The Allen Consulting Group

Road Access Improvement Regime

Issues Paper

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Report to Infrastructure Australia

The Allen Consulting Group

Allen Consulting Group Pty Ltd

ACN 007 061 930, ABN 52 007 061 930

Melbourne

Level 9, 60 Collins St

Melbourne VIC 3000

Telephone: (61-3) 8650 6000

Facsimile: (61-3) 9654 6363

Sydney

Level 1, 50 Pitt St

Sydney NSW 2000

Telephone: (61-2) 8272 5100

Facsimile: (61-2) 9247 2455

Canberra

Empire Chambers, Level 2, 1-13 University Ave

Canberra ACT 2600

GPO Box 418, Canberra ACT 2601

Telephone: (61-2) 6204 6500

Facsimile: (61-2) 6230 0149

Online

Email: info@allenconsult.com.au

Website: www.allenconsult.com.au

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Executive summary

Substantial further investment is required in road freight route infrastructure (roads, bridges, tunnels) in Australia in order to meet the increasing freight task, reduce bottlenecks and deficiencies, and improve network efficiency. The scope, scale and timelines for investment go beyond the capacity and willingness of the three levels of Government to meet. While increasing use is being made of private sector investment in major infrastructure such as tunnels and toll roads, the financial and other outcomes have been mixed. Private sector investment has to date been inadequate to meet the gap between the demand for transport infrastructure and its supply through government bodies, exacerbated by often inadequate planning and coordination.

It is this context that the Allen Consulting Group was asked to develop an issues paper to identify and assess the major economic, social, regulatory and other public policy issues directly relevant to potential road access improvement regimes involving investments by private sector road freight operators and users.

The issues surrounding private sector investment in supplementary road infrastructure are complex and diverse. The capacity for investment is limited by the nature of the road transport industry, the limited circumstances under which a commercial business case is likely to be demonstrated and key issues such as real and financial property rights, project and financial risks, indirect effects, community views, and the transport and broader regulatory framework.

Putting aside the large scale infrastructure developments, which are likely to attract private equity investors, there are likely to be particular cases where investment by road transport operators and users, either singularly or as consortia, could be both welcomed and profitable. For example, in cases where the operational efficiency gains would provide an adequate return on investment over a reasonable pay back period, accepting that the investors would normally not have exclusive rights to use the infrastructure. It is in this area where various forms of public private partnerships have been instituted.

There may also be cases where the return on a project is not sufficient to attract private sector involvement but through a government alliance or joint venture a sufficiently substantial public contribution to the project could be made to make it commercially feasible. While issues around contractual conditions and sharing of costs, risks and rewards are complex there are many private sector models of successful joint ventures.

In the road freight route domain (roads, bridges and tunnels), as opposed to freight logistics facilities (e.g. intermodal exchanges), most cases of private freight operator and user investment are likely to be of a smaller scale but strategically important nature. This reflects the non-excludability nature of road infrastructure, externalities and indirect effects, including increased land values.

Overall, private sector investment by road freight operators and users is unlikely to be able to resolve widespread congestion and capacity constraints on the road network system. Nevertheless, the concept is worthy of further discussion and development. The purpose of this paper is to assist promote a structured and productive discussion with key stakeholders, which will hopefully lead to governments and potential investors working together to bring the road access regime concept to reality.

Chapter 1

Background

1.1 Policy context

The Council of Australian Governments (COAG) established the Road Reform Plan in 2007, with the objective of promoting 'the more efficient, productive and sustainable provision and use of freight infrastructure', signalling that road freight infrastructure is a policy priority. In 2008, the Australian Government created Infrastructure Australia, tasking them with advising Australian governments about infrastructure gaps and bottlenecks, and identifying priorities and policy and regulatory reforms that will be necessary to enable timely and coordinated delivery of national infrastructure investment. Road freight is one of the National Infrastructure Priorities as articulated below:

> Competitive international gateways: developing more effective ports and associated land transport systems to more efficiently cope with imports and exports. (**http://www.infrastructureaustralia.gov.au/files/National_Infrastructure_Priorities.pdf**)

There is significant potential to achieve major economic and social benefits from addressing shortfalls in road freight infrastructure. For example, the Bureau of Transport and Regional Economics (2007) estimated that the avoidable costs of urban congestion were $9.4 billion in 2005, and would rise to $20.4 billion in 2020 in constant prices. These figures include private and business time costs, greater vehicle operating costs and extra air pollution costs.

1.2 Infrastructure priorities

In 2009 Infrastructure Australia identified the following priority areas in Australia's road freight infrastructure, noting that the likely benefits are equal to the costs in some cases, and likely much greater in others:

- projects that were ready to proceed, including:
  - the Pacific Highway Corridor in New South Wales - a major freight route that links Sydney and Brisbane, with an estimated cost of $6.67 billion; and
  - the Ipswich Motorway Upgrade in Queensland – a freight corridor for industry in Brisbane's south and the airport and port areas, with an estimated cost of $1.95 billion.
- projects with identified potential:
  - the Green Triangle Road and Rail Upgrades in South Australia and Victoria - including road upgrades on the Riddoch and Princess highways and a bypass of Penola; and
  - the Northern Connector Road and Rail Corridor in South Australia - a new rail and road freight corridor to link the port to intermodal terminals at Penfield.

In 2010 Infrastructure Australia identified a suite of 'gateway projects' aimed at facilitating the movement of freight to and from ports with a total estimated cost of $2 billion, of which roughly half were identified as having potential for private sector investment, including:

- the Port of Brisbane Motorway upgrade in Queensland - a 9.4 km motorway to accommodate road freight traffic to and from the port and gateway area, with an estimated cost of $934 million; and
- the Port of Melbourne freight terminal in Victoria - which will facilitate the transfer of international cargo by high speed rail shuttles or trucks, with an estimated cost of $260 million.

These are all relatively large-scale projects that will generate efficiencies at a state and national level.

There are also a number of other significant initiatives that are being considered by various bodies, including:

- Sydney Airport and Port Botany in New South Wales, which are critical employment hubs and economic drivers for Sydney that are not currently efficiently linked either to intermodal terminals or to the freight's final destination (mainly in Western Sydney), creating congestion for both road freight and commuter traffic;
- Australia TradeCoast in Queensland, where both the Port of Brisbane and Brisbane Airport plan to significantly expand their freight handling facilities to capitalise on emerging opportunities, and with the Brisbane Airport Corporation also seeking to develop commercial and retail precincts;
- Port of Melbourne Freight Infrastructure Charge, which will apply to trucks accessing the two main international container terminals at Swanson Dock to pick up and deliver containers, with the funds being set aside to go towards investments in vital infrastructure announced in the Victorian Transport Plan; and
- the Building Australia Fund allocating around $1 billion to go towards the Ipswich Motorway described earlier, and the Hunter Expressway in New South Wales.

1.3 Private sector investment

There are already private businesses that have made investments in public road infrastructure, generating benefits not only to their own operations but also to the other users of public roads. In addition, there is also precedent for combined public and private infrastructure investment ventures, in the form of Public Private Partnerships (PPPs) such as those operated by Transurban, Intoll and ConnectEast.

However with the increasing road freight task the question arises as to when and how further investments and improvements can be realised. The cost and the availability of funding is an obvious consideration. Given that there are clear savings to road freight operators and their supply chain partners - in the form of time, fuel, wear and tear on heavy vehicles and reduced handling - one option is to encourage private sector freight operator and user investment in road freight route infrastructure. This would accelerate the augmentation of Australia's existing infrastructure and lead to the benefits of alleviating congestion being realised more quickly.

Currently, COAG is exploring access pricing for heavy vehicles as an option for road freight reform, in order to link individual user charges to individual road usage. Direct investment from the private sector is another way of achieving a similar outcome, depending on how it is implemented. This remainder of this short paper discusses some of the issues that will need to be considered when assessing the extent to which private sector road freight operator and user investment in road infrastructure is feasible.

Chapter 2

Market characteristics

2.4 Road freight in Australia

Road movement dominates the growing inter-capital non-bulk freight market. Non-bulk freight is predominately carried by road, being significantly more diverse and complex than bulk freight with respect to distribution networks, packaging and delivery requirements. Road is usually the most effective mode in urban areas, due to the combination of often dispersed origins and destinations, comparatively short distances and small shipment volumes. Outside urban areas, road is often the only available freight transport option.

The industry characterised by a large number of small operators — non-employers are estimated to have made up around two-thirds of the total number of enterprises in 2008-09 (IBISWorld) — and modest profit margins, given low barriers to entry and customers with considerably more market power. The top five operators between them have around 15 per cent of the market share (see Table 2.1), and have some market power due to their existing supply chain and infrastructure ownership.

Table 2.1

MAJOR ROAD FREIGHT OPERATORS — 2008-09

Name	Market share	Revenue ($b)	Employees
Toll Holdings #	6.8%	6.5	27 000
Linfox	5.7%	2.0	15 000
Scott's Transport Industries ##	1.9%	0.9	n.a.
Scott Corporation ##	0.5%	0.1	n.a.
K&S Corporation #	0.1%	0.4	1 421

Source: IBISWorld
Notes: # Employee numbers are for 2006-07. ## Revenue figures are for 2007-08.

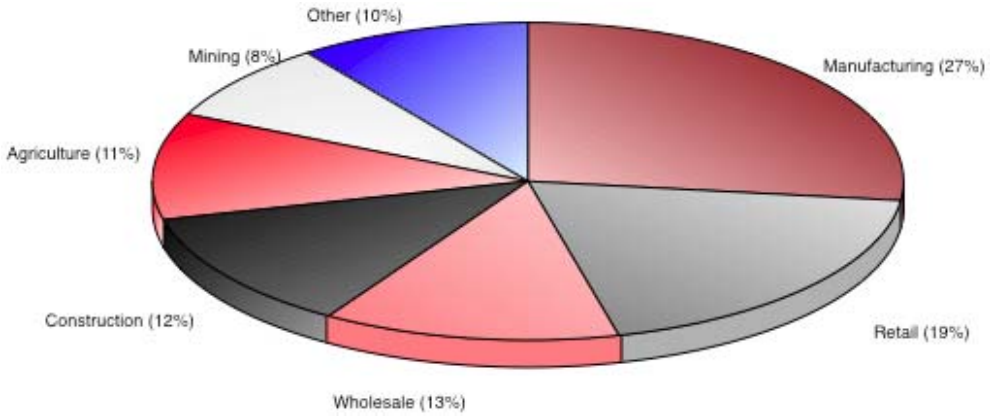
These industry characteristics mean that there are relatively few individual road freight operators who have the capacity to invest in infrastructure. That said, given the competition in the industry, it is the users of road freight services who will directly benefit from any improvements or savings in services. Consumers of road freight services include:

- retailers (e.g. Woolworths, Coles Group, Shell, Caltex);
- distributors (e.g. Metcash);
- manufacturers (e.g. Cadbury-Schweppes, Ford, Holden);
- mining and resources (e.g. BHP Billiton, Blue Scope Steel)
- primary producers (e.g. GrainCorp, Murray Goulburn Cooperative, and various livestock feedlots and abattoirs)

Many of these users have considerable market power and size, which means that they are more likely to be able to invest directly in infrastructure augmentation. In addition, some of the users of freight services - such as Woolworths and the Murray Goulburn Cooperative - effectively own and operate their own fleet of road freight vehicles. In total the agriculture and retail sectors accounted for around one third or $9 billion of road freight revenue in 2009-10 (IBISWorld 2010). The distribution of revenue across types of freight users is shown in Figure 2.1.

Figure 2.1

MAJOR MARKET SEGMENTATION



Source: IBISWorld

Demand for faster and more efficient freight services will depend on market conditions, supply chain characteristics and what is being transported. In domestic markets, Murray Goulburn Cooperative (who transport milk) and Woolworths (who transport fresh produce and groceries), may place a much higher premium on time savings and reliability than someone who is transporting non-perishable, non-urgent non-bulk freight such as fencing wire. At the smaller end of the market, road freight operators will often carry mixed freight as 'back loads' on an opportunistic basis. However for export trades timelines and reliability are always going to be key issues, including for bulk commodities such as mining products.

2.5 Funding models

Government funding is the major source of finance for public infrastructure investment in Australia (PC 2009), across all three levels of government. Major Australian Government initiatives include the Roads to Recovery Program, which has allocated $1.8 billion to be provided to local governments between 2009-10 to 2013-14. At the same time, the private sector is playing a growing role in infrastructure investment due to the demonstrable commercial benefits to improved road infrastructure. The implications of increasing private sector investment are that:

- public funding can be freed up for alternative uses; and
- projects can commence earlier than they may otherwise have been able to.

There are a number of ways in which private sector investment can be generated, and incorporated. The two discussed here are:

- development contributions; and
- Public Private Partnerships (PPPs).

Development contributions involve a user charge that will fund an additional or improved infrastructure service to be delivered subsequently. These are typically collected from developers and are associated with improvements to land, which include roads and can even extend to community facilities. The arrangements under which development contributions can be required and collected vary across individual jurisdictions. Arterial roads in Australia are only likely to be subject to development contributions where there is a direct relationship with a defined project, with the *minimum* requirement being for developers to contribute to basic 'private' infrastructure that connects individual developments to roads and other services. An example of a recent development contribution is shown in Box 2.1.

Box 2.1

CASE STUDY: ROCKDALE BEEF

In order to develop land as a feedlot near Yanco in country New South Wales, Rockdale Beef negotiated an arrangement with the New South Wales government where the former would undertake to:

- ensure that all internal access roads subject to heavy vehicle usage were constructed in accordance with relevant RTA guidelines;
- restrict heavy vehicles to regional and state roads, while avoiding local roads;
- prepare and implement a Transport Code of Conduct to outline measures for the management of traffic associated with the construction and operation of the development;
- pay an annual contribution to the local Leeton Shire Council to contribute towards maintenance of the roads that would be used in, and in connection with, the carrying out of the development; and
- upgrade sections of a number of local and regional roads that Rockdale transport operations would use heavily.

Source: Planning application submitted to NSW government

A PPP is a medium to long term arrangement between a government and private party, where the private entity is involved in several of the asset management functions such as designing, construction, operation or financing of infrastructure assets or the delivery of services (Brusewitz 2005, as cited in PC 2009). The Productivity Commission discusses a number of forms that a PPP can take including:

- *design and build* — where the government acquires an asset that has been designed and built by the private sector;
- *operate and maintain* — where the private sector manages and operates a publicly owned asset;
- *design, build and operate* — the asset is publicly owned, but will have been built and is managed by the private sector;
- *build, own, operate and transfer* (BOOT) — as it is described, with the private sector effectively owning and managing the asset, and then transferring it to the government at a future date;

- *build, own and operate* (BOO) — as with BOOT, but with the government purchasing the asset's services from the private sector, rather than receiving the asset as a transfer;
- *lease, own and operate* (LOO) — similar to the above, but where the private sector leases a public asset with a view to upgrading it, rather than building something entirely new; and
- *alliances and joint ventures* — when the costs, benefits and risks are shared between the public and private sectors.

Table 2.2 summarises the advantages and disadvantages of the approaches discussed.

Table 2.2

STRENGTHS AND WEAKNESSES ASSOCIATED WITH FINANCING VEHICLE

Financing vehicle	Strengths	Weaknesses
Development contributions	• Capacity to provide adequate finances for infrastructure facilities that are well-suited to the application of the 'beneficiary pays' principle • Availability of finances synchronised with the construction of development-specific infrastructure • Providing partial price signals on the costs of land development	• High transaction costs reflecting the uncertainty, complexity and disputation of individual contributions systems • Land development 'sterilised' if too much of the financing cost is shifted to developers • Cannot be used to finance the maintenance, upgrading and replacement of existing infrastructure • Applicability limited by competing policy objectives
Public-private partnerships	• Capacity to finance public infrastructure without adding to government borrowing and debt • Potential for whole-of-life cost savings through bundling the financing, design, construction, operation and maintenance of infrastructure • Strong incentives of private-sector sponsors to avert optimism biases in project planning and attain operational efficiency in service delivery • Exposure to capital-market disciplines through project financing	• High transaction costs reflecting a range of contractual and administrative complexities of the procurement process • Higher financing costs as the private sector cannot raise funding as cheaply or easily as governments. • Shift of project risks to private sector equity sponsors who are les able to bear major risks than governments • Transparency and accountability diminished by limited disclosure of contract details for public scrutiny

Source: Chan, C, Forwood, D, Roper, H & Sayers, C 2009, '*Public Infrastructure Financing— An International Perspective*', Productivity Commission Staff Working Paper, Productivity Commission, Commonwealth of Australia.

2.6 Alliances and joint ventures

The model that is relatively under-explored is that of public-private alliances and joint ventures. This model is particularly relevant is cases which offer good social returns but the commercial return on a project is not sufficient to attract private sector involvement. Such projects could attract private investment through a government alliance or joint venture where the public contribution, reflecting externalities and indirect benefits, is sufficiently substantial to make the project commercially feasible. Public sector participation can also mitigate some risks such as regulatory and revenue risks.

This approach has been used, for example, in the Melbourne City Link project, which is publicly presented as a BOOT project – see Box 2.2.

Box 2.2

CITY LINK—SWEETENING THE DEAL ON PRIVATE PARTNERSHIPS

In order to make private investment more attractive the Victorian government has provided City Link with a financial buffer by:

- financing certain state undertakings such as access roads during the construction phase;
- changing traffic conditions on roads that motorists can use as alternative free routes into the city;
- revising parts of legislation so that Transurban's financial and legal position is secured. Through this change in legislation City Link is allowed to charge a toll to users for a period of thirty-three and a half years, which is about three and a half years longer than the average economic life of a road. It can also charge the Victorian government an annual concession fees of $95 million over the first 25 years;
- negotiating tax concessions, so that Transurban could attract investors with tax exempt returns on their investments during the four-year construction period before the project began to earn money.

Source: Muhammad, I & Low, N 2006 ; Odgers, J and Wilson, D 1999; Centre for Policy and Development Systems

There are challenges in achieving the appropriate balance of sharing costs, benefits and risks and returns between the public and private sectors in a true alliance or joint venture model. The contractual, financing, regulatory and other issues are also complex and may take time to be negotiated and settled. However there are many private sector models of successful joint ventures operating in complex business environments from which lessons could be learnt, including in the resources area – see Box 2.3.

Box 2.3

NORTH WEST SHELF JOINT VENTURE

The North West Shelf venture is a joint venture for the extraction of liquefied natural gas (LNG) in Western Australia between Woodside, Shell, BP, Chevron, BHP Billiton Petroleum and Japan Australia LNG. Woodside is the largest partner and operates the joint venture's facilities. The facilities include drilling rigs, pipelines and onshore processing plants, as well as a variety of vessels for the transportation of LNG.

The joint venture represents $27 billion in investment, and has been the largest producer of natural gas in Western Australia for 25 years. It is an example of how private companies can successfully work together to build vital infrastructure in a complex technical, financial, operating and regulatory environment.

Source: Woodside website (http://www.woodside.com.au/Our+Business/North+West+Shelf/)

The alliance or joint venture model may be particularly relevant for the types of projects which road freight operators and users may be interested in investing in.

Chapter 3

Functional criteria

3.7 Developing a business case

There is substantial private sector investment in road freight related infrastructure such as intermodal terminals, where the private operator owns the facilities and can achieve an appropriate return on investment through user and handling charges, transport and distribution efficiencies and so on. The private sector, including road freight operators, is willing to make long term and strategic investments in such circumstances, as demonstrated by the Parkes national logistics hub outlined in Box 3.1.

Box 3.4

PARKES NATIONAL LOGISTICS HUB

The Parkes National Logistics Hub (PNLH) is located just outside of Parkes in Central West New South Wales. Parkes is centrally located, being less than 12 hours by road or rail from 80 per cent of the Australian population. It has rail and road connections to Brisbane, Sydney, Melbourne, Adelaide and Perth, which makes it an excellent location for a large intermodal interchange.

The PNLH is situated on land set aside by the Parkes Shire Council. The Council and State and Federal governments have provided funding for basic infrastructure around the hub, such as roads and some rail improvements. There is substantial private investment from SCT Logistics in an inter-modal terminal and planned investment by Asciano in a multi-modal terminal. Linfox also operates from the site.

The operations of the PNLH would become more significant were the proposed Australian Inland Railway project to come to fruition.

Source: Parkes National Logistics Hub (http://www.parkeshub.com.au/downloads/infrastructure.pdf)

It is the particular characteristics (e.g. non-excludability) of road freight route infrastructure (roads, bridges and tunnels) that make these investments more problematic for road freight operators and users.

Private sector investment in road transport infrastructure improvements will be limited to those situations where a feasible, commercial business case can be developed. This is when the business case can demonstrate an expected return on investment that meets the investors' normal risk adjusted investment threshold rate of return. Since this threshold rate of return is defined as a function of the riskiness of the investment, anything that reduces the risks of the investment will increase the likelihood of generating the return required on investment. Investors will also look for a reasonable pay-back period.

Government policies and actions can mitigate or share the project risks, including through cost sharing, revenue guarantees or facility payments. Support from relevant state and local governments is a necessary but not sufficient condition for the successful commencement of a privately funded infrastructure venture. Ultimately the investment must meet commercial investment criteria. Other relevant criteria in the development of a business case include:

- the nature and scale of the infrastructure deficiency (e.g. upgrades to existing roads, or the construction of new roads);
- the additional costs imposed on freight operators in terms of time, fuel, maintenance, accidents, freight fleet efficiency and scheduling;
- the opportunities lost to freight operators in terms of volumes and reliability;
- the extent to which freight operators can capture the benefits of the investment, including overcoming non-excludability;
- the other options available to freight operators, including through alternative routes, other freight modes and better supply chain management;
- government and community attitudes and assistance towards fixing the problem;
- the regulatory framework, including planning, environmental, community and engineering requirements;
- the availability and cost of finance; and
- whether other potential users would derive sufficient benefit for an efficient and effective access charging regime (e.g. tolls or other methods of value capture) to be appropriate and feasible.

These considerations suggest that private sector freight operators will find investment in road freight infrastructure most attractive where there:

- is very significant congestion around key freight hubs, including intermodal nodes such as sea ports, rail terminals and airports;
- are major capacity constraints within and around key freight hubs;
- are major strategic transport route bottlenecks due to inadequate roads, bridges, grade separations or tunnels;
- are no other economic alternative road freight options available; and
- is excess demand for faster freight access or additional freight capacity.

These circumstances are most likely but not solely to be found in metropolitan areas. The challenges in metropolitan areas are also likely to be exacerbated by issues such as urban encroachment, availability and cost of suitable land, restrictive planning and development approval processes, the regulatory environment including load weight (e.g. use of B-Doubles), type (e.g. dangerous goods) and access (e.g. time of day) restrictions, community opposition and so on.

Such challenges are to be likely to be less severe in rural and regional areas but the business case for investment is also likely to be weaker and limited to very specific sets of circumstances (e.g. improved access to a major feed lot operation, an export abattoir or a town by-pass on a strategically important rural route).

One of the likely benefits of promoting and facilitating active private sector road freight route infrastructure investment is that it may lead to more accurate and timely identification of improvements that lead to social and economic benefits rather than relying on road asset owners, whether private or government, to do so. This is because the private freight operators and users will have a commercial imperative to identify the location, type and scale of projects that are most likely to improve the efficiency of their operations. These commercial imperatives may not always coincide with road asset owner or broader government priorities.

3.8 Questions

- *What are the key issues that would make private freight operators and users consider investing in road infrastructure?*
- *What are the most likely circumstances and cases where such investment might occur?*
- *What changes in federal, state and local government policies, regulations, processes and practices might be required?*
- *How can private road freight route priorities be best identified and progressed?*

Chapter 4

Property rights

The recognition, delineation and enforcement of property rights are one of the critical underpinnings of a functioning free market. In the absence of clearly defined and enforceable property rights, markets can and have failed, and this will affect freight operators and users' willingness to finance road infrastructure.

For real property key considerations are:

- *ownership* — to whom the asset (and the land on which it is to be built) belongs, and the associated responsibilities; and
- *access for other users* — issues around whether or not other private users can access the asset, and if so at what cost.

For financial property key considerations are:

- *security* – what are the rights over assets and cash flows; and
- *certainty* – how much risk and uncertainty is associated with costs and revenues.

The complexity of property rights issues, which are discussed further below, mean that public-private alliances and joint ventures can be difficult to negotiate and operate.

4.9 Ownership

The form and security of title over real assets is a critical factor in determining where and in what form private road freight operator and user investment might take place. Both Australian and state governments are empowered to compulsorily acquire land. While state governments are not constitutionally required to do so on fair and just terms, equity and political considerations equally apply. A private investor does not need to have permanent title to the asset to make investment attractive but they do need sufficient security to have a "bankable" proposition.

Property rights also apply to the financial particulars of the investment, such as how the financing is coordinated, how risk is shared, and how any revenue may be collected or benefits realised. As discussed in the earlier section on funding models, there are a number of ways in which these functions can be shared between the public and private sectors, and the management of the asset can be decoupled from the ownership of the asset (e.g. 'operate and maintain', 'design, build and operate', and 'lease, own and operate' PPPs).

The particulars of physical ownership of the road, and the operation and management of the road's usage, also can be altered during the life of the asset. Some of the considerations relevant to how these aspects may be allocated between the public and private sector include:

- *commencement* — planning and development approvals, and acquiring land, arranging road closures and detours as necessary;

- *construction* — design, the path that the augmentation will take, and the standards that will apply to the construction;
- *usage* — differences in access arrangements for the operators who participated in the investment and other users;
- *maintenance* — who is responsible for arranging and/or paying for periodic repairs and maintenance; and
- *sale or transfer* — who has the ability to sell or transfer the asset, both once it has been completed or while the construction is under way.

4.10 Access for other users

Another property rights issue is who will have access to the road, bridge or tunnel and under what circumstances. Leaving to one side exclusive roads that are on private property, the savings associated with shorter travel times and reduced fuel use will accrue not only to the freight operators that invest in infrastructure augmentation, but also to any other users of the same road. Opening the roads to other users will generate a higher level of social benefit overall, but not necessarily one that can be captured by the investors. It may also lead to a level of induced demand that undermines the benefits that lead to private investment in the first place.

Options for access for other users include:

- uncharged access for all other users, which works only if the expected benefits are still sufficient to meet the investors' normal risk adjusted investment threshold rate of return;
- charged access for all users, where users pay a toll or access charge once they enter the road or segment of the road that is privately built and managed; or
- differential access charging for other freight users, where the toll would apply only to road freight vehicles, while other motorists would not be charged.

The access charge for Australia's toll roads currently must be agreed with the appropriate government authority. This agreement also extends to proposed increases to tolls, and is intended to ensure that the monopoly power of the operator is not abused. However there needs to be an appropriate balance of interests stuck with the private sector investors.

Where a toll is applied, a key consideration is the amount to set it at, as well how it is charged. In practice potential users will only pay a toll charge up to the level of benefit they will derive from access to the road. This amount may be below that required to obtain an adequate commercial rate of return leading to socially sub-optimal use or the need for a government revenue contribution in some form.

In terms of how the toll is collected, the technology currently exists for electronic tagging, which is superior to a cash charge. It is also possible to apply this technology so that only a certain class of vehicle (e.g. heavy vehicles used in road freight) are charged and monitored to ensure the toll is paid while passenger cars are not.

4.11 Other issues

Other significant issues include:

- identifying and acquiring the land on which the roads are to be built;
- for roads that are open to the public, there are issues of collecting user contributions (such as setting up toll booths or electronic toll collection), or negotiating payments from government for spin-off benefits;
- it could also be necessary to track non-investor freight operators and recover an access charge (e.g. video monitoring of licence plates, and subsequent follow up, requiring access to state government databases on registration);
- on roads that for private use only, there may be subsequent, third party access considerations if it is more efficient for another freight operator to purchase access to an existing private road than to invest in an entirely new one. To be well positioned in the event that such issues arise, project proponents and State governments should factor in and settle access and pricing principles early in the negotiation of the project agreement. It is more effective to establish an appropriate access regime under state regulations and to have it certified by the National Competition Council as effective for the purposes of Part IIIA of the *Trade Practices Act 1974* than to rely on the Part IIIA provisions later; and
- both for publicly accessible and private roads, there are issues around required maintenance and upgrades, as well as whether or not the road will revert to public ownership some time in the future (e.g. Build-Own-Operate-Transfer ventures compared to other PPPs).

In summary, clear delineation of property rights is a fundamental pre-condition for private sector investment in road freight infrastructure and to determining the approach to the key issues of the non-excludability nature of road infrastructure and induced transport demand.

4.12 Questions

- *What real property regimes are most likely to facilitate private road freight operator and user investment ?*
- *What are likely to be the best mechanisms for cost recovery and revenue generation to make investments commercially viable?*
- *Can a value be placed on intangible benefits such as enhanced corporate image and reputation for private road freight operators and user investors?*
- *What are the best mechanisms for negotiating suitable arrangements between governments and potential investors given the different levels of government that may be involved?*

Chapter 5

Risk

Risks are inherent in any project whether public or private and risk management is necessary to ensure project delivery on time and on budget and to generate the expected return on investment. The larger an investment is (both in terms of expenditure and the life of the investment), the more it is vulnerable to potential adverse outcomes. For large-scale infrastructure investments, there are numerous risk considerations that must be taken into account.

There are also some risks faced by private sector investors that are not the same as those faced by governments (e.g. the degree to which they face regulatory and financing risks). State governments can mitigate some risks directly (e.g. regulatory changes) and indirectly (e.g. political support in the face of local community opposition, or overruling local councils if considered justified and necessary).

The construction of roads, bridges and tunnels cannot commence without secure access to the necessary land. For private sector construction of major infrastructure, the extent to which it aligns closely with identified demand or lack of capacity, and the existing transport network, is crucial. Amongst other things, private investors do not have the ability to compulsorily acquire land in the way that the Commonwealth and state and territory governments can.

In the absence of significant support and assistance from government (e.g. in the form of project oversight or project facilitation) risks include:

- construction not proceeding (as shown in the functional criteria);
- land acquisition being more expensive than if undertaken by government, and eroding the expected return on investment;
- the utility of the infrastructure being disproportionately affected by where land can be acquired, as opposed to geological, engineering or network considerations;
- opposition from the local community who may be displaced by the construction and affected by increased pollution, traffic and noise; and/or
- the appropriate planning approvals for construction not being completed or processed in a timely manner.

Large-scale projects require sophisticated planning and management to ensure that deadlines are met and the quality of project deliverables ensured. Even where private investors are financing an investment for public use (although a toll is collected), the on-time delivery of the project factors into the planning considerations of related investments (e.g. expected alleviation of alternative transport corridors, arrangements in ports or investment in public transport facilities).

The scheduling, organising and financing risks associated with project management include:

- delays to the completion of construction, which can affect revenue collection (e.g. as experienced in Melbourne, where the Burnley Tunnel was completed much later than the rest of the City Link);
- operational failures, such as bridge or tunnel collapses (e.g. the Lane Cove Tunnel in Sydney in 2005) and flooding (e.g. the Burnley Tunnel in Melbourne in 2001), which not only affect the cost of construction but delay revenue streams and possibly reduce subsequent usage due to motorists' concerns about safety; and
- the extent to which the freight operator or user undertaking the investment can achieve adequate financial returns and continue to manage the investment (e.g., Connector Motorways who owned the Lane Cone Tunnel went into receivership in 2010 after construction was completed, and BrisConnections had a dispute with shareholders over instalment payments on partially paid shares resulting in significant write-offs in the 2009-10 financial year.

Clearly, these risks are lower for smaller and less complex infrastructure augmentation projects.

Finally, there are risks associated with the raising and managing the finances associated with the investment, and generating a return on the investment. A recent IBISWorld report notes:

> The global credit crunch has seen the availability of credit, even to companies with good credit history, dry up. Those companies that are able to renegotiate finance in the next 12 months are expected to face a considerable increase in the conditions imposed on them by lenders. In many cases this will include higher required rates of return. As a result of these demands, the share market has discounted companies with high debt levels (MacGowan II 2010).

Considerations of risk related to financing include:

- The extent of any government investment and the conditions attached to it. This is because Australian governments at the Commonwealth and state levels are generally able to borrow at lower interest rates than entities in the private sector due to their ability to raise money, absorb losses, and hence lower the financing risk profile.
- The timing of large-scale construction projects is ideally counter-cyclical, meaning that they should be financed during economic downturns, when labour and capital are relatively plentiful and less expensive, however, the ability of private firms to raise the necessary funding during a downturn is far less than that of a government.
- Where the roads are open for public use, the return on investment will also rely on the collection of a contribution from other users - either from general or hypothecated government revenue (e.g. by linking road charges to monitored usage), or directly through the collection of tolls. In both cases, revenue depends on overall demand for road transport and, patronage of the infrastructure being financed, which are subject to factors outside the investors control.

- Generally, the arrangement for existing toll roads is that state governments must approve the amount that can be charged for a toll, and any requests to increase existing tolls. This increases the risk to private operators by limiting pricing flexibility. Apart from ensuring appropriate contractual arrangements, private sector operators need to set the toll so that demand volatility is minimised, given a range of external factors must be considered (e.g. fuel prices, carbon abatement initiatives, and the availability of substitutes such as alternative modes of transport or non-toll roads).

These considerations suggest that in terms of road freight operator and user investments, the risks will be more manageable for smaller but strategically important investments and where governments provide some form of facility payments.

5.13 Questions

- *What are the key risks that will most impact on road freight operator and user investment in road infrastructure?*
- *What are likely to be the most effective ways to ameliorate such risks?*
- *Are there certain levels of scale for different types of road infrastructure that are likely to limit investment by road freight operators and users?*
- *What is likely to be the most effective mix of public and private sector financing and governance arrangements to ensure better transport services and the capture of externalities and other indirect outcomes?*

Chapter 6

Indirect effects

Externalities arise when the actions of a decision-maker impact on other individual parties, the community or the environment. Decisions that give rise to externalities can be related to consumption (such as the decision to consume more fuel) and investment (e.g. whether a freight company decides to finance a specific purpose road). There are a range of positive and negative externalities to consider when designing and implementing road access improvement regimes.

Decisions to invest in freight infrastructure therefore need to take account of both the benefits from an enhanced road network and any adverse impacts it produces. For example, Victoria has a freight network plan, which seeks to achieve this balancing act. Details of this framework are outlined in Box 6.5.

Box 6.5

FREIGHT FUTURES—ACCOUNTING FOR BOTH POSITIVE AND NEGATIVE EXTERNALITIES OF AN ENHANCED FREIGHT NETWORK

In 2008, the Victorian Government released its report on '*Freight Futures: Victorian Freight Network Strategy for a more prosperous and liveable Victoria'*, which aims to reconcile the growing need for more efficient freight routes to accommodate increased economic activity and "community expectations that freight will be moved around the state safely and sustainably". Some of its objectives include:

- improving efficiency of freight movements in Victoria;
- mitigating the adverse impacts of freight operations on communities and the environment; and
- facilitating policies that encourage private investment.

The Victorian Government aims to collaborate with industry stakeholders and Commonwealth and Local governments to achieve state freight priorities such as:

- more effective targeting of infrastructure investment by using existing infrastructure more efficiently and building future infrastructure capacity;
- working with industry to produce initiatives that enhance network integration; and
- improving regulatory conditions to foster a more sustainable freight and logistics sector.

In 2010 a Discussion Paper was released by the Victorian Department of Transport, *Shaping Melbourne's Freight Future: Proposals for an intermodal solution to service Melbourne's growing containerised freight task*. The paper discusses proposals for an 'intermodal' approach to Melbourne's growing freight task, which combines rail and road transport. Rail transport to be utilised for the long distance 'line-haul' portion of the journey, while road transport will cover the shorter 'pick-up and delivery' end.

Studies indicate that an 'intermodal solution' could achieve both operational freight efficiency and reduce associated environmental and congestion externalities. For instance, modelling by the Port of Melbourne Corporation indicates that an 'intermodal solution' could reduce:

- truck distance travelled by up to 35%;
- carbon emissions by up to 17%;
- transport costs by approximately 10%; and
- the average number of trucks entering/ exiting the Port each day by up to 48%.

Source: *Freight Futures: Victorian Freight Network Strategy for a more prosperous and liveable Victoria'* (2009)*; Shaping Melbourne's Freight Future: Proposals for an intermodal solution to service Melbourne's growing containerised freight task* (2010).

The key role the private sector can play is reflected in a related Victorian Department of Transport discussion paper, *Shaping Melbourne's Freight Future: Proposal for an intermodal solution to service Melbourne's growing containerised freight task.* The paper concluded that

> Ultimately, the most important test of the likely demand for and viability of the MFTN [an intermodal Melbourne Freight Terminal Network] may be the willingness of the private sector to participate and invest in the network.
>
> Whilst the Government can play an important role in creating an attractive investment climate by establishing appropriate policy settings….the private sector will be expected to take a significant share of the associated business risk by investing in the terminals and related infrastructure and operating systems.

Clearly, if freight road operators and users decide to finance additional road freight infrastructure, benefits will accrue not just to the freight road operators, but also to motorists generally. Where the road is available to all motorists, they reap the benefits of an alternative route, and potentially faster travel times, even if a toll is charged. Even were the road to be retained exclusively for use by the freight operators, its construction means that those freight vehicles that were once on public roads will be diverted, which will alleviate congestion elsewhere. In either case there is likely to be a net economic benefit over the current situation.

Experience shows that the demand for roads is relatively high. This means that any additions to existing infrastructure may be filled as soon as they are completed. This is not by itself a problem unless the increase in demand is greater than the increase in supply. For example, if augmenting the road network system raises its overall efficiency, then users may also rely more on road transport than alternatives (such as rail in the case of freight). It is possible that the overall number of road vehicles or of road usage increases, leading to no net change in efficiency levels. However this is more likely to occur in urban than other areas.

Experience also shows that some of the largest indirect effects of improved transport infrastructure are through the increased value of nearby land, changes in land use, and patterns of development. These indirect benefits can not be captured by private road infrastructure providers and are difficult to capture fully by governments through existing mechanisms such as local government rates and charges, stamp duties on property sales or payroll tax on increased employment. An example of a new approach to this issue is the Growth Areas Infrastructure Contribution introduced by the Victorian government, which is payable on land brought within the Melbourne urban growth boundary.

The reverse situation may also occur where planning and land use changes (e.g. development of an industrial estate, warehousing facility, retail direct factory outlet and such like) generate a substantially increased freight task. Private investment in new or upgraded road infrastructure related to the development could provide a viable alternative to public provision through state or local government and help simplify road planning and approval processes. This investment would be separate from normal development contributions.

Should increased investment in road infrastructure lead to increased traffic, this will result in increased pollution and noise, which can adversely affect local households and businesses. These negative externalities may lead to community opposition to such enhancements. The location of new infrastructure can also be subject to environmental sensitivities, including nearby parklands or reserves. Even when state governments set aside land corridors for subsequent use as roads, this does not by itself guarantee a smooth process. Between when land is set aside, and when road construction is proposed, the community may more highly value the use of the land for alternative purposes. For example, in Melbourne, land that had been set aside for future roads evolved into a nature reserve - one that caused problems for the planners and builders of the Eastern Ring Road.

There are, of course, existing regulatory frameworks which are designed to address a range of externalities such as noise, community amenity and environmental and heritage impacts. The issues around such regulations are whether or not the they are designed and implemented in such a way as to minimise the regulatory burden.

On the positive side, private investment in infrastructure frees up public funding for other purposes. In Australia, governments are keen to avoid the economic implications and public stigma associated with excessive levels of public debt. This means that the public derives some level of satisfaction or utility from governments balancing their current accounts, maintaining low levels of debt and hence lower taxes and charges.

A related externality of private sector investment into road infrastructure is that it may produce a more equitable outcome by moving closer to a 'user pays' framework. This can generate more efficient outcomes, given that there are few incentives for drivers to share cars, drive less or travel at different times. For example, the existing fuel tax does not vary with location or time of use. This does little to ease congestion, which is concentrated in specific regions and times of day. Hence congestion may still persist if not accompanied by appropriate user charges or pricing regimes.

6.14 Questions

- *Do the existing regulatory frameworks provide sufficient certainty on the one hand and flexibility on the other to be conducive to further investment by road freight operators and users in terms of dealing with externalities?*

- *Should governments and road freight operators and users explain better the net benefits of further private investment in road infrastructure?*

- *What are the most efficient and effective ways for private by road freight operators and users to capture or be rewarded for positive externalities generated by their investments?*

Chapter 7

Preliminary conclusions

The issues surrounding private sector investment in supplementary road infrastructure are complex and diverse. For private sector investors these include regulatory risks at the federal, state and local government levels. Apart from existing models there are potentially substantial opportunities to utilise public-private alliances and joint ventures to provide better road freight route infrastructure. Such arrangements offer the advantages of attracting private sector investment while capturing the value of externalities and the increased value of land. While such properly structured investments are likely to be both welcomed and commercially profitable, private sector investment is unlikely to be able to resolve widespread congestion and capacity constraints on the road network system. Nevertheless, the concept is worthy of further discussion and development.

Key issues that would benefit from broader discussion with government and industry stakeholders include:

- *Given there are several potential beneficiaries from improved road freight infrastructure are there clear linkages between types of private sector businesses and types of infrastructure augmentation? If so, what are these?*
- *What issues may be preventing the private sector from investing, or from initiating investment, even when a commercial business case can be put together?*
- *Would road freight operators and users be likely to form consortia to fund investment and, if so, under what conditions?*
- *What are the key issues that determine whether private freight operators and users would consider investing in road infrastructure?*
- *What are the most likely circumstances and cases where such investment might occur?*
- *What changes in federal, state and local government policies, regulations, processes and practices might be required?*
- *What real property regimes are most likely to facilitate private road freight operator and user investment?*
- *What are likely to be the best mechanisms for cost recovery and revenue generation to make socially desirable investments commercially viable?*
- *Can a value be placed on intangible benefits such as enhanced corporate image and reputation for private road freight operator and user investors?*
- *What are the best mechanisms for negotiating suitable arrangements between governments and potential investors given the different levels of government that may be involved?*
- *What are the key risks that will most impact on road freight operator and user investment in road freight route infrastructure?*

- *What are likely to be the most effective ways to ameliorate such risks?*
- *Are there issues of scale for different types of road infrastructure that are likely to limit investment by road freight operators and users?*
- *What is likely to be the most effective mix of public and private sector financing and governance arrangements to ensure better transport services and capture of externalities and other indirect outcomes?*
- *Do the existing regulatory frameworks provide sufficient certainty to be conducive to further investment by road freight users in terms of dealing with externalities?*
- *What are the most efficient and effective ways for private by road freight operators and users to capture or be rewarded for positive externalities generated by their investments?*
- *Should governments and road freight operators and users explain better the net benefits of further private investment in road infrastructure?*

The answers to these issues will provide a sound base on which to develop a model or models of a road access improvement regime that could be adopted around Australia.

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