Haulage Truck Assessment

Traffic Impact Assessment

Prepared for HiQ

March 2025

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HiQ

E240985 RP1

March 2025

Version	Date	Prepared by	Reviewed by	Comments
1	2 December 2024	Fan Fang	Abdullah Uddin	Draft
2	6 March 2025	Fan Fang & Abdullah Uddin	Abdullah Uddin	Draft
3	18 March 2025	Fan Fang & Abdullah Uddin	Abdullah Uddin	Final

Approved by

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18 March 2025

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Executive Summary

This Traffic Impact Assessment (TIA) has been prepared by EMM Consulting on behalf of HiQ to assess the potential impacts of the proposed use of Performance-Based Standards (PBS) vehicles at the Windellama Clay Mine and Landfill (the Site). This report supports the modification application submitted to Council that seeks to:

- modernise the approved truck types at the site by removing outdated references to specific truck weights and configurations and expanding the approved vehicle types to include PBS trucks, which offer enhanced load distribution, improved stability, reduced road wear, and increased payload capacity
- introduce flexibility in daily truck movements by averaging truck numbers over a calendar year, allowing truck movements lost on wet days to be carried over to drier periods without increasing the total annual truck movements
- relocate the wheel wash to the front of the site to improve dust control, enhance internal traffic management, and ensure effective containment measures

The TIA addresses the haulage route capacity to accept the proposed trucks and provides mitigation measures for implementation as necessary.

ES1 Current approvals

The original consent was determined by Goulburn Mulwaree Council outlined the following relevant conditions:

- 21. The haulage route for all trucks coming to and from the site, whether laden or not, will be from the site, along Oallen Ford Road to Mayfield Road and then Cullulla Road, Lumley Road to Tarago and then the main road system.
- 22. All operations are to be carried out between the hours of 7 am to 5 pm Monday to Friday. No operations, except in emergency, or as approved under condition 11(i) are to be carried out at any other time. No truck movements are permitted during school bus movement times along the haul route.

On 29 January 2001 a full consent was issued which retained the above conditions.

Subsequently a modification application was lodged and Land and Environment Count Order dated 15 May 2012 retained condition 22 above and outlines the following relevant conditions:

- *The haulage route for all trucks (including company trucks, contractor trucks and trucks associated with clients responsible for the delivery of waste to the facility) coming to and from the site, whether laden or not, will be from the site, along Oallen Ford Road to Sandy Point Road and then Cullulla Road, Lumley Road to Tarago and then the main road system. Trucks shall proceed either north or south along Braidwood Road and no trucks are permitted to proceed through the Village of Tarago.*
- *14A. (a) Subject to all other conditions of this consent (including satisfaction of condition 14C), the maximum volume of product (landfill waste, recyclable paper pulp) transported to the site is to be 576 tonnes per day. That is 18 one way truck movements of a 32 tonne truck and dog combination. Truck movements are permitted Monday through to Friday only.*
- *14A. (b) Subject to all other conditions of this consent, the maximum volume of clay product exported from the site is to be 192 tonnes per day. That is 6 one-way truck movements of a 32 tonne truck and dog combination. Truck movements are permitted Monday through to Friday only.*

- *14B. The maximum number of truck movements per day to and from the site is to be 12 movements (6 truck movements in and 6 truck movements out).*
- *14C. Notwithstanding the provisions of condition 14B, the maximum number of truck movements per day to and from the site may be increased to 36 movements (18 truck movements in and 18 truck movements out) but only when the Council has confirmed in writing that the requirements of condition 5C have been satisfied and s94 contributions have been paid as required by condition 14.*
- *14D Notwithstanding the provisions of conditions 14B and 14C the maximum number of laden truck movements per day from the site is to be 6 movements.*
- *14E. B-Double truck configurations are prohibited from using the haulage route.*

ES2 Haulage truck assessment

Hi-Quality Group (HiQ) has commissioned EMM Consulting Pty Ltd (EMM) to undertake a haulage route impact assessment to use PBS vehicles for product haulage. This modification (MOD2) relates to amended Condition 14A(a) and 14A(b) above. The usage of proposed trucks would need to be supplemented by removal of the daily cap of material transport as modern day trucks have greater load capacities. No change in the maximum annual receival of non-putrescible landfill waste of 120,000 tonnes or the life of the Site and landfill operations ceasing on 15 May 2042.

This Traffic Impact Assessment (TIA) has been prepared in accordance with the requirements of the following guidelines:

- Transport for New South Wales (TfNSW) Guide to Transport Impact Assessment, 2024
- Austroads Guide to Traffic Management, Part 12.

The following key intersection has been assessed:

- Braidwood Road/Lumley Road/Wallace Street intersection
- Cullulla Road/Sandy Point Road intersection
- Sandy Point Road/Oallen Ford Road intersection
- Oallen Ford Road/HiQ Access Road intersection.

The outcomes of the Traffic Impact Assessment (TIA) are as follows:

- **32-tonne truck and dog** combinations are no longer considered appropriate to reference in the consent due to changes in vehicle design, load capacity, and road safety standards. The use of these vehicles has become less common, as modern heavy vehicles, such as PBS vehicles, are now more prevalent. These newer vehicles are better suited to the current road infrastructure and operational requirements. As such, referencing 32-tonne truck and dog combinations in the consent is outdated and inconsistent with current industry standards, and they are no longer deemed relevant for this assessment.
- Several of HiQs truck combinations have already been approved by the **National Heavy Vehicle Regulator** (NHVR) to use the haulage route, including 4-axle trucks, 5-axle dog trailers, and A-Double vehicles up to 26 meters in length. However, the 30-meter A-Double vehicles, which represent the longest truck configurations proposed for the project, have yet to be approved for the full haulage route. Currently, these vehicles are only approved to travel between the Hume Highway and Tarago.

- The existing road widths along the haulage route are generally compliant with the Austroads design standards. Some minor nonconformity in the width of Oallen Ford Road is considered acceptable.

- The haulage route is a NHVR approved B-double route and the proposed PBS trucks shares the same width which is acceptable.

- **All proposed trucks combinations are considered acceptable** to use the haulage route. Minor shoulder widening and the implementation of safety mitigation measures may be required at certain locations to ensure safe and efficient truck movements to and from the site.

- The site currently accepts a maximum of 18 trucks per day. The proposed modification seeks to change this to an average of 18 trucks per day, with an upper limit of 36 trucks per day. This would result in a maximum increase of **3.08% of total daily traffic volume** along the haul route, while the total annual truck movements will remain unchanged.

- The **Braidwood Road/Lumley Road/Wallace Street** intersection will remain at Level of Service A (LOS A) with the projected operation traffic volumes in all scenarios. All other key intersections are in low traffic areas and hence won't require intersection analysis, given there is no projected traffic increase as part of the proposal While simultaneous turns by two opposing trucks may not be feasible at the Braidwood Road/Lumley Road/Wallace Street intersection, this limitation is not new as a result of this proposal and already applies to most trucks using the intersection. PBS trucks currently navigate the intersection regularly, demonstrating its capacity to accommodate the proposed vehicles. It is proposed that HiQ will implement its traffic management plan to facilitate safe navigation of the intersection.

- The sight distance requirements to the right at the **Oallen Ford Road/Sandy Point Road intersection** are not met due to the curvature of the road.

- The proposed haulage route will not impact any school bus, public transport or active transport services.

- Minor bends on Cullulla Road, near the Homestead Nursery, have raised concerns within the community due to the limited sight distance for oncoming traffic, which is perceived as a safety risk.

ES2.1 Proposed Mitigation Measures

The following mitigation measures are proposed:

- It is recommended that existing pavement damage be repaired and faded line markings be reapplied at Braidwood Road/Lumley Road/Wallace Street intersection.

- It is recommended that an advanced intersection warning sign be installed on Oallen Ford Road, approximately 150 to 200 m from Sandy Point Road for northbound vehicles to ensure sight distancing risks are mitigated.

- It is recommended that vehicle-activated flashing lights are installed at Homestead Nursery and HiQ's site entrance to alert road users when trucks are approaching these locations.

- It is recommended that HiQ enforces the traffic management plan, including but not limited to the following requirements:

1. Only one truck can navigate through the Braidwood Road/Lumley Road/Wallace Street intersection at any given time.

2. A maximum travel speed of 80 km/h must be maintained on the haulage route excluding highways and motorways.

- It is recommended that the microwave cooker letterbox be removed or relocated from HiQ site entrance as it is a distraction for trucks entering the Site.
- It is recommended that the faded 40 km/h sign at the HiQ site entrance be replaced.
- It is recommended that the faded 'Condition of Entry' sign at the HiQ site entrance be replaced.
- It is recommended that in accordance with Land and Environment Court of NSW Order (14C) dated 12 April 2019, HiQ will continue to contribute to council $0.053 per tonne per km (indexed annually in line with the Consumer Price Index (CPI)) using the approved haulage route for the road maintenance and $0.01 per tonne per km for pavement rehabilitation which will be paid on a quarterly basis.
- In accordance with this formula, HiQ is currently paying contributions at a rate of $1.645 per tonne of waste imported to the site and $1.531 per tonne of clay exported from the site.

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Abbreviations

Abbreviation	Description
AS	Australian Standard
ADT	Average daily traffic
AUL	Auxiliary left-turn treatment
BAL	Basic left-turn treatment
BAR	Basic right-turn treatment
CHR	Channelised right-turn treatment
CHR(s)	Channelised right-turn treatment (short)
DEL	Average Delay
DOS	Degree of Saturation
EMM	EMM Consulting Pty Ltd
GMC	Goulburn Mulwaree Council
HiQ	Hi-Quality Group
HML	Higher Mass Limit
km	kilometre
LGA	local government area
LOS	Level of Service
LT	Left Turn
m	metres
MOD	Modification
NHVR	National Heavy Vehicle Regulator
NSW	New South Wales
PBS	Performance-Based Standards
Q95	95% queue lengths
RT	Right Turn
RTA	Road & Traffic Authority
SEATS	South East Australian Transport Strategy
SISD	Safe Intersection Sight Distance
TfNSW	Transport for New South Wales
TH	Through Movement
TIA	Traffic Impact Assessment
TMP	Traffic Management Plan

1 Introduction

1.1 Project background

Development Application DA989/130 was originally made on 15 December 1998 and it was determined by Goulburn Mulwaree Council on 27 May 1999. The consent approved a landfill facility, concrete recycling facility and involving paper pulp recycling and the production of road making materials from recycled products.

The determination was a deferred commencement approval subject to the conditions described in Part B of the consent. One of the conditions under the deferred commencement approval was (#16) requiring the earlier consent DA13/96 to be surrendered.

The full consent (after the deferred consent conditions were satisfied) was issued on 29 January 2001.

A modification application made to Goulburn Mulwaree Council on 6 July 2010 to modify DA989/130 conditions. The modification application was refused by council which was subsequently referred to Land and Environment Court of NSW. In this Class 1 proceeding, the Court upheld the HiQ's appeal with specific conditions which is the current approval conditions of the Site (court order dated 15 May 2012).

HiQ is seeking amendment of the following conditions:

- 14A. (a) Subject to all other conditions of this consent (including satisfaction of condition 14C), the maximum volume of product (landfill waste, recyclable paper pulp) transported to the site is to be 576 tonnes per day. That is 18 one-way truck movements of a 32 tonne truck and dog combination. Truck movements are permitted Monday through to Friday only.

- 14A. (b) Subject to all other conditions of this consent, the maximum volume of clay product exported from the site is to be 192 tonnes per day. That is 6 one-way truck movements of a 32 tonne truck and dog combination. Truck movements are permitted Monday through to Friday only.

The proposal does not result in:

- any change of annual production/processing limit
- any change in haulage route
- any change in operational hours; and
- any change is operational life of the landfill.

Further to above, all existing conditions in relation to haulage traffic will remain in place, including current haulage traffic restrictions during the AM and PM school peak periods in NSW.

Reason for this modification:

Conditions 14A(a) and 14A(b) are outdated and do not account for the technological advancements in heavy vehicles over the past decade. While Council agrees that PBS trucks are safer than the 32-tonne truck and dog combinations approved for use under the current consent, the proposed update to the consent conditions is necessary to align with modern day truck standards under the PBS framework.

Modern trucks have many environmental benefits along with the associated safety features. Trucks carrying larger payload with the maximum annual cap of the landfill material would enable a lower volume of daily trucks. This is a desirable outcome for the local community. As larger trucks can carry up to 46 tonne payloads as opposed to 32 tonnes, the current daily cap of 576 tonnes per day material is no longer relevant as it is calculated

based on the 32-tonne truck and dog trailers, which are infrequently used on the roads. The other benefits for the proposed PBS trucks are as follows:

- PBS trucks have lower self-weight, so they can carry more loads for the same axle combination.
- HiQ's PBS trucks have an effective GPS coordinate system which results in more efficient monitoring of travel path and speed, especially when they travel through townships and school zones.
- HiQ PBS trucks have duel-facing cameras which are effective for monitoring drivers' behaviour while they are on the road.
- HiQ PBS trucks have full 360 degrees camera coverage for maximum visibility which assist the drivers adjoining traffic/road conditions while driving, overtaking or turning.

Due to the above benefits, HiQ intends to use a more modern truck fleet to transport their materials.

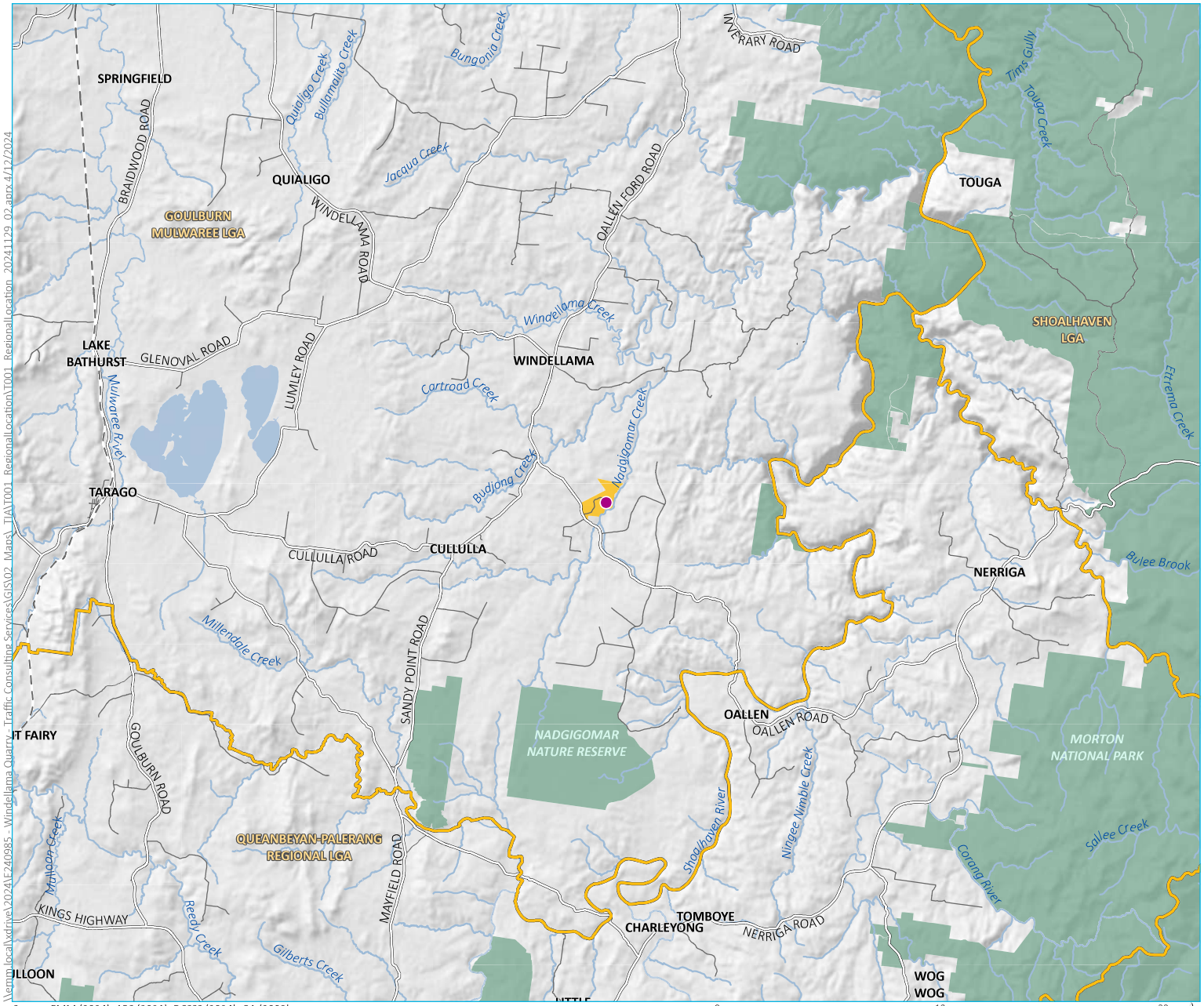
1.2 Existing Heavy Vehicle Permits

A number of heavy vehicle combinations are already approved for use along the haulage route by the NHVR. These approved vehicle types include:

- 4-axle truck and 5-axle dog trailer (over 20m)
- A-Double 26 m
- 4-axle truck and 4-axle dog trailer (20 m)
- 3-axle truck and 5-axle dog trailer (over 20 m)
- 3-axle truck and 4-axle dog trailer (20 m)

However, 30 m A-Double combinations are not yet approved for the full haulage route. These vehicles are currently only approved for travel between the Hume Highway and Tarago.

Given that the above-listed vehicle types have already been assessed and approved for the haulage route by the NHVR, this report focuses solely on the assessment of 30 m A-Double movements. As 30 m A-Doubles are the longest vehicles proposed, it can be reasonably assumed that any other proposed PBS vehicles, which are shorter or have a similar swept path, will be accommodated within the findings of this assessment.



KEY

- Hi-Quality Quarry and Landfill location
- Site boundary

Existing environment

- Rail line
- Major road
- Minor road
- Named watercourse
- Named waterbody
- NPWS reserve
- Local government area

INSET KEY

- NPWS reserve
- State forest

Source: EMM (2024); ABS (2021); DCSSS (2024); GA (2009)

Regional setting

Hi-Quality Quarry
Traffic Impact Assessment
Figure 1.1

EMM
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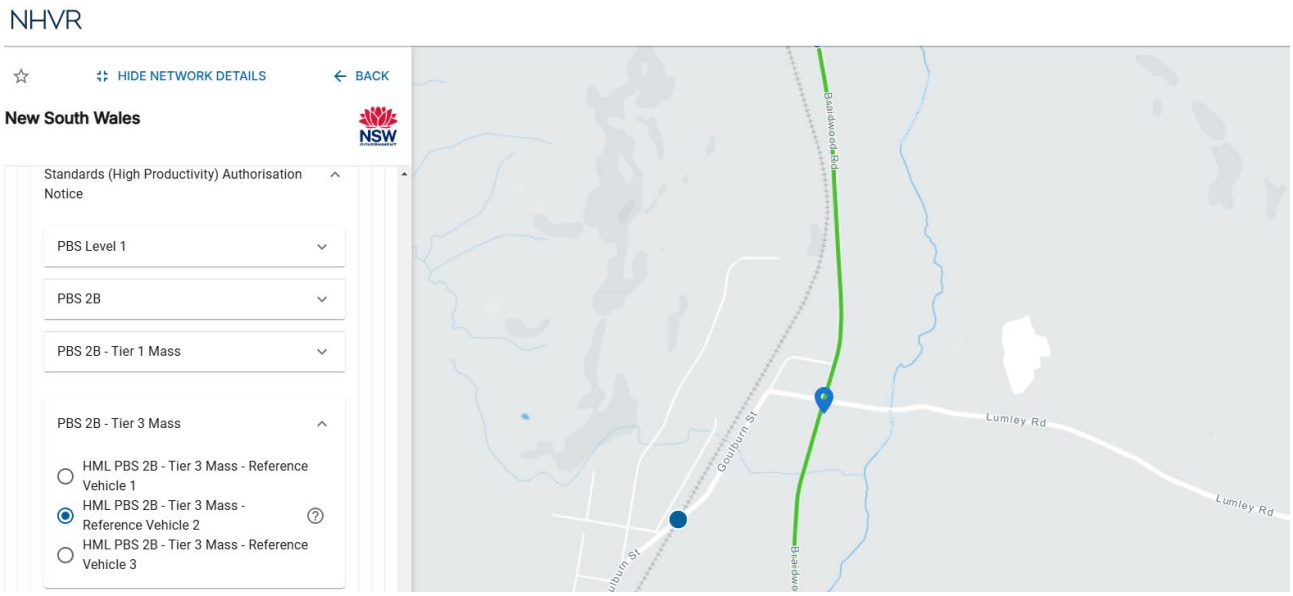
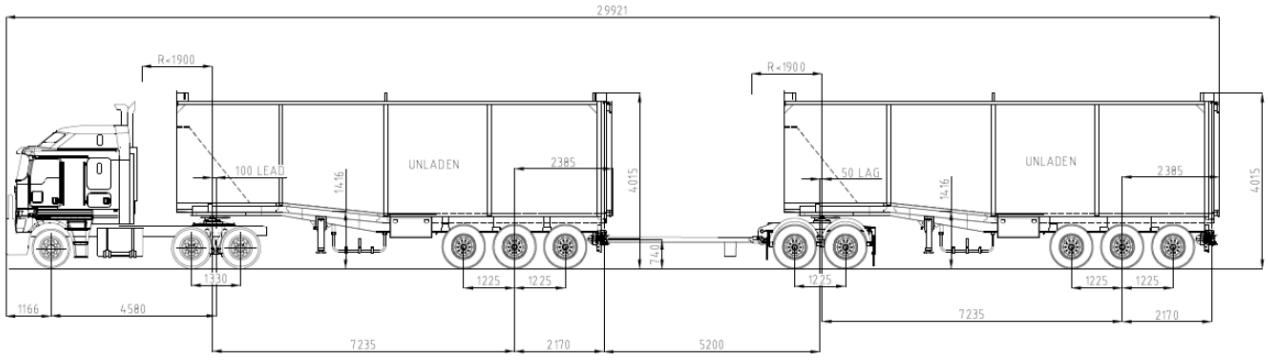
1.3 Haulage truck assessment

Currently Braidwood Road, which is a TfNSW controlled State Road, is approved for Higher Mass Limit (HML) Performance Based Standard (PBS) 2B Tier 3 Mass Vehicle type 2, which is equivalent to a 30 m long A-double truck. 30 m A-Double trucks are not yet approved to access the remainder of the haulage route between Braidwood Road/Lumley Road/Wallace Street intersection and the site entrance which is approximately a 25 km long travel path along the public roads. Therefore, this report assesses the suitability of the existing road infrastructure, potential safety and operational constraints, and any necessary upgrades or mitigation measures required to accommodate these vehicle movements. A diagram of the approved 30 m A-double route on Braidwood Road is provided in Figure 1.2 (green coloured line).



Source: NHVR

Figure 1.2 30 m A-double approved road (Braidwood Road)



Source: NHVR

Figure 1.3 30 m A-double truck

1.4 Site inspection

In preparation of this TIA, a site inspection was conducted by EMM's Traffic Engineer on Tuesday 29 October 2024 during the non-school holiday period. The site observation summary is documented throughout this TIA.

KEY

- Hi-Quality Quarry and Landfill location
- Key intersection
- 30 m A-double approved road
- Existing haulage route
- Site boundary

Existing environment

- Rail line
- Major road
- Minor road
- Vehicular track
- Named watercourse
- Named waterbody
- NPWS reserve

Source: EMM (2024); DCSSS (2024); GA (2009)

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MOD 2 existing haulage route and "30 m A-double" approved road

Hi-Quality Quarry
Traffic Impact Assessment
Figure 1.4

EMM
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1.5 Consultation with Goulburn Mulwaree Council

The project team met with relevant council staff at the council chambers on Thursday, 16 January 2025. During the meeting, Council acknowledged the longstanding deficiencies of the Braidwood Road/Lumley Road/Wallace Street intersection and confirmed that HiQ is not responsible for its upgrade as a result of this proposed modification given, the deficiencies is a longstanding issue that has existed for an extended period and likely affects all truck users. HiQ proposed to implement the appropriate mitigation measures to ensure safe access to the intersection to maintain operational safety.

1.6 Community consultation

HiQ presented the proposal to both the Tarago Community Group (TADPAI) on Monday, 10 February 2025, and the Windellama Landfill Community Liaison Committee (CLC) on Tuesday, 11 February 2025. The meeting with TADPAI marked the first time HiQ has engaged with this group. The CLC was established as part of the site's conditions of consent in 2012 and currently meets twice annually.

During these discussions, the proposed modification was discussed and the key benefits of using PBS trucks were highlighted. In summary, the following concerns were raised:

- Concern about the truck widths and whether they are wider than those currently approved for use on the roads.

  Response: the proposed trucks are not wider than existing trucks used on the roads.

- Concern regarding a specific location on the haulage route between Willow Glen Road and the Homestead Nursery, where motor vehicle accidents (MVAs) and black spots are frequent.

  Response: It is recommended that vehicle-activated flashing lights are installed at Homestead Nursery to alert road users when trucks are approaching these locations.

- Concerns about the ability of 30 m A-double trucks to navigate the haulage routes, given their length.

  Response: The overall width of the 30 m long A-double truck will not change. As currently 26 m B-double trucks use this route, 30 m long A-double vehicle should also be able to navigate this route efficiently as both vehicles have the similar width.

- Concerns regarding limited visibility caused by trees along the fence line close to the site entrance, along with suggestions for a truck flashing sign near Claypit Road for vehicles approaching the site entrance from the south on Oallen Ford Road (not HiQ vehicles, as this section of Oallen Ford Road is not an approved haulage route).

  Response: It is recommended that vehicle-activated flashing lights are installed at the site entrance to alert road users when trucks are approaching these locations. It is also recommended that HiQ investigate any trees on the fence line that may be obstructing line of site on the roads and rectify as soon as possible, with approval from Council.

- Queries regarding earmarked potential for Council Road widening on Oallen Ford Road near the site.

Response: Council published a notice on 14th February 2025 regarding essential road rehabilitation works to be carried out on a 1km section of Oallen Ford Road, approximately 1 km from Windellama Hall in the direction of Sandy Point Road. The works will include bulk earthworks, vegetation clearing, drainage improvements, rehabilitation of the pavement, bitumen sealing, and line marking. Scheduled to begin on 24th February 2025, the works are expected to continue through to the end of March 2025, with operations taking place between 7 am and 5 pm, weather permitting. This portion of Oallen Ford Road does not coincide with the approved haulage route, and it remains unclear whether future road widening works are planned closer to the site.

- Queries about how Council uses the contributions HiQ pays for usage of the haulage route.

  Response: It is unclear what specific allocation or usage the Council applies to the contributions paid by HiQ for the haulage route. Further clarification from the Council may be required to understand how these contributions are utilised for road maintenance or improvement projects along the approved haulage route.

Further information about the relevant mitigation measures are recommended in Section 5 of this report.

2 Existing conditions

This section outlines the existing road network and the existing traffic volumes.

2.1 Road hierarchy

The hierarchy of roads in NSW comprises the following road classifications:

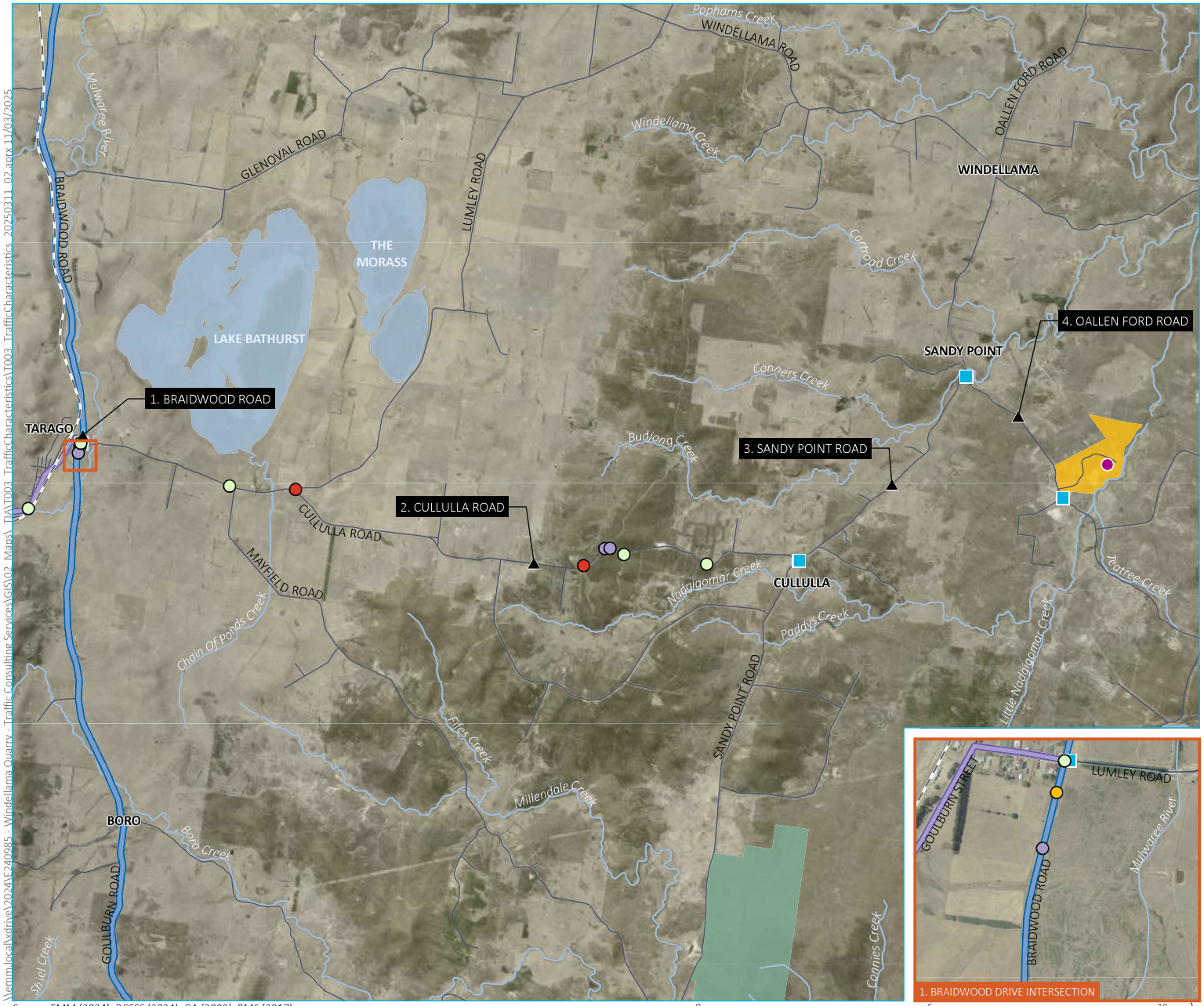
- State roads – freeways and primary arterials (managed by Transport for New South Wales (TfNSW).
- Regional roads – secondary or sub arterials (managed by Goulburn Mulwaree Council (GMC)) and part funded by the State).
- Local roads – collector and local access roads (managed by GMC).

The key roads in the vicinity of the Site and their administrative hierarchy are shown in Figure 2.1 and the subsequent tables.

2.2 Existing road network

The existing road network is shown in Table 2.1 to Table 2.5 and the associated plates (Photograph 2.1 to Photograph 2.5) with the key roads including:

- Braidwood Road
- Lumley Road/Cullulla Road
- Sandy Point Road
- Oallen Ford Road
- HiQ Site Access Road.



KEY

- Hi-Quality Quarry and Landfill location
- Key intersection
- Tube count location
- Site boundary

Crash data

- Fatal
- Moderate injury
- Minor/other injury
- Non-casualty (towaway)

Existing environment

- Rail line
- State road
- Regional road
- Local road
- Named watercourse
- Named waterbody
- NPWS reserve

Source: EMM (2024); DCSSS (2024); GA (2009); RMS (2017)

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Road network and traffic characteristics

Hi-Quality Quarry
Traffic Impact Assessment
Figure 2.1

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Table 2.1 Braidwood Road

Aspect	Description
Road classification and connectivity	State road between Goulburn (north) and Kings Highway (south)
Alignment	North-south
Number of lanes	Two lanes, one lane each way
Carriageway type	Sealed road with shoulders
Carriageway width	Approximately 9 m, with a 3.5 m travel lane in each direction and 1 m shoulders on both sides
Posted speed limit	Generally 100 km/h, 60 km/h within Tarago, reduced speed limits near schools during school hours
Heavy vehicle access	TfNSW approved 26 m B-double route
Existing traffic function	Carries local and regional traffic
Relevance to the development	Carries operational traffic
Additional comments	There are several schools along Braidwood Road

Photograph 2.1 Braidwood Road (looking north at Tarago)

Table 2.2 Lumley/Cullulla Road

Aspect	Description
Road classification and connectivity	Local road between Braidwood Road (west) and Sandy Point Road (east)
Alignment	Generally east-west
Number of lanes	One lane each way
Carriageway type	Sealed road
Carriageway width	Approximately 7 m seal
Posted speed limit	Rural default speed limit of 100 km/h
Heavy vehicle access	General access vehicle. Heavy vehicle access only with a valid origin or destination.
Traffic function	Carries local traffic
Relevance to the development	Carries development traffic
Additional comments	Pavement condition is generally good. Several school bus stops are located along this road. School zone speed limits apply from 7:30 to 8:30 am and 4:00 to 5:00 pm on NSW school days.

Photograph 2.2 Cullulla Road (looking west from Sandy Point Road)

Table 2.3 Sandy Point Road

Aspect	Description
Road classification and connectivity	Local road between Mayfield Road (south) and Oallen Ford Road (north)
Alignment	North-south
Number of lanes	One lane each direction
Carriageway type	Sealed road
Carriageway width	Approximately 7 m seal
Posted speed limit	Rural default speed limit of 100 km/h
Heavy vehicle access	General access vehicle. Heavy vehicle access only with a valid origin or destination.
Existing traffic function	Carries local traffic
Relevance to the development	Carries operational traffic
Additional comment	School bus stops are located along this route. School zone speed limits apply from 8:00 to 9:00 am and 4:00 to 5:00 pm on NSW school days.

Photograph 2.3 Sandy Point Road (looking north-east from Cullulla Road)

Table 2.4 Oallen Ford Road

Aspect	Description
Road classification and connectivity	Local road between Goderich Street (north) and Shoalhaven River Crossing (south)
Alignment	North-south
Number of lanes	One lane each way
Carriageway type	Sealed road
Carriageway width	Approximately 8.0 to 8.5 m at south of Sandy Point Road
Posted speed limit	80 km/h between Sandy Point Road and HQ Access Road
Heavy vehicle access	General access vehicle. Heavy vehicle access only with a valid origin or destination. 15 tonne load limit restriction applies at north of Sandy Point Road
Existing traffic function	Carries local traffic
Relevance to the development	Carries operational traffic between Sandy Point Road and Hi-Quality Access Road

Photograph 2.4 Oallen Ford Road (Looking south from Sandy Point Road)

Table 2.5 HiQ Access Road

Aspect	Description
Road classification and connectivity	Private road owned by HiQ, located approximately 3.3 km south of Sandy Point Road
Alignment	East-west
Number of lanes	One lane each way
Carriageway type	Gravel road
Carriageway width	Approximately 8 m
Posted speed limit	40 km/h
Heavy vehicle access	Yes, carries HiQ trucks
Existing traffic function	Provides access to the Site from Oallen Ford Road
Relevance to the development	Will continue to carry Site related light and heavy vehicles

Photograph 2.5 HiQ Access Road (Looking east)

2.3 HiQ self-imposed heavy vehicle speed restrictions

It should be noted that regardless of the current speed limit on the public road, HiQ has a self-imposed heavy vehicle speed restriction to 80 km/h for all roads except motorways or highways.

2.4 Key intersections

The four key intersections associated with the haul route include:

1. Braidwood Road/Lumley Road/Wallace Street
2. Cullulla Road/Sandy Point Road
3. Sandy Point Road/Oallen Ford Road
4. Oallen Ford Road/HiQ Site Access Road

A description and layout of each intersection is provided in Table 2.6 to Table 2.9 and the associated photographs (Photograph 2.6 to Photograph 2.9).

Table 2.6 Braidwood Road/Lumley Road/Wallace Street intersection

Aspect	Description
Location from the site	Approximately 25.5 km west of the Site
Intersection control	Priority controlled (Stop) intersection where Braidwood Road obtains the priority
Major Road	Braidwood Road
North approach	One lane on approach and one lane on departure
South approach	One lane on approach and one lane on departure
East approach	One lane on approach and one lane on departure
West approach	One lane on approach and one lane on departure
Pedestrian connectivity	No pedestrian connectivity on any approach
Traffic function	Predominantly carries regional traffic
Speed limit	60 km/h on the north and south approach at the Tarago township 50 km/h on the east and west approach at the Tarago township
Additional comments	Relatively large geometry of the intersection with some apparent pavement defects on the east approach. During the site inspection, some visible pavement cracks were observed on Lumley Road at Braidwood Road.

Photograph 2.6 Braidwood Road/Lumley Road/Wallace Street intersection (view from south-east corner)

Table 2.7 Cullulla Road/Sandy Point Road intersection

Aspect	Description
Location from the site	Approximately 9 km west of the site
Intersection control	Priority controlled T -intersection where Sandy Point Road obtains the priority
Major Road	Sandy Point Road
North approach	One lane on approach and one lane on departure
South approach	One lane on approach and one lane on departure
West approach	One lane on approach and one lane on departure
Pedestrian connectivity	No pedestrian connectivity on any approach
Traffic function	Predominantly carries local traffic
Speed limit	80 km/h on all approaches
Additional comments	Large geometry of the intersection suitable for heavy vehicle turns.

Photograph 2.7 A truck turning at Cullulla Road/Sandy Point Road intersection (view from south-west corner)

Table 2.8 Sandy Point Road/Oallen Ford Road intersection

Aspect	Description
Location from the site	Approximately 3.3 km north-west of the site
Intersection control	Priority (Stop) controlled T -intersection where Oallen Ford Road obtains the priority
Major Road	Oallen Ford Road
North approach	One approach and one departure lane
South approach	One approach and one departure lane
West approach	One approach and one departure lane
Pedestrian connectivity	No pedestrian connectivity on any approach
Traffic function	Predominantly carries regional traffic
Speed limit	80 km/h on all approaches
Additional comment	It appears that the intersection is recently upgrade to facilitate larger trucks

Photograph 2.8 Oallen Ford Road/Sandy Point Road intersection (view from south-west corner)

Table 2.9 Oallen Ford Road/HiQ Site Access Road intersection

Aspect	Description
Location from the site	Approximately 500 m west of the Site
Intersection control	Priority controlled T-intersection where Oallen Ford Road obtains the priority
Major Road	Oallen Ford Road
North approach	One approach and one departure lane
South approach	One approach and one departure lane
East approach	One approach and one departure lane
Pedestrian connectivity	No pedestrian connectivity on any approach
Traffic function	Carries Site traffic only to HiQ Access Road
Speed limit	80 km/h on Oallen Ford Road and 40 km/h on HiQ Access Road
Additional comment	Relatively large geometry of the intersection, suitable for heavy vehicle movement

Photograph 2.9 Oallen Ford Road/HiQ Access intersection (view from north)

2.5 Existing traffic volumes

2.5.1 Intersection count

Braidwood Road/Lumley Road/Wallace Street intersection (refer Section 2.4) was surveyed from 12:00 am on Thursday 29 August 2024 to 12:00 am on Friday 30 August 2024. This was a non-school holiday period. The peak hours for the intersection are summarised in Table 2.10.

The surveyed intersection traffic volumes during the AM and PM peak hours are summarised in Figure 2.2. The figure shows that there were only 6 vehicles in the AM peak and 15 vehicles during the PM peak between Lamley and Braidwood Roads.

It should be noted that the surveyed traffic volumes include the traffic from the existing approval.

Table 2.10 Intersection peak hours

Intersection	AM peak hour	PM peak hour
Braidwood Road/Lumley Road/Wallace Street	10:00 AM to 11:00 AM	2:45 PM to 3:45 PM

The traffic count data are attached in Appendix A.

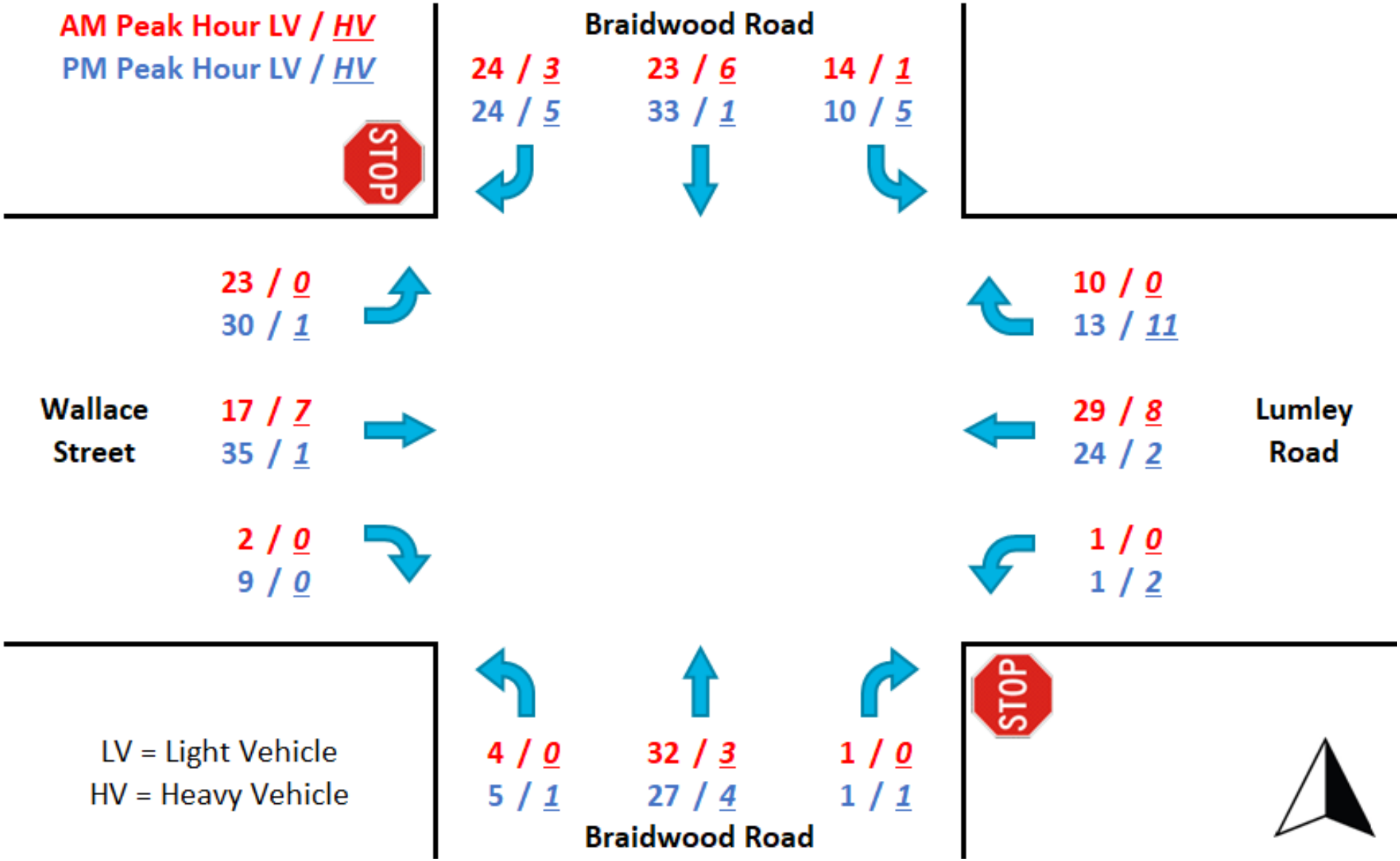


Figure 2.2 **2024 existing/baseline peak hour intersection volumes**

2.5.2 Tube counts

Tube count surveys were undertaken on the existing road network (Section 2.2). The tube count locations are shown in Figure 2.1.

The tube count surveys were conducted during non-school holiday periods.

Average Annual Daily Traffic (AADT), 85th percentile (85%ile) speed and light vehicle percentages were recorded. A summary of the tube count results is presented in the following tables.

Due to the truck movements being permitted Monday through Friday only, 5-day weekday AADTs are assessed, providing a more conservative estimate than 7-day AADTs.

Table 2.11 Tube count survey – Braidwood Road (approximately 170 m north of Lumley Road)

Aspect	Direction	Value
vehicles/5-days	Bi-directional	1,886
	Northbound	911
	Southbound	975
85%ile speed (km/h)	Northbound	52.1
	Southbound	51.3
Heavy vehicle % (5-day average)	Northbound	20.6
	Southbound	20.6

The above table shows that the recorded bidirectional daily volumes were under 2,000 vehicles per day. The recorded 85%ile speed[1] was around 52 km/h, which is within acceptable range of the posted speed limit of 60 km/h at the count location.

The high proportion of heavy vehicles represents the road serving the industrial precincts in the area.

Table 2.12 Tube count survey – Cullulla Road (approximately 10 km east of Braidwood Road)

Aspect	Direction	Value
vehicles/5-days	Bi-directional	792
	Eastbound	422
	Westbound	370
85%ile speed (km/h)	Eastbound	82.5
	Westbound	83.7
Heavy vehicle % (5-day average)	Eastbound	12.6
	Westbound	13.8

[1] The 85th percentile speed is the speed at or below which 85 percent of the drivers travel on a road segment. Motorists traveling above the 85th percentile speed are considered to be exceeding the safe and reasonable speed for road and traffic conditions.

The above table shows that the bidirectional traffic was just under 800 vehicles per day with a 13 to 14% heavy vehicle proportion. The recorded 85%ile speed was around 83 km/h, which is within acceptable range of the rural default speed limit of 100 km/h at the count location.

Table 2.13 Tube count survey – Sandy Point Road (approximately 1.5 km north-east of Cullulla Road)

Aspect	Direction	Value
5-day ADT (vehicles/day)	Bi-directional	758
	Northbound	398
	Southbound	360
85%ile speed (km/h)	Northbound	95.9
	Southbound	94.3
Heavy vehicle % (5-day average)	Northbound	15.1
	Southbound	16.3

The above table shows that the bidirectional traffic was just over 800 vehicles per day with a 13 to 14% heavy vehicle proportion. The recorded 85%ile speed was around 95 km/h, which is within acceptable range of the rural default speed limit of 100 km/h at the count location.

Table 2.14 Tube count survey – Oallen Ford Road (approximately 1.5 km south-east of Sandy Point Road)

Aspect	Direction	Value
5-day ADT (vehicles/day)	Bi-directional	1,166
	Northbound	549
	Southbound	617
85%ile speed (km/h)	Northbound	85.4
	Southbound	83.6
Heavy vehicle % (5-day average)	Northbound	9.5
	Southbound	8.9

The above table shows that the bidirectional traffic was under 1,200 vehicles per day with less than 10% heavy vehicle proportion. The recorded 85%ile speed was around 85 km/h, which is higher than the posted speed limit of 80 km/h at the count location.

2.6 Crash data analysis

Crash data in the vicinity of the site is available from TfNSW Centre for Road Safety website (TfNSW 2024) in the five-year period from 2019 to 2023 (inclusive).

The crashes are categorised based on the severity of the crashes:

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

A total of eight crashes were found to have occurred on the road network. The distribution of the crashes is presented in Figure 2.1 and summarised in Table 2.15.

Table 2.15 Crash data summary on the road network

Type of crash	Severity of injury				
	Non-casualty	Minor	Moderate	Serious	Fatal
Braidwood Road/Lumley Road/Wallace Street intersection					
Cross traffic	2				
Lumley Road					
Other manoeuvring	1				
Cullulla Road					
Run off road into object		1			1
Run off road	2	1			
Total	**5**	**2**	**0**	**0**	**1**

The eight crashes identified resulted in one fatal injury, two minor injuries and five crashes that did not cause any injuries.

Of the eight recorded crashes, one fatal crash occurred on Cullulla Road, 14 km west of the HiQ Access Road. Cullulla Road at the crash site shows no deficiencies and provides sufficient sight distance in both directions, see Figure 2.1, making it unlikely that road conditions contributed to the fatality.

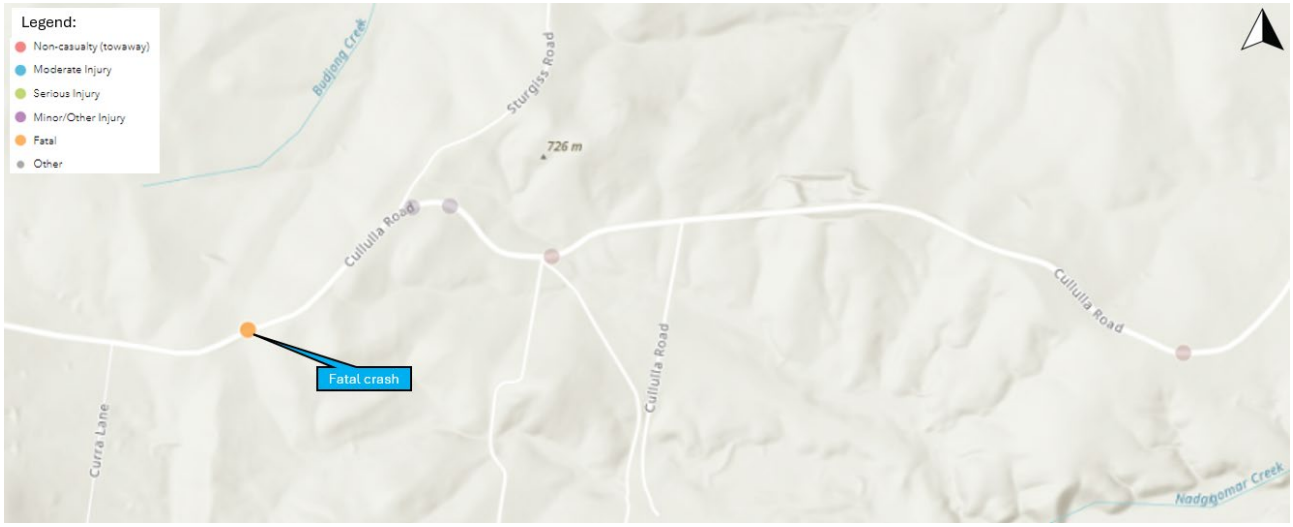
However, four additional crashes along Cullulla Road were all run-off-road crashes. The crash sites on Cullulla Road are located along a winding section without shoulders, suggesting that the winding road geometry likely contributed to these incidents. Further analysis on the Cullulla Road is provided in the following chapter.

Additionally, there was a cross-traffic crash at the Braidwood Road/Lumley Road/Wallace Street intersection involving two vehicles. However, as the intersection is controlled by stop signs, it is unlikely that this crash was due to road deficiencies or inadequate signage.

In summary, eight crashes over five years for such a long stretch of road is considered to be low. Hence, the road network adjacent to the site can generally be considered safe.

2.7 Community concerns on road crashes in Cullulla Road

It is noted that during the community consultation events, as mentioned in Section 1.6, concerns were raised about a section of Cullulla Road between Willow Glen Road and the Homestead Nursery. The crash data for Cullulla Road over the last five years is presented in Figure 2.3, and is discussed further below.



Source: TfNSW

Figure 2.3 Crash statistics in Cullulla Road

The above figure shows that there were five vehicle crashes on Cullulla Road over the last five years where one was a fatal crash and three were non-injury crashes. An investigation of these crashes reveals that the fatal crash occurred in 2020 during the daylight hours where the vehicle left the road on a left turning bend and hit an object. The vehicle speeding is likely to be the main cause of this crash.

The remaining four crashes were minor injury or tow away crashes where the vehicles departed the road at a bend with speed.

The site visit by EMM's Traffic Engineer who travelled the route on Monday 4 November 2024 noted that this section of Cullulla Road has multiple warning signs indicating a winding road, where the advisory speed limit is reduced to 65 km/h to help mitigate this risk (Photograph 2.10).

The latest recorded crash on Cullulla Road occurred in 2022 and there was no reported crash for the year 2023 and 2024. Therefore, the advisory speed limit warning signs at multiple locations are considered to be effective now in improving traffic safety. However, to further improve safety some additional mitigation measures are also recommended in Section 5 of this report.

Photograph 2.10 Winding Road warning sign on Cullulla Road

3 Traffic generation and distribution for proposed modification

3.1 Traffic generation

Operational traffic will consist of product haulage and workforce movements.

The AM and PM peak hours are assumed to align with the existing intersection peak hours in Table 2.10.

The operational traffic movements are detailed in Table 3.1, with the peak hour distribution outlined in Table 3.2.

The haulage route for MOD2 operation traffic, which remains consistent with the existing haulage route, is shown in Figure 3.1.

As the existing approval is already in operation, MOD1 traffic was captured during the traffic count survey conducted on Thursday 29 August 2024. Accordingly, the increase in traffic volumes is illustrated in Figure 3.2.

HiQ is proposing to average the truck movements for importing waste materials across a calendar year (previously 18 trucks per day, which equates to 4,536 trucks per year), for the purpose of this assessment, an absolute maximum of 36 trucks per day is assumed to access the facility. This approach allows flexibility in truck movements without exceeding the total annual truck movement limit for importing waste materials.

It should be noted that there is no proposed change to the total number of exporting clay trucks, which will remain at 6 per day.

Table 3.1 Estimated operational traffic movements

Units	Existing approval	MOD2 proposal
Maximum waste import per annum (tonne)	120,000	120,000
Maximum daily production (tonne)	576	**1,656**
Average truck payload carrying capacity (tonne)	32	**46**
Maximum trucks per annum	4,536	4,536
Maximum trucks per day	18	**36**
Maximum truck movements per day (inbound and outbound)	36	**72**
Total peak hour truck movements (assuming 15% of total truck movements per day)	6	**11**
Light vehicles per day (Staff and visitors)	8	8
Light vehicle movements per day (Staff and visitors)	16	16
Total peak hour light vehicle movements (Conservatively assuming all staff and visitors arrive in the AM peak hour and depart in the PM peak hour)	8	8
Total maximum daily light and heavy vehicle trips	26	**44**
Total maximum daily light and heavy vehicle movements	52	**88**
Total peak hour movements	14	**19**

Note: Values have been rounded up to provide a conservative estimate.

3.2 Traffic distribution

The existing traffic distribution at Tarago is as follows:

- Light vehicles: 90% to/from north and 10% to/from south along Braidwood Road
- Heavy vehicles: 90% to/from north and 10% to/from south along Braidwood Road.

There will be no change in traffic distribution as part of the proposal.

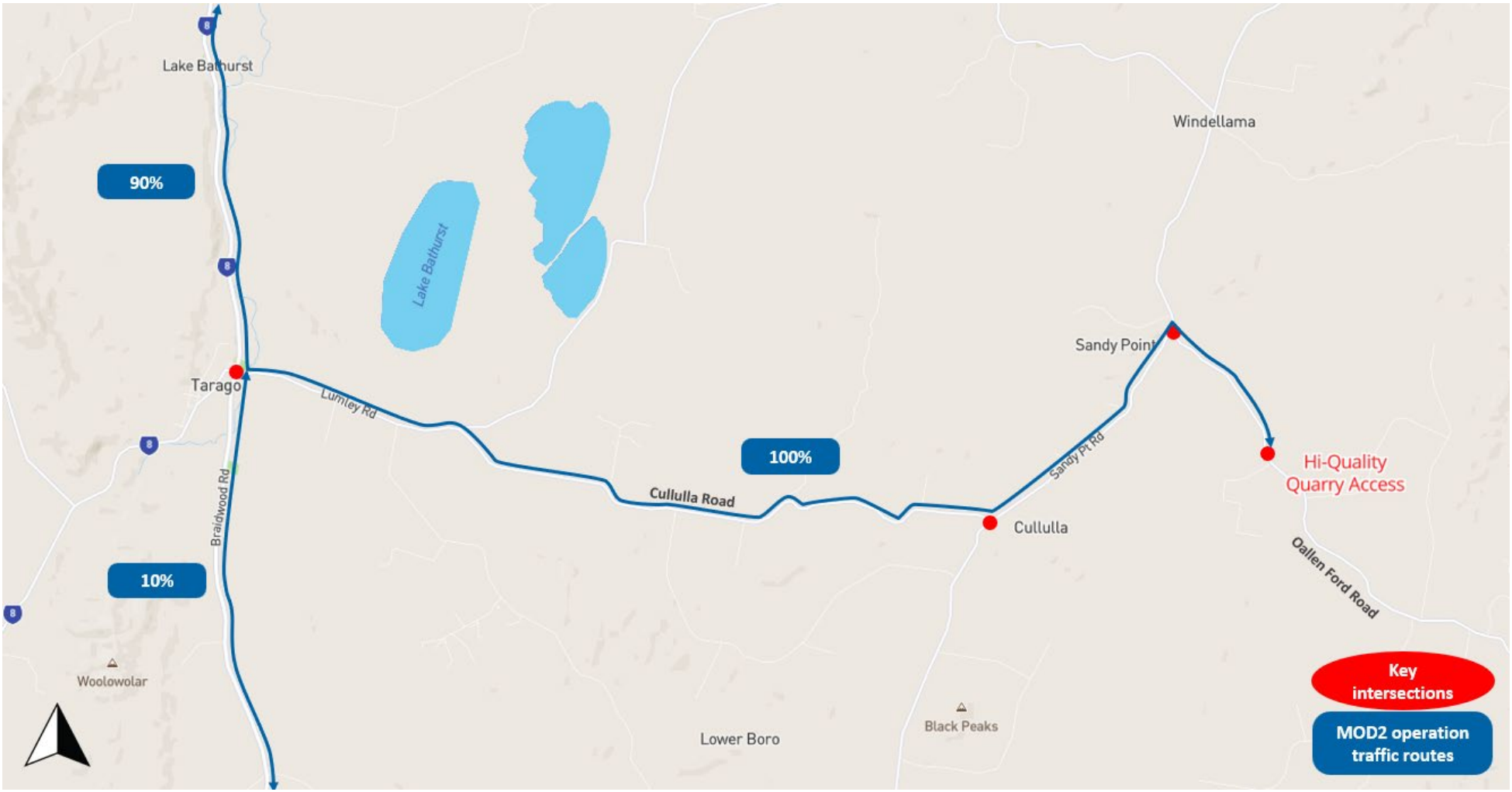
The peak hour traffic distribution is summarised in Table 3.2 and Figure 3.1.

Table 3.2 Peak hour movement distribution (Existing approval)

To/from	Existing approval							
	AM Peak				PM Peak			
	Light vehicles		Heavy vehicles		Light vehicles		Heavy vehicles	
	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound
North (Goulburn)	7	0	2	2	0	7	2	2
South (Canberra)	1	0	0	1	0	1	1	0

Table 3.3 Peak hour movement distribution (MOD2 proposal)

To/from	MOD2 proposal							
	AM Peak				PM Peak			
	Light vehicles		Heavy vehicles		Light vehicles		Heavy vehicles	
	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound
North (Goulburn)	7	0	5	5	0	7	5	5
South (Canberra)	1	0	0	1	0	1	1	0



Source: Metromap

Figure 3.1 MOD2 operation traffic routes

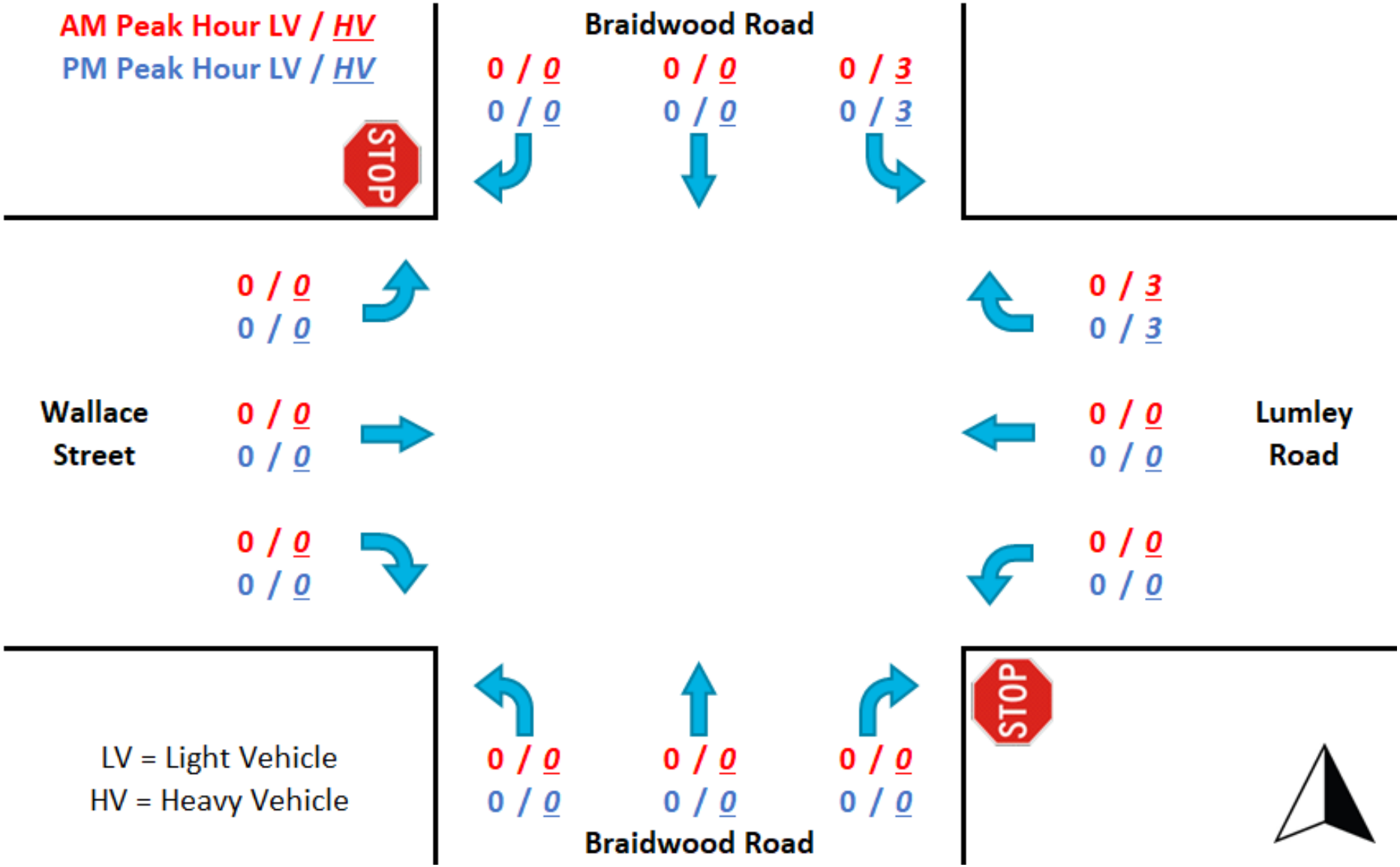


Figure 3.2 **2024 operation peak hour intersection volumes (traffic increase from MOD1 to MOD2)**

3.3 Cumulative traffic

3.3.1 Major projects

The Major Projects website of the Department of Planning, Housing and Infrastructure (DPHI) was accessed on 2 December 2024 identified the following projects.

i Woodlawn Waste and Energy Facility (MP06_0239)

This project includes a number of current applications for expansion or modification. The site is at 619 Collector Road, Tarago and is located approximately six kilometres west of Tarago.

Trucks for the Woodlawn Wate and Energy Facility will travel between Braidwood Road and Wallace Street. The estimated traffic volume for this intersection is still undetermined. However, it is unlikely to have any significant impact at this intersection, given there will not be any haulage truck for the subject development during the NSW school pick up and drop off times.

ii Other developments

The region has other development which are approved and/or constructed. These are generally renewable energy projects such as solar and wind farm developments which generate traffic during construction phases but require minimal vehicle movements when operational. Examples include Woodlawn Wind Farm and Capital Solar Farm.

3.3.2 Local development

The Goulburn Mulwaree Council website provides notification of projects currently on exhibition. None are recorded in the vicinity of Tarago.

No development applications in the vicinity of the Site have been determined in the period 28 September 2024 to 2 December 2024.

As there are no known developments at the vicinity of the site, no cumulative traffic impact assessment is required.

3.4 Forecast traffic assessment

The MOD2 proposal is scheduled to commence immediately after approval. Therefore, any traffic assessment for the future year is not necessary.

3.5 Projected traffic volumes

The estimated future traffic volumes are provided in the following Figure 3.3.

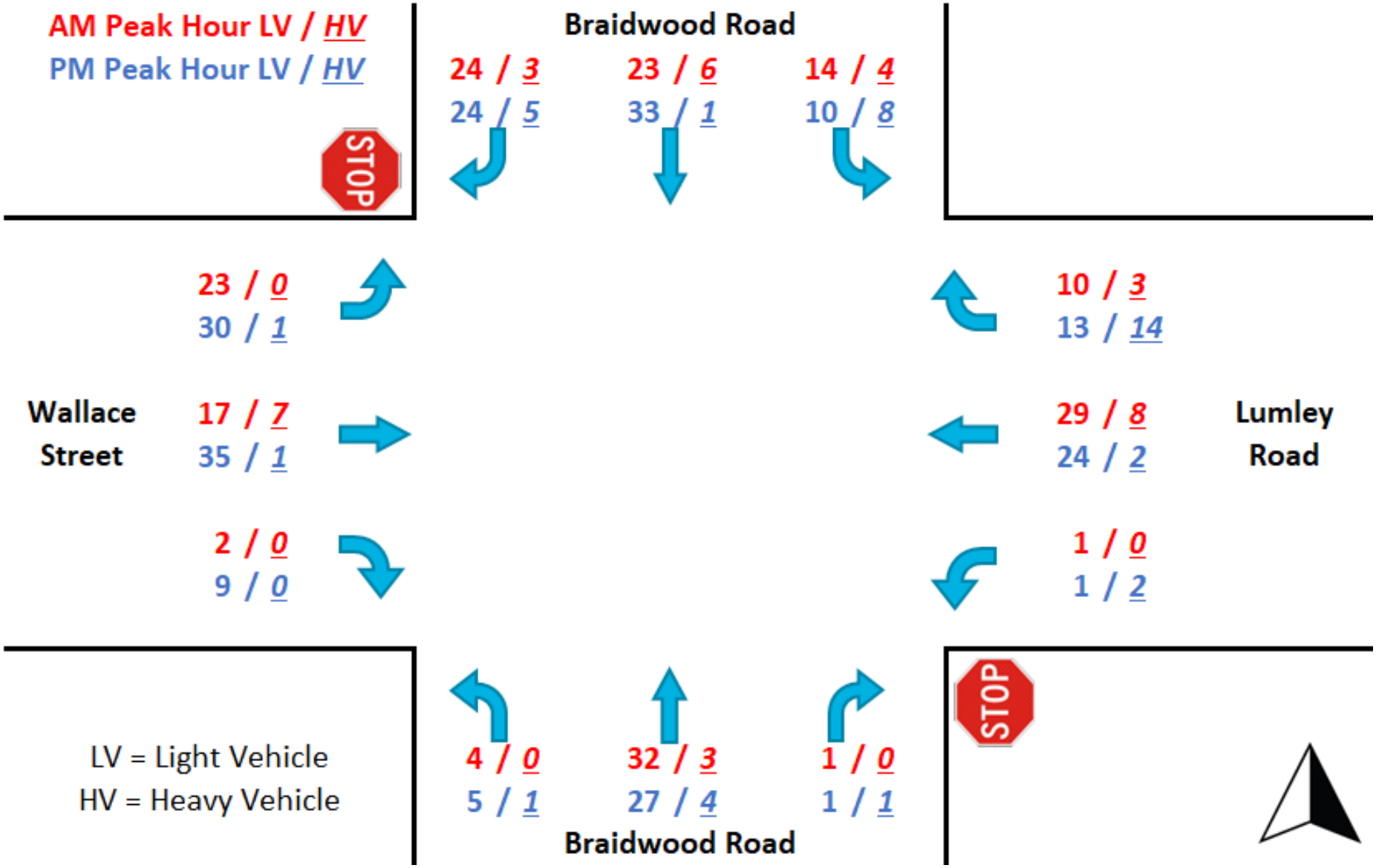


Figure 3.3 **2024 existing/baseline + operation (traffic increase from MOD1 to MOD2) peak hour intersection volumes**

4 Impact assessment

4.1 Intersection performance

The key intersections have been modelled with the SIDRA Intersection 9.1 software, a micro-analytical tool for individual intersections and linked intersection-network modelling. The modelling is based on the 2025 projected traffic volumes detailed in Section 3.5. SIDRA provides the following performance indicators:

- Degree of saturation (DOS) – the total usage of the intersection expressed as a factor of 1 with 1 representing 100% use/saturation (e.g. 0.8 = 80% saturation). In practice, the target degrees of saturation of 0.90 for signals, 0.85 for roundabouts and 0.80 for unsignalised intersections are generally agreed to. These are usually called 'practical degrees of saturation'.

- Average delay (DEL) – for a signalised or roundabout intersection, this is the average delay in seconds encountered by all vehicles passing through the intersection. For a priority-controlled intersection, this is the average delay experienced by the worst approach and turning movement. It is often important to review the average delay of each approach as a side road could have a long delay time, while the large free flowing major traffic will provide an overall low average delay.

- Level of service (LOS) – this is a categorisation of average delay, intended for simple reference. For a priority-controlled intersection, this is the categorisation of the average delay experienced by the worst approach and turning movement.

- 95% queue lengths (Q95) – is defined to be the queue length in metres that has only a 5% probability of being exceeded during the analysed time period. It transforms the average delay into measurable distance units.

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

Table 4.1 Intersection LOS standards

Level of service	Average delay (seconds per vehicle)	Traffic signals, roundabout	Priority intersection ('Stop' and 'Give Way')
A	<14	Good operation	Good operations
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity and accident study required
E	57 to 70	At capacity. At traffic signals, incidents will cause extensive delays. Roundabouts require other control mode.	At capacity, required other control mode
F	>71	Unsatisfactory with excessive queuing	Unsatisfactory with excessive queuing; required other control mode

Source: TfNSW Guide to Transport Impact Assessment (TfNSW 2024)

SIDRA modelling for all key intersections (Section 2.4) have been conducted for the haulage route. The following details have been included:

- existing/baseline traffic – based on 2024 traffic volumes (Figure 2.2)
- existing/baseline + Operation traffic (traffic increase from MOD1 to MOD2) – includes existing 2024 traffic volumes (Figure 2.2) combined with increase in operation traffic volumes (Figure 3.2).

The following abbreviations are used for the vehicle movements:

- TH: through movement
- LT: left turn
- RT: right turn.

The SIDRA results for the key intersections are presented in Section 4.2. Detailed SIDRA results can be found in Appendix B.

4.2 SIDRA modelling results

The SIDRA modelling results for Braidwood Road/Wallace Street/Lumley Road is provided below.

Table 4.2 SIDRA modelling result for Braidwood Road/Wallace Street/Lumley Road

Control: Priority controlled (Stop)	AM Peak						PM Peak					
Scenarios	**Intersection volume**	**DEL (s)**	**LOS**	**DOS**	**Q95 (m)**	**Q95 direction and approach**	**Intersection volume**	**DEL (s)**	**LOS**	**DOS**	**Q95 (m)**	**Q95 direction and approach**
2024 Existing/baseline	219	7.9	A	0.054	1.5	RT from east	259	10.4	A	0.071	2.1	RT from east
2024 (Existing/baseline + operation)	225	9.0	A	0.060	1.8	RT from east	265	10.8	A	0.076	2.4	RT from east

Key findings:

- In the AM and PM, the intersection performs well within capacity with a LOS A (good operation) for all scenarios.
- The intersection can easily accommodate the operations related traffic volumes without significantly affecting its operation.

4.3 Warrant for rural road upgrades

Road width design standards for sealed rural roads are defined by the *Austroads Guide to Road Design Part 3: Geometric Design* (Austroads 2023). These are based on daily tube count volumes, as shown in Section 2.5.2.

Table 4.3 Austroads road design for rural road (sealed)

Threshold band (daily traffic volumes)	Design standard
1–150	8.7 m wide total carriage (if unsealed) or minimum 3.7 m wide seal
150–500	Minimum 7.2 m wide seal, consisting of 3.1 m wide traffic lanes and 0.5 m wide sealed shoulders on each side
500–1,000	Minimum 7.2 m, up to 8 m wide seal, consisting of 3.1–3.5 m wide traffic lanes and 0.5 m wide sealed shoulders on each side
1,000–3,000	Minimum 9 m wide seal, consisting of 3.5 m wide traffic lanes and 1.0 m wide sealed shoulders on each side
> 3,000	Minimum 10 m wide seal, consisting of 3.5 m wide traffic lanes and 1.5 m wide sealed shoulders on each side

Source: Austroads Guide to Road Design Part 3: Geometric Design Table 4.5

The existing road width measurements, as well as the 2024 existing/baseline daily and 2024 baseline + operations daily traffic volumes of roads in the external road network, are presented in Table 4.4.

Table 4.4 Existing/baseline, baseline + operations daily traffic volumes and corresponding road design standards

Road	2024 existing/baseline daily traffic volume	2024 existing/baseline + operation daily traffic volume	Existing road width	Relevant design standard in accordance with daily traffic volume	Will meet design standard?
Braidwood Road (north of Lumley Road)	1,886	1,922	Varies but minimum 9 m sealed	Minimum 9 m wide seal	Yes
Cullulla Road (between Lumley Road and Sandy Point Road)	792	828	Varies but minimum 7.2 m sealed	Minimum 7.2 m wide seal	Yes
Sandy Point Road (between Cullulla Road and Oallen Ford Road)	758	794	Varies but minimum 7.2 m sealed	Minimum 7.2 m wide seal	Yes
Oallen Ford Road (Between Sandy Point Road and HiQ Access Road)	1,166	1,202	Varies but minimum 8.5 m sealed	Minimum 9 m wide seal	No

Note: According to Austroads, a minimum 7.0 m seal should be provided on designated heavy vehicle routes (or where the AADT contains more than 15% heavy vehicles).

Table 4.4 shows that Austroads design standards are met for all the roads along the haulage route, except for some sections of Oallen Ford Road (away from the intersections). This road width is considered suitable for the proposed PBS trucks as the current and proposed truck widths are the same.

The estimated daily traffic volumes are over 1,200 vehicles. The proposal will result in 18 additional daily trucks which is a net increase of 3.09% which is unlikely to cause any major traffic safety issues in Oallen Ford Road between Sandy Point Road and the Site access.

4.4 Road safety assessment

In accordance with Austroads *Guide to Road Design Part 4A*: *Unsignalised and Signalised Intersections* (Austroads 2023), all unsignalised T-intersections need to have clear visibility between the through traffic travelling on the major road and the turning traffic exiting from the minor road, so that the turning traffic can observe gaps to turn safely to merge with the major road traffic. This visibility measurement is called sight distance.

The safe intersection sight distance (SISD) has been assessed for each intersection, which varies according to the design speed of the road. Normally a design speed 10 km/h higher than the posted speed limit is used to calculate the SISD.

4.4.1 Braidwood Road/Lumley Road/Wallace Street intersection sight distance assessment

The sight distances on Braidwood Road at Lumley Road have been estimated based on the line of sight and observations at this intersection (Figure 4.1).

As Braidwood Road has a speed limit of 60 km/h near the Braidwood Road/Lumley Road/Wallace Street intersection, a presumed design speed of 70 km/h has been considered. In accordance with Austroads (2023), for a road with a design speed of 70 km/h, the minimum SISD required for a general minimum two second driver reaction time is 151 m.

The sight distances to both sides of the intersection meet the minimum SISD requirement.

Sight distance to the left (~350 m)

Sight distance to the right (~290 m)

Source: MetroMap

Figure 4.1 Sight distance to the left and right of Braidwood Road/Lumley Road/Wallace Street intersection

4.4.2 Sandy Point Road/Cullulla Road intersection sight distance assessment

The sight distances on Sandy Point Road at Cullulla Road have been estimated based on the line of sight and observations at this intersection (Figure 4.2).

As Sandy Point Road has a speed limit of 80 km/h near the Sandy Point Road/Cullulla Road intersection, a presumed design speed of 90 km/h has been considered. In accordance with Austroads (2023), for a road with a design speed of 90 km/h, the minimum SISD required for a general minimum two second driver reaction time is 214 m.

The sight distances to both sides of the intersection meet the minimum SISD requirement.

Sight distance to the left (~500 m)

Sight distance to the right (~280 m)

Source: MetroMap

Figure 4.2 Sight distance to the left and right of the Sandy Point Road/Cullulla Road intersection

4.4.3 Oallen Ford Road/Sandy Point Road intersection sight distance assessment

The sight distances on Oallen Ford Road at Sandy Point Road have been estimated based on the line of sight and observations at this intersection (Figure 4.3).

As Oallen Ford Road has a speed limit of 80 km/h near the Oallen Ford Road/Sandy Point Road intersection, presumed design speed of 90 km/h has been considered. In accordance with Austroads (2023), for a road with a design speed of 90 km/h, the minimum SISD required for a general minimum two second driver's reaction time is 214 m.

The sight distance to the left of the intersection meets the minimum SISD requirement.

The sight distance to the right is limited by the road's curvature. To mitigate the risk, an advanced intersection warning sign could be installed for northbound vehicles on Oallen Ford Road, south from Sandy Point Road (Figure 4.4).

Sight distance to the left (~220 m)

Sight distance to the right (~150 m)

Source: MetroMap

Figure 4.3 Sight distance to the left and right of the Oallen Ford Road/Sandy Point Road intersection

Source: TfNSW

Figure 4.4 Recommended advance intersection warning signage approximately 150 to 200 m from the intersection

4.4.4 Oallen Ford Road/HiQ Access Road intersection sight distance assessment

The sight distances on Oallen Ford Road at HiQ Access Road have been estimated based on the line of sight and observations at this intersection (Figure 4.5).

As Oallen Ford Road has a speed limit of 80 km/h near the Oallen Ford Road/HiQ Access Road intersection, a presumed design speed of 90 km/h has been considered. In accordance with Austroads (2023), for a road with a design speed of 90 km/h, the minimum SISD required for a general minimum two second driver reaction time is 214 m.

The sight distances to both sides of the intersection meet the minimum SISD requirement.

Sight distance to the left (~220 m)

Sight distance to the right (~240 m)

Source: MetroMap

Figure 4.5 Sight distance to the left and right of the Oallen Ford Road/HiQ Access Road intersection

4.5 Impacts on public transport, pedestrians and cyclists

The proposed haulage route will not impact any public transport or active transport services. There will not be any haulage trucks during the school pick up and drop off hours, therefore, there will not be any impact to the school buses operating along the haulage route at the vicinity of the site.

4.6 Heavy vehicle turning

Most of the analysed intersections have relatively large geometries, which are suitable for heavy vehicle turning. During the site inspection, videos demonstrated that trucks could execute turns effectively while remaining on the correct side of the road. Although no simultaneous opposing turns were observed due to the low volume of trucks accessing these intersections, the large geometries and wide shoulders make them suitable for two opposing turns.

At the Braidwood Road/Lumley Road/Wallace Street intersection, simultaneous turns by two opposing trucks may not be feasible. However, this is acceptable for the following reasons:

1. This intersection is already permitted for use by 32 tonne truck and dog trailers which is the same width for 46 tonne A-double trucks. Hence, the proposed trucks are not expected to increase the impact on the intersection when compared with the 32 tonne trucks and dogs.

2. The axle loading for the current and proposed trucks are likely to have a similar impact. HiQ is currently paying road maintenance contribution based on the tonnage, irrespective of the type of trucks. This contribution will continue.

3. HiQ trucks already have a National Heavy vehicle Regulator (NHVR) permit to use 30 m long A double trucks (Appendix D). Hence, Performance-Based Standard (PBS) trucks are already navigating the intersection regularly.

4. A-double trucks have more safety feature installed which is safer to execute the turns.

5. South East Australian Transport Strategy (SEATS), in collaboration with three Councils, has reviewed the condition of Lumley Road and the intersection. Upgrade works are currently under consideration, with funding pending approval from the NSW Government.

4.7 Contribution to council

In accordance with Land and Environment Court of NSW Order (14C) dated 12 April 2019, HiQ will continue to contribute to council $0.053 per tonne per km (indexed annually in line with the Consumer Price Index (CPI)) of approved haulage route for the road maintenance and $0.01 per tonne per km pavement rehabilitation which will be paid on a quarterly basis. In accordance with this formula, HiQ is currently paying contributions at a rate of $1.645 per tonne of waste imported and $1.531 per tonne of clay exported.

5 Mitigation measures

The recommended mitigation measures for the proposal have been provided against the risks/hazards identified during site inspection observations made by EMM.

5.1 On public roads

The proposed traffic management mitigation measures for public roads are presented in the following sections.

5.1.1 Braidwood Road/Lumley Road/Wallace Street intersection

As stated earlier, there are some existing pavement defects on Lumley Road at Braidwood Road which need to be repaired (Photograph 5.1). Upon repairing the pavement, the faded line marking could be redone.

HiQ's contribution to council for the road maintenance and pavement rehabilitation could be used to fix the existing pavement damage.

Photograph 5.1 Pavement damage and faded line markings at Braidwood Road/Lumley Road/Wallace Street intersection

5.1.2 One truck at a time using Braidwood Road/Lumley Road/Wallace Street intersection

As stated earlier, HiQs modern truck fleet have GPS coordinate system imbedded. HiQ is proposing one truck at any given time (either inbound or outbound) using the Braidwood Road/Lumley Road/Wallace Street intersection until the full upgrade of this intersection.

5.1.3 Community concerns on Homestead and HiQ access

During community consultation, concerns were raised about the risks associated with Cullulla Road between Willow Glen Road and the Homestead Nursery, as well as HiQ's access road and Oallen Ford Road.

For Cullulla Road, the primary concern is the slight bend in the road combined with an overtaking lane that reduces visibility due to the upcoming crest. Additionally, specific concerns were raised about vehicles exiting the nursery, citing limited sight distance in this area.

For Oallen Ford Road, the community expressed concerns about vehicles traveling north towards the HiQ site access, noting that drivers may not have sufficient time to react before encountering a truck on the road.

To mitigate risks in both of these areas, it is proposed to install vehicle-activated warning signs approximately 200 m before each hazard location (Figure 5.1 and Figure 5.2).

Source: Google map

Figure 5.1 Recommended vehicle activated sign on approach to Homestead Nursery access

Source: Google map

Figure 5.2 Recommended vehicle activated signs on approach to HiQ access

5.2 Within the Site

Microwave cooker should be removed or relocated as this could be a distraction for the incoming drivers to the site, refer to Photograph 5.2.

Photograph 5.2 Old microwave at HiQ Site entrance

Faded 40 km/h sign should be replaced, refer to Photograph 5.3.

Photograph 5.3 Faded 40 km/h sign at HiQ entrance

Faded ‘Condition of Entry’ sign should be replaced with a new sign, refer to Photograph 5.4.

Photograph 5.4 Faded ‘Condition of Entry’ at HiQ entrance

5.3 General

5.3.1 Traffic Management Plan

The Site has recently updated the Traffic Management Plan (TMP) which will be implemented as part of this proposal (Appendix C).

6 Conclusion and summary

This TIA has been prepared by EMM Consulting on behalf of HiQ to assess the potential impacts of the proposed use of PBS vehicles at the Site. This report supports the modification application submitted to Council that seeks to:

- modernise the approved truck types at the site by removing outdated references to specific truck weights and configurations and expanding the approved vehicle types to include PBS trucks, which offer enhanced load distribution, improved stability, reduced road wear, and increased payload capacity
- introduce flexibility in daily truck movements by averaging truck numbers over a calendar year, allowing truck movements lost on wet days to be carried over to drier periods without increasing the total annual truck movements
- relocate the wheel wash to the front of the site to improve dust control, enhance internal traffic management, and ensure effective containment measures.

The TIA addresses the haulage route capacity to accept the proposed trucks and provides mitigation measures for implementation as necessary.

The associated traffic impacts of the project operations have been evaluated and the findings are as follows:

- **32-tonne truck and dog** combinations are no longer considered appropriate to reference in the consent due to changes in vehicle design, load capacity, and road safety standards. The use of these vehicles has become less common, as modern heavy vehicles, such as PBS vehicles, are now more prevalent. These newer vehicles are better suited to the current road infrastructure and operational requirements. As such, referencing 32-tonne truck and dog combinations in the consent is outdated and inconsistent with current industry standards, and they are no longer deemed relevant for this assessment.
- Several of HiQs truck combinations have already been approved by the **National Heavy Vehicle Regulator** (NHVR) to use the haulage route, including 4-axle trucks, 5-axle dog trailers, and A-Double vehicles up to 26 meters in length. However, the 30-meter A-Double vehicles, which represent the longest truck configurations proposed for the project, have yet to be approved for the full haulage route. Currently, these vehicles are only approved to travel between the Hume Highway and Tarago.
- The existing road widths along the haulage route are generally compliant with the Austroads design standards. Some minor nonconformity in the width of Oallen Ford Road is considered acceptable.
- The haulage route is a NHVR approved B-double route and the proposed PBS trucks shares the same width which is acceptable.
- **All proposed trucks combinations are considered acceptable** to use the haulage route. Minor shoulder widening and the implementation of safety mitigation measures may be required at certain locations to ensure safe and efficient truck movements to and from the site.
- The site currently accepts a maximum of 18 trucks per day. The proposed modification seeks to change this to an average of 18 trucks per day, with an upper limit of 36 trucks per day. This would result in a maximum increase of **3.08% of total daily traffic volume** along the haul route, while the total annual truck movements will remain unchanged.

- The **Braidwood Road/Lumley Road/Wallace Street** intersection will remain at Level of Service A (LOS A) with the projected operation traffic volumes in all scenarios. All other key intersections are in low traffic areas and hence won't require intersection analysis, given there is no projected traffic increase as part of the proposal While simultaneous turns by two opposing trucks may not be feasible at the Braidwood Road/Lumley Road/Wallace Street intersection, this limitation is not new as a result of this proposal and already applies to most trucks using the intersection. PBS trucks currently navigate the intersection regularly, demonstrating its capacity to accommodate the proposed vehicles. It is proposed that HiQ will implement its traffic management plan to facilitate safe navigation of the Braidwood/Road/Lumley Road/Wallace Street intersection

- The sight distance requirements to the right at the **Oallen Ford Road/Sandy Point Road intersection** are not met due to the curvature of the road.

- The proposed haulage route will not impact any school bus, public transport or active transport services.

- Minor bends on Cullulla Road, near the Homestead Nursery, have raised concerns within the community due to the limited sight distance for oncoming traffic, which is perceived as a safety risk. The following mitigation measures are proposed:

    - It is recommended that existing pavement damage be repaired and faded line markings be reapplied at Braidwood Road/Lumley Road/Wallace Street intersection.

    - It is recommended that an advanced intersection warning sign be installed on Oallen Ford Road, approximately 150 to 200 m from Sandy Point Road for northbound vehicles to ensure sight distancing risks are mitigated.

    - It is recommended that vehicle-activated flashing lights are installed at Homestead Nursery and HiQ's site entrance to alert road users when trucks are approaching these locations.

    - It is recommended that HiQ to enforces the traffic management plan, including but not limited to the following requirements:

        1. Only one truck can navigate through the Braidwood Road/Lumley Road/Wallace Street intersection at any given time.

        2. A maximum travel speed of 80 km/h must be maintained on the haulage route excluding highways and motorways.

    - It is recommended that the microwave cooker letterbox be removed or relocated from HiQ site entrance as it is a distraction for trucks entering the Site.

    - It is recommended that the faded 40 km/h sign at the HiQ site entrance be replaced.

    - It is recommended that the faded 'Condition of Entry' sign at the HiQ site entrance be replaced.

    - It is recommended that in accordance with Land and Environment Court of NSW Order (14C) dated 12 April 2019, HiQ will continue to contribute to council $0.053 per tonne per km (indexed annually in line with the Consumer Price Index (CPI)) using the approved haulage route for the road maintenance and $0.01 per tonne per km for pavement rehabilitation which will paid in quarterly basis. In accordance with this formula, HiQ is currently paying contributions at a rate of $1.645 per tonne of w aste imported and $1.531 per tonne of clay exported.

References

Austroads 2023, *Austroads Guide to Road Design Part 3: Geometric Design*

Austroads 2023, *Guide to Road Design Part 4A: Unsignalised and Signalised Intersections*

Metro Maps 2024, *Online Mapping Service*, Metromap

NHVR 2024, *National Map – Heavy Vehicle Access*, National Heavy Vehicle Regulator

NHVR 2024, *PBS Vehicle Approval – VA17120 – V220222 – v1A*, National Heavy Vehicle Regulator

TfNSW 2024, *Guide to Transport Impact Assessment*, Transport for New South Wales

TfNSW 2024, *Interactive crash statistics – NSW Centre for Road Safety*, Transport for New South Wales

TfNSW 2024, *Road Network Classification*, Transport for New South Wales

TfNSW 2024, *W2-4L Side Road Intersection on Straight Left (Symbolic)*, Transport for New South Wales.

Appendix A
Intersection and tube count data

EMM
creating opportunities

TRANS TRAFFIC SURVEY

trafficsurvey.com.au

TURNING MOVEMENT SURVEY

Intersection of Lumley Rd and Braidwood Rd, Tarago

GPS *-35.06984, 149.6548*

Date:	Thu 29/08/24
Weather:	Overcast
Suburban:	Tarago
Customer:	EMM

North:	Braidwood Rd
East:	Lumley Rd
South:	Braidwood Rd
West:	Wallace St

Survey Period	AM:	12:00 AM-12:00 PM
	PM:	12:00 PM-12:00 AM
Traffic Peak	AM:	10:00 AM-11:00 AM
	PM:	2:45 PM-3:45 PM

All Vehicles

Time		North Approach Braidwood Rd				East Approach Lumley Rd				South Approach Braidwood Rd				West Approach Wallace St				Hourly Total	
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	Hour	Peak
0:00	0:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	
0:15	0:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	
0:30	0:45	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	6	
0:45	1:00	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	5	
1:00	1:15	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3	
1:15	1:30	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
1:30	1:45	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
1:45	2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
2:00	2:15	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
2:15	2:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
2:30	2:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
2:45	3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
3:00	3:15	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	
3:15	3:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
3:30	3:45	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	8	
3:45	4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	
4:00	4:15	0	1	0	0	0	0	1	0	0	0	1	0	0	0	0	0	20	
4:15	4:30	0	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	26	
4:30	4:45	0	2	0	0	0	1	4	0	0	0	0	0	0	0	0	1	37	
4:45	5:00	0	1	0	0	0	1	3	0	0	0	0	0	0	0	0	0	51	
5:00	5:15	0	3	2	0	0	0	2	0	0	0	0	0	0	0	0	2	66	
5:15	5:30	0	7	1	0	0	0	5	0	0	0	0	0	0	0	0	2	88	
5:30	5:45	0	11	2	0	0	0	7	1	0	0	0	0	0	0	1	0	106	
5:45	6:00	0	9	3	1	0	0	5	0	0	0	0	0	0	0	2	0	117	
6:00	6:15	0	13	3	3	0	3	5	0	0	0	1	1	0	0	1	1	131	
6:15	6:30	0	13	4	0	0	0	8	0	0	1	5	0	0	0	2	0	135	
6:30	6:45	0	12	3	3	0	0	4	0	0	0	4	1	0	0	5	1	159	
6:45	7:00	0	12	2	1	0	2	7	0	0	0	2	0	0	0	4	4	179	
7:00	7:15	0	6	4	2	0	2	8	1	0	0	9	0	0	0	2	1	194	
7:15	7:30	0	7	4	6	0	9	8	2	0	1	3	0	0	0	11	6	202	
7:30	7:45	0	6	5	3	0	7	9	1	0	0	5	1	1	1	5	9	197	
7:45	8:00	0	5	1	6	0	5	9	0	0	2	9	1	0	2	3	6	192	
8:00	8:15	0	7	5	2	0	3	8	1	0	0	9	1	0	0	3	4	182	
8:15	8:30	0	2	3	1	0	4	5	1	0	1	11	0	0	0	8	16	186	
8:30	8:45	0	7	5	2	0	2	11	2	0	0	9	0	0	0	4	6	177	
8:45	9:00	0	5	7	2	0	2	5	0	0	0	7	0	0	1	4	6	173	
9:00	9:15	0	6	8	3	0	5	7	0	0	0	11	0	0	0	4	3	180	
9:15	9:30	0	5	5	1	0	4	8	0	0	1	10	0	0	0	5	4	180	
9:30	9:45	0	6	7	4	0	3	7	0	0	0	11	0	0	0	2	4	196	
9:45	10:00	0	4	8	4	0	3	5	2	0	0	4	1	0	0	6	9	207	
10:00	10:15	0	7	7	2	0	2	10	0	0	0	9	0	0	0	4	6	209	Peak
10:15	10:30	0	5	4	5	0	3	10	0	0	0	12	1	0	0	12	7	207	
10:30	10:45	0	5	12	3	0	3	11	0	0	1	11	1	0	2	4	2	192	
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11:00	11:15	0	6	5	2	0	2	2	0	0	1	4	1	0	0	4	18	181	
11:15	11:30	0	4	4	2	0	0	7	0	0	0	12	0	0	1	11	3		
11:30	11:45	0	3	8	5	0	2	8	0	0	0	7	0	0	0	4	3		
11:45	12:00	0	3	9	3	0	3	7	0	0	1	11	0	0	2	4	9		
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13:30	13:45	0	3	7	6	0	3	2	1	0	0	5	0	0	0	10	5	173	
13:45	14:00	0	7	9	2	0	3	6	0	0	1	5	0	0	0	6	7	182	
14:00	14:15	0	3	5	2	0	4	2	1	0	0	10	0	0	0	9	9	186	
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19:30	19:45	0	0	3	0	0	0	0	1	0	0	0	1	0	0	5	4	57	
19:45	20:00	0	3	3	5	0	1	1	0	0	0	1	0	0	1	2	0	54	
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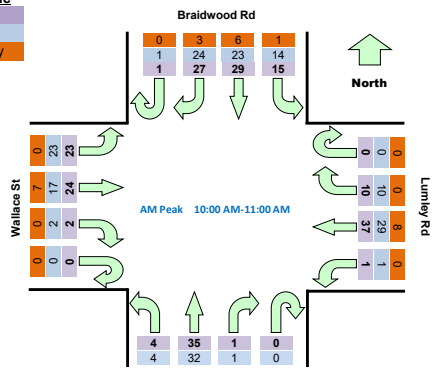
23:00	23:15	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	5	
23:15	23:30	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1		
23:30	23:45	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0		
23:45	0:00	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0		

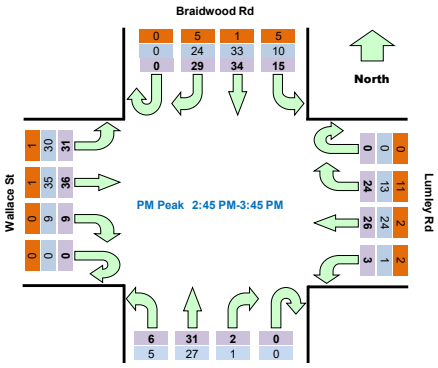
Peak Time		North Approach Braidwood Rd				East Approach Lumley Rd				South Approach Braidwood Rd				West Approach Wallace St				Peak
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	total
10:00	11:00	1	27	29	15	0	10	37	1	0	1	35	4	0	2	24	23	209
14:45	15:45	0	29	34	15	0	24	26	3	0	2	31	6	0	9	36	31	246

Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.

Graphic

Total
Light
Heavy





Light Vehicles

Time		North Approach Braidwood Rd				East Approach Lumley Rd				South Approach Braidwood Rd				West Approach Wallace St			
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L
0:00	0:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
0:15	0:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:30	0:45	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
0:45	1:00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
1:00	1:15	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
1:15	1:30	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30	1:45	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45	2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00	2:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15	2:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30	2:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45	3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00	3:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15	3:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30	3:45	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
3:45	4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00	4:15	0	1	0	0	0	0	1	0	0	0	1	0	0	0	0	0
4:15	4:30	0	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0
4:30	4:45	0	1	0	0	0	1	4	0	0	0	0	0	0	0	0	1
4:45	5:00	0	1	0	0	0	1	3	0	0	0	0	0	0	0	0	0
5:00	5:15	0	2	1	0	0	0	1	0	0	0	0	0	0	0	0	2
5:15	5:30	0	7	0	0	0	0	5	0	0	0	0	0	0	0	0	1
5:30	5:45	0	11	1	0	0	0	7	1	0	0	0	0	0	0	1	0
5:45	6:00	0	9	2	0	0	0	5	0	0	0	0	0	0	0	2	0
6:00	6:15	0	12	3	2	0	3	4	0	0	0	1	1	0	0	0	1
6:15	6:30	0	12	4	0	0	0	7	0	0	1	5	0	0	0	1	0
6:30	6:45	0	12	2	1	0	0	4	0	0	0	3	1	0	0	4	1
6:45	7:00	0	11	1	0	0	2	7	0	0	0	0	0	0	0	4	2
7:00	7:15	0	4	3	2	0	2	8	1	0	0	8	0	0	0	2	0
7:15	7:30	0	6	2	2	0	6	7	2	0	0	2	0	0	0	8	6
7:30	7:45	0	5	3	2	0	6	6	1	0	0	5	1	1	1	3	6
7:45	8:00	0	4	1	6	0	4	6	0	0	2	7	1	0	1	2	5
8:00	8:15	0	5	5	2	0	3	8	1	0	0	9	1	0	0	3	4
8:15	8:30	0	2	2	1	0	4	4	1	0	1	11	0	0	0	5	15
8:30	8:45	0	5	5	1	0	2	8	2	0	0	7	0	0	0	3	5
8:45	9:00	0	4	7	2	0	2	4	0	0	0	7	0	0	1	4	5
9:00	9:15	0	6	7	3	0	5	6	0	0	0	9	0	0	0	3	2
9:15	9:30	0	5	5	1	0	3	6	0	0	1	10	0	0	0	2	3
9:30	9:45	0	4	7	3	0	3	5	0	0	0	9	0	0	0	2	3
9:45	10:00	0	4	7	4	0	3	3	0	0	0	2	1	0	0	6	6
10:00	10:15	0	5	5	2	0	2	9	0	0	0	8	0	0	0	3	6
10:15	10:30	0	5	4	5	0	3	7	0	0	0	12	1	0	0	8	7
10:30	10:45	0	4	8	3	0	3	8	0	0	1	9	1	0	2	3	2
10:45	11:00	1	10	6	4	0	2	5	1	0	0	3	2	0	0	3	8
11:00	11:15	0	3	4	2	0	2	2	0	0	1	2	1	0	0	3	5
11:15	11:30	0	3	4	2	0	0	5	0	0	0	11	0	0	1	9	2
11:30	11:45	0	1	8	3	0	2	7	0	0	0	5	0	0	0	4	2
11:45	12:00	0	3	9	3	0	3	6	0	0	1	9	0	0	2	4	8
12:00	12:15	0	10	5	4	0	2	5	1	0	0	10	1	0	1	16	6
12:15	12:30	0	7	10	3	0	2	3	1	0	0	11	0	0	1	5	5
12:30	12:45	0	4	5	4	0	1	2	1	0	0	2	1	0	0	5	3
12:45	13:00	0	4	12	4	0	2	1	1	0	0	6	1	0	1	7	5
13:00	13:15	0	4	7	4	0	2	2	1	0	1	4	1	0	0	7	5
13:15	13:30	0	4	4	4	0	3	1	2	0	0	11	0	0	1	4	2
13:30	13:45	0	2	6	1	0	3	2	1	0	0	5	0	0	0	8	5
13:45	14:00	0	7	9	2	0	2	6	0	0	1	3	0	0	0	6	6
14:00	14:15	0	3	4	1	0	2	2	1	0	0	9	0	0	0	9	7
14:15	14:30	0	4	6	4	0	3	3	0	0	0	6	0	0	1	1	5

14:30	14:45	0	5	9	3	0	2	4	2	0	0	16	0	0	0	5	2
14:45	15:00	0	1	8	2	0	3	7	0	0	0	7	1	0	1	8	5
15:00	15:15	0	4	6	5	0	6	5	0	0	0	7	1	0	2	7	9
15:15	15:30	0	10	11	2	0	0	9	1	0	1	5	3	0	5	10	8
15:30	15:45	0	9	8	1	0	4	3	0	0	0	8	0	0	1	10	8
15:45	16:00	0	3	6	5	0	3	2	0	0	1	10	0	0	1	5	9
16:00	16:15	0	6	11	3	0	0	6	1	0	0	9	0	0	9	7	1
16:15	16:30	0	7	10	7	0	1	5	0	0	0	10	0	0	5	12	0
16:30	16:45	0	4	15	3	0	1	2	1	0	1	3	0	0	11	9	0
16:45	17:00	0	0	8	4	0	3	1	0	0	0	1	0	0	6	7	1
17:00	17:15	0	5	5	1	0	1	3	0	0	0	7	1	0	2	15	7
17:15	17:30	0	5	9	3	0	2	5	1	0	0	6	0	0	0	7	7
17:30	17:45	0	3	6	3	0	0	4	0	0	0	4	3	0	2	7	10
17:45	18:00	0	3	3	4	0	1	1	0	0	0	6	1	0	0	5	7
18:00	18:15	1	2	8	0	0	3	2	2	0	0	2	1	0	1	6	10
18:15	18:30	0	2	3	1	0	0	3	0	0	0	2	0	0	0	8	3
18:30	18:45	0	1	1	4	0	1	1	1	0	0	0	2	0	2	5	2
18:45	19:00	0	4	1	0	0	0	1	1	0	0	2	3	0	1	4	3
19:00	19:15	0	2	3	1	0	0	1	0	0	0	0	0	0	1	9	8
19:15	19:30	0	0	3	0	0	1	0	1	0	0	1	0	0	0	1	2
19:30	19:45	0	0	3	0	0	0	0	1	0	0	0	1	0	0	5	4
19:45	20:00	0	3	3	5	0	1	1	0	0	0	0	0	0	1	2	0
20:00	20:15	0	0	2	1	0	1	1	1	0	0	1	1	0	1	2	2
20:15	20:30	0	1	2	1	0	0	2	1	0	0	0	1	0	1	2	1
20:30	20:45	0	2	1	3	0	0	0	0	0	0	0	0	0	0	2	2
20:45	21:00	0	1	5	1	0	1	0	0	0	0	0	0	0	1	1	2
21:00	21:15	0	0	1	0	0	0	0	0	0	0	0	0	1	4	3	0
21:15	21:30	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	1
21:30	21:45	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0
21:45	22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00	22:15	0	1	1	0	0	0	2	0	0	0	0	0	0	0	0	1
22:15	22:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
22:30	22:45	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0
22:45	23:00	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0
23:00	23:15	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
23:15	23:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
23:30	23:45	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
23:45	0:00	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0

Peak Time		North Approach Braidwood Rd				East Approach Lumley Rd				South Approach Braidwood Rd				West Approach Wallace St				Peak
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	total
10:00	11:00	1	24	23	14	0	10	29	1	0	1	32	4	0	2	17	23	181
14:45	15:45	0	24	33	10	0	13	24	1	0	1	27	5	0	9	35	30	212

Heavy Vehicles

Time		North Approach Braidwood Rd				East Approach Lumley Rd				South Approach Braidwood Rd				West Approach Wallace St			
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L
0:00	0:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:15	0:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:30	0:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:45	1:00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
1:00	1:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15	1:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30	1:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45	2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00	2:15	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15	2:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30	2:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45	3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00	3:15	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
3:15	3:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30	3:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45	4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00	4:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15	4:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

4:30	4:45	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45	5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00	5:15	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0
5:15	5:30	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30	5:45	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45	6:00	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
6:00	6:15	0	1	0	1	0	0	1	0	0	0	0	0	0	0	1	0
6:15	6:30	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0
6:30	6:45	0	0	1	2	0	0	0	0	0	0	1	0	0	0	1	0
6:45	7:00	0	1	1	1	0	0	0	0	0	0	2	0	0	0	0	2
7:00	7:15	0	2	1	0	0	0	0	0	0	0	1	0	0	0	0	1
7:15	7:30	0	1	2	4	0	3	1	0	0	1	1	0	0	0	3	0
7:30	7:45	0	1	2	1	0	1	3	0	0	0	0	0	0	0	2	3
7:45	8:00	0	1	0	0	0	1	3	0	0	0	2	0	0	1	1	1
8:00	8:15	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	8:30	0	0	1	0	0	0	1	0	0	0	0	0	0	0	3	1
8:30	8:45	0	2	0	1	0	0	3	0	0	0	2	0	0	0	1	1
8:45	9:00	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1
9:00	9:15	0	0	1	0	0	0	1	0	0	0	2	0	0	0	1	1
9:15	9:30	0	0	0	0	0	1	2	0	0	0	0	0	0	0	3	1
9:30	9:45	0	2	0	1	0	0	2	0	0	0	2	0	0	0	0	1
9:45	10:00	0	0	1	0	0	0	2	2	0	0	2	0	0	0	0	3
10:00	10:15	0	2	2	0	0	0	1	0	0	0	1	0	0	0	1	0
10:15	10:30	0	0	0	0	0	0	3	0	0	0	0	0	0	0	4	0
10:30	10:45	0	1	4	0	0	0	3	0	0	0	2	0	0	0	1	0
10:45	11:00	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0
11:00	11:15	0	3	1	0	0	0	0	0	0	0	2	0	0	0	1	13
11:15	11:30	0	1	0	0	0	0	2	0	0	0	1	0	0	0	2	1
11:30	11:45	0	2	0	2	0	0	1	0	0	0	2	0	0	0	0	1
11:45	12:00	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	1
12:00	12:15	0	1	2	0	0	0	1	1	0	1	1	1	0	0	2	1
12:15	12:30	0	0	2	1	0	0	1	1	0	0	0	0	0	0	0	1
12:30	12:45	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	4
12:45	13:00	0	2	0	0	0	0	1	1	0	0	2	0	0	0	0	1
13:00	13:15	0	0	3	3	0	0	1	1	0	0	0	0	0	0	0	0
13:15	13:30	0	2	0	1	0	1	0	0	0	0	0	1	0	0	0	0
13:30	13:45	0	1	1	5	0	0	0	0	0	0	0	0	0	0	2	0
13:45	14:00	0	0	0	0	0	1	0	0	0	0	2	0	0	0	0	1
14:00	14:15	0	0	1	1	0	2	0	0	0	0	1	0	0	0	0	2
14:15	14:30	0	3	0	2	0	0	0	0	0	0	0	0	0	0	0	2
14:30	14:45	0	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0
14:45	15:00	0	3	0	0	0	4	0	0	0	0	0	0	0	0	0	0
15:00	15:15	0	0	0	1	0	6	1	1	0	0	4	0	0	0	0	0
15:15	15:30	0	1	1	4	0	0	1	1	0	0	0	0	0	0	1	0
15:30	15:45	0	1	0	0	0	1	0	0	0	1	0	1	0	0	0	1
15:45	16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3
16:00	16:15	0	0	2	0	0	0	0	0	0	0	1	0	0	0	1	0
16:15	16:30	0	0	1	1	0	1	0	0	0	0	4	1	0	2	0	0
16:30	16:45	0	0	0	0	0	0	0	0	0	0	3	0	0	2	0	0
16:45	17:00	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0
17:00	17:15	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	2
17:15	17:30	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0
17:30	17:45	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1
17:45	18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00	18:15	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0
18:15	18:30	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
18:30	18:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
18:45	19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:00	19:15	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
19:15	19:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:30	19:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:45	20:00	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0

20:00	20:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20:15	20:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
20:30	20:45	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
20:45	21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00	21:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:15	21:30	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
21:30	21:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:45	22:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
22:00	22:15	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
22:15	22:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:30	22:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:45	23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00	23:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:15	23:30	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
23:30	23:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:45	0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Time		North Approach Braidwood Rd				East Approach Lumley Rd				South Approach Braidwood Rd				West Approach Wallace St				Peak
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	total
10:00	11:00	0	3	6	1	0	0	8	0	0	0	3	0	0	0	7	0	28
14:45	15:45	0	5	1	5	0	11	2	2	0	1	4	1	0	0	1	1	34

TRANS TRAFFIC SURVEY
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AUTOMATIC COUNT SUMMARY

Street Name :	Braidwood Rd	**Location :**	North of Lumley Rd
Suburb :	Tarago	**Start Date :**	00:00 Wed 28/August/2024
Machine ID:	YY22RW8H	**Finish Date :**	00:00 Wed 04/September/2024
Site ID:	3482	**Speed Zone :**	60 km/h
Prepared By :	Vo Son Binh	**Email:**	binh@trafficsurvey.com.au

GPS information		Lat 35° 4' 5.92 South Long 149° 39' 19.25 East	Direction of Travel		
			Both directions	**Northbound**	**Southbound**
Traffic Volume :		Weekdays Average	1,886	911	975
(Vehicles/Day)		7 Day Average	1,773	871	902
Weekday	**AM**	11:00	153	78	75
Peak hour starts	**PM**	15:00	169	90	79
Speeds :		85th Percentile	53.1	52.5	53.1
(Km/Hr)		Average	43.0	41.0	43.6
Classification % :		Light Vehicles up to 5.5m	81.7%	82.0%	81.5%

Location

GPS Information	Load Google Map (internet required)
(Latitude, Longitude)	-35.068312,149.6553477

Speed Data | Speed Graph | Speed Bin
Volume Data | Volume Graph | Classification

QUALITY ASSURED COMPANY BY ISO 9001:2015
OH&S SYSTEM CERTIFIED TO ISO 4801:2001
ENVIRONMENT MANAGEMENT SYSTEM CERTIFIED TO ISO14001:2015

Status of movement – Covid 19

"Traffic behaviour is not the same as pre-pandemic (traditional morning/afternoon peak is much less pronounced and school start/finish times are much more pronounced), the current patterns are close enough to what probably is going to be a 'COVID normal' situation for at least the next year or two. Workplaces are currently not all yet open.
These results should be used for indicative assessment only."

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AUTOMATIC COUNT SUMMARY

Street Name :	Cullulla Rd	**Location :**	Outside Property 577
Suburb :	Lower Boro	**Start Date :**	00:00 Thu 31/October/2024
Machine ID:	SE324ZVT	**Finish Date :**	00:00 Thu 07/November/2024
Site ID:	3543	**Speed Zone :**	80 km/h
Prepared By :	Vo Son Binh	**Email:**	binh@trafficsurvey.com.au

GPS information			Direction of Travel		
	Lat	35° 5' 45.57 South			
	Long	149° 45' 38.56 East	**Both directions**	**Westbound**	**Eastbound**
Traffic Volume :		Weekdays Average	792	370	422
(Vehicles/Day)		7 Day Average	874	435	439
Weekday	**AM**	11:00	69	36	34
Peak hour start	**PM**	15:00	68	31	37
Speeds :		85th Percentile	82.9	83.6	83.1
(Km/Hr)		Average	75.6	76.4	74.8
Classification % :		Light Vehicles up to 5.5m	90.5%	90.8%	90.2%

Location

GPS Information	Load Google Map (internet required)
(Latitude, Longitude)	-35.095992, 149.760711

Speed Data	Speed Graph	Speed Bin
Volume Data	Volume Graph	Classification

QUALITY ASSURED COMPANY BY ISO 9001:2015
OH&S SYSTEM CERTIFIED TO ISO 4801:2001
ENVIRONMENT MANAGEMENT SYSTEM CERTIFIED TO ISO14001:2015

Status of movement – Covid 19

"Traffic behaviour is not the same as pre-pandemic (traditional morning/afternoon peak is much less pronounced and school start/finish times are much more pronounced), the current patterns are close enough to what probably is going to be a 'COVID normal' situation for at least the next year or two. Workplaces are currently not all yet open.
These results should be used for indicative assessment only."

TRANS TRAFFIC SURVEY

trafficsurvey.com.au

T. 1300 82 88 82 - F. 1300 83 88 83 - E. traffic@trafficsurvey.com.au - W. www.trafficsurvey.com.au

AUTOMATIC COUNT SUMMARY

Street Name :	Sandy Point Rd	**Location :**	Outside Property 365
Suburb :	Windellama	**Start Date :**	00:00 Thu 31/October/2024
Machine ID:	M689CVT2	**Finish Date :**	00:00 Thu 07/November/2024
Site ID:	3544	**Speed Zone :**	90 km/h
Prepared By :	Vo Son Binh	**Email:**	binh@trafficsurvey.com.au

GPS information		Lat 35° 4' 58.70 South Long 149° 50' 44.72 East	Direction of Travel		
			Both directions	**Northbound**	**Southbound**
Traffic Volume :		Weekdays Average	758	398	360
(Vehicles/Day)		7 Day Average	850	423	427
Weekday	**AM**	11:00	68	32	37
Peak hour starts	**PM**	15:00	69	34	35
Speeds :		85th Percentile	93.9	95.1	94.4
(Km/Hr)		Average	85.9	86.8	86.0
Classification % :		Light Vehicles up to 5.5m	87.7%	87.5%	87.9%

Location

GPS Information	Load Google Map (internet required)
(Latitude, Longitude)	-35.082971, 149.845756

Speed Data	Speed Graph	Speed Bin
Volume Data	Volume Graph	Classification

QUALITY ASSURED COMPANY BY ISO 9001:2015
OH&S SYSTEM CERTIFIED TO ISO 4801:2001
ENVIRONMENT MANAGEMENT SYSTEM CERTIFIED TO ISO14001:2015

Status of movement – Covid 19

"Traffic behaviour is not the same as pre-pandemic (traditional morning/afternoon peak is much less pronounced and school start/finish times are much more pronounced), the current patterns are close enough to what probably is going to be a 'COVID normal' situation for at least the next year or two. Workplaces are currently not all yet open.
These results should be used for indicative assessment only."

TRANS TRAFFIC SURVEY

trafficsurvey.com.au

T. 1300 82 88 82 - F. 1300 83 88 83 - E. traffic@trafficsurvey.com.au - W. www.trafficsurvey.com.au

AUTOMATIC COUNT SUMMARY

Street Name :	Oallen Ford Rd	**Location :**	Outside Property 2810
Suburb :	Windellama	**Start Date :**	00:00 Thu 31/October/2024
Machine ID:	P9475VWY	**Finish Date :**	00:00 Thu 07/November/2024
Site ID:	3545	**Speed Zone :**	80 km/h
Prepared By :	Vo Son Binh	**Email:**	binh@trafficsurvey.com.au

GPS information		Lat 35° 4' 13.99 South Long 149° 52' 33.83 East	Direction of Travel		
			Both directions	**Northbound**	**Southbound**
Traffic Volume :		Weekdays Average	1,166	549	617
(Vehicles/Day)		7 Day Average	1,282	637	645
Weekday	**AM**	11:00	101	57	44
Peak hour starts	**PM**	13:00	102	45	57
Speeds :		85th Percentile	84.1	85.2	83.5
(Km/Hr)		Average	77.7	79.1	76.2
Classification % :		Light Vehicles up to 5.5m	93.1%	93.3%	92.8%

Location

GPS Information	Load Google Map (internet required)
(Latitude, Longitude)	-35.070554, 149.876063

Speed Data	Speed Graph	Speed Bin
Volume Data	Volume Graph	Classification

QUALITY SYSTEM CERTIFICATION DNV·GL ISO 9001 — SAFETY SYSTEM CERTIFICATION DNV·GL AS/NZS 4801 — ENVIRONMENTAL SYSTEM CERTIFICATION DNV·GL ISO 14001

QUALITY ASSURED COMPANY BY ISO 9001:2015
OH&S SYSTEM CERTIFIED TO ISO 4801:2001
ENVIRONMENT MANAGEMENT SYSTEM CERTIFIED TO ISO14001:2015

Status of movement – Covid 19

"Traffic behaviour is not the same as pre-pandemic (traditional morning/afternoon peak is much less pronounced and school start/finish times are much more pronounced), the current patterns are close enough to what probably is going to be a 'COVID normal' situation for at least the next year or two. Workplaces are currently not all yet open.
These results should be used for indicative assessment only."

Appendix B
SIDRA modelling results

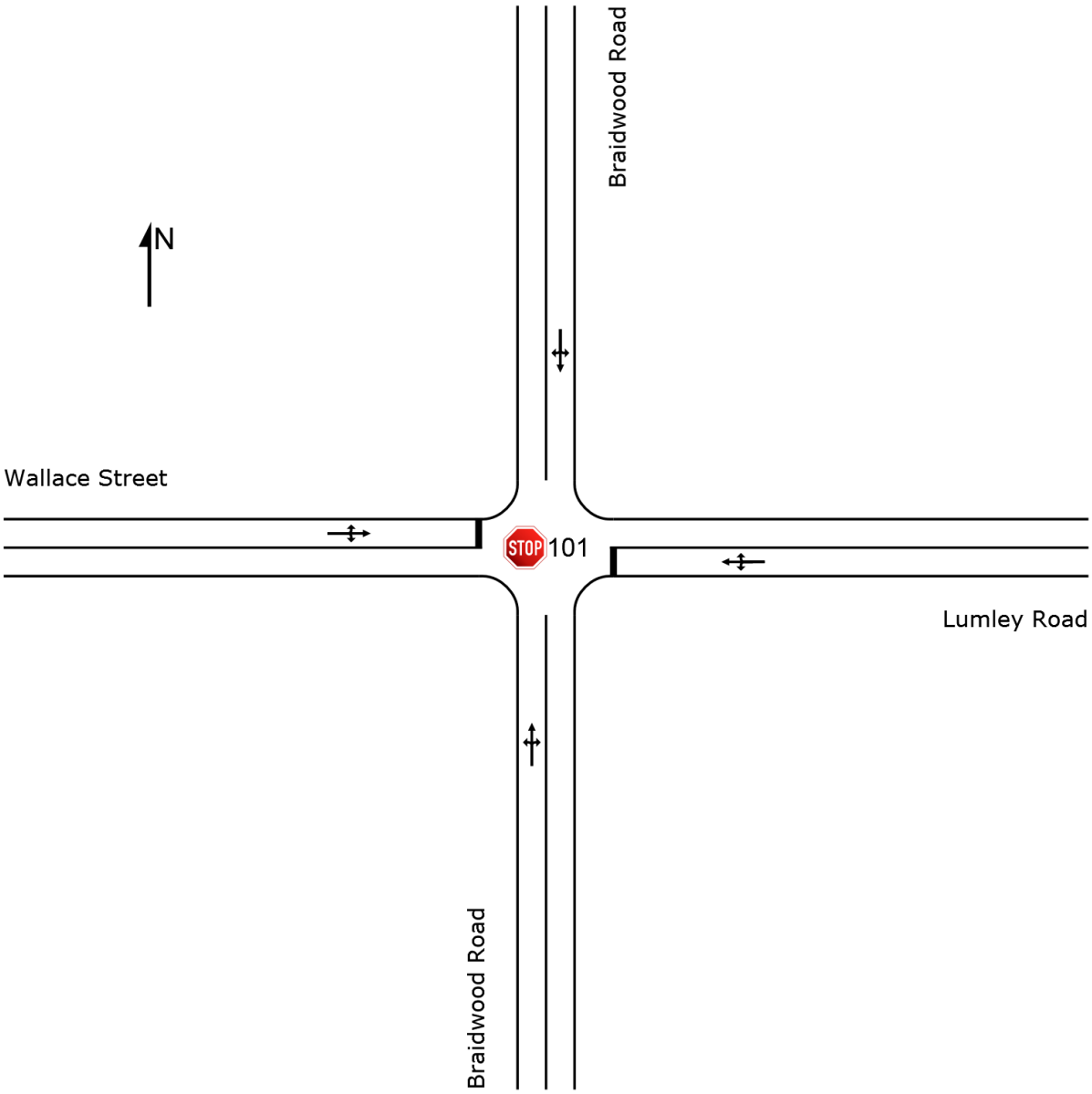
EMM
creating opportunities

SITE LAYOUT

Site: 101 [Braidwood Road/Lumley Road/Wallace Street (Site Folder: 2024 Existing/baseline scenario AM Peak)]

New Site
Site Category: (None)
Stop (Two-Way)

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



MOVEMENT SUMMARY

Site: 101 [Braidwood Road/Lumley Road/Wallace Street (Site Folder: 2024 Existing/baseline scenario AM Peak)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Stop (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
South: Braidwood Road															
1	L2	All MCs	4	0.0	4	0.0	0.023	5.5	LOS A	0.0	0.1	0.01	0.07	0.01	52.5
2	T1	All MCs	37	8.6	37	8.6	0.023	0.0	LOS A	0.0	0.1	0.01	0.07	0.01	59.2
3	R2	All MCs	1	0.0	1	0.0	0.023	5.5	LOS A	0.0	0.1	0.01	0.07	0.01	52.3
Approach			42	7.5	42	7.5	0.023	0.7	NA	0.0	0.1	0.01	0.07	0.01	58.3
East: Lumley Road															
4	L2	All MCs	1	0.0	1	0.0	0.054	7.6	LOS A	0.2	1.5	0.24	0.99	0.24	47.4
5	T1	All MCs	39	21.6	39	21.6	0.054	8.8	LOS A	0.2	1.5	0.24	0.99	0.24	44.1
6	R2	All MCs	11	0.0	11	0.0	0.054	7.9	LOS A	0.2	1.5	0.24	0.99	0.24	47.2
Approach			51	16.7	51	16.7	0.054	8.6	LOS A	0.2	1.5	0.24	0.99	0.24	44.8
North: Braidwood Road															
7	L2	All MCs	16	6.7	16	6.7	0.044	5.6	LOS A	0.2	1.3	0.10	0.35	0.10	50.2
8	T1	All MCs	31	20.7	31	20.7	0.044	0.0	LOS A	0.2	1.3	0.10	0.35	0.10	56.4
9	R2	All MCs	28	11.1	28	11.1	0.044	5.9	LOS A	0.2	1.3	0.10	0.35	0.10	49.9
Approach			75	14.1	75	14.1	0.044	3.4	NA	0.2	1.3	0.10	0.35	0.10	52.4
West: Wallace Street															
10	L2	All MCs	24	0.0	24	0.0	0.048	7.6	LOS A	0.2	1.4	0.16	0.98	0.16	47.4
11	T1	All MCs	25	29.2	25	29.2	0.048	9.2	LOS A	0.2	1.4	0.16	0.98	0.16	44.0
12	R2	All MCs	2	0.0	2	0.0	0.048	7.8	LOS A	0.2	1.4	0.16	0.98	0.16	47.1
Approach			52	14.3	52	14.3	0.048	8.4	LOS A	0.2	1.4	0.16	0.98	0.16	45.6
All Vehicles			219	13.5	219	13.5	0.054	5.3	NA	0.2	1.5	0.13	0.59	0.13	49.7

Site Level of Service (LOS) Method: Delay (RTA NSW). 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.

MOVEMENT SUMMARY

Site: 101 [Braidwood Road/Lumley Road/Wallace Street (Site Folder: 2024 Existing/baseline scenario PM Peak)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Stop (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
South: Braidwood Road															
1	L2	All MCs	6	16.7	6	16.7	0.024	5.7	LOS A	0.0	0.2	0.03	0.12	0.03	52.0
2	T1	All MCs	33	12.9	33	12.9	0.024	0.0	LOS A	0.0	0.2	0.03	0.12	0.03	58.9
3	R2	All MCs	2	50.0	2	50.0	0.024	6.4	LOS A	0.0	0.2	0.03	0.12	0.03	51.0
Approach			41	15.4	41	15.4	0.024	1.2	NA	0.0	0.2	0.03	0.12	0.03	57.3
East: Lumley Road															
4	L2	All MCs	3	66.7	3	66.7	0.069	10.2	LOS A	0.2	2.1	0.26	0.96	0.26	45.1
5	T1	All MCs	27	7.7	27	7.7	0.069	8.1	LOS A	0.2	2.1	0.26	0.96	0.26	44.1
6	R2	All MCs	25	45.8	25	45.8	0.069	10.4	LOS A	0.2	2.1	0.26	0.96	0.26	45.4
Approach			56	28.3	56	28.3	0.069	9.3	LOS A	0.2	2.1	0.26	0.96	0.26	44.7
North: Braidwood Road															
7	L2	All MCs	16	33.3	16	33.3	0.049	5.9	LOS A	0.2	1.5	0.10	0.33	0.10	50.2
8	T1	All MCs	36	2.9	36	2.9	0.049	0.0	LOS A	0.2	1.5	0.10	0.33	0.10	57.0
9	R2	All MCs	31	17.2	31	17.2	0.049	6.0	LOS A	0.2	1.5	0.10	0.33	0.10	50.2
Approach			82	14.1	82	14.1	0.049	3.4	NA	0.2	1.5	0.10	0.33	0.10	52.9
West: Wallace Street															
10	L2	All MCs	33	3.2	33	3.2	0.071	7.7	LOS A	0.3	1.9	0.16	0.94	0.16	47.3
11	T1	All MCs	38	2.8	38	2.8	0.071	7.9	LOS A	0.3	1.9	0.16	0.94	0.16	44.4
12	R2	All MCs	9	0.0	9	0.0	0.071	7.8	LOS A	0.3	1.9	0.16	0.94	0.16	47.2
Approach			80	2.6	80	2.6	0.071	7.8	LOS A	0.3	1.9	0.16	0.94	0.16	45.8
All Vehicles			259	13.8	259	13.8	0.071	5.7	NA	0.3	2.1	0.14	0.62	0.14	49.2

Site Level of Service (LOS) Method: Delay (RTA NSW). 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.

MOVEMENT SUMMARY

Site: 101 [Braidwood Road/Lumley Road/Wallace Street (Site Folder: 2024 Existing/baseline + Operation (MOD1 to MOD2) scenario AM Peak)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Stop (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
South: Braidwood Road															
1	L2	All MCs	4	0.0	4	0.0	0.023	5.5	LOS A	0.0	0.1	0.01	0.08	0.01	52.5
2	T1	All MCs	37	8.6	37	8.6	0.023	0.0	LOS A	0.0	0.1	0.01	0.08	0.01	59.2
3	R2	All MCs	1	0.0	1	0.0	0.023	5.5	LOS A	0.0	0.1	0.01	0.08	0.01	52.3
Approach			42	7.5	42	7.5	0.023	0.7	NA	0.0	0.1	0.01	0.08	0.01	58.3
East: Lumley Road															
4	L2	All MCs	1	0.0	1	0.0	0.060	7.6	LOS A	0.2	1.8	0.25	0.99	0.25	47.4
5	T1	All MCs	39	21.6	39	21.6	0.060	8.8	LOS A	0.2	1.8	0.25	0.99	0.25	44.1
6	R2	All MCs	14	23.1	14	23.1	0.060	9.0	LOS A	0.2	1.8	0.25	0.99	0.25	46.3
Approach			54	21.6	54	21.6	0.060	8.8	LOS A	0.2	1.8	0.25	0.99	0.25	44.7
North: Braidwood Road															
7	L2	All MCs	19	22.2	19	22.2	0.047	5.8	LOS A	0.2	1.4	0.10	0.35	0.10	50.0
8	T1	All MCs	31	20.7	31	20.7	0.047	0.0	LOS A	0.2	1.4	0.10	0.35	0.10	56.5
9	R2	All MCs	28	11.1	28	11.1	0.047	5.9	LOS A	0.2	1.4	0.10	0.35	0.10	49.9
Approach			78	17.6	78	17.6	0.047	3.6	NA	0.2	1.4	0.10	0.35	0.10	52.3
West: Wallace Street															
10	L2	All MCs	24	0.0	24	0.0	0.048	7.6	LOS A	0.2	1.4	0.16	0.98	0.16	47.4
11	T1	All MCs	25	29.2	25	29.2	0.048	9.3	LOS A	0.2	1.4	0.16	0.98	0.16	44.0
12	R2	All MCs	2	0.0	2	0.0	0.048	7.8	LOS A	0.2	1.4	0.16	0.98	0.16	47.1
Approach			52	14.3	52	14.3	0.048	8.4	LOS A	0.2	1.4	0.16	0.98	0.16	45.6
All Vehicles			225	15.9	225	15.9	0.060	5.4	NA	0.2	1.8	0.13	0.60	0.13	49.6

Site Level of Service (LOS) Method: Delay (RTA NSW). 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.

MOVEMENT SUMMARY

Site: 101 [Braidwood Road/Lumley Road/Wallace Street (Site Folder: 2024 Existing/baseline + Operation (MOD1 to MOD2) scenario PM Peak)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Stop (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
South: Braidwood Road															
1	L2	All MCs	6	16.7	6	16.7	0.024	5.7	LOS A	0.0	0.2	0.03	0.12	0.03	52.0
2	T1	All MCs	33	12.9	33	12.9	0.024	0.0	LOS A	0.0	0.2	0.03	0.12	0.03	58.9
3	R2	All MCs	2	50.0	2	50.0	0.024	6.5	LOS A	0.0	0.2	0.03	0.12	0.03	51.0
Approach			41	15.4	41	15.4	0.024	1.2	NA	0.0	0.2	0.03	0.12	0.03	57.3
East: Lumley Road															
4	L2	All MCs	3	66.7	3	66.7	0.076	10.2	LOS A	0.3	2.4	0.27	0.96	0.27	45.0
5	T1	All MCs	27	7.7	27	7.7	0.076	8.2	LOS A	0.3	2.4	0.27	0.96	0.27	44.1
6	R2	All MCs	28	51.9	28	51.9	0.076	10.8	LOS A	0.3	2.4	0.27	0.96	0.27	45.2
Approach			59	32.1	59	32.1	0.076	9.5	LOS A	0.3	2.4	0.27	0.96	0.27	44.6
North: Braidwood Road															
7	L2	All MCs	19	44.4	19	44.4	0.052	6.1	LOS A	0.2	1.6	0.10	0.34	0.10	50.0
8	T1	All MCs	36	2.9	36	2.9	0.052	0.0	LOS A	0.2	1.6	0.10	0.34	0.10	57.0
9	R2	All MCs	31	17.2	31	17.2	0.052	6.0	LOS A	0.2	1.6	0.10	0.34	0.10	50.2
Approach			85	17.3	85	17.3	0.052	3.5	NA	0.2	1.6	0.10	0.34	0.10	52.8
West: Wallace Street															
10	L2	All MCs	33	3.2	33	3.2	0.071	7.7	LOS A	0.3	1.9	0.16	0.94	0.16	47.3
11	T1	All MCs	38	2.8	38	2.8	0.071	7.9	LOS A	0.3	1.9	0.16	0.94	0.16	44.3
12	R2	All MCs	9	0.0	9	0.0	0.071	7.8	LOS A	0.3	1.9	0.16	0.94	0.16	47.2
Approach			80	2.6	80	2.6	0.071	7.8	LOS A	0.3	1.9	0.16	0.94	0.16	45.8
All Vehicles			265	15.9	265	15.9	0.076	5.8	NA	0.3	2.4	0.15	0.63	0.15	49.1

Site Level of Service (LOS) Method: Delay (RTA NSW). 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.

Appendix C
Traffic Management Plan

EMM
creating opportunities

ACT / NSW REGIONAL TRAFFIC MANAGEMENT PLAN

1 INTRODUCTION

HiQ Group, works to ensure all traffic is monitored, controlled and regulated on each premises, the Traffic Management Plan for the ACT NSW Region shall consider the following risks and preventative measures as outlined by this document.

These risks include but are not limited to all Transport for NSW, Council and Government Roads.

The Transport Manager and Division will be responsible for Training of these rules and ensuring compliance to Industry and Government Regulations, Legislation as well as Company rules and guidelines.

2 Operations

The roads situated from either the ACT or Sydney will start from the township of Tarago NSW, Access from ACT will be via Kings Highway and the access from Sydney will be via Braidwood Road.

The UHF channel for the ACT/NSW Region is Channel **20** for all sites and is required to be turned on and tuned to Chanel 20 at all times outside of the Hume Highway.

All HiQ Transport vehicles will follow the allocated speed limits (no exceptions).

Maximum speed limits on Tarago, Cullulla, Sandy Point
And Oallen Ford Roads is 80 kilometres per hour.
(This maximum speed limit is mandatory for all HiQ Trucks on
These Roads no matter what the posted limit)

Reduce speed of truck to 70kmph or lower for approximately 2km – from the Nursery to Cullula Pit. "S Bend" Section & outside the nursery. See image below

Waiting points for breaks and Bus Curfews for each site will be outside the weighbridge marked with **RED dots** at all HiQ site locations.

Windellama's Truck Waiting Areas

All HiQ drivers and Subcontractors working for HiQ need to abide by these rules.

The local community and HiQ have agreed to the below rules.

- No tailgating any vehicles.
- No driver is to travel in groups to and from Windellema.
- There must be a substantial distance between trucks (5 mins) driving to and from Windellema. If you see a truck ahead of you, you must slow down until you cannot see the truck.
- If a truck is already using the Braidwood Road / Lumley Road / Wallace Street intersection, the entering truck must stop / wait until the other truck/s have successfully excited the intersection before proceeding through.
- Drivers must travel with their headlights on.
- Drivers must not breach the curfew times.
- Drivers must not exceed the 80KM speed limit.
- Drivers must obey roadworks.
- Drivers to drive to the road conditions.

Please don't use google maps for directions to Windellema, it will send you on the wrong route and down 15t load limit roads. Please use the approved NHVR and site traffic management plan.

A happy community means no complaints. You are representing HiQ, please be courteous to all road users.

Directions to Windellema:

- Hume Highway to Goulburn
- Take the first exit to Goulburn and turn left at the first set of lights (Sloane Street)
- Travel along Sloane Street with the railway line on your left, turn left over the railway bridge to link up with Braidwood Road.
- Follow Braidwood Road for about 35kms to Tarago

DO NOT SPEED THROUGH THE TOWN OF LAKE BATHURST

- Turn left onto Lumley Road and follow for about 5kms.
- Turn right on to Cullalla Road until you reach the T intersection.
- Turn left onto Sandy Point Road, follow it to the T intersection.
- Turn right onto Oallen Ford Road and follow it for about 3kms. You will see a sign that says "trucks turning 200m ", slow down as the driveway for Windellema is after that sign.

These times are for Truck & Quads only.

Open 7am – Close 5pm

Can Drive Times

Do not drive through Tarago before 6AM

Tarago to Windellama

6:00am – 7:14am

7:31am – 7:59am

8:50am – 15:14pm

15:56pm – 16:19pm

16:51pm – 17:00pm

Windellama to Tarago

6:00am – 8:09am

8:40am – 14:44pm

15:44pm – 15:59pm

16:36m – 17:00pm

These times are for Truck & Quinns only.

Open 7am - 5pm

Can drive times.

Do Not drive through Tarago before 6am

6am - 7.14 am
7.31am – 7.59am
9.31am – 2.29pm
4.01pm – 5pm

Please refer to your PBS permits for additional information.

Windellema to Tarago – can drive times

7am – 7.30am
9.30am – 2pm
4pm – 5pm

These times are for Tri drive Quinns only.

Open 7am - 5pm

Can drive times.

Do Not drive through Tarago before 6am

6am - 7.14 am
7.31am – 7.59am
9.31am – 2.29pm
4.01pm – 5pm

Please refer to your PBS permits for additional information.

Windellema to Tarago – can drive times.

7am – 7.30am
9.30am – 2pm
4pm – 5pm

These times are for A Doubles only.

Open 7am - 5pm

Can drive times.

Do Not drive through Tarago before 6am

6am - 7.29am
9.31am – 2.29pm
4.01pm – 5pm

Please refer to your PBS permits for additional information.

Windellema to Tarago – can drive times.

6am – 7.29am
9.31am – 2.29pm
4.01pm – 5pm

Call points will be required to occur at checkpoints/landmarks identified in this TMP starting along Tarago Road.

Checkpoint 1 inbound

Turning onto Lumley Road off Braidwood Road, Tarago from either ACT or Goulburn.

Checkpoint 2 Inbound

Transfer Station on Lumley Road for the tight flood plain bridge

Checkpoint 3 Inbound

Willow Glen Road Sign for the Nursery and tight corners

Checkpoint 4 Inbound

Cullulla Pit for upcoming tight bends in the road

Checkpoint 5 Inbound

Turning off Cullulla Road onto Sandy Point Road

Checkpoint 6 Inbound

Turning off Sandy Point Road onto Oallen Ford Road

Checkpoint 7 Inbound

Oallen Ford Road into Windellama Landfill Site #Unit number in the gate.

Fyshwick ACT Concrete Plant

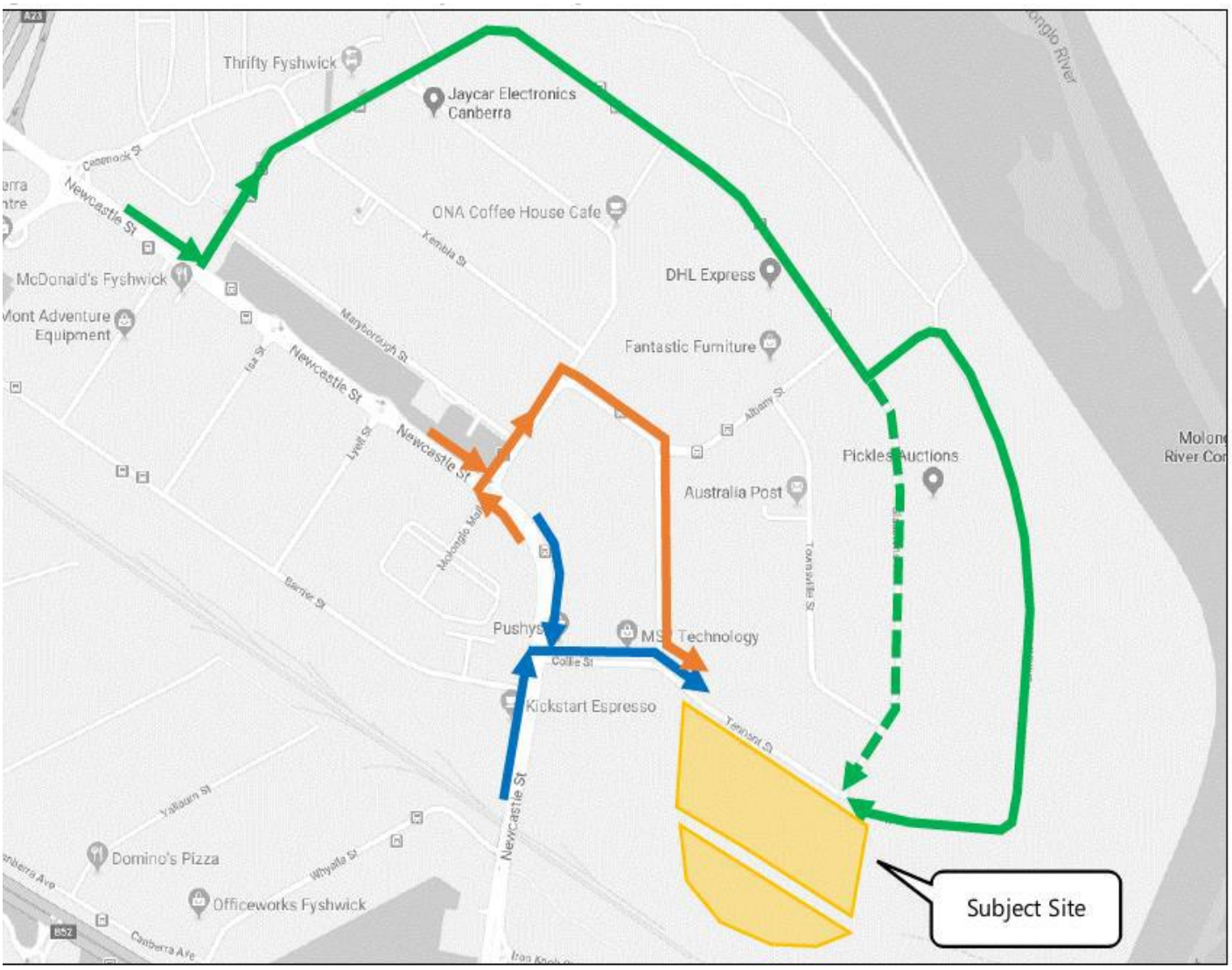
14 Tennant Street, Fyshwick ACT 2609

Channel 57

Directions from the hwy – exit onto Newcastle Street, turn left onto Gladstone Avenue, follow that all the way down until you reach the T intersection at Tennant Street and turn right onto Tennant Street. The Concrete yard will be bout 300-400 mts up on your left hand side.

Access is at the top gate only.

Hi-Quality Fyshwick Site routes for use to enter and leave site.



Appendix D

NHVR approval of the A-double trucks under PBS

EMM
creating opportunities

PBS Vehicle Approval

Heavy Vehicle National Law Section 23

Heavy Vehicle (General) National Regulation Section 17

IMPORTANT

- **This is a restricted access vehicle - you must comply with a Notice or operate under an access permit.**
- **The driver must carry a copy of this PBS Vehicle Approval and an associated access permit (if applicable).**
- **The driver must be able to produce readable copies (electronic or hard copy) of this VA and access permit if requested by Authorised Officers.**
- **All vehicle units in a combination (prime movers, trailers, dollies, etc.) must be listed on this VA.**
- **The driver must be able to identify the specific combination being driven within the VA.**
- **Failure to comply with the above can incur penalties for the operator and driver.**

26 July 2024

Ref No: PBS – VA17120 – V220222 – v1A

This PBS Vehicle Approval modifies any previously issued approval for the vehicle(s) listed herein operating under Design Application Number V220222 .

Design Approval Holder	Robert Smedley SMEDLEY'S ENGINEERS PTY LTD	Address	110 Highett St Richmond VIC 3121

Design Application	V220222	Vehicle	A-Double (3-2-3)
Load	Quarry and Bulk; Woodchip; Waste; Unladen; Other	Length (mm)	≤ 29950
Assessor	Andrej Bucko	Height (mm)	≤ 4300

Approval under section 8 of the Heavy Vehicle (General) National Regulation – Non compliance	
A heavy vehicle built to this design does not comply with the following Infrastructure Standard/s:	Pavement Horizontal Loading (A2). A section 8 Exemption is given for this standard.
Condition:	Any PBS vehicle approval for a heavy vehicle built to this design above 85t at Level 2 will be subject to the condition that the vehicle may only be operated under an agreement made with each responsible road authority and road manager for roads on which the vehicle is to operate.

Combination Matrix

For each Prime Mover and Trailer Set, the corresponding drawing reference number, dimension set number and mass table number/s are listed below. The dimension set number e.g., 'Variant 25' indicates the maximum allowable payload heights and/or allowable tyre options for the corresponding Prime Mover and Trailer Set - refer to the Operating Conditions and Approved Tyre Options sections on this VA.

New VINs added in this VA are listed in bold.

Prime Mover 1	Make	GCM (t)
6F5000000PA476313	KW	131
6F5000000PA476314		
6F5000000RA487673		

Trailer 1 (Lead/Rear)	ATM (t)
6B93SAXX7RTAT7028	40
6B93SAXX7RTAT7029	
6B93SAXX7RTAT7030	
6B93SAXX7RTAT7031	
6B93SAXX7RTAT7032	
6B93SAXX7RTAT7033	

Dolly 1	ATM (t)
6B92CAXX7RTAT7034	18
6B92CAXX7RTAT7035	
6B92CAXX7RTAT7036	

Trailer Sets			
Trailer Set 1	Trailer 1 (Lead)	Dolly 1	Trailer 1 (Rear)

	Trailer Set 1
Prime Mover 1	HIQ01_004 Variant 25 Table 1, 2

Table 1
Prime Mover 1 and Trailer Set 1

Mass Limits	Level 2
GML (t)	79.5
CML (t)	81.5
HML (t)	85.5
Bridge Assessment	Tier 2/3

Axle Group Masses	Level 2		
	GML	CML	HML
Steer (t)	6.5	6.5	6.5
Drive (t)	16.5	17.0	17.0
Lead Trailer (t)	20.0	21.0	22.5
Dolly (t)	16.5	17.0	17.0
Rear Trailer (t)	20.0	21.0	22.5

Table 2
Prime Mover 1 and Trailer Set 1

Mass Limits	Level 2
GML (t)	71.35
CML (t)	73.35
HML (t)	77.35
Bridge Assessment	Tier 1

Axle Group Masses	Level 2		
	GML	CML	HML
Steer (t)	6.5	6.5	6.5
Drive (t)	16.5	17.0	17.0
Lead Trailer (t)	20.0	21.0	22.5
Dolly (t)	16.5	17.0	17.0
Rear Trailer (t)	20.0	21.0	22.5
The mass across axle groups is limited to -			
Axle Groups	GML	CML	HML
2 to 5	65.00	67.00	71.00
3 to 5	55.15	57.15	60.65

Operating conditions

The NHVR approves the vehicles listed herein for the level(s) shown in the "Mass Limits" table with the following operating conditions:

1. The total combination mass must not exceed the limits in the "Mass Limits" table.
2. The axle group masses must not exceed the limits in the "Axle Group Masses" table.
3. If the "Mass Limits" table specifies Tier 2 or Tier 3, a bridge assessment is required.
4. Maximum payload heights measured from the ground must not exceed: (m)

	Lead Trailer		Rear Trailer	
Variant 25	Base of heap	Peak of heap	Base of heap	Peak of heap
Water level	3.700		3.500	
Heaped 1	3.640	3.760	3.440	3.560
Heaped 2	3.580	3.810	3.380	3.610
Heaped 3	3.520	3.860	3.320	3.660
Heaped 4	3.460	3.910	3.260	3.710
Heaped 5	3.400	3.960	3.200	3.760

The heaped payload cases describe materials with different angles of repose.

5. 6.5 tonne complying steer axle requirements:
   - an engine that complies with the engine emission standards of Australian Design Rule (ADR) 80/01 (Euro 4) or a later version of ADR 80; and
   - a front underrun protection device (FUPD) that complies with UN ECE Regulation 93 or ADR 84; and
   - a cabin that complies with UN ECE Regulation 29.
6. Concessional Mass Limits (CML) requirements:
   - a National Heavy Vehicle Accreditation Scheme (NHVAS) – Mass Management Accreditation must be in force for all motor vehicles listed on this vehicle approval.
7. Higher Mass Limits (HML) requirements:
   - for tandem axles groups, road friendly suspensions;
   - for tri-axle groups, road friendly suspensions and a National Heavy Vehicle Accreditation Scheme (NHVAS) – Mass Management Accreditation must be in force for all motor vehicles listed on this vehicle approval.
8. When operating at Level 2, there is a minimum mass requirement for the drive axle group. The mass on the drive axle group must be at least 19.8% of the total combination mass e.g. at 79.5t total combination mass, 79.5 x 0.198 = 15.74t is required on the drive axle group. This clause does not apply to an unladen vehicle.
9. If drawbar length exceeds 5m, the outermost surface of the drawbar must be fitted with yellow reflective material that complies with Class C material requirements of United National Economic Commission for Europe Regulation No. 104 Uniform provisions concerning the approval of retro-reflective markings for vehicles of category M, N and O.
10. If overall length exceeds 22m but does not exceed 30m, a "LONG VEHICLE" sign must be displayed at the rear of the vehicle.

11. The vehicle may only be operated above 85t at Level 2 under an agreement made with:
    - if a road authority for a jurisdiction is responsible for the roads on which the vehicle is likely to be operating—each responsible road authority; and
    - if 1 or more road managers are responsible for the roads on which the vehicle is likely to be operating—each responsible road manager.

Exemptions

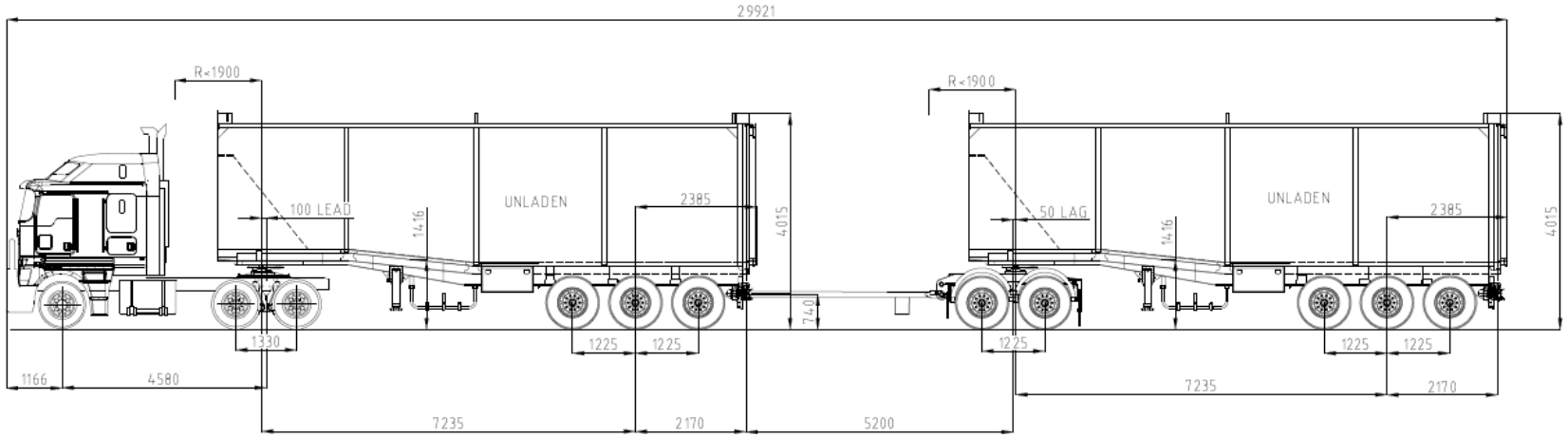
Heavy Vehicle National Law Section 24
Heavy Vehicle (General) National Regulation Section 28

The following table lists exemptions from prescribed vehicle standards that have been granted for the vehicle(s) in this vehicle approval.

Exemptions	
ADR	Rule 43, Clause 6.2.2 (Drawbar length – Trailers) Rule 63, Clause 5.1 (Tow coupling location)
HV(MDL)NR	Schedule 6, Section 6 (Length – Trailer drawbars)
HV(VS)NR	Schedule 3, Section 29 (Attachment of couplings and drawbar eyes on road trains)

ADR	Australian Design Rules
HV(MDL)NR	*Heavy Vehicle (Mass, Dimension and Loading) National Regulation*
HV(VS)NR	*Heavy Vehicle (Vehicle Standards) National Regulation*

PRIME MOVER 1
TRAILER SET 1



					ALL DIMENSIONS IN mm UNLESS SPECIFIED TOLERANCES UNLESS SPECIFIED +/- 20 mm	www.smedleys.co engineers@smedleys.co 110 HIGHETT ST, RICHMOND, VIC 3121	ER240986 HI-QUALITY GROUP P12S3C2S3 VEHICLE LAYOUT DRAWING V220222 P12S3C2S3
A	INITIAL ISSUE	JJ	FO	3/06/24	AS1100:1992	DO NOT SCALE	© THIS DRAWING AND DESIGN REMAINS THE PROPERTY OF SMEDLEY'S ENGINEERS PTY LTD AND MUST NOT BE COPIED, LOANED OR OTHERWISE USED WITHOUT THE EXPRESSED PERMISSION OR LICENCE IN WRITING. RETURN IMMEDIATELY UPON ITS REQUEST TO DO SO ALL COPIES OF THIS DRAWING IN THE POSSESSION OF THE RECIPIENT OTHER THAN THOSE REQUIRED FOR THE RECIPIENT'S RECORDS AND ANY UNAUTHORISED USE OF THIS DRAWING INCLUDING ITS REPRODUCTION IN THREE DIMENSIONAL FORM, MAY CONSTITUTE A VIOLATION OF THE COPYRIGHT ACT 1968
REV.	DESCRIPTION	DRAWN	APPR.	DATE			DRAWN JJ · CHECKED FO · DATE 3/06/24 · SCALE No Scale · SIZE A4 · SHEET 1 of 1 · DWG No HIQ.01_004

Approved tyre options – Variant 25

Steer –

- **275/70R22.5** (Load Index **149** or higher, single configuration)
- **295/80R22.5** (Load Index **149** or higher, single configuration)
- **305/70R22.5** (Load Index **149** or higher, single configuration)
- **315/70R22.5** (Load Index **149** or higher, single configuration)
- **315/80R22.5** (Load Index **149** or higher, single configuration)
- **385/55R22.5** (Load Index **149** or higher, single configuration)
- **385/65R22.5** (Load Index **149** or higher, single configuration)

Drive –

- **11R22.5** (Load Index **140** or higher, dual configuration)
- **275/70R22.5** (Load Index **140** or higher, dual configuration)
- **295/80R22.5** (Load Index **140** or higher, dual configuration)
- **305/70R22.5** (Load Index **140** or higher, dual configuration)

Trailer –

- **11R22.5** (Load Index **140** or higher, dual configuration)
- **275/70R22.5** (Load Index **140** or higher, dual configuration)
- **295/80R22.5** (Load Index **140** or higher, dual configuration)
- **305/70R22.5** (Load Index **140** or higher, dual configuration)

Tyre load index and inflation pressure must be appropriate for the axle mass (inflation pressures must be within legal inflation limits)

Retread tyres are only permitted on the drive, dolly and trailer axles.

Tyres listed herein are specific for PBS application number V220222.

A different list of tyres will apply for other combination types and different PBS application numbers.

Axle spacings for as-built combinations - A-double (1-2-3-2-3)

PM	TS	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	OAL
1	1	3915	1330	5245	1225	1225	5533	1225	5448	1225	1225	29921

Declaration

I, Laszlo Bruzsa Chief Engineer, delegate of the National Heavy Vehicle Regulator, approve this PBS Vehicle Approval PBS–V220222 –VA17120.

Laszlo (Les) Bruzsa
Chief Engineer
National Heavy Vehicle Regulator
Dated: 26/07/24

Revision table

N	VA	Vers	Brief description	Date
1	17120	1A	First issue.	26/07/24

Important information

The driver must keep in the driver's possession a copy of this Vehicle Approval and be able to produce it for inspection by compliance officers. Penalties can apply.

If changes or modifications are required, these are limited to the specifications contained in the relevant PBS Design Approval and the Application for Design Approval Part A and B. Contact the applicant (see the cover page on this document) for information related to the allowed specifications.

A change of components and/or dimensions must be certified by an approved PBS Certifier and an updated version of this Vehicle Approval must be obtained. A change of tyres, outside of the list contained on this Vehicle Approval, also requires approval but will not require an inspection by a PBS Certifier.

If VA contains multiple tyre option tables, all tyre selections must be chosen from the same tyre options table. Tyres from different tyre options tables are not interchangeable.

Road access

The PBS Vehicle Approval is not an authorisation to access the road network. You must comply with the relevant Notice or obtain an access permit. To apply for an access permit, visit the NHVR Portal.

For more information on PBS Notices visit:

National Class 2 PBS Level 1 & 2a Truck and Dog Trailer Authorisation Notice 2021 (No.1)
National Class 2 Performance Based Standards (High Productivity) Authorisation Notice
National Class 2 Performance Based Standards (Tier 1) Authorisation Notice 2021

If you add vehicles to your PBS Vehicle Approval, the PBS Vehicle Approval number may change depending on the new vehicles added. If the PBS Vehicle Approval number has changed, and your access permit references a PBS Vehicle Approval number, your access permit will need to be amended to reflect the latest Vehicle Approval number. Note that most truck and dog access permits will not reference a PBS Vehicle Approval number and therefore changes to the Vehicle Approval do not require an update to the access permit. For more information, watch Adding vehicles to a PBS Vehicle Approval video on our YouTube channel.

For more information, please visit our website at www.nhvr.gov.au or call 13 NHVR (13 64 87).

For queries relating to this document please contact the PBS Operations Team at pbs@nhvr.gov.au.

Manage your PBS Vehicle Approval

Please visit our website to view a list of available options and associated forms to manage your PBS Vehicle Approval.

Australia

SYDNEY
Level 10 201 Pacific Highway
St Leonards NSW 2065
T 02 9493 9500

NEWCASTLE
Level 3 175 Scott Street
Newcastle NSW 2300
T 02 4907 4800

BRISBANE
Level 1 87 Wickham Terrace
Spring Hill QLD 4000
T 07 3648 1200

CANBERRA
Suite 2.04 Level 2
15 London Circuit
Canberra City ACT 2601

ADELAIDE
Level 4 74 Pirie Street
Adelaide SA 5000
T 08 8232 2253

MELBOURNE
Suite 9.01 Level 9
454 Collins Street
Melbourne VIC 3000
T 03 9993 1900

PERTH
Suite 3.03
111 St Georges Terrace
Perth WA 6000
T 08 6430 4800

Canada

TORONTO
2345 Yonge Street Suite 300
Toronto ON M4P 2E5
T 647 467 1605

VANCOUVER
2015 Main Street
Vancouver BC V5T 3C2
T 604 999 8297

CALGARY
700 2nd Street SW Floor 19
Calgary AB T2P 2W2

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emmconsulting.com.au