1	200.3	1.00	1.22	1.86	40.0
NorthWest: Chelmsford Drive-W												
27	L2	324	4.4	0.264	5.3	LOS A	1.9	13.5	0.48	0.57	0.48	51.9
28	T1	265	3.5	0.275	5.3	LOS A	1.9	13.8	0.49	0.56	0.49	52.5
29u	U	45	2.6	0.275	11.4	LOS A	1.9	13.8	0.49	0.56	0.49	51.3
Approach		635	3.9	0.275	5.7	LOS A	1.9	13.8	0.48	0.57	0.48	52.1
All Vehicles		2182	2.9	1.140	40.0	LOS C	41.4	296.5	0.85	1.31	2.12	34.0

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

MOVEMENT SUMMARY

Site: 101 [Site 3: Chelmsford Drive_Metford Road_PM - 2022 Without Development]

Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Chelmsford Drive-E												
22	T1	339	1.4	0.859	25.4	LOS B	13.9	98.8	1.00	1.34	1.86	39.5
23	R2	181	1.3	0.859	29.7	LOS C	13.9	98.8	1.00	1.34	1.86	41.7
23u	U	3	0.0	0.859	31.5	LOS C	13.9	98.8	1.00	1.34	1.86	42.2
Approach		523	1.4	0.859	26.9	LOS B	13.9	98.8	1.00	1.34	1.86	40.4
NorthEast: Metford Road												
24	L2	158	0.0	0.978	35.4	LOS C	27.5	193.8	1.00	1.62	2.55	36.4
26	R2	622	1.1	0.978	39.9	LOS C	27.5	193.8	1.00	1.62	2.55	34.3
Approach		780	0.9	0.978	39.0	LOS C	27.5	193.8	1.00	1.62	2.55	34.7
NorthWest: Chelmsford Drive-W												
27	L2	814	1.5	0.616	5.7	LOS A	6.5	46.3	0.66	0.61	0.66	51.4
28	T1	455	1.0	0.471	5.5	LOS A	4.0	28.0	0.58	0.59	0.58	52.2
29u	U	65	0.0	0.471	11.7	LOS A	4.0	28.0	0.58	0.59	0.58	51.5
Approach		1334	1.3	0.616	5.9	LOS A	6.5	46.3	0.63	0.60	0.63	51.7
All Vehicles		2637	1.2	0.978	19.9	LOS B	27.5	193.8	0.81	1.05	1.44	42.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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: [Site 3: (Option 1) Chelmsford Drive_Metford Road_AM - 2022 Without Development]

Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Chelmsford Drive-E												
22	T1	359	2.8	0.385	7.4	LOS A	2.0	14.5	0.69	0.81	0.72	51.7
23	R2	218	2.8	0.385	12.0	LOS A	2.0	14.3	0.69	0.90	0.73	50.7
23u	U	2	2.8	0.385	13.9	LOS A	2.0	14.3	0.69	0.90	0.73	51.4
Approach		579	2.8	0.385	9.2	LOS A	2.0	14.5	0.69	0.84	0.73	51.3
NorthEast: Metford Road												
24	L2	223	2.0	0.439	6.2	LOS A	3.2	23.1	0.61	0.70	0.61	51.2
26	R2	745	2.4	0.439	10.5	LOS A	3.2	23.1	0.62	0.72	0.62	50.0
Approach		968	2.3	0.439	9.5	LOS A	3.2	23.1	0.62	0.71	0.62	50.3
NorthWest: Chelmsford Drive-W												
27	L2	324	4.4	0.265	5.5	LOS A	1.8	12.8	0.48	0.59	0.48	51.9
28	T1	265	3.5	0.277	5.4	LOS A	1.8	13.1	0.49	0.58	0.49	52.4
29u	U	45	2.6	0.277	11.6	LOS A	1.8	13.1	0.49	0.58	0.49	51.3
Approach		635	3.9	0.277	5.9	LOS A	1.8	13.1	0.48	0.58	0.48	52.1
All Vehicles		2182	2.9	0.439	8.4	LOS A	3.2	23.1	0.60	0.71	0.61	51.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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: [Site 3: (Option 1) Chelmsford Drive_Metford Road_PM - 2022 Without Development]

Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Chelmsford Drive-E												
22	T1	339	1.4	0.327	6.7	LOS A	1.6	11.6	0.65	0.73	0.65	51.9
23	R2	181	1.3	0.327	11.1	LOS A	1.6	11.4	0.65	0.84	0.65	51.4
23u	U	3	0.0	0.327	13.0	LOS A	1.6	11.4	0.65	0.84	0.65	52.2
Approach		523	1.4	0.327	8.3	LOS A	1.6	11.6	0.65	0.77	0.65	51.7
NorthEast: Metford Road												
24	L2	158	0.0	0.425	7.4	LOS A	3.2	22.3	0.75	0.79	0.75	50.6
26	R2	622	1.1	0.425	11.9	LOS A	3.2	22.3	0.76	0.82	0.76	49.3
Approach		780	0.9	0.425	11.0	LOS A	3.2	22.3	0.75	0.81	0.75	49.6
NorthWest: Chelmsford Drive-W												
27	L2	814	1.5	0.605	5.7	LOS A	5.9	41.9	0.61	0.60	0.61	51.6
28	T1	455	1.0	0.463	5.5	LOS A	3.6	25.6	0.54	0.58	0.54	52.4
29u	U	65	0.0	0.463	11.7	LOS A	3.6	25.6	0.54	0.58	0.54	51.7
Approach		1334	1.3	0.605	5.9	LOS A	5.9	41.9	0.58	0.59	0.58	51.9
All Vehicles		2637	1.2	0.605	7.9	LOS A	5.9	41.9	0.65	0.69	0.65	51.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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: 5 [Site 4: NEH & Mitchell Drive 2022_AM]

Network: N101 [AM Network]

Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 90 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: New England Highway														
1	L2	202	3.9	202	3.9	0.199	11.3	LOS A	2.6	18.6	0.57	0.71	0.57	39.2
2	T1	1286	4.9	1286	4.9	0.539	20.1	LOS B	17.4	126.7	0.80	0.71	0.80	43.1
Approach		1488	4.8	1488	4.8	0.539	18.9	LOS B	17.4	126.7	0.77	0.71	0.77	42.8
NorthEast: Mitchell Drive														
4	L2	93	2.4	93	2.4	0.545	47.9	LOS D	4.1	29.6	1.00	0.78	1.01	3.1
5	T1	128	3.5	128	3.5	0.375	44.0	LOS D	2.8	20.3	0.98	0.74	0.98	9.0
6	R2	34	0.0	34	0.0	0.180	44.7	LOS D	1.4	9.9	0.95	0.72	0.95	25.1
Approach		255	2.6	255	2.6	0.545	45.5	LOS D	4.1	29.6	0.98	0.75	0.99	10.1
NorthWest: New England Highway														
7	L2	23	5.0	23	5.0	0.023	10.5	LOS A	0.2	1.7	0.47	0.65	0.47	43.7
8	T1	1232	8.3	1232	8.3	0.545	10.9	LOS A	15.6	117.2	0.63	0.57	0.63	44.8
9	R2	299	0.4	299	0.4	0.918	64.1	LOS E	8.0	56.5	1.00	1.06	1.63	21.5
Approach		1554	6.7	1554	6.7	0.918	21.1	LOS B	15.6	117.2	0.70	0.66	0.82	36.3
SouthWest: Mitchell Drive														
10	L2	162	9.9	162	9.9	0.188	26.4	LOS B	1.7	12.8	0.88	0.73	0.88	34.0
11	T1	73	7.5	73	7.5	0.435	44.4	LOS D	3.2	23.9	0.99	0.75	0.99	9.0
12	R2	178	3.6	178	3.6	0.486	48.8	LOS D	3.9	28.2	0.99	0.77	0.99	6.7
Approach		413	6.8	413	6.8	0.486	39.2	LOS C	3.9	28.2	0.95	0.75	0.95	18.9
All Vehicles		3709	5.7	3709	5.7	0.918	23.9	LOS B	17.4	126.7	0.78	0.70	0.83	35.7

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P11	SouthEast Stage 1	14	20.0	LOS C	0.0	0.0	0.67	0.67
P12	SouthEast Stage 2	14	39.2	LOS D	0.0	0.0	0.93	0.93
P1S	SouthEast Slip/Bypass Lane Crossing	14	19.8	LOS B	0.0	0.0	0.87	0.87
P2	NorthEast Full Crossing	5	12.8	LOS B	0.0	0.0	0.53	0.53
P2S	NorthEast Slip/Bypass Lane Crossing	5	2.7	LOS A	0.0	0.0	0.24	0.24
P3	NorthWest Full Crossing	14	39.2	LOS D	0.0	0.0	0.93	0.93
P4	SouthWest Full Crossing	1	23.5	LOS C	0.0	0.0	0.72	0.72
P4S	SouthWest Slip/Bypass Lane Crossing	1	7.6	LOS A	0.0	0.0	0.58	0.58

All Pedestrians	67	25.7	LOS C	0.77	0.77

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: 5 [Site 4: NEH & Mitchell Drive 2022_PM]

Network: N101 [PM Network]

Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 90 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: New England Highway														
1	L2	328	4.3	328	4.3	0.346	12.7	LOS A	4.7	34.5	0.62	0.74	0.62	37.9
2	T1	1368	4.3	1368	4.3	0.670	27.2	LOS B	20.4	148.0	0.93	0.81	0.93	39.3
Approach		1697	4.3	1697	4.3	0.670	24.4	LOS B	20.4	148.0	0.87	0.80	0.87	39.1
NorthEast: Mitchell Drive														
4	L2	81	1.4	81	1.4	0.474	47.4	LOS D	3.6	25.4	0.99	0.76	0.99	3.1
5	T1	214	3.3	214	3.3	0.623	45.7	LOS D	4.9	35.0	1.00	0.81	1.07	8.7
6	R2	33	3.4	33	3.4	0.134	41.1	LOS C	1.3	9.4	0.92	0.71	0.92	26.2
Approach		327	2.8	327	2.8	0.623	45.7	LOS D	4.9	35.0	0.99	0.79	1.04	9.8
NorthWest: New England Highway														
7	L2	31	0.0	31	0.0	0.031	11.2	LOS A	0.4	2.5	0.50	0.66	0.50	43.0
8	T1	1179	4.4	1179	4.4	0.538	12.4	LOS A	15.7	114.3	0.66	0.59	0.66	43.2
9	R2	396	2.2	396	2.2	0.895	59.9	LOS E	10.4	73.9	1.00	1.05	1.49	22.4
Approach		1605	3.8	1605	3.8	0.895	24.1	LOS B	15.7	114.3	0.74	0.71	0.86	34.4
SouthWest: Mitchell Drive														
10	L2	411	3.5	411	3.5	0.383	24.1	LOS B	3.9	28.4	0.89	0.77	0.89	35.4
11	T1	143	4.7	143	4.7	0.842	51.3	LOS D	7.1	51.5	1.00	0.96	1.39	7.9
12	R2	428	2.9	428	2.9	0.874	56.5	LOS E	10.9	77.8	1.00	1.00	1.40	5.9
Approach		982	3.4	982	3.4	0.874	42.2	LOS C	10.9	77.8	0.96	0.90	1.19	18.5
All Vehicles		4612	3.8	4612	3.8	0.895	29.6	LOS C	20.4	148.0	0.85	0.79	0.95	31.6

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P11	SouthEast Stage 1	14	16.2	LOS B	0.0	0.0	0.60	0.60
P12	SouthEast Stage 2	14	39.2	LOS D	0.0	0.0	0.93	0.93
P1S	SouthEast Slip/Bypass Lane Crossing	14	17.1	LOS B	0.0	0.0	0.83	0.83
P2	NorthEast Full Crossing	5	14.5	LOS B	0.0	0.0	0.57	0.57
P2S	NorthEast Slip/Bypass Lane Crossing	5	2.7	LOS A	0.0	0.0	0.24	0.24
P3	NorthWest Full Crossing	14	39.2	LOS D	0.0	0.0	0.93	0.93
P4	SouthWest Full Crossing	1	28.0	LOS C	0.0	0.0	0.79	0.79
P4S	SouthWest Slip/Bypass Lane Crossing	1	9.3	LOS A	0.0	0.0	0.64	0.64

All Pedestrians	67	24.6	LOS C	0.76	0.76

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: [Site 5: NEH & Chelmsford Drive 2022_AM]

Network: N101 [AM Network]

Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 90 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: New England Highway														
21	L2	65	3.3	65	3.3	0.049	8.2	LOS A	0.5	3.6	0.19	0.59	0.19	39.4
2	T1	1247	5.3	1247	5.3	0.649	10.4	LOS A	15.8	115.6	0.55	0.49	0.55	34.5
3	R2	179	3.0	179	3.0	0.496	49.3	LOS D	3.9	27.8	0.97	0.77	0.97	24.0
Approach		1492	4.9	1492	4.9	0.649	15.0	LOS B	15.8	115.6	0.58	0.53	0.58	31.4
NorthEast: Chelmsford Drive														
4	L2	297	3.0	297	3.0	0.655	24.7	LOS B	7.9	56.6	0.96	0.82	0.96	27.5
25	T1	457	1.2	457	1.2	0.885	52.2	LOS D	11.7	82.6	1.00	1.04	1.42	20.5
6	R2	255	3.4	255	3.4	0.913	61.3	LOS E	13.7	98.8	1.00	1.05	1.50	15.1
Approach		1008	2.3	1008	2.3	0.913	46.4	LOS D	13.7	98.8	0.99	0.98	1.30	20.3
NorthWest: New England Highway														
7	L2	237	3.0	237	3.0	0.255	12.8	LOS A	3.4	24.5	0.65	0.73	0.65	44.8
8	T1	1209	7.7	1209	7.7	0.931	51.9	LOS D	34.4	257.0	1.00	1.17	1.38	17.3
Approach		1446	6.9	1446	6.9	0.931	45.5	LOS D	34.4	257.0	0.94	1.10	1.26	20.8
SouthWest: Chelmsford Drive Extension														
30	L2	78	0.0	78	0.0	0.296	44.8	LOS D	3.2	22.3	0.94	0.76	0.94	8.5
31	T1	174	0.6	174	0.6	0.335	39.5	LOS C	3.6	25.2	0.95	0.74	0.95	24.4
32	R2	72	3.0	72	3.0	0.256	42.7	LOS D	2.8	20.5	0.92	0.75	0.92	8.9
Approach		323	1.0	323	1.0	0.335	41.5	LOS C	3.6	25.2	0.94	0.74	0.94	18.2
All Vehicles		4269	4.7	4269	4.7	0.931	34.7	LOS C	34.4	257.0	0.83	0.85	1.01	22.5

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	SouthEast Full Crossing	3	39.2	LOS D	0.0	0.0	0.93	0.93
P1S	SouthEast Slip/Bypass Lane Crossing	3	35.6	LOS D	0.0	0.0	0.89	0.89
P2	NorthEast Full Crossing	1	30.4	LOS D	0.0	0.0	0.82	0.82
P2S	NorthEast Slip/Bypass Lane Crossing	1	6.7	LOS A	0.0	0.0	0.54	0.54
P3	NorthWest Full Crossing	1	39.2	LOS D	0.0	0.0	0.93	0.93
P3S	NorthWest Slip/Bypass Lane Crossing	1	35.6	LOS D	0.0	0.0	0.89	0.89
P8	SouthWest Full Crossing	1	19.3	LOS B	0.0	0.0	0.66	0.66
P8S	SouthWest Slip/Bypass Lane Crossing	1	3.8	LOS A	0.0	0.0	0.29	0.29

All Pedestrians	13	29.9	LOS C	0.80	0.80

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: [Site 5: NEH & Chelmsford Drive 2022_PM]

Network: N101 [PM Network]

Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 90 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: New England Highway														
21	L2	94	1.1	94	1.1	0.067	8.1	LOS A	0.7	5.2	0.19	0.60	0.19	39.6
2	T1	1425	4.7	1425	4.7	0.708	11.7	LOS A	19.8	143.9	0.61	0.55	0.61	32.7
3	R2	247	6.3	247	6.3	0.902	60.7	LOS E	6.4	46.9	1.00	0.98	1.49	21.1
Approach		1766	4.7	1766	4.7	0.902	18.4	LOS B	19.8	143.9	0.64	0.62	0.71	28.7
NorthEast: Chelmsford Drive														
4	L2	214	6.0	214	6.0	0.595	26.6	LOS B	6.0	44.1	0.96	0.80	0.96	26.4
25	T1	375	1.1	375	1.1	0.871	51.9	LOS D	9.4	66.7	1.00	1.00	1.41	20.6
6	R2	226	1.4	226	1.4	0.800	50.6	LOS D	10.6	75.4	1.00	0.92	1.22	17.4
Approach		815	2.5	815	2.5	0.871	44.9	LOS D	10.6	75.4	0.99	0.93	1.24	20.7
NorthWest: New England Highway														
7	L2	496	2.8	496	2.8	0.490	12.8	LOS A	7.7	55.3	0.70	0.78	0.70	44.8
8	T1	1336	5.3	1336	5.3	0.897	40.5	LOS C	34.3	250.7	1.00	1.09	1.24	20.5
Approach		1832	4.6	1832	4.6	0.897	33.0	LOS C	34.3	250.7	0.92	1.00	1.10	26.5
SouthWest: Chelmsford Drive Extension														
30	L2	59	1.8	59	1.8	0.272	46.7	LOS D	2.5	17.6	0.95	0.75	0.95	8.2
31	T1	348	0.7	348	0.7	0.849	50.1	LOS D	9.0	63.5	1.00	0.97	1.37	21.1
32	R2	81	2.7	81	2.7	0.289	42.9	LOS D	3.2	23.3	0.92	0.76	0.92	8.9
Approach		488	1.2	488	1.2	0.849	48.5	LOS D	9.0	63.5	0.98	0.91	1.24	18.4
All Vehicles		4901	4.0	4901	4.0	0.902	31.2	LOS C	34.3	250.7	0.84	0.84	1.00	24.7

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	SouthEast Full Crossing	3	39.2	LOS D	0.0	0.0	0.93	0.93
P1S	SouthEast Slip/Bypass Lane Crossing	3	37.4	LOS D	0.0	0.0	0.91	0.91
P2	NorthEast Full Crossing	1	27.2	LOS C	0.0	0.0	0.78	0.78
P2S	NorthEast Slip/Bypass Lane Crossing	1	5.7	LOS A	0.0	0.0	0.50	0.50
P3	NorthWest Full Crossing	1	39.2	LOS D	0.0	0.0	0.93	0.93
P3S	NorthWest Slip/Bypass Lane Crossing	1	37.4	LOS D	0.0	0.0	0.91	0.91
P8	SouthWest Full Crossing	1	18.1	LOS B	0.0	0.0	0.63	0.63
P8S	SouthWest Slip/Bypass Lane Crossing	1	3.2	LOS A	0.0	0.0	0.27	0.27

All Pedestrians	13	30.0	LOS D	0.80	0.80

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: 7 [Site 6: NEH & Chisholm Rd 2022_AM]

Network: N101 [AM Network]

Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 90 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: New England Highway														
21	L2	261	2.4	261	2.4	0.195	7.8	LOS A	2.5	18.1	0.31	0.64	0.31	48.9
2	T1	1294	5.8	1294	5.8	0.632	15.8	LOS B	19.9	146.2	0.76	0.68	0.76	39.6
Approach		1555	5.2	1555	5.2	0.632	14.5	LOS A	19.9	146.2	0.68	0.68	0.68	41.8
NorthWest: New England Highway														
8	T1	1385	7.2	1385	7.2	0.364	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
29	R2	241	6.6	241	6.6	0.624	42.0	LOS C	10.4	76.6	1.00	0.83	1.00	26.8
Approach		1626	7.1	1626	7.1	0.624	6.2	LOS A	10.4	76.6	0.15	0.12	0.15	51.6
SouthWest: Chisholm Road														
30	L2	146	5.6	146	5.6	0.240	28.0	LOS B	4.7	34.3	0.76	0.74	0.76	26.1
32	R2	118	4.0	118	4.0	0.955	70.5	LOS E	6.7	48.5	1.00	1.14	1.84	25.0
Approach		264	4.9	264	4.9	0.955	47.0	LOS D	6.7	48.5	0.87	0.92	1.24	25.4
All Vehicles		3445	6.1	3445	6.1	0.955	13.1	LOS A	19.9	146.2	0.45	0.43	0.47	43.9

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 SUMMARY

Site: 7 [Site 6: NEH & Chisholm Rd 2022_PM]

Network: N101 [PM Network]

Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 90 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: New England Highway														
21	L2	380	0.8	380	0.8	0.264	7.2	LOS A	3.2	22.7	0.29	0.64	0.29	49.3
2	T1	1514	4.9	1514	4.9	0.692	14.9	LOS B	23.6	171.8	0.77	0.70	0.77	40.5
Approach		1894	4.1	1894	4.1	0.692	13.3	LOS A	23.6	171.8	0.67	0.69	0.67	42.9
NorthWest: New England Highway														
8	T1	1504	4.2	1504	4.2	0.388	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
29	R2	162	1.9	162	1.9	0.665	52.0	LOS D	7.4	52.9	1.00	0.82	1.04	24.0
Approach		1666	4.0	1666	4.0	0.665	5.1	LOS A	7.4	52.9	0.10	0.08	0.10	53.1
SouthWest: Chisholm Road														
30	L2	176	3.4	176	3.4	0.315	30.9	LOS C	6.0	43.3	0.82	0.76	0.82	24.8
32	R2	183	3.2	183	3.2	0.885	58.0	LOS E	9.4	67.6	1.00	1.04	1.47	27.6
Approach		359	3.3	359	3.3	0.885	44.8	LOS D	9.4	67.6	0.91	0.90	1.15	26.7
All Vehicles		3919	4.0	3919	4.0	0.885	12.7	LOS A	23.6	171.8	0.45	0.45	0.47	44.3

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

MOVEMENT SUMMARY

Site: [Site 1: Raymond Terrace_Metford_AM - 2022 With Development]

Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Raymond Terrace Road												
21	L2	443	2.2	0.579	9.8	LOS A	4.9	35.2	0.83	0.95	1.01	51.5
22	T1	598	1.4	0.745	11.7	LOS A	9.5	67.8	0.94	1.07	1.31	51.3
23	R2	99	6.4	0.745	17.6	LOS B	9.5	67.8	0.94	1.07	1.31	51.5
23u	U	1	0.0	0.745	19.7	LOS B	9.5	67.8	0.94	1.07	1.31	52.9
Approach		1141	2.2	0.745	11.5	LOS A	9.5	67.8	0.90	1.02	1.20	51.4
NorthEast: Metford Road												
24	L2	181	11.5	0.284	7.7	LOS A	1.4	10.5	0.67	0.81	0.67	52.9
25	T1	461	0.2	0.502	7.1	LOS A	3.5	24.7	0.74	0.75	0.84	54.2
26	R2	27	0.0	0.502	12.8	LOS A	3.5	24.7	0.74	0.75	0.84	54.5
Approach		669	3.3	0.502	7.5	LOS A	3.5	24.7	0.72	0.77	0.79	53.8
NorthWest: Raymond Terrace Road												
27	L2	17	0.0	0.171	7.0	LOS A	0.9	6.1	0.64	0.69	0.64	53.3
28	T1	363	1.7	0.418	6.2	LOS A	2.9	20.4	0.70	0.68	0.70	53.9
29	R2	137	0.8	0.418	11.7	LOS A	2.9	20.4	0.73	0.67	0.73	53.9
Approach		517	1.4	0.418	7.7	LOS A	2.9	20.4	0.71	0.68	0.71	53.9
SouthWest: Metford Road												
30	L2	138	0.0	0.265	8.5	LOS A	1.6	11.3	0.80	0.85	0.80	52.4
31	T1	225	1.4	0.584	9.8	LOS A	5.7	40.8	0.94	1.00	1.12	51.3
32	R2	227	2.4	0.584	15.5	LOS B	5.7	40.8	0.95	1.00	1.13	51.6
Approach		591	1.4	0.584	11.7	LOS A	5.7	40.8	0.91	0.96	1.05	51.7
All Vehicles		2918	2.1	0.745	9.9	LOS A	9.5	67.8	0.83	0.89	0.99	52.4

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

MOVEMENT SUMMARY

Site: 101 [Site 1: Raymond Terrace_Metford_PM - 2022 With Development]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Raymond Terrace Road												
21	L2	435	2.5	0.458	5.9	LOS A	3.0	21.2	0.63	0.69	0.63	53.9
22	T1	519	1.8	0.614	6.2	LOS A	5.5	39.5	0.71	0.69	0.77	53.8
23	R2	193	3.7	0.614	11.9	LOS A	5.5	39.5	0.71	0.69	0.77	54.0
23u	U	1	0.0	0.614	14.2	LOS A	5.5	39.5	0.71	0.69	0.77	55.5
Approach		1147	2.4	0.614	7.0	LOS A	5.5	39.5	0.68	0.69	0.72	53.9
NorthEast: Metford Road												
24	L2	115	3.0	0.195	8.0	LOS A	1.0	6.9	0.71	0.83	0.71	52.8
25	T1	291	0.4	0.356	6.9	LOS A	2.2	15.2	0.76	0.69	0.76	54.2
26	R2	11	0.0	0.356	12.6	LOS A	2.2	15.2	0.76	0.69	0.76	54.5
Approach		416	1.1	0.356	7.4	LOS A	2.2	15.2	0.75	0.73	0.75	53.8
NorthWest: Raymond Terrace Road												
27	L2	13	0.0	0.249	9.1	LOS A	1.3	9.2	0.77	0.85	0.77	52.3
28	T1	501	1.3	0.611	10.1	LOS A	5.4	38.4	0.89	1.01	1.09	52.6
29	R2	67	1.8	0.611	16.1	LOS B	5.4	38.4	0.92	1.05	1.17	52.5
Approach		581	1.3	0.611	10.8	LOS A	5.4	38.4	0.89	1.01	1.09	52.6
SouthWest: Metford Road												
30	L2	115	0.0	0.370	9.1	LOS A	2.3	16.1	0.80	0.88	0.82	52.2
31	T1	428	0.7	0.814	14.9	LOS B	12.4	87.9	0.96	1.16	1.45	48.3
32	R2	334	2.0	0.814	22.3	LOS B	12.4	87.9	1.00	1.23	1.62	47.2
Approach		877	1.1	0.814	17.0	LOS B	12.4	87.9	0.95	1.15	1.43	48.4
All Vehicles		3021	1.6	0.814	10.7	LOS A	12.4	87.9	0.81	0.89	1.00	51.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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: [Site 2: Fieldsend Street_Metford_PM - 2022 With Dev]

Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Hospital Access												
21	L2	122	5.0	0.201	6.3	LOS A	1.5	11.1	0.88	0.75	0.88	40.0
22	T1	17	5.0	0.201	6.2	LOS A	1.5	11.1	0.89	0.77	0.89	41.0
23	R2	28	5.0	0.201	6.2	LOS A	1.5	11.1	0.89	0.77	0.89	42.1
Approach		167	5.0	0.201	6.3	LOS A	1.5	11.1	0.88	0.76	0.88	40.4
NorthEast: Metford Road												
24	L2	6	5.0	0.006	6.2	LOS A	0.0	0.2	0.27	0.54	0.27	43.7
2	T1	871	5.0	0.646	4.7	LOS A	5.6	40.8	0.47	0.50	0.47	54.5
3	R2	102	5.0	0.646	9.7	LOS A	5.6	40.8	0.47	0.50	0.47	54.5
3u	U	28	0.0	0.646	11.8	LOS A	5.6	40.8	0.47	0.50	0.47	55.8
Approach		1007	4.9	0.646	5.4	LOS A	5.6	40.8	0.47	0.50	0.47	54.5
NorthWest: Fieldsend Street												
4	L2	85	5.0	0.230	10.6	LOS A	1.6	11.4	0.88	0.89	0.88	49.5
28	T1	15	5.0	0.230	14.9	LOS B	1.6	11.4	0.88	0.89	0.88	39.4
6	R2	28	5.0	0.230	15.7	LOS B	1.6	11.4	0.88	0.89	0.88	50.8
Approach		128	5.0	0.230	12.2	LOS A	1.6	11.4	0.88	0.89	0.88	49.0
SouthWest: Metford Road												
7	L2	31	5.0	0.734	5.3	LOS A	7.2	52.9	0.61	0.57	0.62	52.4
8	T1	836	5.0	0.734	5.4	LOS A	7.2	52.9	0.61	0.57	0.62	53.8
32	R2	105	5.0	0.734	12.2	LOS A	7.2	52.9	0.61	0.57	0.62	42.9
Approach		972	5.0	0.734	6.2	LOS A	7.2	52.9	0.61	0.57	0.62	52.9
All Vehicles		2275	4.9	0.734	6.2	LOS A	7.2	52.9	0.58	0.57	0.58	52.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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: [Site 2: Fieldsend Street_Metford_AM - 2022 With Dev]

Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Hospital Access												
21	L2	16	5.0	0.035	9.4	LOS A	0.3	2.1	0.97	0.71	0.97	37.8
22	T1	2	5.0	0.035	9.1	LOS A	0.3	2.1	0.98	0.73	0.98	38.8
23	R2	3	5.0	0.035	9.1	LOS A	0.3	2.1	0.98	0.73	0.98	39.7
Approach		21	5.0	0.035	9.3	LOS A	0.3	2.1	0.97	0.71	0.97	38.2
NorthEast: Metford Road												
24	L2	7	5.0	0.007	6.3	LOS A	0.0	0.2	0.28	0.54	0.28	43.7
2	T1	1088	5.0	0.771	5.2	LOS A	8.1	59.3	0.59	0.53	0.59	54.1
3	R2	95	5.0	0.771	10.2	LOS A	8.1	59.3	0.59	0.53	0.59	54.1
3u	U	3	0.0	0.771	12.2	LOS A	8.1	59.3	0.59	0.53	0.59	55.4
Approach		1194	5.0	0.771	5.6	LOS A	8.1	59.3	0.59	0.53	0.59	54.0
NorthWest: Fieldsend Street												
4	L2	85	5.0	0.158	7.3	LOS A	0.9	6.4	0.66	0.75	0.66	51.8
28	T1	17	5.0	0.158	11.6	LOS A	0.9	6.4	0.66	0.75	0.66	42.0
6	R2	28	5.0	0.158	12.4	LOS A	0.9	6.4	0.66	0.75	0.66	53.1
Approach		131	5.0	0.158	8.9	LOS A	0.9	6.4	0.66	0.75	0.66	51.2
SouthWest: Metford Road												
7	L2	28	5.0	0.527	4.4	LOS A	4.0	29.0	0.36	0.50	0.36	53.3
8	T1	583	5.0	0.527	4.5	LOS A	4.0	29.0	0.36	0.50	0.36	54.7
32	R2	126	5.0	0.527	11.2	LOS A	4.0	29.0	0.36	0.50	0.36	43.9
Approach		738	5.0	0.527	5.6	LOS A	4.0	29.0	0.36	0.50	0.36	53.3
All Vehicles		2083	5.0	0.771	5.9	LOS A	8.1	59.3	0.52	0.53	0.52	53.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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: [Site 3: Chelmsford Drive_Metford Road_AM - 2022 With Development]

Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Chelmsford Drive-E												
22	T1	359	2.8	1.208	125.0	LOS F	49.4	354.8	1.00	2.52	4.98	17.3
23	R2	222	3.6	1.208	129.4	LOS F	49.4	354.8	1.00	2.52	4.98	19.5
23u	U	2	0.0	1.208	131.1	LOS F	49.4	354.8	1.00	2.52	4.98	19.6
Approach		583	3.1	1.208	126.7	LOS F	49.4	354.8	1.00	2.52	4.98	18.2
NorthEast: Metford Road												
24	L2	224	2.0	0.986	29.0	LOS C	33.7	240.7	1.00	1.33	2.11	38.8
26	R2	776	2.4	0.986	33.5	LOS C	33.7	240.7	1.00	1.33	2.11	36.9
Approach		1000	2.3	0.986	32.5	LOS C	33.7	240.7	1.00	1.33	2.11	37.4
NorthWest: Chelmsford Drive-W												
27	L2	445	4.4	0.355	5.4	LOS A	2.7	19.8	0.51	0.58	0.51	51.8
28	T1	265	3.5	0.288	5.3	LOS A	2.0	14.4	0.49	0.57	0.49	52.4
29u	U	45	2.6	0.288	11.5	LOS A	2.0	14.4	0.49	0.57	0.49	51.3
Approach		756	4.0	0.355	5.7	LOS A	2.7	19.8	0.50	0.57	0.50	52.0
All Vehicles		2339	3.0	1.208	47.3	LOS D	49.4	354.8	0.84	1.38	2.31	31.4

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

MOVEMENT SUMMARY

Site: 101 [Site 3: Chelmsford Drive_Metford Road_PM - 2022 With Development]

Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Chelmsford Drive-E												
22	T1	339	1.4	0.962	43.0	LOS D	20.6	146.1	1.00	1.60	2.55	32.3
23	R2	185	1.3	0.962	47.3	LOS D	20.6	146.1	1.00	1.60	2.55	34.8
23u	U	3	0.0	0.962	49.1	LOS D	20.6	146.1	1.00	1.60	2.55	35.2
Approach		527	1.4	0.962	44.6	LOS D	20.6	146.1	1.00	1.60	2.55	33.3
NorthEast: Metford Road												
24	L2	167	0.0	1.261	135.5	LOS F	88.4	623.9	1.00	3.32	6.48	18.3
26	R2	858	1.1	1.261	140.0	LOS F	88.4	623.9	1.00	3.32	6.48	16.2
Approach		1025	0.9	1.261	139.3	LOS F	88.4	623.9	1.00	3.32	6.48	16.6
NorthWest: Chelmsford Drive-W												
27	L2	915	1.5	0.692	5.9	LOS A	8.2	57.9	0.74	0.62	0.74	51.2
28	T1	455	1.0	0.484	5.7	LOS A	4.1	29.0	0.60	0.60	0.60	52.1
29u	U	65	0.0	0.484	11.8	LOS A	4.1	29.0	0.60	0.60	0.60	51.4
Approach		1435	1.3	0.692	6.1	LOS A	8.2	57.9	0.69	0.62	0.69	51.5
All Vehicles		2987	1.2	1.261	58.6	LOS E	88.4	623.9	0.85	1.72	3.01	28.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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: [Site 3: (Option 1) Chelmsford Drive_Metford Road_AM - 2022 With Development]

Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Chelmsford Drive-E												
22	T1	359	2.8	0.399	7.6	LOS A	2.1	15.2	0.70	0.83	0.75	51.6
23	R2	222	3.6	0.399	12.3	LOS A	2.1	15.0	0.70	0.91	0.76	50.5
23u	U	2	0.0	0.399	14.0	LOS A	2.1	15.0	0.70	0.91	0.76	51.3
Approach		583	3.1	0.399	9.4	LOS A	2.1	15.2	0.70	0.86	0.76	51.1
NorthEast: Metford Road												
24	L2	224	2.0	0.454	6.2	LOS A	3.4	24.4	0.62	0.70	0.62	51.1
26	R2	776	2.4	0.454	10.5	LOS A	3.4	24.4	0.63	0.72	0.63	50.0
Approach		1000	2.3	0.454	9.6	LOS A	3.4	24.4	0.63	0.72	0.63	50.3
NorthWest: Chelmsford Drive-W												
27	L2	445	4.4	0.361	5.6	LOS A	2.6	19.1	0.52	0.60	0.52	51.8
28	T1	265	3.5	0.294	5.6	LOS A	1.9	13.9	0.51	0.59	0.51	52.3
29u	U	45	2.6	0.294	11.8	LOS A	1.9	13.9	0.51	0.59	0.51	51.2
Approach		756	4.0	0.361	6.0	LOS A	2.6	19.1	0.52	0.60	0.52	52.0
All Vehicles		2339	3.0	0.454	8.4	LOS A	3.4	24.4	0.61	0.72	0.63	51.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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: [Site 3: (Option 1) Chelmsford Drive_Metford Road_PM - 2022 With Development]

Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Chelmsford Drive-E												
22	T1	339	1.4	0.395	7.8	LOS A	2.2	15.3	0.74	0.85	0.80	51.4
23	R2	185	1.3	0.395	12.4	LOS A	2.1	14.9	0.74	0.93	0.81	50.6
23u	U	3	0.0	0.395	14.3	LOS A	2.1	14.9	0.74	0.93	0.81	51.3
Approach		527	1.4	0.395	9.5	LOS A	2.2	15.3	0.74	0.88	0.80	51.1
NorthEast: Metford Road												
24	L2	167	0.0	0.563	8.8	LOS A	5.3	37.2	0.83	0.88	0.93	49.4
26	R2	858	1.1	0.563	13.5	LOS A	5.3	37.2	0.83	0.90	0.95	48.0
Approach		1025	0.9	0.563	12.7	LOS A	5.3	37.2	0.83	0.90	0.95	48.3
NorthWest: Chelmsford Drive-W												
27	L2	915	1.5	0.684	5.9	LOS A	7.6	53.9	0.70	0.62	0.70	51.3
28	T1	455	1.0	0.479	5.7	LOS A	3.9	27.2	0.57	0.60	0.57	52.2
29u	U	65	0.0	0.479	11.8	LOS A	3.9	27.2	0.57	0.60	0.57	51.5
Approach		1435	1.3	0.684	6.1	LOS A	7.6	53.9	0.65	0.61	0.65	51.6
All Vehicles		2987	1.2	0.684	9.0	LOS A	7.6	53.9	0.73	0.76	0.78	50.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
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.

MOVEMENT SUMMARY

Site: 5 [Site 4: NEH & Mitchell Drive 2022_AM With Development]

Network: N101 [AM Network]

Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 90 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: New England Highway														
1	L2	207	3.9	207	3.9	0.204	11.2	LOS A	2.6	18.7	0.56	0.70	0.56	39.3
2	T1	1296	4.9	1296	4.9	0.543	20.3	LOS B	17.7	128.8	0.81	0.71	0.81	43.0
Approach		1503	4.8	1503	4.8	0.543	19.0	LOS B	17.7	128.8	0.77	0.71	0.77	42.7
NorthEast: Mitchell Drive														
4	L2	93	2.4	93	2.4	0.545	47.9	LOS D	4.1	29.6	1.00	0.78	1.01	3.1
5	T1	128	3.5	128	3.5	0.375	44.0	LOS D	2.8	20.3	0.98	0.74	0.98	9.0
6	R2	34	0.0	34	0.0	0.180	44.7	LOS D	1.4	9.9	0.95	0.72	0.95	25.1
Approach		255	2.6	255	2.6	0.545	45.5	LOS D	4.1	29.6	0.98	0.75	0.99	10.1
NorthWest: New England Highway														
7	L2	23	5.0	23	5.0	0.023	10.5	LOS A	0.2	1.7	0.47	0.65	0.47	43.7
8	T1	1266	8.3	1266	8.3	0.560	11.0	LOS A	16.3	122.3	0.64	0.58	0.64	44.6
9	R2	299	0.4	299	0.4	0.918	64.1	LOS E	8.0	56.5	1.00	1.06	1.63	21.5
Approach		1588	6.8	1588	6.8	0.918	21.0	LOS B	16.3	122.3	0.70	0.67	0.82	36.3
SouthWest: Mitchell Drive														
10	L2	162	9.9	162	9.9	0.188	26.4	LOS B	1.7	12.8	0.88	0.73	0.88	34.0
11	T1	73	7.5	73	7.5	0.435	44.4	LOS D	3.2	23.9	0.99	0.75	0.99	9.0
12	R2	195	3.6	195	3.6	0.532	49.0	LOS D	4.3	31.1	0.99	0.78	0.99	6.7
Approach		429	6.6	429	6.6	0.532	39.7	LOS C	4.3	31.1	0.95	0.75	0.95	18.4
All Vehicles		3776	5.7	3776	5.7	0.918	24.0	LOS B	17.7	128.8	0.78	0.70	0.83	35.6

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P11	SouthEast Stage 1	14	20.0	LOS C	0.0	0.0	0.67	0.67
P12	SouthEast Stage 2	14	39.2	LOS D	0.0	0.0	0.93	0.93
P1S	SouthEast Slip/Bypass Lane Crossing	14	19.8	LOS B	0.0	0.0	0.87	0.87
P2	NorthEast Full Crossing	5	12.8	LOS B	0.0	0.0	0.53	0.53
P2S	NorthEast Slip/Bypass Lane Crossing	5	2.7	LOS A	0.0	0.0	0.24	0.24
P3	NorthWest Full Crossing	14	39.2	LOS D	0.0	0.0	0.93	0.93
P4	SouthWest Full Crossing	1	23.5	LOS C	0.0	0.0	0.72	0.72
P4S	SouthWest Slip/Bypass Lane Crossing	1	7.6	LOS A	0.0	0.0	0.58	0.58

All Pedestrians	67	25.7	LOS C	0.77	0.77

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: 5 [Site 4: NEH & Mitchell Drive 2022_PM With Development]

Network: N101 [PM Network]

Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: New England Highway														
1	L2	361	4.4	361	4.4	0.354	12.4	LOS A	5.5	40.1	0.58	0.73	0.58	38.2
2	T1	1435	4.3	1435	4.3	0.650	25.7	LOS B	22.6	163.7	0.87	0.77	0.87	40.0
Approach		1796	4.3	1796	4.3	0.650	23.0	LOS B	22.6	163.7	0.81	0.76	0.81	39.8
NorthEast: Mitchell Drive														
4	L2	81	1.4	81	1.4	0.549	53.7	LOS D	4.1	28.7	1.00	0.77	1.01	2.8
5	T1	214	3.3	214	3.3	0.692	52.4	LOS D	5.5	39.5	1.00	0.84	1.13	7.8
6	R2	33	3.4	33	3.4	0.127	44.4	LOS D	1.4	10.3	0.91	0.71	0.91	25.1
Approach		327	2.8	327	2.8	0.692	51.9	LOS D	5.5	39.5	0.99	0.81	1.08	8.8
NorthWest: New England Highway														
7	L2	31	0.0	31	0.0	0.029	10.9	LOS A	0.4	2.6	0.47	0.65	0.47	43.3
8	T1	1202	4.4	1202	4.4	0.571	13.0	LOS A	18.3	132.6	0.66	0.59	0.66	42.7
9	R2	396	2.2	396	2.2	0.911	67.4	LOS E	11.6	83.1	1.00	1.07	1.50	20.8
Approach		1628	3.8	1628	3.8	0.911	26.2	LOS B	18.3	132.6	0.74	0.71	0.86	33.2
SouthWest: Mitchell Drive														
10	L2	411	3.5	411	3.5	0.404	27.1	LOS B	4.5	32.5	0.91	0.77	0.91	33.8
11	T1	143	4.7	143	4.7	0.936	67.0	LOS E	8.6	62.7	1.00	1.07	1.65	6.2
12	R2	440	2.9	440	2.9	0.923	68.8	LOS E	13.7	98.2	1.00	1.07	1.52	4.9
Approach		994	3.4	994	3.4	0.936	51.3	LOS D	13.7	98.2	0.96	0.95	1.29	16.0
All Vehicles		4745	3.8	4745	3.8	0.936	32.0	LOS C	22.6	163.7	0.83	0.78	0.95	30.5

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P11	SouthEast Stage 1	14	18.6	LOS B	0.0	0.0	0.61	0.61
P12	SouthEast Stage 2	14	44.2	LOS E	0.0	0.0	0.94	0.94
P1S	SouthEast Slip/Bypass Lane Crossing	14	19.6	LOS B	0.0	0.0	0.84	0.84
P2	NorthEast Full Crossing	5	14.0	LOS B	0.0	0.0	0.53	0.53
P2S	NorthEast Slip/Bypass Lane Crossing	5	2.4	LOS A	0.0	0.0	0.22	0.22
P3	NorthWest Full Crossing	14	44.2	LOS E	0.0	0.0	0.94	0.94
P4	SouthWest Full Crossing	1	27.4	LOS C	0.0	0.0	0.74	0.74
P4S	SouthWest Slip/Bypass Lane Crossing	1	9.3	LOS A	0.0	0.0	0.61	0.61

All Pedestrians	67	27.6	LOS C	0.76	0.76

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: [Site 5: NEH & Chelmsford Drive 2022_AM With Development]

Network: N101 [AM Network]

Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 90 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: New England Highway														
21	L2	65	3.3	65	3.3	0.048	8.4	LOS A	0.6	4.0	0.21	0.60	0.21	39.2
2	T1	1247	5.3	1247	5.3	0.635	10.2	LOS A	15.7	115.1	0.54	0.48	0.54	34.7
3	R2	232	3.0	232	3.0	0.578	48.9	LOS D	5.0	36.0	0.97	0.79	0.99	24.1
Approach		1544	4.9	1544	4.9	0.635	16.0	LOS B	15.7	115.1	0.59	0.53	0.59	30.9
NorthEast: Chelmsford Drive														
4	L2	308	3.0	308	3.0	0.681	25.1	LOS B	8.3	59.6	0.96	0.83	0.99	27.3
25	T1	461	1.2	461	1.2	0.975	72.0	LOS F	14.1	99.8	1.00	1.21	1.78	16.4
6	R2	269	3.4	269	3.4	0.965	74.8	LOS F	16.4	118.2	1.00	1.15	1.71	13.0
Approach		1039	2.3	1039	2.3	0.975	58.8	LOS E	16.4	118.2	0.99	1.08	1.53	17.2
NorthWest: New England Highway														
7	L2	288	3.0	288	3.0	0.311	13.2	LOS A	4.2	30.0	0.68	0.75	0.68	44.5
8	T1	1209	7.7	1209	7.7	0.931	52.0	LOS D	34.5	257.1	1.00	1.17	1.38	17.2
Approach		1498	6.8	1498	6.8	0.931	44.6	LOS D	34.5	257.1	0.94	1.09	1.24	21.3
SouthWest: Chelmsford Drive Extension														
30	L2	78	0.0	78	0.0	0.323	46.0	LOS D	3.2	22.7	0.95	0.76	0.95	8.3
31	T1	191	0.6	191	0.6	0.401	40.9	LOS C	4.0	28.3	0.97	0.75	0.97	23.9
32	R2	72	3.0	72	3.0	0.256	42.7	LOS D	2.8	20.5	0.92	0.75	0.92	8.9
Approach		340	1.0	340	1.0	0.401	42.4	LOS C	4.0	28.3	0.95	0.75	0.95	18.2
All Vehicles		4421	4.6	4421	4.6	0.975	37.8	LOS C	34.5	257.1	0.83	0.87	1.06	21.6

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	SouthEast Full Crossing	3	39.2	LOS D	0.0	0.0	0.93	0.93
P1S	SouthEast Slip/Bypass Lane Crossing	3	36.5	LOS D	0.0	0.0	0.90	0.90
P2	NorthEast Full Crossing	1	30.4	LOS D	0.0	0.0	0.82	0.82
P2S	NorthEast Slip/Bypass Lane Crossing	1	6.7	LOS A	0.0	0.0	0.54	0.54
P3	NorthWest Full Crossing	1	39.2	LOS D	0.0	0.0	0.93	0.93
P3S	NorthWest Slip/Bypass Lane Crossing	1	36.5	LOS D	0.0	0.0	0.90	0.90
P8	SouthWest Full Crossing	1	18.7	LOS B	0.0	0.0	0.64	0.64
P8S	SouthWest Slip/Bypass Lane Crossing	1	3.5	LOS A	0.0	0.0	0.28	0.28

All Pedestrians	13	30.2	LOS D	0.80	0.80

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: [Site 5: NEH & Chelmsford Drive 2022_PM With Development]

Network: N101 [PM Network]

Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: New England Highway														
21	L2	94	1.1	94	1.1	0.066	8.0	LOS A	0.8	5.5	0.18	0.60	0.18	39.6
2	T1	1425	4.7	1425	4.7	0.726	13.5	LOS A	22.7	165.3	0.63	0.57	0.63	30.6
3	R2	301	6.3	301	6.3	0.948	65.2	LOS E	8.7	64.2	1.00	1.00	1.45	20.1
Approach		1820	4.8	1820	4.8	0.948	21.8	LOS B	22.7	165.3	0.67	0.65	0.74	26.6
NorthEast: Chelmsford Drive														
4	L2	317	6.0	317	6.0	0.833	36.2	LOS C	11.0	80.8	1.00	0.95	1.24	22.0
25	T1	407	1.1	407	1.1	0.956	71.3	LOS F	12.9	91.0	1.00	1.14	1.66	16.5
6	R2	325	1.4	325	1.4	0.941	71.0	LOS F	20.4	144.5	1.00	1.07	1.51	13.5
Approach		1049	2.7	1049	2.7	0.956	60.6	LOS E	20.4	144.5	1.00	1.06	1.49	16.6
NorthWest: New England Highway														
7	L2	532	2.8	532	2.8	0.511	13.1	LOS A	8.8	63.1	0.69	0.78	0.69	44.5
8	T1	1336	5.3	1336	5.3	0.969	66.8	LOS E	47.3	346.1	1.00	1.27	1.47	14.3
Approach		1867	4.6	1867	4.6	0.969	51.5	LOS D	47.3	346.1	0.91	1.13	1.25	20.3
SouthWest: Chelmsford Drive Extension														
30	L2	59	1.8	59	1.8	0.275	51.2	LOS D	2.7	19.4	0.96	0.75	0.96	7.6
31	T1	360	0.7	360	0.7	0.896	59.5	LOS E	10.9	76.7	1.00	1.03	1.47	18.8
32	R2	81	2.7	81	2.7	0.237	43.2	LOS D	3.4	24.4	0.89	0.76	0.89	8.8
Approach		500	1.2	500	1.2	0.896	55.9	LOS D	10.9	76.7	0.98	0.95	1.31	16.7
All Vehicles		5237	3.9	5237	3.9	0.969	43.4	LOS D	47.3	346.1	0.85	0.93	1.13	20.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
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	SouthEast Full Crossing	3	44.2	LOS E	0.0	0.0	0.94	0.94
P1S	SouthEast Slip/Bypass Lane Crossing	3	41.4	LOS E	0.0	0.0	0.91	0.91
P2	NorthEast Full Crossing	1	30.4	LOS D	0.0	0.0	0.78	0.78
P2S	NorthEast Slip/Bypass Lane Crossing	1	5.8	LOS A	0.0	0.0	0.48	0.48
P3	NorthWest Full Crossing	1	44.2	LOS E	0.0	0.0	0.94	0.94
P3S	NorthWest Slip/Bypass Lane Crossing	1	41.4	LOS E	0.0	0.0	0.91	0.91
P8	SouthWest Full Crossing	1	19.8	LOS B	0.0	0.0	0.63	0.63
P8S	SouthWest Slip/Bypass Lane Crossing	1	3.1	LOS A	0.0	0.0	0.25	0.25

All Pedestrians	13	33.5	LOS D	0.80	0.80

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: 7 [Site 6: NEH & Chisholm Rd 2022_AM With Development]

Network: N101 [AM Network]

Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 90 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: New England Highway														
21	L2	261	2.4	261	2.4	0.195	7.8	LOS A	2.5	18.1	0.31	0.64	0.31	48.9
2	T1	1320	5.8	1320	5.8	0.645	16.0	LOS B	20.5	150.8	0.77	0.69	0.77	39.5
Approach		1581	5.2	1581	5.2	0.645	14.6	LOS B	20.5	150.8	0.69	0.68	0.69	41.6
NorthWest: New England Highway														
8	T1	1391	7.2	1391	7.2	0.366	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
29	R2	246	6.6	246	6.6	0.638	42.0	LOS C	10.6	78.4	1.00	0.83	1.00	26.8
Approach		1637	7.1	1637	7.1	0.638	6.3	LOS A	10.6	78.4	0.15	0.13	0.15	51.5
SouthWest: Chisholm Road														
30	L2	173	5.6	173	5.6	0.283	28.4	LOS B	5.6	41.1	0.78	0.75	0.78	25.9
32	R2	118	4.0	118	4.0	0.955	70.5	LOS E	6.7	48.5	1.00	1.14	1.84	25.0
Approach		291	5.0	291	5.0	0.955	45.5	LOS D	6.7	48.5	0.87	0.91	1.21	25.4
All Vehicles		3508	6.1	3508	6.1	0.955	13.3	LOS A	20.5	150.8	0.45	0.44	0.48	43.7

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 SUMMARY

Site: 7 [Site 6: NEH & Chisholm Rd 2022_PM With Development]

Network: N101 [PM Network]

Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: New England Highway														
21	L2	380	0.8	380	0.8	0.269	7.7	LOS A	4.0	28.1	0.30	0.64	0.30	49.0
2	T1	1541	4.9	1541	4.9	0.713	17.2	LOS B	27.3	199.1	0.79	0.72	0.79	38.5
Approach		1921	4.1	1921	4.1	0.713	15.3	LOS B	27.3	199.1	0.70	0.71	0.70	41.2
NorthWest: New England Highway														
8	T1	1556	4.2	1556	4.2	0.401	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
29	R2	214	1.9	214	1.9	0.714	50.5	LOS D	10.6	75.5	1.00	0.85	1.06	24.4
Approach		1769	3.9	1769	3.9	0.714	6.1	LOS A	10.6	75.5	0.12	0.10	0.13	51.9
SouthWest: Chisholm Road														
30	L2	203	3.4	203	3.4	0.341	32.5	LOS C	7.6	54.6	0.81	0.77	0.81	24.2
32	R2	183	3.2	183	3.2	0.894	64.1	LOS E	10.4	75.1	1.00	1.04	1.46	26.3
Approach		386	3.3	386	3.3	0.894	47.5	LOS D	10.4	75.1	0.90	0.89	1.12	25.5
All Vehicles		4077	3.9	4077	3.9	0.894	14.4	LOS A	27.3	199.1	0.47	0.46	0.49	42.9

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 SUMMARY

Site: [Site 1: Raymond Terrace_Metford_AM - 2032 Without Development]

Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Raymond Terrace Road												
21	L2	499	2.2	0.668	11.6	LOS A	6.7	47.5	0.90	1.04	1.18	50.2
22	T1	701	1.4	0.888	18.8	LOS B	17.2	122.6	1.00	1.31	1.83	46.8
23	R2	117	6.4	0.888	24.7	LOS B	17.2	122.6	1.00	1.31	1.83	46.9
23u	U	1	0.0	0.888	26.8	LOS B	17.2	122.6	1.00	1.31	1.83	48.1
Approach		1318	2.2	0.888	16.6	LOS B	17.2	122.6	0.96	1.21	1.59	48.0
NorthEast: Metford Road												
24	L2	181	11.5	0.312	8.4	LOS A	1.6	12.1	0.72	0.84	0.72	52.3
25	T1	458	0.2	0.546	8.3	LOS A	4.2	29.8	0.82	0.89	0.97	53.8
26	R2	27	0.0	0.546	13.9	LOS A	4.2	29.8	0.82	0.89	0.97	54.1
Approach		666	3.3	0.546	8.5	LOS A	4.2	29.8	0.79	0.88	0.91	53.4
NorthWest: Raymond Terrace Road												
27	L2	20	0.0	0.217	8.0	LOS A	1.2	8.4	0.72	0.79	0.72	52.8
28	T1	413	1.7	0.532	7.9	LOS A	4.6	32.4	0.83	0.85	0.91	53.1
29	R2	146	0.8	0.532	13.6	LOS A	4.6	32.4	0.86	0.87	0.97	53.1
Approach		579	1.4	0.532	9.4	LOS A	4.6	32.4	0.83	0.85	0.92	53.1
SouthWest: Metford Road												
30	L2	171	0.0	0.397	10.9	LOS A	2.7	19.2	0.90	0.97	0.96	50.7
31	T1	281	1.4	0.873	25.4	LOS B	15.0	106.6	1.00	1.36	1.89	42.4
32	R2	279	2.4	0.873	31.3	LOS C	15.0	106.6	1.00	1.36	1.91	42.5
Approach		731	1.4	0.873	24.3	LOS B	15.0	106.6	0.98	1.27	1.68	44.1
All Vehicles		3294	2.1	0.888	15.4	LOS B	17.2	122.6	0.91	1.09	1.35	48.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.

MOVEMENT SUMMARY

Site: 101 [Site 1: Raymond Terrace_Metford_PM - 2032 Without Development]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Raymond Terrace Road												
21	L2	479	2.5	0.535	7.0	LOS A	4.1	29.2	0.72	0.78	0.77	53.6
22	T1	592	1.8	0.734	8.3	LOS A	8.9	63.7	0.86	0.88	1.04	52.8
23	R2	220	3.7	0.734	14.1	LOS A	8.9	63.7	0.86	0.88	1.04	53.0
23u	U	1	0.0	0.734	16.3	LOS B	8.9	63.7	0.86	0.88	1.04	54.5
Approach		1292	2.4	0.734	8.8	LOS A	8.9	63.7	0.80	0.84	0.94	53.1
NorthEast: Metford Road												
24	L2	135	3.0	0.250	8.7	LOS A	1.3	9.3	0.76	0.87	0.76	52.3
25	T1	336	0.4	0.451	8.2	LOS A	3.2	22.3	0.84	0.86	0.93	53.7
26	R2	13	0.0	0.451	13.9	LOS A	3.2	22.3	0.84	0.86	0.93	54.1
Approach		483	1.1	0.451	8.5	LOS A	3.2	22.3	0.82	0.86	0.89	53.4
NorthWest: Raymond Terrace Road												
27	L2	16	0.0	0.310	9.7	LOS A	1.6	11.6	0.81	0.88	0.81	51.8
28	T1	585	1.3	0.759	13.8	LOS A	8.4	59.2	0.95	1.13	1.37	50.0
29	R2	71	1.8	0.759	20.7	LOS B	8.4	59.2	0.99	1.19	1.52	49.4
Approach		672	1.3	0.759	14.4	LOS A	8.4	59.2	0.95	1.13	1.37	50.0
SouthWest: Metford Road												
30	L2	117	0.0	0.488	12.3	LOS A	3.6	25.6	0.91	1.00	1.06	49.9
31	T1	502	0.7	1.075	54.6	LOS D	39.8	281.6	0.98	1.90	3.25	32.0
32	R2	357	2.0	1.075	72.9	LOS F	39.8	281.6	1.00	2.16	3.89	29.0
Approach		976	1.1	1.075	56.2	LOS D	39.8	281.6	0.98	1.89	3.22	32.1
All Vehicles		3422	1.6	1.075	23.4	LOS B	39.8	281.6	0.88	1.20	1.67	44.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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: [Site 2: Fieldsend Street_Metford_AM - 2032 Without Development]

Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Hospital Access												
21	L2	1	0.0	0.006	15.6	LOS B	0.1	0.4	0.99	0.59	0.99	33.8
22	T1	1	0.0	0.006	14.9	LOS B	0.1	0.4	1.00	0.62	1.00	34.5
23	R2	1	0.0	0.006	14.9	LOS B	0.1	0.4	1.00	0.62	1.00	35.2
Approach		3	0.0	0.006	15.1	LOS B	0.1	0.4	1.00	0.61	1.00	34.5
NorthEast: Metford Road												
24	L2	1	0.0	0.001	5.7	LOS A	0.0	0.0	0.13	0.53	0.13	44.3
2	T1	1260	1.1	0.776	4.2	LOS A	12.1	85.5	0.32	0.40	0.32	55.4
3	R2	109	5.1	0.776	9.2	LOS A	12.1	85.5	0.32	0.40	0.32	55.3
Approach		1371	1.5	0.776	4.6	LOS A	12.1	85.5	0.32	0.40	0.32	55.4
NorthWest: Fieldsend Street												
4	L2	100	5.1	0.162	7.3	LOS A	0.9	6.6	0.66	0.74	0.66	52.1
28	T1	1	0.0	0.162	11.4	LOS A	0.9	6.6	0.66	0.74	0.66	42.3
6	R2	34	7.4	0.162	12.4	LOS A	0.9	6.6	0.66	0.74	0.66	53.3
Approach		135	5.6	0.162	8.6	LOS A	0.9	6.6	0.66	0.74	0.66	52.3
SouthWest: Metford Road												
7	L2	36	10.7	0.535	4.5	LOS A	3.8	26.7	0.35	0.45	0.35	53.8
8	T1	722	1.5	0.535	4.5	LOS A	3.8	26.7	0.35	0.45	0.35	55.5
32	R2	1	0.0	0.535	11.2	LOS A	3.8	26.7	0.35	0.45	0.35	44.7
Approach		759	2.0	0.535	4.5	LOS A	3.8	26.7	0.35	0.45	0.35	55.4
All Vehicles		2267	1.9	0.776	4.8	LOS A	12.1	85.5	0.35	0.43	0.35	55.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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: [Site 2: Fieldsend Street_Metford_PM - 2032 Without Development]

Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Hospital Access												
21	L2	1	0.0	0.003	6.0	LOS A	0.0	0.2	0.79	0.44	0.79	40.0
22	T1	1	0.0	0.003	5.5	LOS A	0.0	0.2	0.81	0.46	0.81	40.7
23	R2	1	0.0	0.003	5.5	LOS A	0.0	0.2	0.81	0.46	0.81	41.7
Approach		3	0.0	0.003	5.7	LOS A	0.0	0.2	0.80	0.46	0.80	40.8
NorthEast: Metford Road												
24	L2	1	0.0	0.001	5.7	LOS A	0.0	0.0	0.14	0.53	0.14	44.2
2	T1	933	1.5	0.594	4.1	LOS A	5.8	41.5	0.24	0.41	0.24	55.8
3	R2	106	5.1	0.594	9.1	LOS A	5.8	41.5	0.24	0.41	0.24	55.7
Approach		1040	1.9	0.594	4.6	LOS A	5.8	41.5	0.23	0.41	0.23	55.8
NorthWest: Fieldsend Street												
4	L2	100	5.1	0.209	9.7	LOS A	1.3	9.8	0.81	0.84	0.81	50.4
28	T1	1	0.0	0.209	13.8	LOS A	1.3	9.8	0.81	0.84	0.81	40.3
6	R2	34	7.4	0.209	14.8	LOS B	1.3	9.8	0.81	0.84	0.81	51.5
Approach		135	5.6	0.209	11.0	LOS A	1.3	9.8	0.81	0.84	0.81	50.6
SouthWest: Metford Road												
7	L2	35	10.7	0.680	4.7	LOS A	6.0	42.7	0.43	0.46	0.43	53.5
8	T1	951	1.1	0.680	4.7	LOS A	6.0	42.7	0.43	0.46	0.43	55.2
32	R2	1	0.0	0.680	11.4	LOS A	6.0	42.7	0.43	0.46	0.43	44.3
Approach		986	1.5	0.680	4.7	LOS A	6.0	42.7	0.43	0.46	0.43	55.1
All Vehicles		2164	1.9	0.680	5.0	LOS A	6.0	42.7	0.36	0.46	0.36	55.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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: [Site 3: Chelmsford Drive_Metford Road_AM - 2032 Without Development]

Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Chelmsford Drive-E												
22	T1	433	2.8	1.392	199.7	LOS F	79.6	571.6	1.00	3.26	6.88	12.2
23	R2	263	3.6	1.392	204.1	LOS F	79.6	571.6	1.00	3.26	6.88	14.0
23u	U	3	0.0	1.392	205.8	LOS F	79.6	571.6	1.00	3.26	6.88	14.0
Approach		699	3.1	1.392	201.4	LOS F	79.6	571.6	1.00	3.26	6.88	12.9
NorthEast: Metford Road												
24	L2	269	2.0	1.210	110.7	LOS F	88.7	633.2	1.00	2.81	5.37	20.9
26	R2	898	2.4	1.210	115.1	LOS F	88.7	633.2	1.00	2.81	5.37	18.7
Approach		1167	2.3	1.210	114.1	LOS F	88.7	633.2	1.00	2.81	5.37	19.2
NorthWest: Chelmsford Drive-W												
27	L2	391	4.4	0.315	5.4	LOS A	2.3	16.9	0.50	0.58	0.50	51.9
28	T1	312	3.5	0.324	5.3	LOS A	2.3	16.9	0.51	0.57	0.51	52.4
29u	U	54	2.6	0.324	11.5	LOS A	2.3	16.9	0.51	0.57	0.51	51.2
Approach		756	3.9	0.324	5.8	LOS A	2.3	16.9	0.50	0.57	0.50	52.0
All Vehicles		2622	3.0	1.392	106.1	LOS F	88.7	633.2	0.86	2.28	4.37	19.9

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

MOVEMENT SUMMARY

Site: 101 [Site 3: Chelmsford Drive_Metford Road_PM - 2032 Without Development]

Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Chelmsford Drive-E												
22	T1	412	1.4	1.018	51.7	LOS D	28.8	203.8	1.00	1.82	3.06	29.6
23	R2	219	1.3	1.018	56.0	LOS D	28.8	203.8	1.00	1.82	3.06	32.2
23u	U	4	0.0	1.018	57.8	LOS E	28.8	203.8	1.00	1.82	3.06	32.5
Approach		635	1.4	1.018	53.2	LOS D	28.8	203.8	1.00	1.82	3.06	30.6
NorthEast: Metford Road												
24	L2	191	0.0	1.285	147.6	LOS F	86.0	606.7	1.00	3.35	6.75	17.2
26	R2	749	1.1	1.285	152.1	LOS F	86.0	606.7	1.00	3.35	6.75	15.3
Approach		940	0.9	1.285	151.2	LOS F	86.0	606.7	1.00	3.35	6.75	15.7
NorthWest: Chelmsford Drive-W												
27	L2	980	1.5	0.764	7.2	LOS A	11.0	78.1	0.86	0.70	0.91	50.8
28	T1	516	1.0	0.561	6.0	LOS A	5.1	36.0	0.68	0.64	0.68	51.7
29u	U	75	0.0	0.561	12.2	LOS A	5.1	36.0	0.68	0.64	0.68	50.9
Approach		1571	1.3	0.764	7.1	LOS A	11.0	78.1	0.79	0.68	0.82	51.1
All Vehicles		3145	1.2	1.285	59.4	LOS E	86.0	606.7	0.90	1.71	3.05	27.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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: [Site 3: (Option 1) Chelmsford Drive_Metford Road_AM - 2032 Without Development]

Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Chelmsford Drive-E												
22	T1	433	2.8	0.537	9.4	LOS A	3.4	24.7	0.80	0.95	0.97	50.3
23	R2	263	3.6	0.537	14.2	LOS A	3.3	24.1	0.80	0.99	0.98	49.2
23u	U	3	0.0	0.537	16.0	LOS B	3.3	24.1	0.80	0.99	0.98	50.0
Approach		699	3.1	0.537	11.3	LOS A	3.4	24.7	0.80	0.97	0.98	49.9
NorthEast: Metford Road												
24	L2	269	2.0	0.560	7.2	LOS A	4.9	35.1	0.74	0.77	0.77	50.8
26	R2	898	2.4	0.560	11.7	LOS A	4.9	35.1	0.75	0.79	0.79	49.4
Approach		1167	2.3	0.560	10.6	LOS A	4.9	35.1	0.75	0.79	0.79	49.8
NorthWest: Chelmsford Drive-W												
27	L2	391	4.4	0.335	5.8	LOS A	2.4	17.4	0.56	0.63	0.56	51.7
28	T1	312	3.5	0.345	5.8	LOS A	2.4	17.5	0.58	0.63	0.58	52.0
29u	U	54	2.6	0.345	12.0	LOS A	2.4	17.5	0.58	0.63	0.58	50.9
Approach		756	3.9	0.345	6.3	LOS A	2.4	17.5	0.57	0.63	0.57	51.8
All Vehicles		2622	3.0	0.560	9.5	LOS A	4.9	35.1	0.71	0.79	0.77	50.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
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.

MOVEMENT SUMMARY

Site: [Site 3: (Option 1) Chelmsford Drive_Metford Road_PM - 2032 Without Development]

Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Chelmsford Drive-E												
22	T1	412	1.4	0.450	7.9	LOS A	2.6	18.8	0.75	0.87	0.83	51.4
23	R2	219	1.3	0.450	12.5	LOS A	2.6	18.4	0.75	0.94	0.84	50.6
23u	U	4	0.0	0.450	14.3	LOS A	2.6	18.4	0.75	0.94	0.84	51.4
Approach		635	1.4	0.450	9.5	LOS A	2.6	18.8	0.75	0.90	0.83	51.1
NorthEast: Metford Road												
24	L2	191	0.0	0.570	9.8	LOS A	5.6	39.6	0.89	0.93	1.03	49.0
26	R2	749	1.1	0.570	14.5	LOS B	5.6	39.6	0.89	0.96	1.05	47.3
Approach		940	0.9	0.570	13.6	LOS A	5.6	39.6	0.89	0.95	1.05	47.7
NorthWest: Chelmsford Drive-W												
27	L2	980	1.5	0.648	6.1	LOS A	6.6	47.0	0.71	0.65	0.71	51.2
28	T1	516	1.0	0.648	6.3	LOS A	6.6	46.7	0.73	0.66	0.74	51.8
29u	U	75	0.0	0.648	12.5	LOS A	6.6	46.7	0.73	0.66	0.74	51.0
Approach		1571	1.3	0.648	6.5	LOS A	6.6	47.0	0.72	0.65	0.72	51.4
All Vehicles		3145	1.2	0.648	9.2	LOS A	6.6	47.0	0.77	0.79	0.84	50.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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: 5 [Site 4: NEH & Mitchell Drive 2032_AM Without Development]

Network: N101 [AM Network]

Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 90 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: New England Highway														
1	L2	239	3.9	239	3.9	0.245	12.0	LOS A	3.4	24.3	0.60	0.72	0.60	38.6
2	T1	1428	4.9	1428	4.9	0.630	22.7	LOS B	20.4	149.0	0.87	0.77	0.87	41.6
Approach		1667	4.8	1667	4.8	0.630	21.2	LOS B	20.4	149.0	0.84	0.76	0.84	41.4
NorthEast: Mitchell Drive														
4	L2	106	2.4	106	2.4	0.693	50.1	LOS D	5.0	35.5	1.00	0.85	1.15	3.0
5	T1	162	3.5	162	3.5	0.473	44.5	LOS D	3.6	25.9	0.99	0.76	0.99	8.9
6	R2	38	0.0	38	0.0	0.202	44.8	LOS D	1.6	11.2	0.95	0.72	0.95	25.0
Approach		306	2.7	306	2.7	0.693	46.5	LOS D	5.0	35.5	0.99	0.79	1.04	9.8
NorthWest: New England Highway														
7	L2	27	5.0	27	5.0	0.029	11.1	LOS A	0.3	2.3	0.49	0.65	0.49	43.2
8	T1	1453	8.3	1453	8.3	0.726	13.1	LOS A	22.2	166.4	0.75	0.69	0.75	42.6
9	R2	353	0.4	353	0.4	0.866	57.4	LOS E	8.9	62.7	1.00	1.00	1.42	23.0
Approach		1833	6.7	1833	6.7	0.866	21.6	LOS B	22.2	166.4	0.80	0.75	0.88	36.0
SouthWest: Mitchell Drive														
10	L2	178	9.9	178	9.9	0.183	24.9	LOS B	1.8	13.4	0.86	0.73	0.86	34.8
11	T1	80	7.5	80	7.5	0.479	44.6	LOS D	3.5	26.4	0.99	0.76	0.99	8.9
12	R2	196	3.6	196	3.6	0.601	50.1	LOS D	4.5	32.4	1.00	0.81	1.06	6.6
Approach		454	6.8	454	6.8	0.601	39.3	LOS C	4.5	32.4	0.94	0.77	0.97	18.8
All Vehicles		4260	5.7	4260	5.7	0.866	25.1	LOS B	22.2	166.4	0.84	0.76	0.88	34.9

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P11	SouthEast Stage 1	14	18.7	LOS B	0.0	0.0	0.64	0.64
P12	SouthEast Stage 2	14	39.2	LOS D	0.0	0.0	0.93	0.93
P1S	SouthEast Slip/Bypass Lane Crossing	14	18.6	LOS B	0.0	0.0	0.84	0.84
P2	NorthEast Full Crossing	5	12.8	LOS B	0.0	0.0	0.53	0.53
P2S	NorthEast Slip/Bypass Lane Crossing	5	2.7	LOS A	0.0	0.0	0.24	0.24
P3	NorthWest Full Crossing	14	39.2	LOS D	0.0	0.0	0.93	0.93
P4	SouthWest Full Crossing	1	24.9	LOS C	0.0	0.0	0.74	0.74
P4S	SouthWest Slip/Bypass Lane Crossing	1	8.1	LOS A	0.0	0.0	0.60	0.60

All Pedestrians	67	25.2	LOS C	0.76	0.76

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: 5 [Site 4: NEH & Mitchell Drive 2032_PM Without Development]

Network: N101 [PM Network]

Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: New England Highway														
1	L2	366	4.4	366	4.4	0.387	13.5	LOS A	6.0	43.5	0.63	0.74	0.63	37.1
2	T1	1520	4.3	1520	4.3	0.803	35.6	LOS C	27.2	197.5	0.97	0.89	1.01	35.5
Approach		1886	4.3	1886	4.3	0.803	31.3	LOS C	27.2	197.5	0.91	0.86	0.94	35.7
NorthEast: Mitchell Drive														
4	L2	92	1.4	92	1.4	0.495	51.1	LOS D	4.4	31.5	0.99	0.77	0.99	2.9
5	T1	240	3.3	240	3.3	0.622	49.2	LOS D	5.9	42.8	1.00	0.81	1.05	8.2
6	R2	37	3.4	37	3.4	0.126	42.4	LOS C	1.6	11.3	0.89	0.72	0.89	25.8
Approach		368	2.8	368	2.8	0.622	49.0	LOS D	5.9	42.8	0.99	0.79	1.02	9.3
NorthWest: New England Highway														
7	L2	35	0.0	35	0.0	0.036	11.9	LOS A	0.5	3.2	0.51	0.66	0.51	42.3
8	T1	1312	4.4	1312	4.4	0.687	16.7	LOS B	23.5	170.3	0.77	0.70	0.77	39.4
9	R2	441	2.2	441	2.2	0.871	61.2	LOS E	12.3	87.7	1.00	1.01	1.35	22.1
Approach		1787	3.8	1787	3.8	0.871	27.6	LOS B	23.5	170.3	0.82	0.77	0.91	32.5
SouthWest: Mitchell Drive														
10	L2	474	3.5	474	3.5	0.389	24.1	LOS B	4.6	33.5	0.87	0.77	0.87	35.4
11	T1	165	4.7	165	4.7	0.864	57.1	LOS E	9.1	66.4	1.00	0.99	1.39	7.2
12	R2	494	2.9	494	2.9	0.923	68.3	LOS E	15.7	112.8	1.00	1.07	1.50	5.0
Approach		1133	3.4	1133	3.4	0.923	48.2	LOS D	15.7	112.8	0.95	0.93	1.22	16.8
All Vehicles		5175	3.8	5175	3.8	0.923	35.0	LOS C	27.2	197.5	0.89	0.84	1.00	29.0

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P11	SouthEast Stage 1	14	15.1	LOS B	0.0	0.0	0.55	0.55
P12	SouthEast Stage 2	14	44.2	LOS E	0.0	0.0	0.94	0.94
P1S	SouthEast Slip/Bypass Lane Crossing	14	17.0	LOS B	0.0	0.0	0.80	0.80
P2	NorthEast Full Crossing	5	16.2	LOS B	0.0	0.0	0.57	0.57
P2S	NorthEast Slip/Bypass Lane Crossing	5	2.9	LOS A	0.0	0.0	0.24	0.24
P3	NorthWest Full Crossing	14	44.2	LOS E	0.0	0.0	0.94	0.94
P4	SouthWest Full Crossing	1	32.0	LOS D	0.0	0.0	0.80	0.80
P4S	SouthWest Slip/Bypass Lane Crossing	1	10.9	LOS B	0.0	0.0	0.66	0.66

All Pedestrians	67	26.7	LOS C	0.74	0.74

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: [Site 5: NEH & Chelmsford Drive 2032_AM Without Development]

Network: N101 [AM Network]

Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 90 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: New England Highway														
21	L2	66	3.3	66	3.3	0.050	8.1	LOS A	0.5	3.5	0.18	0.59	0.18	39.5
2	T1	1363	5.3	1363	5.3	0.709	11.0	LOS A	18.7	136.9	0.60	0.54	0.60	33.6
3	R2	196	3.0	196	3.0	0.814	56.8	LOS E	4.8	34.2	1.00	0.88	1.30	22.0
Approach		1625	4.9	1625	4.9	0.814	16.4	LOS B	18.7	136.9	0.63	0.59	0.67	30.0
NorthEast: Chelmsford Drive														
4	L2	342	3.0	342	3.0	0.881	44.4	LOS D	11.9	85.3	1.00	1.06	1.53	19.2
25	T1	488	1.2	488	1.2	0.947	62.8	LOS E	13.9	98.5	1.00	1.15	1.64	18.1
6	R2	265	3.4	265	3.4	0.950	69.9	LOS E	15.5	111.7	1.00	1.12	1.64	13.7
Approach		1096	2.3	1096	2.3	0.950	58.8	LOS E	15.5	111.7	1.00	1.11	1.61	17.2
NorthWest: New England Highway														
7	L2	272	3.0	272	3.0	0.274	12.2	LOS A	4.0	28.9	0.63	0.73	0.63	45.3
8	T1	1385	7.7	1385	7.7	0.983	70.9	LOS F	47.2	352.1	1.00	1.36	1.58	13.7
Approach		1657	6.9	1657	6.9	0.983	61.3	LOS E	47.2	352.1	0.94	1.25	1.42	16.9
SouthWest: Chelmsford Drive Extension														
30	L2	79	0.0	79	0.0	0.300	44.8	LOS D	3.2	22.7	0.94	0.76	0.94	8.5
31	T1	193	0.6	193	0.6	0.372	39.7	LOS C	4.0	28.1	0.95	0.74	0.95	24.3
32	R2	75	3.0	75	3.0	0.267	42.8	LOS D	3.0	21.4	0.92	0.76	0.92	8.9
Approach		346	1.0	346	1.0	0.372	41.5	LOS C	4.0	28.1	0.94	0.75	0.94	18.4
All Vehicles		4724	4.7	4724	4.7	0.983	43.8	LOS D	47.2	352.1	0.85	0.95	1.17	19.4

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	SouthEast Full Crossing	3	39.2	LOS D	0.0	0.0	0.93	0.93
P1S	SouthEast Slip/Bypass Lane Crossing	3	35.6	LOS D	0.0	0.0	0.89	0.89
P2	NorthEast Full Crossing	1	28.0	LOS C	0.0	0.0	0.79	0.79
P2S	NorthEast Slip/Bypass Lane Crossing	1	6.0	LOS A	0.0	0.0	0.51	0.51
P3	NorthWest Full Crossing	1	39.2	LOS D	0.0	0.0	0.93	0.93
P3S	NorthWest Slip/Bypass Lane Crossing	1	35.6	LOS D	0.0	0.0	0.89	0.89
P8	SouthWest Full Crossing	1	19.3	LOS B	0.0	0.0	0.66	0.66
P8S	SouthWest Slip/Bypass Lane Crossing	1	3.8	LOS A	0.0	0.0	0.29	0.29

All Pedestrians	13	29.7	LOS C	0.79	0.79

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: [Site 5: NEH & Chelmsford Drive 2032_PM Without Development]

Network: N101 [PM Network]

Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: New England Highway														
21	L2	97	1.1	97	1.1	0.068	8.1	LOS A	0.8	5.8	0.19	0.60	0.19	39.6
2	T1	1586	4.7	1586	4.7	0.737	11.2	LOS A	24.0	174.6	0.59	0.54	0.59	33.4
3	R2	276	6.3	276	6.3	0.869	57.9	LOS E	7.4	54.3	1.00	0.90	1.24	21.7
Approach		1959	4.7	1959	4.7	0.869	17.6	LOS B	24.0	174.6	0.63	0.59	0.66	29.3
NorthEast: Chelmsford Drive														
4	L2	246	6.0	246	6.0	0.648	29.4	LOS C	8.0	58.7	0.97	0.82	0.97	25.0
25	T1	409	1.1	409	1.1	0.961	72.9	LOS F	13.1	92.6	1.00	1.15	1.68	16.3
6	R2	239	1.4	239	1.4	0.938	71.9	LOS F	14.7	104.4	1.00	1.07	1.56	13.4
Approach		895	2.5	895	2.5	0.961	60.7	LOS E	14.7	104.4	0.99	1.04	1.46	16.9
NorthWest: New England Highway														
7	L2	564	2.8	564	2.8	0.542	13.9	LOS A	10.0	71.5	0.74	0.80	0.74	43.9
8	T1	1461	5.3	1461	5.3	0.948	56.2	LOS D	49.2	359.8	1.00	1.19	1.36	16.3
Approach		2025	4.6	2025	4.6	0.948	44.4	LOS D	49.2	359.8	0.93	1.08	1.19	22.3
SouthWest: Chelmsford Drive Extension														
30	L2	60	1.8	60	1.8	0.280	51.2	LOS D	2.8	19.8	0.96	0.75	0.96	7.6
31	T1	383	0.7	383	0.7	0.957	71.6	LOS F	12.9	91.1	1.00	1.14	1.68	16.5
32	R2	86	2.7	86	2.7	0.342	48.8	LOS D	3.9	28.1	0.95	0.77	0.95	8.0
Approach		529	1.2	529	1.2	0.957	65.6	LOS E	12.9	91.1	0.99	1.03	1.48	14.9
All Vehicles		5408	4.0	5408	4.0	0.961	39.5	LOS C	49.2	359.8	0.84	0.89	1.07	21.5

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	SouthEast Full Crossing	3	44.2	LOS E	0.0	0.0	0.94	0.94
P1S	SouthEast Slip/Bypass Lane Crossing	3	41.4	LOS E	0.0	0.0	0.91	0.91
P2	NorthEast Full Crossing	1	26.6	LOS C	0.0	0.0	0.73	0.73
P2S	NorthEast Slip/Bypass Lane Crossing	1	5.8	LOS A	0.0	0.0	0.48	0.48
P3	NorthWest Full Crossing	1	44.2	LOS E	0.0	0.0	0.94	0.94
P3S	NorthWest Slip/Bypass Lane Crossing	1	41.4	LOS E	0.0	0.0	0.91	0.91
P8	SouthWest Full Crossing	1	16.8	LOS B	0.0	0.0	0.58	0.58
P8S	SouthWest Slip/Bypass Lane Crossing	1	3.1	LOS A	0.0	0.0	0.25	0.25

All Pedestrians	13	32.9	LOS D	0.79	0.79

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: 7 [Site 6: NEH & Chisholm Rd 2032_AM Without Development]

Network: N101 [AM Network]

Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 90 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: New England Highway														
21	L2	261	2.4	261	2.4	0.194	7.8	LOS A	2.5	18.1	0.31	0.64	0.31	48.9
2	T1	1449	5.8	1449	5.8	0.694	16.1	LOS B	23.2	170.4	0.79	0.72	0.79	39.4
Approach		1711	5.3	1711	5.3	0.694	14.8	LOS B	23.2	170.4	0.72	0.70	0.72	41.4
NorthWest: New England Highway														
8	T1	1593	7.2	1593	7.2	0.419	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
29	R2	241	6.6	241	6.6	0.702	44.8	LOS D	10.8	79.6	1.00	0.85	1.05	26.0
Approach		1834	7.1	1834	7.1	0.702	5.9	LOS A	10.8	79.6	0.13	0.11	0.14	52.0
SouthWest: Chisholm Road														
30	L2	160	5.6	160	5.6	0.271	29.0	LOS C	5.2	38.5	0.78	0.75	0.78	25.6
32	R2	129	4.0	129	4.0	0.899	61.0	LOS E	6.8	48.9	1.00	1.06	1.58	26.9
Approach		289	4.9	289	4.9	0.899	43.3	LOS D	6.8	48.9	0.88	0.89	1.14	26.4
All Vehicles		3834	6.1	3834	6.1	0.899	12.7	LOS A	23.2	170.4	0.45	0.44	0.47	44.3

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

MOVEMENT SUMMARY

Site: 7 [Site 6: NEH & Chisholm Rd 2032_PM Without Development]

Network: N101 [PM Network]

Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: New England Highway														
21	L2	380	0.8	380	0.8	0.259	7.3	LOS A	3.5	24.4	0.27	0.63	0.27	49.3
2	T1	1755	4.9	1755	4.9	0.771	16.4	LOS B	31.9	232.5	0.82	0.75	0.82	39.2
Approach		2135	4.2	2135	4.2	0.771	14.8	LOS B	31.9	232.5	0.72	0.73	0.72	41.6
NorthWest: New England Highway														
8	T1	1645	4.2	1645	4.2	0.425	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
29	R2	162	1.9	162	1.9	0.739	58.9	LOS E	8.3	59.4	1.00	0.84	1.07	22.4
Approach		1807	4.0	1807	4.0	0.739	5.3	LOS A	8.3	59.4	0.09	0.08	0.10	52.9
SouthWest: Chisholm Road														
30	L2	196	3.4	196	3.4	0.363	35.0	LOS C	7.6	54.9	0.84	0.78	0.84	23.3
32	R2	204	3.2	204	3.2	0.913	66.4	LOS E	12.0	86.1	1.00	1.06	1.50	25.8
Approach		400	3.3	400	3.3	0.913	51.1	LOS D	12.0	86.1	0.92	0.92	1.18	25.0
All Vehicles		4342	4.0	4342	4.0	0.913	14.2	LOS A	31.9	232.5	0.48	0.47	0.50	43.1

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 SUMMARY

Site: [Site 1: Raymond Terrace_Metford_AM - 2032 With Development]

Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Raymond Terrace Road												
21	L2	516	2.2	0.735	14.3	LOS A	8.3	59.5	0.96	1.15	1.39	48.4
22	T1	701	1.4	0.946	27.4	LOS B	22.9	163.0	1.00	1.53	2.32	42.3
23	R2	117	6.4	0.946	33.4	LOS C	22.9	163.0	1.00	1.53	2.32	42.4
23u	U	1	0.0	0.946	35.4	LOS C	22.9	163.0	1.00	1.53	2.32	43.4
Approach		1335	2.2	0.946	22.9	LOS B	22.9	163.0	0.98	1.38	1.96	44.4
NorthEast: Metford Road												
24	L2	197	11.5	0.345	8.7	LOS A	1.8	13.8	0.74	0.86	0.76	52.1
25	T1	501	0.2	0.606	9.1	LOS A	5.2	36.2	0.85	0.99	1.07	53.6
26	R2	31	0.0	0.606	14.8	LOS B	5.2	36.2	0.85	0.99	1.07	53.9
Approach		728	3.3	0.606	9.3	LOS A	5.2	36.2	0.82	0.96	0.99	53.2
NorthWest: Raymond Terrace Road												
27	L2	20	0.0	0.224	8.1	LOS A	1.2	8.6	0.73	0.80	0.73	52.8
28	T1	413	1.7	0.547	8.2	LOS A	4.8	34.2	0.84	0.87	0.93	53.0
29	R2	155	0.8	0.547	13.9	LOS A	4.8	34.2	0.87	0.90	1.00	52.9
Approach		587	1.4	0.547	9.7	LOS A	4.8	34.2	0.84	0.88	0.94	53.0
SouthWest: Metford Road												
30	L2	173	0.0	0.404	11.1	LOS A	2.8	19.5	0.90	0.97	0.97	50.6
31	T1	282	1.4	0.888	27.3	LOS B	15.9	113.1	1.00	1.39	1.98	41.5
32	R2	283	2.4	0.888	33.2	LOS C	15.9	113.1	1.00	1.40	1.99	41.6
Approach		738	1.4	0.888	25.8	LOS B	15.9	113.1	0.98	1.30	1.75	43.3
All Vehicles		3388	2.1	0.946	18.3	LOS B	22.9	163.0	0.92	1.18	1.53	47.2

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

MOVEMENT SUMMARY

Site: 101 [Site 1: Raymond Terrace_Metford_PM - 2032 With Development]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Raymond Terrace Road												
21	L2	494	2.5	0.553	7.2	LOS A	4.4	31.3	0.73	0.80	0.81	53.4
22	T1	592	1.8	0.741	8.6	LOS A	9.2	65.4	0.87	0.90	1.07	52.7
23	R2	220	3.7	0.741	14.4	LOS A	9.2	65.4	0.87	0.90	1.07	53.0
23u	U	1	0.0	0.741	16.6	LOS B	9.2	65.4	0.87	0.90	1.07	54.4
Approach		1306	2.4	0.741	9.1	LOS A	9.2	65.4	0.82	0.86	0.97	53.0
NorthEast: Metford Road												
24	L2	135	3.0	0.255	8.8	LOS A	1.3	9.5	0.77	0.87	0.77	52.2
25	T1	339	0.4	0.462	8.5	LOS A	3.3	23.2	0.85	0.89	0.96	53.7
26	R2	13	0.0	0.462	14.2	LOS A	3.3	23.2	0.85	0.89	0.96	54.0
Approach		486	1.1	0.462	8.7	LOS A	3.3	23.2	0.83	0.88	0.90	53.3
NorthWest: Raymond Terrace Road												
27	L2	16	0.0	0.314	9.7	LOS A	1.7	11.7	0.80	0.88	0.81	51.8
28	T1	585	1.3	0.767	14.0	LOS A	8.6	60.7	0.95	1.13	1.39	49.9
29	R2	78	1.8	0.767	21.0	LOS B	8.6	60.7	0.99	1.20	1.55	49.2
Approach		679	1.3	0.767	14.7	LOS B	8.6	60.7	0.95	1.14	1.39	49.8
SouthWest: Metford Road												
30	L2	134	0.0	0.519	12.9	LOS A	4.0	28.2	0.92	1.02	1.11	49.5
31	T1	508	0.7	1.143	74.1	LOS F	52.2	369.7	0.98	2.20	4.00	27.4
32	R2	391	2.0	1.143	97.0	LOS F	52.2	369.7	1.00	2.53	4.81	24.4
Approach		1033	1.1	1.143	74.9	LOS F	52.2	369.7	0.98	2.17	3.93	27.7
All Vehicles		3504	1.6	1.143	29.5	LOS C	52.2	369.7	0.89	1.30	1.92	41.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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: [Site 3: Chelmsford Drive_Metford Road_AM - 2032 With Development]

Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Chelmsford Drive-E												
22	T1	433	2.8	1.418	211.2	LOS F	82.9	595.7	1.00	3.31	7.04	11.7
23	R2	267	3.6	1.418	215.5	LOS F	82.9	595.7	1.00	3.31	7.04	13.4
23u	U	3	0.0	1.418	217.2	LOS F	82.9	595.7	1.00	3.31	7.04	13.4
Approach		703	3.1	1.418	212.8	LOS F	82.9	595.7	1.00	3.31	7.04	12.3
NorthEast: Metford Road												
24	L2	271	0.0	1.236	121.1	LOS F	96.6	686.9	1.00	2.95	5.70	19.7
26	R2	928	2.4	1.236	125.7	LOS F	96.6	686.9	1.00	2.95	5.70	17.6
Approach		1199	1.9	1.236	124.6	LOS F	96.6	686.9	1.00	2.95	5.70	18.1
NorthWest: Chelmsford Drive-W												
27	L2	512	4.4	0.409	5.5	LOS A	3.3	24.0	0.54	0.59	0.54	51.7
28	T1	312	3.5	0.340	5.4	LOS A	2.5	17.7	0.52	0.58	0.52	52.3
29u	U	54	2.6	0.340	11.6	LOS A	2.5	17.7	0.52	0.58	0.52	51.2
Approach		877	4.0	0.409	5.8	LOS A	3.3	24.0	0.53	0.59	0.53	51.9
All Vehicles		2779	2.8	1.418	109.5	LOS F	96.6	686.9	0.85	2.30	4.41	19.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.

MOVEMENT SUMMARY

Site: 101 [Site 3: Chelmsford Drive_Metford Road_PM - 2032 With Development]

Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Chelmsford Drive-E												
22	T1	412	1.4	1.067	67.3	LOS E	34.9	246.9	1.00	2.04	3.64	25.7
23	R2	223	1.3	1.067	71.6	LOS F	34.9	246.9	1.00	2.04	3.64	28.3
23u	U	4	0.0	1.067	73.4	LOS F	34.9	246.9	1.00	2.04	3.64	28.5
Approach		639	1.4	1.067	68.9	LOS E	34.9	246.9	1.00	2.04	3.64	26.7
NorthEast: Metford Road												
24	L2	200	0.0	1.602	284.6	LOS F	160.7	1133.4	1.00	4.76	10.15	10.5
26	R2	985	1.1	1.602	289.0	LOS F	160.7	1133.4	1.00	4.76	10.15	9.1
Approach		1185	0.9	1.602	288.3	LOS F	160.7	1133.4	1.00	4.76	10.15	9.4
NorthWest: Chelmsford Drive-W												
27	L2	1081	1.5	0.834	8.5	LOS A	15.1	107.1	0.96	0.74	1.06	50.0
28	T1	516	1.0	0.569	6.1	LOS A	5.2	36.8	0.69	0.65	0.69	51.7
29u	U	75	0.0	0.569	12.2	LOS A	5.2	36.8	0.69	0.65	0.69	50.9
Approach		1672	1.3	0.834	7.9	LOS A	15.1	107.1	0.86	0.70	0.93	50.6
All Vehicles		3496	1.2	1.602	114.1	LOS F	160.7	1133.4	0.93	2.32	4.55	18.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.

MOVEMENT SUMMARY

Site: [Site 3: (Option 1) Chelmsford Drive_Metford Road_AM - 2032 With Development]

Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Chelmsford Drive-E												
22	T1	433	2.8	0.554	9.7	LOS A	3.6	25.9	0.81	0.97	1.00	50.1
23	R2	267	3.6	0.554	14.6	LOS B	3.5	25.2	0.81	1.00	1.01	48.9
23u	U	3	0.0	0.554	16.3	LOS B	3.5	25.2	0.81	1.00	1.01	49.7
Approach		703	3.1	0.554	11.6	LOS A	3.6	25.9	0.81	0.98	1.01	49.6
NorthEast: Metford Road												
24	L2	271	0.0	0.575	7.2	LOS A	5.3	37.2	0.75	0.77	0.79	50.8
26	R2	928	2.4	0.575	11.8	LOS A	5.3	37.2	0.76	0.80	0.82	49.3
Approach		1199	1.9	0.575	10.8	LOS A	5.3	37.2	0.76	0.80	0.81	49.7
NorthWest: Chelmsford Drive-W												
27	L2	512	4.4	0.396	5.9	LOS A	3.0	21.8	0.60	0.64	0.60	51.4
28	T1	312	3.5	0.396	6.0	LOS A	2.9	21.0	0.61	0.64	0.61	52.0
29u	U	54	2.6	0.396	12.1	LOS A	2.9	21.0	0.61	0.64	0.61	50.8
Approach		877	4.0	0.396	6.3	LOS A	3.0	21.8	0.60	0.64	0.60	51.6
All Vehicles		2779	2.8	0.575	9.6	LOS A	5.3	37.2	0.72	0.79	0.79	50.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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: [Site 3: (Option 1) Chelmsford Drive_Metford Road_PM - 2032 With Development]

Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Chelmsford Drive-E												
22	T1	412	1.4	0.563	9.8	LOS A	3.7	26.1	0.85	0.98	1.04	50.0
23	R2	223	1.3	0.563	14.7	LOS B	3.5	25.1	0.85	1.01	1.04	49.1
23u	U	4	0.0	0.563	16.5	LOS B	3.5	25.1	0.85	1.01	1.04	49.8
Approach		639	1.4	0.563	11.6	LOS A	3.7	26.1	0.85	0.99	1.04	49.6
NorthEast: Metford Road												
24	L2	200	0.0	0.731	13.3	LOS A	9.8	69.0	1.00	1.08	1.36	46.7
26	R2	985	1.1	0.731	18.2	LOS B	9.8	69.0	1.00	1.10	1.38	44.8
Approach		1185	0.9	0.731	17.4	LOS B	9.8	69.0	1.00	1.10	1.37	45.1
NorthWest: Chelmsford Drive-W												
27	L2	1081	1.5	0.696	6.6	LOS A	8.2	58.1	0.77	0.68	0.80	50.9
28	T1	516	1.0	0.696	7.0	LOS A	8.2	58.1	0.79	0.70	0.83	51.5
29u	U	75	0.0	0.696	13.2	LOS A	8.2	58.1	0.79	0.70	0.83	50.7
Approach		1672	1.3	0.696	7.0	LOS A	8.2	58.1	0.78	0.68	0.81	51.1
All Vehicles		3496	1.2	0.731	11.4	LOS A	9.8	69.0	0.86	0.88	1.04	48.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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: 5 [Site 4: NEH & Mitchell Drive 2032_AM With Development]

Network: N101 [AM Network]

Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: New England Highway														
1	L2	244	3.9	244	3.9	0.223	11.2	LOS A	3.4	24.5	0.48	0.69	0.48	39.4
2	T1	1438	4.9	1438	4.9	0.559	20.8	LOS B	21.3	155.2	0.71	0.63	0.71	42.7
Approach		1682	4.8	1682	4.8	0.559	19.4	LOS B	21.3	155.2	0.68	0.64	0.68	42.5
NorthEast: Mitchell Drive														
4	L2	106	2.4	106	2.4	0.778	63.0	LOS E	6.2	44.1	1.00	0.88	1.25	2.4
5	T1	162	3.5	162	3.5	0.579	56.5	LOS E	4.5	32.3	1.00	0.78	1.03	7.3
6	R2	38	0.0	38	0.0	0.185	52.3	LOS D	1.9	13.3	0.94	0.73	0.94	22.8
Approach		306	2.7	306	2.7	0.778	58.3	LOS E	6.2	44.1	0.99	0.81	1.09	8.1
NorthWest: New England Highway														
7	L2	27	5.0	27	5.0	0.025	10.5	LOS A	0.3	2.4	0.42	0.64	0.42	43.8
8	T1	1487	8.3	1487	8.3	0.662	12.2	LOS A	24.7	185.4	0.66	0.60	0.66	43.4
9	R2	353	0.4	353	0.4	0.882	69.0	LOS E	10.9	76.3	1.00	1.01	1.40	20.5
Approach		1867	6.8	1867	6.8	0.882	22.9	LOS B	24.7	185.4	0.72	0.68	0.79	35.1
SouthWest: Mitchell Drive														
10	L2	178	9.9	178	9.9	0.201	31.1	LOS C	2.3	17.2	0.88	0.73	0.88	31.6
11	T1	80	7.5	80	7.5	0.586	56.7	LOS E	4.4	33.0	1.00	0.78	1.04	7.2
12	R2	213	3.6	213	3.6	0.570	57.6	LOS E	5.9	42.9	1.00	0.79	1.00	5.8
Approach		471	6.6	471	6.6	0.586	47.5	LOS D	5.9	42.9	0.95	0.77	0.96	16.2
All Vehicles		4326	5.7	4326	5.7	0.882	26.7	LOS B	24.7	185.4	0.75	0.68	0.79	34.0

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P11	SouthEast Stage 1	14	24.2	LOS C	0.0	0.0	0.66	0.66
P12	SouthEast Stage 2	14	49.2	LOS E	0.0	0.0	0.95	0.95
P1S	SouthEast Slip/Bypass Lane Crossing	14	24.1	LOS C	0.0	0.0	0.86	0.86
P2	NorthEast Full Crossing	5	11.8	LOS B	0.0	0.0	0.46	0.46
P2S	NorthEast Slip/Bypass Lane Crossing	5	2.2	LOS A	0.0	0.0	0.20	0.20
P3	NorthWest Full Crossing	14	49.2	LOS E	0.0	0.0	0.95	0.95
P4	SouthWest Full Crossing	1	23.6	LOS C	0.0	0.0	0.65	0.65
P4S	SouthWest Slip/Bypass Lane Crossing	1	7.9	LOS A	0.0	0.0	0.54	0.54

All Pedestrians	67	31.4	LOS D	0.76	0.76

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: 5 [Site 4: NEH & Mitchell Drive 2032_PM With Development]

Network: N101 [PM Network Calibrate Chisholm]

Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: New England Highway														
1	L2	399	4.4	398	4.4	0.394	13.4	LOS A	6.9	49.8	0.61	0.74	0.61	37.3
2	T1	1586	4.3	1581	4.3	0.871	41.4	LOS C	32.9	238.8	0.98	0.94	1.07	33.2
Approach		1985	4.3	1978 N1	4.3	0.871	35.8	LOS C	32.9	238.8	0.90	0.90	0.97	33.6
NorthEast: Mitchell Drive														
4	L2	92	1.4	92	1.4	0.667	59.5	LOS E	5.2	36.5	1.00	0.83	1.11	2.5
5	T1	240	3.3	240	3.3	0.684	55.8	LOS D	6.7	47.9	1.00	0.83	1.10	7.3
6	R2	37	3.4	37	3.4	0.096	40.8	LOS C	1.6	11.5	0.84	0.71	0.84	26.3
Approach		368	2.8	368	2.8	0.684	55.2	LOS D	6.7	47.9	0.98	0.82	1.08	8.4
NorthWest: New England Highway														
7	L2	35	0.0	35	0.0	0.034	11.6	LOS A	0.5	3.3	0.47	0.66	0.47	42.7
8	T1	1335	4.4	1335	4.4	0.904	42.7	LOS D	42.4	308.0	0.96	1.06	1.18	25.7
9	R2	441	2.2	441	2.2	0.894	68.9	LOS E	13.8	98.3	1.00	1.03	1.39	20.5
Approach		1811	3.8	1811	3.8	0.904	48.5	LOS D	42.4	308.0	0.96	1.04	1.22	24.2
SouthWest: Mitchell Drive														
10	L2	474	3.5	474	3.5	0.410	25.9	LOS B	4.8	34.8	0.89	0.78	0.89	34.4
11	T1	165	4.7	165	4.7	0.951	75.7	LOS F	11.1	81.1	1.00	1.10	1.63	5.6
12	R2	505	2.9	505	2.9	0.911	70.7	LOS F	17.3	124.5	1.00	1.05	1.43	4.8
Approach		1144	3.4	1144	3.4	0.951	52.9	LOS D	17.3	124.5	0.95	0.94	1.24	15.7
All Vehicles		5308	3.8	5301 N1	3.8	0.951	45.2	LOS D	42.4	308.0	0.94	0.95	1.12	25.3

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
P11	SouthEast Stage 1	14	14.8	LOS B	0.0	0.0	0.52	0.52
P12	SouthEast Stage 2	14	49.2	LOS E	0.0	0.0	0.95	0.95
P1S	SouthEast Slip/Bypass Lane Crossing	14	18.5	LOS B	0.0	0.0	0.81	0.81
P2	NorthEast Full Crossing	5	18.6	LOS B	0.0	0.0	0.58	0.58
P2S	NorthEast Slip/Bypass Lane Crossing	5	2.6	LOS A	0.0	0.0	0.22	0.22
P3	NorthWest Full Crossing	14	49.2	LOS E	0.0	0.0	0.95	0.95
P4	SouthWest Full Crossing	1	35.2	LOS D	0.0	0.0	0.80	0.80
P4S	SouthWest Slip/Bypass Lane Crossing	1	10.3	LOS B	0.0	0.0	0.61	0.61

All Pedestrians	67	29.1	LOS C	0.74	0.74

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: [Site 5: NEH & Chelmsford Drive 2032_AM With Development]

Network: N101 [AM Network]

Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: New England Highway														
21	L2	66	3.3	66	3.3	0.048	8.3	LOS A	0.6	4.1	0.17	0.59	0.17	39.2
2	T1	1363	5.3	1363	5.3	0.676	11.9	LOS A	21.3	156.0	0.55	0.50	0.55	32.5
3	R2	248	3.0	248	3.0	0.947	81.2	LOS F	8.3	59.8	1.00	1.07	1.68	17.4
Approach		1678	4.9	1678	4.9	0.947	22.0	LOS B	21.3	156.0	0.60	0.59	0.70	26.1
NorthEast: Chelmsford Drive														
4	L2	354	3.0	354	3.0	0.871	49.0	LOS D	14.4	103.6	1.00	1.04	1.43	18.0
25	T1	493	1.2	493	1.2	0.958	76.8	LOS F	17.6	124.2	1.00	1.15	1.59	15.7
6	R2	280	3.4	280	3.4	0.954	80.9	LOS F	19.5	140.6	1.00	1.08	1.55	12.2
Approach		1126	2.3	1126	2.3	0.958	69.1	LOS E	19.5	140.6	1.00	1.10	1.53	15.3
NorthWest: New England Highway														
7	L2	323	3.0	323	3.0	0.304	12.1	LOS A	5.0	35.6	0.53	0.71	0.53	45.3
8	T1	1385	7.7	1385	7.7	0.929	53.1	LOS D	46.7	348.3	0.98	1.10	1.26	17.0
Approach		1708	6.8	1708	6.8	0.929	45.3	LOS D	46.7	348.3	0.90	1.03	1.12	21.1
SouthWest: Chelmsford Drive Extension														
30	L2	79	0.0	79	0.0	0.293	52.7	LOS D	3.9	27.3	0.94	0.76	0.94	7.4
31	T1	209	0.6	209	0.6	0.398	47.9	LOS D	5.3	37.4	0.96	0.75	0.96	21.7
32	R2	75	3.0	75	3.0	0.254	49.7	LOS D	3.6	25.6	0.91	0.76	0.91	7.9
Approach		363	1.0	363	1.0	0.398	49.3	LOS D	5.3	37.4	0.94	0.76	0.94	16.6
All Vehicles		4876	4.7	4876	4.7	0.958	43.1	LOS D	46.7	348.3	0.82	0.87	1.06	19.9

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	SouthEast Full Crossing	3	49.2	LOS E	0.0	0.0	0.95	0.95
P1S	SouthEast Slip/Bypass Lane Crossing	3	42.8	LOS E	0.0	0.0	0.88	0.88
P2	NorthEast Full Crossing	1	29.1	LOS C	0.0	0.0	0.73	0.73
P2S	NorthEast Slip/Bypass Lane Crossing	1	6.0	LOS A	0.0	0.0	0.46	0.46
P3	NorthWest Full Crossing	1	49.2	LOS E	0.0	0.0	0.95	0.95
P3S	NorthWest Slip/Bypass Lane Crossing	1	42.8	LOS E	0.0	0.0	0.88	0.88
P8	SouthWest Full Crossing	1	19.8	LOS B	0.0	0.0	0.60	0.60
P8S	SouthWest Slip/Bypass Lane Crossing	1	3.8	LOS A	0.0	0.0	0.26	0.26

All Pedestrians	13	35.5	LOS D	0.78	0.78

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: [Site 5: NEH & Chelmsford Drive 2032_PM With Development]

Network: N101 [PM Network Calibrate Chisholm]

Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: New England Highway														
21	L2	97	1.1	97	1.1	0.068	8.4	LOS A	1.1	7.6	0.23	0.61	0.23	39.2
2	T1	1586	4.7	1586	4.7	0.861	24.3	LOS B	39.0	284.2	0.78	0.76	0.84	22.0
3	R2	329	6.3	329	6.3	0.934	66.2	LOS E	10.1	74.8	1.00	0.97	1.36	19.9
Approach		2013	4.8	2013	4.8	0.934	30.4	LOS C	39.0	284.2	0.79	0.79	0.90	21.8
NorthEast: Chelmsford Drive														
4	L2	349	6.0	349	6.0	0.842	38.4	LOS C	13.3	97.7	1.00	0.95	1.22	21.2
25	T1	442	1.1	442	1.1	0.966	79.8	LOS F	15.5	109.8	1.00	1.16	1.64	15.2
6	R2	338	1.4	338	1.4	0.973	86.9	LOS F	24.9	176.2	1.00	1.11	1.59	11.5
Approach		1129	2.7	1129	2.7	0.973	69.1	LOS E	24.9	176.2	1.00	1.08	1.49	15.1
NorthWest: New England Highway														
7	L2	600	2.8	553	2.9	0.528	13.7	LOS A	9.5	68.3	0.66	0.77	0.66	44.1
8	T1	1461	5.3	1347	5.5	1.004	90.6	LOS F	59.3	434.6	1.00	1.36	1.59	11.3
Approach		2061	4.6	1900 N1	4.7	1.004	68.2	LOS E	59.3	434.6	0.90	1.19	1.32	16.8
SouthWest: Chelmsford Drive Extension														
30	L2	60	1.8	60	1.8	0.261	54.4	LOS D	3.0	21.4	0.95	0.75	0.95	7.2
31	T1	395	0.7	395	0.7	0.924	68.5	LOS E	13.7	96.2	1.00	1.07	1.50	17.0
32	R2	86	2.7	86	2.7	0.251	46.9	LOS D	4.0	28.6	0.89	0.76	0.89	8.3
Approach		541	1.1	541	1.1	0.924	63.5	LOS E	13.7	96.2	0.98	0.99	1.34	15.3
All Vehicles		5744	4.0	5583 N1	4.1	1.004	54.3	LOS D	59.3	434.6	0.89	1.00	1.20	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.

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
P1	SouthEast Full Crossing	3	49.2	LOS E	0.0	0.0	0.95	0.95
P1S	SouthEast Slip/Bypass Lane Crossing	3	44.6	LOS E	0.0	0.0	0.90	0.90
P2	NorthEast Full Crossing	1	32.1	LOS D	0.0	0.0	0.76	0.76
P2S	NorthEast Slip/Bypass Lane Crossing	1	6.2	LOS A	0.0	0.0	0.47	0.47
P3	NorthWest Full Crossing	1	49.2	LOS E	0.0	0.0	0.95	0.95
P3S	NorthWest Slip/Bypass Lane Crossing	1	44.6	LOS E	0.0	0.0	0.90	0.90
P8	SouthWest Full Crossing	1	20.4	LOS C	0.0	0.0	0.61	0.61
P8S	SouthWest Slip/Bypass Lane	1	3.3	LOS A	0.0	0.0	0.25	0.25

Crossing					
All Pedestrians	13	36.4	LOS D	0.79	0.79

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: 7 [Site 6: NEH & Chisholm Rd 2032_AM With Development]

Network: N101 [AM Network]

Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: New England Highway														
21	L2	261	2.4	261	2.4	0.190	8.0	LOS A	3.0	21.3	0.29	0.63	0.29	48.8
2	T1	1476	5.8	1476	5.8	0.682	18.1	LOS B	27.7	203.9	0.77	0.70	0.77	37.8
Approach		1737	5.3	1737	5.3	0.682	16.6	LOS B	27.7	203.9	0.70	0.69	0.70	40.0
NorthWest: New England Highway														
8	T1	1598	7.2	1598	7.2	0.420	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
29	R2	246	6.6	246	6.6	0.668	51.8	LOS D	13.1	96.6	1.00	0.84	1.01	24.0
Approach		1844	7.1	1844	7.1	0.668	6.9	LOS A	13.1	96.6	0.13	0.11	0.13	50.9
SouthWest: Chisholm Road														
30	L2	186	5.6	186	5.6	0.311	34.3	LOS C	7.5	54.8	0.79	0.76	0.79	23.5
32	R2	129	4.0	129	4.0	0.854	67.4	LOS E	7.8	56.4	1.00	0.98	1.38	25.6
Approach		316	4.9	316	4.9	0.854	47.9	LOS D	7.8	56.4	0.88	0.85	1.03	24.7
All Vehicles		3897	6.1	3897	6.1	0.854	14.6	LOS B	27.7	203.9	0.44	0.43	0.46	42.7

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 SUMMARY

Site: 7 [Site 6: NEH & Chisholm Rd 2032_PM With Development]

Network: N101 [PM Network Calibrate Chisholm]

Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: New England Highway														
21	L2	380	0.8	380	0.8	0.260	7.5	LOS A	4.0	28.2	0.28	0.63	0.28	49.1
2	T1	1782	4.9	1782	4.9	0.927	41.4	LOS C	63.5	463.5	0.98	1.08	1.19	25.6
Approach		2162	4.2	2162	4.2	0.927	35.5	LOS C	63.5	463.5	0.85	1.00	1.03	29.5
NorthWest: New England Highway														
8	T1	1697	4.2	1593	4.3	0.411	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
29	R2	214	1.9	200	1.9	0.922	69.7	LOS E	12.5	89.0	1.00	1.01	1.40	20.2
Approach		1911	3.9	1793[N1]	4.0	0.922	7.8	LOS A	12.5	89.0	0.11	0.11	0.16	50.2
SouthWest: Chisholm Road														
30	L2	223	3.4	223	3.4	0.631	42.6	LOS D	10.7	77.2	0.93	0.83	0.93	20.9
32	R2	204	3.2	204	3.2	0.928	74.2	LOS F	13.3	95.7	1.00	1.07	1.51	24.3
Approach		427	3.3	427	3.3	0.928	57.7	LOS E	13.3	95.7	0.96	0.94	1.21	23.0
All Vehicles		4500	4.0	4382[N1]	4.1	0.928	26.3	LOS B	63.5	463.5	0.56	0.63	0.69	35.1

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.

Appendix C

Swept Path Assessment