Spend more, waste more.

Australia's roads in 2014: moving beyond gambling

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Executive summary

With expenditure pushing above $20 billion dollars annually, there has never been more money poured into the nation's roads. Yet in late 2013, Infrastructure Australia's *State of Play* report on economic infrastructure ranked roads as by far the nation's worst asset class, by all measures.

In recent years road spending has in fact outstripped road taxes and charges revenue, meaning Australia's thirst for roads might now come at the direct expense of other things.

With enough money, most road problems are soluble. But given that governments will never have enough money to pay for all the road outcomes they seek, it would be only prudent to ensure that:

a. broadly speaking, existing taxpayer funds are being spent productively and fairly; and

b. alternative capital uplift sources are actively encouraged - so that less is asked of taxpayers

Yet neither of these things is occurring.

Australia has a true gambler's addiction to roads: the money spent is not a rational investment. Governments assume that major improvement is just around the corner, if they could just spend more.

A third dimension of the problem involves asking whether all of Australia's road wishes really need satisfying at all. The current Australian system assumes that roads are an answer to most transport problems and seeks more and more funding to that end, with little consideration of alternatives that most other developed parts of the world enjoy, such as significant heavy intercontinental rail networks and dominant heavy mass transit systems.

This matter needs resolution in the interests of national fiscal and economic efficiency, as 'politically-driven infrastructure may — and often does — consist of white elephants as well as of highly useful roads'[1].

It is ironic that as long ago as 2007 the *Council of Australian Governments Road Reform Project* was begun. This multi-million dollar process has been led mostly by road agencies themselves; it has deliberated largely outside of public view. On the evidence available, it has achieved nothing, other than to reject outright some of the pillars of Australia's competition principles.

Barring some notable exceptions, the culture of road agency monopolies is extremely resistant to change – at times actively so. Crucially, this includes very strong resistance to private investment in and access to road infrastructure, which appears as much as anything to be a fear of loss of control.

This is a matter of concern. It places current and future political leaders at risk of becoming 'captive' to monopoly road agencies, which too often brief seductively on constant improvements and achievements, when precisely the opposite outcome is too often observed in the state of some roads and of road finances. The unhealthy focus of road agencies appears set on 'getting, controlling and spending' more taxpayer money, rather than questioning efficiency or value to the motorist and governments.

Australia needs to rediscover and nurture entrepreneurial thinking, question the orthodox 'story' of roads and find new drivers to solve major problems.

1. Remy Prud'homme, Professor Emeritus University of Paris, paper for the Annual Bank Conference on Development Economics (2004)

Private investment is one such driver: Infrastructure Australia's investigation suggests strongly that market-led investment contributions and advances in modern technology can unlock billions in extra productivity in the road network.

Industry and communities are locked out of contributing strategically to roads, or working directly with private infrastructure investors to solve their own problems. This needs to change.

Better outcomes can start by these parties working directly with interested private investors and elected political leaders to obtain productive results that they find acceptable. These efforts should bypass road agencies, which in most observed cases will only suffocate or over-complicate such opportunities if given carriage of them: the public sector will always play a vital role in roads, but identifying productive road investments and delivery solutions should not be one of them.

Private capital - which has never been cheaper or more willing to invest - with its attendant disciplines of cost-benefit analysis, asset management and demand-driven investment, would, if it began to invest in sufficient scale and number of road projects, simply force the present roads system to develop new structures that could cope.

Much has been said about direct user-charging of roads as a drastic reform solution. This need not extend beyond heavy vehicles on some major highways in order to deliver nationally-significant efficiencies. In return, all direct-charged heavy vehicles should be afforded guaranteed service levels and legal rights to more productive vehicle access in these places.

The current road taxing system offers no 'value proposition' to motorists. Smart, market-led reforms and an attendant restructure of outdated monopoly road agencies, combined with a reassessment of what problems are being solved with roads, can arrest an increasingly costly national gambling habit.

Infrastructure Australia offers many evidence-based justifications for this challenging assessment in the following report, which collates its collective research, analysis and reform recommendations about roads in a single reference document.

Infrastructure Australia and roads: 2008-14

At the time of its inception in 2008 as an independent statutory advisor on economic infrastructure matters, Infrastructure Australia's inaugural audit of economic infrastructure requirements for the nation received over one thousand economic infrastructure project proposals. Most of these proposals concerned roads.

They were almost universally poor, in that they lacked any cost-benefit rigour whatsoever.

Infrastructure Australia's rejection of such proposals cultivated an impression that the main problem for roads was that people did not have sufficient skill in writing persuasive proposals.

But the quality or otherwise of proposal writing is not a barrier to better roads. The real problem is that road agencies and other road project proponents in industry and the community spend next to no effort examining what problems their projects and plans are trying to solve, other than the perceived problem that they do not have enough road funding. In other words, the answer is almost always 'I just need more money', regardless of the question.

The present political appetite at all levels of government is to build more roads. But the 'just give us more money' approach observable from Australia's road agencies cannot be considered a prudent course for governments to agree to, yet there is little evidence of the road system offering any better solutions.

This is the context for this report.

Australia can now only fully fund its roads by cutting other items

Australia's road system is already unsustainable.

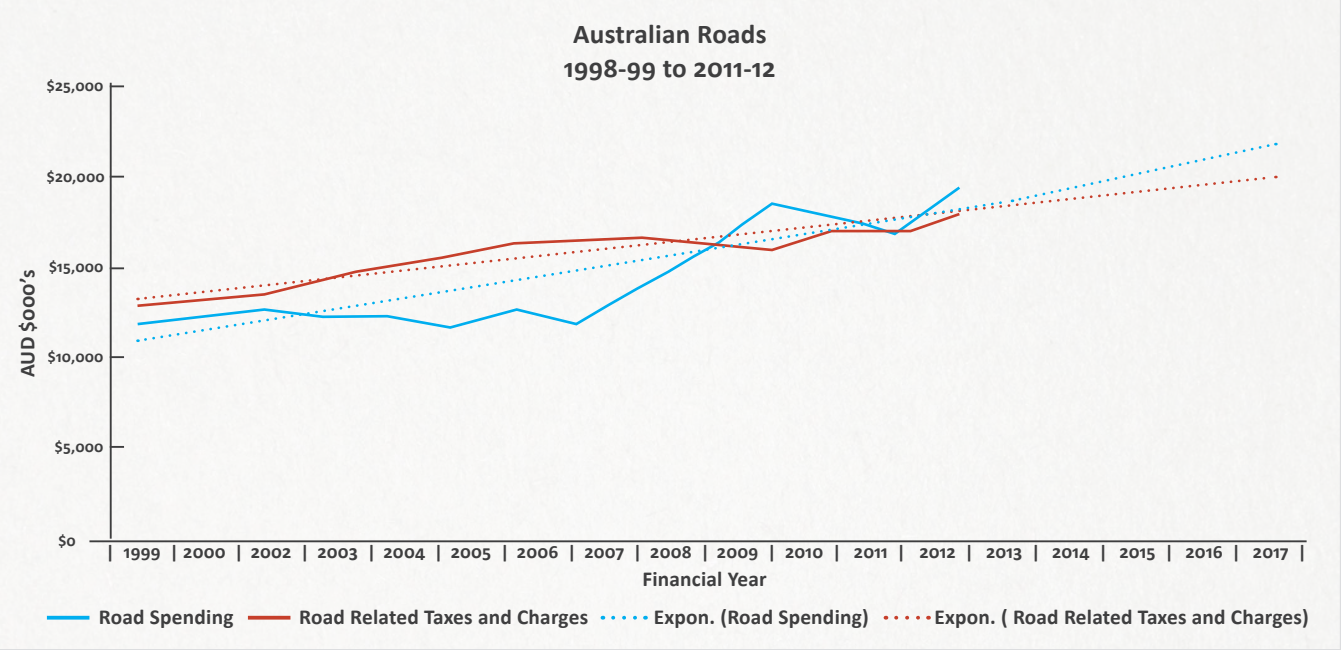

Table 1 (above): Total road expenditure and road user taxes and charges 1998-2012 and a trend line.
Source: Graph developed from Bureau of Infrastructure Transport and Regional, Economics *Australian Infrastructure Statistics Yearbook (2013) Tables 1.2E and 1.3 p.41*

Between 2008-09 and 2011-12, over $4.5 billion more was spent on roads than was raised in almost all road taxes and charges[2]. Given that current governments at all levels display an appetite for much greater road spending in future[3], this trend should give rise to urgent questions of efficiency about how road funds are raised and allocated.

Modelling of the coming 'fiscal gap' caused by an ageing population suggests that the gap between spending and revenue must narrow for Australian government spending to remain affordable. *Intergenerational Report* modelling for achieving this 'narrowing' assumes that transport spending as a proportion of Gross Domestic Product will not increase[4]. This suggests that burgeoning roads in future will only be paid for by deeper and deeper trade-offs in other arms of government services.

Road agencies themselves do not appear to have raised this matter clearly enough with governments. This suggests that their interest is not so much in where the money for their budgets might come from - only that money keeps arriving, preferably in ever-larger portions.

2. Bureau of Infrastructure Transport and Regional, Economics Australian *Infrastructure Statistics Yearbook (2013) p.41 , see Tables 1.2E and 1.3*
3. http://www.budget.gov.au/2014-15/content/glossy/infrastructure/html/index.htm
4. Australian Treasury *Intergenerational Report* (2010)

How road funds are raised now

Australia's road users pay taxes, not charges for road use.

The current approach to raising road revenue from cars and other 'light vehicles' (ie those under 4.5 tonnes gross weight) involves paying vehicle registration fees and fuel excise.

Heavy vehicles (ie over 4.5 tonnes gross weight) receive a more specific, periodically-reviewed charge, built from historic road expenditure attributable to truck wear and tear. Crucially, this charge is an *averaged* one: it does not relate to particular roads driven by particular trucks, nor can the industry influence where revenue raised is spent next, because the charges are not directly related to use of any given road.

Just as for cars and light vehicles, there is little to no connection between what is raised in truck charges and what is then spent on truck-related road upgrades, other than the *quanta*.

This blunt taxing system has existed for many years. Increases to this tax are a source of regular political tension. In 2001 the then federal government placed a freeze on growth in light vehicle fuel excise. While this served to reduce fuel tax tension, it also masked the true cost of providing roads to the general public. Reform was deferred.

As is the case in many countries, tax increases on the Australian trucking sector can be causes of significant political tension. In some cases, required increases have proven too politically challenging to levy at all and have been deferred under heavy industry pressure, most recently in 2005-06.

A better system must show more value for charges levied: it must build faith with road users that the funds being raised are being expended with some degree of rational efficiency and equity.

Many views have been advanced on how to improve charging. Some including the Productivity Commission have argued that the direct user-charging of all vehicles should be the goal and that work to develop this end-state should begin[5].

This is a drastic jump from the current system, one that would be politically fraught and extremely complex. There appear to be other more contained ways to reform revenue streams and yet stilldeliver nationally significant value to the community and economy.

Heavy vehicle pricing reform is the first and perhaps the only immediate improvement required.

Change should involve moving away from blanket averaged truck charges to direct user-pricing of heavy vehicles on at least some major highways which compete with commercial rail. In return, trucking should have legally-enforceable rights to improve access and service levels for their vehicles on these routes. This would unlock significant economic value, because it will do much to resolve competitive non-neutrality issues between rail and road freight.

To date, none of these approaches have been pursued by road agency reform efforts, although the Productivity Commission's draft report on public infrastructure appears to assume that this is what is happening. Direct-user pricing for heavy vehicles in return for legal rights of access and service guarantees is not envisioned by the formal reform process.

5. Productivity Commission *Draft Report on Public Infrastructure* March (2014)

Private toll road levies face uncertain times

For private toll roads, generally users pay a direct charge to the toll operator in return for using a road. This direct charge implies that somebodies pays to use a specific road because they perceive a specific benefit (ie reduced travel time, or amenity).

Several prominent private toll roads have failed to cover construction costs from toll revenues. Primarily this has come about through poor estimates of user patronage for the new route[6].

One of the major risks ahead for private toll road projects is that there is increasing uncertainty about growth in demand for car use in major cities: despite mainstream media concern presuming unmanageable passenger car growth in Australian capital cities, growth in aggregate car kilometres travelled in recent years has in fact been substantially below forecasts[7].

Infrastructure Australia's research suggests there to be other, more productive and reliable sources of road investment for private capital; this is discussed later in this report.

6. See Standard and Poors *Toll Road Forecasting Risks - Study Reports and Updates* (2003-05); also New South Wales Auditor-General *The Cross-City Tunnel Project* (2006)

7. See Table 3 in this report.

How road funds are spent now

Australia's nearly $20 billion dollar annual road spend can only be described as hideously inefficient.

Unlike almost every other agency imaginable across all levels of government, road agencies cannot be held to task for not achieving outcomes or meeting standards. None are expected of roads.

Roads continue to be untouched by the National Competition Reforms that drove productivity and reshaped the Australian economy through the 1990s.

There is no oversight of road spending patterns, or of outcomes for the money spent. There is in fact no national information available whatsoever on the condition of Australia's road asset. There are no minimum agreed standards for different classes of Australian roads, against which taxpayer revenue might be allocated with greater fairness, efficiency and transparency and measured for its ongoing contribution to improving outcomes.

Prioritisation of funds against objective standards and actual condition assessments is essential to any real efficiency of expenditure; this is especially so given the great complexity and scale of the road asset across Australia. The absence of these features in the current roads system leaves individual communities and industry with no ability to make a valid case for their road upgrade over anybody else's. This damaging feature of the road system has also been noted by the Australian Trucking Association[8]. It is also a regular feature of local and state and territory government complaints over federal road funding allocations.

Highway funding, for example, is not predicated on any nationally-accepted standard related to the current quality of that highway, to a safety rating or to traffic flow levels. In the absence of objective and transparent measures, highway funding can only become a politicised 'competition' for scarce funds. Base engineering data are available but this does not place strict conditions on spending patterns. Success often comes only through potentially expensive lobbying or the pot-luck of a political seat's relevance: no one community has any ability of knowing whether 'their' highway upgrade is more deserving than that of another community. This problem is probably insoluble in the absence of measuring roads against national standards for different road categories and funding the biggest shortfalls first.

Impacts: local roads appear to be the 'canary in the mine'

While all three levels of government share responsibility for road funding, Australia's more than 550 local governments – responsible for around two thirds of the total national network - are unable to levy direct charges or taxes to recoup their expenditure on roads.

Several exhaustive reports and inquiries have been held into the problem of local road funding. All note the problem, but none deal with the incredibly inefficient and unaccountable road spending system that lies at the heart of the problem. Nothing changes.

8. PriceWaterhouse Coopers for the Australian Trucking Association *A Future Strategy for Road Supply and Charging In Australia* (2013) p. 31

The first effects of an inefficient and increasingly unsustainable road funding system will be felt in regional, rural and remote local roads, whose councils do not receive sufficient internal revenue streams (such as land rating, development, parking fees etc) to cover the cost of both maintaining inherited assets and delivering on new road spending ambitions. This lack of revenue is compounded by the fact that over time, local government service delivery expectations and their associated budget pressures have expanded very considerably beyond 'roads, rates and rubbish' to incorporate a broader array of costly social services. The case for road spending efficiency reform could not be stronger in these places[9].

Necessity has driven innovative thinking in local roads: a considerable body of work has emerged from local government bodies such as the Australian Rural Roads Group relating to how the road asset could become more efficient through asset management and funding-to-outcomes as well as how local community and market intent could drive more productive road planning and investment[10]. However, there is little indication that any of this thinking has been embraced by road agencies. The Australian Rural Roads Group advises that it has been told informally by the commonwealth agency that such matters are 'unlikely to be priorities for government'.

The subsidiarity principle turned on its head

Public policy in Australia's federation professes to adhere to the 'subsidiarity principle' wherever possible. This holds that things that can be done by small and uncomplicated organisations or jurisdictions should never be given to larger and more complicated ones.

But in roads, the reverse logic applies[11]: the greatest funds and mandate lie with the highest level of government, which is the most removed from the road asset itself and is the least responsive to community and market demands for its future use and shape. The federal infrastructure and transport agency in Canberra spent over $7.3 billion in financial year 2011-12 , yet by its own admission it cannot claim to know the actual condition of any piece of road in the country and does not measure road performance and funding against any national benchmark standards whatsoever.

By contrast, lower levels of government – especially some local governments and smaller state and territory governments - retain engineering personnel who generally do manage and 'know' their road networks intimately. While in some places this asset information is recorded, nowhere are mandatory condition reports linked to budgets, which could drive reliable improvements against reference standards. The people closest to the problem – who would be the best partners for innovative and market-driven solutions – hold the least control.

9. See also *Are Councils Sustainable?* final report of the Independent Inquiry into the Financial Sustainability of NSW Local Government (2006)
10. See p. 51-52 of Infrastructure Australia Report to COAG *Communicating the Imperative for Action* (2011)
11. Allen Consulting Group for Infrastructure Australia *Options for improving the integration of road governance in Australia: the role of local government* (2009)

Where is this leading?

Road funding is to Infrastructure Australia's knowledge the largest example in Australia of a budget item that remains a pure *input* system, not an *outcome* system: all that can be measured is what was spent, not what the expenditure might have achieved.

Most other items of government budgets moved on from this extremely costly and uncertain approach when principles of economic efficiency replaced public good objectives through competition reform. But in the unreformed road sector, the road agencies' consistent position appears to be 'we need more money' instead of 'we need to demonstrate some efficiency in our allocation of resources'.

Under these arrangements, political success in roads is likely to be reduced increasingly to simply outspending one's political rivals - regardless of how inefficient or ineffective these spending patterns might be. This is not the fault of elected officials: it is after all almost the only metric of performance available to them.

Looking ahead, this situation is likely to worsen in direct proportion to the level of public dissatisfaction in the quality of roads: as voter frustration increases, governments without better solutions available will feel compelled to spend more and more, but this does nothing to resolve taxpayers' sense of efficiency, value for money or equity in road spending.

There are various estimates of the theoretical maintenance and capital debt in roads: realistic figures would run into the tens of billions annually, as a minimum (most formal estimates of local road maintenance debt alone runs to several billion dollars annually[12]).

However, even if an accurate gross shortfall figure were known, much of this debt may be academic: what is more important than worrying about an impossibly large quantum of technical underfunding is that the most important road problems are funded first and that maximum efficiencies are extracted from the current roads budget.

This is not happening. This breeds public dissatisfaction and inefficient government reactions. Given that Australia's roads are already unsustainable under current arrangements, continuing to think that spending more will solve the problem would be a highly fiscally-imprudent approach to take.

Continuing to provide funds to road agencies and local governments without any expectation whatever that the condition of their roads will be measured over time and funded to outcomes encourages and extremely inefficient system to perpetuate itself.

12. Access Economics and Municipal Association of Victoria research as summarised in Price Waterhouse Coopers report (2006) *National Financial Sustainability Study of Local Government* – report prepared for the Australian Local Government Association Table E.2 p. 11.

Infrastructure Australia's road research and analysis 2008-14

Aspects of the road system most pertinent to reform have been examined by Infrastructure Australia - and some solutions advanced - over several years, working with road and transport agencies, central agencies, local government, the road freight and wider transport sector, freight and public transport users, private capital investors in infrastructure and the academic community.

A brief collation of the key analysis and findings follows. Some annotation is provided (where relevant) on how these efforts have been received by road agencies.

A National Freight Network

Australia has no plan for freight.

The *National Freight Network/ Strategy* was commissioned in 2009 by the then-Minister for Infrastructure to resolve this.

It is often remarked that 'freight does not vote'. Hence, freight matters are usually the last in line to be funded by road budgets, behind the other two road functions: public transport and passenger vehicle movement (although commitments to freight appear to have increased in recent years).

Given the funding shortage and a burgeoning freight task, private capital is a logical fit for funding many freight aspects of roads.

But where should private capital invest?

No physical map exists of the most important roads and rail for the national freight task. The *National Freight Network/Strategy* attempted to fix this oversight. It sought agreement on a core physical network for freight – being the big, obvious highways and rail lines of greatest economic and strategic significance which linked the major cities and ports.

The intent was to open this network to private access and investment interest, including co-financing of improvements with governments, potentially via declaration under the *Competition and Consumer Act (2010)*. In rail, such access and improvement arrangements are already available; a similar process was envisaged for key road freight routes.

This network would also be protected from encroachment from alternative use so that Australia's freight arteries remained as open and efficient as possible - and preferably separated from other motorists as far as possible. This would see Australia apply principles of 'least cost financial and economic pathways' for freight; it promised far reaching positive consequences for amenity and land values[13], especially in major cities where freight routes to ports are major centres of road congestion.

The Freight Network was about putting more freight in less places, to everybody's benefit.

In over two years of consultation, industry was comfortable with this concept and agreed with the rough network proposed. Specifically, industry advised Infrastructure

13. The positive impacts of directing the bulk of freight flow away from the wider public are well established in a study of the (best practice) Alameda rail freight corridor that links Los Angeles with its ports: Michael Futch *Examining the Spatial Distribution of Externalities: Freight Rail Traffic and Home Values in Los Angeles* University of California San Diego (2011); see also Urbis for Infrastructure Australia *Urbis Valuations - Report on Historic Land Value Growth in East Coast Capital Cities* (2013)

Table 2: Proposed National Land Freight Network: open to private or co-financing with government for better access and improvement, planned and protected for maximum productivity and safety

Australia that 'the traditional (agency) model (for freight planning) may lead to inertia, and hamper improvements to the freight network'[14].

Some agencies did not receive the proposal well: some jurisdictions could not even agree that many of Australia's most freight intensive highways should be on the network.

The National Freight Network Strategy as conceived ultimately met with support from ministers, but was subsequently rejected arbitrarily by the Commonwealth road agency, which currently holds sole funding and planning authority over much of the proposed freight network; it advised that it would instead be preparing its own national freight network – presumably to be sole-taxpayer-funded. No such proposed network has emerged since.

Australia still has no published pipeline of prospective private or co-financed freight arteries to attract patient capital.

In contrast, the current departmental 'spending network' – variously known as the Auslink or Nation Building network – does not appear to be a network at all as much as a plan for spending money, largely on roads, in various places. Evidence of this lies in so many roads of unquestionable national significance not being on 'the network': for example, the Tullamarine Highway between Melbourne and its airport; the Sydney Harbour Bridge; the road to the Port of Newcastle (the world's largest coal export port) and the road to Williamtown airbase, Newcastle, home of the Australian Air Force's fast-jet capability.

14. Allen Consulting Group for Infrastructure Australia *Developing a National Freight Network Strategy: Perspectives of Freight Network Customers* (2010)

Case studies trialling productive private investments in roads

Given that so many poor road submissions had been received since its inception, Infrastructure Australia was interested to discover whether market-led identification of road investment projects would yield better funding candidates than public sector-generated road spending plans.

Several case studies were examined to establish whether private investment in road freight infrastructure was viable[15]. Infrastructure Australia also spent time observing wider road agency efforts in this area[16].

Another reason for Infrastructure Australia proposing trials was industry scepticism about the real appetite of governments for reforms touching on roads: since the initiation of heavy vehicle reforms in 2006-07 there have been many studies, reports and much consideration by transport officials. However, there had been no result of any practical value to industry.

In 2009, as part of the Prime Minister and Premiers agreement to the National Ports Strategy, Infrastructure Australia secured agreement that road agencies should work with the trucking and ports sector to trial user-pays commercial investment on the key freight routes into some of Australia's major ports – places which analysis and industry feedback suggested were suffering from very inadequate road freight connections.

Road agencies ignored this undertaking; no case studies were ever progressed.

In 2011, Infrastructure Australia documented the near total failure of road agency trials for 'user-pays' freight upgrades to benefit the trucking industry. The intention was for trucking and its customers to nominate routes for upgrade to allow bigger vehicles to travel safely, in return for a fee for access being charged for the privilege[17].

Half of the road agencies abandoned the trials before they began, claiming it was simply too difficult. One agency advised that the routes that some trucking operators proposed did not suit them and that instead the agency would set out only some of the agencies preferred heavy vehicle networks, which trucking operators could choose from for trial purposes. Another road agency took almost three years to complete a single project: it allowed a meat processor to pay extra in order to truck slightly heavier meat boxes on 750 metres of road from his own abattoir to his local railhead for export.

The final agency organised one very successful trial that nearly doubled the productivity of a major grain transport task to the Port of Melbourne. However it offered this trial to only one proponent, when other applicants with the identical freight task were rejected for trials. At the time, one such proponent was advised not to bother, as the trial 'would not run for long'[18].

15. Juturna Consulting for Infrastructure Australia *Economic Reform of Australia's Road Sector: Precedents, Principles, Case Studies and Structures* (2012)
16. Juturna Consulting for Infrastructure Australia *COAG Road Freight Incremental Pricing Trials – Prospects for A More Commercial Focus In Reform* (2011)
17. Ibid
18. As advised by the operator in question to Infrastructure Australia on interview.

In 2011 Infrastructure Australia examined some extremely practical local solutions to private road investment. In South Australia, simple deed arrangements between the state and mining companies allowed the latter to upgrade public roads for safe and sustainable heavy mine-haul operations which would otherwise be impossible (and which it might not be fair to expect the taxpayer to fund). Only those miners paying a charge could access the benefits, but the roads were not closed to any other general users and in some cases the miner paid for extra amenity such as rest bays to accommodate other motorists during delays[19].

Similar approaches - negotiating private investment on public roads, for private gain - were observed in Western Australia and the Northern Territory, but these approaches have not been formalised nationally and there was no wider appetite for this approach observable in other agencies.

Between 2011 and 2012, Infrastructure Australia carried out a detailed independent assessment of the proposed road upgrades to the vital M5 and F2-M3 orbital road networks in Sydney and was asked to examine a New South Wales road agency plan for upgrades to the M5. It noted in its feedback to the road agency that Port Botany was fast approaching its planning limits for shipping containers and a very high priority for any freeway/tollway upgrade was for a freight link to be built between Port Botany and a future Moorebank intermodal site.

Not only did the road agency's M5 East expansion project not address Port Botany traffic and a dedicated freight link to ease port congestion, its container trade forecast at Port Botany was just over one third of realistic expectations. As such, the M5 project as an enabler of Port Botany congestion reduction and economic growth – one of the most nationally-significant projects imaginable - was very seriously under scoped[20].

The M5-Botany link offered highly prospective private financing opportunities[21]. As mentioned above, these were the sort of projects that Infrastructure Australia envisaged being identified by agencies as a result of the National Ports Strategy: easy productivity gains with good private financing credentials and low patronage risks, given the patrons were commercial freight operators. No such work was ever pursued.

In early 2012 the Infrastructure Australia council commissioned analysis that suggested a lack of B-triple truck-trailer access to the Hume Highway had cost the Australian economy many hundreds of millions of dollars in the 17 years since these vehicles had first become available on some other comparable routes in Australia ; the B-triple carries around 30% more freight than the B-double, as it tows an extra trailer. It therefore lessens the cost of road freight and carbon emissions significantly and reduces labour shortage pressures in trucking companies.

Infrastructure Australia recommended a commercial pilot of user-pays B-triple access to the Hume Highway between Melbourne and Sydney; it commissioned a draft structure to this end and organised for key linehaul trucking parties to

19. See the SA Government approach to simple deed arrangements for private investment in public roads in Juturna *COAG Road Freight Incremental Pricing Trials – Prospects for A More Commercial Focus In Reform* a report for Infrastructure Australia (2011) pp. 19-20
20. See also Infrastructure Australia *Private Financing Options for Upgrades in the M5 and F3–M2 Corridors in Sydney* (2012)
21. Infrastructure Australia *Private Financing Options for Upgrades in the M5 and F3–M2 Corridors in Sydney* (2012)

engage with the road agencies in question. The Victorian and New South Wales road agencies then took responsibility for the project. No commercial project has materialised since.

In 2012 Infrastructure Australia found that the last few metres of a road into one of Australia's most important transport facilities, Chullora rail terminal, Sydney, was not permitted access by the state's maximum trailer weights, yet the state road agency was not even aware of the problem – it had provided a maximum weights road network virtually to the door of this facility but had left the local government to its own devices on linking the facility to this network.

It was found that since the heavy trailer weight network had been introduced several years earlier, underweight trucks accessing Chullora had cost around $22 million in lost freight productivity due to underweight containers being placed on interstate trains. A local government upgrade to allow the right truck access would cost just $350,000 . Infrastructure Australia considered the Chullora problem of national significance, so it took a direct role in brokering a resolution between the state, local and federal governments, trucking operators and the terminal operator.

Initially, state and federal road agencies were reluctant to fund a solution. After several negotiations into a simple two-way funding injection – just over $170,000 each – to fix the local government's problem road to the terminal, the concern expressed was that this 'might set a precedent'.

In 2013, agreement was finally reached and the local council commenced works ahead of receiving these funds. However the funds from the higher governments were still not forthcoming. In the meantime, Infrastructure Australia had offered to fund the balance of the upgrade from its own budget to move things along, but was warned that such action would be illegal.

The problem was finally resolved, but only after a net loss in productivity of perhaps over $30 million dollars. Infrastructure Australia has observed similar freight bottlenecks unattended to in a great many places nationwide. Private capital would be far more responsive in resolving these situations, given the cost benefit involved, but it lacks an authority to deal.

In 2013, studies examined whether road upgrades that would allow access to much bigger trucks for a large scale farming region in north-west New South Wales could be paid for by the farmers themselves, in the form of a user levy that would see the road upgraded to accommodate the much more efficient trucks. Results suggested that this approach would fund the road in question's upgrade and even with the cost of this upgrade included, local farmers stood to enjoy a net transport productivity gain of over 60% on current vehicles .

Infrastructure Australia is now pursuing its own full commercial pilot project in northern New South Wales to present to relevant ministers and prospective financiers for private or co-financing later in 2014.

What these trials suggested

These trials confirmed a number of things to Infrastructure Australia:

- There appears to be a ready amount of extremely high benefit-cost projects waiting to be privately-financed in road freight infrastructure, with productivity gains from such projects likely to run into the billions of dollars if such projects were pursued nationwide: after all, a handful of random case studies by Infrastructure Australia had uncovered plausible net productivity gains worth hundreds of millions of dollars.

- Many smaller projects (much smaller than private urban toll roads) can bring financial returns to the investor and productive economic outcomes to parts of the road network that tend to be overlooked under sole public funding models. This is especially true for cash-poor rural road networks which exert little political influence but nevertheless are being expected to carry a very significant agriculture and mining task.

- The only reliable way to find efficient projects is to have industry itself identify them.

- Road agencies, being public sector, lack an entrepreneurial skillset: in particular, they have a poor sense of 'value proposition' which prevents them from identifying high net present value/rate of return projects. The limitations of the public financing model (ie access to only scarce public funds) is a major barrier: unlike the public sector, the private sector can consider much broader capital raising options, given a sense of project risk. This is not a criticism of road agencies in and of themselves, but it does suggest a very costly misalignment of their role in the modern road system.

- Road agencies do not know how to run trials in the scientific sense of that term, in that they do not seek to establish a hypothesis, test it and publish the results to promote improvement.

- Excepting some excellent but very limited programs in smaller jurisdictions which recognise the need to allow the private sector to 'get on' and invest in public roads where it makes financial, economic and social sense to do so, most road agencies are utterly reluctant to allow market-led development of the network.

- Instead, agencies can tend to 'mimic' a market function: some have established projects for finding productive freight upgrades, but access to capital is very limited and no access and improvement guarantees are offered to users under these arrangements.

A tiered approach to keep reform of the road network practical

In 2009 Infrastructure Australia and the National Transport Commission considered better ways forward for local road funding. This evolved into economic reform of the road network more generally.

Analysis[25] suggested that a tiered approach might be best for reforming the road network: that is, rather than trying to implement blanket charging and investment reform for every road in Australia, it would be more practical to see:

1. a core private investment tier developed on the major freight networks, where direct pricing of heavy vehicles should be encouraged in preference to taxpayer funding;

2. a way for communities and businesses not on these networks to connect their facilities to a 'core' high productivity national freight network in a more efficient way, via a simple and reliable access and investment process for better road freight, especially when public funds were not available or would take too long to solve the problem; and

3. the rest of the road network administered as predominantly a community service obligation, with funding to be provided against measurable national standards for such roads so that in broad terms funding would be sent first to areas of most objective need.

Analysis by the Australian Trucking Association also saw value in some form of tiered approach .

The formal road agency reform process rejected a tiered approach and instead recommended that all trucks should pay a charge for average road wear by class of road, whatever road they drive on. There is no legally-supported mechanism for private investment.

After eight years and millions of dollars, no case studies for actual roads have been produced to show how this approach would change the road charges paid by trucks, or what effects new averaged charges might have on road freight, its customers or the wider economy.

How would a reformed road sector be financed?

Infrastructure Australia also commissioned a professional report on the accounting and financial transactional framework that would be required for any reformed road system, in line with the experience of other utility reforms. The report drew on expert accounting and financial management advice to examine what a schedule of accounts might look like, how transactions would differ from current funding flows for roads and what processes could be used to establish an effective new system of accounting for a regulated asset base in roads .

To date, the report has not been taken up by the formal road reform process, yet this process itself has not advanced any detailed published work on how this central matter would be dealt with.

25. Including Australian Rural Roads Group *Worth Feeding: Case Studies of Rural Local Road Efficiency and Reform of Australia's Road Pricing and Investment System* (2011); Allen Consulting Group for Infrastructure Australia *Options for improving the integration of road governance in Australia: the role of local government* (2009); Juturna Consulting for Infrastructure Australia *Economic Reform of Australia's Road Sector: Precedents, Principles, Case Studies and Structures* (2012);
26. Australian Trucking Association *A Future Strategy For Road Supply and Charging in Australia* (2013)
27. Deloitte for Infrastructure Australia *Financial Impacts Under Potential Heavy Vehicle Charging Scenarios* (2014)

Road asset condition reporting and the development of standards for roads

In 2010 the Commonwealth had argued to the Australian Rural Roads Group that moving towards road asset condition reports and national standards for roads was unlikely to be feasible, because Australia's many hundreds of local governments would never be in a position to report consistently and with any degree of professionalism or reliability on the actual condition of the 600,000 kilometres of road network for which they are responsible.

Infrastructure Australia tested this thesis in a 2012-13 pilot, working with several local governments in northern New South Wales and Southern Queensland to develop such reports[28]. A consolidated and consistent view of over 13,000 kilometres of local road – every road in all participating shires – was produced in less than three months, at no cost. The innovative methodology developed for this assessment work is consistent with international best practice.

This pilot suggests strongly that Australia can develop consistent national minimum standards for its different classes of roads; this in turn would allow Australia to report on the actual state of the road network against these standards - and begin resolving the greatest areas of shortcoming with targeted funding.

The methodology has yet to be embraced by road agencies. It is noteworthy that as long ago as 2005, the Productivity Commission noted that 'collecting disaggregated local road data would

improve significantly the robustness of the cost allocation methodology'[29]. At the time, it asked that this work be carried out. It appears that nothing was done.

There would be nothing preventing a state or territory government from working with its local governments to develop an asset condition register for its whole jurisdiction.

In 2014 Infrastructure Australia entered into an accord with the Australian Rural Roads Group which sought to recognise and reward the value of asset reporting when it accompanied proposals for priority road infrastructure funding from any jurisdiction[30].

28. Infrastructure Australia *National Road Asset Reporting Pilot* (2014)
29. Productivity Commission *Inquiry into Road and Rail Infrastructure Pricing* Report No 41 December 2006 Finding 5.2 and preceding paragraphs pp. 98-99
30. See http://www.infrastructureaustralia.gov.au/publications/files/The_Bingara_Accord.pdf

Greater private capital uplift in roads is important, but is being opposed

As already discussed, the case studies it conducted led Infrastructure Australia to conclude that the nation is likely to be missing out on potentially billions of dollars of additional productivity by a refusal to consider open access and investment in road infrastructure by the private sector as a complement to increasingly scarce taxpayer funding.

The advance of modern technology suggests that there are no longer any plausible technical or economic reasons to oppose such investment: the advent of cheap and deployable 'track and toll' software, when married to a modern truck's own sophisticated Global Positioning System technology, allows for road freight operators to be *excludable at point of use*. They can be tracked and tolled on a user-pays basis to fund private road investments where the user sees value in paying for such outcomes. This would give better levels of heavy vehicle access to those paying, while those who chose not to pay would remain paying current charges but would not gain access to the more productive vehicle. These matters can be regulated in the public interest[31].

Australian industries that rely heavily on road freight for their competitiveness, such as manufacturing and agriculture, will continue to be unnecessarily disadvantaged without reform in this area[32]. 'Brownfield' commercial investments in freight networks in particular places could immediately lift manufacturing and agricultural productivity.

Some road agencies have argued that private investment would cause a loss of control over 'their' network

With some notable and excellent exceptions, such as South Australian transport agency's approach to public road investment by mining firms and similar market-investment and access examples in the Northern Territory, Western Australia and some local governments, there seems to be no interest from road agencies in seeing private investment in the network. There is also evidence of a prevailing level of discomfort and unpreparedness in current road agency culture and structure when faced with market-led network planning and investment proposals[33].

31. Infrastructure Australia Submission to the Productivity Commission Review of the Nationals Access Regime (2013)
32. Australian Rural Roads Group *Worth Feeding: Case study of rural local road efficiency and reform of Australia's road pricing and investment system* (2011)
33. See in particular the post-trial agency feedback in GHD for the COAG Road Reform Program *Report for Review of Incremental Pricing Trials* (2011)

Opposing the commercial access and investment model is the official road reform position

In its 2013 submission to the Productivity Commission's Review of the National Access Regime34, the formal road reform process rejected any significant role for private investment in roads, arguing that:

1. The cost of private financing is higher than government financing;

2. Patronage risks would prove a barrier to private investments; and;

3. There is no pipeline of large-scale projects available for private investment to consider.

Infrastructure Australia has deep concerns with each of these arguments:

01

The cost of private capital is at historic lows and case study after case study conducted by Infrastructure Australia has suggested that targeted investment in productive freight project will support payment of efficient user charges in return for better road freight access.

02

Unlike toll roads, where the bulk of patronage is passenger vehicles and where the road in question is generally a new or 'greenfield' build (and therefore patronage is very hard to predict, contributing to a high cost of capital[35]), private investment in freight networks on a user-pays basis would only involve the commercial trucking sector – a cohort of road users whose demand for more productive roads is far more reliable than cars. Most private investments in road freight would involve 'brownfield' upgrades to existing infrastructure for better vehicle access, where patronage risks would be far more predictable than in new urban passenger toll roads.

03

The lack of a pipeline for commercial road investment is a matter that was acted on directly by Infrastructure Australia in developing a *National Road Freight Network and Strategy* in 2011. This network identified roads with the heaviest freight flows now and those likely to have the most significance in the future. It proposed that given the prospects for commercial investment, these networks should be declared for legally supported commercial access and investment.

It is instructive that this proposed national private or co-investment network for freight was actively resisted and rejected by the Commonwealth road agency, which at present enjoys sole control over funding and planning for these matters.

34. Heavy Vehicle Charging and Investment Project Submission to the Productivity Commission Review of the National Access Regime (2013) p.16
35. See Robert Bain *Toll Forecasts: Big Numbers Win Prizes* (2009)

The high cost of *status quo* to rail and to public transport aspirations

In order to improve, one usually needs a sense of what one wants to achieve. This is lacking in the roads system – otherwise far more attention would be paid to resolving some enduring efficiency questions:

'How do I achieve the optimal mix of road and rail to serve the Australian economy?'

'How do I get the mix of costly public transport and urban freeway projects right in the big cities?

Respectively, these two questions hinge upon dealing effectively with competitive neutrality in road and rail pricing and ensuring that road congestion and mass transit user trends are tracked closely and effectively.

If achieving efficient road/rail mix is not a major reform objective, what is?

Australia is the 12th largest economy in the world, and one of the most dependent on freight efficiency, given the wide dispersal of its economy across big distances: in 2011-12 Australia's domestic freight task of almost 6 billion tonnes travelled almost 600 billion tonne – kilometres[36].

Most casual observers would presume that for a freight task of such magnitude, a core intercontinental heavy rail freight sector would be the dominant freight mode – as is the case in Europe, Canada, the United States and Russia. However, Australia's ongoing failure to remove cross subsidies from the road freight sector *in those places where it competes directly with commercial rail* lies at the heart of seeing greater investment in Australian rail freight. Not resolving this issue – known as competitive neutrality - has strong potential to be keeping freight costs to the Australian economy artificially high.

This was raised by the Productivity Commission's *Review of Road and Rail Infrastructure Pricing* as long ago as 2006, which considered direct pricing of trucks in only these places (and in return for diesel excise rebates to these trucks) would remove any lingering cross subsidy in this fleet and help to promote more efficient investment choices in road and rail .

Almost a decade on, Australia's formal road reform process has rejected this approach, instead pursuing an averaged charged for all trucks on different averaged classes of roads. This preserves the likelihood of inherent cross-subsidy to heavy vehicles using the most-heavily-engineered and costly-to-replace networks, leaving commercial rail less than competitive - and rendering major new commercial rail projects almost impossible.

At the same time, road agencies continue to plan and undertake regular expensive upgrades of the highways that are the direct competitors of major commercial rail projects such as the Inland Rail – the planned north-south rail link on the east coast of Australia.

It would be hard to imagine a way in which commercial rail projects could be further disadvantaged from obtaining efficient and competitive market share in freight.

In turn, this failure to ask and solve the big and hard questions in road policy makes major new commercial investments in intercontinental rail infrastructure most unlikely.

36. Bureau of Infrastructure Transport and Regional, Economics *Australian Infrastructure Statistics Yearbook 2013 see Table T 2.1C p.47*
37. Productivity Commission *Inquiry into Road and Rail Freight Infrastructure Pricing* Report No 41 2006 p. 248 *'Location-based charging on major freight routes'*

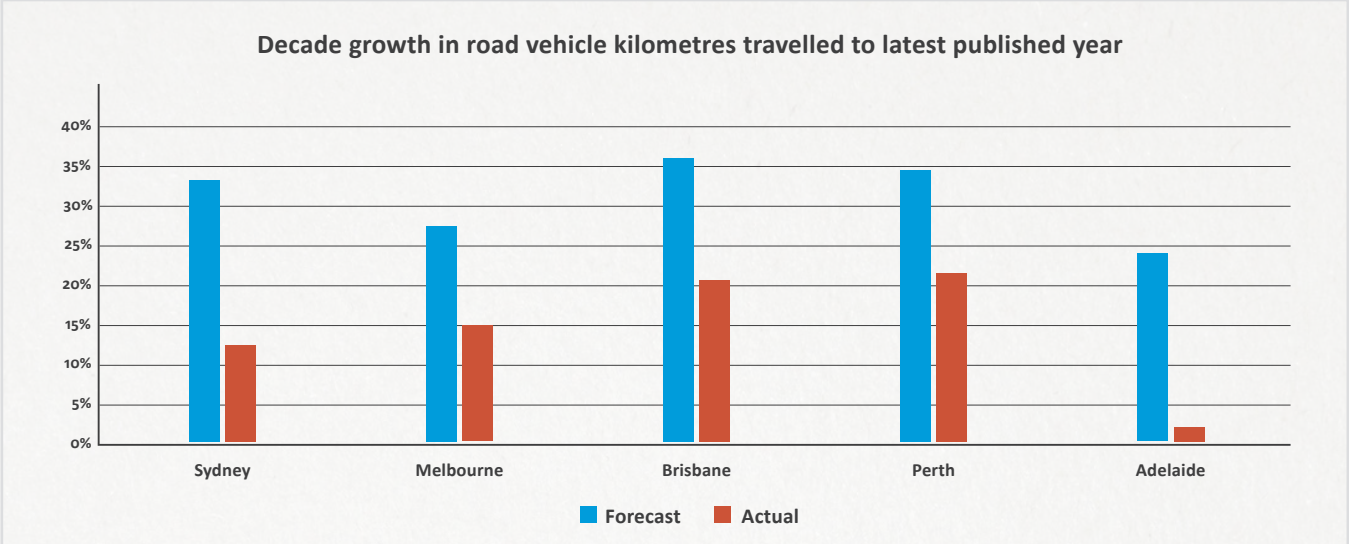

Table 3 (above): Road agency urban congestion growth forecasts for the decade to 2011-12 versus actual growth.
Source: Infrastructure Australia analysis, using BITRE Working Paper 71 *Estimating Urban Traffic and Congestion Cost Trends for Australian Cities* (2007) and actual statistics for same reported by BITRE to 2011-12.

Urban road congestion forecasting is poor, with significant implications

In the case of urban congestion analysis, governments must make expensive choices about how much scarce taxpayer funding flows to freeways and other road connections versus public transport projects. Infrastructure Australia noted in its *National Urban Transport Strategy* that road and public transport projects are a matter of balance and reporting on performance is vital to getting that balance right[38].

In the most urbanised nation on earth, getting transport right in Australia's cities is a major consideration for economic performance in these places. Smart planning and choices will 'enlarge the effective size of the labour market and of the goods and ideas markets, thus increasing productivity and output'[39].

The greatest care should be taken with analysis and forecasting, given the size of project choices at stake: any inadequacies in analysis risk extremely costly errors.

The Bureau of Transport Infrastructure and Regional Economics (BITRE) publishes growth forecasts for traffic congestion in capital cities.

Its current projections were set several years ago and assume that urban congestion in major cities will continue to grow steadily.

In 2010, Infrastructure Australia pointed out to BITRE that the statistical approach to these projections appeared deeply flawed and that the assumed steady growth was not being witnessed in actual congestion results, which instead suggested urban congestion levels were growing at around half or less than half the forecast rate:

At the time - and a number of times since - Infrastructure Australia asked that these forecasts be reviewed and their implications for current and planned urban road projects re-examined. In 2014 - four years later - no such review has taken place. It is not clear to Infrastructure Australia why this has not been attended to, although revising forecasts down would almost certainly result in pressure to reduce budgets for urban road programs.

Accordingly, the road system's flawed analytical assumptions about matters of national importance appear to be giving the wrong impression to governments of the relative importance of road congestion (and the need for road spending) and public transport projects.

38. Infrastructure Australia *Urban Transport Strategy* (2013)
39. Remy Prud'homme, University of Paris, paper for the Annual Bank Conference on Development Economics (2004)

Horizon challenges?

Perhaps other challenges lie ahead for roads – challenges that could force a more fundamental reconsideration of how the Federation structures its approach to road funding and planning.

In very recent times, Australia's High Court ruled that at least one element of Commonwealth grant funding provided to Australia's state governments was unconstitutional. The case of *Ronald Williams vs the Commonwealth of Australia and ORS*[40] made an important judgement relating to the ability of the Commonwealth to bypass state government legislative process in providing grants.

The judgement in this case was careful to point out that it had confined its consideration of this principle to the Commonwealth chaplaincy in schools grant program. However, any strategic assessment of the road system in Australia would be incomplete without at least recognising that several substantial Commonwealth grant programs lie in the roads portfolio, including Roads to Recovery, the *Federal Blackspot Program* and local government roads grants.

Wider implications of the *Ronald Williams vs the Commonwealth of Australia and ORS* judgement are unclear. Whatever the future has in store, there are foundation charging, funding, planning and investment issues in roads that Australia would do well to start addressing sooner rather than later.

40. http://www.austlii.edu.au/cgibin/sinodisp/au/cases/cth/HCA/2014/23.html?stem=0&synonyms=0&query=title(Williams%20v%20the%20Commonwealth%20and%20Others%20)

How does private investment begin to contribute to reform?

At present, capital markets have no sense of where they would be permitted to invest, and would rightly be cautious that any unsolicited proposals might be 'appropriated' by road agencies anxious to deliver such innovations themselves. That would be a highly damaging outcome, as it would drive away private capital from the asset and in any event, limited public funds may not be available to fund the right solutions.

Governments need to consider the quality of their unsolicited bid processes to encourage market innovation in road investment. Best practice approaches to unsolicited bids should protect and reward truly innovative market proposals.

Numerous case studies suggest that road freight operators and investors can identify far more efficient road solutions than bureaucracies.

If freight users are prepared to pay an efficient charge for securing this better bottom-line outcome, and provided the solutions meet public safety and amenity expectations, then just as for rail and many other asset classes in Australia, elected governments should not stand in the way of privately-financed improvements. This is the very heart of competition reform. Infrastructure Australia has found no compelling reason for opposing its judicious application to roads.

There should be a high bar placed on reasons for excluding willing private investors from investing more in the road asset.

Private investors should look to partner with road freight operators and customers and then engage directly with local and state or territory government ministers. The only appropriate role of road agencies would then be to make as much data available as possible to the prospective investor. A regulator could then ensure that public amenity, safety and other relevant matters have been sufficiently addressed in any proposal. The experience of case studies to date suggests that a great many developments are likely to exhibit few safety or technical problems that cannot be solved with more funding.

Declaration of a **national freight network** open to private access and improvement would help give capital market sight of a large scale pipeline of mostly brownfield road projects which exhibit reasonable construction, patronage and transactional risks. Australia's market-reformed rail access-seeker, pricing and regulatory structures are of direct relevance and could be brought to bear on the road network without any difficulty. A regulator would oversee a regulated asset base of very considerable potential scale. Suitable regulatory and probity models are readily available to accompany such a pipeline and give 'long term credibility'[41] to patient investors in such assets.

It is very likely that the advent of major private investments in the monopoly government road asset would force significant structural reform to take place within road agencies, with asset condition reports, standards and some regulatory scrutiny of spending being among the likely positive outcomes.

41. Dieter Helm, *Infrastructure Investment, the Cost of Capital, and Regulation: An Assessment* Oxford Review of Economic Policy, 2009, 25:3, pp307–326

Government to play its part but avoid a 'grand solution' approach

Previous economic reform advice such as the *Henry Tax Review* advocated an Intergovernmental Agreement on Road Reform. Given that similar processes have prevailed to date, calling for this step now would be window dressing.

There is no grand bureaucratic solution: small solutions that work need to be supported and nurtured, and what we learn from them should in time influence more general structural reform of the road system and its agencies.

There are nevertheless some things that only governments can deliver and which elected leaders should demand as first steps to lay the grounds for something better in roads:

- Urban congestion growth levels need far more scrutiny. Based on revised analysis, the current mix of urban freeway/tollway and public transport projects may need some review, to ensure that taxpayers are getting the best results for their money.

- Direct reference prices should be established for at least the highways that compete directly with major commercial rail lines, with a view to moving towards this arrangement in the medium term, to allow for transitional effects. In return, truck operators in these places must receive guaranteed service levels and a legal right of access to more productive trucks on a fair and transparent user-pays basis. Such access should not be a discretionary matter for road agencies, or quasi-regulatory bodies such as the National Heavy Vehicle Regulator, but should be enforceable under the Competition and Consumer Act (2010) *via* a proper regulator such as the Australian Competition and Consumer Commission.

- Roads are already mentioned explicitly in Australia's *Competition and Consumer Act 2010* as assets accessible by third parties; current technological advances confirm the viability of this arrangement in practice – ie roads are excludable at point of use. Road agencies views to the contrary appear misguided. A core regulated heavy road freight network could be open to a legal right of third-party access and investment by private investors by being declared under Part IIIA of the *Competition and Consumer Act 2010*.

- State governments and local governments should start working along the lines mentioned above with potential investors in road infrastructure to consider what sort of investments would be sustainable and which ones would represent a better situation than relying on increasingly scarce public funds to address mounting productivity and safety problems. The South Australian government has developed excellent and simple models and these should be promulgated so that more funds flow to this infrastructure sooner.

- The Productivity Commission should revisit the status of road infrastructure *vis-à-vis* Australia's Competition Principles.

Australian Government

Infrastructure Australia