THE FINANCIAL ENGINEERING OF TRAFFIC FORECASTS FOR THE SYDNEY CROSS CITY TUNNEL

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ABSTRACT

This abstract is a summary of evidence given in December 2005 by the author to the NSW Parliamentary Select Committee of Inquiry into the Cross City Tunnel. A more comprehensive account will be published later in the year.

Traffic projections for a toll road can be conventionally derived by properly considering the interaction of land use and transport. The projections are then modified by applying a diversion factor. This process was carried out for the Cross City Tunnel and reported in the Environmental Impact Statement[1]. The average daily traffic (ADT) volumes are summarized below.

Traffic projections (EIS)

YEAR	2006	2016
ADT VOLUME	52 720	59 472
TOLL ($)	2.50	2.50

However, these projections were not used in the financial assessment. Evidence was given that the traffic projections were derived in another way by the CCT consortium that was entirely unrelated to proper considerations of land use and transport interaction. The method involves the use of a work back process, in which the projections are derived from the internal rate of return promised to equity investors. In other words, the traffic projections and tolls are financially engineered to provide the required toll revenue. The work back algorithm was explained in detail to the Inquiry.

The work back method has particular advantages for the promoters of toll road equity investment, in that if the equity returns to investors are lower than promised, then this outcome can be wrongly attributed to a shortfall in traffic. On the other hand, even if the projections were to be met, the promised dividends cannot be paid, because the dividends themselves are the result of a failure to discount the future cash flows which gave rise to them, and therefore do not represent real money values. The financially engineered traffic projections consistent with the financial model are summarized below, together with the AM peak lane loadings (vehicles/lane/hour).

Traffic projections (CCT Financial Model)

YEAR	2006	2016	2034
ADT VOLUME	88 791	109 239	197 043
TOLL($)	2.75	3.06	3.49
LANE LOADING(v/l/h)	1700	> 2000	> 3500

[1] Masson Wilson Twiney (2000) Technical paper No. 8 Traffic and Transport. Cross City Tunnel Traffic Flows. P.61

The lane loadings provide the true meaning of these traffic projections to a motorist using the four lane tunnel during the AM peak period. In 2006, the traffic is at the limit of stable flow, whereas in 2034 the traffic flow would have broken down.[2]

The CCT project has serious implications for superannuation funds and other equity investors. Even if the traffic were to achieve the unrealistic levels described, the real value of the dividends likely to be paid for an equity investment of $405m can be shown to correspond to an internal rate of return of 1% after 33 years against a promised rate of at least ten times this figure.

By engaging more debt, the deficient rate of return can be compensated and thus the fact can be disguised that traffic and tolls alone cannot assure financial viability. This appears to be a general proposition applying to toll roads in Australia[3]

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[2] Austroads (1988) Guide to Traffic Engineering Practice. Part 2. Roadway Capacity. Section 1.3.2 Level of Service.

[3] Goldberg, J. L. (2005) Toll Road Operations in Australia: A critical examination of the financial and economic realities. Proceedings of the Australasian Transport Research Forum 05 (ATRF05). Paper available at www.patrec.org.