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Review of Future Provision
of Motorways in New South
Wales: Some Comments

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TITLE: Future Provision of Motorways in New South Wales: Some Comments

ABSTRACT: The NSW Government Premiers Department *Review of Future Provision of Motorways in NSW* (www.premiers.nsw.gov.au) has many of the elements required to improve the procurement of motorways (and public infrastructure generally). However there is considerable mixing up of prescriptions for operational issues with broader policy mechanisms and how they should be governed. A delicious mixed metaphor comes to mind that could describe the Review as fire fighting by “naked Emperors”. Under the Terms of Reference there were a number of issues (bushfires) that had to be dealt with but some of the recommendations ignore fundamental tenets of transport public infrastructure economics (hence naked Emperors). This commentary aims to contribute to a framework that can accommodate the majority of the recommendations and provide a perspective from which the NSW Government can strengthen recent initiatives on public private sector participation in the governance, planning, finance and operation of transport infrastructure services in the State of NSW. Specific comments on detailed conclusions and recommendations in the Review are appended.

KEY WORDS: *Urban transport networks, institutional arrangements, governance, decision-making, control, infrastructure finance, pricing, procurement, sector strategy.*

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1. Introduction

This Review has many of the elements required to improve the procurement of motorways (and public infrastructure generally). However there is considerable mixing up of prescriptions for operational issues with broader policy mechanisms and how they should be governed. A delicious mixed metaphor comes to mind that could describe the Review as fire fighting with “naked Emperors”. Under the Terms of Reference there were a number of issues (bushfires) that had to be dealt with but some of the recommendations ignore fundamental tenets of transport public infrastructure economics (naked Emperors). This commentary aims to contribute to a framework that can accommodate the majority of the recommendations and provide a perspective from which the Government can strengthen recent initiatives on public private sector participation in the governance, planning, finance and operation of transport infrastructure services in the State of NSW. References to detailed conclusions and recommendations in the Review are appended.

2. Background

The comments should be interpreted as reflecting the viewpoint of a political welfare economist with analysis that is framed by tracking value adding in decision-making. The economic and political rights and responsibilities of participants in the decision process are also noted and the commentary is informed by an international civil engineering and banking background.

The Review’s Terms of Reference (TOR) is used as a framework but the analysis takes the position not available to the Authors of the report, of being able to comment on existing institutional arrangements. In general the focus of the comment is on the urban transport service procurement and policy specifics listed in the TOR and leaves aside the references on disclosure and public consultation except where it impacts on policy and governance.

3. Transport Economics

Some of the clothing missing from the “Emperor” is basic to economics. Items include the explicit use of discounted cash flow (DCF), the history of “Tolls” as a financing method, the definition of the economic product supplied as transport service, and the role and application of pricing in delivering the service.

3.1 Economic Analysis

The use of terms such as “value for money”, “transfer of risk”, specific project “probity”, and reasonable “business case” to describe the criteria used by Government for choosing major resource allocations for delivery of monopoly transport services, leaves a lot of wriggle room for political decision-making. This is not such a bad thing when political rights are being exercised on political issues, but should not be substituted for prior expert analysis to reduce the number of feasible options and highlight the economic trade-offs in taking alternative political decisions. Risk analysis and financial (economic) analysis (“business case”) is no substitute for disciplined DCF analysis of the economic (not just financial) costs and benefits of feasible alternatives to maximize net economic benefits to the community over time.

3.2 History of Tolls

The origins of the motorway toll model of financing were in fulfilling demand for strategic transport facilities, in the absence of government finance. They were usually long distance non-urban, and non-network demand (Turnpikes from one city to another. Point to point), or considered to be outside the realm of normal urban transport service provision (e.g. Sydney Harbour Bridge). The model was developed before the expansion and shift in public savings from accumulation through public taxation to private capital market accumulation in superannuation funds. Trying to squeeze the tollway or turnpike model into a multilayer urban transport network brings complications such as experienced in the closures demanded in the second level links of the network, as contract conditions on the Cross City Tunnel.

3.3 Transport Service "Product"

This highlights the need to be cognizant of the urban transport service "product" demanded by users. The primary products demanded are for access to and use of a network that meets the demand for movement of people and goods from one place to another. "Access and use" is defined by physical dimensions as respectively "network" service; and "trip" service over multiple links in the network; not a single "link" service. When demand chooses a location for a place of business or residence they are expressing a value choice that locks in place one end of the vast majority of future trips. The supply of the network to provide this accessibility is the most significant transport service supply decision in response to demand for service, not the relatively minor marginal trip use decision.

The accessibility product supply decision is highly constrained by given parameters such as: the trade-off between land use for transport verses non-transport; the geometry of facility design (minimum road curvature, grades etc). So to drive the supply decision-making by trip modelling that is relatively unconstrained by such physical attributes is not logical. Such a focus in product definition and the resulting analysis of ways of meeting such demand is a more involved discussion than is appropriate in this commentary. However there is sufficient logical force to the well argued and documented relationships between land use and transport demand, to proceed with the view that the realistic product definition is for network accessibility, which is the long-term availability of service and not short-term trips.

3.4 Pricing of Use

Another missing economic fact (more of the Emperor's lost clothes) is economic benefits of the network to the community that are maximized by *encouraging* use (free, no tolls) up to time when a state of congestion occurs. Direct pricing of single link use or more accurately of the facilities of the immediate network servicing the area should not be applied until congestion occurs. This is the theory behind the area cordon tolling used successfully in Singapore and now London. Users are well equipped to choose the paths that suit them on any particular trip. See below for more discussion that brings out the key distinction between pricing of use for maximum welfare and pricing linked to financing transport accessibility.

4. Decision Making & Governance

With some economic fundamentals back in focus I now turn to the decision-making and governance issue.

Governance today means many things to many people but the word's origin and its primary usefulness requires the understanding that *control* of decision-making is at the heart of governance.

In designing control structures for governance of supply we also need to focus on value adding, the origin of executive authority and responsiveness to demand. Also the hierarchy of decision-making should have strategy for service delivery as its highest priority in terms of value adding, well before considering the value adding that is available at project level and particularly at the level of management of project delivery.

From this perspective, referring all high level project decisions to "Cabinet to review policy and financial tradeoffs in light of tender bids" is no substitute for previously undertaken careful sectoral analysis as has tentatively begun in the policy and project lists that are presented as state infrastructure planning. At the time of expert analysis for establishing state sectoral strategies, a review by Cabinet committees makes good sense, but not if a project initiated review becomes the main mechanism for establishing sectoral strategies.

On operational issues there is a fundamental conflict in trying to make supply organizations such as RTA, (which is a monopoly provider of service), operate under a private corporate model, even with independent regulation and audit, let alone probity frameworks, together with simple and simplistic policy dictums such as "no cost to Government" being applied. Such an approach leads to inappropriate financial policies such as upfront fee charges (see below on finance).

In the current institutional arrangements political leaders have been encouraged to think that they (and their political staff) are capable of the expert analysis that usually and desirably precedes the decision-making to allocate major resources. In the past, the professions independently performed such expert analysis until choice was clear and only political judgement remained to be exercised. Many politicians, at the same time as they are purporting to have the capacity to undertake expert analysis have charged organizations such as IPART to make political judgements on acceptability of pricing under the guise of expert analysis. So we have more of the missing clothes of the Emperors.

Compounding this confused thinking is the way the exercise of executive authority has also encroached on expert analysis, and the expression of political will by democratically elected representatives. The legitimate role of the exercise of executive authority is to ensure the availability of the appropriate devolved power to make the decision and that appropriate procedures such as expert analysis in all its forms have been undertaken before the decision is announced and the next step in supplying service can commence. The current arrangements appear from the outside to mix all these roles in an ad hoc fashion to suit perceived short-term public relations needs.

In addition to the availability of a clear understanding of what, in our institutional arrangements for decision-making and governance are the roles of expert analysis, executive authority and the exercise of political judgement, there is now the capacity to identify which consumers are demanding which services. This changes the nature and scale of public infrastructure service from a pure public service that should be made available to all on the same basis, to a more market-like service albeit supplied at a scale for aggregate consumption by an identifiable demand community rather than for individual consumption.

To be rational and disciplined in designing decision-making in governance structures, the formal property rights of landowners and political rights of the demand community should have most influence. As presently conceived, community consultation (with extensive sample selectivity bias) is a poor and undisciplined and undemocratic substitute for exercising property rights of the landowner community demanding services and the political rights of the local at large community.

The current high standing of community consultation as a contribution to decision-making expresses the community desire for a more efficient and responsive feedback mechanism between demand and supply and the local at large community. The prospects of a solution appear to lie in some combination of local landowner rights and broader community rights expressed in a governance structure at sub-urban level rather than to continually refer to Cabinet at the state level for decisions.

5. Finance & Pricing

From the above commentary, including the definition of the real transport service product, it follows that there is a need to separate the network-financing task from the task of pricing for efficient use to optimize economic net benefits.

5.1 Finance

On finance there are a number of facts additional to those addressed in the Review that need to be brought into focus in determining finance strategy. They include:

- Recognition of the financial value of existing transport facilities that provide an established capital asset base (balance sheet) on which financing of additions to and existing service can be provided long-term.
- The static micro-economic theory that shows that the optimal level of use occurs where revenue raised by an efficient price of use equals cost of supply has little to contribute to decision-making regarding financing strategy and is no justification for tolling underutilized facilities such as the Cross City Tunnel. This is not to say that pricing has no role to play in determining investment strategy. It has much to contribute when the scale of the product being priced is correctly defined.
- The scale of the financing framework where revenue should meet cost should parallel physical product scale of the area network not the latest link. This will reflect trip patterns, which typically show a majority of use as local sub-urban trips.
- Type and hence cost of finance should be staged over time to parallel temporal dynamics of the shift from high risk to low risk as projects move through feasibility, design and construction phases to the operational phase. This is what financial engineering is all about, not setting the price of finance for twenty or so years based on the relatively high-risk of the D&C stage, or the risks of an isolated link compared to the local network. As previously noted, the primary user charges should be linked to *availability* of supply rather than, as presently practiced, linking user charges to the actual making of trips. This long term availability of service is the issue to be dealt with in arranging finance, not the issue of using pricing to maximize the economic benefit of the network by maintaining optimal flow by avoiding congestion.
- Revenue generation to service the (construction, operational and maintenance) costs of service availability should be dominated by contributions by land developers/owners of lots serviced by transport facilities at the time of development (e.g. Section 94 Contributions) or

when new facilities are being introduced to existing networks by existing lot owner beneficiaries as a value capture exercise. The financial engineering required to make the later acceptable to existing owners is trivial to meet the need to make it political acceptability.

- A further stream of revenue generation could come from payments on vehicle purchase according to principal location of use. Singapore's auctioning of permits to purchase a vehicle is based on this, as that is another point in time when major discretion on another element of transport infrastructure service demand is exercised. To emphasise the point compare resource allocation or investment decisions of both the land and vehicle purchase with the minor decision to make another trip on a specific link in the network.
- And of course congestion pricing revenue should also be put to the transport service budget.

5.2 Pricing

The setting of prices has a long accepted and detailed theoretical structure in the literature and a long history of successful application to urban transport. Singapore introduced network congestion pricing in the seventies. Experience suggests the following facts are important in setting user prices in an urban setting:

- A network approach is required to control congestion to ensure optimum economic performance.
- This means an area cordon approach is necessary to control access rather than a link or type of facility standard approach. In practice it is often at high-level facilities where cordon control is applied.

In the context of Sydney such a financing and pricing regime appears radical with a high political cost. In contemplating this, recent experience in London is relevant and appears to have not done any harm to the incumbent Mayor who managed the political process to his and all of London's advantage.

6. Procurement

For a country and state that has benefited enormously from the application of competition policy, we still manage to get confused about the definition of public infrastructure "products" and what constitutes a market for them. Despite the certainty with which some of our regulatory bodies such as ACCC and IPART pronounce on markets and the availability of economic efficiency if we put everything to tender, the identification of the existence or otherwise of a market remains more informed judgement than calculation. Expert (not political) judgement is what professionals should be paid for.

There is a relatively recent body of literature called Transaction Cost Economics (TCE) that together with the closely related work on institutional and contract economics, has a contribution to make to these issues. The situation is well described in Hensher, D.A. (2003) Contract Areas and Service Quality Issues in Public Transit Provision: Some Thoughts on the European and Australian Context, *Journal of Public Transportation*, 6 (3), 15-42, as follows:

Transaction cost economics (TCE) provides an appealing framework within which to develop the arguments for the roles of the market and governance. A transaction occurs when one stage of activity finishes and another begins. With

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a well-working interface these transfers occur smoothly. Establishing a smooth transfer is what network economies (including integrated fares) are all about. Their achievement is possible through a number of strategies such as alliance contracts and merger (see the Bergen experience cited above). TCE supplants the usual preoccupation with technology and distribution costs, with an examination of the comparative costs of planning, adapting and monitoring task completion under alternative governance structures. It is as much about transactions within a single entity (eg one bus operator, a regulator) as it is between entities. It pays special attention to information signalling and processing (and its asymmetry throughout the system), bounded rationality (ie the ability to process a limited amount of information), hazard, opportunism and asset specificity.

Transaction cost economics maintains that it is impossible to concentrate all of the relevant bargaining action at the ex ante contracting stage (which is what competitive tendering essentially does). Instead bargaining is pervasive in which case the institutions of private ordering and the study of contracting in its entirety take on critical economic significance. Performance-based contracts (PBCs) align with this view (see Hensher and Stanley 2003) since the market operates actively throughout the contract period (under signals delivered through incentive payments). The behavioural attributes of human agents, whereby conditions of bounded rationality and opportunism are joined, and the complex attributes of transaction with special reference to the condition of asset specificity, are responsible for this condition'. Alignment of incentives is central to efficient contracts and property rights. The latter emphasises that ownership matters, with rights of ownership of an asset defined as the rights to use the asset, the right to appropriate returns from the asset, and the right to change the form and/or substance of an asset.

Transaction cost economics acknowledges merit in both monopoly and efficient risk-bearing approaches to contract. It insists, however, that efficiency purposes are sometimes served by restraints on tradeⁱⁱ. This statement by a pioneer of transactional economics, X-efficiency and contracting theory, is crucial to the discussion because it puts forth the argument that examination of the underlying attributes of transactions discloses that restraints on trade can help to safeguard the integrity of transactions when firm-specific investments are at hazard. ‘

Given that the stated ideal behind Public Private Partnerships is to access efficiency of competitive markets (and not anymore to give access to broader financial opportunities – since the govt sector could also access these like the privates), let me suggest relevant areas of economic activity where the existence of markets is non-controversial. There is a healthy market for detailed design and construction. There is a healthy market for the supply of finance albeit in at least two distinct packages covering firstly design construction and commissioning, and secondly operations.

Most would suggest that the process labelled BOOT is not a market and that requiring access to acknowledged markets to be limited by the vagaries of assembling a consortium is distinctly sub-optimal economically (even financially or value for money). The chances of getting the best financial package with the best D&C package are remote. Competitive tendering it may be but a market it is not.

The momentum and credibility that has been developed around PPP/BOOT approaches has served the public well and in doing so has served vested interests in construction, utilities and the capital markets. While supporting free markets the large corporation would rather have contracts that give them access to the profits of controlling monopoly public infrastructure services. The way to get them on side is to provide an even bigger market for their services for which they are happy to compete. Such strategies can be defined and they fit well with the strategic approach to policy begun by the State Government in NSW.

7. Sector Strategy

The majority of the issues discussed above and in the Review could effectively be consolidated in to what has been called by the international literature and economic development institutions such as the World Bank, a Sector Strategy. Such a strategy could provide a whole of government repository for, in this case urban transportation service, relevant policies and strategies to achieve them, as well as plans and projects. It could also accommodate the issues dealt with by the Review and the impact of the above commentary on interpreting the relevant Review's conclusions and recommendations.

Most of what should be in a sector strategy exists in various guises and labels in the States institutional arrangements with two major qualifications. The first is an absence of integration of the many policy and strategic components. The second is the lack of insight to appropriately defining the "product" and its physical scale as discussed above.

A state-wide interurban transport sector strategy would be at a higher scale to say a Sydney urban scale but would share many of the same features, and need to be integrated with the urban and sub-urban strategies.

Appendix

Some suggestions for the Transport Sector Strategy arising from the above commentary and referring to the Review's conclusions and recommendations include the following.

General

- A Transport Sector Strategy would provide a clear strategic context for mechanisms such as State Infrastructure Strategy and Gateway Review under the authority of the IFCC and BCC but with a clear and disciplined analytical foundation than is presently not evident.
- The Sector Strategy would fulfil the need for integrated policies and strategies, plans and projects, rather than the combination of broad slogans and criteria currently used (value for money, business case etcetera) although the aims of each could be incorporated in a sector strategy.
- It would provide a clear opportunity to implement the conclusion in the Review to strengthen decision-making as a general position not project by project.
- The conclusion regarding the existing network and control would be dealt with by reflecting the real network product and not the mismatch between different levels of network controls we now have when we procure service link-by-link.
- The same can be said for public domain improvements.
- The Sector Strategy would provide appropriate context for the conclusion regarding having greater regard for user value for money. A policy requiring the proper use of DCF economic analysis and a pricing policy that followed (political welfare) economic theory rather than a narrow interpretation of finance (economic) theory would achieve this.
- The recommendation on PPPs should be establish in a broader more precise Sector Strategy as to how the private sector will participate and contribute rather than handle this on a project-by-project basis. This project-by-project basis is what leads to the large transaction costs of the present approach.
- A Sector Strategy would give appropriate context to the recommendation to abandon the “no cost to government” policy.
- The conclusion re aligning with EIA process is sound, but decision-making processes should incorporate all relevant analysis without establishing a hierarchy of criteria given the trade-offs that are often required.
- Adoption of real product multi-level network perspective, and the decision-making process around the EIA process for specific projects would cover the recommendations on Public domain elements and other issues such as alternate arterial routes.

Decision-Making & Governance

- The recommendations re Government Decision-making Processes such as the guidelines recommended for submission to IPCC are the stuff of Sector Strategy and are strongly endorsed for incorporation in the broader brief of a Sector Strategy. However the narrow focus on individual projects belies the real product demanded by consumers, namely access to and use of a primarily local service network.
- Much of the general argument appears to currently flow from a “project management” viewpoint rather than a sector strategy viewpoint. This is a basic flaw in the structure that would be corrected by using policy analysis to prepare sector strategy. Then integration with metropolitan planning (especially land use and corridors) would take place in an appropriate focussed context rather than ad hoc as each project is presented. The impact on the workload and effectiveness of BCC and IPCC would be positive.
- The conclusion re innovation in competitive tender process on financial innovation would produce better results if financial markets were accessed separately to project design and construct procurement.
- The recommendation of transfer of financial risk would be accommodated in a network product approach, which is different to the motorway network approach, which does not reflect transport economics.
- The argument for the positive impact of PPP’s on the State credit rating is not sustainable as rating agencies see through all off-balance sheet arrangements these days recognizing, as the Review does, that ultimate risk of providing service always lies with government, as in the water treatment contracts when cryptosporidium was found.
- As noted the arguments for the positive impact of PPP’s on financing are all subject to limitation if the State continues dealing with combined finance and D&C packages which are not as efficient as separate markets.

Pricing

- On pricing the conclusion recommending the “ramping up” of tolls would be met by economic pricing which should be part of sector policy.
- The recommendation to use modelling of pricing and its independent review, takes on a different policy profile if economic theory is applied separately; to finance and pricing of availability, and pricing to maintain optimum benefit through avoiding congestion.
- While the argument supporting the recommendation regarding setting tolls beyond value of time savings to incorporate some other “value for money” could be generously interpreted as heading towards pricing to optimize operations and avoid congestion, disciplined sector strategies would provide a clearer context.

Procurement

- The recommendation regarding the setting of the toll and the term, and up front payments would be met more effectively than proposed by separating finance (business case) from D&C procurement. The use of the BCC to approve financing parameters at project-by-project level before detailed feasibility of project development would thus be appropriately avoided.
- The recommendation on establishing a projects value for money for the user is covered by economic analysis using DCF.
- The recommendations on tendering take on a more appropriate economic development light if the State adopted the available clear distinctions between procurement from efficient existing markets suitable for competitive tendering such as finance and D&C, and procurement from restricted (monopoly or sole source) markets where expertise and experience (as well as balance sheet backed performance guarantees) are paramount and more suitable to alliance type procurement.
- The resulting framework for procuring the financing for transport service (not just motorways or road but all transport modes and private and public services) for a specific urban area, may be a program that is competitively tendered by the capital markets and paid for by a combination of development contributions, value capture levies and user charges (some transferred from the Commonwealth to the State) specific to the relevant area.
- The resulting framework for procuring a particular facilities project may combine an alliance type project management with competitively tendered D&C contracts.

ⁱ Williamson, O.E. (1987) *Antitrust Economics*, Basil Blackwell, Oxford.(p178)

ⁱⁱ Williamson, O.E. (1987) *Antitrust Economics*, Basil Blackwell, Oxford.(p188)