Public Infrastructure: Provision, Funding, Financing and Costs

Geoff Holman - Private Submission to the Productivity Commission Inquiry.

Introduction and opening comments

Minister Hockey is to be congratulated on initiating this inquiry, which to my mind, is decades overdue. It is an excellent initiative. If ever there was a time to grasp the nettle, then this is it.

The aim of my submission is, mainly, to address the fourth and fifth of the terms of reference, namely:

- "..to improve decision-making and implementation processes to facilitate a reduction in the cost of public infrastructure projects...

- Comment on other relevant policy measures, including any non-legislative approaches, which would help ensure effective delivery of infrastructure services over both the short and long term."

Thus I hope to assist, in some small way, a new approach to infrastructure issues, and perhaps enable some new thinking on the fundamental analysis required for sound decisions, and the trialling thereof.

Australian infrastructure is, arguably, our greatest national asset. Existing infrastructure sets Australia apart from most other nations in the world. This infrastructure has been developed over centuries. It is priceless. It is often taken for granted, or not unambiguously accounted for in policy and budgetary decisions.

Reviews and policy decisions, which have been aimed at promoting investment in particular industries, may result in poor infrastructure outcomes. An objective, independent, holistic approach is desirable. Poor decisions are expensive; and a "no decision", may be a better result. Consequences of poor decisions include:

- Extra costs, (including social and environmental), possibly billions of dollars.

- Failed objectives

I have no special knowledge of "Infrastructure Australia", however my impression is that its emphasis is on the approval of selective Government and business goals; rather than to provide objective, proactive, analysis which includes existing infrastructure, cost comparisons/benefits of alternative possibilities and opportunity costs of proposed actions and policy scenarios. Therefore a possible approach may be to adapt Infrastructure Australia to provide a more open and independent approach to analysis? It will only through independent and objective analysis that better solutions will be found.

The key points of my submission are:

- A new body, (possibly incorporated within, or by revision to, Infrastructure Australia).

- Focus to be on independent and objective review, analysis and assessment of all infrastructure, (short and long term/intergenerational), including proposed future projects and policy scenarios.

- A Focus on objective, data based, analysis. Including the collection, registration and collation of data.

- Independent thinking, by intelligent people with expertise in a range of disciplines. Focus to be on open inquiry,and not on policy justification. Thus more emphasis on the proactive, rather than reactive.

- The body must not become a "rubber stamp" for a Government policy or business lobbyists wish lists.

The economic and social benefits of good policy and analysis are considerable; business as usual, may impose current and intergenerational burdens sufficient to destroy the fabric of our society.

Public Trust in any decision process is essential, and especially crucial if Public funding is anticipated (especially for privately held funds, eg Superannuation).

My background is as a Civil Engineer, mainly in infrastructure provision; I have no ongoing involvement in the industry, no political or financial interests, and I have been retired for several years. Much of my retirement time has been spent reviewing the many issues surrounding the problems of your task, and I realise its complexity. My 'interest' is just an interest in the subject and the public interest.

Clearly, there are no simple solutions. Based on my experience and interest, I will attempt to provide some basic principles/prerequisites for serious and useful analysis, which may be useful.

Basic principles/prerequisites are:

1. Definitions and Purpose

2. Relevant data; especially including a comprehensive and detailed Asset Register

3. Expert multi disciplinary analysis

4. Clear reporting modes of project details and expenditures

5. Accounting for External risks. (Eg Comprehensive risk assessment)

Clarification and expansion of the above basic principles/prerequisites, follow:

1. Definitions and Purpose

Infrastructure means “all things to all people”; therefore clear definitions, (and, possibly, multiple definitions) are needed before any examination of the subject.

The purposes of the inquiry will be reflected in any 'chosen' definition; however consideration of alternative definitions will assist public understanding and analysis of the subject, and should provide assistance in public discussion of the issues (and in your own analysis). I generally favour a broad definition, since this enables a better grasp of the totality of the system and the interdependence of the parts.

I am not going to attempt a definition(s); that is for others, however the following comments may be relevant:

What could be included in a definition?

i. Social infrastructure, for example Housing, Schools and Hospitals?
ii. Public and Private - are distinctions necessary? Private assets? PPP assets?

The distinctions between public and private infrastructure, would appear to be obvious, but is somewhat arbitrary; this can complicate rational analysis of National needs and interests, which I am assuming is prime purpose of your inquiry. For example, consider Electrical transmission lines, which may be publicly owned in one area and privately owned elsewhere, (and possibly in a state of flux); but these are serving exactly the same purpose in all situations.

iii. Human infrastructure eg Hospital staff, teachers?
iv. Mechanical infrastructure eg Rolling stock; Buses; Trams etc.?
v. Local, State, and Federal assets?

vi. Rights of way, land used etc.? Implicit recognition that Infrastructure is more than constructed assets.
vii. National Parks, Conservation areas – why not? These have multiple useful functions.

The complexity of the range of possible inclusions suggests that multiple definitions will be useful

2. Relevant Data; especially including a comprehensive and detailed Asset Register

There cannot be useful answers if the problem is not fully understood. There cannot be valid analysis of infrastructure, eg including cost benefit, or opportunity costs, unless all the data needed for this is available.

In my experience, solid and reliable data on this subject is dispersed and difficult to locate. A priority must be the collection and collation of data in a unified, useful, consistent and comprehensive form. A great deal of relevant data is held by individual State, Local and other Government Agencies, and former Agencies. e.g. roads and sewer system details, would be available. This data exists, because it is used and needed; If it it is too difficult to obtain, then a statistical approach is one alternative. It will form a national asset register.

Data collection should include details of existing infrastructure, including rights of way and other land use details. This is fundamental to analysis and understanding the issues. This is also important for decision making in many policy areas.

Ideally the data register should be available to businesses and to the public, thus enabling public and private analysis and a better general understanding of the issues, (Public access to this is highly desirable). A centralised data base/register, as referenced above, will be of considerable National benefit, and will help to make possible a better appreciation to all of the value, scale and importance of these National assets.

A centralised unified data base/register using suitable categorisations and classification, (eg sealed/unsealed, minor, and arterial roads), will be indispensable to any analysis, or to a benefit comparison. E.g. i). What funding may be required to upgrade/reconstruct existing all major arterial roads over the next 20 years? ii). Will an upgrade of the worst 2000 kilometres of Rural road provide greater national quantifiable benefits than a new Port construction? iii). Build, thirty new hospitals or construct a new urban free-way? etc.

The data base should also include appropriate and current costing information, asset valuations and infrastructure “useful life” information, condition information, amongst many such relevant attributes.

If, as I believe, such a data base is not available, or does not exist, then it means that vast sums of money, in many policy areas, including budgets, have been spent without a comprehensive understanding of all the facts needed for a sound decision, and almost without serious public discussion or scrutiny. Any policy or estimate which does not take account of this will be incomplete. Most people think carefully and research well before making their private spending decisions; yet a different set of criteria seem to apply to spending billions of Public funds. This is a serious criticism of past Governments; it is reckless and must change.

I did not observe any specific reference to maintenance and replacement costs of existing infrastructure in the Minister's briefing notes, but this is vitally important work and should be considered in any infrastructure discussion. A comprehensive data base/register will be essential to this task.

Our national infrastructure and assets are possibly valued at several trillion dollars. Yet the actual estimated value is either unknown, or not publicly available, and never referenced in any discussion. This amazes me.

3. Expert multi disciplinary analysis

As suggested above, key requirements are: access to the facts and apolitical, independent thinking, by qualified, intelligent people, who are able to fully utilise existing and external knowledge bases.

Whichever body is established, or modified, to manage this, independence is essential, to allow good

decisions to be made, free of political influence and interest group lobbying.

Public trust in the body will be vital, if decisions are to be respected (especially if private funding, as an outcome of a favourable analysis, is anticipated).

The body need not be unduly large, say about 40 persons in total, including say 10 qualified and intelligent interdisciplinary team leaders, 30 trained and knowledgeable support staff, and quality contractor/academic support as required; leadership by a person of ability, who is prepared to defend independent decisions.

All decisions should include consideration of existing national infrastructure; the importance of which to National productivity and well-being appears grossly underestimated. Existing infrastructure should be considered equally with the new, in most, perhaps all, decision making processes.

The body must be able to bring together the many threads of comprehensive, multidisciplinary analysis. Social benefit analysis being an important part of this. Above all, it must lead Government to make informed and better decisions. Ideally all major project proposals should be assessed by the body before approval.

4. Clear reporting modes of project details and expenditures

Following from point 3, Public trust in decisions is essential.

This must be based on clear and transparent accountability. Effective decision reporting is essential, including such things as data sources, and assumptions made. People will be more inclined to accept decisions when they understand the arguments and processes. If there is pork barrelling to be done, then this must not be the place to do it. Similarly job creation ideas and decisions, and similar, should, initially, be left to others

Government reports referencing public infrastructure spending and project expenditures, must be easily located, identified and publicly accessible. A specific unified report dealing with this, and easily accessible to the Public, is desirable.

5. Accounting for External risks. (eg. Comprehensive risk assessment)

Unless there is an acknowledgement of potential risks and these risks are accounted for in the analysis, then even the most expertly prepared proposal is unrealistic and flawed.

Potential risks may include :

- Climate change (eg effects on water supplies, effects on road/rail bases etc.)
- Energy constraints or changes to energy source (eg Peak oil, coal to gas/solar, petrol to gas/electrical)
- Population growth ramifications and constraints – possible doubling of infrastructure replacement expenditure – cost effects and demands of population growth should be included in any analysis.
- Local and global financial/economic externalities
- Sovereign risks
- Changing technology eg the NBN and wireless/satellite technology.

I am guessing here, but much modelling in these areas has already been done by Government and by private Agencies, and thus should be available for use, or modified for use, by a dedicated new body.

Individually, each of the above risks provides sufficient justification for stand alone studies of ramifications, particularly, in this context, for productivity. The development of precautionary strategies may also be a useful outcome.

I suggest that if less favourable assumptions about any one of these selected risks had been used in many past Government decisions, there would now be cause for concern about the final decision.

Summary

A recent newspaper report (Herald Sun 21 January 2014) on the West Gate bridge (Vic Roads) in Melbourne, indicated some of the issues we also face nationally:

As reported: Original bridge design capacity 40,000 vehicles/day; current usage 160,000 v/day (including 24,000 trucks/day); anticipated traffic growth (2031) - 235,000 v/day.

Some issues are : Given that motor vehicle design etc. has advanced since the bridge design, what is the current safe design capacity? Can it cope with anticipated traffic growth (2031 - 235,000 v/day)? If not, what is the cost of upgrading, replacement or alternatives? Is there any viable long term solution? Possibly not.

This is an example of the type of challenge that needs to be addressed. If we make a benign assumption, that the Gateway Bridge is running at twice its design capacity now, (i e after making allowances for technological advances), then observations suggest that most urban roads, in most Cities, are similarly overloaded. (note also that trucks may be several thousand times more damaging to roads than passenger vehicles, giving rise to increasing maintenance costs). Risk assessments and precautionary strategies should form part of any review. This subject area needs serious analysis, and has implications for many other policy areas. As the design capacity is exceeded, at some point there will develop ongoing declines in productivity,. What applies to roads, also applies to many other service utilities, such as water and sewerage.

There is also clear evidence, available to all including the Treasury, that current and predicted population growth will double the annual cost of replacement (equivalent to amortisation) of required infrastructure (at current standards). Additionally we are using up our spare infrastructure capacity (legacy), in order to accommodate a larger population. This legacy, has resulted from past prudential, generous overcapacity driven design, and our technology driven bonus. Like many legacies, it has been frittered away. In fact Infrastructure is being given away. (Many Authorities now realise this, and have concerns for the consequences). And for what? Gains, for some, in the short term, yes, (and new, suburban shopping centres, "vibrant" cities etc.), but what are the basic productivity, social and other, gains? Are there any?

If the required expenditure on infrastructure replacement and upgrading is not made, (and it may already be unaffordable), what will this do for National productivity? How should we proceed?

Actually, the correct answers most probably are: Yes, it is unaffordable; and, no one knows how to proceed. The real world answers appears to be : Put it in the "too hard basket"; and, no one knows, and no one wants to know. More cake anyone?

Other valid questions are: Does it matter? Are there better ways? Alternatives? Will our salvation be: "The Asian century" The NBN? Miracle Technology? Some objective analysis is required.

The time has gone for pretend reports using the most favourable assumptions and scenarios. People are getting wise to this. The"turning of blind eyes" can be seen by all. I may digress, but, if politics "at the margin" is the cause, then perhaps our political system also requires review.

A new and better approach is urgently needed for the planning of all infrastructure provision, maintenance and replacement. Improved productivity, albeit perhaps from a declining index, will result from this.

An independent holistic, fact based response to infrastructure challenges and needs, as tentatively outlined above, will provide benefits, over many policy areas, for decades to come. If we continue as in the past, then we possibly face dire and costly consequences, of every kind, for decades, and possibly centuries to come.

I do not think I am exaggerating in saying that the future of the Nation depends upon doing this well.

We will fail, if we fail to act. Therefore the sooner we act the better. Good luck with your task.