QGC – TRANSPORT STUDIES FOR QCLNG PROJECT

Road impact assessment report – December 2009

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INTRODUCTION

This report sets out the impact assessment on transport infrastructure of the upstream component of the proposed QGC, a BG Group Business, Queensland Curtis LNG project. The upstream component addresses the gas field development and all associated pipelines, including the gas and water collection headers and export pipeline. The gas field development proposes approximately 6000 natural gas wells and their supporting infrastructure in the Surat Basin over a period of 23 years.

This report examines the quantity of traffic generated during the construction of the wells, compressor stations, processing plants, water treatment facilities, pipeline related infrastructure and pipelines, as well as quantifying the impact which this traffic will have on the state controlled road network throughout the areas affected by the construction and operation throughout the life of the project.

The impact on the state controlled network for the construction and operational phases of the pipelines and well field infrastructure has been assessed in accordance with Queensland's Department of Main Roads *Guidelines for assessment of road impacts of development* (2006) (DMR Guidelines) for this report.

The assessment of impacts for this road network will be on the basis of agreement between QGC and the relevant authority on the condition of affected roads prior to the project traffic using particular roads. These roads will be maintained to a similar standard while project traffic is using the road and after project traffic ceases to use the road.

As the decommissioning involving the removal of the above surface facilities will occur beyond the 23-year life of the project, a final assessment of the impacts on transport infrastructure would occur at that time.

DEVELOPMENT / ROAD USE PROFILE

Project Description

The project is being developed under the *State Development and Public Works Organisation Act 1971*. For the purpose of this project description, the project has been divided into gas field and major pipeline components. For the purpose of analysis in this report, the impacts of both the gas field and pipeline components have been combined.

Gas field

The gas field component involves the development of 6000 wells, 57 compressor stations and the supporting gas gathering pipelines, trunklines and access roads in the Surat Basin over a 23-year period. The wells are expected to produce 3–4 million tonnes of coal seam gas (CSG) for conversion to liquefied natural gas (LNG) each year. Currently there are some CSG fields in place and in use, but QGC's proposed development will greatly increase the production of CSG.

The 6000 wells will be distributed throughout the QGC tenures. Gas and water gathering lines will connect the wells to the 53 field compressor stations (FCS). These in turn will be connected by gas and water trunklines to the four central processing plants (CPPs).

For this project, the construction phase has been defined as the period up to and including 2014. Post 2014 the project will be nominally in the operational phase; however, there will be ongoing construction activities associated with the construction of the remaining wells, WTPs, FCSs, and the gas and water trunklines and gathering lines.

The assessment for development of the CSG wells is based over the 23-year life of the project. The assessment of the generated traffic volume impacts is based on the peak year of the well construction program, which is around 500 wells in 2014. The pavement impacts (traffic loads) have been accumulated over the entire construction and operational phases of the project.

Pipelines

To meet the LNG plant supply demands, a 1050 mm diameter steel pipe will be required for the gas collection header and the export pipeline. This size of pipe is not currently produced in Australia and therefore must be sourced from overseas. It has been assumed that the pipe will be shipped to the Ports of Brisbane (approx 60%) and Gladstone (approx 40%).

The water collection header will require an 800 mm diameter pipeline to transport water from the CPPs to a water treatment plant prior to disposal.

The pipelines are all proposed to be constructed during the 2011–2014 construction period. The peak pipeline construction workforce during this phase is expected to be approximately 1300 workers..

Transport mode

As a worst case scenario all land-based freight movements are assumed to be via road transport. Multimodal transport (rail to Chinchilla or Miles and then by road) has not been assessed in detail.

Location of wells

The gas fields cover a large area (approximately 491,602 ha) and are located in areas between Woleebee Creek and Tara. Wells are typically spaced 750 m apart from one another within these areas.

Location of pipelines and haul route

The origin of the export pipeline is the Miles Power Station just east of Miles. The pipeline traverses 380 km north-east and passes through the local government areas of Dalby Regional Council, Banana Shire Council, North Burnett Regional Council and Gladstone Regional Council. It is planned that 260 km of pipe for the export pipeline will be delivered via the Port of Brisbane, and 120 km of pipe via the Port of Gladstone.

The 170 km of the water collection header will span from the south-west of Dalby at its eastern end to the south-west of Wandoan at its western end, and is expected to be transported form the port of Brisbane.

The gas collection header, which comprises 100 km from the south-west of Dalby at its eastern end to the export pipeline at the Miles Power station just east of Miles and the Woleebee Creek gas pipeline, and is also expected to be transported form the port of Brisbane.

The 800 mm water pipeline is expected to originate from other sources in Brisbane as it is manufactured in Australia.

Pipeline construction camps

Construction workers will be accommodated in construction camps to be established within designated areas along the length of the export pipeline and UIC. Each camp will be set up to keep the distance of travel to the work area at 60–70 km maximum.

Time span of haulage

The proposal is to develop 6000 wells over a period of 23 years, with up to 500 wells developed in the peak year of construction.

In the operational phase generated traffic will reduce as the activities will include operating and maintaining the well heads, the field compressor stations and the central processing plants, and well construction will be at a reduced rate to that in the peak year of 2014.

Haulage of the pipeline component is scheduled to commence in December 2010 and cease in May 2012.

Haulage regime—days and times of operation

The nominated haulage regime for analysis is for all of the materials and equipment related to the gas fields to be sourced from Brisbane and hauled by road throughout the area. The nominated regime is considered to be the worst case scenario for impacts on the road network.

Haulage will be undertaken using semitrailers for pipeline and construction camp components. Large items for field compressor stations and the central processing plants will be transported on multi-axle platform vehicles. Fuel will be delivered in semitrailers or by B-double.

PAVEMENT IMPACT ASSESSMENTS

Current pavement loadings

The current pavement loadings on the state controlled road network have been assessed using traffic count volumes, proportion of heavy vehicles and annual growth rates provided by the Department of Transport and Main Roads. The average ESA per commercial vehicle on each road ranged between 2.52 and 4.36.

Pavement impact assessment

Pavement loading from the construction has been calculated for the 20 year life of the pavement for each road unit.

The impact of the haulage on the 20 year pavement loading on sections of the Warrego Highway is significant (e.g. Dalby–Miles and Miles–Roma). Other routes that also potentially have significant impacts on the 20 year pavement loading are:

- Leichhardt Highway (Miles–Goondiwindi)
- Moonie Highway (Dalby–St George)
- Surat Developmental Road (Tara–Dalby)
- Dalby–Kogan Road
- Kogan–Condamine Road
- Jackson–Wandoan Road
- Dalby–Jandowae Road.

The proposed transport of all Project materials on these roads would exceed the usage of the 20 year design load by 5% or greater as specified by the DMR Guidelines.

The pavement loading on individual local government controlled roads will be less than that for the state controlled roads. However, as these are unsealed and with only nominal pavement, additional maintenance in the form of more regular heavy grading and re-sheeting will be required.

The extent of this increased maintenance will depend on the actual amount of haulage that occurs on these roads and should be formulated through a road condition audit in conjunction with the road authority.

TRAFFIC OPERATIONS ASSESSMENT

Level of service

The level of service (LOS) generally describes the operational conditions within a traffic stream, and their perception by motorists. These conditions are described in terms of factors such as speed, travel time, freedom to manoeuvre, traffic interruptions, comfort, convenience and safety. In general there are six recognised levels of service, from A to F, with level of service A representing the best operation and level F the worst.

The changes to level of service resulting from the project are summarised as follows:

- Leichhardt Highway (Westwood–Taroom) from LOS A to LOS A–B
- Warrego Highway (Dalby–Miles) from LOS B–C to LOS B–D
- Jackson Wandoan Road from LOS A to LOS B–C.

Intersection analysis

The peak hour volumes generated by the project will vary between the volumes travelling through the city of Toowoomba and the town of Dalby as opposed to the roads in the vicinity of the construction camps.

This analysis shows that the volume of project generated traffic through Toowoomba is 460 vehicles per day. For the purpose of assessing the impact on intersections, it is assumed that the peak hour volumes are 10% of the daily volumes, therefore the increase in traffic on the Warrego Highway is 46 vehicles per hour. Based on a 70/30% directional split, the increase in peak hour volume in the major direction is 32 vehicles per hour. This volume will not have an impact on the operation of intersections through the city.

A short section of the Warrego Highway between the Moonie Highway and Dalby–Jandowae Road is expected to carry an increase of up to 1883 vehicles per day. Adopting a 70/30% directional split and assuming 10% of daily volume in the peak, this equates to an approximate peak hourly increase of 130 vehicles per hour. This may have an impact on the operation of the intersections on this section of road which will be confirmed in consultation with the Department of Transport and Main Roads.

IMPACT MITIGATION FOR ROADS

State controlled roads

Impacts

The impacts on the state controlled road network are summarised as follows:

- There will be a significant increase in the volume of traffic using the roads as set out in Table 5.1.
- The increase in traffic volumes on the Jackson–Wandoan Road may require the widening of the pavement to two lanes over the existing narrow floodways.
- Table 5.2 shows that increases in traffic volume change the current level of service on the following roads:
    - Leichhardt Highway (Westwood–Taroom) from LOS A to LOS A–B
    - Warrego Highway (Dalby–Miles) from LOS B–C to LOS B–D and
    - Jackson Wandoan Road from LOS A to LOS B–C.

  The level of service on all other roads remains unchanged.

- The haulage on the 20-year pavement loading is significant on sections of the Warrego Highway (Dalby–Miles, Miles–Roma and Roma–Mitchell), Leichhardt Highway (Miles–Goondiwindi), Moonie Highway (Dalby–St George), Surat Developmental Road (Tara–Dalby), Dalby–Kogan Road, Kogan–Condamine Road, Jackson–Wandoan Road and Dalby–Jandowae Road.

Development Contribution methodology

An assessment of the development contribution will be undertaken on sections of the Warrego Highway (Dalby–Miles and Miles–Roma), Leichhardt Highway (Taroom–Miles and Miles–Goondiwindi), Moonie Highway (Dalby–St George), Surat Developmental Road (Tara–Dalby), Dalby–Kogan Road, Kogan–Condamine Road, Jackson–Wandoan Road and Dalby–Jandowae Road, Chinchilla–Tara Road, Condamine–Meandarra Road and Tara–Kogan Road.

Local government controlled roads

As the majority of the local government roads are unsealed, the increase in traffic volume on the roads listed in Appendix C may be significant. The appropriate treatments for these roads will be negotiated with the relevant local government councils. The amelioration could be:

- more regular maintenance grading
- gravel re-sheeting
- dust suppression
- paving and sealing roads near construction camps

upgrade of intersections where sight distances do not meet standards.

1 Introduction

This report sets out the impact assessment on transport infrastructure of the upstream component of the proposed QGC, a BG Group Business, Queensland Curtis LNG project. The upstream component addresses the gas field development and all associated pipelines, including the gas and water collection headers and export pipeline. The gas field development proposes approximately 6000 natural gas wells and their supporting infrastructure in the Surat Basin over a period of 23 years.

Gas transmission pipelines will be developed to provide 3–4 million tonnes of LNG per annum to the international market. Water pipelines will be used to collect the associated water produced during CSG production and transport it to treatment/storage facilities.

The proposed pipelines are as follows:

- *Export pipeline:* A 380 km gas transmission line from approximately 9 km east of Miles to an LNG processing plant at Curtis Island on the northern side of Gladstone Harbour
- *Water collection header*: Approximately 170 km of water pipeline, spanning from south-west of Dalby at its eastern end to the south-west of Wandoan at its western end. There will be a parallel gas transmission line (Collection Header) from Condamine to the Dalby end
- *Gas collection header*: This will be in two parts:
  - 100 km gas transmission pipeline within the Upstream Infrastructure Corridor (UIC), from near Miles to the Dalby end, parallel to the water collection header
  - Woleebee Creek pipeline: A gas transmission line from the Woleebee Creek gas fields in the west, spanning east until it intersects the export pipeline.

This report examines the quantity of traffic generated during the construction of the wells, compressor stations, processing plants, water treatment facilities, pipeline related infrastructure and pipelines, as well as quantifying the impact which this traffic will have on the state controlled road network throughout the areas affected by the construction and operation throughout the life of the project. The traffic is expected to be generated from:

- construction personnel; work based and non-work based trips
- transport of line pipe for the various pipelines (i.e. export pipeline, gas and water collection headers, gas and water trunklines and gas and water gathering lines)
- transportation of scraper station facilities

- transportation of meter station facilities.
- drilling machinery
- bore casings
- well head equipment
- screw and centrifugal compressors
- tri-ethylene glycol (TEG) units
- pump units
- campsite components (modular buildings)
- water treatment plant (WTP) and chemicals components
- heavy plant for construction, e.g. bulldozers, graders, trucks, excavators, loaders, side boom tractors, padding machines, wheel ditching machines and water trucks
- quarry materials for access tracks and hardstands around facilities and camps
- fuel supplies
- general supplies (e.g. food, cleaning materials, etc.)
- substations
- powerlines.

The impact on the state controlled network for the construction and operational phases of the pipelines and well field infrastructure has been assessed in accordance with Queensland's Department of Main Roads *Guidelines for assessment of road impacts of development* (2006) (DMR Guidelines) for this report.

For this project, the construction phase has been defined as the period up to and including 2014, by which time the following will have been commissioned:

- 2000 gas wells and associated gas and water pipelines
- four central processing plants (CPPs)
- twenty field compressor stations (FCSs)
- the export, collection header and Woleebee Creek main gas pipelines
- trunk water pipelines.

The operational phase of the project is from 2015 onwards and includes the development of a further 4000 wells and associated gas and water gathering pipelines, and a further 33 FCSs and associated electrical supply.

The distribution of the traffic generated onto the local government controlled network cannot be determined with certainty at this stage as there are a number of alternative routes along the local government controlled network that have been identified as potentially being used. As the majority of the local government controlled network is unsealed, the rate of deterioration under the project traffic is not predictable to any degree of accuracy. The assessment of impacts for this road network will be on the basis of agreement between QGC and the relevant authority on the condition of affected roads prior to the project traffic using particular roads.

These roads will be maintained to a similar standard while project traffic is using the road and after project traffic ceases to use the road.

As the decommissioning involving the removal of the above surface facilities will occur beyond the 23-year life of the project, a final assessment of the impacts on transport infrastructure would occur at that time.

2 Development / road use profile

2.1 PROJECT DESCRIPTION

The project is being developed under the *State Development and Public Works Organisation Act 1971*. For the purpose of this project description, the project has been divided into gas field and major pipeline components. For the purpose of analysis in Sections 3 to 8 of this report, the impacts of both the gas field and pipeline components have been combined.

2.1.1 Gas field

The gas field component involves the development of 6000 wells, 57 compressor stations and the supporting gas gathering pipelines, trunklines and access roads in the Surat Basin over a 23-year period. The wells are expected to produce 3–4 million tonnes of coal seam gas (CSG) for conversion to liquefied natural gas (LNG) each year. Currently there are some CSG fields in place and in use, but QGC's proposed development will greatly increase the production of CSG.

The 6000 wells will be distributed throughout the QGC tenures. Gas and water gathering lines will connect the wells to the 53 field compressor stations (FCS). These in turn will be connected by gas and water trunklines to the four central processing plants (CPPs).

Three water treatment plants are proposed, nominally located north-west at Woleebee Creek (Woleebee WTP, 25ML), centrally at the junction of the collection header and export pipeline (Bellevue WTP, 30ML) and the south-eastern end of the collection header (Ruby WTP, 60ML).

During the initial construction phase from 2011 to 2014 the peak construction workforce associated with the gas field will be approximately 3900 personnel housed in 10 construction camps located throughout the gas field.

Post 2014 the project will be nominally in the operational phase; however, there will be ongoing construction activities associated with the construction of the remaining wells, WTPs, FCSs, and the gas and water trunklines and gathering lines. Gas-field operational personnel will comprise both operational staff and construction staff developing the additional wells, with a peak combined workforce of approximately 2100 staff in mid-2018.

The assessment for development of the CSG wells is based over the 23-year life of the project. The construction of the FCSs will occur on an as-needed basis to meet the increase in demand as the fields are developed and brought on line over the life of the project. The assessment of the generated traffic volume impacts is based on the peak year of the well construction program, which is around 500 wells in 2014.

Over the remaining years of the program the volumes of generated traffic per day will be less than the volume reflected in this assessment.

The pavement impacts (traffic loads) have been accumulated over the construction and operational phases of the project.

The decommissioning will be undertaken in accordance with the requirements of the relevant legislation and will involve removing the above surface equipment with the subsurface construction remaining in situ.

2.1.2 Pipelines

To meet the LNG plant supply demands, a 1050 mm diameter steel pipe will be required for the gas collection header and the export pipeline. This size of pipe is not currently produced in Australia and therefore must be sourced from overseas. It has been assumed, based on logistics studies to date, that the pipe will be shipped to the Ports of Brisbane (approx 60%) and Gladstone (approx 40%).

The water collection header will require an 800 mm diameter pipeline to transport water from the CPPs to a water treatment plant prior to disposal.

The pipelines are all proposed to be constructed during the 2011–2014 construction period. The peak pipeline construction workforce during this phase is expected to be approximately 1300 workers, housed in 6 camps located between Gladstone and Miles.

Operation of the transmission pipelines will require very few transport movements, primarily associated with pipeline inspections and maintenance, and these will not create any impacts on the road network. The pipeline operations workforce is expected to be approximately 20 persons based at Windibri.

2.2 COMPARISON OF DRAFT EIS AND SUPPLEMENTARY EIS DATA

The difference in project details between the original EIS submission and the supplementary EIS are presented in Appendix A.

2.3 HAULAGE ROUTES

2.3.1 Transport mode

As a worst case scenario all land-based freight movements are assumed to be via road transport. Multimodal transport (rail to Chinchilla or Miles and then by road) has not been assessed in detail. QGC is committed to using rail transport and developing a long-term relationship with Queensland Rail throughout the field life cycle. It is QGC's intention to makes rail transport a central plank of its logistics network, and to use all available rail paths as they become available. Consolidation centres will be set up to move as much in gauge freight as possible off the road and on to rail transport. An assumption that 75% of the material being delivered to the gas field area during the construction phase (i.e. up to 2014) and 100% post construction (i.e. from 2015 onward) can be transported by rail has been considered to assess the potential variation in loads on the various routes (refer Appendix J).

2.3.2 Location of wells and haul route

The gas fields cover a large area (approximately 491,602 ha) and are located in areas between Woleebee Creek and Tara. Wells are typically spaced 750 m apart from one another within these areas. An indicative map of the well haulage route is attached in Appendix B. For the purpose of this assessment it is assumed that all equipment necessary for the well construction is transported by road from the Port of Brisbane.

The state controlled road network elements considered for road haulage routes of all equipment and plant to the gas field worksites as well as construction worker trips are:

- Port of Brisbane Road 904
- Gateway Motorway (South) U13A
- Cunningham Arterial U16 (Ipswich Motorway)
- Cunningham Highway 17A (Ipswich Motorway)
- Warrego Highway 18A (Ipswich–Toowoomba), including Cohoe Street and Jones Street, Toowoomba
- Warrego Highway 18B (Toowoomba–Dalby) including James Street, Tor Street and Bridge Street, Toowoomba
- Warrego Highway 18C (Dalby–Miles) and 18D (Miles–Roma)
- Leichhardt Highway 26B (Taroom–Miles) and 26C (Miles–Goondiwindi)
- Moonie Highway 35A (Dalby–St George)
- Surat Developmental Road 86B (Tara–Dalby)
- Dalby–Kogan Road 340
- Chinchilla–Tara Road 341
- Kogan–Condamine Road 342
- Condamine–Meandarra Road 345
- Tara–Kogan Road 3402
- Jackson–Wandoan Road 4302

The haul routes on State Government roads are shown in Appendix B.

The construction materials will be hauled over local government controlled roads. A list of the local government controlled roads involved is contained in Appendix C.

2.3.3 Location of field development construction camp sites and haul route

Camps for construction workers are to be set up within designated areas throughout the gas fields in order to service their camp-specific number of wells. For the purpose of this assessment, it has been assumed the workers will be housed in accommodation blocks containing four rooms with separate private ensuites. The breakdown of individual camp components is contained in Appendix D. The pickup

point for these buildings is in south-east Queensland where they are manufactured. They are trucked to site and assembled.

The camp requirements are as follows:

- 2 camps for WTPs (water treatment plant) (154 workers at Ruby Jo, 171 workers at Woleebee Creek)
- 4 camps for CPPs (central processing plant) (193 workers each)
- 4 camps for CMISC (construction and commissioning) within the following tenements:
  - Ruby (South East) (1137 workers)
  - Jordan (South East) (912 workers)
  - Woleebee Creek (North West) (1563 workers)
  - Bellevue (Central) (381 workers).

Some rationalisation of these camps may occur but this would only result in larger camps at fewer locations. The overall transport and worker movements would not change in terms of numbers.

The haul routes for the camps will be similar to that of the materials for the construction of the field development works and has been set out in Appendix E.

2.3.4 Location of pipelines and haul route

Export pipeline

The origin of the export pipeline is the Miles Power Station just east of Miles. The pipeline traverses 380 km north-east and passes through the local government areas of Dalby Regional Council, Banana Shire Council, North Burnett Regional Council and Gladstone Regional Council.

It is planned that 260 km of pipe for the export pipeline will be delivered via the Port of Brisbane, and 120 km of pipe via the Port of Gladstone. All plant and equipment for construction of the pipelines will be transported from Brisbane. The routes considered for road haulage of all equipment and plant to the export pipeline worksites result in haulage along the following state controlled road network elements:

From Brisbane

- Gateway Motorway (South) U13A
- Cunningham Arterial U16 (Ipswich Motorway)
- Cunningham Highway 17A (Ipswich Motorway)
- Port of Brisbane Road 904
- Leichhardt Highway 26A (Westwood–Taroom) and 26B (Taroom–Miles)
- Warrego Highway 18A (Ipswich–Toowoomba)
- Warrego Highway 18B (Toowoomba–Dalby)

- Warrego Highway 18C (Dalby–Miles)

From Gladstone

- Dawson Highway 46A (Gladstone–Biloela) and 46B (Biloela–Banana)
- Bruce Highway 10E (Benaraby–Rockhampton)
- Burnett Highway 41D (Monto–Biloela)
- Leichhardt Highway 26A (Westwood–Taroom)
- Eidsvold–Theodore Road 454
- Biloela–Callide Road 472
- Gladstone–Mt Larcom Road 181

The haul routes are shown at Appendix F. The local roads which are expected to be affected by pipeline construction, haulage or construction workers are listed in Appendix G.

Gas and water collection headers

The 170 km of the water collection header will span from the south-west of Dalby at its eastern end to the south-west of Wandoan at its western end.

The gas collection header, which comprises 100 km from the south-west of Dalby at its eastern end to the export pipeline at the Miles Power station just east of Miles and the Woleebee Creek gas pipeline, is also expected to be transported from the Port of Brisbane.

The 800 mm water pipeline is expected to originate from other sources in Brisbane as it is manufactured in Australia. The following state controlled road network elements are expected to be utilised for the haulage of the gas and water collection header pipes:

- Port of Brisbane Road 904
- Gateway Motorway (South) U13A
- Cunningham Arterial U16 (Ipswich Motorway)
- Cunningham Highway 17A (Ipswich Motorway)
- Warrego Highway 18A (Ipswich–Toowoomba), including Cohoe Street and Jones Street, Toowoomba
- Warrego Highway 18B (Toowoomba–Dalby), including James Street, Tor Street and Bridge Street, Toowoomba
- Leichhardt Highway 26A (Westwood–Taroom) & 26B (Taroom–Miles)
- Warrego Highway 18C (Dalby–Miles) and 18D (Miles–Roma)
- Jackson–Wandoan Road 4302
- Dalby–Kogan Road 340
- Chinchilla–Tara Road 341

- Kogan–Condamine Road 342

A plan showing the haulage routes is attached in Appendix G. Local government controlled roads likely to be affected by the development are listed in Appendix C.

2.3.5 Location of pipeline construction camp sites and haul route

Construction workers will be accommodated in construction camps to be established within designated areas along the length of the export pipeline and UIC. Each camp will be set up to keep the distance of travel to the work area at 60–70 km maximum.

Whilst the construction camp locations have not been finalised the following indicative locations have been used for this assessment:

- Gladstone–Mt Larcom Road 32 km north-east of Port of Gladstone (346 workers)
- Burnett Highway 7 km east of Thangool (235 workers)
- Eidsvold–Theodore Road, near export pipeline right of way (256 workers)
- Warrego Highway at the southern end of export pipeline (509 workers)
- Tara–Kogan Road at eastern end of UIC (218 workers)
- Roche Creek Road (Local Government Road) 32 km east of Wandoan (191 workers)

For the purpose of this assessment, it has been assumed the workers will be housed in accommodation blocks containing four rooms with separate private ensuites. The pickup point for these buildings is south-east Queensland where they are manufactured. They are expected to be trucked to site over the following listed state controlled roads:

- Dawson Highway 46A (Gladstone–Biloela) and 46B (Biloela–Banana)
- Isis Highway 19B (Childers–Biggenden)
- Isis Highway 19C (Biggenden–Coalstoun Lakes)
- Burnett Highway 41A (Nanango–Goomeri)
- Burnett Highway 41B (Goomeri–Gayndah)
- Burnett Highway 41C (Gayndah–Monto)
- Burnett Highway 41D (Monto–Biloela)
- Leichhardt Highway 26A (Westwood–Taroom) and 26B (Taroom–Miles)
- Eidsvold–Theodore Road 454
- Tara–Kogan Road 3402
- Brisbane Valley Highway 42A (Ipswich–Harlin)
- Cunningham Arterial U16 (Ipswich Motorway)
- Cunningham Highway 17A (Ipswich Motorway)
- Gladstone–Mt Larcom Road 181

- Kogan–Condamine Road 342
- Booyal–Dallarnil Road 477
- Warrego Highway 18A (Ipswich–Toowoomba), including Cohoe Street and Jones Street, Toowoomba
- Warrego Highway 18B (Toowoomba–Dalby), including James Street, Tor Street and Bridge Street, Toowoomba
- Warrego Highway 18C (Dalby–Miles) and 18D (Miles–Roma)
- Dalby–Kogan Road 340
- Bruce Highway 10C (Maryborough–Gin Gin)
- Bruce Highway 10D (Gin Gin–Benaraby)
- Bruce Highway 10E (Benaraby–Rockhampton)
- D'Aguilar Highway 40B (Kilcoy–Yarraman)
- D'Aguilar Highway 40C (Yarraman–Kingaroy)

2.4 TIME SPAN OF HAULAGE

The proposal is to develop 6000 wells over a period of 23 years, with up to 500 wells developed in the peak year of construction. The construction is due to commence in 2010 and be completed in 2032.

In the operational phase generated traffic will reduce as the activities will include operating and maintaining the well heads, the field compressor stations and the central processing plants, and well construction will be at a reduced rate to that in the peak year of 2014.

The gas collection header will be constructed at the same time as the export pipeline and Woleebee Creek pipeline. It is estimated that the supply of 1050 mm diameter pipe will be at a rate of 40 km/month (combined) for both pipelines over a period of 15 months. The current procurement program alternates the delivery between the two pipelines month by month.

Haulage is scheduled to commence in December 2010 and cease in May 2012. Based on this delivery schedule, construction on the export pipeline would commence in March 2011 and be completed in September 2012, with the construction of the gas collection header (both components) commencing in January 2011 and being completed in December 2012

2.5 HAULAGE REGIME—DAYS AND TIMES OF OPERATION

The nominated haulage regime for analysis is for all of the materials and equipment related to the gas fields to be sourced from Brisbane and hauled by road throughout the area. The analysis has not considered the use of rail from Brisbane to Chinchilla and Miles as discussed in Section 2.3.1, nor that some equipment may come from interstate via Goondiwindi due to rail capacity constraints. The nominated regime is therefore considered to be the worst case scenario for impacts on the road network. Other transport options may be considered during the detailed design phase.

Haulage will be undertaken using semitrailers for pipeline and construction camp components. Large items for field compressor stations and the central processing plants will be transported on multi-axle platform vehicles. Fuel will be delivered in semitrailers or by B-double.

Long haulage of items, notionally from Brisbane, could be around the clock, i.e. 24 hours per day, seven days per week. However, there may be some restriction to trucks travelling between 9.00 pm and 6.00 am through residential areas in provincial cities and townships.

The movement of multi-axle platforms will comply with the conditions of the individual permits issued by the Department of Transport and Main Roads.

The nominated haulage regime for analysis of the trunk pipelines are as follows:

Export pipeline

- 1050 mm diameter pipe to come from the landing points of the Port of Gladstone (260 km) and the Port of Brisbane (125 km)
- field joint coating will be sourced via Gladstone and Brisbane as per pipe split

Upstream infrastructure corridor

- 1050 mm diameter pipe (gas collection header) will come from the preferred landing point of Port of Brisbane
- 800 mm diameter pipe (water collection header) will be sourced from Brisbane
- field joint coating will be sourced from Brisbane

Woleebee Creek pipeline

- 1050 mm diameter pipe to come from the preferred landing point of Brisbane
- field joint coating will be sourced via Brisbane.

All other equipment such as the main line valves, scraper stations and meter stations are expected to come via Brisbane.

Oversize permits will be required to transport the CPPs, FCSs, dozers and side boom tractors.

2.6 OPERATIONS

2.6.1 Terminology

For the purpose of this report the following terminology is used:

Trucks	The number of truck loads to transport the materials
Vehicle	Any other project vehicles (construction worker transport)
Trips	One trip is the movement of a truck/vehicle from its origin to its destination. The return movement is counted as a separate trip.

2.6.2 Camp and personnel traffic movements

The staged development of approximately 6000 wells and 57 compressor stations for connection to the collection header and Woleebee Creek pipeline within the Surat Gas Basin will require 5148 persons per day, including camp staff, on the gas field and pipeline sites at the peak period. A further 1716 personnel will be away from site on rostered leave, based on a 3 week on, 1 week off roster

Gas field

It is estimated that at any one time 75% of the construction workforce will be in camp and 25% will be on leave. Personnel will not keep their rooms during the rostered days off and may be assigned different rooms when they return.

For camp-based works trips, the construction personnel will be transported in four wheel drive utilities to the specified point of construction. It is assumed that there will be two personnel to a vehicle. The locations of the well precincts will require traffic movements of the personnel along local government controlled roads which are typically dry weather paved roads between the Woleebee Creek and Tara region.

The camp will incorporate office and workshop facilities. There will be work-based trips associated with the office and workshop as well as trips servicing the camp. It is assumed that these trips will be between the camp and the provincial towns.

Non-work-based trips for the camp personnel include the following:

- personnel travelling to and from the camp to the nearby towns outside the work shift
- personnel travelling to and from the camp on recreation leave rotation. The proposed work roster for the gas field component is 21 days on and 7 days off. Personnel will fly in and out of the gas field region and be transported by bus from the camp site to airfields (refer Table 2.3). Given the high numbers of personnel working from the Ruby Jo, Jordan and Woleebee Creek camps during their peak activity, it is assumed personnel roster rotations will need to occur daily (week days) to enable manageable chartered flight schedules. This will also eliminate large volumes of recreational-based travel of construction workers on the road network on any one day.

The proposed construction of the CSG fields within the Surat Basin will increase the number of vehicles per day entering and moving within the region during the construction phase. Table 2.1 illustrates the estimated number of personnel vehicle movements generated during this phase.

Table 2.1 Generated personnel traffic movements for gas field camps

Origin and destination				Camp to town	Camp to site	Camp to town	Camp to airfield	Total trips (vpd) gas fields
Purpose				Camp/ workshop/ office servicing	Field workers (work based)	Field workers (non-work based)	Roster on/off	
Person trips/day				2	2	0.4	2	
Vehicle occupancy				1	2	1.2	34	
Peak camp total personnel – gas field development	**Ruby Jo**	1317	Personnel	132	1185	1317	439	1914
			Trips	264	1185	439	26	
	Jordan	912	Personnel	92	820	912	304	1326
			Trips	184	820	304	18	
	Woleebee Creek	1731	Personnel	174	1557	1731	577	2516
			Trips	348	1557	577	34	
	Bellevue	227	Personnel	23	204	227	76	330
			Trips	46	204	76	4	

Pipeline

The export pipeline workers will also be housed in construction camps which will typically service approximately 120–140 km of pipeline, with three camps operating at any one time on the export pipeline and two on the collection header and Woleebee Creek. The camps located east of Miles and adjacent to Tara–Kogan Road will operate for the full duration of the gas and water collection headers. It is anticipated that no night works will be conducted on the construction of the pipeline other than possibly to unload pipe materials.

The pipeline construction personnel will work on a roster of 28 days on and 9 days off. There will be approximately 300 construction personnel per spread working on the export pipeline at any one time and approximately 200 per spread on the collection header and Woleebee Creek pipeline. At the start and end of each roster cycle, buses will be used to transport personnel to the nearest airfield (refer Table 2.3) or landing ground to minimise traffic movements within the region. The trips generated from the camp will include both work and non-work based movements for servicing the camp, offices and workshop. The construction activities of the pipelines will increase the number of vehicles per day within 60–70 km proximity of each of the camps.

The estimated number of vehicles generated by the pipeline construction camps is summarised in Table 2.2, which assumes that employees will not have access to

private vehicles given the fly in, fly out operation for leave rotation. Non-work-based trips will be made in buses.

Table 2.2 Generated personnel traffic movements for pipeline camps

Origin and destination				Camp to town	Camp to site	Camp to town	Camp to airfield	Total trips (vpd) gas fields (total combined with gas field camps)
Purpose				Camp/ workshop/ office servicing	Field workers (work based)	Field workers (non-work based)	Roster on/off	
Person trips/day				2	2	0.4	2	
Vehicle occupancy				1	55	1.2	34	
Peak camp total personnel – pipelines	**Pipe Camp 1 Gladstone**	346	Personnel	35	311	346	115	503
			Trips	70	11	115	7	(503)
	Pipe Camp 2 Thangool	235	Personnel	24	211	235	78	342
			Trips	48	8	78	5	(342)
	Pipe Camp 3 East Theodore	256	Personnel	26	230	256	85	372
			Trips	52	8	85	5	(372)
	Pipe Camp 4 Bellevue	423	Personnel	43	380	423	141	615
			Trips	86	380	141	8	(945)
	Pipe Camp 5 Ruby Jo	36	Personnel	4	32	36	12	53
			Trips	8	1	12	1	(1967)
	Pipe Camp 6 NE Wandoan	191	Personnel	20	171	191	64	279
			Trips	40	6	64	4	(279)

2.6.3 Airfields

An initial assessment of the travel times and distances between aerodromes and camp sites in the project vicinity has been undertaken. The results of this assessment are presented in Table 2.3 below.

Table 2.3 Airfield travel comparison

Travel comparison between airfields and camps in distance (km) and time (hours and minutes)	Gladstone–Mt Larcom Road	Burnett Highway 7 km east of Thangool	Eidsvold–Theodore Road	Roche Creek Road	Warrego Highway southern end export pipeline	Tara–Kogan Road eastern end of gas header	Woleebee Creek Camp – gasfield	Jordan Camp – gasfield
Toowoomba Aerodrome (YTWB)	-	-	-	-	198	128	-	148
3678’ x 98” (017FAZT)	-	-	-	-	2h 36m	1h 54m	-	2h 02m
Dalby Airfield (YDAY)	-	-	-	257	119	49	210	69
4160’ x 75” (010FBZU)	-	-	-	3h 40m	1h 33m	0h 50m	2h 57m	0h 58m
Chinchilla Aerodrome (YCCA)	-	-	-	178	41	82	131	59
3497’ x 59” (004FCYU)	-	-	-	2h 46m	0h 38m	1h 19m	2h 02m	0h 55m
Miles Airfield (YMLS)	-	-	-	147	23	124	100	101
Unknown classification	-	-	-	2h 17m	0h 26m	1h 43m	1h 33m	1h 18m
Roma Aerodrome (YROM)	-	-	-	229	166	276	157	264
4934’ x 98” (012FCZU)	-	-	-	3h 27m	2h 08m	3h 41m	2h 08m	3h 15m
Taroom Aerodrome (YTAM)	-	240	186	67	127	-	77	225
Unknown classification	-	2h 51m	2h 43m	1h 09m	1h 33m	-	1h 03m	2h 43m
Moura Airfield (YMOU)	-	89	96	215	-	-	-	-
Unknown classification	-	1h 12m	1h 45m	3h 03m	-	-	-	-
Theodore Airfield (YTDR)	218	131	77	182	-	-	203	-
Unknown classification	2h 50m	1h 41m	1h 33m	2h 39m	-	-	2h 35m	-
Thangool Aerodrome (YTNG)	118	8	122	-	-	-	-	-
4993’ x 98” (PCN12)	1h 40m	0h 08m	2h 20m	-	-	-	-	-
Gladstone Aerodrome (YGLA)	29	-	-	-	-	-	-	-
5364’ x 98” (014FAYT)	31m	-	-	-	-	-	-	-

The assessment of aerodromes was based on the assumption that camp personnel will be flown to site in a Dash-8 aircraft or equivalent. For a Dash-8 to be permitted

to land at an aerodrome the aerodrome must be certified by CASA (not just registered with CASA). Aerodromes located within driving distance of the project extents that are certified with CASA are those at Toowoomba, Roma, Thangool and Gladstone.

In summary, the aerodrome to camp breakdown is:

- Gladstone–Mt Larcom Road – 29 km (31 minutes) from Gladstone Aerodrome (certified)
- Burnett Highway 7 km east of Thangool – 8 km (8 minutes) from Thangool Aerodrome (certified)
- Eidsvold–Theodore Road – 77 km (1 hour 33 minutes) from Theodore Airfield (not certified); however, it is only 97 km (1 hour 45 minutes) from Thangool Aerodrome (certified)
- Warrego Highway southern end export pipeline *(incorporates Bellevue Gas Fields Camp)* – 23 km (26 minutes) from Miles Airfield (uncertified); however, it is only 41 km (38 minutes) from Chinchilla Aerodrome (registered)
- Tara–Kogan Road eastern end of gas header *(incorporates Ruby Gas Fields Camp)* – 49 km (50 minutes) from Dalby Airfield (uncertified); however, it is only 82 km (1 hour 19 minutes) from Chinchilla Aerodrome (registered)
- Roche Creek Road – 67 km (1 hour 9 minutes) from Taroom Aerodrome (registered)
- Woleebee Creek Gas Fields Camp – 77 km (1 hour 3 minutes) from Taroom Aerodrome (registered)
- Jordan Gas Fields Camp – 59 km (55 minutes) from Chinchilla Aerodrome (registered).

The picture that emerges from the above is that two likely upgrades are at Chinchilla and Taroom aerodromes.

Chinchilla Aerodrome appears to be a better upgrade choice over Miles or Dalby airfields. While Miles Airfield is closer to the Warrego Highway Camp, and Dalby Airfield is closer to Tara–Kogan Road Camp, the overall distance travelled from Chinchilla (182 km) is less than the distance travelled from Miles (248 km) and Dalby (237 km) to the camps of Warrego Highway, Tara–Kogan Road and Jordan. Taroom is the closest aerodrome to both Roche Creek Road and Woleebee Creek camps so may be a suitable upgrade option.

Both Chinchilla and Taroom aerodromes are registered with CASA; however, they are not certified. No other aerodromes (aside from those above that are listed as certified) have registered status with CASA. It may be a reasonable assumption that the process of upgrading airports with registered status may be simpler than for an airfield that is not registered.

It is possible that an upgrade to an aerodrome may include:

- pavement (PCN of 7.4 required for a Dash 8 – 100)
- runway dimension (length, width)

- amenity (hangars, terminal, etc)
- lighting (landing, taxi lights)
- security
- navigation (beacons, etc)
- emergency (rescue, fire response, etc)
- ground services (fuelling, communications, etc).

2.6.4 Spoil transport

It is envisaged that for the development of the CSG field infrastructure and pipelines, including wells and interconnecting pipelines, spoil will be spread over the well site and pipeline corridors. There will be no removal of spoil from site and therefore no haulage over the road network. If rock is encountered during construction this assumption may change, with rock needing to be removed from site. The potential for this will not be known until completion of geotechnical studies. This will be reviewed when the final assessment of road impacts is carried out prior to construction works commencing.

2.6.5 Pipe transport

The proposed pipelines in the CSG field include the connection of wells to the FCS, the FCS to the CPP, and a water collection pipeline. The weights of these pipes are set out in Table 2.4 and have been used in the calculations to determine pavement impacts. The increased truck volumes generated by these activities entering the Woleebee Creek to Tara region are set out in Table 2.5.

It is anticipated that crews laying the gathering and water trunkline pipes will work at the following rates:

- 1500 m/d gathering pipe during construction phase (pre-2014)
- 750 m/d gathering pipe during operational phase (post-2014)
- 500 m/d water trunk pipe
- 2000 m/d gas collection header, export pipeline and Woleebee Creek pipeline.

This will be on an as-required basis and therefore the timing of both the haulage and construction will not always be on consecutive days, i.e. the pipe may be hauled to site one day and laid, but then there may be no haulage operations until more pipe is required days or weeks later. Therefore, for the purposes of modelling the effects of transport, the number of trips per day has been calculated as an average.

Table 2.4 Pipe weights for transport

Pipe description	Pipe diameter (mm)	Weight/metre (kg)	Total length / truck (m)	Pipe weight / truck (tonnes)
Gas gathering pipe (HDPE)	315	25.0	900	22.5
Water gathering pipe (HDPE)	315	25.0	900	22.5
Water trunk pipe (HDPE/steel)	800	178.0	126	22.4
Gas trunk pipe (fibre reinforced plastic)	600-800	12.5	900	11.3
Water collection header	800	-	108	-
Gas collection header	1050	406	48	19.5
Gas export pipeline	1050	406	48	19.5

Table 2.5 Truck volumes for pipe deliveries to gas field sites

Pipe description	Approximate length (km)	Total no. truck loads	Approximate maximum vehicle trips/day over life of the project
Gas gathering pipe (HDPE)	6716	7462	4
Water gathering pipe (HDPE)	6716	7462	2
Water trunk pipe (HDPE/steel)	580	4603	2
Gas trunk pipe (fibre reinforced plastic)	1600	1778	4
Total	**15,612**	**21,305**	**12**

The maximum number of 1050 mm diameter pipes that would be transported on any one truck is four 12 m lengths loaded in a 2 x 2 box pattern. The number of trucks generated by these activities is set out in Table 2.6..

It is anticipated that 40 km of pipe will be transported monthly to the construction site. The entire delivery will go to each individual pipeline, i.e. 40 km delivered to the export pipeline one month and then 40 km to the UIC or Woleebee Creek pipeline the next month.

The water collection header pipe will be transported with a maximum of six 18 m long pipes per truck.

Table 2.6 Truck volumes for pipe deliveries to pipeline

Pipeline description	Approximate length (km)	Total no. truck loads	Approximate maximum vehicle trips/day over life of the project
Export pipeline (Brisbane)	125	2605	84*
Export pipeline (Gladstone)	255	5500	84*
Gas collection header	95	1980	84*
Woleebee Creek	57	1189	84*
Water collection header	163	1518	38
Total	**711**	**12,792**	**N/A***

* *The 1050 mm diameter pipe materials will be delivered to only one pipeline at any one time. Vehicle trips/day based on a maximum pipe laying rate of 2000 m/d.*

2.6.6 Field joint coating

Prior to placing in the trench and after grit blasting of the welds, the 1050 mm diameter pipes are covered with an external field joint coating. The coating will be trucked in from Brisbane to the point of construction for the collection header, the Woleebee Creek pipeline and the southern section of the export pipeline, and from Gladstone to the remaining section of export pipeline.

The 800 mm high density polyethylene (HDPE) water pipeline will be rubber ring jointed and does not require coating of joints.

The volumes of trucks required for the transport of field joint coating is summarised in Table 2.7.

Table 2.7 Truck volumes for field joint coatings

Pipeline description	Approximate length (km)	Garnet weight (tonnes)	Total no. truck loads	Approx. maximum vehicle trips/day over life of the project
Export pipeline (Brisbane)	125	475	22	2
Export pipeline (Gladstone)	264	1003	45	2
Gas collection header	95	361	19	2
Woleebee Creek	57	217	11	2
Total	**541**	**2056**	**97**	**N/A**

2.6.7 Quarry transport

Gas field

The locations from where quarry products would be sourced have not been finalised. For the purpose of this assessment it has been assumed that the quarry material will be sourced from the existing quarry north of Dalby and borrow pits within the area. The quantities of quarry material required for the development of the CSG fields are illustrated in Table 2.8. From these numbers it can be seen that quarry material transport required for the gas field development produces the greatest number of transport trips.

Table 2.8 Quarry material requirement for gas field

Item	Material	Volume (m^3)	Approximate weight (tonnes)	Truck loads (28 t/truck)
CPPs (4 of)	Gravel/Soil/Fill	150,400	300,800	10,743
WTPs (3 of)	Gravel/Soil/Fill	15,360	30,720	1098
Camps (10 of)	Gravel/Soil/Fill	135,000	270,000	9643
Access tracks	Road Base	3,190,764	6,062,452	216,516
FCSs (53 of)	Gravel/Soil/Fill	556,500	1,113,000	39,750
Well heads	Gravel/Soil/Fill	4,876,200	9,752,400	348,300
Trunk/gathering lines	Sand	184,800	369,600	13,200
Total		**9,109,024**	**17,898,972**	**639,250**

Pipelines

Pipelines laid in rocky areas may require bedding. This will be preferentially provided from screened spoil with imported material being a last resort. Current pipe backfilling methods utilise the excavated materials from the pipe trench. Hard stand areas for meter stations and camps will require paving with gravel, and trenchless construction operations will require cement grout. Additional backfill material is not anticipated however some bedding material may be required in hard rock areas.

The bedding material required for the gas and water collection headers and export pipeline will be sourced from borrow pits of better quality material along the pipeline and will therefore minimise the haulage over both state controlled and local government roads. The sources of suitable materials have not been determined at this stage, but it is anticipated that the quarry source will be within 50 km of the work area. The quantity of sand/backfill illustrated in Table 2.9 has been based on 200 km of the total pipeline length requiring a 100 mm depth of sand/bedding in a 2.0 m wide trench. The amount of quarry material required for each component of the pipeline construction is illustrated in Table 2.9.

For the purpose of the analysis, 10% of the total volumes of the sand bedding and grout required have been assigned to the road adjacent to the worksite. This assignment will, in the majority of the roads, overestimate the number of quarry vehicles on the road, but captures a possible worst case on a small number of road sections.

It has been assumed that haulage of quarry material over any one section of road on any one day would supply one work site only. The number of quarry vehicle trips per day on any one section of road would be 55 maximum over a relatively short period, i.e. less than two weeks.

Table 2.9 Estimated quarry materials required for pipelines

Item	Material	Volume (m^3)	Approx. weight (tonnes)	Truck loads
Pipeline bedding	Sand/backfill	40,000	76,000	2715
Tunnel boring	Grout	120	288	11
Meter stations (2 of)	Gravel/soil/fill	500	1000	36
Main line valves (4 of)	Gravel/soil/fill	120	240	18
Camps (6 of)	Gravel/soil/fill	81,000	162,000	5786
Scraper stations (6 of)	Gravel/soil/fill	1500	3000	108
Total		**123,240**	**242,528**	**8674**

2.6.8 Well equipment transport

The transportation of well equipment is expected to add additional trucks in the delivery of well skids, general well equipment, bore casings, separator units, and drilling machinery. These volumes are outlined in Table 2.10.

Table 2.10 Truck volumes for well installation

Equipment	Total trucks	Trips/day	Approximate number of days over the life of the project
Well skids + general products	11,841	6	3947
Bore casings	471	12	79
Separators	1929	2	1929
Total	**14,241**	**20**	

The delivery of the bore casings, well skids and general well products require two trucks per well, whereas a truck delivering MIDC separators would service one well site. The network of roads used in the delivery of well equipment will be similar to that used for transporting the pipework within the well tenements and QGC easements, and on state and local government controlled roads.

2.6.9 Compressor unit transport

Four CPPs are situated throughout the gas fields, located nominally within the Woleebee, Bellevue, Jordan and Ruby tenements. The Woleebee CPP requires three centrifugal compressors, whilst Bellevue, Jordan and Ruby require one, two and two respectively, making a total of eight centrifugal compressors.

There are 49 tenements requiring an FCS, with there also being an FCS at each CPP. One FCS may contain a maximum of eight screw compressors; however, there is a maximum of 200 screw compressors across the 53 FCS sites.

For the purpose of modelling, it has been assumed that there is an average of three screw compressors per FCS. Each screw compressor requires one 7 tonne cooler unit.

One FCS can be delivered per truck load, and one cooler unit is also taken as one truck load.

Haulage requirements by heavy vehicle are set out in Table 2.11.

Table 2.11 Truck volumes servicing FCS and CPP

Compressor type	Total trucks	Trips/day	Approximate number of days over the life of the project
Screw (including cooler)	318 (3/FCS)	12	53
Centrifugal	8	2	8
Total	**326**		**61**

As with the pipe deliveries, the screw compressors will be delivered as required, and thus the numbers of days are non-consecutive and will not occur in a single year. The compressors are expected to be delivered as the wells come online and necessitate the use of FCS facilities. All CPP components will be delivered during the construction phase and remain for the life of the project.

Multi-axle platform vehicles will be used to haul the components of each of the two types of compressor from the Port of Brisbane to the desired locations within the well precinct. The traffic movements for delivery will, as much as possible, remain on the state controlled road network, with use of local government controlled roads being limited to those specifically within the well precincts.

2.6.10 Tri-ethylene glycol (TEG) unit transport

TEG units will be transported to the CPPs as an ancillary component where there will be one TEG unit per centrifugal compressor. Each TEG unit is transported on one multi-axle platform vehicle. Eight TEG units are required during the development of the CSG fields. Traffic volumes generated by the delivery of the TEG units to the CPPs as they are developed has been estimated in Table 2.12.

Table 2.12 Truck volumes delivering TEG units

Component	Total trucks	Trips/day	Approximate number of days over the life of the project
Tri-ethylene glycol unit	8	2	8

2.6.11 Transportation of pipeline facilities

The transmission of CSG through the export, UIC and Woleebee Creek pipelines to Gladstone requires specific facilities for its operation. These above-ground facilities include scraper stations, filtration facilities, meter stations, cathodic protection facilities and marker signs. The estimated quantities for the major facilities for each of the pipelines are shown in Table 2.13..

Table 2.13 Truck volumes for pipeline facilities haulage

Description	Pipeline description	Number of facilities	Total truck loads
Scraper stations	Export pipeline	3	30
	Gas collection header	2	20
	Woleebee Creek	1	10
Meter stations	Export pipeline	2	20
Main line valves	Export pipeline	4	12
	Gas collection header	1	3
Miles receipt station	Export pipeline	1	10
Total			**105**

Construction of these facilities will be staggered and it is expected that a maximum of four loads would occur on any one day over the construction period. The haulage will be via conventional semitrailers.

2.6.12 Construction camp components (modular buildings) transport

Modular buildings will be used to house workers for the duration of the CSG field construction as well as for offices, messing units, ablutions and a wet mess with a recreation lounge. Table 2.14 shows the expected truck movements for the haulage per gas field camp. For the purpose of the analysis it has been assumed that only one camp will be constructed at any one time at a rate of 20 truck loads per day for the majority of camps (<200 workers), with 40 truck loads per day of prefabricated buildings, furniture and fittings servicing the larger camps (>200 workers).

Based on the above truck loads per day, the construction period for gas field camps is 90 days.

Table 2.14 Truck volumes construction of camp for gas field camps

Item	Quantity of item	Units required	Truck loads
Accommodation units	1286	12 m x 3 m	1286
Central ablution	20	36 m x 9 m	180
Mess	37	48 m x 12 m	592
Recreation room	37	48 m x 12 m	592
Offices	43	12 m x 3 m	43
Furniture and fittings			78
Total trucks			**2771**

A total of six campsites will be established for the gas and water collection headers and export pipeline, with all camps operational over the same time period. Table 2.15 shows the expected truck movements for the haulage per camp for commissioning and decommissioning of the pipeline construction camps.

Table 2.15 Truck volumes for construction of camp for pipeline camps

Item	Quantity of item	Units required	Truck loads
Accommodation units	441	12 m x 3 m	441
Central ablution	8	36 m x 9 m	72
Mess	14	48 m x 12 m	224
Recreation room	14	48 m x 12 m	224
Offices	15	12 m x 3 m	15
Furniture and Fittings			29
Total trucks			**1005**

It is again assumed that only one camp will be constructed at any one time at a rate of 20 truck loads per day for the majority of camps (<200 workers), with 40 truck loads per day for the larger camps (>200 workers).

Based on the above truck loads per day, the construction period for pipeline camps is 33 days.

2.6.13 Heavy plant equipment transport

The pipeline, well and compressor site preparation requires the use of several different types of heavy plant equipment. Table 2.16 shows the quantity of each specific type of plant expected within the gas field precincts. It is anticipated that the plant will be transported to site from south-east Queensland via state controlled roads initially, and remain within the QGC tenements for the duration of that site-specific construction.

Table 2.16 Heavy plant quantities required for gas field sites

Plant item	Transported via	Quantity required	Truck loads
Bulldozers	Semitrailer	10	10
Graders	Independent	20	20
Rollers	Semitrailer	5	8
Excavators	Semitrailer	20	20
Boom cranes	Independent	4	4
Heavy cranes	Independent	2	2
Drill rigs	Independent	833 min.	833 min.
Total			**897 min.**

Table 2.17 shows the quantity of each specific type of plant expected within the pipeline corridors. Table 2.16 and Table 2.17 include the trucks to mobilise the plant to the site and demobilise the plant from site.

Table 2.17 Heavy plant required quantities for pipeline sites

Plant item	Transported via	Quantity required	Truck loads
Bulldozers	Semitrailer	20	20
Graders	Semitrailer	6	6
Excavators	Semitrailer	30	30
Side boom tractors	Low loader	12	12
Roller	Semitrailer	2	2
Heavy cranes	Independent	2	2
Total			**72**

2.6.14 Fuel transport

Based on the fuel usage for the wells currently under construction within existing approvals it is estimated that some 260 million litres of fuel will be required over the life of the project. It is assumed that the fuel will be hauled from Brisbane in 25,000 litre tankers at an average rate of three tankers per day during the peak construction period. The haulage of the fuel is set out in Table 2.18.

Table 2.18 Fuel supplies

Equipment	Total trucks	Trips/day	Approximate number of days
General fuel	10,383	6	2596

2.6.15 Water treatment plant (WTP) and chemical components

Plant and equipment for the water treatment plants would be transported in approximately 12 m containers. It is estimated that six containers would be required per mega-litre per day. Based on the assumption of a total of approximately 170 ML of water treatment plant capacity required, this would equate to 1050 truck loads generating 2100 return trips.

2.6.16 Power supply

The provision of power to the CPPs and FCSs will require the transport of various pieces of equipment ranging from power poles and cable to substation transformers.

The assumed quantities of electrical components required for the project are presented in Table 2.19 below.

Table 2.19 Power supply elements

Item	Truck loads	Trips
Poles	2463	4926
Foundation piles	175	350
Foundation pile cap	175	350
Insulators	296	592
Conductors	315	630
Cross arms	14	28
Transformers	366	732
Switches	49	98
Breakers	49	98
Total trucks	**3902**	**7804**

2.7 ON-SITE ASPECTS

The well construction will be in exploration leases in favour of QGC. The land will be cleared prior to works to provide a 100 m x 100 m cleared flat area for the well construction. Access tracks will be made to provide entry and exit points from both state controlled roads and local government controlled roads.

An application will be made to the relevant road authority for each proposed access to the road network. The proposed access points will be where the sight distance is appropriate for the type of vehicles and the operating speed of the through road. The layout of the access, e.g. auxiliary lanes, will be assessed on the traffic volumes on the through road and the access in accordance with Chapter 13 of the Queensland Department of Main Roads *Road planning and design manual* or consultation with local government authorities, depending upon the type of road. The accesses will be constructed in accordance with the relevant road authority's conditions of approval.

There will be a network of internal tracks within the gas fields to allow access to multiple well sites over the construction and operational life of the wells.

FCS and CPP sites will be developed within the gas fields. These components will be transported via the same routes as the well components and moved on site via access tracks provided for the well construction.

The construction camps will be located where the maximum distance to site is 60–70 km to enable construction personnel to travel to their designated site and complete a full day's work with minimal time spent travelling. The construction camps will be set back from road boundaries so that all activities associated with the camps occur clear of the road reserves and any buffer zones. Parking and traffic circulation around the parking areas will not create queues back onto the road carriageway.

Works for the export and Woleebee Creek gas pipelines and the northern portion of the water collection header are contained within a 40 m wide corridor while the remaining gas and water collection headers will be within an 80 m wide corridor. The pipeline construction corridor is widened at intervals to allow for truck turning and where additional stockpiling of trench spoil is required (e.g. at watercourses). This corridor is generally on private property where there will be little to no

interference with current traffic from the physical construction of the pipeline or parked construction vehicles and plant.

The pipelines cross a number of state controlled and local government controlled roads and rail corridors.

On unsealed and lightly trafficked roads the preferred option is to open trench, subject to the approval of the relevant road authority. Open trenching will require provision of sufficient pavement width around the work for through traffic and appropriate traffic control in accordance with Queensland Department of Main Roads *Manual of uniform traffic control devices* (DMR 2003 Edition). The backfilling of the trench and pavement restoration will be in accordance with the requirements of the relevant road authority standards. However, as the trench will be wide, and it will be possible to use compaction equipment larger than what is normally used for trench restoration, alternative standards for restoration may be submitted to the relevant road authority. All road crossings will be negotiated with the relevant road authority prior to construction in a given area and the relevant permits obtained as required.

On the more heavily trafficked roads and where open trenching is not practical for terrain or traffic management considerations, or not approved by the relevant road authority, trenchless construction methods will be used. The location of the pits associated with these methods will be sufficiently clear of the road reserve so as not to impact on the safety of the travelling public or the construction personnel.

Trenchless construction methods will be used for all crossings of railway corridors. As for road crossings, the location of the pits associated with these methods will be outside the rail reserve.

Where practicable, existing tracks will be used to provide access for trucks, workers and heavy plant to the pipeline easement. Some additional tracks may need to be created. Where such access tracks are required to intersect with existing roads (i.e. local government or state-controlled) the intersection will be to the standard of the relevant authority. Much of the plant and equipment will travel along the easement with minimal to no interruption of current traffic flows within the area. Some tracks may be used in the operational phase for the maintenance of the pipeline.

2.8 SURROUNDING ROAD NETWORK DETAILS

2.8.1 Road conditions

The haulage operation involves long distance travel over the state controlled network. The majority of the state controlled roads have two bitumen sealed lanes and varying widths of sealed and unsealed shoulders.

Pavement conditions vary on the roads that will be affected by the pipeline and gas field component haulage. Not all affected roads have been line marked, and some highways show rutting in the wheel paths.

A preliminary assessment of the condition of existing roads has been carried out for the EIS and the various conditions on the state controlled and local government road network are illustrated in Figures 2.1 to 2.5.

The majority of local roads are seen to be unsealed, paved roads which vary from 4 m to 8 m in width (see Figure 2.6, Figure 2.7 and Figure 2.9).

QGC proposes to undertake a detailed road audit with the relevant road authority once a construction contractor has been appointed.

Figure 2.1 Warrego Highway west of Oakey – 2m wide sealed shoulders (state controlled)

Figure 2.2 Warrego Highway east of Dalby – unsealed shoulders (state controlled)

Figure 2.3 Leichhardt Highway 26B (Taroom-Miles) – sealed shoulders (state controlled)

Figure 2.4 **Kogan-Condamine Road – unsealed shoulders (state controlled)**

Figure 2.5 **Jackson–Wandoan Road – single lane bitumen floodway – no line marking (state controlled)**

Figure 2.6 Weranga North Road – paved and unsealed (local government)

Figure 2.7 12 Mile Road – paved and unsealed (local government)

Figure 2.8 Warrego Highway 18D (Miles-Roma) – sealed shoulders (state controlled)

Figure 2.9 Rawbelle Road – paved and unsealed (local government)

There are load restrictions on some bridges, particularly on local government controlled roads. Figure 2.10 shows an example of load limits.

Figure 2.10 Load limits on Greenswamp Road

For the load limits shown in Figure 2.10, only two pipes per truck can be transported over the bridge on Greenswamp Road. This is due to the fact that the estimated loads for two pipes per truck are 5.5 tonnes on a single steer axle and 11.5–12 tonnes on the two tandem axle groups on the prime mover and trailer. For more restrictive load limits, only one pipe per truck would be permitted.

2.8.2 Other users

The roads affected by the haulage of materials in rural areas do not have on-road or off-road cycle facilities. There are no on-road cycle lanes on the Warrego Highway through Toowoomba, Dalby and Chinchilla, nor along Glenlyon Street on the Dawson Highway in Gladstone where the majority of cycling activities would occur. The Warrego Highway through Miles has wide shoulders which enable on-road cycling clear of the traffic lanes.

Some of the routes are designated school bus routes. The Department of Transport and Main Roads' approved routes for road trains and B-double combinations specifies no travel within school bus hours on the Chinchilla–Tara Road (map updated 26/06/2002).

2.8.3 Existing traffic

Data obtained from DTMR on the traffic using the various road links is summarised in Table 2.20.

Table 2.20 Existing traffic on state controlled road network

Road	Section	AADT	% Trucks	% Articulated	% Road trains
Logan Motorway	Stapylton	42,798	-	-	-
Gateway Motorway	Prebble Street	86,000	-	-	-
Port of Brisbane Road		14,840	8.8%	20.3%	7.1%
Cunningham Arterial (Ipswich Motorway)	Rocklea	75,060	-	-	-
	Redbank	78,120	-	-	-
Warrego Highway	Ipswich–Toowoomba	13,000–20,500	5.2–7.5%	4.1–7.1%	3.4–4.7% B-double only
	Toowoomba City	19,800–22,000	5.7–7.1%	3.2–4.2%	2.0–2.4% B-double only
	Toowoomba–Dalby	4400–17,500	2.6–8.3%	1.1–5.6%	0.4–7.8%
	Dalby–Miles	2100–6500	6.6–11.0%	3.5–6.0%	4.8–9.2%
	Miles–Roma	1200–3000	8.1–9.0%	4.1–6.6%	6.8–13.2%
	Roma–Mitchell	750–4000	9.0–12.0%	2.0–6.0%	4.0–13.0%
Isis Highway	Childers–Biggenden	870–1390	8.4–9.8%	3.6–5.7%	0.7–3.4% B-double only
	Biggenden–Coalstoun Lakes	950–1250	8.1–9.6%	5.1–7.1%	3.1–4.8% B-double only
Leichhardt Highway	Westwood–Taroom	500–2200	7.6–9.4%	4.5–8.9%	5.5–11.5%
	Taroom–Miles	600–700	8.4–9.6%	8.5–10.6%	10.8–12.9%
	Miles–Goondiwindi	300–3400	6.3–9.0%	7.8–15.9%	11.9–22.6%
Bruce Highway	Maryborough–Gin Gin	3290–4390	6.3–14.2%	7.8–12.9%	3.8–4.8% B-double only
	Gin Gin–Benaraby	3050–5030	6.5–7.4%	7.5–13.4%	4.5–9.4% B-double only
	Benaraby–Rockhampton	3500–4600	6.6–9.6%	11.2–12.8%	7.5–9.5% B-double only
Burnett Highway	Nanango–Goomeri	780–2090	6.2–7.4%	5.1–7.4%	2.4–3.4%
	Goomeri–Gayndah	580–2370	7.4–15.1%	3.9–8.2%	1.2–8.6% B-double only
	Gayndah–Monto	640–3190	7.3–11.3%	2.8–6.5%	0.9–2.9%
	Monto–Biloela	700–2400	7.0–11.2%	1.8–5.8%	0.7–2.6% B-double only
Brisbane Valley Highway	Ipswich–Harlin	2490–9160	4-8–8.9%	2.7–6.8%	1.5–4.4%
Dawson Highway	Gladstone–Biloela	900–28,700	2.4–10.2%	0.5–5.5%	0.1–10.2% B-double only
	Biloela–Banana	1300–5500	7.6–10.6%	1.9–3.3%	1.1–3.1%
Moonie Highway	Dalby–St George	1300–6400	5.0–8.8%	1.3–4.8%	0.9–4.8%

Table 2.20 Continued

Road	Section	AADT	% Trucks	% Articulated	% Road trains
D'Aguilar Highway	Kilcoy–Yarraman	2770–3360	6.8–7.7%	5.0–7.0%	2.4–4.6%
	Yarraman–Kingaroy	3380–4700	7.7–8.6%	3.5–5.4%	1.5–2.3%
Gladstone – Mt Larcom Road		2900–9000	6.0–11.1%	2.4–6.3%	1.8–6.5% B-double only
Eidsvold–Theodore Road		80–800	7.7–12.6%	2.0–12.9%	0.9–3.9%
Biloela–Callide Road		360–1050	6.3–10.7%	2.0–4.3%	1.4–3.8%
Booyal–Dallarnil Road		490	6.8%	7.6%	6.8% B-double only
Surat Developmental Road	Tara–Dalby	600–2200	5.6–11.4%	1.7–4.7%	1.5–4.6%
Dalby–Kogan Road		300–500	8.7–15.4%	4.4–4.8%	5.0–7.5%
Kogan–Condamine Road		130	9.1%	8.7%	16.1%
Condamine–Meandarra Road		120	11.17%	6.90%	17.04%
Chinchilla–Tara Road		350–720	10.7–11.8%	2.4–4.9%	0.5–1.0%
Tara–Kogan Road		160	9.3%	1.3%	0.2%
Jackson–Wandoan Road		70–200	10.6–12.0%	4.4–5.8%	4.1–5.1%
Dalby-Jandowae Road		600-800	6.2–7.4%	4.7–5.5%	3.0–3.2%

No traffic data has been obtained from the local government bodies for traffic volumes on local government controlled roads. Based on the traffic volumes on the lower trafficked state controlled roads, the existing volumes on the majority of local government controlled roads in the area would range between 20 and 200 trips per day.

2.9 DESCRIPTION OF PROPOSED VEHICLES

The transportation of the components for the pipelines will be undertaken using conventional articulated vehicles, i.e. semitrailers and/or B double. Vehicles carrying the 1050 mm diameter pipeline materials will be extended semitrailers.

Large components such as centrifugal compressors, screw compressors and TEGs requiring the use of multi-axle platform vehicles will be transported under permit conditions. Planning of the haulage will be part of the procurement process for such items to ensure that the road authorities have sufficient time to consider the applications.

Gas field construction, operation and maintenance personnel will travel between the construction camps and the various works sites in four wheel drive utilities. The pipeline construction workers will be transported to site by bus from the nearest

airfield to camps during shift rotation and from camps to worksite each day. These travel arrangements will be ensured as part of the Personnel Transit Plan, incorporated in the Road Transport Safety Case.

Transport of some construction equipment such as dozers and side boom tractors will require over-dimension permits and these will be applied for by the transport hauler prior to any vehicle movement.

3 Traffic generation and distribution

3.1 BASIS FOR TRAFFIC IMPACT ANALYSIS

The analysis of traffic impacts on each road is based on the following assumptions:

- Generated traffic volume on each road assumes the peak year of construction (i.e. 500 wells in 1 year) based on a well drilling schedule provided by QGC. This conservative approach has been adopted to provide flexibility in the locations of wells developed each year.
- CPPs and WTPs are developed entirely during the construction phase (i.e. 2010 to 2014)
- The FCSs will be developed progressively as the wells come on line. This involves establishing 20 of these facilities between 2010 and 2014. The remaining 33 FCSs will be developed post 2014. For this assessment it has been assumed that this will be on the basis of 1.8 FCS per year for 18 years.
- Pipe haulage for the gas collection headers and export pipeline would be 40 km per month combined total with a maximum of 2 km in any one day
- The volume of traffic on any one day is based upon delivery to one facility at any one time. For example 10 truck trips delivering components to one facility will be added to the daily generated traffic. There may be some weeks or months when equipment is delivered to another facility.
- The vehicles generated by the haulage of the 1050 mm diameter pipe are based on four 12 m pipe lengths per truck.

The estimated number of haulage vehicles has been determined based on:

- the quantities of each component associated with the development of the wells, i.e. bore casing and well heads, pipelines, FCS compressors, CPP compressors, TEG units, WTP components, flares, construction camp modular items and quarry materials (for hard stand areas and access roads)
- the type and number of trucks required to haul the quantity of each component
- quarry material being taken from the most local quarry or borrow pits.

The number of vehicles generated by the establishment of the construction camps is based on the assumed distribution for the vehicles generated as listed in Table 2.1 and Table 2.2 on the road network and will occur in the early part of the construction phase.

The distribution of traffic on the state controlled network is based on the more direct routes from Brisbane to each gas field area.

3.2 HAULAGE ACTIVITY GENERATED

The number of vehicles that the project will generate on the state controlled road network is summarised in Table 3.2.

'Haulage Traffic Trips' refers to generated heavy vehicle traffic required to haul components for either pipeline construction or gas field development. The unloaded return journeys are included in these figures and are counted as a separate trip.

The haulage traffic has been calculated by accumulating the trips (including the return journeys as separate trips) required to haul the construction components listed in Table 3.1.

Table 3.1 Haulage components

Pipeline component	Gasfield component
Pipes for export, collection header and Woleebee Creek gas pipelines	CPPs
Pipes for collection header water pipeline	FCSs
Joint coatings for gas pipelines	Fuel
Quarry material for gas pipelines	Gathering lines (gas, water and FCS to CPP)
Construction camps	Water trunk line
Meter stations	MIDC separator
Scrapers	Bore casings
	TEG units
	General well equipment
	Construction camps
	Quarry material for construction camps, access roads, CPPs and FCSs
	Power equipment
	Water treatment plant

'Light Traffic Trips' refers to traffic generated by personnel travelling to or from:

- airfields to camps (by bus)
- camp to work site
- camp to town (field workers, non-work based)
- camp to town (workshop/office servicing personnel).

The return journeys are included in these figures and are counted as separate trips (as shown in Table 2.1 and Table 2.2).

The volumes in Table 3.2 are an upper limit for the following reasons:

- They represent the sum of all of any one day's activities (i.e. they assume that all activities are occurring simultaneously).
- There will be three months of delivery of pipe to stockpiles prior to work commencing on site.
- There will be approximately eight months where delivery of the 1050 mm diameter pipe will be undertaken at the same time as construction work on the pipeline will be in progress.

- Delivery of equipment for the facilities will be in peaks based on high activity over several days followed potentially by no deliveries for a number of weeks or months; the numbers given in Table 3.1 and 3.2 represent peaks numbers.

Table 3.2 Peak daily traffic distribution for gas field and pipelines- state controlled roads

Road	Section	Pipeline Component (vpd)		Gas Field Component (vpd)	
		Generated light traffic trips	Generated haulage traffic trips	Generated light traffic trips	Generated haulage traffic trips
Logan Motorway	Stapylton	-	124	-	32
Gateway Motorway	Prebble Street	-	124	-	32
Port of Brisbane Road		-	124	-	32
Cunningham Arterial (Ipswich Motorway)	Rocklea	-	168	-	96
	Redbank	-	168	-	96
Warrego Highway	Ipswich–Toowoomba	-	202	-	258
	Toowoomba–Dalby	-	202	-	258
	Dalby–Miles	635	360-398	2137	312-314
	Miles–Roma	8	118	-	328
Isis Highway	Childers–Biggenden	-	84	-	-
	Biggenden–Coalstoun Lakes	-	84	-	-
Leichhardt Highway	Westwood–Taroom	380	170-252	-	-
	Taroom–Miles	384	172-188	34	198
	Miles–Goondiwindi	-	-	204	186
Bruce Highway	Maryborough –Gin Gin	-	84	-	-
	Gin Gin–Benaraby	-	84	-	-
	Benaraby–Rockhampton	311	124-244	-	-
Burnett Highway	Nanango–Goomeri	-	52	-	-
	Goomeri–Gayndah	-	40-52	-	-
	Gayndah–Monto	-	40	-	-
	Monto–Biloela	347	40-204	-	-
Brisbane Valley Highway	Ipswich–Harlin	-	52	-	-

Road	Section	Pipeline Component (vpd)		Gas Field Component (vpd)	
		Generated light traffic trips	Generated haulage traffic trips	Generated light traffic trips	Generated haulage traffic trips
Dawson Highway	Gladstone–Biloela	655	84-156	-	-
	Biloela–Banana	-	86	-	-
Moonie Highway	Dalby–St George	-	40	-	198
D'Aguilar Highway	Kilcoy–Yarraman	-	52	-	-
	Yarraman–Kingaroy	-	52	-	-
Gladstone – Mt Larcom Road		503	84-278	-	-
Eidsvold–Theodore Road		367	40-84	-	-
Biloela–Callide Road		211	32	-	-
Booyal–Dallarnil Road		-	84	-	-
Surat Developmental Road	Tara–Dalby	-	40	-	200
Dalby–Kogan Road		20	262	1191	312
Kogan–Condamine Road		21	300	1235	312
Condamine–Meandarra Road		-	-	-	186
Chinchilla–Tara Road		421	124	48	184
Tara–Kogan Road		-	78	506	138
Jackson–Wandoan Road		-	118-178	2516	208-332
Dalby-Jandowae Road		-	98	-	160

The local government roads that will be used during the haulage have not been definitively identified at this stage; however, it is likely that traffic from the construction camps and haulage will affect the local government controlled roads set out in Appendix C.

4 Pavement impact assessments

4.1 CURRENT PAVEMENT LOADINGS

The current pavement loadings on the state controlled road network have been assessed using traffic count volumes, proportion of heavy vehicles and annual growth rates provided by the following Department of Transport and Main Roads regions:

- Darling Downs
- South West
- Metropolitan (Brisbane)
- Wide Bay – Burnett

Fitzroy Region nominated 2.9 equivalent standard axles (ESAs) per commercial vehicle for the Bruce Highway and 3.2 ESAs per commercial vehicle for other roads in the Fitzroy Region.

Darling Downs, Wide Bay – Burnett, Metropolitan and South West regions were unable to provide ESAs per commercial vehicle. The calculation of the current daily ESAs for each section of state controlled roads within these regions is based on the annual average daily traffic (AADT) and the proportion of trucks, articulated vehicles and road trains. The axle groups for each class of heavy vehicle are assumed as follows:

- truck single axle and tandem dual drive axles
- articulated vehicle single axle and tandem dual drive axles and tandem triaxle on the trailer
- road trains single axle and tandem dual drive axles and tandem dual axles on trailer dollies and rear tandem triaxle on the trailers.

The ESAs per heavy vehicle class is the average of the particular vehicle fully loaded and completely unloaded (tare weight only). The ESAs adopted for each heavy vehicle type are summarised in Table 4.1.

Table 4.1 Existing traffic ESA per vehicle type

Vehicle	ESA		
	Loaded	Empty	Average
Single unit truck	3.7	0.7	2.2
Semitrailer	5.1	0.8	2.95
Road train Type 1	8.6	0.8	5.58
Road train Type 2	12.1	0.8	

The average ESA per commercial vehicle on each road ranged between 2.52 and 4.36.

The pavement loading over the next 20 years using the growth rates provided by the regions is set out in Appendix H. Discussions were held with the Fitzroy Regional Office of the Department of Transport and Main Roads with respect to annual growth rates to be adopted. Where historic annual growth rates are less than 1% (including negative growth) a minimum of 1% per annum has been adopted. Where historic annual growth rates exceed 5%, a maximum of 5% has been assumed for the next 10 years and 3.5% per annum thereafter. Over a 20 year period the cumulative growth rate in axle loadings back calculates to an average of 4.5% per annum.

On the local government controlled roads there is no data from which to derive traffic loadings. The majority of the local government controlled roads are unsealed.

4.2 PROPOSED HAULAGE DEVELOPMENT LOADINGS

The proposed haulage loadings have been based on haulage vehicles being loaded to the maximum loads as advised by QGC and are summarised in Table 4.2.

The ESAs per vehicle have been calculated using the following parameters:

- 1 ESA on single axle single wheel 5.4 tonnes
- 1 ESA on single axle dual wheels 8.1 tonnes.

Table 4.2 ESAs per commercial vehicle

Vehicle	Haulage	Pay load (tonnes)	Truck load (tonnes)	Loaded ESA
Single unit truck	General well equipment	1.8	10.8	1.35
Semitrailer	315 mm dia. steel pipe 450 mm dia. PE water pipe	22.0	36.0	4.13
Semitrailer	Bore casing	17.0	31.0	2.57
Semitrailer	315 mm dia. PE water pipe	14.1	28.5	2.1
Multi-axle platform	Centrifugal compressors (140.5tonnes)	140.5	170.5	24.0
Multi-axle platform	Centrifugal compressors (89.0tonnes)	89.0	119.0	8.0
Multi-axle platform	Screw compressors	50.0	80.0	6.9
Multi-axle platform	TEG Units	120.0	150.0	22.3

Table 4.2 continued

Vehicle	Haulage	Pay load (tonnes)	Truck load (tonnes)	Loaded ESA
Semitrailer	Fuel	25.0	42.0	5.1
Semitrailer	1050 mm dia. steel pipe	22	36	4.34
Semitrailer	800 mm dia. HDPE pipe	8.1	22.1	1.37
Semitrailer	Field joint coating	23.0	37	5.25
Semitrailer	Quarry material	28.0	42.5	5.05
Semitrailer	Modular buildings	3.5	17.5	1.14
Semitrailer	Scraper stations	26.5	42.5	5.1
Semitrailer	Meter stations	26.5	42.5	5.1
Semitrailer	Water treatment	26.5	42.5	5.1
Semitrailer	Power supply	26.5	42.5	5.1

The assumed vehicle configurations are single wheel single steer axle, tandem axle dual wheel drive group and the tandem axle dual wheel trailer axle group, except for fuel trailers which are more likely to have a triaxle group on the trailer.

The 140.5 tonne centrifugal compressors and TEG units are expected to be transported via low loaders with 12 axles. The smaller centrifugal compressors require only 11 axles (*Transport Operations (Road Use Management) Act 1995* (Section 10, Schedule 57).

4.3 PROPOSED VEHICLE COMBINATIONS, AXLE TYPES AND CONFIGURATIONS

The proposed vehicle combinations will be single unit trucks and semitrailers with possibly a small proportion of B-doubles. Given the proximity of the gas field to Toowoomba, east of which road trains cannot travel, it is envisaged that the use of road trains will be minimal. Road trains will not be used for transporting the 1050 mm diameter pipes.

Some heavy machinery items for the CPPs and FCCs will require the use of multi-axle platform vehicles operating under permit conditions. The number of trips requiring the use of such vehicles is envisaged to be approximately 220 over the development of the gas field and pipelines.

4.4 PAVEMENT IMPACT ASSESSMENT

Appendix H sets out the assessment of the additional haulage on the pavements on the various elements of the state controlled road network for 100% of project related materials being transported by road. This has been calculated in accordance with the requirements of DTMR Guidelines Section 3.3, Criterion 2 (Pavement impact assessment) that states ‘Generally pavement impacts need to be assessed for any section of a SCR (state controlled road) where the construction or operational traffic generated by the development exceeds 5% of the existing ESA on the road section’.

Pavement loading from the construction has been calculated for the 20 year life of the pavement for each road unit. Based on the calculations set out in Appendix H a list of the state controlled roads affected by the upstream portion of the project where the average daily produced ESA is greater than 5% of the current ESA is set out in Table 4.3. The increase in the 20-year pavement loading as a result of this impact is also summarised in Table 4.3.

If 75% of the construction phase materials brought into the gas field area can be transported by rail this would reduce the project impacts on all routes up to Dalby (refer Appendix J). Past Dalby the materials would still require movement via the road network centred around Miles, and therefore the impact on local government roads would not be altered by the use of rail.

Table 4.3 Pavement impact of gas field and pipelines

Road	Section	Generated ESAs (ESA/year)	Maximum impact (ESA/year)	Number of days under effect	Increase in 20 year pavement loading
Port of Brisbane Motorway	Prebble Street	4.50×10^3	<5.0%	1992	<0.1%
Gateway Motorway		4.48×10^3		1992	
Logan Motorway		5.05×10^3		1992	
Ipswich Motorway		5.26×10^3	<5.0%	1992	<0.1%
Warrego Highway	Ipswich–Toowoomba	1.02×10^4	<5.0%	8077	0.4% – 0.7%
	Toowoomba City	1.02×10^4	<5.0%	8077	0.4% – 0.7%
	Toowoomba–Dalby	1.02×10^4	<5.0%	8077	0.6% – 3.9%
	Dalby–Miles	1.43×10^5 - 1.46×10^5	23.55% – 44.67%	2597 – 8077	9.62% – 23.0%
	Miles–Roma	1.48×10^5 – 1.50×10^5	37.1% – 59.9%	605 – 616	1.9% – 3.0%
Isis Highway	Childers-Biggenden	2.34×10^2	<5%	7	<0.1%
	Biggenden-Coalstoun Lakes	2.34×10^2	<5%	7	<0.1%
Leichhardt Highway	Miles–Goondiwindi	1.39×10^5	141.9%	1198	13.6%
	Westwood–Taroom	6.0×10^3 – 9.6×10^3	<5.0% – 8.3%	33 – 50	0.1% – 0.3%
	Taroom–Miles	1.24×10^4 – 1.39×10^5	9.5% – 99.5%	68 – 1002	0.3% – 8.3%
Bruce Highway	Benaraby–Rockhampton	1.7×10^3 – 2.8×10^3	<5.0%	14-15	<0.1%
	Gin Gin–Benaraby	2.34×10^2	<5.0%	5	<0.1%
	Maryborough–Gin Gin	2.34×10^2	<5.0%	5	<0.1%
D'Aguilar Highway	Kilcoy–Yarraman	5.47×10^2	<5.0%	19	<0.1%
	Yarraman–Kingaroy	5.47×10^2	<5.0%	19	<0.1%

Burnett Highway	Nanango–Goomeri	5.47×10^2	<5.0%	19	<0.1%
	Goomeri–Gayndah	$3.13 \times 10^2 – 5.47 \times 10^2$	<5.0%	14 – 19	<0.1%
	Gayndah–Monto	$1.54 \times 10^2 – 3.13 \times 10^2$	<5.0%	7 – 12	<0.1%
	Monto–Biloela	$1.54 \times 10^2 – 8.42 \times 10^3$	<5.0% – 14.7%	7 – 43	<0.1% – 0.45%
Brisbane Valley Highway	Ipswich–Harlin	5.47×10^2	<5%	19	<0.1%
Dawson Highway	Gladstone–Biloela	$1.43 \times 10^4 – 1.60 \times 10^4$	<5.0% – 14.40%	93 – 105	<0.1% – 0.44%
	Biloela–Banana	7.01×10^3	<5.0% – 6.0%	50	<0.1% – 0.18%
Moonie Highway	Dalby–St George	1.40×10^5	59.4% – 95.7%	2352	15.4% – 25.8%
Gladstone – Mt Larcom Road		$3.84 \times 10^3 – 3.86 \times 10^3$	<5%	18 – 28	<0.1%
Eidsvold–Theodore Road		$1.59 \times 10^2 – 2.74. \times 10^3$	<5.0% – 22.7%	5 – 20	<0.1% – 0.69%
Biloela–Callide Road		15.2	<5.0%	1	<0.1%
Booyal–Dallarnil Road		2.34×10^2	<5.0%	5	<0.1%
Surat Developmental Road	Tara–Dalby	$1.39 \times 10^5 – 1.40 \times 10^5$	140.3% – 206.61%	735 – 897	12.7% – 16.6%
Dalby–Kogan Road		1.43×10^5	202.8% – 340.1%	2930	49.4% – 89.94%
Kogan–Condamine Road		1.43×10^5	445.9%	2925	108.4%
Condamine–Meandarra Road		1.33×10^5	456.1%	357	20.51%
Chinchilla–Tara Road		$8.30 \times 10^2 – 1.33 \times 10^5$	<5.0% – 285.2%	5 – 409	<0.1% – 9.69%
Tara–Kogan Road		1.45×10^5	1422.3%	532	74.07%
Jackson–Wandoan Road		$1.37 \times 10^5 – 1.51 \times 10^5$	896.0% – 1799.0%	464 – 605	34.55% – 90.44%
Dalby–Jandowae Road		8.44×10^5	1204.5%	1272	184.34%

The impact of the haulage on the Warrego Highway over the sections from Ipswich to Toowoomba and Toowoomba to Dalby is less than the 5% stated in the DMR Guidelines and is therefore considered not to be significant.

Past Dalby the impact of the haulage on the 20 year pavement loading on sections of the Warrego Highway is significant (e.g. Dalby–Miles and Miles–Roma). Other routes that also potentially have significant impacts on the 20 year pavement loading are:

- Leichhardt Highway (Miles–Goondiwindi)
- Moonie Highway (Dalby–St George)
- Surat Developmental Road (Tara–Dalby)
- Dalby–Kogan Road
- Kogan–Condamine Road
- Jackson–Wandoan Road
- Dalby–Jandowae Road.

The proposed transport of all Project materials on these roads would exceed the usage of the 20 year design load by 5% or greater as specified by the DMR Guidelines.

The pavement loading on individual local government controlled roads will be less than that for the state controlled roads. However, as these are unsealed and with only nominal pavement, additional maintenance in the form of more regular heavy grading and re-sheeting will be required. The extent of this increased maintenance will depend on the actual amount of haulage that occurs on these roads and will need to be negotiated directly with the relevant local government authority.

The construction of the pipelines will on some roads be of relatively short duration and, while the daily impact is significant, the impact over a 12 month period may not be regarded as significant.

Contributions to road maintenance to ameliorate the impact of the haulage on road sections listed require negotiation with DTMR once the final logistics plan has been completed. Calculation of the contribution would not be meaningful at this stage when it is still not known how much of the transport can be carried out by rail.

On all of the local government controlled roads the increases in the traffic volumes on unsealed roadways will need to be addressed on a road by road basis. The increased traffic will mean additional wear on the road surface, dust affecting visibility, and more rapid deterioration in riding quality from corrugations. The options will be:

- additional road maintenance in the form of additional light grading, heavy grading and gravel re-sheeting
- widening the existing unsealed road formation and additional maintenance
- paving and sealing the more highly trafficked roads, e.g. local government controlled roads providing access to construction sites.

The extent of this increased maintenance will depend on the actual amount of haulage that occurs on these roads and should be formulated through a road condition audit in conjunction with the road authority.

5 Traffic operations assessment

5.1 INCREASE IN AADT

Where the percentage increase in AADT as a result of a project exceeds 5% of the current AADT the DTMR Guidelines deem this to be a significant effect. A summary of the existing AADT, projected project transport numbers and the calculated percentage increase is provided in Table 5.1. A diagrammatic representation of the current AADT, truck loads, and construction worker vehicles long the state controlled network is given in Appendix I. It can be seen that if all of the materials are transported by road, 76% of the roads along the routes would have an increase in AADT in excess of 5%. However, this may only occur in sections of any one particular route and may not occur along the entire route. For example, the section of the Warrego Highway from Ipswich to Toowoomba is affected by less than 5% whilst the section from Toowoomba to Dalby is affected by 10%.

Table 5.1 AADT % increase on state controlled roads for gas field and pipelines

Road	Section	Current AADT	Generated traffic volumes (vpd)	Maximum impact
Logan Motorway	-	42,798	156	<5%
Gateway Motorway	Prebble Street	86,000	156	<5%
Port of Brisbane Motorway	-	14,840	156	<5%
Cunningham Arterial (Ipswich Motorway)	Rocklea	75,060	264	<5%
	Redbank	78,120	264	<5%
Warrego Highway	Ipswich–Toowoomba	13,000–20,500	460	<5%
	Toowoomba–Dalby	4500–17,500	460	10%
	Dalby–Miles	2100–6500	672–1883	27–79%
	Miles–Roma	1200–3000	446–454	17–36%
Isis Highway	Childers–Biggenden	870–1390	84	6–10%
	Biggenden–Coalstoun Lakes	950–1250	84	7–9%
Leichhardt Highway	Westwood–Taroom	500–2200	550–632	30–112%
	Taroom–Miles	600–700	590–804	90–126%
	Miles–Goondiwindi	300–1850	390	82%

Road	Section	Current AADT	Generated traffic volumes (vpd)	Maximum impact
Bruce Highway	Maryborough–Gin Gin	3290–4390	84	<5%
	Gin Gin–Benaraby	3050–5030	84	<5%
	Benaraby–Rockhampton	3500–4600	124–155	<5% – 16%
Burnett Highway	Nanango–Goomeri	780–2090	52	<5%– 7%
Brisbane Valley Highway	Goomeri–Gayndah	580–2370	40–52	<5%– 9%
	Gayndah–Monto	640–3190	40	<5%– 6%
Brisbane Valley Highway	Monto–Biloela	700–2400	40–551	<5%–82%
	Ipswich–Harlin	2490–9160	52	<5%
Dawson Highway	Gladstone–Biloela	900–28,700	84–435	<5% – 42%
Moonie Highway	Biloela–Banana	1300–5500	86	<5% – 7%
	Dalby–St George	1300–6400	238	<5% – 18%
D'Aguilar Highway	Kilcoy–Yarraman	2770–3360	52	<5%
Gladstone–Mt Larcom Road	Yarraman–Kingaroy	3380–4700	52	<5%
		2900–9000	276–781	<5% – 27%
Eidsvold–Theodore Road		80–800	84–314	11–397%
Biloela–Callide Road		360–1050	243	23–68%
Booyal–Dallarnil Road		490	84	17%
Surat Developmental Road	Tara–Dalby	600–2200	200–240	9–39%
Dalby–Kogan Road		300–500	1785	350–576%
Kogan–Condamine Road		130	1868	1437%
Condamine–Meandarra Road		114	186	163%
Chinchilla–Tara Road		350–720	593–653	91–169%
Tara–Kogan Road		160	722	229%
Jackson–Wandoan Road		70–200	2902–2966	2198–4494%
Dalby–Jandowae Road		600–800	258	32%

5.2 LEVEL OF SERVICE

The level of service (LOS) generally describes the operational conditions within a traffic stream, and their perception by motorists. These conditions are described in terms of factors such as speed, travel time, freedom to manoeuvre, traffic interruptions, comfort, convenience and safety. In general there are six recognised levels of service, from A to F, with level of service A representing the best operation and level F the worst.

Table 5.2 lists the maximum AADT's for various levels of service following the DMR *Road planning and design manual* (Chapter 5, August 2004) and 'Guide to traffic engineering practice–Part 2' (Table 3.9, *Austroads* 1988) [*GTEP -PT2*]. A standard K-factor ratio of 0.1 was adopted, and the AADT's in Table 3.9 *GTEP-PT2* were adjusted for standard 3.3 m lanes with 1.0 m shoulders as set out in Table 3.3 *GTEP-PT2*.

Table 5.2 Adopted maximum AADTs for various levels of service

Level of service				
A	B	C	D	E
Level terrain				
2000	4000	6550	11,200	19,000
Rolling terrain				
830	2300	4300	6600	12,300

A comparison of the effect of project generated AADTs on the level of service for each of the affected roads is given in Table 5.3. It can be seen that the changes in AADT as a result of the transport requirements of the upstream portion of the project will potentially reduce the current level of service on three of the state controlled roads.

Table 5.3 Levels of service over state controlled roads for gas field and pipeline components

Road	Section	Current AADT	Generated traffic volumes (vpd)	Existing level of service	New level of service
Logan Motorway	-	42,798	156	B–D	B–D
Gateway Motorway	Prebble Street	86,000	156	B–E	B–E
Port of Brisbane Mwy	-	14,840	156	A–C	A–C
Cunningham Arterial	Rocklea	75,060	264	B–E	B–E
	Redbank	78,120	264	B–E	B–E
Warrego Highway	Ipswich–Toowoomba	13,000–20,500	460	C–E	C–E
	Toowoomba–Dalby	4400–17,500	460	C–E	C–E
	Dalby–Miles	2100–6500	672-1883	B–C	B–D
	Miles–Roma	1200–3000	446-454	A–B	A–B
Isis Highway	Childers–Biggenden	750–4000	84	A–B	A–B
	Biggenden–Coalstoun Lakes	870–1390	84	A–B	A–B
Leichhardt Highway	Westwood–Taroom	950–1250	550-632	A	A–B
	Taroom–Miles	500–2200	590-804	A	A
	Miles–Goondiwindi	600–700	390	A	A
Bruce Highway	Maryborough–Gin Gin	300–3400	84	C	C
	Gin Gin–Benaraby	3290–4390	84	B–C	B–C
	Benaraby–Rockhampton	3050–5030	124-155	B–C	B–C
Burnett Highway	Nanango–Goomeri	3500–4600	52	A–B	A–B
	Goomeri–Gayndah	780–2090	40-52	A–B	A–B
	Gayndah–Monto	580–2370	40	A–C	A–C
	Monto–Biloela	640–3190	40-551	A–B	A–B
Brisbane Valley Highway	Ipswich–Harlin	700–2400	52	B–D	B–D

Road	Section	Current AADT	Generated traffic volumes (vpd)	Existing level of service	New level of service
Dawson Highway	Gladstone–Biloela	2490–9160	84-435	A–E	A–E
	Biloela–Banana	900–28,700	86	A–C	A–C
Moonie Highway	Dalby–St George	1300–5500	238	A–C	A–C
D'Aguilar Highway	Kilcoy–Yarraman	1300–6400	52	C	C
	Yarraman–Kingaroy	2770–3360	52	C	C
Gladstone – Mt Larcom Road		3380–4700	276-781	B–D	B–D
Eidsvold–Theodore Road		2900–9000	84-314	A	A
Biloela–Callide Road		80–800	243	B	B
Booyal–Dallarnil Road		360–1050	84	A	A
Surat Developmental Road	Tara–Dalby	490	200-240	A	A
Dalby–Kogan Road		600–2200	1785	A	A
Kogan–Condamine Road		300–500	1868	A	A
Condamine – Meandarra		130	186	A	A
Chinchilla–Tara Road		120	593-653	A	A
Tara–Kogan Road		350–720	722	A	A
Jackson–Wandoan Road		160	2902-2966	A	B–C
Dalby – Jandowae Road		70–200	258	A	A

The changes to level of service are summarised as follows:

- Leichhardt Highway (Westwood–Taroom) from LOS A to LOS A–B
- Warrego Highway (Dalby–Miles) from LOS B–C to LOS B–D
- Jackson Wandoan Road from LOS A to LOS B–C.

The difference between Levels of Service are as follows:

- LOS A – the individual drivers are virtually unaffected by the presence of other drivers in the stream. The freedom to select the desired speeds and to manoeuvre within the traffic stream is extremely high and the general level of comfort and convenience provided is excellent.
- LOS B – A zone where drivers have reasonable freedom to select their desired speed and to manoeuvre within the general traffic stream, although the general level of comfort and convenience is a little less than with LOS A.
- LOS C – A zone of stable traffic flow where drivers are restricted in their freedom to select speed but speeds are still at or above optimum speed. Manoeuvrability becomes more restricted.

- LOS D – A zone of mostly stable traffic flow where drivers are quite restricted in their freedom to select speed or to manoeuvre, and a small increase in flow can significantly reduce travel speed.

On all of the local government controlled roads, the increases in the traffic volumes on unsealed roadways will need to be addressed on a road by road basis. The options for amelioration works may include:

- additional road maintenance in the form of additional light grading, heavy grading and gravel re-sheeting
- widening of the existing unsealed road formation and additional maintenance
- paving and sealing of the more highly trafficked roads, e.g. local government controlled roads providing access to construction.

5.3 INTERSECTION ANALYSIS

The peak hour volumes generated by the project will vary between the volumes travelling through the city of Toowoomba and the town of Dalby as opposed to the roads in the vicinity of the construction camps.

Table 5.1 shows that the volume of project generated traffic through Toowoomba is 460 vehicles per day. For the purpose of assessing the impact on intersections, it is assumed that the peak hour volumes are 10% of the daily volumes, therefore the increase in traffic on the Warrego Highway is 46 vehicles per hour. Based on a 70/30% directional split, the increase in peak hour volume in the major direction is 32 vehicles per hour. This volume will not have an impact on the operation of intersections through the city.

A short section of the Warrego Highway between the Moonie Highway and Dalby–Jandowae Road is expected to carry an increase of up to 1883 vehicles per day. Adopting a 70/30% directional split and assuming 10% of daily volume in the peak, this equates to an approximate peak hourly increase of 130 vehicles per hour. This may have an impact on the operation of the intersections on this section of road which will be confirmed in consultation with the Department of Transport and Main Roads.

The access to the construction camps will have the most impact on the road network. These accesses will affect roads with an AADT of less than 2000. The maximum numbers of vehicles leaving and entering the camp at any one peak hour period is 160 vehicles. The average delays to vehicles entering and leaving the camps either at the camp access itself or at intersections on the road network will, on average, be less than two seconds. At present the definitive locations of these camps has not been decided, and assessment of the intersections with the road network will be conducted post confirmation.

The haulage of the pipeline materials from Gladstone involves 110 trips per day. While haulage may be an around the clock operation, for the purpose of assessing the impact on the operations of intersections, it is assumed that the peak hour truck movement is 10% of the daily traffic, i.e. 11 trips per hour through Gladstone. On the same basis, the peak hour truck movement through Toowoomba is six trips per hour. These additional volumes will not have any impact on the operation of signalised intersections through these cities.

For intersections in rural areas, the peak hour is similarly based on 10% of the daily heavy vehicle movement. This will increase the hourly heavy vehicle volume by between 6 and 30 vehicles, depending on the area, in the peak hour on roads with current AADT of less than 2000 or 200 vehicles in the peak hour.

5.4 PERFORMANCE / CONDITION MONITORING OF BRIDGES/STRUCTURES

None of the bridges on the state controlled road network have signed load limits. The haulage will predominantly be undertaken with standard truck loads; however, there will be approximately 220 loads moved by multi-axle platform vehicles, requiring assessment of the load capacity of bridges along the route. It is understood that once QGC has appointed a haulage contractor details will be obtained on the heavy vehicle load capacity of the affected bridges from the Department of Transport and Main Roads to ensure that the structure is capable of carrying the proposed load.

On local government controlled roads, the load limits on the bridges will be complied with. In addition, as part of the road condition assessments prior to construction, timber bridges or culverts will be assessed for their capacity to handle project transport. This will be taken into account in finalising the transport routes and management measures.

6 Safety review

6.1 INTERSECTIONS AND ACCESS

Sight distances to the intersections of local government controlled roads with the state controlled roads generally meet the safe intersection criteria. On the local government controlled road network there are existing intersections where the safe intersection criteria have not been achieved. Each intersection on the local government controlled road network likely to be affected by construction worker traffic will be assessed as part of the road condition audit. The remedial actions could be to find alternative routes or improve the sight distance.

Accesses to camps and pipeline construction sites will be subject to the requirements of the relevant road authority.

6.2 PEDESTRIANS, CYCLISTS AND MOTOR CYCLISTS

The haulage of the materials is predominately along rural highways and roads. The interaction of the haulage vehicles with pedestrians, cyclists and motorcyclists predominantly occurs in cities and towns, e.g. Toowoomba, Dalby, Chinchilla and Miles. The increased hourly traffic volumes along the roads are considered to be insignificant, and therefore there is no increase in the safety risk to these other road users.

Interaction with the other road users will be associated with construction workers residing in the townships of Miles and Chinchilla when they leave town in the morning and return in the afternoon. There will not be any significant construction worker traffic between these times. The workers will be distributed around the townships and will only concentrate on the major roads out of the town travelling to and from the diverse locations of the gas fields.

6.3 SCHOOL BUS ROUTES

School bus routes are present along a number of both state controlled and local government controlled roads. Construction worker traffic will be outside the times when the school buses are operating. The number of trucks associated with gas field development using local government controlled roads will be fewer than for the state controlled roads, as the wells, FCSs and supporting pipelines are dispersed throughout the local government controlled road network. Similarly the number of days materials are hauled over each local road network will be fewer than for the state controlled roads.

Regardless of the road hierarchy, the interaction of haulage traffic and times when children are being picked up or set down by the school bus will be assessed on a road by road basis for all school bus routes. The details of the school bus routes and

operators will be sourced from the Department of Transport and Main Roads and local government authorities. Discussions will be held with the operators to determine how to reduce the construction traffic and the bus operations with emphasis on the safety of children waiting for and leaving buses. This may be achieved by restricting construction traffic at particular times on particular roads or re routing construction traffic away from school bus routes.

6.4 SAFETY IMPROVEMENTS

Accident location data will be obtained from the Department of Transport and Main Roads to identify the locations of existing accident black spots. The impact of the additional vehicles on these black spots and potential safety improvements will be assessed.

The increased traffic volumes generated by the project may deem that sections of road with narrow traffic lanes (i.e. existing 6.0 m seal widths) may lead to unsafe traffic operations and some upgrading works may be warranted.

The extent of upgrades to these locations will be negotiated with the relevant road authorities as part of the amelioration works.

7 Environmental and other issues

7.1 OVERVIEW

This report forms part of the environmental impact study (EIS) for the development of the QCLNG Project. This report is specific to the development of the CSG fields in the Surat Basin and the construction of the gas transmission pipeline. A Separate report is being prepared for the LNG plant section of the project. That report addresses the transport requirements associated with the movement of pipeline material through Gladstone City.

7.2 ROAD NOISE

The volume of vehicles generated by the development of the Surat Basin will not generate the need for specific road noise measures on state controlled roads. The only noise aspect to be considered is the effect of the increased volume of trucks hauling at night along routes fronted by residences, particularly those residences adjacent to the Warrego Highway through Toowoomba, Dalby, Chinchilla and Miles. Other provincial towns may need to be considered if any late night/early hours haulage is to take place.

An assessment of noise impacts associated with transport on local roads is being addressed separately under the overall noise studies for the gas field development.

7.3 DUST CONTROL

The majority of state controlled roads affected by the project are sealed.

The majority of local government controlled roads are unsealed. QGC has indicated that it is very aware of dust issues and how these relate to safety and amenity in the area. As part of its overall transport and road management strategy QGC will negotiate with the relevant local government authority in relation to the appropriate treatment of these roads. This may include increased attention to more regular maintenance grading of the unsealed roads with rollers and water trucks to ensure both a smooth running surface and a reduction in the nuisance of dust. In particular instances, consideration will be given as to whether it will be more cost effective to the project to bitumen seal the road.

7.4 ROADWORKS IN THE ROAD AND RAIL RESERVE

Works will be conducted within road and rail reserves for the following activities:

- constructing accesses
- pipe crossings.

Works within roads reserves will be subject to the approval of the relevant road authority and will be carried out in accordance with the conditions of that approval. The project will have a traffic management plan for work within the reserves. This plan will set out the procedure for preparing traffic control plans (TCP's) be persons accredited to Level 3 in accordance with the Manual of Uniform Traffic Control Devices (MUTCD), submission of TCP's to the relevant authority in advance of the work progressing, obtaining permits for Queensland Police Service and handover to traffic controllers once all approvals are in place.

Pipe crossings will occur on roads with single carriageways, and open trenching of these roads will require either constructing side tracks or reducing the road to one lane-two way operation under traffic controllers as discussed in Section 2.7. In some instances constructing side tracks will not be feasible and delays to traffic with one lane-two way operations will be unacceptable. In these instances construction will be by trenchless construction methods.

All crossings of rail formations will be constructed by trenchless construction methods agreed with QR.

Plans for all construction work will be provided to the relevant authority in advance of construction commencing. Relevant permits such as Ancillary Works Encroachment (AWE) or other relevant permits will be obtained in advance of construction works.

7.5 ACCESS CONTROL

All access will be unsignalised and the road rules will be iterated with the appropriate regulatory signage. The establishment of access to the camps, pipelines and CSG fields will be subject to the approval of the relevant road authority.

7.6 ON-SITE PARKING REQUIREMENTS

On-site parking will be provided for all vehicles associated with the project in the construction camps and the construction sites. Any vehicles associated with construction work within road reserves will be required to park at a safe distance from the road formation.

7.7 ANCILLARY WORKS AND ENCROACHMENTS

Digital data relating to the pipeline routes has been provided to DTMR to enable them to assess the likely impacts to their infrastructure. Revised data will be forwarded as the pipeline routes are refined; however, the key locations of crossings are not expected to alter greatly. Standard drawings and the most up-to-date data will be provided to DTMR with the AWE applications. These applications will be made sufficiently in advance of construction to enable the applications to be adequately assessed.

7.8 OVER-DIMENSION VEHICLES

Over-dimension vehicles will be required to transport large earthmoving plant (nominally dozers and excavators) along the pipeline alignment and drill rigs initially to the Surat Basin and then between gas fields. These vehicles will operate

within the conditions of the operational permit. The use of these vehicles will be on an ad hoc basis.

Multi-axle platform vehicles will be required to transport the FSC and CPP machinery. These vehicles will operate under the conditions of the operational permit.

8 Impact mitigation for roads

8.1 STATE CONTROLLED ROADS

8.1.1 Impacts

The impacts on the state controlled road network are summarised as follows:

- There will be a significant increase in the volume of traffic using the roads as set out in Table 5.1.
- The increase in traffic volumes on the Jackson–Wandoan Road may require the widening of the pavement to two lanes over the existing narrow floodways.
- As shown in Table 5.2, these increases in traffic volume change the current level of service on the following roads:
    - Leichhardt Highway (Westwood–Taroom) from LOS A to LOS A–B
    - Warrego Highway (Dalby–Miles) from LOS B–C to LOS B–D and
    - Jackson Wandoan Road from LOS A to LOS B–C.

  The level of service on all other roads remains unchanged.
- The haulage on the 20-year pavement loading is significant on sections of the Warrego Highway (Dalby–Miles, Miles–Roma and Roma–Mitchell), Leichhardt Highway (Miles–Goondiwindi), Moonie Highway (Dalby–St George), Surat Developmental Road (Tara–Dalby), Dalby–Kogan Road, Kogan–Condamine Road, Jackson–Wandoan Road and Dalby–Jandowae Road.
- The haulage operations will have to comply with the load restrictions on bridges.

8.1.2 Development Contribution methodology

Development Contributions will be established in close consultation with DTMR in accordance with their procedures following finalisation of the Transportation Plan details that will identify more precisely the distribution of road versus rail transport mode.

An assessment of the development contribution will be undertaken on sections of the Warrego Highway (Dalby–Miles and Miles–Roma), Leichhardt Highway (Taroom–Miles and Miles–Goondiwindi), Moonie Highway (Dalby–St George), Surat Developmental Road (Tara–Dalby), Dalby–Kogan Road, Kogan–Condamine Road, Jackson–Wandoan Road and Dalby–Jandowae Road, Chinchilla–Tara Road, Condamine–Meandarra Road and Tara–Kogan Road.

8.2 LOCAL GOVERNMENT CONTROLLED ROADS

As the majority of the local government roads are unsealed, the increase in traffic volume on the roads listed in Appendix C may be significant. The appropriate treatments for these roads will be negotiated with the relevant local government councils. The amelioration could be:

- more regular maintenance grading
- gravel re-sheeting
- dust suppression
- paving and sealing roads near construction camps
- upgrade of intersections where sight distances do not meet standards.

9 References

Queensland Department of Main Roads *Guidelines for assessment of road impacts of development* (2006) Queensland Department of Main Roads

Queensland Department of Main Roads *Manual of uniform traffic control devices* (DMR 2003 Edition) Queensland Department of Main Roads.

Queensland Department of Main Roads *Road planning and design manual* (Chapter 13, August 2004) Queensland Department of Main Roads

Austroads *Guide to traffic engineering practice—Part 2* (Table 3.9, Austroads, 1988) [GTEP-PT2].

Transport Operations (Road Use Management) Act 1995 (Section 10, Schedule 57)

Appendix A

COMPARISON OF DRAFT EIS AND SUPPLEMENTARY EIS DATA

Item	Generated Truck Loads (unless otherwise specified)		Reason for Variance
	Draft EIS	Supplementary EIS	
Pipe transport			
Export Pipeline – Gladstone	10,421	2,605	For the Draft EIS the study undertaken assumed that 100% of the pipe was coming from Gladstone. The Supplementary EIS howeve now assumes 125km from Brisbane and the remaining 265km coming from Gladstone.
Export Pipeline – Brisbane	0	5,500	The Draft EIS was based on 2 x 18m pipes per truck while the Supplemetary EIS adopted 4 x 12m pipes per truck
Fairview Lateral	4,233	N/A	The Fairview Lateral pipeline is no longer being considered by QGC.
Woleebee Creek	N/A	1,189	The Woleebee Creek pipeline is being considered in the Supplementary EIS to reduce the length of the Gas Collection Header.
Gas Collection Header	5,841	1,980	The length of this pipeline has reduced substantially to 95km from the Draft EIS value of 210km.
Water Collection Header	1,956	1,518	The pipe weights for the Supplementary EIS is now less than those used for the Draft EIS.
Gas gathering	3,586	7,462	A substantial increase of Gathering lines for each tenement has increased the total trucks required
Water gathering	1,032	7,462	
Gas trunklines	1,431	1,778	
Water trunklines	4,032	4,603	The weights of these pipes has increased, however truck numbers are partially offset by a greater number of pipes per truck.
Field Joint Coating			
Pipelines	134	97	Reduction in total length of pipe has resulted in a reduction in field joint coating for the Supplementary EIS.
Gas Field	N/A	N/A	
Quarry transport			
Pipelines	4,937	8,674	Further investigation into the quarry material for the Supplementary
Gas Field	293,990	639,250	EIS identified a signficant increase was required.
Number of Construction Camps			
Pipelines	5	6	Increases in required workforce demanded increased camp infrastructure, however reconfigured accommodation units reduced the number of components.
Gas Field	5	10	
Construction Camp components			
Pipelines	740 per camp (3700 total)	1,005 total	
Gas Field	634 per camp (3170 total)	2,771 total	
Construction Worker numbers			
Pipelines (Peak)	800 (personnel)	1487 (personnel)	
Gas Field (Peak)	2500 (personnel)	4187 (personnel)	
Camp and Personnel movements			
Pipelines	260 trips/day/camp	361 trips/day/camp average	
Gas Field	880 trips/day/camp	1522 trips/day/camp average	
Compressor unit transport			
Number of CPPS	9	4	A revised system changed the required number of CPPs and FCSs
Number of FCSs	27	53	
Reciprocating Compressors	270	NA	The system will use centrifugal compressors instead of reciprocating compressors
Centrifugal Compressors	NA	8	
Screw Compressors including cooler	648	318	The Draft EIS suggested 8 x screw compressors per FCS. Further assessment in the Supplementary EIS indicated that an average of 3 x screw compressors per FCS is required. The Draft EIS also adopted 3 trucks per screw compressor, however, refined transport requirements in the Supplementary EIS have adopted 1 truck for each screw compressor and 1 truck for each cooler.
TEG Units	135	8	In the Draft EIS 1 x TEG unit was required for every 2 x reciprocating compressors. In the Supplementary EIS 1 x TEG unit is required for each centrifugal compressor.
Well equipment transport	24,992	14,241	Revised numbers of equipment that can be carried per truck
Pipeline Facilities	140	105	Removal of the Fairview Lateral Pipeline
Heavy Plant equipment			
Pipelines	144	72	
Gas Field	84	897	Revised number of required drilling machinery has resulted in significantly more in the Supplementary EIS.
Fuel	10,920	10,383	Less fuel required due to electricity supplied to FCSs and CPPs.
WTP	N/A	1,050	The Supplementary EIS identified that Water Treatment Plants and Power Supply equipment were necessary to facilitate the QCLNG project.
Power Supply	N/A	3,902	

Appendix B

WELL HAULAGE ROUTES

CLIENT: Queensland Gas Company

PROJECT: Queensland Curtis LNG Project

TITLE: Haulage Route - Upstream

DATE: 13-November-2009

DATA SOURCE:

1:250,000 Topographic Raster copyright Geoscience Australia

SCALE:

1:1,250,000 (A3) GDA94 Lat/Long

-20 -10 0 10 20 30 40

Kilometres

LEGEND

- Haulage Route - Upstream
- CSG Fields - Authority to Prospect
- CSG Fields - Petroleum Lease/Petroleum Lease Application

DATE	DRAWN	APPROVED	DRAWING NO.	REVISION

QGC A BG Group business

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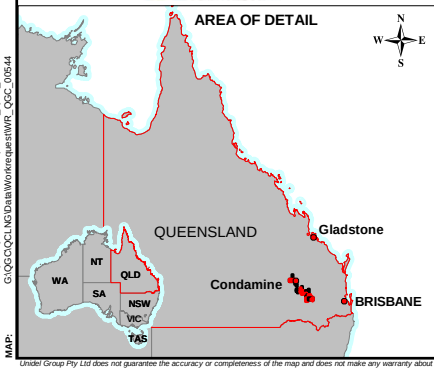

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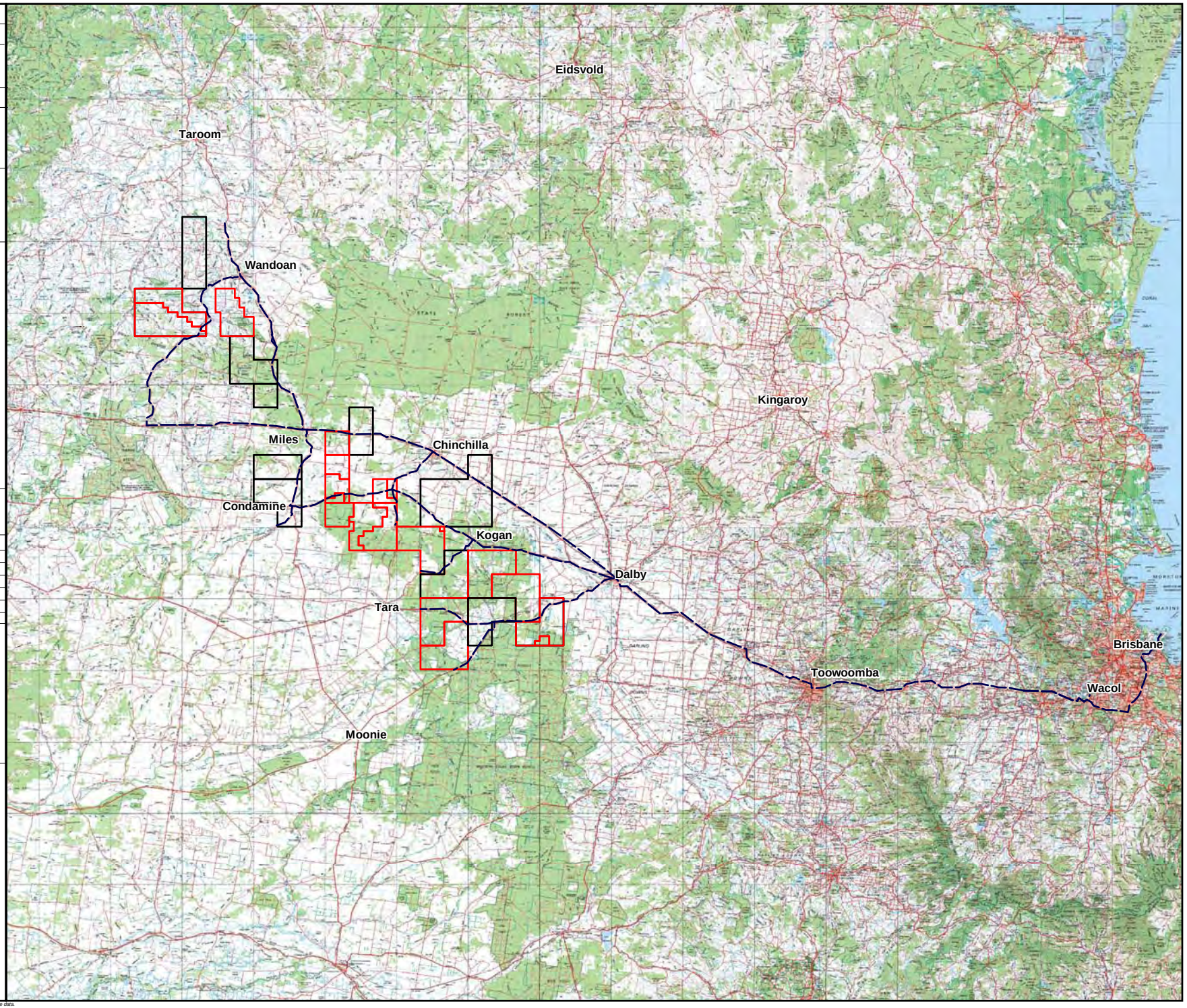
MAP: G:\QGC\QCLNG\Data\Workrequest\WR_QGC_00544



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Appendix C

LOCAL GOVERNMENT ROADS

Local Government Roads	Maximum vehicles per day affected by Gasfields	Maximum vehicles per day affected by Pipeline	Maximum vehicles per day affected by total Project
Aerodrome Road (Chinchilla)	48	9	57
Aerodrome Road (Gladstone)	-	7	7
Aerodrome Road (Thangool)	-	10	10
Amcintyres Road	820	-	820
Andrews Road	-	401	401
Archers Crossing Road	820	-	820
Archinalls Road	-	171	171
Arndts Road	-	171	171
Auburn Range Road	-	235	235
Auburn Road	-	401	401
Avenue Road	864	1	865
Bakers Road	1557	-	1557
Banana Bridge Road	3280	-	3280
Beelbee Road	2370	32	2402
Bellbird Road	204	-	204
Bennetts School Road	408	-	408
Billabone Lane	-	32	32
Billabong Lane	820	-	820
Blackburns Road	204	-	204
Blacks Road	-	211	211
Bob Blacks Road	820	-	820
Boonara Invern Road	820	-	820
Booral Road	1557	-	1557
Boort Koi Road	408	-	408
Braemar Boundary Road	1185	-	1185
Bridles Road	1640	-	1640
Brigalow Canaga Creek Road	820	-	820
Bright Lane	408	-	408
Broadwater Road	1185	-	1185
Brownlies Road	534	615	1149
Bundi Road	1557	-	1557
Bungaban Road	-	4	4
Bunns Road	-	230	230
Burunga Lane	1557	-	1557
Butlers Road	204	-	204
Butterfly Road	204	-	204
Calliope River Targini Road	-	311	311
Calliope Station Road	-	311	311
Calliope Targini Road	-	311	311
Calrossie Road	-	602	602
Calvale Road	-	211	211
Camboon Road	-	230	230
Canns Road	-	171	171
Carmodys Lane	1640	-	1640
Cartens Lane	820	-	820
Chances Plain Road	820	-	820
Chernin Road	-	311	311
Chinchilla Kogan Road	5740	-	5740

Local Government Roads	Maximum vehicles per day affected by Gasfields	Maximum vehicles per day affected by Pipeline	Maximum vehicles per day affected by total Project
Chinchilla Sixteen Mile Road	1640	-	1640
Christopher Road	820	32	852
Church Road	1640	32	1672
Clarke Creek Road	3114	-	3114
Clarkes Road	3934	-	3934
Coates road	1557	-	1557
Community Lane	820	-	820
Cooks Road	-	211	211
Cool road	-	211	211
Corfield Road	-	211	211
Cox Millards Road	-	211	211
Crowders Creek Road	820	-	820
Crystal Creek Road	1640	32	1672
Cullens Road	-	311	311
Cuningham Street	703	20	723
Cunningham Street	488	-	488
D McIntyres Road	820	-	820
Dahikes Road	820	-	820
Dascombes Road	-	171	171
Davies Road	408	-	408
Dawson Street	122	227	349
Daybreak Road	204	-	204
Dimitrietts Lane	-	211	211
Dingley Dell Road	-	211	211
Duck Holes Road	-	311	311
Ducklo Gulera Road	4740	-	4740
Ducklo School Road	1185	-	1185
Duleen Daandine Road	1185	-	1185
Dunns Road	1557	-	1557
Eichmanns Road	-	211	211
Ellerslie Land Road	204	-	204
Emu Parade	820	32	852
Evansdale Road	-	171	171
Eys Road	1557	-	1557
F Goodys Road	-	235	235
Fagans Road	820	-	820
Faireymeadow Road	-	380	380
Farm Lane	204	-	204
Fletts Road	1640	-	1640
Flinders Road	-	311	311
Forest Road	2370	32	2402
Forestry Road	820	-	820
Fortune Drive	204	-	204
Freemans Road	408	380	788
Frees Road	820	-	820
Gadsbys Road	3114	-	3114
Gadsby's Road	959	-	959
Gales Road	1557	-	1557
Gilligulgul Road	3114	-	3114

Local Government Roads	Maximum vehicles per day affected by Gasfields	Maximum vehicles per day affected by Pipeline	Maximum vehicles per day affected by total Project
Glen Mona Road	1185	32	1217
Glenaubyn Road	1557	-	1557
Glencoe Knockbreak Road	-	235	235
Glencoe Monto Boundary Road	-	235	235
Glencoe Road	-	5	5
Glencoe Tireen Road	-	230	230
Glenlea Road	3114	-	3114
Golden Glow Road	408	-	408
Goombi Fairymeadow Road	204	-	204
Goranba Lane	3280	-	3280
Grahams Road	2574	32	2606
Gravings Road	-	211	211
Grosmont Road	1557	-	1557
Gulera Road	2370	-	2370
Guluguba Downfall Creek Road	-	104	104
Gurulmundi Road	3114	-	3114
HallifoRoad Road	3555	-	3555
Halls Road	-	211	211
Hamlyn Street	-	104	104
Hanson Road	-	185	185
Happiness Road	408	-	408
Happy Lane	204	-	204
Harper Creek Road	-	311	311
Harphams Road	204	-	204
Harsants Road	-	216	216
Harwoods Road	820	-	820
Healys Crossing Road	2825	32	2857
Healys Road	820	-	820
Heeney Street	4	388	392
Henrys Road	204	-	204
Hookswood Road	-	380	380
Hubbard Road	204	-	204
Jenkins Road	204	-	204
Jones Road	820	-	820
Joseph Road	820	32	852
K Road	1557	-	1557
K Two Road	1557	-	1557
Kaluda Road	-	311	311
Kentara Road	612	-	612
Kerrs Road	2370	32	2402
Kerswells Road	820	-	820
Kirkwoods Lane	-	211	211
Knights Road	-	171	171
Knockbreak Road	-	235	235
Knockbreak Tireen Road	-	230	230
Knudsens Road	-	171	171
Kogan Condamine Road	-	380	380
Kookaburra Drive	820	-	820
Kookaburra Driveive	-	32	32

Local Government Roads	Maximum vehicles per day affected by Gasfields	Maximum vehicles per day affected by Pipeline	Maximum vehicles per day affected by total Project
Kumbarilla Forest Road	729	21	750
Kumbarilla Lane	703	20	723
Kumbarilla Lane	1185	32	1217
Kumbarilla Road	26	1	27
Kummerows Road	4100	-	4100
L Road off Bundi Road	1557	-	1557
Lake Callide Road	-	211	211
Lawgi Connection Road	-	211	211
Lawton Street	925	104	1029
Leichardt Creek Taroom Road	-	380	380
Lewington Road	820	-	820
Lone Pine Redbank Road	-	230	230
Lookerbie Circuit	-	211	211
Lookerbie Road	-	211	211
Lucky Downs Road	1557	-	1557
Lucky Road	204	-	204
Marian Street	122	227	349
Martins Road	1185	-	1185
Mary Road	408	-	408
McIntyre Street	820	-	820
McKee Driveive	820	-	820
McLeods Road	820	-	820
Miegunyah Court	820	-	820
Millbank Boundary Road	820	32	852
Monto Boundary Road	-	230	230
Moocooraba Road	-	230	230
Morettis Road	-	441	441
Moschanis Road	-	211	211
Mount Alma Road	-	311	311
Mount Myrtle Road	1557	-	1557
Mullers Road	820	-	820
Myall Park Road	-	380	380
Myranga Road	1557	-	1557
N E Robinsons Road	204	-	204
Nathan Road	-	4	4
Nauschutzs Road	820	-	820
Neates Road	4100	-	4100
Nichols Road	-	311	311
Norris Lane	-	211	211
North Dulacca Hall Road	3114	-	3114
Number Two Road	-	4	4
Oak Park Road	820	-	820
Ogdons Road	-	211	211
Old Cameby Road	408	380	788
Old Chinchilla Road	-	171	171
Old Moonie Road	3280	-	3280
Old Perth Road	820	-	820
Orchard Road	408	-	408
Paradise Downs Road	1557	-	1557

Local Government Roads	Maximum vehicles per day affected by Gasfields	Maximum vehicles per day affected by Pipeline	Maximum vehicles per day affected by total Project
Paradise Road	612	-	612
Peakes Road	1557	-	1557
Phillipies Landing Road	-	311	311
Pinedale Dip road	-	235	235
Pinedale Road	-	211	211
Pit Road	-	211	211
Quires Road	1640	-	1640
Rabbit Board Paddock Access Road	820	-	820
Rawbelle Road	-	446	446
Redbank Chess Park Road	-	230	230
Redbank Chinchilla Boundary Road	-	230	230
Redbank Road	-	230	230
Redbank Rocky Bar Road	-	230	230
Redgum Road	1185	-	1185
Redmarley Road	204	-	204
Reserved Road	2370	32	2402
Robbos Road	204	-	204
Roche Creek Road	-	108	108
Rocky Crescent	820	-	820
Rockybar Road	-	230	230
Ross Road	820	-	820
Royd Street	925	-	925
Russian Club Road	-	342	342
Ryalls Road	-	380	380
Ryders Road	820	-	820
Sandy Creek Road	820	32	852
Schloss Road	-	211	211
Schobes Road	-	211	211
Scoullers Road	204	-	204
Sixteen Mile Hall Road	3280	-	3280
Sloss Road	-	230	230
Smith Road	-	311	311
Smiths Road	1640	-	1640
South Drillham Road	204	-	204
South Road	820	-	820
Specimen Hil Road	-	211	211
Spresser Road	-	311	311
Steinhorts Road	506	-	506
Steinohrts Road	820	32	852
Sundown Road	1557	-	1557
Sunnyglen Road	204	-	204
Swan Road	-	311	311
Targini Road	-	311	311
Terese Road	820	32	852
Thangool Lookerbie Road	-	211	211
The Narrows Road	-	311	311
The Wallaby Track	820	32	852
Thompsons Road	204	-	204
Tollemaches Road	-	211	211

Local Government Roads	Maximum vehicles per day affected by Gasfields	Maximum vehicles per day affected by Pipeline	Maximum vehicles per day affected by total Project
Tomalou Lane	204	-	204
Unnamed Road	820	-	820
Condamine Road	204	-	204
Upper Downfall Creek Road	-	171	171
Valentine Plain Road	-	211	211
Vanrenans Road	204	-	204
Vanrenes Road	408	-	408
Wains Road	204	-	204
Walshs Road	-	4	4
Wattle Driveive	1185	-	1185
Webb Road	820	-	820
Webers Road	204	-	204
Weir Lane	44	1	45
Weir Road	204	-	204
Weitzels Road	1640	32	1672
Weldons Road	1557	-	1557
Weranga North Road	2460	32	2492
Whyalla Road	3280	-	3280
Wieambilla Road	1432	32	1464
Wildflower Road	3114	-	3114
Willetts Mill road	1557	-	1557
Willetts Road	1557	-	1557
Winfield Road	204	-	204
Winston Street	-	5	5
Wintons Road	820	-	820
Wycheproof Road	-	311	311
Yaparaba School Road	-	211	211
Yellowstone Road	408	-	408
Yeovil Road	1557	-	1557
Yerilla Redbank Road	-	230	230
Zangaris Road	-	211	211
Zupp Road	925	-	925
Zwisters Road	-	211	211

Appendix D

CAMP CALCULATIONS BREAKDOWN

Pipeline Contractors

Building Type	Export (1)		Export (2)		Export (3)		Bellevue (4)		Ruby Jo (5)		Woleebee Ck (6)	
	Max Personnel Camp Size		Max Personnel Camp Size		Max Personnel Camp Size		Max Personnel Camp Size		Max Personnel Camp Size		Max Personnel Camp Size	
	346		235		256		509		218		191	
	No. Trucks	Buildings	No. Trucks	Buildings	No. Trucks	Buildings	No. Trucks	Buildings	No. Trucks	Buildings	No. Trucks	Buildings
Rooms	87	87	59	59	64	64	128	128	55	55	48	48
Central Ablution Units	18	2	9	1	9	1	18	2	9	1	9	1
Messing Units	48	3	32	2	32	2	48	3	32	2	32	2
Rec Room Units	48	3	32	2	32	2	48	3	32	2	32	2
Offices	3	3	2	2	2	2	4	4	2	2	2	2
Furniture & Fittings	6	6	4	4	4	4	8	8	4	4	3	3
Total Trucks	210		138		143		254		134		126	

CMISC Worker Campsites

Building Type	Ruby Jo		Jordan		Woleebee Ck		Bellevue	
	Max Personnel Camp Size		Max Personnel Camp Size		Max Personnel Camp Size		Max Personnel Camp Size	
	1137		912		1563		381	
	No. Trucks	Buildings	No. Trucks	Buildings	No. Trucks	Buildings	No. Trucks	Buildings
Rooms	285	285	228	228	391	391	96	96
Central Ablution Units	36	4	27	3	45	5	18	2
Messing Units	112	7	96	6	160	10	48	3
Rec Room Units	112	7	96	6	160	10	48	3
Offices	9	9	7	7	12	12	3	3
Furniture & Fittings	17	17	14	14	23	23	6	6
Total Trucks	571		468		791		219	

CPP Contractor

Building Type	Ruby Jo		Jordan		Woleebee Ck		Bellevue	
	Max Personnel Camp Size		Max Personnel Camp Size		Max Personnel Camp Size		Max Personnel Camp Size	
	193		193		193		193	
	No. Trucks	Buildings	No. Trucks	Buildings	No. Trucks	Buildings	No. Trucks	Buildings
Rooms	49	49	49	49	49	49	49	49
Central Ablution Units	9	1	9	1	9	1	9	1
Messing Units	32	2	32	2	32	2	32	2
Rec Room Units	32	2	32	2	32	2	32	2
Offices	2	2	2	2	2	2	2	2
Furniture & Fittings	3	3	3	3	3	3	3	3
Total Trucks	127		127		127		127	

Water Management

Building Type	Ruby Jo		Woleebee Creek	
	Max Personnel Camp Size		Max Personnel Camp Size	
	187		171	
	No. Trucks	Buildings	No. Trucks	Buildings
Rooms	47	47	43	43
Central Ablution Units	9	1	9	1
Messing Units	32	2	16	1
Rec Room Units	32	2	16	1
Offices	2	2	2	2
Furniture & Fittings	3	3	3	3
Total Trucks	125		89	

Appendix E

CAMPSITE HAULAGE MAPS

CLIENT: Queensland Gas Company

PROJECT: Queensland Curtis LNG Project

TITLE: Campsite Haulage Route Map - Pipelines

DATE: 25-November-2009

DATA SOURCE:

1:250,000 Topographic Raster copyright Geoscience Australia

SCALE:

1:1,500,000 (A3) GDA94 Lat/Long

-30 -15 0 15 30 45 60

Kilometres

LEGEND

Campsite

Campsite Haulage Routes

PROPOSED PIPELINE ALIGNMENT	REV NO	DATE	SUPPLIED BY
Export Pipeline & KPs	Rev E	01-09-2009	Unidel
Collection Header & KPs	Rev C	21-09-2009	Unidel
Woleebee Creek Option & KPs	Rev B	21-09-2009	Unidel

DATE	DRAWN	APPROVED	DRAWING NO.	REVISION

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Mt Larcom
387.94
Gladstone
350
300
Biloela
Banana
250
Monto
Theodore
Gin Gin
200
150
Taroom
100
Wandoan
50
Gympie
0
Miles
Chinchilla
Kingaroy
Kilcoy
Dalby
Brisbane
Toowoomba
Wacol

CLIENT: Queensland Gas Company

PROJECT: Queensland Curtis LNG Project

TITLE: Campsite Haulage Map - Gas Fields

DATE: 12-November-2009

DATA SOURCE:

1:250,000 Topographic Raster copyright Geoscience Australia

SCALE: 1:1,250,000 (A3) GDA94 Lat/Long

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Kilometres

LEGEND

- Campsite Haulage - Upstream
- CSG Fields - Authority to prospect
- CSG Fields - Petroleum Lease/Petroleum Lease Application
- Campsites

DATE	DRAWN	APPROVED	DRAWING NO.	REVISION

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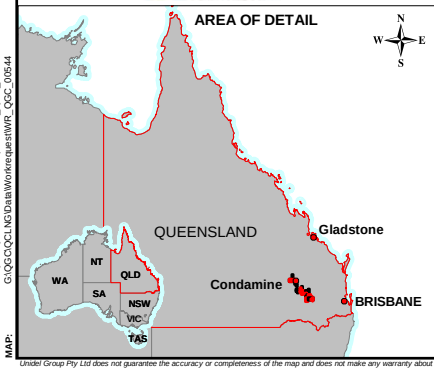

Eidsvold
Taroom
Wandoan
Kingaroy
Miles
Chinchilla
Condamine
Kogan
Dalby
Tara
Brisbane
Toowoomba
Wacol
Moonie

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Appendix F

EXPORT PIPELINE HAULAGE ROUTES

CLIENT: Queensland Gas Company

PROJECT: Queensland Curtis LNG Project

TITLE: Export Pipeline Haulage Route Map.

DATE: 12-November-2009

DATA SOURCE:

1:250,000 Topographic Raster copyright Geoscience Australia

SCALE:

1:1,500,000 (A3) GDA94 Lat/Long

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Kilometres

LEGEND

Export Pipeline Haulage Route (from Gladstone)

Export Pipeline Haulage Route (from Brisbane)

PROPOSED PIPELINE ALIGNMENT	REV NO	DATE	SUPPLIED BY
Export Pipeline & KPs	Rev E	01-09-2009	Unidel
Collection Header & KPs	Rev C	21-09-2009	Unidel
Woleebee Creek Option & KPs	Rev B	21-09-2009	Unidel

DATE	DRAWN	APPROVED	DRAWING NO.	REVISION

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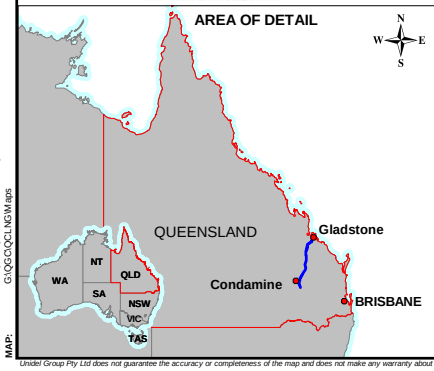

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MAP: G:\QGC\QCLNG\Maps

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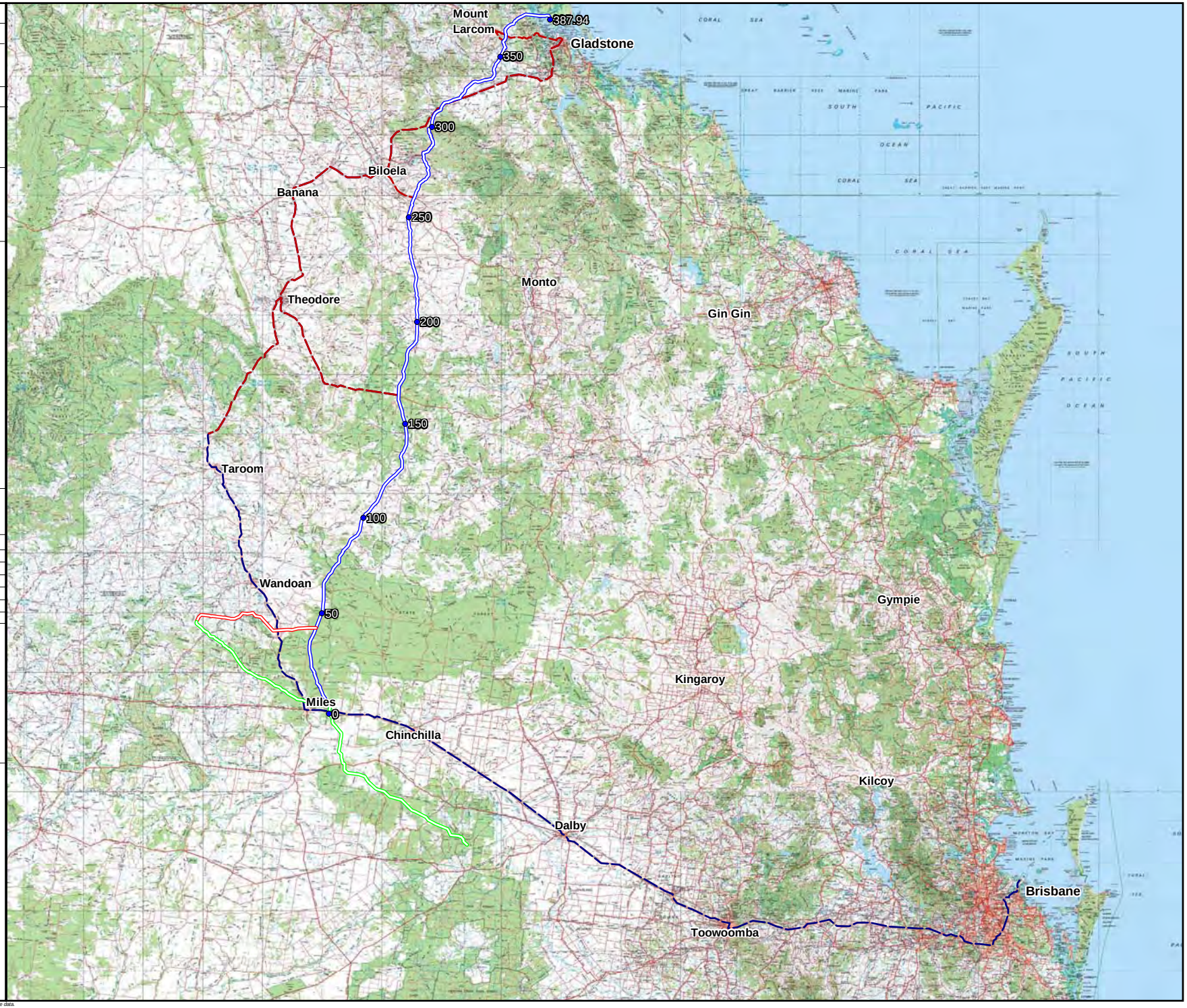


Appendix G

WOLEEBEE CREEK AND COLLECTION HEADER HAUL ROUTES

CLIENT: Queensland Gas Company

PROJECT: Queensland Curtis LNG Project

TITLE: Collection Header and Woleebee Creek Haulage Route Map.

DATE: 12-November-2009

DATA SOURCE:

1:250,000 Topographic Raster copyright Geoscience Australia

SCALE:

1:1,250,000 (A3) GDA94 Lat/Long

-20 -10 0 10 20 30 40

Kilometres

LEGEND

- Woleebee Creek Haulage Route
- Collection Header Haulage Route
- Collection Header (Gas and Water Pipeline)

PROPOSED PIPELINE ALIGNMENT	REV NO	DATE	SUPPLIED BY
Export Pipeline & KPs	Rev E	01-09-2009	Unidel
Collection Header & KPs	Rev C	21-09-2009	Unidel
Woleebee Creek Option & KPs	Rev B	21-09-2009	Unidel

DATE	DRAWN	APPROVED	DRAWING NO.	REVISION

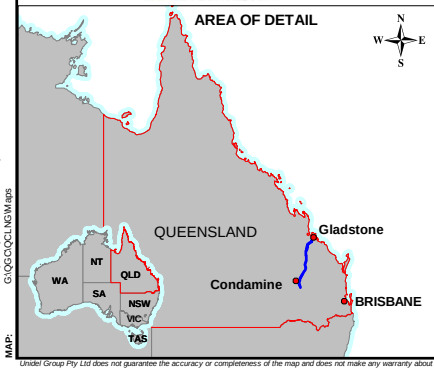
QGC A BG Group business

Level 23, 275 George Street Brisbane QLD 4000

GPO Box 3107 Brisbane QLD 4001

p (07) 3024 9000 f (07) 3024 8999 w http://www.qgc.com.au

UNIDEL ENERGY AND INFRASTRUCTURE



WORKSPACE: G:\QGC\QCLNG\Data\Workspaces\

MAP: G:\QGC\QCLNG\Maps

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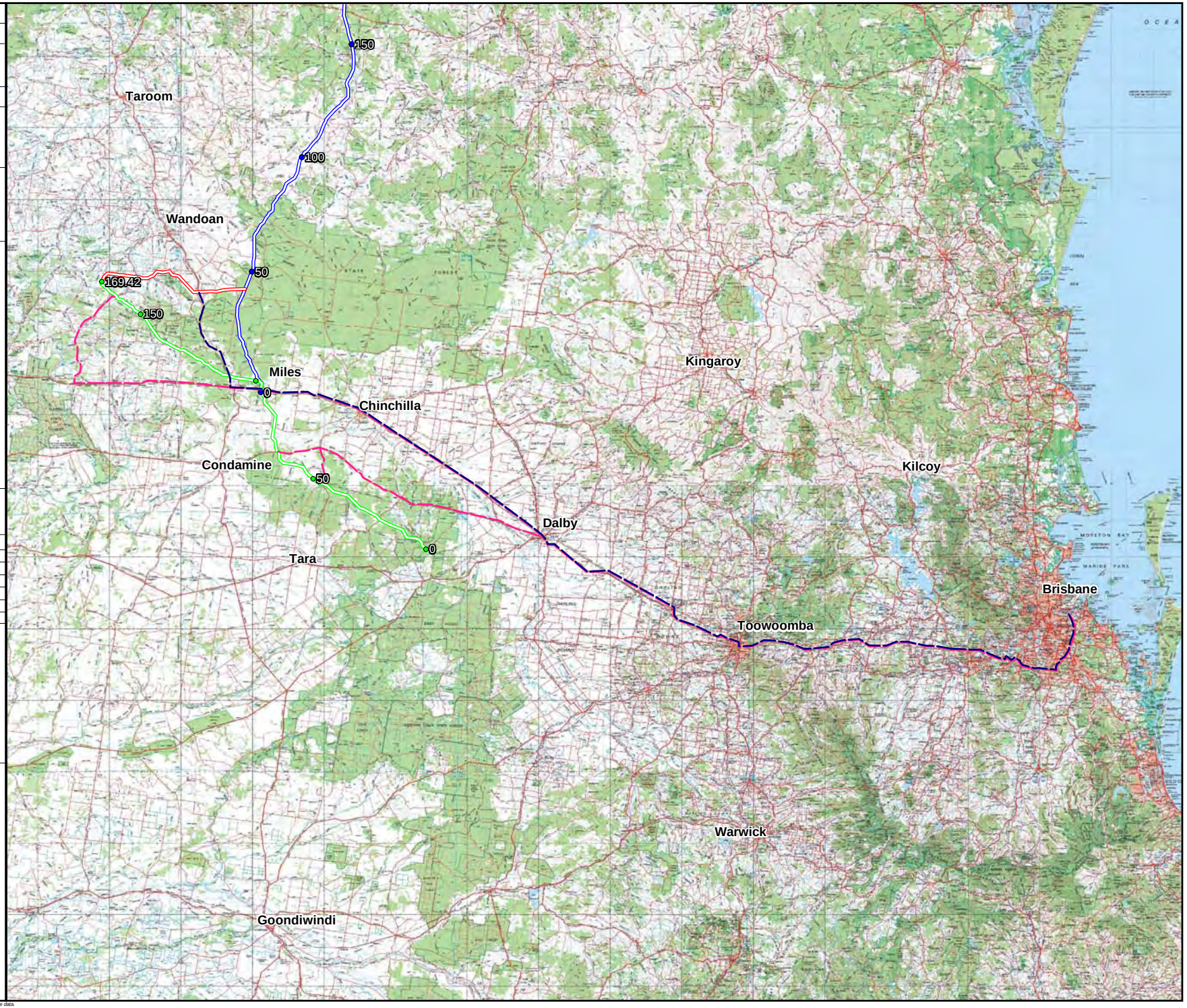

Appendix H

IMPACT SUMMARY

QCLNG Project Impact Summary

Traffic Impact Assessment

Road						Existing Traffic										Project Generated Traffic			% Impact
Number	Name	Section	Chainage	Distance	Region	AADT / G	AADT / A	Loaded AADT	Return AADT	AADT / T	% trucks	% Articulated	% B Double Route Only	% Road Trains	% Commercial Vehicle	Daily Round Trips	Workers Round Trips	Total Volume	% AADT Increase
10C	Bruce Highway	Maryborough - Gin Gin	83.920- 101.835	17.915	Bundaberg	1679	1611	1679	1611	3290	14.14%	12.94%	3.77%		30.85%	84		84	<5%
10C	Bruce Highway	Maryborough - Gin Gin	101.835- 111.595	9.76	Bundaberg	2167	2221	2167	2221	4388	6.30%	7.83%	4.80%		18.93%	84		84	<5%
10D	Bruce Highway	Gin Gin - Benaraby	0.000- 2.160	2.16	Bundaberg	2615	2417	2615	2417	5032	6.58%	7.46%	4.53%		18.57%	84		84	<5%
10D	Bruce Highway	Gin Gin - Benaraby	2.160- 38.210	36.05	Bundaberg	1989	2274	1989	2274	4263	6.70%	7.71%	4.72%		19.13%	84		84	<5%
10D	Bruce Highway	Gin Gin - Benaraby	38.210- 51.170	12.96	Bundaberg	1562	1502	1562	1502	3064	7.39%	12.91%	8.99%		29.29%	84		84	<5%
10D	Bruce Highway	Gin Gin - Benaraby	51.170-99.281	48.111	Rockhampton	1553	1499	1553	1499	3052	6.50%	13.43%	9.40%		29.33%	84		84	<5%
10D	Bruce Highway	Gin Gin - Benaraby	99.281- 147.145	47.864	Rockhampton	2503	2465	2503	2465	4968	6.55%	10.21%	6.52%		23.28%	84		84	<5%
10E	Bruce Highway	Benaraby - Rockhampton	0.000- 11.580	11.58	Rockhampton	2268	2288	2268	2288	4556	6.60%	11.23%	7.46%		25.29%	124		124	<5%
10E	Bruce Highway	Benaraby - Rockhampton	11.580- 45.410	33.83	Rockhampton	1805	1645	1805	1645	3450	9.62%	12.79%	9.52%		31.93%	244	311	555	16.00%
U13A	Gateway Motorway (South)	Prebble Street			Metropolitan	X	X	42999.5	42999.5	85999						156		156	<5%
U16	Ipswich Motorway	Rocklea	0.00-4.6		Metropolitan	X	X	37529.5	37529.5	75059					8.53%	264		264	<5%
17A	Ipswich Motorway	Redbank	4.6-?????		Metropolitan	X	X	39060.5	39060.5	78121					8.53%	264		264	<5%
18A	Warrego Highway	Ipswich - Toowoomba	0.000- 44.260	44.26	Toowomba	8962	9059	8962	9059	18021	6.86%	6.96%	4.44%		18.26%	464		464	<5%
18A	Warrego Highway	Ipswich - Toowoomba	44.260- 47.860	3.6	Toowomba	8544	8665	8544	8665	17209	6.63%	6.70%	4.55%		17.88%	460		460	<5%
18A	Warrego Highway	Ipswich - Toowoomba	47.860- 55.520	7.66	Toowomba	8930	8821	8930	8821	17751	7.00%	7.10%	4.66%		18.76%	460		460	<5%
18A	Warrego Highway	Ipswich - Toowoomba	55.520- 75.370	19.85	Toowomba	6402	6556	6402	6556	12958	5.20%	6.10%	4.35%		15.65%	460		460	<5%
18A	Warrego Highway	Ipswich - Toowoomba	75.370- 83.350	7.98	Toowomba	7941	8549	7941	8549	16490	6.01%	5.35%	3.38%		14.74%	460		460	<5%
18A	Warrego Highway	Ipswich - Toowoomba	83.350- 92.760	9.41	Toowomba	10234	10235	10234	10235	20469	7.50%	4.10%	3.60%		15.20%	460		460	<5%
18A	Warrego Highway	Ipswich - Toowoomba	92.760- 94.580	1.82	Toowomba	10472	9425	10472	9317	19789	5.70%	4.10%	2.37%		12.17%	460		460	<5%
18A	Warrego Highway	Ipswich - Toowoomba	94.580- 95.010	0.43	Toowomba	9828	10463	9828	10463	20291	5.98%	4.86%	2.05%		12.89%	460		460	<5%
18B	Warrego Highway	Toowoomba - Dalby	0.000- 0.990	0.99	Toowomba	11746	12309	11746	12309	24055	6.15%	3.16%		1.98%	11.29%	460		460	<5%
18B	Warrego Highway	Toowoomba - Dalby	0.990- 2.210	1.22	Toowomba	11490	10671	11490	10590	22080	7.05%	3.88%		1.99%	12.92%	460		460	<5%
18B	Warrego Highway	Toowoomba - Dalby	2.210- 3.740	1.53	Toowomba	9007	8506	9007	8506	17513	6.46%	4.25%		2.12%	12.83%	460		460	<5%
18B	Warrego Highway	Toowoomba - Dalby	3.740- 4.520	0.78	Toowomba	5400	6253	5400	6253	11653	2.63%	1.10%		0.56%	4.29%	460		460	<5%
18B	Warrego Highway	Toowoomba - Dalby	4.520- 6.630	2.11	Toowomba	8089	8166	8089	8166	16255	4.52%	1.37%		0.41%	6.30%	460		460	<5%
18B	Warrego Highway	Toowoomba - Dalby	6.630- 10.590	3.96	Toowomba	6534	7030	6534	7030	13564	6.30%	1.64%		0.57%	8.51%	460		460	<5%
18B	Warrego Highway	Toowoomba - Dalby	10.590- 26.830	16.24	Toowomba	5729	5753	5729	5753	11482	6.12%	2.98%		2.85%	11.95%	460		460	<5%
18B	Warrego Highway	Toowoomba - Dalby	26.830- 80.820	53.99	Toowomba	2228	2205	2228	2205	4433	8.25%	5.66%		7.84%	21.75%	460		460	10.00%
18B	Warrego Highway	Toowoomba - Dalby	80.820- 84.189	3.369	Toowomba	2926	2713	2926	2713	5639	6.59%	4.20%		4.47%	15.26%	460		460	8.00%
18C	Warrego Highway	Dalby - Miles	0.000-1.090	1.09	Toowomba	3236	3193	3236	3193	6429	6.56%	3.46%		4.82%	14.84%	710	1211	1921	30.00%
18C	Warrego Highway	Dalby - Miles	1.090- 25.115	24.025	Toowomba	1224	1151	1224	1151	2375	8.73%	5.48%		7.81%	22.02%	672	1211	1883	79.00%
18C	Warrego Highway	Dalby - Miles	25.115- 45.195	20.08	Toowomba	1100	1129	1100	1129	2229	10.96%	6.43%		8.89%	26.28%	672		672	30.00%
18C	Warrego Highway	Dalby - Miles	45.195- 80.175	34.98	Toowomba	1047	1054	1047	1054	2101	9.02%	6.17%		8.84%	24.03%	672	820	1492	71.00%
18C	Warrego Highway	Dalby - Miles	80.175- 83.155	2.98	Toowomba	1232	1242	1232	1242	2474	8.69%	5.22%		7.87%	21.78%	674		674	27.00%
18C	Warrego Highway	Dalby - Miles	83.155- 106.355	23.2	Toowomba	1038	1025	1038	1025	2063	7.86%	5.95%		9.20%	23.01%	694	729	1423	69.00%
18D	Warrego Highway	Miles - Roma	0.000-1.135	1.136	Roma	1346	1329	1346	1329	2675	8.77%	5.56%		8.21%	22.54%	446	8	454	17.00%
18D	Warrego Highway	Miles - Roma	1.135-44.099	42.965	Roma	752	737	752	737	1489	8.86%	6.14%		10.91%	25.91%	446	8	454	30.00%
18D	Warrego Highway	Miles - Roma	44.099-56.831	12.733	Roma	622	609	622	609	1231	8.63%	6.55%		12.93%	28.11%	446		446	36.00%
19B	Isis Highway	Childers - Biggenden	11.819-31.884	20.066	Bundaberg	435	432	432	435	867	8.43%	3.64%	0.65%		12.72%	84		84	10.00%
19B	Isis Highway	Childers - Biggenden	31.884-43.996	12.113	Bundaberg	623	612	612	623	1235	9.12%	5.11%	2.87%		17.10%	84		84	7.00%
19B	Isis Highway	Childers - Biggenden	43.996-45.244	1.249	Bundaberg	579	563	563	579	1142	9.81%	5.66%	3.34%		18.81%	84		84	7.00%
19B	Isis Highway	Childers - Biggenden	45.244-45.732	0.489	Bundaberg	712	676	676	712	1388	8.73%	4.53%	2.77%		16.03%	84		84	6.00%
19C	Isis Highway	Biggenden - Coalstoun Lakes	0.000-0.810	0.811	Wide Bay	622	623	622	623	1245	8.30%	5.04%	3.19%		16.53%	84		84	7.00%
19C	Isis Highway	Biggenden - Coalstoun Lakes	0.810-23.455	22.646	Wide Bay	620	565	620	565	1185	8.11%	5.30%	3.08%		16.49%	84		84	7.00%
19C	Isis Highway	Biggenden - Coalstoun Lakes	23.455-27.574	4.12	Wide Bay	521	506	521	506	1027	9.55%	6.85%	3.75%		20.15%	84		84	8.00%
19C	Isis Highway	Biggenden - Coalstoun Lakes	27.574-37.764	10.191	Wide Bay	485	461	485	461	946	9.56%	7.07%	4.79%		21.42%	84		84	9.00%
26A	Leichardt Highway	Westwood - Taroom	25.680-62.625	36.945	Rockhampton	317	337	327	327	654	8.71%	6.94%		8.34%	23.99%	192	380	572	87.00%
26A	Leichardt Highway	Westwood - Taroom	62,625- 86.039	23.414	Rockhampton	330	340	335	335	670	8.20%	7.03%		9.44%	24.67%	192	380	572	85.00%
26A	Leichardt Highway	Westwood - Taroom	86.039- 104.655	18.616	Rockhampton	317	328	322.5	322.5	645	7.79%	7.93%		9.69%	25.41%	212	380	592	92.00%
26A	Leichardt Highway	Westwood - Taroom	104.655- 105.215	0.56	Rockhampton	1051	1064	1057.5	1057.5	2115	8.32%	4.50%		5.46%	18.28%	252	380	632	30.00%
26A	Leichardt Highway	Westwood - Taroom	105.215- 162.335	57.12	Rockhampton	320	344	332	332	664	9.40%	8.83%		11.20%	29.43%	212	380	592	89.00%
26A	Leichardt Highway	Westwood - Taroom	162.335- 170.287	7.952	Rockhampton	348	378	363	363	726	7.60%	5.77%		7.75%	21.12%	172	380	552	76.00%
26A	Leichardt Highway	Westwood - Taroom	170.287- 192.228	21.941	Rockhampton	239	253	246	246	492	8.43%	8.86%		11.52%	28.81%	170	380	550	112.00%
26B	Leichardt Highway	Taroom - Miles	0.000- 60.470	60.47	Roma	320	334	334	320	654	9.62%	8.50%		10.75%	28.87%	172	418	590	90.00%
26B	Leichardt Highway	Taroom - Miles	60.470- 127.610	67.14	Roma	324	314	314	324	638	8.37%	10.55%		12.94%	31.86%	386	418	804	126.00%
26C	Leichardt Highway	Miles - Goondiwindi	0.000-32.020	32.021	Roma	241	237	241	237	478	8.87%	7.84%		12.30%	29.01%	186	204	390	82.00%
35A	Moonie Hwy	Dalby - St George	0.00- 2500	2.5	Toowomba	3286	3106	3286	3106	6392	4.98%	1.28%		0.89%	7.15%	238		238	<5%
35A	Moonie Hwy	Dalby - St George	2.500-11.00	8.5	Toowomba	846	812	846	1012	1858	8.06%	4.02%		4.13%	16.21%	238		238	13.00%
35A	Moonie Hwy	Dalby - St George	11.00- 50.370	39.37	Toowomba	668	639	668	639	1307	8.66%	4.78%		4.83%	18.27%	238		238	18.00%
40B	D'Aguilar Highway	Kilcoy - Yarraman	23.460-32.650	9.191	Southern	1553	1543	1553	1543	3096	7.71%	6.46%		4.22%	18.39%	52		52	<5%
40B	D'Aguilar Highway	Kilcoy - Yarraman	32.650-58.030	25.381	Southern	1389	1374	1389	1374	2763	7.46%	6.98%		4.53%	18.97%	52		52	<5%
40B	D'Aguilar Highway	Kilcoy - Yarraman	58.030-68.721	10.692	Southern	1675	1680	1675	1680	3355	6.83%	5.04%		2.36%	14.23%	52		52	<5%
40C	D'Aguilar Highway	Yarraman - Kingaroy	0.000-17.650	17.651	Southern	1640	1741	1640	1741	3381	7.66%	5.41%		2.34%	15.41%	52		52	<5%
40C	D'Aguilar Highway	Yarraman - Kingaroy	17.650-21.670	4.021	Southern	2362	2333	2362	2333	4695	8.63%	3.52%		1.45%	13.60%	52		52	<5%
41A	Burnett Highway	Nanango - Goomeri	0.000-38.718	38.718	Wide Bay	534	513	534	513	1047	6.35%	7.42%		3.39%	17.16%	52		52	<5%
41A	Burnett Highway	Nanango - Goomeri	38.718-48.832	10.113	Wide Bay	398	383	398	383	781	6.16%	7.42%		3.26%	16.84%	52		52	7.00%
41A	Burnett Highway	Nanango - Goomeri	48.831-58.010	9.178	Wide Bay	524	458	524	458	982	6.64%	6.93%		2.38%	15.95%	52		52	5.00%
41A	Burnett Highway	Nanango - Goomeri	58.009-59.777	1.767	Wide Bay	1046	1043	1046	1043	2089	7.38%	5.06%		2.39%	14.83%	52		52	<5%
41B	Burnett Highway	Goomeri - Gayndah	0.000- 2.540	2.54	Bundaberg	391	439	391	439	830	10.55%	6.93%	8.63%		26.11%	52		52	6.00%
41B	Burnett Highway	Goomeri - Gayndah	2.540- 17.00	14.46	Bundaberg	251	328	251	328	579	7.40%	5.47%	2.55%		15.42%	52		52	9.00%
41B	Burnett Highway	Goomeri - Gayndah	17.000- 31.350	14.35	Bundaberg	373	387	373	387	760	7.81%	7.72%	2.99%		18.52%	52		52	7.00%
41B	Burnett Highway	Goomeri - Gayndah	31.350- 74.050	42.7	Bundaberg	515	573	515	573	1088	15.06%	8.12%	2.27%		25.45%	52		52	<5%
41B	Burnett Highway	Goomeri - Gayndah	74.050- 86.890	12.84	Bundaberg	513	537	513	537	1050	7.65%	5.49%	1.67%		14.81%	40		40	<5%
41B	Burnett Highway	Goomeri - Gayndah	86.890- 95.892	9.002	Bundaberg	502	608	502	608	1110	7.96%	6.18%	1.97%		16.11%	40		40	<5%
41B	Burnett Highway	Goomeri - Gayndah	95.892- 99.460	3.568	Bundaberg	671	797	671	797	1468	8.72%	4.88%	1.44%		15.04%	40		40	<5%
41B	Burnett Highway	Goomeri - Gayndah	99.460- 100.660	1.2	Bundaberg	1172	1192	1172	1192	2364	7.58%	3.90%	1.16%		12.64%	40		40	<5%
41C	Burnett Highway	Gayndah - Monto	0.000- 0.470	0.47	Bundaberg	1582	1605	1582	1605	3187	7.34%	2.75%	0.90%		10.99%	40		40	<5%
41C	Burnett Highway	Gayndah - Monto	0.470- 7.348	6.878	Bundaberg	845	752	845	752	1597	9.69%	5.07%	1.96%		16.72%	40		40	<5%
41C	Burnett Highway	Gayndah - Monto	7.348- 23.847	16.499	Bundaberg	537	563	537	563	1100	11.28%	5.77%	2.40%		19.45%	40		40	<5%
41C	Burnett Highway	Gayndah - Monto	23.847- 43.710	19.863	Bundaberg	634	522	634	522	1156	8.90%	6.53%	2.55%		17.98%	40		40	<5%

QCLNG Project Impact Summary

Traffic Impact Assessment

Road						Existing Traffic										Project Generated Traffic			% Impact
Number	Name	Section	Chainage	Distance	Region	AADT / G	AADT / A	Loaded AADT	Return AADT	AADT / T	% trucks	% Articulated	% B Double Route Only	% Road Trains	% Commercial Vehicle	Daily Round Trips	Workers Round Trips	Total Volume	% AADT Increase
41C	Burnett Highway	Gayndah - Monto	43.710- 78.461	34.751	Bundaberg	559	482	559	482	1041	8.05%	5.03%	2.73%		15.81%	40		40	<5%
41C	Burnett Highway	Gayndah - Monto	78.461- 117.417	38.956	Bundaberg	321	298	321	298	619	9.50%	6.49%	2.92%		18.91%	40		40	6.00%
41C	Burnett Highway	Gayndah - Monto	117.417- 139.584	22.167	Bundaberg	324	314	324	314	638	9.95%	5.92%	2.51%		18.38%	40		40	6.00%
41C	Burnett Highway	Gayndah - Monto	139.584- 150.961	11.377	Bundaberg	493	472	493	472	965	7.99%	4.71%	1.89%		14.59%	40		40	<5%
41C	Burnett Highway	Gayndah - Monto	150.961- 151.686	0.725	Bundaberg	686	639	686	639	1325	8.83%	3.69%	1.35%		13.87%	40		40	<5%
41D	Burnett Highway	Monto - Biolela	0.000- 3.515	3.515	Bundaberg	876	807	841.5	841.5	1683	8.33%	2.89%	1.01%		12.23%	40		40	<5%
41D	Burnett Highway	Monto - Biolela	3.515- 11.685	8.17	Bundaberg	437	415	426	426	852	9.60%	5.61%	1.94%		17.15%	40		40	<5%
41D	Burnett Highway	Monto - Biolela	11.685- 41.470	29.785	Bundaberg	327	348	337.5	337.5	675	11.19%	5.84%	2.42%		19.45%	40		40	6.00%
41D	Burnett Highway	Monto - Bioela	41.470- 85.531	44.061	Rockhampton	339	330	334.5	334.5	669	9.59%	5.33%	2.64%		17.56%	204	347	551	82.00%
41D	Burnett Highway	Monto - Bioela	85.531 - 92.811	7.28	Rockhampton	921	893	907	907	1814	7.25%	2.39%	1.05%		10.69%	164	347	511	28.00%
41D	Burnett Highway	Monto - Biolela	92.811-93.811	1	Rockhampton	1166	1201	1183.5	1183.5	2367	7.03%	1.79%	0.72%		9.54%	164	347	511	22.00%
42A	Brisbane Valley Highway	Ipswich - Harlin	0.000 - 5.2	5.2	Metropolitan	4509	4645	4509	4645	9154	4.80%	2.70%		1.50%	9.00%	52		52	<5%
42A	Brisbane Valley Highway	Ipswich - Harlin	5.2-15.960	10.761	Southern	3734	3407	3734	3407	7141	7.93%	3.38%		2.17%	13.48%	52		52	<5%
42A	Brisbane Valley Highway	Ipswich - Harlin	15.960-32.340	16.381	Southern	1520	1484	1520	1484	3004	8.92%	5.52%		3.86%	18.30%	52		52	<5%
42A	Brisbane Valley Highway	Ipswich - Harlin	32.340-54.540	22.201	Southern	1258	1229	1258	1229	2487	7.30%	5.61%		4.36%	17.27%	52		52	<5%
42A	Brisbane Valley Highway	Ipswich - Harlin	54.540-57.860	3.321	Southern	1875	1863	1875	1863	3738	7.69%	5.07%		3.54%	16.30%	52		52	<5%
42A	Brisbane Valley Highway	Ipswich - Harlin	57.860-71.260	13.401	Southern	1589	1568	1589	1568	3157	7.74%	5.81%		4.03%	17.58%	52		52	<5%
42A	Brisbane Valley Highway	Ipswich - Harlin	71.260-89.190	17.931	Southern	1285	1293	1285	1293	2578	7.63%	6.82%		3.72%	18.17%	52		52	<5%
46A	Dawson Highway	Gladstone - Biloela	0.000- 1.498	1.498	Rockhampton	6834	5874	6834	5874	12708	2.38%	0.50%	0.07%		2.95%	84		84	<5%
46A	Dawson Highway	Gladstone - Biloela	1.498- 2.238	0.74	Rockhampton	9875	9347	9875	9347	19222	2.59%	3.50%	0.08%		6.17%	84		84	<5%
46A	Dawson Highway	Gladstone - Biloela	2.238- 3.130	0.892	Rockhampton	12428	11880	12428	11880	24308	6.48%	0.51%	0.09%		7.08%	84	7	91	<5%
46A	Dawson Highway	Gladstone - Biloela	3.130- 4.391	1.261	Rockhampton	14437	14177	14437	14177	28614	3.10%	0.33%	0.05%		3.48%	84	7	91	<5%
46A	Dawson Highway	Gladstone - Biloela	4.391- 5.179	0.788	Rockhampton	11055	11024	11055	11024	22079	5.94%	0.45%	0.07%		6.46%	84	7	91	<5%
46A	Dawson Highway	Gladstone - Biloela	5.179- 10.296	5.117	Rockhampton	3029	3004	3029	3004	6033	4.23%	1.03%	0.23%		5.49%	84		84	<5%
46A	Dawson Highway	Gladstone - Biloela	10.296- 19.050	8.754	Rockhampton	2435	2352	2435	2352	4787	5.42%	2.52%	1.46%		9.40%	84		84	<5%
46A	Dawson Highway	Gladstone - Biloela	19.050-21.750	2.7	Rockhampton	2666	2642	2666	2642	5308	6.27%	2.65%	1.70%		10.62%	84		84	<5%
46A	Dawson Highway	Gladstone - Biloela	21.750- 25690	3.94	Rockhampton	902	893	902	893	1795	8.25%	4.28%	3.55%		16.08%	84		84	<5%
46A	Dawson Highway	Gladstone - Biloela	25.690- 101.266	75.576	Rockhampton	513	511	513	511	1024	8.79%	5.51%	10.23%		24.53%	124	311	435	42.00%
46A	Dawson Highway	Gladstone - Biloela	101.266-113.986	12.72	Rockhampton	465	466	465	466	931	9.18%	5.52%	5.33%		20.03%	124	211	335	36.00%
46A	Dawson Highway	Gladstone - Biloela	113.986- 117.094	3.108	Rockhampton	661	658	661	658	1319	10.20%	4.00%	2.95%		17.15%	156	211	367	28.00%
46A	Dawson Highway	Gladstone - Biloela	117.094- 120.016	2.922	Rockhampton	3316	3052	3316	3052	6368	4.43%	0.97%	0.68%		6.08%	156	211	367	6.00%
46B	Dawson Highway	Biloela - Banana	0.000- 1.366	1.366	Rockhampton	2782	2704	2782	2704	5486	7.58%	1.85%		1.06%	10.49%	86		86	<5%
46B	Dawson Highway	Biloela - Banana	1.366- 26.802	25.436	Rockhampton	895	861	895	861	1756	9.69%	3.32%		2.52%	15.53%	86		86	<5%
46B	Dawson Highway	Biloela - Banana	26.802- 45.690	18.888	Rockhampton	642	596	642	596	1238	10.63%	3.15%		3.11%	16.89%	86		86	7.00%
86B	Surat Development Road	Tara - Dalby	0-0.05	0.05	Warrick	X	X	1059	1059	2118	5.64%	1.72%		1.49%	8.85%	200		200	9.00%
86B	Surat Development Road	Tara - Dalby	0.05-0.6	0.55	Warrick	X	X	465	465	930	5.69%	4.14%		4.64%	14.47%	200		200	22.00%
86B	Surat Development Road	Tara - Dalby	0.6-40.39	39.79	Warrick	X	X	309	309	618	11.40%	4.66%		3.67%	19.73%	240		240	39.00%
181	Gladston Mt Larcom Road		0.000-1.345	1.345	Rockhampton	4362	4269	4315.5	4315.5	8631	8.36%	2.43%		1.77%	12.56%	84	192	276	<5%
181	Gladston Mt Larcom Road		1.345- 3.258	1.913	Rockhampton	3113	2939	3026	3026	6052	11.05%	3.70%		2.42%	17.17%	84	192	276	<5%
181	Gladston Mt Larcom Road		3.258 -4.625	1.367	Rockhampton	4447	4484	4465.5	4465.5	8931	9.61%	4.58%		2.11%	16.30%	84	192	276	<5%
181	Gladston Mt Larcom Road		4.625- 12.292	7.667	Rockhampton	3038	3123	3080.5	3080.5	6161	6.00%	6.31%		3.70%	16.01%	84	192	276	<5%
181	Gladston Mt Larcom Road		12.292- 31.141	18.849	Rockhampton	1419	1515	1467	1467	2934	7.67%	5.97%		6.49%	20.13%	278	503	781	27.00%
340	Dalby Kogan Road		0.000- 19.292	19.292	Toowomba	255	255	255	255	510	15.39%	4.76%		4.97%	25.12%	572	1211	1783	350.00%
340	Dalby Kogan Road		19.292- 47.682	28.39	Toowomba	154	156	154	156	310	8.69%	4.41%		7.53%	20.63%	574	1211	1785	576.00%
341	Chinchilla - Tara Road		0.000- 22.510	22.51	Toowomba	352	367	352	367	719	10.70%	2.39%		1.02%	14.11%	184	469	653	91.00%
341	Chinchilla - Tara Road		22.510- 43.490	20.98	Toowomba	176	175	176	175	351	11.78%	4.92%		0.50%	17.20%	124	469	593	169.00%
342	Kogan Condamine Road		0.000- 45.820	45.82	Toowomba	62	68	65	65	130	9.10%	8.73%		16.06%	33.89%	612	1256	1868	1437.00%
345	Condamine Meandarra Road		0.000 - 27.56	27.56	Warrick	X	X	57	57	114	11.17%	6.90%		17.04%	35.11%	186		186	163.00%
421	Dalby-Jandowae Road		0.000-24.400	24.4	Toowomba	406	402	404	404	808	7.34%	4.72%		3.13%	15.19%	258		258	32.00%
454	Eidsvold - Theodore Road		0.000- 2.971	2.971	Bundaberg	368	393	380.5	380.5	761	5.49%	2.27%		0.47%	8.23%	40	137	177	23.00%
454	Eidsvold - Theodore Road		2.971- 77.400	74.429	Bundaberg	83	94	88.5	88.5	177	11.65%	7.64%		1.93%	21.22%	40	267	307	173.00%
454	Eidsvold - Theodore Road		77.400- 92.118	14.718	Rockhampton	39	40	39.5	39.5	79	10.26%	12.91%		3.87%	27.04%	84	230	314	397.00%
454	Eidsvold - Theodore Road		92.118- 141.789	49.671	Rockhampton	85	85	85	85	170	12.63%	4.88%		3.12%	20.63%	84		84	49.00%
454	Eidsvold - Theodore Road		141.789-143.960	2.171	Rockhampton	374	367	370.5	370.5	741	7.72%	2.01%		0.94%	10.67%	84		84	11.00%
472	Biloela - Callide Road		0.000-3.988	3.988	Darling Downs	X	X	179	179	358	10.71%	4.27%		3.79%	18.77%	32	211	243	68.00%
472	Biloela - Callide Road		3.988-11.88	7.892	Darling Downs	X	X	523.5	523.5	1047	6.24%	1.96%		1.37%	9.57%	32	211	243	23.00%
477	Booyal - Dallarnil Road		0.000-18.180	18.18	Wide Bay	240	243	243	240	483	6.78%	7.56%	6.82%		21.16%	84		84	17.00%
904	Port of Brisbane Road		?????	????	Metropolitan	X	X	7419.5	7419.5	14839	8.80%	20.30%		7.10%	36.20%	156		156	<5%
3402	Tara - Kogan Road		0.00-34.8	34.8	Warrick	X	X	157.5	157.5	315	5.96%	1.04%		0.28%	7.28%	216	506	722	229.00%
4302	Jackson Wandoan Road		0.00- 68.930	68.93	Roma	35	31	33	33	66	10.59%	5.80%		5.06%	21.45%	450	2516	2966	4494.00%
4302	Jackson Wandoan Road		68.930- 81.100	12.17	Roma	69	63	66	66	132	12.04%	4.39%		4.13%	20.56%	386	2516	2902	2198.00%
210A	Logan Motorway	Stapylton				X	X	21460	21460	42920					17.37%	156		156	<5%

QCLNG Project Impact Summary

Pavement Impact Assessment

Road						Existing Traffic					Existing ESAs		Project Generated Daily ESAs		Project Generated % Daily Impact		Load Duration		Project Generated Total ESAs		Project Generated Annual ESAs	
Number	Name	Section	Chainage	Distance	Region	5 YR Growth Rate		% Commercial Vehicle	ESA's / Comm	ESA's /Day/ Direction	ESA/ Day / Loaded Direction	ESA/ Day/ Return Direction	Loaded ESA's /Day	Return ESA's /Day	% Daily ESA Increase Loaded	% Daily ESA Increase Return	No. Days	No. Years	Loaded Total Generated ESA/s	Return Total Generated ESA/s	AVG Loaded ESA's / Year	AVG Return ESA's / Year
10C	Bruce Highway	Maryborough - Gin Gin	83.920- 101.835	17.915	Bundaberg	4.45%		30.85%	2.75	1398	1.43E+03	1.37E+03	4.68E+01	3.15E+01	<5%	<5%	5	0.0	2.34E+02	1.58E+02	2.34E+02	1.58E+02
10C	Bruce Highway	Maryborough - Gin Gin	101.835- 111.595	9.76	Bundaberg	4.55%	Assumed	18.93%	3	1248	1.23E+03	1.26E+03	4.68E+01	3.15E+01	<5%	<5%	5	0.0	2.34E+02	1.58E+02	2.34E+02	1.58E+02
10D	Bruce Highway	Gin Gin - Benaraby	0.000- 2.160	2.16	Bundaberg	4.55%	Assumed	18.57%	2.98	1391	1.45E+03	1.34E+03	4.68E+01	3.15E+01	<5%	<5%	5	0.0	2.34E+02	1.58E+02	2.34E+02	1.58E+02
10D	Bruce Highway	Gin Gin - Benaraby	2.160- 38.210	36.05	Bundaberg	4.55%	Assumed	19.13%	2.98	1217	1.14E+03	1.30E+03	4.68E+01	3.15E+01	<5%	<5%	5	0.0	2.34E+02	1.58E+02	2.34E+02	1.58E+02
10D	Bruce Highway	Gin Gin - Benaraby	38.210- 51.170	12.96	Bundaberg	4.55%	Assumed	29.29%	3.13	1405	1.43E+03	1.38E+03	4.68E+01	3.15E+01	<5%	<5%	5	0.0	2.34E+02	1.58E+02	2.34E+02	1.58E+02
10D	Bruce Highway	Gin Gin - Benaraby	51.170-99.281	48.111	Rockhampton	2.34%		29.33%	3.17	1419	1.44E+03	1.39E+03	4.68E+01	3.15E+01	<5%	<5%	5	0.0	2.34E+02	1.58E+02	2.34E+02	1.58E+02
10D	Bruce Highway	Gin Gin - Benaraby	99.281- 147.145	47.864	Rockhampton	4.97%		23.28%	3.08	1779	1.79E+03	1.77E+03	4.68E+01	3.15E+01	<5%	<5%	5	0.0	2.34E+02	1.58E+02	2.34E+02	1.58E+02
10E	Bruce Highway	Benaraby - Rockhampton	0.000- 11.580	11.58	Rockhampton	4.55%	Assumed	25.29%	3.11	1791	1.78E+03	1.80E+03	1.45E+02	4.61E+01	8%	<5%	14	0.0	1.61E+03	3.63E+02	1.61E+03	3.63E+02
10E	Bruce Highway	Benaraby - Rockhampton	11.580- 45.410	33.83	Rockhampton	4.55%	Assumed	31.93%	3.08	1698	1.78E+03	1.62E+03	2.80E+02	7.73E+01	16%	<5%	15	0.0	2.75E+03	6.21E+02	2.75E+03	6.21E+02
U16	Ipswich Motorway	Rocklea	0.00-4.6		Metropolitan	4.55%	Assumed	8.53%	3.2	10250	1.03E+04	1.03E+04	4.25E+02	1.29E+02	<5%	<5%	1992	5.5	2.87E+04	9.90E+03	5.26E+03	1.81E+03
17A	Ipswich Motorway	Redbank	4.6-?????		Metropolitan	4.55%	Assumed	8.53%	3.2	10670	1.07E+04	1.07E+04	4.25E+02	1.29E+02	<5%	<5%	1992	5.5	2.87E+04	9.90E+03	5.26E+03	1.81E+03
18A	Warrego Highway	Ipswich - Toowoomba	0.000- 44.260	44.26	Toowoomba	1.12%		18.26%	2.96	4871	4.84E+03	4.90E+03	7.69E+02	1.94E+02	16%	<5%	8077	22.1	2.27E+05	4.82E+04	1.03E+04	2.18E+03
18A	Warrego Highway	Ipswich - Toowoomba	44.260- 47.860	3.6	Toowoomba	3.49%		17.88%	2.98	4581	4.55E+03	4.61E+03	7.66E+02	1.92E+02	17%	<5%	8077	22.1	2.26E+05	4.78E+04	1.02E+04	2.16E+03
18A	Warrego Highway	Ipswich - Toowoomba	47.860- 55.520	7.66	Toowoomba	2.29%		18.76%	2.97	4943	4.97E+03	4.91E+03	7.66E+02	1.92E+02	15%	<5%	8077	22.1	2.26E+05	4.78E+04	1.02E+04	2.16E+03
18A	Warrego Highway	Ipswich - Toowoomba	55.520- 75.370	19.85	Toowoomba	4.06%		15.65%	3.03	3077	3.04E+03	3.11E+03	7.66E+02	1.92E+02	25%	6%	8077	22.1	2.26E+05	4.78E+04	1.02E+04	2.16E+03
18A	Warrego Highway	Ipswich - Toowoomba	75.370- 83.350	7.98	Toowoomba	1.49%		14.74%	2.92	3548	3.42E+03	3.68E+03	7.66E+02	1.92E+02	22%	5%	8077	22.1	2.26E+05	4.78E+04	1.02E+04	2.16E+03
18A	Warrego Highway	Ipswich - Toowoomba	83.350- 92.760	9.41	Toowoomba	2.88%		15.20%	2.86	4456	4.46E+03	4.46E+03	7.66E+02	1.92E+02	17%	<5%	8077	22.1	2.26E+05	4.78E+04	1.02E+04	2.16E+03
18A	Warrego Highway	Ipswich - Toowoomba	92.760- 94.580	1.82	Toowoomba	1.00%	Assumed	12.17%	2.83	3411	3.61E+03	3.21E+03	7.66E+02	1.92E+02	21%	6%	8077	22.1	2.26E+05	4.78E+04	1.02E+04	2.16E+03
18A	Warrego Highway	Ipswich - Toowoomba	94.580- 95.010	0.43	Toowoomba	1.00%	Assumed	12.89%	2.79	3653	3.54E+03	3.77E+03	7.66E+02	1.92E+02	22%	5%	8077	22.1	2.26E+05	4.78E+04	1.02E+04	2.16E+03
18B	Warrego Highway	Toowoomba - Dalby	0.000- 0.990	0.99	Toowoomba	1.00%	Assumed	11.29%	3	4077	3.98E+03	4.17E+03	7.66E+02	1.92E+02	19%	<5%	8077	22.1	2.26E+05	4.78E+04	1.02E+04	2.16E+03
18B	Warrego Highway	Toowoomba - Dalby	0.990- 2.210	1.22	Toowoomba	1.00%	Assumed	12.92%	2.95	4201	4.37E+03	4.03E+03	7.66E+02	1.92E+02	18%	<5%	8077	22.1	2.26E+05	4.78E+04	1.02E+04	2.16E+03
18B	Warrego Highway	Toowoomba - Dalby	2.210- 3.740	1.53	Toowoomba	1.00%	Assumed	12.83%	3.01	3378	3.47E+03	3.28E+03	7.66E+02	1.92E+02	22%	6%	8077	22.1	2.26E+05	4.78E+04	1.02E+04	2.16E+03
18B	Warrego Highway	Toowoomba - Dalby	3.740- 4.520	0.78	Toowoomba	1.00%	Assumed	4.29%	2.84	709	6.57E+02	7.60E+02	7.66E+02	1.92E+02	117%	25%	8077	22.1	2.26E+05	4.78E+04	1.02E+04	2.16E+03
18B	Warrego Highway	Toowoomba - Dalby	4.520- 6.630	2.11	Toowoomba	1.00%	Assumed	6.30%	2.58	1323	1.32E+03	1.33E+03	7.66E+02	1.92E+02	58%	14%	8077	22.1	2.26E+05	4.78E+04	1.02E+04	2.16E+03
18B	Warrego Highway	Toowoomba - Dalby	6.630- 10.590	3.96	Toowoomba	4.97%		8.51%	2.57	1484	1.43E+03	1.54E+03	7.66E+02	1.92E+02	54%	12%	8077	22.1	2.26E+05	4.78E+04	1.02E+04	2.16E+03
18B	Warrego Highway	Toowoomba - Dalby	10.590- 26.830	16.24	Toowoomba	3.91%		11.95%	3.19	2190	2.19E+03	2.20E+03	7.66E+02	1.92E+02	35%	9%	8077	22.1	2.26E+05	4.78E+04	1.02E+04	2.16E+03
18B	Warrego Highway	Toowoomba - Dalby	26.830- 80.820	53.99	Toowoomba	4.55%	Assumed	21.75%	3.61	1742	1.75E+03	1.73E+03	7.66E+02	1.92E+02	44%	11%	8077	22.1	2.26E+05	4.78E+04	1.02E+04	2.16E+03
18B	Warrego Highway	Toowoomba - Dalby	80.820- 84.189	3.369	Toowoomba	3.25%		15.26%	3.4	1461	1.52E+03	1.41E+03	7.66E+02	1.92E+02	51%	14%	8077	22.1	2.26E+05	4.78E+04	1.02E+04	2.16E+03
18C	Warrego Highway	Dalby - Miles	0.000-1.090	1.09	Toowoomba	1.18%		14.84%	3.47	1656	1.67E+03	1.65E+03	1.09E+03	2.39E+02	65%	15%	8077	22.1	3.17E+06	4.86E+05	1.43E+05	2.20E+04
18C	Warrego Highway	Dalby - Miles	1.090- 25.115	24.025	Toowoomba	4.55%	Assumed	22.02%	3.59	938	9.66E+02	9.09E+02	1.09E+03	2.40E+02	113%	26%	2819	7.7	1.13E+06	1.74E+05	1.46E+05	2.25E+04
18C	Warrego Highway	Dalby - Miles	25.115- 45.195	20.08	Toowoomba	4.55%	Assumed	26.28%	3.53	1033	1.02E+03	1.05E+03	1.09E+03	2.40E+02	107%	23%	2819	7.7	1.13E+06	1.74E+05	1.46E+05	2.25E+04
18C	Warrego Highway	Dalby - Miles	45.195- 80.175	34.98	Toowoomba	4.55%	Assumed	24.03%	3.64	918	9.15E+02	9.21E+02	1.09E+03	2.40E+02	119%	26%	2819	7.7	1.13E+06	1.74E+05	1.46E+05	2.25E+04
18C	Warrego Highway	Dalby - Miles	80.175- 83.155	2.98	Toowoomba	3.12%		21.78%	3.6	970	9.66E+02	9.74E+02	1.09E+03	2.42E+02	113%	25%	2597	7.1	1.04E+06	1.60E+05	1.46E+05	2.25E+04
18C	Warrego Highway	Dalby - Miles	83.155- 106.355	23.2	Toowoomba	3.92%		23.01%	3.75	889	8.95E+02	8.83E+02	1.14E+03	2.49E+02	127%	28%	2597	7.1	1.04E+06	1.61E+05	1.46E+05	2.26E+04
18D	Warrego Highway	Miles - Roma	0.000-1.135	1.136	Roma	4.55%	Assumed	22.54%	3.62	1090	1.10E+03	1.08E+03	8.98E+02	2.01E+02	82%	19%	616	1.7	2.51E+05	3.91E+04	1.48E+05	2.32E+04
18D	Warrego Highway	Miles - Roma	1.135-44.099	42.965	Roma	4.55%	Assumed	25.91%	3.8	733	7.41E+02	7.26E+02	8.98E+02	2.01E+02	121%	28%	616	1.7	2.51E+05	3.91E+04	1.48E+05	2.32E+04
18D	Warrego Highway	Miles - Roma	44.099-56.831	12.733	Roma	4.55%	Assumed	28.11%	3.93	680	6.87E+02	6.73E+02	8.00E+02	1.87E+02	116%	28%	605	1.7	2.49E+05	3.87E+04	1.50E+05	2.34E+04
19B	Isis Highway	Childers - Biggenden	11.819-31.884	20.066	Bundaberg	4.55%	Assumed	12.72%	2.52	139	1.39E+02	1.40E+02	4.68E+01	3.15E+01	34%	23%	5	0.0	2.34E+02	1.58E+02	2.34E+02	1.58E+02
19B	Isis Highway	Childers - Biggenden	31.884-43.996	12.113	Bundaberg	4.55%	Assumed	17.10%	2.76	291	2.88E+02	2.94E+02	4.68E+01	3.15E+01	16%	11%	5	0.0	2.34E+02	1.58E+02	2.34E+02	1.58E+02
19B	Isis Highway	Childers - Biggenden	43.996-45.244	1.249	Bundaberg	4.55%	Assumed	18.81%	2.77	298	2.94E+02	3.02E+02	4.68E+01	3.15E+01	16%	10%	5	0.0	2.34E+02	1.58E+02	2.34E+02	1.58E+02
19B	Isis Highway	Childers - Biggenden	45.244-45.732	0.489	Bundaberg	4.55%	Assumed	16.03%	2.75	306	2.98E+02	3.14E+02	4.68E+01	3.15E+01	16%	10%	5	0.0	2.34E+02	1.58E+02	2.34E+02	1.58E+02
19C	Isis Highway	Biggenden - Coalstoun Lakes	0.000-0.810	0.811	Wide Bay	4.55%	Assumed	16.53%	2.81	289	2.89E+02	2.89E+02	4.68E+01	3.15E+01	16%	11%	5	0.0	2.34E+02	1.58E+02	2.34E+02	1.58E+02
19C	Isis Highway	Biggenden - Coalstoun Lakes	0.810-23.455	22.646	Wide Bay	4.55%	Assumed	16.49%	2.81	275	2.87E+02	2.62E+02	4.68E+01	3.15E+01	16%	12%	5	0.0	2.34E+02	1.58E+02	2.34E+02	1.58E+02
19C	Isis Highway	Biggenden - Coalstoun Lakes	23.455-27.574	4.12	Wide Bay	4.55%	Assumed	20.15%	2.82	292	2.96E+02	2.88E+02	4.68E+01	3.15E+01	16%	11%	5	0.0	2.34E+02	1.58E+02	2.34E+02	1.58E+02
19C	Isis Highway	Biggenden - Coalstoun Lakes	27.574-37.764	10.191	Wide Bay	4.55%	Assumed	21.42%	2.89	293	3.00E+02	2.85E+02	4.68E+01	3.15E+01	16%	11%	5	0.0	2.34E+02	1.58E+02	2.34E+02	1.58E+02
26A	Leichardt Highway	Westwood - Taroom	25.680-62.625	36.945	Rockhampton	4.55%	Assumed	23.99%	3.59	282	2.82E+02	2.82E+02	2.32E+02	4.57E+01	82%	16%	50	0.1	8.21E+03	1.77E+03	8.21E+03	1.77E+03
26A	Leichardt Highway	Westwood - Taroom	62,625- 86.039	23.414	Rockhampton	4.55%	Assumed	24.67%	3.71	307	3.07E+02	3.07E+02	2.32E+02	4.57E+01	76%	15%	50	0.1	8.21E+03	1.77E+03	8.21E+03	1.77E+03
26A	Leichardt Highway	Westwood - Taroom	86.039- 104.655	18.616	Rockhampton	4.55%	Assumed	25.41%	3.72	305	3.05E+02	3.05E+02	2.83E+02	5.33E+01	93%	17%	50	0.1	8.26E+03	1.78E+03	8.26E+03	1.78E+03
26A	Leichardt Highway	Westwood - Taroom	104.655- 105.215	0.56	Rockhampton	4.55%	Assumed	18.28%	3.39	656	6.56E+02	6.56E+02	2.86E+02	5.37E+01	44%	8%	50	0.1	9.63E+03	1.99E+03	9.63E+03	1.99E+03
26A	Leichardt Highway	Westwood - Taroom	105.215- 162.335	57.12	Rockhampton	4.55%	Assumed	29.43%	3.72	363	3.63E+02	3.63E+02	2.87E+02	5.37E+01	79%	15%	50	0.1	9.54E+03	1.97E+03	9.54E+03	1.97E+03
26A	Leichardt Highway	Westwood - Taroom	162.335- 170.287	7.952	Rockhampton	2.38%		21.12%	3.65	280	2.80E+02	2.80E+02	2.84E+02	5.34E+01	101%	19%	50	0.1	8.46E+03	1.81E+03	8.46E+03	1.81E+03
26A	Leichardt Highway	Westwood - Taroom	170.287- 192.228	21.941	Rockhampton	4.55%	Assumed	28.81%	3.78	268	2.68E+02	2.68E+02	2.82E+02	5.29E+01	105%	20%	33	0.1	6.00E+03	1.25E+03	6.00E+03	1.25E+03
26B	Leichardt Highway	Taroom - Miles	0.000- 60.470	60.47	Roma	4.55%	Assumed	28.87%	3.69	348	3.55E+02	3.40E+02	3.82E+02	6.80E+01	108%	20%	68	0.2	1.24E+04	2.59E+03	1.24E+04	2.59E+03
26B	Leichardt Highway	Taroom - Miles	60.470- 127.610	67.14	Roma	4.55%	Assumed	31.86%	3.83	389	3.83E+02	3.95E+02	7.85E+02	1.58E+02	205%	40%	1002	2.7	3.82E+05	5.90E+04	1.39E+05	2.15E+04
26C	Leichardt Highway	Miles - Goondiwindi	0.000-32.020	32.021	Roma	4.83%		29.01%	3.84	266	2.69E+02	2.64E+02	4.60E+02	7.94E+01	171%	30%	1198	3.3	4.57E+05	6.94E+04	1.39E+05	2.11E+04
35A	Moonie Hwy	Dalby - St George	0.00- 2500	2.5	Toowoomba	2.05%		7.15%	2.76	630	6.48E+02	6.12E+02	5.72E+02	1.04E+02	88%	17%	2352	6.4	9.05E+05	1.38E+05	1.40E+05	2.13E+04
35A	Moonie Hwy	Dalby - St George	2.500-11.00	8.5	Toowoomba	2.07%		16.21%	3.25	489	4.46E+02	5.33E+02	5.72E+02	1.04E+02	128%	20%	2352	6.4	9.05E+05	1.38E+05	1.40E+05	2.13E+04
35A	Moonie Hwy	Dalby - St George	11.00- 50.370	39.37	Toowoomba	1.67%		18.27%	3.29	393	4.02E+02	3.84E+02	5.72E+02	1.04E+02	142%	27%	2352	6.4	9.05E+05	1.38E+05	1.40E+05	2.13E+04
40B	D'Aguilar Highway	Kilcoy - Yarraman	23.460-32.650	9.191	Southern	4.03%		18.39%	3.24	922	9.25E+02	9.19E+02	2.88E+01	1.94E+01	<5%	<5%	19	0.1	5.47E+02	3.68E+02	5.47E+02	3.68E+02
40B	D'Aguilar Highway	Kilcoy - Yarraman	32.650-58.030	25.381	Southern	4.17%		18.97%	3.29	861	8.65E+02	8.56E+02	2.88E+01	1.94E+01	<5%	<5%	19	0.1	5.47E+02	3.68E+02	5.47E+02	3.68E+02
40B	D'Aguilar Highway	Kilcoy - Yarraman	58.030-68.721	10.692	Southern	4.33%		14.23%	3.03	723	7.22E+02	7.24E+02	2.88E+01	1.94E+01	<5%	<5%	19	0.1	5.47E+02	3.68E+02	5.47E+02	3.68E+02
40C	D'Aguilar Highway	Yarraman - Kingaroy	0.000-17.650	17.651	Southern	1.18%		15.41%	2.98	776	7.53E+02	7.99E+02	2.88E+01	1.94E+01	<5%	<5%	19	0.1	5.47E+02	3.68E+02	5.47E+02	3.68E+02
40C	D'Aguilar Highway	Yarraman - Kingaroy	17.650-21.670	4.021	Southern	1.00%	Assumed	13.60%	2.76	880	8.85E+02	8.74E+02	2.88E+01	1.94E+01	<5%	<5%	19	0.1	5.47E+02	3.68E+02	5.47E+02	3.68E+02
41A	Burnett Highway	Nanango - Goomeri	0.000-38.718	38.718	Wide Bay	4.66%		17.16%	3.19	287	2.93E+02	2.81E+02	2.88E+01	1.94E+01	10%	7%	19	0.1	5.47E+02	3.68E+02	5.47E+02	3.68E+02
41A	Burnett Highway	Nanango - Goomeri	38.718-48.832	10.113	Wide Bay	4.55%	Assumed	16.84%	3.19	210	2.14E+02	2.06E+02	2.88E+01	1.94E+01	13%	9%	19	0.1	5.47E+02	3.68E+02	5.47E+02	3.68E+02
41A	Burnett Highway	Nanango - Goomeri	48.831-58.010	9.178	Wide Bay	4.55%	Assumed	15.95%	3.04	238	2.54E+02	2.22E+02	2.88E+01	1.94E+01	11%	9%	19	0.1	5.47E+02	3.68E+02	5.47E+02	3.68E+02
41A	Burnett Highway	Nanango - Goomeri	58.009-59.777	1.767	Wide Bay	4.55%	Assumed	14.83%	3	465	4.66E+02	4.65E+02	2.88E+01	1.94E+01	6%	<5%	19	0.1	5.47E+02	3.68E+02	5.47E+02	3.68E+02
41B	Burnett Highway	Goomeri - Gayndah	0.000- 2.540	2.54	Bundaberg	4.55%	Assumed	26.11%	3.05	330	3.11E+02	3.49E+02	2.88E+01	1.94E+01	9%	6%	19	0.1	5.47E+02	3.68E+02	5.47E+02	3.68E+02
41B	Burnett Highway	Goomeri - Gayndah	2.540- 17.00	14.46	Bundaberg	4.55%	Assumed	15.42%	2.8	125	1.08E+02	1.42E+02	2.88E+01	1.94E+01	27%	14%	19	0.1	5.47E+02	3.68E+02	5.47E+02	3.68E+02
41B	Burnett Highway	Goomeri - Gayndah	17.000- 31.350	14.35	Bundaberg	4.55%	Assumed	18.52%	2.83	199	1.96E+02	2.03E+02	2.88E+01	1.94E+01	15%	10%	19	0.1	5.47E+02	3.68E+02	5.47E+02	3.68E+02
41B	Burnett Highway	Goomeri - Gayndah	31.350- 74.050	42.7	Bundaberg	4.55%	Assumed	25.45%	2.61	362	3.43E+02	3.82E+02	2.88E+01	1.94E+01	8%	5%	19	0.1	5.47E+02	3.68E+02	5.47E+02	3.68E+02
41B	Burnett Highway	Goomeri - Gayndah	74.050- 86.890	12.84	Bundaberg	4.55%	Assumed	14.81%	2.7	210	2.05E+02	2.15E+02	2.24E+01	1.51E+01	11%	7%	14	0.0	3.13E+02	2.11E+02	3.13E+02	2.11E+02
41B	Burnett Highway	Goomeri - Gayndah	86.890- 95.892	9.002	Bundaberg	4.55%	Assumed	16.11%	2.73	244	2.21E+02	2.68E+02	2.24E+01	1.51E+01	10%	6%	14	0.0	3.13E+02	2.11E+02	3.13E+02	2.11E+02
41B	Burnett Highway	Goomeri - Gayndah	95.892- 99.460	3.568	Bundaberg	4.55%	Assumed	15.04%	2.64	291	2.66E+02	3.16E+02	2.24E+01	1.51E+01	8%	<5%	14	0.0	3.13E+02	2.11E+02	3.13E+02	2.11E+02
41B	Burnett Highway	Goomeri - Gayndah	99.460- 100.660	1.2	Bundaberg	4.55%	Assumed	12.64%	2.62	391	3.87E+02	3.94E+02	2.24E+01	1.51E+01	6%	<5%	14	0.0	3.13E+02	2.11E+02	3.13E+02	2.11E+02
41C	Burnett Highway	Gayndah - Monto	0.000- 0.470	0.47	Bundaberg	4.55%	Assumed	10.99%	2.55	447	4.43E+02	4.50E+02	2.24E+01	1.51E+01	5%	<5%	14	0.0	3.13E+02	2.11E+02	3.13E+02	2.11E+02
41C	Burnett Highway	Gayndah - Monto	0.470- 7.348	6.878	Bundaberg	4.55%	Assumed	16.72%	2.66	355	3.76E+02	3.34E+02	2.24E+01	1.51E+01	6%	<5%	14	0.0	3.13E+02	2.11E+02	3.13E+02	2.11E+02
41C	Burnett Highway	Gayndah - Monto	7.348- 23.847	16.499	Bundaberg	4.55%	Assumed	19.45%	2.66	285	2.79E+02	2.92E+02	2.24E+01	1.51E+01	8%	5%	14	0.0	3.13E+02	2.11E+02	3.13E+02	2.11E+02
41C	Burnett Highway	Gayndah - Monto	23.847- 43.710	19.863	Bundaberg	4.55%	Assumed	17.98%	2.75	286	3.14E+02	2.59E+02	2.24E+01	1.51E+01	7%	6%	14	0.0	3.13E+02	2.11E+02	3.13E+02	2.11E+02
41C	Burnett Highway	Gayndah - Monto	43.710- 78.461	34.751	Bundaberg	4.55%	Assumed	15.81%	2.78	229	2.46E+02	2.12E+02	2.24E+01	1.51E+01	9%	7%	14	0.0	3.13E+02	2.11E+02	3.13E+02	2.11E+02
41C	Burnett Highway	Gayndah - Monto	78.461- 117.417	38.956	Bundaberg	4.55%	Assumed	18.91%	2.77	162	1.68E+02	1.56E+02	2.20E+01	1.48E+01	13%	9%	7	0.0	1.54E+02	1.04E+02	1.54E+02	1.04E+02
41C	Burnett Highway	Gayndah - Monto	117.417- 139.584	22.167	Bundaberg	4.55%	Assumed	18.38%	2.71	159	1.62E+02	1.57E+02	2.20E+01	1.48E+01	14%	9%	7	0.0	1.54E+02	1.04E+02	1.54E+02	1.04E+02
41C	Burnett Highway	Gayndah - Monto	139.584- 150.961	11.377	Bundaberg	4.55%	Assumed	14.59%	2.7	190	1.94E+02	1.86E+02	2.20E+01	1.48E+01	11%	8%	7	0.0	1.54E+02	1.04E+02	1.54E+02	1.04E+02
41C	Burnett Highway	Gayndah - Monto	150.961- 151.686	0.725	Bundaberg	4.55%	Assumed	13.87%	2.59	238	2.47E+02	2.30E+02	2.20E+01	1.48E+01	9%	6%	7	0.0	1.54E+02	1.04E+02	1.54E+02	1.04E+02
41D	Burnett Highway	Monto - Biolela	0.000- 3.515	3.515	Bundaberg	4.55%	Assumed	12.23%	2.55	262	2.62E+02	2.62E+02	2.20E+01	1.48E+01	8%	6%	7	0.0	1.54E+02	1.04E+02	1.54E+02	1.04E+02
41D	Burnett Highway	Monto - Biolela	3.515- 11.685	8.17	Bundaberg	4.55%	Assumed	17.15%	2.67	195	1.95E+02	1.95E+02	2.20E+01	1.48E+01	11%	8%	7	0.0	1.54E+02	1.04E+02	1.54E+02	1.04E+02
41D	Burnett Highway	Monto - Biolela	11.685- 41.470	29.785	Bundaberg	4.55%	Assumed	19.45%	2.68	176	1.76E+02	1.76E+02	2.20E+01	1.48E+01	13%	8%	7	0.0	1.54E+02	1.04E+02	1.54E+02	1.04E+02
41D	Burnett Highway	Monto - Bioela	41.470- 85.531	44.061	Rockhampton	4.55%	Assumed	17.56%	2.72	160	1.60E+02	1.60E+02	2.59E+02	6.10E+01	162%	38%	43	0.1	8.57E+03	1.82E+03	8.57E+03	1.82E+03
41D	Burnett Highway	Monto - Bioela	85.531 - 92.811	7.28	Rockhampton	2.96%		10.69%	2.57	249	2.49E+02	2.49E+02	2.37E+02	4.62E+01	95%	19%	43	0.1	8.42E+03	1.72E+03	8.42E+03	1.72E+03
41D	Burnett Highway	Monto - Biolela	92.811-93.811	1	Rockhampton	4.06%		9.54%	2.49	281	2.81E+02	2.81E+02	2.37E+02	4.62E+01	84%	16%	43	0.1	8.42E+03	1.72E+03	8.42E+03	1.72E+03

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QCLNG Project Impact Summary

Pavement Impact Assessment

Road					Project Generated % Annual Impact		Existing 20 Year Pavement Load		Project Generated Total Pavement Impact	
Number	Name	Section	Chainage	Distance	Loaded % Annual ESAs	Return % Annual ESAs	20year Pavement Load Loaded Dir	20year Pavement Load Return Dir	% of total 20 year pavement Load Loaded Dir	% of total 20 year pavement Load Return Dir
10C	Bruce Highway	Maryborough - Gin Gin	83.920- 101.835	17.915	<5%	<5%	1.70E+07	1.63E+07	0.00%	0.00%
10C	Bruce Highway	Maryborough - Gin Gin	101.835- 111.595	9.76	<5%	<5%	1.48E+07	1.52E+07	0.00%	0.00%
10D	Bruce Highway	Gin Gin - Benaraby	0.000- 2.160	2.16	<5%	<5%	1.74E+07	1.61E+07	0.00%	0.00%
10D	Bruce Highway	Gin Gin - Benaraby	2.160- 38.210	36.05	<5%	<5%	1.37E+07	1.56E+07	0.00%	0.00%
10D	Bruce Highway	Gin Gin - Benaraby	38.210- 51.170	12.96	<5%	<5%	1.72E+07	1.66E+07	0.00%	0.00%
10D	Bruce Highway	Gin Gin - Benaraby	51.170-99.281	48.111	<5%	<5%	1.36E+07	1.31E+07	0.00%	0.00%
10D	Bruce Highway	Gin Gin - Benaraby	99.281- 147.145	47.864	<5%	<5%	2.26E+07	2.23E+07	0.00%	0.00%
10E	Bruce Highway	Benaraby - Rockhampton	0.000- 11.580	11.58	<5%	<5%	2.15E+07	2.16E+07	0.01%	0.00%
10E	Bruce Highway	Benaraby - Rockhampton	11.580- 45.410	33.83	<5%	<5%	2.14E+07	1.95E+07	0.01%	0.00%
U16	Ipswich Motorway	Rocklea	0.00-4.6		<5%	<5%	1.23E+08	1.23E+08	0.02%	0.01%
17A	Ipswich Motorway	Redbank	4.6-?????		<5%	<5%	1.28E+08	1.28E+08	0.02%	0.01%
18A	Warrego Highway	Ipswich - Toowoomba	0.000- 44.260	44.26	<5%	<5%	3.98E+07	4.03E+07	0.57%	0.12%
18A	Warrego Highway	Ipswich - Toowoomba	44.260- 47.860	3.6	<5%	<5%	4.85E+07	4.92E+07	0.47%	0.10%
18A	Warrego Highway	Ipswich - Toowoomba	47.860- 55.520	7.66	<5%	<5%	4.64E+07	4.59E+07	0.49%	0.10%
18A	Warrego Highway	Ipswich - Toowoomba	55.520- 75.370	19.85	<5%	<5%	3.46E+07	3.54E+07	0.65%	0.13%
18A	Warrego Highway	Ipswich - Toowoomba	75.370- 83.350	7.98	<5%	<5%	2.92E+07	3.15E+07	0.77%	0.15%
18A	Warrego Highway	Ipswich - Toowoomba	83.350- 92.760	9.41	<5%	<5%	4.44E+07	4.44E+07	0.51%	0.11%
18A	Warrego Highway	Ipswich - Toowoomba	92.760- 94.580	1.82	<5%	<5%	2.93E+07	2.61E+07	0.77%	0.18%
18A	Warrego Highway	Ipswich - Toowoomba	94.580- 95.010	0.43	<5%	<5%	2.87E+07	3.06E+07	0.79%	0.16%
18B	Warrego Highway	Toowoomba - Dalby	0.000- 0.990	0.99	<5%	<5%	3.23E+07	3.39E+07	0.70%	0.14%
18B	Warrego Highway	Toowoomba - Dalby	0.990- 2.210	1.22	<5%	<5%	3.55E+07	3.27E+07	0.64%	0.15%
18B	Warrego Highway	Toowoomba - Dalby	2.210- 3.740	1.53	<5%	<5%	2.82E+07	2.66E+07	0.80%	0.18%
18B	Warrego Highway	Toowoomba - Dalby	3.740- 4.520	0.78	<5%	<5%	5.33E+06	6.17E+06	4.24%	0.78%
18B	Warrego Highway	Toowoomba - Dalby	4.520- 6.630	2.11	<5%	<5%	1.07E+07	1.08E+07	2.12%	0.44%
18B	Warrego Highway	Toowoomba - Dalby	6.630- 10.590	3.96	<5%	<5%	1.81E+07	1.94E+07	1.25%	0.25%
18B	Warrego Highway	Toowoomba - Dalby	10.590- 26.830	16.24	<5%	<5%	2.45E+07	2.46E+07	0.93%	0.19%
18B	Warrego Highway	Toowoomba - Dalby	26.830- 80.820	53.99	<5%	<5%	2.11E+07	2.09E+07	1.07%	0.23%
18B	Warrego Highway	Toowoomba - Dalby	80.820- 84.189	3.369	<5%	<5%	1.57E+07	1.46E+07	1.44%	0.33%
18C	Warrego Highway	Dalby - Miles	0.000-1.090	1.09	23.55%	<5%	1.38E+07	1.36E+07	22.99%	3.57%
18C	Warrego Highway	Dalby - Miles	1.090- 25.115	24.025	41.33%	6.79%	1.16E+07	1.09E+07	9.68%	1.59%
18C	Warrego Highway	Dalby - Miles	25.115- 45.195	20.08	39.14%	5.90%	1.23E+07	1.26E+07	9.17%	1.38%
18C	Warrego Highway	Dalby - Miles	45.195- 80.175	34.98	43.63%	6.70%	1.10E+07	1.11E+07	10.22%	1.57%
18C	Warrego Highway	Dalby - Miles	80.175- 83.155	2.98	41.28%	6.34%	9.89E+06	9.97E+06	10.47%	1.61%
18C	Warrego Highway	Dalby - Miles	83.155- 106.355	23.2	44.67%	7.01%	1.00E+07	9.89E+06	10.36%	1.62%
18D	Warrego Highway	Miles - Roma	0.000-1.135	1.136	37.09%	5.86%	1.32E+07	1.30E+07	1.90%	0.30%
18D	Warrego Highway	Miles - Roma	1.135-44.099	42.965	54.90%	8.74%	8.92E+06	8.74E+06	2.81%	0.45%
18D	Warrego Highway	Miles - Roma	44.099-56.831	12.733	59.90%	9.51%	8.27E+06	8.10E+06	3.01%	0.48%
19B	Isis Highway	Childers - Biggenden	11.819-31.884	20.066	<5%	<5%	1.67E+06	1.68E+06	0.01%	0.01%
19B	Isis Highway	Childers - Biggenden	31.884-43.996	12.113	<5%	<5%	3.47E+06	3.54E+06	0.01%	0.00%
19B	Isis Highway	Childers - Biggenden	43.996-45.244	1.249	<5%	<5%	3.54E+06	3.63E+06	0.01%	0.00%
19B	Isis Highway	Childers - Biggenden	45.244-45.732	0.489	<5%	<5%	3.59E+06	3.78E+06	0.01%	0.00%
19C	Isis Highway	Biggenden - Coalstoun Lakes	0.000-0.810	0.811	<5%	<5%	3.48E+06	3.48E+06	0.01%	0.00%
19C	Isis Highway	Biggenden - Coalstoun Lakes	0.810-23.455	22.646	<5%	<5%	3.45E+06	3.15E+06	0.01%	0.00%
19C	Isis Highway	Biggenden - Coalstoun Lakes	23.455-27.574	4.12	<5%	<5%	3.56E+06	3.47E+06	0.01%	0.00%
19C	Isis Highway	Biggenden - Coalstoun Lakes	27.574-37.764	10.191	<5%	<5%	3.61E+06	3.43E+06	0.01%	0.00%
26A	Leichardt Highway	Westwood - Taroom	25.680-62.625	36.945	7.97%	<5%	3.39E+06	3.39E+06	0.24%	0.05%
26A	Leichardt Highway	Westwood - Taroom	62,625- 86.039	23.414	7.32%	<5%	3.69E+06	3.69E+06	0.22%	0.05%
26A	Leichardt Highway	Westwood - Taroom	86.039- 104.655	18.616	7.42%	<5%	3.67E+06	3.67E+06	0.22%	0.05%
26A	Leichardt Highway	Westwood - Taroom	104.655- 105.215	0.56	<5%	<5%	7.89E+06	7.89E+06	0.12%	0.03%
26A	Leichardt Highway	Westwood - Taroom	105.215- 162.335	57.12	7.20%	<5%	4.37E+06	4.37E+06	0.22%	0.05%
26A	Leichardt Highway	Westwood - Taroom	162.335- 170.287	7.952	8.27%	<5%	2.64E+06	2.64E+06	0.32%	0.07%
26A	Leichardt Highway	Westwood - Taroom	170.287- 192.228	21.941	6.13%	<5%	3.23E+06	3.23E+06	0.19%	0.04%
26B	Leichardt Highway	Taroom - Miles	0.000- 60.470	60.47	9.54%	<5%	4.27E+06	4.09E+06	0.29%	0.06%
26B	Leichardt Highway	Taroom - Miles	60.470- 127.610	67.14	99.51%	14.91%	4.61E+06	4.75E+06	8.29%	1.24%
26C	Leichardt Highway	Miles - Goondiwindi	0.000-32.020	32.021	141.94%	21.95%	3.34E+06	3.28E+06	13.68%	2.12%
35A	Moonie Hwy	Dalby - St George	0.00- 2500	2.5	59.36%	9.55%	5.89E+06	5.57E+06	15.35%	2.47%
35A	Moonie Hwy	Dalby - St George	2.500-11.00	8.5	86.24%	10.97%	4.07E+06	4.86E+06	22.25%	2.83%
35A	Moonie Hwy	Dalby - St George	11.00- 50.370	39.37	95.68%	15.22%	3.51E+06	3.35E+06	25.79%	4.10%
40B	D'Aguilar Highway	Kilcoy - Yarraman	23.460-32.650	9.191	<5%	<5%	1.05E+07	1.04E+07	0.01%	0.00%
40B	D'Aguilar Highway	Kilcoy - Yarraman	32.650-58.030	25.381	<5%	<5%	9.97E+06	9.86E+06	0.01%	0.00%
40B	D'Aguilar Highway	Kilcoy - Yarraman	58.030-68.721	10.692	<5%	<5%	8.47E+06	8.50E+06	0.01%	0.00%
40C	D'Aguilar Highway	Yarraman - Kingaroy	0.000-17.650	17.651	<5%	<5%	6.23E+06	6.61E+06	0.01%	0.01%
40C	D'Aguilar Highway	Yarraman - Kingaroy	17.650-21.670	4.021	<5%	<5%	7.18E+06	7.09E+06	0.01%	0.01%
41A	Burnett Highway	Nanango - Goomeri	0.000-38.718	38.718	<5%	<5%	3.57E+06	3.42E+06	0.02%	0.01%
41A	Burnett Highway	Nanango - Goomeri	38.718-48.832	10.113	<5%	<5%	2.58E+06	2.48E+06	0.02%	0.01%
41A	Burnett Highway	Nanango - Goomeri	48.831-58.010	9.178	<5%	<5%	3.06E+06	2.67E+06	0.02%	0.01%
41A	Burnett Highway	Nanango - Goomeri	58.009-59.777	1.767	<5%	<5%	5.61E+06	5.60E+06	0.01%	0.01%
41B	Burnett Highway	Goomeri - Gayndah	0.000- 2.540	2.54	<5%	<5%	3.74E+06	4.20E+06	0.01%	0.01%
41B	Burnett Highway	Goomeri - Gayndah	2.540- 17.00	14.46	<5%	<5%	1.30E+06	1.71E+06	0.04%	0.02%
41B	Burnett Highway	Goomeri - Gayndah	17.000- 31.350	14.35	<5%	<5%	2.36E+06	2.44E+06	0.02%	0.02%
41B	Burnett Highway	Goomeri - Gayndah	31.350- 74.050	42.7	<5%	<5%	4.13E+06	4.60E+06	0.01%	0.01%
41B	Burnett Highway	Goomeri - Gayndah	74.050- 86.890	12.84	<5%	<5%	2.47E+06	2.59E+06	0.01%	0.01%
41B	Burnett Highway	Goomeri - Gayndah	86.890- 95.892	9.002	<5%	<5%	2.66E+06	3.23E+06	0.01%	0.01%
41B	Burnett Highway	Goomeri - Gayndah	95.892- 99.460	3.568	<5%	<5%	3.20E+06	3.80E+06	0.01%	0.01%
41B	Burnett Highway	Goomeri - Gayndah	99.460- 100.660	1.2	<5%	<5%	4.66E+06	4.74E+06	0.01%	0.00%
41C	Burnett Highway	Gayndah - Monto	0.000- 0.470	0.47	<5%	<5%	5.33E+06	5.42E+06	0.01%	0.00%
41C	Burnett Highway	Gayndah - Monto	0.470- 7.348	6.878	<5%	<5%	4.52E+06	4.02E+06	0.01%	0.01%
41C	Burnett Highway	Gayndah - Monto	7.348- 23.847	16.499	<5%	<5%	3.36E+06	3.51E+06	0.01%	0.01%
41C	Burnett Highway	Gayndah - Monto	23.847- 43.710	19.863	<5%	<5%	3.78E+06	3.12E+06	0.01%	0.01%
41C	Burnett Highway	Gayndah - Monto	43.710- 78.461	34.751	<5%	<5%	2.96E+06	2.55E+06	0.01%	0.01%
41C	Burnett Highway	Gayndah - Monto	78.461- 117.417	38.956	<5%	<5%	2.02E+06	1.88E+06	0.01%	0.01%
41C	Burnett Highway	Gayndah - Monto	117.417- 139.584	22.167	<5%	<5%	1.95E+06	1.89E+06	0.01%	0.01%
41C	Burnett Highway	Gayndah - Monto	139.584- 150.961	11.377	<5%	<5%	2.33E+06	2.24E+06	0.01%	0.00%
41C	Burnett Highway	Gayndah - Monto	150.961- 151.686	0.725	<5%	<5%	2.97E+06	2.77E+06	0.01%	0.00%
41D	Burnett Highway	Monto - Biolela	0.000- 3.515	3.515	<5%	<5%	3.15E+06	3.15E+06	0.00%	0.00%
41D	Burnett Highway	Monto - Biolela	3.515- 11.685	8.17	<5%	<5%	2.35E+06	2.35E+06	0.01%	0.00%
41D	Burnett Highway	Monto - Biolela	11.685- 41.470	29.785	<5%	<5%	2.12E+06	2.12E+06	0.01%	0.00%
41D	Burnett Highway	Monto - Bioela	41.470- 85.531	44.061	14.68%	<5%	1.93E+06	1.93E+06	0.45%	0.09%
41D	Burnett Highway	Monto - Bioela	85.531 - 92.811	7.28	9.27%	<5%	2.50E+06	2.50E+06	0.34%	0.07%
41D	Burnett Highway	Monto - Biolela	92.811-93.811	1	8.21%	<5%	3.20E+06	3.20E+06	0.26%	0.05%

QCLNG Project Impact Summary

Pavement Impact Assessment

Road						Existing Traffic					Existing ESAs		Project Generated Daily ESAs		Project Generated % Daily Impact		Load Duration		Project Generated Total ESAs		Project Generated Annual ESAs	
Number	Name	Section	Chainage	Distance	Region	5 YR Growth Rate		% Commercial Vehicle	ESA's / Comm	ESA's /Day/ Direction	ESA/ Day / Loaded Direction	ESA/ Day/ Return Direction	Loaded ESA's /Day	Return ESA's /Day	% Daily ESA Increase Loaded	% Daily ESA Increase Return	No. Days	No. Years	Loaded Total Generated ESA/s	Return Total Generated ESA/s	AVG Loaded ESA's / Year	AVG Return ESA's / Year
42A	Brisbane Valley Highway	Ipswich - Harlin	0.000 - 5.2	5.2	Metropolitan	4.55%	Assumed	9.00%	2.99	1231	1.21E+03	1.25E+03	2.88E+01	1.94E+01	<5%	<5%	19	0.1	5.47E+02	3.68E+02	5.47E+02	3.68E+02
42A	Brisbane Valley Highway	Ipswich - Harlin	5.2-15.960	10.761	Southern	3.83%		13.48%	2.93	1411	1.48E+03	1.35E+03	2.88E+01	1.94E+01	<5%	<5%	19	0.1	5.47E+02	3.68E+02	5.47E+02	3.68E+02
42A	Brisbane Valley Highway	Ipswich - Harlin	15.960-32.340	16.381	Southern	1.87%		18.30%	3.14	863	8.73E+02	8.53E+02	2.88E+01	1.94E+01	<5%	<5%	19	0.1	5.47E+02	3.68E+02	5.47E+02	3.68E+02
42A	Brisbane Valley Highway	Ipswich - Harlin	32.340-54.540	22.201	Southern	4.55%	Assumed	17.27%	3.3	708	7.17E+02	7.00E+02	2.88E+01	1.94E+01	<5%	<5%	19	0.1	5.47E+02	3.68E+02	5.47E+02	3.68E+02
42A	Brisbane Valley Highway	Ipswich - Harlin	54.540-57.860	3.321	Southern	4.51%		16.30%	3.17	965	9.68E+02	9.62E+02	2.88E+01	1.94E+01	<5%	<5%	19	0.1	5.47E+02	3.68E+02	5.47E+02	3.68E+02
42A	Brisbane Valley Highway	Ipswich - Harlin	57.860-71.260	13.401	Southern	1.72%		17.58%	3.22	894	9.00E+02	8.89E+02	2.88E+01	1.94E+01	<5%	<5%	19	0.1	5.47E+02	3.68E+02	5.47E+02	3.68E+02
42A	Brisbane Valley Highway	Ipswich - Harlin	71.260-89.190	17.931	Southern	4.55%	Assumed	18.17%	3.18	744	7.41E+02	7.46E+02	2.88E+01	1.94E+01	<5%	<5%	19	0.1	5.47E+02	3.68E+02	5.47E+02	3.68E+02
46A	Dawson Highway	Gladstone - Biloela	0.000- 1.498	1.498	Rockhampton	1.00%	Assumed	2.95%	3.2	1200	4.79E+02	4.12E+02	1.40E+02	3.18E+01	29%	8%	105	0.3	1.47E+04	3.33E+03	1.47E+04	3.33E+03
46A	Dawson Highway	Gladstone - Biloela	1.498- 2.238	0.74	Rockhampton	1.00%	Assumed	6.17%	3.2	3796	1.62E+03	1.53E+03	1.40E+02	3.18E+01	9%	<5%	105	0.3	1.47E+04	3.33E+03	1.47E+04	3.33E+03
46A	Dawson Highway	Gladstone - Biloela	2.238- 3.130	0.892	Rockhampton	1.00%	Assumed	7.08%	3.2	5508	2.01E+03	1.92E+03	1.40E+02	3.18E+01	7%	<5%	105	0.3	1.47E+04	3.33E+03	1.47E+04	3.33E+03
46A	Dawson Highway	Gladstone - Biloela	3.130- 4.391	1.261	Rockhampton	2.58%		3.48%	3.2	3187	1.16E+03	1.14E+03	1.40E+02	3.18E+01	12%	<5%	105	0.3	1.47E+04	3.33E+03	1.47E+04	3.33E+03
46A	Dawson Highway	Gladstone - Biloela	4.391- 5.179	0.788	Rockhampton	4.01%		6.46%	3.2	4565	1.62E+03	1.62E+03	1.40E+02	3.18E+01	9%	<5%	105	0.3	1.47E+04	3.33E+03	1.47E+04	3.33E+03
46A	Dawson Highway	Gladstone - Biloela	5.179- 10.296	5.117	Rockhampton	4.55%	Assumed	5.49%	3.2	1060	4.03E+02	4.00E+02	1.40E+02	3.18E+01	35%	8%	105	0.3	1.47E+04	3.33E+03	1.47E+04	3.33E+03
46A	Dawson Highway	Gladstone - Biloela	10.296- 19.050	8.754	Rockhampton	4.85%		9.40%	3.2	1440	6.19E+02	5.98E+02	1.40E+02	3.18E+01	23%	5%	105	0.3	1.47E+04	3.33E+03	1.47E+04	3.33E+03
46A	Dawson Highway	Gladstone - Biloela	19.050-21.750	2.7	Rockhampton	4.55%	Assumed	10.62%	3.2	1804	7.65E+02	7.58E+02	1.40E+02	3.18E+01	18%	<5%	105	0.3	1.47E+04	3.33E+03	1.47E+04	3.33E+03
46A	Dawson Highway	Gladstone - Biloela	21.750- 25690	3.94	Rockhampton	4.55%	Assumed	16.08%	3.2	924	4.11E+02	4.07E+02	1.40E+02	3.18E+01	34%	8%	105	0.3	1.47E+04	3.33E+03	1.47E+04	3.33E+03
46A	Dawson Highway	Gladstone - Biloela	25.690- 101.266	75.576	Rockhampton	4.55%	Assumed	24.53%	3.2	804	4.01E+02	3.99E+02	2.38E+02	4.64E+01	59%	12%	105	0.3	1.60E+04	3.54E+03	1.60E+04	3.54E+03
46A	Dawson Highway	Gladstone - Biloela	101.266-113.986	12.72	Rockhampton	4.55%	Assumed	20.03%	3.2	597	2.73E+02	2.74E+02	2.38E+02	4.63E+01	87%	17%	93	0.3	1.43E+04	3.15E+03	1.43E+04	3.15E+03
46A	Dawson Highway	Gladstone - Biloela	113.986- 117.094	3.108	Rockhampton	4.00%		17.15%	3.2	724	3.08E+02	3.06E+02	2.32E+02	4.56E+01	75%	15%	93	0.3	1.44E+04	3.16E+03	1.44E+04	3.16E+03
46A	Dawson Highway	Gladstone - Biloela	117.094- 120.016	2.922	Rockhampton	1.00%	Assumed	6.08%	3.2	1239	5.12E+02	4.71E+02	2.32E+02	4.56E+01	45%	10%	93	0.3	1.44E+04	3.16E+03	1.44E+04	3.16E+03
46B	Dawson Highway	Biloela - Banana	0.000- 1.366	1.366	Rockhampton	4.55%	Assumed	10.49%	3.2	1842	7.81E+02	7.59E+02	1.40E+02	3.19E+01	18%	<5%	50	0.1	7.01E+03	1.59E+03	7.01E+03	1.59E+03
46B	Dawson Highway	Biloela - Banana	1.366- 26.802	25.436	Rockhampton	4.35%		15.53%	3.2	873	4.05E+02	3.89E+02	1.40E+02	3.19E+01	35%	8%	50	0.1	7.01E+03	1.59E+03	7.01E+03	1.59E+03
46B	Dawson Highway	Biloela - Banana	26.802- 45.690	18.888	Rockhampton	4.55%	Assumed	16.89%	3.2	670	3.22E+02	2.99E+02	1.40E+02	3.19E+01	44%	11%	50	0.1	7.01E+03	1.59E+03	7.01E+03	1.59E+03
86B	Surat Development Road	Tara - Dalby	0-0.05	0.05	Warrick	1.00%	Assumed	8.85%	2.92	274	2.74E+02	2.74E+02	4.73E+02	8.89E+01	173%	32%	735	2.0	2.83E+05	4.29E+04	1.40E+05	2.13E+04
86B	Surat Development Road	Tara - Dalby	0.05-0.6	0.55	Warrick	1.00%	Assumed	14.47%	3.51	236	2.36E+02	2.36E+02	4.73E+02	8.89E+01	200%	38%	735	2.0	2.83E+05	4.29E+04	1.40E+05	2.13E+04
86B	Surat Development Road	Tara - Dalby	0.6-40.39	39.79	Warrick	3.90%		19.73%	3.02	184	1.84E+02	1.84E+02	5.67E+02	1.01E+02	308%	55%	897	2.5	3.41E+05	5.18E+04	1.39E+05	2.11E+04
181	Gladston Mt Larcom Road		0.000-1.345	1.345	Rockhampton	1.00%	Assumed	12.56%	3.2	3469	1.53E+03	1.53E+03	1.38E+02	3.14E+01	9%	<5%	28	0.1	3.86E+03	8.77E+02	3.86E+03	8.77E+02
181	Gladston Mt Larcom Road		1.345- 3.258	1.913	Rockhampton	4.78%		17.17%	3.2	3326	1.48E+03	1.48E+03	1.38E+02	3.14E+01	9%	<5%	28	0.1	3.86E+03	8.77E+02	3.86E+03	8.77E+02
181	Gladston Mt Larcom Road		3.258 -4.625	1.367	Rockhampton	4.55%	Assumed	16.30%	3.2	4659	2.07E+03	2.07E+03	1.38E+02	3.14E+01	7%	<5%	28	0.1	3.86E+03	8.77E+02	3.86E+03	8.77E+02
181	Gladston Mt Larcom Road		4.625- 12.292	7.667	Rockhampton	4.55%	Assumed	16.01%	3.2	3157	1.62E+03	1.62E+03	1.38E+02	3.14E+01	9%	<5%	28	0.1	3.86E+03	8.77E+02	3.86E+03	8.77E+02
181	Gladston Mt Larcom Road		12.292- 31.141	18.849	Rockhampton	4.55%	Assumed	20.13%	3.2	1890	1.04E+03	1.04E+03	2.71E+02	7.59E+01	26%	7%	18	0.0	3.84E+03	8.92E+02	3.84E+03	8.92E+02
340	Dalby Kogan Road		0.000- 19.292	19.292	Toowomba	4.55%	Assumed	25.12%	3.01	193	1.93E+02	1.93E+02	1.04E+03	2.30E+02	539%	119%	2930	8.0	1.15E+06	1.76E+05	1.43E+05	2.19E+04
340	Dalby Kogan Road		19.292- 47.682	28.39	Toowomba	4.55%	Assumed	20.63%	3.6	115	1.15E+02	1.16E+02	1.03E+03	2.16E+02	892%	186%	2930	8.0	1.15E+06	1.76E+05	1.43E+05	2.19E+04
341	Chinchilla - Tara Road		0.000- 22.510	22.51	Toowomba	4.55%	Assumed	14.11%	2.58	131	1.28E+02	1.34E+02	4.39E+02	6.75E+01	343%	50%	409	1.1	1.49E+05	2.26E+04	1.33E+05	2.02E+04
341	Chinchilla - Tara Road		22.510- 43.490	20.98	Toowomba	4.55%	Assumed	17.20%	2.52	76	7.70E+01	7.60E+01	1.66E+02	4.60E+01	216%	61%	5	0.0	8.30E+02	2.30E+02	8.30E+02	2.30E+02
342	Kogan Condamine Road		0.000- 45.820	45.82	Toowomba	4.55%	Assumed	33.89%	3.99	88	8.80E+01	8.80E+01	1.05E+03	2.31E+02	1190%	262%	2925	8.0	1.15E+06	1.76E+05	1.43E+05	2.19E+04
345	Condamine Meandarra Road		0.000 - 27.56	27.56	Warrick	1.00%	Assumed	35.11%	4	80	8.00E+01	8.00E+01	4.52E+02	7.40E+01	565%	93%	357	1.0	1.33E+05	2.02E+04	1.33E+05	2.02E+04
421	Dalby-Jandowae Road		0.000-24.400	24.4	Toowomba	1.22%		15.19%	3.13	192	1.92E+02	1.92E+02	4.03E+02	6.00E+01	210%	31%	1272	3.5	2.94E+06	4.38E+05	8.44E+05	1.26E+05
454	Eidsvold - Theodore Road		0.000- 2.971	2.971	Bundaberg	4.55%	Assumed	8.23%	2.62	82	8.20E+01	8.20E+01	2.28E+01	1.53E+01	28%	19%	7	0.0	1.59E+02	1.07E+02	1.59E+02	1.07E+02
454	Eidsvold - Theodore Road		2.971- 77.400	74.429	Bundaberg	4.55%	Assumed	21.22%	2.82	53	5.30E+01	5.30E+01	2.28E+01	1.53E+01	43%	29%	7	0.0	1.59E+02	1.07E+02	1.59E+02	1.07E+02
454	Eidsvold - Theodore Road		77.400- 92.118	14.718	Rockhampton	4.55%	Assumed	27.04%	3.09	33	3.30E+01	3.30E+01	1.37E+02	3.11E+01	414%	94%	20	0.1	2.74E+03	6.22E+02	2.74E+03	6.22E+02
454	Eidsvold - Theodore Road		92.118- 141.789	49.671	Rockhampton	4.93%		20.63%	2.91	51	5.10E+01	5.10E+01	1.37E+02	3.11E+01	268%	61%	20	0.1	2.74E+03	6.22E+02	2.74E+03	6.22E+02
454	Eidsvold - Theodore Road		141.789-143.960	2.171	Rockhampton	1.00%	Assumed	10.67%	2.66	105	1.05E+02	1.05E+02	1.37E+02	3.11E+01	130%	30%	20	0.1	2.74E+03	6.22E+02	2.74E+03	6.22E+02
472	Biloela - Callide Road		0.000-3.988	3.988	Darling Downs	1.16%		18.77%	3.07	103	1.03E+02	1.03E+02	1.52E+01	3.00E+00	15%	<5%	1	0.0	1.52E+01	3.00E+00	1.52E+01	3.00E+00
472	Biloela - Callide Road		3.988-11.88	7.892	Darling Downs	2.01%		9.57%	2.85	143	1.43E+02	1.43E+02	1.52E+01	3.00E+00	11%	<5%	1	0.0	1.52E+01	3.00E+00	1.52E+01	3.00E+00
477	Booyal - Dallarnil Road		0.000-18.180	18.18	Wide Bay	4.55%	Assumed	21.16%	3.11	159	1.60E+02	1.58E+02	4.68E+01	3.15E+01	29%	20%	5	0.0	2.34E+02	1.58E+02	2.34E+02	1.58E+02
904	Port of Brisbane Road		?????	????	Metropolitan	4.55%	Assumed	36.20%	3.28	8817	8.82E+03	8.82E+03	3.66E+02	8.83E+01	<5%	<5%	1992	5.5	2.45E+04	7.09E+03	4.50E+03	1.30E+03
3402	Tara - Kogan Road		0.00-34.8	34.8	Warrick	3.10%		7.28%	2.44	28	2.80E+01	2.80E+01	7.22E+02	1.61E+02	2578%	573%	532	1.5	2.12E+05	3.26E+04	1.45E+05	2.23E+04
4302	Jackson Wandoan Road		0.00- 68.930	68.93	Roma	4.55%	Assumed	21.45%	3.25	23	2.30E+01	2.30E+01	8.98E+02	2.01E+02	3904%	875%	605	1.7	2.50E+05	3.89E+04	1.51E+05	2.35E+04
4302	Jackson Wandoan Road		68.930- 81.100	12.17	Roma	4.55%	Assumed	20.56%	3.1	42	4.20E+01	4.20E+01	7.60E+02	1.50E+02	1810%	357%	464	1.3	1.75E+05	2.67E+04	1.37E+05	2.10E+04
210A	Logan Motorway	Stapylton				4.55%	Assumed	17.37%	3.2	23857	2.39E+04	2.39E+04	3.65E+02	8.79E+01	<5%	<5%	1992	5.5	2.76E+04	9.15E+03	5.05E+03	1.68E+03

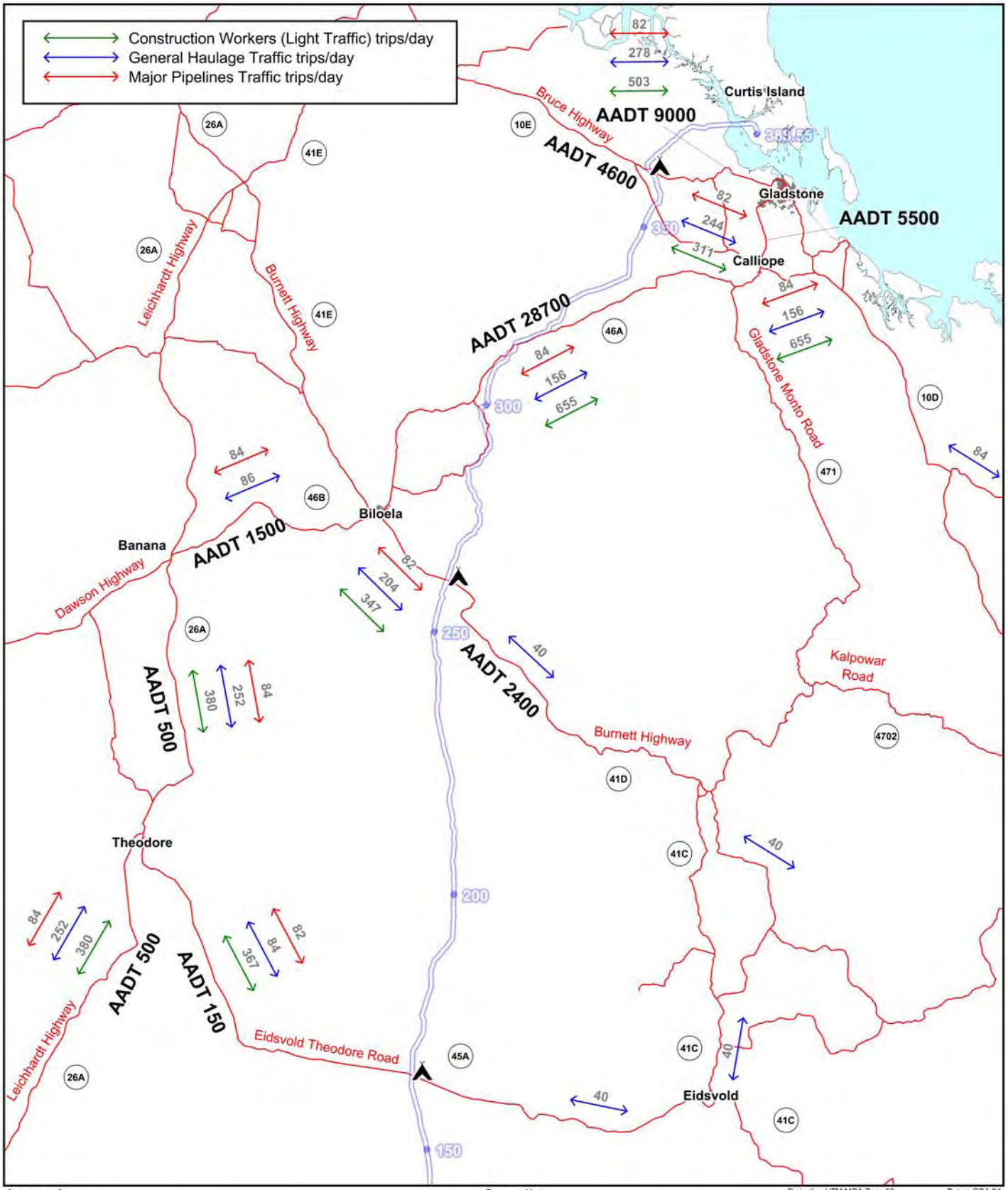
CONTINUED ON PAGE 4

QCLNG Project Impact Summary

Road					Project Generated % Annual Impact		Existing 20 Year Pavement Load		Project Generated Total Pavement Impact	
Number	Name	Section	Chainage	Distance	Loaded % Annual ESAs	Return % Annual ESAs	20year Pavement Load Loaded Dir	20year Pavement Load Return Dir	% of total 20 year pavement Load Loaded Dir	% of total 20 year pavement Load Return Dir
42A	Brisbane Valley Highway	Ipswich - Harlin	0.000 - 5.2	5.2	<5%	<5%	1.46E+07	1.50E+07	0.00%	0.00%
42A	Brisbane Valley Highway	Ipswich - Harlin	5.2-15.960	10.761	<5%	<5%	1.64E+07	1.49E+07	0.00%	0.00%
42A	Brisbane Valley Highway	Ipswich - Harlin	15.960-32.340	16.381	<5%	<5%	7.79E+06	7.61E+06	0.01%	0.00%
42A	Brisbane Valley Highway	Ipswich - Harlin	32.340-54.540	22.201	<5%	<5%	8.63E+06	8.42E+06	0.01%	0.00%
42A	Brisbane Valley Highway	Ipswich - Harlin	54.540-57.860	3.321	<5%	<5%	1.16E+07	1.15E+07	0.00%	0.00%
42A	Brisbane Valley Highway	Ipswich - Harlin	57.860-71.260	13.401	<5%	<5%	7.90E+06	7.80E+06	0.01%	0.00%
42A	Brisbane Valley Highway	Ipswich - Harlin	71.260-89.190	17.931	<5%	<5%	8.92E+06	8.98E+06	0.01%	0.00%
46A	Dawson Highway	Gladstone - Biloela	0.000- 1.498	1.498	8.38%	<5%	3.89E+06	3.34E+06	0.38%	0.10%
46A	Dawson Highway	Gladstone - Biloela	1.498- 2.238	0.74	<5%	<5%	1.31E+07	1.24E+07	0.11%	0.03%
46A	Dawson Highway	Gladstone - Biloela	2.238- 3.130	0.892	<5%	<5%	1.63E+07	1.56E+07	0.09%	0.02%
46A	Dawson Highway	Gladstone - Biloela	3.130- 4.391	1.261	<5%	<5%	1.11E+07	1.09E+07	0.13%	0.03%
46A	Dawson Highway	Gladstone - Biloela	4.391- 5.179	0.788	<5%	<5%	1.84E+07	1.83E+07	0.08%	0.02%
46A	Dawson Highway	Gladstone - Biloela	5.179- 10.296	5.117	9.97%	<5%	4.85E+06	4.81E+06	0.30%	0.07%
46A	Dawson Highway	Gladstone - Biloela	10.296- 19.050	8.754	6.49%	<5%	7.71E+06	7.45E+06	0.19%	0.04%
46A	Dawson Highway	Gladstone - Biloela	19.050-21.750	2.7	5.25%	<5%	9.21E+06	9.12E+06	0.16%	0.04%
46A	Dawson Highway	Gladstone - Biloela	21.750- 25690	3.94	9.77%	<5%	4.95E+06	4.90E+06	0.30%	0.07%
46A	Dawson Highway	Gladstone - Biloela	25.690- 101.266	75.576	10.95%	<5%	4.83E+06	4.80E+06	0.33%	0.07%
46A	Dawson Highway	Gladstone - Biloela	101.266-113.986	12.72	14.40%	<5%	3.29E+06	3.30E+06	0.44%	0.10%
46A	Dawson Highway	Gladstone - Biloela	113.986- 117.094	3.108	12.78%	<5%	3.48E+06	3.46E+06	0.41%	0.09%
46A	Dawson Highway	Gladstone - Biloela	117.094- 120.016	2.922	7.69%	<5%	4.16E+06	3.82E+06	0.35%	0.08%
46B	Dawson Highway	Biloela - Banana	0.000- 1.366	1.366	<5%	<5%	9.40E+06	9.13E+06	0.07%	0.02%
46B	Dawson Highway	Biloela - Banana	1.366- 26.802	25.436	<5%	<5%	4.76E+06	4.58E+06	0.15%	0.03%
46B	Dawson Highway	Biloela - Banana	26.802- 45.690	18.888	5.97%	<5%	3.88E+06	3.60E+06	0.18%	0.04%
86B	Surat Development Road	Tara - Dalby	0-0.05	0.05	140.34%	21.32%	2.22E+06	2.22E+06	12.71%	1.93%
86B	Surat Development Road	Tara - Dalby	0.05-0.6	0.55	162.93%	24.76%	1.92E+06	1.92E+06	14.75%	2.24%
86B	Surat Development Road	Tara - Dalby	0.6-40.39	39.79	206.61%	31.39%	2.06E+06	2.06E+06	16.58%	2.52%
181	Gladston Mt Larcom Road		0.000-1.345	1.345	<5%	<5%	1.24E+07	1.24E+07	0.03%	0.01%
181	Gladston Mt Larcom Road		1.345- 3.258	1.913	<5%	<5%	1.82E+07	1.82E+07	0.02%	0.00%
181	Gladston Mt Larcom Road		3.258 -4.625	1.367	<5%	<5%	2.49E+07	2.49E+07	0.02%	0.00%
181	Gladston Mt Larcom Road		4.625- 12.292	7.667	<5%	<5%	1.94E+07	1.94E+07	0.02%	0.00%
181	Gladston Mt Larcom Road		12.292- 31.141	18.849	<5%	<5%	1.25E+07	1.25E+07	0.03%	0.01%
340	Dalby Kogan Road		0.000- 19.292	19.292	202.77%	31.08%	2.32E+06	2.32E+06	49.37%	7.57%
340	Dalby Kogan Road		19.292- 47.682	28.39	340.66%	51.74%	1.38E+06	1.40E+06	82.94%	12.60%
341	Chinchilla - Tara Road		0.000- 22.510	22.51	285.18%	41.26%	1.54E+06	1.61E+06	9.69%	1.40%
341	Chinchilla - Tara Road		22.510- 43.490	20.98	<5%	<5%	9.27E+05	9.15E+05	0.09%	0.03%
342	Kogan Condamine Road		0.000- 45.820	45.82	445.89%	68.32%	1.06E+06	1.06E+06	108.37%	16.61%
345	Condamine Meandarra Road		0.000 - 27.56	27.56	456.12%	69.13%	6.49E+05	6.49E+05	20.51%	3.11%
421	Dalby-Jandowae Road		0.000-24.400	24.4	1204.54%	179.35%	1.60E+06	1.60E+06	184.34%	27.45%
454	Eidsvold - Theodore Road		0.000- 2.971	2.971	<5%	<5%	9.87E+05	9.87E+05	0.02%	0.01%
454	Eidsvold - Theodore Road		2.971- 77.400	74.429	<5%	<5%	6.38E+05	6.38E+05	0.02%	0.02%
454	Eidsvold - Theodore Road		77.400- 92.118	14.718	22.71%	5.16%	3.97E+05	3.97E+05	0.69%	0.16%
454	Eidsvold - Theodore Road		92.118- 141.789	49.671	14.70%	<5%	6.41E+05	6.41E+05	0.43%	0.10%
454	Eidsvold - Theodore Road		141.789-143.960	2.171	7.14%	<5%	8.52E+05	8.52E+05	0.32%	0.07%
472	Biloela - Callide Road		0.000-3.988	3.988	<5%	<5%	8.51E+05	8.51E+05	0.00%	0.00%
472	Biloela - Callide Road		3.988-11.88	7.892	<5%	<5%	1.29E+06	1.29E+06	0.00%	0.00%
477	Booyal - Dallarnil Road		0.000-18.180	18.18	<5%	<5%	1.93E+06	1.90E+06	0.01%	0.01%
904	Port of Brisbane Road		?????	????	<5%	<5%	1.06E+08	1.06E+08	0.02%	0.01%
3402	Tara - Kogan Road		0.00-34.8	34.8	1422.30%	218.65%	2.86E+05	2.86E+05	74.07%	11.39%
4302	Jackson Wandoan Road		0.00- 68.930	68.93	1798.95%	279.71%	2.77E+05	2.77E+05	90.44%	14.06%
4302	Jackson Wandoan Road		68.930- 81.100	12.17	896.04%	137.23%	5.05E+05	5.05E+05	34.55%	5.29%
210A	Logan Motorway	Stapylton			<5%	<5%	2.87E+08	2.87E+08	0.01%	0.00%

Appendix I

AADT MAPS



Legend:

Export Pipeline & Kilometre Point

Proposed Camps

Source Note:

1:250,000 Topographic vector copyright Geoscience Australia
AADT information from Kellogg Brown & Root Pty Ltd

Projection UTM MGA Zone 56 Datum GDA 94

0 10 20 30 40

Kilometres

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QUEENSLAND CURTIS LNG
A BG Group business

Project: Queensland Curtis LNG Project

Client: QGC - A BG Group business

Title: **Potential Transport Routes**

ERM
Environmental Resources Management Australia Pty Ltd

Drawn	Mipela	sEIS Volume x	Figure Sx.x.x
Approved	CDP	File No:	EO5-P-MA-96241
Date	07.01.2010	Revision	Supplementary

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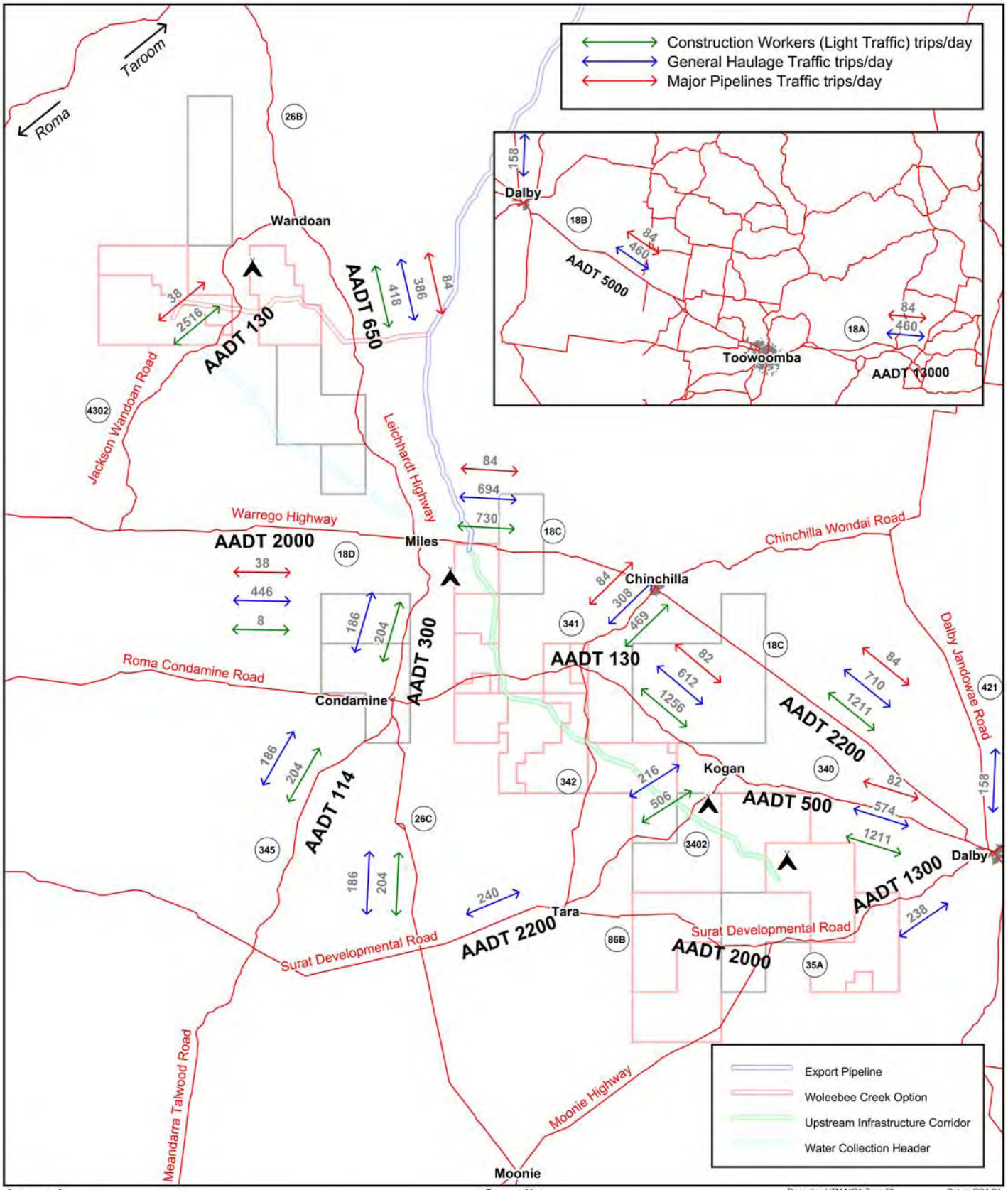

Legend:

Gas Fields - Authority to Prospect

Gas Fields - Petroleum Lease/Petroleum Lease Application

Proposed Camps

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Projection UTM MGA Zone 56 Datum GDA 94

0 10 20 30 40 Kilometres

N

QUEENSLAND CURTIS LNG A BG Group business	Project: Queensland Curtis LNG Project		Title: **Potential Transport Routes**
	Client: QGC - A BG Group business		
ERM Environmental Resources Management Australia Pty Ltd	Drawn: Mipela	sEIS Volume x Figure Sx.x.x	Disclaimer: Maps and Figures contained in this Report may be based on Third Party Data, may not be to scale and are intended as Guides only. ERM does not warrant the accuracy of any such Maps and Figures.
	Approved: CDP	File No: QC02-T-MA-00146	
	Date: 07.01.10	Revision: Supplementary	

Appendix J

RAIL COMPARISON

QCLNG Project - Rail Comparison

Pavement Impact Summary

Road						100% transport by road								75% transport by rail up to 2104, 100% post 2014							
						Project Generated Total ESAs		Project Generated Annual ESAs		Project Generated % Annual Impact		Project Generated Total Pavement Impact		Project Generated Total ESAs		Project Generated Annual ESAs		Project Generated % Annual Impact		Project Generated Total Pavement Impact	
Number	Name	Section	Chainage	Distance	Region	Loaded Total Generated ESA/s	Return Total Generated ESA/s	AVG Loaded ESA's / Year	AVG Return ESA's / Year	Loaded % Annual ESAs	Return % Annual ESAs	% of total 20 year pavement Load Loaded Dir	% of total 20 year pavement Load Return Dir	Loaded Total Generated ESA/s	Return Total Generated ESA/s	AVG Loaded ESA's / Year	AVG Return ESA's / Year	Loaded % Annual ESAs	Return % Annual ESAs	% of total 20 year pavement Load Loaded Dir	% of total 20 year pavement Load Return Dir
10C	Bruce Highway	Maryborough - Gin Gin	83.920- 101.835	17.915	Bundaberg	2.34E+02	1.58E+02	2.34E+02	1.58E+02	<5%	<5%	<5%	<5%	2.34E+02	1.58E+02	2.34E+02	1.58E+02	<5%	<5%	<5%	<5%
10C	Bruce Highway	Maryborough - Gin Gin	101.835- 111.595	9.76	Bundaberg	2.34E+02	1.58E+02	2.34E+02	1.58E+02	<5%	<5%	<5%	<5%	2.34E+02	1.58E+02	2.34E+02	1.58E+02	<5%	<5%	<5%	<5%
10D	Bruce Highway	Gin Gin - Benaraby	0.000- 2.160	2.16	Bundaberg	2.34E+02	1.58E+02	2.34E+02	1.58E+02	<5%	<5%	<5%	<5%	2.34E+02	1.58E+02	2.34E+02	1.58E+02	<5%	<5%	<5%	<5%
10D	Bruce Highway	Gin Gin - Benaraby	2.160- 38.210	36.05	Bundaberg	2.34E+02	1.58E+02	2.34E+02	1.58E+02	<5%	<5%	<5%	<5%	2.34E+02	1.58E+02	2.34E+02	1.58E+02	<5%	<5%	<5%	<5%
10D	Bruce Highway	Gin Gin - Benaraby	38.210- 51.170	12.96	Bundaberg	2.34E+02	1.58E+02	2.34E+02	1.58E+02	<5%	<5%	<5%	<5%	2.34E+02	1.58E+02	2.34E+02	1.58E+02	<5%	<5%	<5%	<5%
10D	Bruce Highway	Gin Gin - Benaraby	51.170-99.281	48.111	Rockhampton	2.34E+02	1.58E+02	2.34E+02	1.58E+02	<5%	<5%	<5%	<5%	2.34E+02	1.58E+02	2.34E+02	1.58E+02	<5%	<5%	<5%	<5%
10D	Bruce Highway	Gin Gin - Benaraby	99.281- 147.145	47.864	Rockhampton	2.34E+02	1.58E+02	2.34E+02	1.58E+02	<5%	<5%	<5%	<5%	2.34E+02	1.58E+02	2.34E+02	1.58E+02	<5%	<5%	<5%	<5%
10E	Bruce Highway	Benaraby - Rockhampton	0.000- 11.580	11.58	Rockhampton	1.61E+03	3.63E+02	1.61E+03	3.63E+02	<5%	<5%	<5%	<5%	1.61E+03	3.63E+02	1.61E+03	3.63E+02	<5%	<5%	<5%	<5%
10E	Bruce Highway	Benaraby - Rockhampton	11.580- 45.410	33.83	Rockhampton	2.75E+03	6.21E+02	2.75E+03	6.21E+02	<5%	<5%	<5%	<5%	2.75E+03	6.21E+02	2.75E+03	6.21E+02	<5%	<5%	<5%	<5%
U16	Ipswich Motorway	Rocklea	0.00-4.6		Metropolitan	2.87E+04	9.90E+03	5.26E+03	1.81E+03	<5%	<5%	<5%	<5%	2.07E+04	8.10E+03	3.78E+03	1.48E+03	<5%	<5%	-	-
17A	Ipswich Motorway	Redbank	4.6-?????		Metropolitan	2.87E+04	9.90E+03	5.26E+03	1.81E+03	<5%	<5%	<5%	<5%	2.07E+04	8.10E+03	3.78E+03	1.48E+03	<5%	<5%	-	-
18A	Warrego Highway	Ipswich - Toowoomba	0.000- 44.260	44.26	Toowomba	2.27E+05	4.82E+04	1.03E+04	2.18E+03	<5%	<5%	<5%	<5%	1.31E+05	2.55E+04	5.95E+03	1.15E+03	<5%	<5%	<5%	<5%
18A	Warrego Highway	Ipswich - Toowoomba	44.260- 47.860	3.6	Toowomba	2.26E+05	4.78E+04	1.02E+04	2.16E+03	<5%	<5%	<5%	<5%	1.31E+05	2.51E+04	5.93E+03	1.14E+03	<5%	<5%	<5%	<5%
18A	Warrego Highway	Ipswich - Toowoomba	47.860- 55.520	7.66	Toowomba	2.26E+05	4.78E+04	1.02E+04	2.16E+03	<5%	<5%	<5%	<5%	1.31E+05	2.51E+04	5.93E+03	1.14E+03	<5%	<5%	<5%	<5%
18A	Warrego Highway	Ipswich - Toowoomba	55.520- 75.370	19.85	Toowomba	2.26E+05	4.78E+04	1.02E+04	2.16E+03	<5%	<5%	<5%	<5%	1.31E+05	2.51E+04	5.93E+03	1.14E+03	<5%	<5%	<5%	<5%
18A	Warrego Highway	Ipswich - Toowoomba	75.370- 83.350	7.98	Toowomba	2.26E+05	4.78E+04	1.02E+04	2.16E+03	<5%	<5%	<5%	<5%	1.31E+05	2.51E+04	5.93E+03	1.14E+03	<5%	<5%	<5%	<5%
18A	Warrego Highway	Ipswich - Toowoomba	83.350- 92.760	9.41	Toowomba	2.26E+05	4.78E+04	1.02E+04	2.16E+03	<5%	<5%	<5%	<5%	1.31E+05	2.51E+04	5.93E+03	1.14E+03	<5%	<5%	<5%	<5%
18A	Warrego Highway	Ipswich - Toowoomba	92.760- 94.580	1.82	Toowomba	2.26E+05	4.78E+04	1.02E+04	2.16E+03	<5%	<5%	<5%	<5%	1.31E+05	2.51E+04	5.93E+03	1.14E+03	<5%	<5%	<5%	<5%
18A	Warrego Highway	Ipswich - Toowoomba	94.580- 95.010	0.43	Toowomba	2.26E+05	4.78E+04	1.02E+04	2.16E+03	<5%	<5%	<5%	<5%	1.31E+05	2.51E+04	5.93E+03	1.14E+03	<5%	<5%	<5%	<5%
18B	Warrego Highway	Toowoomba - Dalby	0.000- 0.990	0.99	Toowomba	2.26E+05	4.78E+04	1.02E+04	2.16E+03	<5%	<5%	<5%	<5%	1.31E+05	2.51E+04	5.93E+03	1.14E+03	<5%	<5%	<5%	<5%
18B	Warrego Highway	Toowoomba - Dalby	0.990- 2.210	1.22	Toowomba	2.26E+05	4.78E+04	1.02E+04	2.16E+03	<5%	<5%	<5%	<5%	1.31E+05	2.51E+04	5.93E+03	1.14E+03	<5%	<5%	<5%	<5%
18B	Warrego Highway	Toowoomba - Dalby	2.210- 3.740	1.53	Toowomba	2.26E+05	4.78E+04	1.02E+04	2.16E+03	<5%	<5%	<5%	<5%	1.31E+05	2.51E+04	5.93E+03	1.14E+03	<5%	<5%	<5%	<5%
18B	Warrego Highway	Toowoomba - Dalby	3.740- 4.520	0.78	Toowomba	2.26E+05	4.78E+04	1.02E+04	2.16E+03	<5%	<5%	<5%	<5%	1.31E+05	2.51E+04	5.93E+03	1.14E+03	<5%	<5%	<5%	<5%
18B	Warrego Highway	Toowoomba - Dalby	4.520- 6.630	2.11	Toowomba	2.26E+05	4.78E+04	1.02E+04	2.16E+03	<5%	<5%	<5%	<5%	1.31E+05	2.51E+04	5.93E+03	1.14E+03	<5%	<5%	<5%	<5%
18B	Warrego Highway	Toowoomba - Dalby	6.630- 10.590	3.96	Toowomba	2.26E+05	4.78E+04	1.02E+04	2.16E+03	<5%	<5%	<5%	<5%	1.31E+05	2.51E+04	5.93E+03	1.14E+03	<5%	<5%	<5%	<5%
18B	Warrego Highway	Toowoomba - Dalby	10.590- 26.830	16.24	Toowomba	2.26E+05	4.78E+04	1.02E+04	2.16E+03	<5%	<5%	<5%	<5%	1.31E+05	2.51E+04	5.93E+03	1.14E+03	<5%	<5%	<5%	<5%
18B	Warrego Highway	Toowoomba - Dalby	26.830- 80.820	53.99	Toowomba	2.26E+05	4.78E+04	1.02E+04	2.16E+03	<5%	<5%	<5%	<5%	1.31E+05	2.51E+04	5.93E+03	1.14E+03	<5%	<5%	<5%	<5%
18B	Warrego Highway	Toowoomba - Dalby	80.820- 84.189	3.369	Toowomba	2.26E+05	4.78E+04	1.02E+04	2.16E+03	<5%	<5%	<5%	<5%	1.31E+05	2.51E+04	5.93E+03	1.14E+03	<5%	<5%	<5%	<5%
18C	Warrego Highway	Dalby - Miles	0.000-1.090	1.09	Toowomba	3.17E+06	4.86E+05	1.43E+05	2.20E+04	23.55%	<5%	22.99%	<5%	2.71E+06	4.09E+05	1.23E+05	1.85E+04	20.17%	<5%	19.64%	<5%
18C	Warrego Highway	Dalby - Miles	1.090- 25.115	24.025	Toowomba	1.13E+06	1.74E+05	1.46E+05	2.25E+04	41.33%	6.79%	9.68%	<5%	9.67E+05	1.48E+05	1.25E+05	1.91E+04	35.50%	5.76%	8.32%	<5%
18C	Warrego Highway	Dalby - Miles	25.115- 45.195	20.08	Toowomba	1.13E+06	1.74E+05	1.46E+05	2.25E+04	39.14%	5.90%	9.17%	<5%	9.83E+05	1.51E+05	1.27E+05	1.95E+04	34.18%	5.11%	8.01%	<5%
18C	Warrego Highway	Dalby - Miles	45.195- 80.175	34.98	Toowomba	1.13E+06	1.74E+05	1.46E+05	2.25E+04	43.63%	6.70%	10.22%	<5%	9.89E+05	1.52E+05	1.28E+05	1.97E+04	38.36%	5.86%	8.99%	<5%
18C	Warrego Highway	Dalby - Miles	80.175- 83.155	2.98	Toowomba	1.04E+06	1.60E+05	1.46E+05	2.25E+04	41.28%	6.34%	10.47%	<5%	9.12E+05	1.41E+05	1.28E+05	1.98E+04	36.34%	5.56%	9.22%	<5%
18C	Warrego Highway	Dalby - Miles	83.155- 106.355	23.2	Toowomba	1.04E+06	1.61E+05	1.46E+05	2.26E+04	44.67%	7.01%	10.36%	<5%	9.23E+05	1.43E+05	1.30E+05	2.01E+04	39.73%	6.23%	9.21%	<5%
18D	Warrego Highway	Miles - Roma	0.000-1.135	1.136	Roma	2.51E+05	3.91E+04	1.48E+05	2.32E+04	37.09%	5.86%	<5%	<5%	2.30E+05	3.61E+04	1.36E+05	2.14E+04	33.99%	5.41%	<5%	<5%
18D	Warrego Highway	Miles - Roma	1.135-44.099	42.965	Roma	2.51E+05	3.91E+04	1.48E+05	2.32E+04	54.90%	8.74%	<5%	<5%	2.30E+05	3.61E+04	1.36E+05	2.14E+04	50.32%	8.07%	<5%	<5%
18D	Warrego Highway	Miles - Roma	44.099-56.831	12.733	Roma	2.49E+05	3.87E+04	1.50E+05	2.34E+04	59.90%	9.51%	<5%	<5%	2.28E+05	3.57E+04	1.38E+05	2.16E+04	54.86%	8.78%	<5%	<5%
19B	Isis Highway	Childers - Biggenden	11.819-31.884	20.066	Bundaberg	2.34E+02	1.58E+02	2.34E+02	1.58E+02	<5%	<5%	<5%	<5%	2.34E+02	1.58E+02	2.34E+02	1.58E+02	<5%	<5%	<5%	<5%
19B	Isis Highway	Childers - Biggenden	31.884-43.996	12.113	Bundaberg	2.34E+02	1.58E+02	2.34E+02	1.58E+02	<5%	<5%	<5%	<5%	2.34E+02	1.58E+02	2.34E+02	1.58E+02	<5%	<5%	<5%	<5%
19B	Isis Highway	Childers - Biggenden	43.996-45.244	1.249	Bundaberg	2.34E+02	1.58E+02	2.34E+02	1.58E+02	<5%	<5%	<5%	<5%	2.34E+02	1.58E+02	2.34E+02	1.58E+02	<5%	<5%	<5%	<5%
19B	Isis Highway	Childers - Biggenden	45.244-45.732	0.489	Bundaberg	2.34E+02	1.58E+02	2.34E+02	1.58E+02	<5%	<5%	<5%	<5%	2.34E+02	1.58E+02	2.34E+02	1.58E+02	<5%	<5%	<5%	<5%
19C	Isis Highway	Biggenden - Coalstoun Lakes	0.000-0.810	0.811	Wide Bay	2.34E+02	1.58E+02	2.34E+02	1.58E+02	<5%	<5%	<5%	<5%	2.34E+02	1.58E+02	2.34E+02	1.58E+02	<5%	<5%	<5%	<5%
19C	Isis Highway	Biggenden - Coalstoun Lakes	0.810-23.455	22.646	Wide Bay	2.34E+02	1.58E+02	2.34E+02	1.58E+02	<5%	<5%	<5%	<5%	2.34E+02	1.58E+02	2.34E+02	1.58E+02	<5%	<5%	<5%	<5%
19C	Isis Highway	Biggenden - Coalstoun Lakes	23.455-27.574	4.12	Wide Bay	2.34E+02	1.58E+02	2.34E+02	1.58E+02	<5%	<5%	<5%	<5%	2.34E+02	1.58E+02	2.34E+02	1.58E+02	<5%	<5%	<5%	<5%
19C	Isis Highway	Biggenden - Coalstoun Lakes	27.574-37.764	10.191	Wide Bay	2.34E+02	1.58E+02	2.34E+02	1.58E+02	<5%	<5%	<5%	<5%	2.34E+02	1.58E+02	2.34E+02	1.58E+02	<5%	<5%	<5%	<5%
26A	Leichardt Highway	Westwood - Taroom	25.680-62.625	36.945	Rockhampton	8.21E+03	1.77E+03	8.21E+03	1.77E+03	7.97%	<5%	<5%	<5%	8.21E+03	1.77E+03	8.21E+03	1.77E+03	7.97%	<5%	<5%	<5%
26A	Leichardt Highway	Westwood - Taroom	62,625- 86.039	23.414	Rockhampton	8.21E+03	1.77E+03	8.21E+03	1.77E+03	7.32%	<5%	<5%	<5%	8.21E+03	1.77E+03	8.21E+03	1.77E+03	7.32%	<5%	<5%	<5%
26A	Leichardt Highway	Westwood - Taroom	86.039- 104.655	18.616	Rockhampton	8.26E+03	1.78E+03	8.26E+03	1.78E+03	7.42%	<5%	<5%	<5%	8.26E+03	1.78E+03	8.26E+03	1.78E+03	7.42%	<5%	<5%	<5%
26A	Leichardt Highway	Westwood - Taroom	104.655- 105.215	0.56	Rockhampton	9.63E+03	1.99E+03	9.63E+03	1.99E+03	<5%	<5%	<5%	<5%	9.63E+03	1.99E+03	9.63E+03	1.99E+03	<5%	<5%	<5%	<5%
26A	Leichardt Highway	Westwood - Taroom	105.215- 162.335	57.12	Rockhampton	9.54E+03	1.97E+03	9.54E+03	1.97E+03	7.20%	<5%	<5%	<5%	9.54E+03	1.97E+03	9.54E+03	1.97E+03	7.20%	<5%	<5%	<5%
26A	Leichardt Highway	Westwood - Taroom	162.335- 170.287	7.952	Rockhampton	8.46E+03	1.81E+03	8.46E+03	1.81E+03	8.27%	<5%	<5%	<5%	8.46E+03	1.81E+03	8.46E+03	1.81E+03	8.27%	<5%	<5%	<5%
26A	Leichardt Highway	Westwood - Taroom	170.287- 192.228	21.941	Rockhampton	6.00E+03	1.25E+03	6.00E+03	1.25E+03	6.13%	<5%	<5%	<5%	6.00E+03	1.25E+03	6.00E+03	1.25E+03	6.13%	<5%	<5%	<5%
26B	Leichardt Highway	Taroom - Miles	0.000- 60.470	60.47	Roma	1.24E+04	2.59E+03	1.24E+04	2.59E+03	9.54%	<5%	<5%	<5%	1.24E+04	2.59E+03	1.24E+04	2.59E+03	9.54%	<5%	<5%	<5%
26B	Leichardt Highway	Taroom - Miles	60.470- 127.610	67.14	Roma	3.82E+05	5.90E+04	1.39E+05	2.15E+04	99.51%	14.91%	8.29%	<5%	3.41E+05	5.31E+04	1.24E+05	1.93E+04	88.91%	13.42%	7.40%	<5%
26C	Leichardt Highway	Miles - Goondiwindi	0.000-32.020	32.021	Roma	4.57E+05	6.94E+04	1.39E+05	2.11E+04	141.94%	21.95%	13.68%	<5%	3.89E+05	6.21E+04	1.17E+05	1.86E+04	118.88%	19.34%	11.64%	<5%
35A	Moonie Hwy	Dalby - St George	0.00- 2500	2.5	Toowomba	9.05E+05	1.38E+05	1.40E+05	2.13E+04	59.36%	9.55%	15.35%	<5%	7.77E+05	1.17E+05	1.21E+05	1.81E+04	51.00%	8.12%	13.19%	<5%
35A	Moonie Hwy	Dalby - St George	2.500-11.00	8.5	Toowomba	9.05E+05	1.38E+05	1.40E+05	2.13E+04	86.24%	10.97%	22.25%	<5%	7.77E+05	1.17E+05	1.21E+05	1.81E+04	74.10%	9.32%	19.12%	<5%
35A	Moonie Hwy	Dalby - St George	11.00- 50.370	39.37	Toowomba	9.05E+05	1.38E+05	1.40E+05	2.13E+04	95.68%	15.22%	25.79%	<5%	7.84E+05	1.18E+05	1.22E+05	1.84E+04	82.92%	13.10%	22.35%	<5%
40B	D'Aguilar Highway	Kilcoy - Yarraman	23.460-32.650	9.191	Southern	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%
40B	D'Aguilar Highway	Kilcoy - Yarraman	32.650-58.030	25.381	Southern	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%
40B	D'Aguilar Highway	Kilcoy - Yarraman	58.030-68.721	10.692	Southern	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%
40C	D'Aguilar Highway	Yarraman - Kingaroy	0.000-17.650	17.651	Southern	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%
40C	D'Aguilar Highway	Yarraman - Kingaroy	17.650-21.670	4.021	Southern	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%
41A	Burnett Highway	Nanango - Goomeri	0.000-38.718	38.718	Wide Bay	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%
41A	Burnett Highway	Nanango - Goomeri	38.718-48.832	10.113	Wide Bay	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%
41A	Burnett Highway	Nanango - Goomeri	48.831-58.010	9.178	Wide Bay	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%
41A	Burnett Highway	Nanango - Goomeri	58.009-59.777	1.767	Wide Bay	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%
41B	Burnett Highway	Goomeri - Gayndah	0.000- 2.540	2.54	Bundaberg	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%
41B	Burnett Highway	Goomeri - Gayndah	2.540- 17.00	14.46	Bundaberg	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%
41B	Burnett Highway	Goomeri - Gayndah	17.000- 31.350	14.35	Bundaberg	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%
41B	Burnett Highway	Goomeri - Gayndah	31.350- 74.050	42.7	Bundaberg	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%
41B	Burnett Highway	Goomeri - Gayndah	74.050- 86.890	12.84	Bundaberg	3.13E+02	2.11E+02	3.13E+02	2.11E+02	<5%	<5%	<5%	<5%	3.13E+02	2.11E+02	3.13E+02	2.11E+02	<5%	<5%	<5%	<5%
41B	Burnett Highway	Goomeri - Gayndah	86.890- 95.892	9.002	Bundaberg	3.13E+02	2.11E+02	3.13E+02	2.11E+02	<5%	<5%	<5%	<5%	3.13E+02	2.11E+02	3.13E+02	2.11E+02	<5%	<5%	<5%	<5%
41B	Burnett Highway	Goomeri - Gayndah	95.892- 99.460	3.568	Bundaberg	3.13E+02	2.11E+02	3.13E+02	2.11E+02	<5%	<5%	<5%	<5%	3.13E+02	2.11E+02	3.13E+02	2.11E+02	<5%	<5%	<5%	<5%
41B	Burnett Highway	Goomeri - Gayndah	99.460- 100.660	1.2	Bundaberg	3.13E+02	2.11E+02	3.13E+02	2.11E+02	<5%	<5%	<5%	<5%	3.13E+02	2.11E+02	3.13E+02	2.11E+02	<5%	<5%	<5%	<5%
41C	Burnett Highway	Gayndah - Monto	0.000- 0.470	0.47	Bundaberg	3.13E+02	2.11E+02	3.13E+02	2.11E+02	<5%	<5%	<5%	<5%	3.13E+02	2.11E+02	3.13E+02	2.11E+02	<5%	<5%	<5%	<5%
41C	Burnett Highway	Gayndah - Monto	0.470- 7.348	6.878	Bundaberg	3.13E+02	2.11E+02	3.13E+02	2.11E+02	<5%	<5%	<5%	<5%	3.13E+02	2.11E+02	3.13E+02	2.11E+02	<5%	<5%	<5%	<5%
41C	Burnett Highway	Gayndah - Monto	7.348- 23.847	16.499	Bundaberg	3.13E+02	2.11E+02	3.13E+02	2.11E+02	<5%	<5%	<5%	<5%	3.13E+02	2.11E+02	3.13E+02	2.11E+02	<5%	<5%	<5%	<5%
41C	Burnett Highway	Gayndah - Monto	23.847- 43.710	19.863	Bundaberg	3.13E+02	2.11E+02	3.13E+02	2.11E+02	<5%	<5%	<5%	<5%	3.13E+02	2.11E+02	3.13E+02	2.11E+02	<5%	<5%	<5%	<5%
41C	Burnett Highway	Gayndah - Monto	43.710- 78.461	34.751	Bundaberg	3.13E+02	2.11E+02	3.13E+02	2.11E+02	<5%	<5%	<5%	<5%	3.13E+02	2.11E+02	3.13E+02	2.11E+02	<5%	<5%	<5%	<5%
41C	Burnett Highway	Gayndah - Monto	78.461- 117.417	38.956	Bundaberg	1.54E+02	1.04E+02	1.54E+02	1.04E+02	<5%	<5%	<5%	<5%	1.54E+02	1.04E+02	1.54E+02	1.04E+02	<5%	<5%	<5%	<5%
41C	Burnett Highway	Gayndah - Monto	117.417- 139.584	22.167	Bundaberg	1.54E+02	1.04E+02	1.54E+02	1.04E+02	<5%	<5%	<5%	<5%	1.54E+02	1.04E+02	1.54E+02	1.04E+02	<5%	<5%	<5%	<5%
41C	Burnett Highway	Gayndah - Monto	139.584- 150.961	11.377	Bundaberg	1.54E+02	1.04E+02	1.54E+02	1.04E+02	<5%	<5%	<5%	<5%	1.54E+02	1.04E+02	1.54E+02	1.04E+02	<5%	<5%	<5%	<5%
41C	Burnett Highway	Gayndah - Monto	150.961- 151.686	0.725	Bundaberg	1.54E+02	1.04E+02	1.54E+02	1.04E+02	<5%	<5%	<5%	<5%	1.54E+02	1.04E+02	1.54E+02	1.04E+02	<5%	<5%	<5%	<5%
41D	Burnett Highway	Monto - Biolela	0.000- 3.515	3.515	Bundaberg	1.54E+02	1.04E+02	1.54E+02	1.04E+02	<5%	<5%	<5%	<5%	1.54E+02	1.04E+02	1.54E+02	1.04E+02	<5%	<5%	<5%	<5%
41D	Burnett Highway	Monto - Biolela	3.515- 11.685	8.17	Bundaberg	1.54E+02	1.04E+02	1.54E+02	1.04E+02	<5%	<5%	<5%	<5%	1.54E+02	1.04E+02	1.54E+02	1.04E+02	<5%	<5%	<5%	<5%
41D	Burnett Highway	Monto - Biolela	11.685- 41.470	29.785	Bundaberg	1.54E+02	1.04E+02	1.54E+02	1.04E+02	<5%	<5%	<5%	<5%	1.54E+02	1.04E+02	1.54E+02	1.04E+02	<5%	<5%	<5%	<5%
41D	Burnett Highway	Monto - Bioela	41.470- 85.531	44.061	Rockhampton	8.57E+03	1.82E+03	8.57E+03	1.82E+03	14.68%	<5%	<5%	<5%	8.57E+03	1.82E+03	8.57E+03	1.82E+03	14.68%	<5%	<5%	<5%
41D	Burnett Highway	Monto - Bioela	85.531 - 92.811	7.28	Rockhampton	8.42E+03	1.72E+03	8.42E+03	1.72E+03	9.27%	<5%	<5%	<5%	8.42E+03	1.72E+03	8.42E+03	1.72E+03	9.27%	<5%	<5%	<5%
41D	Burnett Highway	Monto - Biolela	92.811-93.811	1	Rockhampton	8.42E+03	1.72E+03	8.42E+03	1.72E+03	8.21%	<5%	<5%	<5%	8.42E+03	1.72E+03	8.42E+03	1.72E+03	8.21%	<5%	<5%	<5%

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QCLNG Project - Rail Comparison

Pavement Impact Summary

Road					Variation in ESAs comparing 100% road to 75% rail to 2014				% Variation comparing 100% road to 75% rail to 2014			
					Project Generated Total ESAs		Project Generated Annual ESAs		Project Generated % Annual Impact		Project Generated Total Pavement Impact	
Number	Name	Section	Chainage	Distance	Loaded Total Generated ESA/s	Return Total Generated ESA/s	AVG Loaded ESA's / Year	AVG Return ESA's / Year	Loaded % Annual ESAs	Return % Annual ESAs	% of total 20 year pavement Load Loaded Dir	% of total 20 year pavement Load Return Dir
10C	Bruce Highway	Maryborough - Gin Gin	83.920- 101.835	17.915	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
10C	Bruce Highway	Maryborough - Gin Gin	101.835- 111.595	9.76	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
10D	Bruce Highway	Gin Gin - Benaraby	0.000- 2.160	2.16	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
10D	Bruce Highway	Gin Gin - Benaraby	2.160- 38.210	36.05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
10D	Bruce Highway	Gin Gin - Benaraby	38.210- 51.170	12.96	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
10D	Bruce Highway	Gin Gin - Benaraby	51.170-99.281	48.111	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
10D	Bruce Highway	Gin Gin - Benaraby	99.281- 147.145	47.864	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
10E	Bruce Highway	Benaraby - Rockhampton	0.000- 11.580	11.58	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
10E	Bruce Highway	Benaraby - Rockhampton	11.580- 45.410	33.83	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
U16	Ipswich Motorway	Rocklea	0.00-4.6		-8.03E+03	-1.81E+03	-1.47E+03	-3.31E+02	-28.01%	-18.23%	Growth Rate Unavailable	Growth Rate Unavailable
17A	Ipswich Motorway	Redbank	4.6-?????		-8.03E+03	-1.81E+03	-1.47E+03	-3.31E+02	-28.01%	-18.23%	Growth Rate Unavailable	Growth Rate Unavailable
18A	Warrego Highway	Ipswich - Toowoomba	0.000- 44.260	44.26	-9.54E+04	-2.27E+04	-4.30E+03	-1.02E+03	-41.93%	-47.04%	-42.07%	-47.17%
18A	Warrego Highway	Ipswich - Toowoomba	44.260- 47.860	3.6	-9.54E+04	-2.27E+04	-4.30E+03	-1.02E+03	-42.03%	-47.41%	-42.17%	-47.53%
18A	Warrego Highway	Ipswich - Toowoomba	47.860- 55.520	7.66	-9.54E+04	-2.27E+04	-4.30E+03	-1.02E+03	-42.03%	-47.41%	-42.17%	-47.53%
18A	Warrego Highway	Ipswich - Toowoomba	55.520- 75.370	19.85	-9.54E+04	-2.27E+04	-4.30E+03	-1.02E+03	-42.03%	-47.41%	-42.17%	-47.53%
18A	Warrego Highway	Ipswich - Toowoomba	75.370- 83.350	7.98	-9.54E+04	-2.27E+04	-4.30E+03	-1.02E+03	-42.03%	-47.41%	-42.17%	-47.53%
18A	Warrego Highway	Ipswich - Toowoomba	83.350- 92.760	9.41	-9.54E+04	-2.27E+04	-4.30E+03	-1.02E+03	-42.03%	-47.41%	-42.17%	-47.53%
18A	Warrego Highway	Ipswich - Toowoomba	92.760- 94.580	1.82	-9.54E+04	-2.27E+04	-4.30E+03	-1.02E+03	-42.03%	-47.41%	-42.17%	-47.53%
18A	Warrego Highway	Ipswich - Toowoomba	94.580- 95.010	0.43	-9.54E+04	-2.27E+04	-4.30E+03	-1.02E+03	-42.03%	-47.41%	-42.17%	-47.53%
18B	Warrego Highway	Toowoomba - Dalby	0.000- 0.990	0.99	-9.54E+04	-2.27E+04	-4.30E+03	-1.02E+03	-42.03%	-47.41%	-42.17%	-47.53%
18B	Warrego Highway	Toowoomba - Dalby	0.990- 2.210	1.22	-9.54E+04	-2.27E+04	-4.30E+03	-1.02E+03	-42.03%	-47.41%	-42.17%	-47.53%
18B	Warrego Highway	Toowoomba - Dalby	2.210- 3.740	1.53	-9.54E+04	-2.27E+04	-4.30E+03	-1.02E+03	-42.03%	-47.41%	-42.17%	-47.53%
18B	Warrego Highway	Toowoomba - Dalby	3.740- 4.520	0.78	-9.54E+04	-2.27E+04	-4.30E+03	-1.02E+03	-42.03%	-47.41%	-42.17%	-47.53%
18B	Warrego Highway	Toowoomba - Dalby	4.520- 6.630	2.11	-9.54E+04	-2.27E+04	-4.30E+03	-1.02E+03	-42.03%	-47.41%	-42.17%	-47.53%
18B	Warrego Highway	Toowoomba - Dalby	6.630- 10.590	3.96	-9.54E+04	-2.27E+04	-4.30E+03	-1.02E+03	-42.03%	-47.41%	-42.17%	-47.53%
18B	Warrego Highway	Toowoomba - Dalby	10.590- 26.830	16.24	-9.54E+04	-2.27E+04	-4.30E+03	-1.02E+03	-42.03%	-47.41%	-42.17%	-47.53%
18B	Warrego Highway	Toowoomba - Dalby	26.830- 80.820	53.99	-9.54E+04	-2.27E+04	-4.30E+03	-1.02E+03	-42.03%	-47.41%	-42.17%	-47.53%
18B	Warrego Highway	Toowoomba - Dalby	80.820- 84.189	3.369	-9.54E+04	-2.27E+04	-4.30E+03	-1.02E+03	-42.03%	-47.41%	-42.17%	-47.53%
18C	Warrego Highway	Dalby - Miles	0.000-1.090	1.09	-4.62E+05	-7.69E+04	-2.06E+04	-3.43E+03	-14.36%	-15.62%	-14.57%	-15.81%
18C	Warrego Highway	Dalby - Miles	1.090- 25.115	24.025	-1.59E+05	-2.64E+04	-2.05E+04	-3.42E+03	-14.09%	-15.18%	-14.09%	-15.18%
18C	Warrego Highway	Dalby - Miles	25.115- 45.195	20.08	-1.43E+05	-2.33E+04	-1.85E+04	-3.01E+03	-12.68%	-13.37%	-12.68%	-13.37%
18C	Warrego Highway	Dalby - Miles	45.195- 80.175	34.98	-1.36E+05	-2.17E+04	-1.76E+04	-2.81E+03	-12.08%	-12.48%	-12.08%	-12.48%
18C	Warrego Highway	Dalby - Miles	80.175- 83.155	2.98	-1.24E+05	-1.97E+04	-1.74E+04	-2.77E+03	-11.96%	-12.28%	-11.96%	-12.28%
18C	Warrego Highway	Dalby - Miles	83.155- 106.355	23.2	-1.15E+05	-1.79E+04	-1.62E+04	-2.52E+03	-11.07%	-11.14%	-11.07%	-11.14%
18D	Warrego Highway	Miles - Roma	0.000-1.135	1.136	-2.09E+04	-2.98E+03	-1.24E+04	-1.76E+03	-8.35%	-7.62%	-8.35%	-7.62%
18D	Warrego Highway	Miles - Roma	1.135-44.099	42.965	-2.09E+04	-2.98E+03	-1.24E+04	-1.76E+03	-8.35%	-7.62%	-8.35%	-7.62%
18D	Warrego Highway	Miles - Roma	44.099-56.831	12.733	-2.09E+04	-2.98E+03	-1.26E+04	-1.80E+03	-8.40%	-7.69%	-8.40%	-7.69%
19B	Isis Highway	Childers - Biggenden	11.819-31.884	20.066	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
19B	Isis Highway	Childers - Biggenden	31.884-43.996	12.113	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
19B	Isis Highway	Childers - Biggenden	43.996-45.244	1.249	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
19B	Isis Highway	Childers - Biggenden	45.244-45.732	0.489	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
19C	Isis Highway	Biggenden - Coalstoun Lakes	0.000-0.810	0.811	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
19C	Isis Highway	Biggenden - Coalstoun Lakes	0.810-23.455	22.646	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
19C	Isis Highway	Biggenden - Coalstoun Lakes	23.455-27.574	4.12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
19C	Isis Highway	Biggenden - Coalstoun Lakes	27.574-37.764	10.191	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
26A	Leichardt Highway	Westwood - Taroom	25.680-62.625	36.945	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
26A	Leichardt Highway	Westwood - Taroom	62,625- 86.039	23.414	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
26A	Leichardt Highway	Westwood - Taroom	86.039- 104.655	18.616	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
26A	Leichardt Highway	Westwood - Taroom	104.655- 105.215	0.56	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
26A	Leichardt Highway	Westwood - Taroom	105.215- 162.335	57.12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
26A	Leichardt Highway	Westwood - Taroom	162.335- 170.287	7.952	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
26A	Leichardt Highway	Westwood - Taroom	170.287- 192.228	21.941	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
26B	Leichardt Highway	Taroom - Miles	0.000- 60.470	60.47	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
26B	Leichardt Highway	Taroom - Miles	60.470- 127.610	67.14	-4.07E+04	-5.91E+03	-1.48E+04	-2.15E+03	-10.65%	-10.01%	-10.65%	-10.01%
26C	Leichardt Highway	Miles - Goondiwindi	0.000-32.020	32.021	-6.82E+04	-7.27E+03	-2.26E+04	-2.51E+03	-16.25%	-11.87%	-14.92%	-10.47%
35A	Moonie Hwy	Dalby - St George	0.00- 2500	2.5	-1.27E+05	-2.07E+04	-1.98E+04	-3.21E+03	-14.08%	-15.04%	-14.08%	-15.04%
35A	Moonie Hwy	Dalby - St George	2.500-11.00	8.5	-1.27E+05	-2.07E+04	-1.98E+04	-3.21E+03	-14.08%	-15.04%	-14.08%	-15.04%
35A	Moonie Hwy	Dalby - St George	11.00- 50.370	39.37	-1.21E+05	-1.92E+04	-1.87E+04	-2.97E+03	-13.34%	-13.93%	-13.34%	-13.93%
40B	D'Aguilar Highway	Kilcoy - Yarraman	23.460-32.650	9.191	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
40B	D'Aguilar Highway	Kilcoy - Yarraman	32.650-58.030	25.381	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
40B	D'Aguilar Highway	Kilcoy - Yarraman	58.030-68.721	10.692	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
40C	D'Aguilar Highway	Yarraman - Kingaroy	0.000-17.650	17.651	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
40C	D'Aguilar Highway	Yarraman - Kingaroy	17.650-21.670	4.021	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
41A	Burnett Highway	Nanango - Goomeri	0.000-38.718	38.718	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
41A	Burnett Highway	Nanango - Goomeri	38.718-48.832	10.113	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
41A	Burnett Highway	Nanango - Goomeri	48.831-58.010	9.178	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
41A	Burnett Highway	Nanango - Goomeri	58.009-59.777	1.767	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
41B	Burnett Highway	Goomeri - Gayndah	0.000- 2.540	2.54	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
41B	Burnett Highway	Goomeri - Gayndah	2.540- 17.00	14.46	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
41B	Burnett Highway	Goomeri - Gayndah	17.000- 31.350	14.35	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
41B	Burnett Highway	Goomeri - Gayndah	31.350- 74.050	42.7	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
41B	Burnett Highway	Goomeri - Gayndah	74.050- 86.890	12.84	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
41B	Burnett Highway	Goomeri - Gayndah	86.890- 95.892	9.002	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
41B	Burnett Highway	Goomeri - Gayndah	95.892- 99.460	3.568	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
41B	Burnett Highway	Goomeri - Gayndah	99.460- 100.660	1.2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
41C	Burnett Highway	Gayndah - Monto	0.000- 0.470	0.47	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
41C	Burnett Highway	Gayndah - Monto	0.470- 7.348	6.878	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
41C	Burnett Highway	Gayndah - Monto	7.348- 23.847	16.499	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
41C	Burnett Highway	Gayndah - Monto	23.847- 43.710	19.863	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
41C	Burnett Highway	Gayndah - Monto	43.710- 78.461	34.751	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
41C	Burnett Highway	Gayndah - Monto	78.461- 117.417	38.956	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
41C	Burnett Highway	Gayndah - Monto	117.417- 139.584	22.167	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
41C	Burnett Highway	Gayndah - Monto	139.584- 150.961	11.377	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
41C	Burnett Highway	Gayndah - Monto	150.961- 151.686	0.725	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
41D	Burnett Highway	Monto - Biolela	0.000- 3.515	3.515	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
41D	Burnett Highway	Monto - Biolela	3.515- 11.685	8.17	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
41D	Burnett Highway	Monto - Biolela	11.685- 41.470	29.785	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
41D	Burnett Highway	Monto - Bioela	41.470- 85.531	44.061	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
41D	Burnett Highway	Monto - Bioela	85.531 - 92.811	7.28	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
41D	Burnett Highway	Monto - Biolela	92.811-93.811	1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%

QCLNG Project - Rail Comparison

Pavement Impact Summary

Road						100% transport by road								75% transport by rail up to 2104, 100% post 2014							
						Project Generated Total ESAs		Project Generated Annual ESAs		Project Generated % Annual Impact		Project Generated Total Pavement Impact		Project Generated Total ESAs		Project Generated Annual ESAs		Project Generated % Annual Impact		Project Generated Total Pavement Impact	
Number	Name	Section	Chainage	Distance	Region	Loaded Total Generated ESA/s	Return Total Generated ESA/s	AVG Loaded ESA's / Year	AVG Return ESA's / Year	Loaded % Annual ESAs	Return % Annual ESAs	% of total 20 year pavement Load Loaded Dir	% of total 20 year pavement Load Return Dir	Loaded Total Generated ESA/s	Return Total Generated ESA/s	AVG Loaded ESA's / Year	AVG Return ESA's / Year	Loaded % Annual ESAs	Return % Annual ESAs	% of total 20 year pavement Load Loaded Dir	% of total 20 year pavement Load Return Dir
42A	Brisbane Valley Highway	Ipswich - Harlin	0.000 - 5.2	5.2	Metropolitan	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%
42A	Brisbane Valley Highway	Ipswich - Harlin	5.2-15.960	10.761	Southern	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%
42A	Brisbane Valley Highway	Ipswich - Harlin	15.960-32.340	16.381	Southern	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%
42A	Brisbane Valley Highway	Ipswich - Harlin	32.340-54.540	22.201	Southern	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%
42A	Brisbane Valley Highway	Ipswich - Harlin	54.540-57.860	3.321	Southern	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%
42A	Brisbane Valley Highway	Ipswich - Harlin	57.860-71.260	13.401	Southern	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%
42A	Brisbane Valley Highway	Ipswich - Harlin	71.260-89.190	17.931	Southern	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%	5.47E+02	3.68E+02	5.47E+02	3.68E+02	<5%	<5%	<5%	<5%
46A	Dawson Highway	Gladstone - Biloela	0.000- 1.498	1.498	Rockhampton	1.47E+04	3.33E+03	1.47E+04	3.33E+03	8.38%	<5%	<5%	<5%	1.47E+04	3.33E+03	1.47E+04	3.33E+03	8.38%	<5%	<5%	<5%
46A	Dawson Highway	Gladstone - Biloela	1.498- 2.238	0.74	Rockhampton	1.47E+04	3.33E+03	1.47E+04	3.33E+03	<5%	<5%	<5%	<5%	1.47E+04	3.33E+03	1.47E+04	3.33E+03	<5%	<5%	<5%	<5%
46A	Dawson Highway	Gladstone - Biloela	2.238- 3.130	0.892	Rockhampton	1.47E+04	3.33E+03	1.47E+04	3.33E+03	<5%	<5%	<5%	<5%	1.47E+04	3.33E+03	1.47E+04	3.33E+03	<5%	<5%	<5%	<5%
46A	Dawson Highway	Gladstone - Biloela	3.130- 4.391	1.261	Rockhampton	1.47E+04	3.33E+03	1.47E+04	3.33E+03	<5%	<5%	<5%	<5%	1.47E+04	3.33E+03	1.47E+04	3.33E+03	<5%	<5%	<5%	<5%
46A	Dawson Highway	Gladstone - Biloela	4.391- 5.179	0.788	Rockhampton	1.47E+04	3.33E+03	1.47E+04	3.33E+03	<5%	<5%	<5%	<5%	1.47E+04	3.33E+03	1.47E+04	3.33E+03	<5%	<5%	<5%	<5%
46A	Dawson Highway	Gladstone - Biloela	5.179- 10.296	5.117	Rockhampton	1.47E+04	3.33E+03	1.47E+04	3.33E+03	9.97%	<5%	<5%	<5%	1.47E+04	3.33E+03	1.47E+04	3.33E+03	9.97%	<5%	<5%	<5%
46A	Dawson Highway	Gladstone - Biloela	10.296- 19.050	8.754	Rockhampton	1.47E+04	3.33E+03	1.47E+04	3.33E+03	6.49%	<5%	<5%	<5%	1.47E+04	3.33E+03	1.47E+04	3.33E+03	6.49%	<5%	<5%	<5%
46A	Dawson Highway	Gladstone - Biloela	19.050-21.750	2.7	Rockhampton	1.47E+04	3.33E+03	1.47E+04	3.33E+03	5.25%	<5%	<5%	<5%	1.47E+04	3.33E+03	1.47E+04	3.33E+03	5.25%	<5%	<5%	<5%
46A	Dawson Highway	Gladstone - Biloela	21.750- 25690	3.94	Rockhampton	1.47E+04	3.33E+03	1.47E+04	3.33E+03	9.77%	<5%	<5%	<5%	1.47E+04	3.33E+03	1.47E+04	3.33E+03	9.77%	<5%	<5%	<5%
46A	Dawson Highway	Gladstone - Biloela	25.690- 101.266	75.576	Rockhampton	1.60E+04	3.54E+03	1.60E+04	3.54E+03	10.95%	<5%	<5%	<5%	1.60E+04	3.54E+03	1.60E+04	3.54E+03	10.95%	<5%	<5%	<5%
46A	Dawson Highway	Gladstone - Biloela	101.266-113.986	12.72	Rockhampton	1.43E+04	3.15E+03	1.43E+04	3.15E+03	14.40%	<5%	<5%	<5%	1.43E+04	3.15E+03	1.43E+04	3.15E+03	14.40%	<5%	<5%	<5%
46A	Dawson Highway	Gladstone - Biloela	113.986- 117.094	3.108	Rockhampton	1.44E+04	3.16E+03	1.44E+04	3.16E+03	12.78%	<5%	<5%	<5%	1.44E+04	3.16E+03	1.44E+04	3.16E+03	12.78%	<5%	<5%	<5%
46A	Dawson Highway	Gladstone - Biloela	117.094- 120.016	2.922	Rockhampton	1.44E+04	3.16E+03	1.44E+04	3.16E+03	7.69%	<5%	<5%	<5%	1.44E+04	3.16E+03	1.44E+04	3.16E+03	7.69%	<5%	<5%	<5%
46B	Dawson Highway	Biloela - Banana	0.000- 1.366	1.366	Rockhampton	7.01E+03	1.59E+03	7.01E+03	1.59E+03	<5%	<5%	<5%	<5%	7.01E+03	1.59E+03	7.01E+03	1.59E+03	<5%	<5%	<5%	<5%
46B	Dawson Highway	Biloela - Banana	1.366- 26.802	25.436	Rockhampton	7.01E+03	1.59E+03	7.01E+03	1.59E+03	<5%	<5%	<5%	<5%	7.01E+03	1.59E+03	7.01E+03	1.59E+03	<5%	<5%	<5%	<5%
46B	Dawson Highway	Biloela - Banana	26.802- 45.690	18.888	Rockhampton	7.01E+03	1.59E+03	7.01E+03	1.59E+03	5.97%	<5%	<5%	<5%	7.01E+03	1.59E+03	7.01E+03	1.59E+03	5.97%	<5%	<5%	<5%
86B	Surat Development Road	Tara - Dalby	0-0.05	0.05	Warrick	2.83E+05	4.29E+04	1.40E+05	2.13E+04	140.34%	21.32%	12.71%	<5%	2.64E+05	4.11E+04	1.31E+05	2.04E+04	130.86%	20.41%	11.85%	<5%
86B	Surat Development Road	Tara - Dalby	0.05-0.6	0.55	Warrick	2.83E+05	4.29E+04	1.40E+05	2.13E+04	162.93%	24.76%	14.75%	<5%	2.64E+05	4.11E+04	1.31E+05	2.04E+04	151.99%	23.70%	13.76%	<5%
86B	Surat Development Road	Tara - Dalby	0.6-40.39	39.79	Warrick	3.41E+05	5.18E+04	1.39E+05	2.11E+04	206.61%	31.39%	16.58%	<5%	2.51E+05	3.81E+04	1.02E+05	1.55E+04	151.86%	23.08%	12.19%	<5%
181	Gladston Mt Larcom Road		0.000-1.345	1.345	Rockhampton	3.86E+03	8.77E+02	3.86E+03	8.77E+02	<5%	<5%	<5%	<5%	3.86E+03	8.77E+02	3.86E+03	8.77E+02	<5%	<5%	<5%	<5%
181	Gladston Mt Larcom Road		1.345- 3.258	1.913	Rockhampton	3.86E+03	8.77E+02	3.86E+03	8.77E+02	<5%	<5%	<5%	<5%	3.86E+03	8.77E+02	3.86E+03	8.77E+02	<5%	<5%	<5%	<5%
181	Gladston Mt Larcom Road		3.258 -4.625	1.367	Rockhampton	3.86E+03	8.77E+02	3.86E+03	8.77E+02	<5%	<5%	<5%	<5%	3.86E+03	8.77E+02	3.86E+03	8.77E+02	<5%	<5%	<5%	<5%
181	Gladston Mt Larcom Road		4.625- 12.292	7.667	Rockhampton	3.86E+03	8.77E+02	3.86E+03	8.77E+02	<5%	<5%	<5%	<5%	3.86E+03	8.77E+02	3.86E+03	8.77E+02	<5%	<5%	<5%	<5%
181	Gladston Mt Larcom Road		12.292- 31.141	18.849	Rockhampton	3.84E+03	8.92E+02	3.84E+03	8.92E+02	<5%	<5%	<5%	<5%	3.84E+03	8.92E+02	3.84E+03	8.92E+02	<5%	<5%	<5%	<5%
340	Dalby Kogan Road		0.000- 19.292	19.292	Toowomba	1.15E+06	1.76E+05	1.43E+05	2.19E+04	202.77%	31.08%	49.37%	7.57%	9.76E+05	1.47E+05	1.22E+05	1.85E+04	173.59%	26.20%	42.00%	6.34%
340	Dalby Kogan Road		19.292- 47.682	28.39	Toowomba	1.15E+06	1.76E+05	1.43E+05	2.19E+04	340.66%	51.74%	82.94%	12.60%	9.79E+05	1.48E+05	1.23E+05	1.85E+04	291.99%	43.70%	70.75%	10.59%
341	Chinchilla - Tara Road		0.000- 22.510	22.51	Toowomba	1.49E+05	2.26E+04	1.33E+05	2.02E+04	285.18%	41.26%	9.69%	<5%	1.35E+05	2.08E+04	1.18E+05	1.82E+04	253.04%	37.26%	8.77%	<5%
341	Chinchilla - Tara Road		22.510- 43.490	20.98	Toowomba	8.30E+02	2.30E+02	8.30E+02	2.30E+02	<5%	<5%	<5%	<5%	3.07E+03	8.52E+02	3.07E+03	8.52E+02	10.93%	<5%	<5%	<5%
342	Kogan Condamine Road		0.000- 45.820	45.82	Toowomba	1.15E+06	1.76E+05	1.43E+05	2.19E+04	445.89%	68.32%	108.37%	16.61%	9.99E+05	1.52E+05	1.25E+05	1.91E+04	389.15%	59.35%	94.36%	14.39%
345	Condamine Meandarra Road		0.000 - 27.56	27.56	Warrick	1.33E+05	2.02E+04	1.33E+05	2.02E+04	456.12%	69.13%	20.51%	<5%	1.17E+05	1.78E+04	1.17E+05	1.78E+04	402.22%	61.09%	18.09%	<5%
421	Dalby-Jandowae Road		0.000-24.400	24.4	Toowomba	2.94E+06	4.38E+05	8.44E+05	1.26E+05	1204.54%	179.35%	184.34%	27.45%	2.59E+06	3.86E+05	7.44E+05	1.11E+05	1061.89%	158.13%	162.51%	24.20%
454	Eidsvold - Theodore Road		0.000- 2.971	2.971	Bundaberg	1.59E+02	1.07E+02	1.59E+02	1.07E+02	<5%	<5%	<5%	<5%	1.59E+02	1.07E+02	1.59E+02	1.07E+02	<5%	<5%	<5%	<5%
454	Eidsvold - Theodore Road		2.971- 77.400	74.429	Bundaberg	1.59E+02	1.07E+02	1.59E+02	1.07E+02	<5%	<5%	<5%	<5%	1.59E+02	1.07E+02	1.59E+02	1.07E+02	<5%	<5%	<5%	<5%
454	Eidsvold - Theodore Road		77.400- 92.118	14.718	Rockhampton	2.74E+03	6.22E+02	2.74E+03	6.22E+02	22.71%	5.16%	<5%	<5%	2.74E+03	6.22E+02	2.74E+03	6.22E+02	22.71%	5.16%	<5%	<5%
454	Eidsvold - Theodore Road		92.118- 141.789	49.671	Rockhampton	2.74E+03	6.22E+02	2.74E+03	6.22E+02	14.70%	<5%	<5%	<5%	2.74E+03	6.22E+02	2.74E+03	6.22E+02	14.70%	<5%	<5%	<5%
454	Eidsvold - Theodore Road		141.789-143.960	2.171	Rockhampton	2.74E+03	6.22E+02	2.74E+03	6.22E+02	7.14%	<5%	<5%	<5%	2.74E+03	6.22E+02	2.74E+03	6.22E+02	7.14%	<5%	<5%	<5%
472	Biloela - Callide Road		0.000-3.988	3.988	Darling Downs	1.52E+01	3.00E+00	1.52E+01	3.00E+00	<5%	<5%	<5%	<5%	1.52E+01	3.00E+00	1.52E+01	3.00E+00	<5%	<5%	<5%	<5%
472	Biloela - Callide Road		3.988-11.88	7.892	Darling Downs	1.52E+01	3.00E+00	1.52E+01	3.00E+00	<5%	<5%	<5%	<5%	1.52E+01	3.00E+00	1.52E+01	3.00E+00	<5%	<5%	<5%	<5%
477	Booyal - Dallarnil Road		0.000-18.180	18.18	Wide Bay	2.34E+02	1.58E+02	2.34E+02	1.58E+02	<5%	<5%	<5%	<5%	2.34E+02	1.58E+02	2.34E+02	1.58E+02	<5%	<5%	<5%	<5%
904	Port of Brisbane Road		?????	????	Metropolitan	2.45E+04	7.09E+03	4.50E+03	1.30E+03	<5%	<5%	<5%	<5%	1.54E+04	5.03E+03	2.83E+03	9.23E+02	<5%	<5%	-	-
3402	Tara - Kogan Road		0.00-34.8	34.8	Warrick	2.12E+05	3.26E+04	1.45E+05	2.23E+04	1422.30%	218.65%	74.07%	11.39%	1.97E+05	3.05E+04	1.35E+05	2.09E+04	1324.70%	204.95%	68.99%	10.67%
4302	Jackson Wandoan Road		0.00- 68.930	68.93	Roma	2.50E+05	3.89E+04	1.51E+05	2.35E+04	1798.95%	279.71%	90.44%	14.06%	2.31E+05	3.64E+04	1.39E+05	2.20E+04	1657.62%	261.50%	83.33%	13.15%
4302	Jackson Wandoan Road		68.930- 81.100	12.17	Roma	1.75E+05	2.67E+04	1.37E+05	2.10E+04	896.04%	137.23%	34.55%	5.29%	1.53E+05	2.34E+04	1.21E+05	1.84E+04	786.40%	120.22%	30.32%	<5%
210A	Logan Motorway	Stapylton				2.76E+04	9.15E+03	5.05E+03	1.68E+03	<5%	<5%	<5%	<5%	1.95E+04	7.34E+03	3.58E+03	1.35E+03	<5%	<5%	-	-

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QCLNG Project - Rail Comparison

Pavement Impact Summary

Road					Variation in ESAs comparing 100% road to 75% rail to 2014				% Variation comparing 100% road to 75% rail to 2014			
					Project Generated Total ESAs		Project Generated Annual ESAs		Project Generated % Annual Impact		Project Generated Total Pavement Impact	
Number	Name	Section	Chainage	Distance	Loaded Total Generated ESA/s	Return Total Generated ESA/s	AVG Loaded ESA's / Year	AVG Return ESA's / Year	Loaded % Annual ESAs	Return % Annual ESAs	% of total 20 year pavement Load Loaded Dir	% of total 20 year pavement Load Return Dir
42A	Brisbane Valley Highway	Ipswich - Harlin	0.000 - 5.2	5.2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
42A	Brisbane Valley Highway	Ipswich - Harlin	5.2-15.960	10.761	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
42A	Brisbane Valley Highway	Ipswich - Harlin	15.960-32.340	16.381	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
42A	Brisbane Valley Highway	Ipswich - Harlin	32.340-54.540	22.201	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
42A	Brisbane Valley Highway	Ipswich - Harlin	54.540-57.860	3.321	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
42A	Brisbane Valley Highway	Ipswich - Harlin	57.860-71.260	13.401	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
42A	Brisbane Valley Highway	Ipswich - Harlin	71.260-89.190	17.931	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
46A	Dawson Highway	Gladstone - Biloela	0.000- 1.498	1.498	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
46A	Dawson Highway	Gladstone - Biloela	1.498- 2.238	0.74	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
46A	Dawson Highway	Gladstone - Biloela	2.238- 3.130	0.892	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
46A	Dawson Highway	Gladstone - Biloela	3.130- 4.391	1.261	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
46A	Dawson Highway	Gladstone - Biloela	4.391- 5.179	0.788	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
46A	Dawson Highway	Gladstone - Biloela	5.179- 10.296	5.117	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
46A	Dawson Highway	Gladstone - Biloela	10.296- 19.050	8.754	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
46A	Dawson Highway	Gladstone - Biloela	19.050-21.750	2.7	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
46A	Dawson Highway	Gladstone - Biloela	21.750- 25690	3.94	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
46A	Dawson Highway	Gladstone - Biloela	25.690- 101.266	75.576	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
46A	Dawson Highway	Gladstone - Biloela	101.266-113.986	12.72	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
46A	Dawson Highway	Gladstone - Biloela	113.986- 117.094	3.108	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
46A	Dawson Highway	Gladstone - Biloela	117.094- 120.016	2.922	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
46B	Dawson Highway	Biloela - Banana	0.000- 1.366	1.366	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
46B	Dawson Highway	Biloela - Banana	1.366- 26.802	25.436	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
46B	Dawson Highway	Biloela - Banana	26.802- 45.690	18.888	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
86B	Surat Development Road	Tara - Dalby	0-0.05	0.05	-1.91E+04	-1.85E+03	-9.48E+03	-9.17E+02	-6.75%	-4.30%	-6.75%	-4.30%
86B	Surat Development Road	Tara - Dalby	0.05-0.6	0.55	-1.90E+04	-1.83E+03	-9.43E+03	-9.07E+02	-6.72%	-4.25%	-6.72%	-4.25%
86B	Surat Development Road	Tara - Dalby	0.6-40.39	39.79	-9.04E+04	-1.37E+04	-3.68E+04	-5.58E+03	-26.50%	-26.47%	-26.50%	-26.47%
181	Gladston Mt Larcom Road		0.000-1.345	1.345	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
181	Gladston Mt Larcom Road		1.345- 3.258	1.913	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
181	Gladston Mt Larcom Road		3.258 -4.625	1.367	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
181	Gladston Mt Larcom Road		4.625- 12.292	7.667	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
181	Gladston Mt Larcom Road		12.292- 31.141	18.849	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
340	Dalby Kogan Road		0.000- 19.292	19.292	-1.71E+05	-2.85E+04	-2.06E+04	-3.44E+03	-14.39%	-15.71%	-14.91%	-16.23%
340	Dalby Kogan Road		19.292- 47.682	28.39	-1.69E+05	-2.80E+04	-2.04E+04	-3.40E+03	-14.29%	-15.54%	-14.70%	-15.94%
341	Chinchilla - Tara Road		0.000- 22.510	22.51	-1.42E+04	-1.79E+03	-1.50E+04	-1.96E+03	-11.27%	-9.70%	-9.54%	-7.93%
341	Chinchilla - Tara Road		22.510- 43.490	20.98	2.24E+03	6.22E+02	2.24E+03	6.22E+02	269.90%	270.16%	269.90%	270.16%
342	Kogan Condamine Road		0.000- 45.820	45.82	-1.48E+05	-2.35E+04	-1.82E+04	-2.88E+03	-12.72%	-13.13%	-12.93%	-13.34%
345	Condamine Meandarra Road		0.000 - 27.56	27.56	-1.57E+04	-2.35E+03	-1.57E+04	-2.35E+03	-11.82%	-11.63%	-11.82%	-11.63%
421	Dalby-Jandowae Road		0.000-24.400	24.4	-3.48E+05	-5.18E+04	-1.00E+05	-1.49E+04	-11.84%	-11.84%	-11.84%	-11.84%
454	Eidsvold - Theodore Road		0.000- 2.971	2.971	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
454	Eidsvold - Theodore Road		2.971- 77.400	74.429	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
454	Eidsvold - Theodore Road		77.400- 92.118	14.718	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
454	Eidsvold - Theodore Road		92.118- 141.789	49.671	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
454	Eidsvold - Theodore Road		141.789-143.960	2.171	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
472	Biloela - Callide Road		0.000-3.988	3.988	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
472	Biloela - Callide Road		3.988-11.88	7.892	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
477	Booyal - Dallarnil Road		0.000-18.180	18.18	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00%	0.00%	0.00%
904	Port of Brisbane Road		?????	????	-9.10E+03	-2.06E+03	-1.67E+03	-3.77E+02	-37.08%	-29.02%	Growth Rate Unavailable	Growth Rate Unavailable
3402	Tara - Kogan Road		0.00-34.8	34.8	-1.45E+04	-2.04E+03	-9.97E+03	-1.40E+03	-6.86%	-6.26%	-6.86%	-6.26%
4302	Jackson Wandoan Road		0.00- 68.930	68.93	-1.97E+04	-2.53E+03	-1.19E+04	-1.53E+03	-7.86%	-6.51%	-7.86%	-6.51%
4302	Jackson Wandoan Road		68.930- 81.100	12.17	-2.14E+04	-3.32E+03	-1.68E+04	-2.61E+03	-12.24%	-12.40%	-12.24%	-12.40%
210A	Logan Motorway	Stapylton			-8.03E+03	-1.81E+03	-1.47E+03	-3.31E+02	-29.15%	-19.74%	Growth Rate Unavailable	Growth Rate Unavailable