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Ideas for a More Prosperous Nation

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Road repairs and public-private partnerships

Quebec's road network, much of it built in the 1960s and 1970s, is aging quickly. Highways in Quebec have reached a critical point and will need to be rejuvenated in the coming years. Other countries have found ways of ensuring adequate, stable financing to maintain their roads. The Quebec government could look into new means of conducting road rehabilitation projects. International experience in public-private partnerships (PPP) can offer worthwhile solutions as the government struggles to maintain the road network adequately.

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A model well suited to road repairs

A number of governments, especially in Europe, the United States and Australia, have already turned to the PPP model for building new roads. The use of private partners was motivated not only by the need to find additional sources of financing for major projects but also because this way of doing things gives private partners incentives to deliver services in the required time and to keep infrastructure in good working order since they assume part of the risk inherent in a project. PPPs have also been used in projects for rebuilding or modernizing existing highways. When favourable conditions are created, they are just as advantageous in overhauling roads as in building new ones.

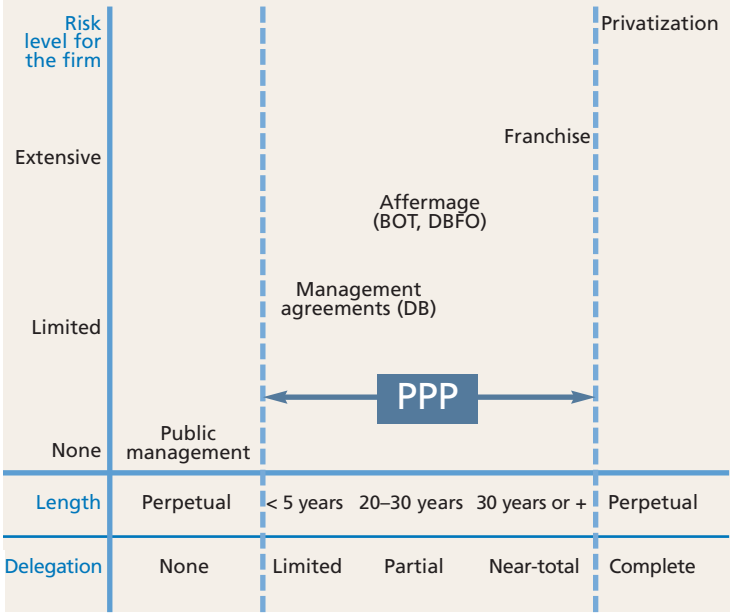
The government can put private partners in charge of long-term highway management where major reconstruction or modernization is involved. Road repair projects using public-private partnerships set out contractual requirements in the form of quantified targets based on service and access levels that a private partner must fulfil. For example, if infrastructure is not maintained to acceptable quality levels, or if access has to be restricted, the private partner faces fines or a reduction in the payments set out in the partnership contract. Contracts also specify that the private partner must turn the highway over to the government in a functional state once the agreement ends. Moreover, if the private manager of a highway wishes to keep revenues flowing, it must continue to offer quality service, with adequate maintenance of the highway in question. Private managers operate in "a competitive environment where poor quality, low standards and lack of accountability will lead to lost business and firm closures down the road."[1]

These factors together give private highway operators incentives to handle financing of maintenance and upgrades over the length of a highway's useful life, starting with the initial planning stage of an overhaul or modernization project. Unlike government investments that are subject to the vagaries of political deals between various departments with competing priorities, especially in annual budget allocations, investments made in the context of a PPP are better planned and more stable. Users thus have access to high-quality roads because they are maintained more adequately.

1. Harry Kitchen, *A State of Disrepair: How to Fix the Financing of Municipal Infrastructures in Canada*, C.D. Howe Institute, 2006, p. 11.

FIGURE 1

Contract options for public-private partnerships in road repair projects



Source: Adapted from Marcel Boyer, Michel Patry and Pierre J. Tremblay, 2001, p. 4.

In some places, authorities have begun establishing public-private partnerships for rebuilding road infrastructure. This applies in particular to Missouri's Department of Transportation, which announced in the spring of 2007 that it was using PPPs to rebuild or replace 800 bridges. This involves nearly 8% of the state's bridges, chosen from among those in the worst shape. A single private consortium, selected in the summer of 2007, will have a mandate to restore the bridges targeted under the program and manage them for a minimum of 25 years. The Department of Transportation expects the work to be finished by the end of 2012. The estimated cost of this rebuilding and maintenance operation is between US$400 million and US$600 million, with the Missouri government making annual payments starting upon completion of the work. The partnership deal provides for a structure of fines in case the company responsible for infrastructure work and management fails to meet the goals set by the department. Accordingly, the company will have to pay US$500 per bridge per day of delay beyond the original construction deadline, US$2,000 per day of closure and US$2,000 per day per structure that fails to meet quality levels set out at the end of the agreement.[2]

Flexible partnerships

Public-private partnerships constitute a form of private sector participation in the building of public infrastructure. Rather than the total transfer of infrastructure to the private sector, PPPs aim at sharing responsibilities and benefits between the public and private sectors and at imposing rigorous discipline on the public sector. A majority of road overhaul or improvement projects around the world have relied on partnerships, with the public sector keeping an important say in how each project is conducted.

Participation by private partners in such projects is highly diversified. It depends on each project's characteristics and on the form of partnership chosen by the government. In this context, a road repair project must be viewed as a group of operations that can be divided into stages, from design to delivery. In a number of cases, road repair and improvement projects conducted through PPPs are part of larger-scale projects. These include the construction of new stretches of road as well as the rebuilding and modernization of existing roads.

Levels of delegation and compensation to the private sector generally increase with the level of risk assumed in a project (see Figure 1). This way of proceeding guarantees that maximum advantage can be taken of the private sector's abilities to innovate and adapt. It goes without saying that a private partner willing to assume greater risk will also have the means to handle it and will be compensated accordingly.

Conclusive international experience

The conventional public means of conducting highway rehabilitation and reconstruction projects consists of the public sector assuming all the risks inherent in a project as well as providing the financing itself. The public agency responsible for managing the project, whether a government department or government-owned agency, is also the main

Compared to government-only projects, investments made in the context of a PPP are better planned and more stable.

2. Missouri Department of Transportation, *800 Better Bridges by 2012*, http://www.modot.org/safeandsound.

Table 1

International road repair projects conducted under public-private partnerships

Project	Location	Form of partnership	Length of partnership	Estimated cost
West Gate-CityLink-Monash Corridor	Australia (Victoria)	Design-Build (DB)	N.A.	US$766.5 million
The improvement portion of the project is intended to add two lanes each covering a distance of 37.5 km.				
CityLink	Australia (Victoria)	Build-Operate-Transfer (BOT)	34 years	US$1.8 billion
Essentially a new construction project but also including renewal of portions of three existing freeways and their access ramps.				
M1/Westlink	United Kingdom (Northern Ireland)	Design-Build-Finance-Operate (DBFO)	30 years	US$279.4 million
The project covered the replacement of bridges crossing the M2 motorway and widening of the M2 between Sandyknowes and Greencastle.				
I-395 and I-95 Shirley Highway	United States (Virginia)	Long-term franchise	Under negotiation	N.D.
The project aims to increase capacity for heavy vehicles by adding 45 km of lanes and improving the parking areas.				

Sources: Transurban, *Delivering Value: Annual Report 2006*; David Stambrook, *Successful Examples of Public-Private Partnerships and Private Sector Involvement in Transport Infrastructure Development*, 2005; Partnerships UK, *Project Database*; Robert Poole and Peter Samuel, *The Return of Private Toll Roads*, Reason Foundation, 2006.

project supervisor. Private companies that take part become involved at the infrastructure design stage. They then participate in government tenders for the work to get started. Project design and construction responsibilities are generally separated. Three forms of public-private partnership are common in highway reconstruction and improvement projects: management agreements, lease-affermage and franchising. In each case, the risk level and delegation transferred to the private sector is different, as is the length of the partnership.

The first form of PPP consists of a management agreement between the public sector and a private consortium. Private sector participation is limited to conducting the work and meeting standards set by the government. No private capital is invested. For road repairs, management agreements are most commonly of the Design-Build (DB) type. These management agreements involve private companies jointly assuming responsibility for the design and execution of repair work. Of all the PPP road projects conducted around the world between 1985 and 2004, encompassing new construction and repairs, 7% were covered by DB-type agreements. On a worldwide basis, 41 road projects have been conducted with contractual agreements of this type.[3] Management agreements generally run for five years at most.[4] Repairs and improvements to the West Gate-CityLink-Monash corridor[5] in Melbourne, Australia, came under this type of PPP.

Lease-affermage, which resembles renting infrastructure to the private partner in charge of the rebuilding work, constitutes the second form of PPP applied to highway overhaul projects. Although the government technically retains ownership of the transportation infrastructure, it transfers day-to-day management to the private sector, which then becomes responsible for maintaining it. The private sector can be remunerated in several ways. The government takes back responsibility for infrastructure management at the end of the contract. Meanwhile, the private sector is responsible for maintaining it in good condition. There exist several different forms of lease-affermage, but two of them stand out clearly in the road repair context.[6] In the first of these, the Build-Operate-Transfer (BOT) type, the private partner is responsible for planning and executing the rehabilitation work and for the subsequent management of the stretches of road involved. The projects developed for the

3. Aecom Consult, *Synthesis of Public-Private Partnership Projects for Roads, Bridges & Tunnels from Around the World 1985-2004*, 2005, p. 17.
4. KPMG, *Financial Viability and Affordability of Off-budget Infrastructures Funding Models*, p. 12.
5. Transurban, *Delivering Value: Annual Report 2006*, 2006, p. 10.
6. Marcel Boyer, Michel Patry and Pierre J. Tremblay, *La gestion déléguée de l'eau : les options*, CIRANO, 2001, p. 6.

Marquette interchange in Wisconsin[7] and part of the CityLink project in Melbourne[8] fall under this form of contract. The second form, less common worldwide but heavily used in the first PPP phase in the United Kingdom,[9] adds responsibility for project financing to the preceding operations. This makes it a DBFO project, or Design-Build-Finance-Operate. Together, these two forms of lease-affermage accounted for 41% of all road partnership projects between 1985 and 2004. This form of contract accounted for 232 projects worldwide during this period.[10] Under DBFO and BOT agreements, the private partner assumes a major part of the risk and responsibilities, but the delegation is not total. It is estimated that partnerships involving either form of lease-affermage run 20 to 30 years, although some may last longer.[11]

Private sector involvement in road repair projects may take many different forms based on a project's characteristics and objectives.

Another form of public-private partnership in road repairs is long-term concessions. This amounts to the government awarding a franchise over a specified period to a private consortium for infrastructure management and upkeep. A very high level of responsibility is delegated from the public sector to the private sector. The private partner assumes most of the risk and responsibilities connected with the renewal project. When pushed to high levels of delegation, DBFO projects resemble franchising. A number of U.S. states have taken advantage of road overhaul work to award concessions for stretches of road. This applies to highways I-395, I-95 and I-495 in Virginia[12] and to the previously mentioned Safe and Sound Project in Missouri.[13] Long-term concessions vary in length between 30 and 99 years.[14] This way of proceeding has been adopted in 41% of PPP road projects, encompassing new construction and repair work, for the period from 1985 to 2004. This amounts to 245 projects worldwide.[15] Table 1 provides details of some examples of road overhauls presented in this section.

Privatization is not a form of public-private partnership, involving as it does the complete and permanent transfer of the highways affected. Very little highway infrastructure has been subject to total privatization when rebuilt. Some new highways, however, have been developed entirely by the private sector. This is the case of the Birmingham Northern Relief Road, built to relieve congestion on the M6 motorway.[16]

Conclusion

To sum up, private sector involvement in road repair projects may take many different forms based on a project's characteristics and objectives. It can also help in gaining better value for public funds spent to maintain the road network, particularly through greater compliance with deadlines and the development of innovative methods. With the enormous road maintenance challenges the Quebec government faces in the coming years, it could well consider the PPP alternative in road renewal.

7. See Robert W. Pool Jr. and Kevin Soucie, *Rebuilding the Marquette Interchange Via a Public-Private Partnership,* Reason Foundation, January 2003, http://www.reason.org/ps304.pdf.
8. David Stambrooke and Colin Stacey, *Successful Examples of Public-Private Partnerships and Private Sector Involvement in Transport Infrastructure Development*, Joint OECD/ECMT Transport Research Centre, 2005, p. 87.
9. Partnerships UK, *Project Database*.
10. Aecom Consult, *op .cit.*, p. 17.
11. KPMG, *op.cit.*, p. 12.
12. Robert Poole and Peter Samuel, *The Return of Private Toll Roads*, Reason Foundation, 2006, pp. 7-11.
13. Missouri Department of Transportation.
14. Robert Poole and Peter Samuel, *op. cit.*, p. 4; KPMG, *op. cit.*, p. 12.
15. Aecom Consult, *op. cit.*, p. 17.
16. Roger Vickerman, *The Regional Effects of Experience with the Private Finance of Transport Infrastructure: Some Evidence from the UK,* University of Kent, 2003, p. 16.

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