TRAFFIC & PARKING ASSESSMENT

CHILD CARE CENTRE

LOT 821 DP 1032401

5 HUNTINGDALE DRIVE, THORNTON

PREPARED FOR: STEVENS GROUP

FEBRUARY 2022

21/182

TRAFFIC & PARKING ASSESSMENT
STEVENS GROUP

CHILD CARE CENTRE

LOT 821 DP 1032401
5 HUNTINGDALE DRIVE
THORNTON

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QUALITY ASSURANCE

This document has been prepared, checked and released in accordance with the Quality Control Standards established by Intersect Traffic Pty Ltd.

Issue	Date	Description	By
A	27/11/21	Draft	JG
B	28/11/21	Edit	JG
C	08/02/22	Final Proof/Client Amendments	JG
D	08/02/22	Amended Plans / Approved	JG

This document has been authorised by

Date 8th February 2022

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1.0 INTRODUCTION

Intersect Traffic Pty Ltd was engaged by Stevens Group to prepare a Traffic and Parking Assessment Report for a proposed child care centre on Lot 1 DP 1032401 – 5 Huntingdale Drive, Thornton. The child care centre will provide 116 places for children aged 5 years and under and will operate as a Long Day Care Facility between the hours of 6.30 am and 6.30 pm. Thirty (30) on-site car parking spaces are proposed in an at grade car park adjacent to the centre accessed at Huntingdale Drive approximately 80 metres west of Thornton Road via the existing combined entry / exit to the site. The development concept plans are shown in ***Attachment A***.

This report is required to support a development application to Maitland City Council and presents the findings of the traffic and parking assessment including the following.

1. An outline of the existing situation in the vicinity of the site.
2. An assessment of the traffic impacts of the proposed development including the predicted traffic generation and its impact on existing road and intersection capacities.
3. Reviews parking, public transport, pedestrian, and cycle way requirements for the proposed development, including assessment against Council, Australian Standards and Transport for NSW (TfNSW) standards and requirements as required.
4. Presentation of conclusions and recommendations.

2.0 SITE DESCRIPTION

The subject site is shown in ***Figure 1*** below. It is located on the southern side of Huntingdale Drive approximately 80 metres west of Thornton Road, Thornton. The site is located within the Thornton Industrial area approximately 1km south of the Thornton shopping centre and 5 km south-east of Greenhills Shopping Centre.

The site is titled and addressed as Lot 821 DP 1032401, 5 Huntingdale Drive, Thornton and has an area of 3,138 m^2. The site has frontage to Huntingdale Drive with a combined entry/ exit driveway located at the western end of the site and is currently vacant industrial land. The site is currently zoned B5 – Business Development pursuant to the Maitland LEP (2011). The development site and existing site access are shown in ***Photographs 1 & 2***.

Figure 1 – Site Location

Photograph 1 – Development site

Photograph 2 – Existing site access

3.0 EXISTING ROAD NETWORK

3.1 Thornton Road

Thornton Road is a major local collector road, being the main access from the New England Highway into Thornton. Therefore it is under the care and control of Maitland City Council. Thornton Road runs north-south from the New England Highway through the Thornton industrial Area before crossing the Hunter Rail Line before connecting to the Thornton residential area. In the vicinity of the site Thornton Road is a two lane two-way sealed urban road constructed to a high standard (***Photograph 3***). Travel lane widths are approximately 3.5 metres with kerb and gutter north and south of Huntingdale Drive. A marked centreline and edge lines exist on the road in the vicinity of the development. A 60 km/h speed limit applies to this section of road and at the time of inspection Thornton Road was assessed as being in good condition, suitable for use by traffic associated with the proposed development.

Photograph 3 – Thornton Road in the vicinity of the site.

3.2 Huntingdale Drive

Huntingdale Drive in the vicinity of the site is a local industrial access road under the care and control of Maitland City Council with its primary function providing access to properties within the northern section of the Thornton Industrial Estate. In the vicinity of the site Huntingdale Drive has a carriageway width of 12.5 metres between upright kerb and gutter and drainage on both sides of the street. This allows two lanes of traffic one in each direction as well as on-street car parking along both sides of the road. A 50 km/h speed limit applies to this section of road and at the time of inspection it was assessed as being in excellent condition suitable for use by development traffic

as shown in ***Photograph 4***. Huntingdale Drive intersects with Thornton Road via a stop sign controlled priority urban seagull intersection as shown in ***Photograph 5***.

Photograph 4 – Huntingdale Drive in the vicinity of the site.

Photograph 5 – Thornton Road / Huntingdale Drive intersection.

4.0 ROAD NETWORK IMPROVEMENTS

There are two further road upgrades identified within the Thornton North Developer contributions plan that will increase the capacity of the local road network. These are;

1. Widening of Thornton Road to provide an additional travelling lane in each direction; and
2. The installation of traffic signals at the Raymond Terrace Road / Government Road intersection which will not impact on road capacity near Huntingdale Drive.

Item 1 works are within close vicinity of the site and will need to be undertaken within the next 10 years with the level of development growth within the Thornton North URA. It will double the capacity of Thornton Road near the site. Item 2 works are more remote from the site and unlikely to have a major impact on the development and construction works on this project is imminent.

Further improvements to the local road network may be undertaken in the future in line with Maitland City Council's Works Programmes.

5.0 TRAFFIC VOLUMES

As part of this assessment Intersect Traffic engaged Northern Transport Planning and Engineering (NTPE) to undertake traffic data collection via manual counts during AM (10 November 2021) and PM (9 November 2021) peak periods at the Thornton Road / Huntingdale Drive urban seagull intersection. The manual intersection counts identified the peak hour periods were 8.00 am – 9.00 am & 4.15 pm to 5.15 pm. Traffic data collected as part of this assessment is provided within ***Attachment B***.

The peak hour two way mid-block traffic volumes recorded on Thornton Road and Hunter Street road sections from these counts are provided in ***Table 1*** below. Projected two way mid-block traffic volumes for 2031 have been calculated using the average lower Hunter background traffic growth rate of 1.5% per annum. These are also presented in ***Table 1*** below with both the 2021 and 2031 traffic volumes used in this assessment.

Table 1 – Current and Future Peak Traffic Volumes

Road	Section	2021		2031	
		AM (vtph)	PM (vtph)	AM (vtph)	PM (vtph)
Thornton Road	north of Huntingdale Drive	1903	2053	2209	2383
Thornton Road	south of Huntingdale Drive	2016	2026	2340	2351
Huntingdale Drive	west of Thornton Road	431	371	500	431

6.0 ROAD CAPACITY

The capacity of urban roads is generally determined by the capacity of intersections. However, Table 4.3 of the *RTA's Guide to Traffic Generating Developments* provides some guidance on mid block capacities for urban roads for a level of service (LoS C). This table is reproduced below. Based on this table noting Thornton Road and Huntingdale Drive currently as two lane two way undivided roads they would have a two-way mid-block capacity of 1,800 vtph. However Thornton Road as a major collector road can still operate satisfactorily with a LoS D and one way lane capacity up to 1,200 vtph. This would increase the two-way mid-block capacity to 2,400 vtph. Therefore the road capacities adopted in this assessment are;

- Thornton Road – 2,400 vtph; and
- Huntingdale Drive – 1,800 vtph.

Table 4.3
Typical mid-block capacities for urban roads with interrupted flow

Type of Road	One-Way Mid-block Lane Capacity (pcu/hr)	
Median or inner lane:	Divided Road	1,000
	Undivided Road	900
Outer or kerb lane:	With Adjacent Parking Lane	900
	Clearway Conditions	900
	Occasional Parked Cars	600
4 lane undivided:	Occasional Parked Cars	1,500
	Clearway Conditions	1,800
4 lane divided:	Clearway Conditions	1,900

Source: - RTA's Guide to Traffic Generating Developments (2002).

From the traffic volume data collected by Northern Transport Planning and Engineering (NTPE) for this assessment it can be seen that as the highest existing peak two way mid-block traffic volumes (Thornton Road – 2,053 vtph & Huntingdale Drive - 431 vtph) are less than the determined two way mid-block road capacities of 2,400 vtph and 1,800 vtph respectively, there is existing spare capacity within the local road network to cater for additional traffic generated by development in the area.

7.0 ALTERNATE TRANSPORT MODES

7.1 Public Transport

Hunter Valley Buses run public transport (bus) services in the area. Route 182 (Rutherford to Thornton) runs along Thornton Road past the site within 80 metres of the site (see ***Figure 2*** below). This provides a frequent and reliable service to all the major shopping, medical, and business areas between Rutherford and Thornton as well as connecting to the Hunter Rail Line at Maitland Station. With bus interchanges located at Maitland Railway Station and Greenhills the site can be conveniently accessed by bus from any residential areas in the Maitland area. The nearest bus stops are located on Thornton Road 120 metres south of Huntingdale Road. The site is also within convenient walking distance of Thornton Railway Station (500 metres). It can therefore be concluded that the site is already well serviced by public transport which could be used by staff and parents to access the site.

7.2 Pedestrians and Bicycles

As a mainly industrial area there is not a lot of pedestrian or cycle infrastructure in the area. There is no concrete pedestrian paths or on and off road cycleways along Huntingdale Drive or Thornton Road south of Huntingdale Drive. Pedestrians and cyclists using these section of the road network will need to use the grassed footways or parking lanes sharing the road pavement with other vehicles. There is however a shared concrete pedestrian / cycle pathway running along the western side of Thornton Road from Huntingdale Drive to Thornton Railway Station that was constructed when the Thornton Railway Overbridge was replaced a few years ago (see ***Photograph 6***).

The nearest safe pedestrian crossing facilities for pedestrians in the area are the pedestrian crossings provided within the signalised intersection of Railway Avenue (extension of Thornton Road) and Glenroy Street in the Thornton village area some 600 metres north of the site.

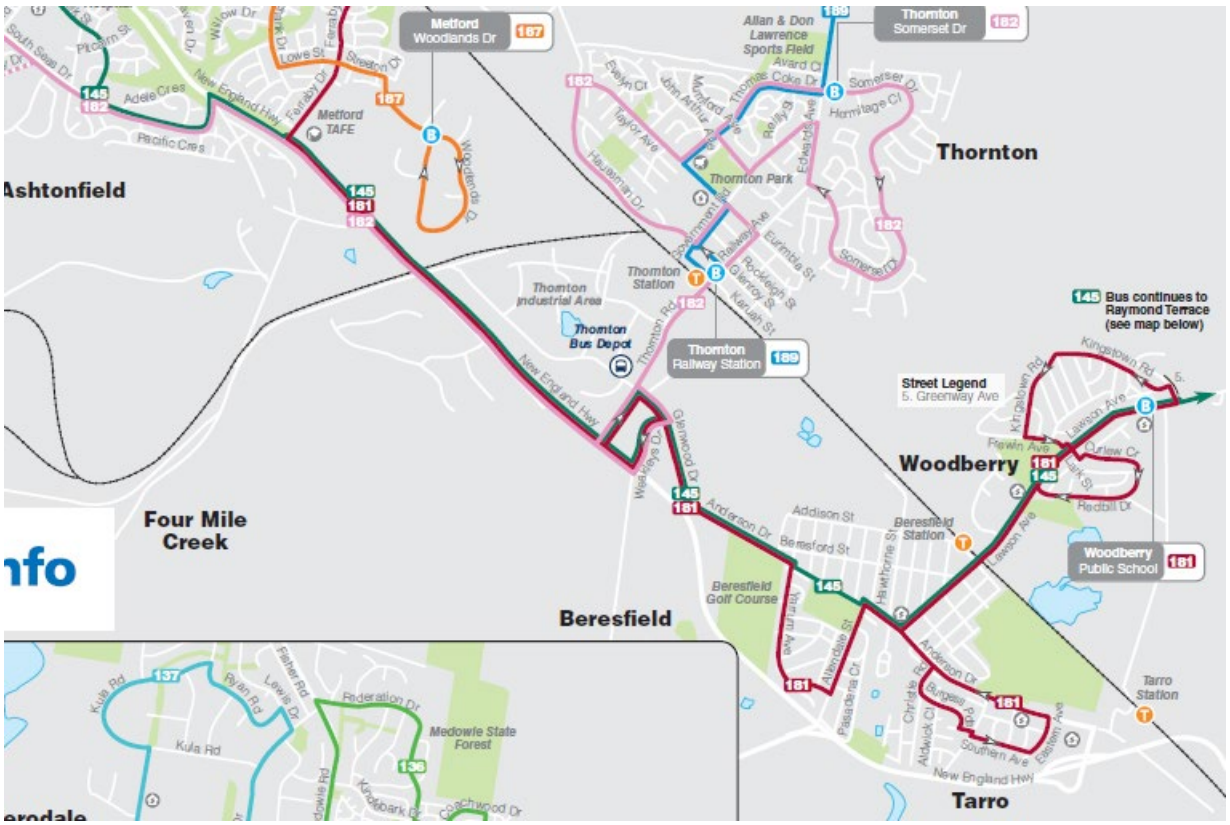


Figure 2 – Bus route map.

Photograph 6 – Shared concrete pathway Thornton Road north of site.

8.0 DEVELOPMENT PROPOSAL

The development proposal is to construct a child care centre on the site providing 116 places for children aged 5 years and under which will operate as a Long Day Care Facility between the hours of 6.30 am and 6.30 pm. Thirty (30) on-site car parking spaces are proposed in an at grade car park adjacent to the centre accessed off Huntingdale Drive via the existing combined entry / exit access driveway to the site located 115 metres west of Thornton Road. The development concept plans are shown in ***Attachment A***.

Specifically the site development includes;

- 1 newly constructed child care centre building;
- Amenities;
- Covered veranda and outdoor play space;
- 30 on-site car parks including 1 accessible space;
- External storage shed (36 m^2);
- Refuse and plant enclosure beside entry to car park;
- Landscaping; and
- Use of the existing combined entry / exit driveway to the site.

9.0 TRAFFIC GENERATION

The NSW RMS' *Guide to Traffic Generating Development's* provides specific advice on the traffic generation potential of various land uses.

In regard to Child Care Centres the following advice is provided within Table 3.6 of the guide.

Table 3.6
Traffic generation rates

Centre Type	Peak Vehicle Trips / Child		
	7.00-9.00am	2.30-4.00pm	4.00-6.00pm
Pre-school	1.4	0.8	-
Long-day care	0.8	0.3	0.7
Before/after care	0.5	0.2	0.7

Source: - RTA's Guide to Traffic Generating Developments 2002.

Using these rates the traffic generating potential of the proposed 116 place child care centre can be calculated as follows;

AM Peak Hour

Traffic Generation = 0.8 vehicle trips per child x 116 children
= **93 vtph**.

PM Peak Hour

Traffic Generation = 0.7 vehicle trips per child x 116 children
= **82 vtph**.

10.0 TRIP DISTRIBUTION

Before considering the traffic impacts of the development, the traffic generated by the development needs to be distributed onto the local road network. In this regard assumptions need to be made in relation to origins and destinations of trips and the nature of the trips to and from the site. In determining the trip distribution it is considered that because of the location of the site it is likely that the majority of the children attending the centre will access the sight from the north from the residential areas of Thornton, Somerset Park, Thornton North and Chisholm. It is also assumed inbound and outbound trips will be equal in the peak hour. The assumptions used in distributing the traffic are listed below.

AM peaks & PM peaks

- In the AM peak all trips will arrive via Thornton Road with origins of 80 % from and to the north and 20% from the south, respectively as children will be transported to the site from their homes;
- In the PM peak all trips will arrive via Thornton Road with origins of 50% from the north and 50% from the south as some children will be picked up be parents on their way home from work in Newcastle, Beresfield and other destinations east and south of the site.
- In the AM peak all trips will leave via Thornton Road with destinations from 50 % north and 50 % south as some children will be dropped off by parents on their way to work in Newcastle, Beresfield and other destinations east and south of the site.
- In the PM peak all trips will depart via Thornton Road with destinations of 80 % to the north and 20% to the south, respectively as children will be transported home from the site; and
- 50% of the trips will be inbound and 50% of trips will be outbound;

The resulting trip distribution onto the road network is therefore likely to be as shown below in ***Figure 3.***

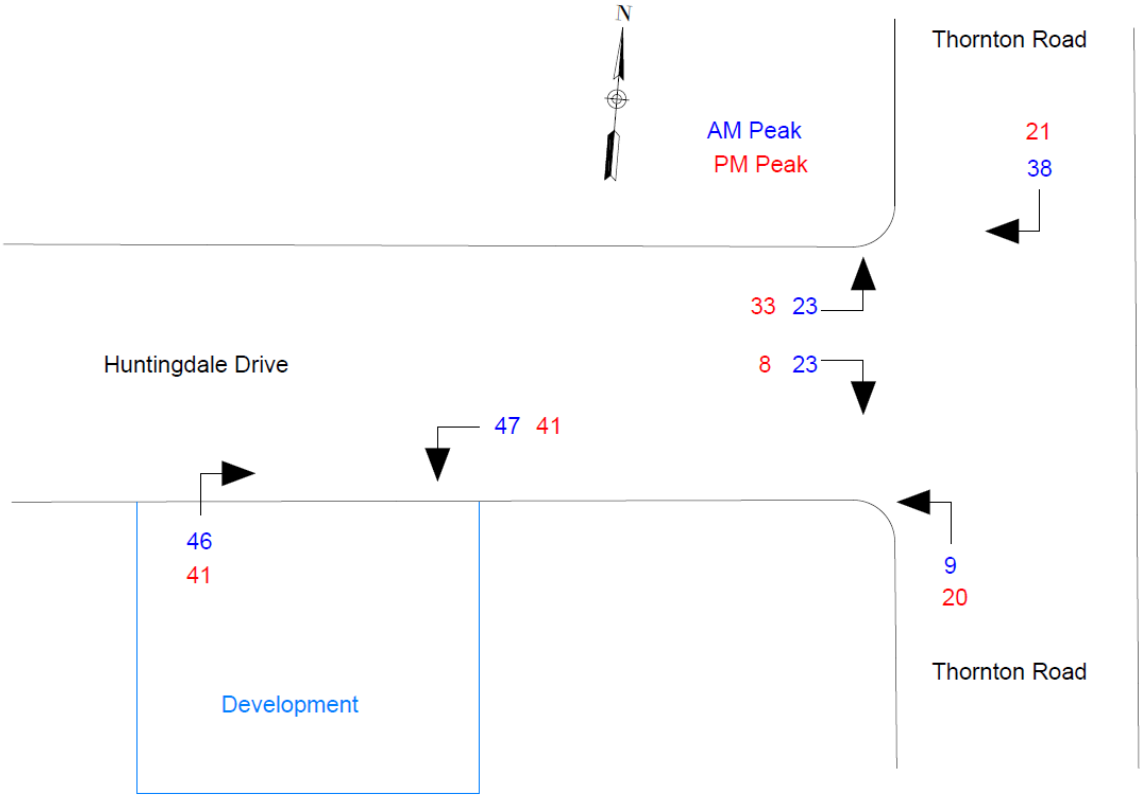


Figure 3 – Development Traffic Distribution

11.0 TRAFFIC IMPACTS OF DEVELOPMENT

The traffic impacts that the development will have on the local road network include:

- The impact of the additional traffic generated by the development on the capacity of the road network;
- The road safety issues associated with the proposed access to the development; and
- The parking demand generated by the development.

11.1 Road Network Mid-Block Capacity

It has previously been shown in ***Section 6*** of this report that the adjacent road network is currently operating within its technical capacity and the addition of up to 93 vtph on Huntingdale Drive and 61 vtph on Thornton Road resulting from this development (see ***Figure 3***) will not result in the technical mid-block road capacity thresholds determined in ***Section 6*** being reached until 2031. By 2031 the capacity of the two lane two-way Thornton Road is likely to be reached and this section of road will need to be widened to four lanes as per the developer contributions plan for Thornton North. This is shown in ***Table 2*** below. Therefore any developer contributions paid by this development to road works should be assigned to the Thornton Road widening project and the contribution would then represent the developments fair and reasonable contribution to the upgrade works. Therefore subject to satisfactory intersection performance and payment of the developer contribution for future widening of Thornton Road, the development will not adversely impact on the local road network..

Table 2 – Two Way Mid-block Road Capacity Assessment

Road	Section	Capacity	2021		2031		Development traffic	
		vtph	AM (vtph)	PM (vtph)	AM (vtph)	PM (vtph)	AM	PM
Thornton Road	north of Huntingdale Drive	2400	1964	2107	2270	2437	61	54
Thornton Road	south of Huntingdale Drive	2400	2048	2054	2372	2379	32	28
Huntingdale Drive	west of Thornton Road	1800	524	453	593	513	93	82

11.2 Intersection Capacity

The major intersection likely to be impacted by this development is the Thornton Road / Huntingdale Drive stop sign controlled urban seagull T-intersection. As traffic from the development gets further distributed through the network the additional traffic generated by the development is disbursed such that it would likely represent less than 1% of existing traffic through the busy road intersections that have a high level of intersection control and therefore would not have any noticeable or adverse impact on these intersections. It is therefore reasonable to conclude that should the development not adversely impact on the Thornton Road / Huntingdale Drive intersection it will not adversely impact on other intersections on the local road network.

By observation the intersection is currently operating within its capacity requirements however to demonstrate this, the intersection has been modelled using the Sidra intersection modelling software. This micro-analytical program identifies “Level of Service” (LoS) criteria for intersection analysis which range from LoS A to LoS F. Assessment is then based on the level of service requirements of TfNSW shown below. Assumptions made in this modelling are;

- The intersection remains as an urban seagull though it is likely to become either a left in or out only give way controlled priority T-intersection or a signalised intersection with the widening of Thornton Road. This will be determined as part of the widening project.
- Background traffic growth of 2% per annum has been used to reflect higher than average growth in the Chisholm and Thornton North areas; and
- Minimum gap acceptance data provided by Austroads has been used in the modelling.

Table 4.2
Level of service criteria for intersections

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way & Stop Signs
A	< 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays & spare capacity	Acceptable delays & spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity; at signals, incidents will cause excessive delays Roundabouts require other control mode	At capacity, requires other control mode

Source: - RTA's Guide to Traffic Generating Development (2002).

The results of the modelling are summarised below in ***Table 3*** for the worst movement results. The full movement summary tables generated by the models are provided in ***Appendix C***.

Table 3 – Sidra Summary Results – Thornton Road / Huntingdale Drive urban seagull intersection.

Scenario	LoS	Average Delay (seconds)	95% Back of Queue Length (veh)
2021AM peak	B	16.3	0.3
2021PM peak	F	71.0	2.7
2021 AM peak + development	B	16.7	0.4
2021 PM peak + development	F	112.1	5.2
2031 AM peak + development	B	23.6	0.8
2031 PM peak + development	F	2612.9	58.1

This modelling shows that the intersection already operates with a LoS F for vehicles turning left out of Huntingdale Drive in the PM peak with high northbound traffic volumes on Thornton Road. Currently delays average around 71 seconds and queue lengths are only around 2.7 cars. With the development the average delays will extend by 50 seconds but queue lengths only increase by 2 to 3 cars. It is considered this is not sufficient to warrant upgrading of the intersection immediately as this indicates that the development only has a minor impact on the operation of the intersection during the PM peak. During the AM peak the intersection operates satisfactorily post development through to 2031 with good levels of service and little queuing. By 2031 the failure of the intersection is such that a higher level of control or restriction of movements is needed and this will happen as part of the Thornton Road widening project.

As previously mentioned the traffic issues at this intersection is a result of continued development of the Thornton Industrial area and the Thornton North residential area and all these developments are required to contribute to these road upgrades. It is not the sole responsibility of this development to construct and fund improvement works and the improvements should be undertaken in conjunction with the Thornton Road widening project. Therefore the developer contributions required of this development should be allocated to the Thornton Road widening project and would represent the developments fair and reasonable contribution to this work.

As the development only has a minor impact on the operation of the intersection it is considered the development can still be supported by Council with the payment of normal developer contributions for the future road upgrading works.

11.3 Access

The on-site car park for this development will be accessed via the existing combined entry / exit vehicular access crossing and driveway at Huntingdale Drive. In assessing the access compliance with Australian Standard *AS2890.1-2004 Parking facilities – Part 1 - Off-street car parking* the following is noted:

- Vehicular sight distance at the access has been observed to be suitable to meet the requirements as shown in Figure 3.2 of the Standard. i.e. minimum 45 metres for a 50 km/h speed zone
- Pedestrian sight lines as required in Figure 3.2 of the Standard is achieved at the existing access; and
- The access supports a 30 space car park for Class 1A and Class 3 parking accessed from a local road. Table 3.1 of the Standard thus requires a minimum Category 1 access facility to be constructed. Table 3.2 of the Standard then designates a Category 1 access facility as a combined entry / exit 3.0 metres to 5.5 metres wide. The proposed access being a combined entry / exit driveway 6 metres wide conforms to a Category 2 access which meets the requirements of the Australian Standard.

It is therefore concluded the proposed car park access would be safe and suitable to service the car park and comply with Maitland City Council and Australian Standard *AS2890.1-2004 Parking facilities – Part 1 - Off-street car parking,* though a centre-line delineation on the existing access may be required to comply with Maitland City Council's requirements that the entry and exit lanes be suitably identified.

11.4 Off-Street Parking

On-site parking and manoeuvrability should comply with Australian Standard *AS2890.1-2004 Parking facilities – Off-street car parking* and *Section C2 – Child Care Centres* within the *Design Guidelines* of Maitland City Council's DCP (2011). The DCP states in part that;

- *Minimum on-site parking shall be provided in accordance with Child Care Centre parking requirements in NSW Road & Traffic Authority's Guide to Traffic Generating Developments current at the time (currently at the rate of one space for every four children in attendance.) Note that the minimum parking requirements in the RMS guide is inclusive of client and staff parking.*
- *One of the allotted vehicle parking spaces shall be provided for disabled parking / service vehicle close to the main entrance of the child care centre.*
- *Parking area dimensions and parking layout shall comply with Australian Standard 2890.1-2004 User Class 3 (being 2.6 metres wide). A minimum aisle width of 6.5 metres shall be provided.*
- *Where 90 degree on-site parking is provided adjacent to the building, pathway access between the car spaces and the building entry point. In such cases vehicle wheel stops must be provided.*
- *A footpath must be provided not less than (1) metre wide across the frontage of the child care establishment building and extend the full length of car park where the footpath connects directly to the car park.*
- *Pedestrian access between public street frontage to the child care centre site and the building should be segregated from vehicle movement areas.*
- *A minimum of two (2) parallel car parking spaces* should *be provided adjacent to the child care centres building entrance to enhance convenience and safety for parents and children.*

Based on the above DCP advice the on-site parking requirement for the child care centre can be calculated as 29 spaces. The proposed development provides 30 car spaces including an accessible space near the building entrance therefore is considered to generally comply with Council's requirements for car parking. A footpath extends the length of the car park along the front of the car parking and pedestrian access through the parking spaces is available via the

shared area for the accessible car parking. Whilst the plans provided to Intersect Traffic do not show dimensions it has been advised that the car parking spaces and aisle widths also comply with Council's requirements. A turning bay has been provided at the end of the car park to further facilitate movement through the site and comply with Australian Standard requirements for long blind aisle car parks. The two requirements of Council that the development does not comply with are;

1. The provision of a parallel 2 space drop off area near the entrance. It is argued however that the design of the car park is just as convenient for parents as providing a dedicated set down bay; and
2. There is no pedestrian access from the street. This is not considered to be required as the grade difference between the street frontage and the car park is significant (2 to 3 metres) therefore pedestrian access from the street frontage would only be able to be provided via stairs. Therefore the dropping off of children from the street frontage will not be popular and with a 1 space excess within the car park there will be very little if any pedestrian access from the kerb to the child care centre. As such whilst the pedestrian access could be conditioned on any consent issued it would not be necessary.

Overall it is considered the proposed child care centre would comply with Australian Standard *AS2890.1-2004 Parking facilities Part 1 – Off street car parking* and Maitland City Council's DCP requirements for on-site car parking.

11.5 Servicing

In terms of the provision of a service bay it should be noted that as a child care centre:

1. Most consumables are purchased by staff and transported to site within private light vehicles;
2. Waste collection will be via private contractor during non-peak periods allowing the collection vehicle to enter and exit the site in a forward direction and collecting the waste from the waste refuge area designated on the plans; and
3. Other deliveries to the site will be infrequent (once or twice a week) using small rigid vehicles (SRV) that could utilise a normal car parking space within the car park. All these deliveries would occur outside the peak parking demand periods for the child care centre, therefore, will not conflict with the majority of child drop off and pick up traffic movements.

12.0 PEDESTRIAN & CYCLE FACILITIES

The proposed development will not generate any external pedestrian traffic. Children are transported to the centre by private vehicle as parents then tend to be heading off to or coming home from work. Therefore no nexus exists for the provision of additional external pedestrian infrastructure.

However internal pedestrian linkages are important within the site and a pedestrian footpath will be provided along the front of the car park directing parents to the entrance to the building. A suitable marked foot crossing of the car park at the entrance to the building will also be provided to ensure safe crossing of the car park by pedestrians at an appropriate location.

Again the development will not generate any significant cycle traffic therefore no nexus exists for the provision of any additional external infrastructure. Storage areas and end of trip facilities will be available within the centre however to encourage staff to consider cycling to and from work.

13.0 ALTERNATE TRANSPORT MODE FACILITIES

The proposed development will not generate increased demand for public transport therefore will not generate a need to improve the public transport services to the site. It is concluded that no changes to the existing public transport services is required as a result of this development and no additional infrastructure would be required.

14.0 CONCLUSIONS

This traffic and parking assessment for a proposed 116 place child care centre on Lot 1 DP 1032401 – 5 Huntingdale Drive, Thornton has determined the following;

- Current traffic volumes on the local and state road network are below the technical mid-block capacities of the roads and as such there is spare capacity within the road network to cater for development in the area.
- It is expected that the additional traffic generated by the development will be up to 93 vtph in the AM peak and 82 vtph in the PM peak.
- The local road network has sufficient spare capacity to cater for the additional development traffic without adversely impacting on current levels of service (LoS) experienced by motorists on the road network.
- Sidra modelling of the Thornton Road / Huntingdale Drive intersection has shown that significant delay already occurs at this intersection during the PM peak periods while the intersection operates satisfactorily during the AM peak post development through to 2031. The development has little impact on the operation of the intersection with no loss of LoS and only relatively minor increases in average delay and queuing.
- As the development only has a minor impact on the operation of the Thornton Road / Huntingdale Drive intersection it is considered the development can still be supported by Council with the payment of normal developer contributions for the future road upgrading works on Thornton Road.
- The proposed car park access would be safe and suitable to service the car park and could comply with Maitland City Council and Australian Standard *AS2890.1-2004 Parking facilities – Part 1 - Off-street car parking.*
- A review of the plans indicates that the car parking layout would comply with the requirements of both Maitland City Council's DCP (2011) and *Australian Standard AS2890.1-2004 Parking Facilities – Off-street car parking* ensuring sufficient parking supply that is both safe and convenient for parents and children.
- Servicing of the site will be infrequent (once or twice a week) by vehicles only up to a small rigid vehicle (SRV) that could utilise on-site car parking spaces outside peak parking demand periods for the child care centre.
- Waste collection is proposed via a private contractor during non-peak periods allowing the collection vehicle to enter and exit the site in a forward direction and collecting the waste from the waste refuge area designated on the plans.
- The proposed development will not generate any external pedestrian traffic. Therefore no nexus exists for the provision of additional external pedestrian infrastructure.
- The proposed development will not generate an increased need for public transport therefore will not require changes to existing public transport services or the need for additional infrastructure.
- The development will not generate any significant additional bicycle traffic therefore no nexus for the provision of additional cycle ways in the vicinity of the site exists as a result of the development.

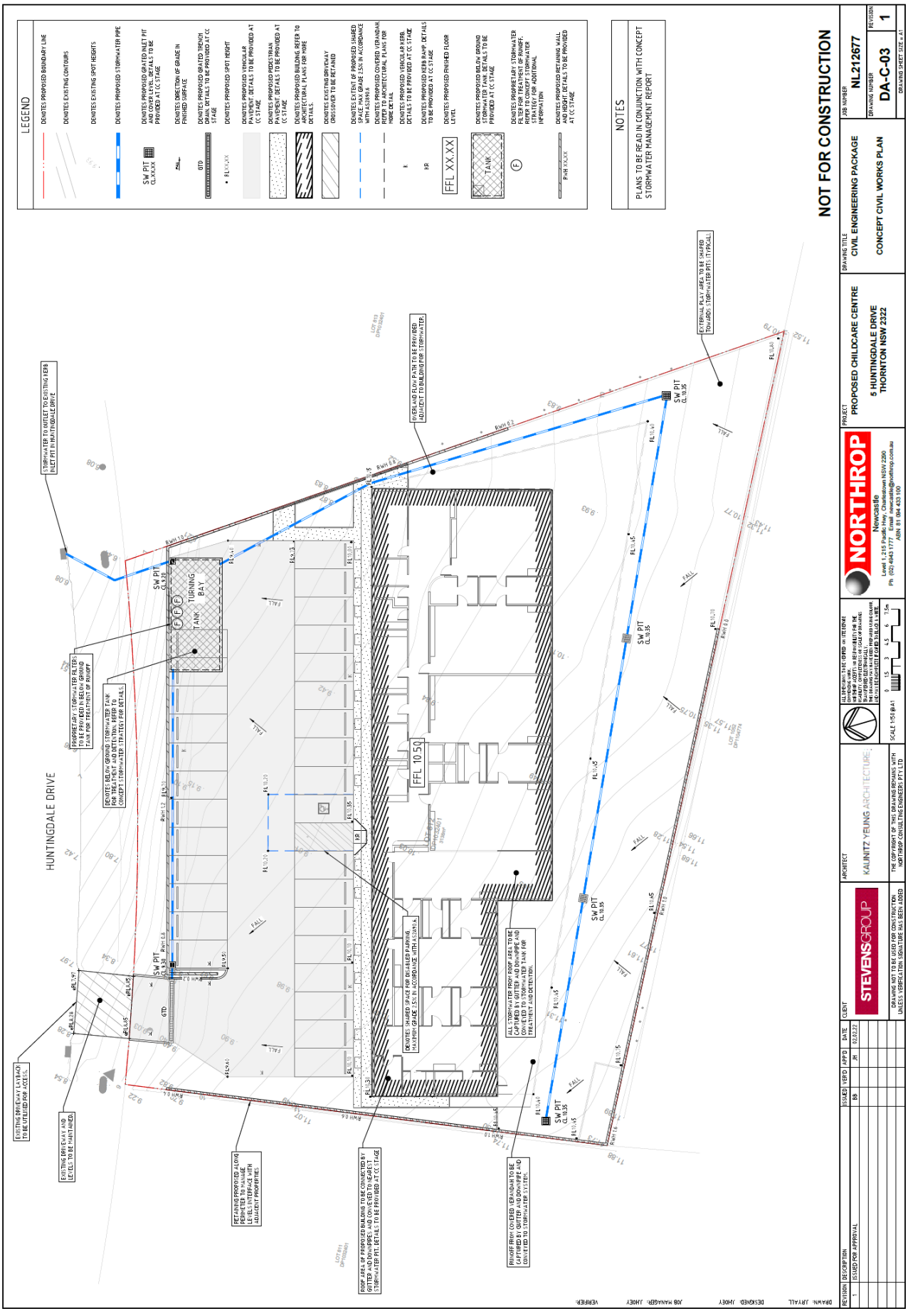
15.0 RECOMMENDATION

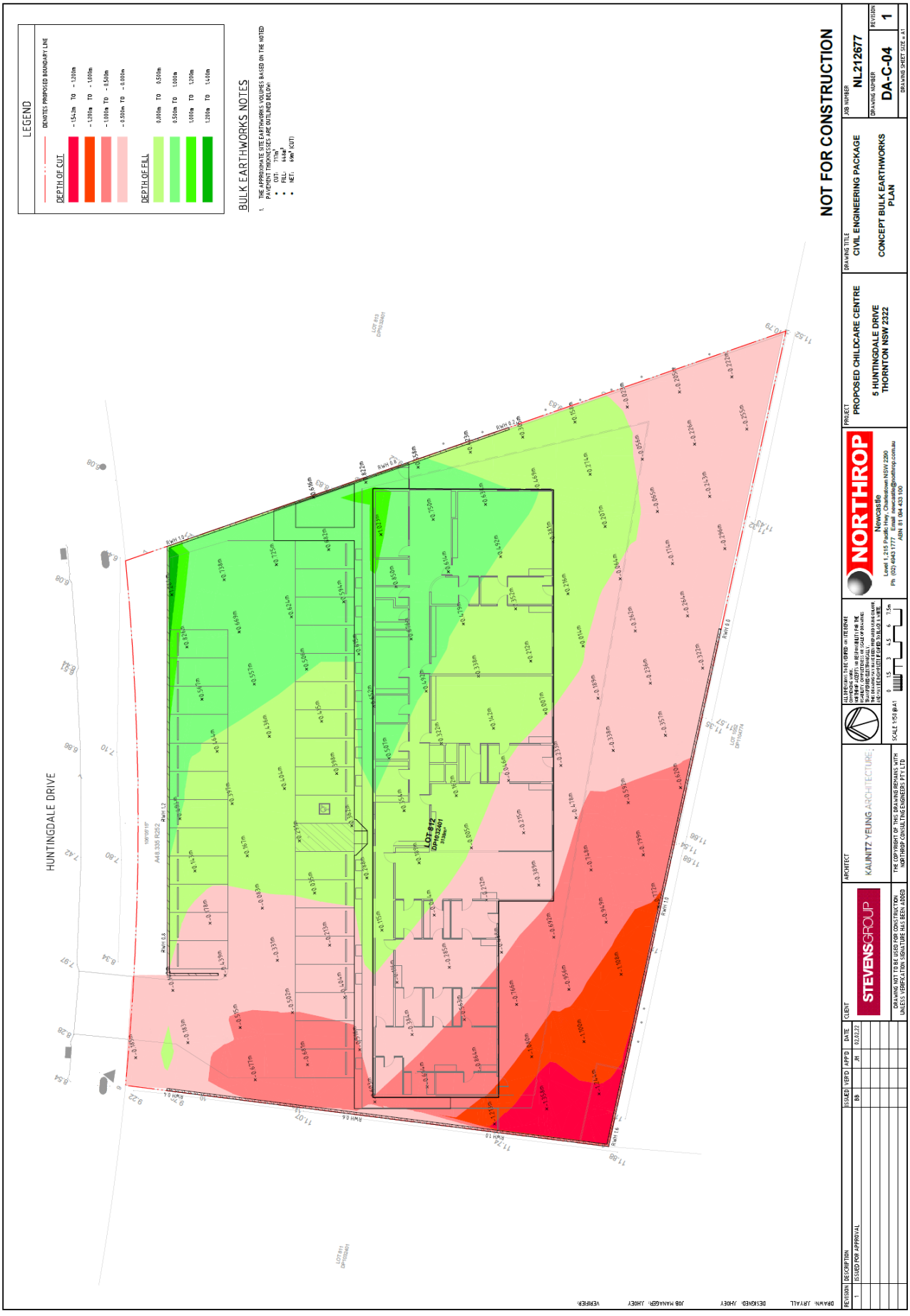
Having carried out this traffic and parking assessment for a proposed 116 place child care centre on Lot 1 DP 1032401 – 5 Huntingdale Drive, Thornton it is recommended that the proposal can be supported from a traffic impact perspective as it will not adversely impact on the local road network and complies with all relevant Maitland City Council, Australian Standard and NSW Roads and Maritime Services (RMS) requirements.

JR Garry BE (Civil), Masters of Traffic
Director
Intersect Traffic Pty Ltd

ATTACHMENT A

Development Plans


LEGEND
NOTES
PLANS TO BE READ IN CONJUNCTION WITH CONCEPT STORMWATER MANAGEMENT REPORT
NOT FOR CONSTRUCTION
HUNTINGDALE DRIVE
TURNING BAY
TANK
FFL 10.50
SW PIT CL 9.38
SW PIT CL 9.35
PROPOSED CHILDCARE CENTRE
5 HUNTINGDALE DRIVE
THORNTON NSW 2322
CONCEPT CIVIL WORKS PLAN
DA-C-03
NL212677
NORTHROP
STEVENSGROUP
KALINITZ YEUNG ARCHITECTURE


NOT FOR CONSTRUCTION
LEGEND
DENOTES PROPOSED BOUNDARY LINE
DEPTH OF CUT
DEPTH OF FILL
BULK EARTHWORKS NOTES
HUNTINGDALE DRIVE
LOT 972
DP1133401
NORTHROP
PROPOSED CHILDCARE CENTRE
5 HUNTINGDALE DRIVE
THORNTON NSW 2322
CIVIL ENGINEERING PACKAGE
CONCEPT BULK EARTHWORKS PLAN
NL212677
DA-C-04
1
STEVENSGROUP
KALNITZ YEUNG ARCHITECTURE
ISSUED FOR APPROVAL
02.02.22

ATTACHMENT B

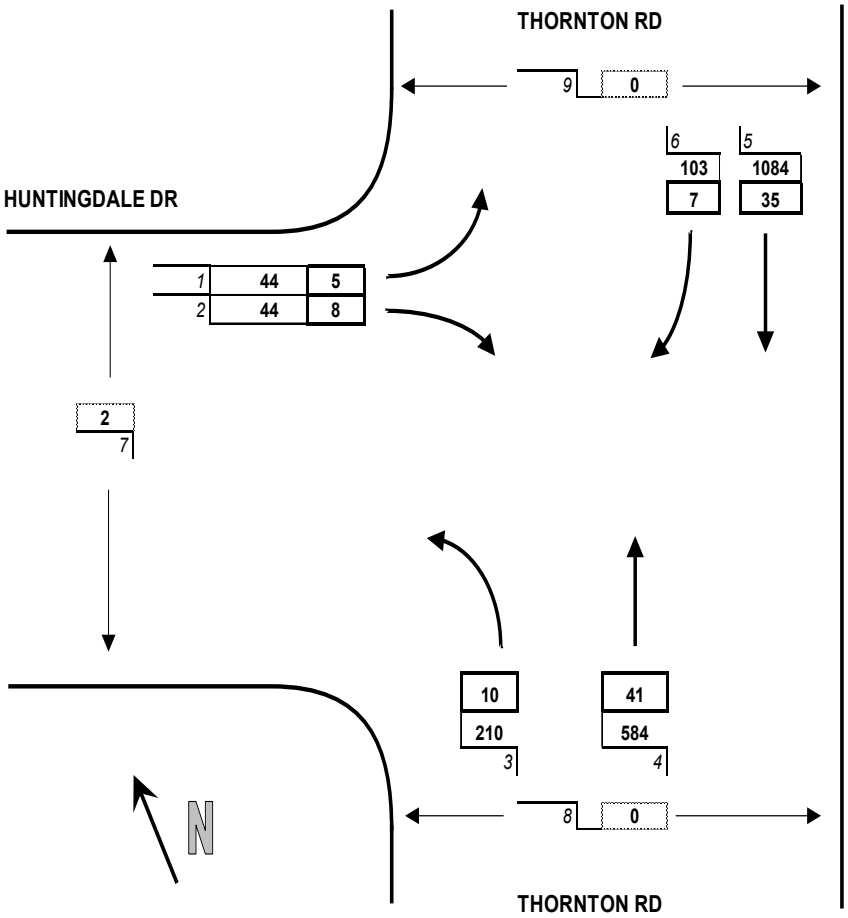
Traffic Count Sheets

10/11/2021 - THORNTON RD / HUNTINGDALE DR, THORNTON

9:00 <<< HOUR ENDING **Wednesday**

Summary: THORNTON RD / HUNTINGDALE DR	
2069	Total Light Vehicles
106	Total Heavy Vehicles
2	Total Pedestrians

Quality Surveys
223390



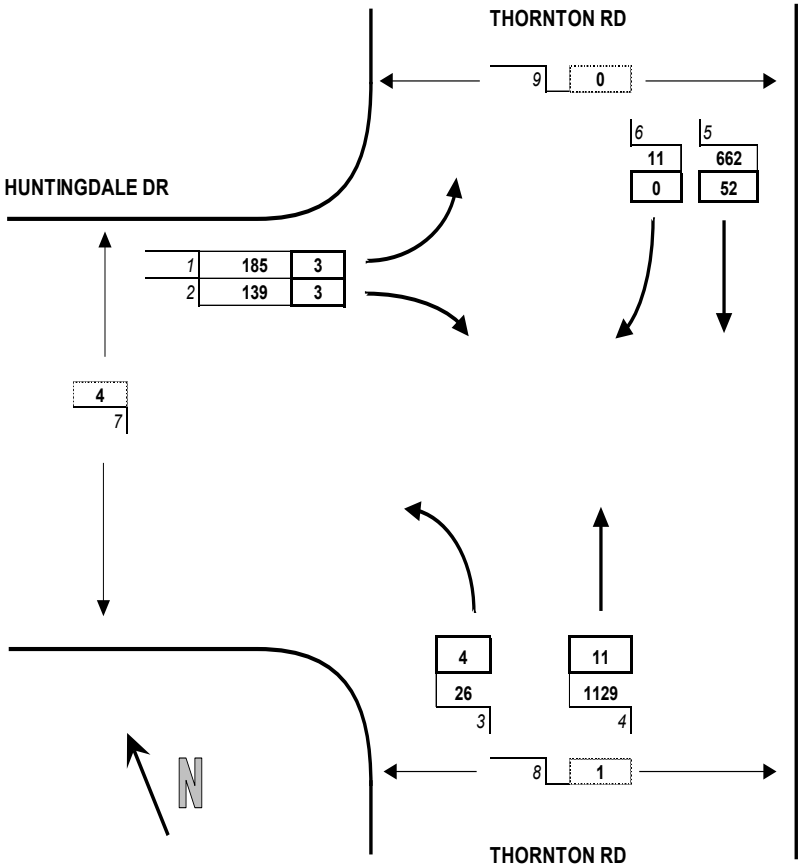
584	Light Vehicles
41	Heavy Vehicles
0	Pedestrians

9/11/2021 - THORNTON RD / HUNTINGDALE DR, THORNTON

17:15 <<< HOUR ENDING **Tuesday**

Summary: THORNTON RD / HUNTINGDALE DR	
2152	Total Light Vehicles
73	Total Heavy Vehicles
5	Total Pedestrians

Quality Surveys
223390



ATTACHMENT C

Sidra Movement Summary Sheets

MOVEMENT SUMMARY

Site: 101 [2021 AM (Site Folder: General)]

Network: N101 [2021AM (Network Folder: General)]

Thornton Road / Huntingdale Drive urban seagull
November 2021 counts
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Thornton Road														
1	L2	232	4.5	232	4.5	0.129	5.6	LOS A	0.0	0.0	0.00	0.57	0.00	53.4
2	T1	658	6.6	658	6.6	0.352	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach		889	6.0	889	6.0	0.352	1.6	NA	0.0	0.0	0.00	0.15	0.00	58.0
North: Tornton Road														
9	R2	116	6.4	116	6.4	0.191	11.2	LOS A	0.3	2.3	0.70	0.88	0.70	49.1
Approach		116	6.4	116	6.4	0.191	11.2	NA	0.3	2.3	0.70	0.88	0.70	49.1
West: Huntingdale Drive														
10	L2	52	10.2	52	10.2	0.061	13.2	LOS A	0.1	1.0	0.74	0.86	0.74	49.1
11	T1	55	15.4	55	15.4	0.139	16.3	LOS B	0.2	1.5	0.71	1.01	0.71	41.1
Approach		106	12.9	106	12.9	0.139	14.8	LOS B	0.2	1.5	0.73	0.94	0.73	46.0
All Vehicles		1112	6.7	1112	6.7	0.352	3.8	NA	0.3	2.3	0.14	0.30	0.14	55.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Organisation: INTERSECT TRAFFIC PTY LTD | Licence: NETWORK / 1PC | Processed: Sunday, 28 November 2021 11:30:46 AM
Project: C:\Work Documents\Projects\2021\2021.182 - Child Care Centre - Thornton\Sidra\Thornton_Huntingdale.sip9

MOVEMENT SUMMARY

Site: 101 [2021 PM (Site Folder: General)]

Network: N101 [2021PM (Network Folder: General)]

Thornton Road / Huntingdale Drive urban seagull
November 2021 counts
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Thornton Road														
1	L2	32	13.3	32	13.3	0.019	5.7	LOS A	0.0	0.0	0.00	0.57	0.00	53.1
2	T1	1200	1.0	1200	1.0	0.619	0.3	LOS A	0.0	0.0	0.00	0.00	0.00	59.3
Approach		1232	1.3	1232	1.3	0.619	0.5	NA	0.0	0.0	0.00	0.01	0.00	59.2
North: Tornton Road														
9	R2	12	0.0	12	0.0	0.038	17.1	LOS B	0.1	0.4	0.84	0.93	0.84	45.7
Approach		12	0.0	12	0.0	0.038	17.1	NA	0.1	0.4	0.84	0.93	0.84	45.7
West: Huntingdale Drive														
10	L2	198	1.6	198	1.6	0.825	71.0	LOS F	2.7	19.2	0.98	1.39	2.40	27.8
11	T1	149	2.1	149	2.1	0.734	41.6	LOS C	1.4	9.8	0.95	1.21	1.80	26.3
Approach		347	1.8	347	1.8	0.825	58.4	LOS E	2.7	19.2	0.97	1.31	2.14	27.3
All Vehicles		1591	1.4	1591	1.4	0.825	13.2	NA	2.7	19.2	0.22	0.30	0.47	48.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Organisation: INTERSECT TRAFFIC PTY LTD | Licence: NETWORK / 1PC | Processed: Sunday, 28 November 2021 11:30:48 AM
Project: C:\Work Documents\Projects\2021\2021.182 - Child Care Centre - Thornton\Sidra\Thornton_Huntingdale.sip9

MOVEMENT SUMMARY

Site: 101 [2021 AM + development (Site Folder: General)]

Network: N101 [2021AM + development (Network Folder: General)]

Thornton Road / Huntingdale Drive urban seagull
November 2021 counts
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Thornton Road														
1	L2	241	4.4	241	4.4	0.134	5.6	LOS A	0.0	0.0	0.00	0.57	0.00	53.4
2	T1	658	6.6	658	6.6	0.352	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach		899	6.0	899	6.0	0.352	1.6	NA	0.0	0.0	0.00	0.15	0.00	57.9
North: Tornton Road														
9	R2	156	4.7	156	4.7	0.255	11.7	LOS A	0.4	3.2	0.72	0.91	0.79	48.8
Approach		156	4.7	156	4.7	0.255	11.7	NA	0.4	3.2	0.72	0.91	0.79	48.8
West: Huntingdale Drive														
10	L2	76	6.9	76	6.9	0.086	13.0	LOS A	0.2	1.5	0.74	0.88	0.74	49.3
11	T1	79	10.7	79	10.7	0.203	16.7	LOS B	0.3	2.2	0.74	1.02	0.77	40.6
Approach		155	8.8	155	8.8	0.203	14.9	LOS B	0.3	2.2	0.74	0.95	0.76	45.9
All Vehicles		1209	6.2	1209	6.2	0.352	4.6	NA	0.4	3.2	0.19	0.35	0.20	55.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Organisation: INTERSECT TRAFFIC PTY LTD | Licence: NETWORK / 1PC | Processed: Sunday, 28 November 2021 11:30:51 AM
Project: C:\Work Documents\Projects\2021\2021.182 - Child Care Centre - Thornton\Sidra\Thornton_Huntingdale.sip9

MOVEMENT SUMMARY

Site: 101 [2021 PM + development (Site Folder: General)]

Network: N101 [2021PM + development (Network Folder: General)]

Thornton Road / Huntingdale Drive urban seagull
November 2021 counts
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Thornton Road														
1	L2	53	8.0	53	8.0	0.030	5.6	LOS A	0.0	0.0	0.00	0.57	0.00	53.3
2	T1	1200	1.0	1200	1.0	0.619	0.3	LOS A	0.0	0.0	0.00	0.00	0.00	59.3
Approach		1253	1.3	1253	1.3	0.619	0.6	NA	0.0	0.0	0.00	0.02	0.00	59.1
North: Tornton Road														
9	R2	34	0.0	34	0.0	0.114	17.8	LOS B	0.2	1.1	0.85	0.94	0.85	45.2
Approach		34	0.0	34	0.0	0.114	17.8	NA	0.2	1.1	0.85	0.94	0.85	45.2
West: Huntingdale Drive														
10	L2	233	1.4	233	1.4	0.966	112.1	LOS F	5.2	36.8	1.00	1.83	4.01	21.2
11	T1	158	2.0	158	2.0	0.795	47.8	LOS D	1.6	11.6	0.97	1.27	2.07	24.1
Approach		391	1.6	391	1.6	0.966	86.1	LOS F	5.2	36.8	0.98	1.60	3.23	21.9
All Vehicles		1677	1.3	1677	1.3	0.966	20.8	NA	5.2	36.8	0.25	0.41	0.77	44.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Organisation: INTERSECT TRAFFIC PTY LTD | Licence: NETWORK / 1PC | Processed: Sunday, 28 November 2021 11:30:54 AM
Project: C:\Work Documents\Projects\2021\2021.182 - Child Care Centre - Thornton\Sidra\Thornton_Huntingdale.sip9

MOVEMENT SUMMARY

Site: 101 [2031 AM + development (Site Folder: General)]

Network: N101 [2031 AM + development (Network Folder: General)]

Thornton Road / Huntingdale Drive urban seagull
November 2021 counts
Site Category: (None)
Stop (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Thornton Road														
1	L2	294	4.4	294	4.4	0.163	5.6	LOS A	0.0	0.0	0.00	0.57	0.00	53.4
2	T1	802	6.6	802	6.6	0.429	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
Approach		1096	6.0	1096	6.0	0.429	1.6	NA	0.0	0.0	0.00	0.15	0.00	57.9
North: Tornton Road														
9	R2	190	4.7	190	4.7	0.435	17.2	LOS B	0.8	6.1	0.84	1.03	1.16	45.5
Approach		190	4.7	190	4.7	0.435	17.2	NA	0.8	6.1	0.84	1.03	1.16	45.5
West: Huntingdale Drive														
10	L2	92	6.9	92	6.9	0.143	15.4	LOS B	0.3	2.3	0.79	0.97	0.79	47.8
11	T1	96	10.7	96	10.7	0.354	23.6	LOS B	0.5	4.0	0.85	1.06	1.05	35.4
Approach		189	8.8	189	8.8	0.354	19.6	LOS B	0.5	4.0	0.82	1.02	0.92	42.6
All Vehicles		1474	6.2	1474	6.2	0.435	5.9	NA	0.8	6.1	0.21	0.38	0.27	54.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Organisation: INTERSECT TRAFFIC PTY LTD | Licence: NETWORK / 1PC | Processed: Sunday, 28 November 2021 11:31:08 AM
Project: C:\Work Documents\Projects\2021\2021.182 - Child Care Centre - Thornton\Sidra\Thornton_Huntingdale.sip9

MOVEMENT SUMMARY

Site: 101 [2031 PM + development (Site Folder: General)]

Network: N101 [2031PM + development (Network Folder: General)]

Thornton Road / Huntingdale Drive urban seagull
November 2021 counts
Site Category: (None)
Stop (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Thornton Road														
1	L2	64	8.0	64	8.0	0.037	5.6	LOS A	0.0	0.0	0.00	0.57	0.00	53.3
2	T1	1463	1.0	1463	1.0	0.755	0.6	LOS A	0.0	0.0	0.00	0.00	0.00	58.8
Approach		1527	1.3	1527	1.3	0.755	0.8	NA	0.0	0.0	0.00	0.02	0.00	58.5
North: Tornton Road														
9	R2	41	0.0	41	0.0	0.320	39.8	LOS C	0.4	2.9	0.95	1.01	1.07	35.6
Approach		41	0.0	41	0.0	0.320	39.8	NA	0.4	2.9	0.95	1.01	1.07	35.6
West: Huntingdale Drive														
10	L2	284	1.4	284	1.4	3.841	2612.9	LOS F[11]	58.1	411.4	1.00	3.89	12.82	1.3
11	T1	192	2.0	192	2.0	2.181	1110.0	LOS F[11]	28.8	205.2	1.00	3.85	13.63	1.6
Approach		476	1.6	476	1.6	3.841	2005.3	LOS F[11]	58.1	411.4	1.00	3.87	13.15	1.4
All Vehicles		2044	1.3	2044	1.3	3.841	468.5	NA	58.1	411.4	0.25	0.94	3.08	6.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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

Organisation: INTERSECT TRAFFIC PTY LTD | Licence: NETWORK / 1PC | Processed: Sunday, 28 November 2021 11:31:24 AM
Project: C:\Work Documents\Projects\2021\2021.182 - Child Care Centre - Thornton\Sidra\Thornton_Huntingdale.sip9