



Case Studies: Infrastructure Public Private Partnerships

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Preface

To remain competitive into the future, America must address its infrastructure needs – transportation, water, power and energy, and civic structures – repairing existing assets as well as expanding investments to meet the demands of the next generation. The task is daunting, especially in an era of fiscal constraint, and to accomplish it public officials must think creatively about how to deliver infrastructure more efficiently and cost-effectively. One promising approach is to partner with the private sector in financing and delivering infrastructure projects.

Public-private partnerships (P3s) are widely used in other developed nations, but are still relatively infrequent in the U.S. Of course, private companies have long been involved in the construction of infrastructure projects, but their role has been primarily limited to that of a contractor, with the ultimate responsibility for funding, financing, and delivering projects resting with the public sector, typically a state or local agency.

The emergence of P3s as a tool for financing and procurement of infrastructure projects brings several benefits for the public sector. On the procurement side, P3s allow the government to share risks – such as delays in construction, cost overruns, or lower-than-projected usage – with a private company. P3s may also lock in operations and maintenance costs over the long-term, ensuring that assets will be kept in good repair without the need for yearly budget battles. As a financing tool, P3s can bring new investors to the table and reduce the need for the public sector to take on an ever-increasing amount of debt.

P3s are not appropriate for every project. Since one of the key benefits is sharing risk with the private sector, those projects with higher inherent risks are more suited for P3s than those without. The transaction costs and complexity of negotiating a P3 deal suggest that this model is most appropriate for large-scale infrastructure projects, which could either be stand-alone projects or a package of smaller projects.

If our nation is to address our infrastructure challenges, public sector leaders need to consider all options for delivering and paying for needed infrastructure. Currently, many projects that could be well-suited for a P3 approach are proceeding under a conventional procurement, which may be less efficient. Others are still on the drawing board. One of the reasons there are so few P3s in the U.S. may be that many public sector leaders lack the experience and information needed to assess whether a P3 would make sense for their community.

In order to increase understanding and consideration of P3s among public sector leaders, the Bipartisan Policy Center analyzed a number of projects that were pursued as P3s. (See Figure 1) Important lessons can be learned from these projects, as discussed below. For public officials considering a P3 approach, this paper offers a list of core principles for success, drawn from the experiences of public and private partners across the country.

Lessons Learned

A review of select P3 projects completed within the U.S. yields important lessons for those considering a P3 approach. While derived from projects of different types, in different parts of the country, these lessons are broadly applicable and serve as a baseline for understanding the role of P3s in addressing our nation's infrastructure challenges.

First, it is important to understand that ***the private sector can play different roles depending on the needs of the project***. As discussed above, P3s can be used as a procurement tool, a financing tool, or both. For a complex project where the public agency is not staffed by construction management experts, using a P3 as a procurement tool can bring several benefits, including increased expectation of on-

time delivery and reduced risk for the public agency. This was the role played by the private partner in delivery of the Oakland Airport Connector, an automated, driverless connection between the BART rail system and Oakland International Airport, and in the Long Beach Courthouse project.

For a large project that costs more than a state or locality can provide with conventional financing, a private partner can help bridge the gap. For example, the Dulles Greenway, a toll road in Northern Virginia, was financed largely by a private partner. While the project faced some criticism due to the fact that the cost of private financing was higher than public financing would likely have been, the Commonwealth of Virginia at that time did not feel that it had the wherewithal to take on such a large debt issuance. Had the private partner not brought financing to the table, the Greenway would likely not have been built.

In some cases, the private partner serves both needs. For example, in the case of the Port of Miami Tunnel, the private partner took on the difficult task of delivering a tunnel in an urban area, bearing the risk of construction delays. Upfront financing was also the responsibility of the private partner, to be repaid by Florida Department of Transportation over time.

A second important lesson is that ***there is no one-size-fits-all P3 structure***. While many P3s involve toll facilities (tolls are a source of revenue to pay back private financing costs), newer P3 structures have evolved to finance projects that do not have tolls. The city of Miami decided not to impose tolls on its new tunnel, because that would have dissuaded drivers from using it. Instead, the private partners will be paid over time with milestone and availability payments from state and local revenues.

Another misperception is that P3s can only be used for mega-projects. While it is true that a project requires a certain amount of cost and risk to make using an alternative procurement approach cost-effective, that does not mean smaller projects cannot make use of this tool as well. The Pennsylvania Rapid Bridge Replacement Project bundled more than 550 small bridge projects into a single procurement, to take advantage of the economies of scale a P3 could offer. This model could potentially be used elsewhere to complete multiple smaller projects that states do not have the capacity to address all at once.

The third lesson to be drawn from the case studies is that while the cost of private capital is well-understood, ***the benefits of private involvement in infrastructure are often overlooked.*** While it is easy to calculate the total costs of construction and financing, it is more difficult to put a dollar figure on the benefits of long-term asset maintenance and transfer of risk. As a result, those considering a P3 approach often under-value the benefit side of the equation as compared to the costs.

One of the key benefits of a P3 procurement approach is that risks can be shared between the public and private partners, so that neither side has to bear them alone. For example, in the case of the Dulles Greenway and the Indiana Toll Road, most of the demand risk (i.e., the risk that the toll road would not be used as much as projected) was transferred from the public sector to the private sector. As a result, the public would not be on the hook for the costs of maintaining the roadways should toll revenues not be sufficient. This protection against future liabilities has economic value, but is rarely quantified. Observers, therefore, often focus on the upfront costs of the project without having a complete picture of the long-term benefits.

Similarly, there is a benefit to the public sector of locking in

long-term operations and maintenance costs. When appropriate protections are included in the contract for quality control, the public can guarantee a well-maintained asset without having to absorb unexpected future costs or compete for adequate funding in the legislature. The Pennsylvania Rapid Bridge Replacement Project, for example, locks in maintenance costs for the next 25 years. The public benefit of this approach is the delivery of a well-maintained asset at the end of the project, avoiding the possibility that state budget priorities would require deferring maintenance. There is economic value in having protection against that risk, but again, it is not often put into dollar terms for comparison against the costs.

The final and perhaps most important lesson is that ***few projects are 100% successful or 100% failure.*** P3s are complex transactions with multiple parties, delivering major infrastructure projects into real-life situations. Evaluating them requires an understanding of how the needs of multiple stakeholders are, or are not, being met. For example, the Indiana Toll Road is sometimes referred to as a “failed” P3. However, it is only a failure from the perspective of the original private consortium, which declared bankruptcy after toll revenues did not meet projections amid the economic recession. From the state’s perspective, they received a benefit in the form of the original upfront payment from the private consortium, as well as the existence of a physical asset, the toll road itself, which is now available for use by Indiana residents and those traveling in the state.

Successes and failures must be measured along multiple axes, and at multiple points in a project’s lifetime. Trying to fit projects neatly into a “success” or “failure” box precludes a more nuanced understanding of the various upsides and downsides of P3 projects. Public officials considering a P3 should keep in mind that P3s bring with them multiple benefits and costs that must be carefully evaluated.

Core Principles for Success

In addition to lessons learned, case studies yield a number of core principles to keep in mind when developing a P3. While following these guidelines is not a guarantee of success, they should help future leaders build upon successful practices and avoid common mistakes. The core principles are:

- Develop a clear understanding of the public purpose and benefits of the project including clear measures for success.
- Include key stakeholders early in the project's development.
- Proactively look for opportunities to monetize assets.
- Analyze life-cycle costs and risk transfer benefits in addition to the upfront cost of capital.
- Structure P3 agreements to encourage efficient management and protect the public interest.
- Look for opportunities to bundle together multiple sources of funding and financing.
- Use transparent, competitive bidding that allows room for innovation.

Each is discussed in detail below.

Develop a clear understanding of the public purpose and benefits of the project, including clear measures for success. A decision to enter into a P3 arrangement should be based upon a concrete understanding of how the project will achieve public goals, and what benefits the public will receive from the project. This is good practice for all public decision making, but is particularly important in the P3 context, where the public is often skeptical that they are “getting a good

deal.” P3 projects are not “free money” – involving the private sector in the delivery and financing of a project brings both benefits and costs. It will be important for the public to understand not just the costs of the P3 project but also how it will improve lives or save money in the future. Conversely, public officials need to be willing to forego a P3 approach when the public benefits do not outweigh the costs.

Media coverage of P3s (and indeed, of most infrastructure projects, even when they follow traditional procurement methods) tends to focus on costs, with little attention given to long-term benefits. Projects that have run into significant opposition often have not sufficiently explained the benefits of the project. The Oakland Airport Connector project, for example, was criticized locally by stakeholder groups who did not think the benefits of the project outweighed the costs. Before entering into a P3, public sponsors should ensure that they can clearly articulate how the public will benefit from the project, and how those benefits stack up against the costs of the P3 approach.

In addition, project sponsors would do well to identify at the outset specific metrics upon which the project's successes and failures will be measured. These could be factors such as whether the project was delivered on-time, whether its usage meets projections, whether the infrastructure is maintained in good condition, and whether costs over time remain consistent with projections. Establishing a clear set of metrics by which a project will be judged can help a project sponsor objectively frame the narrative that will be told about the project's successes and failures.

Include key stakeholders early and often in project development. P3 projects can be complex, both technically and politically. Just as it is not always possible to anticipate every wrinkle that could arise during construction, it is also difficult to predict exactly how different stakeholder groups will respond. The Indianapolis Justice Center P3 project was spearheaded by the Mayor and terminated abruptly by the City Council, which said that it had not been involved in the decision-making process and was being asked to rubber-stamp the project. On the other hand, early opposition to San Juan's airport privatization by employee groups was mitigated by the prompt inclusion of job protections for existing employees. While major infrastructure projects always attract some opposition, public officials would do well to minimize unexpected attacks by engaging relevant stakeholders early in the process and often throughout development to identify issues and address concerns.

Proactively seek opportunities to monetize assets. State and local governments typically own a great deal of infrastructure, including roadways, airports, pipelines, sewers, schools, and other facilities, both above and below-ground. Many of these assets could become sources of revenue for the public owner. In some cases, outright sale of unneeded property is the simplest way to convert an unused asset into cash, but there are many options short of sales that can also generate revenue. Some possibilities include leasing, advertising, joint development, and shared use such as allowing telecommunications lines to make use of existing tunnels. San Juan turned its struggling airport into a revenue generator for the city by leasing the airport to a private consortium in exchange for an upfront payment and a share of revenues each year. The Chicago Skyway, an existing toll road, became a revenue generator for the city when it was leased to a private consortium in exchange for a cash payment of \$1.83 billion. Opportunities to turn public assets into cash while

ensuring on-going public benefit are found in cities across the country, and successfully engaging in a partnership with the private sector to deliver those benefits can provide a needed infusion into public budgets.

Analyze life-cycle costs and risk transfer benefits in addition to the upfront cost of capital. Public financing (for agencies that have not reached their borrowing limit) is virtually always cheaper than private financing, because public entities have the ability to tap into the large and liquid tax-exempt debt market. If cost of capital were the only consideration, a P3 project with private financing would almost never make sense. However, P3s can bring quantifiable benefits when costs are looked at over the long-term. In the case of the Pennsylvania Rapid Bridge Replacement Project, the overall cost of replacing 550 bridges and maintaining them for 25 years through a P3 is less than it would be for the state to replace them sequentially, one-by-one.

Another benefit that public sponsors should analyze when considering a P3 is the benefit of transferring certain risks to the private sector. In the Dulles Greenway and Indiana Toll Road projects, for example, the private partner took on virtually all usage risk, i.e. the risk that usage of the road – and therefore toll revenues – would be lower than expected. The public partner in those projects did not need to carry a contingency on its own books to cover that risk, freeing up funds to use elsewhere. While private partners today are generally less willing to take on the full usage risk (having learned from the Dulles and Indiana experiences), there are still risks that the private sector is willing to take from the public sector. In some cases, it can be cheaper to pay a private partner to take on those risks than to retain them in the public budget. The full costs and benefits of P3 projects – including life-cycle costs and risk-transfer benefits in addition

to the cost of capital - should be carefully analyzed at the outset of a project to determine whether a P3 approach is justified.

Structure P3 agreements to encourage efficient management and protection of the public interest. Many public agencies own infrastructure, but few have the experience and capacity to take on a large infrastructure construction project on their own. When projects are particularly complex, or the public agency lacks the staff to manage a large-scale project, it can be worthwhile to pay a private partner with experience in such projects to take it on. The Florida Department of Transportation entered into a P3 arrangement for the Port of Miami Tunnel, a complicated tunneling project in a congested urban area. The private consortium brought significant experience in managing large-scale construction projects, and negotiated a series of milestone and availability payments from Florida DOT to pay for the project. Because these payments would only be made if the project was proceeding as scheduled, the public was insulated from the cost of delays.

Look for opportunities to bundle multiple sources of funding and financing. There are multiple public and private sources of funding and financing for infrastructure projects, and project sponsors would do well to consider all available options. Even in a P3, private financing is often paired with public funding or financing. In some cases, getting a federal TIFIA loan or letter of credit can help to bring down the cost of capital; the Oakland Airport Connector project bundled TIFIA with multiple other federal, state, regional, and local funding sources to create a blended funding package. Early P3s like the Dulles Greenway, which have struggled with financing costs, might have benefited from a program like TIFIA had it existed when that project was developed. Using revenue from future real estate development to repay financing costs should also be considered when market conditions support future growth. Portland's MAX Red Line light rail connection to the airport was financed in part using projected future tax revenues from adjacent land. Private activity bonds

(PABs) may also be available for P3 projects in some cases. P3s are not an all-or-nothing approach when it comes to financing.

Use transparent, competitive bidding that allows room for innovation. Just as any public infrastructure project would, a P3 project should use a transparent, competitive bidding process to ensure a fair and level playing field for all potential bidders. At the same time, the process should be structured to incentivize innovation in project development and delivery. A procurement process that allows proposers to suggest an alternate design can potentially save a significant amount of money for the public. Procurement processes should also be flexible enough to handle unsolicited proposals. The light rail line to the Portland airport was the result of an unsolicited proposal brought forward by a private consortium with a new idea. The private sector can bring more than project financing and management expertise; by bringing external perspective and wide-ranging technical skills to the table, private partners can suggest time- and cost-saving innovations that otherwise might not have been considered.

As the case studies demonstrate, P3s can be a valuable tool for delivering and financing infrastructure projects, particularly those that are more complex, costly, or time-consuming than public agencies are able to take on alone. Following the principles above will help public officials assess when a P3 is appropriate, communicate effectively with key stakeholders, and maximize opportunities for success.

Figure 1. Map of Infrastructure Case Studies



San Juan Airport



Summary	
Project Type	Airport
Year	2013
Deal Structure	Long-term operating lease
Total Cost	\$615 million paid upfront by private partner, plus \$2.5 million each year for the first 5 years, 5 percent of revenue over the next 25 years, and 10 percent of revenue for the final 10 years.
Financing	Private equity, debt financing investment-grade bonds
Funding	Airport parking, concessions and fees
Public Benefit	Modernization and renovations of airport facilities job creation

Background

Luis Muñoz Marín International Airport (SJU) in San Juan, Puerto Rico, was privatized in 2013 through the U.S. Federal Aviation Administration (FAA) Airport Privatization Pilot Program (APPP). The partners involved were the public airport owner, Puerto Rico Ports Authority (PRPA), the Puerto Rico P3 Authority, and Aerostar - a 50/50 venture between Highstar Capital, an infrastructure investor, and Grupo Aeroportuario del Sureste SAB de CV, which operates nine airports in Mexico. The process took four years to complete and resulted in a forty year lease under the Aerostar name.

Project Description

The Luis Muñoz Airport privatization was made possible by a 1997 FAA program, the Airport Privatization Pilot Program. This originally allowed for five airports to apply for and begin the process of privatization, with one of them being a “large hub”.¹

The program was expanded under the 2012 Reauthorization Act to include up to 10 airports.² Currently, there have been two successful privatizations out of 10 applications. Stewart International (Newburgh, NJ) was the first to be privatized in 2000; however, the Port Authority of New York & New Jersey bought the airport back in 2007. San Juan is the only other to successfully privatize. Chicago has filed and withdrawn an application for Chicago Midway International Airport.³

Operating under the Puerto Rico P3 Act of 2009, the Ports Authority, the owner of the airport at the time, applied to the APPP program in 2009. The next step was a desirability report to detail what could be gained from a P3. Puerto Rico's P3 Authority, a government-owned corporation under the authority of the Governor and tasked with negotiating and regulating P3s in the state, then studied the idea and released the report in 2010 advocating for a P3 agreement.⁴ The report said that the existing airport did not serve passenger needs well and needed reform in order to be financially stable. The report also reasoned that this could be achieved by a private sector agent with experience in airport operations. After the release of the report, the P3 Authority issued a RFQ in June 2011. In May 2012, it was announced that Aerostar and Grupo Aeroportua Avance were the two consortiums on the shortlist for the project. In July 2012 it was announced that the consortium under the name Aerostar had won the contract.⁵

As long as profitability holds, the partnership will come out with a win. Puerto Rico got \$615 million in an upfront

leasehold fee followed by \$2.5 million each year for the first 5 years, 5 percent of revenue over the next 25 years, and then 10 percent of revenue for the final 10 years. The up-front lease payment was financed via \$265 million of private equity (43%) and \$350 million from debt financing of investment grade bonds (57%).⁶ The airport (and the public it serves) got modernized facilities as an upfront investment around \$400 million.⁷ This leaves most future profits with Aerostar.

The U.S. Government Accountability Office (GAO) studied the APPP in November 2014 and found some key barriers to privatization: financing costs are higher for private entities, property tax exemptions may not carry over to the private owner, and the program has unclear rules and an intrusive federal presence that slows the process.⁸ However, as the report notes, privatization occurs across a spectrum, with long-term lease or sale at the most extreme end. Many airports are finding more success with different levels of private involvement ranging from simple service contracts, to management contracts (e.g. specific facility management to airport-wide management), to developer financing/operation contracts (e.g. specific facility development).

Benefits and Criticisms

The privatization of San Juan's airport worked because of a unique set of factors. First, there was political will, despite some public opposition. There was some worry that the privatization could disenfranchise workers at the airport, but the Secretary of Transportation guaranteed that approval of the plan would not go through if the collective bargaining agreement (CBA) was violated; furthermore, the CBA signed in 2012 guaranteed that any employee that did not stay in their position

under privatization would be given another position within the Ports Authority under the same contract.⁹

Commissioner Pedro R. Pierluisi, Delegate to the U.S. House of Representatives, said that the privatization process was in line with what Congress had intended with the creation of the APPP program, and that given the Puerto Rico Ports Authority's bond status, one level above junk in 2009, it was clear that the Ports Authority could not provide the investment needed in the airport for the 21st century.¹⁰

Takeaways

The privatization of San Juan's Luis Muñoz International Airport is the only current success of the FAA's APPP pilot program. Under the P3, the airport has seen considerable investment, with Terminal A reopening in 2012 and serving as a regional hub for Jet Blue, Terminal B reopening in 2014, and Terminal C renovations completed in March 2016.¹¹ These renovations include an automated baggage scanning system, in use in only a few American airports, high-end retail stores, and have created 3,000 jobs.¹²

On the spectrum of P3s, San Juan Airport leans far toward privatization. Importantly, there was political will to privatize a poorly managed airport, and there was profit to be made by private actors. This case study is representative of a situation where the public sector may want to privatize an unprofitable endeavor and private industry is well suited to make important changes to recover profitability.

Dulles Greenway



Summary	
Project Type	Limited-access highway
Year	1995
Deal Structure	DBFOM
Total Cost	\$350 million construction costs paid by private partners, plus ongoing operations and maintenance
Financing	Private equity, current pay interest only bonds, zero coupon bonds
Funding	User-paid toll
Public Benefit	New commuting option, reduced travel time, potential for real estate development along corridor adding to tax base and creating jobs.

Background

The Dulles Greenway is a 14-mile toll road connecting Washington Dulles International Airport with Leesburg, Virginia with the purpose of reducing travel times for commuters.¹³ The toll road opened in 1995¹⁴ and is still operational today. This was a P3 project under a Design-Build-Finance-Operate-Manage (DBFOM) agreement.¹⁵ The private partner, currently Macquarie Group Limited, will cede control of the Greenway back to the public partner, the state government of Virginia in February 2056,¹⁶ a deadline that was extended from 2036 after the private partners could not pay back costs.¹⁷ Toll increases are regulated by Virginia's State Corporation Commission and subject to annual increases as prescribed in the Virginia Highway Corporate Act of 1988. Macquarie collects the revenue, while paying operational costs and interest expenses from incurred debt. The current toll is \$4.30 non-peak and \$5.20 during peak hours, an increase from the original price of \$1.75 in 1995.¹⁸

Project Description

In 1988, Virginia passed the Virginia Highway Corporation Act (VHCA) which allowed private developers to enter into Build-Operate agreements with the Virginia State Corporation Commission (SCC). An extension of the existing Dulles Toll Road to Leesburg was proposed by the Toll Road Corporation of Virginia (a private corporation) in 1989, and was approved in the same year by the Virginia SCC as a DBFOM P3. Construction began in 1993, and the project opened to users in September 1995.¹⁹ A report in 1990 projected that the public cost of building and operating the Dulles Greenway over 40 years (including debt payments) would have been \$894.8 million, versus \$3.5 billion for a private owner, because state governments can take advantage of much lower interest rates than a private company.²⁰ Projections for use and profits were based on meeting expected demand from new developments in the Dulles corridor in Fairfax County.²¹ This potential was enough for a private consortium to take on the high costs, whereas the state government could not manage the costs within its six-year plan for Virginia.²²

The \$350 million²³ construction project was developed by the Toll Roads Investor Partnership II (TRIP II), a private consortium renamed from the Toll Road Corporation of Virginia.²⁴ At this initial stage, TRIP II put down \$40 million in private equity, and borrowed \$310 million in privately placed taxable debt to come up with the funds (credit came from 10 institutional investors and various banks).²⁵ In 1999, four years after the project opened, TRIP II faced disappointing returns as a result of lower than expected usage. Traffic on the toll road was almost 70 percent below projections.²⁶ Drivers cited the high toll cost as a major deterrent, and growth in the Dulles corridor was not rapid enough to meet the expected ridership numbers.²⁷ Facing bankruptcy, the partners were forced to restructure the debt.²⁸

In 2005, the entire partnership was bought out by Macquarie Group Limited, an Australian firm, which paid \$617.5 million for the Greenway, absorbing the original owners, and their debt, in the process.²⁹ TRIP II still exists as the name of the private consortium, but it is now owned and operated by two investment funds managed by affiliates of Macquarie Group Limited (50% Macquarie Atlas Roads and 50% by Macquarie Infrastructure Partners). Macquarie also took on debt of its own at this time. Over the course of the project, no public dollars have been used, and all operation costs and interest expenses have been covered by the private partners (until 2056 when the toll road is handed back to the state).

There is some concern over the Dulles Greenway's rising toll costs. (See Figure 2). The Virginia Highway Corporation Act of 1988 gives the Virginia SCC the power to approve or deny toll increases beyond a set ceiling (originally \$2.00). "In addition, a recently executed amendment to the Act authorizes annual toll increases between 2013 and 2020 at the greater of CPI plus one percent, GDP growth, or 2.8 percent, with additional increases if necessary to offset more rapid growth in property taxes or to ensure that the partnership has sufficient revenues to achieve debt service coverage ratios."³⁰ An investigation into the toll price setting practices, initiated by State Delegate David Ramadan, ruled in favor of the toll road, concluding that "the tolls – individually and collectively – meet the statutory requirements under [the Code of Virginia]".³¹ Further, it is worth noting that despite toll increases, annual average daily traffic has increased every year since 2012 demonstrating continued and increasing customer demand for the toll road at the existing toll levels.

In 2013, \$74.9 million in revenue was recorded for the Greenway.³² This was almost exclusively from tolls. Operating expenses were \$26 million. Interest expenses,

which cost \$65 million in 2013, led to a yearly loss of \$16 million. Macquarie's 2013 financial statement reveals \$964 million in long-term debt to be paid. This debt was incurred at two points in the project's history. A total of \$1.1 billion was incurred in 1999 when TRIP II was forced to restructure as it faced bankruptcy. Another \$2.75 billion in bonds was incurred in 2005, at the time of Macquarie's buyout of the project. Future toll revenue is the likely means of repaying this debt.³³

Benefits and Criticisms

The main argument against the P3 arrangement for the Dulles Greenway is that toll costs would not be as high if the road was under the ownership of the state. However, it is extremely unlikely that the project would have been taken on by the state if the costs were not financed by a private company. The state had no plans to take this project on itself.³⁴ If it had done so, it would have had to borrow a significant amount and would have borne all of the usage risk itself.

This project is an example of how usage risk can be shifted to private investors in a P3. Though the private companies involved in the project have struggled, the state has benefitted from having another commuting option for which it does not have to provide maintenance.

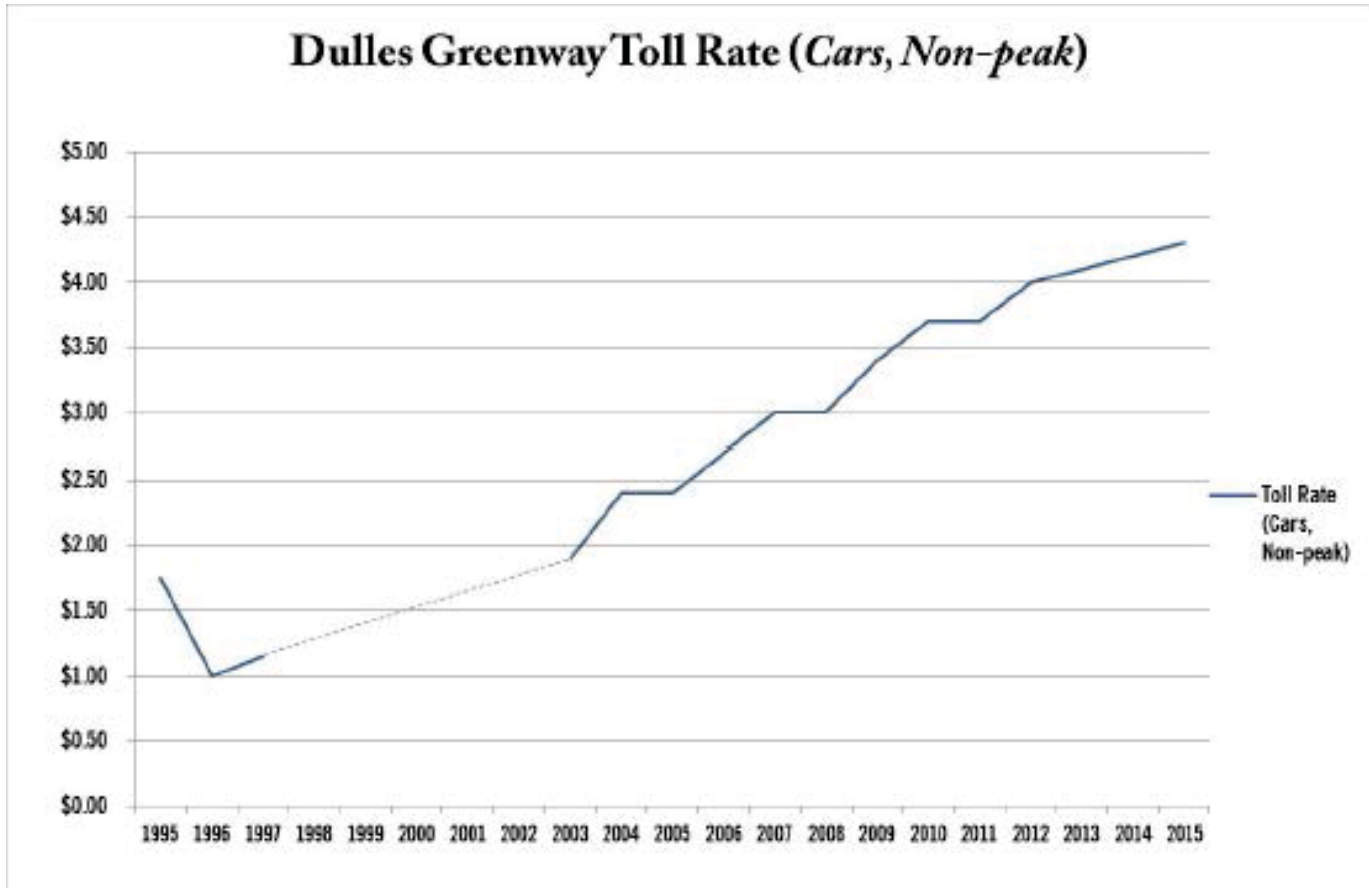
Macquarie representatives remain confident about the project: "The Dulles Greenway has two investment-grade credit ratings. It has shown very strong growth in [earnings before interest, taxes, depreciation and amortization] and is comfortably meeting its debt service requirements," the company says. "Its equity has clear value."³⁵ However, in 2015, TRIP II's credit rating was downgraded to BB+.³⁶

Takeaways

The challenges that this project faced show that project usage estimates should be thorough and conservative. In P3s that have been undertaken since the Greenway, project partners have found ways to share the usage risk between the public and private partners, e.g. through availability payments or upside/downside sharing provisions. When negotiating a P3 agreement, the public partner should also consider the necessary balance between approving the requested toll increases of the private consortium, and meeting public concerns.

The Dulles Greenway project also shows how interest payments can become a hurdle to a project's profitability. The cost of capital for the private partner was a big challenge for this project. Since the Greenway was built, new programs have been created to help bring down the cost of capital for P3s closer to what it is for publicly financed projects. For example, the federal TIFIA program provides low-interest financing for P3s as well as publicly-financed transportation projects. The Greenway project would likely have benefitted from these programs had they existed when it was built.

Figure 2.



Note: data was unavailable for 1998-2002, however, tolls would not have exceeded \$2.00 during this period, as the request to raise the ceiling from \$2.00 to \$3.00 was not approved until 2004. Toll rates dropped between 1995 and 1997 in an attempt to attract interest from consumers.

Portland Airport MAX Red Line



Summary	
Project Type	Light rail transit
Year	2001
Deal Structure	DB (plus transfer of development rights to public land)
Total Cost	\$125.8 million construction cost
Financing	Private equity, TIF
Funding	Airport passenger facility charge, TriMet general funds
Public Benefit	Connects downtown to the airport, economic development of Cascade Station area

Background

The Portland Airport MAX Red Line, located in Portland, Oregon, is a light rail line that connects Downtown Portland to the Portland International Airport.³⁷ It was financed and constructed through a P3 agreement, and is operated by TriMet, Portland’s regional transit agency.³⁸ It opened to the public in September 2001, and now provides more than 8 million trips per year, with 3,200 people getting on or off at the Portland Airport stop each weekday.³⁹

Project Description

The private-public partnership agreement for the Airport MAX Red Line came about through an unsolicited proposal from the private construction and engineering company Bechtel.⁴⁰ Their proposal was \$28.2 million in funding in return for sole rights to

the \$125 million design-build contract, and development rights for 85 years to 120 acres of land near the airport.⁴¹ This land would come to be known as Cascade Station. The original owner of the land was the Port of Portland, and the 120 acres were part of 458 acres earmarked for development as a mixed-use business park called the Portland International Center.⁴² TriMet's unsolicited proposal policy allowed Bechtel to initiate the project. TriMet was able to proceed to direct negotiations with Bechtel after providing a limited opportunity for other firms to propose alternatives. Bechtel's interest in the project stemmed from their perception that they could make more than \$28.2 million in profit from the developed land over the course of the 85 year lease. Part of the incentive for the City of Portland was anticipated property taxes, hotel/motel taxes, utility franchise fees, and business license fees from the developments Bechtel would be making.⁴³ The partnership also accelerated plans for this rail line by ten years.⁴⁴

Financing for the project came from Bechtel, the Port of Portland, the City of Portland, and TriMet. The Port of Portland invested \$28.3 million into the project which was funded through a Passenger Facility Charge (money that the airlines pay the Port for each passenger that boards a plane at the Portland International Airport).⁴⁵ The City of Portland funded \$23.8 million, making use of Tax Increment Financing (TIF) for its portion.⁴⁶ Tax Increment Financing is a strategy where bonds are repaid with money from future growth in property taxes in a developing area. In other words, the City of Portland was "borrowing against future growth in property taxes" in the area that they expected this agreement to develop.⁴⁷ TriMet paid \$45.5 million out of its own general fund towards the project, in anticipation of the revenue that they would be collecting on the project.⁴⁸ TriMet also issued tax-exempt bonds to Bechtel, which financed Bechtel's contribution.⁴⁹ The group did not apply for

federal funding, which expedited the process.⁵⁰ Bechtel entered into a joint venture with Trammell Crow (a real estate firm) known as Cascade Station Development Company (CSDC) to complete the project.⁵¹

The rail project was completed rapidly. Initial agreements were finalized in October 1998, construction began in June 1999, and the line opened on September 10, 2001.⁵² The terrorist attacks of September 11, 2001, and the ensuing economic recession, impacted the project's start. Ridership of the Airport MAX Red Line steadily increased from 2003 (see Figure 3), but the development of the Cascade Station land never took off.⁵³ In 2006, CSDC restructured after struggling to develop the area for five years. 36 acres were re-attained by the Portland Development Commission (PDC), and Bechtel sold its interest in the joint venture to Trammell Crow Company (now the sole owner of CSDC).⁵⁴ PDC contracted with Grubb & Ellis Company to market the 36 acres it took in the restructuring.⁵⁵ Five years later, development was considered successful. In 2005, zoning laws were changed to attract larger retail stores.⁵⁶ Between 2005 and 2011, the area had attracted two large "anchor stores" (IKEA and Target), which were accompanied by 43 commercial buildings, and three hotels.⁵⁷ The area has the potential to create "7,600 more jobs...and \$2.4 million in additional revenue annually for the City of Portland" if development continues.⁵⁸ Cascade Station will also be the home of the Portland headquarters of the FBI.⁵⁹

Benefits and Criticisms

This project was innovative, in that a design-build agreement for a rail line and a development agreement for publicly-owned land were part of the same agreement. The speed with

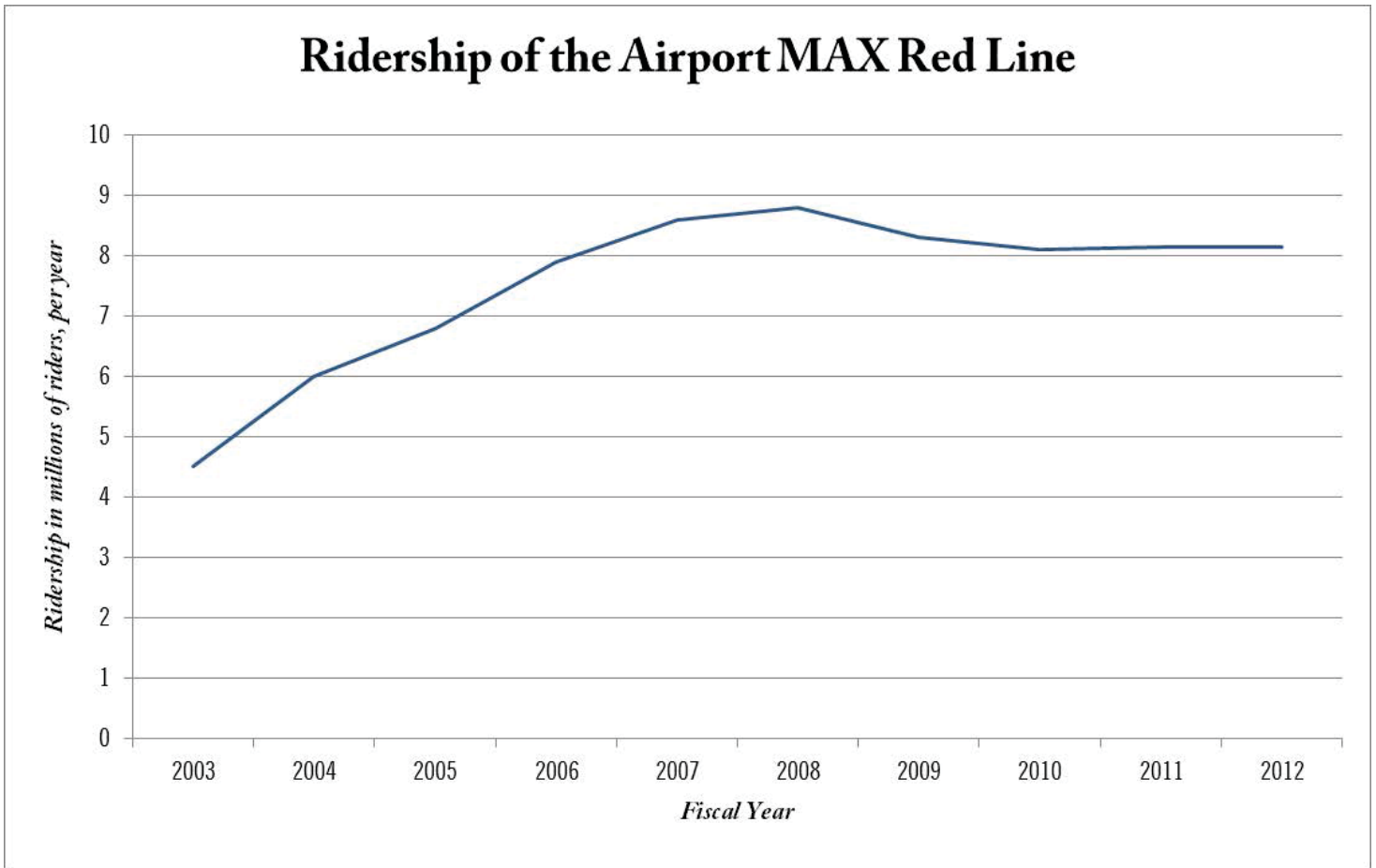
which this agreement was undertaken (five years from initial proposal to opening day⁶⁰), is worthy of note. This important development came ten years ahead of original plans thanks to the public-private partnership.⁶¹ A gain for the public.

There is a compelling argument that the strained development of Cascade Station was out of the hands of any of the partners. Much of it is attributable to the poor economy in 2001, making the plan simply “ill-timed”.⁶² It is also possible that the transit-oriented development strategy was not appropriate for the area.⁶³ This is supported by the fact that development really kicked off once zoning laws for the area encouraged “big-box” stores like IKEA and Target to enter.

Takeaways

The Portland Airport Red Line project shows that public-private partnerships may be able to help expedite infrastructure projects. P3s can also avoid the use of state and federal funds by drawing on private equity and other creative financing techniques such as Tax Increment Financing. However, when negotiating deal structure, loan payments, and determining expectations, it should be taken into consideration that projects sometimes take time to show results. It took ten years for the development of Cascade Station to start to thrive. Further, project deal structure should take into consideration that macroeconomic trends, September 11 in this case, can threaten the initial success of projects. One key takeaway from this project is that public-private partnership agreements can creatively use public assets (such as land) in the negotiation of deals.

Figure 3⁶⁴



Data cited from <http://trimet.org/pdfs/history/railfactsheetairport.pdf>

Northwest Corridor



Summary	
Project Type	Highway managed lanes
Year	2018
Deal Structure	DBF
Total Cost	\$900.6 million construction cost
Financing	TIFIA loan, developer financing
Funding	User-paid toll, state motor fuel taxes
Public Benefit	Improved traffic flow, reduced congestion

Background

The Northwest Corridor project will expand 29.7 miles of I-75 in the Atlanta region to improve traffic flow along the highway. This is Georgia's first P3 and the most expensive highway project in the state's history, at \$900.6 million.⁶⁵ The high cost is due both to the length of highway construction, and the 39 bridges along the way.⁶⁶ Construction is ongoing after beginning in 2014, with a projected opening date in Spring/Summer 2018. The project is being constructed under a Design-Build-Finance (DBF) agreement, facilitated by Georgia's P3 Program. The Northwest Corridor roadway will remain owned and operated by the State of Georgia. This project leans heavily towards the public partner (the State of Georgia) with the private partner (Northwest Express Roadbuilders) fulfilling design, construction, and limited financing.

Project Description

In 2013, the Georgia Department of Transportation (GDOT) partnered with the private partner for the project, Northwest Express Roadbuilders (NWER). The State Board of Transportation voted to approve the partnership, selecting NWER as the best value proposer.⁶⁷ The agreement followed a Design-Build-Finance structure. Under the set terms of the agreement, the selected private partner would provide 10 percent of the project's design-build costs (\$59.8 million), which are to be repaid using toll revenues after the project's completion.⁶⁸ In a sense, it was as if the State of Georgia was able to take an interest free \$59.8 million loan from Northwest Express Roadbuilders in exchange for granting them the design-build contract. After construction is complete and the \$59.8 million is repaid, the private partner's role in the project will be complete. Further toll revenues will fund the operation and maintenance of the Northwest Corridor, and surplus will be used for additional transportation projects in the state.⁶⁹ The complete project will have added 29.7 miles of three reversible toll lanes, as well as the extension of existing managed lanes.⁷⁰ The reversible toll lanes will travel one way in the morning, and reverse in the evening to match traffic patterns. The conceptual idea is that drivers will pay a toll at times of high traffic to reduce congestion.

The State of Georgia made use of a TIFIA loan and the innovative Design-Build-Finance agreement to fund 37.18 percent of the project, with the rest coming from federal and state funds and State Motor Fuel Funds. (See Figure 4).

Benefits and Criticisms

The State of Georgia benefitted in two ways from using a DBF approach. First, they obtained \$59.8 million in additional financing from the private partner, which will be repaid using funds generated by the project. Second, they significantly reduced construction time. According to project materials, a traditional construction model (contracting design and construction separately) would have had a 10-15 year timeframe.⁷¹ Under the current schedule, construction will have a four year timeframe.

Some criticism has been directed at the project. The public comments make evident that toll roads remain an unpopular concept.⁷² While heavy traffic on numerous toll roads across the country show that people will use them and pay tolls for the benefit of convenience, public comments suggest that they may do so begrudgingly. However, it is unlikely that adding additional lanes would have been financially feasible without tolls, and the solution is not unprecedented. In fact, Georgia transportation officials have formally stated that there will be no new interstate lanes in metropolitan Atlanta unless the lanes are tolled.⁷³ Further, some concerns have also been raised about the concept and hazards of reversible lanes, but GDOT has plans to prevent any wrong-way traffic.⁷⁴

Figure 4. Specific Breakdown of Funds (amount in millions)

Source of Funds	Type	Amount (\$M)	Percent
State Transportation Improvement Program (STIP) ⁷⁵	Federal and state funds	265.8	29.51%
Transportation Infrastructure Finance and Innovation Act (TIFA)	Federal Loan	275	30.54%
State Motor Fuel Funds	State Funds	300	33.31%
Private Partner Financing	Private	59.8	6.64%
<i>Total</i>		\$900.6 million	100%

Takeaways

The Georgia Northwest Corridor project displays how Design-Build agreements can dramatically reduce construction periods. It also shows how a Design-Build-Finance model can secure additional funding for large, expensive projects. This project would not have been financially feasible were it not for private equity and federal programs such as TIFIA. However, this project also highlights the fact that the construction of new toll roads remains an unpopular notion for the public.

PA Rapid Bridge Replacement



Summary	
Project Type	Multiple bridges
Year	2017
Deal Structure	DBFM
Total Cost	\$1.1 billion for construction and 25 years of maintenance
Financing	PABs, private equity
Funding	Mobilization, milestone and availability payments, interest earned
Public Benefit	Replacement of structurally deficient/unsafe bridges

Background

In 2012, the State of Pennsylvania enacted Act 88 that created a new system for how P3s can be used to help fulfill transportation infrastructure funding and projects.⁷⁶ This created the P3 Board of the Department of Transportation, which signed the contracts for the Rapid Bridge Replacement Project. The Project will rebuild 558 small bridges throughout the state starting in 2015 and finishing by the end of 2017. The major parties to this contract are PennDOT and the master contractor, Plenary Walsh Keystone Partners, a consortium of companies specializing in big infrastructure projects that are delivering financing and long-term project management while contracting with local construction companies. The partnership will last 28 years, with 42 months of construction and 25 years of maintenance responsibility.⁷⁷ The other key stakeholders in this process are the local governments where these bridges are located.

Project Description

The bridges were selected out of the 4,350+ structurally deficient bridges in the state. The bridges that were selected are all in need of replacement, have limited size, length, and number of lanes. The bridges were also selected based on some deliverability considerations including minimum disruption to the public, minimal changes to existing alignment, maintaining existing profiles, and limited impact to utilities, waterways, and other users of the space. Environmental considerations were also accounted for to ensure minimum environmental impact. Through this process, over 2,000 bridges were screened and 900 were found eligible. These were then ranked and prioritized by critical structure, how well they passed the screening requirements, and their availability for construction in 2015 and 2016.⁷⁸

The project is being executed with a design, build, finance, and maintain (DBFM) model. The private company, Plenary Walsh, has 42 months to replace the bridges. The construction period will be financed by \$721.5 million in Private Activity Bonds (PABs) – the largest PAB issuance in the history of the federal program⁷⁹ - \$59.4 million in equity from Plenary Walsh, \$224.7 million in mobilization and milestone payments, \$35.8 million in availability payments, and \$4.9 million in interest earned.⁸⁰ The mobilization and milestone payments are paid by PennDOT to facilitate the construction process.⁸¹ The state will then pay Plenary Walsh through performance-based payments that allow PennDOT to ensure an optimal product.⁸² Paying an average of \$60 million per year over the length of the contract, these bridges will take up 2.5 percent of the department's annual investment in roads and bridges. The state will keep ownership of the bridges throughout the contract.

Benefits and Criticisms

The major benefit to PennDOT in this partnership is the ability to quickly complete a massive infrastructure project. Pennsylvania has a lot of rural roads, and thus bridges, and many of those are 30 to 40 years past their useful life. This project will take a sizeable portion out of the 4,000 structurally deficient bridges in the state. Logistically, this could take 10-15 years for PennDOT to do on its own. Instead, a private company assumes the construction risk, and is able to better mobilize a large-scale construction effort than the resource-constrained state DOT. Moreover, the efficiencies inherent in bundling numerous projects together will save taxpayers 30 percent of what it would usually cost to replace bridges one by one. The average cost for building and maintaining for 28 years each bridge in the P3 contract is \$1.6 million. PennDOT estimates that their cost would be over \$2 million.

The plan is not without risks, however. One way that Plenary Walsh will make a profit is by keeping costs low. Because Plenary Walsh is only responsible for 25 years of maintenance, out of a 100 year lifespan, there could be an incentive to create bridges that function best over the first quarter of their lifespan but could see problems down the line. The performance-based payments could be a solution to this, if the state is watchful in its bridge inspections and ensures that the bridges are still structurally sound towards the end of the 25 years.

Takeaways

The Rapid Bridge Replacement Project is an example of the way innovative P3s can be used to deliver even small-scale infrastructure projects faster and cheaper than the traditional design-bid-build process. By choosing small spans and relying on prefabricated components, bundling a larger number of

similar projects, and relying on a private entity with the ability to quickly execute the project, Pennsylvania will see a sizeable reduction of the number of structurally deficient bridges in the state over a very short period of time. While this model does not work for projects necessitating complex design (e.g. large bridges), in situations with a large number of small, similar projects, the economies of scale make this a good strategy because the private actor is better able to scale up production than the state agency. The DOT also greatly benefits by having a contractually obligated set amount to pay for these bridges every year for the next 25 years, regardless of construction or maintenance issues that arise.

Long Beach Courthouse



Summary	
Project Type	Civic building
Year	2013
Deal Structure	DBFOM
Total Cost	\$725 million (net present value) in payments to private partner over life of contract
Financing	Private equity, mini-perm loans
Funding	Occupancy payments
Public Benefit	New courthouse facility with separate space for juries and defendants, as well as new retail and eateries

Background

The Long Beach Courthouse, named after Governor George Deukmejian, was the first major civic building in the U.S. to be delivered through a Performance Based Infrastructure (PBI) P3 project, in which the developer makes the initial investment and the public sector makes payments once the building is occupied.⁸⁶ The major stakeholders were the Administrative Office of the Courts (AOC), the state agency that manages the court system, and Long Beach Judicial Partners, the parent company of the consortium of companies involved in the design and construction process.⁸⁷ The resulting structure, a new building that opened in September 2013, is 531,000 square feet and houses 31 courtrooms. It also achieved LEED Gold Certification, despite only initially planning for Silver, with no additional costs.

Project Description

When the Long Beach Courthouse project was developed, the state was actively looking for innovative ways to shift risk and capital requirements off of their docket, largely due to the billions needed for courthouse repair projects throughout the state.⁸⁸ The Schwarzenegger administration had also prioritized the expansion of private industry collaboration in delivering government services through P3s.⁸⁹ Legally, the use of P3s by the AOC is authorized under California law, and the specific Long Beach Courthouse project was authorized under SB 77, the Budget Act of 2007.

This project was completed through a PBI framework that has been adopted by the AOC. On the front end, the private entity finances and builds the project. The developer invested \$49 million in cash equity in 2010, and arranged seven-year floating-rate mini-perm loans totaling \$443 million.⁹⁰ The mini-perm loans had the benefit of allowing the developer four years to refinance.⁹¹ Only upon satisfactory completion does the government occupy the building and begin paying the set monthly rate. This rate is subject to satisfactory maintenance and can be deducted from for lapses or closures that decrease building performance. The first year's occupancy payment is \$53.65 million, assuming no deductions.⁹² The net present cost, the current sum of the life of the contract, to the AOC is \$725 million, but future payments will be adjusted for inflation and could raise this total.⁹³

Benefits and Criticisms

One key benefit to the State is assured funding of maintenance over the 35 year lease. Because payments are controlled and maintenance is fulfilled by the private company, fluctuations in state budgeting will not affect future maintenance of the courthouse.

One critique of the courthouse came from the state Legislative Analyst's Office (LAO), a nonpartisan fiscal and policy advisor. LAO did a report in 2012, "Maximizing State Benefits from Public-Private Partnerships," which found that the P3 practices used by the Administrative Office of the Courts did not have a transparent process, and said that the Long Beach Courthouse project was not complex enough to require the innovative processes and techniques that a P3 could deliver (i.e. it would have been simpler to build more traditionally). Moreover, the LAO found that the original analysis of the project had some key assumptions that favored P3 procurement, such as overestimating cost overruns. These assumptions, according to the LAO, could result in the P3 costing more than a traditional approach.⁹⁴

However, the AOC responded in a letter to the LAO that this critique is theoretical only that it stands by its assumptions.⁹⁵ The AOC disputed the idea that the courthouse was not a complex project, stating that the energy management systems, life safety issues, and the hundreds of detention cells, as well as 19 elevators, needed for management of a large courthouse's occupants is inherently complex.

Takeaways

This is the first P3 assembled by the AOC and one of only a few P3s in the country for civic buildings. One observer noted that this model could translate to rebuilding the some 3,000 hospitals in the country that are in need of major work or the 40,000 colleges nationwide that are searching for innovative solutions in a time of tightening state budgets.⁹⁶

Further, the difference of opinion regarding the use of a P3 model for the courthouse between two state agencies (the AOC and the LAO) did not stop the project, but does highlight the need to develop an agreed-upon methodology that states can use to analyze the value-for-money offered by a P3 approach compared to a traditional procurement.

Ultimately, Performance Based Infrastructure (with P3 structuring) could be a valuable tool for public entities to protect investments from political trends that can affect state budgets on a year to year basis, as it locks in public payments at a fixed amount for a number of years. Moreover, it is a promising avenue for infrastructure advocates because it guarantees sufficient maintenance of an investment over the lifetime of the lease. This could prove useful for many different types of public infrastructure from transportation to civic buildings.

Port of Miami Tunnel



Summary	
Project Type	Tunnel
Year	2014
Deal Structure	DBFOM
Total Cost	\$1.4 billion in payments to concessionaire over life of project
Financing	Senior bank debt, TIFIA loan, private equity
Funding	Availability and milestone payments and development funds
Public Benefit	Route traffic out of downtown streets and improve air quality in downtown

Background

The Port of Miami Tunnel project was built through a public-private partnership that includes the design, build, finance, operation and maintenance (DBFOM) of the project.⁹⁷ The Florida Department of Transportation (FDOT) is the owner and worked with Miami Access Tunnel (MAT) Concessionaire, the private consortium partner led by Meridiam Infrastructure. FDOT named MAT the Best Value Proposer in 2007, and the partners closed the deal in October 2009; construction began in May 2010; tunnel mining began in November 2011. The project was open to the public in August 2014.⁹⁸

Project Description

The idea for the tunnel first surfaced in 1982 when a task force determined that such a structure should be built between the Port of Miami and I-395 via the McArthur Causeway, in

order to reroute port-bound traffic off downtown streets. By 1984, a plan for the tunnel had been developed. This plan was shelved for a number of reasons, but largely due to the building of a cheaper, six lane bridge between downtown and the Port in the early 1990s. There was also a declining number of trips to the port that made the tunnel less important.⁹⁹ However, truck traffic remained routed through the central business district, and the plan for a tunnel remained a leading solution. The Federal Highway Administration (FHWA) eventually gave approval for the tunnel in December 2000. Further evaluation studies were then carried out and a P3 model was considered for project construction in 2005.

The project between FDOT and MAT is structured under a 35-year concession agreement (until October 2044), which included 55 months for design and construction being carried out by Bouygues Civil Works Florida (BCWF). During construction, milestone payments were made by FDOT to support construction progress. After completion, the department began making availability payments to the concessionaire.¹⁰⁰ These payments will be contingent upon actual lane availability and service quality. The tunnel will be returned to FDOT in first-class condition at the end of the contract in October 2044.

The state agreed to pay for half of the capital costs (design, construction) and all of the operations and maintenance, while the remaining half is provided by Miami-Dade County and the City of Miami. The estimated total cost over the life of the project is \$1.4 billion. Availability payments became the primary mechanism for payment to the consortium. These payments were to be paid to the concessionaire over

the lifetime of the contract on an annual basis in amounts of \$32.5 million and are contingent on the service quality and availability of the road and its accessibility. This also acts as an additional incentive for the concessionaire to abide by the quality requirements of the project throughout its lifetime. As the project is funded by the FDOT and county and local governments throughout the lifespan of the project in milestone payments, no toll is collected for use of the tunnel.

The up-front capital sources were: \$341 million in senior bank debt; \$341 million in TIFIA loan; \$80.3 million in equity contribution from the private consortium; \$100 million in FDOT milestone payments during construction; and \$209.8 million in FDOT development funds.¹⁰¹

Due to technical complication related to the ventilation fans in the tunnel, the project's completion was delayed by a few months at the end of the construction period. The contractor, Paris-based Bouygues, was required to pay a fine of \$115,000 to MAT Concessionaire for every day the tunnel remained closed.¹⁰² At the end of the 11-week delay, nearly \$9 million in penalties were paid out. The FDOT also correspondingly delayed paying out the \$32.5 million annual payments to MAT due to the delay in completion.¹⁰³

Benefits and Criticisms

The benefits of this project are that it accommodates heavy cargo truck traffic coming in and out of the Port, reducing congestion and air pollution on the streets of downtown Miami, and connecting in a more streamlined fashion the airport and cruise ship terminal. The project was quite astute, from its renewed inception in 2009, at involving the public and

transparently communicating public value. Partners ran a campaign directed at hiring local workers from the area code (“Operation 305”)¹⁰⁴ around the Port facility, engaged the local Girl Scouts in a naming competition for the tunnel boring machine, and set up kiosks across the city to help educate and engage residents in the project’s timeline and benefits to the region. Of the project’s nearly 7,000 employees, 83 percent were local Miami residents.

Criticism against the project was that it was going to be a tunnel to nowhere, only accommodating traffic to cruise ships, which would be heavy just a few days a week. Further, the project was criticized during construction for failing to comply with environmental standards and protections of landscapes in south Florida. Contractors fell under criticism for dumping tunnel fills onto sensitive wetlands, missing the spot they were designated through permits to dump by a few 100 yards and damaging mangrove trees in the process. Critics waging that this was an example of why more, not less government regulatory oversight is necessary for projects.

Takeaways

This project took decades to complete, but once the P3 process was initiated, it was delivered very efficiently, demonstrating how risk can be shared and minimized for the public. The only risk FDOT solely assumed, in fact, was in the political process of obtaining the appropriate

intergovernmental agreements, obtaining the areas within the preliminary right of way plan, and procuring the legislative and regulatory authority for the award of the concession agreement.¹⁰⁵ All financial risks are on the private partner; other risks such as relocating utilities, unforeseen construction issues, inflation, and excessive traffic are shared.¹⁰⁶

The Port of Miami Tunnel was a very technically difficult project, but by using a strong, competitive bidding process, FDOT reduced their annual payments to \$32.5 million, down from the pre-bid estimate of \$38 million.¹⁰⁷ This is also a good example of how availability payments can be used in place of tolling when user fees are not an attractive option.

US-36 Express Lanes



Summary	
Project Type	Highway managed lanes and BRT
Year	2016
Deal Structure	Phase 1: DB
	Phase 2: DBFOM
Total Cost	Phase 1: \$312.4 million for construction
	Phase 2: \$208.4 million for construction
Financing	TIFIA loans, PABs, private equity
Funding	User-paid toll ¹⁰⁸
Public Benefit	Less congested highway with alternative modes of travel: dedicated BRT and bike lanes

Background

Connecting Denver and Boulder, US-36 first opened as a toll road in 1951. Its tolls paid back its creation and the toll booths were removed in 1968. In the decades since, the highway has carried increasing numbers of cars as the region grew. This led the Colorado Department of Transportation (CDOT) to begin exploring options to rebuild the corridor in the late 1990s. In 2009, an environmental impact statement (EIS) was completed. This described preferred alternative improvements to be completed as funding became available in the future. The solutions identified included a buffered managed lane in each direction, bus rapid transit (BRT) ramp stations, a bikeway, and auxiliary lanes between most interchanges.

Project Description

CDOT entered into a P3 agreement to “build much-needed improvements on a highway . . . two decades sooner than we could otherwise afford” because fuel tax revenue had not kept up with the needs of Colorado’s infrastructure.¹⁰⁹ The US-36 improvements are actually being executed in two phases under two different contracts. Phase 1 is a partnership between CDOT and the consortium, Colorado High Performance Transportation Enterprise (HPTE); Phase 2 is between CDOT and two groups, Colorado High Performance Transportation Enterprise (HPTE) and Plenary Roads Finco LP (Plenary), who is functioning as the TIFIA borrower. This work has been coordinated with Regional Transportation District (RTD), the transit provider for the Denver area who will be operating BRT in the corridor.

Phase 1 of the US-36 improvements was a P3 design-build model to deliver the first 10 miles of construction of highway improvements. This phase cost \$312.4 million and was financed through a \$50 million TIFIA loan, state grants and funds, regional federal funds, a sales tax measure in the region passed to make capital improvements (1/3 of the cost), and a small amount of local funds.

The separate Phase 2 agreement requires the private partner to design, build, finance, operate, and maintain (DBFOM) the expanded highway, as well as the 10 miles completed during Phase 1. The private partner will assume most of the risk in the deal, particularly related to the sufficiency of toll revenues. The contract is a non-exclusive license “to access and use the highway and its structures for the purpose of carrying out the operations” of the contract; however, the State maintains ownership of the highway.¹¹⁰

Phase 2 will cost \$208.4 million and is being financed through private equity, a TIFIA loan, \$20 million in PABs, toll revenue, as well as state, federal, and local funds.

Other details of the contract include penalties for failing to meet maintenance standards such as snow plowing or if the express lanes are congested to the point of delaying BRT vehicles. The state can make improvements to the highway at its own cost. The state will also share in revenue generated once minimum returns are met.

Phase 1 of US-36 was completed in summer 2015.¹¹¹ This project delivered 10 miles of improvements to the highway including an HOV-toll lane in each direction, multiple bridge replacements, BRT accommodations at stations located on ramps and bus bypass ramps at several interchanges, a bikeway along much of the corridor, modern equipment for tolling and management, and improvement of transit stations in the corridor.

Phase 2, bringing in a DBFOM model, extended the improvements for another 5 miles, bringing the same improvements farther up the corridor and selecting a partner to provide operation and maintenance of the highway and its HOV-toll lane. Phase 2 was completed at the end of 2015, and RTD began BRT service in January 2016.^{112, 113}

Benefits and Criticisms

CDOT used a unique, two phase process for the P3. This approach made the project more manageable; CDOT set a clear goal for each phase, and the project came in on time. Second, the Department was able to leverage private funds for part of the project. The phased approach allowed the parties to develop a financial plan that worked for all parties,

with neither the State nor the private sector bearing the full cost of financing. While shouldering the financing for the first phase, which upgraded a road that the State needed to upgrade regardless, CDOT allow for private capital to be leveraged in the second phase.

Takeaways

One of the major lessons from the US-36 project is in its innovative inclusion of multiple modes of transportation infrastructure into a P3 framework. It took an existing, congested highway and transformed it into a revenue generating piece of infrastructure that will help distribute benefits across different types of users - drivers, cargo, transit riders, and bicyclists - through improvements that will: offer users the option to pay to have a less congested route; allow for bus rapid transit (BRT) between Boulder and Denver, alleviating congestion in the corridor; create bicycle infrastructure; and upgrade existing RTD transit stations in the corridor to incentivize regional rail usage. It is rare to have a multimodal upgrade packaged into one project, and to do it with expedited delivery, private financing, and limited public risk is a model from which other states and cities can learn.

Oakland Airport Connector



Summary	
Project Type	Light rail transit
Year	2014
Deal Structure	DBOM
Total Cost	\$484 million plus annual operating costs of \$3 million
Financing	TIFIA loan
Funding	Bridge toll user fees; FTA Small Starts grant
Public Benefit	Links transit system to the airport, reduces congestion

Background

The Oakland Airport Connector (OAC)¹¹⁴ is a 3.2-mile extension of the Bay Area Rapid Transit (BART) system that travels from Coliseum Station to Oakland International Airport via a new, driverless, Automated Guideway Transit system. Planning for the project began in 1970, with planning and authorization continuing until 2009, when the design-build contract was approved. The purpose of the OAC is to link the BART system with the Oakland International Airport with the intent of making the area more desirable for business and travel.¹¹⁵ The project may also serve to reduce congestion along Hegenberger Avenue, one of the main roads in the area. Because the cost of a trip is less than other modes of transport, residents and visitors will be economically incentivized to make use of this new option.¹¹⁶ In addition, the project was projected to create

and/or support approximately 13,000 direct and indirect jobs and generate \$1.2 billion in economic activity during construction.¹¹⁷ The OAC opened in November 2014.

Project Description

The original intention was for BART (a regional transportation authority not a part of any local or state government) to use a P3 DBFO (Design-Build-Finance-Operate) structure, with the private consortium expected to finance half of the project's capital costs, with monthly payments back to the consortium drawn from fare revenue.¹¹⁸ However, this did not come to pass. The Request for Qualifications (RFQ) for a DBFO contract was sent out in 2006.¹¹⁹ Three potential teams qualified, and a Request for Proposals (RFP) was issued in 2007.¹²⁰ However, all private partners eventually left the project (the final partner withdrawing in 2008) as projected costs rose and projected ridership declined, citing "lack of confidence in the opportunity for any return on investment".^{121, 122, 123}

The OAC project ultimately followed a Design-Build-Operate-Maintain (DBOM) structure. There were three main private corporations involved in this project. The companies were contracted to design, operate and maintain the Oakland Airport Connector.¹²⁴ Flatiron Corporation led the venture with a 70 percent share, and was in charge of the design and construction of a fixed, elevated guideway (a design-build agreement).¹²⁵ Parsons also entered into a design-build agreement, in the role of design and construction of the system.¹²⁶ Doppelmayr Cable Car served as the third partner in the project in a design-build-operate-maintain capacity. Their role was to install the ropeway, guideways, and Cable Liner vehicles. Also,

Doppelmayr has a 20-year operations and maintenance contract for the system.¹²⁷ They are to be paid to run the system, provided that trains are available to passengers at least 99.5 percent of the time.¹²⁸ In addition, Turner Construction Company worked as a 'major subcontractor'¹²⁹ alongside more than 70 other subcontractors that included local and small businesses.¹³⁰ The involvement of local businesses was considered a major success of the investment.¹³¹

The total cost of the project was \$484 million, with a \$3 million annual operational budget.¹³² The connector is expected to generate revenue through a \$6 fare per rider. The projected ridership was 2,745 passengers a day at opening, which is projected to increase over time.¹³³ This system replaces the AirBART bus system¹³⁴ (which used to connect the same two points). The project ran over its expected completion date of June 2014 by a few months, holding its grand opening in November 2014.

The project was financed through a \$105.7 million TIFIA loan, \$20 million from the Metropolitan Transportation Commission (MTC), and the remaining from local, state, and federal resources.¹³⁵

Benefits and Criticisms

The development of the OAC was not without controversy. Arguments against the system were that it would not serve enough people, the travel time (8 minutes) is too slow, and it is unfair to the AirBART shuttle drivers who would likely be laid off.¹³⁶ The project also failed to attract significant private investment. From the project's inception, some argued that dedicated bus lanes or improvements to the larger BART rail network would have been a better allocation of funds.¹³⁷

However, BART did analyze alternatives, and concluded that a bus alternative would not match the daily ridership, capacity, wait time, or trip time of the connector project (although it would have been substantially cheaper).¹³⁸

However, BART did manage to employ the skills and technology of Doppelmayr Cable Car to design and operate the system, a rail connection to an international airport was established, and the project created jobs for local residents in the process.¹³⁹ Also, the project offers an alternative to driving.¹⁴⁰

The project planners originally anticipated \$70 million in money from the American Reinvestment Recovery Act from the FTA, but that money was revoked due to equity concerns related to the fare price, and concerns that the project violated Title VI of the federal Civil Rights Act of 1964.¹⁴¹ The concern was raised by local advocacy groups, and the money was revoked when it was found that BART had not prepared a service equity study. This financing support loss was made up through project cost reductions and additional borrowing from TIFIA. The challenge from the FTA was ultimately dismissed when BART's service equity analysis concluded that fare increases produced no significant adverse impacts to minority or low-income passengers.¹⁴²

Takeaways

This project shows that private investors will not hesitate to walk away from a deal, and may be inclined to do so if the planning processes draw on for extended periods. BART faced an extremely vocal critic, the advocacy group TransForm. Their criticisms of the costs and potential civil rights issues of the project caused a loss of public support for the OAC.¹⁴³ As the costs of the project expanded, the project's unpopularity

increased. However, BART stuck with the project, arguing that the rising costs were due to an inaccurate initial projection not done by their analysts, with other increases due to delays and the economic recession.¹⁴⁴

Despite challenges, the project can be deemed an overall success. Despite complaints regarding the high \$6.00 fare (double the cost of the bus), 2,600 people rode the system in February 2015, in line with projected ridership and 36.9 percent higher than ridership of the old bus system at the same time the previous year.¹⁴⁵

Indiana Toll Road



Summary	
Project Type	Toll road
Year	2006
Deal Structure	Long-term operating lease
Total Cost	\$3.8 billion payment to the state
Financing	Private equity, senior bank debt
Funding	User-paid toll
Public Benefit	Significant upfront payment to the state; long-term maintenance of the roadway

Background

Located on the northern edge of the state, the Indiana Toll Road (ITR) was privatized in an agreement between the State of Indiana and the ITR Concession Company (ITRCC) LLC., owned by Spanish infrastructure company Ferrovial SA and Australian investment bank Macquarie Group Ltd.¹⁴⁶ In the agreement, the ITR, a 157-mile East-West Toll Road that directly connects the Chicago Skyway to the Ohio Turnpike was leased to the concessionaire for a period of 75 years.

Project Description

In 2006, a Macquarie subsidiary and Ferrovial affiliate Cintra Infraestructuras (an international toll road operator) paid \$3.8 billion to the State of Indiana for the right to

operate the road for 75 years. The winning bid brought in twice the value that state-paid consultants had calculated for the lease, state records show.¹⁴⁷

Lower than anticipated use of the road resulted in insufficient toll revenue to service the company's debt.¹⁴⁸ Even though earnings increased yearly from 2008 to 2013, they were lower than projected, forcing the company to devote an ever-greater share of operating income to debt service.¹⁴⁹ The significant increase in debt, largely due to the financial structuring used, caused bankruptcy for the private consortium.¹⁵⁰ The original financing package was structured as a nine-year, interest-only bullet loan hedged with a 20-year accreting interest rate swap whose rates were preset at 3 percent to 11.3 percent by 2023. While revenue and operating cash flow improved substantially from 2006 to 2011 and traffic patterns were stable, total project debt nearly doubled, from \$3.4 billion at acquisition to \$6.0 billion in 2011, a consequence of declining interest rates creating mark-to-market losses on the swap.¹⁵¹ This prevented an early refinancing from happening, and increased the project's debt load and effective interest cost. In September 2014, ITRCC announced it filed for Chapter 11 bankruptcy protection from creditors, and that a sale process for the asset would commence.¹⁵² On March 11, 2015, IFM Investors announced that it had entered into a purchase and sale agreement for \$5.725 billion for the right to operate the Indiana Toll Road and collect toll revenue. IFM inherits the remaining 66 years of the Concession Lease Agreement.

Benefits and Criticisms

The privatization of the ITR overcame intense critique from citizens, who worried about the “prospect of transforming a

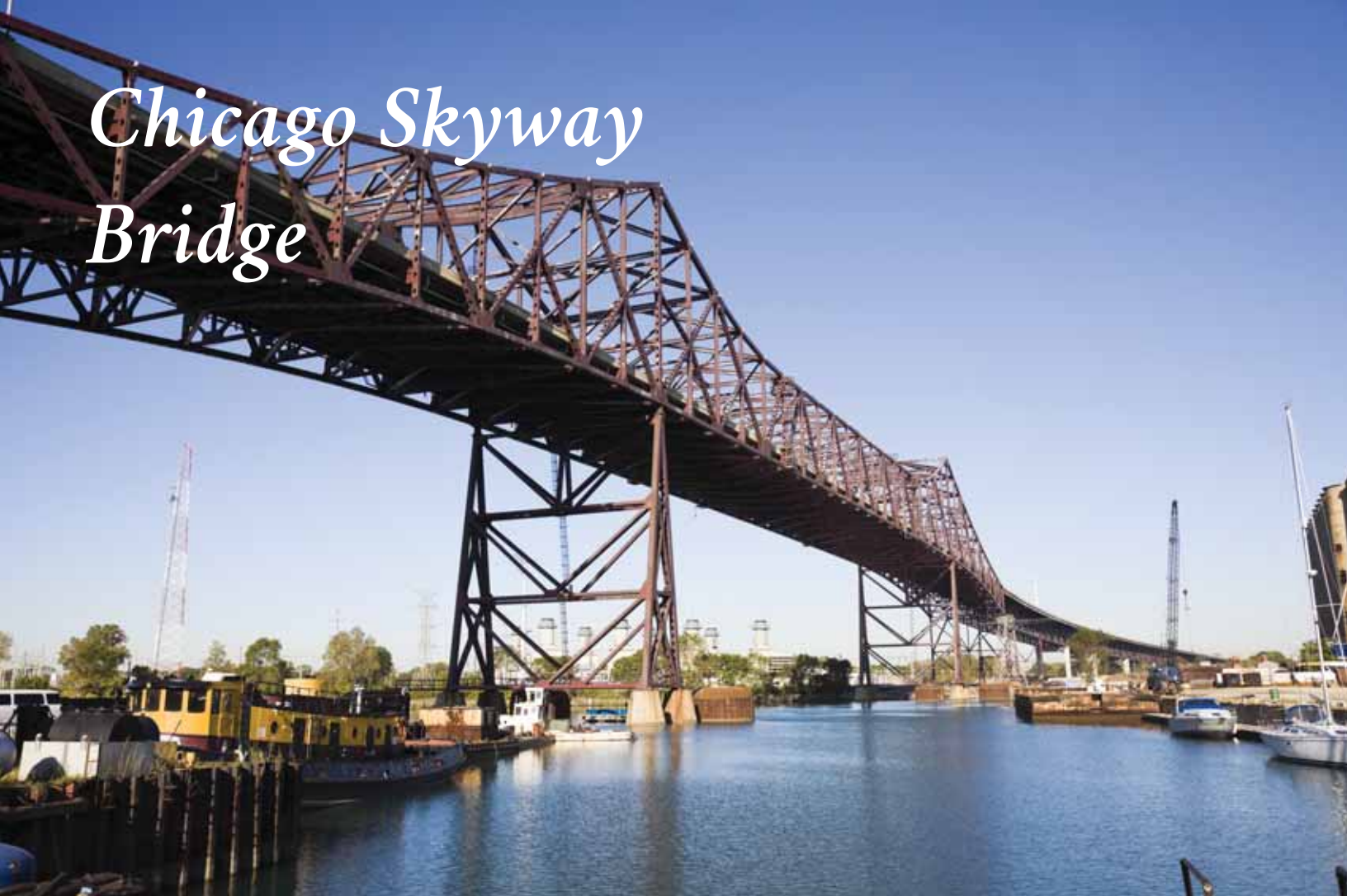
50-year-old public road into a profit-making entity” and that the deal would just “outsource profits” according to political opposition.¹⁵³ Then-Governor Mitch Daniels defended the deal, stressing the importance of attracting foreign investment as a means of creating jobs and wealth in the state.¹⁵⁴

In the end, no public employees lost their jobs. All of the public employees were adopted by ITRCC or other state departments without reducing compensation or pensions.¹⁵⁶ Further, the sale process had little to no impact on customer experience.

Takeaways

There are key lessons that can be learned from this project. First, efforts should be made to ensure accurate projections of revenue stream; however, this case also reflects the difficulty of making projections. Second, contingencies should be made for setbacks like an economic recession.¹⁵⁷ Third, the downfall of the first private partner did not hurt the public interest. The public benefited from the initial overpayment, and the road remains available for public use.

Chicago Skyway Bridge



Summary	
Project Type	Elevated toll road
Year	2005
Deal Structure	Long-term operating lease (privatization)
Total Cost	\$1.83 billion payment to the city
Financing	Private equity, bank loans, capital accretion bonds, subordinated bank debt
Funding	User-paid toll
Public Benefit	Upfront payment allowed city to establish a people, neighborhood, and business investment fund

Background

The Chicago Skyway Bridge is a 7.8-mile toll road built in 1958 to connect the Dan Ryan Expressway to the Indiana Toll Road.¹⁵⁸ In 2013, it recorded an average daily traffic of 41,249 vehicles.¹⁵⁹ It was privatized in 2005, the first privatization of an existing toll road in the U.S.¹⁶⁰ It is currently owned and operated by the private consortium “Skyway Concession Company, LLC” (SCC) which consists of a partnership between Cintra Infraestructuras and Macquarie Group.¹⁶¹

Project Description

The Skyway Concession Company (Cintra-Macquarie) won the competitive bidding contest for the Chicago Skyway in January 2005, paying the City of Chicago an upfront payment of \$1.83

billion.¹⁶² The privatization was part of Mayor Daley's "continued commitment to . . . innovative financing techniques".¹⁶³ The Chicago Tribune referred to it as "a brilliant political move" to obtain "much-needed cash".¹⁶⁴ The agreement was for a 99 year lease to the private consortium.¹⁶⁵ Under the agreement, SCC may raise and collect all toll revenue, but must handle all operational costs (including repairs).¹⁶⁶ Toll increases were restricted using caps that increased over time.¹⁶⁷ After 2017, rates can increase annually in relation to inflation or per capita GDP.¹⁶⁸ SCC is also responsible for certain capital improvements.¹⁶⁹

During the initial transition period, the City of Chicago performed some functions, such as snow removal, for which it was reimbursed by the private consortium.¹⁷⁰ SCC has been responsible for several toll increases since its acquisition of the Chicago Skyway. The City of Chicago has the right to terminate the SCC's involvement if they declare bankruptcy or violate terms of the agreement.¹⁷¹ The involvement of the Skyway Concession Company will be ending soon, as they have sold their stake in the project to another private investor (this would not be likely to impact day-to-day operations of the Chicago Skyway).¹⁷²

The original agreement was for a single, upfront payment of \$1.83 billion. This arrangement encourages SCC to not only maintain, but *increase*, the profitability of the Chicago Skyway Bridge so as to make a return on its initial investment.

To pay for the Chicago Skyway Bridge, Cintra-Macquarie took out two series of bonds totaling \$1.4 billion.¹⁷³ Interest expenses were \$23.4 million in 2014, and their balance sheet also suffered \$25.7 million in derivative losses leading to the consortium operating at a net loss of over \$1 million that year. Since 2005, SCC only turned a profit in one year: 2013, even though year-to-year revenue only dropped once (marginally), from 2009 to 2010.¹⁷⁴ The cost of paying back their initial bonds has seriously impacted the private consortium's ability to be profitable.

This does not affect the City of Chicago, which is insulated from Cintra-Macquarie's financial situation. However, the burden does fall on the Skyway users to a certain extent. To attempt to boost profitability of their asset, SCC has raised tolls to the maximum allowable amount as per the Concession and Lease agreement. See Figure 5 on how tolls have increased under private ownership (toll costs are based on number of axles, and are for the peak hours of 4:00 AM to 8:00 PM).¹⁷⁵ The last time such a significant hike was made was in the 1980s when tolls were raised from \$1 to \$1.50, followed by eventual increase to \$2, to help pay for major repairs and developments.¹⁷⁶

Average daily traffic in 2005 was 48,422¹⁷⁷ and average daily traffic in 2013 was 41,249,¹⁷⁸ a decline of about 17 percent. Seeing as how other factors were also in play, notably the 2008 recession, it is not possible to conclude that SCC's toll increases drove consumers away from the Skyway. It is also important to note that these toll hikes were within the original boundaries allowed by the agreement, and therefore within the scope of what the City of Chicago deemed acceptable.¹⁷⁹

Figure 5. Chicago Skyway Bridge Tolls 2005 – 2015

Axles	2005	2008	2011	2013	2015	% Increase
2	\$2.50	\$3.00	\$3.50	\$4.00	\$4.50	80%
3	\$5.10	\$7.60	\$10.10	\$12.60	\$15.20	198%
4	\$6.80	\$10.10	\$13.50	\$16.80	\$20.20	197%
5	\$8.40	\$12.60	\$16.80	\$21.00	\$25.20	200%
6	\$10.10	\$15.20	\$20.20	\$25.20	\$30.30	200%
7	\$11.80	\$17.70	\$23.60	\$29.40	\$35.50	201%

The toll hikes were a success for SCC, boosting toll revenues from \$50.4 million in 2005 to \$80.7 million in 2014, helping to mitigate expensive interest payments.¹⁸⁰

Benefits and Criticisms

The City of Chicago came out ahead in this agreement. They were able to collect on 99 years’ worth of net revenue for a project that they no longer have to maintain and operate. The money was used to retire existing debt on the Skyway (\$463 million), pay down long-term city debt (\$134 million), eliminate short-term debt obligations (\$258 million), establish the first ever long-term reserve (\$500 million), establish a mid-term reserve (\$375 million), and establish a “people, neighborhood, and business investment fund” (\$100 million).

The private investor, Cintra-Macquarie, has so far been unable to convert the Skyway into a profitable asset. Whether the project was a win or a loss for the people of Chicago is open to debate. On the one hand, the City received a large upfront payment that they could dedicate to other programs. On the other hand, the users of the toll road are paying more than they were before. To compensate for the debt they incurred, Cintra-Macquarie raised tolls by 80 percent for individuals, and as much as 201 percent for large trucks. In 2011, even before tolls reached their current levels, the Skyway was already one of the most expensive interstate toll roads in the nation.¹⁸¹ Rising tolls

have soured public opinion of privatization projects to an extent.¹⁸²

Takeaways

Privatization projects such as the Chicago Skyway can result in large cash infusions for public entities, with the added benefit of removing the costs and commitments of maintenance and operations. This project shows that significant toll increases may not always result in declines in ridership, but they also may taint the idea of P3 projects and mask other benefits for both citizens and governments. More restrictive caps on toll increases could have helped to mitigate this issue; however, additional restrictions may have pushed the private partners to walk from the original deal, leaving the operations and maintenance costs of the Skyway to the city. One of the major challenges for this project was the cost of capital. Future P3 projects facing this situation should consider the federal TIFIA program and private activity bonds (PABs), which allow the federal government to reduce some interest costs of P3 projects.

Goethals Bridge Replacement



Summary	
Project Type	Bridge replacement
Year	2018
Deal Structure	DBFM
Total Cost	\$1.436 billion plus annual payments of \$56.5 million over 40 years
Financing	Private equity, TIFIA and PABs
Funding	User-paid toll and availability payments
Public Benefit	Replace obsolete/unsafe bridge; critical access point between Staten Island and Elizabeth, NJ

Background

The current Goethals Bridge connects Staten Island, New York to Elizabeth, New Jersey, and is a critical access point for commuters and freight carriers alike as one of the three bridges connecting Staten Island to the mainland. However, the bridge is 85 years old and functionally obsolete. The lanes were built to a 10-foot standard (versus today's 12-foot standard) and there are only two lanes of traffic in each direction with no pedestrian or bicycle access.¹⁸³ The replacement bridge will have six 12-foot lanes, outer and inner shoulders, a pedestrian/bike path, and accommodations for future public transit.¹⁸⁴ The replacement bridge will also have new structural standards, seismic protections, and smart bridge technology.¹⁸⁵ The project delivery method is a design, build, finance, and maintain (DBFM) structure. Construction began in May 2014, and projected completion is for late 2018.¹⁸⁶ The new bridge will be

constructed alongside the old one, and the project will conclude with the demolition of the old Goethals Bridge.

Project Description

The public partner for this project is the Port Authority of New York and New Jersey (PANYNJ). In mid-2010, they began the process by issuing a Request for Information, a preliminary to a Request for Proposals.¹⁸⁷ The private consortium that won the bid was the NYNJ Link Partnership, formed by Macquarie Infrastructure and Real Assets (MIRA) with 90 percent interest, and Kiewit Development Company (KDC) 10 percent interest. They were chosen because they offered the lowest cost to PANYNJ.¹⁸⁸ A public-private partnership was pursued because the Port Authority had neither the funds nor the public debt capacity to finance the high cost of the project, \$1.436 billion.¹⁸⁹

The private partner will design and build the project, finance a significant portion of it, and provide maintenance for 35 years. Importantly, PANYNJ will control and collect all toll revenue. PANYNJ will own the bridge, set tolls, and manage day-to-day operations.

The main role of the private partner is as a financier; they can be thought of as a creative way for the Port Authority to expand its public debt capacity. The NYNJ Link Partnership will be covering \$1.034 billion of the cost. It will put \$106.8 million in equity into the project, and is also taking out two loans: a \$473.7 million TIFIA loan¹⁹⁰, and \$453.3 million in Private Activity Bonds.¹⁹¹

PANYNJ will be paying a projected \$425.2 million. The Port Authority will also be repaying the NYNJ Link Partnership through availability payments derived from toll revenue over a 40-year period. These payments will be \$56.5 million per year, and will remain fairly constant.¹⁹³ This should be affordable for PANYNJ, as they already collect \$131.8 million/year (minus \$24.7 million/year in operating costs) on the old, 4-lane bridge.¹⁹³

An availability payment can be defined as “a payment for performance made irrespective of demand.”¹⁹⁴ They are appropriate when a project does not generate direct revenue, performance/operational outcomes are easy to define and measure, the government wishes to retain control over rate-setting, revenue and demand are not predictable, or when service quality is the priority over revenue maximization.¹⁹⁵ The public partner will make payments to the private partner over a long period of time on the condition that the terms of the contract are met.¹⁹⁶ This would normally entail meeting defined levels of quality and service. Because payments are tied to asset performance, operational risk is shifted to the private partner. In the case of the Goethals Bridge project, usage risk, which is often shifted to the private partner in a P3, remains with the Port Authority, which retains authority to collect tolls from the new bridge.

Benefits and Criticisms

The Goethals Bridge Replacement project is a critical infrastructure investment to replace a nearly century-old bridge. The new project is also set up to be environmentally

friendly, with bike/pedestrian lanes and the capacity for public transit in the future. The project manager for the new Goethals Bridge noted that they are taking care to have a minimal environmental impact.¹⁹⁷ The bridge project is projected to create 2,250 direct jobs and generate \$872 million in total economic activity for the region.¹⁹⁸ The fact that the Port Authority will retain control of tolling signals stability for the project's future. Furthermore, since the new bridge is being built alongside the old one, there will be minimal delays and closures during construction.¹⁹⁹

One criticism that could be leveled at this project is that the current availability payment rate, will likely provide the private partner with an extremely high profit. That being said, it is unlikely that PANYNJ would ever have been able to finance the project without the financial partnership.

Takeaways

This project demonstrates how a DBFM model can be utilized to help government agencies meet public needs, without giving up control of infrastructure assets. With the help of a private partner, a port authority that had exhausted its public borrowing authority was able to secure an additional \$1 billion in financing, and now an aging bridge is being replaced. The DBFM model provides an alternative to public authorities that are skeptical about ceding control of tolling and operations to a private partner.

Seagirt Marine Terminal



Summary	
Project Type	Port expansion
Year	2013
Deal Structure	DBFOM
Total Cost	\$140 million upfront payment to state plus annual payments as well as significant private investment in marine terminal
Financing	25-yr muni bond, private equity
Funding	Port operations revenue
Public Benefit	Improvements to serve Super-Post-Panamax cargo ships bringing more tax money and jobs

Background

The Port of Baltimore is ranked 9th in the U.S. for total foreign import/export value (\$52.4 million).²⁰⁰ In 2014, the port moved 9,676,355 tons of cargo, well above pre-recession levels.²⁰¹ In mid-2014, the Panama Canal was set to expand, allowing passage of bigger, Super-Post-Panamax cargo ships, and a berth expansion would make the Port of Baltimore one of only two East Coast ports that could handle the new ships.²⁰² Expanding an East Coast port not only brings more business to Baltimore, but reduces the amount of cargo that has to enter the country in West Coast ports and then travel by rail. It would cost \$150 per container to bring goods destined for the East Coast through the canal and to Baltimore, versus \$2,000 per container to bring them to the West Coast and ship by rail.²⁰³ However, Maryland's State Transportation Trust Fund was depleted, and so private capital was sought.²⁰⁴ The P3 agreement to lease the

284 acre Seagirt Marine Terminal was entered into in 2010, and the cranes and deep berth construction were delivered by 2012, two years ahead of schedule.

Project Description

The P3 agreement for Seagirt Marine Terminal is between the Maryland Port Administration (MPA) and Ports America Chesapeake, LLC. Ports America Chesapeake is a subsidiary of Ports America Group, which is owned by Highstar Capital, an infrastructure investment firm based out of New York. The agreement is a 50-year lease of the Seagirt Marine Terminal to the private partner.²⁰⁵

The main value to the Maryland Port Administration is the \$105.5 million effort to build, equip, and have operational a new 50-foot berth, which includes the acquisition of new cranes.²⁰⁶ This berth allows the Port of Baltimore to become more competitive. However, the real value to MPA over the 50-year lifespan of the project is estimated at \$1.3 billion - \$1.8 billion due to the other parts of the deal. This starts with a non-refundable \$140 million capital reinvestment payment, which will go towards “shovel-ready transportation projects along I-95 and the Chesapeake Bay Bridge”.²⁰⁷ The private partner will also pay fixed annual payments of \$3.2 million that increase with inflation and \$15 per container in excess of 500,000 per year, and they will cover maintenance, expenses, and major capital expenditures valued at \$462.7 million over 50 years.²⁰⁸ Also, Ports America Baltimore will return 65 acres of leased land at the Dundalk Marine Terminal valued at \$56 million. In addition, Ports America is taking on risk related to operations, volume, construction, and

costs. Finally, the State of Maryland anticipates \$16 million per year in new taxes.²⁰⁹

The private partner, Ports America Chesapeake, will collect the revenue from operating the terminal for 50 years. It is difficult to place a clear dollar amount on this benefit. In 2012, its net income from the project was \$15.72 million up from its 2011 income of \$11.63 million.²¹⁰ Given the necessary consideration of growth and the eventual lifting of debt interest payments, it is difficult to extrapolate these numbers in any meaningful way to determine whether or not this was a good deal for the private partner. Ports America also has the right to move and consolidate all current container business to Seagirt.²¹¹

Ports America Chesapeake must abide by certain rules and restrictions during its ownership of the Seagirt Marine Terminal. The agreement outlines system preservation requirements, and PAC must continue to operate Seagirt Marine Terminal as an import/export facility, with any major changes going through MPA authorization.²¹² The state also retains control of security, and has inspection and audit rights.²¹³

The project took out \$250 million in a 25-year municipal bond with an average financing cost of 5.77 percent, which are backed solely by revenues from Seagirt.²¹⁴ This money helped pay for the initial expenses of the capital reinvestment payment and the construction of the new berth (combined value of \$245.5 million).²¹⁵ The other expenses over the course of the 50-year lease will be taken out of the yearly revenue from operating Seagirt.

Benefits and Criticisms

The public benefits from infrastructure improvements to the Port of Baltimore, more tax money flowing into the region, and \$140 million going towards transportation improvements. The State of Maryland also predicts the production of 5,700 new jobs, 2,700 of which will be permanent positions.²¹⁶ It is a large benefit to both the state and the public, and praise for the project has been widespread. The Seagirt Marine Terminal Project is the winner of *Project Finance Magazine's* 2010 “North American Logistics Deal of the Year” award and *Infrastructure Investor Magazine's* 2010 “North American Infrastructure Deal of the Year” award.²¹⁷ Without the private capital to get the project off the ground, the new berth might never have been built.

Takeaways

This project is an example of how public-private partnerships can benefit all involved. As the Maryland Port Administration noted in its report to the Maryland General Assembly: “Much of the success of this transaction is due to the latitude you provided the MPA for negotiating the business aspects of this transaction.” The importance of free negotiation is underscored by the numbers. The Capital Reinvestment Payment Value was negotiated from \$110 million to \$140 million, the fixed annual payments were negotiated from \$2.5 million/year to \$3.2 million/year, and the variable payments were negotiated from \$10/container to \$15/container.²¹⁸

Metro Region Freeway Lighting



Summary	
Project Type	Freeway lighting
Year	Construction will complete in 2017
Deal Structure	DBFOM
Total Cost	\$145 million (including energy)
Financing	Private financing and equity
Funding	Availability payments
Public Benefit	Increased safety on freeways, more energy-efficiency long-term

Background

As of August 2015, less than 70 percent of freeway lights in the Detroit metro area were properly functioning, a serious safety and visibility concern. Additionally, 87 percent of the old freeway lights were high-pressure sodium or metal halide fixtures, which are not energy efficient. To solve this problem, the Michigan Department of Transportation (MDOT) entered into a 15-year public-private partnership with Freeway Lighting Partners to replace approximately 15,000 lights in the Detroit metro area with energy-efficient LEDs, and maintain 98 percent functionality of the lights after two years.²¹⁹ This is the first public-private partnership on a freeway lighting project in the U.S.²²⁰

Project Description

Highway lighting is a safety priority for MDOT, but the transportation budget did not allow for replacement of lights

and increased maintenance.²²¹ A contract with private partners allowed the project to move forward. Freeway Lighting Partners, LLC (FLP) consists of Star America Infrastructure and Aldridge Electric, Inc. as equity owners.²²² Aldridge Electric is the design-build partner, Parsons Brinkerhoff, Inc. is the designer, and Cofely Services, Inc. will be the operations and maintenance provider.²²³ BlackRock Infrastructure joined as a financier in October 2015 (2 months after the agreement was negotiated).²²⁴

The replacement and rehabilitation of the freeway and tunnel lighting system will take place during the first two years of the contract, and then FLP will operate and maintain the system for the remaining 13 years. The agreement was made in August 2015. MDOT expects \$13 million in savings over the life of the contract, in part due to the more energy-efficient lighting.²²⁵ An additional benefit is that Freeway Lighting Partners will be liable for the first \$150,000 in losses from theft, and the risk will be shared 50/50 for damages up to \$250,000.

This project will be privately financed by FLP and BlackRock. One of BlackRock Capital's entities, Allianz Life Insurance of North America, provided financing, while FLP contributed equity.²²⁶ MDOT will pay two milestone payments, \$6 million once lights are operating at 90 percent (required within one year) and an additional \$6 million paid upon "substantial completion" (98 percent operating required within 2 years) to the private financiers.²²⁷ Additionally, MDOT will pay quarterly service payments based on availability and energy savings during the 13-year operating and maintenance phase (estimated at \$2.1 million not including power costs).²²⁸ To help cover these costs, MDOT

received \$79 million in federal funds.²²⁹ Milestone payments will not be submitted if the requirements are not met, and are subject to deductions under the terms of the agreement.²³⁰

Benefits and Criticisms

Full judgment cannot be passed on this project until the two-year construction period has concluded next year, but if activities proceed as expected, it seems likely that the freeway-lighting P3 will be a success. The state will obtain savings through energy efficiency, and used an innovative approach to make room for a priority project without making cuts to the transportation budget. The state carries little risk because they are covered for theft for up to \$150,000 (copper theft concerns²³¹) and the main milestone payments will only be paid upon fulfillment of the project. The public will benefit from safer, more illuminated highways which are more energy-efficient.

Takeaways

This project demonstrates the breadth and depth of possibility with public private partnerships. It is an example of how financing can be structured to advance investment in critical infrastructure, beyond more traditional roads, bridges and transit services, into energy, utilities and public spaces. Further, the public entity issuing the request for proposal set out six explicit goals that the project should be held accountable for delivering on throughout the life-cycle: safety, efficiency, mobility, quality, finance and schedule.²³² Making these goals explicit and transparent can help ensure all partners are acting in the same interest, as well as that stakeholders affiliated with and interested in the project, including the public, can clearly see how the project is performing according to set goals.

End Notes

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