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Transport Assessment Report

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1 Introduction

1.1 Purpose

Aurecon Australasia Pty Ltd (Aurecon), on behalf of Powerlink Queensland (Powerlink) will submit a ministerial infrastructure designation report (MID report) to the Minister of State Development, Infrastructure, Local Government and Planning (the designator) seeking a ministerial infrastructure designation (MID) for a proposed transmission line linking the recently approved Wambo Wind Farm (the wind farm) and Halys Substation.

The MID report will seek to illustrate any potential impacts that the proposed infrastructure may have on environmental values within the existing Tarong-Chinchilla 132 kilovolt (kV) transmission line corridor (the project corridor), and the surrounding areas. A transmission line linking the Wind Farm and the substation will provide an uplift in the volume of renewable energy useable in the electricity grid in Queensland.

The scope includes an assessment of environmental impacts and providing recommendation of suitable response and mitigation measures, along with other assessments such as ecological, landscape and visual amenity and transport.

This Transport Assessment Report forms part of the overall MID report and should be read in conjunction with it, including for more detailed information on project background, land use information and local planning context.

1.2 Scope

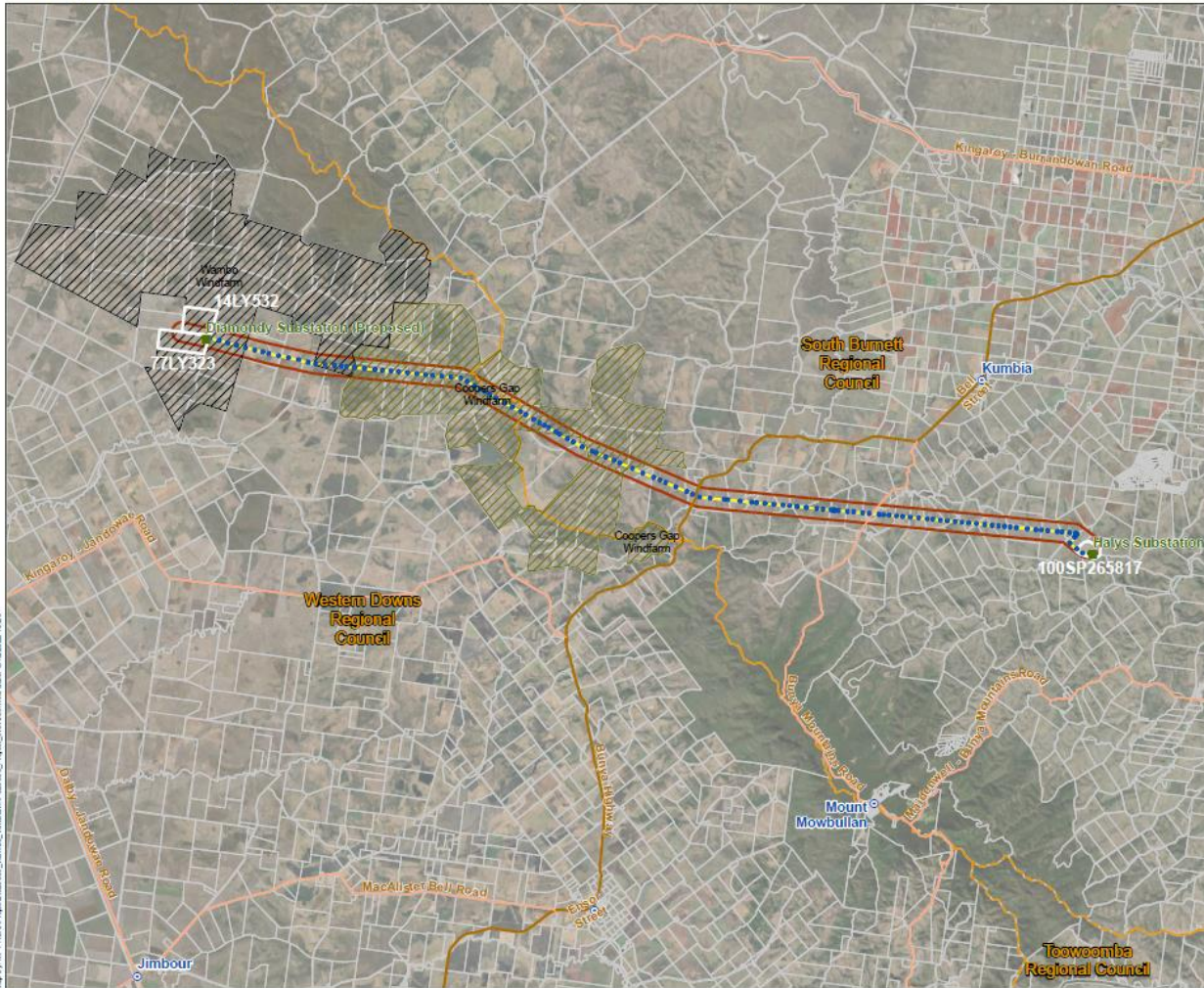
Aurecon has developed this high-level transport strategy to understand the network function and safety concerns for both the construction and operational phases of the project. This highlights potential transport infrastructure impacts which may require further investigation and discussion with the relevant authorities.

The geographic scope of the assessment (as shown in Table 1-1) includes the road links shown in Table 1-1.

Table 1-1 Study Area Roads

Road Name	Road Segment
Bunya Highway	Dalby to Bell
Bunya Highway	Bell to Kumbia
Bunya Mt Road	Bunya Highway to Bunya Mt Road CH 5.0km
Glenclyff Road (South Burnett Region)	Glenclyff Road to CH3.0km
Ellesmere Road (South Burnett Region)	Glenclyff Road to CH3.8km
Kumbia Road (South Burnett Region)	Kumbia to CH11.5km
Niagara Road (Western Downs Region)	Bunya Highway to Bunya Mt Road CH 24.5km
Wooletts Road (Western Downs Region)	Niagara Road to CH 5.0km
Diamondy Road (Western Downs Region)	CH 0-1.90km

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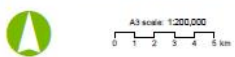
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- Legend**
- Locality
 - Substations
 - Tower structures
 - Highway
 - Secondary Road
 - Cadastre
 - Cadastre
 - ▨ Coopers Gap Windfarm
 - ▩ Wambo Windfarm
 - ▭ Local_Government_Areas
 - ▭ Project corridor
 - ▭ Study area

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Projection: MGA Zone 56

Powerlink Wambo transmission line
Figure 1.1 Study Area

Figure 1-1 Project Study area



1.2.1 Data sources

The following open data sources were used in this assessment:

- Traffic Census Data 2021, Qld Open Data
- Speed limit data, Qld Open Data
- Queensland Globe
- Powerlink provided data (construction time frame, employee estimates, and construction vehicles for works, etc).

1.2.2 Exclusions

The following exclusions apply to this this Transport Assessment Report:

- This is a desktop review only and no site visit was undertaken.
- Department of Transport & Main Roads' (TMR) Guide to Traffic Impact Assessment (GTIA) compliant reporting of impacts and mitigations. Note: The GTIA provides guidance to stakeholders involved in the development that can potentially impact on the safety, efficiency, or infrastructure condition of the state-controlled road network in Queensland. It outlines the principles and the framework for undertaking a traffic impact assessment and provides advice on mitigation strategies to address traffic impacts.
- Other typical Traffic Impact Assessment (TIA) specific activities which are not excluded in this study are Pavement Impact Assessment, traffic survey counts, crash analysis, full risk assessment, design work, Traffic Management Plans, Road Safety Audit, structural analysis, and Safe Systems Assessment.
- Due to lack of traffic counts, intersection assessment is limited to visual assessment/safety aspect and not for capacity assessment.
- Any activity or location not specifically listed above is excluded.
- Structural analysis for Strandquist Bridge (over the Spring Creek), Boyne River Bridge (over Boyne River) on Bunya Highway is not included

1.2.3 Disclaimer

- This report has been prepared with due care but is subject to assumptions, outlined throughout the report in the relevant sections, based upon information available at the time of writing.
- The review and assessment are based on information provided to Aurecon by other parties. Aurecon has not independently verified this information and does not accept responsibility or liability for any inaccuracies or shortcomings in this information.
- The review and assessment are provided strictly on the basis that the information that has been provided is accurate. Note that at the time of writing the information provided is not complete, that is the construction volumes for the permanent road network are not known and do not yet form part of this Transport Assessment Report.
- Should these information sources be modified by these third parties, Aurecon assumes no responsibility for any resulting inaccuracies in its information.
- The contents of this report must not be relied upon for design, construction, costing or programming purposes.

1.2.4 List of abbreviations & acronyms

Table 1-2 Abbreviations

Abbreviations	Reference
AADT	Annual average daily traffic
CTMP	Construction Traffic Management Plan
GTIA	Guide to traffic impact assessments
HML	Heavy Mass Limits
HV	Heavy Vehicles
LV	Light Vehicles
MID	Ministerial Infrastructure Designation
Qld	Queensland
SBRC	South Burnett Regional Council
SCR	State controlled road
TIA	Traffic Impact Assessment
TMP	Traffic Management Plan
TMR	Department of Transport & Main Roads Queensland
Vpd	Vehicles per day
WDRC	Western Downs Regional Council

2 Study Area Transport Features

2.1 Road features

The geographic scope of the assessment includes road links with the road features as noted in Table 2-1.

Table 2-1 Road Features

Road Name (Road Authority)	Road Segment	Speed limit	Description [1]
Bunya Highway (Qld TMR)	Dalby to Bell (Highway)	<ul style="list-style-type: none"> 100 kmph 60 kmph and 80 kmph [2] 	<ul style="list-style-type: none"> 2-lane undivided carriageway, ~ 9m wide with no sealed shoulders
Bunya Highway (Qld TMR)	Bell to Kumbia (Highway)	<ul style="list-style-type: none"> 100 kmph 60 kmph and 80 kmph [2] 	<ul style="list-style-type: none"> 2-lane undivided carriageway, ~ 12m wide with shoulders ~ 22m wide with shoulders in Kumbia
Bunya Mt Road (South Burnett Region)	Bunya Highway to Bunya Mt Road CH 5.0km (Arterial Road)	<ul style="list-style-type: none"> 100 kmph 60 kmph and 80 kmph [2] 	<ul style="list-style-type: none"> 2-lane undivided carriageway, ~ 8m wide carriageway (no shoulders)
Glenclyff Road (South Burnett Region)	Glenclyff Road to CH3.0km (Rural Collector / Rural Feeder)	<ul style="list-style-type: none"> 100 kmph 	<ul style="list-style-type: none"> Not accessible via Google Earth
Ellesmere Road (South Burnett Region)	Glenclyff Road to CH3.8km (Rural Collector)	<ul style="list-style-type: none"> 100 kmph 	<ul style="list-style-type: none"> 2-lane undivided carriageway, ~ 8m wide carriageway (no shoulders)
Kumbia Road (South Burnett Region)	Kumbia to CH11.5km (Arterial Road)	<ul style="list-style-type: none"> 100 kmph 60 kmph and 70 kmph [2] 	<ul style="list-style-type: none"> Not accessible via Google Earth
Niagara Road (Western Downs Region)	Bunya Highway to Bunya Mt Road CH 24.5km (Rural Collector)	<ul style="list-style-type: none"> 100 kmph 60 kmph [2] 	<ul style="list-style-type: none"> 1-lane undivided carriageway, ~4.5m wide carriageway (no shoulders) 2-lane undivided carriageway, ~6m wide carriageway (no shoulders)
Wooletts Road (Western Downs Region)	Niagara Road to CH 5.0km (Rural Collector / Rural Feeder)	<ul style="list-style-type: none"> 100 kmph 	<ul style="list-style-type: none"> Not accessible via Google Earth
Diamondy Road (Western Downs Region)	CH 0-1.90km (Rural Collector / Rural Feeder)	<ul style="list-style-type: none"> 100 kmph 	<ul style="list-style-type: none"> Gravel / Unpaved road, not accessible via Google Earth

■ [1] Approximate and varies

■ [2] Varies around localities

2.2 Heavy vehicles

Bunya Highway is a State Controlled Road and is a designated B-Double (25m) route. The section of Bunya Highway south of Sunnyvale Road intersection is designated as a Higher Mass Limits (HML) route as shown in Figure 2-1. The proportion of heavy vehicles (HV) is higher along the Bunya Highway due to lower overall volumes. The traffic volume assessment is summarised in Section 4 below.

2.3 Stock routes

Stock routes have been obtained from the Qld Globe data and are illustrated in Figure 2-2.

There is a water facility near the Bunya Highway / Kingaroy – Jandowae Road intersection. The stock routes within the South Burnett Region, along the Bunya Mountain Road and Alice Creek Road may get impacted during the works and needs further assessment in subsequent investigation in consultation with the local council and a Stock Route Network Management Strategy.

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Legend

- ⊙ Locality
- Structures
- 25-metre B-doubles and lower
- HML - Other declared roads
- Type 1 Road Trains and lower
- Highway
- Secondary Road
- ▭ Project corridor
- ▭ Study area

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Powerlink Wambo transmission line
Heavy vehicle routes

Figure 2-1 B-Double / HML Routes

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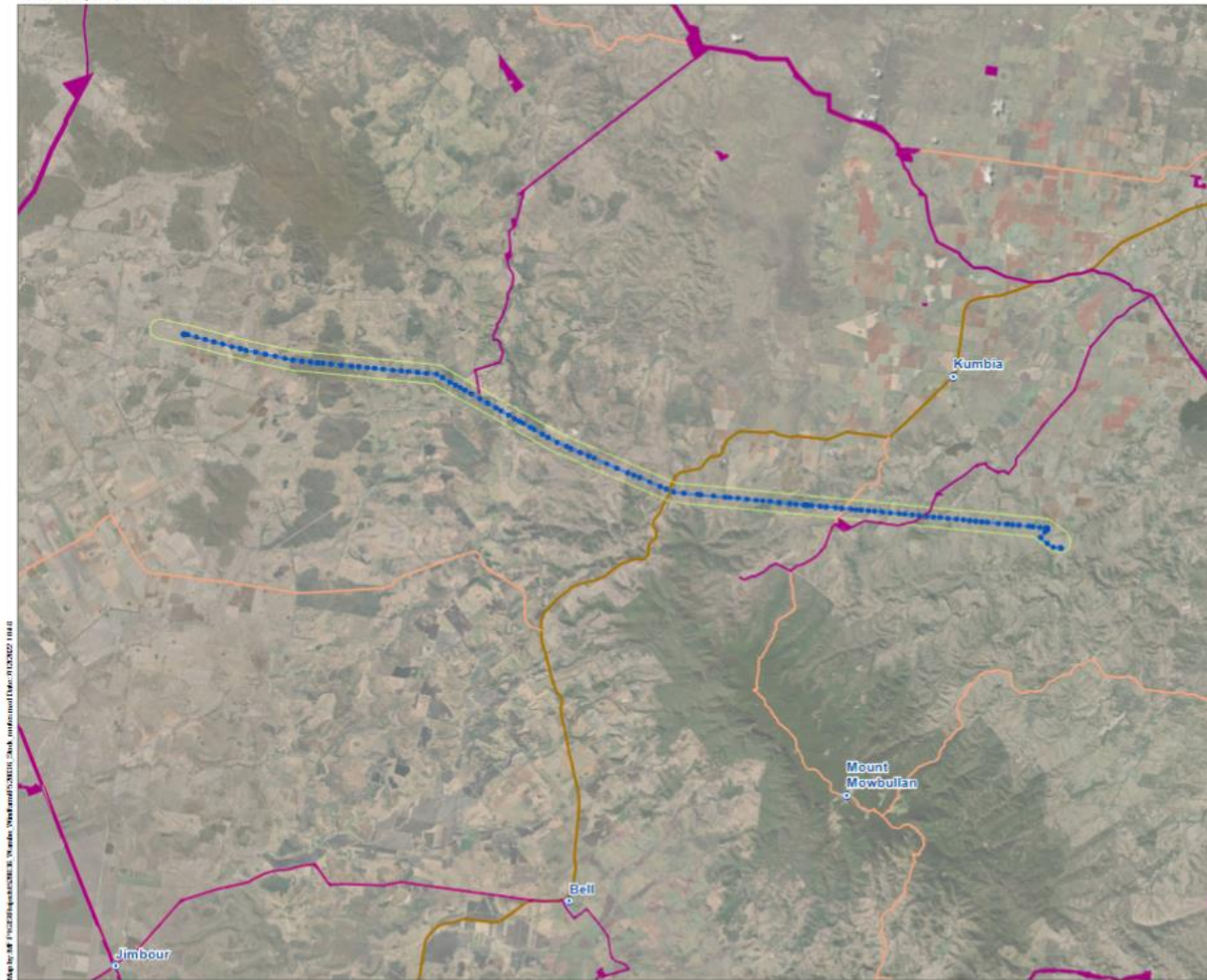


Legend

- Locality
- Structures
- Highway
- Secondary Road
- Stock routes and reserves
- Project corridor
- Study area

Notes:

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Job No. 520836
Projection: UTM Zone 55E

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Powerlink Wambo transmission line
Stock routes and reserves

Figure 2-2 Stock Routes

2.4 Other features

Qld Globe overlay review suggest no public transport routes or no principal cycle routes at the township of Bell or Kumbia are impacted by the Preferred Alignment. Active transport and public transport infrastructure are negligible (non-existent) outside the township of Bell and Kumbia.

The Average Annual Daily Traffic (AADT) volumes in vehicles per day (vpd) obtained from TMR Qld Open Data provides information on light and heavy vehicles only, no information about other modes, peak period splits or directional splits is available for the purpose of this assessment.

Both township of Bell and Kumbia have wider Bunya Highway corridor (>20m) with on street parking available, and access to shops. The Kumbia State School which is accessed via the Bunya Highway. Localised pedestrian crossings or on-street parking exist along Bunya Highway at the township of Bell and Kumbia, will need to be considered in the development of the traffic management plan.

2.4.1 Rail networks

A review of QLD Globe identifies that there are no railway lines are traversed by the project corridor. The nearest railway line connection is located in Dalby approximately 39km south of the Township of Bell.

2.4.2 Flight paths

The closest airport facilities are at Dalby Aerodrome, Kingaroy Airport, and Nanago Airfield.

While there are no certified aerodromes or regulated air service routes (of regional or State significance) are in close proximity to the Preferred Alignment. Powerlink will need to undertake consultation with the relevant authority or landholder of these airstrips to mitigate and manage any hazards or restrictions potentially created by the Preferred Alignment for landing, aerial spraying or mustering activities etc, if any.

3 Project Information

3.1 Indicative construction timeframe

The indicative construction timeline is expected to run from May 2023 to August 2024 (15 months) as identified by Powerlink. This timeline accounts for the following elements:

- Access works to the existing 132kV line from May to July 2023
- Clearing and access works to the new 275kV line from August to November 2023
- Preparing foundations from August 2023 to January 2024
- Assembling and erecting transmission towers from November 2023 to April 2024
- Stringing cables from February 2024 to July 2024.

Powerlink have also confirmed that the construction works will be undertaken using a rolling roster, as outlined below:

- Three weeks on and one week off with every second Sunday off
- Work periods are 10hrs a day with prestart at site offices at 6.30 am and working until 5.00 pm.

3.2 Site accommodation

Site accommodation will not be provided for employees. Employees will be paid an allowance and are to find their own accommodation in any location they deem suitable. It is assumed that all employees will find accommodation within the surrounding areas of Dalby as it is the closest area capable of housing up to 110 employees. During roster changes, staff may consider flying/driving to their primary place of residence by themselves.

3.3 Total staff and vehicles

Based on the information provided by Powerlink, the anticipated peak number of construction workers on site will be in the order of 110 staff operating on a 3 weeks on /1 week off roster. It is understood that construction staff movements will be made to/from accommodation site (sourced by workers and not managed / enforced by Powerlink) to the site office in the township of Bell using private vehicles, with the potential for a group of works to commute via shuttle buses depending on accommodation locations.

4 Transport Assessment

4.1 Data analysis

4.1.1 Data input

The Average Annual Daily Traffic (AADT) volumes in vehicles per day (vpd) obtained from TMR Qld Open Data are as shown in Table 4-1.

Table 4-1 Traffic Volumes (2021 AADT)

Site Id	Road Name	Location description	AADT (vpd)	Light Vehicles (LV) %	Heavy Vehicles (HV) %
30017	Bunya Highway (Dalby - Kingaroy)	Road 45A, 450m south of Pirrinuan Malakoff Road	953	79.2	20.8
30045	Bunya Highway (Dalby - Kingaroy)	Road 45A, 100m South of Walkers Road	863	75.99	24.01
37737	Bunya Highway (Dalby - Kingaroy)	East of Bunya Mountains Road	791	80.31	19.69

These sites do not provide the AADT volume split for the two directions (gazettal and anti-gazettal directional split). Local council roads' traffic count data is not publicly available. For appropriate assessment, traffic counts should be undertaken to assess the impact on directional movement.

4.1.2 Peak hour identification

The aforementioned sites did not include information about the peak period, so a typical morning peak and an evening peak has been assumed for assessment purposes.

4.1.3 Crash data

A high level crash data review of crash history available through Qld open data, which includes location and characteristics of crashes within Queensland for all reported Road Traffic Crashes 1 January 2010 to 31 December 2021, (property damage only crashes to 31 December 2010).

This high level review suggests approximately 45 crashes along Bunya Highway within the in SBRC and WDRC boundaries and including crashes along local roads in Bell, Caronga, Boyneside, Ellesmore and Kumbia Information about crashes on Niagara Road was not available in that database. out of the 45 crashes, three fatal crashes were recorded.

It is recommended to undertake a crash analysis for key interface locations between the project site and key roads in subsequent investigation phases, and a traffic management plan should be developed/adopted.

4.1.4 Additional project traffic assumptions

The estimate of the additional traffic generated during the period of demolition/construction activities between May 2023 to August 2024 (15 months) is based on the following assumptions:

- The demolition and construction durations are proportionate to the timeframes noted above and adjusted for 124 sites.

- It is assumed that this additional traffic is distributed evenly across the 15 month duration (daily variations are not included in this assessment).
- It is assumed that heavy construction vehicles are left on site during night time periods, and only the light vehicles make the daily trips between the individual site and the site office at the Township of Bell.
- As the Project's preferred alignment is an east-west linear stretch, approximately 20% vehicles are assumed to move along the site itself to access nearby tower sites, instead of the vehicles moving between tower sites using the public road network.
- It is assumed that the trips per tower construction and trips per day for substation construction are one-directional and should be doubled to account for return traffic.
- It is assumed the 110 peak employees attending the site are split 50/50 between individual private cars and shuttle buses transport. Trips are from Dalby through to a site office at Bell. Shuttle buses are assumed to have a maximum capacity of 14 people and an occupancy of 80%. Hence, 4 shuttle buses could be used to make the trips resulting in 48 employees (assuming 12 people per trip) transported by shuttle bus and 62 by private cars.

4.1.5 Maximum service flow rate

Austrroads' Guide to Traffic Management Part 3: Transport Study and Analysis Methods Section 5.1 suggest traffic flow may be constrained to a single traffic lane without overtaking, typical examples being a single lane provided in one direction on an undivided urban road with reversible lane flow, in a tunnel or at a construction or maintenance site. The study area while rural, can mostly be characterised as a undivided single traffic lane in each direction.

Factual data on adjustment factors that should be applied to the ideal capacity of 1,800 pc/h for a single lane is very limited. Based on the Austrroads' Guide to Traffic Management Part 3: Transport Study and Analysis Methods Section 5.1, the estimated single lane capacity is approximately 1,296 veh/h. Assuming the peak hour represents 15% of daily traffic, this equates to approximately 8,640 vpd on Bunya Highway (compared to current volume of approximately 900 vpd on Bunya Highway).

In the case of Bunya Highway, the road geometry with sealed shoulders and relatively generous lane widths, it is anticipated that there will be manageable impact with the desirable level of service generally maintained during the peak periods.

4.1.6 Long haul trips / Regional movement

Based on the data provided by Powerlink, a total of 124 towers are planned for construction. These towers would be transferred from Port of Brisbane to the site via Gateway Motorway, Logan Motorway, Warrego Highway and Bunya Highway.

Semi Low Loaders would be utilised to:

- Tower Steel Delivery (3 towers / truck) = 42 HV trips per direction over the construction period.
- Conductor Optical Ground Wire (6 drums / truck) = 24 HV trips per direction over the construction period.
- Line materials (7 drums / truck) = 20 HV trips per direction over the construction period.

Total long-haul trips are approximately 86 HV one directional trips over the construction period:

- These trips will not be simultaneous.
- As the typical average traffic along Port of Brisbane Motorway, Gateway Motorway, Logan Motorway, Warrego Highway is very high (over 10,000 vpd), the increase in project related traffic would be negligible (approximately 0.1%).
- Based on the AADT volumes on Bunya Highway and estimated single lane capacity (refer Section 4.1.5 above), and the Level of Service (LOS) along Bunya Highway at the Township of Bell, the impact is not anticipated to degrade the LOS.

- As the current HML route does not extend full length of Bunya Highway (as shown in Figure 2-1) and hence associated permits are required. Queensland excess mass and dimension conditions would need to be followed, and the transport of large equipment would require a permit from NHVR and approvals from WDRC, SBRC, TMR, and Qld Police Services (for Over mass and Over dimension vehicles, refer Figure 4-1).
- HVs delivering construction materials and equipment to site (i.e. concrete batching plant, construction and earthworks machinery), will be sourced from Toowoomba / Dalby, via the Warrego Highway and Bunya Highway.

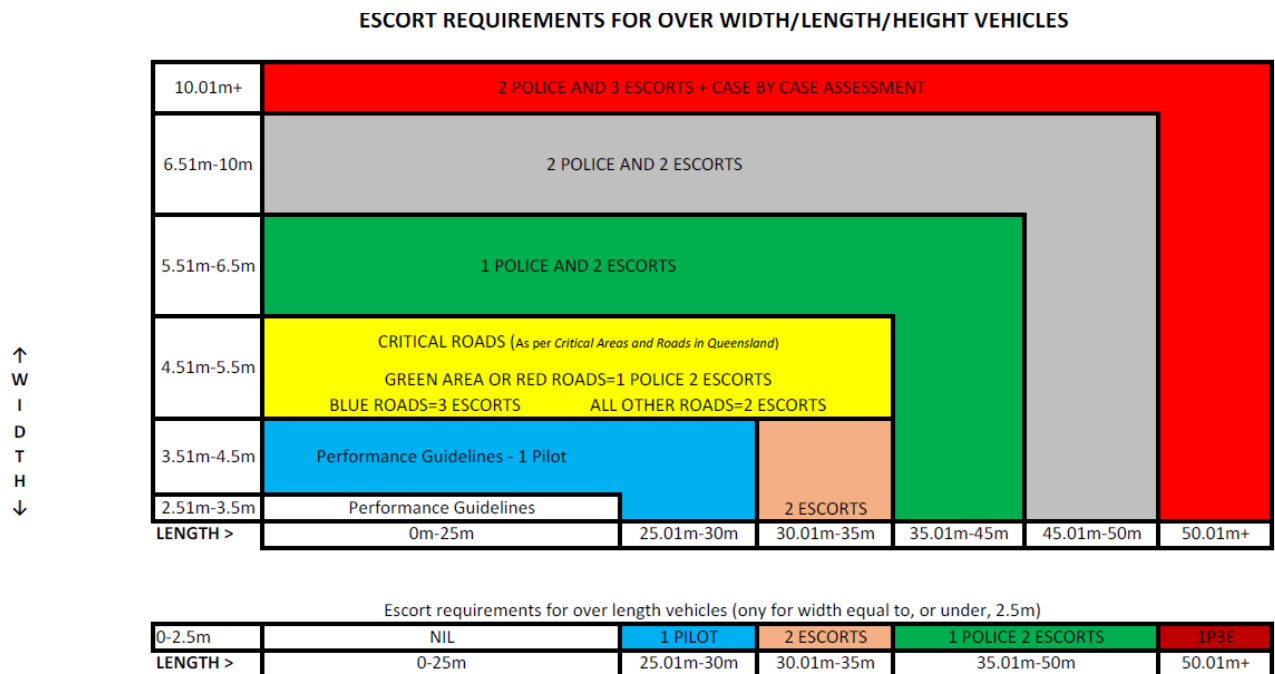


Figure 4-1 OD/OM Escort Vehicle requirements

4.1.7 Short haul trips / Local movement – Personnel

Based on the information provided by Powerlink, the anticipated number of construction workers on site will be on a 3/1 roster, with approximately 110 staff on site at any given time. During roster changes, staff will be managing the transport themselves from their work-based accommodation.

It is understood that all construction staff movements will be made to/from accommodation sites to the site office in the township of Bell and is arranged by the staff themselves. Based on the assumptions in section 4.1.4, this will be using a combination of up to four (4) shuttle buses and up to 62 private vehicles. This will generate eight (8) shuttle bus trips per day (two way) and 124 passenger car trips per day (two way) during the construction period.

4.1.8 Short haul trips / Local movement – Material and Equipment

The daily activities at the 124 transmission tower sites including heavy vehicles delivering construction materials and equipment to site (i.e., concrete batching plant, construction, and earthworks machinery), will be sourced from Toowoomba / Dalby, via the Warrego Highway and Bunya Highway.

The proposed vehicles (other than light vehicles) to be used at the 124 tower sites, includes:

- 8x8 Truck for demolition, for blocks, and for towers
- 4x4 Hino Winch Truck
- 8x8 mounted EWP
- Excavator, an Excavator Shearer
- Tip Truck

- 100T Crane, 50T Crane, and a 130T Crane
- Bobcat
- SR 30 Soilmec or similar
- Telehandler
- Concrete Agitator
- Franna.

This short haul HV traffic will predominantly occur during the mobilisation and demobilisation phases of the construction phase. Hence, the majority of HVs will reside on site throughout the construction period and operate along the proposed works corridor.

Local authority roads such as Niagara Road and all other roads as noted in Table 2-1, and access from the site office at the township of Bell, will serve to the Project’s preferred route for vehicle movements during construction.

As mentioned previously, most of the anticipated construction traffic movements only occur on an occasional basis and not daily. Hence, the following daily traffic volumes were conservatively adopted for the impact assessment purposes:

- Long haul regional movement of materials and equipment – 86 HV (over 15 months) one way trip (excludes return journey, as return route beyond Dalby is unknown at this stage), detailed breakdown of delivery not available this stage.
- Other regional movement of material and equipments (originating from Toowomba / Dalby or similar) – 10 HV trips assumed, detailed breakdown of delivery not available this stage.
- Local movement of construction personnel from accommodation to site office in Bell (up to 110 personnel) – 132 LV vpd (two way trips).
- Local movement of construction personnel from site office to tower locations – 82 LV vpd (two way trips)
- Local movement of construction material and equipment – 63 HV vpd (two way trips with the exception of heavy machinery).

The movement of construction material and equipment have the potential to disrupt movements of local school buses, in Kumbia along Bunya Highway. Therefore, measures will be required to mitigate this potential issue, investigated during development of TMP.

4.1.9 Volume proportion increases

Table 4-2 shows the percentage of project traffic increase to background traffic due to construction on road links. It is noted that only three (3) traffic count sites are available on the road links for this project.

At these traffic count site locations, the estimated increase in the traffic volumes from the project are expected to be order of 18%. In all instances, the increase in traffic volume are more than the 5% recommendation from the GTIA. For HVs, the increase is estimated to be up to 30%.

Though there is a noted increase in the traffic volumes, the combined increase (current volumes plus the project generated traffic)at these locations are far below the lane capacity of 1,296 veh/h. The spare lane capacity available on the Bunya Highway, can be utilised without decreasing the current Level of Service (LOS), as such the anticipated construction traffic impact will be manageable. .

Table 4-2 Volume increases on road links with known AADT

Road Name	Section (Traffic Count Site ID)	Background Traffic - 2021 AADT (vpd)*			Project Traffic (vpd)			Temporary Traffic Growth During Construction Period (vpd)	
		LV	HV	Total	LV	HV	Total	HV	Total
Bunya Hwy	Dalby to Bell (30017)	718	235	953	132	10	142	4.26%	14.90%

Bunya Hwy	Bell to Niagara Rd (30045)	656	207	863	82	63	145	30.43%	16.80%
Bunya Hwy	Bunya Mt Rd to Kumbia Rd (37737)	635	156	791	10	35	45	22.44%	5.69%

* A growth factor on the annual traffic has not been applied as the impact of the development is temporary only (limited to the period of construction).

4.1.10 Vehicle composition proportions

The assessment has been undertaken for two broad vehicle categories, LV and HV only. For the delivery of material and equipment, the Queensland excess mass and dimension conditions would need to be followed, and the transport of large equipment would require a permit from NHVR and approvals from WDRC, SBRC, TMR, and Qld Police Services (for Over mass and Over dimension vehicles).

It is recommended that a Construction Traffic management plan (CTMP) is developed to complete the investigation as the construction methodology is further defined and construction material/equipment delivery schedule is known. The CTMP should also include any subsequent investigation, in consultation with the local council WDRC or SBRC based on the location.

Construction traffic management measures would be required to be adopted during the 6-weeks period or as determined as per the CTMP.

4.1.11 Local authority roads

While the existing traffic volumes on local roads are unknown, based on current assessment, the impact of estimated construction traffic volumes on Niagara Road and other local roads during the demolition / construction period cannot be assessed. However, given the low background traffic volumes (e.g., 2021 AADT of 91 vpd along Kingaroy – Jandowae Road, which is parallel to Niagara Road), the traffic operation of local roads is unlikely to be impacted by the Project during the demolition / construction period.

As noted earlier, the CTMP should also include any subsequent investigation, in consultation with the local council WDRC or SBRC based on the location, to agree on the road use protocols, including maintenance and remediation works (for road and bridge/other structures), if damage is caused by project traffic.

4.1.12 Temporary road closures

Temporary road closures may be required for road user safety during certain construction activities, such as conductor stringing. These will generally be for a short duration (2-3 days) (i.e., during aerial stringing) and with appropriate traffic management plans and procedures in place, the traffic flow impacts on State-controlled roads and local authority roads will be minimal. Temporary road closures shall not restrict emergency service vehicle movement.

Powerlink will work with SBRC and WDRC to agree on road use protocols, including impact to stock routes caused by project traffic and temporary road closures. Minor temporary traffic management measures and vehicle permitting will be required for the construction phase of the project.

5 Summary and Conclusions

Based on the above discussions and analysis, the following is summarised:

- The proposed works include construction of construct an energy transmission line spanning 47km (along the preferred alignment) from the Diamondy Substation associated with the Wambo Wind Farm and terminating at Halys Substation along the over a period of 15 months.
- Access to all the sites is proposed via Bunya Highway off Niagara Road.
- Peak construction activity is expected to generate approximately 285 vpd comprising:
 - Light vehicles (LV): 132 vpd by construction workforce between the accommodation sites to the Site office in the township of Bell.
 - Light vehicles (LV): 82 vpd by construction workforce between the Site office in the township of Bell to tower construction sites.
 - Heavy vehicles (HV) – short haul: 63 vpd for construction material delivery (including transformers and batteries), equipment transportation, etc between the tower sites to/from the Site office.
 - Heavy vehicles (HV) – short haul: 10 vpd for construction material delivery (including transformers and batteries), equipment transportation, etc to/from Toowoomba / Dalby and the Site office.
 - Heavy vehicles (HV) – long haul: 86 movements for construction material delivery (including transformers and batteries), equipment transportation, etc. from Port of Brisbane to the sites (over a period of 15 months). These one off trips are not included in the daily vpd estimate.

A high level strategic transport assessment has been undertaken which included a road link impact assessment in Section 4 found that construction period volume (of 15 months only) increase, exceeds the 5% specified in GTIA (2018 edition, Table 6.4); however, this does not affect the Level of Service for the links after the construction period and is deemed to be temporary and having a negligible impact.

- Subsequent to appointment of a Principal Contractor for this project, the assumptions contained within this document shall be tested and the proposed traffic volumes can be confirmed. Subsequent investigations should consider:
 - Intersection analysis in terms of safety and capacity, and turn movement assessments (including HV wheel tracking path assessment) for local road crossings and Bunya Highway access/egress, supported by undertaking intersection and mid block traffic counts.
 - Midblock capacity analysis in terms of lane capacity, supported by undertaking mid block traffic counts involving directional movements and peak period movements
 - Traffic management plans including permits to extend impact assessment and review of any changes proposed or considered necessary regarding the access points.
 - Crash history review is recommended as construction traffic and type of construction vehicles may increase crash risk at the location.
 - Road geometry checks, sightline checks such as Safe intersection sight distance, Minimum gap sight distance, Approach sight distance, Entry sight distance assessments may need to be completed closer to construction phase to validate any findings. No wheel tracking path analysis at intersections or local roads have been undertaken at this stage and a review is recommended prior to construction traffic management measures.
 - Bridges and Culverts assessment to confirm their capacities to carry loads (including existing condition) have not been undertaken, and some structures may require minor repairs. It is recommended that an assessment should be undertaken in subsequent investigation, in consultation with the asset owner, prior to the commencement of construction activities.
 - A pavement impact assessment has not been undertaken. It is recommended that an assessment should be undertaken in subsequent investigation, in consultation with the asset owner, prior to the commencement of construction activities.

- Maintenance activities for the proposed transmission line and switching station have not been assessed. Planned maintenance activities, if any, involving vegetation (re-growth) clearing to maintain safe electrical clearances and structure inspection will require vehicular access to and along the transmission line easement [Note: These activities are outside the bounds of the construction period and Powerlink will work with SBRC and WDRC to agree on road use protocols associated with the maintenance activities].
- Development of a CTMP, as construction traffic management measures are required to be adopted during the 6-weeks period or as determined as per CTMP. The CTMP should at least investigate measures such as speed reductions, advance warning signs and site traffic control, and any other safety measure as recommended from a crash analysis.
- Transportation Permits of the large equipments will require a permit from NHVR and approvals from WDRC, SBRC, TMR, and Qld Police Services including impact to Stock Routes.
- A CTMP will be developed in consultation with the road controlling authority (WDRC, SBRC, or TMR) and other stakeholders and implemented for the construction works prior to commencement of the project as such to manage or mitigate any potential impacts

This preliminary assessment finds that the traffic generation arising from the proposed construction works is moderate and will have a manageable impact in terms of the performance of the surrounding road network. The assessment also finds that the proposed works and the level of added traffic activity is temporary and would not compromise the function of Bunya Highway. In conclusion, the proposed works can be supported on a traffic and transportation basis, subject to subsequent investigations upon appointment of a Principal Contractor.

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