



Bulloo Interlink Pipeline

Environmental Authority

Traffic Impact Assessment

Bulloo Interlink Pipeline Pty Ltd

June 2026



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Executive summary

The project

APA Bulloo Interlink Pipeline Pty Ltd (APA), which is part of the APA group of companies (the APA Group) is planning to develop the Bulloo Interlink Pipeline, an underground high-pressure gas pipeline linking the South West Queensland Pipeline in Queensland with the Moomba to Wilton Pipeline in New South Wales (NSW). The Queensland section of the Bulloo Interlink Pipeline (referred to as 'the project' for the purposes of this document) is approximately 236 kilometres (km) long. Overall, the pipeline has a total length of approximately 339 km and will provide a more direct route for natural gas to travel from Australia's northern production areas to southern gas markets.

This report

This report has been prepared by GHD Pty Ltd (GHD) as part of the environmental authority (EA) for the project. The EA supports an application for approval of the project in accordance with the *Environmental Protection Act 1994* (Qld) (EP Act).

The assessment considers the traffic and transport impacts associated with construction, operation and decommissioning activities, including the use of temporary accommodation facilities, laydown areas and construction compounds, and access to the construction right of way. The study area includes the state-controlled road network comprising Cooper Developmental Road and Bulloo Developmental Road, and the council-controlled road network comprising Warri Gate Road, Tickalara Road and Wompah Gate Road.

Existing conditions

The surrounding road network is characterised by very low existing traffic volumes, rural operating conditions, limited delineation and, in some locations, unsealed pavement and flood-prone sections. No reported crashes have occurred on the assessed road links during the review period. These existing conditions form the basis for assessing the potential effects of project-generated traffic.

Proposed development details

The proposed development comprises temporary accommodation facilities, construction compounds and supporting access infrastructure required to facilitate construction of the Bulloo Interlink Pipeline. Key elements include:

- Camp 1 and Pipe Stockpile 1 (Nockatunga construction compound), approved under a Material Change of Use application with Bulloo Shire Council
- Pipe Stockpile 2 on Wompah Gate Road
- Camp 2 near the Tickalara Road–Wompah Gate Road intersection
- temporary construction access tracks from both state-controlled and council-controlled roads to the construction right of way.

These facilities will operate for the duration of construction and are intended to support pipe delivery, temporary accommodation facility and construction logistics. Construction of the pipeline is proposed to commence (pending approvals) in early 2027, with commissioning expected to commence in mid-2028, followed by long-term operation and eventual decommissioning, and this staging has informed the timing and magnitude of traffic generation assessed in this report.

Development traffic

Construction of the project will generate temporary traffic associated with workforce movements, pipe haulage, equipment and plant mobilisation, camp servicing, and construction support activities. Peak construction traffic is forecast to occur over a limited two-week period, with a maximum of approximately 250 vehicle movements per day and up to 85 movements in the peak hour, while average construction traffic volumes are significantly lower for the majority of the construction period.

Traffic will be distributed across Cooper Developmental Road, Bulloo Developmental Road, Warri Gate Road, Tickalara Road and Wompah Gate Road, reflecting the location of temporary accommodation facilities, construction compounds and construction access points. Operational traffic will be minimal, limited to routine inspection and maintenance activities undertaken by a small number of personnel, while decommissioning traffic is expected to be less intensive than construction. Overall, while construction will result in measurable increases above existing low background traffic volumes, the traffic generation is temporary and has been assessed using conservative assumptions to inform subsequent impact and mitigation assessments.

Impact assessment and mitigation for state-controlled roads

The assessment of state-controlled roads (Cooper Developmental Road and Bulloo Developmental Road) found that construction traffic associated with the project is not expected to result in unacceptable impacts to road safety, capacity or operational performance. Road safety risk assessments indicate that existing risks will not worsen as a result of project traffic, and no new high-risk safety issues are introduced. Although temporary traffic increases of greater than 5 per cent above background volumes may occur during peak construction periods, absolute traffic volumes remain very low and well within the theoretical capacity of the road network, resulting in no material impact on level of service or intersection performance.

Pavement impact assessment indicates that construction traffic is expected to exceed standard axle repetition thresholds on sections of the state-controlled road network; however, these impacts are temporary and can be appropriately managed through standard mitigation measures, consultation with the Department of Transport and Main Roads, and agreed pavement management or contribution arrangements. Overall, the project can be accommodated on the state-controlled road network without unacceptable impacts, subject to implementation of recommended mitigation measures.

Impact assessment and mitigation for council-controlled roads

The assessment of council-controlled roads, including Warri Gate Road, Tickalara Road and Wompah Gate Road, found that construction traffic associated with the project can be accommodated without resulting in unacceptable impacts to road safety, capacity or network performance. Road safety assessments identified no worsening of existing risks, with two new low-level risks identified relating to heavy vehicle fatigue management and increased turning movements at temporary accommodation facility and construction compound access points; both risks are considered manageable through standard mitigation measures such as scheduling controls and advance warning signage.

While temporary traffic increases greater than 5 per cent may occur on Warri Gate Road during peak construction periods, absolute traffic volumes remain low and well within available road capacity, and no material impacts to level of service are expected. Pavement and infrastructure impacts on council-controlled roads are expected to be limited due to the short construction duration and low baseline traffic volumes, with consultation with Council recommended to confirm road suitability following recent weather-related damage. Overall, with implementation of the recommended mitigation measures, the project is not expected to result in unacceptable traffic or transport impacts on the council-controlled road network.

Acronyms and abbreviations

Abbreviation/term	Definition
AADT	Annual Average Daily Traffic
APA	APA Bulloo Interlink Pipeline Pty Ltd
AV	Articulated Vehicle
CRoW	Construction right of way
GHD	GHD Pty Ltd
GTIA	Guide to Traffic Impact Assessment
HRV	Heavy Rigid Vehicle
HV	Heavy vehicle
km	Kilometres
m	Metres
NHVR	National Heavy Vehicle Regulator
NSW	New South Wales
PCE	Passenger Car Equivalent
QLD	Queensland
SAR	Standard axle repetitions
TIA	Traffic Impact Assessment
TMR	Department of Transport and Main Roads

Glossary

Term	Definition
Construction right of way (CRoW)	The area that will be directly disturbed to construct the pipeline within the study area (includes the trench, temporary storage areas and construction manoeuvring areas). The nominal corridor width is up to 40 metres.
Floodway/s	A floodway consists of a length of pavement typically on a level grade that is designed to be overtopped by floodwater during relatively low average recurrence interval (ARI) floods usually in the 10 to 20 year range.
Pipeline alignment	The pipeline centreline.
Pipeline easement (the easement)	The permanent operational easement for the project that would be established to facilitate ongoing access and maintenance. Allows the pipeline operator a legal right to enter land to construct, operate and maintain the pipeline. It is registered on the underlying land title and remains on title. The nominal easement width for the project is 30 metres.
Pipe Stockpile area	The area where pipe is temporarily stockpiled before being loaded onto trucks and hauled to the CRoW for stringing.
Project	The project includes constructing, operating (including maintaining) and decommissioning approximately 236 km of underground natural gas transmission pipeline located in Queensland, and associated above ground infrastructure to connect to the South West Queensland Pipeline.
Project site	The term project site is used to refer to the land required to construct, operate (including maintain) and decommission the project, and defines the extent of land subject to project approval. The project site comprises the 40 metre wide construction right of way, within which the permanent 30 metre easement and surface operational facilities would be located. It also includes additional land required outside the construction right of way for temporary and ancillary facilities, including construction compounds, pipe stockpiles, temporary workspaces, temporary accommodation facilities, access track works, and land required to support the project's water servicing strategy.
Study area	The full extent of land with the potential to be directly or indirectly affected by the project (e.g. by noise and vibration, visual or traffic impacts), assessed for environmental values, including the project site, survey area, and surrounding context.
Survey area	The area physically surveyed on the ground, within and adjacent to the study area.

1. Introduction

1.1 Project overview

APA Bulloo Interlink Pipeline Pty Ltd (APA), which is part of the APA group of companies (the APA Group) is planning to develop the Bulloo Interlink Pipeline, an underground high-pressure gas pipeline that will link the South West Queensland Pipeline in Queensland with the Moomba to Wilton Pipeline in New South Wales (NSW).

The Bulloo Interlink Pipeline includes an approximately 236-kilometre (km) long section in Queensland, which will provide a more direct route for natural gas to travel from Australia's northern production areas to southern gas markets. The pipeline has a total length of approximately 339 km, comprising about 103 km in NSW.

The section of the Bulloo Interlink Pipeline located in Queensland (referred to as 'the project' for the purposes of this document) will require an environmental authority (EA) under the *Environmental Protection Act 1994* (Qld) (EP Act). Approval for the NSW section of the Bulloo Interlink Pipeline will be sought under a separate approval process in accordance with NSW legislation and approval requirements.

1.1.1 Location

The project is located within the Bulloo Shire local government area in the vicinity of the Noccundra township within the traditional Country of the Wangkumarra People and Kullilli People. The project site extends south from the tie-in point with the South West Queensland Pipeline for about 186 km, then traverses south-west for about 30 km, and south about 20 km to the Queensland–NSW border. The project location and key project features are shown in Figure 1.1.

1.1.2 Key project features

The project will be designed, constructed and operated in accordance with the *AS 2885 Pipelines – Gas and Liquid Petroleum* series of standards (AS 2885) and the Australian Pipelines and Gas Association (APGA) *Code of Environmental Practice – Onshore Pipelines* (APGA Code of Environmental Practice) (APGA, 2022).

The key operational features of the project include:

- an underground high pressure, steel gas transmission pipeline with a length of about 236 km
- a permanent easement of up to 30 metres (m)
- supporting surface infrastructure, including:
 - beginning of line facility, including a connection to the South West Queensland Pipeline
 - temperature control station, including main line valve
 - cathodic protection units
 - main line valve
 - pipeline marker signs
 - permanent access tracks.

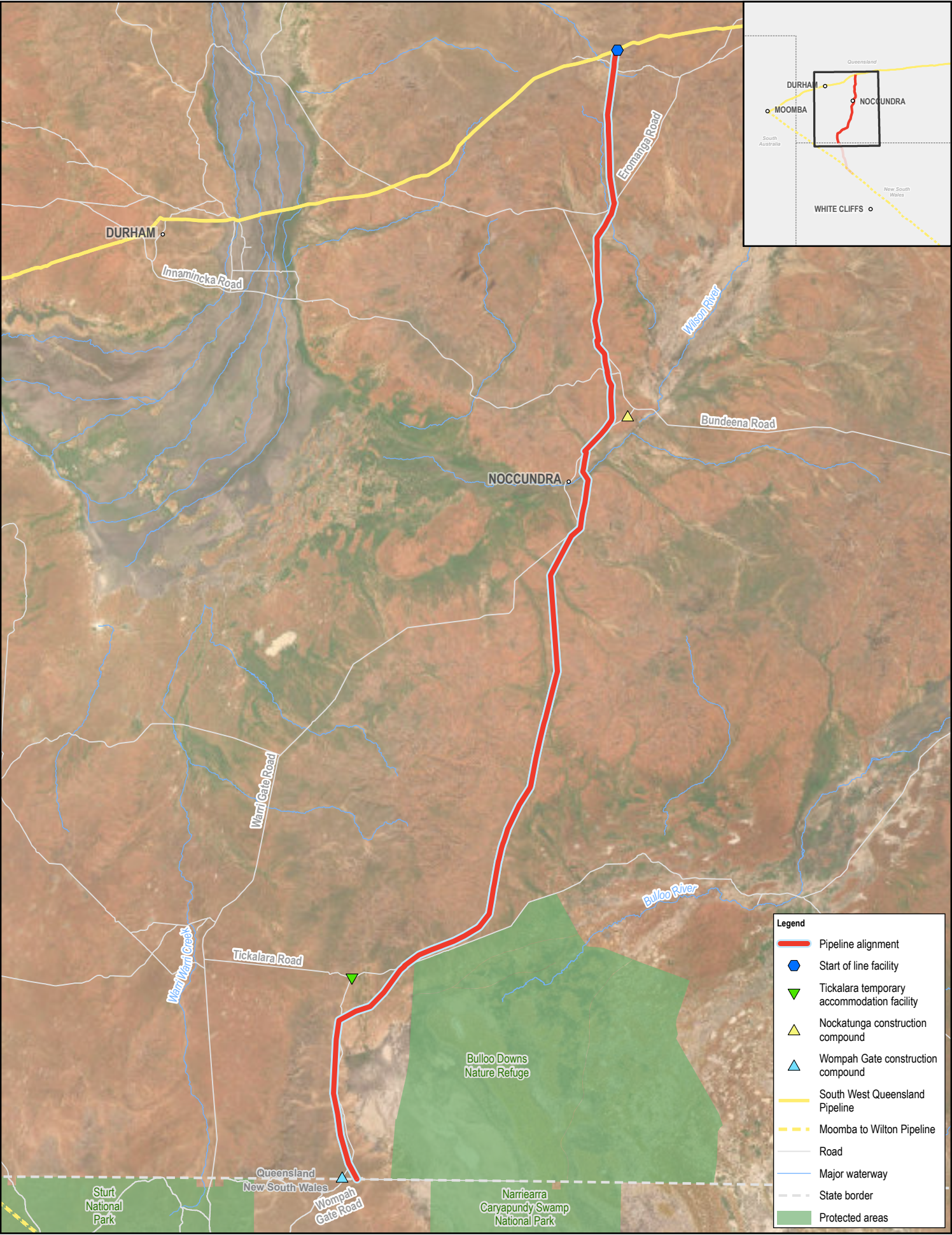
An approximately 40 m wide CRoW will be established to facilitate construction and access.

Key ancillary facilities and infrastructure outside the CRoW would include:

- a temporary accommodation facility located at the intersection of Wompah Gate Road and Tickalara Road
- a construction compound facility to stockpile line pipe located on Wompah Gate Road near the southern end of the project site.

Smaller temporary workspaces are also proposed at regular intervals along the CRoW to support construction activities.

Further information on the project's features and indicative construction methodology is provided in Chapter 4 (Project description) of the Environmental Authority Supporting Information Report.



1.2 Purpose and scope of this document

This report assesses the potential traffic and transport impacts in accordance with the environmental assessment requirements of the *Application requirements for petroleum activities guidelines* (DESI, 2024). This report:

- describes the existing environment with respect to the surrounding road network
- assesses the impacts of constructing, operating and decommissioning the project in relation to traffic and transport
- recommends measures to mitigate and manage the impacts identified.

The impacts associated with the establishment of pipe stockpile 1 and camp 1 have been considered in a separate traffic impact assessment report as part of a Material Change of Use application with Bulloo Shire Council, however this report will consider the operational impacts associated with the use of those facilities.

This TIA has been prepared using Austroads' *Guide to Traffic Management Part 12: Integrated Transport Assessments for Developments* (AGTM12) (Austroads 2020) and the Department of Transport and Main Roads (TMR) (2018) *Guide to Traffic Impact Assessments* (GTIA).

1.3 Report structure and content

The structure and content of this report are outlined in Table 1.1.

Table 1.1 *Structure and content*

Section	Description
Section 1 – Introduction	Outlines the key elements of the project, relevant requirements, and the purpose of this report (this section).
Section 2 – Legislative and policy context	Summarises the key legislative requirements and guidelines relevant to the project and this assessment.
Section 3 – Methodology	Describes the study area for the assessment.
Section 4 – Existing environment	Describes the existing environmental values of the study area and project site relevant to traffic and transport.
Section 5 – Proposed developmental details	Details the key project features and proposed development staging/timing.
Section 6 – Traffic generation	Examines the expected traffic generated by the project and the trip distribution.
Section 7 – Impact assessment and mitigation	Provides an assessment of the expected traffic impacts against the key criteria of the GTIA.
Section 8 – Conclusion and recommendation	Provides a summary of the expected impacts and proposed mitigation measures.
Section 9 – References	Provides a list of resources used within the report.

1.4 Limitations

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

GHD otherwise disclaims responsibility to any person other than Bulloo Interlink Pipeline Pty Ltd arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

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

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

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

2. Legislative and policy context

Table 2.1 presents an overview of the key legislation and policy that forms the regulatory framework for traffic impact assessments in Queensland. An overview of relevant transport policies and guidelines which are used when undertaking this assessment is presented in Table 2.2.

Table 2.1 Relevant transport legislation

Legislation	Description
<i>Transport Operations (Road Use Management) Act 1995</i>	The purpose of the <i>Transport Operations (Road Use Management) Act 1995</i> is to provide for the effective and efficient management of road use in the State of Queensland and provide a scheme for managing the use of State roads.
<i>Transport Planning and Coordination Act 1994</i>	The purpose of the <i>Transport Planning and Coordination Act 1994</i> is to improve the economic, trade and regional development performance of Queensland, and improve the quality of life of Queenslanders. This to be achieved through overall transport effectiveness and efficiency through strategic planning and management of transport resources.

Table 2.2 Relevant transport policies and guidelines

Policies and guidelines	Description
<i>South West Queensland Regional Transport Plan</i> (Department of Transport and Main Roads, 2019)	The South-West Queensland Regional Transport Plan sets out regional transport priorities and actions for developing the transport system in a way that supports regional goals for the community, economy and environment. They are fundamental within the hierarchy of integrated system planning and have an essential role in defining local responses to local community goals, system objectives, problems and priorities through the development of policy choices and transport system strategies at a regional level. The plan consists of four priorities: 1. Supporting economic development: a transport system that supports economic development through efficient access to domestic and international markets. 2. Enhancing liveability: a transport system that enhances liveability through connected communities. 3. Safe: a safer transport system. 4. Resilient: a resilient and responsive transport system.
<i>Strategic Plan 2023 – 2027 (Reviewed 2025-2026)</i> (Department of Transport and Main Roads, 2025))	The Strategic Plan defines TMR's direction over a 4-year horizon to “<i>create a single integrated transport network accessible to everyone</i>”. The key objectives to achieve this vision include: – Accessible – tailored connections for TMR's customers and workforce to create an integrated and inclusive network. – Safe – safe and secure customer journeys and TMR workplaces. – Responsive – network, services and workforce respond to current and emerging customer expectations. – Efficient – partnerships, integration, innovation and technology advance the movement of people and goods. – Sustainable – planning, investment and delivery outcomes support more liveable and prosperous Queensland.
<i>Road Safety Policy</i> (Department of Transport and Main Roads, 2022)	The objective of the Road Safety Policy is to ensure TMR has a robust approach to road safety, with the aim to deliver: – programs and projects focused on delivering the safety outcome that no individual road user is exposed to crash forces leading to fatal and serious injuries – road network design improvements, in conjunction with posted speed limits, providing an appropriate level of protection offered by the road environment – enhancement of policy, regulation and legislation as it relates to road users, road access and vehicle safety – public education and engagement strategies – corporate policies, procedures, and standards, with resulting actions to address risks and opportunities.

Policies and guidelines	Description
<i>Transport Coordination Plan 2017 – 2027</i> (Department of Transport and Main Roads, 2017)	The <i>Transport Coordination Plan (2017-2027)</i> provides a framework for the coordinated planning and management of transport in Queensland. This plan is consistent with and seeks to provide a transport-specific response to the Queensland Government's overall strategic planning for Queensland, including the government's objectives for the community and the State Infrastructure Plan. The plan is made according to the <i>Transport Planning and Coordination Act 1994</i> .
<i>Heavy Vehicle Safety Strategy 2021 – 2025</i> (NHVR, 2021)	The <i>Heavy Vehicle Safety Strategy 2021 – 2025</i> articulates the National Heavy Vehicle Regulator' (NHVR's) ambitions in relation to achieving better heavy vehicle safety outcomes, and reducing the number and seriousness of crashes involving heavy vehicles. The Strategy reflects a 'partnerships' approach, collaborating with regulatory, industry, and community partners to drive sustainable safety improvements for all road users.
<i>Guide to Traffic Impact Assessment</i> (Department of Transport and Main Roads, 2018)	The <i>Guide to Traffic Impact Assessment</i> (GTIA) provides an assessment framework for developments that can potentially impact on the safety, efficiency and infrastructure condition of road networks in Queensland. The GTIA outlines the assessment components and methodologies to incorporate in preparation of a traffic impact assessment and delivers advice on key mitigation strategies.
<i>Austroads Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings Management</i> (Austroads, 2020)	The <i>Austroads' Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings Management</i> provides guidance on the assessment of turn treatments at the critical intersections along the transport routes. Determining the need for auxiliary lanes is critical to the layouts of many intersections as turning lanes may be required to ensure that deceleration and storage of turning vehicles occur clear of the through traffic lanes.
<i>Guide to Road Design Part 4A Unsignalised and Signalised Intersections</i> (Austroads, 2023)	<i>Guide to Road Design Part 4A: Unsignalised and Signalised Intersections</i> provides road designers and other practitioners with guidance on the detailed geometric design of all at-grade intersections (excluding roundabouts). This Part contains information for the design of signalised and unsignalised intersections. Guidance is provided on intersection sight distances, including approach sight distance, safe intersection sight distance, and minimum gap sight distance. Left and right turn treatments are outlined including the incorporation of auxiliary lanes at intersections and the use and size of traffic islands.
<i>Guide to Traffic Management Part 12: Integrated Transport Assessments for Developments</i> (Austroads, 2020)	<i>Austroads Guide to Traffic Management Part 12 Integrated Transport Assessments for Developments</i> focuses on assessing and managing the traffic impacts of land-use developments. It provides guidance for planners and engineers on how to identify, analyse, and mitigate the effects that new developments may have on the surrounding road network. The guide outlines the land-use and transport planning context, covering topics such as travel demand, safety, parking, and access management. It also presents criteria for when impact assessments are required, along with a structured process for conducting them, including evaluation of safety, infrastructure, and environmental impacts. Example checklists, report structures, and traffic generation rates are included to support consistent and comprehensive assessments.
<i>Bulloo Shire Planning Scheme</i> (Bulloo Shire Council, 2019)	The <i>Bulloo Shire Planning Scheme</i> is the statutory framework that guides how land is used, developed, and protected within the Bulloo Shire. It sets the future direction for growth, ensuring sufficient land is allocated for housing, community facilities, industry, business uses, and environmental protection. The scheme helps prevent conflicts between incompatible land uses, promotes well-designed development, and supports efficient infrastructure provision such as roads, water, and sewer networks.
NHVR – Driver worker and fatigue (National Heavy Vehicle Regulator (NHVR), 2025)	The NHVR provides driver fatigue management requirements. The NHVR website contains multiple fatigue-related documents and guidance materials, not just a single policy. These include regulatory guidance, work & rest rules, exemptions, and industry-specific fatigue information, which together form the NHVR's fatigue management framework. Scheduling of vehicle movements for the project will need to consider the fatigue management requirements specified by NHVR.

3. Methodology

3.1 Assessment framework

This TIA has been prepared using Austroads' *Guide to Traffic Management Part 12: Integrated Transport Assessments for Developments* (AGTM12) (Austroads 2020) and the Department of Transport and Main Roads (TMR) (2018) *Guide to Traffic Impact Assessments* (GTIA).

3.2 Approach

The assessment adopted a desktop based methodology appropriate to the scale and duration of the proposed activities in a remote rural setting.

The methodology comprised:

- desktop review of the existing road environment, including geometry, surface condition, delineation, flooding susceptibility and surrounding land use
- review of available traffic volumes, crash history and road asset information from state and local government sources
- definition of the study area, based on roads likely to experience a material change in traffic conditions due to the project
- development of construction, operational and decommissioning traffic scenarios, informed by project information provided by APA
- traffic generation and distribution assessment, including consideration of peak daily and hourly conditions
- impact assessment addressing road safety, access arrangements, road link capacity, pavement loading and transport infrastructure suitability
- identification of mitigation measures, where required, to avoid or manage potential impacts.

No on site traffic surveys or formal site inspections were undertaken. This approach reflects data availability and the low traffic environment of the study area.

3.2.1 Data sources

The assessment relied on the following information sources:

- traffic volumes for state controlled roads from the Queensland Road Crash and Traffic Census (TMR, 2025), including Annual Average Daily Traffic (AADT) and heavy vehicle proportions
- crash history data from TMR's road crash database (January 2019 to June 2024)
- road asset and condition data (including pavement type and carriageway width) sourced from TMR datasets for state controlled roads and supplemented by desktop review for council controlled roads
- relevant planning and policy documents, including the Bulloo Shire Planning Scheme and applicable transport guidelines
- project traffic inputs, staging assumptions and servicing requirements, as well as site photographs of roads in the study area, provided by APA
- aerial imagery and available site photography used to review road cross sections, intersections, floodways and access constraints.

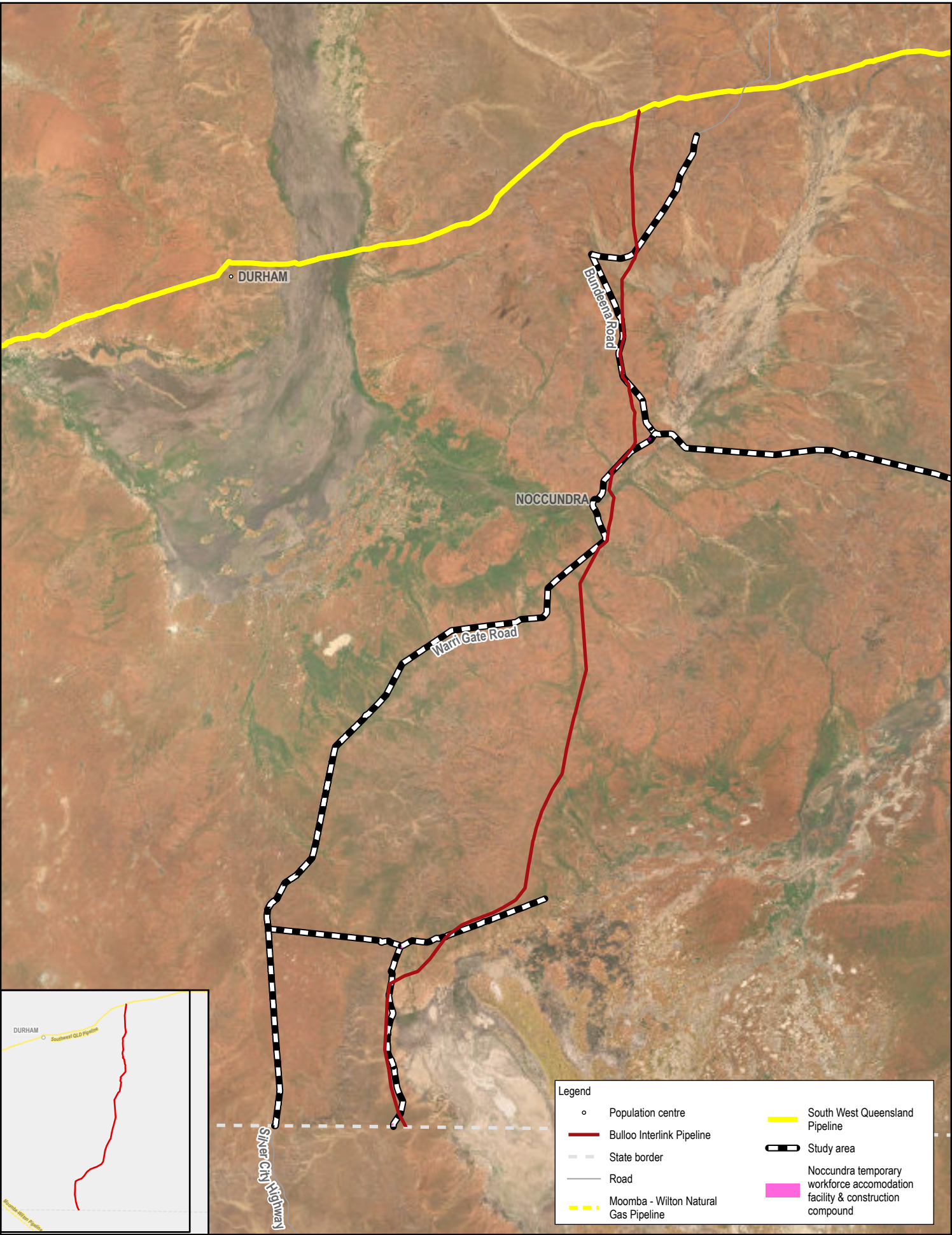
Traffic data is not available for council controlled roads within the study area. Given the rural context and very low traffic volumes on adjacent state controlled roads, traffic volumes on council roads have been conservatively inferred to be comparable or lower.

3.3 Study area

The study area for the assessment includes the project site, and roads and key intersections leading to and from the project site that have the potential to be directly or indirectly affected during construction and operation. These include:

- Warri Gate Road from the QLD-NSW border to its termination with Bulloo Developmental Road
- Cooper Developmental Road to the northernmost construction access track
- Bulloo Developmental Road from the intersection of Cooper Developmental Road to the township of Thargomindah
- Wompah Gate Road
- Tickalara Road.

The study area is shown in Figure 3.1.



Paper Size ISO A4
0 5 10 15 20
Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 54



APA



APA Group
Bulloo Interlink Pipeline

Project No. 12661648
Revision No. 0
Date 17/06/2026

Project study area

Figure 3.1

4. Existing environment

4.1 Land use and zoning

4.1.1 Nockatunga construction compound

Camp 1 and pipe stockpile 1 are located within Bulloo Shire on Lot 252/RP208578, known as Nockatunga Homestead, in Noccundra, approximately 115 km west of Thargomindah and 144 km north of the QLD-NSW border, and is classified as a rural zone under the Bulloo Shire Planning Scheme (Bulloo Shire Council, 2019).

The site has a disused landing strip within the area boundaries, surrounded in all directions by rural zoning and will be accessed via Warri Gate Road. Figure 4.1 shows the zoning allocation for the Nockatunga construction compound and the surrounding area.

The town of Noccundra, and the Noccundra Airstrip, are located approximately 17 km southwest of the Nockatunga construction compound. The local communities primary focus is on agricultural and resource-based industries. There are no other major land uses in the surrounding area.

4.1.2 Wompah Gate construction compound

The Wompah Gate construction compound (pipe stockpile 2) is located within Bulloo Shire on Lot 1322/PH1737, approximately 300 m north of the QLD-NSW border. The construction compound is located within and surrounded by lots all classified as rural zoning. Vehicle access to this construction compound is provided through Wompah Gate Road. Figure 4.1 illustrates the zoning allocation for the construction compound.

4.1.3 Tickalara temporary accommodation facility

The Tickalara temporary accommodation facility (camp 2) is located within Lot 468/PH1653 in Bulloo Shire and is located on the south-eastern side of the Tickalara Road / Wompah Gate Road intersection. The camp is located within and surrounded by lots all classified as rural zoning. Vehicle access can be provided through either Wompah Gate Road or Tickalara Road. Figure 4.1 illustrates the zoning allocation for the camp.

4.1.4 Construction access tracks

The construction access tracks spread along the CRoW are all located within the Bulloo Shire Council local government area and classified as rural zone under the Bulloo Shire Planning Scheme (Bulloo Shire Council, 2019).



4.2 Existing road network

4.2.1 Road network details

Table 4.1 summarises the characteristics of key roads that will be used for access to the pipeline CRoW, temporary accommodation facilities and construction compounds.

Table 4.1 Road attributes

Road attribute	Warri Gate Road (Figure 4.2)	Cooper Developmental Road (Figure 4.3)	Bulloo Developmental Road (Figure 4.4)	Wompah Gate Road (Figure 4.5)	Tickalara Road (Figure 4.6)
Jurisdiction	Bulloo Shire Council (BSC)	TMR	TMR	BSC	BSC
BSC road classification	Primary road	State highway	State highway	Secondary Road	Secondary Road
Speed limit (km/h)	100 (rural default)	100	100	100 (rural default)	100 (rural default)
Lane formation	Two-lane / two-way	Two-lane / two-way	Two-lane / two-way	Two-lane / two-way	Two-lane / two-way
Sealed width	5 m	5 m	5 m	Unsealed	Unsealed
Road lighting	Nil	Nil	Nil	Nil	Nil

Figure 4.2 shows the current road formation of Warri Gate Road, a major connector to NSW (Bulloo Shire Planning Scheme).



Figure 4.2 Warri Gate Road – typical cross section

Figure 4.3 shows the current road formation of Cooper Developmental Road, approximately 16 km north-east of the intersection of Bulloo Developmental Road / Cooper Developmental Road.



Figure 4.3 *Cooper Developmental Road – typical cross section*

Figure 4.4 shows the current road formation of Bulloo Developmental Road, approximately 1 km east of Warri Gate Road. The Bulloo Developmental Road “carries significant volumes of heavy transport in support of the beef and oil and gas industries” (Bulloo Shire Planning Scheme).



Figure 4.4 *Bulloo Developmental Road – typical cross section*

The typical cross sections of the council-controlled roads of Wompah Gate Road and Tickalara Road are shown in Figure 4.5 and Figure 4.6, respectively.



Figure 4.5 *Wompah Gate Road typical typology*



Figure 4.6 *Tickalara Road typical cross section*

4.2.2 Crash history

TMR provides an online crash dataset with information on the location and characteristics of crashes in Queensland for all reported road traffic crashes from 1 January 2001 to 30 June 2024. This dataset contains information on crashes reported to the police that resulted from the movement of at least one road vehicle on a road or road-related area. Information held in the road crash database on events occurring within the last 12 months is considered preliminary, as investigations into crashes can take up to one year to finalise. It is noted that this dataset does not include any “property damage only” crashes recorded over the analysis period.

A review of the crash database between January 2019 and June 2024 was conducted on the key roads within the study area and found that no crashes have been reported on these roads during the analysis period.

4.2.3 Existing road network demands

Table 4.2 summarises the traffic data sourced from TMR for both Cooper Developmental Road and Bulloo Developmental Road. The data included 2024 Annual Average Daily Traffic (AADT) volumes, directional split and heavy vehicle percentages.

Table 4.2 *Bulloo Developmental Road – traffic data*

Road	Census station ID	Two-way AADT	Gazettal AADT	Against gazettal AADT	Heavy vehicle %
Cooper Developmental Road	40538	38	18	20	46%
Bulloo Developmental Road (north of Warri Gate Road)	40505	35	18	17	61%
Bulloo Developmental Road (south of Warri Gate Road)	40506	36	18	18	37%
Bulloo Developmental Road (north of Thargomindah)	40378	61	31	30	38%

There is currently no traffic data available for the council-controlled roads of Warri Gate Road, Wompah Gate Road, and Tickalara Road. Given the rural nature of the area and the low daily traffic volume of both Bulloo Developmental Road and Cooper Developmental Road, it is likely that the AADT of these council-controlled roads to be the same if not lower.

4.2.4 Existing road safety issues

A desktop review of the current road safety issues was conducted on roads within the study area through a combination of aerial imagery, Google Streetview, and on-site photography. This review aims to understand the existing road safety issues of the road network proposed to be utilised by the project traffic that may need to be addressed, or at the minimum, ensure the issue is not significantly worsened.

The findings are outlined in Table 4.3.

Table 4.3 *Road safety issues*

Reference	Findings
Road condition	- Sections of Warri Gate Road are currently unsealed and are understood to be in the process of being sealed. At sections where floodways are unsealed, damage to the ground surface were observed. Heavy vehicles (especially loaded) have an extremely high risk of being immobilised at these muddy, slippery locations, post heavy rain weather events. - The sections of Warri Gate Road, and the entirety of Tickalara Road and Wompah Gate Road, which are unsealed could have an increased risk of all crash types, especially an increased risk in off-carriageway type crashes due to the inadequate skid resistance.
Road cross section	- Bulloo Developmental Road and Cooper Developmental Road feature a narrow carriageway width of approximately 5 m, with no sealed road shoulder. Two-way movement, especially when a heavy vehicle is involved, is likely to require one vehicle to stop or utilise the unsealed shoulder to let the other pass. There is an increased risk of head-on and off-carriageway type crashes as a result. - Warri Gate Road features a narrow carriageway width of approximately 5 m, with no sealed road shoulder. Two-way movement, especially when a heavy vehicle is involved, is likely to require one vehicle to stop or utilise the unsealed shoulders to let the other pass. There could be an increased risk of head-on and off-carriageway type crashes as a result. - Tickalara Road and Wompah Gate Road are unsealed with varying carriageway widths. Typically, these widths are found to be wider than 5 m, however the edges of the carriageway would be expected to be less traversable than a sealed carriageway. There could be an increased risk of head-on and off-carriageway type crashes as a result, especially during low light conditions.
Intersections	Metal grids are located along Cooper Developmental Road and Bulloo Developmental Road with a posted speed limit of 100 km/h. While advanced warning signage is provided, unfamiliar drivers, or drivers during low-light conditions may have trouble identifying these.
Lighting	No street lighting is provided at any location along the surrounding road network. While this is expected due to the rural conditions of the road network, visibility is expected to be poorer during low-light conditions. There is an increased risk of off-carriageway type crashes as a result.

Reference	Findings
Pavement markings and delineation	None of the utilised roads feature any line marking, such as edge and centrelines. Driver guidance along these roads may be worsened as a result, however some mitigation in the form of the guideposts along the edges of the road at corners of the road with small horizontal curve radii and along floodways/culverts, is present.
Signage	None of the flood ways on the unsealed road sections along the Council roads of Warri Gate Road, Tickalara Road, or Wompah Gate Road are sign posted. Unfamiliar or new drivers during low light conditions may travel over these flood ways at high speeds resulting in an increased risk off out of control, off-carriageway type crashes or being immobilised at the flood ways.
Animal conflicts	Due to the rural nature of the project, workers will travel on roads with high potential of animal conflicts. There is an increased risk of on carriageway animal crashes and off-carriageway type crashes (i.e. run off road and point hazards in run off areas).
Flooding	- Bulloo Developmental Road and council-controlled roads Warri Gate Road, Tickalara Road, and Wompah Gate Road are located within the Queensland floodplain assessment overlay (as per Bulloo Shire Council's Planning Scheme). The roads are subject to flooding as there are no drainage features. - Warri Gate Road, Tickalara Road, and Wompah Gate Road, post heavy rain weather events are frequently damaged due to flooding in the area resulting in either unsafe or untraversable road sections. Off-carriageway type crashes may increase as heavy vehicles travel on shoulders to avoid damaged road sections. Flooding could also result in travel delays. - Flash flooding is also expected to occur due to the rural dry conditions of the road corridor; drivers would likely be required to stop (or potentially travel back) during these types of rain events. Typically, if any rain event sees 15 mm or more rain fall, unsealed roads are closed for at least 24 hours.
Road works	Warri Gate Road is currently undergoing sealing works along the southern end of the road corridor. Depending on the traffic management arrangement, vehicles may need to wait at designated overtaking bays or detour on the shoulder / clear zone of the road.
Transport infrastructure	- There are minimal rest areas along the road corridors. Noting the significant length of roads between populated areas, drivers are more likely to drive fatigued due to lack of these areas. - There are no passing bays along road corridors. These roads have high posted speed limits and a high proportion of use by heavy vehicles resulting in high probabilities of light vehicles overtaking. The lack of these formal bays increases risk of run off road type crashes.

4.3 Future conditions

4.3.1 Future transport network planning

A review of the *Local Government Priority Infrastructure Plan* (Bulloo Shire Council, 2019)) and the associated mapping does not reveal any imminent future road upgrades within the vicinity of the study area

The Remote Roads Upgrade Pilot Program (Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts, n.d.) is a national initiative that funds road improvement projects in regional communities to address significant deficiency on key regional and rural roads. Stage One of the Remote Roads Upgrade Pilot Program has seen approximately 20 km of the Warri Gate Road corridor obtain sealing treatment to key areas. This stage is understood to be underway currently at the time of this report.

As part of the Roads to Recovery Program, construction is also underway to raise low-level sections of Warri Gate Road and install levelling culverts/pipes to enable water to move under the road. These upgrades are localised to specific sections of the road corridor and do not encompass a corridor-wide upgrade.

Furthermore, recent rain events have also required Council to tender for road repairs along Warri Gate Road. These repairs are isolated to specific areas of the road corridor.

4.3.2 Background traffic growth

To forecast the future background traffic volumes, the growth rates have been sourced from the *Traffic census for the Queensland state-declared road network* (Department of Transport and Main Roads, 2025) for the state-controlled roads of Cooper Developmental Road and Bulloo Developmental Road.

This dataset provides annual growth rates over a 1, 5-, and 10-year periods. Typical for traffic impact assessments, the annual growth rate over a 5-year period was selected. These rates are indicated in Table 4.4.

Table 4.4 *Historical traffic data*

Road (location of traffic count)	Station number	Direction	Growth over past 5 years
Cooper Developmental Road (6 km S/W of Webber St (Eromanga))	40538	Gazettal	-5.5% p.a.
		Against Gazettal	-4.4% p.a.
		Both Directions	-4.9% p.a.
Bulloo Developmental Road (1.15 km North of Innamincka Rd)	40505	Gazettal	4.0% p.a.
		Against Gazettal	4.8% p.a.
		Both Directions	4.3% p.a.
Bulloo Developmental Road (2.62 km N of Warri Gate Rd)	40506	Gazettal	6.5% p.a.
		Against Gazettal	9.7% p.a.
		Both Directions	8.0% p.a.
Bulloo Developmental Road	40378	Gazettal	8.0% p.a.
		Against Gazettal	6.7% p.a.
		Both Directions	7.3% p.a.

Based on the data presented above, an 8.01 per cent (%) per annum growth rate was selected for the entire Bulloo Developmental Road corridor (which is the highest both-direction growth rate recorded). Where a negative growth rate is identified along a road corridor, a conservative 0% per annum growth rate was selected. This 0% growth rate will apply for the entire Cooper Developmental Road corridor that is being assessed. These growth rates will be adopted for the purposes of forecasting the future background traffic demands, calculated in section 4.3.3.

4.3.3 Future background traffic demands

Based on the adopted growth rates described in section 4.3.2, the future year background traffic volumes are indicated in Table 4.5. These have been forecast to the anticipated peak construction year of the project in 2027. Further information on the project's staging is provided in section 5.2.

Table 4.5 *Future background traffic demands*

Road	Forecast 2027 Two-way AADT	Forecast 2027 Gazettal AADT	Forecast 2027 Against gazettal AADT
Cooper Developmental Road	38	18	20
Bulloo Developmental Road (north of Warri Gate Road)	40	21	20
Bulloo Developmental Road (south of Warri Gate Road)	48	24	24
Bulloo Developmental Road (north of Thargomindah)	75	39	36

4.3.4 Future lane uses / approvals

No relevant major future projects in the vicinity of the project site have been identified from the Queensland Department of Housing and Public Works website that would be developed concurrently with the project. In addition, review of the Queensland Government's Development Assessment Mapping System and BSCs statement of reasons, has identified no major traffic generating development is expected to be constructed or completed during the construction period of the project.

5. Proposed development details

5.1 Development site plans

5.1.1 Camp 1 and pipe stockpile 1

Camp 1 and stockpile 1 are proposed to be located within Lot 252 RP208578, approximately 17 km north east of the Noccundra Airstrip, and approximately 115 km west of the Thargomindah township. Figure 7.4 shows the location of the Nockatunga construction compound.

The Nockatunga construction compound contains a temporary accommodation facility (camp 1) as well as a construction compound (stockpile 1) with the main function being for a main pipe receipt and laydown area, equating to the storage of approximately 210 heavy wall pipe components, and 8,000 light wall components (approximately 143 km of pipe length) in total at this location.

As the project progresses (i.e. pipeline construction begins), other uses will come online to support the construction activities, including:

- offices and staff amenities and their associated car parking
- bunded fuel/hazardous material storage and refuelling area
- vehicle wash bays
- maintenance areas.

The ultimate design of the temporary accommodation facility and construction compound are expected to be finalised as part of later stages of the project, however, are expected to accord with Bulloo Shire Planning Scheme requirements in terms of car parking provision and internal manoeuvrability.

5.1.2 Pipe stockpile 2 on Wompah Gate Road

The Wompah Gate construction compound is located on Wompah Gate Road near the southern end of the project and about 300 m north of the QLD-NSW border, about 2.1 km west of the project site. The exact design of the construction compound has not been finalised however is expected to accord with the relevant standards and codes. As part of the later design stages of the construction compound and project, an assessment of the design requirements is recommended to be completed.

5.1.3 Camp 2

The Tickalara temporary accommodation facility is located at the intersection of Wompah Gate and Tickalara roads, about 7.5 km west of the project site. The exact design of the camp has not been finalised, however is expected to accord with the relevant standards and codes. As part of the later design stages of the camp and project, an assessment of the design requirements is recommended to be completed.

5.1.4 CRoW vehicle access points

To access the pipeline alignment, construction tracks from the state-controlled roads of Cooper Developmental Road and Bulloo Developmental Road, as well as from the council-controlled roads of Warri Gate Road, Tickalara Road and Wompah Gate Road are proposed.

These access tracks are proposed to be unsealed (i.e. gravel) however are anticipated to be maintained to appropriate standards for the safe and efficient use by heavy vehicles throughout the project construction period. As part of the detailed construction planning expected in later stages of the project, investigations and confirmation on the required access track width, provision of turning areas or passing bays are expected to be made.

5.2 Development staging

The construction of the project is planned to be completed for approximately 11 months (not including time spent establishing camp 1 and pipe stockpile 1), starting in March 2027 and ending in January 2028. Minor pipeline commissioning works are expected to be conducted after construction is complete, with the full pipeline expected to be operational sometime in June 2028.

Construction is proposed to commence (pending approvals) in mid 2027, with operation expected to commence in mid-2028. Operation activities will be undertaken in accordance with relevant approvals and standards.

Once the pipeline has come to the end of its useful life all surface facilities will be removed. The pipeline will then be decommissioned in accordance with relevant legislation and guidelines including the legislative requirements of the day (currently the *Petroleum and Gas (Production and Safety) Act 2004*), relevant Australian Standards (AS) (currently AS 2885) and in consultation with relevant regulatory authorities.

The indicated dates and duration of the project are detailed in Table 5.1.

Table 5.1 *Development staging (pending approval timing)*

Project activity	Date	Duration
Construction & commissioning phase	March 2027 – July 2028	Approximately 11 months
Operational phase	June 2028 – June 2068	Approximately 40 years
Decommissioning phase	June 2068 – June 2069	Approximately 12 months

6. Traffic generation

To accurately determine the expected impacts on the road network, traffic generation data and indicative schedule for each activity has been provided by APA has been refined to a temporal traffic demand throughout the construction period.

The trip generation, distribution of the traffic, and the temporal demand throughout the construction period is outlined in the following sections.

6.1 Construction vehicle trip generation

The trip generation for the pipeline construction activities will consist of the following:

- Pipe stockpile 2 line pipe haulage (to construction compound)
- Pipe delivery from construction compounds to CRoW
- Pipe stockpile 2 and camp 2 establishment workforce
- Pipe stockpile 2 operational workforce
- Camp 1 and 2 operational workforce
- Camp 1 and 2 servicing deliveries
- Construction servicing deliveries (i.e. fuel, water, etc.)
- Camp FIFO transport.

The calculations of the above activities in terms of vehicle trip generation are detailed in Appendix A. Due to the preliminary nature of the details provided for the construction activities, the traffic generation has typically been taken as an average throughout the nominated timeframe. Where data allows, the varying levels of traffic generation throughout the construction period or activity have been noted and included.

The resulting temporal demand over the construction period based on the construction activities is outlined below.

6.1.1 Daily trip generation

The temporal trip generation based on the month's peak daily traffic generation as a result of each construction activity is outlined in Table 6.1 and graphed in Figure 6.1.

This finds the traffic generally ramps up from the start of the construction period before reaching a maximum peak during the months of August and September 2027. Some reduction in traffic is expected afterwards with a maintained high traffic generation, before a significant ramp down during the tail-end of the construction period.

A detailed daily trip generation table that outlines each construction activity is provided in Appendix B.

Table 6.1 *Construction temporal demand – daily*

	Construction month										
	Mar 2027	Apr 2027	May 2027	Jun 2027	Jul 2027	Aug 2027	Sep 2027	Oct 2027	Nov 2027	Dec 2027	Jan 2028
Peak daily construction traffic (veh)	12	5	63	116	144	228	250	193	67	67	67

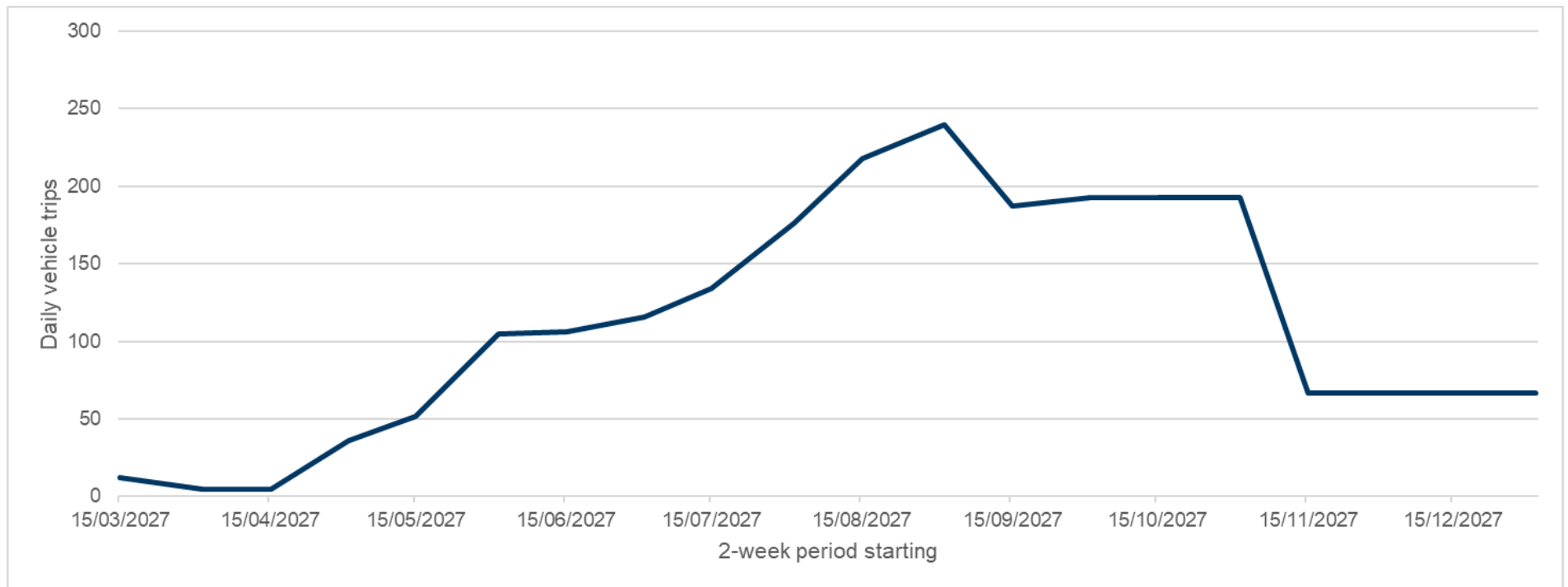


Figure 6.1 *Daily temporal traffic demands*

6.1.2 Peak hour trip generation

The temporal peak hour trip generation expected as a result of all the construction activities is outlined in Table 6.2 and graphed in Figure 6.2. The peak hour trip generation generally reflects the findings of the daily trip generation, with the highest hourly traffic generation expected to occur in August and September 2027.

A detailed peak hour trip generation table that outlines each construction activity is provided in Appendix B.

Table 6.2 *Construction temporal demand – hourly*

	Construction month										
	Mar 2027	Apr 2027	May 2027	Jun 2027	Jul 2027	Aug 2027	Sep 2027	Oct 2027	Nov 2027	Dec 2027	Jan 2028
Peak hourly construction traffic (veh)	6	5	24	34	43	74	85	65	65	19	19

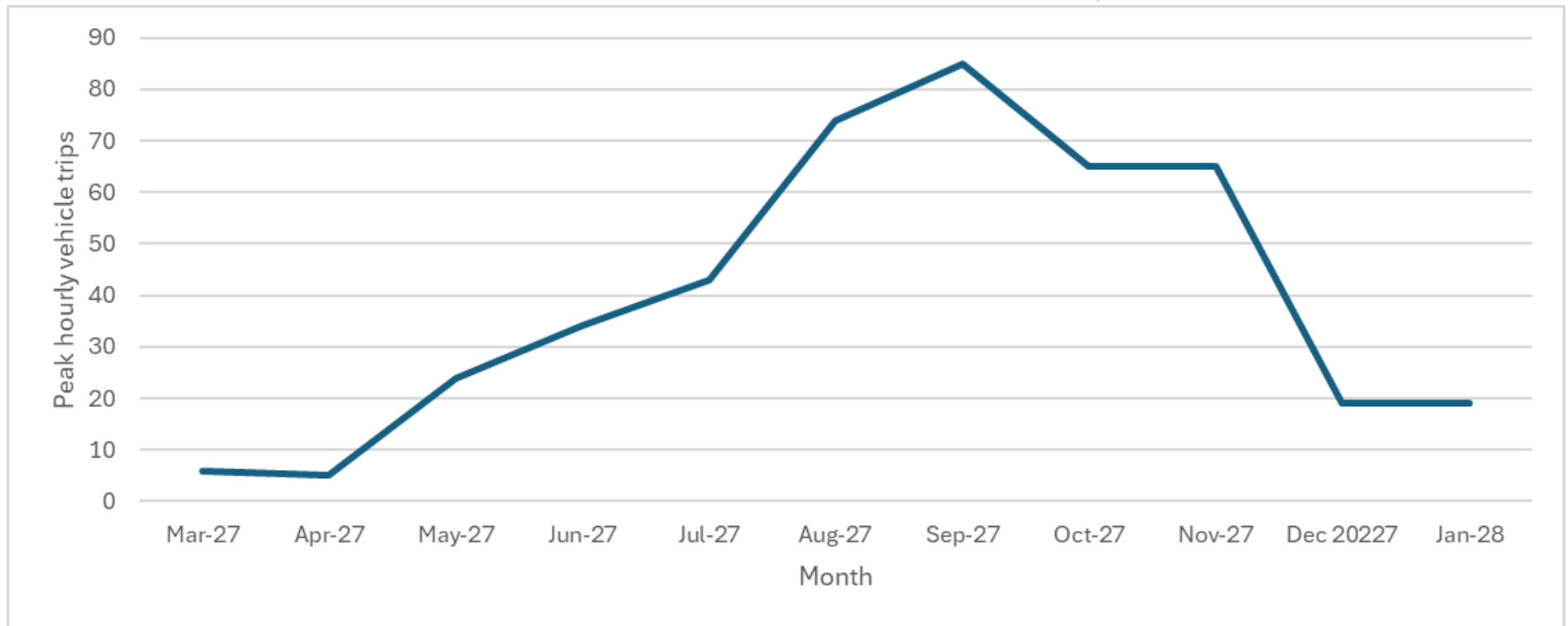


Figure 6.2 *Peak hourly temporal traffic demands*

6.2 Trip distribution

The trip distribution of the key construction activities along the road network is described below. The provisional routes/roads each activity is expected to utilise is shown in Figure 6.3 to Figure 6.12.

Pipe stockpile 2 establishment workforce

The pipe stockpile 2 establishment workforce are expected to be based in Tibooburra, New South Wales, travelling north to the pipe stockpile 2 site utilising NSW roads, before using Wompah Gate Road within QLD.

Pipe stockpile 2 - line pipe haulage

The haulage of the pipes to pipe stockpile 2 will originate from NSW from Broken Hill. These vehicles will utilise Wompah Gate Road within QLD travelling approximately 600 m to the construction compound. For the return trip, these vehicles are expected to travel back to NSW by travelling 600 m down to the QLD-NSW border.

Equipment and plant mobilisation

For the mobilisation of the equipment and plant, these vehicles have been assumed to originate from QLD, travelling from the direction of Thargomindah and utilising Bulloo Developmental Road to the pipe stockpile 1. Once construction activities begin, the equipment will be transported to the first CRoW area in which they will remain, moving south as the construction activities move south. No regular vehicle movements from the CRoW to any construction compound or temporary accommodation facilities are expected.

Camps servicing

For the servicing of the camps, APA has advised that this is expected to be a mixture of deliveries freighted from Adelaide and from Thargomindah Airport. Using a 50:50 ratio from Adelaide and Thargomindah Airport, the use of Warri Gate Road, Tickalara Road and Bulloo Developmental Road is expected for this activity.

Stockpiled pipe delivery to CRoW

The routes that pipe delivery trucks will use to the CRoW will vary depending on the stage of pipeline construction.

Pipe deliveries from pipe stockpile 1 are expected to utilise Cooper Developmental Road and Bulloo Developmental Road to access the northern sections of the pipeline, as well as Warri Gate Road for the sections of the pipeline south of the camp 1.

Pipe deliveries from pipe stockpile 2 are expected to utilise Tickalara Road and Wompah Gate Road.

Pipe stockpile 2 haulage workforce

The pipe stockpile 2 haulage workforce are expected to work at this site once Camp 2 is operational. This would result in the workforce travelling the short journey north and south of Wompah Gate Road.

Pipeline construction servicing deliveries

The pipeline construction servicing deliveries are expected to mainly consist of vehicle trips stemming from the deliveries of fuel and water, as well as the removal of construction waste from the ROW. Sources of these materials will be confirmed as part of the later design stages of the project. For the purposes of the assessment, a 50:50 split from NSW and QLD was assumed, resulting in the use of Bulloo Developmental Road and Warri Gate Road for the pipeline construction activities near camp 1. For the pipeline construction servicing activities near camp 2, the use of Wompah Gate Road and Tickalara Road is expected.

Camp 2 establishment workforce

For the establishment of camp 2, the crew is expected to travel from Tibooburra. This will involve the use of NSW roads, and Wompah Gate Road within QLD.

Camp 2 construction materials delivery

For the establishment of camp 2, these materials have been assumed to originate from NSW using Wompah Gate Road.

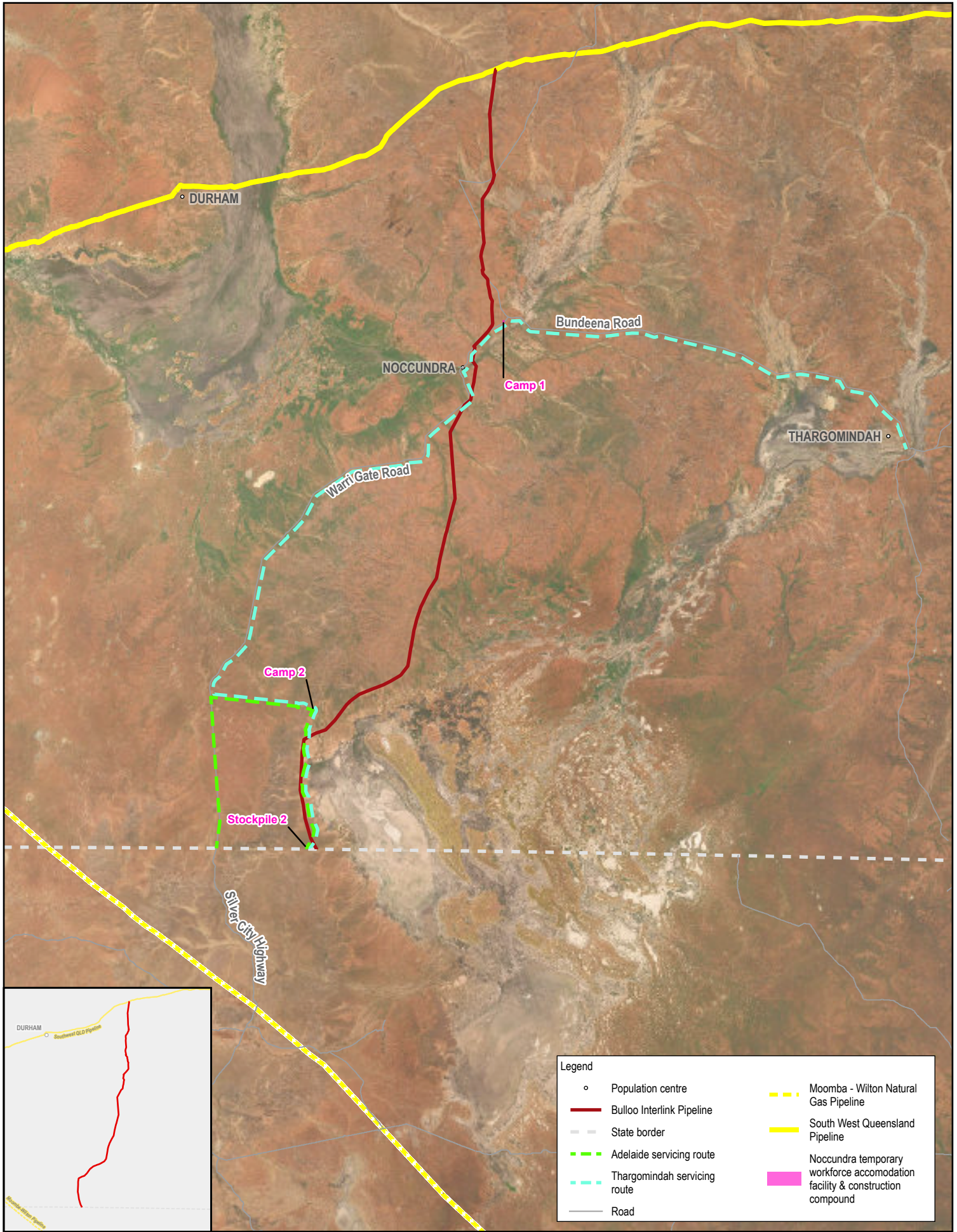
Camp FIFO buses

The camp 1 FIFO buses are expected to travel to and from the direction of Thargomindah to camp 1. This will result in the use of Bulloo Developmental Road and Warri Gate Road for the transport of workers to camp 1.

The camp 2 FIFO buses are expected to originate from Broken Hill NSW, and will utilise NSW roads and Wompah Gate Road within QLD.







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Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 54



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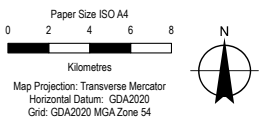
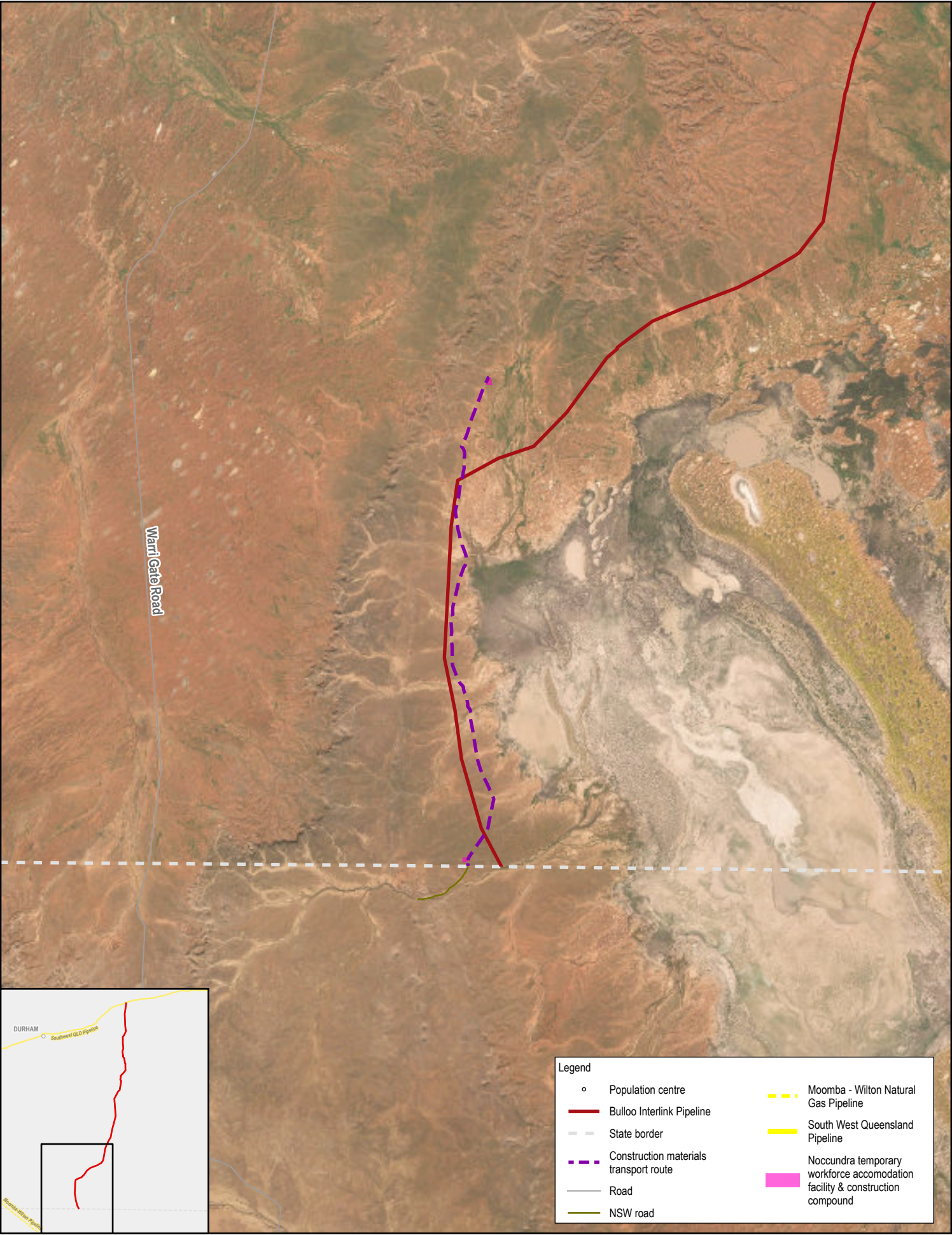
APA Group
Bulloo Interlink Pipeline

Project No. 12661648
Revision No. 0
Date 17/06/2026

**Stockpile 2 - Pipeline construction
servicing deliveries transport routes**

Figure 6.9a





APA



APA Group
Bulloo Interlink Pipeline

Camp 2 construction
materials transport routes

Project No. 12661648
Revision No. 0
Date 17/06/2026

Figure 6.11

6.3 Construction traffic volumes

Based on the peak temporal construction trip generations calculated in section 6.1, and the distribution of these trips within the study area in section 6.2, the peak daily design construction traffic volumes expected for the roads within the study area are outlined in Table 6.3.

As the scheduling of use of the CRoW is not yet finalised, a conservative approach in which the peak trip generation is applied to each road link has been undertaken.

Table 6.3 Daily trips on road links

Road Name	Peak daily trips
Cooper Developmental Road	138
Bulloo Developmental Road	159
Warri Gate Road	178
Wompah Gate Road	112
Tickalara Road	123

For the purposes of assessment in peak hours, the peak hourly construction traffic volumes for the purposes of the assessments are outlined in Table 6.4. As the scheduling of use of the CRoW is not yet finalised, a conservative approach in which the peak trip generation is applied to each road link has been undertaken.

Table 6.4 Hourly trips on road links

Road Name	Peak hourly trips
Cooper Developmental Road	56
Bulloo Developmental Road	59
Warri Gate Road	168
Wompah Gate Road	45
Tickalara Road	47

6.4 Operational traffic volumes

Operation of the pipeline is expected to commence in mid-2028. The pipeline would be designed to operate with a minimum of operator intervention using a supervisory control and data acquisition (SCADA) system for system sequencing, alarm monitoring and control.

A routine operation and maintenance program would be implemented, which would include external coating surveys, ground and/or aerial patrols, repair or replacement of faulty/damaged components, internal cleaning of the pipeline, corrosion monitoring and remediation, and easement maintenance.

Operation of the pipeline would require about four personnel consisting of field and control room staff. It is likely that field staff would be based in Cobar while the control room staff would operate from the APA Brisbane office.

Field staff would be responsible for day-to-day maintenance and patrolling of the pipeline. Control room staff would remotely monitor and control gas flows into and out of the pipeline via SCADA and coordinate field staff activities on the pipeline as required.

The peak operational traffic volumes for the day and peak hour are outlined in Table 6.5.

Table 6.5 *Operational traffic volumes on road links*

Road Name	Peak daily trips	Peak hourly trips
Cooper Developmental Road	8	4
Bulloo Developmental Road	8	4
Warri Gate Road	8	4
Wompah Gate Road	8	4
Tickalara Road	8	4

6.5 Decommissioning traffic volumes

Decommissioning would involve abandoning the pipeline, with the majority of the underground pipeline expected to remain in place. Leaving the pipeline underground minimises the need to disturb land and re-establish vegetation, which would be required to excavate and remove the pipeline.

It is expected that such works could take up to about a week at each location and involve similar equipment to that used during construction. A workforce of up to about 20 people at a time is expected, over a period of about 12 months with periods of inactivity.

The peak decommissioning traffic volumes for the day and peak hour are outlined in Table 6.6.

Table 6.6 *Decommissioning traffic volumes on road links*

Road Name	Peak daily trips	Peak hourly trips
Cooper Developmental Road	40	20
Bulloo Developmental Road	40	20
Warri Gate Road	40	20
Wompah Gate Road	40	20
Tickalara Road	40	20

7. Impact assessment and mitigation

7.1 State-controlled road traffic impact assessment

The methodology adopted for this TIA has been developed having regard to the nature, scale and duration of the construction of the pipeline, as well as the anticipated operational characteristics.

In consideration of the temporary nature of the proposed use and the remote low use setting, the preparation of a detailed quantitative assessment to identify or support the provision of significant infrastructure upgrades to mitigate potential traffic impacts is not considered warranted. Accordingly, a qualitative assessment methodology has been adopted to identify appropriate order-of-magnitude mitigation measures that would reasonably address any potential traffic and transport impacts arising from the project.

Accordingly, the TIA methodology adopted primarily focuses on the identification and assessment of road safety impacts and the development of appropriate mitigation measures. Other impact components, including road link capacity, pavement impacts, and broader transport infrastructure considerations, are addressed at a high-level commensurate with the temporary nature and limited scale of the proposed activities.

7.1.1 Road safety assessment

A desktop road safety assessment referencing the guidelines outlined in the GTIA was undertaken for the project, including a determination whether existing road safety issues (as identified in section 4.2.4) would be significantly worsened due to the introduction of the development traffic, or if new road safety issues are created as a result of the project.

The desired outcome is to ensure no significant worsening of road safety at any location on the network occurs and that any pre- or development-introduced unacceptable safety risk (i.e. risk score of high) is addressed. “Significantly worsened” is defined within the GTIA as a change to the level of safety risk (e.g. Low to Medium or from Medium to High).

In order to achieve the desired outcomes for safety, the road safety assessment process involved:

- the current safety risks relevant to the project
- identify or modified risks resulting from the development and the relevant road environment, including the safety risk rating
- identifying management and mitigation works to ensure the existing safety risk rating for the road is not worsened as a result of the development and that any unacceptable safety risk is addressed.

The safety risks for all road users were identified and scored in accordance with the GTIA risk scoring matrix, as shown in Figure 7.1.

		Potential consequence				
		Property only (1)	Minor injury (2)	Medical treatment (3)	Hospitalisation (4)	Fatality (5)
Potential likelihood	Almost certain (5)	M	M	H	H	H
	Likely (4)	M	M	M	H	H
	Moderate (3)	L	M	M	M	H
	Unlikely (2)	L	L	M	M	M
	Rare (1)	L	L	L	M	M
L: Low risk M: Medium risk H: High risk						

Figure 7.1 Safety risk score matrix (TMR, 2018)

The findings of the road safety assessment for the state-controlled road sections are provided in Table 7.1.

Table 7.1 Road safety review findings

Risk item	Without development			With development			Mitigation measures	With development and mitigations		
	Likelihood	Consequence	Risk score	Likelihood	Consequence	Risk score		Likelihood	Consequence	Risk score
Cooper Developmental Road										
Cooper Developmental Road features a narrow carriageway width of approximately 5 m, with no sealed road shoulder. At some sections of the road, this is formally signposted as a one lane road. This presents a risk of head-on and off-carriageway type crashes as a result.	1	4	M	2	4	M	No change in overall risk score due to the traffic generated by the project, therefore no mitigation measures are required.	N/A		
Metal grids are located along the Cooper Developmental Road with a posted speed limit of 100 km/h, while advanced warning signage is provided drivers during low-light conditions may have trouble identifying these.	1	4	M	2	4	M	No change in overall risk score due to the traffic generated by the project, therefore no mitigation measures are required.	N/A		
No street lighting is provided at any location on Cooper Developmental Road. While this is expected due to the rural conditions of the road network, visibility is expected to be poorer during low light conditions. There is an increased risk of off carriageway type crashes as a result.	1	4	M	2	4	M	No change in overall risk score due to the traffic generated by the project, therefore no mitigation measures are required.	N/A		
Cooper Developmental Road does not feature any line marking, such as edge and centrelines. Lack of delineation may present the risk of off-carriageway and head-on type crashes.	1	4	M	2	4	M	No change in overall risk score due to the traffic generated by the project, therefore no mitigation measures are required.	N/A		
Due to the presence of pastoral leases adjacent to the road that are unfenced, there is a high potential of animal conflicts. This may present a risk of on carriageway animal crashes and off carriageway type crashes (i.e. run off road)	1	4	M	2	4	M	No change in overall risk score due to the traffic generated by the project, therefore no mitigation measures are required.	N/A		

Risk item	Without development			With development			Mitigation measures	With development and mitigations		
	Likelihood	Consequence	Risk score	Likelihood	Consequence	Risk score		Likelihood	Consequence	Risk score
Bulloo Developmental Road										
Bulloo Developmental Road features a narrow carriageway width of approximately 5 m, with no sealed road shoulder. At some sections of the road, this is formally signposted as a one lane road. This presents a risk of head-on and off-carriageway type crashes as a result.	1	4	M	2	4	M	No change in overall risk score due to the traffic generated by the project, therefore no mitigation measures are required.	N/A		
Metal grids are located along the Bulloo Developmental Road with a posted speed limit of 100km/h, while advanced warning signage is provided drivers during low-light conditions may have trouble identifying these.	1	4	M	2	4	M	No change in overall risk score due to the traffic generated by the project, therefore no mitigation measures are required.	N/A		
No street lighting is provided at any location on Bulloo Developmental Road. While this is expected due to the rural conditions of the road network, visibility is expected to be poorer during low light conditions. There is an increased risk of off carriageway type crashes as a result.	1	4	M	2	4	M	No change in overall risk score due to the traffic generated by the project, therefore no mitigation measures are required.	N/A		
Bulloo Developmental Road does not feature any line marking, such as edge and centrelines. Lack of delineation may present the risk of off-carriageway and head-on type crashes.	1	4	M	2	4	M	No change in overall risk score due to the traffic generated by the project, therefore no mitigation measures are required.	N/A		
Due to the rural nature of the pipeline location, there is a high potential of animal conflicts. This may present a risk of on carriageway animal crashes and off carriageway type crashes (i.e. run off road)	1	4	M	2	4	M	No change in overall risk score due to the traffic generated by the project, therefore no mitigation measures are required.	N/A		

The road safety assessment conducted found that no existing safety risk score for any issues is found to increase as a result of the introduction of the development traffic on state-controlled roads. As a result, no specific road safety mitigation measures would be required.

As re-prioritisation of the vehicle access is not considered feasible for safety and operational reasons, nor is there any requirement for any additional turn treatments, no mitigation measures are required at the site access.

Notwithstanding the above, Trucks Crossing or Entering (T2-25) warning signs, indicated in Figure 7.3 could be provided at the approach to the site access intersection during the construction period to alert motorists about truck movements to and from the site.



Figure 7.3 Trucks crossing or entering (T2-25) warning sign Australian Standard AS1742.2

Furthermore, it would be expected that the construction contractors will utilise construction traffic management plans to adequately manage the movements of the vehicles into and out of the construction access tracks. It is expected that these plans may use measures such as speed reductions to appropriately manage the safety and efficiency of the road network.

Sight distance assessment

As part of the detailed design stages of the project, confirmation on adequate sight distances at each vehicle access location will be required to be undertaken to ensure compliant, safe, and efficient vehicle movements can be provided.

Furthermore, to ensure this sight distance is achieved and maintained during the construction period, it is recommended that parking on the road frontage at and near the intersections is discouraged or banned for workers to minimise potential sightline obstruction (i.e. any parking is done on the construction access tracks themselves). Furthermore, regular vegetation clearance within the road reserve is recommended to ensure no future obstructions occur.

7.1.3 Intersection delay

Due to the low background traffic on the state-controlled road network (i.e. less than 40 vehicles in a day), the introduction of construction traffic is not expected to materially worsen the turning movements of vehicles within the network. It should also be noted that due to the relatively short construction time period (especially within the state-controlled road network area), any improvement works proposed are likely to cause even worse delays than without. Given the reasonings of the above, no further assessment has been undertaken.

7.1.4 Road link capacity

The increase to the daily traffic volumes along the impacted road links based on the peak period volumes in a month is outlined in Table 7.2.

Table 7.2 Road link capacity – state-controlled roads

Road Name	Monthly peak period volume										
	March 2027	April 2027	May 2027	June 2027	July 2027	August 2027	September 2027	October 2027	November 2027	December 2027	January 2028
Cooper Developmental Road											
2027 Background traffic volume	40										
Cooper Developmental Road – development traffic	0	5	5	54	82	116	138	60	60	0	0
% increase	0%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	0%	0%
Bulloo Developmental Road											
2027 Background traffic volume	48										
Bulloo Developmental Road – development traffic	0	5	5	75	103	137	159	81	81	11	11
% increase	0%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%

This finds that throughout the construction period, an increase over 5% of the existing background traffic demands are expected. While this exceeds the typical 5% threshold for the road link capacity assessment, the low background volume in conjunction with the temporary duration of minor increases in daily and peak hourly traffic results in no expectation of unacceptable performance risks to the road network.

The *Cost-benefit Analysis Manual* (Department of Transport and Main Roads, 2021) outlines parameters to determine the road capacity of certain types of roads in passenger car equivalents (PCE).

Based on Table 2 from the Cost-benefit Analysis manual, the theoretical hourly capacities of the state-controlled roads proposed to be utilised by the project is outlined in Table 7.3.

Table 7.3 *Hourly PCE capacity*

	Road width description	Hourly capacity (PCE/hr)
Cooper Developmental Road	Narrow seal 4.6 m – 5.2 m	2000
Bulloo Developmental Road	Narrow seal 4.6 m – 5.2 m	2000

Using the road type and peak hour capacity factor outlined in Table 3 of the Cost-benefit Analysis manual, the hourly PCE capacities can be converted to a daily road capacity. As both roads are classified as a rural single carriageway, an 8.33 capacity factor is applied to the hourly capacities. The resulting theoretical road capacities for the roads is outlined in Table 7.4.

Table 7.4 *Theoretical daily road capacity*

	Hourly capacity (PCE/hr)	Capacity factor	Daily Road capacity (PCE/day)
Cooper Developmental Road	2000	8.33	24000
Bulloo Developmental Road	2000	8.33	24000

To determine the proposed usage of the state-controlled roads, the maximum daily peak project traffic has been used and conservatively scaled by 1.5 to convert the daily volumes to a PCE volume and account for the usage of heavy vehicles. This was then compared to the theoretical daily capacity of the roads themselves to determine the likely impact to the capacity of the road network. The findings in Table 7.5 suggests that construction traffic will only account for 2% of the daily capacity of the roads, as a result, no material impact to the operational performance of the state-controlled road network would be expected with the introduction of construction traffic.

Table 7.5 *Theoretical daily road capacity impact*

	Peak project traffic	Peak project PCE	Daily road capacity (PCE/day)	Project traffic impact
Cooper Developmental Road	138	207	24000	<1%
Bulloo Developmental Road	159	239	24000	<1%

It should be noted that as part of the assessment of the road link capacity, the two-week peak volumes have been used. In reality during construction, the typical daily and hourly volumes will be much lower, as presented in the average daily two-week project traffic being 55 for Cooper Developmental Road and 57 for Bulloo Developmental Road. Hence, the impacts calculated above represent a worst-case scenario that is expected to only occur for two weeks out of the entire construction schedule.

7.1.5 Pavement impact assessment

Methodology

The performance of sealed road pavement is modelled based on the amount of heavy vehicle traffic, measured in Standard Axle Repetitions (SAR) for granular pavement (SAR4), and other factors such as pavement strength and climate.

The pavement impacts assessment was undertaken in accordance with GTIA following the assessment process outlined in TMR's Guide to Traffic Impact Assessment Practice Note: Pavement Impact Assessment dated December 2018. For any road links where the development SAR4s exceed 5% of the base traffic in either direction on the link's SAR4s at each stage is considered an impact.

As the volume and type of heavy vehicles are expected to be refined in the later stages of the Project, the findings of this pavement impact assessment, including calculated monetary contributions, represent preliminary findings that will need to be confirmed upon finalisation of vehicle fleet information.

Heavy vehicles by activity

The heavy vehicles expected to be utilised for each main construction activity is outlined below in Table 7.6.

Table 7.6 Heavy vehicles by activity

Construction activity	Austrroads vehicle classes
Pipe haulage to pipe stockpile 2	Class 9
Equipment and plant mobilisation	Mixed – assumed to be all Class 9 for preliminary PIA
Camp 1 servicing	Class 5
Camp 2 servicing	Class 5
Camp 2 construction material haulage	Class 9
Stockpile 1 pipe haulage to CRoW	Class 9
Pipeline construction servicing deliveries	Class 9
Stockpile 1 pipe haulage to CRoW	Class 9
FIFO buses	Class 3

Heavy vehicle traffic generation

The total number of heavy vehicle trips as a result of the project is outlined in Table 7.7.

Table 7.7 Total heavy vehicle traffic generation

Construction activity	Loaded trips	Unloaded trips	Total trips
Pipe haulage to pipe stockpile 2	1297	1297	2594
Equipment and plant mobilisation	0	206	206
Camp 1 servicing	770	770	1540
Camp 2 servicing	980	980	1960
Camp 2 construction material haulage	56	56	112
Stockpile 1 pipe haulage to CRoW	1591	1591	3182
Pipeline construction servicing deliveries – Stockpile 1	770	770	1540
Stockpile 2 pipe haulage to CRoW	1297	1297	2594
Pipeline construction servicing deliveries – Stockpile 2	770	770	1540
FIFO buses	120	120	240

The activities in which state-controlled roads will be utilised, and the proportion of the activity that will utilise the state-controlled roads are outlined in Table 7.8.

Table 7.8 Heavy vehicle traffic generation on state-controlled roads

Construction activity	Roads utilised	Proportion using road	Loaded trips	Unloaded trips	Total trips
Equipment and plant mobilisation	Bulloo Developmental Road and Cooper Developmental Road	100%	0	206	206
Camp 1 servicing	Bulloo Developmental Road (south of camp 1)	50%	385	385	770
Camp 2 servicing	Bulloo Developmental Road (south of camp 1)	50%	490	490	980
Stockpile 1 pipe haulage to ROW	Bulloo Developmental Road and Cooper Developmental Road	100%	1591	1591	3182
Pipeline construction servicing deliveries – stockpile 1 area	Bulloo Developmental Road and Cooper Developmental Road	25%	193	193	386
Pipeline construction servicing deliveries – stockpile 2 area	Bulloo Developmental Road (south of camp 1)	25%	193	193	386
FIFO buses	Bulloo Developmental Road (south of camp 1)	100%	120	120	240

Background SAR4s

Road asset data has been sourced from TMR which presents relevant data for the state-controlled roads expected to be potentially utilised by the heavy vehicles during construction (Table 7.9).

Table 7.9 Background SAR4s

Road name	Direction	Chainage start (km)	Chainage end (km)	SAR4 Per Day (2027)	SAR4 per year
Cooper Developmental Road	NB	69.4	185.7	29	10512
	SB	69.4	185.7	29	10512
Bulloo Developmental Road	NB	131	163.7	40	14465
	SB	131	163.7	37	13452
	NB	80.5	131	70	25403
	SB	80.5	131	73	26492
	NB	0	80.5	125	45688
	SB	0	80.5	117	42577

Note: NB – northbound, SB – southbound

Construction SAR4s

The expected development SAR4s to be introduced each construction year is outlined in Table 7.10. This has taken into consideration the heavy vehicle traffic volumes, vehicle type and the vehicle loading status. The values in the table represent the total development SAR4s and has not taken into account directional distribution with respect to the state-controlled road network.

Table 7.10 Development SAR4s for the year

Road section	Gazettal Direction	Against Gazettal Direction
Cooper Developmental Road	910	8900
Bulloo Developmental Road (north of Warri Gate Road)	8900	910
Bulloo Developmental Road (north of Warri Gate Road)	5839	664
Bulloo Developmental Road (north of Thargomindah)	5839	664

Construction Impact

The expected construction traffic impact to the state-controlled road sections is outlined in Table 7.11. This has taken into consideration the heavy vehicle traffic volumes, vehicle type and the vehicle loading status.

Table 7.11 Development pavement impact

Road section	Gazettal Direction	Against Gazettal Direction
Background SAR4s – Cooper Developmental Road	10512	10512
Development SAR4s – Cooper Developmental Road	910	8900
% Impact	9%	85%
Background SAR4s – Bulloo Developmental Road (north of Warri Gate Road)	14465	13452
Development SAR4s – Bulloo Developmental Road (north of Warri Gate Road)	8900	910
% Impact	62%	7%
Background SAR4s – Bulloo Developmental Road (south of Warri Gate Road)	26492	26492
Development SAR4s – Bulloo Developmental Road (south of Warri Gate Road)	5839	664
% Impact	23%	3%
Background SAR4s – Bulloo Developmental Road (north of Thargomindah)	45688	42577
Development SAR4s – Bulloo Developmental Road (north of Thargomindah)	5839	664
% Impact	13%	2%

5% or more increase in SAR4s is experienced in nearly all road sections of Cooper Developmental Road and Bulloo Developmental Road as a result of the construction traffic, with the exception of Bulloo Developmental Road in the southbound lane, south from the Warri Gate Road intersection. As a result, pavement impacts would be expected as part of this project.

To mitigate the pavement impacts, it is recommended that the following activities be considered:

- traffic management plan and/or use management plans for heavy vehicles are devised to generate pavement usage efficiencies
- limit use during wet weather events
- undertake movements for the road sections utilised by the construction traffic, such as sealing shoulders
- undertake pavement construction for any locations and events of pavement failure caused by the project's construction traffic.

Furthermore, once details of the vehicle fleet and routes are finalised with the construction contractor, the option to provide monetary contributions for the year in where the construction traffic is introduced to the state-controlled network may be considered to offset the damages. This is recommended to be investigated in the later stages of the project.

7.1.6 Transport infrastructure assessment

A review of the gazetted heavy vehicle routes and restrictions indicates that Cooper and Bulloo Developmental Road allows up to a Type 2 Road Train (Performance Based Standards Level 3A). As no vehicles are expected to be larger or heavier than this, no impacts to the structural integrity of bridges, culverts, and other structures are expected.

7.1.7 TMR Code responses

An assessment of the achieved outcomes against TMR's State Development Assessment Provisions as a result of the proposed development was part of the findings of the above assessments.

The protection of the state transport networks is also expected to be achieved as no worsening in the safety, operational performance, and physical condition of the road corridors expected. Furthermore, no impacts to the state's ability to provide, construct, and maintain existing and future roads are expected as a result of this project.

The required outcomes, and project achieved outcomes for TMR's relevant codes are detailed in Appendix B.

7.2 Council-controlled road traffic impact assessment

7.2.1 Analysis overview

In the absence of any dedicated transport codes and impact assessments outlined in the Bulloo Shire Council's Planning Scheme, the adoption of the assessments outlined in the GTIA have been applied to the Council-controlled roads were applicable. The methodology of these assessments remains consistent with GTIA and the assessments conducted in section 7.1, however any proposed mitigations will need to be confirmed for adequacy with Council.

7.2.2 Impact study area

The impact study area for the council-controlled roads is based on all the road links that the project introduces a material increase in traffic volume on. As a result, the following roads have been assessed for safety, level of service and pavement impacts:

- Warri Gate Road
- Tickalara Road
- Wompah Gate Road.

The TIA does not include the consideration of impacts to any private roads or easements, as any impacts to private roads would need to be addressed directly with the impacted landowners as part of the project's wider consultation process.

7.2.3 Road safety assessment

The findings of the road safety assessment for the council-controlled road sections are provided in Table 7.12, with reference to the methodology used for this road safety assessment of Council-controlled roads provided in section 7.1.1.

Table 7.12 Road safety review findings (Council roads)

Risk item	Without development			With development			Mitigation measures	With development and mitigations		
	Likelihood	Consequence	Risk score	Likelihood	Consequence	Risk score		Likelihood	Consequence	Risk score
Warri Gate Road										
Sections of Warri Gate Road are currently unsealed. At sections where floodways are unsealed, damage to the ground surface was observed via desktop review. Heavy vehicles (especially loaded) post storm events, have an extremely high risk of being immobilised at these muddy, slippery locations. This presents a risk in off-carriageway type crashes due to the inadequate skid resistance.	1	4	M	2	4	M	No change in overall risk score due to the traffic generated by the project, therefore no mitigation measures are required.	N/A		
No street lighting is provided at any location on Warri Gate Road. While this is expected due to the rural conditions of the road network, visibility is expected to be poorer during low light conditions. This presents a risk of off carriageway type crashes as a result.	1	4	M	2	4	M	No change in overall risk score due to the traffic generated by the project, therefore no mitigation measures are required.	N/A		
Warri Gate Road does not feature any line marking, such as edge and centrelines. Lack of delineation may present the risk of off-carriageway and head-on type crashes.	1	4	M	2	4	M	No change in overall risk score due to the traffic generated by the project, therefore no mitigation measures are required.	N/A		
No flood ways on the unsealed road sections along Warri Gate Road are sign posted. Unfamiliar or new drivers during low light conditions may travel over these flood ways at high speeds resulting in an increased risk out of control, off carriageway type crashes or being immobilised at the flood ways. It is also understood that some floodways are being upgraded as part of the Roads to Recovery Program.	1	4	M	2	4	M	No change in overall risk score due to the traffic generated by the project, therefore no mitigation measures are required.	N/A		
Due to the rural nature of this road, there is a high potential of animal conflicts. Animal conflicts present a risk of on carriageway animal crashes and off carriageway type crashes (i.e. run off road)	1	4	M	2	4	M	No change in overall risk score due to the traffic generated by the project, therefore no mitigation measures are required.	N/A		

Risk item	Without development			With development			Mitigation measures	With development and mitigations		
	Likelihood	Consequence	Risk score	Likelihood	Consequence	Risk score		Likelihood	Consequence	Risk score
Warri Gate Road is frequently damaged post storm events due to flooding in the area resulting in either unsafe or untraversable road sections. This presents a risk of off-carriageway and roll-over type crashes as heavy vehicles travel on shoulders to avoid damaged road sections.	1	5	M	2	5	M	No change in overall risk score due to the traffic generated by the project, therefore no mitigation measures are required.	N/A		
Flash flooding is also expected to occur due to the rural dry conditions of the road corridor; drivers will require to stop (or potentially travel back) during forecast rain events. Typically, if any rain event sees more 15 mm or more rain fall, unsealed roads are closed for at least 24 hours.	1	5	M	2	5	M	No change in overall risk score due to the traffic generated by the project, therefore no mitigation measures are required.	N/A		
No heavy vehicle rest stop provisions are currently provided along Warri Gate Road. Compliance with fatigue and rest management for drivers may not be achieved without the construction of stops. There is an increased risk of run-off road type crashes as a result.	Not existing risk			2	4	M	As part of the transport contractor's route assessment and transport management plan, the required locations for rest areas/stops will be identified. Construction or use of these stops will be required for both the actual feasibility of the transport route as well as to ensure the safe haulage of the pipe components.	1	3	L
A higher proportion of heavy vehicles are expected to turn left in and right out of the camp 1 and stockpile 1 vehicle accesses just before the Bulloo Developmental Road intersection. Some motorists may not expect these turns increasing risk of rear-end or side-on impacts.	Not existing risk			1	3	L	Advanced warning signage of heavy vehicles and/or turning (heavy) vehicles will be installed on both sides of the camp 1 and stockpile 1 vehicle access locations. Furthermore, separation between heavy vehicles and light vehicles is encouraged by the placement of the proposed vehicle accesses, with the heavy vehicle access (i.e. stockpile access) provided on the western-most side and the light vehicle access (i.e. camp access) provided on the eastern-most side of the site. This placement configuration reduces the number of vehicle conflict points, as well as the potential mixture of heavy vehicles and light vehicles along this road section, noting heavy vehicles will originate from the west, and light vehicles will travel to the east.	1	3	L

Risk item	Without developmen t			With developmen t			Mitigation measures	With development and mitigations		
	Likelihood	Consequence	Risk score	Likelihood	Consequence	Risk score		Likelihood	Consequence	Risk score
As part of the road works along Warri Gate Road, some sections of Warri Gate Road feature dual carriageways, south of Orientos Road (Cameron Corner Turnoff), to serve as side tracks when construction works are occurring. There may be driver confusion on the correct carriageway to utilise when construction is not occurring and during low light conditions, noting a cattle grid and fencing also blocks the informal carriageway at one location. There is an elevated risk of off-carriageway type crashes as a result.	1	4	M	2	4	M	No change in overall risk score due to the traffic generated by the project, therefore no mitigation measures are required.	N/A		
Tickalara Road										
Tickalara Road is currently unsealed. Heavy vehicles (especially loaded), post storm events have an extremely high risk of being immobilised at these muddy, slippery locations. This presents a risk in off-carriageway type crashes due to the inadequate skid resistance.	1	4	M	2	4	M	No change in overall risk score due to the traffic generated by the project, therefore no mitigation measures are required.	N/A		
Tickalara Road does not feature any line marking, such as edge and centrelines. Lack of delineation may present the risk of off-carriageway and head-on type crashes.	1	4	M	2	4	M	No change in overall risk score due to the traffic generated by the project, therefore no mitigation measures are required	N/A		
Due to the rural nature of the project, there is a high potential of animal conflicts along Tickalara Road. This may present a risk of on carriageway animal crashes and off carriageway type crashes (i.e. run off road)	1	4	M	2	4	M	No change in overall risk score due to the traffic generated by the project, therefore no mitigation measures are required	N/A		
No street lighting is provided at any location on Tickalara Road. While this is expected due to the rural conditions of the road network, visibility is expected to be poorer during low light conditions. This presents a risk of off carriageway type crashes as a result.	1	4	M	2	4	M	No change in overall risk score due to the traffic generated by the project, therefore no mitigation measures are required.	N/A		

Risk item	Without developmen t			With developmen t			Mitigation measures	With development and mitigations		
	Likelihood	Consequence	Risk score	Likelihood	Consequence	Risk score		Likelihood	Consequence	Risk score
Tickalara Road is frequently damaged or closed due to flooding in the area resulting in either unsafe or untraversable road sections. This presents a risk of off-carriageway and roll-over type crashes as heavy vehicles travel on shoulders to avoid damaged road sections.	1	5	M	2	5	M	No change in overall risk score due to the traffic generated by the project, therefore no mitigation measures are required.	N/A		
Flash flooding is also expected to occur due to the rural dry conditions of the road corridor; drivers will require to stop (or potentially travel back) during forecast rain events. Typically, if any rain event sees more 15 mm or more rain fall, unsealed roads are closed for at least 24 hours.	1	5	M	2	5	M	No change in overall risk score due to the traffic generated by the project, therefore no mitigation measures are required.	N/A		
Some floodway culverts are currently located along Tickalara Road however do not feature appropriate advanced warning such as signage or road side posts. There is an increased risk of vehicles driving off carriageway at these culvert locations	1	5	M	2	5	M	No change in overall risk score due to the traffic generated by the project, therefore no mitigation measures are required.	N/A		
Wompah Gate Road										
Wompah Gate Road is currently unsealed. Heavy vehicles (especially loaded) post storm events have an extremely high risk of being immobilised at these muddy, slippery locations. This presents a risk in off-carriageway type crashes due to the inadequate skid resistance.	1	4	M	2	4	M	No change in overall risk score due to the traffic generated by the project, therefore no mitigation measures are required.	N/A		
Wompah Gate Road does not feature any line marking, such as edge and centrelines. Lack of delineation may present the risk of off-carriageway and head-on type crashes.	1	4	M	2	4	M	No change in overall risk score due to the traffic generated by the project, therefore no mitigation measures are required	N/A		

Risk item	Without development			With development			Mitigation measures	With development and mitigations		
	Likelihood	Consequence	Risk score	Likelihood	Consequence	Risk score		Likelihood	Consequence	Risk score
Due to the rural nature of the project, there is a high potential of animal conflicts along Wompah Gate Road. This may present a risk of on carriageway animal crashes and off carriageway type crashes (i.e. run off road)	1	4	M	2	4	M	No change in overall risk score due to the traffic generated by the project, therefore no mitigation measures are required	N/A		
No street lighting is provided at any location on Wompah Gate Road. While this is expected due to the rural conditions of the road network, visibility is expected to be poorer during low light conditions. This presents a risk of off carriageway type crashes as a result.	1	4	M	2	4	M	No change in overall risk score due to the traffic generated by the project, therefore no mitigation measures are required.	N/A		
Wompah Gate Road, post storm events is frequently damaged or closed due to flooding in the area resulting in either unsafe or untraversable road sections. This presents a risk of off-carriageway and roll-over type crashes as heavy vehicles travel on shoulders to avoid damaged road sections.	1	5	M	2	5	M	No change in overall risk score due to the traffic generated by the project, therefore no mitigation measures are required.	N/A		
Flash flooding is also expected to occur due to the rural dry conditions of the road corridor and lack of formal culverts along this road; drivers will require to stop (or potentially travel back) during forecast rain events. Typically, if any rain event sees more 15 mm or more rain fall, unsealed roads are closed for at least 24 hours.	1	5	M	2	5	M	No change in overall risk score due to the traffic generated by the project, therefore no mitigation measures are required.	N/A		
Some floodway culverts are currently located along Wompah Gate Road however do not feature appropriate advanced warning such as signage or road side posts. There is an increased risk of vehicles driving off carriageway at these culvert locations	1	5	M	2	5	M	No change in overall risk score due to the traffic generated by the project, therefore no mitigation measures are required.	N/A		

Risk item	Without development			With development			Mitigation measures	With development and mitigations		
	Likelihood	Consequence	Risk score	Likelihood	Consequence	Risk score		Likelihood	Consequence	Risk score
Wompah Gate Road features a narrow carriageway width of approximately 4 m at some locations, with no sealed road shoulder. Two-way movement, especially when a heavy vehicle is involved is likely to require one vehicle to stop or slow on the side of the road to let the other pass. This presents a risk of head-on and off-carriageway type crashes as a result.	1	4	M	3	4	M	No change in overall risk score due to the traffic generated by the project, therefore no mitigation measures are required.	N/A		

The road safety assessment conducted found that two new safety risks are introduced as a consequence of the proposed introduction of project traffic. These being:

1. No heavy vehicle rest stop provisions are currently provided along Warri Gate Road. Compliance with fatigue and rest management for drivers may not be achieved without the construction of stops. There is an increased risk of run-off road type crashes as a result.
2. A higher proportion of heavy vehicles are expected to turn left in and right out of the construction compound and temporary accommodation facility vehicle accesses. Some motorists may not expect these turns increasing risk of rear-end or side-on impacts.

Furthermore, several recommended mitigation measures are proposed to be considered as part of the project. These measures are not formally required, however would be considered best practice:

- implement temporary street lighting at the vehicle accesses to the camps and stockpiles if transport activities are expected to occur during low light conditions
- it is expected that dilapidation surveys are completed ahead of the wider project approval
- it is expected that APA's transport contractor will undertake constant monitoring of the road conditions during wet season before accessing the vulnerable road sections.

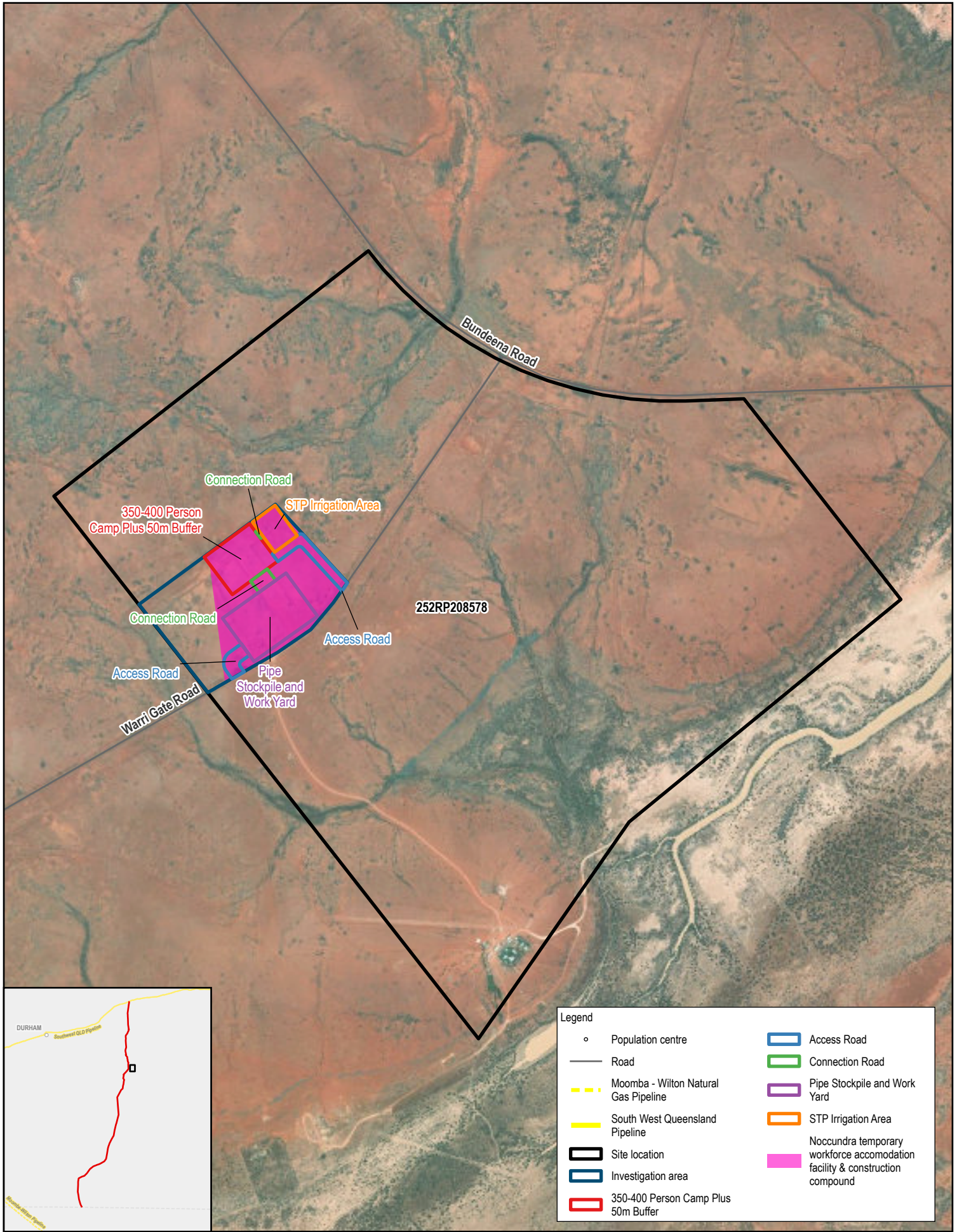
7.2.4 Access and frontage assessment

To provide responses to the assessment criteria of Council's General Development Code, specifically in regard to the adequacy of the vehicle accesses, an assessment on the geometric design, turn warrants, as well as sight distance checks were conducted. The methodology of this assessment is consistent with the TMR GTIA for access and frontage, provided in 7.1.2.

Camp 1 and pipe stockpile 1

Vehicle access is proposed through two vehicle driveways servicing stockpile 1 and camp 1 respectively along Warri Gate Road. The ultimate geometric configuration of the access is expected to be finalised in the detailed design stages of the construction compound.

The vehicle access to stockpile 1 will be provided on the western side of the site and will cater for predominantly heavy vehicles associated with the haulage activities of the construction compound. For the access to camp 1, a vehicle access is proposed on the eastern side of the site catering for light vehicles. These vehicle accesses are separated by over 500 m, resulting in adequate staggering for vehicle movements to eliminate any vehicle conflict points. The proposed locations of the vehicle accesses are indicated in Figure 7.4.



Geometric design

The proposed vehicle access for both the Construction compound and temporary accommodation facility will be designed in accordance with the Bulloo Shire Planning Scheme. To accord with the acceptable outcomes of the scheme, the vehicle access is required to be:

- clear of street furniture, gully pits, manholes, power poles, and street trees (AO11)
- a minimum distance of a driveway from an intersection of one street with another is 6 m (AO12)
- vehicle crossovers are designed in accordance with BSC's standards (AO13.1).

In the absence of any specific standard drawings for vehicle crossovers under Bulloo Shire Planning Scheme, it is recommended that the finalised design of the vehicle access be in accordance with the Australian Standards, which will use the turn path of the largest vehicle in consideration of the design elements.

The ultimate design of the vehicle access is expected to generally in accordance with *Figure 3.1 of AS2890.2*, which is the typical minimum design for Heavy Rigid Vehicles (HRV) and Articulated Vehicles (AV) as shown below in Figure 7.5.

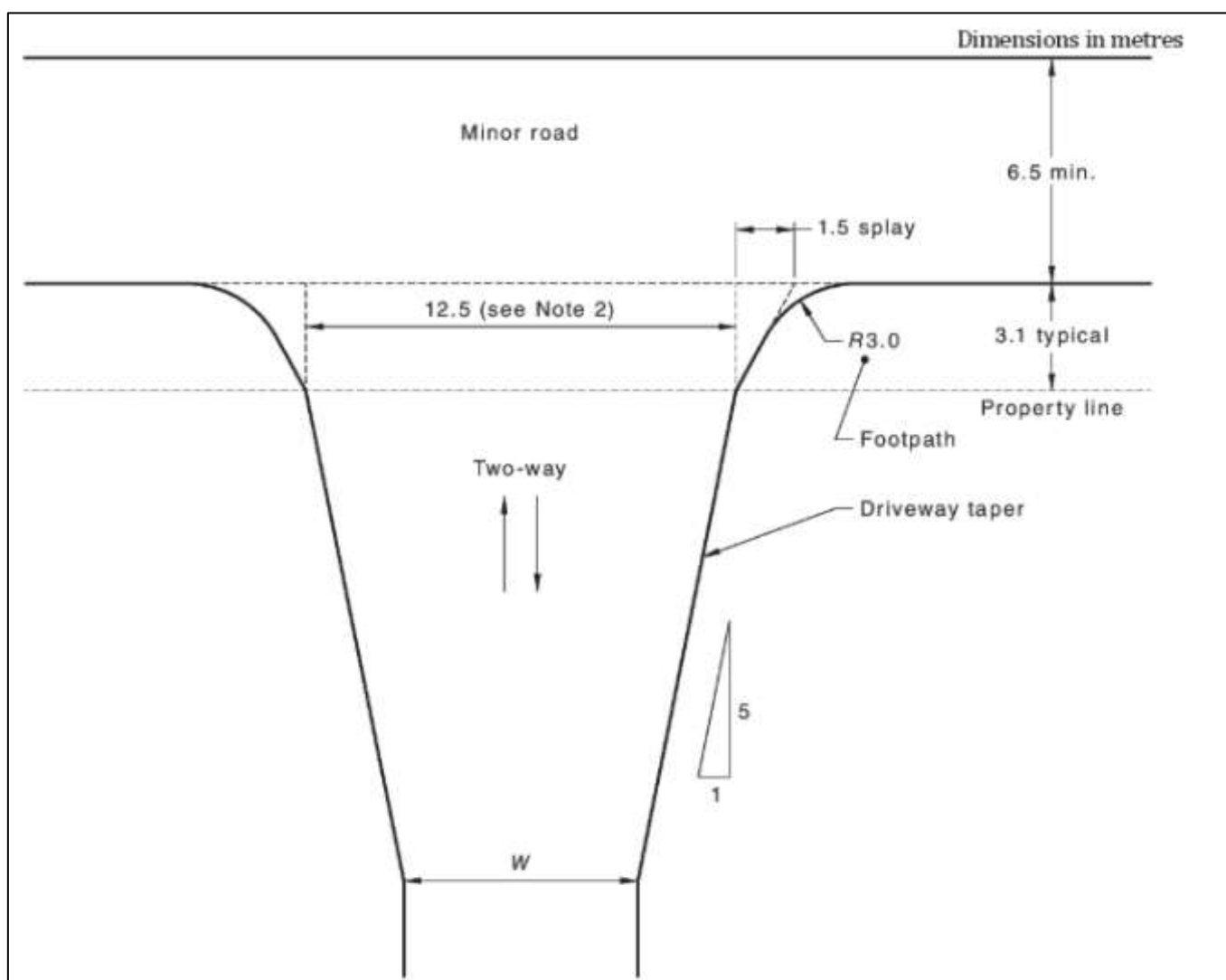


Figure 7.5 Minimum design for an access driveway on a minor road catering for HRVs and AVs

It is noted that a reference to a footpath is indicated within the figure, however this will not need to be provided due to the lack of existing footpath infrastructure to connect to, nor is any significant pedestrian demand expected.

Turn warrant assessment

Due to the remote location resulting in low background traffic demands along Warri Gate Road, the minimal peak hour trip generation of the Nockatunga construction compound and the use of the Nockatunga construction compound for less than a year, a left or right turn treatment at either vehicle accesses is unlikely to provide significant benefits to the road performance. As such, it is recommended that alternate treatments such as signage in advance is provided to warn other drivers of turning traffic rather than the provision of turn treatments.

Sight distance assessment

As per AO13.2 of the General Development Code contained within Bulloo Shire Planning Scheme (Bulloo Shire Council, 2019), a desktop assessment of the sight distance of the vehicle access was conducted at the proposed vehicle access location to determine if the distances outlined in AS2890.2 were satisfied.

For a road frontage speed of 100 km/h, a minimum sight distance of 139 m (representing a five second gap), and a desirable sight distance of 222 m (representing an eight second gap) is outlined in the Australian Standards. From the desktop assessment, the desirable sight distance of 222 m should be achieved for both proposed driveway locations.

To ensure this sight distance is achieved and maintained during the lifespan of the Nockatunga construction compound, it is recommended that parking on the road frontage is discouraged or banned for workers to minimise potential sightline obstruction. Furthermore, regular vegetation clearance is recommended to ensure no future obstructions occur.

Pipe stockpile 2

The design/indicative footprint of pipe stockpile 2 is not yet finalised, however is expected to be serviced by one vehicle access directly off of Wompah Gate Road. This vehicle access is expected to cater predominantly to the pipe haulage trips to and from the construction compound.

The ultimate geometric configuration of the access is expected to be finalised in the detailed design stages of the design.

Geometric design

The preconstruction compound vehicle access for the construction compound should be designed in accordance with the Bulloo Shire Planning Scheme. To accord with the acceptable outcomes of the scheme, the vehicle access is required to be:

- clear of street furniture, gully pits, manholes, power poles, and street trees (AO11)
- a minimum distance of a driveway from an intersection of one street with another is 6 m (AO12)
- vehicle crossovers are designed in accordance with BSC's standards (AO13.1).

In the absence of any specific standard drawings for vehicle crossovers under the Bulloo Shire Planning Scheme, it is recommended that the finalised design of the vehicle access be in accordance with the Australian Standards, which will use the turn path of the largest vehicle in consideration of the design elements.

The ultimate design of the vehicle access is expected to generally in accordance with *Figure 3.1 of AS2890.2*.

Turn warrant assessment

A turn warrant assessment is typically conducted at key major intersections or vehicle accesses to satisfy turn warrant requirements as outlined in AGTM6.

Due to the remote location resulting in low background traffic demands along Wompah Gate Road, the minimal peak hour trip generation of the construction compound (further detailed section 6.1.2), and the use of the construction compound for less than a year, a left or right turn treatment at the vehicle access is unlikely to provide significant benefits to the road performance. As such, it is recommended that alternate treatments such as signage in advance is provided to warn other drivers of turning traffic rather than the provision of turn treatments.

Furthermore, due to the proximity of the construction compound to the QLD-NSW border, additional signage highlighting the road/direction to the border is recommended to be provided to avoid erroneous turns into the construction compound from public road users.

Sight distance assessment

As per AO13.2 of the General Development Code contained within Bulloo Shire Planning Scheme, an assessment of the sight distance of the vehicle access was conducted at the proposed vehicle access location to determine if the distances outlined in AS2890.2 were satisfied.

For a road frontage speed of 100 km/h, a minimum sight distance of 139 m (representing a five second gap), and a desirable sight distance of 222 m (representing an eight second gap) is outlined in the Australian Standards. The desirable sight distance of 222 m should be achieved for a driveway along the construction compound's frontage. This sight distance is recommended to be confirmed as part of the final design stages of the construction compound.

To ensure this sight distance is achieved and maintained during the lifespan of the construction compound, it is recommended that parking on the road frontage is discouraged or banned for workers to minimise potential sightline obstruction. Furthermore, regular vegetation clearance is recommended to ensure no future obstructions occur.

Camp 2

The design/indicative footprint of Camp 2 is not yet finalised, however is expected to be serviced by one (1) vehicle access from along either Wompah Gate Road or Tickalara Road. Both of these roads are noted to be the same hierarchy; however, it is recommended that the frontage of Wompah Gate Road is used for a vehicle access. This is for the following reasons:

- A vehicle access on Tickalara Road would need to evaluate westbound and eastbound traffic on Tickalara Road, as well as any vehicles exiting the intersection on Wompah Gate. Comparatively, if the vehicle access is located on Wompah Gate, only the northbound and southbound movements would need to be evaluated by the driver, resulting in easier decision making and safer vehicle movements.
- Vehicles heading southbound from the intersection are expected to operate at low operating speeds.

The ultimate geometric configuration of the access is expected to be finalised in the detailed design stages of the construction compound design.

Geometric design

The proposed vehicle access for the construction compound should be designed in accordance with the Bulloo Shire Planning Scheme. To accord with the acceptable outcomes of the scheme, the vehicle access is required to be:

- clear of street furniture, gully pits, manholes, power poles, and street trees (AO11)
- a minimum distance of a driveway from an intersection of one street with another is 6 m (AO12)
- vehicle crossovers are designed in accordance with BSC's standards (AO13.1).

In the absence of any specific standard drawings for vehicle crossovers under the Bulloo Shire Planning Scheme, it is recommended that the finalised design of the vehicle access be in accordance with the Australian Standards, which will use the turn path of the largest vehicle in consideration of the design elements.

The ultimate design of the vehicle access is expected to generally in accordance with *Figure 3.1 of AS2890.2*.

Turn warrant assessment

A turn warrant assessment is typically conducted at key major intersections or vehicle accesses to satisfy turn warrant requirements as outlined in AGTM6.

Due to the remote location resulting in low background traffic demands along Wompah Gate Road, the minimal peak hour trip generation of the construction compound (further detailed section 6.1.2), and the use of the camp for less than a year, a left or right turn treatment at either vehicle accesses is unlikely to provide significant benefits to the road performance. As such, it is recommended that alternate treatments such as signage in advance is provided to warn other drivers of turning traffic rather than the provision of turn treatments.

Sight distance assessment

As per AO13.2 of the General Development Code contained within the Bulloo Shire Planning Scheme, an assessment of the sight distance of the vehicle access was conducted at the proposed vehicle access location to determine if the distances outlined in AS2890.2 were satisfied.

For a road frontage speed of 100 km/h, a minimum sight distance of 139 m (representing a five second gap), and a desirable sight distance of 222 m (representing an eight second gap) is outlined in the Australian Standards.

A vehicle access along Wompah Gate Road is expected to achieve the minimum sight distance of 139 m as well as the desirable sight distance of 222 m to the south. Depending on the location of the vehicle access with respect to the intersection of Wompah Gate Road / Tickalara Road, sight distance to the north may be physically constrained, however, vehicle operating speeds turning into Wompah Gate Road at the intersection are expected to be very low, resulting in reduced sight distance requirements. This sight distance is recommended to be reassessed and confirmed for suitability once the camp design is finalised.

To ensure this sight distance is achieved and maintained during the lifespan of the camp, it is recommended that parking on the road frontage is discouraged or banned for workers to minimise potential sightline obstruction. Furthermore, regular vegetation clearance is recommended to ensure no future obstructions occur.

Warri Gate Road construction access tracks

The proposed vehicle access points to the CRoW along the council-controlled roads are required to comply with the Bulloo Shire Planning Scheme. To accord with the acceptable outcomes of the scheme, the vehicle access is required to be:

- clear of street furniture, gully pits, manholes, power poles, and street trees (AO11)
- a minimum distance of a driveway from an intersection of one street with another is 6 m (AO12)
- vehicle crossovers are designed in accordance with BSC's standards (AO13.1).

In the absence of any specific standard drawings for vehicle crossovers under the Bulloo Shire Planning Scheme, it is recommended that the finalised design of the vehicle access be in accordance with the Australian Standards, which will use the turn path of the largest vehicle in consideration of the design elements.

The ultimate design of the vehicle access is expected to generally in accordance with *Figure 3.1 of AS2890.2*.

Turn warrants

A turn warrant assessment was conducted to help guide the design requirements for the vehicle access points. As the exact timing and usage of construction access track is unconfirmed at this stage, a conservative assessment in which the largest expected peak hourly traffic generation has been used as the design volumes for any access scenario. The two main scenarios tested were:

1. all traffic turning left into the CRoW in the AM peak (then turning right out in the PM peak)
2. all traffic turning right into the CRoW in the AM peak (then turning left out in the PM peak).

The above two scenarios should encompass all possible scenarios.

The results of the assessment are included in Appendix C and indicates that a re-prioritisation of the intersection could be considered for both scenarios. This change however will likely result in route continuity issues and as such, is not recommended. A realignment is also undesired given both the private nature of the site access, and the short duration of construction (approximately seven months in total, with usage to each specific construction access track expected to be much less).

As re-prioritisation of the intersection is not considered feasible for safety and operational reasons, nor is there any requirement for any additional turn treatments, no mitigation measures are required at the site access.

Notwithstanding the above, Trucks Crossing or Entering (T2-25) warning signs, indicated in Figure 7.3, could be provided at the approach to the site access intersection during the construction period to alert motorists about truck movements to and from the site.

Furthermore, it would be expected that the construction contractors will utilise construction traffic management plans to adequately manage the movements of the vehicles into and out of the vehicle access points. It is expected that these plans may use measures such as speed reductions to appropriately manage the safety and efficiency of the road network.

Tickalara Road and Wompah Gate Road construction access tracks

Due to the similarities in the peak hourly volumes expected to be generated on Tickalara Road and Wompah Gate Road (45 vs 47 vehicles respectively), the turn warrants have been conservatively based on the 47-vehicle traffic generation and applied to both roads.

The proposed vehicle access points to the ROWs along the council-controlled roads are required to comply with the Bulloo Shire Planning Scheme. To accord with the acceptable outcomes of the scheme, the vehicle access is required to be:

- clear of street furniture, gully pits, manholes, power poles, and street trees (AO11)
- a minimum distance of a driveway from an intersection of one street with another is 6 m (AO12)
- vehicle crossovers are designed in accordance with BSC's standards (AO13.1).

In the absence of any specific standard drawings for vehicle crossovers under Bulloo Shire Planning Scheme, it is recommended that the finalised design of the vehicle access be in accordance with the Australian Standards, which will use the turn path of the largest vehicle in consideration of the design elements.

The ultimate design of the vehicle access is expected to generally in accordance with *Figure 3.1 of AS2890.2*.

Turn warrants

A turn warrant assessment was conducted to help guide the design requirements for the vehicle access points. As the exact timing and usage of construction access track is unconfirmed at this stage, a conservative assessment in which the largest expected peak hourly traffic generation has been used as the design volumes for any access scenario. The two main scenarios tested were:

3. all traffic turning left into the CRow in the AM peak (then turning right out in the PM peak)
4. all traffic turning right into the CRow in the AM peak (then turning left out in the PM peak).

The above two scenarios should encompass all possible scenarios.

The results of the assessment are included in Appendix C and indicates that a re-prioritisation of the intersection could be considered for both scenarios. This change however will likely result in route continuity issues and as such, is not recommended. A realignment is also undesired given both the private nature of the site access, and the short duration of construction (approximately seven months in total, with usage to each specific construction access track expected to be much less).

As re-prioritisation of the intersection is not considered feasible for safety and operational reasons, nor is there any requirement for any additional turn treatments, no mitigation measures are required at the site access.

Notwithstanding the above, Trucks Crossing or Entering (T2-25) warning signs, indicated in Figure 7.3, could be provided at the approach to the site access intersection during the construction period to alert motorists about truck movements to and from the site.

Furthermore, it would be expected that the construction contractors will utilise construction traffic management plans to adequately manage the movements of the vehicles into and out of the vehicle access points. It is expected that these plans may use measures such as speed reductions to appropriately manage the safety and efficiency of the road network.

7.2.5 Road link capacity

The assessment of road link capacity is consistent with the methodology of the assessment carried out in section 7.1.4.

While no traffic data for the council-controlled roads of Warri Gate Road, Tickalara Road, or Wompah Gate Road are available, using the assumption that background demands are the same as Bulloo Developmental Road, an indicative capacity impact to the road corridors can be determined.

With the assumption of the same background demand, an increase over 5% along the road corridors is expected. While this exceeds the typical 5% threshold for the road link capacity assessment, the low background volume in conjunction with the temporary duration of minor increases in daily and peak hourly traffic results in no expectation of unacceptable performance risks to the road network.

Based on *Table 2* of the *Cost-benefit Analysis manual*, the theoretical hourly capacities of the council-controlled roads proposed to be utilised by the project is outlined in *Table 7.13*.

Table 7.13 *Hourly PCE capacity*

Road	Road width description	Hourly capacity (PCE/hr)
Warri Gate Road, Tickalara Road, Wompah Gate Road	Unsealed formed road ¹	400

Note: 1. Both a road of unsealed natural surface and unsealed formed road descriptions are listed as the same hourly capacity.

Using the road type and peak hour capacity factor outlined in *Table 3* of the *Cost-benefit Analysis manual*, the hourly PCE capacities can be converted to a daily road capacity. As both roads are classified as a rural single carriageway, an 8.33 capacity factor is applied to the hourly capacities. The resulting theoretical road capacities for the roads is outlined in *Table 7.14* below.

Table 7.14 *Theoretical daily road capacity*

	Hourly capacity (PCE/hr)	Capacity factor	Daily Road capacity (PCE/day)
Warri Gate Road, Tickalara Road, Wompah Gate Road	400	8.33	4800

To determine the proposed usage of the council-controlled roads, the maximum daily peak project has been used and conservatively scaled by 1.5 to convert the daily volumes to a PCE volume and account for the usage of heavy vehicles. This was then compared to the theoretical daily capacity of the roads themselves to determine the likely impact to the capacity of the road network.

The findings in *Table 7.15* suggests that the peak project traffic will account for less than 4% on the roads of Tickalara Road and Wompah Gate Road. The absolute peak that occurs along Warri Gate Road does increase traffic more than 5%, however this is only expected to occur in for less than a month across the entire construction period, with no other month resulting in a more than 5% increase in traffic.

Table 7.15 *Theoretical daily road capacity impact*

	Project traffic	Peak project PCE	Daily road capacity (PCE/day)	Project traffic impact
Warri Gate Road – Peak	178	267	4800	5.5%
Warri Gate Road – Average over construction	81	122	4800	2.5%
Tickalara Road – Peak	123	185	4800	3.8%
Wompah Gate Road – Peak	112	168	4800	3.5%

While Warri Gate Road during the peak usage of the road may experience increases in traffic just over 5%, the average usage during construction is found to be less than 3%. Furthermore, the actual total usage of the road is also well within capacity limits. Construction of any mitigation measures are likely to increase demands, and given the short overall construction timeframe, are unlikely to provide any benefit.

Based on the capacity calculations, no worsening in the level of service along the road corridors are expected as a result of the introduction of project traffic.

7.2.6 Transport infrastructure impact

Warri Gate Road, Tickalara Road, and Wompah Gate Road are not currently gazetted for any non-general access vehicles. Heavy vehicles to travel along these roads are currently expected to be a maximum length of 19 m at this stage. These vehicles are general access and do not require any specific permit, however, due to the vulnerable condition of the roads after the recent inclement weather events, consultation with Council is recommended to confirm the suitability of the roads as routes and if any early work upgrades are required to mitigate any structural impacts.

7.2.7 Council code responses

An assessment of the achieved outcomes against the Bulloo Shire Planning Scheme development codes as a result of the proposed development was conducted based on the findings of the above assessments. For impacts on Council roads, the development accords with the purpose and overall outcome goals of the 'General Development code' of the Bulloo Shire Planning Scheme, with the provision of safe and efficient access and egress to and from the various temporary accommodation facilities and construction compounds.

The required outcomes and project achieved outcomes for BSCs codes are detailed in Appendix E.

7.3 Operation impacts

The pipeline would be designed to operate with a minimum of operator intervention. Access to the permanent easement would be necessary for routine inspections and to follow-up any issues identified.

Based on the operational trip generation outlined in section 6.4, less than four field staff are expected to maintain and patrol the pipeline each day. Due to the minimal traffic generation expected to occur during the operation of the pipeline, and the fact this traffic generation is less than the peak construction period assessed, no further assessment for this stage has been undertaken.

7.4 Decommissioning impacts

At the end of the project's operational life, decommissioning would be undertaken in accordance with the structured, risk-based process. This process involves a safety management study, segment analysis and preparing an abandonment plan, which together ensure that potential risks (including environmental and safety risks) are identified, assessed and managed.

Decommissioning works would be significantly less intensive than construction activities, involving fewer personnel, less equipment and shorter durations of work at any given location (up to about a week). Due to the minimal traffic generation expected to occur during the decommission of the pipeline, and the fact this traffic generation is less than the peak construction period assessed, no further assessment for this stage has been undertaken.

8. Conclusions and recommendations

8.1 Summary of impacts and mitigation measures proposed

8.1.1 Impacts summary

State-controlled road network

Based on the assessments conducted on the state-controlled road network, the following key conclusions are made as part of the impact assessments.

Road safety assessment

The result of the road safety assessment finds that no existing risk items are either scored high without the introduction of the project traffic or increases to a higher risk score with the introduction of the project traffic. Hence, no significant worsening in the road safety of either Bulloo Developmental Road or Cooper Developmental Road is expected.

Access and frontage assessment

Vehicle accesses off the state-controlled road for the construction access tracks should be designed and constructed in accordance with either a Type C or D rural property access outlined in TMR's standard drawings.

Due to the low background traffic, turn warrants assessments for the new vehicle access points indicate a need for pre-prioritisation, however this is not considered feasible for safety and operational reasons, nor is there any requirement for any additional turn treatments.

As part of the detailed design stages of the project, confirmation on adequate sight distances at each vehicle access location will be required to be undertaken to ensure compliant, safe, and efficient vehicle movements can be provided.

Intersection delay impact assessment

Due to the low background traffic on the state-controlled road network (i.e. less than 40 vehicles in a day), the introduction of construction traffic is not expected to materially worsen the turning movements of vehicles within the network. It should also be noted that due to the relatively short construction time period (especially within the state-controlled road network area), any improvement works proposed are likely to cause even worse delays than without.

Road link capacity impact assessment

Given the low background traffic volumes along Bulloo Developmental Road and Cooper Developmental Road, a 5% increase in traffic is expected. Considering the theoretical daily capacities of the roads however, construction traffic will only account for 2% of the daily capacity of the roads, as a result, no material impact to the operational performance of the state-controlled road network would be expected with the introduction of construction traffic.

Pavement impact assessment

The result of the pavement impact assessment suggests that pavement loading is expected to be over the 5% threshold for the majority of the road corridor along Bulloo Developmental Road and Cooper Developmental Road, with the exception of the southbound lane of Bulloo Developmental Road south of the Warri Gate Road intersection.

Transport infrastructure impact assessment

A review of the gazetted heavy vehicle routes and restrictions indicates that Cooper Developmental Road and Bulloo Developmental Road allows up to a Type 2 Road Train (Performance Based Standards Level 3A). As no vehicles are expected to be larger or heavier than this, no impacts to the structural integrity of bridges, culverts, and other structures are expected.

Council-controlled road network

Based on the assessments conducted on the Council-controlled road network, the following key conclusions are made as part of the impact assessments.

Road safety assessment

The result of the road safety assessment finds that no existing risk items are either scored high without the introduction of the project traffic or increases to a higher risk score with the introduction of the project traffic.

Two new risk items are created along the Council-controlled roads as a consequence of the introduction of the project traffic. These being:

1. No heavy vehicle rest stop provisions are currently provided along Warri Gate Road. Compliance with fatigue and rest management for drivers may not be achieved without the construction of stops. There is an increased risk of run-off road type crashes as a result.
2. A higher proportion of heavy vehicles are expected to turn left in and right out of the pipe stockpile 2 and camp 2 vehicle accesses. Some motorists may not expect these turns increasing risk of rear-end or side-on impacts.

Both these risk scores are not assessed as high-risk items and will be classified as low risk score issue with the appropriate mitigations.

Access and frontage assessment

Vehicle accesses off the Council-controlled road for the construction access tracks should be designed and constructed in accordance with the Australian Standards.

Due to the low background traffic, turn warrants assessments for the new vehicle access points indicate a need for pre-prioritisation, however this not considered feasible for safety and operational reasons, nor is there any requirement for any additional turn treatments.

As part of the detailed design stages of the project, confirmation on adequate sight distances at each vehicle access location will be required to be undertaken to ensure compliant, safe, and efficient vehicle movements can be provided.

Road link capacity impact assessment

Given the low background traffic volumes along Council-controlled roads, a 5% increase in traffic is expected. Considering the theoretical daily capacities of the roads however, less than 5% usage is expected along Tickalara Road and Wompah Gate Road in the peak periods.

The absolute peak that occurs along Warri Gate Road does increase traffic more than 5%, however this is only expected to occur in a single month across the entire construction period, with no other period resulting in a more than 5% increase in traffic.

Based on the capacity calculations, no worsening in the level of service along the road corridors are expected as a result of the introduction of project traffic.

Transport infrastructure impact assessment

The roads of Warri Gate Road, Tickalara Road, and Wompah Gate Road are not currently gazetted for any non-general access vehicles. Heavy vehicles to travel along these roads are currently expected to be a maximum length of 19 m at this stage. These vehicles are general access and do not require any specific permit, however, due to the vulnerable condition of the roads after the recent inclement weather events, consultation with Council is recommended to confirm the suitability of the road as a route and if any early work upgrades are required to mitigate any structural impacts.

8.1.2 Recommended mitigation measures

State-controlled road network

Based on the assessments conducted on the state-controlled road network, the following mitigation measures are proposed or recommended as part of the impact assessments.

Road safety assessment

The road safety assessment conducted found that no existing safety risk score for any issues is found to increase as a result of the introduction of the development traffic on state-controlled roads. As a result, no specific road safety mitigation measures would be required.

Access and frontage assessment

To ensure safe and efficient access off the state-controlled road network, the following mitigation measures are proposed:

- Provide 'Trucks Crossing or Entering (T2-25) warning signs', at the approach to the vehicle access points during the construction period to alert and warn motorists about potential truck movements ahead.
- Ensure construction traffic management plans are in place to adequately manage the movements of the vehicles into and out of the construction access tracks. It is expected that these plans may use measures such as speed reductions to appropriately manage the safety and efficiency of the road network.

Intersection delay impact assessment

As no material impacts are expected on the state-controlled intersections, no mitigation measures to reduce vehicle delays are proposed.

Road link capacity impact assessment

As no material impacts are expected on the state-controlled road links, no mitigation measures to improve vehicle level of service are proposed.

Pavement impact assessment

To mitigate the pavement impacts, it is recommended that the following activities be considered:

- traffic management plan and/or road use management plans for heavy vehicles are devised to generate pavement usage efficiencies
- limit road use during wet weather events
- undertake edge improvements for the road sections utilised by the construction traffic, such as sealing shoulders
- undertake pavement reconstruction for any locations and events of pavement failure caused by the project's construction traffic.

Furthermore, once details of the vehicle fleet and routes are finalised with the construction contractor, the option to provide monetary contributions for the year in which the construction traffic is introduced to the state-controlled network may be considered to offset the damages. This is recommended to be investigated in the later stages of the project.

Transport infrastructure impact assessment

As no material impacts are expected on the state-controlled transport infrastructure, no mitigation measures to improve vehicle level of service are proposed.

Council-controlled road network

Based on the assessments conducted on the Council-controlled road network, the following mitigation measures are proposed or recommended as part of the impact assessments.

Road safety assessment

To mitigate the two new risk items created as a consequence of the introduction of the project traffic, the following mitigation measures are proposed:

1. As part of the transport contractor's route assessment and transport management plan, the required locations for rest areas/stops will be identified. Construction or use of these stops will be required for both the actual feasibility of the transport route as well as to ensure the safe haulage of the pipe components.
2. Advanced warning signage of heavy vehicles and/or turning (heavy) vehicles will be installed on both sides of the camp 1 and pipe stockpile 1 vehicle access locations. Furthermore, separation between heavy vehicles and light vehicles is encouraged by the placement of the proposed vehicle accesses, with the heavy vehicle access (i.e. construction compound access) provided on the western-most side and the light vehicle access (i.e. camp access) provided on the eastern-most side of the site. This placement configuration reduces the number of vehicle conflict points, as well as the potential mixture of heavy vehicles and light vehicles along this road section, noting heavy vehicles will originate from the west, and light vehicles will travel to the east.

Access and frontage assessment

To ensure safe and efficient access off the Council-controlled road network, the following mitigation measures are proposed:

- Provide 'Trucks Crossing or Entering (T2-25) warning signs', at the approach to the vehicle access points during the construction period to alert and warn motorists about potential truck movements ahead.
- Ensure construction traffic management plans are in place to adequately manage the movements of the vehicles into and out of the construction access tracks. It is expected that these plans may use measures such as speed reductions to appropriately manage the safety and efficiency of the road network.

Road link capacity impact assessment

While Warri Gate Road during the peak usage of the road may experience increases in traffic just over 5%, the average usage during construction is found to be less than 3%. Furthermore, the actual total usage of the road is also well within capacity limits. Construction of any mitigation measures are likely to increase demands, and given the short overall construction timeframe, are unlikely to provide any benefit.

Based on the capacity calculations, no worsening in the level of service along the road corridors are expected as a result of the introduction of project traffic, hence, no mitigation measures are proposed.

Transport infrastructure impact assessment

Due to the vulnerable condition of the roads after the recent inclement weather events, consultation with Council is recommended to confirm the suitability of the Council-controlled roads as transport routes and if any early work upgrades are required to mitigate any structural impacts.

8.2 Conclusion

This Traffic Impact Assessment has been prepared to assess the potential impacts of the construction, operation (including maintenance), and decommissioning of an underground high-pressure gas pipeline and associated above-ground infrastructure, to connect the Southwest Queensland Pipeline in QLD with the Moomba to Wilton Pipeline in NSW. This TIA is not an impact assessment of the entire construction and operation of the Bulloo Interlink Pipeline from QLD to NSW.

The surrounding road network operates at very low volumes, and while a 5% increase in traffic is expected as a result, the assessment of actual road capacity finds these roads should be able to withstand these temporary traffic increases. The qualitative safety review identified no new high-risk items, with existing risks primarily associated with narrow carriageway widths, unsealed sections, flood-affected areas and absence of delineation.

The assessment found that the temporary construction activities of the pipeline can be accommodated on the surrounding road network without generating unacceptable impacts on safety, capacity or transport infrastructure.

The key findings from the assessment include:

- The pipe haulage route will utilise Wompah Gate Road from the NSW border to the pipe stockpile 2 site.
- The construction activities of the project will utilise the roads of Cooper Developmental Road, Bulloo Developmental Road, Warri Gate Road, Tickalara Road, and Wompah Gate Road.
- The vehicle accesses for the pipe stockpiles and camps are appropriately located and are expected to achieve the required sight distance for the expected road frontage speed. As part of the later design stages of the project, the compliance of the design elements of the camp and pipe stockpiles to be reassessed once the layout is finalised. Reassessment to consider if warrant treatments (i.e. additional turning lanes) are required at the vehicle access locations or the proposed ROWs.
- The peak trip generation is expected to occur for approximately a month equating to 250 trips a day, or conservatively 85 vehicles in the peak hourly period.
- Noting the variance of construction activities throughout the project program, the average trip generation throughout the construction period is approximately 50 vehicles per day.
- Cooper Developmental Road and Bulloo Developmental Road are gazetted as a Type 2 Road Train route. As no vehicles are expected to be larger or heavier than this, no impacts to the structural integrity of bridges, culverts or other structures are expected. Heavy vehicle haulage via semitrailers does not exceed gazetted route limits on Bulloo Developmental Road and Cooper Developmental Road. These impacts will need to be confirmed as part of the route haulage feasibility studies conducted in the later design stages of the project.
- The haulage of the pipe components and camp materials to the temporary accommodation facilities and construction compounds are expected to be conducted through semitrailers. These vehicles are general access and do not require any specific permit, however due to the variable condition found along the council roads, consultation with council is recommended to confirm the suitability of the road as a route and if any early work upgrades are required to mitigate any structural impacts.
- Impacts to the pavement of state-controlled roads are expected on Cooper Developmental Road and Bulloo Developmental Road. Once details of the vehicle fleet and routes are finalised with the construction contractor, the option to provide monetary contributions for the year in which the construction traffic is introduced to the state-controlled roads is to be investigated.
- The roads of Warri Gate Road, Tickalara Road, and Wompah Gate Road are not currently gazetted for any non-general access vehicles. Heavy vehicles to travel along these roads are currently expected to be a maximum length of 19 m at this stage. These vehicles are general access and do not require any specific permit, however, due to the vulnerable condition of the roads after the recent inclement weather events, consultation with Council is recommended to confirm the suitability of the road as a route and if any early work upgrades are required to mitigate any structural impacts.

Subject to implementation of the recommended mitigation measures including signage, fatigue management, delineation near the access, road condition monitoring and coordination with Council, the traffic impacts associated with the construction of the pipeline (and associated temporary facilities) are considered acceptable.

9. References

- Association, A. P. a. G., 2022. [Online]
Available at: https://apga.org.au/hubfs/apga_code_of_environmental_practice_2022.pdf?hsLang=en
- Austrroads, 2020. *Guide to Traffic Management Part 12: Integrated Transport Assessments for Developments*, Sydney: Austrroads.
- Austrroads, 2020. *Guide to traffic management Part 6: Intersections, interchanges and crossings (turn warrants)*, Sydney: Austrroads.
- Austrroads, 2023. *Guide to road design: Part 4A – Unsignalised and signalised intersections*, Sydney: Austrroads.
- Bulloo Shire Council, 2019. *Bulloo Shire Council Planning Scheme*. [Online]
Available at: <https://www.bulloo.qld.gov.au/Planning-Development/Planning/Planning-Scheme>
[Accessed January 2026].
- Department of Environment, Science and Innovation, 2024. *Application requirements for petroleum activities guideline. ESR/2016/2357, Version 4.01*. [Online]
Available at: <https://www.detsi.qld.gov.au/global/policy-register/policy-register-pdf?getdoc=2357&name=rs-gl-application-requirements.pdf>
- Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts, n.d. *Remote Roads Upgrade Pilot Program*. [Online]
Available at: <https://investment.infrastructure.gov.au/about/national-initiatives/remote-roads-upgrade-pilot-program>
[Accessed 10 February 2026].
- Department of Transport and Main Roads, 2011. *Cost-benefit Analysis manual*, s.l.: s.n.
- Department of Transport and Main Roads, 2013. *Transport Noise Management Code of Practice Volume 1 - Road Traffic Noise*. s.l.:s.n.
- Department of Transport and Main Roads, 2017. *Transport coordination plan 2017–2027*, Brisbane: Queensland Governmen.
- Department of Transport and Main Roads, 2018. *Guide to traffic impact assessment*, Brisbane: Queensland Government.
- Department of Transport and Main Roads, 2018. *Guide to Traffic Impact Assessment Practice Note: Pavement Impact Assessment*, s.l.: s.n.
- Department of Transport and Main Roads, 2019. *South West Queensland Regional Transport Plan 2019*, Brisbane: Department of Transport and Main Roads.
- Department of Transport and Main Roads, 2022. *Road safety policy*, Brisbane: Queensland Government.
- Department of Transport and Main Roads, 2023. *Transport Noise Management Code of Practice: Volume 2 - Construction Noise and Vibration*, s.l.: s.n.
- Department of Transport and Main Roads, 2024. *Rural Property Access*. [Online]
[Accessed March 2026].
- Department of Transport and Main Roads, 2025. *Strategic plan 2023–2027 (reviewed 2025–2026)*, Brisbane: Queensland Government.
- Department of Transport and Main Roads, 2025. *Traffic census for the Queensland state-declared road network*. [Online]
Available at: <https://www.data.qld.gov.au/dataset/traffic-census-for-the-queensland-state-declared-road-network>
[Accessed 27 January 2025].
- DETSI, 2025. *Prescribing noise conditions for environmental authorities for petroleum activities*, s.l.: s.n.
- Government, Queensland, 1995. *Transport Operations (Road Use Management) Act 1995*. [Online].
- National Heavy Vehicle Regulator (NHVR), 2025. *Driver work and fatigue*. [Online]
Available at: <https://www.nhvr.gov.au/safety-accreditation-compliance/fatigue-management>
[Accessed 15 January 2026].

NHVR, 2021. *Heavy vehicle safety strategy 2021–2025*, Brisbane: NHVR.

Queensland Government, 1994. *Transport Planning and Coordination Act 1994*, Brisbane: State of Queensland.

South West Queensland Regional Transport Plan, 2019. *South West Queensland Regional Transport Plan (2019)*, Queensland: Department of Transport and Main Roads.

Transport Operations (Road Use Management) Act 1995, 1995. *Queensland Government*, Brisbane: State of Queensland.

Appendices

Appendix A

Traffic generation calculations

Pipe stockpile 2 establishment workforce

Six staff members are expected to work at the construction compound as part of the establishment works of the construction compound. These workers are expected to travel individually to the Wompah Gate construction compound from the Nockatunga construction compound resulting in a trip generation of six light vehicles entering pipe stockpile 2 per day (and six vehicles leaving the site per day). These workers are expected to generally arrive all within the same hour, resulting in a peak hour trip generation of six light vehicles entering stockpile 2 in the morning, and six light vehicles leaving the site in the evening.

The stockpile 2 establishment workforce is expected to utilise Class one light vehicles (i.e. utes).

Pipe stockpile 2 line pipe haulage

An estimate for the number of truck trips required to complete the delivery of pipes from Broken Hill to the pipe stockpile 2 is outlined in Table A.1.

Table A.1 Estimated pipeline delivery vehicle movements

Description	Number of pipe sections	Pipe lengths per load	Delivery vehicle trips	Return vehicle trips
Heavy Wall Pipe	137	3	46	46
Light Wall Pipe	6,258	5	1,252	1,252
Total	6,395	-	1,297	1,297

Pipe deliveries are expected to occur over four periods, these being:

- Shipment 1: 28 April 2027 to 6 June 2027
- Shipment 2: 15 June 2027 to 24 July 2027
- Shipment 3: 2 August 2027 to 10 September 2027.

Based on the 1,297 expected delivery trips, and the duration between 28 April 2027 to 10 September 2027, an average vehicle trip generation of 10.8 vehicles delivering pipes per day is expected (based on the 120 total days of shipping time). These trips are expected to be staggered throughout the working day of 6AM to 6PM, resulting in an average hourly traffic generation of 0.9 delivery trips per hour, and 0.9 return trips per hour. For the purposes of the assessments, these hourly trip rates have been rounded up to 1.0 per hour.

Pipe haulage is assumed to be conducted through the use of Class 9 articulated vehicles (i.e. semi-trailers).

Equipment and plant mobilisation

While every effort is expected to be made to source equipment and plant locally, a worst-case scenario in which 100% of the equipment is mobilised to the site has been included. The expected fleet numbers are outlined in Table A.2.

Table A.2 Vehicles and equipment

Vehicle/equipment	Total
Light Vehicle	130
Truck	72
Crane	1
Earthmoving Plant	57
Trenching Machine	5
Pipeline plant	21
Padding machine	2
Containers 20'	15
Containers 40'	3

Vehicle/equipment	Total
Miscellaneous (10% of above)	30
Grand Total	336

A total of 336 vehicles is expected to be required to support the construction activities of the pipeline. Mobilisation of these vehicles is expected to occur over a period of 2.5 months, which results in 4.5 vehicles per day. For conservativeness noting this construction activity isn't regular, five vehicles per day have been assumed.

Temporary accommodation facility camp servicing

During construction of the pipeline as the camps operate, these sites are expected to require regular servicing such as deliveries of water, food, and other miscellaneous materials. While the exact details of the camp servicing requirements are not yet finalised, a nominal five heavy vehicles per day have been assumed for each camp during the entirety of each camp's operation. These are expected to be spread out through the day, with a conservative assumption that 1 vehicle enters/exits in the peak period.

Camp servicing is assumed to be conducted through the use of a Class 5 vehicle (i.e. rigid truck).

Stockpile 1 pipe delivery to CRoW

The pipe transport from stockpile 1 is expected to need a total of 3,182 vehicle trips from the construction compound to the CRoW (and back to the stockpile1). This delivery is expected to occur over a period of approximately three months, with a resultant average daily trip generation is expected to be 10.3 trips from the stockpile 1 to the ROW, and 10.3 trips back to the stockpile 1, resulting in a daily trip generation of 22 (conservatively rounded up).

For the peak hour periods, based on a 12-hr work schedule of 6AM to 6PM, 0.9 vehicles entering and exiting the stockpile as part of this construction activity is expected. For the purposes of the assessment, this has been rounded to 1 vehicle exiting the stockpile with pipes, and 1 vehicle entering the stockpile, returning from the ROW.

Pipe haulage to the CRoW is assumed to be conducted by a Class 9 vehicle (i.e. semi-trailer).

Pipe stockpile 2 pipe delivery to CRoW

The pipe transport from pipe stockpile 2 is expected to need a total of 2,595 vehicle trips from the pipe stockpile 2 to the construction access tracks (and back to pipe stockpile 2). With a nominated timeframe of approximately three months, the average daily trip generation is expected to be 8.4 trips from pipe stockpile 2 to the CRoW, and 8.4 trips back to pipe stockpile 2, resulting in a daily trip generation of 18 (conservatively rounded up).

For the peak hour periods, based on a 12hr work schedule of 6AM to 6PM, 0.75 vehicles entering and exiting the stockpile as part of this construction activity is expected. For the purposes of the assessment, this has been rounded to 1 vehicle exiting the stockpile with pipes, and 1 vehicle entering the stockpile, returning from the ROW.

Pipe haulage to the CRoW is assumed to be conducted by a Class 9 vehicle (i.e. semi-trailer).

Pipe stockpile 2 haulage workforce

For the operation of pipe stockpile 2 during pipeline deliveries, a crew of 10 workers are expected to be on-site to facilitate the delivery and organisation of pipe components. These workers are expected to generally arrive all within the same hour, resulting in a peak hour trip generation of 10 vehicles entering the construction compound in the morning, and 10 vehicles leaving the construction compound in the evening.

The operational workforce is expected to consist of a mixture of Class 1 light vehicles in utes, as well as some use of Class 3 and Class 4 trucks.

Pipeline construction servicing deliveries

As part of the construction of the pipeline, regular deliveries are expected to be made to support construction efforts. These include fuel, water and construction waste removal vehicle trips. The exact quantum of vehicle trips generated by these construction activities are yet to be determined, however for the purposes of the initial assessment, a nominal five heavy vehicles per day has been assumed.

This results in five heavy vehicles entering and existing the CRoW per day, respectively. Servicing is expected to occur throughout the day, which results in an expectation of less than a vehicle per hour. For the purposes of the assessments, for the peak hour periods, one vehicle is expected to enter or exit the site.

Pipeline construction servicing deliveries are assumed to be conducted by a Class 9 vehicle (i.e. semi-trailer).

Camp 2 establishment workforce

Staff members are expected to work at the camp area as part of the establishment works of the construction camp. These workers are expected to travel individually to camp 2 resulting in a trip generation of six light vehicles entering the site per day (and six vehicles leaving the site per day). These workers are expected to generally arrive all within the same hour, resulting in a peak hour trip generation of six light vehicles entering camp 2 in the morning, and six light vehicles leaving the site in the evening.

The camp establishment workforce is expected to utilise Class one light vehicles (i.e. utes).

Camp 2 construction materials delivery

For the establishment of the camp, some material deliveries are expected to be made to the camp site location. The exact quantum of traffic is expected to be finalised once the design of the camp itself is finalised, however a conservative two heavy vehicles per day on average has been assumed for the purposes of the trip generation estimation. This results in 2 heavy vehicles entering the camp and exiting camp respectively each day for a total of four vehicle trips per day.

Typical with deliveries, these trips would be staggered throughout the day based on the working day of 6AM to 6PM. For the purposes of the trip generation estimates, the peak hourly trip generation has been assumed at one heavy vehicle entering in the AM peak period, and one heavy vehicle exiting in the PM peak period.

Camp material deliveries are assumed to be conducted through the use of Class 9 articulated vehicles (i.e. semi-trailers).

Camp 1 workforce movements

The trip generation of camp 1 is expected to vary depending on the construction week of the project. APA has advised the expected daily traffic generation to and from camp 1 is outlined as per Table A.3. These trip numbers represent the total trips to and from the camp per day (i.e. one trip exiting the camp and one trip entering the camp).

The camp workforce is expected to utilise Class one light vehicles (i.e. utes).

Table A.3 Camp 1 daily traffic generation

	1/06/2027	15/06/2027	1/07/2027	15/07/2027	1/08/2027	15/08/2027	1/09/2027	15/09/2027	1/10/2027	15/10/2027	1/11/2027
Daily trip generation	10	22	32	50	42	84	106	22	28	28	28

Camp 2 workforce movements

The trip generation of camp 2 is expected to vary depending on the construction week of the project. APA has advised the expected daily traffic generation to and from camp 2 is outlined as per Table A.4. These trip numbers represent the total trips to and from the camp per day (i.e. one trip exiting the camp and one trip entering the camp).

The camp workforce is expected to utilise Class one light vehicles (i.e. utes).

Table A.4 *Camp 2 daily traffic generation*

	1/06/2027	15/06/2027	1/07/2027	15/07/2027	1/08/2027	15/08/2027	1/09/2027	15/09/2027	1/10/2027	15/10/2027	1/11/2027
Daily trip generation	22	22	22	84	84	84	84	28	28	28	28

Camp FIFO buses

Transport of workers between the camps and airports are expected to be handled through the use of 48-seat buses. Based on the 21 days on / 9 days off cycle per month, 10 trips to the camps and 10 trips to the airport, for a total of 20 trips per month, or an average of 0.33 trips per day has been determined.

While the flight arrangements for the FIFO workers is not yet finalised, noting a single 48-seat bus would be expected to cater for one flight to Thargomindah, and an expected maximum number of flights likely to be in the order of one per day at Thargomindah airport, conservatively a peak hour generation of one (1) bus has been assumed.

While some concurrent use of the camp is expected, the buses have been assumed to travel to only the busiest camp during the fortnight period.

Appendix B

Temporal traffic generation volumes

Daily trip generation

The temporal trip generation based on each construction activity for each two week period is outlined in Table B.1 and Table B.2.

Table B.1 Construction temporal demand – daily

Construction activity	2-week period starting																			
	15/03/2027	1/04/2027	15/04/2027	1/05/2027	15/05/2027	1/06/2027	15/06/2027	1/07/2027	15/07/2027	1/08/2027	15/08/2027	1/09/2027	15/09/2027	1/10/2027	15/10/2027	1/11/2027	15/11/2027	1/12/2027	15/12/2027	1/01/2028
Stockpile 2 establishment workforce	12																			
Stockpile 2 line pipe haulage				11	11	11	11	11	11	11	11	11								
Stockpile 2 pipe haulage workforce				20	20	20	20	20	20	20	20	20								
Equipment and plant mobilisation		5	5	5	5	5														
Camp 1 servicing						10	10	10	10	10	10	10	10	10	10	10				
Camp 2 establishment workforce					12	12														
Camp 2 servicing							10	10	10	10	10	10	10	10	10	10	10	10	10	10
Camp 2 construction materials delivery					4	4														
Camp 1 workforce movements						10	22	32	50	42	84	106	22	28	28	28				
Stockpile 1 pipe delivery to ROW						22	22	22	22	22	22	22	22	22	22	22				
Stockpile 1 – pipeline construction servicing deliveries						10	10	10	10	10	10	10	10	10	10	10				
Camp 2 workforce movements										22	22	22	84	84	84	84	28	28	28	28
Stockpile 2 pipe delivery to ROW										18	18	18	18	18	18	18	18	18	18	18
Stockpile 2 – pipeline construction servicing deliveries										10	10	10	10	10	10	10	10	10	10	10
FIFO buses – to camp 1						1	1	1	1	1	1	1								
FIFO buses – to camp 2													1	1	1	1	1	1	1	1
TOTAL	12	5	5	47	63	115	116	126	144	186	228	250	187	193	193	193	67	67	67	67

Table B.2 Construction temporal demand – hourly

Construction activity	2-week period starting																			
	15/03/2027	1/04/2027	15/04/2027	1/05/2027	15/05/2027	1/06/2027	15/06/2027	1/07/2027	15/07/2027	1/08/2027	15/08/2027	1/09/2027	15/09/2027	1/10/2027	15/10/2027	1/11/2027	15/11/2027	1/12/2027	15/12/2027	1/01/2028
Stockpile 2 establishment workforce	6																			
Stockpile 2 line pipe haulage				2	2	2	2	2	2	2	2	2								
Stockpile 2 pipe haulage workforce				10	10	10	10	10	10	10	10	10								
Equipment and plant mobilisation		5	5	5	5	5														
Camp 1 servicing						1	1	1	1	1	1	1	1	1	1	1				
Install camp 2					6	6														
Camp 2 construction materials					1	1														
Camp 2 servicing							1	1	1	1	1	1	1	1	1	1	1	1	1	1
Qld Pipeline construction – camp 1 movements						5	11	16	25	21	42	53	11	14	14	14				
Qld Pipeline construction – Stockpile 1 movements to ROW						2	2	2	2	2	2	2	2	2	2	2				
Qld Pipeline construction - Stockpile 1 movements (fuel, water, construction waste to ROW)						1	1	1	1	1	1	1	1	1	1	1				
Qld Pipeline construction – camp 2 movements										11	11	11	42	42	42	42	14	14	14	14
Qld Pipeline construction – Stockpile 2 movements to ROW										2	2	2	2	2	2	2	2	2	2	2
Qld Pipeline construction – Stockpile 2 movements (fuel, water, construction waste to ROW)										1	1	1	1	1	1	1	1	1	1	1
FIFO buses – to camp 1						1	1	1	1	1	1	1								
FIFO buses – to camp 2													1	1	1	1	1	1	1	1
Total	6	5	5	17	24	34	29	34	43	53	74	85	62	65	65	65	19	19	19	19

Appendix C

Turn warrant assessments

C-1 State-controlled roads turn warrant

Left turn into construction access track

Table C.1 summarises the findings from the turn warrant assessment undertaken to demonstrate turn treatments required for any CRoW in which traffic will turn left into at the start of each work day along.

Note that QM denotes the major road traffic volume and QL / QR denote the left / right turn volume.

Table C.1 State-controlled road left turn vehicle access turn warrant assessment

Traffic scenario	Left turn		
	Q _M	Q _L	Warrant
2027 AM Peak	20	53	Nil

Figure C.1 shows the required turn treatment for the scenario in which the construction traffic will turn left into at the start of each work day.

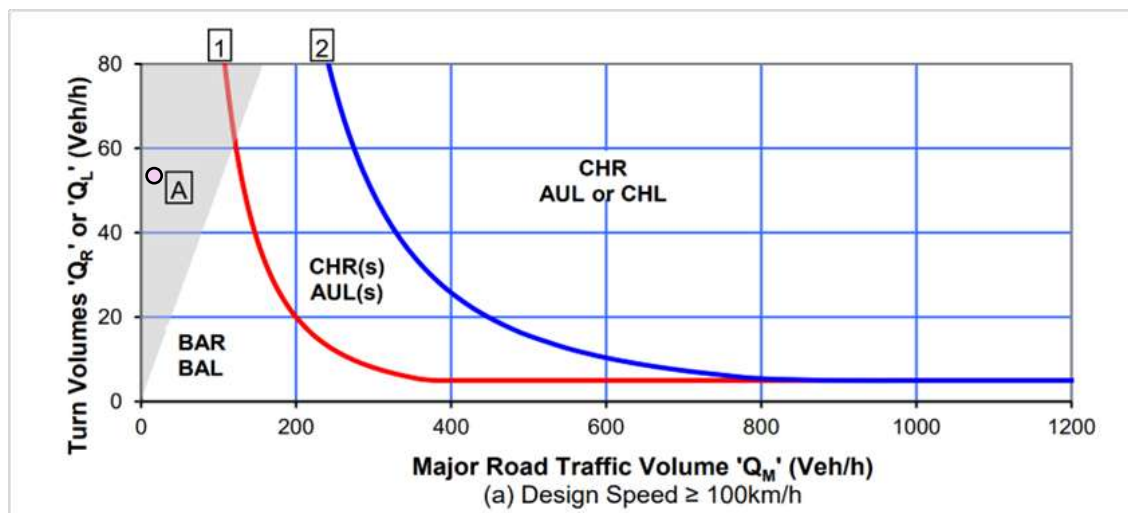


Figure C.1 Left turn into CRoW – Turn warrant assessment for state-controlled road

Right turn into construction access track

Table C.2 summarises the findings from the turn warrant assessment undertaken to demonstrate turn treatments required for any CRoW in which traffic will turn left into at the start of each work day.

Note that QM denotes the major road traffic volume and QL / QR denote the left / right turn volume.

Table C.2 State-controlled road right turn vehicle access turn warrant assessment

Traffic scenario	Right turn		
	Q _M	Q _R	Warrant
2027 AM Peak	38	53	Nil

Figure C.2 shows the required turn treatment for the scenario in which the construction traffic will turn left into at the start of each work day.

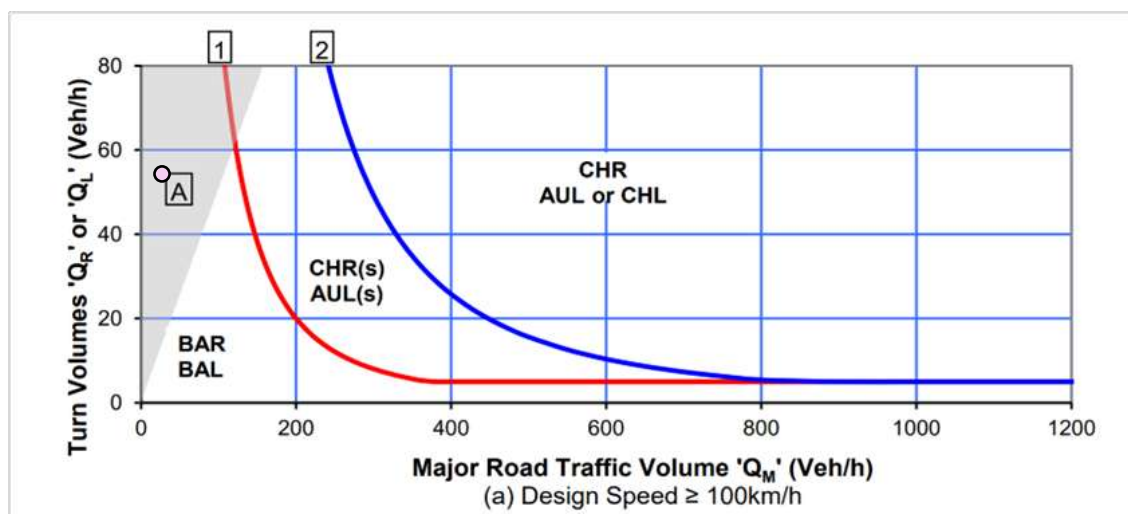


Figure C.2 Right turn into CRoW – Turn warrant assessment for state-controlled road

C-2 Council-controlled roads turn warrant

C-2-1 Warri Gate Road

Left turn into construction access track

Table C.3 summarises the findings from the turn warrant assessment undertaken to demonstrate turn treatments required for any CRoW in which traffic will turn left into at the start of each work day along.

Note that QM denotes the major road traffic volume and QL / QR denote the left / right turn volume.

Table C.3 Warri Gate Road left turn vehicle access turn warrant assessment

Traffic scenario	Left turn		
	Q _M	Q _L	Warrant
2027 AM Peak	20	168	Nil

Figure C.3 shows the required turn treatment for the scenario in which the construction traffic will turn left into at the start of each work day.

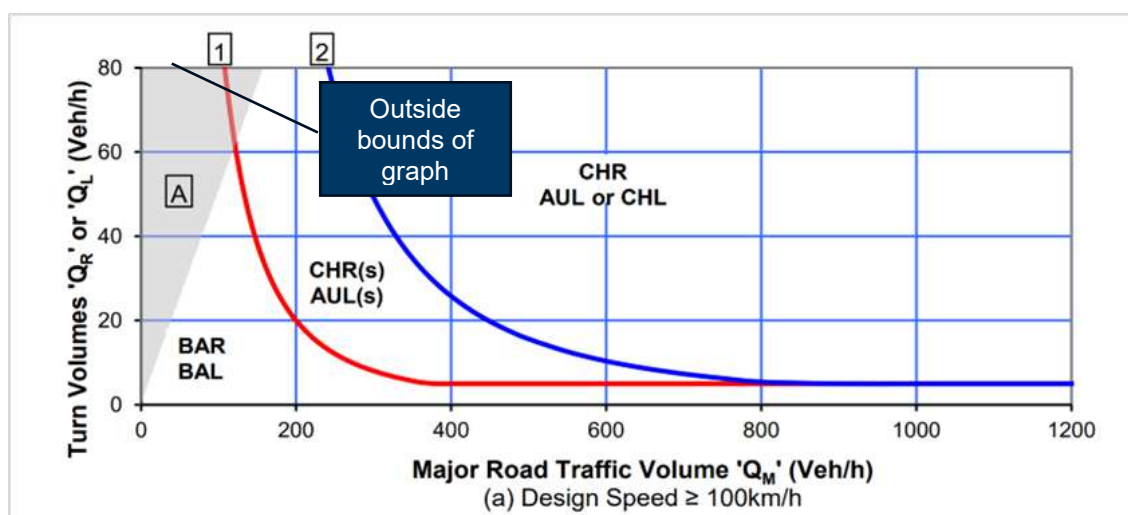


Figure C.3 Left turn into CRoW – Turn warrant assessment for Warri Gate Road

Right turn into construction access track

Table C.4 summarises the findings from the turn warrant assessment undertaken to demonstrate turn treatments required for any CRow in which traffic will turn left into at the start of each work day.

Note that QM denotes the major road traffic volume and QL / QR denote the left / right turn volume.

Table C.4 Warri Gate Road right turn vehicle access turn warrant assessment

Traffic scenario	Right turn		
	Q _M	Q _R	Warrant
2027 AM Peak	38	168	Nil

Figure C.4 shows the required turn treatment for the scenario in which the construction traffic will turn left into at the start of each work day.

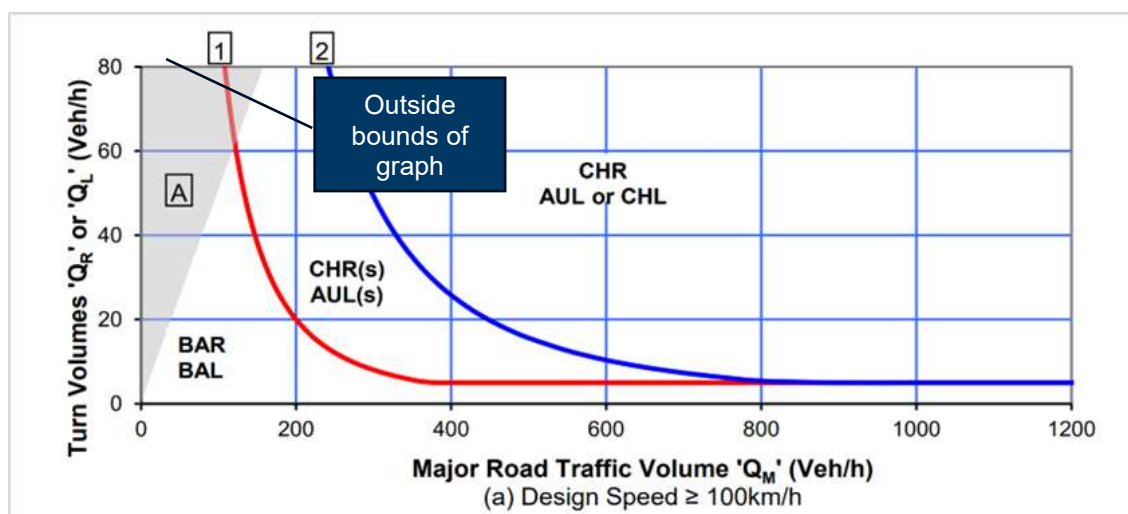


Figure C.4 Right turn into CRow – Turn warrant assessment for Warri Gate Road

C-2-2 Tickalara Road and Wompah Gate Road

Left turn into construction access track

Table C.5 summarises the findings from the turn warrant assessment undertaken to demonstrate turn treatments required for any CRow in which traffic will turn left into at the start of each work day along.

Note that Q_M denotes the major road traffic volume and Q_L / Q_R denote the left / right turn volume.

Table C.5 Tickalara/Wompah Gate Roads left turn vehicle access turn warrant assessment

Traffic scenario	Left turn			Warrant
	Q_M	Q_L		
2027 AM Peak	20	47	Nil	

Figure C.5 shows the required turn treatment for the scenario in which the construction traffic will turn left into at the start of each work day.

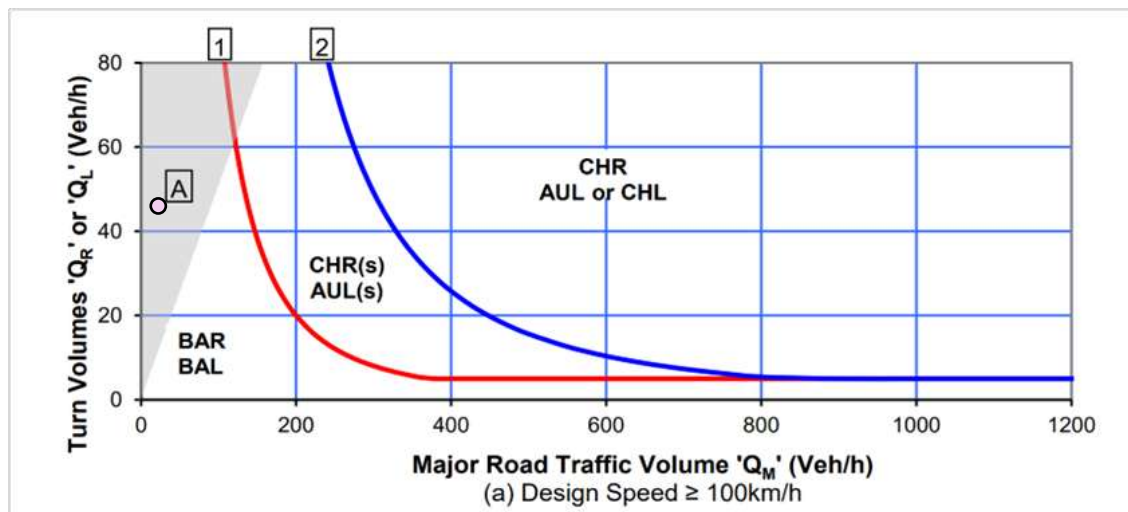


Figure C.5 Left turn into CRow – Turn warrant assessment for Tickalara/Wompah Gate Roads

Right turn into construction access track

Table C.6 summarises the findings from the turn warrant assessment undertaken to demonstrate turn treatments required for any CRoW in which traffic will turn left into at the start of each work day.

Note that QM denotes the major road traffic volume and QL / QR denote the left / right turn volume.

Table C.6 Tickalara/Wompah Gate Roads right turn vehicle access turn warrant assessment

Traffic scenario	Right turn		
	Q _M	Q _R	Warrant
2027 AM Peak	38	45	Nil

Figure C.6 shows the required turn treatment for the scenario in which the construction traffic will turn left into at the start of each work day.

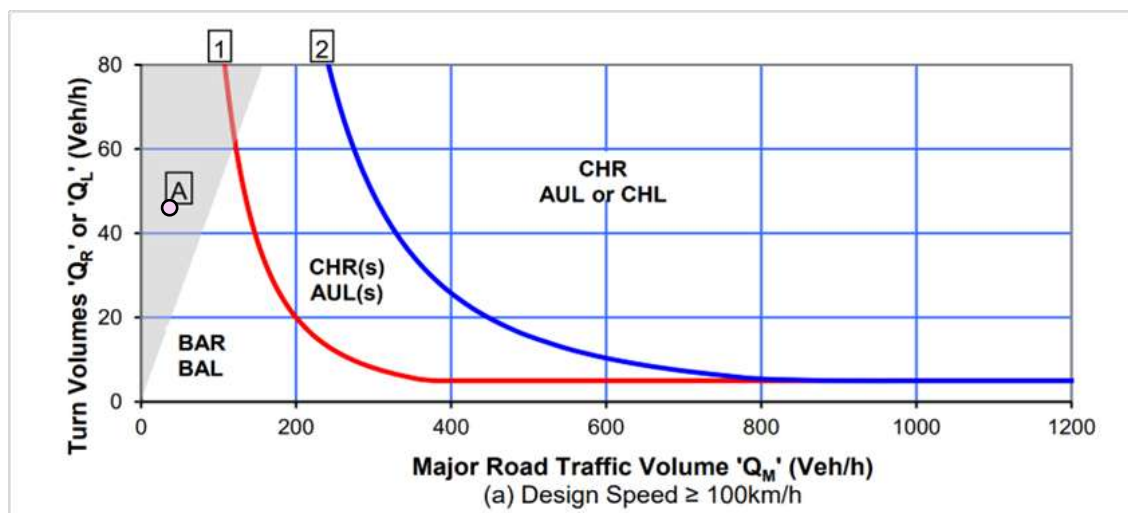


Figure C.6 Right turn into CRoW – Turn warrant assessment for Tickalara/Wompah Gate Roads

Appendix D

**State Development Assessment
Provisions Code response**

The responses to State code 1: Development in a state-controlled road environment are outlined in Table D.1 to Table D.4.

Table D.1 *Development in General (Table 1.1 of State code 1)*

Performance outcomes	Acceptable outcomes	Response
Buildings, structures, infrastructure, services and utilities		
PO1 The location of the development does not create a safety hazard for users of the state-controlled road.	AO1.1 Development is not located in a state-controlled road. AND AO1.2 Development can be maintained without requiring access to a state-controlled road.	Complies with PO1 The development with the recommended mitigation measures and vehicle access designs is not expected to create any safety hazards for users on the state-controlled road network.
PO2 The design and construction of the development does not adversely impact the structural integrity or physical condition of the state-controlled road or road transport infrastructure.	No acceptable outcome is prescribed.	Complies with PO2 Cooper Developmental Road and Bulloo Developmental Road allows up to a Type 2 Road Train (Performance Based Standards Level 3A). As no vehicles are expected to be larger or heavier than this, no impacts to the structural integrity of bridges, culverts, and other structures are expected.
PO3 The location of the development does not obstruct road transport infrastructure or adversely impact the operating performance of the state-controlled road.	No acceptable outcome is prescribed.	Complies with PO3 The road link capacity of the state-controlled road is found not be materially impacted by the project traffic.
PO4 The location, placement, design and operation of advertising devices, visible from the state-controlled road, do not create a safety hazard for users of the state-controlled road.	No acceptable outcome is prescribed.	N/A
PO5 The design and construction of buildings and structures does not create a safety hazard by distracting users of the state-controlled road.	AO5.1 Facades of buildings and structures fronting the state-controlled road are made of non-reflective materials. AND AO5.2 Facades of buildings and structures do not direct or reflect point light sources into the face of oncoming traffic on the state-controlled road. AND AO5.3 External lighting of buildings and structures is not directed into the face of oncoming traffic on the state-controlled road. AND AO5.4 External lighting of buildings and structures does not involve flashing or laser lights.	N/A
PO6 Road, pedestrian and bikeway bridges over a state-controlled road are designed and constructed to prevent projectiles from being thrown onto the state-controlled road.	AO6.1 Road, pedestrian and bikeway bridges over the state-controlled road include throw protection screens in accordance with section 4.11 of the Design Criteria for Bridges and Other Structures Manual, Department of Transport and Main Roads, 2020.	N/A <i>No major bridges are located nearby the proposed development</i>

Table D.2 Vehicular access, road layout and local roads (Table 1.2 of State code 1)

Performance outcomes	Acceptable outcomes	Response
Vehicular access to a state-controlled road or within 100 m of a state-controlled road intersection		
PO15 The location, design and operation of a new or changed access to a state-controlled road does not compromise the safety of users of the state-controlled road.	No acceptable outcome is prescribed.	Complies with PO15 The design of the vehicle access points of the state-controlled road network is expected to comply with the design requirements outlined in TMR's standard drawings. As part of the later design states, final confirmation and assessments on the location (i.e. sight distances) and management plans are expected to be conducted or devised to ensure the safety of the users of the state-controlled road are not impacted.
PO16 The location, design and operation of a new or changed access does not adversely impact the functional requirements of the state-controlled road.	No acceptable outcome is prescribed.	Complies with PO16 The design of the vehicle access points of the state-controlled road network is expected to comply with the design requirements outlined in TMR's standard drawings. Due to the compliant design of the vehicle accesses, no adverse impact to the function of the roads are expected.
PO17 The location, design and operation of a new or changed access is consistent with the future intent of the state-controlled road.	No acceptable outcome is prescribed.	Complies with PO17 The design of the vehicle access points of the state-controlled road network is expected to be designed as a rural vehicle access which is consistent with the current and future intent of the state-controlled road corridors.
PO18 New or changed access is consistent with the access for the relevant limited access road policy: LAR 1 where direct access is prohibited; or LAR 2 where access may be permitted, subject to assessment.	No acceptable outcome is prescribed.	N/A <i>Cooper Developmental Road and Bulloo Developmental Road are not listed as a limited access road.</i>
PO19 New or changed access to a local road within 100 m of an intersection with a state-controlled road does not compromise the safety of users of the state-controlled road.	No acceptable outcome is prescribed.	N/A <i>Vehicle access is not proposed within 100 m of a state-controlled road intersection.</i>
PO20 New or changed access to a local road within 100 m of an intersection with a state-controlled road does not adversely impact on the operating performance of the intersection.	No acceptable outcome is prescribed.	N/A <i>Vehicle access is not proposed within 100 m of a state-controlled road intersection.</i>
Public passenger transport and active transport		
PO21 Development does not compromise the safety of users of public passenger transport infrastructure, public passenger services and active transport infrastructure.	No acceptable outcome is prescribed.	N/A <i>No public passenger transport and active transport services/infrastructure is currently provided nearby the proposed development.</i>
PO22 Development maintains the ability for people to access public passenger transport infrastructure, public passenger services and active transport infrastructure.	No acceptable outcome is prescribed.	N/A <i>No public passenger transport and active transport services/infrastructure is currently provided nearby the proposed development.</i>

Performance outcomes	Acceptable outcomes	Response
PO23 Development does not adversely impact the operating performance of public passenger transport infrastructure, public passenger services and active transport infrastructure.	No acceptable outcome is prescribed.	N/A <i>No public passenger transport and active transport services/infrastructure is currently provided nearby the proposed development.</i>
PO24 Development does not adversely impact the structural integrity or physical condition of public passenger transport infrastructure and active transport infrastructure.	No acceptable outcome is prescribed.	N/A <i>No public passenger transport and active transport services/infrastructure is currently provided nearby the proposed development.</i>

Table D.3 **Network impacts (Table 1.3 of State code 1)**

Performance outcomes	Acceptable outcomes	Response
PO25 Development does not compromise the safety of users of the state-controlled road network.	No acceptable outcome is prescribed.	Complies with PO25 The introduction of the development traffic is not expected to compromise the safety of users within the state-controlled road network. Where potential safety impacts are found, these are proposed to be properly mitigated to levels at or lower than existing safety risks.
PO26 Development ensures no net worsening of the operating performance of the state-controlled road network.	No acceptable outcome is prescribed.	Complies with PO26 The existing state-controlled road network nearby the proposed development has low background volume (less than 100 vehicles a day). The proposed development intends to introduce an average of 42 vehicles a day temporarily for a period of approximately 7 months during construction of the pipeline. TMR's technical guide for volume capacity ratios suggests that for a narrow-sealed road in between 4.6 m and 5.2 m, as a rural single carriageway, will result in a road capacity of 24,000 Passenger Car Equivalent (PCE)/day. It should also be noted that the hourly capacity of a narrow seal road is 2,000 PCE/hr. This temporary and minor increase in daily and peak hourly traffic is not expected to have the capacity of any state-controlled roads exceed those capacities above.
PO27 Traffic movements are not directed onto a state-controlled road where they can be accommodated on the local road network.	No acceptable outcome is prescribed.	Complies with PO27 Traffic movements have been accommodated on the local road network where possible, such as the pipe haulage utilising Warri Gate Road, Tickalara Road, and Wompah Gate Road, rather than the surrounding TMR controlled roads of Cooper Developmental Road and Bulloo Developmental Road. Some vehicle movements utilise state-controlled roads, however these cannot be accommodated on any local road network and are not expected to cause any material impact to the road network's performance or safety as a result.

Performance outcomes	Acceptable outcomes	Response
PO28 Development involving haulage exceeding 10,000 tonnes per year does not adversely impact the pavement of a state-controlled road.	No acceptable outcome is prescribed.	Complies with PO28 Significant haulage is not proposed on the state-controlled road of Cooper Developmental Road and Bulloo Developmental Road, with the Council controlled road of Warri Gate Road used for the major pipe haulage transport activities. Some additional haulage will be done through the short section of the Council controlled road of Wompah Gate Road to the south.
PO29 Development does not impede delivery of planned upgrades of state-controlled roads.	No acceptable outcome is prescribed.	Complies with PO29 No planned upgrades to the utilised state-controlled roads are expected to be conducted during the construction period of the project.
PO30 Development does not impede delivery of corridor improvements located entirely within the state-controlled road corridor.	No acceptable outcome is prescribed.	Complies with PO30 No planned corridor improvement works to the utilised state-controlled roads are expected to be conducted during the construction period of the project.

Table D.4 Development in a future state-controlled road environment (Table 1.6 of State code 1)

Performance outcomes	Acceptable outcomes	Response
PO52 Development does not impede delivery of a future state-controlled road .	AO52.1 Development is not located in a future state-controlled road . OR ALL OF THE FOLLOWING APPLY: AO52.2 Development does not involve filling and excavation of, or material changes to, a future state-controlled road . AND AO52.3 The intensification of lots does not occur within a future state-controlled road . AND AO52.4 Development does not result in the landlocking of parcels once a future state-controlled road is delivered.	Complies with AO52.1 The development is not located within any future state-controlled road.
PO53 The location and design of new or changed access does not create a safety hazard for users of a future state-controlled road .	AO53.1 Development does not include new or changed access to a future state-controlled road .	Complies with AO53.1 Vehicle access is not proposed from any future state-controlled road.

Appendix E

Council Code response

The responses to the relevant traffic requirements and outcomes from BSC's Planning Scheme are outlined in Table E.1 below.

Table E.1 *Assessment criteria – General Development Code (Table 7.3.1.1)*

Performance outcomes		Acceptable outcomes		Applicant response
Access, manoeuvring and parking				
PO10	The proposed development accommodates sufficient car parking on site.	AO10	Car parking is provided at rates as per Table 7.3.1.2.	Performance Outcome (PO10) achieved Car parking for the temporary accommodation facilities and construction compounds are expected to be provided to meet the expected demand to avoid any overflow parking on the Council road network.
PO11	The proposed driveway is clear of all impediments.	AO11	The proposed driveway is clear of street furniture, gully pits, man holes, power poles and street trees.	Acceptable Outcome (AO11) achieved The proposed driveways are clear of any street furniture, gully pits, man holes, power poles and street trees.
PO12	The location of driveways does not create a danger to the safety and efficiency of existing intersections.	AO12	The minimum distance of a driveway from an intersection of one street with another is 6 m.	Acceptable Outcome (AO12) achieved The proposed driveways are expected to be over 6 m from any public road, achieving the minimum separation distance.
PO13	Access to, from and within the site: – is adequate for the type and volume of traffic generated by the use – does not adversely impact on the traffic network external to the site – caters for safe pedestrian access – provides for disabled access.	AO13.1	Vehicle crossovers are designed in accordance with BSC’s standards.	Acceptable Outcome (AO13.1) achieved The proposed driveways will be designed in accordance with BSC’s standards, based on the requirements outlined in AS2890.2.
		AO13.2	Car parking and manoeuvring areas are designed in accordance with: – AS2890.1 – Parking Facilities – Austroads AP-34/95 - Design Vehicles and Turning Path Templates – The Access to Premises Standard’ (Vol 1 of the National Construction Code).	Acceptable Outcome (AO13.1) achieved The internal layout of the temporary accommodation facilities and construction compounds is not yet finalised, however is expected to accord with the Australian Standards

The activities in which state-controlled roads will be utilised, and the proportion of the activity that will utilise the state-controlled



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