CHAPTER 18 – TRANSPORT

STANMORE ID EXTENSION PTY LTD
ISAAC DOWNS EXTENSION PROJECT

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18. TRANSPORT

18.1 Introduction

This chapter describes the legislative, policy and guideline context for transport management, and assesses the potential transport related impacts of the Isaac Downs Extension Project (the Project) on existing transport activities and infrastructure. This chapter assesses all modes of transport potentially impacted by the Project. Information on road transport is based on the road transport assessment provided in **Appendix W**.

Stanmore ID Extension Pty Ltd (the proponent), as a wholly owned subsidiary of Stanmore Resources Ltd (Stanmore), is proposing the development of the Project to extend the life of mining operations at Isaac Plains Complex (IPC) through the development of a new open cut coal mine pit and associated infrastructure.

18.2 Relevant Legislation, Policy and Guidelines

18.2.1 Transport Infrastructure Act 1994

The *Transport Infrastructure Act 1994* (TI Act) encourages effective integrated planning and efficient transport infrastructure management for the planning and management of road, rail and air infrastructure. The Department of Transport and Main Roads (TMR) manages the Queensland State-controlled road network.

18.2.2 Transport Operations (Road Use Management) Act 1995

The *Transport Operations (Road Use Management) Act 1995* (TORUM Act) provides for the effective and efficient management of road use in the State. Under the applicable Regulations to the TORUM Act, approval may be granted prior to the transport by road of over-mass loads, over-dimensions loads, or dangerous goods.

The Project may require transport of over dimensional loads, and therefore, may require approval for transport of over-dimension loads by road, for which the proponent will obtain the necessary permits. In addition, the Project may require transport of dangerous goods, and therefore, may require approval for transport of dangerous goods by road, for which the proponent will obtain the necessary permits

Under the applicable Regulations to the TORUM Act, heavy vehicles must not be driven by persons impaired by fatigue. This requirement will be addressed by the proponent as part of its health and safety obligations under the *Coal Mining Safety and Health Act 1999* and *Coal Mining Safety and Health Regulation 2017*. The Project's hazard and safety management is detailed in **Chapter 19**.

18.2.3 Environmental Objective and Performance Outcomes

The final terms of reference (ToR) for the Project's environmental impact statement (EIS) nominates environmental objectives and outcomes for the transport assessment. Table 18-1 provides these environmental objectives and outcomes, and identifies where they have been addressed.

Table 18-1 Environmental Objectives and Outcomes - Transport

Requirement	Environmental Objective and Outcomes	EIS Reference
Terms of Reference	The construction and operation of the project must aim to:	

Requirement	Environmental Objective and Outcomes	EIS Reference
	• maintain the safety and efficiency of all affected transport modes for the project workforce and other transport system users	18.3.1, 18.4.4, 18.5
	• avoid and mitigate impacts including those on the condition of transport infrastructure	18.3.1, 18.4.4, 18.5
	• ensure any required works are compatible with existing infrastructure and future transport corridors.	18.5

18.2.4 EIS Information Guideline

The EIS assessment has been undertaken in accordance with the EIS information guideline – Transport[1]. The relevant EIS sections where the requirements of this guideline have been addressed are provided in Table 18-2.

Table 18-2 EIS Information Guidelines – Noise and Vibration

Requirement	EIS Reference
Existing environment and transport infrastructure	18.3, 18.4.2, 18.4.6, 18.4.7
Proposed transport demand including access, people, inward materials, products and wastes	18.3, 18.4, 18.4.3, 18.4.5, 18.4.8, 18.4.9
Potential impacts and changes to infrastructure, including road, rail, port and air transport	18.3, 18.5
Avoidance and mitigation measures	18.4.4, 18.5, 18.5.3, 18.5.4, 18.5.5, 18.5.6, 18.5.7

18.2.5 Road Transport Guidelines

The assessment of the Project's impacts to road transport has been undertaken in accordance with the following requirements:

- TMR (2019) Guide to Traffic Impact Assessment Practice Note: Pavement Impact Assessment (GTIA PIA).
- TMR (2018) Guide to Traffic Impact Assessment (GTIA).
- TMR (2021) Road Planning and Design Manual (2nd Edition) – Volumes 1-6[2].
- TMR (2025) Queensland Transport and Roads Investment Program 2025-26 to 2028-29[3] (QTRIP).
- Austroads (2020) Guide to Traffic Management[4].
- Austroads (2025) Guide to Road Design[5].

[1] https://www.detsi.qld.gov.au/_global/policy-register/policy-register-pdf?getdoc=5310&name=eis-tm-transport-information-guide.pdf
[2] https://www.tmr.qld.gov.au/business-industry/technical-standards-publications/road-planning-and-design-manual-2nd-edition
[3] https://www.tmr.qld.gov.au/qtriponline
[4] https://austroads.gov.au/network-operations/network-management/guide-to-traffic-management
[5] https://austroads.gov.au/safety-and-design/road-design/guide-to-road-design

18.3 Existing Transport Infrastructure

18.3.1 Summary

The Project will utilise the Peak Downs Highway (State controlled road (SCR)) and local roads for the movement of materials, equipment and personnel to and from the Project site. The main access to the Project site will be from the existing intersection with the Peak Downs Highway at Isaac Downs Mine (IDM). Section 18.4.6 outlines the existing road transport environment that may be used for the Project's road transport requirements.

As described in **Chapter 4**, the Project will be integrated into IPC, which comprises Isaac Plains Mine (IPM) and IDM, including utilising the existing access road to IDM. The mining of run-of-mine (ROM) coal at IDM is expected to ramp down between 2026 and 2028, with the Project's construction commencing late 2027 / early 2028 and ROM coal extraction commencing in 2029. The IPC workforce will transition to the Project as mining ramps down at IDM, and ramps up at the Project. The Project, being an extension of mining activities at IPC, will ensure a near steady state workforce across IPC beyond 2027 and 2028. ROM and product coal production from the Project will replace the existing ROM and product coal production from IDM.

From a transport perspective, the Project will utilise the existing rail loop and train load-out facility (TLF) at IPM which is connected to the Goonyella rail system for product coal transport to the Dalrymple Bay Coal Terminal (DBCT) and the Newlands rail system for product coal transport to the North Queensland Export Terminal (NQXT) at Abbot Point. The Project will transport its product coal to DBCT (approximately 85%) and NQXT (approximately 15%) at the same capacity as Stanmore's commercial arrangement for IDM, and as a result, there is no predicted increase in demand for rail infrastructure. The Project's off site transport activities will not impact any rail level crossings. Product coal will be shipped from DBCT and NQXT in accordance with the contracted capacity held by Stanmore for its coal mining operations in the Bowen Basin, central Queensland. The Project workforce arrangement will not be a dedicated fly-in fly-out (FIFO) operation, and as a result, there will be no material change in air travel requirements, compared to the workforce arrangements for IPC without the Project.

The Project's ROM and product coal will not be transported on public roads. ROM coal will be transported internally from the Project to IPM's coal handling and preparation plant (CHPP) for processing using a dedicated haul road that includes a new bridge over the Isaac River and the established grade-separated underpass beneath the Peak Downs Highway. The Project's product coal will be transported internally from the CHPP to the TLF for eventual railing off site.

No external conveyors or new external pipelines are required for the Project.

As a result of minimal changes to the current rail, Port (including shipping) and air transport requirements from the Project's operation, this chapter focuses on the assessment and management of potential impacts from road transport. The road transport assessment is provided in **Appendix W**.

18.3.2 Rail Transport – General Details

The Goonyella rail system is a major, electrified rail network in central Queensland that transports coal from mines in the Bowen Basin to the export terminals at the Port of Hay Point, which includes DBCT. The Goonyella rail system is a critical part of the larger Central Queensland Coal Network, which connects over 50 mines to five major export terminals[6].

The Newlands rail system is a coal railway line in north Queensland that connects several mines and other domestic users to the NQXT. The Newlands rail system forms part of the larger Central Queensland Coal

[6] https://www.scribd.com/document/527366433/Goonyella-Rail-Corridor-Fact-Sheet

Network and was linked to the Goonyella rail system in 2012 via a 69km "Northern Missing Link" railway to expand access to ports for customers.[7]

Stanmore has commercial arrangements with the above and below rail operators of the Goonyella and Newlands rail systems for the transport of product coal to DBCT and NQXT, respectively. No significant changes are expected to these commercial arrangements as the product coal production from the Project replaces the product coal production from IDM.

In summary, when the Project is at peak production (approximately 3.0 Mtpa) from 2030 to 2035), around 2.55 Mtpa (85%) of product coal will be sent to DBCT and around 0.45 Mtpa (15%) of product coal will be sent to NQXT. The 2.55 Mtpa of product coal sent to DBCT equates to approximately three to five trains per week based on the Goonyella rail system's average train capacity of 10,200 t. The 0.45 Mtpa of product coal sent to NQXT equates to approximately one train per week based on the Newlands rail system's average train capacity of 6,800 t. During the second half of the Project's life, production drops to approximately 1.5 Mtpa, and as a result, around 1.28 Mtpa of product coal will be sent to DBCT (around two to three trains per week) and around 0.22 Mtpa of product coal will be sent to NQXT (less than one train per week). The Project's rail transport requirements may vary periodically over an annual period depending on a range of operational factors (e.g. Stanmore's product coal market requirements).

Stanmore holistically manages rail capacity across its portfolio of mining operations in central Queensland to ensure efficiency and flexibility in delivering its product coal export-market commitments.

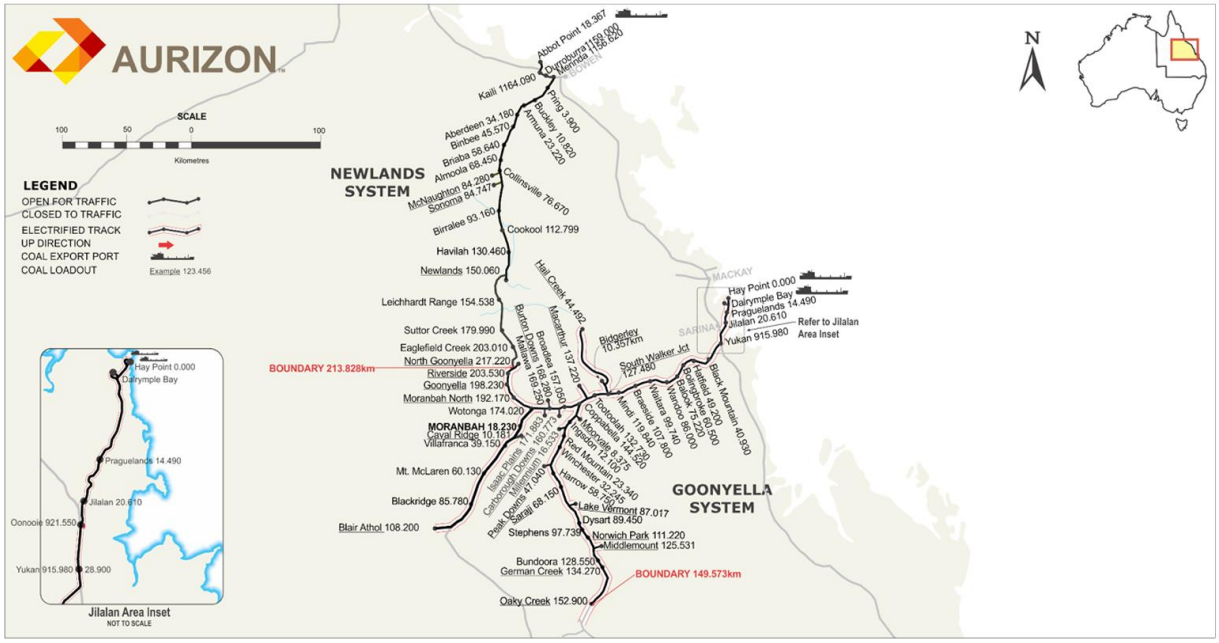


Figure 18-1 Goonyella and Newlands Rail Systems[8]

18.3.3 Port and Shipping Transport – General Details

18.3.3.1 Port – General Details

DBCT is one of two long-established coal terminals at the Port of Hay Point, which is located approximately 38 km south of Mackay, and is the largest metallurgical coal export port in Australia (Figure 18-2). DBCT

[7] https://www.aurizon.com.au/what-we-do/network/central-queensland-coal-network/cqcn-information
[8] https://www.aurizon.com.au/what-we-do/network/central-queensland-coal-network/cqcn-information

possesses a current capacity of 85 Mtpa and is the major coal export facility for multiple Bowen Basin coal mines in central Queensland (DBI, 2022).

NQXT is a dedicated deep-water coal terminal located at the Port of Abbot Point, which is approximately 25 km north of Bowen, and is Australia's northernmost resource terminal (Figure 18-2). NQXT possesses a current capacity of 50 Mtpa[9].

Stanmore has commercial arrangements with the operators of DBCT and NQXT for the overseas export of product coal from its coal mining operations in the Bowen Basin, central Queensland. No significant changes are expected to these commercial arrangements as the product coal production from the Project replaces the product coal production from IDM.

DBCT and NQXT both operate in a cargo assembly mode for individual shipments. Therefore, the Project's product coal will be transferred from each train to allocated temporary stockpile areas for specific shipment builds, which typically occurs within seven days of ship loading.

As practised for rail transport, Stanmore also holistically manages port capacity across its portfolio of mining operations in central Queensland to ensure efficiency and flexibility in delivering its product coal export-market commitments.

18.3.3.2 Shipping Transport – General Details

Stanmore has commercial arrangements with various shipping agents for the overseas export of product coal. The Project's product coal will be shipped to the various export destinations, under the following approximate proportions per country customer base:

- Japan (estimated 45%)
- Europe (estimated 25%)
- India (estimated 15%)
- South-east Asia (estimated 10%)
- Latin America (estimated 5%).

Based on current shipping arrangements, the Project's product coal will be co-shipped from DBCT or NQXT with cargoes from other Stanmore mines or cargoes from other central Queensland mines under a four to six cargoes per month configuration. Typically, Panamax (70,000-80,000 t) or Capesize (170,000-180,000 t) vessels are used for the overseas shipment of coal.

The Project's shipping requirements will generally remain static as coal production from IDM transitions to the Project. Therefore, no changes are expected in relation to the shipping of the Project's product coal from DBCT or NQXT.

[9] https://www.nqxt.com.au/

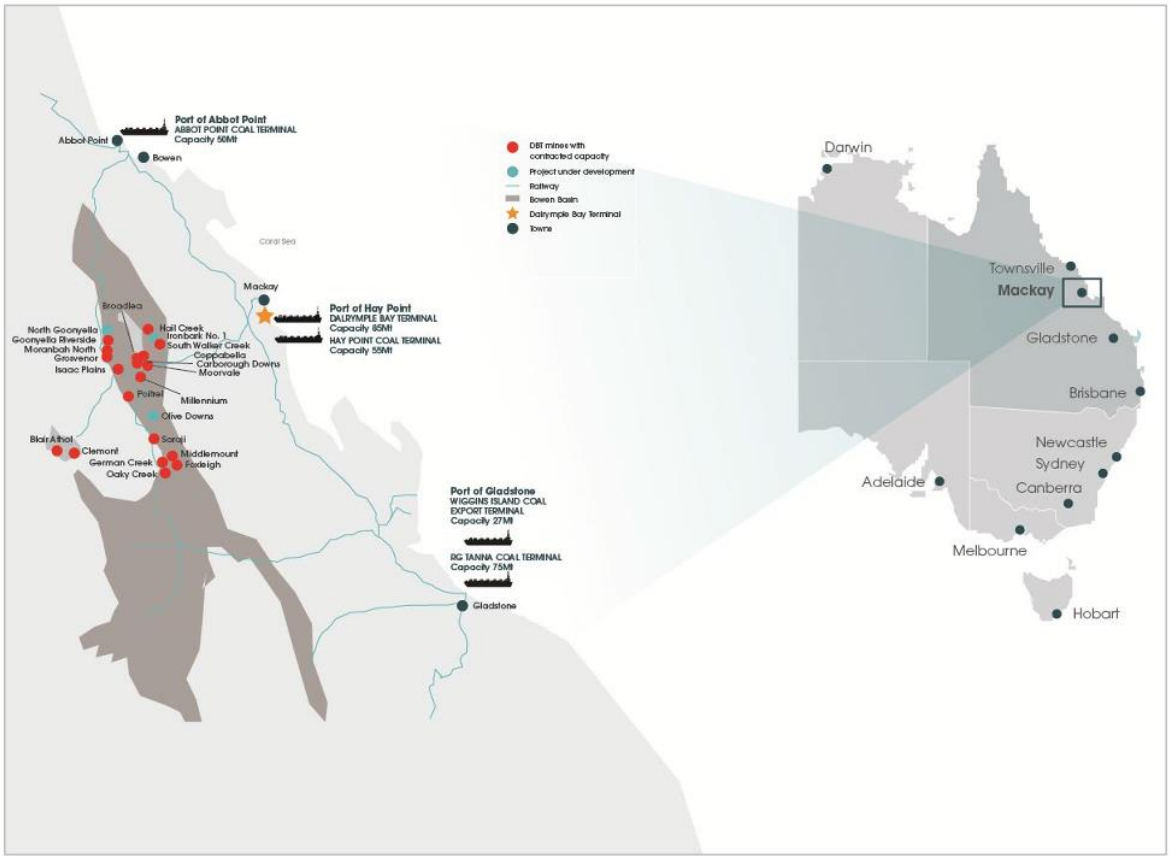


Figure 18-2 Location of Dalrymple Bay Coal and North Queensland Export Terminals (DBI, 2022)

18.3.4 Air Transport – General Details

Mackay Airport is the major regional airport for the Mackay Isaac region and is located approximately 150 km northeast of the Project. Moranbah Airport is a smaller, local domestic airport serving the town of Moranbah, including transporting workers in the coal mining industry, and is approximately 15 km northwest of the Project. These two airports are the main air transport infrastructure in the vicinity of the Project.

IDM's workforce will transition to the Project with a predicted small decrease in workforce numbers. Therefore, the transport requirements for the Project's workforce will remain similar to what is currently experienced for IDM.

Approximately 15% of the existing workforce for IPC is FIFO, flying into either Mackay or Moranbah airports. It is expected that the Project will have a similar proportion of FIFO workers who will fly to the regional airports of Moranbah or Mackay as part of their travel arrangements. Therefore, no significant additional demands are predicted to be placed on the current regional air transport infrastructure.

18.4 Road Transport Impact Assessment

18.4.1 Overview

The proponent engaged The Transport Planning Partnership (TTPP) to conduct a Road Transport Impact Assessment (RTIA) for the Project to identify potential road transport impacts and provide appropriate mitigation measures for identified road transport impacts. The RTIA is provided in **Appendix W**.

In summary, the main components of the Project's RTIA are as follows:

- a description of the assessment's context to the Project and the references used to guide the assessment (RTIA – Section 1)
- a description of the existing operations at IPC (RTIA – Section 2)
- a description of the Project, including timing of activities, workforce and production forecasts, and an outline of the scenarios adopted for the assessment in consideration of the requirements of TMR (2018) (RTIA – Section 3)
- an evaluation of the existing road transport environment, including road link and intersection conditions, traffic demands, active transport infrastructure and the road safety history (RTIA – Section 4)
- an evaluation of changes in traffic conditions in the region that are expected to occur under baseline conditions without the Project (RTIA – Section 5)
- an assessment of the traffic expected to be generated by the Project for each assessment scenario (RTIA – Section 5)
- identification of the Project impact assessment areas, presentation of the assessment of the Project's impacts, and identification of measures to mitigate the potential impacts of the Project on the road network (RTIA – Section 7)
- a presentation of the conclusions of the assessment and summary of findings (RTIA – Section 8).

A full description of the Project is provided in **Chapter 4**.

18.4.2 Existing Operational Arrangements

18.4.2.1 Workforce

IPC's current workforce is approximately 450 personnel (employees and contractors) and comprises approximately:

- 10% locals, who principally reside in Moranbah
- 76% workers, who normally reside outside of the local area (e.g. Mackay), and reside in workers accommodation villages (WAVs) in the local area during their roster period. These workers would drive-in drive-out (DIDO) either in private vehicles or using transfer bus services between their usual place of residence and the WAVs at the start and end of their roster period; and
- 14% workers, who normally reside farther afield in Queensland and interstate, and reside in the local WAVs during their roster period. These workers FIFO via Mackay or Moranbah, and use a combination of bus transfer services or private vehicle to travel between airports and the WAVs at the start and end of their roster period.

Approximately 30% of the DIDO and FIFO workers reside at the Coppabella WAV, and the remaining 70% reside in Moranbah, primarily at the Moranbah WAV and Smart Stays WAV.

The workforce typically works a roster of day and night shifts with seven days on and seven days off. Administration and management staff work day shift with five days on and two days off, and make up approximately 15% of the total operational workforce. Shifts generally operate between 6:00 am and 6:00 pm.

Without the Project, the expected future operational workforce at IPC is forecast to decline to 264 personnel in the second half of 2028 (2028 H2) and thereafter, post operational rehabilitation activities at IPM and IDM are expected to employ between 20 and 40 personnel until 2043.

Further details on the exiting workforce at IPC is provided in Section 2.2 of **Appendix W**.

18.4.2.2 Travel Management

Stanmore and its principal contractor provide shuttle bus services to transport the workforce each day, operating between IPC and WAVs in the region, notably at Coppabella and Moranbah. Bus transfer

services are also provided to transport DIDO and FIFO workers between Mackay, Moranbah Airport and the WAVs at the start and end of their roster period.

The provision of shuttle and transfer services reduces the need for private travel by workers on a day-to-day basis, and to travel into and out of the region at the start and end of roster periods.

A full breakdown of current travel services provided for IPC is detailed in Section 2.3 of **Appendix W**.

18.4.3 Future Operational Arrangements

18.4.3.1 Project Access

The primary vehicular access to the Project for workers and deliveries will be via IDM's existing access road from Peak Downs Highway, and a bridge that will be constructed across the Isaac River. Access to the CHPP at IPM will be via the IPM's existing access road from Peak Downs Highway.

A secondary access route to the Project will be provided between the Project and Stanmore's Eagle Downs project, and will utilise new and existing roads to connect with the Peak Downs Mine Road. The secondary access will not be used on a day-to-day basis by the workers or for deliveries.

18.4.3.2 Project Workforce

As mining ramps down at IPC, the operational workforce will transition to working at the Project, where mining operations are forecast to continue until 2043. The remainder of IPC's operational workforce will continue as described in Section 18.4.2.1. The forecast total workforce at IPC and the Project is illustrated in Figure 18-3.

It is anticipated that over time, the proportion of the workforce that reside in the local region will increase, with a decrease in the proportion of DIDO and FIFO workers. Consistent with the existing workforce, approximately 30% of the DIDO and FIFO workers are expected to reside in at the Coppabella WAV, and 70% are expected to reside in the Moranbah WAVs.

Consistent with the existing mining operations at IPC, the Project's principal generator of road-based traffic will be the movement of the workforce to and from the Project each day.

Additional workforce details are provided in Section 3.4 of **Appendix W**.

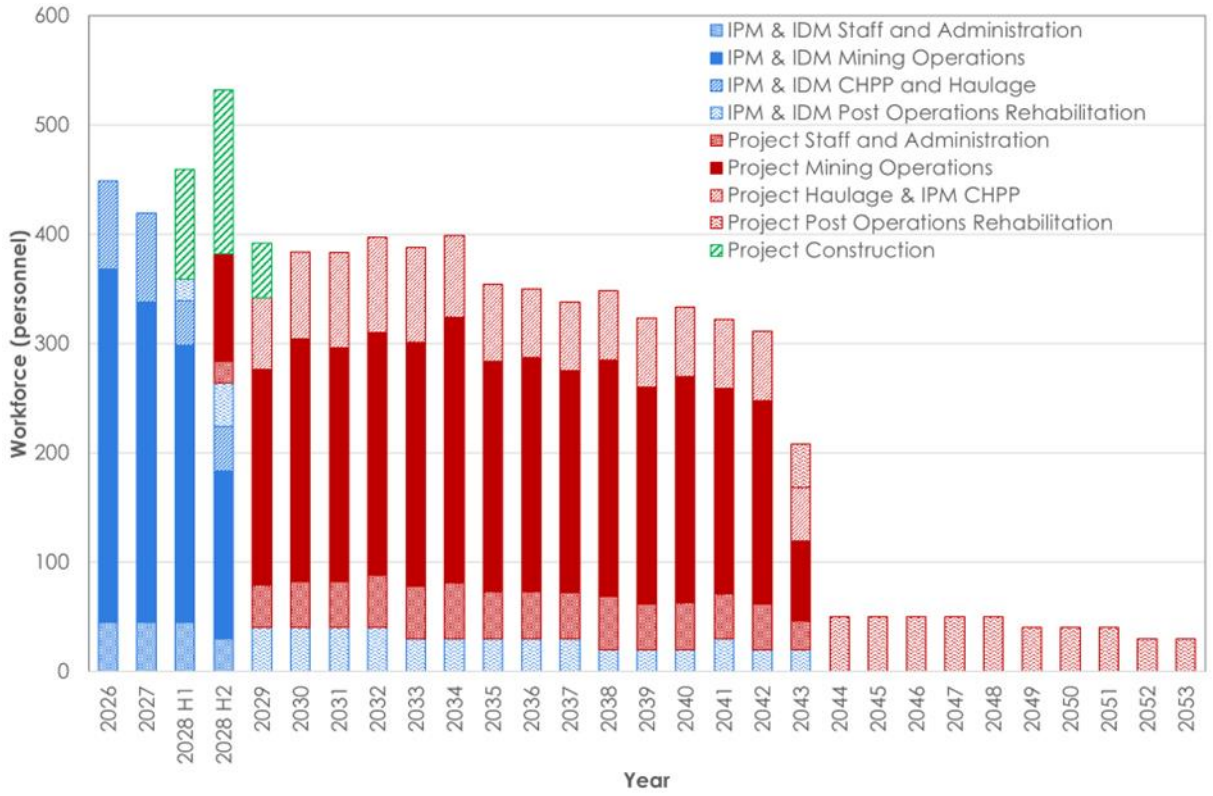


Figure 18-3 Forecast Total Workforce – Project and Isaac Plains Complex

18.4.4 Mitigation Measures - Project Design

The Project has developed a set of road impact mitigation measures that are incorporated into the Project design, to avoid potential impacts, to manage impacts through operational measures, and to mitigate the residual impacts. These mitigation measures include:

- The existing purpose-built access intersections on Peak Downs Highway will continue to be used, which separates turning and through vehicles, minimising potential impacts on safety, intersection performance and delays to through traffic on Peak Downs Highway.
- The existing intersection of Peak Downs Mine Road and Eagle Downs Mine Road will be used as part of the Project's secondary access (used on an infrequent basis), which avoids the introduction of a new access point to the local public road network.
- The operational workforce's travel will continued to be managed through the use of shuttle bus services to transport operational workers between the Project and accommodation facilities at Moranbah and Coppabella, which significantly reduces the potential number of trips generated between the Project and the main accommodation locations.
- The construction workforce's travel will be managed through the use of shuttle bus services to transport construction workers between the Project and accommodation facilities at Moranbah and Coppabella, which significantly reduces the potential number of trips generated between the Project and the main accommodation locations.
- ROM coal will only be transported from the Project to IPM's CHPP by an internal road network that includes a bridge over the Isaac River and an underpass across the Peak Downs Highway. This transport arrangement avoids interaction with local public road network.
- Product coal from the Project will continue to be exclusively transported by rail to Port, resulting in a negligible change to rail traffic and no road traffic directly related to coal transport.

18.4.5 Road Impact Assessment Scenarios

Consistent with the principles of TMR (2018), the following key stages of the Project were considered for the RTIA:

- construction activity associated with initial development of the Project
- initial operational activity
- ongoing operational activity
- closure and rehabilitation activity.

18.4.5.1 Construction Activity

Construction activity for the Project is anticipated to commence during the first half of 2028 (2028 H1). The Project construction workforce is forecast to be approximately 100 personnel during 2028 H1, 150 personnel in 2028 second half (H2), and 50 personnel in 2029. As the construction workforce is expected to peak during 2028 H2, the total cumulative workforce during construction is also expected to peak in 2028 H2. As a result, the RTIA adopted 2028 H2 as the timeframe for assessment of peak construction impacts.

18.4.5.2 Initial Operational Activity

As the Project is an extension of existing mining activities, involving the transition of workers and mining operations from IPC to the Project, it does not have a distinct initial operational stage.

As shown in Figure 18-3, operating activity at the Project would commence in 2028 H2 while construction activity is ongoing. Therefore, the assessment of conditions during 2028 H2 considers both peak construction and initial operations at the Project, and represents the peak cumulative workforce present over the life of the Project. On this basis, no separate assessment of initial operational activity is justified, and the construction and initial operational conditions were assessed as a single combined scenario.

18.4.5.3 Ongoing Operational Activity

The Project workforce is forecast to peak at approximately 369 personnel during 2034, and Figure 18-3 indicates that the cumulative workforce at IPC and the Project is expected to peak at approximately 399 personnel during that same year. ROM coal extraction and waste rock extraction from the Project are also forecast to peak during 2034, which suggests that trip-generating operational activities (e.g. deliveries of fuel and other consumables) will also peak in 2034.

On this basis, 2034 is forecast to be the peak year for the Project's operational impacts, and as a result, it was adopted by the RTIA as the basis for assessment of ongoing operational activity.

18.4.5.4 Closure and Rehabilitation Activity

The Project's main rehabilitation activities are expected to occur from 2044 to 2053 inclusive, employing approximately 50 personnel between 2044 and 2048 inclusive, before declining to 40 then 30 personnel between 2049 and 2053. For the purpose of the RTIA, 2048 was selected as the indicative timeframe for assessment of rehabilitation activities, representing 20 years from the expected commencement of the Project.

18.4.6 Existing Road Transport Environment

An appreciation of the existing road transport environment was gained by considering the existing road network, the nature of its traffic demands, and its road safety history. These aspects were reviewed within the area that the Project transport tasks are expected to occur, which includes the routes between the Project site, Moranbah, Coppabella and Mackay.

TTPP conducted a visit to the region to observe the road network conditions during June 2025, in fine and dry weather conditions. TTPP also observed traffic conditions in the region during November 2019.

18.4.6.1 Road Network

The key existing roads that will be used by Project-generated traffic, and which were assessed by the RTIA, are:

- Peak Downs Highway
- Moranbah Access Road
- Goonyella Road
- Peak Downs Mine Road
- Coppabella Road
- Eagle Downs Mine Access Road.

Section 4.1 of **Appendix W** provides a complete description of each of these key roads.

18.4.6.2 Intersections

The key existing intersections along routes that may be used by Project-generated traffic travelling between Moranbah, Coppabella, and the Project Site, and were assessed by the RTIA, are the intersections of:

- Peak Downs Highway, IDM Road and IPM Road
- Peak Downs Highway, Maloney Street and Coppabella Road
- Peak Downs Highway and Moranbah Access Road
- Peak Downs Highway and Peak Downs Mine Road
- Peak Downs Mine Road and Eagle Downs Mine Access Road.

Section 4.2 of **Appendix W** provides a full description of each of these key intersections.

18.4.6.3 Rail Level Crossings

Traffic generated by IPC, inclusive of the Project, does not travel through railway level crossings. Therefore, the Project's RTIA does not consider the design or operation of railway levels crossings.

18.4.6.4 State Government Network Planning

QTRIP (TMR, 2025) details the current transport and road infrastructure projects that the Queensland government plans to deliver. A number of improvements are planned on the State and local road networks at locations in the vicinity of the Project or that may be used by Project-generated traffic. These improvements primarily relate to the Peak Downs Highway. Additional State government road planning information is discussed in Section 4.4 of **Appendix W**.

18.4.6.5 Existing Traffic on State Controlled Roads

Data for 2023 and 2024 were obtained from TMR and the Queensland Government's Open Data Portal for the only SCR in the region of the Project that will be used by Project-generated traffic (i.e. Peak Downs Highway). The captured data provides the Annual Average Daily Traffic (AADT) by direction, being the number of vehicles over 24 hours, averaged over a year. The data also provides information on the classification of vehicles as either light or heavy vehicles, based on the Austroads-94 Vehicle Classification System, which allocates 12 classifications to vehicles based on axle numbers and spacing. Under that system, light vehicles include motorcycles, cars, vans, four-wheel drives, and utilities (including those towing a trailer or caravan), and heavy vehicles include single unit rigid trucks and buses, semi-trailers, rigid trucks with trailers, B-doubles and road trains.

The daily Standard Axle Repetitions (SARs) for the sealed portions of Peak Downs Highway, being a measure defining the cumulative damaging effect to the pavement of the design traffic was calculated. As a granular pavement, the relevant load damage exponent for Peak Downs Highway was defined as SAR4. The SARs on the sealed roads were calculated based on the AADT and Austroads-94 Vehicle Classification System, and applying the TMR default of 3.2 SAR4s per heavy vehicle that applied to all sealed roads with the exception of Bruce Highway (TMR, 2019).

The data indicate that AADT volumes on Peak Downs Highway generally increase as the distance from Mackay decreases, with a notable increase in AADT east of Walkerston.

TTPP noted that the number and proportion of heavy vehicles reported on Peak Downs Highway varies, with review of the data suggesting that the classification of vehicles may be erroneous at some locations. For example, between Moranbah Access Road and IPC in 2024, the data suggest there is 892 heavy vehicles per day travelling eastbound, and 315 heavy vehicles per day travelling westbound. This disparity between the number of heavy vehicles by direction is not evident in the 2023 data for the same road link.

Section 4.5 of **Appendix W** fully details the data captured for 2023 and 2024.

18.4.6.6 Historic Traffic Growth on State Controlled Roads

The TMR data was used to summarise the annual percent growth in AADT by direction averaged over the past one, five and ten years to 2024 on all segments of Peak Downs Highway. The summary of historic traffic growth shows that the average annual growth rates on Peak Downs Highway in the immediate vicinity of Moranbah and IPC have varied substantially, which may be the result of local changes associated with one or more of the mines in the local region.

To gauge the overall growth of traffic on Peak Downs Highway in the region, the two way AADT on the lengths of Peak Downs Highway between Peak Downs Mine Road and Fitzroy Developmental Road was reviewed for the period from 2018 to 2024 and suggested that traffic on Peak Downs Highway has grown at an average annual compound rate of 2.55 % since 2018.

Further details on historic traffic growth on the Peak Downs Highway are provided in Section 4.6 of **Appendix W**.

18.4.6.7 Road Safety

Road crash data for roads of relevance to the Project was reviewed for the five-year period from 1 January 2020 to 31 December 2024 (Queensland Government, 2025b) and included information on location and characteristics of road traffic crashes reported to the police which resulted from the movement of at least one road vehicle on a public road or road related area, in which a person was killed or injured, or at least one vehicle was towed away.

Additional details on road safety on the Peak Downs Highway are provided in Section 4.7 of **Appendix W**.

18.4.6.8 Public and Active Transport Infrastructure

There is no public transport access, walking or cycling-specific infrastructure in the region for travel to and from the Project. Many of the mines in the region operate bus services for their workforce when travelling between the mine and local accommodation and towns, and when travelling between the local towns and airports such as Mackay and Moranbah. The Project's shuttle bus and transfer bus services will be tailored to meet the needs of the workforce, with seating capacity provided as required, and timing of services aligned with shift and roster requirements.

18.4.7 Project Traffic Surveys 2025

To assist the assessment of Project's impacts, TTPP conducted traffic surveys using automatic tube counts (ATC) over a two-week period from 5 March 2025 to 18 March 2025 at the following locations:

- IDM Road (being a private road for access to IDM)
- IPM Road (being a private road for access to IPM)
- Peak Downs Highway east of IPM Road
- Peak Downs Highway west of IDM Road
- Coppabella Road
- Moranbah Access Road
- Peak Downs Mine Road.

In addition, the directional flow of traffic at key intersections was quantified and to assist calibration of the ATC against observations, surveys of vehicle turning movements by vehicle type was conducted over 24 hours on 5 March 2025 at the following intersections:

- Peak Downs Highway and IDM Road
- Peak Downs Highway and IPM Road
- Peak Downs Highway, Coppabella Road and Maloney Street
- Peak Downs Highway and Moranbah Access Road
- Peak Downs Highway and Peak Downs Mine Road.

The ATC surveys defined the number and classification of vehicles based on the Austroads-94 Vehicle Classification System. The temporal distribution of traffic throughout the average day was surveyed at each of the ATC locations to identify the peak hours of vehicle demands.

The ATC surveys identified that the traffic demands on the public road network were very ‘peaky‘, with short and distinct peaks occurring in the early morning and early evening on several of the roads because of IPC’s shift change times. Between the peaks, traffic volumes were generally consistent throughout the day and low overnight.

Comparison of the intersection survey day traffic demands compared with the other surveyed days indicated that the total traffic volumes recorded by the ATC on the intersection survey day (5 March 2025) were higher than the average day over the two-week survey period.

The survey results suggest that the day on which the intersection surveys were conducted (5 March 2025) was a relatively busy day, with traffic volumes on that day being approximately 22% above the average day volumes across the survey locations. On this basis, TTPP determined that no adjustment to the intersection survey results needed to be made, and noted they were appropriately robust for assessing the Project.

A review of the intersection turning movement surveys at the two access intersections on Peak Downs Highway revealed that a significant proportion of vehicle movements recorded on IDM Road and IPM Road (both private roads) are the result of trips made directly between those two roads. The results also indicated that the total number of trips generated on the public road network to the west of IDM Road and to the east of IPM Road were significantly less than the total number of trips recorded on the two access roads due to the ’mine to mine’ trips.

The contribution of the direct trips between IDM Road and IPM Road varied throughout the day, with a smaller proportion of overall trips being made between the two access roads during the morning and evening peak hours compared with the 24-hour day.

The intersection survey results found that the articulated vehicle trips made between IDM Road and IPM Road were primarily made by water trucks, which are used for dust suppression on the access roads.

The delivery of diesel and explosives to IPC are the main source of heavy vehicle movements and are directly related to the level of mining activities. The number of diesel and explosives deliveries during the survey period were typical of current operating conditions at IPC. A smaller number of heavy vehicles were noted as deliveries of equipment and materials to IPC, with the vehicles observed to depart in the same direction from which they arrived.

Light vehicle trips made between IDM Road and IPM Road were primarily mining vehicles throughout the day, rather than private passenger vehicles during the peak periods for movement of the workforce to and from IPC.

For the Project's RTIA, the results of the ATC and intersection surveys were used to estimate the distribution of IPC generated vehicle trips over the average day under the current operating conditions in 2025.

The traffic survey results for the Project are provided in Section 4.9 of **Appendix W**.

18.4.8 Future Baseline Transport Demands without the Project

This section described the future traffic associated with IPC if the Project did not proceed, as well as potential traffic associated with other proposed projects in the region, and background traffic growth. It therefore provides a baseline of future traffic conditions against which to compare the future traffic conditions with the Project.

18.4.8.1 Isaac Plains Complex – Operational 2028 H2

As described in Section 18.4.2.1, without the Project, the workforce at IDM and IPM is expected to decline from approximately 450 to 264 personnel in 2028 H2 and thereafter, post operational rehabilitation activities are expected to employ between 20 and 40 personnel until 2043.

In relation to predicted light vehicle trip generation for 2028 H2, it was assumed that changes to the size of the workforce would have a pro rata impact on the number of light vehicle trips generated. It was also anticipated that bus services during 2028 H2 would continue to operate in a manner consistent with IPC's existing operations.

Table 5.2 of Section 5.1.1 of **Appendix W** summarises the expected changes in the Project's operational workforce external trip generation for light vehicles and buses for 2028 H2.

In relation to predicted heavy vehicle trip generation for 2028 H2, a reduction of approximately 80% was expected in the demand for diesel and explosive from 2025 (commensurate with the reduction in overburden removed in 2028 compared to 2025), which changes the combined average of five deliveries per day (four diesel and one explosives) to an average of one delivery per day.

The number of other general heavy vehicle deliveries of equipment and parts, and service vehicles is also be expected to decline. Although, this decline not expected to be to the same extent as diesel and explosives. It is estimated that in 2028 H2, general heavy vehicle deliveries for operations would generate approximately 70% of the trips surveyed during 2025.

Table 5.3 of Section 5.1.1 of **Appendix W** summarises the expected changes in the Project's operational external trip generation for heavy vehicles for 2028 H2.

The directional distribution of trips generated by IPC is not anticipated to be altered under baseline conditions. Table 5.4 of Section 5.1.1 of **Appendix W** summarises the forecast peak hourly and daily operational traffic generation of IPC in 2028 H2. For the purpose of the Project's RTIA, it was assumed that on a typical day, light and heavy vehicles travelling to/from the west would principally be to/from Moranbah, light vehicle trips to/from the east would be principally to/from Coppabella, while heavy vehicle trips to/from the east would principally be to/from Mackay.

Further predictions and discussion for baseline conditions in 2028 H2 are provided in Section 5.1.1 of **Appendix W**.

18.4.8.2 Isaac Plains Complex – Closure and Rehabilitation 2034

Under the scenario of no Project, during closure and rehabilitation of IPC, a workforce of 30 personnel in 2034 was assumed to work in two teams, so only half the total personnel are present on any one day.

Closure and rehabilitation activities would typically occur during daytime only, which was assumed to be between 6:00 am and 6:00 pm seven days per week. Consequently, the workforce would arrive prior to 6:00 am and depart after 6:00 pm.

It is envisaged that the provision of dedicated bus services for 2034's relatively small workforce may not be practical. As a conservatively high assessment of future trip generation, it is assumed that the closure and rehabilitation workforce would drive to and from the site each day, with an average of 1.2 people per light vehicle (e.g. passenger cars, 4WDs, vans, and utilities).

Closure and rehabilitation activities would generate heavy vehicles for decommissioning of infrastructure and removal of waste from IPC. For the purpose of the Project's RTIA, it was assumed that during the assessment year 2034, an average of two heavy vehicles would travel to and from IPC each day, generating four vehicle trips per day. Trips would be spread throughout the day and would typically be expected to be sourced from either Moranbah or Mackay.

Table 5.8 of Section 5.1.2 of **Appendix W** summarises the forecast peak hourly and daily operational traffic generation of IDM Road and IPM Road in 2034.

Further predictions and discussion for baseline conditions in 2034 are provided in Section 5.1.2 of **Appendix W**.

18.4.8.3 Isaac Plains Complex – Post Mining 2048

Under baseline conditions in 2048, IPC would have ceased operations, and closure and rehabilitation activities would have ceased. Therefore, IPC would generate no traffic under baseline conditions in 2048.

18.4.8.4 Development of other Regional Projects

The traffic contribution of the main projects in the local region likely to be developed, or recently developed, were evaluated and included the:

- Eagle Downs Project
- Olive Downs Coking Coal Project
- Winchester South Project
- Peak Downs Continuation Project
- Moranbah South Project
- Millenium Complex.

The potential future traffic contributions of these projects were estimated and are provided in Section 5.2.1 to Section 5.2.6 of **Appendix W**.

For the Project's RTIA, future traffic contributions were developed for the Eagle Downs Project, Olive Downs Coking Coal Project and Winchester South Project. The remainder of the evaluated projects were not expected to contribute to changes in future traffic numbers (i.e. based on current information assessed by TTPP).

18.4.8.5 Background Growth

For the Project's RTIA, an annual growth rate of 2.55% per annum (compound) was adopted and applied to background traffic. Section 18.4.6.5 outlines how the annual growth rate was generated.

18.4.8.6 Total Future Baseline Traffic Volumes

For the Project's RTIA, Table 5.12 to Table 5.14 of Section 5.4 of **Appendix W** summarise the forecasts of baseline average daily and peak hourly traffic on the roads in the region, and include the cumulative impacts of background growth above the existing volumes and changes to traffic anticipated because of the changes to developments in the region. The peak hours refer to the peak hours related to the Project's activities, and the forecasts contained in Table 5.13 and Table 5.14 of Section 5.4 of **Appendix W** assume

that the peak hours for trips generated by all major developments would coincide with the Project's peak hours.

18.4.8.7 Baseline Pavement Loading

The SARs generated by the IPC's heavy vehicles during its operational activities were estimated from the existing vehicle classifications surveyed in 2025 on the IDM Road and IPM Road together. Half of the heavy vehicle trips in each direction were assumed to be loaded to capacity, and half are unloaded. Therefore, the weighted average SARs generated by operational activity at the IPC was estimated as 2.42 SAR4 per heavy vehicle for the Project's RTIA. The weighted average SAR4 per heavy vehicle was applied to all IPC-generated heavy vehicles, including the buses that transport the workers to and from Moranbah and Coppabella.

For the contribution of the major projects evaluated in Section 18.4.8.4, TTPP assigned a weighted average SARs of 2.84 SARs per heavy vehicle for the Project's RTIA. This weighted average SARs was developed under the assumptions of:

- half of the heavy vehicle trips in each direction were loaded to capacity, and half were unloaded in both directions of travel
- the heavy vehicles comprised:
    - 10 % Class 3 two-axle rigid trucks or buses
    - 10 % Class 4 three-axle rigid trucks or buses
    - 40 % Class 9 semitrailers
    - 40 % Class 10 B-doubles.

The SAR data provided by TMR for SCRs are calculated based on the TMR's default of 3.2 SAR4s per heavy vehicle. Therefore, this default was applied to the background traffic for the Project's RTIA.

Further details on the development baseline pavement loading for the Project's RTIA are provided in Section 5.5 of **Appendix W**.

18.4.9 Project Transport Demands

18.4.9.1 Construction Stage 2028 H2 – Workforce Daily Travel

Construction activity at the Project would occur during daytime only, between 6:00 am and 6:00 pm seven days per week. The 150 construction personnel are expected to work in three rotating teams of 50 personnel, working 13 days on and eight days off. On a typical day, approximately 100 construction personnel would be present at the Project site. The expected residential distribution of those 100 personnel is summarised in Table 6.1 of Section 6.1.1 of **Appendix W**. It was assumed that DIDO and FIFO workers will be spread between the Coppabella and Moranbah WAVs consistent with the distribution of the existing DIDO and FIFO workforce.

The majority of the non-local construction personnel present during the peak construction stage would be transported to and from the Project using shuttle buses, while a small proportion of workers may drive a light vehicle. It was estimated that 20% of construction personnel residing in the WAVs and all construction personnel who are local residents would travel in light vehicles with an average of 1.2 people per vehicle.

As the construction hours would be similar to some operational shift times, the Project's construction and operational workforces may travel at similar times, and a dedicated bus service for the construction workforce would not necessarily be required. However, as a conservative assessment of the potential impacts of the Project, it was assumed that in addition to the buses used to transport the operational workforce, the demand for buses generated by the construction workforce would be met by providing buses with the capacity to transport the entire construction workforce. The seating capacity of buses would vary, and may include Coaster-type minibuses and/or larger coach-style buses. To ensure a robust

RTIA for the Project, it was assumed that 22-seater minibuses would be used to transport the construction workforce. Table 6.2 of Section 6.1.1 of **Appendix W** summarises the travel modes and number of vehicles required to transport the construction workforce.

The buses will depart the Project after unloading construction workers in the morning, and would return to the Project site before picking up construction workers in the evening. Inbound buses would arrive at the Project prior to 6:00 am and 6:00 pm, and outbound buses would depart the Project after 6:00 am and 6:00 pm. Table 6.3 of Section 6.1.1 of **Appendix W** summarises the trips forecast to be generated by the construction workforce on a typical day.

18.4.9.2 Construction Stage 2028 H2 – Deliveries

The Project's construction activity will include construction of a bridge over the Isaac River to provide access to the Project site, levees adjacent to the Isaac River and Cherwell Creek, diversion of Conrock Gully, and a bridge over Cherwell Creek for a secondary Project access.

During the construction stage, it is anticipated that the bridge over the Isaac River would be constructed first, followed by the levees and gully diversion, and then the bridge over Cherwell Creek. While these activities are expected to occur in series, it has been assumed that some levee and gully diversion construction activities may overlap with the construction of the Isaac River and Cherwell Creek bridges.

Stanmore's indicative schedules of construction delivery requirements for the Project are summarised as follows:

- Isaac River bridge construction (8 months)
    - 32 B-double deliveries from Mackay
    - 32 oversize semitrailer deliveries from Mackay
    - 347 concrete agitator deliveries from Moranbah.
- Levees and gully diversion (8 months)
    - 1,022 B-double deliveries from local quarries (assumed to be Coolibah Quarry near the Project)
    - 2 semitrailer deliveries from Mackay
    - 21 concrete agitator deliveries from Moranbah.
- Cherwell Creek bridge construction (8 months)
    - 32 B-double deliveries from Mackay
    - 32 oversize semitrailer deliveries from Mackay
    - 347 concrete agitator deliveries from Moranbah.

Section 6.1.2 of **Appendix W** provides additional details about the expected delivery arrangements for the Project's construction phase.

For the Project's RTIA, a 'busy' construction day of deliveries was adopted, which is summarised in Table 6.4 of Section 6.1.2 of **Appendix W**. It should be noted that these trips would not occur on each and every day of the Project construction stage; and an additional allowance of approximately four general construction deliveries per day was included, with half sourced from Moranbah and Mackay, respectively.

Construction deliveries would generally occur during the daytime and over the construction hours (6:00 am and 6:00 pm, seven days per week), generating an average of two deliveries in any one hour on the 'busy' day.

While delivery vehicles would be likely to arrive after the workforce has arrived each day, and depart before the workforce departs each day, for the Project's RTIA, TTPP assumed that during the peak hours for the movement of the workforce to and from the Project, one delivery vehicle may arrive and depart from each of Moranbah, Coolibah Quarry and Mackay.

Further assumptions and details used in relation to the Project's construction phase are provided in Section 6.1.2 of **Appendix W**

18.4.9.3 Construction Stage 2028 H2 – Vehicular Access

All vehicles associated with construction activities will enter and exit the Project via IDM Road.

18.4.9.4 Operational Stages 2028 H2 and 2034 – Workforce Daily Travel

The operational workforce at the Project during 2028 H2 and 2034 is estimated to be 383 and 399, respectively. In addition, there would be the personnel associated with ongoing operational activities at IPC, who would be present with the Project operational workforce (primarily in 2028). It is noted that this also includes the workforce associated with rehabilitation activities at IPC, who would travel as part of the overall 'operational' workforce.

It is reasonable to assume that light vehicle trip generation surveyed in 2025 principally comprised trips made by the current workforce. Therefore, future changes to the size of the workforce will have a pro rata impact on the number of light vehicle trips generated. For the RTIA, the workforce was defined by residential type (i.e. local, DIDO and FIFO).

The existing bus services are timetabled to provide a bus for each shift change (i.e. between IPM and Moranbah and between IDM and Coppabella). While the number of workers is expected to vary, it is anticipated that the bus service will continue to operate in a manner consistent with the existing operations.

Table 6.6 of Section 6.2.1 of **Appendix W** provides the RTIA's forecast number of vehicle trips generated during the peak hours and over the average day. Section 6.2.1 of **Appendix W** provides further details in relation to the forecast average day trip generation by the operational workforce. Section 18.4.9.11 explains the DIDO and FIFO workers predicted roster change travel arrangements.

18.4.9.5 Operational Stages 2028 H2 and 2034 – Deliveries

For the Project, Stanmore forecasts that consistent with the baseline conditions, the amount of diesel and explosives required in 2028 H2 would decrease below that required in 2025. The number of other general deliveries of equipment and parts, and service vehicles would also be expected to decline in 2028 H2 below that occurring in 2025 with the reduced production rate. Therefore, it was assumed that the number of heavy vehicle deliveries for Project operations in 2028 H2 would be similar to that expected under baseline conditions in 2028 H2.

The amounts of diesel and explosives required at the Project would increase after 2028 H2 to a peak in 2034. For example, explosives transported in articulated vehicles with an average capacity of 50 t, the forecast 19,228 t of explosives required in 2034 would require an average of one load per day. In addition, diesel transported in B-doubles with an average capacity of 50 kL , the forecast 27 ML of diesel required in 2034 would require an average of 1.5 deliveries per day. The combined transport of diesel and explosives would therefore be expected to require an average of 2.5 deliveries per day, generating five trips per day. To match the number of inbound and outbound trips on the average day, it was assumed for the RTIA that diesel and explosives deliveries would generate six trips per day in 2034.

The number of general deliveries is not expected to decrease to the same extent as expected for diesel and explosives. The overall level of activity at the Project is expected to be generally consistent with current operations. Therefore, it is estimated that in 2034, the number of general deliveries would generate the same number of trips as were surveyed during 2025.

Table 6.7 of Section 6.2.2 of **Appendix W** provides the RTIA's forecast number of operational heavy vehicle trips for 2028 H2 and 2034. Section 6.2.2 of **Appendix W** provides further details in relation to the forecast heavy vehicle trip generation.

18.4.9.6 Operational Stages 2028 H2 and 2034 – Vehicular Access

Section 6.2.3 of **Appendix W** outlines the assumptions made for the forecast use of IDM Road and IPM Road during 2028 H2 and 2034. Table 6.8 and Table 6.9 of Section 6.2.3 of **Appendix W** summarise the RTIA's forecast trips by direction using the IDM Road and IPM Road in 2028 H2 and 2034, respectively.

18.4.9.7 Closure and Rehabilitation Stage 2048 – Workforce Daily Travel

During closure and rehabilitation, it was assumed the workforce would operate in two teams, so that half of the total personnel are present at the Project on any one day. Therefore, on a typical day, approximately 25 rehabilitation personnel would be present at the Project. It was assumed that DIDO and FIFO workers would be spread between the Coppabella and Moranbah WAVs consistent with the distribution of the existing DIDO and FIFO workforce.

The personnel required during closure and rehabilitation activities would be significantly lower than required for operational activities, so provision of dedicated bus services for that workforce may not be practical. As a conservatively high assessment of future trip generation, it was assumed that the closure and rehabilitation workforce would drive to and from the Project each day, with an average of 1.2 people per vehicle.

For the RTIA, it was assumed closure and rehabilitation activities would typically occur during daytime only, between 6:00 am and 6:00 pm, seven days per week, and the workforce would arrive prior to 6:00 am, and depart after 6:00 pm.

Table 6.10 of Section 6.3.1 of **Appendix W** summarises the RTIA's vehicle trips expected to be generated by the rehabilitation workforce during 2048.

18.4.9.8 Closure and Rehabilitation Stage 2048 – Deliveries

Closure and rehabilitation activities would generate heavy vehicles for decommissioning of infrastructure and removal of waste from the site. For the RTIA, it was assumed that during the assessment year 2048, an average of two heavy vehicles would travel to and from the Project each day, generating four vehicle trips per day. Trips would be spread throughout the day, and would be sourced principally from Moranbah or Mackay.

During rehabilitation activities, it is expected deliveries would generally occur throughout the day, between 6:00 am and 6:00 pm, seven days per week. While delivery vehicles would be likely to arrive after the workforce has arrived each day, and depart before the workforce departs each day, it was assumed that during the peak hours for the movement of the workforce to and from the Project, one delivery vehicle may arrive and depart from each of Moranbah and Mackay.

18.4.9.9 Closure and Rehabilitation Stage 2048 – Vehicular Access

While minor use of the IPM Road may occur, all vehicles associated with rehabilitation activities are assumed to enter and exit the Project via IDM Road.

18.4.9.10 Secondary Project Access Road

A secondary access route to the Project will be provided between the Project and Stanmore's Eagle Downs project, utilising new and existing roads to connect with the Peak Downs Mine Road. The secondary access will not be used on a day-to-day basis by the workers or for deliveries, rather it would be used on an infrequent basis.

For the RTIA, an allowance was made for 10 light vehicle trips per day from the secondary access road to IDM Road, and from IDM Road to the secondary access road during the Project's operational year scenarios in 2028 H2 and 2034.

18.4.9.11 DIDO and FIFO Roster Change Travel

Consistent with current IPC operations, the Project's construction, operational and rehabilitation DIDO and FIFO workforces are expected to travel to and from the region at the start and end of their roster periods. This travel would generate trips on the road network which are not directly to or from the Project site.

TTPP's traffic surveys conducted in March 2025 captured a typical week of traffic in the region, and as a result, included traffic generated by the existing IPC DIDO and FIFO workforce travelling to and from the region by bus and private vehicle. In addition, TTPP considered the change in demand for travel to and from the region that would occur with the Project, compared with the conditions captured during the traffic surveys in 2025.

As a result of this work, the RTIA defined the workforce by residential type (local, DIDO and FIFO), the DIDO and FIFO personnel travelling to and from the region each week, the local places of residence of DIDO and FIFO personnel travelling to and from the region, the routes and modes of travel of DIDO and FIFO personnel travelling to and from the region, and the change in weekly demand for travel to and from the region. Section 6.5 of **Appendix W** details each of these assessment parameters.

18.4.9.12 Total Project Traffic Volumes

For the Project's RTIA, Table 6.18 to Table 6.20 of Section 6.6 of **Appendix W** summarises the forecasts of average daily and peak hourly traffic generated by the Project on the roads in the region. It should be noted for assessment purposes that it was assumed that the construction workforce in 2028 H2 may travel during the same peak hours as the operational workforce. However, it is expected that those peaks may not necessarily coincide.

18.4.9.13 Project Pavement Loading

As described in Section 18.4.8.7, the SARs generated by the Project's heavy vehicle operational activities was estimated on the basis of the vehicle classifications surveyed in 2025 on the IDM Road and IPM Road together, resulting in a weighted average of 2.42 SAR4 per heavy vehicle.

During construction, the heavy vehicles generated by the Project are estimated to be:

- 10 % Class 4 three-axle rigid trucks or buses
- 40 % Class 5 four-axle rigid trucks
- 20 % Class 9 semitrailers
- 30 % Class 10 B-doubles.

As the majority of construction heavy vehicle trips are expected to be deliveries of materials and equipment to the Project, and allowing for trucks not being loaded to capacity, it was assumed that approximately 80% of inbound construction heavy vehicles would be loaded to capacity and 20% would be unloaded. Similarly, 80% of outbound construction heavy vehicles would be unloaded and 20% would be loaded to capacity. As a result, the weighted average SARs generated by the construction heavy vehicles was defined as 3.99 SARs per inbound heavy vehicle and 1.37 SARs per outbound heavy vehicle.

Table 6.22 of Section 6.7 of **Appendix W** summarises the forecast daily SARs generated by Project activity during 2028 H2, 2034 and 2048.

18.4.9.14 Total Cumulative Pavement Loading

The resulting SARs generated by the Project cumulatively with the background changes from other developments and growth during 2028 H2, 2034 and 2048 are presented in Table 6.23 of Section 6.8 of **Appendix W**.

18.5 Road Transport Impact Assessment – Results and Mitigation

18.5.1 Project Context

The Project's RTIA was undertaken in accordance with the methodology outlined in TMR (2018), and therefore, assesses the impacts of the Project against the baseline conditions that would occur without the Project. The Project would involve the continuation of mining activities at IPC, with the Project assessment relating to the difference between the decreasing traffic generation forecast without the Project and the ongoing traffic (similar to existing levels at IPC) that would be generated by the Project.

It is evident that the road network currently supports the trips generated by mining activities at IPC. Therefore, to consider the context of the forecast Project traffic generation against the existing conditions, Table 18-3 presents a comparison of the daily trips currently generated by IPC, those forecast under baseline conditions (i.e. for IPC without the Project in the future, being the basis for assessment), and the trips forecast to be generated with the Project during 2028 H2, 2034 and 2048. IDM Road and IPM Road are listed in Table 18-3 (and other following tables). However, it is noted for the RTIA that these are internal privately operated mine access roads, not public roads.

Table 18-3 indicates that the daily vehicle trips forecast to be generated by the Project on the wider road network would be somewhat less that those currently generated by existing mining activities at IPC. When compared to existing operating conditions, the Project would involve reductions in trips on the road network. In contrast, when compared to the predicted future baseline conditions without the Project, the Project would result in an increase in traffic, as current IPC operations ramp down and cease in future years.

Table 18-3 Traffic Generated by IPC and the Project on the Road Network (Vehicles per Day)

Road and Location	Existing IPC 2025	Base IPC			Project		
		2028 H2	2034	2048	2028 H2	2034	2048
IDM Road	506	312	22	0	564	450	50
IPM Road	618	166	12	0	170	214	0
Peak Downs Highway section: *Peak Downs Mine Road to Moranbah Access Road*	0	0	0	0	20	20	0
Peak Downs Highway section: *Moranbah Access Road to IDM Road (Quarry to IDM Road)*	330	168	22	0	324 (336)	268	36
Peak Downs Highway section: *IDM Road to IPM Road*	592	244	16	0	336	326	14
Peak Downs Highway section: *IPM Road to Daunia Road*	274	170	8	0	262	212	14
Peak Downs Highway section: *Daunia Road to Coppabella*	274	170	8	0	262	212	14
Peak Downs Highway section: *Coppabella to Fitzroy Developmental Road*	26	14	2	0	26	22	4

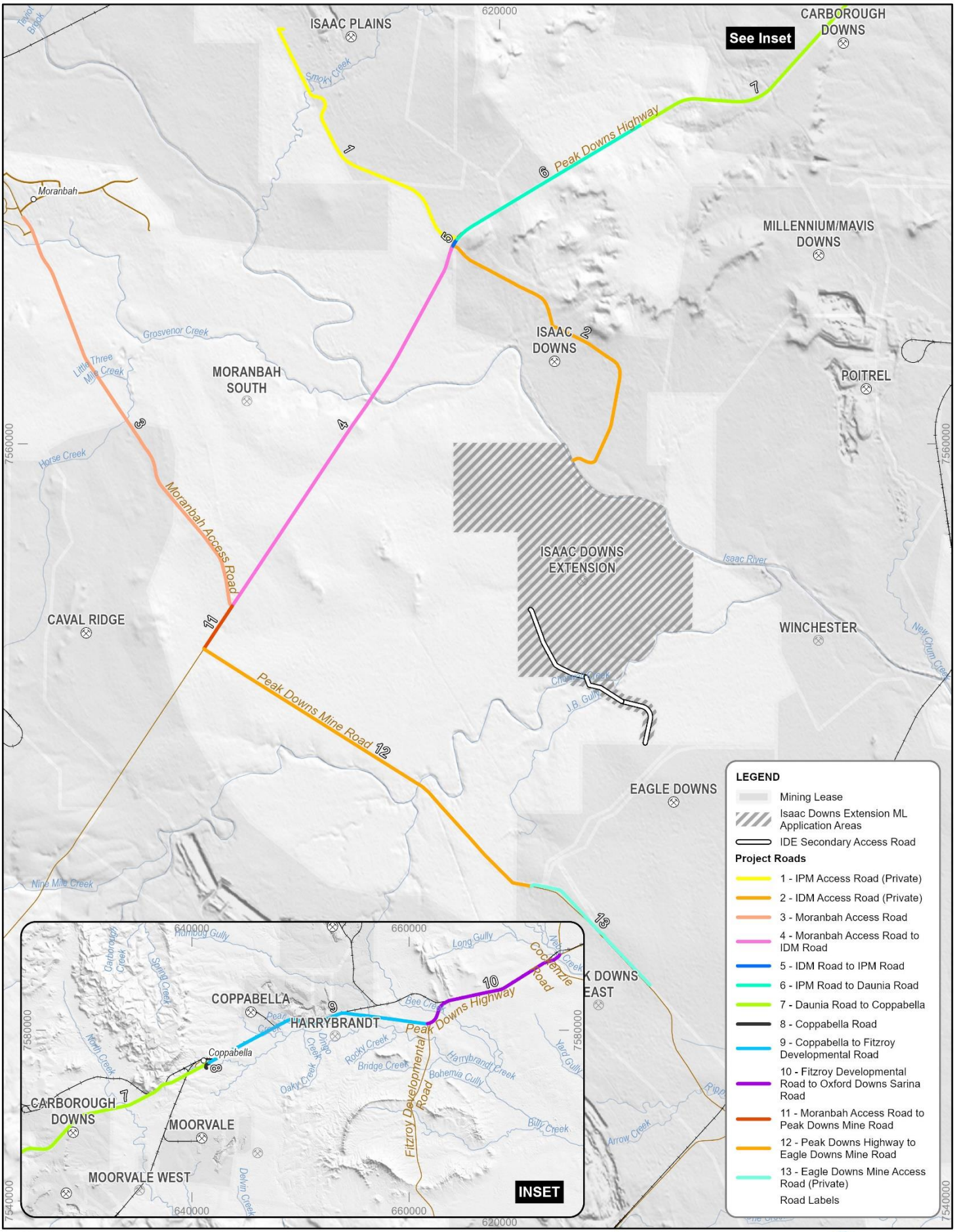
Road and Location	Existing IPC 2025	Base IPC			Project		
		2028 H2	2034	2048	2028 H2	2034	2048
Peak Downs Highway section: *Fitzroy Developmental Road to Oxford Downs Sarina Road*	26	14	2	0	26	22	4
Moranbah Access Road North of Peak Downs Highway	330	168	22	0	304	248	36
Coppabella Road South of Peak Downs Highway	248	66	8	0	236	190	10
Peak Downs Mine Road section: *Peak Downs Highway to Eagle Downs Mine Road*	0	102	14	0	20	20	0
Eagle Downs Mine Access Road North of Peak Downs Mine Road	0	0	0	0	20	20	0

18.5.2 Impact Areas

The impact area for the assessment of road link capacity and road safety impacts includes those road links identified in Table 18-4 and displayed in Figure 18-4, which represents those road links where the Project traffic is forecast to exceed 5% of the base traffic (i.e. under future conditions where IPC traffic has ramped down or ceased) in either direction on the link's AADT. The impact area includes local roads, which have been assessed on the same basis as the TMR (2018) methodology for SCRs.

The impact area for the assessment of intersection delay and road safety impacts includes those intersections identified in Table 18-5, which represents those intersections where the Project traffic is forecast to exceed five percent of the future base traffic (i.e. under future conditions where IPC traffic has ramped down or ceased) for any movement in the design peak hours.

The impact area for the assessment of pavement impacts includes all road links where the Project SARs exceed 5% of the base traffic SARs in either direction. Table 18-6 (for northbound or eastbound travel) and Table 18-7 (for southbound or westbound travel) identify those SCR links which meet the relevant SAR4 criteria for the Project assessment scenarios with regard to pavement impacts in accordance with TMR (2018).



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stanmore

ISAAC DOWNS EXTENSION

Impact Area Road Links

Figure | **18-4**

Table 18-4 Road Links – Project Increase above Base AADT

Road Segment	2028 H2		2034		2048	
	Northbound or Eastbound	Southbound or Westbound	Northbound or Eastbound	Southbound or Westbound	Northbound or Eastbound	Southbound or Westbound
IDM Road (private mine road)	>5%	>5%	>5%	>5%	>5%	>5%
IPM Road (private mine road)	>5%	>5%	>5%	>5%	-	-
Peak Downs Highway: Peak Downs Mine Road to Moranbah Access Road	-	-	-	-	-	-
Peak Downs Highway: Moranbah Access Road to IDM Road	>5%	>5%	>5%	>5%	-	-
Peak Downs Highway: IDM Road to IPM Road	>5%	>5%	>5%	>5%	-	-
Peak Downs Highway: IPM Road to Daunia Road	>5%	>5%	-	-	-	-
Peak Downs Highway: Daunia Road to Coppabella	>5%	>5%	-	-	-	-
Peak Downs Highway: Coppabella to Fitzroy Dev. Road	-	-	-	-	-	-
Peak Downs Highway: Fitzroy Dev. Road to Oxford Downs Sarina Road	-	-	-	-	-	-
Moranbah Access Road North of Peak Downs Highway	-	-	-	-	-	-
Coppabella Road South of Peak Downs Highway	>5%	>5%	>5%	>5%	-	-
Peak Downs Mine Road Peak Downs Highway to Eagle Downs Mine Road	-	-	-	-	-	-
Eagle Downs Mine Access Road (private mine road)	-	-	-	-	-	-

Table 18-5 Intersection Movements – Project Increase above Base on any Movement

Intersections	2028 H2		2034		2048	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Peak Downs Highway and Peak Downs Mine Road	-	-	-	-	-	-
Peak Downs Highway and Moranbah Access Road	>5%	>5%	>5%	>5%	-	-
Peak Downs Highway and IDM Road	>5%	>5%	>5%	>5%	>5%	>5%
Peak Downs Highway and IPM Road	>5%	>5%	>5%	>5%	-	-
Peak Downs Highway and Coppabella Road	>5%	>5%	>5%	>5%	-	>5%

Table 18-6 Pavement Impact Assessment Area: Project SAR more than 5% above Base SAR in Northbound or Eastbound Direction

Road Links	2028 H2	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048
IDM Road (private mine road)	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%
IPM Road (private mine road)	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	-	-	-	-	-
Peak Downs Highway: Peak Downs Mine Road to Moranbah Access Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peak Downs Highway: Moranbah Access Road to IDM Road	>5%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peak Downs Highway: IDM Road to IPM Road	>5%	>5%	>5%	>5%	>5%	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-
Peak Downs Highway: IPM Road to Daunia Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peak Downs Highway: Daunia Road to Coppabella	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peak Downs Highway: Coppabella to Fitzroy Developmental Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peak Downs Highway: Fitzroy Developmental Road to Oxford Downs Sarina Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Moranbah Access Road North of Peak Downs Highway	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Road Links	2028 H2	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048
Coppabella Road South of Peak Downs Highway	>5%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peak Downs Mine Road: Peak Downs Highway to Eagle Downs Mine Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eagle Downs Mine Access Road (private mine road)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 18-7 Pavement Impact Assessment Area: Project SAR more than 5% above Base SAR in Southbound or Westbound Direction

Road Links	2028 H2	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048
IDM Road (private mine road)	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%
IPM Road (private mine road)	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	>5%	-	-	-	-	-
Peak Downs Highway Peak Downs Mine Road to Moranbah Access Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peak Downs Highway Moranbah Access Road to IDM Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peak Downs Highway IDM Road to IPM Road	>5%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Road Links	2028 H2	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048
Peak Downs Highway IPM Road to Daunia Road	>5%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peak Downs Highway Daunia Road to Coppabella	>5%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peak Downs Highway Coppabella to Fitzroy Developmental Road	>5%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peak Downs Highway Fitzroy Developmental Road to Oxford Downs Sarina Road	>5%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Moranbah Access Road North of Peak Downs Highway	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coppabella Road South of Peak Downs Highway	>5%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peak Downs Mine Road Peak Downs Highway to Eagle Downs Mine Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eagle Downs Mine Access Road (private mine road)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

18.5.3 Road Safety

The Project's RTIA's impact area for road safety impacts includes those intersections and road links identified in Table 18-4 and Table 18-5, being those intersections where the Project traffic is forecast to exceed five percent of the base traffic for any movement in the design peak hours, and those road links where the Project traffic is forecast to exceed five percent of the base traffic in either direction on the link's AADT.

TMR (2018) indicates that the desired outcome is for road safety at any location on the SCR network to not be significantly worsened because of new development, and that any pre-existing unacceptable safety risk or development-introduced safety risk is addressed. In consideration of the use of local roads for Project access, the risk assessment includes the local roads that would be used by Project-generated traffic.

The Project's RTIA has been undertaken in accordance with TMR (2018) and has:

- identified existing safety risks relevant to the impact assessment area
- identified likely new or modified risks resulting from the Project
- recommended management or mitigation works to ensure the risk rating is not worsened because of the Project and that any unacceptable safety risk is addressed.

Changes to the risk profile within the Project's RTIA area are expected to be primarily associated with increases in traffic volumes, including additional heavy vehicles. In general, the Project proposes:

- no changes to pedestrian or cyclist desire lines
- no increases in the posted speed limit on any road
- no changes in visibility for movements to, from or along the SCR or local road network
- no introduction of over-dimension or heavy vehicles to roads not currently used by such vehicles
- no changes in the road network
- no additional traffic at intersections that would result in queues in auxiliary lanes overflowing into adjacent primary lanes.

The Project's RTIA has identified traffic safety risks and scored using the TMR (2018)'s risk scoring matrix, presented in Figure 18-5.

		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 18-5 Risk Scoring Matrix (TMR, 2018)

Table 7.7 of **Appendix W** presents the RTIA's risk assessment of the likelihood and consequence of safety risks being increased as a consequence of Project-generated traffic. This is a desktop risk assessment which considers footage captured along the access routes in June 2025, including Peak Downs Highway, Moranbah Access Road and Peak Downs Mine Road.

In summary, Table 7.7 of **Appendix W** indicates that:

- no high level risk items were identified under base conditions or with the Project
- worsening of the side-swipe crash risk score on the IDM Road with the Project would be appropriately mitigated via improving the line marking on the IDM Road as part of Stanmore's maintenance program and monitoring traffic movements on the road
- the Project will result in a reduction in safety risks associated with use of the IPM Road
- other risk items will not be worsened by the Project, with no mitigation measures required as a consequence of the Project.

The Project's travel demand management measures will minimise increases in traffic to reduce the likelihood of road crashes, and the other pre-existing safety risks not impacted by the Project will be addressed under TMR's regular maintenance programs, and ongoing monitoring of traffic movements.

With ongoing implementation of Stanmore's existing traffic management measures and maintenance of its private access roads, the Project will meet the desired outcome of no significant worsening of road safety at any location on the SCR network and on the local roads that would be used by Project-generated traffic.

18.5.4 Access and Frontage

The Project's RTIA has access and frontage to Peak Downs Highway, with a secondary access proposed via Peak Downs Mine Road and Eagle Downs Mine Road. The Project does not propose any changes to the existing frontage treatments on Peak Downs Highway, nor to the existing intersection of Peak Downs Mine Road and Eagle Downs Mine Road.

Nevertheless, the suitability of the existing treatments along those frontages has been reviewed based on the future forecast demands.

18.5.4.1 Major Road Treatments at Intersections

The treatment of the intersections of Peak Downs Highway with IDM Road and IPM Road, and of Peak Downs Mine Road with Eagle Downs Mine Road, were assessed using Austroads (2020)'s warrants for rural road turn treatments for high-speed rural roads. It is noted that the Austroads (2020)'s warrants are based on construction of intersections on new roads. However, it may be used as a reference for the intervention levels when upgrading existing intersection turn treatments.

The observed sight lines at the intersection exceed those required for the posted speed limit of 100 km/h. Therefore, no change to the warrants is required for the Project because of any sight distance constraint. For clarity, the warrant graph, together with the calculation method are presented in Section 7.4.1 of **Appendix W**.

Table 7.8 of **Appendix W** summarises the turn treatments warranted for the Peak Downs Highway at the IDM Road and IPM Road, and for the Peak Downs Mine Road at Eagle Downs Mine Road (Project secondary light vehicle access), based on the forecast peak hour traffic demands with the Project. These comparisons against the warrants are based on the major road being a two-lane, two-way road at each of the Project's access intersections.

Table 7.8 of **Appendix W** demonstrates that the existing turn treatments for Peak Downs Highway at the IDM Road and IPM intersections, and for Peak Downs Mine Road at Eagle Downs Mine Road meet or exceed those that would be warranted by Austroads with the Project-generated traffic. Therefore, the

Project will not require any upgrade to the existing treatment types due to any concerns regarding potential safety impacts.

18.5.4.2 Operation of Access Intersections

The operating characteristics of the Project's intersections were assessed using SIDRA INTERSECTION 10[10], which determines characteristics of intersection operating conditions, including the degree of saturation, average delays, and Levels of Service. Average vehicle delay is the commonly used measure of intersection performance, and Table 18-8 provides the criteria adopted for assessing the Level of Service, noting that all the intersections serving the Project are under sign control. The target for acceptable operation is generally accepted as Level of Service D.

Table 18-8 Intersection Level of Service Criteria

Level of Service	Control Delay per Vehicle (seconds per vehicle)		
	Signals	**Roundabout**	**Sign Control**
A	≤ 10	≤ 10	≤ 10
B	10 to ≤ 20	10 to ≤ 20	10 to ≤ 15
C	20 to ≤ 35	20 to ≤ 35	15 to ≤ 25
D	35 to ≤ 55	35 to ≤ 50	25 to ≤ 35
E	55 to ≤ 80	50 to ≤ 70	35 to ≤ 50
F	> 80	> 70	> 50

Table 18-9 summarises the forecast Levels of Service for the worst case movement at the Project's access intersections for the Project-generated traffic and under baseline conditions without the Project. The results in Table 18-9 demonstrate that the Project access intersections can be expected to operate at Levels of Service greater than the generally accepted level with minimal change between the baseline (no Project) and with Project scenarios, with acceptable delays to traffic during the Project's peak hours. Consequently, these results demonstrate that no additional treatments will be required at the access intersections on capacity grounds to accommodate the Project-generated traffic.

Table 18-9 Future Access Intersection Levels of Service

Intersection	2028 H2		2034		2048	
	AM Peak	**PM Peak**	**AM Peak**	**PM Peak**	**AM Peak**	**PM Peak**
Baseline No Project						
Peak Downs Highway and IDM Road	A	B	A	B	-	-
Peak Downs Highway and IPM Road	B	B	A	B	-	-
Peak Downs Mine Road and Eagle Downs Mine Road	B	B	B	B	C	C
With the Project						

[10] https://www.sidrasolutions.com/store/sidra-intersection-10

Intersection	2028 H2		2034		2048	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Peak Downs Highway and IDM Road	A	B	A	B	C	B
Peak Downs Highway and IPM Road	A	B	B	B	B	B
Peak Downs Mine Road and Eagle Downs Mine Road	B	B	B	B	C	C

The SIDRA analysis also provides output of the 95th percentile queue that would form on approaches to the intersections, with the key queues being those that form in the lanes on the major road. Table 18-10 presents the 95th percentile queues forecast in the major road turn lanes during the Project's peak hours. The results in Table 18-10 indicate that the 95th percentile queues forecast in the major road turn lanes would be negligible, and the Project would not result in any significant change to the queue lengths. Consequently, these results suggest that no additional treatments would be required at the access intersections to accommodate the Project-generated traffic within the existing intersection geometries.

Table 18-10 Future Access Intersection 95th Percentile Queues with the Project

Intersection	2028 H2		2034		2048	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Baseline No Project (m)						
Peak Downs Highway: Right turn into IDM Road	0.0	0.1	0.0	0.0	-	-
Peak Downs Highway: Left turn into IDM Road	0.0	0.0	0.0	0.0	-	-
Peak Downs Highway: Right turn into IPM Road	0.0	0.0	0.0	0.0	-	-
Peak Downs Highway: Left turn into IPM Road	0.0	0.0	0.0	0.0	-	-
Peak Downs Mine Road: Right turn into Eagle Downs Mine Road	0.7	0.1	0.6	0.1	0.8	0.1
With the Project (m)						
Peak Downs Highway: Right turn into IDM Road	0.1	0.1	0.0	0.1	0.0	0.0
Peak Downs Highway: Left turn into IDM Road	0.0	0.0	0.0	0.0	0.0	0.0
Peak Downs Highway: Right turn into IPM Road	0.0	0.0	0.0	0.0	-	-
Peak Downs Highway: Left turn into IPM Road	0.0	0.0	0.0	0.0	-	-

Intersection	2028 H2		2034		2048	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Peak Downs Mine Road: Right turn into Eagle Downs Mine Road	0.7	0.1	0.6	0.1	0.8	0.1

(All values presented in the table are defined as metres.)

18.5.4.3 Turn Lane Lengths

18.5.4.3.1 Project Access Intersections on Peak Downs Highway

The intersections of Peak Downs Highway with the IDM Road and IPM Road each include a channelised left-turn lane, and a channelised right-turn lane for vehicles entering the minor roads from Peak Downs Highway. Each channelised lane is approximately 220 m long, including the diverge taper.

The existing lane lengths at the intersections were compared with the deceleration length requirements of Austroads (2023) for a design speed of 100 km/h on Peak Downs Highway. Due to the intersection priorities, both right-turning and left-turning vehicles entering the minor roads may need to decelerate to a stop. To decelerate from 100 km/h to stop, a deceleration lane length (including taper) of 155 m is required on a level grade for a comfortable deceleration rate. As demonstrated in Table 18-10, the 95th percentile queue in the left-turn and right-turn lanes in Peak Downs Highway would be negligible. Therefore, the storage component of the deceleration lanes would appropriately be for one design vehicle.

The existing turn lane lengths of 220 m exceed the deceleration requirements, providing approximately 65 m of storage should vehicles need to stop and queue in the deceleration lane to wait for a gap in opposing traffic. Therefore, the design of the existing intersection turn lanes are consistent with the requirements of Austroads (2023), and the Project would not trigger any need to amend the design of the intersections.

18.5.4.3.2 Secondary Access via Eagle Downs Mine Road

The intersection of Peak Downs Mine Road and Eagle Downs Mine Road includes an auxiliary left-turn lane approximately 150 m long, and a channelised right-turn lane approximately 165 m long for vehicles entering Eagle Downs Mine Road from Peak Downs Mine Road.

The existing lane lengths at the intersections were compared with the deceleration length requirements of Austroads (2023) for a design speed of 100 km/h on Peak Downs Mine Road. Left-turning vehicles entering Eagle Downs Mine Road have priority and would not need to decelerate to a stop, while right-turning vehicles may need to decelerate to a stop. To decelerate from 100 km/h to a turning speed of 30 km/h, a deceleration lane length of 140 m (including taper) is required on a level grade for a comfortable deceleration rate. As the left-turn traffic would have priority, no storage length is required, and therefore, the existing auxiliary left-turn lane meets this requirement. To decelerate from 100 km/h to stop, a deceleration lane length (including taper) of 155 m is required on a level grade for a comfortable deceleration rate. A demonstrated in Table 18-10, the 95th percentile queue in the right-turn lane in Peak Downs Mine Road would be negligible. Therefore, the storage component of the right-turn deceleration lane would appropriately be for one design vehicle. The existing channelised right-turn lane is approximately 165 m long, and therefore, is reasonably consistent with the requirement. The Project-generated traffic would not increase the length of queues, and as a result, would not trigger any requirement to amend the design of the intersections.

18.5.4.3.3 Sight Distances at Intersections

TTPP's observations on-site identified that the available sight distances to and from the Project's existing access intersections are satisfactory, and exceed the minimum requirements for safe intersection sight distance between drivers on the major and minor roads at each intersection.

Therefore, the Project will not exacerbate any existing concerns regarding sight distance at the access intersections.

18.5.5 Intersection Delay

The Project's RTIA assessed intersection delay at the intersections identified in Table 18-5. The operation of the intersections under base conditions where IPC traffic has ramped down or ceased, and with the Project-generated traffic, were assessed using SIDRA INTERSECTION 10[11] and the resulting Levels of Service are summarised in Table 18-11.

The results in Table 18-11 demonstrate that the assessed intersections can be expected to operate at acceptable Levels of Service, with minimal change between the baseline (no Project) and with Project scenarios, with acceptable delays to traffic during the Project peak hours. These results suggest that no additional treatments will be required at the Project's impacted intersections on capacity grounds to accommodate the Project-generated traffic.

Table 18-11 Levels of Service at Intersections – Project Impact Area

Intersection	2028 H2		2034		2048	
	AM	PM	AM	PM	AM	PM
Baseline No Project						
Peak Downs Highway and Moranbah Access Road	B	B	B	B	-	-
Peak Downs Highway and IDM Road	A	B	A	B	-	-
Peak Downs Highway and IPM Road	A	B	A	B	-	-
Peak Downs Highway and Coppabella Road	B	B	B	B	-	C
With the Project						
Peak Downs Highway and Moranbah Access Road	B	B	B	B	-	-
Peak Downs Highway and IDM Road	A	B	A	B	C	C
Peak Downs Highway and IPM Road	A	B	B	B	-	-
Peak Downs Highway and Coppabella Road	B	B	B	C	-	C

[11] https://www.sidrasolutions.com/store/sidra-intersection-10

The desired outcome is to ensure the sum of intersection delays on base traffic does not significantly decline, that is it does not increase average delays by more than 5% in aggregate (TMR, 2018). The aggregate intersection delay impact were calculated in accordance with TMR (2018), being the difference between the base case and 'with development' intersection vehicle-minutes, where the 'with development' vehicle-minutes is calculated by multiplying the 'with development' average delay by movement to the base case volume on each movement.

Table 7.13 and Table 7.14 of **Appendix W** present summaries of the AM and PM peak hour intersection delays, respectively, calculated using SIDRA INTERSECTION 10[12] to determine the characteristics of intersection operating conditions.

The Project's intersection delay impacts during the design peaks are summarised in Table 18-12. The Project's intersection delay impact is expressed as the percent increase (or decrease) with the intersection delay aggregate with the Project over that of the base conditions without the Project. From Table 18-12, the sum of the Project's intersection delays on base traffic does not increase average delays by more than 5% in aggregate. Therefore, the desired outcome is achieved without the need for any mitigation measures.

Table 18-12 Project Intersection Delay Impact (vehicle minutes)

	AM Peak Hour			PM Peak Hour		
	Base	**Project**	**Impact**	**Base**	**Project**	**Impact**
2028 H2	193.9	186.5	-3.8%	227.4	223.8	-1.6%
2034	234.0	229.1	-2.1%	256.6	259.4	1.1%
2048	0.0	0.0	0.0%	112.5	85.3	-24.2%

18.5.6 Road Link Capacity

Section 18.5.2 and Table 18-4 describes the area for consideration of road link capacity, which is where the Project traffic is forecast to exceed 5% of the base traffic in either direction on the link's AADT (i.e. under future conditions where IPC traffic has ramped down or ceased). This base traffic exceedance was used to define the Project's area of potential traffic impacts and is represented by the roads assessed in Table 18-14 and Table 18-15.The desired outcome is to ensure that traffic generated by the Project does not significantly deteriorate the operational capacity of SCR links, with the intent being to ensure no significant worsening of the Level of Service for each link in the assessed area.

Level of Service represents road users' perceptions of the quality of service provided by a road link, and describes operational conditions in terms of factors such as speed, travel time, freedom to manoeuvre, traffic interruptions, comfort, convenience and safety. Levels of Service are designated A through F, with Level of Service A providing the best traffic conditions, with no restriction on desired travel speed or overtaking. Level of Service B to D describes progressively worse traffic conditions. Level of Service E occurs when traffic conditions are at or close to capacity, and there is virtually no freedom to select desired speeds or to manoeuvre in the traffic stream. The service flow rate for Level of Service E is taken as the capacity of a lane or roadway. In rural situations, Level of Service C is generally considered to be acceptable. At Level of Service C, most vehicles are travelling in platoons, and travel speeds are curtailed. At Level of Service D, platooning increases significantly, and the demand for passing is high, but the capacity to do so is low. The target for acceptable conditions is generally recognised as Level of Service D.

[12] https://www.sidrasolutions.com/store/sidra-intersection-10

The Level of Service experienced by drivers on two-way rural roads is dependent on the drivers' expectations regarding the road based on three classes of road as defined in TRB (2016). Class I roads are roads on which motorists expect to travel at relatively high speeds, and most often serve long-distance trips or provide connecting links between facilities that serve long distance trips. Class II roads are roads on which motorists do not necessarily expect to travel at high speeds, and may function as access routes to Class I facilities, serve as scenic or recreational routes or pass through rugged terrain. Class III roads serve moderately developed areas, and may be portions of a Class I or Class II highway that pass through small towns or developed recreational areas, where local traffic mixes with through traffic, and the density of unsignalised roadside access points increases. The Level of Service criteria for two lane roads from Ausroads (2020) are shown in Table 18-13.

Table 18-13 Level of Service Criteria for Two-Lane Two-Way Roads

Level of Service	Class 1		Class 2	Class 3
	Average Travel Speed (km/h)	Percent Time Spent Following (%)	Percent Time Spent Following (%)	Percent Free Flow Speed (%)
A	> 90	≤ 35	≤ 40	> 91.7
B	> 80 – 90	> 35 – 50	> 40 – 55	> 83.3 – 91.7
C	> 70 – 80	> 50 – 65	> 55 – 70	> 75.0 – 83.3
D	> 60 – 70	> 65 – 80	> 70 – 85	> 66.7 – 75.0
E	≤ 60	≥ 80	≥ 85	≤ 66.7

The Project's RTIA adopted the methodology for the assessment of the capacity and performance of two lane, two-way rural roads outlined in Austroads (2020).

Therefore, as a regional road, Peak Downs Highway is considered a Class I route, which applies more stringent criteria for calculation of Level of Service. The Percentage Time Spent Following (PTSF) for Peak Downs Highway results in a poorer consequence for the calculated Level of Service than Ausroads technical specifications. As a result, the Project's RTIA was based on the PTSF. For assessment purposes, it was assumed that overtaking is not permitted over 20 percent of each part of the route and that the terrain does not significantly impact the speeds of heavy vehicles.

It is noted that the signposted speed limit of Coppabella Road is 60 km/h, while the TRB (2016) method applies to roads with a posted speed limit of 45 miles per hour (72 km/h) or more. As a result, for the Project's RTIA, a posted speed limit of 70 km/h was adopted. Coppabella Road and the Project access roads were assessed as Class III roads, in consideration of the changed expectations that drivers may have on their ability to select their travel speed on those roads.

It is also noted that due to the channelised lanes available on the Peak Downs Highway between the IDM Road and IPM Road, the RTIA methodology does not strictly apply, as it refers to two-lane, two-way roads only. Nevertheless, TTPP undertook the assessment using this methodology. Consequently, the assessed results should be considered indicative.

Table 18-14 summarises the Levels of Service during the Project's AM and PM peak hours, respectively, over the identified impact assessment areas in 2028 H2. Table 18-14 indicates that the Project would not result in any significant worsening of the Level of Service for each link in the impact area in 2028 H2, with minimal change between the baseline (no Project) and with Project scenarios, and with the Levels of Service on the impacted links remaining satisfactory with the Project.

Table 18-14 AM and PM Project Peak Hour Levels of Service in 2028 H2

Impacted Segment	AM Project Peak Hour				PM Project Peak Hour			
	Northbound or Eastbound		Southbound or Westbound		Northbound or Eastbound		Southbound or Westbound	
	Base	Project	Base	Project	Base	Project	Base	Project
IDM Road	A	A	A	A	A	A	A	A
IPM Road	A	A	A	A	A	A	A	A
Peak Downs Highway: Moranbah Access Road to IDM Road	B	B	A	A	B	B	B	C
Peak Downs Highway: IDM Road to IPM Road[A]	B	B	A	A	B	B	B	B
Peak Downs Highway: IPM Road to Daunia Road	B	B	A	A	B	B	B	B
Peak Downs Highway: Daunia Road to Coppabella	B	B	A	A	A	B	B	B
Coppabella Road South of Peak Downs Highway	B	B	B	B	B	B	B	B

([A] = Indicative only, level of service would be better than reported due to turn lanes.)

Table 18-15 summarises the Levels of Service during the Project AM and PM peak hours respectively over the identified impact assessment areas in 2034. Table 18-15 indicates that the Project would not result in any significant worsening of the Level of Service for each link in the impact area in 2034, with minimal change between the baseline (no Project) and with Project scenarios, and with the Levels of Service forecast on the impacted links remaining satisfactory with the Project.

Table 18-15 AM and PM Project Peak Hour Midblock Levels of Service in 2034

Impacted Segment	AM Project Peak Hour				PM Project Peak Hour			
	Northbound or Eastbound		Southbound or Westbound		Northbound or Eastbound		Southbound or Westbound	
	Base	Project	Base	Project	Base	Project	Base	Project
IDM Road	-	A	-	A	-	A	-	A
IPM Road	-	A	-	A	-	A	-	A
Peak Downs Highway: Moranbah Access Road to IDM Road	B	B	A	A	B	B	C	C

Impacted Segment	AM Project Peak Hour				PM Project Peak Hour			
	Northbound or Eastbound		Southbound or Westbound		Northbound or Eastbound		Southbound or Westbound	
	Base	Project	Base	Project	Base	Project	Base	Project
Peak Downs Highway: IDM Road to IPM Road[A]	B	B	A	A	B	B	C	C
Coppabella Road South of Peak Downs Highway	B	B	B	B	B	B	B	B

([A] = Indicative only, level of service would be better than reported due to turn lanes.)

Table 18-16 summarises the Levels of Service during the Project AM and PM peak hours respectively over the identified impact assessment areas in 2048. Table 18-16 indicates that the forecast Level of Service on the impacted link in 2048 would be satisfactory with the Project.

Table 18-16 AM and PM Project Peak Hour Midblock Levels of Service in 2048

Impacted Segment	AM Project Peak Hour				PM Project Peak Hour			
	Northbound or Eastbound		Southbound or Westbound		Northbound or Eastbound		Southbound or Westbound	
	Base	Project	Base	Project	Base	Project	Base	Project
IDM Road	-	A	-	A	-	A	-	A

18.5.7 Pavement

Pavement impacts were assessed for all road links where the Project SARs or LUs exceed 5 % of the base traffic SARs or LUs in either direction. The road links which meet the relevant SAR4 criteria for pavement impacts in accordance with TMR (2018) are shown in Table 18-6 and Table 18-7.

It should be noted that these calculations are based on the comparison against baseline conditions without the Project, with a decline in activity at IPC after 2025 should the Project not proceed. IPC generated SARs are expected to decline under baseline conditions, which is reflected in the baseline forecasts. IPC could theoretically continue to generate the same number of heavy vehicles (and hence SARs on the road network) as it does currently until mining operations cease, without further reference to TMR (2018). By way of context, Table 7.20 of **Appendix W** compares the SARs generated by IPC in 2025 with those forecast in 2028 H2 under baseline and Project conditions. This comparison demonstrates that while the Project is forecast to increase pavement impacts compared with baseline conditions, in many locations, it is forecast to result in a decrease in SARs compared with operating conditions in 2025.

The forecast SARs generated by the IPC under baseline conditions and by the Project in the impact area for pavement assessment (against baseline conditions) are summarised in Table 7.21 for northbound or eastbound travel and Table 7.22 for southbound or westbound travel, within Section 7.7 of **Appendix W**.

In relation to road pavements, the desired outcome is to ensure no net worsening to SCR pavements because of increased heavy vehicle traffic from the Project. TMR requires development contributions for all roads within the SCR network where development generated SAR4s exceed 5% of base SAR4s. Contributions may be based on the marginal cost rate method (TMR, 2019), which applies a cost per SAR-

km generated by the Project traffic. Table 18-17 summarises the total indicative SAR-km and cost on each section of Peak Downs Highway assessed to inform that calculation, with a total cost estimate around $259,069.

This assessment of base and Project-generated SARs on the SCR has identified the Project's impacts on pavement life compared with base conditions. The Project's SAR contribution on the impacted roads was assessed to inform discussions with TMR. That assessment is considered to overestimate the Project's impacts, which is a continuation of an existing mining operations at IPC, and therefore, does not represent a material change compared to existing traffic conditions. While practically, the baseline forecasts assumed that IPC-generated traffic will decline after 2025, it could continue to generate the higher number of heavy vehicle trips until mining operations cease. The impact assessment compared Project forecasts against the declining baseline SARs rather than the potential higher SARs, thereby overestimating its impact.

Table 18-17 Total Marginal Cost Pavement Impact Peak Downs Highway

Road Link	Daily Project Impact SAR					Distance (km)	Annual Project Impact SAR-km ('000)					Cumulative Total Project Impact SAR-km ('000)	Marginal Cost (cents per 0.1 km segment)[A]	Total Cost ($)
	2028 H2	2029	2030	2031	2032		2028 H2	2029	2030	2031	2032			
With Gazettal														
Moranbah Access Road to Quarry	59.85	-	-	-	-	4.0	87.4	-	-	-	-	87.4	2.37	20,709
Quarry to IDM Road	83.79					7.2	220.2					220.2	2.64	58,274
IDM Road to IPM Road	2.33	38.72	38.72	38.72	38.72	0.2	-	2.8	2.8	2.8	2.8	11.4	4.08	4,682
Against Gazettal														
IDM Road to IPM Road	20.67	-	-	-	-	0.2	1.5	-	-	-	-	1.5	4.08	615
IPM Road to Coppabella	30.35	-	-	-	-	25.8	285.8	-	-	-	-	285.8	2.91	83,302
Coppabella to Oxford Downs Sarina Road	22.37	-	-	-	-	35.7	291.4	-	-	-	-	291.4	3.13	91,487
Total														**259,069**

([A] = Source TMR Data Request Reference DR3411, average marginal cost rate over nominated segment length.)

18.6 Conclusion

The Project will transition ROM and product coal production, and the workforce, from IDM. Therefore, no material changes are expected for local and regional air transport requirements or the demands on rail, port and shipping services. The Project's product coal will be transported to export market destinations using the existing rail, Port and shipping infrastructure under commercial arrangements. The Project's activities will not impact any rail crossings. As a result of minimal changes to the current rail, Port, shipping and air transport requirements from the Project's operation, the transport assessment focussed on road transport.

A RTIA was undertaken for the Project in accordance with relevant TMR and Austroads guidelines, manuals and standards. The assessment compared the forecast baseline road traffic with and without the Project, noting that as the Project is an extension of existing mining activities at IPC, current traffic volumes associated with IPC are expected to be similar to traffic volumes with the Project. A minor reduction is forecast in the size of the Project's future workforce compared to the current IPC workforce, and as a result, the Project is expected to result in an overall reduction in the number of workers travelling to and from the region each week, with those trips spread over several days of the week.

The major transport route in the vicinity of the Project is the Peak Downs Highway (SCR), which will be used for the movement of materials, equipment and personnel to and from the Project site. The primary vehicular access to the Project for workers and deliveries will be via IDM's existing access road from Peak Downs Highway, and a private bridge that will be constructed across the Isaac River. Access to the CHPP at IPM will be via the IPM's existing access road from Peak Downs Highway. A secondary access route to the Project will be provided between the Project and Stanmore's Eagle Downs project, utilising new and existing roads to connect with the Peak Downs Mine Road. The secondary access will not be used on a day-to-day basis by the workers or for deliveries, and as a result, would only be used on an infrequent basis.

The Project's road impact assessment area was defined by the road links where Project traffic was forecast to exceed 5% of the base traffic in either direction on the link's AADT (i.e. under future conditions where IPC traffic has ramped down or ceased).

A road safety impact assessment was undertaken for the Project and incorporated changes to the risk profile within the impact assessment area with the Project and the implementation of mitigation measures to prevent any worsening of risks as a consequence of the Project.

With ongoing implementation of Stanmore's existing traffic management measures and maintenance of its private access roads, the Project will meet the desired outcome of no significant worsening of road safety at any location on the SCR network and on the local roads that will be used by Project-generated traffic.

The RTIA demonstrated that the existing turn treatments for Peak Downs Highway at the IDM Road and IPM intersections, and for Peak Downs Mine Road at Eagle Downs Mine Road meet or exceed those that would be warranted by Austroads with the Project-generated traffic. Therefore, the Project will not require any upgrade to the existing treatment types due to any concerns regarding potential safety impacts.

The RTIA demonstrated that the Project access intersections can be expected to operate at Levels of Service greater than the generally accepted level with minimal change between the baseline (no Project) and with Project scenarios, with acceptable delays to traffic during the Project's peak hours. As a result, no additional treatments will be required at the access intersections on capacity grounds to accommodate the Project-generated traffic.

The Project's principal access, IDM Road, is constructed with CHL and CHR treatments within the Peak Downs Highway and is expected to operate at acceptable Levels of Service with forecast peak demands. In addition, sight distances meet or exceed standard requirements.

The key intersections used by Project-generated traffic will operate at acceptable Levels of Service, with acceptable delays to vehicles. Therefore, no infrastructure works are required to accommodate the Project-generated traffic at the key intersections.

The Project will not result in any significant worsening of the Level of Service on road links, with levels of service forecast to be satisfactory. Therefore, no measures are required to provide additional capacity to accommodate the Project generated traffic.

The assessment of forecast baseline without and with Project-generated SARs on the Peak Downs Highway (SCR) has identified the Project's impacts on pavement life compared with base conditions. The assessment is considered to overestimate the Project's impacts due to the nature of the Project, which is a continuation of an existing mining operations at IPC, and therefore, does not represent a material change compared to existing traffic volumes. Nevertheless, the assessment compared Project forecasts against the declining baseline SARs rather than the potential higher SARs, resulting in an estimated pavement contribution considered sufficient and appropriate to meet TMR's requirements.

In summary, the Project's assessment of potential transport impacts has demonstrated that the Project's use of road, rail, Port and shipping will not cause any material impacts over the Project's life. Consequently, the Project can meet the required objectives and performance outcomes for transport.

18.7 References

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