Newell Highway upgrade Coonabarabran bypass

Traffic and transport assessment report

August 2020 | Version: 3

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1 Introduction

Transport for NSW (TfNSW) is undertaking planning for an upgrade of the Newell Highway at Coonabarabran in the north west of New South Wales (NSW) (Figure 1-1). The Newell Highway is a major freight route between Victoria and Queensland through regional NSW. Coonabarabran is located within the Warrumbungle Shire Council local government area about 120 kilometres north-east of Dubbo central business district (CBD) and 335 kilometres north-west of Sydney CBD. This work is part of the Newell Highway upgrade program.

Construction of the bypass is expected to support more efficient and productive movement of freight along the Newell Highway corridor. The bypass is also anticipated to improve regional connectivity, improve road safety in the area and increase travel efficiency for local and regional road users.

This traffic and transport assessment has been prepared to assess the potential traffic impacts of the proposal. It will inform the proposal design and a Review of Environmental Factors (REF) currently being prepared by TfNSW under Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) for the proposal.

1.1 Proposal overview

The proposed Newell Highway Coonabarabran Bypass is a new road east of the existing Newell Highway alignment which runs through the town (refer to Figure 1-1).

Key features of the proposal would include:

- a new two-lane, two-way, highway about eight kilometres long between the Newell Highway and the Oxley Highway with a posted speed limit of 110 kilometres per hour
- changes to the intersection arrangement of the Newell Highway and Oxley Highway to the north of Coonabarabran
- intersections and local road adjustments at Purlewaugh Road and River Road
- a bridge crossing of the Castlereagh River
- two stock culverts; one under the highway just south of Purlewaugh Road and a private stock access under the highway between River Road and Chinamans Gully
- property acquisitions and adjustments (including to some property access)
- drainage adjustments and utility relocations
- temporary ancillary facilities during construction including water quality controls, site offices and stockpile sites.

The proposal overview is based on the concept design for the proposal. This design would be refined prior to construction through the detailed design phase.

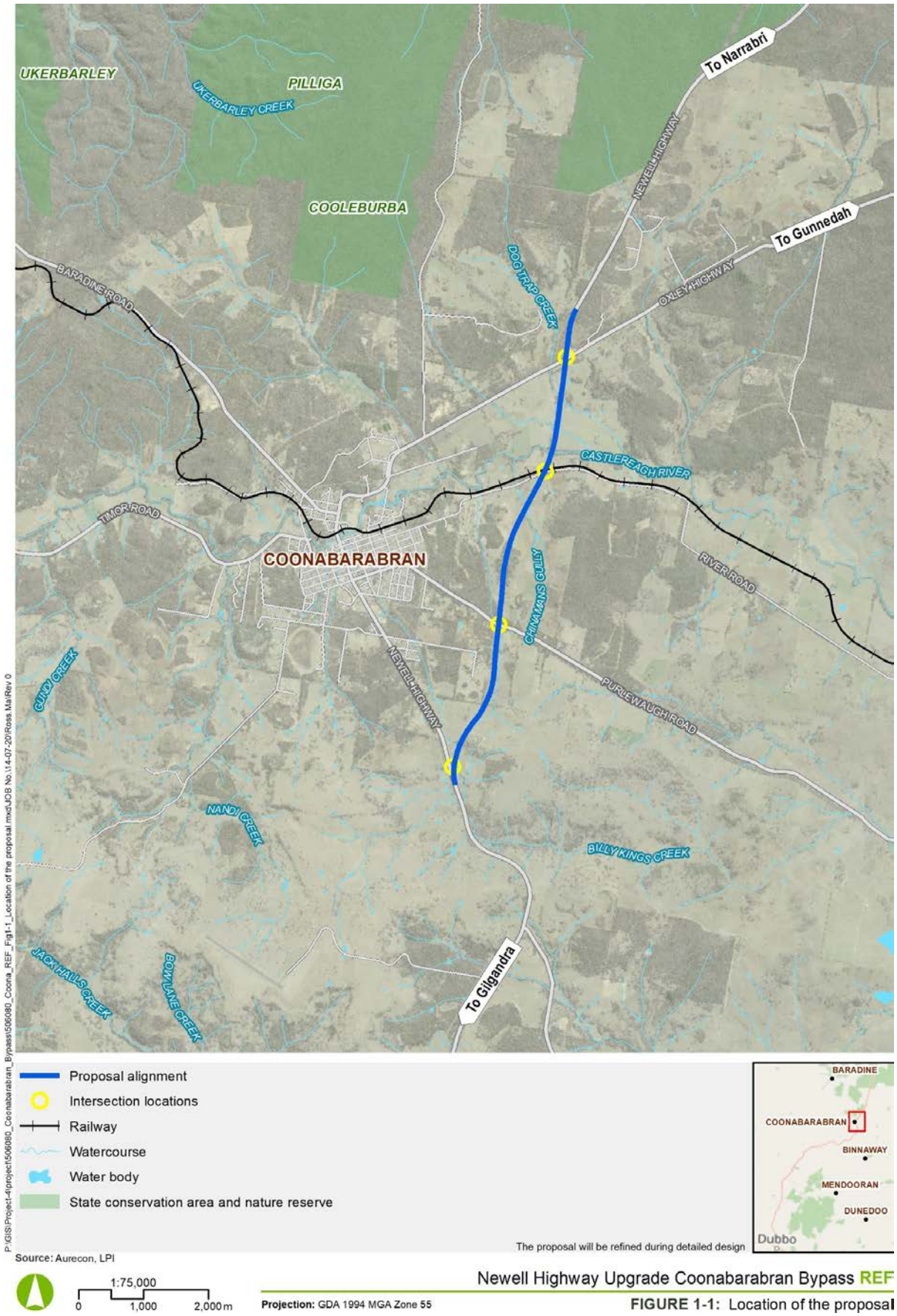

Figure 1-1 Proposal location

1.2 Purpose and scope of this report

TfNSW is preparing a REF for the construction and operation of this proposal. TfNSW is concurrently undertaking the proposal's concept design and planning.

This working paper has been prepared to:

- inform the REF for the proposal of the potential traffic impacts of the proposal in accordance with the relevant environmental assessment requirements of Division 5.1 of the EP&A Act
- support planning and design activities for the proposal including identifying environmental risks, constraints, areas of sensitivity and making recommending for the avoidance or minimisation of potential impacts.

The scope of the report includes:

- an impact assessment of the regional road network, with focus on the section of the Newell Highway that will be bypassed and associating roads within the Coonabarabran town centre
- developing a proposal-specific base and future model to forecast traffic demands across the study area.

2 Study methodology

2.1 Relevant guidelines

This assessment and modelling has been prepared with reference to the following documents:

- Roads and Maritime Traffic Modelling Guidelines (RMS 2013)
- Highway Capacity Manual (TRB 2016)
- Guide to Traffic Generating Developments (RMS 2002)
- Austroads Guide to Traffic Management:
- Part 3 – Traffic Studies Analysis (Austroads 2017)
- Part 6 – Intersections, Interchanges and Crossings (Austroads 2019)
- Part 12 Traffic Impacts of Developments (Austroads 2019)
- Austroads Guide to Road Design (Austroads 2020)
- Newell Highway Corridor Strategy (TfNSW 2015).

2.2 Study area

The study area for the traffic assessment extends from the existing Newell Highway / Oxley Highway interchange (located four kilometres north-east of Coonabarabran) to the Newell Highway about four kilometres south-east of the Coonabarabran town centre. The study area also includes the Coonabarabran town centre, key roads forming part of the regional network, and ancillary facilities with a 15-metre buffer applied around the alignment (Figure 1-1). The proposal falls within the Warrumbungle local government area (LGA). The total construction footprint is estimated to be 105.7 hectares, however, this footprint would be refined during detailed design.

Key State and arterial roads within the study area include Newell Highway and Oxley Highway. Key local and regional roads that form part of the road network and are of interest include River Road, Purlewaugh Road, Edwards Street, and Dalgarno Street. Existing intersections of importance are detailed in Section 3.2.3.

2.3 Study approach

The study approach was separated into the modelling approach and the traffic impact assessment approach.

2.3.1 Modelling approach

The modelling approach is discussed in detail in the Newell Highway Coonabarabran Upgrade Road Design and Assessment modelling report (Aurecon, 2020). The key aspects of the approach included:

- developing a base model: a 2018 Aimsun base model was developed, calibrated and validated using 2019 traffic counts. The base model estimated the traffic demand for 2018, 2026 (opening year) and 2036 (design year) and aligns with the requirements of the Roads and Maritime Services Traffic Modelling Guidelines (RMS 2013). The Aimsun software package was run as a highway assignment model and used at the mesoscopic simulation level (Aurecon, 2020). The mesoscopic simulation covers a wide area yet still

provides enough detail at intersections to accurately reflect intersection delays. Mesoscopic models also provide guidance for the need of future infrastructure requirements and are dynamic (i.e. where paths change throughout the model period) (RMS 2013). By using a dynamic simulation, it gives a level of confidence that the traffic model represents a realistic response to the delays and capacity constraints that would be experienced by traffic on a day-to-day basis

- assessing future traffic demand: the future traffic forecast was based on the expected traffic demand for 2026 and 2036 future scenarios. These provided the inputs into future year Aimsun software and SIDRA Intersection software for assessment, validation and comparison. Parameters assessed include:
- level of service (LoS) at key intersections
- average travel delay times
- degree of saturation (DoS)
- traffic volumes
- vehicle kilometres of travel (VKT)
- vehicle hours travelled (VHT).

SIDRA was used to assess the intersection LoS as well as to validate Aimsun outputs.

- running various model scenarios and analysing model outputs.

2.3.2 Traffic impact assessment approach

The broader traffic impact assessment approach included:

- identifying the existing environment. This included assessing the existing road network, existing and future key land use changes, traffic counts and origin and destination survey data analysis, road safety and transport data, and traffic incident data in the study area
- assessing construction and operational traffic impacts
- identifying any reasonable environmental management measures to mitigate construction and operational impacts.

3 Existing environment

3.1 Road network

The road network within the study area consists of:

- Newell Highway (state and arterial road)
- Oxley Highway (state and arterial road)
- River Road (local road)
- Purlewaugh Road (regional road).

3.2 Road hierarchy and descriptions

NSW roads are classified under the *Roads Act 1993*. Road classifications include:

- State roads managed by TfNSW. State roads are arterial roads that allow for major regional and inter-regional traffic movement
- arterial roads that allow for major regional and inter-regional traffic movement in a safe and operationally efficient manner
- regional roads managed by local councils but may receive State funding due to their sub-arterial function and their regional significance to the industry and the community. Regional roads can be either classified or unclassified
- distributor / collector roads that do not fall into either the arterial or local road definition and tend to distribute traffic and bus services within the main residential, commercially-built up and industrial-built up areas
- local access roads that typically allow access to nearby property, access for emergency service vehicles and provide a network of movement of pedestrians and cyclists.

3.2.1 State-classified and arterial roads

There are two State-classified and arterial roads: the Newell Highway and the Oxley Highway.

3.2.1.1 Newell Highway

The Newell Highway extends from Goondiwindi, Queensland to Tocumwal, New South Wales at the New South Wales / Victorian border. The highway forms an important freight link between Queensland and Victoria. The highway in the study area passes through the Coonabarabran town centre.

The speed limit is 100 kilometres per hour approaching Coonabarabran. The speed limit progressively lowers down to 50 kilometres per hour through the town centre, with school speed zones in force during school hours near Coonabarabran High School.

The highway consists of one lane of traffic in each direction, with a southbound overtaking lane to the south of Coonabarabran. Through Coonabarabran, the highway contains rear to kerb on-street parking and a vegetated median strip between King and Essex streets. The roundabout at Dalgarno Street has a heritage listed war memorial.

Vehicle numbers along the Newell Highway (from the Roads and Maritime Traffic Volume Viewer) for 2019 were:

- 2816 vehicles, both directions south of Coonabarabran
- 1664 vehicles, both directions, north of Coonabarabran (north of the Oxley Highway.

The Newell Highway Corridor Strategy (TfNSW 2015) identifies the Newell Highway through Coonabarabran as a priority location for the improvement of High Productivity Vehicle (HPV) movements. The Corridor Strategy identified that congestion was present through the Coonabarabran town centre and safe passage of HPVs was restricted due to intersection configurations, safety and pavement performance constraints.

However, since August 2018, road trains have had special exemption from TfNSW to pass through Coonabarabran to deliver hay to drought affected areas. As this showed that road trains could safely travel through Coonabarabran, in November 2019, the Newell Highway through Coonabarabran was opened to HPVs. This included modular B-Triples, B-Triples, AB-Triples and Type 1 Road Trains up to 36.5 metres. These classes of heavy vehicles can travel through Coonabarabran under the National Class 2 Heavy Vehicle Road Train Authorisation Notice and associated NSW Higher Mass Limits Declaration.

3.2.1.2 Oxley Highway

The Oxley Highway extends from Port Macquarie, New South Wales to Nevertire, New South Wales. This road provides linkages between Nevertire, Warren, Gilgandra, Coonabarabran, Gunnedah, Carroll, Tamworth, Bendemeer, Walcha, Yarrowitch, Ellenborough, Long Flat, and Wauchope and ends at Port Macquarie on the coast of the Tasman Sea. The study area focuses on the Newell Highway / Oxley Highway interchange. The speed limit is 100 kilometres per hour near the study area. The highway consists of one lane of traffic in each direction and tends to have mostly heavy vehicle patrons and interstate travellers, rather than local commuters.

3.2.2 Local / regional roads

There are two local / regional roads that would be impacted by the proposed work: River Road and Purlewaugh Road.

3.2.2.1 River Road (local)

River Road is a local road that runs east-west from a T-intersection with Purlewaugh Road (east of the study area) to Coonabarabran (where it becomes Dalgarno Street). The study area encompasses a small section of the road where the proposal would intersect the road. The current speed limit is 100 kilometres per hour within the study area. The road consists of one traffic lane in each direction and tends to host local traffic and private property owners accessing property, rather than through (regional) traffic.

3.2.2.2 Purlewaugh Road (regional)

Purlewaugh Road is a regional road that runs east-west from Colly Blue (located about 86 kilometres east of Coonabarabran) to Coonabarabran (where it becomes Edwards Street). The study area will focus on a small section of this road where the proposal intersects the road. The current speed limit near the study area is 100 kilometres per hour. The road carries one lane of traffic in each direction.

Purlewaugh Road is a designated 25/26 metre B-double heavy vehicle road for vehicles up to 4.6-metres high. It forms part of an important regional heavy vehicle route for agricultural freight between Baradine and Newcastle. From Baradine, vehicles travels down Baradine Road, onto the Newell Highway turning off at Edwards Street to access Purlewaugh Road. As well as heavy vehicle traffic, the road caters for local and regional light traffic.

3.2.3 Intersections

There are three key existing intersections within the study area:

- Newell Highway / Oxley Highway
- Newell Highway / Dalgarno Street
- Newell Highway / Edwards Street.

3.2.3.1 Newell Highway / Oxley Highway intersection

The Newell Highway / Oxley Highway intersection is an unsignalised, T-intersection with priority traffic travelling east-west along the Oxley Highway. Priority at the intersection is given to the Oxley Highway, with free-flowing traffic. The intersection is shown in Figure 3-1.

Figure 3-1 Newell / Oxley Highway intersection

3.2.3.2 Newell Highway / Dalgarno Street intersection

The Newell Highway / Dalgarno Street intersection is a roundabout. Pedestrian crossing ramps and median refuge islands are provided on all four approaches to the roundabout. The War Memorial Clock Tower is located on the roundabout. The intersection is shown in Figure 3-2.

Figure 3-2 Newell Highway / Dalgarno Street intersection

3.2.3.3 Newell Highway / Edwards Street intersection

The Newell Highway / Edwards Street intersection is an unsignalised four way intersection with priority traffic travelling north-south along the Newell Highway. The intersection is shown in Figure 3-3.

Source: Aurecon, LPI

Figure 3-3 Newell Highway / Edwards Street intersection

3.3 Existing road network performance

3.3.1 Intersection performance

The LoS describes the operational conditions within a traffic network looking at speed and travel time, freedom to manoeuvre, traffic interruptions, and comfort and convenience (TRB 2016). The service of flow rates is defined in Table 3-1.

Table 3-1 Road level of service (LoS) criteria

Delay (s) per vehicle in seconds	LoS
<14	A
15 to 28	B
29 to 42	C
43 to 56	D
57 to 70	E
>70	F

Across the three intersections, the LoS during peak periods is LoS A, being a free-flowing intersection with limited delay time. This is during a time where it is expected to have the most traffic volumes at the intersections. At other times, the LoS would be better than those modelled.

Table 3-2 Existing intersection performance for AM peak (08:00-10:00) and PM peak (16:00-18:00) periods

Intersection	Peak period	2018	
		Delay (sec)	LoS
Newell Highway Bypass / Oxley Highway (Northern Intersection)	AM	6.2	A
	PM	5.7	A
Newell Highway / Dalgarno Street	AM	5.4	A
	PM	5.5	A
Newell Highway / Edwards Street	AM	3.4	A
	PM	3.0	A

3.3.2 Traffic volumes

Traffic monitoring was undertaken from 22 October to 4 November 2019. Traffic volumes were monitored at five locations in and around the study area, mostly focusing on the Newell Highway. The monitoring assessed traffic volumes over 24-hour periods as well as AM and PM peaks (Matrix, 2019). A summary of 2019 traffic volumes are in Table 3-3 with the full 2019 raw traffic count data included in Appendix A. The AM and PM peak hours were recorded between 8:00am to 9:00am and 5:00pm to 6:00pm respectively.

Table 3-3 Current traffic volumes

Road	Direction	AM peak average	PM peak average	Weekday average	7 day average
Oxley Highway, south of Newell Highway	Eastbound	115	111	1509	1445
	Westbound	102	100	1429	1352
Oxley Highway, north of Newell Highway	Eastbound	40	39	442	416
	Westbound	40	39	434	412
Newell Highway, north of Oxley Highway	Northbound	76	78	969	959
	Southbound	62	69	928	890
Newell Highway, at proposed southern intersection	Northbound	135	137	1641	1566
	Southbound	124	125	1639	1527
Purlewaugh Road, east of the proposed Newell Highway intersection	Eastbound	19	28	244	226
	Westbound	37	21	245	229

Of the traffic volumes observed, the following was noted:

- traffic volumes were higher on weekdays on all roads
- the majority of traffic entering Coonabarabran from the north east is from traffic travelling southbound on Newell Highway, with a lesser volume originating from the Oxley Highway travelling westbound
- similar volumes of traffic enter and exit Coonabarabran to the north and south.

3.3.3 Road safety statistics

The crash data analysis has been undertaken using the incident data provided in the Transport for NSW Crash Map (TfNSW 2020) for a five-year period between 2014 and 2018. The data provides historical trends for crashes and casualty rates within the study area.

Between 2014 and 2018, a total of nine crashes were reported on the Newell Highway within the study area (see Figure 3-4 and Table 3-4). There was no crash data available for other key roads within the study area. Of the incidents on the Newell Highway, there were no fatalities, one serious injury, six moderate injuries, one minor injury and one non-casualty (towaway). Most of the incidents occurred around the Newell Highway/Oxley Highway intersection and within the Coonabarabran town centre. The type of crashes are summarised in Table 3-4.

Figure 3-4 Incident locations assessed with the study area between 2014 and 2018

Table 3-4 Crash type and severity in the study area

Incident description	Incident severity					Total	% of total incidents
	Fatalities	Serious	Moderate	Minor	Non-Casualty		
Out of control on carriageway	0	0	1	0	0	1	11
Left off carriageway into object/parked vehicle	0	0	1	0	0	1	11
Off carriageway right on left bend	0	0	1	0	0	1	11
Vehicles from adjacent direction (intersection), right far	0	0	1	0	0	1	11
Emerging from driveway	0	0	1	0	0	1	11
Right off carriageway into object/parked vehicle	0	0	1	0	0	1	11
Left off carriageway into object/parked vehicle	0	0	1	1	0	2	23
Struck animal	0	0	0	0	1	1	11
Total	0	1	6	1	1	9	100

3.4 Heavy vehicles

3.4.1 Heavy vehicle routes within the study area

The Newell Highway forms part of the National Land Transport Network and is the third most significant heavy vehicle route in NSW in terms of freight mass and number of vehicles. The NSW Heavy Vehicle Access Policy Framework (TfNSW 2018) identified the Newell Highway to be upgraded for end to end access for 36.5 metre vehicles HPVs (PBS3a). In November 2019, the existing highway through Coonabarabran was opened to higher productivity vehicles up to 36.5 metres long.

The Newell Highway Corridor Strategy (TfNSW 2015) identifies that freight along the Newell Highway is expected to grow over the next 20 years, with daily truck movements and annual tonnage predicted to grow by 67 to 103 percent between 2009 and 2031. Near the Queensland border, freight volumes are expected to increase by 82 percent between 2011 and 2031.

There are two key heavy vehicle routes that pass though Coonabarabran:

- north-south along the Newell Highway facilitating HPVs up to 36.5 metres long; and
- east-west along Baradine Road to the west of Coonabarabran, Newell Highway through Coonabarabran then along Purlewaugh Road for 25/26 metre B-double heavy vehicles that are up to 4.6-metres high. This facilitates freight movement from Baradine to Quirindi.

As mentioned above, from late 2019, the following types of road trains have been approved along the Newell Highway through Coonabarabran, with some road train routes having travel restrictions imposed for all or part of the highway:

- Type 1 A-double: approved route for Newell Highway north of the Newell/Oxley Highway intersection, and approved with travel conditions thereafter
- Modular B-triple: approved route with travel conditions
- B-triple: approved
- AB-triple: approved.

3.4.2 Heavy vehicle volumes

Traffic monitoring and vehicle classification was undertaken over two weeks between 22 October and 4 November 2019 on Newell Highway, Oxley Highway and Purlewaugh Road (Matrix 2019). Details on the numbers of heavy vehicles within the study area are detailed in Table 3-5.

Table 3-5 2019 heavy vehicle numbers

Road	Direction	Weekday average	7 day average
Oxley Highway, west of Newell Highway intersection	Eastbound	380	366
	Westbound	255	239
Oxley Highway, east of Newell Highway intersection	Eastbound	43	38
	Westbound	43	37
Newell Highway, north of Oxley Highway	Northbound	339	336
	Southbound	255	234
Newell Highway, at proposed southern intersection	Northbound	352	340
	Southbound	361	334
Purlewaugh Road, east of the proposed Newell Highway intersection	Eastbound	10	8
	Westbound	12	10

Of the heavy vehicle traffic volumes observed, the following was noted:

- higher heavy vehicle numbers were detected on the northern and southern sections of the Newell Highway indicating that most heavy vehicles follow the Newell Highway through Coonabarabran town centre
- about 18 to 26 percent of all traffic entering Coonabarabran along the Newell Highway, both northbound and southbound, are heavy vehicles
- only about four percent of all westbound traffic entering Coonabarabran from Purlewaugh Road are heavy vehicles
- on all roads there are higher numbers of heavy vehicle movements on weekdays rather than weekends.

3.5 Transport mode preference

To find the preferred mode of transport within the study area, data from the Australian Bureau of Statistics (ABS) - Census of population and housing (2016) was used. This provides information about car vehicles per dwelling and travel mode preferences. The town of Coonabarabran was compared to the overall Warrumbungle Local Government Area (LGA).

In 2016, the study area and NSW both had 1.7 vehicles per dwelling, with the Warrumbungle LGA having a higher number of average vehicles per dwellings being 1.9. This can be in part attributed to the lack of public transport options in the area but also due to the disperse nature of the rural population and farming industry.

Transport mode preferences for travel to work are presented in Table 3-6. The preferred method of travel in Coonabarabran was by car as the driver (63.4 per cent), compared to 55.4 per cent in Warrumbungle LGA and NSW (57.8 per cent). The second most popular travel method in Coonabarabran was walking (7.4 per cent) compared to Warrumbungle LGA (8.7 per cent) and NSW (3.9 per cent). The third most popular travel method in Coonabarabran was by car as a passenger, being 6.8 per cent, which is much higher than the Warrumbungle LGA (3.9 per cent) and NSW (4.3 per cent).

Table 3-6 Travel to work statistics

Mode	Coonabarabran		Warrumbungle LGA		New South Wales	
	No	Percent	No	Percent	No	Percent
Travel to work by car (as driver)	699	63.4	1849	55.4	1,953,399	57.8
Travel to work by train	0	0.0	0	0.0	2,52,786	7.5
Travel to work by bus	11	1.0	19	0.6	1,33,903	4.0
Travel to work by car (as passenger)	75	6.8	131	3.9	1,44,820	4.3
Travel to work by walking	81	7.4	290	8.7	130,957	3.9
Travel to work by bicycle	4	0.4	5	0.1	23,332	0.7
Travel to work by motorbike/scooter	9	0.8	43	1.3	21,159	0.6
Travel to work by truck	37	3.4	87	2.6	32,908	1.0

3.6 Public transport

3.6.1 Bus/coach

There is no local public transport within Coonabarabran (Warrumbungle Shire Council, 2016). There are 10 regional coach routes that pass through (with one stop located within the town centre) or depart from Coonabarabran town centre and use the Newell and Oxley highways. The coach routes are summarised in Table 3-7.

Table 3-7 Coach routes within the study area

Bus #	Route name	Study area roads
539, 545, 547, 549	Lithgow to Coonabarabran	Newell Highway
573	Lithgow to Baradine	Newell Highway
574	Baradine to Lithgow	Newell Highway
540, 546	Coonabarabran to Lithgow	Newell Highway
362	Tamworth to Dubbo	Newell Highway; Oxley Highway
361	Dubbo to Tamworth	Newell Highway

There are school buses for students at the three schools within the Coonabarabran town centre (Coonabarabran Public School, Coonabarabran High School and Saint Lawrence's Catholic Primary School Coonabarabran). There are no specific designated bus routes for these buses (Warrumbungle Shire Council 2016).

3.6.2 Trains

The Gwabegar railway line that passes through Coonabarabran is non-operational (TfNSW Rail Country Regional Network maps). There are NSW TrainLink coach routes (as detailed in Section 3.6.1) that service the Coonabarabran town centre and surrounds, instead of a train service.

However, the rail alignment passes through the study area and is crossed by the proposal.

3.7 Cycling and pedestrian network

The Roads and Maritime Cycleway Finder (RMS 2020) is a database that identifies cycleway infrastructure throughout NSW. Within the study area, there is a small section of Newell Highway around the Coonabarabran town centre that has off-road shared paths (i.e. used by both cyclists and pedestrians) and on-road lanes with moderate difficulty (i.e. cyclists who are more confident riding with traffic) (Figure 3-5).

These active transport routes include:

- a small section of shared path running through Coonabarabran High School
- a small section of shared path running parallel to the Newell Highway
- an on-road cycleway extending along the Newell Highway from Edwards Street finishing after Merebene Street, that uses the asphalt road shoulder
- a shared path mostly running parallel to Newell Highway connecting Crane Street to Neilson Park and Robertson Street.

There are dedicated off-road footpaths for pedestrian use only across the study area that are primarily used to navigate the town centre and access surrounding property.

There are no walking or hiking tracks that intersect the study area. Walking and hiking tracks are primarily located west of the Coonabarabran town centre associated with the national parks and recreational areas (Destination NSW 2019).

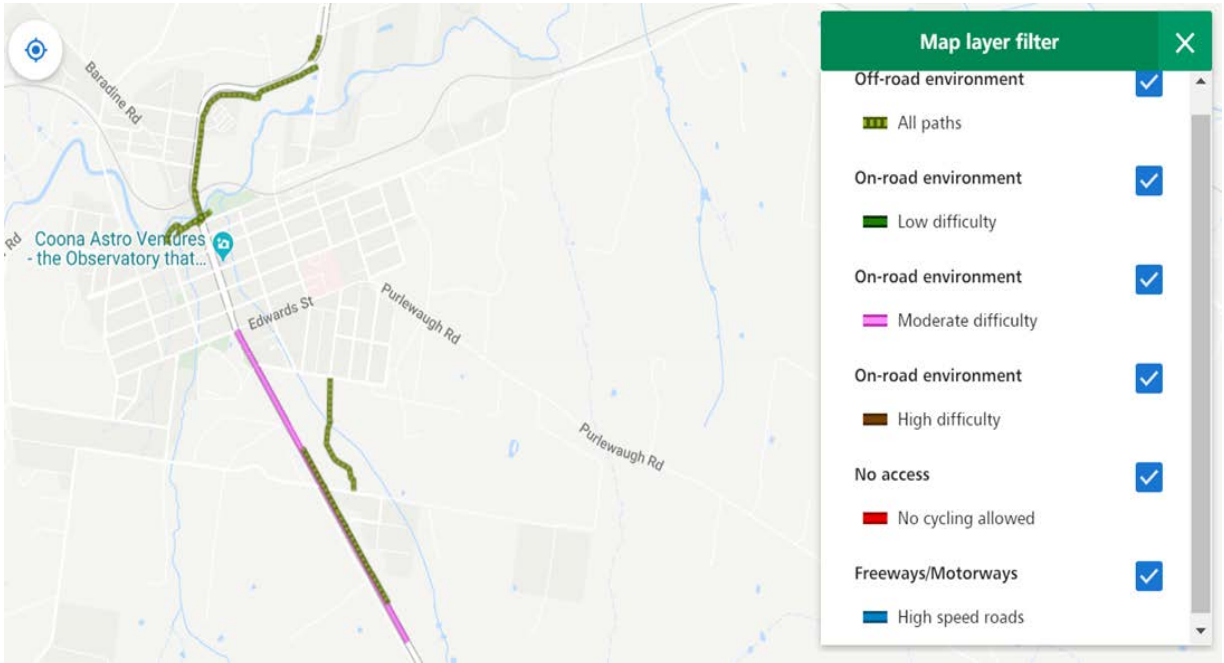

Figure 3-5 Cycling network within the study area

4 Construction activities

Construction activities for the Coonabarabran bypass would be carried out in accordance with a construction environmental management plan (CEMP) developed for the proposal. The CEMP would ensure that the proposal complies with any legislative requirements, TfNSW commitments and best practice guidelines.

4.1 Construction methodology

Construction is expected to involve the following work methodology, plant and equipment and supporting activities that would be required for the completion of the proposal (Table 4-1).

The construction contractor would determine the final work methodology as they consider additional site engineering constraints and minimise environmental impacts.

Table 4-1 Potential pre-construction and construction activities

Stage	Typical activities	Plant and equipment	Approximate duration
Pre-construction works	• vegetation clearing and grubbing • adjustments and / or relocation of existing fencing.	Light vehicles, medium to rigid trucks, dump truck, excavators, bulldozer, generators, traffic management devices, jack hammers, concrete saws, chainsaws, various hand tools, mulchers, chippers and water carts.	12 weeks
Site establishment	• demolition of existing buildings • set-up of stockpile sites, ancillary facilities and fencing • temporary traffic management arrangements • progressive installation of environmental controls including environmental exclusion zones and erosion and sediment controls • construction of diversion drains and sediment control measures • temporary modification to existing local roads and construction of minor site access roads.	Light vehicles, medium to rigid trucks, concrete trucks, excavators, backhoes, graders, stabilisers, spreader trucks, various hand tools, generators, traffic management devices, jack hammers, concrete saws, concrete pumps, welding equipment, cranes and water carts.	3 weeks

Stage	Typical activities	Plant and equipment	Approximate duration
Earthworks	• clearing and grubbing of vegetation • stripping topsoil and stockpiling for reuse in landscaping • cut and fill activities to the road formation levels including trimming of batters • construction of the upper zone of formation layers as the foundation for the pavement structure • removal of unsuitable or surplus excavated materials to a suitable pre-determined on-site location, or alternatively a licenced facility.	Light vehicles, medium to rigid trucks, dump trucks, excavators, bulldozers, backhoes, graders, profilers, vibrating and smooth rollers, compactors, wacker packers, skid steer, various hand tools, generators, traffic management devices, jack hammers, mobile crushing plant and water carts.	13 months
Drainage, utilities and structures	• construction of new utilities, as required • construction of subsurface drainage • construction of bridge structures, including foundations, abutments, substructure and superstructure • construction of cross drainage culverts, consisting of pipe or box culverts as appropriate • installation of stormwater pits and pipe networks as required • installation of scour protection as required	Light vehicles, medium to rigid trucks, dump trucks, concrete trucks, excavators, backhoes, trench rollers, wacker packers, generators, traffic management devices, concrete pumps, cranes, welding equipment, various hand tools, elevated work platforms, piling rigs, skid steer, pugmills and water carts.	13 months
Pavement	• road pavement construction of base and subbase layers as specified • construction of pavement drainage including kerb and guttering • placement of pavement wearing course or sprayed seal as specified. • construction of road safety barriers (such as concrete barriers, wire rope fencing and guardrails).	Light vehicles, medium and large heavy vehicles, graders, backhoes, paving machines, skid steer, vibrating and smooth drum rollers, wacker packer, profiler, spray seal truck, shuttlebuggy, asphalt paver, various hand tools, compactors, generators, traffic management devices, mobile batch plants, slip form machines, welding equipment and water carts.	4 months

Stage	Typical activities	Plant and equipment	Approximate duration
Landscaping and finishing works	• installation of road pavement markings, signposts, lighting and road furniture • placement of topsoil on batters • rehabilitation of disturbed areas and landscaping • construction of verges • reinstatement of fencing • site clean-up and demobilisation, including restoration of ancillary facilities and access roads.	Light vehicles, medium to rigid trucks, backhoes, excavators, generators, traffic management devices, linemarking machines, water carts, skid steer, auger drill, various hand tools.	3 months

4.2 Construction hours and duration

Construction of the proposal is estimated to take around 20 months. Construction activities would mostly take place within standard construction hours.

Standard construction hours would be:

- Monday to Friday: 7am to 6pm
- Saturday: 8am to 1pm
- Sunday and public holidays: No work.

It is expected that some work would be required outside of standard hours. The potential impacts of work outside of standard construction hours are assessed in Section 6.

Typical work activities undertaken outside standard hours would include:

- changes to traffic management arrangements
- construction of tie-ins encompassing utility, drainage and road surfacing works
- transport of oversize materials and equipment to and from the construction area
- large concrete pours.

4.3 Ancillary facilities

A range of ancillary facilities would be required to support construction including:

- site compounds that incorporate site offices, car parking, sheds, workshops and storage
- areas for the delivery and storage of prefabricated items such as pits, pipes, culverts, girders, parapets and other structural components
- concrete and asphalt batch plants
- pugmills
- sediment basins

- stockpiles for materials, spoil and mulch.

Ancillary facilities would be temporary and established for the duration of the construction only and secured with temporary fencing. Signage would be erected advising the general public of access restrictions. Upon completion of the construction works, the temporary ancillary facility, construction area and stockpiles would be removed, the site cleared of all rubbish and materials and rehabilitated in consultation with the land owner.

The locations of the four ancillary facilities are shown in Figure 4-1 and detailed in Table 4-2. The construction contractor would further review these sites for their suitability prior to construction.

At the current stage of the design, four ancillary facilities sites have been nominated. These ancillary facilities are displayed in Figure 4-1 and Table 4-2.

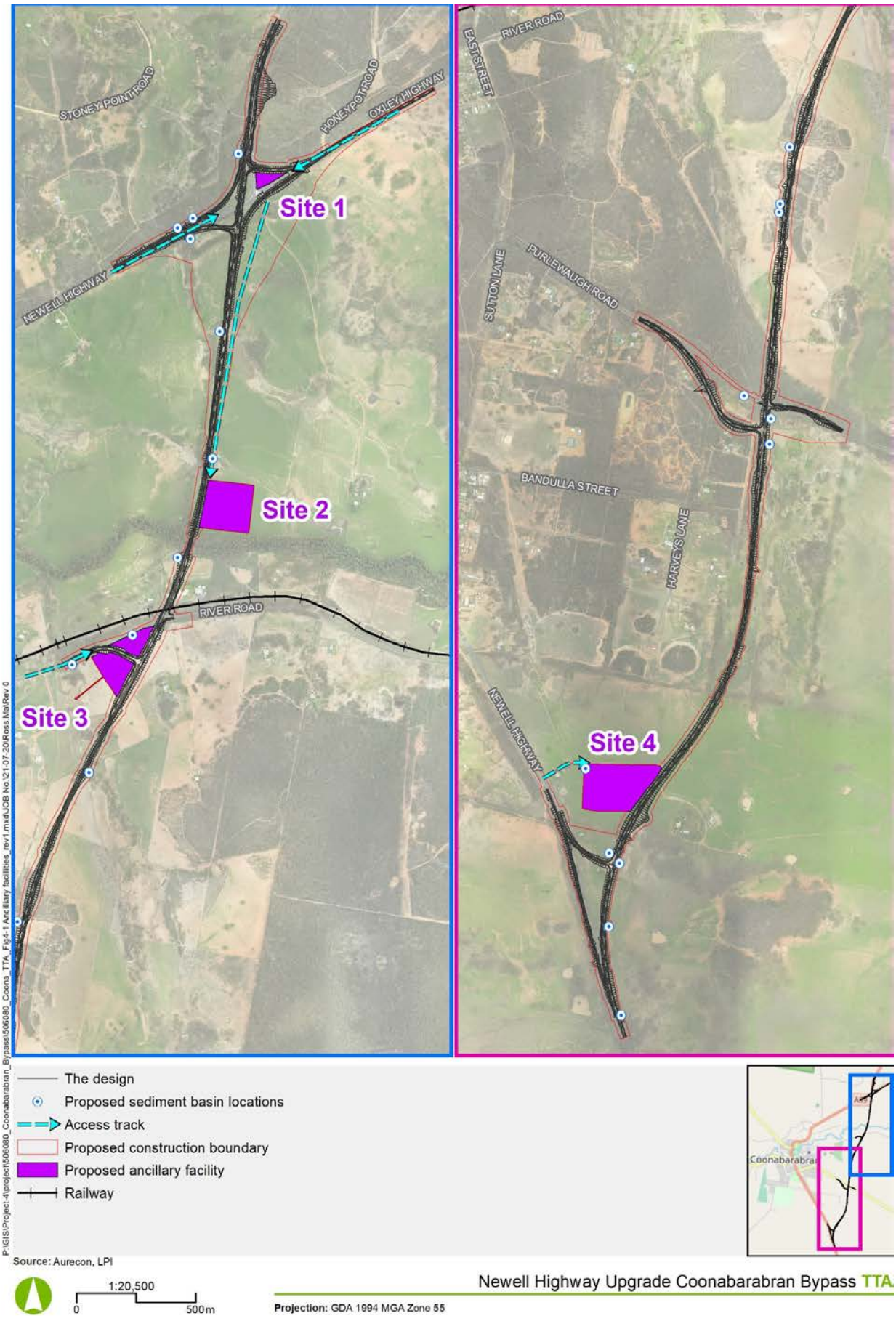

Figure 4-1 Ancillary facility locations

Table 4-2 Ancillary facilities

Characteristic	Site 1	Site 2	Site 3	Site 4
Location	North-east of the Newell Highway / Oxley Highway intersection	North-east of the proposed bridge over Castlereagh River	South-west of the proposed River Road intersection	North of the proposed southern intersection with the Newell Highway
Existing site description	The site is in the existing road reserve comprising grassland, cleared of trees	The site is in a paddock, cleared of trees. It is about 100 metres north of Castlereagh River	The site is in a paddock, cleared of trees. It is about 140 metres east of Chinamans Gully	The site is in a paddock, cleared of trees
Potential use	Satellite compound including offices, sheds, storage and parking	Bridge compound including offices, sheds, storage, parking, delivery and storage of bridge structural elements and stockpiling of materials, spoil and mulch	Stockpiling compound including parking, delivery and storage and stockpiling of materials, spoil and mulch	Main compound site including offices, sheds, storage, parking, delivery and storage of structural elements, stockpiling of materials, spoil and mulch, concrete and asphalt batch plants
Access road	Via Newell Highway / Oxley Highway and the proposed road reserve (construction area)	Via the Oxley Highway and the proposed road reserve (construction area)	Via River Road and the proposed road reserve (construction area)	Via the Newell Highway and existing property access
Approximate area	1.4 hectares	3.8 hectares	1.5 hectares	4.2 hectares
Existing land ownership	NSW Government	Private	Private	Private
Distance from nearest sensitive receiver	About 500 metres east of a residential property	About 250 metres north of a residential property	About 150 metres to the north west of a residential property	About 110 metres to the north east of a residential property. However, access traverses immediately adjacent to sensitive receivers.

4.4 Construction traffic

The proposal would generate light and heavy vehicle movements that would typically be associated with:

- delivery of construction materials including concrete and precast structural components
- movement of cut and fill materials
- spoil and waste removal
- delivery, relocation and removal of construction equipment and machinery
- workers travelling to, from and within the construction site.

Construction vehicles would access the site via the Newell Highway, Oxley Highway, Purlewaugh Road and River Road. Employee vehicles would park at one of the main compound sites.

Indicative construction traffic movements and timings for the proposal are listed in Table 4-3. Final numbers would be confirmed during detailed design.

Table 4-3 Indicative construction vehicles

Vehicle types and association		Use	Vehicles (daily)		Typical movement pattern
			Average	Maximum	
Trucks	Medium to rigid trucks. Typically, up to 12.5 metres, 30 tonnes general mass limit (GML)	Earthworks (cut and fill) Delivery for: • Aggregate • Road base • Sand • Asphalt • Cement • Fly ash • Precast concrete	80	120	During standard construction hours and outside hours where required.
	Semi-trailers Typically, 19m 42 tonnes GML	Steel Prefabricated units Oversized units	About 60 over construction		
	Incidental vehicles	Various	2	5	
Light vehicles	Workforce/ personnel	N/A	90	260	
	Incidental deliveries	Various	2	5	

5 Construction traffic impacts

5.1 Traffic volumes

It is estimated that around 120 delivery trucks and 90 light vehicles a day would use surrounding roads during construction. Vehicles would be made up of both employee vehicles and deliveries for materials, equipment and plant (refer to Section 4.4).

The Newell Highway and Oxley Highway would be the key access points for the construction site and ancillary facilities. The anticipated construction vehicle numbers are a fraction of what the highways carry and this increase in traffic can be readily accommodated.

Access to parts of the construction site and to one of the ancillary facilities would be via River Road and Purlewaugh Road. Due to this, some construction traffic would need to pass through the Coonabarabran town centre to access these roads. While the traffic numbers could be accommodated on the roads, the condition of the roads (being a narrow two-way road at the construction site) could require traffic management measures when in use by some heavy / oversize vehicles. Access to River Road and Purlewaugh Road through town may also result in some short term queuing at the intersections with Newell Highway, particularly during peak construction crew arrival and departure times.

A project specific traffic management plan, traffic control plans and vehicle movement plan/s would be developed by the construction contractor prior to construction to confirm access points and identify the need and extent for additional traffic management measures.

5.2 Construction site access / egress

Site access and egress would occur from the Newell Highway, Oxley Highway, Purlewaugh Road and River Road with vehicle movements within the construction site following the project specific traffic management plan, traffic control plans and vehicle movement plan/s.

To access the construction site, speed reductions and other traffic management measures may need to be in place to allow the safe entry and exit of construction vehicles.

5.3 Impacts to the road network

Most construction works would be in greenfield areas with limited disturbance to existing road networks. However, there are four areas where new intersection construction works would interact with the existing road network:

- Northern tie-in (Newell / Oxley Highway intersection)
- River Road
- Purlewaugh Road
- Southern tie-in

Impacts would include:

- disruption to Purlewaugh and River Road due to realignment of roads and construction of new intersections. Temporary access tracks or traffic switching would be required while these new sections of road are constructed. Access tracks (if required) would be constructed either north or south of the existing road alignments, with traffic being switched to those access tracks while works are occurring. The establishment of the access tracks would enable traffic to use these roads during construction, therefore minimising impacts to traffic flow, access and connectivity
- construction of the northern and southern intersection would be complex, but most of the intersection would be able to be constructed offline. Tie-ins, where they are connected to the existing highway alignments, may need to be done during periods of low traffic flow to minimise impacts to traffic. Road occupancy licences (ROLs) would need to be obtained from the relevant roads authority
- access to ancillary facilities and the construction site may result in some temporary localised traffic delays, particularly in times of peak arrival or departure times or from deliveries of oversize loads. Some large or oversize heavy vehicles that would need to slow on approach to the ancillary facilities or need to take up more or all of the access road may result in localised traffic delays. As per the traffic management plan, traffic management measures including signage and on-site traffic controllers may be used to manage these impacts.

Within the Coonabarabran town centre, there may be some increase in traffic queuing at the Dalgarno Street / Newell Highway and Edwards Street / Newell Highway intersections to access the Newell Highway due to construction traffic. These would be expected to be temporary and most noticeable during peak AM and PM periods. However, it is anticipated that these impacts would be minor and not result in substantial travel delays.

While most of the works would be in greenfield areas and would not require road closures, where works are required in operational road corridors, a Road Occupancy Licence (ROL) would be obtained prior to works.

5.4 Property access

There are a number of accesses that would be disrupted during construction. These include:

- property accesses on the Oxley Highway, River Road and Purlewaugh Road close to the construction site
- inter-property agricultural access where the proposal passes through a property
- local street access- Honey Pot Road / Newell Highway intersection.

The construction contractor would, where possible, maintain property access during construction. However, where required (and where a permanent change to access is required), property accesses may need to be altered. TfNSW would confirm any realignment of street access or inter-property access under the proposal, in consultation with property owners.

Honey Pot Road may also require temporary changes to access arrangements during construction when the northern intersection and tie-in works are undertaken.

5.5 Active transport

The use of the Newell Highway, Oxley Highway, River Road and Purlewaugh Road by cyclists riding in an on-road environment may be disrupted where the proposal crosses those roads. Cyclists using these roads would have to follow any implemented traffic management measures.

There are no dedicated off-road pedestrian paths along River Road, Purlewaugh Road, Oxley Highway and the majority of Newell Highway within the study area, therefore pedestrian movements would not be impacted along these roads.

The construction site would be fully fenced (while maintaining local road access) for public safety and to minimise the potential for members of public and/or unauthorised personnel to enter.

5.6 Public transport

There would be minimal impact to public transport as there are no coach/bus stops located near the proposal. However, bus routes that pass along roads near construction works may experience minor temporary traffic delays.

The construction of the proposal would also remove the existing rail infrastructure near the proposal. However, as this is non-operational, this would have no impact on public transport services.

Traffic management strategies would be implemented to appropriately manage any changes to traffic during construction.

6 Operational traffic impacts

6.1 Road adjustments

Existing roads that the highway would intersect would require the adjustment and construction of intersections. Table 6-1 outlines the intersections that would be upgraded and the potential impacts. The intersections are shown in Figure 6-1 to Figure 6-5.

Table 6-1 Intersection upgrades

Intersection	Design adjustments	Potential impacts
Northern intersection (Newell / Oxley Highway intersection)	Upgraded to a staggered T-Intersection arrangement with separate access and exit ramps between the Newell Highway and Oxley Highway. Access and exits turning left on and off the Newell Highway would be a posted speed of 60 kilometres per hour with a design speed of 70 kilometres per hour. The design of the intersection would prioritise traffic travelling north-south along the Newell Highway, which is the dominant traffic movement, compared to the current intersection, where traffic on the Oxley Highway is prioritised. Traffic travelling east-west along the Oxley Highway would have to stop at the staggered T-intersections.	The upgraded intersection would create greater travel efficiency for Newell Highway traffic, with north-south traffic able to traverse the intersection without stopping as is currently the case. Access and exit lanes also improve traffic efficiency by allowing free flow of traffic rather than a stop / start scenario. Traffic travelling northbound on the Newell Highway wanting to access the Oxley Highway travelling westbound would need to wait in a right turn lane before exiting. Traffic travelling along the Oxley Highway east-west to access Coonabarabran would have increased travel times with vehicles needing to make a dog leg manoeuvre, travelling about 300 m to access the Oxley Highway on the other side of the Newell Highway.
River Road	Upgraded to include a staggered T-intersection arrangement. Access and exits off the Newell Highway would be a posted speed of 60 kilometres per hour with a design speed of 70 kilometres per hour.	This intersection would result in an increase in travel time as traffic travelling east-west along River Road would come to a T-intersection, traverse along the Newell Highway for around 250 m before accessing River Road on the opposite side of the highway.
Purlewaugh Road	Upgraded to include a staggered T-Intersection arrangement. Access and exits off the Newell Highway would be a posted speed of 60 kilometres per hour with a design speed of 70 kilometres per hour.	This intersection would result in an increase in travel time as traffic travelling east-west along Purlewaugh Road would come to a T-intersection, traverse along the Newell Highway for around 100 m before accessing Purlewaugh Road on the opposite side of the highway.

Intersection	Design adjustments	Potential impacts
		The western leg of Purlewaugh Road between the bypass and Coonabarabran would no longer be a B-double route, while the eastern leg of Purlewaugh Road towards Tambar Springs would remain a B-double route. This would increase travel times for B-double vehicles to access (see section 6.6)
Southern intersection	The existing Newell Highway would be upgraded to provide an intersection with the new Newell Highway. Access and exits off the new Newell Highway would be a posted speed of 60 kilometres per hour with a design speed of 70 kilometres per hour. A turnoff lane would be provided for traffic travelling northbound into Coonabarabran on the existing Newell Highway. The turnoff lane would be a posted speed of 70 kilometres per hour with a design speed of 80 kilometres per hour. Within the Coonabarabran town centre, there would be no changes to the posted speed limits (including school zones).	The southern intersection would streamline traffic flow along the highway, with no speed reductions as is currently the case through town. Access into town would be via one entry points at this intersection near the southern tie-in. Traffic exiting Coonabarabran onto the new Newell Highway would come to a T-intersection before being able to access the Newell Highway, this would slightly increase traffic times.

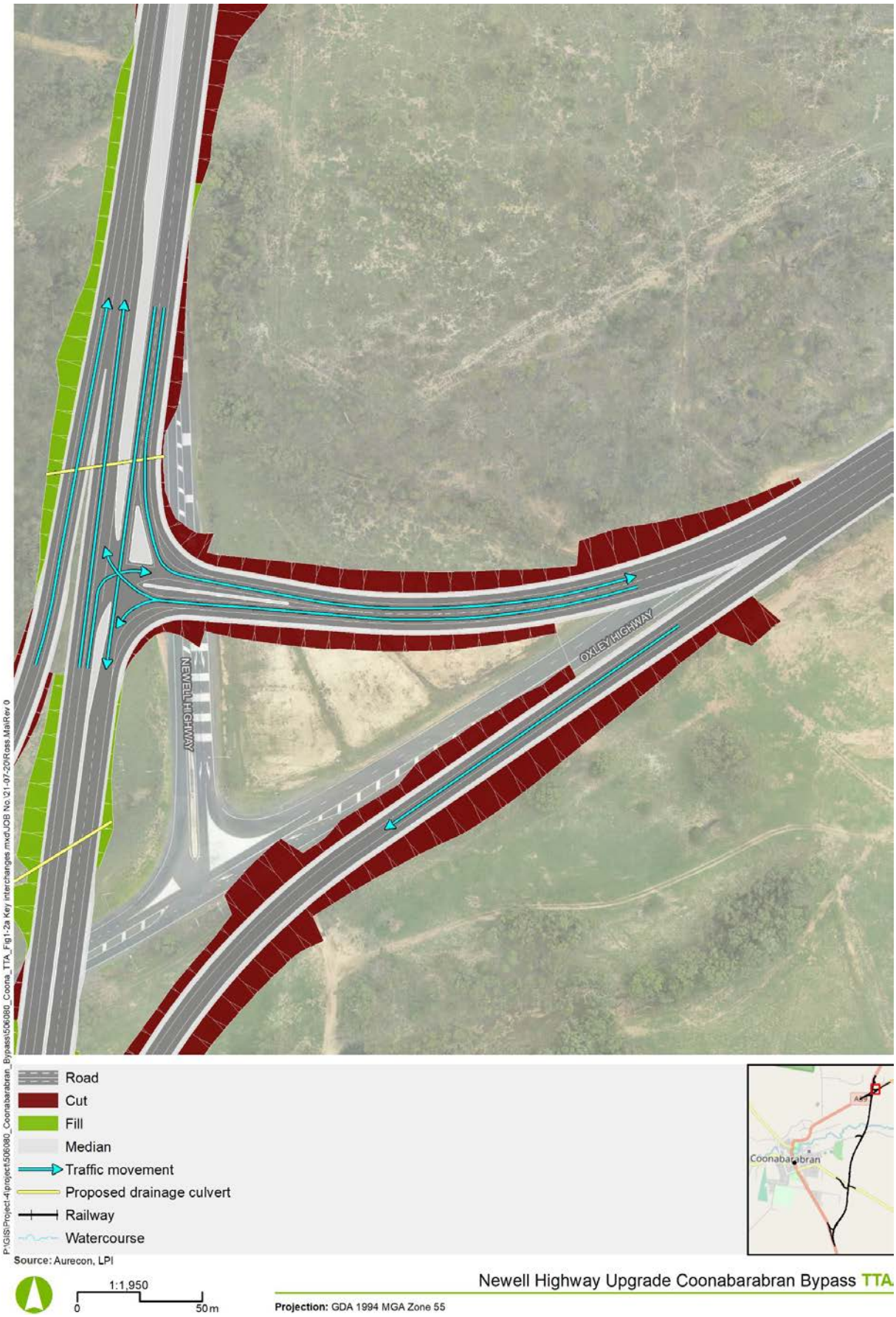

Figure 6-1 Northern intersection (Newell Highway / Oxley Highway intersection) – eastern side

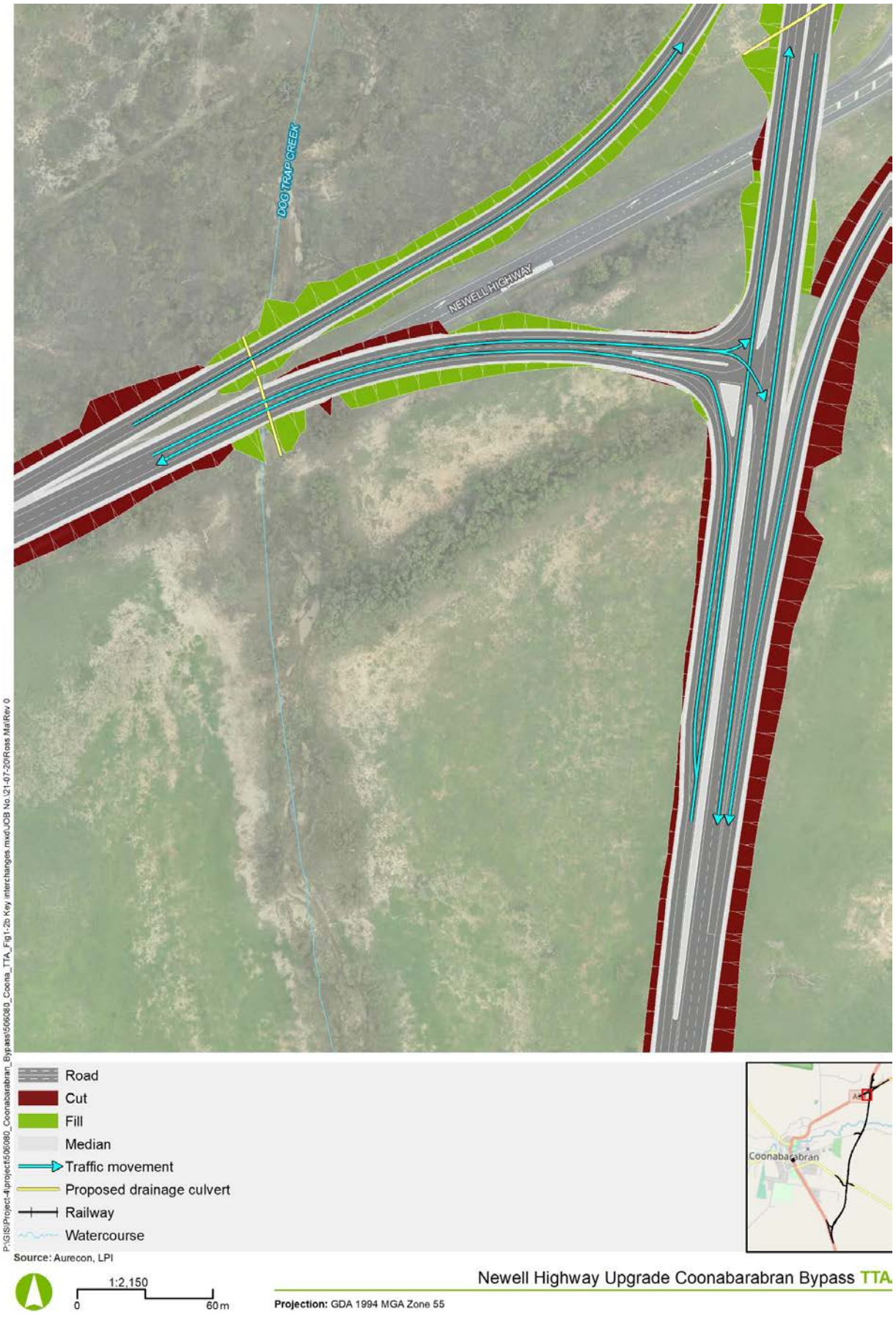

Figure 6-2 Northern intersection (Newell Highway / Oxley Highway intersection) – western side

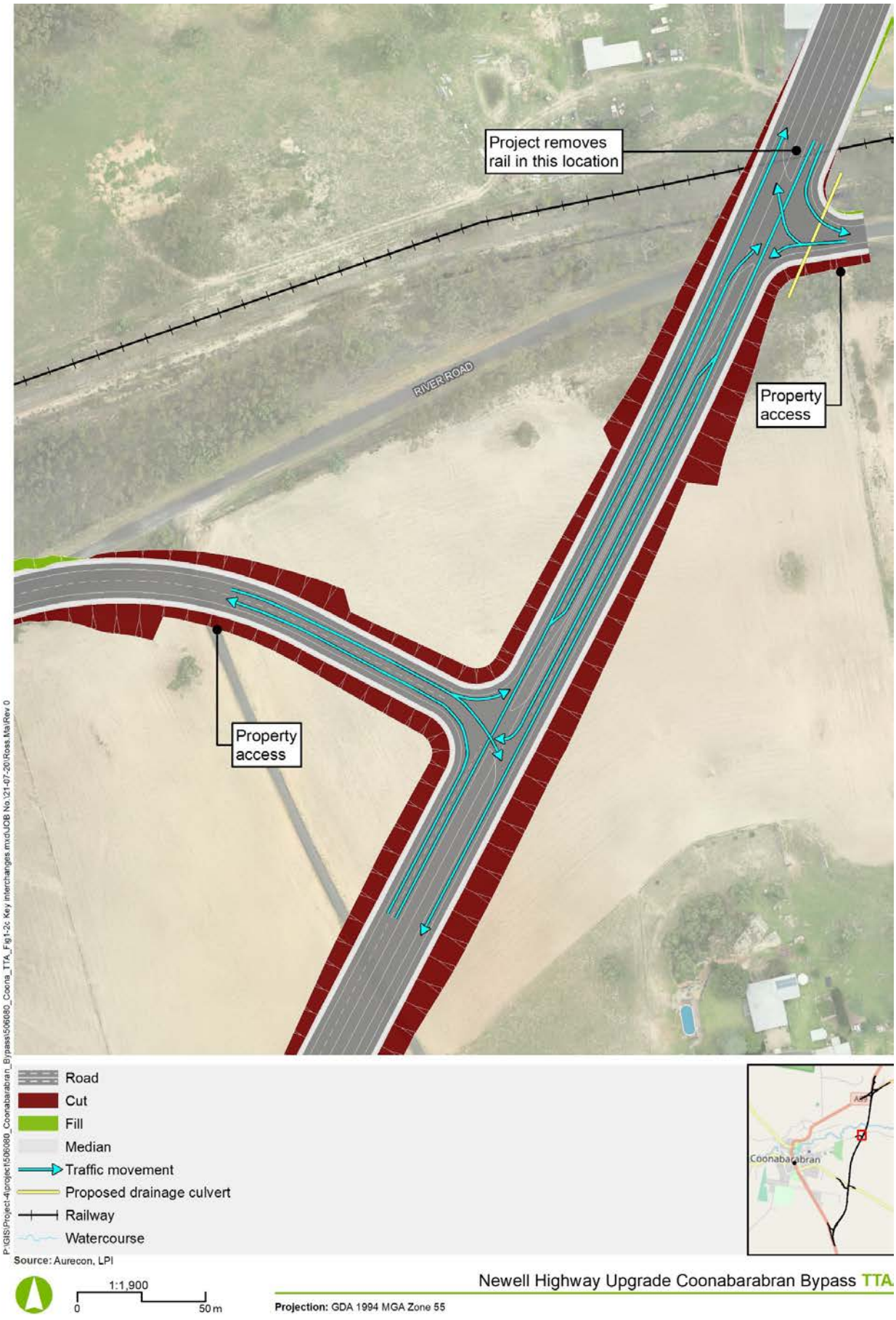

Figure 6-3 Newell Highway / River Road intersection

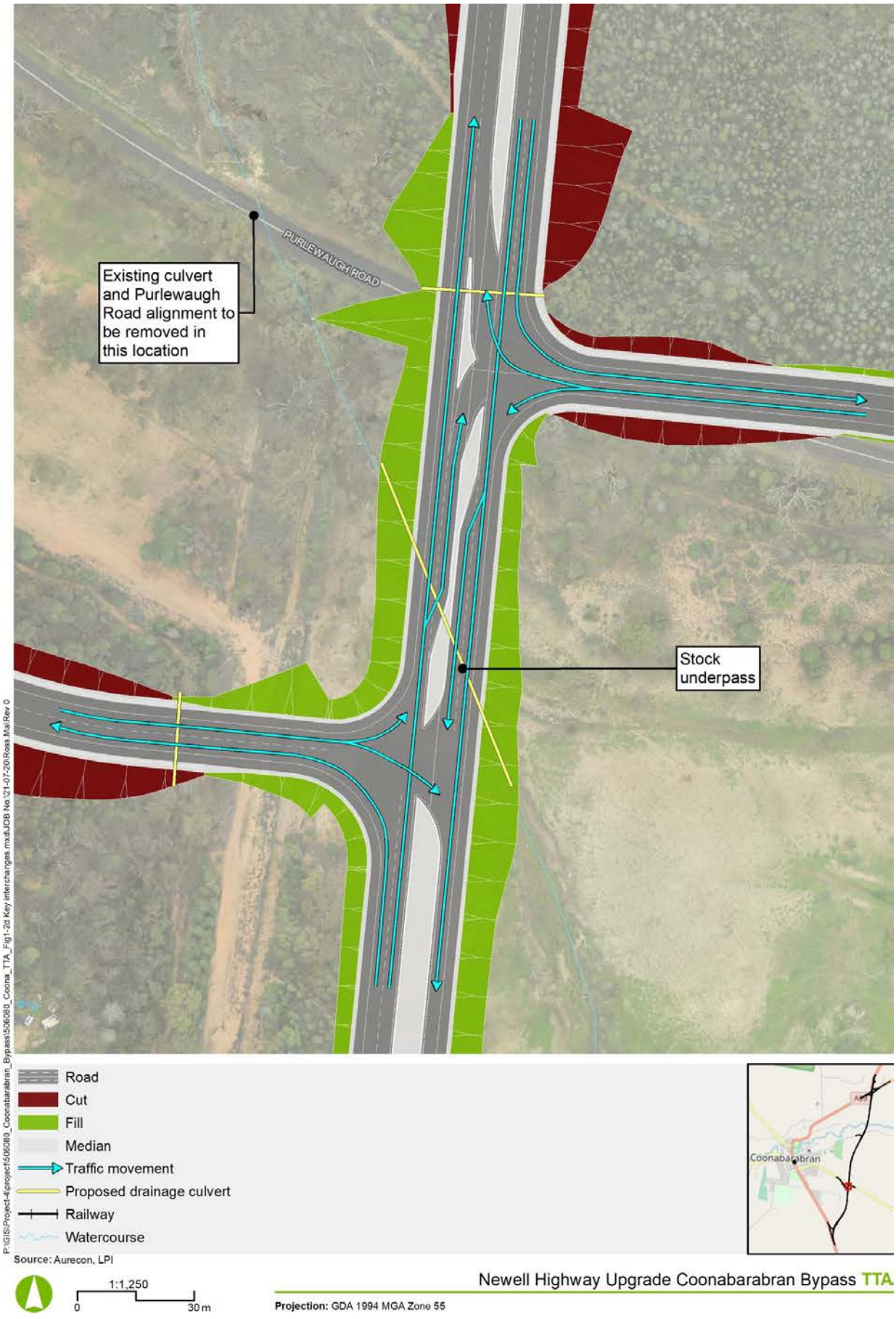

Figure 6-4 Newell Highway / Purlewaugh Road intersection

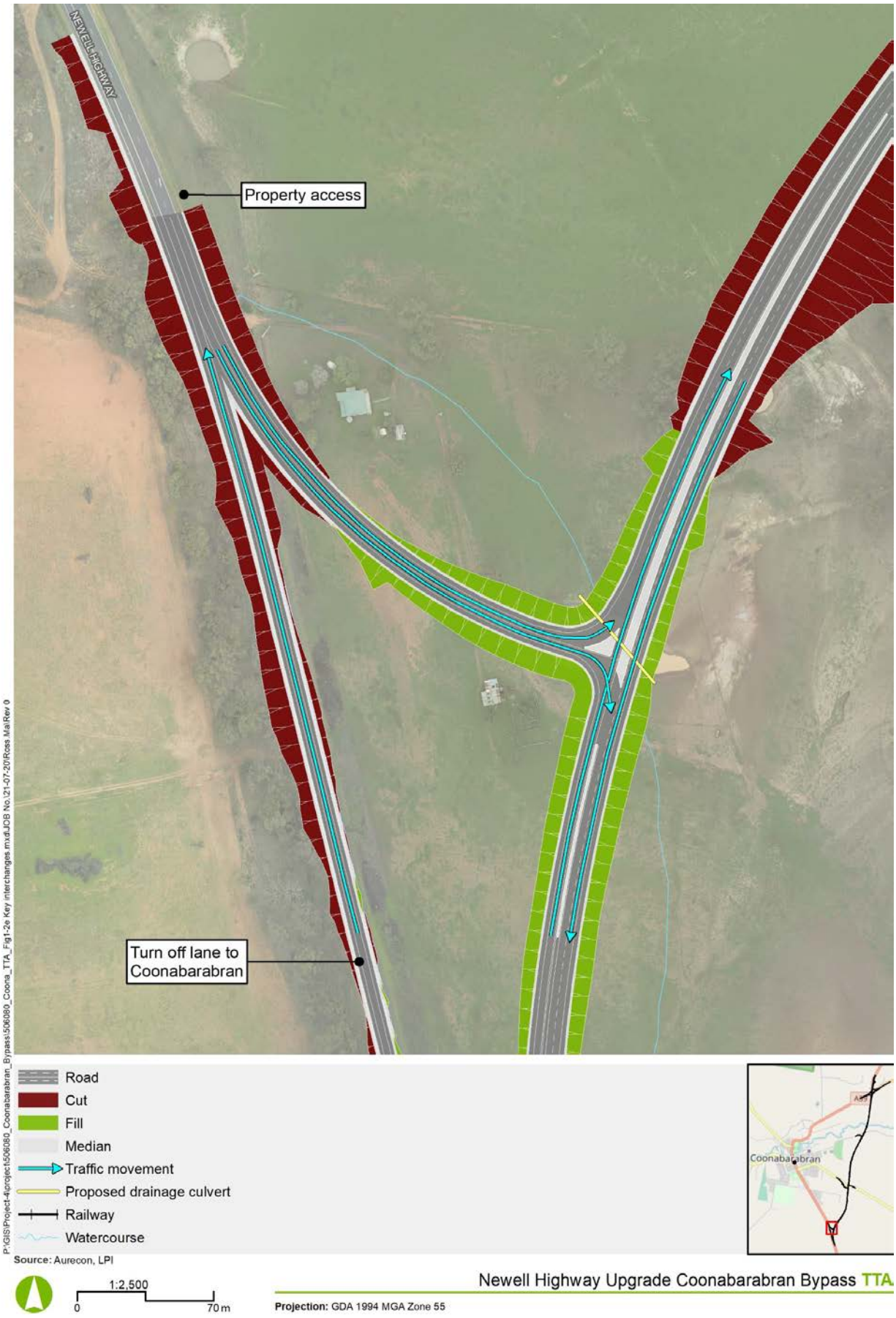

Figure 6-5 Southern intersection (Newell Highway intersection)

6.2 Traffic volumes

The traffic volumes were measured for the following scenarios:

- 2018 (existing situation)
- 2026 (no proposal)
- 2026 (with the bypass operational)
- 2036 (no proposal)
- 2036 (with the bypass operational).

These scenarios considered anticipated natural traffic volume growth along the Newell Highway in the study area (being around four per cent per annum) taken from the provided TfNSW model (Aurecon 2020). Traffic volumes (inclusive of both light and heavy vehicles) are detailed in Table 6-2, with locations shown in Figure 6-6.

Northbound and southbound volumes are those volumes that are travelling on the Newell Highway (either through town or on the bypass). Eastbound and westbound refer to the local road movement across the highway. Note that the intersections with River Road and Purlewaugh Road would only be created with the bypass, so there are no highway (northbound and southbound) traffic volumes for those intersections in the 'without proposal' scenario.

Table 6-2 AADT traffic volumes across the bypass and town intersections

Road	Direction	2018	2026		2036	
			Without proposal	Bypass	Without proposal	Bypass
Newell Highway Bypass / Oxley Highway (Northern Intersection)	NB	NA	NA	1097	NA	1288
	SB	874	980	1021	1151	1123
	WB	657	767	794	785	771
	EB	1356	1552	695	1817	747
Newell Highway Bypass / River Road	NB	NA	NA	1067	NA	1287
	SB	NA	NA	1246	NA	1309
	WB	NA	NA	271	NA	280
	EB	1016	1061	323	1096	341
Newell Highway Bypass / Purlewaugh Road	NB	NA	NA	1049	NA	1266
	SB	NA	NA	1582	NA	1647
	WB	NA	NA	539	NA	580
	EB	767	691	595	729	653
Newell Highway Bypass / Existing Newell Highway (Southern Intersection)	NB	NA	NA	1027	NA	1230
	SB	NA	NA	1512	NA	1607
	EB	NA	NA	1883	NA	1873

Road	Direction	2018	2026		2036	
			Without proposal	Bypass	Without proposal	Bypass
Newell Highway / Dalgarno Street	NB	2868	2951	2841	2798	2850
	SB	2300	2470	1437	2661	1448
	WB	1307	1220	1119	1319	1181
	EB	2868	2951	2841	2798	2850
Newell Highway / Edwards Street	NB	3272	3394	2419	3711	2481
	SB	3040	3226	2078	3359	2094
	WB	939	885	783	923	791
	EB	957	972	940	961	919

From the data we can see the following:

- traffic volumes along the Newell Highway will continue to increase in the future, even without the bypass
- a reduction in east-north traffic movement along the Newell Highway at the northern interchange. This is attributed to the change in location of the Newell Highway, which becomes north south in this interchange, rather than east-north, as in the existing situation
- a reduction in the east-west movement along River Road as some vehicles use the bypass to access further along River Road, rather than going through town and along the local road
- continuation of the importance of the east-west movement along Purlewaugh Road
- a reduction in most cases in traffic through Coonabarabran in the future models with the bypass. This is attributed to the construction of the bypass enticing traffic to use the new highway for greater efficiency rather than passing through the centre of town.

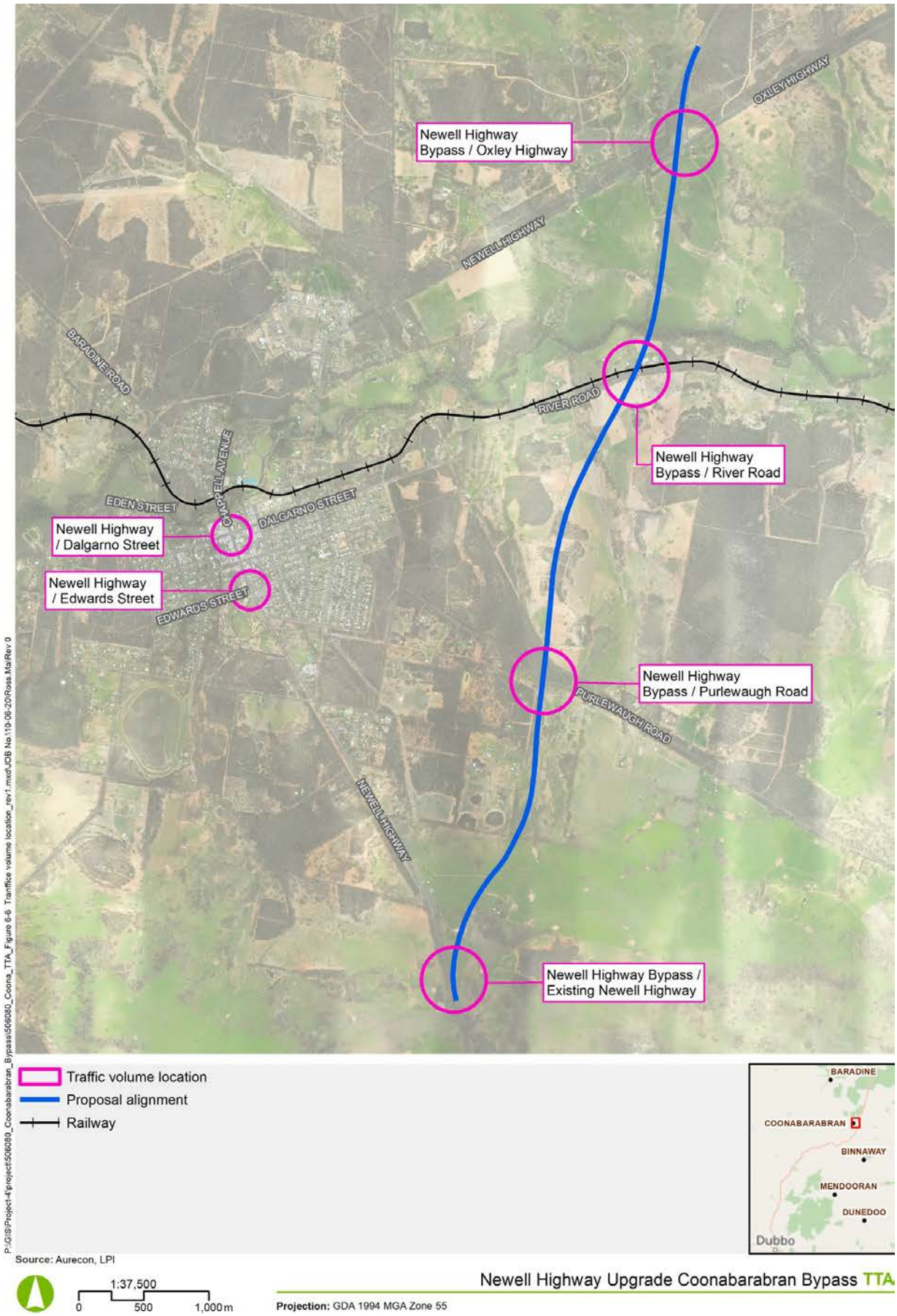

Figure 6-6 Traffic volume locations

6.3 Intersection performance

Six intersections were assessed for operational intersection performance (i.e. Level of service) (LoS). These intersections include the four intersections along the alignment as well as the two key intersections through town:

- Newell Highway Bypass / Oxley Highway (Northern Intersection)
- Newell Highway Bypass / River Road
- Newell Highway Bypass / Purlewaugh Road
- Newell Highway Bypass / Existing Newell Highway (Southern Intersection)
- Newell Highway / Dalgarno Street
- Newell Highway / Edwards Street.

The LoS and average delay per vehicle for each intersection for the 2018 scenario, 2026 (without the proposal and with the proposal) and 2036 (without the proposal and with the proposal) are detailed in Table 6-3 and Table 6-4. The AM and PM peak periods were assessed as the traffic model identified that these periods had the highest number of vehicles, so provides a worst-case scenario.

The Newell Highway Bypass / Oxley Highway (Northern intersection) during the AM peak period operates at LoS A for all scenarios. With the bypass operational, there is a slight increase in the average delay during the AM period in 2026 and 2036, however, this is an increase of a maximum 1.1 seconds. This would be attributed to the changed conditions of the intersection, particularly the east-west movement.

The Newell Highway Bypass / River Road and Newell Highway Bypass / Purlewaugh Road intersections would operate at a LoS A for the peak periods assessed in the future scenarios, with minimal delays for vehicles. Note that as they are split intersections, each leg of the intersection was assessed separately.

The Newell Highway Bypass (Southern intersection) would operate at LoS A during peak periods at opening and 10 years after opening.

The Newell Highway / Dalgarno Street and Newell Highway / Edwards Street intersections both operate at LoS A under all scenarios, with limited changes to delays per vehicles. At the Newell Highway / Dalgarno Street intersection, there is a reduction in delays by half a second during the PM peak in the future scenarios with the bypass. This can be attributed to the use of the bypass to access River Road to the east, rather than needing to go through Coonabarabran.

Table 6-3 AM peak period (08:00-10:00) intersection performance

Intersection	2018		2026				2036			
			Without proposal		Proposal		Without proposal		Proposal	
	Delay (sec)	LoS	Delay (sec)	LoS	Delay (sec)	LoS	Delay (sec)	LoS	Delay (sec)	LoS
Newell Highway Bypass / Oxley Highway (Northern Intersection)	6.2	A	6.2	A	7.3	A	6.7	A	7.1	A
Newell Highway Bypass / River Road	N/A	N/A	N/A	N/A	2.2	A	N/A	N/A	2.0	A
Newell Highway Bypass / Purlewaugh Road (eastern leg)	N/A	N/A	N/A	N/A	3.5	A	N/A	N/A	3.4	A
Newell Highway Bypass / Purlewaugh Road (western leg)	N/A	N/A	N/A	N/A	3.0	A	N/A	N/A	2.6	A
Newell Highway Bypass / Existing Newell Highway (Southern Intersection)	N/A	N/A	N/A	N/A	3.0	A	N/A	N/A	3.0	A
Newell Highway / Dalgarno Street	5.4	A	5.3	A	5.1	A	5.3	A	5.1	A
Newell Highway / Edwards Street	3.4	A	3.6	A	3.5	A	3.6	A	3.4	A

Table 6-4 PM peak period (16:00-18:00) intersection performance across all vehicles

Intersection	2018		2026				2036			
			Without proposal		Proposal		Without proposal		Proposal	
	Delay (sec)	LoS	Delay (sec)	LoS	Delay (sec)	LoS	Delay (sec)	LoS	Delay (sec)	LoS
Newell Highway Bypass / Oxley Highway (Northern Intersection)	5.7	A	6.3	A	6.4	A	6.2	A	6.2	A
Newell Highway Bypass / River Road	N/A	N/A	N/A	N/A	1.9	A	N/A	N/A	1.8	A
Newell Highway Bypass / Purlewaugh Road (eastern leg)	N/A	N/A	N/A	N/A	2.8	A	N/A	N/A	2.7	A
Newell Highway Bypass / Purlewaugh Road (western leg)	N/A	N/A	N/A	N/A	2.5	A	N/A	N/A	2.4	A
Newell Highway Bypass / Existing Newell Highway (Southern Intersection)	N/A	N/A	N/A	N/A	3.1	A	N/A	N/A	2.8	A
Newell Highway / Dalgarno Street	5.5	A	5.6	A	5.0	A	5.6	A	5.0	A
Newell Highway / Edwards Street	3.0	A	2.9	A	3.1	A	3.0	A	3.1	A

6.4 Overall network performance

The overall road network performance is used to identify the total amount of time to travel through the area (being vehicle hours travelled (VHT)) and the length of road in the area (Vehicle kilometres travelled (VKT)). This has been considered for the key road network in Coonabarabran and includes the Newell Highway, Oxley Highway, Purlewaugh Road and River Road. From these figures, for a new road, the VKT would be expected to increase as there would be more road length, but VHT should decrease with improved traffic conditions, improving traffic speeds.

The network performance for the Coonabarabran bypass included an assessment of VKT and VHT for the road network during peak periods. It assessed the current (2018) scenario as well as the 2026 and 2036 scenarios. The network performance of the highway through town without the bypass and on the bypass are shown in Table 6-5.

Table 6-5 AM and PM peak hour overall network performance

Period	VKT				VHT			
	Through town without bypass		With bypass on bypass		Through town without bypass		With bypass on bypass	
	NB	SB	NB	SB	NB	SB	NB	SB
2018 AM	92.8	150.4	-	-	1.4	2.3	-	-
2018 PM	126.1	157.6	-	-	1.9	2.4	-	-
2026 AM	116.5	203.0	114.8	148.0	1.8	3.1	1.2	1.5
2026 PM	166.6	179.0	131.4	138.5	2.5	2.7	1.4	1.4
2036 AM	168.9	262.6	137.4	193.9	2.6	4.0	1.5	2.0
2036 PM	180.8	200.5	140.4	164.3	2.8	3.0	1.6	1.6

The VKT across the 'without bypass' increases progressively over the modelled years, with the hours travelled (VHT) increasing as well. This reveals that the distance travelled has increased but it also takes longer to travel over that distance.

However, in comparing the 'without bypass' and 'bypass' options, with the bypass operational both the VKT and associated VHT are lower than without the bypass, showing improved travel efficiency.

To assess the traffic network impacts through Coonabarabran, VKT and VHT were assessed for the existing Newell Highway and Dalgarno Street intersection (refer to Table 6-6). Without the bypass, VKT and VHT increase consistently in the future scenarios, showing that there would be increasing travel times through the intersection. With the bypass operational, in the future, VHT would be improved, showing improved traffic conditions and travel times.

Table 6-6 Network performance for Newell Highway / Dalgarno Street intersection

Period	VKT				VHT			
	Without bypass		With bypass		Without bypass		With bypass	
	NB	SB	NB	SB	NB	SB	NB	SB
2018 AM	6.56	5.17	-	-	0.23	0.16	-	-
2018 PM	5.85	6.09	-	-	0.21	0.19	-	-
2026 AM	7.43	5.62	3.49	2.61	0.27	0.18	0.12	0.08
2026 PM	6.58	7.36	2.65	3.06	0.23	0.23	0.10	0.09
2036 AM	8.53	5.98	3.50	2.45	0.30	0.19	0.13	0.08
2036 PM	7.19	7.39	2.55	3.07	0.26	0.23	0.09	0.10

6.5 Property access

During the operational phase of the proposal, there would be a number of properties with access changes. These include:

- local private property access from River Road, Purlewaugh Road and Oxley Highway as the new tie-in crosses existing access pathways
- local private property access near the Southern intersection, where access from the existing Newell Highway would be cut. Access would be provided onto the Newell Highway bypass.

Property access would be relocated by TfNSW in consultation with the property owners. All affected properties will have access to a public road when the bypass is operational.

6.6 Heavy vehicles

One of the objectives of the proposal is to improve freight efficiency along the Newell Highway near Coonabarabran. As sections along the Newell Highway that are currently restricted to B-Triples are opened to B-Triples, there is anticipated to be a shift in heavy vehicles from B-Doubles to B-Triples. This shift is expected to be in the order of 30 per cent by 2026, increasing to 50 per cent by 2036. However, while there would be a shift in heavy vehicle types, there would be minimal change in the overall number of heavy vehicles.

The proposal would provide a higher speed, free flowing traffic environment which would attract heavy vehicles from the existing Newell Highway alignment. Projected heavy vehicle volumes for key intersections in the study area during the AM and PM peaks are provided in Table 6-7 and Table 6-8.

Table 6-7 AM peak period (08:00-10:00) for heavy vehicles across intersections

Road	Direction	2018	2026		2036	
			Without proposal	Bypass	Without proposal	Bypass
Newell Highway Bypass / Oxley Highway (Northern Intersection)	NB	NA	NA	301	NA	451
	SB	260	326	367	316	362
	WB	56	102	69	92	102
	EB	278	439	120	472	89
Newell Highway Bypass / River Road	NB	NA	NA	314	NA	474
	SB	NA	NA	245	NA	265
	WB	NA	NA	13	NA	14
	EB	71	74	5	77	28
Newell Highway Bypass / Purlewaugh Road	NB	NA	NA	324	NA	464
	SB	NA	NA	232	NA	268
	WB	NA	NA	56	NA	69
	EB	66	61	82	99	97
Newell Highway Bypass / Existing Newell Highway (Southern Intersection)	NB	NA	NA	324	NA	469
	SB	NA	NA	245	NA	275
	EB	NA	NA	230	NA	222
Newell Highway / Dalgarno Street	NB	477	668	309	663	293
	SB	449	502	367	510	301
	WB	15	31	41	36	28
	EB	87	110	112	107	82
Newell Highway / Edwards Street	NB	684	867	477	900	495
	SB	370	388	219	439	217
	WB	87	89	38	94	49
	EB	33	46	33	33	20

Table 6-8 PM peak period (16:00-18:00) for heavy vehicles across intersections

Road	Direction	2018	2026		2036	
			Without proposal	Bypass	Without proposal	Bypass
Newell Highway Bypass / Oxley Highway (Northern Intersection)	NB	NA	NA	479	NA	586
	SB	153	211	194	257	219
	WB	47	41	74	68	58
	EB	425	600	90	701	137
Newell Highway Bypass / River Road	NB	NA	NA	477	NA	592
	SB	NA	NA	151	NA	192
	WB	NA	NA	14	NA	14
	EB	52	58	0	68	3
Newell Highway Bypass / Purlewaugh Road	NB	NA	NA	477	NA	594
	SB	NA	NA	145	NA	175
	WB	NA	NA	74	NA	55
	EB	22	11	19	19	41
Newell Highway Bypass / Existing Newell Highway (Southern Intersection)	NB	NA	NA	466	NA	581
	SB	NA	NA	148	NA	186
	EB	NA	NA	331	NA	301
Newell Highway / Dalgarno Street	NB	400	575	79	663	96
	SB	416	468	282	488	307
	WB	36	19	27	58	25
	EB	58	112	85	151	74
Newell Highway / Edwards Street	NB	622	729	290	888	252
	SB	290	356	208	383	181
	WB	47	58	71	71	52
	EB	3	8	5	14	3

Heavy vehicles on the existing Newell Highway would need to navigate to the southern or northern interchange to access the bypass.

Based on consultation with the local community and Council, Purlewaugh Road between the bypass and Coonabarabran would revert to GML semi-trailer access only. B-Double vehicles travelling from Baradine Road or Coonabarabran to Qurindi would need to travel to the southern or northern interchange before travelling onto the bypass and onto Purlewaugh Road east, which would still be designated a B-Double route. Figure 6-7 shows the current and proposed route that B-Doubles from Baradine Road and Coonabarabran could use to access Purlewaugh Road.

With the construction of the bypass and the changes to heavy vehicle movements to access the bypass, heavy vehicle numbers through the centre of town would decrease. This is attributed to the improved travel conditions of the bypass allowing more efficient freight movement. This will reduce heavy vehicle and local traffic conflicts through town and improve amenity.

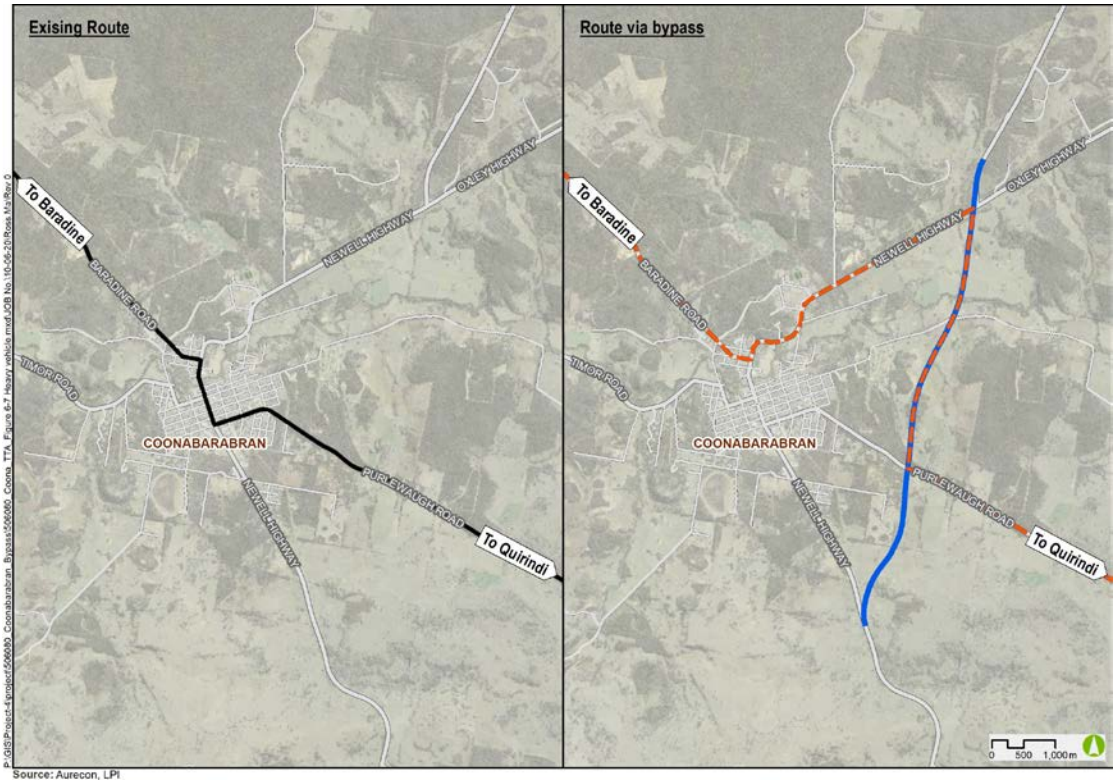

Figure 6-7 Heavy vehicle restrictions with the bypass

6.7 Active transport

The proposal would not provide any formal cycle path or pedestrian access along the highway. However, the proposal would improve road facilities and conditions which may improve on-road cycling conditions if using the Newell Highway bypass and minimise intersection stopping allowing for uninterrupted and smooth travel. The bypass would consist of the establishment new road pavement and shoulders, meaning the surface of the pavement during operation would be smooth (i.e. without potholes).

Cyclists using Purlewaugh and River Road would need to give way to the Newell Highway Bypass. If they are crossing over two lanes of traffic, this could pose an additional layer of risk and a higher potential for more vehicle related incidents to occur. Further consideration of this road safety risk is required during detailed design.

6.8 Public transport

There are no predicted operational impacts for coach/bus routes mentioned previously. The routes are still predicted to run through the Coonabarabran town centre and follow the existing Newell Highway.

6.9 Impact on road safety

Along the Newell Highway near the study area, there have been nine crashes recorded between 2014 and 2018.

The proposal would have an overall positive impact on road safety within Coonabarabran, as there will be less conflicts between through traffic (particularly heavy vehicles) and local traffic. In particular, this would benefit the area where vehicles need to reverse into parking spaces on John Street. Improved traffic conditions on the Newell Highway would provide a safer drive for vehicles on the bypass as well.

The construction of the bypass would also benefit town active transport patrons with a reduction of heavy vehicles, creating fewer opportunities for heavy vehicle/ active transport incidents.

The construction of the bypass would increase the length of the highway where drivers can travel continuously without passing through a town resulting in increased potential for driver fatigue. The length of the highway between Narrabri and Gilgandra would be about 300 kilometres which is of particular concern for long distance travellers. Passing through towns results in a change in scenery and traffic conditions and provides opportunities for drivers to stop and take a break from driving. This can assist in reducing driver fatigue incidents.

To provide opportunity for drivers to stop, the Coonabarabran bypass would have town signage and regional markers to promote and encourage travellers to go into town. Along its length, the bypass would have four opportunities to enter Coonabarabran.

7 Management and mitigation measures

This section identifies the management and mitigation measures required for the proposal. Table 7-1 specifies which management measure is relevant to each section of the proposal.

Table 7-1 Safeguards and mitigation measures

Issue	Environmental safeguards	Responsibility	Timing
Traffic management	A Traffic Management Plan (TMP) will be prepared and implemented for traffic during construction. The TMP will be prepared in accordance with the Traffic Control at Worksites Technical Manual (RMS 2018), and QA Specification G10 Traffic Management (RMS 2019). The TMP will include: • confirmation of haulage routes • measures to maintain access to local roads and properties • site specific traffic control measures (including signage) to manage and regulate traffic movement • measures to maintain pedestrian and cyclist access • requirements and methods to consult and inform the local community of impacts on the local road network • access to construction sites including entry and exit locations and measures to prevent construction vehicles queuing on public roads • a response plan for any construction traffic incident • consideration of other developments that may be under construction to minimise traffic conflict and congestion that may occur due to the cumulative increase in construction vehicle traffic • monitoring, review and amendment mechanisms.	Contractor	Detailed design Pre-establishment Construction
Ancillary facilities access / egress	The four ancillary facilities would have security fencing surrounding them to ensure that pedestrian or non-site inducted personnel would not be able to gain access or be able to wander into the compounds. The facilities would also be signposted notifying the public of access restrictions and also identifying the site compound. After construction completion, the site will be decommissioned including removal of the ancillary facilities, construction area, stockpiles, rubbish and materials. The site would be rehabilitated afterwards in consultation with the landowner.	TfNSW Contractors	Pre-establishment Construction

Issue	Environmental safeguards	Responsibility	Timing
Construction vehicle parking	Construction vehicles and plant would be stored within the designated ancillary facilities or in designated areas within the construction site at the end of each shift. Personnel vehicles would also be parked within the designated ancillary facilities at the beginning of each shift. Vehicle parking needs to follow the Traffic Control at Worksites Technical Manual (Roads and Maritime Services 2018).	TfNSW Contractors	Pre-establishment Construction
Coach/bus routes	Local schools and the associating bus operators would be notified of the proposed works and potential route impacts prior to works commencing. Coach/bus route operators would be notified of the proposed works and timing of the works.	TfNSW	Pre-establishment Construction
Property access	Access to private properties would be maintained during construction, wherever possible. Where changes to access arrangements or disruption to access are necessary, owners and occupiers would be consulted regarding alternative access arrangements in accordance with the relevant community consultation processes outlined in the TMP.	Contractor	Construction
Community notification	TfNSW will consult with the general community regarding changed traffic conditions and will consult with emergency services.	TfNSW	Construction
Active transport	TfNSW should consider the road safety implications of cyclists using the highway at the River Road and Purlewaugh Road split-intersections and whether any safety features such as signage or crossing points need to be incorporated into the proposal.	TfNSW	Detailed design

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Appendix A Raw Traffic Count data 2019

Job No	N5332 - Coonabarabran
Client	Aurecon
Site	ATC 1 - Oxley Hwy South of Newell (Week 1)
Location	Coonabarabran
Site No	1
Start Date	22-Oct-19
Description	Volume Summary
Direction	EB

MATRIX Traffic and Transport Data

Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon 28-Oct	Tue 22-Oct	Wed 23-Oct	Thu 24-Oct	Fri 25-Oct	Sat 26-Oct	Sun 27-Oct		
AM Peak	98	137	119	126	110	107	107		
PM Peak	98	140	114	124	101	98	113	1564	1494
0:00	21	4	30	34	21	16	30	22	22
1:00	17	6	33	36	15	19	21	21	21
2:00	4	4	12	16	12	22	17	10	12
3:00	5	9	24	29	14	7	16	16	15
4:00	17	11	19	33	21	17	19	20	20
5:00	22	26	29	33	29	17	20	28	25
6:00	55	44	71	39	51	36	22	52	45
7:00	59	61	115	107	77	56	42	84	74
8:00	87	100	119	120	102	91	81	106	100
9:00	93	137	108	126	110	78	101	115	108
10:00	98	119	99	97	88	107	87	100	99
11:00	79	107	116	102	106	97	107	102	102
12:00	94	100	84	85	85	98	105	90	93
13:00	92	140	100	109	93	75	113	107	103
14:00	98	126	114	111	98	90	100	109	105
15:00	86	126	108	124	101	70	91	109	101
16:00	90	94	102	100	99	62	95	97	92
17:00	73	81	100	90	69	57	82	83	79
18:00	46	68	82	55	52	46	63	61	59
19:00	57	74	74	66	50	38	53	64	59
20:00	31	65	68	31	29	38	36	45	43
21:00	41	47	49	35	49	35	39	44	42
22:00	44	54	50	29	40	39	37	43	42
23:00	42	29	63	23	29	28	23	37	34
Total	1351	1632	1769	1630	1440	1239	1400	1564	1494

7-19	995	1259	1247	1226	1080	927	1067	1161	1114
6-22	1179	1489	1509	1397	1259	1074	1217	1367	1303
6-24	1265	1572	1622	1449	1328	1141	1277	1447	1379
0-24	1351	1632	1769	1630	1440	1239	1400	1564	1494

Job No	N5332 - Coonabarabran
Client	Aurecon
Site	ATC 1 - Oxley Hwy South of Newell (Week 1)
Location	Coonabarabran
Site No	1
Start Date	22-Oct-19
Description	Volume Summary
Direction	WB

MATRIX Traffic and Transport Data

Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	28-Oct	22-Oct	23-Oct	24-Oct	25-Oct	26-Oct	27-Oct		
AM Peak	91	113	112	106	97	101	105		
PM Peak	106	112	114	95	104	100	96	1482	1415
0:00	25	15	34	36	21	20	29	26	26
1:00	17	17	28	34	25	23	31	24	25
2:00	1	18	12	21	14	34	22	13	17
3:00	2	16	24	36	14	14	19	18	18
4:00	15	11	21	27	20	15	12	19	17
5:00	11	20	31	23	22	21	19	21	21
6:00	37	38	50	35	35	28	21	39	35
7:00	53	71	93	99	88	43	34	81	69
8:00	89	81	107	101	90	77	48	94	85
9:00	84	113	112	106	94	81	86	102	97
10:00	91	93	77	76	97	92	83	87	87
11:00	74	91	74	83	75	101	105	79	86
12:00	72	112	84	94	97	71	85	92	88
13:00	74	105	76	91	90	71	96	87	86
14:00	81	106	81	95	100	100	78	93	92
15:00	106	87	114	93	100	96	93	100	98
16:00	104	99	98	82	104	67	66	97	89
17:00	79	85	85	73	92	71	71	83	79
18:00	70	71	93	67	72	38	56	75	67
19:00	80	78	57	47	61	48	45	65	59
20:00	50	73	42	20	55	44	31	48	45
21:00	67	43	55	42	49	37	34	51	47
22:00	61	51	53	31	39	35	34	47	43
23:00	48	28	71	25	32	33	38	41	39
Total	1391	1522	1572	1437	1486	1260	1236	1482	1415
7-19	977	1114	1094	1060	1099	908	901	1069	1022
6-22	1211	1346	1298	1204	1299	1065	1032	1272	1208
6-24	1320	1425	1422	1260	1370	1133	1104	1359	1291
0-24	1391	1522	1572	1437	1486	1260	1236	1482	1415

Job No	N5332 - Coonabarabran
Client	Aurecon
Site	ATC 1 - Oxley Hwy South of Newell (Week 2)
Location	Coonabarabran
Site No	1
Start Date	29-Oct-19
Description	Volume Summary
Direction	EB

MATRIX Traffic and Transport Data

Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	4-Nov	29-Oct	30-Oct	31-Oct	1-Nov	2-Nov	3-Nov		
AM Peak	87	133	123	136	105	100	120		
PM Peak	84	125	115	126	107	98	111	1454	1396
0:00	12	21	27	23	19	27	9	20	20
1:00	17	36	16	24	13	10	9	21	18
2:00	5	30	19	15	14	8	5	17	14
3:00	6	12	23	27	18	22	7	17	16
4:00	8	20	20	10	14	8	9	14	13
5:00	17	27	22	24	13	26	6	21	19
6:00	39	76	46	67	54	38	27	56	50
7:00	66	96	96	96	73	78	48	85	79
8:00	74	106	113	101	105	100	101	100	100
9:00	87	119	123	108	88	98	113	105	105
10:00	82	121	103	104	91	65	113	100	97
11:00	81	133	107	136	105	93	120	112	111
12:00	62	83	103	112	80	93	111	88	92
13:00	84	125	115	105	95	98	107	105	104
14:00	81	91	107	107	107	88	78	99	94
15:00	80	113	89	126	96	83	107	101	99
16:00	69	84	91	97	88	76	91	86	85
17:00	79	103	82	68	82	71	57	83	77
18:00	47	67	63	54	55	40	39	57	52
19:00	45	55	59	44	45	39	41	50	47
20:00	47	48	49	49	37	25	29	46	41
21:00	15	33	28	29	34	14	23	28	25
22:00	0	27	40	18	24	23	9	22	20
23:00	0	25	39	24	17	16	6	21	18
Total	1103	1651	1580	1568	1367	1239	1265	1454	1396

7-19	892	1241	1192	1214	1065	983	1085	1121	1096
6-22	1038	1453	1374	1403	1235	1099	1205	1301	1258
6-24	1038	1505	1453	1445	1276	1138	1220	1343	1296
0-24	1103	1651	1580	1568	1367	1239	1265	1454	1396

Job No	N5332 - Coonabarabran
Client	Aurecon
Site	ATC 1 - Oxley Hwy South of Newell (Week 2)
Location	Coonabarabran
Site No	1
Start Date	29-Oct-19
Description	Volume Summary
Direction	WB

Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	4-Nov	29-Oct	30-Oct	31-Oct	1-Nov	2-Nov	3-Nov		
AM Peak	78	129	107	107	94	102	80		
PM Peak	97	96	99	104	104	87	84	1376	1288
0:00	13	20	24	37	21	26	13	23	22
1:00	28	44	23	28	10	18	13	27	23
2:00	8	27	19	23	22	21	7	20	18
3:00	6	20	25	27	20	18	16	20	19
4:00	2	21	22	9	15	17	8	14	13
5:00	8	19	24	28	19	15	6	20	17
6:00	32	60	33	60	45	32	12	46	39
7:00	63	89	65	68	51	37	26	67	57
8:00	67	129	107	107	94	74	48	101	89
9:00	78	92	102	106	94	75	80	94	90
10:00	73	119	101	106	85	78	71	97	90
11:00	67	108	87	88	75	102	72	85	86
12:00	67	89	72	84	67	61	84	76	75
13:00	71	94	97	90	90	87	84	88	88
14:00	88	80	88	104	93	62	82	91	85
15:00	97	96	99	78	91	76	71	92	87
16:00	77	94	87	76	104	72	59	88	81
17:00	81	86	76	63	96	58	70	80	76
18:00	70	61	56	61	67	72	48	63	62
19:00	66	68	63	49	50	40	44	59	54
20:00	48	31	47	35	52	29	34	43	39
21:00	18	34	29	47	44	19	26	34	31
22:00	0	34	44	19	23	27	13	24	23
23:00	0	30	34	27	33	26	6	25	22
Total	1128	1545	1424	1420	1361	1142	993	1376	1288

7-19	899	1137	1037	1031	1007	854	795	1022	966
6-22	1063	1330	1209	1222	1198	974	911	1204	1130
6-24	1063	1394	1287	1268	1254	1027	930	1253	1175
0-24	1128	1545	1424	1420	1361	1142	993	1376	1288

Job No	N5332 - Coonabarabran
Client	Aurecon
Site	ATC 2 - Oxley Hwy North of Newell (Week 1)
Location	Coonabarabran
Site No	2
Start Date	22-Oct-19
Description	Volume Summary
Direction	EB

MATRIX Traffic and Transport Data

Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	28-Oct	22-Oct	23-Oct	24-Oct	25-Oct	26-Oct	27-Oct		
AM Peak	39	47	41	46	49	37	34		
PM Peak	36	41	42	43	42	34	35	451	427
0:00	1	1	2	3	0	0	0	1	1
1:00	0	1	2	1	0	1	1	1	1
2:00	0	0	0	0	0	0	0	0	0
3:00	0	0	0	0	1	0	0	0	0
4:00	2	5	1	1	4	2	2	3	2
5:00	8	3	3	4	11	3	2	6	5
6:00	19	15	14	11	13	11	4	14	12
7:00	23	23	41	24	20	14	8	26	22
8:00	34	42	40	46	43	37	17	41	37
9:00	37	47	30	40	49	35	34	41	39
10:00	39	40	27	31	25	37	25	32	32
11:00	39	22	36	31	47	37	27	35	34
12:00	36	30	30	24	42	34	27	32	32
13:00	33	36	33	28	33	25	27	33	31
14:00	27	41	30	37	27	19	28	32	30
15:00	33	39	39	41	38	16	31	38	34
16:00	35	25	28	43	38	26	34	34	33
17:00	32	29	42	39	33	12	35	35	32
18:00	15	20	14	20	17	10	26	17	17
19:00	14	8	8	11	14	8	18	11	12
20:00	6	4	11	5	5	6	21	6	8
21:00	3	5	3	6	5	7	13	4	6
22:00	6	5	2	7	7	7	4	5	5
23:00	2	1	3	1	2	2	3	2	2
Total	444	442	439	454	474	349	387	451	427
7-19	383	394	390	404	412	302	319	397	372
6-22	425	426	426	437	449	334	375	433	410
6-24	433	432	431	445	458	343	382	440	418
0-24	444	442	439	454	474	349	387	451	427

Job No	N5332 - Coonabarabran
Client	Aurecon
Site	ATC 2 - Oxley Hwy North of Newell (Week 1)
Location	Coonabarabran
Site No	2
Start Date	22-Oct-19
Description	Volume Summary
Direction	WB

MATRIX Traffic and Transport Data

Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon 28-Oct	Tue 22-Oct	Wed 23-Oct	Thu 24-Oct	Fri 25-Oct	Sat 26-Oct	Sun 27-Oct		
AM Peak	44	45	44	41	42	40	45		
PM Peak	39	41	35	37	42	35	37	443	427
0:00	2	3	2	3	2	1	0	2	2
1:00	1	2	3	1	2	1	2	2	2
2:00	0	1	0	0	2	0	2	1	1
3:00	1	0	1	2	0	1	1	1	1
4:00	0	1	1	0	2	0	0	1	1
5:00	8	4	8	3	7	2	3	6	5
6:00	17	20	11	13	15	5	6	15	12
7:00	21	31	27	32	26	10	5	27	22
8:00	44	45	44	36	36	40	14	41	37
9:00	36	33	29	41	35	36	37	35	35
10:00	39	43	32	35	42	37	35	38	38
11:00	23	39	26	21	25	40	45	27	31
12:00	26	41	26	37	42	29	37	34	34
13:00	28	32	32	27	34	24	34	31	30
14:00	31	39	29	30	33	33	20	32	31
15:00	32	27	24	30	38	35	32	30	31
16:00	39	27	35	33	31	26	20	33	30
17:00	31	25	32	35	41	25	32	33	32
18:00	20	25	22	18	28	14	15	23	20
19:00	15	17	6	8	17	15	17	13	14
20:00	8	5	7	2	12	8	10	7	7
21:00	5	4	2	4	8	6	7	5	5
22:00	8	5	7	7	3	1	6	6	5
23:00	2	1	2	1	2	2	2	2	2
Total	437	470	408	419	483	391	382	443	427
7-19	370	407	358	375	411	349	326	384	371
6-22	415	453	384	402	463	383	366	423	409
6-24	425	459	393	410	468	386	374	431	416
0-24	437	470	408	419	483	391	382	443	427

Job No	N5332 - Coonabarabran
Client	Aurecon
Site	ATC 2 - Oxley Hwy North of Newell (Week 2)
Location	Coonabarabran
Site No	2
Start Date	29-Oct-19
Description	Volume Summary
Direction	EB

MATRIX Traffic and Transport Data

Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	4-Nov	29-Oct	30-Oct	31-Oct	1-Nov	2-Nov	3-Nov		
AM Peak	36	39	40	34	40	44	33		
PM Peak	35	43	45	41	46	31	30	433	403
0:00	0	0	2	0	0	3	1	0	1
1:00	0	2	1	1	1	2	0	1	1
2:00	0	1	2	0	2	1	0	1	1
3:00	1	0	1	3	0	2	0	1	1
4:00	2	2	1	2	2	0	1	2	1
5:00	6	3	1	2	2	4	0	3	3
6:00	20	12	13	17	12	10	6	15	13
7:00	25	24	30	27	21	25	10	25	23
8:00	36	30	38	23	39	36	24	33	32
9:00	25	36	40	29	40	44	21	34	34
10:00	30	39	34	34	31	18	22	34	30
11:00	22	39	37	31	27	27	33	31	31
12:00	23	17	27	41	31	31	30	28	29
13:00	33	38	41	24	34	30	26	34	32
14:00	35	27	37	28	46	25	28	35	32
15:00	33	39	26	33	44	22	26	35	32
16:00	28	43	45	39	33	16	26	38	33
17:00	33	39	35	34	40	21	18	36	31
18:00	11	18	24	16	20	14	12	18	16
19:00	9	12	11	7	19	9	8	12	11
20:00	8	10	8	3	8	4	7	7	7
21:00	7	10	3	7	4	3	5	6	6
22:00	0	1	5	2	4	4	1	2	2
23:00	0	0	3	4	3	1	2	2	2
Total	387	442	465	407	463	352	307	433	403
7-19	334	389	414	359	406	309	276	380	355
6-22	378	433	449	393	449	335	302	420	391
6-24	378	434	457	399	456	340	305	425	396
0-24	387	442	465	407	463	352	307	433	403

Job No	N5332 - Coonabarabran
Client	Aurecon
Site	ATC 2 - Oxley Hwy North of Newell (Week 2)
Location	Coonabarabran
Site No	2
Start Date	29-Oct-19
Description	Volume Summary
Direction	WB

MATRIX Traffic and Transport Data

Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	4-Nov	29-Oct	30-Oct	31-Oct	1-Nov	2-Nov	3-Nov		
AM Peak	39	41	42	39	44	35	25		
PM Peak	39	40	49	36	42	35	34	425	397
0:00	0	1	1	4	0	1	1	1	1
1:00	0	1	4	1	1	2	0	1	1
2:00	0	0	1	0	2	1	0	1	1
3:00	1	0	0	0	0	1	1	0	0
4:00	0	3	3	0	1	1	0	1	1
5:00	5	0	4	4	2	3	3	3	3
6:00	14	16	11	14	20	6	5	15	12
7:00	22	27	20	16	13	10	8	20	17
8:00	39	41	42	36	40	28	17	40	35
9:00	32	26	42	39	44	26	18	37	32
10:00	28	36	36	35	34	30	18	34	31
11:00	27	38	26	30	28	35	25	30	30
12:00	24	31	31	23	22	20	32	26	26
13:00	27	34	26	29	39	35	34	31	32
14:00	31	29	31	22	36	23	32	30	29
15:00	39	40	49	30	34	24	27	38	35
16:00	22	33	36	36	40	25	24	33	31
17:00	30	22	25	21	42	21	25	28	27
18:00	22	24	24	18	29	22	14	23	22
19:00	17	17	12	12	9	13	12	13	13
20:00	9	4	6	9	12	5	10	8	8
21:00	8	4	1	6	10	2	7	6	5
22:00	0	4	2	3	5	4	1	3	3
23:00	0	2	3	5	4	1	1	3	2
Total	397	433	436	393	467	339	315	425	397
7-19	343	381	388	335	401	299	274	370	346
6-22	391	422	418	376	452	325	308	412	385
6-24	391	428	423	384	461	330	310	417	390
0-24	397	433	436	393	467	339	315	425	397

Job No	N5332 - Coonabarabran
Client	Aurecon
Site	ATC 3 - Newell Hwy (Week 1)
Location	Coonabarabran
Site No	3
Start Date	22-Oct-19
Description	Volume Summary
Direction	NB

MATRIX Traffic and Transport Data

Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	28-Oct	22-Oct	23-Oct	24-Oct	25-Oct	26-Oct	27-Oct		
AM Peak	54	83	74	71	69	73	72		
PM Peak	63	107	83	80	67	73	97	956	944
0:00	14	3	14	10	6	11	24	9	12
1:00	9	4	14	14	9	13	8	10	10
2:00	6	2	9	5	7	10	12	6	7
3:00	4	9	8	8	9	6	7	8	7
4:00	5	5	5	18	7	9	15	8	9
5:00	13	14	14	29	8	21	9	16	15
6:00	26	28	33	20	28	24	16	27	25
7:00	34	34	53	52	45	39	35	44	42
8:00	53	63	50	68	56	53	55	58	57
9:00	54	78	55	71	56	45	72	63	62
10:00	53	79	74	66	69	62	61	68	66
11:00	45	83	71	70	60	73	71	66	68
12:00	57	65	52	60	52	61	76	57	60
13:00	58	107	60	80	56	44	97	72	72
14:00	61	76	83	77	67	73	74	73	73
15:00	52	86	57	76	65	57	60	67	65
16:00	63	63	66	57	65	43	62	63	60
17:00	51	45	50	62	37	55	52	49	50
18:00	36	48	30	38	36	38	41	38	38
19:00	51	33	52	53	49	30	30	48	43
20:00	28	25	40	28	33	30	16	31	29
21:00	39	21	36	21	35	32	20	30	29
22:00	39	21	26	22	30	27	18	28	26
23:00	23	15	20	10	25	28	13	19	19
Total	874	1007	972	1015	910	884	944	956	944

7-19	617	827	701	777	664	643	756	717	712
6-22	761	934	862	899	809	759	838	853	837
6-24	823	970	908	931	864	814	869	899	883
0-24	874	1007	972	1015	910	884	944	956	944

Job No	N5332 - Coonabarabran
Client	Aurecon
Site	ATC 3 - Newell Hwy (Week 1)
Location	Coonabarabran
Site No	3
Start Date	22-Oct-19
Description	Volume Summary
Direction	SB

MATRIX Traffic and Transport Data

Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon 28-Oct	Tue 22-Oct	Wed 23-Oct	Thu 24-Oct	Fri 25-Oct	Sat 26-Oct	Sun 27-Oct		
AM Peak	58	69	64	57	57	65	52		
PM Peak	69	75	73	73	75	76	67	923	897
0:00	20	13	21	16	8	19	24	16	17
1:00	11	15	17	22	19	17	22	17	18
2:00	3	16	8	14	10	23	16	10	13
3:00	3	17	9	19	12	13	9	12	12
4:00	5	7	13	15	9	10	13	10	10
5:00	3	15	17	20	7	22	8	12	13
6:00	12	16	22	18	18	18	13	17	17
7:00	33	32	52	40	47	29	25	41	37
8:00	39	51	37	57	52	38	28	47	43
9:00	46	69	64	53	55	49	51	57	55
10:00	49	53	54	49	55	52	44	52	51
11:00	58	51	44	56	57	65	52	53	55
12:00	42	75	53	53	63	42	53	57	54
13:00	51	59	41	73	58	40	67	56	56
14:00	56	60	59	55	72	76	58	60	62
15:00	67	60	73	55	63	58	61	64	62
16:00	69	68	56	47	75	52	46	63	59
17:00	54	49	46	48	47	52	46	49	49
18:00	51	44	39	49	45	28	40	46	42
19:00	63	40	42	42	46	28	29	47	41
20:00	42	34	29	17	52	36	20	35	33
21:00	64	22	43	30	31	36	30	38	37
22:00	62	26	35	27	33	30	14	37	32
23:00	31	19	39	14	32	37	28	27	29
Total	934	911	913	889	966	870	797	923	897
7-19	615	671	618	635	689	581	571	646	626
6-22	796	783	754	742	836	699	663	782	753
6-24	889	828	828	783	901	766	705	846	814
0-24	934	911	913	889	966	870	797	923	897

Job No	N5332 - Coonabarabran
Client	Aurecon
Site	ATC 3 - Newell Hwy (Week 2)
Location	Coonabarabran
Site No	3
Start Date	29-Oct-19
Description	Volume Summary
Direction	NB

MATRIX Traffic and Transport Data

Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	4-Nov	29-Oct	30-Oct	31-Oct	1-Nov	2-Nov	3-Nov		
AM Peak	58	92	87	107	72	64	89		
PM Peak	54	81	75	93	62	76	83	982	973
0:00	16	17	12	15	14	19	11	15	15
1:00	12	24	20	21	13	7	4	18	14
2:00	8	14	18	6	10	8	15	11	11
3:00	3	8	10	12	15	10	6	10	9
4:00	10	11	18	10	10	6	10	12	11
5:00	7	12	17	24	7	24	10	13	14
6:00	16	47	29	32	33	28	26	31	30
7:00	32	63	62	75	44	49	38	55	52
8:00	51	69	64	67	59	59	71	62	63
9:00	56	72	87	86	61	63	89	72	73
10:00	48	92	72	71	65	54	83	70	69
11:00	58	88	73	107	72	64	85	80	78
12:00	39	71	75	74	57	76	71	63	66
13:00	47	81	74	71	58	70	83	66	69
14:00	44	75	67	93	62	65	55	68	66
15:00	47	71	60	88	54	64	80	64	66
16:00	41	70	55	62	53	62	60	56	58
17:00	45	65	43	42	42	56	46	47	48
18:00	54	58	49	44	32	28	31	47	42
19:00	46	40	51	35	29	28	30	40	37
20:00	30	34	35	39	27	30	33	33	33
21:00	17	19	31	21	26	17	16	23	21
22:00	0	15	14	11	27	22	10	13	14
23:00	0	21	18	11	7	17	12	11	12
Total	727	1137	1054	1117	877	926	975	982	973
7-19	562	875	781	880	659	710	792	751	751
6-22	671	1015	927	1007	774	813	897	879	872
6-24	671	1051	959	1029	808	852	919	904	898
0-24	727	1137	1054	1117	877	926	975	982	973

Job No	N5332 - Coonabarabran
Client	Aurecon
Site	ATC 3 - Newell Hwy (Week 2)
Location	Coonabarabran
Site No	3
Start Date	29-Oct-19
Description	Volume Summary
Direction	SB

MATRIX Traffic and Transport Data

Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	4-Nov	29-Oct	30-Oct	31-Oct	1-Nov	2-Nov	3-Nov		
AM Peak	43	81	67	74	55	69	58		
PM Peak	63	67	70	82	64	60	49	931	882
0:00	21	21	19	29	21	23	17	22	22
1:00	25	37	25	27	11	16	9	25	21
2:00	9	20	21	15	18	20	19	17	17
3:00	4	19	13	13	20	10	14	14	13
4:00	6	10	15	12	12	13	9	11	11
5:00	2	10	17	27	10	13	9	13	13
6:00	10	31	21	19	25	27	12	21	21
7:00	35	68	38	54	30	21	14	45	37
8:00	38	74	62	59	55	44	30	58	52
9:00	39	72	59	74	55	59	58	60	59
10:00	43	81	67	74	50	52	46	63	59
11:00	39	57	62	63	48	69	38	54	54
12:00	44	66	45	62	44	46	46	52	50
13:00	44	63	70	61	54	53	49	58	56
14:00	57	53	55	82	56	44	47	61	56
15:00	63	67	48	49	58	60	45	57	56
16:00	58	65	57	40	64	47	35	57	52
17:00	50	62	49	49	55	43	47	53	51
18:00	62	45	45	38	35	45	32	45	43
19:00	62	47	50	33	39	26	30	46	41
20:00	30	30	40	23	43	28	31	33	32
21:00	20	30	36	39	32	24	21	31	29
22:00	0	32	25	14	23	26	16	19	19
23:00	0	23	23	12	25	26	10	17	17
Total	761	1083	962	968	883	835	684	931	882
7-19	572	773	657	705	604	583	487	662	626
6-22	694	911	804	819	743	688	581	794	749
6-24	694	966	852	845	791	740	607	830	785
0-24	761	1083	962	968	883	835	684	931	882

Job No	N5332 - Coonabarabran
Client	Aurecon
Site	ATC 4 - Oxley Hwy (Week 1)
Location	Coonabarabran
Site No	4
Start Date	22-Oct-19
Description	Volume Summary
Direction	NB

MATRIX Traffic and Transport Data

Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	28-Oct	22-Oct	23-Oct	24-Oct	25-Oct	26-Oct	27-Oct		
AM Peak	100	147	146	136	137	131	147		
PM Peak	113	154	153	137	133	110	173	1626	1555
0:00	6	5	12	14	11	13	21	10	12
1:00	7	8	11	12	3	12	4	8	8
2:00	2	4	7	5	6	7	2	5	5
3:00	6	7	5	6	5	6	6	6	6
4:00	8	11	8	7	5	5	8	8	7
5:00	12	18	12	23	17	11	10	16	15
6:00	31	40	39	46	36	20	24	38	34
7:00	58	78	93	88	66	42	51	77	68
8:00	94	130	102	132	125	92	51	117	104
9:00	100	142	124	136	137	82	110	128	119
10:00	100	147	137	100	117	124	108	120	119
11:00	88	137	146	117	121	131	147	122	127
12:00	113	133	115	122	117	107	173	120	126
13:00	103	154	99	129	101	110	134	117	119
14:00	107	131	129	137	133	101	103	127	120
15:00	103	154	142	133	132	87	94	133	121
16:00	102	127	153	126	119	87	103	125	117
17:00	104	91	114	118	88	72	59	103	92
18:00	59	76	70	74	75	69	62	71	69
19:00	40	65	79	85	75	46	56	69	64
20:00	18	34	52	40	25	40	39	34	35
21:00	25	27	22	35	38	34	29	29	30
22:00	23	24	28	20	27	25	17	24	23
23:00	21	16	18	17	21	20	6	19	17
Total	1330	1759	1717	1722	1600	1343	1417	1626	1555

7-19	1131	1500	1424	1412	1331	1104	1195	1360	1300
6-22	1245	1666	1616	1618	1505	1244	1343	1530	1462
6-24	1289	1706	1662	1655	1553	1289	1366	1573	1503
0-24	1330	1759	1717	1722	1600	1343	1417	1626	1555

Job No	N5332 - Coonabarabran
Client	Aurecon
Site	ATC 4 - Oxley Hwy (Week 1)
Location	Coonabarabran
Site No	4
Start Date	22-Oct-19
Description	Volume Summary
Direction	SB

MATRIX Traffic and Transport Data

Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	28-Oct	22-Oct	23-Oct	24-Oct	25-Oct	26-Oct	27-Oct		
AM Peak	144	130	130	140	135	116	98		
PM Peak	128	138	142	127	133	102	106	1643	1536
0:00	13	15	16	20	11	15	25	15	16
1:00	10	18	15	16	10	11	11	14	13
2:00	4	15	9	11	10	23	14	10	12
3:00	2	14	7	15	6	8	8	9	9
4:00	9	18	11	11	14	6	6	13	11
5:00	15	17	29	30	16	17	13	21	20
6:00	45	63	52	54	45	30	25	52	45
7:00	94	120	116	122	84	69	36	107	92
8:00	111	98	113	123	122	87	62	113	102
9:00	144	130	109	140	110	92	70	127	114
10:00	128	112	126	102	109	93	90	115	109
11:00	106	110	130	114	135	116	98	119	116
12:00	99	119	93	119	107	102	100	107	106
13:00	116	138	121	127	133	83	102	127	117
14:00	103	114	93	118	117	93	106	109	106
15:00	119	132	142	116	106	89	105	123	116
16:00	128	109	120	104	110	71	81	114	103
17:00	91	87	89	104	108	56	98	96	90
18:00	70	63	69	58	57	32	86	63	62
19:00	60	54	57	47	52	30	51	54	50
20:00	45	42	36	32	42	34	29	39	37
21:00	48	37	34	33	32	37	32	37	36
22:00	39	29	34	28	31	31	17	32	30
23:00	32	19	36	18	24	22	24	26	25
Total	1631	1673	1657	1662	1591	1247	1289	1643	1536

7-19	1309	1332	1321	1347	1298	983	1034	1321	1232
6-22	1507	1528	1500	1513	1469	1114	1171	1503	1400
6-24	1578	1576	1570	1559	1524	1167	1212	1561	1455
0-24	1631	1673	1657	1662	1591	1247	1289	1643	1536

Job No	N5332 - Coonabarabran
Client	Aurecon
Site	ATC 4 - Oxley Hwy (Week 2)
Location	Coonabarabran
Site No	4
Start Date	29-Oct-19
Description	Volume Summary
Direction	NB

Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	4-Nov	29-Oct	30-Oct	31-Oct	1-Nov	2-Nov	3-Nov		
AM Peak	124	148	136	166	126	105	140		
PM Peak	124	138	131	165	127	125	141	1656	1577
0:00	10	11	16	9	11	18	15	11	13
1:00	1	11	10	12	12	15	8	9	10
2:00	4	10	11	7	6	8	8	8	8
3:00	1	3	7	12	12	13	4	7	7
4:00	5	8	9	8	8	1	6	8	6
5:00	13	20	15	6	17	21	7	14	14
6:00	33	34	53	49	33	30	29	40	37
7:00	65	76	99	93	82	55	47	83	74
8:00	119	116	136	166	122	94	88	132	120
9:00	124	135	126	142	123	85	90	130	118
10:00	101	140	122	151	126	84	140	128	123
11:00	102	148	127	161	121	105	134	132	128
12:00	83	99	122	128	109	105	118	108	109
13:00	93	129	117	159	108	121	115	121	120
14:00	110	113	131	161	127	109	93	128	121
15:00	124	123	113	165	109	118	141	127	128
16:00	102	126	124	134	120	125	114	121	121
17:00	96	138	120	102	95	97	63	110	102
18:00	56	101	95	86	77	57	48	83	74
19:00	45	56	52	55	64	39	40	54	50
20:00	16	54	51	57	34	28	34	42	39
21:00	0	22	26	24	37	13	16	22	20
22:00	0	29	22	20	31	27	7	20	19
23:00	0	17	27	19	15	16	11	16	15
Total	1303	1719	1731	1926	1599	1384	1376	1656	1577

7-19	1175	1444	1432	1648	1319	1155	1191	1404	1338
6-22	1269	1610	1614	1833	1487	1265	1310	1563	1484
6-24	1269	1656	1663	1872	1533	1308	1328	1599	1518
0-24	1303	1719	1731	1926	1599	1384	1376	1656	1577

Job No	N5332 - Coonabarabran
Client	Aurecon
Site	ATC 4 - Oxley Hwy (Week 2)
Location	Coonabarabran
Site No	4
Start Date	29-Oct-19
Description	Volume Summary
Direction	SB

MATRIX Traffic and Transport Data

Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	4-Nov	29-Oct	30-Oct	31-Oct	1-Nov	2-Nov	3-Nov		
AM Peak	97	128	130	152	128	107	103		
PM Peak	133	131	126	137	137	109	106	1635	1518
0:00	15	14	17	17	16	18	19	16	17
1:00	14	28	16	16	9	19	8	17	16
2:00	5	14	14	18	12	20	10	13	13
3:00	5	9	16	15	18	15	11	13	13
4:00	5	18	13	13	19	9	10	14	12
5:00	11	17	19	22	29	18	16	20	19
6:00	45	58	55	64	58	38	17	56	48
7:00	80	110	120	99	79	72	38	98	85
8:00	97	128	123	132	118	87	70	120	108
9:00	85	109	125	146	128	93	83	119	110
10:00	93	122	130	142	121	107	96	122	116
11:00	91	121	126	152	101	107	103	118	114
12:00	88	113	102	99	99	80	96	100	97
13:00	95	114	126	137	112	109	106	117	114
14:00	116	119	108	128	99	91	89	114	107
15:00	133	126	119	137	116	82	90	126	115
16:00	113	131	114	112	137	87	55	121	107
17:00	106	105	100	92	104	54	66	101	90
18:00	51	73	55	68	69	59	43	63	60
19:00	68	54	57	47	54	35	45	56	51
20:00	21	49	48	51	49	36	29	44	40
21:00	0	32	34	45	43	22	20	31	28
22:00	0	33	28	21	24	28	9	21	20
23:00	0	18	27	19	24	27	7	18	17
Total	1337	1715	1692	1792	1638	1313	1136	1635	1518

7-19	1148	1371	1348	1444	1283	1028	935	1319	1222
6-22	1282	1564	1542	1651	1487	1159	1046	1505	1390
6-24	1282	1615	1597	1691	1535	1214	1062	1544	1428
0-24	1337	1715	1692	1792	1638	1313	1136	1635	1518

Job No	N5332 - Coonabarabran
Client	Aurecon
Site	ATC 5 - Edwards St (Purlewaugh Rd) (Week 1)
Location	Coonabarabran
Site No	5
Start Date	22-Oct-19
Description	Volume Summary
Direction	EB

MATRIX Traffic and Transport Data

Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	28-Oct	22-Oct	23-Oct	24-Oct	25-Oct	26-Oct	27-Oct		
AM Peak	20	17	13	21	18	24	23		
PM Peak	34	34	40	30	27	21	24	246	230
0:00	1	1	0	0	2	0	1	1	1
1:00	2	1	0	0	0	0	1	1	1
2:00	0	0	0	0	1	1	0	0	0
3:00	0	1	0	0	0	1	1	0	0
4:00	0	0	0	0	1	0	0	0	0
5:00	3	1	1	0	4	1	0	2	1
6:00	11	5	5	5	9	4	2	7	6
7:00	15	11	12	5	9	4	7	10	9
8:00	16	9	8	12	8	7	4	11	9
9:00	15	15	11	13	18	6	11	14	13
10:00	20	17	13	12	12	24	23	15	17
11:00	12	11	12	21	12	14	21	14	15
12:00	21	11	12	12	19	21	17	15	16
13:00	11	12	13	12	17	11	13	13	13
14:00	8	13	13	19	18	15	9	14	14
15:00	18	31	27	23	21	10	11	24	20
16:00	34	34	29	24	27	12	12	30	25
17:00	24	32	40	30	27	12	17	31	26
18:00	14	28	19	16	16	13	24	19	19
19:00	6	12	10	13	13	4	9	11	10
20:00	12	12	10	5	12	7	8	10	9
21:00	4	3	3	3	4	4	5	3	4
22:00	1	3	2	0	2	4	4	2	2
23:00	2	0	0	2	0	0	0	1	1
Total	250	263	240	227	252	175	200	246	230
7-19	208	224	209	199	204	149	169	209	195
6-22	241	256	237	225	242	168	193	240	223
6-24	244	259	239	227	244	172	197	243	226
0-24	250	263	240	227	252	175	200	246	230

Job No	N5332 - Coonabarabran
Client	Aurecon
Site	ATC 5 - Edwards St (Purlewaugh Rd) (Week 1)
Location	Coonabarabran
Site No	5
Start Date	22-Oct-19
Description	Volume Summary
Direction	WB

MATRIX Traffic and Transport Data

Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	28-Oct	22-Oct	23-Oct	24-Oct	25-Oct	26-Oct	27-Oct		
AM Peak	36	55	37	47	39	29	27		
PM Peak	23	24	20	16	25	15	29	244	233
0:00	2	0	0	1	2	1	1	1	1
1:00	0	0	1	0	0	0	0	0	0
2:00	0	0	0	0	0	0	0	0	0
3:00	0	0	1	0	0	0	0	0	0
4:00	0	0	0	0	2	0	0	0	0
5:00	2	0	3	2	2	1	0	2	1
6:00	5	10	15	8	11	3	6	10	8
7:00	20	24	21	17	16	14	6	20	17
8:00	36	55	37	47	39	12	13	43	34
9:00	14	16	28	24	22	12	26	21	20
10:00	16	13	18	15	23	29	16	17	19
11:00	20	8	10	13	14	23	27	13	16
12:00	20	13	17	12	15	15	29	15	17
13:00	11	24	11	15	18	6	22	16	15
14:00	10	11	13	12	19	14	12	13	13
15:00	12	16	13	15	18	11	10	15	14
16:00	23	16	13	16	14	8	12	16	15
17:00	18	18	20	15	25	12	9	19	17
18:00	9	16	9	7	6	13	11	9	10
19:00	4	5	5	7	4	5	4	5	5
20:00	5	4	2	6	7	8	3	5	5
21:00	2	3	2	0	5	5	4	2	3
22:00	0	1	0	0	2	4	1	1	1
23:00	1	1	0	1	0	0	1	1	1
Total	230	254	239	233	264	196	213	244	233

7-19	209	230	210	208	229	169	193	217	207
6-22	225	252	234	229	256	190	210	239	228
6-24	226	254	234	230	258	194	212	240	230
0-24	230	254	239	233	264	196	213	244	233

Job No	N5332 - Coonabarabran
Client	Aurecon
Site	ATC 5 - Edwards St (Purlewaugh Rd) (Week 2)
Location	Coonabarabran
Site No	5
Start Date	29-Oct-19
Description	Volume Summary
Direction	EB

MATRIX Traffic and Transport Data

Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	4-Nov	29-Oct	30-Oct	31-Oct	1-Nov	2-Nov	3-Nov		
AM Peak	16	17	15	16	16	24	19		
PM Peak	30	31	29	29	33	18	17	241	222
0:00	1	1	0	0	1	0	0	1	0
1:00	0	0	0	0	0	1	0	0	0
2:00	0	0	1	0	1	0	0	0	0
3:00	0	0	1	0	0	3	0	0	1
4:00	0	0	0	0	0	0	0	0	0
5:00	2	0	0	1	1	1	2	1	1
6:00	9	13	15	10	8	3	1	11	8
7:00	5	16	15	11	14	6	2	12	10
8:00	16	7	8	11	8	11	3	10	9
9:00	13	17	12	14	11	11	8	13	12
10:00	16	11	8	16	14	15	10	13	13
11:00	14	16	12	13	16	24	19	14	16
12:00	17	17	16	15	23	16	16	18	17
13:00	6	10	18	15	17	11	11	13	13
14:00	14	16	8	12	17	14	11	13	13
15:00	22	21	19	27	28	14	8	23	20
16:00	30	31	28	29	33	18	17	30	27
17:00	27	22	29	19	26	14	8	25	21
18:00	13	20	14	21	12	18	12	16	16
19:00	14	9	5	10	6	8	12	9	9
20:00	10	13	14	10	6	4	5	11	9
21:00	1	8	1	5	9	4	1	5	4
22:00	0	1	0	2	2	3	1	1	1
23:00	0	0	2	2	2	1	1	1	1
Total	230	249	226	243	255	200	148	241	222
7-19	193	204	187	203	219	172	125	201	186
6-22	227	247	222	238	248	191	144	236	217
6-24	227	248	224	242	252	195	146	239	219
0-24	230	249	226	243	255	200	148	241	222

Job No	N5332 - Coonabarabran
Client	Aurecon
Site	ATC 5 - Edwards St (Purlewaugh Rd) (Week 2)
Location	Coonabarabran
Site No	5
Start Date	29-Oct-19
Description	Volume Summary
Direction	WB

Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	4-Nov	29-Oct	30-Oct	31-Oct	1-Nov	2-Nov	3-Nov		
AM Peak	42	39	40	47	35	28	22		
PM Peak	18	20	19	21	26	15	21	245	224
0:00	2	0	0	0	0	1	0	0	0
1:00	0	0	2	0	1	2	0	1	1
2:00	0	0	0	0	1	0	0	0	0
3:00	0	0	0	0	0	1	0	0	0
4:00	0	1	0	0	1	0	0	0	0
5:00	0	2	3	2	4	1	0	2	2
6:00	6	5	11	14	10	3	7	9	8
7:00	21	22	28	14	11	7	7	19	16
8:00	42	39	40	47	35	17	7	41	32
9:00	20	26	21	22	16	28	22	21	22
10:00	13	11	16	15	15	15	14	14	14
11:00	26	11	12	11	24	14	7	17	15
12:00	17	17	11	14	12	12	11	14	13
13:00	13	15	19	14	18	11	13	16	15
14:00	15	13	12	16	19	7	11	15	13
15:00	14	10	11	12	18	10	6	13	12
16:00	14	19	14	21	26	14	21	19	18
17:00	18	20	15	17	17	11	11	17	16
18:00	10	15	9	13	14	15	11	12	12
19:00	4	3	6	8	7	3	1	6	5
20:00	6	5	4	1	3	9	2	4	4
21:00	0	6	4	2	4	0	4	3	3
22:00	0	0	2	1	3	4	1	1	2
23:00	0	1	0	0	0	3	0	0	1
Total	241	241	240	244	259	188	156	245	224
7-19	223	218	208	216	225	161	141	218	199
6-22	239	237	233	241	249	176	155	240	219
6-24	239	238	235	242	252	183	156	241	221
0-24	241	241	240	244	259	188	156	245	224