

ERP Final Report Appendix I: Long-Term Concessions for Megaprojects with Public-Private Partnerships

By Bob Poole

Risk and Megaprojects

Large-scale second-generation managed lanes projects are inherently megaprojects. And as is well-known, transportation megaprojects involve significant risks. Danish researcher Bent Flyvbjerg and colleagues have done the most detailed studies of such risks. Using an international database of 258 transportation megaprojects, they found that 90 percent suffered from cost overruns. The average rail project cost 45 percent more than projected, and the average highway project cost 20 percent more.¹ Traffic forecasts were also significantly in error.

To reduce these risks to taxpayers and the public sector, Flyvbjerg and colleagues recommend against the conventional government procurement approach, arguing instead for a public-private partnership (PPP) model that “allocates risks to parties who have an incentive to reduce the negative impacts.” The aim is to shift commercial-type risks--such as cost overruns, late completion, and traffic and revenue risk—to investors willing to take on such risks in exchange for a long-term contractual agreement to be responsible for design, finance, construction, operations, and maintenance.

There is growing evidence that this type of delivery model has a better track record for large projects than conventional government procurement. In 2007, the Allen Consulting Group and the University of Melbourne studied the performance of 54 large Australian infrastructure projects, nearly half of which were in transportation. Cost overruns averaged only 1.1 percent on the 21 PPP projects compared with 15 percent for the 33 traditionally procured projects. And the PPP projects on average were completed 3.4 percent ahead of schedule, compared with 23.5 percent late completion for the traditional projects.²

How Public-Private Concessions Shift Risk

The design-build (D-B) method is increasingly used for large-scale projects, and this approach does tend to produce more “buildable” designs that are less likely to experience late completion or large cost overruns. But once the project is completed, the D-B team’s responsibility is over. If they have produced a design that is expensive to maintain, that is not their problem. And if the traffic and revenue are well below projections, that is also not their problem.

By contrast, under the long-term concession approach, because the winning team will be responsible for the project’s long-term viability, its design approach will seek to minimize *life-cycle costs*, not just initial cost. That means it will take operating and maintenance aspects into account in its design decisions. If the project is toll-financed, the PPP team will also have strong incentives to make design and construction decisions that facilitate on-time completion (so toll revenues begin flowing), minimize non-essential costs, and maximize revenues (within the constraints set by the public sector).

Financing Cost Versus Value of Risk Transfer

Concerns are often expressed about PPP concessions to the effect that such an approach cannot be a good deal for the public sector, since the financing costs of a PPP megaproject are significantly higher

¹ Bent Flyvbjerg, Nils Bruzelius, and Werner Rothengatter, *Megaprojects and Risk*, Cambridge, U.K.: Cambridge University press, 2003.

² The Allen Consulting Group and the University of Melbourne, “Performance of PPPs and Traditional Procurement in Australia, Final Report,” Infrastructure Partnerships Australia, Nov. 30, 2007.

(http://infrastructureaustralia.org/research/pdf/InfrastructurePartnershipsAustralia_PPPReport_Final.pdf)

than that of the same project if financed and developed by the public sector. PPP concessions are financed based on a mix of equity and debt. Providers of equity typically expect double-digit returns on that equity, and taxable debt costs more (i.e., carries a higher interest rate) than tax-exempt debt. Both points are correct, but they are not the end of the story.

For the debt portion, it is true that the interest rate on (non-recourse) toll revenue bonds is higher for taxable than for tax-exempt bonds of this type. However, Congress in SAFETEA-LU authorized the issuance of tax-exempt Private Activity Bonds (PABs) for PPP-type projects, reducing the interest rate differential to a nearly negligible amount. (To be sure, states may choose to allocate some degree of general-obligation debt to a transportation megaproject, achieving a lower interest rate than is available via PABs. But that state bonding capacity is limited, and Washington State currently has four transportation megaprojects moving forward at the same time.) In addition, Congress created the Transportation Infrastructure Finance and Innovation Act (TIFIA) credit program, which provides low-interest, tax-exempt subordinated debt for revenue-based transportation projects.

Equity typically provides between 15 percent and 30 percent of PPP megaproject financing. What public interest justifies allowing equity providers a double-digit return on that portion of the megaproject's financing? The answer is risk transfer, which is widely accepted in Australia, Canada, and the United Kingdom. The equity return is the hoped-for reward that equity providers seek in exchange for taking on construction risk, completion risk, and traffic and revenue risk. Megaprojects in these countries do not guarantee any return to equity providers, and bond covenants that accompany the much larger portion of the project cost that is debt financed require that the debt providers get paid first. That means if revenue is below projections, the equity providers are at risk of getting single-digit returns or even zero return.

The decision-making process commonly used in those three countries to decide whether a PPP concession is the best choice for a megaproject is called the Public Sector Comparator.³ It explicitly compares the best public-sector model, with most or all risks retained by the public sector, with a PPP model in which various major risks are transferred. This methodology requires that such risks be quantified so they can be valued, whether retained by the public sector or shifted to the PPP concessionaire.

There is also evidence that PPP concessions can generate greater up-front capital than the traditional all-debt municipal revenue bond model. As pointed out by project finance attorney Geoffrey Yarema, this is due to the following reasons:

- The tax-exempt municipal revenue bond market has more-conservative debt coverage ratios;
- The investor classes are different, offering different risk appetites;
- Private investors (e.g., infrastructure funds) are willing to take more risk on toll revenue performance;
- Accelerated depreciation creates significant value for private equity.⁴

Mixed Funding and PPPs

Managed Lane megaprojects typically involve significantly more construction than simply the new priced lanes, and that is definitely true for this project. Hence, a mix of state funding (typically federal and state fuel tax monies) and toll-based financing is employed. This mixed-funding model is entirely compatible with a long-term PPP concession. It can be thought of as analogous to paying for a new house. The state's portion is like a cash down payment, with the balance of the cost financed over a long period of time. Three of the four PPP Managed Lane megaprojects referred to in this chapter included a public sector "down payment" representing 18 percent of the total for the LBJ project, 21 percent for the Capital

³ Partnerships Victoria, *Public Sector Comparator* (www.partnerships.vic.gov.au)

⁴ Geoffrey Yarema, "Benefits of P3 Project Delivery for Transportation Infrastructure," *Public Works Financing*, September 2010, p. 5

Beltway, and 27 percent for the North Tarrant Express. The balance of each project was financed just as if the remaining sum had been the total cost of a stand-alone toll road, with a mix of equity, toll revenue bonds, and a subordinated loan from the TIFIA program.

The fourth PPP megaproject, I-595 in Florida, used a different funding model. In this case, there was no up-front state contribution. Instead, the state will make annual "availability payments" over the 35-year life of the concession agreement. Part of the cost of these annual payments will be recovered from toll revenues on the reversible express lanes that are part of this project. But state highway funds (federal and state fuel tax monies) will make up the rest.

The availability payment model has advantages and disadvantages from the state's perspective. On the positive side, the state has no funding obligation up-front, and will only start making annual availability payments once the entire project is completed and open to traffic. In addition, the state will set the toll rates, collect the toll revenues, and decide on their use. On the negative side, the state is taking on full traffic and revenue risk (though it is shifting cost-overflow and completion risk to the concessionaire). It will also likely pay for a larger fraction of total project costs, over the life of the agreement, than the "down payment" costs involved in the three toll concession megaprojects.

Washington State Public-Private Legislation

Washington was one of the pioneer states in enacting PPP enabling legislation in the 1990s, but its early experience led to a set of project proposals that were not in the long-range transportation plan and proved to be politically unacceptable. That measure was replaced by new legislation which permits WSDOT to *solicit* proposals after January 1, 2007 for transportation projects (Wash. Rev. Code Ann. 47.29.010 to 290). Any such projects must be reviewed and approved by the Transportation Commission. (By contrast, although the law also permits *unsolicited* proposals, subsequent legislation postponed that section from going into effect until July 1, 2011.)

Subsection 3 of the legislation specifies that any debt related to such projects must be issued by the State Treasurer. That is consistent with the federal legislation authorizing PABs for P3 projects, which requires the state in question to issue the PABs on behalf of the P3 project, after receiving permission to do so from the U.S. Secretary of Transportation. The State may also accept federal TIFIA loans, such as those used for transportation P3 megaprojects in Florida, Texas, and Virginia.

Thus, Washington has available to it the same type of P3 enabling legislation and financing possibilities as the other states that have successfully financed P3 Managed Lanes megaprojects.

Funding plans for two other express toll lane projects have recently been successfully developed through public-public partnerships. The I-15 Express Toll Lanes in San Diego (CA) is estimated to cost \$1.3 billion (2006 dollars), most of which has been funded from state and federal sources. To close the funding gap, San Diego County has provided \$210 million from *TransNet*, the half-cent sales tax for local transportation projects that was first approved by voters in 1988, and then extended in 2004 for another 40 years and administered by the San Diego Association of Governments. The I-10 Katy Managed Lanes Project in Houston (TX) closed its funding gap with a partnership with the Harris County Toll Road Authority, which provided a \$250 million contribution from other toll roads it operates.