Whitehaven

2025

Gunnedah Open Cuts Coal Haulage Increase Modifications

Modification Report

Appendix A - Road Transport Assessment



Our Ref: 25213

1 August 2025

Whitehaven Coal Limited
231 Conadilly Street
GUNNEDAH NSW 2380

Attention: Scott Mitchell, Manager – Approvals

Dear Scott,

RE: WHITEHAVEN GUNNEDAH OPEN CUT OPERATIONS
2025 HAULAGE MODIFICATIONS – ROAD TRANSPORT IMPACT REVIEW

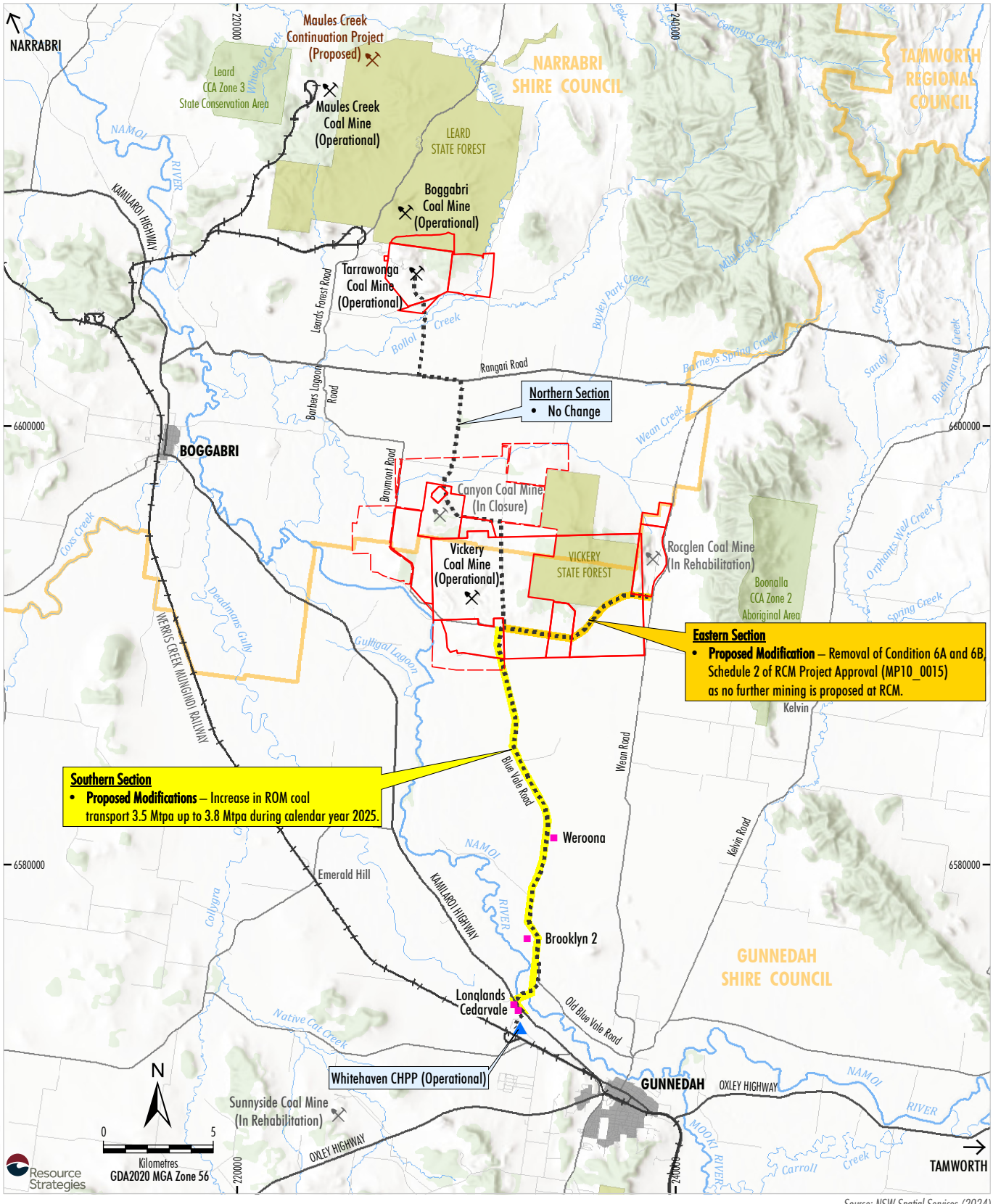
As requested, please find herein The Transport Planning Partnership's (TTPP) review of the road transport implications of proposed modifications to the approved run-of-mine (ROM) coal haulage from Tarrawonga Coal Mine (Tarrawonga), Vickery Coal Mine (Vickery) and Rocglen Coal Mine (Rocglen) to the Whitehaven Coal Handling and Preparation Plant (CHPP).

1. Introduction

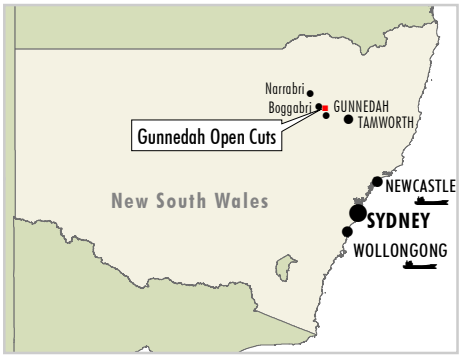
Whitehaven Coal Limited (Whitehaven) and its subsidiaries own and operate Tarrawonga, Vickery, and Rocglen, located north of Gunnedah in New South Wales (NSW) and within the Gunnedah Shire and Narrabri Shire Local Government Areas (LGA). These mining operations are collectively referred to as the Gunnedah Open Cuts (GOCs). Whitehaven also owns and operates the Whitehaven CHPP, located west of Gunnedah and within the Gunnedah Shire LGA.

2. The Modifications

Whitehaven is proposing modifications to the Tarrawonga Project Approval (MP11_0047), Vickery Development Consent (SSD 7480) and Rocglen Project Approval (MP10_0015), to increase in the cumulative maximum ROM coal haulage from the GOCs via the Approved ROM Coal Transport Route from 3.5 million tonnes per annum (Mtpa) to 3.8 Mtpa during the 2025 calendar year (the Modifications) (Figure 1). The maximum ROM coal transport permitted from Tarrawonga and Vickery individually would remain unchanged under the Modifications.



Source: NSW Spatial Services (2024)



LEGEND

- Mine Site (Operational)
- Mine Site (Proposed)
- Mine Site (In Closure/Rehabilitation)
- Railway
- Major Road
- Local Road
- State Forest
- State Conservation Area, Aboriginal Area
- Local Government Boundary
- Exploration Licence Boundary (EL)
- Mining Tenement Boundary (ML, CL)
- Private Landholders
- Approved Road Transport Route
- Proposed Modifications
- Whitehaven CHPP

Whitehaven

GOC MODIFICATIONS

Proposed Modifications

Figure 1

WHC-25-105_RTA_201B

The Modifications would therefore impact only the part of the Approved ROM Coal Transport Route south of Braymont Road, on which trucks carrying ROM coal from both Tarrawonga and Vickery travel. The last transport of ROM coal from Rocglen occurred in July 2019, following cessation of its coal production in June 2019.

It is noted that the proposed forecasted ROM coal haulage trips under the Modifications would be less than those previously assessed for the GOCs (refer Section 4). This is due to increases in the payload of the haulage fleet.

The Modifications would not change:

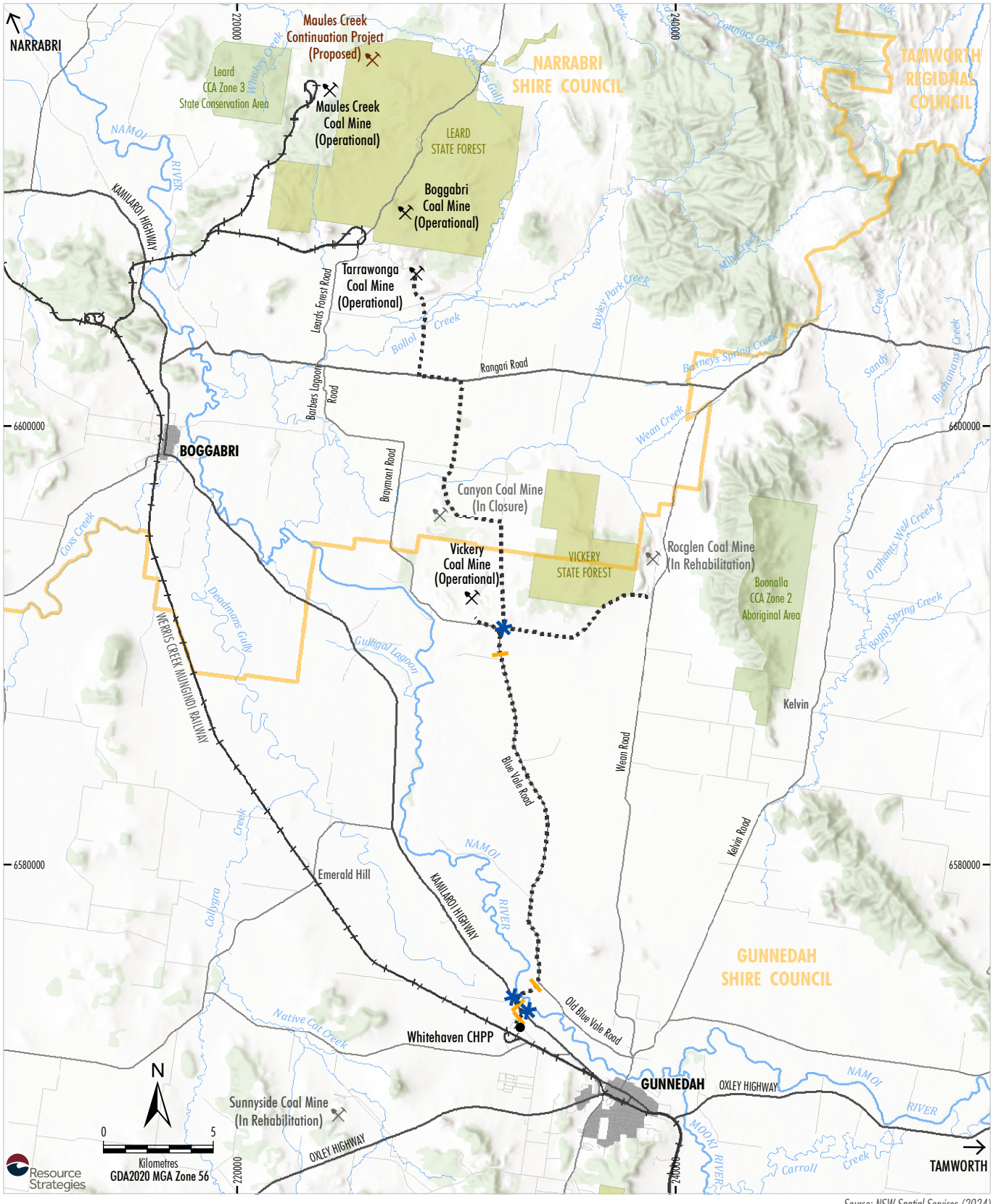
- mining operations at the approved GOCs;
- surface disturbance at the approved GOCs or Whitehaven CHPP (e.g. to facilitate transport or stockpiling of ROM coal, product coal or coal rejects);
- mine life, employment numbers, mining activities or other surface activities associated with the approved GOCs or Whitehaven CHPP;
- approved haulage hours[1];
- ROM coal transport routes from the GOCs to the Whitehaven CHPP or existing domestic customers; and
- coal reject transport routes from the Whitehaven CHPP to Vickery or Tarrawonga for incorporation into the final landform.

3. Approved Mining Operations

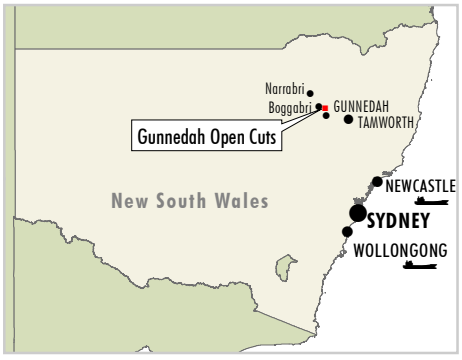
3.1. Approved ROM Coal Transport Route

The Approved ROM Coal Transport Route (Figure 2) includes a combination of public and private roads and provides the shortest and least trafficked route from the GOCs to the Whitehaven CHPP, and does not traverse either residential areas or permanent school zones.

[1] Modification 1 to the Vickery Development Consent (SSD 7480) (under assessment) seeks to align the Vickery haulage hours with Tarrawonga's haulage hours.



Source: NSW Spatial Services (2024)



LEGEND

- Mine Site (Operational)
- Mine Site (Proposed)
- Mine Site (In Closure/Rehabilitation)
- Railway
- Major Road
- Local Road
- State Forest
- State Conservation Area, Aboriginal Area
- Local Government Boundary
- Approved Road Transport Route
- Whitehaven CHPP
- Automatic Tube Counter
- Intersection Survey Location

Whitehaven

GOC MODIFICATIONS

Approved ROM Coal Transport Route and Survey Locations

Figure 2

The Approved ROM Coal Transport Route consists of:

- Whitehaven Private Haul Road north-south between Tarrawonga and Rangari Road;
- Rangari Road (between the two sections of private haul road);
- Whitehaven Private Haul Road south of Rangari Road, which crosses Hoad Lane and passes through the former Canyon Coal Mine and east-west to Hoad Lane;
- Hoad Lane between the Whitehaven Private Haul Road and Blue Vale Road;
- Shannon Harbour Road between the Rocglen Access and Hoad Lane;
- Braymont Road between the Vickery and Blue Vale Road;
- Blue Vale Road between Hoad Lane and Kamilaroi Highway (noting that realignment of Blue Vale Road is approved with commencement of Vickery Extension Project);
- Kamilaroi Highway between Blue Vale Road and Whitehaven CHPP access road; and
- the Whitehaven CHPP access road.

The Kamilaroi Highway overpass is an approved (but not constructed) section of private haul road over Kamilaroi Highway, providing access from Blue Vale Road directly to the Whitehaven CHPP access road. The maximum cumulative ROM coal haulage along the Approved ROM Coal Transport Route with and without the Kamilaroi Highway overpass is described in Section 3.6.

3.2. Tarrawonga Coal Mine

Tarrawonga is an open cut coal mine located approximately 42 kilometres (km) north-northwest of Gunnedah within the Narrabri Shire Council LGA. Mining operations at Tarrawonga are conducted in accordance with MP11_0047, which was granted by the NSW Planning Assessment Commission under delegation from the NSW Minister for Planning & Infrastructure pursuant to section 75J of the NSW *Environmental Planning and Assessment Act 1979*.

ROM coal is crushed and screened on-site, and the sized ROM coal is loaded onto trucks for transport via the Approved ROM Coal Transport Route to the Whitehaven CHPP at Gunnedah or to domestic customers. Trucks also transport coal rejects from the Whitehaven CHPP to Tarrawonga along the Approved ROM Coal Transport Route. Coal rejects are typically transported in the same fleet of trucks as ROM coal is transported, backloading the ROM coal transport trucks for their return trip from the Whitehaven CHPP to Tarrawonga, and so do not generate any additional vehicle trips.

3.3. Vickery Coal Mine

Vickery is located in the Gunnedah Coalfield, approximately 25 km north of Gunnedah, within the Gunnedah Shire Council and Narrabri Shire Council LGAs. Development Consent for Vickery was originally granted in October 1986. Initial mining activities were underground, and were limited to the 'Red Hill' area. From 1991 to 1998 the 'Shannon Hill', 'Blue Vale' and 'Greenwood' open cuts were developed to mine coal seams near the surface. Mining at Vickery ceased in 1998 and the site was subsequently rehabilitated.

Vickery Coal Project

The Vickery Coal Project was approved in September 2014 (Development Consent SSD 5000) permitting the extraction and transport of up to 4.5 Mtpa of ROM coal in any calendar year until the end of December 2044. It permits construction of the Kamilaroi Highway overpass between Blue Vale Road and the Whitehaven CHPP for use by ROM coal transport trucks.

Vickery Extension Project

The Vickery Extension Project (SSD 7480) involves the development of the Vickery Coal Mine within Coal Lease 316, ML 1718 and ML 1838, and associated infrastructure including a rail spur, on-site CHPP and groundwater borefield. The Vickery Extension Project was approved by the Independent Planning Commission in 2020, and permits the extraction of up to 10 Mtpa of ROM coal with a mine life of 25 years. The rail and CHPP infrastructure for the Vickery Extension Project are not yet constructed and remain subject to a final investment decision by Whitehaven.

Whitehaven has commenced construction and early mining of the Vickery coal deposit, comprising a low capital project that will utilise surplus coal processing and washing infrastructure at the Whitehaven CHPP, as well as existing road haulage, rail and port capacity. The transport of ROM coal from Vickery commenced in April 2024. The transport of ROM coal and coal rejects is undertaken using the same fleet of vehicles used at Tarrawonga, with rejects typically backloaded in the vehicles used to transport ROM coal.

An application to modify SSD 7480 is currently under assessment (Modification 1), and proposes that the approved road haulage hours at Vickery be extended to be consistent with those approved at Tarrawonga. Modification 1 also proposes:

- coincidence of the Vickery rail spur and MIA construction activity with initial mining activity;
- construction and use of an on-site temporary concrete batching plant during the Vickery rail spur and MIA construction stage;
- construction of pipelines for water transfer points;
- disposal of waste heavy vehicle tyres in the waste rock emplacement areas;

- extraction, crushing and screening of up to 90,000 cubic metres (m^3) of gravel in any calendar year from the site for collection by customers, consistent with approved conditions for the Vickery Coal Project (SSD 5000) and Tarrawonga (MP 11_0047);
- improved landform design and an administrative change to Schedule of Lands; and
- an alternative alignment of the approved Blue Vale Road realignment.

3.4. Rocglen Coal Mine

Rocglen is located in the Gunnedah Coalfield, approximately 25 km north of Gunnedah, within the Gunnedah Shire Council LGA. Rocglen operated under Project Approval MP 10_0015, but ceased production in June 2019, with the last transport of ROM coal from Rocglen occurring in July 2019. Since then, work has included decommissioning of equipment, demolition of structures, removal of materials, and rehabilitation works, being followed by monitoring and maintenance of the area.

3.5. Whitehaven CHPP

The Whitehaven CHPP is operated in accordance with Development Consent DA 0079.2002, which was granted by Gunnedah Shire Council under the delegation from the Minister, and most recently modified in May 2025. DA0079.2002 permits the processing and dispatch of up to 4.1 Mtpa of ROM coal per calendar year, until 31 December 2030.

3.6. Approved ROM Coal Transport Limits

The amount of ROM coal, rejects and gravel permitted to be transported on the Approved ROM Coal Transport Route is limited by conditions applicable to the GOCs individually and cumulatively. The approved transport limits are summarised in Table 1. For clarity, the ROM coal transport limits contained in Table 1 include up to 150,000 tonnes per annum (tpa) of ROM coal that may be transported from each of Tarrawonga and Vickery to domestic markets by road.

Table 1: Summary of Approved Annual Road Transport Limits

Tarrawonga	Vickery[A]	Rocglen (in closure)	Cumulative
ROM Coal Transport – prior to Kamilaroi Highway overpass			
3.5 Mt	3.5 Mt	1.5 Mt	3.5 Mt [B]
ROM Coal Transport – with Kamilaroi Highway overpass			
3.5 Mt	4.5 Mt	1.5 Mt	4.5 Mt
ROM Coal Transport – upon Vickery Rail Spur and CHPP commissioning			
3.5 Mt	0 Mt 150,000 tpa to domestic markets	1.5 Mt	3.5 Mt
Coal Rejects Transport (Receipt at GOC)			
700,000 t	No conditioned limit	700,000 t	-
Coal Transport Hours – Monday to Friday			
4:00 am to 11:15 pm	6:00 am to 9:15 pm [C]	7:00 am to 9:15 pm	-
Coal Transport Hours – Saturday			
5:00 am to 7:15 pm	7:00 am to 5:15 pm [C]	7:00 am to 5:15 pm	-
Gravel Transport			
90,000 m^3 7:00 am to 6:00 pm Monday to Saturday	- [C]	-	-

[A] *Annual limits at Vickery are based on financial years.*
[B] *4.0 Mt in calendar years 2017 and 2018.*
[C] *Modification 1 (under assessment) proposes transport hours and gravel transport aligned with Tarrawonga.*
Note: Mt = million tonnes, t = tonnes

3.7. Coal Haulage Fleet

Whitehaven has purchased the coal haulage contractor and fleet of trucks used to transport ROM coal and coal rejects to and from the GOC operations, known as Gunnedah Basin Haulage (GBH). The fleet is primarily made up of A-doubles with a nominal payload capacity of 62 t. At times, Whitehaven also uses a smaller fleet of contractor coal haulage trucks, which typically comprise A-doubles with a nominal payload capacity of approximately 58 t. All A-doubles are limited to a maximum speed of 90 km/h.

Whitehaven has recently begun implementing improvements to its ROM coal loading and haulage operations to optimise the payload of each truck. This has included:

- *monitoring of loads to detect and reduce carryback;*
- *refining the positioning of loads to enable optimal filling;*
- *the use of scales on the loader buckets to discern optimal filling volumes in situ instead of waiting to go over the weighbridge.*

The loading and payload of coal within the load may vary due to variables such as coal quality and type, and operator influence. Whitehaven anticipates that further improvements to the average payload will be made during the remainder of 2025 through the continued implementation of these initiatives.

3.8. Traffic Management Plan

A Traffic Management Plan (TMP) (Whitehaven, 2024)[2] applies to Whitehaven's transport activities at Tarrawonga, Vickery and Rocglen. The TMP was prepared in consultation with Narrabri Shire Council, Gunnedah Shire Council, Transport for New South Wales (TfNSW) and the Department of Planning, Housing and Infrastructure. It contains requirements and procedures regarding the operation of haulage trucks and their interaction with other road users.

The TMP includes specific requirements for the drivers of haulage trucks at the intersections on Kamilaroi Highway, including requirements to:

- give way to traffic as required;
- merge into traffic in a professional manner;
- travel at a maximum speed of 30 kilometres per hour (km/h) whenever the indicator is engaged;
- observe all speed limits and safety signage and adhere to road rules;
- maintain a separation distance of at least 250 metres (m) at all times when following another vehicle, except when overtaking those vehicles/machines where the rules allow; and
- not impede the flow of through traffic on Kamilaroi Highway by regulating their speed within the acceleration/merge lane when entering Kamilaroi Highway from Blue Vale Road to take into consideration any other vehicles on Kamilaroi Highway before entering the through lane, and then enter the deceleration lane into the CHPP access at the first opportunity.

[2] Whitehaven (2024), *WHC_PLN_TAR ROC VCM_Traffic Management Plan.*

Additional safety management systems have also been implemented including:

- Global Positioning System tracking (operational through CoalTrak) and engine management system to allow:
  - supervisors, driver trainer and managers to observe the drivers' behaviour;
  - monitoring of safety factors such as driver fatigue, incidents and accidents;
  - monitoring of the location of haulage trucks; and
  - implementation of alerts for speeding or harsh braking.
- Haul truck cameras (out-of-vehicle and in-vehicle) to:
  - improve driver training by allowing review and feedback on driver performance; and
  - assist in identifying the cause of incidents and accidents.
- Fatigue monitoring, which detects eye movements and behaviours associated with fatigue, to support operators with real time information about levels of alertness.

3.9. Whitehaven Complaints and Incidents

TTPP has reviewed Whitehaven's complaints registers to identify any incidents that have occurred that relate to its operations on the Approved ROM Coal Transport Route to date at the time of preparing this assessment. Community complaints received by Whitehaven that relate to GOC traffic on the Approved ROM Coal Transport Route south of Braymont Road are summarised in Table 2.

Table 2: Community Traffic-Related Complaints – Tarrawonga and Vickery (2014 to 30 June 2025)

Date	Nature of Complaint	Investigation and Action
Tarrawonga Traffic Complaints 2014 to 30 June 2025		
19/3/2024	*Community member called the complaints line regarding a broken windscreen. A rock from a Haul truck had hit the windscreen while travelling on Blue Vale Road.*	*Whitehaven Coal has contacted the complainant and has verified the cause of the incident. This has been resolved to the satisfaction of the complainant.*
Vickery Traffic Complaints 2017 to 30 June 2025		
28/6/2024	*Complainant advised that they had found a large lump of coal on Blue Vale Road.*	*WHC* (Whitehaven) *personnel met with the complainant in person and followed up by telephone. Haulage truck inspections have been increased prior to leaving site and the procedure for loading the trucks has been reviewed. Consultation with the complainant is ongoing as is monitoring of the outcomes of the procedural review.*

Source: Tarrawonga Coal Mine Community Complaints Register and Vickery Coal Mine Community Complaints Register, available on the Whitehaven Coal website.

The review of community complaints suggests that issues are satisfactorily rectified where necessary and that Whitehaven's activities on the road network have not resulted in ongoing concerns for the local community.

4. Previous Road Transport Assessments

Conditions relating to the transport of ROM coal from the GOCs have been modified over time, including changes to haulage hours, limits on haulage from individual mines, and limits on haulage cumulative from the GOCs mines. Assessments of those changed conditions have included forecasts of average hourly and daily trips generated by ROM coal haulage, taking into consideration changes to the fleet of trucks used for ROM coal transport that have occurred.

The average trips previously forecast[3] to be generated by the approved transport of 3.5 Mtpa of ROM coal from Tarrawonga are:

- 22 vehicle trips per hour;
- 420 vehicle trips per weekday; and
- 310 vehicle trips per Saturday.

As noted, an application for Modification 1 to SSD 7480 is currently under assessment, which proposes that the road haulage hours at Vickery be extended to be consistent with those approved at Tarrawonga. The average trips forecast[4] to be generated by the approved transport of 3.5 Mtpa of ROM coal from Vickery under the proposed haulage hours consistent with Tarrawonga are:

- 22 vehicle trips per hour;
- 420 vehicle trips per weekday; and
- 310 vehicle trips per Saturday.

As the cumulative transport of ROM coal from the GOCs is limited to a maximum of 3.5 Mtpa prior to commissioning of the Kamilaroi Highway overpass, the approved conditions (and assuming that SSD 7480 Modification 1 is approved) are based on the average trips above occurring on the southern section of the Approved ROM Coal Transport Route south of Braymont Road.

It is noted that under previous environmental assessments for the GOCs, the forecasts of trips generated by the approved transport of ROM coal on the southern section of the Approved ROM Coal Transport Route were greater than those currently approved (as above) and proposed under the Modifications (refer to Section 6.2).

[3] TTPP (2023), *Tarrawonga Coal Mine Haulage Hours Modification Road Transport Assessment.*
[4] TTPP (2024), *Vickery Extension Project Modification 1 Road Transport Review.*

The transport of 4.5 Mtpa of ROM coal with the Vickery Coal Project was forecast[5] to generate 670 trips per day, based on use of the previous fleet of trucks that had a smaller payload than the current fleet. This forecast is equivalent to 520 trips per day for transport of 3.5 Mtpa prior to commissioning of the Kamilaroi Highway overpass. Similarly, the previous forecasts[6] of trips generated by the cumulative transport of 3.5 Mtpa of ROM coal from the GOCs when the previous fleet of smaller payload trucks was in use were:

- 40 vehicle trips per hour;
- 612 vehicle trips per weekday; and
- 412 vehicle trips per Saturday.

Improvements in the efficiency of the haulage fleet, primarily related to payload increases, since the previous assessments have reduced the number of trips required on the Approved ROM Coal Transport Route to complete the coal transport task.

5. Road Transport Environment

5.1. Road Network

The public roads that make up the Approved ROM Coal Transport Route are typically two-lane, two-way sealed roads, with marked edgelines, single or double centrelines, and guide posts with reflective markers. The speed limit is typically 100 km/h. A speed limit of 80 km/h is signposted on Blue Vale Road and Hoad Lane on their approaches to Braymont Road, on the Private Haul Road between its two intersections with Hoad Lane, and on the Private Haul Road to the south of Goonbri Road. The speed limit is 60 km/h on Braymont Road east of and in proximity to the Vickery access. Within Tarrawonga, the signposted speed limit is 60 km/h, within Vickery, a speed limit of 20 km/h is signposted, and within the Whitehaven CHPP, a speed limit of 40 km/h is signposted.

The key public road intersections relevant to the Modifications on the southern part of the Approved ROM Coal Transport Route are briefly described below.

Kamilaroi Highway and Whitehaven CHPP

The Whitehaven CHPP is accessed via a priority-controlled T-intersection located on Kamilaroi Highway approximately 700 metres (m) south-east of the Blue Vale Road intersection. At the intersection, a channelised right-turn deceleration lane is provided in Kamilaroi Highway for vehicles entering the Whitehaven CHPP from the north, and a left-turn slip lane and dedicated acceleration lane is provided for vehicles exiting the Whitehaven CHPP to the north.

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[5] GTA Consultants (2012), *Vickery Coal Project, Gunnedah Basin, NSW Road Transport Assessment.*
[6] GTA Consultants (2016), *Tarrawonga and Rocglen Coal Mines Temporary Road Haulage Increase Modification Road Transport Assessment.*

Kamilaroi Highway and Blue Vale Road

The geometry of the intersection of Kamilaroi Highway with Blue Vale Road is similar to that of the Whitehaven CHPP access intersection described above, with a channelised right-turn deceleration lane in Kamilaroi Highway for northbound vehicles, left-turn slip lane and dedicated acceleration lane for southbound vehicles, and separate right-turn lane for southbound vehicles turning right to Kamilaroi Highway.

Blue Vale Road, Hoad Lane and Braymont Road

The intersection of Blue Vale Road, Hoad Lane and Braymont Road is used by all haulage trucks transporting ROM coal to the Whitehaven CHPP from the GOCs. The intersection is a basic T-intersection, at which Blue Vale Road and Hoad Lane are the major road. There are no auxiliary turn lanes in the major roads, and Braymont Road is splayed on its approach to accommodate the path of heavy vehicles.

5.2. Traffic Volumes in 2024

A program of traffic surveys was conducted during 2024 on the Approved ROM Coal Transport Route. The survey program included automatic tube counters (ATCs) over one week between Thursday 30 May and Wednesday 5 June inclusive at the following locations that are relevant to the Modifications:

- Blue Vale Road south of Braymont Road;
- Blue Vale Road east/north of Kamilaroi Highway;
- Kamilaroi Highway between Blue Vale Road and Whitehaven CHPP access; and
- Whitehaven CHPP access.

Due to equipment damage, the survey on Kamilaroi Highway was undertaken between Thursday 7 June and Wednesday 13 June inclusive, noting that week included the King's Birthday public holiday which has been excluded from the data reviewed herein. The ATC surveys included classification of the vehicles based on the Austroads-94 Vehicle Classification System. Under that system, light vehicles (Classes 1 and 2) include motorcycles, cars, vans, 4-wheel drives, and utilities (including those towing a trailer or caravan) with a wheelbase not more than 3.2 m. Heavy vehicles (Classes 3 to 12) include single unit rigid trucks and buses with two, three or four axles and up to 14.5 m long, as well as articulated vehicles (which include semi-trailers and rigid trucks with trailers, B-doubles and road trains where permitted).

The fleet of trucks used to transport ROM coal from TCM to the Whitehaven CHPP is principally made up of A-doubles, with two B-doubles also in use. These are Class 10 and Class 11 vehicles under the Austroads-94 Vehicle Classification System. The survey data has been reviewed with respect to the classification of vehicles, which have been identified as light vehicles (Classes 1 and 2), heavy vehicles (Classes 3 to 9 and Class 12) and haulage vehicles (Class 10 and 11 only).

It is noted that in this context, "haulage vehicles" refers to the type of vehicle and does not mean that all vehicles identified in this group are directly associated with Whitehaven's haulage activities.

ROM coal haulage in both May and June 2024 was above the 2024 monthly average, with the largest tonnage of coal transported in June 2024. Whitehaven's ROM coal transportation records indicate that during the survey period, the following loads were transported on the southern part of the Approved ROM Coal Transport Route:

- 235 loads per weekday (average) 30 May to 5 June;
- 129 loads on Saturday 1 June;
- 158 loads per weekday (average) 7 June to 13 June; and
- 109 loads on Saturday 2 June.

With the return of empty (or backloaded) trucks, each load of ROM coal generates two vehicle trips[7] on the Approved ROM Coal Transport Route.

During the traffic surveys, contractors were also employed to complete the haulage task. The contractor trucks are typically based in and around Gunnedah, so travel to and from Gunnedah at the start and end of shifts. Due to different trailer arrangements of the contractors' trucks from those of the dedicated GBH fleet, contractors' trucks may be prioritised over GBH trucks for transport of fines coal from the GOCs and backloading of finer coal rejects from the CHPP. To the extent that this occurs, this can result in a small number of contractor trucks diverting to Vickery to unload coal rejects before proceeding to Tarrawonga to load ROM coal.

During the surveys, in addition to the trips that were directly related to ROM coal haulage and the return of empty or backloaded trucks to Tarrawonga or Vickery, trips were also generated by haulage trucks due to the GBH trucks being stored at the facility at Vickery, contractors' trucks being stored at Gunnedah, and contractors' trucks unloading coal rejects at Vickery while travelling to Tarrawonga. Individual trucks may return to Vickery during the day for driver breaks or minor maintenance activities, and individual trucks do not necessarily load from the same location throughout the day, resulting in additional trips between sites during the day. During the traffic surveys, the actual number of truck trips on parts of the

[7] Consistent with Austroads definition, a trip is a one way movement. A truck delivering ROM coal to the Whitehaven CHPP then travelling to one of the GOCs generates two vehicle trips.

Approved ROM Coal Transport Route was therefore higher than would be anticipated as a result of the direct haulage trips as above.

Table 3 summarises the surveyed traffic on the southern part of the Approved ROM Coal Transport Route in 2024, including the contribution made by trips directly related to Whitehaven's ROM coal haulage at that time. As noted above, the number of ROM coal loads during the 30 May to 5 June survey period was significantly higher than that during the 7 June to 13 June period, which is reflected in the difference between Kamilaroi Highway traffic volumes compared with the other survey locations in Table 3.

Table 3: Surveyed 2024 Daily Traffic Volumes (vehicles per day)

Location	Light	Heavy	Haulage[C]		Total
			Whitehaven ROM Coal Direct Trips[D]	Other[E]	
Average Weekday					
Blue Vale Road south of Braymont Road [A]	575	96	470	65	1,206
Blue Vale Road east of Kamilaroi Highway [A]	410	114	470	75	1,069
Kamilaroi Highway between Blue Vale Road and CHPP [B]	3,160	813	316	283	4,572
Whitehaven CHPP Access [A]	239	78	470	39	826
Saturday					
Blue Vale Road south of Braymont Road [A]	245	33	258	19	555
Blue Vale Road east of Kamilaroi Highway [A]	227	42	258	22	549
Kamilaroi Highway between Blue Vale Road and CHPP [B]	2,206	426	218	86	2,936
Whitehaven CHPP Access [A]	86	20	258	10	374

[A] *Surveyed 30 May to 5 June 2024.*
[B] *Surveyed 7 June to 13 June 2024.*
[C] *Class 10 and 11 vehicles, not limited to Whitehaven haulage trucks.*
[D] *Trips generated by transport of Whitehaven's ROM coal directly between GOCs and the Whitehaven CHPP.*
[E] *Trips generated by haulage-type trucks that are not directly related to Whitehaven's ROM coal haulage, e.g. contractor trucks travelling to and from Gunnedah, GBH trucks returning to parking and workshop facilities at Vickery, and other trucks unrelated to Whitehaven's ROM coal haulage activities.*

Across the survey locations, the average weekday peak hourly volumes were consistently higher than those on the Saturdays, indicating that weekdays are more critical with regard to road capacity. Table 4 summarises the surveyed average weekday peak hourly traffic and composition on the southern part of the Approved ROM Coal Transport Route in 2024.

Table 4: Surveyed 2024 Average Weekday Peak Hourly Traffic (vehicles per hour)

Location	Hour Starting	Light	Heavy	Haulage[C]	Total
AM Peak Hour					
Blue Vale Road south of Braymont Road [A]	5:00	80	4	19	103
Blue Vale Road east of Kamilaroi Highway[A]	5:00	55	4	20	79
Kamilaroi Highway between Blue Vale Road and CHPP[B]	9:00	202	60	42	304
Whitehaven CHPP Access[A]	11:00	13	5	36	54
PM Peak Hour					
Blue Vale Road south of Braymont Road [A]	17:00	60	8	22	90
Blue Vale Road east of Kamilaroi Highway[A]	15:00	28	8	38	74
Kamilaroi Highway between Blue Vale Road and CHPP[B]	16:00	264	50	41	355
Whitehaven CHPP Access[A]	16:00	20	6	29	55

[A] *Surveyed 30 May to 5 June 2024.*
[B] *Surveyed 7 June to 13 June 2024.*
[C] *Class 10 and 11 vehicles, not limited to Whitehaven haulage trucks.*

Due to the variations that occur in the number of vehicles dispatched during any one hour, and the time taken for vehicles to travel between the GOCs and the Whitehaven CHPP, it is not possible to quantify the contribution that Whitehaven's ROM coal haulage activity made to traffic at any surveyed location during any specific hour of the day.

On average, the 470 and 316 trips generated per weekday by direct ROM coal transport (Table 3) would be expected to have generated an average of 24.4 and 16.4 trips per hour over the approved haulage hours. On average, the 258 and 218 trips generated by direct ROM coal transport on Saturdays (Table 3) would be expected to have generated an average of 18.1 and 15.3 trips per hour over the approved haulage hours.

Over the average weekday, the hourly number of haulage-type vehicle trips varied throughout the haulage hours. Table 5 summarises the expected hourly trips and the surveyed peak trips over the average weekdays.

Table 5: Average Weekday Hourly Haulage Trips 2024 (vehicles per hour)

Location	Average ROM Coal Direct Trips[C]	Surveyed Peak Trips by Haulage[D] Trucks
Blue Vale Road south of Braymont Road [A]	24.4	37
Blue Vale Road east of Kamilaroi Highway[A]	24.4	38
Kamilaroi Highway between Blue Vale Road and CHPP[B]	16.4	44
Whitehaven CHPP Access[A]	24.4	38

[A] *Surveyed 30 May to 5 June 2024.*
[B] *Surveyed 7 June to 13 June 2024.*
[C] *Trips generated by transport of Whitehaven's ROM coal directly between GOCs and the Whitehaven CHPP.*
[D] *Class 10 and 11 vehicles, not limited to Whitehaven haulage trucks.*

With the exception of Kamilaroi Highway, the peak number of haulage truck trips in any hour was therefore approximately 56 % higher than the average number of trips that would be generated by the direct transport of ROM coal. As Whitehaven's activities contribute a significant proportion of haulage truck trips on those roads, it is considered reasonable to assume that in any one hour, the hourly number of haulage truck trips generated by Whitehaven's activities varies to a peak of 156 % of the average.

On Kamilaroi Highway, Whitehaven's activities make up a reduced proportion of total haulage truck trips, so the recorded peak on Kamilaroi Highway is not necessarily directly related to variations in Whitehaven's activities.

5.3. Intersection Turning Movements in 2024

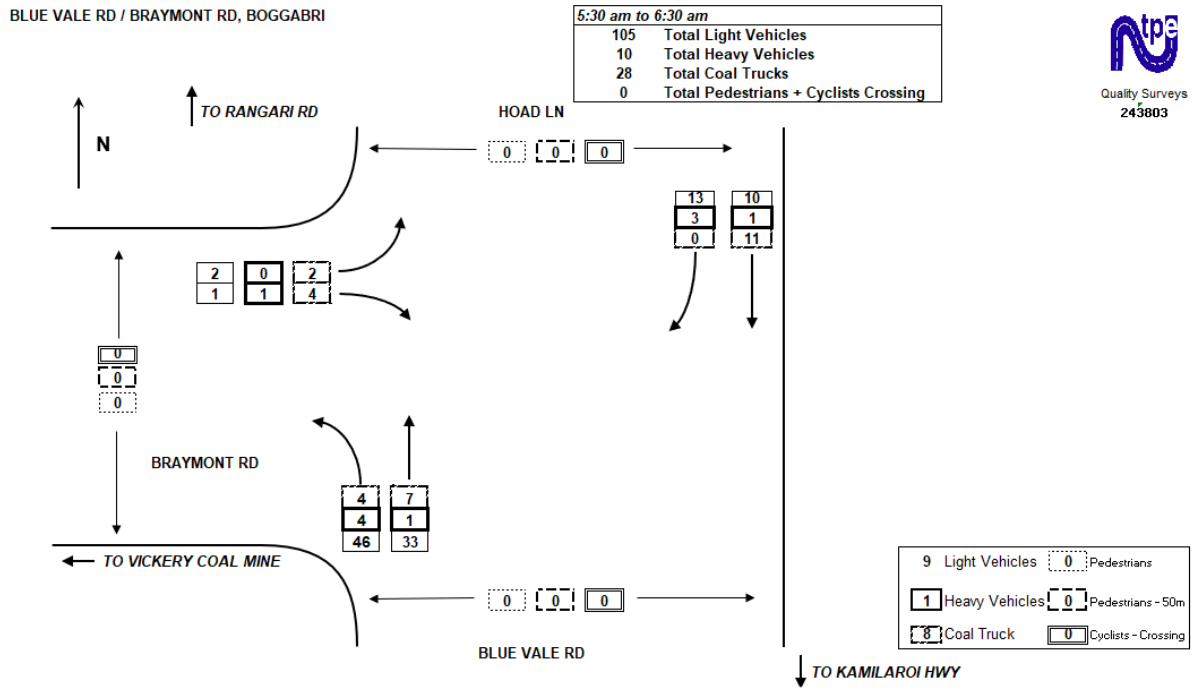
Surveys of vehicle turning movements at intersections were undertaken over a 24-hour period (from midday on 29 May to midday 30 May 2024), at the following intersections relevant to the Modifications:

- Braymont Road, Blue Vale Road and Hoad Lane;
- Blue Vale Road and Kamilaroi Highway; and
- Kamilaroi Highway and CHPP access.

As the surveyed 24-hour period covered two days, the exact number of loads of ROM coal transported over the survey period is not known. Whitehaven's transportation records indicate that on 30 May 2024, a total of 239 loads were transported from the GOCs, being 49 loads from Vickery and 190 loads from Tarrawonga. This demonstrates that it was an above average haulage day for the week of the ATC surveys.

The peak hour results of those surveys are presented in Figure 3 to Figure 5, being the hours before and after midday during which the highest number of vehicle movements were recorded.

Figure 3: Braymont Road, Blue Vale Road and Hoad Lane Intersection Survey Peak Hours



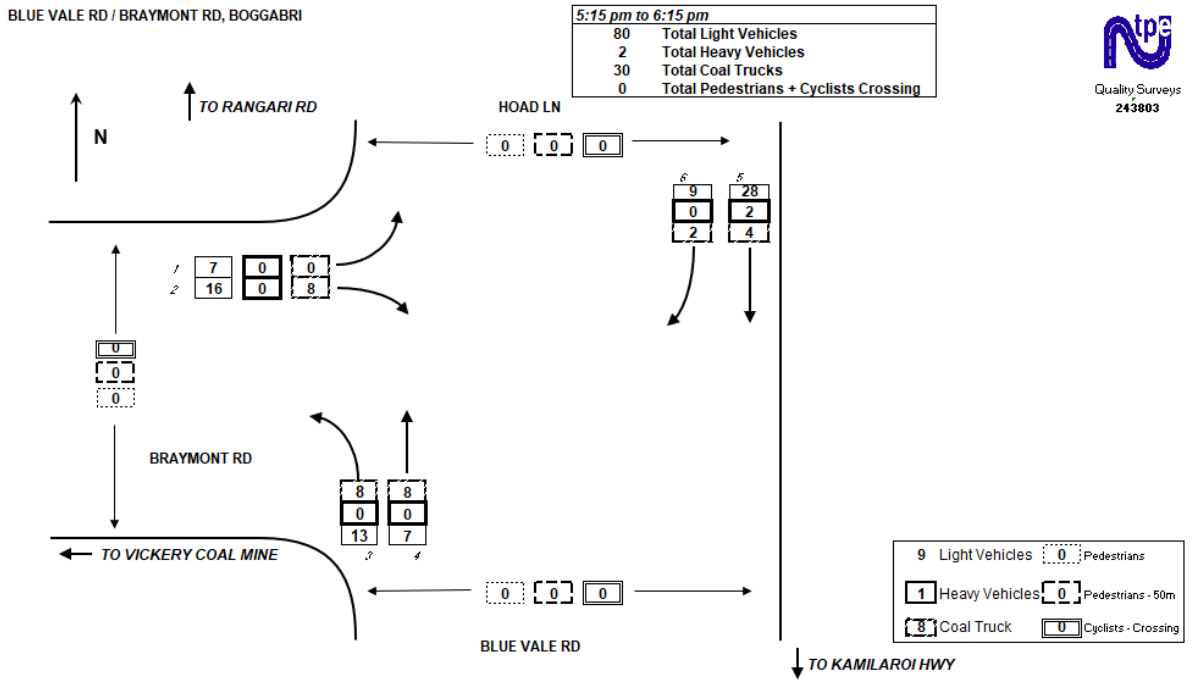
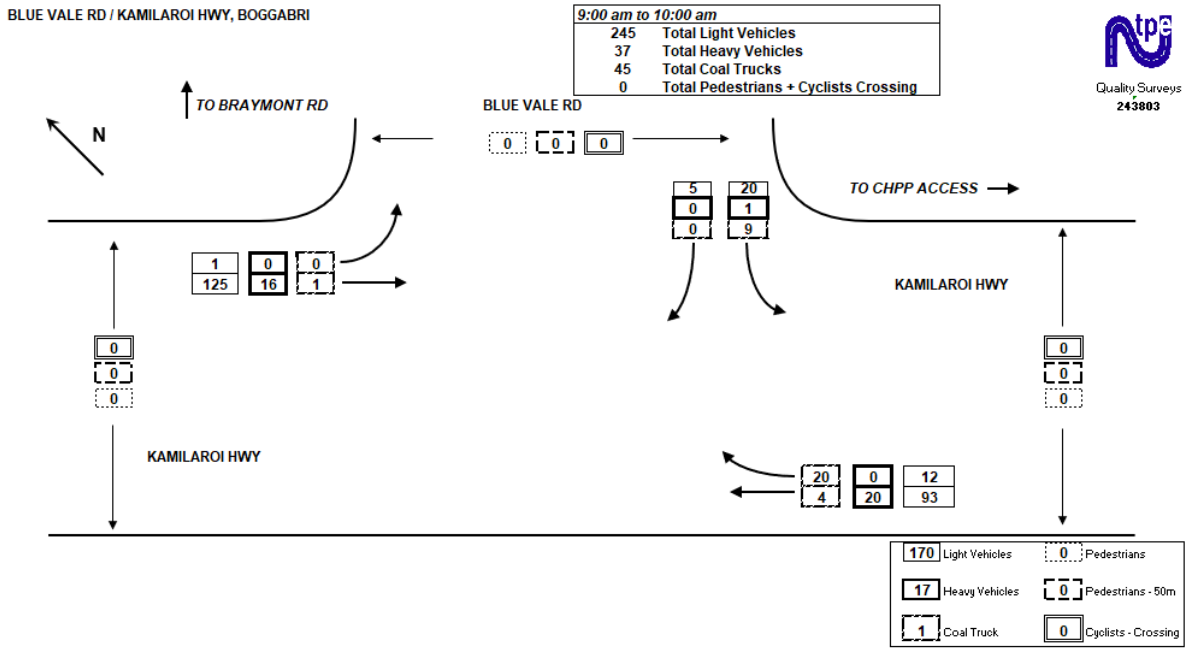


Figure 4: Kamilaroi Highway and Blue Vale Road Intersection Survey Peak Hours



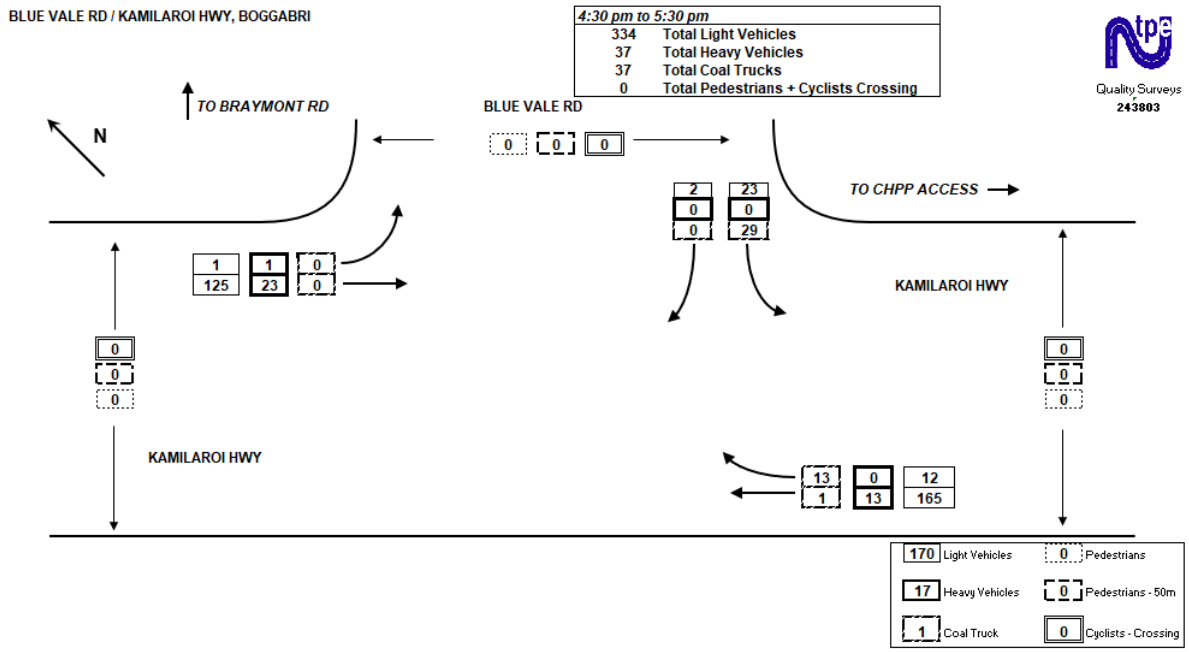
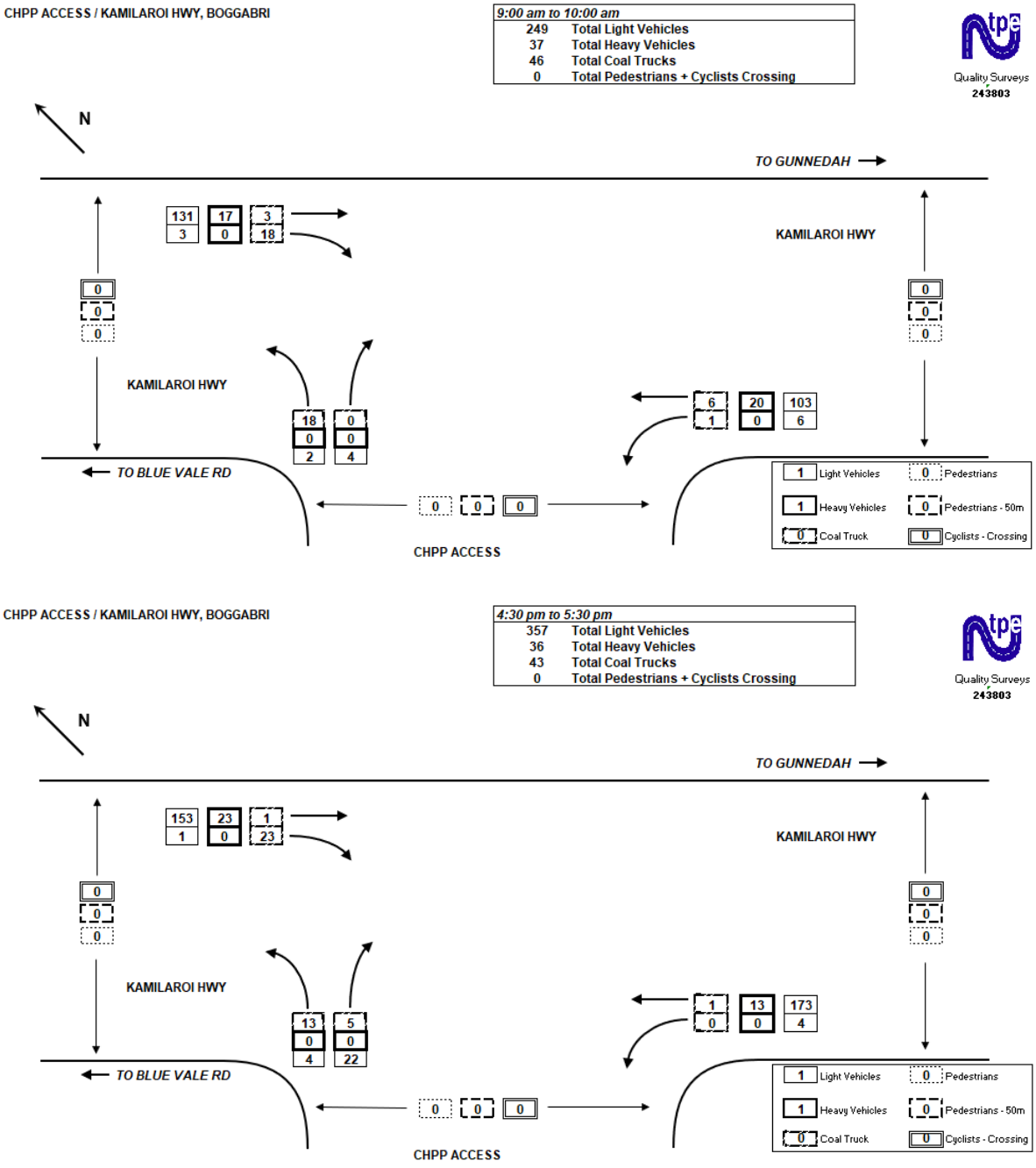


Figure 5: Kamilaroi Highway and Whitehaven CHPP Intersection Survey Peak Hours



5.4. Road Crash History

Crash data was obtained from the NSW Centre for Road Safety for the five-year period from 1 January 2019 to 31 December 2023. The records include those crashes which conform to the national guidelines for reporting and classifying road vehicle crashes based on the following criteria:

- the crash was reported to the police;
- the crash occurred on a road open to the public;
- the crash involved at least one moving vehicle; and
- the crash involved at least one person being killed or injured or at least one motor vehicle being towed away.

Crash data was reviewed for the Approved ROM Coal Transport Route south of Braymont Road, being the route of relevance to the Modifications. Table 6 summarises the crashes that occurred over that period.

Table 6: Reported Crashes 2019 to 2023 on Approved ROM Coal Transport Route South

Crash ID	Description	Features
1218022	September 2019 Northbound light truck utility left the carriageway to the left on straight road and rolled over on Blue Vale Road 5 km north of Old Blue Vale Road.	Darkness, 2am-4am Dry road surface Fine weather 1 person minor injury
1242406	August 2020 A northbound light truck turning right from Kamilaroi Highway to Blue Vale Road struck a southbound car on Kamilaroi Highway, and a westbound articulated truck waiting to turn right from Blue Vale Road.	Daylight 12pm-2pm Dry road surface Fine weather 1 person serious injury 1 person moderate injury
1251387	December 2020 An eastbound light truck on Kamilaroi Highway left the carriageway to the right on a left hand bend and struck a drain/culvert 600 m east of Blue Vale Road.	Daylight 4pm-6pm Wet/flooded road surface Overcast weather 1 person moderate injury
1297817	July 2022 A westbound car ran off the end of the road at the T-intersection of Old Blue Vale Road and Blue Vale Road and rolled over.	Darkness 6am-8am Wet road surface Raining 1 person serious injury 1 person moderate injury

Table 6 does not highlight any specific location with a clustering of crashes that may suggest an inherent concern with the road layout. No heavy vehicle crashes occurred on the Approved ROM Coal Transport Route, noting the westbound articulated truck involved in the crash at the intersection of Kamilaroi Highway and Blue Vale Road was not directly involved in the initial crash (Crash ID 1242406).

6. Impacts of the Modifications

6.1. Modification Coal Haulage Forecasts

Whitehaven's planned peak monthly ROM coal production under the Modifications is approximately 341,650 t cumulatively from Tarrawonga and Vickery (i.e. on the southern section of the Approved ROM Coal Transport Route south of Braymont Road).

TTPP notes that the cumulative ROM coal production from the GOCs during May 2025 was approximately 340,620 t, so the forecast peak monthly coal production in 2025 is 1,030 t, or 0.3 % higher than the May 2025 ROM coal production.

6.2. Impact on Coal Haulage Trip Generation

Taking into account the available number of haulage days and the hours during which haulage is permitted, the average hourly and daily number of trips that would be generated by the transport of the maximum combined ROM coal from Tarrawonga and Vickery with the Modifications would be:

- 24 vehicle trips per hour;
- 452 vehicle trips per weekday; and
- 334 vehicle trips per Saturday.

This assumes that the average payload of the Whitehaven-owned GBH fleet and any contractor fleet is 60.6 t under the Modifications.

As discussed in Section 4, the number of trips expected to be generated under the Modifications is well below those previously assessed by GTA Consultants (2012 and 2016). The most recent assessment of cumulative approved haulage of ROM coal from Tarrawonga and Vickery (Section 4) was based on an average of:

- 22 vehicle trips per hour;
- 420 vehicle trips per weekday; and
- 310 vehicle trips per Saturday.

During the busiest months, cumulative haulage under the Modifications would therefore increase the trips generated by the transport of ROM coal from Tarrawonga and Vickery combined compared with the previously assessed haulage forecasts for current conditions (Section 4) by an average of:

- two vehicle trips per hour;
- 32 vehicle trips per weekday; and
- 24 vehicle trips per Saturday.

6.3. Impact on Daily Traffic Volumes

Table 7 presents the estimated two-way daily traffic in 2025 on the southern part of the Approved ROM Coal Transport Route with the approved average daily haulage truck trip generation, and with the average daily haulage truck trip generation expected during the busiest two months with the Modifications. These forecasts are based on the surveyed daily traffic volumes in 2024 (Table 3) with an allowance of 1% growth over all non-haulage vehicles over the period since the surveys were undertaken. Since the surveys were undertaken, no major developments have occurred that would be expected to significantly alter daily traffic demands. As the generation of trips by haulage-type vehicles that are not directly engaged in Whitehaven's haulage activities varies depending on various factors (such as whether contractors are used), Table 7 assumes that with the Modifications, the number of those "other" trips would remain unchanged from the surveyed conditions in 2024.

Table 7: Forecast Daily Two-Way Traffic 2025 (vehicles per day)

Location	Average Weekday					Saturday				
	Light	Heavy	Haulage[A]		Total	Light	Heavy	Haulage[A]		Total
			Direct ROM Coal[B]	Other				Direct ROM Coal[B]	Other	
Previously Assessed Maximum Haulage										
Blue Vale Road south of Braymont Road	581	97	420	65	**1,163**	247	33	310	19	**609**
Blue Vale Road east of Kamilaroi Highway	414	115	420	75	**1,024**	229	42	310	22	**603**
Kamilaroi Highway between Blue Vale Road and CHPP	3,192	821	420	283	**4,716**	2,228	430	310	86	**3,054**
Whitehaven CHPP Access	241	79	420	39	**779**	87	20	310	10	**427**
Modification Maximum Haulage (Busiest Months)										
Blue Vale Road south of Braymont Road	581	97	452	65	**1,195**	247	33	334	19	**633**
Blue Vale Road east of Kamilaroi Highway	414	115	452	75	**1,056**	229	42	334	22	**627**
Kamilaroi Highway between Blue Vale Road and CHPP	3,192	821	452	283	**4,748**	2,228	430	334	86	**3,078**
Whitehaven CHPP Access	241	79	452	39	**811**	87	20	334	10	**451**

[A] *Class 10 and 11 vehicles, not limited to Whitehaven haulage trucks.*
[B] *Trips generated by transport of Whitehaven's ROM coal directly between GOCs and the Whitehaven CHPP.*

The Modifications would result in an average of an additional 32 vehicle trips per weekday, 24 vehicle trips per Saturday and two vehicle trips per hour on the Approved ROM Coal Transport Route over the approved haulage hours.

Table 7 also indicates that forecast Saturday traffic volumes would remain below the weekday traffic volumes for the previously assessed case and the Modifications case. Weekdays would remain more critical with regard to road capacity and operation.

The forecast future daily traffic volumes are well within the capacity of the roads, and no issues are raised with regard to the operation of those roads under the forecast demands.

6.4. Impact on Peak Hourly Traffic Volumes

As discussed (Section 5.2), the peak hourly number of haulage trips during the 2024 ATC surveys was approximately 56 % greater than the average hourly trips over the haulage hours. On this basis, the effects of the Modifications on peak hourly conditions have been assessed assuming that the number of haulage truck trips during the peak hours would be 156 % of the average, i.e. 34 trips per hour under the approved conditions, and 37 trips per hour with the Modifications.

Table 8 presents the estimated two-way peak hourly traffic in 2025 on the southern part of the Approved ROM Coal Transport Route with the maximum peak hourly haulage truck trip with the approved transport of 3.5 Mtpa, and with the forecast peak hourly generation during the busiest two months with the Modifications.

These forecasts are based on the surveyed peak hourly traffic volumes in 2024 (Table 4) with an allowance of 1% growth over all non-haulage vehicles over the period since the surveys were undertaken. Since the surveys were undertaken, no major developments have occurred that would be expected to significantly alter peak hourly traffic demands. As a conservative assessment, it has been assumed that during the AM and PM peak hours recorded on Kamilaroi Highway during 2024, Whitehaven's activities contributed 16 haulage truck trips, being the average expected for the haulage activity occurring at that time. It is noted that the haulage trips on Kamilaroi Highway in Table 8 include non-Whitehaven haulage-type vehicles movements.

Table 8: Forecast Peak Hourly Two-Way Traffic 2025 (vehicles per hour)

Location	AM Peak Hour					PM Peak Hour				
	Hour	Light	Heavy	Haulage[A]	Total	Hour	Light	Heavy	Haulage[A]	Total
Previously Assessed Maximum Haulage										
Blue Vale Road south of Braymont Road	5:00	81	4	34	**119**	17:00	61	8	34	**103**
Blue Vale Road east of Kamilaroi Highway	5:00	56	4	34	**94**	15:00	28	8	34	**70**
Kamilaroi Highway between Blue Vale Road and CHPP	9:00	204	61	60	**325**	16:00	267	51	59	**377**
Whitehaven CHPP Access	11:00	13	5	34	**52**	16:00	20	6	34	**60**
Modification Maximum Haulage (Busiest Months)										
Blue Vale Road south of Braymont Road	5:00	81	4	37	**122**	17:00	61	8	37	**106**
Blue Vale Road east of Kamilaroi Highway	5:00	56	4	37	**97**	15:00	28	8	37	**73**
Kamilaroi Highway between Blue Vale Road and CHPP	9:00	204	61	63	**328**	16:00	267	51	62	**380**
Whitehaven CHPP Access	11:00	13	5	37	**55**	16:00	20	6	37	**63**

[A] *Class 10 and 11 vehicles, not limited to Whitehaven haulage trucks.*

Noting that the capacity of a two-lane road is 1,700 passenger car units per hour in each direction of travel[8], the forecast future peak hourly traffic volumes are well within the capacity of the roads, and no issues are raised with regard to the operation of those roads under the forecast demands.

6.5. Intersection Operating Conditions

Intersections are the critical locations in the road network that dictate capacity, due to the need for opposing movements to occupy the same road space. The operating characteristics of the intersections during the weekday peak hours identified in the intersection turning movement surveys have been assessed using SIDRA INTERSECTION 10, an analysis program which determines characteristics of intersection operating conditions including the degree of saturation, average delays, and levels of service.

The degree of saturation, or x-value, is the ratio of the arrival rate of vehicles to the capacity. The average delay, expressed in seconds per vehicle, is measured over all movements at signalised intersections, and over the movement with the highest average delay at roundabout and priority intersections. Average vehicle delay is the commonly used measure of intersection performance defined by TfNSW (2024)[9].

[8] Austroads (2020), *Guide to Traffic Management Part 3: Transport Study and Analysis Methods.*
[9] TfNSW (2024), *Guide to Transport Impact Assessment.*

Table 9 shows the criteria adopted by TfNSW for assessing the level of service at intersections.

Table 9: Intersection Level of Service Criteria

Level of Service (LoS)	Average Delay per vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way & Stop Sign
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Near capacity	Near capacity, accident study required
E	57 to 70	At capacity, at signals incidents will cause excessive delays	At capacity, requires other control mode
F	Greater than 70	Extra capacity required	Extreme delay, major treatment required

Adapted from TfNSW (2024)

The intersection survey results during the peak hours at the Kamilaroi Highway intersections indicate that during both the AM and PM peak hours, 36 haulage trucks travelled between the Whitehaven CHPP and Blue Vale Road, i.e. are assumed to be directly related to ROM coal haulage activity. Over the day, on a rolling hourly basis over the haulage hours, an average of 31 trips occurred per hour, and the hourly haulage truck trips travelling between the Whitehaven CHPP and Blue Vale Road varied up to 51 trips in any one hour (i.e. 165 % of average hourly).

With the Modifications, there would be an average of 24 haulage truck trips per hour. Due to above-average haulage during the survey, the Kamilaroi Highway intersection survey therefore captured a greater number of trips than are expected on average with the Modifications.

To account for the hour-to-hour variations in haulage, the analyses of the operation of the intersections have conservatively assumed that during the background peak hours on Kamilaroi Highway and Blue Vale Road, a peak of 165 % of average hourly haulage trips would occur, consistent with the surveyed variation in trips made between the Whitehaven CHPP and Blue Vale Road during the intersection survey. This is equivalent to 36 trips based on the previously assessed forecasts, and 40 trips with the Modifications.

The haulage trips are assumed to be 50 % outbound from the GOCs and 50 % inbound to the GOCs. An allowance of 1 % growth above surveyed volumes has also been applied to surveyed non-haulage vehicles to account for growth in non-haulage traffic that may have occurred since the surveys were undertaken.

Table 10 presents a summary of the forecast operating characteristics of the surveyed intersections during the peak hours. The surveyed intersections are under priority control, thus the reported average delay is for the movement with the highest average delay per vehicle.

Table 10: Peak Hour Intersection Operating Conditions 2025

Intersection	Previously Assessed Haulage			With Modifications		
	X-Value	Average Delay[A]	LoS	X-Value	Average Delay[A]	LoS
AM Peak Hour						
Braymont Road, Blue Vale Road and Hoad Lane	0.074	10.0	A	0.078	10.0	A
Blue Vale Road and Kamilaroi Highway	0.084	11.7	A	0.084	11.9	A
Whitehaven CHPP access and Kamilaroi Highway	0.091	13.0	A	0.091	13.1	A
PM Peak Hour						
Braymont Road, Blue Vale Road and Hoad Lane	0.043	7.9	A	0.055	8.2	A
Blue Vale Road and Kamilaroi Highway	0.103	12.2	A	0.103	12.3	A
Whitehaven CHPP access and Kamilaroi Highway	0.110	17.4	B	0.110	17.6	B

[A] *Seconds per vehicle for the movement with highest average delay per vehicle.*

The results in Table 8 indicate that the intersections on the southern part of the Approved ROM Coal Transport Route would operate satisfactorily with the Modifications, with spare capacity and acceptable delays to vehicles. Due to the channelised lane treatments, the SIDRA model indicates that traffic on Kamilaroi Highway would continue to experience negligible delays due to haulage trucks turning in and out of the Whitehaven CHPP and Blue Vale Road. It is noted that implementation of the TMP requirements regarding behaviour in the presence of other vehicles on Kamilaroi Highway further reduces the likelihood of delays to drivers on Kamilaroi Highway compared with that of the SIDRA model.

6.6. Impact on Road Safety

The highest potentially conflicting traffic movements on the Approved ROM Coal Transport Route occur at the intersections of Kamilaroi Highway with Blue Vale Road and with the Whitehaven CHPP access road. Over the five year crash history investigated (Section 5.4), one crash occurred at the intersection of Kamilaroi Highway and Blue Vale Road, which was unrelated to Whitehaven's haulage activities, and unrelated to the movement of any heavy vehicle (noting the heavy vehicle involved was stationary and not involved in the initial impact). Over the five year period investigated, no crashes occurred at or near the intersection of Kamilaroi Highway and the Whitehaven CHPP access road.

The review of the road crash history and Whitehaven's incident records does not identify any safety issues relating to the haulage of ROM coal from the GOCs to the Whitehaven CHPP that may be exacerbated by the increase in its maximum annual haulage during the 2025 calendar year.

As the key intersections would continue to operate with only short delays and spare capacity, and haulage truck drivers are subject to the behavioural requirements set out in the TMP, including specific requirements relating to interaction with traffic on Kamilaroi Highway, no safety concerns are raised with respect to their continued use by traffic associated with the haulage of ROM coal from the GOCs to the Whitehaven CHPP.

7. Conclusion

This assessment has considered the impacts of the Modifications to MP11_0047, SSD 7480 and MP10_0015 which propose an increase to the cumulative maximum amount of ROM coal transported from the GOCs to Whitehaven CHPP during the 2025 calendar year from 3.5 Mtpa to 3.8 Mtpa.

The assessment has found that with the Modifications:

- the forecast future traffic volumes would be well within the capacity of the roads, and no concerns are raised with regard to the operation of those roads under those forecast demands;
- the intersections of Kamilaroi Highway with the Whitehaven CHPP access, Kamilaroi Highway with Blue Vale Road, and Braymont Road, Blue Vale Road and Hoad Lane would continue to operate at good levels of service, with short delays to drivers and spare capacity; and
- no safety concerns are raised with respect to the use of the roads or intersections by traffic associated with the transport of ROM coal from the GOCs to the Whitehaven CHPP, with haulage truck drivers continuing to be subject to the behavioural requirements set out in the TMP, including specific requirements regarding interaction with other vehicles on Kamilaroi Highway.

The Modifications would result in minimal impact with respect to level of service, network performance and road safety.

We trust the above is to your satisfaction. Should you have any queries regarding the above or require further information, please do not hesitate to contact the undersigned on 8437 7800.

Yours sincerely,



Penny Dalton
Associate Director