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HumeLink

Revised Traffic and Transport Impact Assessment
Technical Report 16

HumeLink

Technical Report 16 – Revised Traffic and Transport Impact Assessment

Transgrid

May 2024

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Executive Summary

Transgrid proposes to increase the energy network capacity in southern New South Wales (NSW) through the development of around 365 kilometres (km) of new 500 kilovolt (kV) high-voltage transmission lines and associated infrastructure between Wagga Wagga, Bannaby and Maragle. This project is collectively referred to as HumeLink. The project would be located across six Local Government Areas (LGAs) including Wagga Wagga City, Snowy Valleys, Cootamundra-Gundagai Regional, Upper Lachlan Shire, Yass Valley and Goulburn Mulwaree. HumeLink is a priority project for the Australian Energy Market Operator (AEMO) and the Commonwealth and NSW governments and has been declared as Critical State Significant Infrastructure (CSSI). The project would deliver a cheaper, more reliable and more sustainable grid by increasing the amount of renewable energy that can be delivered across the national electricity grid, helping to transition Australia to a low carbon future.

An EIS was prepared in accordance with the requirements of Division 5.2 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). The EIS was placed on public exhibition by the NSW Department of Planning, Housing and Infrastructure (DPHI) (formerly the NSW Department of Planning and Environment (DPE)) for a period of 42 days, between 30 August 2023 and 10 October 2023.

Transgrid has proposed amendments and refinements to the project as described in the EIS. The amendments provide functional improvements to the design and construction methodology of the project. The proposed amendments take into account submissions received during the public exhibition of the EIS and ongoing design and construction methodology development following the selection of the construction contractors. Project refinements have also been made as part of the ongoing design and construction methodology development since the EIS was exhibited. These amendments and refinements have been described and considered in relevant impact assessments.

This revised Traffic and Transport Impact Assessment has been prepared in accordance with the Planning Secretary's Environmental Assessment Requirements (SEARs) for the project issued on 14 March 2022. The SEARs relevant to this technical report are:

- an assessment of the transport impacts of the project on the capacity, condition, safety and efficiency of the local and state road network and the rail network
- details of the ongoing maintenance work required to service assets, outlining the measures to maintain the road.

This assessment has been prepared using relevant government guidelines, policies, standards and data related to the amended project's construction and operation. This revised assessment replaces the TTIA prepared for the EIS, and has been updated to assess the amended project and its associated traffic and transport impacts. Transgrid has continued to consult with Transport for New South Wales and local council's regarding road classifications and potential constraints, road upgrade requirements, road improvement work for access point connections, oversize over mass (OSOM) routes and the overhead stringing methodology across roads.

The amended traffic study area for the assessment comprises the anticipated access routes for the amended project within the existing road network within and surrounding the amended project footprint. This includes roads within the local government areas (LGAs) of Wagga Wagga City, Snowy Valleys, Cootamundra-Gundagai Regional, Yass Valley, Upper Lachlan Shire, Goulburn Mulwaree and Hilltops. The assessment has also identified and assessed impacts more broadly to the existing:

- public transport services within the LGAs surrounding the amended project footprint
- oversize-overmass road network for delivery of oversized equipment from ports to substations
- rail network that crosses the amended project footprint.

High level findings from the assessment are outlined below.

Road capacity

The lightly trafficked road network within the amended traffic study area reflects the largely rural nature of the locality except for a selection of roads located in urban areas. All roads are operating within capacity at Level of Service A under existing conditions.

Construction of the amended project would generate additional traffic on the existing road network within the amended traffic study area. Some of the roads are expected to have additional traffic over the full duration of the amended project, however most of the roads are expected to be used for a much shorter duration. The overall increase in construction traffic is expected to be low. The assessment determined that even with the addition of the expected construction traffic, all roads would continue to operate at the existing Level of Service A, indicating a low impact on operating conditions. This is because the roads in their existing condition have low traffic volumes, with substantial spare capacity to cater for additional vehicles.

The majority of rural roads experience a low traffic utilisation when compared to the intended design capacity. This is due to the quiet nature of the local road environment within the regional rural setting. The additional traffic generated by the amended project would result in a perceptible change in traffic volumes compared to existing conditions. However, these roads would continue to operate in relatively free flow conditions due to the available capacity.

During operation of the amended project there are expected to be very limited traffic movements at isolated locations across the traffic study area for maintenance and operation activities. The low volume of operational traffic would have a negligible impact on the road network.

Road condition

Road condition generally deteriorates over time due to factors including pavement fatigue, lack of regular maintenance or severe weather events. Other factors include wear and tear at intersections as a result of vehicle breaking and turning movements, particularly heavy vehicles (HVs). In general light vehicles (LVs) are associated with negligible road deterioration in comparison to HVs.

The 95th percentile increase in peak hour heavy vehicle construction traffic on sealed roads is estimated at around 45 vehicles per direction of travel. The 95th percentile increase in peak hour heavy vehicle construction traffic on unsealed roads is estimated around 35 vehicles per direction of travel. The impact on road conditions associated with these predicted increases in heavy vehicles may be relatively low, however this is generally dependent upon the existing road condition and applicable load restrictions.

Prior to construction, road condition assessments will be prepared for all local roads to be used during construction. The surveys will assess the condition of the road surface. Engagement with the relevant road authorities and councils would be carried out during detailed design and construction to identify potential upgrade or repair activities on access routes prior to construction with the road condition assessments informing this engagement. Upon completion of construction, a road condition assessment will be prepared to assess the damage to roads accessed by amended project related traffic. Damage caused by the amended project will be rectified in consultation with the relevant road authority.

Once operational the amended project is expected to generate a low number of HV movements required for routine activities including vegetation maintenance, inspections and servicing. The impact of the amended project on road condition during operation is likely to be negligible due to the low number of HV movements generated and the infrequent nature of the activities.

Road safety

There are numerous factors that contribute to crashes, including, road design, road condition, weather, speed, driver's fatigue, vehicle malfunction, driver's experience and behaviour.

The additional traffic associated with construction and operation of the amended project is unlikely to impact on road condition, road network performance or other crash contributing factors, and is therefore unlikely to impact on the existing level of road safety. Traffic controls would be identified within the Traffic and Transport Management Plan (TTMP) to be implemented by the construction contractors to minimise any potential impact on road safety.

Rail network

Construction traffic would not have any impact on rail network operation as construction traffic would use the existing road network and approved railway crossings to reach the amended project. All stringing activities across rail lines would be undertaken during rail possessions in accordance with rail line owners' or operators' requirements.

During operation, maintenance activities near the rail network would be limited to inspections of transmission line structures and managing localised network disruptions. During these events, work would be undertaken in consultation with rail authorities, by appropriately authorised personnel and within the required clearances from existing rail lines.

Active transport

Public active transport infrastructure (cycling and walking facilities) are unlikely to be impacted during either construction or operation of the amended project.

Public transport

Bus services form the main public transport service surrounding the amended project footprint. During construction and operation of the amended project, road network performance would operate with the same Level of Service, therefore no impacts to bus services are expected.

Access to property

During construction and operation of the amended project, access to properties, including emergency vehicles access and egress would be maintained. Should, short-term temporary restrictions to property access be required, this would only be done following direct consultation and co-ordination with the respective landowners and/or occupiers.

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Glossary and abbreviations

Abbreviations or term	Description
AAT	Australian Amalgamated Terminals
access points	Connection of access tracks or driveways to construction compounds/accommodation facilities with main roads though which vehicles enter or exit.
access routes	The roads within and surrounding the project footprint identified from GIS analysis that are anticipated to be used to provide access to the project footprint.
amended project (the)	The CSSI project "HumeLink", which is the subject of the Amendment Report and inclusive of the proposed amendments and project refinements to the project as described in the EIS. The project involves the construction and operation of high voltage transmission lines and associated infrastructure between Wagga Wagga, Bannaby and Maragle.
amended project footprint (the)	The area that has been assumed for the purpose of the Amendment Report to be directly affected by the construction and operation of the project. It includes the indicative location of project infrastructure, the area that would be directly disturbed during construction and any easement required during operation.
amendment	A change in what the proponent is seeking approval for following the public exhibition of the EIS. It requires changes to the project description in the EIS and amendments to the associated infrastructure application.
BAL	Basic left
Bannaby 500 kV substation	The existing 500 kV substation at Bannaby
BAR	Basic right
BESS	Battery Energy Storage System
brake and winch sites	A brake and winch site is a temporarily cleared area where plant and equipment are located to spool and winch conductors into place on transmission line structures. The locations of the brake and winch sites may or may not be within the nominated transmission line easement. These sites are only required for construction of the project and do not need to be maintained during operation.
classified roads	Roads classified under Sections 46, 47, 50 or 51 of the *Roads Act 1993* are roads declared as a highway, main road, secondary road or tourist road, as described by Declaration Order in the Government Gazette. To manage the extensive network of roads for which local councils are responsible under the *Roads Act 1993*, TfNSW – in partnership with local government – established an administrative framework of state, regional, and local road categories. The administration and management of state roads is carried out and financed by TfNSW, while regional and local roads are administered, managed and financed by local councils. The regional road category comprises two sub-categories: regional roads that have been classified under the *Roads Act 1993*, and regional roads that are unclassified. Local roads are unclassified roads.
construction compounds	Main construction compounds proposed for construction of the project. Each main construction compound would accommodate a range of facilities which may include (but not limited to): ■ laydown areas ■ site offices ■ amenities ■ construction support facilities such as vehicle and equipment storage, maintenance sheds, chemical/fuel stores and stockpile areas ■ concrete batching plants ■ helipads ■ crushing/screening plants ■ parking.
CRN	Country Regional Network
CSSI	Critical State Significant Infrastructure
double-circuit transmission line	A double circuit transmission line carries six conductors (ie two circuits) on a single transmission line structure

Abbreviations or term	Description
DPE	NSW Department of Planning and Environment
DPHI	NSW Department of Planning, Housing and Infrastructure
EIS	Environmental Impact Statement
EIS project (the)	The CSSI project “HumeLink”, which was the subject of the Environmental Impact Statement. The project involves the construction and operation of high voltage transmission lines and associated infrastructure between Wagga Wagga, Bannaby and Maragle.
EIS project footprint (the)	The CSSI project “HumeLink”, which was the subject of the Environmental Impact Statement. The project involves the construction and operation of high voltage transmission lines and associated infrastructure between Wagga Wagga, Bannaby and Maragle.
EP&A Act	*Environmental Planning and Assessment Act 1979*
future Maragle 500 kV substation	The future Maragle 500/330 kV substation that would be built under the Snowy 2.0 Transmission Connection Project, which is subject to separate planning approval (reference SS1-9717, EPBC 2018/836)
GAV	General Access Vehicles
GIS	Geographic Information System
HumeLink	The project
HV	Heavy vehicle
km	kilometres
kV	kilovolt
landowners	People who own properties/land
LGA	Local Government Area
LoS	Road’s Level of Service
LV	Light vehicle
m	metres
MW	megawatt
MWh	megawatt-hour
NHVR	National Heavy Vehicle Regulator
NSW	New South Wales
OSOM	oversize and/or over mass
proposed Gugaa 500 kV substation	The new 500/330 kV substation proposed near Wagga Wagga.
RAV	Restricted access vehicles includes any vehicle which exceeds the overall dimensions of vehicles as defined in the Heavy Vehicle National Law (NSW).
refinement	Refinements to the project are defined as aspects of the project that generally fit within the limits set by the project description in the EIS. Refinements do not change what is being sought for approval or require an amendment to the infrastructure application for the project.
SEARs	Planning Secretary’s Environmental Assessment Requirements
TfNSW	Transport for NSW
traffic study area	The anticipated access routes for the project within the existing road network within and surrounding the project footprint. This includes roads within the LGAs of Wagga Wagga City, Snowy Valleys, Cootamundra-Gundagai Regional, Yass Valley and Upper Lachlan Shire and Goulburn Mulwaree.
transmission line corridor	An area generally 200 metres wide that the transmission line route and easement would be located within.

Abbreviations or term	Description
transmission line easement	A legal right attached to a parcel of land that enables the non-exclusive use of the land by a third party other than the owner. For transmission lines, an easement defines the corridor area where the lines are located and that allows access, construction and maintenance work to take place. The easements for the 500 kV transmission lines would typically be 70 metres wide. However, a few select locations would require wider easements up to 130 metres wide for specific engineering or property reasons. The easement grants a right of access and for construction, maintenance and operation of the transmission line and other operational assets.
transmission line routes	The location of the transmission line structures along the middle of the transmission line easement.
transmission line structures	Proposed free standing structures to support the transmission lines
transposition	Transposition is the periodic swapping of positions of the conductors of a transmission line to improve transmission reliability.
Transgrid	The project is proposed to be undertaken by NSW Electricity Networks Operations Pty Ltd (referred to as Transgrid). Transgrid is the operator and manager of the main high voltage transmission network in NSW and the ACT and is the Authorised Network Operator for the purpose of an electricity transmission or distribution network under the provisions of the *Electricity Network Assets (Authorised Transactions) Act 2015*.
TTIA	Traffic and Transport Impact Assessment
TTMP	Traffic and Transport Management Plan
VCR	Volume to Capacity Ratio
VNI	Victoria to NSW Interconnector West
Wagga 330 kV substation	The existing 330/132 kV substation located in Wagga Wagga
work site	A general word to describe a defined construction location
worker accommodation facilities	Temporary worker accommodation facilities that would be established for the construction workers.

1 Introduction

1.1 Background

Transgrid proposes to increase the energy network capacity in southern New South Wales (NSW) through the development of around 365 kilometres (km) of new 500 kilovolt (kV) high-voltage transmission lines and associated infrastructure between Wagga Wagga, Bannaby and Maragle. This project is collectively referred to as HumeLink. The project would be located across six Local Government Areas (LGAs) including Wagga Wagga City, Snowy Valleys, Cootamundra-Gundagai Regional, Upper Lachlan Shire, Yass Valley and Goulburn Mulwaree. HumeLink is a priority project for the Australian Energy Market Operator (AEMO) and the Commonwealth and NSW governments and has been declared as Critical State Significant Infrastructure (CSSI). The project would deliver a cheaper, more reliable and more sustainable grid by increasing the amount of renewable energy that can be delivered across the national electricity grid, helping to transition Australia to a low carbon future.

An EIS was prepared in accordance with the requirements of Division 5.2 of the NSW Environmental Planning and Assessment Act 1979 (EP&A Act). The EIS was placed on public exhibition by the NSW Department of Planning, Housing and Infrastructure (DPHI) (formerly the NSW Department of Planning and Environment (DPE)) for a period of 42 days, between 30 August 2023 and 10 October 2023.

Transgrid has proposed amendments and refinements to the project as described in the EIS. The amendments provide functional improvements to the design and construction methodology of the project. The proposed amendments take into account submissions received during the public exhibition of the EIS and ongoing design and construction methodology development following the selection of the construction contractors. Project refinements have also been made as part of the ongoing design and construction methodology development since the EIS was exhibited. These amendments and refinements have been described and considered in relevant impact assessments.

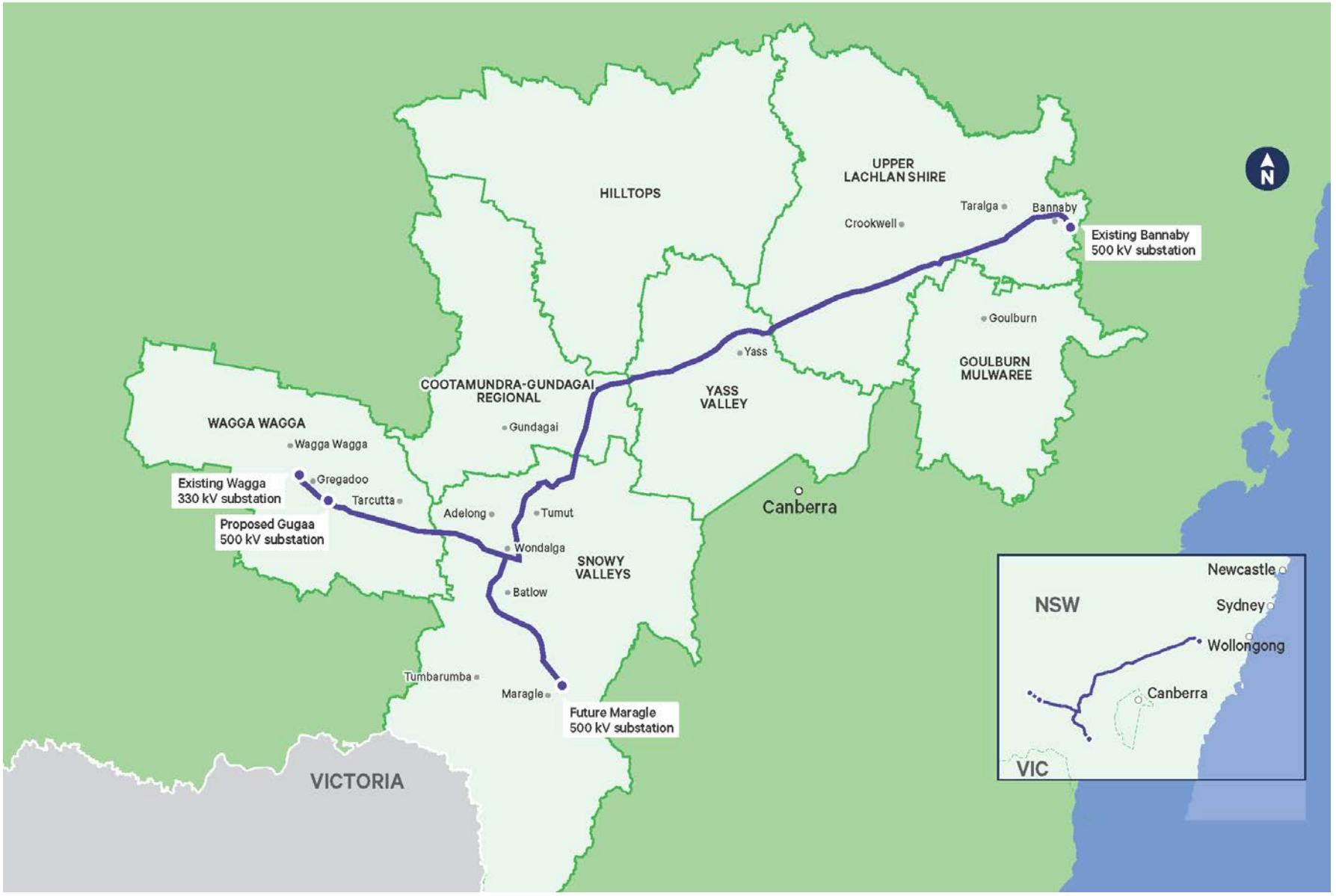
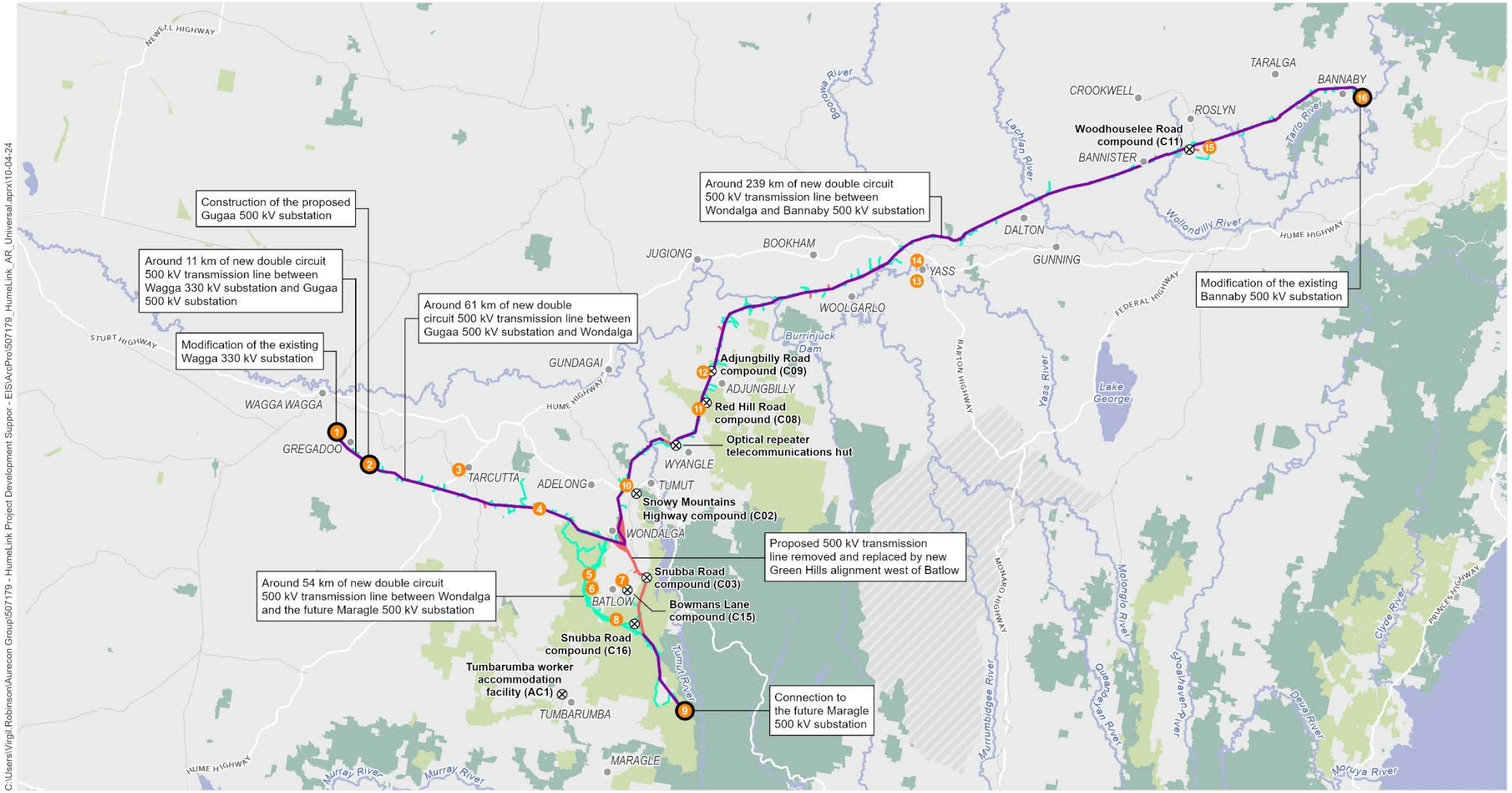


Figure 1-1 Location of project

1.2 Key features of the project (as publicly exhibited)

The key components of the project as outlined and assessed in the EIS included:

- construction and operation of around 360 kilometres of new double circuit 500 kV transmission lines and associated infrastructure between Wagga Wagga, Bannaby and Maragle
- construction of a new 500/330 kV substation at Gregadoo (Gugaa 500 kV substation) approximately 11 kilometres south-east of the existing Wagga 330/132 kV substation (Wagga 330 kV substation)
- demolition and rebuild of a section of Line 51 (around two kilometres in length) as a double circuit 330 kV transmission line connecting into the Wagga 330 kV substation
- modification of the existing Wagga 330 kV substation and Bannaby 500/330 kV substation (Bannaby 500 kV substation) to accommodate the new transmission line connections
- connection of transmission lines to the future Maragle 500/330 kV substation (Maragle 500 kV substation, approved under the Snowy 2.0 Transmission Connection Project (SSI-9717))
- provision of one optical repeater telecommunications hut and associated connections to existing local electrical infrastructure
- establishment of new and/or upgraded temporary and permanent access tracks
- ancillary works required for construction of the project such as construction compounds, worker accommodation facilities, utility connections and/or relocations, brake and winch sites, and helipad/helicopter support facilities.



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EIS project footprint
Removed footprint
Amendments
Removed project facility
National park and reserve
State forest
Waterbody
Waterway
Major road
Railway

Construction ancillary facilities

1. Wagga 330 kV substation compound (C01)
2. Amended Gregadoo Road compound (C06)
3. Tarcutta accommodation facility and compound (AC03)
4. Ellerslie Road compound (C21)
5. Ardrossan Headquarters Road compound (C17)
6. Green Hills accommodation facility and compound (AC07)
7. Amended Memorial Avenue compound (C14)
8. Snubba Road compound (C18)
9. Maragle 500 kV substation compound (C05)
10. Gadara Road compound (C19)
11. Amended Honeysuckle Road compound (C07)
12. Adjungbilly accommodation facility and compound (AC04)
13. Yass substation compound (C10)
14. Yass accommodation facility and compound (AC05)
15. Crookwell accommodation facility and compound (AC06)
16. Amended Bannaby 500 kV substation compound (C12)

Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:925,000
0 20 40km

Projection: GDA 1994 MGA Zone 55

HumeLink **Traffic and Transport Impact**

Figure 1-2: Key components of the amended project

1.3 Overview of the proposed amendments

Since the public exhibition of the EIS, several amendments and refinements to the project have been proposed.

The proposed amendments to the project include:

- changes to the transmission line corridor, including the realignment of the route through Green Hills State Forest to the west of Batlow
- change to the number and location of construction ancillary facilities, including worker accommodation facilities and construction compounds
- nomination of access tracks to support the construction and operation of the project
- additional telecommunications connections to existing substations.

The proposed refinements to the project include:

- transmission line and substation design refinements at Gregadoo
- identification of areas where controlled blasting may be required
- use of approved water sources
- use of helicopters and drones.

Refer to Chapter 2 of this report for a detailed description of amendments and refinements relevant to this assessment.

Figure 1-1 shows the location of the amended project and Figure 1-2 shows the key components of the amended project.

1.4 Purpose and structure of this report

This Technical Report 16 – Revised Traffic and Transport Impact Assessment replaces the TTIA prepared for the EIS. The purpose of this report is to support the HumeLink Amendment Report by assessing the potential impacts to traffic, transport and access associated with the amended project.

The structure and content of this report is as follows:

- Chapter 1 – Introduction presents an overview of amended project, purpose, scope and structure of this report.
- Chapter 2 – Project description summary describes the key components of the amended project.
- Chapter 3 – Legislative and policy context provides an outline of the key legislative and policy guidelines applicable to the amended project.
- Chapter 4 – Methodology provides an outline of the assessment methodology, assessment approach, key tasks in assessment and limitations.
- Chapter 5 – Existing environment describes the existing environment of road, public and active transport network.
- Chapter 6 – Construction impacts describes the construction methodology of the amended project and assessment of potential construction impacts associated with the project.
- Chapter 7 – Operational impacts describes the operational infrastructure and potential operational impacts associated with the amended project.
- Chapter 8 – Cumulative impacts outlines the other development projects within the vicinity of amended project and assessment of potential cumulative impacts.
- Chapter 9 – Management of impacts outlines the proposed mitigation measures for the amended project.

- Chapter 10 – Provides a conclusion on potential impacts of the amended project on the road environment and transport network.
- Chapter 11 – References identifies the key resources used to generate this report.

1.5 Secretary's environmental assessment requirements

The NSW Department of Planning, Housing and Infrastructure (DPHI) (formerly NSW Department of Planning and Environment (DPE)) provided the Planning Secretary's Environmental Assessment Requirements (SEARs) for the EIS on 14 March 2022 (Application Number: SSI-36656827). The requirements specific to this assessment and where those requirements are considered in this revised report are identified by in Table 1-1.

Table 1-1 Secretary's Environmental Assessment Requirements

Reference	SEARs Requirements	Where considered
Key Issues - Transport	An assessment of the transport impacts of the project on the capacity, condition, safety and efficiency of the local and state road network and the rail network.	Chapter 6 outlines construction impacts, Chapter 7 outlines operational impacts and Chapter 8 outlines cumulative impacts.
	Details of the ongoing maintenance work required to service assets, outlining the measures to maintain the road.	Chapters 6 and 7 identifies that impacts on road conditions will be low to negligible. Whilst ongoing maintenance activities are addressed in Chapter 7. As identified in Chapter 9 road condition assessments pre and post construction will be completed as an overarching control to inform potential maintenance requirements for roads impacted by the project.

1.6 Assessment approach and key terminology

The key project terms used in this assessment are as follows:

- Amended project – The CSSI project "HumeLink", which is the subject of the Amendment Report and inclusive of the proposed amendments and project refinements to the project as described in the EIS. The project involves the construction and operation of high voltage transmission lines and associated infrastructure between Wagga Wagga, Bannaby and Maragle.
- Amended project footprint – The area that has been assumed for the purpose of the Amendment Report to be directly affected by the construction and operation of the project. It includes the indicative location of project infrastructure, the area that would be directly disturbed during construction and any easement required during operation.
- EIS project footprint – The area that was assumed for the purpose of the EIS to be directly affected by the construction and operation of the project. It includes the indicative location of project infrastructure, the area that would be directly disturbed during construction and any easement required during operation.
- Amended traffic study area – comprises the anticipated access routes for the project within the existing road network within and surrounding the project footprint. This includes roads within the LGAs of Wagga Wagga City, Snowy Valleys, Cootamundra-Gundagai Regional, Yass Valley, Upper Lachlan Shire, Goulburn Mulwaree and Hilltops.

2 Project description summary

The project description in this chapter is based on a preliminary detailed design and indicative construction methodology for the project. The design and construction methodology would continue to be refined and confirmed during further detailed design and construction planning by the construction contractors. Further details on the project are provided in Chapters 3 and Appendix A of the Amendment Report.

2.1 Summary of key components of the project

Key components of the project are summarised in Table 2-1.

Table 2-1 Summary of key components of the project

Component	Description
Transmission lines and supporting infrastructure	
Transmission lines and structures	The project includes the construction of new 500 kV transmission line sections between: ■ Wagga 330 kV substation and proposed Gugaa 500 kV substation (approximately 11 km) ■ Proposed Gugaa 500 kV substation and Wondalga (approximately 61 km) ■ Wondalga and future Maragle 500 kV substation (approximately 54 km) ■ Wondalga and Bannaby 500 kV substation (approximately 239 km). The transmission line section between the Wagga 330 kV substation and proposed Gugaa 500 kV substation would initially operate at 330 kV under HumeLink prior to commissioning of VNI West. The project also includes the rebuild of approximately 2 km of Line 51 as a new 330 kV transmission line between the Wagga 330 kV substation and around Ivydale Road, Gregadoo. This would be adjacent to the new transmission line between the existing Wagga 330 kV and proposed Gugaa 500 kV substations. The 500 kV transmission lines would be supported on a series of free-standing steel lattice structures that would range between 50 m and 76 m with an average height of 60 m. In some locations, the height of the transmission line structures may increase above 76 metres to minimise biodiversity, heritage or property impacts, or improve overall safety outcomes by providing the opportunity to increase the spanning distance between transmission line structures. These locations will be reviewed during further detailed design. The structures would generally be spaced between 300 to 600 m apart. Ongoing design development and changes to the transmission line corridor have refined transposition[1] locations, which may result in more transmission line structures in a location. Earth wire and communications cables would be co-located on the transmission line structures. The 330 kV structures for the rebuild of Line 51 would range between 24 m and 50 m in height and have a typical height of 40 m. Indicative configurations of transmission line structures that may be used as part of the project are shown in Figure 2-1. The type and arrangement of the structures would be refined during detailed design. The footings of each structure would require an area of approximately 300 to 450 m^2, depending on ground conditions and the proposed structure type. Additional disturbance at each structure site may be required to facilitate structure assembly and stringing.
Transmission line easements	The easement for the new 500 kV transmission lines would typically be 70 m wide. However, a few locations (such as transposition locations) may require easements up to 110 metres wide and up to 130 metres wide where the new 500 kV transmission line would parallel the relocated section of Line 51. Transgrid is working with landowners to finalise the location of and acquire the new transmission line easement for the project. The easement provides a right of access to construct, maintain and operate the transmission line and other operational assets. The easement also generally identifies the zone of initial vegetation clearance and ongoing vegetation management to ensure safe electrical clearances during the operation of the lines. Vegetation management beyond the easement may also occur where nearby trees have the potential to fall and breach safety clearances.

[1] Transposition is the periodic swapping of positions of the conductors of a transmission line in order to improve transmission reliability.

Component	Description
Substation activities	
Construction of the proposed Gugaa 500 kV substation	A new 500/330 kV substation would be constructed at Gregadoo, about 11 km south-east of the Wagga 330 kV substation. The substation would include ten new 500/330 kV transformers and four 500 kV reactors. The proposed Gugaa 500 kV substation is expected to occupy an area of approximately 34 hectares.
Modification of the existing Bannaby 500 kV substation	The existing Bannaby 500 kV substation on Hanworth Road, Bannaby would be expanded to accommodate connections for new 500 kV transmission line circuits. The modification would include changes to the busbars, line bays, bench and associated earthworks, steelwork, drainage, external fence, internal/external substation roads, secondary containment dams, sediment containment dams, cabling, and secondary systems. All of the work would be restricted to the existing substation property.
Modification of the existing Wagga 330 kV substation	The existing Wagga 330 kV substation on Ashfords Road, Gregadoo would be reconfigured to accommodate new bays for two new 500 kV transmission line circuits within the existing substation property. This would include modifications to the busbars, line bays, existing line connections, bench and associated earthworks, relocation of existing high voltage equipment, drainage, external fence, internal substation roads, steelwork, cabling, and secondary systems.
Connection to the future Maragle 500 kV substation	The project would connect to the future Maragle 500 kV substation approved under the Snowy 2.0 Transmission Connection Project (SS1-9717). Construction of the Maragle substation is proposed to be undertaken between 2023 and 2026. Further detail on the Snowy 2.0 Transmission Connection project is available at the Department of Planning and Environment's Major Projects website: **www.planningportal.nsw.gov.au/major-projects/project/10591.**
Ancillary facilities	
Nomination of access tracks	New access tracks or upgrades to existing access tracks are proposed to connect construction areas and the transmission line easement to the existing road network. Existing unsealed local roads, forest roads, and tracks proposed for use as part of the access arrangements may also require minor improvement work, such as grading or resurfacing, or drainage work.
Construction compounds	Construction compounds, that would include demountable site offices and amenities, would be required during construction to support storage and equipment laydown, crushing and screening, concrete batching plants, sediment basins, helipad/helicopter facilities, temporary storage of materials, plant and equipment storage, generators and worker parking required to construct the various elements of the amended project. Eleven potential construction compound locations have been identified. The proposed use of the construction compounds and their proposed boundaries/layout would be refined as design develops in consultation with relevant stakeholders and the construction contractors.
Worker accommodation facilities and compounds	The amended project includes the following new combined worker accommodation facilities and compounds: ■ Tarcutta accommodation facility and compound (AC03) – located about 1.5 km south-west of Tarcutta ■ Adjungbilly accommodation facility and compound (AC04) – located about 21.7 km east of Gundagai ■ Yass accommodation facility and compound (AC05) – located on the north-western outskirts of the Yass township ■ Crookwell accommodation facility and compound (AC06) – located off Graywood Siding Road, about 18.1 km north of Goulburn ■ Green Hills accommodation facility and compound (AC07) – located about 6.5 km west of Batlow.
Helipad/helicopter facilities	To facilitate construction of the project, helicopters may be used to deliver materials/equipment and transfer personnel to construction areas particularly within high alpine regions. To enable helicopters to operate safely and allow easy access to the site, a helicopter landing pad would be required. The helipad is expected to occupy an area of around 30 m by 30 m and would be remediated after construction. These areas would typically be located on existing disturbed land not subject to inundation and a reasonable distance from waterways, sensitive receivers and drainage lines. Several construction compounds have been identified and assessed as helipad locations. The exact locations to be used would be confirmed as detailed design is finalised by the construction contractors. In addition to this, the existing facilities at the Wagga Wagga Airport, and Tumut Airport may be used.

Component	Description
Utility connections, adjustments and protection	The project would require utility connections, adjustments and protection. Such work includes interfaces with other transmission lines and connections to existing services for temporary facilities. Potential impacts to existing services and utilities would be confirmed during detailed design and any proposed relocation and/or protection work would be determined in consultation with the relevant asset owners.

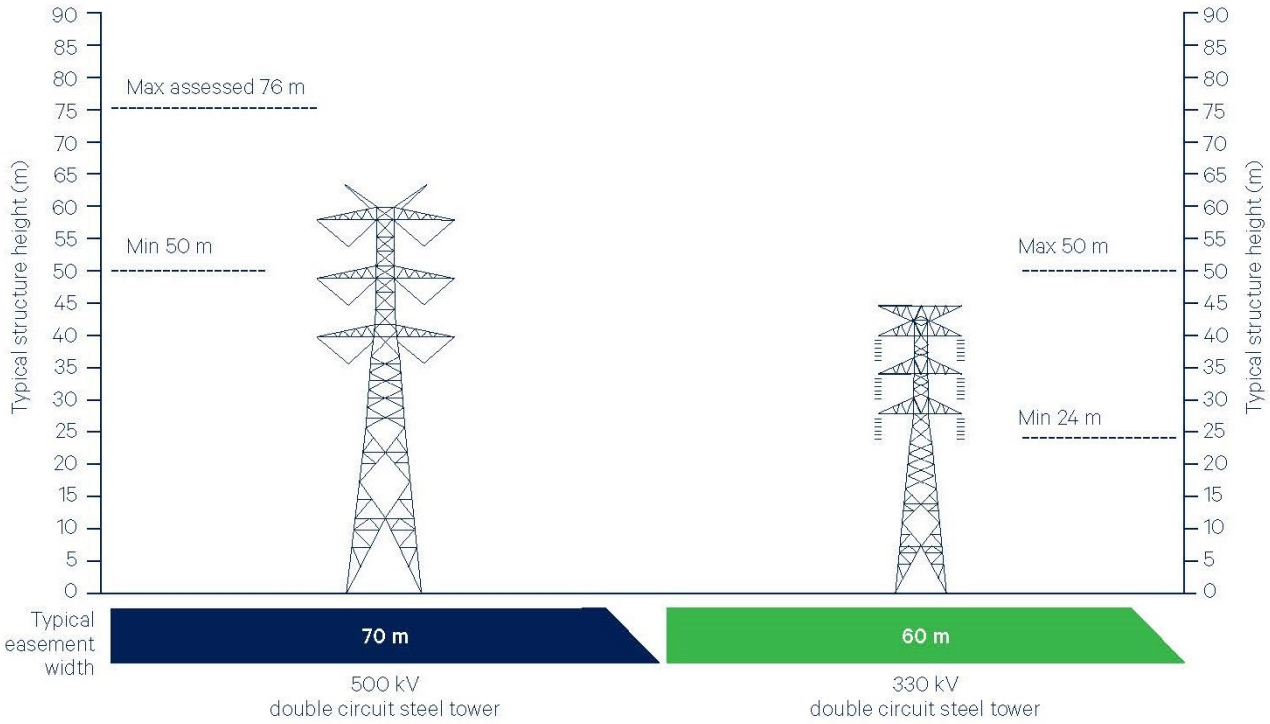


Figure not to scale.

Transmission line structures have been assessed to a height of 76 metres. Any structures that exceed 76 metres, would be managed in accordance with the change management process described in section 26.4 (Managing project changes) of the EIS, in consultation with affected landowners.

Figure 2-1 Indicative transmission line structures

2.2 Construction of the project

2.2.1 Construction activities

Key construction activities would generally include (but are not limited to):

- site establishment work, such as:
  - clearing of vegetation and topsoil
  - establishment of construction compounds, helipad/helicopter facilities and temporary worker accommodation facilities
  - utility relocations and/or adjustments
  - construction of new access tracks and waterway crossings and/or upgrade of existing access tracks to transmission line structures
  - road improvement work where required
  - establishment of environmental management measures, traffic control measures and security fencing
  - construction of temporary worker accommodation facilities

- establishing vehicle access and egress points including adjustment of roads to ensure safe vehicle movements as required
- establishing hardstand areas for storage, laydown and car parking
- carrying out geotechnical and contamination investigations
- carrying out property adjustment and demolition work including adjustments to property fencing, barricades, gates and access, and demolition and relocation of existing dwellings and structures as required.

- construction of the transmission lines, including:
  - earthworks and establishment of construction benches and brake and winch sites as required for the stringing of the transmission line conductors
  - construction of footings and foundation work for the new transmission line structures including boring and/or excavation, steel fabrication work and concrete pours
  - erection of the new transmission line structures
  - stringing of conductors, overhead earth wires and OPGW
  - installation of earthing conductors
- relocation of a section of Line 51, including:
  - disconnection and removal of the existing section of Line 51
  - dismantling of transmission line structures and removal from site
  - construction of foundations and erection of new transmission line structures for the rebuild of Line 51 in a new location
  - stringing of conductors, overhead earth wires and OPGW
  - installation of associated transmission line structure fittings inclusive of all earthing below ground level
- construction of the proposed Gugaa 500 kV substation, including:
  - bulk earthworks to form the substation bench, access roads, drainage and oil containment structures
  - excavation and installation of concrete foundations, bund walls, fire walls, noise walls and kerbs including excavation
  - installation of reinforced concrete and piled foundations for the electrical equipment and associated steel support structures
  - excavation and installation of electrical conduits, electrical trenches, site stormwater drainage, oil containment work and associated concrete pits, pipes and tanks including excavation
  - installation of new ancillary and equipment control buildings
  - erection of galvanised steel structures to support electrical equipment
  - installation of electrical equipment on foundations and/or steel support structures
  - installation of conductors, cabling, wiring, electrical panels and electrical equipment
  - erection of the substation site boundary security fencing, including site access gates
  - connection of the proposed transmission lines to the substation
- modification of the existing Wagga 330 kV substation to enable the proposed connection and operation of the new transmission lines, including:
  - demolition and removal of redundant electrical equipment, fencing and cabling
  - bulk earthworks to form the extended substation bench and modified drainage structures
  - installation of concrete foundations and kerbs including excavation

  - installation of reinforced concrete and piled foundations for the electrical equipment and associated steel support structures
  - erection of galvanised steel structures to support electrical equipment
  - installation of electrical equipment on foundations and/or steel support structures
  - installation of electrical conduits, electrical trenches, and modified site stormwater drainage including excavation
  - installation of conductors, cabling, wiring, electrical panels and electrical equipment
  - installation of fencing, lighting and other security features
  - connection of the proposed transmission lines to the substation
- modification of the existing Bannaby 500 kV substation to enable the proposed connection and operation of the new transmission lines, including:
  - bulk earthworks to form the extended substation bench, new access road, modified stormwater drainage, modified oil containment and modified sediment control structures
  - installation of concrete foundations, retaining walls, bund walls, fire walls and kerbs including excavation
  - installation of reinforced concrete and piled foundations for the electrical equipment and associated steel support structures
  - erection of galvanised steel structures to support electrical equipment
  - installation of electrical equipment on foundations and/or steel support structures
  - installation of electrical conduits, electrical trenches, site stormwater drainage, oil containment work and associated concrete pits, pipes and tanks including excavation
  - installation of conductors, cabling, wiring, electrical panels and electrical equipment
  - installation of fencing, lighting and other security features
  - demolish redundant fencing including footings and kerbs
  - connection of the proposed transmission lines to the substation
- connection of the proposed transmission lines to the future Maragle 500 kV substation, including:
  - stringing conductors between transmission line structures and the future Maragle 500 kV substation gantry (including overhead earth wire (OHEW) and OPGW)
  - installing droppers from the future substation gantry to the switchgear
- construction of the telecommunications connections, including:
  - excavation of trenches between around 0.8 and 3 metres in depth and up to 450 mm in width
  - installation of the fibre optic cables (either direct buried or in conduit) and installation of marker tape
  - backfilling of the trenches
  - installation of cable pits and marker posts at surface level in specific locations
  - installation of a layer of sand/ cement mix over fibre cable/ conduit for mechanical protection in some locations.
- testing and commissioning of new electrical infrastructure
- demobilisation and rehabilitation of areas disturbed by construction activities.

A number of activities are expected to commence in accordance with the project conditions of approval before the key construction activities outlined above. These activities are considered pre-construction minor work and would comprise low impact activities that would begin after planning approval but prior to approval of the Construction Environmental Management Plan by the Department of Planning, Housing and Infrastructure (DPHI) (formerly the Department of Planning and Environment (DPE)). Pre-construction work would be managed in accordance with an Enabling Works Management Plan or Environmental Work Method Statements or similar environmental management documents.

2.2.2 Construction program

Construction of the project is targeted to commence in 2024 and is estimated to take about 2.5 years to complete. The project is expected to be fully operational by the end of 2026 (refer to Figure 2-2).

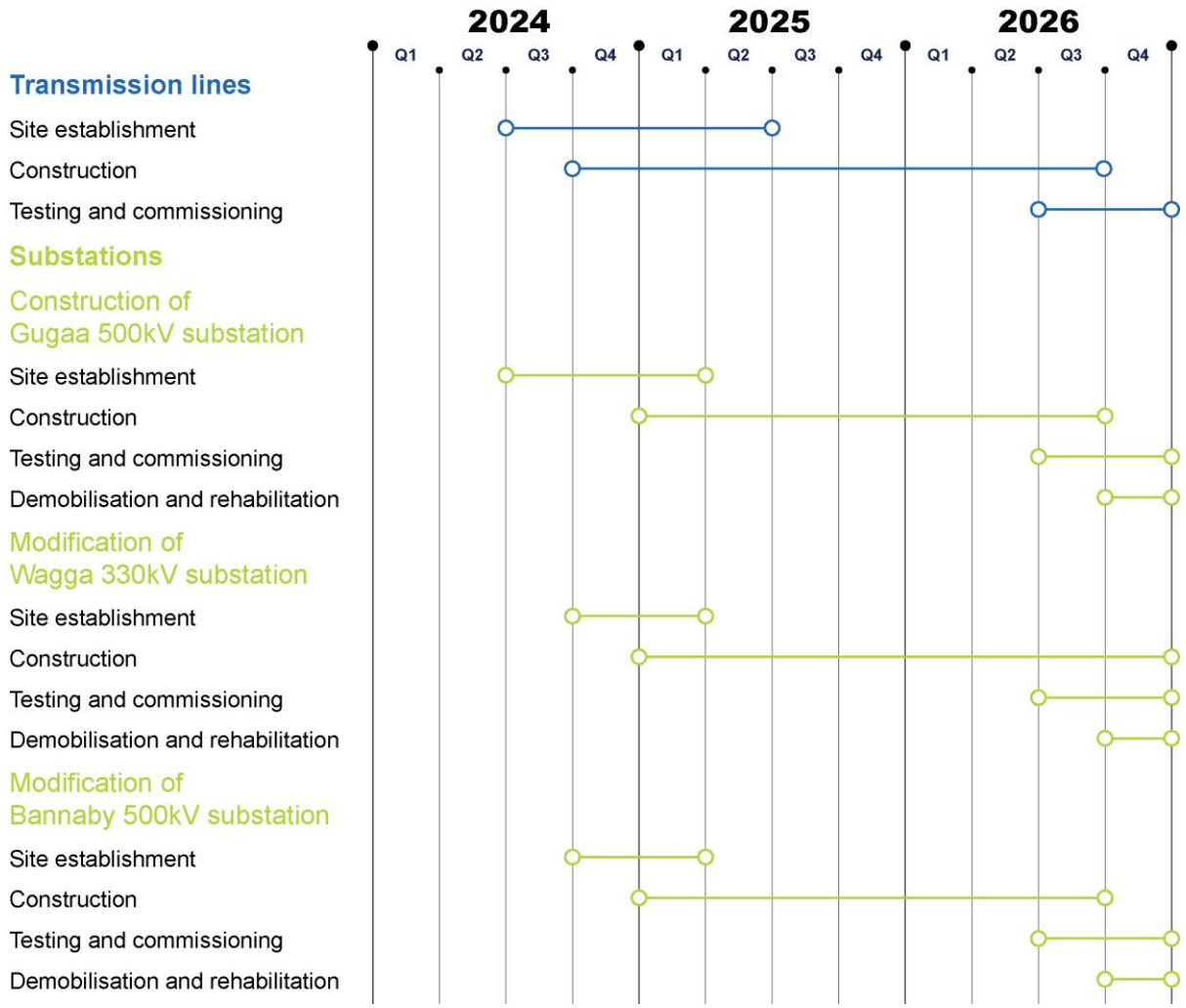


Figure 2-2 HumeLink indicative construction program

2.2.2.1 Indicative duration of construction activities

Construction at each transmission line structure would be transient and intermittent and construction activities would not occur at each structure location for the full duration for each phase of construction. However, following construction of the foundation, each transmission line structure would typically take one to three weeks to erect. The duration of any construction activity associated with an individual transmission line structure, and inactive/respite periods, may vary for a number of reasons including (but not limited to):

- multiple work fronts
- resource and engineering constraints
- environmental constraints
- work sequencing and location.

Figure 2-3 presents an indicative duration of construction activities associated with an individual transmission line structure.

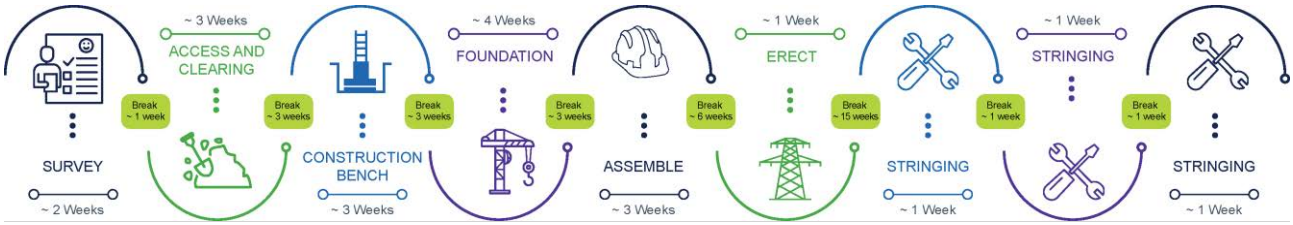


Figure 2-3 Indicative duration and sequence of construction activities for transmission line structures

Construction of the proposed Gugaa 500 kV substation could take up to 2.5 years.

2.2.3 Construction hours

It is expected that construction activities would largely be undertaken during standard construction hours. However, there would be times when working outside of standard construction hours would be required (as defined by the *Interim Construction Noise Guideline* (DECC, 2009)), subject to approval. As the details of construction methodology and project needs are developed, these hours will be refined for certain activities.

Where extended hours are proposed for activities in proximity to sensitive receivers, additional measures would be implemented and the work would be managed through an out-of-hours work protocol.

A series of work outside the standard construction hours is anticipated to include (but is not limited to) the following:

- transmission line construction at crossings of a main road or railway as these locations are expected to have restricted construction hours requiring some night work for activities such as conductor stringing over the crossing(s)
- work where a road occupancy licence (or similar) is required, depending on licence conditions
- transmission line cutover and commissioning
- the delivery of equipment or materials outside standard hours requested by police or other authorities for safety reasons (such as the delivery of transformer units)
- limited substation assembly work (eg oil filling of the transformers)
- connection of the new assets to existing assets under outage conditions (eg modification and/or connection work at Bannaby 500 kV substation, Wagga 330 kV substation and Maragle 500 kV substation), which is likely to require longer working hours
- operation of the temporary worker accommodation facilities
- emergency work to avoid the loss of lives and/or property and/or to prevent environmental harm
- work timed to correlate with system planning outages

- situations where agreement is reached with affected sensitive receivers
- activities that do not generate noise in excess of the applicable noise management level at any sensitive receiver.

2.2.4 Construction plant and equipment

An indicative list of construction plant and equipment likely to be required during construction is provided below.

- air compressor
- backhoe
- bobcat
- bulldozers
- concrete agitator
- concrete pump
- cranes (various sizes up to 400 tonnes)
- crawler crane with grab attachments
- drill and blast units and associated support plant/equipment
- drones
- dumper trucks
- elevated working platforms
- excavators (various sizes)
- flatbed hiab trucks
- front end loader
- fuel trucks
- generators
- graders
- helicopters and associated support plant/equipment
- mobile cone/ jaw crusher
- mobile screener
- mulchers
- piling rig
- pneumatic jackhammers
- rigid tippers
- rollers (10 to 15 and 12 to 15 tonnes)
- semi-trailers
- tilt tray trucks
- trenchers
- transport trucks
- truck and dog
- watercarts
- winches.

2.2.5 Construction traffic

Construction vehicle movements would comprise vehicles transporting equipment, waste, materials and spoil, as well as workers' vehicles. A larger number of HVs would be required during the main construction work associated with the substations and transmission lines. Non-standard or oversized loads would also be required for the substation work (eg for transformer transport) and transportation of transmission line structure materials and conductors.

Hume Highway, Sturt Highway, Snowy Mountains Highway, Batlow Road, Barton Highway, Crookwell-Goulburn Road, Burley Griffin Way and Gocup Road are the main national and state roads proposed to provide access routes to the amended project footprint. These roads would be supported by regional and local roads throughout the LGAs of Wagga Wagga City, Snowy Valleys, Yass Valley, Cootamundra-Gundagai Regional, Goulburn Mulwaree and Upper Lachlan Shire that provide access routes to the amended project footprint.

2.2.6 Construction workers

The construction worker numbers would vary depending on the stage of construction and associated activities. During peak construction activities, the project could employ up to 1,600 full-time equivalent construction workers across multiple work fronts. It is expected that the maximum number of construction workers at any one location would not exceed 200.

2.2.7 Testing and commissioning

Prior to energisation of the infrastructure, a series of pre-commissioning activities would be conducted. This would include testing the new transmission lines and substation earthing, primary and secondary equipment.

2.2.8 Demobilisation and rehabilitation

Demobilisation and site restoration/ rehabilitation would be undertaken progressively throughout the amended project footprint during the construction program and would include the following typical activities:

- demobilisation of construction compounds and worker accommodation facilities
- removal of materials, waste and redundant structures not required during operation of the amended project
- removal of temporary fencing and environmental controls.

2.3 Operation and maintenance of the project

The design life of the project is 50 years, which can be extended to more than 70 years for some assets.

The substations and transmission lines would be inspected by field staff and contractors on a regular basis, with other operational activities occurring in the event of an emergency (as required). The project would require about five workers (in addition to Transgrid's existing maintenance workers) during operation for ongoing maintenance activities. Likely maintenance activities would include:

- regular inspection (ground and aerial) and maintenance of electrical equipment
- general building, asset protection zone and access road/track
- vegetation clearing/trimming within the easement
- fire detection system inspection and maintenance
- stormwater drainage systems maintenance.

It is expected that these activities would only require LVs and/or small to medium plant (depending on the work required).

3 Legislative and policy context

The State legislation and policies applicable to this revised assessment are listed below.

3.1 State legislation

3.1.1 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) and Environmental Planning and Assessment Regulation 2021 provides a framework for the assessment and approval of projects in NSW.

The project has been declared as Critical State Significant Infrastructure (CSSI) in accordance with Section 5.13 of the EP&A Act. Therefore, the project is subject to environmental assessment under Division 5.2 of the EP&A Act. An EIS has been prepared in accordance with Division 5.2 of EP&A Act.

Of relevance to this assessment, Section 5.24 (f) of the EP&A Act states that an authorisation for a consent under Section 138 of the *Roads Act 1993* cannot be refused, if it is necessary for carrying out approved State Significant Infrastructure and is to be substantially consistent with the approval under this Division.

3.1.2 Roads Act 1993

The objectives of the *Roads Act 1993* include the following:

- set out the rights of members of the public to pass along the road
- set out the rights of person who own land adjoining a public road to have access to the public road
- establish the procedures for opening and closing of a public road
- provide for the classification of roads, declare road authorities for both classified and unclassified roads and to confer certain functions of road authorities
- provide for distribution of functions conferred by the Act between road authorities
- regulate carrying out of various activities on public roads.

Section 138(1)(a) of the *Roads Act 1993* describes activities not permitted without consent of the appropriate road authority including:

- A person must not:
  - erect a structure or carry out a work in, on or over a public road
  - dig up or disturb the surface of a public road
  - remove or interfere with a structure, work or tree on a public road
  - connect a road (whether public or private) to a classified road (being roads declared as a highway, main road, secondary road or tourist road).

Construction of the amended project would require work within or over a public road, where the transmission line would cross over roads. In addition, it would potentially involve temporary closure of public roads, disturbance to trees/structures and/or connection to a classified road. While Transgrid would require consent to undertake work on classified roads, as a network operator under the *Electricity Supply Act 1995*, approval is not required from council under Section 138 of the *Roads Act 1993* to undertake work over unclassified roads (local roads), due to the application of Section 5 of Schedule 2 of the *Roads Act 1993*.

In addition, given the declaration of the project as CSSI in accordance with Section 5.24 (f) of the EP&A Act, authorisation for consent under Section 138 of the *Roads Act 1993* cannot be refused.

3.2 Policy and strategic plans

3.2.1 NSW Heavy Vehicle Access Policy Framework 2018

NSW *Heavy Vehicle Access Policy Framework 2018* developed by Transport for NSW (TfNSW) outlines a strategic approach to heavy vehicle access in NSW for both state and council roads aimed at achieving safe and efficient movement of road freight.

With staged implementation, the framework aims to create a performance-based standards network with connectivity across the whole NSW road network to unlock freight productivity. This policy provides a strategic planning approach to heavy vehicle access and streamlined policy promoting access on a network basis rather than ad hoc decisions for access via permits.

3.2.2 Road Safety Action Plan 2026

The *Road Safety Action Plan 2026* developed by the NSW Government sets out a road safety delivery framework that focuses on enhancing education and local engagement, transforming the safety of the road network and accelerating safety features in vehicles. The plan adopts the principles of the Safe System approach, which aims to eliminate fatal and serious road injuries to all road users. The key priority areas highlighted in *Road Safety Action Plan 2026* are:

- creating safer country roads and urban places
- enhancing road safety in local communities
- increasing the safety of light vehicles (LVs), heavy vehicles (HVs) and protective equipment
- making safer choices on our roads
- ensuring the safety of vulnerable and other at-risk road users.

The mitigation measures identified in this revised report consider the approach to road safety and the key principles identified by the *Road Safety Action Plan 2026*, that aim to provide a safe temporary road environment.

3.2.3 Traffic Control at Work Sites – Technical Manual

The *Traffic Control at Work Sites* technical manual Version 6.1 (TfNSW, 2022) was developed by TfNSW to be applied to work sites requiring temporary traffic management. The purpose of this manual is to ensure best practices for traffic control at work sites. The manual also guides personnel involved in design, operation and inspection of temporary traffic management plan to understand their obligation under *Work Health and Safety Act 2011* and the Work Health and Safety Regulation 2017. The technical manual contains instruction for the following:

- managing risks associated with temporary traffic management
- developing a traffic management plan
- design, select, obtain approval, record and storing traffic guidance schemes
- undertaking traffic management in several specific situations.

The technical manual refers to *Australian Standards AS1742:2021 Manual of Uniform Traffic Control Devices* (Standards Australia, 2021), *Australian Standards AS1743:2023 Road Signs – Specifications* (Standards Australia, 2023) and *Australian Standards AS2700:2011 Colour standards for general purposes* (Standards Australia, 2011). The mitigation measures identified in this report include the implementation of this manual at all traffic control sites during the construction and operation of the amended project.

4 Methodology

This section provides an outline of the methodology adopted in developing this revised assessment and the sources of the data used, with consideration to the project SEARs as listed in Section 1.5.

4.1 Overview of approach

The following tasks were completed while undertaking this revised assessment:

- defining the traffic study area through identification of access routes anticipated to be used for movement of construction workers and materials
- desktop analysis to identify and qualitatively assess existing transport conditions
- calculating worst-case traffic generation and distribution within the amended traffic study area as a result of construction, when all accommodation facilities and work sites are in use, and operation of the amended project
- assessment of the impacts on Level of Service on access routes within the amended traffic study area based on the worst-case traffic generated by the amended project
- assessment of traffic and transport impacts during construction and operation
- assessment of cumulative traffic and transport impacts
- detailing appropriate traffic and transport mitigation and management measures.

4.1.1 Study area

4.1.1.1 Traffic study area

The amended traffic study area, illustrated by Figure 4-1, comprises the anticipated access routes within the existing road network required for the construction and/or operation of the amended project. The access routes are located across multiple LGAs including Wagga Wagga City, Snowy Valleys, Cootamundra-Gundagai Regional, Yass Valley, Upper Lachlan Shire, Goulburn Mulwaree and Hilltops.

Construction of the amended project would require the transport of construction material and equipment from multiple locations using national, state, and local road networks, in addition to the local access tracks.

There would also be some movements of amended project workers across a wide area during construction, both travelling to and from the construction work sites at the beginning and end of the working day as well as travelling between construction work sites during the working day.

During enabling works low numbers of the workforce would be required for site establishment activities. This workforce would be sourced locally to the extent possible or accommodated in nearby towns. It is anticipated that low numbers of workers would be using accommodation in nearby towns during establishment works. Therefore, as site establishment works would be short-term and as a low number of additional trips would be required, impacts to the local road network are expected to be low.

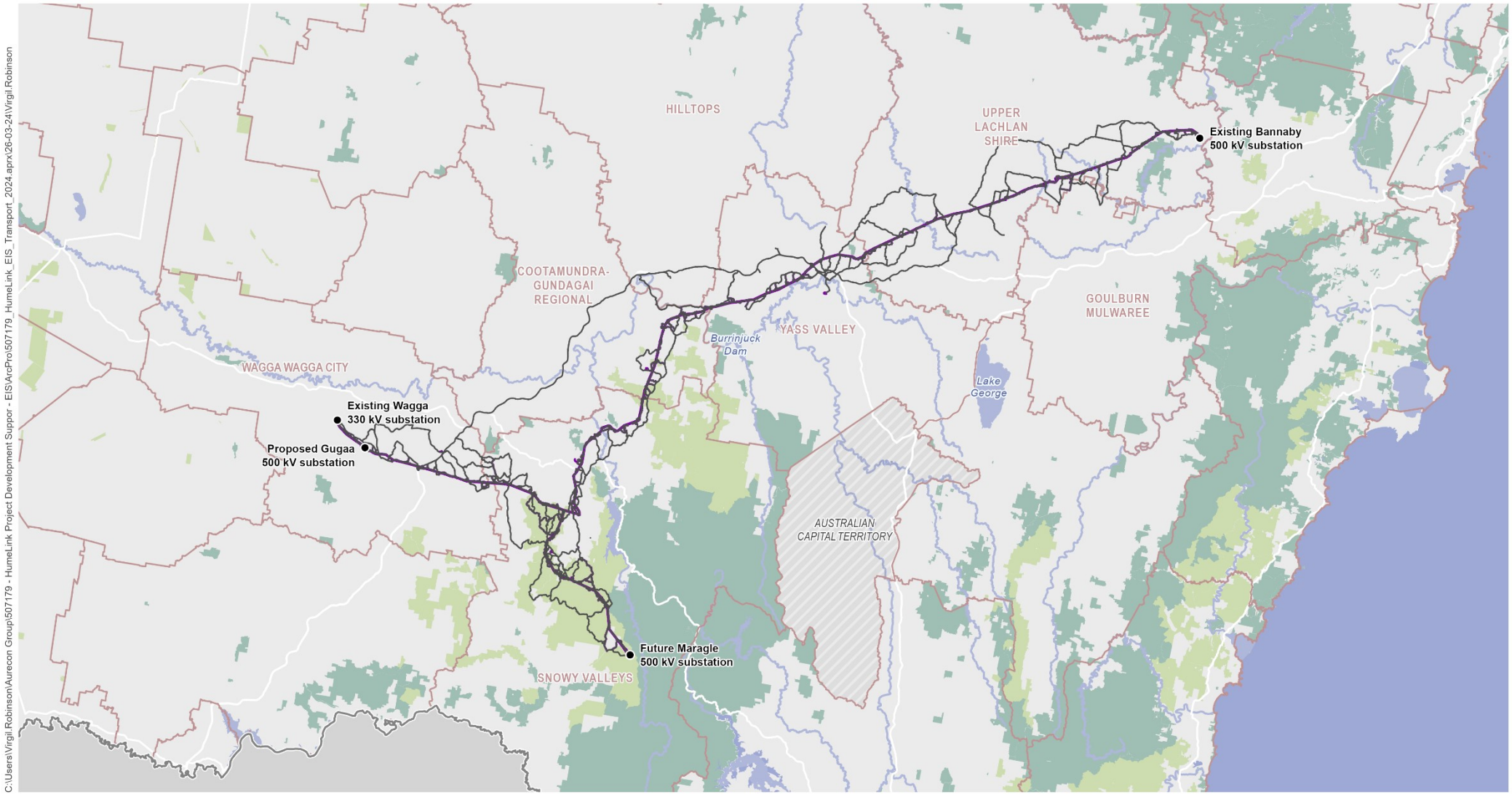
During operation, the amended project would generate traffic movements within the amended traffic study area. The traffic during operation is significantly lower than the construction traffic as the traffic movements during operation would generally be associated with maintenance activities.

In order to define the amended traffic study area, the following were considered:

- national road network
- state road network
- local road network
- access tracks.

The amended traffic study area was then refined to capture the roads that may be used to provide access routes to:

- the amended project footprint (within which the transmission line structures, construction compounds, substations, proposed worker accommodation facilities and other work sites would be located)
- the surrounding existing road network.



Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:1,100,000

0 20 40 km

Projection: GDA 1994 MGA Zone 55

HumeLink **Traffic and Transport Impact**

FIGURE 4-1: Amended traffic study area

4.1.1.2 Other transport networks considered

The revised assessment has also identified and assessed impacts to the existing:

- active and public transport services within the LGAs and the amended traffic study area
- rail network that crosses the amended project footprint
- oversize overmass (OSOM) road network for delivery of oversized equipment from ports to substations as large components, like transformers, are expected to be transported from the nominated ports by HVs travelling on restricted routes (including, but not limited to, restricted access vehicles and over size and/or over mass (OSOM routes for OSOM vehicles)). Route surveys were completed by HV Transport Specialists (Deugro, 2023 and RJA, 2021a and 2021b) to identify and assess the most suitable OSOM routes for the movements to the existing Bannaby 500 kV substation site and the Gugaa 500 kV substation site from the nominated ports of entry which include:
  - Australian Amalgamated Terminals (AAT) Appleton Dock, Melbourne, Victoria
  - AAT Port Kembla, New South Wales
  - Mayfield 4, Newcastle, New South Wales.

Constraints identified on the OSOM routes are detailed in Section 6.1.5.

4.1.2 Desktop analysis

The following data and corresponding sources have been used in this revised assessment:

- *NSW Road Network Classifications* (TfNSW, 2023a) – A publicly available website providing information on classification of roads within NSW
- *TfNSW Traffic Volume Viewer* (TfNSW, 2023b) – A publicly available website providing traffic volumes (including heavy vehicle percentages) at selected state roads within NSW. The location of available data depends on the location of traffic count stations installed and operated by TfNSW
- *Centre for Road Safety* (TfNSW, 2023c) – A publicly available website providing historical crash data for the period 2018 to 2022
- *NSW TrainLink* (TfNSW, 2023d) – Publicly available website providing the regional train and coach services timetable and routes within NSW
- *Cycleway Finder* (TfNSW, 2023e) – Publicly available websites with database of cycling infrastructure located throughout NSW
- *Guide to Traffic Management Part 3: Transport Study and Analysis Methods* (Austroads, 2020a) – A publicly available guide to a description of the various level of services impacting road network performance
- *Interactive crash statistics* (TfNSW, 2023f) – Publicly available websites with crash history data to understand the crash severity and to provide a safety overview of the road network conditions
- *NSW Public Level Crossing Finder* (TfNSW, 2023g) – Publicly available website to identify the location of rail line interactions within the amended project footprint
- *Online Interactive Restricted Access Vehicle (RAV) map* (TfNSW, 2023h) – Publicly available website to road network restrictions and approved routes for use by heavy vehicles.

Traffic volumes for access routes were either estimated or based on publicly available traffic data and network restrictions and approved routes for use by heavy vehicles. The historical traffic count data for previous years was validated by considering the change in land use developments. In the cases where no major development was observed a global growth factor of one percent for every five years has been used to estimate the current traffic count. Available traffic count data for roads were increased using growth factors to estimate peak hour traffic. Attachment C provides details of the traffic volumes for access routes which were either estimated or based on publicly available traffic data.

4.1.3 Consultation with TfNSW and councils

Consultation has been undertaken with TfNSW and local councils since February 2022 in relation to traffic and transport matters. The consultation consists of presentations where the following items have been, or continue to be discussed in relation to traffic and transport:

- confirmation of road classification, vehicle movements and potential constraints
- confirmation of road and bridge weight limitations/constraints for all assets within the relevant LGAs for use in construction route planning (particularly with respect to OSOM movements)
- presentation of overhead stringing methodology
- intersection safety
- identification of relevant council contacts for future correspondence in relation to the amended project.

Please refer to the HumeLink Submissions Report (Aurecon, 2024) for submissions raised by TfNSW and local councils in relation to traffic and transport matters. A dedicated engagement process was undertaken with TfNSW and local councils between the conclusion of the EIS public exhibition process and lodgement of this Amendment Report. Refer to Section 5.3.2 of the Amendment Report for further detail. Ongoing consultation with TfNSW and local councils will be carried out as the amended project is further developed during detailed design.

4.1.4 Identification of road network used for the amended project

Access tracks have been refined based on inputs provided by the construction contractors, the ongoing development of the design and construction methodology and stakeholder engagement. Access arrangements along the length of the amended transmission line route requires use of existing access tracks, constructing new access tracks or upgrading existing access tracks. Access tracks are linked to the existing road network via existing, new or upgraded intersections.

Considering the large extent of the road network and access tracks within and surrounding the amended project footprint, there are multiple routes available providing access between combined accommodation facilities and compounds or town centres and the construction compounds and work sites along the transmission line corridor. The roads providing access from indicative extractive material locations to the amended project have also been included in the amended traffic study area. For this assessment, indicative access routes most likely to be used during construction were identified through GIS analysis.

The GIS analysis identified these indicative access routes as the shortest, most efficient routes between combined accommodation facilities and compounds or town centres and the construction compounds and work sites along the transmission line corridor. In addition to this analysis a desktop review of the roads comprising the access routes was also undertaken to summarise the existing road network conditions and to validate the GIS analysis outputs.

The construction contractors may choose alternative access routes during construction as a result of further detailed design and construction planning or operational changes to existing road conditions. The change of road conditions could be driven by other works, emergency works in the area or changes due to severe weather events (floods or bushfires). The assessment approach allows for impacts to be inferred based on the use of roads of a similar classification. Alternate routes may be selected if they are of a similar road classification to the routes assessed in this assessment.

The final access routes selected to be used during construction would be managed under the overarching Traffic and Transport Management Plan (TTMP). The TTMP will be prepared in consultation with local councils and TfNSW. The TTMP would facilitate the use of alternative routes and include all measures that would be implemented to minimise traffic and transport impacts during construction.

Furthermore, in accordance with revised environmental mitigation measure TT4 (refer to Table 9-1), road condition assessments of local roads intended to be used for construction would be undertaken by the construction contractors. The access route selection process flow chart (refer to Figure 4-2) provides an outline of the method to be adopted for selecting the final construction access routes. The routes providing the access to the amended project were classified in accordance with NSW *Road Network Classifications* (TfNSW, 2023a) for the national, state, regional and local network.

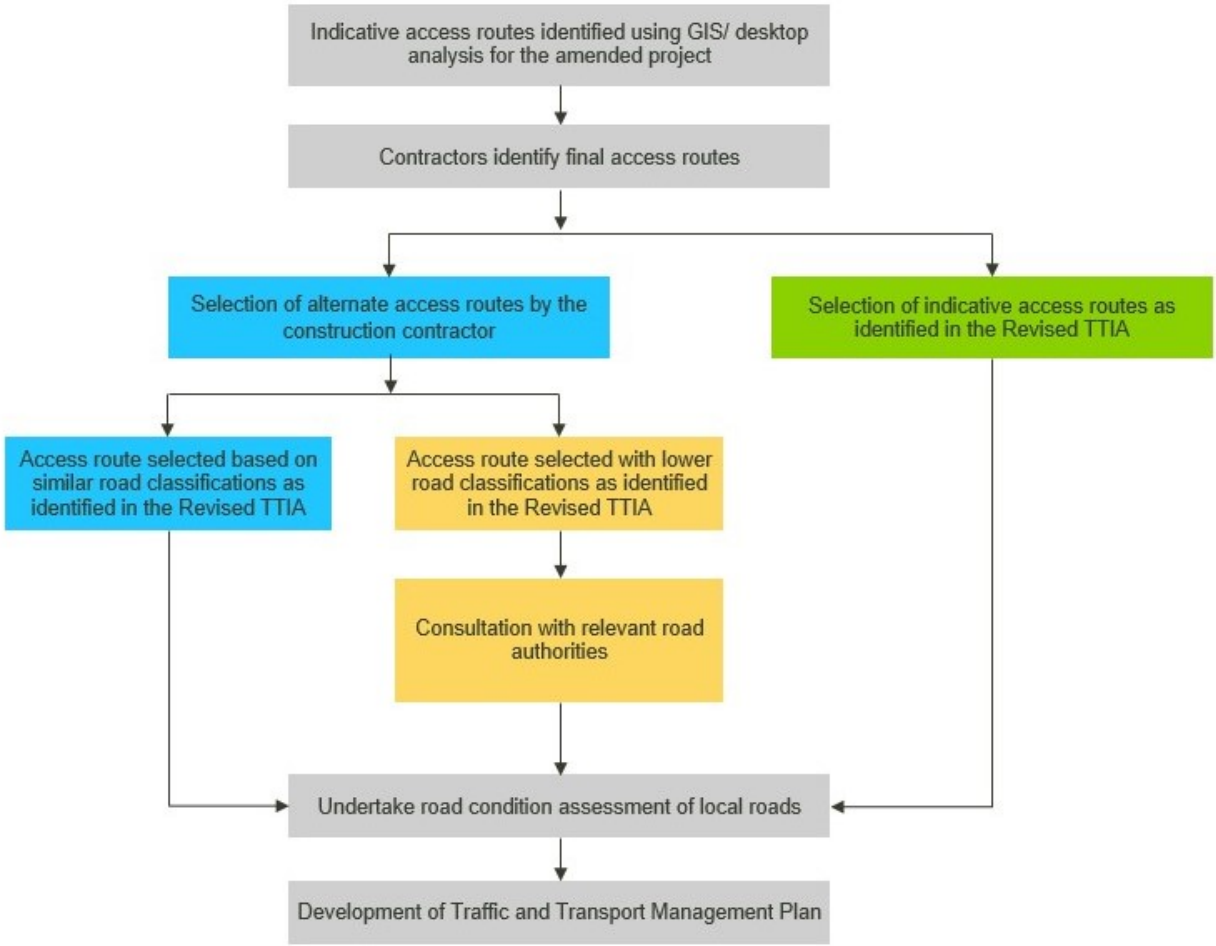


Figure 4-2 Access route selection process

4.1.4.1 Road network performance

Level of Service (LoS) criteria was used to assess the existing road network performance and quantify the anticipated impact on the roads, which are likely to be impacted by the amended project. It is important to note that LoS criteria does not apply to informal roads such as access tracks and therefore they have not been quantitatively assessed as part of the revised assessment.

The LoS criteria is based on the volume to capacity ratio (VCR) of the roads for assessment of performance at mid-block. The VCR represents the level of congestion on a road and is calculated by dividing traffic volume along a road with its designated capacity. When the VCR reaches 1, this indicates the road is operating at 100 per cent capacity. The LoS is classified from LoS A to F, with A representing best operating conditions and F the worst. The description of the various level of services is based on Austroads (2020a) *Guide to Traffic Management Part 3: Transport Study and Analysis Methods* are listed below:

- **LoS A** describes free-flow operations. Vehicles are almost completely unimpeded in their ability to manoeuvre within the traffic stream. The effects of incident or point breakdowns are easily absorbed.
- **LoS B** represents reasonably free-flow operations. The ability to manoeuvre within the traffic stream is only slightly restricted and the general level of physical and psychological comfort provided to drivers is still high. The effects of incident or point breakdowns are still easily absorbed.

- **LoS C** provides the flow conditions with speeds near the free-flow speed. Freedom to manoeuvre within the traffic stream is noticeably restricted, and lane changes require more care and lane change requires more care and vigilance on the part of the driver. Minor incidents may still be absorbed.
- **LoS D** is the level at which speeds begin to decline slightly with increasing flows, with density increasing more quickly. Freedom to manoeuvre is seriously limited and the drivers experience reduced physical and psychological comfort levels. Even minor incidents can be expected to create queuing, because the traffic stream has little space to absorb disruptions.
- **LoS E** describes operation at or near capacity. Operations at this level are highly volatile as there are virtually no usable gaps within the traffic stream, leaving little room to manoeuvre within the traffic stream. The physical and psychological comfort of drivers is poor.
- **LoS F** describes unstable flow.

Conversion between VCR and LoS is speed dependent and based on methodologies outlined in Austroads (2020a) *Guide to Traffic Management Part 3: Transport Study and Analysis Methods*.

With regards to lane capacity, the following assumptions have been made based on the functional hierarchy of road as per Austroads (2020a) *Guide to Traffic Management Part 3: Transport Study and Analysis Methods:*

- Highways (typically state roads) represent uninterrupted traffic conditions with high operation speed of 90 km/h or above. At LoS E, as per Austroads maximum service flow rate at free flow speed of 90 km/h is 2,100 passenger/km/h. Conservatively, the lane capacity of 1,800 vehicle/km/h is adopted to account for variation in vehicle type and road conditions.
- Arterial road (typically regional roads or state roads in urban areas) represents interrupted road conditions with access to some properties and streets with operation speed of 70 km/h to 90 km/h.
- Collector roads (typically regional roads and some local roads) are similar to arterial roads with speed limit less than or equal to 60 km/h.
- Local roads represent interrupted conditions with access to properties, parking lanes and posted speed of 50 km/h.

Table 4-1 provides the reference for conversion of VCR and LoS and lists the lane capacity based on functional classification of roads based on Austroads (2020a) *Guide to Traffic Management Part 3: Transport Study and Analysis Methods*.

Table 4-1 Level of Service description for road performance

Level of Service	Volume Capacity Ratio by Speed			
	Local road	**Collector road**	**Arterial**	**Highway**
A	<0.24	<0.24	<0.28	<0.30
B	0.24–0.38	0.24–0.38	0.28–0.44	0.30–0.47
C	0.38–0.54	0.38–0.54	0.44–0.64	0.47–0.68
D	0.54–0.78	0.54–0.78	0.64–0.84	0.68–0.89
E	0.78–1.00	0.78–1.00	0.84–1.00	0.89–1.00
F	>1.00	>1.00	>1.00	>1.00
Lane capacity at Los E	**900**	**1000**	**1400**	**1800**

Source: *Guide to Traffic Management Part 3: Transport Study and Analysis Methods* (Austroads, 2020a)

By categorising changes to the VCR of affected roads against existing conditions, the LoS criteria can indicate how the amended project would impact on road network efficiency during construction and operation. The following impact categorisation has been adopted in this assessment:

- **low impact**: no change in LoS
- **medium impact**: one level change in LoS
- **high impact**: two or more level changes in LoS.

The existing road network performance for roads providing access to the amended project has been identified in Section 5.3. Impact on road performance during construction is assessed in Section 6.3.1. The impact on road network performance during operation is described in Section 7.3.1.

4.1.4.2 Access points and intersections of access tracks with public roads

The vehicular access locations to the construction compounds, accommodation facilities and compounds, as well as the access points to access tracks were identified by site inspections carried out by Transgrid and the construction contractors, and supplemented with the use of GIS/aerial imagery.

Assessing the access to the construction compounds and accommodation facilities considered the existing access provisions and road network conditions. The preferred turn treatments were identified using Austroads design guidelines.

The typical layout requirements of the access tracks are further detailed in Section 6.3.1.3 to Section 6.3.1.4. The aspects of the site access points that were reviewed are outlined in Table 4-2.

Table 4-2 Aspects reviewed for access points and relevant guidelines

Aspect reviewed	Relevant guidelines
Heavy vehicle approved travel routes	Assessed against TfNSW's *RAV map, OSOM network map* and the *NSW Heavy Vehicle Access Policy Framework* (TfNSW, 2018)
Warrants for turn treatments (These warrants are the preferred minimum turn treatments for major roads)	Determined in accordance with *Austroads Guide to Traffic Management Part 6 – Intersections, Interchanges and Crossings Management* (Austroads, 2020b)

4.1.4.3 Duration of construction impacts

In order to further describe road traffic impacts from construction activities, beyond LoS criteria, impacts are also described in terms of their utilisation duration. The duration is categorised as follows:

- short term: impacts are possible up to six months
- medium term: impacts are possible up to one year
- long term: impacts are possible for the full construction duration.

The roads in the amended traffic study area (referred to in Section 6.3.1.1) have been described in the context of these short, medium, and long-term impacts, based on the expected duration of anticipated construction traffic.

It is noted that the use of some roads for construction is not likely to be continuous for these durations due to the intermittent nature of some construction activities, eg transmission line construction. The duration categories assigned to construction activities (in Section 6.3.1.1) are based on the total actual use ie 10 weeks use that is staggered across the entire construction period, which is considered a short-term impact.

4.1.4.4 Road safety assessment

A road safety review was undertaken using crash data for key roads. Crash data has been sourced from *Interactive crash statistics* (TfNSW, 2023f), for the five-year period from 2018 to 2022. Crash history data was analysed and summarised for each LGA to understand the crash severity and to provide a safety overview of the road network conditions along the route.

For access to the construction compounds and construction compounds with workers accommodation facilities, a high-level assessment was undertaken to review the crash history within the vicinity of proposed access road connections.

4.1.4.5 Rail network assessment

NSW Public Level Crossing Finder (TfNSW, 2023g) was used to identify the location of rail line interactions with the amended project footprint, operational status and usage frequency of the rail network. A qualitative assessment of impacts was then undertaken considering potential road – rail interactions arising from the amended project. These impacts are presented in Section 6.3.3.

5 Existing environment

5.1 Road network

This section describes the existing characteristics of roads within the amended traffic study area. Road classifications are described in accordance with the *Roads Act 1993* and *NSW road classification* (TfNSW, 2023a).

The locations of the roads listed in this section are shown in Figure 5-1 along with the indicative routes proposed for the amended project access. The roads providing access (during construction and operation) to construction compounds, worker accommodation facilities, substation sites and transmission line structure locations comprise national roads, state roads and regional roads connected with a network of sealed and unsealed local roads and access tracks. The lightly trafficked road network within the amended traffic study area reflects the largely rural nature of the locality.

5.1.1 National and state roads

The characteristics of all national and state roads that may provide access routes to the amended project footprint are detailed in Table 5-1.

Table 5-1 Key roads that form part of the national and state road network

Road name	Description	Road surface type	Lane counts	Speed limit	Pedestrian / cyclist provisions
National road network					
Hume Highway (M31)	Hume Highway is 840 km long national highway connecting Sydney in the north to Melbourne in the south. Most sections near major towns are bypasses which connect the towns to the highway through local or regional roads. The highway is a dual carriageway with restricted entry from adjoining land.	Sealed	General: ■ two lane per direction.	General: ■ 110 km/h.	General: ■ sealed shoulder.
State road network					
Snowy Mountains Highway (B72) including: ■ Blowering Road ■ Fitzroy Street ■ Adelong Road ■ Tumut Street ■ Inglis Street.	The Snowy Mountains Highway (B72) is a 333 km long state highway connecting Hume Highway in the west to Princess Highway in the east. Within the study area, the highway passed through the LGAs of Snowy Valleys and Cootamundra-Gundagai Regional and serves as an important link for freight and tourism. Blowering Road is a section of the B72 in Tumut between Fitzroy Street and East Street, approximately 2 km long. Fitzroy Street is section of the B72 in Tumut between Wee Jasper Road and Blowering Road, approximately 2.2 km long. Adelong Road is a section of the B72 in Tumut between Capper Street and Boundary Street, approximately 950 m long. Tumut Street is a section of the B72 in Adelong between Campbell Street and Inglis Street, approximately 800 m long. Inglis Street is a section of the B72 route in Adelong between Tumut Street and Lynch Street, approximately 300 m long.	Sealed	General: ■ One lane per direction. In towns: ■ one lane with additional kerbside parking lane per direction.	General: ■ 100 km/h. Near towns: ■ 80 – 50 km/h.	General: ■ sealed shoulder. In towns ■ mostly with footpaths ■ sealed shoulder on Blowering Road, Adelong Street and Inglis Street.
Batlow Road (HW85) including: ■ Reedy Street.	Batlow Road (HW85) is a 74 km long north-south state highway connecting the towns of Batlow and Tumbarumba in the south with the Snowy Mountains Highway (B72) in the north. Reedy Street is a section of the HW85 between May Day Road and Kurrajong Avenue, approximately 350 m long.	Sealed	General: ■ one lane per direction. In towns: ■ one lane with additional kerbside parking lane per direction.	General: ■ 100 km/h. Near towns: ■ 50 km/h.	General: ■ sealed shoulder. In towns: ■ mostly with footpaths.

Road name	Description	Road surface type	Lane counts	Speed limit	Pedestrian / cyclist provisions
Crookwell – Goulburn Road including: ■ Goulburn Street (Crookwell) ■ Carrington Street (Crookwell) ■ Fitzroy Street (Goulburn).	Crookwell – Goulburn Road is a north-south highway connecting Crookwell in the north and Goulburn in the south. The section between Crookwell and Pejar Dam is Goulburn Road and the section between Pejar Dam to Goulburn is Crookwell Road. Goulburn Street is a section of Crookwell- Goulburn Road between Grange Road and Laggan Road, approximately 1.8 km long. Carrington Street is a section of Crookwell- Goulburn Road between Laggan Road and Stephenson Street, approximately 1.3 km long. Fitzroy Street is a section of Crookwell- Goulburn Road between Nelson Place and Goulburn High School, approximately 1.5 km long.	Sealed	General: ■ one lane per direction. In towns: ■ one lane with additional kerbside parking lane per.	General: ■ 100 km/h. In towns: ■ 60 – 50 km/h.	General: ■ sealed shoulder. In towns: ■ mostly with footpaths.
Gocup Road including: ■ Minjary Street.	Gocup Road is about 31 km in length and runs north from the Snowy Mountains Highway (HW4) at Tumut to the Hume Highway (HW2) at Gundagai. This road is used by HVs primarily associated with the local timber and milling industry. TfNSW completed the Gocup Road upgrade in 2019 to improve road safety and freight efficiency. Minjary Street is a section of Gocup Road in Minjary, approximately 1.5 km long.	Sealed	General: ■ one lane per direction.	General: ■ 100 km/h. Near towns: ■ 50 km/h.	General: ■ sealed shoulder. Near towns: ■ sealed shoulder.
Burley Griffin Way	Burley Griffin Way is a highway connecting Hume Highway in the east approximately 4 km west of Bowning and Griffith in West. This highway connects the agricultural regions of Southwest NSW to major urban area and is primarily associated with agricultural industry.	Sealed	General: ■ one lane per direction.	General: ■ 100 km/h. Near towns: ■ 50 km/h.	General: ■ sealed shoulder. Near towns: ■ sealed shoulder.

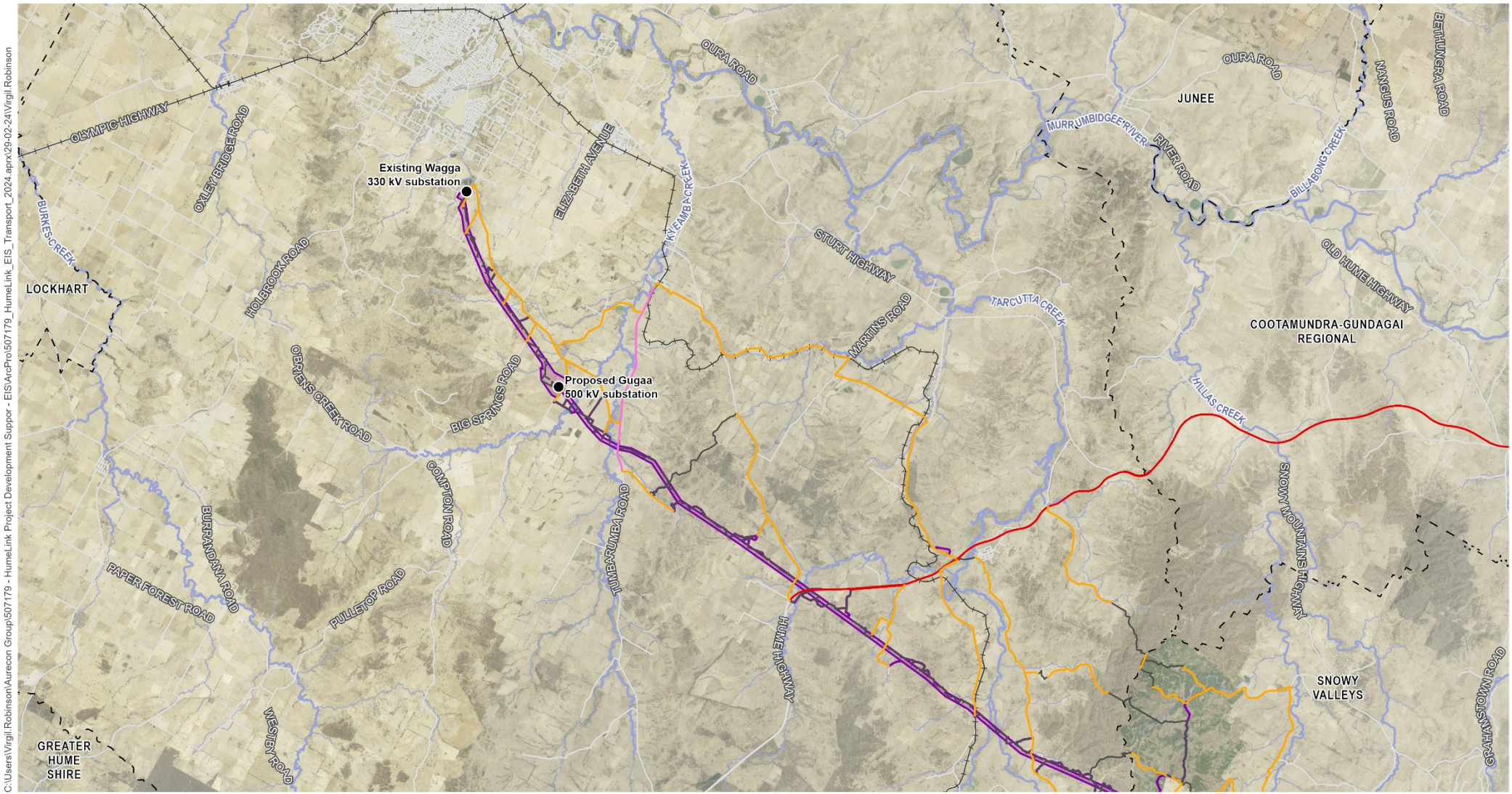
5.1.2 Regional roads

Regional roads perform the intermediate function between state roads and local roads by connecting regional urban areas to the state road network as well as other regional urban areas. The 21 regional roads expected to be used to access the amended project footprint are summarised in Attachment A.

These regional roads are mostly sealed except for Laggan-Taralga Road and a portion of Wee Jasper Road, which is unsealed. Posted speed on these regional roads is generally 100 km/h, which reduces to 60 or 80 km/h on approach to towns and 50 km/h in urban areas. Most of the regional roads within the amended traffic study area do not have dedicated pedestrian and cyclist facilities. Outside towns and urban areas, high speed coupled with the rural nature of the regional roads present a challenging environment for uptake of active transport with minimal pedestrian and cyclist activities provided for or anticipated (refer to Section 5.6).

5.1.3 Local roads

Local roads considered in this assessment within the amended traffic study area are identified in Attachment B. These roads are considered representative of any potential alternative options that could be used for the amended project. Attachment B summarises details of these local roads, including lane counts and pavement types of 145 unsealed roads and 69 sealed roads. Refer to Appendix A (Updated project description) of the Amendment Report for further detail on anticipated and indicative access to the amended project.



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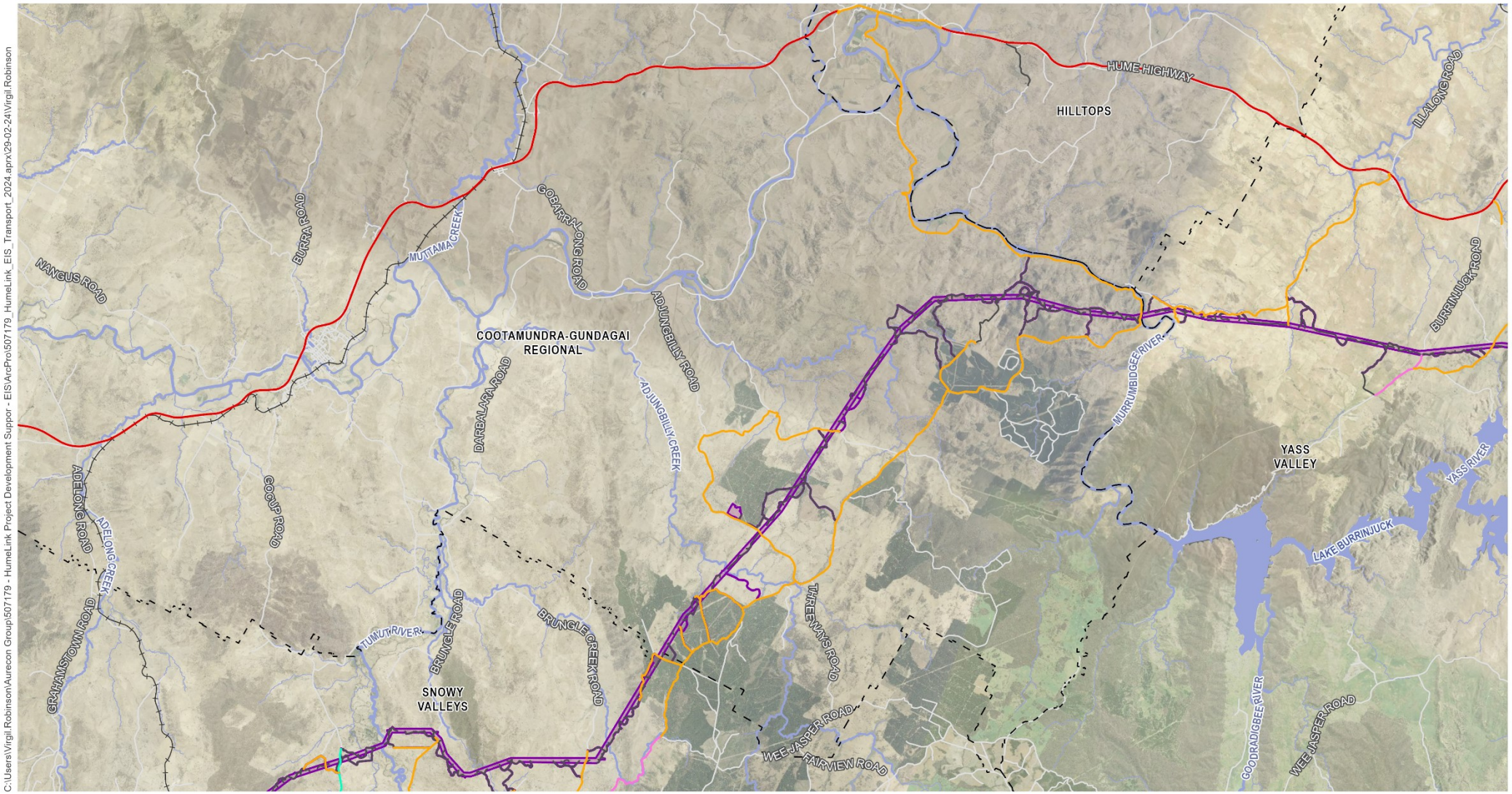
Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

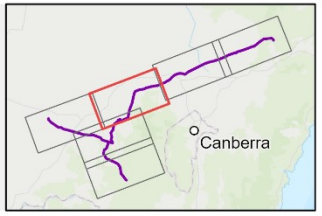
1:200,000
0 4 8km

Projection: GDA 1994 MGA Zone 55

Figure 5-1a: Road network classification providing indicative access to the amended project



Amended project footprint
Local Government Area
Watercourse
Railway
Local road
National road
Regional road
State road
Un-named local road / track



Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

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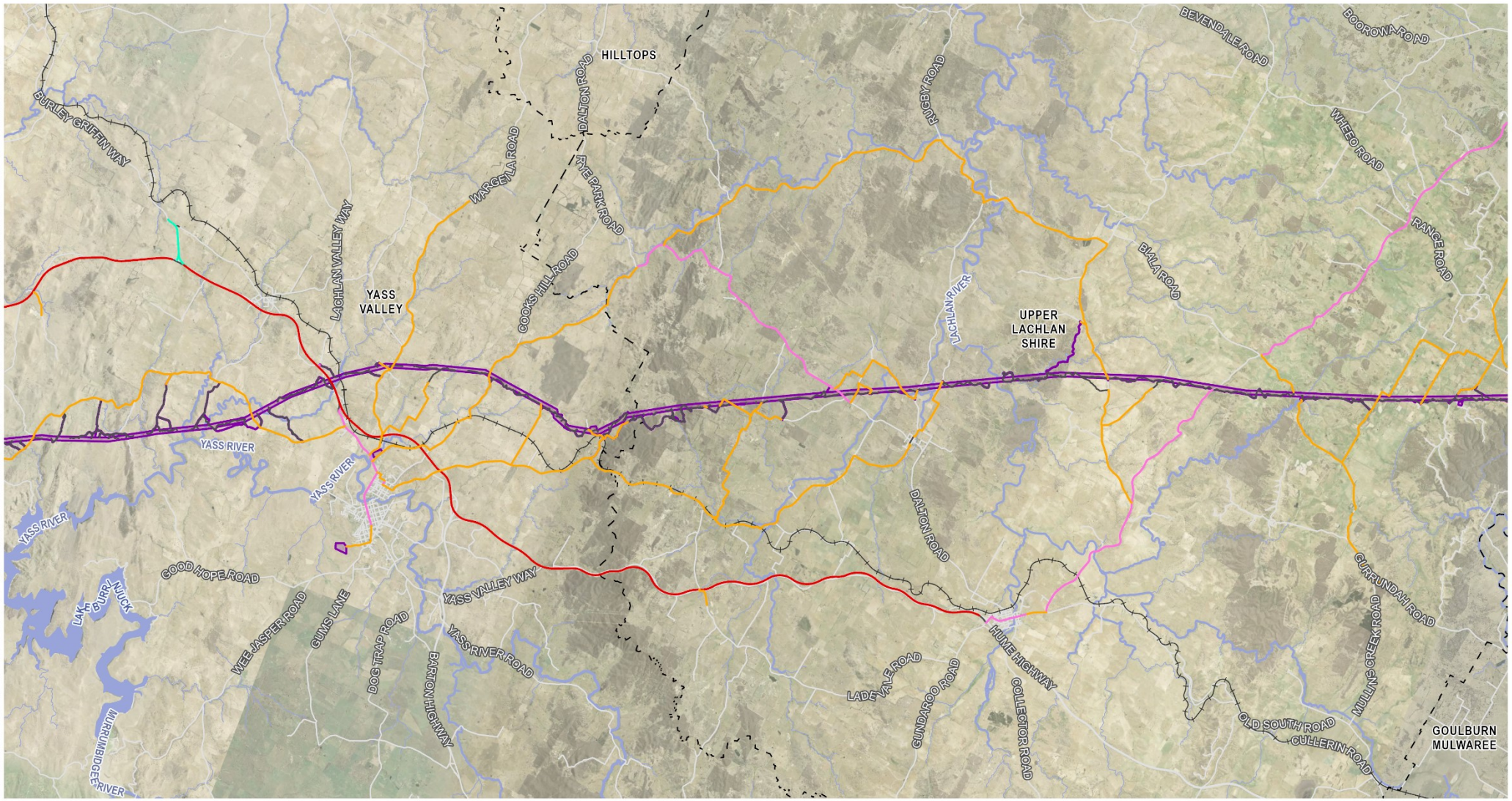
Projection: GDA 1994 MGA Zone 55

Figure 5-1b: Road network classification providing indicative access to the amended project



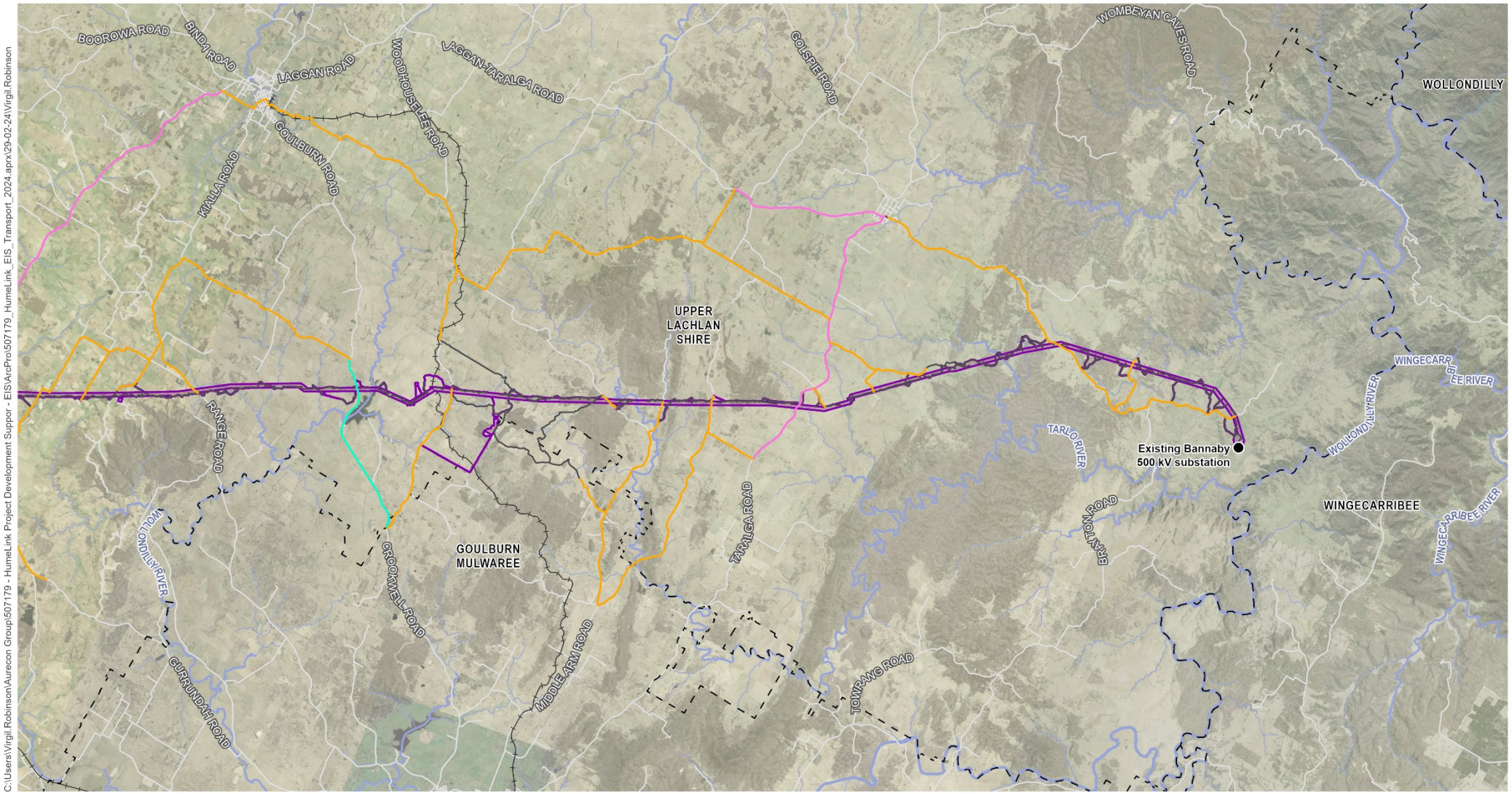
Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:200,000
0 4 8km

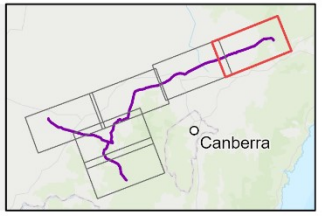
Projection: GDA 1994 MGA Zone 55

HumeLink **Traffic and Transport Impact**

Figure 5-1c: Road network classification providing indicative access to the amended project



Amended project footprint
Local Government Area
Watercourse
Railway
Local road
National road
Regional road
State road
Un-named local road / track
Substation



Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

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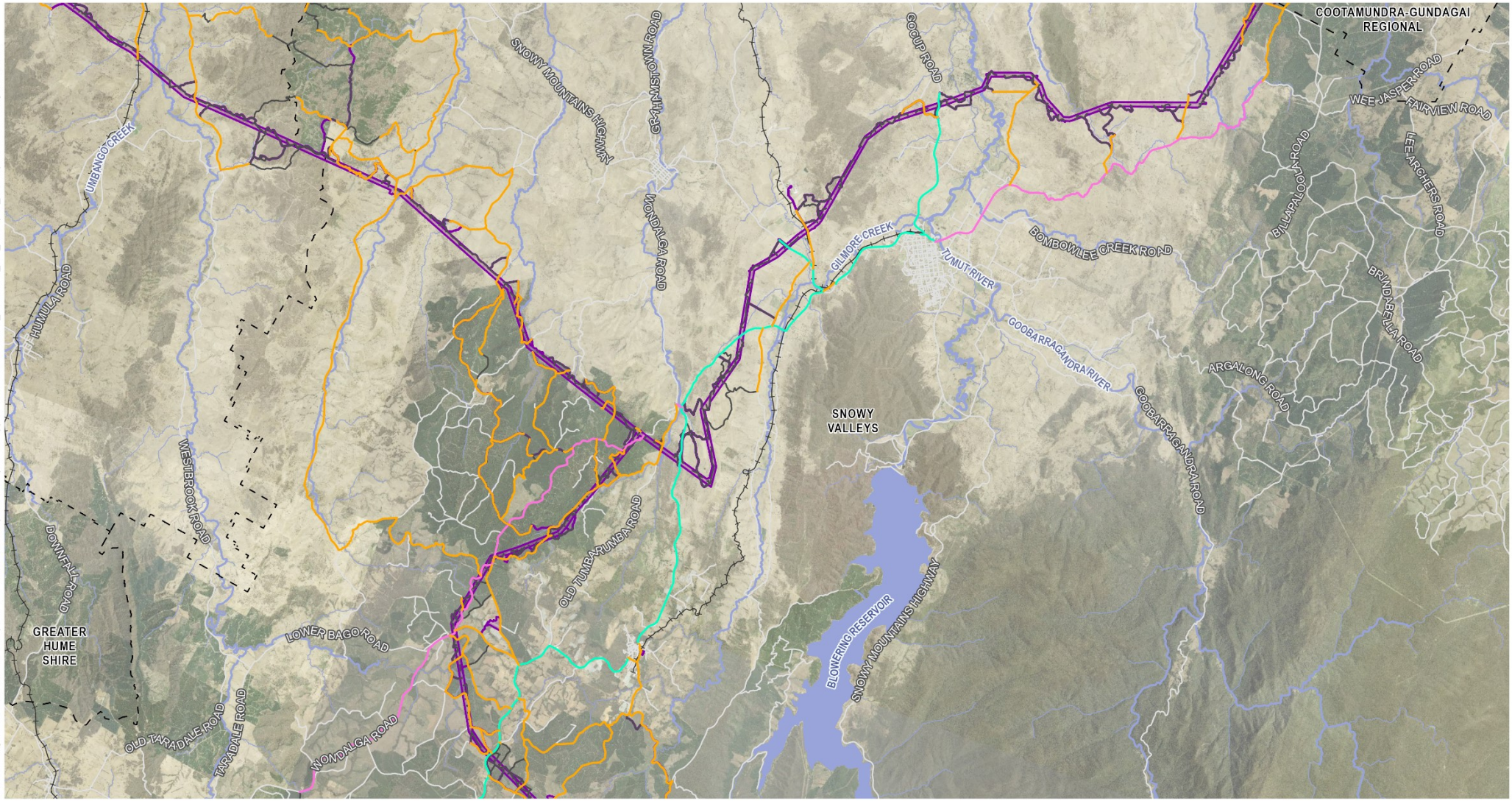
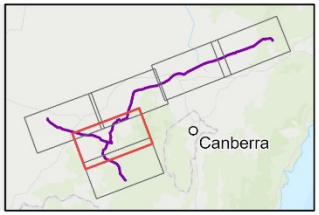
Projection: GDA 1994 MGA Zone 55

HumeLink **Traffic and Transport Impact**

Figure 5-1d: Road network classification providing indicative access to the amended project



Amended project footprint
Local Government Area
Watercourse
Railway
Local road
National road
Regional road
State road
Un-named local road / track



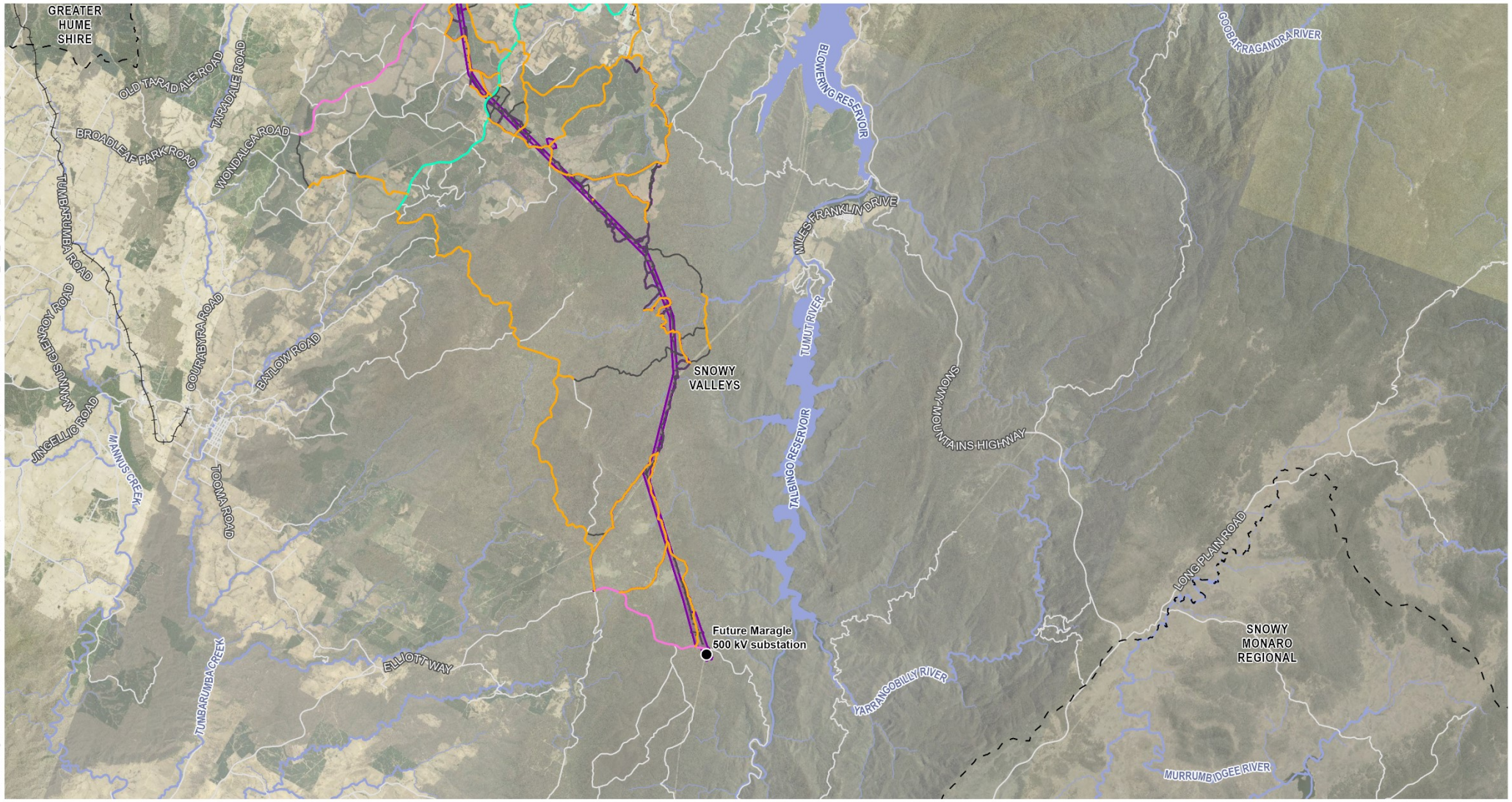
Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:200,000
0 4 8km

Projection: GDA 1994 MGA Zone 55

HumeLink **Traffic and Transport Impact**

Figure 5-1e: Road network classification providing indicative access to the amended project



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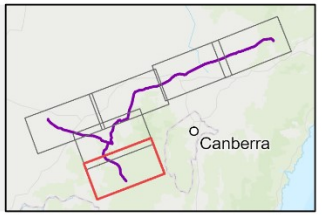
Amended project footprint
Local Government Area
Watercourse
Railway
Local road
National road
Regional road
State road
Un-named local road / track
Substation



Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:200,000
0 4 8km

Projection: GDA 1994 MGA Zone 55

HumeLink **Traffic and Transport Impact**

Figure 5-1f: Road network classification providing indicative access to the amended project

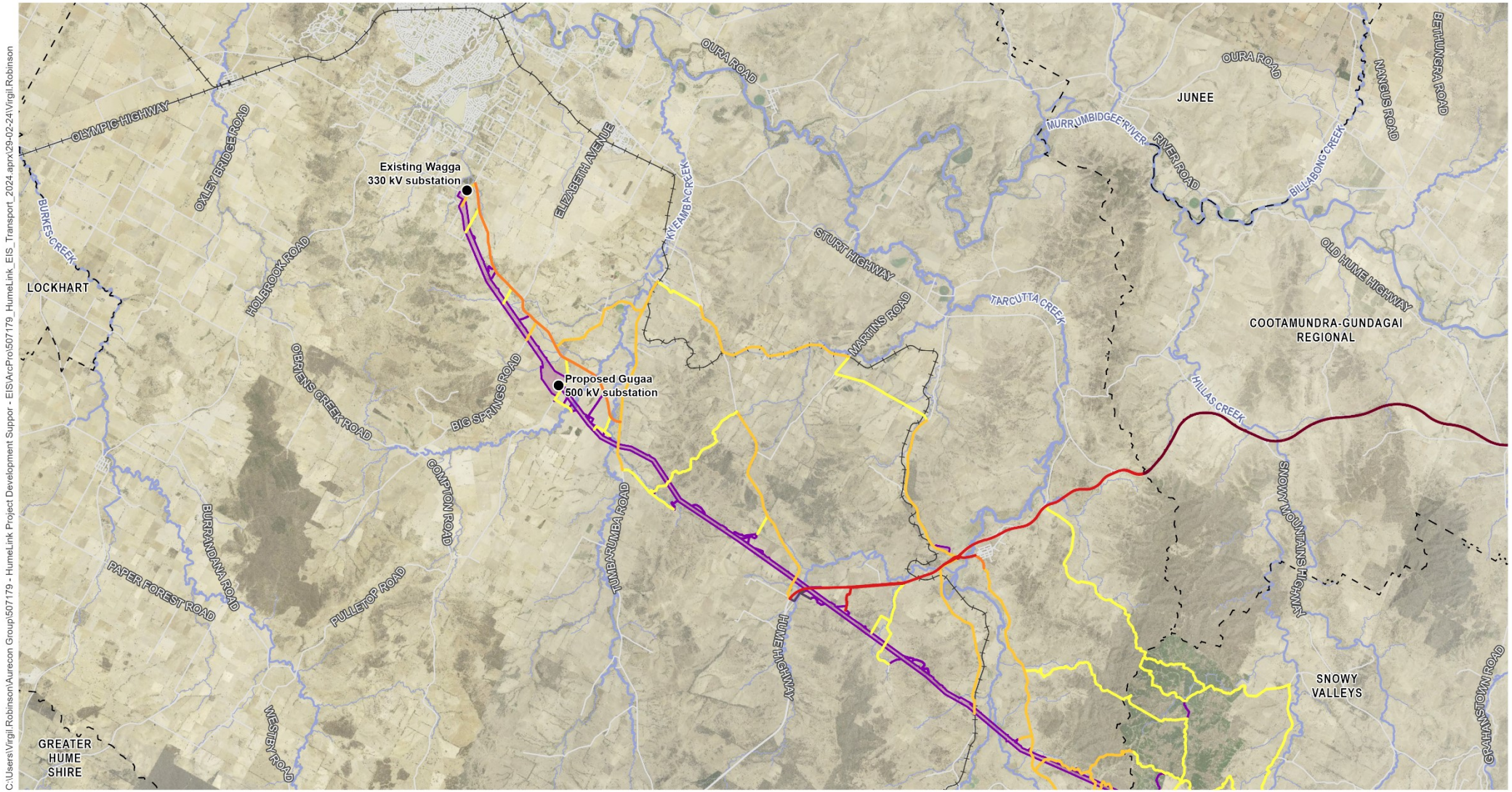
5.2 Traffic volumes

The peak hour traffic volume of the roads within the amended traffic study area is summarised in Attachment C and illustrated in Figure 5-2.

Due to their design and functional characteristics, state roads are expected to cater for higher traffic volumes. In the traffic study area, state roads likely to be used for accessing the amended project have typical peak hourly traffic volumes upwards of 70 vehicles in one direction of travel. Adelong Road, which forms part of the Snowy Mountains Highway in Tumut within the Snowy Valleys LGA, is the busiest state road carrying 280 vehicles in one direction of travel (TfNSW, 2023b). Otherwise, the section of Hume Highway within Yass Valley LGA and in Upper Lachlan Shire LGA is the only national road with peak hourly volume over 300 vehicles in one direction of travel.

Regional roads providing access to the amended project have typical peak volumes between 20 to 70 vehicles in one direction, except for Yass valley way with peak hourly volume of 320 vehicles in one direction of travel. Comur Street, Laidlaw Street and Yass Valley Way within Yass Valley LGA caters to maximum peak hour traffic volume of between 320 to 350 vehicles in one direction.

Local roads providing access to the amended project have typical peak volumes of 10 to 50 vehicles in one direction of travel. Few local roads, owing to their location in busy urban environments or functional hierarchy, carry higher peak hour volumes of 100 vehicles per direction. Sealed local roads can carry higher peak hour volumes per direction. Peak hour volume on unsealed roads is about 30 vehicles per direction.



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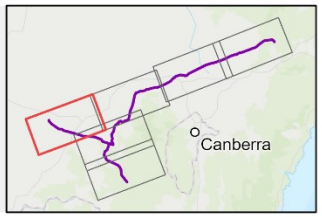
Amended project footprint
Local Government Area
Watercourse
Railway
Substation

Estimated peak hour volume
10 - 20
21 - 50
51 - 100
101 - 300
301 - 550

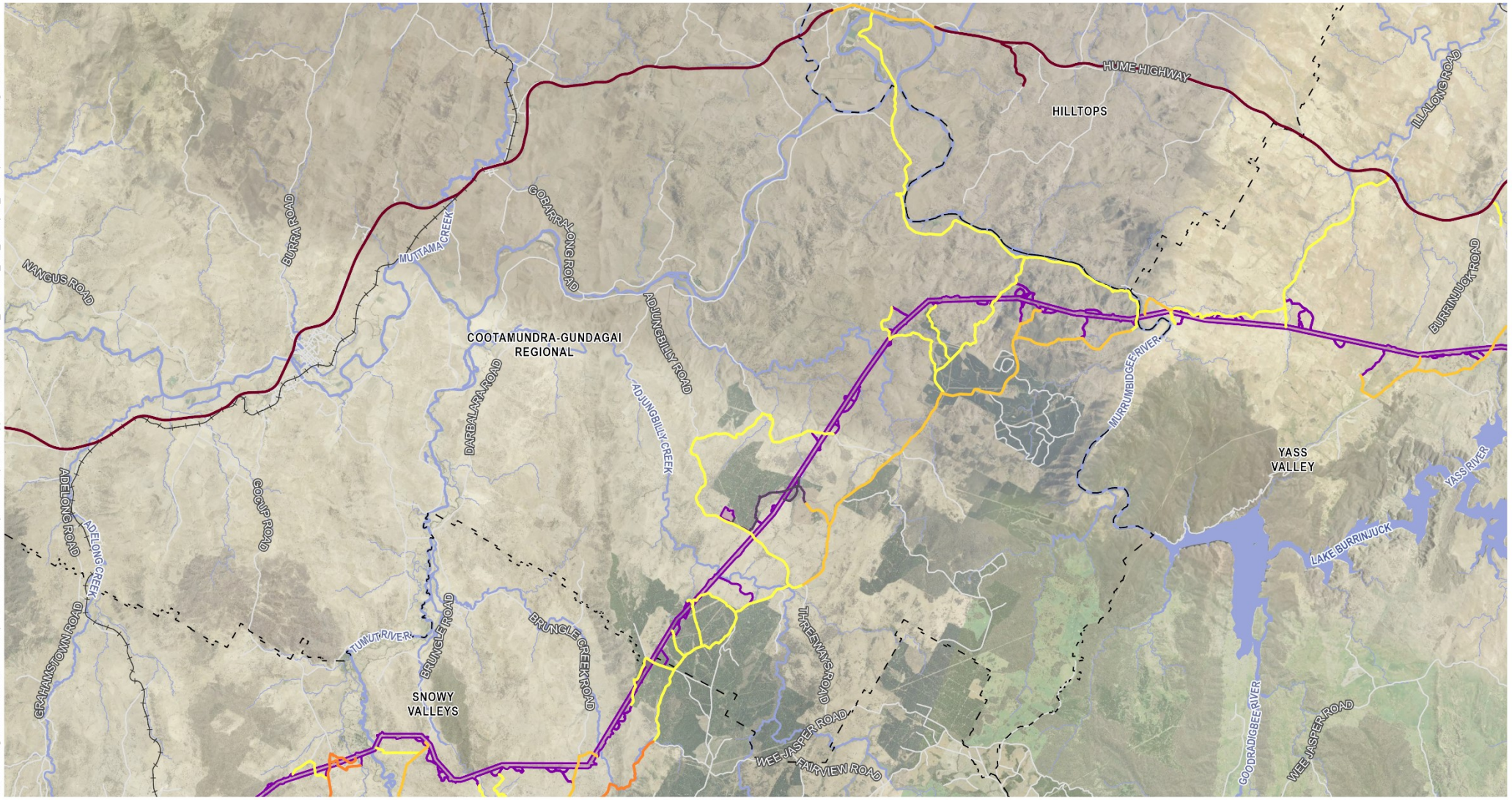


Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:200,000
0 4 8km

Projection: GDA 1994 MGA Zone 55

Figure 5-2a: Peak hour traffic volume on road network providing indicative access to the amended project



Amended project footprint

Local Government Area

Watercourse

Railway

Estimated peak hour volume

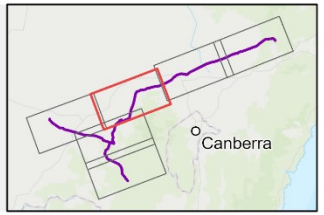
10 - 20

21 - 50

51 - 100

101 - 300

301 - 550



Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

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Projection: GDA 1994 MGA Zone 55

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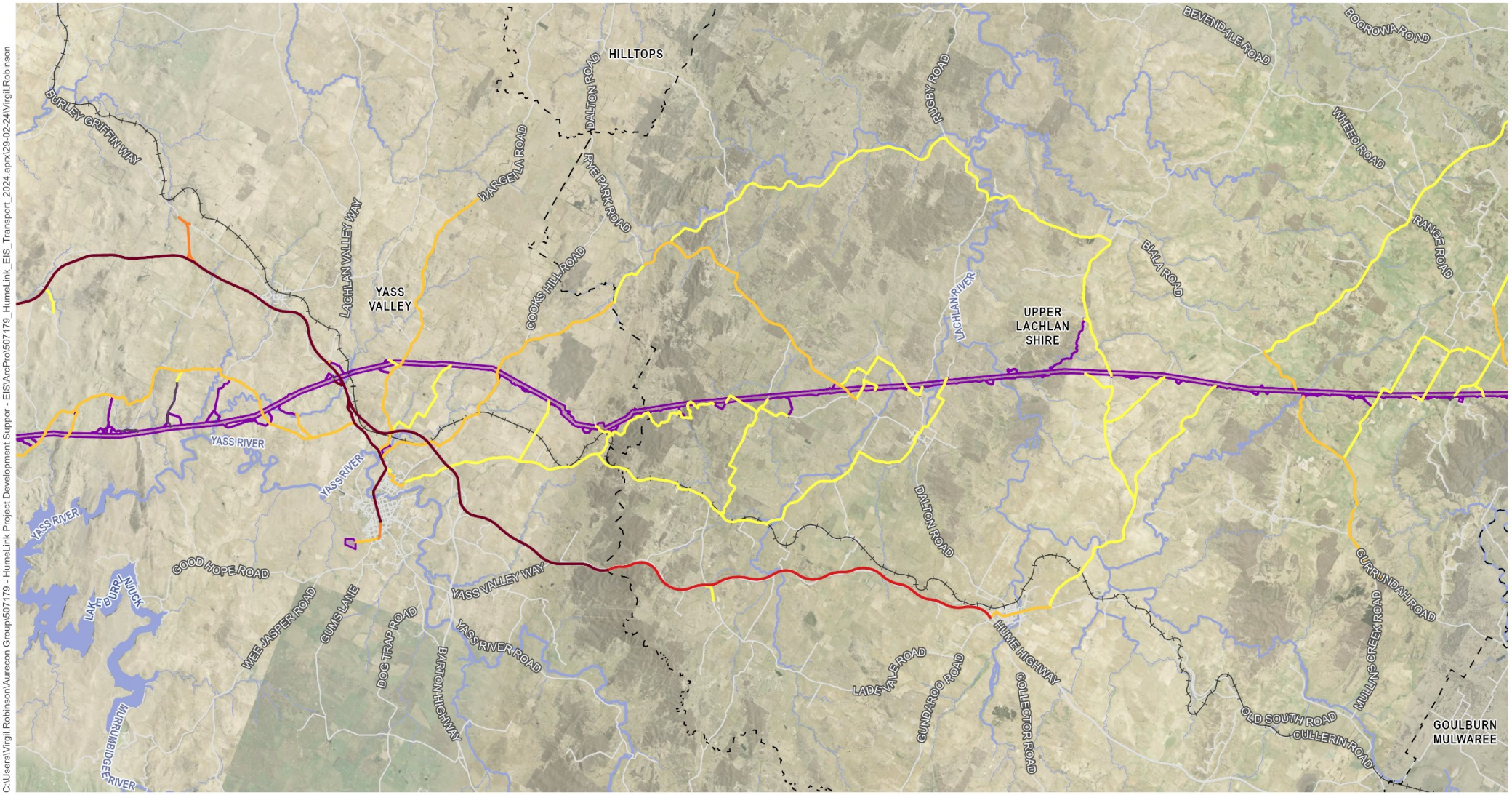
Figure 5-2b: Peak hour traffic volume on road network providing indicative access to the amended project

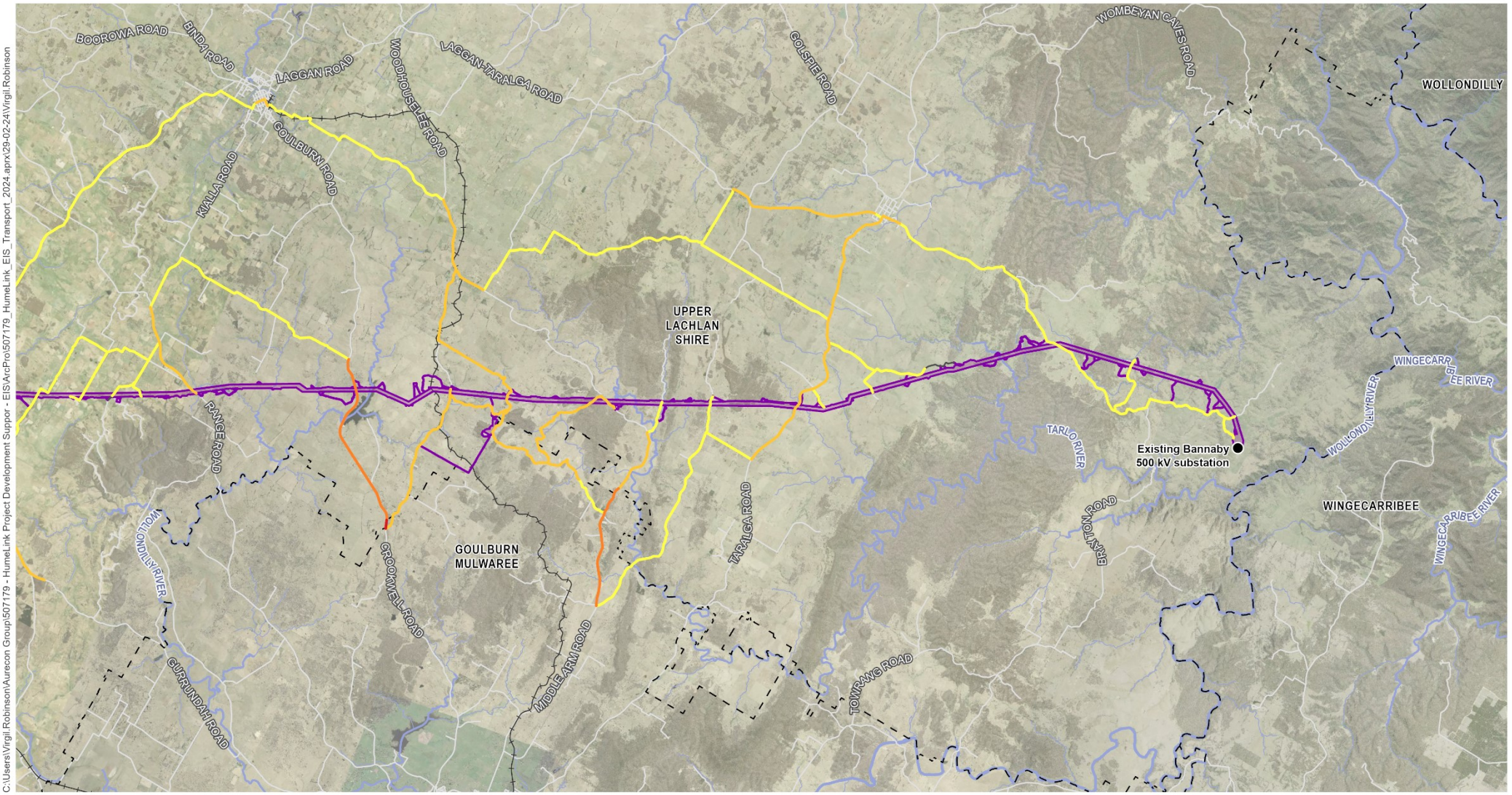


Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:200,000
0 4 8km

Projection: GDA 1994 MGA Zone 55

Figure 5-2c: Peak hour traffic volume on road network providing indicative access to the amended project



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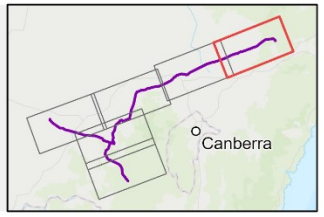
Amended project footprint
Local Government Area
Watercourse
Railway
Substation

Estimated peak hour volume
10 - 20
21 - 50
51 - 100
101 - 300

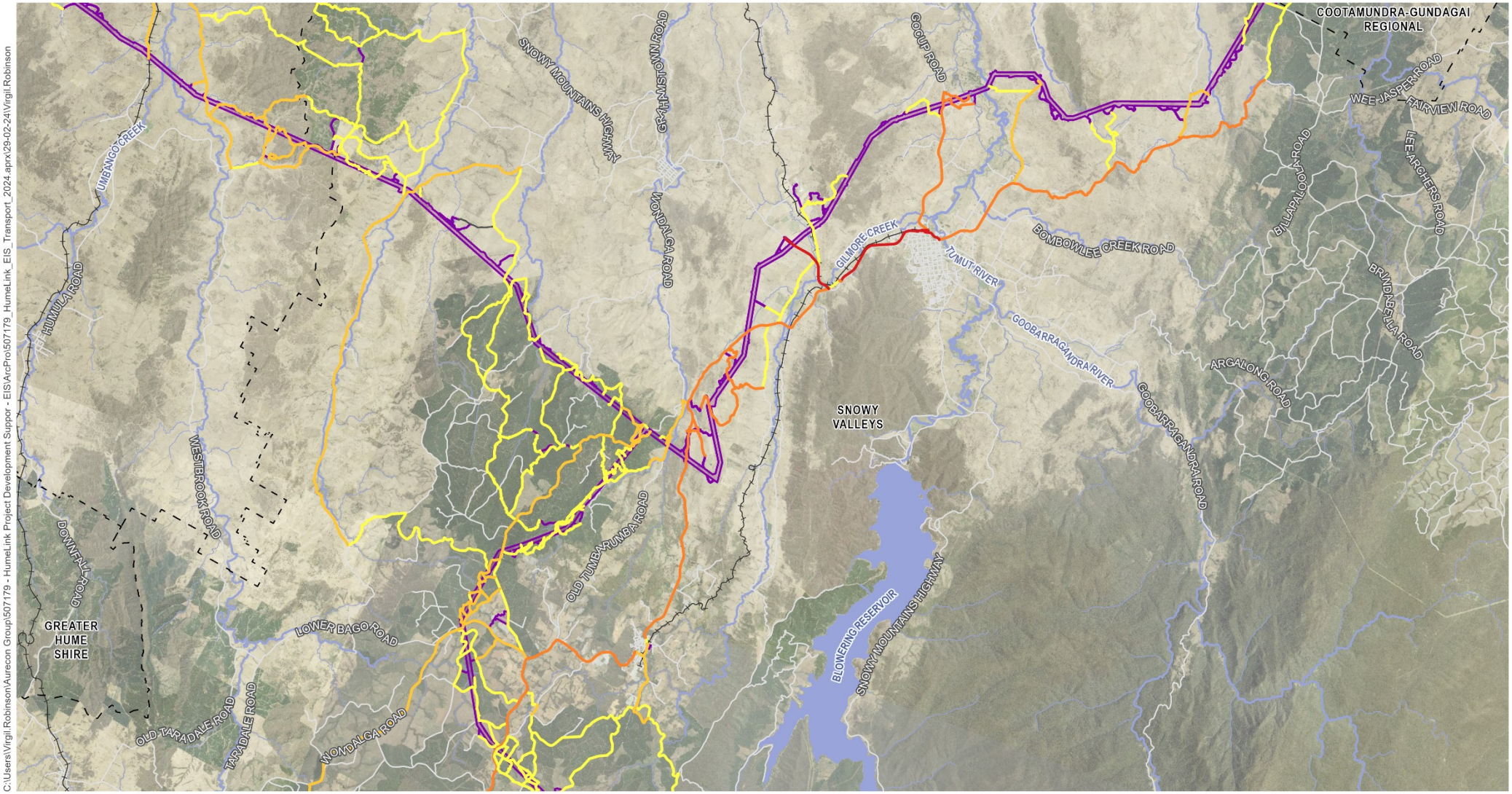


Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:200,000
0 4 8km

Projection: GDA 1994 MGA Zone 55

Figure 5-2d: Peak hour traffic volume on road network providing indicative access to the amended project



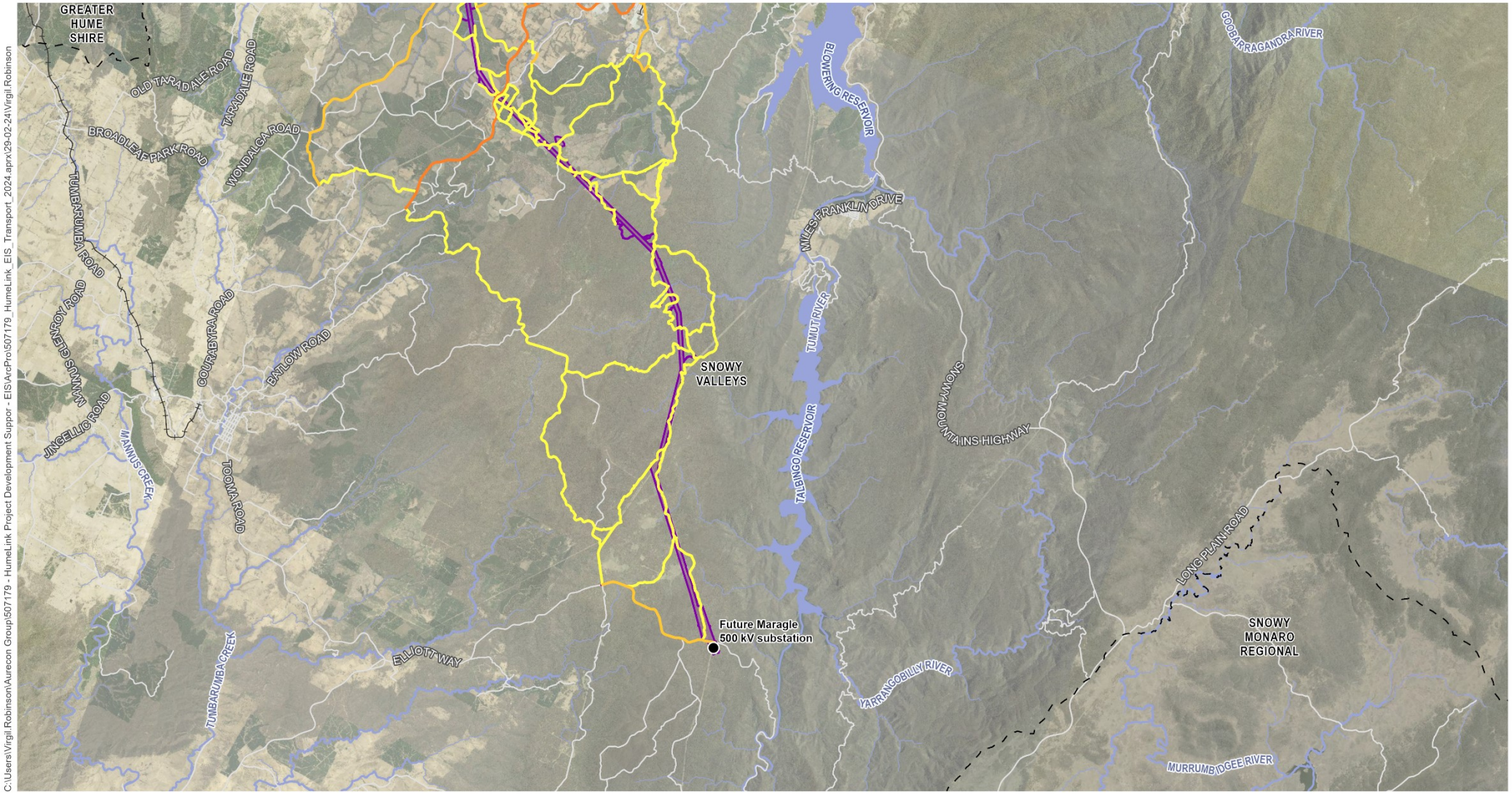
Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:200,000

0 4 8km

Projection: GDA 1994 MGA Zone 55

Figure 5-2e: Peak hour traffic volume on road network providing indicative access to the amended project



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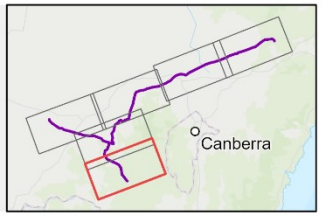
Amended project footprint
Local Government Area
Watercourse
Railway
Substation
Estimated peak hour volume
10 - 20
21 - 50
51 - 100



Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:200,000
0 4 8km

Projection: GDA 1994 MGA Zone 55

HumeLink **Traffic and Transport Impact**

Figure 5-2f: Peak hour traffic volume on road network providing indicative access to the amended project

5.3 Road network performance

Details on the performance of the existing road network within the amended traffic study area are presented in Attachment D as VCR and LoS. The significance of each LoS is detailed in Section 4.1.4.1.

During peak hour, most of the roads within the amended traffic study area are operating at LoS A, indicating free-flow operations, where vehicles are almost completely unimpeded in their ability to manoeuvre within the traffic stream. VCR values for the roads in the amended traffic study area performing at LoS A is far below the threshold range for LoS A (refer to Table 4-1 for VCR values for each type of road), indicating available traffic capacity in the network.

5.4 Heavy vehicle route restrictions

HVs that conform with mass and dimension requirements within the definitions of General Access Vehicles (GAV) do not require a notice or permit from the National Heavy Vehicle Regulator (NHVR) (2023) to operate on the road network.

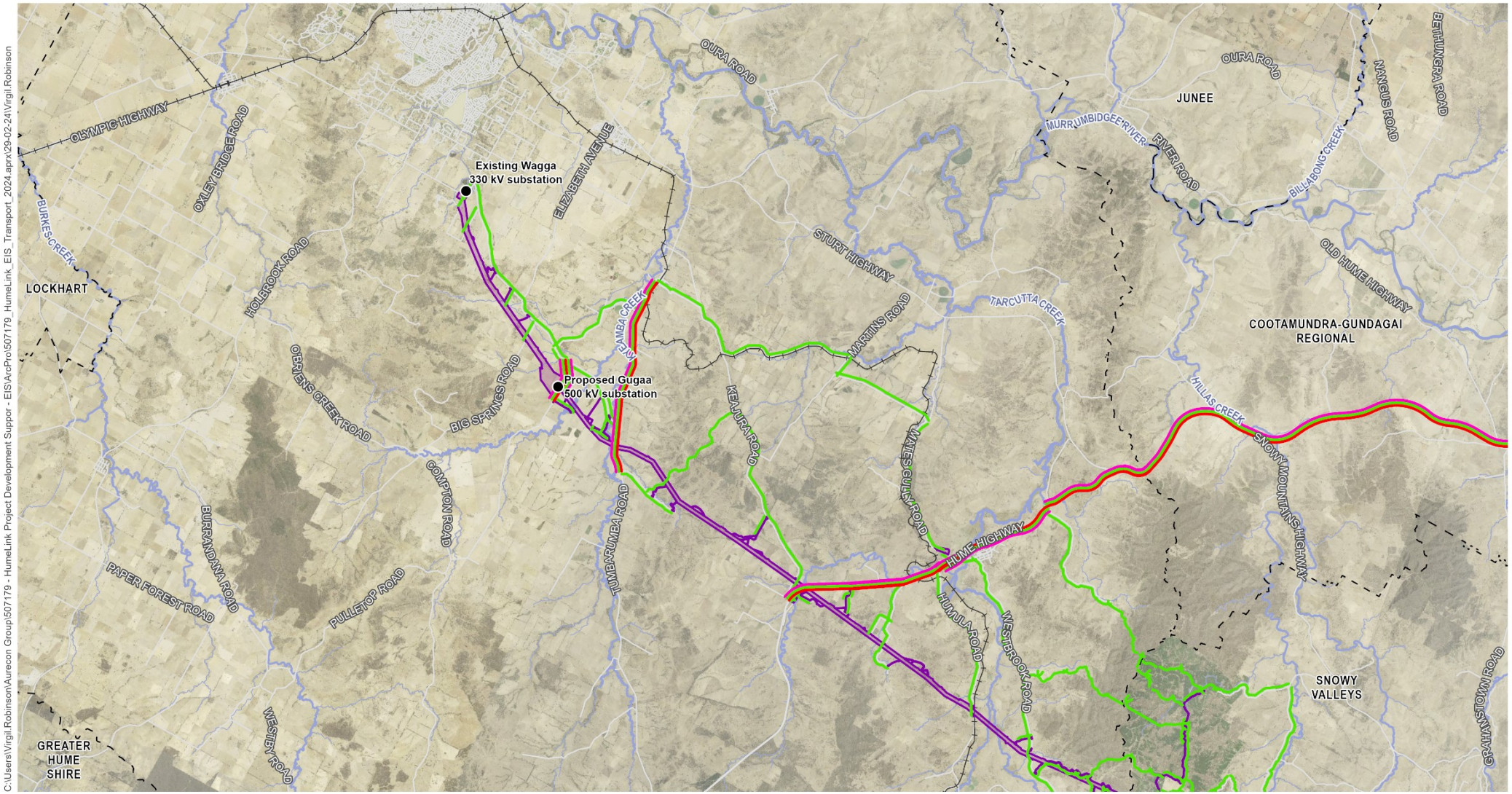
The mass and dimensions of GAVs according to the NHVR (2023) is as follows, where L is length, W is width, H is height and M is mass:

- rigid truck – L: 12.5 metres, W: 2.5 metres, H:4.3 metres, M: 31 tonne
- prime mover and trailer – L: 19 metres, W: 2.5 metres, H:4.3 metres, M: 42.5 tonne
- rigid truck and trailer – L: 19 metres, W: 2.5 metres, H:4.3 metres, M: 42.5 tonne
- B-double (prime mover, trailer and trailer) – L: 19 metres, W: 2.5 metres, H:4.3 metres, M: 42.5 tonne.

The following HVs are subject to road network restrictions:

- RAVs (23 metres or 25/26 metres B-doubles, vehicles with a length larger than GAVs (19 metres))
- road trains (Type 1 A-double, modular B-triple, B-triple, AB-triple or Type 2 A-triple)
- OSOM vehicles, which are defined as a vehicle (or vehicle combination) that exceeds any general access mass or dimension limits.

The details of HV route restrictions within the amended traffic study area (TfNSW, 2023h) are shown in Figure 5-3a to f and are summarised in Attachment E. All the state roads and some regional roads such as Tumbarumba Road, Elliot Way, Grabben Gullen Road are approved for the movement of RAV and OSOM vehicles. However, none of the roads in the amended traffic study area are approved for movement of road trains. Local roads are generally not part of approved network for movement of RAV, road trains and OSOM vehicles. Within the State forest areas, RAV drivers are required to hold a current Forest Operator's Licence and follow the Contractor Haulage Operations Plans. This requirement applies on Elliot Way (a regional road), and 24 local roads in the Green Hills, Bago and Red Hill State forest (refer to Figure 5-3). This is common practice for haulage operators within the State forest areas.



Amended project footprint
Local Government Area
Watercourse
Railway

Substation

Heavy Vehicle Route Restrictions

Restricted Access vehicle : 25/26 M B-double

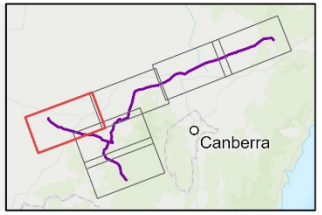
Restricted Access vehicle : 25/26 M B-double with conditions

General Access Vehicle

Approved

Oversize Over mass including 4.6 M Vehicles

Approved



Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

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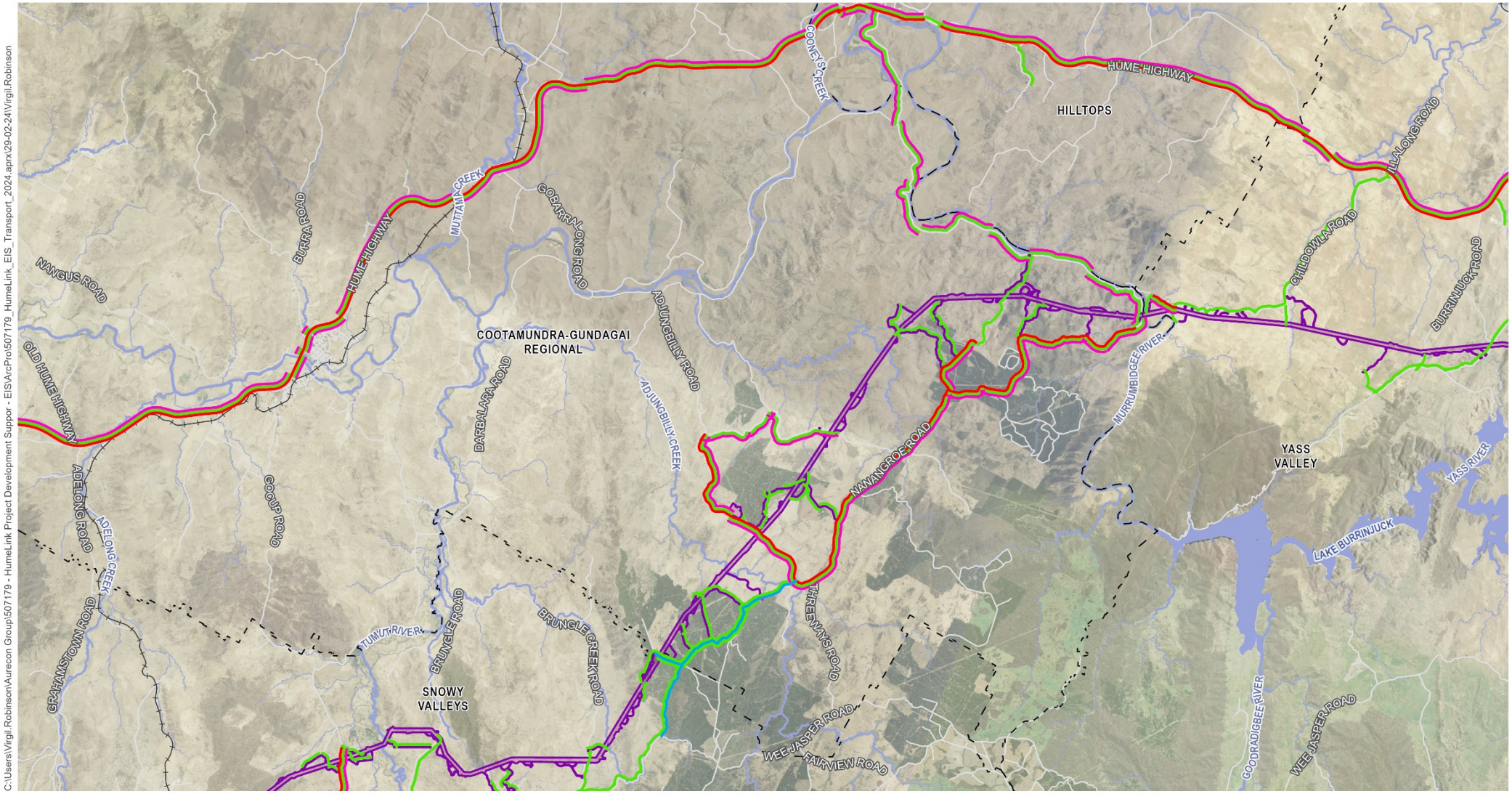
0 4 8km

Projection: GDA 1994 MGA Zone 55

Figure 5-3a: Location of TfNSW heavy vehicle route restrictions



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Amended project footprint

Local Government Area

Watercourse

Railway

Heavy Vehicle Route Restrictions

Restricted Access vehicle : 25/26 M B-double

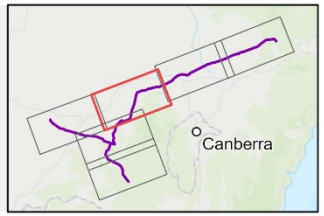
Restricted Access vehicle : 25/26 M B-double with conditions

General Access Vehicle

Approved

Oversize Over mass including 4.6 M Vehicles

Approved



Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

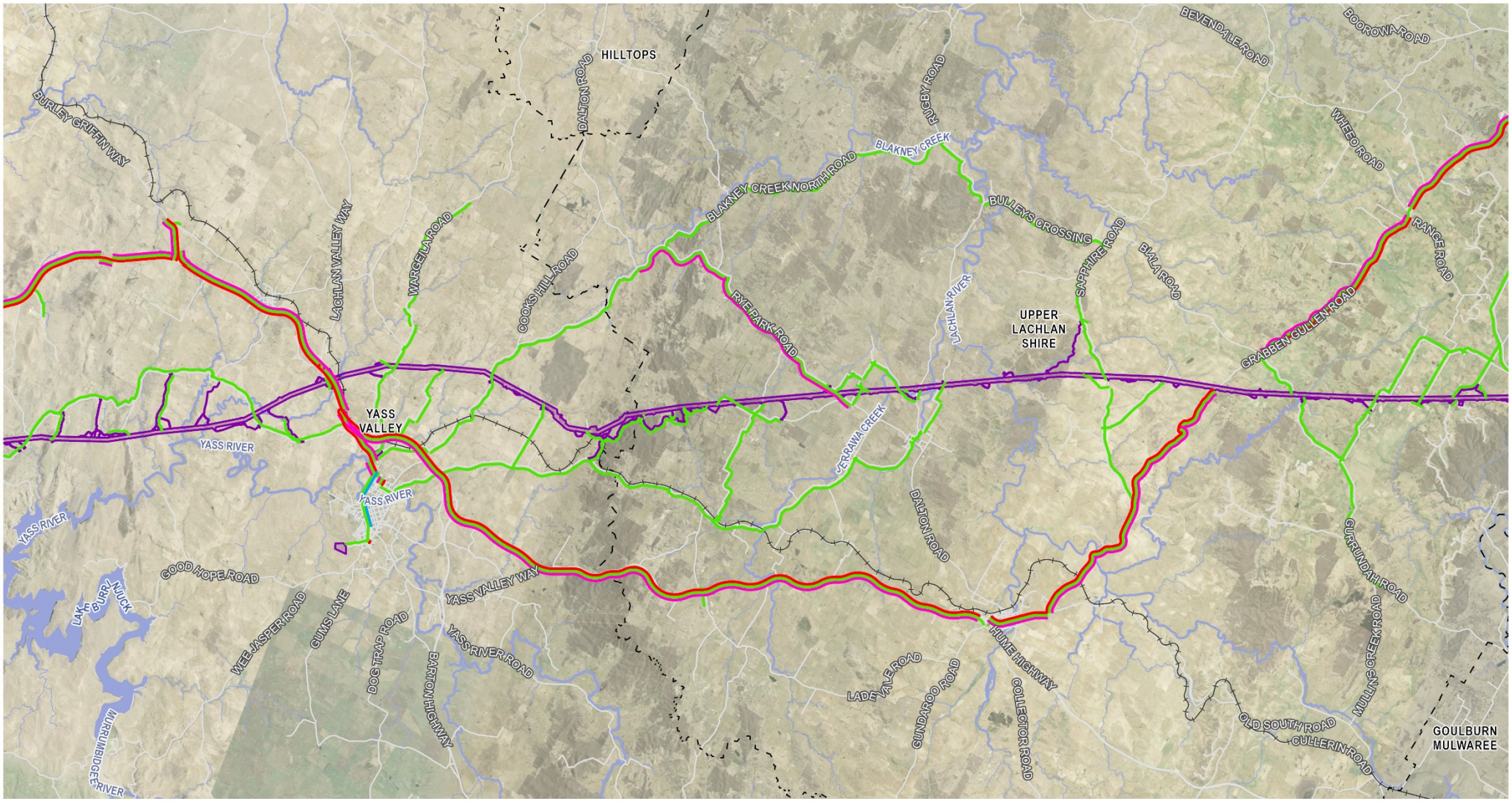
1:200,000

0 4 8km

Projection: GDA 1994 MGA Zone 55

HumeLink **Traffic and Transport Impact**

Figure 5-3b: Location of TfNSW heavy vehicle route restrictions



Amended project footprint

Local Government Area

Watercourse

Railway

Heavy Vehicle Route Restrictions

Restricted Access vehicle : 25/26 M B-double

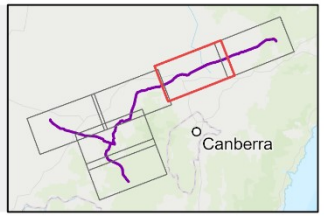
Restricted Access vehicle : 25/26 M B-double with conditions

General Access Vehicle

Approved

Oversize Over mass including 4.6 M Vehicles

Approved



Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

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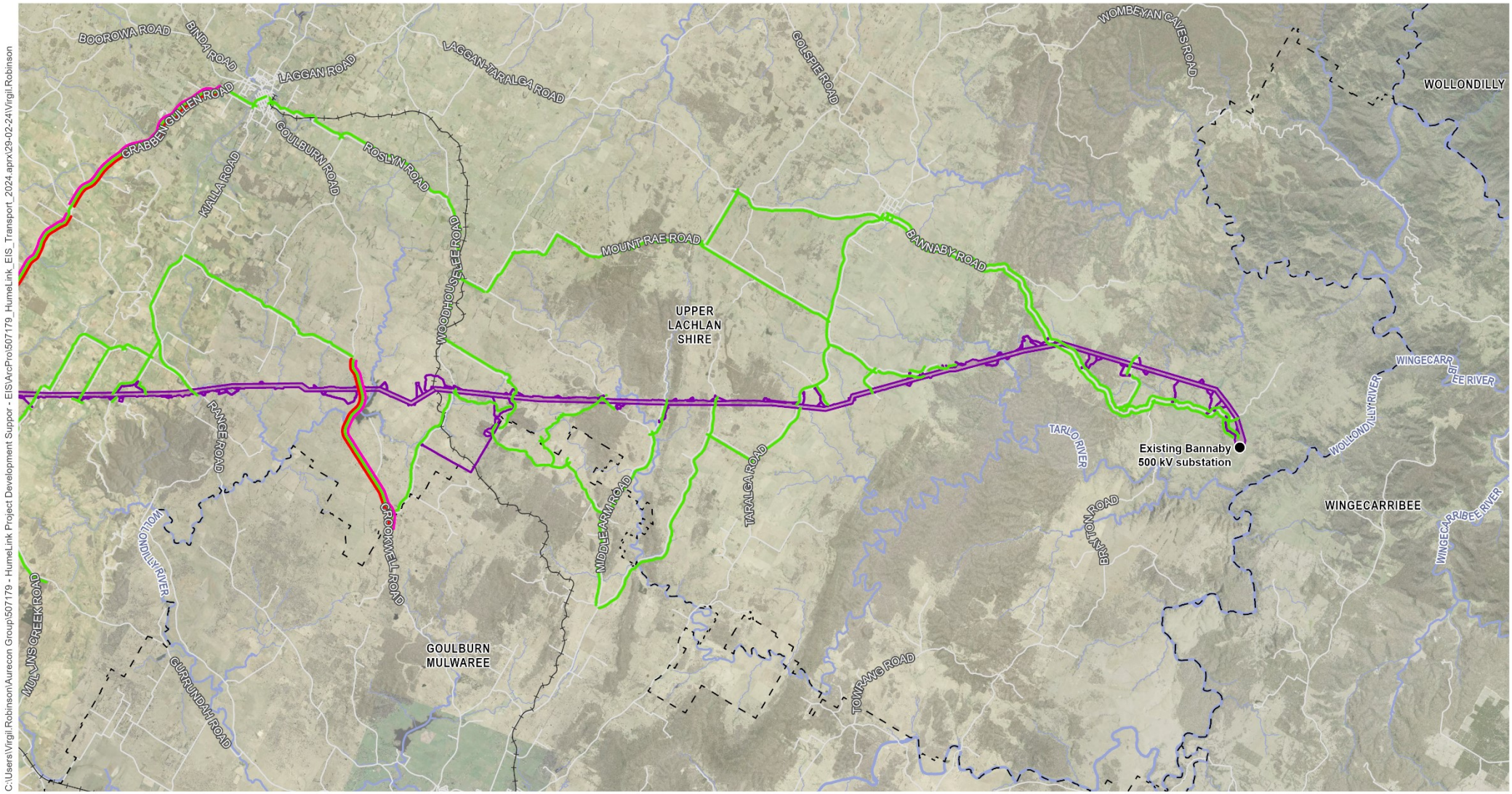
0 4 8km

Projection: GDA 1994 MGA Zone 55

Figure 5-3c: Location of TfNSW heavy vehicle route restrictions



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Amended project footprint

Local Government Area

Watercourse

Railway

Substation

Heavy Vehicle Route Restrictions

Restricted Access vehicle : 25/26 M B-double

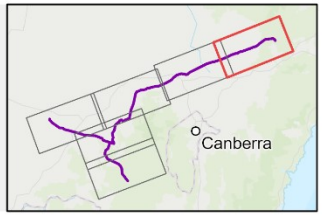
Restricted Access vehicle : 25/26 M B-double with conditions

General Access Vehicle

Approved

Oversize Over mass including 4.6 M Vehicles

Approved



Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

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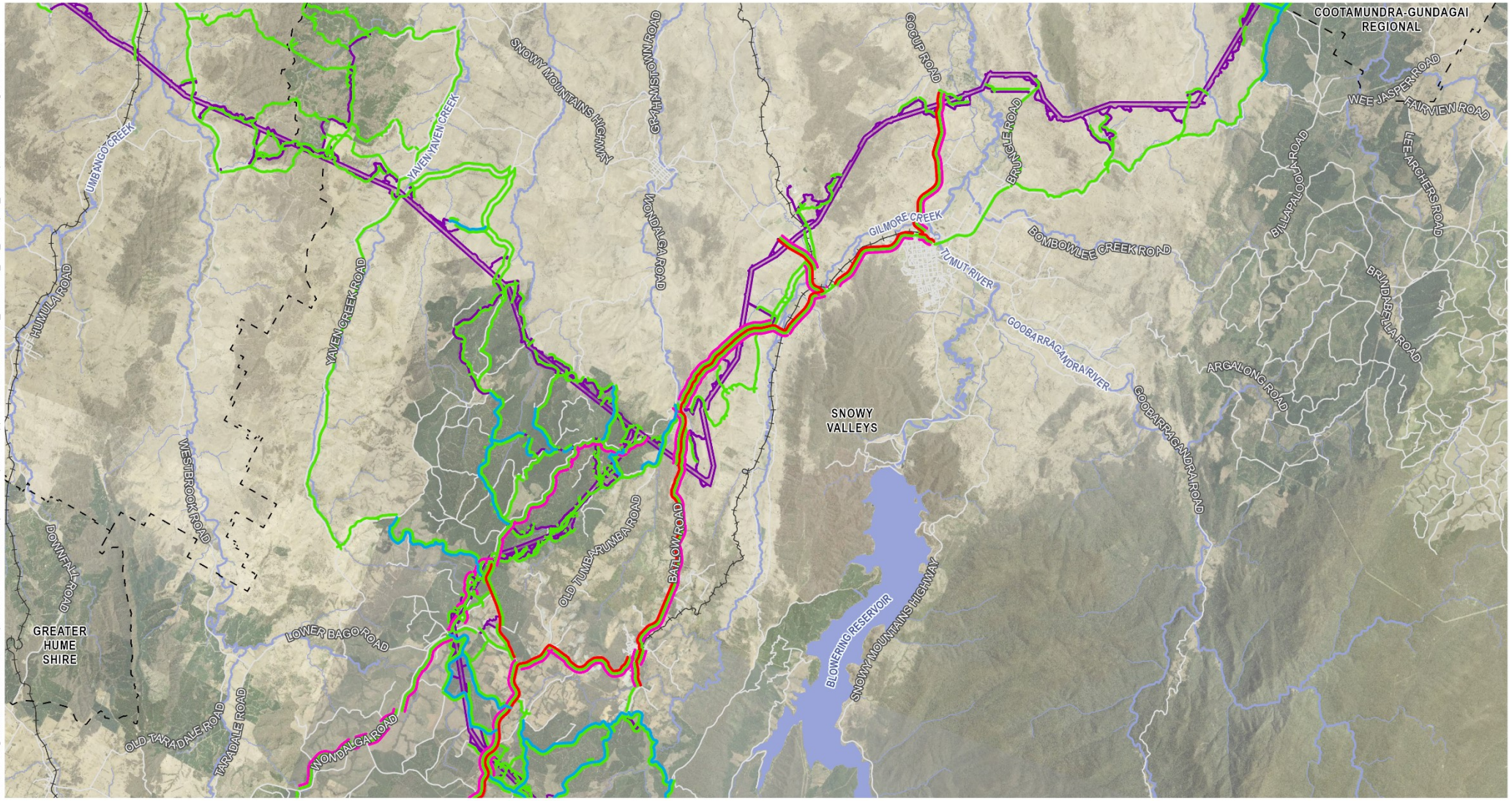
Projection: GDA 1994 MGA Zone 55

Figure 5-3d: Location of TfNSW heavy vehicle route restrictions



Amended project footprint

Local Government Area

Watercourse

Railway

Heavy Vehicle Route Restrictions

Restricted Access vehicle : 25/26 M B-double

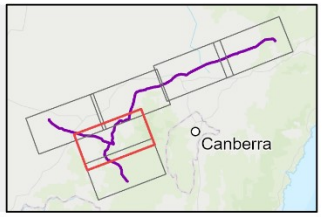
Restricted Access vehicle : 25/26 M B-double with conditions

General Access Vehicle

Approved

Oversize Over mass including 4.6 M Vehicles

Approved



Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

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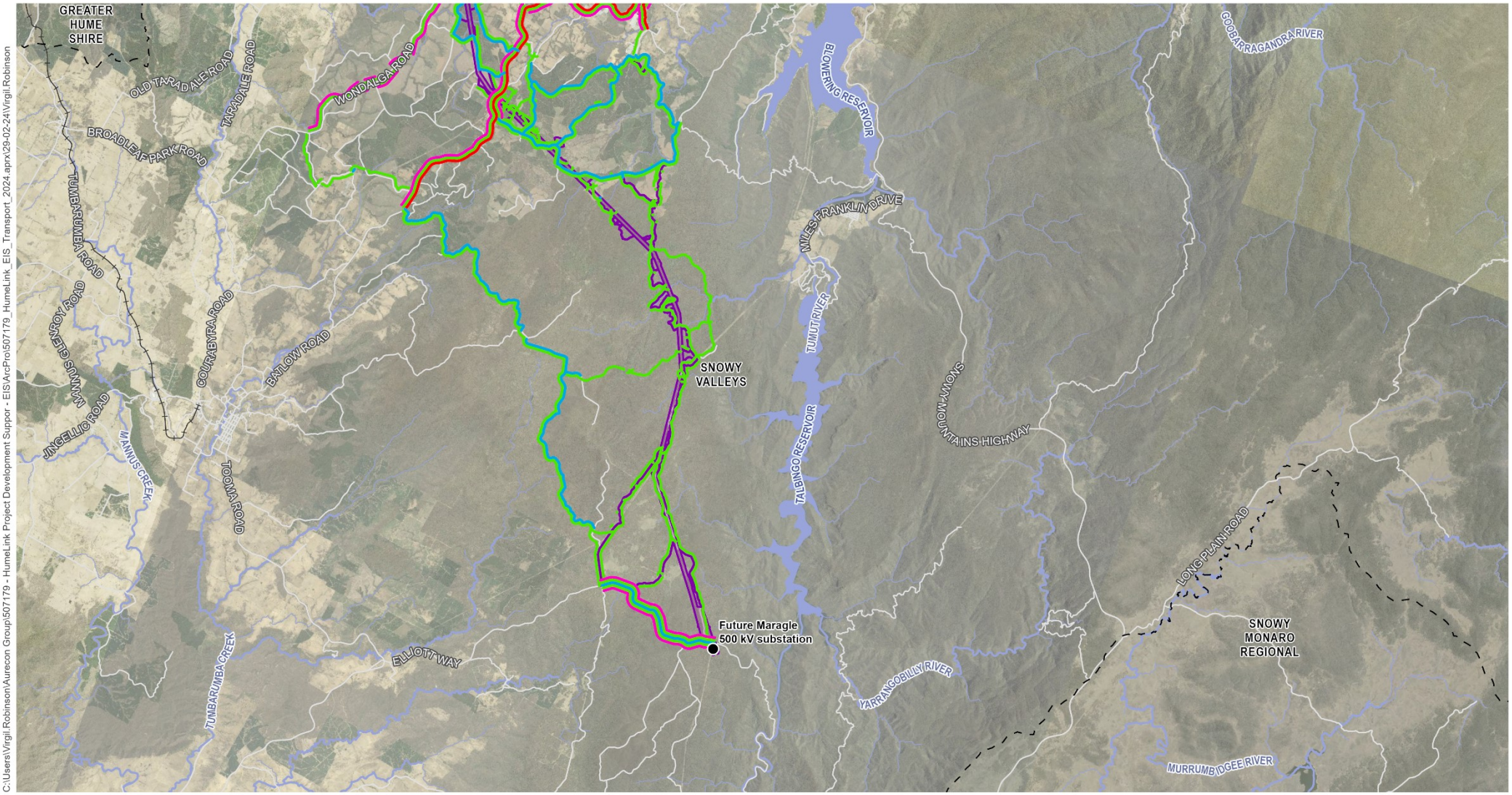
0 4 8km

Projection: GDA 1994 MGA Zone 55

Figure 5-3e: Location of TfNSW heavy vehicle route restrictions



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Amended project footprint

Local Government Area

Watercourse

Railway

Substation

Heavy Vehicle Route Restrictions

Restricted Access vehicle : 25/26 M B-double

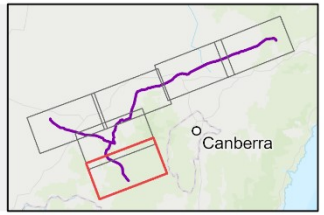
Restricted Access vehicle : 25/26 M B-double with conditions

General Access Vehicle

Approved

Oversize Over mass including 4.6 M Vehicles

Approved



Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

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0 4 8 km

Projection: GDA 1994 MGA Zone 55

Figure 5-3f: Location of TfNSW heavy vehicle route restrictions

5.5 Road safety on routes

Figure 5-4 shows the recorded road crashes and casualty crashes between 2018 and 2022, for the road network within the traffic study area (TfNSW, 2023c).

A breakdown of crashes along the roads in the amended traffic study area is shown in Table 5-2 to Table 5-8. The details identify the severity of the crash and location of the crash.

The crash statistics for all LGAs within the traffic study area are as follows:

- Wagga Wagga City LGA recorded 37 crashes
- Snowy Valleys LGA recorded 90 crashes
- Cootamundra-Gundagai Regional LGA recorded 99 crashes
- Yass Valley LGA recorded 123 crashes
- Upper Lachlan Shire LGA recorded 68 crashes
- Goulburn Mulwaree LGA recorded one crashes
- Hilltops LGA recorded 29 crashes.

Yass Valley LGA had the highest number of crashes on the access routes with 123 recorded crashes followed by Cootamundra-Gundagai Regional LGA with 99 recorded crashes, with the majority of the recorded crashes on the Hume Highway. Goulburn Mulwaree LGA had one recorded crash on the access routes. Crash data is recorded at intersections and sections of roads known as mid-blocks (sections of roads between two intersections).

Table 5-2 Summary of crashes along routes within Wagga Wagga City LGA (2018 to 2022)

Degree of crash	Number of crashes	Percentage
Fatal	1	3%
Serious injury	12	32%
Moderate injury	6	16%
Minor injury/other injury	2	5%
Non casualty	16	43%
Location of crash		
Midblock	32	86%
Intersection	5	14%

Table 5-3 Summary of crashes along routes within Snowy Valleys LGA (2018 to 2022)

Degree of crash	Number of crashes	Percentage
Fatal	4	4%
Serious injury	18	20%
Moderate injury	28	31%
Minor injury/other injury	8	9%
Non casualty	32	36%
Location of crash		
Midblock	68	76%
Intersection	22	24%

Table 5-4 Summary of crashes along routes within Cootamundra-Gundagai Regional LGA (2018 to 2022)

Degree of crash	Number of crashes	Percentage
Fatal	4	4%
Serious injury	27	27%
Moderate injury	18	18%
Minor injury/other injury	8	8%
Non casualty	42	42%
Location of crash		
Midblock	78	79%
Intersection	21	21%

Table 5-5 Summary of crashes along routes within Yass Valley LGA (2018 to 2022)

Degree of crash	Number of crashes	Percentage
Fatal	3	2%
Serious injury	6	5%
Moderate injury	41	33%
Minor injury/other injury	23	19%
Non-casualty	50	41%
Location of crash		
Midblock	94	76%
Intersection	29	24%

Table 5-6 Summary of crashes along routes within Upper Lachlan Shire LGA (2018 to 2022)

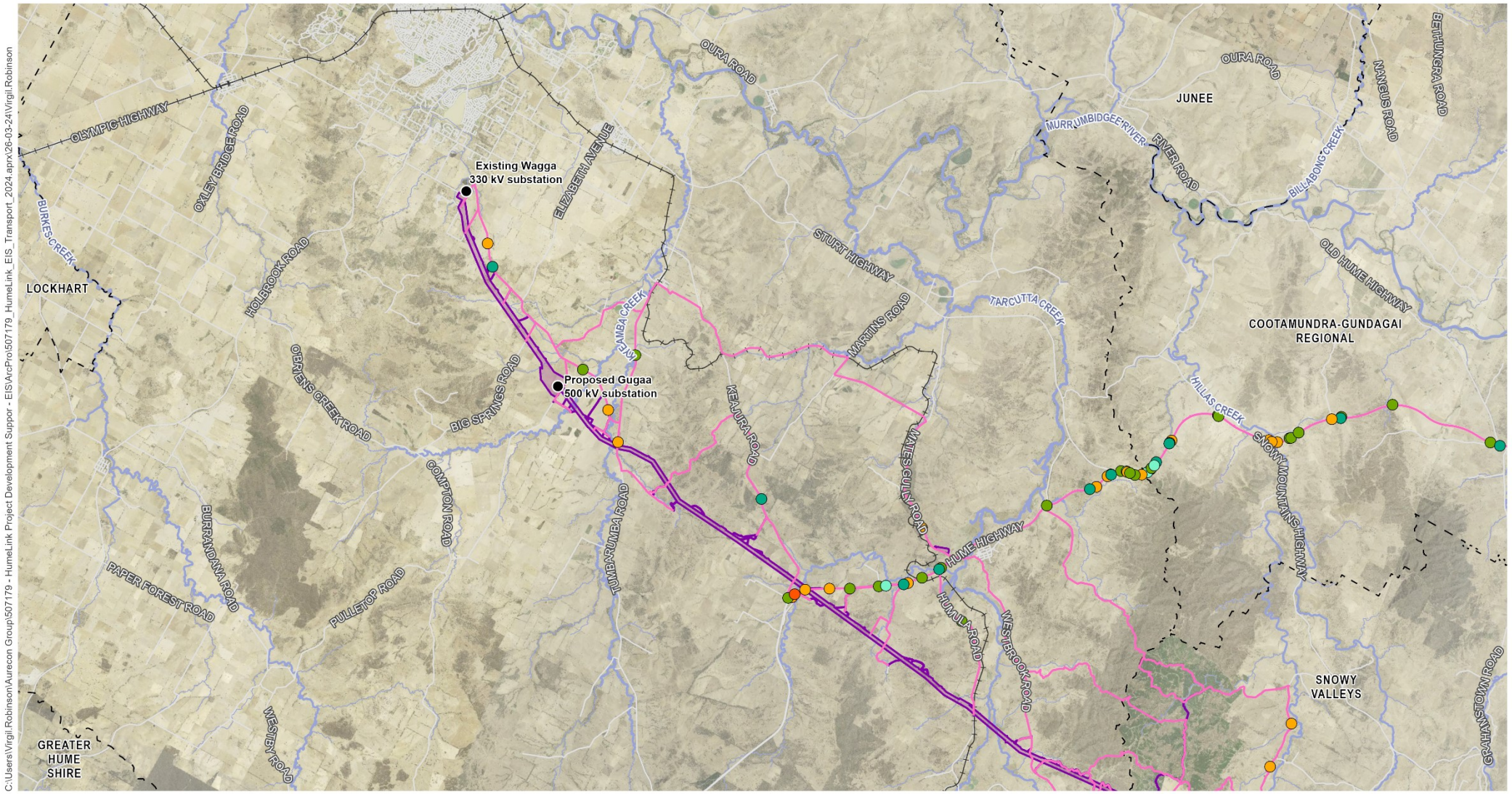
Degree of crash	Number of crashes	Percentage
Fatal	3	4%
Serious injury	7	10%
Moderate injury	23	34%
Minor injury/other injury	15	22%
Non-casualty	20	29%
Location of crash		
Midblock	63	93%
Intersection	5	7%

Table 5-7 Summary of crashes along routes within Goulburn Mulwaree LGA (2018 to 2022)

Degree of crash	Number of crashes	Percentage
Fatal	0	0%
Serious injury	1	100%
Moderate injury	0	0%
Minor injury/other injury	0	0%
Non-casualty	0	0%
Location of crash		
Midblock	1	100%
Intersection	0	0%

Table 5-8 Summary of crashes along routes within Hilltops LGA (2018 to 2022)

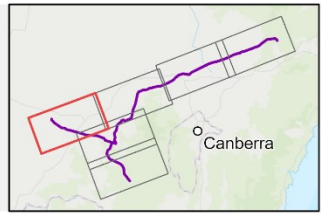
Degree of crash	Number of crashes	Percentage
Fatal	0	0%
Serious injury	6	33%
Moderate injury	6	33%
Minor injury/other injury	4	22%
Non-casualty	2	11%
Location of crash		
Midblock	25	86%
Intersection	4	14%



Amended project footprint
Local Government Area
Traffic study area – indicative access routes
Watercourse
Railway
Substation

Crash locations

Fatal
Minor/Other Injury
Moderate Injury
Non-casualty (towaway)
Serious Injury

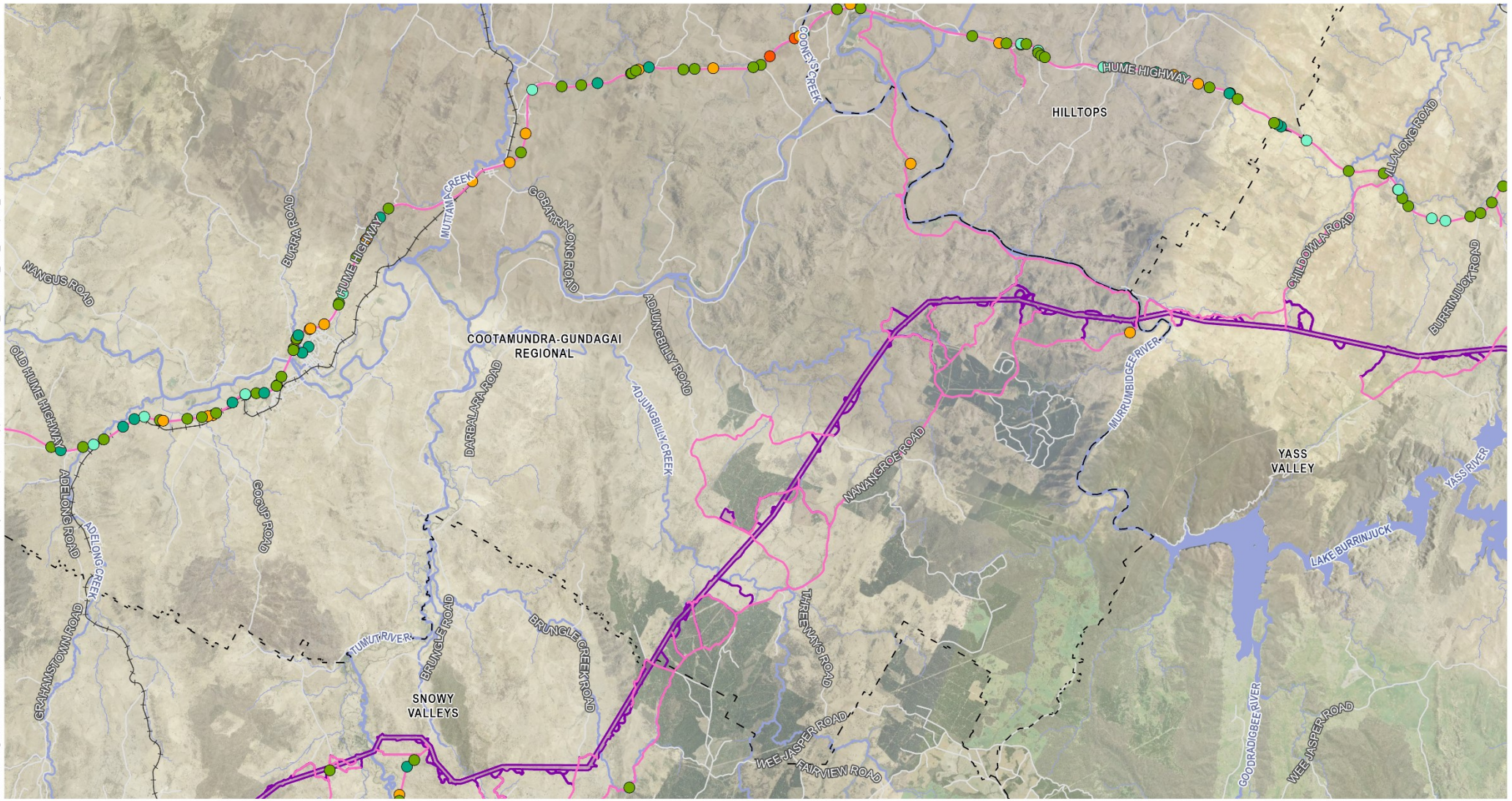


Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:200,000
0 4 8 km

Projection: GDA 1994 MGA Zone 55

Figure 5-4a: Crash locations along the road network providing indicative access to the amended project



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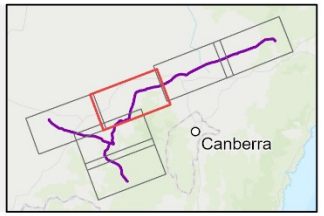
Amended project footprint
Local Government Area
Traffic study area – indicative access routes
Watercourse
Railway

Crash locations

Fatal
Minor/Other Injury
Moderate Injury
Non-casualty (towaway)
Serious Injury



Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

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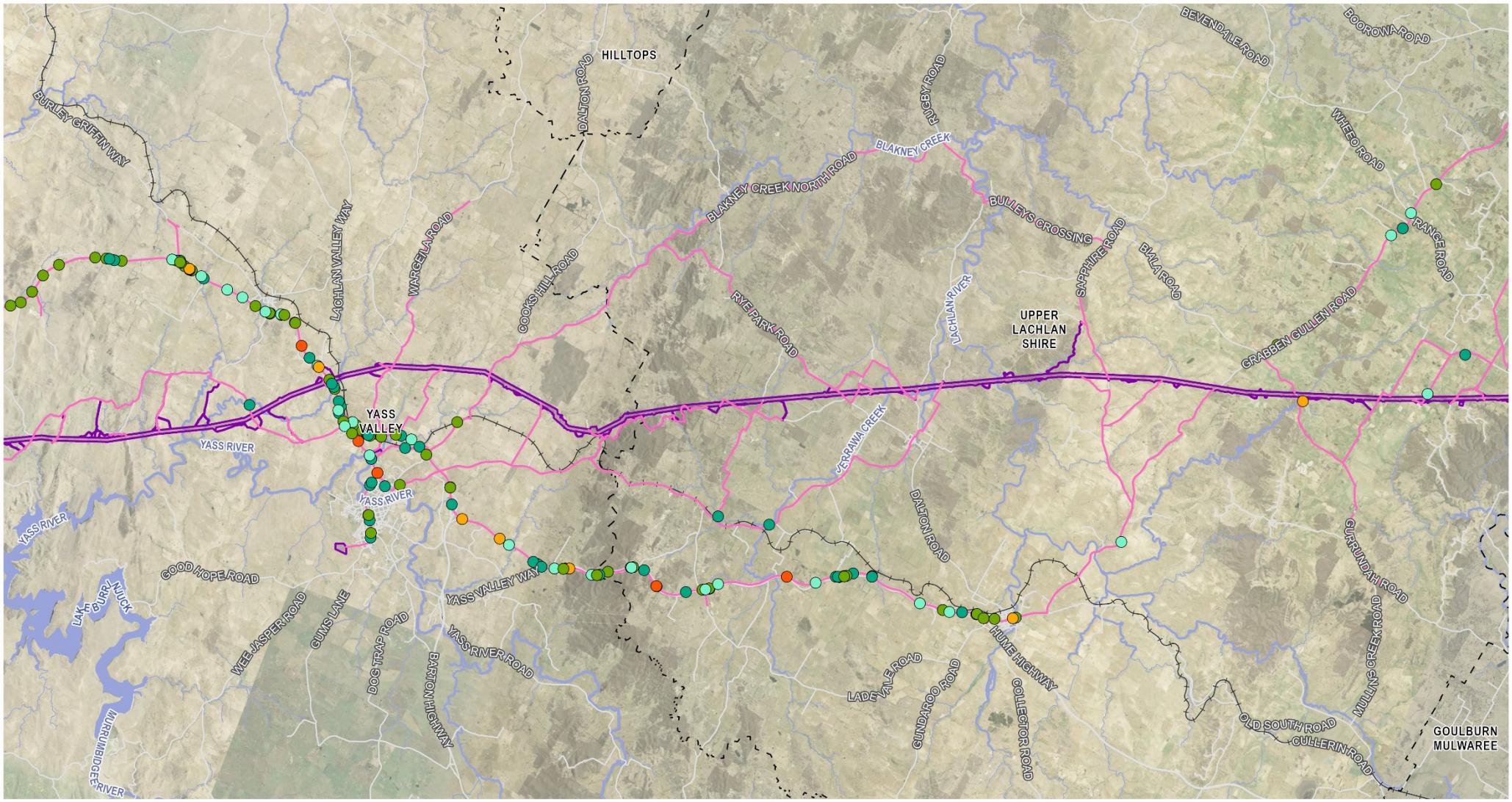
0 4 8km

Projection: GDA 1994 MGA Zone 55

Figure 5-4b: Crash locations along the road network providing indicative access to the amended project



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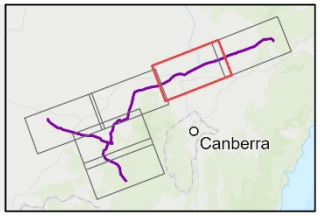
Amended project footprint
Local Government Area
Traffic study area – indicative access routes
Watercourse
Railway

Crash locations

Fatal
Minor/Other Injury
Moderate Injury
Non-casualty (towaway)
Serious Injury

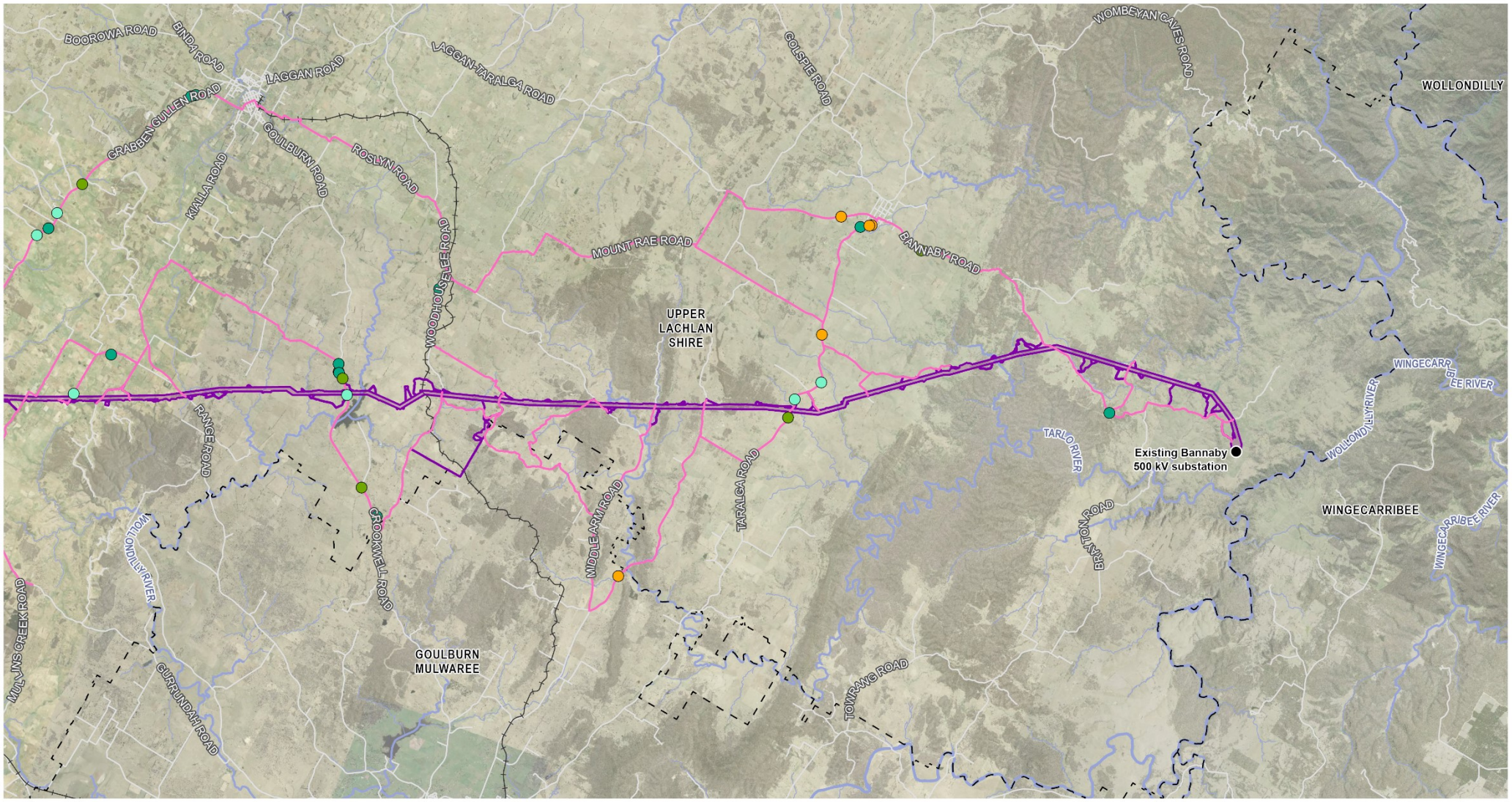


Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:200,000
0 4 8km

Projection: GDA 1994 MGA Zone 55

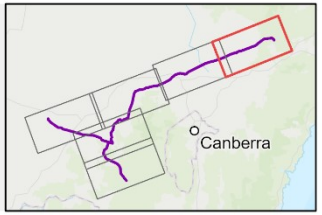
Figure 5-4c: Crash locations along the road network providing indicative access to the amended project



Amended project footprint
Local Government Area
Traffic study area – indicative access routes
Watercourse
Railway
Substation

Crash locations

Fatal
Minor/Other Injury
Moderate Injury
Non-casualty (towaway)
Serious Injury



Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

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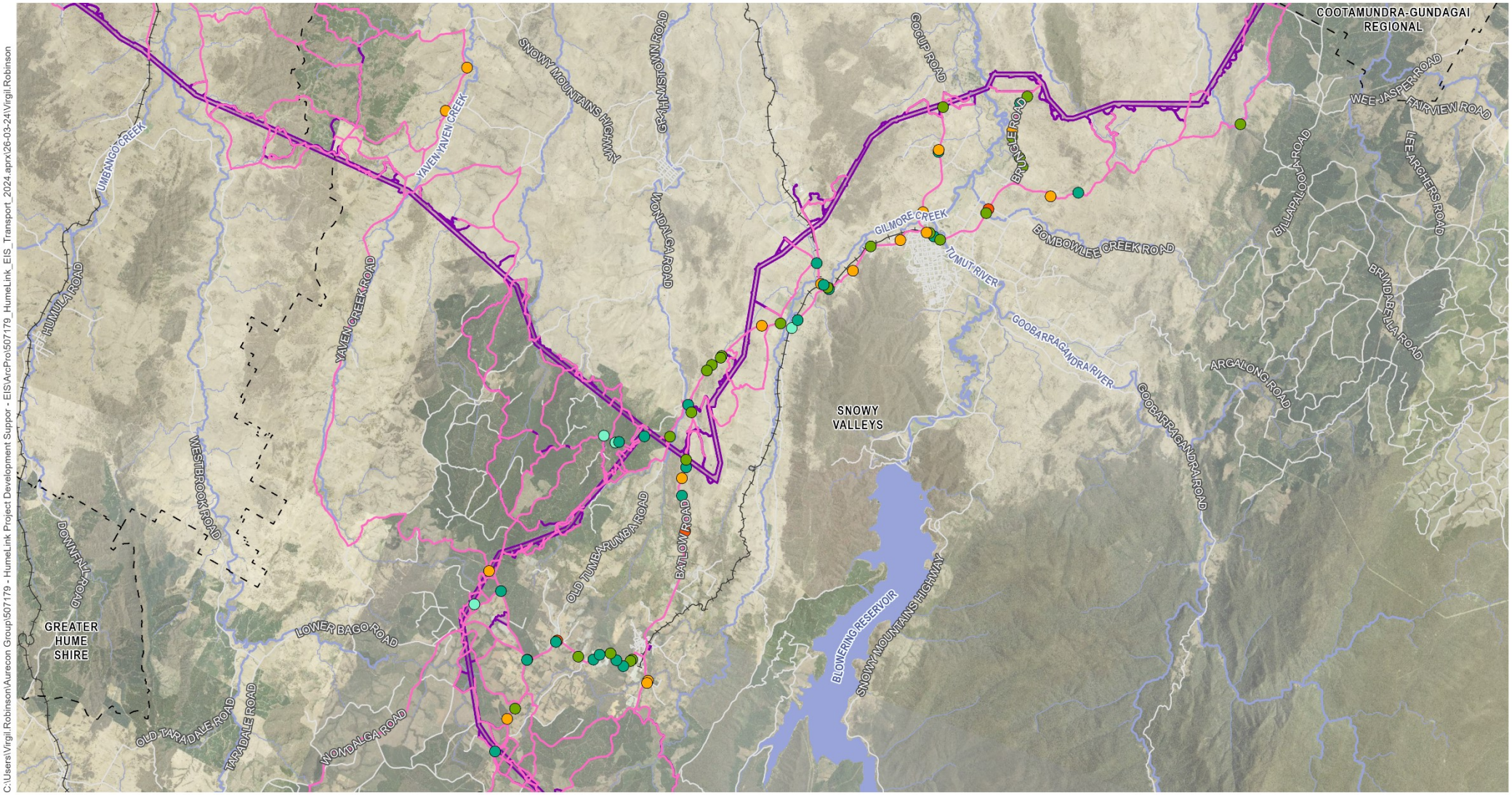
Projection: GDA 1994 MGA Zone 55

Figure 5-4d: Crash locations along the road network providing indicative access to the amended project



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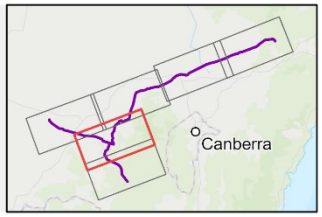
Amended project footprint
Local Government Area
Traffic study area – indicative access routes
Watercourse
Railway

Crash locations

Fatal
Minor/Other Injury
Moderate Injury
Non-casualty (towaway)
Serious Injury

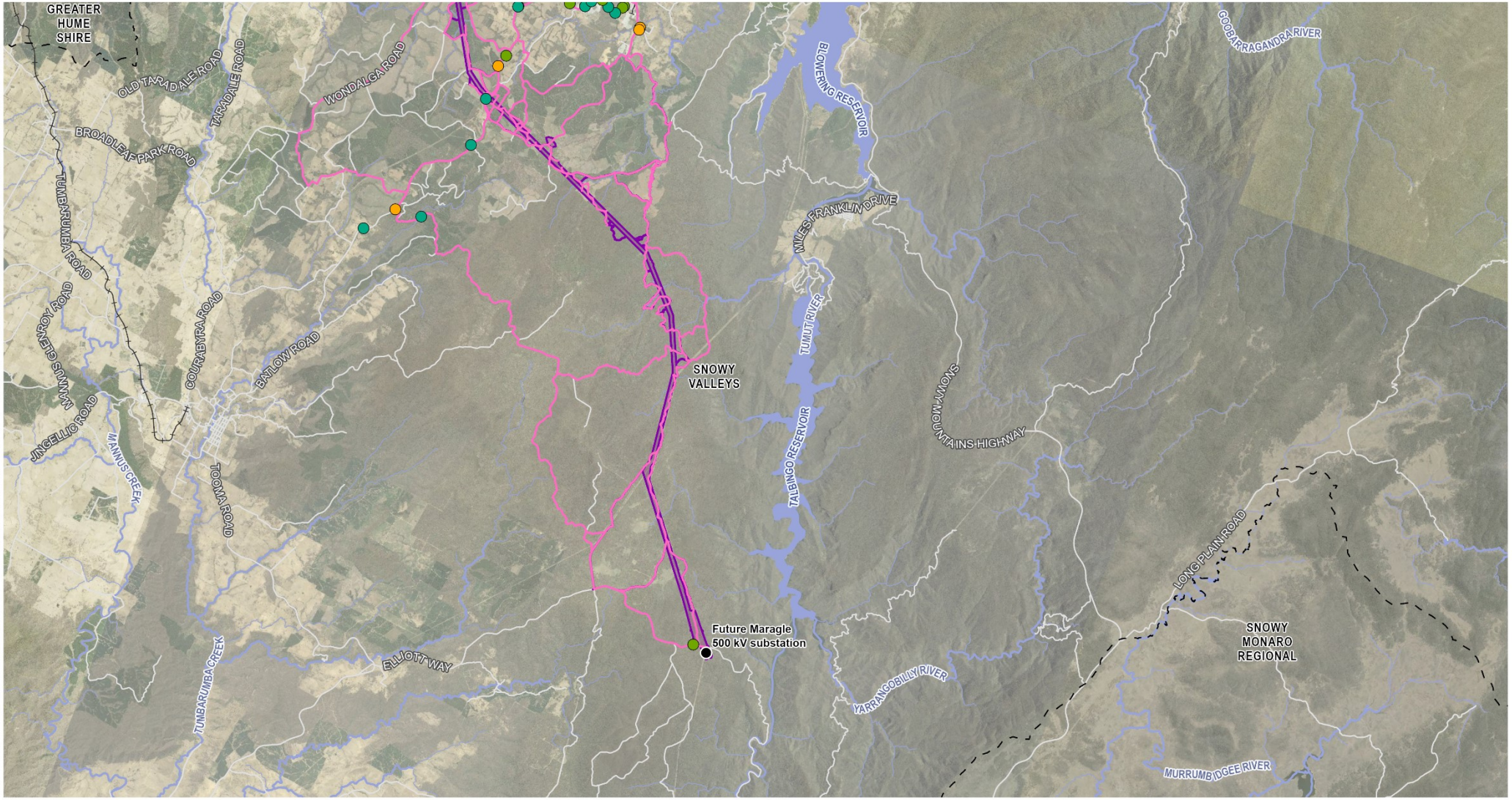


Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:200,000
0 4 8km

Projection: GDA 1994 MGA Zone 55

Figure 5-4e: Crash locations along the road network providing indicative access to the amended project



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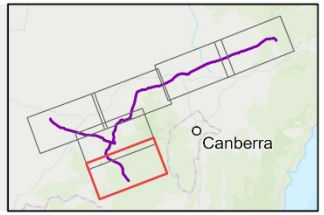
Amended project footprint
Local Government Area
Traffic study area – indicative access routes
Watercourse
Railway
Substation

Crash locations

Fatal
Minor/Other Injury
Moderate Injury
Non-casualty (towaway)
Serious Injury



Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:200,000
0 4 8 km

Projection: GDA 1994 MGA Zone 55

HumeLink **Traffic and Transport Impact**

Figure 5-4f: Crash locations along the road network providing indicative access to the amended project

5.6 Active transport

Active transport facilities include dedicated on-road or off-road infrastructure, which allow safe movement of pedestrians and cyclists. These can be segregated in the form of footpaths or dedicated pathways shared by pedestrians and cyclists.

Active transport facilities in towns with access to the amended project footprint as indicated on Cycleway Finder (TfNSW, 2023e) are shown in Table 5-9. Satellite imagery for some of the on-street cycling facilities indicated in Cycleway Finder (TfNSW, 2023e) suggest that these facilities are roads with wide shoulders. Roads outside these towns generally do not have active transport facilities.

Table 5-9 Roads in towns with active transport facilities

Town	Road with active transport facility
Batlow	Reddy Street, Mayday Road, Pioneer Street
Crookwell	N/A
Dalton	No roads with active transport facility
Taralga	No roads with active transport facility
Tarcutta	No roads with active transport facility
Tumut	Fitzroy Street
Yass	Comur Street, Laidlaw Street, Warro Road and Grand Junction Road

5.7 Public transport

5.7.1 Regional train and coach network

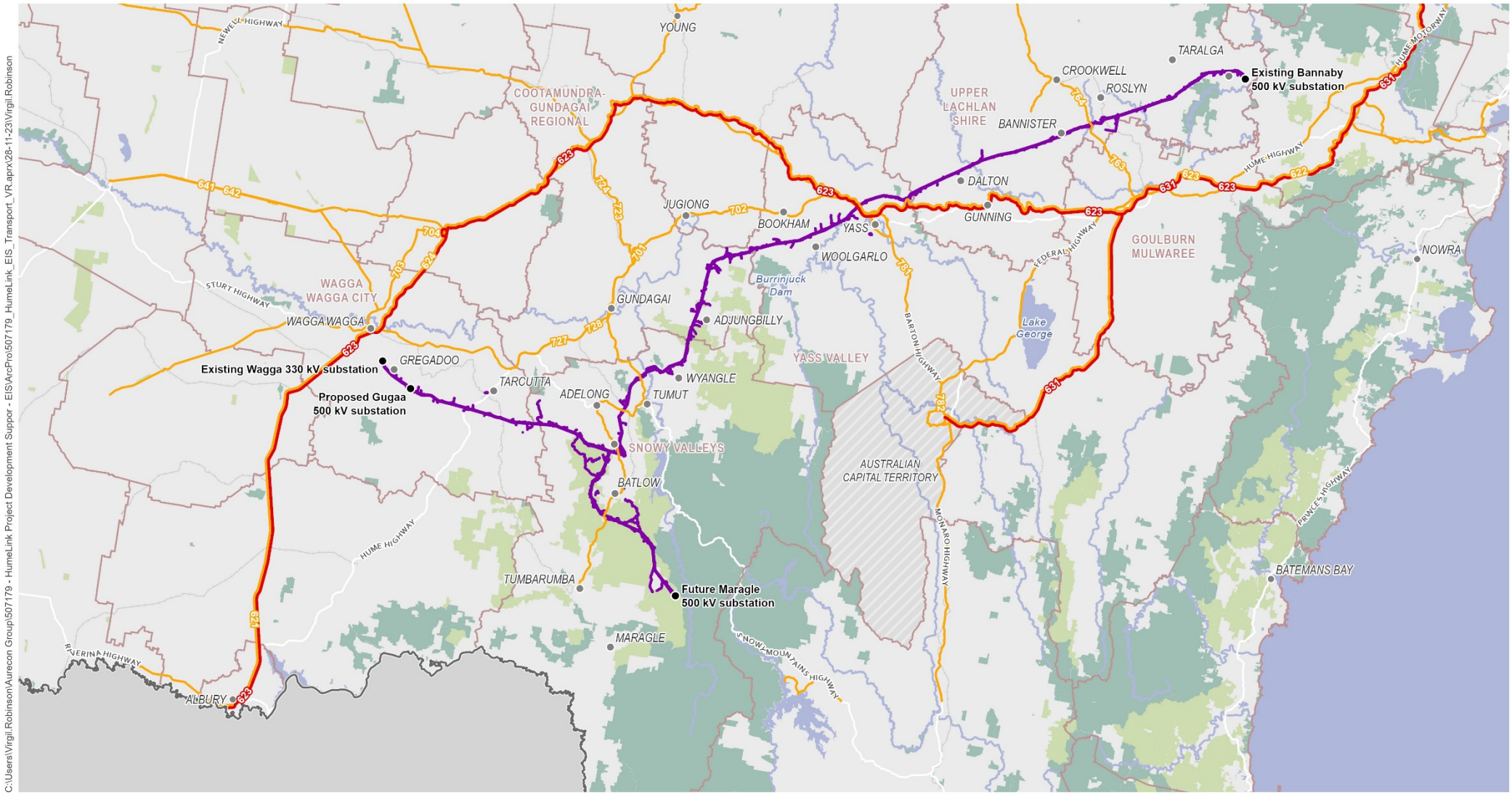
NSW TrainLink's publicly available website provides information on regional train and coach services within NSW and Australian Capital Territory (ACT) (TfNSW, 2023d). According to the website, services operating within the amended traffic study area are generally scheduled once daily or several times a week. Figure 5-5 shows the regional rail and coach network while Table 5-10 shows the route and service frequency of services.

Table 5-10 Regional train and coach services within the amended traffic study area

Route Number	Route	Network and operator	Service frequency
621	Sydney to Melbourne	NSW TrainLink train service	Once daily
622	Melbourne to Sydney	NSW TrainLink train service	Once daily
623	Sydney to Melbourne	NSW TrainLink train service	Once daily
624	Melbourne to Sydney	NSW TrainLink train service	Once daily
641	Goulburn to Griffith	NSW TrainLink train service	Once Wednesday and Saturday
642	Griffith to Goulburn	NSW TrainLink train service	Once Thursday and Sunday
701	Queanbeyan to Wagga Wagga	NSW TrainLink coach service	Once on Monday and Friday
702	Wagga Wagga to Queanbeyan	NSW TrainLink coach service	Once on Monday and Friday
703	Queanbeyan to Wagga Wagga	NSW TrainLink coach service	Once on Tuesday, Thursday and Saturday.
704	Wagga Wagga to Queanbeyan	NSW TrainLink coach service	Once on Tuesday, Thursday and Saturday.
723	Cootamundra to Tumbarumba	NSW TrainLink coach service	Once on Tuesday, Thursday and Sunday.
724	Tumbarumba to Cootamundra	NSW TrainLink coach service	Once on Tuesday, Thursday and Sunday.

Route Number	Route	Network and operator	Service frequency
727	Wagga Wagga to Tumbarumba	NSW TrainLink coach service	Once on Monday, Wednesday and Friday.
728	Tumbarumba to Wagga Wagga	NSW TrainLink coach service	Once on Monday, Wednesday and Friday.
782	Cootamundra to Queanbeyan	NSW TrainLink coach service	Once daily.
781	Queanbeyan to Cootamundra.	NSW TrainLink coach service	Once daily.

Source: NSW TrainLink, Southern NSW network timetable (TfNSW, 2022d)



Source: *Aurecon, Transgrid, TfNSW, Spatial Services (DCS), ESRI Basemap*

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0 20 40km

Projection: GDA 1994 MGA Zone 55

Figure 5-5: TfNSW regional train and coach network (TfNSW, 2022d)

5.7.2 Bus services

This section details the existing bus services within major towns operated by local private operators.

5.7.2.1 Yass Valley LGA

Bus services in Yass Valley LGA are operated by CDC Canberra (2023), formerly operated by Transborder Express (Transborder 2022) with these services connecting Yass Valley to Canberra. Figure 5-6 shows the bus service network in Yass Valley with roads anticipated for access to the amended project shown in red dash line. Details of bus services is described in Table 5-11. The routes to access the amended project include roads along the bus routes including Orion Street, Hume Street, Pollux Street, Laidlaw Street, Comur Street, Yass Valley Way and Barton Highway.

Table 5-11 Bus services route information for Yass Valley LGA

Route number	Route	Frequency
842	Yass to Canberra Hospital via Murrumbateman, Canberra City (Civic), Reid, Russell, Barton and Woden.	Three times daily from Monday to Friday
843	Yass to Canberra City (Civic) via Murrumbateman, Hall and Belconnen.	Once daily from Monday to Friday

Source: CDC Canberra timetable (CDC Canberra, 2023)

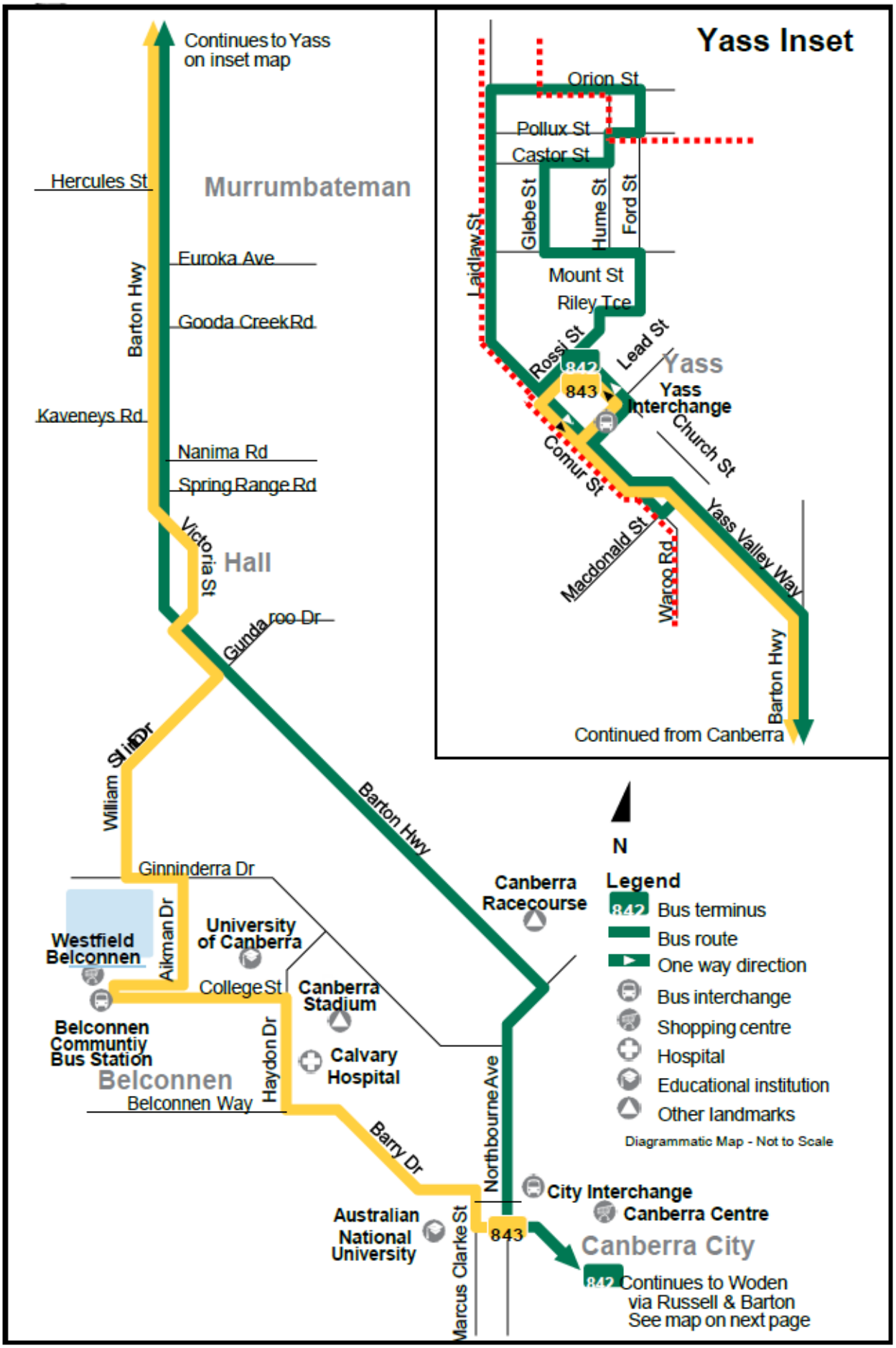


Figure 5-6 Existing bus services network in Yass Valley and access routes shown in red dash line

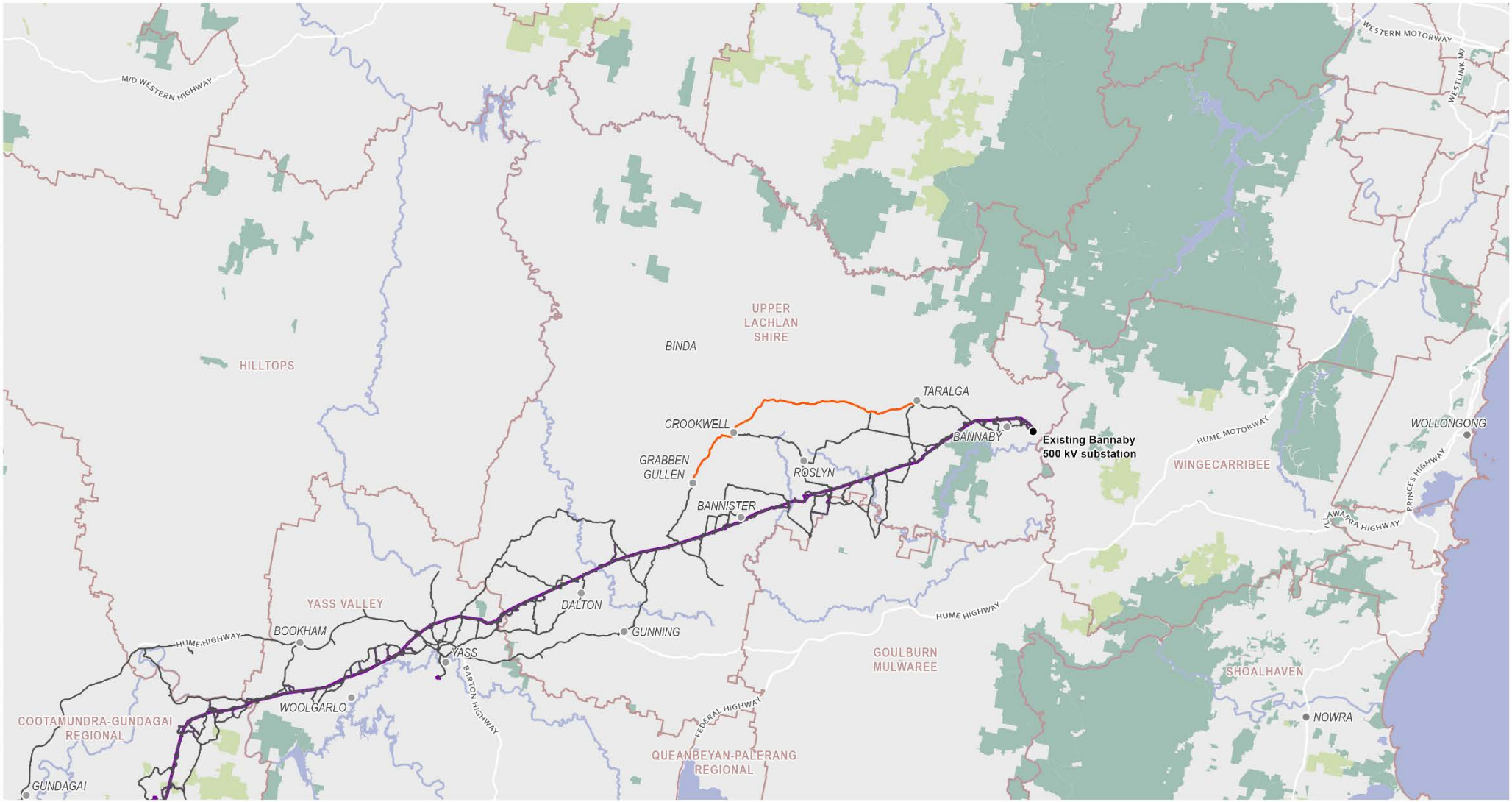
Source: Transborder Express timetable (Transborder 2022)

5.7.2.2 Upper Lachlan Shire LGA

In the Upper Lachlan Shire LGA, Valmar Community Transport provides transport services to people with disabilities and people who are transport disadvantaged (Upper Lachlan Shire Council, 2022). The transport services connect Crookwell to Bigga, Binda, Grabben Gullen, Tunea and Taralga. Table 5-12 outlines the bus/transport services run by Valmar Community Transport within Upper Lachlan Shire LGA. Figure 5-7 shows the community transport services network in Upper Lachlan Shire LGA.

Table 5-12 Bus services route information for Upper Lachlan Shire LGA

Route	Frequency
Taralga - Crookwell	Fortnightly service on Wednesday
Grabben – Gullen - Crookwell	Fortnightly service on Thursday



Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

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Projection: GDA 1994 MGA Zone 55

FIGURE 5-7: Valmar community transport network in Upper Lachlan Shire

5.7.2.3 Private bus services

Private bus services in the amended project study area are provided by PBC Crookwell, Live Better and Goode's Coaches. Table 5-13 outlines the private bus/transportation services within the amended project area.

Table 5-13 Private bus services route information

Route Number	Route	Network and operator	Service frequency
818	Crookwell to Goulburn	PBC Crookwell	Three times daily from Monday to Friday
899	Wyangala to Canberra	Live Better	Once on Friday
998	Tumut to Wagga Wagga	Goode's Coaches	Once on Wednesday and Saturday

5.7.2.4 School bus services

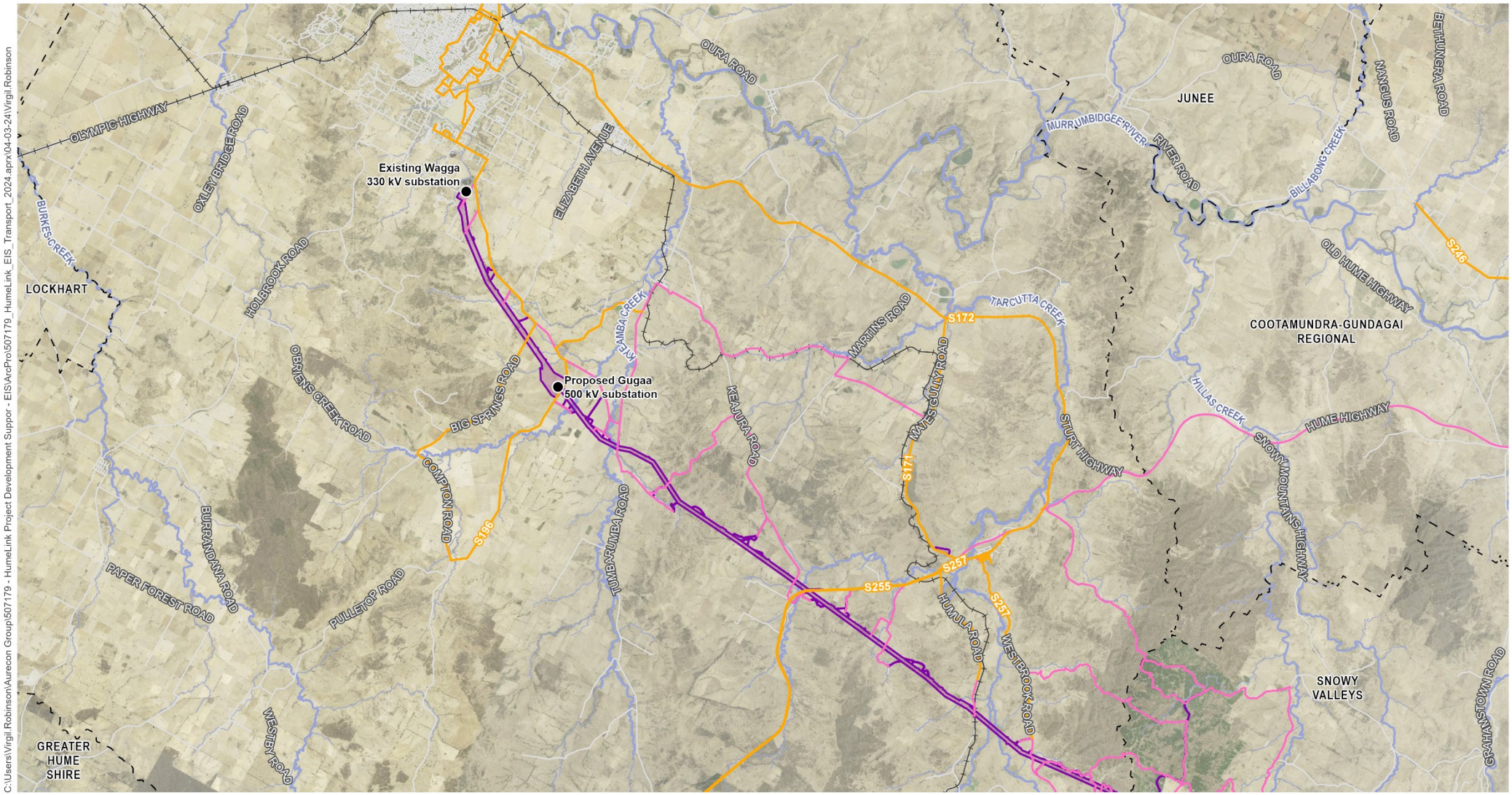
School bus services in the amended project area, are provided by Busabout Wagga, Qcity Transit, IL & CM Kennedy, Makeham's Coaches, Qcity Transit and SL & SL Hardwick. Table 5-14 outlines the school bus/transportation services provided within the amended project study area. Figure 5-8 a to f shows the school bus services along the amended study area.

Table 5-14 School bus services route information

Route Number	Route	Service Operator	Service Frequency
S113	Murrumbateman to Yass High (Wallaby Service)	Qcity Transit	Once every Morning from Monday to Friday
S117	Yass to St Clares College via Hall Interchange (Emu Service)	Qcity Transit	Once every Morning from Monday to Friday
S171	Tarcutta to St Josephs Primary	Busabout Wagga	Once every Morning from Monday to Friday
S172	Wagga Wagga Primary to Tarcutta	Busabout Wagga	Once every Afternoon from Monday to Friday
S193	St Josephs Primary to Yass Rossi St via Hall Interchange (Wombat Service)	Qcity Transit	Once every Afternoon from Monday to Friday
S196	South Wagga Wagga Primary to Big Springs	Busabout Wagga	Once every Morning and Afternoon from Monday to Friday
S196	Majura Primary to Yass Rossi St via Hall Interchange (Kangaroo Service)	Qcity Transit	Once every Afternoon from Monday to Friday
S201	Marist College to Yass Rossi St via Hall Interchange (Emu Service)	Qcity Transit	Once every Afternoon from Monday to Friday
S208	Yass Rossi St to Turner Primary via Hall Interchange (Wombat Service)	Qcity Transit	Once every Morning from Monday to Friday
S213	Yass Rossi St to Daramalan College via Hall Interchange (Eagle Service)	Qcity Transit	Once every Morning from Monday to Friday
S214	Daramalan College to Yass Rossi St via Hall Interchange (Eagle Service)	Qcity Transit	Once every Afternoon from Monday to Friday
S215	Marist College Canberra to Yass via Murrumbateman (Kookaburra Service)	Qcity Transit	Once every Morning and Afternoon from Monday to Friday
S246	Gundagai Schools to Tarrabandra via Jackalass	Makeham's Coaches	Once every Morning and Afternoon from Monday to Friday
S247	Gundagai Schools to Tumblong Lewins Lane via Minjary and Snowball Rd	Makeham's Coaches	Once every Morning and Afternoon from Monday to Friday
S255	Tarcutta to Keajura via Kyeamba	IL & CM Kennedy	Once every Morning and Afternoon from Monday to Friday

Route Number	Route	Service Operator	Service Frequency
S257	Tarcutta to Westbrook Rd and Humula Rd	SL & SL Hardwick	Once every Morning and Afternoon from Monday to Friday
S265	Yass to Gundaroo Shingle Hill Way via Murrumbateman (Cockatoo Service)	Qcity Transit	Once every Morning and Afternoon from Monday to Friday

Source: TfNSW Bus Timetable (TfNSW, 2024)



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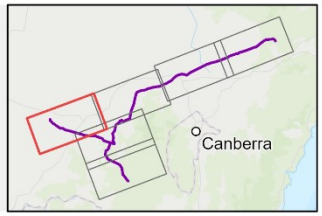
Amended project footprint
Local Government Area
School bus services
Traffic study area – indicative access routes
Watercourse
Railway
Substation



Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

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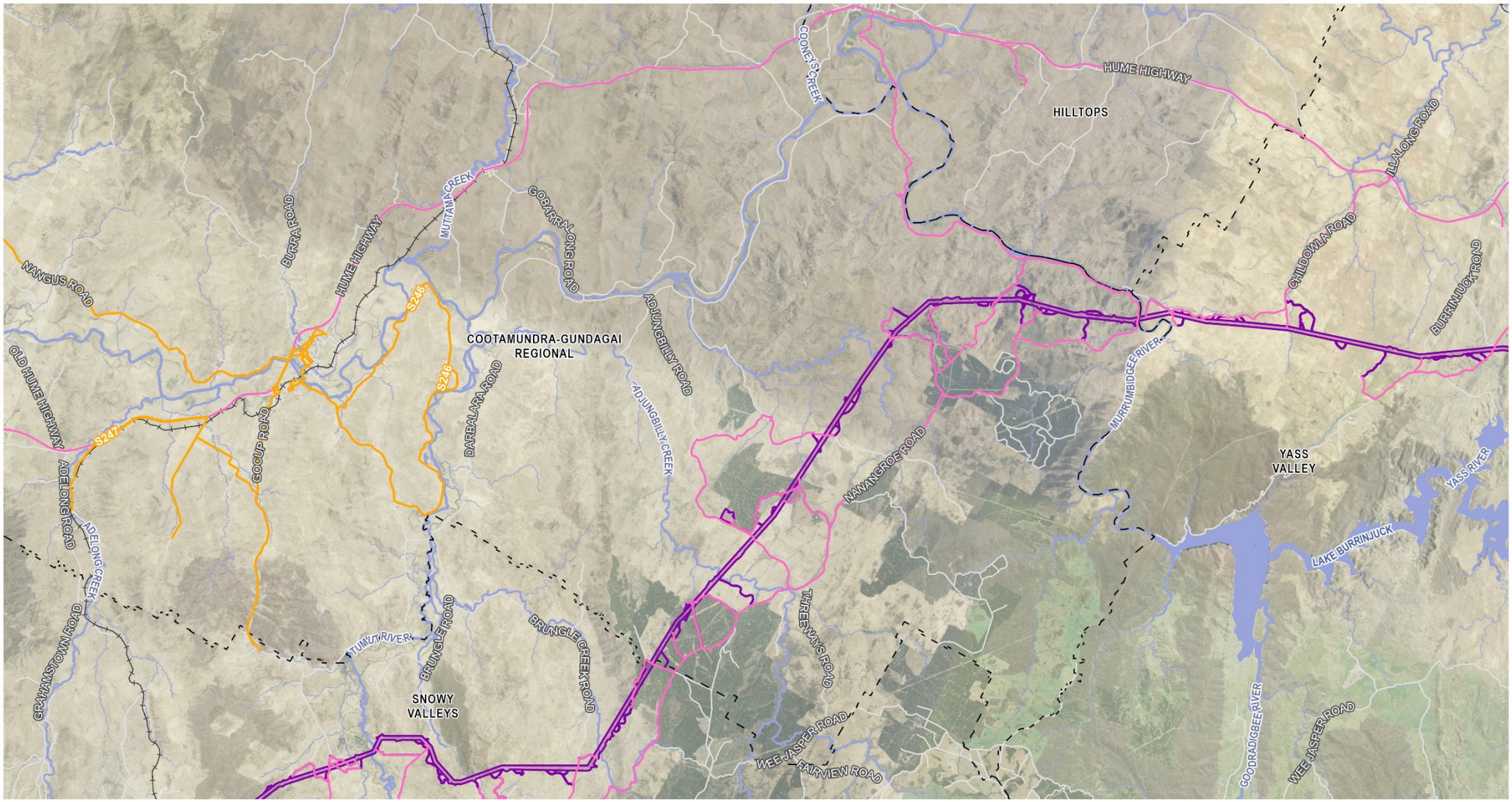
Projection: GDA 1994 MGA Zone 55

HumeLink **Traffic and Transport Impact**

Figure 5-8a: School bus services along the amended project



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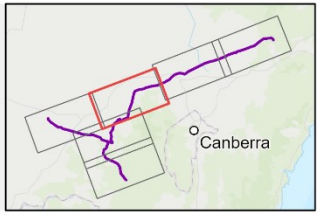
Amended project footprint
Local Government Area
School bus services
Traffic study area – indicative access routes
Watercourse
Railway



Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

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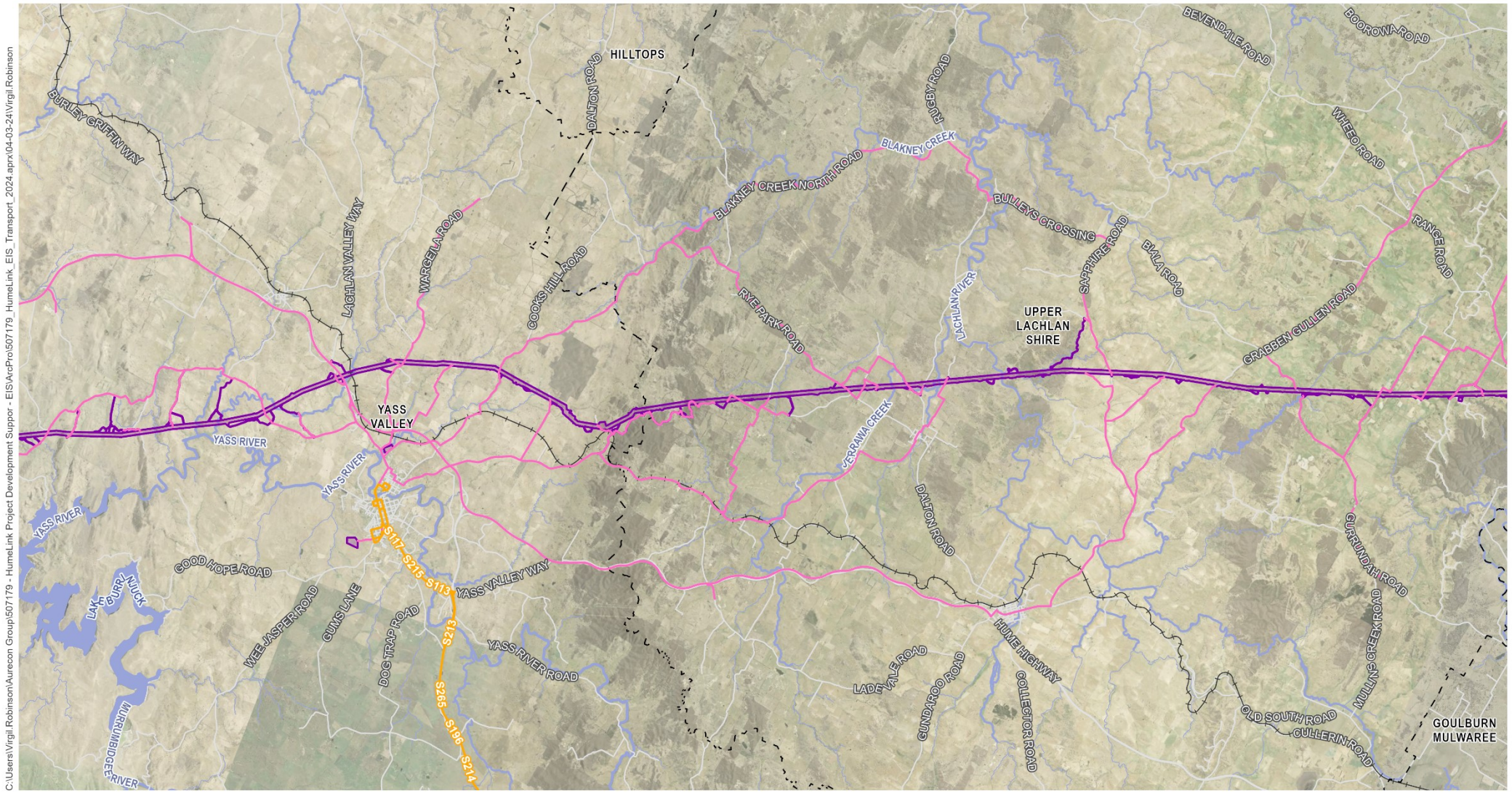
Projection: GDA 1994 MGA Zone 55

HumeLink **Traffic and Transport Impact**

Figure 5-8b: School bus services along the amended project



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Amended project footprint

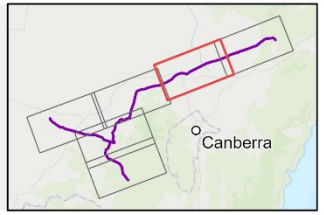
Local Government Area

School bus services

Traffic study area – indicative access routes

Watercourse

Railway



Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

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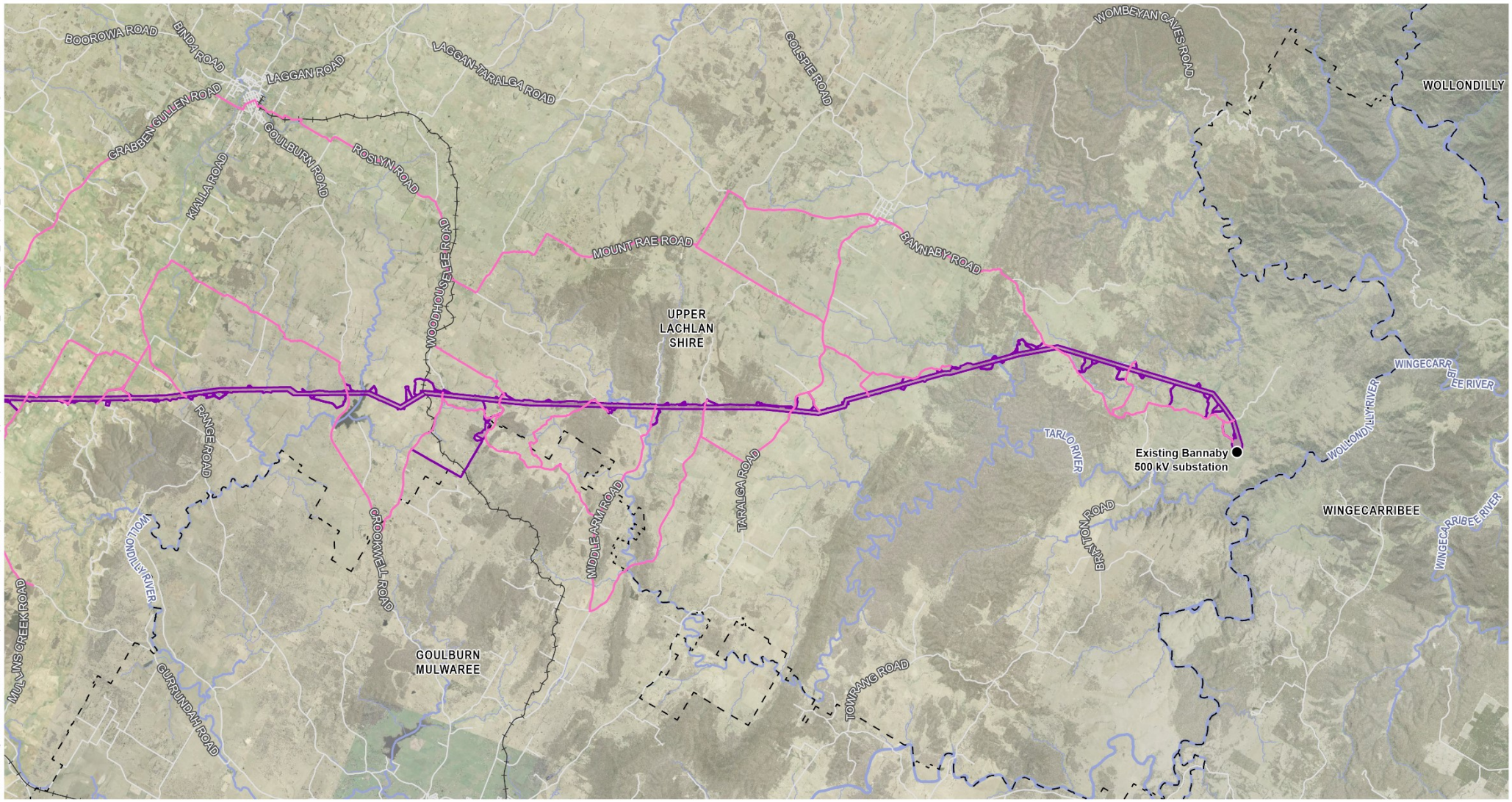
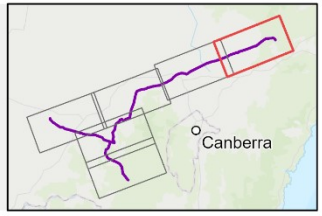
Projection: GDA 1994 MGA Zone 55

HumeLink **Traffic and Transport Impact**

Figure 5-8c: School bus services along the amended project



Amended project footprint
Local Government Area
School bus services
Traffic study area – indicative access routes
Watercourse
Railway
Substation



Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

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Projection: GDA 1994 MGA Zone 55

HumeLink **Traffic and Transport Impact**

Figure 5-8d: School bus services along the amended project

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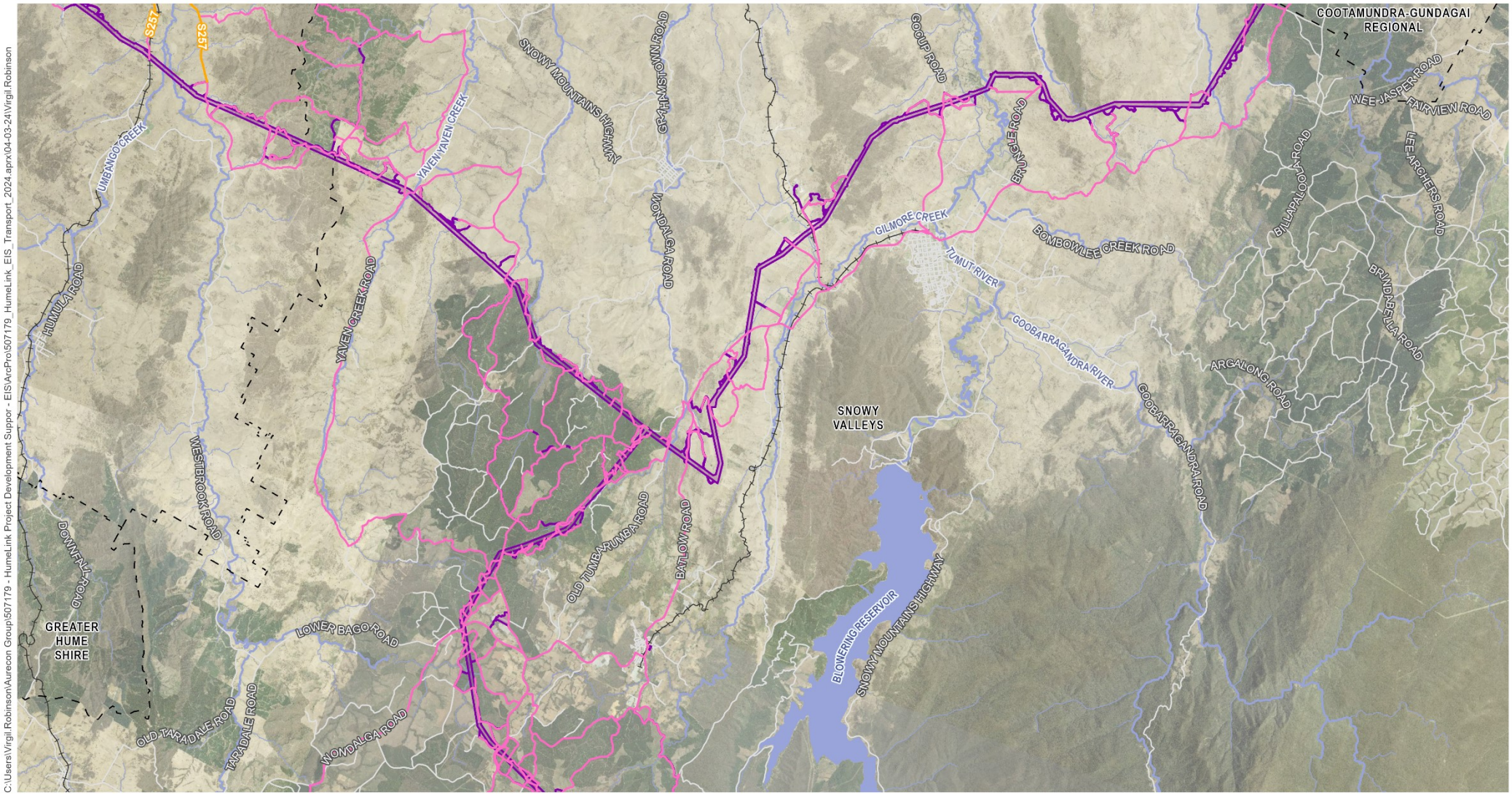
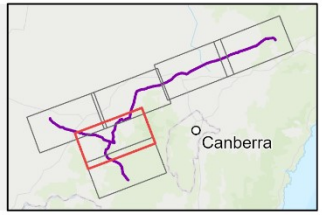


Amended project footprint
Local Government Area
School bus services
Traffic study area – indicative access routes
Watercourse
Railway



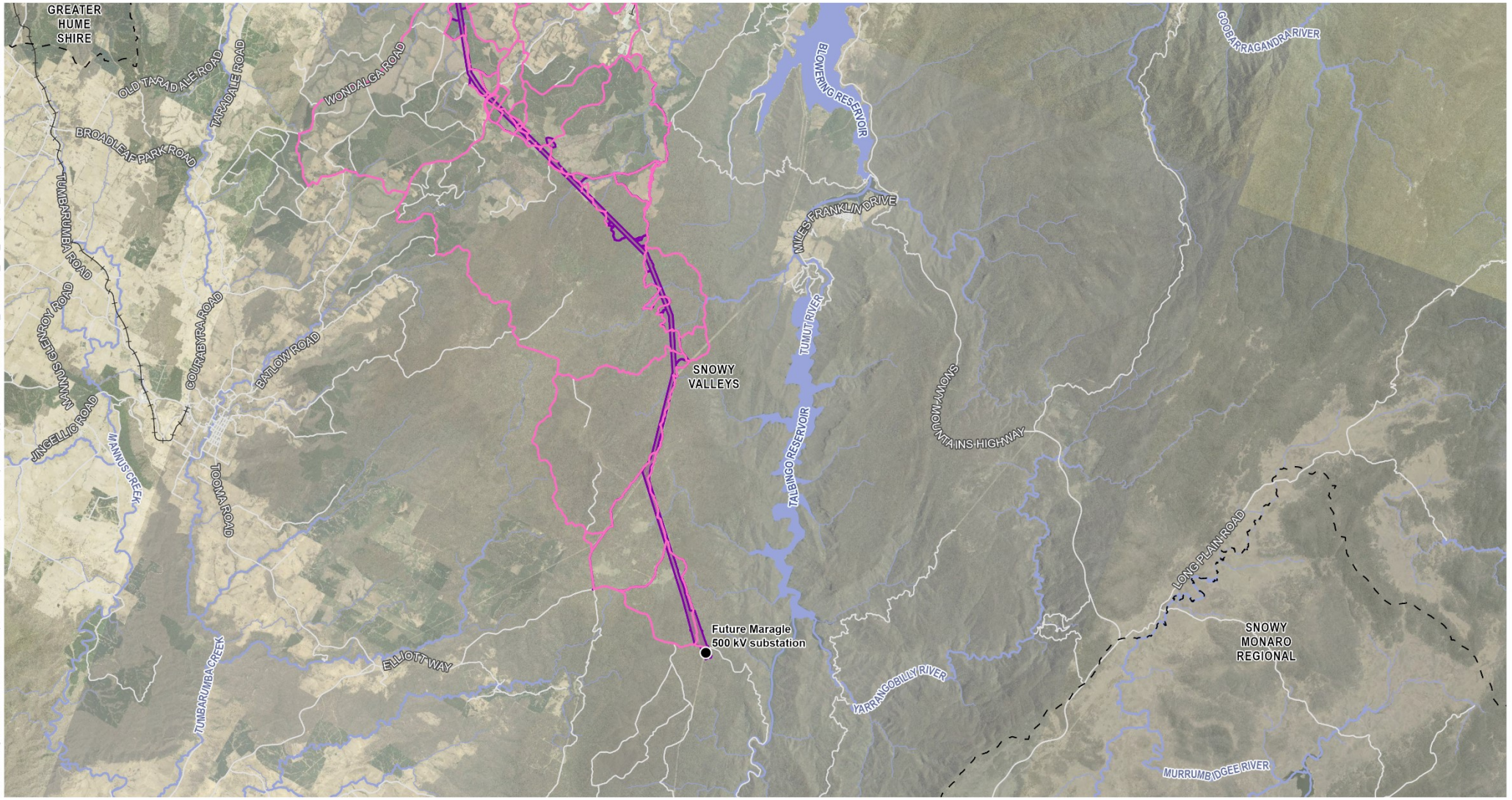
Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:200,000
0 4 8km

Projection: GDA 1994 MGA Zone 55

HumeLink **Traffic and Transport Impact**

Figure 5-8e: School bus services along the amended project



Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

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Projection: GDA 1994 MGA Zone 55

HumeLink **Traffic and Transport Impact**

Figure 5-8f: School bus services along the amended project

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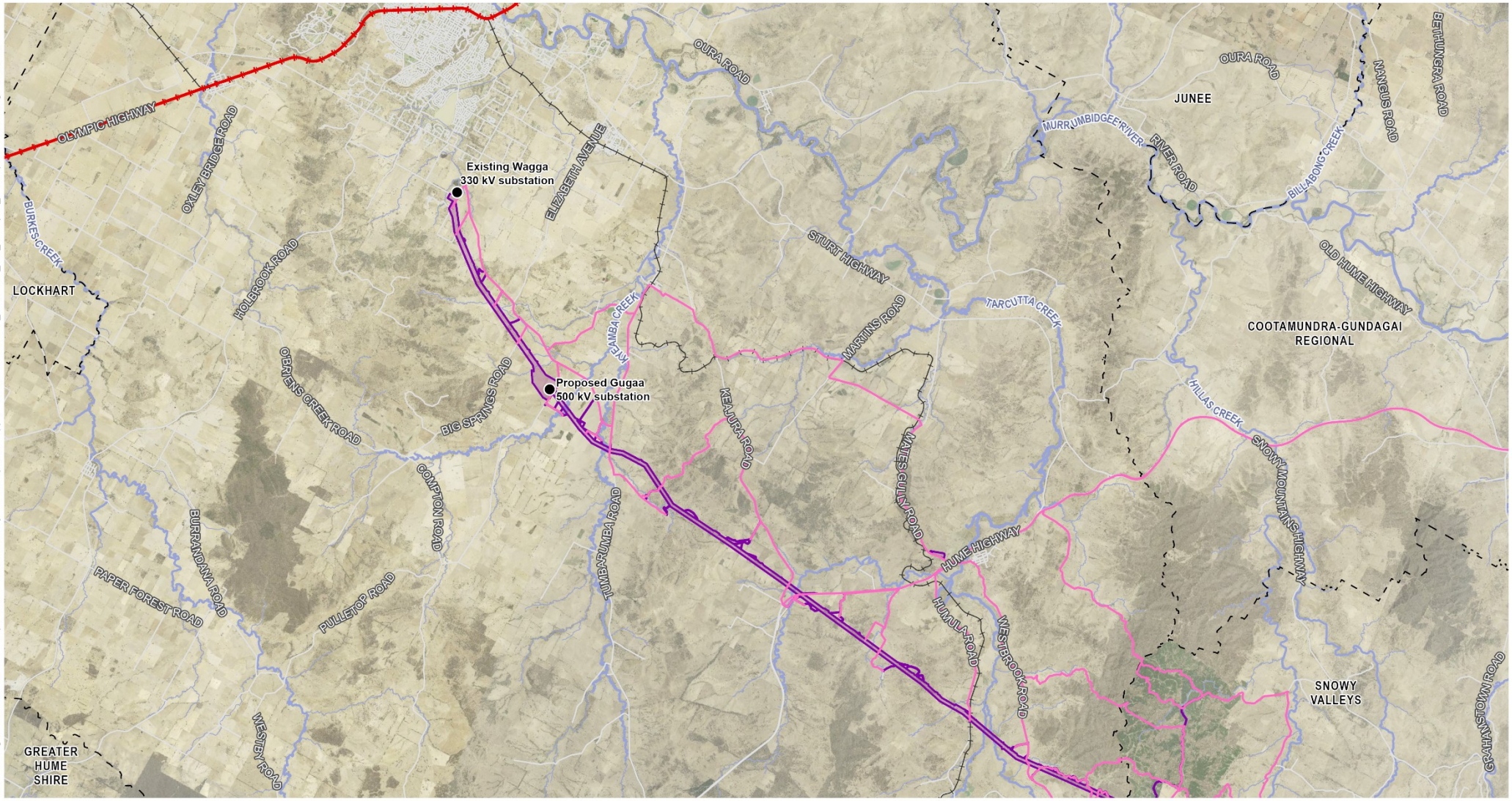
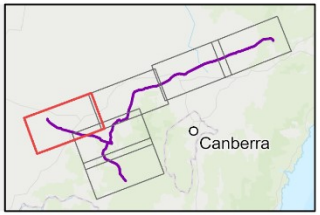
5.8 Rail network

The existing railway lines that cross the amended project footprint were identified using the NSW Public Level Crossing Finder (TfNSW, 2022g). The active Main Southern Railway line and disused railway lines that cross the amended project footprint are detailed below and shown in Figure 5-9:

- Main Southern Railway Line operated by Australian Rail Track Corporation (operational rail line), located in the amended project footprint north of the Hume Highway approximately seven kilometres north-west of Yass approximately 0.5 kilometres north of Derringullen Creek rest area on the Hume Highway (M-31)
- Wagga Wagga Tumbarumba Railway Line (non-operational rail line), located in the amended project footprint approximately nine kilometres south-east of Tarcutta
- Tumut Railway Line (non-operational rail line) – located in the amended project footprint north of the Snowy Mountains Highway approximately two kilometres north-west of Gadara
- Kunama Railway Line (non-operational rail line) –located in the amended project footprint approximately six kilometres north-east of Batlow
- Goulburn Crookwell Railway Line (non-operational rail line), approximately two kilometres north-west of Woodhouselee, near Woodhouselee Road.



Amended project footprint
Local Government Area
Traffic study area – indicative access routes
Main Southern Railway Line
Watercourse
Railway
Substation



Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

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0 4 8 km

Projection: GDA 1994 MGA Zone 55

HumeLink **Traffic and Transport Impact**

Figure 5-9a: Operational rail line along the amended project

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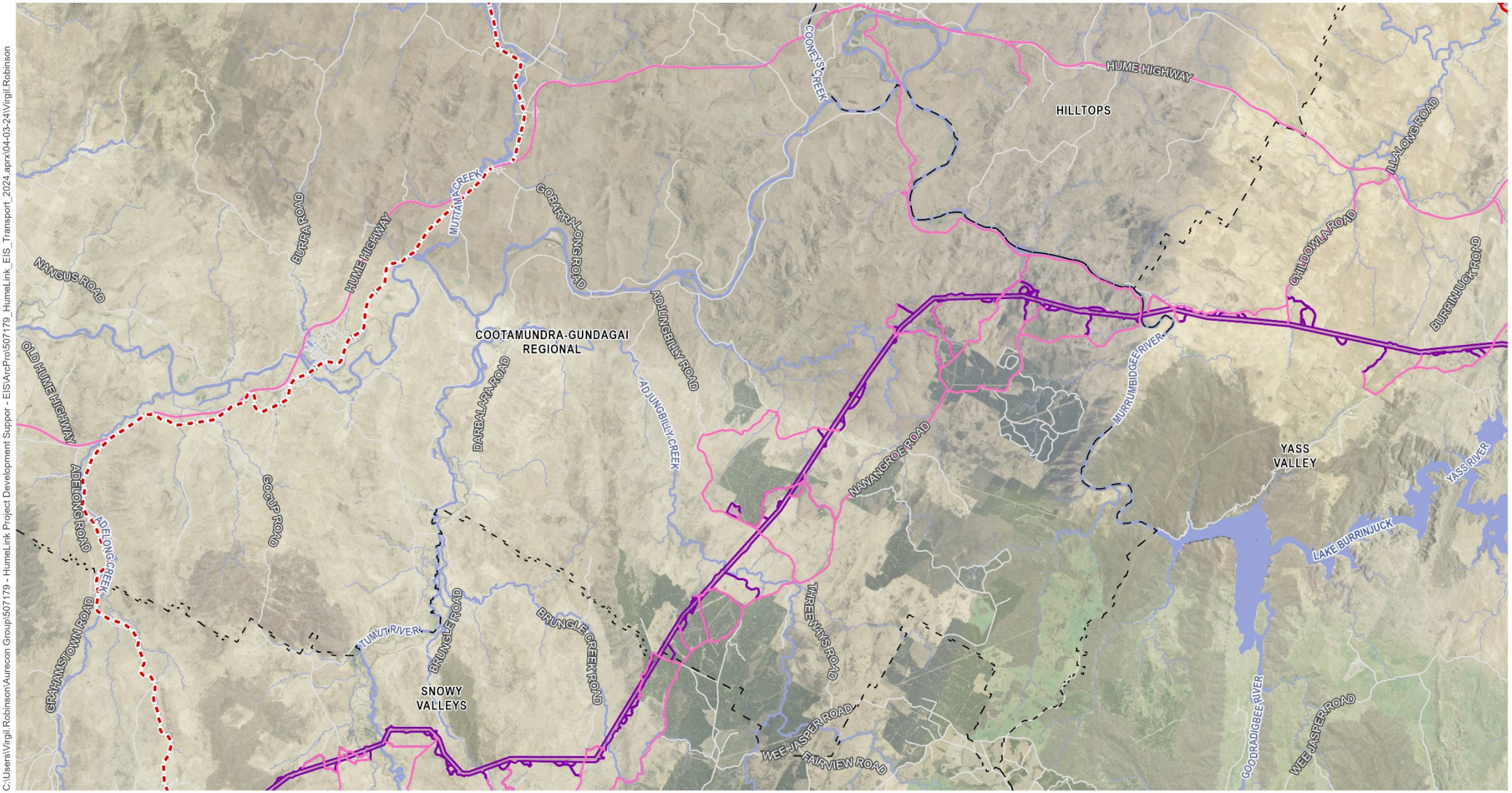
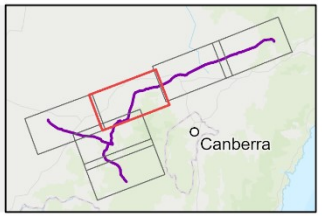


Amended project footprint
Local Government Area
Traffic study area – indicative access routes
Disused rail lines
Main Southern Railway Line
Watercourse
Railway



Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:200,000
0 4 8km

Projection: GDA 1994 MGA Zone 55

HumeLink **Traffic and Transport Impact**

Figure 5-9b: Operational rail line along the amended project

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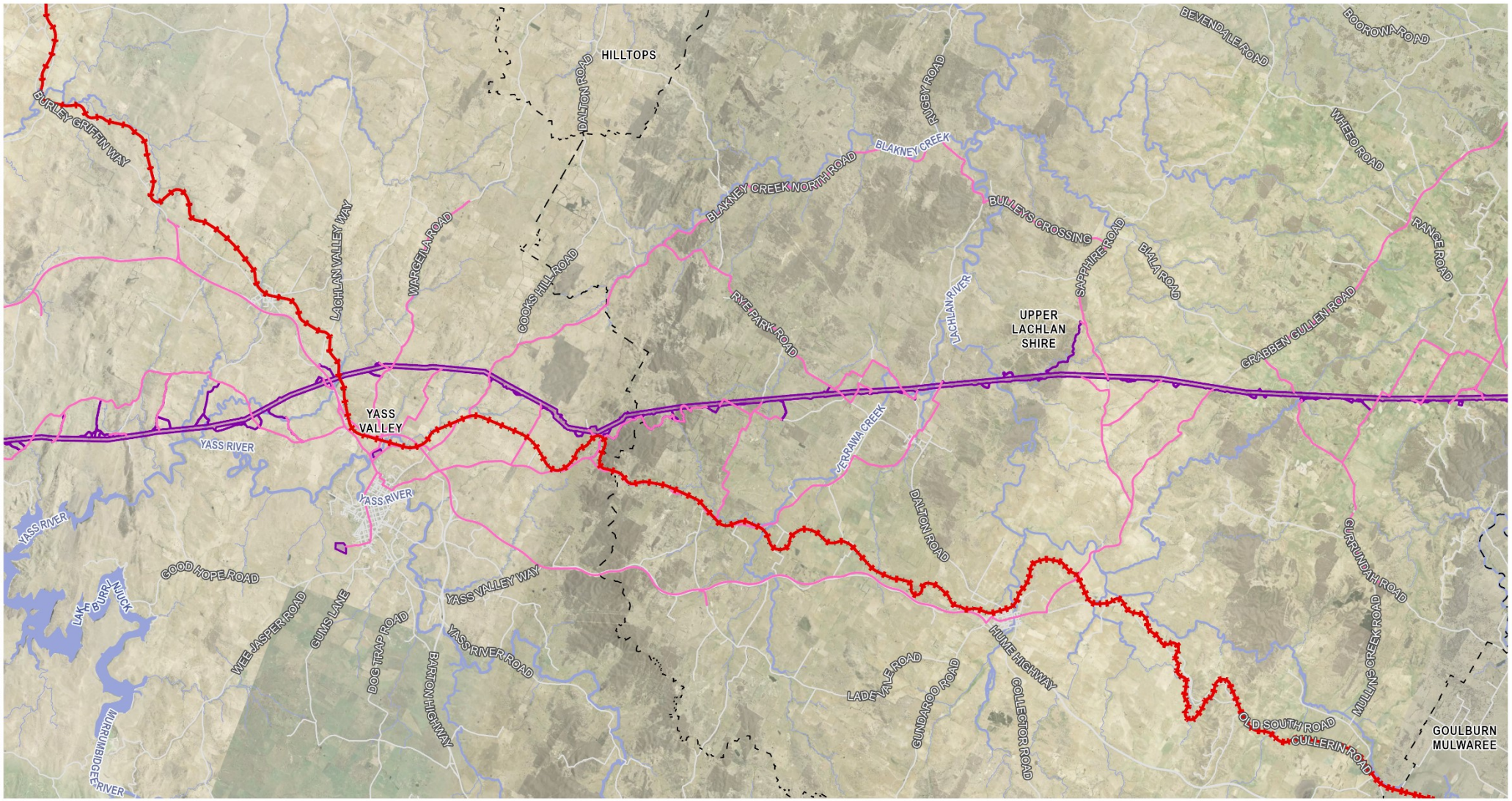

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Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

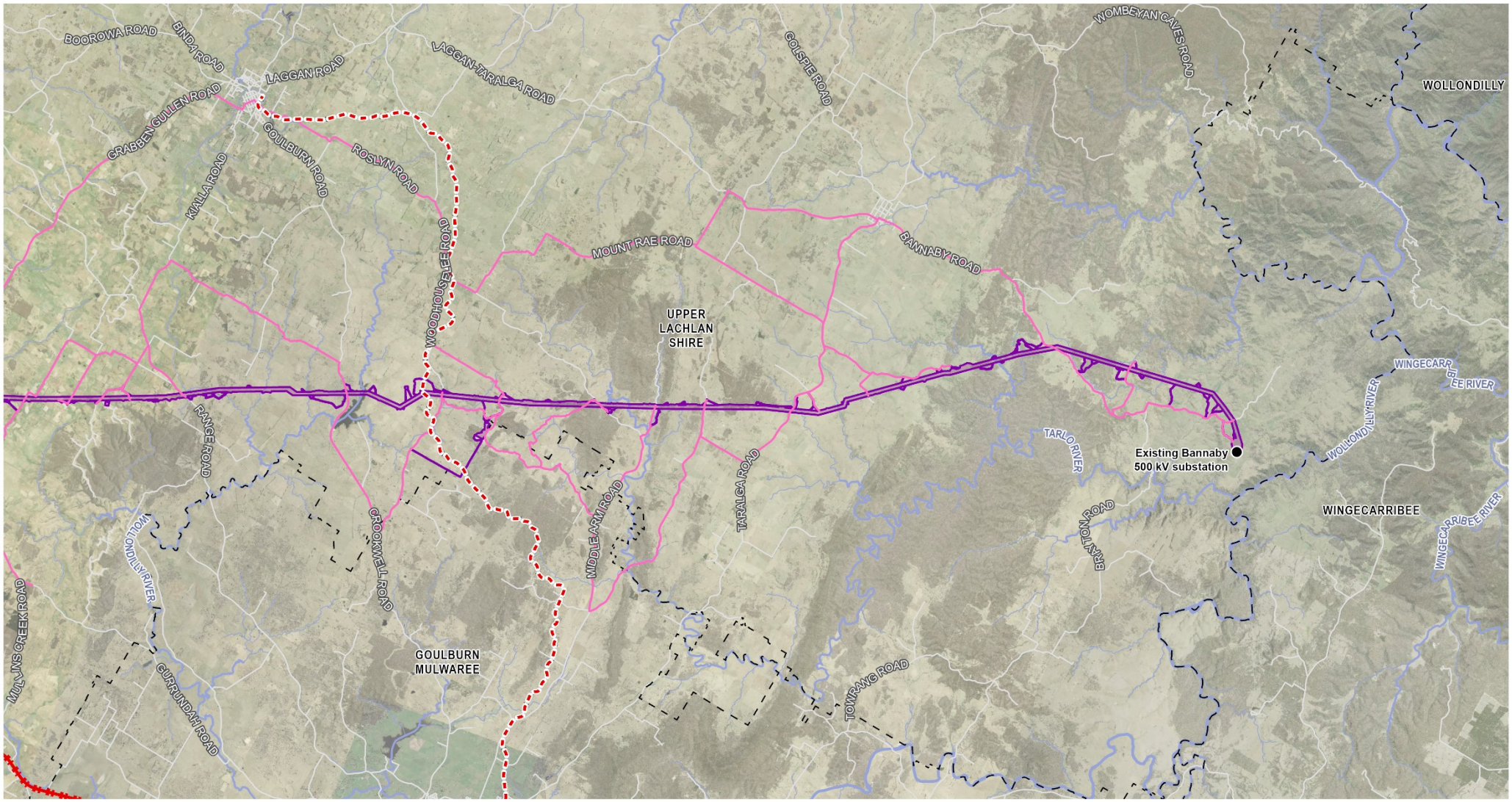
1:200,000

0 4 8km

Projection: GDA 1994 MGA Zone 55

HumeLink **Traffic and Transport Impact**

Figure 5-9c: Operational rail line along the amended project



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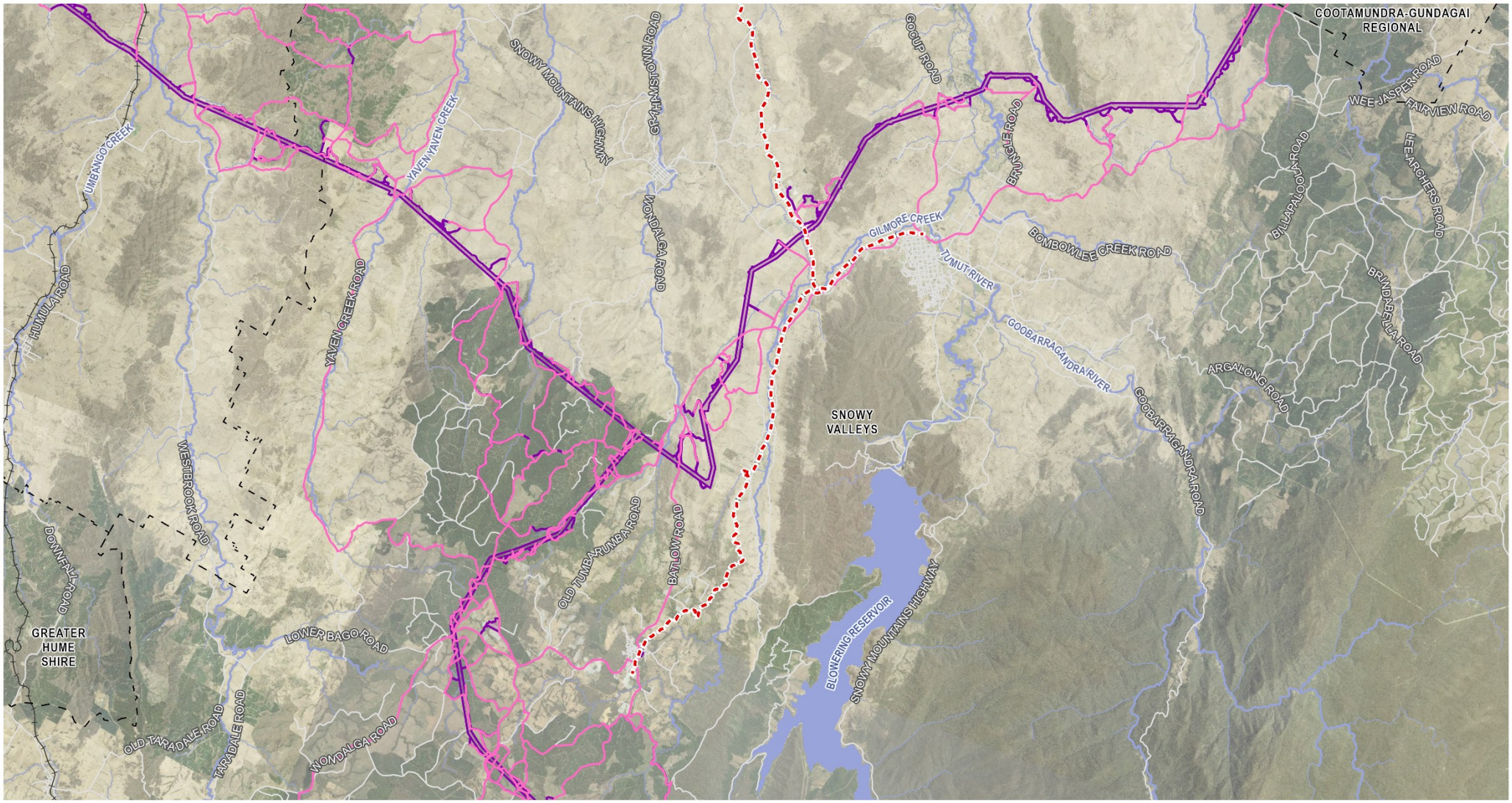
Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:200,000
0 4 8km

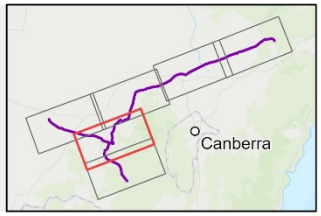
Projection: GDA 1994 MGA Zone 55

HumeLink **Traffic and Transport Impact**

Figure 5-9d: Operational rail line along the amended project



Amended project footprint
Local Government Area
Traffic study area – indicative access routes
Disused rail lines
Watercourse
Railway



Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:200,000
0 4 8km

Projection: GDA 1994 MGA Zone 55

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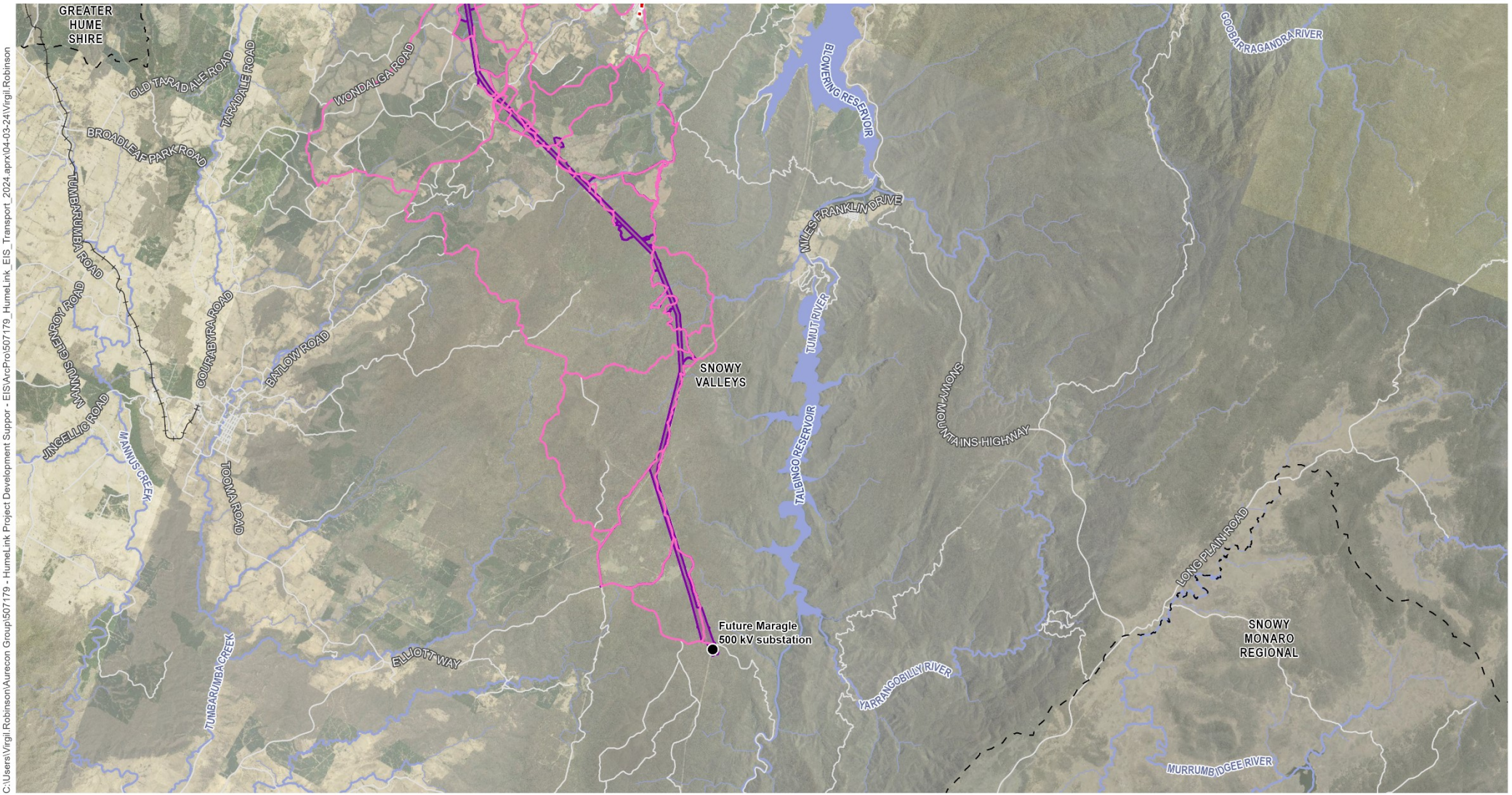
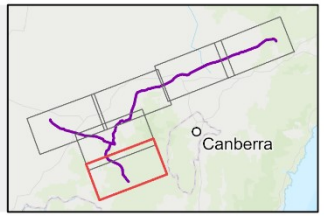
HumeLink **Traffic and Transport Impact**

Figure 5-9e: Operational rail line along the amended project



Amended project footprint
Local Government Area
Traffic study area – indicative access routes
Disused rail lines
Watercourse
Railway
Substation



Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:200,000
0 4 8km

Projection: GDA 1994 MGA Zone 55

Figure 5-9f: Operational rail line along the amended project

6 Construction impacts

During construction of the amended project, movements of construction vehicles would impact on the existing transport network. Indicative access routes connecting transmission line structures and associated work sites, construction compounds, worker accommodation facilities and substations have been identified in Section 6.1.3. However, specific access would be confirmed for each transmission line structure during detailed design stage and for the purposes of this assessment representative locations have been considered in accordance with the methodology described in Chapter 4. This section of the report provides a summary of the indicative construction methodology and an assessment of transport impacts during construction, as required by the SEARs based on the methodology described in Chapter 4.

6.1 Construction approach

The amended project would generate light and heavy vehicle movements within the amended traffic study area. These vehicle movements would be associated with the delivery of construction materials and equipment, removal of waste and spoil, and the transportation of construction workers.

6.1.1 Construction workers

The number of construction workers would vary depending on the stage of construction and associated activities. During peak construction activities, the amended project is expected to employ around 1,600 full-time equivalent workers. Table 6-1 provides an overview of the anticipated number of construction workers for the key construction activities.

Table 6-1 Anticipated construction workers for the amended project

Construction activities	Anticipated construction workers (estimate)
Substation work	
Modification of existing Wagga 330 kV substation	■ up to 80 (monthly peak) ■ 270 total
Construction of proposed Gugaa 500 kV substation	■ up to 190 (monthly peak) ■ 510 total
Modification of existing Bannaby 500 kV substation	■ up to 110 (monthly peak) ■ 320 total
Transmission line work	
Site establishment, environmental controls and vegetation clearing	■ 100 to 140
Establishment of access points and tracks for construction of transmission line structures	■ 100 to 140
Installation of structure foundations	■ 80 to 120
Assembly and erection of structure	■ 140 to 160
Stringing of conductors	■ 100 to 200
Testing and commissioning	■ 30 to 50
Administrative and management staff	■ 100 to 150
Accommodation facilities and laydown support staff	■ 100 to 150

Notes:
- Monthly peak: This represents the estimated maximum monthly number of construction workers at any given month.
- Total: This represents the estimated total number of construction workers.
- Estimates consider workers across multiple work fronts.

6.1.2 Construction hours

As noted in Section 2.2.3, it is expected that construction activities would largely be undertaken during standard construction hours. Any activities undertaken outside of standard construction hours would be managed in accordance with an out-of-hours works protocol.

6.1.3 Construction compounds and workers accommodation facilities access

The construction of the amended project would involve the establishment and use of construction compounds to support transmission line construction work. In addition, the Amended Bannaby 500 kV substation compound (C12) would support the proposed work at the Bannaby 500 kV substation, the Amended Gregadoo Road compound (C06) would support construction of the proposed Gugaa 500 kV substation and the Wagga 330 kV substation compound (C01) would support proposed work at the Wagga 330 kV substation. These construction compounds would accommodate a range of facilities such as laydown areas, stockpiling areas, crushing/screening plant and vehicle and equipment storage. The Amended Bannaby 500 kV substation compound (C12) is also likely to include a concrete batching plant. The final arrangement and activities to occur at each of the construction compound sites would be confirmed during detailed design.

Access to the construction compounds would be available from either existing roads or through temporary connection or new/upgraded access tracks, however exact access arrangements would be confirmed during detailed design. The location of construction compounds and indicative access arrangements is presented in Table 6-2. Permanent access arrangements are described in Chapter 7. No crashes have been recorded between 2016 and 2020 within 100 metres of all the proposed access points to the proposed construction compounds and accommodation facilities.

Table 6-2 Proposed access roads to construction compounds

Construction compound	Access arrangement
Wagga 330 kV substation compound (C01) Located adjacent the southern boundary fence of the existing Wagga 330 kV substation on the corner of Ashfords Road and Boiling Down Road, Gregadoo	Access to the construction compound would be via a existing connection with Ashfords Road. Road improvement work may be required to facilitate access.
Maragle 500 kV substation compound (C05) Located at the site of the future Maragle 500 kV substation at Nurenmerenmong, about 27 km west of Tumbarumba.	Access in and out would be via a temporary or permanent connection with Elliot Way. Road improvement work would be required to facilitate access.
Amended Gregadoo Road compound (C06) Located on private property off Livingstone Gully Road, Gregadoo, about 20 km south-east of Wagga Wagga Central Business District.	Access in and out would be via temporary connection from Livingstone Gully Road. Road improvement work would be required to facilitate access. Access to this construction compound would facilitate access to the proposed Gugaa 500 kV substation.
Amended Honeysuckle Road compound (C07) Located at the corner of Honeysuckle Road and Kileys Creek Road, Red Hill, about 20 km north-west of Tumut.	Access in and out would be via temporary connection from Honeysuckle Road. Road improvement work would be required to facilitate access.
Yass substation compound (C10) Located at the existing Yass substation at Perry Street, Yass.	Access in and out would be via the existing Perry Street access to the Yass substation.
Amended Bannaby 500 kV substation compound (C12) Located at the Bannaby 500 kV substation at Hanworth Road, Bannaby.	The existing unsealed access road from Hanworth Road to the Bannaby 500 kV substation/ Amended Bannaby substation 500 kV compound (C12) would be upgraded as part of the modification work. The upgrade work would mainly be limited to the existing access road formation and involve work to ensure the access road is suitable for heavy vehicles used in construction, eg grading and resurfacing work. The extent of the upgrade work would be confirmed during detailed design.

Construction compound	Access arrangement
Amended Memorial Avenue compound (C14) Located at the corner of Memorial Avenue and Mill Road, Tumut on a former Forestry Corporation of NSW depot site.	Access in and out would be via the existing property access at the corner of Memorial Avenue and Mill Road.
Ardrossan Headquarters Road compound (C17) Located at the existing Forestry Corporation of NSW Ardrossan depot site at Back Camp Road, about 8 km west of Batlow	Access to the construction compound would be via the existing Ardrossan Headquarters Road and Back Camp Road. Ardrossan Headquarters Road provides an access to the western side of the compound and is accessed via Wondalga Road at its western extremity. Back Camp Road provides an access to the eastern side of the compound and connects to Bridge Road at its eastern extremity.
Snubba Road compound (C18) Located to the immediate north of the Kopsens Road and Bago Forest Way intersection in Tumbarumba, about 8.5 km south of Batlow	Access to the construction compound would be via the existing Bago Forest Way which would provide access to the northern and southern sides of the compound. At its northern extent, Bago Forest Way connects with Forest Road. On the southern side of the compound, Bago Forest Way connects with Kopsens Road and Snubba Road further towards the south, which facilitates traffic from the west and east respectively.
Gadara Road compound (C19) Located about 4.9 km west of Tumut	Access to the construction compound would be via a temporary connection on the northern side of Gadara Road. Road improvement works would be required to facilitate vehicular access.
Ellerslie Road compound (C21) Located on the western side of the Ellerslie Road and Yaven Creek Road intersection, about 13.5 km south-west of Adelong	Access to the construction compound would be via the existing Ellerslie Road and Yaven Creek road which would provide access to the northern and eastern sides of the compound respectively. At its northern extent, Ellerslie Road connects with Snowy Mountains Highway. On the southern side of the facility, Ellerslie Road connects with Yaven Creek Road.
Tarcutta accommodation facility and compound (AC03) Located towards the west of the Mates Gully Road and Hume Highway off-ramp intersection, about 2 km west of Tarcutta	Access to the accommodation facility and compound would be via a temporary connection on the northern side of Mates Gully Road. Road improvement works would be required to facilitate vehicular access.
Adjungbilly accommodation facility and compound (AC04) Located about 4.5 km towards the west of the Gobarralong Adjungbilly Road intersection with Red Hill Road and Nanangroe Road, about 22.5 km east of Gundagai	Access to the accommodation facility and compound would be via the existing access point to the forest. The access point located on the eastern side of the compound and facilitates vehicular access off the northern side of Gobarralong Adjungbilly Road.
Yass accommodation facility and compound (AC05) Located towards the north of the Faulder Avenue and Yass Valley Way intersection, about 1 km north of Yass	Access to the accommodation facility and compound would d be via the existing property access located on the western side of Faulder Avenue. At its northern extent, Faulder avenue connects with Cooks Hill Road, and at its southern extent, it connects with Yass Valley Way.
Crookwell accommodation facility and compound (AC06) Located off Graywood Siding Road, about 18 km north of Goulburn	Access to the accommodation facility and compound would be via the existing Graywood Siding Road and access tracks. Graywood Siding Road provides access on the southern side of the facility and connects with Woodhouselee Road at its western extremity. The existing access tracks connect the amended project corridor to the northern side of the facility.
Green Hills accommodation facility and compound (AC07) Located on the western side of the Green Hills Access Road intersection with Frogs Hollow Road, about 7 km west of Batlow	Access to the accommodation facility would be via a temporary connection on the western side of Green Hills Access Road. Road improvements works would be required to facilitate vehicular access. An existing residential access track would also be used during construction, as per agreement with the landowner.

6.1.4 Construction of temporary and permanent access tracks

Safe access to transport construction machinery and material to each transmission line structure would be required during construction. Where safe access for such activities is not available, establishment of new and upgraded access tracks or use of temporary traffic control arrangements would be required. Access tracks are expected to be traversable by a range of vehicles. The three broad groups of access tracks anticipated are as follows:

- **Existing access tracks** include well-established unsealed local roads, forest roads and tracks maintained by FCNSW or unsealed property access tracks, generally suitable for heavy vehicles. Some existing access tracks/roads may be subject to maintenance activities or minor upgrades along the formation, such as resurfacing or grading, or drainage work. Minor vegetation pruning/trimming may be required in some locations where vegetation may be considered a roadside hazard. Where pruning/trimming is required, it would be undertaken to avoid impacts on the long-term viability of the vegetation.
- **Upgraded access tracks** typically consist of unsealed property access tracks of varying conditions, from well-established sections to rarely used, barely visible sections (ie requiring substantial upgrade). The existing gradient of upgraded access tracks varies and may only be suitable for light vehicles without these upgrades. Upgraded access tracks are expected to require more substantial work to allow their use during construction compared with existing tracks/roads. Work may include earthworks to improve gradients, grading or resurfacing, formation widening to 8 m or realignment, drainage work or upgrades to waterway crossings. Vegetation clearing or pruning/trimming may be required for widening/formation work or where vegetation may be considered a roadside hazard. The total clearing width would generally be up to 10 m, with some limited areas (eg steep terrain) requiring a clearing width of up to 20 m for batters.
- The locations of **new access tracks** have generally been selected in consultation with affected landowners to minimise property impacts, including running the track along fence lines, using movement paths preferred by landowners, and going through existing property gates. Establishing the new tracks would typically include earthworks, grading, drainage work and construction of waterway crossings. Fill material may be imported to provide a suitable capping material. To establish the new tracks, vegetation clearing or pruning/trimming may be required. The total clearing width would generally be up to 10 m, with some limited areas (eg steep terrain) requiring a clearing width of up to 20 m for batters.

If required, connection of these access tracks/roads with the existing road network would be carried out in accordance with the provisions of *Guide to Road Design Part 4: Intersections and Crossings – General* (Austroads, 2020c).

6.1.5 OSOM haul routes

As described in Section 4.1.1 OSOM haul routes have been identified to transport OSOM components to the existing Bannaby 500 kV substation site and to the proposed Gugaa 500 kV substation site. The routes have been identified and assessed by HV Transport Specialists (Deugro, 2023 and RJA, 2021a and 2021b). Figure 6-1 shows the location of the most suitable OSOM haul routes considered in this assessment, refer to Appendix A (Updated project description) of the Amendment Report for further information on OSOM routes selection.

The reports indicates that OSOM deliveries would be undertaken through multiple states jurisdictions and would subject to the requirements outlined below.

6.1.5.1 Victoria transport requirements

Due to the load being transported being considered a superload, the Department of Transport and Planning require the identification of a safe route that minimises the impact of the superload transport to the community, road assets and infrastructure.

Rail authorities will provide approval and allocate a Track Protection Officer at the time of crossing of their respective tracks. Relevant rail authorities include:

- Australian Rail Track Corporation – National rail freight operator
- V/Line – Authority that operates regional rail network within Victoria
- Metro Trains – Operator of Electrified Suburban Passenger Rail Network within Melbourne.

Transport of vehicles over 4.6 metres in height through the Jemena Electricity Network, Telstra and Optus Overhead Telecommunications Networks require an application to each operator to ensure the appropriate route can be planned and any safety requirements considered before transport can commence.

For vehicles exceeding 5.5 metres in height, the application requires a route assessment which typically require a processing period of four weeks. Additional time should be allowed where routes, escorts or customer notification of potential outages are required.

6.1.5.2 New South Wales transport requirements

For all loads considered to be a high risk movement, a Transport Management Plan is required to be submitted for approval by TfNSW. A Transport Management Plan details how the movement are to be safely carried out, and includes vehicle and load details, a route survey of the proposed route, traffic management arrangements, details on community and stakeholder consultation and all relevant rail authority approvals. Relevant rail authorities include:

- Australian Rail Track Corporation – National rail freight operator
- Sydney Trains – Operator of rail services across the metropolitan Sydney area
- NSW Trains – Oversees the operation of NSW TrainLink, connecting Intercity and Regional services
- Country Regional Network (CRN JHG) – Owned by TfNSW and links broad areas of regional NSW to interstate and metropolitan rail systems, and provide support to the transportation of goods.

The NHVR administers one set of laws for heavy vehicles over multiple states. A permit from the NHVR will be required in addition to the permits required from the state regulatory authorities.

In addition to the above approvals, approval to access these routes will also require consultation with:

- local councils (Newcastle Council, Goulburn Council, Upper Lachlan Shire Council, Wagga Wagga City Council) for removal and replacement of road signs at pinch points, where required and Traffic and Transport Management Plan (TTMP)
- NSW police for police and pilot vehicles, if required
- Ausgrid, Essential Energy, Telstra: to assess the height clearance of overhead utilities
- CRN JHG (rail) to assess rail overbridges and crossings on route

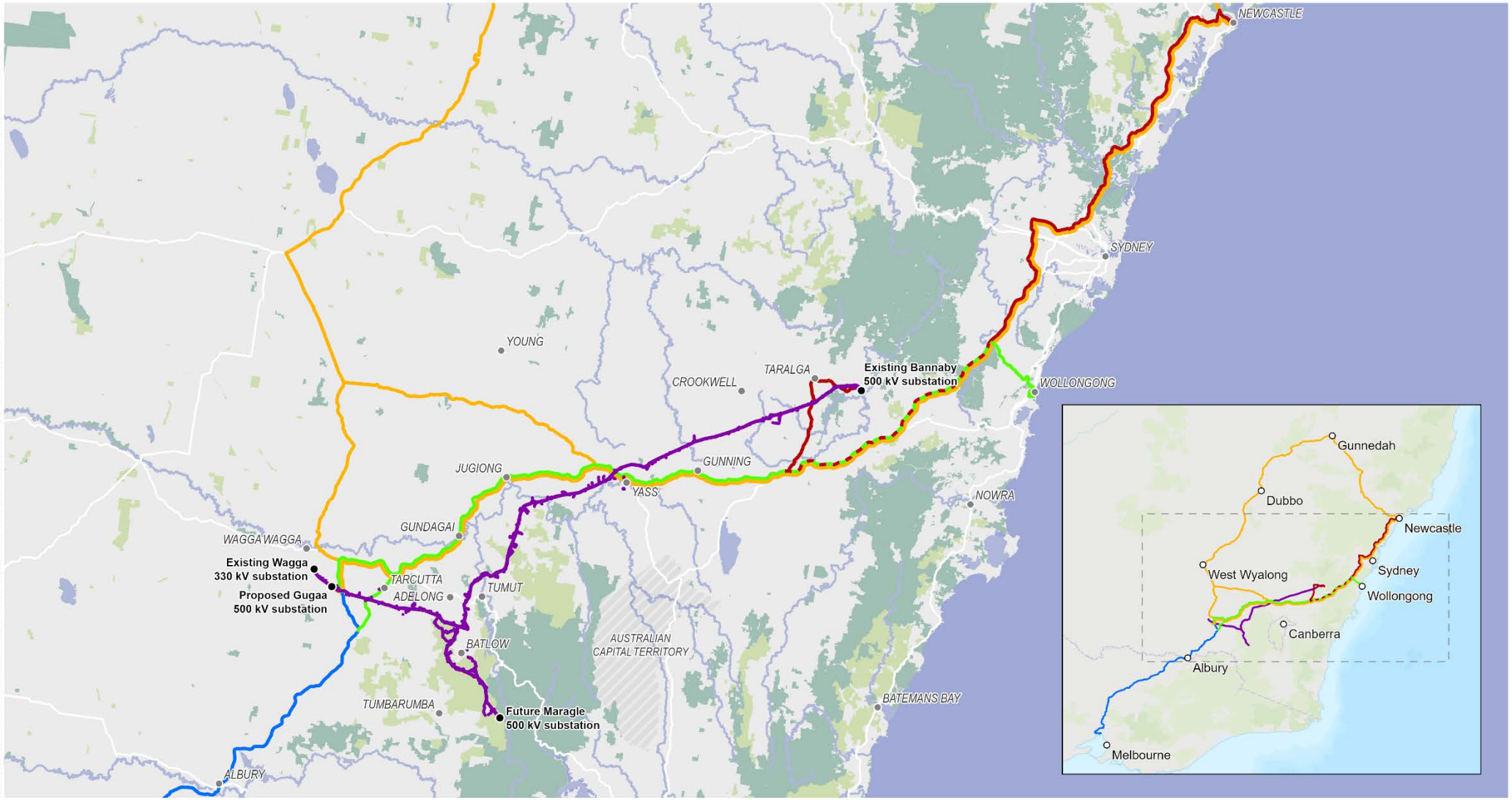
6.1.5.3 Other constraints and requirements

Constraints and requirements have also been identified at the following locations:

- Around the Appleton Dock Terminal, at the time of the route survey by Deugro (August 2023), there was extensive construction works which was part of the Victoria Government's CityLink and West Gate Tunnel Project. This is severely affecting road access in the area and is not due to be completed for another 18 to 24 months. It is noted that the long-term ramifications for access for large transport combinations to the road network are not yet known.
- The lowest structure on the recommended route from AAT Appleton Dock to the proposed Gugaa 500 kV substation is the Kilmore-Broadford Road Overpass, which has a measured clearance of 5.1 metres from the Hume Freeway.
- The route from Melbourne to the proposed Gugaa 500 kV substation turns off the Hume Freeway onto Tumbarumba Road at Kyeamba. Tumbarumba Road contains no significant obstructions other than several lower powerlines no lower than 5.89 metres.

- The recommended route from Port Kembla to Hume Freeway contains a low structure at the underpass of University Avenue, which has an allowable clearance of only 4.6 metres. Owing to a cargo height of 4.2 metres, a beam trailer combination will be required.
- The Princes Motorway exiting Wollongong passes through a significant gradient increase on Mount Pleasant and Mount Keira. The maximum incline approaches 13 per cent with an average slope of 3.3 per cent over 40 kilometres, from the port gates to the Hume Freeway. The pass up Mount Keira may require additional pulling power to negotiate
- The Hume Freeway between Picton Road and Tumbarumba Road passes under 25 overpasses. The lowest overpass observed has an allowable clearance height of 5.2 metres at Sallys Corner.

Burley Griffin Way from Tamora to the Hume Freeway was surveyed and was found to be unsuitable owing to the temporary bridge over rail lines outside of Wallendbeen. The current bridge is of a Bailey Bridge type construction and contains only a single lane of a width of 4.81 metres, however the bridge is to be replaced in 2024.



Amended project footprint
State forest
National park and reserve
Waterbody
Waterway
Major road
Substation

OSOM routes

- Port of Newcastle to Bannaby 500 kV substation
- Port of Newcastle to proposed Gugaa 500 kV substation
- Port of Melbourne to proposed Gugaa 500 kV substation
- Port Kembla to proposed Gugaa 500 kV substation

Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:1,750,000
0 30 60 km

Projection: GDA 1994 MGA Zone 55

HumeLink **Traffic and Transport Impact**

FIGURE 6-1: Indicative haulage routes for OSOM deliveries to the amended project footprint

6.2 Construction traffic generation and distribution

6.2.1 Traffic generation

Table 6-3 provides the overall estimated traffic movements generated by the amended project during construction for roads adjacent to the construction compounds and the worker accommodation facilities.

Based on the preliminary construction program, up to 65 locations are estimated to be in use concurrently during construction of the transmission line structures, substations and construction compounds during the peak construction period.

These active work sites would be distributed across the amended project footprint and accessed from various roads within the amended traffic study area.

Table 6-3 Indicative vehicle movement across the amended traffic study area during construction

Construction compound/ combined worker accommodation facility and compound	Daily movement (vehicles per day in both direction of travel)				Peak hour movement (vehicles per day in both direction of travel)			
	Typical construction		Construction peak		Typical construction		Construction peak	
	Light vehicles	Heavy vehicles	Light vehicles	Heavy vehicles	Light vehicles	Heavy vehicles	Light vehicles	Heavy vehicles
Construction compound								
Wagga 330 kV substation compound (C01)	60	70	120	140	10	15	25	30
Maragle 500 kV substation compound (C05)	70	105	195	285	10	10	20	25
Amended Gregadoo Road compound (C06)	85	140	230	340	10	15	20	30
Amended Honeysuckle Road compound (C07)	145	50	190	160	20	5	30	15
Yass substation compound (C10)	10	65	20	130	5	15	5	25
Amended Bannaby 500 kV substation compound (C12)	110	50	130	120	15	5	20	10
Amended Memorial Avenue compound (C14)	25	25	40	45	5	5	5	10
Ardrossan Headquarters Road compound (C17)	55	85	110	175	10	10	20	20
Snubba Road compound (C18)	55	85	100	155	10	10	10	15
Gadara Road compound (C19)	145	50	140	175	20	5	20	15
Ellerslie Road compound (C21)	55	85	100	150	10	10	10	15
Combined accommodation facility and compound								
Tarcutta accommodation facility and compound (AC03)	140	225	200	440	20	20	30	30
Adjungbilly accommodation facility and compound (AC04)	240	95	305	160	70	15	70	10
Yass accommodation facility and compound (AC05)	315	75	420	310	60	10	80	25
Crookwell accommodation facility and compound (AC06)	240	40	210	160	70	15	30	10
Green Hills accommodation facility and compound (AC07)	130	180	190	535	20	15	30	40

6.2.2 Traffic distribution

This section details the distribution of the construction traffic across all roads that are expected to provide access to the amended project. HV traffic would be distributed across work sites for the deliveries or disposal of construction material. LV traffic would originate from the proposed worker accommodation facilities and would be distributed from these locations to active work sites and construction compounds.

During the enabling works a low number of workers would be accommodated within towns adjacent to the amended project which would generate low LV traffic numbers within and around the relevant town centres road for a short period of time.

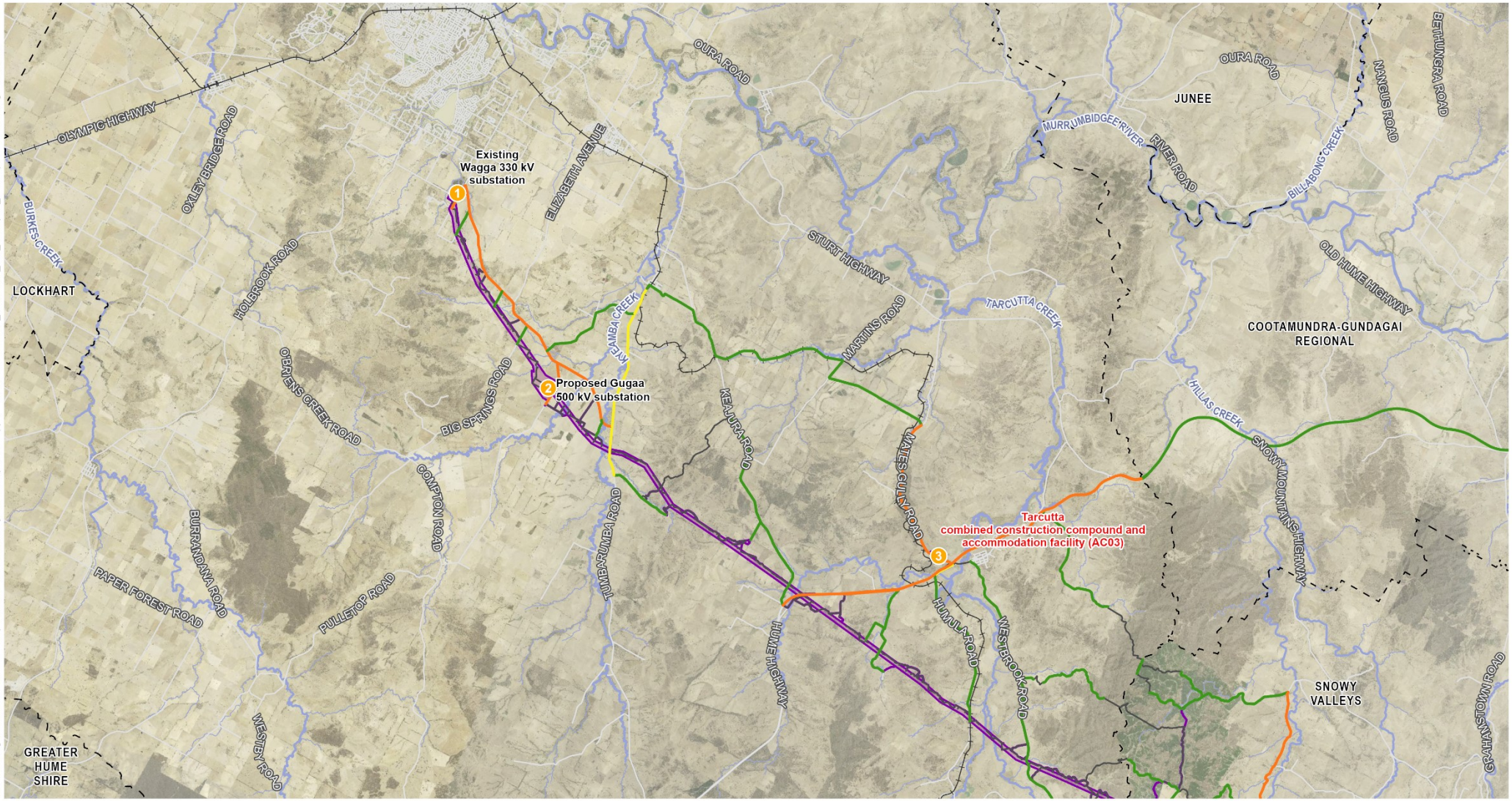
Roads adjacent to substation construction sites, existing substations and construction compounds are expected to experience higher volumes of HV traffic, due to the deliveries of materials to these locations for longer durations of the construction program than other work sites. These roads would also carry some LVs for workers travelling to and from construction compounds and across the amended project footprint. Roads adjacent to construction compounds with worker accommodation facilities are expected to experience higher LV traffic in addition to HV traffic.

Table 6-3 provides a summary of the expected daily movements on roads adjacent to the construction compounds for light and HVs. The daily movement includes traffic generated by:

- delivery of materials to and from construction compounds and delivery of materials from construction compounds to construction work sites
- daily movement of LVs trips include worker trips to construction compounds and construction work sites
- LV trips (workers) originating from the proposed worker accommodation facilities to work sites directly and not construction compounds. These workers are not travelling to construction compounds destinations but rather directly to work sites, however the routes also use the roads adjacent to construction compound and traffic movements have been considered.

The number of vehicles travelling to and from any given construction compound would be determined by the number of active construction sites and the duration of construction activities supported from that site.

Figure 6-2 illustrates the distributed construction traffic on roads within the amended traffic study area. Overall, 70 per cent of the routes are expected to be used for a short duration of the overall construction program (ie would accommodate trips for up to six months), only 13 per cent of the routes would be used for the full duration.



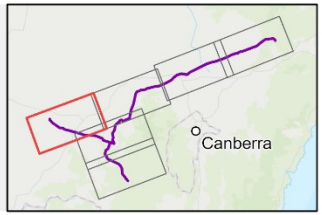
Amended project footprint
Local Government Area
Un-named local road / track
Watercourse
Railway
Substation
Key accommodation location

Construction ancillary facilities

1. Wagga 330 kV substation compound (C01)
2. Amended Gregadoo Road compound (C06)
3. Tarcutta accommodation facility and compound (AC03)

Duration of impacts

Long term
Medium term
Short term

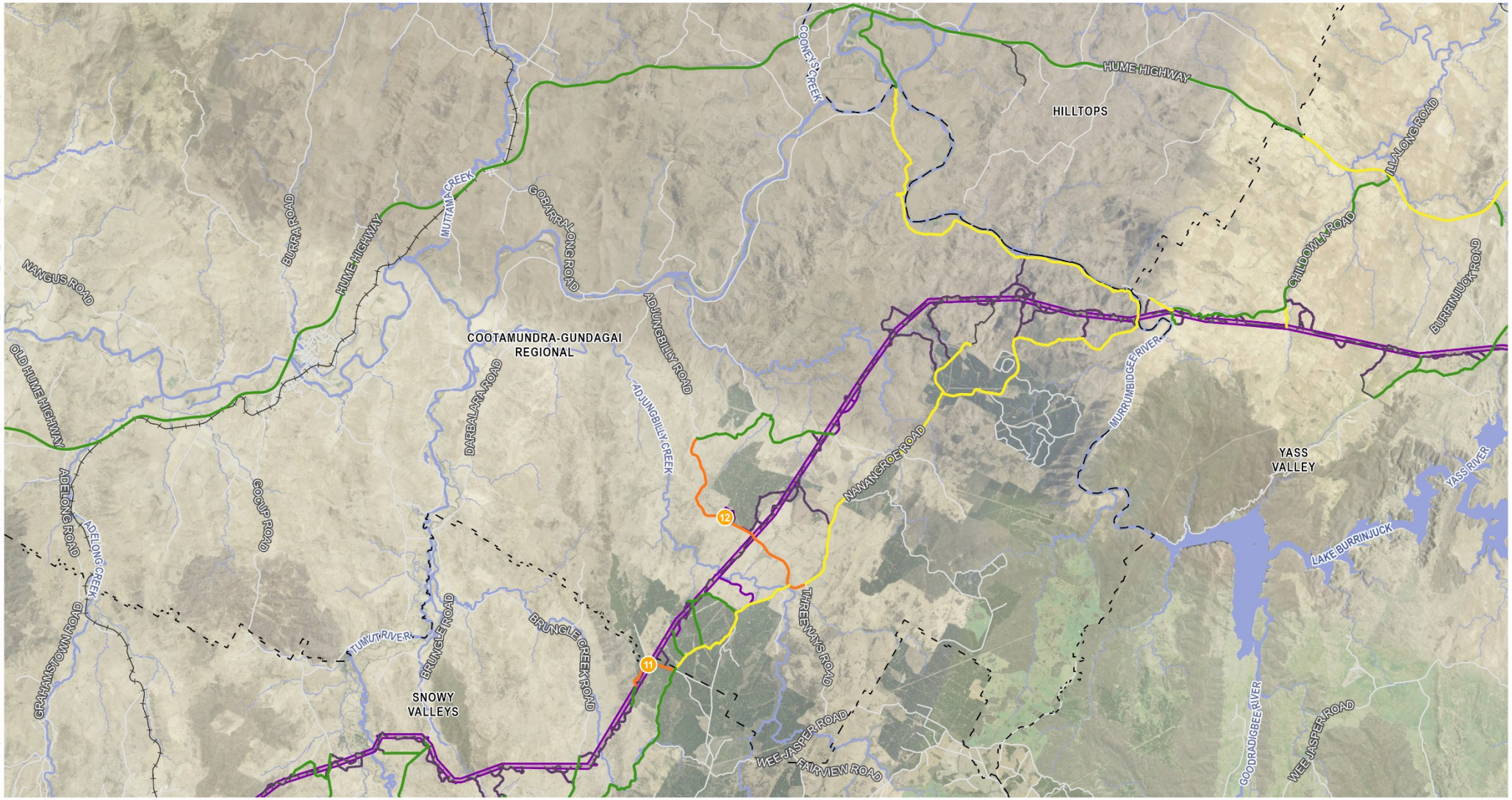


Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:200,000
0 4 8 km

Projection: GDA 1994 MGA Zone 55

Figure 6-2a: Duration of impacts for construction traffic on the road network providing indicative access to the amended project



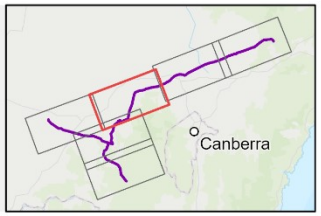
Amended project footprint
Local Government Area
Un-named local road / track
Watercourse
Railway
Key accommodation location

Construction ancillary facilities

11 Amended Honeysuckle Road compound (C07)
12 Adjungbilly accommodation facility and compound (AC04)

Duration of impacts

Long term
Medium term
Short term

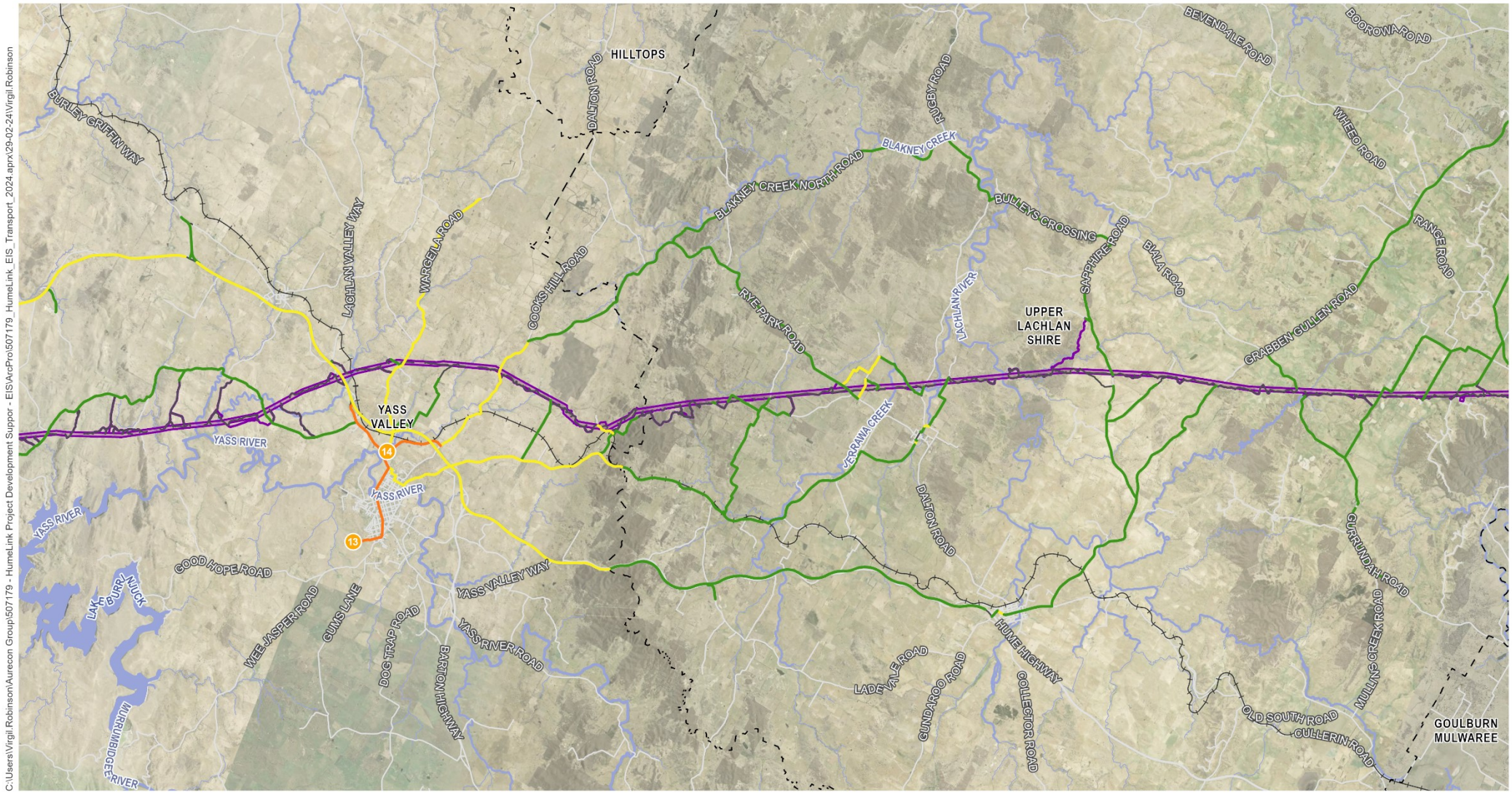


Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:200,000
0 4 8km

Projection: GDA 1994 MGA Zone 55

Figure 6-2b: Duration of impacts for construction traffic on the road network providing indicative access to the amended project



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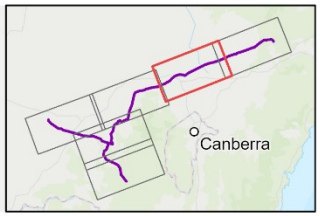
Amended project footprint
Local Government Area
Un-named local road / track
Watercourse
Railway
Key accommodation location

Construction ancillary facilities

13 Yass substation compound (C10)
14 Yass accommodation facility and compound (AC05)

Duration of impacts

Long term
Medium term
Short term

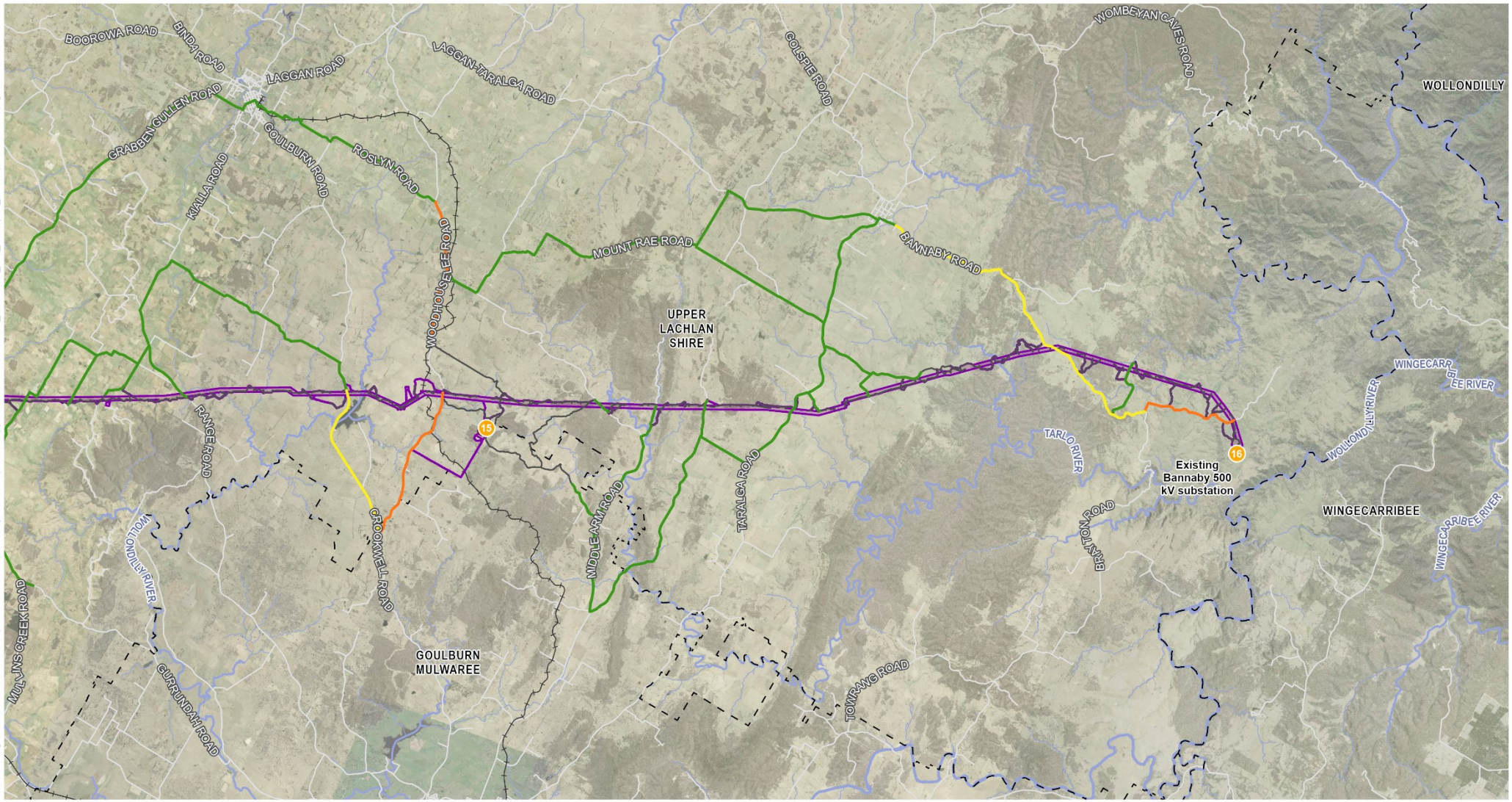


Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:200,000
0 4 8km

Projection: GDA 1994 MGA Zone 55

Figure 6-2c: Duration of impacts for construction traffic on the road network providing indicative access to the amended project



Amended project footprint
Local Government Area
Un-named local road / track
Watercourse
Railway

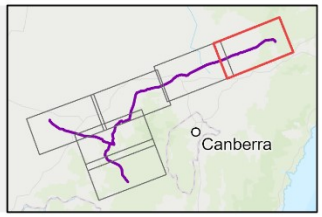
Substation
Key accommodation location

Construction ancillary facilities

15 Crookwell accommodation facility and compound (AC06)
16 Amended Bannaby 500 kV substation compound (C12)

Duration of impacts

Long term
Medium term
Short term



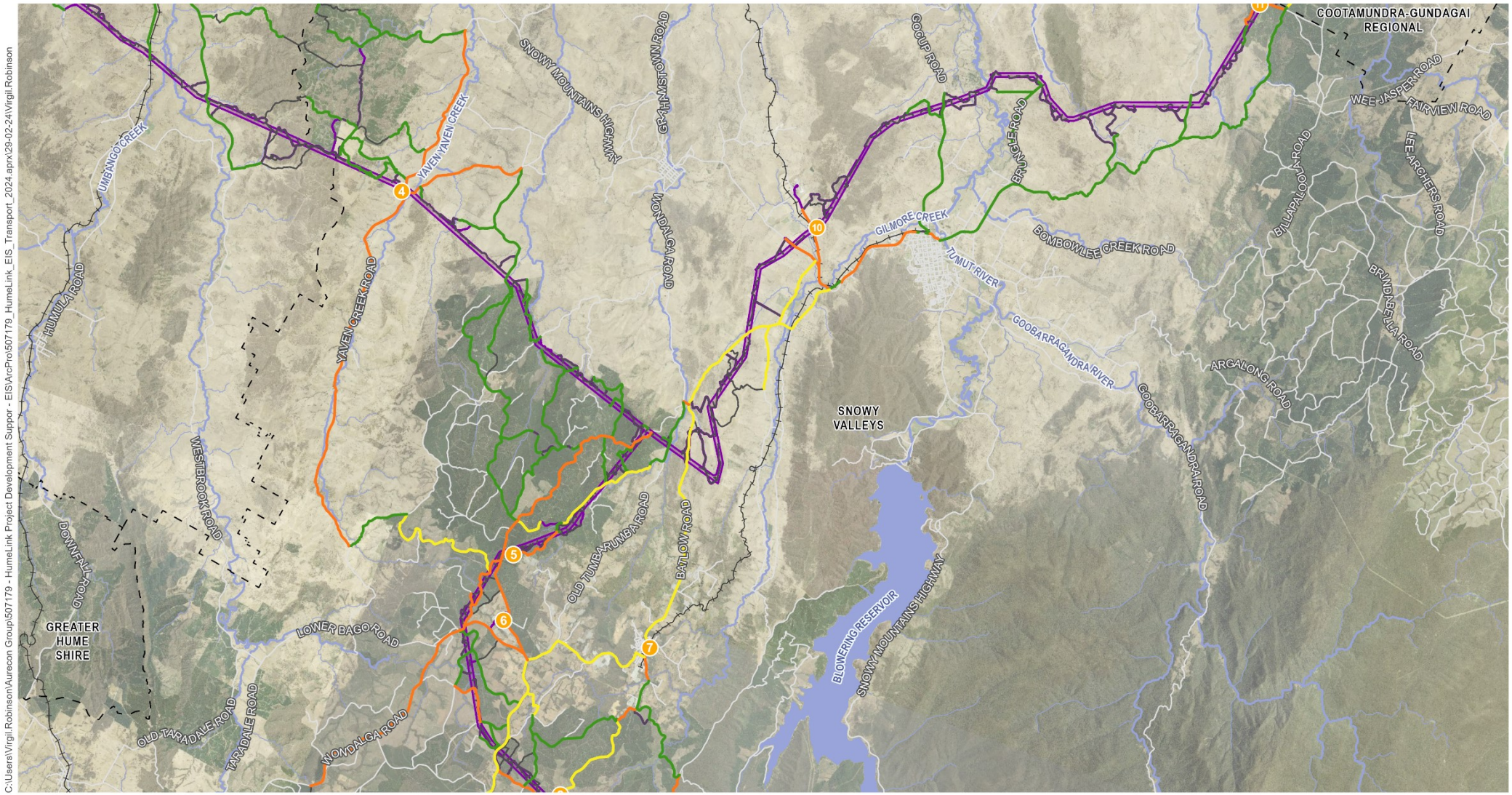
Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:200,000
0 4 8km

Projection: GDA 1994 MGA Zone 55

HumeLink **Traffic and Transport Impact**

Figure 6-2d: Duration of impacts for construction traffic on the road network providing indicative access to the amended project



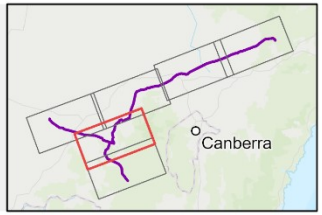
Amended project footprint
Local Government Area
Un-named local road / track
Watercourse
Railway
Key accommodation location

Construction ancillary facilities

4 Ellerslie Road compound (C21)
5 Ardrossan Headquarters Road compound (C17)
6 Green Hills accommodation facility and compound (AC07)
7 Amended Memorial Avenue compound (C14)
8 Snubba Road compound (C18)
10 Gadara Road compound (C19)
11 Amended Honeysuckle Road compound (C07)

Duration of impacts

Long term
Medium term
Short term



Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:200,000
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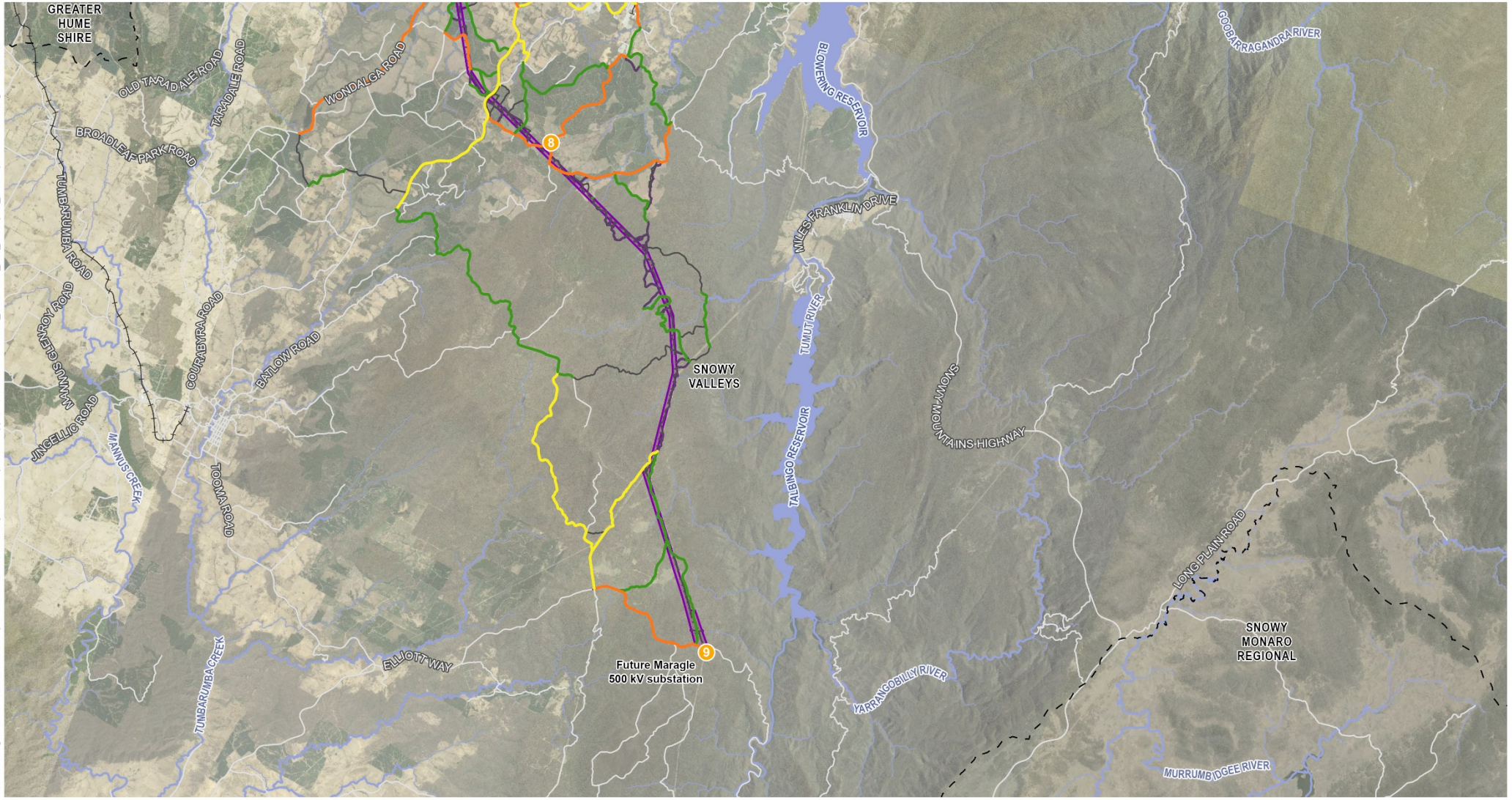
Projection: GDA 1994 MGA Zone 55

HumeLink **Traffic and Transport Impact**

Figure 6-2e: Duration of impacts for construction traffic on the road network providing indicative access to the amended project



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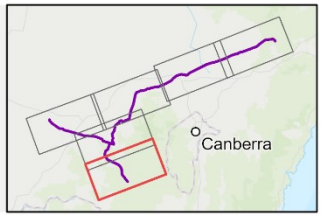
Amended project footprint
Local Government Area
Un-named local road / track
Watercourse
Railway
Substation
Key accommodation location

Construction ancillary facilities

8 Snubba Road compound (C18)
9 Maragle 500 kV substation compound (C05)

Duration of impacts

Long term
Medium term
Short term



Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:200,000
0 4 8 km

Projection: GDA 1994 MGA Zone 55

HumeLink **Traffic and Transport Impact**

Figure 6-2f: Duration of impacts for construction traffic on the road network providing indicative access to the amended project

6.3 Construction impact assessment

6.3.1 Impact on road network

Construction impacts on the road network would include temporary increases in traffic movements on roads connecting construction compounds and worker accommodation facilities, for the duration of construction activities. These impacts would vary over the amended project program as various elements of the amended project are delivered sequentially. It is anticipated that the highest volumes of vehicle movements during construction would be generated by the construction compounds and worker accommodation facilities. Works would not occur along the entire transmission line at one time but rather would be undertaken in a progressive manner along the line, with potential for several work fronts. The following sections discuss the impact of construction traffic on road network performance and road condition.

6.3.1.1 Road network performance

The traffic impact within the amended traffic study area during construction is likely to be noticeable on local roads, access tracks and at specific access locations within the amended project footprint due to an increase in vehicle trips.

The existing LoS and a comparison between the expected LoS during peak construction traffic are shown in Table 6-4 to Table 6-10. Figure 6-3 shows the LoS of roads with additional construction traffic. It is important to note that LoS criteria does not apply to informal roads such as access tracks and therefore they have not been quantitatively assessed as part of the revised assessment; these roads are identified as ‘LoS not applicable’ in the figure series below.

During the construction peak for all activities (refer to Table 6-1) the peak hourly increase in total traffic on all roads providing access to the amended project footprint would range between 10 to 90 vehicles per direction of travel and the median total increase in traffic on roads would be 25 vehicles per direction of travel. Five per cent of the time, the increase in total traffic would be above 70 vehicles per direction of travel. This is considered low.

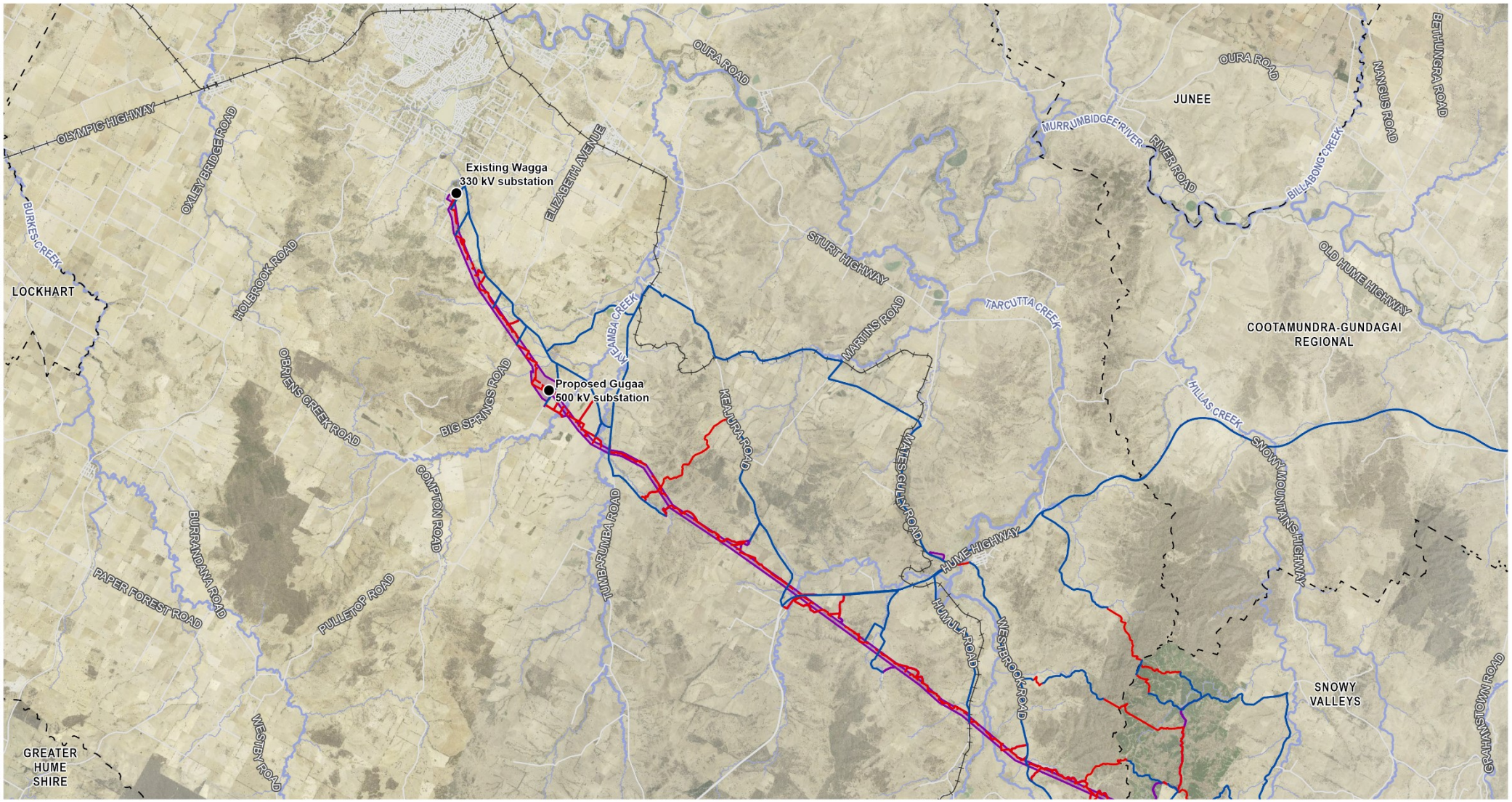
The peak hourly increase in heavy vehicle traffic on all roads providing access to the amended project footprint would range between five to 50 vehicles per direction of travel and the median increase in heavy vehicle traffic would be 15 vehicles per direction of travel. Five per cent of the time, the increase in heavy traffic would be above 35 vehicles per direction of travel. This is considered low.

For local roads, the peak hourly increase in total traffic on roads providing access to the amended project footprint would range between 10 to 90 vehicles per direction of travel and the median total increase in traffic would be 25 vehicles per direction of travel. Five per cent of the time, the increase in total traffic would be above 65 vehicles per direction of travel. This is considered low.

With the additional construction traffic, there would be a minor increase in VCR however there would be no change in LoS. Due to the quiet nature of the existing local environment owing to the low existing levels of traffic and the regional rural setting, the additional traffic would result in some noticeable change. However, with regards to road capacity, all roads would continue to operate reasonably in free flow conditions. This demonstrates that the road network in the amended traffic study area would continue to operate at nearly the same level of network performance as per existing conditions.

The assessment indicates the expected impact of additional traffic on road network performance would be low. In particular, when considering the construction program and the distribution of construction and ancillary site locations over the full geographical extent of the amended project, the expected additional volume of construction traffic generated by the amended project on national, state and regional roads (taking into consideration the design capacity) is expected to be minor. In summary, the overall increase in construction traffic due to the amended project is considered relatively minor in light of the available capacity on roads.

The delivery of materials to transmission line structures is anticipated to be via a combination of both road delivery and air delivery (ie by helicopter). The use of helicopters would be informed during detailed design, subject to various considerations including access, ground conditions and landing locations. In general, the use of helicopters would reduce the potential for impacts on the road network within the amended traffic study area. The flight paths and the helipads would be used in accordance with the Civil Aviation Safety Authority requirements. For the purposes of this assessment, it has been assumed that all deliveries of materials would be via the road network.



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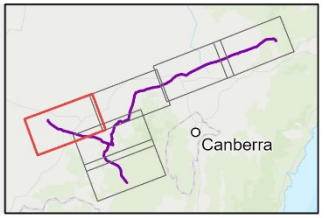
Amended project footprint
Local Government Area
Watercourse
Railway
Substation
Construction phase LOS
LoS A
LoS not applicable

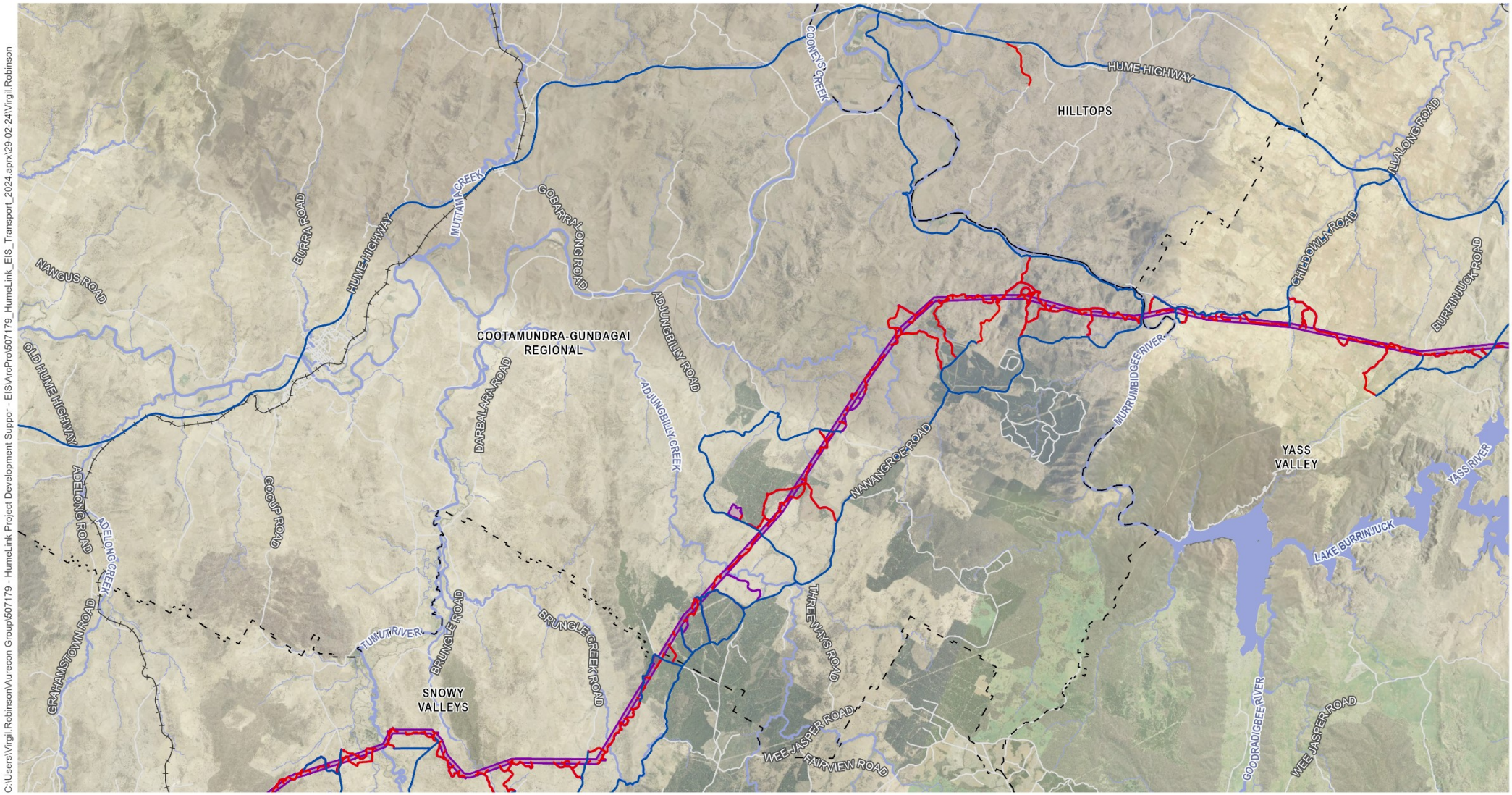


Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:200,000
0 4 8km

Projection: GDA 1994 MGA Zone 55

Figure 6-3a: Level of service for additional construction traffic on the road network providing indicative access to the amended project



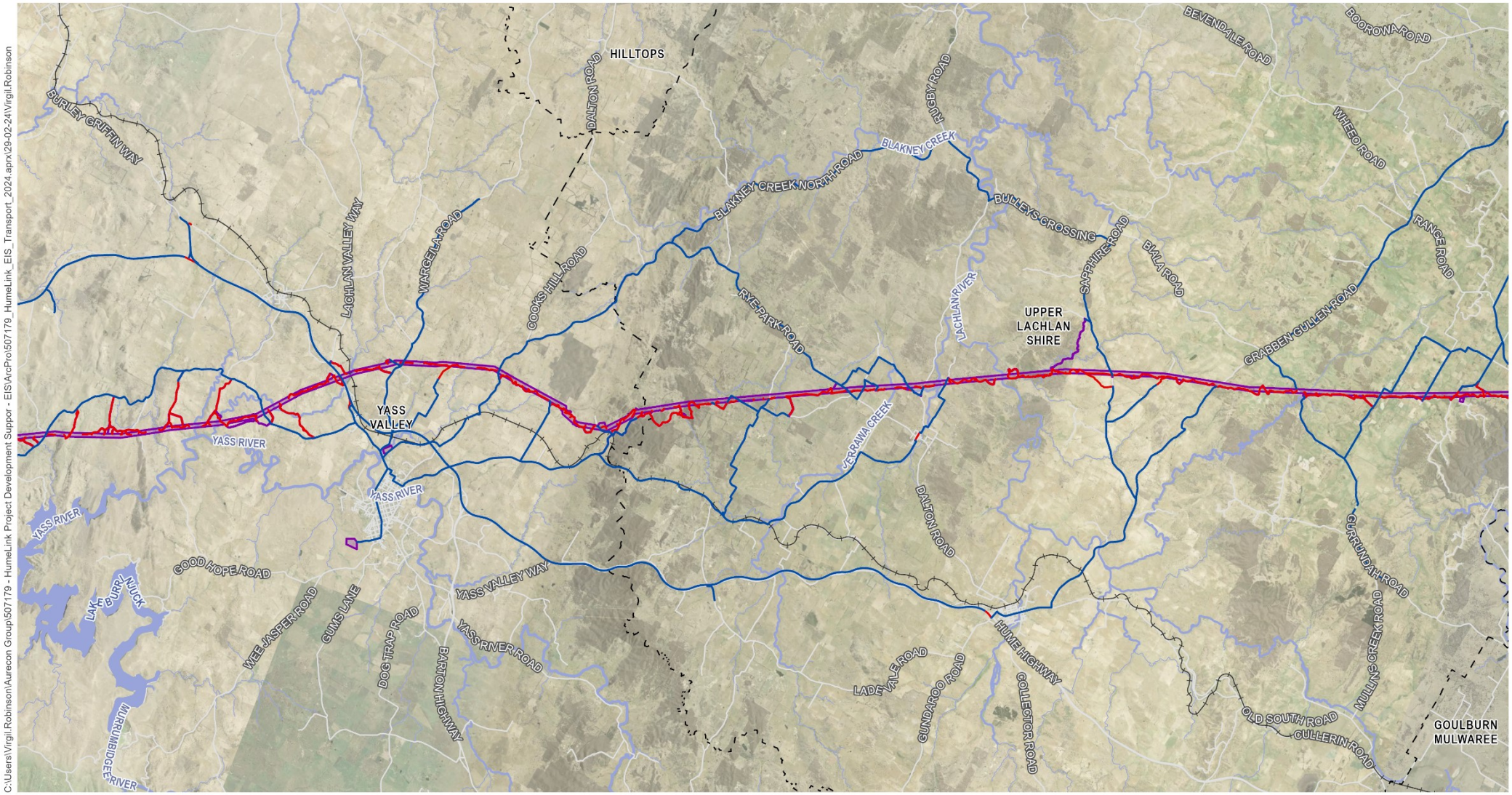
Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:200,000

0 4 8 km

Projection: GDA 1994 MGA Zone 55

Figure 6-3b: Level of service for additional construction traffic on the road network providing indicative access to the amended project



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Amended project footprint

Local Government Area

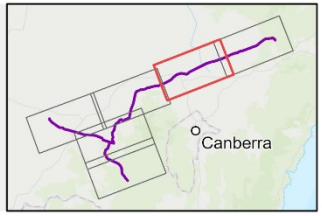
Watercourse

Railway

Construction phase LOS

LoS A

LoS not applicable



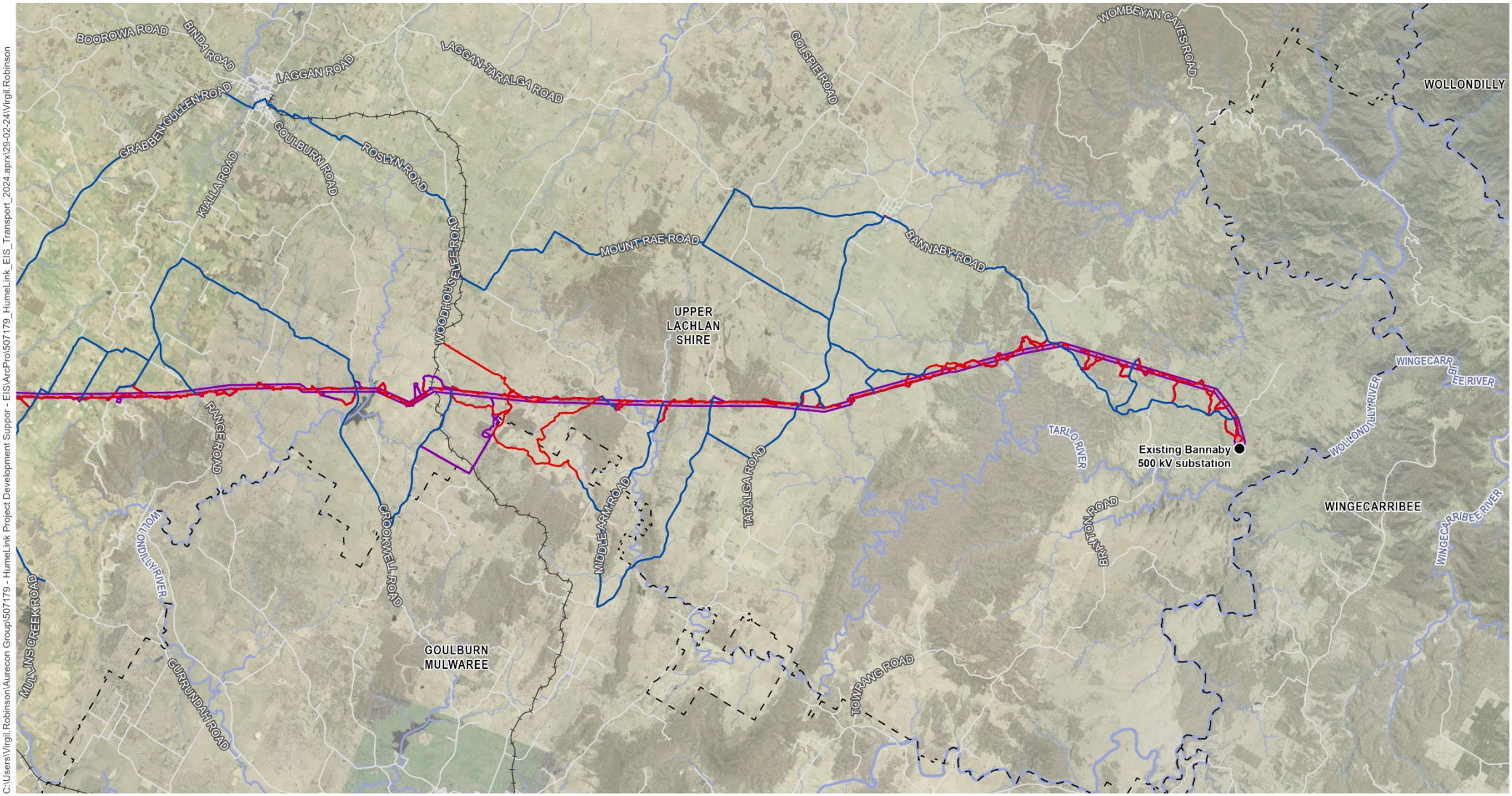
Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:200,000

0 4 8km

Projection: GDA 1994 MGA Zone 55

Figure 6-3c: Level of service for additional construction traffic on the road network providing indicative access to the amended project



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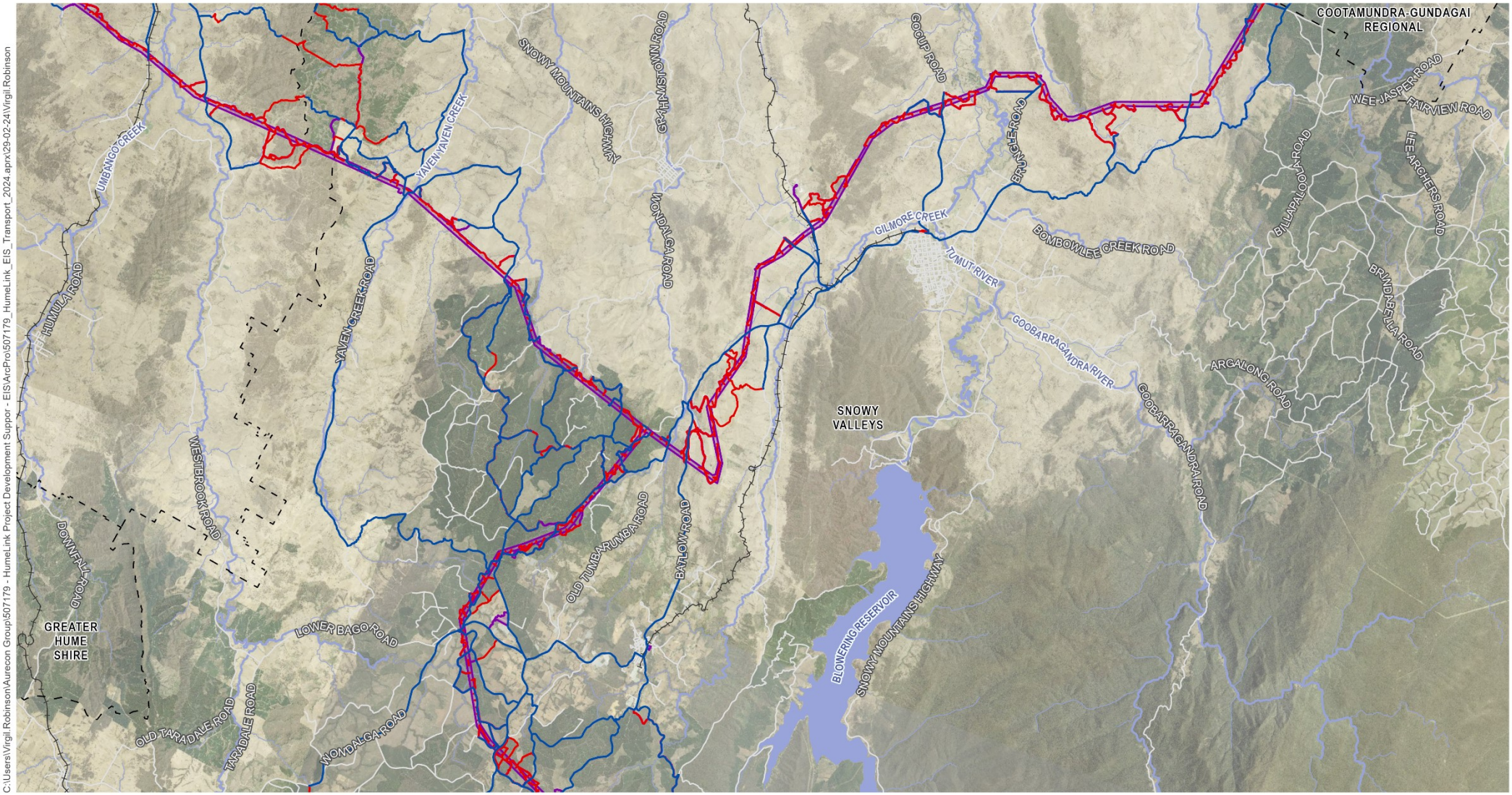
Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:200,000

0 4 8km

Projection: GDA 1994 MGA Zone 55

Figure 6-3d: Level of service for additional construction traffic on the road network providing indicative access to the amended project



Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:200,000
0 4 8 km

Projection: GDA 1994 MGA Zone 55

HumeLink **Traffic and Transport Impact**

Figure 6-3e: Level of service for additional construction traffic on the road network providing indicative access to the amended project

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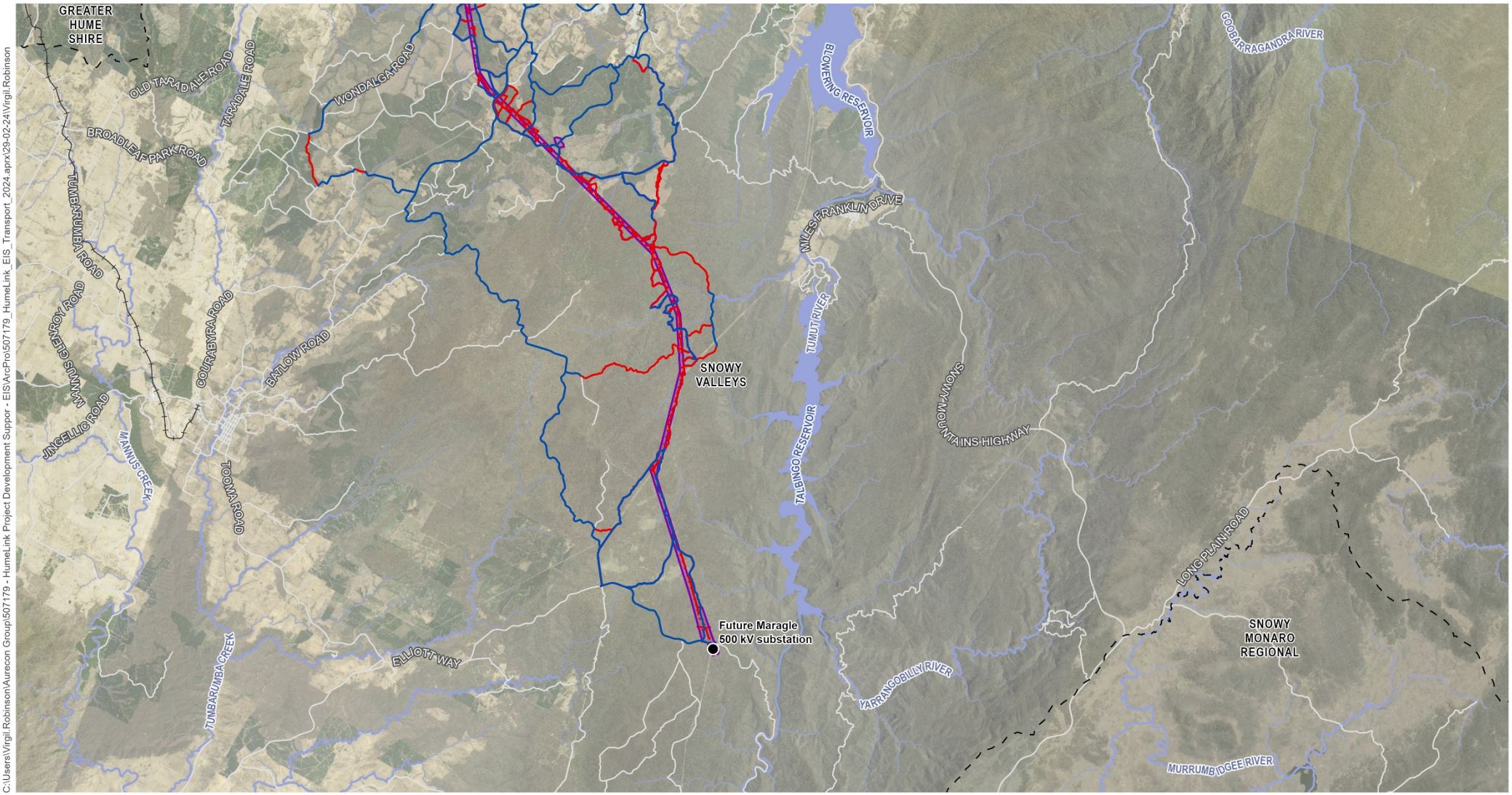

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Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:200,000

0 4 8km

Projection: GDA 1994 MGA Zone 55

HumeLink **Traffic and Transport Impact**

Figure 6-3f: Level of service for additional construction traffic on the road network providing indicative access to the amended project

Table 6-4 Impact on road network performance for additional construction traffic, Wagga Wagga City LGA

Road name	NSW road network classification	Pavement type	Duration of impacts	Existing peak hour volume (vehicles per hour in one direction)	Existing Volume to capacity ratio	Existing LoS	Peak hourly increase LV (vehicles per hour in one direction)	Peak hourly increase HV (vehicles per hour in one direction)	Peak hourly traffic increase (vehicles per hour in one direction)	Total traffic (vehicles per hour in one direction)	Construction phase V/C ratio	Construction phase LoS (changes from existing LoS identified in bold)
Abbots Lane	Local road	Unsealed	Short-term	20	0.02	LoS A	15	30	45	65	0.07	LoS A
Angels Lane	Local road	Unsealed	Short-term	20	0.02	LoS A	25	30	55	75	0.08	LoS A
Ashfords Road	Local road	Sealed	Long-term	30	0.03	LoS A	10	15	25	55	0.06	LoS A
Big Springs Road	Local road	Sealed	Short-term	50	0.05	LoS A	20	30	50	100	0.10	LoS A
Boiling Down Road	Local road	Unsealed	Long-term	20	0.02	LoS A	5	10	15	35	0.04	LoS A
Burkinshaws Lane	Local road	Unsealed	Short-term	10	0.01	LoS A	5	15	20	30	0.03	LoS A
Byes Lane	Local road	Unsealed	Short-term	10	0.01	LoS A	15	20	35	45	0.05	LoS A
Centenary Avenue	Local road	Sealed	Short-term	100	0.10	LoS A	15	35	50	150	0.15	LoS A
Comatawa Road	Local road	Unsealed	Short-term	20	0.02	LoS A	10	20	30	50	0.06	LoS A
Coreinbob Road	Local road	Unsealed	Short-term	20	0.02	LoS A	25	35	60	80	0.09	LoS A
Coreinbob Siding Road	Local road	Unsealed	Short-term	30	0.03	LoS A	25	35	60	90	0.09	LoS A
Gregadoo East Road	Local road	Sealed	Long-term	100	0.10	LoS A	40	50	90	190	0.19	LoS A
Gregadoo-Ladysmith Road	Local road	Sealed	Short-term	50	0.05	LoS A	20	35	55	105	0.11	LoS A
Hume Highway (between Humula Road and Comatawa Road)	National road	Sealed	Long-term	140	0.04	LoS A	35	45	80	220	0.06	LoS A
Humula Link Road	Local road	Sealed	Medium-term	50	0.05	LoS A	5	15	20	70	0.07	LoS A
Humula Road	Local road	Sealed	Short-term	50	0.05	LoS A	5	15	20	70	0.07	LoS A
Ivydale Road	Local road	Unsealed	Short-term	20	0.02	LoS A	10	10	20	40	0.04	LoS A
Keajura Road	Local road	Sealed	Short-term	50	0.05	LoS A	15	30	45	95	0.10	LoS A
Kyeamba Street	Local road	Sealed	Short-term	50	0.05	LoS A	15	30	45	95	0.10	LoS A
Livingstone Gully Road	Local road	Unsealed	Long-term	20	0.02	LoS A	20	30	50	70	0.08	LoS A
Mates Gully Road	Local road	Sealed	Long-term	50	0.05	LoS A	40	40	80	130	0.13	LoS A
Mcallisters Trail	Local road	Unsealed	Short-term	10	0.01	LoS A	5	5	10	20	0.02	LoS A
Prices Road	Local road	Unsealed	Short-term	10	0.01	LoS A	5	10	15	25	0.03	LoS A
Stewarts Road	Local road	Sealed	Short-term	10	0.01	LoS A	15	30	45	55	0.06	LoS A
Toonga Settlement Road	Local road	Unsealed	Short-term	20	0.02	LoS A	5	15	20	40	0.04	LoS A
Trewalla Road	Local road	Unsealed	Short-term	10	0.01	LoS A	25	35	60	70	0.08	LoS A
Tumbarumba Road	Regional road	Sealed	Medium-term	50	0.05	LoS A	35	40	75	125	0.13	LoS A
Tywong Street	Local road	Sealed	Short-term	20	0.02	LoS A	15	30	45	65	0.07	LoS A
Westbrook Road	Local road	Sealed	Short-term	50	0.05	LoS A	25	45	70	120	0.12	LoS A
Wilds Road	Local road	Unsealed	Short-term	10	0.01	LoS A	10	20	30	40	0.04	LoS A

Table 6-5 Impact on road network performance for additional construction traffic, Snowy Valleys LGA

Road name	NSW road network classification	Pavement type	Duration of impacts	Existing peak hour volume (vehicles per hour in one direction)	Existing Volume to capacity ratio	Existing LoS Level of service	Peak hourly increase LV (vehicles per hour in one direction)	Peak hourly increase HV (vehicles per hour in one direction)	Peak hourly traffic increase (vehicles per hour in one direction)	Total traffic (vehicles per hour in one direction)	Construction phase V/C ratio	Construction phase LoS (changes from existing LoS identified in bold)
Adelong Creek Road	Local road	Unsealed	Medium-term	10	0.01	LoS A	25	40	65	75	0.08	LoS A
Adelong Road	State road	Sealed	Short-term	280	0.20	LoS A	20	20	40	320	0.23	LoS A
Ardrossan Headquarters Road	Local road	Unsealed	Long-term	20	0.02	LoS A	20	20	40	60	0.07	LoS A
Ash Creek Road	Local road	Unsealed	Medium-term	20	0.02	LoS A	10	15	25	45	0.05	LoS A
Back Camp Road	Local road	Unsealed	Long-term	20	0.02	LoS A	20	20	40	60	0.07	LoS A
Back Creek Road	Local road	Unsealed	Short-term	20	0.02	LoS A	5	15	20	40	0.04	LoS A
Back Nacki Creek Road	Local road	Unsealed	Short-term	20	0.02	LoS A	10	10	20	40	0.04	LoS A
Back Kunama Road	Local road	Unsealed	Medium-term	30	0.03	LoS A	10	15	25	55	0.06	LoS A
Bago Creek Road	Local road	Unsealed	Long-term	20	0.02	LoS A	5	25	30	50	0.06	LoS A
Bago Forest Way	Local road	Unsealed	Long-term	20	0.02	LoS A	15	20	35	55	0.06	LoS A
Barneys Highway	Local road	Unsealed	Short-term	10	0.01	LoS A	5	5	10	20	0.02	LoS A
Bartoman Street	Local road	Sealed	Medium-term	50	0.05	LoS A	5	10	15	65	0.07	LoS A
Batlow Road	State road	Sealed	Medium-term	70	0.04	LoS A	25	35	60	130	0.07	LoS A
Bb Feeder Road	Local road	Unsealed	Short-term	20	0.02	LoS A	5	5	10	30	0.03	LoS A
Booths Access Road	Local road	Unsealed	Medium-term	10	0.01	LoS A	5	5	10	20	0.02	LoS A
Booths Road	Local road	Unsealed	Short-term	20	0.02	LoS A	5	5	10	30	0.03	LoS A
Bradleys Drive	Local road	Unsealed	Short-term	10	0.01	LoS A	10	15	25	35	0.04	LoS A
Bridge Road	Local road	Unsealed	Short-term	10	0.01	LoS A	10	20	30	40	0.04	LoS A
Browns Forest Road	Local road	Unsealed	Short-term	20	0.02	LoS A	5	5	10	30	0.03	LoS A
Browns Road	Local road	Unsealed	Short-term	10	0.01	LoS A	15	25	40	50	0.06	LoS A
Brungle Creek Road	Local road	Unsealed	Short-term	30	0.03	LoS A	15	15	30	60	0.06	LoS A
Brungle Road	Local road	Sealed	Short-term	50	0.05	LoS A	15	15	30	80	0.08	LoS A
Buddong Road	Local road	Unsealed	Short-term	10	0.01	LoS A	5	10	15	25	0.03	LoS A
Bullongra Road	Local road	Unsealed	Short-term	20	0.02	LoS A	10	15	25	45	0.05	LoS A
Carrs Road	Local road	Unsealed	Short-term	10	0.01	LoS A	5	30	35	45	0.05	LoS A
Central Logging Road	Local road	Unsealed	Short-term	20	0.02	LoS A	10	15	25	45	0.05	LoS A
Cockatoo Road	Local road	Unsealed	Short-term	10	0.01	LoS A	15	10	25	35	0.04	LoS A
Dunns Road	Local road	Unsealed	Short-term	20	0.02	LoS A	10	20	30	50	0.06	LoS A
East Bago Powerline Road	Local road	Unsealed	Short-term	10	0.01	LoS A	20	20	40	50	0.06	LoS A
Ellerslie Road	Local road	Unsealed	Long-term	20	0.02	LoS A	15	20	35	55	0.06	LoS A
Elliott Way	Regional road	Sealed	Long-term	50	0.04	LoS A	10	15	25	75	0.05	LoS A
Ernies Way	Local road	Unsealed	Long-term	10	0.01	LoS A	5	25	30	40	0.04	LoS A
Forest Road	Local road	Sealed	Short-term	50	0.05	LoS A	5	5	10	60	0.06	LoS A
Gadara Lane	Local road	Unsealed	Medium-term	20	0.02	LoS A	20	15	35	55	0.06	LoS A
Gadara Road	Local road	Unsealed	Long-term	20	0.02	LoS A	25	15	40	60	0.07	LoS A
Gilmore Mill Road	Local road	Sealed	Short-term	20	0.02	LoS A	20	25	45	65	0.07	LoS A
Gocup Road (west Of Tumut)	State road	Sealed	Short-term	70	0.04	LoS A	15	15	30	100	0.06	LoS A
Green Hills Access Road	Local road	Sealed	Long-term	20	0.02	LoS A	20	30	50	70	0.08	LoS A

Road name	NSW road network classification	Pavement type	Duration of impacts	Existing peak hour volume (vehicles per hour in one direction)	Existing Volume to capacity ratio	Existing LoS Level of service	Peak hourly increase LV (vehicles per hour in one direction)	Peak hourly increase HV (vehicles per hour in one direction)	Peak hourly traffic increase (vehicles per hour in one direction)	Total traffic (vehicles per hour in one direction)	Construction phase V/C ratio	Construction phase LoS (changes from existing LoS identified in **bold**)
Green Hills Forest Way	Local road	Unsealed	Short-term	20	0.02	LoS A	5	10	15	35	0.04	LoS A
Greenhills Road	Local road	Sealed	Short-term	50	0.05	LoS A	15	25	40	90	0.09	LoS A
Honeysuckle Road	Local road	Unsealed	Long-term	10	0.01	LoS A	30	20	50	60	0.07	LoS A
Hugel Trail	Local road	Unsealed	Long-term	10	0.01	LoS A	10	15	25	35	0.04	LoS A
Kileys Creek Road	Local road	Unsealed	Long-term	10	0.01	LoS A	5	5	10	20	0.02	LoS A
Kileys Road	Local road	Unsealed	Short-term	10	0.01	LoS A	10	10	20	30	0.03	LoS A
Kopsens Road	Local road	Unsealed	Long-term	20	0.02	LoS A	15	20	35	55	0.06	LoS A
Kunama Road	Local road	Unsealed	Medium-term	20	0.02	LoS A	20	35	55	75	0.08	LoS A
Kurrajong Avenue	Local road	Sealed	Long-term	20	0.02	LoS A	10	10	20	40	0.04	LoS A
Lower Bago Road	Local road	Sealed	Long-term	50	0.05	LoS A	20	40	60	110	0.11	LoS A
Meadow Creek Road	Local road	Unsealed	Short-term	20	0.02	LoS A	5	5	10	30	0.03	LoS A
Memorial Avenue	Local road	Sealed	Long-term	30	0.03	LoS A	10	10	20	50	0.06	LoS A
Mill Road	Local road	Sealed	Long-term	30	0.03	LoS A	5	5	10	40	0.04	LoS A
Millers Road	Local road	Unsealed	Short-term	10	0.01	LoS A	15	20	35	45	0.05	LoS A
Monterey Road	Local road	Unsealed	Short-term	20	0.02	LoS A	5	15	20	40	0.04	LoS A
Mount Pleasant Creek Trail	Local road	Unsealed	Short-term	10	0.01	LoS A	5	5	10	20	0.02	LoS A
New Maragle Road	Local road	Unsealed	Medium-term	10	0.01	LoS A	10	20	30	40	0.04	LoS A
Nacki Creek Road	Local road	Unsealed	Short-term	10	0.01	LoS A	5	10	15	25	0.03	LoS A
Northern Boundary Road	Local road	Unsealed	Short-term	20	0.02	LoS A	5	10	15	35	0.04	LoS A
Nursery Access Road	Local road	Unsealed	Short-term	20	0.02	LoS A	5	35	40	60	0.07	LoS A
Oberne Ellerslie Trail	Local road	Unsealed	Short-term	10	0.01	LoS A	5	10	15	25	0.03	LoS A
Old Telegraph Track	Local road	Unsealed	Short-term	10	0.01	LoS A	20	35	55	65	0.07	LoS A
Old Tumbarumba Road	Local road	Sealed	Medium-term	30	0.03	LoS A	10	15	25	55	0.06	LoS A
Old Western Boundary Road	Local road	Unsealed	Short-term	20	0.02	LoS A	5	5	10	30	0.03	LoS A
One Tree Hill Trail	Local road	Unsealed	Short-term	10	0.01	LoS A	5	10	15	25	0.03	LoS A
Palmer Street	Local road	Unsealed	Short-term	20	0.02	LoS A	5	10	15	35	0.04	LoS A
Perkins Road	Local road	Unsealed	Short-term	20	0.02	LoS A	5	15	20	40	0.04	LoS A
Pierces Boundary Road	Local road	Unsealed	Short-term	20	0.02	LoS A	5	5	10	30	0.03	LoS A
Pipe Dump Road	Local road	Unsealed	Short-term	20	0.02	LoS A	5	10	15	35	0.04	LoS A
Powerline Road	Local road	Unsealed	Medium-term	10	0.01	LoS A	10	15	25	35	0.04	LoS A
Powerline Trail	Local road	Unsealed	Short-term	10	0.01	LoS A	10	10	20	30	0.03	LoS A
Prickle Road	Local road	Unsealed	Short-term	10	0.01	LoS A	10	15	25	35	0.04	LoS A
Red Hill Road	Local road	Unsealed	Short-term	20	0.02	LoS A	40	25	65	85	0.09	LoS A
Right Arm Creek Road	Local road	Unsealed	Short-term	20	0.02	LoS A	5	5	10	30	0.03	LoS A
Roches Road	Local road	Unsealed	Short-term	10	0.01	LoS A	5	10	15	25	0.03	LoS A
Rocky Gully Road	Local road	Unsealed	Short-term	10	0.01	LoS A	20	15	35	45	0.05	LoS A
Rosehill Road	Local road	Unsealed	Short-term	10	0.01	LoS A	5	5	10	20	0.02	LoS A
Sailors Road	Local road	Unsealed	Short-term	10	0.01	LoS A	5	10	15	25	0.03	LoS A
Sargood Trail	Local road	Unsealed	Short-term	10	0.01	LoS A	5	5	10	20	0.02	LoS A

Road name	NSW road network classification	Pavement type	Duration of impacts	Existing peak hour volume (vehicles per hour in one direction)	Existing Volume to capacity ratio	Existing LoS Level of service	Peak hourly increase LV (vehicles per hour in one direction)	Peak hourly increase HV (vehicles per hour in one direction)	Peak hourly traffic increase (vehicles per hour in one direction)	Total traffic (vehicles per hour in one direction)	Construction phase V/C ratio	Construction phase LoS (changes from existing LoS identified in bold)
Scotties Hut Road	Local road	Unsealed	Short-term	10	0.01	LoS A	5	10	15	25	0.03	LoS A
Sharps Creek Road	Local road	Unsealed	Short-term	20	0.02	LoS A	5	10	15	35	0.04	LoS A
Sharps Road	Local road	Unsealed	Long-term	10	0.01	LoS A	15	20	35	45	0.05	LoS A
Shedleys Road	Local road	Unsealed	Short-term	10	0.01	LoS A	5	15	20	30	0.03	LoS A
Sixty Five Feeder Road	Local road	Unsealed	Short-term	10	0.01	LoS A	5	10	15	25	0.03	LoS A
Snowy Mountains Highway (west of Batlow Road)	State road	Sealed	Long-term	130	0.07	LoS A	20	25	45	175	0.10	LoS A
Snubba Road	Local road	Unsealed	Long-term	20	0.02	LoS A	15	20	35	55	0.06	LoS A
Spyglass Trail	Local road	Unsealed	Short-term	10	0.01	LoS A	5	10	15	25	0.03	LoS A
Stantons Road	Local road	Unsealed	Short-term	10	0.01	LoS A	5	10	15	25	0.03	LoS A
Stockmans Creek Road	Local road	Unsealed	Short-term	10	0.01	LoS A	5	5	10	20	0.02	LoS A
Stud Horse Feeder Road	Local road	Unsealed	Short-term	20	0.02	LoS A	5	10	15	35	0.04	LoS A
Webbs Road	Local road	Unsealed	Short-term	20	0.02	LoS A	15	10	25	45	0.05	LoS A
Wee Jasper Road (north-east of Tumut)	Regional road	Unsealed	Short-term	70	0.05	LoS A	15	15	30	100	0.07	LoS A
West Branch Feeder	Local road	Unsealed	Medium-term	20	0.02	LoS A	20	35	55	75	0.08	LoS A
West Gilmore Road	Local road	Unsealed	Medium-term	20	0.02	LoS A	10	15	25	45	0.05	LoS A
Westwood Road	Local road	Unsealed	Short-term	20	0.02	LoS A	15	20	35	55	0.06	LoS A
Willigobung Middle Spur Road	Local road	Unsealed	Short-term	10	0.01	LoS A	5	5	10	20	0.01	LoS A
Wilsons Road	Local road	Unsealed	Short-term	20	0.02	LoS A	5	5	10	30	0.03	LoS A
Wiltys Road	Local road	Unsealed	Short-term	20	0.02	LoS A	5	5	10	30	0.03	LoS A
Wombeys Feeder Road	Local road	Unsealed	Short-term	10	0.01	LoS A	5	5	10	20	0.02	LoS A
Wondalga Road	Regional road	Sealed	Long-term	30	0.02	LoS A	20	30	50	80	0.06	LoS A
Yarrawonga Road	Local road	Unsealed	Short-term	10	0.01	LoS A	5	5	10	20	0.02	LoS A
Yaven Creek Road	Local road	Sealed	Long-term	30	0.03	LoS A	15	20	35	65	0.07	LoS A
Yellowin Access Road	Local road	Sealed	Short-term	20	0.02	LoS A	5	5	10	30	0.03	LoS A

Table 6-6 Impact on road network performance for additional construction traffic, Cootamundra-Gundagai Regional LGA

Road name	NSW road network classification	Pavement type	Duration of Impacts	Existing peak hour volume (vehicles per hour in one direction)	Existing Volume to capacity ratio	Existing LoS Level of service	Peak hourly increase LV (vehicles per hour in one direction)	Peak hourly increase HV (vehicles per hour in one direction)	Peak hourly traffic increase (vehicles per hour in one direction)	Total traffic (vehicles per hour in one direction)	Construction phase V/C ratio	Construction phase LoS (Changes from existing LoS identified in bold)
Adjungbilly Road	Local road	Sealed	Long-term	20	0.02	LoS A	60	15	75	95	0.10	LoS A
Bundarbo Road	Local road	Unsealed	Medium-term	20	0.02	LoS A	5	5	10	30	0.03	LoS A
Fernhill Road	Local road	Unsealed	Short-term	10	0.01	LoS A	35	20	55	65	0.07	LoS A
Honeysuckle Road	Local road	Unsealed	Long-term	20	0.02	LoS A	30	20	50	70	0.08	LoS A
Hume Highway (north of Coolac)	National road	Sealed	Short-term	380	0.11	LoS A	5	5	10	390	0.11	LoS A
Maryvale Road	Local road	Unsealed	Medium-term	10	0.01	LoS A	10	15	25	35	0.04	LoS A
Nanangroe Road	Local road	Unsealed	Medium-term	30	0.03	LoS A	15	20	35	65	0.07	LoS A
Parsons Creek Road	Local road	Unsealed	Short-term	20	0.02	LoS A	10	10	20	40	0.04	LoS A
Red Hill Road	Local road	Unsealed	Medium-term	20	0.02	LoS A	40	25	65	85	0.09	LoS A
Red Strip Road	Local road	Unsealed	Short-term	10	0.01	LoS A	35	20	55	65	0.07	LoS A
Sawmill Creek Road	Local road	Unsealed	Short-term	10	0.01	LoS A	15	10	25	35	0.04	LoS A

Table 6-7 Impact on road network performance for additional construction traffic Yass Valley LGA

Road name	NSW road network classification	Pavement type	Duration of impacts	Existing peak hour volume (vehicles per hour in one direction)	Existing Volume to capacity ratio	Existing LoS Level of service	Peak hourly increase LV (vehicles per hour in one direction)	Peak hourly increase HV (vehicles per hour in one direction)	Peak hourly traffic increase (vehicles per hour in one direction)	Total traffic (vehicles per hour in one direction)	Construction phase V/C ratio	Construction phase LoS (changes from existing LoS identified in bold)
Bango Lane	Local road	Unsealed	Medium-term	10	0.01	LoS A	10	10	20	30	0.03	LoS A
Black Range Road	Local road	Unsealed	Short-term	30	0.03	LoS A	35	25	60	90	0.10	LoS A
Blakney Creek Road South	Local road	Sealed	Short-term	30	0.03	LoS A	25	15	40	70	0.07	LoS A
Buggali Road	Local road	Unsealed	Short-term	10	0.01	LoS A	5	5	10	20	0.02	LoS A
Burley Griffin Way	State road	Sealed	Short-term	100	0.04	LoS A	5	5	10	110	0.04	LoS A
Burrinjuck Road	Regional road	Sealed	Short-term	30	0.02	LoS A	15	10	25	55	0.04	LoS A
Bushs Road	Local road	Unsealed	Short-term	20	0.02	LoS A	15	10	25	45	0.05	LoS A
Childowla Road	Local road	Sealed	Short-term	20	0.02	LoS A	25	30	55	75	0.08	LoS A
Comur Street	Regional road	Sealed	Long-term	350	0.13	LoS A	5	20	25	375	0.13	LoS A
Cooks Hill Road	Local road	Sealed	Medium-term	30	0.03	LoS A	30	25	55	85	0.09	LoS A
Coolalie Road	Local road	Unsealed	Medium-term	20	0.02	LoS A	30	25	55	75	0.08	LoS A
Days Road	Local road	Unsealed	Medium-term	10	0.01	LoS A	5	5	10	20	0.02	LoS A
Fagan Drive	Local road	Sealed	Short-term	20	0.02	LoS A	20	15	35	55	0.06	LoS A
Fairy Hole Road	Local road	Unsealed	Short-term	20	0.02	LoS A	5	10	15	35	0.04	LoS A
Faulder Avenue	Local road	Unsealed	Long-term	30	0.03	LoS A	60	10	70	100	0.10	LoS A
Glebe Street	Local road	Sealed	Short-term	20	0.02	LoS A	40	30	70	90	0.10	LoS A
Grand Junction Road	Local road	Sealed	Long-term	70	0.08	LoS A	10	20	30	100	0.11	LoS A
Hovell Street	Local road	Sealed	Short-term	50	0.06	LoS A	40	10	50	100	0.11	LoS A
Hume Highway (between Burley Griffin Way and Burrinjuck Road)	National road	Sealed	Short-term	340	0.09	LoS A	35	45	80	420	0.12	LoS A
Hume Highway (between Yass Valley Way and Barton Highway)	National road	Sealed	Long-term	290	0.08	LoS A	35	45	80	370	0.10	LoS A
Hume Highway (between Yass Valley Way and Lachlan Valley Way)	National road	Sealed	Medium-term	550	0.15	LoS A	35	45	80	630	0.18	LoS A
Illalong Road	Local road	Sealed	Short-term	30	0.03	LoS A	20	15	35	65	0.07	LoS A
Laidlaw Street	Regional road	Sealed	Long-term	350	0.25	LoS A	10	20	30	380	0.27	LoS A
Mcintosh Lane	Local road	Unsealed	Short-term	10	0.01	LoS A	5	10	15	25	0.03	LoS A
Orion Street	Local road	Sealed	Medium-term	50	0.06	LoS A	40	30	70	120	0.13	LoS A
Paynes Road	Local road	Unsealed	Short-term	10	0.01	LoS A	5	5	10	20	0.02	LoS A
Perry Street	Local road	Sealed	Long-term	30	0.03	LoS A	10	20	30	60	0.07	LoS A
Pollux Street	Local road	Sealed	Medium-term	50	0.06	LoS A	40	10	50	100	0.11	LoS A
Reddall Street	Local road	Sealed	Medium-term	20	0.02	LoS A	40	15	55	75	0.08	LoS A
Talmo Road	Local road	Unsealed	Medium-term	20	0.02	LoS A	20	15	35	55	0.06	LoS A
Wargeila Road	Local road	Sealed	Medium-term	30	0.03	LoS A	20	10	30	60	0.06	LoS A
Warroo Road	Local road	Sealed	Long-term	100	0.11	LoS A	10	20	30	130	0.14	LoS A
Yass Valley Way	Regional road	Sealed	Long-term	320	0.23	LoS A	40	30	70	390	0.28	LoS A

Table 6-8 Impact on road network performance for additional construction traffic, Upper Lachlan Shire LGA

Road name	NSW road network classification	Pavement type	Duration of impacts	Existing peak hour volume (vehicles per hour in one direction)	Existing Volume to capacity ratio	Existing LoS Level of service	Peak hourly increase LV (vehicles per hour in one direction)	Peak hourly increase HV (vehicles per hour in one direction)	Peak hourly traffic increase (vehicles per hour in one direction)	Total traffic (vehicles per hour in one direction)	Construction phase V/C ratio	Construction phase LoS (changes from existing LoS identified in bold)
Adavale Road	Local road	Unsealed	Short-term	10	0.01	LoS A	15	5	20	30	0.03	LoS A
Back Arm Road	Local road	Unsealed	Short-term	20	0.02	LoS A	5	5	10	30	0.03	LoS A
Bannaby Road	Local road	Sealed	Medium-term	20	0.02	LoS A	25	15	40	60	0.07	LoS A
Bannister Lane	Local road	Unsealed	Short-term	10	0.01	LoS A	10	10	20	30	0.03	LoS A
Blakney Creek North Road	Local road	Sealed	Short-term	20	0.02	LoS A	10	10	20	40	0.04	LoS A
Blakney Creek Road South	Local road	Sealed	Short-term	30	0.03	LoS A	25	15	40	70	0.07	LoS A
Blakney Creek South Road	Local road	Sealed	Short-term	10	0.01	LoS A	25	15	40	50	0.06	LoS A
Britannia Street	Regional road	Sealed	Short-term	20	0.02	LoS A	5	5	10	30	0.03	LoS A
Brown Street	Local road	Unsealed	Short-term	20	0.02	LoS A	10	5	15	35	0.04	LoS A
Bulleys Crossing	Local road	Unsealed	Short-term	20	0.02	LoS A	10	10	20	40	0.04	LoS A
Bunnaby Street	Regional road	Sealed	Short-term	20	0.02	LoS A	25	20	45	65	0.07	LoS A
Butcher Road	Local road	Unsealed	Short-term	10	0.01	LoS A	20	15	35	45	0.05	LoS A
Camp Street	Regional road	Sealed	Short-term	20	0.02	LoS A	5	5	10	30	0.03	LoS A
Carnells Lane	Local road	Unsealed	Short-term	10	0.01	LoS A	10	5	15	25	0.03	LoS A
Carrabungla Road	Local road	Unsealed	Short-term	10	0.01	LoS A	20	10	30	40	0.04	LoS A
Castle Hill Road	Local road	Unsealed	Short-term	10	0.01	LoS A	10	5	15	25	0.03	LoS A
Chapel Street	Local road	Sealed	Medium-term	20	0.02	LoS A	10	5	15	35	0.04	LoS A
Church Street	Local road	Sealed	Short-term	20	0.02	LoS A	10	5	15	35	0.04	LoS A
Clancys Road	Local road	Unsealed	Short-term	10	0.01	LoS A	20	15	35	45	0.05	LoS A
Colyer Street	Local road	Sealed	Short-term	50	0.06	LoS A	5	5	10	60	0.07	LoS A
Coolalie Road	Local road	Unsealed	Short-term	20	0.02	LoS A	30	25	55	75	0.08	LoS A
Crookwell Road	State road	Sealed	Medium-term	100	0.06	LoS A	40	20	60	160	0.09	LoS A
Cullerin Road	Local road	Sealed	Short-term	30	0.02	LoS A	15	10	25	55	0.04	LoS A
Dawes Road	Local road	Unsealed	Short-term	10	0.01	LoS A	5	10	15	25	0.03	LoS A
Felled Timber Road	Local road	Unsealed	Short-term	10	0.01	LoS A	5	5	10	20	0.02	LoS A
Flacknell Creek Road	Local road	Unsealed	Short-term	10	0.01	LoS A	10	10	20	30	0.03	LoS A
Goulburn Road	State road	Sealed	Short-term	100	0.06	LoS A	35	25	60	160	0.09	LoS A
Grabben Gullen Road (north of Cullerin Road)	Regional road	Sealed	Short-term	20	0.01	LoS A	20	15	35	55	0.04	LoS A
Graywood Siding Road	Local road	Unsealed	Long-term	10	0.01	LoS A	50	15	65	75	0.08	LoS A
Greendale Road	Local road	Unsealed	Medium-term	10	0.01	LoS A	5	5	10	20	0.02	LoS A
Gundaroo Road	Regional road	Sealed	Short-term	50	0.04	LoS A	15	10	25	75	0.05	LoS A
Gunning Street	Regional road	Sealed	Long-term	30	0.02	LoS A	10	5	15	45	0.03	LoS A
Gurrundah Road	Local road	Sealed	Short-term	30	0.03	LoS A	5	5	10	40	0.04	LoS A
Hanworth Road	Local road	Sealed	Long-term	20	0.02	LoS A	25	15	40	60	0.07	LoS A
Harley Road	Local road	Unsealed	Short-term	20	0.02	LoS A	5	5	10	30	0.03	LoS A
Hillcrest Road	Local road	Unsealed	Short-term	10	0.01	LoS A	15	15	30	40	0.04	LoS A
Hume Highway	National road	Sealed	Short-term	300	0.08	LoS A	35	45	80	380	0.11	LoS A
Hume Street	Regional road	Sealed	Medium-term	50	0.06	LoS A	40	10	50	100	0.11	LoS A
Jerrawa Road	Local road	Sealed	Short-term	20	0.02	LoS A	10	10	20	40	0.04	LoS A

Road name	NSW road network classification	Pavement type	Duration of impacts	Existing peak hour volume (vehicles per hour in one direction)	Existing Volume to capacity ratio	Existing LoS Level of service	Peak hourly increase LV (vehicles per hour in one direction)	Peak hourly increase HV (vehicles per hour in one direction)	Peak hourly traffic increase (vehicles per hour in one direction)	Total traffic (vehicles per hour in one direction)	Construction phase V/C ratio	Construction phase LoS (changes from existing LoS identified in bold)
Kialla Road	Local road	Sealed	Short-term	20	0.02	LoS A	15	15	30	50	0.06	LoS A
Lachlan Valley Way	Regional road	Sealed	Short-term	50	0.04	LoS A	5	5	10	60	0.04	LoS A
Lade Vale Road	Local road	Unsealed	Short-term	20	0.02	LoS A	5	5	10	30	0.03	LoS A
Laggan – Taralga Road	Regional road	Sealed/ Unsealed	Short-term	50	0.04	LoS A	20	10	30	80	0.06	LoS A
Loop Road	Local road	Unsealed	Medium-term	20	0.02	LoS A	10	5	15	35	0.04	LoS A
Lower Greendale Road	Local road	Unsealed	Short-term	10	0.01	LoS A	5	5	10	20	0.02	LoS A
Macarthur Street	Local road	Sealed	Short-term	20	0.02	LoS A	25	20	45	65	0.07	LoS A
Mcdonald Street	Local road	Sealed	Short-term	20	0.02	LoS A	5	5	10	30	0.03	LoS A
Menzies Lane	Local road	Unsealed	Short-term	10	0.01	LoS A	15	15	30	40	0.04	LoS A
Middle Arm Road	Local road	Sealed	Short-term	50	0.05	LoS A	30	10	40	90	0.09	LoS A
Mount Rae Road	Local road	Unsealed	Short-term	20	0.02	LoS A	20	10	30	50	0.06	LoS A
Offleys Lane	Local road	Unsealed	Medium-term	10	0.01	LoS A	15	10	25	35	0.04	LoS A
Orchard Street	Regional road	Sealed	Short-term	50	0.04	LoS A	25	20	45	95	0.07	LoS A
Parsons Lane	Local road	Sealed	Short-term	20	0.02	LoS A	5	5	10	30	0.03	LoS A
Pejar Road	Local road	Unsealed	Short-term	10	0.01	LoS A	25	25	50	60	0.07	LoS A
Prices Lane	Local road	Unsealed	Short-term	10	0.01	LoS A	5	5	10	20	0.02	LoS A
Range Road	Local road	Sealed	Short-term	50	0.05	LoS A	15	15	30	80	0.08	LoS A
Rhyanna Road	Local road	Sealed	Short-term	20	0.02	LoS A	10	10	20	40	0.04	LoS A
Robertson Lane	Local road	Sealed	Short-term	30	0.03	LoS A	5	5	10	40	0.04	LoS A
Roslyn Road	Local road	Sealed	Short-term	20	0.02	LoS A	5	10	15	35	0.04	LoS A
Rugby Road	Local road	Sealed	Short-term	20	0.02	LoS A	10	5	15	35	0.04	LoS A
Rye Park Road	Regional road	Sealed	Short-term	30	0.02	LoS A	15	10	25	55	0.04	LoS A
Sapphire Road	Local road	Sealed	Short-term	20	0.02	LoS A	15	15	30	50	0.05	LoS A
Soldiers Settlement Road South	Local road	Unsealed	Short-term	10	0.01	LoS A	10	10	20	30	0.03	LoS A
Spicers Lane	Local road	Unsealed	Short-term	20	0.02	LoS A	5	5	10	30	0.03	LoS A
Stink Pot Road	Local road	Unsealed	Short-term	10	0.01	LoS A	5	10	15	25	0.03	LoS A
Storriers Lane	Local road	Unsealed	Short-term	10	0.01	LoS A	10	10	20	30	0.03	LoS A
Strathaird Lane	Local road	Sealed	Short-term	20	0.02	LoS A	15	20	35	55	0.06	LoS A
Taralga Road	Regional road	Unsealed	Short-term	50	0.04	LoS A	15	15	30	80	0.06	LoS A
Veterans Road	Local road	Sealed	Short-term	10	0.01	LoS A	15	10	25	35	0.02	LoS A
Walsh Street	Local road	Sealed	Short-term	30	0.03	LoS A	35	30	65	95	0.10	LoS A
Walshs Road	Local road	Unsealed	Short-term	10	0.01	LoS A	10	10	20	30	0.03	LoS A
Woodhouselee Road	Local road	Sealed	Long-term	30	0.03	LoS A	50	15	65	95	0.10	LoS A
Yass Street	Regional road	Sealed	Short-term	50	0.04	LoS A	15	10	25	75	0.05	LoS A

Table 6-9 Impact on road network performance for additional construction traffic, Goulburn Mulwaree LGA

Road name	NSW road network classification	Pavement type	Duration of impacts	Existing peak hour volume (vehicles per hour in one direction)	Existing Volume to capacity ratio	Existing LoS Level of service	Peak hourly increase LV (vehicles per hour in one direction)	Peak hourly increase HV (vehicles per hour in one direction)	Peak hourly traffic increase (vehicles per hour in one direction)	Total traffic (vehicles per hour in one direction)	Construction phase V/C ratio	Construction phase LoS (changes from existing LoS identified in bold)
Crookwell Road	State road	Sealed	Medium-term	150	0.08	LoS A	40	20	60	210	0.12	LoS A
Middle Arm Road	Local road	Sealed	Short-term	100	0.10	LoS A	30	10	40	140	0.14	LoS A
Mount Pedlar Road	Local road	Unsealed	Short-term	10	0.01	LoS A	15	10	25	35	0.04	LoS A
Rhyanna Road	Local road	Sealed	Short-term	20	0.02	LoS A	10	10	20	40	0.04	LoS A
Woodhouselee Road	Local road	Sealed	Long-term	30	0.03	LoS A	50	15	65	95	0.10	LoS A

Table 6-10 Impact on road network performance for additional construction traffic, Hilltops LGA

Road name	NSW road network classification	Pavement type	Duration of Impacts	Existing peak hour volume (vehicles per hour in one direction)	Existing Volume to capacity ratio	Existing LoS Level of service	Peak hourly increase LV (vehicles per hour in one direction)	Peak hourly increase HV (vehicles per hour in one direction)	Peak hourly traffic increase (vehicles per hour in one direction)	Total traffic (vehicles per hour in one direction)	Construction phase V/C ratio	Construction phase LoS (Changes from existing LoS identified in bold)
Audley Road	Local road	Sealed	Short-term	30	0.02	LoS A	5	5	10	40	0.02	LoS A
Bundarbo Road	Local road	Unsealed	Short-term	20	0.02	LoS A	5	5	10	30	0.03	LoS A
Hume Highway (Jugiong)	National road	Sealed	Short-term	380	0.11	LoS A	5	10	15	395	0.11	LoS A
Riverside Drive	Local road	Sealed	Short-term	30	0.02	LoS A	5	5	10	40	0.02	LoS A

6.3.1.2 Road condition

Road condition generally deteriorates over time due to pavement fatigue, with heavy vehicle movements resulting in more noticeable pavement fatigue compared to LVs.

The 95th percentile increase in peak hourly heavy vehicle traffic on sealed roads comprising access routes would be 45 vehicles per direction of travel and the 95th percentile increase in peak hourly heavy vehicle traffic on unsealed road would be 35 vehicles per direction of travel. With such minor increases in heavy vehicle traffic, the impact on road conditions is expected to be minor and would generally depend on the existing road condition and applicable load restrictions.

Impacts are most likely on the unsealed roads used to access construction compounds, worker accommodation facilities and substations due to the volume of proposed HV traffic. These roads include:

- Snubba Road
- Kopsens Road
- Bago Forest Way
- Livingstone Gully Road
- Graywood Siding Road / Crookwell Access Track
- Honeysuckle Road
- Kileys Creek Road
- Gadara Road
- Red Hill Road.

Condition assessments of the proposed local access roads, including dilapidation surveys prior to construction would be carried out on all local roads to record the existing road condition in consultation with the relevant road authorities. Engagement with the relevant road authorities and councils would be undertaken to monitor ongoing use of the roads during construction. In addition, at the completion of construction a road condition assessment would be undertaken to assess the damage to roads accessed by amended project related traffic. Damage caused by the amended project would be rectified in consultation with the relevant road authority.

6.3.1.3 Intersection and access point connections

Intersections along the proposed access routes for the amended project have been categorised by road types as follows:

- Category 1 – intersection with a primary road (state and regional roads)
- Category 2 – intersection with an arterial or sub-arterial road
- Category 3 – intersection with a local road.

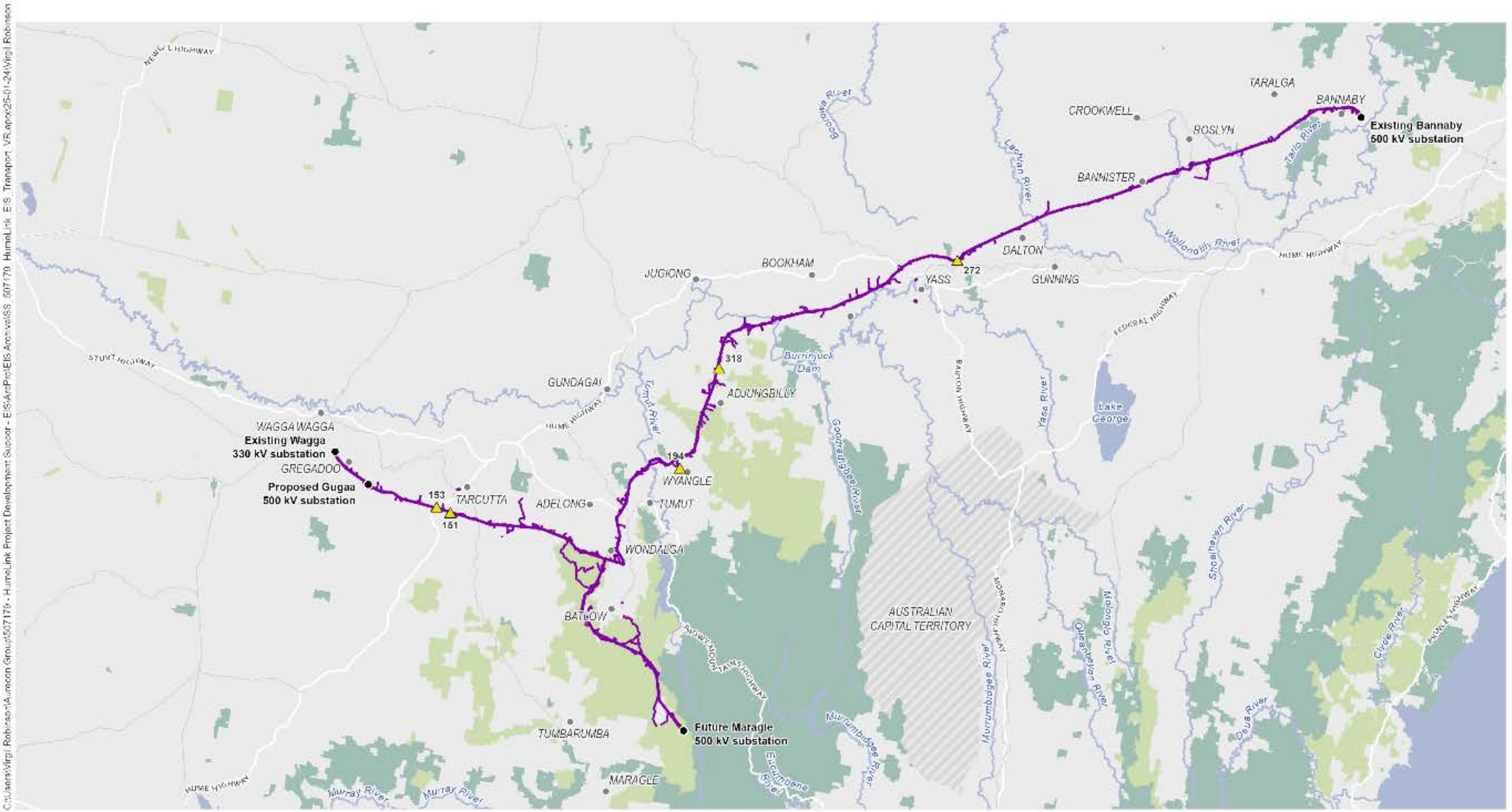
The determination of the final treatments for access points onto private property, including measures such as fencing or cattle grids would be identified through consultation with the respective landholder. The treatment types will be developed and finalised during design development by the relevant contractors.

The major roads would continue to have priority at the identified intersections and access points. It is also anticipated that any vehicle queuing at the access points would be limited to within the compounds or access tracks, as such, no impacts to the main line of traffic are expected. The geometry of the access points would also be designed in accordance with the Austroads Guidelines to accommodate the largest vehicles expected.

The assessment has identified that potential changes at intersections may be required to accommodate the construction traffic and to support safe traffic operation in accordance with safety considerations detailed in the Austroads Guidelines. Temporary traffic management protocols may be implemented by construction contractors as an alternative measure to intersection upgrades. Utilisation of temporary traffic management would occur following a detailed risk assessment undertaken in consultation with the relevant road authorities after obtaining all of the necessary approvals.

6.3.1.3.1 Category 1 – intersection with a primary road

Category 1 intersections and access points are located at intersections where the major roads are expected to have a high estimated peak hour volume, and may have a speed limit above 100 km/h. The Category 1 intersections and access points located within the amended project footprint are shown in Figure 6-4 and outlined in Table 6-11.



Amended project footprint
National park and reserve
State forest
Waterbody
Waterway
Major road
Railway
Substation
Intersection

Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:925,000
0 20 40km

Projection: GDA 1994 MGA Zone 55

HumeLink **Traffic and Transport Impact**

FIGURE 6-4: Category 1 intersections and access points

Table 6-11 Category 1 intersections and access point locations

Intersection number	Intersection aerial	Intersections roads	Description and location	Design considerations
151		■ East – West alignment: Hume Highway ■ North – South alignment: existing track	Existing track which intersects with the Hume Highway, located approximately 7 km west on the Hume Highway, from Tarcutta. At this intersection, Hume Highway is currently configured with dual carriageways and two lanes in each direction, divided by a nature strip. An auxiliary right turn lane is provided on the eastbound carriageway.	Based on design considerations, following consultation with the relevant road authority, the intersection may need to accommodate the length of the turning design vehicles, and may need to provide auxiliary acceleration and deceleration lanes. Alternatively, following consultation with the relevant road authority, it may be determined that temporary traffic control measures may be implemented following a detailed risk assessment.
153		■ North – South alignment: Hume Highway ■ East – West alignment: existing track	Existing track which intersects with the Hume Highway, located approximately 11 km west on the Hume Highway, from Tarcutta. At this intersection, Hume Highway is currently configured with dual carriageways and two lanes in each direction, divided by a nature strip. An auxiliary right turn lane is provided on the northbound and southbound carriageways.	Based on design considerations, following consultation with the relevant road authority, the intersection may need to accommodate the length of the turning design vehicles, and may need to provide auxiliary acceleration and deceleration lanes. Alternatively, following consultation with the relevant road authority, it may be determined that temporary traffic control measures may be implemented following a detailed risk assessment.
194		■ East – West alignment: Snowy Mountains Highway ■ North – South alignment: existing tracks	Existing track which intersects with the Snowy Mountains Highway, located approximately 7 km towards the west of Tumut. At this intersection, Snowy Mountains Highway is configured with a single carriageway and one lane in each direction.	Based on design considerations, following consultation with the relevant road authority, the intersection may need to be configured with a basic right-turn (BAR) or basic left-turn (BAL) treatment, and may need to provide auxiliary acceleration and deceleration lanes. Widened sealed shoulders at this intersection may also be required to accommodate the larger turning circles of heavy vehicles. Alternatively, following consultation with the relevant road authority, it may be determined that temporary traffic control measures may be implemented following a detailed risk assessment.

Intersection number	Intersection aerial	Intersections roads	Description and location	Design considerations
272		■ North-Western – South-Eastern alignment: Hume Highway ■ North – South alignment: existing road	Existing road which intersects the Hume Highway, located approximately 6 km north on the Hume Highway, from Yass. At this intersection, Hume Highway is configured with dual carriageways and two lanes in each direction, divided by a nature strip.	Based on design considerations, following consultation with the relevant road authority, the intersection may need to accommodate the length of the turning design vehicles, and may need to provide auxiliary acceleration and deceleration lanes. Alternatively, following consultation with the relevant road authority, it may be determined that temporary traffic control measures may be implemented following a detailed risk assessment.
318		■ East – West alignment: Hume Highway ■ The access track would also run in an east – west alignment, parallel to the Hume Highway.	Located on the northern side of the Hume Highway at an existing truck stopping area, approximately 1.5 km west on the Hume Highway from intersection number 151. At this location, Hume Highway is configured with dual carriageways and two lanes in each direction, divided by a nature strip.	Based on design considerations, following consultation with the relevant road authority, the intersection may require an auxiliary left-turn treatment. Due to a nature strip separating the eastbound and westbound carriageways, a connection is not provided on the nature strip, which would typically facilitate right turning movements from the minor road. The intersection would need to provide an auxiliary acceleration and deceleration lanes. The truck stop area geometry and operation would be maintained safely throughout construction.. Alternatively, following consultation with the relevant road authority, it may be determined that temporary traffic control measures may be implemented following a detailed risk assessment.

6.3.1.3.2 Category 2 – intersection with an arterial or sub-arterial road

The track types of the category 2 intersections at each access point within the amended project footprint are outlined in Table 6-12. Category 2 intersections and access points are located at intersections where the major roads have a low estimated peak hour volume. The major roads have a speed limit that range from 50 km/h to 100 km/h and the provision of a basic right (BAR), or basic left (BAL) turn treatment would generally be sufficient, in accordance with *Austroads Guide to Traffic Management Part 6* (2020b).

Table 6-12 Category 2 intersections and access point locations

Road name	No. of New Intersecting Track Type	No. of Existing Intersecting Track Type
Adjungbilly Road	■ 1 new track	■ 1 existing track
Bannaby Road	■ 1 new track	■ 3 existing tracks
Batlow Road	■ 2 new tracks	■ 1 existing track requiring maintenance only to facilitate vehicular access ■ 4 existing tracks
Big Springs Road	■ 2 new tracks	■ 0 existing tracks
Brungle Creek Road	■ 2 new tracks	■ 1 existing track
Brungle Road	■ 0 new tracks	■ 3 existing tracks
Childowla Road	■ 9 new tracks	■ 1 existing track
Cooks Hill Road	■ 1 new track	■ 1 existing track
Elliott Way	■ 0 new tracks	■ 3 existing tracks
Forest Road	■ 0 new tracks	■ 1 existing track requiring maintenance only to facilitate vehicular access
Gocup Road	■ 1 new track	■ 3 existing tracks
Goulburn Road	■ 0 new tracks	■ 2 existing tracks
Grabben Gullen Road	■ 1 new track	■ 0 existing tracks
Greenhills Road	■ 1 new track	■ 1 existing track
Gregadoo East Road	■ 2 new tracks	■ 1 existing track requiring maintenance only to facilitate vehicular access ■ 1 existing track
Gurrundah Road	■ 2 new tracks	■ 0 existing tracks
Hanworth Road	■ 1 new track	■ 4 existing tracks
Humula Road	■ 2 new tracks	■ 0 existing tracks
Keajura Road	■ 2 new tracks	■ 1 existing track requiring maintenance only to facilitate vehicular access
Lachlan Valley Way	■ 0 new tracks	■ 1 existing track
Middle Arm Road	■ 2 new tracks	■ 2 existing tracks
Nanangroe Road	■ 0 new tracks	■ 1 existing track
Range Road	■ 2 new track	■ 0 existing tracks
Rugby Road	■ 2 new track	■ 1 existing track
Rye Park Road	■ 2 new tracks	■ 1 existing track
Sapphire Road	■ 1 new track	■ 0 existing tracks
Taralga Road	■ 2 new track	■ 1 existing track
Tumbarumba Road	■ 2 new track	■ 0 existing tracks
Wargeila Road	■ 2 new track	■ 0 existing tracks
Westbrook Road	■ 2 new tracks	■ 4 existing tracks
Wondalga Road	■ 7 new tracks	■ 13 existing tracks

Road name	No. of New Intersecting Track Type	No. of Existing Intersecting Track Type
Woodhouselee Road	■ 1 new track	■ 1 existing track
Yaven Creek Road	■ 1 new track	■ 0 existing tracks

6.3.1.3.3 Category 3 – intersection with a local road

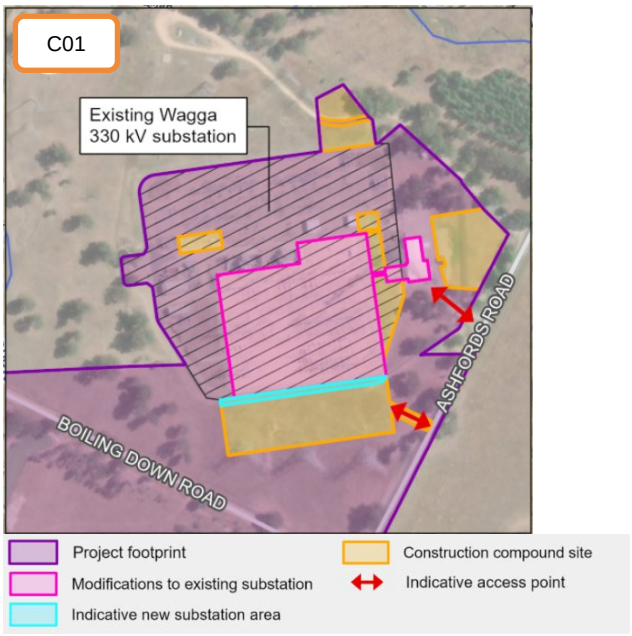
Category 3 intersection and access point connections are located at intersections where the major road is a local road which typically carries a peak hour traffic volumes of fewer than 50 vehicles per hour per direction. As such, is it anticipated that only minor localised works at these connections would be required if at all to accommodate the vehicles utilising these 214 connections.

6.3.1.4 Access point requirements for construction compounds and worker accommodation facilities

The vehicle site access requirements have been assessed for the construction compounds and worker accommodation facilities. These locations are anticipated to generate the highest volumes of vehicle movements during the construction of the amended project.

The objective of this is to outline the existing road environment in the vicinity of the access point, the suitability to accommodate heavy vehicles (19 m B-doubles vehicles (over 50 tonnes) and above), and the warrants for turn treatments, in accordance with the methodology outlined in Section 4.1.4.2. The specific requirements at each intersection are detailed in Table 6-13 to Table 6-28.

Table 6-13 Wagga 330 kV substation compound (C01)



- The access point is located off the western side of the existing Ashfords Road
- Ashfords Road has a speed limit of 80 km/h
- Ashfords Road is a sealed, two lane, two-way road with one lane southbound and one northbound lane
- Ashfords Road has a downhill slope of approximately 2.7% for northbound traffic in the vicinity of the access point, which transitions to a crest before connecting with Elliott Way

Heavy vehicle approved for travel on this road	Not approved for 19 m B-double vehicles (over 50 tonnes) and above
Warrants for turn treatments	Category 3 connection, only minor localised works would be required

Table 6-14 Maragle 500 kV substation compound (C05)

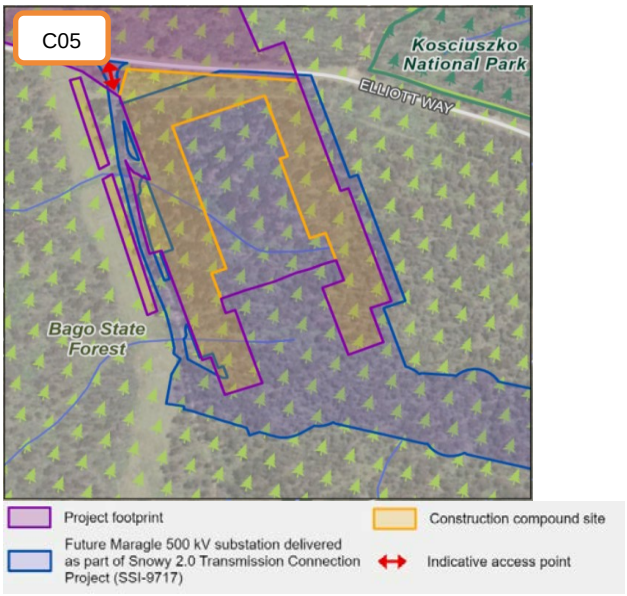
	▪ The access point is located on the eastern side of an existing track which is accessed from the southern side of Elliott Way ▪ Elliott Way has a sign posted speed limit of 80 km/h ▪ The existing track road is an unsealed, one lane, two-way road ▪ The existing access track has a downhill slope of approximately 2.4% for northbound traffic in the vicinity of the access point
Heavy vehicle approved for travel on this road	▪ In the vicinity of the compound, Elliott way is an approved route with travel conditions for B-double vehicles ▪ The existing access track is not approved for 19 m B-double vehicles (over 50 tonnes) and above
Warrants for turn treatments	Category 2 connection at the Elliott Way intersection with the existing access track, therefore BAL or BAR turn treatment is required. Final intersection treatments would be determined following a detailed risk assessment in consultation with the relevant road authorities after obtaining all necessary approvals.

Table 6-15 Amended Gregadoo Road compound (C06)

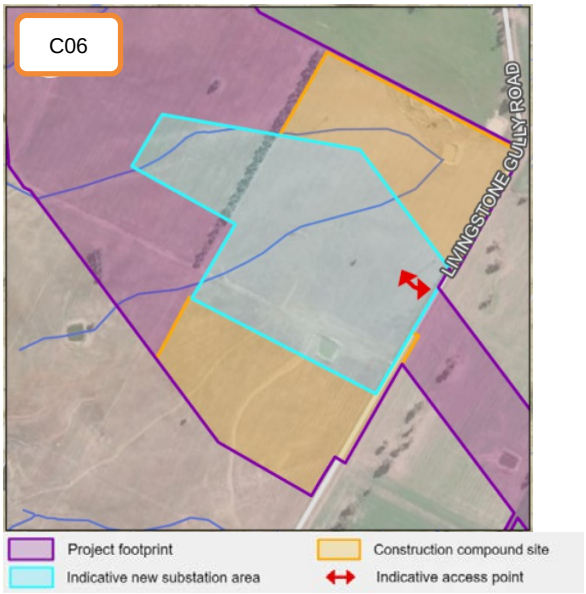
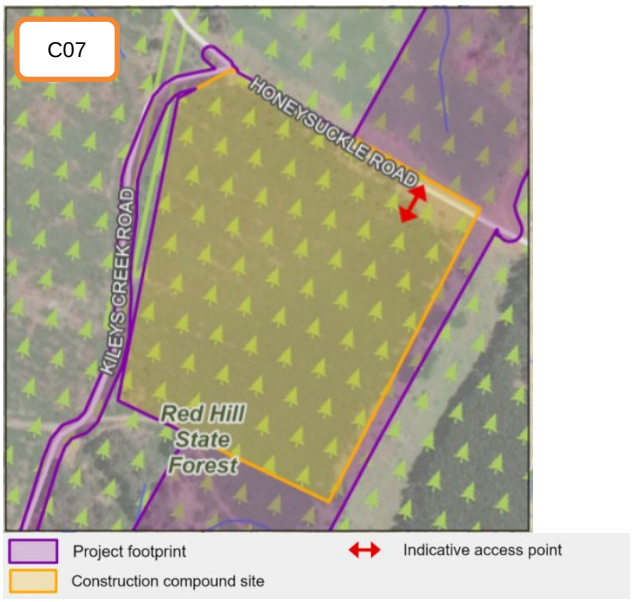
	▪ The access point is located off the western side of the existing Livingstone Gully Road ▪ Livingstone Gully Road has a speed limit of 100 km/h ▪ Livingstone Gully Road is an unsealed, two lane, two-way road, with one lane southbound and one lane northbound ▪ Livingstone Gully Road is relatively flat in the vicinity of the access point, and is assumed to have a grade of 0%
Heavy vehicle approved for travel on this road	Approved for vehicles up to and including 25/26 m B-doubles
Warrants for turn treatments	Category 3 connection, only minor localised works would be required

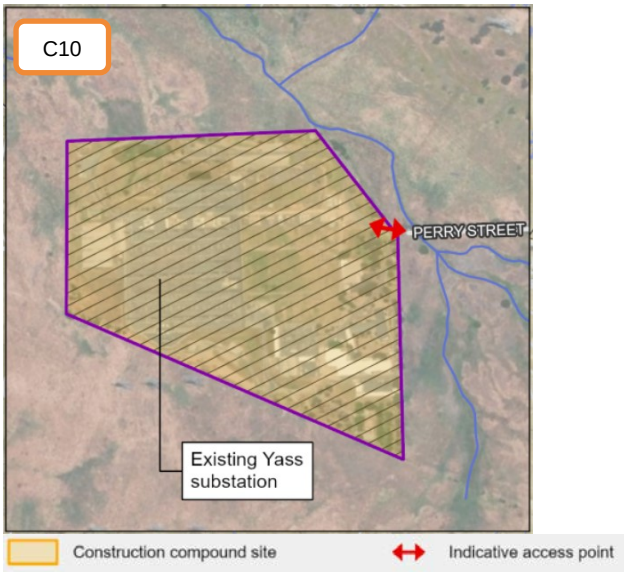
Table 6-16 Amended Honeysuckle Road compound (C07)



- The access point is via a temporary connection located off the southern side of the existing Honeysuckle Road
- Honeysuckle Road has a speed limit of 80 km/h
- Honeysuckle road is a sealed, two lane, two-way road, with one lane eastbound and one lane westbound
- Honeysuckle Road has a slight uphill slope of approximately 5.5% for eastbound traffic in the vicinity of the access point, which transitions to a flat grade

Heavy vehicle approved for travel on this road	In the vicinity of the access point, Honeysuckle Road is approved for vehicles up to and including 25/26 m B-doubles, with travel conditions
Warrants for turn treatments	Category 3 connection, only minor localised works would be required

Table 6-17 Yass substation compound (C10)



- The access point is located at the western extremity of Perry Street, which also provides access to the existing Yass substation
- Perry Street has a sign posted speed limit of 50 km/h which transitions to 25 km/h towards the western extremity of the road
- Perry Street is a sealed, two lane, two-way road, with one lane eastbound and one lane westbound
- Perry Street is relatively flat in the immediate vicinity of the access point, it transitions to an uphill slope of approximately 6% for eastbound traffic

Heavy vehicle approved for travel on this road	Not approved for 19 m B-double vehicles (over 50 tonnes) and above
Warrants for turn treatments	Category 3 connection, only minor localised works would be required

Table 6-18 Amended Bannaby 500 kV substation compound (C12)

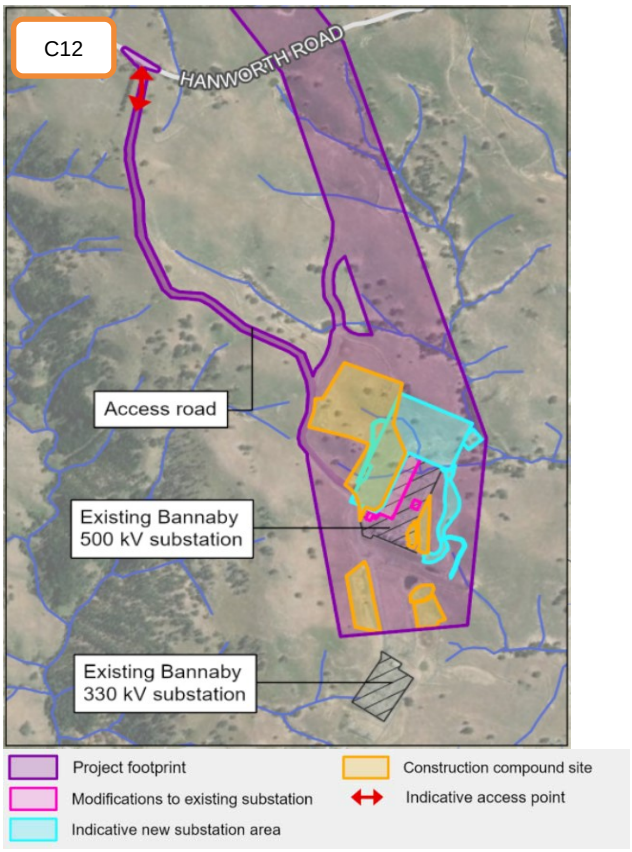
	■ The access point is located off the southern side of the existing Hanworth Road, which also provides access to the existing Bannaby substation ■ Hanworth Road has a speed limit of 100 km/h ■ Hanworth Road is a sealed, two lane, two-way road, with one lane eastbound and one lane westbound ■ Hanworth Road is relatively flat in the immediate vicinity of the access point, and assumed to have grades of 0%
Heavy vehicle approved for travel on this road	Not approved for 19 m B-double vehicles (over 50 tonnes) and above
Warrants for turn treatments	Category 2 connection, therefore BAL or BAR turn treatment may be required. Final intersection treatments would be determined following a detailed risk assessment in consultation with the relevant road authorities after obtaining all necessary approvals.

Table 6-19 Amended Memorial Avenue compound (C14)

 Project footprint ↔ Indicative access point Construction compound site	■ The access point is located off the south-eastern corner of the existing Memorial Avenue and Mill Road intersection ■ Memorial Avenue and Mill Road have a sign posted speed limit of 50 km/h ■ Memorial Avenue and Mill Road are sealed, two lane, two-way roads with one trafficable lane in each direction ■ Memorial Avenue and Mill Road are relatively flat in the vicinity of the access point, and assumed to have grades of 0%
Heavy vehicle approved for travel on this road	■ Memorial Avenue is not approved for 19 m B-double vehicles (over 50 tonnes) and above, except for the short segment between Kurrajong Avenue and Mill Road ■ Mill Road is approved for vehicles up to and including 25/26 m B-doubles
Warrants for turn treatments	Category 3 connection, only minor localised works would be required

Table 6-20 Ardrossan Headquarters Road compound (C17)

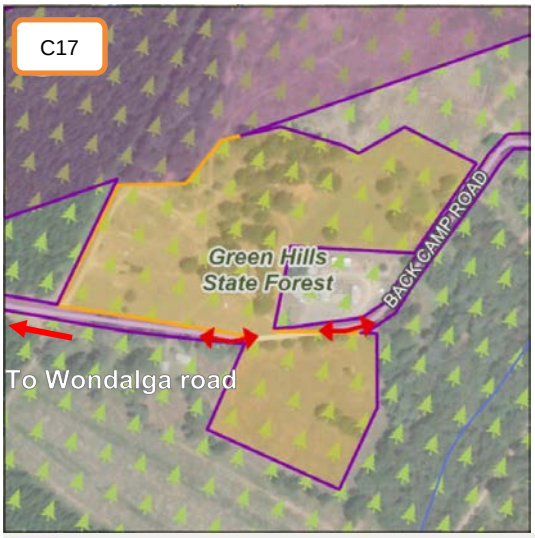
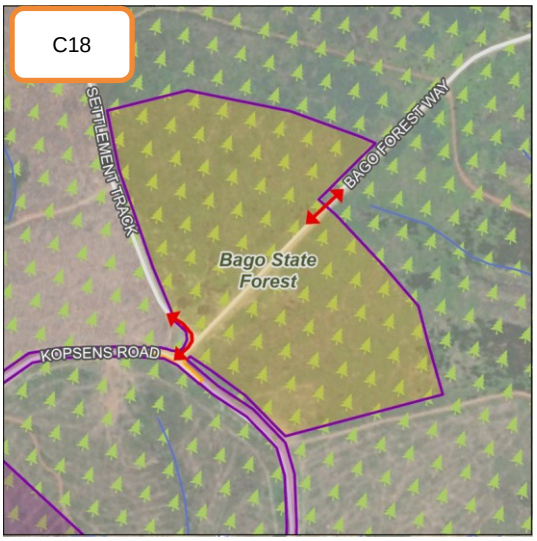
 Project footprint ↔ Indicative access point Construction compound site	■ The access point is located off the eastern side of the existing Wondalga Road and Ardrossan Headquarters Road intersection ■ Wondalga Road has a sign posted speed limit of 100 km/h ■ Wondalga Road is a sealed, three lane, two-way road with one lane southbound and two lanes northbound ■ Wondalga Road is relatively flat in the vicinity of the access point, and is assumed to have a grade of 0%
Heavy vehicle approved for travel on this road	Approved for vehicles up to and including 25/26 m B-doubles
Warrants for turn treatments	Category 2 connection, therefore BAL or BAR turn treatment may be required. Final intersection treatments would be determined following a detailed risk assessment in consultation with the relevant road authorities after obtaining all necessary approvals.

Table 6-21 Snubba Road compound (C18)

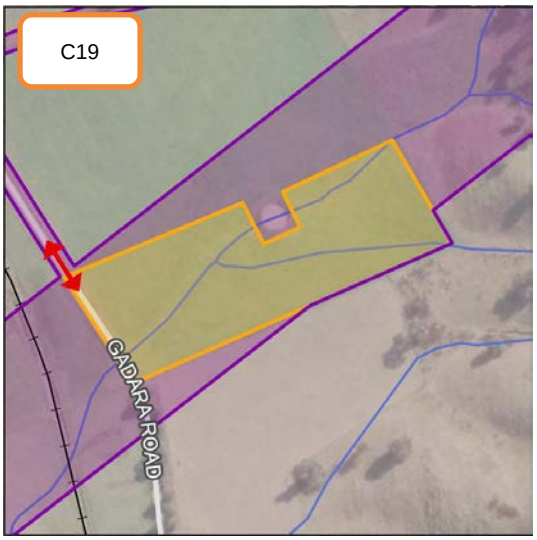


Project footprint
Construction compound site
Indicative access point

- The compound would have a northern and southern access point, both access points would be accessed via Bago Forest Way, southern access point can be accessed only via Kopsens Road and Settlement Track. Settlement Track is a vehicular track.
- Bago Forest Way and Kospens Road have a speed limit of 60 km/h. Speed limit for Settlement Track is not available.
- It is assumed that Bago Forest Way is an unsealed, two lane, two-way road with one lane southbound and one lane northbound.
- Kopsens Road is an unsealed, two lane, two-way road with one lane southbound and one lane northbound.
- Bago Forest Way and Kopsens Road are relatively flat in the vicinity of the access point, and is assumed to have a grade of 0%

Heavy vehicle approved for travel on this road	Approved with travel conditions for vehicles up to and including 25/26 m B-doubles
Warrants for turn treatments	Category 3 connection, therefore only minor localised works would be required

Table 6-22 Gadara Road compound (C19)

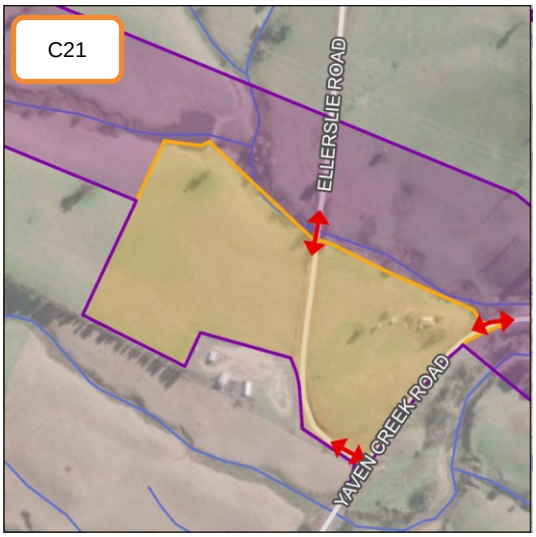


Project footprint
Construction compound site
Indicative access point

- The access point is via a temporary connection off the eastern side of Gadara Road
- Gadara Road has a speed limit of 60 km/h
- It is assumed that Gadara Road is an unsealed, two lane, two-way road with one lane southbound and one lane northbound
- Gadara Road is relatively flat in the vicinity of the access point, and is assumed to have a grade of 0%

Heavy vehicle approved for travel on this road	Not approved for 19 m B-double vehicles (over 50 tonnes) and above
Warrants for turn treatments	Category 3 connection, therefore only minor localised works would be required

Table 6-23 Ellerslie Road compound (C21)



Project footprint
Construction compound site
Indicative access point

- The access point is located on the western side of the existing Yaven Creek Road and Ellerslie Road intersection
- Yaven Creek Road and Ellerslie Road have a speed limit of 80 km/h
- Yaven Creek Road is a sealed, two lane, two-way road in the immediate vicinity of the access point, with one lane southbound and one lane northbound
- Ellerslie Road is an unsealed, two lane, two-way road with one lane southbound and one lane northbound
- Yaven Creek Road has a slight downhill slope of approximately 2.5% for southbound traffic, in the vicinity of the access point
- Ellerslie Road has a slight uphill slope of approximately 5% for northbound traffic, in the vicinity of the access point

Heavy vehicle approved for travel on this road	Both roads are not approved for 19 m B-double vehicles (over 50 tonnes) and above
Warrants for turn treatments	Category 2 connection, therefore BAL or BAR turn treatment may be required. Final intersection treatments would be determined following a detailed risk assessment in consultation with the relevant road authorities after obtaining all necessary approvals.

Table 6-24 Tarcutta accommodation facility and compound (AC03)

Project footprint
Construction compound and worker accomodation facility

- The access point is via a temporary connection off the northern side of Mates Gully Road
- Mates Gully Road has a sign posted speed limit of 100 km/h
- Mates Gully Road is a sealed, two lane, two-way road with one lane eastbound and one lane westbound
- Mates Gully Road is relatively flat in the vicinity of the access point, and is assumed to have a grade of 0%

Heavy vehicle approved for travel on this road	Not approved for 19 m B-double vehicles (over 50 tonnes) and above
Warrants for turn treatments	Category 2 connection, therefore BAL or BAR turn treatment may be required. Final intersection treatments would be determined following a detailed risk assessment in consultation with the relevant road authorities after obtaining all necessary approvals.

Table 6-25 Adjungbilly accommodation facility and compound (AC04)

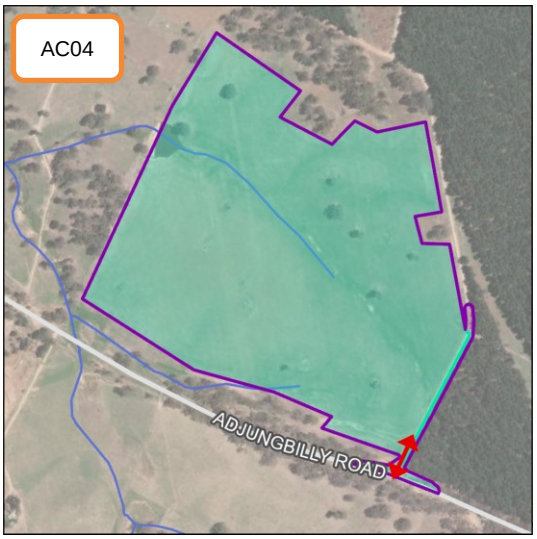
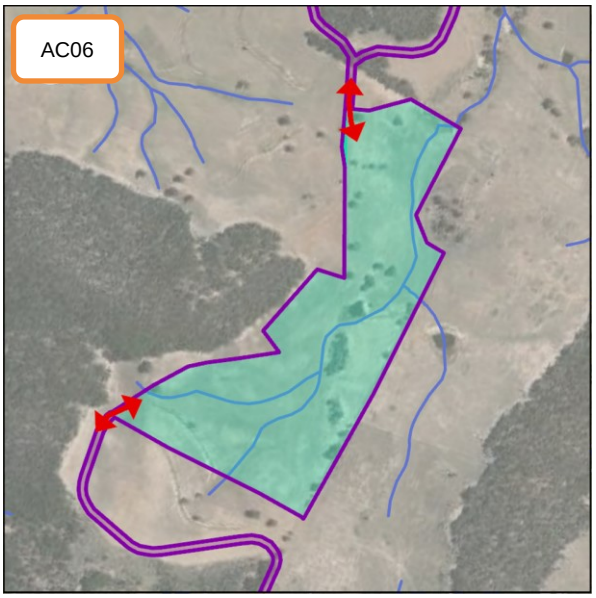
	■ The access point would be via a temporary connection off the northern side of Gobarralong Adjungbilly Road ■ Gobarralong Adjungbilly Road has a sign posted speed limit of 100 km/h ■ Gobarralong Adjungbilly Road is a sealed, two lane, two-way road with one lane eastbound and one lane westbound ■ Gobarralong Adjungbilly Road has a downhill slop of approximately 5.5% for westbound traffic, in the vicinity of the access point
Heavy vehicle approved for travel on this road	Vehicles up to and including 25/26 m B-doubles are approved on the road till approximately 5 km along Gobarralong Adjungbilly Road towards the west of the Gobarralong Adjungbilly Road intersection with Fern Hill Road and Nanangroe Road. B-double vehicles are not permitted beyond that point.
Warrants for turn treatments	Category 2 connection, therefore BAL or BAR turn treatment may be required. Final intersection treatments would be determined following a detailed risk assessment in consultation with the relevant road authorities after obtaining all necessary approvals.

Table 6-26 Yass accommodation facility and compound (AC05)

	■ The access point is located via the existing property driveway to the heavy vehicle inspection station, off the western side of Faulder Avenue ■ Faulder Avenue has a sign posted speed limit of 70 km/h ■ Faulder Avenue is a sealed, two lane, two-way road with one lane southbound and one lane northbound ■ Faulder Avenue has a downhill slope of approximately 4% for southbound traffic, in the vicinity of the access point
Heavy vehicle approved for travel on this road	From the southern extent of Faulder Avenue, vehicles up to and including 25/26 m B-doubles are approved on the road till the Heavy Vehicle Inspection Station, located approximately 260 m from the southern extent. Heavy vehicles are not permitted beyond that point.
Warrants for turn treatments	Category 3 connection, therefore only minor localised works would be required

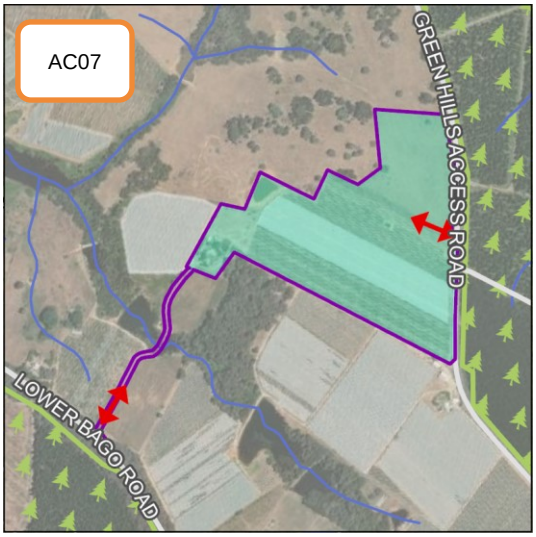
Table 6-27 Crookwell accommodation facility and compound (AC06)



- The access point is located off the eastern side of the existing Woodhouselee Road and Graywood Siding Road intersection
- Woodhouselee Road has a sign posted speed limit of 100 km/h
- Woodhouselee Road is a sealed, two lane, two-way road with one lane southbound and one lane northbound
- Woodhouselee Road has a downhill slope of approximately 5% for northbound traffic, in the vicinity of the access point

Heavy vehicle approved for travel on this road	Not approved for 19 m B-double vehicles (over 50 tonnes) and above
Warrants for turn treatments	Category 2 connection, therefore BAL or BAR turn treatment may be required. Final intersection treatments would be determined following a detailed risk assessment in consultation with the relevant road authorities after obtaining all necessary approvals.

Table 6-28 Green Hills accommodation facility and compound (AC07)



- The access point would be via a temporary connection off the western side of Green Hills Access Road and off the northern side of Lower Bago Road
- Green Hill Access Road and Lower Bago Road have a speed limit of 100 km/h
- Green Hill Access Road is a sealed, two lane, two-way road with one lane southbound and one lane northbound
- Lower Bago Road is a sealed, two lane, road with one lane eastbound and one lane westbound
- The access point is located within a dip on Green Hills Access Road and has an uphill slope of 4% for northbound and southbound traffic, in the vicinity of the access point
- Access point on Lower Bago Road has uphill slope of approximately 5% for westbound traffic, in the vicinity of the access point

Heavy vehicle approved for travel on this road	Approved for vehicles up to and including 25/26 m B-doubles
Warrants for turn treatments	Category 2 connection, therefore BAL or BAR turn treatment may be required. Final intersection treatments would be determined following a detailed risk assessment in consultation with the relevant road authorities after obtaining all necessary approvals.

6.3.2 Stringing of the transmission line across roads

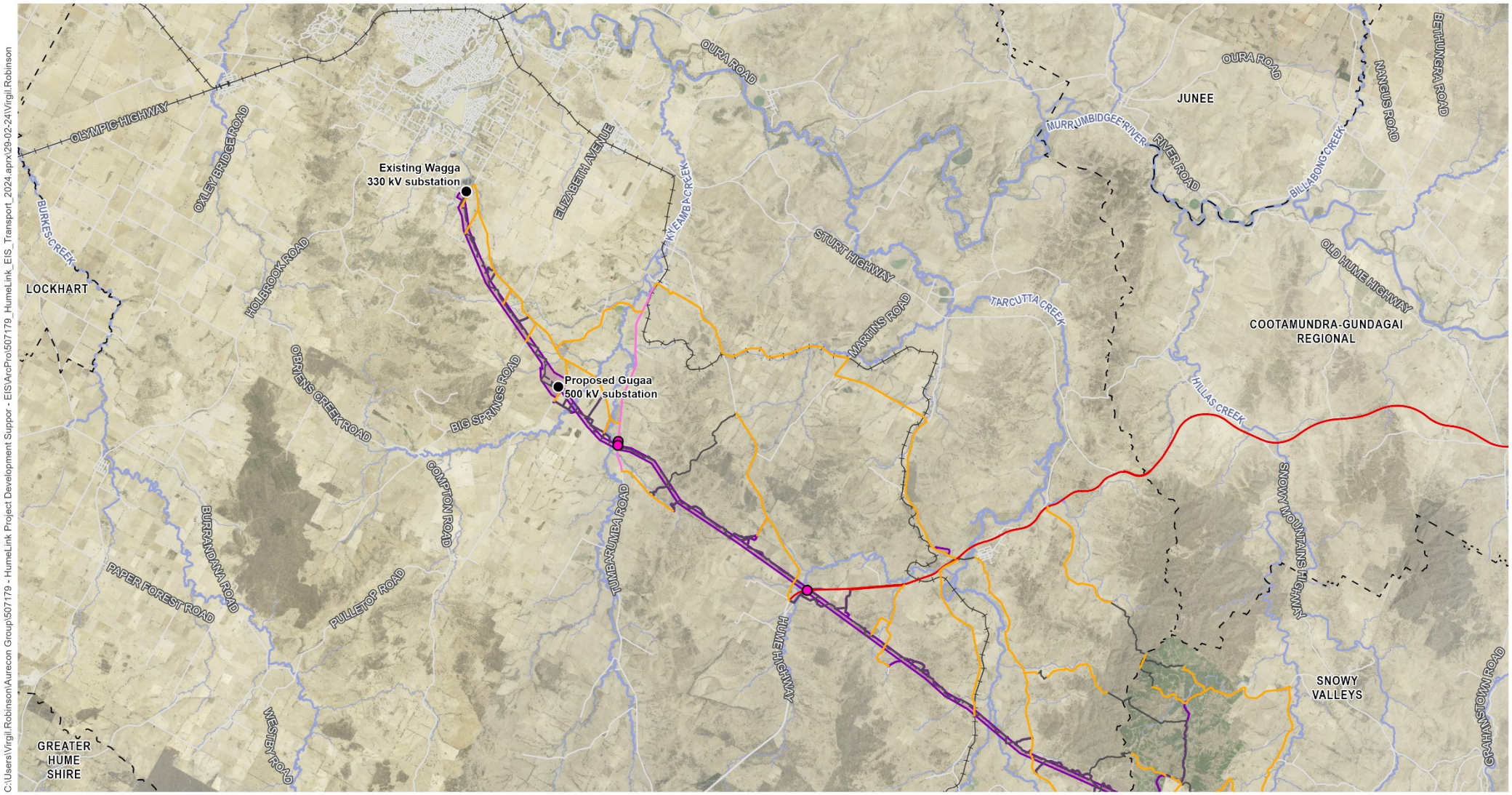
Stringing of transmission line would occur over roads where the transmission line crosses roads. Details where these crossings occur with classified roads are presented in Table 6-29 while Figure 6-5 shows the locations. Partial or full road closures would be required for stringing activities. Specific arrangements for closures would be confirmed during detailed design. Potential impact would include short-term increase in travel time and distance due to reduction in road capacity or speed restriction, or where detours would be required for full road closure.

Road Occupancy Licences would be sought for all temporary (partial or full) road closures where required. Any activity involving short-term partial or full road or lane closures would be assessed on a case-by-case basis and approval would be sought from the relevant road authority. Where full road closures are required, traffic would be provided with a detour route, potentially resulting in additional travel time. Any detour routes would be determined with relevant stakeholders including councils and the road authority and would be planned to minimise travel times for vehicles as far as possible.

Overhead stringing of conductors for new transmission lines across roads would be undertaken with short duration temporary road closure(s) and traffic control in place in accordance with approved traffic control plans. Work would be undertaken in accordance with approved plans and conducted in a way to minimise impacts on traffic, such as undertaking the work outside of standard construction hours where needed. Temporary safeguards such as traffic control would be in place during the stringing activities to prevent conductor(s) sagging whilst completing stringing activities over roads and creating a danger to the public.

Table 6-29 Classified roads impacted by overhead stringing

Road name	Road classification	Location of interaction with transmission line
Tumbarumba Road	Regional road	Approximately 1 km south of Gregadoo East Road and Tumbarumba Road
Snowy Mountains Highway	State road	Approximately 3 km west of Gilmore
Gocup Road	State road	Approximately 8 km north-west of Tumut
Rye Park Road	Regional road	Approximately 5 km west of Dalton
Hume Highway	National road	Approximately 9 km south-west of Tarcutta and approximately 1.5 km north-west of Derringullen Creek rest area on Hume Highway
Grabben Gullen Road	Regional road	Approximately 3 km south-west of Grabben Gullen Road and Gurrundah Road intersection
Crookwell Goulburn Road	Regional road	West of Pejar Dam
Taralga Road	Regional road	Approximately 1 km north of Chatsbury
Burrinjuck Road	Regional road	Approximately 1 km north of Burrinjuck Road and Black Range Road intersection
Batlow Road	State road	Approximately 1.5 km south of Wondalga and 1 km south of Windowie and approximately 9 km south-west of Batlow
Wondalga Road	Regional road	Approximately 3 km south of Wondalga and Green hills

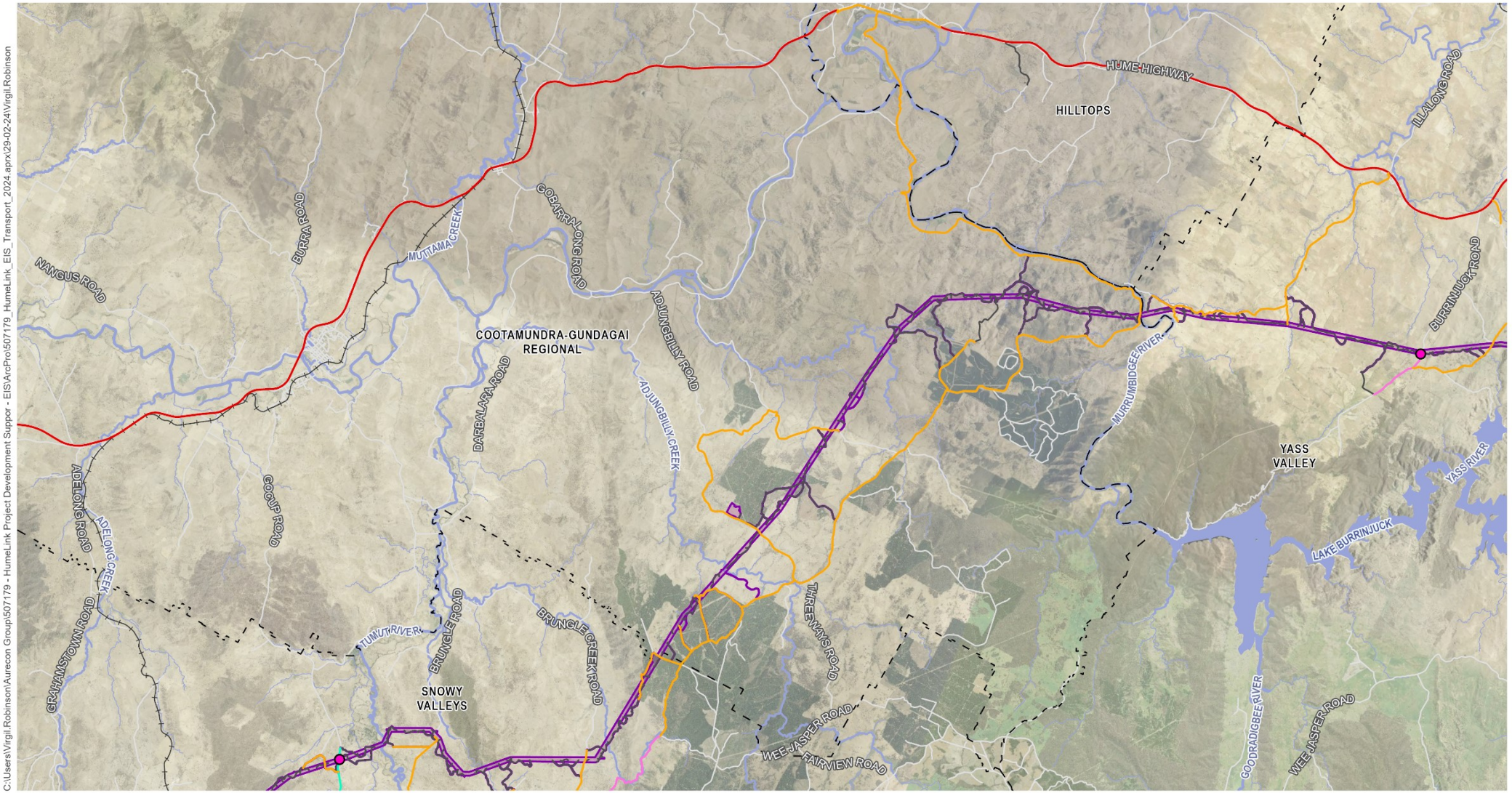


Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:200,000
0 4 8km

Projection: GDA 1994 MGA Zone 55

Figure 6-5a: Stringing locations where the indicative access routes cross the transmission line route



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Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

Projection: GDA 1994 MGA Zone 55

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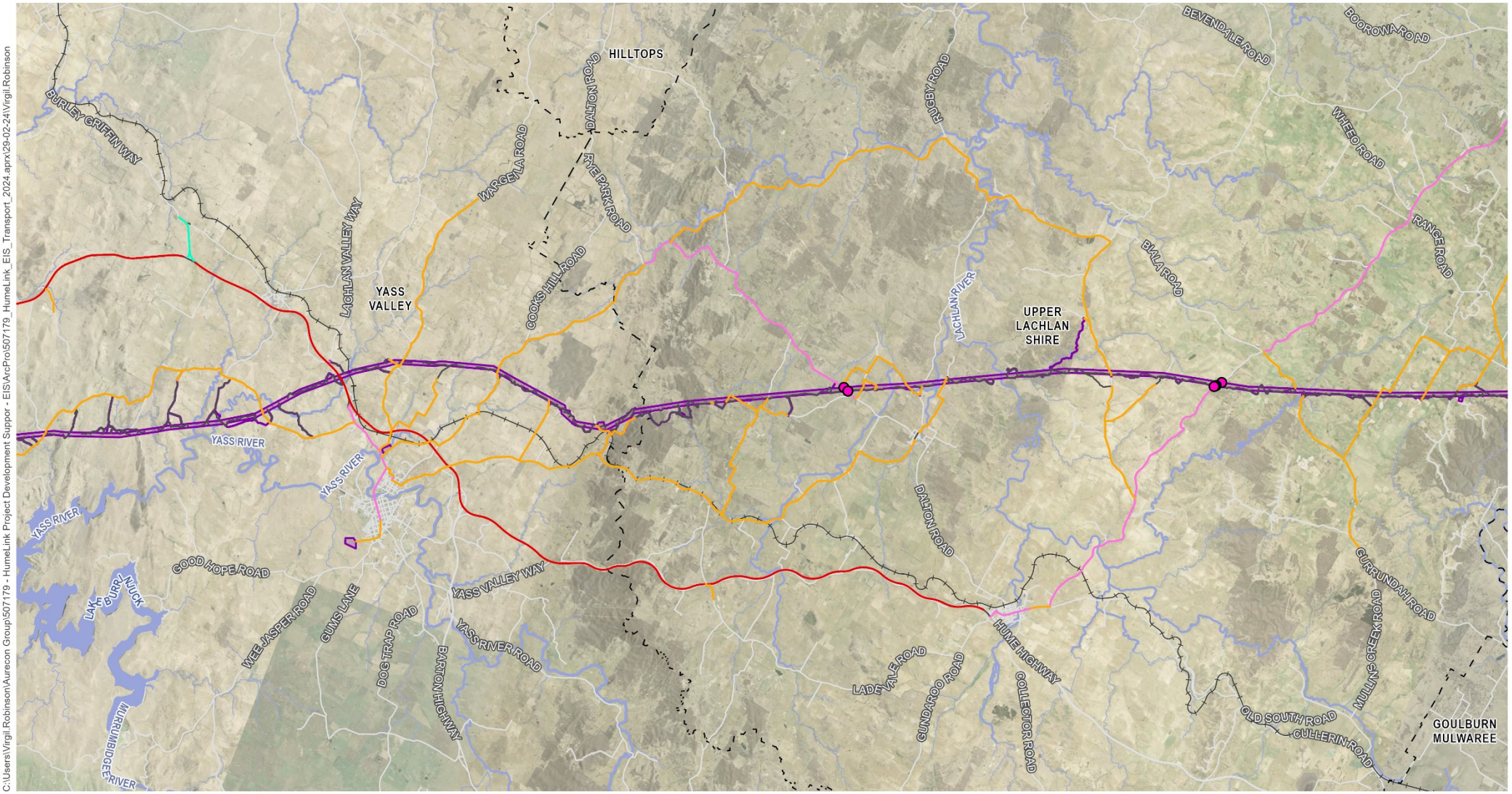
Figure 6-5b: Stringing locations where the indicative access routes cross the transmission line route



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Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:200,000
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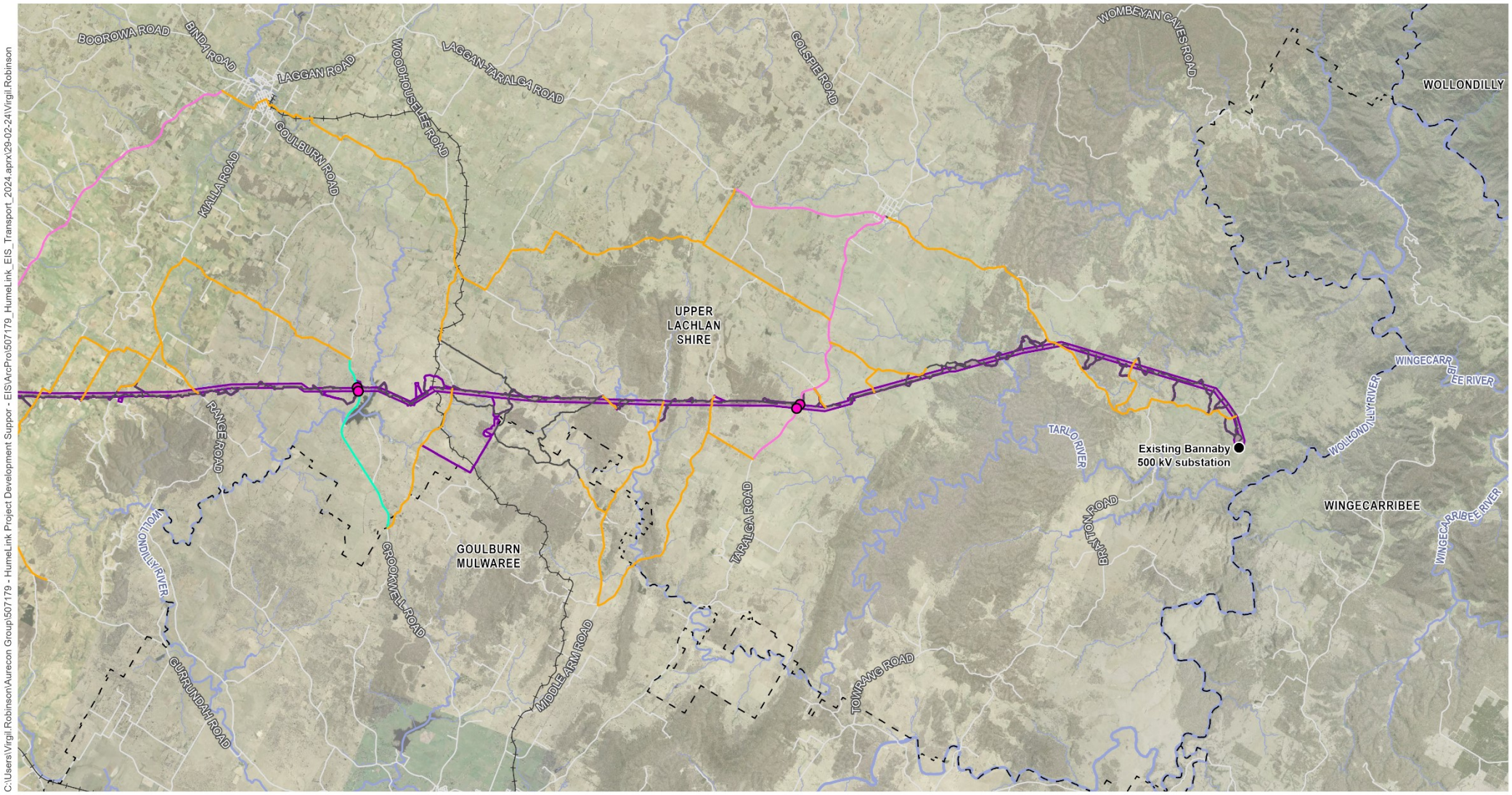
Projection: GDA 1994 MGA Zone 55

Figure 6-5c: Stringing locations where the indicative access routes cross the transmission line route



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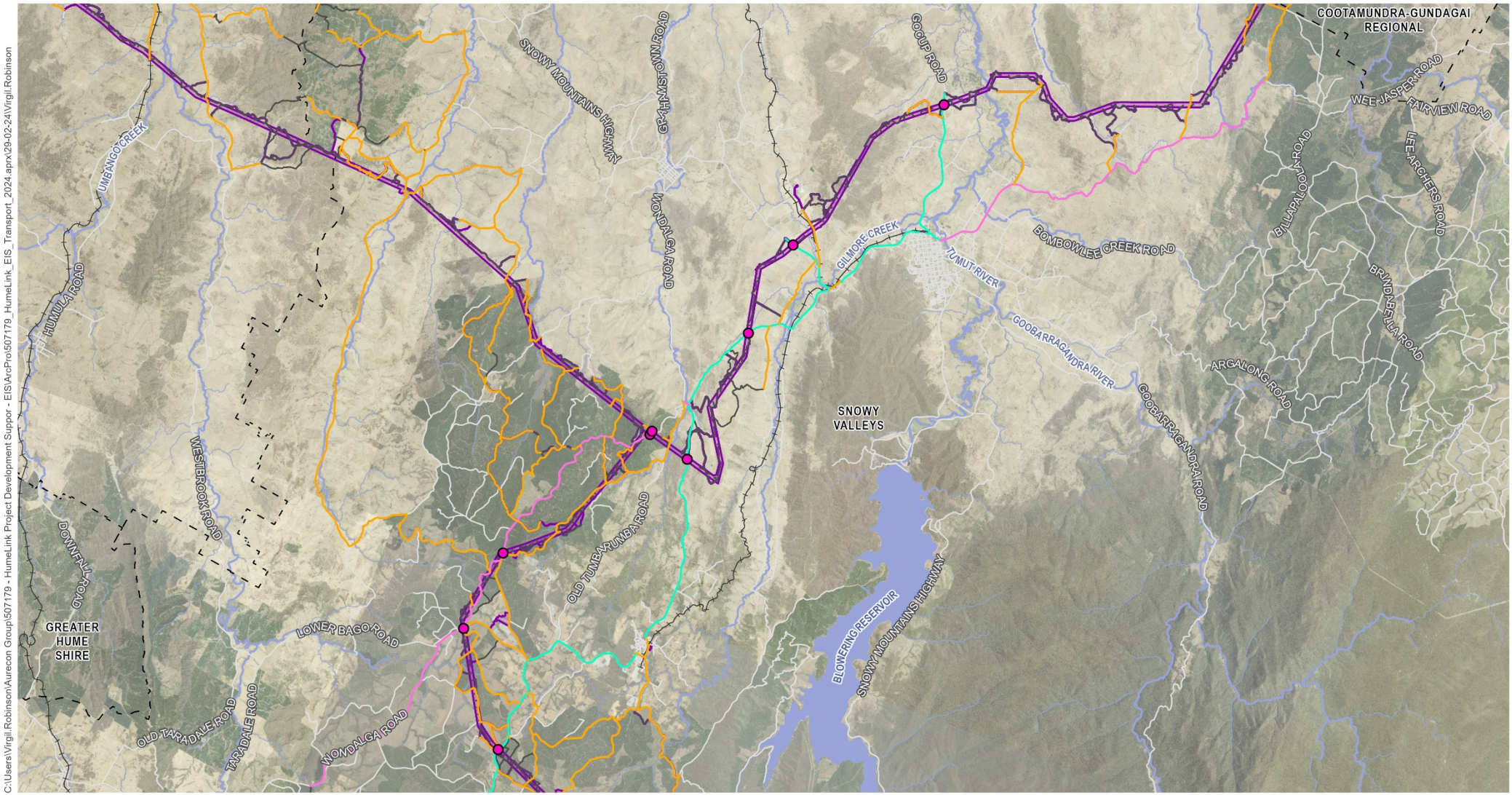
Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:200,000

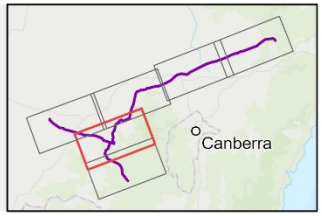
0 4 8km

Projection: GDA 1994 MGA Zone 55

Figure 6-5d: Stringing locations where the indicative access routes cross the transmission line route



Amended project footprint
Local Government Area
Watercourse
Railway
Local road
National road
Regional road
State road
Un-named local road / track
Indicative stringing location

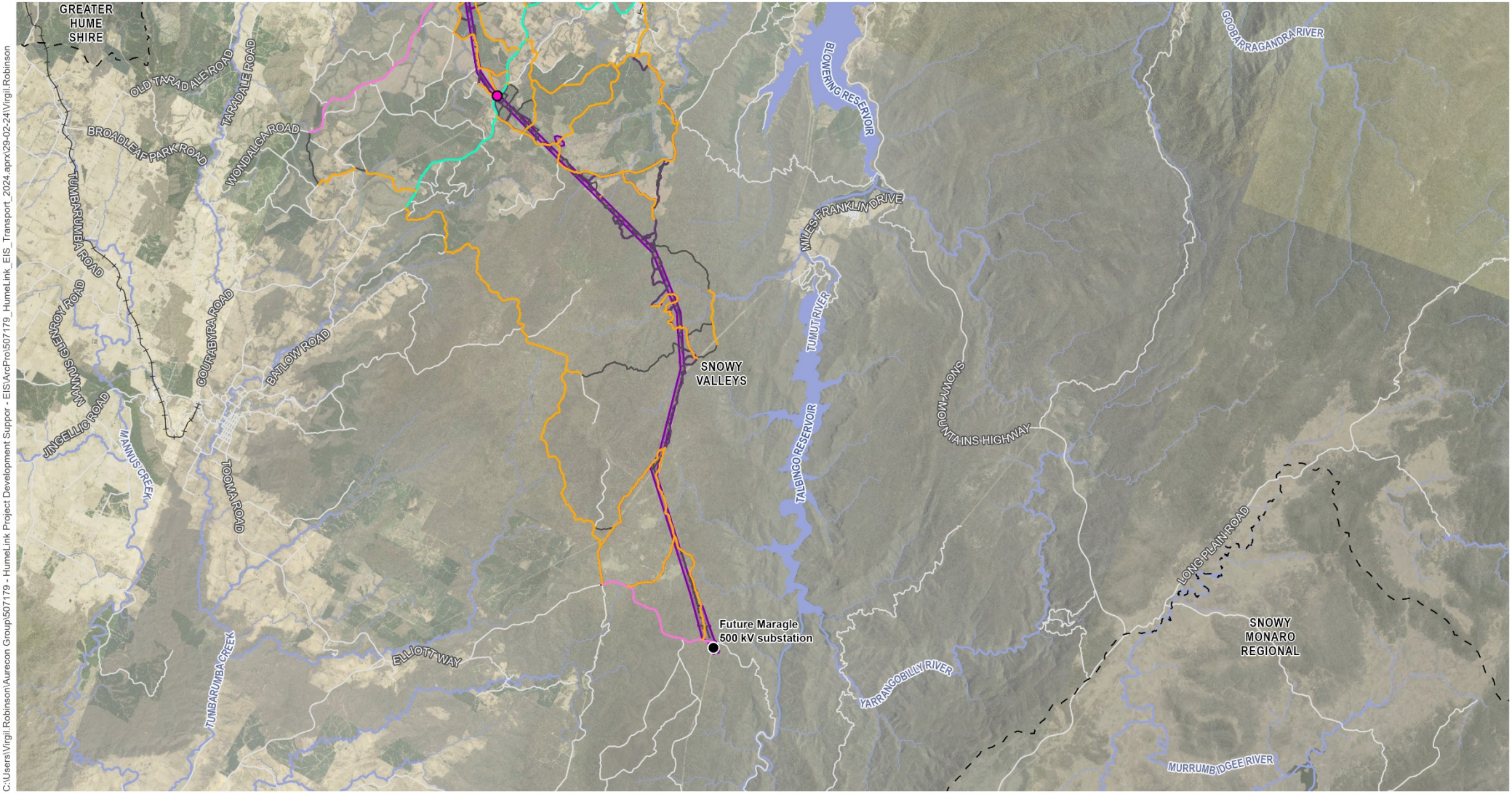


Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

1:200,000
0 4 8 km

Projection: GDA 1994 MGA Zone 55

Figure 6-5e: Stringing locations where the indicative access routes cross the transmission line route



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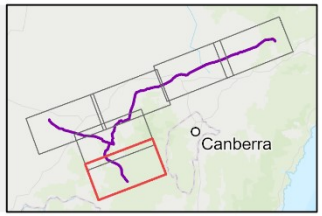
Amended project footprint
Local Government Area
Watercourse
Railway
Local road
National road
Regional road
State road
Un-named local road / track
Substation
Indicative stringing location



Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

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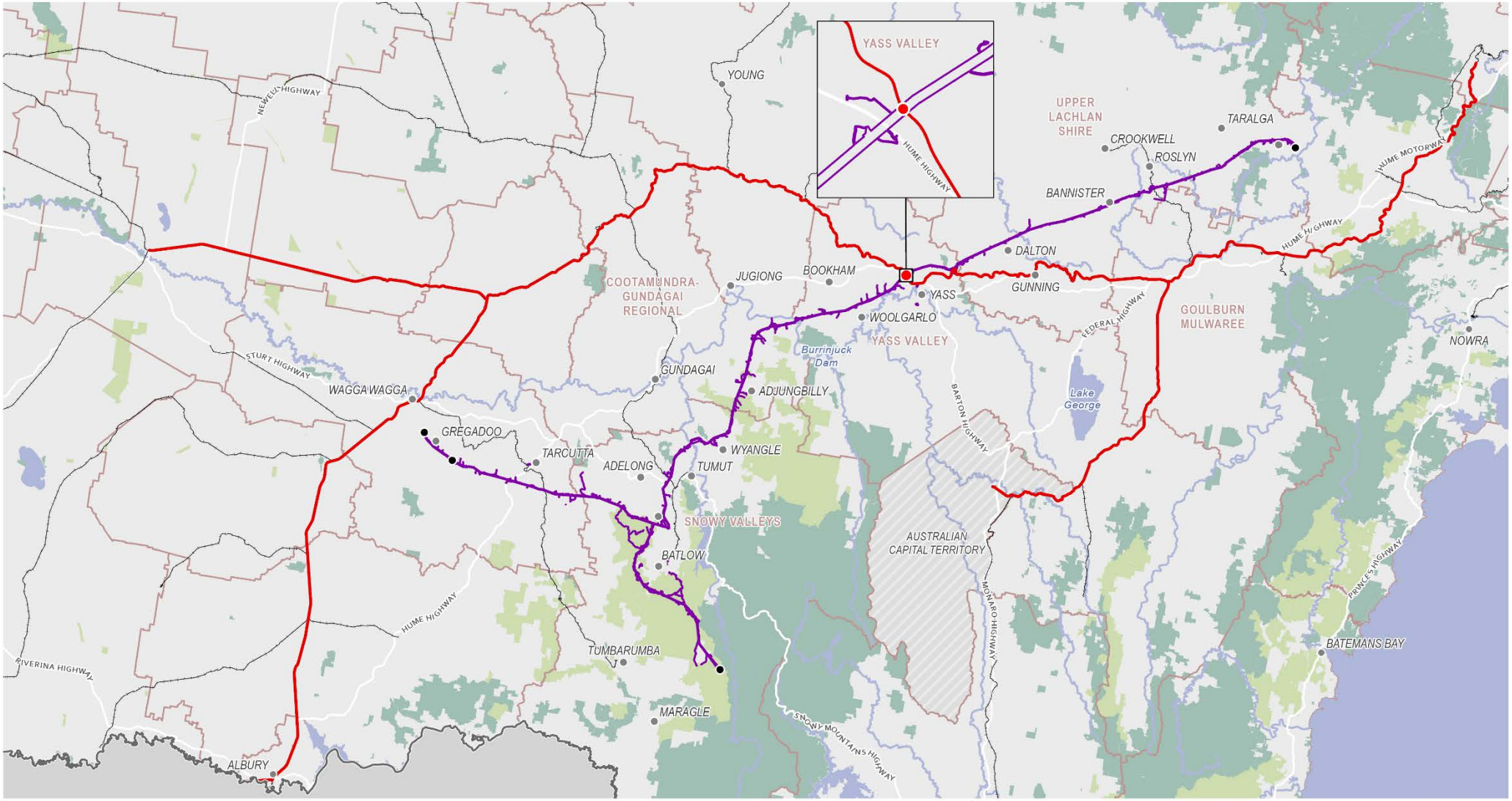
Projection: GDA 1994 MGA Zone 55

Figure 6-5f: Stringing locations where the indicative access routes cross the transmission line route

6.3.3 Impact on rail network

Construction of the amended project would not have any impact on rail network operations as the construction traffic would use the existing road network and approved railway crossings for access.

The stringing of transmission lines across railway lines would be required at isolated locations as shown in Figure 6-6. Stringing activities at these locations would be undertaken during rail possessions (periods during which railway lines are not in use) with no disruptions to operations on the rail network, and no impacts anticipated. Activities would be undertaken in accordance with railway line owners' or operators' requirements. In the case of the stringing over the Main Southern Railway Line, this would be in accordance with the Australian Rail Track Corporation's requirements.



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Projection: GDA 1994 MGA Zone 55

FIGURE 6-6: Intersection of operational rail line with the amended project

6.3.4 Impact on road safety

There are numerous factors that contribute to crashes, including road design, road condition, weather, speed, driver's fatigue, vehicle malfunction, driver's experience and behaviour.

The additional traffic associated with construction is unlikely to impact the road network performance as discussed in Section 6.3.1.1. All roads with additional construction traffic would continue to operate at the same LoS and free flow conditions or reasonably free flow conditions would prevail. As the traffic flow conditions on the road network are unchanged during construction, it is considered unlikely that there would be sudden changes in speed or increased vehicle overtaking/lane changing and is therefore unlikely to result in an increase in crashes.

Where construction activities are likely to impact on the existing operational conditions of a road (ie during full or partial road closures), temporary traffic management measures would be required to address the risk of accidents. As detailed in Section 6.3.1.1, the overall increase in construction traffic due to the amended project is considered relatively minor in light of the available capacity on roads. As such, the implementation of basic temporary traffic management measures that may be required are expected to have a negligible to minor impact on the road operating conditions and on road safety. Complex traffic management scenarios (road closure or partial closures) will require capacity assessment in accordance with Austroads Guidelines and TfNSW temporary traffic management guidelines to ensure the impacts of the works are safely managed.

A review of crashes within 100 metres from access point to each construction compound, worker accommodation facilities in Section 6.1.3, and the proposed Gugaa 500 kV substation found no crash recorded between 2018 and 2022. Construction of new access points and access tracks to construction compounds, the proposed Gugaa 500 kV substation and the worker accommodation facilities would be designed to support safe traffic operation and in accordance with Austroads guidelines and signage will be implemented to promote awareness of the new intersections and turning vehicles.

6.3.5 Impacts on active transport

Within the traffic study area, active transport provisions such as footpaths exist in urban environments only (refer to Section 5.6). The potential for the interaction of active transport users with construction traffic would largely be isolated to towns. The impact on such roads is expected to be negligible, considering the low volume of additional construction traffic and presence of off-road active transport facilities which separate active transport users from vehicles.

Outside towns, traffic associated with construction activities is expected to be mainly in the vicinity of transmission line route, substation work, construction compounds and combined worker accommodation facilities and construction compounds, where no active transport provisions exist as such impacts to active transport users in these locations are considered unlikely.

6.3.6 Impact on public transport

Bus services form the major public transport services in the traffic study area. As construction traffic is not anticipated to adversely impact on the road network performance, public bus services and school bus services are not expected to experience delays.

Short duration temporary road closures are anticipated primarily for stringing of transmission lines at limited road locations and where there are new access points onto public roads.

Activities would be assessed on a case-by-case basis while seeking road occupancy approval from the relevant stakeholders with work undertaken in accordance with approved plans and conducted in a way to minimise impacts on traffic and access, in consultation with bus service operators. This may include planning these activities outside of peak traffic periods. Overall impact to public transport would be negligible.

6.3.7 Impact on access to property

Access to properties for residents (including for emergency vehicle access and egress) would be maintained throughout construction. In some limited circumstances, short-term restrictions for a particular property may need to be imposed with prior consultation with the affected party. There are expected to be minimal impacts to property access due to the rural nature of the amended project, however, some properties along the proposed transmission line may be affected for short periods. This would be mitigated through establishing a communication process with landowners, keeping them informed of construction staging and work schedule.

6.3.8 Impacts related to changes in construction methodology

6.3.8.1 Traffic and transport impacts associated with extractive material locations

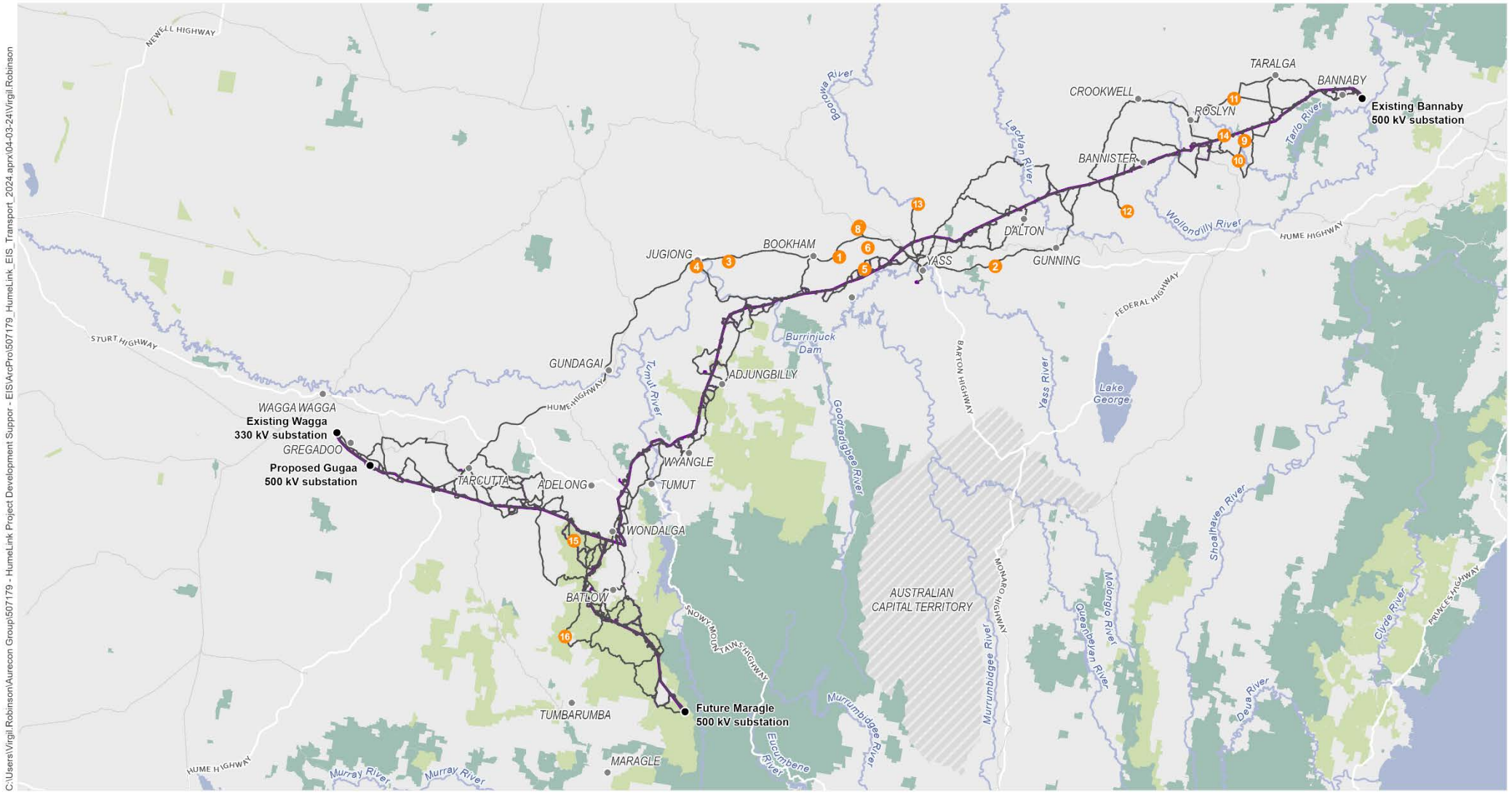
Sixteen (16) extractive material locations listed in Table 6-30 have been identified as a potential source of fill material for the amended project. Figure 6-7 shows the location of candidate extractive material location along the road network providing indicative access to amended project. These extractive material locations have been identified in consultation with Regional NSW, with prioritisation of sites within a 10 km radius of the amended project footprint. The number of extractive material locations would be reviewed as part of the ongoing design development and construction methodology refinement and whilst not all locations are likely to be used, other sources of fill material may also be considered during detailed design and construction planning.

The anticipated number of trips generated by transport of fill material are accounted for in the traffic generation and distribution (refer to the traffic numbers presented in Section 6.2.1 and Section 6.2.2). The roads providing the access from extractive material locations to the amended project have also been included in the amended traffic study area. Vehicles transporting material between the extractive material locations and the work sites are likely to primarily use major roads and highways with travel on local roads limited to the first and last stage of the journey.

Vehicle movements associated with extractive material locations would not result in any major network impacts. All access route roads required for extractive material would continue to operate at LoS A during construction.

Table 6-30 Indicative extractive material locations/quarries to source fill material

Name of extractive material locations/ quarry	LGA
Black Range Road Pit	Yass Valley LGA
Bogo Quarry	Yass Valley LGA
Burley Griffin Way Pit 4	Yass Valley LGA
Burley Griffin Way Pit 5	Yass Valley LGA
Chatsbury Slate Quarry	Upper Lachlan Shire LGA
Coffee Pot Quarry	Snowy Valleys LGA
Dennys Pit	Goulburn Mulwaree LGA
Glenora Pit	Yass Valley LGA
Grace Flat Pit	Yass Valley LGA
Heffernans Pit	Upper Lachlan Shire LGA
Lade Vale Quarry	Upper Lachlan Shire LGA
Little Vale 2 Pit	Upper Lachlan Shire LGA
Mount Rae Pit	Upper Lachlan Shire LGA
Mt Bunddarbo Quarry	Hilltops LGA
North Ridge Quarry	Hilltops LGA
Three Mile Creek Quarry	Snowy Valleys LGA



Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

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Projection: GDA 1994 MGA Zone 55

FIGURE 6-7: Indicative extractive material locations for the amended project

6.3.8.2 Traffic and transport impacts associated with revised water supply strategy

An estimate of the total volumes of water required for the construction of the amended project are detailed in Section 5.1.6 of *Technical Report 12 – Surface Water and Groundwater Impact Assessment Addendum*. The largest need for water during construction (about 60 per cent of total water need) is for dust suppression, which would generally be non-potable water. Potable water would only be used for dust suppression if there is no other option available. Potable water is required for the combined worker accommodation facilities and construction compounds and for concrete production.

It is likely that a combination of water sources would be required to meet the total non-potable water demand. The non-potable water supply options are outlined in Table 6-31 and potable water supply options are outlined in Table 6-32.

Table 6-31 Non-potable water supply options

Non-potable water source	Description
On-site water sources	Located within the amended project footprint or on a property already impacted by the amended project footprint, in agreement with the relevant landowner.
Groundwater bores	Located within five kilometres of the amended project footprint.
Surface waterways	Surface waterways assessed as a potential water source were located within five kilometres of the amended project footprint.

Water extraction and transportation from the source to the water demand point should minimise the need for heavy vehicle movements through residential areas and be undertaken during standard construction hours, unless otherwise undertaken in accordance with an Out-of-Hours Work Protocol.

Table 6-32 Potable water supply options

Potable water source	Description
Direct connection to council water reticulation system	Where possible, it is preferable that potable water be sourced via direct connection with existing council water reticulation systems in order to limit the extent of vehicle movements.
Transported from nearby town via water cart / tanker	Where direct connection to existing council water reticulation systems is not available/feasible, potable water could be transported from a nearby town/population centre to the point of usage via water carts/tankers.

The anticipated number of trips likely to be generated based on the revised water supply strategy are accounted for in the traffic generation and distribution (refer to the traffic numbers presented in Section 6.2.1 and Section 6.2.2). The roads providing the access from potable and non-potable water supply options to the amended project footprint have also been included in the amended traffic study area. Vehicle movements associated with the water supply strategy would not result in any major network impacts. All access route roads required for water supply would continue to operate at LoS A during construction.

7 Operational impacts

During operation, there is limited potential for traffic and transport impacts associated with anticipated routine maintenance. Access to the existing and proposed substations would be as per existing access arrangements, or via the proposed access routes as listed in Table 6-2. In the case of the transmission lines, access would largely relate to inspection and maintenance activities, which would be infrequent and would not result in significant vehicle movements. Access to the transmission lines would be via existing access tracks or those constructed specifically for the amended project.

A detailed assessment of state roads used during operation was not undertaken due to the anticipated negligible number of vehicles required, in comparison to existing traffic volumes, the design capacity of state roads and the large geographical area of the amended project.

7.1 Operation and maintenance activities

The substations and transmission lines would be inspected by Transgrid operational staff and contractors on a regular basis, with other operational activities occurring in the event of an emergency (as required). Likely maintenance activities would include:

- regular inspection (ground and aerial) and maintenance of electrical equipment and transmission line structures
- general building maintenance
- vegetation trimming, landscaping and maintenance of asset protection zone
- fire detection system inspection and maintenance
- fence repair
- stormwater and drainage infrastructure maintenance.

7.1.1 Substation operation and maintenance

During operation, the substations would not accommodate full-time staff or contractors. Maintenance at these substation sites would typically include ad hoc attendance (typically one to two times a month) of one or two switching operators to undertake planned and unplanned switching of equipment. It is expected that these activities would only require LVs and/or small to medium plant (depending on the work required).

Additional maintenance activities at the substation sites would typically include (but not limited to):

- Routine substation infrastructure inspection (such as transformers and other electrical plant and equipment) throughout the year by around two to three personnel.
- Routine substation maintenance of equipment, property and switchyard areas on a scheduled basis. This would typically be monthly and undertaken by around three to five maintenance personnel.
- Ad hoc fault and emergency work for repair of any damaged infrastructure (eg through a weather event or other failure of infrastructure) would occur as required. The amount of maintenance and/or crew required to access for repair of any damaged infrastructure would depend on the extent of repairs required.

During operation, it is anticipated that access to the substations would be as follows:

- The proposed Gugaa 500 kV substation would be via a new access road established from Livingstone Gully Road (refer to Figure 7-1).
- The Wagga 330 kV substation would be accessed via the existing access road from Ashfords Road (refer to Figure 7-2).
- The Bannaby 500 kV substation would be accessed via the existing access road from Hanworth Road that would be upgraded as part of the amended project (refer to Figure 7-3).
- The future Maragle 500 kV substation would be accessed via the future access road from Elliott Way to be constructed by Snowy 2.0 Transmission Connection Project (refer to Figure 7-4).

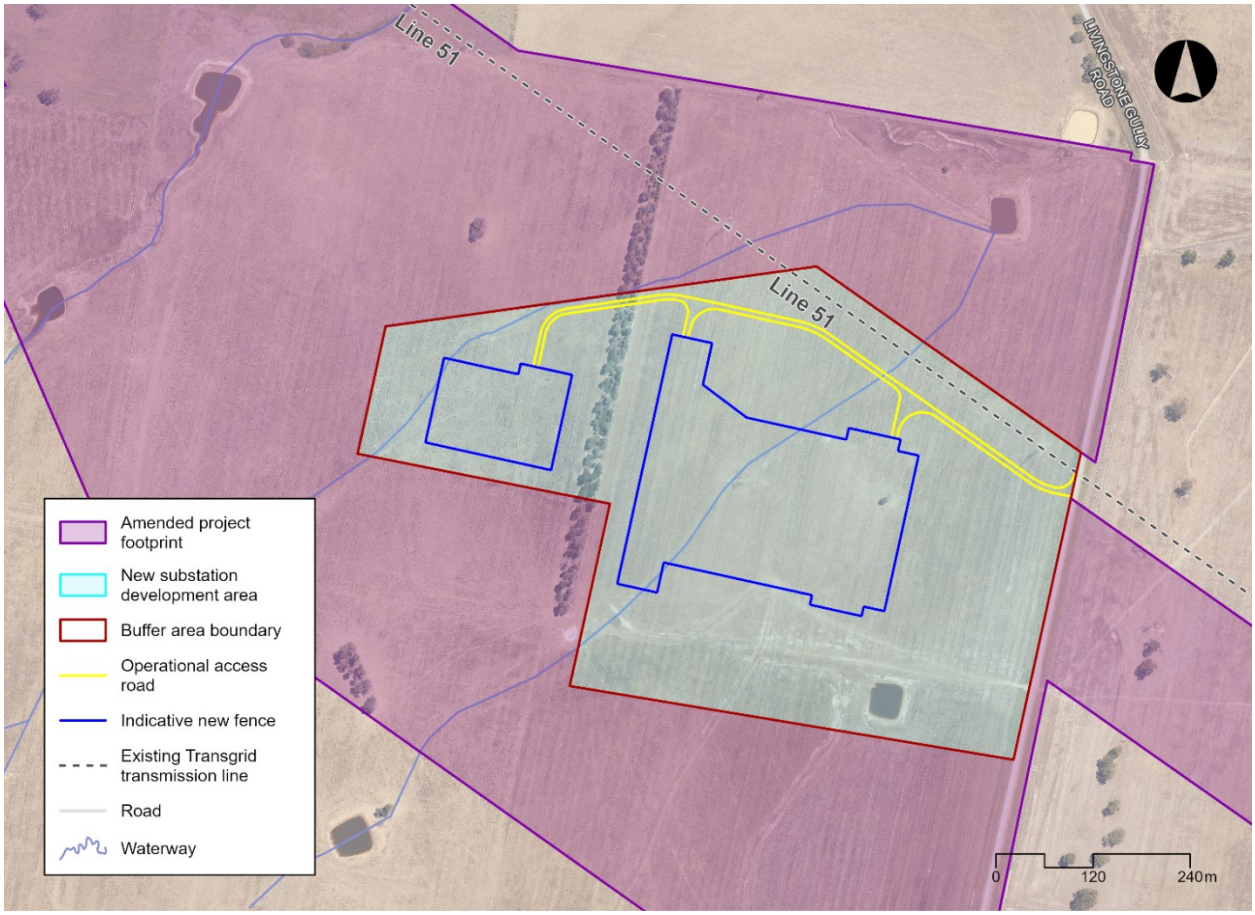


Figure 7-1 Indicative layout of proposed Gugaa 500 kV substation showing location of operational access road

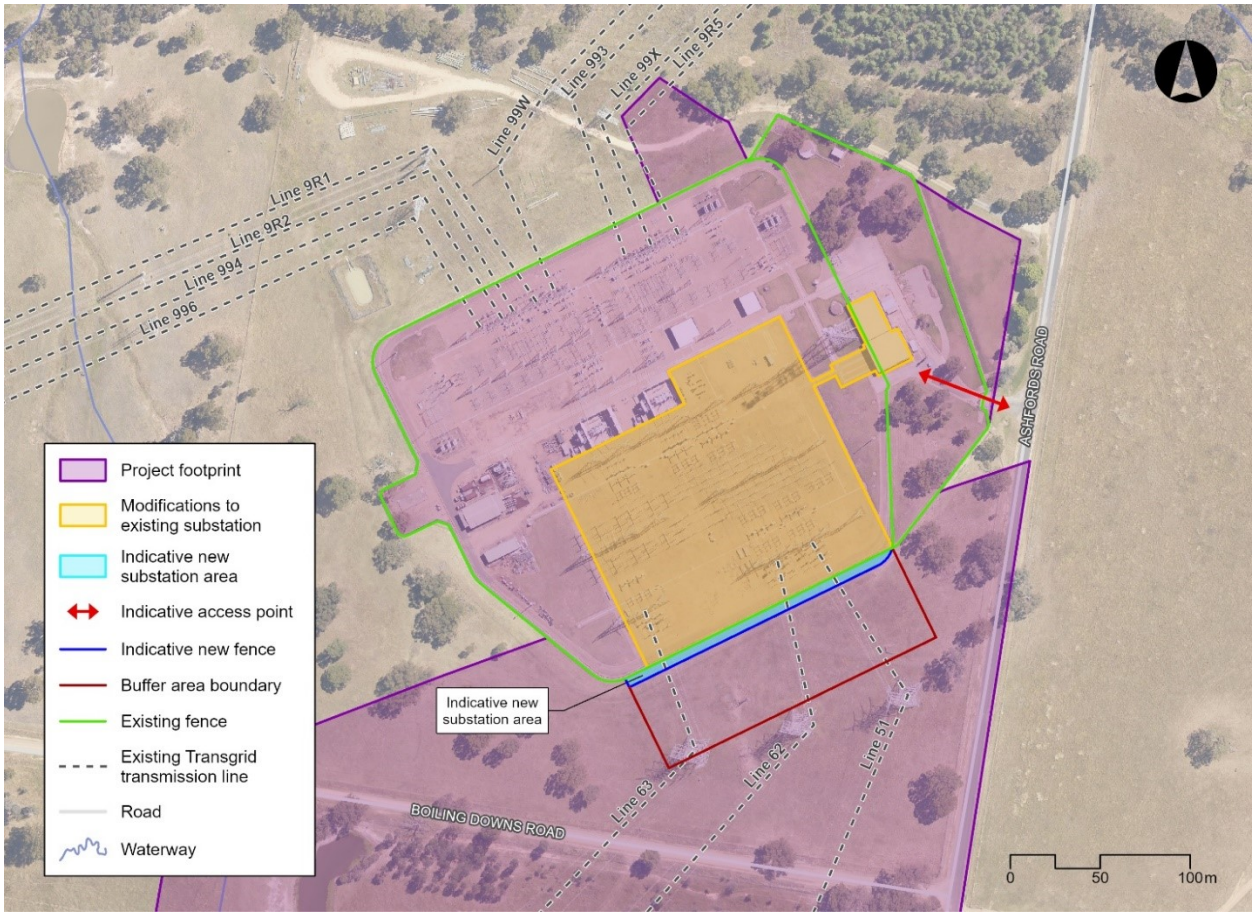


Figure 7-2 Indicative layout of modified Wagga 330 kV substation showing location of the existing access from Ashfords Road

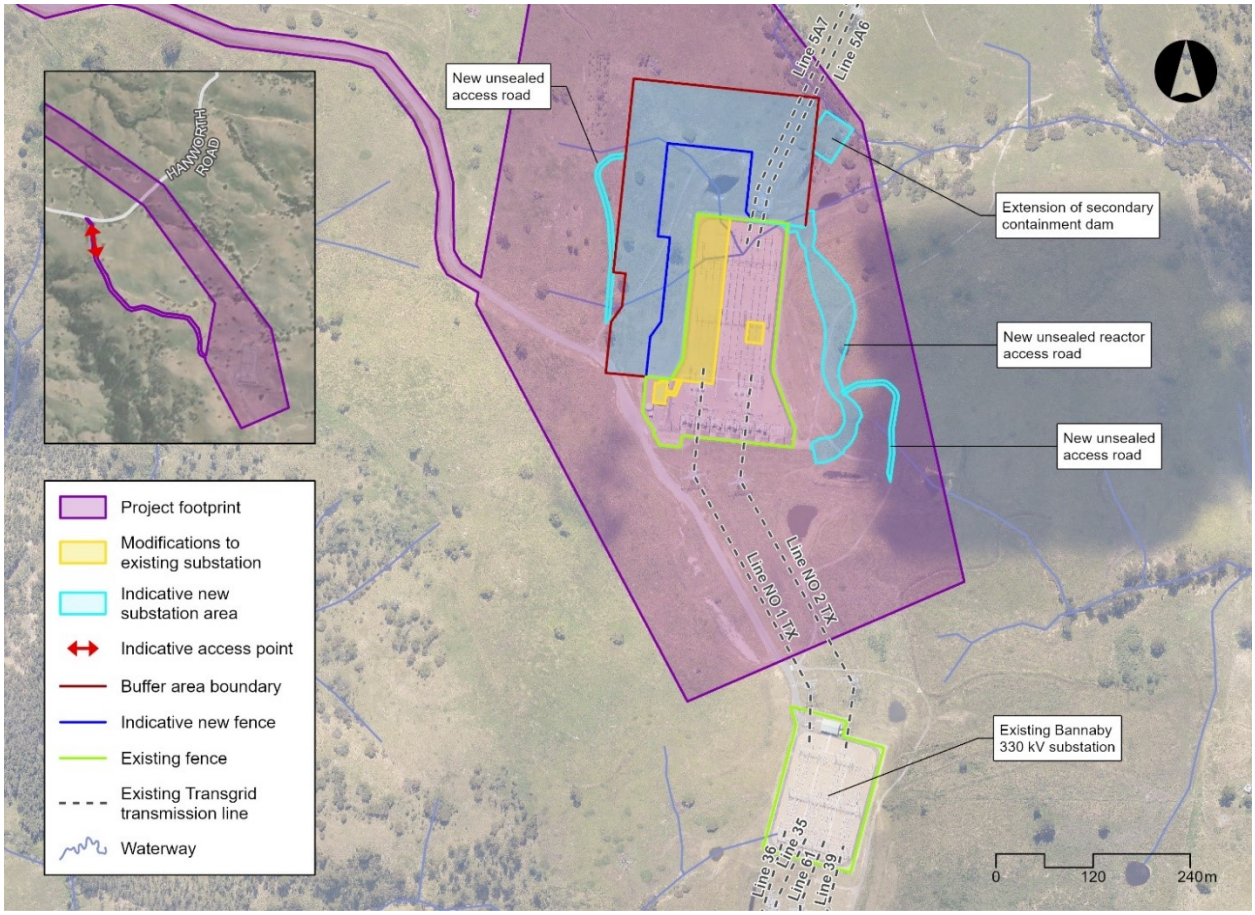


Figure 7-3 Indicative layout of the modified Bannaby 500 kV substation showing location of the existing access road from Hanworth Road

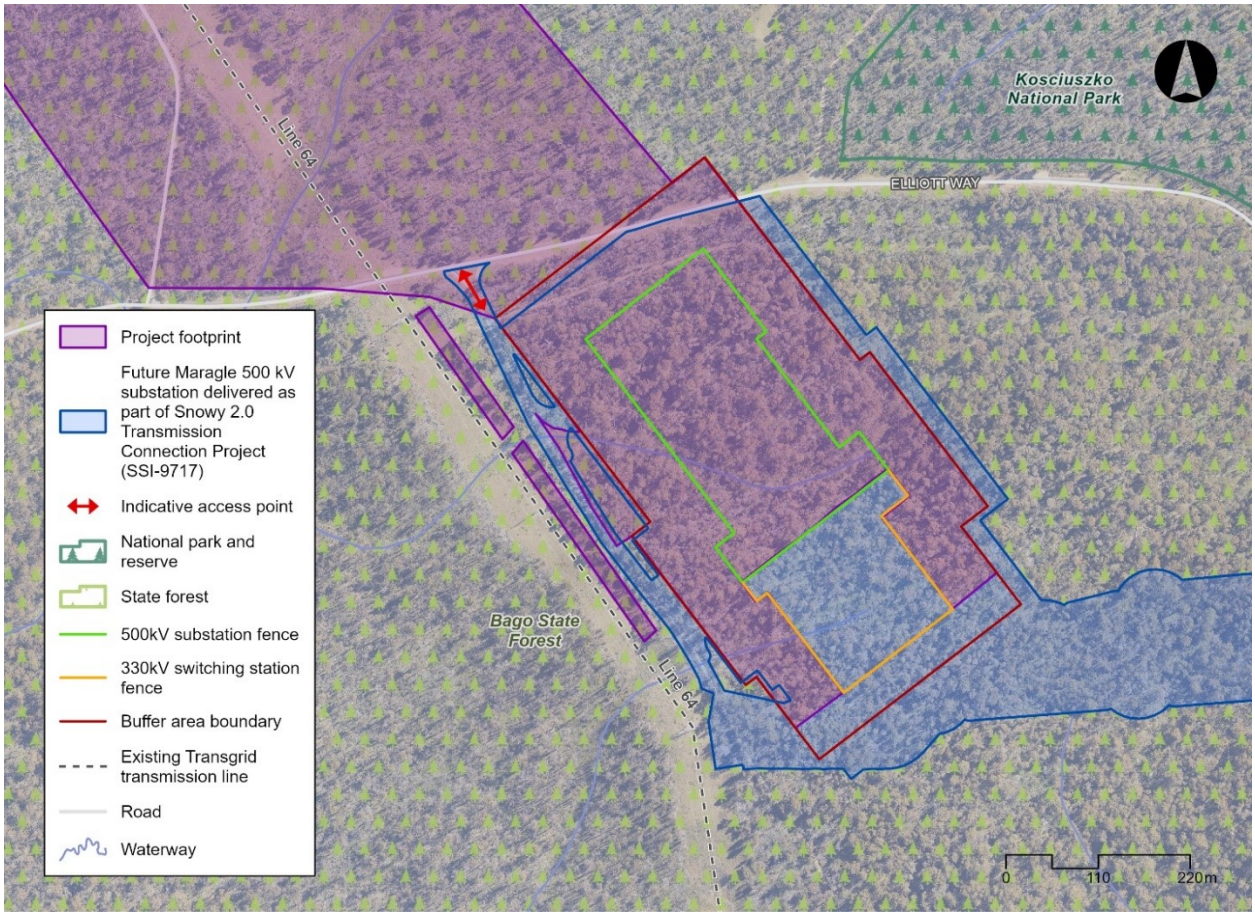


Figure 7-4 Indicative layout of the future Maragle 500 kV substation showing location of the future access road from Elliot Way

7.1.2 Transmission line operation and maintenance

Regular maintenance activities would be required for the transmission lines during its operation. Likely maintenance activities for the transmission lines would include:

- An annual fly over (aerial inspection) as part of seasonal bushfire prevention surveys.
- Routine infrastructure inspections. This would typically involve two to three maintenance workers driving a light vehicle from public roads to the easement utilising access tracks, then along the easement inspecting each transmission line structure in turn. Structures would be inspected both from the ground and by maintenance workers climbing the structure on a six-yearly cycle.
- Reactive transmission line maintenance in response to unexpected issues identified during routine inspections. This would typically involve maintenance workers using light vehicles, an elevated work platform and a medium sized truck to rectify any defects found from routine inspections. Generally, this would occur within the same maintenance cycles as the routine infrastructure inspection.
- Ad hoc fault and emergency fly over(s) to assess infrastructure condition should an unplanned outage occur (eg through a weather event or other failure of infrastructure). This maintenance would occur as required. The amount of maintenance and/or crew required for repair of any damaged infrastructure would depend on the extent of repairs required.
- Vegetation management within the transmission line easement and hazard tree zone which is expected to be conducted every four to six years, or as required.

7.2 Operation traffic generation and distribution

7.2.1 Maintenance workers

During operation, the proposed Gugaa 500 kV substation would not accommodate full-time staff or contractors. Maintenance at the new substation would typically include routine and ad hoc attendance (typically one to two times a month) of one to five workers to undertake planned and unplanned maintenance activities. It is expected that these activities would only require light vehicles and/or small to medium plant (depending on the work required). The modification of the Wagga 330 kV substation and Bannaby 500 kV substation would not change the existing operational or maintenance requirements that currently occur for this infrastructure.

The management of vegetation at transmission line structures and within the easement would occur on a cyclic basis, which would be determined by vegetation response and growth rate. Based on Transgrid's existing transmission assets in the local region, vegetation management is expected to be conducted every four to six years, or as required. Ad-hoc vegetation maintenance would be carried out as required along operational access tracks. This would typically involve slashing of any vegetation regrowth within the shoulders and/or management of trees, which encroach the access track corridor and prevent safe vehicle passage.

7.2.2 Maintenance traffic generation and distribution

Traffic movements for substation inspection and maintenance would generally involve movement of workers by LVs only. Movements for transmission line inspection and maintenance would generally require LVs and a single heavy vehicle.

Considering a worst-case scenario of routine maintenance and inspection occurring simultaneously at substations, a maximum of four LV trips are anticipated for eight workers at each substation with vehicle occupancy of two workers per vehicle. A total of 16 LV trips are anticipated for four substations during operation. This would result in 32 movements throughout the day over the traffic study area. However only eight movements throughout the day would be expected on the road adjacent to any given substation location and all substations are located far from each other.

For transmission line maintenance and inspection, five LV trips are anticipated for ten workers with vehicle occupancy of two workers per vehicle and one heavy vehicle trip.

Amended project vehicle movements during operation are not expected to generate large amounts of vehicular traffic. Any traffic which is likely to be limited to a few vehicles would occur infrequently and be short-term in nature.

7.3 Operational impact assessment

7.3.1 Impact on road network

Operational traffic impacts on the road network include:

- Temporary increases in traffic movements at inspection/maintenance locations for the duration of the activities. These impacts vary, however they would be expected to be negligible and most likely imperceptible to the general transport users due to the low number of trips generated. Maintenance activities along the transmission line would be experienced at isolated locations at any given time
- Impacts association with the ongoing maintenance of new access tracks and roads developed during construction, particularly where these new assets connect with the existing public road networks.

Therefore, based on a qualitative assessment the risk of traffic and access impacts from operational traffic at sensitive receivers is considered minor. These impacts are detailed below in terms of road network performance, road condition and new access points.

7.3.1.1 Road network performance

Based on the proposed operation and maintenance activities and their frequencies detailed in Section 7.1, the traffic generated for operation and maintenance activities in Section 7.2 is insignificant. As such, operation of the amended project would have negligible impact on road network performance.

7.3.1.2 Intersection / access point connection

Some intersection/access point connections would be permanent to accommodate vehicular access for maintenance works (refer to Section 6.3.1.3), the traffic generated by maintenance works at these intersections would be minor and are unlikely to impact on the road network.

7.3.1.3 Road condition

The low volumes of light and HVs for operation and maintenance activities are anticipated to have negligible impact on road condition. As a proportion of road volume capacity available, and in terms of the current high level of service for the road network within the traffic study area, the additional vehicles generated by the operation of the amended project would represent no perceptible change.

7.3.2 Impact on rail network

During operation, maintenance activities near the rail network would be limited to inspections of transmission line structures and managing localised transmission line network disruptions. During these events, work would be undertaken in consultation with rail authorities, by appropriately authorised personnel and within the required clearances from existing rail lines. The operational rail network impact is expected to negligible.

7.3.3 Impact on road safety

The volume of traffic associated with operation and maintenance activities is relatively low and is expected to have a negligible impact on the existing road networks safety.

7.3.4 Impact on active transport

Within the traffic study area, active transport provisions such as footpaths exist in urban environments only. The traffic for operation and maintenance activities is expected mainly in the vicinity of transmission lines and substations, where no active transport provisions exist.

The increase in traffic due to operation of the amended project is expected to have negligible impact on active transport.

7.3.5 Impacts on public transport

The low traffic generated for operation of the amended project combined with the infrequent nature of the traffic movements would have limited interaction with public transport services and school bus services. Operational traffic is anticipated to have a negligible impact on public transport and school bus services.

7.3.6 Impacts to property access

Access to properties would be maintained at all times over the course of operational and maintenance activities.

8 Cumulative impacts

Assessing cumulative impacts involves the consideration of the proposed impact in the context of traffic and transport. The assessment of cumulative impacts also considers projects that are currently under development, or at the planning state that may also influence the assessment of this project's potential impacts. Cumulative impacts can potentially arise from the interaction of the construction and operation activities of the amended project and other future projects nearby.

The cumulative impact assessment was prepared in accordance with the *Cumulative Impact Assessment Guidelines for State Significant Projects* (DPE, 2022). Projects with the potential for cumulative impacts with the amended project were identified through a review of publicly available information and environmental impact assessments from the following databases in March 2023:

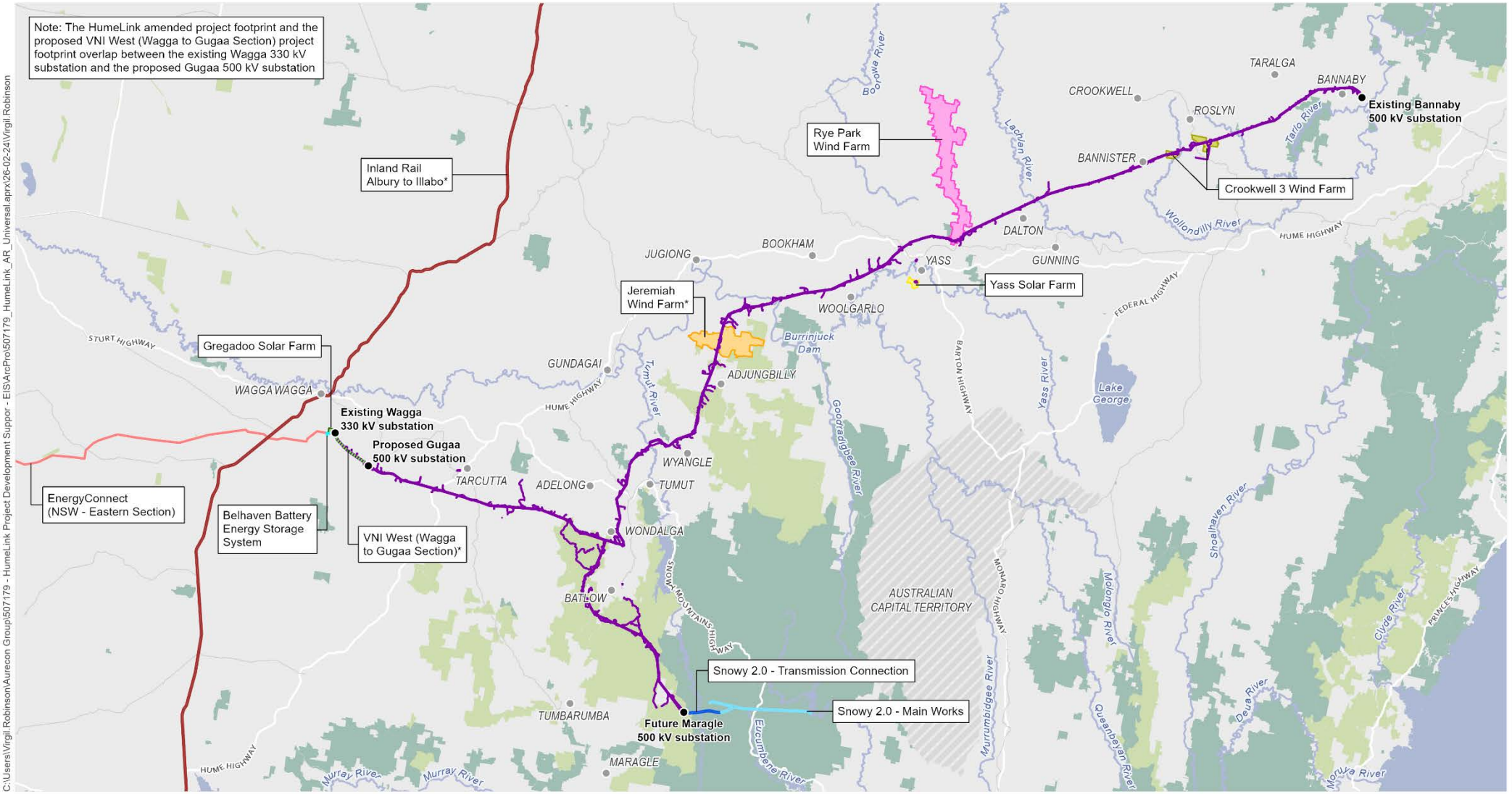
- DPHI's Major Projects register
- NSW Government's Southern Regional Planning Panel project register
- NSW Independent Planning Commission project register
- *Environment Protection and Biodiversity Conservation Act 1999* Public Portal
- TfNSW Projects Map.

Searches were limited to the LGAs of Wagga Wagga City, Snowy Valleys, Yass Valley, Cootamundra-Gundagai Regional Upper Lachlan Shire and Goulburn Mulwaree.

Based on the above searches, the following projects are to be considered in the cumulative impact assessment for each of the key matters:

- EnergyConnect (NSW – Eastern Section)
- Gregadoo Solar Farm
- Jeremiah Wind Farm
- Rye Park Wind Farm
- Victoria to NSW Interconnector West (VNI West)
- Snowy 2.0 – Transmission Connection
- Snowy 2.0 – Main Works
- Inland Rail – Albury to Illabo
- Crookwell 3 Wind Farm.
- Belhaven Battery Energy Storage System
- Yass Solar Farm

Figure 8-1 shows the location of relevant future projects with respect to HumeLink's amended project footprint.



Source: *Aurecon, Transgrid, Spatial Services (DCS), ESRI Basemap*

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Projection: GDA 1994 MGA Zone 55

HumeLink **Traffic and Transport Impact**

FIGURE 8-1: Relevant future projects

Table 8-1 Summary of cumulative impacts identified

Relevant project	Details	Distance/interface	Cumulative impacts
EnergyConnect (NSW - Eastern Section)	The EnergyConnect (NSW – Eastern Section) project includes a new transmission line connecting the existing Buronga substation and existing Wagga 330 kV substation, and construction of the new Dinawan 330 kV substation (170 km west of Wagga Wagga). The new transmission line comprises: ■ 375 km of new 330 kV double-circuit transmission line and associated infrastructure between the Buronga substation and the proposed Dinawan 500 kV substation ■ 162 km of new 500 kV double-circuit transmission line (operated at 330 kV) and associated infrastructure between the proposed Dinawan 500 kV substation and the existing Wagga 330 kV substation ■ Connection of the proposed transmission lines to the proposed Dinawan 330 kV substation. Construction of the project would commence in early-2023. The construction of the transmission lines and substation facilities would take around 30 months. The upgraded Wagga 330 kV substation and new Dinawan 330 kV substation are expected to be operational by late-2024. Site decommissioning and remediation would extend around six months beyond the commissioning (operational) phase, with estimated completion in mid-2025.	HumeLink and EnergyConnect (NSW – Eastern Section) both require upgrades of the existing Wagga 330 kV substation	The EnergyConnect (NSW – Eastern Section) project is expected to be operational by late 2024, however site decommissioning and remediation work would extend to early 2025. Construction of HumeLink is expected start in mid-2024. As the construction traffic related to both projects is expected to use roads in the vicinity of overlapping worksites some cumulative impacts are anticipated. However, by the time construction on HumeLink commences, it is expected that most of the work for EnergyConnect at Wagga Wagga would have been completed considering the scheduled operation of project in late 2024. Only minor traffic related to site decommissioning and remediation work and maintenance during operation is anticipated which would have minor to negligible cumulative impact.
Gregadoo Solar Farm	The Gregadoo Solar Farm would be located about 13 km south-east of Wagga Wagga, adjacent to the Wagga 330 kV substation. The project is proposed to comprise construction, operation and decommissioning of a maximum 47 MW solar farm and associated infrastructure. The EIS for the project was approved in 2021. Construction is expected to commence in 2023 with nine months of construction period. The project is expected to be operational early 2024.	The road network adjacent to the existing Wagga 330 kV substation would be used by both the projects. Gregadoo Solar Farm is proposed to connect to existing Wagga 330 kV substation on the northern side of substation.	This project is not expected to result in cumulative impacts with HumeLink, given the construction phase of the project is anticipated to finish before commencement of HumeLink construction work. During operation, Gregadoo Solar Farm project is anticipated to generate insignificant traffic, therefore negligible cumulative impacts are anticipated.

Relevant project	Details	Distance/interface	Cumulative impacts
Jeremiah Wind Farm	The proposed Jeremiah Wind Farm is located approximately 29 km east of Gundagai in the Adjungbilly area. The project proposes a 65 turbine wind farm with a maximum tip height of 300 m, battery energy storage system and associated ancillary infrastructure. An EIS is in preparation. Project approval is anticipated in 2023 with construction expecting to take 24-30 months.	HumeLink transmission lines would pass through the Jeremiah Wind Farm development area	The construction period of the Jeremiah Wind farm coincides with the HumeLink project. Due to the nature of the wind farm construction, the majority of its construction traffic is expected to be concentrated locally, in the vicinity of the wind farm. Considering the geographical extent of the HumeLink project, cumulative transport impacts are anticipated to be locally concentrated in the Adjungbilly area. Adjungbilly Road, Nanangroe Road, Parsons Creek Road, Red Hill Road, Maryvale Road or other similar roads in overlapping area are expected to be used by both the projects. Given the substantial residual capacity available on these roads, should the peak construction work of both projects coincide, the traffic impacts are considered manageable within the existing road network capacity.
Rye Park Wind Farm	The Rye Park Wind Farm is located to the west of Rye Park, to the north-west of Yass and south-east of Boorowa. The modified project includes a maximum of 80 wind turbines with a maximum tip height of 200 m. The project also includes construction of associated infrastructure (substations, operation and maintenance facilities) and upgrades to local roads. The EIS was approved in 2017, modification 1 was approved in 2021 and modification 2 is in preparation in 2022. Construction commenced in December 2021 with commissioning scheduled for June 2023.	HumeLink transmission lines would pass through the southern end of the wind farm project boundary at Bango (near Bango Nature Reserve).	This project is a not expected to have a major impact given the construction phase of the project is anticipated to finish before commencement of the HumeLink construction work. During operation, Rye Wind farm project is anticipated to generate low traffic volumes, which would not result in any cumulative impacts during the operation of HumeLink.
Victoria to NSW Interconnector West (VNI West)	The VNI West project involves targeted interconnector expansion between Victoria and NSW to address transmission network limitations and improve supply reliability. VNI West have completed the regulatory test and a recommended preferred route has been identified. The next stage would be to identify the preferred route alignment that would be used to inform the environmental assessment phase. Construction of project is anticipated in late 2026 with indicative completion by 2028.	The VNI West Project will intersect the HumeLink amended project footprint between the existing Wagga 330 kV substation and the proposed Gugaa 500 kV substation.	The construction for VNI West project is anticipated to start in late 2026, by that time it is expected that most of the work on HumeLink except for testing and commission would have been complete considering the scheduled completion of Humelink in late 2026. As the construction traffic for both projects is expected to use the roads in the vicinity of overlapping worksites in Wagga Wagga, only minor traffic related to testing and commissioning of HumeLink and site establishment activities of VNI- West is anticipated which would have minimal to no cumulative impacts.

Relevant project	Details	Distance/interface	Cumulative impacts
Snowy 2.0 - Transmission Connection	The Snowy 2.0 – Transmission Connection project involves a new transmission connection between the proposed Snowy 2.0 pumped hydro and generation project to the existing high voltage transmission network. This includes construction of a new substation in Bago State Forest (future Maragle 500 kV substation), new access tracks and upgrade of existing access tracks and ancillary work to support construction. An EIS has been exhibited. Construction expected to begin in late 2023 with expected completion by end of 2025.	HumeLink to connect to the future Maragle 500 kV substation being constructed as part of the Snowy 2.0 – Transmission Connection project	HumeLink would connect to the future Maragle 500 kV substation being constructed as part of the Snowy 2.0 - Transmission Connection project. The nature of this project is similar to HumeLink. At Bago State Forest there is an overlap in worksite. By the time construction on HumeLink commences, it is expected that most of the work for Snowy 2.0 - Transmission Connection at Bago State Forest would have been completed considering the scheduled completion date of project in 2026. Transgrid is the proponent for both Snowy 2.0 - Transmission Connection and HumeLink. As such construction schedules for both projects would be coordinated to minimise cumulative transport impacts.
Snowy 2.0 - Main Works	The Snowy 2.0 – Main Works project includes an underground pumped hydro power station and ancillary infrastructure. The main work at Talbingo Reservoir site include excavated rock placement, portal construction and tunnelling, access roads and ancillary facilities for emplacement activities and tunnelling support. Construction began in October 2020 with expected completion by 2026.	Talbingo Reservoir site is approximately 5 km east of the HumeLink project footprint.	The construction period of Snowy 2.0 – Main Works coincides with the HumeLink project. Due to nature of Snowy 2.0 – Main Works majority of projects' construction traffic is expected to be concentrated locally in the Bago State Forest near Talbingo Reservoir. The roads providing access to HumeLink project footprint have significant substantial residual capacity. The cumulative impact of Snowy 2.0 – Main Works and HumeLink would be manageable within the existing road network capacity.
Inland Rail – Albury to Illabo	Upgrade 185 km of rail track from Albury to Illabo which passes through Wagga Wagga. Construction is proposed to commence in early 2024 and is expected to take about 16 months.	Roughly 9 km north-west of existing Wagga 330 kV substation.	This project is not expected to result in cumulative impacts with HumeLink as the construction of this rail track would only interact with HumeLink generated traffic around Wagga Wagga. The increase in HumeLink's traffic volumes around Wagga Wagga are expected to be low and would not result in any cumulative impacts.
Crookwell 3 – Wind Farm	16 wind turbines up to 157 m in height, connected to the grid via the 330 kV transmission line. Detailed design and pre-construction activities are being carried out with main construction work expected to take about 18 months once commenced.	Project site is within the project footprint.	This project is not expected to result in cumulative impacts with HumeLink as the construction is likely to finish before the start of construction for HumeLink. Irrespective, if there is a slight overlap in construction, the increase in HumeLink's traffic volumes around Crookwell are expected to be low and would not result in any cumulative impacts.

Relevant project	Details	Distance/interface	Cumulative impacts
Belhaven Battery Energy Storage System (BESS)	Construction and operation of a 400 MW / 800 MWh BESS including transmission connection and associated infrastructure. An EIS for the project is under preparation. Construction of project is proposed to begin in 2025 with expected completion in 2026	Proposal site is located about 1.5 km west of the existing Wagga 330 kV substation, but a connection from BESS to the substation (most likely underground) is proposed.	This project has an overlap with HumeLink's construction program. Due to the nature of Belhaven Battery Energy Storage System works, the majority of the project's traffic is expected to be concentrated locally around Wagga Wagga 330 kV Substation. As per publicly available information, Ashford Road and Boiling Down Road are expected to be used by both of the projects. Given the substantial residual capacity available on these roads, should the peak construction work of both projects coincide, the traffic impacts are considered manageable within the existing road network capacity.
Yass Solar Farm	The construction, operation and decommissioning of a 100 MW solar photovoltaic energy generating facility with an associated battery energy storage system. An EIS for the project is under preparation. Construction is proposed to commence in 2025 and is expected to take 24 months.	The project site surrounds the Yass substation	The construction period of Yass Solar Farm overlaps with HumeLink's construction period. Given the nature of Yass Solar Farm works and proximity with HumeLink's Yass substation, the cumulative impacts are likely to be limited to Yass area on state and regional roads connecting Yass substation along with a few local roads such as Perry Street and Grand Junction Road. Given State roads and regional roads have been designed for higher capacity and local roads have substantial residual capacity, the cumulative traffic impacts are considered manageable within the existing road network capacity.

9 Management of impacts

9.1 Overview of approach

This chapter lists out the mitigation measures to be implemented to minimise the impacts related to construction and operation traffic and transport of the amended project.

A Traffic and Transport Management Plan would be prepared prior to construction to mitigate and manage the impacts associated with the construction work. The plan will be guided by *Traffic Control at Work Sites version 6.1-Technical Manual* (TfNSW, 2022). The plan will also detail how potential project-related traffic and access impacts during construction would be minimised and managed. This plan will be prepared in consultation with the local councils and TfNSW. This plan will be implemented prior to and during construction and will include consideration and potential coordination with relevant nearby projects with potential for cumulative impacts to plan transport related activities to minimise the impacts on traffic where possible.

All relevant permits and licences, including those required for drivers (such as Forest Operators Licence), are required prior to construction.

9.2 Avoidance and minimisation of impacts

Traffic impacts during construction of the amended project would be managed primarily through the establishment of regular communications with the relevant road/rail authorities, landowners, community, contractors of other projects and project stakeholders, regarding the planned movements of amended project construction traffic in relation to staging of work.

Considering the geographical extent and the nature of the amended project, an increase in construction traffic movement for most of the roads is expected to be low and distributed over a large network.

During operation, consultation with relevant stakeholders such as road authorities, relevant councils and community affected would be the main avenue for management of impacts. However, the traffic impacts during operation are anticipated to be negligible, as detailed in Chapter 7.

9.3 Summary of mitigation measures

The traffic and transport impact mitigation measures and the suggested timing of developing the mitigation is provided in Table 9-1.

Table 9-1 Summary of revised mitigation measures

Impact	Mitigation measures	Timing	Relevant location
Road safety – design	Access tracks, access connections and road upgrades required to facilitate the movement of project related traffic will be designed **and constructed in a fit for purpose manner for construction. Where required, intersection works with public roads will be designed and constructed** according to relevant Austroads guides **or the relevant asset owners' standards.**	Detailed design	Access tracks and roads
Impact to road network during OSOM deliveries	Prior to commencement of transportation activities, the validity of the previously undertaken haulage route studies will be confirmed in consideration of final haulage route conditions and applicable route restrictions for the period during which transportation of such components is planned. **Any relevant permits and approvals will be sought from National Heavy Vehicle Regulator, the relevant road and rail authorities, NSW police, and utility owners and providers.**	Detailed design	Transportation route
General construction impacts	Traffic controls will be aligned with *Traffic Control at Work Sites – Technical Manual Version 6.1* (**Transport for NSW (**TfNSW**)**, 2022). Traffic controls will be confirmed in consultation with the relevant road authority.	Detailed design and construction	All locations
Road maintenance	Prior to construction, road **condition assessments** ~~dilapidation surveys~~ will be carried out for all local roads to be used during construction. The surveys will assess the current condition of the road surface **and will be documented in a road condition report, with a copy being provided to the relevant road authority**. ~~At the completion of project construction, a subsequent road condition assessment will be prepared to assess the damage to roads accessed by project related traffic.~~ **Road condition assessments will be undertaken during and following construction to assess the damage to roads accessed by project-related traffic.** Damage caused by the project will be rectified **or compensated for, during or after construction** in consultation with the relevant road authority.	Detailed design and construction	Access routes
Impact on rail operation	All project activities in rail corridors will be undertaken in accordance with the permission granted by the appropriate rail authority. Stringing of transmission line over rail tracks will be scheduled during rail maintenance periods or in a duration which permits sufficient gap between scheduled freight or passenger services to undertake the work.	Construction and operation	All locations
Temporary lane/road closure	Road closures will be undertaken with the approval of the appropriate road authority and under the relevant road occupancy licence to be obtained prior to construction. Where feasible, road closures will be planned outside of the traffic peak to minimise the impact on the road network.	Construction	All locations
Road safety – driver related	A Code of Conduct applicable to all construction workers will be developed and implemented which will define acceptable driver behaviour. The purpose of the Code of Conduct is to promote road safety and ensure that the impacts of construction-related vehicle movements on local roads and the local community are minimised. The Code of Conduct will be developed as part of a wider suite of documents under work health and safety requirements.	Construction	Roads providing access to project

Impact	Mitigation measures	Timing	Relevant location
Community and stakeholder consultation	Community and stakeholder communication strategies will be established and implemented to notify the affected communities, visitors, emergency services and relevant road and rail authorities in advance of any disruptions to traffic, anticipated delays, disruptions to property access and changes to travel routes. The strategies will be developed including details on communication channels, frequency of communication and response measures in relaying information to the community and stakeholders.	Detailed design and construction	All locations

10 Conclusion

This report assesses the traffic and transport impacts associated with construction and operation of the amended project. The report addresses the SEARs in relation to traffic and transport related impacts on the road and rail network performance, road safety, impact on active transport and public transport.

10.1 Construction traffic impact

Construction of the amended project would generate additional traffic on the existing road network within the amended traffic study area. Due to low existing levels of traffic on the local road network within the amended traffic study area, the additional amended project traffic during construction would result in a perceptible change. From a road capacity point of view, all roads would operate reasonably in free flow conditions.

The road network in the amended traffic study area is expected to maintain performance at LoS A as per the existing conditions.

A review of crashes on roads within 100 metres of the anticipated access routes to the construction compounds identified no crashes between 2018 and 2022. The design of the access points and roads tie-ins would be developed in consultation with the relevant roads authority and in accordance with the *Austroads Guide to Road Design* or TfNSW or the relevant council guidelines to minimise the likelihood of crashes and other road safety concerns.

Construction traffic would not have any impact on rail network operation as vehicles would use the existing road network and approved railway crossings. All stringing activities for the transmission lines across railway lines would be undertaken during planned rail possessions and would be undertaken in accordance with the railway line owners' or operators' requirements to avoid any impact to rail operations.

The impact of construction traffic on active transport would be confined to urban areas where active transport infrastructure is provided and used. However, these impacts would be negligible due to the low volumes of additional construction traffic and the separation of active transport users from vehicles.

Bus services form the major public transport services in the amended traffic study area. As construction traffic is not anticipated to adversely impact road network performance, bus services are not expected to experience delays.

Access to properties is expected to be mostly maintained throughout the duration of the construction. Where short-term temporary restrictions to property access is required, it would be undertaken in consultation with property owners in accordance with the relevant property management plans.

10.2 Operation traffic impact

The traffic generated during operation of the amended project would be relatively low. The low volume of operational traffic would have a negligible impact on the road network including road network performance, road safety and road condition.

The traffic to be generated during operation and maintenance activities would be around the transmission lines and substations, where no active transport provisions exist, thus no impact on active transport is expected.

The low volumes of traffic generated during operation would have little to no interaction with public transport services resulting in negligible impact on public transport.

Access to properties would be maintained throughout operation in consultation with landowners.

10.3 Cumulative impacts

The cumulative impact assessment of traffic and transport impacts assessed the potential for an increase in impact during construction and operation of HumeLink in conjunction with other relevant future projects.

Given the substantial residual capacity available on the road network within the study area, the cumulative impacts are largely considered manageable and would be accommodated by the existing road network capacity.

10.4 Mitigation measures

With the implementation of the traffic mitigation and management measures during each phase of the amended project the impact of construction and operational traffic of the amended project is expected to be minor.

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Attachments

Attachment A

Regional road network within amended traffic study area

Table A - 1: Regional Road network within amended traffic study area

Road name	Pavement type	Lane counts	Speed limit	Pedestrian/ cyclist provision
Britannia Street	Sealed	2	90 km/h	Road reserve
Bunnaby Street	Sealed	Unmarked	50 km/h	Road reserve
Burrinjuck Road	Sealed	Unmarked	60/ 80 km/h	Unsealed shoulders
Camp Street	Sealed	2	90 km/h	Road reserve
Comur Street	Sealed	2	50 km/h	Footpaths
Elliott Way	Sealed	2	80 km/h	Road reserve
Grabben Gullen Road	Sealed	2	100 km/h (50 km/h near towns)	Unsealed shoulders
Gundaroo Road	Sealed	2	100 km/h	Sealed shoulders
Gunning Street	Sealed	2	50 km/h	Road reserve
Hume Street	Sealed	2	50 km/h	Sealed shoulders
Lachlan Valley Way	Sealed	2	100 km/h	Sealed shoulders
Laggan – Taralga Road	Sealed/ Unsealed	2	100 km/h	Unsealed shoulders
Laidlaw Street	Sealed	2	50 km/h	Footpaths
Orchard Street	Sealed	Unmarked	50 km/h	Road reserve
Rye Park Road	Sealed	2	100 km/h (50 km/h near towns)	Unsealed shoulders
Taralga Road	Sealed	2	100 km/h (50 km/h near towns)	Unsealed shoulders
Tumbarumba Road	Sealed	2	100 km/h (50 km/h near towns)	Unsealed shoulders
Wee Jasper Road (including Grand Junction Road)	Sealed	2	100 km/h (50 km/h near towns)	Sealed shoulders
Wondalga Road	Sealed	2	100 km/h (50 km/h near towns)	Unsealed shoulders
Yass Street	Sealed	2	50 km/h	Footpaths
Yass Valley Way	Sealed	2	80/ 100 km/h (50 km/h in towns)	Sealed shoulders/ Road reserve

Table A - 2: Regional Road network adjacent to amended traffic study area

Road name	Pavement type	Lane counts	Speed limit	Pedestrian/ cyclist provision
Binda Road	Sealed	2	80/ 100 km/h	Sealed shoulders
Boorowa Road	Sealed	2	100 km/h	Unsealed Shoulders
Brooklands Street	Sealed	2	50 km/h	Road reserve
Collector Road	Sealed	2	100 km/h (50 km/h near towns)	Unsealed shoulders
Dalton Road	Sealed	2	100 km/h (50 km/h near towns)	Unsealed shoulders
Gundaroo Street	Sealed	2	50 km/h	Unsealed shoulder
Laggan Road	Sealed	2	100 km/h (50 km/h near towns)	Unsealed shoulders
Northcott Street	Sealed	2	50 km/h	Road reserve
Selwyn Street	Sealed	2	50 km/h	Unsealed shoulders
Tumut Street	Sealed	2	50 km/h	Road reserve
Warrataw Street	Sealed	2	50 km/h	Road reserve
West Street	Sealed	2	50 km/h	Road reserve
Willis Street	Sealed	2	50 km/h	Road reserve

Attachment B

Local road network within traffic study area

Road name	Pavement type	Lane counts
Abbots Lane	Unsealed	2
Adavale Road	Unsealed	1
Adelong Creek Road	Unsealed	2
Adjungbilly Road	Sealed	2
Angels Lane	Unsealed	1
Ardrossan Headquarters Road	Unsealed	1
Ash Creek Road	Unsealed	1
Ashfords Road	Sealed	2
Audley Road	Sealed	2
Back Arm Road	Unsealed	1
Back Camp Road	Unsealed	1
Back Creek Road	Unsealed	2
Back Kunama Road	Unsealed	1
Back Nacki Creek Road	Unsealed	1
Bago Creek Road	Unsealed	2
Bago Forest Way	Unsealed	1
Bango Lane	Unsealed	1
Bannaby Road	Sealed	2
Bannister Lane	Unsealed	2
Barneys Highway	Unsealed	1
Bartoman Street	Sealed	2
Bb Feeder Road	Unsealed	1
Big Springs Road	Sealed	2
Black Range Road	Unsealed	2
Blakney Creek North Road	Sealed	2
Blakney Creek Road South	Sealed	2
Blakney Creek South Road	Sealed	2
Boiling Down Road	Unsealed	2
Booths Access Road	Unsealed	1
Booths Road	Unsealed	1
Bradleys Drive	Unsealed	1
Bridge Road	Unsealed	1
Brown Street	Unsealed	1
Browns Forest Road	Unsealed	1
Browns Road	Unsealed	1
Brungle Creek Road	Unsealed	2
Brungle Road	Sealed	2
Buddong Road	Unsealed	1
Buggali Road	Unsealed	1

Road name	Pavement type	Lane counts
Bulleys Crossing	Unsealed	2
Bullongra Road	Unsealed	1
Bundarbo Road	Unsealed	1
Bundarbo Road	Unsealed	1
Burkinshaws Lane	Unsealed	1
Bushs Road	Unsealed	1
Butcher Road	Unsealed	1
Byes Lane	Unsealed	1
Carnells Lane	Unsealed	1
Carrabungla Road	Unsealed	2
Carrs Road	Unsealed	1
Castle Hill Road	Unsealed	1
Centenary Avenue	Sealed	2
Central Logging Road	Unsealed	1
Chapel Street	Sealed	1
Childowla Road	Sealed	2
Church Street	Sealed	1
Clancys Road	Unsealed	1
Cockatoo Road	Unsealed	1
Colyer Street	Sealed	2
Comatawa Road	Unsealed	1
Cooks Hill Road	Sealed	2
Coolalie Road	Unsealed	2
Coreinbob Road	Unsealed	2
Coreinbob Siding Road	Unsealed	2
Cullerin Road	Sealed	2
Dawes Road	Unsealed	2
Days Road	Unsealed	1
Dunns Road	Unsealed	1
East Bago Powerline Road	Unsealed	1
Ellerslie Road	Unsealed	1
Ernies Way	Unsealed	1
Fagan Drive	Sealed	2
Fairy Hole Road	Unsealed	1
Faulder Avenue	Unsealed	2
Felled Timber Road	Unsealed	1
Fernhill Road	Unsealed	1
Flacknell Creek Road	Unsealed	2
Forest Road	Sealed	1
Gadara Lane	Unsealed	2
Gadara Road	Unsealed	2
Gilmore Mill Road	Sealed	1
Glebe Street	Sealed	2

Road name	Pavement type	Lane counts
Grand Junction Road	Sealed	2
Graywood Siding Road	Unsealed	1
Green Hills Access Road	Sealed	2
Green Hills Forest Way	Unsealed	2
Greendale Road	Unsealed	1
Greenhills Road	Sealed	2
Gregadoo East Road	Sealed	2
Gregadoo-Ladysmith Road	Sealed	1
Gurrundah Road	Sealed	2
Hanworth Road	Sealed	2
Harley Road	Unsealed	1
Hillcrest Road	Unsealed	1
Honeysuckle Road	Unsealed	1
Hovell Street	Sealed	2
Hugel Trail	Unsealed	1
Humula Link Road	Sealed	2
Humula Road	Sealed	2
Illalong Road	Sealed	2
Ivydale Road	Unsealed	1
Jerrawa Road	Sealed	2
Keajura Road	Sealed	2
Kialla Road	Sealed	2
Kileys Creek Road	Unsealed	1
Kileys Road	Unsealed	1
Kopsens Road	Unsealed	1
Kunama Road	Unsealed	1
Kurrajong Avenue	Sealed	2
Kyeamba Street	Sealed	2
Lade Vale Road	Unsealed	1
Livingstone Gully Road	Unsealed	2
Loop Road	Unsealed	2
Lower Bago Road	Sealed	2
Lower Greendale Road	Unsealed	1
Macarthur Street	Sealed	1
Maryvale Road	Unsealed	1
Mates Gully Road	Sealed	2
Mcallisters Trail	Unsealed	1
Mcdonald Street	Sealed	2
Mcintosh Lane	Unsealed	1
Meadow Creek Road	Unsealed	1
Memorial Avenue	Sealed	2
Menzies Lane	Unsealed	1

Road name	Pavement type	Lane counts
Middle Arm Road	Sealed	2
Mill Road	Sealed	2
Millers Road	Unsealed	1
Monterey Road	Unsealed	2
Mount Pedlar Road	Unsealed	1
Mount Pleasant Creek Trail	Unsealed	1
Mount Rae Road	Unsealed	1
Nacki Creek Road	Unsealed	1
Nanangroe Road	Unsealed	1
New Maragle Road	Unsealed	1
Northern Boundary Road	Unsealed	1
Nursery Access Road	Unsealed	1
Oberne Ellerslie Trail	Unsealed	1
Offleys Lane	Unsealed	1
Old Telegraph Track	Unsealed	1
Old Tumbarumba Road	Sealed	2
Old Western Boundary Road	Unsealed	1
One Tree Hill Trail	Unsealed	1
Orion Street	Sealed	2
Palmer Street	Unsealed	1
Parsons Creek Road	Unsealed	1
Parsons Lane	Sealed	2
Paynes Road	Unsealed	1
Pejar Road	Unsealed	2
Perkins Road	Unsealed	1
Perry Street	Sealed	2
Pierces Boundary Road	Unsealed	1
Pipe Dump Road	Unsealed	1
Pollux Street	Sealed	2
Powerline Road	Unsealed	1
Powerline Trail	Unsealed	1
Prices Lane	Unsealed	2
Prices Road	Unsealed	1
Prickle Road	Unsealed	1
Range Road	Sealed	2
Red Hill Road	Unsealed	2
Red Strip Road	Unsealed	1
Reddall Street	Sealed	2
Rhyanna Road	Sealed	2
Right Arm Creek Road	Unsealed	1
Riverside Drive	Sealed	2
Robertson Lane	Sealed	1
Roches Road	Unsealed	1

Road name	Pavement type	Lane counts
Rocky Gully Road	Unsealed	1
Rosehill Road	Unsealed	1
Roslyn Road	Sealed	2
Rugby Road	Sealed	2
Sailors Road	Unsealed	1
Sapphire Road	Sealed	2
Sargood Trail	Unsealed	1
Sawmill Creek Road	Unsealed	1
Scotties Hut Road	Unsealed	1
Sharps Creek Road	Unsealed	1
Sharps Road	Unsealed	1
Shedleys Road	Unsealed	1
Sixty Five Feeder Road	Unsealed	1
Snubba Road	Unsealed	2
Soldiers Settlement Road South	Unsealed	1
Spicers Lane	Unsealed	2
Spyglass Trail	Unsealed	1
Stantons Road	Unsealed	1
Stewarts Road	Sealed	1
Stink Pot Road	Unsealed	1
Stockmans Creek Road	Unsealed	1
Storriers Lane	Unsealed	1
Strathaird Lane	Sealed	2
Stud Horse Feeder Road	Unsealed	1
Talmo Road	Unsealed	1
Toonga Settlement Road	Unsealed	1
Trewalla Road	Unsealed	1
Tywong Street	Sealed	2
Veterans Road	Sealed	2
Walsh Street	Sealed	2
Walshs Road	Unsealed	2
Wargeila Road	Sealed	2
Warroo Road	Sealed	2
Webbs Road	Unsealed	1
West Branch Feeder	Unsealed	1
West Gilmore Road	Unsealed	2
Westbrook Road	Sealed	2
Westwood Road	Unsealed	1
Wilds Road	Unsealed	1
Willigobung Middle Spur Road	Unsealed	2
Wilsons Road	Unsealed	1
Wiltys Road	Unsealed	1
Wombeys Feeder Road	Unsealed	1

Road name	Pavement type	Lane counts
Woodhouselee Road	Sealed	2
Yarrawonga Road	Unsealed	1
Yaven Creek Road	Sealed	2
Yellowin Access Road	Sealed	2

Attachment C

Peak traffic volumes on access routes within amended traffic study area

Road name and location	Traffic count availability	NSW Road Network Classification	Pavement type	Estimated peak hour volume (vehicles per hour per direction)
Wagga Wagga City LGA				
Abbots Lane	No – Estimated	Local road	Unsealed	20
Angels Lane	No – Estimated	Local road	Unsealed	20
Ashfords Road	No – Estimated	Local road	Sealed	30
Big Springs Road	No – Estimated	Local road	Sealed	50
Boiling Down Road	No – Estimated	Local road	Unsealed	20
Burkinshaws Lane	No – Estimated	Local road	Unsealed	10
Byes Lane	No – Estimated	Local road	Unsealed	10
Centenary Avenue	No – Estimated	Local road	Sealed	100
Comatawa Road	No – Estimated	Local road	Unsealed	20
Coreinbob Road	No – Estimated	Local road	Unsealed	20
Coreinbob Siding Road	No – Estimated	Local road	Unsealed	30
Gregadoo East Road	No – Estimated	Local road	Sealed	100
Gregadoo-Ladysmith Road	No – Estimated	Local road	Sealed	50
Hume Highway (between Humula Road and Comatawa Road)	Yes – TfNSW Traffic Counter, Station ID – 95423	National road	Sealed	140
Humula Link Road	No – Estimated	Local road	Sealed	50
Humula Road	No – Estimated	Local road	Sealed	50
Ivydale Road	No – Estimated	Local road	Unsealed	20
Keajura Road	No – Estimated	Local road	Sealed	50
Kyeamba Street	No – Estimated	Local road	Sealed	50
Livingstone Gully Road	No – Estimated	Local road	Unsealed	20
Mates Gully Road	No – Estimated	Local road	Sealed	50
Mcallisters Trail	No – Estimated	Local road	Unsealed	10
Prices Road	No – Estimated	Local road	Unsealed	10
Stewarts Road	No – Estimated	Local road	Sealed	10
Toonga Settlement Road	No – Estimated	Local road	Unsealed	20
Trewalla Road	No – Estimated	Local road	Unsealed	10
Tumbarumba Road	Yes – TfNSW Traffic Counter, Station ID – 95271	Regional road	Sealed	50
Tywong Street	No – Estimated	Local road	Sealed	20
Westbrook Road	No – Estimated	Local road	Sealed	50
Wilds Road	No – Estimated	Local road	Unsealed	10
Snowy Valleys LGA				
Adelong Creek Road	No – Estimated	Local road	Unsealed	10
Adelong Road	Yes – TfNSW Traffic Counter, Station ID – 95532	State road	Sealed	280

Road name and location	Traffic count availability	NSW Road Network Classification	Pavement type	Estimated peak hour volume (vehicles per hour per direction)
Ardrossan Headquarters Road	No – Estimated	Local road	Unsealed	20
Ash Creek Road	No – Estimated	Local road	Unsealed	20
Back Camp Road	No – Estimated	Local road	Unsealed	20
Back Creek Road	No – Estimated	Local road	Unsealed	20
Back Nacki Creek Road	No – Estimated	Local road	Unsealed	20
Back Kunama Road	No – Estimated	Local road	Unsealed	30
Bago Creek Road	No – Estimated	Local road	Unsealed	20
Bago Forest Way	No – Estimated	Local road	Unsealed	20
Barneys Highway	No – Estimated	Local road	Unsealed	10
Bartoman Street	No – Estimated	Local road	Sealed	50
Batlow Road	Yes – TfNSW Traffic Counter, Station ID – 95107	State road	Sealed	70
Bb Feeder Road	No – Estimated	Local road	Unsealed	20
Booths Access Road	No – Estimated	Local road	Unsealed	10
Booths Road	No – Estimated	Local road	Unsealed	20
Bradleys Drive	No – Estimated	Local road	Unsealed	10
Bridge Road	No – Estimated	Local road	Unsealed	10
Browns Forest Road	No – Estimated	Local road	Unsealed	20
Browns Road	No – Estimated	Local road	Unsealed	10
Brungle Creek Road	No – Estimated	Local road	Unsealed	30
Brungle Road	No – Estimated	Local road	Sealed	50
Buddong Road	No – Estimated	Local road	Unsealed	10
Bullongra Road	No – Estimated	Local road	Unsealed	20
Carrs Road	No – Estimated	Local road	Unsealed	10
Central Logging Road	No – Estimated	Local road	Unsealed	20
Cockatoo Road	No – Estimated	Local road	Unsealed	10
Dunns Road	No – Estimated	Local road	Unsealed	20
East Bago Powerline Road	No – Estimated	Local road	Unsealed	10
Ellerslie Road	No – Estimated	Local road	Unsealed	20
Elliott Way	No – Estimated	Regional road	Sealed	50
Ernies Way	No – Estimated	Local road	Unsealed	10
Forest Road	No – Estimated	Local road	Sealed	50
Gadara Lane	No – Estimated	Local road	Unsealed	20
Gadara Road	No – Estimated	Local road	Unsealed	20
Gilmore Mill Road	No – Estimated	Local road	Sealed	20
Gocup Road (west Of Tumut)	Yes – TfNSW Traffic Counter, Station ID – 95186	State road	Sealed	70
Green Hills Access Road	No – Estimated	Local road	Sealed	20
Green Hills Forest Way	No – Estimated	Local road	Unsealed	20
Greenhills Road	No – Estimated	Local road	Sealed	50
Honeysuckle Road	No – Estimated	Local road	Unsealed	10

Road name and location	Traffic count availability	NSW Road Network Classification	Pavement type	Estimated peak hour volume (vehicles per hour per direction)
Hugel Trail	No – Estimated	Local road	Unsealed	10
Kileys Creek Road	No – Estimated	Local road	Unsealed	10
Kileys Road	No – Estimated	Local road	Unsealed	10
Kopsens Road	No – Estimated	Local road	Unsealed	20
Kunama Road	No – Estimated	Local road	Unsealed	20
Kurrajong Avenue	No – Estimated	Local road	Sealed	20
Lower Bago Road	No – Estimated	Local road	Sealed	50
Meadow Creek Road	No – Estimated	Local road	Unsealed	20
Memorial Avenue	No – Estimated	Local road	Sealed	30
Mill Road	No – Estimated	Local road	Sealed	30
Millers Road	No – Estimated	Local road	Unsealed	10
Monterey Road	No – Estimated	Local road	Unsealed	20
Mount Pleasant Creek Trail	No – Estimated	Local road	Unsealed	10
New Maragle Road	No – Estimated	Local road	Unsealed	10
Nacki Creek Road	No – Estimated	Local road	Unsealed	10
Northern Boundary Road	No – Estimated	Local road	Unsealed	20
Nursery Access Road	No – Estimated	Local road	Unsealed	20
Oberne Ellerslie Trail	No – Estimated	Local road	Unsealed	10
Old Telegraph Track	No – Estimated	Local road	Unsealed	10
Old Tumbarumba Road	No – Estimated	Local road	Sealed	30
Old Western Boundary Road	No – Estimated	Local road	Unsealed	20
One Tree Hill Trail	No – Estimated	Local road	Unsealed	10
Palmer Street	No – Estimated	Local road	Unsealed	20
Perkins Road	No – Estimated	Local road	Unsealed	20
Pierces Boundary Road	No – Estimated	Local road	Unsealed	20
Pipe Dump Road	No – Estimated	Local road	Unsealed	20
Powerline Road	No – Estimated	Local road	Unsealed	10
Powerline Trail	No – Estimated	Local road	Unsealed	10
Prickle Road	No – Estimated	Local road	Unsealed	10
Red Hill Road	No – Estimated	Local road	Unsealed	20
Right Arm Creek Road	No – Estimated	Local road	Unsealed	20
Roches Road	No – Estimated	Local road	Unsealed	10
Rocky Gully Road	No – Estimated	Local road	Unsealed	10
Rosehill Road	No – Estimated	Local road	Unsealed	10
Sailors Road	No – Estimated	Local road	Unsealed	10
Sargood Trail	No – Estimated	Local road	Unsealed	10
Scotties Hut Road	No – Estimated	Local road	Unsealed	10
Sharps Creek Road	No – Estimated	Local road	Unsealed	20
Sharps Road	No – Estimated	Local road	Unsealed	10
Shedleys Road	No – Estimated	Local road	Unsealed	10
Sixty Five Feeder Road	No – Estimated	Local road	Unsealed	10

Road name and location	Traffic count availability	NSW Road Network Classification	Pavement type	Estimated peak hour volume (vehicles per hour per direction)
Snowy Mountains Highway (west of Batlow Road)	Yes – TfNSW Traffic Counter, Station ID – 95108	State road	Sealed	130
Snubba Road	No – Estimated	Local road	Unsealed	20
Spyglass Trail	No – Estimated	Local road	Unsealed	10
Stantons Road	No – Estimated	Local road	Unsealed	10
Stockmans Creek Road	No – Estimated	Local road	Unsealed	10
Stud Horse Feeder Road	No – Estimated	Local road	Unsealed	20
Webbs Road	No – Estimated	Local road	Unsealed	20
Wee Jasper Road (north-east of Tumut)	Yes – TfNSW Traffic Counter, Station ID – 95539	Regional road	Unsealed	70
West Branch Feeder	No – Estimated	Local road	Unsealed	20
West Gilmore Road	No – Estimated	Local road	Unsealed	20
Westwood Road	No – Estimated	Local road	Unsealed	20
Willigobung Middle Spur Road	No – Estimated	Local road	Unsealed	10
Wilsons Road	No – Estimated	Local road	Unsealed	20
Wiltys Road	No – Estimated	Local road	Unsealed	20
Wombeys Feeder Road	No – Estimated	Local road	Unsealed	10
Wondalga Road	Yes – TfNSW Traffic Counter, Station ID – 95190	Regional road	Sealed	30
Yarrawonga Road	No – Estimated	Local road	Unsealed	10
Yaven Creek Road	No – Estimated	Local road	Sealed	30
Yellowin Access Road	No – Estimated	Local road	Sealed	20
Cootamundra-Gundagai Regional LGA				
Adjungbilly Road	No – Estimated	Local road	Sealed	20
Bundarbo Road	No – Estimated	Local road	Unsealed	20
Fernhill Road	No – Estimated	Local road	Unsealed	10
Honeysuckle Road	No – Estimated	Local road	Unsealed	20
Hume Highway (north of Coolac)	Yes – TfNSW Traffic Counter, Station ID – 6136	National road	Sealed	380
Maryvale Road	No – Estimated	Local road	Unsealed	10
Nanangroe Road	No – Estimated	Local road	Unsealed	30
Parsons Creek Road	No – Estimated	Local road	Unsealed	20
Red Hill Road	No – Estimated	Local road	Unsealed	20
Red Strip Road	No – Estimated	Local road	Unsealed	10
Sawmill Creek Road	No – Estimated	Local road	Unsealed	10
Yass Valley LGA				
Bango Lane	No – Estimated	Local road	Unsealed	10
Black Range Road	No – Estimated	Local road	Unsealed	30
Blakney Creek Road South	No – Estimated	Local road	Sealed	30
Buggali Road	No – Estimated	Local road	Unsealed	10
Burley Griffin Way	No – Estimated	State road	Sealed	100
Burrinjuck Road	No – Estimated	Regional road	Sealed	30

Road name and location	Traffic count availability	NSW Road Network Classification	Pavement type	Estimated peak hour volume (vehicles per hour per direction)
Bushs Road	No – Estimated	Local road	Unsealed	20
Childowla Road	No – Estimated	Local road	Sealed	20
Comur Street	No – Estimated	Regional road	Sealed	350
Cooks Hill Road	No – Estimated	Local road	Sealed	30
Coolalie Road	No – Estimated	Local road	Unsealed	20
Days Road	No – Estimated	Local road	Unsealed	10
Fagan Drive	No – Estimated	Local road	Sealed	20
Fairy Hole Road	No – Estimated	Local road	Unsealed	20
Faulder Avenue	No – Estimated	Local road	Unsealed	30
Glebe Street	No – Estimated	Local road	Sealed	20
Grand Junction Road	No – Estimated	Local road	Sealed	70
Hovell Street	No – Estimated	Local road	Sealed	50
Hume Highway (between Burley Griffin Way and Burrinjuck Road)	Yes – TfNSW Traffic Counter, Station ID – HHW005	National road	Sealed	340
Hume Highway (between Yass Valley Way and Barton Highway)	Yes – TfNSW Traffic Counter, Station ID – HHW006	National road	Sealed	290
Hume Highway (between Yass Valley Way and Lachlan Valley Way)	Yes – TfNSW Traffic Counter, Station ID – 6135-PR	National road	Sealed	550
Illalong Road	No – Estimated	Local road	Sealed	30
Laidlaw Street	Yes – TfNSW Traffic Counter, Station ID – 94361	Regional road	Sealed	350
Mcintosh Lane	No – Estimated	Local road	Unsealed	10
Orion Street	No – Estimated	Local road	Sealed	50
Paynes Road	No – Estimated	Local road	Unsealed	10
Perry Street	No – Estimated	Local road	Sealed	30
Pollux Street	No – Estimated	Local road	Sealed	50
Reddall Street	No – Estimated	Local road	Sealed	20
Talmo Road	No – Estimated	Local road	Unsealed	20
Wargeila Road	No – Estimated	Local road	Sealed	30
Warroo Road	No – Estimated	Local road	Sealed	100
Yass Valley Way	Yes – TfNSW Traffic Counter, Station ID – 94024	Regional road	Sealed	320
Upper Lachlan Shire LGA				
Adavale Road	No – Estimated	Local road	Unsealed	10
Back Arm Road	No – Estimated	Local road	Unsealed	20
Bannaby Road	No – Estimated	Local road	Sealed	20
Bannister Lane	No – Estimated	Local road	Unsealed	10
Blakney Creek North Road	No – Estimated	Local road	Sealed	20
Blakney Creek Road South	No – Estimated	Local road	Sealed	30
Blakney Creek South Road	No – Estimated	Local road	Sealed	10
Britannia Street	No – Estimated	Regional road	Sealed	20

Road name and location	Traffic count availability	NSW Road Network Classification	Pavement type	Estimated peak hour volume (vehicles per hour per direction)
Brown Street	No – Estimated	Local road	Unsealed	20
Bulleys Crossing	No – Estimated	Local road	Unsealed	20
Bunnaby Street	No – Estimated	Regional road	Sealed	20
Butcher Road	No – Estimated	Local road	Unsealed	10
Camp Street	No – Estimated	Regional road	Sealed	20
Carnells Lane	No – Estimated	Local road	Unsealed	10
Carrabungla Road	No – Estimated	Local road	Unsealed	10
Castle Hill Road	No – Estimated	Local road	Unsealed	10
Chapel Street	No – Estimated	Local road	Sealed	20
Church Street	No – Estimated	Local road	Sealed	20
Clancys Road	No – Estimated	Local road	Unsealed	10
Colyer Street	No – Estimated	Local road	Sealed	50
Coolalie Road	No – Estimated	Local road	Unsealed	20
Crookwell Road	No – Estimated	State road	Sealed	100
Cullerin Road	No – Estimated	Local road	Sealed	30
Dawes Road	No – Estimated	Local road	Unsealed	10
Felled Timber Road	No – Estimated	Local road	Unsealed	10
Flacknell Creek Road	No – Estimated	Local road	Unsealed	10
Goulburn Road	No – Estimated	State road	Sealed	100
Grabben Gullen Road (north of Cullerin Road)	Yes – TfNSW Traffic Counter, Station ID – 94170	Regional road	Sealed	20
Graywood Siding Road	No – Estimated	Local road	Unsealed	10
Greendale Road	No – Estimated	Local road	Unsealed	10
Gundaroo Road	Yes – TfNSW Traffic Counter, Station ID – 94500	Regional road	Sealed	50
Gunning Street	No – Estimated	Regional road	Sealed	30
Gurrundah Road	No – Estimated	Local road	Sealed	30
Hanworth Road	No – Estimated	Local road	Sealed	20
Harley Road	No – Estimated	Local road	Unsealed	20
Hillcrest Road	No – Estimated	Local road	Unsealed	10
Hume Highway (	No – Estimated	National road	Sealed	300
Hume Street	No – Estimated	Regional road	Sealed	50
Jerrawa Road	No – Estimated	Local road	Sealed	20
Kialla Road	No – Estimated	Local road	Sealed	20
Lachlan Valley Way	No – Estimated	Regional road	Sealed	50
Lade Vale Road	No – Estimated	Local road	Unsealed	20
Laggan – Taralga Road	No – Estimated	Regional road	Sealed/ Unsealed	50
Loop Road	No – Estimated	Local road	Unsealed	20
Lower Greendale Road	No – Estimated	Local road	Unsealed	10
Macarthur Street	No – Estimated	Local road	Sealed	20
Mcdonald Street	No – Estimated	Local road	Sealed	20

Road name and location	Traffic count availability	NSW Road Network Classification	Pavement type	Estimated peak hour volume (vehicles per hour per direction)
Menzies Lane	No – Estimated	Local road	Unsealed	10
Middle Arm Road	No – Estimated	Local road	Sealed	50
Mount Rae Road	No – Estimated	Local road	Unsealed	20
Offleys Lane	No – Estimated	Local road	Unsealed	10
Orchard Street	No – Estimated	Regional road	Sealed	50
Parsons Lane	No – Estimated	Local road	Sealed	20
Pejar Road	No – Estimated	Local road	Unsealed	10
Prices Lane	No – Estimated	Local road	Unsealed	10
Range Road	No – Estimated	Local road	Sealed	50
Rhyanna Road	No – Estimated	Local road	Sealed	20
Robertson Lane	No – Estimated	Local road	Sealed	30
Roslyn Road	No – Estimated	Local road	Sealed	20
Rugby Road	No – Estimated	Local road	Sealed	20
Rye Park Road	No – Estimated	Regional road	Sealed	30
Sapphire Road	No – Estimated	Local road	Sealed	20
Soldiers Settlement Road South	No – Estimated	Local road	Unsealed	10
Spicers Lane	No – Estimated	Local road	Unsealed	20
Stink Pot Road	No – Estimated	Local road	Unsealed	10
Storriers Lane	No – Estimated	Local road	Unsealed	10
Strathaird Lane	No – Estimated	Local road	Sealed	20
Taralga Road	No – Estimated	Regional road	Unsealed	50
Veterans Road	No – Estimated	Local road	Sealed	10
Walsh Street	No – Estimated	Local road	Sealed	30
Walshs Road	No – Estimated	Local road	Unsealed	10
Woodhouselee Road	No – Estimated	Local road	Sealed	30
Yass Street	No – Estimated	Regional road	Sealed	50
Goulburn Mulwaree LGA				
Crookwell Road	Yes – TfNSW Traffic Counter, Station ID – 94390	State road	Sealed	150
Middle Arm Road	No – Estimated	Local road	Sealed	100
Mount Pedlar Road	No – Estimated	Local road	Unsealed	10
Rhyanna Road	No – Estimated	Local road	Sealed	20
Woodhouselee Road	No – Estimated	Local road	Sealed	30
Hilltops LGA				
Audley Road	No – Estimated	Local road	Sealed	30
Bundarbo Road	No – Estimated	Local road	Unsealed	20
Hume Highway (Jugiong)	No – Estimated	National road	Sealed	380
Riverside Drive	No – Estimated	Local road	Sealed	30

Attachment D

Existing road network performance

Road name and LGA	Hierarchy	Existing peak hourly per direction Vph	No of Lanes	Design Capacity per Lane	Flow/ Capacity	LoS
Wagga Wagga City LGA						
Abbots Lane	Local	20	1	900	0.02	LoS A
Angels Lane	Local	20	1	900	0.02	LoS A
Ashfords Road	Local	30	1	900	0.03	LoS A
Big Springs Road	Collector	50	1	1000	0.05	LoS A
Boiling Down Road	Local	20	1	900	0.02	LoS A
Burkinshaws Lane	Local	10	1	900	0.01	LoS A
Byes Lane	Local	10	1	900	0.01	LoS A
Centenary Avenue	Collector	100	1	1000	0.10	LoS A
Comatawa Road	Local	20	1	900	0.02	LoS A
Coreinbob Road	Local	20	1	900	0.02	LoS A
Coreinbob Siding Road	Collector	30	1	1000	0.03	LoS A
Gregadoo East Road	Collector	100	1	1000	0.10	LoS A
Gregadoo-Ladysmith Road	Collector	50	1	1000	0.05	LoS A
Hume Highway (between Humula Road and Comatawa Road)	Highway	140	2	3600	0.04	LoS A
Humula Link Road	Collector	50	1	1000	0.05	LoS A
Humula Road	Collector	50	1	1000	0.05	LoS A
Ivydale Road	Local	20	1	900	0.02	LoS A
Keajura Road	Collector	50	1	1000	0.05	LoS A
Kyeamba Street	Collector	50	1	1000	0.05	LoS A
Livingstone Gully Road	Local	20	1	900	0.02	LoS A
Mates Gully Road	Collector	50	1	1000	0.05	LoS A
Mcallisters Trail	Local	10	1	900	0.01	LoS A
Prices Road	Local	10	1	900	0.01	LoS A
Stewarts Road	Local	10	1	900	0.01	LoS A
Toonga Settlement Road	Local	20	1	900	0.02	LoS A
Trewalla Road	Local	10	1	900	0.01	LoS A
Tumbarumba Road	Collector	50	1	1000	0.05	LoS A
Tywong Street	Local	20	1	900	0.02	LoS A
Westbrook Road	Collector	50	1	1000	0.05	LoS A
Wilds Road	Local	10	1	900	0.01	LoS A
Snowy Valleys LGA						
Adelong Creek Road	Local	10	1	900	0.01	LoS A
Adelong Road	Arterial	280	1	1400	0.20	LoS A
Ardrossan Headquarters Road	Local	20	1	900	0.02	LoS A
Ash Creek Road	Local	20	1	900	0.02	LoS A
Back Camp Road	Local	20	1	900	0.02	LoS A

Road name and LGA	Hierarchy	Existing peak hourly per direction Vph	No of Lanes	Design Capacity per Lane	Flow/ Capacity	LoS
Back Creek Road	Local	20	1	900	0.02	LoS A
Back Nacki Creek Road	Local	20	1	900	0.02	LoS A
Back Kunama Road	Collector	30	1	1000	0.03	LoS A
Bago Creek Road	Local	20	1	900	0.02	LoS A
Bago Forest Way	Local	20	1	900	0.02	LoS A
Barneys Highway	Local	10	1	900	0.01	LoS A
Bartoman Street	Collector	50	1	1000	0.05	LoS A
Batlow Road	Highway	70	1	1800	0.04	LoS A
Bb Feeder Road	Local	20	1	900	0.02	LoS A
Booths Access Road	Local	10	1	900	0.01	LoS A
Booths Road	Local	20	1	900	0.02	LoS A
Bradleys Drive	Local	10	1	900	0.01	LoS A
Bridge Road	Local	10	1	900	0.01	LoS A
Browns Forest Road	Local	20	1	900	0.02	LoS A
Browns Road	Local	10	1	900	0.01	LoS A
Brungle Creek Road	Collector	30	1	1000	0.03	LoS A
Brungle Road	Collector	50	1	1000	0.05	LoS A
Buddong Road	Local	10	1	900	0.01	LoS A
Bullongra Road	Local	20	1	900	0.02	LoS A
Carrs Road	Local	10	1	900	0.01	LoS A
Central Logging Road	Local	20	1	900	0.02	LoS A
Cockatoo Road	Local	10	1	900	0.01	LoS A
Dunns Road	Local	20	1	900	0.02	LoS A
East Bago Powerline Road	Local	10	1	900	0.01	LoS A
Ellerslie Road	Local	20	1	900	0.02	LoS A
Elliott Way	Arterial	50	1	1400	0.04	LoS A
Ernies Way	Local	10	1	900	0.01	LoS A
Forest Road	Collector	50	1	1000	0.05	LoS A
Gadara Lane	Local	20	1	900	0.02	LoS A
Gadara Road	Local	20	1	900	0.02	LoS A
Gilmore Mill Road	Local	20	1	900	0.02	LoS A
Gocup Road (west Of Tumut)	Highway	70	1	1800	0.04	LoS A
Green Hills Access Road	Local	20	1	900	0.02	LoS A
Green Hills Forest Way	Local	20	1	900	0.02	LoS A
Greenhills Road	Collector	50	1	1000	0.05	LoS A
Honeysuckle Road	Local	10	1	900	0.01	LoS A
Hugel Trail	Local	10	1	900	0.01	LoS A
Kileys Creek Road	Local	10	1	900	0.01	LoS A
Kileys Road	Local	10	1	900	0.01	LoS A
Kopsens Road	Local	20	1	900	0.02	LoS A
Kunama Road	Local	20	1	900	0.02	LoS A
Kurrajong Avenue	Local	20	1	900	0.02	LoS A

Road name and LGA	Hierarchy	Existing peak hourly per direction Vph	No of Lanes	Design Capacity per Lane	Flow/ Capacity	LoS
Lower Bago Road	Collector	50	1	1000	0.05	LoS A
Meadow Creek Road	Local	20	1	900	0.02	LoS A
Memorial Avenue	Local	30	1	900	0.03	LoS A
Mill Road	Local	30	1	900	0.03	LoS A
Millers Road	Local	10	1	900	0.01	LoS A
Monterey Road	Local	20	1	900	0.02	LoS A
Mount Pleasant Creek Trail	Local	10	1	900	0.01	LoS A
New Maragle Road	Local	10	1	900	0.01	LoS A
Nacki Creek Road	Local	10	1	900	0.01	LoS A
Northern Boundary Road	Local	20	1	900	0.02	LoS A
Nursery Access Road	Local	20	1	900	0.02	LoS A
Oberne Ellerslie Trail	Local	10	1	900	0.01	LoS A
Old Telegraph Track	Local	10	1	900	0.01	LoS A
Old Tumbarumba Road	Collector	30	1	1000	0.03	LoS A
Old Western Boundary Road	Local	20	1	900	0.02	LoS A
One Tree Hill Trail	Local	10	1	900	0.01	LoS A
Palmer Street	Local	20	1	900	0.02	LoS A
Perkins Road	Local	20	1	900	0.02	LoS A
Pierces Boundary Road	Local	20	1	900	0.02	LoS A
Pipe Dump Road	Local	20	1	900	0.02	LoS A
Powerline Road	Local	10	1	900	0.01	LoS A
Powerline Trail	Local	10	1	900	0.01	LoS A
Prickle Road	Local	10	1	900	0.01	LoS A
Red Hill Road	Local	20	1	900	0.02	LoS A
Right Arm Creek Road	Local	20	1	900	0.02	LoS A
Roches Road	Local	10	1	900	0.01	LoS A
Rocky Gully Road	Local	10	1	900	0.01	LoS A
Rosehill Road	Collector	10	1	1000	0.01	LoS A
Sailors Road	Local	10	1	900	0.01	LoS A
Sargood Trail	Local	10	1	900	0.01	LoS A
Scotties Hut Road	Local	10	1	900	0.01	LoS A
Sharps Creek Road	Local	20	1	900	0.02	LoS A
Sharps Road	Local	10	1	900	0.01	LoS A
Shedleys Road	Local	10	1	900	0.01	LoS A
Sixty Five Feeder Road	Local	10	1	900	0.01	LoS A
Snowy Mountains Highway (west of Batlow Road)	Highway	130	1	1800	0.07	LoS A
Snubba Road	Local	20	1	900	0.02	LoS A
Spyglass Trail	Local	10	1	900	0.01	LoS A
Stantons Road	Local	10	1	900	0.01	LoS A
Stockmans Creek Road	Local	10	1	900	0.01	LoS A
Stud Horse Feeder Road	Local	20	1	900	0.02	LoS A

Road name and LGA	Hierarchy	Existing peak hourly per direction Vph	No of Lanes	Design Capacity per Lane	Flow/ Capacity	LoS
Webbs Road	Local	20	1	900	0.02	LoS A
Wee Jasper Road (north-east of Tumut)	Arterial	70	1	1400	0.05	LoS A
West Branch Feeder	Local	20	1	900	0.02	LoS A
West Gilmore Road	Local	20	1	900	0.02	LoS A
Westwood Road	Local	20	1	900	0.02	LoS A
Willigobung Middle Spur Road	Local	10	2	1800	0.01	LoS A
Wilsons Road	Local	20	1	900	0.02	LoS A
Wiltys Road	Local	20	1	900	0.02	LoS A
Wombeys Feeder Road	Local	10	1	900	0.01	LoS A
Wondalga Road	Arterial	30	1	1400	0.02	LoS A
Yarrawonga Road	Local	10	1	900	0.01	LoS A
Yaven Creek Road	Collector	30	1	1000	0.03	LoS A
Yellowin Access Road	Local	20	1	900	0.02	LoS A
Cootamundra-Gundagai Regional LGA						
Adjungbilly Road	Collector	20	1	1000	0.02	LoS A
Bundarbo Road	Local	20	1	900	0.02	LoS A
Fernhill Road	Local	10	1	900	0.01	LoS A
Honeysuckle Road	Local	20	1	900	0.02	LoS A
Hume Highway (north of Coolac)	Highway	380	2	3600	0.11	LoS A
Maryvale Road	Local	10	1	900	0.01	LoS A
Nanangroe Road	Collector	30	1	1000	0.03	LoS A
Parsons Creek Road	Local	20	1	900	0.02	LoS A
Red Hill Road	Local	20	1	900	0.02	LoS A
Red Strip Road	Local	10	1	900	0.01	LoS A
Sawmill Creek Road	Local	10	1	900	0.01	LoS A
Yass Valley LGA						
Bango Lane	Local	10	1	900	0.01	LoS A
Black Range Road	Local	30	1	900	0.03	LoS A
Blakney Creek Road South	Collector	30	1	1000	0.03	LoS A
Buggali Road	Local	10	1	900	0.01	LoS A
Burley Griffin Way	Highway	100	2	3600	0.03	LoS A
Burrinjuck Road	Arterial	30	1	1400	0.02	LoS A
Bushs Road	Local	20	1	900	0.02	LoS A
Childowla Road	Local	20	1	900	0.02	LoS A
Comour Street	Arterial	350	2	2800	0.13	LoS A
Cooks Hill Road	Collector	30	1	1000	0.03	LoS A
Coolalie Road	Local	20	1	900	0.02	LoS A
Days Road	Local	10	1	900	0.01	LoS A
Fagan Drive	Local	20	1	900	0.02	LoS A
Fairy Hole Road	Local	20	1	900	0.02	LoS A
Faulder Avenue	Collector	30	1	1000	0.03	LoS A

Road name and LGA	Hierarchy	Existing peak hourly per direction Vph	No of Lanes	Design Capacity per Lane	Flow/ Capacity	LoS
Glebe Street	Local	20	1	900	0.02	LoS A
Grand Junction Road	Local	70	1	900	0.08	LoS A
Hovell Street	Local	50	1	900	0.06	LoS A
Hume Highway (between Burley Griffin Way and Burrinjuck Road)	Highway	340	2	3600	0.09	LoS A
Hume Highway (between Yass Valley Way and Barton Highway)	Highway	290	2	3600	0.08	LoS A
Hume Highway (between Yass Valley Way and Lachlan Valley Way)	Highway	550	2	3600	0.15	LoS A
Illalong Road	Collector	30	1	1000	0.03	LoS A
Laidlaw Street	Arterial	350	1	1400	0.25	LoS A
Mcintosh Lane	Local	10	1	900	0.01	LoS A
Orion Street	Local	50	1	900	0.06	LoS A
Paynes Road	Local	10	1	900	0.01	LoS A
Perry Street	Local	30	1	900	0.03	LoS A
Pollux Street	Local	50	1	900	0.06	LoS A
Reddall Street	Local	20	1	900	0.02	LoS A
Talmo Road	Local	20	1	900	0.02	LoS A
Wargeila Road	Collector	30	1	1000	0.03	LoS A
Warroo Road	Local	100	1	900	0.11	LoS A
Yass Valley Way	Arterial	320	1	1400	0.23	LoS A
Upper Lachlan Shire LGA						
Adavale Road	Local	10	1	900	0.01	LoS A
Back Arm Road	Local	20	1	900	0.02	LoS A
Bannaby Road	Local	20	1	900	0.02	LoS A
Bannister Lane	Local	10	1	900	0.01	LoS A
Blakney Creek North Road	Collector	20	1	1000	0.02	LoS A
Blakney Creek Road South	Collector	30	1	1000	0.03	LoS A
Blakney Creek South Road	Local	10	1	900	0.01	LoS A
Britannia Street	Collector	20	1	1000	0.02	LoS A
Brown Street	Local	20	1	900	0.02	LoS A
Bulleys Crossing	Local	20	1	900	0.02	LoS A
Bunnaby Street	Collector	20	1	1000	0.02	LoS A
Butcher Road	Local	10	1	900	0.01	LoS A
Camp Street	Local	20	1	900	0.02	LoS A
Carnells Lane	Local	10	1	900	0.01	LoS A
Carrabungla Road	Local	10	1	900	0.01	LoS A
Castle Hill Road	Local	10	1	900	0.01	LoS A
Chapel Street	Local	20	1	900	0.02	LoS A
Church Street	Local	20	1	900	0.02	LoS A
Clancys Road	Local	10	1	900	0.01	LoS A

Road name and LGA	Hierarchy	Existing peak hourly per direction Vph	No of Lanes	Design Capacity per Lane	Flow/ Capacity	LoS
Colyer Street	Local	50	1	900	0.06	LoS A
Coolalie Road	Local	20	1	900	0.02	LoS A
Crookwell Road	Highway	100	1	1800	0.06	LoS A
Cullerin Road	Arterial	30	1	1400	0.02	LoS A
Dawes Road	Local	10	1	900	0.01	LoS A
Felled Timber Road	Local	10	1	900	0.01	LoS A
Flacknell Creek Road	Local	10	1	900	0.01	LoS A
Goulburn Road	Highway	100	1	1800	0.06	LoS A
Grabben Gullen Road (north of Cullerin Road)	Arterial	20	1	1400	0.01	LoS A
Graywood Siding Road	Local	10	1	900	0.01	LoS A
Greendale Road	Local	10	1	900	0.01	LoS A
Gundaroo Road	Arterial	50	1	1400	0.04	LoS A
Gunning Street	Arterial	30	1	1400	0.02	LoS A
Gurrundah Road	Local	30	1	900	0.03	LoS A
Hanworth Road	Local	20	1	900	0.02	LoS A
Harley Road	Local	20	1	900	0.02	LoS A
Hillcrest Road	Local	10	1	900	0.01	LoS A
Hume Highway (	Highway	300	2	3600	0.08	LoS A
Hume Street	Local	50	1	900	0.06	LoS A
Jerrawa Road	Local	20	1	900	0.02	LoS A
Kialla Road	Local	20	1	900	0.02	LoS A
Lachlan Valley Way	Arterial	50	1	1400	0.04	LoS A
Lade Vale Road	Local	20	1	900	0.02	LoS A
Laggan – Taralga Road	Arterial	50	1	1400	0.04	LoS A
Loop Road	Local	20	1	900	0.02	LoS A
Lower Greendale Road	Local	10	1	900	0.01	LoS A
Macarthur Street	Local	20	1	900	0.02	LoS A
Mcdonald Street	Local	20	1	900	0.02	LoS A
Menzies Lane	Local	10	1	900	0.01	LoS A
Middle Arm Road	Collector	50	1	1000	0.05	LoS A
Mount Rae Road	Local	20	1	900	0.02	LoS A
Offleys Lane	Local	10	1	900	0.01	LoS A
Orchard Street	Arterial	50	1	1400	0.04	LoS A
Parsons Lane	Local	20	1	900	0.02	LoS A
Pejar Road	Local	10	1	900	0.01	LoS A
Prices Lane	Local	10	1	900	0.01	LoS A
Range Road	Collector	50	1	1000	0.05	LoS A
Rhyanna Road	Local	20	1	900	0.02	LoS A
Robertson Lane	Local	30	1	900	0.03	LoS A
Roslyn Road	Local	20	1	900	0.02	LoS A
Rugby Road	Local	20	1	900	0.02	LoS A

Road name and LGA	Hierarchy	Existing peak hourly per direction Vph	No of Lanes	Design Capacity per Lane	Flow/ Capacity	LoS
Rye Park Road	Arterial	30	1	1400	0.02	LoS A
Sapphire Road	Collector	20	1	1000	0.02	LoS A
Soldiers Settlement Road South	Local	10	1	900	0.01	LoS A
Spicers Lane	Local	20	1	900	0.02	LoS A
Stink Pot Road	Local	10	1	900	0.01	LoS A
Storriers Lane	Local	10	1	900	0.01	LoS A
Strathaird Lane	Local	20	1	900	0.02	LoS A
Taralga Road	Arterial	50	1	1400	0.04	LoS A
Veterans Road	Local	10	2	1800	0.01	LoS A
Walsh Street	Collector	30	1	1000	0.03	LoS A
Walshs Road	Local	10	1	900	0.01	LoS A
Woodhouselee Road	Collector	30	1	1000	0.03	LoS A
Yass Street	Arterial	50	1	1400	0.04	LoS A
Goulburn Mulwaree LGA						
Crookwell Road	Highway	150	1	1800	0.08	LoS A
Middle Arm Road	Collector	100	1	1000	0.10	LoS A
Mount Pedlar Road	Local	10	1	900	0.01	LoS A
Rhyanna Road	Local	20	1	900	0.02	LoS A
Woodhouselee Road	Collector	30	1	1000	0.03	LoS A
Hilltops LGA						
Audley Road	Collector	30	2	2000	0.02	LoS A
Bundarbo Road	Local	20	1	900	0.02	LoS A
Hume Highway (Jugiong)	Highway	380	2	3600	0.11	LoS A
Riverside Drive	Collector	30	2	2000	0.02	LoS A

Attachment E

Heavy vehicle road network restriction

Road name	Functional hierarchy	Restricted Access vehicle: 25/26 m B-double approved	Road train: Type 1 A-double approved	OSOM including 4.6 m Vehicles approved
Wagga Wagga City LGA				
Abbots Lane	Local road	No	No	No
Angels Lane	Local road	No	No	No
Ashfords Road	Local road	No	No	No
Big Springs Road	Local road	No	No	No
Boiling Down Road	Local road	No	No	No
Burkinshaws Lane	Local road	No	No	No
Byes Lane	Local road	No	No	No
Centenary Avenue	Local road	No	No	No
Comatawa Road	Local road	No	No	No
Coreinbob Road	Local road	No	No	No
Coreinbob Siding Road	Local road	No	No	No
Gregadoo East Road	Local road	No	No	No
Gregadoo-Ladysmith Road	Local road	No	No	No
Hume Highway (between Humula Road and Comatawa Road)	National road	Yes	No	Yes
Humula Link Road	Local road	Yes	No	Yes
Humula Road	Local road	No	No	No
Ivydale Road	Local road	No	No	No
Keajura Road	Local road	No	No	No
Kyeamba Street	Local road	Yes	No	Yes
Livingstone Gully Road	Local road	Yes	No	Yes
Mates Gully Road	Local road	No	No	No
Mcallisters Trail	Local road	No	No	No
Prices Road	Local road	No	No	No
Stewarts Road	Local road	No	No	No
Toonga Settlement Road	Local road	No	No	No
Trewalla Road	Local road	No	No	No
Tumbarumba Road	Regional road	Yes	No	Yes
Tywong Street	Local road	No	No	No
Westbrook Road	Local road	No	No	No
Wilds Road	Local road	No	No	No

Road name	Functional hierarchy	Restricted Access vehicle: 25/26 m B-double approved	Road train: Type 1 A-double approved	OSOM including 4.6 m Vehicles approved
Snowy Valleys LGA				
Adelong Creek Road	Local road	No	No	No
Adelong Road	State road	Yes	No	Yes
Ardrossan Headquarters Road	Local road	No	No	No
Ash Creek Road	Local road	All drivers are required to hold a current Forest Operators License and follow Contractor Haulage Operations Plans.	No	No
Back Camp Road	Local road	No	No	No
Back Creek Road	Local road	All drivers are required to hold a current Forest Operators License and follow Contractor Haulage Operations Plans.	No	No
Back Nacki Creek Road	Local road	No	No	No
Back Kunama Road	Local road	No	No	No
Bago Creek Road	Local road	All drivers are required to hold a current Forest Operators License and follow Contractor Haulage Operations Plans.	No	No
Bago Forest Way	Local road	All drivers are required to hold a current Forest Operators License and follow Contractor Haulage Operations Plans.	No	No
Barneys Highway	Local road	No	No	No
Bartoman Street	Local road	No	No	No
Batlow Road	State road	Yes	No	Yes
Bb Feeder Road	Local road	All drivers are required to hold a current Forest Operators License and follow Contractor Haulage Operations Plans.	No	No
Booths Access Road	Local road	All drivers are required to hold a current Forest Operators License and follow Contractor Haulage Operations Plans.	No	No
Booths Road	Local road	No	No	No
Bradleys Drive	Local road	No	No	No
Bridge Road	Local road	No	No	No
Browns Forest Road	Local road	All drivers are required to hold a current Forest Operators License and follow Contractor Haulage Operations Plans.	No	No
Browns Road	Local road	No	No	No
Brungle Creek Road	Local road	No	No	No
Brungle Road	Local road	No	No	No
Buddong Road	Local road	No	No	No
Bullongra Road	Local road	All drivers are required to hold a current Forest Operators License and follow Contractor Haulage Operations Plans.	No	No
Carrs Road	Local road	All drivers are required to hold a current Forest Operators License and follow Contractor Haulage Operations Plans.	No	No
Central Logging Road	Local road	All drivers are required to hold a current Forest Operators License and follow Contractor Haulage Operations Plans.	No	No
Cockatoo Road	Local road	No	No	No

Road name	Functional hierarchy	Restricted Access vehicle: 25/26 m B-double approved	Road train: Type 1 A-double approved	OSOM including 4.6 m Vehicles approved
Dunns Road	Local road	No	No	No
East Bago Powerline Road	Local road	No	No	No
Ellerslie Road	Local road	No	No	No
Elliott Way	Regional road	All drivers are required to hold a current Forest Operators License and follow Contractor Haulage Operations Plans.	No	Yes
Ernies Way	Local road	No	No	No
Forest Road	Local road	No	No	No
Gadara Lane	Local road	No	No	No
Gadara Road	Local road	No	No	No
Gilmore Mill Road	Local road	No	No	No
Gocup Road (west Of Tumut)	State road	Yes	No	Yes
Green Hills Access Road	Local road	yes	No	No
Green Hills Forest Way	Local road	All drivers are required to hold a current Forest Operators License and follow Contractor Haulage Operations Plans.	No	No
Greenhills Road	Local road	All drivers are required to hold a current Forest Operators License and follow Contractor Haulage Operations Plans.	No	No
Honeysuckle Road	Local road	All drivers are required to hold a current Forest Operators License and follow Contractor Haulage Operations Plans.	No	No
Hugel Trail	Local road	No	No	No
Kileys Creek Road	Local road	No	No	No
Kileys Road	Local road	No	No	No
Kopsens Road	Local road	All drivers are required to hold a current Forest Operators License and follow Contractor Haulage Operations Plans.	No	No
Kunama Road	Local road	No	No	No
Kurrajong Avenue	Local road	Yes	No	No
Lower Bago Road	Local road	No	No	No
Meadow Creek Road	Local road	No	No	No
Memorial Avenue	Local road	No	No	No
Mill Road	Local road	Yes	No	Yes
Millers Road	Local road	No	No	No
Monterey Road	Local road	All drivers are required to hold a current Forest Operators License and follow Contractor Haulage Operations Plans.	No	No
Mount Pleasant Creek Trail	Local road	No	No	No
New Maragle Road	Local road	No	No	No
Nacki Creek Road	Local road	No	No	No
Northern Boundary Road	Local road	No	No	No

Road name	Functional hierarchy	Restricted Access vehicle: 25/26 m B-double approved	Road train: Type 1 A-double approved	OSOM including 4.6 m Vehicles approved
Nursery Access Road	Local road	All drivers are required to hold a current Forest Operators License and follow Contractor Haulage Operations Plans.	No	No
Oberne Ellerslie Trail	Local road	No	No	No
Old Telegraph Track	Local road	No	No	No
Old Tumbarumba Road	Local road	No	No	No
Old Western Boundary Road	Local road	No	No	No
One Tree Hill Trail	Local road	No	No	No
Palmer Street	Local road	No	No	No
Perkins Road	Local road	No	No	No
Pierces Boundary Road	Local road	No	No	No
Pipe Dump Road	Local road	No	No	No
Powerline Road	Local road	No	No	No
Powerline Trail	Local road	No	No	No
Prickle Road	Local road	No	No	No
Red Hill Road	Local road	All drivers are required to hold a current Forest Operators License and follow Contractor Haulage Operations Plans.	No	No
Right Arm Creek Road	Local road	No	No	No
Roches Road	Local road	No	No	No
Rocky Gully Road	Local road	No	No	No
Rosehill Road	Local road	No	No	No
Sailors Road	Local road	All drivers are required to hold a current Forest Operators License and follow Contractor Haulage Operations Plans.	No	No
Sargood Trail	Local road	No	No	No
Scotties Hut Road	Local road	All drivers are required to hold a current Forest Operators License and follow Contractor Haulage Operations Plans.	No	No
Sharps Creek Road	Local road	No	No	No
Sharps Road	Local road	No	No	No
Shedleys Road	Local road	No	No	No
Sixty Five Feeder Road	Local road	All drivers are required to hold a current Forest Operators License and follow Contractor Haulage Operations Plans.	No	No
Snowy Mountains Highway (west of Batlow Road)	State road	Yes	No	Yes
Snubba Road	Local road	All drivers are required to hold a current Forest Operators License and follow Contractor Haulage Operations Plans.	No	No
Spyglass Trail	Local road	No	No	No
Stantons Road	Local road	No	No	No
Stockmans Creek Road	Local road	No	No	No

Road name	Functional hierarchy	Restricted Access vehicle: 25/26 m B-double approved	Road train: Type 1 A-double approved	OSOM including 4.6 m Vehicles approved
Stud Horse Feeder Road	Local road	No	No	No
Webbs Road	Local road	No	No	No
Wee Jasper Road (north-east of Tumut)	Regional road	No	No	No
West Branch Feeder	Local road	All drivers are required to hold a current Forest Operators License and follow Contractor Haulage Operations Plans.	No	No
West Gilmore Road	Local road	No	No	No
Westwood Road	Local road	No	No	No
Willigobung Middle Spur Road	Local road	No	No	No
Wilsons Road	Local road	No	No	No
Wiltys Road	Local road	No	No	No
Wombeys Feeder Road	Local road	All drivers are required to hold a current Forest Operators License and follow Contractor Haulage Operations Plans.	No	No
Wondalga Road	Regional road	No	No	Yes
Yarrawonga Road	Local road	No	No	No
Yaven Creek Road	Local road	No	No	No
Yellowin Access Road	Local road	All drivers are required to hold a current Forest Operators License and follow Contractor Haulage Operations Plans.	No	No
Cootamundra-Gundagai Regional LGA				
Adjungbilly Road	Local road	Yes	No	Yes
Bundarbo Road	Local road	No	No	Yes
Fernhill Road	Local road	No	No	Yes
Honeysuckle Road	Local road	All drivers are required to hold a current Forest Operators License and follow Contractor Haulage Operations Plans.	No	No
Hume Highway (north of Coolac)	National road	Yes	No	Yes
Maryvale Road	Local road	Yes	No	yes
Nanangroe Road	Local road	Yes	No	Yes
Parsons Creek Road	Local road	No	No	Yes
Red Hill Road	Local road	All drivers are required to hold a current Forest Operators License and follow Contractor Haulage Operations Plans.	No	No
Red Strip Road	Local road	No	No	No
Sawmill Creek Road	Local road	No	No	No
Yass Valley LGA				
Bango Lane	Local road	No	No	No
Black Range Road	Local road	No	No	No
Blakney Creek Road South	Local road	No	No	No
Buggali Road	Local road	No	No	No

Road name	Functional hierarchy	Restricted Access vehicle: 25/26 m B-double approved	Road train: Type 1 A-double approved	OSOM including 4.6 m Vehicles approved
Burley Griffin Way	State road	Yes	No	Yes
Burrinjuck Road	Regional road	No	No	No
Bushs Road	Local road	No	No	No
Childowla Road	Local road	No	No	No
Comur Street	Regional road	Yes Permanent gazettal for incident management under Traffic Control when a section of the Hume Highway is closed between HW15 Barton Highway and Yass Valley Way (Western Exit), Yass Service Centre, Yass.	No	No
Cooks Hill Road	Local road	No	No	No
Coolalie Road	Local road	No	No	No
Days Road	Local road	No	No	No
Fagan Drive	Local road	No	No	No
Fairy Hole Road	Local road	No	No	No
Faulder Avenue	Local road	No	No	No
Glebe Street	Local road	No	No	No
Grand Junction Road	Local road	Yes	No	No
Hovell Street	Local road	No	No	No
Hume Highway (between Burley Griffin Way and Burrinjuck Road)	National road	Yes	No	Yes
Hume Highway (between Yass Valley Way and Barton Highway)	National road	Yes	No	Yes
Hume Highway (between Yass Valley Way and Lachlan Valley Way)	National road	Yes	No	Yes
Illalong Road	Local road	No	No	No
Laidlaw Street	Regional road	Yes Permanent gazettal for incident management under Traffic Control when a section of the Hume Highway is closed between HW15 Barton Highway and Yass Valley Way (Western Exit), Yass Service Centre, Yass.	No	No
Mcintosh Lane	Local road	No	No	No
Orion Street	Local road	No	No	No
Paynes Road	Local road	No	No	No
Perry Street	Local road	No	No	No
Pollux Street	Local road	No	No	No
Reddall Street	Local road	No	No	No
Talmo Road	Local road	No	No	No
Wargeila Road	Local road	No	No	No
Warroo Road	Local road	No	No	No

Road name	Functional hierarchy	Restricted Access vehicle: 25/26 m B-double approved	Road train: Type 1 A-double approved	OSOM including 4.6 m Vehicles approved
Yass Valley Way	Regional road	Yes	No	Yes
Upper Lachlan Shire LGA				
Adavale Road	Local road	No	No	No
Back Arm Road	Local road	No	No	No
Bannaby Road	Local road	No	No	No
Bannister Lane	Local road	No	No	No
Blakney Creek North Road	Local road	No	No	No
Blakney Creek Road South	Local road	No	No	No
Blakney Creek South Road	Local road	No	No	No
Britannia Street	Regional road	No	No	No
Brown Street	Local road	No	No	No
Bulleys Crossing	Local road	No	No	No
Bunnaby Street	Regional road	No	No	No
Butcher Road	Local road	No	No	No
Camp Street	Regional road	No	No	No
Carnells Lane	Local road	No	No	No
Carrabungla Road	Local road	No	No	No
Castle Hill Road	Local road	No	No	No
Chapel Street	Local road	No	No	No
Church Street	Local road	No	No	No
Clancys Road	Local road	No	No	No
Colyer Street	Local road	No	No	No
Coolalie Road	Local road	No	No	No
Crookwell Road	State road	Yes	No	Yes
Cullerin Road	Local road	Yes	No	Yes
Dawes Road	Local road	No	No	No
Felled Timber Road	Local road	No	No	No
Flacknell Creek Road	Local road	No	No	No
Goulburn Road	State road	Yes	No	Yes
Grabben Gullen Road (north of Cullerin Road)	Regional road	Yes	No	Yes
Graywood Siding Road	Local road	No	No	No
Greendale Road	Local road	No	No	No
Gundaroo Road	Regional road	No	No	No
Gunning Street	Regional road	No	No	Yes

Road name	Functional hierarchy	Restricted Access vehicle: 25/26 m B-double approved	Road train: Type 1 A-double approved	OSOM including 4.6 m Vehicles approved
Gurrundah Road	Local road	No	No	No
Hanworth Road	Local road	No	No	No
Harley Road	Local road	No	No	No
Hillcrest Road	Local road	No	No	No
Hume Highway (	National road	Yes	No	Yes
Hume Street	Regional road	Yes	No	Yes
Jerrawa Road	Local road	No	No	No
Kialla Road	Local road	No	No	No
Lachlan Valley Way	Regional road	Yes	No	Yes
Lade Vale Road	Local road	No	No	No
Laggan – Taralga Road	Regional road	No	No	No
Loop Road	Local road	No	No	No
Lower Greendale Road	Local road	No	No	No
Macarthur Street	Local road	No	No	No
Mcdonald Street	Local road	No	No	No
Menzies Lane	Local road	No	No	No
Middle Arm Road	Local road	No	No	No
Mount Rae Road	Local road	No	No	No
Offleys Lane	Local road	No	No	No
Orchard Street	Regional road	No	No	No
Parsons Lane	Local road	No	No	No
Pejar Road	Local road	No	No	No
Prices Lane	Local road	No	No	No
Range Road	Local road	No	No	No
Rhyanna Road	Local road	No	No	No
Robertson Lane	Local road	No	No	No
Roslyn Road	Local road	No	No	No
Rugby Road	Local road	No	No	No
Rye Park Road	Regional road	No	No	Yes
Sapphire Road	Local road	No	No	No
Soldiers Settlement Road South	Local road	No	No	No
Spicers Lane	Local road	No	No	No
Stink Pot Road	Local road	No	No	No
Storriers Lane	Local road	No	No	No
Strathaird Lane	Local road	No	No	No
Taralga Road	Regional road	No	No	No

Road name	Functional hierarchy	Restricted Access vehicle: 25/26 m B-double approved	Road train: Type 1 A-double approved	OSOM including 4.6 m Vehicles approved
Veterans Road	Local road	No	No	No
Walsh Street	Local road	No	No	No
Walshs Road	Local road	No	No	No
Woodhouselee Road	Local road	No	No	No
Yass Street	Regional road	Yes	No	Yes
Goulburn Mulwaree LGA				
Crookwell Road	State road	Yes	No	Yes
Middle Arm Road	Local road	No	No	No
Mount Pedlar Road	Local road	No	No	No
Rhyanna Road	Local road	No	No	No
Woodhouselee Road	Local road	No	No	No
Hilltops LGA				
Audley Road	Local road	No	No	No
Bundarbo Road	Local road	No	No	Yes
Hume Highway (Jugiong)	National road	Yes	No	Yes
Riverside Drive	Local road	Yes	No	Yes

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