Paul and Narelle van den Bos believe that SIMTA EIS Stage 1 Traffic and Transport Impact Assessment should be re-done; but this time by competent staff.

We have listed a few examples of our concerns with this report. We sincerely hope that after reading these few examples, the reader will equally be concerned about the technical aspects of the traffic and transport assessment. Please give Paul and ring on (02) 9755 1059 if you need any point of clarification.

The NSW Government knows our views regarding the actual trip generation: please refer to Page 13 in 'Moorebank Intermodals Key Assumptions Require Closer Scrutiny'
http://lcit.com.au/wp-content/uploads/2013/06/Intermodals_Book_Web_V19.pdf

I have a standing offer with the NSW Government, through Mr Adam Achterstraat, to work with other people in order to achieve a reasonable intermodal traffic generation rate.

How can experts be so different in their accident analyses?

How is it possible for technical experts to draw opposite conclusions from the same database:

SIMTA EIS

"*A low number of crashes occurred on Moorebank Avenue (south of the M5 Motorway), Anzac Road and Cambridge Avenue compared to State Roads crash sites*".
Ref. Appendix L_SIMTA Stage 1_Traffic and Accessibility Impact Assessment.pdf, page 18

MICL EIS

"The section of Moorebank Avenue between the East Hills Railway Line and the M5 Motorway is approximately 2.8 km long and is generally two-lane two-way with lane widening to accommodate movements at the M5 Motorway intersection. The crash data supplied by RMS indicate that 38 casualty crashes have occurred over the last 5-year period between 2008 and 2013. This equates to 2.71 casualty crashes per kilometre a year, which is in excess of the 0.13 casualty crashes per kilometre a year. This section of Moorebank Avenue is therefore considered a black spot."
Ref. 013_Moorebank IMT Project _Chapter_11_Traffic, Transport and access.pdf, Parsons Brinckerhoff 11-16

What should we as the public, and the local community make from these opposing statements?

- SIMTA paints the "good" news – low number of accidents.
- MICL: it is a black spot.

Which EIS statement is correct?
Why are these statements so different if the same database is used?

Complete lack of transportation fundaments

Any non-technical person appreciates that when it comes to determining future traffic, logic dictates that this must be estimated in three parts:

- Determine the future through traffic,
- Determine the future local traffic, and
- Determine the future from the new development.

When the through traffic and local traffic are combined, it is commonly referred to as "background traffic" for the new development.

Logic dictates that to calculate the background traffic consideration should be given to:

- Land use changes ***outside*** the study area – this affect trips travelling through the study area, and
- Land use changes (without the development) **inside** the study area – this affect "local trips".

Any traffic from the new development is separate from these two traffic streams.

The land use changes inside and outside the study area are very independent of each other, and therefore should be considered separately.

"During the Concept Plan Approval background traffic growth assumptions up to 2031 for the SIMTA Proposal were agreed with both TfNSW and RMS".
Ref. Appendix L_SIMTA Stage 1_Traffic and Accessibility Impact Assessment.pdf, page 42

While it makes sense to derive a single "growth" statistic for high-level communication, to apply that one statistic to both the through trips and local trips is only valid **if, and only if,** it can be shown that the growth in "through" trips is identical to the growth in "local" trips. If these growth rates are not identical, then to apply a single growth rate to both traffic groups displays the complete lack of transportation fundaments.

Table 2-3 Historical Traffic Growth between 2002 and 2014

Road Location	Annual Average Growth				
	Between 2002-2005	Between 2005-2009	Between 2002-2009	Between 2005-2012	Between 2010-2014
M5 Motorway - at bridge over Georges River	▲2.3%	▲3.7%	▲3.1%	▲2.9%	
M5 ramp - east of Hume Hwy	▲4.8%	▼0.9%	▲1.5%		
Moorebank Avenue – north Hills Railway overbridge	▲3.5%	▼3.0%	▼0.3%		▼0.2%
Glenfield Rd - north of Cambridge Ave bridge	▼0.5%	▲1.2%	▲0.5%		
Moorebank Avenue - south of Anzac Road					▼0.9%
Anzac Road - east of Moorebank Avenue					▲1.4
Average for all roads (last 12 years)			**▲1.2%**		

Source: Hyder's analysis, File: F:\AA003760\T-Traffic Modelling\STAGE 1 SIMTA_Dec2014\Reports\Traffic & Accessibility Impact Assessment\Figures&Tables TAIA Report.xlsx

When looking at this table, any TfNSW and/or RMS person with any experience would appreciate that four major events have occurred that have influenced the traffic counts, on which these growth rates have been calculated:

- the opening of the "Link Rd" between the Hume Highway and the Cross Roads, and the opening of the M7,
- the Global Financial Crisis,
- the Widening of the M5, and
- the relocation of the School of Military Engineering.

Any TfNSW and/or RMS person with any experience would accept that

- the M5 Motorway traffic would mostly be “through trips” with about 3% growth (from above table), and
- the other traffic on the other roads would be a mixture of “through trips” and “local trips”.

The TfNSW and/or RMS person would also appreciate that the “through trips” would account for a significant proportion (60% - 80%) of all the future background traffic, and do a quick mental calculation:

- Say 70% (midway between 60%-80%) growing at 3%, and
- 30% growth at say 1% (average of Glenfield Rd and Anzac Rd)

The results must clearly be higher than 1.2%. (Using these estimates the growth rate is 2.5%, that is, more than double the SIMTA estimates.)

It is sad day for our traffic engineering profession, when representatives from the TfNSW and RMS, who claim to uphold the standards in transportation and traffic engineering, are not able to make elementary judgment calls.

Using wrong analysis tools

Traffic and transportation engineers use a Level of Service (LOS) index. This image is used to help non-technical people interpret the **Level of Service** used by traffic and transportation engineers.

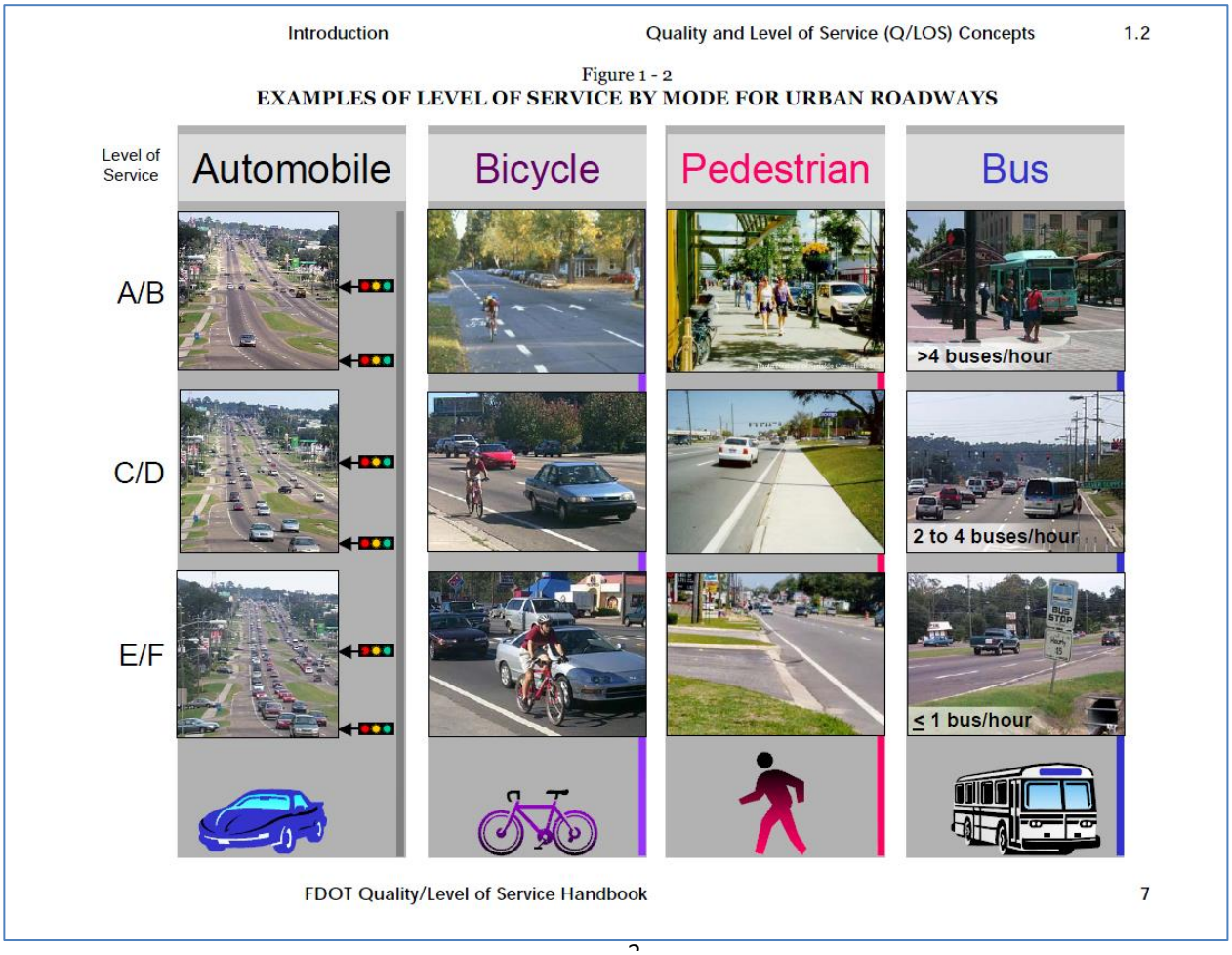

Figure 1 Level of Service

The public now appreciates that the Level Of Service F means “FAIL”. They often ask the question why does the RMS not introduce the Level Of Service “G” for Grid lock?

SIDRA is an Australian home grown software package developed to analyse intersections and roundabouts. Every traffic engineer in Australia and many traffic engineers all over the world use it.

There are two versions of this software: an “isolated” intersection version, and a “network” version.

In the network version, intersections are daisy-chained. If intersections are “closely spaced”, and one intersection has a very long queue, that queue, if long enough, can affect the operation of the nearby intersection. This is known as ‘queue spillback’ - the traffic queue blocks the last intersection.

For whatever reason, both SIMTA and MICL EIS used the SIDRA isolated version. This is clearly the wrong tool, as shown below.

Figure 2 Moorebank Av between Newbridge Rd and Heathcote Rd shows that the distance between Heathcote Rd and Newbridge Rd is 83 m.

Figure 2 Moorebank Av between Newbridge Rd and Heathcote Rd

These two intersections have been have been analysed in the MICL and SIMTA EIS documents, and the results are compared.

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Appendix C - 2014 Existing year SIDRA Results

MOVEMENT SUMMARY

Site: I-06 2014 BASE PM

Network: 2014 BASE PM

Newbridge Road / Moorebank Avenue
2014 BASE PM PEAK 4:30 pm - 5:30 pm
Signals - Fixed Time Cycle Time = 116 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	ODMov	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Moorebank Avenue (S)													
1	L2	700	3.3	700	3.3	0.400	21.4	LOS B	9.4	67.6	0.51	0.72	40.6
3	R2	697	10.7	697	10.7	0.901	51.5	LOS D	17.1	130.6	1.00	0.94	35.5
Approach		1397	7.0	1397	7.0	0.901	36.4	LOS C	17.1	130.6	0.76	0.83	37.3
East: Newbridge Road (E)													
4	L2	1048	5.1	1048	5.1	0.682	26.2	LOS B	23.4	171.3	0.73	0.82	46.6
5	T1	1132	4.7	1132	4.7	0.760	36.2	LOS C	26.9	196.1	0.90	0.80	48.7
Approach		2180	4.9	2180	4.9	0.760	31.4	LOS C	26.9	196.1	0.82	0.81	47.9
West: Newbridge Road (W)													
11	T1	918	3.8	918	3.8	0.359	8.6	LOS A	11.0	79.4	0.46	0.41	63.4
12	R2	947	2.7	947	2.7	0.887	43.4	LOS D	26.6	190.3	0.97	0.92	29.1
Approach		1865	3.2	1865	3.2	0.887	26.3	LOS B	26.6	190.3	0.72	0.67	47.7
All Vehicles		5442	4.9	5442	4.9	0.901	30.9	LOS C	26.9	196.1	0.77	0.77	45.3

Figure 3 MICL EIS Moorebank Av - Newbridge Rd intersection - 2014 PM

Figure 3 MICL EIS Moorebank Av - Newbridge Rd intersection - 2014 PM comes from the MICL EIS Report 047 Technical Paper 1_Traffic and Transport and access (Part B).pdf.

The SIDRA (software) analysis shows that the whole intersection operates at a Level of Service (LOS) C. See **little red box**.

It also shows the distance to the back of the queues. The **big red box** shows that the 95% queue length is 130.6 m long. The interpretation of the 95% Back of the Queue, means that for 5% of the time, the queue length will be longer that this length, and 95% of the time, shorter.

This distance of 130 metres is shown in Figure 4 MICL - Northbound queue length.

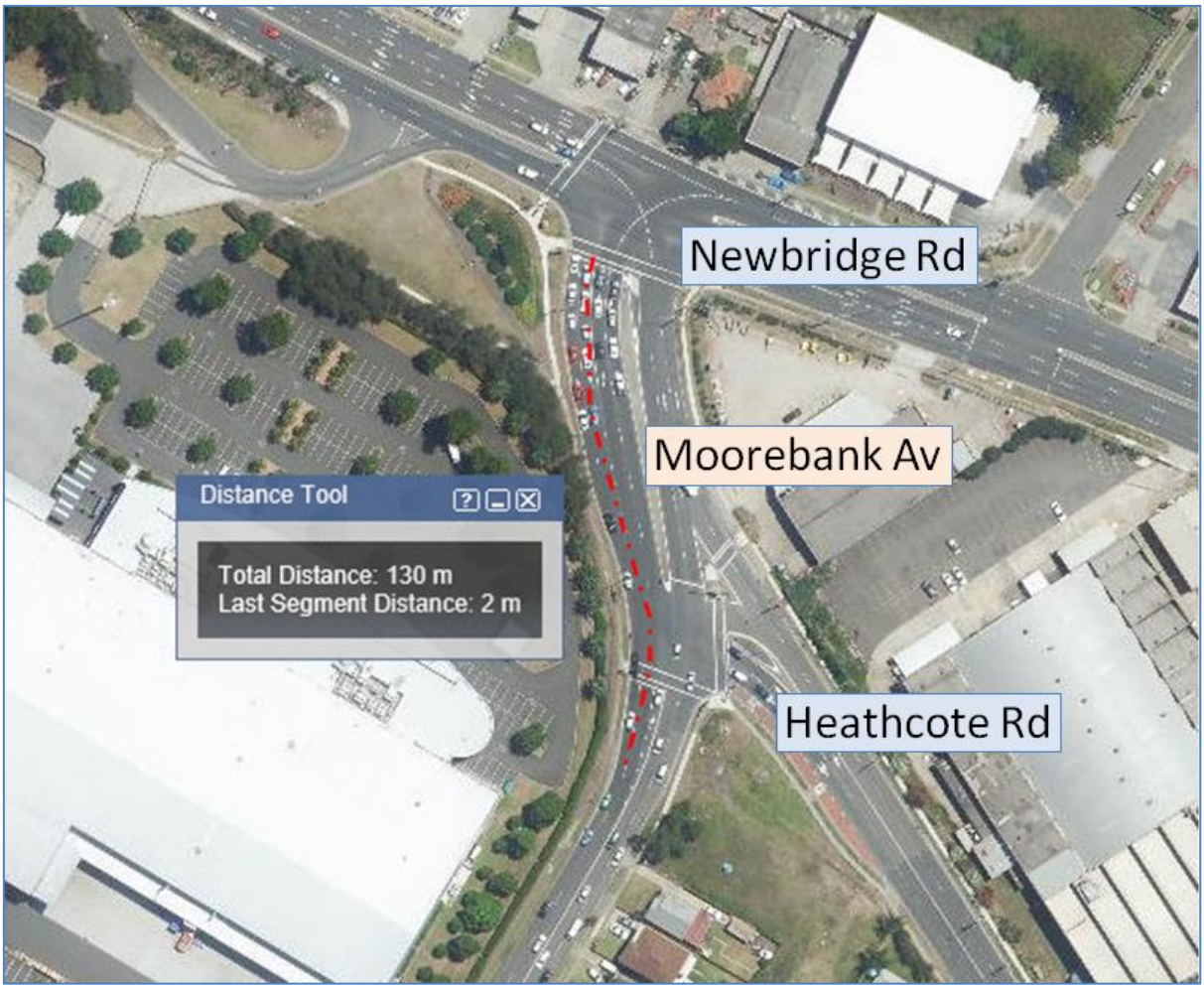

Figure 4 MICL - Northbound queue length

By inspection, it is obvious that the northbound queue will impact the operation of the Heathcote intersection for a very significant time.

The same data has been extracted from the Heathcote Rd intersection, for examination of the southbound movement.

Figure 5 Moorebank Av - Heathcote Rd intersection - MICL 2014 PM shows the SIDRA output for the intersection. The 95% queue lengths have been plotted for visualisation purposes.

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Appendix C - 2014 Existing year SIDRA Results

MOVEMENT SUMMARY

Site: I-07 2014 BASE PM

Network: 2014 BASE PM

Moorebank Avenue / Heathcote Road
2014 BASE PM PEAK 4:30 pm - 5:30 pm
Signals - Fixed Time Cycle Time = 116 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	ODMov	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Moorebank Avenue (S)													
2	T1	858	8.3	858	8.3	0.636	13.6	LOS A	17.2	129.0	0.65	0.59	33.7
3	R2	38	8.3	38	8.3	0.313	64.1	LOS E	2.2	16.2	0.99	0.73	32.3
Approach		896	8.3	896	8.3	0.636	15.7	LOS B	17.2	129.0	0.66	0.59	33.4
East: Heathcote Road (E)													
4	L2	64	19.7	64	19.7	0.890	49.7	LOS D	23.7	176.2	0.99	0.94	35.2
6	R2	544	5.0	544	5.0	0.890	45.9	LOS D	23.7	176.2	0.95	0.90	34.3
Approach		608	6.6	608	6.6	0.890	46.3	LOS D	23.7	176.2	0.95	0.90	34.5
North: Moorebank Avenue (N)													
7	L2	760	3.6	760	3.6	0.356	7.5	LOS A	5.0	36.2	0.24	0.61	53.8
8	T1	1235	4.1	1235	4.1	0.628	6.1	LOS A	10.4	75.2	0.32	0.29	47.1
Approach		1995	3.9	1995	3.9	0.628	6.6	LOS A	10.4	75.2	0.29	0.41	51.2
All Vehicles		3499	5.5	3499	5.5	0.890	15.8	LOS B	23.7	176.2	0.50	0.54	42.3

Figure 5 Moorebank Av - Heathcote Rd intersection - MICL 2014 PM

The following images show the 95% queue lengths for the Moorebank Av – Heathcote Rd intersection.

For about 5% of the time, the Heathcote Rd intersection will impact the Newbridge Rd intersection.

By inspection, it is clear that the queue lengths of these two closely spaced intersections affect the operation of the other intersection.

- The Northbound queue towards Newbridge Rd affects Heathcote Rd intersection for a very significant proportion.
- The southbound queue towards Heathcote Rd, affects the Newbridge Rd intersection for 5% of the time.

Intuitively, the combined impact must have a compounding affect.

Closer examination

A closer examination of the northbound traffic movement shows that numbers do not add up.

- North Moorebank Av (N) thru 858
- East Heathcote Rd (E) right 544
- Total northbound 1,402

Traffic arriving at Newbridge Rd intersection:

- Traffic arriving 1,397

Northbound from Heathcote Rd: Outflow = 1,402
Northbound arriving at Newbridge: Inflow = 1,397

Why did we lose 5 vehicles?

Clearly, using the SIDRA isolated intersection software is very inappropriate, because

- the queue backspill is not incorporated, and
- the obvious numerical inconsistences between outflows and inflows between intersections.

How can experts be so different in their SIDRA analyses?

Here is the SIMTA analyses of the two intersections have been extracted from this table.

Table 3-8 Existing 2014 Level of Service for PM Peak Traffic Condition

ID	Intersections	Control	Approach	2014 Exiting PM Peak							
				16:00-17:00				17:00-18:00			
I-1	Moorebank Avenue / Anzac Road	Signals	North	18	B	23	B	18	B	22	B
			East	35	C			31	C		
			South	20	B			17	B		
I-2	M5 Motorway / Moorebank Avenue	Signals	North	25	B	25	B	28	B	26	B
			East	16	B			15	B		
			South	27	B			21	B		
			West	31	C			31	C		
I-3	M5 Motorway / Hume Highway	Signals	North	35	C	41	C	36	C	37	C
			East	61	E			60	E		
			South	36	C			24	B		
I-4	Moorebank Avenue / Newbridge Road	Signals	East	54	D	43	D	61	E	49	D
			South	38	C			39	C		
			West	34	C			43	D		
I-5	Moorebank Avenue / Heathcote Road	Signals	North	19	B	55	D	18	B	53	D
			East	77	F			69	E		
			South	93	F			102	F		
I-6	M5 Motorway / Heathcote Road	Signals	North	42	C	37	C	64	E	51	D
			East	20	B			31	C		
			South	20	B			23	B		
			West	50	D			62	E		
I-7	Cambridge Avenue / Glenfield Road	Roundabout	North	6	A	13	A	8	A	18	B
			East	13	A			18	B		
			South	8	A			8	A		
I-8	Cambridge Avenue / Canterbury Road	Roundabout	North	8	A	21	B	7	A	21	B
			East	21	B			21	B		
			South	4	A			3	A		
			West	9	A			9	A		

Source: Paramics, File: F:\AA003760\T-Traffic Modelling\STAGE 1 SIMTA_Dec2014\Calculations\Level of Service (LoS)\March2015_Report\LoS Summary_by approach.xlsx
Model File: F:\AA003760\T-Traffic Modelling\STAGE 1 SIMTA_Dec2014\Modelling\2015 March\Without SIMTA\2014 PM_TZ67_Scenario_0

Figure 6 SIMTA EIS

Comparing the MICL and SIMTA EIS for these two intersections

	SIMTA 2014 Exiting PM Peak				MICL 2014 PM Peak	
	16:00-17:00		17:00-18:00		4:30 pm - 5:30 pm	
Intersection	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
Moorebank Avenue / Newbridge Road	D	43	D	49	C	30.9
Moorebank Avenue / Heathcote Road	D	55	D	53	B	23.7

Putting aside that, in both cases, the wrong software tool was used, this table illustrates that experts using similar data, are able to arrive at such vastly different outcomes.

What should we, as the public, and the local community, make from these statistics?

- SIMTA - medium level of congestion: LOS “D”.
- MICL – little congestion: LOS “B” and “C”.

Which EIS statistics are correct?
Why are these statistics so different when similar data has been used?

Impact of using the wrong SIDRA version
A SIDRA network analysis of a simple network containing these two intersections and using the same SIMTA inputs shows that the network operates at LOS F. That confirms the compounding impacts of queue spillback between the two intersections.

The TfNSW and RMS maintaining “standards” in traffic engineering?

4.3 Potential Improvements Identified by TfNSW/RMS

On August 2014, TfNSW and RMS undertook their own preliminary investigation and identified potential upgrade works required at the Moorebank Avenue/Newbridge Road signalised intersection. The upgrade works involve provision of a third right turning lane on the Moorebank Avenue southern approach, and an additional through lane on the eastbound carriageway of Newbridge Road on the departure side of the intersection. The potential upgrades at the Moorebank Avenue/Newbridge Road signalised intersection are shown schematically in Figure 4-1.

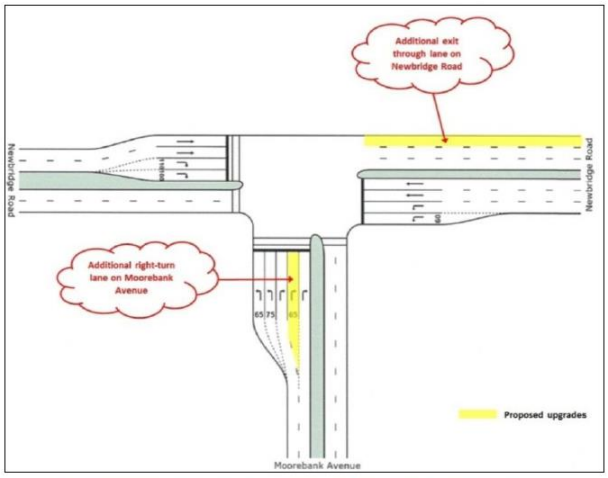


Figure 4-1 Indicative Upgrades at the Moorebank Avenue/Newbridge Road intersection

The potential upgrades identified by the TfNSW/RMS were reassessed for 2016 traffic conditions without the Proposal. Table 4-3 and Table 4-4 below show the level of service for pre and post upgrade condition for 2016.

Paul developed two SIDRA-networks containing the Newbridge and Heathcote intersections: (1) the existing base and (2) the improved network, incorporating the potential improvements identified by TfNSW and RMS.

The improved network performs better that the existing network: for a desired speed of 60 km/hr, the average network speeds increases from 6.1 km/hr in the existing network to 7.1 km/hr in the improved network.

Changing the average network speed from 6.1 km/hr to 7.1 km/hr resulting for the potential network improvements identified by TfNSW and RMS, will cost a great deal of taxpayers' money, with only trivial benefits.

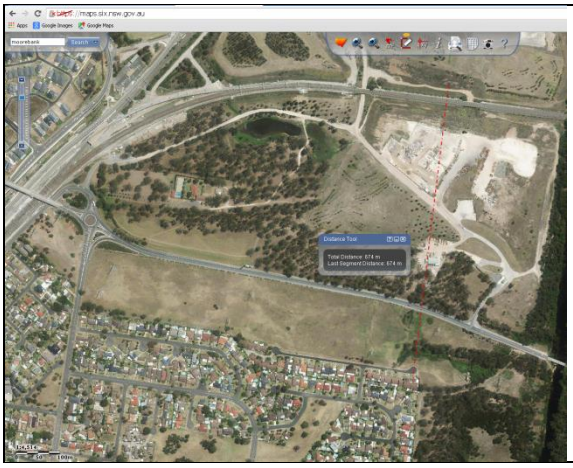
Sadly, this again shows that the traffic engineers within the TfNSW and RMS who identified this potential network improvement have clearly forgotten all the fundamentals of traffic engineering theory.

Why is it so difficult to report facts?

A number of residential suburbs are located in proximity to the Stage 1 site, including:

- Wattle Grove, located approximately ~~600~~ **450** metres from the Stage 1 site and 750 metres from the rail link to the east.
- Moorebank, located approximately ~~1,700~~ **1300** metres from the Stage 1 site and more than 2,700 metres from the rail link to the north.
- Casula, located approximately ~~1,100~~ **800** metres from the Stage 1 site and ~~250~~ **50** metres from the rail link to the west.
- Glenfield, located over 1,700 metres from the Stage 1 site and ~~750~~ **670**metres from the rail link to the south-west.

How were these distances measured?



Sub professional work – sub professional standards

It is difficult to remain unbiased when reading the SIMTA EIS.

The clear observation is that this technical work is of a sub professional standard. Is this gross incompetency, or are the technical people under strict direction to produce this inferior work?

What is even more depressing is that the representatives referred to in the EIS from the TfNSW and/or RMS, purporting to be the Authority of maintaining the standards in transportation and traffic engineering, display an equal level of incompetency.