LONG-TERM INFRASTRUCTURE PARTNERSHIPS: CONTRACTING RISKS AND RECOMMENDATIONS

Pamela Bloomfield and F. Daniel Ahern, Jr.*

ABSTRACT. Long-term commercial contracts between governments and private companies to design, build, finance, and/or manage infrastructure projects, often labeled "public-private partnerships," offer the potential to improve project quality and cost-effectiveness. However, the success of these arrangements from the public's perspective depends upon government's capacity to capture these potential benefits. Drawing on relevant contracting literature as well as selected cases researched by the authors and their former colleagues during two decades of government oversight work at an independent state oversight agency, as well as cases reported by other U.S. analysts, this article discusses the problematic "partnership" label, examines the unfavorable contracting conditions that heighten the risks to the public posed by long-term infrastructure partnerships, summarizes five U.S. cases illustrating these conditions and risks, and provides public officials with practical recommendations designed to increase the likelihood of achieving the public objectives, while reducing the contracting risks, of long-term infrastructure partnerships.

INTRODUCTION

Long-term commercial contracts between governments and private companies to design, build, finance, and/or manage economic development projects, water and wastewater treatment plants, highways, and other infrastructure projects are often called "public-private partnerships," a label that acknowledges the mutual, long-term contractual obligations of parties to the contract. While these government partnerships with the private sector offer the potential to improve the quality and cost-effectiveness of vital public infrastructure, the success of these arrangements from the public's perspective depends upon government's capacity to capture these potential benefits. Some long-term infrastructure partnerships have

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* *Pamela Bloomfield and F. Daniel Ahern, Jr. are the principals of Clarus Group, a management consulting firm (www.theclarusgroup.com). Prior to cofounding Clarus Group, they worked in a state oversight agency, where they conducted numerous evaluations of public projects and programs. They each have more than 30 years of experience in public management and oversight, public policy analysis, public procurement and contracting, and accountability systems. Email: pbloomfield@theclarusgroup.com, dahern@theclarusgroup.com.*

reportedly met their performance and cost savings objectives (Hodge, 2007; Seattle Public Utilities, 2010). However, the failures in recent years of other high-visibility infrastructure partnerships, several of which are discussed in this article, demonstrate that the long-term viability of these complex arrangements is far from guaranteed.

During two decades of government oversight work at the Massachusetts Office of the Inspector General, an independent watchdog agency mandated to prevent and detect fraud, waste, and abuse, the authors conducted detailed evaluations of long-term infrastructure partnerships involving state and local governments in Massachusetts. Drawing on the research conducted by the authors and their colleagues at the Massachusetts Office of the Inspector General, as well as more recent research conducted by other independent experts, this paper examines the major contracting risks posed by long-term infrastructure partnerships, provides examples of flawed contracting practices that can heighten the risks to the public, and offers a series of recommendations to public owners for practical measures designed to increase the likelihood of achieving public objectives and reduce the public's exposure to unnecessary risk in these arrangements.

THE PROBLEMATIC "PARTNERSHIP" LABEL

Although public-private partnerships have been the subject of countless books, articles, and other publications for at least two decades, a working definition for this popular term remains elusive. Commentators hold a range of views regarding the distinction – or lack thereof – between a public-private partnership consisting of a long-term commercial contract between a government and a private company on the contract, on the one hand, and the myriad other types of commercial contracts between governments and private companies that are not typically referred to as public-private partnerships. The definition of public-private partnership offered by the industry-sponsored National Council for Public-Private Partnerships (2010) is consistent with the prevailing view in the literature on public-private partnerships that public-private partnerships require both parties to the contract to share resources as well as contractual risks and rewards:

> A Public-Private Partnership (PPP) is a contractual agreement between a public agency (federal, state or local) and a private sector entity. Through this agreement, the skills and assets of each sector (public and private) are shared in delivering a service or facility for the use of the general public. In addition

to the sharing of resources, each party shares in the risks and rewards potential in the delivery of the service and/or facility.

The Organisation for Economic Co-operation and Development (OECD) (2008), while acknowledging the lack of a clear definition as to what constitutes a public-private partnership, suggests that a public-private partnership should be defined as an agreement between government and one or more private partners that is structured in such a way that the government's service delivery objectives are aligned with the profit objectives of the private partners and "where the effectiveness of the alignment depends on a sufficient transfer of risk to the private partners" (21). According to the OECD, ". . . whether or not an activity is deemed to be a public-private partnership or a traditional procurement depends on who bears the bulk of the risk" (47). Other commentators have also espoused the view that public-private partnerships are characterized by arrangements that enable the participants to share the risks and rewards of the undertaking (Becker and Patterson, 2005; Moore, 2000).

Yet the sharing and allocation of risks and rewards between the public and private parties to a contract is a problematic criterion for distinguishing public-private partnerships from "traditional" contracts, for two reasons. First, the general premise that private vendors bear no risk in traditional infrastructure contracts is incorrect: all infrastructure contracts typically entail substantial risks to both parties to the contract. Under the traditional design-bid-build delivery method used by many public agencies to contract for construction work, a contractor who signs a construction contract with a public agency to build a facility in accordance with a set of plans and specifications for a lump-sum bid price bears risks associated with unpredictable factors, such as changes in labor markets or commodity prices, that could alter the actual cost to the contractor of performing the contracted work.

Second, the public has borne a disproportionate share of the risks in many contracts bearing the public-private partnership label (Bloomfield, 2006; Forrer, Kee, and Zhang, 2002; Hodge, 2007). Thus, under the OECD definition, many innovative, nontraditional, long-term infrastructure contracts would not qualify as public-private partnerships because the bulk of the project risks are borne by the public participants. This imbalance can be ascribed to multiple situation-specific factors, including the public participant's inadequate contracting skills, short-term political focus, and

corruption (Bloomfield, 2006; Boardman, Poschmann, and Vining, 2005; Klitgaard and Treverton, 2003).

In recent years, the proposition that specific project risks should be allocated to and borne by the party best able to manage the risk has gained increasing traction in the public-private partnership literature (Boardman, Poschmann, and Vining, 2005; Corner, 2005; Evans and Bowman, 2005; Klein 1998). Thus, for example, private contractors are better equipped to manage risks associated with facility design, construction, operation, and maintenance, whereas governments are better able to absorb the risks associated with unforeseen conditions during construction or regulatory changes affecting project operations. Since private contractors are generally unwilling or unable to assume the risks associated with unpredictable variables such as demand for infrastructure (such as toll roads and water treatment plants), labor markets, and the political and regulatory environment, it should not be surprising that many long-term infrastructure partnerships allocate a disproportionate share of the project risks to the public (Boardman, Poschmann, and Vining, 2005). Moreover, as Corner (2005) has pointed out, government's obligation to ensure continuity of services to citizens means that the risks of failure associated with some infrastructure partnerships cannot be shifted to the private sector, even if the latter were willing to assume these risks.

According to some analysts, there is no meaningful distinction between a commercial "public-private partnership" and any other contract used to outsource public functions to the private sector. Hodge and Greve (2005) cite the work of several commentators who, writing from different perspectives, have noted that the partnership label has functioned as an attractive and reassuring alternative to more controversial terms such as "contracting out" and "privatization". For example, Linder (1999) notes that the "partnership" label, with its "connotation of cooperativeness and its reformist cachet," has been used to temper the controversy over privatization, in North America at least, with a more "palatable, less prickly form of packaging around the contents of a government's shifting functions to commercial enterprises" (49). Indeed, Bloomfield (2006) has suggested discarding the partnership label for commercial contracts between government and business on the grounds that the business partnership model is inapplicable and inappropriate to most commercial contracts between government and business. Given the wide range of views regarding the nature and distinguishing characteristics of contracts bearing the

"partnership" label, it seems clear that consensus regarding a viable working definition of "public-private partnership" will not be easily achieved.

In this article, we define infrastructure partnerships as long-term commercial contracts to deliver some combination of design, construction, financing, and/or operation of public infrastructure. By "long-term," we refer to contracts that bind the parties for periods of more than five years; thus, a two-year contract to design and build a bridge would not qualify as an infrastructure partnership because of the short-term nature of the contract. We observe that many long-term infrastructure partnerships entail novel or nontraditional approaches to designing, building, financing, or managing public infrastructure. However, our use of the "partnership" label does not reflect any assumptions or expectations regarding the extent to which risks and rewards are actually shared by the parties to these long-term contracts. Our research in this area demonstrates that the manner in which the contract risks are allocated between the public and private parties to a specific infrastructure contract is heavily dependent upon the specific terms and conditions of the contract, the unique conditions under which the contract is undertaken, and the public agency's approach to monitoring and enforcing the contract.

HEIGHTENED CONTRACTING RISKS IN LONG-TERM INFRASTRUCTURE PARTNERSHIPS

Public contracts, as the past two decades of research in this area has shown, are more likely to succeed in achieving their public objectives under the following conditions:

- the policy objectives for the contract are sound,
- the contracting environment is competitive,
- meaningful performance measures can be incorporated into the contract,
- the public agency has the necessary capacity to procure and monitor the contract, and
- the contracting process is transparent and accountable.

Conversely, the absence of these conditions increases the contracting risks. The challenges to government of achieving and sustaining these optimal conditions over the term of a long-term contract are formidable, as the OECD and others have reported. Boardman, Poschmann et al., (2005) make this point more directly:

"Indeed, one way of thinking of P3s is simply government contracting out under relatively unfavourable conditions" (182). When long-term infrastructure partnerships are undertaken under the unfavorable contracting conditions discussed below, as many are, they pose heightened contracting risks to the public.

Failure to Establish or Adhere to Sound Policy Objectives

Sound policy objectives are essential to any major public contract because the policy objectives of the contract dictate the evaluation criteria and process by which the contractor will be selected as well as the terms and conditions of the contract with the selected contractor. Moore (2002) warns that where the policy objectives of a contract between government and a private organization are unclear, the public is vulnerable: this lack of clarity enables the private organization to "advance purposes, using public resources, that the public does not necessarily want" (319). However, it should be recognized that clear policy objectives may not be appropriate or consistent with public stewardship values. In a March 2009 study entitled *Driven by Dollars: What States Should Know When Considering Public-Private Partnerships to Fund Transportation*, the Pew Center on the States notes that in the area of long-term infrastructure partnerships, "different goals will require different tradeoffs. A state pursuing a [highway] lease primarily for immediate financial gain, for example, may be willing to extend the lease for more years and give the private operator greater ability to raise tolls if that will result in a higher upfront payment" (4). Governments seeking long-term infrastructure partnerships with the private sector may accord priority to generating up-front concession fees – a clear policy objective. Nevertheless, the decision to trade off concession fees received at the outset of the contract for higher costs to the public, in the form of highway tolls, sewer rates, or other revenues to be paid to the contractor, over the contract term raise significant and troubling questions of intergenerational equity (Moore, 2000) and public accountability (Bloomfield, 2006). Policy objectives, then, must be appropriate as well as clear if they are to serve the public interest.

Noncompetitive Contracting Environment

Donahue (1989) and others (Kettl, 1993; Werkman and Westerling, 2000) have found that competition is the most important influence on efficient performance of private contractors performing public functions. Structuring a competitive process for a long-term contract that generates robust competition and results in the

selection of the qualified private contractor offering the best value to the public can be a difficult task requiring a substantial investment of public resources and expertise.

Sustaining a competitive contracting environment after the contractor has been selected and a long-term contract has been executed may not be feasible. According to Donahue (1989), a competitive contracting environment requires contractors to be kept in a state of "healthy insecurity"; the threat of replacement is a necessary condition to effective contractor performance. A contractor providing services under a two-year infrastructure contract, with an expectation that future competitive contract awards will depend upon its current performance, has a strong incentive to perform effectively. By contrast, a contractor providing services under a 30-year infrastructure contract, which provides the contractor with a decades-long monopoly arrangement, lacks the same performance incentives. Indeed, Cohen and Eimecke (2008) report having seen frequent cases in which a contractor that develops a monopoly over the function it is performing, such that it is the only organization capable of performing a task, easily ignores threats of termination. Similarly, the OECD (2008) warns that the need to renegotiate with a monopolistic provider during the term of the contract "often leads to uncompetitive pricing and behavior that will reduce the risk of the private partner and thus undermine the impact on efficiency of the transfer of risk" (58). Any analysis of the benefits and risks of long-term infrastructure partnerships must take into consideration the lack of market forces at play during the performance of the contract.

Inadequate Performance Measures

Meaningful performance measures and contract incentives that are aligned with the policy objective of the contract have long been recognized as prerequisites to successful contracting, regardless of the contract length (Klitgaard and Treverton 2004). For a long-term infrastructure partnership, the task of specifying useful measures of contractor performance and appropriate contract incentives is especially difficult (Werkman and Westerling, 2000). The OECD acknowledges that public-private partnership contracts are of necessity incomplete: they cannot foresee all possible contingencies or market changes. Because of the unpredictability of the future conditions under which a long-term infrastructure partnership will operate, including unknown variables such as future regulatory requirements, available technology, and even weather conditions, the contractual agreements underpinning long-term infrastructure

partnerships must be more flexible and less specific than short-term contracts. Under these circumstances, the challenge of developing performance measures that create effective performance incentives is formidable.

Inadequate Contracting Capacity

Back in 1993, when the privatization movement in the U.S. was gaining strength, Kettl warned that "[g]overnment's relationships with the private sector are not self-administering; they require, rather, aggressive management by a strong, competent government" (6). Fifteen years later, Cohen and Eimecke's (2008) research reinforced this message, characterizing the capacity to contract as "a critical skill for twenty-first century public managers" (123). Complex contracts such as long-term infrastructure partnerships demand a high level of legal and technical expertise on the part of the contracting government, as well as a long-term commitment of resources sufficient to monitor and, if necessary, enforce the contract. Klitgaard and Treverton (2003) discuss "disabling conditions" for partnerships: these include both simple incompetence on the part of the contracting governments and "dysfunctional institutions" (25) – governments that are plagued by systematic corruption. Similarly, Gleick, Wolff et al., in a 2004 study of the risks and benefits of globalization and privatization of fresh water, found that "[w]eaker governments are most vulnerable to the risk of being forced into accepting weak contracts" (11).

Cooper (2003) warns: "The common myth that contractually arranged partnerships are based in the "hidden hand" dynamics of the marketplace, which will provide the directing force needed to maintain those relationships, as opposed to more traditional hands-on management, is both misleading and a dangerous oversimplification" (58). When governments do not or cannot make the necessary investment of resources to protect the public interest both before and after the contract is executed, the risks to the public escalate substantially. Thus, the cost of obtaining the expertise necessary to procure and oversee the contract must enter into the calculation of whether or not to proceed with a long-term infrastructure partnership. As Freeman and Minow note, the calculation of the cost of contractual governance must be honest, "even if this means that outsourcing will not reduce costs as much as projections suggest" (17).

Impaired Transparency and Accountability

Transparency and accountability are fundamental public values that can be jeopardized when public functions are contracted out to private providers. In a recent book examining the breakdown of the three accountability regimes of law, markets, and politics in the face of extensive government contracting, Freeman and Minow (2009) observe that "[t]he relative inaccessibility of the contracting process (to all but the competing contractors themselves and the most intrepid academics) only heightens the risk that serious problems will be identified too late, or never" (3). For public infrastructure contracts, the publicly advertised process by which contractors are selected can provide a measure of transparency and accountability to the extent that contractors, journalists, and citizens have access to the terms of the contract, the evaluation process, the field of competitors, the details of any contract negotiations, and other information that can inform public debate. However, after a long-term infrastructure contract has been executed, the public's access to information regarding the contract is substantially diminished. Although members of the public may be able to obtain the executed contract through laws ensuring access to public records, long-term infrastructure contracts are typically so complex and technical that most non-experts will have difficulty understanding the operational and financial terms to which their governments have obligated the public for the term of the contract. Moreover, the contract documents available to the public are unlikely to provide an explicit and comprehensive record of the operational and financial tradeoffs negotiated by the government on the public's behalf.

The incentives on the part of public officials to overstate the projected costs and cost savings associated with long-term infrastructure partnerships can further erode transparency and accountability. Altshuler and Luberoff (2003) report on evidence from projects in the U.S. and other countries showing that deliberate underestimation by public officials of the costs of long-term infrastructure projects is a major factor contributing to massive cost overruns in those projects. They point out that, while the tactic of underestimating of the project costs helps advance and gain public support for specific projects, the practice also "corrodes public confidence in government overall, and especially in proposals with long time frames. . . . (247)." In a similar vein, Bloomfield (2006) cites six cases in which cost savings claims disseminated to the public by some local governments in Massachusetts and other states in the U.S. in support of long-term infrastructure partnerships were

discredited when subjected to close scrutiny by independent evaluators. In these cases, flawed and unrealistic cost savings estimates disseminated to the public impaired and undermined the transparency and accountability of the projects.

In reviewing the international empirical evidence on public-private partnerships, Hodge and Greve (2005) conclude that "the clarity of partnership financial arrangements can be difficult to fathom" because of the "limited transparency and complex adjustment formulae"(9) that characterize these long-term contracts. With respect to long-term infrastructure partnerships employing the public finance initiative (PFI) model developed in the United Kingdom, Hodge (2007) reports that "the early claim that private financing of public infrastructure reduces pressure on public sector budgets and provides more infrastructure than is otherwise achievable" has been shown as "largely false" (549). He notes that evaluations of the extent to which these partnerships provide better value for money in the provision of public infrastructure have produced contradictory results, an outcome he attributes to a variety of factors, including lack of independent evaluators, poor evaluation rigor, "evaluations by auditors general who, in most jurisdictions, cannot question government policy" , inaccurate estimates of risk transfers from the public to the private sector, and the impact of "optimism and political sensitivity" on predictions of benefits at the early stage of a long-term contract (553).

ILLUSTRATIVE CASES

The past three decades have seen a wide variety of long-term infrastructure partnerships proposed and executed at the state and local level in Massachusetts and other states. This section draws on five cases involving long-term infrastructure partnerships to provide practical illustrations of the contracting risks discussed in the previous section. The first case, and the only one of the four cases in which the contract was not prematurely terminated, is the most widely publicized and complex of the four: the highway construction megaproject in Boston, Massachusetts known as "the Big Dig." The second and third cases concern a 20-year sewer system contract in Lynn, Massachusetts and a 20-year water system contract in Atlanta, Georgia, both of which were terminated within five years of execution. The fourth and fifth cases consist of planned long-term infrastructure partnerships – an economic development partnership initiated by the state of Massachusetts and a highway lease initiated by the state of Pennsylvania – that were cancelled by the respective states before

the contracts with the selected private companies were signed. In each case, one or more of the unfavorable contracting conditions described in the previous section heightened the contracting risks to the public.

1. Megaproject Management Partnership

The $14.6 billion megaproject to build a new Central Artery and Third Harbor Tunnel in Massachusetts, widely known as "the Big Dig," was undertaken in 1984 and reached substantial completion in 2006. In the planning stages for the project, the state decided to contract for independent professional management of the design and construction of the project. The request for proposals issued by the state reflected this policy objective: it stated that the management consultant would not be allowed to perform design work on the project, since the consultant would be responsible for oversight of the project design. After a nationwide proposal competition that generated five proposals, the state selected a private joint venture of two internationally known firms, and the joint venture was awarded a start-up contract of $1.3 million. The contract stated that the partnership between the state and the joint venture would be "a very special owner/management consultant relationship of trust and confidence" (Murphy and Lewis, 2003, A6). At the time, the estimated completion date for the project was 1998, and the estimated cost was approximately $2,564 billion in 1982 dollars (Peterson Consulting, 1995).

Although the initial selection process was competitive, each subsequent contract with the joint venture was negotiated on a sole-source basis, without advertising or competition. Moreover, the prohibition in the RFP on performing design work was discarded in the interest of expediency: the state tasked the joint venture with both preparing partial designs and managing, coordinating, and conducting value engineering reviews of the same designs. In effect, the joint venture was responsible for overseeing its own performance in designing the project.

The terms of the contract between the state and the joint venture further undermined the state's ability to hold the joint venture accountable for performance: the contract contained no performance measures and provided that the joint venture was to be paid by the hour and guaranteed a profit margin(Murphy and Lewis, 2003). By linking the joint venture's compensation to its level of effort, rather than to results or deliverables, the contract created incentives that were misaligned with the project objectives: for

example, project delays increased the joint venture's compensation, irrespective of whether or not the joint venture was responsible for or had contributed to the delays (Massachusetts Office of the Inspector General, 2000).

As of 1991, the responsible state agency had only 40 employees overseeing more than 1,000 joint venture employees and subcontractors (Luberoff and Altshuler, 1995), and state agency staff were quoted as saying that the joint venture was "out of control" (Luberoff, Altshuler, and Baxter, 1994, 156). Nevertheless, the head of the state agency expressed the view that the joint venture's incentive to perform high-quality work and avoid damaging its reputation and future revenue would provide the necessary check and balance protecting the state's interest (Bearfield and Dubnick, 2009; Sennott, 1994).

In 1994, the state engaged the services of an independent consultant to evaluate the project's management organization and process. The consultant's September 1995 report found that the state's partnership with the joint venture had been hampered by ineffective management, inadequate controls, and a deteriorating relationship between the public and private partners. The consultant's recommendations to the state agency emphasized the need for project members to "differentiate between oversight and management to eliminate duplication of efforts and provide a prudent degree of control to protect the public interest" (Peterson Consulting, 1995, 2).

In 1996, the Massachusetts Inspector General recommended that the state consider reducing its heavy reliance on the joint venture by competitively selecting an independent construction manager for the construction stage of the project. However, the responsible state agency rejected this recommendation on the grounds that the state was heavily dependent upon the joint venture's expertise (Massachusetts Office of the Inspector General, 2001). In effect, the state acknowledged that it was so dependent on its consultant that replacing the consultant was not an option. Because the joint venture faced no threat of replacement, the state's leverage in this partnership was weak.

In 1998, the state took a step that further reduced its leverage. Notwithstanding the recommendation of the state's own consultant that management and oversight functions be differentiated, the state created an integrated project organization that combined state project oversight staff and joint venture staff into one organization

that required state employees to report to joint venture staff and vice versa. Thus, the integrated project organization blurred the lines of accountability between the public and private participants, further diminishing the state's capacity to hold the joint venture responsible or accountable for its management of the project (Massachusetts Office of the Inspector General, 2000; Mead, 2005).

In the ensuing years, a series of revelations highlighted the financial and operational risks to the public created by the state's mismanagement of the contract with the joint venture. In 2000, the Massachusetts Inspector General reported that, although the state had established a project cost recovery program to identify design errors, omissions, or other deficiencies and to file claims for cost recovery in such cases, the program had recovered only $30,000 over a six-year period – despite the fact that 92 potential cases with an estimated total value of $83.5 million had been identified (Massachusetts Office of the Inspector General, 2000). Noting that one member of the cost recovery committee established by the state reported to the joint venture within the integrated project organization, the report concluded that the joint venture's conflicting interests and organizational relationships among state and joint venture project staff had impeded the state's capacity to hold the joint venture accountable for its performance.

Also in 2000, state officials publicly acknowledged that the project was $1.4 billion over budget, a figure that was significantly higher than the project cost estimates previously released to the public. A subsequent investigation revealed that bond disclosure documents issued for the project between 1996 and 1999 had deliberately understated the estimated project cost (Massachusetts Office of the Inspector General, 2001). The state agency head was subsequently fired for having concealed project cost increases (Altshuler and Luberoff, 2003).

Serious project defects began to surface beginning in 2004, when major leaks in the newly constructed tunnels created public safety hazards and necessitated costly repairs. Soon thereafter, the U.S. Department of Transportation Inspector General expressed concern, in his remarks to the Congressional Committee on Government Reform that the taxpayers would not recover the costs spent to repair the leaks; the project's problematic history, he observed, presented "many lessons in how not to manage a public works megaproject" (Mead, 2005, 13).

The project reached substantial completion in January 2006, by which time the project cost had escalated to $14.6 billion. A fatal accident ensued the following July: concrete ceiling panels weighing 26 tons crushed a car traveling to the airport, killing a passenger. In 2008, state and federal authorities announced a settlement of $458.2 million with the joint venture and 24 other companies, enabling them to avoid criminal charges and civil liability in connection with the leaks, the fatal ceiling collapse, and other project flaws (Globe Staff, 2008). Thus, although the long-term partnership between the state and the joint venture had begun with a contract that pledged a "relationship of trust and confidence," it ended with tragedy, litigation, and public cynicism regarding the competence and integrity of both the state and the joint venture (Helman, 2006).

2. Sewer System Design-Build-Operate Partnership

In 1999, a local sewer and water commission in Massachusetts embarked on the process of selecting a private firm for a 20-year, design-build-operate (DBO) contract with a private firm to repair and maintain the local sewer system, which was subject to serious combined sewer overflow (CSO) problems. Although the commission advertised for proposals for the contract, the only two proposers were related parties: one proposer, which had operated the commission's wastewater treatment plant since 1985, had recently been acquired by a large, multinational corporation that also owned and controlled the one of the firms on the other proposer's team. Notwithstanding the corporate affiliation between the two proposers, which meant that the procurement process had not generated meaningful competition, the commission proceeded with the procurement process (Massachusetts Office of the Inspector General, 2001). The contract was awarded to the proposer that had served as the commission's plant operator at a cost of $48 million. Although public officials responsible for the project generated positive national publicity by issuing statements regarding the project's innovative, standards-based approach and required contractor performance guarantees (U.S. Conference of Mayors, 2001), the long-term contract signed by both parties did not guarantee that the contractor's work would fix the CSO problems; rather, it assigned the risk of future problems resulting from the contractor's work to the commission. And although the national publicity also cited long-term savings of $400 million for citizens paying for sewer service, this estimate was discredited by a former engineering consultant to the commission and by an independent review by the Massachusetts Office of the Inspector

General of the documentation underlying the savings claim (Massachusetts Office of the Inspector General, 2001).

The commission had engaged the services of two privatization consultants, an engineering firm and a law firm with expertise in DBO contracting, to assist the commission with the selection and contracting process; the cost of these privatization consulting services for the first three years of the project exceeded $3 million. However, the commission lacked the necessary funds to pay for these services; accordingly, the RFP for the DBO contract required the successful contractor to reimburse the commission for the cost of the privatization consultants (Massachusetts Office of the Inspector General, 2001). This method of paying for expertise to assist the commission virtually assured that the DBO contract would go forward, regardless of whether or not the commission was able to procure a cost-effective contract containing public protections. The consultants were highly unlikely to recommend against signing a contract that would enable them to be paid; the commission was highly unlikely to cancel a procurement that would leave the commission with a $3 million bill to pay.

In 2004, less than five years after this partnership began, the commission terminated the contract. The commission had discovered that the contractor's $15 million letter of credit, a contract requirement, had expired in 2001 (Jourgensen, 2004). Had the commission monitored the contractor's compliance with the contract requirements more closely, the problem might have been corrected, or the contract might have been terminated, three years earlier.

3. Water System Operations and Maintenance Partnership

In 1999, the City of Atlanta, Georgia entered into a 20-year, $400 million agreement with a private company, which took over the city's water system in 1999. The water system had been in poor condition since the mid-1990s, when the federal government had begun fining the city for its failure to meet water safety standards. Competition for the contract had been robust: five major companies had participated in the competition. The winning company's offer was $2 million lower than the next lowest offer (Cohen and Eimecke, 2008). In return for an annual operation and maintenance fee of $21.4 million, the company agreed to provide uninterrupted operation and maintenance of the city's water system, which supplied over 100 million gallons of water per day to residential, commercial, and industrial customers in the Atlanta area and on a wholesale basis to nearby counties and cities (Cohen and Eimecke, 2008; Office of the City Internal Auditor,

2003). At the outset of the contract, consultants for the City projected that private operation of the water system could yield operating savings of $52.9 million in the first three years (Office of the City Internal Auditor, City of Atlanta, 2003).

In 2002, Atlanta's new mayor – who had not been responsible for the contract signed three years earlier – issued a report alleging that the company had defaulted on its contract. The report cited the company's failure to read water meters regularly, to flush the system regularly, to install and maintain water meters to satisfactory levels, and to collect outstanding bills; the report also accused the company of billing the city for work that had never been performed. The city threatened to terminate the contract unless the company improved its performance within the next 90 days, and the company agreed to be held accountable through a performance scorecard developed by the City (Cohen and Eimecke, 2008; Rubenstein, 2002).

On January 21, 2003, the Office of the City Internal Auditor issued a performance audit analyzing the savings to the city from private operation and maintenance of the water system. According to the report, the city's savings attributable to the contract over the prior three-year period amounted to $29.4 million, or just over half the amount originally projected by the city's consultant. The report noted that it had been widely reported that the contract was expected to save the city $400 million over 20 years, averaging $20 million per year, but that the Office of the City Internal Auditor had "not been able to identify a clear basis for this figure" (Office of the City Internal Auditor, 2003, 4). The principal factor contributing to the disparity between the projected and actual savings was, according to the report, the fact that the city had begun to lower its operating costs for water services during the two years preceding the start of the contract, yet these lower operating costs had not been factored into the calculation of projected savings from private management of the water system. On January 24, 2003, the mayor announced that the city and the company had jointly agreed to dissolve the 20-year contract (Rubenstein, 2003). The city then reassumed control over the water system, which needed $800 million in short-term repairs and as much as $3 billion in long-term infrastructure improvements (Cohen and Eimecke, 2008).

After the contract was dissolved, the new manager of the city's water system blamed the inadequacy of the contract document for the contract failure, stating that there were "too many gray areas left in the contract": for example, the contract specified a timetable for

meter installation but not for leak repairs (Mariani, 2003, 67). The company attributed its higher-than-expected costs of operating and maintaining the water system to the city's failure to disclose the poor condition of its pipes, fire hydrants, and water treatment plants (Cohen and Eimecke, 2008; Jehl, 2003; Segal, 2003). Analysts of the contract failure agree that the city lacked accurate data and records regarding its water system, but they also point out that the company and the other competitors were well aware of the city's data problems. Notably, the city had rejected the company's pre-contract demand for warranties from the city regarding the condition of the water system; thus, the company had entered into the contract without the desired warranties (Cohen and Eimecke, 2008; Segal, 2003).

This case highlights the fact that long-term infrastructure partnerships pose substantial risks to both contract participants. As this case demonstrates, these arrangements can founder and fail when companies entering into these arrangements do not adequately protect their long-term financial interests.

4. Proposed Economic Development Partnership

In October 2000, the state of Massachusetts announced plans to enter into a partnership with a private development team to develop a recreational and educational center at the state's Mount Greylock State Reservation. Under the draft land disposition agreement and master lease released by the state for comment, the state would transfer approximately 300 acres of publicly owned land to the development team under a long-term lease and would fund and build utility service to the site, a golf course, hiking trails, a cross-country trail network; the local community in which the land was located would design and build a connector road. The development team would finance $19 million for construction of a golf clubhouse and maintenance building, multiple residences, a lodge, an inn, a hotel, commercial space, campgrounds, cabins, and other amenities. The state estimated the value of the project at completion, to be approximately $150 million (Commonwealth of Massachusetts, 2000).

The development team had been selected four years earlier through a carefully planned, multi-stage, competitive process that based the selection of the development team for the partnership on evaluation criteria that included experience and qualifications and capability to complete the project. The development team selected by the state consisted of five companies that would serve as "general

development partners." The proposed team included three well-established and financially strong firms in the fields of real estate development, construction, and recreation and park hospitality services; state officials selected the development team because of the credentials of these three firms. The other two firms, including the lead developer, that comprised the development team were smaller and financially weaker. Between 1996 and 2000, the project underwent an environmental review process while the state worked with the development team to develop a detailed project plan, reflected in the draft contracts released for public comment (Massachusetts Office of the Inspector General, 2001).

In 2001, before the state signed these long-term contracts with the development team, the Massachusetts Office of the Inspector General conducted a review of the 1996 developer selection process and the current status of the partnership. The review disclosed that the firms that were the development team partners in 2001 were not the same firms that had been proposed as members of the development team and accepted by the state in 1996. Moreover, the 2001 partners did not include the three strong firms that had been key to the development team's selection by the state and lacked the qualifications of the partners proposed in 1996. The review also disclosed that the lead developer, which had remained at the helm of the development team since 1996, had failed to disclose to the state, as required by the state's original request for development proposals, that two of the firm's corporate officers had each filed for personal bankruptcy three years before the state selected the development team (Massachusetts Office of the Inspector General, 2001).

The review also showed that although the draft contracts committed the state to providing funding and land to the development team, they did not commit the development team to completing all of the development work promised in the development team's 1996 proposal. For example, although the development team's proposal had committed the development team to building not less than 50 residential houses in the first phase of the development project, the draft contract required the development team to build "up to 50" houses. Although the development team's proposal had committed the development team to building a 20,000 square foot golf clubhouse and fitness center, the draft contract did not specify a minimum size for the golf clubhouse and fitness center to be built. Moreover, the draft contracts eliminated minimum equity contributions by the development team that had been agreed to in 1996. In response to the information revealed by the review

summarized above, the state canceled the project (Massachusetts Office of the Inspector General, 2001).

5. Proposed Highway Lease Partnership

In 2007, the state of Pennsylvania conducted a competitive procurement process for a 75-year contract to lease and operate the Pennsylvania Turnpike, a 512-mile highway that was first opened in 1940. The unfunded cost of the state's infrastructure needs had been estimated by a state commission at $14 billion for deferred maintenance projects and $1.7 billion per year to maintain the state's current transportation system. The policy objective of the lease was to obtain funding, through a concession payment by the selected bidder, sufficient to support the state's extensive infrastructure needs. Under the terms of the lease established by the state, the private turnpike operator would be able to raise turnpike tolls annually by 2.5 percent or the Consumer Price Index, whichever was greater. The turnpike operator was responsible for funding improvements to the highway during the lease period. The operator was to be monitored by a three-member board comprised of the governor, the transportation secretary, and the budget secretary (Pew Center on the States, 2009).

State officials estimated that the winning bid would be as high as $30 billion. However, the winning bid of $12.8 billion was far below this estimate. The winning bidder, a consortium of two companies indicated its intention to raise tolls on the turnpike to pay for the lease. The proposed partnership was debated by state legislators for four months without a vote to approve the lease. In September 2008, the consortium withdrew its bid (Pew Center on the States, 2009).

In its March 2009 report on this case, the Pew Center on the States found that the state had handled some aspects of the contracting process well: the state had thoroughly identified its infrastructure needs, conducted due diligence during the bidding process, run the bidding process well, and set detailed performance standards for the life of the lease. However, the report also identified a series of problems that undermined the proposed partnership; these included the following:

- "The financial assumptions related to the deal were overly optimistic" (2).

- The proposed oversight mechanism, the three-member board, raised concerns among legislators about "transparency, accountability and adequate planning" (3).
- "The debate lacked adequate consideration of the state's long-term interests" (3).

CONCLUSION

The long-term nature of the infrastructure partnerships that are the focus of this article means that some of the most significant risks are associated with the unpredictability over the term of the contract of the myriad factors beyond the control of both parties to the contract. These factors encompass environmental, economic, labor market, and political conditions with the potential to affect public demand for infrastructure such as toll roads and water treatment plants, the cost of operating and maintaining infrastructure, and, thus, the ultimate success of the project in meeting its public objectives. These risks are most appropriately borne by governments, which are better equipped – and more willing – to assume these risks than is the private sector. As has been discussed, governments must also assume the performance risks associated with the absence of market forces over the life of a long-term contract.

But the fact that the risks of an infrastructure partnership have been allocated correctly – i.e., to the parties best able to assume and manage them – does not mean that the public interest is protected. Hodge and Greve (2005) have observed that government "now finds itself in the middle of multiple conflicts of interest acting in the roles of policy advocate, economic developer, steward for public funds, elected representative for decision making, regulator over the contract life, commercial signatory to the contract and planner" (343). As the case studies discussed in this article have shown, these conflicting governmental roles can interfere with and obscure government's fundamental stewardship role and obligations with respect to long-term infrastructure partnerships.

Table A summarizes the contracting risks that were heightened by the long-term partnership agreements of the cases summarized in this article. As the table shows, the long and controversial Big Dig megaproject exemplifies all five unfavorable contracting conditions; the other cases are illustrative of one, two, or three of these conditions.

Table A

Contracting Risks Illustrated by Partnership Cases

Contracting Risks Illustrated	Partnership Cases				
	Megaproject Management	Sewer System Design-Build-Operate	Water System Operation and Management	Proposed Economic Development	Proposed Highway Lease
Failure to establish or adhere to sound policy objectives	X			X	
Noncompetitive contracting environment	X	X			
Inadequate performance measures	X	X	X	X	
Inadequate contracting expertise	X			X	
Impaired transparency and accountability	X	X	X		X

These illustrative cases underscore the need for active planning, management, and oversight on the part of governments embarking on long-term infrastructure partnerships. Practical recommendations to public officials for reducing and controlling these particular substantial long-term risks to the public of these arrangements at each stage of the contracting process are summarized in the following section.

PRACTICAL STRATEGIES FOR REDUCING RISKS TO THE PUBLIC INTEREST

1. Establish and pursue clear and appropriate public policy objectives.

Long-term infrastructure partnerships are undertaken for a variety of public objectives that too often are unrealistic, ill-defined, or abandoned in the interest of expediency. When considering a long-term infrastructure partnership, governments should subject the public objectives of the partnership to rigorous testing through an analysis of the extent and nature of the private marketplace. Does an active private market exist for the proposed contract? Is there likely to be robust competition? Which elements of the long-term arrangement are most likely to be attractive to private parties, and why? What additional public benefits may be leveraged through such an agreement? Such analysis requires information on similar long-term infrastructure partnerships that have been undertaken by other governments as well as information from private firms that comprise the potential target market. With a detailed understanding of the potential market and the opportunities afforded by a long-term partnership, public officials will be in a position to identify realistic public objectives for the partnership and decide whether or not the potential benefits justify the costs and risks of committing the public to the contract.

Having identified the important public objectives of the contract, public officials should ensure that the public objectives are being served at every stage of the procurement and contract implementation process. Thus, the public objectives should be clearly stated during the preliminary market analysis phase, the competitive procurement phase, and in the executed contract. Adherence to this approach can help protect against pressure on public officials to proceed with the contract even when the public objectives are not likely to be achieved. If an objective analysis of the agreement that results from the procurement process and contract negotiations shows that achievement of its public objectives is unlikely, public officials have an obligation, as stewards of the public interest, to reassess the terms of the contract.

2. Develop contract provisions that create market pressures on the contractor during the contract term.

Competitive selection of the contractor at the outset of a long-term infrastructure partnership will not ensure a competitive

environment during the term of the contract. Indeed, the lack of competitive market pressure on the private contractor is among the most vexing and intractable problems confronting public officials contemplating long-term infrastructure partnerships. It may be feasible to develop contract provisions that subject the contractor to market forces periodically during the contract term: for example, the contract could require periodic benchmarking and renegotiation of the major contract terms, such as the performance and compensation terms. It is important to recognize, however, that long-term contracts can render the government dependent on the contractor, thereby reducing the government's leverage in subsequent negotiations. For most long-term infrastructure partnerships, the most effective strategy to reduce the risks associated with the lack of market forces during the term of the contract is to set and enforce meaningful contractor performance measures, as discussed below.

3. Establish meaningful performance measures and monitor contractor performance relative to the measures.

The performance measures incorporated into a long-term infrastructure partnership contract should be clear, they should be measurable, and they should reflect the major public objectives and key performance requirements of the contract. This article has discussed the formidable challenge of devising performance measures that will apply to a long-term infrastructure partnership, given the unpredictability of future environmental standards, labor market conditions, government regulations or mandates, technological changes, and demand for the services to be provided during the contract term. To ensure that the contract must ensure that the contract risks are allocated appropriately and that the risks to the public are controlled, public officials must invest in the necessary contracting expertise, as discussed below.

Meaningful performance measures will protect the public interest only if the contractor's performance is effectively monitored. Effective contract monitoring requires public officials to work with their private counterparts to identify and address performance issues. As Cooper (2003) has observed, public contract managers should have an incentive, not just to identify problems, but also to work toward their successful resolution: "If contract or performance weaknesses are encountered, the incentives for public managers must be to get the difficulties out into the open, fix them, and learn the lessons that can be gleaned from the experience (97)." If performance problems

persist, however, public officials must enforce the contract provisions for termination and implement the exit strategy developed during the planning process.

4. Invest in contracting expertise.

Government requires highly skilled procurement officials to manage contracting with the private sector. The need for qualified staff and specialized contracted expertise is magnified by the high-stakes nature of long-term infrastructure partnerships, which are often complex, expensive, visible, and contentious. Private firms entering into such partnerships typically have a more detailed understanding of the implications of contract provisions and a greater capacity to deploy legal expertise to protect their interests in comparison with their government counterparts. This asymmetry in information and expertise can expose the public to unnecessary risks over the term of the contract. Expertise in service to the public interest is essential to avoiding unnecessary risks.

Public officials must ensure that contracted experts are independent, objective, and committed to protect the public interest. Expert consultants whose marketing efforts are geared to promoting long-term infrastructure partnerships may not be independent; their advice may be biased toward approaches that support their business interests even when such approaches are not advantageous to the government or the public. As this article has discussed, the compensation paid to expert consultants should never be dependent upon the execution of a contract.

5. Establish and implement transparency and accountability measures.

Transparency is an essential condition for accountable public contracts. The ramifications of a government's decision to commit the public to a long-term infrastructure partnership can extend far beyond the tenure of the public officials responsible for the decision. Paradoxically, however, many contracts with the "partnership label" – which connotes trust, openness, and collaboration between the public and private sectors – are among the least transparent and conducive to public participation of all public contracts. It is striking that four of the five illustrative cases presented earlier in this article were characterized by inadequate transparency and accountability.

Public officials embarking on a long-term infrastructure partnership must institute transparency measures that will enable the public to be informed and engaged, while also enabling the public to

hold the responsible public officials accountable for their actions and decisions. However, ensuring public access to procurement and contract documents is a necessary but insufficient condition for transparency; additional mechanisms for communicating with and engaging the public may be necessary. For example, an advisory committee that includes subject matter experts and community representatives could be formed for the purpose of overseeing and communicate with the public regarding the progress of the procurement process and contract. Public forums for addressing public concerns could be held. An objective explanation of the contract, identifying the public objectives, major business terms, performance requirements, and other key provisions could be developed and posted on the government website along with the contract document. Throughout the contract term, the government could prepare and issue to the public periodic scorecards reporting on the contractor's performance. In addition to increasing the transparency and accountability of the contracting process, such measures also hold the promise of increasing public confidence in the government embarking on a long-term infrastructure partnership on the public's behalf.

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