The cost of maintaining and enhancing roads coupled with advances in tolling technology and changes in government policy have created an environment in which private finance, construction and operation of roads is significant and increasing.

This paper examines the recent growth in the private provision of roads and how they are funded in the private sector. The paper is organised in the following sections:

1. value and location of privately financed roads world–wide;
2. the trend for Governments to sell existing toll roads to pay for new roads;
3. the strengths and weaknesses of alternative mechanisms for rewarding and incentivising private investment in roads;
4. who is investing in privately financed roads; and
5. conclusions.

1. Private roads everywhere
Data from a Datalogic database of private finance covering the period 1994 to 2005 illustrates the scale and scope of private finance for roads. This database indicates there have 350 transactions in around 69 countries. The total value of private investment in roads is €138bn which includes both debt and a relatively small amount of equity. Private investment in roads has been concentrated in Europe but has occurred on all five continents (see Figure 1).
Demand for investment in roads is high as an increasingly mobile public want to be able to travel freely and widely. Even countries with high quality, dense road networks tend not to build major new roads, but they are relieving congestion by, among other things, widening busy roads and building by-passes. However, governments generally are under financial pressure and hence they are increasingly turning to the private sector to finance roads and to build and operate them efficiently.

The level of private investment in roads is accelerating. Global private investment in roads totalled $68bn in the seven years 1994-2000, just less than the $70bn in the five years 2001-2005. Thus between these two periods, the investment per annum has increased 40% (see Figure 2).

**Figure 2: Growth in Private Road investment**
2. **Selling Mature Roads**

Private investors may be reluctant to take revenue risk on greenfield toll roads. However, investors are normally more relaxed about revenue risk for extensions to existing roads, roads widening and estuarial crossing which have a local monopoly. For new roads, in return for accepting the associated risks, the private sector often requires a level of profits which some project may not be able to generate. This can constrain the involvement of the private sector in financing private roads.

A response is for the State to take the risks associated with greenfield roads but to finance the new roads by selling mature toll roads. A mature road with an established history of usage is more attractive to private investors and hence private finance can be expected to be better value for money. For an established road there may be scope for the private sector to add value by increasing operating efficiency and improving marketing.

Significant recent sales of mature toll roads include the sale:

- of a 99 year lease on the Chicago Skyway, USA for $1.93bn in 2004;
- of a 75 year lease on the Indiana toll road, USA for $3.85bn in 2006;
- by the French Government at the end of 2005 of stakes in mature road networks:
  - Autoroutes du Sud de la France (ASF) was sold for €9.1bn, including the cost of buying out minority shareholders;
  - Autoroutes Paris-Rhin-Rhone (APPR) for €6.9bn; and
  - Societe des Autoroutes du Nord et de l'Est de la France (SANEF) for €4.0bn.

3. **To toll or not to toll**

There are a variety of mechanisms for rewarding and incentivising private sector toll road operators and investors. These mechanisms include:

- availability charges (payment is made for those parts of the road which meet agreed criteria for being ‘available for use’);
- tolls paid by users for river crossings;
- tolls on large parts of the national highway network;
- tolls paid only by heavy vehicles;
- shadow tolls, where the Government makes a payment to the road operator for each vehicle which uses a road but there are no direct payments by users; and
• a variety of congestion charging schemes in major urban areas which typically both raise revenue and discourage congestion.

The selection of payment mechanism is influenced by a number of political and other factors. From a financial and economic perspective, key factors are the allocation of risk and responsibility for operations. The advantages of either transferring revenue risk to the private sector (e.g. user tolls) or retaining revenue risk within the public sector (e.g. basing payments on availability) are summarised in Figure 3.

**Figure 3: Allocation of revenue risk**

<table>
<thead>
<tr>
<th>Transferring revenue risk to the Private Sector</th>
<th>Retaining revenue risk in the Public Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>generates revenue</td>
<td>removes private revenue risk</td>
</tr>
<tr>
<td>users pay</td>
<td>financing costs lower</td>
</tr>
<tr>
<td>investment decisions respond to user demand</td>
<td>construction and operating costs lower</td>
</tr>
<tr>
<td>incentive to maximise revenue</td>
<td>no journeys displaced onto other roads</td>
</tr>
<tr>
<td>contract simpler in parts</td>
<td>avoids payment hassle</td>
</tr>
</tbody>
</table>

4. **Who are the investors**

There are a variety of organisations who are investing in private roads. They include:

• construction contractors keen to win additional construction contracts are equity investors in Public Private Partnerships but initially many did not want to be long-term investors;

• some contractors have now incorporated into their business model the secure and long term returns from PPP roads and are happy to hold investments in road projects as part of a long term portfolio;

• banks and specialist funds invest in Public Private Partnerships and typically seek to add value by enhancing the way in which the road is financed;

• funds established solely to invest in infrastructure; and

• insurance companies and pension funds who started by investing in the bonds issued to finance Public Private Partnership Projects and are starting to buy project equity in the secondary market.

Investments can be divided into those in the primary market (e.g. investing in bidding and constructing a road) and those in the secondary market (e.g.
buying an existing project). Investors in the primary market typically incur significant costs competing for a road project which together with the risks of initiating a project are reflected in their relatively high return requirements. Investors in the secondary market take a different approach as the risk profile of an operational project is generally lower and hence a lower return is appropriate.

5. Conclusions

Private investment in roads has reached $20bn per annum and looks set to grow further. By enhancing the funds available to invest in roads, private investment can accelerate projects and/or deliver projects which could not be financed entirely from the public purse. In addition, when appropriately incentivised, private sector focus and innovation can improve the cost effectiveness of road projects.

Sales of mature roads have taken off and over the last twelve months have raised over €20bn in France and $5.8bn in the US. Given the continuing pressure on many government budgets and the substantial proceeds that can be raised by selling existing roads, further sales of existing roads are expected in the US and Europe.

User charges for roads are also expected to increase driven by a number of factors including:

- as road congestion increases, tolls are becoming more valuable as a policy instrument to reduce congestion, cut journey times and increase journey reliability;

- a growing desire to use tolls and Congestion Charges as ‘green taxes’ to reduce green-house gases emissions from vehicles. This could involve higher charges for vehicles which are particularly inefficient or polluting; and

- advances in technology, including the use of satellite navigation systems, to reduce substantially the cost and inconvenience of collecting tolls.