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Journal of Planning Education and Research 2006; 26; 137

DOI: 10.1177/0739456X06291390

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Implications of Private-Public Partnerships on the Development of Urban Public Transit Infrastructure

The Case of Vancouver, Canada

Matti Siemiatycki

Across Canada and around the world, planning processes promoting competition and free-market accountability have become increasingly popular in the delivery of public infrastructure. Most recently, the design-build-finance-operate (DBFO) style of private-public partnership has become the delivery mechanism of choice for inserting competition and free-market accountability into project planning, gaining popularity with both the right and the left of center governments and international development agencies such as the World Bank and the United Nations.

In theory, the DBFO model of private-public partnership seeks to balance the advantage of government control of the strategic allocation of scarce resources in the protection of the broad public interest, with the benefit of infusing competitive forces into the delivery of public service to increase efficiency. Proponents contend that a collaborative approach to project planning, which encourages cooperation between different levels of government and the private sector, can create win-win situations that marry community mobilization and local economic development (Miraftab 2004). In the field of urban transportation, the increasing prevalence of private-public partnerships can be seen in large part as an attempt to redress issues of political interference, weak procedural accountability, escalating construction costs, and performance shortfalls that became typical during the extended period that projects were designed, financed, and operated predominantly by the public sector (Pickrell 1992; Flyvbjerg, Bruzelius, and Rothengatter 2003). At the same time, such an approach also can be seen as an attempt by cash-strapped governments to take advantage of private-sector access to capital to finance projects, deliver innovation, and manage risk without the public sector's relinquishing control of strategic objectives as occurred under outright privatization and deregulation.

And yet, to date, little academic research has been conducted in Canada to assess the implications of undertaking transportation-infrastructure delivery using a collaborative DBFO partnership approach. This is partly because DBFO private-public partnerships are a relatively new phenomenon in the Canadian transportation-planning landscape. It is also because, as Miraftab (2004) suggests, studies of private-public partnerships generally have focused on typological and logistical issues such as contract design and risk transfer while minimizing dynamics of power relations and distributional implications.

Journal of Planning Education and Research 26:137-151
DOI: 10.1177/0739456X06291390
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Abstract

Recently, design-build-operate-transfer-style private-public partnerships have gained popularity both with left-wing and with right-wing governments as a means of effectively delivering large-scale transportation infrastructure projects. Proponents suggest that introducing competition and market forces into the procurement of public infrastructure can make decision making more accountable, contribute to greater technological innovation, and reduce the potential for construction-cost escalations that consistently have plagued transportation projects. However, this article shows that in the case of a new rapid-rail development in Vancouver, Canada, the private-public-partnership method of project delivery has been largely incongruent with increased accountability while failing to drive technological innovation or limit cost escalations during the planning process.

Keywords: *public transit; infrastructure; megaproject; private-public partnership*

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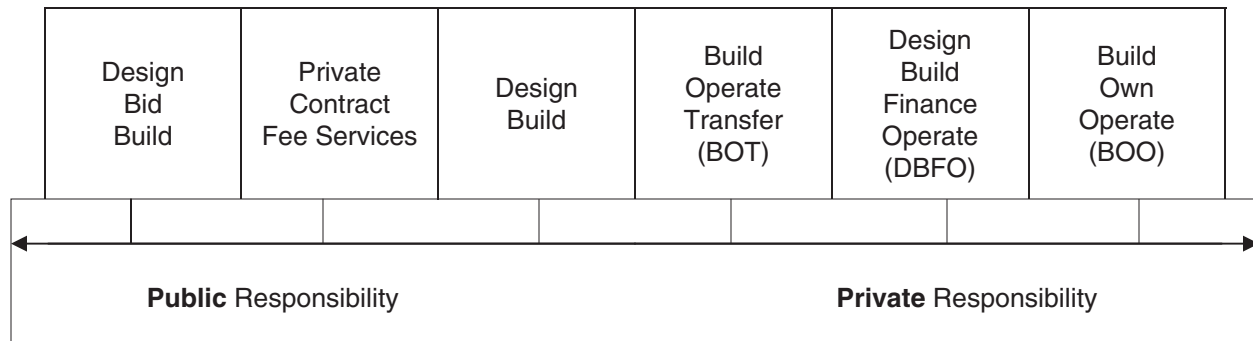


Figure 1. Typology of private-public partnerships.

Source: United States Department of Transportation (2005).

As such, despite the favorable claims of private-public-partnership supporters and the theoretical benefits proposed by prominent academics, it remains an open question whether the DBFO type of private-public partnership provides an effective tool for governments to raise necessary capital and deliver large infrastructure projects. Moreover, in practice, does the DBFO private-public-partnership approach to project delivery actually contribute to redressing issues of political influence, interest-group lobbying, poor transparency, and organizational memory that were identified by Flyvbjerg (2003), Wachs (1988), and Altshuler and Luberoff (2003) as embedded features of earlier transportation-megaproject planning processes?

To be clear, when situated within the evolving history of transportation infrastructure-delivery models, the DBFO style of private-public partnership may reveal procedural shortcomings that are similar to those observed when projects are delivered using other approaches. This can lead to questions about whether the observed challenges pervade the type of model used to procure a project and are, in fact, more deeply rooted in the political, financial, governance, symbolic, and power relations that drive planning decisions. These are certainly valid concerns, and researchers for more than two decades have explored the diverse forces that support the decision to invest in a specific infrastructure project at a specific moment of strategic choice (Hall 1982; Mackett and Edwards 1998; Altshuler and Luberoff 2003; Olds 2001; Richmond 2005; Siemiatycki 2005b). However, precisely because the DBFO style of private-public partnership is the contemporary international state-of-the-art for planning and delivering transportation-infrastructure megaprojects, it seems relevant to examine this method of project delivery in isolation and explore whether the theoretical benefits are matched by the practical experience.

In exploring the questions raised about the DBFO model of project delivery, this article will proceed in two parts. The first section will review the historical evolution in public-project financing, describe the characteristics of a DBFO private-public partnership, and then identify the strengths and weaknesses of this particular project-delivery method.

The second section presents the case of the Richmond-Airport-Vancouver (RAV) urban rail project in Vancouver, British Columbia, the largest DBFO private-public partnership for an urban public-transit project ever implemented in Canada and the first of many that are currently on the drawing board (Campbell 2004). An examination of the RAV project-planning process through in-depth interviews with key participants, observations of public meetings, analysis of planning documents, and a review of media coverage of the project provides an opportunity to explore one example of the mechanistic and equity issues that underpin the application of private-public partnerships in the transit sector.

For the purpose of brevity, I will not present the case study in all its detail but instead will highlight some of the wider implications of planning through a private-public-partnership approach. Specifically, I will show that the planning of the RAV line through a DBFO private-public partnership largely has failed to achieve the desired benefits of eliminating cost escalations during the planning process, delivering greater technological innovation, or improving procedural accountability. While the results of the Vancouver experience are not statistically significant or universally generalizable to other contexts or other types of private-public partnerships, they may prove valuable in raising questions that should be asked of other projects being delivered through the DBFO private-public-partnership method.

► Theory of the DBFO Private-Public Partnership

According to the United States Department of Transportation (2005), there are a variety of ways that the private and public sectors can partner to deliver infrastructure projects, which can be classified on a continuum ranging from greater public responsibility to greater private responsibility (Figure 1).

Traditionally, in developed countries, public-sector infrastructure projects have been delivered through a variant of the design-bid-build approach, in which the responsible public

agency designed a scheme to address an identified problem, then undertook a bidding process for a private-sector concessionaire to build the system using the technology as specified by the public-sector designers, and finally, operated the system using public-sector employees once the project was constructed. Under this model of project delivery, government raised the finances to pay for the investment through debt or bond issues and repaid the capital project costs through user fees and tax revenue.

In the 1980s and early 1990s, with a mandate to cut public-sector expenditures and harness the innovative capacity of individuals working under competitive conditions, governments across the developed world encouraged the private sector to take a larger role in the financing and delivery of public-sector infrastructure. Private-sector entrepreneurs were charged with selecting the types of projects that would meet the public interest best based on the potential to generate profits, and then they designed, financed, owned, and operated the new infrastructure. Revenue was raised through the charging of user fees, and public subsidies sometimes were offered for services such as public transit that were rarely profitable on their own.

Beginning in the early 1990s, led by initiatives in Britain, the DBFO style of private-public partnership has risen to prominence as the contemporary state-of-the-art mechanism for delivering large public-sector infrastructure projects. It has been used in transportation projects in many countries, including the United States, Australia, Canada, Britain, Ireland, Holland, and Denmark.

The DBFO private-public partnership is intended to blend the innovative capacity of private enterprises working in competitive environments with the role of government in setting specifications and supervising to ensure that performance standards are met. In the DBFO model of project delivery, the responsible public-sector agency designs a set of benefits that a project should deliver to meet a defined objective and then invites private-sector concessionaires to design a technological solution that best meets the criteria at the lowest cost. The private-sector concessionaire also is invited to finance the capital costs of the project partially or entirely, an expenditure that is repaid along with a profit by the government through user fees and subsidies where necessary during the course of an operating period that usually ranges from thirty to fifty years. Once the contractual period of operation is completed, the public-sector agency then either can retender or operate the system using public-sector employees (Debande 2002).

According to Flyvbjerg, Bruzelius, and Rothengatter (2003), the DBFO style of private-public partnership is seen to provide benefits in three main ways:

1. It increases the rationality of the projects that are selected for development, particularly with respect to technical specifications. This can be achieved through the use of performance specifications, whereby the government planning organization establishes a set of policy objectives to meet the public interest and then designs a tendering process so that private firms can compete to provide the best technical alternative to achieve the objectives at the lowest cost. Technological innovation is expected to arise out of the competition between different firms to best achieve the performance specifications. This is in contrast to the public-sector planner, who may have expertise in only one technology and also may have no direct incentive to provide a cost-effective or innovative project.
2. It contributes to improved procedural accountability and financial responsibility of the projects that are chosen for delivery. Again, infusing market forces into a previously noncompetitive environment is seen as critical. It is argued that the decision to proceed with a project should be contingent on private financiers' willingness to contribute at least one-third of the capital costs without a sovereign guarantee. Private contributors of risk capital with the potential for large personal losses have a greater incentive to vet proposals realistically and encourage tight financial controls during the project-development and operation phases, which could lead to more accurate appraisals and realistic decisions about whether to proceed with a given project. It also is suggested that greater private involvement could be complementary to increased transparency and legitimate public participation, which are seen to be a central test of accountability in public-sector investments.
3. It transfers risk to the partner best able to manage it. Because of the considerable cost overruns and use variability that have characterized transportation-infrastructure megaprojects, the transfer of risk drives the DBFO private-public-partnership process. By significantly involving the private sector in the planning, financing, and operation of an infrastructure project, there is the potential to distribute different types of project risk such as construction-cost overruns and delays, interest-rate fluctuations, system performance, and patronage risk to the party that has the greatest ability and incentive to manage them. For transit projects, risk generally is divided between those related to the supply of the infrastructure and those related to demand. Transferring risk between the public and private sector is accompanied by a cost premium. This process of transferring risk in a DBFO private-public partnership differs from the more conventional public-sector project-delivery model, in which the responsible government agency and taxpayers are responsible for effectively all different types of risk.¹

Moving from theory to practice, Table 1 presents a summary of the broader literature on the implications of private-public partnerships, revealing a wide range of potential benefits and costs to delivering infrastructure megaprojects using such an approach.

Guided by promoters in the public and private sectors as well as the academy, the narrative of collaboration is now so pervasive that private-public partnerships have become institutionalized as the project-delivery mechanism of choice within the political structures of many countries, which has been reinforced by the formation of government bureaus specifically charged with promoting and structuring partnership deals. In

Table 1.
Potential benefits and costs of transportation-infrastructure delivery through design-build-finance-operate (DBFO) private-public partnerships.

<i>Assertion</i>	<i>Source</i>
Benefits of Private-Public Partnerships	
Evidence from Britain has shown that projects delivered using private-public partnerships have reduced development cost overruns and improved the punctuality of project completion.	HM Treasury (2003)
Financing infrastructure through private-sector capital lowers the financial burden and potential risk on the general taxpayer.	Savas (2000)
Strict contracting with the private sector to plan and develop a project can help control the urge of government officials to add expensive scope changes during the development phase that contribute to project-cost escalations following the final cost agreements.	Walker and Smith (1995); Debande (2002)
Costs of Private-Public Partnerships	
Divergent goals, methods, and objectives of different stakeholders involved in collaborative planning processes potentially can undermine the potential for participants to proceed beyond narrow self-interest.	Blumenberg (2002)
Private-public partnerships can increase the cost, complexity, and time of planning an infrastructure megaproject.	Walker and Smith (1995)
Evidence from an accounting study of 21 transportation projects delivered through private-public partnerships in the United Kingdom found serious breaches of accountability, particularly the ability of current accounting methods to provide adequate transparency of public-resource allocation.	Edwards et al. (2004)

Canada, where both the federal and the provincial governments have formed special-purpose private-public-partnership offices, there is now considerable inertia to proceed with new infrastructure projects using the partnership approach (Siemiatycki 2005a). Examining how effective the DBFO type of private-public partnership is at delivering on the theoretical benefits will be the topic of the following section.

► **The DBFO Private-Public Partnership in Practice: The Case of the Richmond-Airport-Vancouver Line**

This section presents the case of a DBFO style of private-public partnership used to develop a new urban rail line in Vancouver, a city region of some 2.3 million people on the west coast of Canada. The case study will begin by examining how the specifications of the RAV project were shaped and then proceed to explore the processes through which the project was approved.

Defining the Project Specifications: Partnerships and Priority Setting

After years of underinvestment in urban transit infrastructure that has left a need for an estimated \$7.4 billion in project spending nationally between 2004 and 2008, Canadian cities have begun to undertake a renewed period of public-transit development (Canadian Urban Transit Association 2003). And yet, as the scale and cost of transit-infrastructure projects has

escalated (Flyvbjerg, Bruzelius, and Rothengatter 2003), it has become increasingly difficult for any single level of government or private-sector entity in Canada to proceed with a transportation project on its own. This situation is exacerbated in Canada, where Perl (1993) has found that administrative and fiscal responsibility for urban transportation is even more divided between the federal, provincial, and local levels of government than in other countries such as the United States and France. As such, financial and regulatory partnerships have become central to the realization of major transportation projects (McQuaid 2000). Within this context, amid the cacophony of voices calling for increased spending on specific transportation initiatives, the prioritization of the RAV project over other alternatives was rooted in its appeal to the interests of a broad range of potential funding partners.

For more than thirty years, planners and decision makers in greater Vancouver have been engaged in an ongoing process to establish priorities and deliver projects as part of a program to produce a modern mass-rapid-transit system in greater Vancouver. Dating back to 1975, all major strategic transportation plans in greater Vancouver have included proposals for a north-south rapid-transit connection between the growing municipality of Richmond and central Vancouver (Ladner 2004; Figure 2). And local transportation plans in Richmond and Vancouver called for a north-south rapid-transit alignment connecting their municipalities, although there was never agreement on an ideal route or technology.

Yet, in consecutive analyses and at repeated moments of investment, rapid transit between Richmond and Vancouver was passed over in favor of other alternatives—first for the Expo

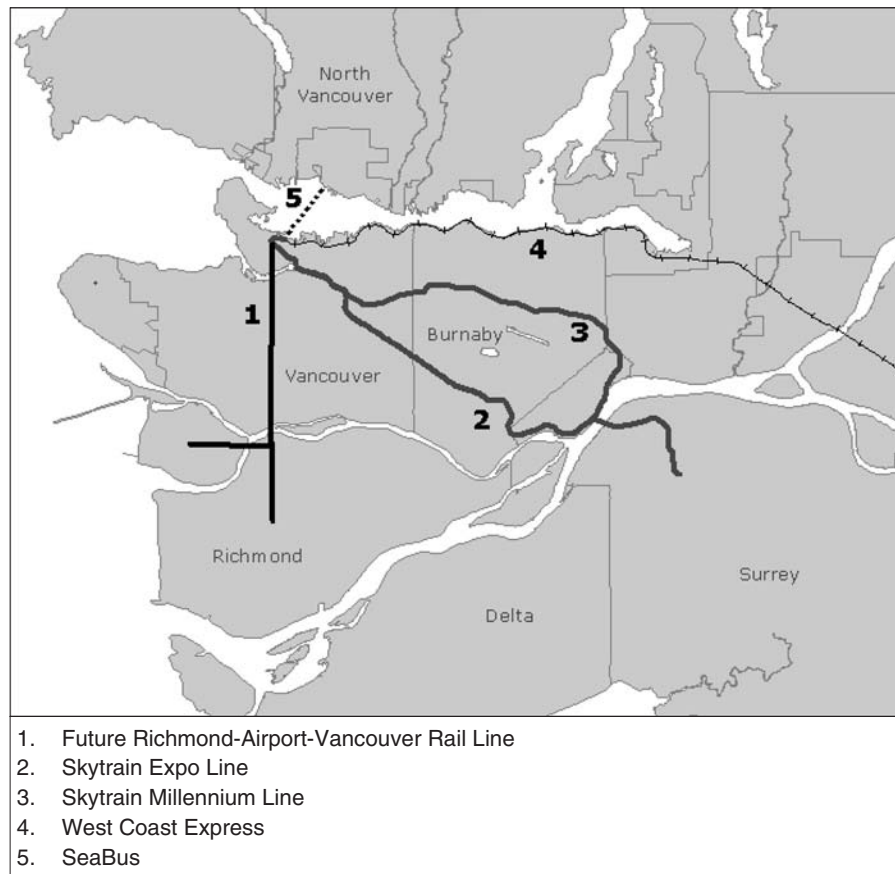


Figure 2. Current and future rapid-transit network in Vancouver, Canada.

Skytrain line (a type of automated light rail) that ran east from Vancouver to Burnaby and New Westminster, and later, for the Millennium Skytrain line that ran east from Broadway along the Lougheed corridor. Perhaps more significantly, while major investments had been made in large-scale rapid-transit projects, increasing the size of the local bus fleet and implementing small-scale transit priority measures, the top two priorities of all regional-transportation and growth-management plans since 1980 had gone largely unrecognized. From a planning perspective, it is also relevant to note that while opposing provincial political parties from the right and then left of the political spectrum delivered the first two public-transit megaprojects in Vancouver using a traditional public-sector procurement model, the planning processes faced similar criticisms: They were politically driven; had placed considerable burden on provincial taxpayers, who covered nearly the entire capital costs of each line; and were characterized by a lack of transparency.

Thus, in 2001, when the right-of-center Liberal Party came to provincial power, there was a recognition that future planning processes in British Columbia should be carried out using a method that encouraged greater collaboration between the

public and private sectors to plan and finance projects while trying to foster more genuine public involvement.

The desire to more centrally use a collaborative approach to project delivery had a considerable impact on the projects that were prioritized for development. Despite the fact that top priorities from the regional plans focused more specifically on improvements to the bus network than infrastructure megaprojects, a chart comparing the potential sources of funding for major transportation capital projects devised by Vancouver's regional transportation authority, Translink, indicates the appeal of the RAV rail line over other alternatives (Table 2). Among transit alternatives, the RAV rail line was identified as being most conducive to meeting the interests of local and senior levels of government in Canada, it had added appeal for special capital grants as it would be highly visible for the Olympic games that Vancouver will host in 2010, and it had the greatest potential to attract private-sector financing that desired a measure of

cost recovery. Based on this type of analysis about potential funding sources, in 2001, the RAV line usurped other, more highly ranked local initiatives as the top regional public-transit investment priority.

While research from other jurisdictions has confirmed that the availability of financing for transportation infrastructure plays a large role in determining which projects are prioritized, it is significant that in this case, priority setting was based not only on the interests of the different levels of government but also on designing a project that would appeal to a private-sector investor (Taylor 2000; Li and Wachs 2004). The significance of the potential to attract private-sector investment in shaping project choices is revealed in the comments of Allan Davidson, regional manager, Planning and Partnerships of the British Columbia Ministry of Transportation:

The funding [for transportation projects] comes from the Province and various other partnerships. If there are other funding partners than the province for a project, this tends to get them up on the list, because the province looks at it as we are getting a new facility at reduced cost. (Hilferink 2004, 116)

Table 2.
Translink comparison of major capital projects based on suitability and potential financing sources.

Project	Road			Transit			
	Fraser River Crossing/ South Fraser Perimeter Road	North Fraser Perimeter Road	Major Road Network Capital Projects	Broadway West Rapid Transit Expansion	Port Moody/ Coquitlam Rapid Transit Extension	Richmond/ Airport Vancouver Rapid Transit Line	Trolley Bus Replacement
Issues Addressed							
Goods movement	■	■	■				
International mobility	■	?	?			■	
green house gas/ environment	?			■	■	■	■
Olympics						■	?
Livable region strategy	■	■	■	■	■	■	■
Stakeholder Interest							
Federal government	■	■	■	?	?	■	?
Provincial government	■	■	■	■	■	■	?
Translink/Greater Vancouver Regional District	■	■	■	■	■	■	■
Municipalities							
	Pitt Mead., M. Ridge, Surrey, Langleys, Delta	Coquitlam, New Westminister	Various Municipalities	Vancouver	Burnaby, Port Moody, Coquitlam	Richmond, Vancouver	Vancouver, Burnaby
Potential Funding Sources							
Federal Infrastructure funds	■	■	■	■	■	■	■
Olympics						■	
Provincial Partnership	■	■		■	■	■	
Olympics						■	
Translink budget		■	■			■	■
Other (e.g., municipal)							
	Pitt Mead., M. Ridge, Surrey, Langleys, Delta	Coquitlam, New Westminister	Various Municipalities	Vancouver	Burnaby, Port Moody, Coquitlam	Richmond, Vancouver	Vancouver, Burnaby
Cost recovery (users)	■	?	?	■	■	■	■
P3 potential	■	?	?	?	?	■	?

Source: Adapted from Rock and Plewes (2002).

As I will illustrate in the following section, the need to design a system that would appeal to the private-sector interest for cost recovery as well as the need to attract other sources of funding resulted in a project that may not necessarily deliver the largest public benefit.

Shaping the Project Specifications

With the interest of multiple levels of government aligned to prioritize the development of the RAV line, attention turned

to designing a process to shape the technical specifications of the project, based on the various objectives of the contributing shareholders. In 2000, the four public shareholders that agreed in principal to fund the RAV project—Translink (as the representative of the regional government), the provincial government, the federal government, and the Vancouver International Airport Authority—formed a special-project office known as RAVCO as a subsidiary of Translink to coordinate the procurement, design, financing, and implementation of the RAV project. The city of Vancouver, the city of Richmond, the greater Vancouver regional district, and the

port authority were given stakeholder privileges in RAVCO since they would be affected directly by any investment decision but were not financial contributors.

Early in the planning process, RAVCO hired project-finance specialist and broker Macquarie Group, one of the global leaders in the promotion and delivery of private infrastructure provision, to examine the viability of delivering the RAV line as a private-public partnership. Macquarie's research showed that a rail rapid-transit line would be attractive to private investors as part of a DBFO private-public partnership and that the public could expect to transfer construction, maintenance, operation, and financial risk significantly to the private sector (Macquarie Group 2001).

Based on the findings of Macquarie Group's RAV study, RAVCO proceeded to design its planning and procurement strategy to accommodate the project being delivered as a private-public partnership. Specifically, RAVCO established a competitive procurement process to select the specifications of the RAV project that combined public- and private-sector collaboration (Figure 3).

As advocated by academics such as Flyvbjerg and his colleagues (2003) as well as many planning agencies and professional bodies (United States Department of Transportation 2004; Knight et al. 2003), the first phase of the procurement model established by RAVCO was to define a set of performance specifications for the project that were based on the policy directions and individual interests of the involved public agencies as well as consultations with the general public. This approach to project delivery was intended to provide room for private-sector innovation to deliver the most effective system technology at the lowest cost while maintaining government control to establish the direction of the project in the public interest. The use of performance specifications also may be seen as an attempt to alleviate the high incidence of political interference that shaped the route and technology selection on Vancouver's previous rapid-transit projects (Siemiatycki 2005a). As stated in RAVCO's (2003a, 26) documentation describing the procurement process, "no technology choice" was made, "leaving the opportunity for a supplier to propose a system that meets the Performance Standards and is financially feasible."

In practice, however, the collaborative approach to defining the performance specifications for the RAV line was dominated by a desire to establish the criteria so that the ultimate project selected would meet the interests of each of the participating agencies. Key areas of interest for the involved parties included the route alignment, the amount and type of grade separation from traffic, the technology, and the project-financing mechanism.

Of particular attention was the explicit inclusion of private-sector interests in directing the consideration of the project specifications and public policy. In their early discussions, the regional transportation planning authority (Translink), the provincial government, and the airport authority agreed that

private-sector financing would be critical to the realization of the project. In private communications between high-ranking bureaucrats, the provincial government went as far as to make its financial contribution contingent on the project's delivery as a private-public partnership (Doyle 2002). This became official government policy and had a reflexive impact on public-policy decisions and the overall technical specifications of the RAV line (Canada Line Rapid Transit Inc. 2006).

Most notably, in 2001, based on the preliminary findings of the business-advisory consultant, Macquarie Group, RAVCO CEO Jane Bird and Translink CEO Ken Dobell (in his final days before taking up his new job in the premier's office) brought a recommendation to the Translink board that at-grade options for the RAV line be excluded from any further analysis. Among other issues, they argued that at-grade options failed to meet the requirements for private-sector involvement in a DBFO style private-public partnership. The recommendation was approved by the board. This shows that while not directly involved in the definition phase of the RAV project planning, the attractiveness of the project to a private-sector concessionaire was considered explicitly in establishing the performance criteria that would shape future design and considerably influenced the direction of public policy.

Overall, through the collaborative approach to project delivery, each partner was able to provide its own criteria on which its financial contribution and jurisdictional approval was contingent. However, not all of the partners had equal influence over the final performance specifications. In particular, a paramount concern was designing a project that met the criteria for funding from sources outside the financially constrained regional level of government, which included senior levels of government, the airport authority, and the private sector (RAVCO 2003a). For these participating organizations, the paramount concerns were building a transit system that would be a positive legacy of the Olympic Games, be unobtrusive to the surrounding community, and be conducive to attracting financing and involvement from the private sector.

To meet the interests of the key contributing agencies, when the performance specifications were released to the public in the winter of 2003, some commentators noted that they were so specifically designed based on a quick travel time, reliability requirements, a routing along Cambie Street, explicit favor for rail technology, and the need to have numerous underground segments that they left little room for innovation (Boddy 2003). As John Mills, director of Transport Canada's Pacific region policy-coordination branch, who had been involved from an early stage with RAVCO's planning of the RAV line as a representative for the federal government, noted in an interview with Dutch master's student Shanna Hilferink:

[T]he RAV project is a case of one where there was no alternative analysis done . . . before a very high-level analysis was done decisions were made that discounted the Arbutus

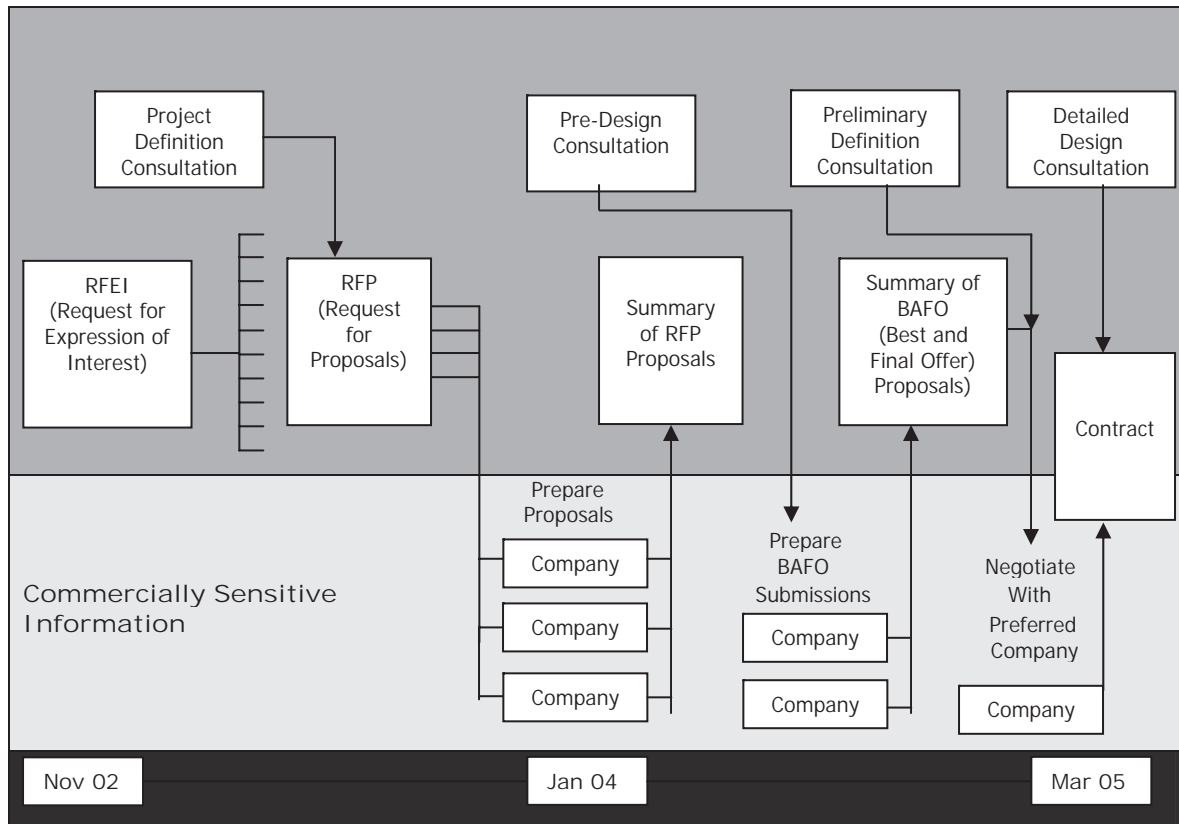


Figure 3. Competition and selection procurement model for the RAV line.

Source: Adapted from RAVCO (2003b).

corridor and focused primarily on the Cambie corridor. So you then are stuck trying to do a multiple account evaluation basically on one corridor, that has been ordained that it must be a subway, so right off the back you are constrained in your analysis as to options. (Hilferink 2004, 145)

Thus, while RAVCO had a mandate to use performance specifications to leverage the innovative capacity of the private sector as favored by some academics and planning agencies, in practice, it appeared that the ingrained interests of the organizations involved in the project planning would limit this potential. Using rail technology along a Cambie Street route had been studied in the regional plans for more than a decade, and automated technology already was used on Vancouver's two operating rapid-transit lines, and thus, could not be seen as an innovative solution. Moreover, it appears that the adherence to a planning model that used performance specifications did not alleviate issues of political interference that had been prevalent in earlier project planning in Vancouver; instead, it simply shifted the period of political interference upstream from the design-and-procurement phase to the project-visioning phase. As I will show in the following sections, the partnership approach to transportation planning had a large impact on the potential transparency and accountability of the planning

process and led to a project design that may not achieve the desired benefits for the transit system.

Delivering the RAV Project using a DBFO Private-Public Partnership

Given the institutionalization of a partnership approach to planning, it is pertinent to ask how this structure affected the habits, norms, routines, established practices, and rules that pattern behavior within the RAV project-planning process. In this section, I will turn my attention to the political process of gaining approval for the RAV line by picking up the narrative in the spring of 2003 following the completion of the project-definition report that contained the performance specifications.

Intense political and interest-group contestation always has characterized the planning of large infrastructure projects in greater Vancouver, as in other cities around the world (Altshuler and Luberoff 2003). Despite being planned through a collaborative private-public partnership approach that was meant to minimize open confrontations between the participating shareholders, the process of gaining approval for the RAV project was no exception to this trend. The case of the RAV project is an opportunity to explore one case of how the

adherence to a DBFO private-public-partnership approach to transportation planning affects the potential to achieve the tenets of an accountable planning process as defined by Flyvbjerg and his colleagues (2003), which include procedural transparency, legitimate public involvement, risk transfer through private-sector financing, and a clear specification of the regulatory regime.

A defining source of conflict in the RAV planning process was embedded directly in the private-public-partnership approach to delivering the project. To maintain the integrity of the competitive tendering process to select the winning private-sector concessionaire, a planning model was established in which two parallel processes were taking place simultaneously with only limited interaction between them. These included the competition to select the winning private-sector concessionaire and the public process of gaining political approval and financial support from multiple levels of government (see Figure 3).

RAVCO officials acknowledged an explicit tension in undertaking the competitive procurement process as designed: "The challenge for RAVCO is balancing the public interest in disclosure and the public interest in a vibrant competitive process to procure the RAV line," a process that necessitated a considerable degree of confidentiality to maintain the integrity of the bidding (RAVCO 2004a, 7). The need for confidentiality in the DBFO private-public-partnership approach to infrastructure planning has been observed in other jurisdictions around the world (Davis 2005; Demirag, Dubnick, and Khadaroo 2004). In Ireland, for instance, where more than fifty projects have been delivered using the private-public-partnership approach, the central Private-Public Partnership Unit within the Department of Finance reported that confidentiality in DBFO projects is specifically necessary to provide the private sector with incentives to deliver innovative technologies, limit costs, protect commercially sensitive information, and encourage flexibility to re-engineer business processes (Private-Public Partnership Unit 2003).

The same arguments were put forward in the case of the RAV line in Vancouver, in which confidentiality was related particularly to the commercial sensitivity of the technologies proposed in the proponent bids and the potential for the premature release of financial information to distort the competitive tendering process, limit innovation, or weaken the public-sector position in ongoing negotiations with the private proponent. RAVCO intended to overcome the need for secrecy embedded in the DBFO private-public-partnership model by using international best practices of public disclosure, accountability, and governance, such as enhanced online posting of technical and meeting minutes, ongoing citizen engagement, and public access to internal documents under the Freedom of Information and Privacy Act (RAVCO 2004a).

Nevertheless, as will be illustrated, the explicit need for secrecy and the prevalence of commercially confidential information associated with the competitive tendering process

appears to be incongruent with the need for openness and transparency associated with an accountable planning process.

The Competitive Selection of a Private-Sector Concessionaire

Based on the collaborative procurement model designed for the delivery of the RAV project, the design phase of the project was being guided by a competitive process to select a private-sector concessionaire that would offer the best system-design and financing package. Between the summer of 2003 and the spring of 2004, RAVCO whittled down potential proponents from a field of ten consortia led by some of the largest rail developers in the world to a short-list of two final bidders: SNC Lavalin/Serco and RAVxpress that was led by Bombardier. Both consortia proposed developing lines that were fully underground in the city of Vancouver and elevated in Richmond and on the airport lands and that used automated rail technology. SNC Lavalin/Serco also proposed a system that would operate at grade in Richmond, as desired by the local council, and that would combine manual and automated rail technology (RAVCO 2005).

While RAVCO went to some lengths to release information about the two final bids and it was reported widely that the expected capital cost of the project would be between \$1.5 billion and \$1.7 billion, the selection process required a high degree of secrecy about the specifications of the various proposals to limit access to commercially sensitive information, maintain the integrity of the competition between the bidders, and uphold the position of RAVCO in ongoing negotiations on specific contractual terms. This meant that during the planning process, no information was released to the public about the exact terms of the two proposals, including the technical and design specifications of the line, the total cost of the line, the terms of the financing package, or the construction methods that would be used to build the line.

Some information also was withheld from politicians who sat on the board of the regional government and had to approve financing for the RAV project. Instead, RAVCO released a series of reports, written by consultants constrained by confidentiality clauses, that confirmed the integrity of the bid process and ensured that both of the final proposals met the standard of "value for money" as demanded by the public sector. As is typical in other jurisdictions such as Ireland and Australia, critical reports that were withheld from the public included the public-sector comparator and the value-for-money report. Together, these reports measure whether the degree of risk being transferred to the private sector as well as any innovations brought to the project outweigh the added cost of higher private-sector borrowing rates and a profit margin (Irish Department of Finance 2003; Malone 2005).

Many of the firms that conducted the critical reports were explicit supporters of private-public partnerships, some had a

Table 3.
Political donations by Richmond-Airport-Vancouver (RAV) proponents.

<i>Company Name</i>	<i>RAV Project Involvement</i>	<i>Existing Interest in Private-Public Partnerships</i>	<i>Provincial Contribution 2001</i>	<i>Federal Contribution 2003</i>
Bombardier Inc.	RAVxpress final proponent team member	Advising federal government to expand PPP model and involved in proposed PPP airport rail project in Toronto	\$5,000	\$139,795.22
AMEC Inc.	RAVxpress final proponent team member	Sponsor member of the Canadian Council for PPP	\$12,500	\$9,491*
SNC-Lavalin	SNC-Lavalin/Sercos final proponent team member	Involved in other private-public-partnership projects in Canada	\$10,000	\$91,465
KPMG Consultants	Conducted independent review of public-sector comparator	Member of the Canadian Council for PPP	\$5,000	\$18,926
Price Waterhouse Coopers Consultants	Conducted financial review validating PPP delivery and worked with RAVCO officials to author public-sector comparator	Sponsor member of the Canadian Council for PPP	\$1,500	\$15,784
Canwest Global Communications	Owner of Vancouver's two daily newspapers	Not applicable	\$35,000	\$3,500

Sources: Elections BC (2004); Elections Canada (2004).

Note: PPP = private-public partnership.

large stake in the proliferation of a planning model that encouraged project development through private-public partnerships, and some had donated large amounts of money to the parties in power at the provincial and federal levels of government, which, at the very least, challenged their impartiality (Table 3). Moreover, a number of the firms had interests in existing or future private-public-partnership projects in Canada, while others were well positioned to advise both the public sector on privatization efforts and the private sector on how to benefit from such measures.

Despite the potential for there to be the appearance of corporate conflicts of interest, requests to have the entire process reviewed during the planning stages by the auditor general of British Columbia—the agency charged with protecting the public interest with respect to government spending—were denied repeatedly. Instead, while fairness auditor Ted Hughes certified the integrity of the competitive selection process, the lack of transparency about the contents of critical technical reports had the potential to challenge public confidence in the legitimacy of the RAV planning process. As Richmond city councilor Bill McNulty commented in an interview with the *Richmond Review*, “I have some grave concerns about the consultative process. It seems the stewards of the city are being pushed aside” (van den Hemel 2004).

The Public-Approval Process

The need for secrecy in the private bidding process had a considerable impact on the other process that was occurring

simultaneously, which was the political process of arranging capital funding and jurisdictional approval from the multiple public-sector shareholders. Unlike the process of selecting the winning private proponent, which largely proceeded behind closed doors, the political-approval process was playing out in the public arena and required a high level of access to information and public consultation to enable accountable decision making. Raising the stakes, the entire political-approval process was accelerated as the race was on to have the RAV line approved so it could be built in time for the Olympic Games, a central criterion on which funding from senior levels of government was contingent.

Within the context of a collaborative approach to project delivery, there was immense pressure on each level of government to provide approvals that furthered the RAV development plan, since any level of government that refused funding would be seen as the one that scuttled a popular and necessary infrastructure project. As well, the desire to have the private-sector concessionaire partially finance the infrastructure created a sense of urgency for the public sector to solidify its financing agreements since this would influence the assessed risk of the project to private lenders, which in turn affected the interest rates that lenders would offer to the concessionaires, and ultimately, the final price of the concessionaires' bids (Bula 2004).

As the RAV project moved through the approval process, each level of government seemingly agonized about the decision of whether or not to approve the project. In a confidential report leaked to the local media, federal government officials questioned the level of risk that was being transferred to the private sector through the DBFO private-public partnership and the congestion relief and environmental benefits

that would be provided by the system, yet the politicians approved it for funding (Palmer 2003). At the regional council, the project was approved by a single vote after one of the longest meetings in the organization's history, which was interrupted by an in camera session to discuss confidential information that had not been disclosed previously to the councilors. Finally, in a two-month period, the board of the regional transit authority twice rejected the project before a third vote was called hastily at which the project was approved at a total cost of \$1.559 billion, of which a maximum of \$1.35 billion would be from the public sector.

Six months following the approval to proceed to the final bidding stage, the low bid from the two final proponent teams came from SNC Lavalin for an underground, automated rail system at \$1.899 billion, or \$340 million above the total funding envelope. It also was determined that while the majority of construction risk would best be borne by the private-sector concessionaire, the public-sector agencies would be most able to manage almost all (90 percent) of the risk associated with patronage. According to Bowman (2002), this division of risk is increasingly typical in public-transit projects delivered through private-public partnerships, in which investors have come to perceive patronage as particularly unpredictable. However, by assigning the vast majority of the ridership risk to the public sector, private financiers have little incentive to assess the merits of the demand for the project since there are only minimal consequences for a wrong decision. This is significant as demand is a central component in determining the viability of a transit project yet is a component that some authors contend has been consistently overestimated intentionally to get projects started (Wachs 1986; Richmond 2005).

With considerable scope changes to remove stations and public-amenity features such as walkways from the design (which could reduce demand) as well as more money added by the public and private sectors, the line proposed by SNC Lavalin was given final approval for development in December 2004 at a total cost of \$1.72 billion. Throughout the public-approval process, political incentive to continue proceeding with a complex and controversial project was generated through ongoing community consultation and public-opinion polling by RAVCO that repeatedly found a high level of support for the RAV line. However, while it appears that these measures accurately gauged public support for the RAV line, alternate polls conducted by opposing labor unions noted that there remained a general lack of understanding about the financial costs of the project or the potential risks associated with delivery as a private-public partnership (Canadian Union of Public Employees 2004).

As such, there appears to be a tension embedded in the planning of the RAV line that can be attributed at least partially to the delivery of the project as a DBFO public-private partnership. While there was a concerted effort to undertake public consultation for the RAV line during the planning

process, the need for secrecy to maintain the integrity of the procurement competition as in other jurisdictions and expedience to meet the deadline of the Olympics lessened the potential for transparency, a central feature of Flyvbjerg and his colleagues' (2003) definition of accountable decision making. Moreover, as Throgmorton (1991) has observed in the planning of public-investment projects, opinion-survey research, models, and forecasts served as important rhetorical devices used by planners and project proponents to form the persuasive narratives that shaped political and public opinion.

The Intersection of Public and Private: Cost Creep and Scope Changes

Approval of the RAV line by the Translink board should have concluded the project-planning processes. But it did not. In mid-December 2004, RAVCO posted on its Web site the details of documents that would be contained in its environmental-assessment submission. While the documents were largely technical, one point stood out: 75 percent of the underground portion of the line—including in both downtown Vancouver and through a business district in South Vancouver—were going to be constructed using a cut-and-cover construction method (RAVCO 2005). Cut-and-cover construction was proposed to have numerous advantages over alternative deep-bore tunneling methods, including being less expensive, being associated with less risk of delay, and making it possible to build the stations closer to the surface, which would make access easier for system users.

However, when news of the degree to which the line was going to be built using cut-and-cover tunneling was reported in the media, it raised public alarm. Many in the community were shocked at the news, feeling that the earlier information released by RAVCO suggested that the line would be built using a less invasive deep-bore tunneling method. After exhausting the potential for a negotiated settlement with RAVCO, one business coalition legally challenged the legitimacy of the decision to build the RAV line using a cut-and-cover method on the grounds that the public had not been informed properly of this alternative during the consultation process (Greenwood 2005). The legal action was unsuccessful.

Nevertheless, according to one Translink director, David Cadman, even the board members responsible for making the final decision on the \$1.72 billion transit line were unaware of exactly how much would be constructed using the cut-and-cover method, since this was considered proprietary to the SNC Lavalin bid (Smith 2005). One City of Vancouver staff member who may have had access to details of how much of the RAV line the SNC Lavalin consortium intended to construct using cut and cover was City Manager Judy Rogers, who represented Vancouver as a nonvoting member of the RAVCO board of directors. However, RAVCO board members were bound by

strict confidentiality codes restricting the sharing of proprietary technical, business, financial, or legal information during the planning process. This confidentiality screen may have constrained Rogers from sharing any proprietary information about construction methods with the Vancouver city council, even if there were parts of the plan that could be to the detriment of constituents.

The level of secrecy required to maintain the integrity of the private-public-partnership delivery model calls into question whether the RAV-project governance structure threatened the fiduciary responsibility of the civil service or provided the necessary accountability to the elected officials who were responsible for deciding whether to approve the project.

The issue of the construction method was not the end of the surprises for the RAV project. Despite the use of a less expensive cut-and-cover construction method and the reduced scope of the project (the latter of which would reduce the public benefit of the project), there was another change in July 2005 when details of the final contract between RAVCO and the private consortium were announced. Instead of the \$1.72 billion capital cost that had been expected when the project was approved by the Translink board in December 2004, the final price-fixed cost of the project came in at \$1.9 billion, an escalation of some \$180 million, or 10 percent, from when the Translink board approved the project in December 2004 and a 22-percent increase over the early cost estimates that had been used until 2003 (Boei 2005).

When details of the financial arrangement were released to the public, it appeared that the total public-sector contribution had escalated to \$1.474 billion or 9 percent above Translink's approved limit. The private sector now was set to contribute about \$650 million, which would be repaid over the life of the operating contract. Details of the operating contract were not released to the public. Part of the public-sector escalation was as a result of a last-minute decision to add a station to the line that previously had been eliminated to cut costs, and the public also assumed the cost of other components of the project, such as security and trolley-wire replacement, that previously had been allocated to the private concessionaire. While there are many reasons why costs escalate on large projects and while construction costs in Vancouver have risen dramatically since the 2010 Olympic Games were awarded to the city in 2003, the cost escalations experienced by the RAV project should not have been entirely unforeseeable by RAVCO planners. A confidential internal document from RAVCO's bid-evaluation committee, dated March 15, 2004, flagged the proponent that ultimately won the concession as using "very aggressive pricing" (RAVCO 2004b, 29).

Without full financial details available, it remains difficult for members of the public to assess the rate of return being paid to the private concessionaire or the actual amount and cost of transferring risk between the public- and private-sector partners. With respect to risk, however, a final surprise arose in

August 2005 when it was reported that the SNC Lavalin/Serco consortium had taken on a number of new financial partners, which included the managers of the public-sector pension funds from the provinces of British Columbia and Quebec, to spread around its risk during construction. This means that the risks transferred to the private sector (a key motivation for undertaking a DBFO private-public partnership) are not entirely private as the cost of any overruns during construction would be borne partially by the public-sector employees of British Columbia and Quebec (Palmer 2005).

► Conclusion

In this article, I have sought to examine the contemporary application of DBFO public-private partnerships in the provision of public services in Canada by following the narrative of one such project from its inception to the conclusion of its planning process. In piecing together the complex and detailed planning process the RAV line in greater Vancouver followed, I have highlighted the need for questions to be raised about the merits of this alternate financing and procurement model.

Specifically, this article has shown that despite the attempt by governments in British Columbia to use the DBFO private-public partnership as a mechanism to alleviate problems that had plagued earlier transit-megaproject planning in Vancouver, such as political interference, a lack of procedural transparency, and escalating costs, the outcomes in practice have not met expectations (Table 4). In fact, the planning of the RAV line had more similarities than differences from earlier Skytrain planning processes in greater Vancouver that were undertaken using the conventional public-sector procurement model. In this case, the theoretical benefits of a more competitive procurement process were undermined by ingrained power relations between the various parties, which ensured that while the end product was designed so that it would meet the criteria of the most financially endowed collaborators, it would not necessarily provide the greatest public benefit.

Furthermore, the case of the RAV project generally does not sustain the theoretical arguments forwarded by academics such as Flyvbjerg, Bruzelius, and Rothengatter (2003), Walker and Smith (1995), and Savas (2000) supporting DBFO private-public partnerships. The requisite level of secrecy embedded in this particular design of a competitive planning process was not compatible with the need for public transparency and accountability, and the RAV project met very few of the criteria for a meaningfully consultative process (Innes and Booher 2004). To date, the designers of the RAV procurement model in Vancouver as well as promoters of private-public partnerships in other countries such as Ireland explicitly have linked confidentiality during the planning process to improved outcomes of DBFO procurements such as

Table 4.
The theory and practice of design-build-finance-operate (DBFO)
for the Richmond-Airport-Vancouver (RAV) project.

<i>Problem Observed in the Delivery of Previous Megaprojects</i>	<i>Proposed Solution as Part of DBFO Delivery Mechanism</i>	<i>Actual Outcome in the Case of the RAV Project in Vancouver</i>
System specifications selected by public-sector bureaucrats not necessarily the most efficient over the full project life cycle; political interference in the selection of route and technology	Design a set of performance specifications and then establish a competitive process that invites private corporations to design a system that meets the standards most efficiently and cost effectively Involve a single concessionaire with both construction and project operation for a fixed period of time	The performance specifications were designed to meet the diverse interests of each funding partner and left little room for private-sector innovation. The route and technology selected for the RAV line had been proposed and studied for more than a decade.
Majority of risks—including construction, performance, and ridership—were allocated to the public sector	Transfer risk from the public to the private sector through private investment of risk capital and performance payments during the operation phase of the project	The public sector assumed the majority of ridership risk. Some of the private-sector risk for construction was transferred back to segments of the public sector by partnering with public-sector pension funds.
Cost escalations during the project-construction phase, which often are exacerbated by politically motivated project-scope changes	Strict contracting with the private sector, making it more difficult to propose scope changes once project development is underway	Despite strict contracting, the final price of the RAV line escalated 22 percent during the planning process. Part of the rise in price was because of late-scope changes including the addition of a new station and a bicycle path.
Weak transparency and accountability during the project-planning process	Make project-planning documents extensively available to politicians and the public and create different forums to foster public input and political debate about the relative merits of the project	RAV planners released more technical data than for past Skytrain projects. However, the need for confidentiality to maintain the integrity of the bidding process meant that key financial information was not released to the public (and some politicians) during the planning process. This limited the degree to which an informed discussion about the project merits could be engaged.
Challenge raising capital from cash-strapped governments to finance large infrastructure projects while simultaneously presenting balanced budgets	Invite the private sector to finance infrastructure investments partially or entirely, with costs recouped over the life of an operating contract	Development of the RAV line still cost some \$1.25 billion in public-sector finances. Private-sector borrowing rate may be more expensive than public-sector access to capital.

greater innovation and lower development costs. Given these claims that are shaping the existing practice, future research is necessary to understand more thoroughly why confidentiality is seen as central to certain parts of the DBFO procurement model and whether mechanisms can be developed so that important financial and design information can be released more readily to the public during the planning process.

Additionally, the involvement of private-sector financing has not minimized development-cost escalations and scope changes, nor has it significantly lessened the burden on government balance sheets, since the public sector is still responsible for financing more than a billion dollars in initial capital costs. The subscription to a competitive delivery process using performance standards did not result in a considerably more innovative system design, as the line selected for development by SNC Lavalin will use technology and a route that have been proposed for more than a decade. And while evidence from the construction and operation phases of the

project will tell how effectively risk was transferred between the public and private sectors, in the short term, it has been observed that the private sector has taken steps to disperse a portion of its risk back onto certain segments of the public.

As a single example, the findings of the RAV case study cannot be generalized to different types of planning partnerships or projects in other contexts delivered through the DBFO style of private-public partnership. Nevertheless, the experience of the RAV line raises a range of questions that should be asked as planners increasingly turn to more institutionally collaborative approaches to infrastructure megaproject delivery.

► Note

1. From an economic perspective, private-public partnerships are underpinned by a value-for-money equation. On one side of the equation are the typically higher cost of a private corporation's borrowing money when compared to the lower cost for

governments with a good credit rating; higher project-planning and tendering costs; and the need to pay corporate profits during both the construction and the operation phases of the project (by contrast, if a transportation system is operated by the public sector, a profit margin is not paid during this phase of the project). On the other side of the equation, the added costs of delivering the project using greater private-sector involvement are balanced against the potential benefit of a more innovative project design that delivers financial savings and added utility, the lesser burden on government to borrow money directly, and the transferring of defined risks from the public to the private sector. Given the historical experience of persistent cost overruns and demand variability that have characterized the development of transportation megaprojects, the transference of risk is a central feature guiding the private-public partnership. As with purchasing an insurance policy, the transferring of risks such as construction-cost overruns and ridership shortfalls from the public to the private sector is associated with a defined cost based on the likelihood and potential of these risks to be mitigated, and these costs are recouped from the public sector through higher bidding prices. To this end, it is proposed that when risk transfer is considered, a project can deliver value for money even if the forecasted costs of developing the project as a private-public partnership are higher than if the project was delivered through a more conventional design-build approach.

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