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Mount Hopeful Wind Farm **Traffic Impact Assessment** May 2023

Prepared for Umwelt (Australia) Pty Ltd

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Executive Summary

Access Traffic Consulting was commissioned by Umwelt (Australia) Pty Ltd on behalf of Neoen Australia Pty Ltd (Neoen) to undertake a Traffic Impact Assessment (TIA) for the proposed Mount Hopeful Wind Farm (the Project), which is to be located approximately 50 km south of the regional centre of Rockhampton, on land parcels within both the Rockhampton Regional Council and Banana Shire Council Local Government Areas (LGAs).

This report has been prepared to determine the level of potential impacts of both the construction and operational phases of the Project on the operation of the surrounding road network. The outcomes of the TIA will be used in support of the development application for the Project, with the Rockhampton Regional Council (RRC), Banana Shire Council (BSC) and the Department of Transport and Main Roads (DTMR) all expected to be advice agencies.

The assessment identified that the Project's construction phase was the most critical in terms of traffic impact, with only negligible traffic volumes (and therefore impacts) expected to be generated by the Project's operational phase. The assessment identified that the proposed construction works were conservatively forecast to generate between 3-250 vehicles per day (vpd) on the state-controlled road network (3-18vpd on sections of OSOM transport route and up to 250vpd on section of Burnett Highway adjacent to main site area egress from SCRN) and up to 390vpd on the BSC controlled links of McDonalds Road and Playfields Road, noting that these are peak daily volumes and unlikely to be realised every day.

It is also noted that Neoen is currently considering a delivery methodology for the Project which would include the provision of an on-site workers accommodation camp for the Project, which would be expected to significantly reduce the daily staff volumes commuting between Biloela and the subject site, and therefore the Project traffic volumes on the relevant sections of the Burnett Highway, McDonalds Road and Playfields Road.

Notwithstanding this, based on the increase in traffic volumes forecast, the construction and operational phases of the Project are expected to have a minor impact to the surrounding road network, with the technical assessment completed identifying the requirement for the following upgrade works and mitigation treatments to be provided as part of the Project to maximise the safety and operational performance of the surrounding road network:

- Completion of works along the identified transport route to accommodate the swept paths of the
 oversize over mass (OSOM) turbine component transport vehicles, including the relocation of signage
 and road lighting infrastructure and construction of required temporary hardstand pavement areas 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 turbine component and transport vehicle configurations are confirmed.
- Upgrade of the existing Burnett Highway / McDonalds Road intersection to provide basic left (BAL) and basic right (BAR) turn treatments on the Capricorn Highway approaches, as per Austroads standards. Upgrade to also include the completion of vegetation clearing works on the eastern side of the northern approach to the intersection to improve sight distances to/from McDonalds Road and implementation of traffic management measures on the northern Burnett Highway approach during temporary Project construction phase (22 - 28 months).
- Installation of advisory "truck turning" signage be installed on the approaches to the Burnett Highway / McDonalds Road and Bruce Highway / South Ulam Road intersections during the construction phase, to highlight to motorists the presence of the Project access locations and the potential for turning vehicles to/from the side roads.

- Upgrade of the existing unsealed sections of McDonalds Road (Ch. 0.000 to 5.720km) and Playfields Road (Ch. 5.080 to Ch. 24.420km) to provide a minimum 6.5m (unsealed) road pavement width in accordance with the BSC requirements for a rural access road.
- Construct new site access from South Ulam Road (LHS approx. Ch. 16.800km) to cater for Project volumes associated with the proposed eastern substation area. The new site access is to be provided in accordance with the requirements for a bitumen road (<300vpd) as per Standard Drawing CMDG-R-040 (Rural Road Access and Property Access Over Table Drains).
- Complete suitable road rehabilitation works (pavement / road surface) to the relevant 400m section of the Callide Mine Haul Road Access (between Dawson Highway and Argoon-Kilburnie Road) to provide appropriate road conditions to cater for the proposed OSOM turbine component transport movements.
- Upgrade of the existing drainage (floodway / culvert) and cattle grid structures on Mount Alma Road, Calliope Station Road, Argoon-Kilburnie Road, Jambin-Dakenba Road, McDonalds Road and Playfields Road respectively to provide adequate carriageway width and suitable vertical geometry for the proposed turbine component transport vehicle configurations associated with the Project. It is noted that the exact configuration of these upgrade works will be determined in subsequent detailed design phases of the Project once the turbine component and transport vehicle configurations are confirmed.

In addition to the traffic assessments completed, a preliminary desktop pavement impact assessment of the relevant road network was also undertaken for the construction phase of the Project. The results of the assessment indicate that the heavy vehicle movements associated with the development of the proposed Mount Hopeful Wind Farm are expected to lead to negligible increases in pavement loadings on the majority of the identified sections of the state-controlled road network, with calculated values of loading increase generally below the typical 5% increase trigger threshold. The results did however identify higher increases on the following sections of the state-controlled road network:

- Leichhardt Highway (26A) TMR Ch. 0.115km 25.680km (gazettal direction).
- Burnett Highway (41E) TMR Ch. 0.000km 71.730km (gazettal and against-gazettal directions).

It is therefore expected that pavement maintenance contributions will be required to be provided to TMR to mitigate/offset the expected pavement impacts of the Project on these sections of the state-controlled road network. The exact amount of these contributions has not been calculated as part of this assessment, due to the preliminary nature of the Project details at this initial planning stage of the proposed Mount Hopeful Wind Farm. Therefore, further detailed calculations to confirm the required pavement maintenance contribution will be undertaken in subsequent stages of the Project once the site configuration, transport vehicle configurations and construction phase details (quantities, material sources etc.) are finalised.

It is also noted that the increases in loading on the identified section of the Leichhardt Highway are primarily due to the expected road gravel and aggregate transport movements for the Project from the currently proposed quarry source. As such, the mitigation of the impacts of these movements on the identified sections of the state-controlled network are expected to fall on the quarry operator and be covered by their typical maintenance contribution (c/tonne) to TMR as part of the general operation of the quarry.

In addition to the state-controlled road network, the results above indicated that the additional vehicle movements from the proposed construction phase of the Mount Hopeful Wind Farm will also lead to a significant (>5%) increase in pavement loadings on the RRC controlled South Ulam Road (gazettal direction) and the BSC controlled links of McDonalds Road and Playfields Road. Further to this, while no percentage increase could be established due to the lack of current traffic data for the identified Gladstone Regional Council (GRC) controlled links of Macfarlane Road, Flinders Parade, Lord Street, Red Rover Road, Don Young Drive, Mount Alma Road and Calliope Station Road and the BSC links of Callide Mine Haul Road, Argoon-

Kilburnie Road and Jambin-Dakenba Road it is anticipated that the use of these roads as part of the proposed turbine component transport operations for the Project will also lead to an increase in pavement loadings.

Based on this, it is recommended that the proponent enter into an Infrastructure Agreement with RRC, GRC and BSC regarding the required mitigation works on the identified links to offset the calculated pavement impacts of the Project. It also recommended that this infrastructure agreement references the requirement for pre and post dilapidation inspections to be undertaken on the relevant sections of Macfarlane Road, Flinders Parade, Lord Street, Red Rover Road, Don Young Drive, Mount Alma Road and Calliope Station Road (GRC), South Ulam Road (RRC) and Callide Mine Haul Road, Argoon-Kilburnie Road, Jambin-Dakenba Road, McDonalds Road and Playfields Road by representatives of the proponent and the appropriate Council (GRC / RRC / BSC). These inspections are required to identify and document the current condition of the roads (pre construction) and 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 condition prior to the introduction of Project traffic (post construction).

Taking the above into consideration, this report demonstrates that the Project complies with Performance Outcomes 6 (Traffic and Access) and 13 (Construction Impact - local transport networks and road infrastructure) of *State Code 23: Wind farm development.*

1.0 Introduction

1.1 Project Background

Neoen Australia Pty Ltd (Neoen), is the proponent of the Mount Hopeful Wind Farm (the Project and proposing to develop the Project on land approximately 50 km to the south of Rockhampton, and approximately 25 km east of the township of Dululu, in Central Queensland. The Project consists of up to 63 wind turbine generators (WTGs) and has a generation capacity of approximately 400 megawatts (MW).

1.2 Scope and Study Area

Access Traffic Consulting was subsequently commissioned by Umwelt (Australia) Pty Ltd on behalf of Neoen to undertake a Traffic Impact Assessment (TIA) for the proposed Mt Hopeful wind farm development, located on land straddling both the Rockhampton Regional Council and Banana Shire Council Local Government Areas (LGAs).

This Traffic Impact Assessment (TIA) was carried out to determine the level of potential impacts of both the construction and operational phases of the Project on the operation of the surrounding road network. The outcomes of the TIA will be used in support of the development application for the Project, with the Rockhampton Regional Council (RRC), Banana Shire Council (BSC) and the Department of Transport and Main Roads (DTMR) expected to be advice agencies.

Further to this, the purpose of this report is also to assess the Project's compliance with Performance Outcome (PO) 6 (Traffic and Access) and PO13 (Construction Impact - local transport networks and road infrastructure) under State Code 23: Wind farm development (State Code 23).

The following methodology was adopted to undertake the required assessments as part of the TIA, 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 and operational phases of the Project and the distribution of this Project traffic on the identified road network, including the movement of materials, plant and equipment in addition to the construction and operational phase workforce.
- Assess the potential impact of the Project on the surrounding transport infrastructure during both the construction and operational phases.
- Identify potential mitigation and management strategies to be implemented during the construction and operational phases to offset the impact of the proposed Project (if required).

The adopted methodology centres on establishing a background, "without Project" traffic scenario for the identified sections of the surrounding transport routes and comparing this with a scenario including the Project-generated traffic, i.e. the "with Project" scenario.

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, pavement loading and other transport infrastructure. Following this, if required, potential mitigation and/or management measures would be formulated to address the potential traffic impacts caused by the proposed Project.

Finally, it is noted that the assessment completed is preliminary only and represents the current proposal for the Mount Hopeful Wind Farm Project as provided by the Proponent (Neoen). It is therefore anticipated that additional revisions to this assessment will be required when the exact configuration and construction phase details (material sources etc.) are confirmed during future stages of the Project.

1.2.1 Study Area

As noted above, the Project is located approximately 50 km south of Rockhampton and 25 km east of the regional township of Dululu, as shown in **Figure 1** below.



Figure 1 Mount Hopeful Wind Farm - Study Area

[Source: Google Earth Pro]

The overall Project area encompasses four properties covering a total of approximately 16,757 hectares (ha), while the Project footprint (i.e. maximum area of disturbance) is a much smaller area. The four properties forming the overall Project area consist of a number of individual land parcels, as summarised in **Table 1** below.

Lot and Plan	Address	Area (ha)	Tenure	Landowner/s	LGA
Lot 21 RN1345	Glengowan Road, Ulogie QLD	5196.6	Freehold	Harry Walker Treelopping Pty Ltd	Banana
Lot 24 RN34	Glengowan Road, Ulogie QLD	2752.5	Freehold	Harry Walker Treelopping Pty Ltd	Banana
Lot 23 RN25	Glengowan Road, Ulogie QLD	976.2	Freehold	Harry Walker Treelopping Pty Ltd	Banana
Lot 30 RN72	Glengowan Road, Ulogie QLD	engowan Road, 1723.7 Freehold Brett C		Brett Christie and Renee Christie	Banana
Lot 21 RN46	1682A South Ulam Road, Bajool QLD	1470.6	Freehold LTH Grazing Pty Ltd		Rockhampton
Lot 25 RN25	1682A South Ulam Road, Bajool QLD	183.5	Freehold	LTH Grazing Pty Ltd	Rockhampton
Lot 2039 RAG4056	1682A South Ulam Road, Bajool QLD	801.0	Freehold	LTH Grazing Pty Ltd	Rockhampton
Lot 1933 RAG4058	1682A South Ulam Road, Bajool QLD	N 826.3 Freehold LTH Grazing		LTH Grazing Pty Ltd	Rockhampton

Table 1 Land Parcel Details

Lot and Plan	Address	Area (ha)	Tenure	Landowner/s	LGA	
Lot 2057 RAG4059	1682A South Ulam Road, Bajool QLD	845.9	Freehold	LTH Grazing Pty Ltd	Rockhampton	
Lot 15 RN1089	1682A South Ulam Road, Bajool QLD	585.9	Freehold	LTH Grazing Pty Ltd	Rockhampton	
Lot 148 DS151	1682 South Ulam Road, Bajool QLD	235.4	Freehold	Brett McCamley	Rockhampton	
Lot 2420 DT4077	1682 South Ulam Road, Bajool QLD	64.8	Freehold	Brett McCamley	Rockhampton	
Lot 2345 DT4077	1682 South Ulam Road, Bajool QLD	105.3	Freehold	Brett McCamley	Rockhampton	
Lot 50 DT40144	1682 South Ulam Road, Bajool QLD	24.3	Freehold	Brett McCamley	Rockhampton	
Lot 33 DT40123	1682 South Ulam Road, Bajool QLD	66.5	Freehold	Brett McCamley	Rockhampton	
Lot 38 DT40131	1682 South Ulam Road, Bajool QLD	71.5	Freehold	Brett McCamley	Rockhampton	
Lot 100 SP28944	1682 South Ulam Road, Bajool QLD	595.0	Freehold	Brett McCamley	Rockhampton	
Local road reserves	Not Applicable	232.6	Road reserve	DoR	Banana and Rockhampton	
Total Area		16757.5 ha				

1.3 Approval Agency Advice

1.3.1 Pre-Lodgement Meeting Minutes

As part of the development application process for the Project a pre-lodgement meeting was held with representatives of the State Assessment & Referral Agency (SARA) on 27 August 2020. Minutes of this meeting have been included for reference in **Appendix A**, with a summary of the relevant items provided below.

6. State transport infrastructure

- Access is proposed from a local road rather than directly from a state-controlled road.
- The primary issue to be addressed at the material change of use stage is to have demonstrated a genuine attempt at detailing the haulage route from the port to the project site.
- It is recommended the proponent consider how construction materials / product are going to be transported to the site and identify existing conflict points (eg. crossing under bridges, intersections), design vehicles and movement activities.
- Additional details can be added or refined at in the detailed design stage in downstream approvals under the Transport Infrastructure Act 1994 (eg. section 33 approvals for works within state transport corridor).
- There is the ability for SARA to condition a Traffic Impact Assessment (TIA), which could include a pavement impact assessment as part of the material change of use. Any TIA will need to be undertaken in accordance with DTMR requirements.
- Depending upon the number and type of future roadworks requirement, it is recommended to allow at least 6 to 12 months for DTMR assessment of the downstream approvals.
- If a TIA is available upfront at the time of making the development application, this will assist but is not required. The route assessment is what is required at the material change of use stage.

Haulage Route

24. The proposed haulage route on both state and local roads for the movement of OSOM vehicles should be identified. It is recommended that the National Heavy Vehicle Regulator (NHVR) Route Planner (also known as Journey Planner) is used to demonstrate compliance. The Route Planner Tool is an interactive, online mapping system contained within the NHVR Portal to assist with the process of planning routes, applying for access permits and viewing heavy vehicle network routes.

More information can be found at https://www.nhvr.gov.au/road-access/route-planner

- 25. After obtaining a development approval for a material change of use for a wind farm, the proponent would also need to identify the impacts associated with the wind farm in greater detail and put in place mitigation strategies in order to obtain the various downstream approvals and permits required before construction can begin. Items that need be resolved prior to the first construction vehicle is in movement may include, but is not limited to the following:
 - Identify 'pinch points' on road infrastructure and operations along the proposed haulage route impacted by the movement of OSOM vehicles for example at intersections, lane closures, road widening, structures and railway crossings.
 - Develop strategies to specifically manage the 'pinch points' impacted on the haulage route.
 - Construction movement schedules for example, commencement of haulage, expected duration of each haulage, total duration of all construction movement activities.
 - Traffic Management Plan.
 - Road Use Management Plan.
 - Road Safety Audit.
 - Communication Plan.
 - Alternative Haulage Routes (if required).
 - Additional permits or approvals for example, Queensland Police Services.

DTMR will work with proponents, post decision to ensure that all additional information necessary is provided and the required downstream approvals and permits are obtained to ensure construction can proceed smoothly.

However, these processes take time and often require the submission of very detailed information. It is recommended that contact be made with DTMR and/or local governments as soon as possible post decision, but at least 12 months before construction is scheduled to commence.

For more information please contact the Heavy Vehicle Access team via <u>LDAccess_HVROPO@tmr.qld.gov.au</u>

This TIA has been prepared in response to a number of the items identified above and aims to provide additional information and clarification to the traffic assessment undertaken, in particular regarding the expected traffic and pavement impact of the proposed wind farm development on the state and local government controlled road networks.

Further information regarding the turbine component transport movements and routes for the Project is provided in the Preliminary Transport Route Assessment report, which should be read in conjunction with this TIA report.

In addition, while identified above, the preparation of traffic management and road use management plans are proposed to be undertaken as part of the subsequent detailed design phases of the Project when more accurate information regarding the proposed wind farm is available. It is noted that this approach is consistent with other wind farm Projects previously assessed and approved under State Code 23.

1.4 Data Sources

The following sources of data have been used for the purpose of this assessment:

- TMR AADT Road Segment Data for identified sections of the state-controlled road network.
- TMR Site Weekly Volume Report data for Site 60055 41E Burnett Highway (Biloela-Mount Morgan), included for reference in **Appendix B**.
- TMR Intersection Count for Bruce Highway / South Ulam Road (2016), included for reference in Appendix C.
- Queensland Globe (https://qldglobe.information.qld.gov.au) crash data in vicinity of the site.

1.5 Limitations

Whilst the assessment undertaken is deemed appropriate to assess the anticipated traffic impacts of the proposed Mount Hopeful Wind Farm on the surrounding road network, the following limitations should be noted:

- No assessment has been undertaken to determine the acceptability of the use of the existing culvert
 and bridge infrastructure along the identified turbine component transport route from a structure load
 limits / restrictions perspective. This is due to the fact that the vehicle and load configurations for the
 turbine component transport operations adopted in this assessment are indicative only, with the exact
 vehicle and load configurations to be confirmed by a suitable transport contractor. It is therefore
 expected that the assessment of these structure will be completed by this transport contractor as
 part of the updated route assessment / traffic management plan / road use management plan
 undertaken as part of subsequent stages of the Project.
- The assessment of the traffic impact of the proposed Project does not consider the works anticipated to be required as part of the route preparation works for the turbine component transport operation, as identified in the associated Preliminary Transport Route Assessment completed for the Project (dated November 2020). It is expected that these works will form part of additional road corridor works permit for the Project.

2.0 Existing Conditions

2.1 Land Use and Zoning

Currently the land contained within the identified Project area is generally used for agricultural purposes, mainly grazing. The land is identified as a "rural" under the zoning mapping contained within the current Rockhampton Regional Council (RRC) and Banana Shire Council (BSC) planning schemes, as shown in **Figure 2** and **Figure 3**.



Figure 2 Land Use Zoning

[Source: RRC Planning Scheme Zone Mapping]



Figure 3 Land Use Zoning

[Source: BSC Planning Scheme Zone Mapping]



2.2 Adjacent Land Use / Approvals

As shown in **Figure 2** and **Figure 3** above, all of the adjacent land parcels to the Project site are currently zoned rural land under either the Rockhampton Regional Council or Banana Shire Council planning schemes.

Further to this, no active or planned development approvals which could influence this TIA are understood to be currently held over the adjacent properties.

2.3 Surrounding Road Network Details

2.3.1 Project Transport Routes

The following updated information regarding the expected construction and operations activities associated with the Project was provided by Neoen.

2.3.1.1 Project Construction Phase

- The main workforce during construction will consist of local workers (commuting generally from Biloela), and specialist FIFO workers, for whom accommodation will also be provided in Biloela and will commute daily to/from the Project site. An option to provide an on-site workers accommodation camp for the Project is also currently being considered by Neoen, with the provision of such camp facilities expected to significantly reduce daily staff commute volumes between Biloela and the subject site.
- The construction workforce for the construction on the eastern substation and battery storage facility (via South Ulam Road) will consist of local workers (commuting generally from Rockhampton), and specialist FIFO workers, who will also commute daily to/from the eastern site from Rockhampton.
- Construction equipment (bulk earthworks plant, prefabricated buildings) and materials (such as cement, concrete aggregates, reinforcing steels and road gravels) will primarily be sourced locally (as far as reasonably practical).
 - Equipment and materials for the main Project site (via McDonalds Road / Playfields Road) will be sourced from either Gladstone or Biloela, with gravel materials expected to be sourced from quarry sites near Westwood and site water sourced from Biloela.
 - Equipment and materials for the eastern substation and battery storage site (via South Ulam Road) will be sourced from Rockhampton (including concrete), with gravel materials expected to be sourced from the quarry operations in Midgee.
- Significant turbine components and specialist equipment will be imported from overseas and shipped to the Port of Gladstone, before being transported by road using both state controlled and local government controlled roads (Gladstone Regional Council (GRC) and Banana Shire Council) to the wind farm site.
- A preliminary transport route assessment from these port facilities has been undertaken, with the following routes for the transport of wind farm components from the Port of Gladstone identified.

A summary of the preliminary OSOM turbine component transport routes is provided in **Table 2**, with the proposed Project transport routes indicatively shown in **Figure 4**.

It is noted that further assessment works are currently being undertaken in regard to the potential OSOM transport routes for the Project based on potential alternative turbine component dimensions, with any amendments to the currently proposed OSOM transport routes expected to be further assessed as part of subsequent operational works approvals for the Project.

	From Po	ort of Gladstone	
Blades	Drive Trains / Hubs	Tower Sections 5-7 & Nacelles	Tower Sections 1-4
Macfarlane Drive (GRC) Hopper Road (GRC) Gladstone Port Access Rd Gladstone-Mt Larcom Rd Bruce Highway Dawson Highway Burnett Highway McDonalds Road (BSC) Playfields Road (BSC)	Macfarlane Drive (GRC) Hopper Road (GRC) Gladstone Port Access Rd Gladstone-Mt Larcom Rd Red Rover Road (GRC) Don Young Drive (GRC) Dawson Highway Burnett Highway McDonalds Road (BSC) Playfields Road (BSC)	Macfarlane Drive (GRC) Flinders Parade (GRC) Lord Street (GRC) Gladstone-Mt Larcom Rd Red Rover Road (GRC) Don Young Drive (GRC) Dawson Highway Burnett Highway McDonalds Road (BSC) Playfields Road (BSC)	Macfarlane Drive (GRC) Flinders Parade (GRC) Lord Street (GRC) Gladstone-Mt Larcom Rd Red Rover Road (GRC) Don Young Drive (GRC) Dawson Highway Bruce Highway Mt Alma Road (GRC) Calliope Station Road (GRC) Dawson Highway Callide Mine Haul Rd Access (BSC) Argoon-Kilburnie Road (BSC) Jambin-Dakenba Road (BSC) Burnett Highway McDonalds Road (BSC)

Table 2 Preliminary Turbine Component Transport Routes



Figure 4 Project Transport Routes

[Source: Qld Globe]

2.3.1.2 Project Operations Phase

- The workforce during operation will consist of a small number of local workers (i.e. approximately 10 staff) who are expected to reside locally to the Project site (likely in Biloela).
- Heavy vehicle movements during the operations stage of the Project are anticipated to be extremely low, with only occasional movements to/from site (in the order of 1 vehicle per week from Biloela) associated with maintenance activities, routine removal of waste and delivery of consumables to the site operations facility.

2.3.2 State Controlled Road Links

2.3.2.1 Gladstone Port Access Road (183)

The Gladstone Port Access Road is an approved B-double route approximately 850m in length and provides a connection from the Port of Gladstone to the external state-controlled road network via Hanson Road (Gladstone-Mount Larcom Road). The road currently operates as a two-way, two-lane carriageway with a posted speed limit of 60km/h.

2.3.2.2 Gladstone-Mount Larcom Road (181)

The full length of Gladstone – Mount Larcom Road is expected to be relevant to the Project, with the section between the intersection with Gladstone Port Access Road in Gladstone and the Bruce Highway at Mt Larcom proposed to form part of the transport route for the turbine blades, while the remaining turbine components will utilise the section of the link between Lord Street and Red Rover Road. In addition, the initial section of the link between the Dawson Highway and the Gladstone Port Access Road is expected to be utilised by the return turbine transport vehicle movements to the port.

Gladstone – Mount Larcom Road is an approved B-Double route that contains both urban and rural road conditions, with the urban section within Gladstone operating as a two-way, four lane, median divided carriageway with a posted speed limit of 60km/h before transitioning to a higher speed (100 km/h) rural connection with a standard two-way, two-lane configuration.

2.3.2.3 Dawson Highway (46A – Gladstone-Biloela)

The Dawson Highway is proposed to be utilised as part of a diversion for the turbine component transport operations as well as a transport route from equipment and materials for the Project sourced from Gladstone. As such the full length of the link is expected to be relevant to the Project. In general, the Dawson Highway is a two-way, two-lane rural highway approved for B-Double use, with a posted speed limit of 100 km/h, however lower speed (60 km/h) sections are also provided in built up areas through townships.

2.3.2.4 Dawson Highway (46B - Biloela-Banana)

The relevant section of the 46B section of the Dawson Highway is the short length (1.366m) between the intersections with the northbound and southbound sections of the Burnett Highway in Biloela. This section of the link is anticipated to be utilised as part of the turbine blade transport route, as well as the route for construction materials and equipment to the main Project site. In general, this section of the Dawson Highway is configured as a two-way, four lane median divided carriageway approved for B-Double use, with a posted speed limit of 60 km/h.

2.3.2.5 Bruce Highway (10E – Benaraby-Rockhampton)

Two sections of the Bruce Highway (10E) are expected to be relevant to the Project, namely the section between the intersections with the Dawson Highway (Ch. 11.445km) and Gladstone-Mount Larcom (Ch. 45.420km) which is proposed to be utilised by turbine component transport vehicles, and the section between South Ulam Road (Ch. 86.183km) and the end of the link in Rockhampton, which will be utilised by

construction traffic associated with the eastern substation area of the Project site. In general, this section of the Highway is a two-way, two-lane road approved for B-Double use, with a posted speed limit of 100 km/h, except within built-up areas through townships where the posted speed typically decreases to 60km/h.

2.3.2.6 Burnett Highway (41E - Biloela-Mt Morgan)

The section of the Burnett Highway (41E) expected to be relevant to the Project is the 71.730km length stretching from the Dawson Highway in Biloela, to the intersection with the Leichhardt Highway in Dululu. The section of the link south of McDonalds Road (Ch. 56.310km) is proposed to be utilised for Highway at Mt Larcom proposed to form part of the turbine component transport route, as well as be utilised for the transport of construction materials and equipment. While the section of the link north of McDonalds Road to Dululu is proposed to be used as part of the transport route for road gravel and aggregate materials from the quarry to the main Project area. The relevant section of the Burnett Highway currently provides a two-way, two-lane rural highway road carriageway approved for B-doubles, with a posted speed limit of 100 km/h.

2.3.2.7 Leichhardt Highway (26A – Westwood-Taroom)

The Leichhardt Highway is a key north-south inland route and provides a connection between Westwood (to the west of Rockhampton) to Miles in the south. The initial 25.680km of the link between the Capricorn Highway and the Burnett Highway at Dululu is anticipated to be relevant to the Project and is proposed to be used as part of the transport route for road gravel and aggregate materials from the quarry operation to the main Project area. The Leichhardt Highway currently provides a two-way, two-lane road carriageway approved for Type 1 road trains, with a posted speed limit of 100 km/h.

2.3.3 Local Government Controlled Road Links

2.3.3.1 Macfarlane Drive (GRC)

An approved B-double route, Macfarlane Drive is a local road controlled by Gladstone Regional Council that provides connectivity and access to the adjacent port facilities. The length of the link relevant to the Project is the 1.210 km section between the intersections of Hopper Road and Flinders Parade, which is expected to be utilised as part of the route for the turbine component transport operations. Currently the configuration of the road is a two-way two-lane sealed carriageway with sections allowing for kerbside parking, while the available sealed width of the link varies between 11-16m.

2.3.3.2 Flinders Parade (GRC)

The relevant section of Flinders Parade is the 670m section between Macfarlane Drive and Lord Street, which is controlled by Gladstone Regional Council. This section of the link is expected to be utilised as part of the transport route for the turbine tower section and nacelle component transport operations. The initial 350m of the link is generally restricted to vehicles (with removable bollards) and travels through the adjacent parklands, providing a 7.5m wide sealed carriageway, while the southern portion of the link provides a two-way, two-lane carriageway with a sealed width of approximately 11m, with the whole link identified as an approved B-Double route.

2.3.3.3 Lord Street (GRC)

Lord Street is a local road controlled by Gladstone Regional Council. The length of the link relevant to the Project is the 515m section between the Flinders Parade and Hanson Road (Gladstone-Mt Larcom Road), which is proposed to be utilised as part of the transport route for the turbine tower section and nacelle components. The link is an approved B-double route), with the current configuration providing a two-way two-lane sealed carriageway with a typical width of 13m.

2.3.3.4 Red Rover Road (GRC)

Red Rover Road is an industrial collector style road controlled by Gladstone Regional Council. The length of the link relevant to the Project is the full 3.390 km length between the Gladstone-Mount Larcom Road and Don Young Drive, which is proposed to be utilised as part of the diversion of the transport route for the over mass and oversize (height) turbine components. The link is an approved B-double route with the current configuration providing a two-way two-lane sealed carriageway with a typical width of 11m.

2.3.3.5 Don Young Drive (GRC)

Similarly, Don Young Drive is also an industrial collector style road controlled by Gladstone Regional Council, which in conjunction with Red Rover Road provides a connection between Gladstone-Mount Larcom Road and the Dawson Highway. The full length of the link is considered relevant to the Project and is proposed to be utilised as part of the diversion of the transport route for the over mass and oversize (height) turbine components. The link is also an approved B-double route, and currently provides an 11m wide two-way two-lane sealed carriageway.

2.3.3.6 South Ulam Road (RRC)

South Ulam Road is identified as a minor rural collector road which is controlled by the Rockhampton Regional Council. The section of this road relevant to the Project is the 16.773km section from the Bruce Highway to the proposed secondary site access, which is expected to be utilised by Project traffic (staff and material/equipment delivery heavy vehicles) associated with the construction phase of the eastern substation area. The link is also an approved B-double route, and currently provides a 6.5m wide two-way two-lane sealed carriageway.

2.3.3.7 Mount Alma Road (GRC)

Mount Alma Road is a rural access road controlled by Gladstone Regional Council, which in conjunction with Calliope River Road provides a connection between the Bruce Highway (10E) and the Dawson Highway (46A). The full length of the link is considered relevant to the Project and is proposed to be utilised as part of the diversion of the transport route for the oversize tower turbine components (Sections 1-4 of 7).

Currently the link provides a two-way two-lane unsealed carriageway, with a general road width of 5-5.5m (refer to **Figure 5** and **Figure 6** below), noting that narrower road widths do occur at a number of cattle grids and floodways along the length of Mount Alma Road.



Figure 5 Northern End of Mount Alma Road

Figure 6 Southern End of Mount Alma Road

2.3.3.8 Calliope Station Road (GRC)

Calliope Station Road is also a rural access road under the control of Gladstone Regional Council. As noted above the link forms part of an informal connection between the Bruce Highway and the Dawson Highway, with the section between Mount Alma Road and the Dawson Highway considered relevant to the Project as



it is proposed to be utilised for the oversize tower turbine components transport movements (Sections 1-4 of 7).

Currently the road operates as a two-way, two lane unsealed rural road with a general width of 6m (refer **Figure 7** and **Figure 8**). Again, a number of cattle grid structures (3) and a culvert/floodway structure is located along the relevant section of the link, with the available road width noted to narrow to approximately 4m (and one lane operation) at these locations.







Figure 8 Eastern End of Calliope Station Road

2.3.3.9 Callide Mine Haul Road Access (BSC)

The Callide Mine Haul Road Access is a gated access road which acts as a bypass route around the Callide Mine Road overpass over the Dawson Highway. Located primarily within a BSCroad reserve, the road is access restricted and controlled by the operator of the Callide Mine. The full length of the access road between the Dawson Highway and Argoon-Kilburnie Road is proposed to be utilised by the oversize tower turbine components transport movements (Sections 1-4 of 7), with the current alignment of the link shown in **Figure 9** below.



Figure 9 Callide Mine Haul Road Bypass Alignment

[Source: Old Globe]

The access road is currently provided at a width of 6m, with the road surface generally unsealed, with signs of previous seal and deterioration observed, as shown in **Figure 10** and **Figure 11**.



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Figure 10 Eastern End of Callide Mine Haul Road Access

Figure 11 Western End of Callide Mine Haul Road Access

2.3.3.10 Argoon-Kilburnie Road (BSC)

Argoon-Kilburnie Road is a rural collector road under the control of Banana Shire Council, which provides a lower order connection between the Dawson Highway and the Burnett Highway. The section of the link deemed relevant to the Project is the 12.940km length between the Callide Mine Haul Road Access and Jambin-Dakenba Road, which is proposed to be utilised as a bypass (around Biloela) transport route for the over height base tower section turbine components of the project. The road is identified as an approved B-Double route, and currently the operates as a two-way, two lane sealed rural road with a general width of 6m (refer **Figure 12** and **Figure 13**).



Figure 12 Eastern End of Argoon-Kilburnie Road



Figure 13 Western End of Argoon-Kilburnie Road

2.3.3.1 Jambin-Dakenba Road (BSC)

Similarly, Jambin-Dakenba Road is also a rural collector style road under the control of Banana Shire Council. The section of the link relevant to the Project is the 9.400km length between the Argoon-Kilburnie Road in the south and the Burnett Highway at Jambin to the north, which is proposed to be utilised as part of the bypass (around Biloela) transport route for the over height base tower section turbine components of the project. Currently, Jambin-Dakenba Road is identified as an approved B-Double route, which operates as a two-way, two lane sealed rural road with a general width of 6.5-7m (refer **Figure 14** and **Figure 15**).







Figure 15 Northern End of Jambin-Dakenba Road

Figure 14 Southern End of Jambin-Dakenba Road

2.3.3.1 McDonalds Road (BSC)

McDonalds Road is a rural access road under the control of Banana Shire Council, which connects the Burnett Highway to both Playfields Road to the east and Dixalea Dooreen Road to the north. The full length of the link is anticipated to be utilised by both the turbine component transport vehicles and the Project traffic for both construction and operations phase of the proposed wind farm development.

Currently the road operates as a two-way, two lane unsealed rural road with a general width of 5-5.5m (refer **Figure 16** and **Figure 17**). Finally, from site observations it was noted that the road was displaying signs of deterioration, with limited gravel pavement material currently provided on the road.





Figure 16 Western End of McDonalds Road

Figure 17 Eastern End of McDonalds Road

2.3.3.1 Playfields Road (BSC)

Playfields Road is also a rural access road under the control of Banana Shire Council, with the Project traffic (including both the turbine component transport vehicles and the construction and operations phase vehicles) proposed to utilise the 24.420km section to the east of McDonalds Road to gain access to the main Project area site.

Currently the road provides two distinct carriageway configurations, with the initial 5km section operating as a two-way, two lane sealed rural road with a general width of 6m (refer **Figure 18**), with the remaining length of the link providing a two-way, two-lane unsealed (gravel) road whose width varies from 5-6m (refer **Figure 19**). A number of cattle grid and floodway structures are located along the relevant length of Playfields Road, with the available road width noted to narrow (various widths down to 4m), restricting use of the link to one lane operation at these locations. As with McDonalds Road, site observations identified that the relevant section of Playfield Road was displaying signs of deterioration, with only limited gravel pavement material provided at various sections of the link.







Figure 18 Western Sealed Section of Playfields Road

Figure 19 Eastern Unsealed Section of Playfields Road

2.3.4 Intersections

In terms of the traffic impact assessment for the proposed Mount Hopeful Wind Farm, the critical intersections on the external road network were identified to be the access intersections from the state-controlled road networks to both the main site area, via the intersection of the Burnett Highway / McDonalds Road, and the access to the eastern substation and battery storage area, via the Bruce Highway / South Ulam Road intersection. Further details of the current configuration of these intersections are provided below.

All other intersections on the external road network were noted to primarily only be utilised by turbine component transport vehicles. The movements of these Project vehicles are only temporary and as they are expected to travel out of hours and under full escort, they are not anticipated to have a significant impact on the operation of intersections. As such no further assessment of these intersections was deemed warranted.

2.3.4.1 Burnett Highway / McDonalds Road

The current configuration of the Burnett Highway / McDonalds Road intersection is a standard three-way priority controlled (give way) rural intersection, noting offset to lower order Dingles Road to the west. A single approach and departure lane is provided on each approach to the intersection, with no designated turn treatments currently provided on either of the major road Burnett Highway approaches for turning movements in to McDonalds Road as shown in **Figure 20**. Suitable site distances from McDonalds Road are expected to be available to the south along the Burnett Highway (refer **Figure 21**), but the sight distances to the north were observed to be restricted due to vegetation in the verge and the existing horizontal geometry (curve) on the northern approach to the intersection (refer **Figure 22**).



Figure 20 Burnett Highway / McDonalds Road - Existing Configuration

[Source: Qld Globe]







Figure 21 North on Burnett H'way from McDonalds Rd

Figure 22 South on Burnett H'way from McDonalds Rd

2.3.4.2 Bruce Highway / South Ulam Road

The current configuration of the Bruce Highway / South Ulam Road intersection is a standard three-way priority controlled (give way) rural intersection.

A single approach and departure lane is provided on each approach to the intersection, with a full length channelised right turn (CHR) and short auxiliary left turn (AULs) treatments provided on the northern and southern Bruce Highway approach respectively for the turning movements into South Ulam Road, as shown in **Figure 23**. In addition, based on site observations it is noted that suitable site distances are available to/from South Ulam Road in both directions of travel along the Bruce Highway (refer **Figure 24** and **Figure 25**).



Figure 23 Bruce Highway / South Ulam Road - Existing Configuration

[Source: Qld Globe]



Figure 24 North on Bruce Highway from South Ulam Rd



Figure 25 South on Bruce Highway from South Ulam Rd

2.4 Traffic Volumes

2.4.1 Road Link Volumes

The existing background traffic volumes on the road sections deemed relevant to the Project were typically established using the available AADT segment traffic count data provided by TMR. These road segment volumes were utilised with the identified 10-year growth rates (average growth rate, compounding annually) for the relevant road sections to establish a forecast of the current (2023) traffic volumes. It is noted that for any segments where a historical 10-year growth rate was negative, a conservative growth rate of 1.0% was applied to estimate the volume forecasts.

No traffic count data was available for the relevant sections of the GRC controlled links of Macfarlane Drive, Flinders Parade, Lord Street, Red Rover Road, Don Young Drive Mount Alma Road and the BSC controlled sections of Callide Mine Haul Road Access, Argoon-Kilburnie Road and Jambin-Dakenba Road. However, as the use of these roads by Project traffic is limited to the oversize over mass (OSOM) turbine transport vehicles which will be travelling under permit and full escort, the current traffic volumes on the links are not deemed critical for the assessment as the traffic impact is considered minor (due to traffic management controls) and as such these roads have been disregarded in the assessment.

No recent traffic count data was available for the BSC controlled sections of McDonalds Road and Playfields Road. Therefore, an estimate of the expected daily traffic volumes on these links was conservatively estimated to be 50 vpd (25 vpd each direction) for both of these links, with the traffic volumes expected to include approximately 10% heavy vehicles. The same conservative growth rate of 1% was also applied to the estimated volumes on McDonalds Road and Playfields Road to enable future traffic volume forecasts to be developed.

Further to this, as no daily volume traffic count data was available for RRC controlled link of South Ulam Road, an estimate of the daily traffic volumes on this link was established from the total recorded 12-hour inbound and outbound traffic volumes on the approach as identified in the intersection count provided by TMR (refer **Appendix C**), noting that recorded volumes have been adjusted to account for the recent reconfiguration of the intersection, with relevant growth rates applied to the recorded volumes (2016) to forecast current (2023) volumes.

The daily directional volumes on the approach were then estimated by applying a 12-hour volume to daily (ADT) traffic volume adjustment factor of 1.3 for low volume roads, as specified in Section 5.2.1 of Austroads *Guide to Pavement Technology: Selection and Design of Sprayed Seals*, with a conservative heavy vehicle percentage of 10% adopted for the link.

Based on the volume data and assumptions identified above, estimates of the traffic volumes on the relevant roads forming the Project transport routes were established, as summarised in **Table 3**.

Road Segment Base Base Year AADT			10 Vr	Current AADT (2023)								
Site ID	Start	End	Data	Gaz	% HV	A-Gaz	% HV	GR %	Ga	z	A-G	az
	(km)	(km)	Year	- Cul		A OUL			Total	HV	Total	HV
Gladsto	ne Port Ad	ccess Road	d (183)									
61605	0.000	0.858	2018	778	33.29%	743	31.76%	1.00%	818	272	781	248
Macfarl	ane Road											
GRC	0.000	0.350	-	No Infor	mation Av	ailable						
GRC	0.350	1.210	-	No Infor	mation Av	ailable						
Hopper	Road (Joh	n Bates D	rive)									
GRC	0.000 0.790 - No Information Available											
Flinders	s Parade											
GRC	0.000	0.680	-	No Infor	mation Av	ailable						
Lord St	reet											
GRC	0.000	0.520	-	No Infor	mation Av	ailable						
Gladsto	ne-Mount	Larcom R	oad (181)									
	0.000	0.175	2019	3,563	18.52%	3,085	15.24%	1.00%	3,708	687	3,210	489
60071	0.175	0.919	2019	3,563	18.52%	3,085	15.24%	1.00%	3,708	687	3,210	489
	0.919	1.409	2019	3,563	18.52%	3,085	15.24%	1.00%	3,708	687	3,210	489
60073	1.409	3.258	2018	3,025	16.07%	3,150	16.16%	1.00%	3,179	511	3,311	535
(1050	3.258	3.830	2018	4,706	11.52%	4,542	14.11%	1.00%	4,946	570	4,774	674
61052	3.830	4.625	2018	4,706	11.52%	4,542	14.11%	1.00%	4,946	570	4,774	674
60074	4.625	12.292	2018	3,206	13.54%	3,189	15.96%	1.00%	3,370	456	3,352	535
60076	12.292	32.140	2018	1,480	21.89%	1,482	30.23%	1.00%	1,555	340	1,558	471
Red Ro	ver Road											
GRC	0.000	3.390	-	No Infor	mation Av	ailable						
Don Yo	ung Drive											
GRC	0.000	2.280	-	No Infor	mation Av	ailable						
Dawsor	n Highway	(46A Glad	stone – B	iloela)								
60061	0.000	1.498	2019	5,133	4.93%	5,653	6.62%	1.00%	5,341	263	5,883	389
61083	1.498	2.238	2019	8,579	4.93%	8,639	6.62%	1.00%	8,927	440	8,990	595
61000	2.238	3.130	2018	10,717	4.72%	11,655	6.12%	1.00%	11,264	532	12,250	750
60063	3.130	4.391	2019	12,828	7.25%	17,786	7.61%	1.00%	13,349	968	18,508	1,408
60064	4.391	5.179	2019	10,219	9.78%	9,871	9.09%	1.00%	10,634	1,040	10,272	934
(00/0	5.179	7.129	2018	3,076	7.64%	3,584	9.54%	1.00%	3,233	247	3,767	359
60062	7.129	10.296	2018	3,076	7.64%	3,584	9.54%	1.00%	3,233	247	3,767	359
60065	10.296	19.050	2019	3,282	7.64%	3,575	9.54%	1.00%	3,415	261	3,720	355
60066	19.050	21.650	2019	3,897	20.24%	3,814	119.20%	1.00%	4,055	821	3,969	4,731
60128	21.650	25.640	2018	1,102	20.24%	1,094	119.20%	1.00%	1,158	234	1,150	1,371
60005	25.640	46.518	2019	592	40.37%	594	28.28%	1.00%	616	249	618	175

Table 3 Current (2023) AADT Traffic Volumes

0.11-	Road S	egment	Base		Base Year AADT			10.1/-	Current AADT (2023)			
Site ID	Start	End	Data	Gaz	% HV	A-Gaz	% HV	10 Yr. GR %	Ga	z	A-G	az
	(km)	(km)	Year	Ouz	70110	A Guz	70111		Total	HV	Total	HV
	46.518	101.008	2019	592	40.37%	594	28.28%	1.00%	616	249	618	175
60067	101.008	113.728	2019	599	20.70%	627	23.65%	1.53%	637	132	666	158
61084	113.728	116.836	2018	816	21.69%	1,152	13.11%	1.00%	858	186	1,211	159
61085	116.836	119.836	2019	3,059	12.26%	3,214	9.15%	1.00%	3,183	390	3,345	306
Mount /	Alma Road	1										
GRC	0.000	16.970	-	No Infor	mation Av	ailable						
Calliope	Station R	load										
GRC	0.000	2.600	-	No Infor	mation Av	ailable						
Bruce H	lighway (1	OE Benara	by – Rock	hampton)								
(000)	11.445	35.812	2018	2,483	26.38%	2,373	24.74%	2.20%	2,768	730	2,646	655
60006	35.812	45.420	2018	2,483	26.38%	2,373	24.74%	2.20%	2,768	730	2,646	655
60023	45.420	85.308	2018	2,841	21.68%	2,842	23.82%	1.00%	2,986	647	2,987	711
	85.308	86.183	2018	3,478	28.32%	3,524	26.14%	2.33%	3,903	1,105	3,954	1,034
61551	86.183	107.400	2018	3,478	28.32%	3,524	26.14%	2.33%	3,903	1,105	3,954	1,034
	107.400	108.938	2018	3,478	28.32%	3,524	26.14%	2.33%	3,903	1,105	3,954	1,034
60130	108.938	114.388	2018	3,062	24.95%	3,067	27.06%	1.67%	3,326	830	3,332	902
60024	114.388	116.961	2018	4,798	15.46%	4,412	21.01%	1.00%	5,043	780	4,637	974
South L	Jlam Road				•		•					
RRC	0.000	16.773	2021	101	10.00%	108	10.00%	1.00%	103	10	110	11
Dawsor	Highway	(46B Biloe	ela – Bana	na)								
60068	0.000	0.650	2019	2,681	7.16%	2,922	12.97%	1.00%	2,790	200	3,041	394
61883	0.650	1.366	2019	2,143	8.35%	2,083	16.03%	1.00%	2,230	186	2,168	347
Leichha	rdt Highwa	ay (26A We	estwood -	- Taroom)								,
	0.000	0.115	2019	370	32.70%	376	32.71%	1.00%	385	126	391	128
60001	0.115	25.680	2019	370	32.70%	376	32.71%	1.00%	385	126	391	128
Burnett	Highway (41E Biloel	a – Mt Mo	rgan)								,
	0.000	27.290	2019	559	37.57%	594	23.91%	1.00%	582	219	618	148
61081	27.290	35.401	2019	559	37.57%	594	23.91%	1.00%	582	219	618	148
	35.401	56.310	2019	455	36.70%	479	39.67%	1.00%	473	174	498	198
60055	56.310	71.730	2019	455	36.70%	479	39.67%	1.00%	473	174	498	198
Callide	Mine Haul	Road Acce	SS		1		1					,
BSC	0.000	0.400	-	No Infor	mation Av	ailable						
Argoon	-Kilburnie	Road										
BSC	0.000	12.940	_	No Infor	mation Av	ailable						
Jambin-	Dakenba I	Road										
BSC	0.000	9.400	-	No Infor	mation Av	ailable						

	Poad S	amont	_	Raso Voar MADT					Current AADT (2022)			
Site	Ruau S	eymeni	Base		Dasele	ai AAD I		10 Yr.				2)
ID	Start	End	Data	C	0/ 11/	A Co-	0/ 11/	CP %	Gaz	Z	A-G	az
	(km)	(km)	Year	Gaz	70 TV	A-Gaz	<i>∕</i> 0⊓V	OK /0	Total	HV	Total	HV
McDona	McDonalds Road											
BSC	0.000	0.400	2021	25	10.00%	25	10.00%	1.00%	26	3	26	3
Playfiel	ds Road											
BSC	0.000	5.080	2021	25	10.00%	25	10.00%	1.00%	26	3	26	3
BSC	5.080	7.680	2021	25	10.00%	25	10.00%	1.00%	26	3	26	3

Macfarlane Road chainage assumed to run west from Hopper Road | Hopper Road chainage assumed to run south from Macfarlane Road | Flinders Parade chainage assumed to run south from Macfarlane Road | Lord Street chainage assumed to run south-west from Flinders Parade | Red Rover Road chainage assumed to run south from Gladstone-Mount Larcom Road | Don Young Drive chainage assumed to run south from Red Rover Road | Mount Alma Road chainage assumed to run south from Bruce Highway | Calliope Station Road chainage assumed to run east from Mount Alma Road | South Ulam Road chainage assumed to run south-west from Bruce Highway | Callide Mine Haul Road Access chainage assumed to run east-west from Dawson Highway | Argoon-Kilburnie Road chainage assumed to run north from Dawson Highway | Jambin-Dakenba Road chainage assumed to run north from Argoon-Kilburnie Road | McDonalds Road chainage assumed to run east from Burnett Highway | Playfields Road chainage assumed to run east from McDonalds Road.

TMR Chainage 0.175km (181) – Intersection of Gladstone-Mount Larcom Road / Gladstone Port Access Road | TMR Chainage 0.919km (181) – Intersection of Gladstone-Mount Larcom Road / Lord Street | TMR Chainage 3.830km (181) – Intersection of Gladstone-Mount Larcom Road / Red Rover Road | TMR Chainage 7.129km (46A) – Intersection of Dawson Highway / Don Young Drive | TMR Chainage 19.050km (46A) – Intersection of Dawson Highway / Bruce Highway | TMR Chainage 46.518km (46A) – Intersection of Dawson Highway / Calliope Station Road | TMR Chainage 101.008km (46A) – Intersection of Dawson Highway / Mount Alma Road | TMR Chainage 45.420km (10E) – Intersection of Bruce Highway / Gladstone-Mount Larcom Road | TMR Chainage 86.183km (10E) – Intersection of Bruce Highway / Gladstone-Mount Larcom Road | TMR Chainage 86.183km (10E) – Intersection of Bruce Highway / Jambin-Dakenba Road | TMR Chainage 56.310km (41E) – Intersection of Burnett Highway / McDonalds Road | TMR Chainage 0.155km (26A) – Intersection of Leichhardt Highway / Quarry Access.

2.4.2 Intersection Volumes

2.4.2.1 Burnett Highway / McDonalds Road

No existing intersection count data was available at the key intersections of Burnett Highway / McDonalds Road. Therefore, an estimate of the peak hour turning movement volumes at the intersection have been determined using the following information methodology:

- 2019 Weekly volume reports for the Burnett Highway 41E AADT Site 60055 (included as Appendix B), to determine the northbound and southbound through volumes on the highway during the AM and PM peak hours. Values for the AM and PM peaks for the "average weekday" volumes have been adopted for the purpose of this assessment; and
- Heavy vehicle percentages from the 2018 AADT segment traffic count data (18D Site 40320) provided by TMR.

Based on the available information the following assumptions of current volumes have been adopted for this intersection:

- The peak hour turning movement volumes to/from McDonalds Road have been estimated through the application of the following assumptions:
 - Peak hour movements on McDonalds Road are 15% of daily volumes (estimated at 50vpd).
 - 50% of McDonalds Road movements are to/from the north, and 50% are to/from the south.
 - A 30% in / 70% out split for movements in AM peak hour on McDonalds Road.
 - A 70% in / 30% out split for movements in PM peak hour on McDonalds Road.

Future year traffic volumes for this intersection have been determined through the application of the growth rates for each of the relevant road segments as outlined in **Table 3**, with the design horizon for the assessment identified to be 2024, which is expected to be the period of peak construction traffic volumes

at the intersection. The resultant estimate of the current (2023) and forecast (2024) peak hour turning movement volumes at the Burnett Highway / McDonalds Road intersection are summarised in **Table 4** below, with further details of the calculations used to establish these intersection volumes provided in **Appendix D**.

GR %	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
		Burnett H	lighway S			McDonal	ds Road E		Burnett Highway N			
YEAR	Thro	bugh	Riç	Right		Left Right		Left		Through		
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
AM Peak												
2023	32	18	1	0	3	0	3	0	1	0	30	20
2024	32	19	1	0	3	0	3	0	1	0	30	20
PM Peak												
2023	32	18	3	0	1	0	1	0	3	0	24	16
2024	32	19	3	0	1	0	1	0	3	0	25	16

Table 4 Peak Hour Turning Movement Volumes, Burnett Highway / McDonalds Road Intersection

2.4.2.2 Bruce Highway / South Ulam Road

An estimate of the current (2023) traffic volumes at the Bruce Highway / South Ulam Road intersection has been established based on the 2016 TMR count for the intersection. It is noted that the configuration of the intersection has recently been modified as part of the relocation of the intersection, and as such the recorded volumes from the count have been adjusted to align with the new configuration, with growth rates for the relevant approach roads adopted from **Table 3** to forecast the current (2023) and expected peak construction period (2024) traffic volumes.

Further details of the calculations to establish the traffic volumes at the Bruce Highway / South Ulam Road intersection are provided in **Appendix D**, with a summary of the forecast intersection volumes shown in **Table 5**.

GR %	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	Bruce Highway N					South Ula	m Road W	1	Bruce Highway S			
YEAR	Through		Right		Left		Right		Left		Through	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
AM Peak												
2023	191	68	3	0	3	0	6	1	4	0	131	52
2024	195	69	3	0	3	0	6	1	4	0	134	53
PM Peak												
2023	191	68	3	0	3	0	6	1	4	0	131	52
2024	195	69	3	0	3	0	6	1	4	0	134	53

 Table 5
 Peak Hour Turning Movement Volumes, Bruce Highway / South Ulam Road Intersection

2.5 Intersection and Network Performance

2.5.1 Road Links

Based on the background traffic volumes forecast and the existing configurations of the road links identified to be relevant to the Project, it is expected that all sections of the proposed Project transport routes would currently be operating satisfactorily and within capacity (based on road type / classification) under existing traffic conditions.

2.5.2 Intersections

An assessment of the current operational performance of the existing configuration of the key Burnett Highway / McDonalds Road and Bruce Highway / South Ulam Road intersections has been undertaken, based upon the forecast current (2023) background AM peak and PM peak periods identified in **Table 4** and **Table 5** above.

The results of these analyses are summarised in **Table 6** below, with the detailed results provided for reference in **Appendix E and Appendix F**. These results revealed that the current configurations of both intersections are expected to be operate satisfactorily for the forecast current (2023) background or pre project traffic conditions. This is shown by the calculated values of Degree of Saturation (DOS), Level of Service (LOS), average delay and vehicle queue lengths for both intersections being well within acceptable limits of operation for a priority-controlled intersection for all analysis scenarios.

Analysis Scenario	Intersection Degree of Saturation	Level of Service**	Intersection Average Delay (sec)	Maximum 95% Back of Queue Length (m)						
Burnett Highway (41E) / McDonalds Road										
2023 AM Peak Existing	0.034	LOS A	0.4	0.1						
2023 PM Peak Existing	0.035	LOS A	0.5	0.2						
Bruce Highway (10E) / South Ulam Road										
2023 AM Peak Background	0.162	LOS B	0.3	0.5						
2023 PM Peak Background	0.151	LOS B	0.6	0.9						

Table 6 SIDRA Results – Existing Intersection Operation

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

2.6 Road Safety Issues

2.6.1 Existing Site Conditions

A site investigation of the existing traffic conditions on the relevant sections of the road network was undertaken by Andrew Barrie (RPEQ / Senior Road Safety Auditor). As part of this inspection a number of minor road safety considerations regarding the current operation of the existing road network and its potential use by Project traffic were identified, including:

1) Reduced carriageway width of McDonalds Road and Playfields Road

As previously identified, the unsealed sections of the BSC controlled McDonalds Road (Ch. 0.000 - 5.720 km) and Playfields Road (Ch. 5.080 – 24.420km) currently provide road widths of 5.0-5.5m and 5-6m respectively, noting that widths less than 6m have the potential to lead to increased conflict between vehicles travelling in opposing directions.

It is noted however, that the adjacent road shoulders are currently being utilised to allow two opposing vehicles to pass each other, and as the existing background traffic volumes on the relevant sections of McDonalds Road and Playfields Road are low (approximately 50 vpd), the likelihood of vehicles passing on the link is also anticipated to be relatively low.

2) One Way Operation of Floodways and Cattle Grids on McDonalds Road and Playfields Road

A number of floodway/culvert and cattle grid structures were identified on the relevant sections of McDonalds Road and Playfields Road at which the available trafficable width is reduced (to as low as 4m) across the structures. Based on the reduction of width, the structures are only providing sufficient width to cater for two-way, one lane traffic flow across the structure.

Further to this, limited control measures (i.e. Give Way signage) or vehicle storage areas were noted to be currently provided at and on the approaches to the structures to manage the vehicle movements across the one lane structure. The lack of trafficable width and lack of traffic control measures has the potential for increased conflict between vehicles travelling in opposing directions, in particular due the restricted visibility at a number of the structures due to the existing horizontal and vertical geometry of both roads.

It is noted however that the existing background traffic volumes on the relevant sections of McDonalds Road and Playfields Road are relatively low (approx. 50 vpd), therefore it is considered unlikely that vehicles would be required to pass on the floodways / or cattle grids.

3) Reduced carriageway width of Mount Alma Road

As previously identified, the unsealed sections of the GRC controlled Mount Alma Road (Ch. 0.000 – 16.970 km) currently provides a road width of 5.0-5.5m, noting that widths less than 6m have the potential to lead to increased conflict between vehicles travelling in opposing directions.

Notwithstanding this, it is noted however that the adjacent road shoulders are currently being utilised to allow two opposing vehicles to pass each other, and as the existing traffic volumes on the relevant sections of Mount Alma Road are anticipated to be low (approximately 50 vpd), the likelihood of vehicles passing on the link is also anticipated to be relatively low.

4) One Way Operation of Floodways and Cattle Grids on Mount Alma Road and Calliope Station Road

A number of floodway/culvert and cattle grid structures were also identified on the relevant sections of Mount Alma Road and Calliope Station Road, at which the available trafficable width is reduced (to as low as 4m) across the structures. Based on the reduction of width, the structures are only providing sufficient width to cater for two-way, one lane traffic flow across the structure.

Further to this, limited control measures (i.e. Give Way signage) or vehicle storage areas were noted to be currently provided at and on the approaches to the structures to manage the vehicle movements across the one lane structure. The lack of trafficable width and lack of traffic control measures has the potential for increased conflict between vehicles travelling in opposing directions, in particular due the restricted visibility at a number of the structures due to the existing horizontal and vertical geometry of both roads.

It is noted however that the existing background traffic volumes on the relevant sections of Mount Alma Road and Calliope Road are relatively low (assumed to be up to 50 vpd), therefore it is considered unlikely that vehicles would be required to pass on the floodways / or cattle grids.

2.6.2 Road Crash History Review

A review of the road crash history on the sections of the Burnett Highway (500m either side of McDonalds Road intersection) and McDonalds Road and Playfields Road relevant to the main Project area, and the sections of the Bruce Highway (500m either side of South Ulam Road) and South Ulam Road associated with the proposed eastern substation area, was undertaken using the road crash data available from the Queensland Globe database (2001-2019).

As shown in **Figure 26**, 2 recorded crashes were identified within the sections of the network relevant to the proposed main Project access (via McDonalds Road and Playfields Road), while 4 recorded crashes were identified on the links associated with the eastern substation area (South Ulam Road - refer **Figure 27**). A summary of the details of the recorded crash data is provided for reference in **Table 7**.

Table 7 Summary of Road Crash History

Crash Reference Number	Crash Year	Crash Severity	Crash Type	DCA Code	Crash Description						
Burnett Highway, McDonalds Road & Playfields Road – Main Project Area											
73375	2017	Hospitalisation	Single Vehicle	704	Off Path Straight: Right Off C'way Hit Object						
311337	2007	Property Damage Single Vehicle 609 Pass & Misc: Hit Animal		Pass & Misc: Hit Animal							
Bruce Highway & South Ulam Road – Eastern Substation Area											
324982	2015	Medical Treatment	Multiple Vehicle	303	Veh's Same Direction: Right Rear						
150505	2013	Hospitalisation	Single Vehicle	805	Off Path Curve: Out of Control on Carriageway						
269787	2008	Hospitalisation	Single Vehicle	803	Off Path Curve: Off C'way on RT Bend Hit Object						
229383	2006	Hospitalisation	Single Vehicle	803	Off Path Curve: Off C'way on RT Bend Hit Object						



Figure 26 Road Crash Locations – Burnett Hway, McDonalds Rd & Playfields Rd

[Source: Qld Globe]





Figure 27 Road Crash Locations – Bruce Hway & South Ulam Rd

[Source: Qld Globe]

Based on the limited number of crashes recorded (only 1 crash in the last 10 years), the variety of crash types and the current traffic volumes on the relevant road sections, it can be concluded that there is no specific road feature or design deficiency at either location which is directly contributing to the recorded vehicle crashes, which should be addressed as part of the Project.

2.7 Existing Site Access

The existing vehicle access to the main project site is gained via a cattle grid access on Playfields Road at the south-western boundary of Lot 21 RN1345 (see **Figure 28**), located approximately 24.4km east of the Burnett Highway. From here traffic is expected to utilise both Playfields Road, McDonalds Road and the intersection of Burnett Highway / McDonalds Street to gain access to/from the external road network.



Figure 28 Existing Site Access

eastern substation area located on Lot 38 DT40131.

[Source: QLD Globe]

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Further to this, it is noted that no access point currently exists from South Ulam Road to the proposed

2.8 Pavement Loadings

Estimates were generated for the forecast background pavement loadings on each of the identified road segments over the proposed Project duration. Traffic loads on the pavement are defined in terms of Equivalent Standard Axle (ESA) for granular pavements and Standard Axle Repetitions (SAR) for other pavement types. The ESA for the background traffic heavy vehicle component on the network was calculated based on the identified heavy vehicle percentages for the relevant road sections, with the following assumptions applied to this calculation.

- The existing percentage of heavy vehicles will be maintained for future years.
- The impact of light vehicles can be ignored as the contribution to pavement loading (ESAs) is negligible in comparison to heavy vehicles.
- Equivalent Standard Axles per Heavy Vehicle (ESAs/HV) were adopted as follows (based on advice previously received from TMR for similar pavement impact assessments):
 - 2.9 ESAs/HV for the Bruce Highway.
 - 3.2 ESAs/HV for all other roads (including local government roads).
- The background period of the assessment is the proposed duration of construction i.e. 22 months which equates to approximately 669 days.

A summary of the forecast background ESAs for the each of the relevant road segments is provided in **Table 8** below.



Table 8Forecast Future Background ESAs

Segment	AADT Segment		Base Data	Base Year HV %		Base Year HV Volume		10 Yr.	2024 HV Volumes		ESAs /	No.	Background ESAs	
ID	Start (km)	End (km)	Year	Gaz	A-Gaz	Gaz	A-Gaz	GR %	Gaz	A-Gaz	HV	Days	Gaz	A-Gaz
Gladstone Port Access Road (183)														
61605	0.000	0.858	2018	33.29%	31.76%	259	236	1.00%	275	250	3.2	669	588,716	536,391
Gladstone-Mount Larcom Road (181)														
	0.000	0.175	2019	18.52%	15.24%	660	470	1.00%	694	494	3.2	669	1,485,074	1,058,111
60071	0.175	0.919	2019	18.52%	15.24%	660	470	1.00%	694	494	3.2	669	1,485,074	1,058,111
	0.919	1.409	2019	18.52%	15.24%	660	470	1.00%	694	494	3.2	669	1,485,074	1,058,111
60073	1.409	3.258	2018	16.07%	16.16%	486	509	1.00%	516	540	3.2	669	1,104,978	1,157,083
	3.258	3.830	2018	11.52%	14.11%	542	641	1.00%	575	680	3.2	669	1,232,301	1,456,755
61052	3.830	4.625	2018	11.52%	14.11%	542	641	1.00%	575	680	3.2	669	1,232,301	1,456,755
60074	4.625	12.292	2018	13.54%	15.96%	434	509	1.00%	461	540	3.2	669	986,722	1,156,911
60076	12.292	32.140	2018	21.89%	30.23%	324	448	1.00%	344	476	3.2	669	736,411	1,018,354
Dawson H	lighway (46A	Gladstone	– Biloela)			-	_	-						
60061	0.000	1.498	2019	4.93%	6.62%	253	374	1.00%	266	393	3.2	669	569,520	842,225
61083	1.498	2.238	2019	4.93%	6.62%	423	572	1.00%	445	601	3.2	669	951,864	1,287,101
61000	2.238	3.130	2018	4.72%	6.12%	506	713	1.00%	537	757	3.2	669	1,149,814	1,621,348
60063	3.130	4.391	2019	7.25%	7.61%	930	1,353	1.00%	977	1,422	3.2	669	2,093,091	3,044,168
60064	4.391	5.179	2019	9.78%	9.09%	999	897	1.00%	1,050	943	3.2	669	2,249,253	2,019,371
60062	5.179	7.129	2018	7.64%	9.54%	235	342	1.00%	249	363	3.2	669	534,186	777,193
	7.129	10.296	2018	7.64%	9.54%	235	342	1.00%	249	363	3.2	669	534,186	777,193
60065	10.296	19.050	2019	7.64%	9.54%	251	341	1.00%	264	358	3.2	669	564,317	767,566
Segment	AADT S	egment	Base Data	Base Ye	ar HV %	Base Year I	IV Volume	10 Yr.	2024 HV	Volumes	ESAs /	No.	Backgrou	und ESAs
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ID	Start (km)	End (km)	Year	Gaz	A-Gaz	Gaz	A-Gaz	GR %	Gaz	A-Gaz	HV	Days	Gaz	A-Gaz
60066	19.050	21.650	2019	20.24%	119.20%	789	4,546	1.00%	829	4,778	3.2	669	1,775,138	10,231,707
60128	21.650	25.640	2018	20.24%	119.20%	223	1,304	1.00%	237	1,384	3.2	669	506,996	2,964,190
(0005	25.640	46.518	2019	40.37%	28.28%	239	168	1.00%	251	177	3.2	669	537,863	378,057
60005	46.518	101.008	2019	40.37%	28.28%	239	168	1.00%	251	177	3.2	669	537,863	378,057
60067	101.008	113.728	2019	20.70%	23.65%	124	148	1.53%	134	160	3.2	669	286,453	342,574
61084	113.728	116.836	2018	21.69%	13.11%	177	151	1.00%	188	160	3.2	669	402,311	343,295
61085	116.836	119.836	2019	12.26%	9.15%	375	294	1.00%	394	309	3.2	669	844,036	661,848
Bruce Hig	nway (10E B	enaraby – R	ockhamptor	n)										
60006	11.445	35.812	2018	26.38%	24.74%	655	587	2.20%	746	669	2.9	669	1,448,402	1,298,181
60023	35.812	45.420	2018	26.38%	24.74%	655	587	2.20%	746	669	2.9	669	1,448,402	1,298,181
60023	45.420	85.308	2018	21.68%	23.82%	616	677	1.00%	654	719	2.9	669	1,268,794	1,394,525
	85.308	86.183	2018	28.32%	26.14%	985	921	2.33%	1,131	1,058	2.9	669	2,194,689	2,052,540
61551	86.183	107.400	2018	28.32%	26.14%	985	921	2.33%	1,131	1,058	2.9	669	2,194,689	2,052,540
	107.400	108.938	2018	28.32%	26.14%	985	921	2.33%	1,131	1,058	2.9	669	2,194,689	2,052,540
60130	108.938	114.388	2018	24.95%	27.06%	764	830	1.67%	844	917	2.9	669	1,637,438	1,778,815
60024	114.388	116.961	2018	15.46%	21.01%	742	927	1.00%	787	984	2.9	669	1,528,024	1,909,511
South Ula	m Road													
RRC	0.000	16.773	2021	10.00%	10.00%	10	11	1.00%	10	11	3.2	669	22,283	23,827
Dawson H	ighway (46E	8 Biloela – M	lt Morgan)											
60068	0.000	0.650	2019	7.16%	12.97%	192	379	1.00%	202	398	3.2	669	432,017	852,926
61883	0.650	1.366	2019	8.35%	16.03%	179	334	1.00%	188	351	3.2	669	402,717	751,474

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Segment	AADT S	egment	Base Data	Base Ye	ar HV %	Base Year H	IV Volume	10 Yr.	2024 HV	Volumes	ESAs /	No.	Backgrou	und ESAs
ID	Start (km)	End (km)	Year	Gaz	A-Gaz	Gaz	A-Gaz	GR %	Gaz	A-Gaz	HV	Days	Gaz	A-Gaz
Leichhard	t Highway (2	6A Biloela -	- Banana)											
(0001	0.000	0.115	2019	32.70%	32.71%	121	123	1.00%	127	129	3.2	669	272,296	276,796
60001	0.115	25.680	2019	32.70%	32.71%	121	123	1.00%	127	129	3.2	669	272,296	276,796
Burnett Hi	ghway (41E	Biloela – M	t Morgan)											
(1001	0.000	27.290	2019	37.57%	23.91%	210	142	1.00%	221	149	3.2	669	472,655	319,637
61081	27.290	35.401	2019	37.57%	23.91%	210	142	1.00%	221	149	3.2	669	472,655	319,637
(0055	35.401	56.310	2019	36.70%	39.67%	167	190	1.00%	176	200	3.2	669	375,810	427,650
60055	56.310	71.730	2019	36.70%	39.67%	167	190	1.00%	176	200	3.2	669	375,810	427,650
McDonald	s Road													
BSC	0.000	5.720	2021	10.00%	10.00%	3	3	1.00%	3	3	3.2	669	5,516	5,516
Playfields	Road											•		
BSC	0.000	5.080	2021	10.00%	10.00%	3	3	1.00%	3	3	3.2	669	5,516	5,516
BSC	5.080	7.680	2021	10.00%	10.00%	3	3	1.00%	3	3	3.2	669	5,516	5,516

TMR Chainage 0.175km (181) – Intersection of Gladstone-Mount Larcom Road / Gladstone Port Access Road | TMR Chainage 0.919km (181) – Intersection of Gladstone-Mount Larcom Road / Lord Street | TMR Chainage 3.830km (181) – Intersection of Gladstone-Mount Larcom Road / Red Rover Road | TMR Chainage 7.129km (46A) – Intersection of Dawson Highway / Don Young Drive | TMR Chainage 19.050km (46A) – Intersection of Dawson Highway / Bruce Highway | TMR Chainage 46.518km (46A) – Intersection of Dawson Highway / Calliope Station Road | TMR Chainage 101.008km (46A) – Intersection of Dawson Highway / Callide Mine Haul Road Access | TMR Chainage 35.812km (10E) – Intersection of Bruce Highway / Mount Alma Road | TMR Chainage 45.420km (10E) – Intersection of Bruce Highway / Gladstone-Mount Larcom Road | TMR Chainage 107.400km (10E) – Intersection of Bruce Highway / Jambin-Dakenba Road | TMR Chainage 56.310km (41E) – Intersection of Burnett Highway / McDonalds Road | TMR Chainage 0.155km (26A) – Intersection of Leichhardt Highway / Quarry Access.

The forecast background ESAs in **Table 8** above have been used as the basis for the assessment of the pavement impact of the proposal during the peak construction period (2024), which is detailed further in **Section 5.6.1**.

2.9 Transport Infrastructure

2.9.1 Drainage and Cattle Grids Structures

In addition to the road links and intersections highlighted above, a number of drainage (floodway/culvert) and cattle grid structures along the minor roads included in the proposed Project transport routes have been identified as relevant to the impact assessment for the Project. These structures are located on Mount Alma Road and Calliope Station Road (GRC), Argoon-Kilburnie Road and Jambin-Dakenba Road (BSC) which form part of the OSOM turbine component (tower sections) transport route, as well as on McDonalds Road and Playfields Road (BSC) which provide the connection from the Burnett Highway to the main Project area. The locations of the relevant structures are indicatively shown in **Figure 29** to **Figure 31** below.



Figure 29 Indicative Structure Locations - Mount Alma Road / Calliope Station Road

[Source: QLD Globe]



Figure 30 Indicative Structure Locations - Argoon-Kilburnie Road / Jambin-Dakenba Road

[Source: QLD Globe]





Figure 31 Indicative structure Locations – McDonalds Road / Playfields Road



Generally, the existing configuration of the drainage (floodway/culvert) and cattle grid structures on the identified links only provide narrow trafficable widths, restricting their operation to two-lane, one-way operation. This means that two vehicles could not safely pass while crossing the structure.

Furthermore, it is noted that the existing structures are also anticipated to be unsuitable to cater for the higher axle loadings from the OSOM turbine component transport movements, noting the current vehicle loading restrictions of heavy vehicles on Mount Alma Road and Calliope River Road to 10 tonnes (which is significantly less than the expected OSOM transport vehicle loadings).

Based on this, it is expected that each of the drainage (floodway/culvert) and cattle grid structures along the identified sections of Mount Alma Road, Calliope Station Road, Argoon-Kilburnie Road, Jambin-Dakenba Road, McDonalds Road and Playfields Road will need to be upgraded to provide a trafficable width suitable to cater for the transport vehicle swept paths (minimum width of 6m), as well as being structurally adequate to cater for the increased OSOM vehicle loads required for the Project. Alternatively, diversions (including relevant gate infrastructure and fencing amendments) around the existing cattle grid structures may be provided were possible to reduce the requirement to upgrade the existing structures.

2.9.2 Rail Crossings

Two minor open level rail crossings of the Moura System Rail Line are currently provided on Jambin-Dakenba Road, approximately 6km south-east of the intersection of the link with the Burnett Highway as shown in **Figure 32** below. Currently, both of the open level crossings are sign controlled due to the low traffic volumes on Jambin-Dakenba Road (refer **Figure 32**), and it is noted that suitable approach sight distances to each crossing are available on all Jambin-Dakenba Road approaches.





Figure 32 Indicative Locations - Rail Crossings (Jambin-Dakenba Road)

[Source: QLD Globe]

3.0 Proposed Development Details

3.1 Development Site Plan

A preliminary plan of development for the Project was provided by Neoen. This layout identified the currently proposed project area boundaries and indicative turbine and site access locations, as shown in **Figure 33** below. A detailed copy of this plan is provided for reference in **Appendix G**.



Figure 33 Proposed Mount Hopeful Wind Farm - Plan of Development

[Source: Umwelt]

As shown in **Figure 33** above, the Project is a Renewable Energy Facility (Wind Farm) comprising of up to 63 turbines as well as associated infrastructure. The primary vehicular access point to the main wind farm area is proposed to be located off Playfields Road (via Burnett Highway and McDonalds Road) and cater for Project traffic during both the construction and operational stages of the Project. The site layout also identifies a secondary access to the eastern substation and battery storage area of the Project, proposed to be provided off South Ulam Road, via the Bruce Highway.

The proposed site layout also identifies the proposed alignment of the internal access tracks, as well as the location of the internal substations, construction compound, operation and maintenance area, batch plants and laydown areas as well as the eastern substation and battery storage area for the Project.

3.2 Project Details

Information regarding the proposed construction activities and ultimate day to day operation of the proposed Mount Hopeful Wind Farm has been provided by the proponent (Neoen), with a summary of the key site elements of the Project provided in **Table 9**.

Element	Quantity
Turbines	63
Accesses	2 (Playfields Rd & South Ulam Rd)
Length of Access Tracks (Main Site)	91,320 m
Length of Access Tracks (Eastern Substation Site)	1,800 m
Length of Access Road Upgrade	25,140 m
Number of Substation & Battery Storage Areas (Eastern)	1
Number of Substation Areas (Internal)	2
Number of Turbine Construction Laydown Areas	63
Number of Site Laydown Areas (Internal x3)	3
Number of Site Batch Plant Areas (Internal x3)	3
Number of Site Construction Compound Areas (Internal x1)	1
Number of Site Entrance Areas (Internal x1)	1
Number of Site Operational and Maintenance Facility Areas	1
Number of Meteorology Masts	10

Table 9 Key Elements of Mount Hopeful Wind Farm

3.2.1 Construction Phase

Based on updated information provided by the proponent (Neoen) it is understood that the construction of the Project is anticipated to be completed over a period of between 22 to 28 months. Notwithstanding this, for the purpose of this assessment the worst-case scenario (in regard to traffic impacts) of the shorter 22-month construction period has conservatively been adopted, with this timeframe expected to commence in Q4 2023 (pending approvals) and conclude in Q3 (July) 2025.

Preliminary details of the proposed construction phase activities have been provided, with a high-level summary of the key construction tasks, the likely order of completion and anticipated timeframes provided in **Table 10**. Based on the proposed schedule below, the peak period of construction is expected to occur in late Q1 and Q2 2024.

[Source: Neoen]

													MO	NTH										
ID	TASK	DURATION	- 0ct-23	U Nov-23	u Dec-23	Jan-24	n Feb-24	n Mar-24	JApr-24	a May-24	o Jun-24	5 Jul-24	Aug-24	5 Sep-24	0ct-24	Nov-24	Dec-24	Jan-25	Feb-25	6 Mar-25	a Apr-25	S May-25	Jun-25	Jul-25
			Q4	4 20	23	Q	1 202	24	Q	2 20	24	Q	3 202	24	Q4	20	24	Q	1 20	25	Q	2 202	25	Q3
Α	Mobilisation	1 M																						
В	Access Roads and Site Entrances	9 M																						
C	Substation and Site Areas	9 M																						
D	Cabling	8 M																						
E	Turbine Foundations	11 M																						
F	Turbine Transportation	12 M																						
G	Turbine Erection	9 M																						
Н	Finalisation / Commissioning / Demobilisation	3 M																						
I.	Project Float	1 M																					[

Table 10 Proposed Construction Schedule – Mount Hopeful Wind Farm

Further to this, the proposed hours of the construction operations for the Project are expected to typically be 12 hours per day (6:30am to 6:30pm) Monday to Saturday, equating to approximately 24 working days per month, noting that there may be minor exceptions to these timings as required throughout the construction process.

3.2.2 Operations Phase

The operations phase of the Project will commence upon completion of the construction works, with the wind farm to be operated by a relatively small number of staff (approximately 10) at the main Project site (via McDonalds Road and Playfields Road). In addition, it is expected that only limited numbers of heavy vehicles will access the Project site during operations, with only periodic maintenance (monthly) and routine service vehicles (weekly) anticipated to travel to/from the main site area.

3.3 Site Access

The key element of the proposed site layout is the proposed access arrangements for the site from the Burnett Highway. As shown in **Figure 33** above, it is currently proposed that the main access for Project traffic to the site will be via a new access on Playfields Road, which will be accessed from the state controlled road network via the existing intersection of McDonalds Road with the Burnett Highway, located on the right hand side of the carriageway (gazettal direction) at approximate TMR chainage 56.310 km (41E). From this intersection with the Burnett Highway, Project traffic is proposed to travel along the BSC controlled sections of McDonalds Road (5.72 km) and Playfields Road (24.42 km) to the proposed Project site entrance, located approximately 30.14 km east of the Burnett Highway.

Currently the relevant section of McDonalds Road is configured as an unsealed road varying in width between 5-6m with limited depths of gravel pavement. The next 5.00 km of Playfields Road provides a 6m sealed carriageway, while the remaining 19.42 km of Playfields Road is currently configured as a 5-6m wide unsealed road, again with limited depths of gravel pavement.

Based on the expected Project traffic volumes, it is anticipated that the current configuration of the sealed section of Playfields Road will be adequate to cater for the traffic volumes generated by the Project, while the unsealed sections of both McDonalds Road (5.72 km) and Playfields Road (last 19.42 km) are expected to be required to be upgraded to provide a minimum 6.5m (unsealed) road pavement width (on 8m formation) in accordance with the Banana Shire Council requirements for a rural minor access road as per Table D1.27.05 of the Capricorn Municipal Design Guidelines (CMDG).

Further to this, it is anticipated that upgrade works will also be required to a number of existing cattle grid and floodway structures on both McDonalds Road and Playfields Road, with localised works also expected to be required to amend the vertical geometry of the road (existing dips) to accommodate the size and mass (loading) of the large turbine component transport vehicle configurations required to be utilised for the Project. **Figure 34** below shows a summary of the expected works requirements for the main site access route for the Project via McDonalds Road and Playfields Road.



Figure 34 Mount Hopeful Wind Farm – Proposed Site Access Arrangements

In addition to the main site access, a secondary access is also proposed to be provided to the eastern substation and battery storage area of the Project from the RRC controlled South Ulam Road (refer **Figure 33**). This secondary site access is proposed to cater for minor Project traffic volumes associated with the construction and operation of the Project's eastern substation and battery storage infrastructure.

Access to this secondary site area is proposed to be provided via a new site access located approximately 16.8 km south of the Bruce Highway / South Ulam Road intersection, which serves as the access to the wider state-controlled road network for Project traffic. As no access point currently exists at this location, it is proposed that a new site access in accordance with the requirements for a bitumen road (<300vpd) as per Standard Drawing CMDG-R-040 (Rural Road Access and Property Access Over Table Drains) be provided to service the expected Project traffic volumes.

3.4 Internal Site Facilities

As previously identified, the proposed plan of development for the wind farm (refer **Appendix G**) includes a series of internal access tracks throughout the Project site which provide vehicular access between the external road network and the turbine locations and associated internal infrastructure. The access track layout has been designed to utilise the existing topography of the land, avoiding steep areas where possible, and to avoid areas of sensitive native vegetation.

The project will comprise a total of approximately 91.3 km of internal access roads, with a summary of the intended design criteria for the internal tracks provided below:

- The access tracks will typically be 5.5 m wide.
- Regular passing places and turning areas will be provided.

- The access tracks will only link to the identified site access points, with no other connections to adjacent roads provided.
- Tracks will not be sealed but will be constructed from aggregate which is locally sourced.
- The number of water course crossings have been minimised as far as practicable.
- Track margins will be vegetated to reduce potential sediment-laden run-off.

The plan of development for the Project also identifies a number of site facilities, including the proposed substations, battery storage, construction compound and accommodation facilities and onsite concrete batch plant and laydown areas, as shown in **Figure 33** above.

Further to this, whilst not currently shown on the proposed site layout it is understood that the suitable parking facilities will be provided for the Project in accordance with the requirements of all relevant standards, guidelines and policies. In addition, due to the large area of land available within the Project site for the required internal facilities (including the construction site office and parking facilities), and the current setback from the external road network, it is not anticipated that either the construction or operational phases of the proposed Mount Hopeful Wind Farm will lead to an overspill of parking or vehicle queuing at site accesses that would lead to negative impacts to the operation of the surrounding road network.

4.0 Development Traffic

There will be two distinct periods of development traffic generation for the Project, being the construction, and operational phases. The expected traffic generation and distribution during both these phases of the Project is discussed in the sections below.

4.1 Construction Phase

As identified above, construction will indicatively commence in Q4 2023 (pending approvals) and it is proposed that all construction activities across the site will be completed within 22 to 28 months (conservatively assumed to be 22 months for this assessment - i.e. by Q3 (July) 2025), with the peak period of construction expected to occur in late Q1 and Q2 2024.

Based on the information provided by Neoen, it has been identified that the main traffic generating activities occurring within the construction phase of the Project are the transport of the various construction materials / equipment to site 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 Turbine Component Transport Movements

As previously identified the turbine components will be imported from overseas, shipped to port facilities in Gladstone, before being transported by road to the wind farm site. On average, two light escort vehicles will be accompanying each over dimension turbine component, with a summary of the proposed Project turbine transport traffic volumes provided below:

- 2,467 vehicles total from Port of Gladstone, including:
 - 1,638 light vehicle escorts.
 - 819 turbine component transport vehicles.
 - 10 meteorology mast transport vehicles.

4.1.2 Materials and Equipment Delivery Movements

Neoen has provided preliminary information and assumptions regarding the expected construction phase of the Project based on their experience in developing similar wind farm developments. 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.

- General equipment and plant for the main Project area is proposed to be imported to site from either Gladstone or Biloela, with equipment for the eastern substation area proposed to be imported to site from Rockhampton.
- Gravel materials for the internal access roads, site entrance and external access roads (McDonalds Road and Playfield Roads), site areas and concrete aggregates are conservatively assumed to be 100% imported to site, with no internal sources currently identified within the Project area.

At this stage, it is indicatively assumed that the gravel materials for the main Project site will be sourced from the quarries located to the north on the Leichhardt Highway, while the gravel materials for the eastern substation site are indicatively assumed to be sourced from quarry operations at Midgee.

• Construction water requirements for the site have also conservatively been assumed to be 100% imported, with the no viable bores currently identified onsite. For the purpose of this assessment, it has been assumed that the construction water will be sourced from BSC facilities in Biloela.

- Concrete for the main Project area is to be sourced from on-site batch plant facilities, with the materials (cement, steel and aggregates) proposed to be 100% imported, primarily from Biloela.
- Concrete required for the eastern substation site is to be imported as wet concrete in trucks from commercial suppliers in Rockhampton.

A calculated breakdown of the Project generated traffic movements by construction task, is summarised in **Table 11**, while the detailed calculations completed in order to convert operational / construction information into vehicle movements are included for reference in **Appendix H**.

Task	Duration	Total Vehicles	Type of Vehicles	Max Vehicles per Day
Task A – Site Mobilisation	1 month	100 vehicles	Semi / Low Loaders	5 vehicles / day
Task B – Access Roads and Site Entrances	9 months 1 month to eastern site	 6,178 vehicles, including: <u>Main Project Site</u> 6,079 movements from quarry. <u>Eastern Substation Area</u> 99 movements from quarry. 	Truck & Dog Trailers	33 vehicles / day (Quarry to site) 5 vehicles / day (Quarry to eastern site)
Task C – Substation and Construction Compound	9 months 3 months to eastern site	 5,755 vehicles, including: <u>Main Project Site</u> 316 movements from Gladstone / Biloela. 5,133 movements from quarry. <u>Eastern Substation Area</u> 126 movements from Rockhampton. 180 movements from quarry. 	Semi-Trailers Concrete Trucks Truck & Dog Trailers Water Truck	2 vehicles / day (R'ton to eastern site) 3 vehicles / day (Quarry to eastern site) 24 vehicles / day (Quarry to main site) 2 vehicles / day (G'stone to main site) 2 vehicles / day (Biloela to main site)
Task D - Cabling	8 months 4 months to eastern site	 626 vehicles, including: <u>Main Project Site</u> 64 movements from Gladstone. 548 movements from quarry. <u>Eastern Substation Area</u> 14 movements from Rockhampton. 	Semi-Trailers Truck & Dog Trailers	1 vehicle / day (R'ton to eastern site) 1 vehicles / day (G'stone to main site) 3 vehicles / day (Quarry to main site)
Task E – Turbine Foundations	11 months	 3,526 vehicles (external), including: <u>Main Project Site</u> 1,106 movements from Biloela. 2,420 movements from quarry. 8,247 concrete truck movements internal to site. 	Semi-Trailers Truck & Dog Trailers Concrete Trucks	10 vehicles / day (Quarry to main site) 5 vehicles / day (Biloela to main site)
Task F – Turbine Transportation	12 months (Delivery Rate of 2 Turbines per Week)	2,467 vehicles total (including 1,638 light vehicle escorts)	Special Transport Vehicles (Permit) Escorts (light vehicle)	15 vehicles / day (including 5 OSOM vehicles)

Table 11 Summary of Total Project Material / Equipment Delivery Movement Volumes

Task	Duration	Total Vehicles	Type of Vehicles	Max Vehicles per Day
Task G – Turbine Erection	9 months (crane transport in 5 days)	Main Project Site 10 vehicles required for nacelle crane delivery.	Special Transport Vehicles (Permit)	2 vehicles / day (G'stone to main site)
Task H – Finalisation / Commissioning / Demobilisation	3 months	<u>Main Project Site</u> 245 vehicles	Semi-Trailers	4 vehicles / day (G'stone to main site)
Other – Site Water (Does not include internal water truck movements)	21 months	Main Project Site 4,755 vehicles	Water Trucks	10 vehicles / day (Biloela to main site)
Site Fuel	21 months	Main Project Site 241 vehicles	Water Trucks	1 vehicle / day (Biloela to main site)

4.1.3 Construction Staff Movements

The proponent has also provided the following information and assumptions regarding the proposed staff movements for the proposed construction phase of the Mount Hopeful Wind Farm:

- Maximum (peak) construction workforce expected on site is 450 staff, of which 80% (360 staff) will be local employees, and the remaining 20% (90 staff) will be specialist fly-in, fly-out (FIFO) staff.
- Outside of the peak construction period, the staff numbers to the main site are expected to be significantly less (i.e. in the order of 50-125 staff).
- Local workers for the main site are expected to be from Biloela (100%), with FIFO workers also accommodated in Biloela.
- A small number of staff (max. 50 staff) are also expected to travel to the eastern substation site temporarily (approx. 6-9 months) during its construction and are expected to commute to/from the site daily from Rockhampton.
- Construction staff are expected to commute using a mixture of private vehicles (light vehicles and 4WDs) and minibuses, with an average capacity of 2 staff per vehicle and 15 staff members per bus.
- The split of private vehicles and minibus usage by staff is anticipated to be approximately 30% / 70% for both the local and FIFO staff.

Based on these general staff assumptions, the expected staff numbers and associated vehicle movements were established, with **Table 12** summarises the expected number of staff by construction task and by month, and **Table 13** converting the estimated staff numbers to anticipated vehicle movement numbers.

As previously identified, Neoen is currently considering a delivery methodology for the Project which would include the provision of an on-site workers accommodation camp for the Project, which would be expected to significantly reduce the daily staff volumes commuting between Biloela and the subject site.

														MO	NTH										
ID	Duration (Davs)	Task	Max Staff	0ct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	0ct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25	Jul-25
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
				Q	4 202	3	Q	1 20	24	Q	2 20	24	Q	3 20	24	Q	4 202	24	Q	1 202	25	Q	2 202	25	Q3
A	24	Mobilisation	50	50																					
В	216	Access Roads and Site Entrances	125	75	100	125	125	125	125	125	100	75]												
c	216	Substation and Site Areas	75		50	75	75	75	75	75	75	75	50												
D	192	Cabling	75			75	75	75	75	75	75	75	75												
E	264	Turbine Foundations	125			100	125	125	125	125	125	125	125	125	125	150									
F	288	Turbine Transportation	50						25	50	50	50	50	50	50	50	50	50	50	25					
G	216	Turbine Erection	75										50	75	75	75	75	75	75	75	50				
н	72	Finalisation / Demobilisation / Commissioning	50																			50	50	50	
1	24	Project Float	0																						0

Table 12 Forecast Staff Numbers during Construction

														MO	NTH										
				0ct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	0ct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25	Jul-25
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
				Q	1 202	3	Q	1 202	24	Q	2 20	24	Q	3 202	24	Q	4 202	24	Q	1 202	25	Q	2 202	25	Q3
	Total Staff	Numbers		125	150	375	400	400	425	450	425	400	350	250	250	275	125	125	125	100	50	50	50	50	0
	100%																								
Staff	itaff Vehicle Capacity Utilisa				150	375	400	400	425	450	425	400	350	250	250	275	125	125	125	100	50	50	50	50	0
		capacity	by Staff																						
Local Staff			125	150	375	400	400	425	450	425	400	350	250	250	275	125	125	125	100	50	50	50	50	0	
(Piloela)	Mini Bus	70%	6	7	18	19	19	20	21	20	19	16	12	12	13	6	6	6	5	2	2	2	2	0	
(DitUeld)	LV	2	30%	19	23	56	60	60	64	68	64	60	53	38	38	41	19	19	19	15	8	8	8	8	0
	Externa	al Staff Mov	ement Total	25	30	74	79	79	84	89	84	79	69	50	50	54	25	25	25	20	10	10	10	10	0

Table 13 Forecast Daily Staff Vehicle Volumes

4.2 Operations Phase

The proponent (Neoen) has also advised that the workforce during operations phase of the Project (i.e. following the completion of the construction stages) will only consist of a small number of local workers (approximately 10 staff) who are expected to reside locally to the Project site (most likely in Biloela).

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

In light of the information regarding the Project traffic volumes provided above, it can clearly be seen that the construction stage of the Project is critical in terms of the impact upon the public road network and has been used as the basis of the assessment of this impact considering road safety, road capacity, and pavement impact.

4.3 Project Traffic Volumes on the Network

The volumes of traffic forecast to be generated by staff and equipment / materials delivery have been distributed onto the public road network based upon an understanding of the locations from which these equipment / materials are intended to be sourced / delivered, and other Project operational information provided by the proponent.

4.3.1 Road Links

As previously identified, the use of the external road network by typical day to day Project traffic is anticipated to be generally limited to the state controlled network and a small number of BSC (McDonalds Road, Playfields Road) controlled local access roads in close proximity to the main Project site, with smaller volumes of traffic associated with the construction of the eastern substation and battery storage area also anticipated to utilise the RRC controlled link of South Ulam Road temporarily (approx. 6-9 months).

Notwithstanding this, it is also noted that a number of local roads controlled by GRC (Macfarlane Road, Flinders Parade, Lord Street, Red Rover Road, Don Young Drive, Mount Alma Road and Calliope Station Road) and BSC (Callide Mine Haul Road Access, Argoon-Kilburnie Road, Jambin-Dakenba Road) are also proposed to be utilised as part of the turbine component transport operations from the Port of Gladstone to the Project area.

Detailed calculations were undertaken to establish the peak daily Project traffic volumes on the relevant sections of the road network, with a copy of these included for reference as **Appendix H**. A summary of the calculated Project traffic volumes (conservatively based on the total of the individual maximum movements from concurrently scheduled construction activities) for each identified road link is provided in **Table 14**, noting that typically these peak volumes are experienced during the construction period where Tasks B to F (refer **Table 10** / **Table 12** above) are being completed concurrently with typical site water and staff movements on the network.

Road	Doad Description	AADT	AADT S	egment	Ma Pr	iximum Da oject Traf	aily fic
ID	Koau Description	ID	Start (km)	End (km)	Gaz	A-Gaz	Bi-Dir
183	Gladstone Port Access Road	61605	0.000	0.858	9	15	24
	Macfarlano Poad	GRC	0.000	0.350	15	15	30
_		GRC	0.350	1.210	6	0	6
-	Hopper Road (John Bates Drive)	GRC	0.000	0.790	6	0	6
-	Flinders Parade	GRC	0.000	0.670	6	0	6
-	Lord Street	GRC	0.000	0.515	6	0	6
			0.000	0.175	0	15	15
		60071	0.175	0.919	9	0	9
			0.919	1.409	15	0	15
101	Cladstone Mount Larcom Road	60073	1.409	3.258	15	0	15
101		61052	3.258	3.830	15	0	15
		01052	3.830	4.625	3	0	3
		60074	4.625	12.292	3	0	3
		60076	12.292	32.140	3	0	3
-	Red Rover Road	GRC	0.000	3.390	12	0	12
-	Don Young Drive	GRC	0.000	2.280	12	0	12
		60061	0.000	1.498	3	18	21
		61083	1.498	2.238	3	18	21
160	Dawson Highway (Cladstone Riloola)	61000	2.238	3.130	3	18	21
404	Dawson nighway (Glaustone - Diloela)	60063	3.130	4.391	3	18	21
		60064	4.391	5.179	3	18	21
		60062	5.179	7.129	3	18	21

 Table 14
 Forecast Maximum Project Traffic Volumes on External Road Network

AC)(CE	ES	SS	S	Т	F	٢,	4	FF	2
	С	0	Ν	S	U	L	Т	Ī	Ν	G	

Road	Pood Description	AADT	AADT S	egment	Ma Pr	ximum Da oject Trafi	aily fic
ID		ID	Start (km)	End (km)	Gaz	A-Gaz	Bi-Dir
			7.129	10.296	15	18	33
		60065	10.296	19.050	15	18	33
		60066	19.050	21.650	15	18	33
		60128	21.650	25.640	15	18	33
		60005	25.640	46.518	15	18	33
		00005	46.518	101.008	18	18	36
		60067	101.008	113.728	15	18	33
		61084	113.728	116.836	15	18	33
		61085	116.836	119.836	15	18	33
-	Mount Alma Road	GRC	0.000	16.970	3	0	3
-	Calliope Station Road	GRC	0.000	2.600	3	0	3
		60006	11.445	35.812	6	0	6
		60023	35.812	45.420	6	0	6
		60023	45.420	85.308	0	0	0
10E	Pruco Highway (Poparaby - Pockhampton)		85.308	86.183	0	0	0
TUL	Bruce highway (beharaby - Kockhampton)	61551	86.183	107.400	11	11	22
			107.400	108.938	3	3	6
		60130	108.938	114.388	3	3	6
		60024	114.388	116.961	3	3	6
-	South Ulam Road	RRC	0.000	16.773	26	26	52
16B	Dawson Highway (Biloola Banana)	60068	0.000	0.650	22	25	47
400	Dawson nighway (biloela - bahaha)	61883	0.650	1.366	22	25	47
264	Leichbardt Highway (Westwood Taroom)	60001	0.000	0.115	0	0	0
204		00001	0.115	25.680	70	70	140
		61081	0.000	27.290	122	125	247
/1F	Burnet Highway (Biloela – Mt Morgan)	01001	27.290	35.401	125	125	250
416	burnet highway (bhocia – int inorgan)	60055	35.401	56.310	125	125	250
		00033	56.310	71.730	70	70	140
-	Callide Mine Haul Road Access	BSC	0.000	0.400	3	0	3
-	Argoon-Kilburnie Road	BSC	0.000	12.940	3	0	3
-	Jambin-Dakenba Road	BSC	0.000	9.400	3	0	3
-	McDonalds Road	BSC	0.000	5.720	195	195	390
	Plaufields Road	BSC	0.000	5.080	195	195	390
-		000	5.080	7.680	195	195	390

4.3.2 Intersections

From the information regarding the proposed staff and heavy vehicle movement numbers during the critical construction phase of the Project, the peak hour volumes at the key Burnett Highway / McDonalds Road and Bruce Highway / South Ulam Road intersections were established.

A summary of the resultant peak hour Project traffic volumes at these intersections is outlined in **Table 15** and **Table 16**, with further details of the calculations undertaken to establish these volumes are provided for reference in **Appendix D**.

Table 15 Construction Traffic - Peak Hour Traffic Volumes, Burnett Highway / McDonalds Road Intersection

	B	urnett H	lighway	Ś	М	cDonald	ds Road	E	B	urnett H	lighway	'N
Traffic Scenario	Thro	ough	Riç	ght	Le	eft	Riç	ght	Le	eft	Thro	bugh
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
AM Peak												
Project "In Construction"	0	0	89	3	0	3	0	6	0	6	0	0
PM Peak												
Project "In Construction"	0	0	0	3	89	3	0	6	0	6	0	0

Table 16 Construction Traffic - Peak Hour Traffic Volumes, Bruce Highway / South Ulam Road Intersection

	E	Bruce Hi	ighway I	N	South Ulam Road W				Bruce Highway S			
Traffic Scenario	Thro	ough	Riç	ght	Le	eft	Rig	ght	Le	eft	Thro	ough
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
AM Peak												
Project "In Construction"	0	0	15	1	0	1	0	0	0	0	0	0
PM Peak	-											-
Project "In Construction"	0	0	0	1	15	1	0	0	0	0	0	0

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 proposed wind farm development were the identified road links forming the proposed transport routes for the site, and the key intersections of the Burnett Highway / McDonalds Road and Bruce Highway / South Ulam 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
- 5.1.1.1 Construction Phase

As identified above, the peak traffic generation from the proposed Mount Hopeful Wind Farm is expected to occur during the peak construction period for the Project, with the expected maximum traffic volumes from the site identified in **Table 14** above. Based on these volumes and the adopted distribution identified in **Section 4.3** above, the forecast pre project and "in construction" traffic volumes on the relevant sections of the road network were established, as summarised in **Table 17**.

	Road S	egment	Backgrou Volu	und Daily Imes	Project Co Traffic	nstruction (Daily)	In Constru Volu	ction Daily mes
Site ID	Start	End	20	24	627	A_C27	20	24
	(km)	(km)	Gaz	A-Gaz	Gaz	A-Gaz	Gaz	A-Gaz
Gladstone F	Port Access I	Road (183)						
61605	0.000	0.858	826	789	9	15	835	804
Macfarlane	Road							
GRC	0.000	0.350	-	-	15	15	-	-
GRC	0.350	1.210	-	-	6	0	-	-
Hopper Roa	d (John Bate	es Drive)						
GRC	0.000	0.790	-	-	6	0	-	-
Flinders Par	ade							
GRC	0.000	0.670	-	-	6	0	-	-
Lord Street								
GRC	0.000	0.515	-	-	6	0	-	-
Gladstone-I	Mount Larco	m Road (18	1)					
	0.000	0.175	3,745	3,242	0	15	3,745	3,257
60071	0.175	0.919	3,745	3,242	9	0	3,754	3,242
	0.919	1.409	3,745	3,242	15	0	3,760	3,242
60073	1.409	3.258	3,211	3,344	15	0	3,226	3,344
(1050	3.258	3.830	4,996	4,821	15	0	5,011	4,821
61052	3.830	4.625	4,996	4,821	3	0	4,999	4,821
60074	4.625	12.292	3,403	3,385	3	0	3,406	3,385
60076	12.292	32.140	1,571	1,573	3	0	1,574	1,573

 Table 17
 Forecast Pre Project and "In Construction" Traffic Volumes

	Road Se	egment	Backgrou Volu	und Daily Imes	Project Co Traffic	nstruction (Daily)	In Constru Volu	ction Daily mes
Site ID	Start	End	20	24	627	A_G27	20	24
	(km)	(km)	Gaz	A-Gaz	042	A-Gaz	Gaz	A-Gaz
Red Rover F	Road							
GRC	0.000	3.390	-	-	12	0	-	-
Don Young	Drive							
GRC	0.000	2.280	-	-	12	0	-	-
Dawson Hig	hway (46A (Gladstone –	Biloela)					
60061	0.000	1.498	5,395	5,941	3	18	5,398	5,959
61083	1.498	2.238	9,017	9,080	3	18	9,020	9,098
61000	2.238	3.130	11,376	12,372	3	18	11,379	12,390
60063	3.130	4.391	13,482	18,693	3	18	13,485	18,711
60064	4.391	5.179	10,740	10,375	3	18	10,743	10,393
(00(2	5.179	7.129	3,265	3,804	3	18	3,268	3,822
60062	7.129	10.296	3,265	3,804	15	18	3,280	3,822
60065	10.296	19.050	3,449	3,757	15	18	3,464	3,775
60066	19.050	21.650	4,096	4,009	15	18	4,111	4,027
60128	21.650	25.640	1,170	1,161	15	18	1,185	1,179
(0005	25.640	46.518	622	624	15	18	637	642
60005	46.518	101.008	622	624	18	18	640	642
60067	101.008	113.728	646	676	15	18	661	694
61084	113.728	116.836	866	1,223	15	18	881	1,241
61085	116.836	119.836	3,215	3,378	15	18	3,230	3,396
Mount Alma	Road							
GRC	0.000	16.970	-	-	3	0	-	-
Calliope Stat	tion Road							
GRC	0.000	2.600	-	-	3	0	-	-
Bruce Highv	vay (10E Be	naraby – Ro	ckhampton)					
(000)	11.445	35.812	2,829	2,704	6	0	2,835	2,704
60006	35.812	45.420	2,829	2,704	6	0	2,835	2,704
60023	45.420	85.308	3,016	3,017	0	0	3,016	3,017
	85.308	86.183	3,993	4,046	0	0	3,993	4,046
61551	86.183	107.400	3,993	4,046	11	11	4,004	4,057
	107.400	108.938	3,993	4,046	3	3	3,996	4,049
60130	108.938	114.388	3,382	3,387	3	3	3,385	3,390
60024	114.388	116.961	5,093	4,683	3	3	5,096	4,686
South Ulam	Road							
RRC	0.000	16.773	104	111	26	26	130	137

	Road Se	egment	Backgrov Volu	und Daily Imes	Project Co Traffic	onstruction : (Daily)	In Construction Daily Volumes		
Site ID	Start	End	20)24	Cor	A Co7	20	24	
	(km)	(km)	Gaz	A-Gaz	Gaz	A-Gaz	Gaz	A-Gaz	
Dawson Hig	hway (46B E	Biloela – Bar	nana)						
60068	0.000	0.650	2,818	3,071	22	25	2,840	3,096	
61883	0.650	1.366	2,252	2,189	22	25	2,274	2,214	
Leichhardt H	lighway (26	A Westwood	d – Taroom)						
(0001	0.000	0.115	389	395	0	0	389	395	
60001	0.115	25.680	389	395	70	70	459	465	
Burnett High	nway (41E B	iloela – Mt N	<i>l</i> organ)						
(1001	0.000	27.290	588	624	122	125	710	749	
61081	27.290	35.401	588	624	125	125	713	749	
(0055	35.401	56.310	478	503	125	125	603	628	
60055	56.310	71.730	478	503	70	70	548	573	
Callide Haul	Road Acces	s							
BSC	0.000	0.400	-	-	3	0	-	-	
Argoon-Kilk	ournie Road								
BSC	0.000	12.940	-	-	3	0	-	-	
Jambin-Dak	kenba Road								
BSC	0.000	9.400	-	-	3	0	-	-	
McDonalds	Road								
BSC	0.000	5.720	26	26	195	195	221	221	
Playfields R	load								
DCO	0.000	5.080	26	26	195	195	221	221	
R2C	5.080	7.680	26	26	195	195	221	221	

5.1.1.2 Operational Phase

As previously outlined, Neoen has advised that the predominant Project traffic volumes during the operations phase will be the movements to/from the site by the relatively small number of local workers (i.e. approximately 10 staff) who are expected to reside locally to the Project (likely Biloela). Further to this, it has been advised that heavy vehicle movements during the operational stage of the Project will be extremely low (1 per week) and limited to periodic maintenance activities or site deliveries.

Based on the above, the increase in traffic volumes on the road network as a result of the operations phase of the Project can be seen to be very minor. As such, the corresponding traffic impacts of the ongoing operation of the Mount Hopeful Wind Farm can be considered negligible, and no further traffic assessment of the relevant road links is deemed necessary.

5.1.2 Intersection Volumes

To establish the anticipated "in construction" traffic volumes at the key Burnett Highway / McDonalds Street and Bruce Highway / South Ulam Road intersections, the Project construction traffic volumes identified in **Section 4.3** were added to the estimated 2024 background or pre project traffic volumes as per Table 4 in Section 2.4.2 above. The resultant "in construction" traffic volumes at the intersections aresummarised in Table 18 and Table 19 below.

	В	urnett H	lighway	S	McDonalds Road E				Burnett Highway N			
Scenario	Thro	ough	Riç	ght	Le	eft	Riç	ght	Le	eft	Thro	ough
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
AM Peak												
2024 Background	32	19	1	0	3	0	3	0	1	0	30	20
Project Traffic	0	0	89	3	0	3	0	6	0	6	0	0
2024 "In Construction"	32	19	90	3	3	3	3	6	1	6	30	20
PM Peak												
2024 Background	32	19	3	0	1	0	1	0	3	0	25	16
Project Traffic	0	0	0	3	89	3	0	6	0	6	0	0
2024 "In Construction"	32	19	3	3	90	3	1	6	3	6	25	16

Table 18 Forecast Traffic Volumes, Burnett Highway / McDonalds Road Intersection

Table 19 Forecast Traffic Volumes, Bruce Highway / South Ulam Road Intersection

		Bruce Hi	ighway N	N	South Ulam Road W				Bruce Highway S			
Scenario	Thro	ough	Rig	ght	Le	eft	Ri	ght	Le	eft	Thro	ough
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
AM Peak												
2024 Background	195	69	3	0	3	0	6	1	4	0	134	53
Project Traffic	0	0	15	1	0	1	0	0	0	0	0	0
2024 "In Construction"	195	69	18	1	3	1	6	1	4	0	134	53
PM Peak												
2024 Background	159	56	4	0	8	1	10	1	6	1	175	69
Project Traffic	0	0	0	1	15	1	0	0	0	0	0	0
2024 "In Construction"	159	56	4	1	23	2	10	1	6	1	175	69

5.2 Access and Frontage Impact Assessment and Mitigation

5.2.1 Critical Intersections

An assessment has been undertaken to establish the appropriate turn treatments at the identified intersections of Burnett Highway / McDonalds Road and Bruce Highway / South Ulam Road intersections based on the forecasts in construction traffic volumes for the Project. This assessment is based on the turn treatment warrants identified in Figure 2.26(a) of Austroads *Guide to Traffic Management - Part 6: Intersections, Interchanges and Crossings* for higher speed highway intersections.

The forecast turning movement volumes at the proposed intersections during the peak project construction period identified in **Table 18** and **Table 19** above have been used as the basis of this assessment, with the results shown in **Figure 34** and **Figure 35**. Further details of the turn warrant assessment calculations are included for reference as **Appendix I**.







Figure 34 Burnett Highway / McDonalds Road Intersection Turn Warrants - 2024 "In Construction"

Based on **Figure 34** above, it can be seen that the forecast peak hour "in construction" traffic volumes at the critical Burnett Highway / McDonalds intersection warrant the provision of basic right (BAR) and basic left (BAL) turn treatments at the intersection. Further to this, it is recommended that these required turn treatments at the intersection be designed in accordance with Figure 7.5 (2010) and Figure 8.2 (2019) of Austroads *Guide to Road Design Part 4A*.

In addition to the intersection upgrade works, further vegetation clearing is recommended to be undertaken on the eastern side of the highway to improve the available sight distances to/from McDonalds Road on the northern Burnett Highway approach. Following these clearing works, if suitable sight distances are still not available, further traffic management measures (such as advanced warning truck turning signage and potential speed reductions) should be implemented on the northern approach to the McDonalds Road intersection (for the duration of the construction period) to delineate the intersection for approaching motorists and highlight the potential for Project traffic (including heavy vehicles) turning onto/from the highway at McDonalds Road. These works are considered suitable based on the existing deficiency in sight distance at the intersection, and the temporary nature of the use of the intersection by Project traffic.

Finally, it is noted that temporary pavement works are expected to be required at the Burnett Highway / McDonalds Road intersection to provide additional hardstand areas at the intersections to accommodate the swept paths of required turbine component transport vehicle movements for the Project. The exact extents of these temporary works at the intersections will be confirmed as the turbine component and transport vehicle configurations are finalised in subsequent stages of the Project, however preliminary details can be seen in the Preliminary Transport Route Assessment report completed for the Project.

5.2.1.2 Bruce Highway / South Ulam Road

Figure 35 below indicates that the existing provision of channelised right turn (CHR) and auxiliary left turn (AULs) treatments at the key Bruce Highway / South Ulam Road will be more than adequate to accommodate the minor increases in peak hour volumes associated with the construction activities at the eastern substation area of the proposed Mount Hopeful Wind Farm.





5.2.2 Site Accesses

Access to the main Project area is proposed to be provided via a continuation of Playfields Road, over a cattle grid structure (to be upgraded) at the south-western boundary of Lot 21 RN1345. Once upgraded to provide sufficient width to cater for two-way, two-lane traffic flow, this access point is expected to be suitable to cater for the expected Project traffic volumes associated with both the construction and operations phase of the Project.

In addition, access to this secondary site area is proposed to be provided via a new site access on the western side of South Ulam Road, approximately 16.8 km south of the Bruce Highway. As no access point currently exists at this location, it is proposed that a new site access intersection in accordance with the requirements for an access from a bitumen road (<300vpd) as per Standard Drawing CMDG-R-040 (Rural Road Access and Property Access Over Table Drains) be provided to service the expected Project traffic volumes.

5.3 Road Safety Impact Assessment and Mitigation

Based on the road environments (<8,000vpd) of the relevant sections of the surrounding road network, it was determined that the completion of a lower order road safety assessment would be sufficient to establish the existing and post development road safety risks relevant to the proposed Mount Hopeful Wind Farm, in accordance with the provisions of TMR's *Guide to Traffic Impact Assessment* (Section 9.3.3).

As part of this road safety assessment a site inspection of the existing traffic conditions at the proposed site access locations and the adjacent road network was undertaken by Andrew Barrie (RPEQ / TMR Senior Road Safety Auditor). 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 36** was utilised, with the results of the road safety risk assessment summarised in **Table 20**.

			P	otential conseque	nce	
		Property only (1)	Minor injury (2)	Medical treatment (3)	Hospitalisation (4)	Fatality (5
-	Almost certain (5)	M	М	н	н	н
elihoo	Likely (4)	М	М	М	H	Н
tial lik	Moderate (3)	L	м	М	м	Н
Poten	Unlikely (2)	L	L	М	м	М
	Rare (1)	L	L	L	м	м

Figure 36 Adopted Risk Score Matrix

[Source: TMR GTIA]

Table 20 Project Road Safety Assessment – Mount Hopeful Wind Farm

		Exis Dev	ting / elopn	Pre- nent	Cor	In nstruc	tion		In Co with	onstru Mitiga	ction ation
Risk	Item	Likelihood	Consequence	Risk Score	Likelihood	Consequence	Risk Score	Mitigation Measure	Likelihood	Consequence	Risk Score
1	Reduced carriageway width currently provided on unsealed sections of McDonalds Road (Ch. 0.000 to 5.720km) and Playfields Road (Ch. 5.080 to 24.420km) has the potential for increased conflict between vehicles travelling in opposing directions	Unlikely	Hospitalisation	Medium	Likely	Hospitalisation	High	Provision of carriageway widening works to provide an unsealed road configuration providing 6.5m pavement width in accordance with the requirements for a rural access road as per Table D1.27.05 of CMDG. This increased width is expected to be adequate for the temporary increase in traffic on the link during the Project construction phase and accommodate two-way traffic flow (including HVs).	Unlikely	Hospitalisation	Medium
2	The existing drainage (floodway/culvert) and cattle grid structures on McDonalds Road and Playfields Road provide reduced trafficable width only catering for two-way, one lane traffic flow, which has the potential for increased conflict between vehicles travelling in opposing directions.	Unlikely	Hospitalisation	Medium	Likely	Hospitalisation	High	Completion of works to upgrade all relevant drainage and cattle grid structures to provide adequate width (min. 6.0m) across floodway to enable two vehicles to pass clear of each other and accommodate the required vehicles paths of the OSOM turbine transport vehicles. Alternatively, diversions (including relevant gate infrastructure and fencing amendments) around the existing cattle grid structures may be provided were possible to reduce the requirement to upgrade the existing structures.	Unlikely	Hospitalisation	Medium

ACCESS TRAFFIC

3	Reduced carriageway width currently provided on unsealed sections of Mount Alma Road (Ch. 0.000 to 16.970km) has the potential for increased conflict between vehicles travelling in opposing directions	Unlikely	Hospitalisation	Medium	Moderate	Hospitalisation	Medium	As the only Project traffic proposed to utilise the narrow sections of Mount Alma Road are the OSOM turbine tower transport vehicles, which will be travelling under escort and under a traffic management plan, the likelihood of conflict with opposing vehicles on Mount Alma Road is expected to be very low. With the existing carriageway width generally expected to be suitable to cater for the required Project vehicle movements.	Unlikely	Hospitalisation	Medium
4	The existing drainage (floodway/culvert) and cattle grid structures on Mount Alma Road and Calliope Station Road only provide reduced trafficable width only catering for two-way, one lane traffic flow across the structure. This has potential for increased conflict between vehicles travelling in opposing directions. Further to this, no control measures are currently provided to manage traffic flows at the structures.	Unlikely	Hospitalisation	Medium	Likely	Hospitalisation	High	Completion of works to upgrade all relevant drainage and cattle grid structures to provide adequate width (min. 6.0m) across floodway to enable two vehicles to pass clear of each other and accommodate the required vehicles paths of the OSOM turbine transport vehicles. Alternatively, diversions (including relevant gate infrastructure and fencing amendments) around the existing cattle grid structures may be provided were possible to reduce the requirement to upgrade the existing structures.	Unlikely	Hospitalisation	Medium
5	The Project is also expected to lead to an increase in turning vehicle movements at the existing Burnett Highway / McDonalds Road intersection. This increase in turning vehicles has the potential to lead to an increase in vehicle conflicts at the proposed intersection location.	Unlikely	Hospitalisation	Medium	Moderate / Likely	Hospitalisation	Medium / High	Proposed that works be undertaken as part of the Project to provide an upgraded intersection configuration BAR / BAL at the existing Burnett Highway / McDonalds Road intersection in accordance with the turn warrants assessment undertaken and the requirements of Austroads GRD Chapter 4a. It is also recommended that advisory "truck turning" signage be installed on the approaches to each of the identified intersections during the peak construction phase of the Project, to highlight to motorists the presence of the intersection and the potential for turning Project traffic (including heavy vehicles) to/from the side road.	Unlikely	Hospitalisation	Medium

6	The Project is also expected to lead to an increase in turning vehicle movements at the existing Bruce Highway / South Ulam Road intersection. This increase in turning vehicles has the potential to lead to an increase in vehicle conflicts at the proposed intersection location.	Unlikely	Medical Treatment	Medium	Unlikely	Medical Treatment	Medium	No mitigation works required. Detailed intersection analysis identified that existing intersection configuration (CHR / AULs) is adequate to cater for the proposed in construction traffic volumes at the intersection.	Unlikely	Medical Treatment	Medium
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5.4 Intersection Delay Impact Assessment and Mitigation

SIDRA analysis was undertaken to establish the operational performance of the key Burnett Highway / McDonalds Road and Bruce Highway / South Ulam Road intersections, with this analysis considering the AM and PM peak periods during the established peak construction period (2024) for the Project. A summary of the results of the completed intersection analysis is provided in **Table 21** and **Table 22** below, with detailed SIDRA output summaries included for reference in **Appendix E** and **Appendix F**.

Analysis Scenario	Intersection Degree of Saturation	Level of Service**	Intersection Average Delay (sec)	Maximum 95% Back of Queue Length (m)
Burnett Highway / McDonalds Road Intersed	tion			
2024 Pre Development AM Peak	0.034	LOS A	0.4	0.1
2024 Pre Development PM Peak	0.035	LOS A	0.5	0.2
2024 "In Construction" AM Peak	0.090	LOS A	3.2	3.3
2024 "In Construction" PM Peak	0.073	LOS A	3.3	2.2

Table 21 SIDRA Results - Burnett Highway / McDonalds Road Intersection

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

Table 22 SIDRA Results – Bruce Highway / South Ulam Road Intersection

Analysis Scenario	Intersection Degree of Saturation	Level of Service**	Intersection Average Delay (sec)	Maximum 95% Back of Queue Length (m)
Bruce Highway / South Ulam Road				
2024 Pre Development AM Peak	0.165	LOS B	0.3	0.5
2024 Pre Development PM Peak	0.154	LOS B	0.6	0.9
2024 "In Construction" AM Peak	0.165	LOS B	0.6	0.6
2024 "In Construction" PM Peak	0.154	LOS B	0.8	1.4

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

The results above indicate that both the proposed BAR/BAL configuration of the Burnett Highway / McDonalds Road and the existing configuration (CHR/AULs) of the Bruce Highway / South Ulam Road intersections are expected to operate satisfactorily during the peak construction phase traffic scenarios identified of the Project, with all values for DOS, LOS, average delay and vehicle queue length being within acceptable limits of operation for priority-controlled intersections.

As such, it can be concluded that the proposed configuration (BAR /BAL) of the Burnett Highway / McDonalds Road and the existing configuration of the Bruce Highway / South Ulam Road can be considered appropriate to cater for the additional traffic volumes generated by the peak construction phase of the proposed Mount Hopeful Wind Farm.

Notwithstanding this, it is recommended that advisory "truck turning" signage be installed on the approaches to the Burnett Highway / McDonalds Road and Bruce Highway / South Ulam Road intersections during the construction phase, to highlight to motorists the presence of the Project access locations and the potential for turning vehicles to/from the side roads.

5.5 Road Link Capacity Assessment and Mitigation

A summary of the assessment of the percentage increase in daily traffic volumes on the road network as a result of the critical construction phase Project traffic from the Mount Hopeful Wind Farm is shown in **Table 23** below, with further details of the calculations undertaken provided in **Appendix H**.

	Road Segment		Background Daily Volumes		Project Construction Traffic (Daily)		% Increase in Daily Traffic Volume			
Site ID	Start	End	2024		627	A Co7	2024			
	(km)	(km)	Gaz	A-Gaz	Gaz	A-Gaz	Gaz	A-Gaz		
Gladstone F	Gladstone Port Access Road (183)									
61605	0.000	0.858	826	789	9	15	1.09%	1.90%		
Macfarlane	Macfarlane Road									
GRC	0.000	0.350	-	-	15	15	-	-		
GRC	0.350	1.210	-	-	6	0	-	-		
Hopper Roa	d (John Bat	es Drive)								
GRC	0.000	0.790	-	-	6	0	-	-		
Flinders Par	Flinders Parade									
GRC	0.000	0.670	-	-	6	0	-	-		
Lord Street	Lord Street									
GRC	0.000	0.515	-	-	6	0	-	-		
Gladstone-I	Mount Larco	m Road (18	1)							
	0.000	0.175	3,745	3,242	0	15	0.00%	0.46%		
60071	0.175	0.919	3,745	3,242	9	0	0.24%	0.00%		
	0.919	1.409	3,745	3,242	15	0	0.40%	0.00%		
60073	1.409	3.258	3,211	3,344	15	0	0.47%	0.00%		
(1050	3.258	3.830	4,996	4,821	15	0	0.30%	0.00%		
61052	3.830	4.625	4,996	4,821	3	0	0.06%	0.00%		
60074	4.625	12.292	3,403	3,385	3	0	0.09%	0.00%		
60076	12.292	32.140	1,571	1,573	3	0	0.19%	0.00%		
Red Rover F	Road									
GRC	0.000	3.390	-	-	12	0	-	-		

Table 23 Road Link Daily Traffic Volume Comparison (Construction Phase)

	Road Segment		Background Daily Volumes		Project Construction Traffic (Daily)		% Increase in Daily Traffic Volume		
Sile ID	Start	End	2024		Gaz	A-Gaz	2024		
	(km)	(km)	Gaz	A-Gaz	Gaz	A-Gaz	Gaz	A-Gaz	
Don Young	Drive								
GRC	0.000	2.280	-	-	12	0	-	-	
Dawson Highway (46A Gladstone – Biloela)									
60061	0.000	1.498	5,395	5,941	3	18	0.06%	0.30%	
61083	1.498	2.238	9,017	9,080	3	18	0.03%	0.20%	
61000	2.238	3.130	11,376	12,372	3	18	0.03%	0.15%	
60063	3.130	4.391	13,482	18,693	3	18	0.02%	0.10%	
60064	4.391	5.179	10,740	10,375	3	18	0.03%	0.17%	
(00/2	5.179	7.129	3,265	3,804	3	18	0.09%	0.47%	
60062	7.129	10.296	3,265	3,804	15	18	0.46%	0.47%	
60065	10.296	19.050	3,449	3,757	15	18	0.43%	0.48%	
60066	19.050	21.650	4,096	4,009	15	18	0.37%	0.45%	
60128	21.650	25.640	1,170	1,161	15	18	1.28%	1.55%	
(0005	25.640	46.518	622	624	15	18	2.41%	2.88%	
60005	46.518	101.008	622	624	18	18	2.89%	2.88%	
60067	101.008	113.728	646	676	15	18	2.32%	2.66%	
61084	113.728	116.836	866	1,223	15	18	1.73%	1.47%	
61085	116.836	119.836	3,215	3,378	15	18	0.47%	0.53%	
Mount Alma	Road								
GRC	0.000	16.970	-	-	3	0	-	-	
Calliope Stat	tion Road								
GRC	0.000	2.600	-	-	3	0	-	-	
Bruce Highv	vay (10E Be	naraby – Ro	ckhampton)						
(000)	11.445	35.812	2,829	2,704	6	0	0.21%	0.00%	
60006	35.812	45.420	2,829	2,704	6	0	0.21%	0.00%	
60023	45.420	85.308	3,016	3,017	0	0	0.00%	0.00%	
	85.308	86.183	3,993	4,046	0	0	0.00%	0.00%	
61551	86.183	107.400	3,993	4,046	11	11	0.28%	0.27%	
	107.400	108.938	3,993	4,046	3	3	0.08%	0.07%	
60130	108.938	114.388	3,382	3,387	3	3	0.09%	0.09%	
60024	114.388	116.961	5,093	4,683	3	3	0.06%	0.06%	
South Ulam	Road								
RRC	0.000	16.773	104	111	26	26	24.99%	23.37%	

	Road Segment		Background Daily Volumes		Project Construction Traffic (Daily)		% Increase in Daily Traffic Volume			
Site ID	Start	End	2024		Coz	A Co-	2024			
	(km)	(km)	Gaz	A-Gaz	Gaz	A-Gaz	Gaz	A-Gaz		
Dawson Hig	hway (46B E	Biloela – Bar	ana)							
60068	0.000	0.650	2,818	3,071	22	25	0.78%	0.81%		
61883	0.650	1.366	2,252	2,189	22	25	0.98%	1.14%		
Leichhardt H	Leichhardt Highway (26A Westwood – Taroom)									
(0001	0.000	0.115	389	395	0	0	0.00%	0.00%		
60001	0.115	25.680	389	395	70	70	18.00%	17.71%		
Burnett High	Burnett Highway (41E Biloela – Mt Morgan)									
(1001	0.000	27.290	588	624	122	125	20.77%	20.02%		
61081	27.290	35.401	588	624	125	125	21.28%	20.02%		
(0055	35.401	56.310	478	503	125	125	26.14%	24.83%		
60055	56.310	71.730	478	503	70	70	14.64%	13.90%		
Callide Haul	Road Acces	s								
BSC	0.000	0.400	-	-	3	0	-	-		
Argoon-Kilk	ournie Road									
BSC	0.000	12.940	-	-	3	0	-	-		
Jambin-Dak	enba Road									
BSC	0.000	9.400	-	-	3	0	-	-		
McDonalds	Road									
BSC	0.000	5.720	26	26	195	195	757.06%	757.06%		
Playfields R	oad									
DCC	0.000	5.080	26	26	195	195	757.06%	757.06%		
BSC	5.080	7.680	26	26	195	195	757.06%	757.06%		

As can be seen by the results in **Table 23** above, the addition of the expected construction phase traffic volumes from the proposed Mount Hopeful Wind Farm is shown to have a minimal impact on the majority of identified sections of the state-controlled road network.

The results did however reveal that a limited number of sections of the state-controlled road network on the Project transport routes were anticipated to see an increase in daily traffic volumes of more than 5% due to the peak construction traffic. These included the section of the Leichhardt Highway from the quarry operations near Westwood to the Burnett Highway, and all identified sections of the Burnett Highway (Biloela to Dululu).

Notwithstanding this, the maximum increase in traffic volumes on the section of the Leichhardt Highway during the temporary peak construction period is only in the order of 140vpd (70vpd each direction), which only raises the overall daily volume to approximately 924vpd (459vpd gazettal / 465vpd against-gazettal). While the maximum increase in daily volumes on the Burnett Highway is in the order of 250vpd (125vpd each direction), equating to "in construction" link volumes of between 1,120vpd-1,462vpd. From this it can

be seen that although the increase in traffic volumes on the relevant Leichhardt Highway and Burnett Highway link was greater than 5%, the resultant "in construction" volumes are still well within the capacity of a two-lane rural highway (typically 12,000-15,000 vpd).

In regard to the local government controlled links, the results in **Table 23** also identified significant (>5%) increases in traffic volumes for the relevant lengths of South Ulam Road (RRC) and McDonalds Road and Playfields Road (BSC). The primary reason for the large percentage increases identified on these roads is the relatively low background traffic volumes on these links (South Ulam Road – 215vpd / McDonalds Road & Playfields Road – approx. 50vpd), with the expected maximum increase in traffic volumes due to the peak construction phase of the Project in the order of 52vpd (26vpd inbound / 26vpd outbound) on South Ulam Road (to/from eastern substation area) and up to 390vpd (195vpd inbound / 195vpd outbound) on McDonalds Road and Playfields Road (to/from main Project site area).

Further to this, it is noted that the expected peak increase in traffic volumes on these links are only anticipated to be generated for a short period, in the order of 6-9 months, with no further traffic expected on South Ulam Road and reduced volumes anticipated on McDonalds Road and Playfields Road for the remainder of the overall construction period.

Looking closer at the "impacted" sections of local government controlled road network, the total peak "in construction" volumes will be in the order of 267vpd on South Ulam Road and approximately 442vpd (158vpd both directions) on the unsealed sections of McDonald Street and Playfields Road.

Based on these forecast volumes and the temporary nature of the increase in traffic volumes due to construction, it is expected that the existing configuration of South Ulam Road will be adequate to cater for the temporary increase in Project traffic, while upgrade works to provide a 6.5m road pavement (in accordance with the BSC requirements for a rural access road as per Table D1.27.05 of CMDG Geometric Road Design) will be required on the unsealed sections of McDonald Street and Playfields Road to cater for the additional traffic volumes generated by the proposed Mount Hopeful Wind Farm.

It is noted that the provision of upgrade works in accordance with the requirements of a rural access road are deemed acceptable due to the temporary nature of the increase in traffic from the construction phase of the Project, with volumes on both McDonalds Road and Playfields Road during the subsequent operations phase anticipated to be significantly reduced (in the order of 70vpd – 35vpd in each direction).

Finally, while no percentage increases have been calculated, it is also noted that the turbine component transport operations associated with the Project will also lead to an increase in traffic volumes on a number of additional local government controlled links including:

- Macfarlane Road, Hopper Road, Flinders Parade, Lord Street, Red Rover Road, Don Young Drive, Mount Alma Road and Calliope Station Road (GRC).
- Callide Mine Haul Road Access, Argoon-Kilburnie Road and Jambin-Dakenba Road (BSC).

Based on the current configurations of these links, and the fact that the increase in traffic volumes on the links will be limited to OSOM turbine transport movements travelling under escort, it is anticipated that in general the current configuration and capacity of the majority of these links will be suitable to cater for the temporary increase in Project traffic (assuming the localised works identified in the Preliminary Transport Route Assessment are undertaken).

Of the local government road links identified above, only the Callide Mine Haul Road Access has been identified to require upgrade works to provide suitable road conditions for the OSOM turbine component (tower section) transport movements. While the existing width (approx. 6m) of this link was considered suitable, the existing road pavement/surface was observed to be heavily deteriorated and deemed to require rehabilitation.

5.6 Pavement Impact Assessment and Mitigation

5.6.1 Construction Phase

The assessment of potential pavement impacts during the construction phase of the Project involved the comparison of the pavement loadings (ESA) associated with the background traffic volumes on the road links to the ESAs estimated to be generated by the heavy vehicle movements across the proposed construction period. **Table 24** shows the assumed heavy vehicle classes that are expected to be used throughout the construction phase of the Project and the average loaded and unloaded ESAs/HV values for each configuration.

It is noted that the values for the OSOM turbine component transport movements have been adopted from information provided from a previously assessed wind farm development and provide indicative component loading information which will need to be reassessed in subsequent stages of the Project when the turbine component and transport vehicle configurations have been confirmed.

Vehicle Class	Vehicle Configuration	Task	Average Loaded ESAs / HV	Average Unloaded ESAs / HV
4 Axle Rigid (Concrete Truck)		Concrete transport	4.13	0.36
6 Axle Semi-trailer (GML)	0.000	General material and equipment transport	5.54	1.68
Truck and 4 Axle Dog (GML)		General material and equipment transport	6.15	1.64
Prime mover with dolly & extendable blade trailer	б <u>л</u>	Transport of blade components, 3 per turbine	11.47	7.95
Prime mover with platform trailer		Transport of turbine nacelle component	24.41	4.88
Prime mover with platform trailer		Transport of turbine drive train component	22.78	4.98
Prime mover with low loader		Transport of turbine hub component	12.38	4.77
Prime mover with bookend trailer Prime Mover with dolly & jinker trailer		Transport of tower sections (7 per turbine)	20.86	2.70

Table 24 Assumed Vehicle Class and ESA/HV Values

A summary of the comparison of the background and Project generated pavement loadings is provided in **Table 25**, with further details of the Project pavement loading calculations undertaken included for reference in **Appendix J**.

	Road S	Road Segment		Background ESA		Project-Generated ESA		% Increase in ESAs	
Site ID	Start (km)	End (km)	Gaz	A-Gaz	Gaz	A-Gaz	Gaz	A-Gaz	
Gladstone Port Access Road (183)									
61605	0.000	0.858	588,716	536,391	4,498	3,694	0.76%	0.69%	
Macfarlane Road									
GRC	0.000	0.350	-	-	3,694	4,498	-	-	
GRC	0.350	1.210	-	-	10,737	1,498	-	-	
Hopper Road (John Bates Drive)									
GRC	0.000	0.790	-	-	10,737	1,498	-	-	
Flinders Pa	rade								
GRC	0.000	0.670	-	-	10,737	1,498	-	-	
Lord Street									
GRC	0.000	0.515	-	-	10,737	1,498	-	-	
Gladstone-	Mount Larco	om Road (18	31)						
	0.000	0.175	1,485,074	1,058,111	3,694	0	0.25%	0.00%	
60071	0.175	0.919	1,485,074	1,058,111	4,498	0	0.30%	0.00%	
	0.919	1.409	1,485,074	1,058,111	15,235	0	1.03%	0.00%	
60073	1.409	3.258	1,104,978	1,157,083	15,235	0	1.38%	0.00%	
	3.258	3.830	1,232,301	1,456,755	15,235	0	1.24%	0.00%	
61052	3.830	4.625	1,232,301	1,456,755	2,283	0	0.19%	0.00%	
60074	4.625	12.292	986,722	1,156,911	2,283	0	0.23%	0.00%	
60076	12.292	32.140	736,411	1,018,354	2,283	0	0.31%	0.00%	
Red Rover I	Road		•	•			•		
GRC	0.000	3.390	-	-	12,952	0	-	-	
Don Young	Drive		,	,			,	l	
GRC	0.000	2.280	-	-	12,952	0	-	-	
Dawson Hig	ghway (46A	Gladstone -	Biloela)				I	<u>, </u>	
60061	0.000	1.498	569,520	842,225	2,897	5,803	0.51%	0.69%	
61083	1.498	2.238	951,864	1,287,101	2,897	5,803	0.30%	0.45%	
61000	2.238	3.130	1,149,814	1,621,348	2,897	5,803	0.25%	0.36%	
60063	3.130	4.391	2,093,091	3,044,168	2,897	5,803	0.14%	0.19%	
60064	4.391	5.179	2,249,253	2,019,371	2,897	5,803	0.13%	0.29%	
	5.179	7.129	534,186	777,193	15,849	5,803	2.97%	0.75%	
60062	7.129	10.296	534,186	777,193	15,849	5,803	2.97%	0.75%	
60065	10.296	19.050	564,317	767,566	15,849	5,803	2.81%	0.76%	
60066	19.050	21.650	1,775,138	10,231,707	12,875	5,803	0.73%	0.06%	

Table 25 Project Pavement Loading Comparison

	Road Segment		Background ESA		Project-Generated ESA		% Increase in ESAs		
Site ID	Start (km)	End (km)	Gaz	A-Gaz	Gaz	A-Gaz	Gaz	A-Gaz	
60128	21.650	25.640	506,996	2,964,190	12,875	5,803	2.54%	0.20%	
60005	25.640	46.518	537,863	378,057	12,875	5,803	2.39%	1.53%	
80005	46.518	101.008	537,863	378,057	18,131	5,803	3.37%	1.53%	
60067	101.008	113.728	286,453	342,574	12,875	5,803	4.49%	1.69%	
61084	113.728	116.836	402,311	343,295	12,875	5,803	3.20%	1.69%	
61085	116.836	119.836	844,036	661,848	12,875	5,803	1.53%	0.88%	
Mount Alma Road									
GRC	0.000	16.970	-	-	5,257	0	-	-	
Calliope Rive	er Road			·					
GRC	0.000	2.600	-	-	5,257	0	-	-	
Bruce Highw	vay (10E Be	naraby – Ro	ckhampton)	·					
((11.445	35.812	1,448,402	1,298,181	5,257	2,283	0.36%	0.18%	
60006	35.812	45.420	1,448,402	1,298,181	5,257	2,283	0.36%	0.18%	
60023	45.420	85.308	1,268,794	1,394,525	0	0	0.00%	0.00%	
	85.308	86.183	2,194,689	2,052,540	0	0	0.00%	0.00%	
61551	86.183	107.400	2,194,689	2,052,540	1,047	1,946	0.05%	0.09%	
	107.400	108.938	2,194,689	2,052,540	143	677	0.01%	0.03%	
60130	108.938	114.388	1,637,438	1,778,815	143	677	0.01%	0.04%	
60024	114.388	116.961	1,528,024	1,909,511	143	677	0.01%	0.04%	
South Ulam	Road								
RRC	0.000	16.773	22,283	23,827	2,393	600	10.74%	2.52%	
Dawson Hig	hway (46B B	Biloela – Bar	nana)						
60068	0.000	0.650	432,017	852,926	19,258	7,739	4.46%	0.91%	
61883	0.650	1.366	402,717	751,474	19,258	7,739	4.78%	1.03%	
Leichhardt H	lighway (26	A Westwood	d – Taroom)						
60001	0.000	0.115	272,296	276,796	0	0	0.00%	0.00%	
00001	0.115	25.680	272,296	276,796	87,361	23,296	32.08%	8.42%	
Burnett High	nway (41E B	iloela – Mt M	<i>M</i> organ)	r		r			
61081	0.000	27.290	472,655	319,637	46,936	16,132	9.93%	5.05%	
01001	27.290	35.401	472,655	319,637	46,936	16,132	9.93%	5.05%	
60055	35.401	56.310	375,810	427,650	46,936	16,132	12.49%	3.77%	
	56.310	71.730	375,810	427,650	23,296	87,361	6.20%	20.43%	
Callide Hau	Road Acces	s							
BSC	0.000	0.400	-	-	5,257	0	-	-	
Argoon-Kilburnie Road									

	Road Segment		Background ESA		Project-Generated ESA		% Increase in ESAs		
Site ID	Start (km)	End (km)	Gaz	A-Gaz	Gaz	A-Gaz	Gaz	A-Gaz	
BSC	0.000	12.940	-	-	5,257	0	-	-	
Jambin-Dakenba Road									
BSC	0.000	9.400	-	-	5,257	0	-	-	
McDonalds	McDonalds Road								
BSC	0.000	5.720	5,516	5,516	137,803	38,897	2,498.45%	705.23%	
Playfields Road									
500	0.000	5.080	5,516	5,516	137,803	38,897	2,498.45%	705.23%	
R2C	5.080	7.680	5,516	5,516	137,803	38,897	2,498.45%	705.23%	

The results in **Table 25** above indicate that the heavy vehicle movements associated with the development of the proposed Mount Hopeful Wind Farm development are expected to lead to negligible increases in pavement loadings on the majority of the identified sections of the state-controlled road network, with calculated values of loading increase generally below the typical 5% increase trigger threshold. The results did however identify higher increases on the following sections of the state-controlled road network:

- Leichhardt Highway (26A) TMR Ch. 0.115km 25.680km (gazettal direction).
- Burnett Highway (41E) TMR Ch. 0.000km 71.730km (gazettal and against-gazettal directions).

It is therefore expected that pavement maintenance contributions will be required to be provided to TMR to mitigate/offset the expected pavement impacts of the Project on these sections of the state-controlled road network. The exact amount of these contributions has not been calculated as part of this assessment, due to the preliminary nature of the Project details at this initial planning stage of the proposed Mount Hopeful Wind Farm. Therefore, further detailed calculations to confirm the required pavement maintenance contribution will be undertaken in subsequent stages of the Project once the site configuration, transport vehicle configurations and construction phase details (quantities, material sources etc.) are finalised.

It is also noted that the increases in loading on the identified section of the Leichhardt Highway (TMR Ch. 0.115km – 25.680km) are primarily due to the expected road gravel and aggregate transport movements for the Project from the currently proposed quarry source. As such, the mitigation of the impacts of these movements on the identified sections of the state-controlled network are expected to fall on the quarry operator and be covered by their typical maintenance contribution (c/tonne) to TMR as part of the general operation of the quarry.

In addition to the state-controlled road network, the results above indicated that the additional vehicle movements from the proposed construction phase of the Mount Hopeful Wind Farm will also lead to a significant (>5%) increase in pavement loadings on the RRC controlled South Ulam Road (gazettal direction) and the BSC controlled links of McDonalds Road and Playfields Road.

Further to this, while no percentage increase could be established due to the lack of current traffic data for the identified GRC controlled links of Macfarlane Road, Flinders Parade, Lord Street, Red Rover Road, Don Young Drive, Mount Alma Road and Calliope Station Road and the BSC links of Callide Mine Haul Road, Argoon-Kilburnie Road and Jambin-Dakenba Road it is anticipated that the use of these roads for proposed turbine component transport operations for the Project will also lead to an increase in pavement loadings.

Based on this, it is recommended that the proponent enter into an Infrastructure Agreement with RRC, GRC and BSC regarding the required mitigation works on the identified links to offset the calculated pavement impacts of the Project.

It also recommended that this infrastructure agreement include reference the requirement for pre and post dilapidation inspections to be undertaken on the relevant sections of Macfarlane Road, Flinders Parade, Lord Street, Red Rover Road, Don Young Drive, Mount Alma Road and Calliope Station Road (GRC), South Ulam Road (RRC) and Callide Mine Haul Road, Argoon-Kilburnie Road, Jambin-Dakenba Road, McDonalds Road and Playfields Road by representatives of the proponent and the appropriate Council (GRC / RRC / BSC).

These inspections are required to identify and document the current condition of the roads (pre construction) and 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 condition prior to the introduction of Project traffic (post construction).

5.6.2 Operations Phase

As identified above, it is understood that the operational phase of the Project will only generate relatively low traffic volumes on the network (approx. 10 vehicles to/from site daily), with negligible heavy vehicle movements (approximately 1 HV per week). Therefore, 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.

- 5.7 Transport Infrastructure Impact Assessment and Mitigation
- 5.7.1 Drainage and Cattle Grid Structures

As previously identified, a number of the existing drainage (floodway/culvert) and cattle grid structures on Mount Alma Road, Calliope Station Road, Argoon-Kilburnie Road, Jambin-Dakenba Road, McDonalds Road and Playfields Road currently only provide sufficient trafficable width for two-lane, one-way operation. As such it is recommended that upgrade works be provided to widen the structure to a minimum of 6m to enable two-way, two-lane flow across the structure. Alternatively, diversions (including relevant gate infrastructure and fencing amendments) around the existing cattle grid structures may be provided were possible to reduce the requirement to upgrade the existing structures.

Additional works are also expected to be required at several locations to accommodate the swept path and loading of the OSOM turbine component transport vehicles, with localised works to amend the vertical geometry of the roads anticipated to be required at up to four locations along the transport routes to accommodate the turbine blade transport vehicles.

The exact configuration of these upgrade works will be determined in subsequent detailed design phases of the Project once the turbine component and transport vehicle configurations are confirmed. A preliminary summary of the required upgrade works provided in **Table 26** below, with further details of each structure provided in Preliminary Transport Route Assessment also completed for the Project.

Road Section	Approx. Chainage	Structure Type	Expected Works
Mount Alma	2.604km	Cattle Grid	Cattle grid load rating and width upgrade or diversion.
Rd	4.571km	Culverts	Culvert load rating and width upgrade.
	4.920km	Cattle Grid	Cattle grid load rating and width upgrade or diversion.
	5.640km	Floodway	Floodway load rating and width upgrade.
	7.093km	Floodway	Floodway load rating and width upgrade.
	8.729km	Floodway	Floodway load rating and width upgrade.
	14.340km	Cattle Grid	Cattle grid load rating and width upgrade or diversion.
	15.060km	Floodway	Floodway load rating and width upgrade.
	0.200km	Culverts	Culvert load rating and width upgrade.

Table 26 Preliminary Drainage and Cattle Grid Structure Upgrade Requirements

Calliope	0.315km	Cattle Grid	Cattle grid load rating and width upgrade or diversion.
Station Rd	0.685km	Cattle Grid	Cattle grid load rating and width upgrade or diversion.
	1.900km	Cattle Grid	Cattle grid load rating and width upgrade or diversion.
Argoon-	9.846km	Floodway	Floodway load rating and width upgrade.
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Jampin- Dakenba Rd	6.973KM	Floodway	Floodway load rating and width upgrade.
McDonalds Rd	3.526km	Vertical Dip	Vertical geometry through structure to be flattened for blade transport.
Playfields Rd	4.002km	Cattle Grid	Cattle grid load rating and width upgrade or diversion.
	5.225km	Cattle Grid	Cattle grid load rating and width upgrade or diversion.
	5.610km	Floodway / Vertical Dip	Floodway load rating and width upgrade. Vertical geometry through structure to be flattened for blade transport.
	6.392km	Floodway	Floodway load rating and width upgrade.
	6.663km	Cattle Grid	Cattle grid load rating and width upgrade or diversion.
	7.263km	Floodway	Floodway load rating and width upgrade.
	8.075km	Cattle Grid	Cattle grid load rating and width upgrade or diversion.
	8.530km	Floodway	Floodway load rating and width upgrade.
	8.635km	Cattle Grid	Cattle grid load rating and width upgrade or diversion.
	10.372km	Floodway	Floodway load rating and width upgrade.
	10.699km	Cattle Grid	Cattle grid load rating and width upgrade or diversion.
	12.866km	Cattle Grid	Cattle grid load rating and width upgrade or diversion.
	14.085km	Floodway	Floodway load rating and width upgrade.
	15.587km	Floodway	Floodway load rating and width upgrade.
	15.770km	Cattle Grid	Cattle grid load rating and width upgrade or diversion.
	18.860km	Cattle Grid	Cattle grid load rating and width upgrade or diversion.
	20.226km	Floodway / Vertical Dip	Floodway load rating and width upgrade. Vertical geometry through structure to be flattened for blade transport.
	21.454km	Floodway / Vertical Dip	Floodway load rating and width upgrade. Vertical geometry through structure to be flattened for blade transport.
	21.510km	Cattle Grid	Cattle grid load rating and width upgrade or diversion.
	24.420km	Cattle Grid	Cattle grid load rating and width upgrade or diversion.

5.7.2 Rail Crossings

As previously identified, the two open level crossing of the Moura System rail line on Jambin-Dakenba Road is located approximately 6km southeast from the intersection of Jambin-Dakenba Road with the Burnett Highway. Further to this, it is noted that the sight distance along the rail lines in both directions from a vehicle propped on both Jambin-Dakenba Road approaches are generally unrestricted. As Jambin-Dakenba Road is only proposed to be utilised as route for the over height tower section turbine components, the additional traffic on the link and therefore over the rail crossings is very minor (average of 3vpd), with minimal queuing expected to occur on the approaches to the crossings.

In addition, the required OSOM tower section transport vehicles are proposed to travel under the control of escort vehicles which will further reduce the potential for vehicle conflict at the crossing locations. Finally, it is also recommended that the transport vehicle movements over the crossings be scheduled with the rail authority responsible for the operation of the Moura System rail lines, to reduce the potential for conflict with train movements at the crossings.
Notwithstanding these management measures, it is also noted that the use of the rail crossing by Project traffic will be limited to the turbine component transport period (12 months), with no further use of the crossing during the remainder of the overall construction period or the operations phase of the Project.

As such, permanent upgrade works to the crossing (to provide additional permanent controls i.e. signals or boom gates) are not considered necessary or reasonable to be conditioned as part of this Project.

Notwithstanding this, it is recommended that further negotiation be undertaken with Queensland Rail to establish the traffic management requirements at the rail crossings during the proposed transport vehicle movement, noting that wayleave and QR Over dimensional Road Loads applications are expected to be required for both crossings.

It is therefore considered that based on the provision of agreed traffic management measures during the limited turbine transport phase, that the proposed Mount Hopeful Wind Farm will only have a minor impact on the operation of the existing open level crossings of Jambin-Dakenba Road and that no permanent upgrade works to the existing crossing infrastructure is required.

6.0 Conclusions and Recommendations

6.1 Summary of Impacts and Mitigation Measures Proposed

6.1.1 Traffic Impacts

Based on the identified increase in traffic numbers anticipated as a result of the construction and operational phases of the proposed development, it is anticipated that the Project will have a minimal impact on the traffic operation of the surrounding road network, from a capacity perspective. Notwithstanding this, the following mitigation treatments are recommended to maximise vehicle safety on the sections of the road network utilised by Project traffic:

- Completion of works along the identified transport route to accommodate the swept paths of the OSOM turbine component transport vehicles, including the relocation of signage and road lighting infrastructure and construction of required temporary hardstand pavement areas as identified in the Preliminary Transport Route Assessment for the Project. It is noted that the exact extents and scope of these works will be determined in subsequent detailed design phases of the Project once the turbine component and transport vehicle configurations are confirmed.
- Upgrade of the existing Burnett Highway / McDonalds Road intersection to provide basic left (BAL) and basic right (BAR) turn treatments on the Capricorn Highway approaches, as per Austroads standards. Upgrade to also include the completion of vegetation clearing works on the eastern side of the northern approach to the intersection to improve sight distances to/from McDonalds Road and implementation of traffic management measures on the northern Burnett Highway approach during temporary Project construction phase (22-28 months).
- Installation of advisory "truck turning" signage be installed on the approaches to the Burnett Highway / McDonalds Road and Bruce Highway / South Ulam Road intersections during the construction phase, to highlight to motorists the presence of the Project access locations and the potential for turning vehicles to/from the side roads.
- Upgrade of the existing unsealed sections of McDonalds Road (Ch. 0.000 to 5.720km) and Playfields Road (Ch. 5.080 to Ch. 24.420km) to provide a minimum 6.5m (unsealed) road pavement width in accordance with the BSC requirements for a rural access road.
- Construct new site access from South Ulam Road (LHS approx. Ch. 16.800km) to cater for Project volumes associated with the proposed eastern substation area. The new site access is to be provided in accordance with the requirements for a bitumen road (<300vpd) as per Standard Drawing CMDG-R-040 (Rural Road Access and Property Access Over Table Drains).
- Complete suitable road rehabilitation works (pavement / road surface) to the relevant 400m section of the Callide Mine Haul Road Access (between Dawson Highway and Argoon-Kilburnie Road) to provide appropriate road conditions to cater for the OSOM turbine component transport movements.
- Upgrade of the existing drainage (floodway / culvert) and cattle grid structures on Mount Alma Road, Calliope Station Road, Argoon-Kilburnie Road, Jambin-Dakenba Road, McDonalds Road and Playfields Road respectively to provide adequate carriageway width and suitable vertical geometry for the proposed turbine component transport vehicle configurations associated with the Project. It is noted that the exact configuration of these upgrade works will be determined in subsequent detailed design phases of the Project once the turbine component and transport vehicle configurations are confirmed.

It is also noted that Neoen is currently considering a delivery methodology for the Project which would include the provision of an on-site workers accommodation camp for the Project, which would be expected to significantly reduce the daily staff volumes between Biloela and the subject site, and therefore the traffic volumes on the relevant sections of the Burnett Highway, McDonalds Road and Playfields Road.

6.1.2 Pavement Impacts

In addition to the traffic assessments completed, a preliminary desktop pavement impact assessment of the relevant road network was also undertaken for the construction phase of the Project. The results of the assessment indicate that the heavy vehicle movements associated with the development of the proposed Mount Hopeful Wind Farm are expected to lead to negligible increases in pavement loadings on the majority of the identified sections of the state-controlled road network, with calculated values of loading increase generally below the typical 5% increase trigger threshold. The results did however identify higher increases on the following sections of the state-controlled road network:

- Leichhardt Highway (26A) TMR Ch. 0.115km 25.680km (gazettal direction).
- Burnett Highway (41E) TMR Ch. 0.000km 71.730km (gazettal and against-gazettal directions).

It is therefore expected that pavement maintenance contributions will be required to be provided to TMR to mitigate/offset the expected pavement impacts of the Project on these sections of the state-controlled road network. The exact amount of these contributions has not been calculated as part of this assessment, due to the preliminary nature of the Project details at this initial planning stage of the proposed Mount Hopeful Wind Farm. Therefore, further detailed calculations to confirm the required pavement maintenance contribution will be undertaken in subsequent stages of the Project once the site configuration, transport vehicle configurations and construction phase details (quantities, material sources etc.) are finalised.

It is also noted that the increases in loading on the identified section of the Leichhardt Highway are primarily due to the expected road gravel and aggregate transport movements for the Project from the currently proposed quarry source. As such, the mitigation of the impacts of these movements on the identified sections of the state-controlled network are expected to fall on the quarry operator and be covered by their typical maintenance contribution (c/tonne) to TMR as part of the general operation of the quarry.

In addition to the state-controlled road network, the results above indicated that the additional vehicle movements from the proposed construction phase of the Mount Hopeful Wind Farm will also lead to a significant (>5%) increase in pavement loadings on the RRC controlled South Ulam Road (gazettal direction) and the BSC controlled links of McDonalds Road and Playfields Road. Further to this, while no percentage increase could be established due to the lack of current traffic data for the identified GRC controlled links of Macfarlane Road, Flinders Parade, Lord Street, Red Rover Road, Don Young Drive, Mount Alma Road and Calliope Station Road and the BSC links of Callide Mine Haul Road, Argoon-Kilburnie Road and Jambin-Dakenba Road it is anticipated that the use of these roads as part of the proposed turbine component transport operations for the Project will also lead to an increase in pavement loadings.

Based on this, it is recommended that the proponent enter into an Infrastructure Agreement with RRC, GRC and BSC regarding the required mitigation works on the identified links to offset the calculated pavement impacts of the Project. It also recommended that this infrastructure agreement include reference the requirement for pre and post dilapidation inspections to be undertaken on the relevant sections of Macfarlane Road, Flinders Parade, Lord Street, Red Rover Road, Don Young Drive, Mount Alma Road and Calliope Station Road (GRC), South Ulam Road (RRC) and Callide Mine Haul Road, Argoon-Kilburnie Road, Jambin-Dakenba Road, McDonalds Road and Playfields Road by representatives of the proponent and the appropriate Council (GRC / RRC / BSC). These inspections are required to identify and document the current condition of the roads (pre construction) and 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 condition prior to the introduction of Project traffic (post construction).

6.1.3 Recommendations

In light of the information provided above, it can be considered that conditional to the provision of the identified upgrade works and the proponent entering into a suitable infrastructure agreement with both GRC, BSC and RRC to mitigate the construction phase pavement impacts to the relevant sections of the transport network, that the construction and operational phases of the proposed Mount Hopeful Wind Farm will have minimal impact on the relevant sections of the local government and state controlled road networks.

Therefore, it is recommended that the Project be approved from a traffic engineering viewpoint as, in combination with the Preliminary Route Assessment, the Project demonstrates compliance with PO6 and PO13 of State Code 23.

6.2 Certification Statement and Authorisation

A copy of the RPEQ certification and authorisation statement covering this assessment of the proposed Mount Hopeful Wind Farm is included for reference as **Appendix K**.



Appendix A – Pre-Lodgement Meeting Minutes

Queensland Treasury

Our reference: 2008-18071 SPL Your reference: 7053

27 August 2020

Neoen Australia Pty Ltd c/- Umwelt (Australia) Pty Ltd Level 7, 500 Queen Street BRISBANE QLD 4000 rbrozovich@umwelt.com.au

Attention: Renee Brozovich

Dear Sir/Madam,

Pre-lodgement meeting record

This pre-lodgement record provides a summary of the matters discussed at the pre-lodgement meeting in addition to providing further advice prepared subsequent to the meeting. This record provides advice regarding the likely major issues relevant to the development proposal to assist in the timely processing of a development application. While this advice is provided in good faith, if the proposal is changed from that which was discussed with the State Assessment and Referral Agency (SARA) during the pre-application meeting, this advice is not binding.

Reference information

SARA role:	Assessment manager
SARA jurisdiction:	Planning Regulation 2017 Schedule 10, part 3, div 2, item 5 — operational work that is the clearing of native vegetation Schedule 10, part 21, div 1, item 35 — material change of use for a wind farm
Pre-lodgement meeting date:	Monday 17 August 2020

Meeting attendees:

Name	Position	Organisation
Renee Brozovich	Senior Environmental Planner (Consultant applicant)	Umwelt (Australia) Pty Ltd
Mark Herod	National Renewables Lead	Umwelt (Australia) Pty Ltd
David Gatfield	Principal Ecologist	Umwelt (Australia) Pty Ltd

Natasha Lawrence	Queensland State Leader	Neoen Australia Pty Ltd
Tim O'Leary	Manager, Development Assessment Division	SARA
Elva Bobongie	Natural Resource Management Officer, Natural Resource Assessment	Department of Natural Resources, Mines and Energy (DNRME)
Adam Gilmore	Senior Natural Resource Management Officer, Natural Resource Assessment	DNRME
Kaley Honeyman	Senior Land Officer, State Asset Land Management	DNRME
Emily Vandermeer	Senior Land Officer, State Asset Land Management	DNRME
Elena Churilova	Project Officer, Water Services	DNRME
Megan Rosenberg	Principal Natural Resource Officer, Planning Services	DNRME
Scot Tait	Senior Planner, Development Compliance and Support	Department of Transport and Main Roads (DTMR)
Corey Culpitt	Town Planner, Corridor and Land Management	DTMR
Anthony Walsh	Manager, Fitzroy & Central	SARA
Kate Lipke	Principal Planning Officer, Fitzroy & Central	SARA

Location details

Street address:	1682 South Ulam Road, Bajool; Glengowan Road, Ulogie; 1682A South Ulam Road, Bajool; Beschs Hill Road, Bajool
Real property description:	148DS151; 21RN1345; 21RN46; 2345DT4077; 23RN25; 2420DT4077; 24RN34; 25RN25; 2RN1585; 33DT40123; 38DT40131; 50DT40144
Local government area:	Banana Shire Council; Rockhampton Regional Council
Existing use:	Rural/grazing

Details of proposal

Development type:	Material change of use AND Operational work
Development description:	Neoen Australia Pty Ltd is proposing to develop a wind farm, called the Mount Hopeful Wind Farm (the Project). A preliminary area of approximately 13,810 hectares (ha) (the Study Area) has been identified to facilitate up to 87 wind turbine generators and ancillary wind farm infrastructure. The proposed wind farm footprint is anticipated to cover a much smaller portion of the total Study Area.

Supporting information

Drawing/report title	Prepared by	Date	Reference no.	Version/issue		
Pre-lodgement meeting request letter	Umwelt (Australia) Pty Ltd	6 August 2020	7053	2.0		

Meeting minutes

1. Overview

Mount Hopeful wind farm is located over 11 freehold properties and one leasehold property in the Rockhampton Region and Banana Shire local government areas. The project will consist of approximately 87 wind turbines and will include battery storage. A range of ancillary works such as laydown areas, access tracks, construction compounds are associated with the proposed development. A high-level concept plan has been prepared but will be further refined overtime.

The project is proposed by Neoen Pty Ltd which has undertaken solar, wind and battery powered facilities throughout Australia. Mount Hopeful is Neoen's first wind farm proposed for the state of Queensland and is its priority project for its Queensland based team.

2. State Land Asset Management (SLAM)

- SLAM will not be able to provide owners consent for the leasehold block as it is currently a grazing lease which is being converted to freehold.
- Once final payment has been made by the landowner to freehold this property, it is approximately a three-month process to finalise the conversion to freehold.
- SLAM has no requirements to provide owner's consent for local roads unless the road is being severed.

3. Vegetation Management

- A relevant purpose determination for clearing native vegetation will be required under s22A of the *Vegetation Management Act 1999* prior to submitting a development application to SARA.
- Relevant purpose determinations are made directly to the DNRME. There is no fee for applying for a determination. The application form is available on the DNRME website.
- There is guidance material about how to address the relevant purpose determination available on DNRME website.
- Any determination should be accompanied by a defined clearing footprint in ARC GIS format.
- For the development application, you will need to demonstrate compliance with requirements of State Code 16 of the State Development Assessment Provisions (SDAP) and address both the material change of use and operational works requirements. Guidance material is also available about how to respond to the SDAP criteria.
- In terms of firebreak buffers, DNRME will consider either ground-truthed values or either 20m or 1.5 times the tree height, whichever is greater.

<u>ACTION:</u> DNRME to provide advice about whether firebreaks are assessable development for category B vegetation type. DNRME to also provide advice about whether ground-truthed values should be utilised to calculate values for the relevant purpose determination and operational works (native vegetation clearing) applications.

4. Watercourse determination

- Unlikely to have any requirements under the Planning Act 2016 relating to watercourses.
- Watercourse determinations may be needed for accesses however, will require specific details to assist in any determinations.
- Requests for watercourse determinations are made directly to DNRME.
- Consideration should also be given early to water access requirements for the project, such as for dust suppression, concrete batching, etc. as the *Water Act 2000* requirements relating to access to water have the potential to hold up such projects if not considered and addressed in early project planning stages.
- Discuss water requirements, water access arrangements and *Water Act 2000* matters directly with DNRME.

5. Waterway barrier works

- If access tracks cross a waterway, they may require planning approval for operational works for waterway barrier works.
- Location of waterways can be identified from SARA DAMS mapping.
- There is an Accepted development code relevant for specific works on certain waterways.
- Further advice will be provided on this matter subsequent to the meeting.

6. State transport infrastructure

- Access is proposed from a local road rather than directly from a state-controlled road.
- The primary issue to be addressed at the material change of use stage is to have demonstrated a genuine attempt at detailing the haulage route from the port to the project site.
- It is recommended the proponent consider how construction materials / product are going to be transported to the site and identify existing conflict points (eg. crossing under bridges, intersections), design vehicles and movement activities.
- Additional details can be added or refined at in the detailed design stage in downstream approvals under the *Transport Infrastructure Act* 1994 (eg. section 33 approvals for works within state transport corridor).
- There is the ability for SARA to condition a Traffic Impact Assessment (TIA), which could include a pavement impact assessment as part of the material change of use. Any TIA will need to be undertaken in accordance with DTMR requirements.
- Depending upon the number and type of future roadworks requirement, it is recommended to allow at least 6 to 12 months for DTMR assessment of the downstream approvals.
- If a TIA is available upfront at the time of making the development application, this will assist but is not required. The route assessment is what is required at the material change of use stage.

7. Windfarm code

- Recommend keeping the application as code assessable by keeping the wind turbines at least 1.5km from a sensitive land use.
- Keep consulting with community prior to, during and after the development application process. SARA recommends consultation to be in accordance with the Clean Energy Council guidelines
- The planning guideline that accompanies State Code 23 provides useful information on how to comply with the code.
- It is important to demonstrate how construction materials can be safely transported to the site by providing a haul route analysis.
- The SARA Windfarm team engages specialists to assist with its assessment, including acoustic and ecology specialists. These specialists are only engaged upon lodgement of the development application.
- Third party advice is usually sought from DTMR, Department of Environment and Science, relevant councils (from the port to the site), aviation sector and Queensland Fire and Emergency Services.

8. General

- A development application can be made for both a material change of use and operational works in conjunction and this is the preferred approach for this type of project proposal.
- SARA will be the Assessment Manager.
- Triggers and fees are detailed in the schedules of the Planning Regulation 2017. For instance, in relation to clearing native vegetation which is assessable development, the applicable fee is determined by referring to item 8 in whichever of Schedule 10, part 3, div 3, table 1 or Schedule 10, part 3, div 4, table 1-3 which applies to the circumstances of the application. In relation to the material change of use for a wind farm, the applicable fee is determined by referring to item 5 in Schedule 10, part 21, div 2, table 1.
- The development application will be assessed against the SDAP version current at the time of making the application.
- The relevant SDAP codes will include:
 - o State code 16 Native vegetation clearing
 - o State code 23 Wind Farm

- SDAP State code 18 Waterway barrier works will also potentially be relevant where access roads cross waterway and the crossings are unable to comply with the accepted development requirements.
- The relevant purpose determination under s22A of the Vegetation Management Act 1999 is required prior to lodging a development application involving operational works to clear native vegetation.
- Any guarry, concrete batching plant or other such use required to support the project would require a separate development application. Development applications for such uses are usually assessable by the local government against its planning scheme, with SARA involved as a referral agency. Where a use assessable by a local government is proposed across more than a single local government jurisdiction, a Ministerial determination of the assessment manager for the application will be required.

It is considered that the above summary is an accurate record of the matters discussed at the prelodgement meeting.

Further advice

The following information is provided as further advice prepared subsequent to the meeting:

Vegetation Management

1. The proposed clearing of native vegetation might be able to be undertaken as Accepted Development, should the proposal satisfy clearing that is Exempt Clearing Work requirements under Schedule 21 of the Planning Regulation 2017.

In order to avoid a referral for native vegetation clearing under Schedule 10 of the Planning Regulation 2017, all new proposed infrastructure must be located within a category X area and must include the necessary setbacks for firebreaks and safety buffer distance of at least 20m or 1.5 times the height of the tallest adjacent tree, whichever is greater, from the nearest Category B areas,

Should the application not satisfy the requirements of an applicable exemption, then the clearing might be able to be undertaken under an Accepted Development Vegetation Clearing Code (ADVCC) (Schedule 7 and 21, Planning Regulation 2017): See Clearing for infrastructure ADVCC. Clearing must be undertaken in accordance with the code in effect at the time of the clearing and recordkeeping requirements apply. Prior to undertaking any clearing, a notification must first be lodged with DNRME. You can notify online for free and the notification is valid for two years. This code and details for lodging a notification for this code are available online at

https://www.gld.gov.au/environment/land/management/vegetation/clearing-codes.

If the clearing cannot satisfy the requirements of an applicable exemption or ADVCC then a development permit will be required before undertaking the clearing of native vegetation as the proposal will involve clearing that is Assessable Development under the Planning Act 2016, or the development will result in accepted operational work under Schedule 21 of the Planning Regulation 2017.

2. The development application will need to address and meet the requirements of State code 16: Native vegetation clearing of SDAP.

Guidance on how to comply with this code is provided in State Development Assessment Provisions Guidance material: State code 16: Native vegetation clearing, Department of Natural Resources, Mines and Energy, 2020. This guideline is available online at https://www.gld.gov.au/environment/land/management/vegetation/development. Appendix 2 of this guideline provides details on the standard application information for all development applications involving the clearing of native vegetation.

3. As discussed, the final clearing footprint of native vegetation and associated firebreaks may be calculated utilising Umwelt's ecologists' ground truthed values. Data and reasoning to support the firebreak values should be provided with the application. The minimum firebreak is calculated at 20 metres or 1.5 times the height of the tallest adjacent tree, whichever is greater from the nearest Category B areas. The appropriate firebreak is necessary to protect the integrity of the infrastructure, therefore the clearing of the firebreaks should be included in the assessment footprint.

4. Prior to submitting the development application to clear native vegetation, the applicant must first obtain written confirmation from DNRME that the proposed development is for a relevant purpose under section 22A of the Vegetation Management Act 1999. To ensure the efficiency of the application, the applicant is encouraged to provide the defined development footprint as an ArcGIS compatible shapefile.

Requests for a "relevant purpose determination" must be lodged in writing directly to DNRME, and can be sent to either Level 1, 44 Nelson Street, Mackay, QLD, 4740 or <u>cwvegetationapplication@dnrme.qld.gov.au</u>. There is no fee for these requests. The application form and further information and assistance to apply for a section 22A determination is available online at <u>https://www.qld.gov.au/environment/land/management/vegetation/development</u>.

State Land Asset Management

- 5. In accordance with section 16 of the Land Act 1994, it has already been assessed that the most appropriate tenure for the proposed venture is freehold; therefore it is suggested that discussions be held with the holder of GHFL 35/9037 (Lot 2 RN1585) to facilitate this process. Lot 2 on RN1585 is currently held as Grazing Homestead Freehold Lease which is required to be paid out prior to a freehold title being created.
- 6. If the material change of use includes dedicated road areas which may be impacted by access tracks, then owner's consent will be required with the development application. This consent must be sought from DNRME prior to any works commencing.
- 7. It is recommended the proponent liaise with any relevant council, as road manager, for any proposed works on the local road network.

Water Management and Use

General Information

- 8. The project is located within the *Water Plan (Fitzroy Basin) 2011* (Fitzroy WP) which regulates surface water (water in watercourses and overland flow) and groundwater (within a groundwater management area and not linked to artesian sediments).
- 9. The project is located within Fitzroy Groundwater Management Area and Callide Groundwater Management Area as defined in the Fitzroy WP.
- 10. The below advice will not negate the possible requirement to obtain a development permit for works if they are considered assessable development.
- 11. The proponent is encouraged to contact the Water Management and Use team within DNRME on 1800 822 100 or via email to <u>centralwaterservices@dnrme.qld.gov.au</u> to discuss any riverine protection requirements, water use requirements, or quarry material requirements prior to undertaking works or submitting any applications or notifications.

Watercourse Identification

- 12. A number of features that appear within the project area have been mapped on the Watercourse Identification Map (WIM located on Queensland Globe: https://www.business.qld.gov.au/business/support-tools-grants/services/mapping-dataimagery/queensland-globe/watercourse-map) as Yet To Be Mapped features (their status for purposes of the Water Act 2000 has not been formally determined yet).
- 13. Should any works occur within a Yet To Be Mapped feature shown on WIM, it is recommended that a request for a Watercourse Determination be submitted to DNRME via <u>centralwaterservices@dnrme.qld.gov.au</u>. DNRME will clarify whether such features are considered a *drainage feature* or a *watercourse* for the purposes of the *Water Act 2000*.

Water Use Requirements

14. The pre-lodgement request has not indicated whether a water source will be accessed to provide water for the project.

Should the proponent seek to access water or interfere with the flow of water on site as part of the project, an appropriate authorisation under the *Water Act 2000* may be required.

- 15. For further information refer to: <u>https://www.business.qld.gov.au/industries/mining-energy-</u>water/water/authorisations/industry-government
- 16. Overland Flow Water that flows within a drainage feature or across the land is considered overland flow. Within the area of the proposed developments, a storage can be constructed to take overland flow water to satisfy the requirements of an environmental authority or under the Code for self-assessable development for taking overland flow water using limited capacity works. Limitation on storage volume constructed under this code within the Fitzroy WP area is 50 megalitres in all areas except the subcatchment downstream of the Fitzroy Barrage where the capped volume is 5 megalitres. The works constructed under this code allow the taking of water for any purposes. Once constructed, the works will need to be notified to DNRME within 60 days of their completion.
- 17. *Watercourse Water* Water that flows within *a watercourse* as defined under the *Water Act 2000* is considered *watercourse water*. The taking of *watercourse water* will require an authorisation.
- 18. *Groundwater* In accordance with the provisions of the Fitzroy WP, any works to take groundwater within a groundwater management area for purposes that are not exempt (such as stock and domestic) will require an authorisation (a water permit/licence) and a development permit.

Riverine Protection

- 19. Should the proposed projects include the excavation, placement of fill or destruction of vegetation within a *watercourse, lake or spring*, the proponent may need to apply for a riverine protection permit under the *Water Act 2000* in addition to any relevant approvals under the *Planning Act 2016*.
- 20. For further details regarding the provisions of riverine protection, see <u>https://www.business.qld.gov.au/industry/water/managing-</u> <u>accessing/accessingwater/authorisations/riverine-protection</u>.
- 21. There are exemptions to requiring a riverine protection permit, should the proponent be able to meet the exemption criteria. For further details regarding riverine protection permit exemptions, see https://www.dnrm.qld.gov.au/?a=109113:policy_registry/riverine-protection-permit-exemption-requirements.pdf

Quarry Material

22. Should any quarrying activity intercept *a watercourse*, an application for a quarry material allocation notice (QMAN) would need to be sent to DNRME via <u>centralwaterservices@dnrme.qld.gov.au</u>.

Specific information to support an application for a QMAN is available online at https://www.business.qld.gov.au/industry/mining/quarries/riverine-quarrying-materials.

Geological Survey of Queensland

23. The proposed development may have an impact on activities authorised under Exploration Permit for Minerals (EPM) EPM27105 and EPM15810 within the project area. The proposed project should limit any adverse impacts on exploration and/or production activities in the area.

It is advised that the applicant consult with the affected tenure holders prior to undertaking any works within the project area likely to impact upon the existing EPMs.

The Authorised Holder Representatives contact details are listed below:

• EPM27105 - PROPHET RESOURCES PTY LTD (Application) UTM Global Pty Ltd GPO BOX 1661 BRISBANE QLD 4001 Email: reception@utmglobal.com.au

 EPM15810 - MOUNT MORGAN EXPLORATION PTY LTD (Granted – Exp 27/05/2020) Hetherington Exploration & Mining Title Services (QLD) Pty Ltd PO BOX 49 SPRING HILL LPO SPRING HILL QLD 4004 Email: brisbane@hemtsqld.com.au

Haulage route

- 24. The proposed haulage route on both state and local roads for the movement of OSOM vehicles should be identified. It is recommended that the National Heavy Vehicle Regulator (NHVR) Route Planner (also known as Journey Planner) is used to demonstrate compliance. The Route Planner Tool is an interactive, online mapping system contained within the NHVR Portal to assist with the process of planning routes, applying for access permits and viewing heavy vehicle network routes. More information can be found at https://www.nhvr.gov.au/road-access/route-planner.
- 25. After obtaining a development approval for a material change of use for a wind farm, the proponent would also need to identify the impacts associated with the wind farm in greater detail and put in place mitigation strategies in order to obtain the various downstream approvals and permits required before construction can begin. Items that need be resolved prior to the first construction vehicle is in movement may include, but is not limited to the following:
 - Identify 'pinch points' on road infrastructure and operations along the proposed haulage route impacted by the movement of OSOM vehicles for example at intersections, lane closures, road widening, structures and railway crossings.
 - Develop strategies to specifically manage the 'pinch points' impacted on the haulage route.
 - Construction movement schedules for example, commencement of haulage, expected duration of each haulage, total duration of all construction movement activities
 - Traffic Management Plan
 - Road Use Management Plan
 - Road Safety Audit
 - Communication Plan
 - Alternative Haulage Routes (if required)
 - Additional permits or approvals for example, Queensland Police Services.

DTMR will work with proponents, post decision to ensure that all additional information necessary is provided and the required downstream approvals and permits are obtained to ensure construction can proceed smoothly.

However, these processes take time and often require the submission of very detailed information. It is recommended that contact be made with DTMR and/or local governments as soon as possible post decision, but at least 12 months before construction is scheduled to commence.

For more information please contact the Heavy Vehicle Access team via QLDAccess HVROPO@tmr.qld.gov.au.

General – process

- 26. The required DA Form 1 for making a development application, the DA forms guide relating to DA Form 1 and the DA forms guide relating the preparation of plans, as well as various other forms and templates of use to applicants are available at https://planning.dsdmip.qld.gov.au/planning/better-development/application-forms-and-templates.
- 27. Whether referring or lodging a development application to SARA, the easiest way is to use the online lodgement system <u>MyDAS</u>. This system allows you to both prepare and lodge online.

This pre-lodgement advice is valid for period of 9 months from time of issue, unless a change in legislation or policy has occurred that would affect the pre-lodgement advice. This pre-lodgement advice does not constitute an approval or an endorsement that SARA supports the development proposal. Additional information may be required to allow SARA to properly assess the development proposal when a formal application has been lodged.

For further information please contact Kate Lipke, Principal Planning Officer, on 49242916 or via email RockhamptonSARA@dsdmip.qld.gov.au who will be pleased to assist.

Yours sincerely

Anthony Walsh Manager Planning



Appendix B – Burnett Highway (41E) Weekly Volume Report (AADT Segment 60055)





TARS Page 2 of 3 (2 of 9)

Area	404 - Fitzroy District
Road Section	41E - BURNETT HIGHWAY (BILOELA - MT MORGAN)
Site	60055 - Burnett Hwy 120m Nth of Don River
Thru Dist	54.26
Туре	C - Coverage
Stream	TG - Thru traffic -in gazettal dirn
Traffic Class	00 - All Vehicles
Week	2019-W42
Date Range	Monday 14-Oct-2019 - Sunday 20-Oct-2019

Data Profile

	Mondays	Tuesdays	Wednesdays	Thursdays	Fridays	Saturdays	Sundays						
Days in Date Range	1	1	1	1	1	1	1						
Days Included	1	1	1	1	1	1	1						
Calendar Events	0	0	0	0	0	0	0						





TARS

Page 3 of 3 (3 of 9)

Hour	Mor	nday	Tues	sday	Wedn	esday	Thur	sday	Fric	lay	Satu	ırday	Sunday		Ave Weel	Average Week Day		Average Weekend Day		Average Day	
00-01	3	0.6%	1	0.2%					3	0.6%	2	0.5%			1	0.2%	1	0.2%	1	0.2%	
01-02	1	0.2%	2	0.4%	2	0.4%	1	0.2%	2	0.4%	1	0.2%			2	0.4%	1	0.2%	1	0.2%	
02-03	3	0.6%					1	0.2%					2	0.5%	1	0.2%	1	0.2%	1	0.2%	
03-04	5	1.1%	2	0.4%	2	0.4%					1	0.2%			2	0.4%	1	0.2%	1	0.2%	
04-05	4	0.8%	4	0.8%	2	0.4%	4	0.9%	2	0.4%	1	0.2%			3	0.6%	1	0.2%	2	0.4%	
05-06	7	1.5%	4	0.8%	3	0.6%	4	0.9%	7	1.3%	7	1.6%	4	1.0%	5	1.0%	6	1.4%	5	1.1%	
06-07	11	2.3%	18	3.5%	16	3.3%	24	5.4%	18	3.4%	21	4.7%	12	2.9%	17	3.5%	17	3.9%	17	3.6%	
07-08	28	5.9%	31	6.0%	41	8.5%	37	8.4%	37	7.0%	45	10.2%	17	4.1%	35	7.1%	31	7.2%	34	7.2%	
08-09	42	8.9%	45	8.7%	44	9.1%	41	9.3%	46	8.7%	37	8.4%	22	5.3%	44	9.0%	30	6.9%	40	8.5%	
09-10	43	9.1%	39	7.5%	31	6.4%	29	6.6%	41	7.7%	53	12.0%	27	6.6%	37	7.5%	40	9.2%	38	8.1%	
10-11	31	6.6%	28	5.4%	42	8.7%	25	5.7%	45	8.5%	37	8.4%	45	10.9%	34	6.9%	41	9.5%	36	7.6%	
11-12	47	9.9%	33	6.4%	28	5.8%	32	7.2%	38	7.2%	48	10.8%	35	8.5%	36	7.3%	42	9.7%	37	7.9%	
12-13	35	7.4%	45	8.7%	37	7.6%	29	6.6%	29	5.5%	23	5.2%	31	7.5%	35	7.1%	27	6.2%	33	7.0%	
13-14	43	9.1%	50	9.7%	52	10.7%	39	8.8%	43	8.1%	33	7.4%	43	10.4%	45	9.2%	38	8.8%	43	9.1%	
14-15	43	9.1%	47	9.1%	43	8.9%	41	9.3%	48	9.0%	23	5.2%	25	6.1%	44	9.0%	24	5.5%	39	8.3%	
15-16	29	6.1%	43	8.3%	46	9.5%	31	7.0%	39	7.3%	30	6.8%	43	10.4%	38	7.7%	37	8.5%	37	7.9%	
16-17	38	8.0%	43	8.3%	27	5.6%	35	7.9%	51	9.6%	23	5.2%	37	9.0%	39	7.9%	30	6.9%	36	7.6%	
17-18	23	4.9%	26	5.0%	28	5.8%	25	5.7%	29	5.5%	23	5.2%	22	5.3%	26	5.3%	23	5.3%	25	5.3%	
18-19	21	4.4%	21	4.1%	17	3.5%	19	4.3%	23	4.3%	15	3.4%	19	4.6%	20	4.1%	17	3.9%	19	4.0%	
19-20	5	1.1%	11	2.1%	10	2.1%	13	2.9%	9	1.7%	7	1.6%	13	3.2%	10	2.0%	10	2.3%	10	2.1%	
20-21	4	0.8%	8	1.5%	6	1.2%	4	0.9%	9	1.7%	5	1.1%	7	1.7%	6	1.2%	6	1.4%	6	1.3%	
21-22	7	1.5%	8	1.5%	3	0.6%	3	0.7%	7	1.3%	4	0.9%	4	1.0%	6	1.2%	4	0.9%	5	1.1%	
22-23			5	1.0%	4	0.8%	5	1.1%	4	0.8%	3	0.7%	4	1.0%	4	0.8%	4	0.9%	4	0.8%	
23-24			3	0.6%	1	0.2%			1	0.2%	1	0.2%			1	0.2%	1	0.2%	1	0.2%	
Peaks	Hour End	d & Count	Hour End	d & Count	Hour End	d & Count	Hour End	l & Count	Hour End	& Count	Hour End	d & Count	Hour End	l & Count	Hour End	d & Count	Hour End	& Count	Hour End	d & Count	
AM	12:00	47	09:00	45	08:45	49	08:15	41	08:30	47	09:45	53	11:00	45	09:00	44	11:45	42	08:30	38	
PM	14:30	53	14:15	54	14:15	54	13:30	45	17:15	57	17:30	35	16:15	44	14:15	47	14:00	37	14:00	41	
12-Hour	423	89.4%	451	87.2%	436	89.9%	383	86.7%	469	88.3%	390	88.0%	366	88.8%	433	88.2%	380	87.8%	417	88.5%	
16-Hour	450	95.1%	496	95.9%	471	97.1%	427	96.6%	512	96.4%	427	96.4%	402	97.6%	472	96.1%	417	96.3%	455	96.6%	
18-Hour	450	95.1%	504	97.5%	476	98.1%	432	97.7%	517	97.4%	431	97.3%	406	98.5%	477	97.1%	422	97.5%	460	97.7%	
24-Hour	473	100.0%	517	100.0%	485	100.0%	442	100.0%	531	100.0%	443	100.0%	412	100.0%	491	100.0%	433	100.0%	471	100.0%	
Avg We	ek Day	96.3%		105.3%		98.8%		90.0%		108.1%						100.0%		88.2%		95.9%	
Avg Weeke	nd Day											102.3%		95.2%		113.4%		100.0%		108.8%	
A	vg Day	100.4%		109.8%		103.0%		93.8%		112.7%		94.1%		87.5%		104.2%		91.9%		100.0%	



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Aroo	404 Eitzrov District
Alea	404 - Filzioy District
Road Section	41E - BURNETT HIGHWAY (BILOELA - MT MORGAN)
Site	60055 - Burnett Hwy 120m Nth of Don River
Thru Dist	54.26
Туре	C - Coverage
Stream	TG - Thru traffic -in gazettal dirn
Traffic Class	00 - All Vehicles
Week	2019-W43
Date Range	Monday 21-Oct-2019 - Sunday 27-Oct-2019

Data Profile

	Mondays	Tuesdays	Wednesdays	Thursdays	Fridays	Saturdays	Sundays
Days in Date Range	1	1	1	1	1	1	1
Days Included	1	1	1	1	1	1	1
Calendar Events	0	0	0	0	0	0	0





TARS

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Hour	Mon	iday	Tue	Tuesday Wednesday Thursday		Fric	day	Satu	urday	Sur	day	Ave Wee	erage k Day	Aver Weeke	Average Weekend Day		age ay			
00-01	3	0.6%	1	0.2%	1	0.2%	1	0.2%	2	0.4%	3	0.7%	2	0.5%	2	0.4%	3	0.7%	2	0.4%
01-02	3	0.6%	1	0.2%	1	0.2%	2	0.4%	3	0.6%	2	0.5%	1	0.2%	2	0.4%	2	0.5%	2	0.4%
02-03					2	0.4%														
03-04	6	1.2%	4	0.8%	3	0.5%	2	0.4%	2	0.4%					3	0.6%			2	0.4%
04-05	6	1.2%	2	0.4%	4	0.7%	1	0.2%	3	0.6%	2	0.5%	3	0.7%	3	0.6%	3	0.7%	3	0.6%
05-06	5	1.0%	2	0.4%	8	1.5%	8	1.7%	6	1.2%	5	1.1%	2	0.5%	6	1.2%	4	0.9%	5	1.0%
06-07	29	5.7%	12	2.4%	19	3.5%	17	3.6%	15	2.9%	18	4.1%	8	2.0%	18	3.5%	13	3.0%	17	3.5%
07-08	39	7.6%	30	5.9%	53	9.7%	42	9.0%	46	8.9%	36	8.2%	20	4.9%	42	8.3%	28	6.5%	38	7.9%
08-09	51	10.0%	39	7.6%	46	8.4%	40	8.5%	45	8.7%	53	12.1%	37	9.0%	44	8.7%	45	10.5%	44	9.1%
09-10	27	5.3%	37	7.3%	38	6.9%	32	6.8%	48	9.3%	49	11.2%	21	5.1%	36	7.1%	35	8.2%	36	7.5%
10-11	40	7.8%	26	5.1%	40	7.3%	33	7.0%	36	7.0%	38	8.7%	29	7.1%	35	6.9%	34	7.9%	35	7.3%
11-12	34	6.7%	28	5.5%	34	6.2%	36	7.7%	33	6.4%	35	8.0%	34	8.3%	33	6.5%	35	8.2%	33	6.8%
12-13	40	7.8%	47	9.2%	47	8.6%	31	6.6%	38	7.4%	28	6.4%	30	7.3%	41	8.1%	29	6.8%	37	7.7%
13-14	48	9.4%	59	11.6%	50	9.1%	32	6.8%	38	7.4%	31	7.1%	50	12.2%	45	8.9%	41	9.6%	44	9.1%
14-15	44	8.6%	49	9.6%	55	10.1%	38	8.1%	41	7.9%	29	6.6%	48	11.7%	45	8.9%	39	9.1%	43	8.9%
15-16	42	8.2%	44	8.6%	48	8.8%	39	8.3%	55	10.7%	27	6.2%	35	8.6%	46	9.1%	31	7.2%	41	8.5%
16-17	34	6.7%	39	7.6%	27	4.9%	43	9.2%	29	5.6%	36	8.2%	24	5.9%	34	6.7%	30	7.0%	33	6.8%
17-18	29	5.7%	33	6.5%	34	6.2%	23	4.9%	29	5.6%	11	2.5%	15	3.7%	30	5.9%	13	3.0%	25	5.2%
18-19	13	2.5%	23	4.5%	18	3.3%	21	4.5%	27	5.2%	19	4.3%	13	3.2%	20	3.9%	16	3.7%	19	3.9%
19-20	11	2.2%	16	3.1%	6	1.1%	16	3.4%	10	1.9%	5	1.1%	15	3.7%	12	2.4%	10	2.3%	11	2.3%
20-21	4	0.8%	9	1.8%	7	1.3%	4	0.9%	2	0.4%	4	0.9%	8	2.0%	5	1.0%	6	1.4%	5	1.0%
21-22	3	0.6%	3	0.6%	3	0.5%	5	1.1%	3	0.6%	4	0.9%	10	2.4%	3	0.6%	7	1.6%	4	0.8%
22-23			4	0.8%	1	0.2%	2	0.4%	5	1.0%			3	0.7%	2	0.4%	2	0.5%	2	0.4%
23-24			2	0.4%	2	0.4%	1	0.2%			3	0.7%	1	0.2%	1	0.2%	2	0.5%	1	0.2%
Peaks	Hour End	& Count	Hour End	d & Count	Hour End	d & Count	Hour End	& Count	Hour End	I & Count	Hour En	d & Count	Hour End	& Count	Hour End	d & Count	Hour End	I & Count	Hour End	& Count
AM	08:45	55	08:45	49	08:15	56	08:45	46	09:15	59	09:15	63	08:45	37	08:30	48	09:15	48	08:30	46
PM	15:45	50	14:15	63	14:45	60	16:45	52	16:00	55	17:00	36	14:30	55	14:15	48	13:45	42	14:15	44
12-Hour	441	86.3%	454	89.0%	490	89.6%	410	87.4%	465	90.1%	392	89.5%	356	87.0%	451	88.8%	376	87.9%	428	88.8%
16-Hour	488	95.5%	494	96.9%	525	96.0%	452	96.4%	495	95.9%	423	96.6%	397	97.1%	489	96.3%	412	96.3%	465	96.5%
18-Hour	488	95.5%	500	98.0%	528	96.5%	455	97.0%	500	96.9%	426	97.3%	401	98.0%	492	96.9%	416	97.2%	468	97.1%
24-Hour	511	100.0%	510	100.0%	547	100.0%	469	100.0%	516	100.0%	438	100.0%	409	100.0%	508	100.0%	428	100.0%	482	100.0%
Avg We	ek Dav	100.6%		100.4%		107.7%		92.3%		101.6%						100.0%		84.3%		94.9%
Avg Weeke	nd Day											102.3%		95.6%		118.7%		100.0%		112.6%
A	vg Day	106.0%		105.8%		113.5%		97.3%		107.1%		90.9%		84.9%		105.4%		88.8%		100.0%



Area	404 - Fitzroy District
Road Section	41E - BURNETT HIGHWAY (BILOELA - MT MORGAN)
Site	60055 - Burnett Hwy 120m Nth of Don River
Thru Dist	54.26
Туре	C - Coverage
Stream	TG - Thru traffic -in gazettal dirn
Traffic Class	00 - All Vehicles
Week	2019-W44
Date Range	Monday 28-Oct-2019 - Sunday 03-Nov-2019

Data Profile

	Mondays	Tuesdays	Wednesdays	Thursdays	Fridays	Saturdays	Sundays
Days in Date Range	1	1	1	1	1	1	1
Days Included	1	1	1	1	1	0	0
Calendar Events	0	0	0	0	0	0	0





TARS

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Hour	Mor	onday Tuesday		Wedn	esdav	Thur	sdav	Fric	łav	Av We	erage ek Dav	Aver Di	rage	
00-01		,		,					2	0.4%				-)
01-02	1	0.2%	1	0.2%	1	0.2%	1	0.2%	4	0.8%		0.4%	2	0.4%
02-03	2	0.5%			2	0.4%	2	0.5%				0.2%	1	0.2%
03-04	2	0.5%	1	0.2%	1	0.2%						0.2%	1	0.2%
04-05	4	0.9%	4	0.7%	5	0.9%	3	0.7%	6	1.1%		0.8%	4	0.8%
05-06	8	1.9%	4	0.7%	3	0.6%	9	2.0%	7	1.3%		1.2%	6	1.2%
06-07	24	5.6%	23	4.1%	26	4.9%	15	3.4%	16	3.0%	2	4.2%	21	4.2%
07-08	32	7.5%	34	6.1%	38	7.2%	44	9.9%	42	8.0%	3	7.6%	38	7.6%
08-09	33	7.7%	43	7.7%	62	11.7%	33	7.4%	41	7.8%	4.	8.4%	42	8.4%
09-10	28	6.5%	51	9.1%	41	7.7%	37	8.3%	40	7.6%	3	7.8%	39	7.8%
10-11	22	5.1%	33	5.9%	31	5.8%	31	7.0%	37	7.0%	3	6.2%	31	6.2%
11-12	36	8.4%	41	7.3%	37	7.0%	23	5.2%	42	8.0%	3	7.2%	36	7.2%
12-13	32	7.5%	54	9.6%	36	6.8%	41	9.2%	40	7.6%	4	8.2%	41	8.2%
13-14	46	10.7%	45	8.0%	52	9.8%	33	7.4%	54	10.2%	4	9.2%	46	9.2%
14-15	30	7.0%	62	11.1%	49	9.2%	37	8.3%	52	9.9%	4	9.2%	46	9.2%
15-16	29	6.8%	52	9.3%	52	9.8%	30	6.8%	30	5.7%	3	7.8%	39	7.8%
16-17	43	10.0%	35	6.2%	39	7.3%	42	9.5%	48	9.1%	4	8.2%	41	8.2%
17-18	23	5.4%	23	4.1%	26	4.9%	29	6.5%	23	4.4%	2	5.0%	25	5.0%
18-19	16	3.7%	21	3.7%	13	2.4%	13	2.9%	17	3.2%	1	3.2%	16	3.2%
19-20	10	2.3%	15	2.7%	8	1.5%	8	1.8%	10	1.9%	1	2.0%	10	2.0%
20-21	4	0.9%	8	1.4%	7	1.3%	2	0.5%	9	1.7%		1.2%	6	1.2%
21-22			7	1.2%	2	0.4%	6	1.4%	4	0.8%		0.8%	4	0.8%
22-23	2	0.5%	3	0.5%			2	0.5%	3	0.6%	:	0.4%	2	0.4%
23-24	1	0.2%	1	0.2%			3	0.7%				0.2%	1	0.2%
Peaks	Hour End	& Count	Hour End	d & Count	Hour End	& Count	Hour End	d & Count	Hour End	& Count	Hour E	nd & Count	Hour End	& Count
AM	08:45	38	09:45	54	09:00	62	08:30	46	08:15	47	08:15	43	09:15	29
PM	17:15	47	15:00	62	15:15	55	14:30	43	14:30	59	14:30	48	14:30	33
12-Hour	370	86.4%	494	88.1%	476	89.6%	393	88.5%	466	88.4%	44	88.4%	440	88.4%
16-Hour	408	95.3%	547	97.5%	519	97.7%	424	95.5%	505	95.8%	48	96.6%	481	96.6%
18-Hour	411	96.0%	551	98.2%	519	97.7%	429	96.6%	508	96.4%	48-	97.2%	484	97.2%
24-Hour	428	100.0%	561	100.0%	531	100.0%	444	100.0%	527	100.0%	49	100.0%	498	100.0%
		05.00/				100.001								100.001
Avg We	ек Day	85.9%		112.7%		106.6%		89.2%		105.8%		100.0%		100.0%
۸		95 09/		110 70/		106 69/		90.29/		105 99/		100.0%		100.0%
A	vy Day	00.9%		112.1%		100.0%		09.2%		105.0%		100.0%		100.0%





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Area	404 - Fitzroy District
Road Section	41E - BURNETT HIGHWAY (BILOELA - MT MORGAN)
Site	60055 - Burnett Hwy 120m Nth of Don River
Thru Dist	54.26
Туре	C - Coverage
Stream	TA - Thru traffic -against gazettal
Traffic Class	00 - All Vehicles
Week	2019-W42
Date Range	Monday 14-Oct-2019 - Sunday 20-Oct-2019

Data Profile

	Mondays	Tuesdays	Wednesdays	Thursdays	Fridays	Saturdays	Sundays
Days in Date Range	1	1	1	1	1	1	1
Days Included	1	1	1	1	1	1	1
Calendar Events	0	0	0	0	0	0	0





TARS

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Hour	Mor	nday	Tue	sday	Wedn	esday	Thur	sday	Fric	day	Satu	urday	Sun	day	Ave Weel	rage k Day	Aveı Weeke	rage nd Day	Ave Da	rage ay
00-01			1	0.2%	2	0.4%			1	0.2%	1	0.2%	1	0.2%	1	0.2%	1	0.2%	1	0.2%
01-02	1	0.2%	1	0.2%	3	0.6%	1	0.2%	2	0.4%	5	1.2%	2	0.5%	2	0.4%	4	0.9%	2	0.4%
02-03			2	0.4%	2	0.4%					2	0.5%	1	0.2%	1	0.2%	2	0.5%	1	0.2%
03-04	3	0.7%	1	0.2%	4	0.8%	2	0.4%	3	0.5%					3	0.6%			2	0.4%
04-05	9	2.2%	7	1.4%	7	1.4%	3	0.6%	6	1.1%	4	1.0%	2	0.5%	6	1.2%	3	0.7%	5	1.0%
05-06	15	3.7%	13	2.6%	20	4.0%	17	3.3%	16	2.9%	6	1.5%	2	0.5%	16	3.2%	4	0.9%	13	2.7%
06-07	22	5.4%	18	3.6%	35	6.9%	28	5.5%	22	3.9%	9	2.2%	9	2.1%	25	5.0%	9	2.1%	20	4.2%
07-08	41	10.0%	32	6.4%	32	6.3%	33	6.4%	39	7.0%	35	8.5%	16	3.7%	35	7.0%	26	6.1%	33	6.9%
08-09	35	8.6%	35	7.0%	50	9.9%	37	7.2%	43	7.7%	34	8.2%	17	3.9%	40	8.0%	26	6.1%	36	7.5%
09-10	32	7.8%	34	6.8%	45	8.9%	41	8.0%	35	6.2%	34	8.2%	18	4.1%	37	7.4%	26	6.1%	34	7.1%
10-11	25	6.1%	39	7.8%	40	7.9%	45	8.8%	35	6.2%	27	6.5%	38	8.8%	37	7.4%	33	7.7%	36	7.5%
11-12	32	7.8%	39	7.8%	32	6.3%	28	5.5%	39	7.0%	30	7.3%	33	7.6%	34	6.8%	32	7.5%	33	6.9%
12-13	17	4.2%	36	7.2%	40	7.9%	25	4.9%	42	7.5%	21	5.1%	27	6.2%	32	6.4%	24	5.6%	30	6.3%
13-14	31	7.6%	25	5.0%	24	4.8%	45	8.8%	37	6.6%	28	6.8%	38	8.8%	32	6.4%	33	7.7%	33	6.9%
14-15	30	7.3%	40	8.0%	26	5.2%	47	9.2%	45	8.0%	42	10.2%	42	9.7%	38	7.6%	42	9.8%	39	8.2%
15-16	27	6.6%	35	7.0%	31	6.2%	39	7.6%	48	8.6%	29	7.0%	40	9.2%	36	7.2%	35	8.2%	36	7.5%
16-17	23	5.6%	39	7.8%	28	5.6%	32	6.2%	52	9.3%	38	9.2%	48	11.1%	35	7.0%	43	10.0%	37	7.7%
17-18	24	5.9%	28	5.6%	24	4.8%	29	5.7%	37	6.6%	23	5.6%	43	9.9%	28	5.6%	33	7.7%	30	6.3%
18-19	16	3.9%	16	3.2%	26	5.2%	28	5.5%	18	3.2%	17	4.1%	21	4.8%	21	4.2%	19	4.4%	20	4.2%
19-20	9	2.2%	13	2.6%	10	2.0%	9	1.8%	15	2.7%	11	2.7%	15	3.5%	11	2.2%	13	3.0%	12	2.5%
20-21	7	1.7%	14	2.8%	6	1.2%	11	2.1%	9	1.6%	7	1.7%	12	2.8%	9	1.8%	10	2.3%	9	1.9%
21-22	3	0.7%	17	3.4%	8	1.6%	7	1.4%	6	1.1%	2	0.5%	4	0.9%	8	1.6%	3	0.7%	7	1.5%
22-23	6	1.5%	14	2.8%	5	1.0%	2	0.4%	7	1.2%	5	1.2%	3	0.7%	7	1.4%	4	0.9%	6	1.3%
23-24	1	0.2%	2	0.4%	4	0.8%	3	0.6%	4	0.7%	3	0.7%	2	0.5%	3	0.6%	3	0.7%	3	0.6%
Peaks	Hour End	d & Count	Hour End	d & Count	Hour End	d & Count	Hour End	& Count	Hour End	& Count	Hour En	d & Count	Hour End	& Count	Hour End	d & Count	Hour End	& Count	Hour End	I & Count
AM	08:30	44	10:45	46	09:30	60	11:00	45	10:30	44	09:30	44	11:15	47	09:15	42	11:15	37	09:15	35
PM	14:15	36	15:30	43	13:00	40	14:30	49	16:45	56	15:15	43	16:45	52	15:45	38	16:45	42	15:00	37
12-Hour	333	81.4%	398	79.4%	398	79.0%	429	83.8%	470	83.8%	358	86.7%	381	87.8%	405	81.5%	372	86.9%	397	83.1%
16-Hour	374	91.4%	460	91.8%	457	90.7%	484	94.5%	522	93.0%	387	93.7%	421	97.0%	458	92.2%	407	95.1%	445	93.1%
18-Hour	381	93.2%	476	95.0%	466	92.5%	489	95.5%	533	95.0%	395	95.6%	426	98.2%	468	94.2%	414	96.7%	454	95.0%
24-Hour	409	100.0%	501	100.0%	504	100.0%	512	100.0%	561	100.0%	413	100.0%	434	100.0%	497	100.0%	428	100.0%	478	100.0%
Avg We	ek Day	82.3%		100.8%		101.4%		103.0%		112.9%						100.0%		86.1%		96.2%
Avg Weeke	nd Day											96.5%		101.4%		116.1%		100.0%		111.7%
А	vg Day	85.6%		104.8%		105.4%		107.1%		117.4%		86.4%		90.8%		104.0%		89.5%		100.0%



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Area	404 - Fitzroy District
Road Section	41E - BURNETT HIGHWAY (BILOELA - MT MORGAN)
Site	60055 - Burnett Hwy 120m Nth of Don River
Thru Dist	54.26
Туре	C - Coverage
Stream	TA - Thru traffic -against gazettal
Traffic Class	00 - All Vehicles
Week	2019-W43
Date Range	Monday 21-Oct-2019 - Sunday 27-Oct-2019

Data Profile

	Mondays	Tuesdays	Wednesdays	Thursdays	Fridays	Saturdays	Sundays
Days in Date Range	1	1	1	1	1	1	1
Days Included	1	1	1	1	1	1	1
Calendar Events	0	0	0	0	0	0	0





TARS

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Hour	Mon	iday	Tues	sday	Wedn	esday	Thur	sday	Fric	day	Satu	ırday	Sun	day	Ave Weel	rage < Day	Aver Weekei	age nd Day	Ave Da	rage ay
00-01			1	0.2%	1	0.2%	1	0.2%	2	0.4%	3	0.7%			1	0.2%	2	0.5%	1	0.2%
01-02	2	0.4%	3	0.6%	3	0.5%			3	0.5%	2	0.5%	3	0.8%	2	0.4%	3	0.7%	2	0.4%
02-03			1	0.2%	2	0.3%	2	0.4%	1	0.2%	1	0.2%	1	0.3%	1	0.2%	1	0.2%	1	0.2%
03-04					1	0.2%	2	0.4%	2	0.4%	2	0.5%			1	0.2%	1	0.2%	1	0.2%
04-05	10	2.2%	1	0.2%	10	1.7%	5	1.0%	8	1.4%	2	0.5%	1	0.3%	7	1.3%	2	0.5%	5	1.0%
05-06	20	4.4%	13	2.6%	15	2.6%	12	2.3%	21	3.8%	9	2.1%	4	1.0%	16	3.1%	7	1.7%	13	2.7%
06-07	30	6.6%	18	3.6%	24	4.1%	23	4.4%	21	3.8%	24	5.5%	7	1.8%	23	4.4%	16	3.8%	21	4.3%
07-08	42	9.2%	36	7.2%	41	7.1%	30	5.8%	23	4.1%	26	6.0%	12	3.1%	34	6.5%	19	4.5%	30	6.1%
08-09	23	5.0%	32	6.4%	75	13.0%	48	9.2%	33	5.9%	37	8.5%	24	6.2%	42	8.0%	31	7.4%	39	8.0%
09-10	30	6.6%	38	7.6%	39	6.7%	40	7.7%	57	10.2%	36	8.3%	19	4.9%	41	7.8%	28	6.7%	37	7.6%
10-11	23	5.0%	32	6.4%	38	6.6%	36	6.9%	36	6.5%	27	6.2%	23	6.0%	33	6.3%	25	6.0%	31	6.3%
11-12	31	6.8%	27	5.4%	47	8.1%	30	5.8%	39	7.0%	33	7.6%	34	8.8%	35	6.7%	34	8.1%	34	7.0%
12-13	23	5.0%	34	6.8%	38	6.6%	42	8.1%	31	5.6%	26	6.0%	29	7.5%	34	6.5%	28	6.7%	32	6.5%
13-14	39	8.6%	33	6.6%	40	6.9%	34	6.5%	38	6.8%	28	6.4%	27	7.0%	37	7.1%	28	6.7%	34	7.0%
14-15	34	7.5%	33	6.6%	34	5.9%	32	6.1%	51	9.1%	30	6.9%	51	13.2%	37	7.1%	41	9.8%	38	7.8%
15-16	23	5.0%	33	6.6%	43	7.4%	40	7.7%	40	7.2%	26	6.0%	34	8.8%	36	6.9%	30	7.2%	34	7.0%
16-17	34	7.5%	48	9.6%	35	6.0%	37	7.1%	34	6.1%	44	10.1%	34	8.8%	38	7.3%	39	9.3%	38	7.8%
17-18	34	7.5%	31	6.2%	30	5.2%	32	6.1%	47	8.4%	32	7.3%	36	9.4%	35	6.7%	34	8.1%	35	7.2%
18-19	22	4.8%	27	5.4%	22	3.8%	27	5.2%	24	4.3%	23	5.3%	18	4.7%	24	4.6%	21	5.0%	23	4.7%
19-20	11	2.4%	12	2.4%	18	3.1%	17	3.3%	20	3.6%	9	2.1%	14	3.6%	16	3.1%	12	2.9%	14	2.9%
20-21	11	2.4%	17	3.4%	11	1.9%	10	1.9%	10	1.8%	6	1.4%	5	1.3%	12	2.3%	6	1.4%	10	2.0%
21-22	8	1.8%	18	3.6%	5	0.9%	13	2.5%	10	1.8%	2	0.5%	7	1.8%	11	2.1%	5	1.2%	9	1.8%
22-23	4	0.9%	8	1.6%	4	0.7%	5	1.0%	2	0.4%	6	1.4%	1	0.3%	5	1.0%	4	1.0%	4	0.8%
23-24	2	0.4%	4	0.8%	3	0.5%	3	0.6%	5	0.9%	2	0.5%	1	0.3%	3	0.6%	2	0.5%	3	0.6%
Peaks	Hour End	& Count	Hour End	l & Count	Hour End	d & Count	Hour End	& Count	Hour End	& Count	Hour End	& Count	Hour End	& Count						
AM	08:00	42	10:15	39	09:15	77	08:45	49	10:00	57	09:30	40	12:00	34	08:30	44	12:00	32	09:00	36
PM	14:45	42	17:00	48	16:15	44	16:15	45	15:30	54	17:00	44	15:00	51	14:15	39	15:00	40	14:45	37
12-Hour	358	78.5%	404	80.8%	482	83.2%	428	82.1%	453	81.2%	368	84.4%	341	88.6%	426	81.3%	358	85.4%	405	82.8%
16-Hour	418	91.7%	469	93.8%	540	93.3%	491	94.2%	514	92.1%	409	93.8%	374	97.1%	488	93.1%	397	94.7%	459	93.9%
18-Hour	424	93.0%	481	96.2%	547	94.5%	499	95.8%	521	93.4%	417	95.6%	376	97.7%	496	94.7%	403	96.2%	466	95.3%
24-Hour	456	100.0%	500	100.0%	579	100.0%	521	100.0%	558	100.0%	436	100.0%	385	100.0%	524	100.0%	419	100.0%	489	100.0%
Avg We	ek Day	87.0%		95.4%		110.5%		99.4%		106.5%						100.0%		80.0%		93.3%
Avg Weeke	nd Day											104.1%		91.9%		125.1%		100.0%		116.7%
A	vg Day	93.3%		102.2%		118.4%		106.5%		114.1%		89.2%		78.7%		107.2%		85.7%		100.0%



Area	404 - Fitzroy District
Road Section	41E - BURNETT HIGHWAY (BILOELA - MT MORGAN)
Site	60055 - Burnett Hwy 120m Nth of Don River
Thru Dist	54.26
Туре	C - Coverage
Stream	TA - Thru traffic -against gazettal
Traffic Class	00 - All Vehicles
Week	2019-W44
Date Range	Monday 28-Oct-2019 - Sunday 03-Nov-2019

Data Profile

	Mondays	Tuesdays	Wednesdays	Thursdays	Fridays	Saturdays	Sundays
Days in Date Range	1	1	1	1	1	1	1
Days Included	1	1	1	1	1	0	0
Calendar Events	0	0	0	0	0	0	0





TARS

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Hour	ır Monday Tuesday		Wedn	esdav	Thu	rsdav	Frie	dav		Averag Week D	je Jav	Average Day			
00-01		,		,		,		,	5	0.9%		1	0.2%	1	0.2%
01-02	2	0.4%	1	0.2%	1	0.2%	1	0.2%	1	0.2%		1	0.2%	1	0.2%
02-03					1	0.2%									
03-04	3	0.7%	2	0.4%	2	0.4%						1	0.2%	1	0.2%
04-05	10	2.2%	3	0.6%	6	1.2%	6	1.1%	7	1.3%		6	1.2%	6	1.2%
05-06	14	3.1%	17	3.5%	19	3.7%	18	3.2%	13	2.3%		16	3.1%	16	3.1%
06-07	27	6.0%	21	4.3%	30	5.8%	28	5.0%	13	2.3%		24	4.7%	24	4.7%
07-08	45	10.0%	35	7.2%	34	6.6%	40	7.1%	37	6.6%		38	7.4%	38	7.4%
08-09	41	9.1%	33	6.8%	50	9.7%	57	10.2%	52	9.3%		47	9.2%	47	9.2%
09-10	33	7.3%	32	6.6%	42	8.2%	40	7.1%	36	6.4%		37	7.2%	37	7.2%
10-11	37	8.2%	27	5.6%	44	8.6%	37	6.6%	38	6.8%		37	7.2%	37	7.2%
11-12	27	6.0%	28	5.8%	43	8.4%	34	6.1%	34	6.1%		33	6.4%	33	6.4%
12-13	30	6.7%	26	5.4%	23	4.5%	43	7.7%	40	7.2%		32	6.2%	32	6.2%
13-14	25	5.6%	37	7.7%	34	6.6%	29	5.2%	30	5.4%		31	6.1%	31	6.1%
14-15	30	6.7%	36	7.5%	36	7.0%	39	7.0%	49	8.8%		38	7.4%	38	7.4%
15-16	28	6.2%	33	6.8%	38	7.4%	54	9.6%	46	8.2%		40	7.8%	40	7.8%
16-17	28	6.2%	44	9.1%	27	5.3%	39	7.0%	53	9.5%		38	7.4%	38	7.4%
17-18	23	5.1%	27	5.6%	23	4.5%	29	5.2%	44	7.9%		29	5.7%	29	5.7%
18-19	16	3.6%	24	5.0%	15	2.9%	30	5.3%	26	4.7%		22	4.3%	22	4.3%
19-20	10	2.2%	13	2.7%	10	1.9%	13	2.3%	13	2.3%		12	2.3%	12	2.3%
20-21	10	2.2%	18	3.7%	10	1.9%	6	1.1%	8	1.4%		10	2.0%	10	2.0%
21-22	4	0.9%	15	3.1%	10	1.9%	8	1.4%	6	1.1%		9	1.8%	9	1.8%
22-23	1	0.2%	5	1.0%	6	1.2%	7	1.2%	5	0.9%		5	1.0%	5	1.0%
23-24	5	1.1%	6	1.2%	9	1.8%	3	0.5%	3	0.5%		5	1.0%	5	1.0%
Peaks	Hour End	& Count	Hour End	d & Count	Hour End	& Count	Hour End	d & Count	Hour End	& Count	Hou	ur End &	Count	Hour End	& Count
AM	08:30	46	08:15	39	09:00	50	09:15	59	09:00	52	09	9:00	48	09:00	31
PM	16:30	37	17:00	44	14:30	41	16:00	54	17:30	58	1	5:15	39	15:15	27
12-Hour	363	80.8%	382	79.1%	409	79.7%	471	84.0%	485	86.8%		422 8	32.4%	422	82.4%
16-Hour	414	92.2%	449	93.0%	469	91.4%	526	93.8%	525	93.9%		477 9	93.2%	477	93.2%
18-Hour	420	93.5%	460	95.2%	484	94.3%	536	95.5%	533	95.3%		487 9	95.1%	487	95.1%
24-Hour	449	100.0%	483	100.0%	513	100.0%	561	100.0%	559	100.0%		512 10	00.0%	512	100.0%
Avg We	ek Day	87.7%		94.3%		100.2%		109.6%		109.2%		10	00.0%		100.0%
A	vg Day	87.7%		94.3%		100.2%		109.6%		109.2%		10	00.0%		100.0%





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•	
Area	404 - Fitzroy District
Road Section	41E - BURNETT HIGHWAY (BILOELA - MT MORGAN)
Site	60055 - Burnett Hwy 120m Nth of Don River
Thru Dist	54.26
Туре	C - Coverage
Stream	TB - Bi-directional traffic flow
Traffic Class	00 - All Vehicles
Week	2019-W42
Date Range	Monday 14-Oct-2019 - Sunday 20-Oct-2019

Data Profile

	Mondays	Tuesdays	Wednesdays	Thursdays	Fridays	Saturdays	Sundays						
Days in Date Range	1	1	1	1	1	1	1						
Days Included	1	1	1	1	1	1	1						
Calendar Events	0	0	0	0	0	0	0						





TARS

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Hour	Mor	nday	Tue	sday	Wedn	esday	Thur	sday	Fri	day	Satu	urday	Sur	nday	Ave Wee	rage k Day	Ave Weeke	rage nd Day	Ave Da	rage ay
00-01	3	0.3%	2	0.2%	2	0.2%			4	0.4%	3	0.4%	1	0.1%	2	0.2%	2	0.2%	2	0.2%
01-02	2	0.2%	3	0.3%	5	0.5%	2	0.2%	4	0.4%	6	0.7%	2	0.2%	3	0.3%	4	0.5%	3	0.3%
02-03	3	0.3%	2	0.2%	2	0.2%	1	0.1%			2	0.2%	3	0.4%	2	0.2%	3	0.4%	2	0.2%
03-04	8	0.9%	3	0.3%	6	0.6%	2	0.2%	3	0.3%	1	0.1%			4	0.4%	1	0.1%	3	0.3%
04-05	13	1.5%	11	1.1%	9	0.9%	7	0.7%	8	0.7%	5	0.6%	2	0.2%	10	1.0%	4	0.5%	8	0.8%
05-06	22	2.5%	17	1.7%	23	2.3%	21	2.2%	23	2.1%	13	1.5%	6	0.7%	21	2.1%	10	1.2%	18	1.9%
06-07	33	3.7%	36	3.5%	51	5.2%	52	5.5%	40	3.7%	30	3.5%	21	2.5%	42	4.2%	26	3.0%	38	4.0%
07-08	69	7.8%	63	6.2%	73	7.4%	70	7.3%	76	7.0%	80	9.3%	33	3.9%	70	7.1%	57	6.7%	66	7.0%
08-09	77	8.7%	80	7.9%	94	9.5%	78	8.2%	89	8.2%	71	8.3%	39	4.6%	84	8.5%	55	6.4%	75	7.9%
09-10	75	8.5%	73	7.2%	76	7.7%	70	7.3%	76	7.0%	87	10.2%	45	5.3%	74	7.5%	66	7.7%	72	7.6%
10-11	56	6.3%	67	6.6%	82	8.3%	70	7.3%	80	7.3%	64	7.5%	83	9.8%	71	7.2%	74	8.6%	72	7.6%
11-12	79	9.0%	72	7.1%	60	6.1%	60	6.3%	77	7.1%	78	9.1%	68	8.0%	70	7.1%	73	8.5%	71	7.5%
12-13	52	5.9%	81	8.0%	77	7.8%	54	5.7%	71	6.5%	44	5.1%	58	6.9%	67	6.8%	51	6.0%	62	6.5%
13-14	74	8.4%	75	7.4%	76	7.7%	84	8.8%	80	7.3%	61	7.1%	81	9.6%	78	7.9%	71	8.3%	76	8.0%
14-15	73	8.3%	87	8.5%	69	7.0%	88	9.2%	93	8.5%	65	7.6%	67	7.9%	82	8.3%	66	7.7%	77	8.1%
15-16	56	6.3%	78	7.7%	77	7.8%	70	7.3%	87	8.0%	59	6.9%	83	9.8%	74	7.5%	71	8.3%	73	7.7%
16-17	61	6.9%	82	8.1%	55	5.6%	67	7.0%	103	9.4%	61	7.1%	85	10.0%	74	7.5%	73	8.5%	73	7.7%
17-18	47	5.3%	54	5.3%	52	5.3%	54	5.7%	66	6.0%	46	5.4%	65	7.7%	55	5.6%	56	6.5%	55	5.8%
18-19	37	4.2%	37	3.6%	43	4.3%	47	4.9%	41	3.8%	32	3.7%	40	4.7%	41	4.1%	36	4.2%	40	4.2%
19-20	14	1.6%	24	2.4%	20	2.0%	22	2.3%	24	2.2%	18	2.1%	28	3.3%	21	2.1%	23	2.7%	21	2.2%
20-21	11	1.2%	22	2.2%	12	1.2%	15	1.6%	18	1.6%	12	1.4%	19	2.2%	16	1.6%	16	1.9%	16	1.7%
21-22	10	1.1%	25	2.5%	11	1.1%	10	1.0%	13	1.2%	6	0.7%	8	0.9%	14	1.4%	7	0.8%	12	1.3%
22-23	6	0.7%	19	1.9%	9	0.9%	7	0.7%	11	1.0%	8	0.9%	7	0.8%	10	1.0%	8	0.9%	10	1.1%
23-24	1	0.1%	5	0.5%	5	0.5%	3	0.3%	5	0.5%	4	0.5%	2	0.2%	4	0.4%	3	0.4%	4	0.4%
Peaks	Hour End	& Count	Hour End	d & Count	Hour End	& Count	Hour End	d & Count	Hour End	d & Count	Hour En	d & Count	Hour End	d & Count	Hour End	d & Count	Hour End	& Count	Hour End	& Count
AM	09:30	82	10:45	82	08:45	99	09:15	82	08:30	90	09:30	95	11:15	91	09:00	83	11:15	75	09:15	76
PM	14:30	88	15:30	88	13:45	82	13:45	88	16:45	108	15:30	75	16:15	91	13:45	82	15:30	72	13:45	76
12-Hour	756	85.7%	849	83.4%	834	84.3%	812	85.1%	939	86.0%	748	87.4%	747	88.3%	840	84.9%	749	87.5%	812	85.6%
16-Hour	824	93.4%	956	93.9%	928	93.8%	911	95.5%	1,034	94.7%	814	95.1%	823	97.3%	933	94.3%	821	95.9%	899	94.7%
18-Hour	831	94.2%	980	96.3%	942	95.2%	921	96.5%	1,050	96.2%	826	96.5%	832	98.3%	947	95.8%	832	97.2%	913	96.2%
24-Hour	882	100.0%	1,018	100.0%	989	100.0%	954	100.0%	1,092	100.0%	856	100.0%	846	100.0%	989	100.0%	856	100.0%	949	100.0%
Avg We	ek Dav	89.2%		102.9%		100.0%		96.5%		110.4%						100.0%		86.6%		96.0%
Avg Weeke	nd Dav											100.0%		98.8%		115.5%		100.0%		110.9%
A	vo Dav	92.9%		107.3%		104.2%		100.5%		115.1%		90.2%		89.1%		104.2%		90.2%		100.0%
	5,																			



TARS Page 1 of 2 (4 of 9)

Area	404 - Fitzroy District
Road Section	41E - BURNETT HIGHWAY (BILOELA - MT MORGAN)
Site	60055 - Burnett Hwy 120m Nth of Don River
Thru Dist	54.26
Туре	C - Coverage
Stream	TB - Bi-directional traffic flow
Traffic Class	00 - All Vehicles
Week	2019-W43
Date Range	Monday 21-Oct-2019 - Sunday 27-Oct-2019

Data Profile

	Mondays	Tuesdays	Wednesdays	Thursdays	Fridays	Saturdays	Sundays						
Days in Date Range	1	1	1	1	1	1	1						
Days Included	1	1	1	1	1	1	1						
Calendar Events	0	0	0	0	0	0	0						







Page 2 of 2 (5 of 9)

Hour	Monday		Tue	Tuesday		esday	Thur	sday	Frie	day	Satu	urday	Sunday		Ave Weel	rage k Day	Average Weekend Day		Ave Da	age ay
00-01	3	0.3%	2	0.2%	2	0.2%	2	0.2%	4	0.4%	6	0.7%	2	0.3%	3	0.3%	4	0.5%	3	0.3%
01-02	5	0.5%	4	0.4%	4	0.4%	2	0.2%	6	0.6%	4	0.5%	4	0.5%	4	0.4%	4	0.5%	4	0.4%
02-03			1	0.1%	4	0.4%	2	0.2%	1	0.1%	1	0.1%	1	0.1%	2	0.2%	1	0.1%	1	0.1%
03-04	6	0.6%	4	0.4%	4	0.4%	4	0.4%	4	0.4%	2	0.2%			4	0.4%	1	0.1%	3	0.3%
04-05	16	1.7%	3	0.3%	14	1.2%	6	0.6%	11	1.0%	4	0.5%	4	0.5%	10	1.0%	4	0.5%	8	0.8%
05-06	25	2.6%	15	1.5%	23	2.0%	20	2.0%	27	2.5%	14	1.6%	6	0.8%	22	2.1%	10	1.2%	19	2.0%
06-07	59	6.1%	30	3.0%	43	3.8%	40	4.0%	36	3.4%	42	4.8%	15	1.9%	42	4.1%	29	3.5%	38	3.9%
07-08	81	8.4%	66	6.5%	94	8.3%	72	7.3%	69	6.4%	62	7.1%	32	4.0%	76	7.4%	47	5.6%	68	7.0%
08-09	74	7.7%	71	7.0%	121	10.7%	88	8.9%	78	7.3%	90	10.3%	61	7.7%	86	8.3%	76	9.1%	83	8.5%
09-10	57	5.9%	75	7.4%	77	6.8%	72	7.3%	105	9.8%	85	9.7%	40	5.0%	77	7.5%	63	7.5%	73	7.5%
10-11	63	6.5%	58	5.7%	78	6.9%	69	7.0%	72	6.7%	65	7.4%	52	6.5%	68	6.6%	59	7.0%	65	6.7%
11-12	65	6.7%	55	5.4%	81	7.2%	66	6.7%	72	6.7%	68	7.8%	68	8.6%	68	6.6%	68	8.1%	68	7.0%
12-13	63	6.5%	81	8.0%	85	7.5%	73	7.4%	69	6.4%	54	6.2%	59	7.4%	74	7.2%	57	6.8%	69	7.1%
13-14	87	9.0%	92	9.1%	90	8.0%	66	6.7%	76	7.1%	59	6.8%	77	9.7%	82	8.0%	68	8.1%	78	8.0%
14-15	78	8.1%	82	8.1%	89	7.9%	70	7.1%	92	8.6%	59	6.8%	99	12.5%	82	8.0%	79	9.4%	81	8.3%
15-16	65	6.7%	77	7.6%	91	8.1%	79	8.0%	95	8.8%	53	6.1%	69	8.7%	81	7.9%	61	7.3%	76	7.8%
16-17	68	7.0%	87	8.6%	62	5.5%	80	8.1%	63	5.9%	80	9.2%	58	7.3%	72	7.0%	69	8.2%	71	7.3%
17-18	63	6.5%	64	6.3%	64	5.7%	55	5.6%	76	7.1%	43	4.9%	51	6.4%	64	6.2%	47	5.6%	59	6.1%
18-19	35	3.6%	50	5.0%	40	3.6%	48	4.8%	51	4.7%	42	4.8%	31	3.9%	45	4.4%	37	4.4%	42	4.3%
19-20	22	2.3%	28	2.8%	24	2.1%	33	3.3%	30	2.8%	14	1.6%	29	3.7%	27	2.6%	22	2.6%	26	2.7%
20-21	15	1.6%	26	2.6%	18	1.6%	14	1.4%	12	1.1%	10	1.1%	13	1.6%	17	1.6%	12	1.4%	15	1.5%
21-22	11	1.1%	21	2.1%	8	0.7%	18	1.8%	13	1.2%	6	0.7%	17	2.1%	14	1.4%	12	1.4%	13	1.3%
22-23	4	0.4%	12	1.2%	5	0.4%	7	0.7%	7	0.7%	6	0.7%	4	0.5%	7	0.7%	5	0.6%	6	0.6%
23-24	2	0.2%	6	0.6%	5	0.4%	4	0.4%	5	0.5%	5	0.6%	2	0.3%	4	0.4%	4	0.5%	4	0.4%
Peaks	Hour End	d & Count	Hour End	d & Count	Hour End	& Count	Hour End	& Count	Hour End	& Count	Hour En	d & Count	Hour End	& Count	Hour End	d & Count	Hour End	& Count	Hour End	& Count
AM	08:30	89	08:45	83	09:15	122	08:45	95	10:00	105	09:15	102	12:00	68	08:30	92	09:15	79	08:30	83
PM	14:00	87	14:15	100	14:45	98	16:45	91	15:30	102	17:00	80	14:30	103	14:15	87	15:00	78	14:45	82
12-Hour	799	82.6%	858	85.0%	972	86.3%	838	84.6%	918	85.5%	760	87.0%	697	87.8%	875	84.9%	731	87.1%	833	85.6%
16-Hour	906	93.7%	963	95.3%	1,065	94.6%	943	95.3%	1,009	93.9%	832	95.2%	771	97.1%	975	94.6%	806	96.1%	925	95.1%
18-Hour	912	94.3%	981	97.1%	1,075	95.5%	954	96.4%	1,021	95.1%	843	96.5%	777	97.9%	986	95.6%	815	97.1%	935	96.1%
24-Hour	967	100.0%	1,010	100.0%	1,126	100.0%	990	100.0%	1,074	100.0%	874	100.0%	794	100.0%	1,031	100.0%	839	100.0%	973	100.0%
Avg We	ek Day	93.8%		98.0%		109.2%		96.0%		104.2%						100.0%		81.4%		94.4%
Avg Weeke	nd Day											104.2%		94.6%		122.9%		100.0%		116.0%
A	vg Day	99.4%		103.8%		115.7%		101.7%		110.4%		89.8%		81.6%		106.0%		86.2%		100.0%



Area	404 - Fitzroy District
Road Section	41E - BURNETT HIGHWAY (BILOELA - MT MORGAN)
Site	60055 - Burnett Hwy 120m Nth of Don River
Thru Dist	54.26
Туре	C - Coverage
Stream	TB - Bi-directional traffic flow
Traffic Class	00 - All Vehicles
Week	2019-W44
Date Range	Monday 28-Oct-2019 - Sunday 03-Nov-2019

Data Profile

	Mondays	Tuesdays	Wednesdays	Thursdays	Fridays	Saturdays	Sundays							
Days in Date Range	1	1	1	1	1	1	1							
Days Included	1	1	1	1	1	0	0							
Calendar Events	0	0	0	0	0	0	0							





TARS

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Hour	Mor	Monday Tuesday		Wednesday		Thur	Thursday		dav	Av We	erage ek Dav	Average Dav		
00-01		,		,		,		,	7	0.6%		0.1%	1	0.1%
01-02	3	0.3%	2	0.2%	2	0.2%	2	0.2%	5	0.5%		3 0.3%	3	0.3%
02-03	2	0.2%	_	0.270	3	0.3%	2	0.2%	Ū	01070		0.1%	1	0.1%
03-04	5	0.6%	3	0.3%	3	0.3%	_	01270				2 0.2%	2	0.2%
04-05	14	1.6%	7	0.7%	11	1.1%	9	0.9%	13	1.2%	1	1.1%	11	1.1%
05-06	22	2.5%	21	2.0%	22	2.1%	27	2.7%	20	1.8%	2	2 2.2%	22	2.2%
06-07	51	5.8%	44	4.2%	56	5.4%	43	4.3%	29	2.7%	4	5 4.5%	45	4.5%
07-08	77	8.8%	69	6.6%	72	6.9%	84	8.4%	79	7.3%	7	5 7.5%	76	7.5%
08-09	74	8.4%	76	7.3%	112	10.7%	90	9.0%	93	8.6%	8	8.8%	89	8.8%
09-10	61	7.0%	83	8.0%	83	8.0%	77	7.7%	76	7.0%	7	5 7.5%	76	7.5%
10-11	59	6.7%	60	5.7%	75	7.2%	68	6.8%	75	6.9%	6	6.6%	67	6.6%
11-12	63	7.2%	69	6.6%	80	7.7%	57	5.7%	76	7.0%	6	6.8%	69	6.8%
12-13	62	7.1%	80	7.7%	59	5.7%	84	8.4%	80	7.4%	7	3 7.2%	73	7.2%
13-14	71	8.1%	82	7.9%	86	8.2%	62	6.2%	84	7.7%	7	7.6%	77	7.6%
14-15	60	6.8%	98	9.4%	85	8.1%	76	7.6%	101	9.3%	8	8.3%	84	8.3%
15-16	57	6.5%	85	8.1%	90	8.6%	84	8.4%	76	7.0%	7	3 7.7%	78	7.7%
16-17	71	8.1%	79	7.6%	66	6.3%	81	8.1%	101	9.3%	8	7.9%	80	7.9%
17-18	46	5.2%	50	4.8%	49	4.7%	58	5.8%	67	6.2%	5	5.4%	54	5.4%
18-19	32	3.6%	45	4.3%	28	2.7%	43	4.3%	43	4.0%	3	3.8%	38	3.8%
19-20	20	2.3%	28	2.7%	18	1.7%	21	2.1%	23	2.1%	2	2 2.2%	22	2.2%
20-21	14	1.6%	26	2.5%	17	1.6%	8	0.8%	17	1.6%	1	5 1.6%	16	1.6%
21-22	4	0.5%	22	2.1%	12	1.1%	14	1.4%	10	0.9%	1.	2 1.2%	12	1.2%
22-23	3	0.3%	8	0.8%	6	0.6%	9	0.9%	8	0.7%		0.7%	7	0.7%
23-24	6	0.7%	7	0.7%	9	0.9%	6	0.6%	3	0.3%		0.6%	6	0.6%
Peaks	Hour End	d & Count	Hour End	d & Count	Hour End	d & Count	Hour End	& Count	Hour End	d & Count	Hour E	nd & Count	Hour End	d & Count
AM	08:45	83	09:30	89	09:00	112	09:15	97	08:45	93	09:00	89	09:00	62
PM	17:15	74	15:00	98	15:30	92	15:45	86	15:00	101	15:00	84	15:15	59
12-Hour	733	83.6%	876	83.9%	885	84.8%	864	86.0%	951	87.6%	86	85.3%	861	85.3%
16-Hour	822	93.7%	996	95.4%	988	94.6%	950	94.5%	1,030	94.8%	95	§ 94.7%	956	94.7%
18-Hour	831	94.8%	1,011	96.8%	1,003	96.1%	965	96.0%	1,041	95.9%	96	96.0%	969	96.0%
24-Hour	877	100.0%	1,044	100.0%	1,044	100.0%	1,005	100.0%	1,086	100.0%	1,00	0 100.0%	1,009	100.0%
Avg We	ek Day	86.9%		103.5%		103.5%		99.6%		107.6%		100.0%		100.0%
A	vg Day	86.9%		103.5%		103.5%		99.6%		107.6%		100.0%		100.0%


Appendix C – Bruce Highway / South Ulam Road Intersection Count



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-23.659212

TARS

Traffic Analysis and Reporting System Intersection Analysis Report strict Road Section 10E - BRUCE HIGHWAY (BENARABY - ROCKHAMPTON) Intersection 6123 - Bruce Highway & Sth Ulam - Bajool Road Wednesday 24-Feb-2016 06:15 - 18:15 Area 404 - Fitzroy District





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Summary



Leg	Angle	Road Section	Site	TDist	Site Description
1	0	10E	60729	86.183	Bruce Hwy to R'ton @ South Ulam Rd
2	90	F10	60731	0.000	Bajool Rd to Bajool @ Bruce Hwy
3	180	10E	60732	86.182	Bruce Hwy to Marmor @ South Ulam Rd
4	270	F9	60733	0.000	South Ulam Rd to Upper Ulam @ Bruce Hwy

TARS



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TARS

Leg 1 Site 60729 Tdist 86.183 km Bruce Hwy to R'ton @ South Ulam Rd





TARS

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Leg 1 Site 60729 Tdist 86.183 km Bruce Hwy to R'ton @ South Ulam Rd

Time	Left	Through	Right	U-Turn	Pedestrians
00:00-00:15					
00:15-00:30					
00:30-00:45					
00:45-01:00					
01:00-01:15					
01:15-01:30					
01:30-01:45					
01:45-02:00					
02:00-02:15					
02:15-02:30					
02:30-02:45					
02:45-03:00					
03:00-03:15					
03:15-03:30					
03:30-03:45					
03:45-04:00					
04:00-04:15					
04:15-04:30					
04:30-04:45					
04:45-05:00					
05:00-05:15					
05:15-05:30					
05:30-05:45					
05:45-06:00					
06:00-06:15					
06:15-06:30	0	35	1		
06:30-06:45	0	34	1		
06:45-07:00	1	32	0		
07:00-07:15	2	45	3		
07:15-07:30	0	44	1		
07:30-07:45	2	50	0		
07:45-08:00	2	36	1		

Time	Left	Through	Right	U-Turn	Pedestrians
08:00-08:15	4	69	1		
08:15-08:30	1	60	0		
08:30-08:45	3	51	0		
08:45-09:00	4	37	0		
09:00-09:15	1	51	0		
09:15-09:30	4	54	1		
09:30-09:45	1	68	1		
09:45-10:00	2	48	2		
10:00-10:15	1	38	2		
10:15-10:30	3	49	0		
10:30-10:45	2	41	0		
10:45-11:00	2	53	0		
11:00-11:15	2	50	0		
11:15-11:30	2	31	0		
11:30-11:45	3	40	0		
11:45-12:00	0	36	0		
12:00-12:15	1	31	0		
12:15-12:30	4	39	1		
12:30-12:45	0	38	0		
12:45-13:00	2	52	1		
13:00-13:15	3	43	0		
13:15-13:30	0	38	0		
13:30-13:45	0	51	1		
13:45-14:00	0	36	0		
14:00-14:15	1	50	1		
14:15-14:30	2	36	1		
14:30-14:45	1	44	0		
14:45-15:00	1	47	2		
15:00-15:15	1	46	0		
15:15-15:30	0	41	0		
15:30-15:45	3	30	1		
15:45-16:00	3	57	2		

Time	Left	Through	Right	U-Turn	Pedestrians
16:00-16:15	1	47	1		
16:15-16:30	3	34	1		
16:30-16:45	1	42	0		
16:45-17:00	1	50	4		
17:00-17:15	1	29	1		
17:15-17:30	1	33	2		
17:30-17:45	0	29	0		
17:45-18:00	1	27	1		
18:00-18:15	0	18	0		
18:15-18:30					
18:30-18:45					
18:45-19:00					
19:00-19:15					
19:15-19:30					
19:30-19:45					
19:45-20:00					
20:00-20:15					
20:15-20:30					
20:30-20:45					
20:45-21:00					
21:00-21:15					
21:15-21:30					
21:30-21:45					
21:45-22:00					
22:00-22:15					
22:15-22:30					
22:30-22:45					
22:45-23:00					
23:00-23:15					
23:15-23:30					
23:30-23:45					
23:45-24:00					

Blank cells indicate the non-collection of corresponding counts.



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Leg 1 Site 60729 Tdist 86.183 km Bruce Hwy to R'ton @ South Ulam Rd

Total volume 2,147



Quarter-Hours of the Day

TARS

Vehicles



Traffic Analysis and Reporting System Intersection Analysis Report trict Road Section 10E - BRUCE HIGHWAY (BENARABY - ROCKHAMPTON) Intersection 6123 - Bruce Highway & Sth Ulam - Bajool Road Area 404 - Fitzroy District Wednesday 24-Feb-2016 06:15 - 18:15

TARS

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Leg 1 Site 60729 Tdist 86.183 km Bruce Hwy to R'ton @ South Ulam Rd

Total volume 73



Quarter-Hours of the Day



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TARS

Leg 1 Site 60729 Tdist 86.183 km Bruce Hwy to R'ton @ South Ulam Rd

Total volume 2,040

Quarter-Hour Volumes for Through Vehicles - All Traffic Classes





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TARS

Leg 1 Site 60729 Tdist 86.183 km Bruce Hwy to R'ton @ South Ulam Rd

Total volume 34

Quarter-Hour Volumes for Right-turning Vehicles - All Traffic Classes





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TARS

Vehicles

Leg 1 Site 60729 Tdist 86.183 km Bruce Hwy to R'ton @ South Ulam Rd

Total volume 2,163

Quarter-Hour Volumes for All Vehicles Exiting the Intersection - All Traffic Classes 70 70 8 65 65 09 60 60 20 35 55 55 52 5 50 50 8 <u>8</u> 45 45 40 40 Vehicles 52 35 30 30 25 25 20 20 15 15 10 10 5 5 0 0

 45.00

 00-15

 00-15

 15-30

 15-30

 15-30

 15-30

 15-30

 15-30

 15-30

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Area 404 - Fitzroy District Road Section 10E - BRUCE HIGHWAY (BENARABY - ROCKHAMPTON) Intersection 6123 - Bruce Highway & Sth Ulam - Bajool Road Wednesday 24-Feb-2016 06:15 - 18:15

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Leg 2 Site 60731 Tdist 0.000 km Bajool Rd to Bajool @ Bruce Hwy



TARS



TARS

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Leg 2 Site 60731 Tdist 0.000 km Bajool Rd to Bajool @ Bruce Hwy

Time	Left	Through	Right	U-Turn	Pedestrians
00:00-00:15					
00:15-00:30					
00:30-00:45					
00:45-01:00					
01:00-01:15					
01:15-01:30					
01:30-01:45					
01:45-02:00					
02:00-02:15					
02:15-02:30					
02:30-02:45					
02:45-03:00					
03:00-03:15					
03:15-03:30					
03:30-03:45					
03:45-04:00					
04:00-04:15					
04:15-04:30					
04:30-04:45					
04:45-05:00					
05:00-05:15					
05:15-05:30					
05:30-05:45					
05:45-06:00					
06:00-06:15					
06:15-06:30	1	0	0		
06:30-06:45	0	0	2		
06:45-07:00	0	1	0		
07:00-07:15	0	0	1		
07:15-07:30	0	0	2		
07:30-07:45	0	1	1		
07:45-08:00	1	1	3		

Time	Left	Through	Right	U-Turn	Pedestrians
08:00-08:15	0	0	1		
08:15-08:30	2	0	3		
08:30-08:45	1	0	1		
08:45-09:00	1	0	5		
09:00-09:15	0	1	4		
09:15-09:30	0	0	4		
09:30-09:45	0	0	2		
09:45-10:00	0	0	1		
10:00-10:15	0	0	4		
10:15-10:30	0	1	2		
10:30-10:45	0	0	2		
10:45-11:00	1	0	1		
11:00-11:15	0	1	0		
11:15-11:30	0	1	2		
11:30-11:45	0	0	3		
11:45-12:00	0	0	2		
12:00-12:15	0	0	1		
12:15-12:30	0	0	0		
12:30-12:45	0	0	2		
12:45-13:00	0	0	2		
13:00-13:15	1	0	1		
13:15-13:30	0	1	1		
13:30-13:45	0	0	0		
13:45-14:00	0	1	0		
14:00-14:15	1	0	1		
14:15-14:30	0	0	4		
14:30-14:45	0	0	0		
14:45-15:00	1	0	0		
15:00-15:15	0	1	0		
15:15-15:30	0	0	1		
15:30-15:45	0	0	1		
15:45-16:00	1	0	0		

Time	Left	Through	Right	U-Turn	Pedestrians
16:00-16:15	1	0	2		
16:15-16:30	0	2	3		
16:30-16:45	1	0	0		
16:45-17:00	0	1	2		
17:00-17:15	0	0	0		
17:15-17:30	0	0	3		
17:30-17:45	0	0	1		
17:45-18:00	0	1	1		
18:00-18:15	0	0	1		
18:15-18:30					
18:30-18:45					
18:45-19:00					
19:00-19:15					
19:15-19:30					
19:30-19:45					
19:45-20:00					
20:00-20:15					
20:15-20:30					
20:30-20:45					
20:45-21:00					
21:00-21:15					
21:15-21:30					
21:30-21:45					
21:45-22:00					
22:00-22:15					
22:15-22:30					
22:30-22:45					
22:45-23:00					
23:00-23:15					
23:15-23:30					
23:30-23:45					
23:45-24:00					

Blank cells indicate the non-collection of corresponding counts.



Traffic Analysis and Reporting System Intersection Analysis Report strict Road Section 10E - BRUCE HIGHWAY (BENARABY - ROCKHAMPTON) Intersection 6123 - Bruce Highway & Sth Ulam - Bajool Road Area 404 - Fitzroy District Wednesday 24-Feb-2016 06:15 - 18:15

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TARS

Leg 2 Site 60731 Tdist 0.000 km Bajool Rd to Bajool @ Bruce Hwy

Total volume 100



11-12 12-13 Quarter-Hours of the Day

00-01 01-02 02-03 03-04 04-05 05-06 06-07 07-08 08-09 09-10 10-11

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13-14 14-15 15-16 16-17 17-18 18-19

19-20 20-21 21-22

22-23 23-00



Area 404 - Fitzroy District Road Section 10E - BRUCE HIGHWAY (BENARABY - ROCKHAMPTON) Intersection 6123 - Bruce Highway & Sth Ulam - Bajool Road Wednesday 24-Feb-2016 06:15 - 18:15

Page 13 of 30 (13 of 31)

TARS

Leg 2 Site 60731 Tdist 0.000 km Bajool Rd to Bajool @ Bruce Hwy

Total volume 13







2.00

1.75

Area 404 - Fitzroy District Road Section 10E - BRUCE HIGHWAY (BENARABY - ROCKHAMPTON) Intersection 6123 - Bruce Highway & Sth Ulam - Bajool Road Wednesday 24-Feb-2016 06:15 - 18:15

Page 14 of 30 (14 of 31)

TARS

2.00

1.75

Leg 2 Site 60731 Tdist 0.000 km Bajool Rd to Bajool @ Bruce Hwy

Total volume 14

 Quarter-Hour Volumes for Through Vehicles - All Traffic Classes

 N

 N

 N

 N

 N

 N

 N

 N

 N

 N

 N

 N

 N

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Traffic Analysis and Reporting System Intersection Analysis Report Area 404 - Fitzroy District Road Section 10E - BRUCE HIGHWAY (BENARABY - ROCKHAMPTON) Intersection 6123 - Bruce Highway & Sth Ulam - Bajool Road Wednesday 24-Feb-2016 06:15 - 18:15

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TARS

Leg 2 Site 60731 Tdist 0.000 km Bajool Rd to Bajool @ Bruce Hwy

Total volume 73





Traffic Analysis and Reporting System Intersection Analysis Report Area 404 - Fitzroy District Road Section 10E - BRUCE HIGHWAY (BENARABY - ROCKHAMPTON) Intersection 6123 - Bruce Highway & Sth Ulam - Bajool Road Wednesday 24-Feb-2016 06:15 - 18:15

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Leg 2 Site 60731 Tdist 0.000 km Bajool Rd to Bajool @ Bruce Hwy

Total volume 89

TARS







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TARS

Leg 3 Site 60732 Tdist 86.182 km Bruce Hwy to Marmor @ South Ulam Rd





TARS

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Leg 3 Site 60732 Tdist 86.182 km Bruce Hwy to Marmor @ South Ulam Rd

Time	Left	Through	Right	U-Turn	Pedestrians
00:00-00:15					
00:15-00:30					
00:30-00:45					
00:45-01:00					
01:00-01:15					
01:15-01:30					
01:30-01:45					
01:45-02:00					
02:00-02:15					
02:15-02:30					
02:30-02:45					
02:45-03:00					
03:00-03:15					
03:15-03:30					
03:30-03:45					
03:45-04:00					
04:00-04:15					
04:15-04:30					
04:30-04:45					
04:45-05:00					
05:00-05:15					
05:15-05:30					
05:30-05:45					
05:45-06:00					
06:00-06:15					
06:15-06:30	0	20	0		
06:30-06:45	0	21	0		
06:45-07:00	0	38	0		
07:00-07:15	2	16	0		
07:15-07:30	0	45	0		
07:30-07:45	0	43	0		
07:45-08:00	0	48	0		

Time	Left	Through	Right	U-Turn	Pedestrians
08:00-08:15	0	33	1		
08:15-08:30	2	34	0		
08:30-08:45	2	40	0		
08:45-09:00	1	38	0		
09:00-09:15	3	41	0		
09:15-09:30	0	43	0		
09:30-09:45	0	34	0		
09:45-10:00	0	36	0		
10:00-10:15	0	40	0		
10:15-10:30	0	34	0		
10:30-10:45	1	37	0		
10:45-11:00	1	43	0		
11:00-11:15	0	36	0		
11:15-11:30	0	49	0		
11:30-11:45	1	39	0		
11:45-12:00	1	57	0		
12:00-12:15	1	44	0		
12:15-12:30	1	54	0		
12:30-12:45	1	47	0		
12:45-13:00	0	46	0		
13:00-13:15	0	42	0		
13:15-13:30	2	38	0		
13:30-13:45	2	43	0		
13:45-14:00	2	67	0		
14:00-14:15	1	56	0		
14:15-14:30	1	41	0		
14:30-14:45	0	54	0		
14:45-15:00	4	52	0		
15:00-15:15	0	37	0		
15:15-15:30	0	49	0		
15:30-15:45	0	53	0		
15:45-16:00	0	49	0		

Time	Left	Through	Right	U-Turn	Pedestrians
16:00-16:15	0	55	0		
16:15-16:30	1	47	0		
16:30-16:45	0	52	0		
16:45-17:00	0	44	0		
17:00-17:15	0	50	0		
17:15-17:30	0	50	0		
17:30-17:45	0	44	0		
17:45-18:00	0	44	0		
18:00-18:15	0	29	0		
18:15-18:30					
18:30-18:45					
18:45-19:00					
19:00-19:15					
19:15-19:30					
19:30-19:45					
19:45-20:00					
20:00-20:15					
20:15-20:30					
20:30-20:45					
20:45-21:00					
21:00-21:15					
21:15-21:30					
21:30-21:45					
21:45-22:00					
22:00-22:15					
22:15-22:30					
22:30-22:45					
22:45-23:00					
23:00-23:15					
23:15-23:30					
23:30-23:45					
23:45-24:00					

Blank cells indicate the non-collection of corresponding counts.



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TARS

Leg 3 Site 60732 Tdist 86.182 km Bruce Hwy to Marmor @ South Ulam Rd

Total volume 2,083

Quarter-Hour Volumes for All Vehicles Entering the Intersection - All Traffic Classes





Traffic Analysis and Reporting System Intersection Analysis Report Area 404 - Fitzroy District Road Section 10E - BRUCE HIGHWAY (BENARABY - ROCKHAMPTON) Intersection 6123 - Bruce Highway & Sth Ulam - Bajool Road Wednesday 24-Feb-2016 06:15 - 18:15

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TARS

Leg 3 Site 60732 Tdist 86.182 km Bruce Hwy to Marmor @ South Ulam Rd

Total volume 30

Quarter-Hour Volumes for Left-turning Vehicles - All Traffic Classes





Page 21 of 30 (21 of 31)

TARS

Leg 3 Site 60732 Tdist 86.182 km Bruce Hwy to Marmor @ South Ulam Rd

Total volume 2,052





TARS

Page 22 of 30 (22 of 31)

Site 60732 Tdist 86.182 km Bruce Hwy to Marmor @ South Ulam Rd

Total volume 1

Quarter-Hour Volumes for Right-turning Vehicles - All Traffic Classes

Leg 3





Traffic Analysis and Reporting System Intersection Analysis Report Area 404 - Fitzroy District Road Section 10E - BRUCE HIGHWAY (BENARABY - ROCKHAMPTON) Intersection 6123 - Bruce Highway & Sth Ulam - Bajool Road Wednesday 24-Feb-2016 06:15 - 18:15

Leg 3

TARS

Vehicles

Page 23 of 30 (23 of 31)

Site 60732 Tdist 86.182 km Bruce Hwy to Marmor @ South Ulam Rd

Total volume 2,083



Quarter-Hours of the Day



Page 24 of 30 (24 of 31)

TARS

Leg 4 Site 60733 Tdist 0.000 km South Ulam Rd to Upper Ulam @ Bruce Hwy





Traffic Analysis and Reporting System Intersection Analysis Report strict Road Section 10E - BRUCE HIGHWAY (BENARABY - ROCKHAMPTON) Intersection 6123 - Bruce Highway & Sth Ulam - Bajool Road Wednesday 24-Feb-2016 06:15 - 18:15 Area 404 - Fitzroy District

TARS

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South Ulam Rd to Upper Ulam @ Bruce Hwy Leg 4 Site 60733 Tdist 0.000 km

Time	Left	Through	Right	U-Turn	Pedestrians
00:00-00:15					
00:15-00:30					
00:30-00:45					
00:45-01:00					
01:00-01:15					
01:15-01:30					
01:30-01:45					
01:45-02:00					
02:00-02:15					
02:15-02:30					
02:30-02:45					
02:45-03:00					
03:00-03:15					
03:15-03:30					
03:30-03:45					
03:45-04:00					
04:00-04:15					
04:15-04:30					
04:30-04:45					
04:45-05:00					
05:00-05:15					
05:15-05:30					
05:30-05:45					
05:45-06:00					
06:00-06:15					
06:15-06:30	1	0	0		
06:30-06:45	0	0	1		
06:45-07:00	0	0	0		
07:00-07:15	1	0	0		
07:15-07:30	1	1	0		
07:30-07:45	1	2	0		
07:45-08:00	0	0	0		

Time	Left	Through	Right	U-Turn	Pedestrians
08:00-08:15	0	0	1		
08:15-08:30	2	1	1		
08:30-08:45	0	0	4		
08:45-09:00	0	2	1		
09:00-09:15	2	0	2		
09:15-09:30	1	0	0		
09:30-09:45	0	0	1		
09:45-10:00	1	0	0		
10:00-10:15	1	0	0		
10:15-10:30	1	0	0		
10:30-10:45	1	1	0		
10:45-11:00	0	1	0		
11:00-11:15	0	0	0		
11:15-11:30	1	0	1		
11:30-11:45	0	1	1		
11:45-12:00	1	0	1		
12:00-12:15	0	0	0		
12:15-12:30	0	0	1		
12:30-12:45	0	1	0		
12:45-13:00	1	0	0		
13:00-13:15	0	0	1		
13:15-13:30	0	0	0		
13:30-13:45	0	0	0		
13:45-14:00	1	0	0		
14:00-14:15	3	0	0		
14:15-14:30	0	0	3		
14:30-14:45	1	0	3		
14:45-15:00	3	1	4		
15:00-15:15	0	0	1		
15:15-15:30	1	0	0		
15:30-15:45	2	0	0		
15:45-16:00	0	0	0		

Time	Left	Through	Right	U-Turn	Pedestrians
16:00-16:15	1	0	1		
16:15-16:30	1	1	0		
16:30-16:45	2	1	0		
16:45-17:00	0	0	0		
17:00-17:15	0	0	0		
17:15-17:30	2	1	0		
17:30-17:45	3	1	1		
17:45-18:00	1	0	0		
18:00-18:15	1	0	1		
18:15-18:30					
18:30-18:45					
18:45-19:00					
19:00-19:15					
19:15-19:30					
19:30-19:45					
19:45-20:00					
20:00-20:15					
20:15-20:30					
20:30-20:45					
20:45-21:00					
21:00-21:15					
21:15-21:30					
21:30-21:45					
21:45-22:00					
22:00-22:15					
22:15-22:30					
22:30-22:45					
22:45-23:00					
23:00-23:15					
23:15-23:30					
23:30-23:45					
23:45-24:00					

Blank cells indicate the non-collection of corresponding counts.



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TARS

Leg 4 Site 60733 Tdist 0.000 km South Ulam Rd to Upper Ulam @ Bruce Hwy

Total volume 83

Quarter-Hour Volumes for All Vehicles Entering the Intersection - All Traffic Classes





TARS

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Total volume 38

Leg 4 Site 60733 Tdist 0.000 km South Ulam Rd to Upper Ulam @ Bruce Hwy





Area 404 - Fitzroy District Road Section 10E - BRUCE HIGHWAY (BENARABY - ROCKHAMPTON) Intersection 6123 - Bruce Highway & Sth Ulam - Bajool Road Wednesday 24-Feb-2016 06:15 - 18:15

TARS

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Leg 4 Site 60733 Tdist 0.000 km South Ulam Rd to Upper Ulam @ Bruce Hwy

Total volume 15





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TARS

Leg 4 Site 60733 Tdist 0.000 km South Ulam Rd to Upper Ulam @ Bruce Hwy

Total volume 30

Quarter-Hour Volumes for Right-turning Vehicles - All Traffic Classes





Page 30 of 30 (30 of 31)

TARS

Leg 4 Site 60733 Tdist 0.000 km South Ulam Rd to Upper Ulam @ Bruce Hwy

Total volume 78

Quarter-Hour Volumes for All Vehicles Exiting the Intersection - All Traffic Classes





Appendix D – Intersection Volume Forecast Calculations

UMW0123-001 | Mount Hopeful Wind Farm Burnett Highway / McDonalds Road

Peak Hour Intersection Volume Forecasts

AM PEAK

GR %	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
		Burnett Hi	ghway S			McDona	Ids Rd E		Burnett Highway N			
YEAR	•	Т		R		L	I	R		L	-	Г
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
2019	30	18	1	0	3	0	3	0	1	0	29	19
2020	31	18	1	0	3	0	3	0	1	0	29	19
2021	31	18	1	0	3	0	3	0	1	0	30	19
2022	31	18	1	0	3	0	3	0	1	0	30	20
2023	32	18	1	0	3	0	3	0	1	0	30	20
2024	32	19	1	0	3	0	3	0	1	0	30	20
PROJECT TRAFFIC	0	0	89	3	0	3	0	6	0	6	0	0
			r			r						
IN CONSTRUCTION	32	19	90	3	3	3	3	6	1	6	30	20

ACCESS TRAFFIC

PM PEAK

GR %	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
		Burnett Highway S				McDona	lds Rd E		Burnett Highway N			
YEAR	-	Г	I	R	I	-	I	R	I	L		Г
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
2019	30	18	3	0	1	0	1	0	3	0	24	15
2020	31	18	3	0	1	0	1	0	3	0	24	16
2021	31	18	3	0	1	0	1	0	3	0	24	16
2022	31	18	3	0	1	0	1	0	3	0	24	16
2023	32	18	3	0	1	0	1	0	3	0	24	16
2024	32	19	3	0	1	0	1	0	3	0	25	16
PROJECT TRAFFIC	0	0	0	3	89	3	0	6	0	6	0	0
IN CONSTRUCTION	32	19	3	3	90	3	1	6	3	6	25	16

Background Traffic Assumptions

* Assume peak hour movements on McDonalds Road to be approximately 15% of daily volumes.

* Assume peak hour heavy vehicle movements on McDonalds Road same as % of estimated daily volumes.

* Assume 50% of McDonalds Road movements to/from North, 50 % to/from South.

 * Assume 30% in / 70% out split for movements in AM peak hour on McDonalds Rd.

* Assume 70% in / 30% out split for movements in PM peak hour on MCDonalds Rd.

50 vpd	McDonalds Rd AADT
8 vph	Peak Hr Volumes (15% Dally)

AM PEAK

2 vph	Inbound	6 vph	Inbound
1 vph	from Burnett Hway N	3 vph	from Burnett Hway N
1 vph	from Burnett Hway S	3 vph	from Burnett Hway S
6 vph	Outbound	2 vph	Outbound
3 vph	to Burnett Hway N	1 vph	to Burnett Hway N
3 vph	to Burnett Hway S	1 vph	to Burnett Hway S

Development Scenario - Schedule Task B + C+ D + E + F + Site Water + Max Staff

Dally Heavy Vehicle Movements to McDonalds Road

		Burnett Hi		McDona	lds Rd E		Burnett Highway N					
Task	Т		-	R		L	R		L		Т	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
В	0	0	0	0	0	0	0	33	0	33	0	0
С	0	0	0	4	0	4	0	24	0	24	0	0
D	0	0	0	1	0	1	0	3	0	3	0	0
E	0	0	0	5	0	5	0	10	0	10	0	0
F	0	0	0	15	0	15	0	0	0	0	0	0
Water	0	0	0	10	0	10	0	0	0	0	0	0
Fuel	0	0	0	1	0	1	0	0	0	0	0	0
Total (12 hrs)	0	0	0	36	0	36	0	70	0	70	0	0
Peak Hour	0	0	0	3	0	3	0	6	0	6	0	0

PM PEAK

Staff Vehicle Movements to McDonalds Road

AM Peak Hour	0	0	89	0	0	0	0	0	0	0	0	0
PM Peak Hour	0	0	0	0	89	0	0	0	0	0	0	0

UMW0123-001 | Mount Hopeful Wind Farm Bruce Highway / South Ulam Road Peak Hour Intersection Volume Forecasts

AM PEAK

GR %	2.33%	2.33%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	2.33%	2.33%
		Bruce High	way North		S	outh Ular	n Road Wes	st		Bruce High	nway South	1
YEAR	-	Т	I	R	I	L	I	R		L	-	Г
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
2016	162	58	3	0	3	0	5	1	4	0	112	44
2017	166	59	3	0	3	0	5	1	4	0	114	45
2018	170	60	3	0	3	0	6	1	4	0	117	46
2019	174	62	3	0	3	0	6	1	4	0	120	47
2020	178	63	3	0	3	0	6	1	4	0	123	48
2021	182	65	3	0	3	0	6	1	4	0	125	50
2022	187	66	3	0	3	0	6	1	4	0	128	51
2023	191	68	3	0	3	0	6	1	4	0	131	52
2024	195	69	3	0	3	0	6	1	4	0	134	53
	0	0	15	1	0	1	0	0	0	0	0	0
PROJECT TRAFFIC	U	0	15		0		0	U	0	0	0	U
IN CONSTRUCTION	195	69	18	1	3	1	6	1	4	0	134	53

ACCESS TRAFFIC

PM PEAK

GR %	2.33%	2.33%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	2.33%	2.33%	
		Bruce High	way North	1	S	outh Ularr	n Road Wes	st	Bruce Highway South				
YEAR	-	Г		R		L	I	R		L	-	Г	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	
2016	132	47	4	0	7	1	9	1	5	1	146	57	
2017	135	48	4	0	7	1	9	1	5	1	149	59	
2018	138	49	4	0	7	1	9	1	6	1	152	60	
2019	142	50	4	0	7	1	9	1	6	1	156	62	
2020	145	51	4	0	7	1	9	1	6	1	160	63	
2021	148	53	4	0	8	1	9	1	6	1	163	65	
2022	152	54	4	0	8	1	10	1	6	1	167	66	
2023	155	55	4	0	8	1	10	1	6	1	171	68	
2024	159	56	4	0	8	1	10	1	6	1	175	69	
PROJECT TRAFFIC	0	0	0	1	15	1	0	0	0	0	0	0	
	150	56	Λ	1	22	2	10	1	6	1	175	60	
IN CONSTRUCTION	139	- 30	4	1	23	2	10	1	0	I	175	09	

Development Scenario - Schedule Task B + C+ D + E + F + Site Water + Max Staff

Heavy Vehicle Movements to McDonalds Road

		Bruce High	nway North	1	S	outh Ulam	Road We	st	Bruce Highway South			
Task	-	Г	R		L		R			L	Т	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
В	0	0	0	5	0	5	0	0	0	0	0	0
С	0	0	0	5	0	5	0	0	0	0	0	0
D	0	0	0	1	0	1	0	0	0	0	0	0
E	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
Water	0	0	0	0	0	0	0	0	0	0	0	0
Total (12 hrs)	0	0	0	11	0	11	0	0	0	0	0	0
Peak Hour	0	0	0	1	0	1	0	0	0	0	0	0

Staff Vehicle Movements to South Ulam Road

AM Peak Hour	0	0	15	0	0	0	0	0	0	0	0	0
PM Peak Hour	0	0	0	0	15	0	0	0	0	0	0	0

Construction Workforce Distribution

Location	Dist.	Unit	Qty	Vehicle Type	% Vehicle	Staff No. per Vehicle Type	Average Vehicle Capacity	M'ments Round Trip (per day)
Dockhampton	100%	0/	50	LV	50%	25	2	13
Rockhampton	100%	70	50	Bus	50%	25	15	2
							Total	15



Appendix E – SIDRA Results – Burnett Highway / McDonalds Road Intersection

MOVEMENT SUMMARY

V Site: 1 [EXISTING 2023 AM Peak (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Burnett Highway / McDonalds Road Existing Intersection Configuration Site Category: Base Year Give-Way (Two-Way)

Vehic	le Mo	ovement	t Performa	nce									
Mov ID	Turn	Mov Class	Demand Flows	Arrival Flows	Deg. Satn	Aver. Delav	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop	Aver. No of	Aver. Speed
			[Total HV] veh/h %	[Total HV] veh/h %	v/c	sec		[Veh. veh	Dist] m		Rate	Cycles	km/h
South: Burnett Highway													
2	T1	All MCs	53 36.0	53 36.0	0.033	0.0	LOS A	0.0	0.1	0.01	0.01	0.01	59.8
3	R2	All MCs	1 0.0	1 0.0	0.033	5.5	LOS A	0.0	0.1	0.01	0.01	0.01	57.0
Appro	ach		54 35.3	54 35.3	0.033	0.1	NA	0.0	0.1	0.01	0.01	0.01	59.8
East: McDonalds Road													
4	L2	All MCs	3 0.0	3 0.0	0.005	5.7	LOS A	0.0	0.1	0.16	0.54	0.16	52.4
6	R2	All MCs	3 0.0	3 0.0	0.005	5.8	LOS A	0.0	0.1	0.16	0.54	0.16	52.2
Appro	ach		6 0.0	6 0.0	0.005	5.8	LOS A	0.0	0.1	0.16	0.54	0.16	52.3
North: Burnett Highway													
7	L2	All MCs	1 0.0	1 0.0	0.034	5.5	LOS A	0.0	0.0	0.00	0.01	0.00	57.3
8	T1	All MCs	53 40.0	53 40.0	0.034	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
Approach			54 39.2	54 39.2	0.034	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
All Vehicles			114 35.2	114 35.2	0.034	0.4	NA	0.0	0.1	0.01	0.04	0.01	59.3

Site Level of Service (LOS) Method: Delay (SIDRA). 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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V Site: 1 [EXISTING 2023 PM Peak (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Burnett Highway / McDonalds Road Existing Intersection Configuration Site Category: Base Year Give-Way (Two-Way)

Vehic	/ehicle Movement Performance												
Mov	Turn	Mov	Demand	Arrival	Deg. Sata	Aver.	Level of	95% E	Back Of	Prop.	Eff.	Aver.	Aver.
שוק		Class	[Total HV] veh/h %	[Total HV] veh/h %	v/c	sec	Service	[Veh. veh	Dist] m	Que	Rate	Cycles	km/h
South	: Burn	ett Highw	ay										
2	T1	All MCs	53 36.0	53 36.0	0.035	0.0	LOS A	0.0	0.2	0.02	0.04	0.02	59.5
3	R2	All MCs	3 0.0	3 0.0	0.035	5.5	LOS A	0.0	0.2	0.02	0.04	0.02	56.7
Appro	ach		56 34.0	56 34.0	0.035	0.3	NA	0.0	0.2	0.02	0.04	0.02	59.3
East:	McDo	nalds Roa	ad										
4	L2	All MCs	1 0.0	1 0.0	0.002	5.7	LOS A	0.0	0.0	0.14	0.54	0.14	52.5
6	R2	All MCs	1 0.0	1 0.0	0.002	5.8	LOS A	0.0	0.0	0.14	0.54	0.14	52.3
Appro	ach		2 0.0	2 0.0	0.002	5.7	LOS A	0.0	0.0	0.14	0.54	0.14	52.4
North:	Burn	ett Highw	ay										
7	L2	All MCs	3 0.0	3 0.0	0.029	5.5	LOS A	0.0	0.0	0.00	0.04	0.00	56.9
8	T1	All MCs	42 40.0	42 40.0	0.029	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	59.4
Appro	ach		45 37.2	45 37.2	0.029	0.4	NA	0.0	0.0	0.00	0.04	0.00	59.2
All Ve	hicles		103 34.7	103 34.7	0.035	0.5	NA	0.0	0.2	0.01	0.05	0.01	59.1

Site Level of Service (LOS) Method: Delay (SIDRA). 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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V Site: 1 [PRE DEV 2024 AM Peak (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Burnett Highway / McDonalds Road Existing Intersection Configuration Site Category: Future Conditions 1 Give-Way (Two-Way)

Vehic	/ehicle Movement Performance												
Mov ID	Turn	Mov Class	Demand Flo <u>ws</u>	Arrival Flows	Deg. Sat <u>n</u>	Aver. Delay	Level of Servic <u>e</u>	95% E Qu	Back Of eue	Prop. Que	Eff. Stop	Aver. No. of	Aver. Speed
			[Total HV] veh/h %	[Total HV] veh/h %	v/c	sec		[Veh. veh	Dist] m		Rate	Cycles	km/h
South	: Burn	ett Highw	/ay										
2	T1	All MCs	54 37.3	54 37.3	0.034	0.0	LOS A	0.0	0.1	0.01	0.01	0.01	59.8
3	R2	All MCs	1 0.0	1 0.0	0.034	5.5	LOS A	0.0	0.1	0.01	0.01	0.01	57.0
Appro	ach		55 36.5	55 36.5	0.034	0.1	NA	0.0	0.1	0.01	0.01	0.01	59.8
East:	McDo	nalds Roa	ad										
4	L2	All MCs	3 0.0	3 0.0	0.005	5.7	LOS A	0.0	0.1	0.16	0.54	0.16	52.4
6	R2	All MCs	3 0.0	3 0.0	0.005	5.9	LOS A	0.0	0.1	0.16	0.54	0.16	52.2
Appro	ach		6 0.0	6 0.0	0.005	5.8	LOS A	0.0	0.1	0.16	0.54	0.16	52.3
North:	Burn	ett Highw	ay										
7	L2	All MCs	1 0.0	1 0.0	0.034	5.5	LOS A	0.0	0.0	0.00	0.01	0.00	57.3
8	T1	All MCs	53 40.0	53 40.0	0.034	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
Appro	ach		54 39.2	54 39.2	0.034	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
All Ve	hicles		115 35.8	115 35.8	0.034	0.4	NA	0.0	0.1	0.01	0.04	0.01	59.3

Site Level of Service (LOS) Method: Delay (SIDRA). 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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V Site: 1 [PRE DEV 2024 PM Peak (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Burnett Highway / McDonalds Road Existing Intersection Configuration Site Category: Future Conditions 1 Give-Way (Two-Way)

Vehic	/ehicle Movement Performance												
Mov	Turn	Mov	Demand	Arrival	Deg.	Aver.	Level of	95% B	ack Of	Prop.	Eff.	Aver.	Aver.
םו		Class	Flows	Flows	Satn	Delay	Service	Qu		Que	Stop	No. of	Speed
			veh/h %	veh/h %	v/c	sec		ven. veh	m Dist		Rate	Cycles	km/h
South	Burn	ett Highw	ay										
2	T1	All MCs	54 37.3	54 37.3	0.035	0.0	LOS A	0.0	0.2	0.02	0.03	0.02	59.5
3	R2	All MCs	3 0.0	3 0.0	0.035	5.5	LOS A	0.0	0.2	0.02	0.03	0.02	56.7
Appro	ach		57 35.2	57 35.2	0.035	0.3	NA	0.0	0.2	0.02	0.03	0.02	59.3
East: I	McDo	nalds Roa	ad										
4	L2	All MCs	1 0.0	1 0.0	0.002	5.7	LOS A	0.0	0.0	0.15	0.54	0.15	52.5
6	R2	All MCs	1 0.0	1 0.0	0.002	5.8	LOS A	0.0	0.0	0.15	0.54	0.15	52.2
Appro	ach		2 0.0	2 0.0	0.002	5.7	LOS A	0.0	0.0	0.15	0.54	0.15	52.4
North:	Burn	ett Highw	ay										
7	L2	All MCs	3 0.0	3 0.0	0.029	5.5	LOS A	0.0	0.0	0.00	0.04	0.00	56.9
8	T1	All MCs	43 39.0	43 39.0	0.029	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	59.4
Appro	ach		46 36.4	46 36.4	0.029	0.4	NA	0.0	0.0	0.00	0.04	0.00	59.2
All Vel	nicles		105 35.0	105 35.0	0.035	0.5	NA	0.0	0.2	0.01	0.05	0.01	59.1

Site Level of Service (LOS) Method: Delay (SIDRA). 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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V Site: 1 [IN CONST 2024 AM Peak (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Burnett Highway / McDonalds Road Existing Intersection Configuration Site Category: Future Conditions 2 Give-Way (Two-Way)

Vehic	ehicle Movement Performance												
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h %	Arrival Flows [Total HV] veh/h %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% B Qu [Veh. veh	Back Of eue Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South	: Burn	ett Highw	/ay										
2	T1	All MCs	54 37.3	54 37.3	0.090	0.0	LOS A	0.4	3.3	0.17	0.38	0.17	55.7
3	R2	All MCs	98 3.2	98 3.2	0.090	5.8	LOS A	0.4	3.3	0.17	0.38	0.17	53.2
Appro	ach		152 15.3	152 15.3	0.090	3.8	NA	0.4	3.3	0.17	0.38	0.17	54.0
East:	McDo	nalds Ro	ad										
4	L2	All MCs	6 50.0	6 50.0	0.018	6.4	LOS A	0.1	0.6	0.23	0.55	0.23	50.2
6	R2	All MCs	9 66.7	9 66.7	0.018	7.8	LOS A	0.1	0.6	0.23	0.55	0.23	49.2
Appro	ach		16 60.0	16 60.0	0.018	7.2	LOS A	0.1	0.6	0.23	0.55	0.23	49.6
North:	Burn	ett Highw	ay										
7	L2	All MCs	7 85.7	7 85.7	0.040	6.5	LOS A	0.0	0.0	0.00	0.07	0.00	53.4
8	T1	All MCs	53 40.0	53 40.0	0.040	0.0	LOS A	0.0	0.0	0.00	0.07	0.00	59.8
Appro	ach		60 45.6	60 45.6	0.040	0.8	NA	0.0	0.0	0.00	0.07	0.00	58.9
All Ve	hicles		227 26.4	227 26.4	0.090	3.2	NA	0.4	3.3	0.13	0.31	0.13	54.9

Site Level of Service (LOS) Method: Delay (SIDRA). 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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V Site: 1 [IN CONST 2024 PM Peak (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Burnett Highway / McDonalds Road Existing Intersection Configuration Site Category: Future Conditions 2 Give-Way (Two-Way)

Vehic	ehicle Movement Performance												
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h <u>%</u>	Arrival Flows [Total HV] veh/h <u>%</u>	Deg. Satn v/ <u>c</u>	Aver. Delay se <u>c</u>	Level of Service	95% B Qu [Veh. veh	ack Of eue Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/ <u>h</u>
South	Burn	ett Highw	/ay										
2	T1	All MCs	54 37.3	54 37.3	0.039	0.0	LOS A	0.0	0.5	0.04	0.07	0.04	59.4
3	R2	All MCs	6 50.0	6 50.0	0.039	6.6	LOS A	0.0	0.5	0.04	0.07	0.04	54.2
Appro	ach		60 38.6	60 38.6	0.039	0.7	NA	0.0	0.5	0.04	0.07	0.04	58.8
East:	McDo	nalds Ro	ad										
4	L2	All MCs	98 3.2	98 3.2	0.073	5.7	LOS A	0.3	2.2	0.14	0.54	0.14	52.3
6	R2	All MCs	7 85.7	7 85.7	0.073	7.5	LOS A	0.3	2.2	0.14	0.54	0.14	48.7
Appro	ach		105 9.0	105 9.0	0.073	5.9	LOS A	0.3	2.2	0.14	0.54	0.14	52.1
North:	Burn	ett Highw	ay										
7	L2	All MCs	9 66.7	9 66.7	0.035	6.3	LOS A	0.0	0.0	0.00	0.10	0.00	53.9
8	T1	All MCs	43 39.0	43 39.0	0.035	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	59.4
Appro	ach		53 44.0	53 44.0	0.035	1.1	NA	0.0	0.0	0.00	0.10	0.00	58.3
All Ve	nicles		218 25.6	218 25.6	0.073	3.3	NA	0.3	2.2	0.08	0.31	0.08	55.2

Site Level of Service (LOS) Method: Delay (SIDRA). 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 – Bruce Highway / South Ulam Road Intersection

V Site: 2 [EXISTING 2023 AM Peak (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Bruce Highway / South Ulam Road Exisitng Intersection Configuration Site Category: Base Year Give-Way (Two-Way)

Vehic	Vehicle Movement Performance												
Mov	Turn	Mov	Demand	Arrival	Deg.	Aver.	Level of	95% B	ack Of	Prop.	Eff.	Aver.	Aver.
טו		Class	FIOWS	FIOWS	Sath	Delay	Service	Qu [\/eh	eue Dist 1	Que	Stop Rate	NO. OT	Speed
			veh/h %	veh/h %	v/c	sec		veh	m		nate	Cycles	km/h
South	: Bruc	e Highwa	ıy										
1	L2	All MCs	4 0.0	4 0.0	0.002	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	52.9
2	T1	All MCs	193 28.4	193 28.4	0.116	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Appro	ach		197 27.8	197 27.8	0.116	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
North:	Bruc	e Highwa	у										
8	T1	All MCs	273 26.3	273 26.3	0.162	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	3 0.0	3 0.0	0.003	6.4	LOS A	0.0	0.1	0.31	0.53	0.31	51.9
Appro	ach		276 26.0	276 26.0	0.162	0.1	NA	0.0	0.1	0.00	0.01	0.00	59.8
West:	South	ulam Ro	bad										
10	L2	All MCs	3 0.0	3 0.0	0.019	6.4	LOS A	0.1	0.5	0.50	0.63	0.50	49.9
12	R2	All MCs	7 14.3	7 14.3	0.019	11.2	LOS B	0.1	0.5	0.50	0.63	0.50	49.6
Appro	ach		11 10.0	11 10.0	0.019	9.8	LOS A	0.1	0.5	0.50	0.63	0.50	49.7
All Ve	hicles		483 26.4	483 26.4	0.162	0.3	NA	0.1	0.5	0.01	0.02	0.01	59.5

Site Level of Service (LOS) Method: Delay (SIDRA). 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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V Site: 2 [EXISTING 2023 PM Peak (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Bruce Highway / South Ulam Road Exisitng Intersection Configuration Site Category: Base Year Give-Way (Two-Way)

Vehic	/ehicle Movement Performance												
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h %	Arrival Flows [Total HV] veh/h %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% B Qu [Veh. veh	Back Of eue Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South	: Bruc	e Highwa	iy										
1	L2	All MCs	7 14.3	7 14.3	0.004	5.7	LOS A	0.0	0.0	0.00	0.57	0.00	52.3
2	T1	All MCs	252 28.5	252 28.5	0.151	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Appro	ach		259 28.0	259 28.0	0.151	0.2	NA	0.0	0.0	0.00	0.02	0.00	59.7
North:	Bruce	e Highwa	у										
8	T1	All MCs	221 26.2	221 26.2	0.131	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	4 0.0	4 0.0	0.004	6.7	LOS A	0.0	0.1	0.36	0.55	0.36	51.8
Appro	ach		225 25.7	225 25.7	0.131	0.2	NA	0.0	0.1	0.01	0.01	0.01	59.8
West:	South	n Ulam Re	bad										
10	L2	All MCs	9 11.1	9 11.1	0.035	7.0	LOS A	0.1	0.9	0.49	0.65	0.49	49.9
12	R2	All MCs	12 9.1	12 9.1	0.035	11.0	LOS B	0.1	0.9	0.49	0.65	0.49	50.2
Appro	ach		21 10.0	21 10.0	0.035	9.2	LOS A	0.1	0.9	0.49	0.65	0.49	50.1
All Ve	hicles		505 26.3	505 26.3	0.151	0.6	NA	0.1	0.9	0.02	0.04	0.02	59.2

Site Level of Service (LOS) Method: Delay (SIDRA). 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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V Site: 2 [PRE DEV 2024 AM Peak (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Bruce Highway / South Ulam Road Exisitng Intersection Configuration Site Category: Base Year Give-Way (Two-Way)

Vehic	Vehicle Movement Performance												
Mov	Turn	Mov	Demand	Arrival	Deg.	Aver.	Level of	95% B	ack Of	Prop.	Eff.	Aver.	Aver.
ם ן		Class	FIOWS	FIOWS	Sath	Delay	Service	Qu [\/ob	eue Dict 1	Que	Stop	NO. OT	Speed
			veh/h %	veh/h %	v/c	sec		veh	m		Trate	Cycles	km/h
South	: Bruc	e Highwa	ıy										
1	L2	All MCs	4 0.0	4 0.0	0.002	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	52.9
2	T1	All MCs	197 28.3	197 28.3	0.118	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Appro	ach		201 27.7	201 27.7	0.118	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
North:	Bruc	e Highwa	у										
8	T1	All MCs	278 26.1	278 26.1	0.165	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	3 0.0	3 0.0	0.003	6.4	LOS A	0.0	0.1	0.32	0.53	0.32	51.9
Appro	ach		281 25.8	281 25.8	0.165	0.1	NA	0.0	0.1	0.00	0.01	0.00	59.8
West:	South	ulam Ro	bad										
10	L2	All MCs	3 0.0	3 0.0	0.019	6.4	LOS A	0.1	0.5	0.51	0.63	0.51	49.9
12	R2	All MCs	7 14.3	7 14.3	0.019	11.4	LOS B	0.1	0.5	0.51	0.63	0.51	49.5
Appro	ach		11 10.0	11 10.0	0.019	9.9	LOS A	0.1	0.5	0.51	0.63	0.51	49.6
All Ve	hicles		493 26.3	493 26.3	0.165	0.3	NA	0.1	0.5	0.01	0.02	0.01	59.5

Site Level of Service (LOS) Method: Delay (SIDRA). 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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V Site: 2 [PRE DEV 2024 PM Peak (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Bruce Highway / South Ulam Road Exisitng Intersection Configuration Site Category: Base Year Give-Way (Two-Way)

Vehic	Vehicle Movement Performance												
Mov	Turn	Mov	Demand	Arrival	Deg.	Aver.	Level of	95% B	ack Of	Prop.	Eff.	Aver.	Aver.
ID		Class			Satn	Delay	Service	Que L Voh	eue Dict 1	Que	Stop	No. of	Speed
			veh/h %	veh/h %	v/c	sec		veh	m m		Nale	Cycles	km/h
South	: Bruc	e Highwa	ıy										
1	L2	All MCs	7 14.3	7 14.3	0.004	5.7	LOS A	0.0	0.0	0.00	0.57	0.00	52.3
2	T1	All MCs	257 28.3	257 28.3	0.154	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Appro	ach		264 27.9	264 27.9	0.154	0.2	NA	0.0	0.0	0.00	0.02	0.00	59.7
North:	Bruc	e Highwa	у										
8	T1	All MCs	226 26.0	226 26.0	0.134	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	4 0.0	4 0.0	0.004	6.7	LOS A	0.0	0.1	0.37	0.55	0.37	51.8
Appro	ach		231 25.6	231 25.6	0.134	0.2	NA	0.0	0.1	0.01	0.01	0.01	59.8
West:	South	ulam Ro	bad										
10	L2	All MCs	9 11.1	9 11.1	0.035	7.1	LOS A	0.1	0.9	0.50	0.66	0.50	49.8
12	R2	All MCs	12 9.1	12 9.1	0.035	11.2	LOS B	0.1	0.9	0.50	0.66	0.50	50.1
Appro	ach		21 10.0	21 10.0	0.035	9.3	LOS A	0.1	0.9	0.50	0.66	0.50	50.0
All Ve	hicles		516 26.1	516 26.1	0.154	0.6	NA	0.1	0.9	0.02	0.04	0.02	59.2

Site Level of Service (LOS) Method: Delay (SIDRA). 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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V Site: 2 [IN CONST 2024 AM Peak (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Bruce Highway / South Ulam Road Exisitng Intersection Configuration Site Category: Base Year Give-Way (Two-Way)

Vehic	/ehicle Movement Performance												
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h %	Arrival Flows [Total HV] veh/h %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% B Qu [Veh. veh	ack Of eue Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South	: Bruc	e Highwa	ay										
1	L2	All MCs	4 0.0	4 0.0	0.002	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	52.9
2	T1	All MCs	197 28.3	197 28.3	0.118	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Appro	ach		201 27.7	201 27.7	0.118	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
North:	Bruc	e Highwa	у										
8	T1	All MCs	278 26.1	278 26.1	0.165	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	20 5.3	20 5.3	0.018	6.5	LOS A	0.1	0.5	0.32	0.56	0.32	51.7
Appro	ach		298 24.7	298 24.7	0.165	0.5	NA	0.1	0.5	0.02	0.04	0.02	59.3
West:	South	n Ulam R	oad										
10	L2	All MCs	4 25.0	4 25.0	0.021	7.0	LOS A	0.1	0.6	0.50	0.63	0.50	49.0
12	R2	All MCs	7 14.3	7 14.3	0.021	11.7	LOS B	0.1	0.6	0.50	0.63	0.50	49.6
Appro	ach		12 18.2	12 18.2	0.021	10.0	LOS A	0.1	0.6	0.50	0.63	0.50	49.3
All Ve	hicles		511 25.8	511 25.8	0.165	0.6	NA	0.1	0.6	0.02	0.04	0.02	59.2

Site Level of Service (LOS) Method: Delay (SIDRA). 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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V Site: 2 [IN CONST 2024 PM Peak (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Bruce Highway / South Ulam Road Exisitng Intersection Configuration Site Category: Base Year Give-Way (Two-Way)

Vehic	Vehicle Movement Performance												
Mov	Turn	Mov	Demand	Arrival	Deg.	Aver.	Level of	95% B	ack Of	Prop.	Eff.	Aver.	Aver.
ID		Class			Satn	Delay	Service	Qu [\/ob		Que	Stop	No. of	Speed
			veh/h %	veh/h %	v/c	sec		veh	m		Nale	Cycles	km/h
South	: Bruc	e Highwa	ay										
1	L2	All MCs	7 14.3	7 14.3	0.004	5.7	LOS A	0.0	0.0	0.00	0.57	0.00	52.3
2	T1	All MCs	257 28.3	257 28.3	0.154	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Appro	ach		264 27.9	264 27.9	0.154	0.2	NA	0.0	0.0	0.00	0.02	0.00	59.7
North:	Bruc	e Highwa	у										
8	T1	All MCs	226 26.0	226 26.0	0.134	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	5 20.0	5 20.0	0.006	7.3	LOS A	0.0	0.2	0.39	0.56	0.39	50.9
Appro	ach		232 25.9	232 25.9	0.134	0.2	NA	0.0	0.2	0.01	0.01	0.01	59.7
West:	South	n Ulam Ro	bad										
10	L2	All MCs	26 8.0	26 8.0	0.053	7.0	LOS A	0.2	1.4	0.45	0.64	0.45	50.6
12	R2	All MCs	12 9.1	12 9.1	0.053	11.4	LOS B	0.2	1.4	0.45	0.64	0.45	50.8
Appro	ach		38 8.3	38 8.3	0.053	8.3	LOS A	0.2	1.4	0.45	0.64	0.45	50.7
All Ve	hicles		534 25.6	534 25.6	0.154	0.8	NA	0.2	1.4	0.04	0.06	0.04	58.9

Site Level of Service (LOS) Method: Delay (SIDRA). 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 G – Plan of Development



Image Source: ESRI Basemap (2021) Data source: QLD Spatial (2021) NB: Layout is Indicative Only



Appendix H – Project Traffic Volumes and Impact Calculations



UMW0123-001 | Mount Hopeful Wind Farm Site Properties

Site Components

Element	Qty	Unit
Number of Turbines	63	ea
Length of Access Tracks	91,320	m
Length of McDonalds Road (Site Access) Upgrade	5,720	m
Length of Playfields Road (Site Access) Upgrade	19,420	m
Length Access Track Eastern Substation	1,800	m
Average Width of McDonalds Road Section to Upgrade	5	m
Average Width of Playfields Road Section to Upgrade	5	m
Number of Substation & Battery Storage Areas (Eastern)	1	ea
Number of Substation Areas (Internal)	2	ea
Number of Turbine Construction Laydown Areas	63	ea
Number of Site Laydown Areas (Internal x3)	3	ea
Number of Site Batch Plant Areas (Internal x3)	3	ea
Number of Site Construction Compound Areas (Internal x1)	1	ea
Number of Site Entrance Areas (Internal x1)	1	ea
Number of Site Operational and Maintenance Facility Areas	1	ea
Number of Meteorology Masts	10	ea
Length of Underground Powerline Cable (Assume same as Internal Access Track)	91,320	m
Length of Overhead Powerline Cable (Main Site)	8,559	m
Length of Overhead Powerline Cable (Eastern Substation)	5,089	m
Water	126	ML
% of Gravel Materials Sourced Onsite	0%	%
% of Gravel Materials Imported	100%	%
% of Water Sourced Onsite	0%	%
% of Water Imported	100%	%
% of Bedding Sand (Electrical) Sourced Onsite	0%	%
% of Bedding Sand (Electrical) Imported	100%	%

Site Areas (Each Area)

Element	Number Sites	Total Hardstand Area	Unit	% Gravel	Gravel Area	% Concrete	Concrete Area	Unit
Substation & Battery Storage Area (Eastern - via South Ulam Road)	1	20,000	m2	90%	18,000	10%	2,000	m2
Substation Area (Internal - x2 sites)	2	27,500	m2	90%	24,750	10%	2,750	m2
Turbine Hardstands	63	6,500	m2	100%	409,500			
Laydown Area (Internal - x3 sites)	3	30,000	m2	100%	30,000			
Batch Plant Area (Internal - x3 sites)	3	30,000	m2	90%	27,000	10%	3,000	m2
Site Construction Compound Area (Internal x1)	1	15,000	m2	90%	13,500	10%	1,500	m2
Site Entrance Area (Internal x1)	1	2,500	m2	100%	2,500			
Operational and Maintenance Facility (Internal x1)	1	5,000	m2	90%	4,500	10%	500	m2

Concrete Composition

Element	Composition	Unit
Cement	15%	%
Aggregates	75%	%
Steel	5%	%
Water	5%	%
Total	100%	%

Material Assumptions

Element	Qty	Unit
Access Track Width	5.5	m
Access Track Pavement Depth	0.2	m
External Road Upgrade Width	6.5	m
External Road Upgrade (Existing Road) Depth	0.1	m
External Road Upgrade (Widening) Depth	0.2	m
Substation & Battery Storage Area (East) Concrete Depth	0.2	m
Substation (Internal) Concrete Depth	0.2	m
Batch Plant Area (Internal) Concrete Depth	0.2	m
Site Construction Compound Area (Internal) Concrete Depth	0.2	m
O&M Facility (Internal) Concrete Depth	0.2	m
Substation (East) Area Gravel Depth	0.2	m
Substation (Internal) Area Gravel Depth	0.2	m
Turbine Hardstands Area Gravel Depth	0.2	m
Laydown Area Gravel Depth	0.2	m
Batch Plant Area Gravel Depth	0.2	m
Site Construction Compound Area Gravel Depth	0.2	m
Site Entrance Area Gravel Depth	0.2	m
Operational and Maintenance Facility Gravel Depth	0.2	m
Concrete Sand/Aggregates Mass	1.8	t/m3
Concrete Cement Mass	1.51	t/m3
Concrete Steel Mass	7.8	t/m3
Concrete Water Mass	1	t/m3
Wet Concrete Mass	2.5	t/m3
Power Line Length per Roll / Drum	250	m
Power Line Mass per Roll / Drum	2.925	tonnes
Spacing Overhead Powerline Poles	50.0	m
Underground Powerline Trench Width	0.4	m
Underground Powerline Bedding Sand Depth	0.3	m

Movements Site Component Vehicle Movements

Element	Task	Qty per Turbine	Unit	Site Qty	Site Transport Oty	Vehicle Type	Vehicle Capacity	Movements
Concrete Volume in Turbine Footings	E	750	m3	47,250				
Concrete Aggregates for Turbine Footings	E	563	m3	35,438	35,438	Truck & Dog Trailer	14.7	2,407
Reinforcing Steel for Turbine Footings	E	38	m3	2,363	2,363	Semi	3.4	695
Other Concrete Supplies for Turbine Footings	E	113	m3	7,088	7,088	Semi	17.5	404
Wet Concrete for Turbine Footings (Internal)	E	1,875	tonnes	118,125	118,125	Concrete Truck	14.4	8,203
Turbine Blades	F	3	each	189	189	Special	1	189
Turbine Nacelles	F	1	each	63	63	Special	1	63
Turbine Drive Trains	F	1	each	63	63	Special	1	63
Turbine Hubs	F	1	each	63	63	Special	1	63
Tower Sections	F	7	each	441	441	Special	1	441
Escorting LV	F	26	each	1,638	1,638	LV	1	1,638
Site Turbine Crane & Secondary Crane (mobilise)	G			10	10	Special	1	10
Meteorology masts	F			10	10	Special	1	10
Mobilisation (Buildings / EW Plant)	A			100	100	Semi / Low Loader	1	100
							Total	14,286

Met Mast Footings

Element	Task	Qty per Met Mast	Unit	Site Qty	Site Transport Oty	Vehicle Type	Vehicle Capacity	Movements
Concrete Volume in Met Mast Footings	E	25	m3	250				
Concrete Aggregates for Met Mast Footings	E	18.75	m3	188	188	Truck & Dog Trailer	14.7	13
Reinforcing Steel for Met Mast Footings	E	1.25	m3	13	13	Semi	3.4	4
Other Concrete Supplies for Met Mast Footings	E	3.75	m3	38	38	Semi	17.5	3
Wet Concrete for Met Mast Footings (Internal)	E	62.5	tonnes	625	625	Concrete Truck	14.4	44
							Total	64

Additional Material / Component Quantities								
Element	Task	Qty per Area	Unit	Site Qty	Site Transport Qty	Vehicle Type	Vehicle Capacity	Movements
Substation & Battery Storage Area (East) Establishment	С	50	each	50	50	Semi	1	50
Substation Areas (Internal) Establishment	С	50	each	100	100	Semi	1	100
Batch Plant Areas (Internal) Establishment	С	25	each	75	75	Semi	1	75
Construction Compound Area (Internal) Establishment	С	50	each	50	50	Semi	1	50
Site Entry Area (Internal) Establishment	С	20	each	20	20	Semi	1	20
Operational and Maintenance Facility Area (Internal) Establishment	С	25	each	25	25	Semi	1	25
				•			Total	320

Demobilisation							J	
Element	Task	Qty per Unit	Unit	Site Qty	Site Transport Qty	Vehicle Type	Vehicle Capacity	Movements
Batch Plant Areas (Internal) Decommissioning	н	25	each	75	75	Semi	1	75
Construction Compound Area (Internal) Decommissioning	Н	50	each	50	50	Semi	1	50
Site Entry Area (Internal) Decommissioning	Н	20	each	20	20	Semi	1	20
General Demobilisation (Buildings / EW Plant)	н			100	100	Semi	1	100
							Total	245

Construction Materials

Element	Task	Qty per Unit	Unit	Volume (m3)	Site Qty (tonnes)	Site Transport Oty	Vehicle Type	Vehicle Capacity (tonnes)	Movements
Substation & Battery Storage Area (East) Slab Concrete	С	2.5	t/m3	400	1,000	1,000	Concrete Truck	14.4	70
Substation & Battery Storage Area (East) Reinforcing Steel	С	7.8	t/m3	20	156	156	Semi	26.5	6
Substation Areas (Internal) Slab Concrete Aggregates	С	1.8	t/m3	413	743	743	Truck & Dog Trailer	36	21
Substation Areas (Internal) Portland Cement	С	1.51	t/m3	83	125	125	Semi	26.5	5
Substation Areas (Internal) Reinforcing Steel	С	7.8	t/m3	28	215	215	Semi	26.5	9
Substation Areas (Internal) Water	С	1	t/m3	28	28	28	Semi Water Truck	26.5	2
Internal Access Tracks Gravel Pavement Materials	В	1.8	t/m3	100,452	180,814	180,814	Truck & Dog Trailer	36	5,023
Access Intersection Pavement (TMR) Materials	В	1.8	t/m3	1,000	1,800	1,800	Truck & Dog Trailer	36	50
Access Track Eastern (Substation) Gravel Pavement Materials	В	1.8	t/m3	1,980	3,564	3,564	Truck & Dog Trailer	36	99
External Road Upgrade (McDonalds Road) Gravel Pavement	В	1.8	t/m3	4,576	8,237	8,237	Truck & Dog Trailer	36	229
External Road Upgrade (Playfields Road) Gravel Pavement	В	1.8	t/m3	15,536	27,965	27,965	Truck & Dog Trailer	36	777
Batch Plant Areas (Internal) Slab Concrete Aggregates	С	1.8	t/m3	450	810	810	Truck & Dog Trailer	36	23
Batch Plant Areas (Internal) Portland Cement	С	1.51	t/m3	90	136	136	Semi	26.5	6
Batch Plant Areas (Internal) Reinforcing Steel	С	7.8	t/m3	30	234	234	Semi	26.5	9
Batch Plant Areas (Internal) Water	С	1	t/m3	30	30	30	Semi Water Truck	26.5	2
Site Construction Compound (Internal) Slab Concrete Aggregates	С	1.8	t/m3	225	405	405	Truck & Dog Trailer	36	12
Site Construction Compound (Internal) Portland Cement	С	1.51	t/m3	45	68	68	Semi	26.5	3
Site Construction Compound (Internal) Reinforcing Steel	С	7.8	t/m3	15	117	117	Semi	26.5	5
Site Construction Compound (Internal) Water	С	1	t/m3	15	15	15	Semi Water Truck	26.5	1
O&M Facility Area (Internal) Slab Concrete Aggregates	С	1.8	t/m3	75	135	135	Truck & Dog Trailer	36	4
O&M Facility Area (Internal) Portland Cement	С	1.51	t/m3	15	23	23	Semi	26.5	1
O&M Facility Area (Internal) Reinforcing Steel	С	7.8	t/m3	5	39	39	Semi	26.5	2
O&M Facility Area (Internal) Water	С	1	t/m3	5	5	5	Semi Water Truck	26.5	1
Substation & Battery Storage Area (East) Gravel	С	1.8	t/m3	3,600	6,480	6,480	Truck & Dog Trailer	36	180
Substation Areas (Internal) Gravel	С	1.8	t/m4	4,950	8,910	8,910	Truck & Dog Trailer	36	248
Turbine Hardstand Areas (Internal) Gravel	С	1.8	t/m3	81,900	147,420	147,420	Truck & Dog Trailer	36	4,095
Laydown Areas (Internal) Gravel	С	1.8	t/m3	6,000	10,800	10,800	Truck & Dog Trailer	36	300
Batch Plant Areas (Internal) Gravel	С	1.8	t/m3	5,400	9,720	9,720	Truck & Dog Trailer	36	270
Construction Compound Area (Internal) Gravel	С	1.8	t/m3	2,700	4,860	4,860	Truck & Dog Trailer	36	135
Site Entry Area (Internal) Gravel	С	1.8	t/m3	500	900	900	Truck & Dog Trailer	36	25
Site Camp Facilitiy (Internal) Gravel)	С	1.8	t/m3	0	0	0	Truck & Dog Trailer	36	0
O&M Facility Area (Internal) Gravel	С	1.8	t/m3	900	1,620	1,620	Truck & Dog Trailer	36	45
Underground Powerline Cable (Main Site)	D		tonnes		1,068	1,068	Semi	26.5	41
Underground Powerline Bedding Sand (Main Site)	D	1.8	t/m3	10,958	19,725	19,725	Truck & Dog Trailer	36	548
Overheads Powerline Cable (Main Site)	D		tonnes		401	401	Semi	26.5	16
Overheads Powerline Poles (Main Site)	D				171	171	Semi	25	7
Overheads Powerline Cable (Eastern Substation)	D		tonnes		238	238	Semi	26.5	9
Overheads Powerline Poles (Eastern Substation)	D				102	102	Semi	25	5
Site Water - Overall	W	1	t/m3	126,000	126,000	126,000	Semi Water Truck	26.5	4,755
Site Fuel - Overall	F	0.85	t/m3	7,500	6,375	6,375	Semi Tanker	26.5	241
								Total	17,280



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TASK A - SITE MOBILISTATION

Mobilisation (Buildings / EW Plant)	100	Semi / Low Loader	Gladstone
Task Transport Duration	1	month	
Biloela to Site Access	100	overall	
Trips per month	100		
Max Trips per day	5		

TASK B - ACCESS ROADS & SITE ENTRANCES

Internal Access Tracks Gravel Pavement Materials	5,023	Truck & Dog Trailer	QMQ Quarry
Access Intersection Pavement (TMR) Materials	50	Truck & Dog Trailer	QMQ Quarry
Access Track (Substation East) Gravel Pavement Materials	99	Truck & Dog Trailer	Hopkins Quarry Midgee
Road Upgrade (McDonalds / Playfields) Gravel Pavement	1,006	Truck & Dog Trailer	QMQ Quarry
Task Transport Duration (Internal Access Tracks)	9	months	
Task Transport Duration (Access Intersection)	1	month	
Task Transport Duration (Eastern Substation)	1	month	
Task Transport Duration (McDonalds / Playfield Upgrade)	6	months	
QMQ Quarry to Site Access (McDonalds / Playfields)	6,079	overall	
Trips per month	776		
Max Trips per day	33		
Hopkins Quarry Midgee to Eastern Substation Access	99	overall	
Trips per month	99		
Max Trips per day	5		

TASK C - SUBSTATION AND SITE AREAS

Substation & Battery Storage Area (East) Establishment	50	Semi	Rockhampton
Substation Areas (Internal) Establishment	100	Semi	Gladstone
Batch Plant Areas (Internal) Establishment	75	Semi	Gladstone
Construction Compound Area (Internal) Establishment	50	Semi	Gladstone
Site Entry Area (Internal) Establishment	20	Semi	Gladstone
Operational and Maintenance Facility Area (Internal) Establishment	25	Semi	Gladstone
Substation & Battery Storage Area (East) Slab Concrete	70	Concrete Truck	Rockhampton
Substation & Battery Storage Area (East) Gravel	180	Truck & Dog Trailer	Hopkins Quarry
Substation & Battery Storage Area (East) Reinforcing Steel	6	Semi	Rockhampton
Substation Areas (Internal) Slab Concrete Aggregates	21	Truck & Dog Trailer	QMQ Quarry
Substation Areas (Internal) Portland Cement	5	Semi	Biloela
Substation Areas (Internal) Reinforcing Steel	9	Semi	Biloela
Substation Areas (Internal) Water	2	Semi Water Truck	Biloela
Batch Plant Areas (Internal) Slab Concrete Aggregates	23	Truck & Dog Trailer	QMQ Quarry
Batch Plant Areas (Internal) Portland Cement	6	Semi	Biloela
Batch Plant Areas (Internal) Reinforcing Steel	9	Semi	Biloela
Batch Plant Areas (Internal) Water	2	Semi Water Truck	Biloela
Site Construction Compound (Internal) Slab Concrete Aggregates	12	Truck & Dog Trailer	QMQ Quarry
Site Construction Compound (Internal) Portland Cement	3	Semi	Biloela
Site Construction Compound (Internal) Reinforcing Steel	5	Semi	Biloela
Site Construction Compound (Internal) Water	1	Semi Water Truck	Biloela
O&M Facility Area (Internal) Slab Concrete Aggregates	4	Truck & Dog Trailer	QMQ Quarry
O&M Facility Area (Internal) Portland Cement	1	Semi	Biloela
O&M Facility Area (Internal) Reinforcing Steel	2	Semi	Biloela
O&M Facility Area (Internal) Water	1	Semi Water Truck	Biloela
Substation Areas (Internal) Gravel	248	Truck & Dog Trailer	QMQ Quarry
Turbine Hardstand Areas (Internal) Gravel	4,095	Truck & Dog Trailer	QMQ Quarry
Laydown Areas (Internal) Gravel	300	Truck & Dog Trailer	QMQ Quarry
Batch Plant Areas (Internal) Gravel	270	Truck & Dog Trailer	QMQ Quarry
Construction Compound Area (Internal) Gravel	135	Truck & Dog Trailer	QMQ Quarry
Site Entry Area (Internal) Gravel	25	Truck & Dog Trailer	QMQ Quarry
Task Transport Duration	9	months	
Task Transport Duration (Eastern Substation)	3	months	
Rockhampton to Eastern Substation Site Access	126		
Trips per month	42		
Max Trips per day	2		
Hopkins Midgee Quarry to Eastern Substation Site Access	180		
Trips per month	60		
Max Trips per day	3		
QMQ Quarry to Site Access (McDonalds / Playfields)	5,133		
Trips per month	571		
Max Trips per day	24		
Gladstone to Site Access	270		
Trips per month	30		
Max Trips per day	2		
Biloela to Site Access	316		
Trips per month	35		
Max Trips per day	2		

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TASK D - CABLING

		1	
Underground Powerline Cable (Main Site)	41	Semi	Gladstone
Underground Powerline Bedding Sand (Main Site)	548	Truck & Dog Trailer	QMQ Quarry
Overheads Powerline Cable (Main Site)	16	Semi	Gladstone
Overheads Powerline Poles (Main Site)	7	Semi	Gladstone
Overheads Powerline Cable (Eastern Substation)	9	Semi	Rockhampton
Overheads Powerline Poles (Eastern Substation)	5	Semi	Rockhampton
Task Transport Duration	8	months	
Task Transport Duration (Eastern Substation)	4	months	
Rockhampton to Eastern Substation Access	14		
Trips per month	4		
Max Trips per day	1		
Gladstone to Site Access	64		
Trips per month	8		
Max Trips per day	1		
QMQ Quarry to Site Access (McDonalds / Playfields)	548		
Trips per month	69		
Max Trips per day	3		
TASK E - TURBINE FOUNDATIONS			
Concrete Aggregates for Turbine Footings	2,407	Truck & Dog Trailer	QMQ Quarry
Reinforcing Steel for Turbine Footings	695	Semi	Biloela
Other Concrete Supplies for Turbine Footings	404	Semi	Biloela
Wet Concrete for Turbine Footings (Internal)	8,203	Concrete Truck	Internal
Concrete Aggregates for Met Mast Footings	13	Truck & Dog Trailer	QMQ Quarry
Reinforcing Steel for Met Mast Footings	4	Semi	Biloela
Other Concrete Supplies for Met Mast Footings	3	Semi	Biloela
Wet Concrete for Met Mast Footings (Internal)	44	Concrete Truck	Internal
Task Transport Duration	11	months	
Biloela to Site Access	1106		

101 **5** 2,420 Trips per month Max Trips per day QMQ Quarry to Site Access Trips per month Max Trips per day 220 10

TASK F - TURBINE TRANSPORTATION

Turbine Blades	189	Special	Gladstone
Turbine Nacelles	63	Special	Gladstone
Turbine Drive Trains	63	Special	Gladstone
Turbine Hubs	63	Special	Gladstone
Tower Sections	441	Special	Gladstone
Escorting LV	1,638	LV	Gladstone
Meteorology masts	10	Special	Gladstone
One of Each Turbine Component per Day			
LVs escort per component	2		
Vehicles per component	3		
Working days per week	6		
Components per day	5		
Max Components per day	5		
Max vehicles per day	15		

Max vehicles per day	
Max Components per day	
Components per day	
Working days per week	
Vehicles per component	
LVs escort per component	

TASK G - TURBINE ERECTION

Max trips per day	2		
Gladstone to Site Access	10		
Task Transport Duration	5	days	
Site Turbine Crane & Secondary Crane (mobilise)	10	Special	Gladstone

TASK H - FINALISATION / COMMISSIONING / DEMOBILISATION

Batch Plant Areas (Internal) Decommissioning		75	Semi	Gladstone
Construction Compound Area (Internal) Decomm	missioning	50	Semi	Gladstone
Site Entry Area (Internal) Decommissioning		20	Semi	Gladstone
General Demobilisation (Buildings / EW Plant)		100	Semi	Gladstone
Task Transport Duration		3	months	
Gladstone to Site Access		245		
	Trips per month	82		
	Max Trips per day	4		
SITE WATER				
Task Transport Duration		21	months	
Site Water - Overall		4,755	Semi Water Truck	Biloela
Biloela to Site Access		4,755	veh	
	Trips per month	226		
	Max Trips per day	10		
SITE FUEL				
Task Transport Duration		21	months	
Site Fuel - Overall		241	Semi Tanker	Biloela
Biloela to Site Access		241	veh	
	Trips per month	11		
	Max Trips per day	1		

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Project Staff Movements

Project Timeframe

Element	Qty	Unit
Hours per day	12	hrs
Working days per week	6	days
Working days per month	24	days
Expected project length	22	months

Construction Workforce

Element	Max Staff	Unit
Peak Workforce - Main Site	450	staff
Peak Workforce - Eastern Substation Site	50	staff

Construction Workforce Distribution - Main Site

Location	Distribution	Unlt	Qty	Vehicle Type	% Vehicle	Staff No. per Vehicle Type	Average Vehicle Capacity	Movements Round Trip (per day)
Less (Dilacia) External	100%	0/	450	LV	30%	135	2	68
Local (bildela) - External	100%	70	450	Bus	70%	315	15	21
							Total	89

Construction Workforce Distribution - Eastern Substation Site

Location	Distribution	Unlt	Qty	Vehicle Type	% Vehicle	Staff No. per Vehicle Type	Average Vehicle Capacity	Movements Round Trip (per day)
Deel/hometee	100%	0/	FO	LV	50%	25	2	13
ROCKHAINPTON	100%	70	50	Bus	50%	25	15	2
							Total	15

Operations

Element	Qty	Unit
Hours per day	12	hrs
Working days per week	6	days
Working days per month	24	days
Peak Workforce	10	each

Location	Distribution	Unit	Qty	Vehicle Type	Vehicle Capacity	Movements 2- way (per day)
Biloela	100%	%	10	LV	1	10
					Total	10

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		AADT	AADT S	egment	Bees	B	ase Year A/	ADT	Base Ye	ar HV%	Base Ye	ar HV	10.10	2024	AADT		2024	4 HV Dev Traffic (Dally) - Construction																				
Road ID	D Road Description	Segment	Start	End (km)	Date Ves	607	A Co.7	PI Dir	Con	A Co7	Con	A Cor	CP%	607	A Co.7		Cor	A Co7						Gaze	ttal											A-Gaz	zettal	
		Segmen	(km)		Data 100	Gaz	A-042	DI-DII	Gaz	A-Gaz	Gaz	A-Gaz	GR /0	Gaz	A-Gaz	8-01	Gaz	A-Gaz	A	В	C	D	E	F	G	н	Water	Fuel	Staff	Max	A	В	C	D	E	F	G	Н
183	Gladstone Port Access Road	61605	0.000	0.858	2018	778	743	1,521	33.29%	31.76%	259	236	1.00%	826	789	1,615	275	250	0	0	0	0	0	9	0	0	0	0	0	9	0	0	0	0	0	15	0	0
	Macfarlano Doad	GRC	0.000	0.350	-	No Informa	ation Availabl	le											0	0	0	0	0	15	0	0	0	0	0	15	0	0	0	0	0	15	0	0
	macraina re Koau	GRC	0.350	1.210	-	No Informa	ation Availabl	le											0	0	0	0	0	6	0	0	0	0	0	6	0	0	0	0	0	0	0	0
-	Hopper Road (John Bates Drive)	GRC	0.000	0.790	-	No Informa	ation Availabl	le											0	0	0	0	0	6	0	0	0	0	0	6	0	0	0	0	0	0	0	0
-	Flinders Parade	GRC	0.000	0.670	-	No Informa	ation Availabl	le											0	0	0	0	0	6	0	0	0	0	0	6	0	0	0	0	0	0	0	0
-	Lord Street	GRC	0.000	0.515	-	No Informa	ation Availabl	le											0	0	0	0	0	6	0	0	0	0	0	6	0	0	0	0	0	0	0	0
			0.000	0.175	2019	3,563	3,085	6,648	18.52%	15.24%	660	470	1.00%	3,745	3,242	6,987	694	494	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0
		60071	0.175	0.919	2019	3,563	3,085	6,648	18.52%	15.24%	660	470	1.00%	3,745	3,242	6,987	694	494	0	0	0	0	0	9	0	0	0	0	0	9	0	0	0	0	0	0	0	0
			0.919	1.409	2019	3,563	3,085	6,648	18.52%	15.24%	660	470	1.00%	3,745	3,242	6,987	694	494	0	0	0	0	0	15	0	0	0	0	0	15	0	0	0	0	0	0	0	0
101	Chalana Mariaki array David	60073	1.409	3.258	2018	3,025	3,150	6,175	16.07%	16.16%	486	509	1.00%	3,211	3,344	6,555	516	540	0	0	0	0	0	15	0	0	0	0	0	15	0	0	0	0	0	0	0	0
181	Gladstone - Mount Larcom Road		3.258	3.830	2018	4,706	4,542	9,248	11.52%	14.11%	542	641	1.00%	4,996	4,821	9,817	575	680	0	0	0	0	0	15	0	0	0	0	0	15	0	0	0	0	0	0	0	0
		61052	3.830	4.625	2018	4,706	4,542	9,248	11.52%	14.11%	542	641	1.00%	4,996	4,821	9,817	575	680	0	0	0	0	0	3	0	0	0	0	0	3	0	0	0	0	0	0	0	0
		60074	4.625	12.292	2018	3,206	3,189	6,395	13.54%	15.96%	434	509	1.00%	3,403	3,385	6,788	461	540	0	0	0	0	0	3	0	0	0	0	0	3	0	0	0	0	0	0	0	0
		60076	12.292	32.140	2018	1,480	1,482	2,962	21.89%	30.23%	324	448	1.00%	1,571	1,573	3,144	344	476	0	0	0	0	0	3	0	0	0	0	0	3	0	0	0	0	0	0	0	0
-	Red Rover Road	GRC	0.000	3.390		No Informa	ation Availabl	le		ц Ц.			1	1		1	1		0	0	0	0	0	12	0	0	0	0	0	12	0	0	0	0	0	0	0	0
-	Don Young Drive	GRC	0.000	2.280		No Informa	ation Availabl	le											0	0	0	0	0	12	0	0	0	0	0	12	0	0	0	0	0	0	0	0
		60061	0.000	1.498	2019	5.133	5.653	10.786	4.93%	6.62%	253	374	1.00%	5.395	5.941	11.336	266	393	5	0	2	1	0	0	2	4	0	0	0	3	5	0	2	1	0	15	2	4
		61083	1.498	2.238	2019	8.579	8.639	17.218	4.93%	6.62%	423	572	1.00%	9.017	9.080	18.096	445	601	5	0	2	1	0	0	2	4	0	0	0	3	5	0	2	1	0	15	2	4
		61000	2 238	3 130	2018	10,717	11.655	22 372	4 72%	6.12%	506	713	1.00%	11.376	12 372	23 748	537	757	5	0	2	1	0	0	2	4	0	0	0	3	5	0	2	1	0	15	2	4
		60063	3 130	4 391	2010	12,828	17 786	30.614	7.25%	7.61%	930	1 353	1.00%	13,482	18 693	32 176	977	1.422	5	0	2	1	0	0	2	4	0	0	0	3	5	0	2	1	0	15	2	4
		60064	4 201	5.170	2010	10 210	0.971	20,000	0.70%	0.00%	000	907	1.00%	10,740	10,075	21 115	1.050	042	5	0	2	1	0	0	2	4	0	0	0	2	5	0	2	<u> </u>	0	15	2	4
		00004	4.J71 E 170	7 1 20	2017	2.074	2,071	20,070	7.7070	9.0970	225	242	1.00%	2.245	2 004	21,113	240	24.2	F	0	2	1	0	0	2	4	0	0	0	2	F		2	<u> </u>	0	15	2	4
		60062	3.179	10.204	2010	2,076	3,304	6,000	7.04%	9.3470	233	342	1.00%	3,203	3,004	7,070	249	303	5	0	2	1	0	12	2	4	0	0	0	15	5	0	2	+	0	15	2	4
	Devere Ultraction (Classification Dilaste)	(00)(5	7.129	10.290	2010	3,076	3,304	0,000	7.04%	9.3470	230	342	1.00%	3,203	3,004	7,070	249	303	5	0	2		0	12	2	*	0	0	0	10	5	0	2	+	0	10	2	4
40A	Dawson Highway (Gladstone - Bildela)	60006	10.296	19.050	2019	3,282	3,575	0,857	7.04%	9.54%	251	341	1.00%	3,449	3,757	7,207	264	358	5	0	2	1	0	12	2	4	0	0	0	15	5	0	2			15	2	4
		60006	19.050	21.650	2019	3,897	3,814	7,711	20.24%	119.20%	789	4,540	1.00%	4,096	4,009	8,104	829	4,778	5	0	2	1	0	12	2	4	0	0	0	15	5	0	2	<u> </u>		15	2	4
		60128	21.650	25.640	2018	1,102	1,094	2,196	20.24%	119.20%	223	1,304	1.00%	1,170	1,161	2,331	237	1,384	5	0	2	1	0	12	2	4	0	0	0	15	5	0	2	+	0	15	2	4
		60005	25.640	40.518	2019	592	594	1,186	40.37%	28.28%	239	168	1.00%	622	624	1,246	251	1//	5	0	2	1	0	12	2	4	0	0	0	15	5	0	2	+	0	15	2	4
			46.518	101.008	2019	592	594	1,186	40.37%	28.28%	239	168	1.00%	622	624	1,246	251	177	5	0	2	1	0	15	2	4	0	0	0	18	5	0	2		0	15	2	4
		60067	101.008	113.728	2019	599	627	1,226	20.70%	23.65%	124	148	1.53%	646	676	1,323	134	160	5	0	2	1	0	12	2	4	0	0	0	15	5	0	2		0	15	2	4
		61084	113.728	116.836	2018	816	1,152	1,968	21.69%	13.11%	177	151	1.00%	866	1,223	2,089	188	160	5	0	2	1	0	12	2	4	0	0	0	15	5	0	2	1	0	15	2	4
		61085	116.836	119.836	2019	3,059	3,214	6,273	12.26%	9.15%	375	294	1.00%	3,215	3,378	6,593	394	309	5	0	2	1	0	12	2	4	0	0	0	15	5	0	2	1	0	15	2	4
-	Mt Alma Road	GRC	0.000	16.970	-	No Informat	ation Availabl	e											0	0	0	0	0	3	0	0	0	0	0	3	0	0	0	0	0	0	0	0
-	Calliope Station Road	GRC	0.000	2.600	-	No Information	ation Availabl	le	-										0	0	0	0	0	3	0	0	0	0	0	3	0	0	0	0	0	0	0	0
		60006	11.445	35.812	2018	2,483	2,373	4,856	26.38%	24.74%	655	587	2.20%	2,829	2,704	5,533	746	669	0	0	0	0	0	6	0	0	0	0	0	6	0	0	0	0	0	0	0	0
			35.812	45.420	2018	2,483	2,373	4,856	26.38%	24.74%	655	587	2.20%	2,829	2,704	5,533	746	669	0	0	0	0	0	6	0	0	0	0	0	6	0	0	0	0	0	0	0	0
		60023	45.420	85.308	2018	2,841	2,842	5,683	21.68%	23.82%	616	677	1.00%	3,016	3,017	6,033	654	719	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	Bruco Histoway (Ronaraby Rockhamiton)		85.308	86.183	2018	3,478	3,524	7,002	28.32%	26.14%	985	921	2.33%	3,993	4,046	8,040	1,131	1,058	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
102	brace rightray (benaraby rice (nampton)	61551	86.183	107.400	2018	3,478	3,524	7,002	28.32%	26.14%	985	921	2.33%	3,993	4,046	8,040	1,131	1,058	0	5	5	1	0	0	0	0	0	0	0	11	0	5	5	1	0	0	0	0
			107.400	108.938	2018	3,478	3,524	7,002	28.32%	26.14%	985	921	2.33%	3,993	4,046	8,040	1,131	1,058	0	0	2	1	0	0	0	0	0	0	0	3	0	0	2	1	0	0	0	0
		60130	108.938	114.388	2018	3,062	3,067	6,129	24.95%	27.06%	764	830	1.67%	3,382	3,387	6,769	844	917	0	0	2	1	0	0	0	0	0	0	0	3	0	0	2	1	0	0	0	0
		60024	114.388	116.961	2018	4,798	4,412	9,210	15.46%	21.01%	742	927	1.00%	5,093	4,683	9,777	787	984	0	0	2	1	0	0	0	0	0	0	0	3	0	0	2	1	0	0	0	0
-	South Ulam Road	RRC	0.000	16.773	2021	101	108	209	10.00%	10.00%	10	11	1.00%	104	111	215	10	11	0	5	5	1	0	0	0	0	0	0	15	26	0	5	5	1	0	0	0	0
4/0	Devere History (Disels, Devere)	60068	0.000	0.650	2019	2,681	2,922	5,603	7.16%	12.97%	192	379	1.00%	2,818	3,071	5,889	202	398	5	0	4	1	5	12	2	4	0	0	0	22	5	0	4	1	5	15	2	4
405	Dawson Highway (Biloela - Banana)	61883	0.650	1.366	2019	2,143	2,083	4,226	8.35%	16.03%	179	334	1.00%	2,252	2,189	4,442	188	351	5	0	4	1	5	12	2	4	0	0	0	22	5	0	4	1	5	15	2	4
			0.000	0.115	2019	370	376	746	32.70%	32.71%	121	123	1.00%	389	395	784	127	129	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26A	Leichhardt Highway (Westwood - Taroom)	60001	0.115	25.680	2019	370	376	746	32.70%	32.71%	121	123	1.00%	389	395	784	127	129	0	33	24	3	10	0	0	0	0	0	0	70	0	33	24	3	10	0	0	0
			0.000	27.290	2019	559	594	1,153	37.57%	23.91%	210	142	1.00%	588	624	1,212	221	149	5	0	4	1	5	12	2	4	10	1	89	122	5	0	4	1	5	15	2	4
		61081	27.290	35.401	2019	559	594	1,153	37.57%	23.91%	210	142	1.00%	588	624	1.212	221	149	5	0	4	1	5	15	2	4	10	1	89	125	5	0	4	1	5	15	2	4
41E	Burnett Highway (Biloela - Mt Morgan)		35 401	56.310	2019	455	479	934	36.70%	39.67%	167	190	1.00%	478	503	982	176	200	5	0	4	1	5	15	2	4	10	1	89	125	5	0	4	1	5	15	2	4
		60055	56 310	71 730	2019	455	479	934	36.70%	39.67%	167	190	1.00%	478	503	982	176	200	0	32	24	3	10	0	0	0	0	0	0	70	0	33	24	3	10	0	0	0
	Callide Mine Haul Road Access	BSC	0.000	0.400	2019	No Informs	ation Availabl	7.54	30.70%	37.0770	.07	170	1.00%	470	505	702	170	200	0		0	0	0	3	0	0	0	0	0	3	0	0	0	0	0	0	0	0
	Arooon Kilburnio Doad	Doc Doc	0.000	12.040		No Informe	ation Availabl	~ 0					_			_	_		0	0	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0
	Jambin Dakonha Road	psc	0.000	9.400		No Informe	ation Availabl	~ 0					_			_	_		0	0	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0
-	McDonalds Doad	Dec	0.000	5 700	2021	25	25	50	10.00%	10.00%	2 1	2	1.00%	24	24	E2	2	2	5	22	20	4	15	15	2	4	10	1	0	105	5	22	20	0	15	16	2	0
	muurunarus AUdu	Jea	0.000	5.720	2021	20	20	50	10.00%	10.00%	2	3	1.00%	20	20	52	2	3	5	33	20	4	15	15	2	4	10	1	07	195	5	33	20	-	15	15	2	4
-	Playfields Road	BSC	0.000	5.080	2021	25	25	50	10.00%	10.00%	3	3	1.00%	20	20	52	3	3	5	33	28	4	15	15	2	4	10		89	195	5	33	28	4	15	15	2	4
1	1		5.080	24.420	2021	25	25	50	10.00%	10.00%	3	3	1.00%	26	26	52	3	3	5	- 33	28	4	15	15	2	4	10	1	89	195	5	33	28	4	15	15	2	4



ACCESS TRAFFIC

Water	Fuel	Staff	Max	Bi-Dir
0	0	0	15	24
0	0	0	15	30
0	0	0	0	6
0	0	0	0	6
0	0	0	0	6
0	0	0	0	6
0	- 0	0	15	15
0	0	0	0	9
0	0	0	0	15
0	0	0	0	15
0	0	0	0	15
0	0	0	0	3
0	0	0	0	3
0	0	0	0	3
0	0	0	0	12
0	0	0	0	12
0	0	0	18	21
0	0	0	10	21
0	0	0	10	21
0	0	0	10	21
0	0	0	10	21
0	0	0	10	21
0	0	0	10	21
0	0	0	10	22
0	0	0	10	22
0	0	0	10	22
0	0	0	10	22
0	0	0	10	26
0	0	0	10	22
0	0	0	10	22
0	0	0	10	22
0	0	0	0	2
0	0	0	0	2
0	0	0	0	5
0	0	0	0	6
0	0	0	0	0
0	0	0	0	0
0	0	0	11	22
0	0	0	3	6
0	0	0	3	6
0	0	0	3	6
0	0	15	26	52
0	0	0	25	47
0	0	0	25	47
0	0	0	0	0
0	0	0	70	140
10	1	89	125	247
10	1	89	125	250
10	1	89	125	250
0	0	0	70	140
0	0	0	0	3
0	0	0	0	3
0	0	0	0	3
10	1	89	195	390
10	1	89	195	390
10	1	89	195	390

Construction			
Gaz %	A-Gaz %	Bi-Dir %	
1.09%	1.90%	1.49%	
-	-	-	
-	-	-	
-	-	-	
-	-	-	
-	-	-	
0.00%	0.46%	0.21%	
0.24%	0.00%	0.13%	
0.40%	0.00%	0.21%	
0.47%	0.00%	0.23%	
0.30%	0.00%	0.15%	
0.06%	0.00%	0.03%	
0.09%	0.00%	0.04%	
0.19%	0.00%	0.10%	
-	-	-	
-	-	-	
0.06%	0.30%	0.19%	
0.03%	0.20%	0.12%	
0.03%	0.15%	0.09%	
0.02%	0.10%	0.07%	
0.03%	0.17%	0.10%	
0.09%	0.47%	0.30%	
0.46%	0.47%	0.47%	
0.43%	0.48%	0.46%	
0.37%	0.45%	0.41%	
1.28%	1.55%	1.42%	
2.41%	2.88%	2.65%	
2.89%	2.88%	2.89%	
2.32%	2.66%	2.49%	
1.73%	1.47%	1.58%	
0.47%	0.53%	0.50%	
-	-	-	
-	-	-	
0.21%	0.00%	0.11%	
0.21%	0.00%	0.11%	
0.00%	0.00%	0.00%	
0.00%	0.00%	0.00%	
0.28%	0.27%	0.27%	
0.08%	0.07%	0.07%	
0.09%	0.09%	0.09%	
0.06%	0.06%	0.06%	
24.99%	23.37%	24.15%	
0.78%	0.81%	0.80%	
0.98%	1.14%	1.06%	
0.00%	0.00%	0.00%	
18.00%	17.71%	17.86%	
20.77%	20.02%	20.38%	
21.28%	20.02%	20.63%	
26.14%	24.83%	25.47%	
	13.90%	14.26%	
14.64%			
14.64%	-	-	
14.64%	-	-	
	-	-	
14.64%	757.06%		
14.64% - - 757.06% 757.06%	757.06%	757.06%	

IN CONS				
607	A Co.7			
Gaz	A-Gaz			
835	804			
15	15			
6	0			
6	0			
6	0			
2 745	2 257			
3,743	3 242			
3,760	3.242			
3,226	3,344			
5,011	4,821			
4,999	4,821			
3,406	3,385			
1,574	1,573			
12	0			
12	0			
5,398	5,959			
9,020	9,098			
11,379	12,390			
13,485	18,711			
10,743	10,393			
3,268	3,822			
3,260	3,022			
4 111	4 0 2 7			
1.185	1,179			
637	642			
640	642			
661	694			
881	1,241			
3,230	3,396			
3	0			
3	0			
2,835	2,704			
2,835	2,704			
3,016	3,017			
3,993	4,046			
4,004	4,057			
3,990	3 390			
5,096	4 686			
130	137			
2,840	3,096			
2,274	2,214			
389	395			
459	465			
710	749			
713	749			
603	628			
548	573			
3	0			
3	0			
3	0			
221	221			
221	221			
221	221			



Appendix I – Turn Warrants Assessment

Intersection: Burnett Highway / McDonalds Road

Year / Peak: 2024 AM & PM

Scenario: In Construction

Assessment based on Austroads Guide to Road Design, Part 4b. This warrant assessment applies only to turning movements from the major road only.



Prepared by:	A. Barrie
Reviewed by:	A. Barrie
Date:	15/03/2023



Prepared by:	A. Barrie
Reviewed by:	A. Barrie
Date:	15/03/2023

ACCESS TRAFFIC



Appendix J – Project Pavement Loading and Impact Calculations



UMW0123-001 | Mount Hopeful Wind Farm

Project Pavement Loadings

TASK A - SITE MOBILISTATION

Mobilisation (Buildings / EW Plant)	100	Semi / Low Loader
Semi Unloaded (0%)	1.68	ESAs
Semi Loaded (100%)	5.54	ESAs
	Loaded	Unloaded
Gladstone to Site Access	554	168

TASK B - ACCESS ROADS & SITE ENTRANCES

QMQ Quarry to Site Access	Loaded 37,386	Unloaded 9,970	
Truck & 4 Axle Dog Loaded (100%)	6.15	ESAs	
Truck & 4 Axle Dog Unloaded (0%)	1.64	ESAs	
Road Upgrade (McDonalds / Playfields) Gravel Pavement	1,006	Truck & Dog Trailer	QMQ Quarry
Access Track (Substation East) Gravel Pavement Materials	99	Truck & Dog Trailer	Hopkins Qua
Access Intersection Pavement (TMR) Materials	50	Truck & Dog Trailer	QMQ Quarry
Internal Access Tracks Gravel Pavement Materials	5,023	Truck & Dog Trailer	QMQ Quarry

Quarry kins Quarry Midgee Quarry

Gladstone

TASK C - SUBSTATION AND SITE AREAS

Substation & Battery Storage Area (East) Establishment	50	Semi	Rockhampton
Substation Areas (Internal) Establishment	100	Semi	Gladstone
Batch Plant Areas (Internal) Establishment	75	Semi	Gladstone
Construction Compound Area (Internal) Establishment	50	Semi	Gladstone
Site Entry Area (Internal) Establishment	20	Semi	Gladstone
Operational and Maintenance Facility Area (Internal) Establishment	25	Semi	Gladstone
Substation & Battery Storage Area (East) Slab Concrete	70	Concrete Truck	Rockhampton
Substation & Battery Storage Area (East) Gravel	180	Truck & Dog Trailer	Hopkins Quarr
Substation & Battery Storage Area (East) Reinforcing Steel	6	Semi	Rockhampton
Substation Areas (Internal) Slab Concrete Aggregates	21	Truck & Dog Trailer	QMQ Quarry
Substation Areas (Internal) Portland Cement	5	Semi	Biloela
Substation Areas (Internal) Reinforcing Steel	9	Semi	Biloela
Substation Areas (Internal) Water	2	Semi Water Truck	Biloela
Batch Plant Areas (Internal) Slab Concrete Aggregates	23	Truck & Dog Trailer	QMQ Quarry
Batch Plant Areas (Internal) Portland Cement	6	Semi	Biloela
Batch Plant Areas (Internal) Reinforcing Steel	9	Semi	Biloela
Batch Plant Areas (Internal) Water	2	Semi Water Truck	Biloela
Site Construction Compound (Internal) Slab Concrete Aggregates	12	Truck & Dog Trailer	QMQ Quarry
Site Construction Compound (Internal) Portland Cement	3	Semi	Biloela
Site Construction Compound (Internal) Reinforcing Steel	5	Semi	Biloela
Site Construction Compound (Internal) Water	1	Semi Water Truck	Biloela
O&M Facility Area (Internal) Slab Concrete Aggregates	4	Truck & Dog Trailer	QMQ Quarry
O&M Facility Area (Internal) Portland Cement	1	Semi	Biloela
O&M Facility Area (Internal) Reinforcing Steel	2	Semi	Biloela
O&M Facility Area (Internal) Water	1	Semi Water Truck	Biloela
Substation Areas (Internal) Gravel	248	Truck & Dog Trailer	QMQ Quarry
Turbine Hardstand Areas (Internal) Gravel	4,095	Truck & Dog Trailer	QMQ Quarry
Laydown Areas (Internal) Gravel	300	Truck & Dog Trailer	QMQ Quarry
Batch Plant Areas (Internal) Gravel	270	Truck & Dog Trailer	QMQ Quarry
Construction Compound Area (Internal) Gravel	135	Truck & Dog Trailer	QMQ Quarry
Site Entry Area (Internal) Gravel	25	Truck & Dog Trailer	QMQ Quarry
Site Camp Facilitiy (Internal) Gravel)	0	Truck & Dog Trailer	QMQ Quarry
Semi Unloaded (0%)	1.68	ESAs	
Semi Loaded (100%)	5.54	ESAs	
Concrete Truck (4 Axle Rigid) Unloaded (0%)	0.36	ESAs	
Concrete Truck (4 Axle Rigid) Loaded (100%)	4.13	ESAs	
Truck & 4 Axle Dog Unloaded (0%)	1.64	ESAs	
Truck & 4 Axle Dog Loaded (100%)	6.15	ESAs	I
	Loaded	Unloaded	
Rockhampton to Eastern Substation Site	599	119	
Hopkins Quarry Midgee to Eastern Substation Site	1,107	295	
Gladstone to Site Access	1,496	454	
Biloela to Site Access	255	77	
QMQ Quarry to Site Access	31,722	8,459	

Gladstone Gladstone Gladstone Gladstone Gladstone Rockhampton Hopkins Quarry Midgee Rockhampton QMQ Quarry Biloela Biloela Biloela QMQ Quarry Biloela Biloela Biloela QMQ Quarry Biloela Biloela Biloela

TASK D - CABLING

Underground Powerline Cable (Main Site)	41	Semi
Underground Powerline Bedding Sand (Main Site)	548	Truck & Dog Trailer
Overheads Powerline Cable (Main Site)	16	Semi
Overheads Powerline Poles (Main Site)	7	Semi
Overheads Powerline Cable (Eastern Substation)	9	Semi
Overheads Powerline Poles (Eastern Substation)	5	Semi
Semi Unloaded (0%)	1.68	ESAs
Semi Loaded (100%)	5.54	ESAs
Truck & 4 Axle Dog Unloaded (0%)	1.64	ESAs
Truck & 4 Axle Dog Loaded (100%)	6.15	ESAs
	Loaded	Unloaded
Rockhampton to Eastern Substation Site	78	24
Gladstone to Site Access	355	108
QMQ Quarry to Site Access	3,370	899

Gladstone OMO Quarry Gladstone Gladstone Rockhampton

TASK E - TURBINE FOUNDATIONS

Concrete aggregates for turbine footings	2,407	Truck & Dog	QMQ Quarry
Reinforcing steel for turbine footings	695	Semi	Biloela
Other concrete supplies for turbine footings	404	Semi	Biloela
Wet concrete or turbine footings	8,203	Conc. Truck	Internal
Concrete aggregates for met mast footings	13	Truck & Dog	QMQ Quarry
Reinforcing steel for met mast footings	4	Semi	Biloela
Other concrete supplies for met mast footings	3	Semi	Biloela
Wet concrete for met mast footings	44	Conc. Truck	Internal
Semi Unloaded (0%)	1.68	ESAs	1
Semi Loaded (100%)	5.54	ESAs	
Truck & 4 Axle Dog Unloaded (0%)	1.64	ESAs	
Truck & 4 Axle Dog Loaded (100%)	6.15	ESAs	
	Loaded	Unloaded	1
QMQ Quarry to Site Access	14,883	3,969	
Biloela to Site Access	6,129	1,858	

TASK F - TURBINE TRANSPORTATION

Turbine Blades	189	Special
Turbine Nacelles	63	Special
Turbine Drive Trains	63	Special
Turbine Hubs	63	Special
Tower Sections	441	Special
Escorting LV	1638	LV
Meteorology masts	10	Special
Turbine Blade Transport Loaded	11.47	ESAs
Turbine Blade Transport Unloaded	7.95	ESAs
Turbine Nacelle Transport Loaded	24.41	ESAs
Turbine Nacelle Transport Unloaded	4.88	ESAs
Turbine Drive Train Transport Loaded	22.78	ESAs
Turbine Drive Train Transport Unloaded	4.98	ESAs
Turbine Hub Transport Loaded	12.38	ESAs
Turbine Hub Transport Unloaded	4.77	ESAs
Turbine Tower Section Transport Loaded (Average)	20.86	ESAs
Turbine Tower Section Transport Unloaded (Average)	2.70	ESAs
Met Mast Transport Loaded	11.47	ESAs
Met Mast Transport Unloaded	7.95	ESAs
	Loaded	Unloaded
Blades	2,168	1,503
Nacelles	1,538	307
Drive Train	1,435	314
Hub	780	301
Tower - 7 all	9,199	1,191
Tower - 4 (Mt Alma / Calliope Stn / Argoon)	5,257	680
Tower - 3 (46A / 41E)	3,943	510
Met Mast	115	80

TASK G - TURBINE ERECTION

Site Turbine Crane & Secondary Crane (mobilise)	10	Special	
Special Crane Unloaded (0%) - Assume Same Loading as Blade	2.21	ESAs	
Special Crane Loaded (100%) - Assume Same Loading as Blade	8.08	ESAs	
	Loaded	Unloaded	
Gladstone to Site Access	81	22	

Gladstone



TASK H - FINALISATION / COMMISSIONING / DEMOBILISATION

Batch Plant Areas (Internal) Decommissioning	75	Semi	Gladstone
Construction Compound Area (Internal) Decommissioning	50	Semi	Gladstone
Site Entry Area (Internal) Decommissioning	20	Semi	Gladstone
General Demobilisation (Buildings / EW Plant)	100	Semi	Gladstone
Semi Unloaded (0%)	1.68	ESAs	
Semi Loaded (100%)	5.54	ESAs	
	Loaded	Unloaded	

SITE WATER

Site Water - Overall	4,755	Semi Water Truck	Bil
Semi Unloaded (0%)	1.68	ESAs	1
Semi Loaded (100%)	5.54	ESAs	
	Loaded	Unloaded	1
Biloela to Site Access	26.343	7,988	

SITE WATER

Site Fuel - Overall	241	Semi Tanker	Biloela
Semi Unloaded (0%)	1.68	ESAs	
Semi Loaded (100%)	5.54	ESAs	

	Loaded	Unloaded
Biloela to Site Access	1,335	405

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Project Pavement Impact % Calculations

			AADT S	egment			Base Year AADT		Base Y	ear HV%	Base	Year HV		2024	AADT	-	2024	HV			Backgrou	und ESAs
Road ID	Road Description	Seg.	Start (km)	End (km)	Base Data Year	G97	A-G97	Bi-Dir	Gaz	A-G97	697	A-G97	10 Yr GR%	Gaz	A-Ga7	Bi-Dir	Gaz	A-G97	ESAs / HV	Days / Year	697	A-Ga7
			Start (Kill)			042	A-Gaz	BI-DII	Gaz	A-Gaz	Gaz	A-042		042	A-042	BI-DII	Gaz	A-042			Gaz	A-0a2
183	Gladstone Port Access Road	61605	0.000	0.858	2018	778	743	1,521	33.29%	31.76%	259	236	1.00%	826	789	1,615	275	250	3.2	669	588,716	536,391
	Mosfarlana Daad	GRC	0.000	0.350	-														-	-	-	-
-	IVIALI ALIALIE ROAU	GRC	0.350	1.210	-	Available													-	-	-	-
-	Hopper Road (John Bates Drive)	GRC	0.000	0.790	-	Available													-	-	-	-
-	Flinders Parade	GRC	0.000	0.670	-	NOTITIONTIALION													-	-	-	-
-	Lord Street	GRC	0.000	0.515	-	NO111701maction													-	-	-	-
			0.000	0.175	2019	3,563	3,085	6,648	18.52%	15.24%	660	470	1.00%	3,745	3,242	6,987	694	494	3.2	669	1,485,074	1,058,111
		60071	0.175	0.919	2019	3,563	3,085	6,648	18.52%	15.24%	660	470	1.00%	3,745	3,242	6,987	694	494	3.2	669	1,485,074	1,058,111
			0.919	1.409	2019	3,563	3,085	6,648	18.52%	15.24%	660	470	1.00%	3,745	3,242	6,987	694	494	3.2	669	1,485,074	1,058,111
		60073	1.409	3.258	2018	3,025	3,150	6,175	16.07%	16.16%	486	509	1.00%	3,211	3,344	6,555	516	540	3.2	669	1,104,978	1,157,083
181	Gladstone - Mount Larcom Road		3.258	3.830	2018	4,706	4,542	9,248	11.52%	14.11%	542	641	1.00%	4,996	4,821	9,817	575	680	3.2	669	1,232,301	1,456,755
		61052	3.830	4.625	2018	4,706	4.542	9.248	11.52%	14.11%	542	641	1.00%	4,996	4.821	9.817	575	680	3.2	669	1.232.301	1.456.755
		60074	4.625	12.292	2018	3.206	3,189	6.395	13.54%	15.96%	434	509	1.00%	3,403	3.385	6,788	461	540	3.2	669	986,722	1,156,911
		60076	12,292	32 140	2018	1 480	1 482	2,962	21.89%	30.23%	324	448	1.00%	1.571	1.573	3.144	344	476	3.2	669	736.411	1.018.354
-	Red Rover Road	GRC	0.000	3.390	-	NOTITIOTTIALION	.,=		1			1				1	1		-	-	_	-
_	Don Young Drive	GRC	0.000	2 280	-	Available													-	-	-	-
		60061	0.000	1.498	2019	Available 5.133	5.653	10,786	4.9.3%	6.62%	253	374	1.00%	5.395	5.941	11.336	266	393	3.2	669	569.520	842.225
		61083	1 498	2 238	2019	8 579	8 639	17.218	4.93%	6.62%	423	572	1.00%	9.017	9.080	18.096	445	601	3.2	669	951.864	1.287.101
		61000	2 238	3 130	2019	10 717	11 655	22 372	4 72%	6.12%	506	713	1.00%	11 376	12 372	23 748	537	757	3.2	669	1 149 814	1 621 348
		60063	3 130	4 391	2019	12 828	17,786	30.614	7.25%	7.61%	930	1 353	1.00%	13 482	18 693	32 176	977	1 422	3.2	669	2 093 091	3 044 168
		60064	4 391	5 179	2019	10 219	9.871	20.090	9.78%	9.09%	999	897	1.00%	10,740	10,375	21,115	1.050	943	3.2	669	2,249,253	2.019.371
		00001	5 179	7 129	2018	3.076	3 584	6,660	7.64%	9.54%	235	342	1.00%	3 265	3 804	7 070	249	363	3.2	669	534 186	777 193
		60062	7 129	10.296	2018	3,076	3 584	6,660	7.64%	9.54%	235	342	1.00%	3,265	3.804	7,070	249	363	3.2	669	534,186	777,193
46A	Dawson Highway (Gladstone - Biloela)	60065	10.296	19.050	2019	3 282	3 575	6.857	7.64%	9.54%	251	341	1.00%	3,449	3,757	7.207	264	358	3.2	669	564.317	767.566
10/1	Sanson nginay (Saastono Biosia)	60066	19.050	21.650	2019	3,202	3,814	7 711	20.24%	119 20%	789	4 546	1.00%	4 096	4 009	8 104	829	4 778	3.2	669	1 775 138	10 231 707
		60128	21.650	25.640	2019	1 102	1 094	2 196	20.24%	119.20%	223	1 304	1.00%	1 170	1 161	2 331	237	1 384	3.2	669	506 996	2 964 190
		00120	25.640	46 518	2010	502	594	1 186	40.37%	28.28%	220	168	1.00%	622	624	1 246	251	1,001	3.2	669	537 863	378.057
		60005	46 518	101.008	2019	592	594	1,186	40.37%	28.28%	239	168	1.00%	622	624	1 246	251	177	3.2	669	537 863	378.057
		60067	101.008	113 728	2019	500	627	1,100	20.70%	23.65%	124	148	1.53%	646	676	1,240	134	160	3.2	669	286.453	342 574
		61084	113 728	116.836	2019	916	1 152	1,220	20.70%	13 11%	124	151	1.00%	866	1 223	2 089	188	160	3.2	669	402 311	342,374
		61095	116.026	110.030	2010	2.050	2 214	6 273	12 26%	0.15%	375	204	1.00%	3 215	3 378	6 503	304	309	3.2	669	844.036	661 848
_	Mt Alma Road	GPC	0.000	16.970	2017		3,214	0,213	12.2070	7.1370	3/3	274	1.0070	5,215	3,370	0,070	374	307		-	-	-
	Callione Station Road	GRC	0.000	2 600		Available																
		6100	11 445	35.812	2018	Available 2.483	2 373	4 856	26.38%	24 74%	655	587	2 20%	2 829	2 704	5 533	746	669	2.9	669	1 448 402	1 298 181
		60006	35 812	45 420	2018	2 483	2 373	4 856	26.38%	24 74%	655	587	2 20%	2 829	2 704	5 533	746	669	2.9	669	1 448 402	1 298 181
		60023	45 420	85 308	2018	2,100	2,842	5,683	21.68%	23.82%	616	677	1.00%	3 016	3 017	6,033	654	719	2.9	669	1 268 794	1 394 525
		00023	85 308	86 183	2018	3 478	3 524	7 002	28.32%	26.02%	985	921	2 33%	3 993	4 046	8,040	1 131	1.058	2.9	669	2 194 689	2 052 540
10E	Bruce Highway (Benaraby - Rockhampton)	61551	86 183	107 400	2018	3 478	3 524	7 002	28.32%	26.14%	985	921	2 33%	3 993	4 046	8 040	1 131	1.058	2.9	669	2 194 689	2 052 540
		01001	107 400	108 938	2018	3 478	3 524	7,002	28.32%	26.14%	985	921	2.33%	3 993	4 046	8,040	1,131	1,058	2.9	669	2 194 689	2,052,540
		60130	108 938	114 388	2018	3,062	3.067	6,129	24.95%	27.06%	764	830	1.67%	3,382	3,387	6,769	844	917	29	669	1.637.438	1.778.815
		60024	114 388	116.961	2018	4,798	4,412	9,210	15,46%	21.01%	742	927	1.00%	5,093	4,683	9,777	787	984	2.9	669	1.528.024	1,909.511
	South Illam Road	PPC	0.000	16 773	2010	101	108	209	10.00%	10.00%	10	11	1.00%	104	111	215	10	11	3.2	669	22 283	23 827
		60068	0.000	0.650	2021	2 681	2 922	5.603	7 16%	12.07%	102	370	1.00%	2 818	3 071	5 880	202	308	3.2	669	432.017	852 026
46B	Dawson Highway (Biloela - Banana)	61883	0.650	1 366	2019	2,001	2,722	4 226	8 35%	16.03%	172	334	1.00%	2,010	2 189	4 442	188	351	3.2	669	402 717	751 474
		01005	0.000	0.115	2019	370	376	746	32 70%	32 71%	121	123	1.00%	389	395	784	100	129	3.2	669	272 296	276 796
26A	Leichhardt Highway (Westwood - Taroom)	60001	0.000	25.680	2019	370	376	746	32.70%	32.71%	121	123	1.00%	389	395	784	127	129	3.2	669	272,270	276,796
			0.000	23.000	2019	550	594	1 153	37.57%	23 01%	210	1/23	1.00%	588	624	1 212	221	1/0	3.2	669	472,655	210,000
		61081	27 200	27.290	2017	550	504	1,100	37.57%	23.71/0	210	142	1.00%	500	624	1 212	221	147	3.2	640	472,000	210 427
41E	Burnett Highway (Biloela - Mt Morgan)		25.401	55.401	2019		J74 470	1,100	31.31%	20.71%	210	142	1.00%	J00 470	024 E02	002	174	200	3.2	640	472,000	127 450
		60055	55.401	71 720	2019	400	4/7	734	30.70%	37.0/%	107	100	1.00%	4/0	503	702	170	200	3.2	640	375,010	427,000
	Collide Mine Haul David Assess	BCO	0.000	0.400	2019	455 NO INFORMATION	4/9	734	30.70%	37.0/%	107	190	1.00%	4/8	503	482	176	200	3.2	009	373,810	427,000
-	Arreson Kilburnis Dood	BSC	0.000	0.400	-	Available													-	-	-	-
-	Argoon-Milbumle Koad	BSC	0.000	12.940	-	Nonhiblmation													-	-	-	-
-		DSU	0.000	9.400	-	Available	25	FO	10.00%	10.00%	2	2	1.00%	24	24	FO	3	2		-		-
-		DSU	0.000	5.720 E.090	2021	20	20	50	10.00%	10.00%	2	3	1.00%	20	20	52	2	3	3.2	640	5,310	5,510
-	Playfields Road	BSC	5.000	0.080 04.420	2021	20	20 25	50	10.00%	10.00%	ა 2	3 2	1.00%	20	20	52	2	3 2	3.2	640	5,510	5,310
			5.000	Z4.4ZU	2021	20	20	-30	10.00%	10.00%	3	3	1.00%	20	20	JZ	3	3	J.Z	009	0,010	0,010



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			AADT S	egment	Development ESAs																		
Road ID	Road Description	Seq.								Gaz											A-Gaz		
			Start (km)	End (km)	Δ.	B	c	D	F	F	6	н	Water	Fuel	Total		R	c	D	F	F	G	
183	Gladstope Port Access Road	61605	0.000	0.858	0	0	0	0	0	4.499	0	0	0	0	4 498	0	0	0	0	-	3 694	0	1
105		GPC	0.000	0.350	0	0	0	0	0	2,404	0	0	0	0	2,404	0	0	0	0	0	4 409	0	1
-	Macfarlane Road	CRC	0.000	0.330	0	0	0	0	0	3,094	0	0	0	0	3,094	0	0	0	0	0	4,498	0	4
		GRU	0.350	1.210	U	0	0	0	0	10,737	0	0	0	0	10,/3/	0	0	0	U	U	1,498	U	4
-	Hopper Road (John Bates Drive)	GRC	0.000	0.790	0	0	0	0	0	10,737	0	0	0	0	10,737	0	0	0	0	0	1,498	0	4
-	Flinders Parade	GRC	0.000	0.670	0	0	0	0	0	10,737	0	0	0	0	10,737	0	0	0	0	0	1,498	0	4
-	Lord Street	GRC	0.000	0.515	0	0	0	0	0	10,737	0	0	0	0	10,737	0	0	0	0	0	1,498	0	1
			0.000	0.175	0	0	0	0	0	3,694	0	0	0	0	3,694	0	0	0	0	0	0	0	1
		60071	0.175	0.919	0	0	0	0	0	4,498	0	0	0	0	4,498	0	0	0	0	0	0	0	
			0.919	1.409	0	0	0	0	0	15,235	0	0	0	0	15,235	0	0	0	0	0	0	0	
		60073	1.409	3.258	0	0	0	0	0	15,235	0	0	0	0	15,235	0	0	0	0	0	0	0	
181	Gladstone - Mount Larcom Road		3.258	3.830	0	0	0	0	0	15.235	0	0	0	0	15.235	0	0	0	0	0	0	0	
		61052	3.830	4.625	0	0	0	0	0	2.283	0	0	0	0	2.283	0	0	0	0	0	0	0	
		60074	4.625	12 292	0	0	0	0	0	2 283	0	0	0	0	2 283	0	0	0	0	0	0	0	
		60076	12 202	32.140	0	0	0	0	0	2,292	0	0	0	0	2 283	0	0	0	0	0	0	0	-
	Ped Pover Poad	GPC	0.000	3 200	0	0	0	0	0	12,203	0	0	0	0	12,203	0	0	0	0	0	0	0	1
-	Den Vouna Drive	CRC	0.000	3.370	0	0	0	0	0	12,952	0	0	0	0	12,902	0	0	0	0	0	0	0	-
-	bon Young Drive	GRU	0.000	2.280	U	0	0	U	0	12,952	0	0	0	0	12,962	0	0	U	U	U	U	U	4
		60061	0.000	1.498	554	0	1,496	355	0	0	81	412	0	0	2,897	168	0	454	108	0	3,694	22	1
		61083	1.498	2.238	554	0	1,496	355	0	0	81	412	0	0	2,897	168	0	454	108	0	3,694	22	1
1		61000	2.238	3.130	554	0	1,496	355	0	0	81	412	0	0	2,897	168	0	454	108	0	3,694	22	1
		60063	3.130	4.391	554	0	1,496	355	0	0	81	412	0	0	2,897	168	0	454	108	0	3,694	22	1
		60064	4.391	5.179	554	0	1,496	355	0	0	81	412	0	0	2,897	168	0	454	108	0	3,694	22	1
		(00/2	5.179	7.129	554	0	1,496	355	0	12,952	81	412	0	0	15,849	168	0	454	108	0	3,694	22	1
		60062	7.129	10.296	554	0	1,496	355	0	12,952	81	412	0	0	15,849	168	0	454	108	0	3,694	22	1
46A	Dawson Highway (Gladstone - Biloela)	60065	10.296	19.050	554	0	1,496	355	0	12,952	81	412	0	0	15,849	168	0	454	108	0	3,694	22	1
		60066	19.050	21.650	554	0	1,496	355	0	9,978	81	412	0	0	12.875	168	0	454	108	0	3,694	22	1
		60128	21.650	25.640	554	0	1.496	355	0	9.978	81	412	0	0	12.875	168	0	454	108	0	3.694	22	1
			25.640	46.518	554	0	1.496	355	0	9.978	81	412	0	0	12 875	168	0	454	108	0	3 694	22	1
		60005	46 518	101.008	554	0	1,496	355	0	15 225	91	412	0	0	18 121	160	0	454	109	0	3,694	22	1
		40047	101.009	112 720	554	0	1,490	355	0	0.070	01	412	0	0	10,131	100	0	454	100	0	3,074	22	1
		(1004	110 7008	113.728	554	0	1,496	355	0	9,978	81	412	0	0	12,870	168	0	454	108	0	3,094	22	+
		61084	113.728	110.830	554	0	1,496	355	0	9,978	81	412	0	0	12,876	168	0	454	108	0	3,694	22	
		61085	116.836	119.836	554	0	1,496	355	0	9,978	81	412	0	0	12,875	168	0	454	108	0	3,694	22	
-	Mt Alma Road	GRC	0.000	16.970	0	0	0	0	0	5,257	0	0	0	0	5,257	0	0	0	0	0	0	0	4
-	Calliope Station Road	GRC	0.000	2.600	0	0	0	0	0	5,257	0	0	0	0	5,257	0	0	0	0	0	0	0	4
		60006	11.445	35.812	0	0	0	0	0	5,257	0	0	0	0	5,257	0	0	0	0	0	2,283	0	1
			35.812	45.420	0	0	0	0	0	5,257	0	0	0	0	5,257	0	0	0	0	0	2,283	0	1
		60023	45.420	85.308	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
105	Deven (liebourge (Deventer Developmenter)		85.308	86.183	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TUE	Bruce Highway (Benaraby - Rockhampton)	61551	86.183	107.400	0	609	414	24	0	0	0	0	0	0	1,047	0	162	1,706	78	0	0	0	
			107.400	108.938	0	0	119	24	0	0	0	0	0	0	143	0	0	599	78	0	0	0	
		60130	108.938	114.388	0	0	119	24	0	0	0	0	0	0	143	0	0	599	78	0	0	0	
1		60024	114.388	116.961	0	0	119	24	0	0	0	0	0	0	143	0	0	599	78	0	0	0	
-	South Ulam Road	RRC	0.000	16.773	0	609	1.706	78	0	0	0	0	0	0	2.393	0	162	414	24	0	0	0	
		60068	0.000	0.650	554	0	1,751	355	6 129	9.978	81	412	0	0	19 258	168	0	531	108	1.858	3 694	22	1
46B	Dawson Highway (Biloela - Banana)	61883	0.650	1 366	554	0	1,751	355	6 129	9.978	81	412	0	0	19 258	168	0	531	108	1,050	3,694	22	1
		01005	0.000	0.115		0	1,751	335	0,127	7,770	01	412	0	0	17,200	100	0		100	1,030	3,074	22	· · ·
26A	Leichhardt Highway (Westwood - Taroom)	60001	0.000	0.115	0	0	0	0	0	0	0	0	0	0	0	U	0	0	0	0	0	0	4
			0.115	25.680	0	37,386	31,722	3,370	14,883	0	0	0	0	0	87,361	0	9,970	8,459	899	3,969	0	0	
		61081	0.000	27.290	554	0	1,751	355	6,129	9,978	81	412	26,343	1,335	46,936	168	0	531	108	1,858	3,694	22	1
41E	Burnett Highway (Biloela - Mt Morgan)		27.290	35.401	554	0	1,751	355	6,129	9,978	81	412	26,343	1,335	46,936	168	0	531	108	1,858	3,694	22	1
	J	60055	35.401	56.310	554	0	1,751	355	6,129	9,978	81	412	26,343	1,335	46,936	168	0	531	108	1,858	3,694	22	1
			56.310	71.730	0	9,970	8,459	899	3,969	0	0	0	0	0	23,296	0	37,386	31,722	3,370	14,883	0	0	
-	Callide Mine Haul Road Access	BSC	0.000	0.400	0	0	0	0	0	5,257	0	0	0	0	5,257	0	0	0	0	0	0	0	
-	Argoon-Kilburnie Road	BSC	0.000	12.940	0	0	0	0	0	5,257	0	0	0	0	5,257	0	0	0	0	0	0	0	
-	Jambin-Dakenba Road	BSC	0.000	9.400	0	0	0	0	0	5,257	0	0	0	0	5,257	0	0	0	0	0	0	0	
-	McDonalds Road	BSC	0.000	5.720	554	37,386	31,722	3,725	21,012	15,235	81	412	26,343	1,335	137,803	168	9,970	8,459	1,006	5,827	3,694	22	1
			0.000	5.080	554	37,386	31,722	3,725	21,012	15,235	81	412	26,343	1,335	137,803	168	9,970	8,459	1,006	5,827	3,694	22	1
-	Playfields Road	BSC	5,080	24,420	554	37 386	31 722	3 725	21.012	15 235	81	412	26 343	1 335	137 803	168	9,970	8.459	1.006	5.827	3,694	22	1
L	1	1			001	07,000	01,722	0,720	21,012	10,200	0.		20,010	1,000		100	1,110	0,107	1,000	0,027	0,074		1



	_	_	
Total	Fuel	Water	н
3,694	0	0	0
4,498	0	0	0
1,498	0	0	0
1,498	0	0	0
1,498	0	0	0
1,498	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
	0	0	0
0	0	0	0
0	0	0	0
5,803	0	0	1,357
5,803	0	0	1,357
5,803	0	0	1,357
5,803	0	0	1,357
5,803	0	0	1,357
5,803	0	0	1,357
5,803	0	0	1,357
5,803	0	0	1,357
5,803	0	0	1,357
5,803	0	0	1,357
5,803	0	0	1,357
5.803	0	0	1.357
5,803	0	0	1.357
5,803	0	0	1 357
5,803	0	0	1 357
0,000	0	0	0
	0	0	0
0 000	0	0	0
2,283	0	0	0
2,283	0	0	0
0	0	0	0
0	0	0	0
1,946	0	0	0
677	0	0	0
677	0	0	0
677	0	0	0
600	0	0	0
7,739	0	0	1,357
7,739	0	0	1,357
0	0	0	0
23,296	0	0	0
16,132	405	7,988	1,357
16,132	405	7,988	1,357
16,132	405	7,988	1,357
87,361	0	0	0
0	0	0	0
0	0	0	0
	0	0	0
0 007	0	7 000	1 057
38,897	405	7,988	1,357
38,897	405	7,988	1,357
38,897	405	7,988	1,357

Gaz %	A-Gaz %
0.76%	0.69%
-	-
-	-
-	-
-	-
-	-
0.25%	0.00%
0.30%	0.00%
1.03%	0.00%
1.38%	0.00%
1.24%	0.00%
0.19%	0.00%
0.23%	0.00%
0.31%	0.00%
-	-
-	-
0.51%	0.69%
0.30%	0.45%
0.25%	0.36%
0.14%	0.19%
0.13%	0.29%
2.97%	0.75%
2.97%	0.75%
2.81%	0.76%
0.73%	0.06%
2.54%	0.20%
2.39%	1.53%
3.37%	1.53%
4.49%	1.69%
3.20%	1.69%
1.53%	0.88%
-	-
-	-
0.36%	0.18%
0.36%	0.18%
0.00%	0.00%
0.00%	0.00%
0.05%	0.09%
0.01%	0.03%
0.01%	0.04%
0.01%	0.04%
10.74%	2.52%
4.46%	0.91%
4.78%	1.03%
0.00%	0.00%
32.08%	8.42%
9.93%	5.05%
9.93%	5.05%
12.49%	3.77%
6.20%	20.43%
-	-
-	-
-	-
2498.45%	705.23%
2498.45%	705.23%



Appendix K – TIA RPEQ Certification and Authorisation



Certification of Traffic Impact Assessment Report

Registered Professional Engineer Queensland

for

Project Title:	Mount Hopeful Wind Farm
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As a professional engineer registered by the Board of Professional Engineers of Queensland pursuant to the *Professional Engineers Act 2002* as competent in my areas of nominated expertise, I understand and recognise:

- the significant role of engineering as a profession, and that
- the community has a legitimate expectation that my certification affixed to this engineering work can be trusted, and that
- I am responsible for ensuring its preparation has satisfied all necessary standards, conduct and contemporary practice.

As the responsible RPEQ, I certify:

- i) I am satisfied that all submitted components comprising this traffic impact assessment, listed in the following table, have been completed in accordance with the *Guide to Traffic Impact Assessment* published by the Queensland Department of Transport and Main Roads and using sound engineering principles, and
- ii) where specialised areas of work have not been under my direct supervision, I have reviewed the outcomes of the work and consider the work and its outcomes as suitable for the purposes of this traffic impact assessment, and that
- iii) the outcomes of this traffic impact assessment are a true reflection of results of assessment, and that
- iv) I believe the strategies recommended for mitigating impacts by this traffic impact assessment,
- v) embrace contemporary practice initiatives and will deliver the desired outcomes.

Name:	Andrew Barrie	RPEQ No:	12801						
RPEQ Competencies:	Civil	Date:	09 May 2023						
Signature:									
Postal Address:	PO Box 9864, Frenchville QLD 4701								
Email:	andrew.barrie@accesstraffic.com.au								

Traffic impact assessment components to which this certification applies	✓
1. Introduction	
Background	
Scope and study area	√
Pre-lodgement meeting notes	✓
2. Existing Conditions	
Land use and zoning	✓
Adjacent land uses / approvals	✓
Surrounding road network details	✓
Traffic volumes	~
Intersection and network performance	~
Road safety issues	~
Site access	N/A
Public transport (if applicable)	N/A
Active transport (if applicable)	N/A
Parking (if applicable)	N/A
Pavement (if applicable)	✓
Transport infrastructure (if applicable)	✓
3. Proposed Development Details	
Development site plan	~
Operational details (including year of opening of each stage and any relevant catchment / market analysis)	✓
Proposed access and parking	✓
4. Development Traffic	
Traffic generation (by development stage if relevant and considering light and heavy vehicle trips)	✓
Trip distribution	✓
Development traffic volumes on the network	✓
5. Impact Assessment and Mitigation	
With and without development traffic volumes	✓
Construction traffic impact assessment and mitigation (if applicable)	~
Road safety impact assessment and mitigation	✓
Access and frontage impact assessment and mitigation	✓
Intersection delay impact assessment and mitigation	✓
Road link capacity assessment and mitigation	✓
Pavement impact assessment and mitigation	✓
Transport infrastructure impact assessment and mitigation	~
Other impacts assessment relevant to the specific development type / location (if applicable)	N/A
6. Conclusions and Recommendations	
Summary of impacts and mitigation measures proposed	✓
Certification statement and authorisation	\checkmark