


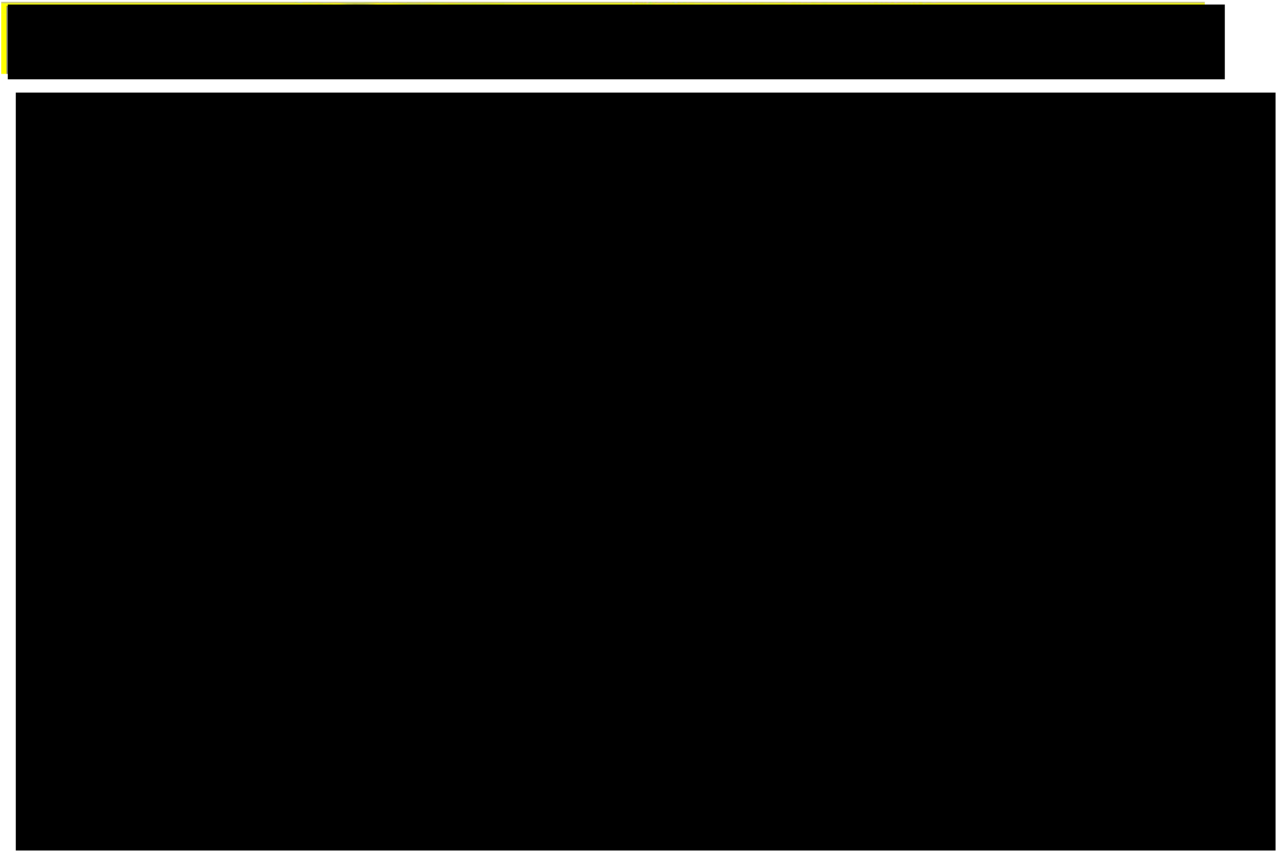


MOOREBANK  
INTERMODAL

BETTER OPTIONS

Narelle and Paul van den Bos | 

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# Synopsis

This report reviews documents relating to Moorebank Intermodal. These documents bring to light the science which points out the fact that building the Intermodal at Moorebank will be a huge mistake for any government. The proposed Southern Intermodal Terminal at Badgerys Creek and Eastern Creek would most likely prove to be far more viable options. The proposed Moorebank Intermodal has 135,000 residents living within five kilometres of the site.

## **Freight Location**

This report reveals that when actual destinations of truck imports and exports to and from Port Botany are examined Moorebank would be a poor choice of location. Current intermodals and the future Eastern Creek Intermodal are better located to service this existing market. The reason for the lack of existing importing and exporting industries being close to Moorebank is most likely due to the traffic congestion in the area.

The report also shows that future freight markets would be better serviced from the proposed intermodal at Badgerys Creek and the Southern Intermodal. These Intermodal terminals are within the Broader Western Sydney Employment Area, and much closer to the future South West and North West Growth Centres. The Southern Intermodal is planned to be close to, or within the Commonwealth Land at Badgerys Creek.

## **Limited Rail Capacity**

Reports also reveal that there is a theoretical limit to the capacity of the freight that can be moved by rail through Sydney. This limited rail capacity restricts the number of intermodals that can be serviced by rail from Port Botany. This means that either Eastern Creek or Moorebank intermodal could be serviced by rail not both. Therefore it is important that the planners get their locations right. Eastern Creek would service the current and future markets more efficiently than Moorebank.

Building the Intermodal at Badgerys Creek would also service the future market more efficiently than Moorebank. As well, in the future this Badgerys Creek location would allow freight to be brought from Port Kembla rather than through Port Botany.

## **Moorebank Precinct Traffic Congestion**

Altogether there are a possible 34 infrastructure upgrades considered necessary for the intermodal to operate around the Moorebank precinct. This list includes grade separated intersections and a possible, alternate Hume Highway bypass. None of which have been costed.

These upgrades are identified from reports including Liverpool, Campbelltown and Bankstown Councils as well as Transport for NSW, SIMTA and the Moorebank Intermodal Company. The list clearly shows that the existing traffic congestion in the Moorebank/Liverpool area is in desperate need of attention. This condition will become worse over time from natural growth. To add the traffic from the proposed



Moorebank Intermodal to this traffic would further exasperate the situation. Therefore the cost of upgrading the roads is enormous.

It simply doesn't make sense to build an intermodal on an island that requires bridges to access and regress it. There are also the added traffic issues related to rat-running through the Liverpool CBD cutting off a major regional teaching hospital from priority emergency care. Further rat-running of traffic would also occur on Governor Macquarie drive, Henry Lawson's Drive and Anzac Parade which are residential areas.

As well as this, traffic would also be generated from available surrounding locations that will be taken up by industries that are symbiotic with the proposed Moorebank Intermodal. This will further frustrate the already unacceptable congestion around the Moorebank district. Unfortunately this induced traffic has not been modelled by the proponents.

### **Future Freight Predictions Too High**

Predictions on growth in freight movements (that will be coming through Port Botany) have been much higher than actual growth in freight movements. The current growth in freight movements has changed very little in the last four years, and is almost equal to 2009. Even though the recorded growth in freight movements has been nearly zero the Moorebank Intermodal proponents are still claiming a 7% yearly growth in freight.

These optimistic higher predictions of 7% growth indicated the necessity to build intermodals quickly. However, a closer look at the actual freight coming to Port Botany shows that the urgency to build Intermodal capacity for these future freight movements is not there. Therefore, there is time for proper planned, fully costed solutions to be determined.

### **Economic Disbenefits of Moorebank**

The projected \$2.4 billion (present day terms) in benefits is believed to be overestimated when the one billion dollars for moving the school of military engineering and costs for upgrading the road infrastructure are taken into account. It also needs to be recognised that the economic modelling was flawed by making the assumption that 3,300 trucks are currently coming to Moorebank. In fact the trucks go from Port Botany to locations mainly at Wetherill Park and all over Sydney, not to Moorebank. It is not understood why the modellers claimed that the trucks are already coming to Moorebank except perhaps to make the benefits appear higher.

### **Moorebank Intermodal Land - Prime Real Estate**

The land on which the Moorebank Intermodal is proposed to be built, is prime real estate. It is less than five kilometres from the Liverpool CBD and has river frontage. It could be sold lucratively to developers that have vision for Liverpool as a solid, thriving cornerstone for the provision of the new South West Growth Centre.

### **Conclusion**

Therefore it is the opinion of the authors that progress on the Moorebank intermodal should be halted immediately. Further detailed study and acceptable solutions need



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to be developed and fully costed. It is recommended that the Badgerys Creek and Eastern Creek Intermodals should be compared with the Moorebank Intermodal taking into account the freight destinations, realistic consideration of traffic congestion, economic, social and environmental issues for a successful implementation of the winner.

This report shows that the Moorebank Intermodal does not service either the existing or future freight markets well and its implementation costs are enormous. The real estate for the proposed Intermodal could be used for the greater benefit of society.





# Executive Summary

Mr Craig Kelly MP, Member for Hughes, New South Wales, commissioned Transport Modelling to undertake an investigation to consider if the Moorebank Intermodal Terminal is the best location for servicing present and future freight needs, and if this was not the case, investigate possible other alternative locations.

This work, and the earlier work “Moorebank Intermodals, Key assumptions require deeper scrutiny” by Narelle van den Bos, a Director of Transport Modelling, have all been undertaken pro bono publico. Narelle’s earlier work <sup>(35)</sup> showed that once the facts were considered, the rationality of the project should be questioned. This report builds on that earlier work and examines better alternatives.

When the initial planning was carried out for the Moorebank Intermodal there was a buffer zone around the site. There was no housing nearby. ‘A Current Affair’ program broadcasted late last year stated that 135,000 people live within 5 km from the Moorebank Intermodal Precinct. <sup>(1)</sup> Now, the nearest house is less than 500 metres from the SIMTA site. Pollution (reports on health issues around intermodals are worrying indeed), noise and traffic congestion become huge issues for these residents and indeed the State and Federal governments.

The Eastern Creek Intermodal Terminal would service the current freight markets more efficiently. Current understanding is that there is a limit to the rail capacity dictating that either Eastern Creek or another intermodal could be serviced by rail, not both intermodals. As will be shown in this report, Moorebank is far from an ideal location.

Major assumptions made by the Moorebank Intermodal proponents are flawed. There are not 3,300 trucks that currently carry containers between Port Botany and Moorebank on the M5. Intermodal trucks do have direct access to the M5 and M7 Motorways, however, extremely expensive additional road infrastructure is required to implement that access. There are many more infrastructure upgrades required than just Moorebank Avenue in 2029/2030. In summary, the Project is very unlikely to yield \$2.3 billion of economic benefits in present value terms, the Project is even less attractive if the Moorebank School of Military Engineering Unit relocation was factored in to the costs.

## Moorebank does not serve the freight market well

Existing freight market located away from Moorebank

Figure ES1 shows the destinations of the truck movements from Port Botany on a typical day in 2011. The tall bars represent the volume of truck movements. The red bars represent the articulated trucks, the blue bars represent the rigid trucks, and the yellow bars represent the vans and utilities. When these freight destinations are examined more closely for the nearest Intermodal service it is clear that the proposed



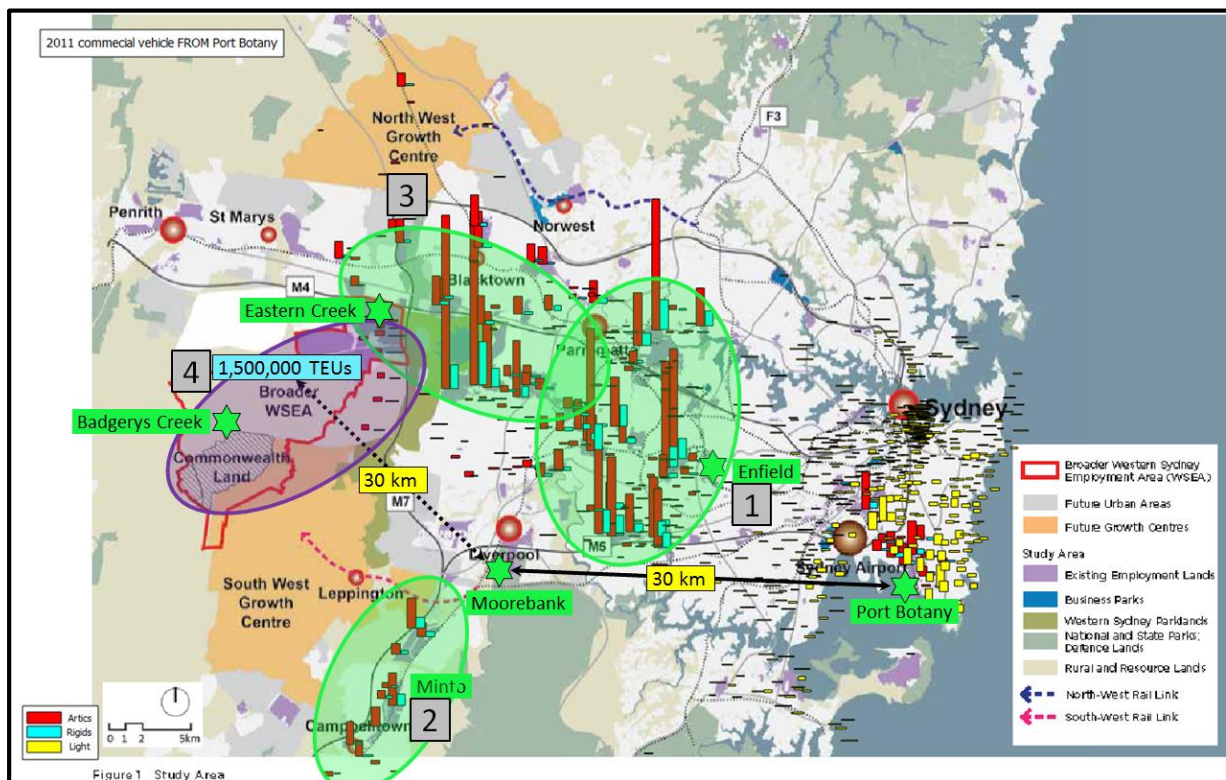


Moorebank Intermodal is a poor choice, because it is not close to the centres of the freight destinations.

Since 2011, there have been new intermodal developments. The green oval shapes represent the possible existing market that could be captured by these developments.

- Green oval 1: The Enfield intermodal is not yet operational, but is expected to open soon. This plot clearly shows that Enfield may capture a very significant market share.
- Green oval 2: The Minto intermodal capacity has recently been improved and there are further plans to increase its capacity to 200,000 twenty-foot equivalent units (TEUs). It is possible therefore, for Minto to capture a larger market share.
- Green oval 3: The freight market is very concentrated around the Wetherill Park industrial area. Geographically, Wetherill Park is about equidistant from the Moorebank and Enfield intermodals. Wetherill Park is very close to the proposed Eastern Creek intermodal. This makes Eastern Creek a more desirable location than Moorebank for these markets.

Figure ES 1 Destination of Truck Movements from Port Botany



Future freight market located a long distance from Moorebank

The NSW Government is planning for the North West and South West Growth Centres (shown in orange in the above figure), which together, could have a population almost half the size of the City of Brisbane. When the future population of the Growth Centres



is combined with the natural growth in the surrounding area, the total population is expected to be over 2.2 million people, that is, about twice the size of Brisbane.

The Broader Western Sydney Employment Area, which is in-between these Growth Centres, has an ultimate capacity of 212,000 jobs. Planners would agree in principle, that the sooner employment in the Broader WSEA can be encouraged, the better off society will be. Firstly, the employment would be located closer to existing and future residential areas, and that will greatly reduce the average journey-to-work travel times. This will yield positive impacts in every area of economics, health, social and the environment as well as to the individuals who work there. Secondly, Sydney's journey-to-work travel pattern will change, Instead of the bulk of the workers travelling in the Sydney CBD direction, some of the trips will now be towards the Broader WSEA bound direction. This traffic will travel in the contra-flow direction during peak hours and therefore make greater use of the existing transport infrastructure.

The expected future freight market is split into natural growth within the existing market and the new freight market created by the Broader Western Sydney Employment Area (Broader WSEA). The Broader WSEA freight market is expected to be approximately three quarters of the current Port Botany freight volume.

If Moorebank Intermodal was planned to service this Broader WSEA, Figure ES 1 above shows that it is 30km from the centre of the freight market. See Purple Oval 4. Effectively, the Moorebank Intermodal Terminal adds another leg in the supply chain leading to increased cost for freight.

The draft Broader WSEA structure plan has identified two potential intermodals: Eastern Creek and the Southern Intermodal. The Southern Intermodal Terminal is planned to be located near or in the Commonwealth Land, known as Badgerys Creek.

Both the Eastern Creek and Southern Intermodal would be in a better location to serve the new market more efficiently than the Moorebank Intermodal could. See: Green Ovals 3 and Purple 4.

### **Limited rail capacity – Eastern Creek or another intermodal not both**

Greg Cameron frequently writes articles about freight, and he argues “the flaw in the government’s plan is that railing containers to an intermodal terminal at Moorebank will prevent containers being railed to an intermodal terminal at Eastern Creek, due to insufficient rail capacity”.<sup>(2)</sup>

In other words, there is only sufficient rail capacity for one additional intermodal, either Moorebank or Eastern Creek, but not both terminals.

If this is correct, the NSW and Federal Government must choose the correct one. The Figure ES 1 above shows that the Moorebank location is less than optimal for servicing the current and future freight needs.







## **Economic Analysis**

The Federal Department of Finance’s Detailed Business Case for the Moorebank Intermodal (Detailed Business Case) <sup>(3)</sup> stated that the Moorebank Intermodal project would generate \$10 billion of economic benefits over the 30-year evaluation period or \$2.3 billion in present value terms.

Firstly, it must be noted that the cost of relocating the School of Military Engineering, almost \$1 billion. This cost was not included in the economic calculations.

It will also be clear to the readers that once the road infrastructure necessary to allow the intermodal to run its trucks efficiently is included in the costings the economic benefits would be further considerably diminished.

The supposed economic benefits were believed to originate from predicted reduced freight costs due to reduced traffic congestion, reduced traffic accidents and improved productivity. All these economic benefits were derived purely from shifting the container movements from truck to rail. The flawed assumption is that 3 300 container movements are currently coming to Moorebank. In fact the trucks go from Port Botany to locations mainly at Wetherill Park and all over Sydney, not to Moorebank. It is not understood why the modellers claimed that the trucks are already coming to Moorebank except perhaps to make the benefits appear higher (Refer to Chapter 2 for a detailed outline).

Figure ES 1 shows that if Moorebank Intermodal Terminal were to be constructed there would be extra traffic congestion, increased traffic accidents, increased pollution because now trucks will have to carry the containers from Moorebank to the Broader Western Sydney Employment Area and Wetherill Park. This is a considerable distance from the proposed Moorebank Terminal.

In his talk about the Moorebank Intermodal Hub, Professor Michael Bell, Professor of Ports and Maritime Logistics at the University at Sydney stated: “If you are just introducing another leg into the Supply chain so that you still have the truck leg at the end with the container, then you’ve got the tricky business of trying to argue that you are actually going to make some savings.” <sup>(4)</sup>

The Draft Broader Western Sydney Employment Area Structure Plan shows rail connections to both the Eastern Creek and Southern Intermodal Terminals. Given that the Southern Intermodal Terminal is planned to be located at or near the Federal Government Land, it makes intuitive sense, to re-allocate the Moorebank Intermodal Terminal funds to building the Southern Intermodal Terminal, because the freight can be delivered much closer to its destination by rail.

## **Traffic Congestion around Liverpool/Moorebank**

Figure ES 1 above shows that the import-export market chose not to locate itself in Liverpool, where there is some 1,250 ha of industrial land available within the area. There are many reasons for the import-export industry not to choose Liverpool. One of the key factors is traffic congestion.





For many years, Liverpool has been a very safe Labor seat, and sadly, attracted little infrastructure investment. Over time, Liverpool’s traffic congestion has increased.

The NSW Freight and Ports Strategy <sup>(5)</sup>, Case Study 16, Supporting the development of the Moorebank Intermodal Precinct, states that “By 2026 growth in background traffic will result in peak spreading and traffic conditions similar to the existing peak period in the Liverpool area and on the M5, persisting for most of the day.” In simple words, if nothing is done by 2026, the natural growth will result in the peak hour traffic flow conditions lasting most of the day.

In their response to the earlier SIMTA EIS, TfNSW indicated that the SIMTA modellers under-estimated their truck generation numbers by a factor of ten for the Moorebank intermodal. <sup>(6)</sup> The TfNSW roughly estimate translates to Moorebank having three times the current Port Botany truck movements.

If Port Botany has issues with trucks currently, then if Liverpool, with its congested network, has to cope with such a large increase of trucks on the roads, severe traffic congestion will certainly result.

SIMTA’s modelling also showed that about 27% of its trucks <sup>(7)</sup> would travel through Australia’s third highest accident hot spot, just 800 metre outside the SIMTA study area.

### **Huge Economic Investment Necessary for Road Infrastructure to support the Intermodal**

The site chosen for the Moorebank Intermodal is “landlocked” (Refer to Chapter 3 Traffic Issues with the Moorebank Intermodal) which means that every time a truck goes to or from the intermodal it must pass over at least one bridge.

The M5 Bridge over the Georges River, is expected to reach capacity before 2016. <sup>(5)</sup> The bridge on Cambridge Av over the Georges River, is very prone to flooding. The Hume Highway is generally a 6-lane highway, but the bridges over Cabramatta Creek and Prospect Creek are 4-lane bridges. Given that bridge upgrades are very expensive, it simply does not make economic sense to put something that creates as much truck traffic as an intermodal port on an island!

The Detailed Business Case included the road upgrade of Moorebank Av as the only infrastructure required for this project: “Moorebank Av is to be upgraded from a two-lane to a 4-lane road in 2029/2030”. This assumption is clearly not correct.

Table ES1 below lists the infrastructure upgrades required to cope with the anticipated intermodal traffic. This list has been compiled from the literature in the public domain. The authors have added two items to the list, based on local knowledge.





Table ES1 Summary Table of Moorebank Intermodal Road Works Implementation Costs

Sites Requiring Upgrade	Identifying agent	Cost
<b>Bridges – not in any order</b>		
(1) Newbridge Rd Bridge over the Georges Rd needs to be upgraded by 2016	TfNSW <sup>(5)</sup>	Unknown
(2) Cambridge Av Bridge over Georges River See Figure A4 1 in Appendix 4	Campbelltown City Council <sup>(8)</sup>	\$29-\$39 million (2008) <sup>(9)</sup>
(3) Hume Highway Bridge over Cabramatta Creek: Hume Highway is a 6-lane highway and the bridge is 4-lanes. See Figure A4 12 in Appendix 4	Google Maps	Unknown
(4) Hume Highway Bridge over Prospect Creek: Hume Highway is a 6-lane highway and the bridge is 4-lanes. See Figure A4 13 in Appendix 4	Google Maps	Unknown
<b>Road links – not in any order</b>		
(5) Moorebank Av upgrade to 4 lanes	Federal Government Department of Finance <sup>(3)</sup>	Cost brought forward 15 years
(6) Improved M5 access	SIMTA <sup>(10)</sup> - MIC <sup>(11)</sup>	Unknown
(7) Weaving issue on M5 Georges River Bridge See Figure A4 14 in Appendix 4	SIMTA <sup>(10)</sup> - MIC <sup>(11)</sup>	Unknown
(8) New Glenfield Rd overpass See Figure A4 15 in Appendix 4	MIC <sup>(11)</sup>	Unknown
(9) New Liverpool CBD bypass See Figure A4 16 in Appendix 4	MIC <sup>(11)</sup>	Unknown
(10) Dealing with Australia's 3rd worst accident hot spot	AAMI <sup>(12)</sup>	Unknown
(11) Dealing with Macquarie St (Terminus St) which carries the regional east-west traffic through the Liverpool CBD. Travel speed 18km/hr, sign-posted speed 60km/hr (Survey 2010) See Figure A4 17 in Appendix 4	M5 Widening <sup>(13)</sup>	Unknown
(12) Dealing with Bigge St – Terminus St, which is likely to experience an increase of rat-running traffic because of the additional congestion on the Hume Highway (Copeland St). Other streets such as Bathurst St may similarly be impacted. See Figure A4 18 in Appendix 4	Authors of this report	Unknown
(13) Governor Macquarie Dr is likely to experience an increase of both truck and car traffic because of rat-running due to the congestion of the Hume Highway. See Figure A4 19 in Appendix 4	Authors of this report	Unknown
(14) Henry Lawson Dr between Milperra Rd and Hume Highway needs upgrading. See Figure A4 110 in Appendix 4	Bankstown City Council <sup>(14)</sup> - M5 Widening <sup>(13)</sup>	Unknown





Sites Requiring Upgrade	Identifying agent	Cost
(15) Nuwarra Rd – between Heathcote Rd and Newbridge Rd See Figure A4 111 in Appendix 4	Community	Unknown
(16) Glenfield to M5 Motorway link - trucks may block this path. See Figure A4 112 in Appendix 4	Campbelltown City Council <sup>(15)</sup>	Unknown
(17) Traffic on Anzac Pde has recently increased very significantly. It is a parallel path to the congested M5. See Figure A4 113 in Appendix 4	Community	Unknown
<b>Intersections – not in any order</b>		
(18) Intersection: Hume Highway – Hoxton Park Rd – Macquarie St. See Figure A4 14 in Appendix 4	Liverpool <sup>(17)</sup> – M5 Widening <sup>(13)</sup> – SIMTA <sup>(16)</sup>	Unknown
(19) Intersection: Hume Highway – Henry Lawson Dr – Woodville Rd. See Figure A4 15 in Appendix 4	Bankstown City Council <sup>(14)</sup>	Unknown
(20) Intersection: Newbridge Rd – Henry Lawson Dr See Figure A4 16 in Appendix 4	Bankstown City Council <sup>(14)</sup>	Unknown
(21) Intersection: Newbridge Rd – Moorebank Av See Figure A4 17, and Figure A7 18 in Appendix 4	Liverpool <sup>(17)</sup> – SIMTA <sup>(16)</sup> – M5 Widening <sup>(13)</sup>	Unknown
(22) Intersection: Moorebank Av – Heathcote Rd See Figure A4 17, and Figure A7 18 in Appendix 4	Liverpool <sup>(17)</sup> – SIMTA <sup>(16)</sup> – M5 Widening <sup>(13)</sup>	Unknown
(23) Intersection: Newbridge Rd – Nuwarra Rd See Figure A4 18 in Appendix 4	SIMTA <sup>(16)</sup> – M5 Widening <sup>(13)</sup>	Unknown
(24) Intersection: M5 access – Heathcote Rd	SIMTA <sup>(16)</sup>	Unknown
(25) Intersection: Hume Highway – Camden Valley Way	SIMTA <sup>(16)</sup>	Unknown
(26) Intersection: Hume Highway – Kurrajong Rd	SIMTA <sup>(16)</sup>	Unknown
(27) Intersection: Hume Highway – De Meyrick Av	SIMTA <sup>(16)</sup>	Unknown
(28) Intersection: Hume Highway – Elizabeth Dr	Liverpool <sup>(17)</sup> – M5 Widening <sup>(13)</sup>	Unknown
(29) Intersection: Hume Highway – Cumberland Highway	Liverpool <sup>(17)</sup>	Unknown
(30) Intersection: Hume Highway – Governor Macquarie Dr	Liverpool <sup>(17)</sup>	Unknown
(31) Intersection: Newbridge Rd – Speed St	SIMTA <sup>(16)</sup>	Unknown
(32) Intersection: Moorebank Av – Anzac Rd	SIMTA <sup>(16)</sup>	Unknown
(33) Intersection: Nuwarra Rd – Heathcote Rd	SIMTA <sup>(16)</sup> – M5 Widening <sup>(13)</sup>	Unknown
(34) Intersection: Newbridge Rd – Governor Macquarie Dr	M5 Widening <sup>(13)</sup>	Unknown

**Abbreviations:**

*Liverpool = Liverpool City Council*

*M5 Widening = M5 West Widening Traffic Report*

*MIC = Moorebank Intermodal Company – “under consideration”*

*SIMTA = SIMTA EIS*

*TfNSW = Transport for NSW – Freight and Ports Strategy*



A more detailed description of the traffic issues can be found in Appendix 4. The proponents will argue that this list consists of two components: the 'catch up' investment and additional investment for the Moorebank Intermodal. It could also be equally argued, that if private industry will be making substantial profit, then the taxpayer should not have to subsidise their development. It is clear that these upgrades would be a huge financial burden on any government.

### Further Traffic Issues

#### SIMTA – Used an extremely small study area

The authors are concerned that SIMTA modelling used an extremely small study area. Transferring the equivalent of about three fold increase (derived from TfNSW estimate) of the current Port Botany truck movements to Moorebank Avenue, located about 5km from the Liverpool CBD, and studying only 13 intersections begs serious questions regarding professional ethics at the senior management levels both in private industry and governments. Are there really only 13 intersections that could possibly be impacted by such a huge volume of truck traffic in the Liverpool area?

Australia's third highest accident hot-spot is 800m north, outside the SIMTA study area, and 27% of the Intermodal traffic will travel through it. Strangely, this was excluded from the study area. Why? Is it ethical to eliminate such an important safety issue, when this was highlighted in Narelle's earlier work?

Given that this is a Federal Government initiative and the Federal Government would fund the implementation of the intermodal, it may have been convenient not to examine the wider impacts **at this stage** as this would expose the need for the massive additional infrastructure funding. Perhaps, it is hoped that these infrastructure costs could be hidden until after the implementation of the intermodal and then different governments would be in place to sort out the required infrastructure funding.

#### SIMTA – Modellers unable to fit traffic onto the model network

The authors are also concerned that SIMTA modelling could not fit the traffic onto their network. For the Base 2011 PM scenario, the SIMTA modellers could not load all the trips onto their network. In fact, 757 vehicles could not be loaded onto their model, because their modelled network was too congested.

If the network did not have the capacity in the 2011 Base Case, then the following questions need to be asked:

- How did the modellers manage the modelling when the future growth of the traffic was added to this scenario? This scenario would be known as the Future Base Case.





- How did the modellers manage the modelling when the future growth of the traffic plus the SIMTA traffic was added to the scenario? This scenario would be known as the Future SIMTA Case.

The modelling results should include the network capacity upgrades and estimated costs. These network capacity upgrades were not found in any of the EIS reports.

Instead, we find that: “The future base year trip tables in 2031 (without SIMTA) **were adjusted** in Paramics” <sup>(16)</sup>

Disturbingly, we also learn from the model auditor how this was done: no background traffic was considered, and only half of the SIMTA traffic was used in the modelling work. <sup>(18)</sup>

Even with this underestimated traffic load, the modelled results that were revealed showed extremely depressing values for average vehicle delays – up to 6 minutes for an intersection.

#### SIMTA – Traffic modelling did not include induced traffic

Sadly, the proponents ignored any induced traffic from such a very large Intermodal port. Induced traffic is traffic that would be generated from symbiotic industries that would mushroom up near the terminal. This involves truck trips from warehousing to and from the intermodal as well as trips between the outside related industries. The warehousing industries would produce huge volumes of truck traffic due to the nature of warehousing where containers are being stuffed and destuffed. The traffic from the symbiotic industries would be additional traffic.

This is a major oversight when it is considered that perhaps it could produce as much or more traffic than the intermodal itself. It should at least be studied.

#### MIC – traffic report not available

MIC <sup>(11)</sup> states that it will contribute “a little less than 4% of the traffic already on the M5”. This sounds miniscule. However, from Figure 23 in Appendix 2, the impact on the delay is very significant as this 4% is added to roads that have reached or are very close to their limit. MIC conveniently ignores to state the resulting delays, for obvious reasons – it would scare even the most hardened politician.

Existing intermodals are a good guide to traffic estimates and indicate that the traffic generated from Moorebank Intermodal can be assumed to be very significant. Refer to “Moorebank Intermodals, Key assumptions require deeper scrutiny” by Narelle van den Bos, a Director of Transport Modelling. <sup>(35)</sup>

#### Rat-runs - impairing regional hospital access

All over the world, driver behaviour continues to be studied. At this stage, the knowledge dictates that if heavy traffic congestion regularly appears on a driver’s favourite route, drivers who have a choice will choose a different path to avoid the





congestion. In other words, it is known that drivers are selfish, and they will choose what they think is the “shortest” or “least cost” path.

These alternative paths are referred to as “rat-runs”. Often the rat-run is longer, and can traverse minor streets, which are not designed for through trips. It sometimes means that the driver has a longer journey time. The longer distance causes more pollution, more congestion on the chosen new route, and results in the higher probability of accidents.

None of the studies examined reflect any additional costs of rat-running.

It is expected that the Hume Highway, which bypasses the Liverpool CBD will be congested. As a result rat-running will occur along Bigge St (Refer to Chapter 3). This will impact the access to:

- Liverpool Hospital (a regional teaching hospital),
- Sydney South West Private Hospital,
- TAFE NSW Western Sydney Institute,
- Liverpool Primary School,
- All Saints Catholic Boys College and
- Liverpool Boys High school

All these institutions will have access severely impaired. This is very significant when it is considered that emergency vehicles need fast access to Liverpool Hospital.

Other rat-runs include Governor Macquarie drive, Henry Lawson Drive and Anzac Parade.

#### **In Summary: Road Infrastructure Costs are Prohibitive**

It is the opinion of the authors that the true cost of the infrastructure necessary to cater for the Moorebank intermodal should be determined before further planning continues. This includes the additional time-lost due to congestion, higher fuel consumption, additional pollution, and greater propensity for accidents.

The total cost of updating the road network needs to be considered in the benefit / costs ratio calculations, and compared to the alternatives – such as Eastern Creek and the Southern Intermodal in the Broader Western Sydney Employment Area.

In short, there is an extremely high infrastructure cost required for Moorebank Intermodal to function efficiently and the probability of capturing a significant proportion of the existing market is slim. See Figure ES1.





### **Georges River - Prime City Real Estate with River Frontage**

From a land-use planning point of view, the real estate of such a prime site, on the edge of a river, about 5km from the CBD must be commercially attractive. If a footbridge over the Georges River were to be constructed, it would form a direct link between the site and the Casula railway station, which is just one stop away from Liverpool Station.

Such real estate could be developed into many uses, the low lying flood prone land could be retained for native bush and parkland, while other sections which are on higher ground, further away from the Georges River, could be rezoned. That section could be developed to maximise the commercial aspects or recreational activities near the Georges River.

### **Moorebank International Technology Park**

In June 6, 2003, Liverpool City Council developed a plan for the Moorebank International Technology Park on the Amiens, Yulong and Dnsdc sites. <sup>(19)</sup> The plan was accepted at the three levels of Government.

The International Technology Park would have provided a ten-fold increase in employment, when compared to the current Moorebank Intermodal concept plan.

If the Moorebank International Technology Park Plan were to be revisited it may be possible to redevelop the site into the cornerstone of the new Liverpool. The rezoned land would become the Technology Park precinct containing restaurants, hotels and retail activities supporting the main business.

In short, an alternative land use for the Commonwealth Land at Moorebank, could transform the site into a very prestigious, highly sort after block of land for lucrative commercial developments. The proceeds of the sale of such a land could be used in the development of another Intermodal Terminal.

Using the land for a lower priced activity such as an intermodal/warehousing facility seems to be poor economics.

### **No panic - time for detailed scientific planning**

The Freight Infrastructure Advisory Board <sup>(20)</sup> and Bureau of Transport and Regional Economics' <sup>(21)</sup> made growth estimates for future freight movements at Port Botany. The current movements are a little below these estimates. Given the long range forecasts and the current economic climate, the estimated numbers are very accurate.

The Sydney Ports estimates of container movements through Port Botany, on the other hand are extremely optimistic. The current container movements are about two







years behind the Low Growth scenario, two years after releasing the report. (Refer to Chapter 5 – Better Options).

Based on the fact that the current container movements are about two-years behind the Low Growth scenario, two years after the release of the report, we can be confident, that the proponent's belief of a 7% growth in Port Botany's container movements, is at best extremely optimistic. There has been virtually no growth in container movements since 2009. This also means that the urgency in building another inland container port is not actually so urgent. In short, there is time for detailed scientific planning.

## **Conclusion**

Therefore, the authors recommend that the best way forward is to halt the implementation of the Moorebank Intermodal immediately, and re-examine all the primary issues that need to be solved, not just for now, but for the long term.

It is also recommended that Eastern Creek and Southern Intermodal Terminal locations be compared with the Moorebank Intermodal taking into account the freight destinations, realistic consideration of traffic congestion, economic, social and environmental issues for a successful implementation of the resulting winner.

## **Structure of this report**

Chapter 1 covers the history for choosing Moorebank as the Intermodal site. Chapter 2 examines the assumptions made in the Detailed Business Case for Moorebank, and the financial issues of implementing the Moorebank Intermodal. The existing and future freight markets are examined and it becomes clear that the location of the Moorebank Intermodal terminal is less than optimal.

Chapter 3 examines the existing traffic conditions, and looks at some of the modelled results producing startling conclusions about traffic congestion issues. Chapter 4 questions what the Moorebank Intermodal attempts to solve. Chapter 5 offers alternatives, and Chapter 6 describes the better land use option for the Commonwealth land at Moorebank.



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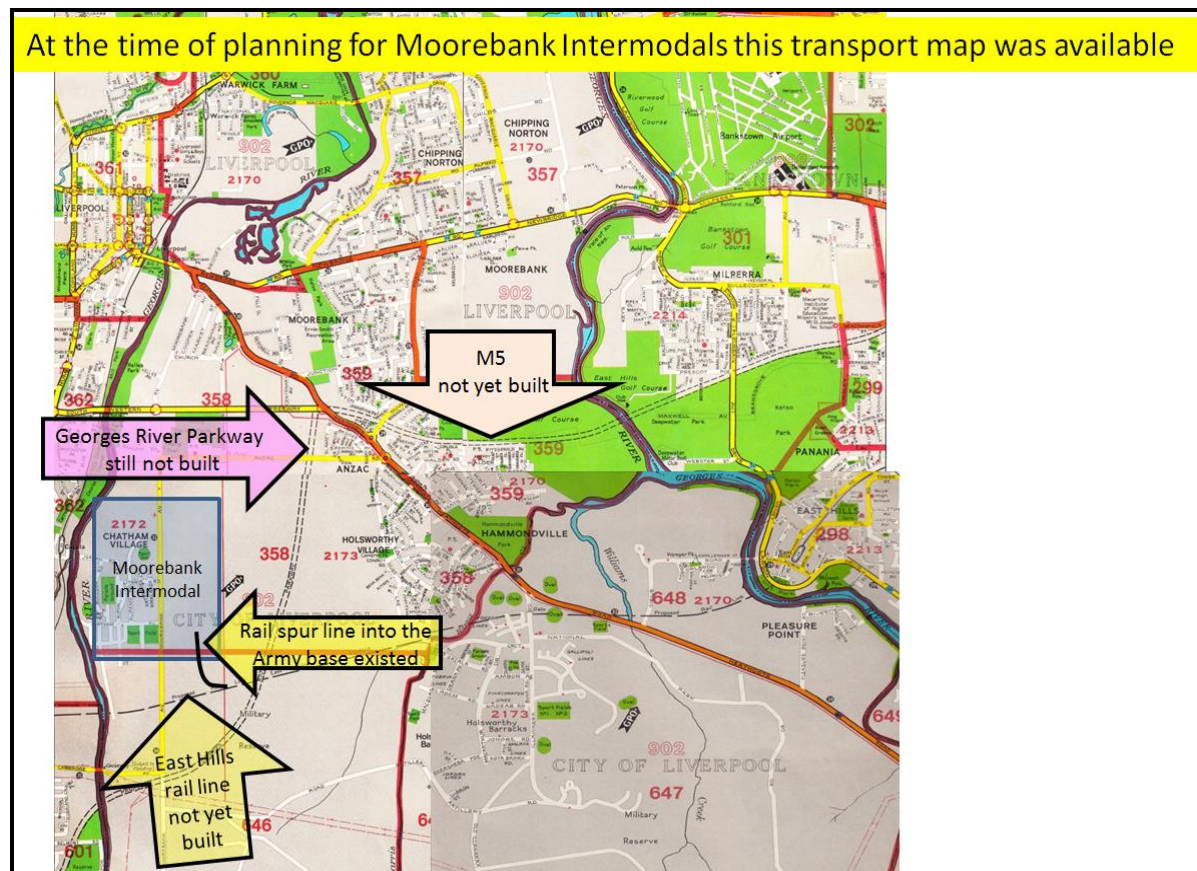
# 1.0 Background

It is undisputed that as much as possible, freight should be carried by rail, provided that the rail pollution is controlled.

At the time of the initial planning for the Moorebank Intermodal, the site had some ideal characteristics. These characteristics included

- the site being far away from residential areas. The nearest residents were linked to the Army base of Holsworthy.
- the planned Georges River Parkway being near the eastern edge. This Georges River Parkway has not been built.
- having a rail spur line, left over from the days when rail served the Army base. When the rail tracks were removed in 1977, this section was left as it was near the proposed East Hills rail line. Clearly, there was some forethought to connect the Intermodal to the planned East Hills Line. The East Hills rail line has been built and the eastern section is now quadrupled.
- having the planned Freeway near the northern edge, known as the M5 Motorway which is currently being widened.

Figure 1 Transport map available at the time of planning for the Moorebank Intermodal Terminal





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Since this initial planning the area has not been preserved for the intermodal. Instead

- the plan to build the Georges River Parkway was abandoned, land was released for residential development and
- late last year the 'A Current Affair' program stated that 135,000 people live within 5 km from the Moorebank Intermodal Precinct. <sup>(1)</sup> The nearest house is less than 500 metres from the SIMTA site.

It is clearly too late to build an intermodal at this site. Transport Modelling is convinced that most of the key advocates for the Moorebank Intermodal precinct have not visited the site, let alone the surrounding area the Moorebank Intermodal is meant to serve. If they had, they would be far less enthusiastic about the concept.





## 2.0 Flawed Assumptions of the Detailed Business Case

The Department of Finance and Deregulation published the Detailed Business Case for the Moorebank Intermodal Terminal <sup>(5)</sup>. Much of this document was redacted but it was still possible to work backwards and derive the basic assumptions. Many of these assumptions have been verified by carefully reading the SIMTA EIS.

In the Detailed Business Case the Department made the following assumptions:

- The Project will yield \$10 billion of economic benefits over a 30-year project period;
- 3,300 trucks carry containers between Port Botany and Moorebank;
- Intermodal trucks have direct access to the M5 and M7 Motorways;
- The only infrastructure upgrade required is a four-lane road along Moorebank in 2029/2030;

The following documentation points out the flaws in these assumptions.

### 2.1 Statement: \$10 billion of economic benefits over the 30-year project

Figure 2 Excerpt for Summary: Detailed Business Case

6

#### What economic, social and environmental benefits would the Project deliver?

The economic evaluation measures the costs and benefits of the Project to society. To be economically worthwhile, the benefits of the Project must exceed the capital and operating costs of the Project. Table 3 shows the results of the economic analysis.

Table 3 - Economic evaluation results at a 7% real discount rate – medium growth – incremental to base case	
Measure	Value
Net Present Value (NPV) <sup>1</sup> (\$ Million)	946
Benefit Cost Ratio (BCR) <sup>2</sup>	1.72
NPV/Investment <sup>3</sup>	1.05

Source: Deloitte

<sup>1</sup> Net Present Value: the difference between the present value of the total incremental economic benefits (i.e. additional to the base case) and the present value of the total incremental costs at a 7% p.a. real discount rate.

<sup>2</sup> Benefit Cost Ratio: the ratio of the present value of the total incremental economic benefits to the present value of the total incremental costs.

<sup>3</sup> NPV/I: the Net Present Value of the project divided by the present value of the capital cost. This measure is generally used in the context of rationing scarce capital budget funding.

The economic evaluation is confined to the Moorebank IMT Project and does not include the capital cost or benefits of the MUR project. The inclusion of MUR capital costs would substantially decrease the Economic NPV of the Project. However, any adjustment of this nature should also have regard to the benefits of the MUR project although such analysis is outside the scope of this DBC.

**MUR = Moorebank Unit Relocation – relocation of the School of Military**



The benefits are given as \$10 billion dollars over a 30-year period, with a benefit cost ratio of 1.72. (In other words, for every taxpayer dollar spent, the taxpayer receives 1.72 dollars' worth of benefits).

The Business Case acknowledges that if the Moorebank School of Military Engineering Unit relocation was factored in, the benefits would not have been as high. The cost of relocation is now running at about \$1 billion.

## 2.2 Statement: 3,300 trucks taken off the M5 between Port Botany and Moorebank

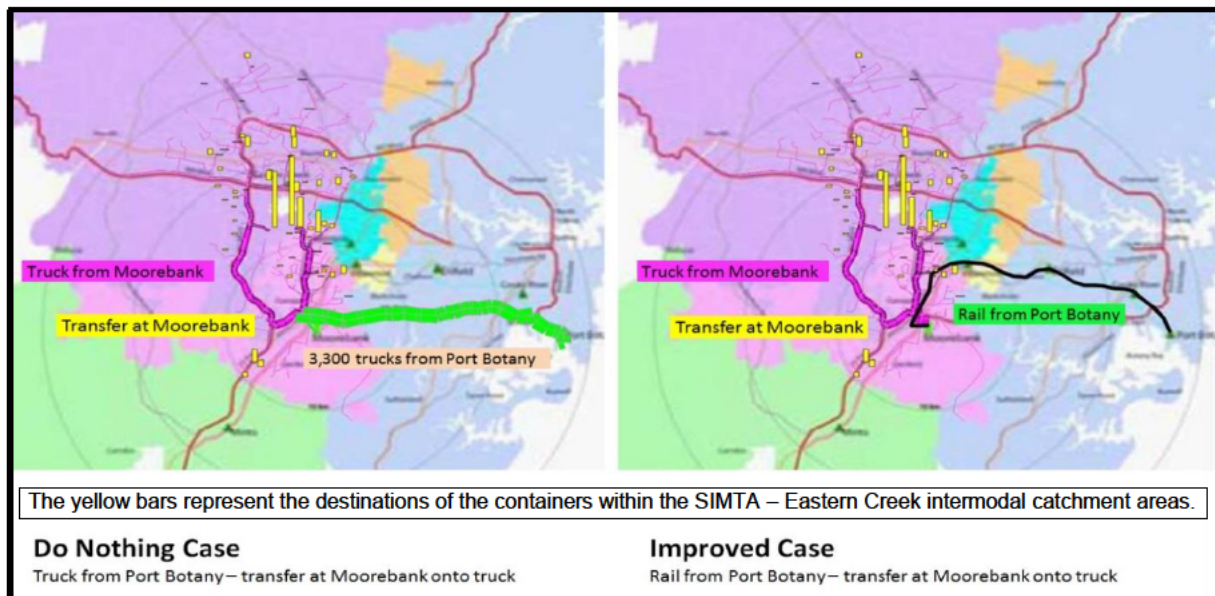
At first, this is a difficult concept to understand but once fully comprehended it is really shocking to think the reasoning was so flawed!

### 2.2.1 Defective Assumption in the Detailed Business Case

The Detailed Business Case for the Moorebank Intermodal Terminal <sup>(5)</sup> falsely assumes that 3,300 trucks per day carry containers from Port Botany to Moorebank over the M5 Motorway. It further assumes that at Moorebank, these containers are transferred and carried on other trucks to their destination. See Figure 3 below, left hand side.

The Detailed Business Case argues that if the rail connection across the Georges River, between the Southern Freight Line and Moorebank Intermodal were to be built, then the mode-shift from truck to rail can occur. In other words, with a new rail bridge, rail can be used instead of trucks, to carry the containers between Port Botany and Moorebank. See Figure 3 below, right hand side.

Figure 3 Flawed reasoning used in the economic analyses for the Moorebank Intermodal Terminal







Because of this shift from truck to rail the Federal Government states that it will take the 3,300 trucks off the M5 Motorway, reduce traffic accidents, reduce pollution etc., and improve amenity especially in the Wattle Grove area, because the containers now arrive by rail, rather than trucks.

If this can occur, the residents in Wattle Grove will be better off, because the 3,300 trucks are not travelling through their area.

The only change that happens in Moorebank is that the containers now arrive by train instead of truck. The minor change is that the container transfers will be between train and truck, rather than truck and truck.

All the \$10 billion are attributed to the economic benefits from this truck-to-rail mode shift.

In his talk about the Moorebank Intermodal Hub, Professor Michael Bell, Professor of Ports and Maritime Logistics at the University at Sydney stated: “If you are just introducing another leg into the Supply chain so that you still have the truck leg at the end with the container, then you’ve got the tricky business of trying to argue that you are actually going to make some savings.”<sup>(4)</sup>

In this case, the distance of the truck leg is in the range of 20-30km.

#### ***How is the 3,300 trucks figure calculated?***

The Federal Intermodal Terminal is planned to process 1,200,000 Twenty Foot Equivalent (TEUs) per year.

Since there are 365 days in a year, a simple calculation gives the number of TEUs per day that will be processed at Moorebank daily:

$$1,200,000 \text{ TEUs} / 365 \text{ days} = 3,287.7 \text{ TEUs/per day}$$

If the assumption is made that a truck carries 1 TEU, it is possible to estimate the number of trucks required to carry the containers to Moorebank:

$$3,287.7 \text{ TEUs} / 1 \text{ trucks} = 3,287.7 \text{ trucks}$$

In other words, the 1,200,000 TEUs in the year can be carried by 3,287.7 trucks / day.

This number of 3,287.7 trucks/day is rounded off to 3,300 trucks/day.

**“Yes, Minister, if these containers are carried by rail instead, then 3,300 trucks can be taken off the road”.**

SIMTA used the similar calculation:  $1,000,000 / 365 = 2739.7$  trucks/day, rounded off to 2,700 trucks per day.

*Industry uses a far more complex calculation that includes back-loading, and proportions of 40-foot and 20-foot containers, and articulated and rigid trucks. In some cases, the calculations are done only using the container movements. These calculations involve*





loaded trucks moving containers. These calculations ignore the “dead-running”, in which a truck drives without a load to the pick-up point. Dead-running applies after the containers have been dropped off, and trucks return empty to their depots.

### 2.2.2 What is wrong with this assumption?

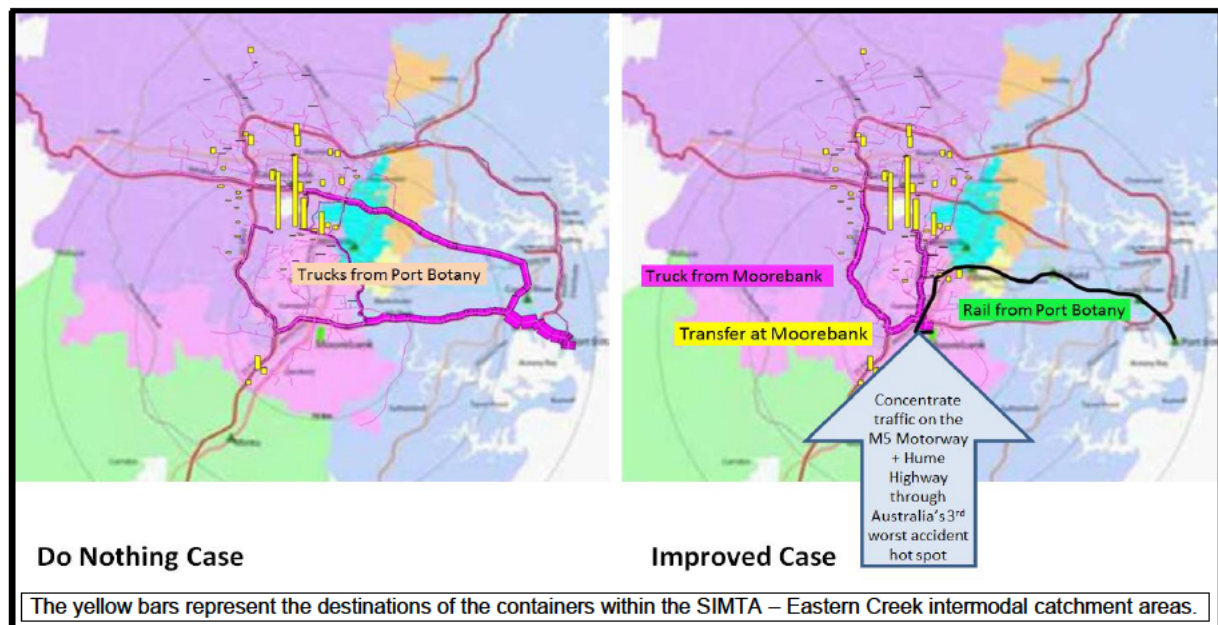
The assumption that Moorebank Intermodal is already operating satisfactory is incorrect; remember the Business Case states that only Moorebank Av needs to be upgraded in 2029/30, so it must be really working well!

Moorebank Intermodal does not exist. The only trucks currently going to Moorebank are for the Army’s National Distribution Centre.

In the “Do Nothing Case”, trucks travel from Port Botany to locations all over Sydney. This is schematically illustrated in Figure 4, left hand side.

In the “Improved Case”, Moorebank would exist, and rail would transfer the containers to Moorebank. This is schematically illustrated in Figure 4, right hand side.

Figure 4 True situation with introducing the Moorebank Intermodal Terminal



In the “Improved Case”, the containers would be transferred from rail to trucks at Moorebank. The trucks then travel to the final destinations all over Sydney.

Moorebank now has to cope with all the trucks that were leaving from Port Botany. Now Port Botany trucks start from Moorebank.

Moorebank did not have these 3,300 trucks before the Intermodal. If Port Botany “has a truck problem”, imagine what will happen in Liverpool, if the trucks were to start from Moorebank Avenue!



In Figure 4, the Improved Case (Intermodal) shows that a large volume of extra traffic proposed from the intermodal must traverse Australia's third highest accident hot spot.

### **2.3 Statement: Moorebank has access to the M5 and M7**

The Detailed Business Case describes, "the Moorebank Intermodal Precinct is ideally located close to the M5 and M7 with direct access to the M5 Motorway".

The implementation of this direct access connection to the M5 is proving to be complex and expensive. The SIMTA proposal examined this in detail <sup>(20)</sup>. The SIMTA EIS devotes a complete technical report to this issue. Moorebank Intermodal Company (MIC) is also considering this issue seriously. <sup>(11)</sup>

Once the M5 has been accessed there are the weaving issues briefly outlined below.

#### **2.3.1 Weaving Issues**

Once on the M5, there is a weaving issue on the M5 Georges River Bridge. See Figure A4 4, in Appendix 4.

- This weaving issue occurs on an 8-lane bridge.
- Transport for NSW <sup>(5)</sup> has identified that the M5 Motorway Bridge over the Georges River needs to be expanded before 2016.
- This weaving issue has been acknowledged in both the SIMTA EIS and MIC Feedback Report to the Community Sessions. <sup>(11)</sup>
- From a traffic-engineering point of view, the available distance for the weaving movement is too short.
- At this stage, no economical engineering solutions have been found.

#### ***MIC Investigations***

These investigations include

- "a possible southern road access route to the terminal via Cambridge Avenue and an associated upgrade of Cambridge Avenue;
- a possible new road in the corridor to the M5 and M7 Motorways (an initiative recommended by some community participants at the information sessions);
- measures to address the 'weave' issue on the M5 Motorway section where traffic entering the motorway from Moorebank Avenue crosses paths with traffic exiting to the Hume Highway;" <sup>(11)</sup>

Obviously, MIC anticipates that this southern access will split the traffic over two paths and this may resolve the weaving issue. However, this is an expensive option:

- upgrading the existing low-lying bridge over the Georges River, on Cambridge Av, with a 4-lane 1-in-100 year flood bridge was estimated to cost between \$29 - \$39 million in 2008 <sup>(9)</sup> ;
- the new corridor translates to a new rail overpass connecting Glenfield Rd to Cambridge Av. The existing Glenfield Rd rail overpass makes a 270 degree turn on a slope that will be extremely difficult to negotiate with a loaded B-





double or B-triple. This “new corridor” means the design for the rail overpass should allow for much gentler slopes for the loaded B-triples. Such a large structure may possibly require land acquisitions. See Figure A4 5 in Appendix 4.

## **2.4 Not just upgrading of Moorebank Av in 2029/30 for the intermodal to operate effectively**

Both SIMTA and MIC have shown concept plans that has Moorebank Av upgraded to a four-lane road at the time of construction.

However, the Detailed Business Case <sup>(3)</sup> considered that upgrading Moorebank Av will not be necessary until 2029/30. The Detailed Business Case in their cost/benefit calculation needs to bring the upgrading costs forward some 15 years. While this issue alone is trivial in the scheme of building the Moorebank Intermodal, the whole traffic issue has not been addressed in the Detailed Business Case.

The Detailed Business Case is correct in stating that Moorebank has direct connections to the M5 and M7, but the implied statement that it is cost-free, is far from the truth. Indeed, the whole traffic issue is far more complex.

The following Chapter contains the collated traffic issues raised by Liverpool City Council, Bankstown City Council, Campbelltown City Council, the SIMTA EIS, and the authors’ own local knowledge.





## 3.0 Traffic issues with Moorebank Intermodal

Liverpool has been a very strong and safe Labor seat for a very long time. Neither the Liberal nor Labor Parties have invested in the transport infrastructure for many years. The result is that the transport infrastructure lacks capacity.

For the Moorebank Intermodal to work successfully, the truck traffic must be able to move relatively freely, once outside the Intermodal Terminal.

This requires a massive road infrastructure upgrade. Financing such an enormous program is obviously complex, especially in this case because the upgrade is split into two components:

- Improving the road network to “catch up” on years of neglect so that Liverpool can cope with its current and future traffic (without an intermodal terminal), and
- Catering for the Intermodal traffic

Allocating costs will be complex, because the M5 is privately owned, Hume Highway is a Federal road others are State roads, and some are local council roads belonging to Liverpool Council, Campbelltown City Council and Bankstown Council.

This complexity is well illustrated by the following statement: "We've seen so much cost-shifting from state and federal governments, for us to fund this ourselves is impossible," Cr Matheson said. "We've already had to put a levy on our ratepayers for an on-ramp at Ingleburn to access the Hume Highway heading south." <sup>(21)</sup>

A summary of the road infrastructure deficiencies as listed by the different organisations is outlined below. These have also been shown graphically in Figure 6. A summary of the infrastructure issues to be addressed are outlined in Table 1 and a more detail description in Appendix 4.

### 3.1 Documented road infrastructure issues related to background traffic.

#### 3.1.1 Liverpool City Council – identified deficiencies in the road network

On the 11<sup>th</sup> May 2012, Liverpool City Council wrote to Ms Carolyn McNally, Deputy Director General, Planning and Programs, Transport for NSW <sup>(15)</sup>. Part of this letter listed the anticipated deficiencies in the arterial road network as a result of the anticipated background traffic. Identified as green in Figure 6.

#### 3.1.2 Campbelltown City Council – identified deficiencies in the road network

Campbelltown City Council <sup>(15)</sup> has identified deficiencies in the road network. Regarding the link between Glenfield and the M5. “Responsibility for the road is spread across the three levels of government, with the Commonwealth Department



of Defence owning the land on the Moorebank side and Campbelltown Council owning the Glenfield side. This link requires the upgrading of the low-lying bridge on Cambridge Av. <sup>(9)</sup>

In their response to the latest SIMTA EIS, Campbelltown City Council <sup>(20)</sup> expressed concern that Moorebank Av will only be used by the Intermodal and if this were the case, then it would affect the Glenfield to the M5 link, which is used by many people in Glenfield and other suburbs in Campbelltown. Campbelltown Council's issues are marked in Blue in Figure 6.

### 3.1.3 Transport for NSW states all day congestion by 2026

Transport for NSW <sup>(5)</sup> in their NSW Freight and Ports Strategy, outlining Case Study 16: Supporting the development of the Moorebank Intermodal precinct, state that

“By 2026 growth in background traffic will result in peak spreading and traffic conditions similar to the existing peak period in the Liverpool area and on the M5, persisting for most of the day. Key intersections providing access to the Moorebank intermodal precinct will exceed capacity with volumes, especially of turning vehicles, resulting in extensive delays with queuing sufficient to disrupt through movement”.

These issues are shown as soft-pink ovals in Figure 6.

### 3.1.4 Transport for NSW - Georges River Bridge on the M5 needs to be upgraded by 2016

Transport for NSW <sup>(5)</sup> expects that travel demand on the section of the M5 Motorway between the Hume Highway at Casula and Moorebank Ave is expected to exceed capacity as early as 2016.

This is shown as a red line in Figure 6.

### 3.1.5 AAMI car insurance – Australia's third highest accident hot spot

The AAMI <sup>(23)</sup> car insurance company has reported that the section of the Hume Highway between Elizabeth Drive and the Cumberland Highway as the third highest accident hot spot in Australia. In 2012, AAMI ranked this section as Sydney's highest accident hot spot <sup>(12)</sup> .

Transport for NSW has estimated that the truck generation rate is ten times higher than estimated by SIMTA. The SIMTA EIS showed that 27% of SIMTA's traffic would use the Hume Highway. If both estimates are correct, it equates to over 80% of the current Port Botany truck traffic travelling through this section of the Hume Highway, Australia's third highest accident hot spot!

This section of the Hume Highway is shown in dark blue in Figure 6.





### 3.1.6 Bankstown City Council identifies intersections likely to need grade-separation

In their response to the latest SIMTA EIS, Bankstown City Council <sup>(14)</sup> identified the following:

- Southbound peak hour traffic on Henry Lawson Drive already extends for kilometres because of the low level of service at the Milperra Road intersection.
- The level of service at the “meccano set” intersection (the Hume Highway and Henry Lawson Drive) results in congestion in all four directions.
- The only solution to further deterioration in service at both of these intersections is considered to be grade separation.
- The RMS will need to bring forward the upgrading of Henry Lawson Drive and the intersection with Milperra Rd.

This is shown as white arrows in Figure 6.

### 3.1.7 M5 West Widening Project – identified issues

The intersections identified in the M5 West Widening Project are coloured in bright pink in Figure 6.

## 3.2 Issues with SIMTA EIS

### 3.2.1 SIMTA’s EIS – 10 of 13 intersections level of service “F”

The SIMTA EIS examined 13 intersections in the “background-only” and “Background + SIMTA” cases. With the future background-only, the SIMTA modellers expect that ten of these intersections will function at Level of Service “F” (Refer to Appendix 2 and 3 for more details on definitions of the Level of Service) in the AM peak and/or PM peak.

When the background traffic alone causes ten of the 13 intersections to have a Level of Service F, it illustrates the severe lack of infrastructure capacity in the local network.

It is probable that if a larger study area was examined then many more intersections would also fall into the Level of Service “F” category.

### 3.2.2 TfNSW predicts 10x more truck trips than SIMTA’s EIS

In their response to the earlier SIMTA EIS, Transport for NSW <sup>(24)</sup> (TfNSW) has estimated a truck generation figure that is ten times higher than the SIMTA EIS estimates.

This TfNSW figure is approximately three times the current heavy truck movements in Port Botany. The fact that Port Botany has a “truck movement issue” is universally acknowledged. If this three-fold increase of heavy truck movements are imposed onto Liverpool, which has a lack of road infrastructure capacity, very serious “truck movement issues” would occur.





Even if both estimates are wrong, and Liverpool “only” receives the equivalent of twice the existing Port Botany truck movements, the same conclusion would be reached – the Intermodal will result in very serious traffic issues in Liverpool.

### 3.2.3 SIMTA traffic on Hume Highway’s accident hot spot

The NSW Director General’s Requirements for the study area for such a grand development can be considered extremely limited, given that the NSW Government was well aware of the limited capacity on the Hume Highway, and Australia’s third highest accident hot spot on the Hume Highway. Clearly, the Director General’s Requirements were developed for particular purposes.

If the proponents had a wider concern for the safety and welfare of the community, they would have included that section of the Hume Highway. Sadly, professional ethics by the proponents was not shown in this matter.

SIMTA EIS modelling showed that 27% of the intermodal traffic will use the Hume Highway north of the M5 Motorway – Hume Highway interchange. Almost all this traffic will traverse Australia’s third highest accident hot spot.

If the TfNSW and the SIMTA estimates are correct, it means that about 80% of the current Port Botany’s traffic will be added to the existing traffic passing through Australia’s third worst accident hot spot. The impacts of this were not modelled.

### 3.2.4 SIMTA does not consider induced traffic

Given that the proposed Moorebank Intermodal is such a large inland Intermodal Port it would be natural for symbiotic industries to mushroom up, and those industries would generate traffic.

This induced traffic has not been considered by SIMTA, and from what we gather will not be considered by MIC either.

This is very significant when it is possible that the induced traffic could be as much or more than the traffic generated by the port itself. Interestingly these industries are currently limited in the Moorebank region most likely due to the traffic congestion in the area. Refer to 3.7 “Potential Warehousing Around Liverpool” for more details.

## 3.3 MIC current considerations

### 3.3.1 New road in the corridor to the M5 and M7

MIC is investigating “a possible new road in the corridor to the M5 and M7 Motorways (an initiative recommended by some community participants at the information sessions. <sup>(11)</sup> This translates to replacing the 270 degree turn that the traffic currently makes to travel over the railway overpass which crosses the Macarthur line and Southern Freight line. The new rail overpass would connect Cambridge Av and Glenfield Rd. The new rail overpass bypass will need to be designed for loaded B-triples and therefore require gentle slopes and wide curvatures. Consequently, the structure will be large and may require land resumption, and would be very expensive.







See Figure A4 5 in Appendix 4 for a schematic representation of this scheme.

The new corridor initiative will also require upgrading the low-lying bridge over the Georges River, which is very flood prone. See Figure A4 1 in Appendix 4.

These issues are shown in a short brown line in Figure 6.

### 3.3.2 Rat-running

MIC is investigating “measures to prevent other traffic impacts, like ‘rat-running’”.<sup>(11)</sup> This translates to a Liverpool CBD bypass along Brickmakers Creek that would bypass Australia’s third highest accident hot spot.

The CBD bypass will need to be designed for loaded B-triples and therefore require gentle slopes and wide curvatures. Consequently, these structures will be large and may require land resumption, and would be very expensive.

See Figure A4 6 in Appendix 4 for a schematic illustration of this route, the Brown dotted line in Figure 6. Also refer to Section 3.5 ‘Future over-congestion leading to rat-running’.

### 3.3.3 MIC traffic 4% could cause long delays

MIC<sup>(11)</sup> states that it will contribute “a little less than 4% of the traffic already on the M5”. This sounds miniscule, and is clearly designed to give the impression that the Intermodal traffic has extremely little impact. After all only 4%. However, given that this was written by technical traffic and transportation experts, it is very odd.

Professional modellers normally present statistics such as:

- Travel demand without intrazonal trips. This will clearly show the background demand and the background + Intermodal demand. (Trips within a zone are referred to as intrazonal trips. These trips are short trips, and use fuel, cause pollution and accidents etc. Intrazonal trips stay within a zone, and do not appear on the road network, and so these should not be reported.)
- Vehicle Kilometres Travelled (VKT) and Vehicle Hours Travelled (VHT) by different class of vehicle. This will show the impact of the Intermodal traffic.
- The network speeds which will give a crude network-wide impact of the intermodal traffic. This statistic can then be used to do a rudimentary analysis of pollution and accidents.

From Figure 23 (Delays and traffic intensity diagram) in Appendix 2, it can be derived that the impact of this 4% on the delay is very significant as the Level of Service in the Moorebank Intermodal precinct is already so bad (in the future base case, ten out of the 13 intersections have a Level of Service F). This 4% additional traffic brings the total volumes closer to the intersection’s capacity limit.

MIC conveniently does not state the resulting delay, for obvious reasons – it would scare even the most hardened politician.





It would therefore be ethical and professional for MIC, to complete the sentence, “a little less than 4% of the existing traffic already on the M5” by adding something along the lines of, “this translates to

- an increase of x minutes to an average trip,
- an increase of y km to the average trip length,
- an increase in z pollutants and
- an expected increase of aa accidents”.

Existing intermodals are a good guide to traffic estimates and indicate that the traffic generated from Moorebank Intermodal can be assumed to be very significant. Refer to “Moorebank Intermodals, Key assumptions require deeper scrutiny” by Narelle van den Bos, a Director of Transport Modelling. <sup>(35)</sup>

### 3.4 Visual Summary of documented traffic issues

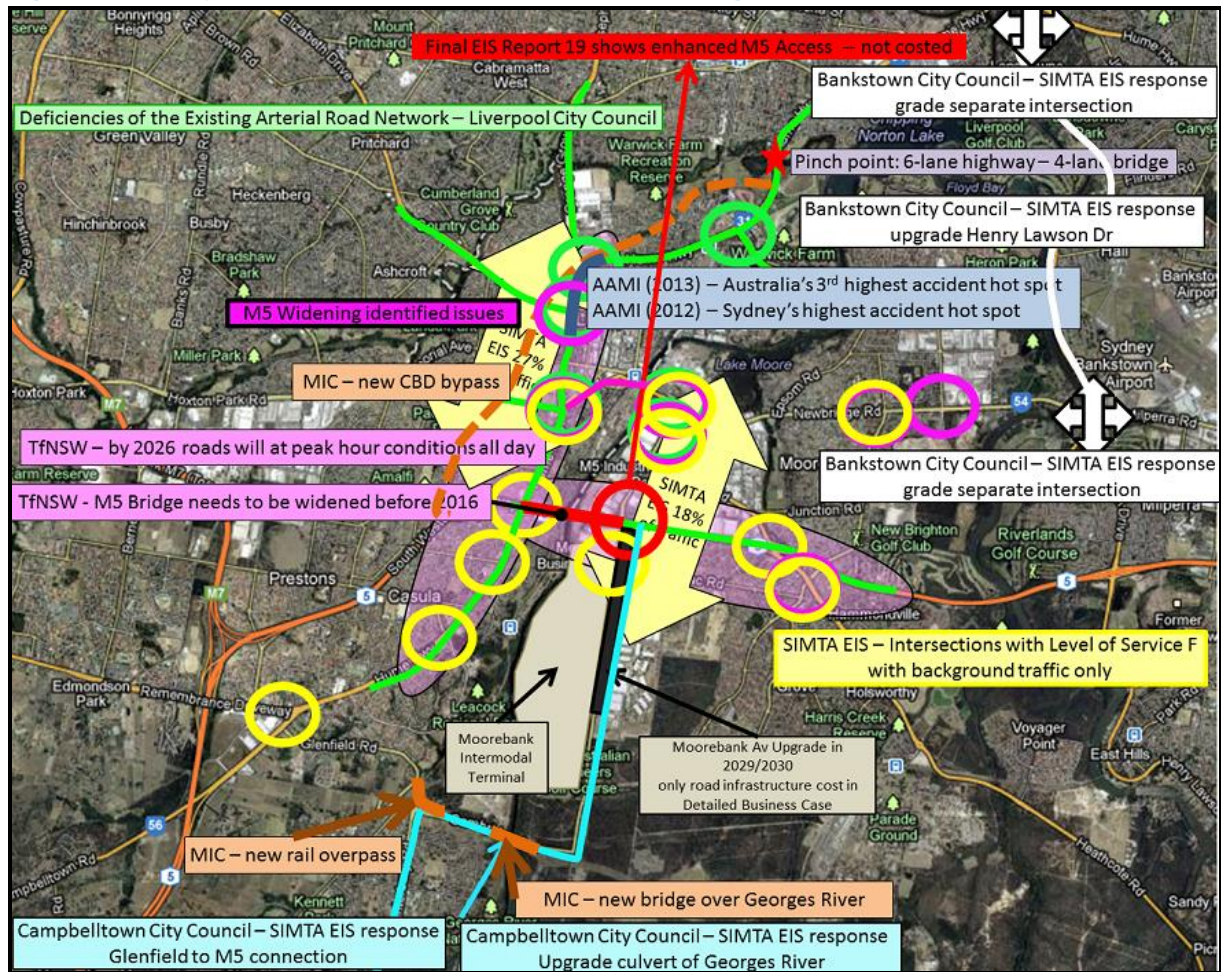
Figure 6 below summarises the information gathered from

- Liverpool Council (the roads with issues are identified in green),
- Bankstown Council grade-separated intersections at
  - (1) Hume Highway – Woodville Rd- Henry Lawson Dr, and
  - (2) Newbridge Rd – Milperra Rd – Henry Lawson Dr
 are shown as white arrows,
- Campbelltown City Council are indicated by light blue,
- TfNSW road exceed capacity all day by 2026, M5 bridge needs to be widened before 2016 (pink shaded ovals),
- RMS M5 widening study, intersections with issues (pink circles),
- Issues from the SIMTA EIS (the intersection capacity issues identified in the EIS technical reports are marked with yellow circles),
- Moorebank Av – M5 Motorway access (red circle) and
- Issues from MIC initial considerations (brown lines).





Figure 6 Summary of Infrastructure Issues collated from existing documents



Most of these necessary upgrades are shown individually in Appendix 4.

### 3.5 Future over-congestion leading to rat-running

The community has not been given access to the detailed analyses of the modelling work carried out by SIMTA or MIC in order to determine if “rat running” and “weave effects” have been considered properly. The available documentation that the community has been given access to indicates that the traffic modelling has been insufficient.

All over the world, driver behaviour continues to be studied. At this stage, the knowledge dictates that if heavy traffic congestion regularly appears on a driver’s favourite route, drivers who have a choice will choose a different path to avoid the congestion. In other words, it is known that drivers are selfish, and they take what they think is the “shortest” or “least cost” path.

These alternative paths are often referred to as “rat-runs”. Often the rat-run is longer, and sometimes traverses minor streets, which are not designed for through trips. This usually means that the driver has a longer journey time. The longer journey distance causes more pollution, more congestion on the chosen new route, and results in the higher probability of accidents.



If many drivers choose to rat-run, those routes become congested, and the drivers on those routes, will choose to rat-run. This is sometimes referred to as the “wave affect”.

A road hierarchy exists to ensure that the main roads are used for through trips, and the minor streets are used for local trips.

Sometimes these “rat-runs” use local streets. That is highly undesirable as rate payers in Local Councils will then have to bear the cost of maintaining those streets.

There are four obvious rat-runs: Liverpool CBD, Governor Macquarie Dr, Henry Lawson Dr and Anzac Parade. This does not include the “wave effect”, which requires a higher level of analyses.

These issues are summarised in Figure 7, and shown in more detail in Appendix 4. A brief description of each is outlined below.

### 3.5.1 Liverpool CBD rat-run

The original Hume Highway went through Liverpool CBD (along Bigge Street). This route is now sign posted at 50 km/hr. The Hume Highway Liverpool CBD bypass (Copland St) was implemented to take the “through trips” out of the CBD. This bypass is sign posted as 70km/hr.

While the bypass is a longer route, it should be more attractive to those who travel around Liverpool. In practise, there is so much traffic on the bypass, and the many traffic lights closely spaced, that the speed limit of 70km/hr can normally not be reached during most of the day.

This is shown in Figure A4 8, in Appendix 4.

### ***Reduced hospital, TAFE and school accessibility***

If Transport for NSW’s future traffic congestion on the Hume Highway are realised, the bypass will become even less attractive compared to the rat-run through the Liverpool CBD.

Unless the travel speed on the bypass can be maintained the rat-run through Liverpool will increase significantly, and that will have detrimental impacts on accessibility to

- Liverpool Hospital (a regional teaching hospital),
- Sydney South West Private Hospital,
- TAFE NSW Western Sydney Institute,
- Liverpool Primary School (on the path),
- All Saints Catholic Boys College (one block away from the path),
- Liverpool Boys High School (one block away from the path) and
- Liverpool Railway Station will have access severely impaired.





This is critical when it is considered that emergency vehicles need priority access to Liverpool Hospital.

This is shown in Figure A4 8, in Appendix 4.

***AAMI accident hot spot***

Regional traffic enters the Liverpool CBD from Orange Grove Rd and Elizabeth Drive. This traffic must cross the Hume Highway Liverpool CBD bypass. The section between Elizabeth Dr and Orange Grove Rd is ranked as Australia’s third highest accident hot spot.

The speed limit on this section of the Hume Highway was reduced to 60km/hr to decrease the number of accidents. While the speed reduction appeared to work because the number of accidents were reduced (*last year it was ranked as the highest accident hot spot in Sydney and now it is Australia’s third highest accident hot-spot*), the speed reduction has also made the bypass less attractive compared to the Bigge St route.

In fact, in the afternoon, this is blatantly obvious, as many drivers now use this CBD ‘rat-run’ (Bigge St route) in the southbound direction. Recently one of the authors was on a bus with 64 school children at 3:15pm when the driver chose to use the Bigge St northbound path rather than the Hume highway CBD bypass.

**3.5.2 Governor Macquarie Drive rat-run**

There are two paths to take traffic to and from the Intermodal at Moorebank Av to the Hume Highway at Warwick Farm: (1) along the Hume Highway and (2) along the Governor Macquarie Dr through the Chipping Norton route.

This is shown in Figure A4 9, in Appendix 4, and Figure 7.

The path along Governor Macquarie Dr has seven fewer signalised intersections. Even for the trips that need to go to go to the Cumberland Highway, the Governor Macquarie Dr/Chipping Norton route will have fewer signals. This rat-run provides enormous advantages for a loaded B-double or B-triple as there is less likelihood of having to stop at traffic lights.

The Governor Macquarie Drive rat-run travels through the residential area of Moorebank and Chipping Norton, and Australia’s premier horse racing stabling and exercise yards. The path uses a 2-lane bridge over the Georges River, near Warwick Farm.

The local development applications, which examined the short section between the Georges River Bridge near Warwick Farm and the Hume Highway, indicated the serious road capacity issues along this section of Governor Macquarie Drive. This section is currently used by local manufacturing industries in the Warwick Farm industrial area.

Liverpool City Council has advised Transport for NSW of the predicted issues with the Hume Highway – Governor Macquarie Dr intersection as it is a major





thoroughfare that will be impacted by the anticipated development of the South West Growth Centre.

### 3.5.3 Henry Lawson Drive rat-run

There are two paths between the Intermodal at Moorebank Av to the Hume Highway/Woodville Rd intersection: (1) along the Hume Highway and (2) along Henry Lawson Drive. The Henry Lawson Dr path has 12 fewer signalised intersections.

This is shown in Figure A4 10, in Appendix 4, and Figure 7.

The Hume Highway is designed to carry trucks. However, when such an attractive alternative is available, truck drivers would naturally choose Henry Lawson Drive path over the Hume Highway.

The Governor Macquarie Drive rat-run travels through the residential area of Moorebank and Chipping Norton.

### 3.5.4 Anzac Parade rat-run

Anzac Parade runs parallel to the M5 Motorway. Anzac Parade traverses through mainly residential areas, and is shorter than the M5 and avoids the congestion on the M5 on-ramp/off-ramps.

This is shown in Figure 7, and Figure A4 13 in Appendix 4.

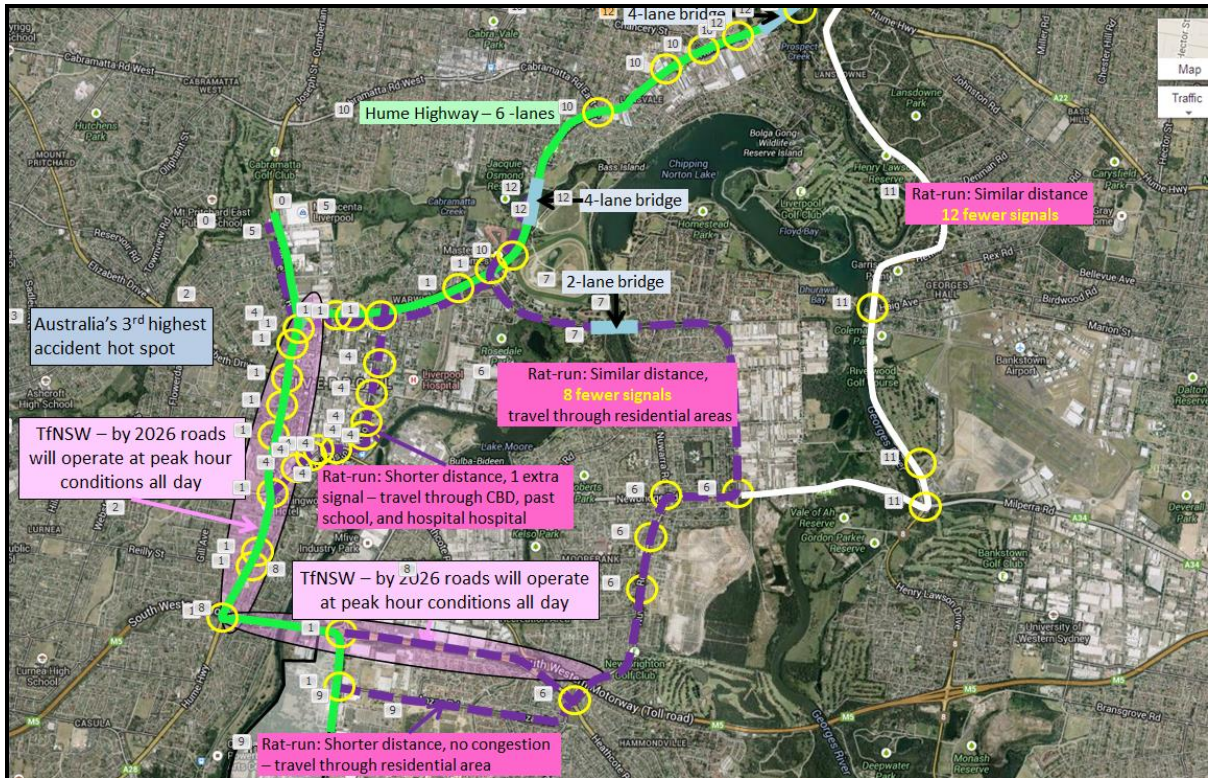
For a loaded B-double or B-triple, being able to avoid the on-ramps and off-ramps and the weaving and merging movements of a high speed M5 Motorway is very significant. Measures must be put in place to ensure that trucks do not use this path.

However, the same principle applies to cars. If the Transport for NSW estimates are correct, and the M5 will be congested for most of the day, then the Anzac Parade path must be very attractive to cars. That is clearly undesirable for a local residential street. Ensuring that the car “through” trips do not use this residential street, may be far more complex and will require a great deal of community consultation.





Figure 7 Over-congestion leading to rat-running



### 3.5.5 Brickmakers Creek bypass - likely EIS approval problems

As a result of the traffic congestion around Liverpool MIC <sup>(1)</sup> is investigating a possible option to the Liverpool CBD bypass, known as Brickmakers Creek. This option is shown as a brown dotted schematic line in Figure 6 and more clearly in Figure A4 6, in Appendix 4.

The records show, that the cost of road building in the Sydney area is very expensive and a lengthy process. Building the Brickmakers Creek bypass requires a heavy road structure in or near a creek bed, and/or the parkland surrounding the creek. Gathering the finances and EIS approval for such a project would be very challenging.

### 3.5.5 Dynameq plot of 2011 pm peak

Plot1 below is a screen dump showing the queues on a typical day in 2011 at about 17:15. The plot is generated from the author's Dynameq model.

Since 2011, there have been network changes:

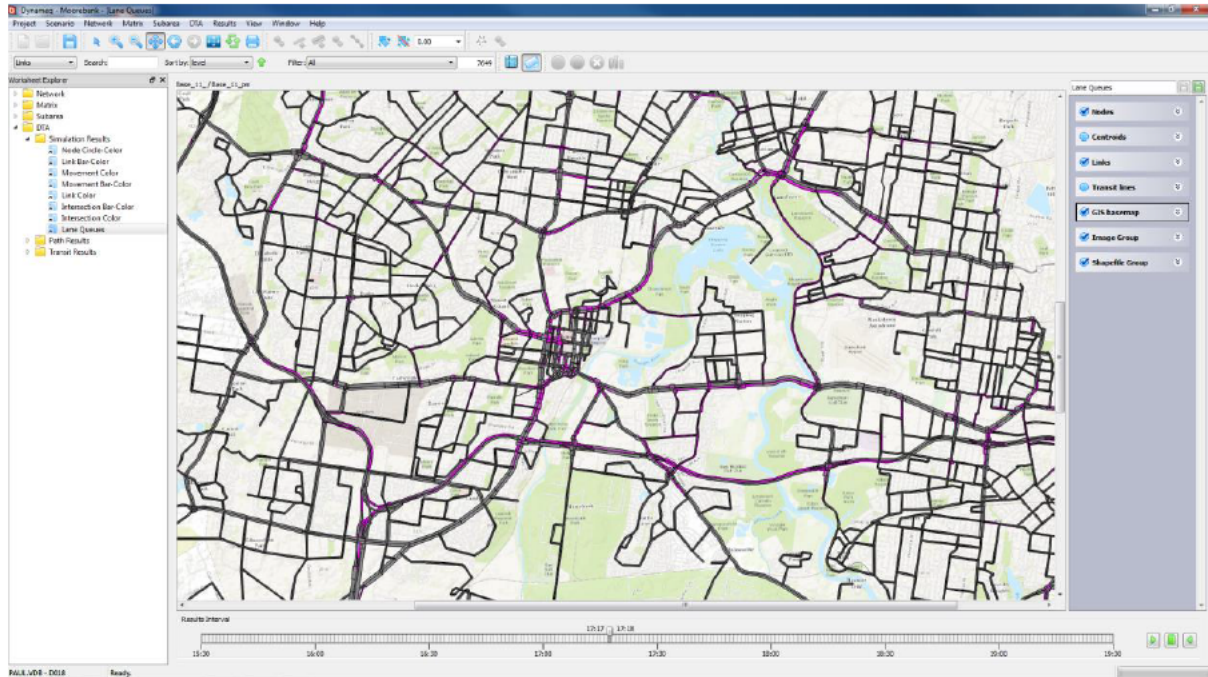
- the process of the M5 Motorway widening has drastic impacts on the road infrastructure. During the construction period, the speed limit on the M5 Motorway has been reduced to 80 km/hr and that has made the path less attractive, and has resulted in shifting traffic onto other roads.
- The RMS has made network improvements through their Pinch Point program.



Despite these changes, the plot shows the queues around Liverpool CBD, Nuwarra Rd, Newbridge Rd, Henry Lawson Drive, and the intersection of Hume Highway and Henry Lawson Drive – Woodville Road.

A close examination will identify almost all the issues identified in the table above. This plot also shows potential issues, further afield.

**Plot 1 Dynameq plot: 2011 pm queues**



### 3.6 Table of traffic costs associated with intermodal – not covered in Detailed Base Case

The authors understand that Transport for NSW has prepared infrastructure cost estimates for some of the implementation issues of the Moorebank Intermodal, and that this information has been passed onto the Federal Government. This document is not available to the public so the authors cannot be sure if the rat-running, and all the other issues have been included in the costs.

It is likely that the total road infrastructure costs will be several orders of magnitude greater than the expected cost in the Detailed Business Case, which required that only Moorebank Av needed to be upgraded in 2029/30.

**Table 1 Summary of Traffic issues**

Sites Requiring Upgrade	Identifying agent	Cost
Bridges – not in any order		
(1) Newbridge Rd Bridge over the Georges Rd needs to be upgraded by 2016	TfNSW <sup>(5)</sup>	Unknown
(2) Cambridge Av Bridge over Georges River See Figure A4 1 in Appendix 4	Campbelltown City Council <sup>(8)</sup>	\$29-\$39 million (2008) <sup>(9)</sup>