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10 March 2025

P3130 BC 71 Turton Street Metford Serviice Station Assessment

Brown Commercial Building
2 Elwell Close,
Beresfield NSW 2322

Attn: Caitlin Brown

Dear Caitlin,

Proposed Change of Use, 71 Turton Street, Metford, NSW

We have now completed our site work and review of the documentation provided for the proposed change of use to a service station and ancillary car wash at 71 Turton Street, Metford and provide the following assessment of parking demands, traffic generation and access arrangements for the development. This assessment has been completed with regard to the relevant requirements outlined in the Maitland Council DCP dated December 2011 (updated 31 May 2023), with reference to the Guide to Transport Impact Assessments (GtTIA) and Australian Standard AS2890.1: Off-street Car Parking Facilities.

Background

The subject site is located at 71 Turton Street, Metford as shown below in Figure 1. The site is located in a light industrial area and has frontages to both Turton Street and Chelmsford Drive with access off Turton Street only. The site currently operates as a car service centre for Mazda and so generates existing traffic demands during the peak periods and throughout the day. Opposite is another mechanic and the SES Depot whilst north of the site there is a glazier, a self-storage facility and various other industrial sites.

Turton Street is a local road under the care and control of Council as the road authority with Clause 2.119 of the Transport and Infrastructure SEPP 2021 (Development with frontage to classified road) not being applicable.

Similarly, the size and nature of the proposed development does not trigger the requirement for referral to Transport for New South Wales under Schedule 3 of Transport and Infrastructure SEPP 2021 given that the project is greater than 90m from any state roads and does not provide for heavy vehicle refuelling. It will also generate less than 200 motor vehicles per hour.

The proposed change of use will have a minimal impact on the operation of the local road network and will not see extended queuing to the signalised intersection of Chelmsford Drive and the New England Highway.

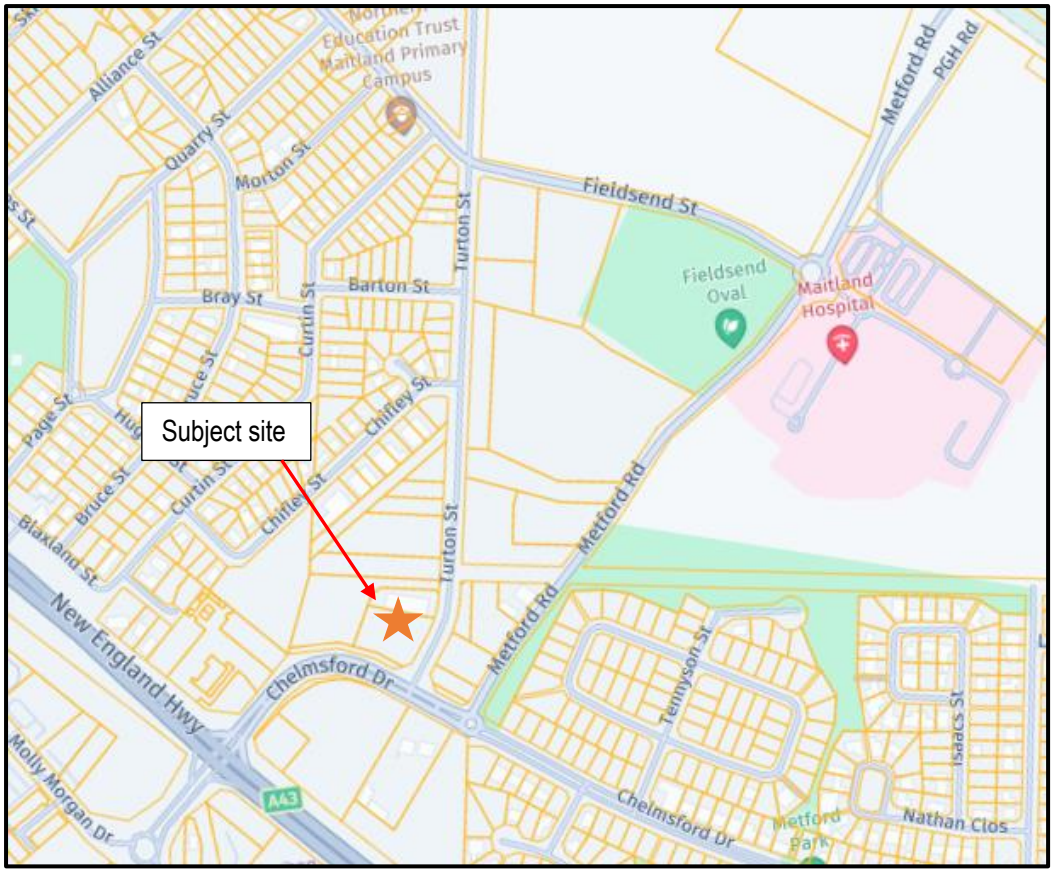


Figure 1 – Subject site in the context of the local road network

Road Hierarchy

The New England Highway is the major road passing through the locality. If forms part of the state road network and provides the primary link between the greater Maitland area and the M1 Motorway / Greater Newcastle area. It generally provides a minimum of 2 lanes of travel in each direction separated by a central median to restrict right turn movements. It provides additional lanes at intersections to maintain capacity with the key intersections being signal controlled. It connects with Chelmsford Drive via a 4-way signal-controlled intersection.

Chelmsford Drive provides a mixture of 1 and 2 lanes of travel in both directions separated by a central median which restricts access to individual lots to improve road capacity. Between Metford Road and the New England Highway in the vicinity of the site it has two lanes in each direction with additional lanes on the approach to the highway for increased capacity.

Chelmsford Drive then connects with **Metford Road** via a 3-way roundabout. Metford Road in this location provides a single lane of the travel in both directions. It has been upgraded as part of the development of the Maitland Hospital to the north of Chelmsford Drive and provides a popular route to both the hospital and the urban developments (Chisholm and Thornton North) to the north.

Turton Street is an industrial road with a north-south orientation connecting between Chelmsford Drive and Fieldsend Street. It has a width of 12 metres allowing 2 way vehicle movements with parking on each side. At the southern intersection with Chelmsford Drive outbound traffic is restricted to left turns only with a short channelised turn lane providing for right turns into the street. There are no pedestrian facilities however there is street lighting along its length. Turton Street operates under the posted speed limit of 50km/h with a school zone at its northern end restricting the speed to 40km/h during school zone hours.

There is a shared path on the southern side of Chelmsford Drive and on the western side of Metford Road.

Current Road Network Operation

Seca Solution has undertaken a morning and afternoon peak period traffic survey at the intersection of Turton Street and Chelmsford Drive and Turton Street to determine the current traffic flows in this location. These surveys were undertaken on Tuesday 18th February 2025 between 7.30-9.00AM and 3.30-5.30PM reflective of commuting demands. From this the peak hours were determined as being 8.00-9.00AM and 3.45-4.45 PM.

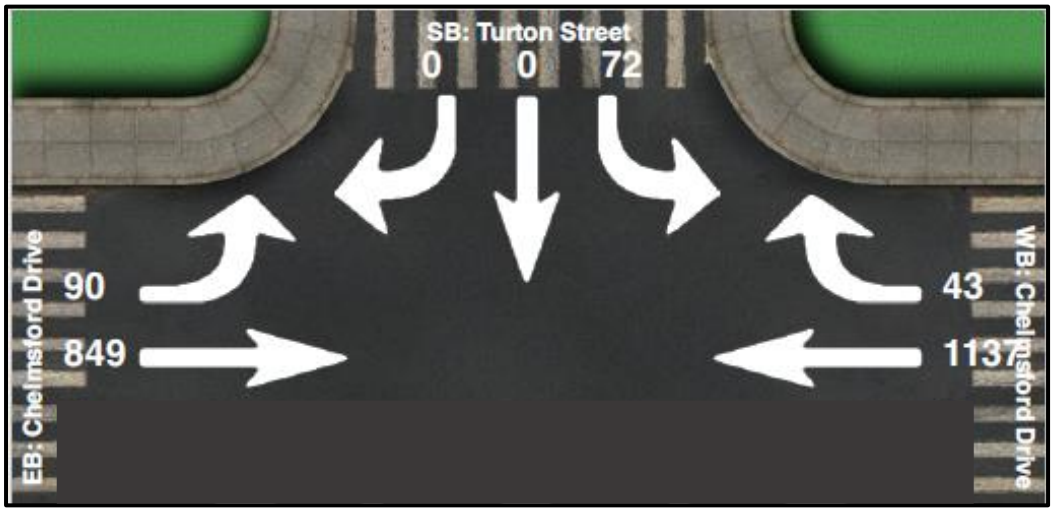


Figure 2 AM Peak Demands 8.00-9.00AM

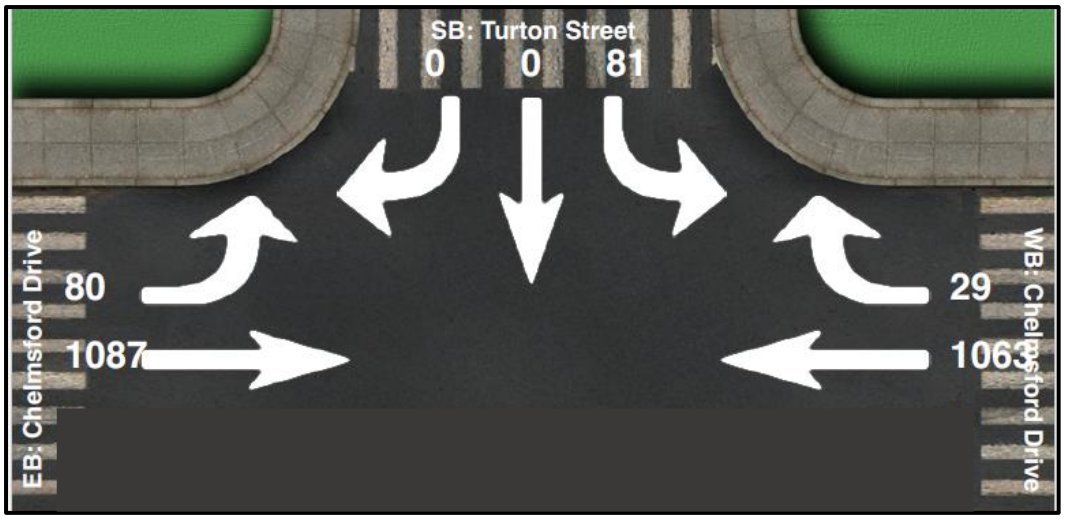


Figure 3 PM Peak Demands 3.45-4.45PM

The on-site observations show that the road network in this location works well, with minor delays at the roundabout of Metford Road and Chelmsford Drive. This roundabout was upgraded with a second circulating lane as part of the development of the Maitland Hospital.

High demands for left turns (northbound onto Metford Road) can see a queue in the left hand lane however this queue, typically due to the bunching of cars having turned into Chelmsford Drive from the signalised intersection with the New England Highway, moves with little delay for the majority of the time. Cars in this lane were observed to hold at Turton Street to avoid blocking the intersection, allowing vehicles to turn right into Turton Street with minimal delay.

During the afternoon, northbound queues on Metford Road were observed to extend at times back to the Chelmsford Drive roundabout. At the absolute peak (3.20-3.30PM) these queues reached between Raymond Terrace Road, past the hospital back to Chelmsford Drive. This impacted left turn traffic on Chelmsford Drive which in turn extended some 220 metres towards the New England Highway. This queue however continued to move with the signalised intersection at the highway controlling the flow of additional traffic.

When queues on Metford Road reach back to the Chelmsford Drive roundabout observations on site indicate that Turton Street is used as a cut through by local northbound traffic.

Whilst these queues create delays, vehicles continued to move forward and after 3.30PM the extent of queues past Turton Street were much less, mainly being groups of cars arriving together from the signalised intersection of the highway in the left hand lane, slowing to approach and negotiate the roundabout.

Accident History and Safety

A review of crash data shows there have been no accidents in the immediate vicinity of the subject site on Turton Street nor at the intersection of Turton Street and Chelmsford Drive over the 5 year reporting period (2019-2023). The road in this location is well laid out with good visibility and the channelised right turn lane assists with road safety.

Existing Site Demands

The subject site operates as a Mazda Service Centre with demands for both staff and service vehicle arrivals, pick up and drop off of people having left their cars for servicing and during the day test drives for vehicles having been serviced.

Traffic counts undertaken at the site access confirmed two way movements during the peak period to be 44vph (29 inbound and 15 outbound in the AM with the reverse in the PM).

Public Transport

Bus services operate along Metford Road and Chelmsford Drive providing a reasonably regular bus service through the day, however except for school buses no services operate along Turton Street.

There are no train services within the immediate vicinity with the closest station at East Maitland approximately 1.5 kms or so away from the subject site.

Given the nature of the development, public transport demands associated with the site are expected to be negligible.

Parking

On-street parking is available along the frontage to Turton Street. No parking is available along Chelmsford Drive.

Parking demands were noted during the site work with on street demands along the site frontage associated with both the subject site (staff parking) and the site opposite (mechanics business).

There is no public off-street parking provided within the immediate area.

Proposed Development

The proposed development allows for the demolition of the existing shed on the site and the construction of a new service station and ancillary car wash facility. The service station provides four bowsers while the car wash provides automatic bays, manual bays and a car vacuum station together with an office area for the staff on site and associated facilities. A dog wash area is to be provided adjacent to the parking spaces along the northern boundary.

Parking is provided for 14 vehicles, including an air and water fill space plus space at the four bowsers which could see eight cars able to fill and pay.

There is a single driveway allowing entry and exit from Turton Street with no access to Chelmsford Drive.

A concept plan for the proposed development is included in **Attachment A**.

Access

The existing access to the site will be upgraded to provide for entry and exit movements including the swept path of a fuel tanker. This driveway is located on the inside of a slight curve. There are no restrictions for vehicle movements at the current driveway. This will continue to allow for both left and right turn movements into and out of the site

On Turton Street, the posted speed limit is 50 km/h. Sight distance requirements for an access driveway are provided by Australian Standard AS2890.1:2004 Parking Facilities (Off-street Car Parking), which requires a minimum sight distance of 45 metres for this posted speed limit with a desirable sight distance of 69 metres.

Photo 1 –Forward visibility south along Turton Street for driver approaching the subject site

Photo 2 –Forward visibility north for driver approaching the subject site having turned into Turton Street

For drivers exiting the site onto Turton Street the sight distance of 70 metres is available, although this could potentially be impacted by parked vehicles along the site frontage as per the normal urban environment. Vehicles having turned into Turton Street from Chelmsford Drive were observed to be travelling at less than the posted speed limit. Observations of the existing driveway saw motorists edging forward to reconfirm visibility before turning onto Turton Street however the new driveway shall be wider and so assist with visibility.

Photo 3 – View to left for driver exiting the site on to Turton Street

Photo 4 – View to right for driver exiting the site onto Turton Street

The driveway shall allow for the swept path of a fuel tanker exceeding the required width of 6 metres for driveways under AS2890.1, for a car park with 25 -100 spaces accessed off a local or non-arterial road.

Whilst the DCP notes the need for a second driveway none has been included given the location of the site on the corner of Turton Street and Chelmsford Drive.

There are no pedestrian facilities in the area. Pedestrian demands are expected to be minimal and most likely less than existing pedestrian demands for the service centre which sees people walking to or from the site as part of their vehicle drop off/pick-up.

Parking

A total of 14 parking spaces are to be provided within the site. Of this one is an accessible space located adjacent to the entry to the convenience store/service station.

The Maitland City Council DCP 2011 provides the following parking guidelines for a service station:

6 spaces per work bay *plus*
1 space per 20m^2 GFA of convenience store *plus*
1 space per 6.5m^2 GFA or 1 space per 3 seats if a restaurant is provided WHICHEVER IS GREATER

There is no parking requirement for a car wash.

The proposed development does not include working bays nor a restaurant and so the parking demands would be 10 spaces based on the convenience store GFA of 200m^2.

For the four car wash bays, there is an area immediately behind these bays that allow for a car to wait before entering the wash bays, allowing for 4 more cars to park in this area. Behind this area, there is a further circulating driveway that could be used by drivers waiting to approach the car wash.

With the 4 car vacuum bays on site, there is a total capacity for 12 vehicles to be cleaned at the same time, 4 cars to be waiting behind the wash bays and 14 shared parking spaces to allow for people washing their dog, staff for the car wash etc. There is also space adjacent to each bowser to allow a motorist to fuel up and pay before leaving the site.

All general parking spaces within the carpark shall be designed in accordance with AS2890 for a Class 3 parking facility with spaces 2.6m wide by 5.4m long. Staff parking may be 2.4m wide.

Accessible parking shall be designed in accordance with AS2890.6 with spaces 2.4m wide and 5.4m long with a shared space adjacent the same size.

It is considered that the overall potential parking demand for the project can be contained on site. The provision of 14 parking spaces on site meets the DCP requirement for the service station and allows four additional spaces for the carwash.

Site Servicing

Servicing for the site will be fuel deliveries (19m fuel tanker), occasional product deliveries, equipment maintenance and waste collection.

A loading bay is provided adjacent to the building to provide for deliveries and waste storage and collection.

All service vehicles will be able to enter and exit the site in a forward direction.

Swept paths demonstrating the fuel tanker movement are included in Attachment A.

Traffic Analysis

Traffic Generation

Service Station

The Guide to Transport Impact Assessments published by Transport for NSW provides the following rates for a petrol station.

AM peak hour (AM)	(AM) = 0.2815(N)2 + 14.047(N) + 16.715 (R2 = 0.80)
PM peak hour (PM)	(PM) = 0.0205(S) + 88.52 (R2 = 0.84)

Where (S) refers to the total site area in square metres and (N) refers to the number of service channels.

AM = $(0.2815 \times 8^2) + 14.047 \times 8 + 16.715$

AM = 147

PM = 0.0205 x 2665 +88.52

PM = 143

The service station site is approximately 2665m^2 not including the area to the rear associated with the car wash. The service station would generate in the order of **147 trips in the AM (74 inbound and 73 outbound).and 143 trips in the PM peak hour (72 inbound and 71 outbound).**

The service station is expected to primarily provide for passing trade given the high volume of existing traffic passing on Chelmsford Drive (two way 2100-2260vph) or in turn Metford Road. Service stations typically appeal to motorists passing who can turn left into a site and often continue their journey turning left out of the site. Given the location it is unlikely to see any regular demand for motorists to turn off the New England Highway with petrol stations on the highway west of the site more likely to appeal for most of these demands for traffic travelling through the vicinity. The service station is therefore expected to see motorists divert (left turn off Chelmsford Drive) to enter the site and then either continue their journey north along Turton Street to connect with Fieldsend Street and Metford Road or for those with a destination to the east these vehicles will exit the site (right turn out) and turn left to continue their journey on Chelmsford Drive. For motorists with an origin to the north of the site these are likely to divert north of the site and approach along Turton Street from the north. They will then reconnect with Chelmsford Drive (left turn) to undertake a U-turn at the roundabout with Metford Road to then continue their journey either east or west towards the New England Highway. Motorists with an origin from the east approaching westbound may divert onto Metford Road to use a service station on the left hand side of Metford Road or may join the New England Highway as part of their journey and divert to one of a number of petrol stations on the left hand side of the highway.

Car Wash

There are no rates provided in the Guide to Transport Impact Assessment published by Transport for NSW for car washes of this type. However, in 2019 TfNSW commissioned surveys of car washes with associated cafes to determine the potential traffic demands generated by these types of facilities. The surveys showed a wide range of potential traffic demands, with an average of around 5 vehicles per hour per wash bay seen for the various sites over the survey periods.

Taking this average value, for the proposed development site with 5 bays in total (not including the vacuum bays but including the dog wash) this could see 25 vehicles per hour accessing the site, being 25 inbound and 25 outbound. This is considered to be an appropriate peak rate given:

- The proposed development does not include a café and as such all cleaning of the cars shall be completed by the vehicle occupants
- There could be a significant overlap in users between the car wash bays and the car vacuum bays, with owners of cars looking to clean both the outside and inside of their car during the site visit reflected in these traffic demands
- The site is located on a busy road and as such the extent of passing trade to the car wash and link trips to the petrol station could be relatively high.

A review of Google Popular Times for local car washes confirms that car washes typically have their busiest times of a Friday – Sunday with Friday peak demands being in the middle of the day and so not coinciding with the local road peaks. In this way these peak traffic demands for the car wash, whilst reflecting peak site demands and adding to daily demands would be considered excessive during the local road peak hour. A network peak hour rate half this (12 vehicles per hour) has therefore been applied to this project.

Existing Site Demands

Allowing for the site's existing operation as a Mazda car service centre the site was surveyed as generating 44 trips two way in the AM peak (10 from the north and 19 from the south with outbound flows evenly split in each direction) and similar demands in the PM peak.

Table 1 Network Peak Traffic Generation

	AM Inbound	AM outbound	PM Inbound	PM Outbound
Service Station	74	73	72	71
Car wash	11	12	12	12
Less Existing Site	-29	-15	-15	-29
TOTAL	**56**	**70**	**69**	**54**

Traffic Distribution

All traffic shall enter the site off Turton Street approaching from the north (Metford Road and/or Fieldsend Street) or south from Chelmsford Drive.

Based on the traffic surveys and the location of the site relative to the local residential areas and the nearby Maitland Hospital, it is considered that the traffic demands could be distributed 40% to/from the north and 60% to/from the south as outline above.

All service station demands are considered diverted trips whilst the car wash, whilst ancillary, has been assessed as additional trips to the road network.

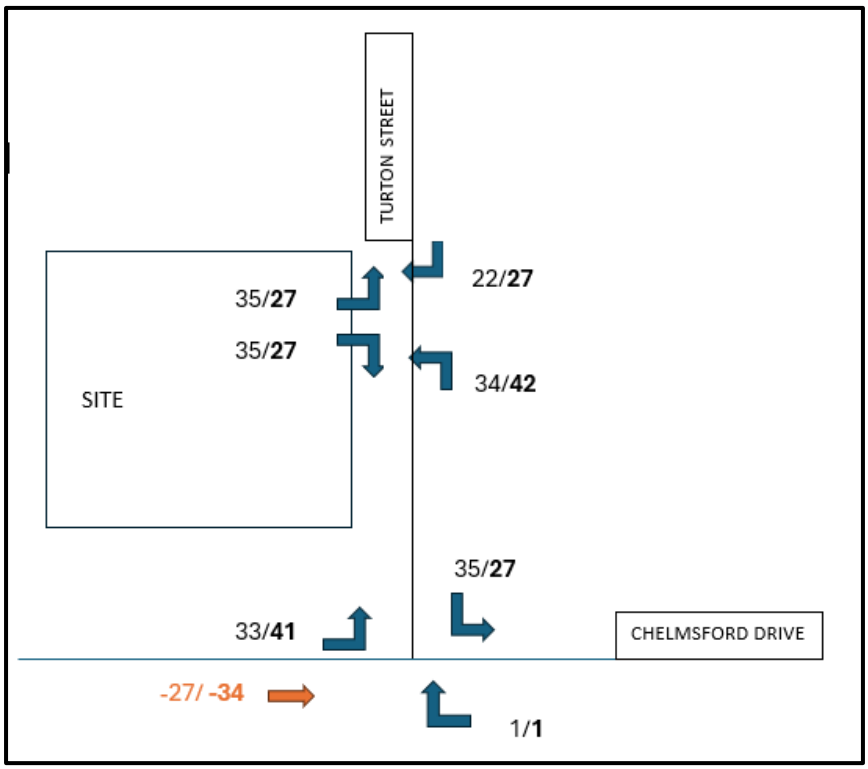


*Figure 4 Distribution of additional traffic in AM / **PM***

Impact of additional Traffic Flows

The site could generate in the order of 126 extra vehicle trips per hour, with 56 inbound and 70 outbound with PM flows less (123 vph). The vast majority of this is diverted trips off Chelmsford Drive to the immediate south or from Metford Road and Fieldson Street from the north. Allowing for the existing use on the site as a car service centre, it is considered that the extent of additional traffic generated by the project is negligible being primarily the car wash. The survey data collected as part of the TfNSW data set confirms Google Popular Times outputs which shows that the peaks typically occur outside of the peaks on the road network and weekends are typically busier than the weekdays.

Diverted trips may see a slight reduction in traffic demands on Metford Road with an equivalent increase on Turton Street. Turton Street is currently well within its capacity as an urban road with 2-way traffic flows in the order of 210 vehicles per hour. With these increasing by 54 vph north of the site access, it can be seen that the hourly flow on this road would remain below 380 vehicles per hour, well within the capacity of the road and maintaining the existing level of service.

Demands for diverted trips from the New England Highway are considered to be minimal given opportunities for service stations along this route. There is therefore minimal increase in traffic on Chelmsford Drive. The diverted trips may improve queues given reduced traffic along Metford Road.

As such the project shall have a low and acceptable impact on the local road network during the morning and afternoon peak periods. Outside of these peaks when the traffic flow on the local road network is lower, with surrounding businesses closed, the impact of additional trips associated with the carwash will also be acceptable.

Peak Hour Impact on Intersections

Observations on site, undertaken by Seca Solution as part of this project work, show that the roundabout controlled intersection of Metford Road and Chelmsford Drive currently operates to a reasonable standard with generally low delays / queues for traffic on the approach from Metford Road and the New England Highway. As outlined above queues on Metford Road can impact Chelmsford Drive for short periods of time however these were noted as clearing by 3.30pm which did not coincide with the road peak. Diverted northbound trips associated with the project will remove some of these traffic demands.

Traffic surveys were undertaken at the intersection of Chelmsford Drive and Turton Street. Observations showed that this intersection operates well with delays for right turns into Turton Street reduced given approaching traffic avoids blocking the intersection, allowing for the low number of right turns to occur.

SIDRA intersection modelling demonstrates that the intersection will have little, if any, noticeable impact on Level of Service due to the proposed development, capacity on lane approaches to the intersection, queue lengths or delays.

Applying 10 years growth to existing traffic elevates the delay for the right turn from Chelmsford Drive into Turton Street to LoS “E” which is caused by an increase in the delay for that movement to 42.9 seconds in the 2035 PM peak, however, the queue length is contained within the right turn lane being a distance of 7.1 metres within an available 20 metre right turn bay (not including the approach taper).

This increase in delay would occur with or without the development traffic being added (the delay without the development would be 42.8 seconds and a queue length of 6.9 metres). This scenario is included in the SIDRA output report in Attachment “B” (SIDRA scenario “7 Chelmsford Dr & Turton St – Metford PM Peak Existing+Growth”, which shows how the intersection would perform without the development but adding 10 years growth of 2% per annum on all approaches).

The SIDRA results for the AM and PM peak periods which analyse the existing traffic, existing traffic plus development and the existing traffic plus growth plus development are summarised in the tables below.

The intersection geometry analysed in SIDRA is shown below in Figure 3.

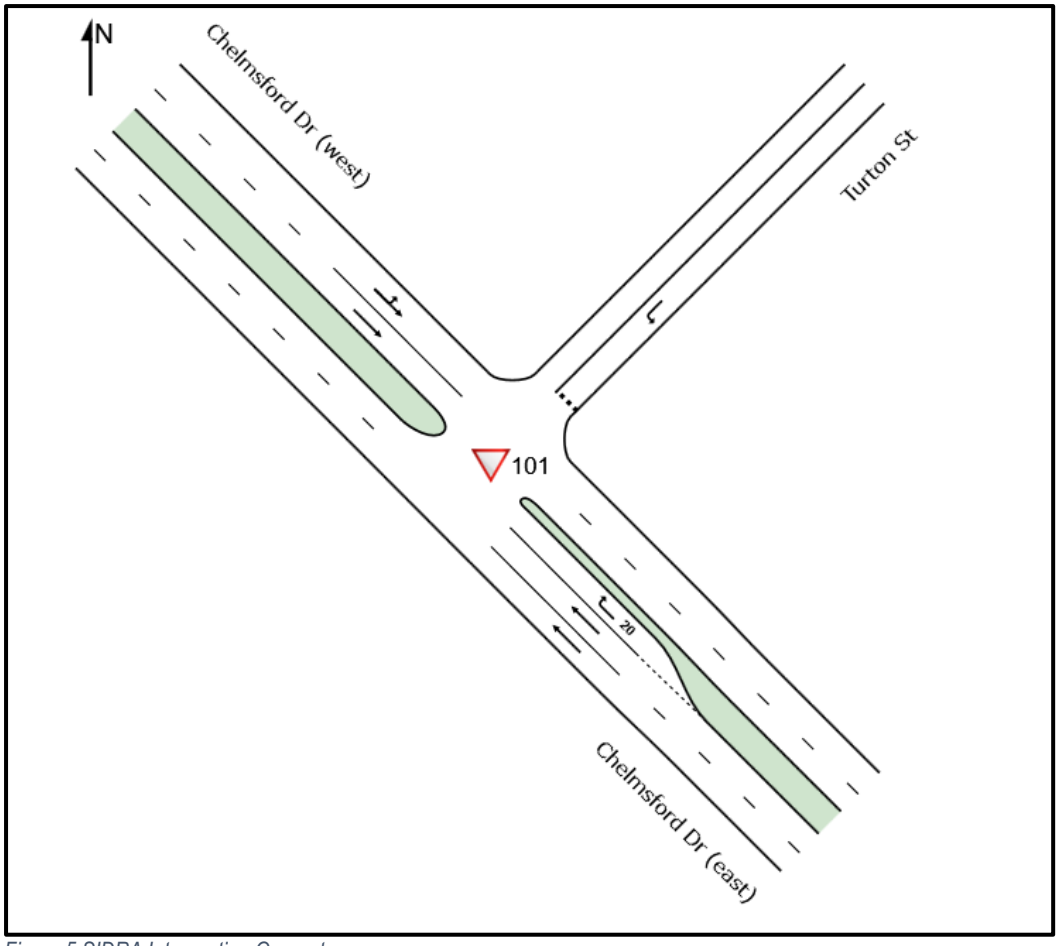


Figure 5 SIDRA Intersection Geometry

Table 1 summarises the existing SIDRA analysis of the intersection of Chelmsford Drive and Turton Street of the highest Degree of Saturation and associated highest delay for each approach for the following scenarios:

- Tuesday 18 February 2025 8:00 AM – 9:00 AM (Peak) – existing traffic
- Tuesday 18 February 2025 8:00 AM – 9:00 AM (Peak) – existing traffic + DEVELOPMENT
- Tuesday 18 February 2025 8:00 AM – 9:00 AM (Peak) – existing traffic + 10 YEARS GROWTH + DEVELOPMENT

Table 2 SIDRA analysis –priority controlled intersection of Chelmsford Drive/Turton Street – AM – Existing/Existing + Development/Existing + Growth + Development

Approach	Worst movement	Degree of saturation	Average delay (seconds)	LoS	95% Queue (metres)
Chelmsford Dr (east)	**Right turn**	0.133/ 0.137/ 0.257	14.5 / 14.6/22.9	B/ B / C	3.2 / 3.3/6.0
Turton St (NB – No Right Turn)	Left turn	0.140 / 0.195/ 0.282	9.7 / 9.4/ 12.3	A / A/B	3.4 / 4.9 / 7.6
Chelmsford Dr (west)	Left turn	0.395/ 0.398/ 0.475	4.7 / 4.7/4.7	A / A /A	0.0 / 0.0 / 0.0

The existing intersection, with existing AM , Existing AM plus development and Existing AM plus 10 years Growth plus Development, is operating well, and will continue to operate at good Level of Service, spare capacity and with acceptable delays during the peak periods assessed.

Table 2 summarises the existing SIDRA analysis of the intersection of Chelmsford Drive and Turton Street of the highest Degree of Saturation and associated highest delay for each approach for the following scenarios:

- Tuesday 18 February 2025 3:45 PM – 4:45 PM (Peak) – existing traffic
- Tuesday 18 February 2025 3:45 PM – 4:45 PM (Peak) – existing traffic + DEVELOPMENT
- Tuesday 18 February 2025 3:45 PM – 4:45 PM (Peak) – existing traffic + 10 YEARS GROWTH + DEVELOPMENT

Table 2 SIDRA analysis –priority controlled intersection of Chelmsford Drive/Turton Street – PM – Existing/Existing + Development/Existing + Growth + Development

Approach	Worst movement	Degree of saturation	Average delay (seconds)	LoS	95% Queue (metres)
Chelmsford Dr (east)	Right turn	0.139/ 0.146/ 0.343	20.6 / 14.6/42.9	C/ C/ E	3.0 / 3.2 /7.1
Turton St (NB – No Right Turn)	Left turn	0.229 / 0.278 / 0.474	13.9 / 13.3 / 21.4	B / B /C	5.6 / 7.3 / 13.1
Chelmsford Dr (west)	Left turn	0.484/ 0.487 /0.581	4.7 / 4.7/4.7	A / A /A	0.0 / 0.0 / 0.0

The existing intersection, with existing PM flows, Existing PM plus development, is operating, and will continue to operate at good Level of Service, spare capacity and with acceptable delays during the peak periods assessed.

The right turn from Chelmsford Drive (east) into Turton Street has increased delay which lowers the Level of Service, for that approach only, to Level of Service "E" (note that the queue length of 7.1 metres is contained within the 20-metre-long right turn lane). A separate analysis "7 Chelmsford Dr & Turton St - Metford PM Peak EXISTING+GROWTH", which applies 10 years growth to the existing traffic (the development is not added) shows that this performance is virtually identical to that when the development traffic is added as included in the SIDRA model "6 Chelmsford Dr & Turton St - Metford PM Peak EXISTING+GROWTH+DEV" (i.e. the development will not aggravate the performance of this approach).

Queuing at Site Access

The driveway onto Turton Street is located in the same position as the existing site access however has been designed to allow for the swept path of a 19m semi-trailer (fuel tanker). It will allow for the two-way movement of vehicles into and out of the site.

Turton Street provides a width in the order of 12m being an industrial road which allows for the two-way movement of vehicles as well as on street parking.

Observations on site show that the site access can operate with minimal delays. Left turning vehicles will have free flow into the site whilst right turning vehicles may prop to then make this entry movement. Forward visibility towards the entry southbound ensures that a vehicle travelling along Turton Street can anticipate a right turning vehicle and adjust its speed whist that vehicle completes its turn. In this way the access shall operate in a manner consistent with all driveways into the various sites along this length of road. Given the very low traffic flows in this location there will be minimal queues / delays for traffic entering or exiting the site.

Conclusion

Overall, the proposed service station and ancillary car wash will have a minimal and acceptable impact upon traffic in the local area with no impediment to approval.

The majority of the traffic will be on the local road network passing the site on Chelmsford Drive and turning left into Turton Street or diverting from Metford Road north of the site.

Traffic diverted onto Turton Street, given the low traffic demands along this road, shall be acceptable with this road remaining within its operational capacity. The impact on the operation of the various intersections will also be minimal given that the service station traffic is already within the local road network using these intersections and only the car wash traffic (site peak being outside the local road peak) shall add to the local traffic demands. The site currently operates as a Mazda car service centre and so currently generates site specific traffic demands in the area. The impact of the diverted traffic shall also see lower through traffic on Metford Road.

Parking has been assessed applying the Maitland DCP parking rates and the provision of 14 parking spaces exceeds the DCP requirement ensuring parking for the car wash with no impact on the local roads. This shall be an improvement over the existing situation where staff currently park along the site frontage.

The access to the site has been modified to allow for the swept path of a fuel tanker and shall allow for all turning movements in a manner consistent with other driveways along Turton Street.

Site servicing by a fuel tanker can be accommodated on site allowing for the vehicle to enter and exit in a forward direction turning left in and left out onto Turton Street. There is a loading bay adjacent to the convenience store to provide for waste collection and deliveries enabling trucks to manoeuvre within the site and exit in a forward direction.

Overall, it is concluded that the project should be approved on traffic and parking grounds.

Please feel free to contact our office on 4032 7979 should you require any additional information.

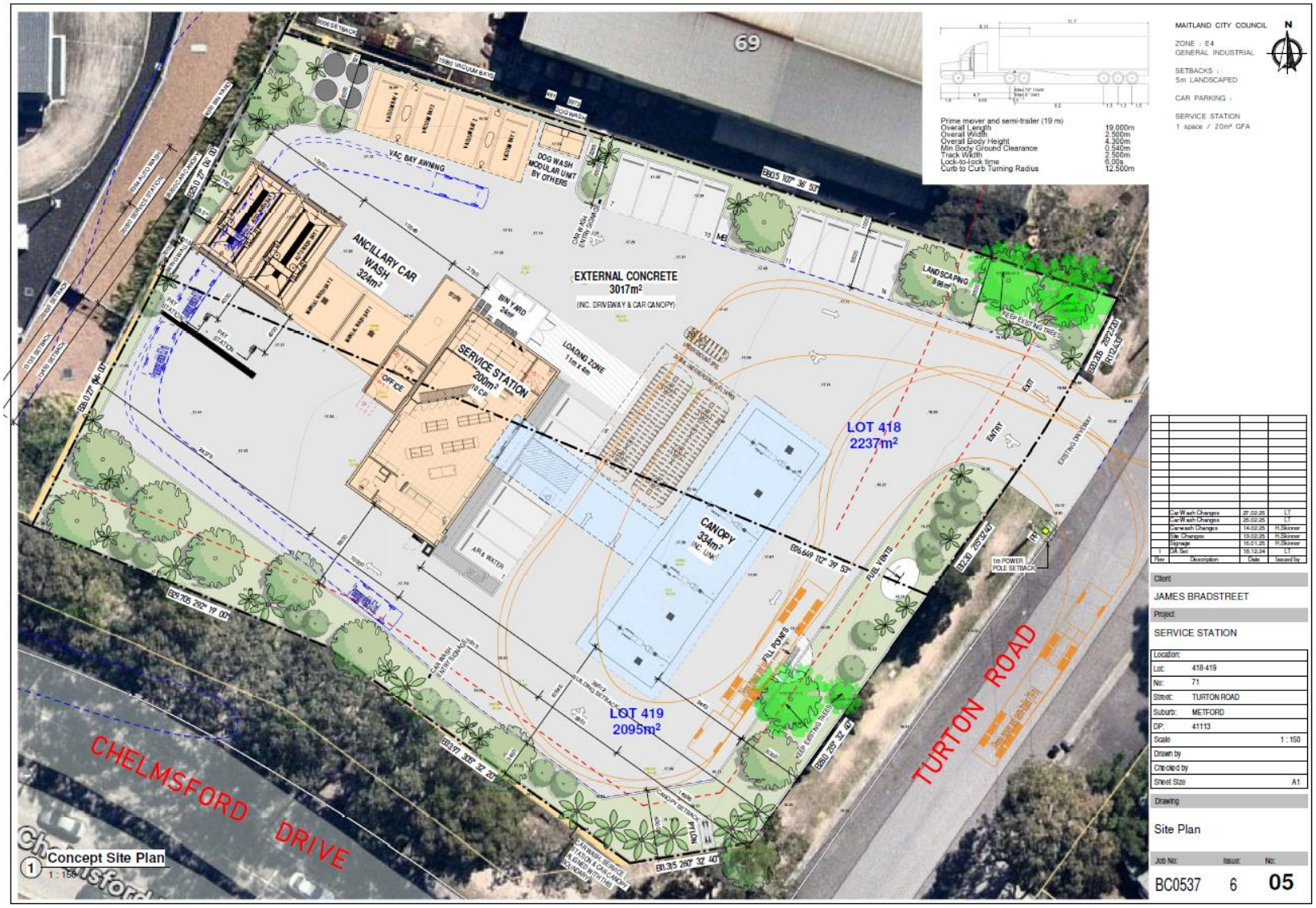
Yours sincerely,

Cathy Thomas

Director

Version	Date	Description	Prepared by	Reviewed for Issue
Ver01	20/2/2025	Draft	C. Thomas/F.Iacono	S. Morgan
Ver02	10/3/2025	Final	C.Thomas/F.Iacono	S.Morgan

Attachment A: Site Plan



Criteria for interpreting SIDRA Results

1-Level of Service (LoS)

LoS	Traffic Signals and Roundabouts	Give Way and Stop Signs
A	Good	Good
B	Good, with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	Satisfactory	Satisfactory, but requires accident study
D	Operating near capacity	Near capacity and requires accident study
E	At capacity, excessive delay: roundabout requires other control method	At capacity, requires other control mode
F	Unsatisfactory, requires other control mode or additional capacity	Unsatisfactory, requires other control mode

2-Average Vehicle Delay (AVD)

The AVD is a measure of operational performance of an intersection relating to its LoS. The average delay should be taken as a guide only for an average intersection. Longer delays may be tolerated at some intersections where delays are expected by motorists (e.g. those in inner city areas or major arterial roads).

LoS	Average Delay / Vehicle (secs)	Traffic Signals and Roundabouts	Give Way and Stop Signs
A	Less than 15	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	28 to 42	Satisfactory	Satisfactory but accident study required
D	42 to 56	Operating near capacity	Near capacity, accident study required
E	56 to 70	At capacity, excessive delays: roundabout requires other control mode	At capacity; requires other control mode
F	Exceeding 70	Unsatisfactory, requires additional capacity	Unsatisfactory, requires other control mode

3-Degree of Saturation (D/S)

The D/S of an intersection is usually taken as the highest ratio of traffic volumes on an approach to an intersection compared with the theoretical capacity, and is a measure of the utilisation of available green time. For intersections controlled by traffic signals, both queues and delays increase rapidly as DS approaches 1.0. An intersection operates satisfactorily when its D/S is kept below 0.75. When D/S exceeds 0.9, queues are expected.

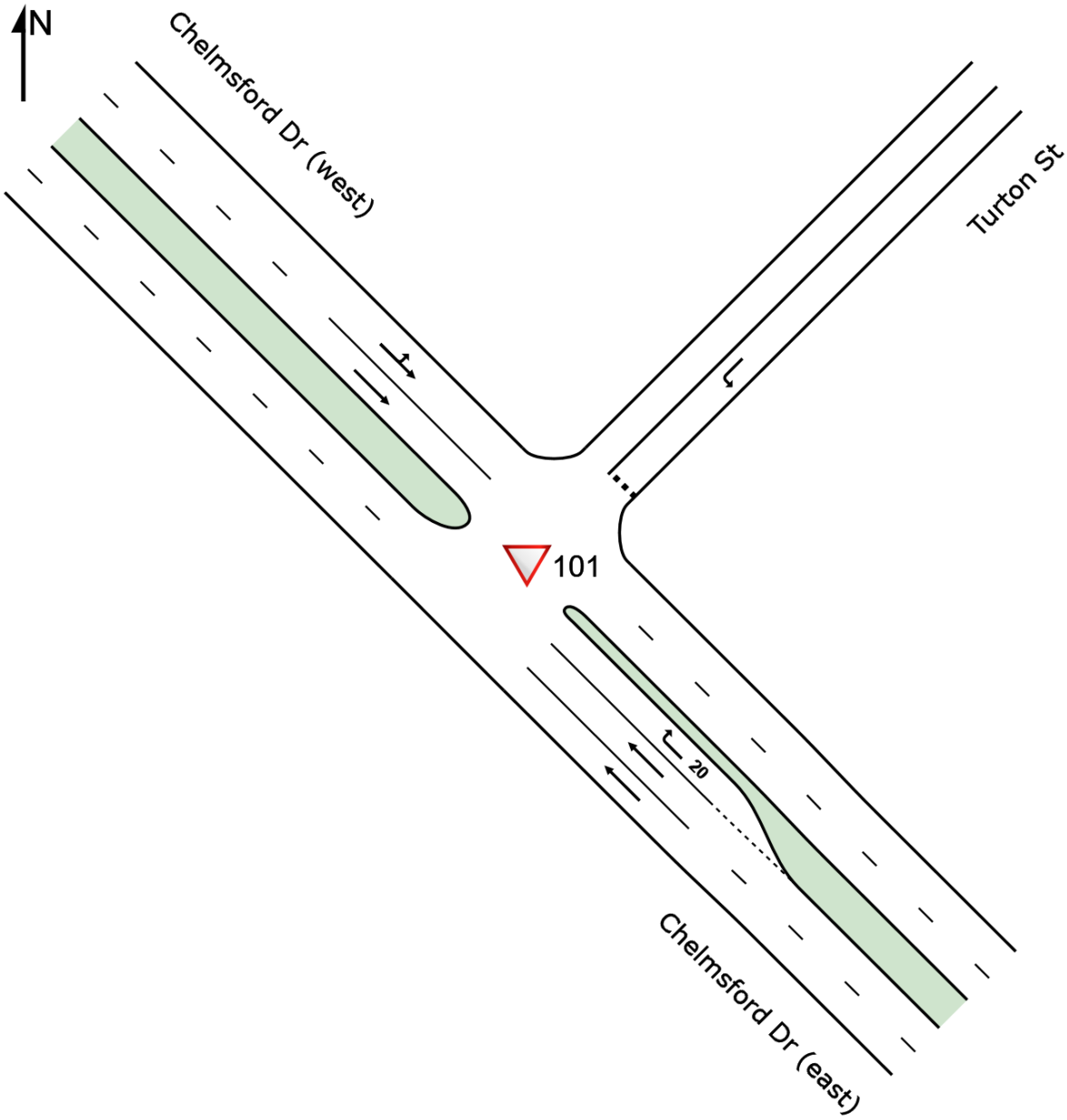
SITE LAYOUT

ATTACHMENT "B"

Site: 101 [1 Chelmsford Dr & Turton St - Metford AM Peak EXISTING (Site Folder: General)]

AM Peak - Tuesday 18-2-2025 8:00-9:00 AM
Existing Traffic
Site Category: Existing Design
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



INPUT VOLUMES

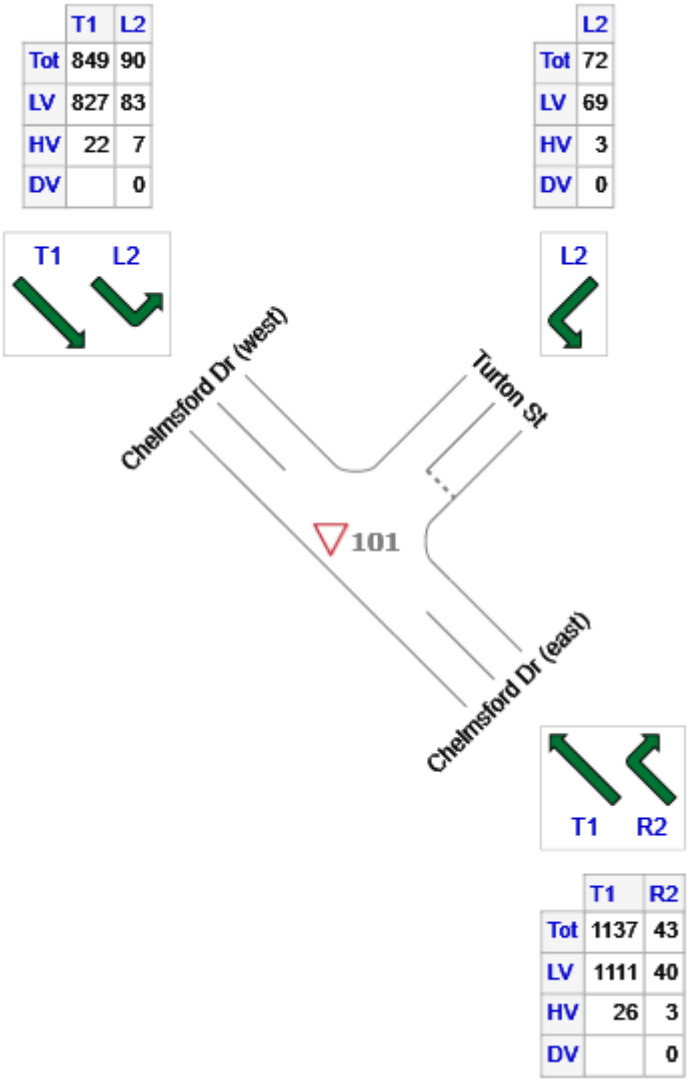
ATTACHMENT "B"

Vehicles and pedestrians per 60 minutes

Site: 101 [1 Chelmsford Dr & Turton St - Metford AM Peak EXISTING (Site Folder: General)]

AM Peak - Tuesday 18-2-2025 8:00-9:00 AM
Existing Traffic
Site Category: Existing Design
Give-Way (Two-Way)

Volume Display Method: Separate



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development (DV)
SE: Chelmsford Dr (east)	1180	1151	29	0
NE: Turton St	72	69	3	0
NW: Chelmsford Dr (west)	939	910	29	0
Total	2191	2130	61	0

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Created: Thursday, 20 February 2025 8:36:18 PM
Project: D:\Seca Planning Consultants\P3130 Turton St & Chelmsford Dr Metford\SIDRA\P3130-Turton St & Chelmsford Dr Metford.sip9

MOVEMENT SUMMARY

ATTACHMENT "B"

Site: 101 [1 Chelmsford Dr & Turton St - Metford AM Peak EXISTING (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

AM Peak - Tuesday 18-2-2025 8:00-9:00 AM
Existing Traffic
Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
SouthEast: Chelmsford Dr (east)															
22	T1	All MCs	1197	2.3	1197	2.3	0.311	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
23	R2	All MCs	45	7.0	45	7.0	0.133	14.5	LOS B	0.4	3.2	0.77	0.90	0.77	35.6
Approach			1242	2.5	1242	2.5	0.311	0.5	NA	0.4	3.2	0.03	0.03	0.03	48.6
NorthEast: Turton St															
24	L2	All MCs	76	4.2	76	4.2	0.140	9.7	LOS A	0.5	3.4	0.62	0.82	0.62	39.1
Approach			76	4.2	76	4.2	0.140	9.7	LOS A	0.5	3.4	0.62	0.82	0.62	39.1
NorthWest: Chelmsford Dr (west)															
27	L2	All MCs	95	7.8	95	7.8	0.395	4.7	LOS A	0.0	0.0	0.00	0.06	0.00	47.6
28	T1	All MCs	894	2.6	894	2.6	0.395	0.1	LOS A	0.0	0.0	0.00	0.05	0.00	49.0
Approach			988	3.1	988	3.1	0.395	0.5	NA	0.0	0.0	0.00	0.05	0.00	48.7
All Vehicles			2306	2.8	2306	2.8	0.395	0.8	NA	0.5	3.4	0.04	0.07	0.04	48.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Thursday, 20 February 2025 7:45:29 PM
Project: D:\Seca Planning Consultants\P3130 Turton St & Chelmsford Dr Metford\SIDRA\P3130-Turton St & Chelmsford Dr Metford.sip9

INPUT VOLUMES

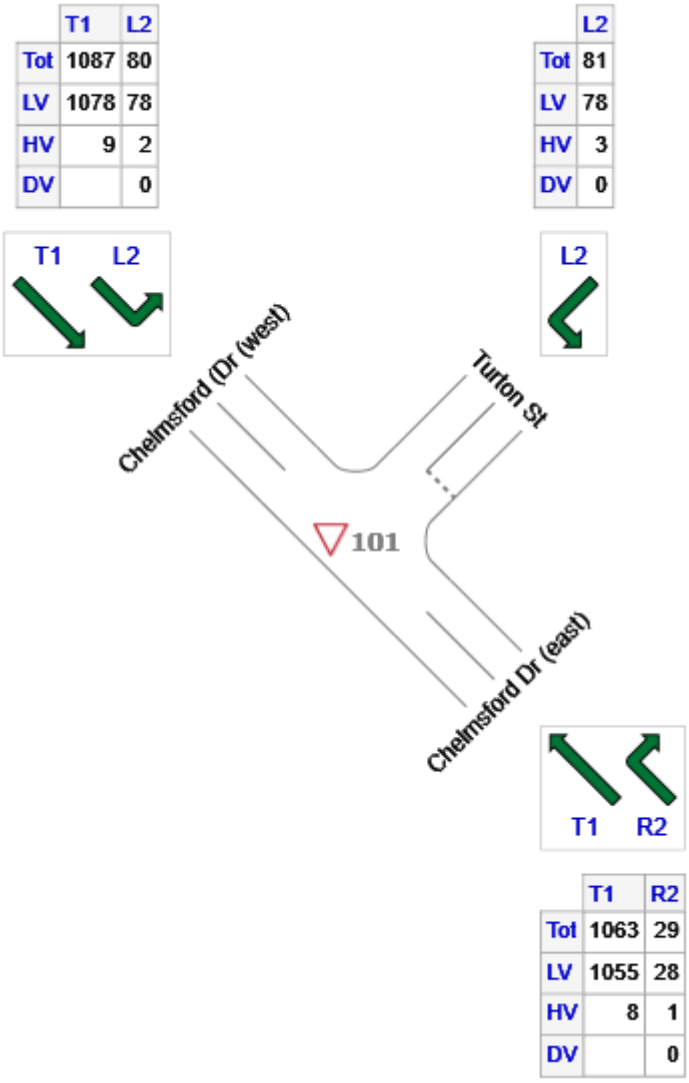
ATTACHMENT "B"

Vehicles and pedestrians per 60 minutes

Site: 101 [2 Chelmsford Dr & Turton St - Metford PM Peak EXISTING (Site Folder: General)]

AM Peak - Tuesday 18-2-2025 3:45-4:45 PM
Existing Traffic
Site Category: Existing Design
Give-Way (Two-Way)

Volume Display Method: Separate



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development (DV)
SE: Chelmsford Dr (east)	1092	1083	9	0
NE: Turton St	81	78	3	0
NW: Chelmsford (Dr (west)	1167	1156	11	0
Total	2340	2317	23	0

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Created: Thursday, 20 February 2025 8:40:06 PM
Project: D:\Seca Planning Consultants\P3130 Turton St & Chelmsford Dr Metford\SIDRA\P3130-Turton St & Chelmsford Dr Metford.sip9

MOVEMENT SUMMARY

ATTACHMENT "B"

Site: 101 [2 Chelmsford Dr & Turton St - Metford PM Peak EXISTING (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

AM Peak - Tuesday 18-2-2025 3:45-4:45 PM
Existing Traffic
Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
SouthEast: Chelmsford Dr (east)															
22	T1	All MCs	1119	0.8	1119	0.8	0.288	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
23	R2	All MCs	31	3.4	31	3.4	0.139	20.6	LOS C	0.4	3.0	0.86	0.94	0.86	32.3
Approach			1149	0.8	1149	0.8	0.288	0.6	NA	0.4	3.0	0.02	0.02	0.02	48.6
NorthEast: Turton St															
24	L2	All MCs	85	3.7	85	3.7	0.229	13.9	LOS B	0.8	5.6	0.76	0.91	0.83	36.3
Approach			85	3.7	85	3.7	0.229	13.9	LOS B	0.8	5.6	0.76	0.91	0.83	36.3
NorthWest: Chelmsford (Dr (west)															
27	L2	All MCs	84	2.5	84	2.5	0.484	4.7	LOS A	0.0	0.0	0.00	0.05	0.00	47.7
28	T1	All MCs	1144	0.8	1144	0.8	0.484	0.1	LOS A	0.0	0.0	0.00	0.04	0.00	49.1
Approach			1228	0.9	1228	0.9	0.484	0.4	NA	0.0	0.0	0.00	0.04	0.00	48.9
All Vehicles			2463	1.0	2463	1.0	0.484	0.9	NA	0.8	5.6	0.04	0.06	0.04	47.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Thursday, 20 February 2025 7:45:30 PM
Project: D:\Seca Planning Consultants\P3130 Turton St & Chelmsford Dr Metford\SIDRA\P3130-Turton St & Chelmsford Dr Metford.sip9

INPUT VOLUMES

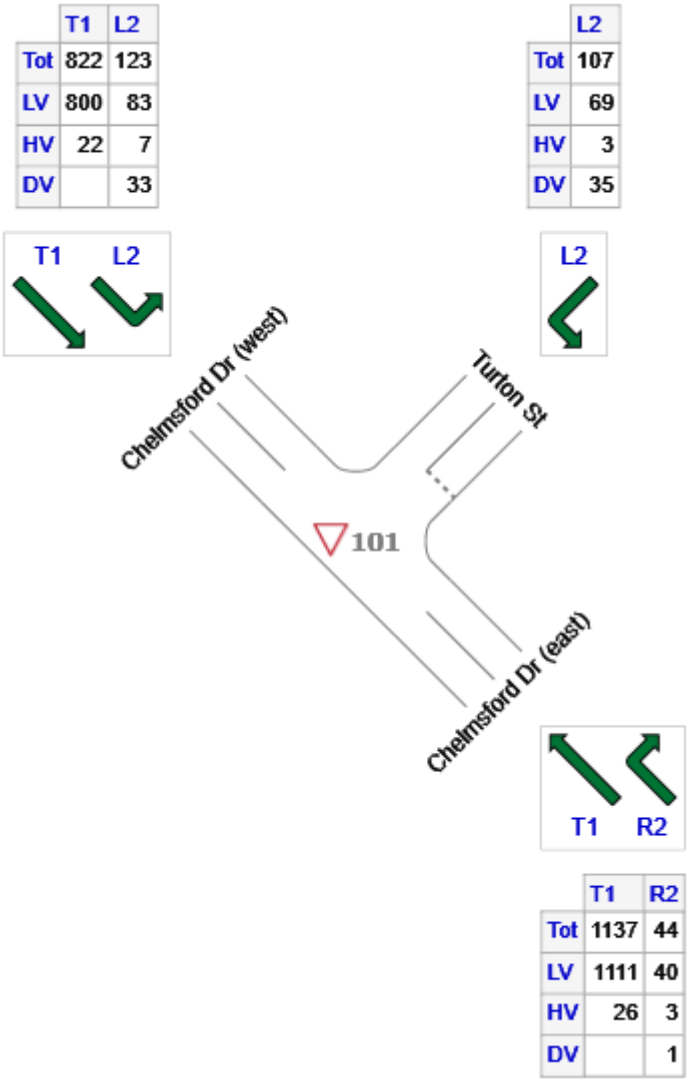
ATTACHMENT "B"

Vehicles and pedestrians per 60 minutes

Site: 101 [3 Chelmsford Dr & Turton St - Metford AM Peak EXISTING+DEV (Site Folder: General)]

AM Peak - Tuesday 18-2-2025 8:00-9:00 AM
Existing Traffic PLUS DEVELOPMENT TRAFFIC
Site Category: Existing Design
Give-Way (Two-Way)

Volume Display Method: Separate



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development (DV)
SE: Chelmsford Dr (east)	1181	1151	29	1
NE: Turton St	107	69	3	35
NW: Chelmsford Dr (west)	945	883	29	33
Total	2233	2103	61	69

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Created: Thursday, 20 February 2025 8:41:34 PM
Project: D:\Seca Planning Consultants\P3130 Turton St & Chelmsford Dr Metford\SIDRA\P3130-Turton St & Chelmsford Dr Metford.sip9

MOVEMENT SUMMARY

ATTACHMENT "B"

Site: 101 [3 Chelmsford Dr & Turton St - Metford AM Peak EXISTING+DEV (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

AM Peak - Tuesday 18-2-2025 8:00-9:00 AM
Existing Traffic PLUS DEVELOPMENT TRAFFIC
Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
SouthEast: Chelmsford Dr (east)															
22	T1	All MCs	1197	2.3	1197	2.3	0.311	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
23	R2	All MCs	46	6.8	46	6.8	0.137	14.6	LOS B	0.4	3.3	0.77	0.90	0.77	35.5
Approach			1243	2.5	1243	2.5	0.311	0.6	NA	0.4	3.3	0.03	0.03	0.03	48.6
NorthEast: Turton St															
24	L2	All MCs	113	2.8	113	2.8	0.195	9.4	LOS A	0.7	4.9	0.61	0.81	0.61	39.4
Approach			113	2.8	113	2.8	0.195	9.4	LOS A	0.7	4.9	0.61	0.81	0.61	39.4
NorthWest: Chelmsford Dr (west)															
27	L2	All MCs	129	5.7	129	5.7	0.398	4.7	LOS A	0.0	0.0	0.00	0.09	0.00	47.5
28	T1	All MCs	865	2.7	865	2.7	0.398	0.1	LOS A	0.0	0.0	0.00	0.07	0.00	48.7
Approach			995	3.1	995	3.1	0.398	0.7	NA	0.0	0.0	0.00	0.07	0.00	48.4
All Vehicles			2351	2.7	2351	2.7	0.398	1.0	NA	0.7	4.9	0.04	0.09	0.04	47.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Thursday, 20 February 2025 7:45:30 PM
Project: D:\Seca Planning Consultants\P3130 Turton St & Chelmsford Dr Metford\SIDRA\P3130-Turton St & Chelmsford Dr Metford.sip9

INPUT VOLUMES

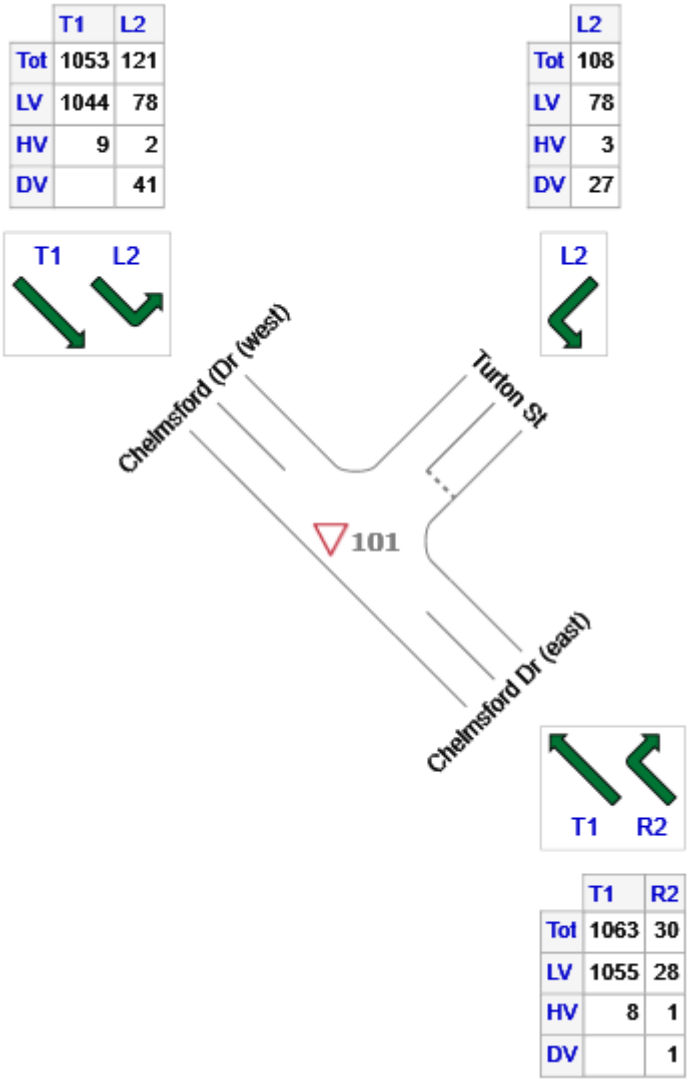
ATTACHMENT "B"

Vehicles and pedestrians per 60 minutes

Site: 101 [4 Chelmsford Dr & Turton St - Metford PM Peak EXISTING+DEV (Site Folder: General)]

AM Peak - Tuesday 18-2-2025 3:45-4:45 PM
Existing Traffic PLUS DEVELOPMENT TRAFFIC
Site Category: Existing Design
Give-Way (Two-Way)

Volume Display Method: Separate



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development (DV)
SE: Chelmsford Dr (east)	1093	1083	9	1
NE: Turton St	108	78	3	27
NW: Chelmsford (Dr (west)	1174	1122	11	41
Total	2375	2283	23	69

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Created: Thursday, 20 February 2025 8:42:49 PM
Project: D:\Seca Planning Consultants\P3130 Turton St & Chelmsford Dr Metford\SIDRA\P3130-Turton St & Chelmsford Dr Metford.sip9

MOVEMENT SUMMARY

ATTACHMENT "B"

Site: 101 [4 Chelmsford Dr & Turton St - Metford PM Peak EXISTING+DEV (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

AM Peak - Tuesday 18-2-2025 3:45-4:45 PM
Existing Traffic PLUS DEVELOPMENT TRAFFIC
Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
SouthEast: Chelmsford Dr (east)															
22	T1	All MCs	1119	0.8	1119	0.8	0.288	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
23	R2	All MCs	32	3.3	32	3.3	0.146	20.9	LOS C	0.4	3.2	0.86	0.94	0.86	32.2
Approach			1151	0.8	1151	0.8	0.288	0.6	NA	0.4	3.2	0.02	0.03	0.02	48.6
NorthEast: Turton St															
24	L2	All MCs	114	2.8	114	2.8	0.278	13.3	LOS B	1.0	7.3	0.75	0.92	0.87	36.7
Approach			114	2.8	114	2.8	0.278	13.3	LOS B	1.0	7.3	0.75	0.92	0.87	36.7
NorthWest: Chelmsford (Dr (west)															
27	L2	All MCs	127	1.7	127	1.7	0.487	4.7	LOS A	0.0	0.0	0.00	0.07	0.00	47.6
28	T1	All MCs	1108	0.9	1108	0.9	0.487	0.1	LOS A	0.0	0.0	0.00	0.05	0.00	48.8
Approach			1236	0.9	1236	0.9	0.487	0.6	NA	0.0	0.0	0.00	0.06	0.00	48.6
All Vehicles			2500	1.0	2500	1.0	0.487	1.2	NA	1.0	7.3	0.04	0.08	0.05	47.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Thursday, 20 February 2025 7:45:31 PM
Project: D:\Seca Planning Consultants\P3130 Turton St & Chelmsford Dr Metford\SIDRA\P3130-Turton St & Chelmsford Dr Metford.sip9

INPUT VOLUMES

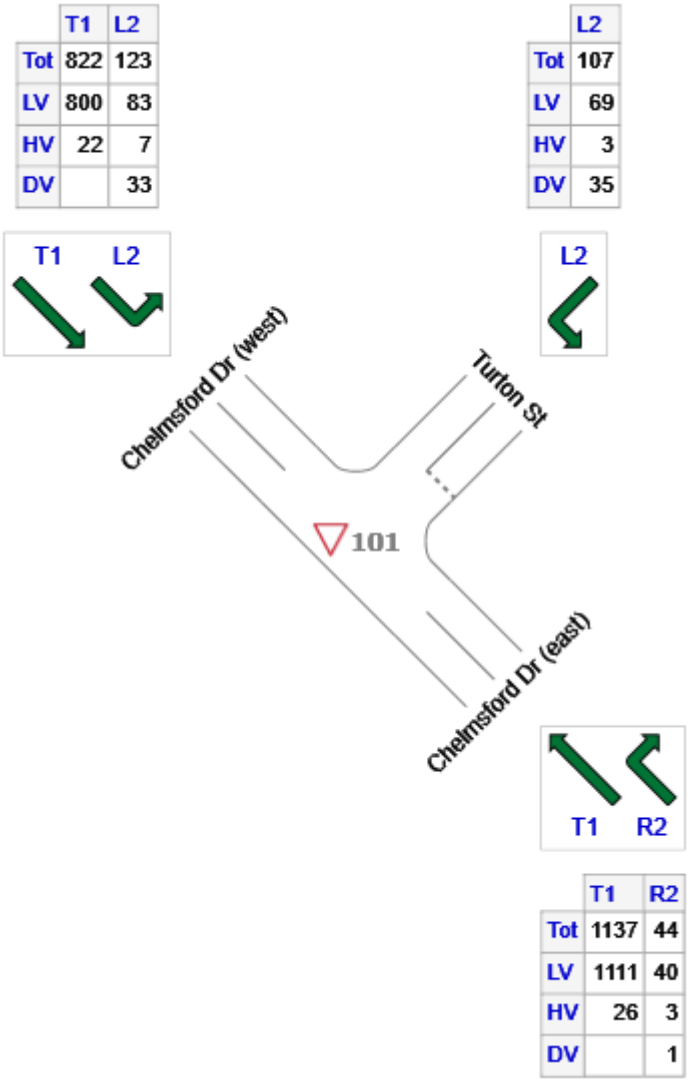
ATTACHMENT "B"

Vehicles and pedestrians per 60 minutes

Site: 101 [5 Chelmsford Dr & Turton St - Metford AM Peak EXISTING+GROWTH+DEV (Site Folder: General)]

AM Peak - Tuesday 18-2-2025 8:00-9:00 AM
Existing Traffic PLUS GROWTH PLUS DEVELOPMENT TRAFFIC
Site Category: Existing Design
Give-Way (Two-Way)

Volume Display Method: Separate



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development (DV)
SE: Chelmsford Dr (east)	1181	1151	29	1
NE: Turton St	107	69	3	35
NW: Chelmsford Dr (west)	945	883	29	33
Total	2233	2103	61	69

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Created: Thursday, 20 February 2025 8:43:53 PM
Project: D:\Seca Planning Consultants\P3130 Turton St & Chelmsford Dr Metford\SIDRA\P3130-Turton St & Chelmsford Dr Metford.sip9

MOVEMENT SUMMARY

ATTACHMENT "B"

Site: 101 [5 Chelmsford Dr & Turton St - Metford AM Peak EXISTING+GROWTH+DEV (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

AM Peak - Tuesday 18-2-2025 8:00-9:00 AM
Existing Traffic PLUS GROWTH PLUS DEVELOPMENT TRAFFIC
Site Category: Existing Design
Give-Way (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
SouthEast: Chelmsford Dr (east)															
22	T1	All MCs	1436	2.3	1436	2.3	0.373	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
23	R2	All MCs	55	6.8	55	6.8	0.257	22.9	LOS C	0.8	6.0	0.87	0.97	0.97	31.1
Approach			1492	2.5	1492	2.5	0.373	0.9	NA	0.8	6.0	0.03	0.04	0.04	48.0
NorthEast: Turton St															
24	L2	All MCs	128	3.0	128	3.0	0.282	12.3	LOS B	1.1	7.6	0.72	0.91	0.84	37.3
Approach			128	3.0	128	3.0	0.282	12.3	LOS B	1.1	7.6	0.72	0.91	0.84	37.3
NorthWest: Chelmsford Dr (west)															
27	L2	All MCs	148	6.0	148	6.0	0.475	4.7	LOS A	0.0	0.0	0.00	0.08	0.00	47.4
28	T1	All MCs	1038	2.7	1038	2.7	0.475	0.1	LOS A	0.0	0.0	0.00	0.07	0.00	48.7
Approach			1187	3.1	1187	3.1	0.475	0.7	NA	0.0	0.0	0.00	0.07	0.00	48.4
All Vehicles			2806	2.7	2806	2.7	0.475	1.3	NA	1.1	7.6	0.05	0.09	0.06	47.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Thursday, 20 February 2025 7:45:31 PM
Project: D:\Seca Planning Consultants\P3130 Turton St & Chelmsford Dr Metford\SIDRA\P3130-Turton St & Chelmsford Dr Metford.sip9

INPUT VOLUMES

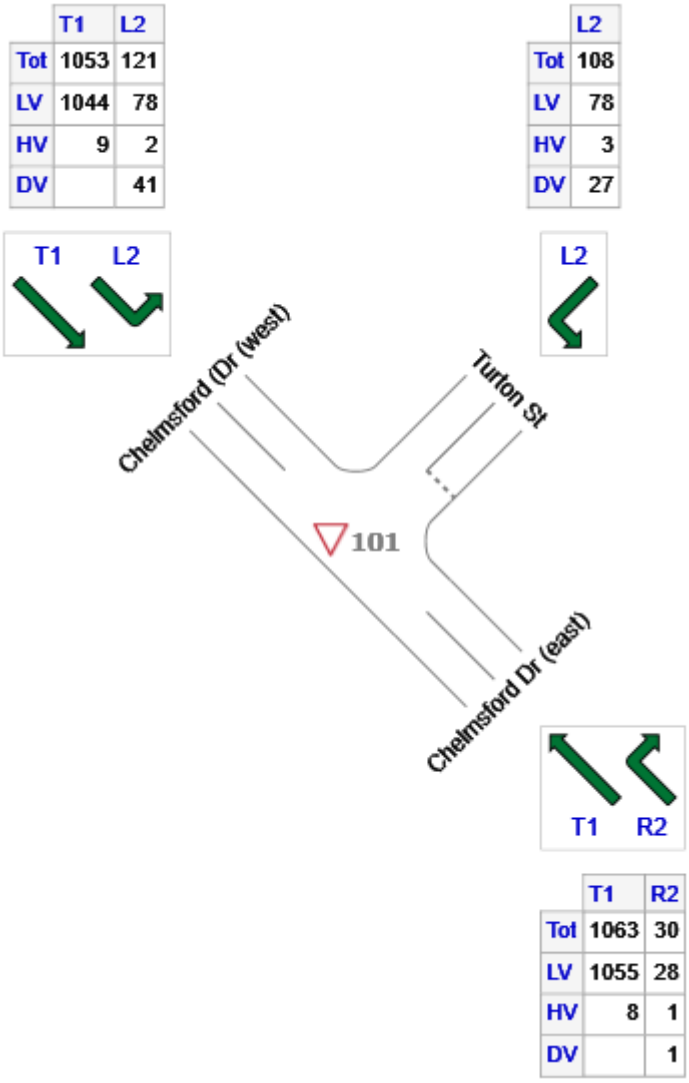
ATTACHMENT "B"

Vehicles and pedestrians per 60 minutes

Site: 101 [6 Chelmsford Dr & Turton St - Metford PM Peak EXISTING+GROWTH+DEV (Site Folder: General)]

AM Peak - Tuesday 18-2-2025 3:45-4:45 PM
Existing Traffic PLUS DEVELOPMENT TRAFFIC
Site Category: Existing Design
Give-Way (Two-Way)

Volume Display Method: Separate



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development (DV)
SE: Chelmsford Dr (east)	1093	1083	9	1
NE: Turton St	108	78	3	27
NW: Chelmsford (Dr (west)	1174	1122	11	41
Total	2375	2283	23	69

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Created: Thursday, 20 February 2025 8:45:04 PM
Project: D:\Seca Planning Consultants\P3130 Turton St & Chelmsford Dr Metford\SIDRA\P3130-Turton St & Chelmsford Dr Metford.sip9

MOVEMENT SUMMARY

ATTACHMENT "B"

Site: 101 [6 Chelmsford Dr & Turton St - Metford PM Peak EXISTING+GROWTH+DEV (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

AM Peak - Tuesday 18-2-2025 3:45-4:45 PM
Existing Traffic PLUS DEVELOPMENT TRAFFIC
Site Category: Existing Design
Give-Way (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
SouthEast: Chelmsford Dr (east)															
22	T1	All MCs	1343	0.8	1343	0.8	0.345	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
23	R2	All MCs	38	3.4	38	3.4	0.343	42.9	LOS E[11]	1.0	7.1	0.94	1.01	1.09	24.0
Approach			1380	0.8	1380	0.8	0.345	1.2	NA	1.0	7.1	0.03	0.03	0.03	47.4
NorthEast: Turton St															
24	L2	All MCs	131	2.9	131	2.9	0.474	21.4	LOS C	1.8	13.1	0.87	1.04	1.22	32.1
Approach			131	2.9	131	2.9	0.474	21.4	LOS C	1.8	13.1	0.87	1.04	1.22	32.1
NorthWest: Chelmsford (Dr (west)															
27	L2	All MCs	144	1.8	144	1.8	0.581	4.7	LOS A	0.0	0.0	0.00	0.07	0.00	47.5
28	T1	All MCs	1330	0.9	1330	0.9	0.581	0.1	LOS A	0.0	0.0	0.00	0.05	0.00	48.8
Approach			1474	0.9	1474	0.9	0.581	0.6	NA	0.0	0.0	0.00	0.05	0.00	48.5
All Vehicles			2985	1.0	2985	1.0	0.581	1.8	NA	1.8	13.1	0.05	0.08	0.07	46.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

11 Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.

INPUT VOLUMES

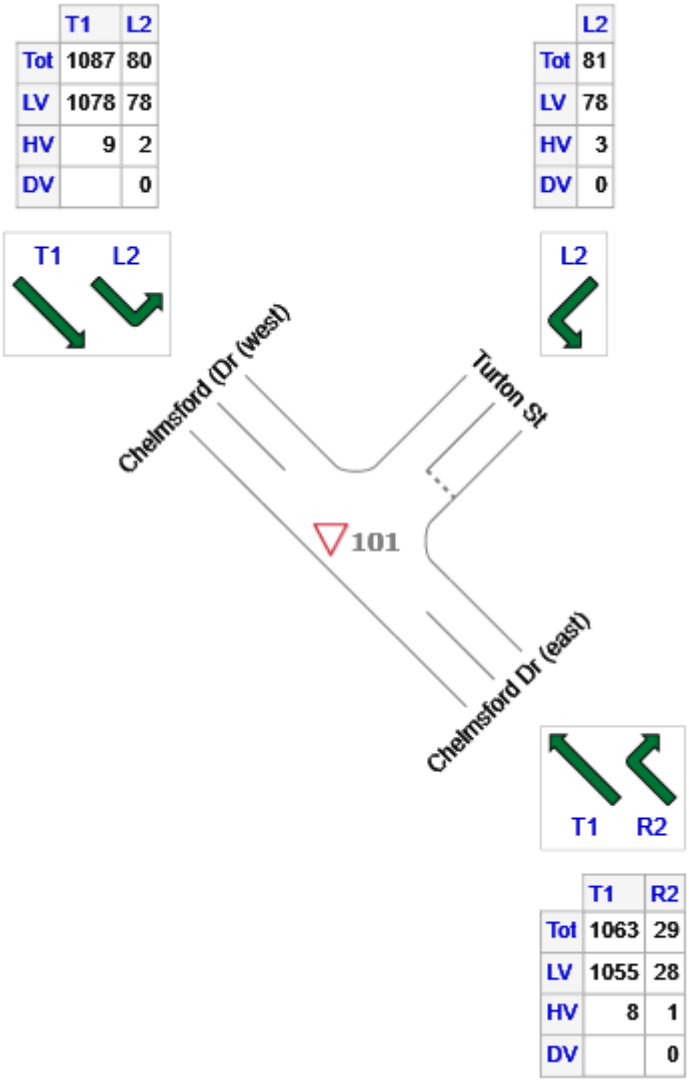
ATTACHMENT "B"

Vehicles and pedestrians per 60 minutes

Site: 101 [7 Chelmsford Dr & Turton St - Metford PM Peak EXISTING+GROWTH (Site Folder: General)]

AM Peak - Tuesday 18-2-2025 3:45-4:45 PM
Existing Traffic
Site Category: Existing Design
Give-Way (Two-Way)

Volume Display Method: Separate



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)	Development (DV)
SE: Chelmsford Dr (east)	1092	1083	9	0
NE: Turton St	81	78	3	0
NW: Chelmsford (Dr (west)	1167	1156	11	0
Total	2340	2317	23	0

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Created: Thursday, 20 February 2025 8:46:21 PM
Project: D:\Seca Planning Consultants\P3130 Turton St & Chelmsford Dr Metford\SIDRA\P3130-Turton St & Chelmsford Dr Metford.sip9

MOVEMENT SUMMARY

ATTACHMENT "B"

Site: 101 [7 Chelmsford Dr & Turton St - Metford PM Peak EXISTING+GROWTH (Site Folder: General)]

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Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
SouthEast: Chelmsford Dr (east)															
22	T1	All MCs	1343	0.8	1343	0.8	0.345	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
23	R2	All MCs	37	3.4	37	3.4	0.335	42.8	LOS E[11]	1.0	6.9	0.94	1.01	1.08	24.0
Approach			1379	0.8	1379	0.8	0.345	1.2	NA	1.0	6.9	0.03	0.03	0.03	47.5
NorthEast: Turton St															
24	L2	All MCs	102	3.7	102	3.7	0.423	22.9	LOS C	1.5	10.8	0.88	1.02	1.15	31.4
Approach			102	3.7	102	3.7	0.423	22.9	LOS C	1.5	10.8	0.88	1.02	1.15	31.4
NorthWest: Chelmsford (Dr (west)															
27	L2	All MCs	101	2.5	101	2.5	0.580	4.7	LOS A	0.0	0.0	0.00	0.05	0.00	47.6
28	T1	All MCs	1373	0.8	1373	0.8	0.580	0.1	LOS A	0.0	0.0	0.00	0.04	0.00	49.0
Approach			1474	0.9	1474	0.9	0.580	0.4	NA	0.0	0.0	0.00	0.04	0.00	48.8
All Vehicles			2956	1.0	2956	1.0	0.580	1.6	NA	1.5	10.8	0.04	0.07	0.05	46.8

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