SECAsolution
ACN: 164611652
Suite 10, 265 King Street
Newcastle NSW 2300
Ph: (02) 4925 7795
admin@secasolution.com.au

17 March 2014

P0179 MH Bindare Beef Addendum To BTF Report Rev03

Mitchel Hanlon Consulting,
P O Box 1568
Tamworth NSW 2340

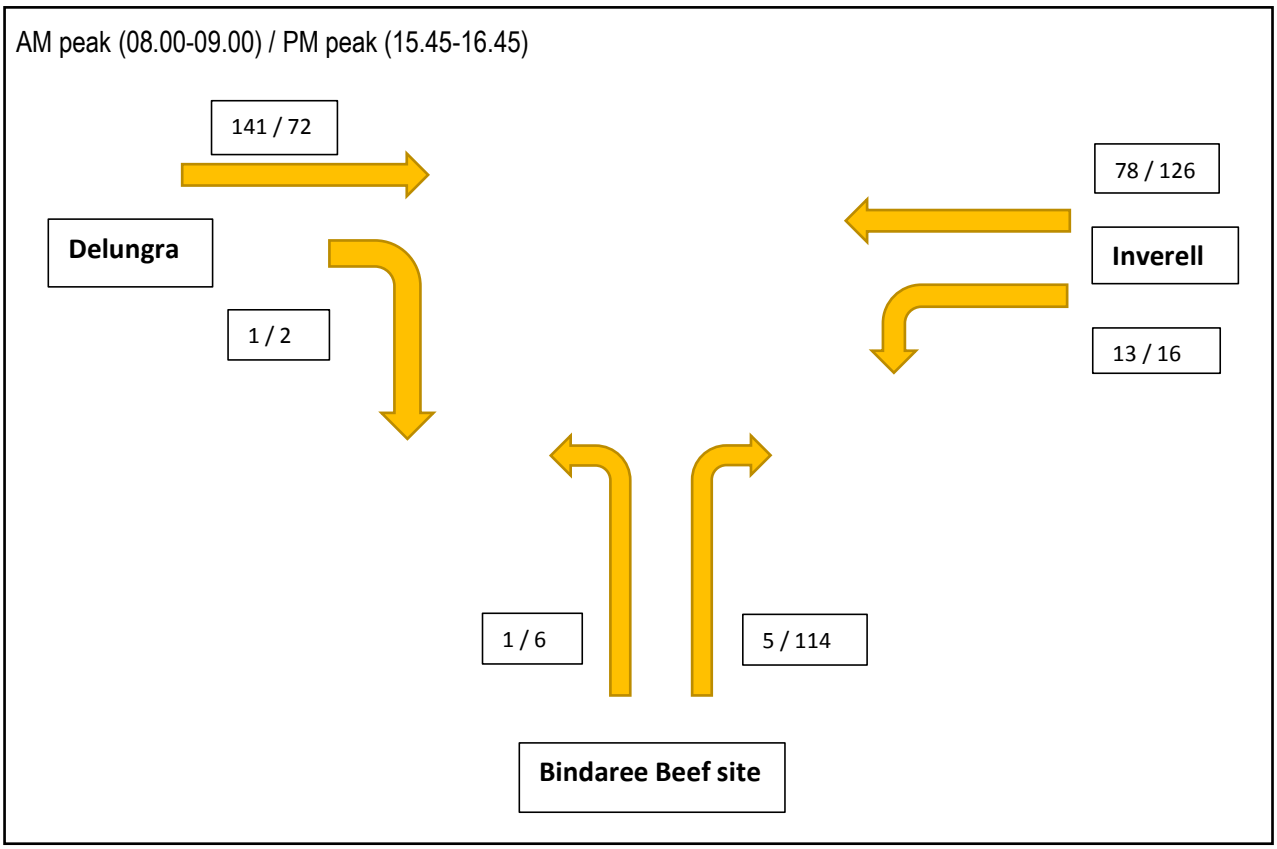
Attn: Jocelyn Ullman

Dear Jocelyn,

Additional information, Bindaree Beef, Inverell NSW

Further to our recent discussion and the information you have forwarded for the above project, we have now read the letter issued by the RMS dated 12th December 2013, reviewed the proposed minor changes to the project operations and provide the following additional advice with regard to traffic related issues for the project. Please note that this addendum is provided as a supplement to the previous traffic assessment completed by Better Transport Futures and should be read in conjunction with this report ("Bindaree Beef Proposed Facility Upgrade" Traffic Impact Assessment prepared by Better Transport Futures (BTF) dated December 2013).

Figure 1 – Existing site traffic movements

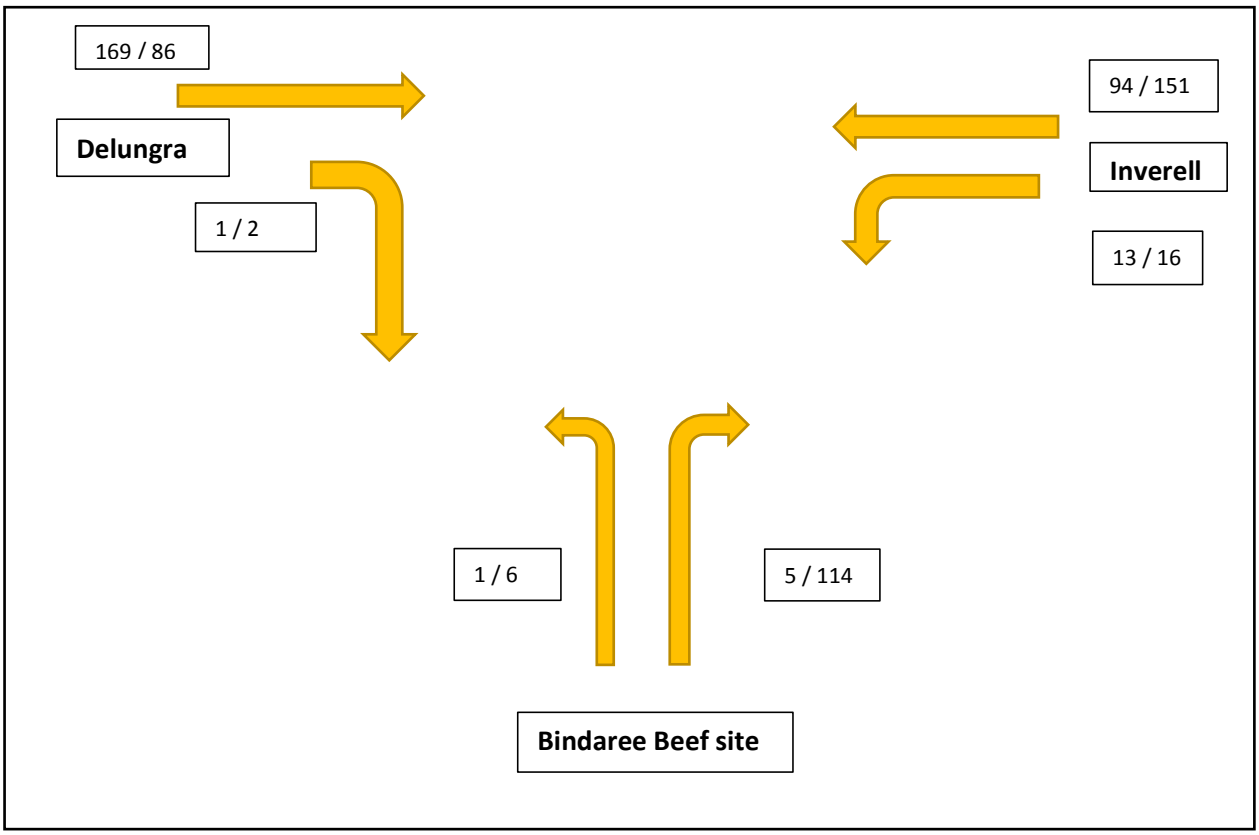


Quality Traffic Advice

The proposed works on site will not alter the number of staff working at Bindaree Beef. As such the peak hour traffic volumes observed during the on-site surveys completed by BTF will represent the future traffic volumes once the upgrade works have been completed.

It is noted that the construction phase will take place over some 9 months and that over this period there will be additional traffic movements in and out of the site. The major traffic movements will be associated with construction staff entering the site at the beginning of the day and then leaving at the end of the day. These staff movements will occur outside of the peak traffic movements associated with the operations on site, which will continue throughout the construction phase. During construction, there will be a peak of 64 construction staff on site with the vast majority of these workers being based in Inverell during the construction. It is expected that there will be a significant portion of shared trips for these workers and allowing for 2 people per vehicle this would generate some 32 vehicles inbound in the morning and a similar value outbound in the afternoon. The inbound flow will occur before 8.00 AM and the outbound flow at the end of the working day will be after 5.00 PM.

Figure 2 – Future Flows 2023 site flows plus background growth on Gwydir Highway (assumed 2% per annum)



3 – Sidra Analysis

The Sidra analysis has been completed for the existing 2013 flows and the future 2023 flows. As per the BTF report, the through traffic movements have been increased by 2% per annum (giving 20% over 10 years) whilst the traffic movements in and out of the Bindaree Beef site have remained at the current levels, as there will be no increase in traffic movements associated with the proposed works on the site.

As per the RMS letter, it is noted that the current Type AUR auxiliary lane treatment is not recognised in NSW under the current RMS Supplement to the *Austroads Guide to Road Design Part 4A*. Based upon the design flows prepared by BTF and confirmed as part of this supplement, based upon the Austroads warrants for turn lanes a type CHR (S) together with an AUL turn treatment should be provided for the site access.

This arrangement can utilise the majority of the existing road pavement, as the existing layout allows for shoulder widening based upon the design parameters for a type AUR. To alter the intersection layout to a Type CHR (S) a full design will need to be prepared, based upon a detailed road survey of the existing road layout. The CHR (S) is considered appropriate for this location, as the Sidra modelling shows for the future 2023 analysis (AM and PM peaks) the predicted queue length is less than a single vehicle. The provision of a type CHR (S) will remove the risk for rear end type accidents associated with a vehicle turning right into the site off the Gwydir Highway in the 100 km/h zone.

The Sidra output is provided below:

INTERSECTION SUMMARY

Site: Site access AM peak existing flows 2013

Site access on Gwydir Highway
2013 AM peak existing flows
Giveway / Yield (Two-Way)

Intersection Performance - Hourly Values				
Performance Measure	Vehicles		Persons	
Demand Flows (Total)	252	veh/h	302	pers/h
Percent Heavy Vehicles (Demand)	15.4	%		
Degree of Saturation	0.063			
Practical Spare Capacity	1456.3	%		
Effective Intersection Capacity	3995	veh/h		
Control Delay (Total)	0.08	veh-h/h	0.10	pers-h/h
Control Delay (Average)	1.1	sec	1.1	sec
Control Delay (Worst Lane)	12.6	sec		
Control Delay (Worst Movement)	16.0	sec	16.0	sec
Geometric Delay (Average)	0.9	sec		
Stop-Line Delay (Average)	0.2	sec		
Idling Time (Average)	0.0	sec		
Intersection Level of Service (LOS)	NA			
95% Back of Queue - Vehicles (Worst Lane)	0.4	veh		
95% Back of Queue - Distance (Worst Lane)	3.0	m		
Queue Storage Ratio (Worst Lane)	0.00			
Total Effective Stops	13	veh/h	15	pers/h
Effective Stop Rate	0.05	per veh	0.05	per pers
Proportion Queued	0.10		0.10	
Performance Index	2.3		2.3	
Travel Distance (Total)	200.5	veh-km/h	240.6	pers-km/h
Travel Distance (Average)	797	m	797	m
Travel Time (Total)	2.2	veh-h/h	2.7	pers-h/h
Travel Time (Average)	32.0	sec	32.0	sec
Travel Speed	89.7	km/h	89.7	km/h
Cost (Total)	116.98	$/h	116.98	$/h
Fuel Consumption (Total)	20.5	L/h		
Carbon Dioxide (Total)	49.1	kg/h		
Hydrocarbons (Total)	0.007	kg/h		
Carbon Monoxide (Total)	0.090	kg/h		
NOx (Total)	0.229	kg/h		

Level of Service (LOS) Method: Delay (RTA NSW).
NA: Intersection LOS for Vehicles is Not Applicable for two-way sign control since the average intersection delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

MOVEMENT SUMMARY

Site: Site access AM peak existing flows 2013

Site access on Gwydir Highway
2013 AM peak existing flows
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	ODMov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Site access											
1	L2	1	30.0	0.011	7.4	LOS A	0.0	0.3	0.28	0.49	42.6
3	R2	5	30.0	0.011	7.4	LOS A	0.0	0.3	0.28	0.49	42.6
Approach		6	30.0	0.011	7.4	LOS A	0.0	0.3	0.28	0.49	42.6
East: Gwydir Hwy (from Inverell)											
4	L2	14	15.0	0.008	12.6	LOS A	0.0	0.0	0.00	0.62	69.1
5	T1	82	15.0	0.046	0.0	LOS A	0.0	0.0	0.00	0.00	100.0
Approach		96	15.0	0.046	1.8	NA	0.0	0.0	0.00	0.09	94.1
West: Gwydir Hwy											
11	T1	148	15.0	0.063	0.3	LOS A	0.4	3.0	0.16	0.01	91.1
12	R2	1	15.0	0.063	16.0	LOS B	0.4	3.0	0.22	0.01	88.4
Approach		149	15.0	0.063	0.4	NA	0.4	3.0	0.16	0.01	91.1
All Vehicles		252	15.4	0.063	1.1	NA	0.4	3.0	0.10	0.05	89.7

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Site access PM peak existing flows 2013

Site access on Gwydir Highway
2013 PM peak existing flows
Giveway / Yield (Two-Way)

Intersection Performance - Hourly Values				
Performance Measure	Vehicles		Persons	
Demand Flows (Total)	354	veh/h	424	pers/h
Percent Heavy Vehicles (Demand)	20.4	%		
Degree of Saturation	0.229			
Practical Spare Capacity	249.7	%		
Effective Intersection Capacity	1546	veh/h		
Control Delay (Total)	0.46	veh-h/h	0.55	pers-h/h
Control Delay (Average)	4.7	sec	4.7	sec
Control Delay (Worst Lane)	12.6	sec		
Control Delay (Worst Movement)	16.2	sec	16.2	sec
Geometric Delay (Average)	3.7	sec		
Stop-Line Delay (Average)	1.0	sec		
Idling Time (Average)	0.4	sec		
Intersection Level of Service (LOS)	NA			
95% Back of Queue - Vehicles (Worst Lane)	0.7	veh		
95% Back of Queue - Distance (Worst Lane)	6.4	m		
Queue Storage Ratio (Worst Lane)	0.01			
Total Effective Stops	97	veh/h	116	pers/h
Effective Stop Rate	0.27	per veh	0.27	per pers
Proportion Queued	0.18		0.18	
Performance Index	5.3		5.3	
Travel Distance (Total)	257.0	veh-km/h	308.4	pers-km/h
Travel Distance (Average)	727	m	727	m
Travel Time (Total)	3.6	veh-h/h	4.3	pers-h/h
Travel Time (Average)	36.6	sec	36.6	sec
Travel Speed	71.5	km/h	71.5	km/h
Cost (Total)	174.78	$/h	174.78	$/h
Fuel Consumption (Total)	28.0	L/h		
Carbon Dioxide (Total)	67.4	kg/h		
Hydrocarbons (Total)	0.011	kg/h		
Carbon Monoxide (Total)	0.128	kg/h		
NOx (Total)	0.318	kg/h		

Level of Service (LOS) Method: Delay (RTA NSW).
NA: Intersection LOS for Vehicles is Not Applicable for two-way sign control since the average intersection delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

MOVEMENT SUMMARY

Site: Site access PM peak existing flows 2013

Site access on Gwydir Highway
2013 PM peak existing flows
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	ODMov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Site access											
1	L2	6	30.0	0.229	10.7	LOS A	0.7	6.4	0.37	0.67	46.2
3	R2	120	30.0	0.229	10.8	LOS A	0.7	6.4	0.37	0.67	46.2
Approach		126	30.0	0.229	10.8	LOS A	0.7	6.4	0.37	0.67	46.2
East: Gwydir Hwy (from Inverell)											
4	L2	17	15.0	0.010	12.6	LOS A	0.0	0.0	0.00	0.62	69.1
5	T1	133	15.0	0.075	0.0	LOS A	0.0	0.0	0.00	0.00	100.0
Approach		149	15.0	0.075	1.4	NA	0.0	0.0	0.00	0.07	95.3
West: Gwydir Hwy											
11	T1	76	15.0	0.033	0.5	LOS A	0.2	1.6	0.20	0.02	88.7
12	R2	2	15.0	0.033	16.2	LOS B	0.2	1.6	0.27	0.03	85.1
Approach		78	15.0	0.033	0.9	NA	0.2	1.6	0.20	0.02	88.6
All Vehicles		354	20.4	0.229	4.7	NA	0.7	6.4	0.18	0.27	71.5

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Site access AM peak flows 2023

Site access on Gwydir Highway
2023 AM peak flows
Giveway / Yield (Two-Way)

Intersection Performance - Hourly Values				
Performance Measure	Vehicles		Persons	
Demand Flows (Total)	298	veh/h	357	pers/h
Percent Heavy Vehicles (Demand)	15.3	%		
Degree of Saturation	0.100			
Practical Spare Capacity	878.8	%		
Effective Intersection Capacity	2975	veh/h		
Control Delay (Total)	0.07	veh-h/h	0.08	pers-h/h
Control Delay (Average)	0.8	sec	0.8	sec
Control Delay (Worst Lane)	16.0	sec		
Control Delay (Worst Movement)	16.0	sec	16.0	sec
Geometric Delay (Average)	0.7	sec		
Stop-Line Delay (Average)	0.1	sec		
Idling Time (Average)	0.0	sec		
Intersection Level of Service (LOS)	NA			
95% Back of Queue - Vehicles (Worst Lane)	0.0	veh		
95% Back of Queue - Distance (Worst Lane)	0.3	m		
Queue Storage Ratio (Worst Lane)	0.00			
Total Effective Stops	12	veh/h	15	pers/h
Effective Stop Rate	0.04	per veh	0.04	per pers
Proportion Queued	0.01		0.01	
Performance Index	2.6		2.6	
Travel Distance (Total)	237.4	veh-km/h	284.9	pers-km/h
Travel Distance (Average)	797	m	797	m
Travel Time (Total)	2.5	veh-h/h	3.0	pers-h/h
Travel Time (Average)	30.1	sec	30.1	sec
Travel Speed	95.2	km/h	95.2	km/h
Cost (Total)	133.11	$/h	133.11	$/h
Fuel Consumption (Total)	23.9	L/h		
Carbon Dioxide (Total)	57.2	kg/h		
Hydrocarbons (Total)	0.008	kg/h		
Carbon Monoxide (Total)	0.104	kg/h		
NOx (Total)	0.267	kg/h		

Level of Service (LOS) Method: Delay (RTA NSW).
NA: Intersection LOS for Vehicles is Not Applicable for two-way sign control since the average intersection delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

MOVEMENT SUMMARY

Site: Site access AM peak flows 2023

Site access on Gwydir Highway
2023 AM peak flows
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	ODMov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Site access											
1	L2	1	30.0	0.012	7.9	LOS A	0.0	0.3	0.32	0.51	42.3
3	R2	5	30.0	0.012	7.9	LOS A	0.0	0.3	0.32	0.51	42.3
Approach		6	30.0	0.012	7.9	LOS A	0.0	0.3	0.32	0.51	42.3
East: Gwydir Hwy (from Inverell)											
4	L2	14	15.0	0.008	12.6	LOS A	0.0	0.0	0.00	0.62	69.1
5	T1	99	15.0	0.056	0.0	LOS A	0.0	0.0	0.00	0.00	100.0
Approach		113	15.0	0.056	1.5	NA	0.0	0.0	0.00	0.08	94.9
West: Gwydir Hwy											
11	T1	178	15.0	0.100	0.0	LOS A	0.0	0.0	0.00	0.00	99.9
12	R2	1	15.0	0.001	16.0	LOS B	0.0	0.0	0.23	0.66	62.8
Approach		179	15.0	0.100	0.1	NA	0.0	0.0	0.00	0.00	99.7
All Vehicles		298	15.3	0.100	0.8	NA	0.0	0.3	0.01	0.04	95.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SIDRA INTERSECTION 6

INTERSECTION SUMMARY

Site: Site access PM peak flows 2023

Site access on Gwydir Highway
2023 PM peak flows
Giveway / Yield (Two-Way)

Intersection Performance - Hourly Values				
Performance Measure	Vehicles		Persons	
Demand Flows (Total)	395	veh/h	474	pers/h
Percent Heavy Vehicles (Demand)	19.8	%		
Degree of Saturation	0.243			
Practical Spare Capacity	228.9	%		
Effective Intersection Capacity	1623	veh/h		
Control Delay (Total)	0.47	veh-h/h	0.56	pers-h/h
Control Delay (Average)	4.3	sec	4.3	sec
Control Delay (Worst Lane)	16.3	sec		
Control Delay (Worst Movement)	16.3	sec	16.3	sec
Geometric Delay (Average)	3.3	sec		
Stop-Line Delay (Average)	1.0	sec		
Idling Time (Average)	0.5	sec		
Intersection Level of Service (LOS)	NA			
95% Back of Queue - Vehicles (Worst Lane)	0.8	veh		
95% Back of Queue - Distance (Worst Lane)	6.9	m		
Queue Storage Ratio (Worst Lane)	0.01			
Total Effective Stops	101	veh/h	121	pers/h
Effective Stop Rate	0.25	per veh	0.25	per pers
Proportion Queued	0.13		0.13	
Performance Index	5.7		5.7	
Travel Distance (Total)	289.8	veh-km/h	347.8	pers-km/h
Travel Distance (Average)	734	m	734	m
Travel Time (Total)	3.9	veh-h/h	4.6	pers-h/h
Travel Time (Average)	35.3	sec	35.3	sec
Travel Speed	74.8	km/h	74.8	km/h
Cost (Total)	190.66	$/h	190.66	$/h
Fuel Consumption (Total)	31.1	L/h		
Carbon Dioxide (Total)	74.8	kg/h		
Hydrocarbons (Total)	0.012	kg/h		
Carbon Monoxide (Total)	0.141	kg/h		
NOx (Total)	0.352	kg/h		

Level of Service (LOS) Method: Delay (RTA NSW).
NA: Intersection LOS for Vehicles is Not Applicable for two-way sign control since the average intersection delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

MOVEMENT SUMMARY

Site: Site access PM peak flows 2023

Site access on Gwydir Highway
2023 PM peak flows
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	ODMov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Site access											
1	L2	6	30.0	0.243	11.3	LOS A	0.8	6.9	0.41	0.70	45.6
3	R2	120	30.0	0.243	11.4	LOS A	0.8	6.9	0.41	0.70	45.6
Approach		126	30.0	0.243	11.4	LOS A	0.8	6.9	0.41	0.70	45.6
East: Gwydir Hwy (from Inverell)											
4	L2	17	15.0	0.010	12.6	LOS A	0.0	0.0	0.00	0.62	69.1
5	T1	159	15.0	0.089	0.0	LOS A	0.0	0.0	0.00	0.00	100.0
Approach		176	15.0	0.089	1.2	NA	0.0	0.0	0.00	0.06	95.9
West: Gwydir Hwy											
11	T1	91	15.0	0.051	0.0	LOS A	0.0	0.0	0.00	0.00	100.0
12	R2	2	15.0	0.002	16.3	LOS B	0.0	0.1	0.29	0.65	62.4
Approach		93	15.0	0.051	0.4	NA	0.0	0.1	0.01	0.01	99.0
All Vehicles		395	19.8	0.243	4.3	NA	0.8	6.9	0.13	0.25	74.8

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SIDRA INTERSECTION 6

4 – On-site parking
As discussed above, the proposed development will not require any additional staff to work on site, therefore there is no increase in demand for on-site parking created by the proposal.

There are currently 265 formal parking spaces provided on-site which cater for the current daily parking demands. There is significant car sharing for trips to the site, due to the shift work operations and the works are split over a number of shifts reducing the peak parking demand.

During construction, the current operations will continue and there will be some additional parking demands associated with the maximum of 64 construction staff on site. Again, it is considered that there will be significant scope for shared trips for these construction workers and hence reduced parking demands. The site has large areas of grassed area which will be utilised by the construction operations for plant and vehicles to park and will ensure that there will be no demand for parking external to the site.

5- Truck movements
Currently, material deliveries are made by B-double vehicle and there is no planned change to this configuration. The use of HPVs (B-triples, AB triples etc.) is not anticipated. Should this change in the future the RMS comment regarding the access is noted.

6- Amendments to material deliveries and removal
The proposed operations on site will change slightly over the previous assessment completed by Better Transport Futures (BTF) for the development, as there is a new provider of the bio-digester and sorghum is no longer a feedstock for this process. All feedstock for the bio-digester will come from the existing operations undertaken at the abattoir. The waste product coming out of the plant is a rich source of plant nutrition and as such provides a fertiliser in two forms, a liquid and a pelletised fertiliser. The major volume of output will be a liquid that will be used as a fertiliser that forms part of the on farm irrigation which will be pumped to the adjacent Bindaree Farm to the south of the site. A smaller portion of the output will be dried on site, resulting in an organic fertiliser product that can be used for crop pastures, either on Bindaree Farm or taken off site to other farms in the location. The movement of this material across Copeton Dam Road will have a minimal impact upon the low traffic movements at this location. This pelletised product will be removed from the abattoir site in a 10 tonne truck and will amount to a single load / truck per day. This alteration to the rendering and bio-digester plant for the project will not have a significant traffic impact upon the local road network and there is sufficient parking on site for this plant.

The anticipated construction dates have changed for the project, with construction now due to commence in January 2015 and be completed by September 2015. The timeframe required for the construction work is 9 months.

The extent of construction activities and the future employment numbers will remain as per the BTF assessment and as such, the impacts assessed within the BTF report will remain. After reviewing the BTF report and the proposed amendments to utilise organic fertilisers as opposed to sorghum, it is considered that the project should be approved on traffic and parking grounds.

Please feel free to contact me on 4925 7795, or 0499 196 100, should you have any further queries.

Yours sincerely

Sean Morgan

Director