Australia Pacific LNG Project
Supplemental information to the EIS

Traffic and Transport
Assessment of pipeline transportation by rail

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1. Introduction

The Australia Pacific LNG (APLNG) Environmental Impact Statement (EIS) was released publically in January 2010 and since that time there have been a number of proposed changes to the Project that affect the traffic and transport impacts on the road network.

APLNG commissioned WorleyParsons to investigate the following proposed changes to the Project:

- Pipeline segments to be imported exclusively via Auckland Point, Gladstone. The EIS previously assumed that 70% of the pipeline was imported through Auckland Point and 30% through the Port of Brisbane.
- Transporting the majority of the pipe segments by rail from Auckland Point to a support base in Biloela (Biloela Support Base – BSB). The EIS previously assumed all pipe segments were to be transported by road. It is noted that the pipe segments associated with The Narrows Crossing are still proposed to be transported by road from Auckland Point to the laydown area near The Narrows Crossing.
- All main pipeline to be pre-coated prior to importation. The EIS previously identified a coating facility en-route from the ports to laydown locations.
- Main pipeline construction camp and laydown locations have been amended.

In addition, APLNG has commissioned engineering firm KBR to undertake dynamic simulation modelling to support logistics planning for the construction of the main APLNG pipeline. The APLNG report “APLNG Upstream Project Phase 1 – Logistics Plan (Q-1800-95-MP-0005)” dated 26 May 2010, is a key document that was referenced extensively in this update.

The objectives of this report are:

- Clarify any assumptions made in the WorleyParsons’ traffic and transport model, particularly if the assumptions are relevant to the logistics planning process.
- Identify any impacts on the transport network resulting from the aforementioned changes in the Project including any reduction in traffic flows along roads previously used by project vehicles transporting pipes.
- The investigation is to identify potential hazards in the network resulting from the abovementioned changes that may require further analysis or investigation.
- Identify roads that are crossed by the current proposed pipe alignment and roads which may be utilised by pipeline construction traffic.

2. Assumptions

2.1 Pipeline alignment, camp and laydown facilities locations

A map showing the pipeline alignment, construction camp and laydown facility locations is shown in Figure 2.1. State-controlled roads are shown in red.

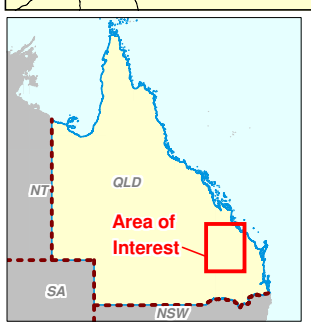
149.00 149.50 150.00 150.50 151.00

-24.00 -24.50 -25.00 -25.50 -26.00 -26.50 -27.00

Mount Morgan
BRUCE HWY
Gladstone
Camp 7/ Laydown 5
LEICHHARDT HWY
Laydown 4
DAWSON HWY
Baralaba
Biloela Support Base (BSB)
Camp 6
Biloela
Rolleston
Moura
DAWSON HWY
BURNETT HWY
Camp 5
Laydown 3
Monto
Theodore
Camp 4
LEICHHARDT HWY
Eidsvold
Theodore Rd
Taroom
Camp 3
Injune
Taroom Rd
LEICHHARDT HWY
Roma
Laydown 2
Wandoan
HWY
Jackson-Wandoan Rd
Camp 1
Camp 2
WARREGO HIGHWAY
Laydown 1
Miles
Chinchilla
WARREGO HIGHWAY
Kogan
Condamine Rd
Condamine
Kogan

LEGEND

- Town
- Main road
- Minor road
- Railway
- Gas pipeline route
- Temporary accommodation facilities / laydown



SOURCE INFORMATION

Gas pipeline route
Provided by Origin Energy 17/05/2010

Temporary accommodation facilities / laydown
Provided by Origin Energy 11/06/2010

Roads
Department of Main Roads, Queensland 2009

Railway_WP
Derived by WorleyParsons (based on 250k topography)
Commonwealth of Australia (Geoscience Australia) 2009

0 25 50km

SCALE - 1 : 1,100,000 (at A3)
Latitude / Longitude
Geocentric Datum of Australia 1994

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AUSTRALIA PACIFIC LNG PROJECT

Figure 2-1: Pipeline, camp and lay down locations

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2.2 Analysis parameters

The analysis parameters and scope adopted for this analysis include:

- Trips from the laydown areas to the ROW were not modelled. This was due to insufficient information being available to determine accurate locations on the ROW where the pipes were to be placed. Additionally, it is envisaged that pipelines would be transported along the ROW where possible, avoiding public roads.
- Trips from the camp sites to the ROW were not modelled. Most of the camps are located on the ROW and it is assumed that daily transport from the construction camps to the work fronts would not utilise public roads.
- Significant milestone dates for the pipeline construction were as follows:

Table 2.1 Significant milestone dates

Milestone	Date
Begin pipeline importation	October 2011
Begin construction	April 2012
End pipeline importation	February 2013
End construction	November 2013
Pipeline commissioning	January 2014

- The lengths of pipeline to be constructed were as follows:

Table 2.2 Lengths of pipeline

Type	Pipeline	Length in km
DN1050 - 42" pipe	Main pipeline	380
DN900 - 36" pipe	Condabri lateral	81
DN750 - 30"pipe	Wolleebe lateral	96

- Pipes will be supplied in either 18m (tripe random) lengths or 12m (double random lengths) and will be pre-coated prior to importation.
- Pipe segments transported by road are proposed to utilise a 25m extendable semi-trailer to transport the 18m long segments. Each load would contain two pipe segments of the 42” and 36” diameter pipes and three pipe segments of the 30” diameter pipes. Shorter pipe segments may use an alternative vehicle however the same load configuration has been assumed.
- An average construction rate of 0.96km/day has been calculated. This rate was used to determine the operating time for each construction camp.

- Lengths of pipeline constructed from each camp, and the operating time of each camp (600 person camps) are as follows:

Table 2.3 Camp operating times

Camp ID	Pipe length built from camp (km)	Camp operating time (days)	Camp setup date	Camp commissioning date	Camp ending date
Camp 2	59.2	61	March 2012	April 2012	June 2012
Camp 1	148.9	154	May 2012	June 2012	November 2012
Camp 3	65.5	68	October 2012	November 2012	January 2013
Camp 4	77.8	81	January 2013	January 2013	April 2013
Camp 5	45.0	47	March 2013	April 2013	May 2013
Camp 6	64.9	67	May 2013	May 2013	July 2013
Camp 7	67.3	70	July 2013	July 2013	October 2013

- The construction sequence is progressed northward from Camp 2 as given above.
- Airports utilised for each construction camp for fly in fly out (FIFO) staff arrangements are as follows:

Table 2.4 Airports utilised

Camp ID	Nearest Airport
Camp 2	Roma
Camp 1	Miles
Camp 3	Miles
Camp 4	Biloela
Camp 5	Biloela
Camp 6	Biloela
Camp 7	Gladstone

- It is currently unknown where commodities such as water, waste, food etc are coming from. For the purpose of this update, the following was assumed:

Table 2.5 Commodities/consumables transported by road

Camp ID	Camp construction materials, concrete, waste, water, food and fuel	Mobile homes, camp construction materials, camp construction equipment vehicles	Pipe construction consumables
Camp 2	Miles	Brisbane	BSB
Camp 1	Miles	Brisbane	BSB
Camp 3	Miles	Brisbane	BSB
Camp 4	Gladstone	Gladstone	BSB
Camp 5	Gladstone	Gladstone	BSB
Camp 6	Gladstone	Gladstone	BSB
Camp 7	Gladstone	Gladstone	BSB

- The length of pipeline constructed from each camp and total truck loads from the BSB to the laydown areas are given below:

Table 2.6 Pipe lengths and truck loads

Laydown ID	DN1050 Pipe (km)	DN900 Pipe (km)	DN750 Pipe (km)	DN1050 Pipe (truck loads)	DN900 Pipe (truck loads)	DN750 Pipe (truck loads)
Laydown 1	0	78	0	0	2164	0
Laydown 2	100	0	90	2778	0	1669
Laydown 3	100	0	0	2778	0	0
BSB	75	0	0	2083	0	0
Laydown 4	65	0	0	1806	0	0
Laydown 5	40	0	0	1111	0	0

- Timing for the delivery of pipe segments from the BSB to the laydown areas is described below:
  - Construction of the main pipeline begins out of laydown area 2.
  - The next stage of the main pipeline construction uses pipe segments stored at laydown area 1.
  - Upon completing the laydown of the pipe segments at laydown area 1, pipes are stockpiled at the BSB and also transported to laydown area 3 for the next stage of construction.

- Pipes are then stockpiled at laydown area 4 (Clark Siding area) and are also transported directly to laydown 5 from Auckland Point.

It is noted that construction of The Narrows Crossing may commence earlier than July 2013. Should this be the case, pipes can be delivered to laydown area 5 in advance with minimal impact on traffic movements or pipe scheduling.

Table 2.7 Pipe transport dates

Laydown ID	Begin Transport Date	Pipe Required Date	End Pipe Transport Date
Laydown 1	March 2012	June 2012	June 2012
Laydown 2	October 2011	April 2012	March 2012
Laydown 3	June 2012	January 2013	January 2013
BSB	June 2012	April 2013	January 2013
Laydown 4	January 2013	May 2013	April 2013
Laydown 5	January 2013	July 2013	April 2013

2.3 Camp and laydown traffic routes

A diagram showing the roads adopted for use in the traffic and transport model (light blue) is given in Figure 2.2. It is noted that these are not all of the roads that may be impacted by pipeline construction traffic. Additional roads are discussed in Section 4 of this report.

149.00 149.50 150.00 150.50 151.00

-24.00 -24.50 -25.00 -25.50 -26.00 -26.50 -27.00

Mount Morgan
BRUCE HWY
Gladstone
Camp 7/ Laydown 5
LEICHHARDT HWY
Laydown 4
DAWSON HWY
Baralaba
Biloela Support Base (BSB)
Camp 6
Biloela
Rolleston
Moura
DAWSON HWY
BURNETT HWY
Camp 5
Laydown 3
Monto
Theodore
Camp 4
LEICHHARDT HWY
Eidsvold
Theodore Rd
Taroom
Camp 3
LEICHHARDT
Injune
Taroom Rd
Roma
Laydown 2
Wandoan
HWY
Jackson-Wandoan Rd
Camp 1
Camp 2
WARREGO HIGHWAY
Laydown 1
Miles
Chinchilla
WARREGO HIGHWAY
Kogan
Condamine Rd
Condamine
Kogan

LEGEND

- Town
- Main road
- Minor road
- Railway
- Gas pipeline route
- Camp and laydown traffic routes
- Temporary accommodation facilities / laydown

SOURCE INFORMATION

Gas pipeline route
Provided by Origin Energy 17/05/2010

Temporary accommodation facilities / laydown
Provided by Origin Energy 11/06/2010

Roads
Department of Main Roads, Queensland 2009

Railway_WP
Derived by WorleyParsons (based on 250k topography)
Commonwealth of Australia (Geoscience Australia) 2009

0 25 50km

SCALE - 1 : 1,100,000 (at A3)
Latitude / Longitude
Geocentric Datum of Australia 1994

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Figure 2-2: Camp and lay down traffic routes

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3. Traffic network impacts

3.1 Updated traffic volumes

The impact on the roads network of transporting the pipe and moving construction camps and laydown areas was modelled in the APLNG traffic and transport sketch model.

Peak vehicles per day on each of the road links is given in Figure 3.1 and provided in Appendix 2. Notable impacts are discussed below.

3.1.1 Biloela Support Base (BSB)

Based on information contained in the APLNG report "APLNG Upstream Project Phase 1 – Logistics Plan (Q-1800-95-MP-0005)" pipes are off-loaded at the Biloela rail head and transported a short distance to the Biloela Support Base (BSB) located off the Dawson Highway.

Traffic on the Dawson Highway associated with the construction of the pipeline in the vicinity of the BSB is estimated to peak at 150 vehicles per day. The majority of this traffic is through traffic from Gladstone (112 vehicles per day) enroute to the construction camps, with the balance being pipe segments being transported out of the BSB (40 vehicles per day) to the various laydown areas.

APLNG are currently investigating several options for transporting pipes from the Biloela rail head to the BSB.

Once the preferred option is selected, the route and associated intersections from the rail head and BSB will need to be assessed to ensure that minimum capacity and safety standards are maintained. It is anticipated that there will not be any intersection capacity issues associated with the intersections at this location.

3.1.2 Clarke Siding Area

In the APLNG logistics report a small amount of pipe is proposed to be off-loaded at the Clarke Siding area – identified as laydown area 4. This option has not being previously modelled and assessed by WorleyParsons and no details on road transport from the siding area to the ROW have been provided.

A traffic impact assessment will be required to assess any potential impacts on the local road network resulting from traffic movements at the Clarke siding area.

3.1.3 Mount Larcom – Camp 7, Laydown 5

The APLNG logistics report states that pipes required for The Narrows Crossing will be transported by road directly from Auckland Point to laydown area 5. Full details on the road transport logistics of this option have yet been provided.

149.00 149.50 150.00 150.50 151.00

-24.00 -24.50 -25.00 -25.50 -26.00 -26.50 -27.00

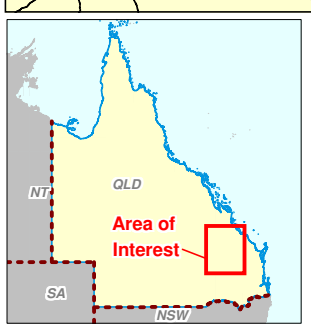
Mount Morgan
BRUCE HWY
Gladstone
Camp 7/ Laydown 5
LEICHHARDT HWY
Laydown 4
DAWSON HWY
Baralaba
Biloela Support Base (BSB)
Camp 6
Biloela
Rolleston
Moura
DAWSON HWY
BURNETT HWY
Camp 5
Laydown 3
Monto
Theodore
Camp 4
LEICHHARDT HWY
Eidsvold
Theodore Rd
Taroom
Camp 3
Injune
LEICHHARDT
Taroom Rd
Roma
Laydown 2
Wandoan
HWY
Jackson-Wandoan Rd
Camp 1
Camp 2
WARREGO HIGHWAY
Roma
Laydown 1
Miles
Chinchilla
WARREGO HIGHWAY
Kogan
Condamine Rd
Condamine
Kogan

LEGEND

- Town
- Road
- Railway
- Gas pipeline route
- Temporary accommodation facilities / laydown

New_pipe_routes_040610 by New_VPD

- 156 to 174
- 139 to 156
- 122 to 139
- 105 to 122
- 88 to 105
- 37 to 54
- 3 to 20



SOURCE INFORMATION

Gas pipeline route
Provided by Origin Energy 17/05/2010

Temporary accommodation facilities / laydown
Provided by Origin Energy 11/06/2010

Roads
Department of Main Roads, Queensland 2009

Railway_WP
Derived by WorleyParsons (based on 250k topography)
Commonwealth of Australia (Geoscience Australia) 2009

0 25 50km

SCALE - 1 : 1,100,000 (at A3)
Latitude / Longitude
Geocentric Datum of Australia 1994

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Figure 3-1: Updated vehicles per day

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3.2 Changes in traffic volumes

Changes to road traffic volumes are shown in Figure 3.2 below.

149.00 149.50 150.00 150.50 151.00

-24.00 -24.50 -25.00 -25.50 -26.00 -26.50 -27.00

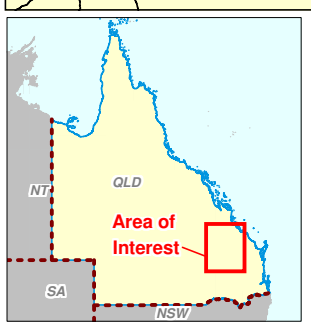
Mount Morgan
BRUCE HWY
Gladstone
Camp 7/ Laydown 5
LEICHHARDT HWY
Laydown 4
DAWSON HWY
Baralaba
Biloela Support Base (BSB)
Camp 6
Biloela
Rolleston
Moura
DAWSON HWY
BURNETT HWY
Camp 5
Laydown 3
Monto
Theodore
Camp 4
LEICHHARDT HWY
Eidsvold
Theodore Rd
Taroom
Camp 3
Injune
Taroom Rd
LEICHHARDT HWY
Roma
Laydown 2
Wandoan
HWY
Jackson-Wandoan Rd
Camp 1
Camp 2
WARREGO HIGHWAY
Roma
Miles
Laydown 1
Chinchilla
WARREGO HIGHWAY
Kogan
Condamine Rd
Condamine
Kogan

LEGEND

- Town
- Road
- Railway
- Gas pipeline route
- Temporary accommodation facilities / laydown

New_pipe_routes_040610 by New_Less_Old_Peak_Day

- 50 to 130
- -50 to 50
- -100 to -50
- -150 to -100
- -220 to -150



SOURCE INFORMATION

Gas pipeline route
Provided by Origin Energy 17/05/2010

Temporary accommodation facilities / laydown
Provided by Origin Energy 11/06/2010

Roads
Department of Main Roads, Queensland 2009

Railway_WP
Derived by WorleyParsons (based on 250k topography)
Commonwealth of Australia (Geoscience Australia) 2009

0 25 50km

SCALE - 1 : 1,100,000 (at A3)
Latitude / Longitude
Geocentric Datum of Australia 1994

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AUSTRALIA PACIFIC LNG PROJECT

Figure 3-2: Impacts of proposed changes on the road network

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Changes in traffic volumes on the road network result from either transporting the pipe segments by rail, or new or altered locations of the camps and laydown areas.

Notable differences between the updated analysis and the EIS analysis are as follows:

3.2.1 Warrego Highway and Yuleba Taroom Road

There is an estimated 125 vehicles per day increase in vehicle movement west of Miles on the Warrego Highway. This increase is attributed to the establishment and operation of Camp 2 which has been located at the intersection of Seaside Road and Yuleba Taroom Road. This camp was not in the original EIS. The vehicle movements are associated with movements from Roma, Miles and Brisbane transporting camp establishment materials, fuel, water, staff and other camp related consumables.

Most of the estimated 125 vehicles per day make a right turn into Yuleba Taroom Road from the Warrego Highway. This intersection needs to be checked to ensure that the intersection meets minimum safety standards.

3.2.2 Bruce Highway

This section of the Bruce Highway (from the Dawson Highway to Gladstone Mt Larcom Road) was not used in the EIS. The majority of vehicles associated with the pipeline construction on this road (125 of the 129 vehicles per day) originate from Gladstone, travel west on the Gladstone Mt Larcom Road then turn left onto the Bruce Highway before making the final right turn to access laydown area 5 and camp 7 in Willmot Road.

3.2.3 Dawson Highway

Traffic on the Dawson Highway (Gladstone to Biloela) associated with the pipeline construction will reduce by between 70 and 100 vehicles per day.

The Dawson Highway in Gladstone experiences a peak of 112 vehicles per day for vehicles associated with the pipeline construction. This consists of support vehicles and staff rotations to the Gladstone Airport. As the pipe segments are being moved by rail to Biloela, there will be no heavy vehicles transporting pipe segments on the Dawson Highway through Gladstone.

The Dawson Highway from the Glenlyon St intersection to the Breslin St intersection, was identified in the EIS as a high risk road for accidents (with the majority of accidents recorded at the Dawson Highway/Glenlyon Street intersection). The reduction of Project traffic on this stretch of road and the overall reduction in Project traffic along the Dawson Highway in general will reduce potential road safety impacts previously identified in the EIS.

3.3 Road pavement capacity

Pavement analysis was not remodelled in this update, however based on the change in the traffic volumes the following impacts are anticipated:

- Reduced impact on the Dawson Highway
- Reduced impact on the Leichhardt Highway between Miles and Wandoan

- Higher impact on the Warrego Highway west of Miles and the Bruce Highway near camp 2 and laydown area 1.

In the previous EIS the aforementioned section of the Warrego Highway west of Miles was identified as a road link that may require rehabilitation as a result of the impact of project traffic, with works being brought forward by over a year. The addition of an estimated 125 vehicles per day is not expected to significantly alter the assessment made in the EIS.

3.4 Intersection capacity

As identified in the EIS (Volume 5 / Attachment 37), the majority of the impacts of the Project on intersections in Gladstone result from the construction of the LNG facility. It is not anticipated that there will be any significant changes to the performance and levels of service of these intersections due to the proposed Project changes.

The EIS concluded that the transport of pipe segments and traffic associated with the pipeline construction was unlikely to impact on the operation of intersections in the pipeline study area. It is not anticipated that there will be any significant changes to the performance and levels of service of these intersections due to the proposed Project changes

Intersections of State controlled roads with local government roads will be impacted by increased turning movements associated with the pipeline traffic. Whilst there should be no intersection capacity issues associated with these intersections, these intersections should be assessed to ensure that adequate safe intersection site distance is being achieved and to determine if there any warrants for intersection improvements. A similar assessment will be required at the accesses to camps and laydown areas.

4. Roads crossed and roads utilised by the pipeline

4.1 Roads crossed

Appendix 1 contains a list of Local Government and State-controlled roads which may be crossed by the proposed pipeline. Currently it is proposed to open trench the pipeline across Local Government roads, and bore the pipeline under State-controlled roads. Both these assumptions will be discussed with Council and TMR in due course.

4.2 Roads utilised

APLNG has provided a GIS layer showing the roads which may be impacted by pipeline construction traffic. These roads include roads which may be utilised for the transportation of pipe segments to the ROW. This is shown in Figure 4.1 below.

149.00 149.50 150.00 150.50 151.00

-24.00 -24.50 -25.00 -25.50 -26.00 -26.50 -27.00

Mount Morgan
Baralaba
Rolleston
Moura
Theodore
Taroom
Injune
Roma
Wandoan
Miles
Condamine
Chinchilla
Kogan
Monto
Gladstone
Biloela

BRUCE HWY
LEICHHARDT HWY
DAWSON HWY
BURNETT HWY
Taroom Rd
Roma
Jackson-Wandoan Rd
WARREGO HIGHWAY
Eidsvold
Theodore Rd
Kogan
Condamine Rd

Camp 7/ Laydown 5
Laydown 4
Biloela Support Base (BSB)
Camp 6
Camp 5
Laydown 3
Camp 4
Camp 3
Laydown 2
Camp 1
Camp 2
Laydown 1

LEGEND

- Town
- Road
- Railway
- Pipeline access road
- Gas pipeline route
- Temporary accommodation facilities / laydown

SOURCE INFORMATION

Gas pipeline route
Provided by Origin Energy 17/05/2010

Temporary accommodation facilities / laydown
Provided by Origin Energy 11/06/2010

Roads
Department of Main Roads, Queensland 2009

Railway_WP
Derived by WorleyParsons (based on 250k topography)
Commonwealth of Australia (Geoscience Australia) 2009

0 25 50km

SCALE - 1 : 1,100,000 (at A3)
Latitude / Longitude
Geocentric Datum of Australia 1994

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Figure 4-1: Pipeline access roads

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5. Traffic impacts - summary

The project changes associated with the pipeline construction, namely the transport of the majority of the pipe segments by rail from Auckland Point to Biloela, has resulted in an overall reduction in road based trips. In particular there has been a significant reduction in the number and duration of heavy vehicle movements associated with the transport of pipe segments in Gladstone. This reduction in heavy vehicles movements in Gladstone will result in:

- Improved road safety,
- Reduced road congestion, and
- Reduced environmental and social impacts.

Whilst the changes have increased impacts on sections of the road network within the pipeline study area outside of Gladstone, it is anticipated that these impacts will not be significant and will be able to be mitigated.

Appendix 1 - Roads crossed by pipeline

Pipe section	Chainage	Road name	TMR Region	Local government area
Condabri Lateral	CKP002.8	Kogan-Condamine Rd	Darling Downs	Western Downs (R)
	CKP014.8	Mclennans Rd		Western Downs (R)
	CKP020.7	Fairymeadow Rd		Western Downs (R)
	CKP026.5	Roxborough Rd		Western Downs (R)
	CKP030.0	Old Cameby Rd		Western Downs (R)
	CKP034.7	Warrego Hwy	Darling Downs	Western Downs (R)
	CKP037.8	Gearys Rd		Western Downs (R)
	CKP045.0	Hookswood - Pelham Rd		Western Downs (R)
	CKP051.9	Myall Park Rd		Western Downs (R)
	CKP053.3	Myall Park Rd		Western Downs (R)
	CKP054.2	L Tree Creek Rd		Western Downs (R)
	CKP058.1	L Tree Creek Rd		Western Downs (R)
	CKP059.4	L Tree Creek Rd		Western Downs (R)
	CKP065.7	L Tree Creek Rd		Western Downs (R)
	CKP065.8	L Tree Creek Rd		Western Downs (R)
	CKP070.3	Welsh's Rd		Western Downs (R)
	CKP071.0	L Tree Creek Rd		Western Downs (R)
	CKP071.1	L Tree Creek Rd		Western Downs (R)
	CKP075.8	L Tree Creek Rd		Western Downs (R)
Wolleebe Lateral	WKP003.4	YULEBA TAROOM ROAD		Maranoa (R)
	WKP004.8	HORSE CREEK ROAD		Maranoa (R)
	WKP018.5	CROSSROADS ROAD		Maranoa (R)
	WKP019.9	EWINGSDALE ROAD		Maranoa (R)
	WKP027.2	EWINGSDALE ROAD		Maranoa (R)
	WKP027.9	CROSSROADS ROAD		Maranoa (R)

Pipe section	Chainage	Road name	TMR Region	Local government area
	WKP028.8	JACKSON-WANDOAN RD		Maranoa (R)
	WKP030.9	CLARKES CK ROAD		Maranoa (R)
	WKP038.8	Glenlea Rd		Western Downs (R)
	WKP043.6	Cormack's Rd		Western Downs (R)
	WKP060	Gales Rd		Western Downs (R)
	WKP066.4	Henrys Rd		Western Downs (R)
	WKP067	Gales Rd		Western Downs (R)
	WKP071.5	Baileys Rd		Western Downs (R)
	WKP072.3	Railway		Western Downs (R)
	WKP075.2	Leichhardt Hwy	Darling Downs	Western Downs (R)
	WKP082.7	Stiller Bros. Rd		Western Downs (R)
Main Pipeline	KP004.6	Upper Downfall Rd		Western Downs (R)
	KP010.2	Knights Rd		Western Downs (R)
	KP014.2	Knights Rd		Western Downs (R)
	KP029.5	Roche Creek Rd		Western Downs (R)
	KP032.0	Glendoan Rd		Western Downs (R)
	KP050.8	Big Valley Rd		Western Downs (R)
	KP056.7	Flagstone Rd		Western Downs (R)
	KP058.7	Ponty Pool Rd		Western Downs (R)
	KP063.8	Ponty Pool Road		Banana (S)
	KP069.4	Red Range Road		Banana (S)
	KP088.9	Deearne Road		Banana (S)
	KP122.5	Eidsvold - Theodore Rd	Fitzroy	Banana (S)
	KP129.6	Defence Road		Banana (S)
	KP133.9	Defence Road		Banana (S)

Pipe section	Chainage	Road name	TMR Region	Local government area
	KP143.4	Defence Road		Banana (S)
	KP168.5	Crowsdale Camboon Road		Banana (S)
	KP172.3	Crowsdale Camboon Road		Banana (S)
	KP178.9	Rawbelle Road		Banana (S)
	KP185.1	Crowsdale Camboon Road		Banana (S)
	KP188.0	Shawlands Road		Banana (S)
	KP227.9	Dawson Hwy	Fitzroy	Banana (S)
	KP232.3	Orange Creek Road		Banana (S)
	KP237.9	Prospect Creek Goovigen Road		Banana (S)
	KP240.7	Coreen Water Board Road		Banana (S)
	KP242.4	Burnett Hwy	Fitzroy	Banana (S)
	KP245.7	Jambin Dakenba Road		Banana (S)
	KP245.9	Railway		Banana (S)
	KP249.0	Mallinsons Road		Banana (S)
	KP251.1	Callide Kilburnie Road		Banana (S)
	KP256.6	Argoon Kilburnie Road		Banana (S)
	KP264.4	Dawson Hwy	Fitzroy	Gladstone (R)
	KP273.1	Coal Road		Banana (S)
	KP276.6	Blacks Road		Banana (S)
	KP283.2	Thompsons Road		Banana (S)
	KP287.5	Dawson Hwy	Fitzroy	Gladstone (R)
	KP294.7	Railway		Gladstone (R)

Pipe section	Chainage	Road name	TMR Region	Local government area
	KP296.8	DUCK HOLES ROAD		Gladstone (R)
	KP311.0	MOUNT ALMA ROAD		Gladstone (R)
	KP313.7	MOUNT ALMA ROAD		Gladstone (R)
	KP314.0	MOUNT ALMA ROAD		Gladstone (R)
	KP316.1	MOUNT ALMA ROAD		Gladstone (R)
	KP319.9	WYCHEPROOF ROAD		Gladstone (R)
	KP326.4	MOUNT ALMA ROAD		Gladstone (R)
	KP328.4	Bruce Hwy	Fitzroy	Gladstone (R)
	KP333	Railway		Gladstone (R)
	KP336.7	Gladstone-Mt Larcom Rd	Fitzroy	Gladstone (R)
	KP336.8	Railway		Gladstone (R)
	KP342.3	CULLEN ROAD		Gladstone (R)
	KP349.8	TARGINIE ROAD		Gladstone (R)
	KP350.7	CHERNIH ROAD		Gladstone (R)

Appendix 2 - Updated model results

ROAD_ID_NO	ROAD SECTION ID	ROAD_NAME	MAIN ROADS REGION	START CH	END CH	Local Govt Area	New_vehicles per day	Old_vehicles per day	Difference
82	181	Gladstone-Mt Larcom Rd	Fitzroy	0	1.345	Gladstone (R)	131	121	10
83	181	Gladstone-Mt Larcom Rd	Fitzroy	1.345	3.258	Gladstone (R)	112	121	-9
84	181	Gladstone-Mt Larcom Rd	Fitzroy	3.258	4.625	Gladstone (R)	126	121	5
85	181	Gladstone-Mt Larcom Rd	Fitzroy	4.625	12.292	Gladstone (R)	126	121	5
86	181	Gladstone-Mt Larcom Rd	Fitzroy	12.292	32.14	Gladstone (R)	126	121	5
87	183	Gladstone Port Access Rd	Fitzroy	0	0.858	Gladstone (R)	131	185	-54
5235	16260	WILMOTT ROAD					130	0	130
7114	21399	AERODROME ROAD					14	0	14
7188	21473	BLAIN DRIVE					14	0	14
94	10E	Bruce Hwy	Fitzroy	11.58	45.41	Gladstone (R)	130	0	130
16	18C	Warrego Hwy	Darling Downs	106.355	126.745	Western Downs (R)	101	94	7
17	18D	Warrego Hwy	Darling Downs	0	1.135	Western Downs (R)	173	145	28
61526	26A	Leichhardt Hwy	Fitzroy	104.66	105.22	Banana (S)	103	86	17
60050	26A	Leichhardt Hwy	Fitzroy	105.22	162.34	Banana (S)	145	177	-33
60051	26A	Leichhardt Hwy	Fitzroy	162.34	170.29	Banana (S)	103	138	-34
60052	26A	Leichhardt Hwy	Fitzroy	170.29	192.23	Banana (S)	103	138	-34
124	26A	Leichhardt Hwy	South West	192.23	238.958	Banana (S)	103	138	-34
125	26A	Leichhardt Hwy	South West	238.958	256.508	Banana (S)	103	138	-34
23	26B	Leichhardt Hwy	Darling Downs	0	60.47	Western Downs (R)	103	138	-34
24	26B	Leichhardt Hwy	Darling Downs	60.47	127.61	Western Downs (R)	147	311	-164
61000	46A	Dawson Hwy	Fitzroy	2.24	3.13	Gladstone (R)	112	185	-73
60063	46A	Dawson Hwy	Fitzroy	3.13	4.39	Gladstone (R)	112	185	-73
60064	46A	Dawson Hwy	Fitzroy	4.39	5.18	Gladstone (R)	112	185	-73
60066	46A	Dawson Hwy	Fitzroy	19.05	21.75	Gladstone (R)	112	185	-73
60128	46A	Dawson Hwy	Fitzroy	21.75	25.69	Gladstone (R)	112	185	-73
60005	46A	Dawson Hwy	Fitzroy	25.69	101.15	Gladstone (R)	112	185	-73

ROAD_ID_NO	ROAD SECTION ID	ROAD_NAME	MAIN ROADS REGION	START CH	END CH	Local Govt Area	New_vehicles per day	Old_vehicles per day	Difference
60067	46A	Dawson Hwy	Fitzroy	101.15	113.87	Banana (S)	112	210	-98
61084	46A	Dawson Hwy	Fitzroy	113.87	116.97	Banana (S)	112	210	-98
61085	46A	Dawson Hwy	Fitzroy	116.97	119.9	Banana (S)	112	210	-98
60068	46B	Dawson Hwy	Fitzroy	0	1.37	Banana (S)	112	281	-169
60012	46B	Dawson Hwy	Fitzroy	1.37	26.8	Banana (S)	148	368	-219
61020	46B	Dawson Hwy	Fitzroy	26.8	45.69	Banana (S)	145	108	37