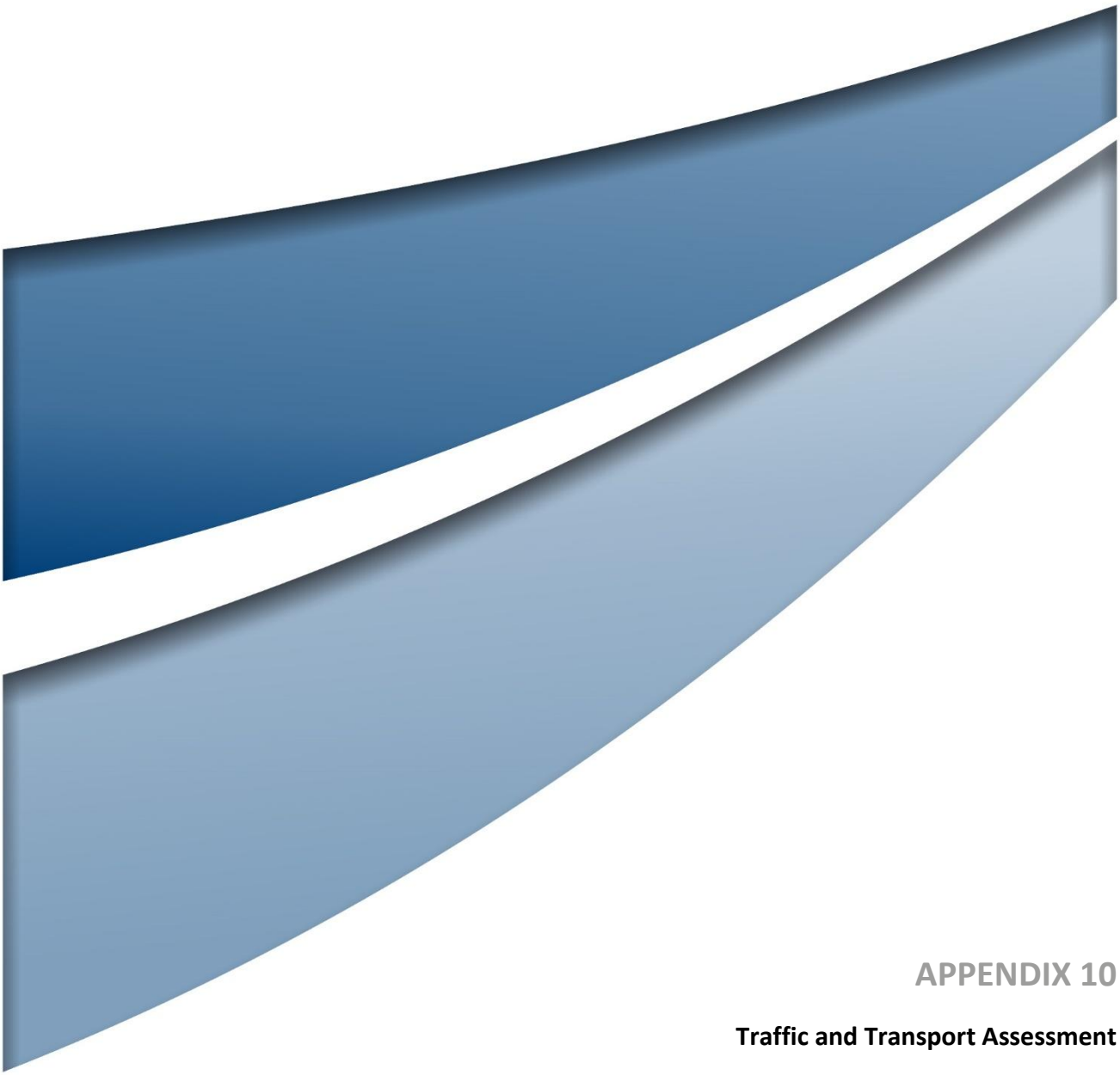
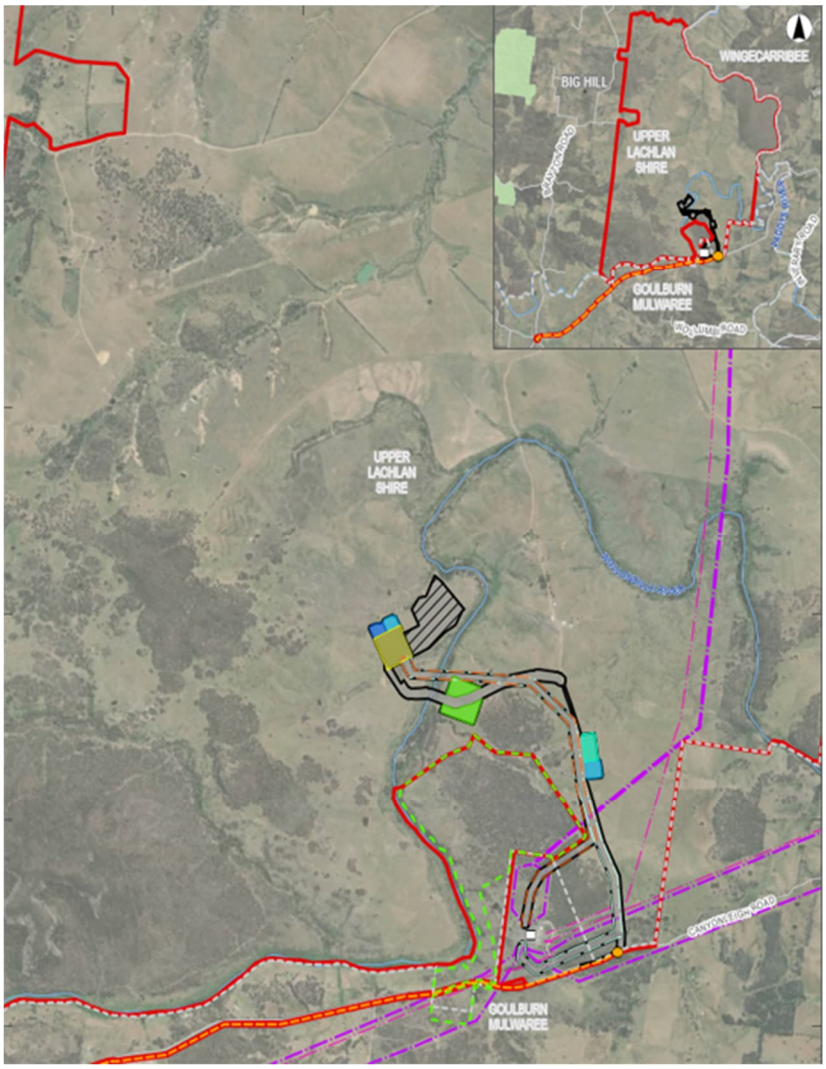


APPENDIX 10

Traffic and Transport Assessment

ACCESS TRAFFIC
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Wattle Creek Battery Energy Storage System Project - SSD-63345458

Traffic and Transport Assessment

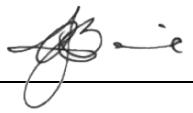
March 2025

Prepared for Spark Renewables Pty Ltd

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Table of Contents

Key Terminology v
Executive Summary 1
1.0 Introduction 3
1.1 Project Summary 3
1.2 Assessment Scope & Methodology 6
1.3 Approval Agency Advice 6
1.3.1 State Environmental Assessment Requirements 6
2.0 Existing Conditions 14
2.1 Land Use and Zoning 14
2.1.1 Adjacent Land Use / Approvals 15
2.2 Surrounding Road Network Details 15
2.2.1 Road Links 15
2.2.2 Intersections 19
2.3 Existing Traffic Volumes 22
2.3.1 Road Link Volumes 22
2.3.2 Intersection Volumes 23
2.4 Existing Intersection and Network Performance 26
2.4.1 Road Links 26
2.4.2 Intersections 26
2.5 Road Crash History Review 28
2.6 Transport Infrastructure 28
2.6.1 Public Transport Infrastructure 28
2.6.2 Active Transport Infrastructure 28
3.0 Project Details 29
3.1 Conceptual Project Layout 29
3.2 Project Details 30
3.2.1 Construction Phase 30
3.2.2 Operations Phase 30
3.2.3 Decommissioning or Upgrading Phase 31
3.3 Project Transport Routes 31
3.3.1 Construction Phase 31
3.3.2 Operations Phase 32
3.3.3 Decommissioning or Upgrading Phase 33
3.4 Site Access 38

3.4.1 Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road Intersection 38
3.4.2 Canyonleigh Road 38
3.4.3 Canyonleigh Road / Project Access 39
3.5 Internal Site Facilities 40
3.6 OSOM Transport Route Upgrades 40
4.0 Project Traffic 44
4.1 Construction Phase 44
4.1.1 Battery Components, Materials and Equipment Delivery Movements 44
4.1.2 OSOM Movements 46
4.1.3 Construction Staff Movements 46
4.2 Operations Phase 47
4.3 Decommissioning or Upgrading Phase 47
4.4 Project Traffic Volumes on the Network 47
4.4.1 Road Links 48
4.4.2 Intersections 49
4.5 Cumulative Project Traffic Volumes 55
5.0 Impact Assessment and Mitigation 66
5.1 With and Without Project Traffic Volumes 66
5.1.1 Road Link Volumes 66
5.1.2 Intersection Volumes 66
5.2 Access and Frontage Impact Assessment and Mitigation 81
5.3 Intersection Impact Assessment and Mitigation 81
5.4 Road Link Capacity Assessment and Mitigation 84
5.4.1 Component Transport Routes 86
5.5 Road Safety Assessment 86
5.6 Pavement Impact Assessment and Mitigation 89
5.6.1 Construction Phase 89
5.6.2 OSOM Transport Routes 90
5.6.3 Operations Phase 90
5.6.4 Decommissioning Phase 90
5.7 Transport Infrastructure 92
5.7.1 Public Transport Infrastructure 92
5.7.2 Active Transport Infrastructure 92
6.0 Mitigation Measures 93
6.1 Traffic Management Measures 93

6.1.1 Information and Communication 93
6.2 OSOM Road Authority Approvals & Traffic Management Plan 93
6.3 Driver Code of Conduct 94
6.4 Emergency Access 94
6.5 On-Site Mitigation Measures 94
6.6 Road Safety Considerations 95
6.6.1 Safe Vehicles 96
6.6.2 Safe Road Use 96
6.6.3 Safe Speeds 96
6.6.4 Sensitive Land Uses Considerations 96
6.6.5 Adverse Weather Considerations 96
6.7 Road Network Upgrade and Mitigation Works 96
7.0 Conclusions and Recommendations 100
Appendix A – Proposed Plan of Development ..... A
Appendix B – OSOM Route Assessment (Port Kembla to Project Area) ..... B
Appendix C – OSOM Route Assessment (Glen Waverley to Project Area) C
Appendix D – Intersection Count Data ..... D
Appendix E – SIDRA Results: Brayton Road / Ambrose Road ..... E
Appendix F – SIDRA Results: Brayton Road / Canyonleigh Road ..... F
Appendix G – GMC Standard Drawing SD-R 08 A ..... G
Appendix H – Project Traffic Calculations ..... H
Appendix I – Intersection Volume Forecast Calculations I
Appendix J – Project Traffic Impact Calculations ..... J
Appendix K – Project Pavement Impact Calculations ..... K
Appendix L – Sample Drive Code of Conduct L

Key Terminology

Term	Definition
Against Gazettal (A-Gaz)	A direction of vehicular travel, against the gazettal direction of travel identified between two points.
Average Delay	The average delay in seconds, reflecting the time a vehicle must wait or be held at an intersection to undertake a specific movement.
Degree of Saturation (DOS)	Defined as the ratio of the volume of traffic observed making a movement (in vehicles per hour) compared to the maximum capacity for that movement (vehicles per hour). For priority-controlled intersections as relevant to this Project, the maximum acceptable degree of saturation is noted to be 80% or 0.800.
Gazettal	A direction of vehicular travel, being the defined direction between two points. For the purpose of this assessment the gazettal directions of travel for the relevant external road links are defined as: - Hume Highway – Southbound. - Brayton Road – West from Hume Highway. - Red Hills Road – West from Hume Highway. - Ambrose Road – West from Red Hills Road. - Canyonleigh Road – North-east from Brayton Road.
Level of Service (LOS)	Is the qualitative measure describing operational conditions within a traffic stream and the perception by motorists and/or passengers. The LOS is closely linked to the delay time (in seconds), which can be expected over all vehicles making a movement in the peak hour. Refer to Table 5 in **Section 2.4.2.1** for further details of the RTA NSW criteria for LOS.
OSOM	Over size, over mass vehicle; vehicle configuration which requires a permit from the National Heavy Vehicle Regulator.
Project	The Wattle Creek Battery Energy Storage System (BESS) Project described in **Section 3.0** of this assessment.
Road Link	A section of external road between two defined points, i.e. Canyonleigh Road between Brayton Road and the Project Area access.
Site Access	Location on external network where Project traffic is expected to leave road and enter adjacent Project Area.
Vehicle Queue (95%)	Defined as the maximum queue length, in metres, that can be expected in 95% of observed queue lengths in the peak hour. For acceptable operation of a priority-controlled intersection, all vehicle queues for individual movements must be contained within the extents of their own lane (in particular for turning lanes), with no vehicle flows or movements to be blocked by queued vehicles.
vpd	Vehicles per day
vph	Vehicles per hour

Executive Summary

Access Traffic Consulting was commissioned by Umwelt Australia Pty Ltd (Umwelt) on behalf of Spark Renewables Pty Ltd (Spark) to undertake a traffic and transport assessment for the Wattle Creek Battery Energy Storage System (BESS) Project (the Project) which is to be located at 1001 Canyonleigh Road, Brayton, approximately 15 km north-east of Marulan, within the Upper Lachlan Shire Council Area, with road access within the Goulburn Mulwaree Council area.

The Project includes the installation, operation, maintenance and decommissioning of a large-scale BESS facility (350 MW(AC)) and ancillary infrastructure.

Based on the outcomes of this assessment and the increase in traffic numbers anticipated as a result of the construction, operations and decommissioning phases of the Project, it is anticipated that the impact of the Project on the traffic operation of the surrounding road network can be managed by the provision of the following mitigation treatments:

- Completion of minor works along the identified OSOM transport route to accommodate the swept paths of the OSOM transformer transport vehicles, including the relocation of signage and detailed survey of bridges and culverts to assess capacity along Canyonleigh Road as identified in the Preliminary Transport Route Assessment for the Project. It is noted that the exact extent and scope of these works will be determined in subsequent detailed design phases of the Project once the transformer and associated transport vehicle configurations are confirmed.
- Provision of minor works to the Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road intersection to incorporate a basic right (BAR) turn treatments on the southern Brayton Road approach to the current configuration of the intersection. The proposed BAR treatment is to be provided generally in accordance with Figure 7.1 (rural BAR) of Part 4A of Austroads *Guide to Road Design*, noting the potential to utilise the existing width provided by the wide shoulder on the western side of the southern Brayton Road approach to the intersection.
  As part of these works, further treatments to the existing school bus stop location at the intersection may be required, with further consultation to be undertaken with Council.
- Installation of advisory "truck turning" signage on the Brayton Road approaches to the intersection with the Canyonleigh Road / Carrick Road / Bulls Pit Road, to highlight to motorists the presence of the intersection and the increased potential for turning heavy vehicles to/from Canyonleigh Road.
- Provision of suitable resurfacing works to Canyonleigh Road. The proposed configuration of these upgrade works will be subject to detailed design in consultation with Goulburn Mulwaree Council during the detailed design phase of the Project. Notwithstanding this, any upgrade works will be designed and constructed in accordance with all relevant road standards, including Council's Geometric Road Design Specification and standard drawings. Spark Renewables are proposing that these works are to be contained within the existing road carriageway and include no additional road widening.
- Provision of a suitable site access configuration on Canyonleigh Road. It is proposed that this site access point is to be provided generally in accordance with Council's standard rural access arrangement/configuration as per standard drawing SD-R 08 A.
- Installation of advisory "truck turning" signage on the Canyonleigh Road approaches to the proposed site access point, to highlight to motorists the presence of the access and the increased potential for turning heavy vehicles to/from the access.
- Completion of pre and post construction phase dilapidation inspections on the relevant sections of Brayton Road (access to Canyonleigh Road) and Canyonleigh Road (Brayton Road to Site Access). The pre construction inspection is to be undertaken upon the completion of the proposed upgrade works

and is to establish the pre-construction road condition, with the post construction dilapidation survey then used to identify rehabilitation works required to be completed by the BESS Project to bring road conditions / standards on the relevant sections of these links back to the recorded pre construction condition.

- Preparation of traffic management plan for the BESS Project outlining proposed management measures and processes to minimise the impact of BESS Project traffic (including OSOM transformer transport vehicles) on the external road network.

Conditional to the provision of the identified mitigation measures, the potential impacts of the Project would be appropriately managed, with minimal traffic impacts anticipated on the relevant sections of the local government and state-controlled road networks.

1.0 Introduction

Spark Renewables propose to develop the Wattle Creek Battery Energy Storage System (BESS) Project (the Project) located on Arthursleigh Farm (Lot 3 of DP 1120270), approximately 80 kilometres (km) west of Wollongong and approximately 15 km northeast of Marulan within the Upper Lachlan Shire Council Local Government Area (LGA) and abuts the Wingecarribee Shire LGA to the east, and Goulburn Mulwaree Shire Council LGA to the south. The Project includes a large-scale 350MW battery energy storage system (BESS) and project-related infrastructure.

1.1 Project Summary

The Project comprises the installation, operation, maintenance and decommissioning of a large-scale BESS, supported by associated infrastructure. The Project will have a capacity of up to approximately 350 MW (AC or DC coupled) and will have provision for up to four (4) hours of storage (1400 MWh), with the aim of providing both storage as well as firming capacity to the NEM and assisting in grid stability by providing frequency control ancillary services. The design of the Project will allow for the storage and exportation of renewable energy within the network so that it can be used during times of peak demand.

The conceptual project layout represents a development footprint of approximately 75 ha, including associated ancillary infrastructure (i.e. substations, transmission lines, the operations and maintenance facility, test bed and both transmission line corridors for optionality). The conceptual project layout is shown on **Figure 1** (also refer **Appendix A**), with the indicative project components outlined in **Table 1**.

Two transmission line options are being investigated, to allow for optionality during the assessment process and greater flexibility in the connection design. One transmission option will be constructed for the Project.

Table 1 Conceptual Project Components and Appropriate Dimensions

Project component(s) / infrastructure	Approximate dimensions	Quantity
BESS Modules		
Maximum height	3 m	-
Minimum height	1.5 m	
Containers	Approximately 3.85 MWh per container (number and size of units is subject to detailed design and tender)	Approx. 370
Ancillary Infrastructure		
Collector (on-site) substation	6 ha	1
High voltage Transformers	230 megavolt amperes (MVA) high voltage transformers within substation (size and number of transformers is subject to detailed design)	3
Inverters and medium voltage transformers	4200 kVA inverters, with one medium voltage per transformer (number of inverters and size of inverters is subject to detailed design)	248
Overhead transmission lines (high to low voltage)	Approximately 7 km of internal overhead cables i.e. high voltage transmission lines to connect the Project to the grid connection point. Two transmission alignments currently under investigation.	n/a
Underground cables (medium to low voltage)	2 km	n/a

Project component(s) / infrastructure	Approximate dimensions	Quantity
Internal access tracks	Approximately 5 km of internal roads	n/a
Primary site access point(s)	Canyonleigh Road and Arthursleigh Road, however subject to further intersection design during the EIS.	2
Operations and maintenance facility	100 m x 100 m	1
Temporary Construction Facilities		
Construction site compounds, including: - construction laydown areas for equipment and supplies. - stockpile and material storage areas - concrete batching plants - construction compounds, site office, security compound, vehicle washdown, etc	Approximately 2 ha	3

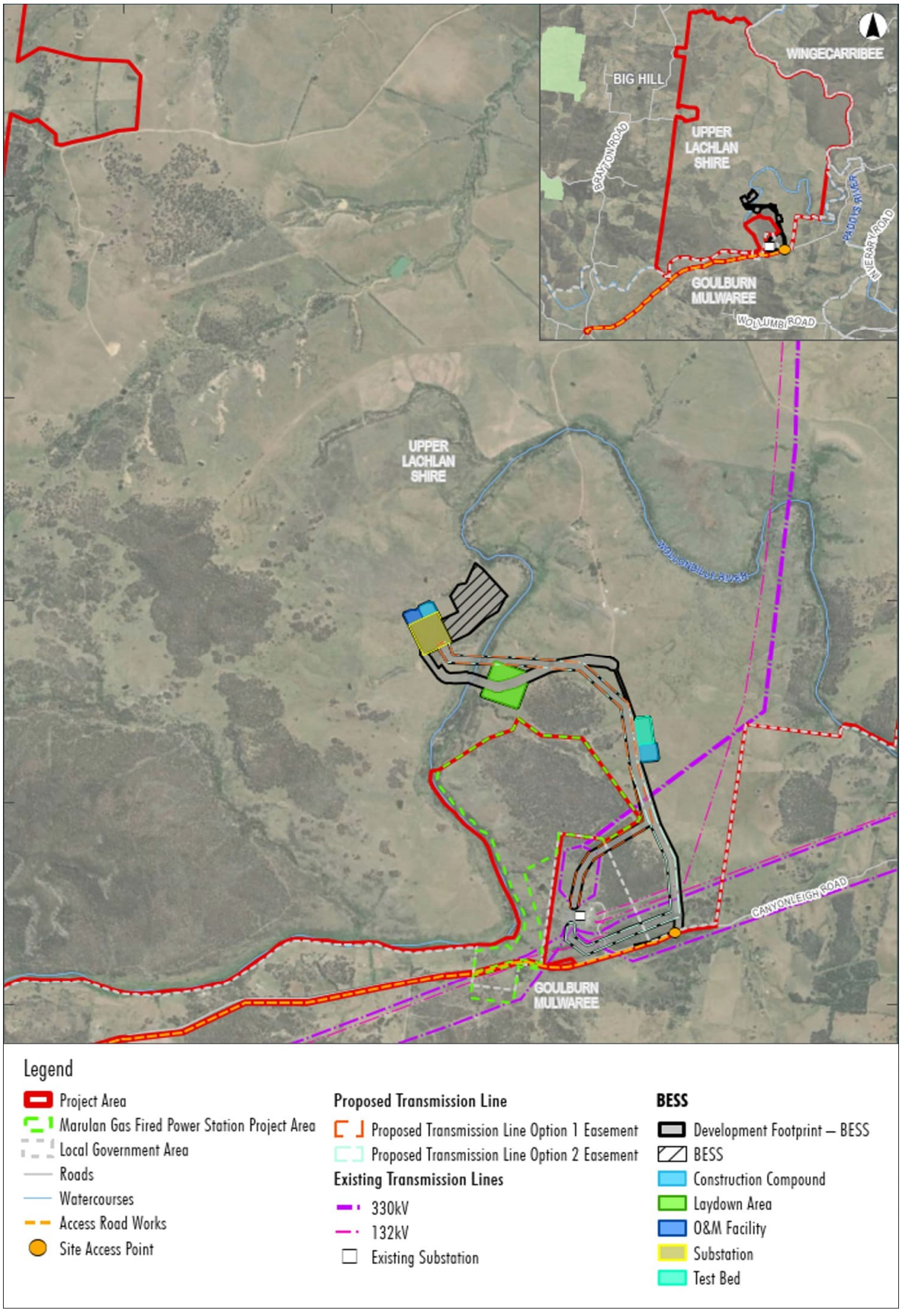


Figure 1 Conceptual Project Layout **[Source: Umwelt / Spark Renewables]**

1.2 Assessment Scope & Methodology

This traffic and transport impact assessment (TTIA) was carried out to determine the level of potential impacts of the construction, operations and decommissioning phases of the Project on the operation of the surrounding road network. The outcomes of this assessment will be used in support of the EIS for the Project, with Goulburn Mulwaree Council (GMC) and Transport for New South Wales (TfNSW) expected to be advice agencies.

Further to this, the purpose of this report is also to assess the Project against the traffic and transport items of the Secretary's Environmental Assessment Requirements (SEARs) for the Project (refer **Table 2** of **Section 1.3.1** below). The following methodology was adopted to undertake the required assessments as part of the TTIA, as summarised in the key tasks listed below.

- Broadly identify the existing transport infrastructure which is of relevance to the Project.
- Estimate traffic generation associated with the construction, operations and decommissioning phases of the Project and the distribution of this Project traffic on the identified road network, including the movement of materials, plant, equipment and battery components in addition to the construction, operations and decommissioning phase workforces.
- Assess the potential impact of the Project on the surrounding transport infrastructure during the construction, operations and decommissioning phases.
- Identify potential mitigation and management strategies to be implemented during the construction, operations and decommissioning phases to offset the impact of the Project (if required).

The adopted methodology centres on establishing a background, "without Project" traffic scenario for the identified transport routes and comparing this with scenarios incorporating the expected Project-generated traffic (i.e. "with Project"), and an additional scenario considering cumulative traffic volumes from both the Project and relevant State Significant Projects, particularly the solar component of the Wattle Creek Energy Hub, which are expected to concurrently utilise the same sections of the road network. The process allows for the assessment of the traffic impacts of the Project in terms of road safety, access requirements, intersection operations, road link capacity, road pavements and other transport infrastructure. Following this, if required, potential mitigation and/or management measures would be formulated to address the potential traffic impacts of the BESS Project.

1.3 Approval Agency Advice

1.3.1 State Environmental Assessment Requirements

The SEARs are a set of technical considerations that the EIS must address. Details of the SEARs for the Project were originally received on 22 December 2023 (Application No. SSD-63345458), with a summary of the specific traffic and transport related requirements provided in **Table 2** below.

Further to the SEARs received, advice was also received from Transport for New South Wales (TfNSW) (27 October 2023) regarding the requirements for the traffic and transport assessment for the Project, with a summary of the items raised provided in **Table 3**.

This TTIA has therefore been prepared in response to the items identified above and aims to provide additional information and clarification to the traffic assessment undertaken, in particular regarding the expected traffic and transport impacts of the Project on the state and local government-controlled road networks relevant to the Project.

Table 2 SEARs Transport Items

SEARS Items		Reference / Response
i)	an assessment of the peak and average traffic generation, including over-dimensional vehicles, construction worker transportation and transport of materials by rail.	Refer to **Section 4.0** of this report which outlines the anticipated Project traffic volumes and **Section 5.0** which summarises the traffic impact assessment undertaken.
ii)	an assessment of the likely transport impacts to the site access route(s), site access point(s), any Crown land, particularly in relation to the capacity and condition of the roads, road safety and intersection performance;	Refer to **Section 5.0** of this report.
iii)	a cumulative impact assessment of traffic from nearby developments;	Refer to **Section 4.5** which identifies the relevant cumulative external projects in the vicinity of the Project area and the estimated traffic volumes, and **Section 5.0** which outlines the cumulative impact assessment undertaken.
iv)	provide details of measures to mitigate and / or manage potential impacts including a schedule of all required road upgrades (including resulting from heavy vehicle and over mass / over dimensional traffic haulage routes), road maintenance contributions, and any other traffic control measures, developed in consultation with the relevant road authority; and	Refer to **Section 6.0** of this report.
v)	an assessment of impacts of all proposed road works, including heritage, noise, and biodiversity impacts.	Assessment of the Project's impacts to heritage, noise, dust and biodiversity are expected to be covered in other technical reports provided as part of the Project EIS.

Table 3 SEARs Advice (TfNSW) Transport Items

SEARS Items		Reference / Response
i)	To ensure that TfNSW's key interests are addressed, TFNSW requests that any future application be submitted with an Environmental Impact Assessment (EIA) containing a Traffic Impact Assessment, prepared by a suitably qualified person/s in accordance with the Austroads Guide to Traffic Management Part 12, Australian Standards and any complementary TfNSW Supplements and Roads and Maritime Guide to Traffic Generating Developments. The purpose of the TIA is to address the impact of traffic generation on the public road network and measures employed to ensure traffic efficiency and road safety during construction, operation and decommissioning of the project. The requested TIA should be tailored to the scope of the proposed development and include, but not be limited to, the following:	
	• Identify the timeframe for the schedule of works (commencement year and completion year) overlapping timeframe of components during construction (to capture worst case scenario) and identify the construction hours for the project.	Refer to **Section 6.0** of this report.
	• Detailed plans identifying the proposed location of any: - Project-related infrastructure within and outside of the project boundary. - Transmission line infrastructure, or any other project-related structures, within a road reserve. Include demarcation of local and classified road reserves. - Identify the key access roads with the classified road network required for the project (including any access required from classified road network for components being constructed outside of the project area) and justification of additional access required to a classified road in accordance with section 2.119 of State Environmental Planning Policy (Transport and Infrastructure) 2021. - The Scoping Report identifies that ancillary infrastructure and temporary facilities are to be provided on-site including (but not limited to) laydown areas. The TIA should identify the source for input materials and quantify the traffic generation associated with the haulage of the source materials.	Refer to **Section 3.0** of this report of the proposed site layout plan included in **Appendix A**.
	• Cumulative impacts: - An assessment should be undertaken as a part of the EIS and TIA to identify the projects that will have overlapping construction periods and assess the cumulative traffic impacts with emphasis on the following: - The cumulative impacts from traffic generated from the construction workforces in terms of the origin destination routes, access, AM/PM peaks where there is overlap with other projects.	Refer to **Section 4.5** which identifies the relevant cumulative external projects in the vicinity of the Project area and the estimated traffic volumes, and **Section 5.0** which outlines the cumulative impact assessment undertaken.

	SEARS Items	Reference / Response
	- The cumulative impacts of heavy vehicle movements in terms of AM/PM peaks and routes where there is an overlap with other projects. - Cumulative impacts and consideration in relation to the timing of movements of OSOMs where other projects will be utilising the same routes as proposed for this development.	
	• Heavy vehicle and OSOM routes: - Identify the return routes for OSOMs. - National Heavy Vehicle Regulator (NHVR) approved routes identified on the Restricted Access Maps (RAV MAP) are to be utilised for the heavy vehicle routes for the proposed development. - Further include details on the number of OSOM movements, the intended time for OSOM movements to occur, and GPS coordinates along the proposed routes for pinch points, traffic management measures and pull-over bays / rest areas along the OSOM routes. - Identifying road and rail projects occurring along the OSOM route within the anticipated schedule for the movement of the OSOM components. Inclusive of any impacts (e.g. civil works or obstructions) that could impede the movement of the OSOM components due to the concurrent road and rail projects occurring along the nominated OSOM route(s).	Please refer to the OSOM Transport Route Assessments undertaken for the Project (**Appendix B** and **Appendix C**) to identify the details of the proposed OSOM transport routes.
	• Project schedule: - Hours and days of work, number of shifts and start and end times. - Phases and stages of the project, including construction, operation and decommissioning.	Refer to **Section 3.2** of this report,
	• Traffic volumes including: - Existing background traffic, - Project-related traffic for each phase or stage of the project, - Projected cumulative traffic at commencement of operation, and a 10-year horizon post-commencement.	Refer to **Section 4.0** of this report, which outlines the anticipated traffic volumes associated with the Project and the required assessments.
	• Traffic characteristics including: - Number and ratio of heavy vehicles to light vehicles, - Peak times for existing traffic, - Peak times for project-related traffic including commuter periods,	Refer to **Section 4.0** of this report for further details of the expected Project traffic volumes,

	SEARS Items	Reference / Response
	- Proposed hours for transportation and haulage, project-related traffic, cumulative background traffic inclusive of other major projects that have coinciding timeframes and inclusion of the growth rate for background traffic for the peak construction period. - Traffic count surveys should be undertaken for a minimum of one day (preference seven days for improved accuracy of data). The traffic count survey is required to be collected outside of public holidays, events and school holidays. The traffic counts should be undertaken at the key intersections with the state classified road network in accordance with Part 3 of Austroads Guide to Road Design. The data obtained from the traffic count survey should be provided as an appendix to the TIA for the project and used to inform the background traffic counts within the base case (existing background) scenario. - Provide a breakdown of the calculations and assumptions for light vehicles, heavy vehicles requiring escort, heavy vehicles and heavy vehicles requiring NHVR permit and that are exempt from the escort requirements. All these vehicle types should be factored into the traffic generation during AM/PM peaks for the project. - Specify the design vehicles for the project (identifying the relevant types of heavy / OSOM / specialist vehicles and shuttle buses) – Interactions between existing and project-related traffic. cumulative background traffic inclusive of other major projects that have coinciding timeframes and inclusion of the growth rate for background traffic for the peak construction period. The AM/PM peaks are required to be measured based on a single trip from origin to destination as a one way vehicular movement from one point to another excluding the return journey.	
	• Capacity analysis using SIDRA or other relevant application, to identify an acceptable Level of Service (LOS) at intersections with the classified (State) road, and where relevant, analysis of any other intersections along the proposed transport route/s.	Refer to **Section 5.3** of this report for details of the relevant intersection assessment undertaken for the Project,
	• The origins, destinations and routes for: - Commuter (employee and contractor) light vehicles and pool vehicles, - Heavy (haulage) vehicles, - OSOM vehicles.	Please refer to the OSOM Transport Route Assessments undertaken for the Project (**Appendix B** and **Appendix C**) to identify the details of the proposed OSOM transport routes.
	• Road safety assessment of key haulage route/s. – Where road safety concerns are identified at a specific location along the proposed haulage routes, TfNSW suggests that the TIA be supported by a targeted Road Safety Audit undertaken by suitably qualified persons in accordance with the	Please refer to **Section 5.5** for further details of the road safety assessment of the key haulage routes for the Project and

	SEARS Items	Reference / Response
	Austroads Guidelines.	**Section 6.6** which outlines the road safety considerations for the Project.
	• Identify the necessary road network infrastructure upgrades that are required to cater for and mitigate the impact of project related traffic on both the local and classified road network for the development (for instance, road widening and/or intersection treatments). In this regard, preliminary concept drawings should be submitted with the SSD application for any identified road infrastructure upgrades. It should be noted that any identified road infrastructure upgrades will need to be to the satisfaction of TfNSW and Council.	Refer to **Section 6.0** of this report.
	• Proposed road facilities, access and intersection treatments are to be identified and be in accordance with Austroads Guide to Road Design including provision of Safe Intersection Sight Distance (SISD).	Refer to **Section 5.2** and **Section 5.3** of this report for details of the access and intersection assessments undertaken for the Project.
	• Consideration of the local climate conditions that may affect road safety during the life of the project (e.g. fog, wet and dry weather, icy road conditions).	No specific local climate conditions were noted that would affect road safety (more than for existing operation of network) during the life of the Project.
	• The layout of the internal road network, parking facilities and infrastructure.	Refer to **Section 3.0** of this report for further details regarding the Project Area and associated infrastructure.
	• Impact on rail corridors and level crossings detailing any proposed interface treatments.	No specific rail crossings were identified on the key sections of the road network in the vicinity of the Project Area.
	• Impact on public transport (public and school bus routes) and consideration for alternative transport modes such as carpooling and shuttle buses during construction.	Refer to **Section 5.7.1** of this report
	• Identification and assessment of potential environmental impacts of the project, such as blasting, lighting, visual, noise, dust and drainage on the function and integrity of all affected public roads.	There is no blasting proposed as part of the Project. Assessment of the Project's impacts to lighting, visual, noise, dust and drainage are considered in other technical reports provided as part of the Project EIS.
	• Controls for transport and use of any dangerous goods in accordance with State Environmental Planning Policy No. 33 – Hazardous and Offensive Development, the Australian Dangerous Goods Code and AS4452 Storage and Handling of Toxic Substances.	Further details of controls proposed to be provided once confirmed as part of the detailed TMP for the Project and the OSOM haulage operations to be completed as part of future phases of Project delivery process.

SEARS Items		Reference / Response
		Transport of hazardous and dangerous goods is also addressed as part of the Preliminary Hazard Assessment appended to the EIS.
ii)	The Scoping Report states that Oversize Overmass (OSOM) transport is being considered. In addition to the requested TIA, due to the significant scope of the transport logistics for OSOM transit, a concept level route analysis is required to be provided with the SSD application based on high level 3D swept path analysis to generally indicate locations where civil works are likely to be required. The route analysis is to include at a minimum the following:	
	- Identify the OSOM route to be utilised and any indicative pinch points within the network vertically, horizontally and laterally and the potential civil works required to accommodate the OSOM vehicles.	Please refer to the OSOM Transport Route Assessments undertaken for the Project (**Appendix B** and **Appendix C**) to identify the details of the proposed OSOM transport routes.
	- The logistics assessment is to highlight each at-risk road structures that the haulage route crosses including bridges, traffic signals, signage, major culverts and minor culverts that may not meet the desirable cover to cater for proposed axle loads.	Please refer to the OSOM Transport Route Assessments undertaken for the Project (**Appendix B** and **Appendix C**) to identify the details of the proposed OSOM transport routes.
	- Provide bridge assessments for any at risk bridges on the classified road network due to the dimensions of the laden load.	Please refer to the OSOM Transport Route Assessments undertaken for the Project (**Appendix B** and **Appendix C**) to identify the details of the proposed OSOM transport routes.
	- Identify pull-over bay / layby locations (including GPS coordinates) and whether the pull-over bay / layby can physically accommodate the laden components (in terms of size, width, and accessibility) for the larges OSOM laden components.	Please refer to the OSOM Transport Route Assessments undertaken for the Project (**Appendix B** and **Appendix C**) to identify the details of the proposed OSOM transport routes.
	- The design vehicle templates used with the swept path analysis software are also requested in order for TfNSW to review the performance within the software.	Please refer to the OSOM Transport Route Assessments undertaken for the Project (**Appendix B** and **Appendix C**) to identify the details of the proposed OSOM transport routes.
	- Provide the following measurement parameters for the OSOM components / materials to be moved: • Identify all the types of OSOM vehicles proposed to be used for the Project. • Overall (component and nominated vehicles) combination length, width and mass. • Maximum component length, widths, heights and mass, maximum load heights (clearance to overhead obstructions such as structures, utilities and vegetation).	Please refer to the OSOM Transport Route Assessments undertaken for the Project (**Appendix B** and **Appendix C**) to identify the details of the proposed OSOM transport routes.

SEARS Items		Reference / Response
	• Wheelbase dimensions. • Maximum trailer articulation angle(s). • Minimum overhang heights above the road surface. • Axle loads and axle group loads in terms of both tonnes and Equivalent Standard Axles (refer to Austroads Guide to Pavement Technology).	
iii)	It is noted that NHVR permits do not cover the civil works required along any proposed OSOM route. Any works required along the OSOM route must be included within the scope of works for the SSD to ensure the development is constructable.	Please refer to the OSOM Transport Route Assessments undertaken for the Project (**Appendix B** and **Appendix C**) to identify the details of the proposed OSOM transport routes.

2.0 Existing Conditions

2.1 Land Use and Zoning

As previously identified, the Project Area is situated within the Upper Lachlan Shire LGA. The Project Area is zoned as RU2 Rural Landscape within the Upper Lachlan LEP 2010 (refer to **Figure 2**).

Agricultural land uses are prevalent within and surrounding the Project Area. There are no areas of mapped Biophysical Strategic Agricultural Land (BSAL) and there are no current mining and/or exploration licence applications within the Project Area.

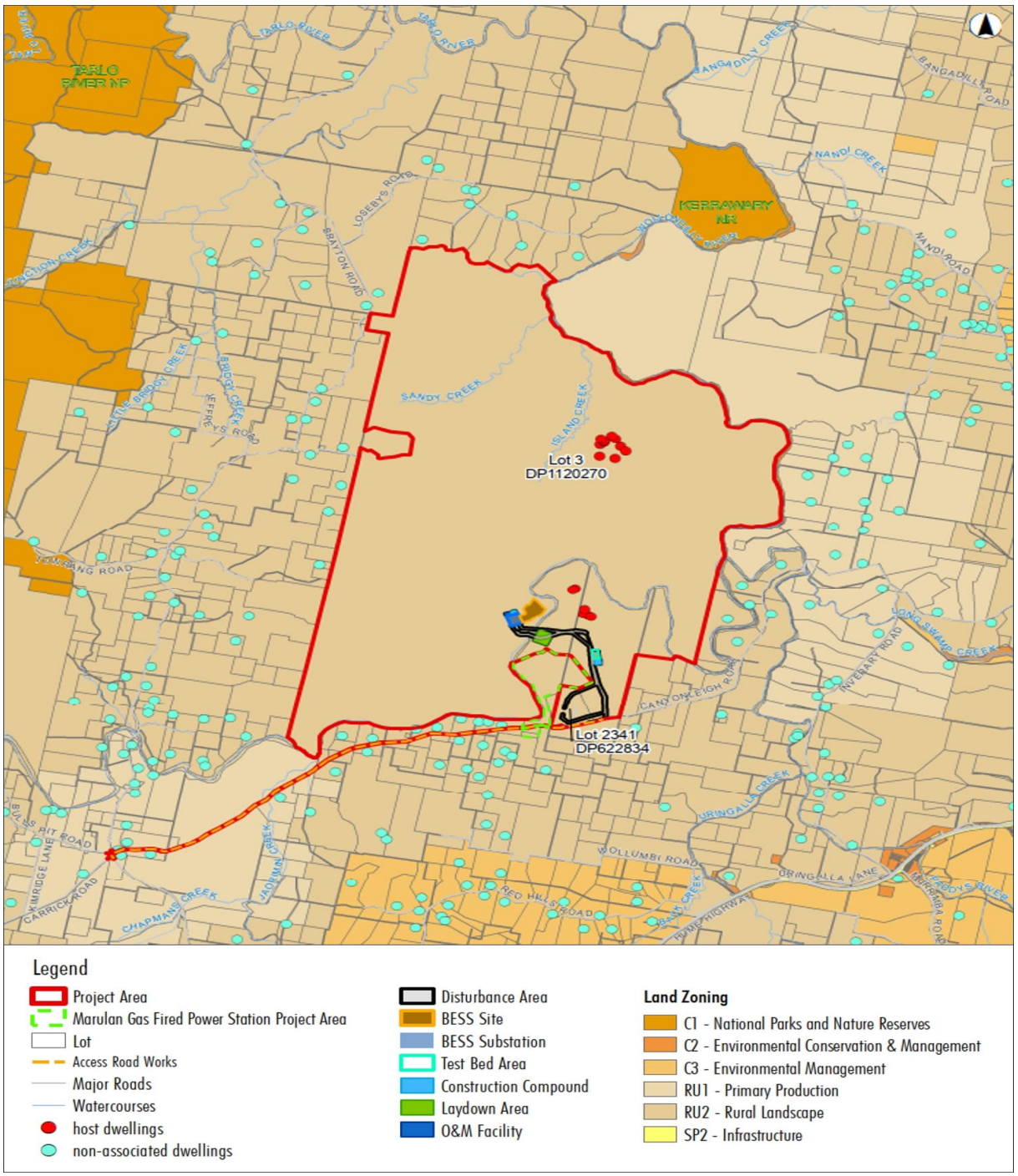


Figure 2 Current Project Area Land Zoning **[Source: Umwelt / Spark Renewables]**

2.1.1 Adjacent Land Use / Approvals

As shown in **Figure 2** above, the majority of the adjacent land parcels to Project Area are currently zoned as "RU2 – Rural Landscape", while the land to the east is zoned as "C1 National Parks and Nature Reserves".

As part of the SEARs for the Project and the *Cumulative Impact Assessment Guidelines for State Significant Projects 2022* [1] further assessment has been requested regarding the potential cumulative impacts of current State Significant Development Applications (SSDA) in the vicinity of the Project Area. Further detail regarding the cumulative impact assessment undertaken is provided in **Section 4.5** of this report, noting the consideration of the following relevant proposed SSDAs:

- Crookwell Wind Farm 3 (SSD-6695).
- Wattle Creek Solar Farm (SSD-63344210).
- Marulan Gas Fired Power Station (MP07_0175).
- Marulan Solar Farm (SSD-13137914).
- Hume Link (SSI-36656827).
- Gundary Solar Farm (SSD-48225958).
- Merino Solar Farm (SSD-59155459).
- Shoalhaven Hydro Scheme (SSI-10033).
- Woodlawn Advanced Energy Recovery Centre (SSD-21184278).
- Marulan Quarry (SSD-65146459).
- Gunlake Quarry Continuation Project (SSD-12469087)

2.2 Surrounding Road Network Details

Based on the anticipated Project transport routes identified (refer **Section 3.3** below), the relevant sections of the surrounding external road network were identified, with further details of their existing condition and operation of the key road links and intersections provided below.

2.2.1 Road Links

Based on the transport routes identified for the construction, operations and decommissioning phases of the Project, the critical road links were determined to be the Hume Highway, Red Hills Road, Ambrose Road, Brayton Road and Canyonleigh Road as shown in **Figure 3** which are expected to accommodate the majority of the staff and heavy vehicle movements generated by the Project.

Other sections of the external road network are anticipated to be utilised by small volumes of Project traffic, primarily associated with the transport vehicle movements for the battery components (approx. 4vpd) and the low volume (approx. 3 total) of OSOM movements for the larger electrical infrastructure (transformers and electrical switchrooms). Furthermore, the roads forming the transport routes for these movements are higher class roads which cater for higher traffic volumes (particularly the motorway sections) and as such the addition of truck movements for the Project is not anticipated to have a significant impact on their ongoing operation.

Notwithstanding this, further details of the relevant sections of the Hume Highway, Red Hills Road, Ambrose Road, Brayton Road and Canyonleigh Road links in the vicinity of the Project Area are provided in the following sections.

[1] https://www.planning.nsw.gov.au/sites/default/files/2023-03/cumulative-impact-assessment-guidelines-for-ssp.pdf

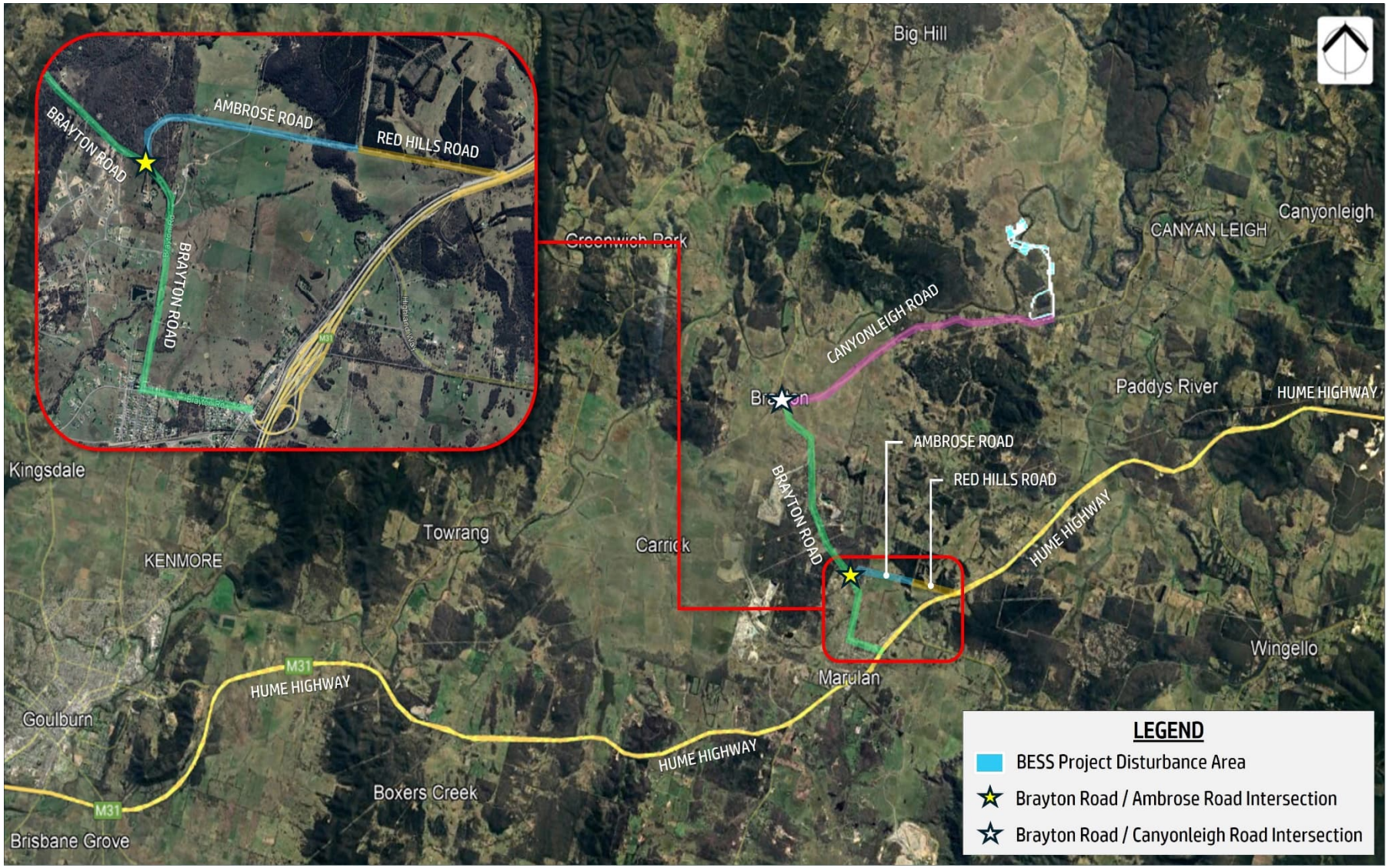


Figure 3 Critical External Road Links **[Source: Google Earth Pro]**

2.2.1.1 Hume Highway

The Hume Highway is a state-controlled route that provides an inland connection between Sydney and Melbourne. Classified as an arterial road, the link also forms part of the TfNSW B-Double and OSOM Load Carrying Vehicle Network approved routes.

In the vicinity of the Project Area (Marulan), the Hume Highway is generally configured as a two-way, four lane median divided highway cross section, with two lanes provided in the northbound and southbound directions as shown in **Figure 4** and **Figure 5**, where the road is constructed as a 13 m wide sealed pavement (including shoulders) and operates under a posted speed limit of 100km/hr.



Figure 4 Existing Configuration of Hume Highway Northbound at Marulan



Figure 5 Existing Configuration of Hume Highway Southbound at Marulan

2.2.1.1 Red Hills Road

Red Hills Road is a rural collector road under the jurisdiction of Goulburn Mulwaree Council (GMC) that runs west from the Hume Highway. The link provides access to a number of properties along its length, and provides a connection (with Ambrose Road) between the Hume Highway and Brayton Road.

Currently Red Hills Road is configured as a two-way, two-lane sealed road, generally providing a road width of 10m, including 1-1.5m shoulders in each direction as shown in **Figure 6** and **Figure 7** below. The link is an approved B-Double route and caters for the large volumes of trucks associated with the operation of Gunlake Quarry to the north, and has a posted speed of 80km/hr.



Figure 6 Existing Condition of Red Hills Road



Figure 7 Existing Condition of Red Hills Road

2.2.1.2 Ambrose Road

Ambrose Road is a rural collector road under the jurisdiction of Goulburn Mulwaree Council (GMC) that provides access to a number of properties along its length, and with Red Hills Road provides a connection between the Hume Highway and Brayton Road.

Currently Ambrose Road is configured as a two-way, two-lane sealed road, generally providing a road width of 10m, including 1-1.5m shoulders in each direction as shown in **Figure 8** and **Figure 9** below. As with Red Hills Road, the link is an approved B-Double route and caters for the large volumes of trucks associated with the operation of Gunlake Quarry to the north, and has a posted speed of 80km/hr.



Figure 8 Existing Condition of Ambrose Road



Figure 9 Existing Condition of Ambrose Road

2.2.1.3 Brayton Road

Brayton Road is also a rural collector road under the jurisdiction of Goulburn Mulwaree Council (GMC) that provides a north-south link from Marulan to the rural area to the north of the Hume Highway. The section of the link relevant to the Project is the section between Marulan and Canyonleigh Road, and particularly north of Ambrose Road, which is expected to cater for all Project traffic. The section of Brayton Road between Ambrose Road and Gunlake Quarry access is also utilised by the large volumes of trucks associated with the quarry operations and is an approved B-Double route.

Brayton Road is currently configured as a two-way, two-lane sealed road with a posted speed of 80km/hr. The section of the link south of the quarry access (refer **Figure 10**) generally provides a road width of 10m, including 1-1.5m shoulders, while the section to the north of the quarry (see **Figure 11**) generally provides a narrower sealed road width of approximately 7m.



Figure 10 Existing Condition of Brayton Road (South of Quarry Access)



Figure 11 Existing Condition of Brayton Road (North of Quarry Access)

2.2.1.4 Canyonleigh Road

Canyonleigh Road is a rural access class road under the jurisdiction of Goulburn Mulwaree Council (GMC), that runs east-west between the Hume Highway and Brayton Road, which primarily provides access the rural properties along its length. The section of Canyonleigh Road relevant to the Project is the 9.850km section between Brayton Road and the Project access located at the existing Arthursleigh Farm property access. This section of Canyonleigh Road has two separate configurations. The first is a two-way sealed carriageway with a varying road width of 5-6m (see **Figure 12**), while the second is a two-way unsealed carriageway with a varying road width of 5-7m (see **Figure 13)**.



Figure 12 Western Sealed Configuration of Canyonleigh Road



Figure 13 Eastern Unsealed Configuration of Canyonleigh Road

2.2.2 Intersections

2.2.2.1 Hume Highway / Red Hills Road Intersection

The existing configuration of the state-controlled Hume Highway / Red Hills Road intersection currently operates as a two-way, priority controlled (give way) intersection, with the northbound Hume Highway approach having priority as the major road and Red Hills Road forming the minor side road to the intersection. Two northbound lanes are currently provided on the median divided carriageway of the Hume Highway, with a full length auxiliary left turn treatment (AUL) provided for movements turning into Red Hills Road, and an acceleration lane for the left turn movements from Red Hills Road onto the Hume Highway as shown in **Figure 14**.



Figure 14 Existing Hume Highway / Red Hills Road Intersection [Source: Google Earth Pro]

The provision of a full auxiliary left turn lane into Red Hills Road and acceleration lane for left turns entering the highway are noted to be suitable to cater for significant turning volumes and are considered to be adequate to cater for the minor increases in turning movements into and out of Red Hills Road associated with the Project.

As such the impact of the Project on the operation of the Hume Highway / Red Hills Road intersection is expected to be minor, and as such no further assessment of the intersection is deemed necessary.

2.2.2.2 Brayton Road / Ambrose Road Intersection

The existing configuration of the Council (GMC) controlled Brayton Road / Ambrose Road intersection currently operates as a three-way, priority controlled (give way) intersection, with the Brayton Road approaches having priority as the major road and Ambrose Road forming the minor side road approach to the intersection.

One lane in each direction is provided on both the Brayton Road and Ambrose Road legs of the intersection, with raised centre medians also provided on the approaches to delineate the intersection and provide separation between the traffic flows, as shown in **Figure 15**.



Figure 15 Existing Brayton Road / Ambrose Road Intersection **[Source: Google Earth Pro]**

2.2.2.3 Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road Intersection

The existing configuration of the Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road intersection currently operates as a five-way, priority controlled (give way) intersection, with the northern and southern Brayton Road approaches having priority as the major road and Carrick Road (LHS), Canyonleigh Road (RHS) and Bulls Pit Road (LHS) forming the staggered minor side road approaches to the intersection, as shown in **Figure 16**.

A single approach and departure lane is provided on all legs of the intersection, with a short auxiliary left (AUL) treatment provided on the southern Brayton Road approach to Carrick Road and no other formal turn treatments provided for movements into the minor side roads of Canyonleigh Road or Bulls Pit Road, although a wide shoulder is currently provided on the western side of the Brayton Road opposite Canyonleigh Road (between Carrick Road and Bulls Pit Road)



Figure 16 Existing Brayton Rd / Canyonleigh Rd / Carrick Rd / Bulls Pit Rd Intersection [Source: Google Earth Pro]

The currently available sight lines in both directions to/from Canyonleigh Road are shown in **Figure 17** and **Figure 18**, with sight observations identifying that the available sight lines to/from the southern Brayton Road approach to the intersection are partially restricted due to a horizontal curve in the approach geometry of Brayton Road, with suitable sight lines (>226m for 90km/h design speed) available to/from the northern Brayton Road approach.



Figure 17 Looking South-east from Canyonleigh Road



Figure 18 Looking North-west from Canyonleigh Road

In addition, it was also observed that the additional shoulder widening on the western side of the Brayton Road was currently being utilised as an informal school bus stop, with a shelter currently provided adjacent to the road shoulder as shown in **Figure 19** and **Figure 20** .



Figure 19 Existing Bus Shelter – Western Side of Brayton Road



Figure 20 Existing Wide Road Shoulder – Western Side of Brayton Road

2.3 Existing Traffic Volumes

2.3.1 Road Link Volumes

The road link volumes for the relevant sections of the Hume Highway have been estimated from the available historical count data from TfNSW, while an estimate of the daily volumes on Red Hills Road, Ambrose Road, Brayton Road and Canyonleigh Road were established from the traffic volumes on the relevant approach and departure legs to the Brayton Road / Ambrose Road and Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road intersections from the turning movements counts undertaken on Wednesday 7 August 2024. It is noted that a factor of 1.25 has been applied to convert the recorded 12-hour volumes at the intersections to 24-hour volumes as per Section 5.2 of Austroads Guide to Pavement Technology Part 4K.

A conservative background growth rate of 2% per annum (compound) was then applied to the identified baseline year volumes on the relevant road links to establish forecasts of the current (2024) traffic volumes (refer **Table 4**), as well as the expected background traffic volumes at required future assessment horizons for the Project.

Table 4 Current (2024) AADT Traffic Volumes

Road ID	Road Segment ID	Base Data Year	Base Year AADT			
			Gaz	A-Gaz	Gaz % HV	A-Gaz % HV
Hume Highway (M31)						
North of Red Hills Road	T0247	2024	11,016	10,377	12.38%	11.27%
Red Hills Road to Brayton Road		2024	11,016	10,377	12.38%	11.27%
Brayton Road to Marulan S Road		2024	11,016	10,377	12.38%	11.27%
Marulan S Road to Goulburn		2024	11,016	10,377	12.38%	11.27%
Red Hills Road (GMC)						
Hume Highway to Ambrose Road	-	2024	204	212	76.47%	68.87%
Ambrose Road (GMC)						
Red Hills Road to Brayton Road	-	2024	204	212	76.47%	68.87%

Road ID	Road Segment ID	Base Data Year	Base Year AADT			
			Gaz	A-Gaz	Gaz % HV	A-Gaz % HV
Brayton Road (GMC)						
Marulan to Ambrose Road	-	2024	252	282	13.49%	16.31%
Ambrose Road to Quarry Access	-	2024	387	423	44.70%	41.13%
Quarry Access to Canyonleigh Road	-	2024	187	181	7.49%	7.18%
Canyonleigh Road (GMC)						
Brayton Road to Gravel Road	-	2024	62	53	4.84%	5.66%
Gravel Road to Site Access	-	2024	62	53	4.84%	5.66%

Note: Gaz = Gazettal Direction or direction of travel, A-Gaz = Against Gazettal Direction or against direction of travel.

Gazettal Direction – Hume Highway Southbound | Red Hills Road – outbound from Hume Highway | Ambrose Road – outbound from Red Hills Road | Brayton Road – outbound from Hume Highway | Canyonleigh Road – outbound from Brayton Road.

2.3.2 Intersection Volumes

As mentioned above, turning movement counts were undertaken at the key Brayton Road / Ambrose Road and Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road intersections on Wednesday 7th August 2024, with the counts undertaken for the 12-hour period of 6:30am-6:30pm. A copy of the raw data for the completed intersection counts is provided for reference in **Appendix D**.

This 12-hour period was selected to record the traffic conditions at the intersections for both the expected Project peaks (6:30-7:30am & 5:30-6:30pm) as well as the following calculated peak periods of traffic on the adjacent road network:

- Brayton Road / Ambrose Road – 8:15-9:15am & 3:45-4:45pm.
- Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road – 7:45-8:45am & 4:00-5:00pm.

A summary of the recorded 2024 AM and PM peak hour volumes for both the identified Project and network peak periods at each intersection are provided in **Figure 21** to **Figure 24.**

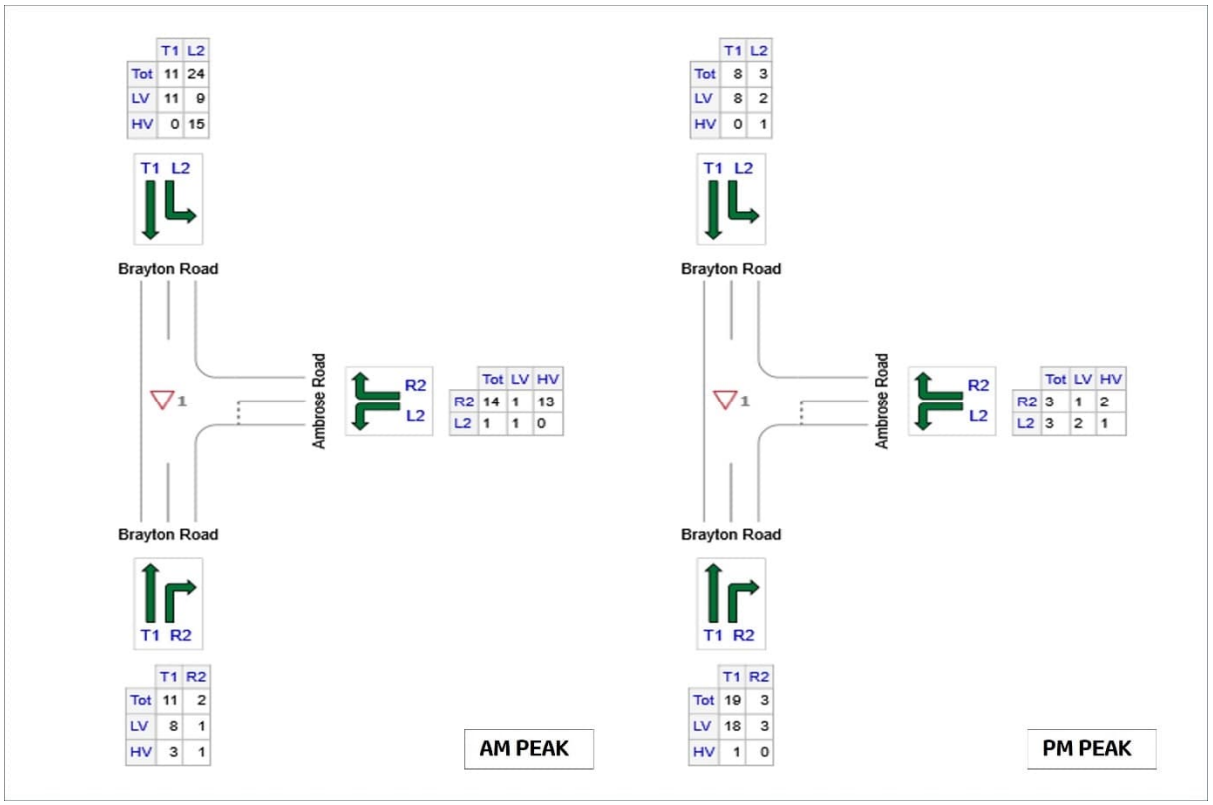


Figure 21 Brayton Road / Ambrose Road Intersection - Existing (2024) AM & PM Peak Hour (Project) Volumes

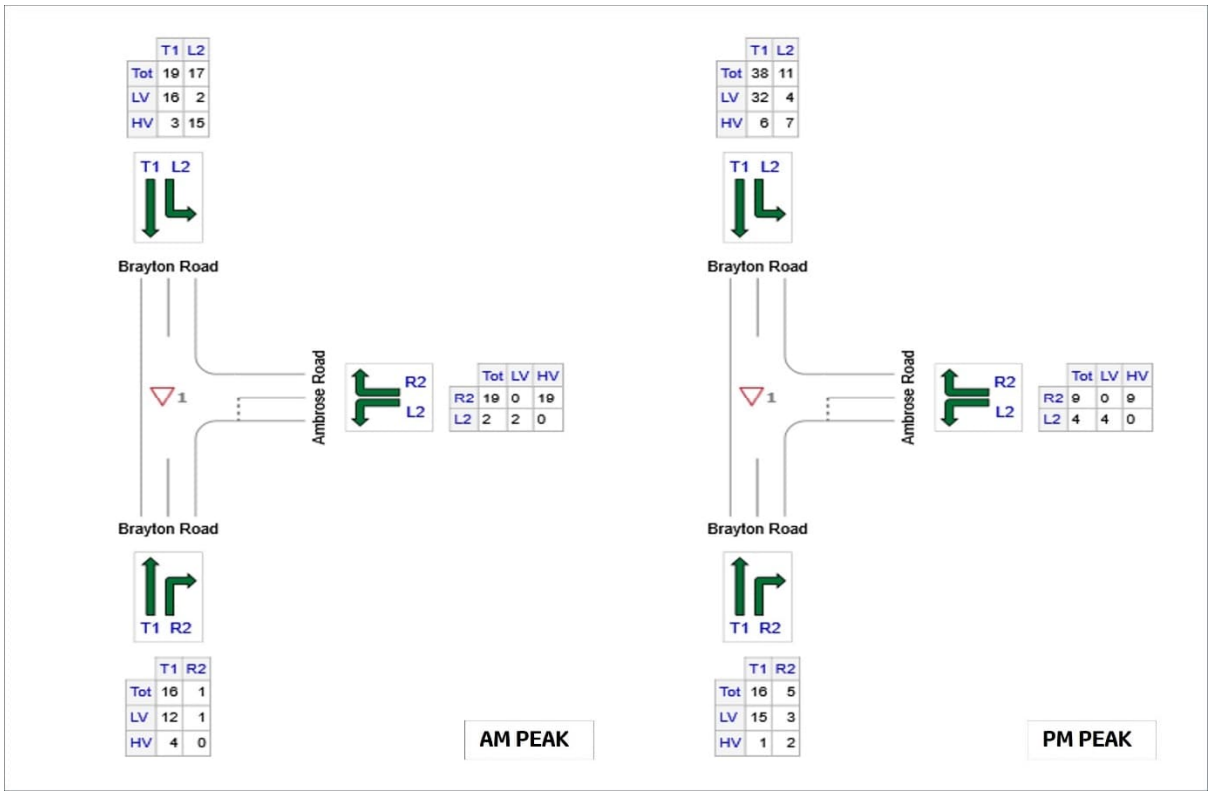


Figure 22 Brayton Road / Ambrose Road Intersection - Existing (2024) AM & PM Peak Hour (Network) Volumes

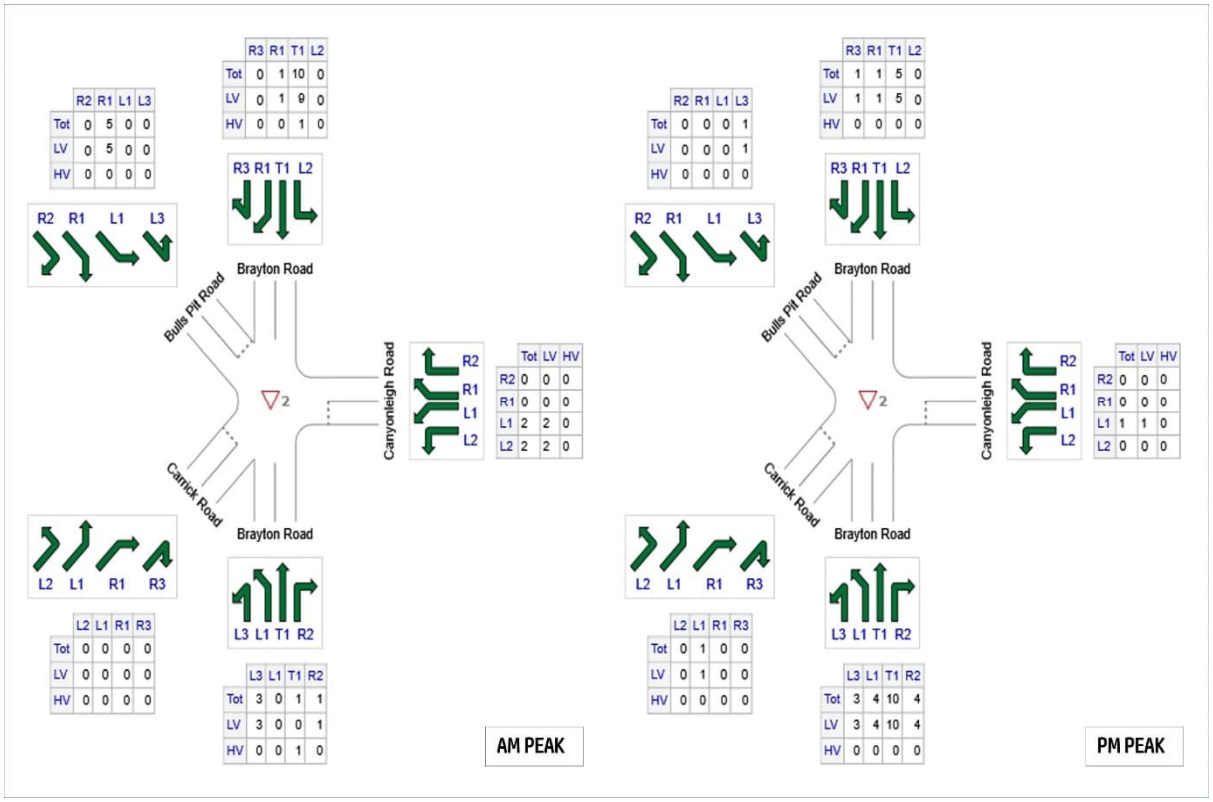


Figure 23 Brayton Road / Canyonleigh Road Intersection - Existing (2024) AM & PM Peak Hour (Project) Volumes

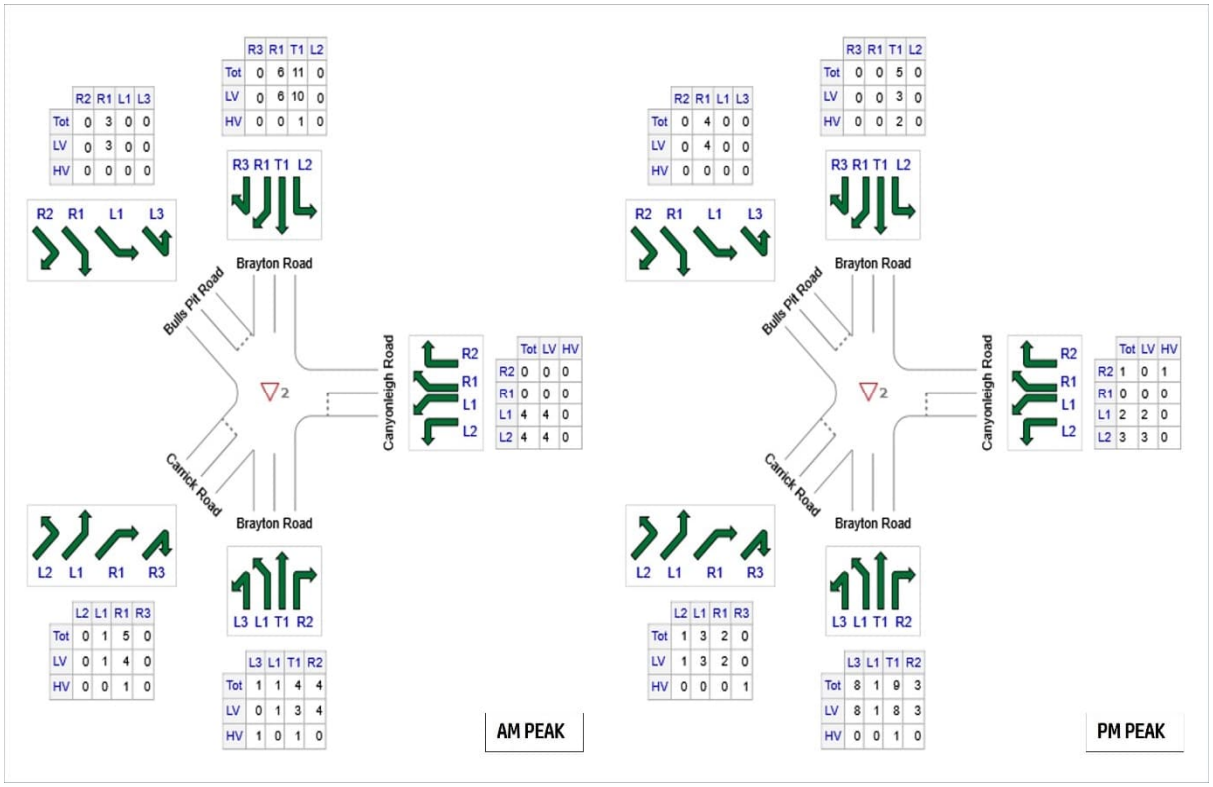


Figure 24 Brayton Road / Canyonleigh Road Intersection - Existing (2024) AM & PM Peak Hour (Network) Volumes

2.4 Existing Intersection and Network Performance

2.4.1 Road Links

Based on the road link volumes forecasts in **Table 4** above, it can be seen that the existing configurations of the Hume Highway, Red Hills Road, Ambrose Road, Brayton Road and Canyonleigh Road can be considered to have adequate capacity to cater for the current 2024 volumes on the each link, including that for multilane motorways / highways (>60,000vpd - Hume Highway), and sealed rural collector roads (1,500-3,000 vpd – Red Hills Road, Ambrose Road and Brayton Road.

2.4.2 Intersections

2.4.2.1 Performance Metrics

To understand the operational performance of the key Brayton Road / Ambrose Road and Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road intersections, detailed intersection analysis was undertaken utilising the Signalised Intersection Design and Research Aid (SIDRA) software package (Ver 9.1). The critical performance metrics of the intersection analysis, and acceptable limits of operation outputs for a priority-controlled intersections are provided below.

Degree of Saturation (DOS) – Defined as the ratio of the volume of traffic observed making a movement (in vehicles per hour) compared to the maximum capacity for that movement (vehicles per hour). For priority-controlled intersections, the maximum acceptable degree of saturation is noted to be 80% or 0.800.

Level of Service (LOS) & Average Delay (sec) – Is the qualitative measure describing operational conditions within a traffic stream and the perception by motorists and/or passengers. The LOS is closely linked to the delay time (in seconds), which can be expected over all vehicles making a movement in the peak hour. The different Levels of Service (RTA NSW criteria) are summarised in **Table 5** below:

Table 5 Intersection Level of Service (LOS) Criteria

LOS	Description	Average Delay
A	Free-flow operation (best conditions)	≤ 14.5 sec
B	Reasonable free-flow operations	14.5 – 28.5 sec
C	At or near free-flow operations	28.5 – 42.5 sec
D	Decreasing free-flow operations	42.5 – 56.5 sec
E	Operations at capacity	56.5 – 70.5 sec
F	A breakdown in vehicular flow (worst conditions)	≥ 70.5 sec

In terms of acceptable limits of operation for priority-controlled intersections, a maximum LOS of C and delay of 42.5 seconds applies.

95th Percentile (95%ile) Queue – Defined as the maximum queue length, in metres, that can be expected in 95% of observed queue lengths in the peak hour. For acceptable operation of a priority-controlled intersection, all vehicle queues for individual movements must be contained within the extents of their own lane (in particular for turning lanes), with no vehicle flows or movements to be blocked by queued vehicles.

2.4.2.2 Intersection Assessment

An assessment of the current operational performance of the key Brayton Road / Ambrose Road and Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road intersections has been undertaken utilising the Signalised Intersection Design and Research Aid (SIDRA) software package, based upon the forecast

volumes for the current (2024) background AM peak and PM peak periods (both the expected Project peak and adjacent existing road network peak), as identified in **Figure 21** to **Figure 24** above.

It is noted that the weekday AM and PM peaks identified for the assessment are considered to be the worst-case periods in terms of both the volume of traffic and therefore the operation of the intersection, with any weekend (Saturday) peak periods at the intersection noted to have lower traffic volumes and therefore better operational performance of the intersection.

The results of these analyses are summarised in **Table 6** and **Table 7** below, with the detailed results provided for reference in **Appendix E** and **Appendix F**. These results revealed that the current configurations of the intersection are currently operating satisfactorily under the current (2024) background or pre Project traffic conditions, with all calculated values of Degree of Saturation (DOS), Level of Service (LOS), average delay and vehicle queue lengths for the intersection well within acceptable limits of operation for a priority-controlled intersection for all traffic scenarios assessed.

Table 6 SIDRA Results – Brayton Road / Ambrose Road Intersection (Existing Configuration)

Analysis Scenario	Intersection Degree of Saturation	Level of Service**	Intersection Average Delay (sec)	Maximum 95% Back of Queue Length (m)
Unsignalised / Priority Controlled Intersections				
Acceptable Limits of Operation	**< 0.800**	**LOS C**	**< 42.5**	**Varies ***
Brayton Road / Ambrose Road Intersection				
2024 AM Peak (Project Peak)	0.024	LOS A	4.2	0.7
2024 PM Peak (Project Peak)	0.012	LOS A	1.8	0.2
2024 AM Peak (Network Peak)	0.025	LOS A	3.5	1.0
2024 PM Peak (NE Hwy Peak)	0.030	LOS A	2.3	0.5

* Acceptable queue lengths are when all queues are contained within the existing lane lengths, with no traffic flows impeded.

** LOS value identified is for worst movement at the intersection, not the overall intersection.

Table 7 SIDRA Results – Brayton Road / Canyonleigh Road Intersection (Existing Configuration)

Analysis Scenario	Intersection Degree of Saturation	Level of Service**	Intersection Average Delay (sec)	Maximum 95% Back of Queue Length (m)
Unsignalised / Priority Controlled Intersections				
Acceptable Limits of Operation	**< 0.800**	**LOS C**	**< 42.5**	**Varies ***
Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road Intersection				
2024 AM Peak (Project Peak)	0.007	LOS A	3.7	0.2
2024 PM Peak (Project Peak)	0.011	LOS A	3.4	0.2
2024 AM Peak (Network Peak)	0.010	LOS A	3.7	0.3
2024 PM Peak (NE Hwy Peak)	0.012	LOS A	3.9	0.2

* Acceptable queue lengths are when all queues are contained within the existing lane lengths, with no traffic flows impeded.

** LOS value identified is for worst movement at the intersection, not the overall intersection.

2.5 Road Crash History Review

A review of the road crash history on the relevant sections Red Hills Road, Ambrose Road, Brayton Road and Canyonleigh Road in the vicinity of the Project Area was undertaken using the interactive crash statistic data available from the TfNSW Centre for Road Safety database for the period between 2019-2024.

The results of this search identified 8 recorded crashes on the relevant sections of the network within this period, with further details of the recorded crash data provided in **Table 9**.

Table 8 Summary of Road Crash Data **[Source: TfNSW Centre for Road Safety Database]**

Crash ID	Crash Year	Degree of Crash	RUM Code	RUM Description
1200691	2019	Serious Injury	83	Off Carriageway Right on Right Bend into Object
1244083	2020	Moderate Injury	67	Struck Animal
1270238	2021	Serious Injury	71	Left off Carriageway into Object
1272227	2021	Moderate Injury	73	Right off Carriageway into Object
1275728	2021	Minor / Other Injury	30	Rear End
1280499	2022	Fatal	84	Off Carriageway Right on Left Bend
1291872	2022	Moderate Injury	89	Other Curve
1339036	2023	Non-Casualty (Towaway)	71	Left off Carriageway into Object

Based on further review of the recorded crash data above, it is noted that the majority of the accidents are single vehicle off path/road crashes which are typical for rural environments and generally relate to driver behaviour. Furthermore, no significant crash clusters were identified which would suggest that there were not any particular existing road feature, intersection or design deficiency on the network which is likely to be contributing to vehicle accidents.

2.6 Transport Infrastructure

2.6.1 Public Transport Infrastructure

Due to the rural nature of the Project Area, there is currently no public transport infrastructure (i.e. public bus routes) along the key transport routes for the Project of Red Hills Road, Ambrose Road, Brayton Road and Canyonleigh Road that could be utilised as part of the vehicle movements required for the Project.

Notwithstanding this, as mentioned above the existing intersection of Brayton Road / Canyonleigh Road / Carrick Road and Bulls Pit Road is currently utilised as an informal stop for school bus movements with a shelter provided adjacent to the existing shoulder on the western side of the intersection, with students being driven to/from these points from surrounding areas.

2.6.2 Active Transport Infrastructure

Based on the isolated, rural nature of the Project Area, highlighted by the unsealed configuration of Canyonleigh Road fronting the site, it is noted that there are no specific active transport facilities or infrastructure on the surrounding road network (i.e. bike lanes or pedestrian pathways) that could be utilised as part of required movements for the Project.

3.0 Project Details

3.1 Conceptual Project Layout

The Project layout shown in **Figure 1,** with a copy of the conceptual layout for the Project also included for reference in **Appendix A.**

The Project layout also identifies a number of internal site facilities, including the BESS footprint, internal access tracks, two (2) overhead transmission line easement options, one (1) substation, one (1) O&M facility and a number of construction compounds and site laydown areas.

A summary of the key site elements of the Project provided in **Table 10.**

Table 9 Key Elements of the Project

Project component(s) / infrastructure	Approximate dimensions	Quantity
BESS Modules		
Maximum height	3 m	-
Minimum height	1.5 m	
Containers	Approximately 3.85 MWh per container (number / size of units subject to detailed design and tender)	Approx. 370
Ancillary Infrastructure		
Collector (on-site) substation	6 ha	1
High voltage Transformers	230 megavolt amperes (MVA) high voltage transformers within substation (size and number of transformers is subject to detailed design)	3
Inverters and medium voltage transformers	4200 kVA inverters, with one medium voltage per transformer (number of inverters and size of inverters is subject to detailed design)	248
Overhead transmission lines (high to low voltage)	Approximately 7 km of internal overhead cables i.e. high voltage transmission lines from the Project to the grid connection point. Two transmission alignments currently under investigation.	n/a
Underground cables (medium to low voltage)	2 km	n/a
Internal access tracks	Approximately 5 km of internal roads that connect to the broader internal Wattle Creek Energy Hub road network	n/a
Primary site access point(s)	Canyonleigh Road and Arthursleigh Road, however subject to further intersection design during the EIS.	2
Operations and maintenance facility	100 m x 100 m	1
Temporary Construction Facilities		
Construction site compounds, including: - **construction laydown areas for equipment and supplies.** - **stockpile and material storage areas** - **concrete batching plants** - **construction compounds, site office, security compound, vehicle washdown etc**	Approximately 2 ha	3

3.2 Project Details

Information regarding the proposed construction activities, day to day operations and decommissioning of the Project has been provided by Spark Renewables, with further details of each phase of the Project provided in the following sections.

3.2.1 Construction Phase

The construction of the Project is anticipated to be completed over an 18-month period which is expected to commence in Q1 2026 pending approvals. Based on this assumed 18-month overall construction it is expected that all construction works on site will be completed by the end of Q2 2027, with the peak period of construction expected to occur between Q3 2026 and Q1 2027.

Construction activities are proposed to be limited to 7 am – 6 pm Monday to Friday and 8 am to 1 pm on Saturdays. This equates to approximately six (6) working days per week and 24 working days per month. No activities would occur on Sundays or public holidays unless unexpected risk to the Project and personnel are required to be resolved during these days.

Preliminary details of the proposed construction phase activities have been provided by Spark Renewables, with a high-level program of the key construction tasks, including the likely order of completion and anticipated timeframes provided in the schedule included as **Figure 20.**

TASK ID	TASK	DURATION (MONTHS)	MONTH																	
			Jan-26	Feb-26	Mar-26	Apr-26	May-26	Jun-26	Jul-26	Aug-26	Sep-26	Oct-26	Nov-26	Dec-26	Jan-27	Feb-27	Mar-27	Apr-27	May-27	Jun-27
			Q1 2026			Q2 2026			Q3 2026			Q4 2026			Q1 2027			Q2 2027		
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
A	Site Establishment, Clearing and Fencing	2	1	2																
B	Civil Earthworks	4		1	2	3	4													
C	Component Delivery	12			1	2	3	4	5	6	7	8	9	10	11	12				
D	Battery Installation	14			1	2	3	4	5	6	7	8	9	10	11	12	13	14		
E	Substation Construction	12						1	2	3	4	5	6	7	8	9	10	11	12	
F	Commissioning and Testing	7												1	2	3	4	5	6	7
G	O&M Building Construction	2																1	2	
H	Demobilisation	1																		1

Figure 25 Wattle Creek BESS Project – Preliminary Construction Schedule [Source: Spark Renewables]

3.2.2 Operations Phase

The operations phase of the Project will commence upon completion of the construction works, with the Project anticipated to be operated by a relatively small number of staff (approximately 15 staff). In addition, it is expected that limited numbers of heavy vehicles will access the Project Area during operations, with only periodic maintenance (monthly) and routine service/refuse collection vehicles (1 per week) anticipated to travel to/from the Project Area.

The Project would operate continuously (24 hours a day / 7 days a week), with a mix of remote and onsite monitoring and maintenance. Associated work by onsite staff would be undertaken during the standard working hours of:

- Monday to Friday: 7am–6pm
- Saturday: 8am–1pm

No activities would occur on Sundays or public holidays, however, in cases of emergencies, major asset inspection or maintenance programs may be undertaken outside standard hours. Council and surrounding landholders would be notified of any works outside standard work hours that may be expected to cause noise exceedance.

3.2.3 Decommissioning or Upgrading Phase

At the end of the operational life of the Project infrastructure (approx. 30 years) it is proposed that the Project would either be decommissioned, removing all infrastructure, and returning the site to the original condition or the Project will be upgraded (pending any additional approval requirements).

Decommissioning would involve the mobilisation of a workforce and additional temporary facilities, and the subsequent removal of equipment and infrastructure. All above ground infrastructure except the transmission lines and substation will be removed during decommissioning unless stated otherwise in the conditions of consent. At this time, it is expected that this would require significant movements of light vehicles and trucks for transporting waste would occur.

The decommissioning phase of the Project would be expected to span over 12 months, with the peak traffic movements to/from the site during decommissioning conservatively estimated to be approximately 70% of the identified peak construction movements (both material/equipment delivery and peak staff movements).

3.3 Project Transport Routes

To assist in the identification of the sections of the external state and local government controlled road networks relevant to the Project, the transport routes anticipated to be utilised by Project traffic during the construction, operations and decommissioning phases of the Project were also identified, as outlined below and indicatively shown in **Figure 26** to **Figure 29**:

3.3.1 Construction Phase

Based on preliminary details provided by Spark Renewables, the following transport routes have been identified for traffic associated with the Project.

<u>Light Vehicles</u>

- The construction workforce is assumed to commute daily to/from the Project Area from the nearby townships of Marulan (10%), Goulburn (50%) to the south and Moss Vale, Bowral and Braemar (40%) to the north, utilising the road links of the Hume Highway (M31), Red Hills Road, Ambrose Road, Brayton Road and Canyonleigh Road (refer **Figure 27**)

<u>Heavy Vehicles</u>

- Battery components are proposed to be delivered to Port Kembla in standard containers and then transported to the Project Area by road (semi-trailer) using a route consisting of Tom Thumb Road, Springhill Road (B65), Masters Road, Princes Motorway (M1), Picton-Wilton Road (B88), Hume Highway (M31), Red Hills Road, Ambrose Road, Brayton Road and Canyonleigh Road, as indicatively shown in **Figure 26**.
- Construction equipment (bulk earthworks plant, prefabricated buildings) and general construction materials (such as concrete, reinforcing steels, cable, site water, diesel fuel, waste removal etc) are proposed to also be sourced from the larger regional centre of Goulburn to the south of the Project Area, and be transported to/from the site via the Hume Highway (M31), Red Hills Road, Ambrose Road, Brayton Road and Canyonleigh Road (refer **Figure 27**).

- Quarry materials (road gravels, aggregates, sand) are proposed to be sourced from local quarry sources primarily located on Brayton Road and transported to the site via Brayton Road and Canyonleigh Road.

OSOM Vehicles

- Larger electrical infrastructure components such as the transformers for the substation and switching substation are proposed to be transported by OSOM transport vehicles. Spark Renewables have advised that the transformer deliveries should be assumed to come from/via either Port Kembla or Glen Waverley in Victoria.

  As such two (2) separate route assessment for the required OSOM transport movements for the Project have been completed by Rex J Andrews Engineered Transport (dated 17 May 2024 – refer **Appendix B** and **Appendix C**), which identified proposed OSOM transport routes for the larger electrical infrastructure (transformers).

  A summary of the proposed transport routes are outlined below and shown further in **Figure 28** (from Port Kembla) and **Figure 29** (from Glen Waverley):

  Port Kembla (Approx. 146 km)

  Tom Thumb Road, Springhill Road (B65), Masters Road, Princes Motorway (M1), Mount Ousley Road, Picton-Wilton Road (B88), Hume Highway (M31), Old Hume Highway (U-Turn), Hume Highway (M31), Brayton Road and Canyonleigh Road.

  Glen Waverley (Approx. 822 km)

  Springvale Road, Eastlink, Eastern Freeway (M3), Doncaster Road, Williamsons Road, Fitzsimons Lane (B37), Main Road, Lower Plenty Road, Greensborough Highway, Greensborough Bypass, Metropolitan Ring Road (M80), Hume Freeway (M31), Hume Highway (M31), Old Hume Highway (U-Turn), Hume Highway (M31), Brayton Road, Canyonleigh Road.

3.3.2 Operations Phase

The following transport routes relevant to the operations phase of the Project have been identified:

Light Vehicles

- The workforce during operation will consist of a small number of local workers (i.e. approx. 15 staff FTE) who are expected to commute daily to/from the Project Area from the nearby townships of Marulan (10%), Goulburn (50%) to the south and Moss Vale, Bowral and Braemar (40%) to the north, utilising the road links of the Hume Highway (M31), Red Hills Road, Ambrose Road, Brayton Road and Canyonleigh Road.

Heavy Vehicle

- Heavy vehicle movements during the operations stage of the Project are anticipated to be extremely low, with only occasional movements to/from the Project Area (in the order of 1 vehicle per week) associated with maintenance activities, routine removal of waste and delivery of consumables to the Project operations facility.

  These heavy vehicle movements are primarily expected to originate from the larger regional centre of Goulburn to the south of the Project Area and travel to/from the site via the Hume Highway (M31), Red Hills Road, Ambrose Road, Brayton Road and Canyonleigh Road.

3.3.3 Decommissioning or Upgrading Phase

At the end of the operational life of the Project infrastructure (approx. 30 years) it is proposed that the Project would either be decommissioned, removing all infrastructure, and returning the site to the original condition or the Project will be upgraded (pending any additional approval requirements).

While the details regarding the expected vehicle movements during either upgrade or decommissioning works are difficult to confirm at this stage, it is likely that they will be similar to the construction phase in relation to the movements of staff and materials, equipment and site components. Based on this the following assumptions have been made regarding the transport routes for the Project during site decommissioning:

Light Vehicles

- The workforce for either the decommissioning or upgrading works are assumed to be located in the nearby townships of Marulan, Goulburn, Moss Vale, Bowral and Braemar and commute daily to from the Project Area.

Heavy Vehicles

- Plant and equipment (bulk earthworks plant) and materials (such as gravels and soils for rehabilitation works) will primarily be sourced locally (as far as reasonably practical) from surrounding regional centres, likely Goulburn to the south of the Project Area.
- If the Project is to be upgraded, the battery components are again expected to be delivered to Port Kembla in standard containers and then transported to the Project Area by road.
- If the Project is to be decommissioned, the project infrastructure is expected to be dismantled, removed and transported to nearby recycling facilities, likely in Goulburn to the south of the Project Area.

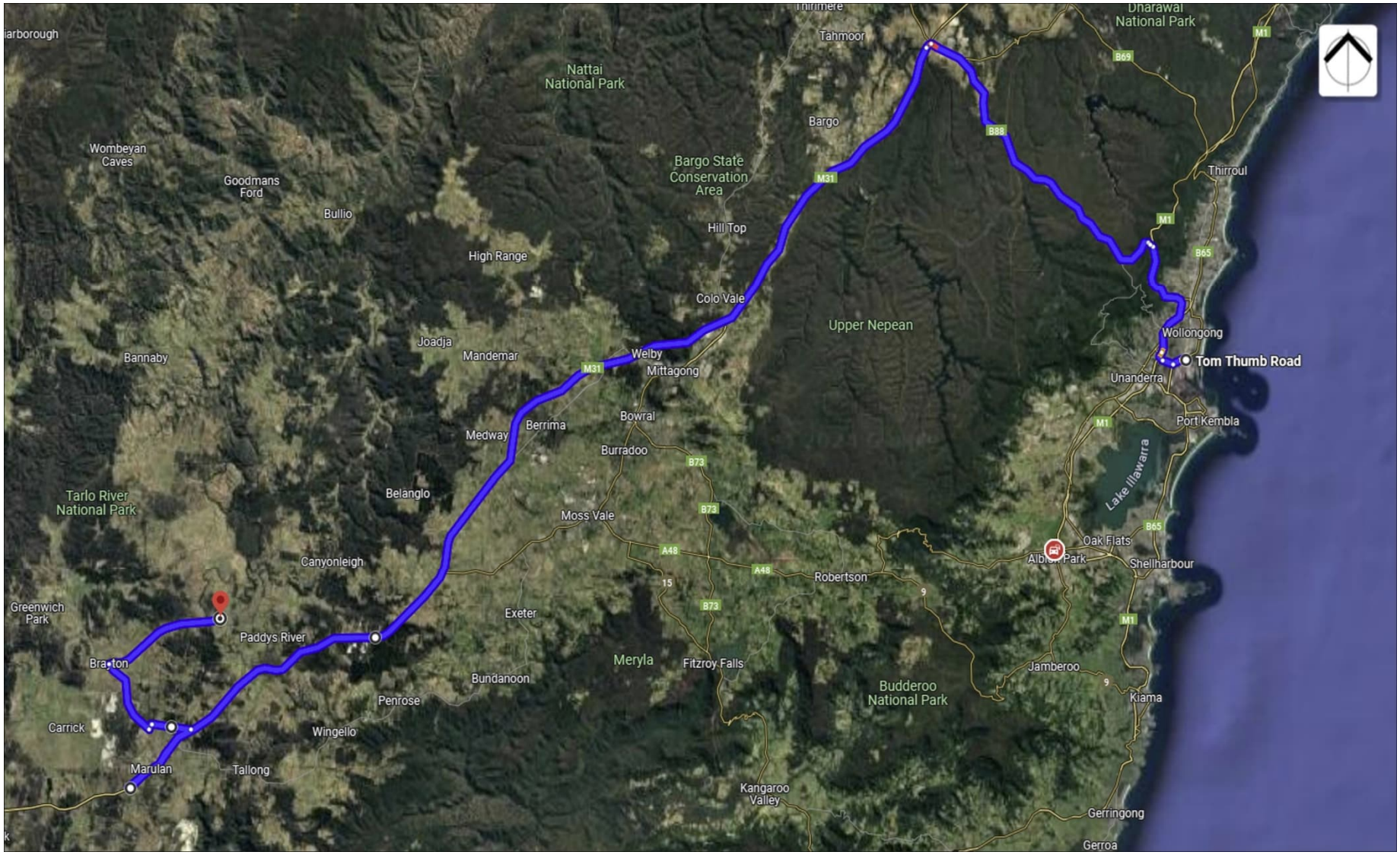


Figure 26 Project Construction – Main Battery Component Transport Route **[Source: Spark Renewable / Google Earth Pro]**

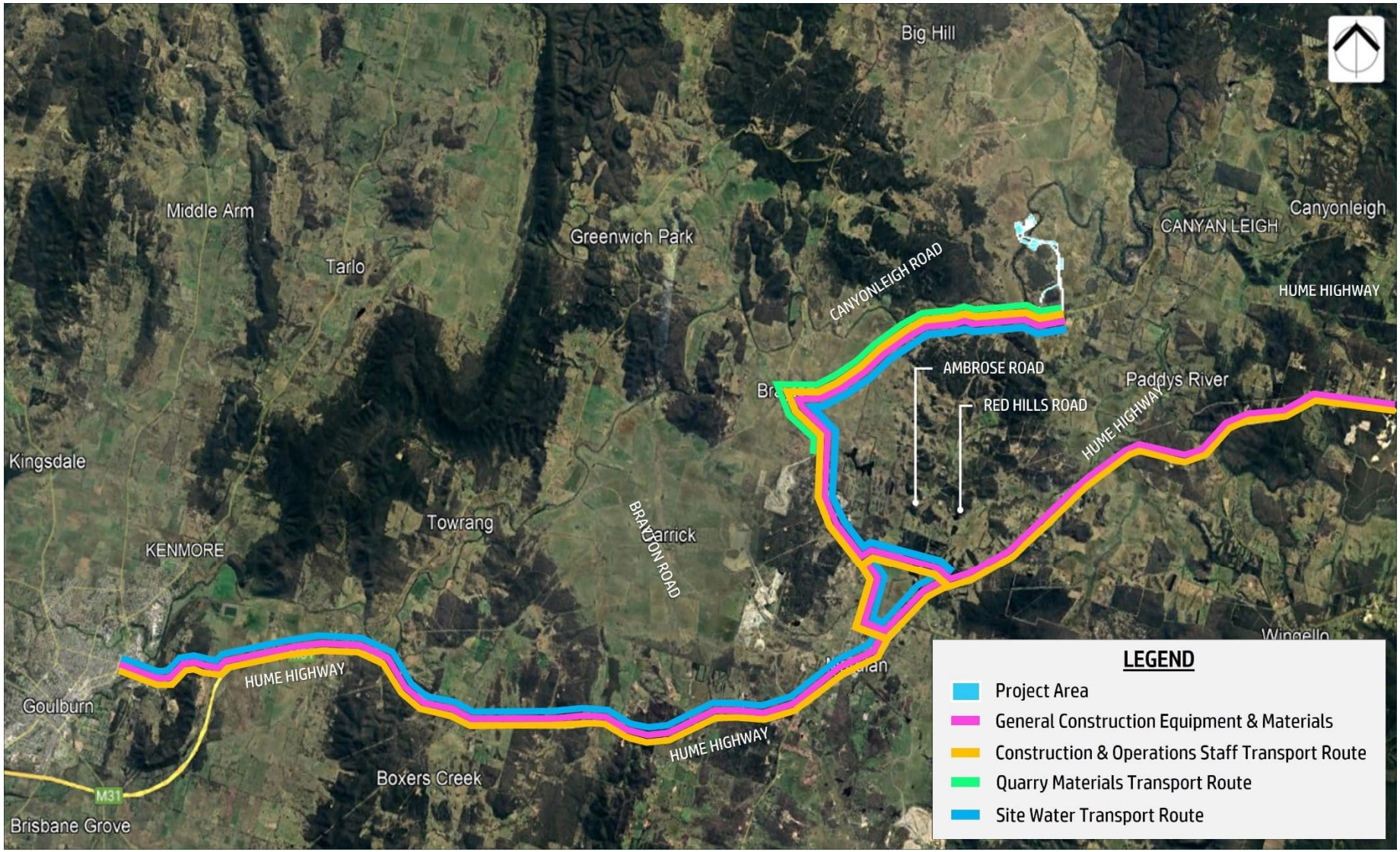


Figure 27 Project Construction – Material / Equipment / Staff Transport Routes **[Source: Google Earth Pro]**



Figure 28 Project Construction – OSOM Transformer Transport Route (Port Kembla) [Source: RJA Transport]

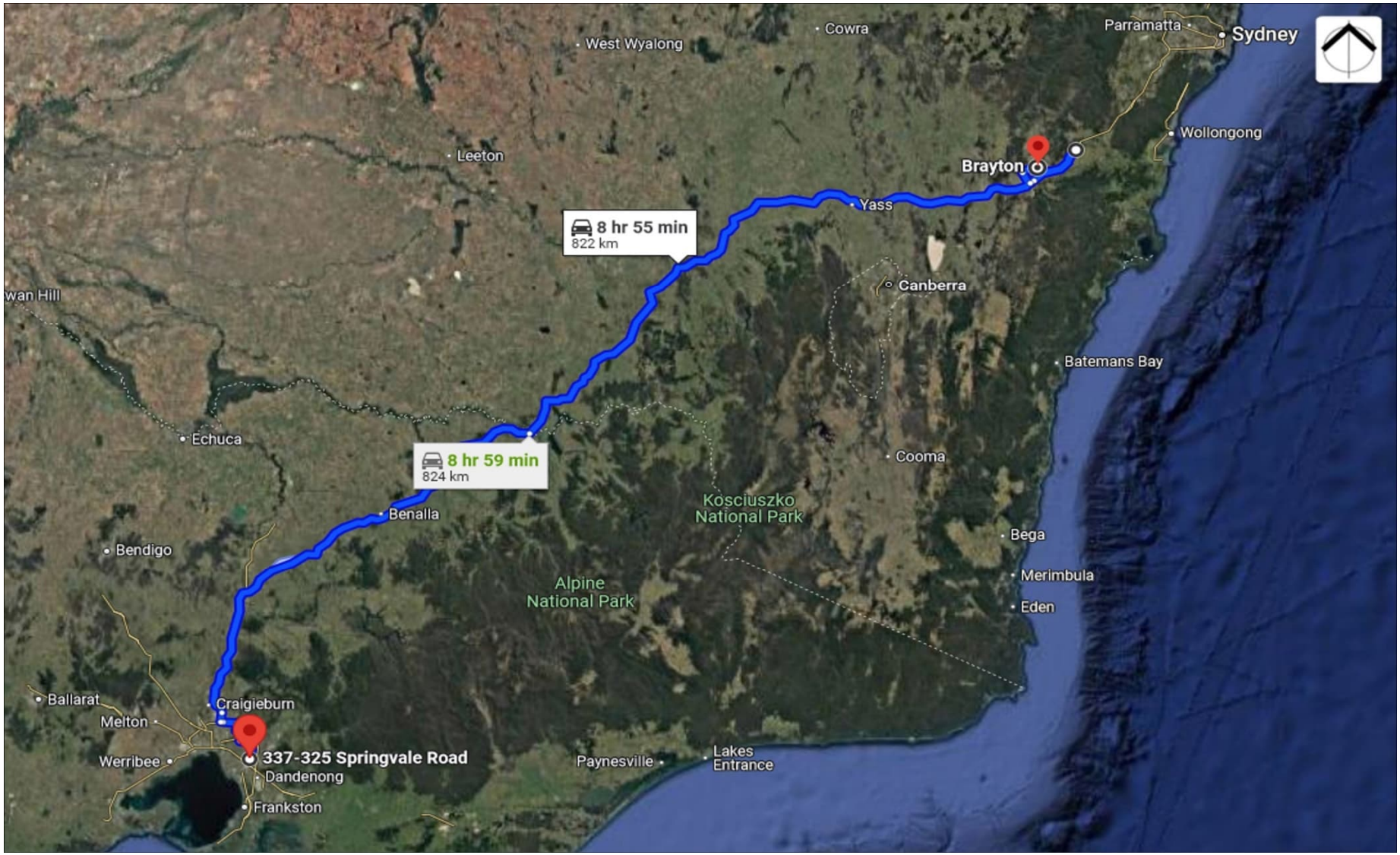


Figure 29 Project Construction – OSOM Transformer Transport Route (Glen Waverley) **[Source: RJA Transport]**

3.4 Site Access

3.4.1 Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road Intersection

As previously identified, the existing configuration of Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road intersection operates as a five-way priority controlled (give way) intersection, with no turn treatments currently provided on either of the Brayton Road major road approaches to Canyonleigh Road.

Notwithstanding this, based on the forecast increase in turning volumes at this intersection as a result of the Project and adjacent Projects (most notably Wattle Creek Solar Farm and the Marulan Gas Fired Power Station projects) and the low background volumes on Brayton Road, it is recommended that a basic right (BAR) treatment be provided to the southern Brayton Road approach to the intersection to cater for the increase in right turn movements into Canyonleigh Road.

The proposed BAR treatment is to be provided generally in accordance with Figure 8.2 (rural BAL) and Figure 7.1 (rural BAR) of Part 4A of Austroads *Guide to Road Design.* Based on the potential to utilise the existing sealed width provided by the wide shoulder on the western side of the southern Brayton Road approach to the intersection, it is expected that only minor works will be required at the intersection to incorporate the BAR treatment to the existing configuration of the intersection.

As part of these works, further treatments to the existing informal school bus stop location at the intersection may be required, with further discussions to be undertaken with Council. Based on preliminary discussions between Spark and Council, it is understood that Council has indicated that road line markings, traffic speed reduction and other mitigation measures may be required at the intersection and that they are amenable to addressing this matter through future Traffic Management Plans and the Section 138 process (post consent) for the Project

In addition, it is also recommended that that advisory “truck turning” signage be installed on both Brayton Road approaches to the intersection during the construction phase of the Project to highlight to approaching motorists the presence of the intersection and the increased potential for turning heavy vehicles to/from Canyonleigh Road.

This increased delineation of the intersection is proposed to assist vehicle movements on the southern approach to the intersection, based on the partially restricted sightlines to Canyonleigh Road as a result on the existing approach geometry to the intersection.

3.4.2 Canyonleigh Road

To further assist in providing suitable access arrangements to the Project area, resurfacing works are proposed to be undertaken to the section of Canyonleigh Road between Brayton Road and the proposed Project access to provide a suitable road cross section with adequate link capacity to cater for the additional traffic volumes anticipated to be generated by the Project.

The proposed configuration of these road resurfacing works is still to be determined, but will be discussed, negotiated and agreed on by both the applicant and Goulburn Mulwaree Council as part of the future detailed design phase of the Project. Spark Renewables are proposing that these works are to be contained within the existing road carriageway and include no additional road widening.

Notwithstanding this, any works will be designed and constructed in accordance with all relevant road standards, including Council’s Geometric Road Design Specification and standard drawings.

3.4.3 Canyonleigh Road / Project Access

As identified above, a single access points to the Project Area is proposed with the access located on the northern side of Canyonleigh Road, approximately 9.850 km to the east of Brayton Road, at the existing Arthursleigh Farm property access.

The existing access is minor in nature and not anticipated to be suitable to cater for the anticipated vehicles or volume of traffic associated with the Project. As such it is proposed that the existing access be upgraded as part of the Project to provide an access configuration generally in accordance with Council's standard rural access arrangement / configuration as per GMC standard drawing SD-R 08 A (refer **Appendix G**).

It is also expected that additional hardstand area is likely to be required to be provided at the Project access to accommodate the swept paths of the OSOM transport vehicles (transformer), with the exact extents of the hardstand areas will be confirmed in subsequent detailed design phases of the Project once the final configuration of the large electrical infrastructure components and associated transport vehicles are confirmed.

An indicative swept path for the OSOM transport vehicle entering the proposed Project access from Canyonleigh Road is provided in **Figure 33.**

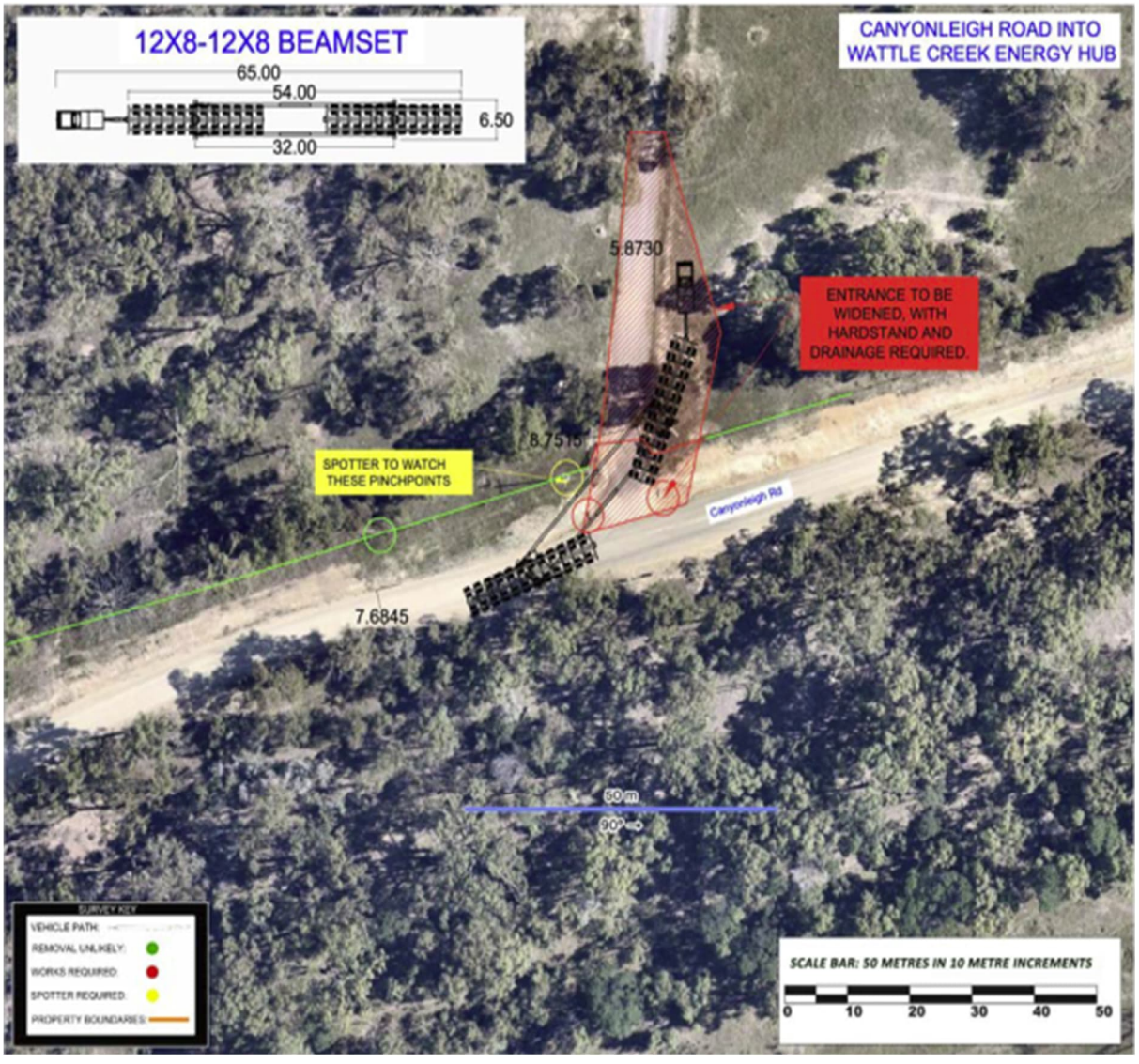


Figure 30 Additional OSOM Route Works – Canyonleigh Road Site Access **[Source: Rex J Andrews]**

In addition to the proposed access works above, site observations of the existing access location also identified that while suitable sight lines were available to/from the east, available sight lines to/from the west were restricted due to a horizontal curve on Canyonleigh Road (refer **Figure 31** and **Figure 32**).



Figure 31 Looking East on Canyonleigh Road from Project Access



Figure 32 Looking West on Canyonleigh Road from Project Access

Therefore, based on the existing nature of the access and the low volume of traffic on Canyonleigh Road, it is proposed that additional traffic management measures be implemented to further delineate the access to motorists, including the provision of advisory "truck turning" signage on both Canyonleigh Road approaches to the access.

3.5 Internal Site Facilities

Whilst not currently shown on the conceptual layout it is understood that the suitable parking facilities for the Project will be provided adjacent to the main on-site compound areas including the construction compounds and O&M Facility. The exact configuration of these parking facilities will be determined as part of the subsequent detailed design phase of the Project, noting that all facilities will be provided in accordance with the requirements of all relevant standards, guidelines and policies.

Notwithstanding this, due to the large area of land available within the Project's disturbance footprint for the required internal facilities (including the construction site office and parking facilities), and the current setbacks of the site compounds from the external road network (Canyonleigh Road), it is not anticipated that any of the construction, operations or decommissioning phases of the Project will lead to an overspill of parking or vehicle queuing at the Project Area access that would lead to negative impacts to the operation of the surrounding road network.

3.6 OSOM Transport Route Upgrades

As previously identified, transport route assessments have been undertaken for the Project by Rex J Andrews Engineered Transport to assess the impact of the movements of the proposed OSOM transformer transport vehicle configurations on the sections of the external road network identified to form part of the two (2) OSOM transport route options identified to the Project Area.

These OSOM route assessments completed (refer **Appendix B** and **Appendix C**) has identified two separate routes to the Project Area, including one from Port Kembla, and another from Wilson Transformers at 349 Springvale Road, Glen Waverley, Victoria. A summary of these identified transport routes was provided previously in **Figure 28** and **Figure 29**.

In addition to identifying the proposed transport routes, the assessment also highlighted a number of specific locations or pinch points along the two proposed transport routes where minor additional works (traffic management measures and signage relocation works) are expected to be required to accommodate the swept paths and vehicle clearance envelopes of the proposed transport vehicle configurations.

Further details of the route pinch points, and the currently proposed works are outlined in the route assessment, with a summary of the pinch points works provided in **Table 10** and **Table 11** for identified transformer transport routes from Port Kembla and Glen Waverley, Victoria respectively.

Table 10 OSOM Transport Route (Port Kembla) – Route Modification Works Summary [Source: RJA Transport]

KM Index	Location	Section of Road	Procedure	Comments
0.2	Port Kembla	Tom Thumb Road onto Springhill Road	Left hand turn	Spotter and steer operator to assist at this pinch point. Pilots and or police/NHVR to assist in traffic control.
1.4	Port Kembla	Springhill Road onto Masters Road	Right hand turn	Spotter and steer operator to assist at this pinch point. Pilots and or police/NHVR to assist in traffic control.
6.5	Keiraville	Mount Ousley Road under the University Bridge	Travel directly ahead	Load must lower to under 4.9 metres and travel under this structure at walking pace and with a spotter.
13.0	Mount Ousley	Mount Ousley Road onto Picton-Wilton Road	Left hand turn	Spotter and steer operator to assist at this pinch point. Pilots and or police/NHVR to assist in traffic control.
40.2	Wilton	Picton-Wilton Road onto the Hume Highway	Left Hand Turn	Spotter and steer operator to assist at this pinch point. Pilots and or police/NHVR to assist in traffic control.
128.0	Marulan	Brayton Road at Stoney Creek Road	Right hand turn	Sign to be made removable. Pilots to assist as per pinch point procedure shown below.
136.0	Marulan	Brayton Road onto Canyonleigh Road	Right hand turn	Sign to be made removable. Centre island to be made trafficable. Pilots to assist as per pinch point procedure shown below.
136.0 to 146.0	Marulan to Wattle Creek Energy Hub	Canyonleigh Road	Travel directly ahead along this road	This road is gravel for the entirety and in fair condition. It is typically 4.0 metres wide with a 500mm side verge that could also be trafficable. It may be impassable in the wet for a heavy load platform. The swept path and alignment along Canyonleigh Road is okay, however the bridge and culverts will need to be checked for capacity.
146.0	Wattle Creek Energy Hub	Canyonleigh Road into Wattle Creek Energy hub	Left hand turn	Site to make a suitable swept path for this load.

Table 11 OSOM Transport Route (Glen Waverley) – Route Modification Works Summary [Source: RJA Transport]

KM Index	Location	Section of Road	Procedure	Comments
0.0	Glen Waverley	Wilson Transformers (349 Springvale Road) onto Springvale Road	Travel out of main gate and over the centre median strip on Springvale Road, before turning right and heading north	Spotter and steer operator to assist at this pinch point. Pilots and or police/NHVR to assist in traffic control.
3.6	Burwood East	Springvale Road over tram line at the Burwood Hwy	Travel directly ahead	Yarra Trams to supervise the crossing of the tram infrastructure
9.4	Nunawading	Springvale Road onto East Link	Left hand turn	Spotter and steer operator to assist at this pinch point. Pilots and or police/NHVR to assist in traffic control.
10.1	Blackburn North	East Link onto Eastern Freeway	Travel directly ahead	Pilots and or police/NHVR to assist in traffic control.
16.1	Balwyn North	Eastern Freeway onto Doncaster Road offramp	Merge to left onto the Doncaster Road offramp	Spotter and steer operator to assist at this pinch point. Pilots and or police/NHVR to assist in traffic control.
16.6	Balwyn North	East Link onto Doncaster Road offramp	Turn Right onto Doncaster Road	2 x Traffic signals will need to be removed on the night of the move. Spotter and steer operator to assist at this pinch point. Pilots and or police/NHVR to assist in traffic control.
18.6	Doncaster	Doncaster Road onto Williamsons Road	Left hand turn	Spotter and steer operator to assist at this pinch point. Pilots and or police/NHVR to assist in traffic control.
19.5	Doncaster	Williamsons Road at Manningham Road	Right hand turn	Spotter and steer operator to assist at this pinch point. Pilots and or police/NHVR to assist in traffic control.
22.9	Templestowe	Williamsons Road at onto Fitzsimons Lane	Travel directly ahead	Spotter and steer operator to assist at this pinch point. Pilots and or police/NHVR to assist in traffic control.
25.2	Lower Plenty	Fitzsimons Lane onto Main Road	Left hand turn	Spotter and steer operator to assist at this pinch point. Pilots and or police/NHVR to assist in traffic control.
28.7	Viewbank	Main Road onto Lower Plenty Road	Travel directly ahead	Spotter and steer operator to assist at this pinch point. Pilots and or police/NHVR to assist in traffic control.
31.1	Yallambie	Lower Plenty Road onto Greensborough Road	Right hand turn	Spotter and steer operator to assist at this pinch point. Pilots and or police/NHVR to assist in traffic control.
33.6	Watsonia	Greensborough Road onto Greensborough Bypass	Travel directly ahead	Spotter and steer operator to assist at this pinch point. Pilots and or police/NHVR to assist in traffic control.

KM Index	Location	Section of Road	Procedure	Comments
35.6	Greensborough	Greensborough Bypass onto Metropolitan Ring Road	Left hand turn	Spotter and steer operator to assist at this pinch point. Pilots and or police/NHVR to assist in traffic control.
109.0	Broadford	Hume Freeway under Kilmore Broadford Road	Travel directly ahead and at walking pace	Load must lower the load to under 5.1 metres in loaded height, and travel under this structure at walking pace and with a spotter.
121.0	Tallarook	Hume Freeway under Kilmore Broadford Road	Travel directly ahead and at walking pace	Load must lower the load to under 5.1 metres in loaded height, and travel under this structure at walking pace and with a spotter.
767.0	New Berrima	Hume Highway onto Old Hume Highway	Right hand turn	Signs to be made removable. Pilots to assist as per pinch point procedure shown below.
767.5	New Berrima	Old Hume Highway onto Hume Highway	Right hand turn	Signs to be made removable. Pilots to assist as per pinch point procedure shown below.
804.0	Marulan	Brayton Road at Stoney Creek Road	Right hand turn	Sign to be made removable. Pilots to assist as per pinch point procedure shown below.
812.0	Marulan	Brayton Road onto Canyonleigh Road	Right hand turn	Sign to be made removable. Centre island to be made trafficable. Pilots to assist as per pinch point procedure shown below.

4.0 Project Traffic

As required by the SEARs for the Project, this assessment considers three distinct periods of traffic generation for the Project, including the construction, operations and decommissioning phases. The expected traffic generation and distribution during all three phases of the Project discussed below.

4.1 Construction Phase

As identified above, the construction phase of the Project is currently proposed to commence in June 2026. The construction works are forecast to be undertaken over an 18-month period, with works to be completed by the end of Q2 2027 (June 2027). Based on the expected schedule and timings of the construction activities on site, the period of peak construction on site is anticipated to occur between Q3 2026 and Q1 2027 (refer **Figure 25** above).

The main traffic generating activities occurring within the construction phase of the Project are the transport of the battery components, the general construction materials / equipment and the larger electrical infrastructure components (transformers) to the Project Area and the daily construction staff movements. Further details of these activities, including the Project traffic generation and its expected distribution on the surrounding road network, are provided in the following sections.

4.1.1 Battery Components, Materials and Equipment Delivery Movements

Spark Renewables has provided preliminary information and assumptions regarding the quantity of construction materials and equipment required for the Project based on early engagement with key contract partners and the quantities required by previous projects.

This information has been used to calculate the expected material and equipment quantities for the Project and the associated vehicle movements for the delivery of these items, based on the following general assumptions regarding the expected Project traffic numbers.

- Battery components for the Project will be containerised and are proposed to be delivered to either Port Kembla, before being transported by road to the Project Area using standard semi-trailers via the Hume Highway, Red Hills Road, Ambrose Road, Brayton Road and Canyonleigh Road.
- Gravel materials for internal access roads, infrastructure areas and concrete aggregates are likely to be imported from external quarry sources located along Brayton Road, with no internal sources currently identified within the Project Area.

  It is noted transport routes associated with quarry operations would have been assessed and approved as part of the development consent for quarry operations, with the quarry vehicles expected to travel to/from site via Brayton Road and Canyonleigh Road.
- Construction water requirements have conservatively been assumed to be imported from external supply points in Goulburn, and transported to the Project Area via the Hume Highway, Red Hills Road, Ambrose Road, Brayton Road and Canyonleigh Road.
- Concrete is to be sourced from the on-site batch plant facilities, with the associated raw materials (cement (Goulburn) and aggregate / sand (Brayton Road quarries) also to be imported.
- Other miscellaneous site equipment (earthworks plant, site buildings etc.) and materials, including diesel fuel and steel reinforcement etc. are expected to be imported from external sources in Goulburn, travelling to from the Project Area via the Hume Highway, Red Hills Road, Ambrose Road, Brayton Road and Canyonleigh Road.
- Waste from the Project Area is proposed to be removed and transported to management facilities in Goulburn, travelling to from the Project Area via the Hume Highway, Red Hills Road, Ambrose Road, Brayton Road and Canyonleigh Road.

A calculated breakdown of the Project generated traffic movements by construction task, is summarised in **Table 12**, while the detailed calculations completed in order to convert operational / construction information into vehicle movements are included for reference in **Appendix H**.

Table 12 Summary of Total Project Material / Equipment Delivery Movement Volumes – Construction Phase

Duration	Total Vehicles	Type of Vehicles	Max Vehicles per Day (Avg)
Phase A – Site Establishment, Clearing and Fencing			
2 months	553 vehicles (external). (including 3 semi-trailers / low loaders from Goulburn and 550 truck & dog combinations from external quarries).	Semi-Trailer/ Low Loader Truck and Dog Combination	12 vehicles / day (external)
Phase B – Civil Earthworks			
4 months	3,377 vehicles (external). (including 3,029 truck & dog combinations from external quarries and 348 water tankers from Goulburn).	Water Truck Truck and Dog Combination	36 vehicles / day (external)
Phase C – Component Delivery			
12 months	940 vehicles (external). (including 940 semi-trailers from Port Kembla).	Semi-Trailer	4 vehicles / day (external)
Phase D – Battery Installation			
14 months	163 vehicles (external) (including 3 semi-trailers from Port Kembla, 18 water tankers from Goulburn, 47 truck & dog combinations from Goulburn and 95 truck & dog combinations from external quarries).	Semi-Trailer Water Tanker Truck and Dog Combination	1 vehicle / day (external)
Phase F – Substation Construction			
12 months	763 vehicles (external). (including 2 semi-trailers from Port Kembla, 3 OSOM vehicles from either Port Kembla or Glen Waverley (VIC) and 758 truck & dog combinations from external quarries).	Semi-Trailer Special Transport Vehicles (Permit) Truck and Dog Combination	3 vehicles / day (external)
Phase G – O&M Building Construction			
2 months	231 vehicles (external) (including 4 water tankers from Goulburn, 10 truck & dog combinations from Goulburn and 217 truck & dog combinations from external quarries).	Water Tanker Truck and Dog Combination	5 vehicles / day (external)
Other – Site Water / Fuel & Waste Removal)			
18 months	625 vehicles (external) (including 625 water tankers from Goulburn).	Water Trucks	2 vehicles / day (external)
18 months	625 vehicles (external) (including 625 fuel tankers from Goulburn).	Fuel Tanker	2 vehicles / day (external)
18 months	72 vehicles (external) (including 72 semi-trailers from Goulburn).	Semi-Trailer	1 vehicle / day (external)

4.1.2 OSOM Movements

As previously identified, as part of the Project works large electrical infrastructure including transformers, switchgear and operation and control buildings are required to be transported to site. These large components are proposed to be transported to the site from either Port Kembla or from a transformer manufacturer in Glen Waverly, Victoria, utilising large OSOM transport vehicles.

Based on the information provided by Spark Renewables, it is understood that the Project will require three (3) OSOM components, including one (1) transformer, one (1) switchgear and (1) operation and control building.

As identified in **Table 12** above, it is anticipated that these OSOM deliveries will occur during the substation construction works for the Project, which are expected to occur over a 12 month period. As such it is anticipated that the OSOM movements for the Project will be limited to a maximum of one (1) per day.

4.1.3 Construction Staff Movements

The proponent has also provided the following information and assumptions regarding the proposed staff movements for the construction phase of the Project:

- Maximum (peak) construction workforce will comprise approximately 102 staff, while outside of the peak construction period the daily staff numbers associated with the Project are expected to be significantly less (i.e. average 50-60 staff).
- 100% of the staff are expected to commute daily to/from the Project Area from adjacent residential areas in Marulan (10%), Goulburn (50%) to the south and Moss Vale, Bowral and Braemar (40%) to the north.
- Construction staff commuting from these local residential areas are expected to travel using private vehicles (light vehicles and 4WDs), with an average capacity of 1 staff member per vehicle.

Based on these general staff assumptions, the expected staff numbers and associated vehicle movements were established **Table 13** summarises the expected number of staff by construction task and by month and **Table 14** converts the estimated staff numbers to anticipated vehicle movement numbers.

Table 13 Forecast Project Staff Numbers During Construction

ID	TASK	MONTH																	
		Jan-26	Feb-26	Mar-26	Apr-26	May-26	Jun-26	Jul-26	Aug-26	Sep-26	Oct-26	Nov-26	Dec-26	Jan-27	Feb-27	Mar-27	Apr-27	May-27	Jun-27
		Q1 2026			Q2 2026			Q3 2026			Q4 2026			Q1 2027			Q2 2027		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
A	Site Establishment, Clearing and Fencing	12	12																
B	Civil Earthworks		24	38	38	24													
C	Component Delivery			9	12	15	18	19	20	20	19	18	15	12	9				
D	Battery Installation			12	17	21	24	27	29	29	29	29	27	24	21	17	12		
E	Substation Construction						21	30	37	43	47	49	49	47	43	37	30	21	
F	Commissioning and Testing												5	8	10	10	10	8	5
G	O&M Building Construction																8	8	
H	Demobilisation																		10
M	General Staff Movements	3	4	4	5	5	6	6	6	6	6	6	6	6	5	5	4	4	3
	Total Daily Staff Numbers BESS Project	15	40	63	72	65	69	82	92	98	101	102	102	97	88	69	64	41	18

Table 14 Forecast Daily Construction Staff Vehicle Volumes

				MONTH																	
				Jan-26	Feb-26	Mar-26	Apr-26	May-26	Jun-26	Jul-26	Aug-26	Sep-26	Oct-26	Nov-26	Dec-26	Jan-27	Feb-27	Mar-27	Apr-27	May-27	Jun-27
				Q1 2026			Q2 2026			Q3 2026			Q4 2026			Q1 2027			Q2 2027		
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Total Staff Vehicle Numbers				15	40	63	72	65	69	82	92	98	101	102	102	97	88	69	64	41	52
Local Staff DIDO	**Vehicle**	100% **Capacity**	**Utilisation by Staff**	*15*	*40*	*63*	*72*	*65*	*69*	*82*	*92*	*98*	*101*	*102*	*102*	*97*	*88*	*69*	*64*	*41*	*52*
Required Vehicle Movements (1-Way)	LV (Marulan)	1	10%	2	4	7	8	7	7	9	10	10	11	11	11	10	9	7	7	5	6
	LV (Goulburn)	1	50%	8	20	32	36	33	35	41	46	49	51	51	51	49	44	35	32	21	26
	LV (Mossvale / Bowral / Braemar)	1	40%	6	16	26	29	26	28	33	37	40	41	41	41	39	36	28	26	17	21
Total Daily DIDO Staff Vehicle Movements BESS Project				16	40	65	73	66	70	83	93	99	103	103	103	98	89	70	65	43	53

4.2 Operations Phase

The estimated workforce during the proposed 30-year operations phase of the Project (i.e. following the completion of the construction stages) is anticipated to only consist of a number of local workers (up to 15 staff) who are expected to reside locally to the Project Area and commute daily from local townships of Marulan (10%), Goulburn (50%) and Moss Vale, Bowral and Braemar (40%).

Further to this, the heavy vehicle movements during the operations phase of the Project are also likely to be extremely low (approx. 1 HV per week) and are considered to be negligible from a traffic engineering or transport planning perspective.

4.3 Decommissioning or Upgrading Phase

As previously identified, at the end of the operational life of the Project infrastructure (approx. 30 years) it is proposed that the Project would either be decommissioned, removing all infrastructure, and returning the site to the original condition or the Project will be upgraded (pending any additional approval requirements), which would require further traffic assessments to be completed.

Notwithstanding this, based on information provided by Spark Renewables it is understood the decommissioning phase works associated with the Project are anticipated to be completed in 12 months, with the peak Project traffic movements during decommissioning conservatively estimated to be 70% of the peak construction movements (both daily and during AM and PM peak periods).

However, as these works will occur in more than 30 years' time the exact nature of the works and associated traffic movements are difficult to confirm at this stage. As such it is proposed that prior to the start of the decommissioning works, an assessment of the traffic impacts of the Project be completed as part of the required decommissioning and rehabilitation strategy, to clearly outline the proposed decommissioning works, the associated traffic movements, their anticipated impact on the surrounding road network and any management and mitigation required.

4.4 Project Traffic Volumes on the Network

The calculated Project traffic volumes for the construction, operations and decommissioning phases of the Project outlined above have been distributed onto the public road network based upon assumed trip origins and destinations based on known equipment / materials sources and other Project operational information provided by the proponent.

Further details of the expected Project traffic volumes on the key road links and intersections of the relevant sections of the external road network are provided in the following sections.

4.4.1 Road Links

As previously identified, the use of the external road network by Project traffic during each stage of the proposed Project is anticipated to generally be limited to sections of the Hume Highway, Red Hills Road, Ambrose Road, Brayton Road and Canyonleigh Road.

Additional sections of Tom Thumb Road, Springhill Road (B65), Masters Road, Princes Motorway (M1), Picton-Wilton Road (B88) are also proposed to be utilised by heavy vehicles associated with the battery component delivery movements. As these roads currently cater for higher traffic volumes (particularly the motorway sections) the addition of a maximum of 4 truck movements per day (each direction) is not anticipated to have a significant impact on their operation.

Detailed calculations were undertaken to establish the peak daily Project traffic volumes for each phase of the Project on the relevant sections of the external road network, with a copy included for reference as **Appendix H**. A summary of the calculated construction, operations and decommissioning Project traffic volumes for the identified road links is provided in **Table 15.**

Table 15 Project Traffic Volumes on External Road Network Links

Road Segment	ID	Maximum Daily Traffic Volumes								
		Peak Construction			Project Operations			Decommissioning		
		Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir
Hume Highway (M31)										
North of Red Hills Road	T0247	47	47	94	6	6	12	33	33	66
Red Hills Road to Brayton Road		47	62	109	6	0	6	33	43	76
Brayton Road to Marulan South Road		62	62	124	9	9	18	43	43	87
Marulan South Road to Goulburn		57	57	114	9	9	18	40	40	80
Red Hills Road (GMC)										
Hume Highway to Ambrose Road	GMC	62	47	109	0	6	6	43	33	76
Ambrose Road (GMC)										
Red Hills Road to Brayton Road	GMC	62	47	109	0	6	6	43	33	76
Brayton Road (GMC)										
Marulan to Ambrose Road	GMC	52	68	120	11	11	22	36	48	84
Ambrose Road to Quarry Access	GMC	114	114	228	17	17	34	80	80	160
Quarry Access to Canyonleigh Road	GMC	116	116	232	17	17	34	81	81	162
Canyonleigh Road (GMC)										
Brayton Road to Gravel Road	GMC	116	116	232	17	17	34	81	81	162
Gravel Road to Site Access	GMC	116	116	232	17	17	34	81	81	162

Note: Gaz = Gazettal Direction or direction of travel, A-Gaz = Against Gazettal Direction or against direction of travel.

Gazettal Direction – Hume Highway Southbound | Red Hills Road – outbound from Hume Highway | Ambrose Road – outbound from Red Hills Road | Brayton Road – outbound from Hume Highway | Canyonleigh Road – outbound from Brayton Road.

4.4.2 Intersections

Based on the information provided by Spark Renewables and the subsequent traffic calculations undertaken, the peak hour traffic volumes from the construction, operations and decommissioning phases of the Project were also established at the key intersections of Brayton Road / Ambrose Road and Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road.

As noted above, to ensure that the critical period at the intersection has been assessed, volumes for two different AM and PM peak hour periods have been established, including the period of peak Project traffic generation (6:30-7:30am & 5:30-6:30pm) and the periods of peak traffic flow on the adjacent road network (Brayton Road / Ambrose Road – 8:15-9:15am & 3:45-4:45pm & Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road – 7:45-8:45am & 4:00-5:00pm).

The volumes at these periods have been established by combining the expected staff / visitor movements to the Project Area with the calculated hourly heavy vehicle movements for each Project phase.

Summaries of the identified construction, operations and decommissioning phase Project traffic volumes at these key intersections is outlined in **Figure 33** to **Figure 38** for Brayton Road / Ambrose Road and **Figure 39** to **Figure 44** for Brayton Road / Canyonleigh Road/ Carrick Road / Bulls Pit Road respectively, with further details of the calculations undertaken to establish these volumes are provided for reference in **Appendix I**.

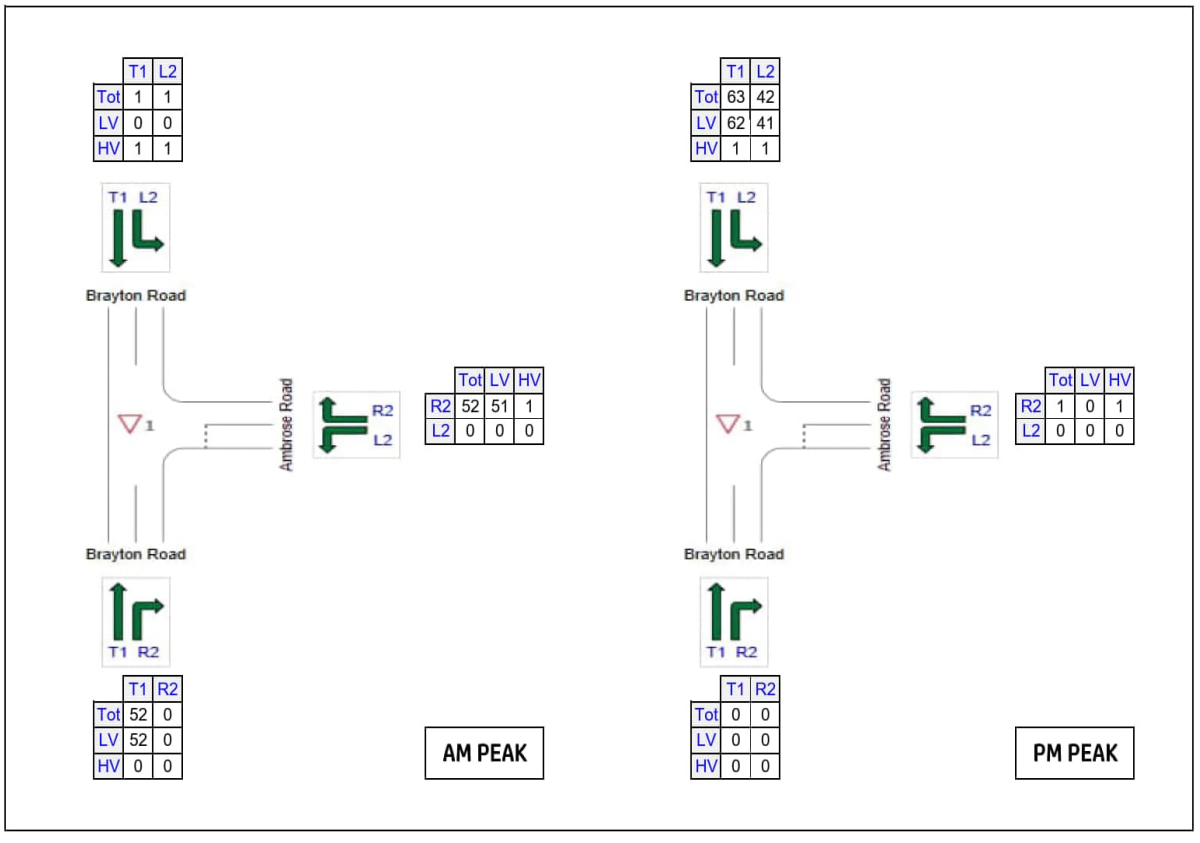


Figure 33 Brayton Road / Ambrose Road – Project Construction Phase Volumes (Project Peak)

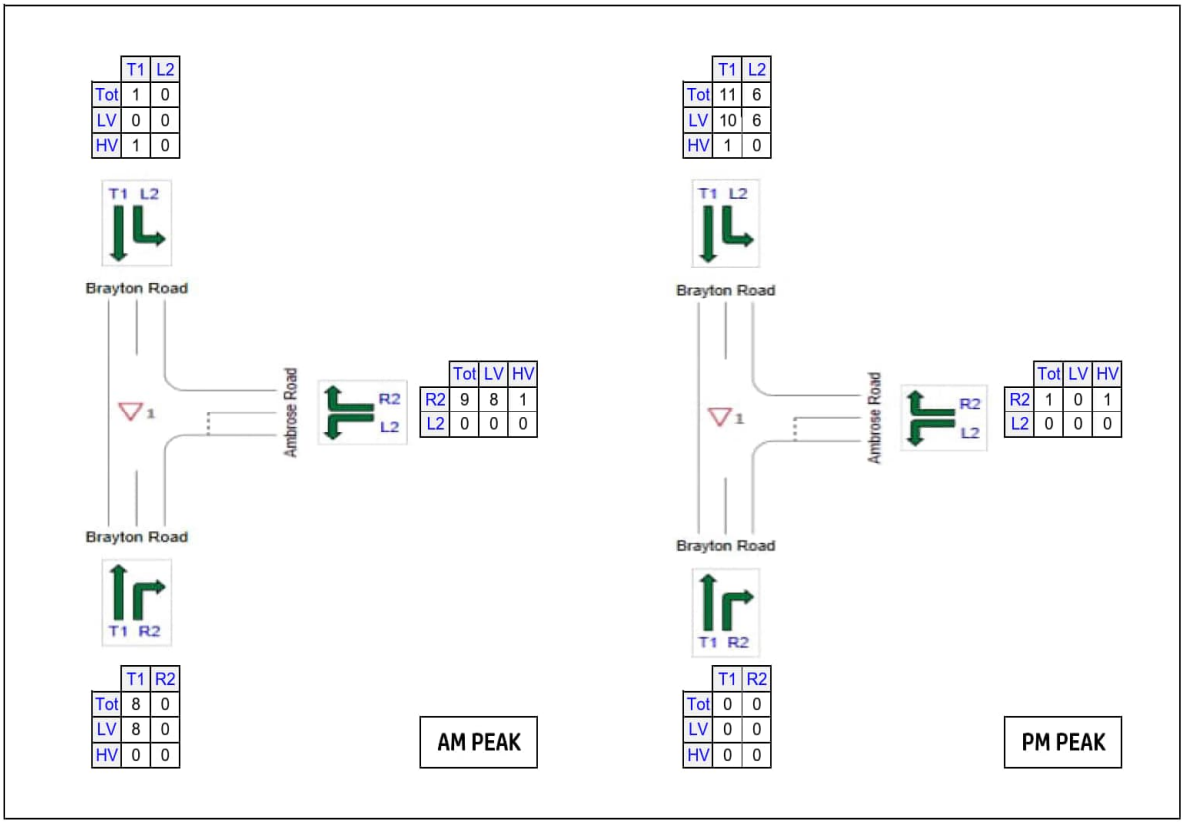


Figure 34 Brayton Road / Ambrose Road – Project Operations Phase Volumes (Project Peak)

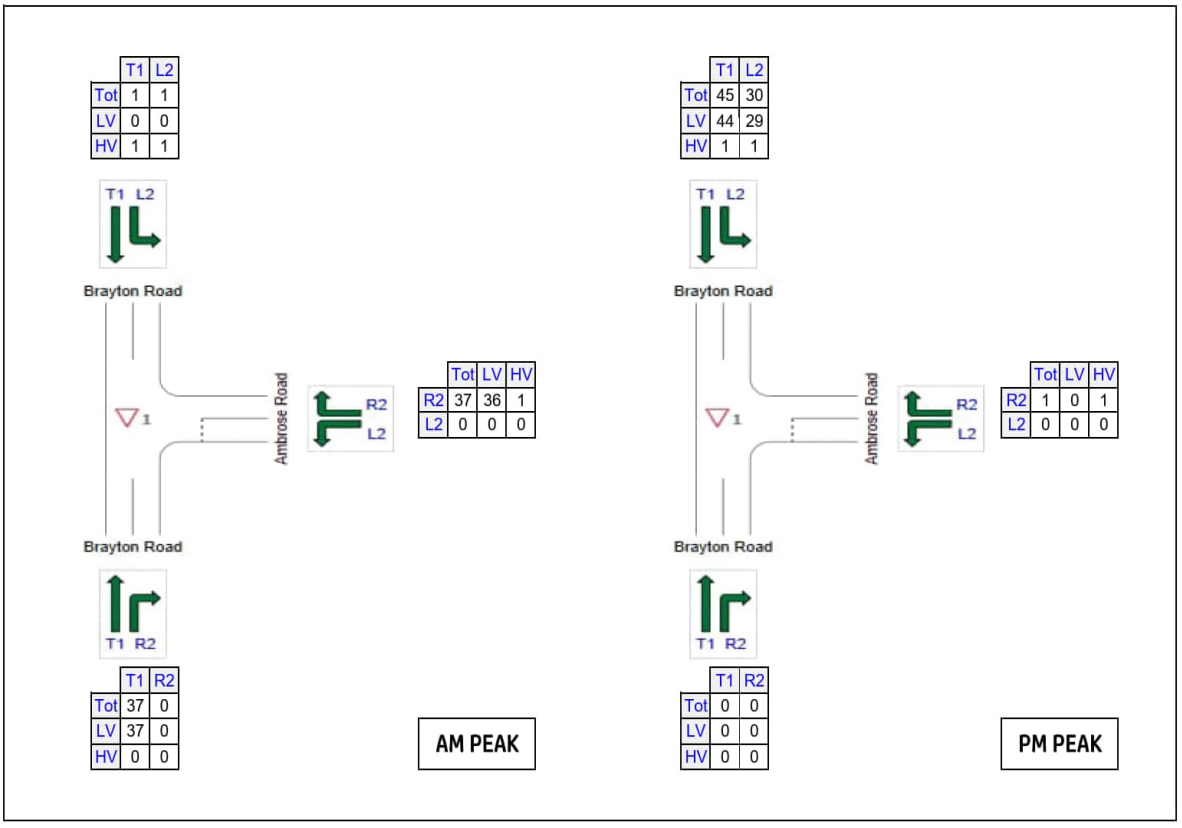


Figure 35 Brayton Road / Ambrose Road – Project Decommissioning Phase Volumes (Project Peak)

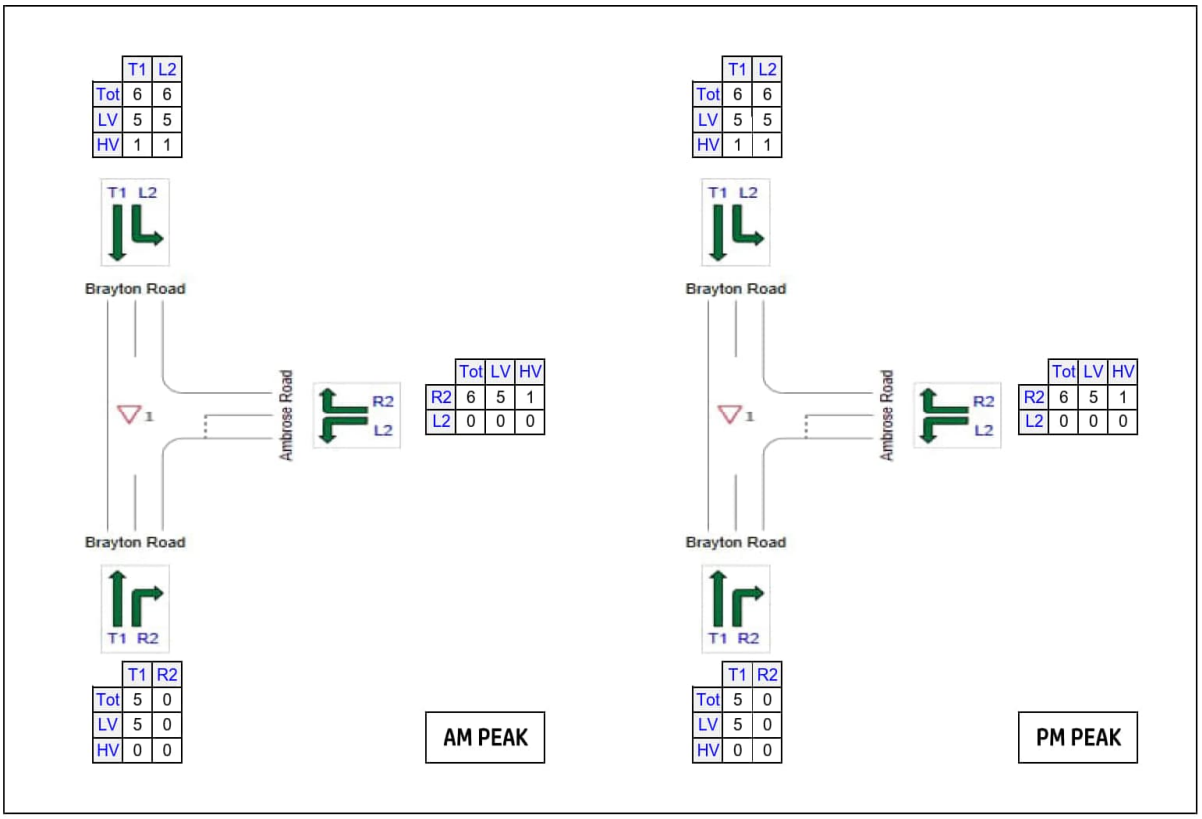


Figure 36 Brayton Road / Ambrose Road – Project Construction Phase Volumes (Network Peak)

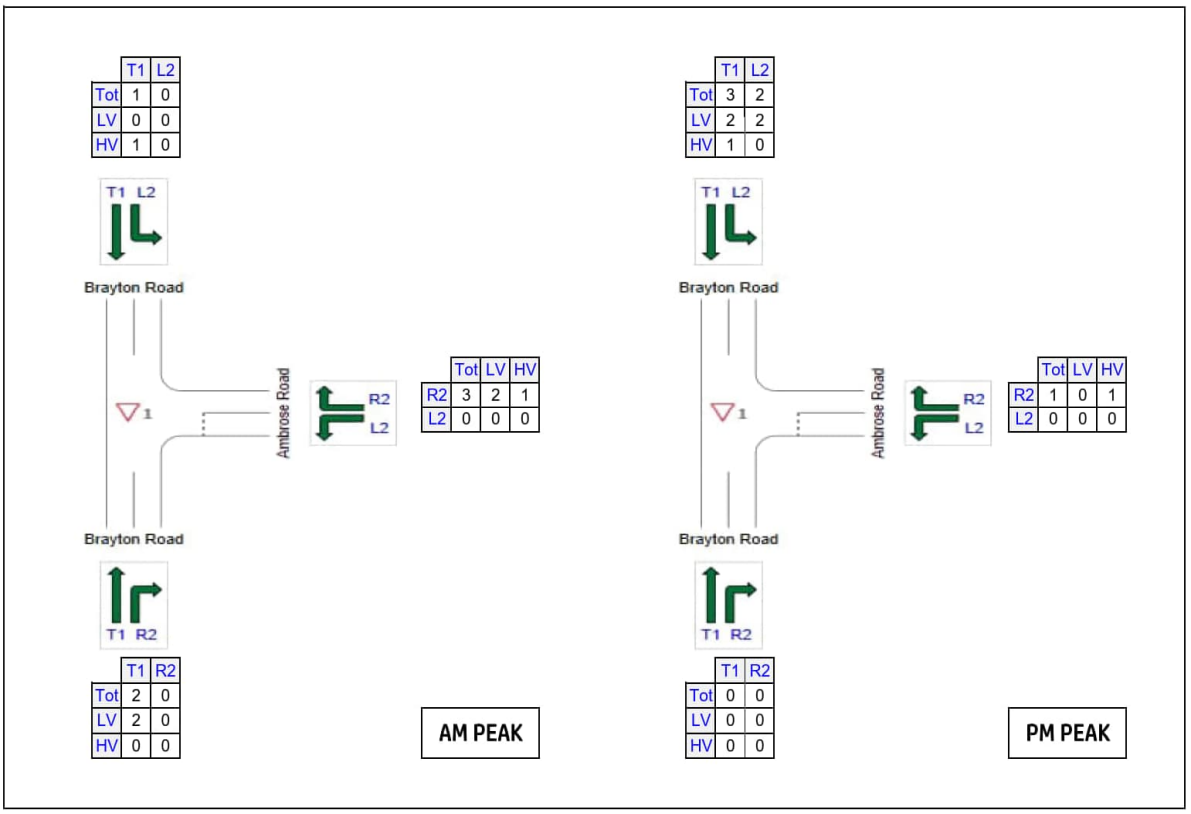


Figure 37 Brayton Road / Ambrose Road – Project Operations Phase Volumes (Network Peak)

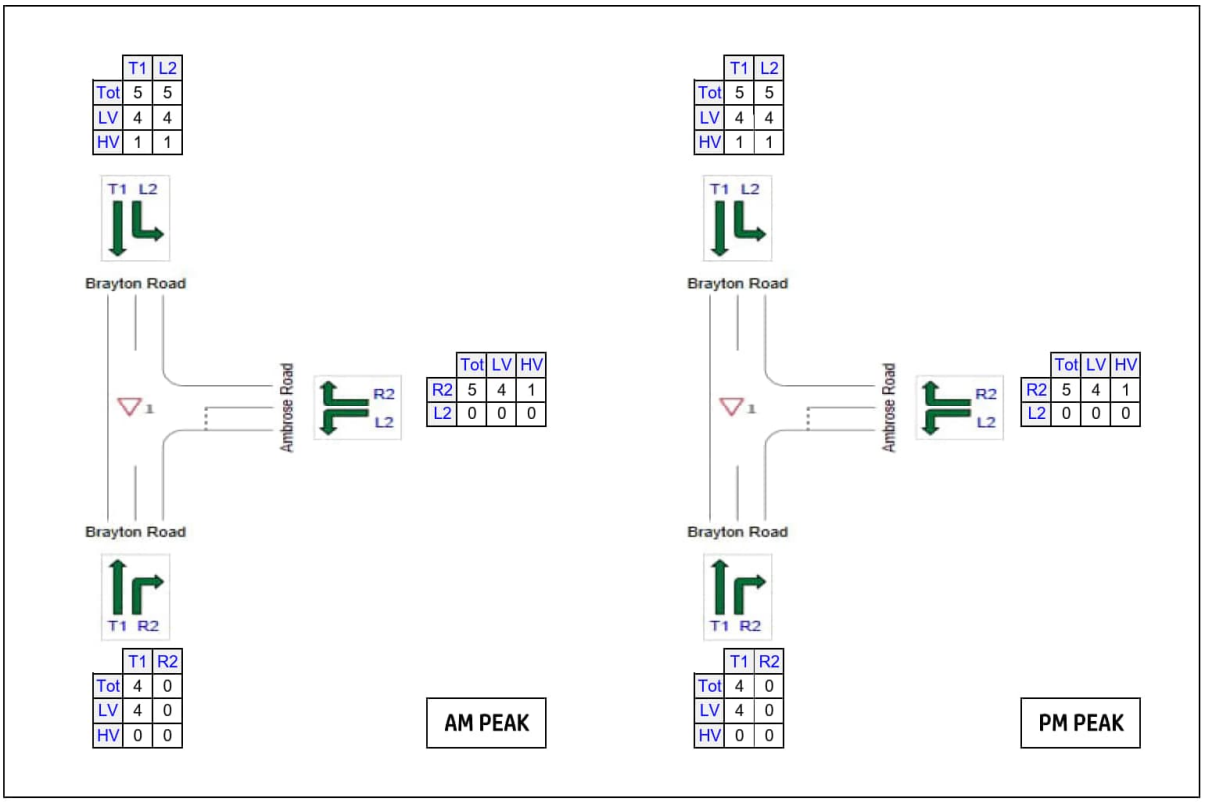


Figure 38 Brayton Road / Ambrose Road – Project Decommissioning Phase Volumes (Network Peak)

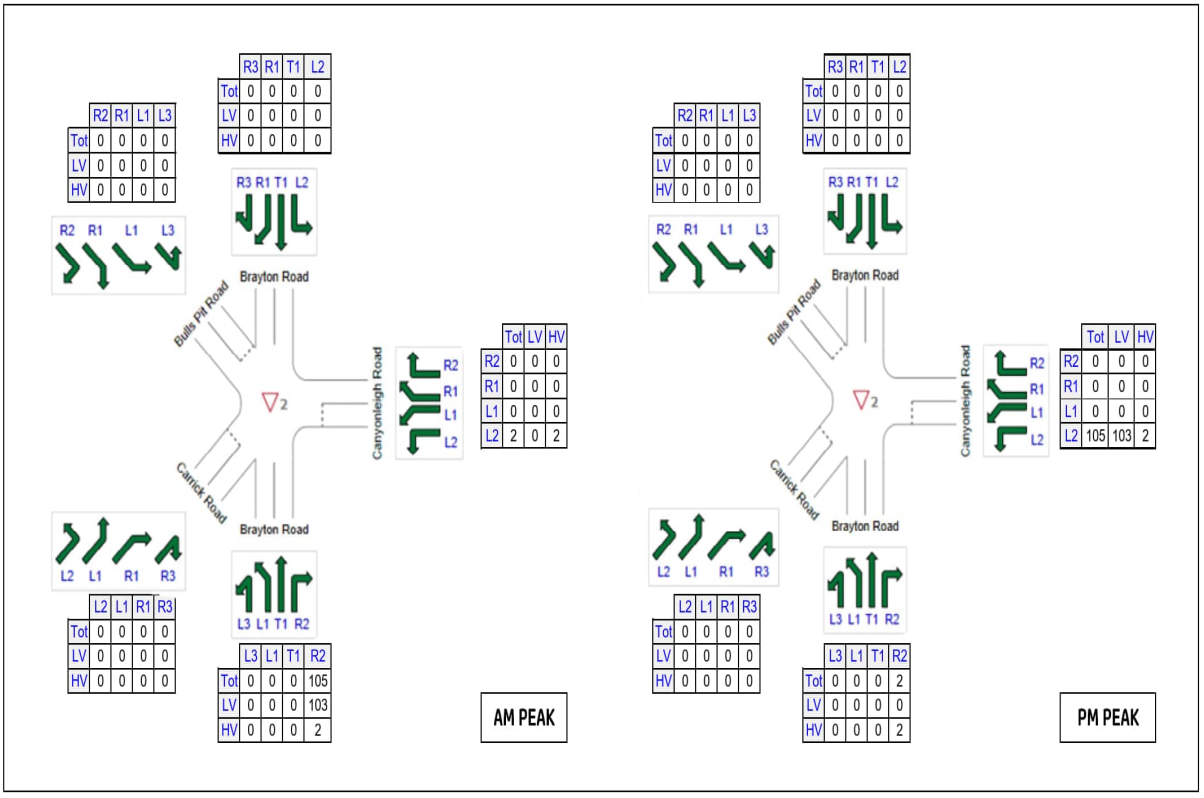


Figure 39 Brayton Road / Canyonleigh Road – Project Construction Phase Volumes (Project Peak)

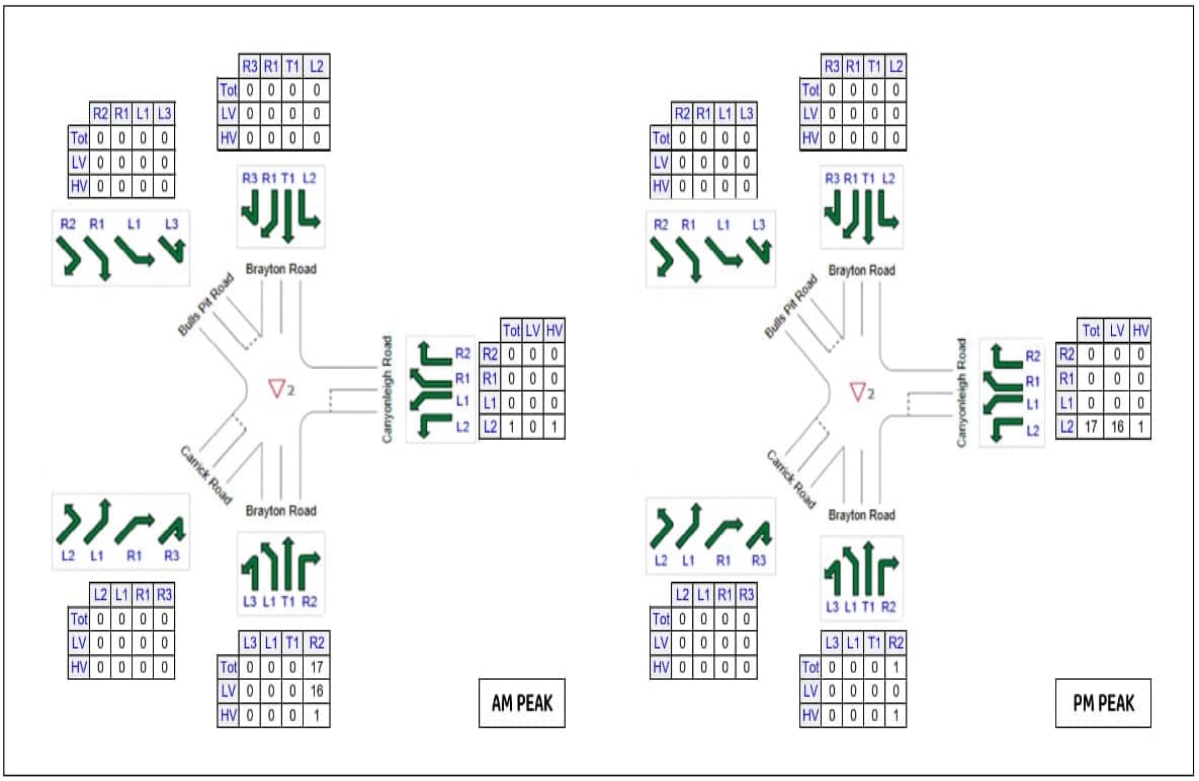


Figure 40 Brayton Road / Canyonleigh Road – Project Operations Phase Volumes (Project Peak)

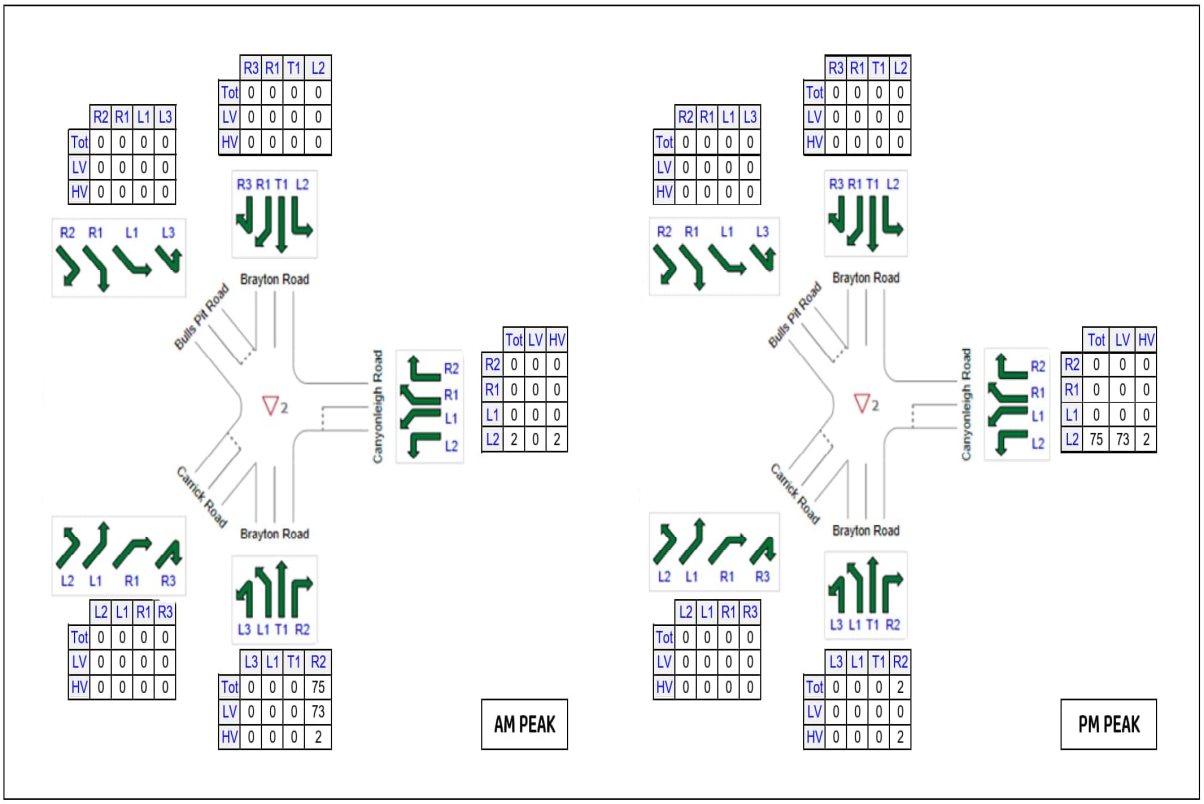


Figure 41 Brayton Road / Canyonleigh Road – Project Decommissioning Phase Volumes (Project Peak)

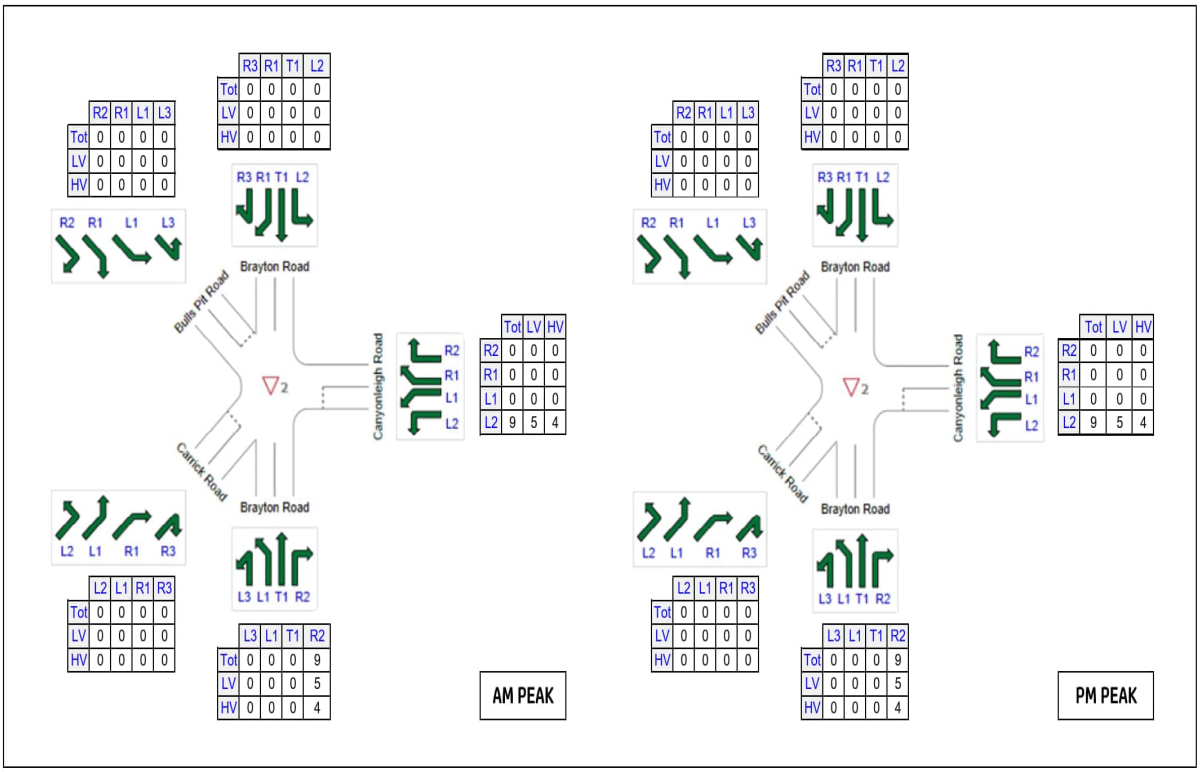


Figure 42 Brayton Road / Canyonleigh Road – Project Construction Phase Volumes (Network Peak)

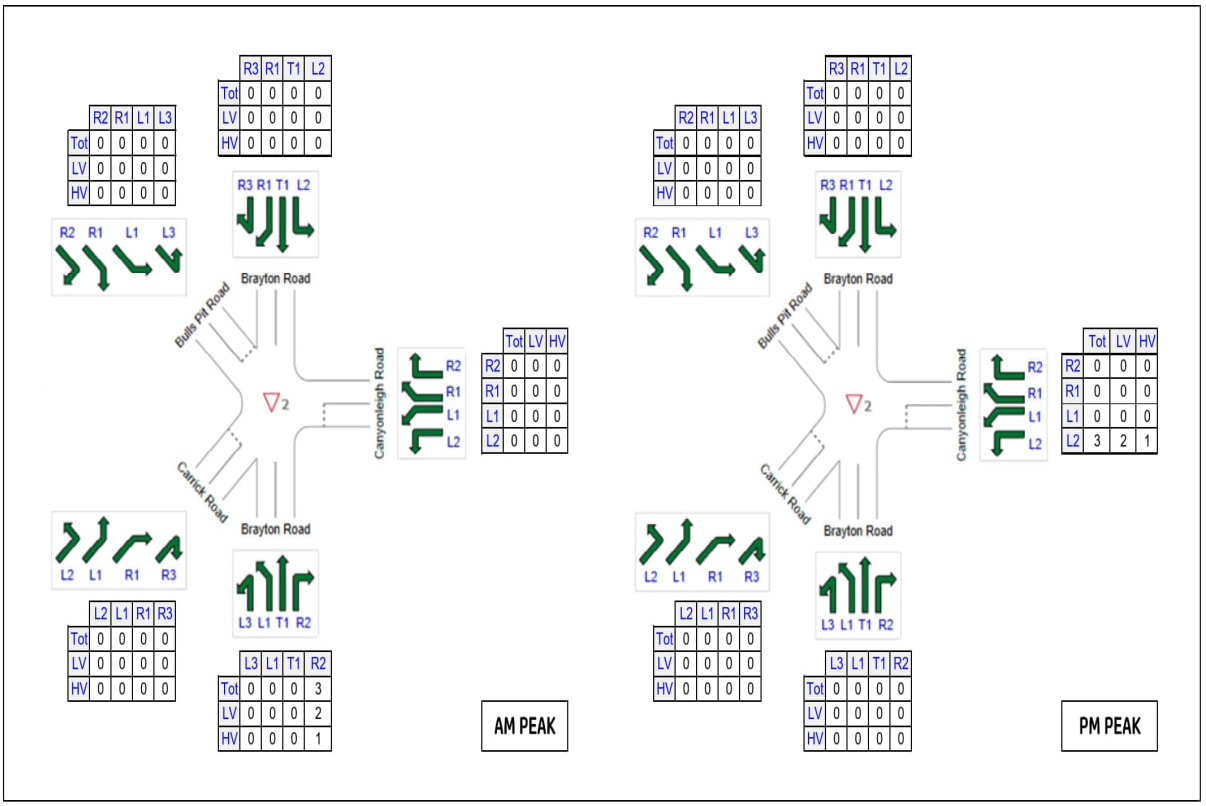


Figure 43 Brayton Road / Canyonleigh Road – Project Operations Phase Volumes (Network Peak)

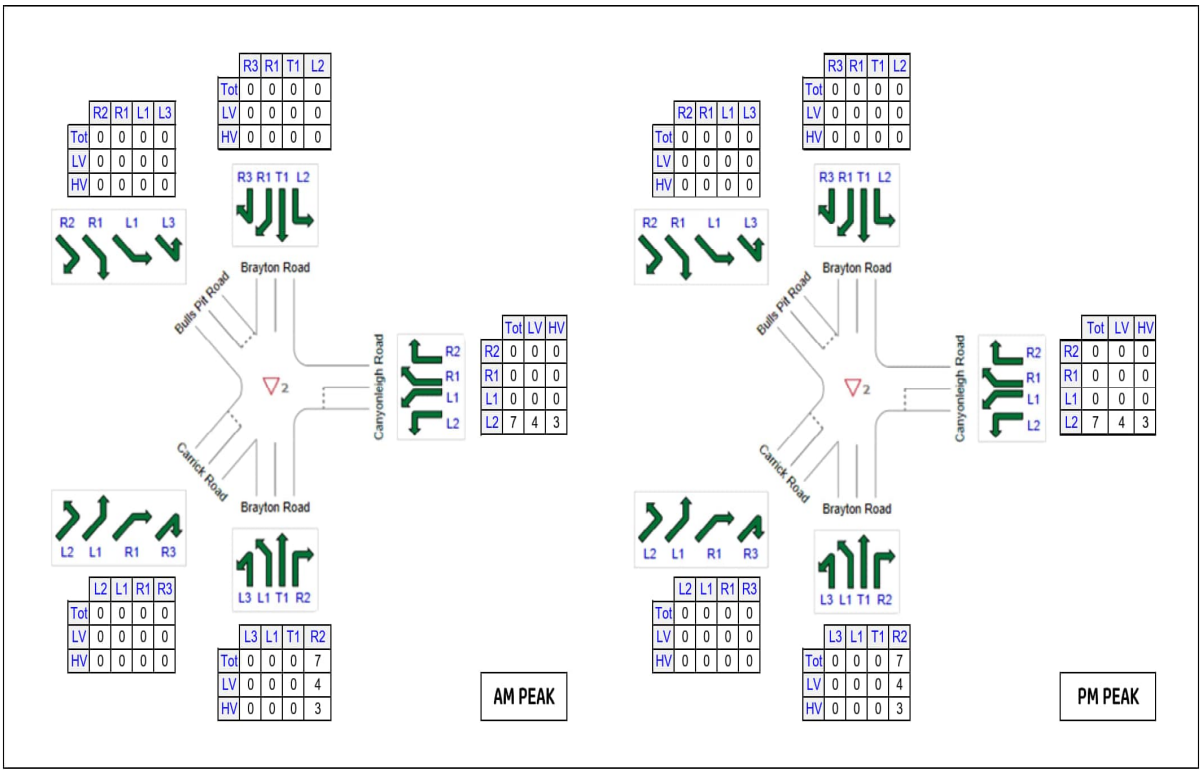


Figure 44 Brayton Road / Canyonleigh Road – Project Decommissioning Phase Volumes (Network Peak)

4.5 Cumulative Project Traffic Volumes

As identified in the SEARs for this Project, an assessment of the potential cumulative traffic impact of the Project in conjunction with other projects in the area was required. As such a review of the known projects in the vicinity of the Project Area was undertaken to determine which were expected to lead to an increase in traffic volumes on the relevant sections of the road network concurrently with anticipated increases from the Project.

A summary of this review, including commentary regarding the requirements to consider each identified Project in the area are provided for reference in **Table 12**.

Table 16 Cumulative Project Traffic Review Summary

Project	Dev. Type	Dev. Stage	Review Comments	Req. for Cumulative Traffic
Crookwell Wind Farm 3 (SSD-6695) (32km West of Project)	Wind	***Approved***	**Relevant Project Details** • 58MW wind farm. • 18 month construction proposed, construction not commenced. • Approx. 40 construction staff and 6 staff during operational phase. **Cumulative Assessment Traffic Volumes** • Based on Project location, majority of Project traffic is assumed to contained on road network north of Goulburn. • Some project traffic likely to utilise relevant section of Hume Highway, but adequate capacity is available in this higher order road link. • No Project traffic expected to utilise critical roads of Red Hills Road, Ambrose Road, Brayton Road and Canyonleigh Road.	No
Wattle Creek Energy Hub (Solar Farm) (SSD-63344210) (Within Project Area)	Battery	***In Planning - Prepare EIS***	**Relevant Project Details** • Solar PV generation facility (265 MW(AC)) and 100MW (BESS). • Construction expected to be concurrent with Project. Approx 18 months from Q1 2026. • Peak of 111 construction staff and 15 staff during operational phase. **Cumulative Assessment Traffic Volumes** • Project will utilise relevant section of Hume Highway and critical roads of Red Hills Road, Ambrose Road, Brayton Road and Canyonleigh Road. • Up to 116vpd on Hume Highway, Red Hills Road and Ambrose Road during construction. • Up to 131-300vpd on Brayton Road during construction. • Up to 300vpd on Canyonleigh Road during construction.	**Yes**
Marulan Gas Fired Power Station (MP07-0175) (Adjacent (South) to Project)	Power Station	***Approved***	**Relevant Project Details** • 800MW gas fired power station. • Construction timing and commencement unknown. **Cumulative Assessment Traffic Volumes** • Construction not expected to, but has potential to align with Project.	**Yes**

Project	Dev. Type	Dev. Stage	Review Comments	Req. for Cumulative Traffic
			• Project will utilise relevant section of Hume Highway and critical roads of Red Hills Road, Ambrose Road, Brayton Road and Canyonleigh Road. • Up to 240-288vpd on Hume Highway during construction. • Up to 288vpd Red Hills Road and Ambrose Road during construction. • Up to 192-480vpd on Brayton Road during construction. • Up to 480vpd on Canyonleigh Road during construction.	
Marulan Solar Farm (SSD-13137914) (16km South of Project)	Solar	Approved	**Relevant Project Details** • 152MW solar farm. • 18 month construction proposed, commencement date currently unknown. • Approx. 300 construction staff. **Cumulative Assessment Traffic Volumes** • Based on Project location, majority of Project traffic is assumed to contained on road network west of Marulan (Munro Road). • Some project traffic likely to utilise relevant section of Hume Highway, but adequate capacity is available in this higher order road link. • No Project traffic expected to utilise critical roads of Red Hills Road, Ambrose Road, Brayton Road and Canyonleigh Road.	No
Hume Link (SSI-36656827) (32 km South of Project)	Powerline	Response to Submissions	**Relevant Project Details** • 360km 500kV high voltage transmission line. • Works include construction and modifications of substations along alignment. • 36 month construction proposed, to commence in 2024, operational by end of 2026. • Approx. 1,200 construction staff across multiple work fronts. **Cumulative Assessment Traffic Volumes** • Based on Project location, majority of Project traffic is assumed to contained on the road network to the north-west of the Project site. • Some project traffic likely to utilise relevant section of Hume Highway, but adequate capacity is available in this higher order road link. • No Project traffic expected to utilise critical roads of Red Hills Road, Ambrose Road, Brayton Road and Canyonleigh Road.	No

Project	Dev. Type	Dev. Stage	Review Comments	Req. for Cumulative Traffic
Gundary Solar Farm (SSD-48225958) (40km South-west of Project)	Solar	Prepare EIS	**Relevant Project Details** • 400MW solar farm. • 18-24 month construction proposed, to commence in late 2024 / early 2025. • Approx. 400 construction staff and 6 staff during operational phase. **Cumulative Assessment Traffic Volumes** • Based on Project location, majority of Project traffic is assumed to contained on road network south of Goulburn. • Some project traffic likely to utilise relevant section of Hume Highway, but adequate capacity is available in this higher order road link. • No Project traffic expected to utilise critical roads of Red Hills Road, Ambrose Road, Brayton Road and Canyonleigh Road.	No
Merino Solar Farm (SSD-59155459) (40km South-west of Project)	Solar	Prepare EIS	**Relevant Project Details** • 450MW solar farm with 300MW BESS. • 18-24 month construction proposed, commencement date currently unknown. • Approx. 300 construction staff. **Cumulative Assessment Traffic Volumes** • Based on Project location, majority of Project traffic is assumed to contained on road network south of Goulburn. • Some project traffic likely to utilise relevant section of Hume Highway, but adequate capacity is available in this higher order road link. • No Project traffic expected to utilise critical roads of Red Hills Road, Ambrose Road, Brayton Road and Canyonleigh Road.	No
Shoalhaven Hydro Scheme (SSI-10033) (41km East of Project)	Hydro	Response to Submissions	**Relevant Project Details** • 235MW hydro expansion project. • 5 year construction proposed, commencement date currently unknown. • Approx. 250 construction staff. **Cumulative Assessment Traffic Volumes**	No

Project	Dev. Type	Dev. Stage	Review Comments	Req. for Cumulative Traffic
			• Based on Project location, majority of Project traffic is assumed to contained on road network to the east of the Project Area (Moss Vale Road and Nowra Road). • Some project traffic likely to utilise relevant section of Hume Highway, but adequate capacity is available in this higher order road link. • No Project traffic expected to utilise critical roads of Red Hills Road, Ambrose Road, Brayton Road and Canyonleigh Road.	
Woodlawn Advanced Energy Recovery Centre (SSD-21184278) (66km South of Project)	Energy Recovery and Power Plant	Response to Submissions	**Relevant Project Details** • 240,000 MW Energy Recovery and Power Plant. • 3 year construction proposed, commencement late 2024. • Approx. 600 construction staff. **Cumulative Assessment Traffic Volumes** • Based on Project location, majority of Project traffic is assumed to contained on road network south of Goulburn. • Some project traffic likely to utilise relevant section of Hume Highway, but adequate capacity is available in this higher order road link. • No Project traffic expected to utilise critical roads of Red Hills Road, Ambrose Road, Brayton Road and Canyonleigh Road.	No
Marulan Quarry (SSD-65146459) (30km South-west of Project)	Quarry	Prepare EIS	**Relevant Project Details** • 0.5 MtPa quarry operations. • 3 year construction proposed, commencement late 2024. • Approx. 600 construction staff. **Cumulative Assessment Traffic Volumes** • Based on Project location, majority of Project traffic is assumed to contained on road network south-west of Marulan, on the southern side of the Hume Highway via Winfarthing Road. • Some project traffic likely to utilise relevant section of Hume Highway, but adequate capacity is available in this higher order road link. • No Project traffic expected to utilise critical roads of Red Hills Road, Ambrose Road, Brayton Road and Canyonleigh Road	No

Project	Dev. Type	Dev. Stage	Review Comments	Req. for Cumulative Traffic
Gunlake Quarry Continuation Project (SSD-12469087) (5km South-west of Project)	Quarry	Approved	**Relevant Project Details** • 4.2 MtPa quarry operations. • Expansion MOD 2 approved in 2021. **Cumulative Assessment Traffic Volumes** • Project will utilise relevant section of Hume Highway and critical roads of Red Hills Road, Ambrose Road, Brayton Road and Canyonleigh Road. • Based on date of approval, additional quarry truck movements are anticipated to be covered in background traffic data utilised for assessment of Project.	No

Based on the assessment above, additional traffic volumes from both the Wattle Creek Energy Hub (Solar Farm) and the Marulan Gas Fired Power Station projects are proposed to be considered as part of the cumulative assessment for the Project.

For the purpose of this assessment, the worst case scenario of concurrent construction phases has been considered, with the relevant traffic volumes for the Wattle Creek Energy Hub (Solar Farm) and Marulan Gas Fired Power Station sourced from the relevant traffic assessments for the projects prepared by Access Traffic Consulting (dated November 2024) and URS Australia Pty Ltd (dated August 2008).

Based on the identified traffic volumes, the relevant daily road link volumes (refer **Table 17**) and peak hour intersection movement volumes at the key Brayton Road / Ambrose Road (refer **Figure 45** and **Figure 46**) and Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road (refer **Figure 47** and **Figure 48**) intersections for the external projects were established.

Additionally as requested in the TfNSW SEARs advice for the Project, forecasts of the operational phase traffic volumes for these external projects were also estimated, with summaries of the calculated volumes at the key intersections for both the project and network peaks are shown in **Figure 49** to **Figure 52.**

Table 17 Cumulative Project Traffic Volumes on External Road Network Links

Road Segment	ID	Maximum Daily Traffic Volumes								
		Wattle Creek Solar Farm			Marulan Gas Fired Power Stations			Total External Projects		
		Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir
Hume Highway (M31)										
North of Red Hills Road	T0247	50	50	100	120	120	240	170	170	340
Red Hills Road to Brayton Road		50	66	116	120	144	264	170	210	380
Brayton Road to Marulan South Road		66	66	132	144	144	288	210	210	420
Marulan South Road to Goulburn		62	62	124	120	120	240	182	182	364
Red Hills Road (GMC)										
Hume Highway to Ambrose Road	GMC	66	50	116	144	144	288	210	194	404
Ambrose Road (GMC)										
Red Hills Road to Brayton Road	GMC	66	50	116	144	144	288	210	194	404
Brayton Road (GMC)										
Marulan to Ambrose Road	GMC	57	74	131	96	96	192	153	170	323
Ambrose Road to Quarry Access	GMC	123	123	246	240	240	480	363	363	726
Quarry Access to Canyonleigh Road	GMC	150	150	300	240	240	480	390	390	780
Canyonleigh Road (GMC)										
Brayton Road to Gravel Road	GMC	150	150	300	240	240	480	390	390	780
Gravel Road to Site Access	GMC	150	150	300	240	240	480	390	390	780

Note: Gaz = Gazettal Direction or direction of travel, A-Gaz = Against Gazettal Direction or against direction of travel.

Gazettal Direction – Hume Highway Southbound | Red Hills Road – outbound from Hume Highway | Ambrose Road – outbound from Red Hills Road | Brayton Road – outbound from Hume Highway | Canyonleigh Road – outbound from Brayton Road.

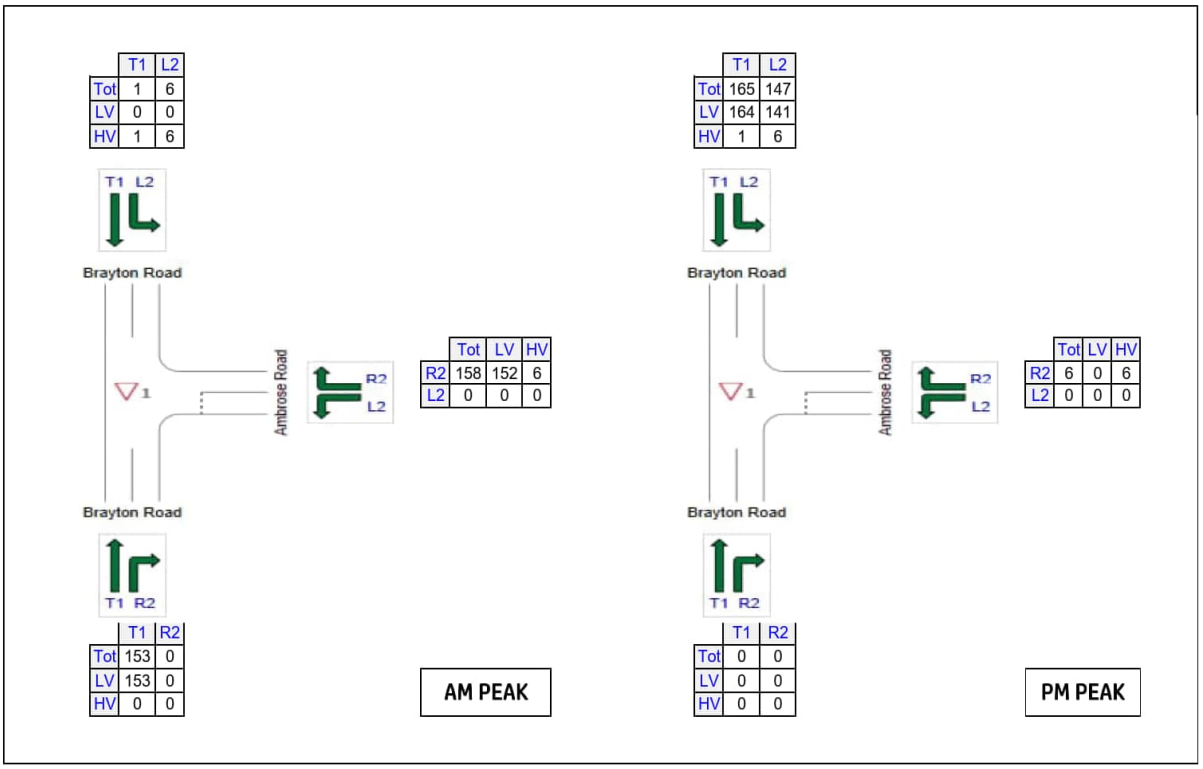


Figure 45 Brayton Road / Ambrose Road - Total External Project Construction Phase Volumes (Project Peaks)

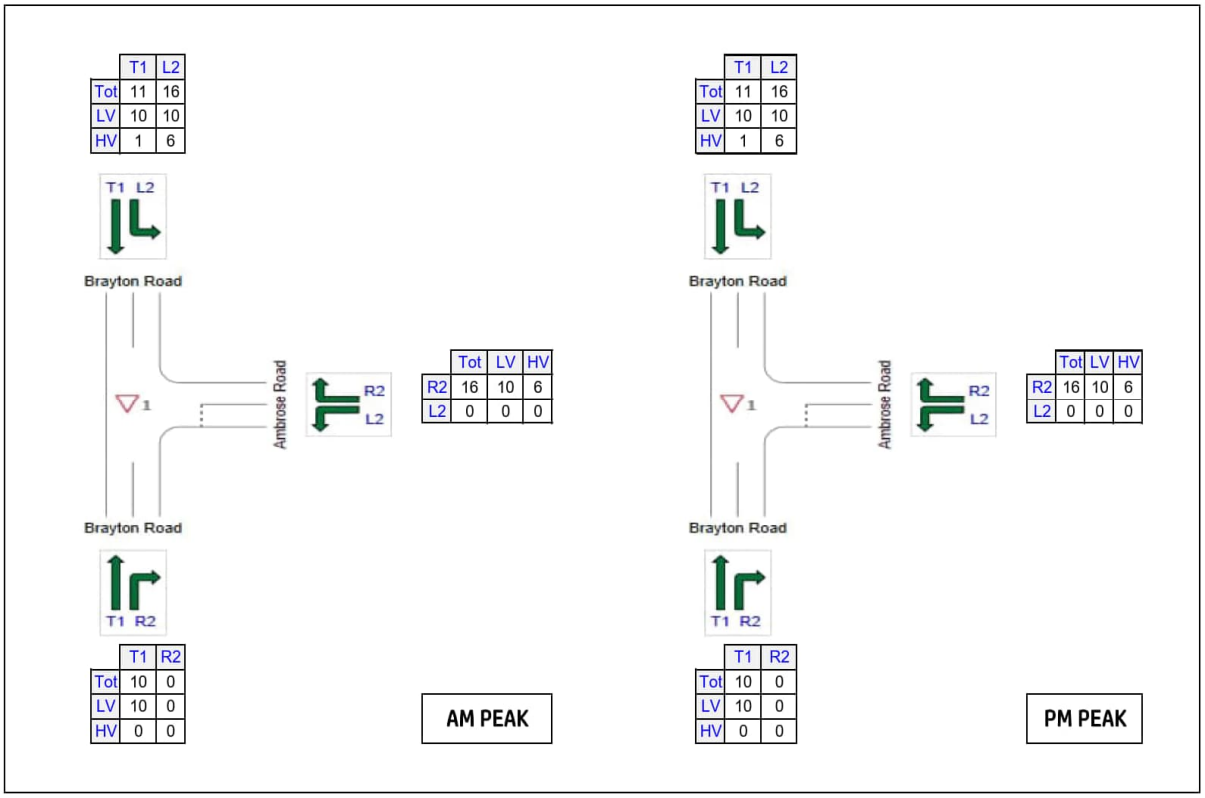


Figure 46 Brayton Road / Ambrose Road - Total External Project Construction Phase Volumes (Network Peaks)

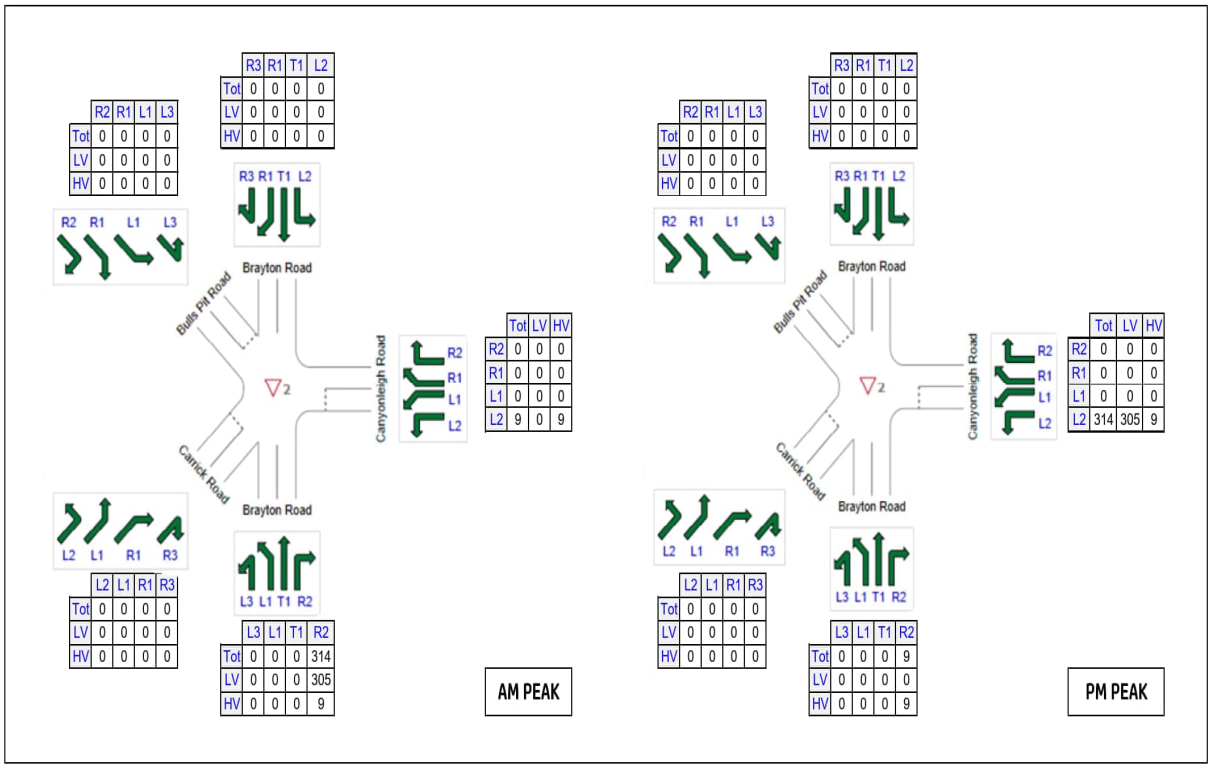


Figure 47 Brayton Road / Canyonleigh Road - Total External Project Construction Phase Volumes (Project Peak)

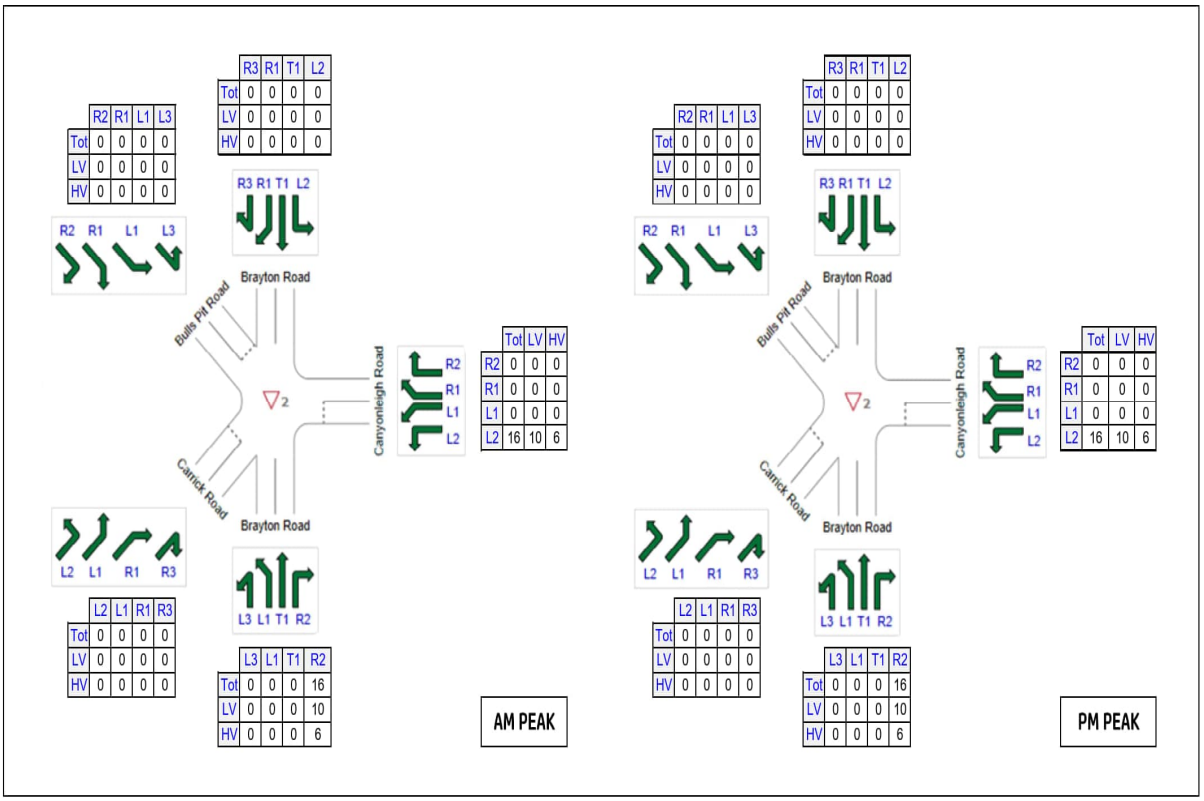


Figure 48 Brayton Road / Canyonleigh Road - Total External Project Construction Phase Volumes (Network Peaks)

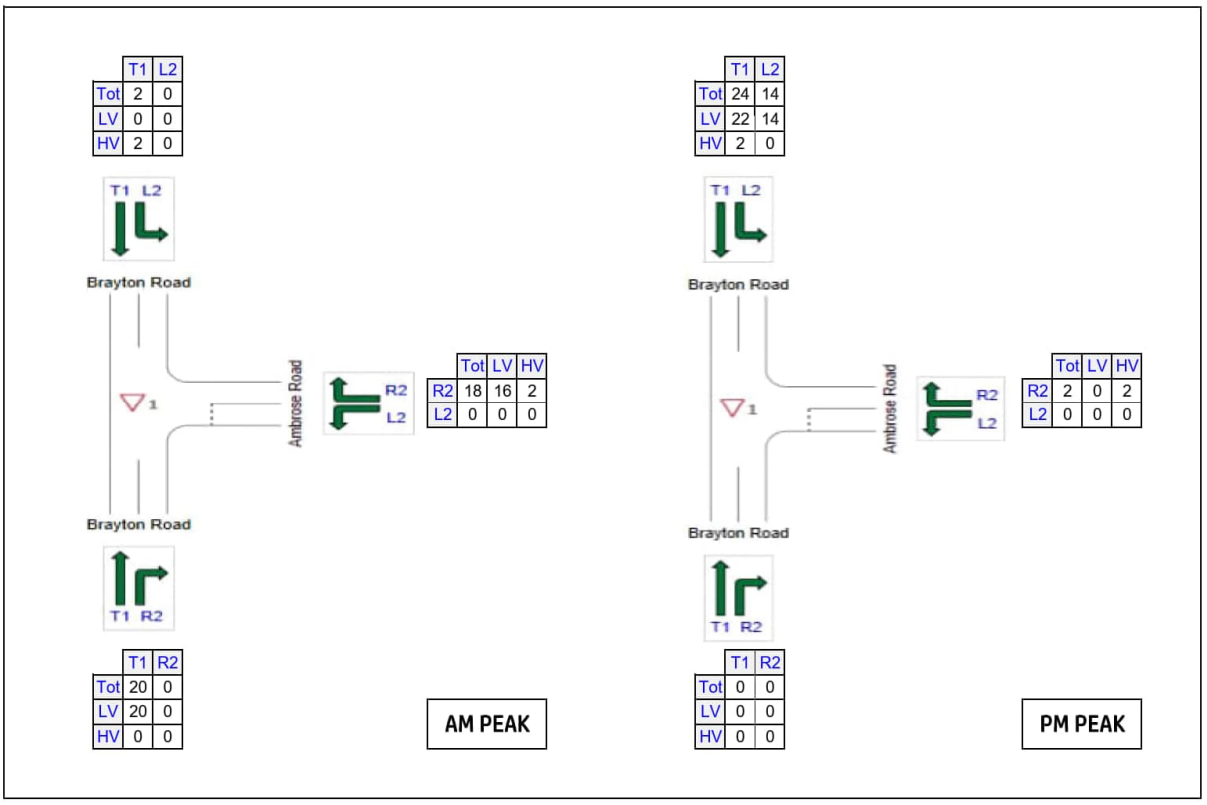


Figure 49 Brayton Road / Ambrose Road - Total External Project Operations Phase Volumes (Project Peaks)

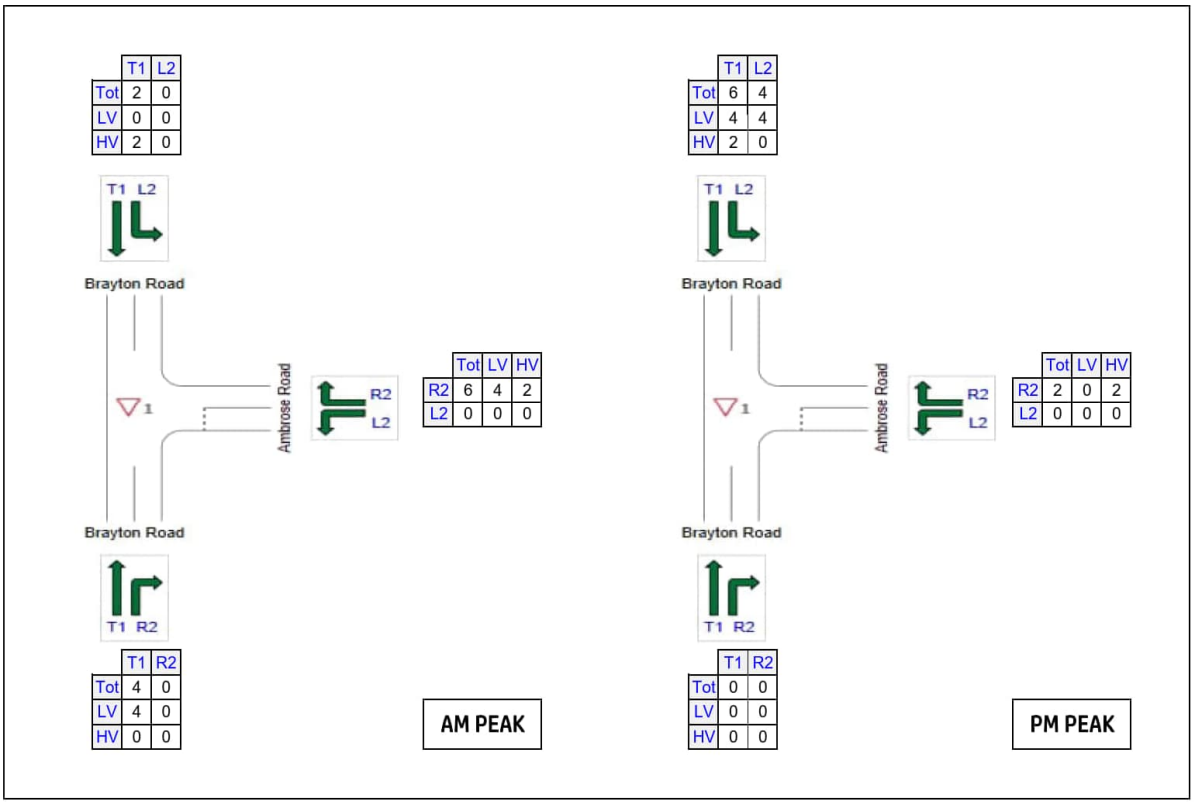


Figure 50 Brayton Road / Ambrose Road - Total External Project Operations Phase Volumes (Network Peaks)

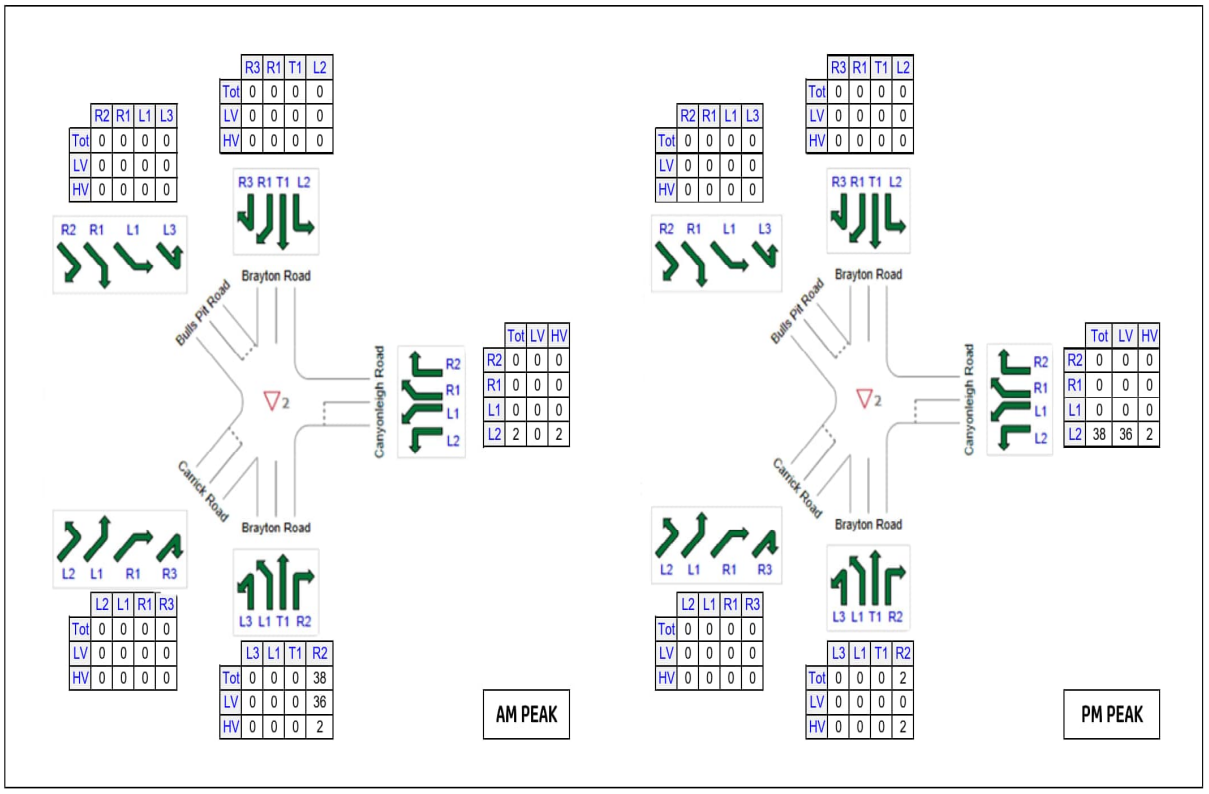


Figure 51 Brayton Road / Canyonleigh Road - Total External Project Operations Phase Volumes (Project Peak)

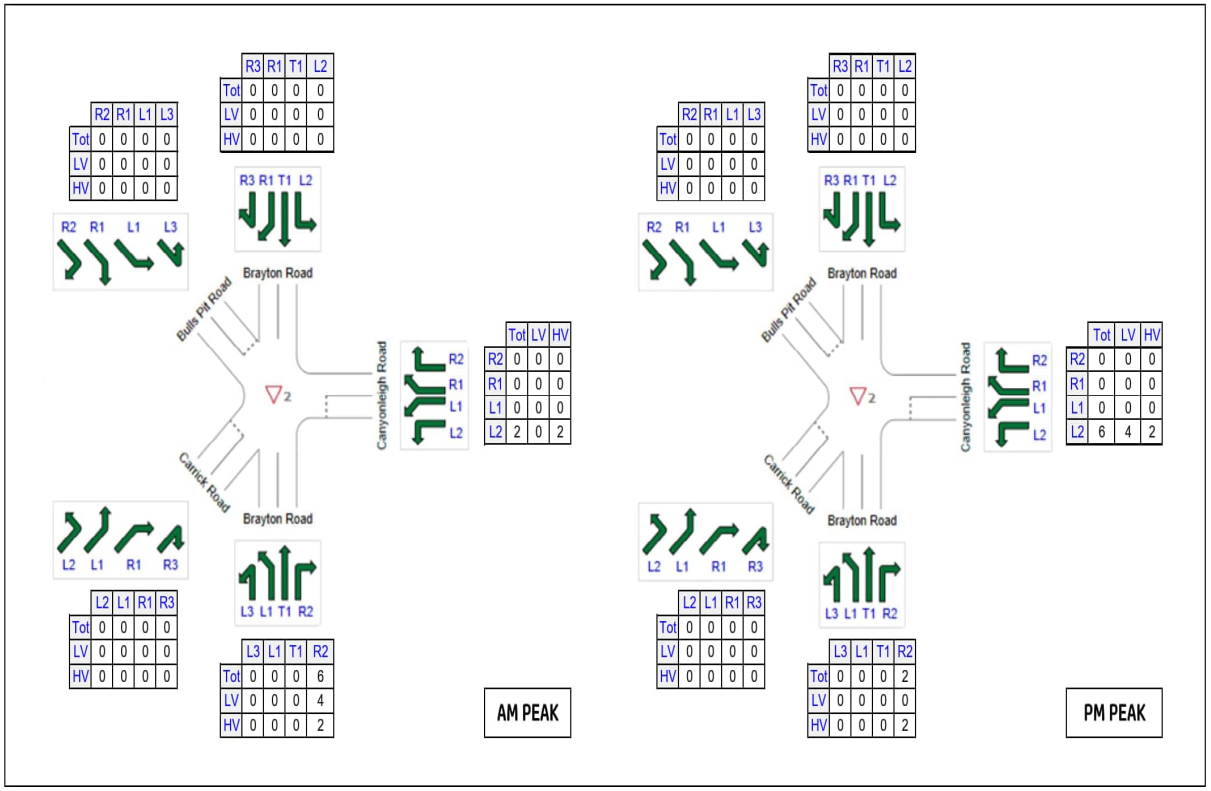


Figure 52 Brayton Road / Canyonleigh Road - Total External Project Operations Phase Volumes (Network Peaks)

5.0 Impact Assessment and Mitigation

Based on the information provided above, it was determined that the critical elements of the surrounding road network in terms of the potential impact of the Project were the identified road links forming the proposed transport routes for the Project (in particular the main transport route comprising the relevant sections of the Hume Highway, Red Hills Road, Ambrose Road, Brayton Road and Canyonleigh Road and the key intersections of Brayton Road / Ambrose Road and Brayton Road / Canyonleigh Road / Carrick Road and Bulls Pit Road.

Further assessment of the impact of the Project on these elements is provided in the following sections.

5.1 With and Without Project Traffic Volumes

5.1.1 Road Link Volumes

As identified above, the peak traffic generation for the Project is expected to occur during the peak period for construction (2026), with a summary of the forecast Project volumes during this period, as well as the subsequent operations phase (10-year design horizon from end of construction – 2037) and decommissioning phase (2057) identified in **Table 18**.

Based on these forecast Project volumes, the forecast traffic volumes on the relevant sections of the external road network were established for both with and without Project scenarios. These volumes were developed at the relevant design horizons for each phase of the Project (i.e. operations – 10-year design horizon 2037 and decommissioning 30-year Project life – 2057), with summaries of the resultant daily road link traffic volumes during the peak construction, operations and decommissioning phases of the Project summarised in **Table 19.**

Further road link volumes were then also identified for the required cumulative assessment incorporating combined volumes from the Project as well as other state significant developments in the vicinity of the Project, with this assessment only completed for the critical peak construction period (2026), initial operations (2027) and 10-year operations (2037) scenarios. These additional cumulative assessment daily link volume forecasts are also summarised in **Table 18**.

5.1.2 Intersection Volumes

In addition to road link volumes, traffic volumes at the key Brayton Road / Ambrose Road and Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road intersections were established for the peak construction, operations (10-yr horizon) and decommissioning phases of the Project.

To establish these volumes, the Project volumes as identified in **Section 4.4.2** above were added to the forecast background traffic volumes at the relevant design horizons for each phase of the Project.

The resulting turning volumes at the Brayton Road / Ambrose Road and Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road intersections for the peak construction, operations (10-yr horizon) and decommissioning phases of the Project are summarised in **Figure 53** to **Figure 64** and **Figure 65** to **Figure 76** respectively.

Table 18 Project Traffic Scenario Volumes

Road Segment	Seg. ID	Daily Traffic Volumes																				
		Peak Construction Project Volumes			Operations Project Volumes			Decommissioning Project Volumes			Wattle Creek Solar Farm Project Construction Volumes			Marulan Gas Fired Power Station Construction Volumes			Total External Project Volumes			Cumulative Construction Volumes		
		Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir
Hume Highway (M31)																						
North of Red Hills Road	T0247	47	47	94	6	6	12	33	33	66	50	50	100	120	120	240	170	170	340	217	217	434
Red Hills Road to Brayton Road		47	62	109	6	0	6	33	43	76	50	66	116	120	144	264	170	210	380	217	272	489
Brayton Road to Marulan South Road		62	62	124	9	9	18	43	43	87	66	66	132	144	144	288	210	210	420	272	272	544
Marulan South Road to Goulburn		57	57	114	9	9	18	40	40	80	62	62	124	120	120	240	182	182	364	239	239	478
Red Hills Road (GMC)																						
Hume Highway to Ambrose Road	-	62	47	109	0	6	6	43	33	76	66	50	116	144	144	288	210	194	404	272	241	513
Ambrose Road (GMC)																						
Red Hills Road to Brayton Road	-	62	47	109	0	6	6	43	33	76	66	50	116	144	144	288	210	194	404	272	241	513
Brayton Road (GMC)																						
Marulan to Ambrose Road	-	52	68	120	11	11	22	36	48	84	57	74	131	96	96	192	153	170	323	205	238	443
Ambrose Road to Quarry Access	-	114	114	228	17	17	34	80	80	160	123	123	246	240	240	480	363	363	726	477	477	954
Quarry Access to Canyonleigh Road	-	116	116	232	17	17	34	81	81	162	150	150	300	240	240	480	390	390	780	506	506	1,012
Canyonleigh Road (GMC)																						
Brayton Road to Gravel Road	-	116	116	232	17	17	34	81	81	162	150	150	300	240	240	480	390	390	780	506	506	1,012
Gravel Road to Site Access	-	116	116	232	17	17	34	81	81	162	150	150	300	240	240	480	390	390	780	506	506	1,012

Note: Gaz = Gazettal Direction or direction of travel, A-Gaz = Against Gazettal Direction or against direction of travel.
Gazettal Direction – Hume Highway Southbound | Red Hills Road – outbound from Hume Highway | Ambrose Road – outbound from Red Hills Road | Brayton Road – outbound from Hume Highway | Canyonleigh Road – outbound from Brayton Road.

Table 19 Forecast Road Link Traffic Volumes – Pre (Background) and Project Traffic Scenarios

Road Segment	Seg. ID	Daily Traffic Volumes																				
		Background 2026			Peak Construction 2026			Cumulative Construction 2026			Background 2037			Operations 2037			Background 2057			Decommissioning 2057		
		Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir
Hume Highway (M31)																						
North of Red Hills Road	T0247	11,461	10,796	22,257	11,508	10,843	22,351	11,678	11,013	22,691	14,250	13,424	27,674	14,256	13,430	27,686	21,175	19,947	41,122	21,208	19,980	41,188
Red Hills Road to Brayton Road		11,461	10,796	22,257	11,508	10,858	22,366	11,678	11,068	22,746	14,250	13,424	27,674	14,256	13,424	27,680	21,175	19,947	41,122	21,208	19,990	41,199
Brayton Road to Marulan South Road		11,461	10,796	22,257	11,523	10,858	22,381	11,733	11,068	22,801	14,250	13,424	27,674	14,259	13,433	27,692	21,175	19,947	41,122	21,219	19,990	41,209
Marulan South Road to Goulburn		11,461	10,796	22,257	11,518	10,853	22,371	11,700	11,035	22,735	14,250	13,424	27,674	14,259	13,433	27,692	21,175	19,947	41,122	21,215	19,987	41,202
Red Hills Road (GMC)																						
Hume Highway to Ambrose Road	-	212	221	433	274	268	542	484	462	946	264	274	538	264	280	544	392	408	800	436	440	876
Ambrose Road (GMC)																						
Red Hills Road to Brayton Road	-	212	221	433	274	268	542	484	462	946	264	274	538	264	280	544	392	408	800	436	440	876
Brayton Road (GMC)																						
Marulan to Ambrose Road	-	262	293	556	314	361	676	467	531	999	326	365	691	337	376	713	484	542	1,026	521	590	1,110
Ambrose Road to Quarry Access	-	403	440	843	517	554	1,071	880	917	1,797	501	547	1,048	518	564	1,082	744	813	1,557	824	893	1,717
Quarry Access to Canyonleigh Road	-	195	188	383	311	304	615	701	694	1,395	242	234	476	259	251	510	359	348	707	441	429	870
Canyonleigh Road (GMC)																						
Brayton Road to Gravel Road	-	65	55	120	181	171	352	571	561	1,132	80	69	149	97	86	183	119	102	221	200	183	383
Gravel Road to Site Access	-	65	55	120	181	171	352	571	561	1,132	80	69	149	97	86	183	119	102	221	200	183	383

Note: Gaz = Gazettal Direction or direction of travel, A-Gaz = Against Gazettal Direction or against direction of travel.

Gazettal Direction – Hume Highway Southbound | Red Hills Road – outbound from Hume Highway | Ambrose Road – outbound from Red Hills Road | Brayton Road – outbound from Hume Highway | Canyonleigh Road – outbound from Brayton Road.

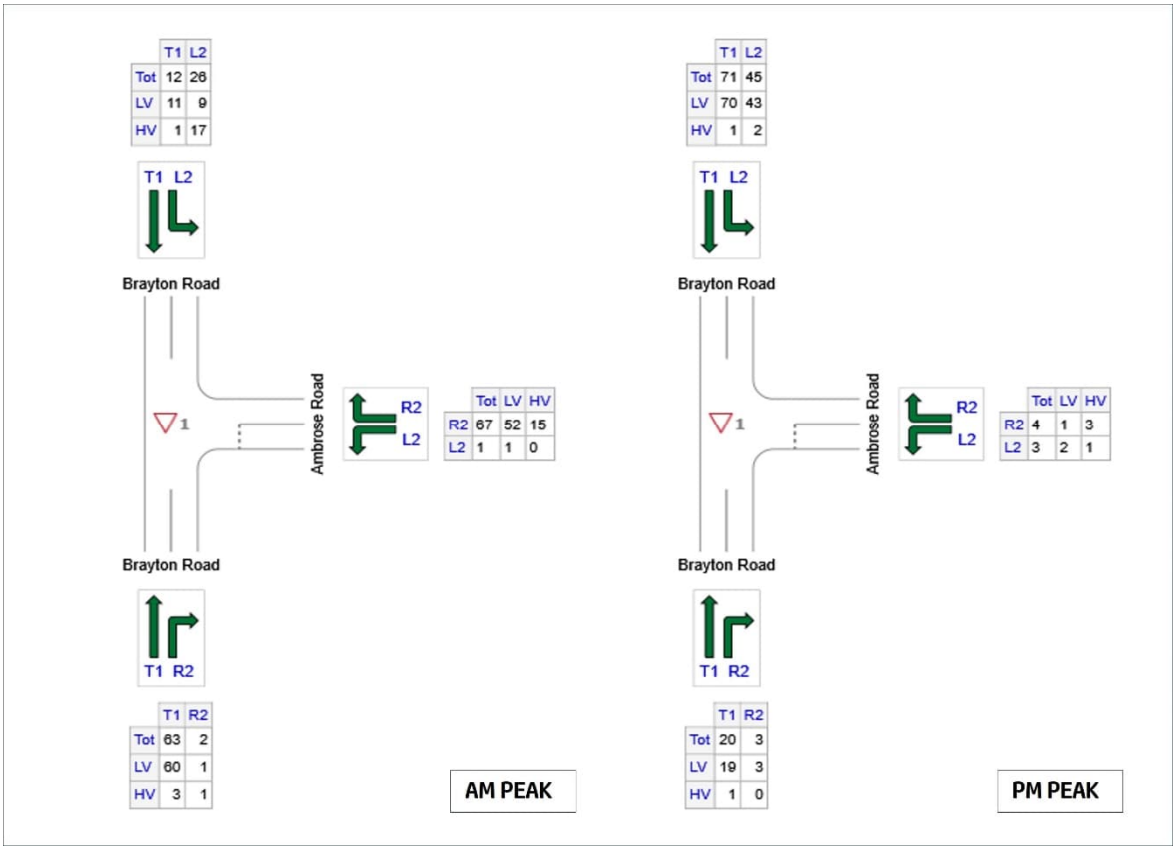


Figure 53 Brayton Road / Ambrose Road – 2026 Construction Phase Volumes (Project Peaks)

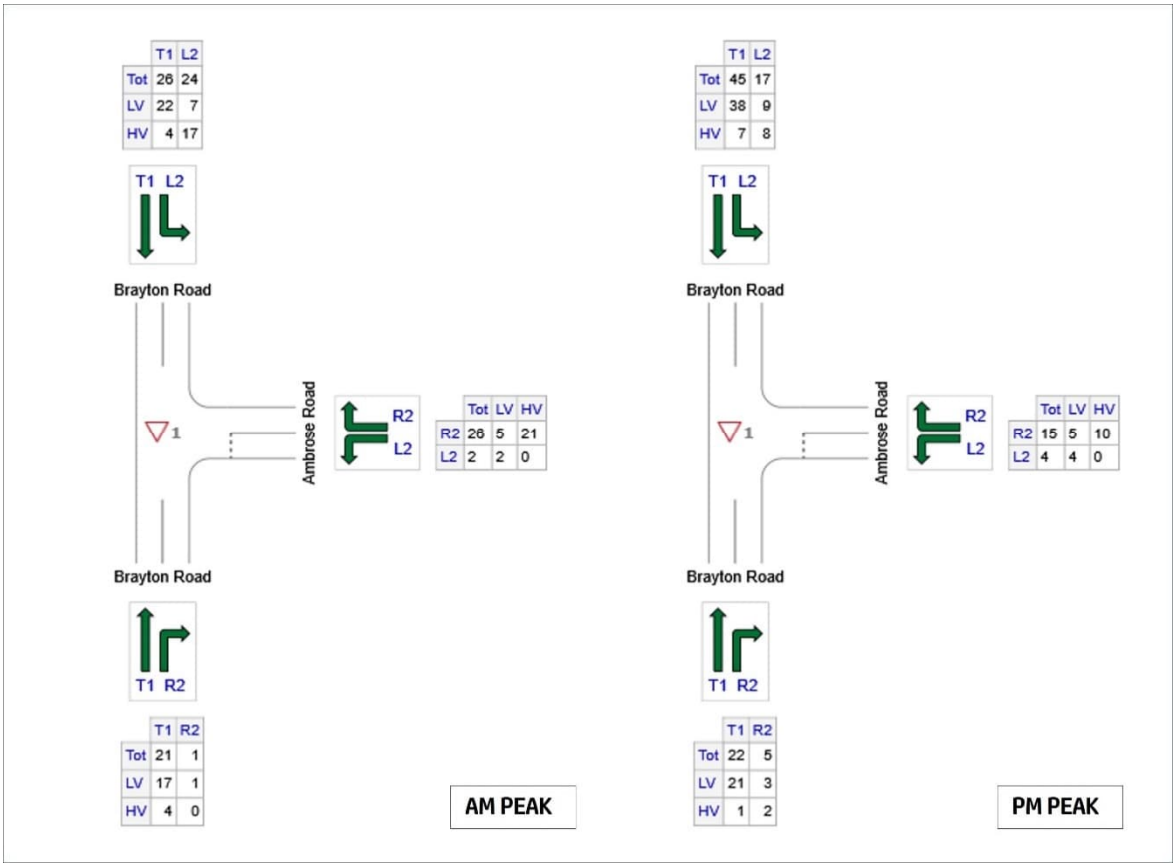


Figure 54 Brayton Road / Ambrose Road – 2026 Construction Phase Volumes (Network Peaks)

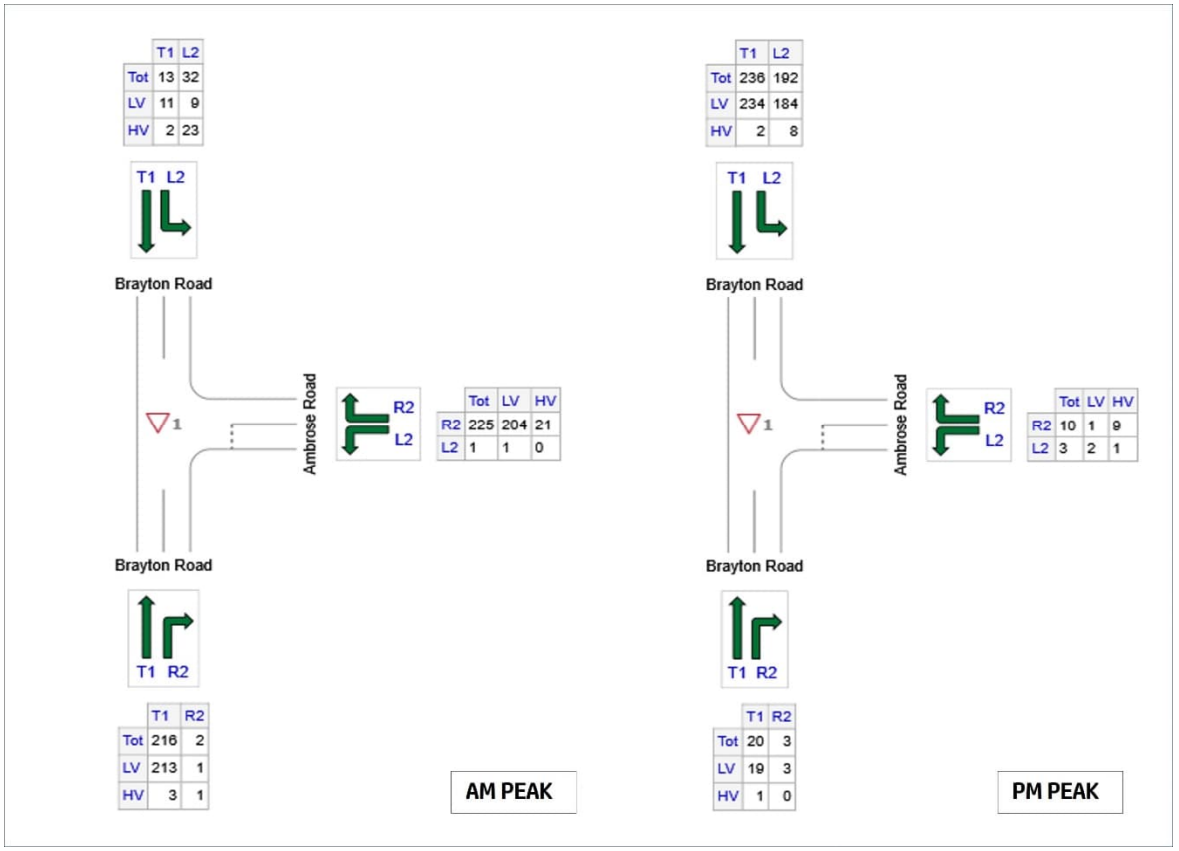


Figure 55 Brayton Road / Ambrose Road – 2026 Cumulative Construction Phase Volumes (Project Peaks)

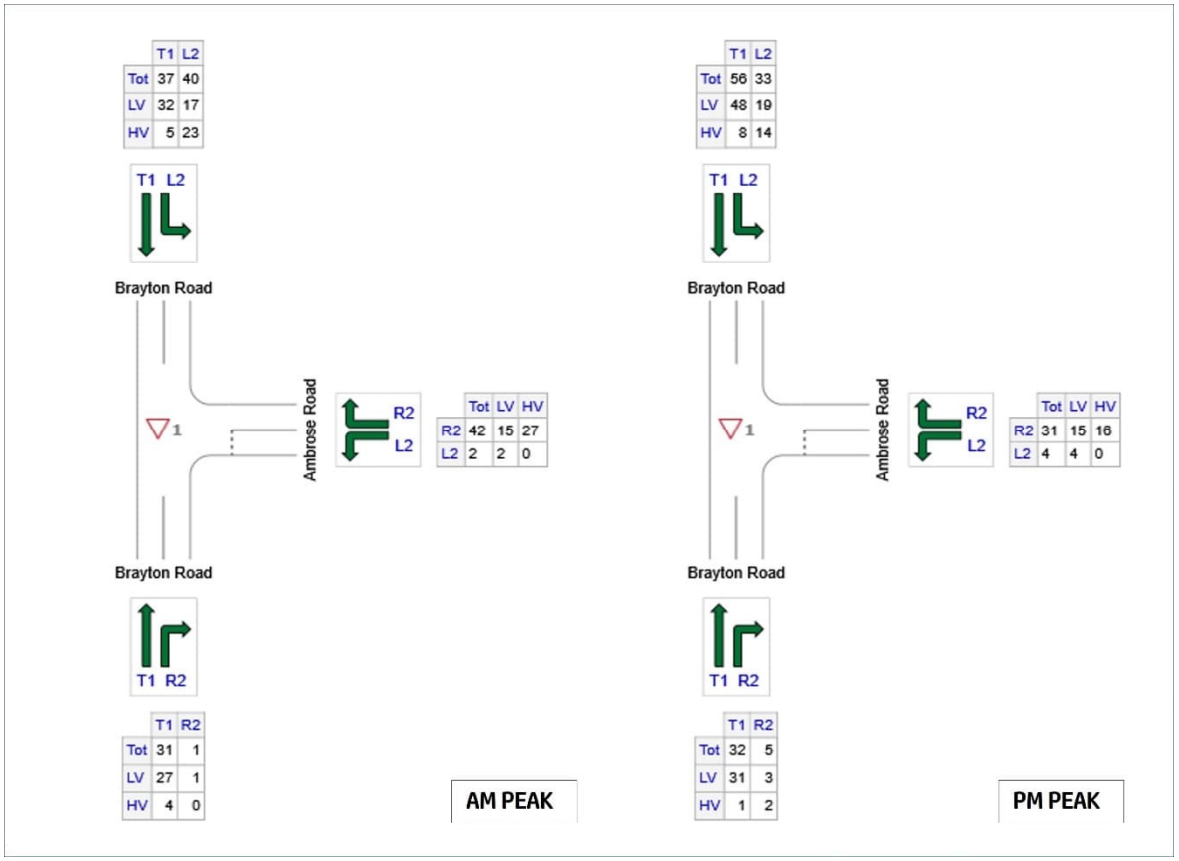


Figure 56 Brayton Road / Ambrose Road – 2026 Cumulative Construction Phase Volumes (Network Peaks)

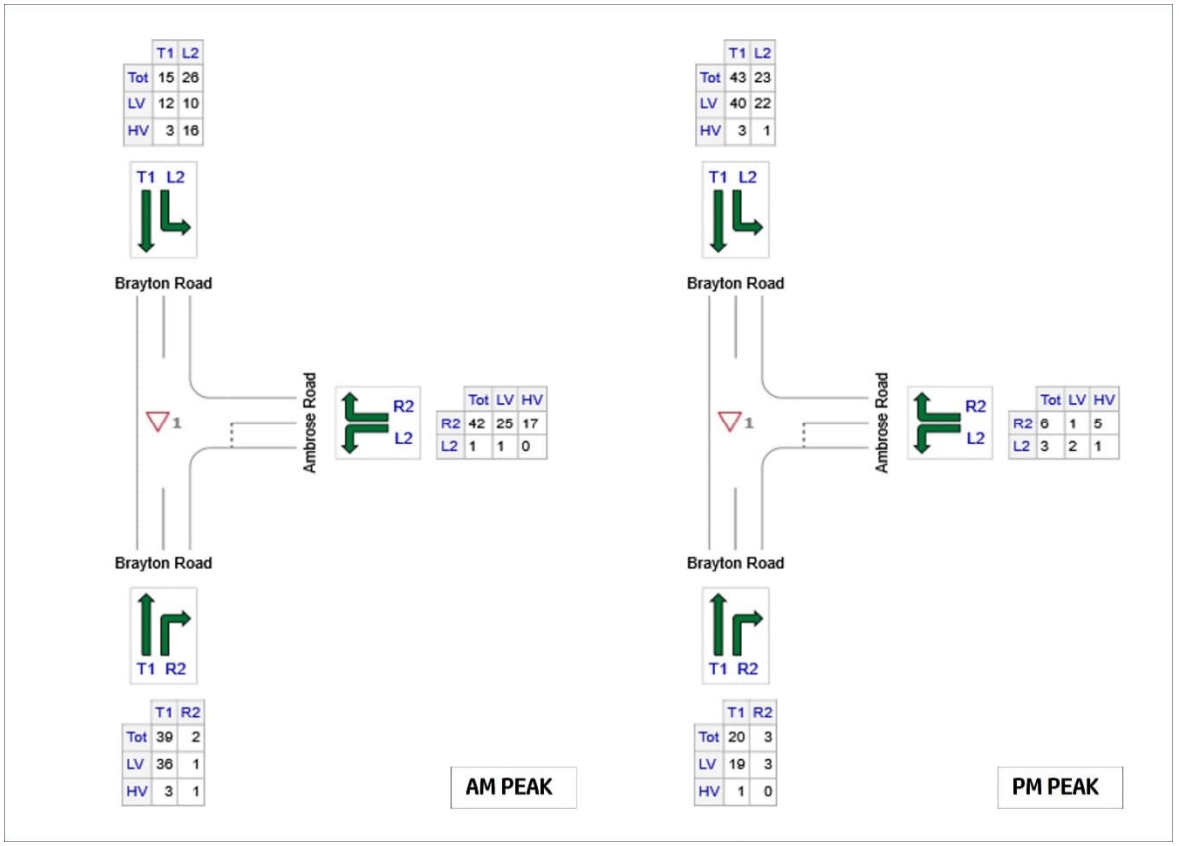


Figure 57 Brayton Road / Ambrose Road – 2027 Cumulative Operations Phase Volumes (Project Peaks)

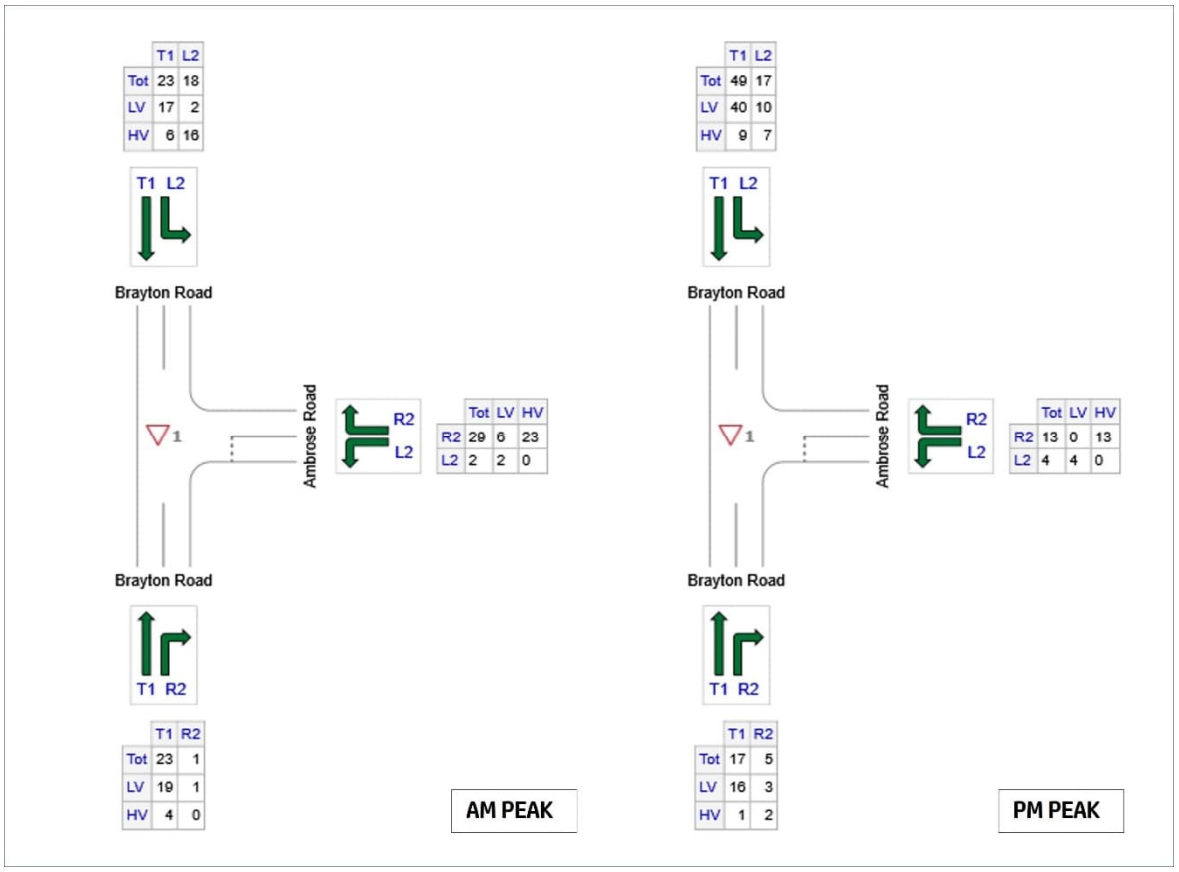


Figure 58 Brayton Road / Ambrose Road – 2027 Cumulative Operations Phase Volumes (Network Peaks)

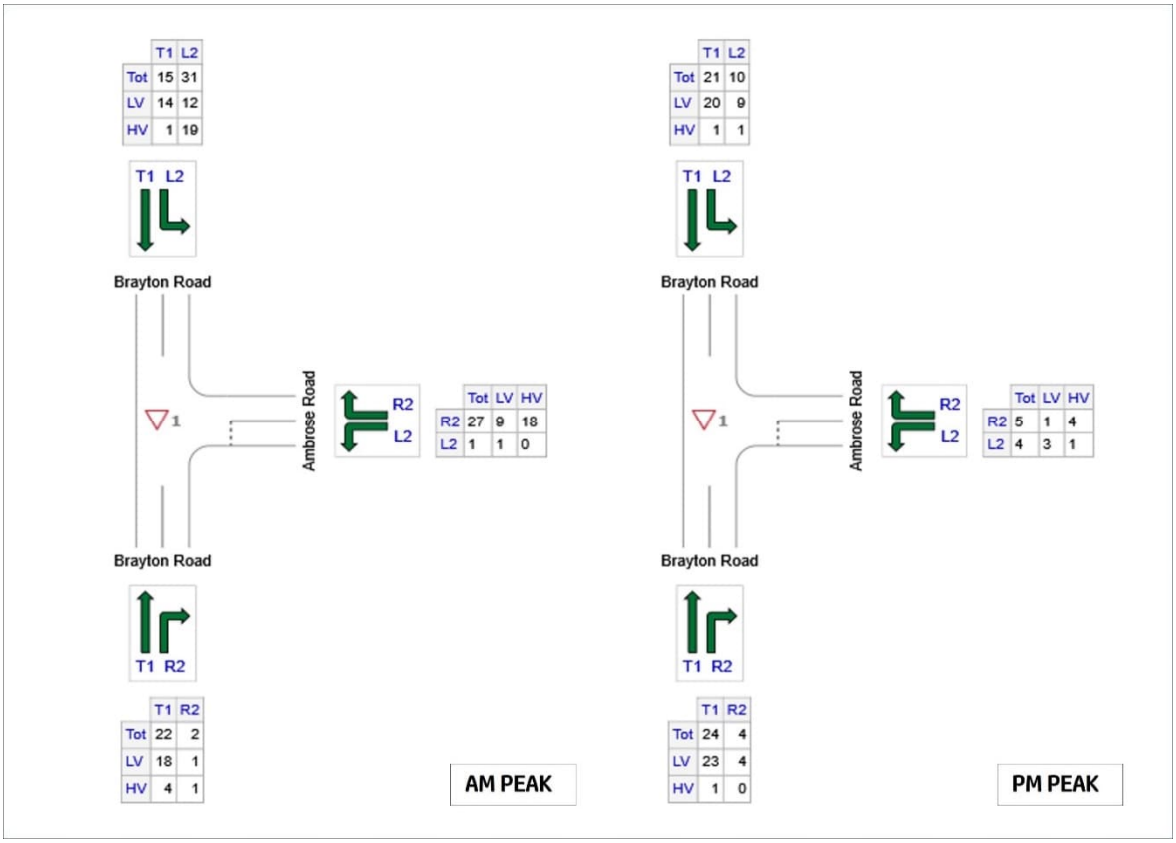


Figure 59 Brayton Road / Ambrose Road – 2037 Operations Phase Volumes (Project Peaks)

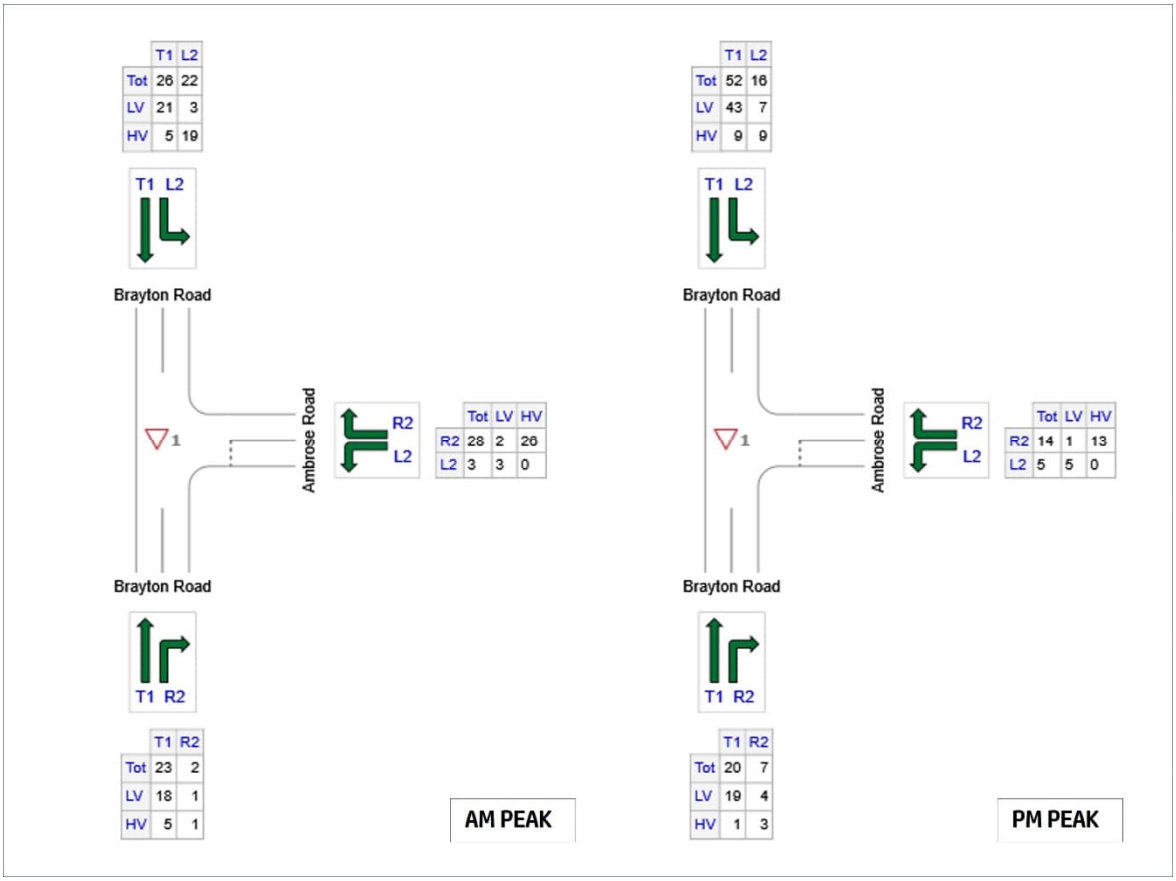


Figure 60 Brayton Road / Ambrose Road – 2037 Operations Phase Volumes (Network Peaks)

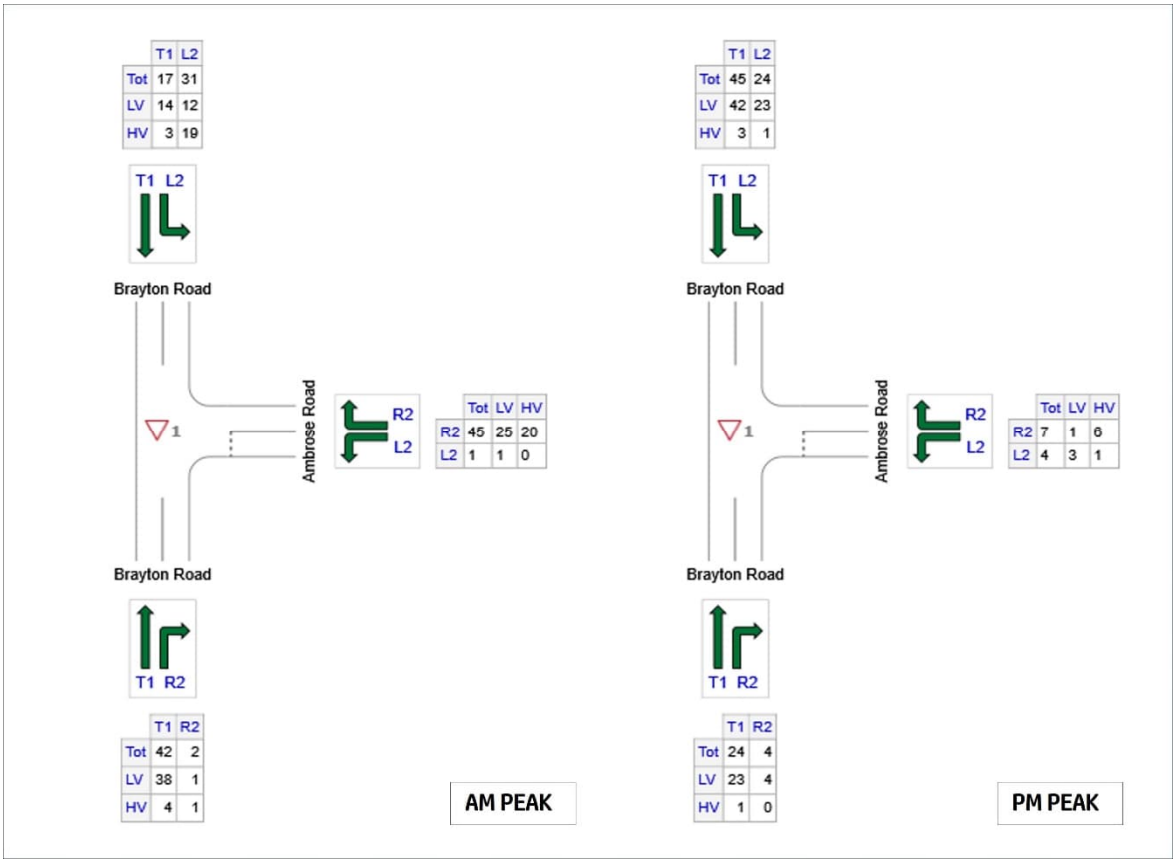


Figure 61 Brayton Road / Ambrose Road – 2037 Cumulative Operations Phase Volumes (Project Peaks)

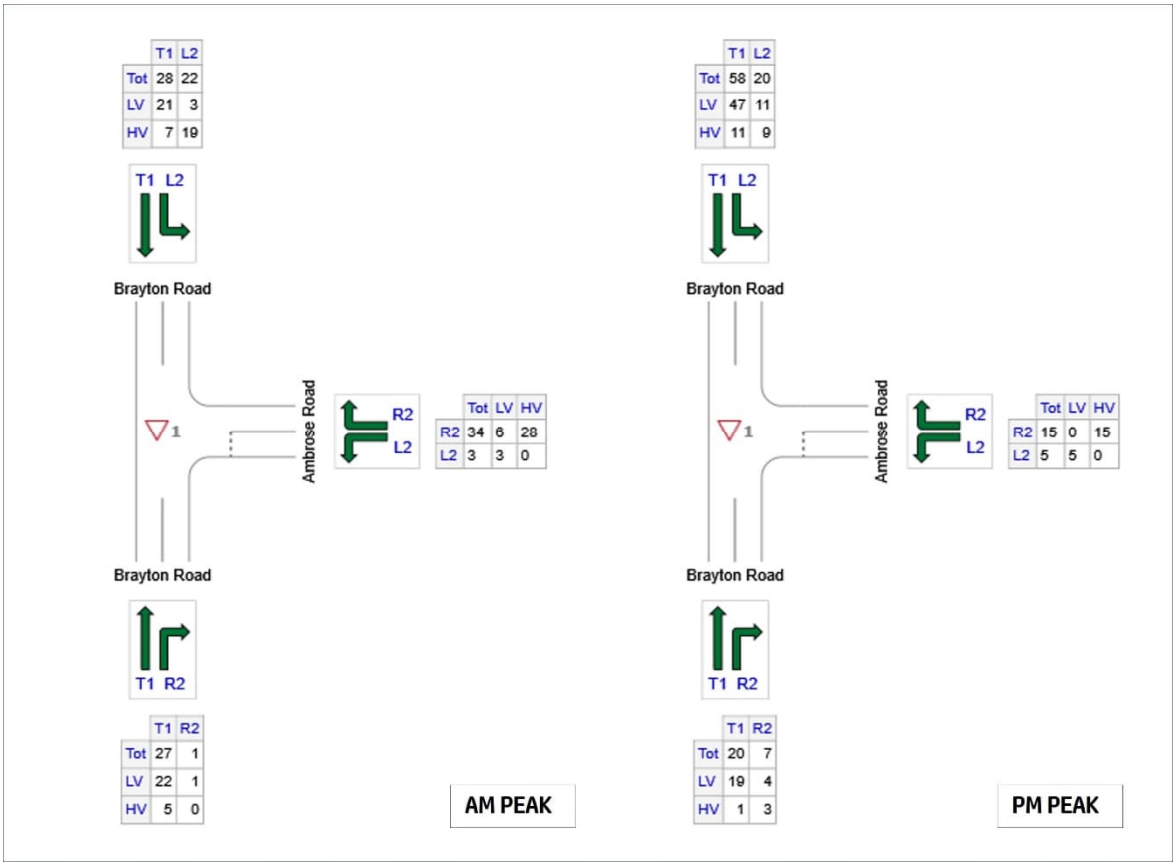


Figure 62 Brayton Road / Ambrose Road – 2037 Cumulative Operations Phase Volumes (Network Peaks)

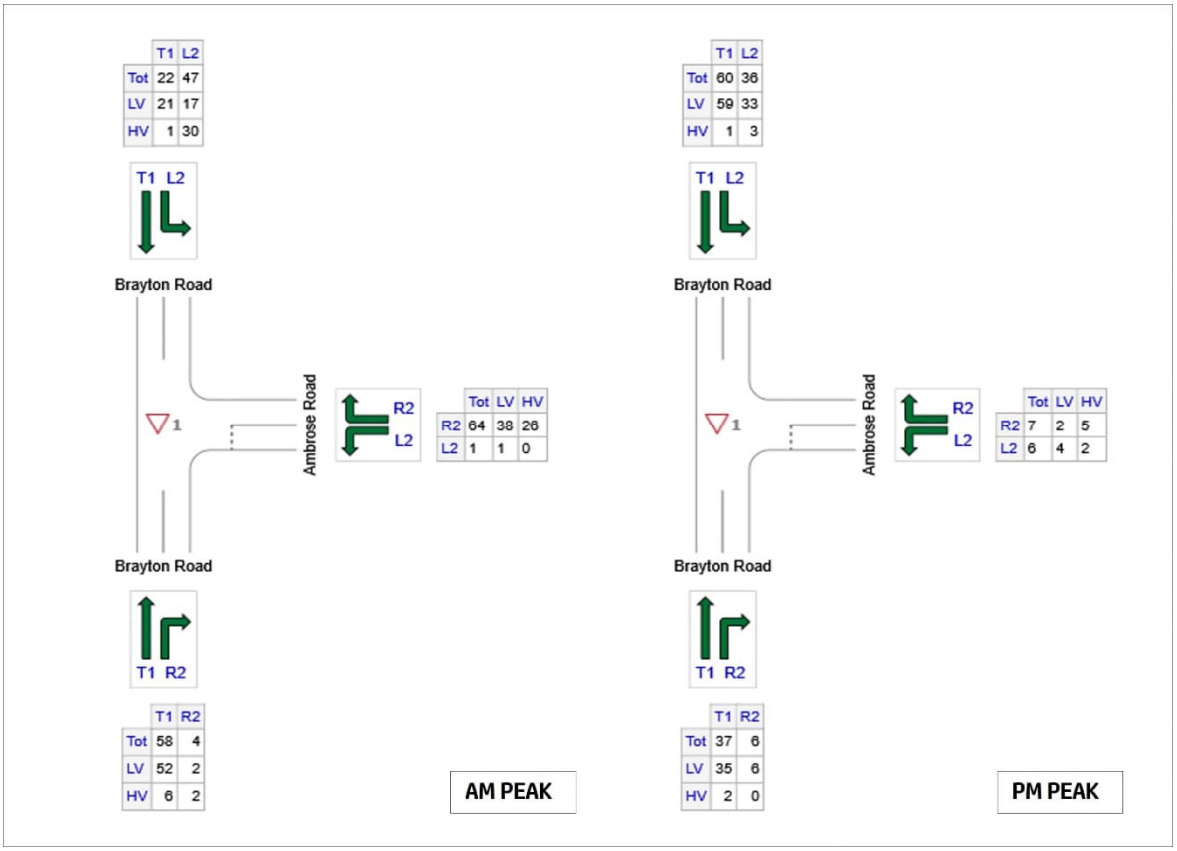


Figure 63 Brayton Road / Ambrose Road – 2057 Decommissioning Phase Volumes (Project Peaks)

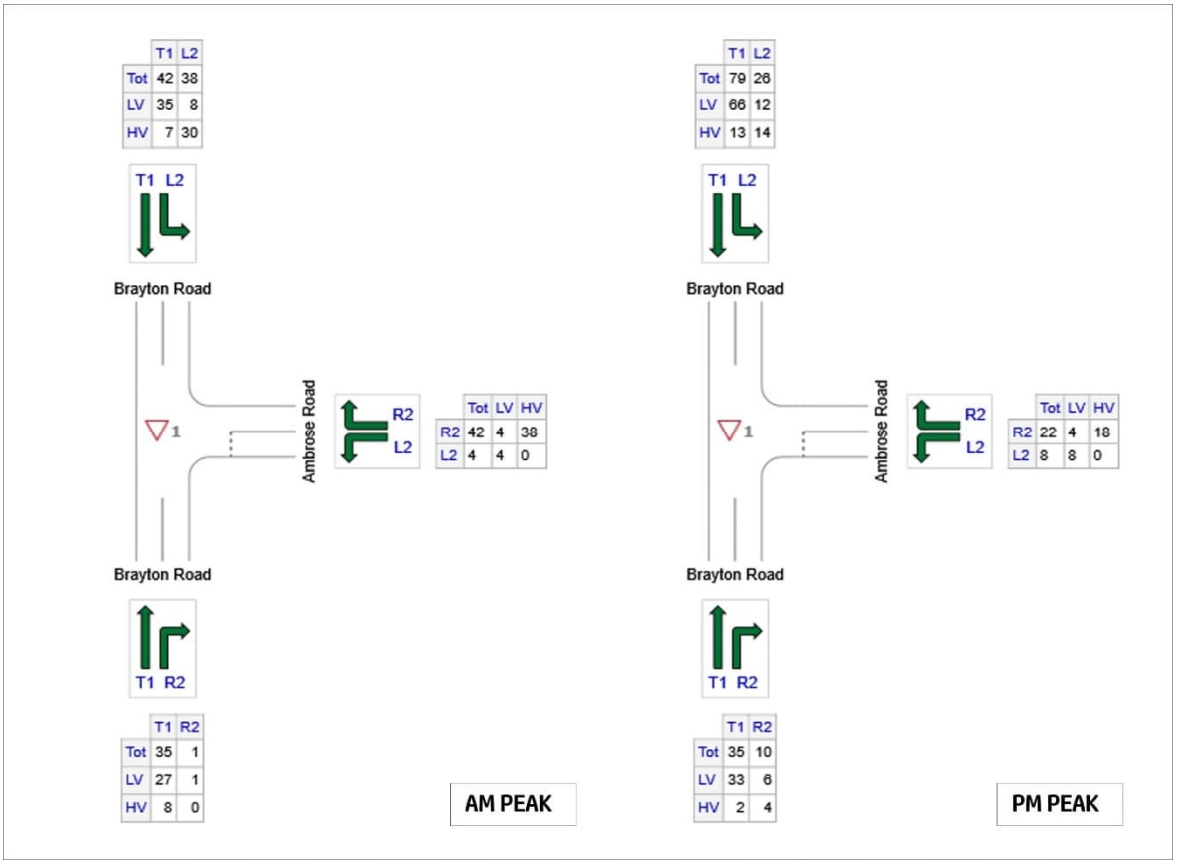


Figure 64 Brayton Road / Ambrose Road – 2057 Decommissioning Phase Volumes (Network Peaks)

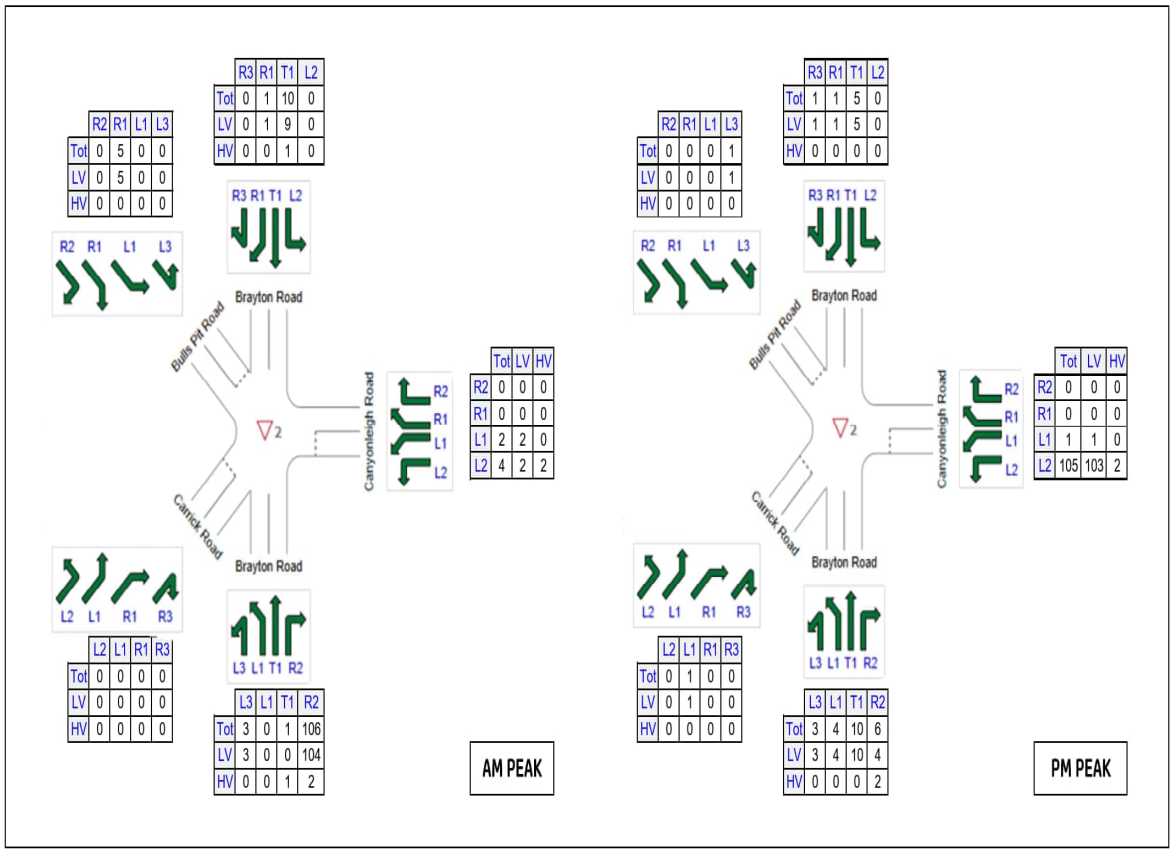


Figure 65 Brayton Road / Canyonleigh Road – 2026 Construction Phase Volumes (Project Peaks)

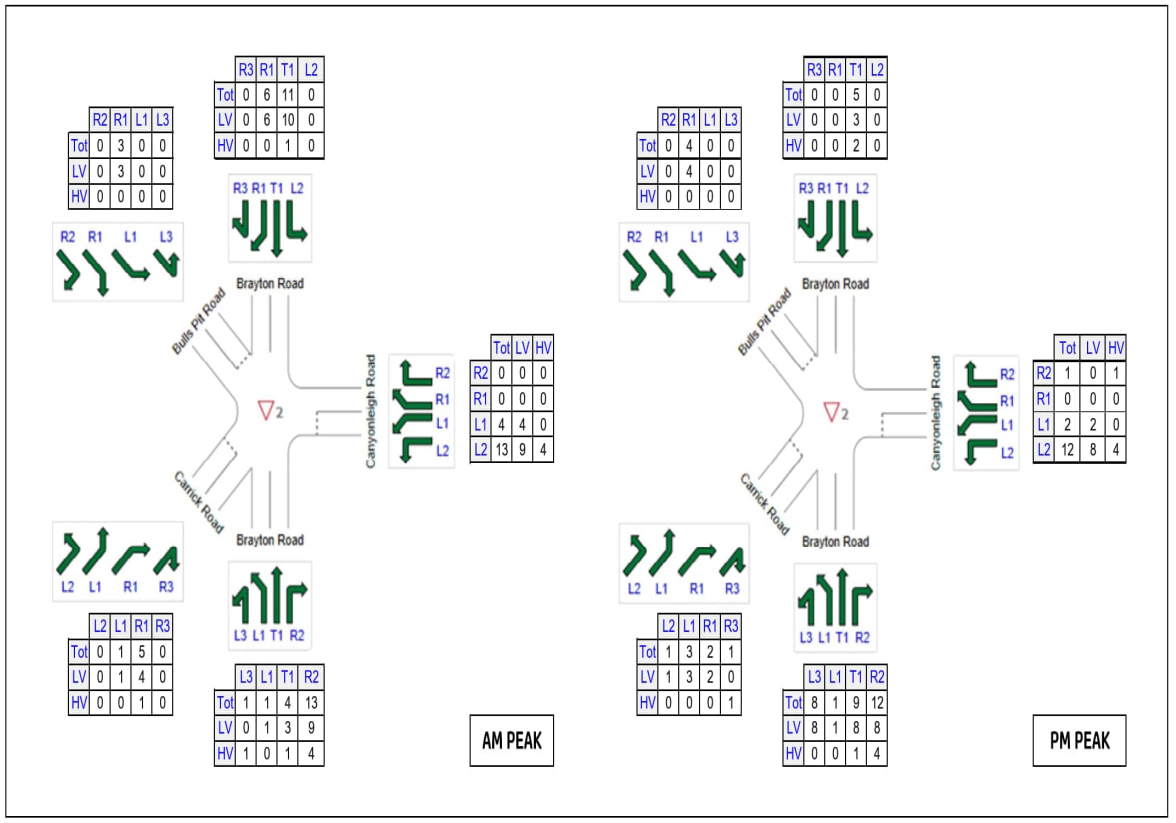


Figure 66 Brayton Road / Canyonleigh Road – 2026 Construction Phase Volumes (Network Peaks)

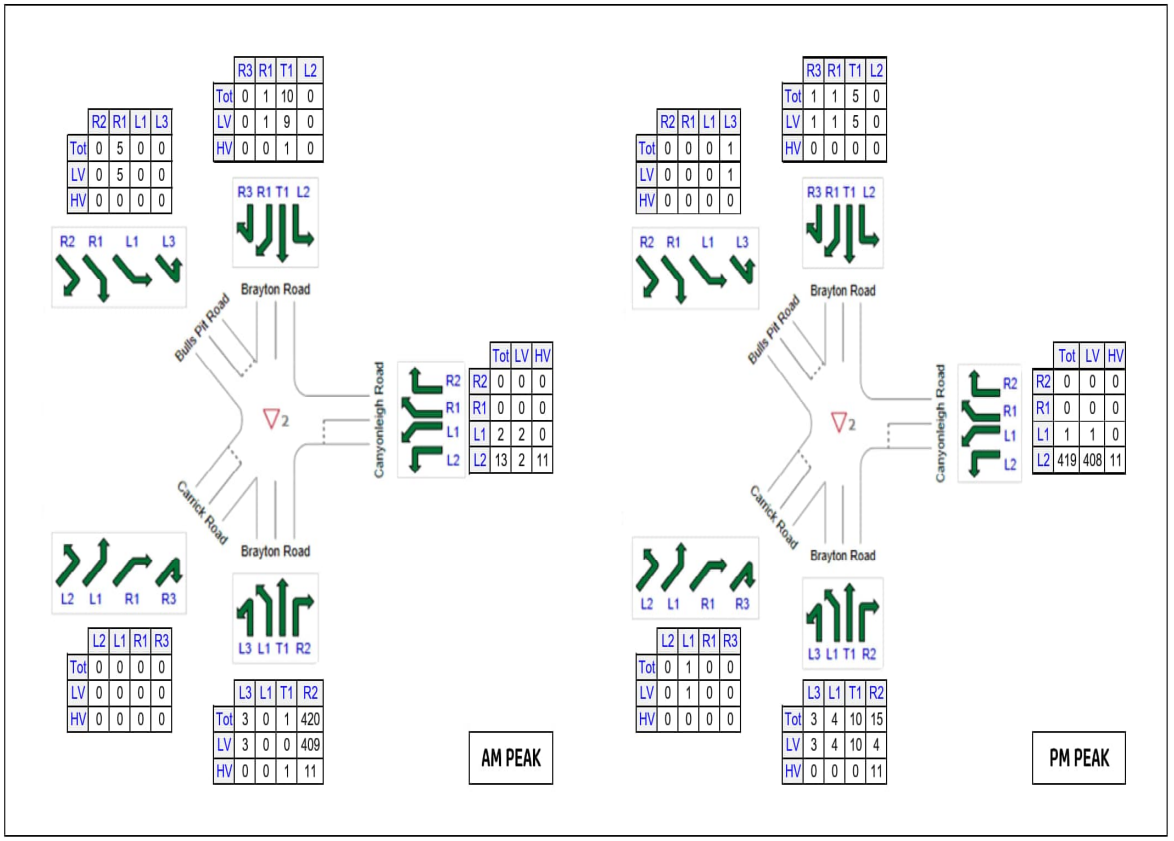


Figure 67 Brayton Road / Canyonleigh Road – 2026 Cumulative Construction Phase Volumes (Project Peaks)

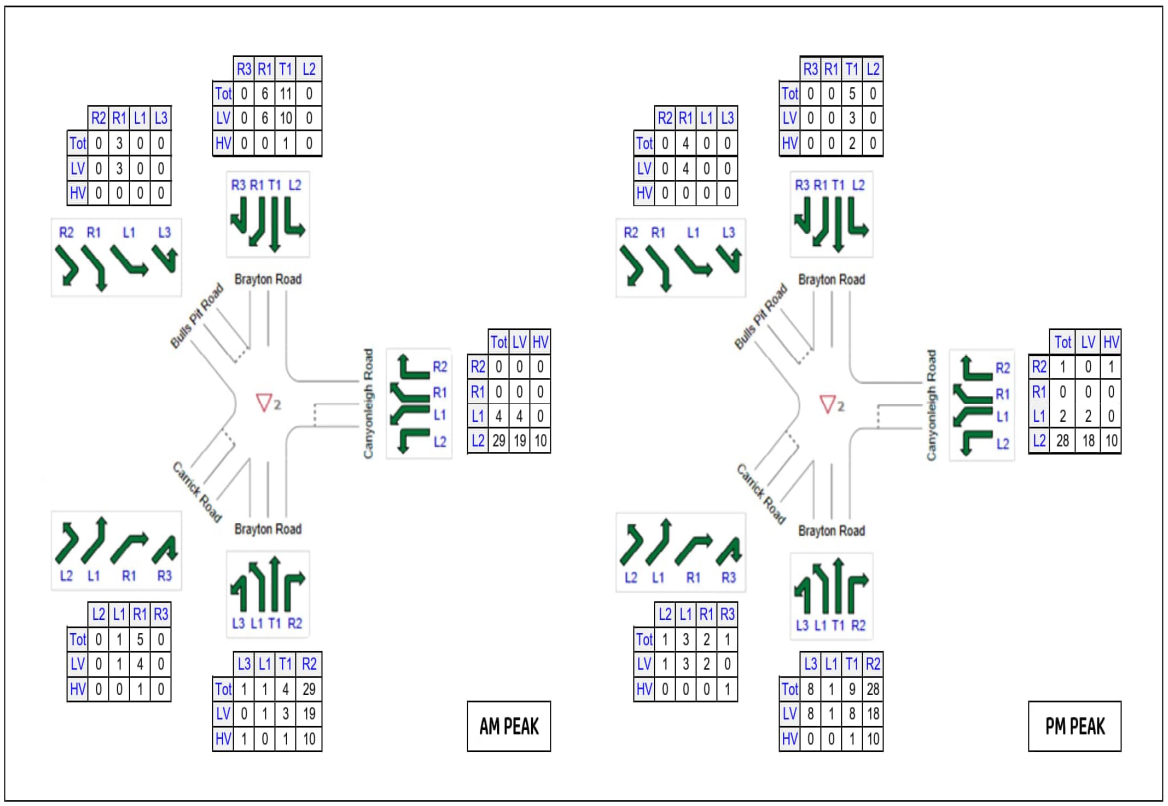


Figure 68 Brayton Road / Canyonleigh Road – 2026 Cumulative Construction Phase Volumes (Network Peaks)

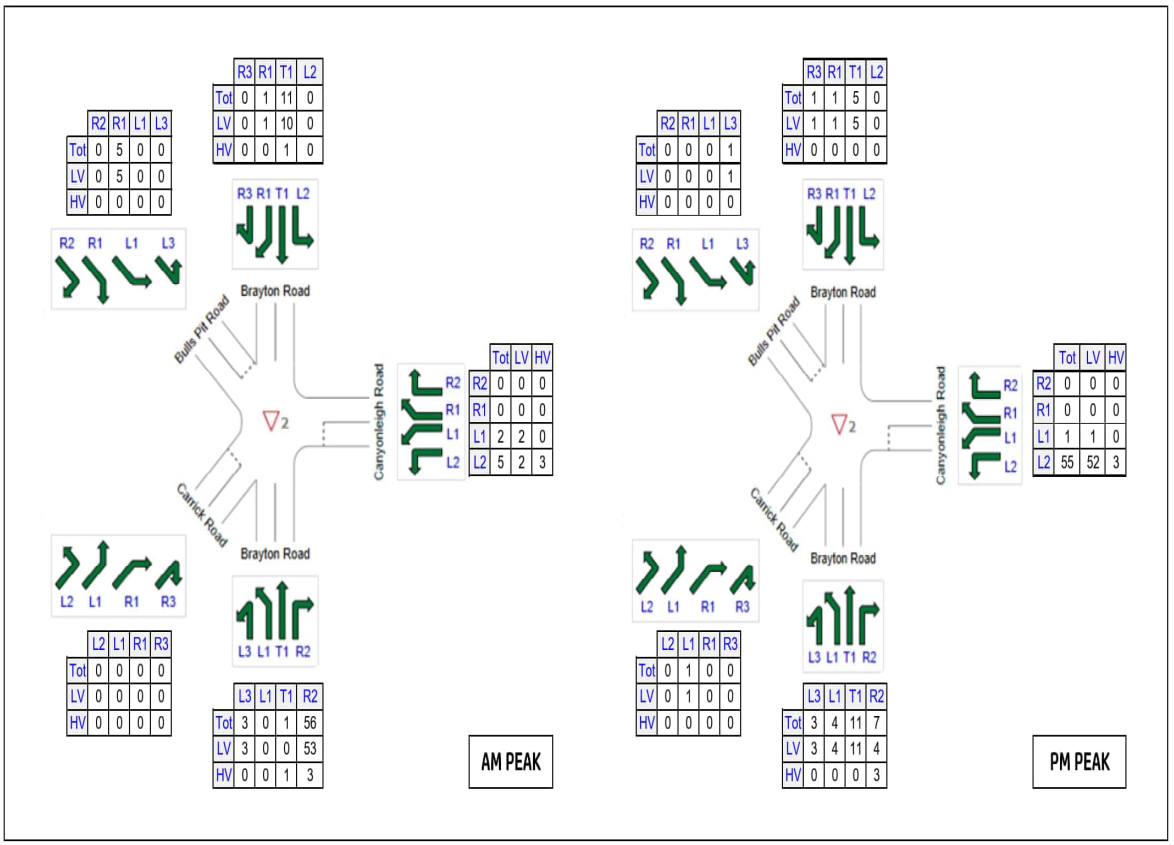


Figure 69 Brayton Road / Canyonleigh Road – 2027 Cumulative Operations Phase Volumes (Project Peaks)

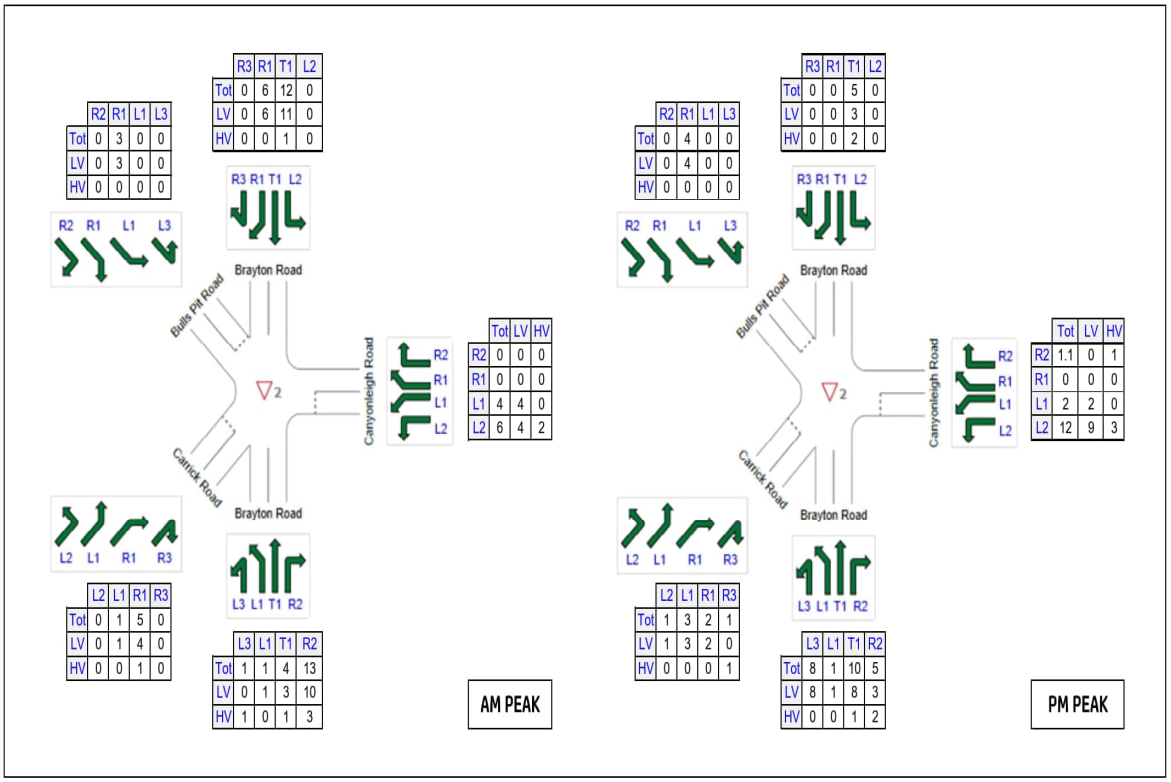


Figure 70 Brayton Road / Canyonleigh Road – 2027 Cumulative Operations Phase Volumes (Network Peaks)

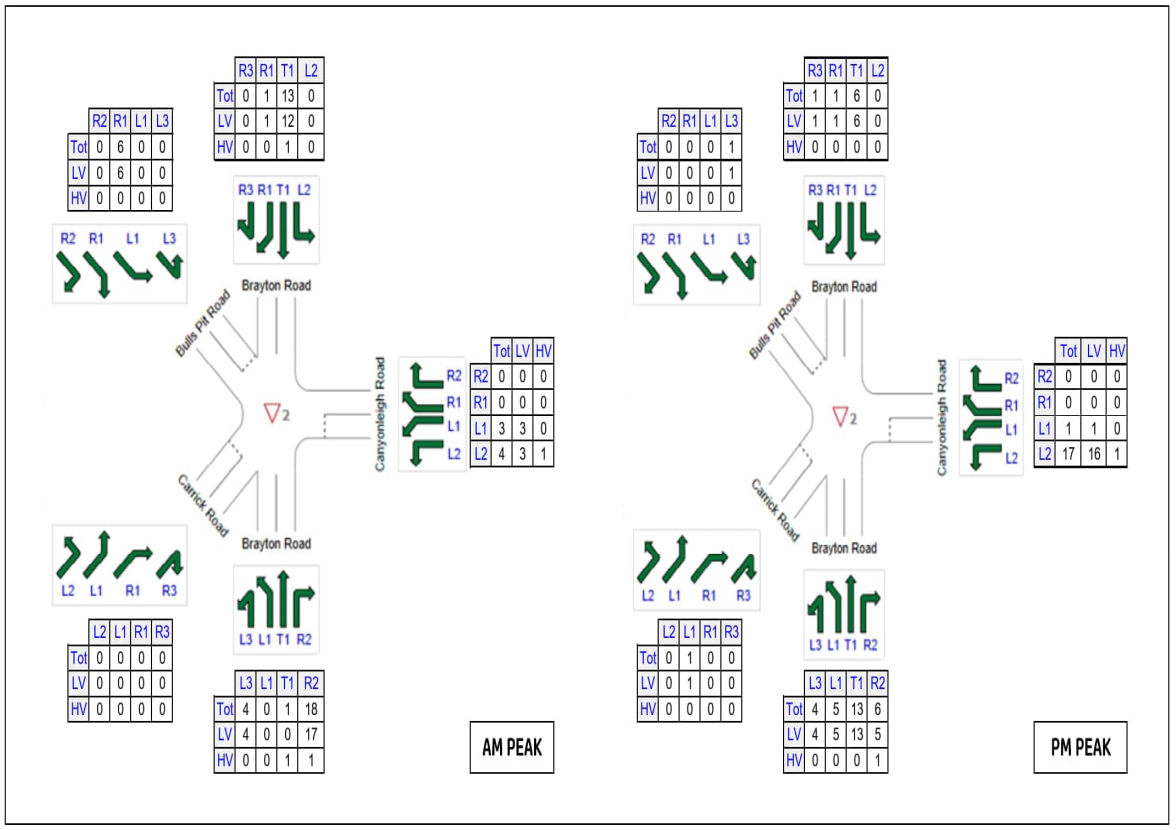


Figure 71 Brayton Road / Canyonleigh Road – 2037 Operations Phase Volumes (Project Peaks)

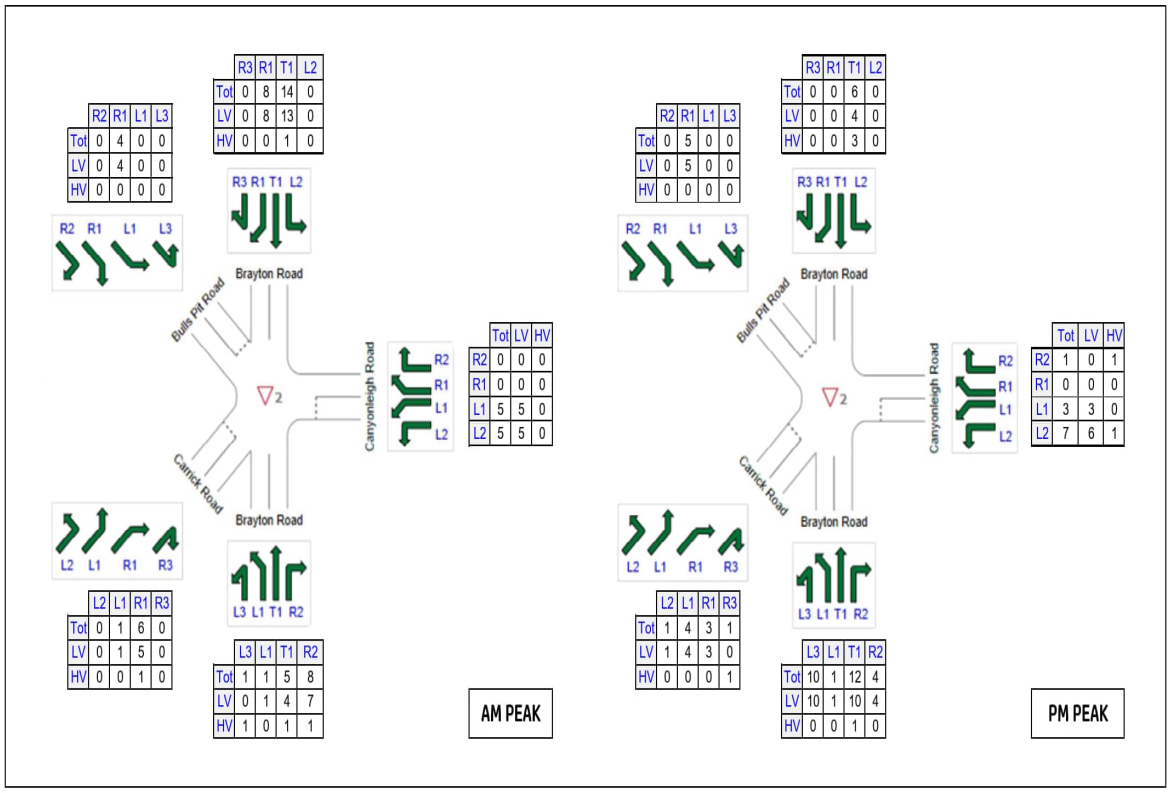


Figure 72 Brayton Road / Canyonleigh Road – 2037 Operations Phase Volumes (Network Peaks)

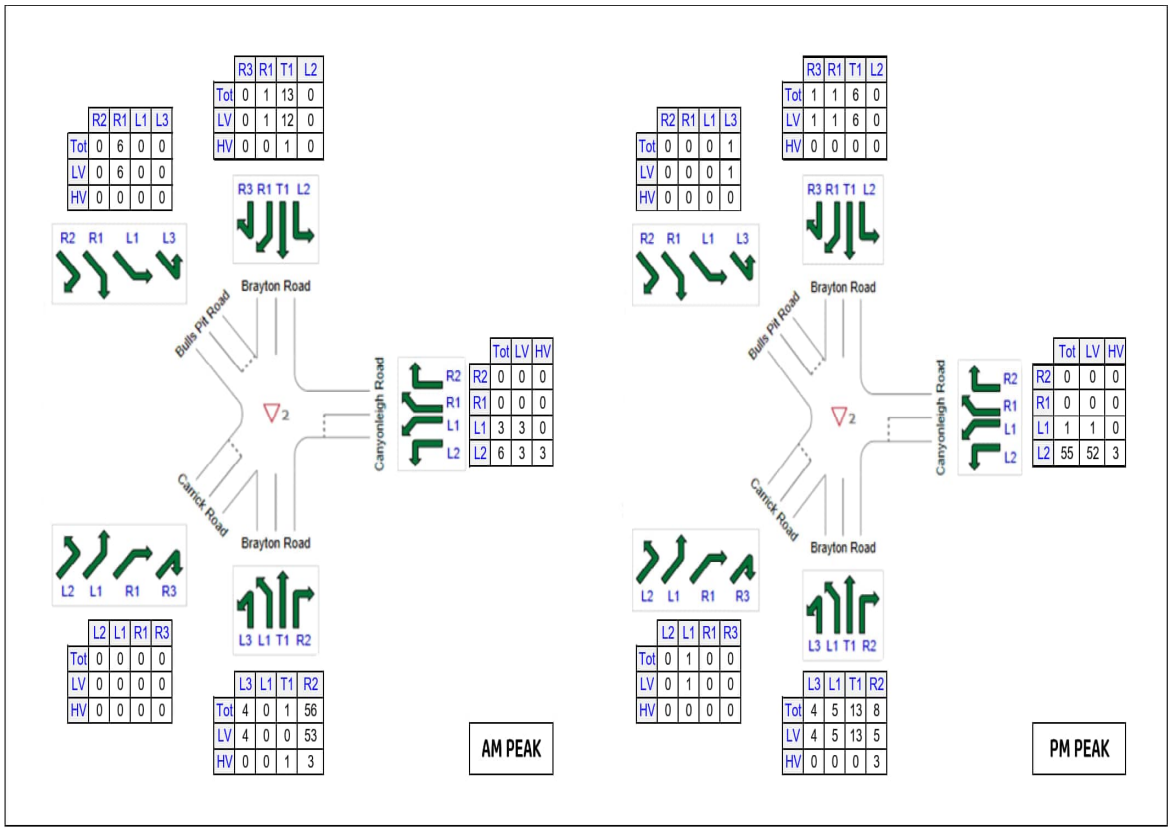


Figure 73 Brayton Road / Canyonleigh Road – 2037 Cumulative Operations Phase Volumes (Project Peaks)

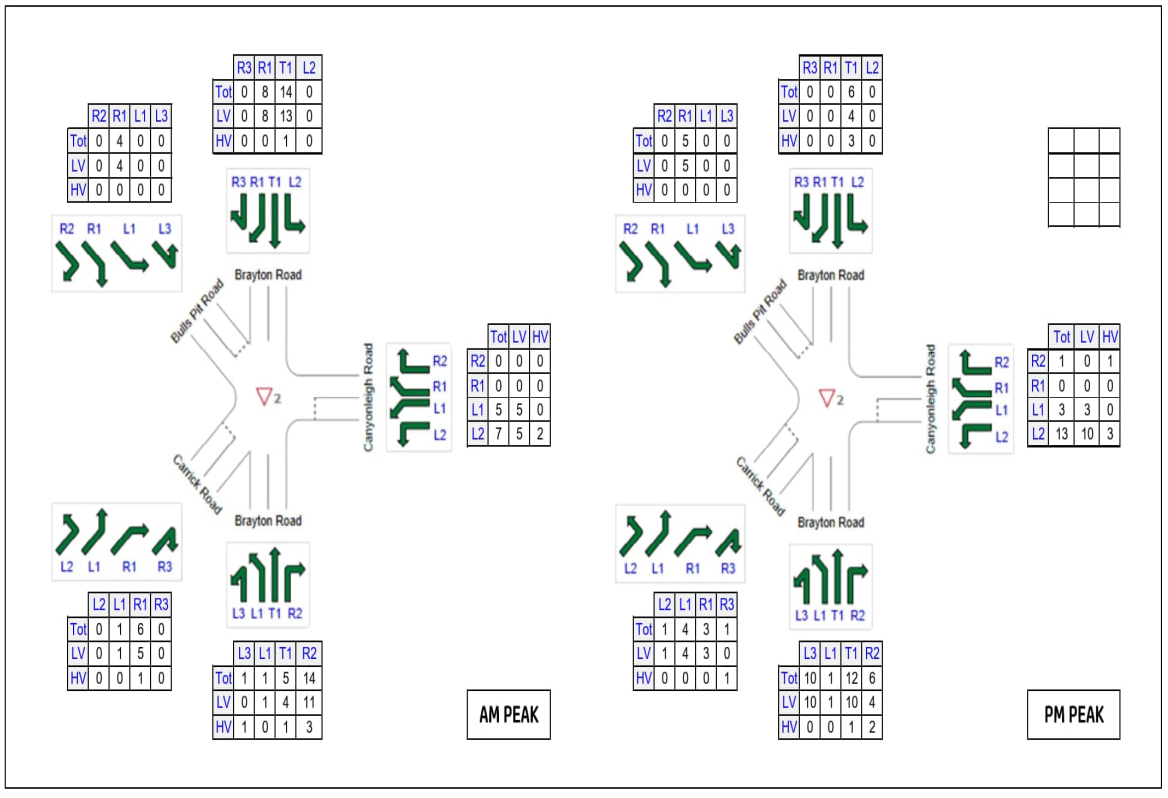


Figure 74 Brayton Road / Canyonleigh Road – 2037 Cumulative Operations Phase Volumes (Network Peaks)

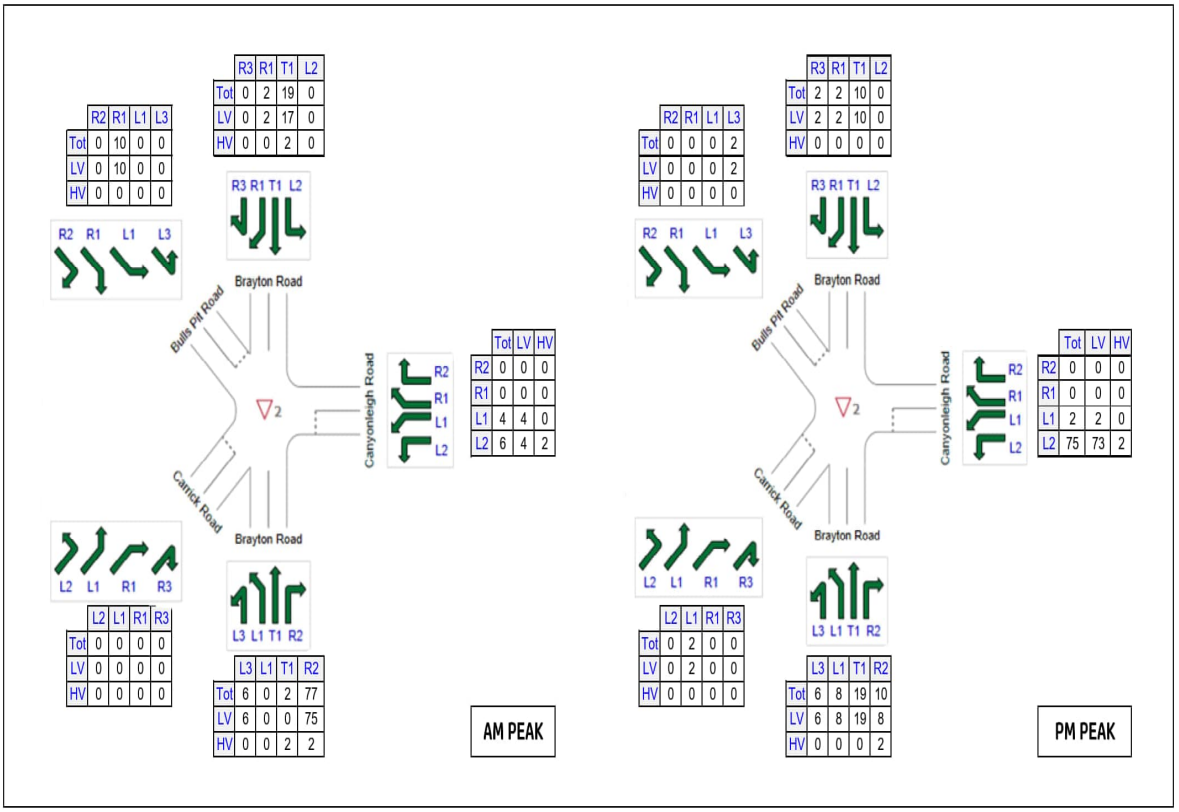


Figure 75 Brayton Road / Canyonleigh Road – 2057 Decommissioning Phase Volumes (Project Peaks)

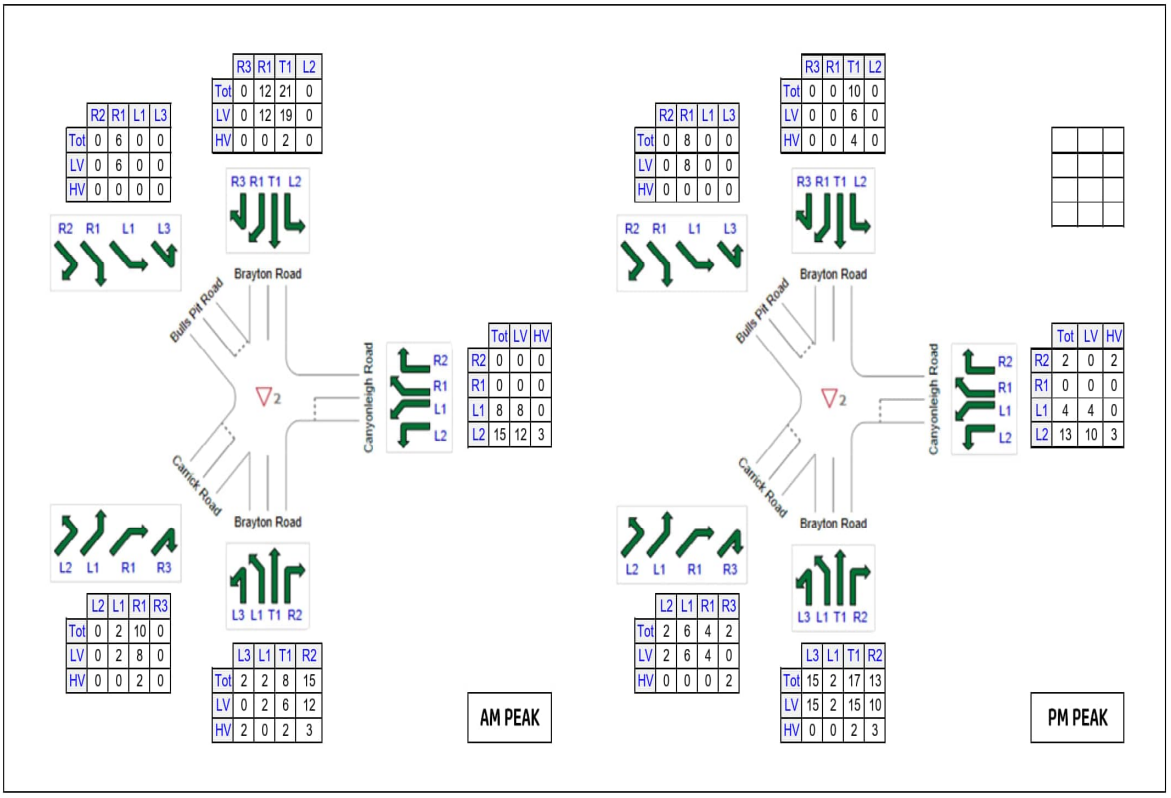


Figure 76 Brayton Road / Canyonleigh Road – 2057 Decommissioning Phase Volumes (Network Peaks)

5.2 Access and Frontage Impact Assessment and Mitigation

As identified in above, the Project proposal includes a direct vehicular access points to the Project Area from Canyonleigh Road.

Based on the low background volumes on Canyonleigh Road in the vicinity of the proposed site access, it is proposed that the accesses be constructed generally in accordance with the arrangement identified in Council's rural access standard drawing (SD-R 08A).

Further to this, it is noted that additional hardstand area is required at the site access location to accommodate the swept paths of the OSOM transformer transport vehicles, with the exact extents of these additional areas to be confirmed in subsequent detailed design phases of the Project once the final configuration of the transformer and associated transport vehicles are provided. Notwithstanding this, and indicative area is shown in **Figure 77** below.

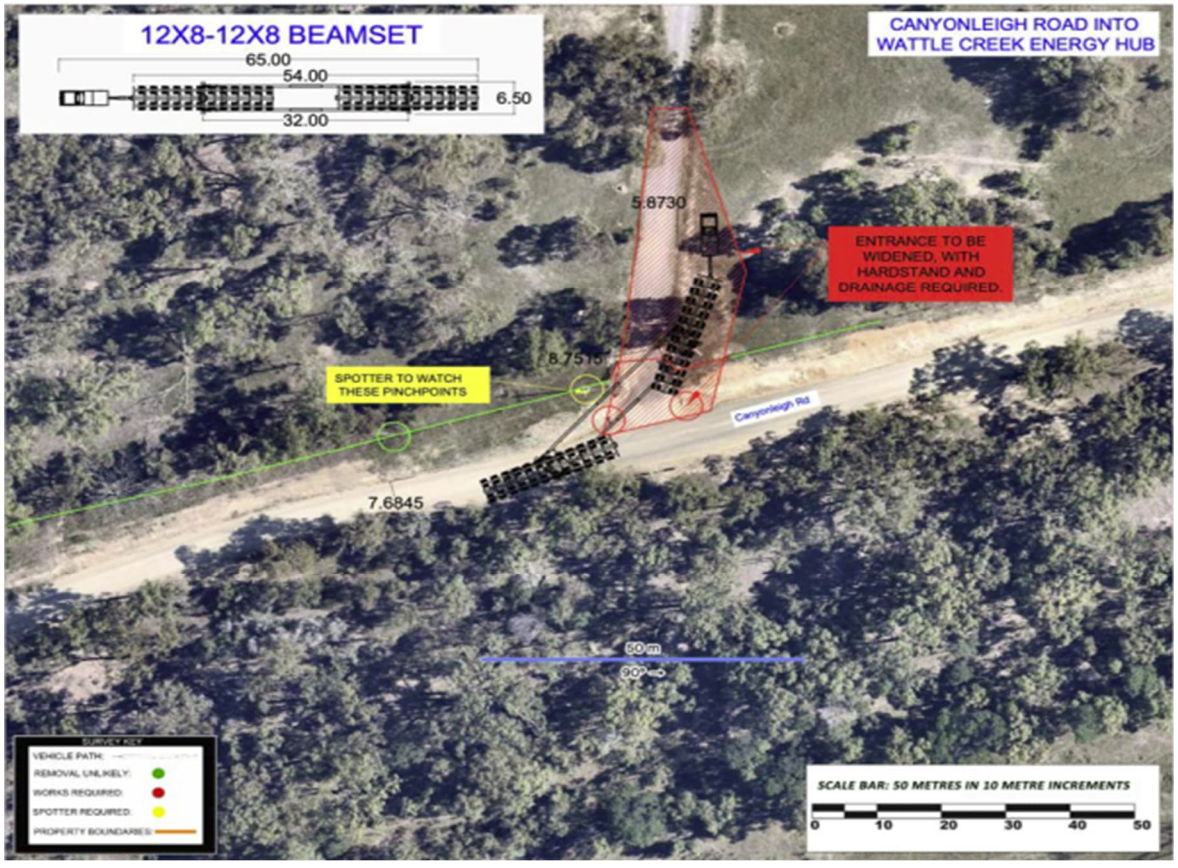


Figure 77 Additional OSOM Route Works – Canyonleigh Road Site Access **[Source: Rex J Andrews]**

5.3 Intersection Impact Assessment and Mitigation

SIDRA analysis was also undertaken to establish the operational performance of existing configuration of the key Brayton Road / Ambrose Road and Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road intersections for the relevant traffic scenarios for the construction, operations and decommissioning phases of the Project, considering the AM and PM peak periods (both Project and Network) at the critical design horizons for each phase as outlined in **Section 0** and **Section 4.5**above.

A summary of the results of the completed analysis for the intersections is provided in **Table 20** and **Table 21** respectively with detailed SIDRA output summaries included for reference in **Appendix E** and **Appendix F**.

Table 20 SIDRA Results – Brayton Road / Ambrose Road (Existing Configuration)

Analysis Scenario	Intersection Degree of Saturation	Level of Service**	Average Delay ** (sec)	Maximum 95% Back of Queue Length (m)
Unsignalised / Priority Controlled Intersections				
Acceptable Limits of Operation	**< 0.800**	**LOS C**	**< 42.5**	**Varies ***
Peak Construction				
2026 AM Peak (Project)	0.064	LOS A	3.5	1.8
2026 PM Peak (Project)	0.061	LOS A	2.2	0.3
2026 AM Peak (Network)	0.034	LOS A	3.5	1.2
2026 PM Peak (Network)	0.037	LOS A	2.4	0.7
Peak Construction - Cumulative				
2026 AM Peak (Project)	0.234	LOS A	3.6	6.6
2026 PM Peak (Project)	0.226	LOS A	2.7	0.8
2026 AM Peak (Network)	0.050	LOS A	3.6	1.7
2026 PM Peak (Network)	0.054	LOS A	2.9	1.2
Project Operations – Cumulative (End of Construction)				
2027 AM Peak (Project)	0.043	LOS A	3.6	1.3
2027 PM Peak (Project)	0.035	LOS A	2.1	0.3
2027 AM Peak (Network)	0.035	LOS A	3.5	1.3
2027 PM Peak (Network)	0.040	LOS A	2.4	0.7
Project Operations (10-year Design Horizon from End of Construction)				
2037 AM Peak (Project)	0.032	LOS A	4.0	1.1
2037 PM Peak (Project)	0.017	LOS A	2.0	0.3
2037 AM Peak (Network)	0.037	LOS A	3.6	1.4
2037 PM Peak (Network)	0.041	LOS A	2.4	0.8
Project Operations – Cumulative (10-year Design Horizon from End of Construction)				
2037 AM Peak (Project)	0.047	LOS A	3.6	1.5
2037 PM Peak (Project)	0.037	LOS A	2.1	0.4
2037 AM Peak (Network)	0.043	LOS A	3.5	1.6
2037 PM Peak (Network)	0.047	LOS A	2.5	0.9
Project Decommissioning				
2057 AM Peak (Project)	0.069	LOS A	3.8	2.1
2057 PM Peak (Project)	0.051	LOS A	2.2	0.5
2057 AM Peak (Network)	0.057	LOS A	3.6	2.2
2057 PM Peak (Network)	0.064	LOS A	2.5	1.2

** LOS and Average Delay values identified are for worst movement at the intersection, not the overall intersection.

The results above indicate that the existing configuration of the Brayton Road / Ambrose Road intersection is expected to operate satisfactorily during all Project traffic scenarios identified for the Project (including cumulative assessments), with all values for intersection DOS, LOS, average delay and

vehicle queue lengths being well within acceptable limits of operation for a priority-controlled (give-way) intersection. Based on these results, it can therefore be seen that the existing configuration of the intersection will be adequate to cater for the additional traffic volumes generated by the peak construction, operations and decommissioning phases of the Project.

Table 21 SIDRA Results – Brayton Rd / Canyonleigh Rd / Carrick Rd / Bulls Pit Rd (Upgraded BAR Configuration)

Analysis Scenario	Intersection Degree of Saturation	Level of Service**	Average Delay ** (sec)	Maximum 95% Back of Queue Length (m)
Unsignalised / Priority Controlled Intersections				
Acceptable Limits of Operation	**< 0.800**	**LOS C**	**< 42.5**	**Varies ***
Peak Construction				
2026 AM Peak (Project)	0.063	LOS A	5.1	2.1
2026 PM Peak (Project)	0.067	LOS A	5.0	2.0
2026 AM Peak (Network)	0.014	LOS A	4.3	0.5
2026PM Peak (Network)	0.019	LOS A	4.5	0.6
Peak Construction - Cumulative				
2026 AM Peak (Project)	0.240	LOS A	5.5	9.7
2026 PM Peak (Project)	0.261	LOS A	5.4	9.5
2026 AM Peak (Network)	0.025	LOS A	4.8	1.0
2026 PM Peak (Network)	0.030	LOS A	5.0	1.1
Project Operations – Cumulative (End of Construction)				
2027 AM Peak (Project)	0.035	LOS A	4.8	1.2
2027 PM Peak (Project)	0.037	LOS A	4.7	1.1
2027 AM Peak (Network)	0.012	LOS A	4.0	0.5
2027 PM Peak (Network)	0.014	LOS A	4.3	0.4
Project Operations (10-year Design Horizon from End of Construction)				
2037 AM Peak (Project)	0.014	LOS A	4.2	0.5
2037 PM Peak (Project)	0.016	LOS A	3.9	0.4
2037 AM Peak (Network)	0.013	LOS A	3.7	0.3
2037 PM Peak (Network)	0.015	LOS A	4.0	0.3
Project Operations – Cumulative (10-year Design Horizon from End of Construction)				
2037 AM Peak (Project)	0.036	LOS A	4.8	1.2
2037 PM Peak (Project)	0.037	LOS A	4.6	1.1
2037 AM Peak (Network)	0.013	LOS A	4.0	0.5
2037 PM Peak (Network)	0.017	LOS A	4.2	0.4
Project Decommissioning				
2057 AM Peak (Project)	0.049	LOS A	4.7	1.6
2057 PM Peak (Project)	0.050	LOS A	4.4	1.5
2057 AM Peak (Network)	0.019	LOS A	3.9	0.6
2057 PM Peak (Network)	0.028	LOS A	4.2	0.7

The results above indicate that the proposed upgraded (BAR) configuration of the Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road intersection is expected to operate satisfactorily during all Project traffic scenarios identified for the Project (including cumulative assessments), with all values for intersection DOS, LOS, average delay and vehicle queue lengths being well within acceptable limits of operation for a priority-controlled (give-way) intersection.

Based on these results, it can therefore be seen that the proposed upgraded (BAR) configuration of the Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road intersection will be adequate to cater for the additional traffic volumes generated by the peak construction, operations and decommissioning phases of the Project.

5.4 Road Link Capacity Assessment and Mitigation

An assessment of the impact of the additional traffic generated by the various phases of the Project on the operation of the relevant road links within the external road network has also been completed. This assessment identifies the expected increase in daily traffic volumes on the external road network during the critical peak construction, operations and decommissioning phases of the Project, and comments on the level of impact the increase in traffic is anticipated to have on the operation of the road links.

While small numbers of Project traffic may utilise other roads along the full transport routes identified for the Project, this assessment is generally focussed on the relevant sections of the Hume Highway, Red Hills Road, Ambrose Road, Brayton Road and Canyonleigh Road which form the main links in the vicinity of the Project Area utilised by the additional traffic anticipated to be generated by the Project.

A summary of the assessment of the percentage increase in daily traffic volumes on the relevant sections of the external road network as a result of the construction, operation and decommissioning phase traffic (refer **Table 18** above) from the Project is shown in **Table 22** with further details of the calculations undertaken provided in **Appendix J.**

As can be seen by the results, the addition of the expected construction, operations and decommission phase traffic volumes from the Project is shown to lead to minor increases on the various sections of the state controlled Hume Highway, with larger increases identified on the Council controlled links of Red Hills Road (25%), Ambrose Road (25%), Brayton Road (27% south of quarry access / 61% north of quarry access) and Canyonleigh Road (194%), noting that the higher percentage increases observed are generally as a result of the low background volumes on these local road links.

Further to this, it was noted that the cumulative addition of traffic from the Project and other adjacent state significant developments lead to minimal increases in daily traffic volumes on the relevant sections of the state controlled Hume Highway, with higher increases than for the Project only scenario on the relevant local road links including Red Hills Road (118%), Ambrose Road (118%), Brayton Road (113% south of quarry access / 264% north of quarry access) and Canyonleigh Road (845%), noting that the majority of the increases are as a result of the high traffic volumes identified to be associated with the construction phase of the proposed Marulan Gas Fired Power Station project.

Notwithstanding this, it is noted that the post development or “with Project” volumes identified for the various Project traffic scenarios in **Table 19** above identified the total volumes on the relevant sections of the identified roads were all still within the generally accepted capacities for a multilane motorway / highway (>60,000vpd - Hume Highway), and sealed rural collector roads (1,500-3,000 vpd – Red Hills Road, Ambrose Road and Brayton Road. As such it can be considered that the existing configurations of these roads provide adequate capacity to cater for the additional traffic generated by the Project.

Finally, it is noted that the road resurfacing works proposed to the relevant sections of Canyonleigh Road are expected to provide suitable capacity to accommodate the additional traffic volumes generated by all identified stages of the Project.

Table 22 Road Link Daily Traffic Volume Comparison (Pre and Post Project)

Road Segment	Seg ID	% Increase in Daily Traffic from Background Traffic Volumes											
		Peak Construction 2026			Cumulative Construction 2026			Project Operations 2037			Decommissioning 2057		
		Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir
Hume Highway (M31)													
North of Red Hills Road	T0247	0.4%	0.4%	0.4%	1.9%	2.0%	1.9%	0.0%	0.0%	0.0%	0.2%	0.2%	0.2%
Red Hills Road to Brayton Road		0.4%	0.6%	0.5%	1.9%	2.5%	2.2%	0.0%	0.0%	0.0%	0.2%	0.2%	0.2%
Brayton Road to Marulan South Road		0.5%	0.6%	0.6%	2.4%	2.5%	2.4%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%
Marulan South Road to Goulburn		0.5%	0.5%	0.5%	2.1%	2.2%	2.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%
Red Hills Road (GMC)													
Hume Highway to Ambrose Road	-	**29.2%**	**21.3%**	**25.2%**	**128.2%**	**109.3%**	**118.5%**	0.0%	2.2%	1.1%	**11.1%**	8.1%	9.5%
Ambrose Road (GMC)													
Red Hills Road to Brayton Road	-	**29.2%**	**21.3%**	**25.2%**	**128.2%**	**109.3%**	**118.5%**	0.0%	2.2%	1.1%	**11.1%**	8.1%	9.5%
Brayton Road (GMC)													
Marulan to Ambrose Road	-	**19.8%**	**23.2%**	**21.6%**	**78.2%**	**81.1%**	**79.7%**	3.4%	3.0%	3.2%	7.5%	8.8%	8.2%
Ambrose Road to Quarry Access	-	**28.3%**	**25.9%**	**27.1%**	**118.5%**	**108.4%**	**113.2%**	3.4%	3.1%	3.2%	**10.7%**	9.8%	**10.3%**
Quarry Access to Canyonleigh Road	-	**59.6%**	**61.6%**	**60.6%**	**260.1%**	**268.7%**	**264.3%**	7.0%	7.3%	**7.1%**	**22.6%**	**23.3%**	**23.0%**
Canyonleigh Road (GMC)													
Brayton Road to Gravel Road	-	**179.8%**	**210.4%**	**193.9%**	**784.4%**	**917.6%**	**845.8%**	**21.2%**	**24.8%**	**22.9%**	**68.1%**	**79.7%**	**73.5%**
Gravel Road to Site Access	-	**179.8%**	**210.4%**	**193.9%**	**784.4%**	**917.6%**	**845.8%**	**21.2%**	**24.8%**	**22.9%**	**68.1%**	**79.7%**	**73.5%**

Note: Gaz = Gazettal Direction or direction of travel, A-Gaz = Against Gazettal Direction or against direction of travel, Bi-Dir = Bi Directional (both directions combined)
Gazettal Direction – Hume Highway Southbound | Red Hills Road – outbound from Hume Highway | Ambrose Road – outbound from Red Hills Road | Brayton Road – outbound from Hume Highway | Canyonleigh Road – outbound from Brayton Road.

5.4.1 Component Transport Routes

It is also noted that additional sections of the external road network have been identified to be temporarily utilised by the Project as part of the transport routes for both the Project components, as well as the OSOM transport movements for the large electrical infrastructure (transformer and switch room).

While the BESS components are understood to be containerised and able to be transported on standard semi-trailer configurations, the OSOM vehicle movements for the larger electrical infrastructure will be required to be undertaken under permit.

As such it is not anticipated that the relatively small number of OSOM movements (approx. 3 total) will have a significant ongoing impact on the operation or capacity of the roads forming the proposed transport routes.

Notwithstanding this, it is noted that a detailed Traffic Management Plan (TMP) is proposed to be prepared as part of subsequent stages of the Project once the exact configuration of the large electrical infrastructure and the associated transformer configurations and associated OSOM transport vehicles are confirmed. This TMP will be developed in consultation with TfNSW and the relevant local government agencies.

5.5 Road Safety Assessment

A high-level road safety assessment has also been undertaken to establish the existing and post development road safety risks relevant to the Project. To establish the level of risk regarding the existing and expected post development road safety considerations identified, a safety risk score matrix as shown in **Figure 78** was utilised, with the results of the road safety risk assessment summarised in **Table 23**.

		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 78 Adopted Risk Score Matrix

Table 23 Road Safety Assessment – Wattle Creek BESS Project

		Existing / Pre-Development			With Project				With Project & Mitigation		
Risk Item		Likelihood	Consequence	Risk Score	Likelihood	Consequence	Risk Score	Mitigation Measure	Likelihood	Consequence	Risk Score
1	All phases of the Project are expected to lead to an increase in turning vehicle movements at the Brayton Road / Ambrose Road intersection. The increase in turning vehicles has the potential to lead to an increase in vehicle conflicts at the access intersection.	Unlikely	Hospitalisation / Fatality	**Medium**	Unlikely	Hospitalisation / Fatality	**Medium**	**No Mitigation Works Required** Detailed intersection analysis identified that the intersection operates with significant levels of spare capacity and negligible vehicle delays and queuing for all Project traffic volume scenarios.	Unlikely	Hospitalisation / Fatality	**Medium**
2	All phases of the Project are also expected to lead to an increase in vehicle movements on the relevant sections of the Hume Highway, Red Hills Road, Ambrose Road, Brayton Road and Canyonleigh Road. This increase in vehicle movements on these road sections has the potential to lead to an increase in vehicle conflicts.	Unlikely	Hospitalisation / Fatality	**Medium**	Unlikely	Hospitalisation / Fatality	**Medium**	**Provision of road resurfacing works to the relevant sections of Canyonleigh Road, as agreed with Goulburn Mulwaree Council.** **These works are anticipated to provide a suitable road configuration to cater for the additional Project traffic volumes.** Further to this, the road link capacity assessment undertaken identified that the increases in daily traffic on the relevant sections of the Hume Highway, Red Hills Road, Ambrose Road and Brayton Road were all within the existing capacity of each road link.	Unlikely	Hospitalisation / Fatality	**Medium**
3	All phases of the Project are also expected to lead to an increase in vehicle movements at the Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road intersection. This increase in movements at the intersection has the potential to lead to an increase in vehicle conflicts.	Unlikely	Hospitalisation / Fatality	**Medium**	Moderate	Hospitalisation / Fatality	**Medium / High**	**Provision of minor works to incorporate a rural BAR treatment on southern Brayton Road approach to the intersection and the installation of advisory "truck turning" signage on the Brayton Road approaches to the intersection.** These upgrade works are anticipated to satisfactorily manage the additional Project traffic volumes at this intersection and reduce the potential for vehicle conflict.	Unlikely	Hospitalisation / Fatality	**Medium**

		Existing / Pre-Development			With Project				With Project & Mitigation		
Risk Item		Likelihood	Consequence	Risk Score	Likelihood	Consequence	Risk Score	Mitigation Measure	Likelihood	Consequence	Risk Score
4	All phases of the Project are also expected to lead to an increase in vehicle turning movements into the proposed Project access point on Canyonleigh Road. This increase in turning movements has the potential to lead to an increase in vehicle conflicts on Canyonleigh Road.	Unlikely	Hospitalisation / Fatality	**Medium**	Unlikely	Hospitalisation / Fatality	**Medium**	**Provision of site access generally in accordance with GMC standard drawing SD-R 08 A and the installation of advisory "truck turning" signage on the Canyonleigh Road approaches to the Project Access to highlight to motorists the presence of the access and the increased potential for turning heavy vehicles.** These proposed access works will provide a higher standard of access treatment at the Project access on Canyonleigh Road and be designed to cater for the expected vehicle types associated with the Project. This is expected to improve the safety and efficiency of vehicle movements into and out of the site.	Unlikely	Hospitalisation / Fatality	**Medium**
5	The Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road is currently being utilised as an informal drop off / pick up point for school bus movements, utilising the shoulder area on the western side of the intersection. The lack of layby / set down areas for the school bus at this location has the potential to lead to conflict between the bus, and even waiting children, with adjacent vehicle movements at the intersection. The addition of Project traffic at the intersection has the potential to further increase the potential for conflict between the bus and its patrons with vehicles at the intersection.	Unlikely	Hospitalisation / Fatality	**Medium**	Moderate	Hospitalisation / Fatality	**Medium / High**	**As part of any adjacent works, further treatments to the existing school bus stop location at the intersection may be required as directed by Council.** **Based on preliminary discussions, it is understood that that road line markings, traffic speed reduction and other mitigation measures may be required at the intersection.** These matters would be addressed through the detailed design of the project and the traffic management plan.	Unlikely	Hospitalisation / Fatality	**Medium**

5.6 Pavement Impact Assessment and Mitigation

In addition to the assessment of the potential traffic impacts of the increased traffic movements associated with the Project, a high-level review of the potential increases in pavement loading as a result of the Project has also been undertaken.

Further details of the assessment of the expected pavement impacts of the construction, operations and decommissioning phase of the Project are provided below.

5.6.1 Construction Phase

The assessment of the potential pavement impact of the Project's construction traffic consists of a comparison of the overall pavement loading (in Equivalent Standard Axles) during the background traffic volumes on the network and those during the identified peak construction periods for the Project, most notably from the associated heavy vehicle movements during these periods.

The pavement loading (in ESAs/SAR_4) for the background traffic periods was calculated based on the identified heavy vehicle percentages for the relevant sections of the network, adopting the following assumptions:

- The percentage of heavy vehicles identified in the available traffic data utilised for the assessment will be maintained for future years, with the overall background traffic numbers assumed to increase at approximately 2% (compound) per year.
- The impact of light vehicles can be ignored as the contribution to pavement loading is negligible in comparison to heavy vehicles.
- The adopted value for the Equivalent Standard Axles per Heavy Vehicle (ESAs/HV) was adopted from WIM site data (2014) for the Hume Highway at HVCS Marulan (3.18 ESAs/HV), as specified in Table E1 of Austroads *Guide to Pavement Technology Part 2: Pavement Structural Design (2024)*.
- The background period of the assessment for the construction phase is the proposed duration of construction for the Project (18 months or 548 days).

The pavement loading generated by the Project construction traffic was then calculated based on the estimated number of heavy vehicle movements during construction and the average loaded and unloaded ESAs/HV values for each vehicle configuration. A summary of the comparison of the background and Project generated pavement loadings is provided in **Table 24** overpage, with further details of the Project pavement loading calculations undertaken included for reference in **Appendix K**.

The results in **Table 24** indicate that the heavy vehicle movements associated with the construction phase of the Project are expected to lead to relatively minor increases in pavement loadings on the relevant sections of the state-controlled Hume Highway as well as the Council (GMC) links of Red Hills Road, Ambrose Road and Brayton Road (Hume Highway to Quarry Access) identified to form part of the transport routes for the Project.

The results did however indicate higher (>10%) increases in pavement loading as a result of Project traffic on the Council (GMC) controlled sections of Brayton Road (Quarry Access to Canyonleigh Road) and Canyonleigh Road (Brayton Road to Project Access).

Based on this, it is recommended that the proponent enter into infrastructure agreements with Council (GMC) regarding the required mitigation works to offset the calculated pavement impacts of the construction phase of the Project on these links.

It is also recommended that the infrastructure agreement include the requirement for pre and post construction phase dilapidation inspections to be undertaken on the identified sections of Brayton Road and Canyonleigh Road, with these inspections to be completed by representatives of the proponent and GMC. These inspections are required to identify and document the existing (Brayton Road) or upgraded

(Canyonleigh Road) condition of the roads (pre construction) and to establish the required maintenance and/or rehabilitation works (to be completed by the proponent at no cost to Council) deemed necessary to reinstate the roads to their documented pre construction condition (post construction).

5.6.2 OSOM Transport Routes

In terms of the expected pavement impact on the identified road sections forming the OSOM transport routes, it is noted that the vast majority of the routes are comprised of higher order (and volume), state-controlled roads. As such it is expected that the existing road pavements on these links would be more than adequate to cater for the increase in pavement loadings from the proposed OSOM transport vehicle movements during construction.

5.6.3 Operations Phase

As identified above, it is understood that the operations phase of the Project will only generate relatively low traffic volumes on the network (approx. 15 vpd each direction) with negligible heavy vehicle movements (approximately 1 HV per week). As such it can be considered that this phase of the Project will have a negligible impact to the operation (and pavement loadings) of all relevant road links.

5.6.4 Decommissioning Phase

As previously identified, based on information provided by Spark Renewables it is understood the decommissioning phase works associated with the Project are anticipated to be completed over a 12 month period for the overall Project Area, with the peak traffic movements to/from the Project Area during decommissioning conservatively estimated to be approximately 70% of the peak construction movements for the Project to/from the Project Area (both daily and during AM and PM peak periods).

However, as these works are likely to occur in more than 30 years the exact nature of the works and associated traffic movements are difficult to confirm at this stage. As such it is proposed that when more accurate information is available closer to the start of the decommissioning works, an updated traffic impact assessment be completed as part of the required decommissioning and rehabilitation strategy, to clearly outline the proposed decommissioning works, the associated traffic movements, their anticipated impact on the surrounding road network and any management and mitigation required.

Notwithstanding this, as any pavement loading from a future decommissioning phase will only be temporary (12 months) with no ongoing increase in traffic (or loading), it is expected that the decommissioning phase of the Project will have a minimal impact to the existing road pavements of the external road network.

Table 24 Pavement Loading Comparison – Construction Phase

Road Segment	Seg ID	% Increase in Daily Traffic from Background Traffic Volumes					
		Background ESA		Project Construction Generated ESA		% Increase in ESAs	
		Gaz	A-Gaz	Gaz	A-Gaz	Gaz	A-Gaz
Hume Highway (M31)							
North of Red Hills Road	T0247	2,470,734	2,119,324	4,923	596	0.20%	0.03%
Red Hills Road to Brayton Road		2,470,734	2,119,324	4,923	13,630	0.20%	0.64%
Brayton Road to Marulan South Road		2,470,734	2,119,324	5,881	13,630	0.24%	0.64%
Marulan South Road to Goulburn		2,470,734	2,119,324	1,044	8,707	0.04%	0.41%
Red Hills Road (GMC)							
Hume Highway to Ambrose Road	-	282,577	264,463	13,630	596	4.82%	0.23%
Ambrose Road (GMC)							
Red Hills Road to Brayton Road	-	282,577	264,463	13,630	596	4.82%	0.23%
Brayton Road (GMC)							
Marulan to Ambrose Road	-	61,587	83,324	0	939	0.00%	1.13%
Ambrose Road to Quarry Access	-	313,370	315,182	13,630	1,554	4.35%	0.49%
Quarry Access to Canyonleigh Road	-	25,359	23,548	42,221	9,178	**166.49%**	**38.98%**
Canyonleigh Road (GMC)							
Brayton Road to Gravel Road	-	5,434	5,434	42,221	9,178	**776.96%**	**168.90%**
Gravel Road to Site Access	-	5,434	5,434	42,221	9,178	**776.96%**	**168.90%**

Note: Gaz = Gazettal Direction or direction of travel, A-Gaz = Against Gazettal Direction or against direction of travel.

Gazettal Direction – Hume Highway Southbound | Red Hills Road – outbound from Hume Highway | Ambrose Road – outbound from Red Hills Road | Brayton Road – outbound from Hume Highway | Canyonleigh Road – outbound from Brayton Road.

5.7 Transport Infrastructure

5.7.1 Public Transport Infrastructure

As previously identified, there is currently no public transport infrastructure (i.e. public bus routes) along the key transport routes for the Project of Red Hills Road, Ambrose Road, Brayton Road and Canyonleigh Road that could be utilised as part of the vehicle movements required for the Project.

Notwithstanding this, as mentioned above existing intersection of Brayton Road / Canyonleigh Road / Carrick Road and Bulls Pit Road is currently utilised as an informal stop for school bus movements with a shelter provided adjacent to the existing shoulder on the western side of the intersection, with students being driven to/from these points from surrounding areas.

As this existing shoulder area will be required to be utilised as part of the proposed BAR treatment works to the intersection as part of the Project, further treatments to the existing school bus stop location at the intersection may be required, with further discussions to be undertaken with Council. Notwithstanding this, based on preliminary discussions between Spark and Council, it is understood that Council has indicated that road line markings, traffic speed reduction and other mitigation measures may be required at the intersection, with these matters to be addressed through the detailed design of the Project and the associated Traffic Management Plan.

It is also recommended that specific traffic management measures be identified within the construction management plan for the Project to look to further manage the potential interaction of Project traffic, in particular heavy vehicle movements, with both the school bus movements and any waiting children / parents at this location.

5.7.2 Active Transport Infrastructure

Based on the isolated, rural nature of the Project site there are no specific active transport facilities or infrastructure on the surrounding road network (i.e. bike lanes or pedestrian pathways) that could be utilised as part of required movements for the Project.

Furthermore, due to the location of the site, approximately 15 km to the north-east of the regional township of Marulan, staff commuter movements to/from site using active transport modes such as walking or cycling are not considered feasible.

6.0 Mitigation Measures

The following section sets out suggested mitigation measures to manage and/or mitigate the traffic and transport related impacts associated with the Project.

6.1 Traffic Management Measures

6.1.1 Information and Communication

To improve the awareness of the local residents and community of the Project and the associated Project traffic, and assist in managing the potential traffic impacts, it is recommended that a community information and awareness program be implemented for the Project.

Undertaken prior to construction commencing and then at regular intervals during the construction period, a program of consultation should be initiated to ensure local residents are aware of construction traffic accessing the Project, and any specific traffic management issues or measures to be implemented. This program may include elements of the following as appropriate to the relevant phase of Project works:

- Press releases in local newspapers.
- Specific emails, newsletters and individual letter drops to neighbouring residents along the key transport routes for the Project (in particular Canyonleigh Road).
- Provision of a website providing details of the status of works and contact details for complaints or enquiries.
- Provide key contact personnel and contact details, including out of hours contact information to residents, schools, public activities and business operating alongside the local route.
- Neighbours of the Project will be consulted and notified regarding the timing of major deliveries which may require additional traffic control and disrupt access.

6.2 OSOM Road Authority Approvals & Traffic Management Plan

The proposed use of OSOM vehicles for the Project will require the obtainment of suitable permits from the National Heavy Vehicle Regulator (NHVR). This replaces the approvals that were previously granted from TfNSW and Councils. Applications are to be submitted to the NHVR, which identify the proposed OSOM loads, vehicle combinations and transport routes.

In addition to the required permits, it is proposed that a detailed Traffic Management Plan (TMP) be developed for the Project as part of the Construction Traffic Management Plan (CTMP) or the decommissioning management plan that should be developed before construction or decommissioning commences.

This TMP will provide details of the management measures to be implemented to govern the required Oversized and Over Mass (OSOM) vehicle movements for the Project. This TMP should include, but not be limited to:

- Procedures for escorts of OSOM vehicles.
- Traffic control plans for temporary road closures to allow vehicles to cross to the other side of the carriageway where required.
- Safe work methods and strategies for working on roadways.
- Indicative OSOM haulage schedule, including dates and times for transporting loads.
- Location of suitable rest stops and vehicle layover areas along the proposed transport routes.
- Communication strategy to affected communities.
- Notification and consultation of key stakeholders including:

  - Police and emergency services
  - Local Councils along the route
  - Public and school bus operators that may be affected.
- Advertising in local newspaper and media releases.
- Contact details of foreman or project manager throughout operations to be shared with emergency services and road authorities.
- Timing of operations and measures to avoid commuter peaks and school peaks through populated areas where practicable.
- Consideration of cumulative impacts of other projects along the route, based on updated information that is available at that time.
- Identification of layby areas for driver breaks and co-ordination of OSOM on site arrivals.

6.3 Driver Code of Conduct

To assist in achieving safe outcomes during the construction phase of the Project, a Sample Driver Code of Conduct has been prepared and is included in **Appendix L**. The Driver Code of Conduct would be finalised prior to issue of the Construction Certificate.

The purpose of the Driver Code of Conduct is to minimise the impact of individual driver behaviours on all users of the public roads forming part of the site access routes. The Driver Code of Conduct outlines acceptable behaviour for all vehicle drivers in connection with the Project, including:

- General requirements (e.g. site induction requirements).
- Travelling speeds and safe driving practices, particularly through residential areas and school zones.
- Fatigue management.
- Adherence to designated transport routes and heavy vehicle noise.
- Public complaint resolution and penalties and disciplinary action.

Prior to involvement in the Project, vehicle drivers will be required to read the Driver Code of Conduct and acknowledge their compliance with it throughout their involvement in the Project. The expectations of the Driver Code of Conduct will be established in the Project induction and will be reiterated through pre-starts. Heavy vehicle haulage routes will be communicated to haulage contractors during the procurement stage and requirements of the Drivers Code of Conduct, route use and compliance included in their contracts.

The Driver Code of Conduct includes an element of fatigue management. This includes the requirements for drivers on the Project to manage their fatigue, be suitably rested and for operators of heavy vehicles to comply with the Chain of Responsibility legal requirements under the National Heavy Vehicle Law (Heavy Vehicle (Adoption of National Law) Act 2013). The fatigue management standards, including those outlined in the Chain of Responsibility, will be consistent with the standards outlined in the Fatigue Management Plan.

6.4 Emergency Access

The proposed site access point provides good access and egress around the site for emergency services. No additional emergency access points are expected to be required proposed.

6.5 On-Site Mitigation Measures

In addition to the external network, it is recommended that mitigation measures targeted at safety and reducing the impact of Project traffic also be implemented for the on-site, internal vehicle circulation facilities. Such measures could include:

- On-site speed limits / restrictions along internal access tracks.
- Appropriate dust suppression measures.
- Implementation of condition inspection and maintenance program for on-site access tracks to ensure safe for use by Project traffic.
- Completion of all loading and unloading movements to occur within the designated work areas. No access track area or external streets or roads are to be used for material storage at any time.
- Sufficient car parking is to be provided on-site to ensure vehicles do not park on the surrounding road network.
- All car parking and loading areas to be designed in accordance with the relevant Australian Standard (2890 series) and Council requirements.

6.6 Road Safety Considerations

Under the safe systems approach road safety is generally improved by focussing on Safe Roads, Safe People, Safe Vehicles and Speed Management. The safe systems approach is summarised in **Figure 79** below, with further details of the implementation of the approach detailed in the following sections.

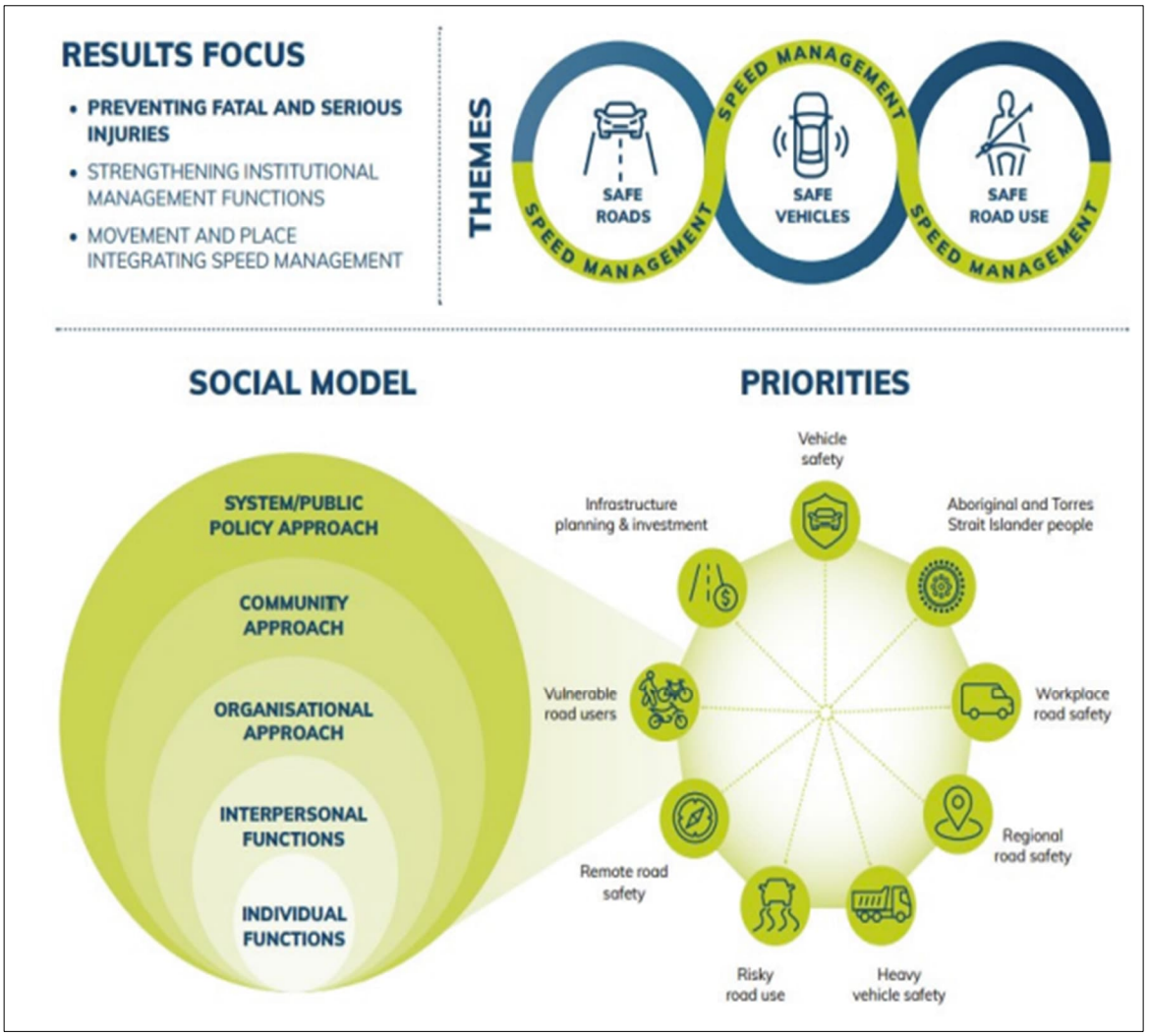


Figure 79 Safe Systems Approach Summary **[Source: National Road Safety Strategy 2021-30]**

6.6.1 Safe Vehicles

Contractors are to ensure that all vehicles used are road worthy and in good working condition with lights, brakes, tire pressure etc.

6.6.2 Safe Road Use

Safe Road Use can be achieved by education of workers and communicating policies of the work site. Worker site induction should include driver education of the local road conditions and an adoption of a "drivers code of conduct" (refer **Appendix L**).

This should include:

- Driving to the conditions on unsealed roads.
- Avoid speeding and other dangerous behaviour.
- Identification and communication of known road crash cluster locations.
- Identification and warning of when roads may be affected by black ice, road damage (potholes) and incidents.
- A drug and alcohol policy to reduce incidents of drunk and drug driving.
- Additional caution of wildlife when driving at dawn and dusk.
- Measures to reduce the risk of workers driving while tired.
- Training drivers to respect private property and farm gates.

6.6.3 Safe Speeds

As part of managing the Project, workers would be required to drive to the conditions, respect speed limits, and abide by the Drivers Code of Conduct (refer **Appendix L**).

6.6.4 Sensitive Land Uses Considerations

It is recognised that the Project may have an impact on sensitive land uses such as schools and residential precincts within townships along the identified OSOM haulage and material delivery routes, including Marulan.

To minimise the impacts on schools it is recommended that temporary road closures for OSOM movements should be avoided during school peaks. To this end vehicle layovers should be identified along the proposed haulage routes to allow vehicles to wait until appropriate times for travel.

6.6.5 Adverse Weather Considerations

Speed reductions, use of fog lights during periods of low visibility, cessation of work and site shutdowns will be implemented as required during periods of adverse weather.

6.7 Road Network Upgrade and Mitigation Works

In addition to the traffic management measures and strategies above, the assessment has identified the following road network upgrade and mitigation works to offset the traffic and pavement impacts of the Project, with a summary of the recommended works and associated delivery timeframes outlined in **Table 25**:

- Completion of minor works along the identified OSOM transport route to accommodate the swept paths of the OSOM transformer transport vehicles, including the relocation of signage and detailed survey of bridges and culverts to assess capacity along Canyonleigh Road as identified in the Preliminary Transport Route Assessment for the Project (refer **Appendix B** and **Appendix C**). It is noted that the exact extent and scope of these works will be determined in subsequent detailed

design phases of the Project once the transformer and associated transport vehicle configurations are confirmed.

- Provision of minor works to the Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road intersection to incorporate a basic right (BAR) turn treatments on the southern Brayton Road approach to the current configuration of the intersection. The proposed BAR treatment is to be provided generally in accordance with Figure 7.1 (rural BAR) of Part 4A of Austroads *Guide to Road Design*, noting the potential to utilise the existing width provided by the wide shoulder on the western side of the southern Brayton Road approach to the intersection.

  As part of these works, further treatments to the existing school bus stop location at the intersection may be required, with further consultation to be undertaken with Council. Based on preliminary discussions between Spark and Council, it is understood that Council has indicated that road line markings, traffic speed reduction and other mitigation measures may be required at the intersection, with these matters to be addressed through the detailed design of the Project and the associated Traffic Management Plan.
- Installation of advisory "truck turning" signage on the Brayton Road approaches to the intersection with the Canyonleigh Road / Carrick Road / Bulls Pit Road, to highlight to motorists the presence of the intersection and the increased potential for turning heavy vehicles to/from Canyonleigh Road.
- Provision of resurfacing works along Canyonleigh Road between the Brayton Road/Canyonleigh Road intersection and the proposed Site Access to provide a suitable road cross section with adequate link capacity to cater for the additional Project traffic on the link. These works will be designed during the detailed design phase in consultation with Council and in accordance with all relevant road standards, including Council's Geometric Road Design Specification and standard drawings. Spark Renewables are proposing that these works are to be contained within the existing road carriageway and include no additional road widening.
- Provision of a suitable site access configuration on Canyonleigh Road. It is proposed that this site access point is to be provided generally in accordance with Council's standard rural access arrangement/configuration as per standard drawing SD-R 08 A.
- Installation of advisory "truck turning" signage on the Canyonleigh Road approaches to the Project Access, to highlight to motorists the presence of the access and the increased potential for turning heavy vehicles to/from the access.
- Completion of pre and post construction phase dilapidation inspections on the relevant sections of Brayton Road (Quarry Access to Canyonleigh Road) and Canyonleigh Road (Brayton Road to Site Access). The pre construction inspection is to be undertaken upon the completion of the proposed upgrade works and is to establish the pre-construction road condition, with the post construction dilapidation survey then used to identify rehabilitation works required to be completed by the Project to bring road conditions / standards on the relevant sections of these links back to the recorded pre construction condition.
- Preparation of traffic management plan for the Project outlining proposed management measures and processes to minimise the impact of Project traffic (including OSOM transformer transport vehicles) on the external road network.

Table 25 External Road Network Upgrade & Mitigation Works Summary – Wattle Creek BESS Project

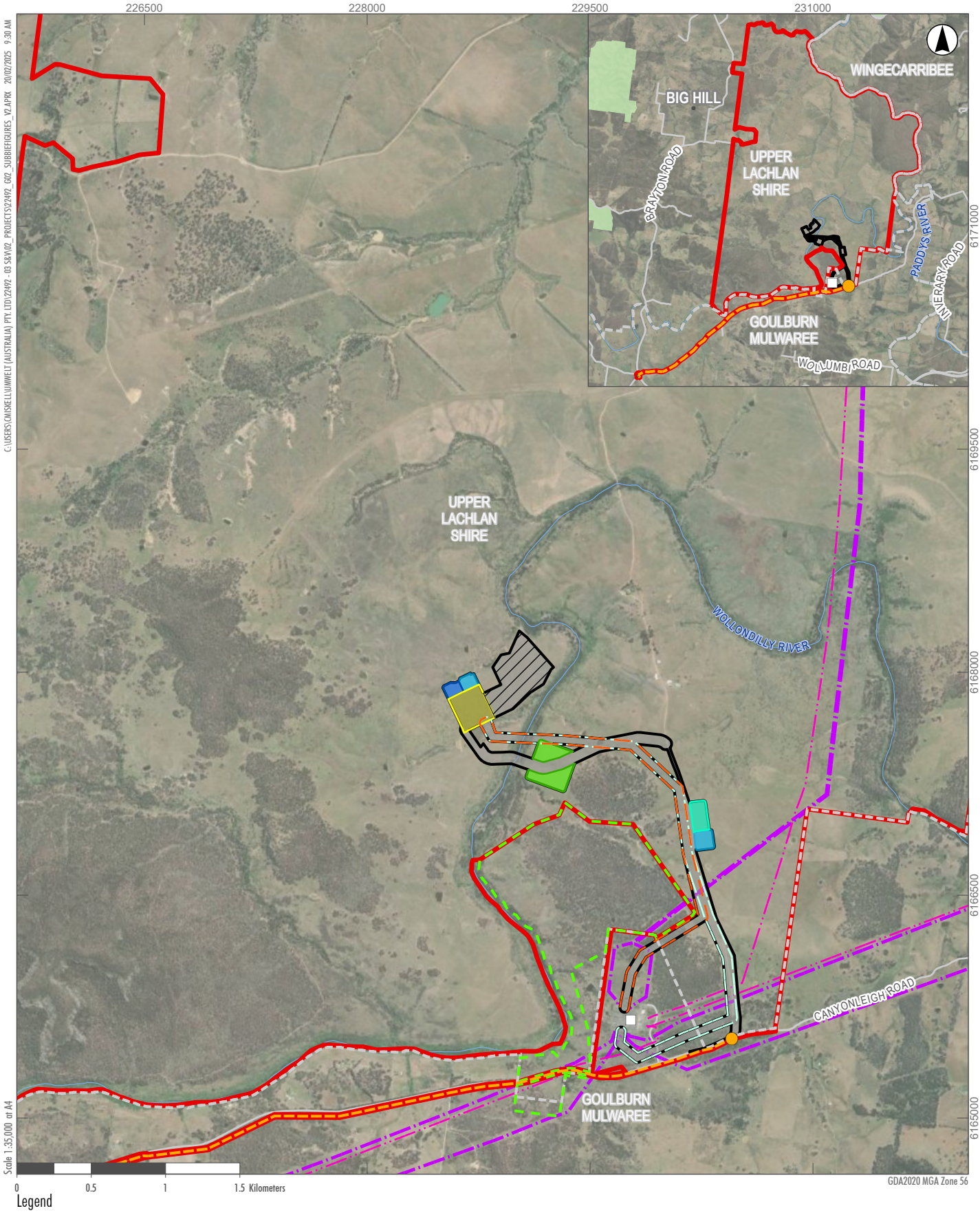
Road / Intersection	Treatment	Timing
Various locations on OSOM transport routes	Various infrastructure relocation and hardstand construction works to accommodate vehicle paths of OSOM transformer transport movements.	Prior to commencement of OSOM transformer haulage operations.
Brayton Road (Quarry Access to Canyonleigh Road – approx. 1.985km)	Completion of pre-construction dilapidation inspection, including documentation of pre-construction condition.	Prior to the commencement of construction works.
	Completion of post construction dilapidation inspection, identification of defects and completion of suitable maintenance/rehabilitation works to reinstate road to documented pre construction condition.	Within 3 months of the completion of construction works.
Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road Intersection	Minor works to incorporate a BAR turn treatment on southern Brayton Road approach to the existing intersection configuration (in accordance with relevant Austroads standards). As part of these works, further treatments to the existing school bus stop location at the intersection may be required, with further discussions to be undertaken with Council. Based on preliminary discussions between Spark and Council, it is understood that Council has indicated that road line markings, traffic speed reduction and other mitigation measures may be required at the intersection and that these matters would need to be addressed through the detailed design of the project.	Prior to the commencement of construction works.
	Installation of advisory "truck turning" signage on the Brayton Road approaches to the intersection with the Canyonleigh Road / Carrick Road and Bulls Pit Road.	Prior to the commencement of construction works.
Canyonleigh Road (Brayton Road to unsealed road – approx. 600m)	Provision of suitable road resurfacing works to provide an adequate carriageway and capacity to cater for the additional Project traffic volumes on Canyonleigh Road as agreed with Goulburn Mulwaree Council.	Prior to the commencement of construction works.
	Completion of pre-construction dilapidation inspection, including documentation of pre-construction condition.	Prior to the commencement of construction works (but post upgrade works).
	Completion of post construction dilapidation inspection, identification of defects and completion of suitable maintenance/rehabilitation works to reinstate road to documented pre construction condition.	Within 3 months of the completion of construction works.

Road / Intersection	Treatment	Timing
Canyonleigh Road (Sealed Road to Site Access – approx. 9.250km)	Provision of suitable road resurfacing works to provide an adequate carriageway and capacity to cater for the additional Project traffic volumes on Canyonleigh Road as agreed with Goulburn Mulwaree Council.	Prior to the commencement of construction works.
	Completion of pre-construction dilapidation inspection, including documentation of pre-construction condition.	Prior to the commencement of construction works (but post upgrade works).
	Completion of post construction dilapidation inspection, identification of defects and completion of suitable maintenance/rehabilitation works to reinstate road to documented pre construction condition.	Within 3 months of the completion of construction works.
Canyonleigh Road Site Access	Provision of standard rural access as per Council (GMC) standard drawing SD-R 08 A.	Prior to the commencement of construction works.
	Installation of advisory "truck turning" signage on the Canyonleigh Road approaches to the Project Access.	Prior to the commencement of construction works.
	Provision of additional hardstand area at access to accommodate OSOM transport vehicle swept paths.	Prior to commencement of OSOM transformer haulage operations.

7.0 Conclusions and Recommendations

Based on the information provided above, it can be seen that conditional to the provision of the identified mitigation measures and road network upgrade works as part of the Project, the potential traffic impacts of the construction, operations and decommissioning phases of the Project can be appropriately managed, with minimal traffic impacts anticipated on the relevant sections of the local government and state-controlled road networks.

Appendix A – Proposed Plan of Development



Legend

- Project Area
- Marulan Gas Fired Power Station Project Area
- Local Government Area
- Roads
- Watercourses
- Access Road Works
- Site Access Point

Proposed Transmission Line

- Proposed Transmission Line Option 1 Easement
- Proposed Transmission Line Option 2 Easement

Existing Transmission Lines

- 330kV
- 132kV
- Existing Substation

BESS

- Development Footprint – BESS
- BESS
- Construction Compound
- Laydown Area
- O&M Facility
- Substation
- Test Bed

BESS Conceptual Layout

Image Source: ESRI Basemap (2024) Data source: NSW DFSI(2024)

Appendix B – OSOM Route Assessment (Port Kembla to Project Area)

REX J ANDREWS
ENGINEERED TRANSPORTATION

ROUTE SURVEY:

FROM: AAT PT KEMBLA

TO: CANYONLEIGH RD MARULAN

PROJECT: WATTLE CREEK ENERGY HUB

COMPONENT TO BE TRANSPORTED: TRANSFORMER

08/11/2024 REV 00

Rev.	Date	Change	Responsible	Checked
00	13/05/24	Report compiled	W Andrews	✓
00	17/05/24	Report completed	W Andrews	✓
01	08/11/24	Edited	W Andrews	✓

Index:

INDEX: 2

INDEX: 2

1.0 INTRODUCTION 3
2.0 EVALUATION 4
3.0 PROJECT DATA 5
4.0 TRANSPORT DRAWING 6
5.0 SITE LOCATION 8
6.0 TRANSPORT ROUTE SURVEY 9
7.0 CONCLUSION 23
8.0 REFERENCES 25

1.0 Introduction

This document describes observations and previous experience on route and explains the transport of a transformer from Pt Kembla NSW to Marulan NSW.

The route survey is based on a driven study from Pt Kembla through to the site, on the following pages.

2.0 Evaluation

Assessment of the proposed routes was conducted by Rex J Andrews Engineered Transportation based on onsite route surveys as well as previous experience on sections of the identified routes and transporting equipment similar to the proposed loads on various other projects. The assessment was conducted utilising the knowledge, experience and intellectual property of Rex J Andrews on purpose-built equipment and is not intended for use by other parties.

The assessment considered the key constraints encountered on the routes and an estimation of the amount of work required to make the route viable based on previous experience. Table 1 shows the evaluation of the route and provides an overall ranking to give guidance for the development from a transport perspective. The assessment was based on operational factors and equipment capability and does not consider external factors such as regulatory, landholder, environmental, cultural or any other external factors beyond the knowledge or control of Rex J Andrews.

1	No work required
2	Some Work required
3	Moderate amount of works required
4	Large amount of works required

	Harbour/Site	Road Modification	Road Furnishings	Vegetation	Site Entrance	Bridge Calculations	Traffic Control	Overall Work Required
From: Port Kembla	**1**	**2**	**2**	**1**	**4**	**2**	**2**	**2**

Table 1 Route Evaluation

3.0 Project Data

Date of latest Route Study: 13/05/2024
Survey undertaken by: W Andrews, Rex J Andrews P/L
Project name: Wattle Creek Energy Hub
From: AAT Berth, Port Kembla (NSW)
To: Wattle Creek energy hub, Marulan (NSW)
Item to be transported: Power transformer.

Power transformer size if fitted with beams lugs: 10.0l x 4.5w x 4.7h x 200T
Power transformer size if not fitted with beams lugs: 10.0l x 4.5w x 4.3h x 200T
Proposed transporter: 5 block trucks towing a 12x8-12x8 Beamset
Overall dimensions of load: (110.0l x 5.5w x 4.7h x 468.5T)

Escort requirement:
NSW: 4x Company pilot, 2 x NSW Police, 2 x mobile VMS.

4.0 Transport Drawing

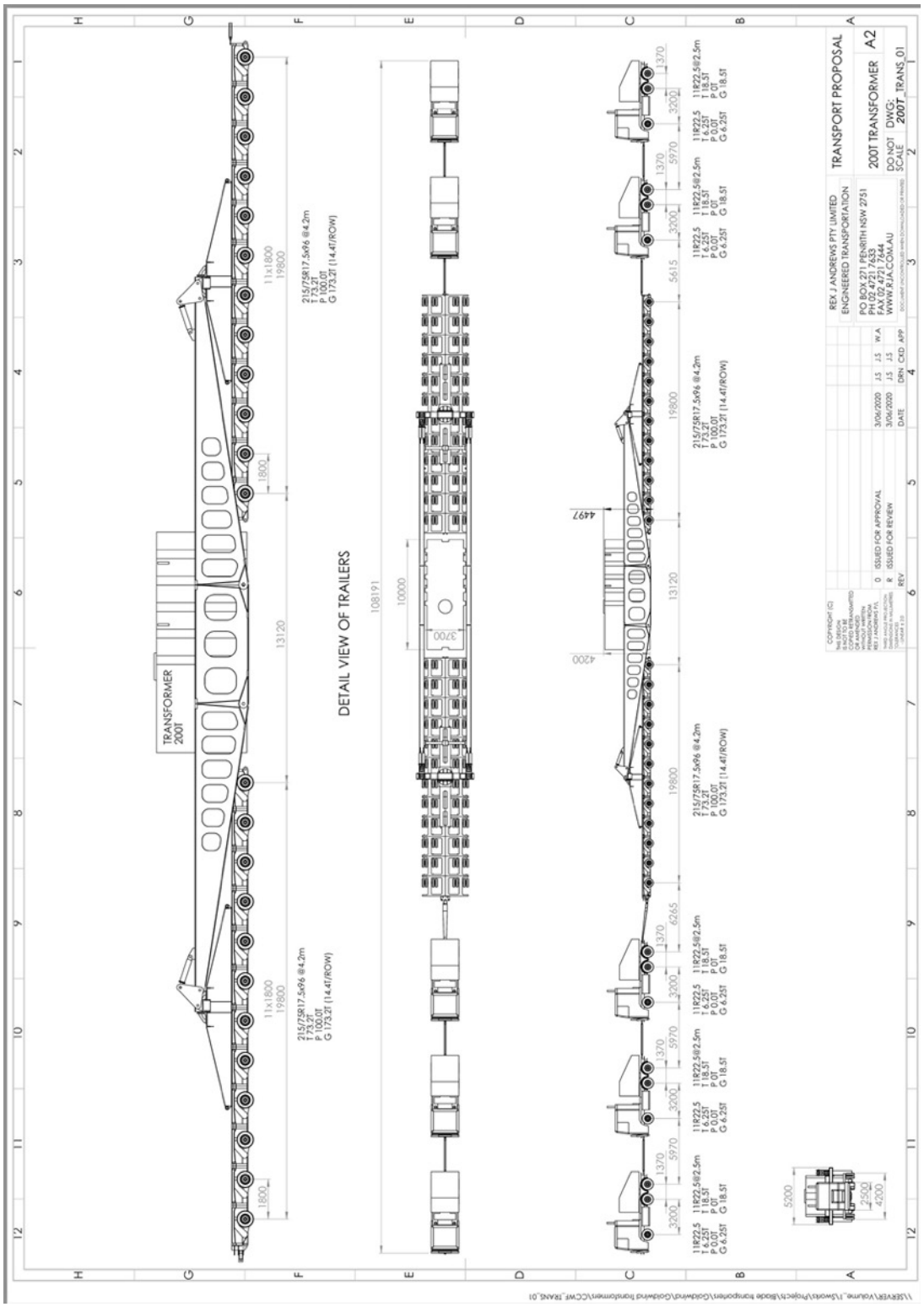


Figure 1 – 12x8-12x8 Beamset drawing

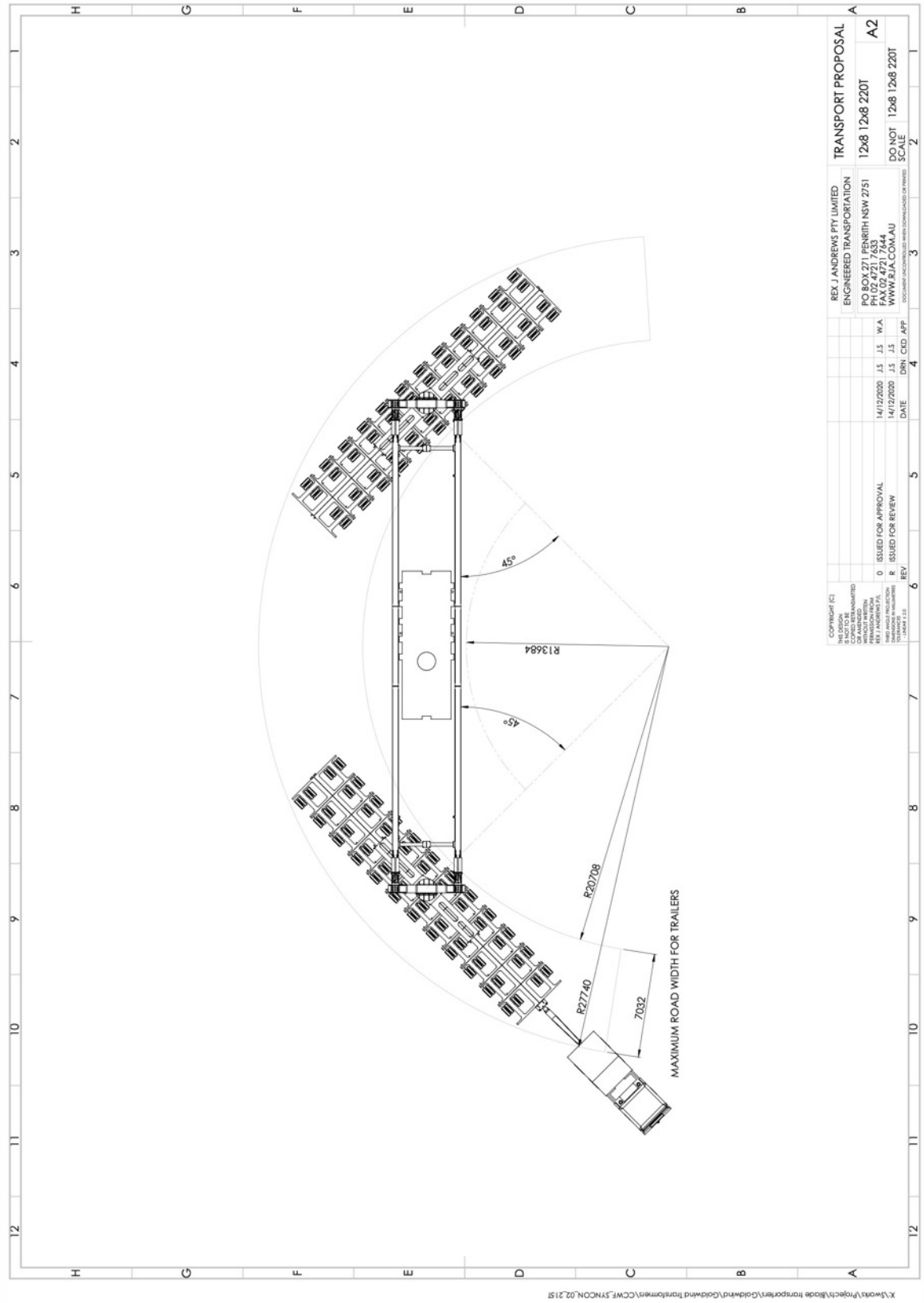


Figure 2 - 12x8-12x8 Beamset swept path drawing

5.0 Site location

The Wattle Creek Energy Hub is located near Marulan in New South Wales, 12km north of the township of Marulan and is 822 Kilometers by road from Glen Waverley.

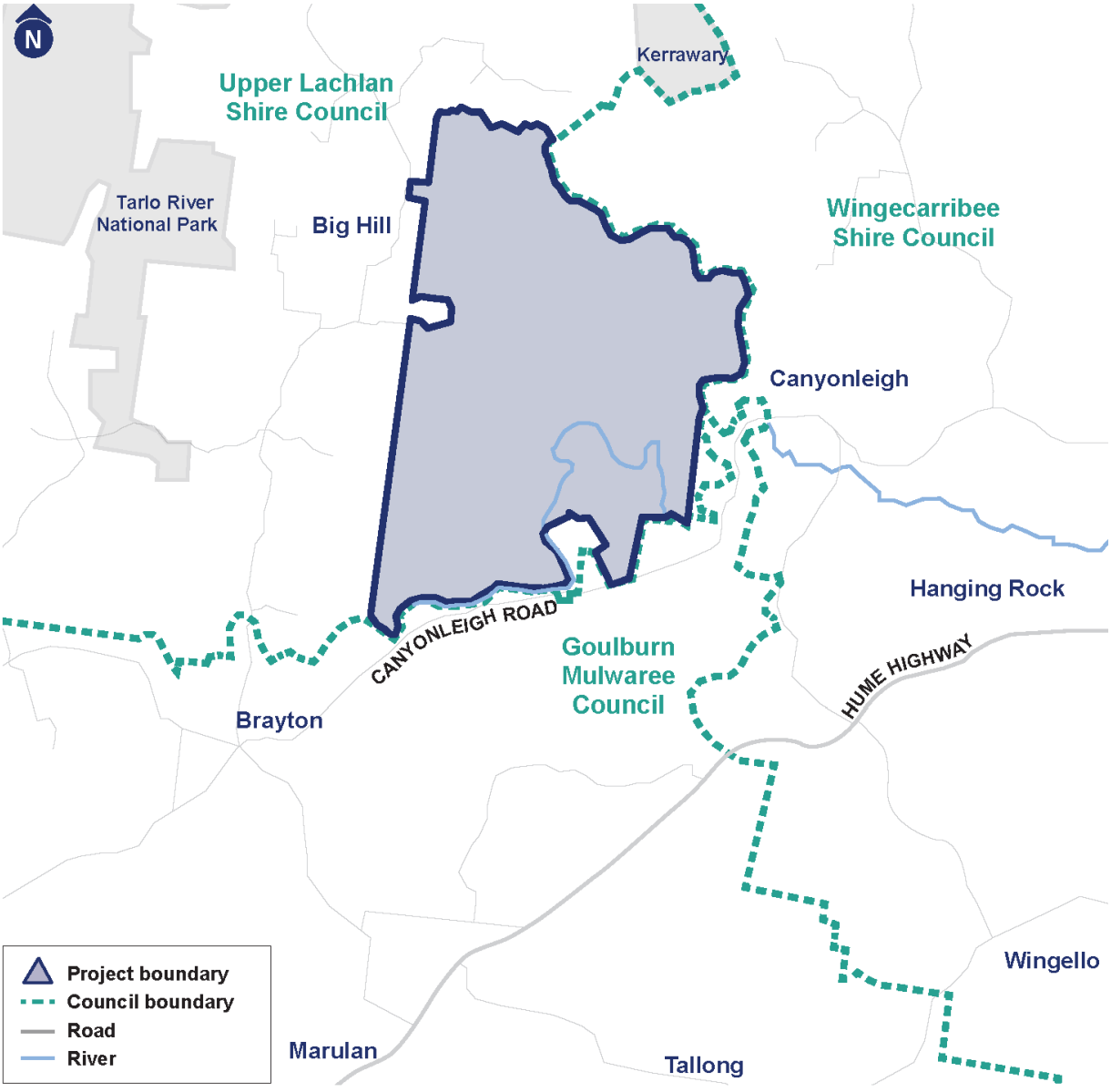


Figure 3: Wattle Creek energy hub location

GPS LINK: https://maps.app.goo.gl/QUDjthjyEnzB742e6

6.0 Transport Route Survey

From: Port Kembla NSW

To: Marulan NSW

Distance: 146.0 kilometres:

GPS Link: https://maps.app.goo.gl/QqumoqNPiLXiagur6

Route: Tom Thumb Road, Springhill Road, Masters Road, Princes Motorway, Mt Ousley Road, Picton-Wilton Road, Hume Highway, Old Hume Highway (U-Turn), Hume Highway, Brayton Road, Canyonleigh Road.

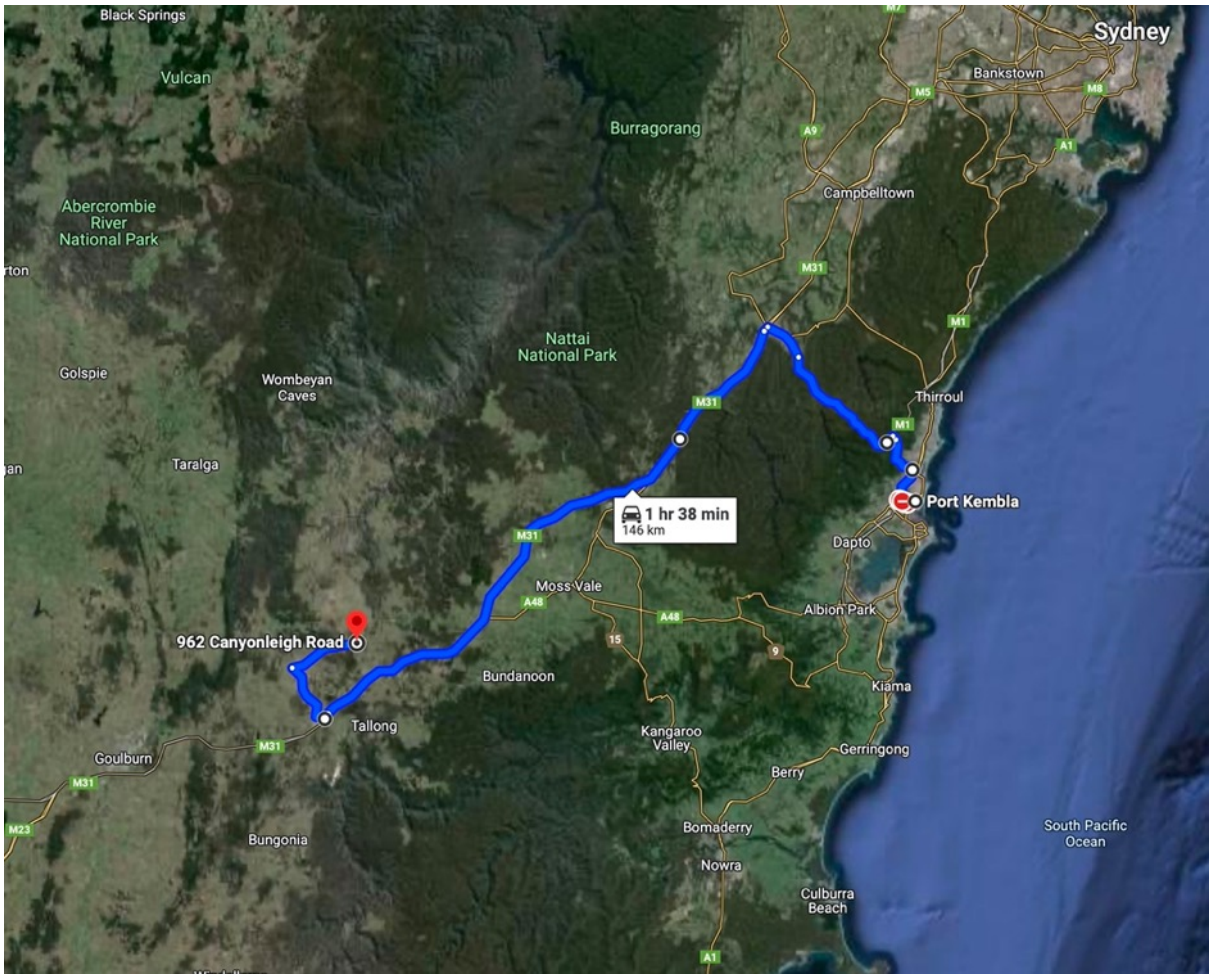


Figure 4: Main route

KEY	
MODIFICATIONS REQUIRED	
PINCH POINT	
EMERGENCY PARKING	

KM index	Location	Section of road	Current clearance	Procedure	Notes
0.0	Port Kembla	Exit port onto Tom Thumb Road GPS link: https://goo.gl/maps/nXdxosvr1fQG6L2b9	Width: 5.5 metres	Travel directly ahead	No problems with this section of road
0.2	Port Kembla	Tom Thumb Road onto Springhill Road GPS link: https://goo.gl/maps/QB9L1BYNAUKJgoZ78	Length: 70.0 metres Width: 7.0 metres	Left hand turn	Spotter and steer operator to assist at this pinchpoint. Pilots and or police/NHVR to assist in traffic control.
1.4	Port Kembla	Springhill Road onto Masters Road GPS link: https://goo.gl/maps/pNxY2pLLej1KW4uh6	Length: 70.0 metres Width: 7.0 metres	Right hand turn	Spotter and steer operator to assist at this pinchpoint. Pilots and or police/NHVR to assist in traffic control.
2.6	Figtree	Masters Road onto Princes Motorway GPS link: https://goo.gl/maps/i57nvCKoETt8FYrs9	Length: 90.0 metres Width: 6.0 metres	Right hand sweeping bend	No problems with this section of road
6.5	Keiraville	Mount Ousley Road under the University Bridge GPS link: https://goo.gl/maps/S9kYztURpquEk3EQ7	Height clearances: Left Lane: 5.0 mtrs Centre Lane: 5.0 mtrs Right Lane: 4.9 mtrs	Travel directly ahead	Load must lower to under 4.9 metres and travel under this structure at walking pace and with a spotter.
7.7	Mt Ousley	Princes Motorway GPS link: https://goo.gl/maps/9LCLZVycbbaom8rv8	Width: 8.0 metres	Travel directly ahead	No problems with this section of road
13.0	Mount Ousley	Mount Ousley Road onto Picton-Wilton Road GPS link: https://goo.gl/maps/8m1Er1RF785No29z5	Length: 70.0 metres Width: 6.0 metres	Left hand turn	Spotter and steer operator to assist at this pinchpoint. Pilots and or police/NHVR to assist in traffic control.
29.5	Wilton	Picton Road https://maps.app.goo.gl/FKc9Q9Rc6bBq4m2d7	300.0 long x 6.0 wide	Merge to left	Emergency Parking area
40.2	Wilton	Picton-Wilton Road onto the Hume Highway GPS link: https://goo.gl/maps/ZQKvS4wJ1ygWH3Ab7	Length: 70.0 metres Width: 7.0 metres	Left Hand Turn	Spotter and steer operator to assist at this pinchpoint. Pilots and or police/NHVR to assist in traffic control.
103.0	Sutton Forest	Hume Highway https://maps.app.goo.gl/aEasJptVJW9qYd1D6	180.0 long x 14.0 wide	Merge to left	Suitable parking for the beamset

KM index	Location	Section of road	Current clearance	Procedure	Notes
122.0	Marulan	Hume Highway https://maps.app.goo.gl/3R77mJqd9beNw8ZQA	140.0 long x 14.0 wide	Merge to left	Emergency Parking area
126.0	Marulan	Hume Highway onto Brayton Road https://maps.app.goo.gl/GeS85XcqCWDv9ft99	Length: 100.0 Metres Width: 8.0 Metres Height: 7.1 Metres	Exit the Hume Highway to the left than travel around a large right-hand bend and under the Hume Highway	No problems with this section of road.
128.0	Marulan	Brayton Road at Stoney Creek Road https://maps.app.goo.gl/mNsEy2wtqFNksAD9A	Length: 40.0.0 Metres Width: 8.0 Metres	Right hand turn	Sign to be made removable. Pilots to assist as per pinchpoint procedure shown below.
136.0	Marulan	Brayton Road onto Canyonleigh Road https://maps.app.goo.gl/qbNQHqNUWTLQDvV79	Length: 35.0 Metres Width: 7.0 Metres	Right hand turn	Sign to be made removable. Centre island to be made trafficable. Pilots to assist as per pinchpoint procedure shown below.
136.0 to 146.0	Marulan to Wattle Creek Energy Hub	Canyonleigh Road https://maps.app.goo.gl/dcNFN8t4WXiqsrjB9	Length: 35.0 Metres Width: 7.0 Metres	Travel directly ahead along this road	This road is gravel for the entirety and in fair condition. It is typically 4.0 metres wide with a 500mm side verge that could also be trafficable. It may be impassable in the wet for a heavy load platform. The swept path and alignment along Canyonleigh Road is okay, however the bridge and culverts will need to be checked for capacity.
146.0	Wattle Creek Energy Hub	Canyonleigh Road into Wattle Creek Energy hub https://maps.app.goo.gl/AkuxcAHCEBtmgEqi8	Length: 20.0 Metres Width: 6.0 Metres	Left hand turn	Site to make a suitable swept path for this load.

0.2 Km's: Tom Thumb Road onto Springhill Road

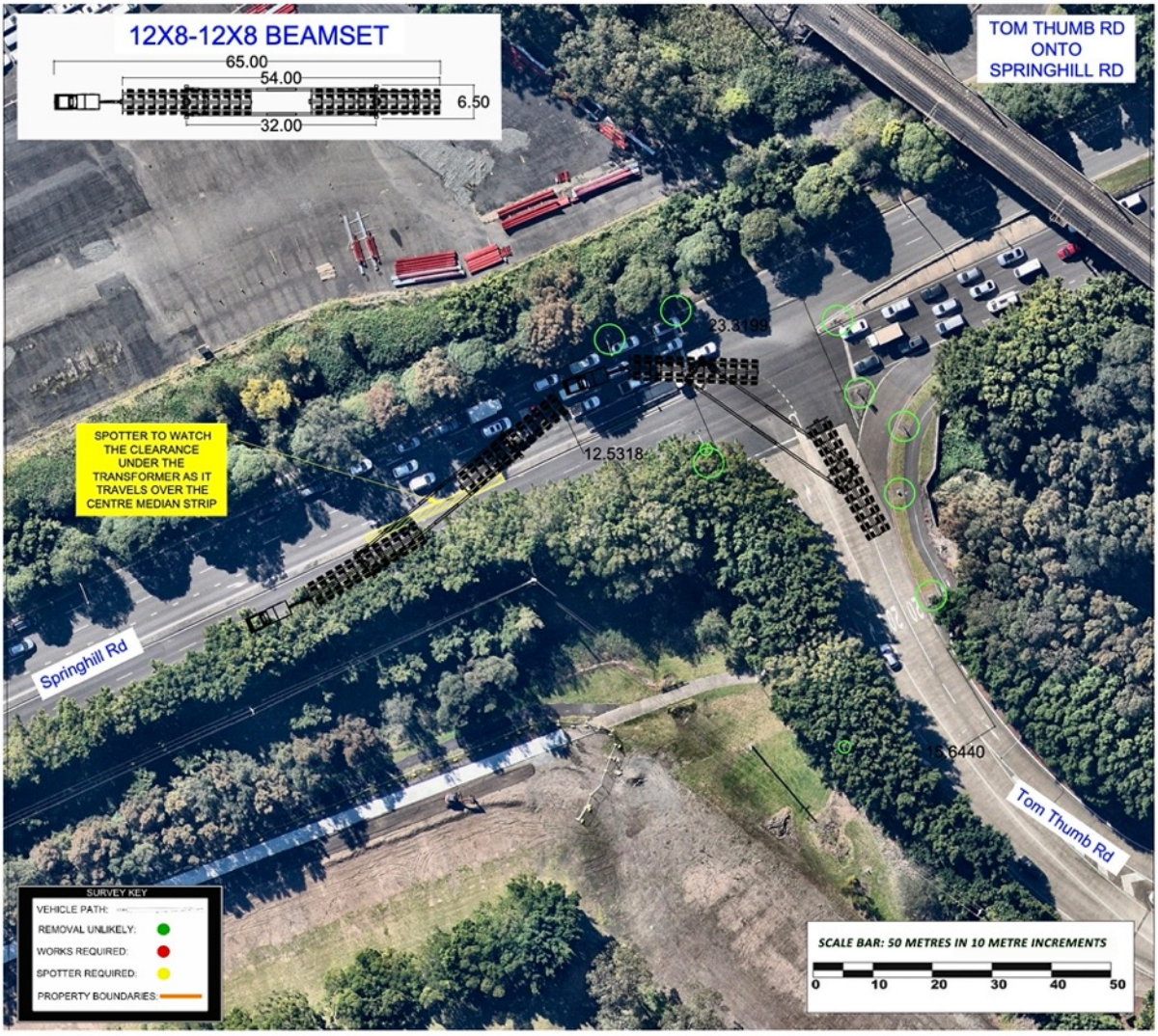


Figure 5 - Tom Thumb Road onto Springhill Road

GPS LINK FOR SECTION OF ROAD: https://goo.gl/maps/QB9L1BYNAUKJgoZ78

PROCEDURE: Left hand turn from Tom Thumb Road onto the incorrect side of Springhill Road, before travelling back over the centre median strip and back onto the correct side of the road.

Spotter to guide the load through this pinch point.

ROAD MODIFICATIONS: Nil.

1.4 Km's: Springhill Road onto Masters Road

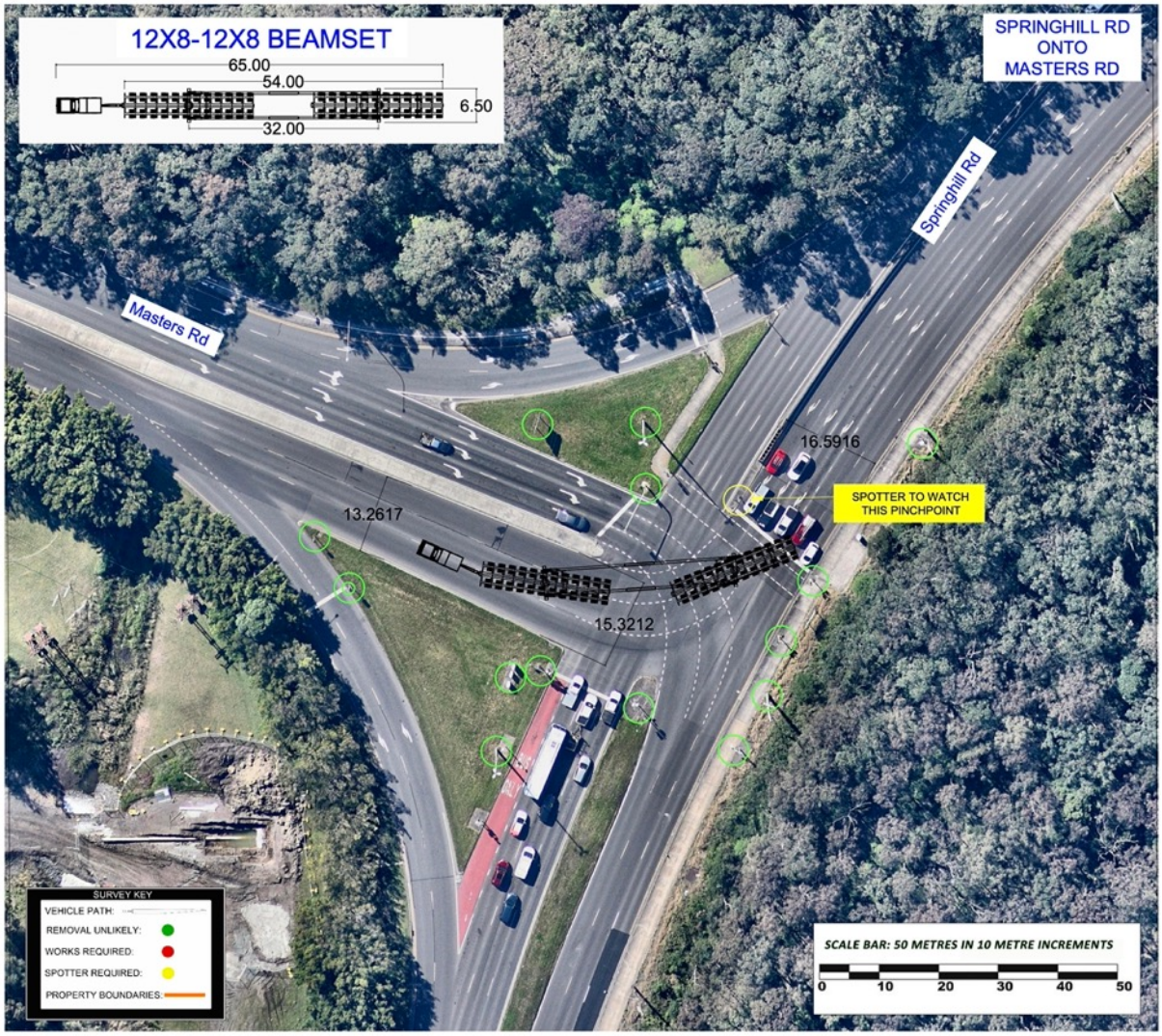


Figure 6 - Springhill Road onto Masters Road

GPS LINK FOR SECTION OF ROAD: https://goo.gl/maps/pNxY2pLLej1KW4uh6
PROCEDURE: Right hand turn from Springhill Road onto Masters Road.
Spotter to guide the load through this pinch point.
ROAD MODIFICATIONS: Nil.

6.5 Km's: University Overbridge on the Southern Freeway at Keiraville

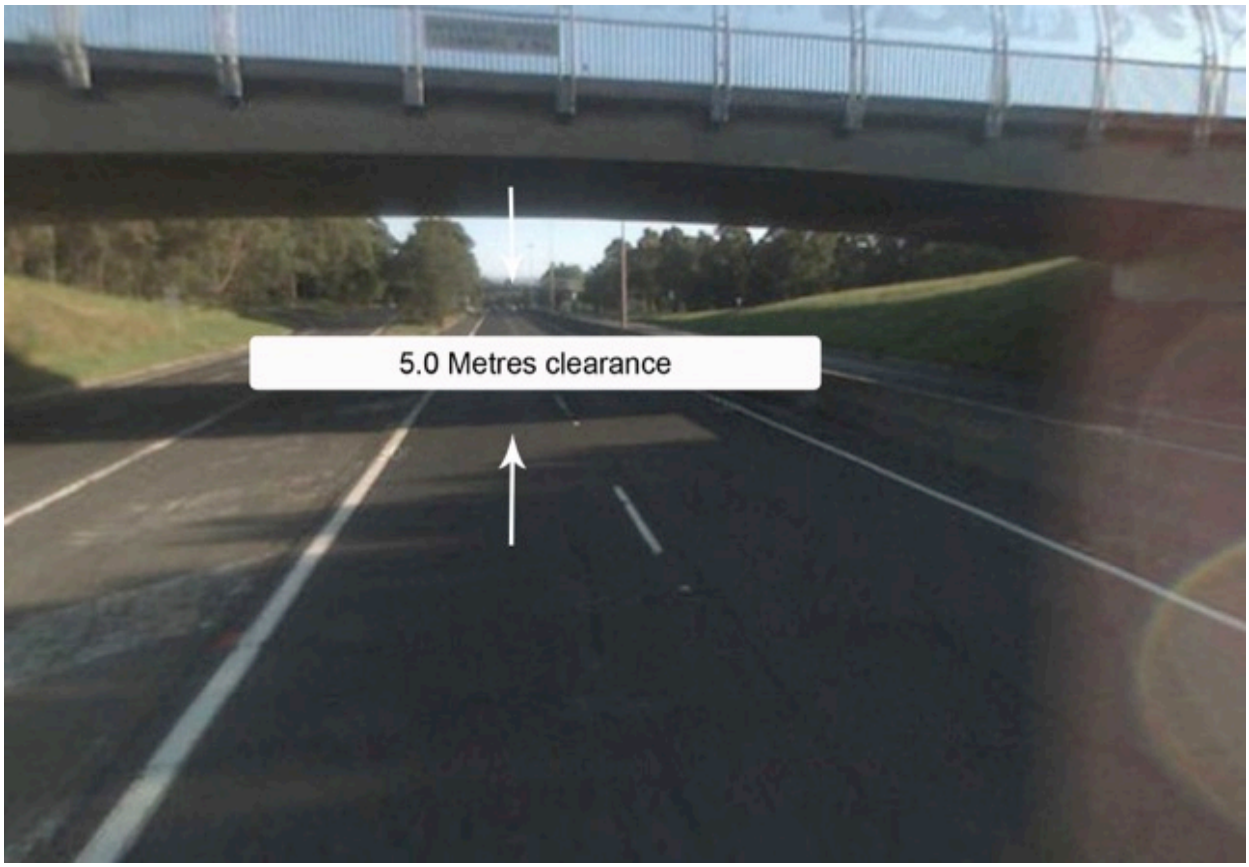


Figure 7 - University Overbridge on the Southern Freeway

GPS LINK FOR SECTION OF ROAD: https://goo.gl/maps/S9kYztURpquEk3EQ7

PROCEDURE: Travel under bridge in the left-hand lane where the clearance is 5.0 metres, lowering the load to under 4.9 metres in overall height and travelling at walking pace and under the supervision of a spotter.

CONCLUSION: Loads that exceed 4.9 metres high will not be able to use this route.

ROAD MODIFICATIONS: Nil.

13.1 Km's: Mt Ousley Road onto Picton-Wilton Road

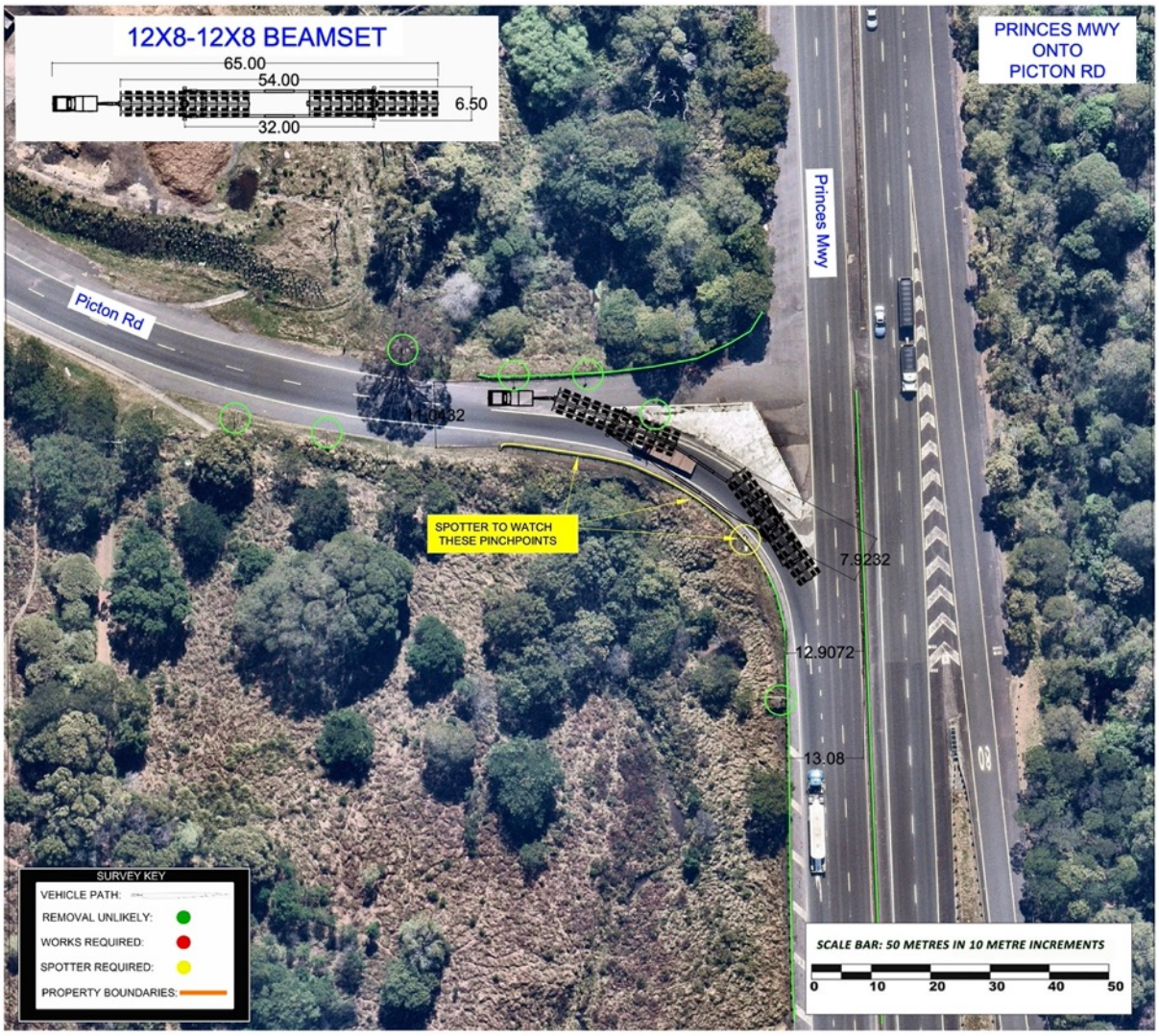


Figure 8 - Mt Ousley Road onto Picton-Wilton Road

GPS LINK FOR SECTION OF ROAD: https://goo.gl/maps/8m1Er1RF785No29z5
PROCEDURE: Left hand turn from Mt Ousley Road onto Picton-Wilton Road. Spotter to guide the load through this pinch point.
ROAD MODIFICATIONS: Nil.

40.2 Km's: Picton-Wilton Road onto the Hume Highway

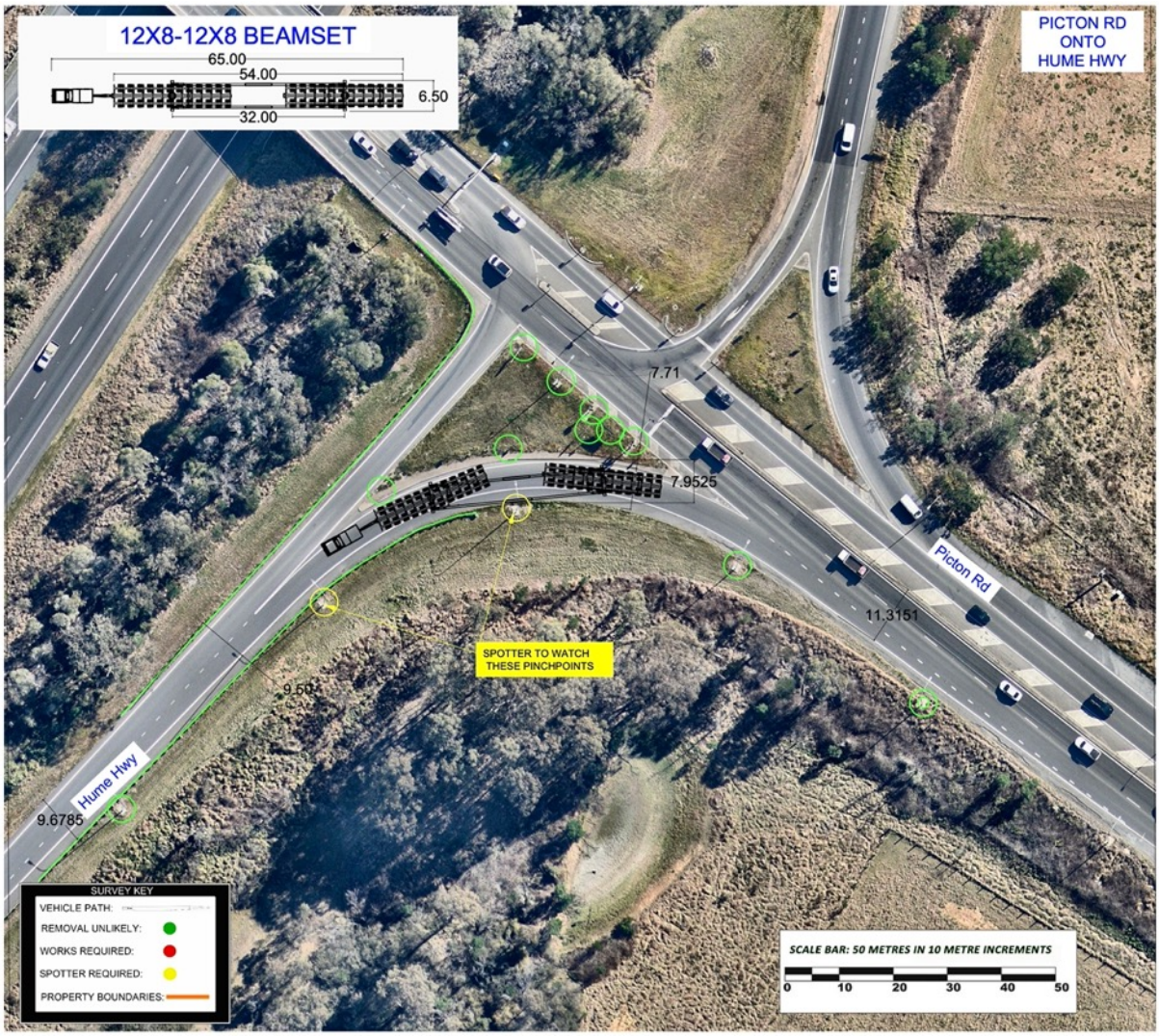


Figure 9 - Picton-Wilton Road onto the Hume Highway

GPS LINK FOR SECTION OF ROAD: https://goo.gl/maps/ZQKvS4wJ1ygWH3Ab7

PROCEDURE: Right hand turn from Picton-Wilton Road onto the Hume Highway. Spotter to guide the load through this pinch point.

ROAD MODIFICATIONS: Nil.

128.0 Km's: Brayton Road at Stoney Creek Road Marulan.

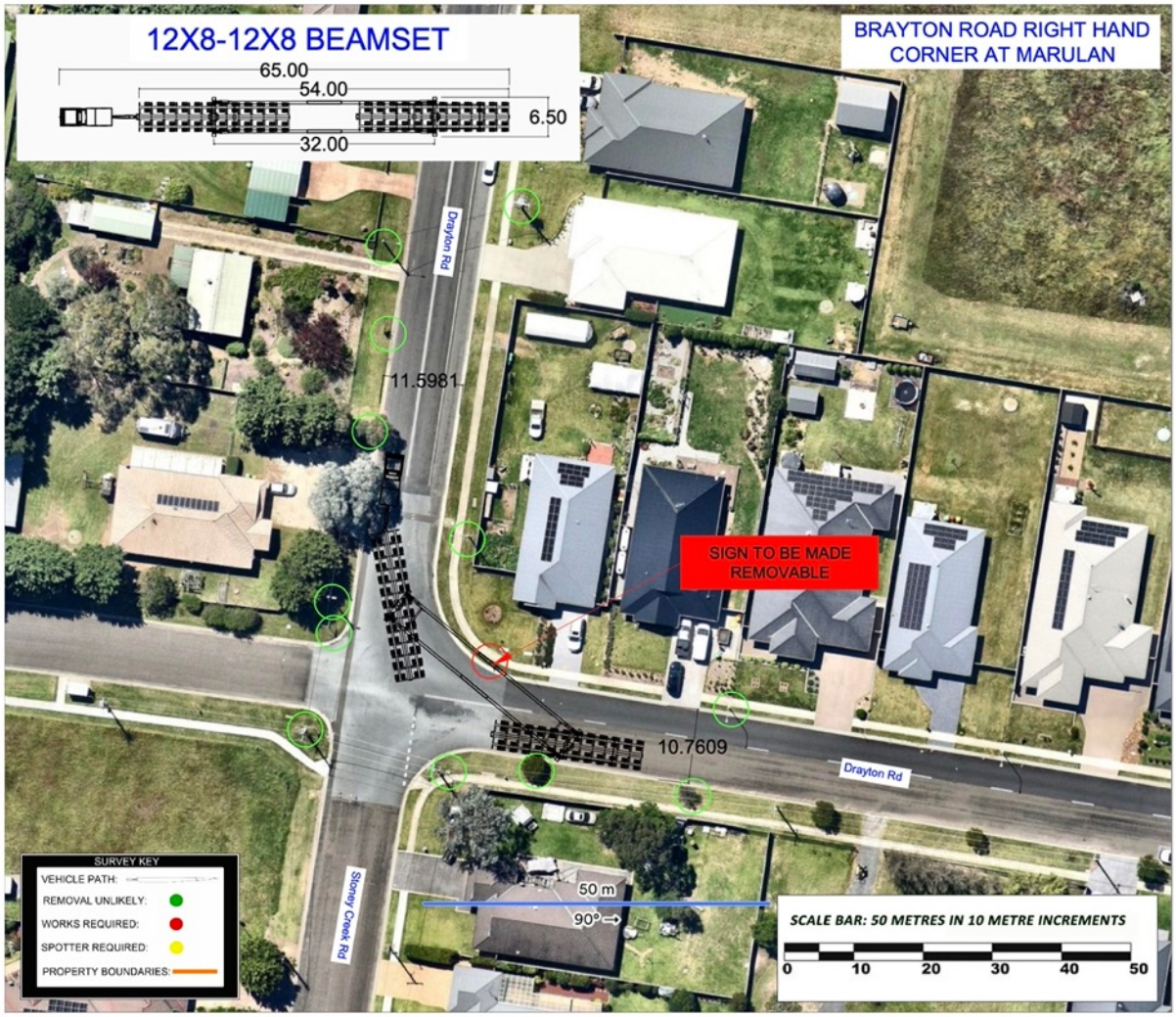


Figure 10: Brayton Road at Stoney Creek Road.

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/mNsEy2wtgFNksAD9A

PROCEDURE: Right hand turn on Brayton Road at Stoney Creek Road. Spotter to guide the load through this pinch point.

ROAD MODIFICATIONS: A sign on the inside of the corner will need to be made removable.

136.0 Km's: Brayton Road onto Canyonleigh Road at Marulan.

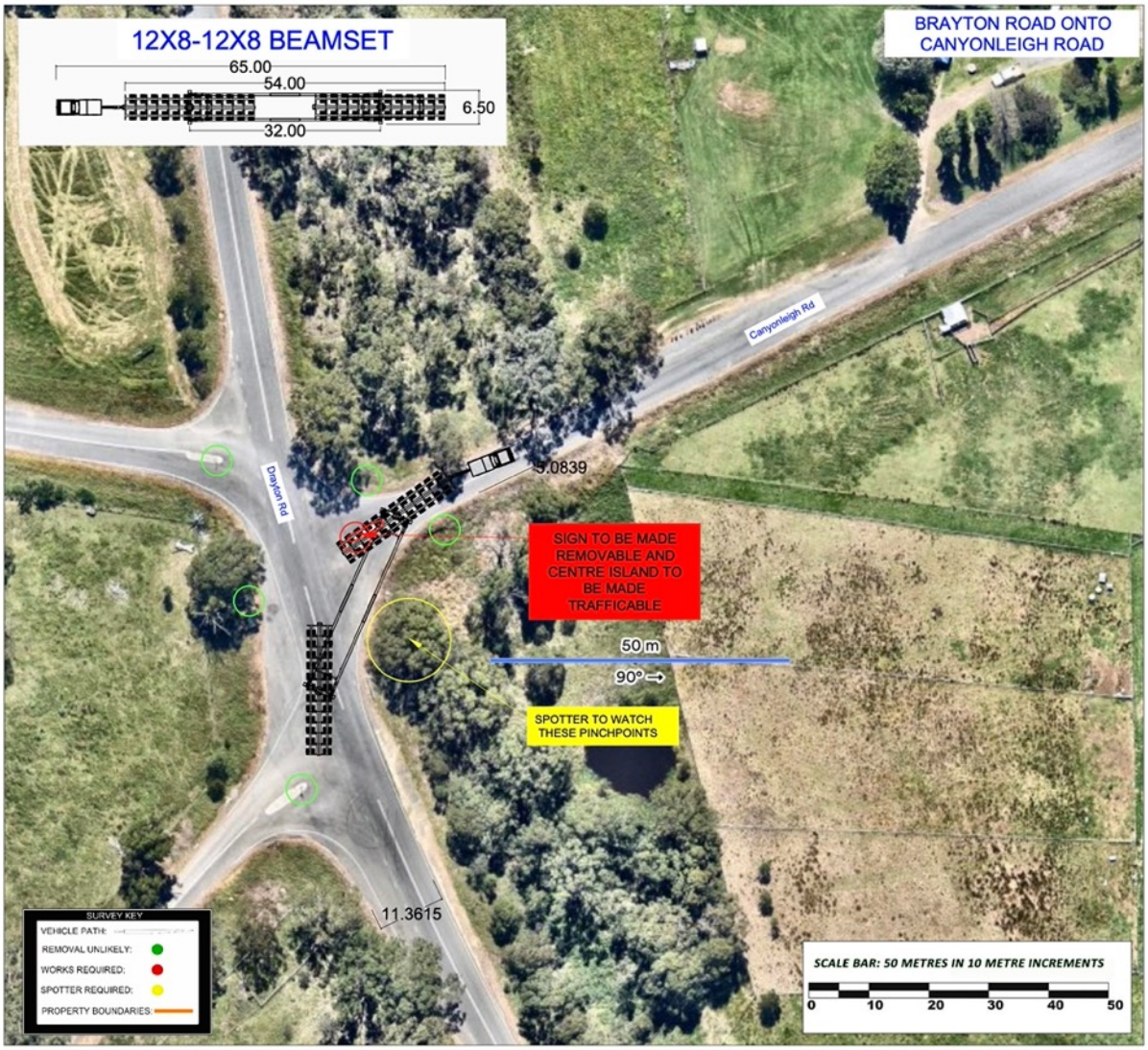


Figure 11: Brayton Road onto Canyonleigh Road.

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/qbNQHgNUWTLQDyV79

PROCEDURE: Right hand turn from Brayton Road onto Canyonleigh Road. Spotter to guide the load through this pinch point.

ROAD MODIFICATIONS: A sign on the inside of the corner will need to be made removable and the centre island needs to be made trafficable.

136.0 to 146.0 Km's: Canyonleigh Road.



Figure 12: Typical section of Canyonleigh Road.



Figure 13: Culvert/Bridge on Canyonleigh Road.

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/dcNFN8t4WXiqsrjB9

PROCEDURE: Travel directly ahead along Canyonleigh Road.

ROAD MODIFICATIONS: This road is gravel for the entirety and in fair condition. It is typically 4.0 metres wide with a 500mm side verge that could also be trafficable. It may be impassable in the wet for a heavy load platform.
The swept path and alignment along Canyonleigh Road is okay, however the bridge and culverts will need to be checked for capacity.

146.0 Km's: Canyonleigh Road into Wattle Creek Renewable Hub.

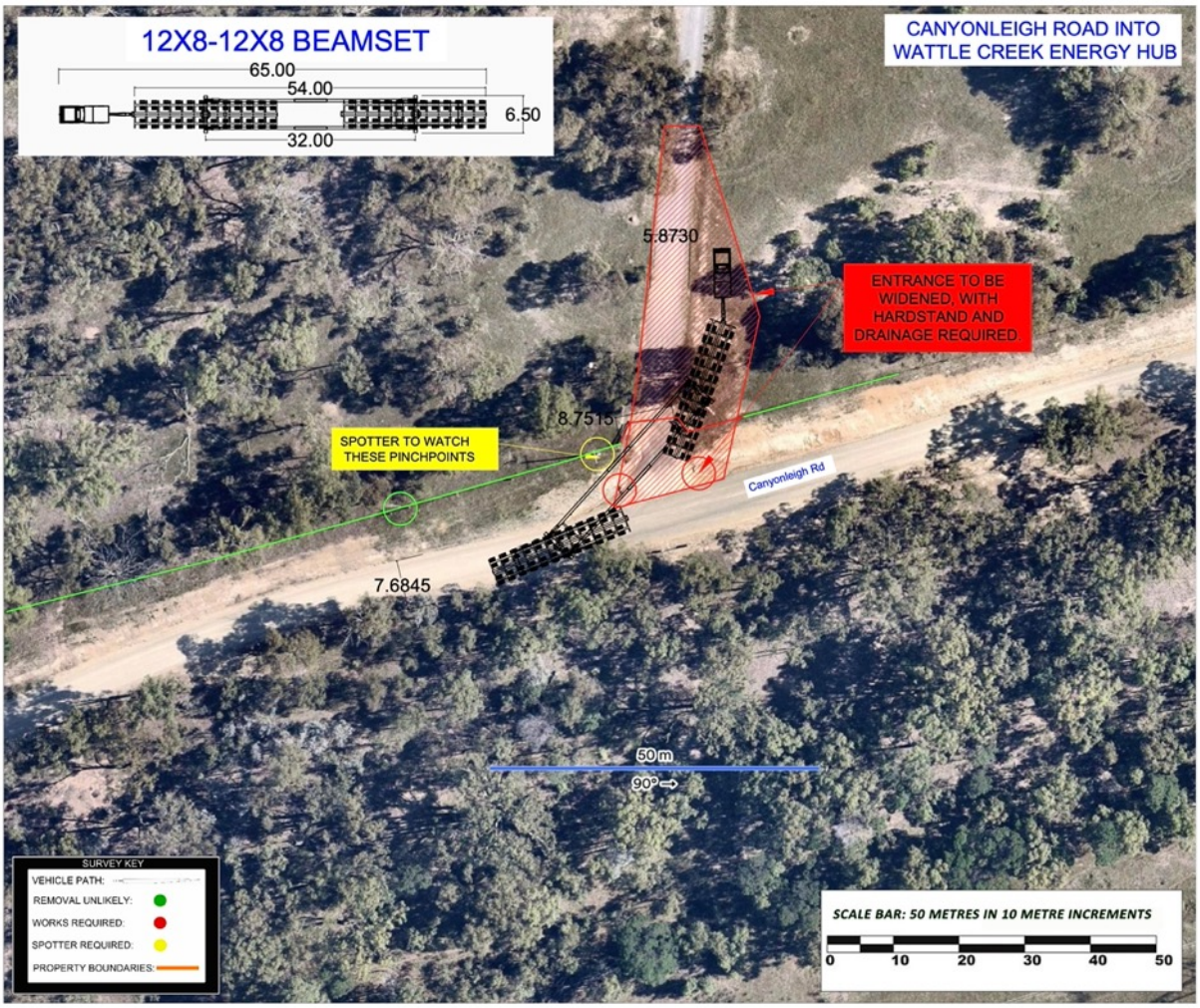


Figure 14: Canyonleigh Road into Wattle Creek Energy Hub site.



Figure 15: Looking towards the proposed Wattle Creek Energy Hub from Canyonleigh Road.

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/AkuxcAHCEBtmgEgi8

PROCEDURE: Left hand turn from Canyonleigh Road into site. Spotter to guide the load through this pinch point.

ROAD MODIFICATIONS: Site will need to make this entrance suitable for the swept path of the beamset.

7.0 Conclusion

After studying all options and undertaking a route survey, the route in its current condition will require minor upgrades before it could be deemed suitable for transporting the proposed load.

The following are the key points that need to be taken into consideration if the project moves forward with this route.

BRIDGES:

- There are a number of bridges on route that will require bridge assessments for the weight of the load.

OVERHEAD STRUCTURES: (4.9 Maximum loaded height)

- There are a number of overhead structures between AAT Port and the Wattle Creek Energy Hub. The lowest of these is the University underpass on the Southern Freeway in Wollongong which has a clearance of 4.9 metres in overall height.
- The transformer must not exceed 4.7 metres in height if it is fitted with beam transport lugs, or 4.3 metres in height if they do not have beams lugs.

OVERHEAD UTILITIES (4.9 loaded height)

- This route will need to be checked by an authorised scoping company. It is likely that a route of 4.9 metres is required for this project.

VEGETATION

- No works required.

WIDTH (5.5 Metres width)

- The maximum width of the beamset is 5.5m and will fit along the route in its current condition.
- As the transformer will need to be transported in a beamset the transformer itself could not exceed 4.5 metres in width.

PAVEMENT

- The route up until Canyonleigh Rd is of highway standard, and suitable in its current form.
- Canyonleigh Road is unsealed and will likely have issues have the load is moved while the road is wet.

ROADWORKS

- The project will need to start discussions with government authorities at least 18 months prior to turbine transport to understand if the project would conflict with any upcoming roadworks. Once a TMP has been approved for the transport of the turbines, then the exact movement dates need to be communicated with transport NSW to make all road stakeholders aware of the movements.

PINCHPOINTS

- Load to travel over to the incorrect side of Springhill Road while turning from Tom Thumb Road. This will require the transporter to cross back over the centre median strip.
- A sign to be made removable at the corner of Brayton Road and Stoney Creek Road.
- A sign to be made removable and the centre median made trafficable at the corner of Brayton Road and Canyonleigh Road.
- Canyonleigh Road would need to be made suitable for all weather travel, or only transport along this road in the dry.

WATTLE CREEK ENERGY HUB SITE

- Site access roads to be constructed to suitable standards to accommodate the weight and swept path of the proposed load.
- Gates and fences to be made wide enough to accommodate trailer swept path and manoeuvring.

8.0 References

Rex J Andrews route survey 456
Google Earth/Maps
Nearmaps
NHVR (OSOM)
NHVAS Maintenance Management (NHVAS21193)
NHVAS Basic Fatigue Management (NHVAS21193)

Appendix C – OSOM Route Assessment (Glen Waverley to Project Area)

REX J ANDREWS
ENGINEERED TRANSPORTATION

ROUTE SURVEY:
FROM: WILSON TRANSFORMERS
TO: CANYONLEIGH RD MARULAN
PROJECT: WATTLE CREEK ENERGY HUB
COMPONENT TO BE TRANSPORTED: TRANSFORMER

08/11/2024 REV 00

Rev.	Date	Change	Responsible	Checked
00	13/05/24	Report compiled	W Andrews	✓
00	17/05/24	Report completed	W Andrews	✓
01	08/11/24	Edited	W Andrews	✓

Index:

INDEX: 2

INDEX: 2

1.0 INTRODUCTION 3
2.0 EVALUATION 4
3.0 PROJECT DATA 5
4.0 TRANSPORT DRAWING 6
5.0 SITE LOCATION 8
6.0 TRANSPORT ROUTE SURVEY 9
7.0 CONCLUSION 28
8.0 REFERENCES 30

1.0 Introduction

This document describes observations and previous experience on route and explains the transport of a transformer from Glen Waverley in Victoria to Marulan in NSW.

The route survey is based on a desktop study up until Yass and a driven study from Yass through to the site, on the date shown on the following pages.

2.0 Evaluation

Assessment of the proposed routes was conducted by Rex J Andrews Engineered Transportation based on onsite route surveys as well as previous experience on sections of the identified routes and transporting equipment similar to the proposed loads on various other projects. The assessment was conducted utilising the knowledge, experience and intellectual property of Rex J Andrews on purpose-built equipment and is not intended for use by other parties.

The assessment considered the key constraints encountered on the routes and an estimation of the amount of work required to make the route viable based on previous experience. Table 1 shows the evaluation of the route and provides an overall ranking to give guidance for the development from a transport perspective. The assessment was based on operational factors and equipment capability and does not consider external factors such as regulatory, landholder, environmental, cultural or any other external factors beyond the knowledge or control of Rex J Andrews.

1	No work required
2	Some Work required
3	Moderate amount of works required
4	Large amount of works required

	Harbour/Site	Road Modification	Road Furnishings	Vegetation	Site Entrance	Bridge Calculations	Traffic Control	Overall Work Required
From: Wilson Transformers	**1**	**2**	**2**	**1**	**4**	**2**	**2**	**2**

Table 1 Route Evaluation

3.0 Project Data

Date of latest Route Study: 13/05/2024
Survey undertaken by: W Andrews, Rex J Andrews P/L
Project name: Wattle Creek Energy Hub
From: Wilson transformers, Glen Waverley (VIC)
To: Wattle Creek energy hub, Marulan (NSW)
Item to be transported: Power transformer.

Power transformer size if fitted with beams lugs: 10.0l x 4.5w x 4.9h x 200T
Power transformer size if not fitted with beams lugs: 10.0l x 4.5w x 4.5h x 200T
Proposed transporter: 5 block trucks towing a 12x8-12x8 Beamset
Overall dimensions of load: (110.0l x 5.5w x 4.9h x 468.5T)

Escort requirement:
VIC: 4x Company pilot, 2 x NHVR, 2 x mobile VMS, Rail/Tram track protection.
NSW: 4x Company pilot, 2 x NSW Police, 2 x mobile VMS.

4.0 Transport Drawing

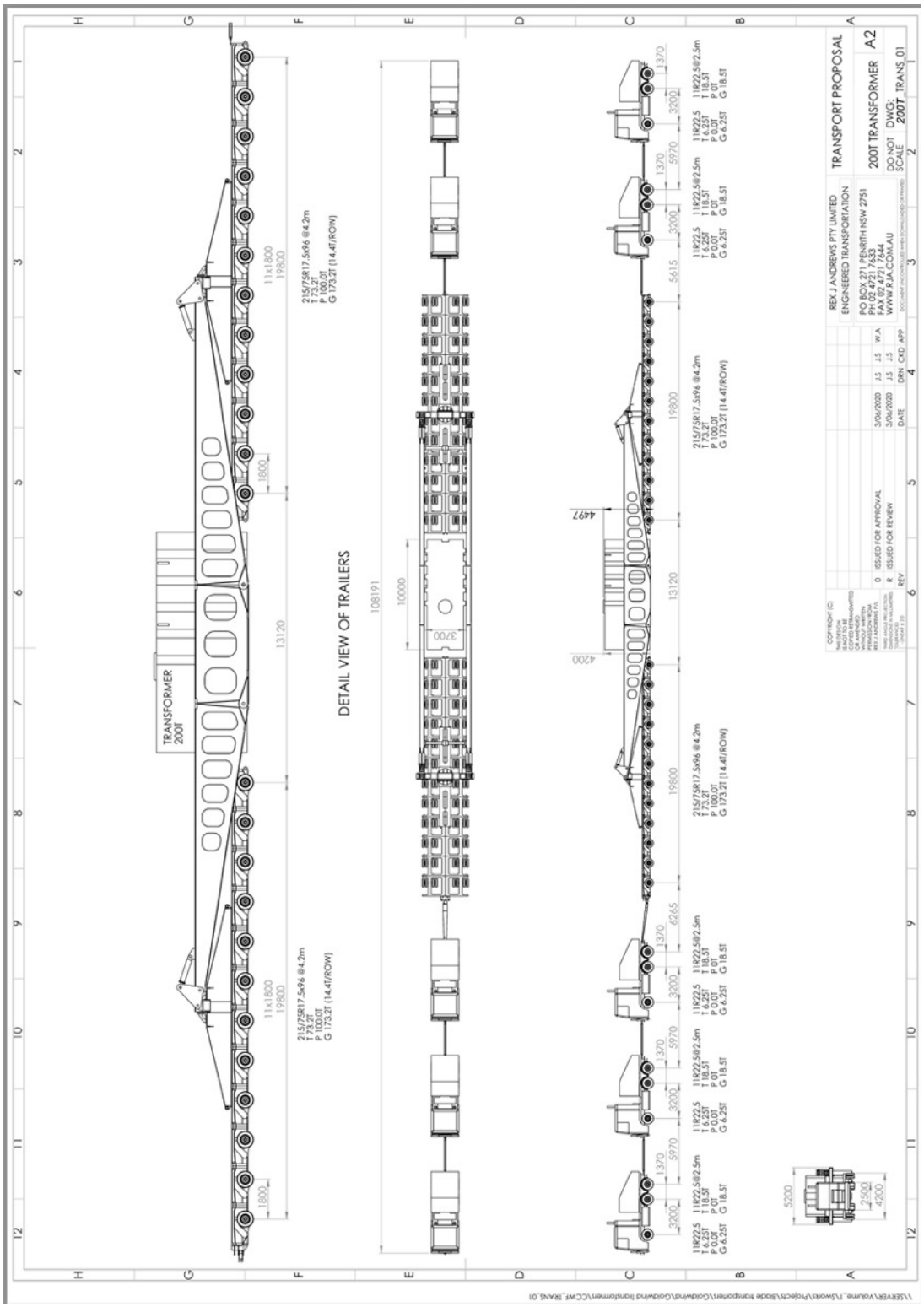


Figure 1 – 12x8-12x8 Beamset drawing

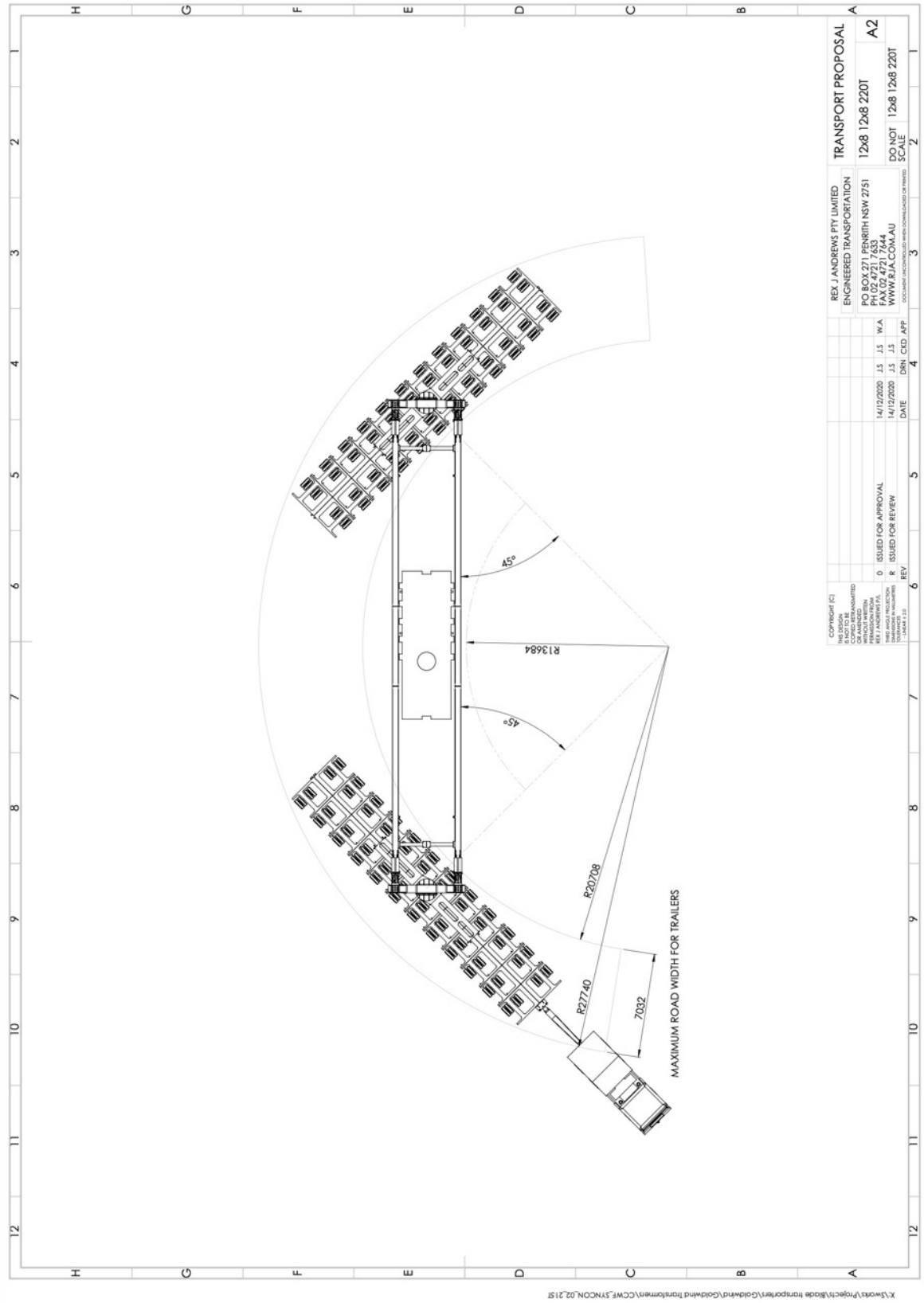


Figure 2 - 12x8-12x8 Beamset swept path drawing

5.0 Site location

The Wattle Creek Energy Hub is located near Marulan in New South Wales, 12km north of the township of Marulan and is 822 Kilometers by road from Glen Waverley.

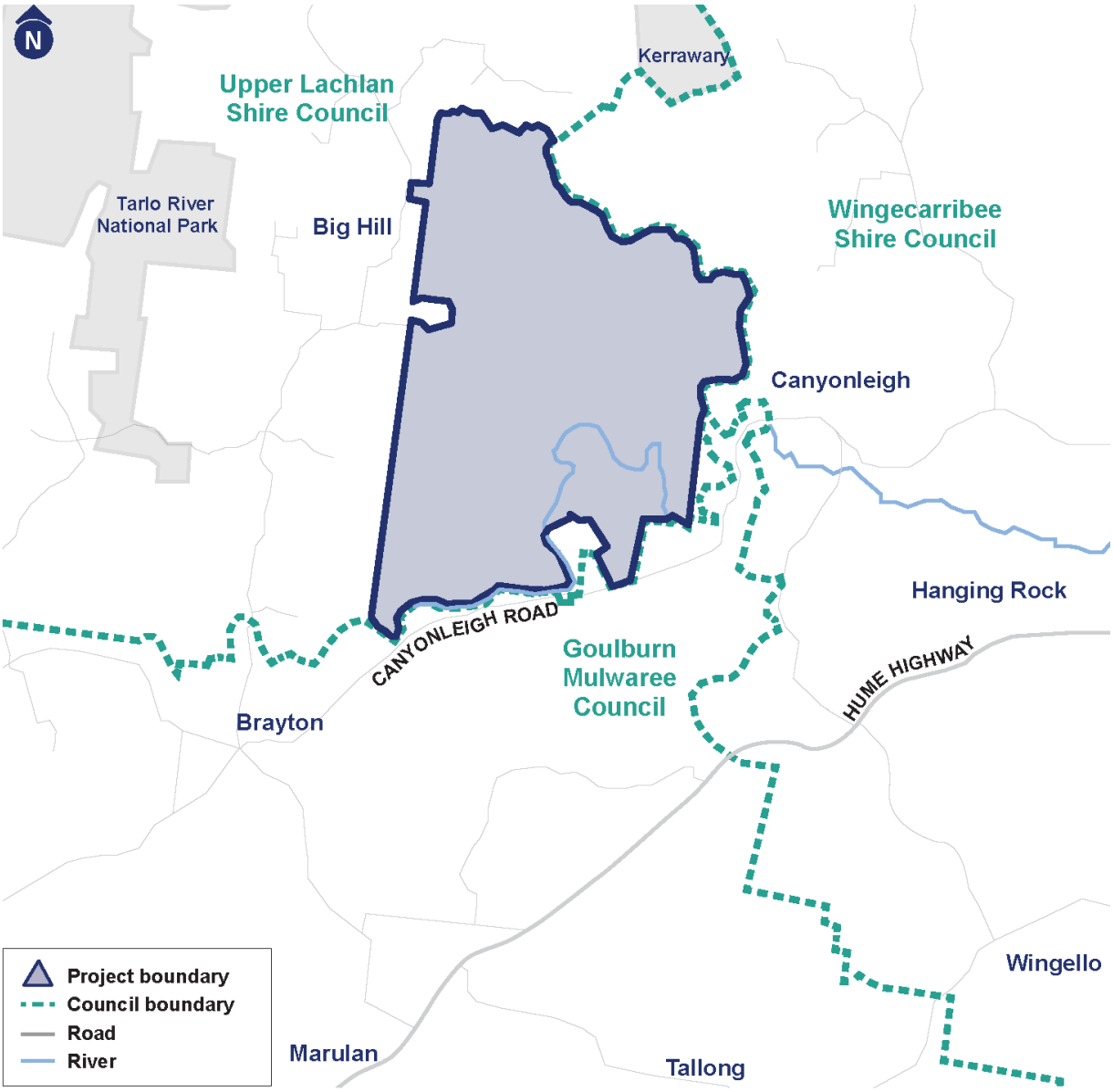


Figure 3: Wattle Creek energy hub location

GPS LINK: https://maps.app.goo.gl/QUDjthjyEnzB742e6

6.0 Transport Route Survey

From: Glen Waverley VIC

To: Marulan NSW

Distance: 822.0 kilometres:

GPS Link: https://maps.app.goo.gl/iZTppAcpY4ACw8Ep8

Route: Springvale Road, Eastlink, Eastern Freeway, Doncaster Road, Williamsons Road, Fitzsimons Lane, Main Road, Lower Plenty Road, Greensborough Highway, Greensborough Bypass, Metropolitan Ring Road, Hume Freeway, Hume Highway, Old Hume Highway (U-Turn), Hume Highway, Brayton Road, Canyonleigh Road.

NOTE: The route listed above while exiting Melbourne is currently being used for transformers to exit the city due to roadworks. Depending on the exact delivery date of the transformer move, this route may not be the one used at the time. It is advised that the route exiting Melbourne is checked 1 year out from the delivery.

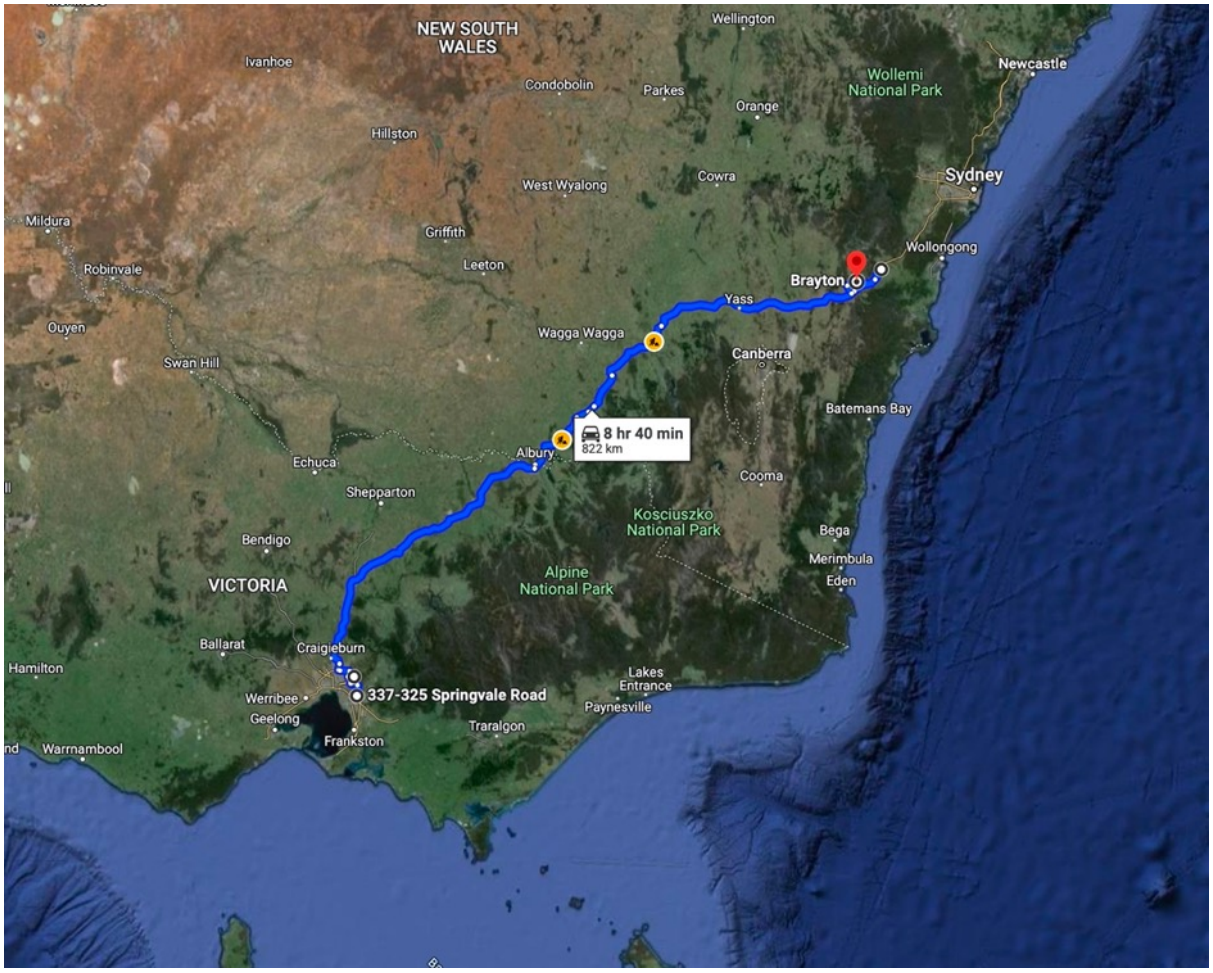


Figure 4: Main route

KEY	
MODIFICATIONS REQUIRED	
PINCH POINT	
EMERGENCY PARKING	

KM index	Location	Section of road	Current clearance	Procedure	Notes
0.0	Glen Waverley	Wilson transformers 349 Springvale Road onto Springvale Road https://maps.app.goo.gl/KTWXbJvx1e82wmih8	Length: 60.0 Metres Width: 8.0 Metres	Travel out of Wilson transformers main gate and over the centre median strip on Springvale Road, before turning right and heading north.	Spotter and steer operator to assist at this pinchpoint. Pilots and or police/NHVR to assist in traffic control.
3.6	Burwood East	Springvale Road over tram line at the Burwood Hwy https://maps.app.goo.gl/oN2Z8AbitxYHf3Ri6	Length: 100.0 Metres Width: 8.0 Metres	Travel directly ahead	Yarra Trams to supervise the crossing of the tram infrastructure.
9.4	Nunawading	Springvale Road onto East Link https://maps.app.goo.gl/Yf9thtC791XDbScL8	Length: 60.0 Metres Width: 8.0 Metres	Left hand turn	Spotter and steer operator to assist at this pinchpoint. Pilots and or police/NHVR to assist in traffic control.
10.1	Blackburn North	East Link onto Eastern Freeway https://maps.app.goo.gl/UG57mCwXbzWfsp1a8	Length: 100.0 Metres Width: 8.0 Metres	Travel directly ahead	Pilots and or police/NHVR to assist in traffic control.
16.1	Balwyn North	Eastern Freeway onto Doncaster Road offramp https://maps.app.goo.gl/6jaQF7j2G58Jw5m1A	Length: 60.0 Metres Width: 7.5 Metres	Merge to left onto the Doncaster Road offramp	Spotter and steer operator to assist at this pinchpoint. Pilots and or police/NHVR to assist in traffic control.
16.6	Balwyn North	East Link onto Doncaster Road offramp https://maps.app.goo.gl/4qJ78aEcZdWDZMcVA	Length: 60.0 Metres Width: 7.5 Metres	Turn Right onto Doncaster Road	2 x Traffic signals will need to be removed on the night of the move. Spotter and steer operator to assist at this pinchpoint. Pilots and or police/NHVR to assist in traffic control.
18.6	Doncaster	Doncaster Road onto Williamsons Road https://maps.app.goo.gl/SY4vHqw4HX3qXXiJA	Length: 60.0 Metres Width: 8.0 Metres	Left hand turn	Spotter and steer operator to assist at this pinchpoint. Pilots and or police/NHVR to assist in traffic control.
19.5	Doncaster	Williamsons Road at Manningham Road https://maps.app.goo.gl/A5Vigx7mzfNC6ACS6	Length: 60.0 Metres Width: 8.0 Metres	Right hand turn	Spotter and steer operator to assist at this pinchpoint. Pilots and or police/NHVR to assist in traffic control.
22.9	Templestowe	Williamsons Road at onto Fitzsimons Lane https://maps.app.goo.gl/UUgsg1YntgEiVmvz7	Length: 100.0 Metres Width: 8.0 Metres	Travel directly ahead	Spotter and steer operator to assist at this pinchpoint. Pilots and or police/NHVR to assist in traffic control.

KM index	Location	Section of road	Current clearance	Procedure	Notes
25.2	Lower Plenty	Fitzsimons Lane onto Main Road https://maps.app.goo.gl/sqG978n7DTjf1frT7	Length: 60.0 Metres Width: 14.0 Metres	Left hand turn	Spotter and steer operator to assist at this pinchpoint. Pilots and or police/NHVR to assist in traffic control.
28.7	Viewbank	Main Road onto Lower Plenty Road https://maps.app.goo.gl/kEmv61SWtdHRhTjZ6	Length: 100.0 Metres Width: 8.0 Metres	Travel directly ahead	Spotter and steer operator to assist at this pinchpoint. Pilots and or police/NHVR to assist in traffic control.
31.1	Yallambie	Lower Plenty Road onto Greensborough Road https://maps.app.goo.gl/m2g1UkKYnCVLRGJm7	Length: 60.0 Metres Width: 10.0 Metres	Right hand turn	Spotter and steer operator to assist at this pinchpoint. Pilots and or police/NHVR to assist in traffic control.
33.6	Watsonia	Greensborough Road onto Greensborough Bypass https://maps.app.goo.gl/apaUqExGxwFpf3WJ8	Length: 100.0 Metres Width: 8.0 Metres	Travel directly ahead	Spotter and steer operator to assist at this pinchpoint. Pilots and or police/NHVR to assist in traffic control.
35.6	Greensborough	Greensborough Bypass onto Metropolitan Ring Road https://maps.app.goo.gl/sqG978n7DTjf1frT7	Length: 80.0 Metres Width: 6.50 Metres	Left hand turn	Spotter and steer operator to assist at this pinchpoint. Pilots and or police/NHVR to assist in traffic control.
44.4	Thomastown	The Metropolitan Ring Road onto the Hume Freeway https://maps.app.goo.gl/PhfborKhzb1sZz7i6	Length: 90.0 Metres Width: 8.0 Metres	Merge to the left than loop back over the ring road and onto the Hume Freeway	No problem with this section of road.
70.0	Beveridge	Hume Freeway https://maps.app.goo.gl/vB8aDLWJuBfme2sq8	160.0 long x 17.0 wide	Merge to left	Suitable overnight parking
109.0	Broadford	Hume Freeway under Kilmore-Broadford Road https://maps.app.goo.gl/VkngzVdMqQEsSkUu5	Height: 5.1 Metres	Travel directly ahead and at walking pace	Load must lower the load to under 5.1 metres in loaded height, and travel under this structure at walking pace and with a spotter.
121.0	Tallarook	Hume Freeway under Kilmore-Broadford Road https://maps.app.goo.gl/cXEaqwbVn4Y1hHsw5	Height: 5.1 Metres	Travel directly ahead and at walking pace	Load must lower the load to under 5.1 metres in loaded height, and travel under this structure at walking pace and with a spotter.
139.0	Grasstree Northbound	Hume Freeway https://maps.app.goo.gl/CeeYTP5B6RTx6AAM8	180.0 long x 14.0 wide	Merge to left	Emergency Parking area
178.0	Euroa	Hume Freeway https://maps.app.goo.gl/ybiJ6NKETSFeLnr29	220.0 long x 12.0 wide	Merge to left	Emergency Parking area
192.0	Balmattum	Hume Freeway https://maps.app.goo.gl/YJ9HSwZq3zncSU3SA	160.0 long x 30.0 wide	Merge to left	Emergency Parking area
209.0	Violet Town	Hume Freeway https://maps.app.goo.gl/kwQTHCvEqiCmqJSP8	180.0 long x 12.0 wide	Merge to left	Emergency Parking area
224.0	Reef Hills	Hume Freeway https://maps.app.goo.gl/i5wfhVFpEvSQrub6A	160.0 long x 10.0 wide	Merge to left	Emergency Parking area

KM index	Location	Section of road	Current clearance	Procedure	Notes
258.0	Glenrowan	Hume Freeway https://maps.app.goo.gl/mFN6f8NYbav1DpzY6	150.0 long x 12.0 wide	Merge to left	Emergency Parking area
293.0	Benton's Hill	Hume Freeway https://maps.app.goo.gl/CivjmY7dJ5Eohvr97	160.0 long x 10.0 wide	Merge to left	Emergency Parking area
343.0	Albury NSW/VIC Border	The Hume Motorway onto the Hume Highway https://maps.app.goo.gl/BCoepamqCWeUqDjM6	Length: 90.0 Metres Width: 8.0 Metres	Travel directly ahead	No problem with this section of road.
374.0	Borella	Hume Highway https://maps.app.goo.gl/CivjmY7dJ5Eohvr97	220.0 long x 10.0 wide	Merge to left	Suitable overnight parking
382.0	Mullengandra	Hume Highway https://maps.app.goo.gl/ErNaSEcmFBSc9gC2A	120.0 long x 12.0 wide	Merge to left	Emergency Parking area
388.0	Four Mile	Hume Highway https://maps.app.goo.gl/ro1yRCy8ugMgXZ6p9	220.0 long x 10.0 wide	Merge to left	Suitable overnight parking
421.0	Little Billabong	Hume Highway https://maps.app.goo.gl/8zuTZwjiQNjxu2jW8	120.0 long x 12.0 wide	Merge to left	Emergency Parking area
442.0	Kyeamba Gap	Hume Highway https://maps.app.goo.gl/iX7GBcNg7arEtFhBA	130.0 long x 12.0 wide	Merge to left	Emergency Parking area
457.0	Kyeamba	Hume Highway https://maps.app.goo.gl/fhRicqZFVanX3Doi6	240.0 long x 18.0 wide	Merge to left	Suitable overnight parking
467.0	Tarcutta	Hume Highway https://maps.app.goo.gl/rV9evXh81MQZwVwJ8	130.0 long x 12.0 wide	Merge to left	Emergency Parking area
486.0	Wagga Hill	Hume Highway https://maps.app.goo.gl/7PbHDRWBnq8YANWJ6	180.0 long x 10.0 wide	Merge to left	Emergency Parking area
505.0	Tumbalong North	Hume Highway https://maps.app.goo.gl/vheB7BQwTqkUzYDM6	180.0 long x 10.0 wide	Merge to left	Emergency Parking area
513.0	Big Ben	Hume Highway https://maps.app.goo.gl/f9tUnqpmAcjADc6o9	140.0 long x 8.0 wide	Merge to left	Emergency Parking area
531.0	Coolac	Hume Highway https://maps.app.goo.gl/WNLiNCvYDDedKqzm7	220.0 long x 10.0 wide	Merge to left	Suitable overnight parking
547.0	Black Springs	Hume Highway https://maps.app.goo.gl/jiTK64SxhJCmvVr27	180.0 long x 10.0 wide	Merge to left	Emergency Parking area
599.0	Conroys Gap	Hume Highway https://maps.app.goo.gl/gJ1VGpmbeVLJXc949	160.0 long x 12.0 wide	Merge to left	Suitable overnight parking
625.0	Manton Ridge	Hume Highway https://maps.app.goo.gl/cHvn4E9fdVswv1ch6	200.0 long x 12.0 wide	Merge to left	Suitable overnight parking

KM index	Location	Section of road	Current clearance	Procedure	Notes
664.5	Breadalbane	Hume Highway https://maps.app.goo.gl/7AKYcysbkmy7TeC87	180.0 long x 14.0 wide	Merge to left	Emergency Parking area
696.0	Goulburn	Hume Highway https://maps.app.goo.gl/MmYGQ88oZ8EQSv6C6	130.0 long x 10.0 wide	Merge to left	Emergency Parking area
734.0	Marulan	Hume Highway https://maps.app.goo.gl/RbqBdZ8XWC72t5j2A	200.0 long x 14.0 wide	Merge to left	Suitable overnight parking
753.0	Sutton Forest	Hume Highway https://maps.app.goo.gl/yNMG22dQyyhmvhRP7	200.0 long x 14.0 wide	Merge to left	Suitable overnight parking
767.0	New Berrima	Hume Highway onto Old Hume Highway https://maps.app.goo.gl/358nmhNkgWrdRQu6	Length: 40.0 metres Width: 7.0 Metres	Right hand turn	Signs to be made removable. Pilots to assist as per pinchpoint procedure shown below.
767.5	New Berrima	Old Hume Highway onto Hume Highway https://maps.app.goo.gl/5heUjqcaoyxTPNdK6	Length: 40.0 metres Width: 7.0 Metres	Right hand turn	Signs to be made removable. Pilots to assist as per pinchpoint procedure shown below.
780.0	Sutton Forest	Hume Highway https://maps.app.goo.gl/aEasJptVJW9gYd1D6	180.0 long x 14.0 wide	Merge to left	Suitable overnight parking
799.0	Marulan	Hume Highway https://maps.app.goo.gl/3R77mJqd9beNw8ZQA	140.0 long x 14.0 wide	Merge to left	Emergency Parking area
803.0	Marulan	Hume Highway onto Brayton Road https://maps.app.goo.gl/GeS85XcgCWDv9ft99	Length: 100.0 Metres Width: 8.0 Metres Height: 7.1 Metres	Exit the Hume Highway to the left than travel around a large right-hand bend and under the Hume Highway	No problems with this section of road.
804.0	Marulan	Brayton Road at Stoney Creek Road https://maps.app.goo.gl/mNsEy2wtqFNksAD9A	Length: 40.0.0 Metres Width: 8.0 Metres	Right hand turn	Sign to be made removable. Pilots to assist as per pinchpoint procedure shown below.
812.0	Marulan	Brayton Road onto Canyonleigh Road https://maps.app.goo.gl/qbNQHqNUWTLQDvV79	Length: 35.0 Metres Width: 7.0 Metres	Right hand turn	Sign to be made removable. Centre island to be made trafficable. Pilots to assist as per pinchpoint procedure shown below.
812.0 to 822.0	Marulan to Wattle Creek Energy Hub	Canyonleigh Road https://maps.app.goo.gl/dcNFN8t4WXfqsrjB9	Length: 35.0 Metres Width: 7.0 Metres	Travel directly ahead along this road	This road is gravel for the entirety and in fair condition. It is typically 4.0 metres wide with a 500mm side verge that could also be trafficable. It may be impassable in the wet for a heavy load platform. The swept path and alignment along Canyonleigh Road is okay, however the bridge and culverts will need to be checked for capacity.

KM index	Location	Section of road	Current clearance	Procedure	Notes
822.0	Wattle Creek Energy Hub	Canyonleigh Road into Wattle Creek Energy hub https://maps.app.goo.gl/AkuxcAHCEBtmgEqi8	Length: 20.0 Metres Width: 6.0 Metres	Left hand turn	Site to make a suitable swept path for this load.

0.0 Km's: Wilson transformer factory onto Springvale Road.

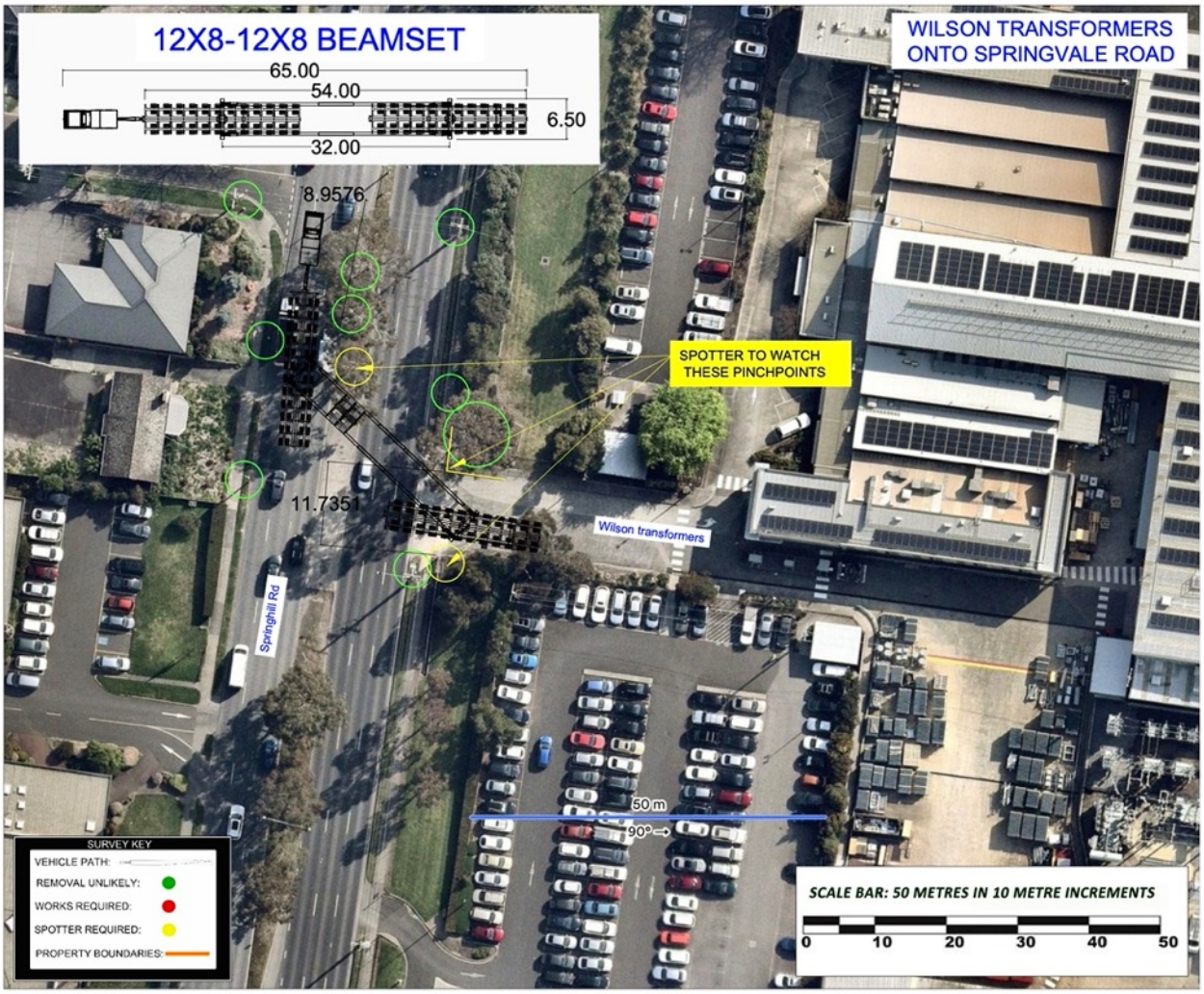


Figure 5: Wilson transformers onto Springvale Rd.

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/KTWXbJvx1e82wmih8
PROCEDURE: Turn out Wilson transformers premises and onto the NB lane of Springvale Road. Spotter to guide the load through this pinch point.
ROAD MODIFICATIONS: Nil.

9.4 Km's: Springvale Road onto Eastlink at Nunawading.

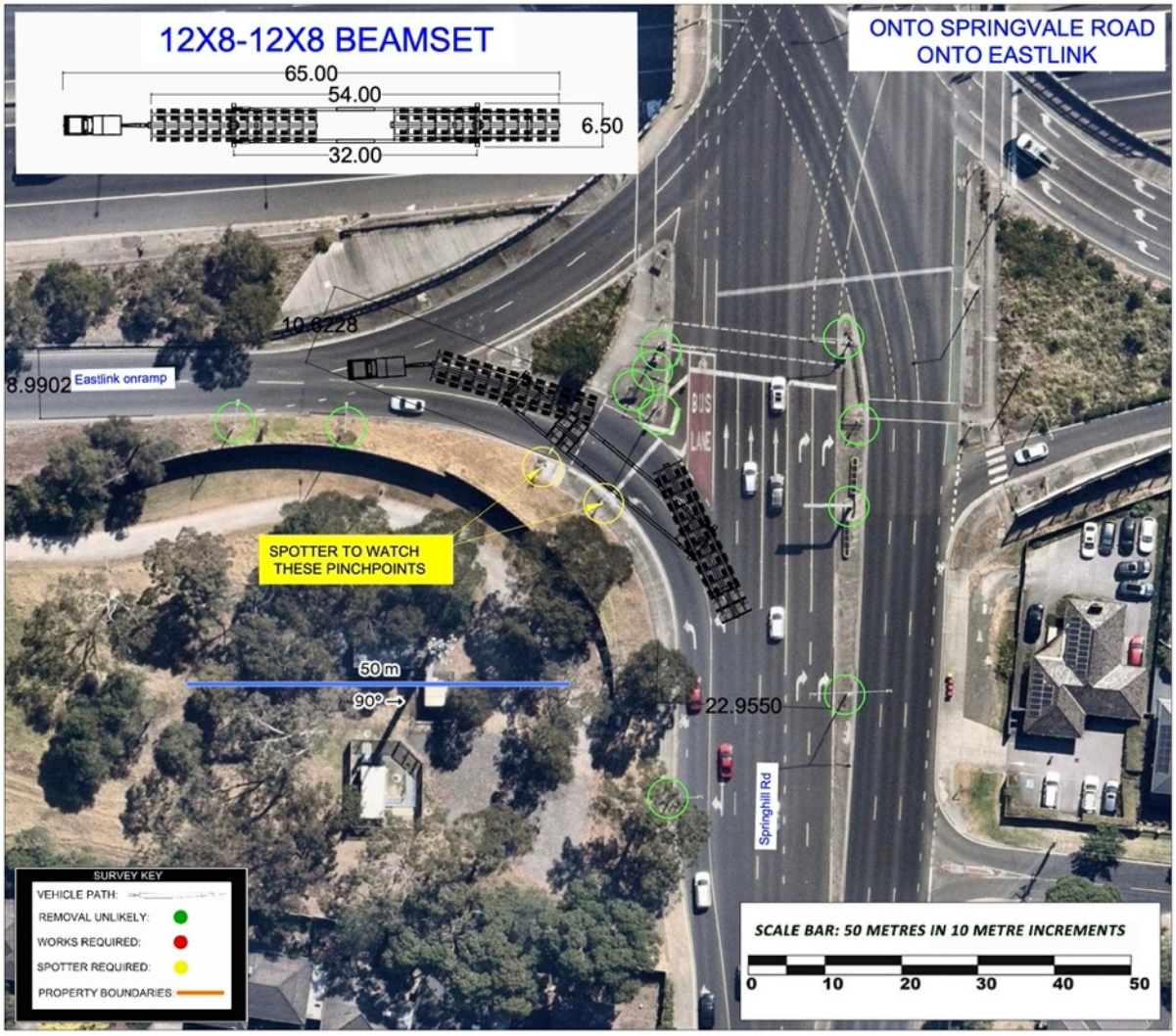


Figure 6: Springvale Road onto Eastlink.

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/Yf9thtC791XDbSeL8

PROCEDURE: Left hand turn from Springvale Road onto Eastlink. Spotter to guide the load through this pinch point.

ROAD MODIFICATIONS: Nil.

16.6 Km's: Eastern Freeway onto Doncaster Road at Balwyn North.

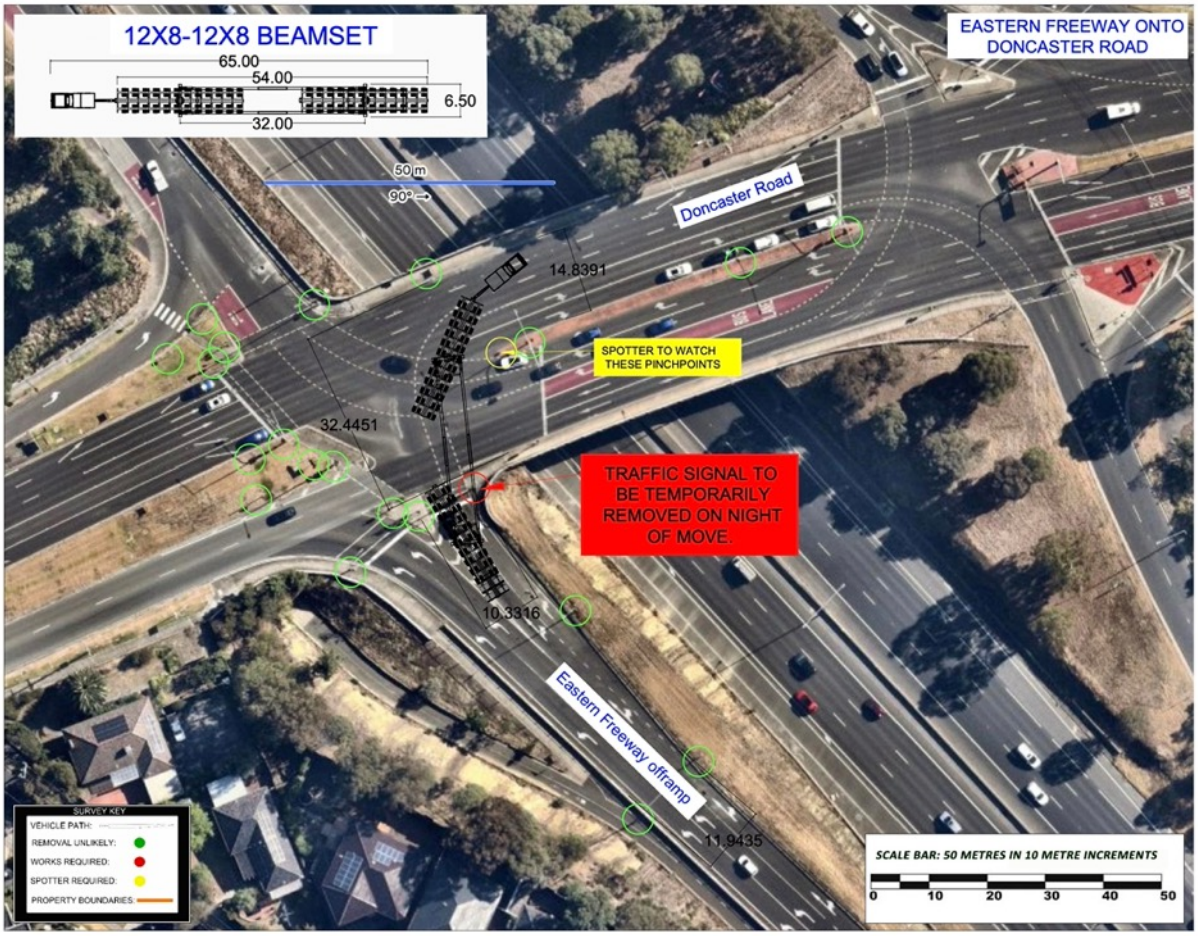


Figure 7: Eastern Freeway onto Doncaster Road.

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/4qJ78aEeZdWDZMeVA

PROCEDURE: Right hand turn from the Eastern Freeway onto Doncaster Road. Spotter to guide the load through this pinch point.

ROAD MODIFICATIONS: A traffic signal on the inside of the corner will need to be removed to allow the beam set to manoeuvre around the corner.

18.6 Km's: Doncaster Road onto Williamsons Road at Doncaster.

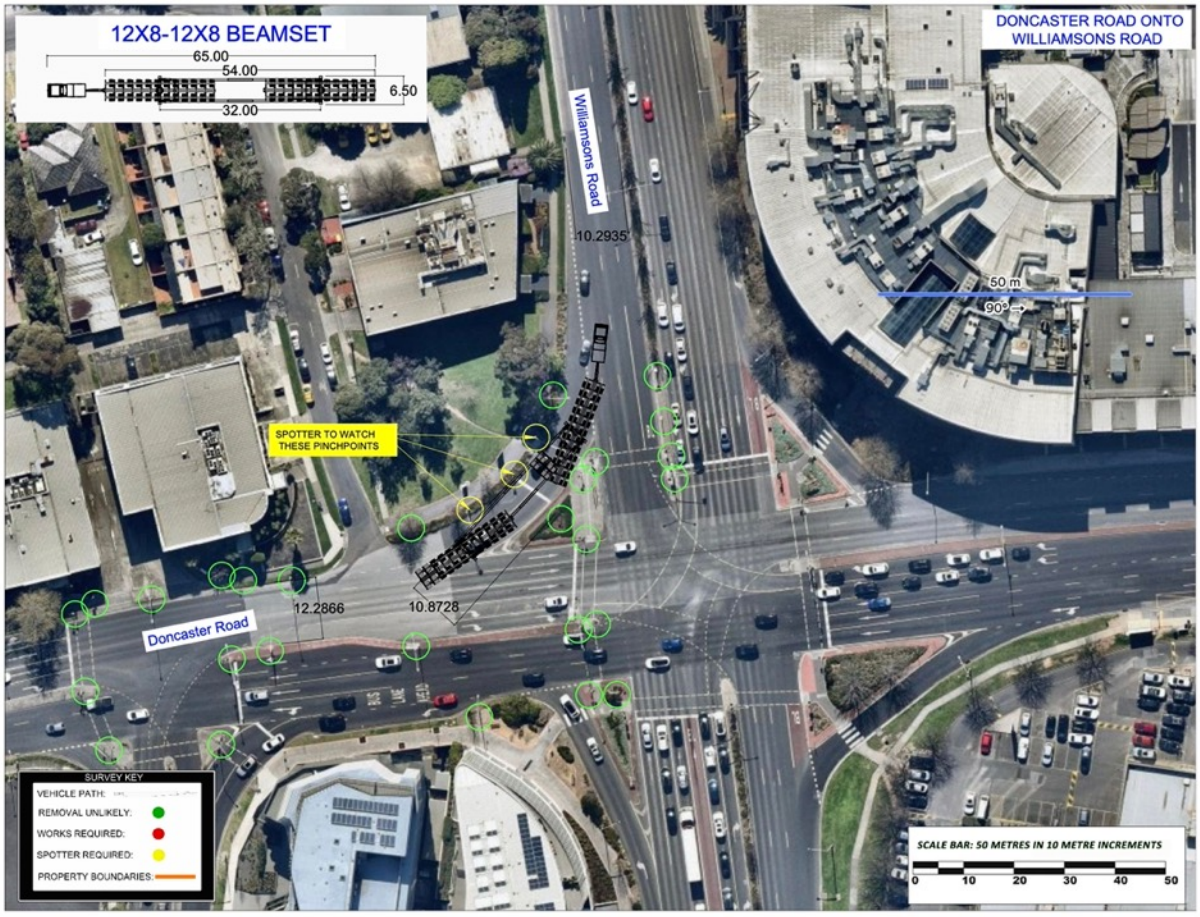


Figure 8: Doncaster Road onto Williamsons Road.

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/SY4vHqw4HX3qXXiJA

PROCEDURE: Left hand turn from Doncaster Road onto Williamsons Road. Spotter to guide the load through this pinch point.

ROAD MODIFICATIONS: Nil.

25.2 Km's: Fitzsimons Lane onto Main Road at Lower Plenty.



Figure 9: Fitzsimons Lane onto Main Road.

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/sqG978n7DTjf1frT7

PROCEDURE: Left hand turn from Fitzsimons Lane onto Main Road. Spotter to guide the load through this pinch point.

ROAD MODIFICATIONS: Nil.

31.1 Km's: Lower Plenty Road onto Greensborough Road at Yallambie.



Figure 10: Lower Plenty Road onto Greensborough Road.

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/m2g1UkKYnCVLRGJm7

PROCEDURE: Right hand turn from Lower Plenty Road onto Greensborough Road. Spotter to guide the load through this pinch point.

ROAD MODIFICATIONS: Nil.

767.0 to 767.5 Km's: U-Turn on the Hume Highway at the Old Hume Highway at New Berrima.

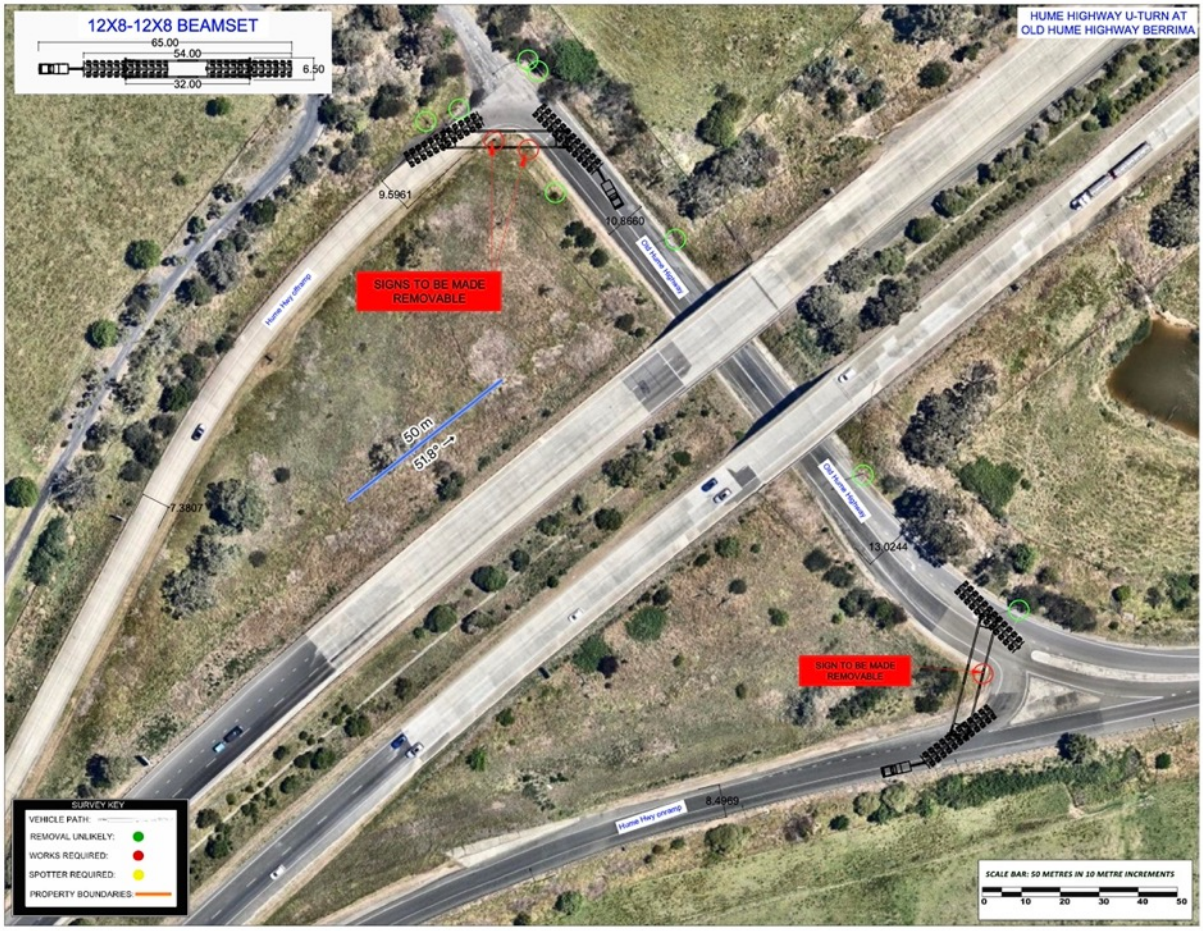


Figure 11: Hume Highway u-turn at Old Hume Highway.

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/358nrnhNkqWrdRQu6
PROCEDURE: U-Turn on the Hume Highway at Old Hume Highway at New Berrima. Spotter to guide the load through this pinch point.
ROAD MODIFICATIONS: Signs need to be made removable on 2 corners.

804.0 Km's: Brayton Road at Stoney Creek Road Marulan.

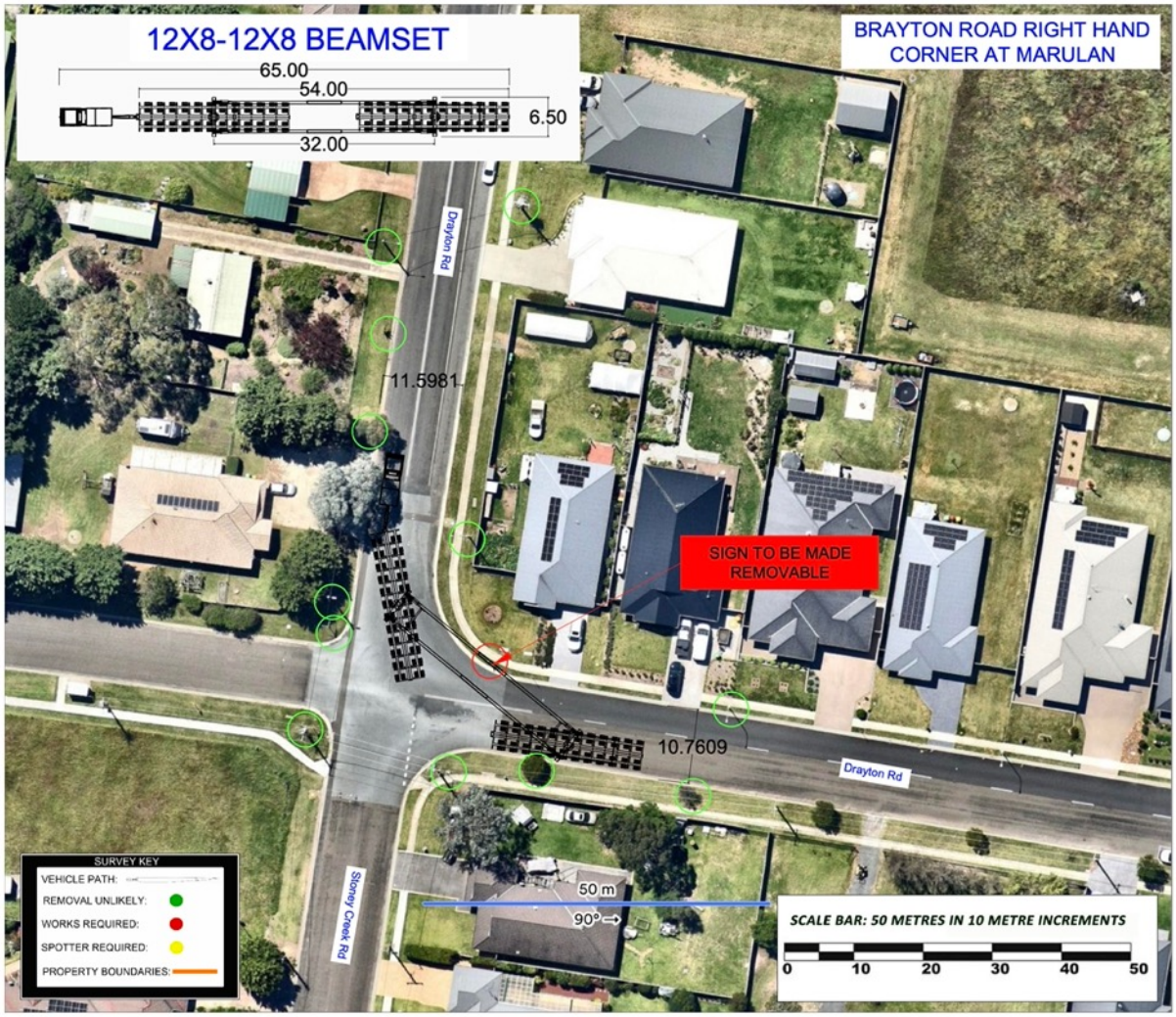


Figure 12: Brayton Road at Stoney Creek Road.

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/mNsEy2wtgFNksAD9A

PROCEDURE: Right hand turn on Brayton Road at Stoney Creek Road. Spotter to guide the load through this pinch point.

ROAD MODIFICATIONS: A sign on the inside of the corner will need to be made removable.

812.0 Km's: Brayton Road onto Canyonleigh Road at Marulan.

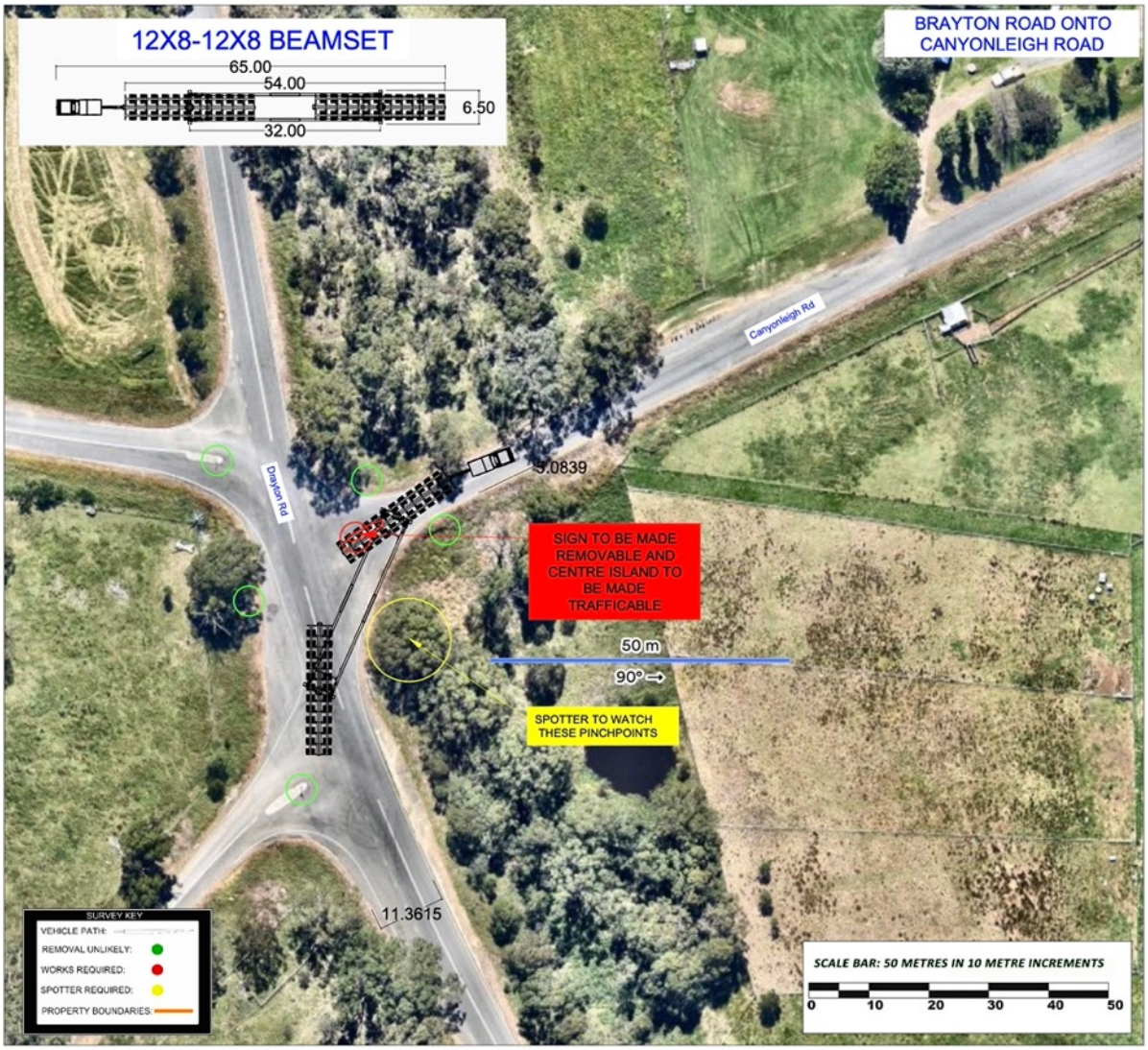


Figure 13: Brayton Road onto Canyonleigh Road.

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/qbNQHgNUWTLQDyV79

PROCEDURE: Right hand turn from Brayton Road onto Canyonleigh Road. Spotter to guide the load through this pinch point.

ROAD MODIFICATIONS: A sign on the inside of the corner will need to be made removable and the centre island needs to be made trafficable.

812.0 to 822.0 Km's: Canyonleigh Road.



Figure 14: Typical section of Canyonleigh Road.



Figure 15: Culvert/Bridge on Canyonleigh Road.

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/dcNFN8t4WXiqsrjB9

PROCEDURE: Travel directly ahead along Canyonleigh Road.

ROAD MODIFICATIONS: This road is gravel for the entirety and in fair condition. It is typically 4.0 metres wide with a 500mm side verge that could also be trafficable. It may be impassable in the wet for a heavy load platform.
The swept path and alignment along Canyonleigh Road is okay, however the bridge and culverts will need to be checked for capacity.

822.0 Km's: Canyonleigh Road into Wattle Creek Renewable Hub.

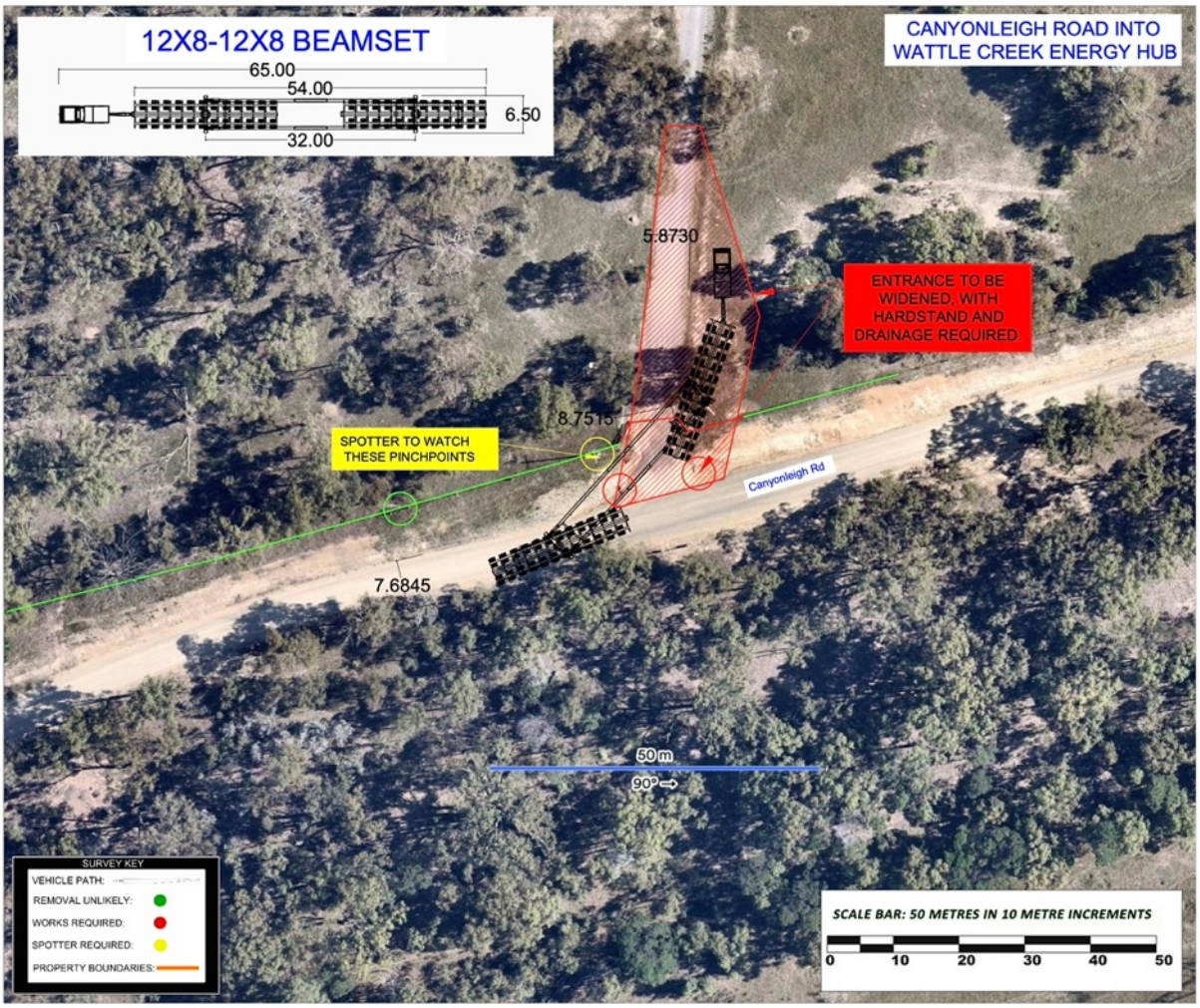


Figure 16: Canyonleigh Road into Wattle Creek Energy Hub site.



Figure 17: Looking towards the proposed Wattle Creek Energy Hub from Canyonleigh Road.

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/AkuxcAHCEBtmgEgi8

PROCEDURE: Left hand turn from Canyonleigh Road into site. Spotter to guide the load through this pinch point.

ROAD MODIFICATIONS: Site will need to make this entrance suitable for the swept path of the beamset.

7.0 Conclusion

After studying all options and undertaking a route survey, the route in its current condition will require minor upgrades before it could be deemed suitable for transporting the proposed load.

The following are the key points that need to be taken into consideration if the project moves forward with this route.

BRIDGES:

- There are a number of bridges on route that will require bridge assessments for the weight of the load.

OVERHEAD STRUCTURES: (5.1 Maximum loaded height)

- There are a number of overhead structures between Wilsons Transformers and the Wattle Creek Energy Hub. The lowest of these are 2 bridges on the Hume Highway at Broadford and Tallarook in regional Victoria are both have a clearance of 5.1 metres in overall height.
- The transformer must not exceed 4.9 metres in height if it is fitted with beam transport lugs, or 4.5 metres in height if they do not have beams lugs.

OVERHEAD UTILITIES (5.1 loaded height)

- This route will need to be checked by an authorised scoping company. It is likely that a route of 5.1 metres is required for this project.

VEGETATION

- No works required.

WIDTH (5.5 Metres width)

- The maximum width of the beamset is 5.5m and will fit along the route in its current condition.
- As the transformer will need to be transported in a beamset the transformer itself could not exceed 4.5 metres in width.

PAVEMENT

- The route up until Canyonleigh Rd is of highway standard, and suitable in its current form.
- Canyonleigh Road is unsealed and will likely have issues have the load is moved while the road is wet.

ROADWORKS

- The project will need to start discussions with government authorities at least 18 months prior to turbine transport to understand if the project would conflict with any upcoming roadworks. Once a TMP has been approved for the transport of the turbines, then the exact movement dates need to be communicated with transport NSW to make all road stakeholders aware of the movements.

VICTORIA PINCHPOINTS

- Yarra Trams required to cross the tram line at Burwood East.
- Traffic signal to be temporarily moved at Balwyn North on the night of the move.
- Load to lower to under 5.1 metres in travel height to pass under the Broadford and Tallarook overpasses on the Hume Freeway.

NSW PINCHPOINTS

- Load to travel past Marulan and do a u-turn at the Old Hume Highway at New Berrima. Several signs will need to be made removable.

  Alternatively, the transport company could discuss placing a contraflow at Marulan and have the load cross to the incorrect side of the highway and onto Brayton Road: https://maps.app.goo.gl/WVpXGmFSdZo1UXUU8
- A sign to be made removable at the corner of Brayton Road and Stoney Creek Road.
- A sign to be made removable and the centre median made trafficable at the corner of Brayton Road and Canyonleigh Road.
- Canyonleigh Road would need to be made suitable for all weather travel, or only transport along this road in the dry.

WATTLE CREEK ENERGY HUB SITE

- Site access roads to be constructed to suitable standards to accommodate the weight and swept path of the proposed load.
- Gates and fences to be made wide enough to accommodate trailer swept path and manoeuvring.

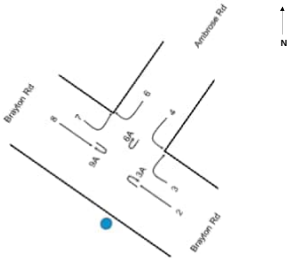
8.0 References

Rex J Andrews route survey 455
Google Earth/Maps
Nearmaps
NHVR (OSOM)
NHVAS Maintenance Management (NHVAS21193)
NHVAS Basic Fatigue Management (NHVAS21193)

Appendix D – Intersection Count Data

EST. 1983
austraffic
TRAFFIC & TRANSPORT DATA SPECIALISTS

Client : Access Traffic Consulting
Job : Brayton Rd, Marulan Intersection Counts
Day/Date : Wednesday, 7 August 2024
Survey Location : Ambrose Rd & Brayton Rd
Weather : Fine

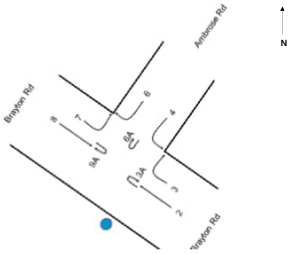




Time Period	Movement 2			Movement 3			Movement 3A			Movement 4			Movement 6			Movement 6A			Movement 7			Movement 8			Movement 9A			Total of all Movements	Peak Hour Volume Determination	
	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total			
6:30 - 6:45	2	0	2	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	4	4	2	0	2	0	0	0	10	6:30 - 7:30	62
6:45 - 7:00	3	3	6	0	0	0	0	0	0	0	0	0	1	4	5	0	0	0	4	2	6	1	0	1	0	0	0	18	6:45 - 7:45	70
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18:15 - 18:30	2	0	2	0	0	0	0	0	0	1	0	1	0	2	2	0	0	0	0	0	0	1	0	1	0	0	0	6		
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PM Peak	15	1	16	3	2	5	0	0	0	4	0	4	0	9	9	0	0	0	4	7	11	32	6	38	0	0	0	83		

EST. 1983
austraffic
TRAFFIC & TRANSPORT DATA SPECIALISTS

Client : Access Traffic Consulting
Job : Brayton Rd, Marulan Intersection Counts
Day/Date : Wednesday, 7 August 2024
Survey Location : Ambrose Rd & Brayton Rd
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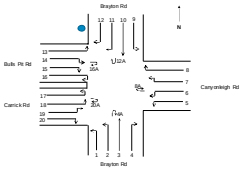
HOURLY FLOW

TIME PERIOD	Movement 2			Movement 3			Movement 3A			Movement 4			Movement 6			Movement 6A			Movement 7			Movement 8			Movement 9A			Grand Total		
	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
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6:45 - 7:45	10	5	15	1	2	3	0	0	0	2	0	2	1	12	13	0	0	0	10	14	24	12	1	13	0	0	0	36	34	70
7:00 - 8:00	8	3	11	1	4	5	0	0	0	2	0	2	0	11	11	0	0	0	6	12	18	12	1	13	0	0	0	29	31	60
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9:15 - 10:15	2	0	2	2	0	2	0	0	0	0	0	0	2	21	23	0	0	0	1	17	18	11	4	15	0	0	0	18	42	60
9:30 - 10:30	5	0	5	3	0	3	0	0	0	0	0	0	2	17	19	0	0	0	1	16	17	10	5	15	0	0	0	21	38	59
9:45 - 10:45	10	1	11	2	0	2	0	0	0	0	0	0	1	13	14	0	0	0	1	21	22	12	4	16	0	0	0	26	39	65
10:00 - 11:00	14	1	15	2	1	3	0	0	0	0	0	0	1	12	13	0	0	0	1	18	19	11	3	14	0	0	0	29	35	64
10:15 - 11:15	18	1	19	1	1	2	0	0	0	0	0	0	1	12	13	0	0	0	0	15	15	11	1	12	0	0	0	31	30	61
10:30 - 11:30	24	1	25	0	1	1	0	0	0	0	0	0	1	11	12	0	0	0	1	17	18	13	1	14	0	0	0	39	31	70
10:45 - 11:45	24	0	24	1	1	2	0	0	0	0	0	0	1	10	11	0	0	0	2	11	13	14	2	16	0	0	0	42	24	66
11:00 - 12:00	21	1	22	1	0	1	0	0	0	1	0	1	1	9	10	0	0	0	3	9	12	16	2	18	0	0	0	43	21	64
11:15 - 12:15	17	2	19	1	0	1	0	0	0	3	0	3	2	8	10	0	0	0	4	10	14	16	2	18	0	0	0	43	22	65
11:30 - 12:30	9	2	11	1	0	1	0	0	0	3	0	3	2	6	8	0	0	0	3	6	9	12	3	15	0	0	0	30	17	47
11:45 - 12:45	6	2	8	0	0	0	0	0	0	4	0	4	1	7	8	0	0	0	3	7	10	9	3	12	0	0	0	23	19	42
12:00 - 13:00	7	1	8	1	0	1	0	0	0	3	0	3	2	5	7	0	0	0	3	6	9	9	4	13	0	0	0	25	16	41
12:15 - 13:15	10	1	11	1	0	1	0	0	0	2	0	2	1	6	7	0	0	0	3	5	8	12	4	16	0	0	0	29	16	45
12:30 - 13:30	12	1	13	2	0	2	0	0	0	6	0	6	1	10	11	0	0	0	3	5	8	12	3	15	0	0	0	36	19	55
12:45 - 13:45	12	1	13	2	0	2	0	0	0	5	1	6	2	11	13	0	0	0	2	5	7	13	3	16	0	0	0	36	21	57
13:00 - 14:00	14	1	15	1	1	2	0	0	0	5	1	6	1	11	12	0	0	0	1	8	9	13	2	15	0	0	0	35	24	59
13:15 - 14:15	12	0	12	1	1	2	0	0	0	5	1	6	1	10	11	0	0	0	0	10	10	8	2	10	0	0	0	27	24	51
13:30 - 14:30	13	1	14	0	1	1	0	0	0	2	1	3	1	8	9	0	0	0	1	10	11	9	4	13	0	0	0	26	25	51
13:45 - 14:45	13	1	14	1	1	2	0	0	0	2	0	2	0	7	7	0	0	0	2	7	9	11	3	14	0	0	0	29	19	48
14:00 - 15:00	13	1	14	1	0	1	0	0	0	2	1	3	0	6	6	0	0	0	3	6	9	12	4	16	0	0	0	31	18	49
14:15 - 15:15	18	1	19	1	0	1	0	0	0	3	1	4	1	5	6	0	0	0	5	4	9	16	5	21	0	0	0	44	16	60
14:30 - 15:30	18	1	19	1	0	1	0	0	0	2	1	3	1	7	8	0	0	0	4	3	7	15	2	17	0	0	0	41	14	55
14:45 - 15:45	23	1	24	0	0	0	0	0	0	2	1	3	3	8	11	0	0	0	3	4	7	14	2	16	0	0	0	45	16	61
15:00 - 16:00	23	1	24	0	0	0	0	0	0	2	0	2	3	11	14	0	0	0	2	4	6	14	3	17	0	0	0	44	19	63
15:15 - 16:15	17	2	19	0	0	0	0	0	0	1	0	1	2	12	14	0	0	0	2	4	6	25	3	28	0	0	0	47	21	68
15:30 - 16:30	17	1	18	1	1	2	0	0	0	4	0	4	2	10	12	0	0	0	4	5	9	31	4	35	0	0	0	59	21	80
15:45 - 16:45	15	1	16	3	2	5	0	0	0	4	0	4	0	9	9	0	0	0	4	7	11	32	6	38	0	0	0	58	25	83
16:00 - 17:00	13	1	14	3	3	6	0	0	0	4	1	5	0	6	6	0	0	0	4	5	9	30	4	34	0	0	0	54	20	74
16:15 - 17:15	13	0	13	4	3	7	0	0	0	5	1	6	1	5	6	0	0	0	4	6	10	20	5	25	0	0	0	47	20	67
16:30 - 17:30	14	0	14	4	2	6	0	0	0	2	1	3	1	3	4	0	0	0	4	6	10	15	4	19	0	0	0	40	16	56
16:45 - 17:45	13	0	13	4	1	5	0	0	0	3	2	5	2	1	3	0	0	0	4	4	8	12	2	14	0	0	0	38	10	48
17:00 - 18:00	18	1	19	5	0	5	0	0	0	3	1	4	2	1	3	0	0	0	6	4	10	13	2	15	0	0	0	47	9	56
17:15 - 18:15	21	1	22	4	0	4	0	0	0	1	1	2	1	0	1	0	0	0	4	2	6	9	0	9	0	0	0	40	4	44
17:30 - 18:30	18	1	19	3	0	3	0	0	0	2	1	3	1	2	3	0	0	0	2	1	3	8	0	8	0	0	0	34	5	39

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TRAFFIC & TRANSPORT DATA SPECIALISTS

Client : Access Traffic Consulting
Job : Brayton Rd, Marulan Intersection Counts
Day/Date : Wednesday, 7 August 2024
Survey Location : Brayton Rd & Canyonleigh Rd & Carrick Rd & Bulls Pit Rd
Weather : Fine

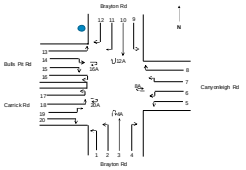




| Time Period | Movement 1 | | | Movement 2 | | | Movement 3 | | | Movement 4 | | | Movement 4A | | | Movement 5 | | | Movement 6 | | | Movement 7 | | | Movement 8 | | | Movement 8A | | | Movement 9 | | | Movement 10 | | | Movement 11 | | | Movement 12 | | | Movement 12A | | | Movement 13 | | | Movement 14 | | | Movement 15 | | | Movement 16 | | | Movement 16A | | | Movement 17 | | | Movement 18 | | | Movement 19 | | | Movement 20 | | | Movement 20A | | | Total of all Movements | Peak Hour Volume Determination | |
|---|---|---

EST. 1993
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TRAFFIC & TRANSPORT DATA SPECIALISTS

Client : Acorus Traffic Consulting
Job : Brayton Rd, Marulan Intersection Counts
Day/Date : Wednesday, 7 August 2024
Survey Location : Brayton Rd & Canyonleigh Rd & Carrick Rd & Bulls Pit Rd
Weather : Fine





HOURLY FLOW

| TIME PERIOD | Movement 1 | | | Movement 2 | | | Movement 3 | | | Movement 4 | | | Movement 4A | | | Movement 5 | | | Movement 6 | | | Movement 7 | | | Movement 8 | | | Movement 9A | | | Movement 9 | | | Movement 10 | | | Movement 11 | | | Movement 12 | | | Movement 12A | | | Movement 13 | | | Movement 14 | | | Movement 15 | | | Movement 16 | | | Movement 16A | | | Movement 17 | | | Movement 18 | | | Movement 19 | | | Movement 20 | | | Movement 20A | | | Grand Total | | |
|---|---|---

Appendix E – SIDRA Results: Brayton Road / Ambrose Road

MOVEMENT SUMMARY

Site: 1 [EXIST 2024 AM Peak (Project) (Site Folder: 1. Brayton Road / Ambrose Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Ambrose Road Intersection

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
2	T1	All MCs	11	27.3	11	27.3	0.008	0.0	LOS A	0.0	0.1	0.05	0.10	0.05	59.2
3	R2	All MCs	2	50.0	2	50.0	0.008	6.2	LOS A	0.0	0.1	0.05	0.10	0.05	54.2
Approach			13	30.8	13	30.8	0.008	1.0	NA	0.0	0.1	0.05	0.10	0.05	58.4
East: Ambrose Road															
4	L2	All MCs	1	0.0	1	0.0	0.017	5.6	LOS A	0.1	0.7	0.11	0.55	0.11	52.6
6	R2	All MCs	14	92.9	14	92.9	0.017	6.9	LOS A	0.1	0.7	0.11	0.55	0.11	48.8
Approach			15	86.7	15	86.7	0.017	6.8	LOS A	0.1	0.7	0.11	0.55	0.11	49.0
North: Brayton Road															
7	L2	All MCs	24	62.5	24	62.5	0.024	6.3	LOS A	0.0	0.0	0.00	0.39	0.00	52.6
8	T1	All MCs	11	0.0	11	0.0	0.024	0.0	LOS A	0.0	0.0	0.00	0.39	0.00	57.6
Approach			35	42.9	35	42.9	0.024	4.3	NA	0.0	0.0	0.00	0.39	0.00	54.1
All Vehicles			63	50.8	63	50.8	0.024	4.2	NA	0.1	0.7	0.04	0.37	0.04	53.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 1 [EXIST 2024 PM Peak (Project) (Site Folder: 1. Brayton Road / Ambrose Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Ambrose Road Intersection

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
2	T1	All MCs	19	5.3	19	5.3	0.012	0.0	LOS A	0.0	0.1	0.02	0.08	0.02	59.2
3	R2	All MCs	3	0.0	3	0.0	0.012	5.5	LOS A	0.0	0.1	0.02	0.08	0.02	56.6
Approach			22	4.5	22	4.5	0.012	0.8	NA	0.0	0.1	0.02	0.08	0.02	58.8
East: Ambrose Road															
4	L2	All MCs	3	33.3	3	33.3	0.005	5.9	LOS A	0.0	0.2	0.06	0.55	0.06	51.4
6	R2	All MCs	3	66.7	3	66.7	0.005	6.4	LOS A	0.0	0.2	0.06	0.55	0.06	49.9
Approach			6	50.0	6	50.0	0.005	6.2	LOS A	0.0	0.2	0.06	0.55	0.06	50.6
North: Brayton Road															
7	L2	All MCs	3	33.3	3	33.3	0.006	5.9	LOS A	0.0	0.0	0.00	0.16	0.00	55.0
8	T1	All MCs	8	0.0	8	0.0	0.006	0.0	LOS A	0.0	0.0	0.00	0.16	0.00	58.9
Approach			11	9.1	11	9.1	0.006	1.6	NA	0.0	0.0	0.00	0.16	0.00	57.8
All Vehicles			39	12.8	39	12.8	0.012	1.8	NA	0.0	0.2	0.02	0.18	0.02	57.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 1 [EXIST 2024 AM Peak (Network) (Site Folder: 1. Brayton Road / Ambrose Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Ambrose Road Intersection

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
2	T1	All MCs	16	25.0	16	25.0	0.010	0.0	LOS A	0.0	0.0	0.02	0.04	0.02	59.5
3	R2	All MCs	1	0.0	1	0.0	0.010	5.5	LOS A	0.0	0.0	0.02	0.04	0.02	56.9
Approach			17	23.5	17	23.5	0.010	0.3	NA	0.0	0.0	0.02	0.04	0.02	59.4
East: Ambrose Road															
4	L2	All MCs	2	0.0	2	0.0	0.025	5.6	LOS A	0.1	1.0	0.13	0.55	0.13	51.6
6	R2	All MCs	19	100.0	19	100.0	0.025	7.0	LOS A	0.1	1.0	0.13	0.55	0.13	47.7
Approach			21	90.5	21	90.5	0.025	6.9	LOS A	0.1	1.0	0.13	0.55	0.13	48.1
North: Brayton Road															
7	L2	All MCs	17	88.2	17	88.2	0.025	6.6	LOS A	0.0	0.0	0.00	0.27	0.00	52.9
8	T1	All MCs	19	15.8	19	15.8	0.025	0.0	LOS A	0.0	0.0	0.00	0.27	0.00	59.4
Approach			36	50.0	36	50.0	0.025	3.1	NA	0.0	0.0	0.00	0.27	0.00	56.2
All Vehicles			74	55.4	74	55.4	0.025	3.5	NA	0.1	1.0	0.04	0.29	0.04	54.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 1 [EXIST 2024 PM Peak (Network) (Site Folder: 1. Brayton Road / Ambrose Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Ambrose Road Intersection

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
2	T1	All MCs	16	6.3	16	6.3	0.013	0.1	LOS A	0.0	0.3	0.09	0.15	0.09	58.7
3	R2	All MCs	5	40.0	5	40.0	0.013	6.2	LOS A	0.0	0.3	0.09	0.15	0.09	54.3
Approach			21	14.3	21	14.3	0.013	1.5	NA	0.0	0.3	0.09	0.15	0.09	57.6
East: Ambrose Road															
4	L2	All MCs	4	0.0	4	0.0	0.014	5.6	LOS A	0.0	0.5	0.15	0.54	0.15	51.8
6	R2	All MCs	9	100.0	9	100.0	0.014	7.2	LOS A	0.0	0.5	0.15	0.54	0.15	47.8
Approach			13	69.2	13	69.2	0.014	6.7	LOS A	0.0	0.5	0.15	0.54	0.15	49.0
North: Brayton Road															
7	L2	All MCs	11	63.6	11	63.6	0.030	6.3	LOS A	0.0	0.0	0.00	0.13	0.00	54.0
8	T1	All MCs	38	15.8	38	15.8	0.030	0.0	LOS A	0.0	0.0	0.00	0.13	0.00	59.4
Approach			49	26.5	49	26.5	0.030	1.4	NA	0.0	0.0	0.00	0.13	0.00	58.1
All Vehicles			83	30.1	83	30.1	0.030	2.3	NA	0.0	0.5	0.05	0.20	0.05	56.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 1 [CONST. 2026 AM Peak (Project) (Site Folder: 1. Brayton Road / Ambrose Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Ambrose Road Intersection

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
2	T1	All MCs	63	4.8	63	4.8	0.035	0.0	LOS A	0.0	0.1	0.01	0.02	0.01	59.9
3	R2	All MCs	2	50.0	2	50.0	0.035	6.1	LOS A	0.0	0.1	0.01	0.02	0.01	54.8
Approach			65	6.2	65	6.2	0.035	0.2	NA	0.0	0.1	0.01	0.02	0.01	59.7
East: Ambrose Road															
4	L2	All MCs	1	0.0	1	0.0	0.064	5.6	LOS A	0.2	1.8	0.18	0.56	0.18	52.4
6	R2	All MCs	67	22.4	67	22.4	0.064	6.2	LOS A	0.2	1.8	0.18	0.56	0.18	51.3
Approach			68	22.1	68	22.1	0.064	6.2	LOS A	0.2	1.8	0.18	0.56	0.18	51.4
North: Brayton Road															
7	L2	All MCs	26	65.4	26	65.4	0.027	6.3	LOS A	0.0	0.0	0.00	0.39	0.00	52.5
8	T1	All MCs	12	8.3	12	8.3	0.027	0.0	LOS A	0.0	0.0	0.00	0.39	0.00	57.6
Approach			38	47.4	38	47.4	0.027	4.3	NA	0.0	0.0	0.00	0.39	0.00	54.0
All Vehicles			171	21.6	171	21.6	0.064	3.5	NA	0.2	1.8	0.07	0.32	0.07	54.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 1 [CONST. 2026 PM Peak (Project) (Site Folder: 1. Brayton Road / Ambrose Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Ambrose Road Intersection

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
2	T1	All MCs	20	5.0	20	5.0	0.012	0.1	LOS A	0.0	0.1	0.06	0.09	0.06	59.0
3	R2	All MCs	3	0.0	3	0.0	0.012	5.8	LOS A	0.0	0.1	0.06	0.09	0.06	56.4
Approach			23	4.3	23	4.3	0.012	0.8	NA	0.0	0.1	0.06	0.09	0.06	58.6
East: Ambrose Road															
4	L2	All MCs	3	33.3	3	33.3	0.007	6.2	LOS A	0.0	0.3	0.19	0.54	0.19	51.0
6	R2	All MCs	4	75.0	4	75.0	0.007	7.1	LOS A	0.0	0.3	0.19	0.54	0.19	49.2
Approach			7	57.1	7	57.1	0.007	6.7	LOS A	0.0	0.3	0.19	0.54	0.19	50.0
North: Brayton Road															
7	L2	All MCs	45	4.4	45	4.4	0.061	5.6	LOS A	0.0	0.0	0.00	0.23	0.00	55.4
8	T1	All MCs	71	1.4	71	1.4	0.061	0.0	LOS A	0.0	0.0	0.00	0.23	0.00	58.0
Approach			116	2.6	116	2.6	0.061	2.2	NA	0.0	0.0	0.00	0.23	0.00	57.0
All Vehicles			146	5.5	146	5.5	0.061	2.2	NA	0.0	0.3	0.02	0.22	0.02	56.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 1 [CUM CONST. 2026 AM Peak (Project) (Site Folder: 1. Brayton Road / Ambrose Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Ambrose Road Intersection

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
2	T1	All MCs	216	1.4	216	1.4	0.113	0.0	LOS A	0.0	0.1	0.00	0.01	0.00	60.0
3	R2	All MCs	2	50.0	2	50.0	0.113	6.1	LOS A	0.0	0.1	0.00	0.01	0.00	54.9
Approach			218	1.8	218	1.8	0.113	0.1	NA	0.0	0.1	0.00	0.01	0.00	59.9
East: Ambrose Road															
4	L2	All MCs	1	0.0	1	0.0	0.234	5.6	LOS A	0.9	6.6	0.35	0.63	0.35	51.9
6	R2	All MCs	225	9.3	225	9.3	0.234	6.9	LOS A	0.9	6.6	0.35	0.63	0.35	51.4
Approach			226	9.3	226	9.3	0.234	6.9	LOS A	0.9	6.6	0.35	0.63	0.35	51.4
North: Brayton Road															
7	L2	All MCs	32	71.9	32	71.9	0.033	6.4	LOS A	0.0	0.0	0.00	0.40	0.00	52.2
8	T1	All MCs	13	15.4	13	15.4	0.033	0.0	LOS A	0.0	0.0	0.00	0.40	0.00	57.6
Approach			45	55.6	45	55.6	0.033	4.5	NA	0.0	0.0	0.00	0.40	0.00	53.7
All Vehicles			489	10.2	489	10.2	0.234	3.6	NA	0.9	6.6	0.16	0.33	0.16	55.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 1 [CUM CONST. 2026 PM Peak (Project) (Site Folder: 1. Brayton Road / Ambrose Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Ambrose Road Intersection

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
2	T1	All MCs	20	5.0	20	5.0	0.013	0.3	LOS A	0.0	0.2	0.15	0.16	0.15	58.6
3	R2	All MCs	3	0.0	3	0.0	0.013	7.0	LOS A	0.0	0.2	0.15	0.16	0.15	56.1
Approach			23	4.3	23	4.3	0.013	1.2	NA	0.0	0.2	0.15	0.16	0.15	58.3
East: Ambrose Road															
4	L2	All MCs	3	33.3	3	33.3	0.021	7.0	LOS A	0.1	0.8	0.42	0.63	0.42	49.7
6	R2	All MCs	10	90.0	10	90.0	0.021	9.8	LOS A	0.1	0.8	0.42	0.63	0.42	47.5
Approach			13	76.9	13	76.9	0.021	9.1	LOS A	0.1	0.8	0.42	0.63	0.42	47.9
North: Brayton Road															
7	L2	All MCs	192	4.2	192	4.2	0.226	5.6	LOS A	0.0	0.0	0.00	0.26	0.00	55.1
8	T1	All MCs	236	0.8	236	0.8	0.226	0.1	LOS A	0.0	0.0	0.00	0.26	0.00	57.6
Approach			428	2.3	428	2.3	0.226	2.6	NA	0.0	0.0	0.00	0.26	0.00	56.4
All Vehicles			464	4.5	464	4.5	0.226	2.7	NA	0.1	0.8	0.02	0.27	0.02	56.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 1 [CUM OPS 2027 AM Peak (Project) (Site Folder: 1. Brayton Road / Ambrose Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Ambrose Road Intersection

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
2	T1	All MCs	39	7.7	39	7.7	0.023	0.0	LOS A	0.0	0.1	0.02	0.03	0.02	59.8
3	R2	All MCs	2	50.0	2	50.0	0.023	6.2	LOS A	0.0	0.1	0.02	0.03	0.02	54.7
Approach			41	9.8	41	9.8	0.023	0.3	NA	0.0	0.1	0.02	0.03	0.02	59.5
East: Ambrose Road															
4	L2	All MCs	1	0.0	1	0.0	0.043	5.6	LOS A	0.1	1.3	0.16	0.55	0.16	52.4
6	R2	All MCs	42	40.5	42	40.5	0.043	6.4	LOS A	0.1	1.3	0.16	0.55	0.16	50.7
Approach			43	39.5	43	39.5	0.043	6.3	LOS A	0.1	1.3	0.16	0.55	0.16	50.7
North: Brayton Road															
7	L2	All MCs	26	61.5	26	61.5	0.029	6.3	LOS A	0.0	0.0	0.00	0.36	0.00	52.6
8	T1	All MCs	15	20.0	15	20.0	0.029	0.0	LOS A	0.0	0.0	0.00	0.36	0.00	57.6
Approach			41	46.3	41	46.3	0.029	4.0	NA	0.0	0.0	0.00	0.36	0.00	54.3
All Vehicles			125	32.0	125	32.0	0.043	3.6	NA	0.1	1.3	0.06	0.32	0.06	54.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 1 [CUM OPS 2027 PM Peak (Project) (Site Folder: 1. Brayton Road / Ambrose Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Ambrose Road Intersection

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
2	T1	All MCs	20	5.0	20	5.0	0.012	0.0	LOS A	0.0	0.1	0.05	0.08	0.05	59.1
3	R2	All MCs	3	0.0	3	0.0	0.012	5.7	LOS A	0.0	0.1	0.05	0.08	0.05	56.5
Approach			23	4.3	23	4.3	0.012	0.8	NA	0.0	0.1	0.05	0.08	0.05	58.7
East: Ambrose Road															
4	L2	All MCs	3	33.3	3	33.3	0.010	6.1	LOS A	0.0	0.3	0.16	0.54	0.16	51.1
6	R2	All MCs	6	83.3	6	83.3	0.010	7.0	LOS A	0.0	0.3	0.16	0.54	0.16	49.0
Approach			9	66.7	9	66.7	0.010	6.7	LOS A	0.0	0.3	0.16	0.54	0.16	49.7
North: Brayton Road															
7	L2	All MCs	23	4.3	23	4.3	0.035	5.6	LOS A	0.0	0.0	0.00	0.21	0.00	55.6
8	T1	All MCs	43	7.0	43	7.0	0.035	0.0	LOS A	0.0	0.0	0.00	0.21	0.00	58.1
Approach			66	6.1	66	6.1	0.035	2.0	NA	0.0	0.0	0.00	0.21	0.00	57.2
All Vehicles			98	11.2	98	11.2	0.035	2.1	NA	0.0	0.3	0.03	0.21	0.03	56.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 1 [OPS 2037 AM Peak (Project) (Site Folder: 1. Brayton Road / Ambrose Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Ambrose Road Intersection

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
2	T1	All MCs	22	18.2	22	18.2	0.014	0.0	LOS A	0.0	0.1	0.03	0.05	0.03	59.6
3	R2	All MCs	2	50.0	2	50.0	0.014	6.2	LOS A	0.0	0.1	0.03	0.05	0.03	54.6
Approach			24	20.8	24	20.8	0.014	0.5	NA	0.0	0.1	0.03	0.05	0.03	59.1
East: Ambrose Road															
4	L2	All MCs	1	0.0	1	0.0	0.031	5.6	LOS A	0.1	1.1	0.14	0.55	0.14	52.5
6	R2	All MCs	27	66.7	27	66.7	0.031	6.7	LOS A	0.1	1.1	0.14	0.55	0.14	49.7
Approach			28	64.3	28	64.3	0.031	6.6	LOS A	0.1	1.1	0.14	0.55	0.14	49.8
North: Brayton Road															
7	L2	All MCs	31	61.3	31	61.3	0.032	6.3	LOS A	0.0	0.0	0.00	0.38	0.00	52.6
8	T1	All MCs	15	6.7	15	6.7	0.032	0.0	LOS A	0.0	0.0	0.00	0.38	0.00	57.6
Approach			46	43.5	46	43.5	0.032	4.2	NA	0.0	0.0	0.00	0.38	0.00	54.1
All Vehicles			98	43.9	98	43.9	0.032	4.0	NA	0.1	1.1	0.05	0.35	0.05	53.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 1 [OPS 2037 PM Peak (Project) (Site Folder: 1. Brayton Road / Ambrose Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Ambrose Road Intersection

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
2	T1	All MCs	24	4.2	24	4.2	0.015	0.0	LOS A	0.0	0.2	0.03	0.09	0.03	59.1
3	R2	All MCs	4	0.0	4	0.0	0.015	5.5	LOS A	0.0	0.2	0.03	0.09	0.03	56.5
Approach			28	3.6	28	3.6	0.015	0.8	NA	0.0	0.2	0.03	0.09	0.03	58.7
East: Ambrose Road															
4	L2	All MCs	4	25.0	4	25.0	0.009	5.9	LOS A	0.0	0.3	0.10	0.54	0.10	51.6
6	R2	All MCs	5	80.0	5	80.0	0.009	6.8	LOS A	0.0	0.3	0.10	0.54	0.10	49.3
Approach			9	55.6	9	55.6	0.009	6.4	LOS A	0.0	0.3	0.10	0.54	0.10	50.3
North: Brayton Road															
7	L2	All MCs	10	10.0	10	10.0	0.017	5.7	LOS A	0.0	0.0	0.00	0.19	0.00	55.5
8	T1	All MCs	21	4.8	21	4.8	0.017	0.0	LOS A	0.0	0.0	0.00	0.19	0.00	58.3
Approach			31	6.5	31	6.5	0.017	1.8	NA	0.0	0.0	0.00	0.19	0.00	57.4
All Vehicles			68	11.8	68	11.8	0.017	2.0	NA	0.0	0.3	0.03	0.19	0.03	56.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 1 [CUM OPS 2037 AM Peak (Project) (Site Folder: 1. Brayton Road / Ambrose Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Ambrose Road Intersection

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
2	T1	All MCs	42	9.5	42	9.5	0.024	0.0	LOS A	0.0	0.1	0.02	0.03	0.02	59.8
3	R2	All MCs	2	50.0	2	50.0	0.024	6.2	LOS A	0.0	0.1	0.02	0.03	0.02	54.7
Approach			44	11.4	44	11.4	0.024	0.3	NA	0.0	0.1	0.02	0.03	0.02	59.5
East: Ambrose Road															
4	L2	All MCs	1	0.0	1	0.0	0.047	5.6	LOS A	0.2	1.5	0.17	0.56	0.17	52.4
6	R2	All MCs	45	44.4	45	44.4	0.047	6.5	LOS A	0.2	1.5	0.17	0.56	0.17	50.5
Approach			46	43.5	46	43.5	0.047	6.5	LOS A	0.2	1.5	0.17	0.56	0.17	50.5
North: Brayton Road															
7	L2	All MCs	31	61.3	31	61.3	0.033	6.3	LOS A	0.0	0.0	0.00	0.37	0.00	52.6
8	T1	All MCs	17	17.6	17	17.6	0.033	0.0	LOS A	0.0	0.0	0.00	0.37	0.00	57.6
Approach			48	45.8	48	45.8	0.033	4.0	NA	0.0	0.0	0.00	0.37	0.00	54.2
All Vehicles			138	34.1	138	34.1	0.047	3.6	NA	0.2	1.5	0.06	0.32	0.06	54.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 1 [CUM OPS 2037 PM Peak (Project) (Site Folder: 1. Brayton Road / Ambrose Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Ambrose Road Intersection

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
2	T1	All MCs	24	4.2	24	4.2	0.015	0.0	LOS A	0.0	0.2	0.05	0.09	0.05	59.0
3	R2	All MCs	4	0.0	4	0.0	0.015	5.7	LOS A	0.0	0.2	0.05	0.09	0.05	56.4
Approach			28	3.6	28	3.6	0.015	0.8	NA	0.0	0.2	0.05	0.09	0.05	58.6
East: Ambrose Road															
4	L2	All MCs	4	25.0	4	25.0	0.012	6.0	LOS A	0.0	0.4	0.16	0.54	0.16	51.4
6	R2	All MCs	7	85.7	7	85.7	0.012	7.1	LOS A	0.0	0.4	0.16	0.54	0.16	48.9
Approach			11	63.6	11	63.6	0.012	6.7	LOS A	0.0	0.4	0.16	0.54	0.16	49.8
North: Brayton Road															
7	L2	All MCs	24	4.2	24	4.2	0.037	5.6	LOS A	0.0	0.0	0.00	0.21	0.00	55.6
8	T1	All MCs	45	6.7	45	6.7	0.037	0.0	LOS A	0.0	0.0	0.00	0.21	0.00	58.1
Approach			69	5.8	69	5.8	0.037	2.0	NA	0.0	0.0	0.00	0.21	0.00	57.2
All Vehicles			108	11.1	108	11.1	0.037	2.1	NA	0.0	0.4	0.03	0.21	0.03	56.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 1 [DECOMM 2057 AM Peak (Project) (Site Folder: 1. Brayton Road / Ambrose Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Ambrose Road Intersection

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
2	T1	All MCs	58	10.3	58	10.3	0.035	0.0	LOS A	0.0	0.3	0.04	0.05	0.04	59.6
3	R2	All MCs	4	50.0	4	50.0	0.035	6.4	LOS A	0.0	0.3	0.04	0.05	0.04	54.6
Approach			62	12.9	62	12.9	0.035	0.4	NA	0.0	0.3	0.04	0.05	0.04	59.3
East: Ambrose Road															
4	L2	All MCs	1	0.0	1	0.0	0.069	5.6	LOS A	0.2	2.1	0.21	0.57	0.21	52.3
6	R2	All MCs	64	40.6	64	40.6	0.069	6.6	LOS A	0.2	2.1	0.21	0.57	0.21	50.5
Approach			65	40.0	65	40.0	0.069	6.6	LOS A	0.2	2.1	0.21	0.57	0.21	50.5
North: Brayton Road															
7	L2	All MCs	47	63.8	47	63.8	0.048	6.3	LOS A	0.0	0.0	0.00	0.39	0.00	52.5
8	T1	All MCs	22	4.5	22	4.5	0.048	0.0	LOS A	0.0	0.0	0.00	0.39	0.00	57.6
Approach			69	44.9	69	44.9	0.048	4.3	NA	0.0	0.0	0.00	0.39	0.00	54.1
All Vehicles			196	33.2	196	33.2	0.069	3.8	NA	0.2	2.1	0.08	0.34	0.08	54.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 1 [DECOMM 2057 PM Peak (Project) (Site Folder: 1. Brayton Road / Ambrose Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Ambrose Road Intersection

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
2	T1	All MCs	37	5.4	37	5.4	0.023	0.1	LOS A	0.0	0.3	0.06	0.10	0.06	58.9
3	R2	All MCs	6	0.0	6	0.0	0.023	5.8	LOS A	0.0	0.3	0.06	0.10	0.06	56.4
Approach			43	4.7	43	4.7	0.023	0.9	NA	0.0	0.3	0.06	0.10	0.06	58.6
East: Ambrose Road															
4	L2	All MCs	6	33.3	6	33.3	0.013	6.2	LOS A	0.0	0.5	0.18	0.54	0.18	51.0
6	R2	All MCs	7	71.4	7	71.4	0.013	7.1	LOS A	0.0	0.5	0.18	0.54	0.18	49.4
Approach			13	53.8	13	53.8	0.013	6.7	LOS A	0.0	0.5	0.18	0.54	0.18	50.1
North: Brayton Road															
7	L2	All MCs	36	8.3	36	8.3	0.051	5.6	LOS A	0.0	0.0	0.00	0.22	0.00	55.4
8	T1	All MCs	60	1.7	60	1.7	0.051	0.0	LOS A	0.0	0.0	0.00	0.22	0.00	58.1
Approach			96	4.2	96	4.2	0.051	2.1	NA	0.0	0.0	0.00	0.22	0.00	57.0
All Vehicles			152	8.6	152	8.6	0.051	2.2	NA	0.0	0.5	0.03	0.21	0.03	56.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 1 [CONST. 2026 AM Peak (Network) (Site Folder: 1. Brayton Road / Ambrose Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Ambrose Road Intersection

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
2	T1	All MCs	21	19.0	21	19.0	0.013	0.0	LOS A	0.0	0.0	0.01	0.03	0.01	59.6
3	R2	All MCs	1	0.0	1	0.0	0.013	5.5	LOS A	0.0	0.0	0.01	0.03	0.01	57.0
Approach			22	18.2	22	18.2	0.013	0.3	NA	0.0	0.0	0.01	0.03	0.01	59.5
East: Ambrose Road															
4	L2	All MCs	2	0.0	2	0.0	0.032	5.6	LOS A	0.1	1.2	0.16	0.55	0.16	52.4
6	R2	All MCs	26	80.8	26	80.8	0.032	6.9	LOS A	0.1	1.2	0.16	0.55	0.16	49.1
Approach			28	75.0	28	75.0	0.032	6.8	LOS A	0.1	1.2	0.16	0.55	0.16	49.3
North: Brayton Road															
7	L2	All MCs	24	70.8	24	70.8	0.034	6.4	LOS A	0.0	0.0	0.00	0.27	0.00	53.1
8	T1	All MCs	26	15.4	26	15.4	0.034	0.0	LOS A	0.0	0.0	0.00	0.27	0.00	58.7
Approach			50	42.0	50	42.0	0.034	3.1	NA	0.0	0.0	0.00	0.27	0.00	55.9
All Vehicles			100	46.0	100	46.0	0.034	3.5	NA	0.1	1.2	0.05	0.30	0.05	54.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 1 [CONST. 2026 PM Peak (Network) (Site Folder: 1. Brayton Road / Ambrose Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Ambrose Road Intersection

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
2	T1	All MCs	22	4.5	22	4.5	0.016	0.1	LOS A	0.0	0.3	0.08	0.13	0.08	59.0
3	R2	All MCs	5	40.0	5	40.0	0.016	6.3	LOS A	0.0	0.3	0.08	0.13	0.08	54.5
Approach			27	11.1	27	11.1	0.016	1.2	NA	0.0	0.3	0.08	0.13	0.08	58.1
East: Ambrose Road															
4	L2	All MCs	4	0.0	4	0.0	0.020	5.7	LOS A	0.1	0.7	0.17	0.55	0.17	52.4
6	R2	All MCs	15	66.7	15	66.7	0.020	6.8	LOS A	0.1	0.7	0.17	0.55	0.17	49.6
Approach			19	52.6	19	52.6	0.020	6.6	LOS A	0.1	0.7	0.17	0.55	0.17	50.2
North: Brayton Road															
7	L2	All MCs	17	47.1	17	47.1	0.037	6.1	LOS A	0.0	0.0	0.00	0.16	0.00	54.4
8	T1	All MCs	45	15.6	45	15.6	0.037	0.0	LOS A	0.0	0.0	0.00	0.16	0.00	59.0
Approach			62	24.2	62	24.2	0.037	1.7	NA	0.0	0.0	0.00	0.16	0.00	57.6
All Vehicles			108	25.9	108	25.9	0.037	2.4	NA	0.1	0.7	0.05	0.22	0.05	56.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 1 [CUM CONST. 2026 AM Peak (Network) (Site Folder: 1. Brayton Road / Ambrose Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Ambrose Road Intersection

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
2	T1	All MCs	31	12.9	31	12.9	0.018	0.0	LOS A	0.0	0.0	0.01	0.02	0.01	59.7
3	R2	All MCs	1	0.0	1	0.0	0.018	5.6	LOS A	0.0	0.0	0.01	0.02	0.01	57.1
Approach			32	12.5	32	12.5	0.018	0.2	NA	0.0	0.0	0.01	0.02	0.01	59.7
East: Ambrose Road															
4	L2	All MCs	2	0.0	2	0.0	0.050	5.7	LOS A	0.2	1.7	0.20	0.56	0.20	52.3
6	R2	All MCs	42	64.3	42	64.3	0.050	6.9	LOS A	0.2	1.7	0.20	0.56	0.20	49.6
Approach			44	61.4	44	61.4	0.050	6.8	LOS A	0.2	1.7	0.20	0.56	0.20	49.7
North: Brayton Road															
7	L2	All MCs	40	57.5	40	57.5	0.050	6.2	LOS A	0.0	0.0	0.00	0.30	0.00	53.2
8	T1	All MCs	37	13.5	37	13.5	0.050	0.0	LOS A	0.0	0.0	0.00	0.30	0.00	58.1
Approach			77	36.4	77	36.4	0.050	3.2	NA	0.0	0.0	0.00	0.30	0.00	55.5
All Vehicles			153	38.6	153	38.6	0.050	3.6	NA	0.2	1.7	0.06	0.31	0.06	54.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 1 [CUM CONST. 2026 PM Peak (Network) (Site Folder: 1. Brayton Road / Ambrose Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Ambrose Road Intersection

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
2	T1	All MCs	32	3.1	32	3.1	0.021	0.1	LOS A	0.0	0.3	0.08	0.10	0.08	59.2
3	R2	All MCs	5	40.0	5	40.0	0.021	6.4	LOS A	0.0	0.3	0.08	0.10	0.08	54.7
Approach			37	8.1	37	8.1	0.021	0.9	NA	0.0	0.3	0.08	0.10	0.08	58.5
East: Ambrose Road															
4	L2	All MCs	4	0.0	4	0.0	0.037	5.7	LOS A	0.1	1.2	0.21	0.56	0.21	52.3
6	R2	All MCs	31	51.6	31	51.6	0.037	6.8	LOS A	0.1	1.2	0.21	0.56	0.21	50.1
Approach			35	45.7	35	45.7	0.037	6.6	LOS A	0.1	1.2	0.21	0.56	0.21	50.3
North: Brayton Road															
7	L2	All MCs	33	42.4	33	42.4	0.054	6.0	LOS A	0.0	0.0	0.00	0.21	0.00	54.2
8	T1	All MCs	56	14.3	56	14.3	0.054	0.0	LOS A	0.0	0.0	0.00	0.21	0.00	58.5
Approach			89	24.7	89	24.7	0.054	2.2	NA	0.0	0.0	0.00	0.21	0.00	56.8
All Vehicles			161	25.5	161	25.5	0.054	2.9	NA	0.1	1.2	0.06	0.26	0.06	55.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 1 [CUM OPS 2027 AM Peak (Network) (Site Folder: 1. Brayton Road / Ambrose Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Ambrose Road Intersection

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
2	T1	All MCs	23	17.4	23	17.4	0.014	0.0	LOS A	0.0	0.0	0.01	0.03	0.01	59.7
3	R2	All MCs	1	0.0	1	0.0	0.014	5.5	LOS A	0.0	0.0	0.01	0.03	0.01	57.1
Approach			24	16.7	24	16.7	0.014	0.2	NA	0.0	0.0	0.01	0.03	0.01	59.6
East: Ambrose Road															
4	L2	All MCs	2	0.0	2	0.0	0.035	5.6	LOS A	0.1	1.3	0.15	0.55	0.15	52.4
6	R2	All MCs	29	79.3	29	79.3	0.035	6.9	LOS A	0.1	1.3	0.15	0.55	0.15	49.2
Approach			31	74.2	31	74.2	0.035	6.8	LOS A	0.1	1.3	0.15	0.55	0.15	49.4
North: Brayton Road															
7	L2	All MCs	18	88.9	18	88.9	0.029	6.6	LOS A	0.0	0.0	0.00	0.25	0.00	52.9
8	T1	All MCs	23	26.1	23	26.1	0.029	0.0	LOS A	0.0	0.0	0.00	0.25	0.00	59.4
Approach			41	53.7	41	53.7	0.029	2.9	NA	0.0	0.0	0.00	0.25	0.00	56.4
All Vehicles			96	51.0	96	51.0	0.035	3.5	NA	0.1	1.3	0.05	0.29	0.05	54.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 1 [CUM OPS 2027 PM Peak (Network) (Site Folder: 1. Brayton Road / Ambrose Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Ambrose Road Intersection

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
2	T1	All MCs	17	5.9	17	5.9	0.013	0.1	LOS A	0.0	0.3	0.10	0.15	0.10	58.7
3	R2	All MCs	5	40.0	5	40.0	0.013	6.3	LOS A	0.0	0.3	0.10	0.15	0.10	54.3
Approach			22	13.6	22	13.6	0.013	1.5	NA	0.0	0.3	0.10	0.15	0.10	57.7
East: Ambrose Road															
4	L2	All MCs	4	0.0	4	0.0	0.019	5.7	LOS A	0.1	0.7	0.18	0.55	0.18	51.6
6	R2	All MCs	13	100.0	13	100.0	0.019	7.3	LOS A	0.1	0.7	0.18	0.55	0.18	47.7
Approach			17	76.5	17	76.5	0.019	6.9	LOS A	0.1	0.7	0.18	0.55	0.18	48.6
North: Brayton Road															
7	L2	All MCs	17	41.2	17	41.2	0.040	6.0	LOS A	0.0	0.0	0.00	0.15	0.00	54.6
8	T1	All MCs	49	18.4	49	18.4	0.040	0.0	LOS A	0.0	0.0	0.00	0.15	0.00	58.9
Approach			66	24.2	66	24.2	0.040	1.6	NA	0.0	0.0	0.00	0.15	0.00	57.7
All Vehicles			105	30.5	105	30.5	0.040	2.4	NA	0.1	0.7	0.05	0.21	0.05	56.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 1 [OPS 2037 AM Peak (Network) (Site Folder: 1. Brayton Road / Ambrose Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Ambrose Road Intersection

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
2	T1	All MCs	23	21.7	23	21.7	0.015	0.0	LOS A	0.0	0.1	0.03	0.05	0.03	59.6
3	R2	All MCs	2	50.0	2	50.0	0.015	6.2	LOS A	0.0	0.1	0.03	0.05	0.03	54.6
Approach			25	24.0	25	24.0	0.015	0.5	NA	0.0	0.1	0.03	0.05	0.03	59.1
East: Ambrose Road															
4	L2	All MCs	3	0.0	3	0.0	0.037	5.6	LOS A	0.1	1.4	0.16	0.55	0.16	52.4
6	R2	All MCs	28	92.9	28	92.9	0.037	7.1	LOS A	0.1	1.4	0.16	0.55	0.16	48.6
Approach			31	83.9	31	83.9	0.037	7.0	LOS A	0.1	1.4	0.16	0.55	0.16	49.0
North: Brayton Road															
7	L2	All MCs	22	86.4	22	86.4	0.034	6.5	LOS A	0.0	0.0	0.00	0.26	0.00	53.0
8	T1	All MCs	26	19.2	26	19.2	0.034	0.0	LOS A	0.0	0.0	0.00	0.26	0.00	59.3
Approach			48	50.0	48	50.0	0.034	3.0	NA	0.0	0.0	0.00	0.26	0.00	56.2
All Vehicles			104	53.8	104	53.8	0.037	3.6	NA	0.1	1.4	0.06	0.30	0.06	54.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 1 [OPS 2037 PM Peak (Network) (Site Folder: 1. Brayton Road / Ambrose Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Ambrose Road Intersection

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
2	T1	All MCs	20	5.0	20	5.0	0.017	0.1	LOS A	0.1	0.4	0.11	0.17	0.11	58.6
3	R2	All MCs	7	42.9	7	42.9	0.017	6.3	LOS A	0.1	0.4	0.11	0.17	0.11	54.1
Approach			27	14.8	27	14.8	0.017	1.7	NA	0.1	0.4	0.11	0.17	0.11	57.3
East: Ambrose Road															
4	L2	All MCs	5	0.0	5	0.0	0.021	5.7	LOS A	0.1	0.8	0.18	0.55	0.18	52.3
6	R2	All MCs	14	92.9	14	92.9	0.021	7.3	LOS A	0.1	0.8	0.18	0.55	0.18	48.6
Approach			19	68.4	19	68.4	0.021	6.9	LOS A	0.1	0.8	0.18	0.55	0.18	49.5
North: Brayton Road															
7	L2	All MCs	16	56.3	16	56.3	0.041	6.2	LOS A	0.0	0.0	0.00	0.14	0.00	54.2
8	T1	All MCs	52	17.3	52	17.3	0.041	0.0	LOS A	0.0	0.0	0.00	0.14	0.00	59.2
Approach			68	26.5	68	26.5	0.041	1.5	NA	0.0	0.0	0.00	0.14	0.00	58.0
All Vehicles			114	30.7	114	30.7	0.041	2.4	NA	0.1	0.8	0.06	0.21	0.06	56.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 1 [CUM OPS 2037 AM Peak (Network) (Site Folder: 1. Brayton Road / Ambrose Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Ambrose Road Intersection

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
2	T1	All MCs	27	18.5	27	18.5	0.016	0.0	LOS A	0.0	0.0	0.01	0.02	0.01	59.7
3	R2	All MCs	1	0.0	1	0.0	0.016	5.5	LOS A	0.0	0.0	0.01	0.02	0.01	57.1
Approach			28	17.9	28	17.9	0.016	0.2	NA	0.0	0.0	0.01	0.02	0.01	59.6
East: Ambrose Road															
4	L2	All MCs	3	0.0	3	0.0	0.043	5.6	LOS A	0.1	1.6	0.17	0.55	0.17	52.4
6	R2	All MCs	34	82.4	34	82.4	0.043	7.0	LOS A	0.1	1.6	0.17	0.55	0.17	49.0
Approach			37	75.7	37	75.7	0.043	6.9	LOS A	0.1	1.6	0.17	0.55	0.17	49.3
North: Brayton Road															
7	L2	All MCs	22	86.4	22	86.4	0.035	6.5	LOS A	0.0	0.0	0.00	0.25	0.00	53.0
8	T1	All MCs	28	25.0	28	25.0	0.035	0.0	LOS A	0.0	0.0	0.00	0.25	0.00	59.3
Approach			50	52.0	50	52.0	0.035	2.9	NA	0.0	0.0	0.00	0.25	0.00	56.3
All Vehicles			115	51.3	115	51.3	0.043	3.5	NA	0.1	1.6	0.06	0.29	0.06	54.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 1 [CUM OPS 2037 PM Peak (Network) (Site Folder: 1. Brayton Road / Ambrose Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Ambrose Road Intersection

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
2	T1	All MCs	20	5.0	20	5.0	0.017	0.2	LOS A	0.1	0.4	0.12	0.18	0.12	58.6
3	R2	All MCs	7	42.9	7	42.9	0.017	6.4	LOS A	0.1	0.4	0.12	0.18	0.12	54.0
Approach			27	14.8	27	14.8	0.017	1.8	NA	0.1	0.4	0.12	0.18	0.12	57.3
East: Ambrose Road															
4	L2	All MCs	5	0.0	5	0.0	0.023	5.7	LOS A	0.1	0.9	0.20	0.55	0.20	51.6
6	R2	All MCs	15	100.0	15	100.0	0.023	7.5	LOS A	0.1	0.9	0.20	0.55	0.20	47.6
Approach			20	75.0	20	75.0	0.023	7.0	LOS A	0.1	0.9	0.20	0.55	0.20	48.6
North: Brayton Road															
7	L2	All MCs	20	45.0	20	45.0	0.047	6.1	LOS A	0.0	0.0	0.00	0.15	0.00	54.5
8	T1	All MCs	58	19.0	58	19.0	0.047	0.0	LOS A	0.0	0.0	0.00	0.15	0.00	59.0
Approach			78	25.6	78	25.6	0.047	1.6	NA	0.0	0.0	0.00	0.15	0.00	57.7
All Vehicles			125	31.2	125	31.2	0.047	2.5	NA	0.1	0.9	0.06	0.22	0.06	56.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 1 [DECOMM 2057 AM Peak (Network) (Site Folder: 1. Brayton Road / Ambrose Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Ambrose Road Intersection

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
2	T1	All MCs	35	22.9	35	22.9	0.021	0.0	LOS A	0.0	0.1	0.01	0.02	0.01	59.8
3	R2	All MCs	1	0.0	1	0.0	0.021	5.6	LOS A	0.0	0.1	0.01	0.02	0.01	57.1
Approach			36	22.2	36	22.2	0.021	0.2	NA	0.0	0.1	0.01	0.02	0.01	59.7
East: Ambrose Road															
4	L2	All MCs	4	0.0	4	0.0	0.057	5.7	LOS A	0.2	2.2	0.22	0.56	0.22	52.2
6	R2	All MCs	42	90.5	42	90.5	0.057	7.4	LOS A	0.2	2.2	0.22	0.56	0.22	48.6
Approach			46	82.6	46	82.6	0.057	7.2	LOS A	0.2	2.2	0.22	0.56	0.22	48.9
North: Brayton Road															
7	L2	All MCs	38	78.9	38	78.9	0.055	6.5	LOS A	0.0	0.0	0.00	0.27	0.00	53.0
8	T1	All MCs	42	16.7	42	16.7	0.055	0.0	LOS A	0.0	0.0	0.00	0.27	0.00	59.0
Approach			80	46.3	80	46.3	0.055	3.1	NA	0.0	0.0	0.00	0.27	0.00	56.0
All Vehicles			162	51.2	162	51.2	0.057	3.6	NA	0.2	2.2	0.06	0.30	0.06	54.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 1 [DECOMM 2057 PM Peak (Network) (Site Folder: 1. Brayton Road / Ambrose Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Ambrose Road Intersection

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
2	T1	All MCs	35	5.7	35	5.7	0.027	0.2	LOS A	0.1	0.6	0.13	0.17	0.13	58.6
3	R2	All MCs	10	40.0	10	40.0	0.027	6.5	LOS A	0.1	0.6	0.13	0.17	0.13	54.2
Approach			45	13.3	45	13.3	0.027	1.6	NA	0.1	0.6	0.13	0.17	0.13	57.6
East: Ambrose Road															
4	L2	All MCs	8	0.0	8	0.0	0.034	5.8	LOS A	0.1	1.2	0.24	0.56	0.24	52.2
6	R2	All MCs	22	81.8	22	81.8	0.034	7.5	LOS A	0.1	1.2	0.24	0.56	0.24	48.8
Approach			30	60.0	30	60.0	0.034	7.1	LOS A	0.1	1.2	0.24	0.56	0.24	49.7
North: Brayton Road															
7	L2	All MCs	26	53.8	26	53.8	0.064	6.2	LOS A	0.0	0.0	0.00	0.14	0.00	54.2
8	T1	All MCs	79	16.5	79	16.5	0.064	0.0	LOS A	0.0	0.0	0.00	0.14	0.00	59.1
Approach			105	25.7	105	25.7	0.064	1.5	NA	0.0	0.0	0.00	0.14	0.00	57.8
All Vehicles			180	28.3	180	28.3	0.064	2.5	NA	0.1	1.2	0.07	0.22	0.07	56.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Appendix F – SIDRA Results: Brayton Road / Canyonleigh Road

MOVEMENT SUMMARY

Site: 2 [EXIST 2024 AM Peak (Project) (Site Folder: 2. Brayton Road / Canyonleigh Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
1b	L3	All MCs	3	0.0	3	0.0	0.004	6.5	LOS A	0.0	0.1	0.03	0.50	0.03	53.3
1a	L1	All MCs	1	0.0	1	0.0	0.004	4.6	LOS A	0.0	0.1	0.03	0.50	0.03	53.5
2	T1	All MCs	1	100.0	1	100.0	0.004	0.0	LOS A	0.0	0.1	0.03	0.50	0.03	55.4
3	R2	All MCs	1	0.0	1	0.0	0.004	5.5	LOS A	0.0	0.1	0.03	0.50	0.03	53.1
Approach			6	16.7	6	16.7	0.004	4.9	NA	0.0	0.1	0.03	0.50	0.03	53.6
East: Canyonleigh Road															
4	L2	All MCs	2	0.0	2	0.0	0.004	5.6	LOS A	0.0	0.1	0.06	0.53	0.06	53.1
4a	L1	All MCs	2	0.0	2	0.0	0.004	4.5	LOS A	0.0	0.1	0.06	0.53	0.06	53.4
6a	R1	All MCs	1	0.0	1	0.0	0.004	4.5	LOS A	0.0	0.1	0.06	0.53	0.06	53.6
6	R2	All MCs	1	0.0	1	0.0	0.004	5.5	LOS A	0.0	0.1	0.06	0.53	0.06	52.9
Approach			6	0.0	6	0.0	0.004	5.0	LOS A	0.0	0.1	0.06	0.53	0.06	53.3
North: Brayton Road															
7	L2	All MCs	1	0.0	1	0.0	0.007	5.5	LOS A	0.0	0.1	0.01	0.14	0.01	56.3
8	T1	All MCs	10	10.0	10	10.0	0.007	0.0	LOS A	0.0	0.1	0.01	0.14	0.01	58.7
9a	R1	All MCs	1	0.0	1	0.0	0.007	4.4	LOS A	0.0	0.1	0.01	0.14	0.01	56.8
9b	R3	All MCs	1	0.0	1	0.0	0.007	6.1	LOS A	0.0	0.1	0.01	0.14	0.01	55.9
Approach			13	7.7	13	7.7	0.007	1.2	NA	0.0	0.1	0.01	0.14	0.01	58.1
NorthWest: Bulls Pit Road															
27b	L3	All MCs	1	0.0	1	0.0	0.007	6.5	LOS A	0.0	0.2	0.05	0.52	0.05	53.3
27a	L1	All MCs	1	0.0	1	0.0	0.007	4.7	LOS A	0.0	0.2	0.05	0.52	0.05	53.4
29a	R1	All MCs	5	0.0	5	0.0	0.007	4.5	LOS A	0.0	0.2	0.05	0.52	0.05	53.7
29	R2	All MCs	1	0.0	1	0.0	0.007	5.5	LOS A	0.0	0.2	0.05	0.52	0.05	53.1
Approach			8	0.0	8	0.0	0.007	4.9	LOS A	0.0	0.2	0.05	0.52	0.05	53.6
SouthWest: Carrick Road															
30	L2	All MCs	1	0.0	1	0.0	0.003	5.5	LOS A	0.0	0.1	0.03	0.56	0.03	53.1
30a	L1	All MCs	1	0.0	1	0.0	0.003	4.5	LOS A	0.0	0.1	0.03	0.56	0.03	53.4
32a	R1	All MCs	1	0.0	1	0.0	0.003	4.5	LOS A	0.0	0.1	0.03	0.56	0.03	53.4
32b	R3	All MCs	1	0.0	1	0.0	0.003	6.2	LOS A	0.0	0.1	0.03	0.56	0.03	52.7
Approach			4	0.0	4	0.0	0.003	5.2	LOS A	0.0	0.1	0.03	0.56	0.03	53.1
All Vehicles			37	5.4	37	5.4	0.007	3.7	NA	0.0	0.2	0.03	0.39	0.03	55.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control

MOVEMENT SUMMARY

Site: 2 [EXIST 2024 PM Peak (Project) (Site Folder: 2. Brayton Road / Canyonleigh Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
1b	L3	All MCs	3	0.0	3	0.0	0.011	6.5	LOS A	0.0	0.2	0.02	0.31	0.02	55.0
1a	L1	All MCs	4	0.0	4	0.0	0.011	4.6	LOS A	0.0	0.2	0.02	0.31	0.02	55.1
2	T1	All MCs	10	0.0	10	0.0	0.011	0.0	LOS A	0.0	0.2	0.02	0.31	0.02	57.2
3	R2	All MCs	4	0.0	4	0.0	0.011	5.5	LOS A	0.0	0.2	0.02	0.31	0.02	54.8
Approach			21	0.0	21	0.0	0.011	2.8	NA	0.0	0.2	0.02	0.31	0.02	56.0
East: Canyonleigh Road															
4	L2	All MCs	1	0.0	1	0.0	0.003	5.5	LOS A	0.0	0.1	0.05	0.53	0.05	53.1
4a	L1	All MCs	1	0.0	1	0.0	0.003	4.5	LOS A	0.0	0.1	0.05	0.53	0.05	53.5
6a	R1	All MCs	1	0.0	1	0.0	0.003	4.5	LOS A	0.0	0.1	0.05	0.53	0.05	53.6
6	R2	All MCs	1	0.0	1	0.0	0.003	5.5	LOS A	0.0	0.1	0.05	0.53	0.05	52.9
Approach			4	0.0	4	0.0	0.003	5.0	LOS A	0.0	0.1	0.05	0.53	0.05	53.3
North: Brayton Road															
7	L2	All MCs	1	0.0	1	0.0	0.004	5.6	LOS A	0.0	0.1	0.04	0.22	0.04	55.6
8	T1	All MCs	5	0.0	5	0.0	0.004	0.0	LOS A	0.0	0.1	0.04	0.22	0.04	57.9
9a	R1	All MCs	1	0.0	1	0.0	0.004	4.4	LOS A	0.0	0.1	0.04	0.22	0.04	56.1
9b	R3	All MCs	1	0.0	1	0.0	0.004	6.1	LOS A	0.0	0.1	0.04	0.22	0.04	55.2
Approach			8	0.0	8	0.0	0.004	2.0	NA	0.0	0.1	0.04	0.22	0.04	57.0
NorthWest: Bulls Pit Road															
27b	L3	All MCs	1	0.0	1	0.0	0.003	6.5	LOS A	0.0	0.1	0.06	0.54	0.06	52.9
27a	L1	All MCs	1	0.0	1	0.0	0.003	4.7	LOS A	0.0	0.1	0.06	0.54	0.06	53.0
29a	R1	All MCs	1	0.0	1	0.0	0.003	4.5	LOS A	0.0	0.1	0.06	0.54	0.06	53.4
29	R2	All MCs	1	0.0	1	0.0	0.003	5.5	LOS A	0.0	0.1	0.06	0.54	0.06	52.8
Approach			4	0.0	4	0.0	0.003	5.3	LOS A	0.0	0.1	0.06	0.54	0.06	53.0
SouthWest: Carrick Road															
30	L2	All MCs	1	0.0	1	0.0	0.003	5.5	LOS A	0.0	0.1	0.05	0.55	0.05	53.0
30a	L1	All MCs	1	0.0	1	0.0	0.003	4.5	LOS A	0.0	0.1	0.05	0.55	0.05	53.4
32a	R1	All MCs	1	0.0	1	0.0	0.003	4.6	LOS A	0.0	0.1	0.05	0.55	0.05	53.3
32b	R3	All MCs	1	0.0	1	0.0	0.003	6.2	LOS A	0.0	0.1	0.05	0.55	0.05	52.7
Approach			4	0.0	4	0.0	0.003	5.2	LOS A	0.0	0.1	0.05	0.55	0.05	53.1
All Vehicles			41	0.0	41	0.0	0.011	3.4	NA	0.0	0.2	0.04	0.36	0.04	55.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

MOVEMENT SUMMARY

Site: 2 [EXIST 2024 AM Peak (Network) (Site Folder: 2. Brayton Road / Canyonleigh Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
1b	L3	All MCs	1	100.0	1	100.0	0.006	7.6	LOS A	0.0	0.2	0.05	0.34	0.05	50.0
1a	L1	All MCs	1	0.0	1	0.0	0.006	4.6	LOS A	0.0	0.2	0.05	0.34	0.05	54.3
2	T1	All MCs	4	25.0	4	25.0	0.006	0.0	LOS A	0.0	0.2	0.05	0.34	0.05	56.3
3	R2	All MCs	4	0.0	4	0.0	0.006	5.5	LOS A	0.0	0.2	0.05	0.34	0.05	53.9
Approach			10	20.0	10	20.0	0.006	3.4	NA	0.0	0.2	0.05	0.34	0.05	54.4
East: Canyonleigh Road															
4	L2	All MCs	4	0.0	4	0.0	0.007	5.6	LOS A	0.0	0.2	0.07	0.53	0.07	53.1
4a	L1	All MCs	4	0.0	4	0.0	0.007	4.6	LOS A	0.0	0.2	0.07	0.53	0.07	53.4
6a	R1	All MCs	1	0.0	1	0.0	0.007	4.5	LOS A	0.0	0.2	0.07	0.53	0.07	53.5
6	R2	All MCs	1	0.0	1	0.0	0.007	5.6	LOS A	0.0	0.2	0.07	0.53	0.07	52.9
Approach			10	0.0	10	0.0	0.007	5.1	LOS A	0.0	0.2	0.07	0.53	0.07	53.2
North: Brayton Road															
7	L2	All MCs	1	0.0	1	0.0	0.010	5.5	LOS A	0.0	0.3	0.03	0.22	0.03	55.5
8	T1	All MCs	11	9.1	11	9.1	0.010	0.0	LOS A	0.0	0.3	0.03	0.22	0.03	57.9
9a	R1	All MCs	6	0.0	6	0.0	0.010	4.4	LOS A	0.0	0.3	0.03	0.22	0.03	56.1
9b	R3	All MCs	1	0.0	1	0.0	0.010	6.1	LOS A	0.0	0.3	0.03	0.22	0.03	55.1
Approach			19	5.3	19	5.3	0.010	2.0	NA	0.0	0.3	0.03	0.22	0.03	57.0
NorthWest: Bulls Pit Road															
27b	L3	All MCs	1	0.0	1	0.0	0.005	6.5	LOS A	0.0	0.1	0.07	0.53	0.07	53.1
27a	L1	All MCs	1	0.0	1	0.0	0.005	4.7	LOS A	0.0	0.1	0.07	0.53	0.07	53.2
29a	R1	All MCs	3	0.0	3	0.0	0.005	4.6	LOS A	0.0	0.1	0.07	0.53	0.07	53.6
29	R2	All MCs	1	0.0	1	0.0	0.005	5.6	LOS A	0.0	0.1	0.07	0.53	0.07	53.0
Approach			6	0.0	6	0.0	0.005	5.1	LOS A	0.0	0.1	0.07	0.53	0.07	53.3
SouthWest: Carrick Road															
30	L2	All MCs	1	0.0	1	0.0	0.007	5.5	LOS A	0.0	0.2	0.05	0.54	0.05	53.2
30a	L1	All MCs	1	0.0	1	0.0	0.007	4.5	LOS A	0.0	0.2	0.05	0.54	0.05	53.6
32a	R1	All MCs	5	20.0	5	20.0	0.007	4.8	LOS A	0.0	0.2	0.05	0.54	0.05	52.8
32b	R3	All MCs	1	0.0	1	0.0	0.007	6.2	LOS A	0.0	0.2	0.05	0.54	0.05	52.9
Approach			8	12.5	8	12.5	0.007	5.0	LOS A	0.0	0.2	0.05	0.54	0.05	52.9
All Vehicles			53	7.5	53	7.5	0.010	3.7	NA	0.0	0.3	0.05	0.38	0.05	54.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control

MOVEMENT SUMMARY

Site: 2 [EXIST 2024 PM Peak (Network) (Site Folder: 2. Brayton Road / Canyonleigh Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
1b	L3	All MCs	8	0.0	8	0.0	0.012	6.5	LOS A	0.0	0.2	0.02	0.36	0.02	54.3
1a	L1	All MCs	1	0.0	1	0.0	0.012	4.6	LOS A	0.0	0.2	0.02	0.36	0.02	54.5
2	T1	All MCs	9	11.1	9	11.1	0.012	0.0	LOS A	0.0	0.2	0.02	0.36	0.02	56.6
3	R2	All MCs	3	0.0	3	0.0	0.012	5.5	LOS A	0.0	0.2	0.02	0.36	0.02	54.1
Approach			21	4.8	21	4.8	0.012	3.5	NA	0.0	0.2	0.02	0.36	0.02	55.3
East: Canyonleigh Road															
4	L2	All MCs	3	0.0	3	0.0	0.005	5.5	LOS A	0.0	0.2	0.05	0.54	0.05	52.9
4a	L1	All MCs	2	0.0	2	0.0	0.005	4.5	LOS A	0.0	0.2	0.05	0.54	0.05	53.3
6a	R1	All MCs	1	0.0	1	0.0	0.005	4.5	LOS A	0.0	0.2	0.05	0.54	0.05	53.4
6	R2	All MCs	1	100.0	1	100.0	0.005	6.8	LOS A	0.0	0.2	0.05	0.54	0.05	48.7
Approach			7	14.3	7	14.3	0.005	5.3	LOS A	0.0	0.2	0.05	0.54	0.05	52.4
North: Brayton Road															
7	L2	All MCs	1	0.0	1	0.0	0.005	5.6	LOS A	0.0	0.1	0.03	0.22	0.03	55.1
8	T1	All MCs	5	40.0	5	40.0	0.005	0.0	LOS A	0.0	0.1	0.03	0.22	0.03	57.3
9a	R1	All MCs	1	0.0	1	0.0	0.005	4.4	LOS A	0.0	0.1	0.03	0.22	0.03	55.6
9b	R3	All MCs	1	0.0	1	0.0	0.005	6.1	LOS A	0.0	0.1	0.03	0.22	0.03	54.7
Approach			8	25.0	8	25.0	0.005	2.0	NA	0.0	0.1	0.03	0.22	0.03	56.5
NorthWest: Bulls Pit Road															
27b	L3	All MCs	1	0.0	1	0.0	0.006	6.5	LOS A	0.0	0.1	0.08	0.52	0.08	53.1
27a	L1	All MCs	1	0.0	1	0.0	0.006	4.7	LOS A	0.0	0.1	0.08	0.52	0.08	53.3
29a	R1	All MCs	4	0.0	4	0.0	0.006	4.6	LOS A	0.0	0.1	0.08	0.52	0.08	53.6
29	R2	All MCs	1	0.0	1	0.0	0.006	5.6	LOS A	0.0	0.1	0.08	0.52	0.08	53.0
Approach			7	0.0	7	0.0	0.006	5.0	LOS A	0.0	0.1	0.08	0.52	0.08	53.4
SouthWest: Carrick Road															
30	L2	All MCs	1	0.0	1	0.0	0.006	5.5	LOS A	0.0	0.2	0.05	0.53	0.05	53.1
30a	L1	All MCs	3	0.0	3	0.0	0.006	4.5	LOS A	0.0	0.2	0.05	0.53	0.05	53.5
32a	R1	All MCs	2	0.0	2	0.0	0.006	4.6	LOS A	0.0	0.2	0.05	0.53	0.05	53.4
32b	R3	All MCs	1	100.0	1	100.0	0.006	7.5	LOS A	0.0	0.2	0.05	0.53	0.05	48.5
Approach			7	14.3	7	14.3	0.006	5.1	LOS A	0.0	0.2	0.05	0.53	0.05	52.6
All Vehicles			50	10.0	50	10.0	0.012	3.9	NA	0.0	0.2	0.04	0.41	0.04	54.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.

MOVEMENT SUMMARY

Site: 2 [CONST. 2026 AM Peak (Project) (Site Folder: 2. Brayton Road / Canyonleigh Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
1b	L3	All MCs	3	0.0	3	0.0	0.063	6.5	LOS A	0.3	2.1	0.06	0.56	0.06	52.8
1a	L1	All MCs	1	0.0	1	0.0	0.063	4.6	LOS A	0.3	2.1	0.06	0.56	0.06	52.9
2	T1	All MCs	1	100.0	1	100.0	0.063	0.0	LOS A	0.3	2.1	0.06	0.56	0.06	54.9
3	R2	All MCs	106	1.9	106	1.9	0.063	5.5	LOS A	0.3	2.1	0.06	0.56	0.06	52.5
Approach			111	2.7	111	2.7	0.063	5.5	NA	0.3	2.1	0.06	0.56	0.06	52.5
East: Canyonleigh Road															
4	L2	All MCs	4	50.0	4	50.0	0.006	6.2	LOS A	0.0	0.2	0.08	0.53	0.08	51.0
4a	L1	All MCs	2	0.0	2	0.0	0.006	4.8	LOS A	0.0	0.2	0.08	0.53	0.08	53.4
6a	R1	All MCs	1	0.0	1	0.0	0.006	5.0	LOS A	0.0	0.2	0.08	0.53	0.08	53.5
6	R2	All MCs	1	0.0	1	0.0	0.006	6.0	LOS A	0.0	0.2	0.08	0.53	0.08	52.9
Approach			8	25.0	8	25.0	0.006	5.7	LOS A	0.0	0.2	0.08	0.53	0.08	52.1
North: Brayton Road															
7	L2	All MCs	1	0.0	1	0.0	0.007	5.5	LOS A	0.0	0.1	0.01	0.14	0.01	56.3
8	T1	All MCs	10	10.0	10	10.0	0.007	0.0	LOS A	0.0	0.1	0.01	0.14	0.01	58.7
9a	R1	All MCs	1	0.0	1	0.0	0.007	4.4	LOS A	0.0	0.1	0.01	0.14	0.01	56.8
9b	R3	All MCs	1	0.0	1	0.0	0.007	6.1	LOS A	0.0	0.1	0.01	0.14	0.01	55.9
Approach			13	7.7	13	7.7	0.007	1.2	NA	0.0	0.1	0.01	0.14	0.01	58.1
NorthWest: Bulls Pit Road															
27b	L3	All MCs	1	0.0	1	0.0	0.007	6.5	LOS A	0.0	0.2	0.07	0.52	0.07	53.2
27a	L1	All MCs	1	0.0	1	0.0	0.007	4.9	LOS A	0.0	0.2	0.07	0.52	0.07	53.3
29a	R1	All MCs	5	0.0	5	0.0	0.007	4.8	LOS A	0.0	0.2	0.07	0.52	0.07	53.7
29	R2	All MCs	1	0.0	1	0.0	0.007	5.5	LOS A	0.0	0.2	0.07	0.52	0.07	53.0
Approach			8	0.0	8	0.0	0.007	5.1	LOS A	0.0	0.2	0.07	0.52	0.07	53.5
SouthWest: Carrick Road															
30	L2	All MCs	1	0.0	1	0.0	0.003	5.5	LOS A	0.0	0.1	0.04	0.56	0.04	53.1
30a	L1	All MCs	1	0.0	1	0.0	0.003	4.5	LOS A	0.0	0.1	0.04	0.56	0.04	53.4
32a	R1	All MCs	1	0.0	1	0.0	0.003	4.7	LOS A	0.0	0.1	0.04	0.56	0.04	53.4
32b	R3	All MCs	1	0.0	1	0.0	0.003	6.3	LOS A	0.0	0.1	0.04	0.56	0.04	52.7
Approach			4	0.0	4	0.0	0.003	5.2	LOS A	0.0	0.1	0.04	0.56	0.04	53.1
All Vehicles			144	4.2	144	4.2	0.063	5.1	NA	0.3	2.1	0.05	0.52	0.05	53.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control

MOVEMENT SUMMARY

Site: 2 [CONST. 2026 PM Peak (Project) (Site Folder: 2. Brayton Road / Canyonleigh Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
1b	L3	All MCs	3	0.0	3	0.0	0.013	6.5	LOS A	0.0	0.4	0.03	0.33	0.03	54.9
1a	L1	All MCs	4	0.0	4	0.0	0.013	4.6	LOS A	0.0	0.4	0.03	0.33	0.03	55.1
2	T1	All MCs	10	0.0	10	0.0	0.013	0.0	LOS A	0.0	0.4	0.03	0.33	0.03	57.2
3	R2	All MCs	6	33.3	6	33.3	0.013	5.9	LOS A	0.0	0.4	0.03	0.33	0.03	53.2
Approach			23	8.7	23	8.7	0.013	3.2	NA	0.0	0.4	0.03	0.33	0.03	55.5
East: Canyonleigh Road															
4	L2	All MCs	105	1.9	105	1.9	0.067	5.6	LOS A	0.3	2.0	0.03	0.56	0.03	52.7
4a	L1	All MCs	1	0.0	1	0.0	0.067	4.5	LOS A	0.3	2.0	0.03	0.56	0.03	53.1
6a	R1	All MCs	1	0.0	1	0.0	0.067	4.5	LOS A	0.3	2.0	0.03	0.56	0.03	53.3
6	R2	All MCs	1	0.0	1	0.0	0.067	5.5	LOS A	0.3	2.0	0.03	0.56	0.03	52.6
Approach			108	1.9	108	1.9	0.067	5.5	LOS A	0.3	2.0	0.03	0.56	0.03	52.7
North: Brayton Road															
7	L2	All MCs	1	0.0	1	0.0	0.004	5.6	LOS A	0.0	0.1	0.04	0.22	0.04	55.6
8	T1	All MCs	5	0.0	5	0.0	0.004	0.0	LOS A	0.0	0.1	0.04	0.22	0.04	57.9
9a	R1	All MCs	1	0.0	1	0.0	0.004	4.4	LOS A	0.0	0.1	0.04	0.22	0.04	56.1
9b	R3	All MCs	1	0.0	1	0.0	0.004	6.1	LOS A	0.0	0.1	0.04	0.22	0.04	55.2
Approach			8	0.0	8	0.0	0.004	2.0	NA	0.0	0.1	0.04	0.22	0.04	57.0
NorthWest: Bulls Pit Road															
27b	L3	All MCs	1	0.0	1	0.0	0.003	6.5	LOS A	0.0	0.1	0.07	0.54	0.07	52.9
27a	L1	All MCs	1	0.0	1	0.0	0.003	4.7	LOS A	0.0	0.1	0.07	0.54	0.07	53.0
29a	R1	All MCs	1	0.0	1	0.0	0.003	4.9	LOS A	0.0	0.1	0.07	0.54	0.07	53.4
29	R2	All MCs	1	0.0	1	0.0	0.003	5.5	LOS A	0.0	0.1	0.07	0.54	0.07	52.7
Approach			4	0.0	4	0.0	0.003	5.4	LOS A	0.0	0.1	0.07	0.54	0.07	53.0
SouthWest: Carrick Road															
30	L2	All MCs	1	0.0	1	0.0	0.003	5.5	LOS A	0.0	0.1	0.06	0.55	0.06	53.0
30a	L1	All MCs	1	0.0	1	0.0	0.003	4.5	LOS A	0.0	0.1	0.06	0.55	0.06	53.3
32a	R1	All MCs	1	0.0	1	0.0	0.003	4.6	LOS A	0.0	0.1	0.06	0.55	0.06	53.3
32b	R3	All MCs	1	0.0	1	0.0	0.003	6.5	LOS A	0.0	0.1	0.06	0.55	0.06	52.6
Approach			4	0.0	4	0.0	0.003	5.3	LOS A	0.0	0.1	0.06	0.55	0.06	53.1
All Vehicles			147	2.7	147	2.7	0.067	5.0	NA	0.3	2.0	0.03	0.50	0.03	53.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

MOVEMENT SUMMARY

Site: 2 [CUM CONST. 2026 AM Peak (Project) (Site Folder: 2. Brayton Road / Canyonleigh Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
1b	L3	All MCs	3	0.0	3	0.0	0.240	6.5	LOS A	1.3	9.7	0.07	0.56	0.07	52.7
1a	L1	All MCs	1	0.0	1	0.0	0.240	4.6	LOS A	1.3	9.7	0.07	0.56	0.07	52.9
2	T1	All MCs	1	100.0	1	100.0	0.240	0.0	LOS A	1.3	9.7	0.07	0.56	0.07	54.8
3	R2	All MCs	418	2.4	418	2.4	0.240	5.5	LOS A	1.3	9.7	0.07	0.56	0.07	52.4
Approach			423	2.6	423	2.6	0.240	5.5	NA	1.3	9.7	0.07	0.56	0.07	52.4
East: Canyonleigh Road															
4	L2	All MCs	12	83.3	12	83.3	0.015	6.5	LOS A	0.1	0.6	0.07	0.53	0.07	49.7
4a	L1	All MCs	2	0.0	2	0.0	0.015	5.8	LOS A	0.1	0.6	0.07	0.53	0.07	53.3
6a	R1	All MCs	1	0.0	1	0.0	0.015	6.5	LOS A	0.1	0.6	0.07	0.53	0.07	53.4
6	R2	All MCs	1	0.0	1	0.0	0.015	7.5	LOS A	0.1	0.6	0.07	0.53	0.07	52.8
Approach			16	62.5	16	62.5	0.015	6.5	LOS A	0.1	0.6	0.07	0.53	0.07	50.5
North: Brayton Road															
7	L2	All MCs	1	0.0	1	0.0	0.007	5.5	LOS A	0.0	0.1	0.01	0.14	0.01	56.3
8	T1	All MCs	10	10.0	10	10.0	0.007	0.0	LOS A	0.0	0.1	0.01	0.14	0.01	58.7
9a	R1	All MCs	1	0.0	1	0.0	0.007	4.4	LOS A	0.0	0.1	0.01	0.14	0.01	56.8
9b	R3	All MCs	1	0.0	1	0.0	0.007	6.1	LOS A	0.0	0.1	0.01	0.14	0.01	55.9
Approach			13	7.7	13	7.7	0.007	1.2	NA	0.0	0.1	0.01	0.14	0.01	58.1
NorthWest: Bulls Pit Road															
27b	L3	All MCs	1	0.0	1	0.0	0.010	6.5	LOS A	0.0	0.2	0.09	0.51	0.09	52.0
27a	L1	All MCs	1	0.0	1	0.0	0.010	6.1	LOS A	0.0	0.2	0.09	0.51	0.09	52.2
29a	R1	All MCs	5	0.0	5	0.0	0.010	7.0	LOS A	0.0	0.2	0.09	0.51	0.09	52.5
29	R2	All MCs	1	0.0	1	0.0	0.010	5.5	LOS A	0.0	0.2	0.09	0.51	0.09	51.9
Approach			8	0.0	8	0.0	0.010	6.7	LOS A	0.0	0.2	0.09	0.51	0.09	52.3
SouthWest: Carrick Road															
30	L2	All MCs	1	0.0	1	0.0	0.004	5.5	LOS A	0.0	0.1	0.04	0.55	0.04	52.8
30a	L1	All MCs	1	0.0	1	0.0	0.004	4.5	LOS A	0.0	0.1	0.04	0.55	0.04	53.2
32a	R1	All MCs	1	0.0	1	0.0	0.004	5.3	LOS A	0.0	0.1	0.04	0.55	0.04	53.1
32b	R3	All MCs	1	0.0	1	0.0	0.004	7.0	LOS A	0.0	0.1	0.04	0.55	0.04	52.5
Approach			4	0.0	4	0.0	0.004	5.6	LOS A	0.0	0.1	0.04	0.55	0.04	52.9
All Vehicles			464	4.7	464	4.7	0.240	5.5	NA	1.3	9.7	0.07	0.55	0.07	52.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control

MOVEMENT SUMMARY

Site: 2 [CUM CONST. 2026 PM Peak (Project) (Site Folder: 2. Brayton Road / Canyonleigh Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
1b	L3	All MCs	3	0.0	3	0.0	0.022	6.5	LOS A	0.1	0.9	0.04	0.39	0.04	54.9
1a	L1	All MCs	4	0.0	4	0.0	0.022	4.6	LOS A	0.1	0.9	0.04	0.39	0.04	55.1
2	T1	All MCs	10	0.0	10	0.0	0.022	0.0	LOS A	0.1	0.9	0.04	0.39	0.04	57.2
3	R2	All MCs	14	71.4	14	71.4	0.022	6.3	LOS A	0.1	0.9	0.04	0.39	0.04	51.5
Approach			31	32.3	31	32.3	0.022	4.1	NA	0.1	0.9	0.04	0.39	0.04	54.0
East: Canyonleigh Road															
4	L2	All MCs	417	2.4	417	2.4	0.261	5.6	LOS A	1.3	9.5	0.04	0.56	0.04	52.7
4a	L1	All MCs	1	0.0	1	0.0	0.261	4.6	LOS A	1.3	9.5	0.04	0.56	0.04	53.1
6a	R1	All MCs	1	0.0	1	0.0	0.261	4.5	LOS A	1.3	9.5	0.04	0.56	0.04	53.2
6	R2	All MCs	1	0.0	1	0.0	0.261	5.6	LOS A	1.3	9.5	0.04	0.56	0.04	52.6
Approach			420	2.4	420	2.4	0.261	5.6	LOS A	1.3	9.5	0.04	0.56	0.04	52.7
North: Brayton Road															
7	L2	All MCs	1	0.0	1	0.0	0.004	5.6	LOS A	0.0	0.1	0.04	0.22	0.04	55.6
8	T1	All MCs	5	0.0	5	0.0	0.004	0.0	LOS A	0.0	0.1	0.04	0.22	0.04	57.9
9a	R1	All MCs	1	0.0	1	0.0	0.004	4.4	LOS A	0.0	0.1	0.04	0.22	0.04	56.1
9b	R3	All MCs	1	0.0	1	0.0	0.004	6.1	LOS A	0.0	0.1	0.04	0.22	0.04	55.2
Approach			8	0.0	8	0.0	0.004	2.0	NA	0.0	0.1	0.04	0.22	0.04	57.0
NorthWest: Bulls Pit Road															
27b	L3	All MCs	1	0.0	1	0.0	0.004	6.5	LOS A	0.0	0.1	0.08	0.54	0.08	52.6
27a	L1	All MCs	1	0.0	1	0.0	0.004	4.8	LOS A	0.0	0.1	0.08	0.54	0.08	52.7
29a	R1	All MCs	1	0.0	1	0.0	0.004	7.0	LOS A	0.0	0.1	0.08	0.54	0.08	53.0
29	R2	All MCs	1	0.0	1	0.0	0.004	5.5	LOS A	0.0	0.1	0.08	0.54	0.08	52.4
Approach			4	0.0	4	0.0	0.004	5.9	LOS A	0.0	0.1	0.08	0.54	0.08	52.7
SouthWest: Carrick Road															
30	L2	All MCs	1	0.0	1	0.0	0.004	5.6	LOS A	0.0	0.1	0.07	0.55	0.07	52.8
30a	L1	All MCs	1	0.0	1	0.0	0.004	4.5	LOS A	0.0	0.1	0.07	0.55	0.07	53.1
32a	R1	All MCs	1	0.0	1	0.0	0.004	4.6	LOS A	0.0	0.1	0.07	0.55	0.07	53.1
32b	R3	All MCs	1	0.0	1	0.0	0.004	8.0	LOS A	0.0	0.1	0.07	0.55	0.07	52.4
Approach			4	0.0	4	0.0	0.004	5.7	LOS A	0.0	0.1	0.07	0.55	0.07	52.8
All Vehicles			467	4.3	467	4.3	0.261	5.4	NA	1.3	9.5	0.04	0.54	0.04	52.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

MOVEMENT SUMMARY

Site: 2 [CUM OPS 2027 AM Peak (Project) (Site Folder: 2. Brayton Road / Canyonleigh Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
1b	L3	All MCs	3	0.0	3	0.0	0.035	6.5	LOS A	0.2	1.2	0.06	0.56	0.06	52.8
1a	L1	All MCs	1	0.0	1	0.0	0.035	4.6	LOS A	0.2	1.2	0.06	0.56	0.06	53.0
2	T1	All MCs	1	100.0	1	100.0	0.035	0.0	LOS A	0.2	1.2	0.06	0.56	0.06	54.9
3	R2	All MCs	56	5.4	56	5.4	0.035	5.6	LOS A	0.2	1.2	0.06	0.56	0.06	52.4
Approach			61	6.6	61	6.6	0.035	5.5	NA	0.2	1.2	0.06	0.56	0.06	52.4
East: Canyonleigh Road															
4	L2	All MCs	5	60.0	5	60.0	0.007	6.3	LOS A	0.0	0.2	0.08	0.53	0.08	50.6
4a	L1	All MCs	2	0.0	2	0.0	0.007	4.7	LOS A	0.0	0.2	0.08	0.53	0.08	53.4
6a	R1	All MCs	1	0.0	1	0.0	0.007	4.7	LOS A	0.0	0.2	0.08	0.53	0.08	53.5
6	R2	All MCs	1	0.0	1	0.0	0.007	5.8	LOS A	0.0	0.2	0.08	0.53	0.08	52.9
Approach			9	33.3	9	33.3	0.007	5.7	LOS A	0.0	0.2	0.08	0.53	0.08	51.8
North: Brayton Road															
7	L2	All MCs	1	0.0	1	0.0	0.008	5.5	LOS A	0.0	0.1	0.01	0.13	0.01	56.4
8	T1	All MCs	11	9.1	11	9.1	0.008	0.0	LOS A	0.0	0.1	0.01	0.13	0.01	58.8
9a	R1	All MCs	1	0.0	1	0.0	0.008	4.4	LOS A	0.0	0.1	0.01	0.13	0.01	56.9
9b	R3	All MCs	1	0.0	1	0.0	0.008	6.1	LOS A	0.0	0.1	0.01	0.13	0.01	56.0
Approach			14	7.1	14	7.1	0.008	1.2	NA	0.0	0.1	0.01	0.13	0.01	58.2
NorthWest: Bulls Pit Road															
27b	L3	All MCs	1	0.0	1	0.0	0.007	6.5	LOS A	0.0	0.2	0.06	0.52	0.06	53.2
27a	L1	All MCs	1	0.0	1	0.0	0.007	4.8	LOS A	0.0	0.2	0.06	0.52	0.06	53.4
29a	R1	All MCs	5	0.0	5	0.0	0.007	4.7	LOS A	0.0	0.2	0.06	0.52	0.06	53.7
29	R2	All MCs	1	0.0	1	0.0	0.007	5.5	LOS A	0.0	0.2	0.06	0.52	0.06	53.1
Approach			8	0.0	8	0.0	0.007	5.0	LOS A	0.0	0.2	0.06	0.52	0.06	53.5
SouthWest: Carrick Road															
30	L2	All MCs	1	0.0	1	0.0	0.003	5.5	LOS A	0.0	0.1	0.03	0.56	0.03	53.1
30a	L1	All MCs	1	0.0	1	0.0	0.003	4.5	LOS A	0.0	0.1	0.03	0.56	0.03	53.4
32a	R1	All MCs	1	0.0	1	0.0	0.003	4.6	LOS A	0.0	0.1	0.03	0.56	0.03	53.4
32b	R3	All MCs	1	0.0	1	0.0	0.003	6.2	LOS A	0.0	0.1	0.03	0.56	0.03	52.7
Approach			4	0.0	4	0.0	0.003	5.2	LOS A	0.0	0.1	0.03	0.56	0.03	53.1
All Vehicles			96	8.3	96	8.3	0.035	4.8	NA	0.2	1.2	0.05	0.49	0.05	53.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control

MOVEMENT SUMMARY

Site: 2 [CUM OPS. 2027 PM Peak (Project) (Site Folder: 2. Brayton Road / Canyonleigh Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
1b	L3	All MCs	3	0.0	3	0.0	0.015	6.5	LOS A	0.1	0.4	0.03	0.33	0.03	55.0
1a	L1	All MCs	4	0.0	4	0.0	0.015	4.6	LOS A	0.1	0.4	0.03	0.33	0.03	55.2
2	T1	All MCs	11	0.0	11	0.0	0.015	0.0	LOS A	0.1	0.4	0.03	0.33	0.03	57.3
3	R2	All MCs	7	42.9	7	42.9	0.015	6.0	LOS A	0.1	0.4	0.03	0.33	0.03	52.9
Approach			25	12.0	25	12.0	0.015	3.2	NA	0.1	0.4	0.03	0.33	0.03	55.4
East: Canyonleigh Road															
4	L2	All MCs	55	5.5	55	5.5	0.037	5.6	LOS A	0.1	1.1	0.03	0.56	0.03	52.6
4a	L1	All MCs	1	0.0	1	0.0	0.037	4.5	LOS A	0.1	1.1	0.03	0.56	0.03	53.1
6a	R1	All MCs	1	0.0	1	0.0	0.037	4.5	LOS A	0.1	1.1	0.03	0.56	0.03	53.3
6	R2	All MCs	1	0.0	1	0.0	0.037	5.5	LOS A	0.1	1.1	0.03	0.56	0.03	52.6
Approach			58	5.2	58	5.2	0.037	5.6	LOS A	0.1	1.1	0.03	0.56	0.03	52.6
North: Brayton Road															
7	L2	All MCs	1	0.0	1	0.0	0.004	5.6	LOS A	0.0	0.1	0.04	0.22	0.04	55.6
8	T1	All MCs	5	0.0	5	0.0	0.004	0.0	LOS A	0.0	0.1	0.04	0.22	0.04	57.9
9a	R1	All MCs	1	0.0	1	0.0	0.004	4.4	LOS A	0.0	0.1	0.04	0.22	0.04	56.1
9b	R3	All MCs	1	0.0	1	0.0	0.004	6.1	LOS A	0.0	0.1	0.04	0.22	0.04	55.2
Approach			8	0.0	8	0.0	0.004	2.0	NA	0.0	0.1	0.04	0.22	0.04	57.0
NorthWest: Bulls Pit Road															
27b	L3	All MCs	1	0.0	1	0.0	0.003	6.5	LOS A	0.0	0.1	0.07	0.54	0.07	52.9
27a	L1	All MCs	1	0.0	1	0.0	0.003	4.7	LOS A	0.0	0.1	0.07	0.54	0.07	53.0
29a	R1	All MCs	1	0.0	1	0.0	0.003	4.7	LOS A	0.0	0.1	0.07	0.54	0.07	53.4
29	R2	All MCs	1	0.0	1	0.0	0.003	5.5	LOS A	0.0	0.1	0.07	0.54	0.07	52.7
Approach			4	0.0	4	0.0	0.003	5.4	LOS A	0.0	0.1	0.07	0.54	0.07	53.0
SouthWest: Carrick Road															
30	L2	All MCs	1	0.0	1	0.0	0.003	5.5	LOS A	0.0	0.1	0.06	0.55	0.06	53.0
30a	L1	All MCs	1	0.0	1	0.0	0.003	4.5	LOS A	0.0	0.1	0.06	0.55	0.06	53.3
32a	R1	All MCs	1	0.0	1	0.0	0.003	4.6	LOS A	0.0	0.1	0.06	0.55	0.06	53.3
32b	R3	All MCs	1	0.0	1	0.0	0.003	6.3	LOS A	0.0	0.1	0.06	0.55	0.06	52.6
Approach			4	0.0	4	0.0	0.003	5.3	LOS A	0.0	0.1	0.06	0.55	0.06	53.1
All Vehicles			99	6.1	99	6.1	0.037	4.7	NA	0.1	1.1	0.04	0.47	0.04	53.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

MOVEMENT SUMMARY

Site: 2 [OPS 2037 AM Peak (Project) (Site Folder: 2. Brayton Road / Canyonleigh Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
1b	L3	All MCs	4	0.0	4	0.0	0.014	6.5	LOS A	0.1	0.5	0.06	0.55	0.06	52.8
1a	L1	All MCs	1	0.0	1	0.0	0.014	4.6	LOS A	0.1	0.5	0.06	0.55	0.06	53.0
2	T1	All MCs	1	100.0	1	100.0	0.014	0.0	LOS A	0.1	0.5	0.06	0.55	0.06	54.9
3	R2	All MCs	18	5.6	18	5.6	0.014	5.6	LOS A	0.1	0.5	0.06	0.55	0.06	52.4
Approach			24	8.3	24	8.3	0.014	5.5	NA	0.1	0.5	0.06	0.55	0.06	52.6
East: Canyonleigh Road															
4	L2	All MCs	4	25.0	4	25.0	0.007	5.9	LOS A	0.0	0.2	0.08	0.53	0.08	52.0
4a	L1	All MCs	3	0.0	3	0.0	0.007	4.6	LOS A	0.0	0.2	0.08	0.53	0.08	53.4
6a	R1	All MCs	1	0.0	1	0.0	0.007	4.6	LOS A	0.0	0.2	0.08	0.53	0.08	53.5
6	R2	All MCs	1	0.0	1	0.0	0.007	5.6	LOS A	0.0	0.2	0.08	0.53	0.08	52.9
Approach			9	11.1	9	11.1	0.007	5.3	LOS A	0.0	0.2	0.08	0.53	0.08	52.7
North: Brayton Road															
7	L2	All MCs	1	0.0	1	0.0	0.009	5.5	LOS A	0.0	0.1	0.01	0.11	0.01	56.5
8	T1	All MCs	13	7.7	13	7.7	0.009	0.0	LOS A	0.0	0.1	0.01	0.11	0.01	58.9
9a	R1	All MCs	1	0.0	1	0.0	0.009	4.4	LOS A	0.0	0.1	0.01	0.11	0.01	57.1
9b	R3	All MCs	1	0.0	1	0.0	0.009	6.1	LOS A	0.0	0.1	0.01	0.11	0.01	56.1
Approach			16	6.3	16	6.3	0.009	1.0	NA	0.0	0.1	0.01	0.11	0.01	58.5
NorthWest: Bulls Pit Road															
27b	L3	All MCs	1	0.0	1	0.0	0.008	6.5	LOS A	0.0	0.2	0.06	0.52	0.06	53.3
27a	L1	All MCs	1	0.0	1	0.0	0.008	4.7	LOS A	0.0	0.2	0.06	0.52	0.06	53.4
29a	R1	All MCs	6	0.0	6	0.0	0.008	4.6	LOS A	0.0	0.2	0.06	0.52	0.06	53.7
29	R2	All MCs	1	0.0	1	0.0	0.008	5.5	LOS A	0.0	0.2	0.06	0.52	0.06	53.1
Approach			9	0.0	9	0.0	0.008	4.9	LOS A	0.0	0.2	0.06	0.52	0.06	53.6
SouthWest: Carrick Road															
30	L2	All MCs	1	0.0	1	0.0	0.003	5.5	LOS A	0.0	0.1	0.03	0.56	0.03	53.1
30a	L1	All MCs	1	0.0	1	0.0	0.003	4.5	LOS A	0.0	0.1	0.03	0.56	0.03	53.4
32a	R1	All MCs	1	0.0	1	0.0	0.003	4.6	LOS A	0.0	0.1	0.03	0.56	0.03	53.4
32b	R3	All MCs	1	0.0	1	0.0	0.003	6.2	LOS A	0.0	0.1	0.03	0.56	0.03	52.7
Approach			4	0.0	4	0.0	0.003	5.2	LOS A	0.0	0.1	0.03	0.56	0.03	53.1
All Vehicles			62	6.5	62	6.5	0.014	4.2	NA	0.1	0.5	0.05	0.43	0.05	54.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control

MOVEMENT SUMMARY

Site: 2 [OPS. 2037 PM Peak (Project) (Site Folder: 2. Brayton Road / Canyonleigh Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
1b	L3	All MCs	4	0.0	4	0.0	0.016	6.5	LOS A	0.0	0.3	0.03	0.32	0.03	55.0
1a	L1	All MCs	5	0.0	5	0.0	0.016	4.6	LOS A	0.0	0.3	0.03	0.32	0.03	55.1
2	T1	All MCs	13	0.0	13	0.0	0.016	0.0	LOS A	0.0	0.3	0.03	0.32	0.03	57.2
3	R2	All MCs	6	16.7	6	16.7	0.016	5.7	LOS A	0.0	0.3	0.03	0.32	0.03	54.0
Approach			28	3.6	28	3.6	0.016	3.0	NA	0.0	0.3	0.03	0.32	0.03	55.8
East: Canyonleigh Road															
4	L2	All MCs	17	5.9	17	5.9	0.013	5.6	LOS A	0.1	0.4	0.04	0.55	0.04	52.6
4a	L1	All MCs	1	0.0	1	0.0	0.013	4.5	LOS A	0.1	0.4	0.04	0.55	0.04	53.2
6a	R1	All MCs	1	0.0	1	0.0	0.013	4.5	LOS A	0.1	0.4	0.04	0.55	0.04	53.3
6	R2	All MCs	1	0.0	1	0.0	0.013	5.5	LOS A	0.1	0.4	0.04	0.55	0.04	52.7
Approach			20	5.0	20	5.0	0.013	5.5	LOS A	0.1	0.4	0.04	0.55	0.04	52.7
North: Brayton Road															
7	L2	All MCs	1	0.0	1	0.0	0.005	5.6	LOS A	0.0	0.1	0.04	0.19	0.04	55.8
8	T1	All MCs	6	0.0	6	0.0	0.005	0.0	LOS A	0.0	0.1	0.04	0.19	0.04	58.1
9a	R1	All MCs	1	0.0	1	0.0	0.005	4.5	LOS A	0.0	0.1	0.04	0.19	0.04	56.3
9b	R3	All MCs	1	0.0	1	0.0	0.005	6.2	LOS A	0.0	0.1	0.04	0.19	0.04	55.4
Approach			9	0.0	9	0.0	0.005	1.8	NA	0.0	0.1	0.04	0.19	0.04	57.3
NorthWest: Bulls Pit Road															
27b	L3	All MCs	1	0.0	1	0.0	0.003	6.5	LOS A	0.0	0.1	0.07	0.54	0.07	52.9
27a	L1	All MCs	1	0.0	1	0.0	0.003	4.7	LOS A	0.0	0.1	0.07	0.54	0.07	53.0
29a	R1	All MCs	1	0.0	1	0.0	0.003	4.6	LOS A	0.0	0.1	0.07	0.54	0.07	53.4
29	R2	All MCs	1	0.0	1	0.0	0.003	5.5	LOS A	0.0	0.1	0.07	0.54	0.07	52.7
Approach			4	0.0	4	0.0	0.003	5.3	LOS A	0.0	0.1	0.07	0.54	0.07	53.0
SouthWest: Carrick Road															
30	L2	All MCs	1	0.0	1	0.0	0.003	5.6	LOS A	0.0	0.1	0.06	0.55	0.06	53.0
30a	L1	All MCs	1	0.0	1	0.0	0.003	4.5	LOS A	0.0	0.1	0.06	0.55	0.06	53.3
32a	R1	All MCs	1	0.0	1	0.0	0.003	4.6	LOS A	0.0	0.1	0.06	0.55	0.06	53.3
32b	R3	All MCs	1	0.0	1	0.0	0.003	6.3	LOS A	0.0	0.1	0.06	0.55	0.06	52.6
Approach			4	0.0	4	0.0	0.003	5.2	LOS A	0.0	0.1	0.06	0.55	0.06	53.1
All Vehicles			65	3.1	65	3.1	0.016	3.9	NA	0.1	0.4	0.04	0.40	0.04	54.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

MOVEMENT SUMMARY

Site: 2 [CUM OPS 2037 AM Peak (Project) (Site Folder: 2. Brayton Road / Canyonleigh Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
1b	L3	All MCs	4	0.0	4	0.0	0.036	6.5	LOS A	0.2	1.2	0.07	0.56	0.07	52.8
1a	L1	All MCs	1	0.0	1	0.0	0.036	4.6	LOS A	0.2	1.2	0.07	0.56	0.07	52.9
2	T1	All MCs	1	100.0	1	100.0	0.036	0.0	LOS A	0.2	1.2	0.07	0.56	0.07	54.9
3	R2	All MCs	56	5.4	56	5.4	0.036	5.6	LOS A	0.2	1.2	0.07	0.56	0.07	52.3
Approach			62	6.5	62	6.5	0.036	5.5	NA	0.2	1.2	0.07	0.56	0.07	52.4
East: Canyonleigh Road															
4	L2	All MCs	6	50.0	6	50.0	0.009	6.2	LOS A	0.0	0.3	0.08	0.53	0.08	51.0
4a	L1	All MCs	3	0.0	3	0.0	0.009	4.7	LOS A	0.0	0.3	0.08	0.53	0.08	53.4
6a	R1	All MCs	1	0.0	1	0.0	0.009	4.8	LOS A	0.0	0.3	0.08	0.53	0.08	53.5
6	R2	All MCs	1	0.0	1	0.0	0.009	5.8	LOS A	0.0	0.3	0.08	0.53	0.08	52.9
Approach			11	27.3	11	27.3	0.009	5.6	LOS A	0.0	0.3	0.08	0.53	0.08	52.0
North: Brayton Road															
7	L2	All MCs	1	0.0	1	0.0	0.009	5.5	LOS A	0.0	0.1	0.01	0.11	0.01	56.5
8	T1	All MCs	13	7.7	13	7.7	0.009	0.0	LOS A	0.0	0.1	0.01	0.11	0.01	58.9
9a	R1	All MCs	1	0.0	1	0.0	0.009	4.4	LOS A	0.0	0.1	0.01	0.11	0.01	57.1
9b	R3	All MCs	1	0.0	1	0.0	0.009	6.1	LOS A	0.0	0.1	0.01	0.11	0.01	56.1
Approach			16	6.3	16	6.3	0.009	1.0	NA	0.0	0.1	0.01	0.11	0.01	58.5
NorthWest: Bulls Pit Road															
27b	L3	All MCs	1	0.0	1	0.0	0.008	6.5	LOS A	0.0	0.2	0.07	0.51	0.07	53.3
27a	L1	All MCs	1	0.0	1	0.0	0.008	4.8	LOS A	0.0	0.2	0.07	0.51	0.07	53.4
29a	R1	All MCs	6	0.0	6	0.0	0.008	4.7	LOS A	0.0	0.2	0.07	0.51	0.07	53.7
29	R2	All MCs	1	0.0	1	0.0	0.008	5.5	LOS A	0.0	0.2	0.07	0.51	0.07	53.1
Approach			9	0.0	9	0.0	0.008	5.0	LOS A	0.0	0.2	0.07	0.51	0.07	53.6
SouthWest: Carrick Road															
30	L2	All MCs	1	0.0	1	0.0	0.003	5.5	LOS A	0.0	0.1	0.03	0.56	0.03	53.1
30a	L1	All MCs	1	0.0	1	0.0	0.003	4.5	LOS A	0.0	0.1	0.03	0.56	0.03	53.4
32a	R1	All MCs	1	0.0	1	0.0	0.003	4.6	LOS A	0.0	0.1	0.03	0.56	0.03	53.4
32b	R3	All MCs	1	0.0	1	0.0	0.003	6.2	LOS A	0.0	0.1	0.03	0.56	0.03	52.7
Approach			4	0.0	4	0.0	0.003	5.2	LOS A	0.0	0.1	0.03	0.56	0.03	53.1
All Vehicles			102	7.8	102	7.8	0.036	4.8	NA	0.2	1.2	0.06	0.48	0.06	53.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control

MOVEMENT SUMMARY

Site: 2 [CUM OPS. 2037 PM Peak (Project) (Site Folder: 2. Brayton Road / Canyonleigh Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
1b	L3	All MCs	4	0.0	4	0.0	0.018	6.5	LOS A	0.1	0.5	0.03	0.33	0.03	54.9
1a	L1	All MCs	5	0.0	5	0.0	0.018	4.6	LOS A	0.1	0.5	0.03	0.33	0.03	55.1
2	T1	All MCs	13	0.0	13	0.0	0.018	0.0	LOS A	0.1	0.5	0.03	0.33	0.03	57.2
3	R2	All MCs	8	37.5	8	37.5	0.018	5.9	LOS A	0.1	0.5	0.03	0.33	0.03	53.0
Approach			30	10.0	30	10.0	0.018	3.2	NA	0.1	0.5	0.03	0.33	0.03	55.4
East: Canyonleigh Road															
4	L2	All MCs	55	5.5	55	5.5	0.037	5.6	LOS A	0.1	1.1	0.04	0.56	0.04	52.6
4a	L1	All MCs	1	0.0	1	0.0	0.037	4.5	LOS A	0.1	1.1	0.04	0.56	0.04	53.1
6a	R1	All MCs	1	0.0	1	0.0	0.037	4.5	LOS A	0.1	1.1	0.04	0.56	0.04	53.3
6	R2	All MCs	1	0.0	1	0.0	0.037	5.5	LOS A	0.1	1.1	0.04	0.56	0.04	52.6
Approach			58	5.2	58	5.2	0.037	5.6	LOS A	0.1	1.1	0.04	0.56	0.04	52.6
North: Brayton Road															
7	L2	All MCs	1	0.0	1	0.0	0.005	5.6	LOS A	0.0	0.1	0.04	0.19	0.04	55.8
8	T1	All MCs	6	0.0	6	0.0	0.005	0.0	LOS A	0.0	0.1	0.04	0.19	0.04	58.1
9a	R1	All MCs	1	0.0	1	0.0	0.005	4.5	LOS A	0.0	0.1	0.04	0.19	0.04	56.3
9b	R3	All MCs	1	0.0	1	0.0	0.005	6.2	LOS A	0.0	0.1	0.04	0.19	0.04	55.4
Approach			9	0.0	9	0.0	0.005	1.8	NA	0.0	0.1	0.04	0.19	0.04	57.3
NorthWest: Bulls Pit Road															
27b	L3	All MCs	1	0.0	1	0.0	0.003	6.5	LOS A	0.0	0.1	0.08	0.54	0.08	52.9
27a	L1	All MCs	1	0.0	1	0.0	0.003	4.7	LOS A	0.0	0.1	0.08	0.54	0.08	53.0
29a	R1	All MCs	1	0.0	1	0.0	0.003	4.8	LOS A	0.0	0.1	0.08	0.54	0.08	53.3
29	R2	All MCs	1	0.0	1	0.0	0.003	5.6	LOS A	0.0	0.1	0.08	0.54	0.08	52.7
Approach			4	0.0	4	0.0	0.003	5.4	LOS A	0.0	0.1	0.08	0.54	0.08	53.0
SouthWest: Carrick Road															
30	L2	All MCs	1	0.0	1	0.0	0.003	5.6	LOS A	0.0	0.1	0.06	0.55	0.06	53.0
30a	L1	All MCs	1	0.0	1	0.0	0.003	4.5	LOS A	0.0	0.1	0.06	0.55	0.06	53.3
32a	R1	All MCs	1	0.0	1	0.0	0.003	4.6	LOS A	0.0	0.1	0.06	0.55	0.06	53.3
32b	R3	All MCs	1	0.0	1	0.0	0.003	6.4	LOS A	0.0	0.1	0.06	0.55	0.06	52.6
Approach			4	0.0	4	0.0	0.003	5.3	LOS A	0.0	0.1	0.06	0.55	0.06	53.1
All Vehicles			105	5.7	105	5.7	0.037	4.6	NA	0.1	1.1	0.04	0.46	0.04	53.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

MOVEMENT SUMMARY

Site: 2 [DECOMM 2057 AM Peak (Project) (Site Folder: 2. Brayton Road / Canyonleigh Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
1b	L3	All MCs	6	0.0	6	0.0	0.049	6.5	LOS A	0.2	1.6	0.08	0.56	0.08	52.7
1a	L1	All MCs	1	0.0	1	0.0	0.049	4.6	LOS A	0.2	1.6	0.08	0.56	0.08	52.9
2	T1	All MCs	1	100.0	1	100.0	0.049	0.1	LOS A	0.2	1.6	0.08	0.56	0.08	54.8
3	R2	All MCs	77	2.6	77	2.6	0.049	5.6	LOS A	0.2	1.6	0.08	0.56	0.08	52.4
Approach			85	3.5	85	3.5	0.049	5.6	NA	0.2	1.6	0.08	0.56	0.08	52.4
East: Canyonleigh Road															
4	L2	All MCs	6	33.3	6	33.3	0.009	6.0	LOS A	0.0	0.3	0.10	0.52	0.10	51.6
4a	L1	All MCs	4	0.0	4	0.0	0.009	4.8	LOS A	0.0	0.3	0.10	0.52	0.10	53.3
6a	R1	All MCs	1	0.0	1	0.0	0.009	4.9	LOS A	0.0	0.3	0.10	0.52	0.10	53.4
6	R2	All MCs	1	0.0	1	0.0	0.009	5.9	LOS A	0.0	0.3	0.10	0.52	0.10	52.8
Approach			12	16.7	12	16.7	0.009	5.5	LOS A	0.0	0.3	0.10	0.52	0.10	52.4
North: Brayton Road															
7	L2	All MCs	1	0.0	1	0.0	0.013	5.5	LOS A	0.0	0.1	0.01	0.10	0.01	56.6
8	T1	All MCs	19	10.5	19	10.5	0.013	0.0	LOS A	0.0	0.1	0.01	0.10	0.01	59.0
9a	R1	All MCs	2	0.0	2	0.0	0.013	4.4	LOS A	0.0	0.1	0.01	0.10	0.01	57.1
9b	R3	All MCs	1	0.0	1	0.0	0.013	6.1	LOS A	0.0	0.1	0.01	0.10	0.01	56.2
Approach			23	8.7	23	8.7	0.013	0.9	NA	0.0	0.1	0.01	0.10	0.01	58.6
NorthWest: Bulls Pit Road															
27b	L3	All MCs	1	0.0	1	0.0	0.012	6.5	LOS A	0.0	0.3	0.09	0.50	0.09	53.2
27a	L1	All MCs	1	0.0	1	0.0	0.012	4.9	LOS A	0.0	0.3	0.09	0.50	0.09	53.3
29a	R1	All MCs	10	0.0	10	0.0	0.012	4.9	LOS A	0.0	0.3	0.09	0.50	0.09	53.7
29	R2	All MCs	1	0.0	1	0.0	0.012	5.6	LOS A	0.0	0.3	0.09	0.50	0.09	53.1
Approach			13	0.0	13	0.0	0.012	5.1	LOS A	0.0	0.3	0.09	0.50	0.09	53.6
SouthWest: Carrick Road															
30	L2	All MCs	1	0.0	1	0.0	0.003	5.5	LOS A	0.0	0.1	0.04	0.56	0.04	53.1
30a	L1	All MCs	1	0.0	1	0.0	0.003	4.5	LOS A	0.0	0.1	0.04	0.56	0.04	53.4
32a	R1	All MCs	1	0.0	1	0.0	0.003	4.6	LOS A	0.0	0.1	0.04	0.56	0.04	53.4
32b	R3	All MCs	1	0.0	1	0.0	0.003	6.3	LOS A	0.0	0.1	0.04	0.56	0.04	52.7
Approach			4	0.0	4	0.0	0.003	5.2	LOS A	0.0	0.1	0.04	0.56	0.04	53.1
All Vehicles			137	5.1	137	5.1	0.049	4.7	NA	0.2	1.6	0.07	0.47	0.07	53.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control

MOVEMENT SUMMARY

Site: 2 [DECOMM 2057 PM Peak (Project) (Site Folder: 2. Brayton Road / Canyonleigh Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
1b	L3	All MCs	6	0.0	6	0.0	0.024	6.5	LOS A	0.1	0.6	0.04	0.33	0.04	54.9
1a	L1	All MCs	8	0.0	8	0.0	0.024	4.6	LOS A	0.1	0.6	0.04	0.33	0.04	55.0
2	T1	All MCs	19	0.0	19	0.0	0.024	0.0	LOS A	0.1	0.6	0.04	0.33	0.04	57.1
3	R2	All MCs	10	20.0	10	20.0	0.024	5.7	LOS A	0.1	0.6	0.04	0.33	0.04	53.7
Approach			43	4.7	43	4.7	0.024	3.1	NA	0.1	0.6	0.04	0.33	0.04	55.6
East: Canyonleigh Road															
4	L2	All MCs	75	2.7	75	2.7	0.050	5.6	LOS A	0.2	1.5	0.05	0.55	0.05	52.7
4a	L1	All MCs	2	0.0	2	0.0	0.050	4.6	LOS A	0.2	1.5	0.05	0.55	0.05	53.1
6a	R1	All MCs	1	0.0	1	0.0	0.050	4.5	LOS A	0.2	1.5	0.05	0.55	0.05	53.2
6	R2	All MCs	1	0.0	1	0.0	0.050	5.6	LOS A	0.2	1.5	0.05	0.55	0.05	52.6
Approach			79	2.5	79	2.5	0.050	5.5	LOS A	0.2	1.5	0.05	0.55	0.05	52.7
North: Brayton Road															
7	L2	All MCs	1	0.0	1	0.0	0.008	5.6	LOS A	0.0	0.2	0.06	0.20	0.06	55.7
8	T1	All MCs	10	0.0	10	0.0	0.008	0.0	LOS A	0.0	0.2	0.06	0.20	0.06	58.1
9a	R1	All MCs	2	0.0	2	0.0	0.008	4.5	LOS A	0.0	0.2	0.06	0.20	0.06	56.2
9b	R3	All MCs	2	0.0	2	0.0	0.008	6.2	LOS A	0.0	0.2	0.06	0.20	0.06	55.3
Approach			15	0.0	15	0.0	0.008	1.8	NA	0.0	0.2	0.06	0.20	0.06	57.3
NorthWest: Bulls Pit Road															
27b	L3	All MCs	2	0.0	2	0.0	0.004	6.5	LOS A	0.0	0.1	0.09	0.55	0.09	52.7
27a	L1	All MCs	1	0.0	1	0.0	0.004	4.8	LOS A	0.0	0.1	0.09	0.55	0.09	52.8
29a	R1	All MCs	1	0.0	1	0.0	0.004	5.0	LOS A	0.0	0.1	0.09	0.55	0.09	53.1
29	R2	All MCs	1	0.0	1	0.0	0.004	5.6	LOS A	0.0	0.1	0.09	0.55	0.09	52.5
Approach			5	0.0	5	0.0	0.004	5.7	LOS A	0.0	0.1	0.09	0.55	0.09	52.7
SouthWest: Carrick Road															
30	L2	All MCs	2	0.0	2	0.0	0.004	5.6	LOS A	0.0	0.1	0.07	0.55	0.07	52.9
30a	L1	All MCs	1	0.0	1	0.0	0.004	4.6	LOS A	0.0	0.1	0.07	0.55	0.07	53.2
32a	R1	All MCs	1	0.0	1	0.0	0.004	4.7	LOS A	0.0	0.1	0.07	0.55	0.07	53.2
32b	R3	All MCs	1	0.0	1	0.0	0.004	6.6	LOS A	0.0	0.1	0.07	0.55	0.07	52.5
Approach			5	0.0	5	0.0	0.004	5.4	LOS A	0.0	0.1	0.07	0.55	0.07	53.0
All Vehicles			147	2.7	147	2.7	0.050	4.4	NA	0.2	1.5	0.05	0.45	0.05	54.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

MOVEMENT SUMMARY

Site: 2 [CONST. 2026 AM Peak (Network) (Site Folder: 2. Brayton Road / Canyonleigh Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
1b	L3	All MCs	1	100.0	1	100.0	0.012	7.6	LOS A	0.1	0.5	0.06	0.45	0.06	49.6
1a	L1	All MCs	1	0.0	1	0.0	0.012	4.6	LOS A	0.1	0.5	0.06	0.45	0.06	53.7
2	T1	All MCs	4	25.0	4	25.0	0.012	0.0	LOS A	0.1	0.5	0.06	0.45	0.06	55.7
3	R2	All MCs	13	30.8	13	30.8	0.012	5.9	LOS A	0.1	0.5	0.06	0.45	0.06	52.0
Approach			19	31.6	19	31.6	0.012	4.7	NA	0.1	0.5	0.06	0.45	0.06	52.7
East: Canyonleigh Road															
4	L2	All MCs	13	30.8	13	30.8	0.014	5.9	LOS A	0.1	0.4	0.06	0.54	0.06	51.7
4a	L1	All MCs	4	0.0	4	0.0	0.014	4.6	LOS A	0.1	0.4	0.06	0.54	0.06	53.3
6a	R1	All MCs	1	0.0	1	0.0	0.014	4.6	LOS A	0.1	0.4	0.06	0.54	0.06	53.4
6	R2	All MCs	1	0.0	1	0.0	0.014	5.6	LOS A	0.1	0.4	0.06	0.54	0.06	52.8
Approach			19	21.1	19	21.1	0.014	5.5	LOS A	0.1	0.4	0.06	0.54	0.06	52.2
North: Brayton Road															
7	L2	All MCs	1	0.0	1	0.0	0.010	5.5	LOS A	0.0	0.3	0.03	0.22	0.03	55.5
8	T1	All MCs	11	9.1	11	9.1	0.010	0.0	LOS A	0.0	0.3	0.03	0.22	0.03	57.9
9a	R1	All MCs	6	0.0	6	0.0	0.010	4.4	LOS A	0.0	0.3	0.03	0.22	0.03	56.1
9b	R3	All MCs	1	0.0	1	0.0	0.010	6.1	LOS A	0.0	0.3	0.03	0.22	0.03	55.1
Approach			19	5.3	19	5.3	0.010	2.0	NA	0.0	0.3	0.03	0.22	0.03	57.0
NorthWest: Bulls Pit Road															
27b	L3	All MCs	1	0.0	1	0.0	0.005	6.5	LOS A	0.0	0.1	0.07	0.52	0.07	53.1
27a	L1	All MCs	1	0.0	1	0.0	0.005	4.8	LOS A	0.0	0.1	0.07	0.52	0.07	53.2
29a	R1	All MCs	3	0.0	3	0.0	0.005	4.7	LOS A	0.0	0.1	0.07	0.52	0.07	53.6
29	R2	All MCs	1	0.0	1	0.0	0.005	5.6	LOS A	0.0	0.1	0.07	0.52	0.07	52.9
Approach			6	0.0	6	0.0	0.005	5.1	LOS A	0.0	0.1	0.07	0.52	0.07	53.3
SouthWest: Carrick Road															
30	L2	All MCs	1	0.0	1	0.0	0.007	5.5	LOS A	0.0	0.2	0.05	0.54	0.05	53.2
30a	L1	All MCs	1	0.0	1	0.0	0.007	4.5	LOS A	0.0	0.2	0.05	0.54	0.05	53.6
32a	R1	All MCs	5	20.0	5	20.0	0.007	4.8	LOS A	0.0	0.2	0.05	0.54	0.05	52.8
32b	R3	All MCs	1	0.0	1	0.0	0.007	6.3	LOS A	0.0	0.2	0.05	0.54	0.05	52.9
Approach			8	12.5	8	12.5	0.007	5.1	LOS A	0.0	0.2	0.05	0.54	0.05	52.9
All Vehicles			71	16.9	71	16.9	0.014	4.3	NA	0.1	0.5	0.05	0.43	0.05	53.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control

MOVEMENT SUMMARY

Site: 2 [CONST. 2026 PM Peak (Network) (Site Folder: 2. Brayton Road / Canyonleigh Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
1b	L3	All MCs	8	0.0	8	0.0	0.019	6.5	LOS A	0.1	0.6	0.04	0.42	0.04	54.0
1a	L1	All MCs	1	0.0	1	0.0	0.019	4.6	LOS A	0.1	0.6	0.04	0.42	0.04	54.1
2	T1	All MCs	9	11.1	9	11.1	0.019	0.0	LOS A	0.1	0.6	0.04	0.42	0.04	56.2
3	R2	All MCs	12	33.3	12	33.3	0.019	5.9	LOS A	0.1	0.6	0.04	0.42	0.04	52.3
Approach			30	16.7	30	16.7	0.019	4.2	NA	0.1	0.6	0.04	0.42	0.04	53.9
East: Canyonleigh Road															
4	L2	All MCs	12	33.3	12	33.3	0.012	5.9	LOS A	0.0	0.4	0.04	0.55	0.04	51.5
4a	L1	All MCs	2	0.0	2	0.0	0.012	4.5	LOS A	0.0	0.4	0.04	0.55	0.04	53.2
6a	R1	All MCs	1	0.0	1	0.0	0.012	4.5	LOS A	0.0	0.4	0.04	0.55	0.04	53.3
6	R2	All MCs	1	100.0	1	100.0	0.012	6.8	LOS A	0.0	0.4	0.04	0.55	0.04	48.6
Approach			16	31.3	16	31.3	0.012	5.7	LOS A	0.0	0.4	0.04	0.55	0.04	51.6
North: Brayton Road															
7	L2	All MCs	1	0.0	1	0.0	0.005	5.6	LOS A	0.0	0.1	0.03	0.22	0.03	55.1
8	T1	All MCs	5	40.0	5	40.0	0.005	0.0	LOS A	0.0	0.1	0.03	0.22	0.03	57.3
9a	R1	All MCs	1	0.0	1	0.0	0.005	4.4	LOS A	0.0	0.1	0.03	0.22	0.03	55.6
9b	R3	All MCs	1	0.0	1	0.0	0.005	6.1	LOS A	0.0	0.1	0.03	0.22	0.03	54.7
Approach			8	25.0	8	25.0	0.005	2.0	NA	0.0	0.1	0.03	0.22	0.03	56.5
NorthWest: Bulls Pit Road															
27b	L3	All MCs	1	0.0	1	0.0	0.006	6.5	LOS A	0.0	0.1	0.09	0.52	0.09	53.1
27a	L1	All MCs	1	0.0	1	0.0	0.006	4.7	LOS A	0.0	0.1	0.09	0.52	0.09	53.2
29a	R1	All MCs	4	0.0	4	0.0	0.006	4.6	LOS A	0.0	0.1	0.09	0.52	0.09	53.6
29	R2	All MCs	1	0.0	1	0.0	0.006	5.6	LOS A	0.0	0.1	0.09	0.52	0.09	52.9
Approach			7	0.0	7	0.0	0.006	5.1	LOS A	0.0	0.1	0.09	0.52	0.09	53.4
SouthWest: Carrick Road															
30	L2	All MCs	1	0.0	1	0.0	0.006	5.5	LOS A	0.0	0.2	0.05	0.53	0.05	53.1
30a	L1	All MCs	3	0.0	3	0.0	0.006	4.5	LOS A	0.0	0.2	0.05	0.53	0.05	53.5
32a	R1	All MCs	2	0.0	2	0.0	0.006	4.6	LOS A	0.0	0.2	0.05	0.53	0.05	53.4
32b	R3	All MCs	1	100.0	1	100.0	0.006	7.6	LOS A	0.0	0.2	0.05	0.53	0.05	48.5
Approach			7	14.3	7	14.3	0.006	5.1	LOS A	0.0	0.2	0.05	0.53	0.05	52.6
All Vehicles			68	19.1	68	19.1	0.019	4.5	NA	0.1	0.6	0.05	0.45	0.05	53.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.

MOVEMENT SUMMARY

Site: 2 [CUM CONST. 2026 AM Peak (Network) (Site Folder: 2. Brayton Road / Canyonleigh Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
1b	L3	All MCs	1	100.0	1	100.0	0.023	7.7	LOS A	0.1	1.0	0.06	0.50	0.06	49.3
1a	L1	All MCs	1	0.0	1	0.0	0.023	4.6	LOS A	0.1	1.0	0.06	0.50	0.06	53.4
2	T1	All MCs	4	25.0	4	25.0	0.023	0.0	LOS A	0.1	1.0	0.06	0.50	0.06	55.4
3	R2	All MCs	29	34.5	29	34.5	0.023	5.9	LOS A	0.1	1.0	0.06	0.50	0.06	51.5
Approach			35	34.3	35	34.3	0.023	5.3	NA	0.1	1.0	0.06	0.50	0.06	51.9
East: Canyonleigh Road															
4	L2	All MCs	29	34.5	29	34.5	0.025	6.0	LOS A	0.1	0.9	0.06	0.54	0.06	51.5
4a	L1	All MCs	4	0.0	4	0.0	0.025	4.6	LOS A	0.1	0.9	0.06	0.54	0.06	53.2
6a	R1	All MCs	1	0.0	1	0.0	0.025	4.6	LOS A	0.1	0.9	0.06	0.54	0.06	53.3
6	R2	All MCs	1	0.0	1	0.0	0.025	5.6	LOS A	0.1	0.9	0.06	0.54	0.06	52.7
Approach			35	28.6	35	28.6	0.025	5.8	LOS A	0.1	0.9	0.06	0.54	0.06	51.7
North: Brayton Road															
7	L2	All MCs	1	0.0	1	0.0	0.010	5.5	LOS A	0.0	0.3	0.03	0.22	0.03	55.5
8	T1	All MCs	11	9.1	11	9.1	0.010	0.0	LOS A	0.0	0.3	0.03	0.22	0.03	57.9
9a	R1	All MCs	6	0.0	6	0.0	0.010	4.4	LOS A	0.0	0.3	0.03	0.22	0.03	56.1
9b	R3	All MCs	1	0.0	1	0.0	0.010	6.1	LOS A	0.0	0.3	0.03	0.22	0.03	55.1
Approach			19	5.3	19	5.3	0.010	2.0	NA	0.0	0.3	0.03	0.22	0.03	57.0
NorthWest: Bulls Pit Road															
27b	L3	All MCs	1	0.0	1	0.0	0.005	6.5	LOS A	0.0	0.1	0.08	0.52	0.08	53.1
27a	L1	All MCs	1	0.0	1	0.0	0.005	4.8	LOS A	0.0	0.1	0.08	0.52	0.08	53.2
29a	R1	All MCs	3	0.0	3	0.0	0.005	4.9	LOS A	0.0	0.1	0.08	0.52	0.08	53.5
29	R2	All MCs	1	0.0	1	0.0	0.005	5.6	LOS A	0.0	0.1	0.08	0.52	0.08	52.9
Approach			6	0.0	6	0.0	0.005	5.2	LOS A	0.0	0.1	0.08	0.52	0.08	53.3
SouthWest: Carrick Road															
30	L2	All MCs	1	0.0	1	0.0	0.007	5.5	LOS A	0.0	0.2	0.05	0.54	0.05	53.2
30a	L1	All MCs	1	0.0	1	0.0	0.007	4.5	LOS A	0.0	0.2	0.05	0.54	0.05	53.6
32a	R1	All MCs	5	20.0	5	20.0	0.007	4.9	LOS A	0.0	0.2	0.05	0.54	0.05	52.7
32b	R3	All MCs	1	0.0	1	0.0	0.007	6.4	LOS A	0.0	0.2	0.05	0.54	0.05	52.9
Approach			8	12.5	8	12.5	0.007	5.1	LOS A	0.0	0.2	0.05	0.54	0.05	52.9
All Vehicles			103	23.3	103	23.3	0.025	4.8	NA	0.1	1.0	0.06	0.47	0.06	52.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control

MOVEMENT SUMMARY

Site: 2 [CUM CONST. 2026 PM Peak (Network) (Site Folder: 2. Brayton Road / Canyonleigh Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
1b	L3	All MCs	8	0.0	8	0.0	0.030	6.5	LOS A	0.1	1.1	0.04	0.47	0.04	53.6
1a	L1	All MCs	1	0.0	1	0.0	0.030	4.6	LOS A	0.1	1.1	0.04	0.47	0.04	53.8
2	T1	All MCs	9	11.1	9	11.1	0.030	0.0	LOS A	0.1	1.1	0.04	0.47	0.04	55.8
3	R2	All MCs	28	35.7	28	35.7	0.030	5.9	LOS A	0.1	1.1	0.04	0.47	0.04	51.9
Approach			46	23.9	46	23.9	0.030	4.8	NA	0.1	1.1	0.04	0.47	0.04	52.9
East: Canyonleigh Road															
4	L2	All MCs	28	35.7	28	35.7	0.024	6.0	LOS A	0.1	0.9	0.04	0.55	0.04	51.4
4a	L1	All MCs	2	0.0	2	0.0	0.024	4.5	LOS A	0.1	0.9	0.04	0.55	0.04	53.2
6a	R1	All MCs	1	0.0	1	0.0	0.024	4.5	LOS A	0.1	0.9	0.04	0.55	0.04	53.3
6	R2	All MCs	1	100.0	1	100.0	0.024	6.9	LOS A	0.1	0.9	0.04	0.55	0.04	48.6
Approach			32	34.4	32	34.4	0.024	5.9	LOS A	0.1	0.9	0.04	0.55	0.04	51.5
North: Brayton Road															
7	L2	All MCs	1	0.0	1	0.0	0.005	5.6	LOS A	0.0	0.1	0.03	0.22	0.03	55.1
8	T1	All MCs	5	40.0	5	40.0	0.005	0.0	LOS A	0.0	0.1	0.03	0.22	0.03	57.3
9a	R1	All MCs	1	0.0	1	0.0	0.005	4.4	LOS A	0.0	0.1	0.03	0.22	0.03	55.6
9b	R3	All MCs	1	0.0	1	0.0	0.005	6.1	LOS A	0.0	0.1	0.03	0.22	0.03	54.7
Approach			8	25.0	8	25.0	0.005	2.0	NA	0.0	0.1	0.03	0.22	0.03	56.5
NorthWest: Bulls Pit Road															
27b	L3	All MCs	1	0.0	1	0.0	0.005	6.5	LOS A	0.0	0.1	0.10	0.53	0.10	53.0
27a	L1	All MCs	4	0.0	4	0.0	0.005	4.8	LOS A	0.0	0.1	0.10	0.53	0.10	53.1
29a	R1	All MCs	1	0.0	1	0.0	0.005	4.8	LOS A	0.0	0.1	0.10	0.53	0.10	53.5
29	R2	All MCs	1	0.0	1	0.0	0.005	5.6	LOS A	0.0	0.1	0.10	0.53	0.10	52.9
Approach			7	0.0	7	0.0	0.005	5.2	LOS A	0.0	0.1	0.10	0.53	0.10	53.1
SouthWest: Carrick Road															
30	L2	All MCs	1	0.0	1	0.0	0.006	5.5	LOS A	0.0	0.2	0.05	0.53	0.05	53.1
30a	L1	All MCs	3	0.0	3	0.0	0.006	4.5	LOS A	0.0	0.2	0.05	0.53	0.05	53.4
32a	R1	All MCs	2	0.0	2	0.0	0.006	4.6	LOS A	0.0	0.2	0.05	0.53	0.05	53.4
32b	R3	All MCs	1	100.0	1	100.0	0.006	7.8	LOS A	0.0	0.2	0.05	0.53	0.05	48.5
Approach			7	14.3	7	14.3	0.006	5.2	LOS A	0.0	0.2	0.05	0.53	0.05	52.6
All Vehicles			100	25.0	100	25.0	0.030	5.0	NA	0.1	1.1	0.05	0.48	0.05	52.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.

MOVEMENT SUMMARY

Site: 2 [CUM OPS 2027 AM Peak (Network) (Site Folder: 2. Brayton Road / Canyonleigh Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
1b	L3	All MCs	1	100.0	1	100.0	0.012	7.7	LOS A	0.1	0.5	0.06	0.45	0.06	49.5
1a	L1	All MCs	1	0.0	1	0.0	0.012	4.6	LOS A	0.1	0.5	0.06	0.45	0.06	53.7
2	T1	All MCs	4	25.0	4	25.0	0.012	0.0	LOS A	0.1	0.5	0.06	0.45	0.06	55.7
3	R2	All MCs	13	23.1	13	23.1	0.012	5.8	LOS A	0.1	0.5	0.06	0.45	0.06	52.3
Approach			19	26.3	19	26.3	0.012	4.6	NA	0.1	0.5	0.06	0.45	0.06	52.9
East: Canyonleigh Road															
4	L2	All MCs	6	33.3	6	33.3	0.009	6.0	LOS A	0.0	0.3	0.07	0.53	0.07	51.7
4a	L1	All MCs	4	0.0	4	0.0	0.009	4.6	LOS A	0.0	0.3	0.07	0.53	0.07	53.4
6a	R1	All MCs	1	0.0	1	0.0	0.009	4.6	LOS A	0.0	0.3	0.07	0.53	0.07	53.5
6	R2	All MCs	1	0.0	1	0.0	0.009	5.6	LOS A	0.0	0.3	0.07	0.53	0.07	52.9
Approach			12	16.7	12	16.7	0.009	5.4	LOS A	0.0	0.3	0.07	0.53	0.07	52.5
North: Brayton Road															
7	L2	All MCs	1	0.0	1	0.0	0.011	5.5	LOS A	0.0	0.3	0.03	0.21	0.03	55.6
8	T1	All MCs	12	8.3	12	8.3	0.011	0.0	LOS A	0.0	0.3	0.03	0.21	0.03	58.0
9a	R1	All MCs	6	0.0	6	0.0	0.011	4.4	LOS A	0.0	0.3	0.03	0.21	0.03	56.2
9b	R3	All MCs	1	0.0	1	0.0	0.011	6.1	LOS A	0.0	0.3	0.03	0.21	0.03	55.2
Approach			20	5.0	20	5.0	0.011	1.9	NA	0.0	0.3	0.03	0.21	0.03	57.1
NorthWest: Bulls Pit Road															
27b	L3	All MCs	1	0.0	1	0.0	0.005	6.5	LOS A	0.0	0.1	0.07	0.52	0.07	53.1
27a	L1	All MCs	1	0.0	1	0.0	0.005	4.8	LOS A	0.0	0.1	0.07	0.52	0.07	53.2
29a	R1	All MCs	3	0.0	3	0.0	0.005	4.6	LOS A	0.0	0.1	0.07	0.52	0.07	53.6
29	R2	All MCs	1	0.0	1	0.0	0.005	5.6	LOS A	0.0	0.1	0.07	0.52	0.07	52.9
Approach			6	0.0	6	0.0	0.005	5.1	LOS A	0.0	0.1	0.07	0.52	0.07	53.3
SouthWest: Carrick Road															
30	L2	All MCs	1	0.0	1	0.0	0.007	5.5	LOS A	0.0	0.2	0.05	0.54	0.05	53.2
30a	L1	All MCs	1	0.0	1	0.0	0.007	4.5	LOS A	0.0	0.2	0.05	0.54	0.05	53.6
32a	R1	All MCs	5	20.0	5	20.0	0.007	4.8	LOS A	0.0	0.2	0.05	0.54	0.05	52.8
32b	R3	All MCs	1	0.0	1	0.0	0.007	6.2	LOS A	0.0	0.2	0.05	0.54	0.05	52.9
Approach			8	12.5	8	12.5	0.007	5.1	LOS A	0.0	0.2	0.05	0.54	0.05	52.9
All Vehicles			65	13.8	65	13.8	0.012	4.0	NA	0.1	0.5	0.05	0.41	0.05	54.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control

MOVEMENT SUMMARY

Site: 2 [CUM OPS. 2027 PM Peak (Network) (Site Folder: 2. Brayton Road / Canyonleigh Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
1b	L3	All MCs	8	0.0	8	0.0	0.014	6.5	LOS A	0.0	0.3	0.03	0.37	0.03	54.3
1a	L1	All MCs	1	0.0	1	0.0	0.014	4.6	LOS A	0.0	0.3	0.03	0.37	0.03	54.5
2	T1	All MCs	9	11.1	9	11.1	0.014	0.0	LOS A	0.0	0.3	0.03	0.37	0.03	56.5
3	R2	All MCs	5	40.0	5	40.0	0.014	6.0	LOS A	0.0	0.3	0.03	0.37	0.03	52.3
Approach			23	13.0	23	13.0	0.014	3.8	NA	0.0	0.3	0.03	0.37	0.03	54.7
East: Canyonleigh Road															
4	L2	All MCs	12	25.0	12	25.0	0.012	5.8	LOS A	0.0	0.4	0.04	0.55	0.04	51.8
4a	L1	All MCs	2	0.0	2	0.0	0.012	4.5	LOS A	0.0	0.4	0.04	0.55	0.04	53.2
6a	R1	All MCs	1	0.0	1	0.0	0.012	4.5	LOS A	0.0	0.4	0.04	0.55	0.04	53.3
6	R2	All MCs	1	100.0	1	100.0	0.012	6.8	LOS A	0.0	0.4	0.04	0.55	0.04	48.6
Approach			16	25.0	16	25.0	0.012	5.6	LOS A	0.0	0.4	0.04	0.55	0.04	51.9
North: Brayton Road															
7	L2	All MCs	1	0.0	1	0.0	0.005	5.6	LOS A	0.0	0.1	0.03	0.22	0.03	55.1
8	T1	All MCs	5	40.0	5	40.0	0.005	0.0	LOS A	0.0	0.1	0.03	0.22	0.03	57.3
9a	R1	All MCs	1	0.0	1	0.0	0.005	4.4	LOS A	0.0	0.1	0.03	0.22	0.03	55.6
9b	R3	All MCs	1	0.0	1	0.0	0.005	6.1	LOS A	0.0	0.1	0.03	0.22	0.03	54.7
Approach			8	25.0	8	25.0	0.005	2.0	NA	0.0	0.1	0.03	0.22	0.03	56.5
NorthWest: Bulls Pit Road															
27b	L3	All MCs	1	0.0	1	0.0	0.006	6.5	LOS A	0.0	0.1	0.09	0.52	0.09	53.1
27a	L1	All MCs	1	0.0	1	0.0	0.006	4.7	LOS A	0.0	0.1	0.09	0.52	0.09	53.2
29a	R1	All MCs	4	0.0	4	0.0	0.006	4.6	LOS A	0.0	0.1	0.09	0.52	0.09	53.6
29	R2	All MCs	1	0.0	1	0.0	0.006	5.6	LOS A	0.0	0.1	0.09	0.52	0.09	53.0
Approach			7	0.0	7	0.0	0.006	5.0	LOS A	0.0	0.1	0.09	0.52	0.09	53.4
SouthWest: Carrick Road															
30	L2	All MCs	1	0.0	1	0.0	0.006	5.5	LOS A	0.0	0.2	0.05	0.53	0.05	53.1
30a	L1	All MCs	3	0.0	3	0.0	0.006	4.5	LOS A	0.0	0.2	0.05	0.53	0.05	53.5
32a	R1	All MCs	2	0.0	2	0.0	0.006	4.6	LOS A	0.0	0.2	0.05	0.53	0.05	53.4
32b	R3	All MCs	1	100.0	1	100.0	0.006	7.5	LOS A	0.0	0.2	0.05	0.53	0.05	48.5
Approach			7	14.3	7	14.3	0.006	5.1	LOS A	0.0	0.2	0.05	0.53	0.05	52.6
All Vehicles			61	16.4	61	16.4	0.014	4.3	NA	0.0	0.4	0.04	0.43	0.04	53.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.

MOVEMENT SUMMARY

Site: 2 [OPS 2037 AM Peak (Network) (Site Folder: 2. Brayton Road / Canyonleigh Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
1b	L3	All MCs	1	100.0	1	100.0	0.009	7.7	LOS A	0.0	0.3	0.06	0.38	0.06	49.9
1a	L1	All MCs	1	0.0	1	0.0	0.009	4.6	LOS A	0.0	0.3	0.06	0.38	0.06	54.1
2	T1	All MCs	5	20.0	5	20.0	0.009	0.0	LOS A	0.0	0.3	0.06	0.38	0.06	56.2
3	R2	All MCs	8	12.5	8	12.5	0.009	5.7	LOS A	0.0	0.3	0.06	0.38	0.06	53.2
Approach			15	20.0	15	20.0	0.009	3.8	NA	0.0	0.3	0.06	0.38	0.06	54.0
East: Canyonleigh Road															
4	L2	All MCs	5	0.0	5	0.0	0.008	5.6	LOS A	0.0	0.2	0.08	0.53	0.08	53.1
4a	L1	All MCs	5	0.0	5	0.0	0.008	4.6	LOS A	0.0	0.2	0.08	0.53	0.08	53.4
6a	R1	All MCs	1	0.0	1	0.0	0.008	4.6	LOS A	0.0	0.2	0.08	0.53	0.08	53.5
6	R2	All MCs	1	0.0	1	0.0	0.008	5.6	LOS A	0.0	0.2	0.08	0.53	0.08	52.9
Approach			12	0.0	12	0.0	0.008	5.1	LOS A	0.0	0.2	0.08	0.53	0.08	53.2
North: Brayton Road															
7	L2	All MCs	1	0.0	1	0.0	0.013	5.5	LOS A	0.0	0.3	0.03	0.22	0.03	55.6
8	T1	All MCs	14	7.1	14	7.1	0.013	0.0	LOS A	0.0	0.3	0.03	0.22	0.03	57.9
9a	R1	All MCs	8	0.0	8	0.0	0.013	4.4	LOS A	0.0	0.3	0.03	0.22	0.03	56.1
9b	R3	All MCs	1	0.0	1	0.0	0.013	6.1	LOS A	0.0	0.3	0.03	0.22	0.03	55.2
Approach			24	4.2	24	4.2	0.013	2.0	NA	0.0	0.3	0.03	0.22	0.03	57.1
NorthWest: Bulls Pit Road															
27b	L3	All MCs	1	0.0	1	0.0	0.006	6.5	LOS A	0.0	0.1	0.08	0.52	0.08	53.1
27a	L1	All MCs	1	0.0	1	0.0	0.006	4.8	LOS A	0.0	0.1	0.08	0.52	0.08	53.2
29a	R1	All MCs	4	0.0	4	0.0	0.006	4.7	LOS A	0.0	0.1	0.08	0.52	0.08	53.6
29	R2	All MCs	1	0.0	1	0.0	0.006	5.6	LOS A	0.0	0.1	0.08	0.52	0.08	53.0
Approach			7	0.0	7	0.0	0.006	5.1	LOS A	0.0	0.1	0.08	0.52	0.08	53.4
SouthWest: Carrick Road															
30	L2	All MCs	1	0.0	1	0.0	0.008	5.5	LOS A	0.0	0.2	0.05	0.53	0.05	53.3
30a	L1	All MCs	1	0.0	1	0.0	0.008	4.5	LOS A	0.0	0.2	0.05	0.53	0.05	53.6
32a	R1	All MCs	6	16.7	6	16.7	0.008	4.8	LOS A	0.0	0.2	0.05	0.53	0.05	52.9
32b	R3	All MCs	1	0.0	1	0.0	0.008	6.2	LOS A	0.0	0.2	0.05	0.53	0.05	52.9
Approach			9	11.1	9	11.1	0.008	5.0	LOS A	0.0	0.2	0.05	0.53	0.05	53.0
All Vehicles			67	7.5	67	7.5	0.013	3.7	NA	0.0	0.3	0.06	0.38	0.06	54.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control

MOVEMENT SUMMARY

Site: 2 [OPS. 2037 PM Peak (Network) (Site Folder: 2. Brayton Road / Canyonleigh Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
1b	L3	All MCs	10	0.0	10	0.0	0.015	6.5	LOS A	0.0	0.2	0.02	0.36	0.02	54.3
1a	L1	All MCs	1	0.0	1	0.0	0.015	4.6	LOS A	0.0	0.2	0.02	0.36	0.02	54.5
2	T1	All MCs	11	9.1	11	9.1	0.015	0.0	LOS A	0.0	0.2	0.02	0.36	0.02	56.5
3	R2	All MCs	4	0.0	4	0.0	0.015	5.5	LOS A	0.0	0.2	0.02	0.36	0.02	54.1
Approach			26	3.8	26	3.8	0.015	3.5	NA	0.0	0.2	0.02	0.36	0.02	55.2
East: Canyonleigh Road															
4	L2	All MCs	7	14.3	7	14.3	0.009	5.7	LOS A	0.0	0.3	0.06	0.54	0.06	52.3
4a	L1	All MCs	3	0.0	3	0.0	0.009	4.6	LOS A	0.0	0.3	0.06	0.54	0.06	53.3
6a	R1	All MCs	1	0.0	1	0.0	0.009	4.5	LOS A	0.0	0.3	0.06	0.54	0.06	53.4
6	R2	All MCs	1	100.0	1	100.0	0.009	6.8	LOS A	0.0	0.3	0.06	0.54	0.06	48.7
Approach			12	16.7	12	16.7	0.009	5.4	LOS A	0.0	0.3	0.06	0.54	0.06	52.3
North: Brayton Road															
7	L2	All MCs	1	0.0	1	0.0	0.006	5.6	LOS A	0.0	0.1	0.03	0.18	0.03	55.4
8	T1	All MCs	7	42.9	7	42.9	0.006	0.0	LOS A	0.0	0.1	0.03	0.18	0.03	57.7
9a	R1	All MCs	1	0.0	1	0.0	0.006	4.4	LOS A	0.0	0.1	0.03	0.18	0.03	55.9
9b	R3	All MCs	1	0.0	1	0.0	0.006	6.1	LOS A	0.0	0.1	0.03	0.18	0.03	55.0
Approach			10	30.0	10	30.0	0.006	1.6	NA	0.0	0.1	0.03	0.18	0.03	57.0
NorthWest: Bulls Pit Road															
27b	L3	All MCs	1	0.0	1	0.0	0.007	6.5	LOS A	0.0	0.2	0.10	0.51	0.10	53.1
27a	L1	All MCs	1	0.0	1	0.0	0.007	4.7	LOS A	0.0	0.2	0.10	0.51	0.10	53.2
29a	R1	All MCs	5	0.0	5	0.0	0.007	4.6	LOS A	0.0	0.2	0.10	0.51	0.10	53.6
29	R2	All MCs	1	0.0	1	0.0	0.007	5.6	LOS A	0.0	0.2	0.10	0.51	0.10	53.0
Approach			8	0.0	8	0.0	0.007	5.0	LOS A	0.0	0.2	0.10	0.51	0.10	53.4
SouthWest: Carrick Road															
30	L2	All MCs	1	0.0	1	0.0	0.007	5.5	LOS A	0.0	0.2	0.05	0.52	0.05	53.2
30a	L1	All MCs	4	0.0	4	0.0	0.007	4.5	LOS A	0.0	0.2	0.05	0.52	0.05	53.5
32a	R1	All MCs	3	0.0	3	0.0	0.007	4.6	LOS A	0.0	0.2	0.05	0.52	0.05	53.5
32b	R3	All MCs	1	100.0	1	100.0	0.007	7.6	LOS A	0.0	0.2	0.05	0.52	0.05	48.6
Approach			9	11.1	9	11.1	0.007	5.0	LOS A	0.0	0.2	0.05	0.52	0.05	52.9
All Vehicles			65	10.8	65	10.8	0.015	4.0	NA	0.0	0.3	0.04	0.41	0.04	54.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.

MOVEMENT SUMMARY

Site: 2 [CUM OPS 2037 AM Peak (Network) (Site Folder: 2. Brayton Road / Canyonleigh Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
1b	L3	All MCs	1	100.0	1	100.0	0.013	7.7	LOS A	0.1	0.5	0.07	0.43	0.07	49.7
1a	L1	All MCs	1	0.0	1	0.0	0.013	4.6	LOS A	0.1	0.5	0.07	0.43	0.07	53.8
2	T1	All MCs	5	20.0	5	20.0	0.013	0.0	LOS A	0.1	0.5	0.07	0.43	0.07	55.8
3	R2	All MCs	14	21.4	14	21.4	0.013	5.8	LOS A	0.1	0.5	0.07	0.43	0.07	52.5
Approach			21	23.8	21	23.8	0.013	4.4	NA	0.1	0.5	0.07	0.43	0.07	53.2
East: Canyonleigh Road															
4	L2	All MCs	7	28.6	7	28.6	0.010	5.9	LOS A	0.0	0.3	0.08	0.53	0.08	51.9
4a	L1	All MCs	5	0.0	5	0.0	0.010	4.6	LOS A	0.0	0.3	0.08	0.53	0.08	53.4
6a	R1	All MCs	1	0.0	1	0.0	0.010	4.7	LOS A	0.0	0.3	0.08	0.53	0.08	53.5
6	R2	All MCs	1	0.0	1	0.0	0.010	5.7	LOS A	0.0	0.3	0.08	0.53	0.08	52.9
Approach			14	14.3	14	14.3	0.010	5.3	LOS A	0.0	0.3	0.08	0.53	0.08	52.6
North: Brayton Road															
7	L2	All MCs	1	0.0	1	0.0	0.013	5.5	LOS A	0.0	0.3	0.03	0.22	0.03	55.6
8	T1	All MCs	14	7.1	14	7.1	0.013	0.0	LOS A	0.0	0.3	0.03	0.22	0.03	57.9
9a	R1	All MCs	8	0.0	8	0.0	0.013	4.4	LOS A	0.0	0.3	0.03	0.22	0.03	56.1
9b	R3	All MCs	1	0.0	1	0.0	0.013	6.1	LOS A	0.0	0.3	0.03	0.22	0.03	55.2
Approach			24	4.2	24	4.2	0.013	2.0	NA	0.0	0.3	0.03	0.22	0.03	57.1
NorthWest: Bulls Pit Road															
27b	L3	All MCs	1	0.0	1	0.0	0.006	6.5	LOS A	0.0	0.1	0.08	0.52	0.08	53.1
27a	L1	All MCs	1	0.0	1	0.0	0.006	4.8	LOS A	0.0	0.1	0.08	0.52	0.08	53.2
29a	R1	All MCs	4	0.0	4	0.0	0.006	4.7	LOS A	0.0	0.1	0.08	0.52	0.08	53.6
29	R2	All MCs	1	0.0	1	0.0	0.006	5.6	LOS A	0.0	0.1	0.08	0.52	0.08	53.0
Approach			7	0.0	7	0.0	0.006	5.1	LOS A	0.0	0.1	0.08	0.52	0.08	53.4
SouthWest: Carrick Road															
30	L2	All MCs	1	0.0	1	0.0	0.008	5.5	LOS A	0.0	0.2	0.06	0.53	0.06	53.3
30a	L1	All MCs	1	0.0	1	0.0	0.008	4.5	LOS A	0.0	0.2	0.06	0.53	0.06	53.6
32a	R1	All MCs	6	16.7	6	16.7	0.008	4.8	LOS A	0.0	0.2	0.06	0.53	0.06	52.9
32b	R3	All MCs	1	0.0	1	0.0	0.008	6.3	LOS A	0.0	0.2	0.06	0.53	0.06	52.9
Approach			9	11.1	9	11.1	0.008	5.0	LOS A	0.0	0.2	0.06	0.53	0.06	53.0
All Vehicles			75	12.0	75	12.0	0.013	4.0	NA	0.1	0.5	0.06	0.40	0.06	54.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control

MOVEMENT SUMMARY

Site: 2 [CUM OPS. 2037 PM Peak (Network) (Site Folder: 2. Brayton Road / Canyonleigh Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
1b	L3	All MCs	10	0.0	10	0.0	0.017	6.5	LOS A	0.0	0.4	0.03	0.37	0.03	54.3
1a	L1	All MCs	1	0.0	1	0.0	0.017	4.6	LOS A	0.0	0.4	0.03	0.37	0.03	54.5
2	T1	All MCs	11	9.1	11	9.1	0.017	0.0	LOS A	0.0	0.4	0.03	0.37	0.03	56.5
3	R2	All MCs	6	33.3	6	33.3	0.017	5.9	LOS A	0.0	0.4	0.03	0.37	0.03	52.6
Approach			28	10.7	28	10.7	0.017	3.7	NA	0.0	0.4	0.03	0.37	0.03	54.8
East: Canyonleigh Road															
4	L2	All MCs	13	23.1	13	23.1	0.013	5.8	LOS A	0.1	0.4	0.05	0.54	0.05	51.9
4a	L1	All MCs	3	0.0	3	0.0	0.013	4.5	LOS A	0.1	0.4	0.05	0.54	0.05	53.2
6a	R1	All MCs	1	0.0	1	0.0	0.013	4.5	LOS A	0.1	0.4	0.05	0.54	0.05	53.3
6	R2	All MCs	1	100.0	1	100.0	0.013	6.8	LOS A	0.1	0.4	0.05	0.54	0.05	48.6
Approach			18	22.2	18	22.2	0.013	5.6	LOS A	0.1	0.4	0.05	0.54	0.05	52.0
North: Brayton Road															
7	L2	All MCs	1	0.0	1	0.0	0.006	5.6	LOS A	0.0	0.1	0.03	0.18	0.03	55.4
8	T1	All MCs	7	42.9	7	42.9	0.006	0.0	LOS A	0.0	0.1	0.03	0.18	0.03	57.7
9a	R1	All MCs	1	0.0	1	0.0	0.006	4.4	LOS A	0.0	0.1	0.03	0.18	0.03	55.9
9b	R3	All MCs	1	0.0	1	0.0	0.006	6.1	LOS A	0.0	0.1	0.03	0.18	0.03	55.0
Approach			10	30.0	10	30.0	0.006	1.6	NA	0.0	0.1	0.03	0.18	0.03	57.0
NorthWest: Bulls Pit Road															
27b	L3	All MCs	1	0.0	1	0.0	0.007	6.5	LOS A	0.0	0.2	0.10	0.51	0.10	53.1
27a	L1	All MCs	1	0.0	1	0.0	0.007	4.7	LOS A	0.0	0.2	0.10	0.51	0.10	53.2
29a	R1	All MCs	5	0.0	5	0.0	0.007	4.7	LOS A	0.0	0.2	0.10	0.51	0.10	53.6
29	R2	All MCs	1	0.0	1	0.0	0.007	5.6	LOS A	0.0	0.2	0.10	0.51	0.10	53.0
Approach			8	0.0	8	0.0	0.007	5.0	LOS A	0.0	0.2	0.10	0.51	0.10	53.4
SouthWest: Carrick Road															
30	L2	All MCs	1	0.0	1	0.0	0.007	5.5	LOS A	0.0	0.2	0.05	0.52	0.05	53.2
30a	L1	All MCs	4	0.0	4	0.0	0.007	4.5	LOS A	0.0	0.2	0.05	0.52	0.05	53.5
32a	R1	All MCs	3	0.0	3	0.0	0.007	4.6	LOS A	0.0	0.2	0.05	0.52	0.05	53.5
32b	R3	All MCs	1	100.0	1	100.0	0.007	7.6	LOS A	0.0	0.2	0.05	0.52	0.05	48.6
Approach			9	11.1	9	11.1	0.007	5.0	LOS A	0.0	0.2	0.05	0.52	0.05	52.9
All Vehicles			73	15.1	73	15.1	0.017	4.2	NA	0.1	0.4	0.05	0.42	0.05	54.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.

MOVEMENT SUMMARY

Site: 2 [DECOMM 2057 AM Peak (Network) (Site Folder: 2. Brayton Road / Canyonleigh Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
1b	L3	All MCs	2	100.0	2	100.0	0.017	7.7	LOS A	0.1	0.6	0.08	0.40	0.08	49.7
1a	L1	All MCs	2	0.0	2	0.0	0.017	4.6	LOS A	0.1	0.6	0.08	0.40	0.08	53.9
2	T1	All MCs	8	25.0	8	25.0	0.017	0.1	LOS A	0.1	0.6	0.08	0.40	0.08	55.9
3	R2	All MCs	15	20.0	15	20.0	0.017	5.8	LOS A	0.1	0.6	0.08	0.40	0.08	52.6
Approach			27	25.9	27	25.9	0.017	4.2	NA	0.1	0.6	0.08	0.40	0.08	53.4
East: Canyonleigh Road															
4	L2	All MCs	15	20.0	15	20.0	0.017	5.8	LOS A	0.1	0.5	0.09	0.53	0.09	52.1
4a	L1	All MCs	8	0.0	8	0.0	0.017	4.7	LOS A	0.1	0.5	0.09	0.53	0.09	53.3
6a	R1	All MCs	1	0.0	1	0.0	0.017	4.7	LOS A	0.1	0.5	0.09	0.53	0.09	53.4
6	R2	All MCs	1	0.0	1	0.0	0.017	5.7	LOS A	0.1	0.5	0.09	0.53	0.09	52.7
Approach			25	12.0	25	12.0	0.017	5.4	LOS A	0.1	0.5	0.09	0.53	0.09	52.5
North: Brayton Road															
7	L2	All MCs	1	0.0	1	0.0	0.019	5.6	LOS A	0.1	0.5	0.04	0.21	0.04	55.6
8	T1	All MCs	21	9.5	21	9.5	0.019	0.0	LOS A	0.1	0.5	0.04	0.21	0.04	57.9
9a	R1	All MCs	12	0.0	12	0.0	0.019	4.4	LOS A	0.1	0.5	0.04	0.21	0.04	56.1
9b	R3	All MCs	1	0.0	1	0.0	0.019	6.1	LOS A	0.1	0.5	0.04	0.21	0.04	55.2
Approach			35	5.7	35	5.7	0.019	1.9	NA	0.1	0.5	0.04	0.21	0.04	57.2
NorthWest: Bulls Pit Road															
27b	L3	All MCs	1	0.0	1	0.0	0.008	6.5	LOS A	0.0	0.2	0.12	0.51	0.12	53.1
27a	L1	All MCs	1	0.0	1	0.0	0.008	4.8	LOS A	0.0	0.2	0.12	0.51	0.12	53.2
29a	R1	All MCs	6	0.0	6	0.0	0.008	4.8	LOS A	0.0	0.2	0.12	0.51	0.12	53.5
29	R2	All MCs	1	0.0	1	0.0	0.008	5.7	LOS A	0.0	0.2	0.12	0.51	0.12	52.9
Approach			9	0.0	9	0.0	0.008	5.1	LOS A	0.0	0.2	0.12	0.51	0.12	53.4
SouthWest: Carrick Road															
30	L2	All MCs	1	0.0	1	0.0	0.013	5.5	LOS A	0.0	0.3	0.08	0.52	0.08	53.3
30a	L1	All MCs	2	0.0	2	0.0	0.013	4.5	LOS A	0.0	0.3	0.08	0.52	0.08	53.6
32a	R1	All MCs	10	20.0	10	20.0	0.013	5.1	LOS A	0.0	0.3	0.08	0.52	0.08	52.8
32b	R3	All MCs	1	0.0	1	0.0	0.013	6.5	LOS A	0.0	0.3	0.08	0.52	0.08	52.9
Approach			14	14.3	14	14.3	0.013	5.1	LOS A	0.0	0.3	0.08	0.52	0.08	52.9
All Vehicles			110	12.7	110	12.7	0.019	3.9	NA	0.1	0.6	0.08	0.39	0.08	54.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control

MOVEMENT SUMMARY

Site: 2 [DECOMM 2057 PM Peak (Network) (Site Folder: 2. Brayton Road / Canyonleigh Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road

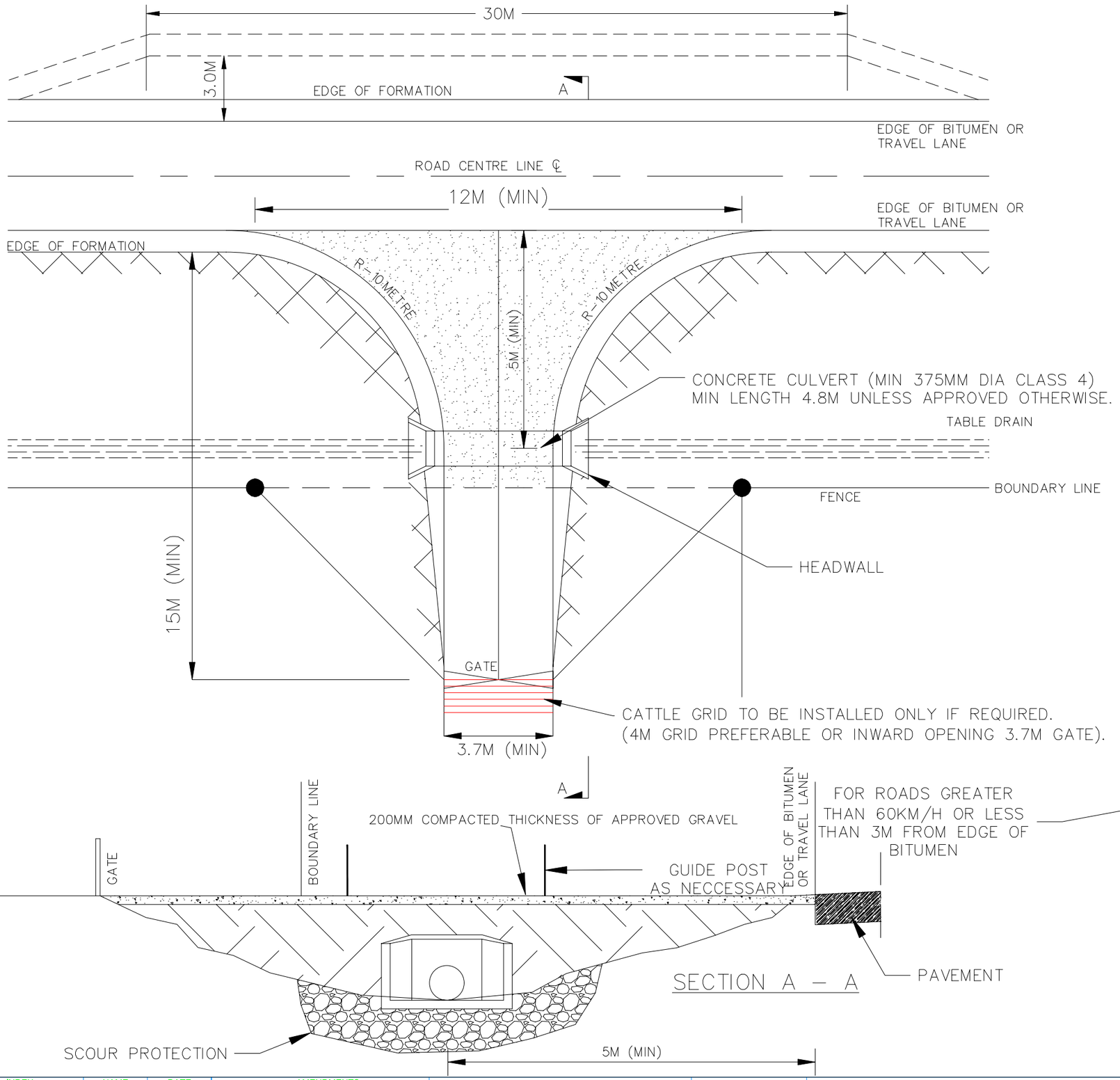
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Brayton Road															
1b	L3	All MCs	15	0.0	15	0.0	0.028	6.5	LOS A	0.1	0.7	0.05	0.39	0.05	54.1
1a	L1	All MCs	2	0.0	2	0.0	0.028	4.6	LOS A	0.1	0.7	0.05	0.39	0.05	54.3
2	T1	All MCs	17	11.8	17	11.8	0.028	0.0	LOS A	0.1	0.7	0.05	0.39	0.05	56.3
3	R2	All MCs	13	23.1	13	23.1	0.028	5.8	LOS A	0.1	0.7	0.05	0.39	0.05	52.9
Approach			47	10.6	47	10.6	0.028	3.9	NA	0.1	0.7	0.05	0.39	0.05	54.5
East: Canyonleigh Road															
4	L2	All MCs	13	23.1	13	23.1	0.015	5.8	LOS A	0.1	0.5	0.07	0.54	0.07	51.9
4a	L1	All MCs	4	0.0	4	0.0	0.015	4.6	LOS A	0.1	0.5	0.07	0.54	0.07	53.1
6a	R1	All MCs	1	0.0	1	0.0	0.015	4.7	LOS A	0.1	0.5	0.07	0.54	0.07	53.3
6	R2	All MCs	2	100.0	2	100.0	0.015	7.1	LOS A	0.1	0.5	0.07	0.54	0.07	48.6
Approach			20	25.0	20	25.0	0.015	5.7	LOS A	0.1	0.5	0.07	0.54	0.07	51.8
North: Brayton Road															
7	L2	All MCs	1	0.0	1	0.0	0.008	5.6	LOS A	0.0	0.1	0.03	0.14	0.03	55.8
8	T1	All MCs	10	40.0	10	40.0	0.008	0.0	LOS A	0.0	0.1	0.03	0.14	0.03	58.2
9a	R1	All MCs	1	0.0	1	0.0	0.008	4.5	LOS A	0.0	0.1	0.03	0.14	0.03	56.3
9b	R3	All MCs	1	0.0	1	0.0	0.008	6.2	LOS A	0.0	0.1	0.03	0.14	0.03	55.4
Approach			13	30.8	13	30.8	0.008	1.2	NA	0.0	0.1	0.03	0.14	0.03	57.6
NorthWest: Bulls Pit Road															
27b	L3	All MCs	1	0.0	1	0.0	0.010	6.5	LOS A	0.0	0.2	0.14	0.50	0.14	53.1
27a	L1	All MCs	1	0.0	1	0.0	0.010	4.8	LOS A	0.0	0.2	0.14	0.50	0.14	53.2
29a	R1	All MCs	8	0.0	8	0.0	0.010	4.8	LOS A	0.0	0.2	0.14	0.50	0.14	53.5
29	R2	All MCs	1	0.0	1	0.0	0.010	5.6	LOS A	0.0	0.2	0.14	0.50	0.14	52.9
Approach			11	0.0	11	0.0	0.010	5.0	LOS A	0.0	0.2	0.14	0.50	0.14	53.4
SouthWest: Carrick Road															
30	L2	All MCs	2	0.0	2	0.0	0.012	5.5	LOS A	0.0	0.3	0.06	0.52	0.06	53.1
30a	L1	All MCs	6	0.0	6	0.0	0.012	4.5	LOS A	0.0	0.3	0.06	0.52	0.06	53.4
32a	R1	All MCs	4	0.0	4	0.0	0.012	4.7	LOS A	0.0	0.3	0.06	0.52	0.06	53.3
32b	R3	All MCs	2	100.0	2	100.0	0.012	7.9	LOS A	0.0	0.3	0.06	0.52	0.06	48.5
Approach			14	14.3	14	14.3	0.012	5.2	LOS A	0.0	0.3	0.06	0.52	0.06	52.6
All Vehicles			105	15.2	105	15.2	0.028	4.2	NA	0.1	0.7	0.06	0.41	0.06	54.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.

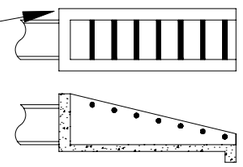
Appendix G – GMC Standard Drawing SD-R 08 A



NOTES:

1. CORNER POSTS TO BE 300MM ø TIMBER, CONCRETE OR GAL STEEL STRAINER POSTS OR 100MM ø GALVANISED STEEL
2. STAYS TO BE TIMBER, CONCRETE OR GAL STEEL POST.
3. FENCE TO BE CONSTRUCTED TO COUNCIL'S MINIMUM STANDARD.
   I.E. 2 BARBS, 3 PLAIN WIRES, 0.75M HIGH NETTING OR RINGLOC.
4. MINIMUM OF 15 METRE LENGTH REQUIRED FROM EDGE OF FORMATION TO THE GATE TO STORE A SINGLE TRUCK.
5. IF ANY VEHICLE OVER 15 METRE LONG ARE ANTICIPATED THEN 25 METRE INDENTATION IS REQUIRED.
6. ON SEALED ROAD, ACCESS TO BE SEALED FROM EDGE OF EXISTING BITUMEN TO GATE AS INDICATED. BITUMEN SEAL TO BE 14/7MM DOUBLE
7. CULVERT TO BE CONCRETE PIPE, SIZED FOR 20 YEARS ARI.
8. INSTALL DOUBLE GUIDE POST AT EACH END OF THE HEADWALL.
9. MINIMUM PIPE GRADE 1%.
10. GATE TO OPEN INWARDS
11. DRIVEWAY TO BE DESIGNED AND LOCATED IN ACCORDANCE WITH AS2890. ENSURING THAT PROPOSED LOCATION MEETS THE SIGHT DISTANCE REQUIREMENTS.
12. IT IS THE PROPERTY OWNER'S RESPONSIBILITY TO REPAIR AND MAINTAIN THE DRIVEWAY/VEHICLE CROSSING TO THEIR LAND. REFER TO SEC 218 OF NSW ROADS ACT, 1993.
13. SCOUR PROTECTION SHALL BE REQUIRED AT PIPE OUTLET FOR A DISTANCE OF 2M, WIDTH 1M USING 200MM DURABLE ROCK.
14. PIPES OR BOX CULVERT TO BE SIZED TO MATCH TABLE DRAIN CAPACITY AND TO ENSURE THE CAPACITY OF THE ROADWAY IS NOT COMPROMISED BY THE PIPE OR HEADWALL.

OPTIONAL HEADWALL



FOR MORE INFORMATION REFER TO FOLLOWING AS PER PIPE DIAMETER:

- ROCLA "DRIVEABLE HEADWALLS" 300MM – 600MM
- BCP PRECAST "RTA STANDARD HEADWALLS" 375MM & 450MM

ORIGINAL REFERENCE
R.T.A MD.R11.A26.A.1

ACCESS DRIVEWAY SIGHT DISTANCE (AS2890.1)

SPEED LIMIT KM/H	SIGHT DISTANCE (ROUND TO NEAREST 5M)
50	70
60	85
70	100
80	110
90	125
100	140
110	155

INDEX	NAME	DATE	AMENDMENTS
SURVEYED			NOTES & DETAILS CHANGED/ADDED (I.ALDRIDGE 2012)
DESIGNED & DRAFTED	GS.LOTAY	05/03/2012	DETAILS CHANGED - ADDITION OF GAL STEEL (D.ELLISON 2013)
DESIGN REVIEWED	GS.LOTAY	05/03/2012	NOTES & DETAILS CHANGED/ADDED (I.ALDRIDGE JANUARY 2018)
FINAL DESIGN CHECKED	I.ALDRIDGE	12/12/2012	NOTES & DETAILS CHANGED/ADDED (A.SINGH 2022)
ISSUED FOR CONSTRUCTION			
WORK AS EXECUTED			

GOULBURN MULWAREE COUNCIL
CIVIC CENTRE, 184-194 BOURKE STREET
GOULBURN, NSW-2580
LOCKED BAG 22, GOULBURN, NSW-2580
PHONE: (02) 4823 4444
FAX: (02) 4823 4456

AUSTRALIAN HEIGHT DATUM | AS-1100 STANDARDS

If the actual work done differs from the original drawing the person performing the work must amend this copy accordingly and return it to the Design Office.

APPROVED
DIRECTOR OF GOULBURN MULWAREE OPERATIONS
DATE: 28/02/2018

RURAL ACCESS
OFF A PUBLIC ROAD

SAFETY FIRST
PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN ON SITE
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DIAL 1100 BEFORE YOU DIG

A1 - SCALE	NUMBER OF SHEETS	SHEET NUMBER
AS SHOWN	35	9

FILE NAME: STANDARD DRAWINGS.DWG
REVISION GMC-VER-1
RD: -/-/----

DRAWING NUMBER SD-R 08 A

SD-R 08 A

A1

Appendix H – Project Traffic Calculations

ACCESS TRAFFIC CONSULTING

UMW0122-005 | Wattle Creek Energy Hub (BESS Project)

Site Vehicle Movement Summary

Assumed Work Days per Month: 24 days

PHASE A - SITE ESTABLISHMENT, CLEARING & FENCING

Task Transport Duration: 2 months

Activity Description	Project Volume	Vehicle	Project Vol Distrib	Origin	Route
Main Construction Compound - Base Construction Aggregate	412	Truck and Dog Trailer	100%	Brayton Road Quarries	Brayton Road - Canyonleigh Road - SA1
Main Construction Compound - Earthworks Equipment / Plant	3	Semi / Low Loader	100%	Goulburn	Hume Highway (Northbound) - Red Hills Road - Ambrose Road - Brayton Road - Canyonleigh Road - SA1
Construction Batch Plants - Base Imported Material	138	Truck and Dog Trailer	100%	Brayton Road Quarries	Brayton Road - Canyonleigh Road - SA1

Inbound Vehicle Movements

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Hume Highway (North of Red Hills Road)	0	0	0
Hume Highway (Red Hills Road to Brayton Road)	3	2	1
Hume Highway (Brayton Road to Marulan S Road)	3	2	1
Hume Highway (Marulan S Road to Goulburn)	3	2	1
Red Hills Road (Hume Highway to Ambrose Road)	3	2	1
Ambrose Road (Red Hills Road to Brayton Road)	3	2	1
Brayton Road (Marulan to Ambrose Road)	0	0	0
Brayton Road (Ambrose Road to Quarry Access)	3	2	1
Brayton Road (Quarry Access to Canyonleigh Road)	553	277	12
Canyonleigh Road (Brayton Road to Gravel Road)	553	277	12
Canyonleigh Road (Gravel Road to Site Access)	553	277	12

Outbound Vehicle Movements

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Hume Highway (North of Red Hills Road)	0	0	0
Hume Highway (Red Hills Road to Brayton Road)	0	0	0
Hume Highway (Brayton Road to Marulan S Road)	3	2	1
Hume Highway (Marulan S Road to Goulburn)	3	2	1
Red Hills Road (Hume Highway to Ambrose Road)	0	0	0
Ambrose Road (Red Hills Road to Brayton Road)	0	0	0
Brayton Road (Marulan to Ambrose Road)	3	2	1
Brayton Road (Ambrose Road to Quarry Access)	3	2	1
Brayton Road (Quarry Access to Canyonleigh Road)	553	277	12
Canyonleigh Road (Brayton Road to Gravel Road)	553	277	12
Canyonleigh Road (Gravel Road to Site Access)	553	277	12

PHASE B - CIVIL EARTHWORKS

Task Transport Duration: 4 months

Activity Description	Project Volume	Vehicle	Project Vol Distrib	Origin	Route
Access Track Civil Constructions - Imported Material (Fill)	371	Truck and Dog Trailer	100%	Brayton Road Quarries	Brayton Road - Canyonleigh Road - SA1
Access Track Civil Constructions - Imported Material (Capping)	42	Truck and Dog Trailer	100%	Brayton Road Quarries	Brayton Road - Canyonleigh Road - SA1
Access Track Civil Constructions - Water for Dust Suppression	348	Water Tanker	100%	Goulburn	Hume Highway (Northbound) - Red Hills Road - Ambrose Road - Brayton Road - Canyonleigh Road - SA1
BESS Civils - Imported Material (Fill)	1,650	Truck and Dog Trailer	100%	Brayton Road Quarries	Brayton Road - Canyonleigh Road - SA1
BESS Civils - Imported Material (Capping)	184	Truck and Dog Trailer	100%	Brayton Road Quarries	Brayton Road - Canyonleigh Road - SA1
Canyonleigh Road Upgrade Road Gravel Materials	782	Truck and Dog Trailer	100%	Brayton Road Quarries	Brayton Road - Canyonleigh Road - SA1

Inbound Vehicle Movements

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Hume Highway (North of Red Hills Road)	0	0	0
Hume Highway (Red Hills Road to Brayton Road)	348	87	4
Hume Highway (Brayton Road to Marulan S Road)	348	87	4
Hume Highway (Marulan S Road to Goulburn)	348	87	4
Red Hills Road (Hume Highway to Ambrose Road)	348	87	4
Ambrose Road (Red Hills Road to Brayton Road)	348	87	4
Brayton Road (Marulan to Ambrose Road)	0	0	0
Brayton Road (Ambrose Road to Quarry Access)	348	87	4
Brayton Road (Quarry Access to Canyonleigh Road)	3,377	845	36
Canyonleigh Road (Brayton Road to Gravel Road)	3,377	845	36
Canyonleigh Road (Gravel Road to Site Access)	3,377	845	36

Outbound Vehicle Movements

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Hume Highway (North of Red Hills Road)	0	0	0
Hume Highway (Red Hills Road to Brayton Road)	0	0	0
Hume Highway (Brayton Road to Marulan S Road)	348	87	4
Hume Highway (Marulan S Road to Goulburn)	348	87	4
Red Hills Road (Hume Highway to Ambrose Road)	0	0	0
Ambrose Road (Red Hills Road to Brayton Road)	0	0	0
Brayton Road (Marulan to Ambrose Road)	348	87	4
Brayton Road (Ambrose Road to Quarry Access)	348	87	4
Brayton Road (Quarry Access to Canyonleigh Road)	3,377	845	36
Canyonleigh Road (Brayton Road to Gravel Road)	3,377	845	36
Canyonleigh Road (Gravel Road to Site Access)	3,377	845	36

PHASE C - COMPONENT DELIVERY

Task Transport Duration 12 months

Activity Description	Project Volume	Vehicle	Project Vol Distrib	Origin	Route
Solar Components	940	Semi Trailer	100%	Port Kembla	Tom Thumb Road, Springhill Road, Masters Road, Princes Motorway, Mt Ousley Road, Picton-Wilton Road, Hume Highway, Red Hills Road, Ambrose Road, Brayton Road, Canyonleigh Road

Inbound Vehicle Movements

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Hume Highway (North of Red Hills Road)	940	79	4
Hume Highway (Red Hills Road to Brayton Road)	940	79	4
Hume Highway (Brayton Road to Marulan S Road)	940	79	4
Hume Highway (Marulan S Road to Goulburn)	0	0	0
Red Hills Road (Hume Highway to Ambrose Road)	940	79	4
Ambrose Road (Red Hills Road to Brayton Road)	940	79	4
Brayton Road (Marulan to Ambrose Road)	0	0	0
Brayton Road (Ambrose Road to Quarry Access)	940	79	4
Brayton Road (Quarry Access to Canyonleigh Road)	940	79	4
Canyonleigh Road (Brayton Road to Gravel Road)	940	79	4
Canyonleigh Road (Gravel Road to Site Access)	940	79	4

Outbound Vehicle Movements

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Hume Highway (North of Red Hills Road)	940	79	4
Hume Highway (Red Hills Road to Brayton Road)	940	79	4
Hume Highway (Brayton Road to Marulan S Road)	940	79	4
Hume Highway (Marulan S Road to Goulburn)	0	0	0
Red Hills Road (Hume Highway to Ambrose Road)	940	79	4
Ambrose Road (Red Hills Road to Brayton Road)	940	79	4
Brayton Road (Marulan to Ambrose Road)	0	0	0
Brayton Road (Ambrose Road to Quarry Access)	940	79	4
Brayton Road (Quarry Access to Canyonleigh Road)	940	79	4
Canyonleigh Road (Brayton Road to Gravel Road)	940	79	4
Canyonleigh Road (Gravel Road to Site Access)	940	79	4

PHASE D - BATTERY INSTALLATION

Task Transport Duration 14 months

Activity Description	Project Volume	Vehicle	Project Vol Distrib	Origin	Route
Electrical Cabling - HV Cable Delivery	3	Semi	100%	Port Kembla	Tom Thumb Road, Springhill Road, Masters Road, Princes Motorway, Mt Ousley Road, Picton-Wilton Road, Hume Highway, Brayton Road, Canyonleigh Road
Internal Overhead Cabling - Water (for concrete)	18	Water Tanker	100%	Goulburn	Hume Highway (Northbound) - Red Hills Road - Ambrose Road - Brayton Road - Canyonleigh Road - SA1
Internal Overhead Cabling - Steel Reinforcement	29	Truck and Dog Trailer	100%	Goulburn	Hume Highway (Northbound) - Red Hills Road - Ambrose Road - Brayton Road - Canyonleigh Road - SA1
Internal Overhead Cabling - Sand	38	Truck and Dog Trailer	100%	Brayton Road Quarries	Brayton Road - Canyonleigh Road - SA1
Internal Overhead Cabling - Aggregate	57	Truck and Dog Trailer	100%	Brayton Road Quarries	Brayton Road - Canyonleigh Road - SA1
Internal Overhead Cabling - Cement	18	Truck and Dog Trailer	100%	Goulburn	Hume Highway (Northbound) - Red Hills Road - Ambrose Road - Brayton Road - Canyonleigh Road - SA1

Inbound Vehicle Movements

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Hume Highway (North of Red Hills Road)	3	1	1
Hume Highway (Red Hills Road to Brayton Road)	3	1	1
Hume Highway (Brayton Road to Marulan S Road)	68	5	1
Hume Highway (Marulan S Road to Goulburn)	65	5	1
Red Hills Road (Hume Highway to Ambrose Road)	68	5	1
Ambrose Road (Red Hills Road to Brayton Road)	68	5	1
Brayton Road (Marulan to Ambrose Road)	0	0	0
Brayton Road (Ambrose Road to Quarry Access)	68	5	1
Brayton Road (Quarry Access to Canyonleigh Road)	163	12	1
Canyonleigh Road (Brayton Road to Gravel Road)	163	12	1
Canyonleigh Road (Gravel Road to Site Access)	163	12	1

Outbound Vehicle Movements

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Hume Highway (North of Red Hills Road)	3	1	1
Hume Highway (Red Hills Road to Brayton Road)	68	5	1
Hume Highway (Brayton Road to Marulan S Road)	68	5	1
Hume Highway (Marulan S Road to Goulburn)	65	5	1
Red Hills Road (Hume Highway to Ambrose Road)	3	1	1
Ambrose Road (Red Hills Road to Brayton Road)	3	1	1
Brayton Road (Marulan to Ambrose Road)	65	5	1
Brayton Road (Ambrose Road to Quarry Access)	68	5	1
Brayton Road (Quarry Access to Canyonleigh Road)	163	12	1
Canyonleigh Road (Brayton Road to Gravel Road)	163	12	1
Canyonleigh Road (Gravel Road to Site Access)	163	12	1

PHASE E - SUBSTATION CONSTRUCTION

Task Transport Duration 12 months

Activity Description	Project Volume	Vehicle	Project Vol Distrib	Origin	Route
Substation Civils - Imported Material (Fill)	746	Truck and Dog Trailer	100%	Brayton Road Quarries	Brayton Road - Canyonleigh Road - SA1
Substation Civils - Imported Material (Capping)	12	Truck and Dog Trailer	100%	Brayton Road Quarries	Brayton Road - Canyonleigh Road - SA1
Substation Electrical Components - Substation Equipment (Transformer)	1	OSOM Special	100%	Port Kembla	Tom Thumb Road, Springhill Road, Masters Road, Princes Motorway, Mt Ousley Road, Picton-Wilton Road, Hume Highway, Brayton Road, Canyonleigh Road
Substation Electrical Components - Substation Equipment (Switchgear)	1	OSOM Special	100%	Port Kembla	Tom Thumb Road, Springhill Road, Masters Road, Princes Motorway, Mt Ousley Road, Picton-Wilton Road, Hume Highway, Brayton Road, Canyonleigh Road
Substation Electrical Components - Substation Equipment (Cabling)	1	Semi	100%	Port Kembla	Tom Thumb Road, Springhill Road, Masters Road, Princes Motorway, Mt Ousley Road, Picton-Wilton Road, Hume Highway, Brayton Road, Canyonleigh Road
Substation Electrical Components - Substation Equipment (Miscellaneous Equipment)	1	Semi	100%	Port Kembla	Tom Thumb Road, Springhill Road, Masters Road, Princes Motorway, Mt Ousley Road, Picton-Wilton Road, Hume Highway, Brayton Road, Canyonleigh Road
Substation Electrical Components - Substation Equipment (Operation and Control Building)	1	OSOM Special	100%	Port Kembla	Tom Thumb Road, Springhill Road, Masters Road, Princes Motorway, Mt Ousley Road, Picton-Wilton Road, Hume Highway, Brayton Road, Canyonleigh Road

Inbound Vehicle Movements

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Hume Highway (North of Red Hills Road)	5	1	1
Hume Highway (Red Hills Road to Brayton Road)	5	1	1
Hume Highway (Brayton Road to Marulan S Road)	5	1	1
Hume Highway (Marulan S Road to Goulburn)	0	0	0
Red Hills Road (Hume Highway to Ambrose Road)	5	1	1
Ambrose Road (Red Hills Road to Brayton Road)	5	1	1
Brayton Road (Marulan to Ambrose Road)	0	0	0
Brayton Road (Ambrose Road to Quarry Access)	5	1	1
Brayton Road (Quarry Access to Canyonleigh Road)	763	64	3
Canyonleigh Road (Brayton Road to Gravel Road)	763	64	3
Canyonleigh Road (Gravel Road to Site Access)	763	64	3

Outbound Vehicle Movements

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Hume Highway (North of Red Hills Road)	5	1	1
Hume Highway (Red Hills Road to Brayton Road)	5	1	1
Hume Highway (Brayton Road to Marulan S Road)	5	1	1
Hume Highway (Marulan S Road to Goulburn)	0	0	0
Red Hills Road (Hume Highway to Ambrose Road)	5	1	1
Ambrose Road (Red Hills Road to Brayton Road)	5	1	1
Brayton Road (Marulan to Ambrose Road)	0	0	0
Brayton Road (Ambrose Road to Quarry Access)	5	1	1
Brayton Road (Quarry Access to Canyonleigh Road)	763	64	3
Canyonleigh Road (Brayton Road to Gravel Road)	763	64	3
Canyonleigh Road (Gravel Road to Site Access)	763	64	3

PHASE G - O&M BUILDING CONSTRUCTION

Task Transport Duration: 2 months

Activity Description	Project Volume	Vehicle	Project Vol Distrib	Origin	Route
O&M Facility - Water (for concrete)	2	Water Tanker	100%	Goulburn	Hume Highway (Northbound) - Red Hills Road - Ambrose Road - Brayton Road - Canyonleigh Road - SA1
O&M Facility - Steel Reinforcement	3	Truck and Dog Trailer	100%	Goulburn	Hume Highway (Northbound) - Red Hills Road - Ambrose Road - Brayton Road - Canyonleigh Road - SA1
O&M Facility - Sand	4	Truck and Dog Trailer	100%	Brayton Road Quarries	Brayton Road - Canyonleigh Road - SA1
O&M Facility - Aggregate	5	Truck and Dog Trailer	100%	Brayton Road Quarries	Brayton Road - Canyonleigh Road - SA1
O&M Facility - Cement	2	Truck and Dog Trailer	100%	Goulburn	Hume Highway (Northbound) - Red Hills Road - Ambrose Road - Brayton Road - Canyonleigh Road - SA1
O&M Facility - Imported Material	99	Truck and Dog Trailer	100%	Brayton Road Quarries	Brayton Road - Canyonleigh Road - SA1
Test Bed Facility - Water (for concrete)	2	Water Tanker	100%	Goulburn	Hume Highway (Northbound) - Red Hills Road - Ambrose Road - Brayton Road - Canyonleigh Road - SA1
Test Bed Facility - Steel Reinforcement	3	Truck and Dog Trailer	100%	Goulburn	Hume Highway (Northbound) - Red Hills Road - Ambrose Road - Brayton Road - Canyonleigh Road - SA1
Test Bed Facility - Sand	4	Truck and Dog Trailer	100%	Brayton Road Quarries	Brayton Road - Canyonleigh Road - SA1
Test Bed Facility - Aggregate	5	Truck and Dog Trailer	100%	Brayton Road Quarries	Brayton Road - Canyonleigh Road - SA1
Test Bed Facility - Cement	2	Truck and Dog Trailer	100%	Goulburn	Hume Highway (Northbound) - Red Hills Road - Ambrose Road - Brayton Road - Canyonleigh Road - SA1
Test Bed Facility - Imported Material	100	Truck and Dog Trailer	100%	Brayton Road Quarries	Brayton Road - Canyonleigh Road - SA1

Inbound Vehicle Movements

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Hume Highway (North of Red Hills Road)	0	0	0
Hume Highway (Red Hills Road to Brayton Road)	14	7	1
Hume Highway (Brayton Road to Marulan S Road)	14	7	1
Hume Highway (Marulan S Road to Goulburn)	14	7	1
Red Hills Road (Hume Highway to Ambrose Road)	14	7	1
Ambrose Road (Red Hills Road to Brayton Road)	14	7	1
Brayton Road (Marulan to Ambrose Road)	0	0	0
Brayton Road (Ambrose Road to Quarry Access)	14	7	1
Brayton Road (Quarry Access to Canyonleigh Road)	231	116	5
Canyonleigh Road (Brayton Road to Gravel Road)	231	116	5
Canyonleigh Road (Gravel Road to Site Access)	231	116	5

Outbound Vehicle Movements

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Hume Highway (North of Red Hills Road)	0	0	0
Hume Highway (Red Hills Road to Brayton Road)	0	0	0
Hume Highway (Brayton Road to Marulan S Road)	14	7	1
Hume Highway (Marulan S Road to Goulburn)	14	7	1
Red Hills Road (Hume Highway to Ambrose Road)	0	0	0
Ambrose Road (Red Hills Road to Brayton Road)	0	0	0
Brayton Road (Marulan to Ambrose Road)	14	7	1
Brayton Road (Ambrose Road to Quarry Access)	14	7	1
Brayton Road (Quarry Access to Canyonleigh Road)	231	116	5
Canyonleigh Road (Brayton Road to Gravel Road)	231	116	5
Canyonleigh Road (Gravel Road to Site Access)	231	116	5

PHASE H - DEMOBILISATION

Task Transport Duration 1 months

Activity Description	Project Volume	Vehicle	Project Vol Distrib	Origin	Route
Main Construction Compound Demobilisation	0	Semi Trailer	100%	Goulburn	Hume Highway (Northbound) - Red Hills Road - Ambrose Road - Brayton Road - Canyonleigh Road - SA1
Minor Construction Compound Demobilisation	0	Semi Trailer	100%	Goulburn	Hume Highway (Northbound) - Red Hills Road - Ambrose Road - Brayton Road - Canyonleigh Road - SA1
Batch Plant Demobilisation	0	Semi Trailer	100%	Goulburn	Hume Highway (Northbound) - Red Hills Road - Ambrose Road - Brayton Road - Canyonleigh Road - SA1

Inbound Vehicle Movements

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Hume Highway (North of Red Hills Road)	0	0	0
Hume Highway (Red Hills Road to Brayton Road)	0	0	0
Hume Highway (Brayton Road to Marulan S Road)	0	0	0
Hume Highway (Marulan S Road to Goulburn)	0	0	0
Red Hills Road (Hume Highway to Ambrose Road)	0	0	0
Ambrose Road (Red Hills Road to Brayton Road)	0	0	0
Brayton Road (Marulan to Ambrose Road)	0	0	0
Brayton Road (Ambrose Road to Quarry Access)	0	0	0
Brayton Road (Quarry Access to Canyonleigh Road)	0	0	0
Canyonleigh Road (Brayton Road to Gravel Road)	0	0	0
Canyonleigh Road (Gravel Road to Site Access)	0	0	0

Outbound Vehicle Movements

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Hume Highway (North of Red Hills Road)	0	0	0
Hume Highway (Red Hills Road to Brayton Road)	0	0	0
Hume Highway (Brayton Road to Marulan S Road)	0	0	0
Hume Highway (Marulan S Road to Goulburn)	0	0	0
Red Hills Road (Hume Highway to Ambrose Road)	0	0	0
Ambrose Road (Red Hills Road to Brayton Road)	0	0	0
Brayton Road (Marulan to Ambrose Road)	0	0	0
Brayton Road (Ambrose Road to Quarry Access)	0	0	0
Brayton Road (Quarry Access to Canyonleigh Road)	0	0	0
Canyonleigh Road (Brayton Road to Gravel Road)	0	0	0
Canyonleigh Road (Gravel Road to Site Access)	0	0	0

GENERAL OPERATIONS - SITE WATER

Task Transport Duration 18 months

Activity Description	Project Volume	Vehicle	Project Vol Distrib	Origin	Route
Site Water Deliveries	625	Water Tanker	100%	Goulburn	Hume Highway (Northbound) - Red Hills Road - Ambrose Road - Brayton Road - Canyonleigh Road - SA1

Inbound Vehicle Movements

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Hume Highway (North of Red Hills Road)	0	0	0
Hume Highway (Red Hills Road to Brayton Road)	625	35	2
Hume Highway (Brayton Road to Marulan S Road)	625	35	2
Hume Highway (Marulan S Road to Goulburn)	625	35	2
Red Hills Road (Hume Highway to Ambrose Road)	625	35	2
Ambrose Road (Red Hills Road to Brayton Road)	625	35	2
Brayton Road (Marulan to Ambrose Road)	0	0	0
Brayton Road (Ambrose Road to Quarry Access)	625	35	2
Brayton Road (Quarry Access to Canyonleigh Road)	625	35	2
Canyonleigh Road (Brayton Road to Gravel Road)	625	35	2
Canyonleigh Road (Gravel Road to Site Access)	625	35	2

Outbound Vehicle Movements

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Hume Highway (North of Red Hills Road)	0	0	0
Hume Highway (Red Hills Road to Brayton Road)	0	0	0
Hume Highway (Brayton Road to Marulan S Road)	625	35	2
Hume Highway (Marulan S Road to Goulburn)	625	35	2
Red Hills Road (Hume Highway to Ambrose Road)	0	0	0
Ambrose Road (Red Hills Road to Brayton Road)	0	0	0
Brayton Road (Marulan to Ambrose Road)	625	35	2
Brayton Road (Ambrose Road to Quarry Access)	625	35	2
Brayton Road (Quarry Access to Canyonleigh Road)	625	35	2
Canyonleigh Road (Brayton Road to Gravel Road)	625	35	2
Canyonleigh Road (Gravel Road to Site Access)	625	35	2

GENERAL OPERATIONS - SITE FUEL

Task Transport Duration 18 months

Activity Description	Project Volume	Vehicle	Project Vol Distrib	Origin	Route
Site Fuel Deliveries	625	Fuel Tanker	100%	Goulburn	Hume Highway (Northbound) - Red Hills Road - Ambrose Road - Brayton Road - Canyonleigh Road - SA1

Inbound Vehicle Movements

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Hume Highway (North of Red Hills Road)	0	0	0
Hume Highway (Red Hills Road to Brayton Road)	625	35	2
Hume Highway (Brayton Road to Marulan S Road)	625	35	2
Hume Highway (Marulan S Road to Goulburn)	625	35	2
Red Hills Road (Hume Highway to Ambrose Road)	625	35	2
Ambrose Road (Red Hills Road to Brayton Road)	625	35	2
Brayton Road (Marulan to Ambrose Road)	0	0	0
Brayton Road (Ambrose Road to Quarry Access)	625	35	2
Brayton Road (Quarry Access to Canyonleigh Road)	625	35	2
Canyonleigh Road (Brayton Road to Gravel Road)	625	35	2
Canyonleigh Road (Gravel Road to Site Access)	625	35	2

Outbound Vehicle Movements

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Hume Highway (North of Red Hills Road)	0	0	0
Hume Highway (Red Hills Road to Brayton Road)	0	0	0
Hume Highway (Brayton Road to Marulan S Road)	625	35	2
Hume Highway (Marulan S Road to Goulburn)	625	35	2
Red Hills Road (Hume Highway to Ambrose Road)	0	0	0
Ambrose Road (Red Hills Road to Brayton Road)	0	0	0
Brayton Road (Marulan to Ambrose Road)	625	35	2
Brayton Road (Ambrose Road to Quarry Access)	625	35	2
Brayton Road (Quarry Access to Canyonleigh Road)	625	35	2
Canyonleigh Road (Brayton Road to Gravel Road)	625	35	2
Canyonleigh Road (Gravel Road to Site Access)	625	35	2

GENERAL OPERATIONS - WASTE

Task Transport Duration 18 months

Activity Description	Project Volume	Vehicle	Project Vol Distrib	Origin	Route
Site Waste Collection	72	Semi	100%	Goulburn	Hume Highway (Northbound) - Red Hills Road - Ambrose Road - Brayton Road - Canyonleigh Road - SA1

Inbound Vehicle Movements

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Hume Highway (North of Red Hills Road)	0	0	0
Hume Highway (Red Hills Road to Brayton Road)	72	4	1
Hume Highway (Brayton Road to Marulan S Road)	72	4	1
Hume Highway (Marulan S Road to Goulburn)	72	4	1
Red Hills Road (Hume Highway to Ambrose Road)	72	4	1
Ambrose Road (Red Hills Road to Brayton Road)	72	4	1
Brayton Road (Marulan to Ambrose Road)	0	0	0
Brayton Road (Ambrose Road to Quarry Access)	72	4	1
Brayton Road (Quarry Access to Canyonleigh Road)	72	4	1
Canyonleigh Road (Brayton Road to Gravel Road)	72	4	1
Canyonleigh Road (Gravel Road to Site Access)	72	4	1

Outbound Vehicle Movements

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Hume Highway (North of Red Hills Road)	0	0	0
Hume Highway (Red Hills Road to Brayton Road)	0	0	0
Hume Highway (Brayton Road to Marulan S Road)	72	4	1
Hume Highway (Marulan S Road to Goulburn)	72	4	1
Red Hills Road (Hume Highway to Ambrose Road)	0	0	0
Ambrose Road (Red Hills Road to Brayton Road)	0	0	0
Brayton Road (Marulan to Ambrose Road)	72	4	1
Brayton Road (Ambrose Road to Quarry Access)	72	4	1
Brayton Road (Quarry Access to Canyonleigh Road)	72	4	1
Canyonleigh Road (Brayton Road to Gravel Road)	72	4	1
Canyonleigh Road (Gravel Road to Site Access)	72	4	1

UMW0122-005 | Wattle Creek Energy Hub (BESS Project)

Project Staff Movements

Project Timeframe

Element	Qty	Unit
Hours per day	11	hrs
Working days per month	24	days
Expected project length	18	months

Construction Workforce

Element	Qty	Unit
Peak Workforce	102	staff
DIDO Workforce	100%	%
	102	staff

Construction Workforce Distribution

Location	Distribution	Unit	Qty	Vehicle Type	% Vehicle	Staff No. per Vehicle Type	Average Vehicle Capacity	Movements Round Trip (per day)
DIDO Workforce								
Marulan	10%	%	11	LV	100%	11	1	11
Goulburn	50%	%	51	LV	100%	51	1	51
Moss Vale / Bowral / Braemar	40%	%	41	LV	100%	41	1	41
							Total	**103**

Operations

Element	Qty	Unit
Hours per day	11	hrs
Working days per week	5	days
Peak Workforce	15	each

Location	Distribution	Unit	Qty	Vehicle Type	Vehicle Capacity	Movements 2-way (per day)
Marulan	10%	%	2	LV	1	2
Goulburn	50%	%	8	LV	1	8
Moss Vale / Bowral / Braemar	40%	%	6	LV	1	6
					Total	**16**

UMW0122-005 | Wattle Creek Energy Hub (BESS Project)

Background Traffic Volume Forecast Calculations

Road ID	Road Description	AADT Segment	Base Data Year	Base Year AADT			Base Year HV%		Base Year HV		10 Yr GR%	2026 AADT			2026 HV		2037 AADT			2037 HV		2057 AADT			2057 HV	
				Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Gaz	A-Gaz		Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz
M31	Hume Highway (North of Red Hills Road)	T0247	2024	11,016	10,377	21,393	*12.38%*	*11.27%*	1,364	1,170	2.0%	11,461	10,796	22,257	1,419	1,217	14,250	13,424	27,674	1,764	1,514	21,175	19,947	41,122	2,622	2,249
M31	Hume Highway (Red Hills Road to Brayton Road)	T0247	2024	11,016	10,377	21,393	*12.38%*	*11.27%*	1,364	1,170	2.0%	11,461	10,796	22,257	1,419	1,217	14,250	13,424	27,674	1,764	1,514	21,175	19,947	41,122	2,622	2,249
M31	Hume Highway (Brayton Road to Marulan S Road)	T0247	2024	11,016	10,377	21,393	*12.38%*	*11.27%*	1,364	1,170	2.0%	11,461	10,796	22,257	1,419	1,217	14,250	13,424	27,674	1,764	1,514	21,175	19,947	41,122	2,622	2,249
M31	Hume Highway (Marulan S Road to Goulburn)	T0247	2024	11,016	10,377	21,393	*12.38%*	*11.27%*	1,364	1,170	2.0%	11,461	10,796	22,257	1,419	1,217	14,250	13,424	27,674	1,764	1,514	21,175	19,947	41,122	2,622	2,249
GMC	Red Hills Road (Hume Highway to Ambrose Road)	-	2024	204	212	416	*76.47%*	*68.87%*	156	146	2.0%	212	221	433	162	152	264	274	538	202	189	392	408	800	300	281
GMC	Ambrose Road (Red Hills Road to Brayton Road)	-	2024	204	212	416	*76.47%*	*68.87%*	156	146	2.0%	212	221	433	162	152	264	274	538	202	189	392	408	800	300	281
GMC	Brayton Road (Marulan to Ambrose Road)	-	2024	252	282	534	*13.49%*	*16.31%*	34	46	2.0%	262	293	556	35	48	326	365	691	44	60	484	542	1,026	65	88
GMC	Brayton Road (Ambrose Road to Quarry Access)	-	2024	387	423	810	*44.70%*	*41.13%*	173	174	2.0%	403	440	843	180	181	501	547	1,048	224	225	744	813	1,557	333	334
GMC	Brayton Road (Quarry Access to Canyonleigh Road)	-	2024	187	181	368	*7.49%*	*7.18%*	14	13	2.0%	195	188	383	15	14	242	234	476	18	17	359	348	707	27	25
GMC	Canyonleigh Road (Brayton Road to Gravel Road)	-	2024	62	53	115	*4.84%*	*5.66%*	3	3	2.0%	65	55	120	3	3	80	69	149	4	4	119	102	221	6	6
GMC	Canyonleigh Road (Gravel Road to Site Access)	-	2024	62	53	115	*4.84%*	*5.66%*	3	3	2.0%	65	55	120	3	3	80	69	149	4	4	119	102	221	6	6

Project Traffic Impact % Calculations

Road ID	Road Description	AADT Segment	WCBESS Construction			WCBESS Operations			WCBESS Decommissioing		
			Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir
M31	Hume Highway (North of Red Hills Road)	T0247	47	47	**94**	6	6	**12**	33	33	**66**
M31	Hume Highway (Red Hills Road to Brayton Road)	T0247	47	62	**109**	6	0	**6**	33	43	**76**
M31	Hume Highway (Brayton Road to Marulan S Road)	T0247	62	62	**124**	9	9	**18**	43	43	**87**
M31	Hume Highway (Marulan S Road to Goulburn)	T0247	57	57	**114**	9	9	**18**	40	40	**80**
GMC	Red Hills Road (Hume Highway to Ambrose Road)	-	62	47	**109**	0	6	**6**	43	33	**76**
GMC	Ambrose Road (Red Hills Road to Brayton Road)	-	62	47	**109**	0	6	**6**	43	33	**76**
GMC	Brayton Road (Marulan to Ambrose Road)	-	52	68	**120**	11	11	**22**	36	48	**84**
GMC	Brayton Road (Ambrose Road to Quarry Access)	-	114	114	**228**	17	17	**34**	80	80	**160**
GMC	Brayton Road (Quarry Access to Canyonleigh Road)	-	116	116	**232**	17	17	**34**	81	81	**162**
GMC	Canyonleigh Road (Brayton Road to Gravel Road)	-	116	116	**232**	17	17	**34**	81	81	**162**
GMC	Canyonleigh Road (Gravel Road to Site Access)	-	116	116	**232**	17	17	**34**	81	81	**162**

WCBESS % Increase			WCBESS In Construction			WCBESS Ops % Increase			WCBESS In Operations			WCBESS Decomm. %			WCBESS Decommissioing		
Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir
0.4%	0.4%	0.4%	11,508	10,843	22,351	0.0%	0.0%	0.0%	14,256	13,430	27,686	0.2%	0.2%	0.2%	21,208	19,980	41,188
0.4%	0.6%	0.5%	11,508	10,858	22,366	0.0%	0.0%	0.0%	14,256	13,424	27,680	0.2%	0.2%	0.2%	21,208	19,990	41,199
0.5%	0.6%	0.6%	11,523	10,858	22,381	0.1%	0.1%	0.1%	14,259	13,433	27,692	0.2%	0.2%	0.2%	21,219	19,990	41,209
0.5%	0.5%	0.5%	11,518	10,853	22,371	0.1%	0.1%	0.1%	14,259	13,433	27,692	0.2%	0.2%	0.2%	21,215	19,987	41,202
29.2%	**21.3%**	**25.2%**	274	268	542	0.0%	2.2%	1.1%	264	280	544	**11.1%**	**8.1%**	**9.5%**	436	440	876
29.2%	**21.3%**	**25.2%**	274	268	542	0.0%	2.2%	1.1%	264	280	544	**11.1%**	**8.1%**	**9.5%**	436	440	876
19.8%	**23.2%**	**21.6%**	314	361	676	3.4%	3.0%	3.2%	337	376	713	**7.5%**	**8.8%**	**8.2%**	521	590	1,110
28.3%	**25.9%**	**27.1%**	517	554	1,071	3.4%	3.1%	3.2%	518	564	1,082	**10.7%**	**9.8%**	**10.3%**	824	893	1,717
59.6%	**61.6%**	**60.6%**	311	304	615	**7.0%**	**7.3%**	**7.1%**	259	251	510	**22.6%**	**23.3%**	**23.0%**	441	429	870
179.8%	**210.4%**	**193.9%**	181	171	352	**21.2%**	**24.8%**	**22.9%**	97	86	183	**68.1%**	**79.7%**	**73.5%**	200	183	383
179.8%	**210.4%**	**193.9%**	181	171	352	**21.2%**	**24.8%**	**22.9%**	97	86	183	**68.1%**	**79.7%**	**73.5%**	200	183	383

UMW0122-005 | Wattle Creek Energy Hub (BESS Project)

External Project Traffic Volume Calculations

Road ID	Road Description	AADT Segment	Wattle Creek Solar Farm			Marulan Gas Fired PS		
			Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir
M31	Hume Highway (North of Red Hills Road)	T0247	50	50	**100**	120	120	**240**
M31	Hume Highway (Red Hills Road to Brayton Road)	T0247	50	66	**116**	120	144	**264**
M31	Hume Highway (Brayton Road to Marulan S Road)	T0247	66	66	**132**	144	144	**288**
M31	Hume Highway (Marulan S Road to Goulburn)	T0247	62	62	**124**	120	120	**240**
GMC	Red Hills Road (Hume Highway to Ambrose Road)	-	66	50	**116**	144	144	**288**
GMC	Ambrose Road (Red Hills Road to Brayton Road)	-	66	50	**116**	144	144	**288**
GMC	Brayton Road (Marulan to Ambrose Road)	-	57	74	**131**	96	96	**192**
GMC	Brayton Road (Ambrose Road to Quarry Access)	-	123	123	**246**	240	240	**480**
GMC	Brayton Road (Quarry Access to Canyonleigh Road)	-	150	150	**300**	240	240	**480**
GMC	Canyonleigh Road (Brayton Road to Gravel Road)	-	150	150	**300**	240	240	**480**
GMC	Canyonleigh Road (Gravel Road to Site Access)	-	150	150	**300**	240	240	**480**

Overall External Project		
Gaz	A-Gaz	Bi-Dir
170	170	**340**
170	210	**380**
210	210	**420**
182	182	**364**
210	194	**404**
210	194	**404**
153	170	**323**
363	363	**726**
390	390	**780**
390	390	**780**
390	390	**780**

WCBESS + External			WCBESS+ Ext % Increase		
Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir
11,678	11,013	22,691	1.9%	2.0%	1.9%
11,678	11,068	22,746	1.9%	2.5%	2.2%
11,733	11,068	22,801	2.4%	2.5%	2.4%
11,700	11,035	22,735	2.1%	2.2%	2.1%
484	462	946	**128.2%**	**109.3%**	**118.5%**
484	462	946	**128.2%**	**109.3%**	**118.5%**
467	531	999	**78.2%**	**81.1%**	**79.7%**
880	917	1,797	**118.5%**	**108.4%**	**113.2%**
701	694	1,395	**260.1%**	**268.7%**	**264.3%**
571	561	1,132	**784.4%**	**917.6%**	**845.8%**
571	561	1,132	**784.4%**	**917.6%**	**845.8%**

Cumulative Construction		
Gaz	A-Gaz	Bi-Dir
217	217	**434**
217	272	**489**
272	272	**544**
239	239	**478**
272	241	**513**
272	241	**513**
205	238	**443**
477	477	**954**
506	506	**1,012**
506	506	**1,012**
506	506	**1,012**

Appendix I – Intersection Volume Forecast Calculations

UMW0122-005 | Wattle Creek Energy Hub (BESS Project)

Brayton Road / Ambrose Road Intersection

Project Peak Hour Intersection Volume Forecasts

AM PEAK (6:30-7:30am)

GR %	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
YEAR	Brayton Road (S)				Ambrose Road (E)				Brayton Road (N)			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
2024	8	3	1	1	0	0	1	13	9	15	11	0
2025	8	3	1	1	0	0	1	13	9	15	11	0
2026	8	3	1	1	0	0	1	14	9	16	11	0
2027	8	3	1	1	0	0	1	14	10	16	12	0
2028	9	3	1	1	0	0	1	14	10	16	12	0
2029	9	3	1	1	0	0	1	14	10	17	12	0
2030	9	3	1	1	0	0	1	15	10	17	12	0
2031	9	3	1	1	0	0	1	15	10	17	13	0
2032	9	4	1	1	0	0	1	15	11	18	13	0
2033	10	4	1	1	0	0	1	16	11	18	13	0
2034	10	4	1	1	0	0	1	16	11	18	13	0
2035	10	4	1	1	0	0	1	16	11	19	14	0
2036	10	4	1	1	0	0	1	16	11	19	14	0
2037	10	4	1	1	0	0	1	17	12	19	14	0
2038	11	4	1	1	0	0	1	17	12	20	15	0
2039	11	4	1	1	0	0	1	17	12	20	15	0
2040	11	4	1	1	0	0	1	18	12	21	15	0
2041	11	4	1	1	0	0	1	18	13	21	15	0
2042	11	4	1	1	0	0	1	19	13	21	16	0
2043	12	4	1	1	0	0	1	19	13	22	16	0
2044	12	4	1	1	0	0	1	19	13	22	16	0
2045	12	5	2	2	0	0	2	20	14	23	17	0
2046	12	5	2	2	0	0	2	20	14	23	17	0
2047	13	5	2	2	0	0	2	20	14	24	17	0
2048	13	5	2	2	0	0	2	21	14	24	18	0
2049	13	5	2	2	0	0	2	21	15	25	18	0
2050	13	5	2	2	0	0	2	22	15	25	18	0
2051	14	5	2	2	0	0	2	22	15	26	19	0
2052	14	5	2	2	0	0	2	23	16	26	19	0
2053	14	5	2	2	0	0	2	23	16	27	20	0
2054	14	5	2	2	0	0	2	24	16	27	20	0
2055	15	6	2	2	0	0	2	24	17	28	20	0
2056	15	6	2	2	0	0	2	24	17	28	21	0
2057	15	6	2	2	0	0	2	25	17	29	21	0
PROJECT TRAFFIC	52	0	0	0	0	0	51	1	0	1	0	1
2026 PROJECT CONSTRUCTION	60	3	1	1	0	0	52	15	9	17	11	1
PEAK OPERATIONS TRAFFIC	8	0	0	0	0	0	8	1	0	0	0	1
2037 PROJECT OPERATIONS	18	4	1	1	0	0	9	18	12	19	14	1
DECOMMISSIONING TRAFFIC	37	0	0	0	0	0	36	1	0	1	0	1
2057 PROJECT DECOMMISIONING	52	6	2	2	0	0	38	26	17	30	21	1
EXT PROJECTS CONST	153	0	0	0	0	0	152	6	0	6	0	1
2026 CONST CUMULATIVE	213	3	1	1	0	0	204	21	9	23	11	2
EXT PROJECTS OPS	20	0	0	0	0	0	16	2	0	0	0	2
2027 OPS CUMULATIVE	36	3	1	1	0	0	25	17	10	16	12	3
2037 OPS CUMULATIVE	38	4	1	1	0	0	25	20	12	19	14	3

UMW0122-005 | Wattle Creek Energy Hub (BESS Project)

Brayton Road / Ambrose Road Intersection
Project Peak Hour Intersection Volume Forecasts

PM PEAK (5:30-6:30pm)

GR %	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
YEAR	Brayton Road (S)				Ambrose Road (E)				Brayton Road (N)			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
2024	18	1	3	0	2	1	1	2	2	1	8	0
2025	18	1	3	0	2	1	1	2	2	1	8	0
2026	19	1	3	0	2	1	1	2	2	1	8	0
2027	19	1	3	0	2	1	1	2	2	1	8	0
2028	19	1	3	0	2	1	1	2	2	1	9	0
2029	20	1	3	0	2	1	1	2	2	1	9	0
2030	20	1	3	0	2	1	1	2	2	1	9	0
2031	21	1	3	0	2	1	1	2	2	1	9	0
2032	21	1	4	0	2	1	1	2	2	1	9	0
2033	22	1	4	0	2	1	1	2	2	1	10	0
2034	22	1	4	0	2	1	1	2	2	1	10	0
2035	22	1	4	0	2	1	1	2	2	1	10	0
2036	23	1	4	0	3	1	1	3	3	1	10	0
2037	23	1	4	0	3	1	1	3	3	1	10	0
2038	24	1	4	0	3	1	1	3	3	1	11	0
2039	24	1	4	0	3	1	1	3	3	1	11	0
2040	25	1	4	0	3	1	1	3	3	1	11	0
2041	25	1	4	0	3	1	1	3	3	1	11	0
2042	26	1	4	0	3	1	1	3	3	1	11	0
2043	26	1	4	0	3	1	1	3	3	1	12	0
2044	27	1	4	0	3	1	1	3	3	1	12	0
2045	27	2	5	0	3	2	2	3	3	2	12	0
2046	28	2	5	0	3	2	2	3	3	2	12	0
2047	28	2	5	0	3	2	2	3	3	2	13	0
2048	29	2	5	0	3	2	2	3	3	2	13	0
2049	30	2	5	0	3	2	2	3	3	2	13	0
2050	30	2	5	0	3	2	2	3	3	2	13	0
2051	31	2	5	0	3	2	2	3	3	2	14	0
2052	31	2	5	0	3	2	2	3	3	2	14	0
2053	32	2	5	0	4	2	2	4	4	2	14	0
2054	33	2	5	0	4	2	2	4	4	2	14	0
2055	33	2	6	0	4	2	2	4	4	2	15	0
2056	34	2	6	0	4	2	2	4	4	2	15	0
2057	35	2	6	0	4	2	2	4	4	2	15	0
PROJECT TRAFFIC	0	0	0	0	0	0	0	1	41	1	62	1
PROJECT CONSTRUCTION	19	1	3	0	2	1	1	3	43	2	70	1
PEAK OPERATIONS TRAFFIC	0	0	0	0	0	0	0	1	6	0	10	1
PROJECT OPERATIONS	23	1	4	0	3	1	1	4	9	1	20	1
DECOMMISSIONING TRAFFIC	0	0	0	0	0	0	0	1	29	1	44	1
PROJECT DECOMMISIONING	35	2	6	0	4	2	2	5	33	3	59	1
EXTERNAL PROJECTS	0	0	0	0	0	0	0	6	141	6	164	1
CONST CUMULATIVE	19	1	3	0	2	1	1	9	184	8	234	2
EXT PROJECTS OPS	0	0	0	0	0	0	0	2	14	0	22	2
2027 OPS CUMULATIVE	19	1	3	0	2	1	1	5	22	1	40	3
2037 OPS CUMULATIVE	23	1	4	0	3	1	1	6	23	1	42	3

UMW0122-005 | Wattle Creek Energy Hub (BESS Project)
Brayton Road / Ambrose Road Intersection
Peak Hour Intersection Volume Forecasts

Development Scenario - Schedule Tasks C + D + E + F + Site Water + Site Fuel + Project Staff

Staff Movements - Peak Construction

Task	Brayton Road (S)				Ambrose Road (E)				Brayton Road (N)			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
AM Peak Staff	52	0	0	0	0	0	51	0	0	0	0	0
PM Peak Staff	0	0	0	0	0	0	0	0	41	0	62	0

Staff Movements - Operations

Task	Brayton Road (S)				Ambrose Road (E)				Brayton Road (N)			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
AM Peak Staff	8	0	0	0	0	0	8	0	0	0	0	0
AM HV	0	0	0	0	0	0	0	1	0	0	0	1
PM Peak Staff	0	0	0	0	0	0	0	0	6	0	10	0
PM HV	0	0	0	0	0	0	0	1	0	0	0	1

Staff Movements - Decommissioning

Task	Brayton Road (S)				Ambrose Road (E)				Brayton Road (N)			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
AM Peak Staff	37	0	0	0	0	0	36	0	0	0	0	0
PM Peak Staff	0	0	0	0	0	0	0	0	29	0	44	0

Heavy Vehicle Movements - Peak Construction

Task	Brayton Road (S)				Ambrose Road (E)				Brayton Road (N)			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
C	0	0	0	0	0	0	0	4	0	4	0	0
D	0	0	0	0	0	0	0	1	0	1	0	1
E	0	0	0	0	0	0	0	1	0	1	0	0
F	0	0	0	0	0	0	0	0	0	0	0	0
Water	0	0	0	0	0	0	0	2	0	0	0	2
Fuel	0	0	0	0	0	0	0	2	0	0	0	2
Waste Management	0	0	0	0	0	0	0	1	0	0	0	1
Total (11 hrs)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	**0**	**6**	**0**	**6**
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**1**

Heavy Vehicle Movements - Decommissioning

Task	Brayton Road (S)				Ambrose Road (E)				Brayton Road (N)			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
Peak Hour	0	0	0	0	0	0	0	1	0	1	0	1

External Project Construction Traffic Movements (AM Peak)

Task	Brayton Road (S)				Ambrose Road (E)				Brayton Road (N)			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
Wattle Creek SF	57	0	0	0	0	0	56	1	0	1	0	1
Marulan Gas Fire Power Station	96	0	0	0	0	0	96	5	0	5	0	0
AM Peak Hour	**153**	**0**	**0**	**0**	**0**	**0**	**152**	**6**	**0**	**6**	**0**	**1**

External Project Construction Traffic Movements (PM Peak)

Task	Brayton Road (S)				Ambrose Road (E)				Brayton Road (N)			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
Wattle Creek SF	0	0	0	0	0	0	0	1	45	1	68	1
Marulan Gas Fire Power Station	0	0	0	0	0	0	0	5	96	5	96	0
PM Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**141**	**6**	**164**	**1**

External Project Operations Traffic Movements (AM Peak)

Task	Brayton Road (S)				Ambrose Road (E)				Brayton Road (N)			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
Wattle Creek SF	8	0	0	0	0	0	8	1	0	0	0	1
Marulan Gas Fire Power Station	12	0	0	0	0	0	8	1	0	0	0	1
AM Peak Hour	**20**	**0**	**0**	**0**	**0**	**0**	**16**	**2**	**0**	**0**	**0**	**2**

External Project Operations Traffic Movements (PM Peak)

Task	Brayton Road (S)				Ambrose Road (E)				Brayton Road (N)			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
Wattle Creek SF	0	0	0	0	0	0	0	1	6	0	10	1
Marulan Gas Fire Power Station	0	0	0	0	0	0	0	1	8	0	12	1
PM Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**14**	**0**	**22**	**2**

UMW0122-005 | Wattle Creek Energy Hub (BESS Project)

Brayton Road / Ambrose Road Intersection

Network Peak Hour Intersection Volume Forecasts

AM PEAK (8:15-9:15am)

GR %	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
YEAR	Brayton Road (S)				Ambrose Road (E)				Brayton Road (N)			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
2024	12	4	0	0	2	0	0	19	2	15	16	3
2025	12	4	0	0	2	0	0	19	2	15	16	3
2026	12	4	0	0	2	0	0	20	2	16	17	3
2027	13	4	0	0	2	0	0	20	2	16	17	3
2028	13	4	0	0	2	0	0	21	2	16	17	3
2029	13	4	0	0	2	0	0	21	2	17	18	3
2030	14	5	0	0	2	0	0	21	2	17	18	3
2031	14	5	0	0	2	0	0	22	2	17	18	3
2032	14	5	0	0	2	0	0	22	2	18	19	4
2033	14	5	0	0	2	0	0	23	2	18	19	4
2034	15	5	0	0	2	0	0	23	2	18	20	4
2035	15	5	0	0	2	0	0	24	2	19	20	4
2036	15	5	0	0	3	0	0	24	3	19	20	4
2037	16	5	0	0	3	0	0	25	3	19	21	4
2038	16	5	0	0	3	0	0	25	3	20	21	4
2039	16	5	0	0	3	0	0	26	3	20	22	4
2040	16	5	0	0	3	0	0	26	3	21	22	4
2041	17	6	0	0	3	0	0	27	3	21	22	4
2042	17	6	0	0	3	0	0	27	3	21	23	4
2043	17	6	0	0	3	0	0	28	3	22	23	4
2044	18	6	0	0	3	0	0	28	3	22	24	4
2045	18	6	0	0	3	0	0	29	3	23	24	5
2046	19	6	0	0	3	0	0	29	3	23	25	5
2047	19	6	0	0	3	0	0	30	3	24	25	5
2048	19	6	0	0	3	0	0	31	3	24	26	5
2049	20	7	0	0	3	0	0	31	3	25	26	5
2050	20	7	0	0	3	0	0	32	3	25	27	5
2051	20	7	0	0	3	0	0	32	3	26	27	5
2052	21	7	0	0	3	0	0	33	3	26	28	5
2053	21	7	0	0	4	0	0	34	4	27	28	5
2054	22	7	0	0	4	0	0	34	4	27	29	5
2055	22	7	0	0	4	0	0	35	4	28	30	6
2056	23	8	0	0	4	0	0	36	4	28	30	6
2057	23	8	0	0	4	0	0	37	4	29	31	6
PROJECT TRAFFIC	5	0	0	0	0	0	5	1	5	1	5	1
2026 PROJECT CONSTRUCTION	17	4	0	0	2	0	5	21	7	17	22	4
PEAK OPERATIONS TRAFFIC	2	0	0	0	0	0	2	1	0	0	0	1
2037 PROJECT OPERATIONS	18	5	0	0	3	0	2	26	3	19	21	5
DECOMMISSIONING TRAFFIC	4	0	0	0	0	0	4	1	4	1	4	1
2057 PROJECT DECOMMISIONING	27	8	0	0	4	0	4	38	8	30	35	7
EXT PROJECTS CONST	10	0	0	0	0	0	10	6	10	6	10	1
2026 CONST CUMULATIVE	27	4	0	0	2	0	15	27	17	23	32	5
EXT PROJECTS OPS	4	0	0	0	0	0	4	2	0	0	0	2
2027 OPS CUMULATIVE	19	4	0	0	2	0	6	23	2	16	17	6
2037 OPS CUMULATIVE	22	5	0	0	3	0	6	28	3	19	21	7

UMW0122-005 | Wattle Creek Energy Hub (BESS Project)

Brayton Road / Ambrose Road Intersection
Network Peak Hour Intersection Volume Forecasts

PM PEAK (3:45-4:45pm)

GR %	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
YEAR	Brayton Road (S)				Ambrose Road (E)				Brayton Road (N)			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
2024	15	1	3	2	4	0	0	9	4	7	32	6
2025	15	1	3	2	4	0	0	9	4	7	33	6
2026	16	1	3	2	4	0	0	9	4	7	33	6
2027	16	1	3	2	4	0	0	10	4	7	34	6
2028	16	1	3	2	4	0	0	10	4	8	35	6
2029	17	1	3	2	4	0	0	10	4	8	35	7
2030	17	1	3	2	5	0	0	10	5	8	36	7
2031	17	1	3	2	5	0	0	10	5	8	37	7
2032	18	1	4	2	5	0	0	11	5	8	37	7
2033	18	1	4	2	5	0	0	11	5	8	38	7
2034	18	1	4	2	5	0	0	11	5	9	39	7
2035	19	1	4	2	5	0	0	11	5	9	40	7
2036	19	1	4	3	5	0	0	11	5	9	41	8
2037	19	1	4	3	5	0	0	12	5	9	41	8
2038	20	1	4	3	5	0	0	12	5	9	42	8
2039	20	1	4	3	5	0	0	12	5	9	43	8
2040	21	1	4	3	5	0	0	12	5	10	44	8
2041	21	1	4	3	6	0	0	13	6	10	45	8
2042	21	1	4	3	6	0	0	13	6	10	46	9
2043	22	1	4	3	6	0	0	13	6	10	47	9
2044	22	1	4	3	6	0	0	13	6	10	48	9
2045	23	2	5	3	6	0	0	14	6	11	49	9
2046	23	2	5	3	6	0	0	14	6	11	49	9
2047	24	2	5	3	6	0	0	14	6	11	50	9
2048	24	2	5	3	6	0	0	14	6	11	51	10
2049	25	2	5	3	7	0	0	15	7	11	52	10
2050	25	2	5	3	7	0	0	15	7	12	54	10
2051	26	2	5	3	7	0	0	15	7	12	55	10
2052	26	2	5	3	7	0	0	16	7	12	56	10
2053	27	2	5	4	7	0	0	16	7	12	57	11
2054	27	2	5	4	7	0	0	16	7	13	58	11
2055	28	2	6	4	7	0	0	17	7	13	59	11
2056	28	2	6	4	8	0	0	17	8	13	60	11
2057	29	2	6	4	8	0	0	17	8	13	62	12
PROJECT TRAFFIC	5	0	0	0	0	0	5	1	5	1	5	1
2026 PROJECT CONSTRUCTION	21	1	3	2	4	0	5	10	9	8	38	7
PEAK OPERATIONS TRAFFIC	0	0	0	0	0	0	0	1	2	0	2	1
2037 PROJECT OPERATIONS	19	1	4	3	5	0	0	13	7	9	43	9
DECOMMISSIONING TRAFFIC	4	0	0	0	0	0	4	1	4	1	4	1
2057 PROJECT DECOMMISIONING	33	2	6	4	8	0	4	18	12	14	66	13
EXT PROJECTS CONST	10	0	0	0	0	0	10	6	10	6	10	1
2026 CONST CUMULATIVE	31	1	3	2	4	0	15	16	19	14	48	8
EXT PROJECTS OPS	0	0	0	0	0	0	0	2	4	0	4	2
2027 OPS CUMULATIVE	16	1	3	2	4	0	0	13	10	7	40	9
2037 OPS CUMULATIVE	19	1	4	3	5	0	0	15	11	9	47	11

UMW0122-005 | Wattle Creek Energy Hub (BESS Project)
Brayton Road / Ambrose Road Intersection
Network Peak Hour Intersection Volume Forecasts

Development Scenario - Schedule Tasks C + D + E + F + Site Water + Site Fuel + Project Staff

Staff Movements - Peak Construction

Task	Brayton Road (S)				Ambrose Road (E)				Brayton Road (N)			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
AM Peak Staff	5	0	0	0	0	0	5	0	5	0	5	0
PM Peak Staff	5	0	0	0	0	0	5	0	5	0	5	0

Staff Movements - Operations

Task	Brayton Road (S)				Ambrose Road (E)				Brayton Road (N)			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
AM Peak Staff	2	0	0	0	0	0	2	0	0	0	0	0
AM HV	0	0	0	0	0	0	0	1	0	0	0	1
PM Peak Staff	0	0	0	0	0	0	0	0	2	0	2	0
PM HV	0	0	0	0	0	0	0	1	0	0	0	1

Staff Movements - Decommissioning

Task	Brayton Road (S)				Ambrose Road (E)				Brayton Road (N)			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
AM Peak Staff	4	0	0	0	0	0	4	0	4	0	4	0
PM Peak Staff	4	0	0	0	0	0	4	0	4	0	4	0

Heavy Vehicle Movements - Peak Construction

Task	Brayton Road (S)				Ambrose Road (E)				Brayton Road (N)			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
C	0	0	0	0	0	0	0	4	0	4	0	0
D	0	0	0	0	0	0	0	1	0	1	0	1
E	0	0	0	0	0	0	0	1	0	1	0	0
Fuel	0	0	0	0	0	0	0	0	0	0	0	0
Water	0	0	0	0	0	0	0	2	0	0	0	2
Fuel	0	0	0	0	0	0	0	2	0	0	0	2
Waste Management	0	0	0	0	0	0	0	1	0	0	0	1
Total (11 hrs)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	**0**	**6**	**0**	**6**
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**1**

Heavy Vehicle Movements - Decommissioning

Task	Brayton Road (S)				Ambrose Road (E)				Brayton Road (N)			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
Peak Hour	0	0	0	0	0	0	0	1	0	1	0	1

External Project Traffic Movements (AM Peak)

Task	Brayton Road (S)				Ambrose Road (E)				Brayton Road (N)			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
Wattle Creek SF	5	0	0	0	0	0	5	1	5	1	5	1
Marulan Gas Fire Power Station	5	0	0	0	0	0	5	5	5	5	5	0
AM Peak Hour	**10**	**0**	**0**	**0**	**0**	**0**	**10**	**6**	**10**	**6**	**10**	**1**

External Project Traffic Movements (PM Peak)

Task	Brayton Road (S)				Ambrose Road (E)				Brayton Road (N)			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
Wattle Creek SF	5	0	0	0	0	0	5	1	5	1	5	1
Marulan Gas Fire Power Station	5	0	0	0	0	0	5	5	5	5	5	0
PM Peak Hour	**10**	**0**	**0**	**0**	**0**	**0**	**10**	**6**	**10**	**6**	**10**	**1**

External Project Operations Traffic Movements (AM Peak)

Task	Brayton Road (S)				Ambrose Road (E)				Brayton Road (N)			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
Wattle Creek SF	2	0	0	0	0	0	2	1	0	0	0	1
Marulan Gas Fire Power Station	2	0	0	0	0	0	2	1	0	0	0	1
AM Peak Hour	**4**	**0**	**0**	**0**	**0**	**0**	**4**	**2**	**0**	**0**	**0**	**2**

External Project Operations Traffic Movements (PM Peak)

Task	Brayton Road (S)				Ambrose Road (E)				Brayton Road (N)			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
Wattle Creek SF	0	0	0	0	0	0	0	1	2	0	2	1
Marulan Gas Fire Power Station	0	0	0	0	0	0	0	1	2	0	2	1
PM Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**4**	**0**	**4**	**2**

UMW0122-005 | Wattle Creek Energy Hub (BESS Project)
Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road Intersection
Project Peak Hour Intersection Volume Forecasts

AM PEAK (6:30-7:30am)

GR %	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
YEAR	Brayton Road (S)								Canyonleigh Road (E)										Brayton Road (N)								Bulls Pit Road (NW)												Carrick Road (SW)			
	L1		L2		T		R		L		T1		T2		R		L		T		R1		R2		L		T		R1		R2		L1		L2		T		R	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
2024	3	0	0	0	0	1	1	0	2	0	2	0	0	0	0	0	0	0	9	1	1	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
2025	3	0	0	0	0	1	1	0	2	0	2	0	0	0	0	0	0	0	9	1	1	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
2026	3	0	0	0	0	1	1	0	2	0	2	0	0	0	0	0	0	0	9	1	1	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
2027	3	0	0	0	0	1	1	0	2	0	2	0	0	0	0	0	0	0	10	1	1	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
2028	3	0	0	0	0	1	1	0	2	0	2	0	0	0	0	0	0	0	10	1	1	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
2029	3	0	0	0	0	1	1	0	2	0	2	0	0	0	0	0	0	0	10	1	1	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0
2030	3	0	0	0	0	1	1	0	2	0	2	0	0	0	0	0	0	0	10	1	1	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0
2031	3	0	0	0	0	1	1	0	2	0	2	0	0	0	0	0	0	0	10	1	1	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0
2032	4	0	0	0	0	1	1	0	2	0	2	0	0	0	0	0	0	0	11	1	1	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0
2033	4	0	0	0	0	1	1	0	2	0	2	0	0	0	0	0	0	0	11	1	1	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0
2034	4	0	0	0	0	1	1	0	2	0	2	0	0	0	0	0	0	0	11	1	1	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0
2035	4	0	0	0	0	1	1	0	2	0	2	0	0	0	0	0	0	0	11	1	1	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0
2036	4	0	0	0	0	1	1	0	3	0	3	0	0	0	0	0	0	0	11	1	1	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0
2037	4	0	0	0	0	1	1	0	3	0	3	0	0	0	0	0	0	0	12	1	1	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0
2038	4	0	0	0	0	1	1	0	3	0	3	0	0	0	0	0	0	0	12	1	1	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0
2039	4	0	0	0	0	1	1	0	3	0	3	0	0	0	0	0	0	0	12	1	1	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0
2040	4	0	0	0	0	1	1	0	3	0	3	0	0	0	0	0	0	0	12	1	1	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0
2041	4	0	0	0	0	1	1	0	3	0	3	0	0	0	0	0	0	0	13	1	1	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0
2042	4	0	0	0	0	1	1	0	3	0	3	0	0	0	0	0	0	0	13	1	1	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0
2043	4	0	0	0	0	1	1	0	3	0	3	0	0	0	0	0	0	0	13	1	1	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0
2044	4	0	0	0	0	1	1	0	3	0	3	0	0	0	0	0	0	0	13	1	1	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0
2045	5	0	0	0	0	2	2	0	3	0	3	0	0	0	0	0	0	0	14	2	2	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0
2046	5	0	0	0	0	2	2	0	3	0	3	0	0	0	0	0	0	0	14	2	2	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0
2047	5	0	0	0	0	2	2	0	3	0	3	0	0	0	0	0	0	0	14	2	2	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0
2048	5	0	0	0	0	2	2	0	3	0	3	0	0	0	0	0	0	0	14	2	2	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0
2049	5	0	0	0	0	2	2	0	3	0	3	0	0	0	0	0	0	0	15	2	2	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0
2050	5	0	0	0	0	2	2	0	3	0	3	0	0	0	0	0	0	0	15	2	2	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0
2051	5	0	0	0	0	2	2	0	3	0	3	0	0	0	0	0	0	0	15	2	2	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0
2052	5	0	0	0	0	2	2	0	3	0	3	0	0	0	0	0	0	0	16	2	2	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0
2053	5	0	0	0	0	2	2	0	4	0	4	0	0	0	0	0	0	0	16	2	2	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0
2054	5	0	0	0	0	2	2	0	4	0	4	0	0	0	0	0	0	0	16	2	2	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0
2055	6	0	0	0	0	2	2	0	4	0	4	0	0	0	0	0	0	0	17	2	2	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0
2056	6	0	0	0	0	2	2	0	4	0	4	0	0	0	0	0	0	0	17	2	2	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0
2057	6	0	0	0	0	2	2	0	4	0	4	0	0	0	0	0	0	0	17	2	2	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0
PROJECT TRAFFIC	0	0	0	0	0	0	103	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2026 PROJECT CONSTRUCTION	3	0	0	0	0	1	104	2	2	2	2	0	0	0	0	0	0	0	9	1	1	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
PEAK OPERATIONS TRAFFIC	0	0	0	0	0	0	16	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2037 PROJECT OPERATIONS	4	0	0	0	0	1	17	1	3	1	3	0	0	0	0	0	0	0	12	1	1	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0
DECOMMISSIONING TRAFFIC	0	0	0	0	0	0	73	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2057 PROJECT DECOMMISIONING	6	0	0	0	0	2	75	2	4	2	4	0	0	0	0	0	0	0	17	2	2	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0
EXT PROJECTS CONST	0	0	0	0	0	0	305	9	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2026 CONST CUMULATIVE	3	0	0	0	0	1	409	11	2	11	2	0	0	0	0	0	0	0	9	1	1	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
EXT PROJECTS OPS	0	0	0	0	0	0	36	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2027 OPS CUMULATIVE	3	0	0	0	0	1	53	3	2	3	2	0	0	0	0	0	0	0	10	1	1	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
2037 OPS CUMULATIVE	4	0	0	0	0	1	53	3	3	3	3	0	0	0	0	0	0	0	12	1	1	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0

ACCESS TRAFFIC CONSULTING

UMW0122-005 | Wattle Creek Energy Hub (BESS Project)

Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road Intersection

Project Peak Hour Intersection Volume Forecasts

PM PEAK (5:30-6:30pm)

GR %	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
YEAR	Brayton Road (S)								Canyonleigh Road (E)								Brayton Road (N)								Bulls Pit Road (NW)								Carrick Road (SW)							
	L1		L2		T		R		L		T1		T2		R		L		T		R1		R2		L		T		R1		R2		L1		L2		T		R	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
2024	3	0	4	0	10	0	4	0	0	0	1	0	0	0	0	0	0	0	5	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
2025	3	0	4	0	10	0	4	0	0	0	1	0	0	0	0	0	0	0	5	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
2026	3	0	4	0	10	0	4	0	0	0	1	0	0	0	0	0	0	0	5	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
2027	3	0	4	0	11	0	4	0	0	0	1	0	0	0	0	0	0	0	5	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
2028	3	0	4	0	11	0	4	0	0	0	1	0	0	0	0	0	0	0	5	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
2029	3	0	4	0	11	0	4	0	0	0	1	0	0	0	0	0	0	0	6	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
2030	3	0	5	0	11	0	5	0	0	0	1	0	0	0	0	0	0	0	6	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
2031	3	0	5	0	11	0	5	0	0	0	1	0	0	0	0	0	0	0	6	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
2032	4	0	5	0	12	0	5	0	0	0	1	0	0	0	0	0	0	0	6	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
2033	4	0	5	0	12	0	5	0	0	0	1	0	0	0	0	0	0	0	6	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
2034	4	0	5	0	12	0	5	0	0	0	1	0	0	0	0	0	0	0	6	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
2035	4	0	5	0	12	0	5	0	0	0	1	0	0	0	0	0	0	0	6	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
2036	4	0	5	0	13	0	5	0	0	0	1	0	0	0	0	0	0	0	6	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
2037	4	0	5	0	13	0	5	0	0	0	1	0	0	0	0	0	0	0	6	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
2038	4	0	5	0	13	0	5	0	0	0	1	0	0	0	0	0	0	0	7	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
2039	4	0	5	0	13	0	5	0	0	0	1	0	0	0	0	0	0	0	7	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
2040	4	0	5	0	14	0	5	0	0	0	1	0	0	0	0	0	0	0	7	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
2041	4	0	6	0	14	0	6	0	0	0	1	0	0	0	0	0	0	0	7	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
2042	4	0	6	0	14	0	6	0	0	0	1	0	0	0	0	0	0	0	7	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
2043	4	0	6	0	15	0	6	0	0	0	1	0	0	0	0	0	0	0	7	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
2044	4	0	6	0	15	0	6	0	0	0	1	0	0	0	0	0	0	0	7	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
2045	5	0	6	0	15	0	6	0	0	0	2	0	0	0	0	0	0	0	8	0	2	0	2	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
2046	5	0	6	0	15	0	6	0	0	0	2	0	0	0	0	0	0	0	8	0	2	0	2	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
2047	5	0	6	0	16	0	6	0	0	0	2	0	0	0	0	0	0	0	8	0	2	0	2	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
2048	5	0	6	0	16	0	6	0	0	0	2	0	0	0	0	0	0	0	8	0	2	0	2	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
2049	5	0	7	0	16	0	7	0	0	0	2	0	0	0	0	0	0	0	8	0	2	0	2	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
2050	5	0	7	0	17	0	7	0	0	0	2	0	0	0	0	0	0	0	8	0	2	0	2	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
2051	5	0	7	0	17	0	7	0	0	0	2	0	0	0	0	0	0	0	9	0	2	0	2	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
2052	5	0	7	0	17	0	7	0	0	0	2	0	0	0	0	0	0	0	9	0	2	0	2	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
2053	5	0	7	0	18	0	7	0	0	0	2	0	0	0	0	0	0	0	9	0	2	0	2	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
2054	5	0	7	0	18	0	7	0	0	0	2	0	0	0	0	0	0	0	9	0	2	0	2	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
2055	6	0	7	0	18	0	7	0	0	0	2	0	0	0	0	0	0	0	9	0	2	0	2	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
2056	6	0	8	0	19	0	8	0	0	0	2	0	0	0	0	0	0	0	9	0	2	0	2	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
2057	6	0	8	0	19	0	8	0	0	0	2	0	0	0	0	0	0	0	10	0	2	0	2	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
PROJECT TRAFFIC	0	0	0	0	0	0	0	2	103	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2026 PROJECT CONSTRUCTION	3	0	4	0	10	0	4	2	103	2	1	0	0	0	0	0	0	0	5	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
PEAK OPERATIONS TRAFFIC	0	0	0	0	0	0	0	1	16	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2037 PROJECT OPERATIONS	4	0	5	0	13	0	5	1	16	1	1	0	0	0	0	0	0	0	6	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
DECOMMISSIONING TRAFFIC	0	0	0	0	0	0	0	2	73	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2057 PROJECT DECOMMISIONING	6	0	8	0	19	0	8	2	73	2	2	0	0	0	0	0	0	0	10	0	2	0	2	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
EXT PROJECTS CONST	0	0	0	0	0	0	0	9	305	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2026 CONST CUMULATIVE	3	0	4	0	10	0	4	11	408	11	1	0	0	0	0	0	0	0	5	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
EXT PROJECTS OPS	0	0	0	0	0	0	0	2	36	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2027 OPS CUMULATIVE	3	0	4	0	11	0	4	3	52	3	1	0	0	0	0	0	0	0	5	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
2037 OPS CUMULATIVE	4	0	5	0	13	0	5	3	52	3	1	0	0	0	0	0	0	0	6	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0

UMW0122-005 | Wattle Creek Energy Hub (BESS Project)
Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road Intersection
Peak Hour Intersection Volume Forecasts

Development Scenario - Schedule Tasks C + D + E + F + Site Water + Site Fuel + Project Staff

Staff Movements - Peak Construction

Task	Brayton Road (S)								Canyonleigh Road (E)								Brayton Road (N)								Bulls Pit Road (NW)								Carrick Road (SW)							
	L1		L2		T		R		L		T1		T2		R		L		T		R1		R2		L		T		R1		R2		L1		L2		T		R	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
AM Peak Staff	0	0	0	0	0	0	103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM Peak Staff	0	0	0	0	0	0	0	0	103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Staff Movements - Operations

Task	Brayton Road (S)								Canyonleigh Road (E)								Brayton Road (N)								Bulls Pit Road (NW)								Carrick Road (SW)							
	L1		L2		T		R		L		T1		T2		R		L		T		R1		R2		L		T		R1		R2		L1		L2		T		R	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
AM Peak Staff	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AM HV	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM Peak Staff	0	0	0	0	0	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM HV	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Staff Movements - Decommissioning

Task	Brayton Road (S)								Canyonleigh Road (E)								Brayton Road (N)								Bulls Pit Road (NW)								Carrick Road (SW)							
	L1		L2		T		R		L		T1		T2		R		L		T		R1		R2		L		T		R1		R2		L1		L2		T		R	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
AM Peak Staff	0	0	0	0	0	0	73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM Peak Staff	0	0	0	0	0	0	0	0	73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Heavy Vehicle Movements - Peak Construction

Task	Brayton Road (S)								Canyonleigh Road (E)								Brayton Road (N)								Bulls Pit Road (NW)								Carrick Road (SW)							
	L1		L2		T		R		L		T1		T2		R		L		T		R1		R2		L		T		R1		R2		L1		L2		T		R	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
C	0	0	0	0	0	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Water	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fuel	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Waste Management	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total (11 hrs)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**13**	**0**	**13**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Heavy Vehicle Movements - Decommissioning

Task	Brayton Road (S)								Canyonleigh Road (E)								Brayton Road (N)								Bulls Pit Road (NW)								Carrick Road (SW)							
	L1		L2		T		R		L		T1		T2		R		L		T		R1		R2		L		T		R1		R2		L1		L2		T		R	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
Peak Hour	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

External Project Construction Traffic Movements (AM Peak)

Task	Brayton Road (S)								Canyonleigh Road (E)								Brayton Road (N)								Bulls Pit Road (NW)								Carrick Road (SW)							
	L1		L2		T		R		L		T1		T2		R		L		T		R1		R2		L		T		R1		R2		L1		L2		T		R	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
Wattle Creek SF	0	0	0	0	0	0	113	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marulan Gas Fire Power Station	0	0	0	0	0	0	192	5	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AM Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**305**	**9**	**0**	**9**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

External Project Construction Traffic Movements (PM Peak)

Task	Brayton Road (S)								Canyonleigh Road (E)								Brayton Road (N)								Bulls Pit Road (NW)								Carrick Road (SW)							
	L1		L2		T		R		L		T1		T2		R		L		T		R1		R2		L		T		R1		R2		L1		L2		T		R	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
Wattle Creek SF	0	0	0	0	0	0	0	4	113	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marulan Gas Fire Power Station	0	0	0	0	0	0	0	5	192	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9**	**305**	**9**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

External Project Operations Traffic Movements (AM Peak)

Task	Brayton Road (S)								Canyonleigh Road (E)								Brayton Road (N)								Bulls Pit Road (NW)								Carrick Road (SW)							
	L1		L2		T		R		L		T1		T2		R		L		T		R1		R2		L		T		R1		R2		L1		L2		T		R	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
Wattle Creek SF	0	0	0	0	0	0	16	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marulan Gas Fire Power Station	0	0	0	0	0	0	20	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AM Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**36**	**2**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

External Project Operations Traffic Movements (PM Peak)

Task	Brayton Road (S)								Canyonleigh Road (E)								Brayton Road (N)								Bulls Pit Road (NW)								Carrick Road (SW)							
	L1		L2		T		R		L		T1		T2		R		L		T		R1		R2		L		T		R1		R2		L1		L2		T		R	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
Wattle Creek SF	0	0	0	0	0	0	0	1	16	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marulan Gas Fire Power Station	0	0	0	0	0	0	0	1	20	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**36**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

UMW0122-005 | Wattle Creek Energy Hub (BESS Project)
Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road Intersection
Network Peak Hour Intersection Volume Forecasts

AM PEAK (7:45-8:45am)

GR %	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
YEAR	Brayton Road (S)								Canyonleigh Road (E)								Brayton Road (N)								Bulls Pit Road (NW)								Carrick Road (SW)							
	L1		L2		T		R		L		T1		T2		R		L		T		R1		R2		L		T		R1		R2		L1		L2		T		R	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
2024	0	1	1	0	3	1	4	0	4	0	4	0	0	0	0	0	0	0	10	1	6	0	0	0	0	0	0	0	3	0	0	0	0	0	1	0	4	1	0	0
2025	0	1	1	0	3	1	4	0	4	0	4	0	0	0	0	0	0	0	10	1	6	0	0	0	0	0	0	0	3	0	0	0	0	0	1	0	4	1	0	0
2026	0	1	1	0	3	1	4	0	4	0	4	0	0	0	0	0	0	0	10	1	6	0	0	0	0	0	0	0	3	0	0	0	0	0	1	0	4	1	0	0
2027	0	1	1	0	3	1	4	0	4	0	4	0	0	0	0	0	0	0	11	1	6	0	0	0	0	0	0	0	3	0	0	0	0	0	1	0	4	1	0	0
2028	0	1	1	0	3	1	4	0	4	0	4	0	0	0	0	0	0	0	11	1	6	0	0	0	0	0	0	0	3	0	0	0	0	0	1	0	4	1	0	0
2029	0	1	1	0	3	1	4	0	4	0	4	0	0	0	0	0	0	0	11	1	7	0	0	0	0	0	0	0	3	0	0	0	0	0	1	0	4	1	0	0
2030	0	1	1	0	3	1	5	0	5	0	5	0	0	0	0	0	0	0	11	1	7	0	0	0	0	0	0	0	3	0	0	0	0	0	1	0	5	1	0	0
2031	0	1	1	0	3	1	5	0	5	0	5	0	0	0	0	0	0	0	11	1	7	0	0	0	0	0	0	0	3	0	0	0	0	0	1	0	5	1	0	0
2032	0	1	1	0	4	1	5	0	5	0	5	0	0	0	0	0	0	0	12	1	7	0	0	0	0	0	0	0	4	0	0	0	0	0	1	0	5	1	0	0
2033	0	1	1	0	4	1	5	0	5	0	5	0	0	0	0	0	0	0	12	1	7	0	0	0	0	0	0	0	4	0	0	0	0	0	1	0	5	1	0	0
2034	0	1	1	0	4	1	5	0	5	0	5	0	0	0	0	0	0	0	12	1	7	0	0	0	0	0	0	0	4	0	0	0	0	0	1	0	5	1	0	0
2035	0	1	1	0	4	1	5	0	5	0	5	0	0	0	0	0	0	0	12	1	7	0	0	0	0	0	0	0	4	0	0	0	0	0	1	0	5	1	0	0
2036	0	1	1	0	4	1	5	0	5	0	5	0	0	0	0	0	0	0	13	1	8	0	0	0	0	0	0	0	4	0	0	0	0	0	1	0	5	1	0	0
2037	0	1	1	0	4	1	5	0	5	0	5	0	0	0	0	0	0	0	13	1	8	0	0	0	0	0	0	0	4	0	0	0	0	0	1	0	5	1	0	0
2038	0	1	1	0	4	1	5	0	5	0	5	0	0	0	0	0	0	0	13	1	8	0	0	0	0	0	0	0	4	0	0	0	0	0	1	0	5	1	0	0
2039	0	1	1	0	4	1	5	0	5	0	5	0	0	0	0	0	0	0	13	1	8	0	0	0	0	0	0	0	4	0	0	0	0	0	1	0	5	1	0	0
2040	0	1	1	0	4	1	5	0	5	0	5	0	0	0	0	0	0	0	14	1	8	0	0	0	0	0	0	0	4	0	0	0	0	0	1	0	5	1	0	0
2041	0	1	1	0	4	1	6	0	6	0	6	0	0	0	0	0	0	0	14	1	8	0	0	0	0	0	0	0	4	0	0	0	0	0	1	0	6	1	0	0
2042	0	1	1	0	4	1	6	0	6	0	6	0	0	0	0	0	0	0	14	1	9	0	0	0	0	0	0	0	4	0	0	0	0	0	1	0	6	1	0	0
2043	0	1	1	0	4	1	6	0	6	0	6	0	0	0	0	0	0	0	15	1	9	0	0	0	0	0	0	0	4	0	0	0	0	0	1	0	6	1	0	0
2044	0	1	1	0	4	1	6	0	6	0	6	0	0	0	0	0	0	0	15	1	9	0	0	0	0	0	0	0	4	0	0	0	0	0	1	0	6	1	0	0
2045	0	2	2	0	5	2	6	0	6	0	6	0	0	0	0	0	0	0	15	2	9	0	0	0	0	0	0	0	5	0	0	0	0	0	2	0	6	2	0	0
2046	0	2	2	0	5	2	6	0	6	0	6	0	0	0	0	0	0	0	15	2	9	0	0	0	0	0	0	0	5	0	0	0	0	0	2	0	6	2	0	0
2047	0	2	2	0	5	2	6	0	6	0	6	0	0	0	0	0	0	0	16	2	9	0	0	0	0	0	0	0	5	0	0	0	0	0	2	0	6	2	0	0
2048	0	2	2	0	5	2	6	0	6	0	6	0	0	0	0	0	0	0	16	2	10	0	0	0	0	0	0	0	5	0	0	0	0	0	2	0	6	2	0	0
2049	0	2	2	0	5	2	7	0	7	0	7	0	0	0	0	0	0	0	16	2	10	0	0	0	0	0	0	0	5	0	0	0	0	0	2	0	7	2	0	0
2050	0	2	2	0	5	2	7	0	7	0	7	0	0	0	0	0	0	0	17	2	10	0	0	0	0	0	0	0	5	0	0	0	0	0	2	0	7	2	0	0
2051	0	2	2	0	5	2	7	0	7	0	7	0	0	0	0	0	0	0	17	2	10	0	0	0	0	0	0	0	5	0	0	0	0	0	2	0	7	2	0	0
2052	0	2	2	0	5	2	7	0	7	0	7	0	0	0	0	0	0	0	17	2	10	0	0	0	0	0	0	0	5	0	0	0	0	0	2	0	7	2	0	0
2053	0	2	2	0	5	2	7	0	7	0	7	0	0	0	0	0	0	0	18	2	11	0	0	0	0	0	0	0	5	0	0	0	0	0	2	0	7	2	0	0
2054	0	2	2	0	5	2	7	0	7	0	7	0	0	0	0	0	0	0	18	2	11	0	0	0	0	0	0	0	5	0	0	0	0	0	2	0	7	2	0	0
2055	0	2	2	0	6	2	7	0	7	0	7	0	0	0	0	0	0	0	18	2	11	0	0	0	0	0	0	0	6	0	0	0	0	0	2	0	7	2	0	0
2056	0	2	2	0	6	2	8	0	8	0	8	0	0	0	0	0	0	0	19	2	11	0	0	0	0	0	0	0	6	0	0	0	0	0	2	0	8	2	0	0
2057	0	2	2	0	6	2	8	0	8	0	8	0	0	0	0	0	0	0	19	2	12	0	0	0	0	0	0	0	6	0	0	0	0	0	2	0	8	2	0	0
PROJECT TRAFFIC	0	0	0	0	0	0	5	2	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2026 PROJECT CONSTRUCTION	0	1	1	0	3	1	9	2	9	2	4	0	0	0	0	0	0	0	10	1	6	0	0	0	0	0	0	0	3	0	0	0	0	0	1	0	4	1	0	0
PEAK OPERATIONS TRAFFIC	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2037 PROJECT OPERATIONS	0	1	1	0	4	1	7	1	5	0	5	0	0	0	0	0	0	0	13	1	8	0	0	0	0	0	0	0	4	0	0	0	0	0	1	0	5	1	0	0
DECOMMISSIONING TRAFFIC	0	0	0	0	0	0	4	2	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2057 PROJECT DECOMMISIONING	0	2	2	0	6	2	12	2	12	2	8	0	0	0	0	0	0	0	19	2	12	0	0	0	0	0	0	0	6	0	0	0	0	0	2	0	8	2	0	0
EXT PROJECTS CONST	0	0	0	0	0	0	10	6	10	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2026 CONST CUMULATIVE	0	1	1	0	3	1	19	8	19	8	4	0	0	0	0	0	0	0	10	1	6	0	0	0	0	0	0	0	3	0	0	0	0	0	1	0	4	1	0	0
EXT PROJECTS OPS	0	0	0	0	0	0	4	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2027 OPS CUMULATIVE	0	1	1	0	3	1	10	3	4	2	4	0	0	0	0	0	0	0	11	1	6	0	0	0	0	0	0	0	3	0	0	0	0	0	1	0	4	1	0	0
2037 OPS CUMULATIVE	0	1	1	0	4	1	11	3	5	2	5	0	0	0	0	0	0	0	13	1	8	0	0	0	0	0	0	0	4	0	0	0	0	0	1	0	5	1	0	0

ACCESS TRAFFIC CONSULTING

UMW0122-005 | Wattle Creek Energy Hub (BESS Project)

Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road Intersection

Network Peak Hour Intersection Volume Forecasts

PM PEAK (4:00-5:00pm)

GR %	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
YEAR	Brayton Road (S)								Canyonleigh Road (E)								Brayton Road (N)								Bulls Pit Road (NW)								Carrick Road (SW)							
	L1		L2		T		R		L		T1		T2		R		L		T		R1		R2		L		T		R1		R2		L1		L2		T		R	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
2024	8	0	1	0	8	1	3	0	3	0	2	0	0	0	0	1	0	0	3	2	0	0	0	0	0	0	0	0	4	0	0	0	1	0	3	0	2	0	0	1
2025	8	0	1	0	8	1	3	0	3	0	2	0	0	0	0	1	0	0	3	2	0	0	0	0	0	0	0	0	4	0	0	0	1	0	3	0	2	0	0	1
2026	8	0	1	0	8	1	3	0	3	0	2	0	0	0	0	1	0	0	3	2	0	0	0	0	0	0	0	0	4	0	0	0	1	0	3	0	2	0	0	1
2027	8	0	1	0	8	1	3	0	3	0	2	0	0	0	0	1	0	0	3	2	0	0	0	0	0	0	0	0	4	0	0	0	1	0	3	0	2	0	0	1
2028	9	0	1	0	9	1	3	0	3	0	2	0	0	0	0	1	0	0	3	2	0	0	0	0	0	0	0	0	4	0	0	0	1	0	3	0	2	0	0	1
2029	9	0	1	0	9	1	3	0	3	0	2	0	0	0	0	1	0	0	3	2	0	0	0	0	0	0	0	0	4	0	0	0	1	0	3	0	2	0	0	1
2030	9	0	1	0	9	1	3	0	3	0	2	0	0	0	0	1	0	0	3	2	0	0	0	0	0	0	0	0	5	0	0	0	1	0	3	0	2	0	0	1
2031	9	0	1	0	9	1	3	0	3	0	2	0	0	0	0	1	0	0	3	2	0	0	0	0	0	0	0	0	5	0	0	0	1	0	3	0	2	0	0	1
2032	9	0	1	0	9	1	4	0	4	0	2	0	0	0	0	1	0	0	4	2	0	0	0	0	0	0	0	0	5	0	0	0	1	0	4	0	2	0	0	1
2033	10	0	1	0	10	1	4	0	4	0	2	0	0	0	0	1	0	0	4	2	0	0	0	0	0	0	0	0	5	0	0	0	1	0	4	0	2	0	0	1
2034	10	0	1	0	10	1	4	0	4	0	2	0	0	0	0	1	0	0	4	2	0	0	0	0	0	0	0	0	5	0	0	0	1	0	4	0	2	0	0	1
2035	10	0	1	0	10	1	4	0	4	0	2	0	0	0	0	1	0	0	4	2	0	0	0	0	0	0	0	0	5	0	0	0	1	0	4	0	2	0	0	1
2036	10	0	1	0	10	1	4	0	4	0	3	0	0	0	0	1	0	0	4	3	0	0	0	0	0	0	0	0	5	0	0	0	1	0	4	0	3	0	0	1
2037	10	0	1	0	10	1	4	0	4	0	3	0	0	0	0	1	0	0	4	3	0	0	0	0	0	0	0	0	5	0	0	0	1	0	4	0	3	0	0	1
2038	11	0	1	0	11	1	4	0	4	0	3	0	0	0	0	1	0	0	4	3	0	0	0	0	0	0	0	0	5	0	0	0	1	0	4	0	3	0	0	1
2039	11	0	1	0	11	1	4	0	4	0	3	0	0	0	0	1	0	0	4	3	0	0	0	0	0	0	0	0	5	0	0	0	1	0	4	0	3	0	0	1
2040	11	0	1	0	11	1	4	0	4	0	3	0	0	0	0	1	0	0	4	3	0	0	0	0	0	0	0	0	5	0	0	0	1	0	4	0	3	0	0	1
2041	11	0	1	0	11	1	4	0	4	0	3	0	0	0	0	1	0	0	4	3	0	0	0	0	0	0	0	0	6	0	0	0	1	0	4	0	3	0	0	1
2042	11	0	1	0	11	1	4	0	4	0	3	0	0	0	0	1	0	0	4	3	0	0	0	0	0	0	0	0	6	0	0	0	1	0	4	0	3	0	0	1
2043	12	0	1	0	12	1	4	0	4	0	3	0	0	0	0	1	0	0	4	3	0	0	0	0	0	0	0	0	6	0	0	0	1	0	4	0	3	0	0	1
2044	12	0	1	0	12	1	4	0	4	0	3	0	0	0	0	1	0	0	4	3	0	0	0	0	0	0	0	0	6	0	0	0	1	0	4	0	3	0	0	1
2045	12	0	2	0	12	2	5	0	5	0	3	0	0	0	0	2	0	0	5	3	0	0	0	0	0	0	0	0	6	0	0	0	2	0	5	0	3	0	0	2
2046	12	0	2	0	12	2	5	0	5	0	3	0	0	0	0	2	0	0	5	3	0	0	0	0	0	0	0	0	6	0	0	0	2	0	5	0	3	0	0	2
2047	13	0	2	0	13	2	5	0	5	0	3	0	0	0	0	2	0	0	5	3	0	0	0	0	0	0	0	0	6	0	0	0	2	0	5	0	3	0	0	2
2048	13	0	2	0	13	2	5	0	5	0	3	0	0	0	0	2	0	0	5	3	0	0	0	0	0	0	0	0	6	0	0	0	2	0	5	0	3	0	0	2
2049	13	0	2	0	13	2	5	0	5	0	3	0	0	0	0	2	0	0	5	3	0	0	0	0	0	0	0	0	7	0	0	0	2	0	5	0	3	0	0	2
2050	13	0	2	0	13	2	5	0	5	0	3	0	0	0	0	2	0	0	5	3	0	0	0	0	0	0	0	0	7	0	0	0	2	0	5	0	3	0	0	2
2051	14	0	2	0	14	2	5	0	5	0	3	0	0	0	0	2	0	0	5	3	0	0	0	0	0	0	0	0	7	0	0	0	2	0	5	0	3	0	0	2
2052	14	0	2	0	14	2	5	0	5	0	3	0	0	0	0	2	0	0	5	3	0	0	0	0	0	0	0	0	7	0	0	0	2	0	5	0	3	0	0	2
2053	14	0	2	0	14	2	5	0	5	0	4	0	0	0	0	2	0	0	5	4	0	0	0	0	0	0	0	0	7	0	0	0	2	0	5	0	4	0	0	2
2054	14	0	2	0	14	2	5	0	5	0	4	0	0	0	0	2	0	0	5	4	0	0	0	0	0	0	0	0	7	0	0	0	2	0	5	0	4	0	0	2
2055	15	0	2	0	15	2	6	0	6	0	4	0	0	0	0	2	0	0	6	4	0	0	0	0	0	0	0	0	7	0	0	0	2	0	6	0	4	0	0	2
2056	15	0	2	0	15	2	6	0	6	0	4	0	0	0	0	2	0	0	6	4	0	0	0	0	0	0	0	0	8	0	0	0	2	0	6	0	4	0	0	2
2057	15	0	2	0	15	2	6	0	6	0	4	0	0	0	0	2	0	0	6	4	0	0	0	0	0	0	0	0	8	0	0	0	2	0	6	0	4	0	0	2
PROJECT TRAFFIC	0	0	0	0	0	0	5	2	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2026 PROJECT CONSTRUCTION	8	0	1	0	8	1	8	2	8	2	2	0	0	0	0	1	0	0	3	2	0	0	0	0	0	0	0	0	4	0	0	0	1	0	3	0	2	0	0	1
PEAK OPERATIONS TRAFFIC	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2037 PROJECT OPERATIONS	10	0	1	0	10	1	4	0	6	1	3	0	0	0	0	1	0	0	4	3	0	0	0	0	0	0	0	0	5	0	0	0	1	0	4	0	3	0	0	1
DECOMMISSIONING TRAFFIC	0	0	0	0	0	0	4	2	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2057 PROJECT DECOMMISIONING	15	0	2	0	15	2	10	2	10	2	4	0	0	0	0	2	0	0	6	4	0	0	0	0	0	0	0	0	8	0	0	0	2	0	6	0	4	0	0	2
EXT PROJECTS CONST	0	0	0	0	0	0	10	6	10	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2026 CONST CUMULATIVE	8	0	1	0	8	1	18	8	18	8	2	0	0	0	0	1	0	0	3	2	0	0	0	0	0	0	0	0	4	0	0	0	1	0	3	0	2	0	0	1
EXT PROJECTS OPS	0	0	0	0	0	0	0	2	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2027 OPS CUMULATIVE	8	0	1	0	8	1	3	2	9	3	2	0	0	0	0	1	0	0	3	2	0	0	0	0	0	0	0	0	4	0	0	0	1	0	3	0	2	0	0	1
2037 OPS CUMULATIVE	10	0	1	0	10	1	4	2	10	3	3	0	0	0	0	1	0	0	4	3	0	0	0	0	0	0	0	0	5	0	0	0	1	0	4	0	3	0	0	1

UMW0122-005 | Wattle Creek Energy Hub (BESS Project)
Brayton Road / Canyonleigh Road / Carrick Road / Bulls Pit Road Intersection
Network Peak Hour Intersection Volume Forecasts

Development Scenario - Schedule Tasks C + D + E + F + Site Water + Site Fuel + Project Staff

Staff Movements - Peak Construction

Task	Brayton Road (S)								Canyonleigh Road (E)								Brayton Road (N)								Bulls Pit Road (NW)								Carrick Road (SW)							
	L1		L2		T		R		L		T1		T2		R		L		T		R1		R2		L		T		R1		R2		L1		L2		T		R	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
AM Peak Staff	0	0	0	0	0	0	5	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM Peak Staff	0	0	0	0	0	0	5	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Staff Movements - Operations

Task	Brayton Road (S)								Canyonleigh Road (E)								Brayton Road (N)								Bulls Pit Road (NW)								Carrick Road (SW)							
	L1		L2		T		R		L		T1		T2		R		L		T		R1		R2		L		T		R1		R2		L1		L2		T		R	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
AM Peak Staff	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AM HV	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM Peak Staff	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM HV	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Staff Movements - Decommissioning

Task	Brayton Road (S)								Canyonleigh Road (E)								Brayton Road (N)								Bulls Pit Road (NW)								Carrick Road (SW)							
	L1		L2		T		R		L		T1		T2		R		L		T		R1		R2		L		T		R1		R2		L1		L2		T		R	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
AM Peak Staff	0	0	0	0	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM Peak Staff	0	0	0	0	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Heavy Vehicle Movements - Peak Construction

Task	Brayton Road (S)								Canyonleigh Road (E)								Brayton Road (N)								Bulls Pit Road (NW)								Carrick Road (SW)							
	L1		L2		T		R		L		T1		T2		R		L		T		R1		R2		L		T		R1		R2		L1		L2		T		R	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
C	0	0	0	0	0	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Water	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fuel	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Waste Management	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total (11 hrs)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**13**	**0**	**13**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Heavy Vehicle Movements - Decommissioning

Task	Brayton Road (S)								Canyonleigh Road (E)								Brayton Road (N)								Bulls Pit Road (NW)								Carrick Road (SW)							
	L1		L2		T		R		L		T1		T2		R		L		T		R1		R2		L		T		R1		R2		L1		L2		T		R	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
Peak Hour	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

External Project Traffic Movements (AM Peak)

Task	Brayton Road (S)								Canyonleigh Road (E)								Brayton Road (N)								Bulls Pit Road (NW)								Carrick Road (SW)							
	L1		L2		T		R		L		T1		T2		R		L		T		R1		R2		L		T		R1		R2		L1		L2		T		R	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
Wattle Creek SF	0	0	0	0	0	0	5	1	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marulan Gas Fire Power Station	0	0	0	0	0	0	5	5	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AM Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**6**	**10**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

External Project Traffic Movements (PM Peak)

Task	Brayton Road (S)								Canyonleigh Road (E)								Brayton Road (N)								Bulls Pit Road (NW)								Carrick Road (SW)							
	L1		L2		T		R		L		T1		T2		R		L		T		R1		R2		L		T		R1		R2		L1		L2		T		R	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
Wattle Creek SF	0	0	0	0	0	0	5	1	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marulan Gas Fire Power Station	0	0	0	0	0	0	5	5	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**6**	**10**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

External Project Operations Traffic Movements (AM Peak)

Task	Brayton Road (S)								Canyonleigh Road (E)								Brayton Road (N)								Bulls Pit Road (NW)								Carrick Road (SW)							
	L1		L2		T		R		L		T1		T2		R		L		T		R1		R2		L		T		R1		R2		L1		L2		T		R	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
Wattle Creek SF	0	0	0	0	0	0	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marulan Gas Fire Power Station	0	0	0	0	0	0	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AM Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**2**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

External Project Operations Traffic Movements (PM Peak)

Task	Brayton Road (S)								Canyonleigh Road (E)								Brayton Road (N)								Bulls Pit Road (NW)								Carrick Road (SW)							
	L1		L2		T		R		L		T1		T2		R		L		T		R1		R2		L		T		R1		R2		L1		L2		T		R	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
Wattle Creek SF	0	0	0	0	0	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marulan Gas Fire Power Station	0	0	0	0	0	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**4**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Appendix J – Project Traffic Impact Calculations

UMW0122-005 | Wattle Creek Energy Hub (BESS Project)

Project Traffic Impact % Calculations

Road ID	Road Description	Road Segment	Base Data Year	Base Year AADT			Base Year HV%		Base Year HV		10 Yr GR%	2026 AADT			2026 HV	
				Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Gaz	A-Gaz		Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz
M31	Hume Highway (North of Red Hills Road)	T0247	2024	11,016	10,377	21,393	*12.38%*	*11.27%*	1,364	1,170	2.0%	11,461	10,796	22,257	1,419	1,217
M32	Hume Highway (Red Hills Road to Brayton Road)	T0247	2024	11,016	10,377	21,393	*12.38%*	*11.27%*	1,364	1,170	2.0%	11,461	10,796	22,257	1,419	1,217
M33	Hume Highway (Brayton Road to Marulan S Road)	T0247	2024	11,016	10,377	21,393	*12.38%*	*11.27%*	1,364	1,170	2.0%	11,461	10,796	22,257	1,419	1,217
M34	Hume Highway (Marulan S Road to Goulburn)	T0247	2024	11,016	10,377	21,393	*12.38%*	*11.27%*	1,364	1,170	2.0%	11,461	10,796	22,257	1,419	1,217
GMC	Red Hills Road (Hume Highway to Ambrose Road)	-	2024	204	212	416	*76.47%*	*68.87%*	156	146	2.0%	212	221	433	162	152
GMC	Ambrose Road (Red Hills Road to Brayton Road)	-	2024	204	212	416	*76.47%*	*68.87%*	156	146	2.0%	212	221	433	162	152
GMC	Brayton Road (Marulan to Ambrose Road)	-	2024	252	282	534	*13.49%*	*16.31%*	34	46	2.0%	262	293	556	35	48
GMC	Brayton Road (Ambrose Road to Quarry Access)	-	2024	387	423	810	*44.70%*	*41.13%*	173	174	2.0%	403	440	843	180	181
GMC	Brayton Road (Quarry Access to Canyonleigh Road)	-	2024	187	181	368	*7.49%*	*7.18%*	14	13	2.0%	195	188	383	15	14
GMC	Canyonleigh Road (Brayton Road to Gravel Road)	-	2024	62	53	115	*4.84%*	*5.66%*	3	3	2.0%	65	55	120	3	3
GMC	Canyonleigh Road (Gravel Road to Site Access)	-	2024	62	53	115	*4.84%*	*5.66%*	3	3	2.0%	65	55	120	3	3

UMW0122-005 | Wattle Creek Energy Hub (BESS Project)

Project Traffic Impact % Calculations

Road ID	Road Description	Road Segment	Project Traffic (Daily) - Construction																												Dev Traffic %			In Construction Volumes		
			Gazettal													Against Gazettal													Bi-Dir								
			A	B	C	D	E	F	G	H	Water	Fuel	Waste	Staff	Max	A	B	C	D	E	F	G	H	Water	Fuel	Waste	Staff	Max	Total	LV	HV	Gaz %	A-Gaz %	Bi-Dir %	Gaz	A-Gaz	Bi-Dir
M31	Hume Highway (North of Red Hills Road)	T0247	0	0	4	1	1	0	0	0	0	0	0	41	**47**	0	0	4	1	1	0	0	0	0	0	0	41	**47**	**94**	82	12	0.41%	0.44%	0.42%	11,508	10,843	22,351
M32	Hume Highway (Red Hills Road to Brayton Road)	T0247	0	0	4	1	1	0	0	0	0	0	0	41	**47**	1	4	4	1	1	0	1	0	2	2	1	51	**62**	**109**	92	17	0.41%	0.57%	0.49%	11,508	10,858	22,366
M33	Hume Highway (Brayton Road to Marulan S Road)	T0247	1	4	4	1	1	0	1	0	2	2	1	51	**62**	1	4	4	1	1	0	1	0	2	2	1	51	**62**	**124**	102	22	0.54%	0.57%	0.56%	11,523	10,858	22,381
M34	Hume Highway (Marulan S Road to Goulburn)	T0247	1	4	0	1	0	0	1	0	2	2	1	51	**57**	1	4	0	1	0	0	1	0	2	2	1	51	**57**	**114**	102	12	0.50%	0.53%	0.51%	11,518	10,853	22,371
GMC	Red Hills Road (Hume Highway to Ambrose Road)	-	1	4	4	1	1	0	1	0	2	2	1	51	**62**	0	0	4	1	1	0	0	0	0	0	0	41	**47**	**109**	92	17	29.21%	21.31%	25.18%	274	268	542
GMC	Ambrose Road (Red Hills Road to Brayton Road)	-	1	4	4	1	1	0	1	0	2	2	1	51	**62**	0	0	4	1	1	0	0	0	0	0	0	41	**47**	**109**	92	17	29.21%	21.31%	25.18%	274	268	542
GMC	Brayton Road (Marulan to Ambrose Road)	-	0	0	0	0	0	0	0	0	0	0	0	52	**52**	1	4	0	1	0	0	1	0	2	2	1	62	**68**	**120**	114	6	19.83%	23.18%	21.60%	314	361	676
GMC	Brayton Road (Ambrose Road to Quarry Access)	-	1	4	4	1	1	0	1	0	2	2	1	103	**114**	1	4	4	1	1	0	1	0	2	2	1	103	**114**	**228**	206	22	28.31%	25.90%	27.06%	517	554	1,071
GMC	Brayton Road (Quarry Access to Canyonleigh Road)	-	12	36	4	1	3	0	5	0	2	2	1	103	**116**	12	36	4	1	3	0	5	0	2	2	1	103	**116**	**232**	206	26	59.62%	61.60%	60.60%	311	304	615
GMC	Canyonleigh Road (Brayton Road to Gravel Road)	-	12	36	4	1	3	0	5	0	2	2	1	103	**116**	12	36	4	1	3	0	5	0	2	2	1	103	**116**	**232**	206	26	179.83%	210.37%	193.91%	181	171	352
GMC	Canyonleigh Road (Gravel Road to Site Access)	-	12	36	4	1	3	0	5	0	2	2	1	103	**116**	12	36	4	1	3	0	5	0	2	2	1	103	**116**	**232**	206	26	179.83%	210.37%	193.91%	181	171	352

Appendix K – Project Pavement Impact Calculations

UMW0122-005 | Wattle Creek Energy Hub (BESS Project)

Project Pavement Loadings

PHASE A - SITE ESTABLISHMENT, CLEARING & FENCING

Activity Description	Project Volume	Vehicle	Origin
Main Construction Compound - Base Construction Aggregate	412	Truck and Dog Trailer	Brayton Road Quarries
Main Construction Compound - Earthworks Equipment / Plant	3	Semi / Low Loader	Goulburn
Construction Batch Plants - Base Imported Material	138	Truck and Dog Trailer	Brayton Road Quarries

Semi Unloaded (0%)	0.51	ESAs
Semi Loaded (100%)	4.93	ESAs
Truck & 4 Axle Dog Unloaded (0%)	1.64	ESAs
Truck & 4 Axle Dog Loaded (100%)	6.15	ESAs

Route Summary	Gaz	A-Gaz
Hume Highway (North of Red Hills Road)	0	0
Hume Highway (Red Hills Road to Brayton Road)	0	15
Hume Highway (Brayton Road to Marulan S Road)	2	15
Hume Highway (Marulan S Road to Goulburn)	2	15
Red Hills Road (Hume Highway to Ambrose Road)	15	0
Ambrose Road (Red Hills Road to Brayton Road)	15	0
Brayton Road (Marulan to Ambrose Road)	0	2
Brayton Road (Ambrose Road to Quarry Access)	15	2
Brayton Road (Quarry Access to Canyonleigh Road)	3,397	904
Canyonleigh Road (Brayton Road to Gravel Road)	3,397	904
Canyonleigh Road (Gravel Road to Site Access)	3,397	904

PHASE B - CIVIL EARTHWORKS

Activity Description	Project Volume	Vehicle	Origin
Access Track Civil Constructions - Imported Material (Fill)	371	Truck and Dog Trailer	Brayton Road Quarries
Access Track Civil Constructions - Imported Material (Capping)	42	Truck and Dog Trailer	Brayton Road Quarries
Access Track Civil Constructions - Water for Dust Suppression	348	Water Tanker	Goulburn
BESS Civils - Imported Material (Fill)	1,650	Truck and Dog Trailer	Brayton Road Quarries
BESS Civils - Imported Material (Capping)	184	Truck and Dog Trailer	Brayton Road Quarries
Canyonleigh Road Upgrade Road Gravel Materials	782	Truck and Dog Trailer	Brayton Road Quarries

Semi Unloaded (0%)	0.51	ESAs
Semi Loaded (100%)	4.93	ESAs
Truck & 4 Axle Dog Unloaded (0%)	1.64	ESAs
Truck & 4 Axle Dog Loaded (100%)	6.15	ESAs

Route Summary	Gaz	A-Gaz
Hume Highway (North of Red Hills Road)	0	0
Hume Highway (Red Hills Road to Brayton Road)	0	1,716
Hume Highway (Brayton Road to Marulan S Road)	177	1,716
Hume Highway (Marulan S Road to Goulburn)	177	1,716
Red Hills Road (Hume Highway to Ambrose Road)	1,716	0
Ambrose Road (Red Hills Road to Brayton Road)	1,716	0
Brayton Road (Marulan to Ambrose Road)	0	177
Brayton Road (Ambrose Road to Quarry Access)	1,716	177
Brayton Road (Quarry Access to Canyonleigh Road)	20,344	5,145
Canyonleigh Road (Brayton Road to Gravel Road)	20,344	5,145
Canyonleigh Road (Gravel Road to Site Access)	20,344	5,145

PHASE C - COMPONENT DELIVERY

Activity Description	Project Volume	Vehicle	Origin
Solar Components	940	Semi Trailer	Port Kembla

Semi Unloaded (0%)	0.51	ESAs
Semi Loaded (100%)	4.93	ESAs

Route Summary	Gaz	A-Gaz
Hume Highway (North of Red Hills Road)	4,634	479
Hume Highway (Red Hills Road to Brayton Road)	4,634	4,634
Hume Highway (Brayton Road to Marulan S Road)	4,634	4,634
Hume Highway (Marulan S Road to Goulburn)	0	0
Red Hills Road (Hume Highway to Ambrose Road)	4,634	479
Ambrose Road (Red Hills Road to Brayton Road)	4,634	479
Brayton Road (Marulan to Ambrose Road)	0	0
Brayton Road (Ambrose Road to Quarry Access)	4,634	479
Brayton Road (Quarry Access to Canyonleigh Road)	4,634	479
Canyonleigh Road (Brayton Road to Gravel Road)	4,634	479
Canyonleigh Road (Gravel Road to Site Access)	4,634	479

PHASE D - BATTERY INSTALLATION

Activity Description	Project Volume	Vehicle	Origin
Electrical Cabling - HV Cable Delivery	3	Semi	Port Kembla
Internal Overhead Cabling - Water (for concrete)	18	Water Tanker	Goulburn
Internal Overhead Cabling - Steel Reinforcement	29	Truck and Dog Trailer	Goulburn
Internal Overhead Cabling - Sand	38	Truck and Dog Trailer	Brayton Road Quarries
Internal Overhead Cabling - Aggregate	57	Truck and Dog Trailer	Brayton Road Quarries
Internal Overhead Cabling - Cement	18	Truck and Dog Trailer	Goulburn

Semi Unloaded (0%)	0.51	ESAs
Semi Loaded (100%)	4.93	ESAs
Truck & 4 Axle Dog Unloaded (0%)	1.64	ESAs
Truck & 4 Axle Dog Loaded (100%)	6.15	ESAs

Route Summary	Gaz	A-Gaz
Hume Highway (North of Red Hills Road)	15	2
Hume Highway (Red Hills Road to Brayton Road)	15	393
Hume Highway (Brayton Road to Marulan S Road)	101	393
Hume Highway (Marulan S Road to Goulburn)	173	378
Red Hills Road (Hume Highway to Ambrose Road)	393	2
Ambrose Road (Red Hills Road to Brayton Road)	393	2
Brayton Road (Marulan to Ambrose Road)	0	86
Brayton Road (Ambrose Road to Quarry Access)	393	88
Brayton Road (Quarry Access to Canyonleigh Road)	977	244
Canyonleigh Road (Brayton Road to Gravel Road)	977	244
Canyonleigh Road (Gravel Road to Site Access)	977	244

PHASE E - SUBSTATION CONSTRUCTION

Activity Description	Project Volume	Vehicle	Origin
Substation Civils - Imported Material (Fill)	746	Truck and Dog Trailer	Brayton Road Quarries
Substation Civils - Imported Material (Capping)	12	Truck and Dog Trailer	Brayton Road Quarries
Substation Electrical Components - Substation Equipment (Transformer)	1	OSOM Special	Port Kembla
Substation Electrical Components - Substation Equipment (Switchgear)	1	OSOM Special	Port Kembla
Substation Electrical Components - Substation Equipment (Cabling)	1	Semi	Port Kembla
Substation Electrical Components - Substation Equipment (Miscellaneous Equipment)	1	Semi	Port Kembla
Substation Electrical Components - Substation Equipment (Operation and Control Building)	1	OSOM Special	Port Kembla

Semi Unloaded (0%)	0.51	ESAs
Semi Loaded (100%)	4.93	ESAs
Truck & 4 Axle Dog Unloaded (0%)	1.64	ESAs
Truck & 4 Axle Dog Loaded (100%)	6.15	ESAs
Electrical OSOM Unloaded (0%)	37.77	ESAs
Electrical OSOM Loaded (100%)	89.31	ESAs

Route Summary	Gaz	A-Gaz
Hume Highway (North of Red Hills Road)	274	115
Hume Highway (Red Hills Road to Brayton Road)	274	274
Hume Highway (Brayton Road to Marulan S Road)	274	274
Hume Highway (Marulan S Road to Goulburn)	0	0
Red Hills Road (Hume Highway to Ambrose Road)	274	115
Ambrose Road (Red Hills Road to Brayton Road)	274	115
Brayton Road (Marulan to Ambrose Road)	0	0
Brayton Road (Ambrose Road to Quarry Access)	274	115
Brayton Road (Quarry Access to Canyonleigh Road)	4,936	1,358
Canyonleigh Road (Brayton Road to Gravel Road)	4,936	1,358
Canyonleigh Road (Gravel Road to Site Access)	4,936	1,358

PHASE G - O&M BUILDING CONSTRUCTION

Activity Description	Project Volume	Vehicle	Origin
O&M Facility - Water (for concrete)	2	Water Tanker	Goulburn
O&M Facility - Steel Reinforcement	3	Truck and Dog Trailer	Goulburn
O&M Facility - Sand	4	Truck and Dog Trailer	Brayton Road Quarries
O&M Facility - Aggregate	5	Truck and Dog Trailer	Brayton Road Quarries
O&M Facility - Cement	2	Truck and Dog Trailer	Goulburn
O&M Facility - Imported Material	99	Truck and Dog Trailer	Brayton Road Quarries
Test Bed Facility - Water (for concrete)	2	Water Tanker	Goulburn
Test Bed Facility - Steel Reinforcement	3	Truck and Dog Trailer	Goulburn
Test Bed Facility - Sand	4	Truck and Dog Trailer	Brayton Road Quarries
Test Bed Facility - Aggregate	5	Truck and Dog Trailer	Brayton Road Quarries
Test Bed Facility - Cement	2	Truck and Dog Trailer	Goulburn
Test Bed Facility - Imported Material	100	Truck and Dog Trailer	Brayton Road Quarries

Semi Unloaded (0%)	0.51	ESAs
Semi Loaded (100%)	4.93	ESAs
Truck & 4 Axle Dog Unloaded (0%)	1.64	ESAs
Truck & 4 Axle Dog Loaded (100%)	6.15	ESAs

Route Summary	Gaz	A-Gaz
Hume Highway (North of Red Hills Road)	0	0
Hume Highway (Red Hills Road to Brayton Road)	0	81
Hume Highway (Brayton Road to Marulan S Road)	18	81
Hume Highway (Marulan S Road to Goulburn)	18	81
Red Hills Road (Hume Highway to Ambrose Road)	81	0
Ambrose Road (Red Hills Road to Brayton Road)	81	0
Brayton Road (Marulan to Ambrose Road)	0	0
Brayton Road (Ambrose Road to Quarry Access)	81	18
Brayton Road (Quarry Access to Canyonleigh Road)	1,416	374
Canyonleigh Road (Brayton Road to Gravel Road)	1,416	374
Canyonleigh Road (Gravel Road to Site Access)	1,416	374

PHASE H - DEMOBILISATION

Activity Description	Project Volume	Vehicle	Origin
Main Construction Compound Demobilisation	0	Semi Trailer	Goulburn
Minor Construction Compound Demobilisation	0	Semi Trailer	Goulburn
Batch Plant Demobilisation	0	Semi Trailer	Goulburn

Semi Unloaded (0%)	0.51	ESAs
Semi Loaded (100%)	4.93	ESAs

Route Summary	Gaz	A-Gaz
Hume Highway (North of Red Hills Road)	0	0
Hume Highway (Red Hills Road to Brayton Road)	0	0
Hume Highway (Brayton Road to Marulan S Road)	0	0
Hume Highway (Marulan S Road to Goulburn)	0	0
Red Hills Road (Hume Highway to Ambrose Road)	0	0
Ambrose Road (Red Hills Road to Brayton Road)	0	0
Brayton Road (Marulan to Ambrose Road)	0	0
Brayton Road (Ambrose Road to Quarry Access)	0	0
Brayton Road (Quarry Access to Canyonleigh Road)	0	0
Canyonleigh Road (Brayton Road to Gravel Road)	0	0
Canyonleigh Road (Gravel Road to Site Access)	0	0

GENERAL OPERATIONS - SITE WATER

Activity Description	Project Volume	Vehicle	Origin
Site Water Deliveries	625	Water Tanker	Goulburn

Semi Unloaded (0%)	0.51	ESAs
Semi Loaded (100%)	4.93	ESAs

Route Summary	Gaz	A-Gaz
Hume Highway (North of Red Hills Road)	0	0
Hume Highway (Red Hills Road to Brayton Road)	0	3,081
Hume Highway (Brayton Road to Marulan S Road)	319	3,081
Hume Highway (Marulan S Road to Goulburn)	319	3,081
Red Hills Road (Hume Highway to Ambrose Road)	3,081	0
Ambrose Road (Red Hills Road to Brayton Road)	3,081	0
Brayton Road (Marulan to Ambrose Road)	0	319
Brayton Road (Ambrose Road to Quarry Access)	3,081	319
Brayton Road (Quarry Access to Canyonleigh Road)	3,081	319
Canyonleigh Road (Brayton Road to Gravel Road)	3,081	319
Canyonleigh Road (Gravel Road to Site Access)	3,081	319

GENERAL OPERATIONS - SITE FUEL

Activity Description	Project Volume	Vehicle	Origin
Site Fuel Deliveries	625	Fuel Tanker	Goulburn

Semi Unloaded (0%)	0.51	ESAs
Semi Loaded (100%)	4.93	ESAs

Route Summary	Gaz	A-Gaz
Hume Highway (North of Red Hills Road)	0	0
Hume Highway (Red Hills Road to Brayton Road)	0	3,081
Hume Highway (Brayton Road to Marulan S Road)	319	3,081
Hume Highway (Marulan S Road to Goulburn)	319	3,081
Red Hills Road (Hume Highway to Ambrose Road)	3,081	0
Ambrose Road (Red Hills Road to Brayton Road)	3,081	0
Brayton Road (Marulan to Ambrose Road)	0	319
Brayton Road (Ambrose Road to Quarry Access)	3,081	319
Brayton Road (Quarry Access to Canyonleigh Road)	3,081	319
Canyonleigh Road (Brayton Road to Gravel Road)	3,081	319
Canyonleigh Road (Gravel Road to Site Access)	3,081	319

GENERAL OPERATIONS - WASTE

Activity Description	Project Volume	Vehicle	Origin
Site Waste Collection	72	Semi	Goulburn

Semi Unloaded (0%)	0.51	ESAs
Semi Loaded (100%)	4.93	ESAs

Route Summary	Gaz	A-Gaz
Hume Highway (North of Red Hills Road)	0	0
Hume Highway (Red Hills Road to Brayton Road)	0	355
Hume Highway (Brayton Road to Marulan S Road)	37	355
Hume Highway (Marulan S Road to Goulburn)	37	355
Red Hills Road (Hume Highway to Ambrose Road)	355	0
Ambrose Road (Red Hills Road to Brayton Road)	355	0
Brayton Road (Marulan to Ambrose Road)	0	37
Brayton Road (Ambrose Road to Quarry Access)	355	37
Brayton Road (Quarry Access to Canyonleigh Road)	355	37
Canyonleigh Road (Brayton Road to Gravel Road)	355	37
Canyonleigh Road (Gravel Road to Site Access)	355	37

UMW0122-005 | Wattle Creek Energy Hub (BESS Project)

Construction Pavement Impact % Calculations

Road ID	Road Description	AADT Segment	Base Data Year	Base Year AADT			Base Year HV%		Base Year HV		10 Yr GR%	2026 AADT			2026 HV		ESAs / HV	Duration (Days)	Background Pavement Loading (ESAs)		
				Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Gaz	A-Gaz		Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz			Gaz	A-Gaz	Bi-Dir
M31	Hume Highway (North of Red Hills Road)	T0247	2024	11,016	10,377	21,393	*12.38%*	*11.27%*	1,364	1,170	2.0%	11,461	10,796	22,257	1,419	1,217	3.18	548	2,470,734	2,119,324	4,590,058
M32	Hume Highway (Red Hills Road to Brayton Road)	T0247	2024	11,016	10,377	21,393	*12.38%*	*11.27%*	1,364	1,170	2.0%	11,461	10,796	22,257	1,419	1,217	3.18	548	2,470,734	2,119,324	4,590,058
M33	Hume Highway (Brayton Road to Marulan S Road)	T0247	2024	11,016	10,377	21,393	*12.38%*	*11.27%*	1,364	1,170	2.0%	11,461	10,796	22,257	1,419	1,217	3.18	548	2,470,734	2,119,324	4,590,058
M34	Hume Highway (Marulan S Road to Goulburn)	T0247	2024	11,016	10,377	21,393	*12.38%*	*11.27%*	1,364	1,170	2.0%	11,461	10,796	22,257	1,419	1,217	3.18	548	2,470,734	2,119,324	4,590,058
GMC	Red Hills Road (Hume Highway to Ambrose Road)	-	2024	204	212	416	*76.47%*	*68.87%*	156	146	2.0%	212	221	433	162	152	3.18	548	282,577	264,463	547,039
GMC	Ambrose Road (Red Hills Road to Brayton Road)	-	2024	204	212	416	*76.47%*	*68.87%*	156	146	2.0%	212	221	433	162	152	3.18	548	282,577	264,463	547,039
GMC	Brayton Road (Marulan to Ambrose Road)	-	2024	252	282	534	*13.49%*	*16.31%*	34	46	2.0%	262	293	556	35	48	3.18	548	61,587	83,324	144,911
GMC	Brayton Road (Ambrose Road to Quarry Access)	-	2024	387	423	810	*44.70%*	*41.13%*	173	174	2.0%	403	440	843	180	181	3.18	548	313,370	315,182	628,552
GMC	Brayton Road (Quarry Access to Canyonleigh Road)	-	2024	187	181	368	*7.49%*	*7.18%*	14	13	2.0%	195	188	383	15	14	3.18	548	25,359	23,548	48,907
GMC	Canyonleigh Road (Brayton Road to Gravel Road)	-	2024	62	53	115	*4.84%*	*5.66%*	3	3	2.0%	65	55	120	3	3	3.18	548	5,434	5,434	10,868
GMC	Canyonleigh Road (Gravel Road to Site Access)	-	2024	62	53	115	*4.84%*	*5.66%*	3	3	2.0%	65	55	120	3	3	3.18	548	5,434	5,434	10,868

Road ID	Road Description	AADT Segment	Project Pavement Loading - Construction																								% Increase ESAs		
			Gazettal												A-Gazettal											Bi-Dir			
			A	B	C	D	E	F	G	H	Water	Fuel	Waste	Total	A	B	C	D	E	F	G	H	Water	Fuel	Waste	Total	Total	Gaz	A-Gaz	Bi-Dir
M31	Hume Highway (North of Red Hills Road)	T0247	0	0	4,634	15	274	0	0	0	0	0	0	**4,923**	0	0	479	2	115	0	0	0	0	0	0	**596**	**5,519**	0.20%	0.03%	0.12%
M32	Hume Highway (Red Hills Road to Brayton Road)	T0247	0	0	4,634	15	274	0	0	0	0	0	0	**4,923**	15	1,716	4,634	393	274	0	81	0	3,081	3,081	355	**13,630**	**18,553**	0.20%	0.64%	0.40%
M33	Hume Highway (Brayton Road to Marulan S Road)	T0247	2	177	4,634	101	274	0	18	0	319	319	37	**5,881**	15	1,716	4,634	393	274	0	81	0	3,081	3,081	355	**13,630**	**19,511**	0.24%	0.64%	0.43%
M34	Hume Highway (Marulan S Road to Goulburn)	T0247	2	177	0	173	0	0	18	0	319	319	37	**1,044**	15	1,716	0	378	0	0	81	0	3,081	3,081	355	**8,707**	**9,751**	0.04%	0.41%	0.21%
GMC	Red Hills Road (Hume Highway to Ambrose Road)	-	15	1,716	4,634	393	274	0	81	0	3,081	3,081	355	**13,630**	0	0	479	2	115	0	0	0	0	0	0	**596**	**14,226**	4.82%	0.23%	2.60%
GMC	Ambrose Road (Red Hills Road to Brayton Road)	-	15	1,716	4,634	393	274	0	81	0	3,081	3,081	355	**13,630**	0	0	479	2	115	0	0	0	0	0	0	**596**	**14,226**	4.82%	0.23%	2.60%
GMC	Brayton Road (Marulan to Ambrose Road)	-	0	0	0	0	0	0	0	0	0	0	0	**0**	2	177	0	86	0	0	0	0	319	319	37	**939**	**939**	0.00%	1.13%	0.65%
GMC	Brayton Road (Ambrose Road to Quarry Access)	-	15	1,716	4,634	393	274	0	81	0	3,081	3,081	355	**13,630**	2	177	479	88	115	0	18	0	319	319	37	**1,554**	**15,183**	4.35%	0.49%	2.42%
GMC	Brayton Road (Quarry Access to Canyonleigh Road)	-	3,397	20,344	4,634	977	4,936	0	1,416	0	3,081	3,081	355	**42,221**	904	5,145	479	244	1,358	0	374	0	319	319	37	**9,178**	**51,399**	**166.49%**	**38.98%**	**105.09%**
GMC	Canyonleigh Road (Brayton Road to Gravel Road)	-	3,397	20,344	4,634	977	4,936	0	1,416	0	3,081	3,081	355	**42,221**	904	5,145	479	244	1,358	0	374	0	319	319	37	**9,178**	**51,399**	**776.96%**	**168.90%**	**472.93%**
GMC	Canyonleigh Road (Gravel Road to Site Access)	-	3,397	20,344	4,634	977	4,936	0	1,416	0	3,081	3,081	355	**42,221**	904	5,145	479	244	1,358	0	374	0	319	319	37	**9,178**	**51,399**	**776.96%**	**168.90%**	**472.93%**

Appendix L – Sample Drive Code of Conduct

Driver Code of Conduct

This document sets out the requirements for all employees and contractors working at the site.

General Requirements

The Driver Code of Conduct would be distributed to all sub-contractors with fleet accessing the site prior to the commencement of works. The Code would be provided to each driver to read and sign to confirm they have understood and pledge to follow the haulage instructions. Once completed, a copy of the signed Code would be supplied to the contractor for record keeping.

Heavy vehicle drivers hauling to and from the subject site must:

- Have read and signed the Driver Code of Conduct (this document) prior to entry to the site;
- Hold a valid driver's license for the class of vehicle that it being operated;
- Operate the vehicle in a safe manner while on site and public road network;
- Comply with the direction of authorised site personnel when onsite;
- All drivers are to use seat belts when driving; and
- All drivers are to drive to the sign posted speed limit, both on public roads and within the site.

Site Access

All access to the construction site is to be via the Project Area access on Canyonleigh Road only.

Heavy Vehicle Haul Routes

All heavy vehicle drivers must adhere to the designated truck haulage routes to/from the site (to be confirmed).

Heavy Vehicle Speed

Truck drivers must comply with the Australian Road Rules with travelling along public roads. Drivers are to observe the posted speed limits, and adjust speed appropriately to suit the road and weather conditions at the time.

The maximum speed that a vehicle must travel is the signposted speed. Warning signs indicating a reduction in speed ahead must also be obeyed.

Upon reaching the site, drivers will be instructed by traffic controllers on when and how to enter the site.

The speed limit within the site is 5km/hr (unless signposted otherwise in an area) which is to be strictly maintained.

Heavy Vehicles Driver Fatigue

The heavy vehicle driver fatigues law commenced in NSW in 2008 and applies to trucks and truck combinations over 12 tonnes GVM (however, Ministerial Exemption Notices may apply).

Under the law, industry has the choice of operating under three fatigue management schemes, namely:

1. Standard Hours of Operation
2. Basic Fatigue Management (BFM)
3. Advanced Fatigue management (AFM).

All heavy vehicle drivers associated with the construction works at the subject site must be aware of their adopted fatigue management scheme and operate within its requirements.

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Heavy Vehicle Compression Braking

Compression braking/ engine braking is not permitted within the vicinity of the site, that includes, internal to and surrounding the subject site.

Heavy Vehicle Noise

Permitted times of construction works at the site are as follows:

- Construction works shall be carried out on:
  - Monday to Friday 7:00am – 6:00pm
  - Saturday 8:00am – 1:00pm
  - No work is to be undertaken on Sundays or public holidays

Any works outside these times will only occur with approval from the relevant authorities prior to the commencement of any works.

Load Covering

All loaded trucks arriving at and departing from the construction site are required to have an effective cover over their load for the duration of the journey. The load cover may be removed only upon arrival at the destination (ie. at the site).

Care must be taken to ensure that all loose debris from vehicles and wheels is removed prior to exiting the site.

Site management is to monitor loose material on the side of the haul route and take appropriate action regularly.

Other Safety Considerations Along the Haul Route

Heavy vehicle drivers should be aware of the following:

- Concealed driveways – drivers are to drive with caution around any signed concealed driveways.
- Wet weather safety – drivers should adjust their driving speed to suit weather condition at the time.
- Other motorists – drivers should stay alert to other drivers, motorcyclists and cyclists on whilst driving to/ from the site.

Declaration

I, the undersigned, hereby agree to abide by the Driver Code of Conduct for the transportation of construction materials to/ from the site in a safe manner.

I have read and understand the requirements outlined in the Code and will, to the best of my ability, comply and assist with their implementation, requirements and ongoing administration.

Driver

Full Name: _____

Organisation: _____

Signature: _____

Date: _____

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TRAFFIC IMPACT ASSESSMENTS | SITE FEASIBILITY STUDIES | INTERSECTION ANALYSIS
ROAD SAFETY AUDITS | ROAD SAFETY INVESTIGATIONS | PAVEMENT IMPACT ASSESSMENTS
TRANSPORT ROUTE ASSESSMENTS | TRANSPORT PLANNING | ACCESS MANAGEMENT STATEGIES
PEER REVIEWS | PARKING FACILITY DESIGN | SERVICE FACILITY DESIGN