Submission on the M4 East Environmental Impact Statement

My name is Dr Will Saunders. I have worked as an Instrumental Scientist at the Australian Astronomical Observatory since 2000. I have degrees in mathematics and astronomy, and a doctorate in astrophysics. Throughout the 1990's, I was involved in road schemes in the UK, advising on traffic modelling issues. I appeared twice as expert witness at public inquiries into major road schemes.

In 1990, the UK government launched 'Roads to Prosperity', the largest road-building scheme 'since the Romans'. In 1995, the same government abandoned virtually the entire scheme, and 'Predict and Provide' road building policies in general, as being unfeasible and unhelpful in congested networks. This was codified in the 1994 SACTRA report, which showed that induced traffic in congested networks invariably destroys the claimed benefits of extra road capacity. New radial urban freeways would now be unthinkable anywhere in Western Europe, and even the USA and Canada are now belatedly trying to improve public transport, rather than build new freeways. Even leaving aside social, economic and local environmental issues, greenhouse emissions targets preclude this sort of development model. I'm not aware of any city in the west contemplating freeway construction of the scale shown in Figure 3.3 of the EIS.

Returning to traffic modelling after a 15-year absence, I am shocked to see attitudes and models that were already out-dated in the early 1990s still persisting. Specifically, in this EIS, the treatment of induced traffic and modal switching - the key issues for any road capacity increase in a congested urban network - is completely inadequate. It is astonishing that the traffic modelling methodology used is taken from the New Zealand Economic Evaluation Manual (NZEEM)- a country whose largest city is one third the size of Sydney, too small to allow efficient mass transit, or to suffer remotely the levels of road congestion that Sydney does. Why was this model chosen, rather than one appropriate for a large congested conurbation?

The quoted induced traffic of 2-7% is simply not credible in the context of a doubling of traffic capacity, in a network already strongly limited by congestion (being significantly over-capacity on some links), and with strong modal competition. Since the claimed benefits of the scheme (as well as the disbenefits claimed by its opponents) depend very sensitively on induced traffic, the robust modelling of induced traffic is central to the case. The information presented in the EIS does not allow any useful testing of the robustness of the conclusions, and I ask to see further documentation on the assumptions used.

The elasticity used in the EIS for medelling induced traffic is not specified. However, the range of values quoted in NZEEM (-0.20 to -0.33, with possible 25% increase for 'corridors to major city central business districts where public transport has a significant modal share') are systematically much lower than those used in current best practice, for appropriately congested environments. E.g., a recent meta-analysis by the Victoria Transport Policy Institute found elasticities in the range -0.5 to -1 (i.e. at least one half new capacity absorbed by induced traffic)(http://www.vtpi.org/gentraf.pdf). The World Bank - an organisation generally sympathetic to road building - quotes even stronger Long Run Elasticities.(http://www.worldbank.org/transport/roads/rpl_docs/apbinduc.pdf). And even the values quoted in NZEEM do not seem consistent with the 2-7% induced traffic claim. So I ask to see futher details of these calculations.

Induced traffic has a disastrous effect on the benefits of a scheme, both economic and operational. By definition, induced traffic consists of journeys with a low benefit (the journey would not have been had the road not been built), but the additional congestion caused by each induced vehicle is just as large that from any other vehicle, and so there is a disproportionate loss of benefit from the whole scheme.

I note also that the modelling appears to take no account of the effects of traffic induced by the proposed scheme, but when driving outside the study area. Many induced journeys will originate or end outside the study area, specifically the Inner West and the CBD. Since many roads in these areas are congestion-limited already, the effects of even small amounts of traffic induced by the proposed scheme are likely to bring disproportionate disbenefits.

So, I believe it is absolutely necessary to (a) include the wider effects of induced traffic on the whole Sydney network, and (b) include a sensitivity test as to the effect of using different (and more realistic) elasticities in that modelling. I believe that without these issues being addressed, the EIS would be open to legal challenge, as not meeting the SEARs as to induced traffic and transport impacts.

Some other issues:

Results from the 'do something (2031)' scenario are routinely quoted as fact, e.g. for travel time or accidents savings. However, as noted in 4.1.1, this scenario depends on as yet unplanned additional harbour crossing. It is completely unrealistic to assume, as this study has, that capacity in the CBD area will increase without constraint.

It is also disingenius to include the proposed M4-M5 and M5 elements of the WestConnex scheme in the 'do something (2031)' scenario, since both Labor and Green state parties are opposed to those elements, and a change of state government is probable during that timescale. At the least, a sensivity test to dropping those elements is mandatory.

It is unacceptable that the 'do minimum' scenario does not include any increase in the capacity of the Cityrail Western Line. Since the line is already operating close to current capacity, and passenger numbers in Sydney are increasing faster than traffic volumes, it will be mandatory to improve the capacity of the Western Line, within the timescale of this project.

Time has not allowed me as detailed an investigation of the EIS as I would have liked. It does not seem reasonable that submissions close the same day as the exhibition ends, but I am told that is the deadline. I would strongly welcome any feedback, and any opportunity to flesh out these issues in more detail, and correct any misunderstandings over the methodology used. It surely cannot be as bad as it appears at first sight!

Yours sincerely

Dr Will Saunders
02/11/2015