## Economic reform of Australia's road sector

Precedents, principles, case studies and structures

Prepared by Juturna Consulting for Infrastructure Australia February 2012

CONFIDENTIAL VERSION FOR INFRASTRUCTURE COUNCIL ONLY

#### Disclaimer

This report has been prepared by Juturna Consulting for Infrastructure Australia. The information in this report has been prepared by Juturna Consulting from open source material and from stakeholder consultation. All reasonable attempts have been made to ensure the accuracy of the information contained in this report, but Juturna Consulting reserves absolute discretion in updating or amending this document.

#### **Comments and questions:**

Luke Fraser Principal, Juturna Consulting Pty Ltd P 0437 146 274 E juturnaconsulting@gmail.com W www.juturna.com.au





#### CONTENTS

Introduction	4
Breaking the natural monopoly in roads: look to rail for answers	8
Barriers to efficiency posed by a road infrastructure monopoly	13
Proofs of concept in the benefits of road reform: case studies	14
Case Study 1: B-triples (not) on the Hume Highway in Victoria	16
Case study 2: Chullora – stopped from using efficient trucks	19
Case study 3: Feedlot: The costs of delaying efficient road access	21
The case studies as symptoms of structural inefficiencies in roads	22
Current structure: road funding and agency motivations	23
5 principles and structures to guide competition reform of roads	25
Principle 1	26
Principle 2	27
Core Road Freight Network	31
Adjoining or off-network access and improvement	33
Balance of roads operated as Community Service Obligations	35
Principle 3	38
Principle 4	40
Principle 5	42
Closing observations	44
Endnotes	45

#### INTRODUCTION

In its August 2011 report to the Infrastructure Australia Council entitled *COAG Incremental Pricing Trials: Prospects for a more commercial focus in road reform,* Juturna sought to demonstrate, through examination of recent productivity-based trials by some of Australia's road agencies, that the Australian road sector exhibits all of the typical characteristics – and most importantly, all of the inefficiencies – of a monopoly.

That report examined several Australian road agencies' attempts to deliver industry-led – that is, 'demanddriven'- road freight efficiency trials. These trials were conducted within the current monopoly public sector structure. They were to a very considerable extent unsuccessful; in two cases, state road agencies abandoned their industry trials altogether as too difficult to undertake.

The August 2011 report found that the results might have been better had a proper nationally-coordinated trial been carried out. Nevertheless, it might have been reasonable to assume very limited outcomes in any event, because what was being asked of the trials was for a monolithic organisation incorporating public sector planners, access regulators, investors and infrastructure managers – all in charge of what is conceived by many to be *social* infrastructure, there primarily for the public good – to entertain investment propositions of an economic and commercially-initiated nature.

#### Cause for optimism

Despite the significant shortcomings of the road agency trials, large national productivity gains *are* available in road transport. The key to tapping this potential appears to lie in the economic, structural reform of roads. Such reform could improve the performance of road transport – addressing visible issues such as congestion and underused vehicle technology – as well as the performance of modes it competes with or complements.

Inevitably, comprehensive and responsible reform needs to address governance – how roads are controlled, *via* organisational boundaries, ownership, regulation, contracts and financing. There are also important matters to consider surrounding the pace of the change and its nature – whether reform is adversarial or collegiate in terms of moving from inherited structure and culture to satisfactory new arrangements.

Road reform is perhaps especially complicated because to date:

- Public roads have been ubiquitous in their provision;
- organisational boundaries are set along administrative and political lines, rather than considering market-driven efficiencies;

- roads are generally considered to be 'social infrastructure, with some economic uses';
- there is no commercial relationship between road user and owner (sometimes referred to as an absence of 'pricing' or 'direct charging)'; and
- current economic and social patterns in part reflect the generational history of the above.

## This paper relative to concurrent government policy examinations in road reform

In 2011, consideration of road reform is becoming a crowded space. The latest round of formal consideration, under the banner of the '*Council of Australian Governments (COAG) Road Reform Program'*, emanated from the 2006 Productivity Commission *Inquiry Into Road and Rail Infrastructure Pricing*, which in turn was in response to concerns that trucks held unfair advantages over trains; logically, this would relate to trucks *in the markets and at the places where they compete* with trains.

The *COAG Road Reform Program* has published several discussion papers and reports, in accord with its terms of reference, which address the issue of road charging (and therefore funding) for all roads to heavy vehicle use, *whether or not* this competes with railways.

Nor does the *COAG Road Reform Program* appear to deal with road infrastructure itself – its current condition, remedial funding priorities or pathways for improvement. Current road reform efforts do not draw on or call up the structural concepts from the National Competition Policy which have been so vital to the reform of other public infrastructure sectors.

This paper does not seek to discuss road reform through the prism of the *COAG Road Reform Program*. It sets these efforts to one side, and instead poses some simple, first-principles questions: is structural reform of the road sector really worth it? If it is, where should that reform start, and what useful lessons might be learned from structural reforms past? Perhaps most importantly, are there some parts of the road sector that do not warrant any reform? How could reformers avoid creating unnecessary or even damaging change and turbulence in pursuing reform? Finally, how might road reform best proceed, if indeed it were found to be warranted?

#### Inherited concepts of roads and their management structures run deep

The August 2011 report implied that Australia's roads are thought of as monolithic social infrastructure, which in some cases 'happens' to be used for economic or commercial purposes. The structures that have grown up around such thinking discourage any significant private initiatives to invest in roads; industry and the community also have little meaningful influence in the shaping of roads outside of the political system. Thinking of roads as monolithic social infrastructure with perhaps a subsidiary economic function contributes to low transparency and reporting about the cost and condition of infrastructure that underpins the road transport task. This last matter not only inhibits market investment in roads, but also raises significant public road safety questions, as there are at present no transparent, baseline standards for roads and bridges, and therefore no means of auditing to such standards to improve road and bridge safety.

While this state of affairs should come as a major concern to those interested in increasing private sector investment levels in Australia's road infrastructure (not to mention for those who care about road safety), the situation is not surprising given the historical development of roads both in Australia and indeed across most countries worldwide: perhaps nowhere has public policy on roads broken conclusively through our inherited assumption that the 'public good' aspects of the road trump any opportunity to develop broad-scale productive economic activity on this infrastructure.

The primary question for road investment reform therefore seems to be whether it is possible to reform road governance in a way that would change the perception (and practice) of *'every road first and foremost for social purpose'*. Happily, this question has been faced and resolved in some other infrastructure sectors in Australia since the advent of competition policy in the 1990s. Roads appear to be the last such major infrastructure monopoly in Australia in which social and economic purposes are not closely defined: energy, water, telecommunication, seaports, airports, and rail have all to varying degrees been subject to reforms throughout the 1990s that aim to address the economic/social question of economic infrastructure.

#### How far away is real reform?

Roads are still a long way from a reformed state. This is evidenced by the fact that even in 2011, the Federal Government's Nation Building road network funding and planning program (formerly known as the Auslink network), which the Federal Infrastructure Department asserts to be the core road network of Australia, manages somehow to not include the Port of Newcastle in New South Wales. By not being considered important enough for this Nation Building network, the Port of Newcastle - which is the world's largest coal export port - is locked out from the substantial additional planning and funding attention that the Nation Building program brings. The matter is not political: the port was not placed on the previous Federal Government's equivalent Auslink program either. Such omissions underline how muddled the notions of public good, freight and productive investment are in Australia's unreformed road sector.

Much of Australia's successful reform responses to other aspects of economic infrastructure in the 1990s may rightly be said to have led the world in this field at the time, but roads remained largely untouched. This has ongoing implications not only for the efficiency of road investment and use itself, but it also poses serious questions of competition and coordination between road and other forms of transport used for economic and commercial purposes, especially rail.

#### Thinking about roads differently

On the strength of Juturna's August 2011 report, Infrastructure Australia indicated it wished to examine in more detail a pathway for structural reform that would address the monolithic or monopolistic characteristics of roads where appropriate, and thereby maximise the potential for timely and efficient investment in roads, and promote better competitive neutrality and coordination arrangements with other modes in relation to freight.

This paper examines these structural elements through a lens of potential competition policy-style road reforms. This includes how such repositioning might be a foundation for longer-term and more ambitious road pricing challenges such as laid out in the *Australia's Future Tax System* report.

To assist in identifying the issues at hand, three case studies from Australia's road sector are explored. All three cases address the significant economic, safety and environmental inefficiencies and lost opportunities that are a function of accepting *status quo* in the road sector. They are representative of many similar inefficiencies that appear to be tolerated nationwide under current arrangements.

This report contends that the situations examined in the case studies can be improved through sensible and balanced governance reforms that would place the road sector on a more productive footing for the future. In these respects, as an erstwhile world leader in such reforms, Australia has many natural advantages; it retains a good knowledge base in implementing new regulatory and governance structures in monopoly sectors; the experience of Australia's post-competition reform rail sector in particular displays many parallels with the prospective road reforms ahead. Judicious reform of the road sector does not appear to be beyond Australia's reach. This paper offers some proposed principles, structures and institutional arrangements for achieving that goal.

It has been noted by many observers that the details of any sectoral reform – that is to say, its pace, its structure and design, its legitimacy, its interaction with existing institutions, its ability to cope with different investment and planning circumstances, and its level of resourcing – all benefit greatly from due care and forethought being applied before any changes begin.

The road sector is of course not the same as the telecommunications, energy, port, airport, or rail sectors. The road sector exhibits unique features that would need to be taken into account in the design of bespoke governance reform. Nevertheless, some well-trodden reform principles apply to this field even where there also are substantial differences in roads, compared with telecommunications and railways, for example.

Juturna hopes that this short paper will be a worthwhile contribution to an emerging and ultimately successful road competition reform agendum.

February 2011

Australia's rail sector was subjected to full competition reforms from the mid 1990's. The lessons learned from this successful but complex endeavour offer very direct benefits for any future competition reform of Australia's road monopoly.

# BREAKING THE NATURAL MONOPOLY IN ROADS: LOOK TO RAIL FOR ANSWERS

Attempts to deliver sensible governance reform to the road sector would profit from first examining the history of reform of the similarly monolithic rail sector in Australia. In the late 1980s, many of the same questions that are now beginning to be asked of the Australian road sector were being asked of the unreformed state rail institutions, which like roads today, had long been considered by some to have a predominantly social purpose as distinct from an economic function.

In 1991 Australia's Industry Commission (now the Productivity Commission) examined the extent to which Australia's railways acted as a monopoly, and what affect this may be having on productivity and efficiency, and whether some targeted governance reforms could produce better overall results. In examining the case for government intervention in railways, the Industry Commission considered that:

'While it appears to be accepted that the railways exhibit features of a natural monopoly, the case for intervention must address whether there is sufficient potential competition from other modes of transport or from within the rail industry to obviate the need for government intervention. In the event that efficiency losses associated with the monopoly are intolerable, government options include regulation of market conduct and structural reform'.

The inquiry went on to find that:

'There is ample evidence to suggest that many railways are inefficiently operated and inefficiently priced, as is reflected in their large financial losses... the ability of railways to meet the expectations of their customers is hampered by mistakes made in the past, and a continued reluctance of State governments to implement reforms which, although difficult, are essential to ensure the future viability of railways. In particular:

• the operating methods of railways have been changed only slowly, even though technological

advances should have allowed large reductions in operating costs;

- many lines and services which are no longer viable have not been closed or discontinued, thereby reducing the ability of the remainder of the rail system to operate efficiently;
- fares and freight rates have not been flexible enough to obtain optimal use of the railway rollingstock and infrastructure;
- capital has been mis-invested; and
- governments have presented rail administrators with conflicting social and financial objectives, making it difficult for them to set and achieve efficiency goals'; and that
- 'political considerations seem to play the dominant role in determining the magnitude and nature of railway capital expenditure'."

Reform of Australia's rail monopolies was estimated to unlock \$5 billion per annum in productivity dividends to the Australian community. Reform of road monopolies also promises significant productivity dividends.

#### Australia discovered the costs of living with rail's natural monopoly - and decided to act

The Industry Commission concluded that these inefficiencies were costing Australia in 1991 something over \$4 billion *per annum*; this scale of deficit was found to be the equivalent of a 'rail levy' of \$12 million per day being placed on all Australians. The same report found that by delaying essential market-based reforms, the Australian community would forego productivity dividends of around \$5 billion *per annum*; these reforms were equivalent to around 7% of all of Australia's income tax collections at the time.

The pre-reform public rail sector was both vertically and horizontally integrated: that is, a single entity owned, planned, funded, regulated and operated both the fixed infrastructure (track, signals, etc) and all the rollingstock (locomotives and wagons) in each state (although arrangements were slightly different in some places and notably for the private railways of North West Australia). The monolithic public rail entity provided services for all business reasons (freight) and for all social reasons (passengers – including mitigation of congestion) across all geographic areas of its state.

Thus the publicly-owned railway in each state was 'vertically integrated' and 'horizontally integrated' across both product lines and geography.

## In 1991 a Special Premiers Conference considered seven reform principles for rail<sup>"</sup>:

- 1. clear and non-conflicting objectives.
- 2. managerial responsibility, authority and autonomy.
- 3. effective performance monitoring by the owner-government.
- 4. effective rewards and sanctions related to performance.
- 5. attaining competitive neutrality in input markets.
- 6. attaining competitive neutrality in output markets.
- 7. effective natural monopoly regulation.

The journey which rail took in endeavouring to conform to these principles holds worthwhile lessons for the road sector.

#### Positive lessons from rail reform

The rail experience is a reform that is already very well understood by Australia's senior transport agency executives – the very people who would be tasked with road reform. Rail shows that Australian transport monopolies *can* be successfully structurally reformed, and that by doing so, in the words of the Productivity Commission chairman, 'the introduction of competition regulation to infrastructure and the dismantling of the old statutory monopolies has produced large dividends for Australia'.<sup>#</sup> However, the route of reform in the past has been circuitous at times. Rail offers lessons for road in this respect:

Taking New South Wales as an example (and there are others) until the 1990s, a single entity – State Rail - conducted:

- economic/commercial functions such as freight; which were expected to be for profit, but sometimes were not;
- economic/social functions such as urban transit; which were not expected to be for profit, but considered important for the functioning of cities;
- functions with a more social focus such as country travel; which were not expected to be for profit, and in many cases related to 'inertia' where the railway continued to do tasks it had done for many years, but with decreasing effectiveness and dwindling passenger numbers.
- A key concern of the railways prior to structural reform was combatting the trend of increasing external competition; including from roads cars

use and road freight by trucks – and from aviation and coaches for country travel. Those who argued against rail reform considered that an integrated entity had a better chance to combat this. This also was seen as an argument against allowing thirdparty access – such access could provide competition within the rail sector, thereby reducing the ability of the entity to cross-subsidise its less profitable activities, with the result being a loss of competitive position relative to road transport in particular.

The issue of vertical integration or vertical separation – whether the train operator should or should not also manage tracks – remains contentious in many places. However, horizontal separation – that is, different rail entities conducting different businesses (such as establishing distinct freight and passenger entities), and/or in different locations (that is, not framed simply by political jurisdictional borders) is now largely accepted as a sensible reform for rail.

#### The "public good" argument in pre-reform rail

Prior to the reforms, one major reason advanced in favour of continuation of horizontal integration in rail (in NSW for example) was the presence of 'synergies' (or avoidance of interfaces): it was argued that various types of trains (freight trains and passenger trains alike) used the tracks in almost all geographic areas; for example CityRail and Countrylink sometimes used the same tracks in the Hunter Valley, and intermodal freight trains sometimes used passenger train tracks in Sydney. Under the common arrangements, a head office provided corporate support, and 'brokered' the allocation of funds and investments among the geographic areas and businesses. Not surprisingly there were complaints about 'cross subsidisation' particularly from the coal industry who felt they were supporting metropolitan transit. There are echoes of this in public good arguments for roads today, wherein roads are seen to be public access infrastructure the uses of which cannot practically be horizontally separated out to expose distinct market investment opportunities (the 3 case studies advanced later in this paper will challenge this assumption as it relates to roads).

Why is this relevant? Because the same public good argument has for decades held an unchallenged sway over road sector planning and management as well: despite freight, passenger travel and public transport all displaying very different motivations for road use, there is a strong accepted wisdom that the monopoly can manage all of these aspects as a whole – just as prereform rail had assumed.

#### Chronology of reform in NSW rail

While there have been general reforms to rail, of most interest is the application of the reform process to the state rail entities. Put simply, rail has managed to "unpackage" the public good assumption in this sector. Taking NSW as an example, significant steps included:

- i. Removal of safety regulation responsibilities from the rail entity (1993)
- Agreement to move 'interstate functions' and relevant trains to a national organisation (1993), but that organisation being unable to influence

#### the condition of track

- iii. Horizontal business separation of freight from passenger but for trains only (1996)
- iv. Vertical separation of trains from track, via creation of a statewide infrastructure owner (1996), and creation of a separate infrastructure maintenance organisation
- v. Declaration of 'open access to tracks' (1996)
- vi. Creation of an access regime that allowed third parties to seek track improvement (1996)
- vii. Decision to provide subsidies to infrastructure owner (1997)
- viii. Productivity Commission review of progress in rail reform argues for greater focus on horizontal business separation of track (1999)
- ix. Re-integration of infrastructure owner and infrastructure maintainer (2001)
- x. Sale of freight operator (2001)
- xi. Vertical reintegration of trains and track in the Sydney metropolitan area (2004)
- xii. Transfer of interstate and Hunter Valley export tracks to a national track owner (2004)
- xiii. Agreement to construction of dedicated freight

#### infrastructure in Sydney (2008)

xiv. Agreement as to freight rights on 'passenger' infrastructure in Sydney (2011).

It might be argued that up to step (vi) the rail reforms were seeking to replicate the character of road transport. Indeed, it was argued that providing subsidies to track rather than to trains would assist to 'level the playing field' with roads, since this was how road funding occurred. Following review by the Productivity Commission<sup>\*</sup>, further changes sought to more closely align governance structures with economic drivers rather than to copy the (monolithic) road model.

Many of these steps aimed to support the principles of National Competition Policy. Today there is a clear organisational delineation between social and economic functions of the railways. Both functions are pursued through commercial principles and contractual arrangements. This enables social train services to be provided on tracks which have an overwhelmingly commercial purpose, and commercial train services to be provided on tracks which the community perceives to be there for social reasons.

Perhaps of greatest interest to the road reform question is the very recent decision to imbue rail freight with access rights on parts of the network seen as 'core' to passenger services in Sydney. It poses the question as to whether road freight should have rights of access and improvement to the wider road network. The principles and structure for achieving this are discussed further in this paper.

# Estimating the cost of road's natural monopoly is even more complex than for rail

There are far more roads than there ever were railways in Australia: there are over 800,000 kilometres of Australian roads, valued at somewhere over \$100 billion dollars (although the accuracy around these matters is itself a major point of contention, due to an almost complete lack of road asset cost and condition reporting in Australia under current arrangements – an important matter returned to later in this paper).

Road use is not directly charged. This means there is no monetary estimation of loss or gain, and a strong ability to cross subsidise. It also means that road use, and potentially provision, is excessive at least in some places. Evidence of this includes congestion. The extent to which transport is induced by road provision is unclear. Among the issues this generates is externalities and induced car traffic. In other places it is clear the condition of roads is inadequate and this includes local roads<sup>#</sup>. Recent estimates suggest a life cycle funding gap on local roads alone of between 2 and 3 billion dollars annually.

#### No serious attempts have been made to examine natural monopoly aspects in the road sector

When Australia addressed rail sector monopoly inefficiencies, it did so comprehensively, by undertaking an Industry Commission inquiry into the matter. This paid dividends, as the resulting analysis drove serious structural reforms along competition policy lines in the years that followed. Although that process has involved mistakes being made, on balance it has been a beneficial journey.

By contrast, Australia has never embarked on a similarly thorough, holistic review of the road sector's natural monopoly and its effect on the economy and society. It is true that the Productivity Commission did undertake an *Inquiry into Road and Rail Infrastructure Pricing* in 2006, but this inquiry did not attempt to consider (and indeed, was not asked) the question of the inherent inefficiencies that might stem from an unreformed natural road sector monopoly. Instead, that inquiry limited itself to a comparatively narrow examination of road and rail pricing structures for freight's use of infrastructure. The review left many questions unanswered, including how to account for an evident multi-billion dollar annual maintenance funding deficit on local roads.

What has occured since this time is broad commitment of most juristictions to move to consistent heavy vehicle regulation. The National Transport Commission's 2011 Regulatory Impact Statement identified productivity savings through regulatory harmonisation of the road freight sector of 'around \$0.6 billion a year for 20 years'. It seems clear to this paper at least that the majority of such dividends lie in road freight access issues. If this is the case Australia appears to have identified the value of structural reform of the road sector without being explict that, in this context, 'heavy vehicle regulatory reform' in fact means *structural* reform of the sector.

# COAG's *Road Reform Plan* has not addressed the structural reform of roads

Part of the motive for the PC inquiry was a claim that the differences in arrangements between road and rail created inter-modal distortions. Accordingly, the COAG Road Reform Program that sprang from the Productivity Commission's road pricing inquiry has taken a similarly narrow view of reform to date, limiting itself to examining heavy vehicle pricing reforms<sup>vii</sup>. However, it appears to have explored charging and funding reforms at a level which is too disaggregated to be of any interest to the rail sector, or to questions regarding competition and coordination among roads: the COAG Road Reform Program publications to date propose averaged pricing outcomes for entire administrative classes of roads, instead of charges for each road which offers direct competition to rail (in other words, specific charges for roads that run more or less parallel to rail lines, and which therefore exist in direct competition with them).

Notwithstanding that these efforts do not appear particularly focussed on the matter of structural reform in roads, within his 2006 report, the Productivity Commission chairman did see fit to gesture towards the negative effects of the road sector natural monopoly, especially the damaging effects that flow from relying almost solely on insufficient public funds:

'Road agencies cannot be certain of receiving adequate funding of road expenditure from general revenues. In response, road agencies and local governments often regulate road access by heavy vehicles to contain road maintenance and replacement costs. Such blunt mechanisms have the potential to significantly constrain freight transport productivity'.<sup>vii</sup>

# BARRIERS TO EFFICIENCY POSED BY A ROAD INFRASTRUCTURE MONOPOLY

In the absence of thorough Productivity Commission findings and reform recommendations concerning the monopolistic features of roads and their inefficiencies, it is worth examining at a conceptual level the main barriers to greater productivity in the unreformed road sector of 2011. The Brookings Institute's recent discussion of lessons learned from U.S. transport sector deregulation offers an elegant summation of the key barriers that an unreformed transport sector will present to the national interest:

- (Road infrastructure) users inherit suboptimal public road infrastructure, through a legacy of underinvestment, or investment that occurs too late, or investment in the wrong areas
- 2. (Road infrastructure) users are confronted by counterproductive residual regulations
- (The market for efficient roads) inherits inefficient practices and investments developed during the (monopolised) regulatory environment

#### How 'hidden' are these inefficiencies and lost opportunities?

To the Brookings Institute's list of barriers might be added the cloud of ignorance that structural monopolies bring about. One of the features of a structural monopoly is not simply a lack of timely investments and innovation, but also a resulting lack of transparency within the community about the opportunity cost incurred by maintaining the monopoly arrangements.

This is true for roads. Indeed, the lack of awareness of efficiency and amenity opportunities foregone through an unreformed road sector appears to extend to Australia's Productivity Commission itself: in its 2005 report on its *Review of National Competition Reforms*<sup>ix</sup>, the Productivity Commission devotes many pages to 'further infrastructure reform' opportunities and challenges. Roads are discussed at length by the report, but at no point is any aspect of competition

reform of the road sector discussed as a 'further infrastructure reform' of merit.

Instead, the report does comment upon some of the symptoms of an unreformed road sector - such as the potential for price distortions in roads affecting the competitiveness of rail – and it notes the fact that 'the Australian Government has invested more than \$15 billion in the National Highway System since (the early 1970s)'. No comment is passed on the inability of taxpayers to discern the value for money and efficiency that these investments have yielded, or the opportunity costs they might represent, measured as lost opportunities for productive rail investments, for example.

This only serves to underline the fresh opportunity that lies ahead in bringing road reform dividends to public attention.

# PROOFS OF CONCEPT IN THE BENEFITS OF ROAD REFORM: CASE STUDIES

#### Measuring the costs of an unreformed sector

In order to help fill the gap in understanding of the losses Australia incurs through living with an unreformed road monopoly, this paper offers 3 case studies, based on rigorous research, modelling and interviews with affected parties. Each case study attempts to examine a specific road freight inefficiency and its solution, in terms of greater efficiency, greater road safety and lowered carbon emissions. The case studies then reveal how the current structure of the road sector itself has impeded these more efficient outcomes. Costs are calculated to show how much the Australian community has lost in economic activity, road safety and avoidable carbon emissions by 'putting up with' the current situation.

The three case studies are offered as basic arithmetic proofs of concept in moving to a horizontal separation of road infrastructure funding and management.

#### How were the case studies chosen?

These three case studies were chosen on the basis that they appeared representative of a number of important and as yet unresolved themes in road policy:

• The Hume highway is Australia's most heavily trafficked road freight corridor and it competes

directly with rail freight. The appropriate pricing of heavy vehicle access on this corridor remains unresolved, even as rail's share of freight for this route has dwindled; yet at the same time, road agencies appear to have been considering higher productivity freight vehicles for this route without getting to grips with productive access pricing opportunities on this sector. This leaves road freight less efficient than it might be while doing nothing to address solutions to the improvement of rail's market share.

- As the August 2011 Juturna report revealed, road agencies are poor at identifying timely and prominent freight infrastructure upgrade candidates – and this can have negative outcomes for other transport modes as well as road freight; accordingly this paper chose to examine the current system's failure to include Sydney's most important road/rail intermodal terminal in its road freight upgrade plans.
- Finally, this paper sought to illustrate the fact that there are potentially a great many latent road freight efficiencies locked in the current road network. A feedlot in rural Australia was chosen as representative of the sort of efficiencies that only market actors – rather than public servants in road agencies – could be expected to identify across Australia's road network.

#### CASE STUDY 1:

B-TRIPLES BEING GRANTED TIMELY ACCESS TO THE HUME HIGHWAY IN VICTORIA

#### CASE STUDY 2:

CHULLORA RAIL FREIGHT TERMINAL AND THE COST OF INEFFICIENT ROAD FREIGHT ACCESS

#### CASE STUDY 3:

RURAL FEEDLOT: THE COSTS OF DELAYING ROAD FREIGHT IMPROVEMENTS

<sup>P</sup>14 **Economic Reform of Australia's Road Sector:** Precedents, Principles, Case Studies and Structures Juturna Consulting for Infrastructure Australia | February 2012

Safer, more productive road freight vehicles have been available in Australia for over 15 years, but the monopoly road owners have not given them access to major intercapital freight routes. What has this decision cost the community?

#### CASE STUDY 1: B-TRIPLES (NOT) ON THE HUME HIGHWAY IN VICTORIA

# The costs of failing to match the most effective freight vehicles to a key road freight network

In 1997 Victoria introduced 'trial' operations of the B-Triple truck-trailer combination to Ford Australia's daily freight task between its plants at Geelong and Broadmeadows, *via* the Princes Highway. The B-triple was at the time, and remains today, at the forefront of freight vehicle innovation and efficiency worldwide: it carries around twice the freight of a standard semi-trailer and, *ceteris paribus*, Juturna analysis suggests that this vehicle imposes around 12% less damage to the road per tonne of freight than a B-double, while it consumes in the order of 7% less fuel per tonne of freight than that a B-double. B-triple technology is a direct adaption of the successful B-double technology that was first introduced in Australia from Canada in 1991.

Under the terms of its operation, the B-triple operates to higher accredited standards of driver training and on-board safety systems than normal freight vehicles. The vehicle has operated very safely and successfully on this single route for the 14 intervening years.

## What would a 'market' for better road freight access have done with the B-triple?

The B-triple represents a large upwards 'step-change' in road freight productivity. As such, in an open market for road investment and access, one can assume that the road freight market of 1997 would almost immediately have sought to use this vehicle wherever it was deemed safe and effective to do so, to maximise available freight savings. This case study therefore presumes that at the very same time as Victoria opened road access to the B-triple on the Princes Highway (that is, as soon as the vehicle had passed testing and had been declared safe for operation on certain major divided highways), a rational market investor, operating for example, through a third-party access regime as exists for rail, or electricity, would have sought immediate access for



B-triples have run successfully between Geelong and Broadmeadows for many years.

this productivity-enhancing technology by putting it to work on the (Victorian portion of the) Hume Highway from Melbourne to the city of Wodonga, on the Victoria-New South Wales border.

In more recent years, the progress of national roadworks on the Hume Highway have in fact bypassed Wodonga altogether. Nevertheless this case study seeks to model an historic situation within one jurisdiction only.

# **CASE STUDY 1:** B-TRIPLES (NOT) ON THE HUME HIGHWAY IN VICTORIA

# The Hume Highway – logical candidate for B-triple use, but still no B-triples in 2011

The Hume Highway, linking Sydney and Melbourne, is the most intensively-used road freight corridor in Australia. Even around 1998, when the B-triple was introduced under trial on the Princes Highway, the Hume Highway between Melbourne and the northern border of Victoria (Wodonga) was a superior road freight route. This paper's interviews with senior Victorian road agency executives appears to confirm that there are no impediments to the B-triple operating safely and effectively on the Hume Highway, such as pavement depth, or bridges, or culverts that would require upgrade for B triple access; that said Juturna would expect an actual project in this respect to model any detailed minor engineering upgrades. This also appears to have been the state of affairs in 1997. In 2011, Victoria's road authorities have still not sanctioned B-triple access to the Hume.

# The infrastructure costs of efficient B-triple access can be estimated

While this highway may already be fit for carrying such vehicles, large 'breakdown centres' at the Melbourne and Wodonga ends of the highway would be needed in order for the B-triples to be broken down for onward journeys as B-doubles or semi-trailers. In 2009 Austroads undertook an analysis of the costs of building such infrastructure to accommodate the B-triple.<sup>\*</sup> For the sake of caution, Juturna has doubled the size and cost assumed by this Austroads study. With the cost of improved infrastructure requirements taken into account, analysis was then carried out to understand what the decision to delay the introduction of these vehicles on Australia's busiest heavy road freight corridor has cost the community:

## No access for B-triples on the Hume Highway since $1997^{\text{H}}$ :

- Net loss in economic activity: \$320 million
- Net additional road upgrades: **\$70 million**
- Net reduction in number of truck movements: 614,000
- Net carbon emission avoided: 256,000 tonnes

The operational efficiency of one of Australia's largest rail freight terminals relies heavily on efficient road freight access, but this access cannot be acheived under the current road monopoly structure. This damages freight competitiveness overall.

1

-

2

#### **CASE STUDY 2:** CHULLORA – RAIL FREIGHT SUFFERS WHEN ROAD FREIGHT SUFFERS

## Governments fail to agree on more productive freight access to a major intermodal terminal

The Chullora rail freight terminal in western Sydney links that city's rail freight with the rest of Australia. In a typical year Chullora dispatches around 200,000 TEU shipping containers. Many of the containers start or end their journey on the back of trucks, coming into or leaving the Chullora rail depot. From Chullora, containerised freight is sent to rail and port destinations all over Australia and beyond – so the efficiency of the road freight task matters to everyone.

From 2008, many sections of the heavy vehicle road network in New South Wales were opened to truck access at *Higher Mass Limits (HML)* – a scheme where heavy vehicles can carry around 12% more freight *per* journey, in return for employing better suspension management systems. HML offers major freight efficiency dividends for a major intermodal terminal like Chullora.

State road authorities have approved Higher Mass Limits truck access to within sight of the Chullora facility, but the final few hundred metres of access road to the Chullora depot is controlled by the local government authority (Bankstown City Council). The local government decided it would not allow Higher Mass Limits truck access on these final metres of road. Chullora rail terminal is therefore locked out from more efficient road freight access, meaning thousands of shipping containers must enter or exit Chullora at less than optimal weight. This in turn means some shipping containers are railed to and from Chullora to and from points as far away as Perth in Western Australia – and eventually transported by sea in some cases - at less than efficient weights.

Juturna's interviews with council engineers confirm that there is no road engineering upgrade work required in order to allow safe and viable Higher Mass Limits vehicles access to the Chullora site.

#### What would a 'market' for better road access have done with Chullora?

Juturna's analysis has modelled the effect of Chullora facility having *immediate* access to Higher Mass Limits from the scheme's beginning in 2008, on the basis that a rational market access seeker would have seen the benefits from this access and acted immediately to secure it for Chullora. The costs of this decision being prevented by the lack of a market access scheme for road freight are outlined below:

#### The costs of no truck Higher Mass Limits Access to Chullora since 2008<sup>xii</sup>:

- Net loss in economic activity: \$22.3 million
- Net additional road wear impact: \$100,000
- Net reduction in number of truck movements: 10,000
- Net carbon emission avoided: 400 tonnes

Australia's \$10 billion red meat sector relies heavily on efficient road freight. This case study shows the costs to one meat industry operation when the road monopolist fails to grant timely and efficient road freight access arrangements.

#### **CASE STUDY 3:** FEEDLOT: THE COSTS OF DELAYING EFFICIENT ROAD ACCESS

# The cost of an important regional wealth creator not being able to access efficient freight outcomes

Feedlots – where large numbers of cattle or sheep are fattened for later processing - are an increasingly vital part of Australia's red meat industry, which is worth between 9-10 billion dollars per year<sup>xiii</sup>. Efficient transport is a very large input cost to this sector.

In central New South Wales, a large commercial cattle feedlot is located 2 kilometres away from a highway that the state road agency opened in 2008 to Higher Mass Limits – that is, the opportunity to carry around 12% more payload per freight vehicle. But the feedlot could not immediately access these very advantageous weight increases because the final 2 kilometres of road had not been granted access to Higher Mass Limits. This meant that the feedlot's annual freight task of around 60,000 cattle movements and up to 50,000 tonnes of feed grain and other supplies per year were all moved at around 12% lighter weights than might have otherwise been the case. After much lobbying and work with the state road agency and the local government, the final two kilometres were granted Higher Mass Limits rating in 2011 – three years late.

#### What would a 'market' for better road access have done with this feedlot?

Juturna's analysis has modelled the effect of the cattle feedlot having *immediate* access to Higher Mass Limits upon the introduction of this scheme in 2008, on the basis that a rational market access seeker would have seen the benefits from this access and acted immediately to secure it for the feedlot. The costs of this decision not being taken at that time are outlined below: The costs of no truck Higher Mass Limits Access to the feedlot between 2008 and  $2011^{\text{W}}$ :

- Net loss in economic activity: \$477,000
- Net additional road wear impact: \$23,000
- Net reduction in number of truck movements: 650
- Net carbon emission avoided: 138 tonnes

# THE CASE STUDIES AS SYMPTOMS OF STRUCTURAL INEFFICIENCIES IN ROADS

The chosen case studies do not appear to be rare or isolated incidents. They reveal the hidden barriers to productivity that inhabit what is at present a largely unconstrained natural monopoly road sector.

#### Consider the example of **B-triple truck trailer combinations accessing the Hume Highway** from

Melbourne to Wodonga. The vehicle in question was cleared from a dynamic safety performance perspective for legal access to appropriate road networks over 15 years ago, when it began operation on one sector of a major highway in Victoria. This innovative vehicle is an excellent example of the OECD Joint Transport Research Centre's 2010 finding that 'many higher capacity vehicles have equivalent or even better intrinsic safety characteristics in some respects than common 'workhorse' trucks'.<sup>\*\*</sup>

There were no significant infrastructure issues preventing this vehicle being granted access all the way across Victoria to Wodonga from that time. Indeed, that is what would have occurred if effective access undertakings with an independent transport regulator were in place in the road sector. The fact that this has not occurred has cost the community \$320 million dollars in lost freight productivity since this time. It has also placed in the order of 614,000 additional trucks on the Hume Highway between Melbourne and Wodonga since that time. Without Infrastructure Australia's case study analysis highlighting these economic losses and safety opportunity costs, these matters would not become public knowledge; the natural monopoly characteristics of the road sector are in this sense identical to the situation confronting the Industry Commission's rail inquiries 20 years earlier.

There is of course a question remaining about to what extent the 'market' for road access and investment would still be interested when the appropriate levels of regulation and the abatement costs of any material externalities to the access-seeker's proposed access are factored in to the equation. But in the case studies, the likely rates of return on the improvement to the asset appear to be large enough to sustain some market interest in making more timely and targeted improvements. It should be noted at this point that a more significant question is whether some return should be sought on the value of the underlying asset. The reason this is significant is because of the potential cross modal competitive effects. In a reformed sector, these issues could be addressed through 'apples for apples' pricing comparisons between roads that were in direct competition with rail, such as the Hume Highway.

The case study at **Chullora** is an excellent example of counterproductive residual regulations preventing greater road and rail freight efficiency and road safety for the community. A simple access arrangement for heavierloaded trucks is not granted by the state road agency because the local government affected – which, it is worth remembering, is a creature of state government statute which receives annual road maintenance funding from the state – is not prepared to allow Higher Mass Limits access through one of its streets on the approach to an intermodal rail freight terminal, despite the fact that no initial engineering expenditure is required from council to make this road suitable for such vehicles.

The resulting inefficiency has already cost \$22.3 million. It has cost the local community around 10,000 additional unnecessary truck movements on that road. A private sector actor, responding to a practical third-party road access regime, would have had both the incentive and the means to identify this inefficiency over a decade ago and act to remove it promptly. But the regulatory response of a natural monopoly is not geared to approach these challenges in the way that market actors see them, so a counterproductive access restriction is put in place instead.

The example of the **feedlot** presents similar opportunities. In this case, the problem has finally been resolved by government action, after significant industry lobbying, but only after a loss of around half a million dollars in economic activity and competitiveness for that feedlot. But there are many other feedlots and other rural industry centres that still face the same difficulties and which, perhaps through lack of an effective political voice, will not receive timely attention to their problems. Market actors, given the chance, can address these issues far more efficiently.

#### **CURRENT STRUCTURE:** ROAD FUNDING AND AGENCY MOTIVATIONS

# First steps to moving to a new system – understanding current road funding motivations

Sensible structural reforms to the road sector must be built on an understanding of the motivations of the current system. This issue is considered briefly below before the principles of a reformed system are examined.

How are Australia's roads funded today? What are the major motivations in funding of roads? Is efficient investment a motivation for public sector funders? To understand how road funding and planning might be reformed, some of the basic funding approaches and motivations of the *current* unreformed system should first be recognised:

# Federal, state and local government road funding – three pots of money and a goal of equity

Leaving aside a small amount of private sector contribution (in the form of toll road concession investments in major capital cities, and some mining sector investments in upgrading public roads around their mines), Australia's road funding system has for many decades simply been a matter of public funding by dominion and acknowledging a need for equitable distribution of taxpayer funds to roads across all jurisdictions.

The plans for use of this funding are almost entirely supply-driven: unlike all other pieces of reformed economic infrastructure, where private sector intent can by degrees shape supply, road funding decisions remain firmly in the hands of the public sector planners. Infrastructure Australia's *National Land Freight Strategy Discussion Paper* neatly captures this approach as a '*predict and provide*' model.<sup>xvi</sup>

Australian roads are divided for funding, planning and operational purposes along political boundaries into federal, state and local roads. As such, like the pre-reform rail sector, the relative efficiency and investment potential in given roads is <u>not</u> considered by the (monopolist) road sector administrators as a basis for funding allocation, at least not explicitly or structurally (under the inherited system, major leaps in *targeted and timely* investments on specific parts of the road network – especially for road freight - generally only come about through political lobbying). This is understandable in an unconstrained public sector monopoly: nobody in the public sector is rewarded on the basis of finding more targeted investment in roads for greater returns – the market for roads has not been horizontally separated to allow anyone to distinguish productive investments in the network from unprofitable-but-desirable community service improvements. Added to this, there is no simple mechanism at present for establishing the true return on that investment, as it is difficult to price in an accurate cost of externalities and regulation on any given road investment.

In 1984 a significant review of Australia's roads summarised the current monopolist approach to funding. This simple summary remains accurate in large part even today:

'The Commonwealth funds national highway construction and maintenance, approving programs of work proposed and undertaken by the various State Road Authorities. Funds for arterial road works are distributed to the states which then have full control of the programs undertaken. Funds for local roads are distributed mainly to local government areas via state governments, using formulae agreed to by the three levels of government. These funds may be used for local government areas for roadworks of any type, including maintenance'. <sup>xvii</sup>

# CURRENT STRUCTURE: ROAD FUNDING AND AGENCY MOTIVATIONS

All that might be added to this quote is that:

- the Federal government also funds local roads through grants and other means, and
- the funding is distributed as far as possible with a *horizontal equity principle* in mind: that is to say, the intention of public road funding is to provide a 'fair' distribution of limited taxpayer funds across all roads.

But equitable funding outcomes do not address *efficiency* challenges. As the recent COAG incremental pricing trials of more *efficient* heavy vehicle use of the roads discovered, the current structure is not good at accommodating market actors who want to invest in a timely and efficient way in the network – the system is simply not oriented to respond effectively and efficiently to competitive market preferences.<sup>xviii</sup>

## Has securing sufficient public funding become an end in itself for road agencies?

As might also be expected, the battle for scarce public funds outlined in the summary above has bred a considerable degree of adversarial behaviour amongst state, federal and local government players when it comes to competing for limited public road funding revenue. Historically, attempts to reform the road sector without addressing full structural reforms along competition lines have generally descended into State *versus* Federal government arguments over road funding. A focus on blind competition for limited funds diminishes the opportunity for governments to think more constructively about timely, targeted and efficient investment in actual road networks for best effect.

Over and above any public funds that are spent on Australia's roads in future, it is a clear objective of all governments to attract private sector funding into road infrastructure on a much larger scale. Former Australian Federal Treasury Secretary Dr Ken Henry noted this point in a 2010 speech:

*'it is most important that government policies enable, or at least don't stand in the way, of productive infrastructure investment – whether private or public...' \*\*\** 

Yet Juturna's earlier report on the outcomes of COAG Incremental Pricing Trials showed that under current natural monopoly conditions, the road sector very much struggles to respond to specific road freight investment and improvement intentions. Put simply, making investments in roads – at least contributions that rational market actors would recognise as 'efficient investments' (ie positive cost-benefit and rate of return on capital characteristics, made under investment conditions of legal certainty) is not a funding consideration for road agencies at any level, much less a priority.

#### **5 PRINCIPLES AND STRUCTURES TO GUIDE COMPETITION REFORM OF ROADS**

Taking into account the new perspective on roads, what would be needed to improve the governance of roads such as to enable better economic investment decisions? What are the core principles around which the structures of a reformed road sector should be built? It is vital that policy reformers embarking on this process seek to design structures that reflect the mode in question in all its intricacy.

In broad terms a hybrid system would appear the most appropriate course of action. The OECD Transport Forum has noted that:

'In the transport sector, disenchantment with full, direct public ownership and control, coupled with a reluctance to leave governance to markets entirely, has led many governments to favour a hybrid solution, where independent regulators have oversight...the regulator protects users' interests by keeping abuse of market power in check, and protects the infrastructure owner's interests in order to maintain investment incentives, aiming ultimately to provide adequate levels and quality of service at reasonable prices, now and in the future'.<sup>\*\*</sup>

Beyond this general model, a road reform structure must be calibrated to the nature of roads, which are far different from rail and other reformed infrastructure sectors.

#### 'Doing no harm' – road reform principles based on good regulatory practice

A number of principles, and the structures that would grow from their adoption, are advanced in the pages that follow for consideration. They have attempted to answer the same outcomes of regulatory efficiency which were established during a recent UK government review of economic regulators:

- the most efficient use of regulators' resources to achieve the desired goals;
- regulatory intervention designed to minimise the burden on those regulated;
- the development of regulatory solutions which can be easily understood and applied by consumers; and
- the design of regulatory goals to achieve the greatest benefit to the economy.<sup>xxi</sup>

#### **PRINCIPLE 1:** ENSURE TRANSPORT REFORM IS EFFICIENT

# Road investment efficiency and access pricing in the context of possible market distortions

The use of market-type mechanisms is likely to increase efficiency in roads but it may be necessary to take into account underlying distortions and 'externalities'. Is the starting baseline price for road access the right one to which any charges for later market-initiated improvements can be added? Is the basic road asset where market improvement is being considered of a stable nature, or is it already facing a large maintenance shortfall that would pose a challenge to subsequent market access pricing? These are foundation questions of efficiency that will need some resolution for an efficient market for private investment in roads to take place.

## Road congestion – increased road capacity, increased car usage, user-pays for congestion

Externalities such as congestion are one subject that a structurally-reformed road sector should address from an efficiency perspective. There is concern in Australia about too much transport. An increase in the provision of roads risks increasing adverse external outcomes, particularly from car use. Externalities arise from road use. From a public policy perspective, the economic costs of at least increased road use - including congestion - need to be borne by those who cause them. Although in a strict sense this is a broader matter than road investment reform, it is worth noting as a principle to follow when seeking the best structures for that reform, because it should not be assumed that increased third party investment in roads would allow Australia to harness private capital to do more 'heavy lifting' in road building and productivity enhancement (through freight investment), while the revenue from all public road user charges could then be 'returned' for spending on road construction and maintenance. The matter is not this simple. Australia's future tax review pointed to the need for taxes and regulations to dampen negative externalities of roads. This may have the effect, in some cases, of placing some road investments and road uses 'off limits' for access and improvement purposes.

## Efficiency, Australia's Competition Principles and competitive neutrality in land transport

Similarly, adopting an efficiency principle will have a bearing on choices about structures to support road agencies and access seekers in putting successful access proposals together. COAG's *Competition Principles Agreement* also outlines clear competitive

neutrality policies, the object of which is 'the elimination of resource allocation distortions arising out of the public ownership of entities engaged in significant business activities' <sup>xxii</sup>.

Not all structural choices will be easy, and here the idea of 'staged changes' might be relevant. For example, as this paper will discuss shortly, an agent that can act on behalf of all road agencies to facilitate market access and improvement proposals to road agencies – in the same way as in the rail sector, the Australian Rail Track Corporation operated as the rail agent/broker for access seekers to the national network (ie interstate mainlines) in NSW – is an important step.

However, holding to the efficiency principal raises some longer term question around establishing another mode-specific access agency: road and rail are in some cases competitive land transport modes. Thus, while this paper will discuss shortly a National Road Access Agency, in the longer term efficiency might dictate that a single *Land Transport* Access Agency may do a better job of resolving some of the competitive neutrality-related distortions that go directly against the efficiency and competitive neutrality principles of the *Competition Principles Agreement*.

# **PRINCIPLE 2:** ENCOURAGE EFFICIENT PRIVATE SECTOR INVESTMENT, BUT MAINTAIN ROADS NOT CONSIDERED 'INVESTMENT GRADE' THROUGH PUBLIC ARRANGEMENTS.

With efficient private sector investments in road freight and its road and bridge infrastructure in mind, an effective market access mechanism for roads must allow private investors to consider the maximum range and scale of road network investment opportunities, while not placing unreasonable regulatory expectations on parts of the network that rational investors would not want to pay for. The paper will examine this proposition in more detail shortly, by distinguishing between the potential investment value in the freight task – which can be initiated by the private sector, versus the perhaps less commerciallyattractive prospect of investing in passenger vehicle activity on the network - which in almost all cases will need to be initiated by the public sector (eq. identifying roads where future tolls might be applied).

## Categorisations that will facilitate third party road access <u>and</u> protect CSO roads

Drawing on the benefit of a now mature rail competition reform process, this paper divides roads into 3 distinct categories that might best promote profitable and sustainable third party access to roads while also protecting the ongoing funding and administration of the bulk of roads that will undoubtedly remain unattractive to private investors – in other words, roads that would require ongoing funding by the public as Community Service Obligations (CSOs). Before these categories are discussed, it is worth exploring the 'value proposition' assumptions that might most attract private investment and drive regulatory reform of roads:

## Finding the value proposition: investing in the road freight task for stable returns

Infrastructure Australia's *National Freight Network* and *Strategy Discussion Paper* has suggested that perhaps the most likely areas of productive third party investment in road infrastructure lie in the road freight sector. This is likely to be an area prospective for seeking road investment from external sources. Specifically, the discussion paper proposes that road freight is likely to be prepared to pay for efficient improvements on heavily-trafficked freight networks. Truck and trailer technology is becoming more efficient all the time; the OECD's Joint Transport Research Centre has examined truck and trailer technological advances worldwide and has found that there is potential for contemporary advances in higher capacity freight vehicles 'to yield major productivity gains'<sup>xxiii</sup>. Crucially, the OECD's analysis observed that:

'road infrastructure and trucks need to be developed in concert: the benefits from the higher productivity of higher capacity vehicles sometimes justify investment in parts of the main road network to accommodate them'.<sup>xiv</sup>

This statement offers strong support to Infrastructure Australia's decision in its *National Land Freight Strategy Discussion Paper* to identify a core national network of heavy road freight corridors linking capital cities and major ports<sup>xxv</sup>. There is much efficiency to be had in matching the quality of these road corridors with the most productive contemporary freight vehicles: the case study of B-triple introduction on to the Hume Highway showed the scale of returns on offer.

# **PRINCIPLE 2:** ENCOURAGE EFFICIENT PRIVATE SECTOR INVESTMENT, BUT MAINTAIN ROADS NOT CONSIDERED 'INVESTMENT GRADE' THROUGH PUBLIC ARRANGEMENTS CONTINUED

#### Rewarding value: road freight sector as lower-risk investment than passenger vehicle tolling

Heavy road freight also has the benefit of being far less susceptible to two of the key risks that traditionally have plagued toll road investors: patronage risk and substitution risk. Trucks are more demand inelastic than cars in paying tolls - largely because if a truck is on a road, it is there because the route (even with the toll price included) has been deemed by the rational truck operator to be more cost-effective than any alternatives.

Freight vehicles, being much larger than cars, also have far fewer substitute routes available to them that would allow them to avoid tolled routes, particularly in urban settings. Thus, road freight presents a more stable target for investment. But the key principle bears reiteration: trucks will only pay tolls if the benefit in time or freight saving that they receive outweighs the cost of a toll. The key principle for a reformed road network is therefore that if the private sector offers the road freight sector genuine value, it will return the favour to investors.<sup>xvvi</sup>

## The road freight value proposition applies to Australia more strongly than anywhere else

By rights, Australia should be the most prospective place on earth for such road freight investments, because the country leads the world in the advances it has made in vehicle productivity. Earlier in 2011, Australia's Bureau of Infrastructure, Transport and Regional Economics found that between 1971 and 2007, the physical productivity of the Australian road freight vehicle fleet – measured as the annual volume of freight divided by the number of freight vehicles - more than doubled.<sup>xvvii</sup> In other words, transport of each tonne of road freight in 2007 required only half the vehicles it required in 1971.<sup>xvviii</sup>

## Big economic gains are on offer from targeted road freight efficiency reforms

The report goes on to predict that 'a 5 or 10% increase in general mass limits (ie the total amount a truck can weigh) could result in a 4 or 8% cumulative increase in fleet-wide average loads'. Given that the current road freight share of total Australian freight task is around 35%, this dividend would translates to a 1.3% or 2.6% productivity increase in Australia's total freight task. Much of this enormous gain would be enjoyed by the freight sector and its customers yet at present they have no mechanism to invest in order to unlock such benefits.

#### ROAD 'CATEGORIES' CAN SHAPE STABLE AND EFFICIENT THIRD-PARTY ACCESS

#### 'Unpackaging' the public good assumption in roads

Given that road freight improvements that match more productive vehicles to better freight road networks are the most likely goal of private investors, it would seem sensible to imagine 3 distinct "categories" of roads in an economic policy reform road structure.

In the first 2 of these categories, third party (market) actors could influence efficient access, improvement and even operation of productive road freight networks, in return for reliable internal gains on privately-initiated investment. The third category, which would be defined by the absence of market interest, or by regulatory exclusion from market access on public amenity grounds, would maintain an important *status quo* that protects perhaps the majority of the road network (that is, the parts that are not of any commercial interest to market investors who seek to fund efficient freight improvements) from unnecessary regulation and from the dangers of misplaced market investments in roads:

#### 1:

CORE FREIGHT NETWORK OPEN TO THIRD PARTY ACCESS, IMPROVEMENT AND CONCESSION OPERATIONS

#### 2:

ADJACENT OR OFF-NETWORK ACCESS AND IMPROVEMENT OPPORTUNITIES OPEN TO THIRD PARTIES

#### 3:

THE BALANCE OF ROADS, FUNDED, PLANNED AND OPERATED AS <u>COMMUNITY SERVICE OBLIGATIONS</u>

The heaviest road freight corridors – typically, intercapital highways and roads to and from major seaports – are the most logical candidates for indepently-regulated third party access and improvement.

1.0.2.0

34

05-

# **1.** CORE ROAD FREIGHT NETWORK

The most reliable place to find candidates for these investments is on the major intercapital linehaul road freight networks, and in intensive freight corridors like the roads in to major seaports. Infrastructure Australia has already anticipated such a network in its *Land Freight Network Discussion Paper*, which identifies the core road and rail freight networks and port and intermodal nodes across Australia and seeks to link them into one seamless freight network, in which market actors could invest in profitable freight infrastructure upgrades<sup>xxix</sup>.

This may be a very limited network, at least to start with. Efficient market investments on this core network would take the form of improvements to the carrying capacity of trucks, and as necessary making matched upgrades to these roads themselves to allow these larger or heavier truck payloads to be carried safely and without damaging the roads beyond current levels, without derogation to other network users or external parties.

Provided that the value to the freight customer of this efficiency gain outweighed any charge, and further assuming that the cost of the upgrade was to include any abatement of heavy vehicle externalities (such as additional noise from bigger trucks) this could be considered an efficient improvement that would be a commercially viable investment.

# Extent of third party access and proposed regulatory oversight on core networks

It appears likely that given the high level of road freight traffic on large road freight corridors, potential third party investors could consider the broadest range of investment in efficient improvements, which would fall into three categories:

#### A. Simple access arrangements

Under this scenario, road freight operators may be allowed to carry heavier freight payloads on their trucks, provided that they paid (the road owner) for any marginal additional road wear that was caused by the additional per vehicle weight (and the road owner spent it on repairing that additional wear and tear).

#### B. Simple access improvement arrangements

Under this scenario, road freight operators may be allowed to pay for an 'up-front' investment in road infrastructure that will allow them to access upgraded infrastructure with more efficient freight vehicles, or for a time saving.

#### C. Full investment in/operation of an upgraded road section under long-term concession

Under this scenario, investors may work with the road freight sector to determine where a very efficient investment in road infrastructure could be made to unlock significant road freight productivity potential. The investors could build that improvement and then charge road freight operators and their customer an efficient fee for accessing the better road. This fee might be relative to the scale of improvement enjoyed by the operators who can use it, but the fee would also be subject to independent regulation, with the possibility of a ceiling set on the returns available, so as to avoid monopolist gouging.

## How could third party access to core road freight networks be regulated?

Discretionary regulation promotes more time and cost-efficient investment in infrastructure than a natural monopoly provider of that infrastructure could provide. Good regulatory design for road access will be important, so as to ensure that the regulator has the discretion to act and the freedom to arbitrate – being free from both public sector ossification and private sector capture.<sup>xxx</sup>

In advance of building any dedicated transport regulator, or perhaps eventually building a road and rail land transport regulator (a move that would have obvious benefits for competitive neutrality objectives), the Australian Competition and Consumer Commission (ACCC) may be the appropriate independent discretionary regulator for road access requests by the market, as at least an interim measure. The ACCC is accustomed to managing these sort of transactions, as they mirror the arrangements in rail for access and access improvement undertakings<sup>xxxi</sup>. Less heavily-trafficked road freight networks such as country highways are often important freight links which may still attract third party access and investment, in order to link this freight task with the core freight networks.

-

#### 2. ADJOINING OR OFF-NETWORK ACCESS AND IMPROVEMENT

Beyond the major intercapital highways and heavy road freight routes to ports, there remain many roads where the road freight sector could also derive cost effective benefits from targeted and timely upgrades to vehicles and, where necessary, to infrastructure. In many cases, these improvements might be more modest in scale than those found on major intercapital linehaul networks.

For example, in some cases, upgrading a single bridge will allow for heavier trucks to carry freight at far more competitive rates. In other cases, opening part of a state arterial road and its connecting local roads to higher-productivity trucks could create a far more profitable freight network for the region's industry, which can thereby link its products to core intercapital routes far more efficiently. Finally, some isolated pieces of infrastructure, such as large mine sites, may wish to improve their local public roads to allow for effective use by the mine's heavy vehicles at various times.

# Extent of third party access and proposed regulatory oversight on off-network improvements

It is likely that such 'off-network' improvements would either take the form of access requests (ie

an interested third party would pay marginally more to access a road with more freight carried per vehicle, with the extra charge designed to cover the resulting marginal increase in road wear) or access improvement requests (ie paying for the 'up-front' upgrade of some aspect of road or bridge infrastructure, in order to allow for more productive freight vehicle access on that network). Unlike the core network, where freight volumes and the corresponding scale of potential investments might be high, 'off-network' investment opportunities would probably not extend to building and ongoing private operation of a road network under concessionaire arrangements. This makes the off-network improvements easier to manage from a regulatory perspective.

#### How deed-based contracts between government and access seeker might operate 'off-network'

A standardised national deed-based contract arrangement agreed between the access or access improvement seeker and the state government, may be all that is needed in 'off-network' situations. This would be particularly the case where there was little safety, public amenity or environmental impact of the improved access. In such cases, right across Australia, the main barrier to improved off-network heavy vehicle access is that the state or local government simply does not have the money to pay for the improved access at the time that the investment would be most sensible to make. Opening third-party access via negotiated deed arrangement overcomes this barrier.

The August 2011 Juturna paper on COAG Incremental Pricing Trials reported on an extremely successful state-level deed arrangement available in South Australia, wherein miners can negotiate to upgrade public roads where greater heavy vehicle access is needed to and from the mine site. An off-network access arrangement might be developed from this example.<sup>xouti</sup>

In order to resolve disputes and provide the market for such investments with legal certainty as access seekers, off-network access requests *via* deed arrangements would still be referrable to the ACCC. In its *National Land Freight Strategy Discussion Paper*, Infrastructure Australia suggested that this be limited to locations that were specified by states as being of freight significance. Among the benefits of this is that it ties state and national strategies together, and ties wider land use planning to transport systems.

# CHILDREN

CROSSING.

Clearly, the great majority of Australia's roads will not attract private sector freight access or investment interest – and in many cases, such access would not be in the interest of the community. By inference, such roads are community service obligations and can be managed under existing road agency arrangements.

#### **3.** BALANCE OF ROADS OPERATED AS *COMMUNITY SERVICE OBLIGATIONS*

Any move to reform roads cannot afford to throw the baby out with the bathwater: while the case studies earlier in this paper suggest that there is a place for productive market investment in some road freight infrastructure, it is very likely that the bulk of Australia's 800,000 kms of roads – suburban roads which see no heavy vehicle traffic, for example - are very much a public good: they are *social infrastructure for social purposes*, such as connectivity and amenity.

By inference, the balance of roads that do not fall into either of the earlier two access categories could be reliably considered community service obligations (CSOs) (or at best, some of these roads might be considered potential third-party investments that are yet to be realised by the market, for whatever reason). These roads could be maintained, planned for and funded on a *status quo* public sector basis. Access to and use of these roads would be a matter entirely under the discretion of road agencies, indeed, in the same way as the entire road network – both the 'profitable' and 'unprofitable' portions, from market perspective – is today.

Over time, investors might express interest in discrete elements of this CSO network and, if the investments were highly prospective, they should be entitled to seek access and improvement to that network, assuming regulatory expectations are met. This would allow a natural investment market to develop over time.

This third category in a competition-reformed road sector is a very important one, because it would

ensure that road agencies as they exist today continue to maintain roads on a public interest basis, for the benefit of the community.

The community would not wish to see road reform that risks 'blanket' private speculation at the cost of a loss of basic amenity on the wider road network. No policy reformer would want to see the sight of a merchant bank raising an initial purchase offer for suburban streets, and then neglecting the maintenance of that asset when the profitability of that asset class was found to be poor – to the detriment of the community. A clear category for non-investment grade roads is therefore an essential guarantee of maintenance of the overall road network in a reformed sector.

#### WHAT THE ROAD SECTOR LOOKS LIKE NOW (PRE-COMPETITION REFORM)



Because roads are viewed as a 'public good', road agencies have neither the incentive nor the additional funds to upgrade roads and 'match' them with the most efficient freight vehicles; highways are limited to B-double class and key access corridors do not allow trucks to operate with Higher Mass Limits.

000

FACTORY

~0

INTERCAPITAL HIGHWAY

00

Monopolist road agencies control funding levels and heavy vehicle access to all roads. Therefore there is <u>no</u> targeted private sector investment/improvement in any part of the network. Road spending and planning can be highly politicized and investment only occurs as limited taxpayer funds become available.

**SCHOOL** 

#### WHAT THE ROAD SECTOR COULD LOOK LIKE (POST-COMPETITION REFORM)

**SCHOOL** 

Part of the independent road regulator's role would be to scrutinize all third party access requests with public amenity, planning and safety in mind. In this example a heavy vehicle access request on a suburban street in front of a school would probably be rejected as not being in the public interest, regardless of the freight efficiency on offer.

As seen in the rail sector, once the 'public good' concept is overcome, third party access seekers can fund targeted, timely and efficient freight improvements to the road network, thereby reducing the burden on taxpayers for such improvements. B-triples might access upgraded intercapital highways; Higher Mass Limits would apply into productive access zones.

000

FACTORY

#### INTERCAPITAL HIGHWAY

Road agencies would contiue to have monopoly control over all community service obligation roads.

Road agencies, via structural reform, would permit private freight access and improvement investments on core freight networks and adjacent or off network sections of the road. These private access and investment applications would be subject to independent regulatory scrutiny to ensure all safety and amenity matters were satisfied. In some cases the private investor might operate part of a core network; in other parts tax-payer and private investor might share the burden.

# **PRINCIPLE 3:** TRANSPARENT ROAD ASSET COST AND CONDITION REPORTING IS ESSENTIAL FOR THIRD-PARTY ACCESS AND IMPROVEMENT OF ROADS

#### Infrastructure Australia's *National Land Freight Strategy Discussion Paper* has already observed that:

'There may be other options for giving freight a greater say over the infrastructure which it supports and which is essential for its efficiency. In any of these, public provision of relevant information about infrastructure performance is fundamental'. <sup>xxxiii</sup>

Third party investment in road infrastructure cannot become a reality without transparent and convenient access to the key data that will make cost-benefit analyses and objective and accurate costing of road improvements achievable. Indeed, road authority or government investment should also aspire to such data. However for private investment this data needs to be publicly available. This means that as a minimum, the road and bridge network around Australia under reformed arrangements would need to be reported on in terms of its cost and condition and remaining useful life. Such information forms a basis for investors to then consider how much additional funding above base condition might be required in any given situation in order to achieve the road freight efficiency improvements that a rational trucking industry would pay for. Infrastructure Australia itself made this point strongly in its 2011 Report to COAG, in which it argued for the establishment of a national

road portfolio manager (this theme is returned to in the next principle, *below*).

All other reformed economic infrastructure sectors have undergone similar asset reporting reforms in order to attract a market for investment. Again, the example of Australia's rail reforms presents almost an identical situation to learn from. It is instructive at this point to quote at length from the Industry Commission's Report into the pre-reform rail industry concerning the importance of accurate asset reporting for the success of the reforms ahead:

'Assessment of the potential benefits and costs of competition cannot be made unless adequate accounts are kept of the relevant parts of railway authority operations. In a situation where open access is allowed, it is necessary to know the separate costs of rail infrastructure and train operations so that potential users can assess the advantages and disadvantages of seeking access to tracks (in order to run their own trains). Infrastructure costs would establish a minimum charge for track access, while authority revenues and costs would be the basis of the authority's assessment of the desirability of continuing to provide a train service in the face of competition.

In deciding to call for tenders for the provision of railway services or parts of services, the authority itself needs to know the costs of existing service...For example, the authority cannot assess the potential benefits of contracting out, say wagon maintenance, unless it knows what it costs to perform this function in its own workshops at present. Overall, each railway authority needs to have an accounting system which provides the revenues and costs of individual traffics on individual tracks, and the separate costs of providing rail infrastructure and running trains. In most cases, adequate authoritative information is not yet available...'

#### In 2011, road asset information is not public, and even in road agencies may not be collated easily

In roads, moving to such asset reporting requirements would represent a 'resource' commitment, because in Australia in 2011 there is no public reporting whatsoever on road and bridge cost and condition, or on the historic traffic levels that road agencies record for all classes of vehicles on many of the main freight corridors around the country. However, such a commitment would have major benefits and arguably should be core business.

As might be expected of a natural monopoly that is in receipt of a more or less steady funding supply from the taxpayer, there has been little cause for road agencies of today to demonstrate the *efficiency* 

# **PRINCIPLE 3:** TRANSPARENT ROAD ASSET COST AND CONDITION REPORTING IS ESSENTIAL FOR THIRD-PARTY ACCESS AND IMPROVEMENT OF ROADS

of their past or current expenditure. As such, there is next to no public information available on the condition of Australia's road and bridges. But this is not to say that road agencies themselves, or the engineering departments of local governments, do not in many cases hold very detailed information on the state of their road assets: the Australian Rural Roads Group, working with the Institute of Public Works and Engineering Australia, has found that a healthy percentage of the over 550 local governments in Australia are maintaining ISO-standard road asset management reports, and the trend for comprehensive asset management is upwards between 2005 and 2008, for example, the number of NSW local governments reporting no use of asset plans halved<sup>\*\*\*\*</sup>. The challenge is in making this information accessible and capable of being collated into network pictures representative of those parts of the network that third parties may wish to invest in.

# Accurate road infrastructure data offers reliable and prompt pricing of access requests

One of the significant reported shortcomings of the COAG incremental pricing trials was the failure to collate information about the actual road condition across the specific networks which industry trial proponents had nominated to road agencies for improved access: in many cases, the simple presence of a bridge on the nominated network made access too difficult to assess. The Queensland agency actually abandoned its trial process entirely on this basis, citing the excessive complexity of route assessments as a reason for failure. It is notable that in expressing its frustration at trying to produce this information at the request of the market, some agency staff raised concern about the 'ad hoc networks' it would produce. It might be suspected that there was also an understandable frustration at having to produce detailed road and bridge asset cost and condition reports as well. The established body of knowledge around third party access pricing would agree with these frustrations. Data requirements for third party access arrangements need to be clear and stable. Stable data that is available to the market is in this sense a cost of good governance and a means to reducing the risk of poor investments.

#### Vehicle movement data exists for core networks, but it is not made publicly available

Road agencies maintain historical records of truck movements, by class of truck, across almost all of the major highways in Australia. To date, there has been little cause to make such information available to the public. But under third-party access conditions, this information would be essential historical data for estimating the patronage levels of potential investments.

This challenge can be met in practical ways, by prioritising effort. The asset collation task can begin modestly, and in a targeted way. The first steps to a third party access network could focus on the core freight networks first – the intercapital highways and key road corridors to major seaports. Working towards effective asset reporting for the core networks is an essential first structural step to engaging the market for efficient road investments.

#### Keeping everything in perspective

The data reporting and collation requirements to permit a workable access regime in roads are challenging, but not prohibitively so. A 2007 House of Lords Enquiry into economic regulation in the UK revealed that '*in practice, the costs of even the largest transport regulatory agencies are modest, particularly in relation to the costs of regulating banking and other financial services*.<sup>\*\*\*\*\*\*</sup> They are also very modest in terms of the value of assets under control (in road, assets would be valued at well over \$100 billion), and they offer the potential to avoid costly public sector and political misallocations in road investments.

# **PRINCIPLE 4:** A *NATIONAL ROAD ACCESS AGENCY* SHOULD BE THE SINGLE CONTACT AND AGENT FOR THIRD PARTY ACCESS SEEKERS TO THE CORE NETWORK

As outlined earlier in *Principle 1:* off-network access requests are more likely to be of a scale and/ or complexity which would obviate the need for an agency to manage access requests. This might instead be managed through a *deed arrangement*. But for core network access, access improvement or concession operation arrangements (or for offnetwork access requests of unusual complexity), a single National Road Access Agency could be desirable for:

- the management of access and access improvement pricing, acting as agents for road and rail agencies;
- collation of any regulatory requirements that third-party actors may have to satisfy in order to be granted access; and
- Coordinating requests from the independent discretionary regulator.

## The National Heavy Vehicle Regulator - candidate for *National Road Access Agency*?

Australia's National Heavy Vehicle Regulator might be

the building block institution for occupying this role, with some amendment and additional responsibilities. The establishment of a National Heavy Vehicle Regulator was a recent development and the final arrangements for and membership of this agency is yet to be entirely finalised at time of writing. However, it is understood that it will be an independent body under statutory authority established in Queensland and recognised by all States and Territories. The guiding aim of the new regulator is to harmonise state and territory road freight regulations.<sup>xxxvii</sup>

Although at present envisaged as a heavy vehicle regulator only, under a structurally-reformed sector many of the functions which it currently proposes managing – including regulation - may be somewhat different under a competition-reformed road sector.

In the context of competition reforms in road, a single national road access agency housed in the NHVR would allow the market for third party access to the road network to work with a single agent that already possessed strong links to state and territory road agencies and the capacity to develop the same links at the other government levels.

## The long-term benefits of such a body lie in genuine intermodal access and investment

Over time, a National Road Access Agency structure might expand to connect with a rail access agency role that would be extremely useful for managing multimodal access and improvement requests. Until now, it has been impossible for rail operators, customers and investors to envisage efficient and timely complementary investments in the road network. The scale of efficiencies on offer in the intermodal sector is intuitively very large. An effective access agent operating across both land transport modes would offer a long term solution to the difficulties faced by such parties and would also greatly assist in the resolution of the enduring competitive neutrality, market distortion and pricing issues that plague road and rail, where it is in competition.

#### Key changed roles for the present NHVR acting as a National Road Access Agency

Responsibilities for such a body would be several under a regulated road sector. This is a matter that would require careful and detailed discussion that is not possible in this paper. However, at least five main elements appear to be required within a road access manager role:

# **PRINCIPLE 4:** A *NATIONAL ROAD ACCESS AGENCY* SHOULD BE THE SINGLE CONTACT AND AGENT FOR THIRD PARTY ACCESS SEEKERS TO THE CORE NETWORK

- A national template for road and bridge asset cost and condition assessment and reporting might be established, and this might be backed with an intergovernmental agreement for road agencies to report publicly on the national templates, including scrutiny by external audit;
- A pricing function to estimiate the costs of desired improvements could then set a basis for negotiating accurate and transparent charges for access seekers based on examination of the current condition of the network and freight vehicles;
- 3. A national road portfolio asset management, reporting and analysis function would collate all of the template road and bridge condition reports and vehicle traffic movement information that would assist in granting access and provide the regulator with appropriate information in adjudicating access disputes; and

- 4. A regulatory assessment and approval coordination role for access seekers, allowing the market, for investment in Australian roads to be serviced by a 'one stop shop' for all approvals that might be deemed necessary in given access circumstances; such roles may sit well with either the National Transport Commission or National Heavy Vehicle Regulator; and
- 5. Safety may benefit from being separately regulated, as *per* rail and maritime.

## There are precedents in rail for managing access/improvement requests efficiently

The process for requesting access is another area from which the experiences of rail can be helpful. In rail, access seekers or access improvement seekers bear the full costs of their application, as a demonstration of their *bona fides* and to discourage frivolous requests that consume scarce public resources. In this sense, applied to roads, the net cost to government or the taxpayer of access and improvement identification would be close to zero. This approach would also discourage supply-side actors such as road agencies from being tempted to develop their own preferred 'networks' for access and improvement – a phenomenon that was in evidence in the recent COAG incremental road pricing trials.<sup>xxxvii</sup>

# **PRINCIPLE 5:** AUSTRALIA'S SUNDRY ROAD INSTITUTIONS MUST BE REORIENTED TO SERVE THE DEMANDS OF A STRUCTURALLY-REFORMED ROAD SECTOR

At present, Australia's road agencies in all states territories and the federal government are assisted by a range of national institutions and incorporated bodies – usually funded by the state and federal road agencies in whole or part - which attempt to support the road agencies and road operation and in some cases, road 'reform' more generally. Amongst these different bodies are:

- The National Transport Commission;
- Austroads;
- Bureau of Infrastructure Transport and Regional Economics;
- Australian Road Research Board (incorporated as the ARRB Group); and
- Transport Certification Australia, amongst others.

# Sundry road bodies are not immune from the inefficiencies of natural monopoly

Given the current natural monopoly environment that prevails in the road sector, it is not unreasonable to assume that the inefficiencies that are present in unreformed road agencies may also be present in some aspects of the work of these bodies, or at very best, that the inefficiencies evidenced in the road system overall may make it difficult for these bodies to maximise their contributions to the sector.

For instance, it is unclear how the National Transport Commission - an agency charged with *'improving the productivity, safety and environmental performance of Australia's road, rail and intermodal transport system*<sup>\*\*\*\*\*</sup> can provide significant improvement to the last of Australia's unreformed monopolies if structural road reform considerations are not at the core of its objectives. The effective horizontal separation of the road sector between economic investment roads and roads as community service obligation in the interests of increasing the timeliness and *quantum* of investment in the sector in a sustainable way might, in future, be considered a core area of reform for such a body to consider.

In a structurally-reformed sector, harnessing resources to support transparent, accurate and timely information exchange and the processing of access requests from the market is vital to the success of the reform. Many of these sundry road bodies could be harnessed to play very effective supporting roles to a National Road Access Agency. This would be a core deliverable of these bodies in a reformed sector, although some of the traditional roles and responsibilities established between these bodies and the road agencies themselves would continue, as *per* the continued roles and responsibilities of the road agencies outlined in *Principle 1*.



#### CLOSING OBSERVATIONS

This paper has attempted to suggest some broad principles for effective and efficient structural reform of Australia's road sector, which is at present a monolithic structure which carries with it all of the inefficiencies of unreformed natural monopolies. Judging from the benefits derived from previous reforms to other parts of Australia's economic infrastructure, there are large rewards on offer if such work is pursued thoughtfully, and with an eye on the valuable experiences of Australia's rail sector in particular.

This paper has proposed a number of principles to guide this reform, and it has outlined several structures and reform requirements that appear to follow logically from such principles. The approach to the structures in particular has been mindful of the fact that bringing more timely, targeted and increased investment into roads and their efficiency ought not come at the cost of neglect of community service obligations, or of undue turbulence and confusion surrounding the important ongoing role of road agencies it is worth noting that the paper has not suggested that ownership of roads needs to change in order to bring these reforms about.

The question for governments and policy reformers at this point is probably 'where to *right now*'? Do we have to build the entire structure in every aspect before moving forward with this reform, or are there ways in which small steps could be taken to test the ground?

## Building a stepwise 'proof of concept' approach seems a sensible way forward

There does seem a practical way forward that could test the concept of third party access to roads, and the principles and structures advanced above, in a way that has a minimal impact on the operations of the current system. Such efforts could run parallel to the unreformed system for a time, until an holistic *proof of concept* could be advanced to the Council of Australian Governments. These efforts would, in stepwise order, produce:

#### 1. An arithmetic proof of concept;

#### 2. A regulatory proof of concept; and

#### 3. An actual proof of concept.

The case studies advanced in this paper stand as initial arithmetic proofs of concept that third party access to roads could work, subject to the right supporting structures and approach. Reformers might consider using these studies or commissioning others to satisfy the first *arithmetic proof of concept* stage.

Once achieved, the matter might be referred to the relevant agencies and Australian Competition and Consumer Commission for consideration. This paper has proposed that the ACCC might be an appropriate discretionary regulator for a competition-reformed road sector. Armed with arithmetic proofs of the concept, it would be prudent to then allow the ACCC and relevant policy agencies to contribute to how the proposed reforms might best work from a regulator's perspective. It will also be important to seek informed viewpoints from the Treasury on how such a reform might sit within its wider purview of likely or desirable reforms to land transport, including tax reforms that might flow from Australia's recent tax review.

Finally, if the concept were to be proved arithmetically and posed no inconsistency to the wider road and transport/tax environment considerations of regulatory bodies or Treasury, it would be practical to move to some actual independent trial arrangements, involving the private sector, road agencies, and perhaps even an access agency function created for the trial. The trial should be guided by an agreed methodology, independently auspiced and results reported. This is something that one or more road agencies might choose to pursue in more detail. Indeed, there may be merit in accelerating commercial trials now.

At this juncture, the management of market intellectual property in establishing a gateway for third party access pilots will need considerable attention so as not to discourage subsequent market activity in the sector.

These steps would appear to give Australia the best opportunity to explore responsible and beneficial structural reform to the Australian road sector.

#### ENDNOTES

- i. Industry Commission Report Number 13 *Rail Industry* (August 1991) Overview and Recommendations p.*xiv*
- Industry Commission Report Number 13 Rail Industry (August 1991) Volume 1, Chapter 4 'The Case for Government Intervention in Railways' p.126
- iii. The principles were derived from special taskforce reports (SPCb and SPCe, 1991) to the Special Premiers Conference in that year; the taskforce reports had been commissioned for the purpose of examining pathways to structural reform.
- iv. Productivity Commission Chairman Regulating Australia's Infrastructure: Looking Forward a speech delivered to the National Infrastructure Summit, Melbourne, August 2002.
- v. Productivity Commission *Progress In Rail Reform* Inquiry Report No. 6 (1999)
- vi. In 2007-08, in its annual report on local Government, the Federal Government acknowledged a PriceWaterhouse Coopers report commissioned by the Australian Local Government Association which found that

there was an annual maintenance funding gap on local roads of between \$1.8 and \$2.3 billion *per annum.* In 2010, the Australian Rural Roads Group, using local road survey data developed by the Institute of Public Works and Engineering Australia, suggested local road maintenance underfunding was more likely to be \$2.8 billion *per annum.* See also Department of Infrastructure, Transport, Regional Development and Local Government Local Government Report (2007-08) p. 51 and Australian Rural Roads Group *Going Nowhere, the Rural Local Road Funding Crisis,* Its National Significance and Proposed Reforms (2010) p. 18

- vii. Productivity Commission *Inquiry into Road and Rail Freight Infrastructure Pricing* Report No. 41 (2006)
- viii. Productivity Commission Inquiry into Road and Rail Freight Infrastructure Pricing Report No. 41 (2006) p. 347 Summing Up: Improving Roads Performance
- ix. Productivity Commission *Review of National Competition Policy Reforms* Inquiry Report No 33 (2005) See Chapter 8, specifically pp. 209-224

- x. Austroads *Demand for B-triple and Quad-axle B-double Network Decoupling Points* Austroads Research Report Ap\_R335/09 p.42
- xi Juturna calculations for the B-triples case study have been based on the full range of relevant factors, including: Vicroads Weigh In Motion data (ie actual recorded truck movements by class and weight) on the Hume Hwy Southbound for the period examined; load calculations and vehicle costing for different vehicle classes using industry calculators; per kilometre representative freight charges based on charges developed for the COAG *Road Reform Plan* Evaluations of Options Draft (2011) p. ; Equivalent Standard Axle methodology prepared by the National Transport Commission in its Modelling the Marginal Cost of Road Wear paper (2011) p.27; fuel consumption assumptions based on the equation built into the COAG Road Reform *Plan* Evaluation of Options Draft (2011) p.22; carbon emissions based on 2.7kg of carbon emitted per litre of fuel burned, consistent with Department of Sustainability, Environment, Water, Population and Communities methodology.

#### ENDNOTES

- xii. Juturna calculations for the Chullora case study have been based on the full range of relevant factors, including: Chullora site owner data on truck movements, loads, prices etc; Other assumptions as per B-triple case study endnote above.
- xiii. Australian Bureau of Agricultural Research and Economics *The Value of the Red Meat Industry to Australia* Report 09.13 (2009) p.4
- xiv. Juturna calculations for the NSW cattle feedlot case study have been developed from Verve Economics paper 'A case study of the effects of livestock centres access to the HML network: NSW Feedlot (2011) Other assumptions as per B-triple case study endnote above.
- xv. nternational Transport Forum *per* OECD Joint Transport Research Centre: *Moving Freight With Better Trucks* Summary Document p. 8
- xvi. Infrastructure Australia National Land Freight Strategy Discussion Paper (February 2010) p.
  17
- xvii. Bureau of Transport Economics: Assessment of

*the Australian Roads System* (1984) Chapter 1 p.v

- xviii. See Juturna Consulting COAG Incremental Road Freight Pricing Trials: Prospects for a more commercial focus in road freight (August 2011)
- xix. Dr Ken Henry Lessons from Tax Reform Past Address as Chair of Australia's Future Tax System Review to the Committee for Economic Development of Australia (October 2009)
- XX. OECD International Transport Forum Roundtable Report Better Economic Regulation: The Role of the Regulator Report Number 150 OECD Publishing p. 12
- xxi. House of Lords (2007) Select Committee on Regulators *UK Economic Regulators p.37*
- xxii. Competition Principles Agreement 11 April 1995 (As amended to 13 April 2007) Clause 3.1
- xxiii. International Transport Forum *per* OECD Joint Transport Research Centre *Moving Freight With Better Trucks* Summary Document p. 7

xxiv. Ibid pp.9-10

- xxv. Infrastructure Australia National Land Freight Strategy Discussion Paper (February 2011)
- xxvi. The dangers of relying on passenger vehicle demand motivations for forecasting stable toll patronage on private toll roads is given excellent treatment in Robert Bain's article *Toll Forecasts: Big Numbers Win Prizes* PFI (April 2009) p. 50 http://www.infrastructureaustralia.gov.au/publications/files/Toll\_forecasts\_Big\_Numbers\_Win\_Prizes.pdf
- xxvii. Bureau of Infrastructure, Transport and Regional Economics (2011) *Truck Productivity: Sources, Trends and Future Prospects* Research Report 123 p. 66
- xxviii. Although it should be noted that the extent of net economic benefits from this stepwise productivity change are less clear, due to the potential for inaccurate road pricing to have created market distortions that have affected rail investment and performance over the same period.

P 46 Economic Reform of Australia's Road Sector: Precedents, Principles, Case Studies and Structures Juturna Consulting for Infrastructure Australia | February 2012

#### ENDNOTES

- xxix. Infrastructure Australia National Land Freight Strategy Discussion Paper (February 2010) p.
  41 and refer to the network map on p. 6
- xxx. See the OECD International Transport Forum's Roundtable Report Better Economic Regulation: The Role of the Regulator Report Number 150 OECD Publishing, p. 15 for an excellent discussion of the design requirements of such a regulator.
- xxxi. See the Australian Rail Track Corporation's *Rail Access Undertaking* in favour of the Australian Competition and Consumer Commission (2008): http://www.artc.com. au/library/2007%20ARTC%20Interstate%20 Access%20Undertaking%20-%20clean.pdf
- xxxii. Juturna Consulting COAG Incremental Road Freight Pricing Trials: Prospects for a more commercial focus in road freight (August 2011) pp. 18-20

- xxxiii. Infrastructure Australia National Land Freight Strategy Discussion Paper (February 2011) p.66
- xxxiv. Industry Commission Report Number 13 *Rail Industry* (August 1991) Chapter 12 'Options for Structural Reform' p. 335
- XXXV. Australian Rural Roads Group: Going Nowhere: The Rural Local Roads Crisis, Its National Significance and Proposed Reforms (November 2010) 'Is National Road Asset Management Reporting Realistic?' p. 40
- xxxvi. Quoted in OECD International Transport Forum Roundtable Report 150 p. 25 See also original report UK House of Lords 2007 Select Committee on Regulators *UK Economic Regulators*
- xxxvii. From National Heavy Vehicle Regulator website 'About the Regulator'

- xxxviii. See Juturna Consulting *COAG Incremental Road Freight Pricing Trials: Prospects for a more commercial focus in road freight* (August 2011) p.13 Some of the road agencies decided that they would first nominate a defined network for access (incremental) pricing, rather than allow the competitive market for road freight to identify its route preferences itself and then develop accurate access prices from these requests. Interestingly, on one of the trials, the access seeker themselves nominated the network and funded all of the engineering assessments to secure more productive pricing on the network – an approach that mirrors the rail experience.
- xxxix. From National Transport Commission website: 'About Us'

