





Culcairn to Wagga Gas Pipeline

**MOD1 Uranquinty Compressor Station –
Traffic and Transport Assessment**

APA Group

06 August 2025

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Glossary and abbreviations

Abbreviations	Definitions
AGTM	Austrroads Guide to Traffic Management (Austrroads 2020)
APA	East Australian Pipeline Ltd, part of APA Group
ASD	Approach Sight Distance
AWDT	Average Weekday Daily Traffic
GML	General Mass Limit
ha	Hectare
HV	Heavy vehicle/s
km	Kilometre
km/h	Kilometre per hour
km ²	Square Kilometres
LEP	Local Environmental Plan
LGA	Local Government Area
LoS	Level of Service
LV	Light vehicle/s
N/A	Not applicable
NSW	New South Wales
pce	Passenger car equivalent
pcu	Passenger car units
SISD	Safe Intersection Sight Distance
SSI	State Significant Infrastructure
TMP	Traffic Management Plan
UCS	Uranquinty Compressor Station
VCR	Volume to capacity ratio
vpd	Vehicles per day
vph	Vehicles per hour

1. Introduction

1.1 Overview

East Australian Pipeline Pty Ltd, which is part of the APA Group (APA) own and operate the Culcairn to Wagga Wagga Pipeline, an 88 km natural gas pipeline extending from Wagga Wagga in the Wagga Wagga local government area (LGA) to Culcairn in the Greater Hume Shire LGA in NSW (the project). The Culcairn to Wagga Wagga pipeline interconnects with the Moomba to Wilton Pipeline which extends approximately 1,300 km between Moomba in South Australia to Wilton in NSW (refer to Figure 1.1).

The Culcairn to Wagga Wagga Pipeline is authorised by Pipeline Licence No. 23 (PL23) and SSI-65512969. The pipeline forms part of APA's East Coast Grid of gas transmission pipelines.

APA is proposing an expansion of gas transportation capacity within its East Coast Grid linking Queensland to southern states of Australia. This is in response to forecasted potential supply issues during the winter months. To achieve expansion of the East Coast Grid and build capacity to move more gas to address shortfalls, the construction of a compressor station on the Culcairn to Wagga Wagga Pipeline is proposed.

APA seeks to construct the Uranquinty Compressor Station (UCS) as part of Stage 3 of APA's East Coast Grid Expansion Plan (the proposed modification). The UCS would be located in Uranquinty, NSW along Uranquinty Cross Road within the Wagga Wagga LGA on land owned by APA (Lot 781 DP 878179) (refer to Figure 1.2).

The construction and operation of the UCS, the decommissioning of infrastructure and rehabilitation of land is being sought through a modification (Modification 1) to the SSI-65512969 approval under Section 5.25 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), referred to as 'the proposed modification' in this Modification Report.

1.2 Purpose of this report

This report has been prepared by GHD as part of the Modification Report to support the proposed modification.

The purpose of this report is to assess potential traffic and transport issues from the construction, operation, decommissioning and rehabilitation of the modification and, where required, identify feasible and reasonable mitigation and management measures to reduce potential traffic and transport impacts.

This traffic and transport assessment includes:

- A description of the existing traffic and transport environment in the study area (refer section 2.2)
- A review of the existing road and transport conditions, traffic volumes and crash data, including a review of site access arrangements
- An assessment of the potential traffic and transport impacts arising from the proposed modification works
- Recommendations on suitable mitigation and management measures to minimise these potential impacts.

1.3 Scope and limitations

This report has been prepared by GHD for APA Group and may only be used and relied on by APA Group for the purpose agreed between GHD and APA Group as set out in section 1.2 of this report.

GHD otherwise disclaims responsibility to any person other than APA Group arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

1.4 Structure of this report

The report is structured as follows:

- Section 1 – provides an introduction to the modification and the assessment.
- Section 2 – describes the methodology for the assessment.
- Section 3 – describes the existing environment.
- Section 4 – assesses the impacts of the modification.
- Section 5 – provides mitigation measures for the impacts identified.
- Section 6 – provides a conclusion to the assessment.

1.5 Summary of the modification

1.5.1 Location

The proposed site locality is presented in Figure 1.1. The site for the proposed modification is identified as Lot 781/DP 878179 in Uranquinty, NSW on land owned by APA, located within the Wagga Wagga local government area (LGA) (the proposed site). The proposed site is adjacent to the Uranquinty Power Station (constructed in 2008 and commissioned in 2009), which is owned and operated by Origin Energy.

The existing Uranquinty Power Station is located adjacent to the northern and eastern boundaries of the proposed site. Ancillary infrastructure for the power station runs along the eastern boundary of the proposed site, which connects to the existing Uranquinty Power Station. The proposed site map is presented in Figure 1.2.

1.5.2 The proposed modification

The proposed modification comprises the following:

- Construction, operation and decommissioning of a compressor station (UCS)
- Interim and full rehabilitation of the proposed site.

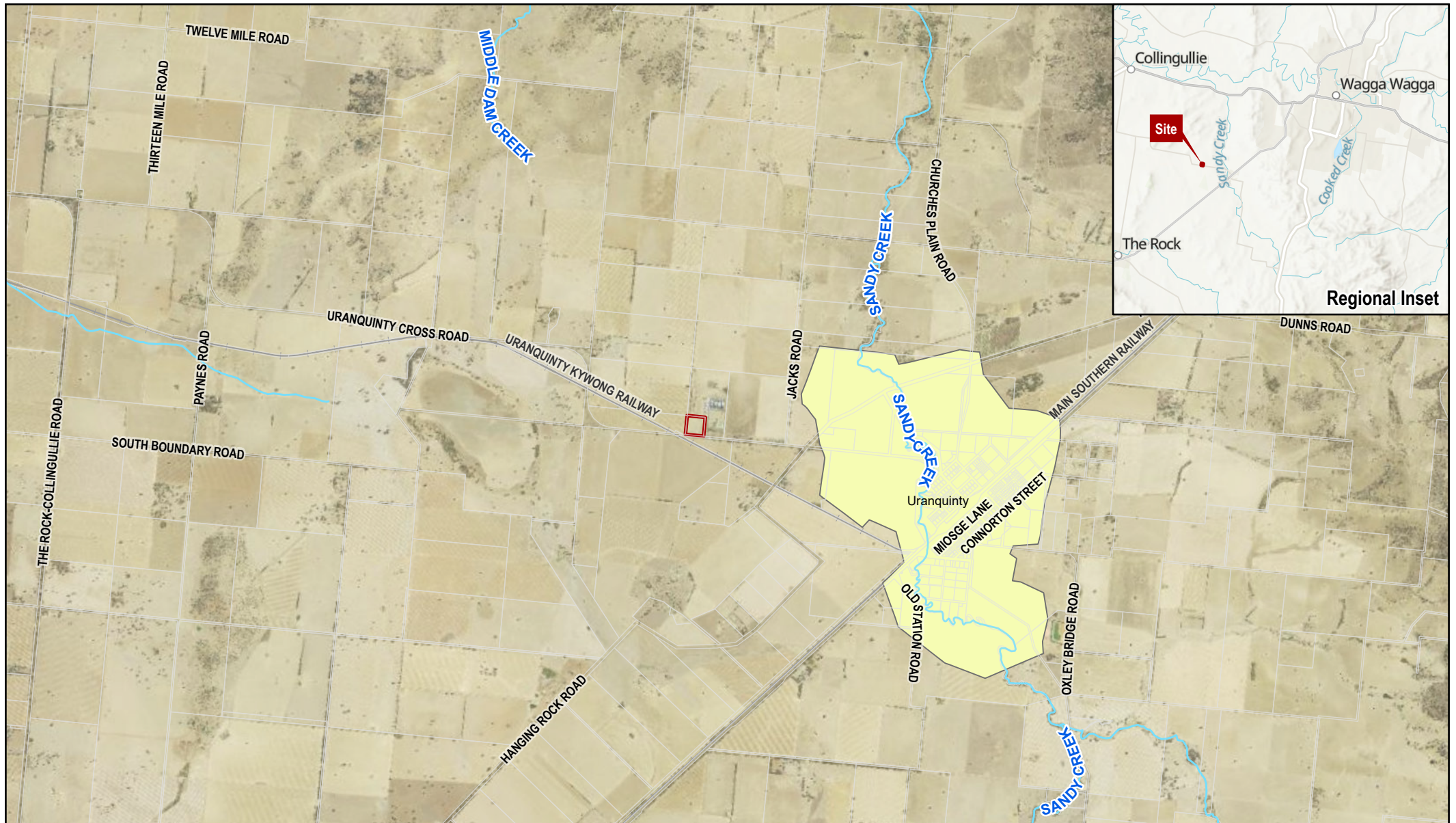
Construction of the works is anticipated to commence in the second half of 2026, pending relevant approvals, with the compressor station having a 25 year design life.

The UCS construction will take approximately twelve months followed by about a three-month commissioning period.

Construction activities associated with the proposed modification encompass both site preparation and construction of the UCS. Site preparation will include implementation of construction environmental management controls, mobilisation of construction equipment, vegetation clearance (as required) within the site, establishment of construction work areas and internal access roads and ramps, supply of power, water and other utilities to site. Construction of the UCS will include bulk earthworks (including excavation for buried services and cut to fill to establish levels for infrastructure installation, installation of steel piles, installation of steel structures, pre-fabricated piping, electrical equipment and installation, supply and install communication and controls infrastructure, pre-commissioning and commissioning of the compressor and demobilisation of construction equipment.

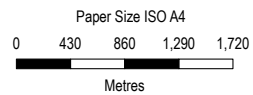
Interim rehabilitation strategies would continue to be employed as per the conditions of approval, to minimise dust generation, soil erosion and weed incursion on parts of the sites that cannot yet be permanently rehabilitated. Permanent rehabilitation would occur following the final use of the site and decommissioning of the UCS.

The decommissioning phase will likely involve rehabilitation of temporary disturbance areas back to their original state, which may include filling excavated areas. Topsoil stripped during construction would be retained for site rehabilitation purposes.

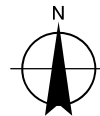


LEGEND

- Proposed site
- Railway
- Roads
- ~ Waterway



Map Projection: Transverse Mercator
 Horizontal Datum: GDA 1994
 Grid: GDA 1994 MGA Zone 56



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Traffic and Transport Assessment

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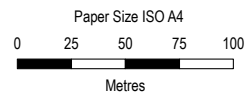
Locality

FIGURE 1.1

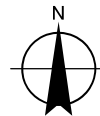


LEGEND

- Proposed site
- Lot
- Site layout
- Railway



Map Projection: Transverse Mercator
 Horizontal Datum: GDA 1994
 Grid: GDA 1994 MGA Zone 56



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MOD 1 Uranquinty Compressor Station
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Site map

FIGURE 1.2

1.5.3 Construction and operation activities

Construction activities associated with the proposed modification are:

- Site preparation
 - implementation of construction environmental management controls
 - mobilisation of construction equipment
 - vegetation clearance (as required) within the site
 - establishment of construction compounds / work areas and associated internal roads and ramps to facilitate access to work areas
 - supply of power, water and other utilities to the proposed site.
- Construction of UCS
 - site bulk earthworks, including excavation for buried services and cut/fill to establish levels for infrastructure installation
 - installation of steel piles
 - installation of associated steel structures, prefabricated piping, electrical equipment and instrumentation
 - installation of noise walls
 - supply and install communication and controls infrastructure
 - pre-commissioning and commissioning of UCS
 - demobilisation of construction equipment.

The majority of construction would be undertaken within the recommended standard construction hours in accordance with the Interim Construction Noise Guideline (DECCW, 2009) being, Monday to Friday between the hours of 7am to 6pm.

In addition, approval would be sought to undertake work outside of standard construction hours being:

- Saturday: 7am to 6pm
- Sundays and/or public holidays between 7am to 6pm.

During the commissioning phase, the compressor station activities would occur between 7:00 am and 6:00 pm seven days a week, with the exception of the final two weeks of commissioning activities, which would be for 24 hours.

Once constructed, the compressor station will have an average design life of approximately 25 years. The UCS is designed to operate remotely without onsite staff for most of its working life. It would be operated remotely from APA's control centre in Brisbane and can operate up to 24 hours per day, seven days per week. Ongoing maintenance of plant and equipment would be undertaken as part of the operations.

1.5.4 Workforce

The construction of UCS will require an average workforce of 40 full-time equivalent (FTE) personnel, with a peak of 65 FTE personnel over the 12-month period (including commissioning). Mobilisation and demobilisation of the workforce will likely be from the nearest airport (i.e. Wagga Wagga). The workforce will commute to the site each day as there is not proposed to be an on-site temporary workers' accommodation camp over the construction timeframe. APA will work with the construction contractor to prioritise engagement of local resources where possible.

1.6 Assumptions and limitations

The preparation of this assessment has relied on the following data sources:

- In the absence of published traffic volume data in the vicinity of the study area, traffic volumes have been assumed based on data from nearby roads. Details of the secondary data sources are described in section 3.4.

- No site inspection or traffic surveys were undertaken for this study.
- The conditions of the surrounding network are based on a desktop review utilising the following data sources:
 - aerial photography by Google Maps / NearMap
 - street view images by Google Maps
 - road crash data published by TfNSW Centre for Road Safety.

The following assumptions have been made in the preparation of this assessment:

- Estimates of the expected construction and operational traffic generated by the proposed modification have been provided by APA (refer to section 4.1).
- Traffic distribution estimates have been based on high-level assumptions on heavy vehicle routes and construction methodology.
- A traffic growth rate of two percent per annum was utilised.
- In the absence of hourly data, peak hour traffic was estimated to be 10 percent of daily traffic.

2. Methodology

2.1 Relevant legislation, policies, and guidelines

The assessment was undertaken with reference to the following documents:

- *Guide to Traffic Management Part 3: Traffic Studies and Analysis Methods* (Austroads, 2020)
- *Guide to Road Design Part 3: Geometric Design* (Austroads, 2021a)
- *Guide to Road Design Part 4A: Unsignalised and Signalised Intersections* (Austroads, 2021b)

2.2 Study area

For the purposes of the assessment, the proposed site that includes the construction and operational footprints, and the study area have been defined as follows:

- **Proposed site** – the area that would be directly affected by construction and the location of operational infrastructure.
- **Study area** – is the area investigated, which includes the proposed site and surrounding area, with the potential to be directly or indirectly affected by the modification:
 - The study area for this traffic and transport assessment has been defined as the road network that extends eastward from the Proposed site to the Olympic Highway and the township of Uranquinty. The study area is shown in Figure 2.1.
 - A wider study area has been considered for the heavy vehicle route, as shown in Figure 3.3.
 - For crash data analysis, a 2.5-kilometre radius has been used for safety assessment.
 - The location and surrounding road network of the modification is shown in Figure 2.1.



Figure 2.1 Road network surrounding the proposed site

2.3 Assessment approach

The tasks listed below were undertaken as part of the traffic and transport assessment.

2.3.1 Data collection and review of existing conditions

- A desktop review was undertaken to gain an understanding of existing conditions, traffic operations and additional potential safety issues within the vicinity of the proposed site. The desktop review utilised publicly available information from the following sources:
 - aerial photography by Google Maps / NearMap
 - road crash data published by TfNSW Centre for Road Safety.
- The existing performance of the surrounding road network was determined from the available traffic data and a desktop assessment of the site access arrangements.

2.3.2 Traffic generation and assessment of traffic impacts

- The traffic volume to be generated by the modification was determined based on information provided by APA.
- Trip distribution of the generated traffic was estimated based on the origin/destination of the anticipated vehicle movements.
- A traffic performance assessment was undertaken (described further in section 4) based on the available traffic data and the expected peak generated traffic for the modification during the weekday am and pm peak periods.
- The traffic implications from modification activities were assessed based on road network capacity, safety and amenity. Future traffic performance was compared against existing conditions to analyse the impact of the construction traffic on the road network.
- Potential impacts to pedestrians and bicycle riders were also assessed by inspecting how the traffic generated by the modification would potentially interact with existing facilities.
- A review of site access was undertaken using a sight distance assessment (described further in section 4).

2.3.3 Worst case scenario assessment

The anticipated traffic generation for the construction, operation, decommissioning and rehabilitation stages of the modification was reviewed to identify the worst-case scenario assessment.

For the proposed modification, the highest traffic movements are predicted to occur during the construction of UCS. This worst-case assessment has been used to determine potential impacts to the transport network and develop recommendation measures for the modification.

2.4 Mid-block assessment approach

A mid-block assessment is an approach for assessing the road network operations between intersections based on hourly traffic volumes along a road and lane capacity limits.

The capacity of the road network to accommodate additional traffic generated by the modification was determined based on mid-block volume to capacity ratio (VCR) of the impacted roads *before* (i.e. existing / baseline conditions) and *after* the proposed modification activities.

2.4.1 Volume to capacity ratio (VCR)

VCR is the ratio of the volume of vehicles (demand) and the capacity of the road. The ratio gives an indication of the road's degree of saturation and its ability to accommodate additional traffic. A lower VCR signifies low traffic volumes and typically translates to a better quality of service for road users. A ratio greater than one (1) suggests that the road is oversaturated and cannot accommodate the influx of volume, leading to delays and queue build-up.

The *Austrroads Guide to Traffic Management Part 3: Traffic Studies and Analysis Methods (AGTM Part 3)* (Austrroads, 2020) indicates a practical degree of saturation of 0.90. For a conservative assessment of the traffic impacts associated with the modification, a desirable outcome for the volume to capacity ratio of 0.85 or lower has been adopted.

2.4.2 Demand

Demand has been estimated to be equivalent to the traffic volumes plying along the assessed corridors. To account for the different impacts of light and heavy vehicles in the traffic mix, traffic volumes are converted from 'vehicle units' to 'passenger car units' (pcu) using multipliers called passenger car equivalent (pce) factors. This allows for the assessment of traffic volume using one homogenised unit for all vehicles. A pce factor of 2.0 has been adopted for heavy vehicles to obtain a highly conservative assessment of the impacts of the modification.

2.4.3 Lane capacity

The *Austrroads Guide to Traffic Management Part 3: Traffic Studies and Analysis Methods (AGTM Part 3)* (Austrroads, 2020) indicates lane capacity for highway was defined in *Highway Capacity Manual. 6th Edition* (Transportation Research Board, 2016). Most rural two-lane roads would be considered as highways.

The hourly two-way traffic flow capacities shown in Table 2.1 have been used as a basis for undertaking the volume to capacity assessment for roads within the study area.

Table 2.1 Lane capacity for highways and rural roads

Road type	One-direction carriageway capacity (vehicles per hour)	Two-direction carriageway capacity (vehicles per hour)
Two-lane roads (include highways and rural roads)	1700	3200

Source: Highway Capacity Manual (6th Edition) - Volume 2 Uninterrupted Flow (Chapter 15/Two-Lane Highways), Transportation Research Board, 2016

It is noted that the source indicates carriageway capacity using vehicles per hour. For the purposes of this assessment, the capacity has been assumed to be equivalent to pcu.

3. Existing environment

3.1 Road network

3.1.1 Road hierarchy

Roads within New South Wales are categorised in the following two ways:

- By classification (ownership)
- By the function that they perform.

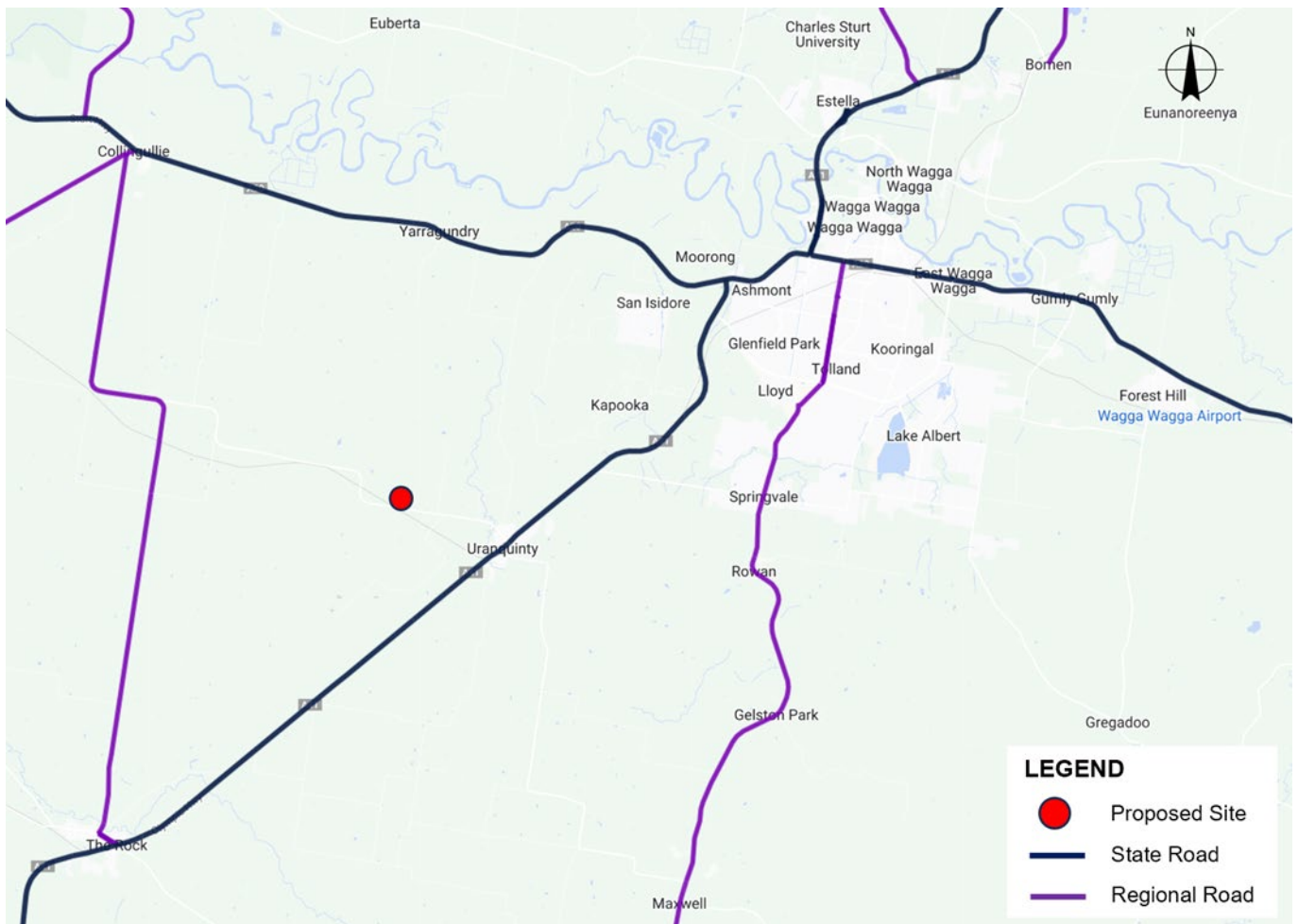
Road classification

Roads are classified (as defined by the *NSW Roads Act 1993*) based on their importance to the movement of people and goods within New South Wales.

The classification of a road allows TfNSW to exercise authority of all, or part of, the road. Classified roads include Main Roads, State Highways, Tourist Roads, Secondary Roads, Tollways, Freeways, and Transitways. For management purposes, TfNSW has three administrative classes of roads:

- **State Roads** – Major arterial links through NSW and within major urban areas. They are the principal traffic-carrying roads and are fully controlled and maintained by TfNSW. State Roads include all Tollways, Freeways and Transitways; and all or part of a Main Road, Tourist Road or State Highway.
- **Regional Roads** – Roads of secondary importance between State Roads and Local Roads which, along with State Roads, provide the main connections to and between smaller towns and perform a sub arterial function in major urban areas. Regional roads are the responsibility of councils for maintenance funding, though TfNSW funds some maintenance based on traffic and infrastructure. Traffic management on regional roads is controlled under the delegations to local government from TfNSW. Regional roads may own all, or part of, a Main Road, Secondary Road, Tourist Road or State Highway; or other roads as determined by TfNSW.
- **Local Roads** – The remainder of the council-controlled roads, Local Roads are the responsibility of councils for maintenance funding. TfNSW may fund some maintenance and improvements based on specific programs (e.g. urban bus routes, road safety programs). Traffic management on Local Roads is controlled under the delegations to local government from TfNSW.

A map of the road classifications of the surrounding road network is shown Figure 3.1.



Source: **NSW Road Network Classifications, TfNSW (2023)**, modified by GHD

Figure 3.1 Road classification of surrounding road network

Functional hierarchy

Functional road classification involves the relative balance of the mobility and access functions. TfNSW defines four levels in a typical functional road hierarchy, ranking from high mobility and low accessibility, to high accessibility and low mobility. These road classes are:

- **Arterial Roads** – generally controlled by TfNSW, they typically have no limit in flow and are designed to carry vehicles long distance between regional centres.
- **Sub-Arterial Roads** – can be managed by either TfNSW or local council. Typically, their operating capacity ranges between 10,000 and 20,000 vehicles per day, and their aim is to carry through traffic between specific areas in a sub region or provide connectivity from arterial road routes (regional links).
- **Collector Roads** – provide connectivity between local roads and the arterial road network and typically carry between 2,000 and 10,000 vehicles per day.
- **Local Roads** – provide direct access to properties and the collector road system and typically carry between 500 and 4,000 vehicles per day.



Source: **NSW Road Network Classifications, TfNSW (2023)**, modified by GHD

Figure 3.2 Road functional hierarchy of surrounding road network

3.1.2 Heavy vehicle routes

Heavy vehicle access on both state and council roads are regulated by the National Heavy Vehicle Regulator in accordance with the NSW Heavy Vehicle Access Policy Framework (TfNSW, 2018). The framework outlines the strategy for heavy vehicle access in NSW with the aim of achieving safe and efficient freight movements. The framework also addresses local amenity issues, network impacts and infrastructure constraints.

A description of heavy vehicle types relevant to modification works are provided in the following sub-sections. These descriptions were sourced from the TfNSW website (TfNSW, 2025).

General access heavy vehicles







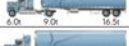















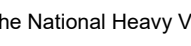
Under the national mass and loading arrangements, general access heavy vehicles are vehicles with unrestricted access to the road system, except where a road or bridge is sign posted otherwise. Provided these vehicles have current registration appropriate to the vehicle configuration, no specific access restrictions apply, and no additional permits are required. Vehicles that fall within the limits described in Table 3.1 and Table 3.2 do not exceed prescribed mass and dimension limits and are therefore considered as general access heavy vehicles.

The TfNSW interactive General Mass Limit (GML) Map identifies a network of routes that are approved to accommodate heavy vehicles of various sizes. Figure 3.3 provides the GML Map for 25/26m B-double routes in proximity to the study area. The only site access route available for heavy vehicles is via Olympic Highway then onto Uranquinty Cross Road.

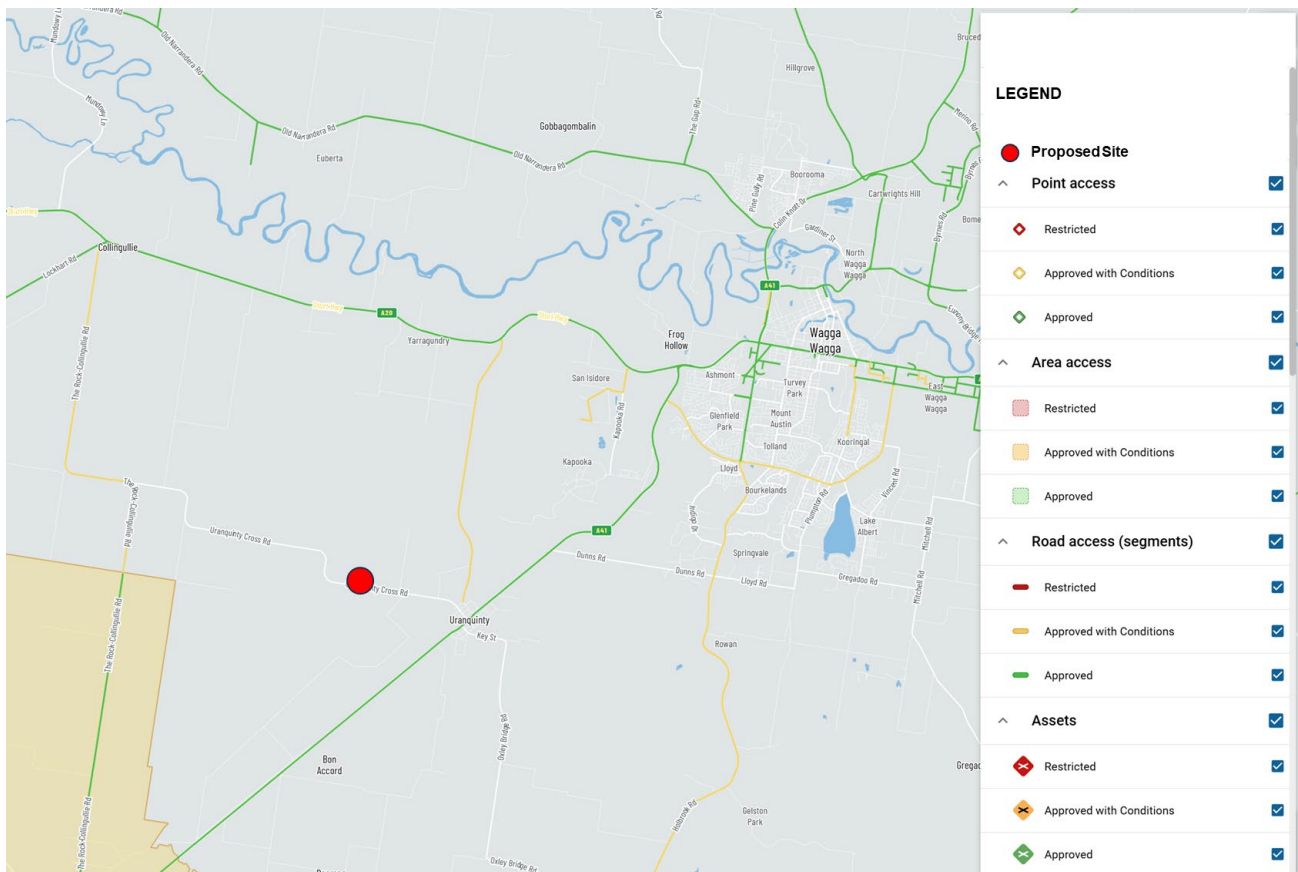
Table 3.1 Common heavy freight vehicle (≤ 26 m) – prescribed dimension limits

Vehicle Type	Dimension limits (metres)		
	Length	Height	Width
Truck	12.5	4.3 (all vehicles)	2.5 (all vehicles)
Bus	12.5		
Truck and trailer	19.0		
Articulated Vehicle	19.0		

Table 3.2 Common Heavy Freight Vehicle (<=26 m) – prescribed mass limits

	Description	Maximum Length (metres)	Maximum Regulatory Mass under GML (tonnes)	Maximum Regulatory Mass under CML (tonnes)	Maximum Regulatory Mass under HML (tonnes)
1. COMMON RIGID TRUCKS - GENERAL ACCESS					
(a)	 2 Axle Rigid Truck	≤ 12.5	15.0	CML does not apply	-
(b)	 3 Axle Rigid Truck	≤ 12.5	22.5	23.0	-
(c)	 4 Axle Rigid Truck	≤ 12.5	26.0	27.0	-
(d)	 4 Axle Twinsteer Rigid Truck	≤ 12.5	26.5	27.0	-
(e)	 5 Axle Twinsteer Rigid Truck	≤ 12.5	30.0	31.0	-
2. COMMON SEMITRAILER COMBINATIONS - GENERAL ACCESS					
(a)	 3 Axle Semitrailer	≤ 19.0	24.0	-	-
(b)	 4 Axle Semitrailer	≤ 19.0	31.5	32.0	32.0
(c)	 5 Axle Semitrailer	≤ 19.0	35.0	36.0	37.5
(d)	 5 Axle Semitrailer	≤ 19.0	39.0	40.0	40.0
(e)	 6 Axle Semitrailer	≤ 19.0	42.5	43.5	45.5
3. COMMON RIGID TRUCK AND TRAILER COMBINATIONS (General access when complying with prescribed mass and dimension requirements)					
(a)	 2 Axle Truck and 2 Axle Dog Trailer	≤ 19.0	30.0	-	-
(b)	 2 Axle Truck and 2 Axle Pig Trailer	≤ 19.0	30.0	CML does not apply	-
(c)	 3 Axle Truck and 2 Axle Dog Trailer	≤ 19.0	40.5	41.0	-
(d)	 3 Axle Truck and 2 Axle Pig Trailer	≤ 19.0	37.5	CML does not apply	-
(e)	 3 Axle Truck and 3 Axle Dog Trailer	≤ 19.0	42.5	43.5	-
(f)	 3 Axle Truck and 3 Axle Pig Trailer	≤ 19.0	40.5	CML does not apply	-
(g)	 3 Axle Truck and 4 Axle Dog Trailer	≤ 19.0	42.5	43.5	-
(h)	 4 Axle Truck and 3 Axle Dog Trailer	≤ 19.0	42.5	43.5	-
(i)	 4 Axle Truck and 4 Axle Dog Trailer	≤ 19.0	42.5	43.5	-
4. COMMON B-DOUBLE COMBINATIONS - CLASS 2					
(a)	 7 Axle B-double	≤ 19.0	55.5	57.0	57.0
(b)	 8 Axle B-double	≤ 26.0	59.0	61.0	62.5
(c)	 8 Axle B-double	≤ 26.0	59.0	61.0	62.5
(d)	 9 Axle B-double	≤ 26.0	62.5	64.5	68.0

Source: Excerpt from the National Heavy Vehicle Regulator [Common Heavy Freight Vehicle Configurations Chart \(NHVR, 2017\)](#)



Data Source: **NSW Combined Higher Mass Limits (HML) and Restricted Access Vehicle (RAV) Map (TfNSW, 2025)**, modified by GHD

Figure 3.3 General Mass Limit (GML) routes (for 26 m B-doubles)

3.1.3 Road characteristics

The proposed modification is located approximately 3.4 kilometres north-west of Uranquinty within the Wagga Wagga LGA. The following sections describe the roads in proximity to the proposed site which would be utilised as access roads during the various stages of the proposed modification.

Olympic Highway

The Olympic Highway (pictured in Figure 3.4) is a state road which runs generally north–south in the rural area of the central western and south-eastern Riverina regions. It is a two-way, two-lane highway approximately seven metres wide with a posted speed limit of 50 kilometres per hour near the Uranquinty town. Access to the proposed site would primarily be via Yarragundry Street and Uranquinty Cross Road from the Olympic Highway.

The key features of Olympic Highway are summarised in Table 3.3.

Table 3.3 Olympic Highway (A41) key features

Feature	Description
Carriageway	Sealed divided carriageway with one lane in each direction. Carriageway widths of approximately 7 m (3.5 m per lane). Lane markings and shoulders provided on both sides of the carriageway.
Parking	No designated parking facilities are provided.
Speed limit	50 km/h within Uranquinty Township. 100 km/h outside of town boundary.
Pedestrian Facilities	One pedestrian crossing on Olympic Highway near the intersection with Yarragundry Street.
Bicycle Facilities	No cycling facilities.
Public Transport	No access to public transport.



Image Source: Google Street View || View facing south, approaching intersection with Yarragundry Street

Figure 3.4 Olympic Highway (A41)

Yarragundry Street

Yarragundry Street (pictured in Figure 3.5) is a local road that provides access to the local residential estates. It runs a south-north alignment, with its southern terminus at the Olympic Highway and its northern terminus at Baker Street.

Yarragundry Street is an extension and is considered as a part of Uranquinty Cross Road in the following assessment. Accordingly, no separate trip generation and impact assessment are provided for Yarragundry Street, as the analysis is primarily based on Uranquinty Cross Road.

The key features of Yarragundry Street are summarised in Table 3.4.

Table 3.4 Yarragundry Street key features

Feature	Description
Carriageway	Sealed divided carriageway with one lane in each direction. Carriageway widths of approximately six metres (3.0 m per lane). Lane markings and shoulders provided on both sides of the carriageway.
Parking	Parking on the eastern kerb between Pearson Street and King Street.
Speed limit	50 km/h
Pedestrian Facilities	No pedestrian facilities are provided.
Bicycle Facilities	No cycling facilities.
Public Transport	No access to public transport.



Image capture: June 2022 © 2024 Google Australia Terms

Image Source: Google Street View || View facing north , approaching intersection with King Street

Figure 3.5 Yarragundry Street

Uranquinty Cross Road

Uranquinty Cross Road (pictured in Figure 3.6) is a local road that extends from Yarragundry Street to The Rock-Collingullie Road and runs an east-west alignment. Access to site would be primarily via Uranquinty Cross Road and Yarragundry Street from the Olympic Highway.

The key features of Uranquinty Cross Road are summarised in Table 3.5.

Table 3.5 Uranquinty Cross Road key features

Feature	Description
Carriageway	Sealed divided carriageway with one lane in each direction. Carriageway widths of approximately seven metres (3.5 m per lane). Lane markings provided.
Parking	N/A
Speed limit	50 km/h within Uranquinty Township. 100 km/h outside of town boundary.
Pedestrian Facilities	No pedestrian facilities are provided.
Bicycle Facilities	No cycling facilities.
Public Transport	No access to public transport.



Image Source: Google Street View || View facing east, approaching Power Station

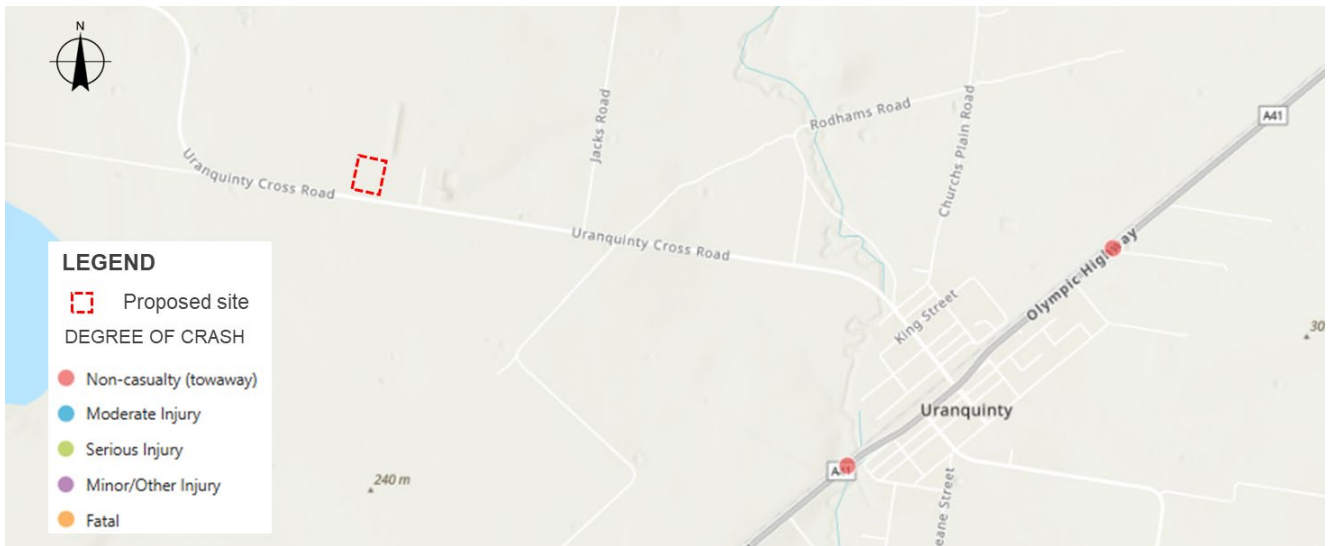
Figure 3.6 Uranquinty Cross Road

3.2 Public and active transport

The site is situated outside of Uranquinty Township that does not have access to public transport facilities or services and does not have any dedicated footpaths and cycling lanes that can provide access to, or within, the proposed site.

3.3 Crash data review

Road crash information in the vicinity of the proposed site was collected from road crash statistics published by NSW Centre for Road Safety over a five-year period. From 2019 to 2023, a total of two crash incidents were recorded on the Olympic Highway within a 2.5 km radius from the proposed site (refer to Figure 3.7). No crashes were recorded on Yarragundry Street or Uranquinty Cross Road in proximity to the proposed site.



Data source: NSW Road Crash Data 2019-2023 (TfNSW Centre for Road Safety, 2025), modified by GHD

Figure 3.7 Road crash incidents within 2.5-km radius from site

3.4 Existing traffic volumes

Traffic data would typically be obtained from permanent counts data published on the TfNSW Traffic Volume Viewer and secondary data from available traffic studies and reports of other developments in proximity to the study area (when available). For roads with no available data, traffic volumes have been assumed based on historic traffic survey data in the study area, or data from nearby roads. The future traffic volume will be estimated with a traffic growth rate applying. A summary of the available data and assumptions is outlined in Table 3.6.

Table 3.6 Traffic volume data (directional mid-block counts)

Road Name	Available counts	Count Year	Source and assumptions
Olympic Highway (A41)	Daily and hourly (Average Weekday)	2015	15SYD09 S03 Olympic Highway, south of Sunset Road Auto Survey Report, South of Wagga, 2015 Based on the peak hour traffic data, 2% growth rate was assumed to apply for 2025 traffic volumes.
Old Narrandera Road ¹	Daily (Average Weekday)	2021	Olympic Highway Intersection Upgrades Noise and Vibration Impact Assessment – Appendix B Existing Traffic Counts, TfNSW, 2021
Uranquinty Cross Road	No data	N/A	For a highly conservative assessment with comparing population scale, assumed as to be equal to 30 percent of Old Narrandera Road traffic volumes. Data from Olympic Highway Intersection Upgrades Noise and Vibration Impact Assessment – Appendix B Existing Traffic Counts, TfNSW, 2021

Note: 1. Old Narrandera Road is located outside of the study area, however it served as a reference for existing traffic volume in the absence of data for Uranquinty Cross Road.

The data review showed that peak traffic volumes were observed in the morning between 8am to 10am and in the afternoon between 4pm to 6pm across the identified key roads.

Since there is no singular “peak hour” for the network, the peak traffic volume for each road is used in the analysis, regardless if the peak volumes did not actually occur at the same time in the road network. This allows for the conservative assessment of the worst-case scenario that could take place in the study area. It is noted that:

- Traffic counts for 2025 were estimated by applying a growth rate of 2.0 percent per annum on the count data collected in 2021.
- In the absence of peak hour data, peak hour traffic has been assumed to be equal to 10 percent of average daily traffic.

- According to the 15SYD09 S03 Olympic Highway - south of Sunset Road Auto Survey, detailed in Table 3.6, it was identified that fifteen percent of the vehicles travelling on Olympic Highway and Uranquinty Cross Road will consist of trucks.

A summary of the derived traffic volume counts is provided in Table 3.7.

Table 3.8 presents the existing VCR of the key roads in the study area.

Table 3.7 Traffic volume count summary (2025)

Road Name	Direction	Heavy Vehicle (%)	AWDT (vpd)	Peak hour	
				AM	PM
Olympic Highway (A41)	Northbound	15.0	2735	08:00-09:00	15:00-16:00
	Southbound		2752	08:00-09:00	15:00-16:00
Uranquinty Cross Road	Eastbound	15.0	1,075	N/A	N/A
	Westbound		1,134	N/A	N/A

Note: AWDT = Average Weekday Daily Traffic vpd = vehicles per day

Table 3.8 Existing mid-block VCR (2025)

Road Name	Direction	Existing traffic		Carriageway capacity * (pcu / direction)	VCR (2025)	
		am Peak (pcu)	pm Peak (pcu)		am Peak	pm Peak
Olympic Highway (A41)	Northbound	382	196	1,700	0.225	0.115
	Southbound	166	290	1,700	0.097	0.170
Uranquinty Cross Road	Eastbound	124	124	1,700	0.073	0.073
	Westbound	130	130	1,700	0.077	0.077

Note: pcu = passenger car units (1 LV = 1 pcu 1 HV = 2 pcu)

LEGEND  Free flow Congested

This analysis indicates that, presently, Olympic Highway and Uranquinty Cross Road are operating below capacity with VCRs approximately from 0.07 to 0.23. This is well under the target maximum acceptable VCR of 0.85, which means that the road has significant capacity to accommodate additional traffic.

4. Impact assessment

4.1 Traffic impacts

This section provides details of the estimated traffic that will be generated by the modification and an analysis of its likely impacts to the adjoining road network.

UCS will be operated remotely without on-site staff for most of its working life. The operation stage is expected to generate minimal on-site activity comprising minor maintenance, systems testing or equipment repair if needed. Therefore, the operational traffic associated with the UCS is expected to be negligible.

With respect to construction, it is noted that:

- Construction of the UCS is scheduled to begin in early 2026, subject to approval of Modification 1 and is expected to take approximately twelve months, followed by about three months of commissioning.
- Construction materials and supplies would be transported to the site with the traffic generation provided in Table 4.1.
- Traffic movements would be fewer during the operational stage relative to the construction stage, therefore, the traffic impact assessment utilising construction traffic provides a worst-case scenario.
- The analysis of the construction impacts has been taken to highlight the most significant impact that the modification would have on the road network.

4.1.1 Traffic generation

This section provides details of the estimated traffic that will be generated by the proposed construction works. The term “vehicle movement” signifies a one-way movement of a vehicle from one point to another (i.e., one round trip is equivalent to two vehicle movements).

The following assumptions were utilised in the estimation of peak hour vehicle movements:

- 50 percent of the daily heavy vehicle (HV) trips associated with the construction and maintenance works will occur in the peak hour.
- Realistically, peak heavy vehicle (HV) and light vehicle (LV) movements would not occur during the same period during the day. However, to obtain a conservative assessment, peak movements of both vehicle types have been assumed to occur during the peak hour.

4.1.1.1 Construction stage

The anticipated traffic generation for the construction works is summarised in Table 4.1. The various construction stages will not coincide, but will be staggered over the twelve-month construction, pre-commissioning and commissioning stages.

To assess the worst-case peak traffic scenario for construction traffic impacts, it is assumed that the activities of structural, mechanical and piping structures, and electrical and instrumentation equipment accompanying with workforce transportation would occur concurrently and accordingly, the peak daily trips are expected to consist of 23 light vehicles trips and 15 heavy vehicles trips.

Table 4.1 Peak daily traffic generation – construction stage

Construction activity	Trips		Vehicle Movements	
	LV	HV	LV	HV
Construction stage – daily vehicles				
Mobilisation of construction equipment and establishment of access	13	6	23	12
Earthworks and piling	6	4	12	8
Transportation of construction workforce	3	4	6	8
Installation of structural, mechanical and piping structures, and electrical and instrumentation equipment	20	11	40	22
Pre-commissioning and commissioning of compressor station	11	2	22	4
Demobilisation of construction and commissioning equipment	13	5	26	10
Total (daily)	66	32	132	64
Total (worst-case)	23	15	46	30

Note: Worst-case scenario activity

The hourly construction trips are provided in Table 4.2, calculated from the peak daily traffic generation based on the following assumptions:

- The construction workers and light vehicles will arrive the proposed site in the morning and leave in the afternoon
- 50 percent of the daily heavy vehicle trips will occur in the peak hour.

Table 4.2 Hourly traffic generation – construction stage

Construction stage – Peak hour	Hourly vehicle movements
Number of Light Vehicle Movements	23
Number of Heavy Vehicle Movements	8

4.1.1.2 Site access and vehicle routes

The proposed site is accessed by Uranquinty Cross Road via the Olympic Highway.

Uranquinty Cross Road, which provides access to the existing APA owned metering station for the Culcairn to Wagga Wagga Pipeline, is the main road in the vicinity of the proposed site.

During construction, the proposed site will be accessed by a new turn-out from Uranquinty Cross Road in the vicinity of the existing access point. The design of the access point for the proposed site will adhere to *Austrroads Guide to Road Design (Austrroads, 2021)* to ensure safety and functionality and will be designed for vehicles up to 26 m in length. For works within any road reserve, all relevant approvals will be obtained prior to the works commencing from TfNSW.

Estimates of the vehicle distribution on the road network have been made based on high level assumptions on construction methodology, location of the proposed site, and sources of construction materials. For the purposes of this assessment, traffic distribution to the site has been assumed as follows (as shown in Figure 4.1):

- Olympic Highway
 - light vehicles 75 percent to/from the north 25 percent to/from the south
 - heavy vehicles 75 percent to/from the north 25 percent to/from the south
- Uranquinty Cross Road
 - light vehicles 100 percent to/from the east zero (0) percent to/from the west
 - heavy vehicles 100 percent to/from the east zero (0) percent to/from the west.



Figure 4.1 Vehicle access routes

4.1.1.3 Traffic generation

To account for the different impacts of light and heavy vehicles, traffic volumes have been converted from 'vehicle units' to 'pcu' using multipliers called pce factors. This allows for the assessment of traffic volume using one homogenised unit for all vehicles. A pce factor of two has been adopted for heavy vehicles to obtain a highly conservative assessment of the impacts of vehicles generated by the modification.

The estimated traffic generation during the construction stage (worst-case) are presented below in Table 4.3.

Table 4.3 Estimated traffic generation during construction stage (worst case)

Road Name	Direction	Traffic generation				Total traffic generation (pcu)	
		am Peak (pcu)		pm Peak (pcu)		am Peak	pm Peak
		LV	HV	LV	HV		
Olympic Highway	Northbound	6	4	17	12	10	29
	Southbound	17	12	6	4	29	10
Uranquinty Cross Road	Eastbound	-	-	23	16	-	39
	Westbound	23	16	-	-	39	-

Note: LV = light vehicles HV = heavy vehicles pcu = passenger car units (1 LV = 1 pcu , 1 HV = 2 pcu) (pcu are one-way vehicle movements)

4.1.2 Traffic volumes

Construction is expected to require a daily total of 32 heavy vehicle movements and 66 light vehicle movements, as described in Table 4.1. Peak hour vehicle movements are expected to be 23 light vehicles and eight heavy vehicles as shown in Table 4.2. Construction and personal vehicles would be parked at the appropriate designated area within the proposed site.

During operation, minimal traffic movements would be required as UCS will be operated remotely and does not require permanent on-site staff.

The impacts of the modification on the road network were quantified by adding the traffic generated by the proposed modification works to the expected future traffic volumes on the road network. For the purposes of this assessment, future baseline traffic was estimated for the year 2026, when the worst-case construction stage is expected to commence.

Future baseline traffic for 2026 was estimated by applying a traffic growth rate of 2.0 percent per annum to the 2025 traffic volumes described in section 3.4 (refer to Table 3.8).

The resulting Level of Service (LoS) are provided in Table 4.4

Table 4.4 Estimated increase in peak hour two-way traffic volumes – construction

Road Name	Direction	Capacity (pcu / direction) ¹	Traffic Volume		VCR	
			am Peak (pcu)	pm Peak (pcu)	am Peak	pm Peak
2026 traffic without Construction						
Olympic Highway	Northbound	1,700	389	199	0.229	0.117
	Southbound	1,700	168	295	0.099	0.173
Uranquinty Cross Road	Eastbound	1,700	126	126	0.074	0.074
	Westbound	1,700	133	133	0.078	0.078
2026 during Construction						
Olympic Highway	Northbound	1,700	399	228	0.234	0.134
	Southbound	1,700	197	305	0.116	0.179
Uranquinty Cross Road	Eastbound	1,700	126	165	0.074	0.097
	Westbound	1,700	172	133	0.101	0.078

LEGEND  Free flow Congested

Note: pcu = passenger car units (1 LV = 1 pcu , 1 HV = 2 pcu)

1. It is noted that the original source indicates carriageway capacity using vph. For the purposes of this assessment, the capacity has been assumed to be equivalent to passenger car units (pcu).

The values in Table 4.4 indicate that the construction and operation of the modification would not have a significant impact on road network operations, as follows:

- During the construction period, the VCR of Olympic Highway would range from 0.11 to 0.24, signifying that it would have at least 76 percent spare capacity to accommodate additional traffic volumes.
- During the construction period, the VCR of Uranquinty Cross Road would range from 0.07 to 0.10, signifying that it would have more than 90 percent spare capacity to accommodate additional traffic volumes.
- Even with the increase in traffic volumes brought about by the construction activities, the resulting VCRs along Olympic Highway still fall well under the maximum acceptable VCR of 0.85, and there would be significant road capacity to accommodate other vehicles.

The assessment indicates that the proposed modification is expected to have minimal impact on the roads within the vicinity of the proposed site, during peak hours of operation.

4.2 Public and active transport

Public transport facilities would not be impacted by the modification as the proposed site, and the respective access points are not located near any public transport facilities.

No active transport facilities in the vicinity of the proposed site are available. The proposed works are not expected to significantly increase traffic volumes along the affected roads (as discussed in section 4.1.2). However, as most of the sites are located in rural areas, the increase in traffic may still be palpable to other road users. Proposed measures are provided in section 5, to mitigate or minimise impacts to other road users.

4.3 Vehicle parking

Parking for all vehicles associated with the modification works will be contained on site within the proposed site boundaries. As such, vehicle parking demand generated by the modification would have no impact on parking spaces or roads surrounding the sites.

4.4 Worksite access sight distance

There are two existing access points available for the existing Uranquinty Power Station; located adjacent to the proposed site. One access will be potentially used as worksite access, which is shared with the Origin Power Station site (see Figure 4.2).



Figure 4.2 Site access

The main access point to the proposed site was assessed to determine whether there is adequate longitudinal sight distance at the proposed access to allow drivers approaching and exiting the temporary worksite to safely navigate into and out of the site.

The sight distance assessment was undertaken using a desktop assessment, that included Google Maps / SIX Maps and Google Street view. It is worth noting that the actual sight distances observed on site by road users may differ from the Google images as the images may be outdated due to changes to vegetation and/or changes to the road environment. The level of the Google camera above the road surface of a vehicle may also vary from the

actual driver eye height, etc. Nevertheless, imagery from the aforementioned sources is regarded to be a reasonably accurate representation of actual site conditions and has been adopted for the purposes of this assessment.

- **Approach Sight Distance (ASD)** is the minimum requirement to provide the driver of a vehicle with adequate sight distance to observe the road layout with sufficient time to react and stop, if necessary, before entering the conflict area. Approach sight distance is measured from driver eye height (1.1 metres to 0.0 metres or the road surface for cars, and 2.4 metres to 0.0 metres for trucks).
- **Safe Intersection Sight Distance (SISD)** provides sufficient sight distance for a driver of a vehicle on the major road to observe approaching vehicles from the minor road and to stop before a potential collision. Safe intersection sight distance is measured from the driver eye height of (1.25 metres for cars and 2.4 metres for trucks).

The required sight distances were derived from the *Austrroads Guide to Road Design (AGRD) Part 3: Geometric Design (Austrroads 2021a)* and *Part 4A: Unsignalised and Signalised Intersections (2021b)*. Table 4.5 provides a summary of the sight distance requirements for access to the site.

Table 4.5 Sight distance requirement for cars and trucks

Location	Design Speed (km/h)	ASD (minimum requirement)			SISD (minimum requirement)		
		Required (m)		Measured (direction from access)	Required (m)		Measured (direction from access)
		Cars	Trucks		Cars	Trucks	
Access point on Uranquinty Cross Road to the proposed site	100	165	191	500+ m (east)	248	317	500+ m (east)
				500+ m (west)			500+ m (west)

LEGEND WITH ADEQUATE SIGHT DISTANCE INADEQUATE SIGHT DISTANCE

Note: Requirements derived from *Austrroads Guide to Road Design Part 3: Geometric Design (2021a)* and *Part 4a: Unsignalised and Signalised Intersections (2021b)*

As summarised in Table 4.5, the measured sight distances meet the minimum sight distance requirement.

4.5 Cumulative impacts

Uranquinty Solar Farm

One notable major project was found through this search on 15 January 2024, namely the Uranquinty Solar Farm project. If construction of the Uranquinty Solar Farm overlaps with the proposed modification, cumulative amenity impacts of traffic would occur. However, this is unlikely as the application has been withdrawn according to the Major Projects website.

Battery energy storage system (BESS)

Vena Energy Services (Australia) Pty Ltd (VEA) is proposing to construct and operate a battery energy storage system (BESS) south of Wagga Wagga, in New South Wales (NSW).

The project would comprise a BESS which is located in Rowan, approximately nine kilometres southeast of the central business district of Wagga Wagga. This project will be constructed during 2025 to 2026. The peak hour traffic generation is anticipated to be a maximum of 20 light vehicles (20 inbound and 20 outbound) and four heavy vehicles (four inbound and four outbound) during the morning and evening peak hour. As such, low impact on Olympic Highway and no impact on Uranquinty Cross Road were identified.

EnergyConnect (NSW – Eastern Section)

EnergyConnect involves the construction and operation of a new High Voltage (HV) interconnector between NSW and SA, with an added connection to north-west Victoria. Removal and re-instatement of construction compounds and associated works and remediation was estimated completion in March 2025. No cumulative impacts are likely to have been identified in the study area.

5. Mitigation measures

While the results of the assessment show that the expected increase in traffic associated with the proposed modification can be accommodated by the surrounding road network, additional measures could still be implemented to reduce impacts. This section describes the measures that can be implemented to eliminate or otherwise reduce potential impacts on traffic and transport.

The following measures focus on the management of construction traffic as the construction and decommissioning stages are expected to generate more vehicles than the operation and rehabilitation of the site. However, these measures may still be adopted (as applicable) during the operation and rehabilitation stages.

5.1 Traffic Management Plan

A Traffic Management Plan (TMP) shall be prepared prior to the commencement of works to maintain the safety of all workers and road users within the vicinity of the site. The TMP would provide guidance on the safe and efficient management of staff and vehicle access to the site. At a minimum, the TMP shall provide a description of:

- The proposed activities
- The type and number of vehicles that will be generated during each stage of the works
- Access arrangements and proposed routes for vehicles entering and egressing the proposed site.

The TMP shall outline strategies to:

- Manage vehicular traffic movement associated with the modification.
- Minimise the impact of site-generated vehicle traffic on the operation of the adjoining road network, including impacts to other road users (including cyclists and pedestrians) via the following measures:
 - Logistics management shall be controlled by the site supervisor to ensure the efficient movement of equipment and materials and to minimise the number of trips that will need to be taken for all vehicle types.
 - Carpooling opportunities for personnel sharing accommodation or living in close proximity to one another shall be utilised where feasible.
 - All vehicles shall comply with road traffic rules, particularly for any local traffic rules.
 - Adherence to assessed transport routes and speed limits.
- Facilitate the continuous, safe, and efficient travel of workers, contractors, and the general public.

5.2 Traffic Management Measures

5.2.1 Site access and parking

- No site access shall be granted to vehicles that do not have proper authorisation to enter the work site.
- All vehicles shall comply with road traffic rules, particularly for any local traffic rules.
- All parking shall be contained within the proposed site. Under no circumstance are personnel, company vehicles or heavy vehicles allowed to use any public road for long-term parking, including leaving parked or unattended vehicles.

5.2.2 Safety

The following safety measures are proposed:

- All staff and subcontractors engaged on site shall be required to undergo site induction. The induction shall outline the requirements on the TMP, including site access routes, environmental and occupational health and safety responsibilities, emergency procedures, potential carpooling opportunities and vehicle height and mass restrictions, among others. Additionally, the Site Manager will discuss TMP requirements regularly as a part of regular “toolbox talks”.
- Access for emergency vehicles shall be maintained at the site during the construction works, in accordance with emergency vehicle requirements. The emergency services, including fire, ambulance and police, shall be advised of all planned changes to traffic arrangements prior to the commencement of works.

5.2.3 Heavy vehicle access

The following measures are proposed to manage heavy vehicle access:

- Key stakeholders, including owners/operators of adjacent lands and emergency service providers, shall be notified of any changes to the traffic management arrangements prior to the commencement of works. Coordination and approval with the owners of the access roads (if an external party) shall be secured prior to the commencement of works.
- Truck drivers shall be directed to follow the predetermined haulage routes. Additionally, all drivers must observe posted speed limits on adjoining road networks to comply with Australian road rules. Drivers are to adjust speeds to suit the road environment and weather conditions appropriately to ensure the safe movement of the vehicles based on the individual vehicle configurations.
- Oversized or overweight loads shall be transported in accordance with the requirements of the relevant road authority.
- A turnaround facility that can accommodate the largest vehicle entering the site shall be provided to allow all vehicles to exit the site in a forward direction, with vehicles to also enter in a forward direction.

6. Conclusion

6.1 Key findings

6.1.1 Existing conditions

- The proposed site location is situated in a relatively remote area accessible via Uranquinty Cross Road, west of the town of Uranquinty.
- The proposed site location is in a rural area that does not have access to public transport facilities or services. No dedicated footpaths and cycling lanes are available in proximity to the site that can provide access to, or within, the site.
- A total of three crash incidents were recorded within a 2.5-kilometre radius from the site boundary from 2019 to 2023. The five-year data indicates a low record of crash incidents in the vicinity of the site, likely attributable to the low number of vehicles using the road due to its remote location.
- An assessment of existing traffic volumes indicates that Olympic Highway and Uranquinty Cross Road are operating below capacity with VCRs approximately from 0.07 to 0.23. This is well under the target maximum acceptable VCR of 0.85, which means that the roads have ample capacity to accommodate additional traffic.

6.1.2 Impact assessment

- Construction of the modification is expected to commence in early 2026 and will last 12 months (including commissioning works). Future traffic assessment has been estimated for the year 2026 to capture worst case.
- Construction of the compressor station is expected to require around 66 light vehicle trips and about 32 heavy vehicle trips daily during peak construction period. This translates to around 23 light vehicle movements and eight heavy vehicle movements during the peak hour.
 - Note: For the purposes of this assessment, the traffic generation during the construction stage has been analysed to account for the worst-case scenario. The analysis of the construction impacts has been taken to highlight the most significant impact that the modification would have on the road network, for all proposed activities on site.
- The assessment of midblock traffic conditions during the peak construction period indicates that the modification would not have any significant impact on road network operations.
 - During the construction period, the VCR of Olympic Highway would range from 0.11 to 0.24, signifying that it would have at least 76 percent spare capacity to accommodate additional traffic volumes.
 - During the construction period, the VCR of Uranquinty Cross Road would range from 0.07 to 0.10, signifying that it would have more than 90 percent spare capacity to accommodate additional traffic volumes.
 - Even with the increase in traffic volumes brought about by the construction activities, the resulting VCRs along Olympic Highway still fall well under the maximum acceptable VCR of 0.85, and there would be significant road capacity to accommodate other vehicles.
- The proposed modification is not expected to impact parking spaces or roads surrounding the sites as parking for all work vehicles would be contained within the site boundaries.
- Public transport facilities are not expected to be impacted by the modification as the proposed site and their respective access points are not located near any public transport facilities.
- Site access points are found to have sufficient sight distances to facilitate the safe movement of vehicles entering and egressing the sites.

6.2 Conclusion and mitigation measures

Based on the assumptions and findings of the traffic and transport assessment, it is considered that the modification satisfies the planning requirements on traffic engineering grounds and is not anticipated to have adverse traffic impacts on the surrounding road network.

Mitigation measures would be implemented to further minimise potential impacts on traffic and transport during all stages of the modification. A summary of mitigating measures is provided in Table 6.1.

Table 6.1 Mitigation measures – Traffic and Transport

Impact	Environmental safeguard	Responsibility	Timing
Road congestion and delays arising from the increase in traffic volumes	A Traffic Management Plan (TMP) shall be prepared as part of the construction environmental management plan (CEMP). The TMP shall outline access arrangements and proposed haulage routes for the project and shall include strategies to minimise traffic generation and manage access.	Contractor	Pre-construction
Safety implications arising from the general increase in traffic volumes	Protection shall be provided through advanced warning of roadworks, speed changes, safety barriers with adequate offsets and deflection allowance, where necessary. The TMP shall cover strategies to manage vehicular flow to facilitate the safe movement of road users (i.e. workers and staff, and the general public – pedestrians, cyclists, and other non-project vehicles) within, around, and to/from the proposed site.	Contractor	All stages
Increase in light vehicle traffic during peak periods associated with ingress and egress of site personnel	Opportunity for carpooling and/or the provision of shared services for site personnel shall be explored where practical to minimise light vehicle movements.	APA / Contractor	All stages
Increase in heavy vehicles	All deliveries shall be scheduled and coordinated to facilitate the organised arrival of trucks. Ample space and time shall be allotted for the safe loading and unloading of materials. All parking and queueing (if any) shall be contained within the proposed site.	Contractor	Construction and decommissioning
Damage on roads along haulage and access routes resulting from the movement of project vehicles	The condition of Uranquinty Cross Road, in the vicinity of the site shall be assessed by a Road Dilapidation Report prior to construction commencing and following completion of construction. Any defects attributable to the modification shall be rectified or compensated in consultation with the relevant road authorities.	APA / Contractor	Construction and decommissioning

7. References

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