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of Transportation

Report on Highway Public-Private Partnership Concessions in the United States

December 2016



OFFICE OF INNOVATIVE PROGRAM DELIVERY



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16. Abstract Public-Private Partnership (P3s) concessions are an integrated service delivery approach where a public transportation agency enters a contractual agreement with a private sector entity to deliver a service and/or facility for a specific period. Under the P3 approach, the private sector entity is singly responsible for the design, construction, finance, operations, maintenance, operation and renewal (if needed) of facilities for a specified concession period. P3 procurements encourage private sector partners to innovate and generate value through integrated delivery, effective risk management, and application of whole-life cost perspectives. This report assesses the experience of the 28 highway P3 concession projects that have been implemented in the U.S. since 1992. The report presents trends that have occurred for three groups of P3 projects: real toll concessions, availability payment concessions and long-term leases. The report analyzes how financing strategies and procurement structures have evolved over time, focusing on federal financial tools and related approvals. The report includes an appendix with 28 narrative P3 Story documents providing comprehensive information on the different highway P3 projects. These naratives describe how the projects came to be procured on a P3 basis. They provide physical descriptions of the projects, the history behind them and the steps that led to the decision to implement them on a P3 basis. The narratives also describe the procurement process that was used to award the P3 concessions, descriptions of how they were financed, the implementation process, and significant developments that have occurred since these innovative projects entered service.					
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Preface

On July 17, 2014, the Build America Investment Initiative was implemented as a government-wide effort to increase infrastructure investment and economic growth. As part of that effort, the U.S. Department of Transportation (USDOT) established the Build America Transportation Investment Center (BATIC). The BATIC helped public and private project sponsors better understand and utilize public-private partnerships (P3s) and provided assistance to sponsors seeking to navigate the regulatory and credit processes and programs within the Department. In December 2015, the Fixing America's Surface Transportation Act (FAST Act) was enacted, which directed USDOT to establish a National Surface Transportation Infrastructure Finance Bureau, which was renamed the Build America Bureau (the Bureau).

Building upon the work of the BATIC, the Bureau was established in July 2016 as USDOT's go-to organization to help project sponsors who are seeking to use Federal financing tools to develop, finance and deliver transportation infrastructure projects. The Bureau serves as the single point of contact to help navigate the often complex process of project development, identify and secure financing, and obtain technical assistance for project sponsors, including assistance in P3s. The Bureau replaces the BATIC and is now home to DOT's credit programs, including Transportation Infrastructure Finance and Innovation Act (TIFIA), the Railroad Rehabilitation and Improvement Financing (RRIF) and Private Activity Bonds (PAB). The Bureau also houses the newly-established FASTLANE grant program and offers technical expertise in areas such as P3s, transit oriented development and environmental review and permitting. The Bureau is also tasked with streamlining the credit and grant funding processes and providing enhanced technical assistance and encouraging innovative best practices in project planning, financing, P3s, project delivery, and monitoring.

Working through the Bureau, USDOT has made significant progress in its work to assist project sponsors in evaluating the feasibility of P3s, and helping simplify their implementation. In response to requirements under the Moving Ahead for Progress in the 21st Century Act (MAP-21) and the FAST Act to develop best practices and tools for P3s, the Bureau, jointly with FHWA, is publishing this report on U.S. highway P3 concessions.

Executive Summary

The increasing use of Public-Private Partnerships (P3) concessions as a delivery option for complex highway projects in the US has been facilitated through a wide range of financial, technical and policy initiatives undertaken by the US Department of Transportation (USDOT). This Report on P3s assesses and synthesizes the experience of the 28 highway P3 concession projects that have been implemented in the U.S. since 1992.

The report assesses trends and market developments that have occurred for three different groups of P3s: real toll concessions, availability payments concessions and long-term leases. The report analyzes how the use of different financing strategies and procurement structures have evolved over time, focusing in particular on the use of federal financial tools and related approvals.

The report includes an appendix with 28 narrative P3 Story documents providing comprehensive information on each highway P3 project that has reached financial close in the United States since 1992. These documents convey the stories behind these projects and how they came to be procured on a P3 basis. Presented in a parallel format, the P3 Story documents provide physical descriptions of the different projects and describe the history behind them and the steps that led to the decision to implement them on a P3 basis. The P3 Story narratives also describe the procurement process that was used to award the P3 concessions and thorough descriptions of how they were financed. They also discuss the implementation process and track significant developments that have occurred after these innovative projects entered service.

The report has been prepared using information from a wide variety of sources. These include reports and other documentation available on project websites, information from FHWA's extensive project databases, industry journals, and interaction with public agencies sponsoring P3 projects and private sector developers who implement and operate P3 projects. The information in the body of the report is largely synthesized from the contents of the P3 Story documents.

This Report on P3s is organized into four chapters. Chapter 2 provides a brief overview of P3 typologies, transaction types and payment models and accompanying discussions of the opportunities and challenges encountered in application of this delivery option. Chapter 3 provides an overview of the federal role in the P3 concession process, identifying the different financial tools and related approval processes that can be used to advance P3 projects, as well as Build America Bureau and FHWA activities supporting P3 concession projects. The bulk of the analytical information in the report can be found in Chapter 4. This chapter presents trends and market developments that have occurred over the baseline horizon for real toll concessions, availability payment concessions and long-term leases.

Fourteen, or exactly half of the P3 concessions to have reached financial close in the U.S. since 1992, are real toll projects. These projects include three "greenfield" toll roads, two water body crossings, and nine priced managed lane facilities. Eleven of these facilities have opened to traffic and the remaining three are in construction. The concession periods for these project range from 35 years to 85 years, and average nearly 52 years. Of the eleven open real toll facilities, two have been purchased by public sector transportation authorities, and a third filed for bankruptcy in 2016. The concession period of one project was extended by 20 years in order to help it to avoid bankruptcy, another was extended to help recoup losses earlier in the concession period, and two others were refinanced, one in the face of lower than anticipated toll proceeds. The remaining five operational real toll P3 projects opened to revenue traffic during 2014–2016 and initial financial results from these projects appear to be exceeding expectations in most cases. Real toll concessions



involve the greatest degree of risk transfer from the public to the private sector. They may result in significant financial losses and in some cases profits for private investment partners, while shielding the public sector from financial volatility.

A total of nine availability payment P3 projects have reached financial close since 2009. Over half of U.S. availability payment activity has been concentrated in two states: Florida, with three availability payment projects, and Indiana with two. The pace at which availability payment P3 projects have been developed gained momentum in 2014 and 2015, with five projects reaching financial close in those two years alone. However, deal flow slowed in 2016, and it appears that there may be fewer availability projects in coming years.¹

Availability payment P3 procurements have proven an effective strategy to accelerate the completion of large and expensive projects that would otherwise be built in smaller pieces. As with real toll projects, they also transfer lifecycle risk to the private partner and incentivize long-term maintenance efficiencies and cost savings. They can also engender rigorous competition among the companies bidding for availability payment concessions, given that award decisions are based primarily on cost.

While some sponsors may initially have equated availability payments with off-balance-sheet transactions, the financial markets consider them equivalent to public debt. As such, the use of availability payment concessions may put downward pressure on state credit ratings. Public agencies should have a clear understanding of the impact availability payment obligations will have on their budgets and the state's credit rating. Availability payment procurements are attractive to private sector developers because they mitigate the troublesome revenue risks associated with real toll projects. However, their upside profit potential is capped by the availability payments, which are fixed. Real toll concessions provide the potential for greater profit, but with much higher risks.

A total of five long-term lease concessions have reached financial close in the U.S. between 2005 and 2011. While other project owners have considered leasing toll facilities, no other lease concessions have occurred in the ensuing period. All long-term leases include a commitment to operations and maintenance over the concession term. However, unlike similar commitments for availability payment concessions, adhering to established performance standards is not as easily enforced since there are no performance-based availability payments. Lease transactions may also include provisions for facility expansion.

Experience with long-term leases in the U.S. has been mixed. Most long-term lease concessions are no longer held by their original private sector equity investors and two have incurred bankruptcies. While several initial private sector investors have been challenged to realize expected returns from their investments in the near-term, public sector sponsors have generally benefited from their long-term lease transactions. Project sponsors have received large upfront payments when entering into lease agreements. However, they have foregone the income that these existing toll facilities would have provided them.

¹ "Where Did P3 Deal Flow Go?" *Public Works Financing*, September 2015, pp 11–15.

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Acronyms

AB	Assembly Bill
APR	Autopistas de Puerto Rico
BABs	Build America Bond
BRT	Bus Rapid Transit
Caltrans	California Department of Transportation
CDA	Comprehensive Development Agreement
CE	Categorical Exclusion
CDOT	Colorado Department of Transportation
CPTC	California Private Transportation Company
CR	County Road
CRSS	Caudill Rowlett Scott-Sirrinc
CRTPO	Charlotte Regional Transportation Planning Organization
CTB	Commonwealth Transportation Board
CTV	California Transportation Ventures
DB	Design-Build
DBF	Design-Build-Finance
DBFOM	Design-Build-Finance-Operate-Maintain
DBFM	Design-Build-Finance-Maintain
DBOM	Design-Build-Operate-Maintain
DEIS	Draft Environmental Impact Statement
DOT	Department of Transportation
DAAR	Dulles Airport Access Road
DRAM	developer ratio adjustment mechanism
DTR	Dulles Toll Road
FAHP	Federal-aid Highway Program
FDOT	Florida Department of Transportation
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
FTE	Florida's Turnpike Enterprise
GARVEE	Grant Anticipation Revenue Vehicle
GLC	Golden Link Concessionaire, LLC
HB	House Bill
HOT lanes	High-Occupancy Toll lanes
HOV	high occupancy vehicle
HPTE	High Performance Transportation enterprise
IFA	Indiana Finance Authority
INDOT	Indiana Department of Transportation
ITRCC	Indiana Toll Road Concession Company



ITS	Intelligent Transportation System
LBJIG	LBJ Infrastructure Group
L RTP	Long-Range Transportation Plan
LP	Limited Partnership
LPA	Locally Preferred Alternative
MAP	maximum annual availability payment
MAP-21	Moving Ahead for Progress in the 21st Century Act
MAT	Miami Access Tunnel, LLC
MIG	Macquarie Infrastructure Group
MIS	Major Investment Study
MLK	Martin Luther King
MoU	Memorandum of Understanding
MPO	Metropolitan Planning Organization
NCDOT	North Carolina Department of Transportation
NCTCOG	North Central Texas Council of Governments
NEPA	National Environmental Policy Act
NHS	National Highway System Designation Act of 1995
NTE	North Tarrant Express
NTEMP	North Tarrant Express Mobility Partners
O&M	Operations & Maintenance
P3	Public-Private Partnership
PABs	Private Activity Bonds
PennDOT	Pennsylvania Department of Transportation
POMT	Port of Miami Tunnel
PPPA	Public-Private Partnerships Authority
PPTA	Commonwealth of Virginia Public-Private Transportation Act
PRHTA	Puerto Rico Highways & Transportation Authority
OCTA	Orange County Transportation Authority
ODOT	Ohio Department of Transportation
RFP	Request for Proposals
RFQ	Request for Qualifications
RTC	Regional Transportation Council
RTD	Regional Transit District
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SANDAG	San Diego Association of Governments
SBX	South Bay Expressway
SCC	Virginia State Corporation Commission
SCETS	State Comprehensive Enhanced Transportation System
SFCTA	San Francisco County Transportation Authority
SH	State Highway
SIS	Strategic Intermodal System
SR	State Route
TEA-21	Transportation Equity Act for the 21 st Century
TIFIA	Transportation Innovation Finance Innovation Act



TIP	Transportation Improvement Program
TRCV	Toll Road Corporation of Virginia
TRIP II	Toll Road Investors Partnership II
TTC	Trans Texas Corridor
TxDOT	Texas Department of Transportation
UPA	Urban Partnership Agreement
USDOT	United States Department of Transportation
VDOT	Virginia Department of Transportation
VfM	value for money
VHCA	Virginia Highway Corporation Act
YOE	year of expenditure



1 Introduction

The increasing use of Public-Private Partnerships (P3) concessions as a delivery option for complex highway projects in the US has been facilitated through a wide range of financial, technical and policy initiatives undertaken by the US Department of Transportation (USDOT). Many reports and case studies have been developed and disseminated relating to individual P3 projects. This report attempts to identify trends and synthesize the U.S. experience with the evolving use of highway P3s concession projects and the federal involvement with them.

This Report on P3s assesses and synthesizes the experience of the 28 highway P3 concession projects that have been implemented in the U.S. since 1992. The report assesses trends and market developments that have occurred over the baseline horizon for three different groups of P3s:

- ▶ Real Toll Concessions
- ▶ Availability Payment Concessions
- ▶ Long-Term Leases

The report analyzes how the use of different financing strategies and procurement structures have evolved over time, focusing in particular on the use of federal financial tools and related approvals.

The report includes an appendix with 28 narrative P3 Story documents providing comprehensive information on each highway P3 project to have reached financial close in the United States since 1992. These documents convey the stories behind these projects and how they came to be procured on a P3 basis. Presented in a parallel format, the P3 Story documents provide physical descriptions of different projects and describe the history behind them and the steps that led to the decision to implement them on a P3 basis. The P3 Story narratives also describe the procurement process that was used to award the P3 concessions and thorough descriptions of how they were financed. They also discuss the implementation process and track significant developments that have occurred after these innovative projects entered service.

1.1 Data and Approach

The report has been prepared using information from a wide variety of sources. These include reports and other documentation available on project websites, information from FHWA's extensive project databases, industry journals, and interaction with public agencies sponsoring P3 projects and the private sector developers who implement and operate P3 projects. The information in the body of the report is largely synthesized from the contents of the P3 Story documents.

1.2 Structure of the Report

This Report on P3s is organized into four chapters. Chapter 2 provides a brief overview of P3 typologies, transaction types and payment models and accompanying discussions of the opportunities and challenges encountered in application of this delivery option. Chapter 3 provides an overview of the federal role in the P3 concession process, identifying the different financial tools and related approval processes that can be used to advance P3 projects, as well as Build America Bureau and FHWA activities supporting P3 concession projects. The bulk of the analytical information in the report can be found in Chapter 4. This chapter presents trends and market developments that have occurred over the baseline horizon for real toll concessions, availability payment concessions and long-term leases.

The report includes an appendix containing the P3 Story narratives described earlier.



2 P3s Defined

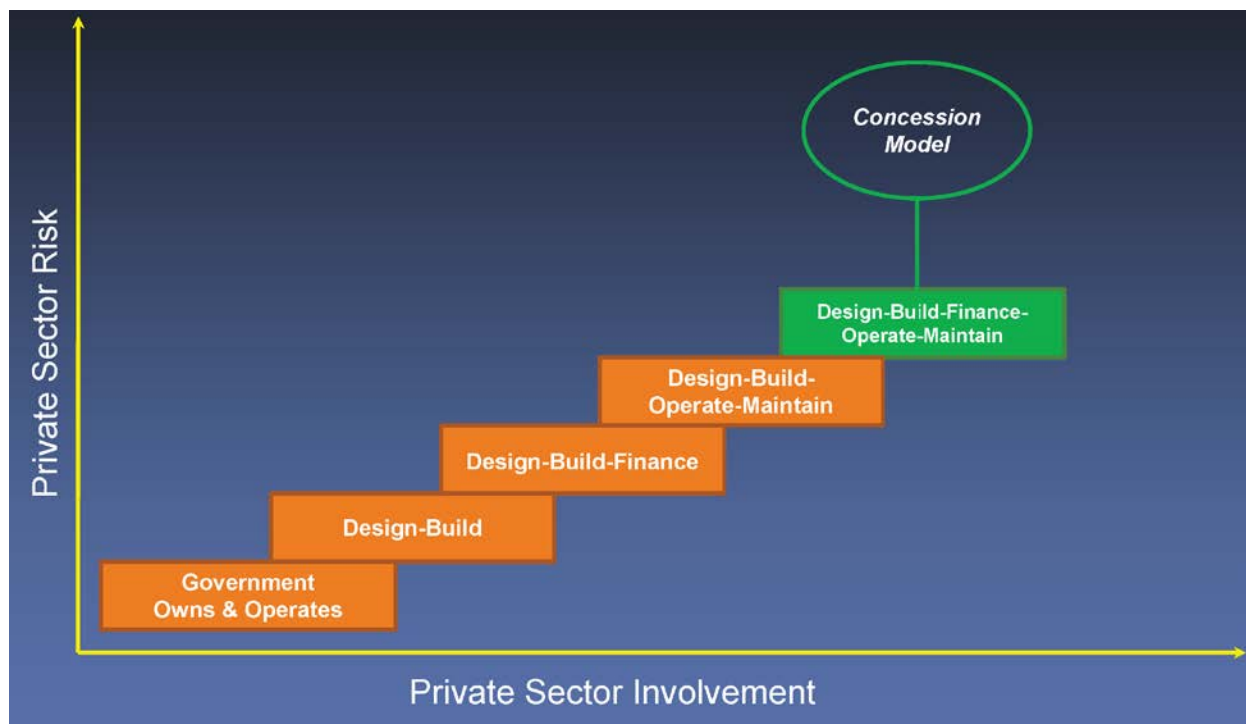
2.1 Spectrum of P3 Projects

Public-private Partnerships (P3s) are contractual agreements between public agencies and private entities that provide greater private participation in the delivery and financing of transportation projects compared to the traditional design-bid-build public procurement model. Under the traditional approach, project sponsors execute separate contracts for the design of projects and then for their construction, and then they operate and maintain the infrastructure following construction.

There are many different forms of P3s. Transportation P3 arrangements range from design-build procurements, where design and construction services are grouped into a single, fixed-price contract, to concessions, where a private investor/operator is responsible for financing, designing, constructing, operating, and maintaining new highway projects in exchange for the right to collect the revenues generated by the project or availability payments from the public sponsor for the duration of the concession period. As shown in Figure 2-1, the primary distinction between them is the specific responsibilities and level of risk that is assumed by the private partner.

The following discussions provide brief overviews of the four P3 typologies shown in Figure 2-1. However, the focus of FHWA’s Report on P3s is on design-build-finance-operate-maintain (DBFOM) P3 arrangements, which are also known as “concessions.”

Figure 2-1: Spectrum of P3 Procurement Options and Risk Exposure



2.1.1 Design-Build

Design-build is a project delivery method that combines design and construction functions into a single contract, rather than as two independent services performed consecutively by separate entities. With design-build procurements, owners execute a single, fixed-fee contract for both architectural/engineering services



and construction. The design-build entity—also known as the “constructor”—may be a single firm, a consortium, joint venture or other organization assembled for a particular project. With design-build delivery, the design-builder assumes responsibility for completing a final design for projects and undertaking construction activities for a fixed fee. As such, the design-builder also assumed the financial risks associated with possible cost overruns. Most design-build contracts also include penalties for schedule delays and bonuses for the early completion of construction. The project sponsor remains responsible for financing the project, and operates and maintains it after construction is complete.

Design-build procurements are often used with large and complex projects. Because they are fixed price agreements, design-build contracts incentivize the design-builder to innovate and identify strategies to streamline construction costs. Project completion can also be accelerated by undertaking some design and construction activities concurrently rather than sequentially, as is the case with design-bid-build projects. This has the potential to result in further cost reductions by shielding projects from the risk of inflation and commodity cost escalations. Project designs are generally 10 to 30 percent complete at the time most design-build procurements are let, and design-build procurements contain comprehensive performance requirements that the bidder’s final design must meet. This structure provides the design-builder with the flexibility to innovate and find the most cost-effective solutions both in terms of project design and construction techniques.

The award of design-build contracts is made on a best value basis that takes price and technical quality as well as the qualifications of the bidding teams into consideration. Under the right conditions, design-build procurements can result in cost reductions compared to the traditional design-bid-build approach and can accelerate the completion of projects.

2.1.2 Design-Build-Finance

With the design-build-finance (DBF) procurement model, one contract is awarded for the design, construction, and full or partial financing of a facility. Responsibility for the long-term maintenance and operation of the facility remains with the project sponsor. This approach takes advantage of the efficiencies of design-build procurements and also allows the project sponsor to defer paying all or a part of the cost of the project during construction.

With DBF procurements, the constructor agrees to provide all or some of the construction financing. The design-builder is repaid with milestone and/or completion payments made by the project sponsor. These arrangements are typically short term and extend no more than a few years beyond the construction period. Responsibility for the long-term maintenance and operation of the facility remains with the project sponsor.

Project sponsors generally use DBF procurements to overcome cash flow constraints or out of a desire to defer paying for projects. With some DBF procurements, the owner identifies the current amount of available project funding and requires the design-builder to finance any development costs in excess of that amount for a specified period of time. In other cases, an owner may specify the maximum amount that it can pay a design-builder each year for a project. That specified amount and the cost of the project would determine the length of the repayment period.

Private sector design-builders may provide self-financing and front their own implementation costs until the sponsor is able to pay them. They may also borrow money using existing commercial credit liens, or arrange project-specific financing. In addition to all the potential benefits of design-build procurements, the DBF approach allows project sponsors to accelerate the construction of projects that they would otherwise have to wait to procure until they had amassed the required funding. DBF procurements are being used with increased frequency to deliver a broad range of projects.

2.1.3 *Design-Build-Operate-Maintain*

The design-build-operate-maintain (DBOM) model is an integrated partnership that combines the design and construction responsibilities of design-build procurements with operations and maintenance. These project components are procured from the private sector in a single contract with financing secured by the public sector. DBOM procurements provide project sponsors with all the potential benefits of the design-build project delivery method. In addition, by bundling the operation of projects with their design and construction, these procurements incentivize the private partner to apply cost-saving, life-cycle costing principles to align the design of the project with long-term maintenance needs.

DBOM procurements require private sector bidders to prepare cost estimates that include maintenance activities for the duration of the contract. To do so, bidders must develop tailored maintenance plans that anticipate needs and streamlines long-term maintenance costs. This process may result in developing a more robust and costly design, in order to reduce ongoing maintenance costs throughout the operations period. For owners, the lifecycle cost approach also shields important maintenance needs from the uncertainties of future budget cycles.

The DBOM project delivery approach is also known by a number of different names, including "turnkey" procurement and build-operate-transfer.

2.1.4 *Design-Build-Finance-Operate-Maintain*

Under the DBFOM procurement approach, the responsibilities for designing, building, financing, maintaining and operating are bundled together and transferred to private sector partners. Also known as "concessions," DBFOM procurements provide project sponsors with the cost and acceleration benefits of design-build procurements and the added lifecycle benefits of the DBOM approach. In addition, they transfer financial risk to the private sector partner and provide owners with access to new sources of financing, including private sector equity.

There is a great deal of variety in DBFOM arrangements in the United States, especially the degree to which financial responsibilities are actually transferred to the private sector. One commonality that cuts across all DBFOM projects is that they are financed by debt leveraging revenue streams dedicated to the project. The following section provides additional information on the different DBFOM concession models.

2.2 DBFOM Concession Models

Two different revenue sources have been used to leverage financing for DBFOM concessions. The majority of existing DBFOM concessions use toll revenues to raise project financing. Since 2009, a growing number of DBFOM concessions have been financed using annual availability payments paid by the project sponsor to the private partner. The financing raised from both of these revenue streams is also often supplemented by grants from project sponsors and other contributions, such as right-of-way or complementary construction projects. These two concession models are discussed in further detail in the following sections.

2.2.1 *Real Toll Concessions*

DBFOM projects leveraging toll proceeds are commonly referred to as "real toll" concessions. With these arrangements, the private sector partner maintains the right to collect toll revenues during the concession period but bears the risk that toll proceeds may not meet forecasted levels. With real toll concessions, the private sector partner assumes the risk that the funds generated by the project may not be adequate to pay the underlying project loans and interest and make a fair return on its investments of time, expertise and equity. To protect the public sector interest in the event of robust revenue generation, some concession agreements

include a revenue-sharing provision between the private partner and public sector if revenues exceed certain specified thresholds.

The real toll concession model has been used to develop three different types of projects in the U.S.

- ▶ Greenfield Toll Roads: these projects involve the construction of toll roads in travel corridors that did not previously have highway facilities. Because they lack established traffic volumes dating back in time, traffic and revenue risk is high with these projects. When they are developed on a P3 concession basis, this significant risk is transferred to the private sector partner.
- ▶ Waterbody Crossings: these projects consist of tolled bridge or tunnel waterbody crossings. They may involve the construction of crossings in entirely new corridors, or the expansion of capacity in existing crossing corridors. In some cases, these facilities may be built within a single jurisdiction; in others, they may join adjacent municipalities, states, or even countries. In cases with multi-jurisdictional crossing projects, there may be differing P3 legislation and policies that influence the procurement and financing of the project.
- ▶ Priced Managed Lanes: These facilities are designated lanes or roadways within highway rights-of-way where the flow of traffic is managed by restricting vehicle eligibility, limiting facility access, and collecting variably priced tolls. Toll rates may vary in real time based on actual traffic conditions or according to a fixed schedule. The toll rate is used to meter the flow of paying vehicles on the lanes in order to maintain a desired level of operation and predictable travel times. Traveling on priced managed lanes can provide motorists with significant travel time savings in congested urban and suburban commuter corridors. Traffic and revenue forecasting for these projects is complex and involves assumptions about the value of time under different circumstances. However, these projects tend to be built in established highway corridors where extensive information is available on historic traffic volumes.

2.2.2 Availability Payment Concessions

With availability payment DBFOM concessions, the project sponsor retains all toll revenue risk if the facility is tolled. The sponsor pledges availability payments to compensate the concessionaire for its role in designing, constructing, operating, and maintaining the facility for a set time period during which it receives fixed annual payments. Availability payments are often used for projects that are not tolled. Owners make the availability payments to their private partners from public funds and they must be prioritized ahead of other needs throughout the concession period. The availability payments may be secured from a revenue pledge or subject to appropriations. When they involve the construction of toll facilities, the public sponsor may apply the toll proceeds to the cost of the annual availability payments.

The ongoing annual availability payments are dependent on the private partner's meeting operational performance standards, including lane closures, incident management, or snow removal. If the private partner does not meet the required standards, the amount of the availability payment is reduced. Availability payments transactions may also include milestone payments during construction or a one-time completion payment when construction is finished.

2.2.3 Long-term Lease Concessions

In addition to the construction of new facilities, project owners can also use the concession approach to lease existing toll facilities to a private partner. Known as long-term lease concessions, these arrangements involve the lease of existing, publicly financed toll facilities to a private sector concessionaire for a prescribed concession period in exchange for an upfront lease payment (i.e., a concession fee). The private partner then has the right to collect tolls on the facility for a specified concession period. The private partner must operate

and maintain the facility over the life of the concession period and in some cases make improvements to it. Much like the financing structure of DBFOM transactions, private investors raise financing for these sizeable concession fees by leveraging future toll proceeds generated by the leased facilities.

Long-term leases are procured on a competitive basis, with awards going to the qualified bidder making the most attractive offer to the sponsoring agency. The most important criterion for the award of a long-term lease concession generally is the amount of the concession fee. Other criteria may include the length of the concession period and the credit worthiness and professional qualifications of the bidders.

2.3 The Rationale and Challenges of Using P3s

2.3.1 Why Agencies Consider P3 Projects

Interest in using P3 approaches to develop and finance transportation improvements has increased in recent years due to the convergence of a number of key issues. They include growing travel demand, rising capital costs, constrained funding, aging infrastructure, and increased pressure on shrinking budgets. These trends reinforce the need for innovative solutions to meet transportation investment needs. Alternative delivery strategies are attractive to public agencies, particularly when resistance to new or increased taxes persists. P3's provide project sponsors with a number of potential benefits, including access to new sources of financing, reduced capital and life cycle costs, and the potential to accelerate the completion of needed projects.

2.3.2 Potential Benefits

Although financial capacity is often what initially motivates consideration of P3 concessions, the incentives created by concessions can also lead to greater overall value for the public sector through improved asset management and on-time and on-budget delivery.

The most important potential benefits of using P3 to deliver transportation projects include:

- ▶ Risk sharing protecting project sponsors from the cost and consequences of negative events
- ▶ Accelerated project delivery compared to traditional DOT project scheduling and delivery methods;
- ▶ Introduction of project construction and life-cycle cost efficiencies, and improved quality and system performance from the use of innovative materials and management techniques that may result in higher initial quality to minimize long-term maintenance and operations costs;
- ▶ Ability to apply special incentives and disincentives to improve project performance and operating efficiencies;
- ▶ A more optimal distribution of risks, that is allocating certain project risks to the private-sector (e.g., financing, schedule, long-term operations, and maintenance) and retaining others with the public agency (e.g., program management, environmental clearance, permitting, and right-of-way acquisition);
- ▶ Substitution of private resources and personnel for constrained public resources; and
- ▶ Access to new sources of private capital, while leveraging scarce public resources and conserving public sector debt capacity.



2.3.3 Implementation Challenges

P3s are complex arrangements and require careful deliberation before agreements are executed. While P3 strategies can provide significant benefits as described above, they are not appropriate for all transportation projects. Some of the potential challenges in implementing P3s include:

- ▶ Difficult financial, legal, and technical issues that require oversight over the length of the contract period. States need to acquire the technical and institutional capacity to develop and oversee P3s and will need to hire outside expertise to help in various phases, including planning, project feasibility evaluation, contract negotiations and performance monitoring.
- ▶ State enabling legislation is needed to undertake a P3. To date, 35 states, the District of Columbia and Puerto Rico have enacted statutes that grant agencies statutory permission to enter into P3 agreements.
- ▶ Although P3s can offer access to capital, they do not provide States with new revenue; in fact, P3s need a reliable revenue stream to work.
- ▶ Private financing entails higher financing costs compared to tax-exempt public financing. However, private financing (debt and equity) may be necessary in order to conserve limited public debt capacity. In some cases, these higher costs can be mitigated through the use of Federal tax provisions (e.g., accelerated depreciation), more flexible financing terms, and innovative finance tools, such as PABs and TIFIA, to reduce the cost of borrowing for private debt.
- ▶ There are several uncertainties (e.g., traffic and revenue projections; pricing and allocation of risk; private sector returns) that need to be included in feasibility assessments for P3 projects. Understanding these factors is essential to ensure an objective analysis and a proper balance between responsibilities, risks and rewards of the parties involved in the transaction.
- ▶ Finally, transparency and education in the P3 process are key to achieve public support. In the past, there have been many misperceptions about P3 due to inadequate public information and openness in the process. For example, a common misperception is that the public sector “loses” control or ownership of the asset by transferring a significant amount of control of, and risk for, one or more elements of a project to a private partner for a specified period of time. In reality, the public partner does not relinquish ownership of the facility and remains involved to the extent that the contract terms clearly define the responsibilities of public and private parties, and other provisions protect the public interest (e.g., toll setting, frequency of toll rate adjustments, service standards).

2.3.4 Public Policy Issues

The successful use of P3 strategies requires the definition of clear policies and evaluation and decision-making procedures that advance these procurements in a way that serves the public interest.

P3 projects have been less prevalent in the U.S. than in many other countries in part due to historic public policies that have led to large Federal investments via grants-in-aid for highways discouraging the construction of toll roads. Federal regulations that prohibit tolling of the Federal-aid highway system and constraints on Federal tax exemption for financing and long-term leases have the potential to limit the use of P3s. Similarly, State policies on tolling and private financing of public infrastructure may also limit public agencies in use of P3s. Crafting and attaining approval of policies that allow equal consideration of tolling as a method to help pay for transportation projects can help facilitate fair consideration of P3 strategies.

When contemplating the possible use of P3 procurements policymakers should consider a number of strategic issues:

- 1) Whether to set up a P3 program or develop P3 projects on a project-by-project basis;

- 2) Establishing criteria and a process for the selection of projects for evaluation as a potential P3;
- 3) How to structure a commercially valuable P3 agreement that achieves policy goals, optimally allocates project risks, and brings value to the investment;
- 4) How to conduct a fair and competitive procurement to select the best partner and negotiate a final agreement that is transparent and protects the public interest while addressing the private partner's concerns.



3 The Federal Role in P3 Projects

3.1 Federal Involvement

Since the creation of the Federal Aid Highway Program (FAHP) with its predictable flow of funding, state departments of transportation (DOTs) have relied on a combination of state and Federal revenue sources to fund highway construction. During the period which ultimately led to significant increases in funding to support the Interstate and a growing set of companion programs, revenue mechanisms such as tolling and bonding were debated intensely. The “pay as you go” model was considered the “gold standard,” intended to promote accountability and fiscal integrity among grantees. This meant that public investments decisions essentially did not take into account the time value of money and the cost of deferred investment to communities and the Nation until complete funding for a project was effectively in hand. Using Federal aid grants on a “pay as you go” basis requires grantees to accumulate sufficient federal and state sources to fund project construction and development. While that is taking place, however, project costs can increase due to inflation thereby eroding the buying power of funds already accumulated.

As states and agencies grew more sophisticated and aware of the cost of such delays, they began to consider diverting from strict “pay as you go.” Along with using new mechanisms to borrow from future revenue sources, including a greater use of toll revenue, they began to partner with the private sector in the delivery of projects via various P3 models to optimize their portfolios. Traditional Federal funding continues to play a role and continues to evolve with respect to the blend of traditional formula programs, features that address tolling, and programs that provide technical and loan guarantee support. Various Federal policy initiatives have been advanced to facilitate and encourage private sector participation in infrastructure delivery. Starting with the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), and with each major transportation program authorization since, USDOT and FHWA have introduced financial and programmatic innovations that have been incorporated as part of the financial and project development and delivery approaches for the 28 projects reviewed in this report. The following sections provide an overview of some of Federal tools and programs contributing to the successful financing and delivery of many of today’s groundbreaking P3 projects.

3.2 Federal Aid Highway Grant Program

Longstanding federal Financial support has been provided as a collection of categorical grants, mostly to state DOTs, known as the Federal Aid Highway Program (FAHP). Administered by FHWA, typically FAHP grant funds are distributed through apportionment formulas to the states from receipts in the Highway Trust Fund. Distributions are made on a reimbursement basis as states incur qualifying expenditures to develop and construct highway projects and then request reimbursements from the FHWA. *(For more detail, see Publication No. FHWA-PL-07-017, Financing Federal-aid Highways).*

The funding details of the individual programs have changed over time but generally FAHP grants reimburse a Federal share of qualifying expenditures and thus result in a non-Federal expenditure or match. Within the FAHP there are numerous rules and regulatory requirements associated with using federal funding for any given project expenditure, governing for example, funding percentages, eligible purposes, contracting procedures, and planning. For state DOT fund managers, compliance with federal funding rules as well as managing state fund sources carrying their own set of rules, at times created significant cash management challenges and inefficiencies. As an example, at the end of a state fiscal year, state DOTs commonly managed their Federal Fiscal Year closure by assuring that their state funds were used as match to avoid the loss of soon to expire potential Federal program balances. One might argue that this could distort state priorities and optimal financial management.



3.3 Federal Initiatives and Tools

In order to provide the state DOTs greater flexibility in addressing these and other types of funding challenges, FHWA and USDOT coordinated with Congressional leadership to focus on creating options to remove unintended barriers and transform the Federal role with respect to transportation finance. Though the standard federal grant plus non-federal match still remains as part of the funding plan even for complex projects delivered under the P3 model, there have been a host of initiatives and tools developed that serve to augment, leverage, optimize and accelerate the use of available federal aid funds.

A series of administrative initiatives and legislative acts beginning in the early nineties laid the foundation for Federal tools and processes that provided increased flexibility to state agencies and encouraged private sector participation in the funding and delivery of highway projects. As noted earlier, ISTEA initially authorized new concepts designed to increase transportation investment. Outlined below are some of the key initiatives that have contributed directly or indirectly to the funding packages for the P3 projects covered in this report.

3.3.1 TE-045

In 1994, FHWA launched a major initiative to solicit ideas from the states on a range of new financial strategies designed to stretch limited transportation dollars and enhance the flexibility of Federal-aid highway funds. This experimental “Test and Evaluation” initiative known as TE-045 has generated substantial benefits in terms of building more projects with fewer federal dollars and accelerating project construction. Many of the innovations tested were subsequently approved for general use through administration action or legislative changes made under the National Highway System Designation Act (NHS) of 1995 and the Transportation Equity Act for the 21st Century (TEA-21). Along with cash management tools such as tapered match, toll credits, and advance construction, resulting innovations include leveraging of FAHP grants in the capital markets (GARVEEs) discussed below.

3.3.2 GARVEEs

The NHS Act of 1995 amended Section 122 of Title 23 to authorize the use of FAHP grant funds for the reimbursement of debt service and related financing costs of qualifying state debt issuances. The capital markets vehicle that is secured by future FAHP grant funds is commonly referred to as a Grant Anticipation Revenue Vehicle or GARVEE bond. In order for a state to ensure repayment of GARVEE debt utilizing FAHP grant funding, states must obtain authorization through the state FHWA Division Office for payment of the debt service using federal aid. This authorization is also documented in the form of a Memorandum of Agreement between the state DOT and FHWA outlining oversight and administrative responsibilities throughout the term of the GARVEE bond debt.

In general, projects funded with the proceeds of a GARVEE bond are subject to the same requirements as other Federal-aid projects with the exception of the timing of the reimbursement process. Instead of reimbursing eligible construction costs as they are incurred, the reimbursement of a GARVEE project cost occurs at the time of the semiannual debt service payment.

GARVEE bonds have been widely used by state DOTs as a means of accelerating eligible grant funding to complete the plan of finance for highway projects. Like many other funding and financing sources, GARVEEs can be part of an overall financial plan to complete the funding for projects delivered under a P3 model. In 2012, the Virginia DOT issued their first GARVEE bonds, utilizing the proceeds to fund a portion of the state contribution to the Elizabeth River Tunnels DBFOM project.



3.3.3 TIFIA

Among the factors often cited for the relatively slow acceptance of the P3 delivery model in the U.S. has been the lower cost capital available to state DOTs via the tax-exempt bond market. In comparison and as evidenced by the high cost of borrowing for one of the early privately developed toll road projects, the Dulles Greenway, private borrowing was nearly cost prohibitive. As such, efforts to attract an increased level of private participation and investment in transportation infrastructure in the U.S were unlikely to succeed without private sector access to lower cost financing.

In 1998 Congress passed the TEA-21 authorization bill creating the Transportation Infrastructure Finance and Innovation Act of 1998 (TIFIA). Through the TIFIA Federal credit program, public and private sponsors could obtain direct loans, loan guarantees, and standby lines of credit for surface transportation projects in amounts up to one-third of the eligible costs. The TIFIA credit program was created to provide access to much needed capital for critical transportation projects facing challenges accessing debt through the regular capital markets. TIFIA credit assistance also provides loans at attractively low interest rates tied to U.S. Treasury bonds. TIFIA loan rates are typically lower than those available in the open market.

Credit assistance through the TIFIA program has provided a major boost to the development of the transportation P3 market in the U.S. The program is widely supported by members of the P3 industry who actively lobby Congress for the continuation of and increased financial support for the program. Approximately two-thirds of the P3 projects included in this report received credit support from TIFIA. In fact, during the height of the financial markets crisis, the only P3 projects to achieve financial close, did so with TIFIA credit assistance as a component of the plan of finance.

3.3.4 PABs

Beyond creation of the TIFIA credit program, the Federal government has advanced legislation to provide private developers additional access to lower cost capital through the tax-exempt bond market. As noted earlier, state DOTs and other government entities have benefitted from provisions in the Internal Revenue Code (the Code) permitting municipalities to borrow funds in the capital bond market on a tax-exempt basis to finance public works projects.

Generally, the private sector is precluded from borrowing funds in the tax-exempt market. However, there are certain qualified exceptions listed in the Code for which private entities may borrow funds in the tax-exempt capital market to finance projects that serve a public purpose such as hospitals and housing through the sale of Private Activity Bonds (PABs). It was not until 2005 however, with the passage of the Safe Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU) that the Code was amended to add highways and freight transfer facilities to the list of privately developed and operated projects for which PABs may be issued.

SAFETEA-LU limited the total amount of PABs for highway purposes to \$15 billion. Typically issuance of non-highway, qualifying facility PABs is managed according to individual state volume caps. For highway projects, the \$15 billion authorization is not subject to any state's PAB volume cap, but instead is allocated to qualifying projects by the Secretary of Transportation. About half of the P3 projects reviewed in this Report on P3s (and nearly all since its introduction) have included PABs as part of the financial package, often in combination with TIFIA assistance. The first such project was the I-495 Capital Beltway HOT Lanes project in 2007.

3.3.5 SEP-15

New Federal programs and tools designed to encourage private sector involvement in delivery of highway projects have been largely successful. However, P3 projects benefitting from these measures must be

developed in compliance with the same Federal regulatory requirements and processes as any other project. In some cases, states and private developers have found that federal processes may present challenges that do not support some of the approaches or efficiencies contemplated in a P3 delivery. Special Experimental Project 15 (SEP-15) offers states an opportunity to work with FHWA to explore whether exceptions from or changes to existing policies or procedures within FHWA's purview may be warranted.

SEP-15 applications may include suggested changes to FHWA's traditional project approval procedures and may require some modifications in the implementation of FHWA policy. Experiments generally fall into four major categories: contracting; environmental compliance; right-of-way acquisition; and project finance. One such experiment was conducted shortly after Congress amended the TIFIA statute to make refinancing of existing debt eligible for TIFIA credit assistance. That was at about the same time the Virginia DOT (VDOT) was negotiating the refinancing of the Pocahontas Parkway project and the transferring of the facility operation under a toll concession agreement. Although refinancing had been authorized in statute, the policy that would govern this activity had not been written. As such, VDOT applied through the Virginia FHWA Division Office to conduct an experiment to evaluate a refinancing of existing project debt through TIFIA. Following financial close of the transaction, VDOT submitted a report to FHWA on the findings and benefits of the experiment as required by the SEP-15 process.

3.4 FHWA Activities Supporting P3 Concessions

Oversight and administration of the programs, tools, and initiatives highlighted above have been carried out by the FHWA and the Build America Bureau. FHWA provides research, training and technical assistance for states interested in exploring and implementing innovative finance and alternative P3 delivery options for highway projects. FHWA currently provides support to the USDOT's Build America Bureau.

The Build America Bureau and FHWA have been instrumental in streamlining the process for states and private developers seeking to navigate the available finance tools and initiatives and varied application and approval processes. Collaboration with the Build America Bureau and FHWA has been vital to sorting through a host of complex issues in developing P3 projects—particularly from a funding and financing perspective. When Caltrans was formulating the financial plan for the Presidio Parkway, it wanted to pursue use of FAHP grant funds as a revenue source for availability payments. However, the finance plan for the project also included TIFIA, which must be repaid from non-federal sources. Further complicating matters was the difficulty in determining the portion of the long-term availability payment that could qualify for FAHP funds. FHWA coordinated efforts to evaluate federal regulatory and policy issues and worked with Caltrans to sort through the funding issues to develop a solution that became the first FAHP-funded availability payment transaction.

Further, FHWA has developed tools and primers designed to increase public-sector understanding of the complexities of the P3 delivery approach and support better informed decision-making when contemplating whether a P3 option may be appropriate for a particular project. A suite of educational materials, referred to as the P3 Toolkit is available on the FHWA website.

4 Analysis and Findings – The U.S. P3 Market in 2016

This Report on P3 Concessions provides a baseline tracking the evolution of the P3 sector in the United States in the 24 years since the award of the nation’s first P3—the Teodoro Moscoso Bridge in San Juan, Puerto Rico. This chapter of the report analyzes the 28 P3 concessions that have reached financial close since 1992, identifying trends in the types of projects developed on a P3 basis, the structure of their procurements, and the tools used to finance them. Table 1 identifies each of the 28 P3 concession projects, identifying their procurement structures and how they were financed.

In addition to tapping into new sources of financing and accelerating the implementation of needed transportation improvements, one of the key motivators for project sponsors to procure projects on a P3 basis is the ability to transfer risk to their private sector partners. These risks include capital construction cost overruns, construction completion schedules, toll revenue levels, and long-term maintenance cost overruns.

As described earlier, two distinct P3 structures have been used in the U.S. over the past 24 years—each of which transfers different risks to the private partner. The nation’s earliest P3 transactions involved financings that leveraged toll revenues. Known as “real toll” transactions, these deals involved the significant risk that actual project revenues would fall short of forecasted levels, leaving the private partner unable to repay its debt. In 2009, a new approach was introduced where P3 projects are financed by leveraging a combination of milestone payments for meeting construction deadlines and annual availability payments paid by the project sponsor to the private partner based on its ability to operate the project at a defined level of condition and performance. These so called “availability payment” P3 transactions carry considerably less risk, making them an attractive alternative to real toll P3 projects. While the Report on P3 Concessions includes collective analysis of all 28 P3 projects, given the distinctly different risk profiles of real toll and availability payment concessions, these two groups of projects are assessed separately.

In addition to the construction of new highway facilities, real toll concessions have been used on long-term lease transactions for existing toll facilities (i.e., “asset monetizations”). With these arrangements, private investor/operators are given the right to operate and collect tolls on an existing toll facility for a specified time period in exchange for making an upfront lease payment. The private partner may also be responsible for undertaking capital repairs or for expanding the facilities. The fact that these projects have proven revenue streams that date back decades in some cases mitigates traffic risk to a certain point. However, revenue levels generated by asset monetization concessions are also subject to fluctuations in the economy and are not without risk. The Report on P3 Concessions also contains separate analyses of real toll lease transactions.

Appendix A contains a comprehensive table that arrays the 28 U.S. P3 projects chronologically and by typology. The Appendix A table also identifies the different funding sources used to finance these projects, together with the specific dollar amounts involved. The following sections contain smaller tables conveying select information from the Appendix A table, as well as pie charts showing the composition of the initial financial packages for the 28 U.S. P3 projects. All of this information is derived from the Appendix A table.

4.1 P3 Activity and Trends

The nation’s first three P3 projects—the Teodoro Moscoso Bridge in San Juan, Puerto Rico, the Dulles Greenway in Northern Virginia, and the 91 Express Lanes in Orange County, California—all reached financial close in the 1992–1993 timeframe. This initial period of P3 activity was followed by a ten-year hiatus without a new P3 project. P3 activity picked up momentum in 2003 with the close of the South Bay Expressway in



San Diego, California. With the exception of 2004, additional P3 projects have closed in all subsequent years. Since 2012, the United States P3 sector has seen between two and four highway projects reach financial close per year. The flow of new P3 deals may be slowing somewhat at the time of this writing. This trend may be attributed through December 2015 to the lack of a national transportation authorization providing a steady and predictable flow of federal monies to support investment in new transportation infrastructure. At the same time, the financial markets are taking a harder look at toll revenue risk. In addition, the number of states able to advance availability payment concessions is limited to those with high credit ratings. Nonetheless, there are new P3 projects on the horizon, and while the flow of new P3 transactions may be slowing, there will be continued P3 activity in the coming years.

In order to develop a better understanding of P3 trends over the past 24 years, it is helpful to assess outcomes separately for the three different P3 models described earlier.

4.2 Real Toll Concessions

As shown in Table 4-1, fourteen, or exactly half of the P3 concessions to have reached financial close in the U.S. since 1992, are real toll projects. Eleven of these facilities have opened to traffic and the remaining three are in construction. The concession periods for these project range from 35 to 85 years, and average nearly 52 years. Of the eleven open real toll P3 facilities, two have since been purchased by public sector transportation authorities, and a third filed for bankruptcy in 2016. The concession period of one project was extended by 20 years in order for it to avoid bankruptcy, another was extended to help recoup losses earlier in the concession period, and two others were refinanced, one in the face of lower than anticipated toll proceeds. The remaining five operational real toll P3 projects opened to revenue traffic during 2014–2016, and initial financial results from these projects appear to be exceeding expectations in most cases.

As described in Chapter 2 of this report, real toll concession projects can be further broken down into three distinct groups:

- ▶ Greenfield toll road facilities
- ▶ Crossing projects
- ▶ Priced managed lanes

It is helpful to assess these project types separately in order to come to a better understanding of the outcomes of real toll P3 concessions.

4.2.1 *Synthesis of Greenfield Toll Road Experience*

Greenfield toll projects are new toll roads in previously undeveloped highway corridors. These projects have significant revenue risk because there is no documented travel demand in the corridors. In many cases, revenue risk is exacerbated if traffic and revenue projections are predicated on growth in population and employment along the corridor. There have been only three greenfield real toll projects built in the U.S.:

- ▶ Dulles Greenway in Northern Virginia
- ▶ South Bay Expressway in San Diego, California
- ▶ SH 130 (Segments 5-6) near Austin, Texas

Table 4-1: Real Toll Concessions Through December 2016

	Teodoro Moscoso Bridge	Dulles Greenway	91 Express Lanes	Elizabeth River Tunnels (Downtown Tunnel / Midtown Tunnel / MLK Extension)	South Bay Expressway	I-495 Capital Beltway HOT Lanes	SH 130 (Segments 5-6)	North Tarrant Express (I-820 and SH 121/183)	LBJ Express	I-95 HOV/HOT Lanes	North Tarrant Express 35W Project	U.S. 36 Express Lanes (Phase 2)	I-77 Express Lanes	SH 288 Toll Lanes
	1992	1993	1993	2012	2003	2007	2008	2009	2010	2012	2013	2014		2016
Location	San Juan, Puerto Rico	Loudoun County, Virginia	Orange County, California	Norfolk, Virginia	San Diego, California	Northern Virginia	Austin Metropolitan Area, Texas	Fort Worth, Texas	Metropolitan Dallas, Texas	Northern Virginia	Fort Worth, Texas	Metropolitan Denver, Colorado	Metropolitan Charlotte, North Carolina	Houston, Texas
Facility Type	Toll Bridge	Toll Road	Express Lanes	Crossings Tolloed	Toll Road	Express Lanes	Toll Road	Expresslanes	Expresslanes	Expresslanes	Expresslanes	Expresslanes	Expresslanes	Expresslanes
Length	1.4 miles	14 miles	10 miles	< 1 mile	9.2 miles	14 miles	40 miles	13 miles	13 miles	29.4 miles	10.2 miles	15 miles	26 miles	10.3 miles
Cost (millions)	\$127	\$355	\$119	\$2,088	\$658	\$2,069	\$1,336	\$2,122	\$2,645	\$923	\$1,641	\$209	\$636	\$1,064
P3 Basics														
Type of P3	DBOM	DBFOM	DBFOM	DBFOM	DBFOM	DBFOM	DBFOM	DBFOM	DBFOM	DBFOM	DBFOM	DBFOM	DBFOM	DBFOM
Concession Length	35 years	41 years	35 years	58 years	35 years	85 years	50 years	52 years	52 years	76 years	52 years	50 years	50 years	52 years
Financial Close	1992	1993	1993	4/12/2012	5/22/2003	12/20/2007	3/7/2008	12/17/2009	6/22/2010	11/20/2012	9/19/2013	2/26/2014	6/26/2014	5/9/2016
Status	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Construction	Open	Construction	Construction
	Open February 1994	September 1995	December 1995	November 2016	November 2007	November 2012	Open October 2012	Open October 2014	September 2015	December 2014		Open January 2016		
Funding & Financing														
TIFIA				•	•	•	•	•	•	•	•	•	•	•
PAB				•		•		•	•	•	•	•	•	•
Commercial Debt		•	•		•		•					•	•	•
Public Sector Payment				•			•	•	•	•	•	•	•	•
Private Equity		•	•	•	•	•	•	•	•	•	•	•	•	•
Special Facility Revenue Bonds	•													
Donated Right-of-Way					•									
Interest				•		•	•			•	•		•	
Milestone Construction Payments														
Tolls				•					•			•		
Bond Premium													•	
Other	•											•		
Source of Revenue														
Tolls	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Availability Payments														
Concession Milestones														
	Refinanced 2003	Refinanced 1999	Purchased by OCTA 2003		Bankruptcy Filed 2010	Debt Refinanced 2014	Debt payment postponed 2014							
	Concession Extended 17 years 2010	Concession Extended 20 years 2001	Sold to Macquarie 2005		Debt Refinanced 2011	Purchased by SANDAG 2011	Bankruptcy Filed 2016	Concession transferred to creditors						

The collective experience with the first greenfield toll roads in the U.S. has been mixed. The agencies sponsoring these projects and the public at large have benefitted from them. The projects have been built on budget without public sector funding and they provide new travel options to the public. However, for the private sector developers that financed, built and operate these three greenfield toll roads, their business results have been inconsistent, in large part due to larger economic conditions that influenced traffic and revenue levels. The initial developers of the Dulles Greenway were able to stave off bankruptcy by having their concession period extended by twenty years and restructuring their underlying debt. The growth in population levels and economic activity that the project's traffic and revenue forecasts were predicated upon were slow in coming, but did eventually occur. Nearly 10 years after opening, the initial investors were able to sell the concession, recover their costs and derive a profit. The new operators had the benefit of being able to price their offer based on 10 years of traffic and revenue data and, with the help of healthy toll increases, continue to operate the concession profitably.

The South Bay Expressway opened in late 2007 on the cusp of the impending financial crisis. The revenue forecasts prepared for the project assumed that it would be a catalyst for new development on the southern edge of San Diego. This growth was slow in developing and weak revenues and lingering legal action forced the private concessionaire into bankruptcy. When the concession was sold to the San Diego Association of Governments (SANDAG), the proceeds from the sale were used to repay the project's commercial debt and the private partner lost \$130 million of its own money that it had invested as at-risk equity in the project. SANDAG benefitted from the sale by buying a project that had been built at a cost of \$658 million for only \$341.5 million. This, in turn, enabled them to lower toll rates on the South Bay Expressway, benefitting the driving public in greater San Diego.

SH 130 has suffered from toll revenues that were 60 percent below forecasts upon opening. In spite of increases to the speed limit on SH 130 and 400 signs on I-35 encouraging motorists to use SH 130, many drivers prefer to use the more congested I-35 corridor because there are no tolls. While the concession company has transferred the roadway to its creditors and lost the \$210 million it invested in the project, this has no impact on the State of Texas or the customers that use SH 130 Segments 5-6.

Based on the tenuous outcomes for the private partners who developed the first three greenfield highway P3 concessions in the U.S., private sector developers appear to have little to no appetite for participating in other greenfield highway concessions unless their public sector project sponsors fund a significant portion of their cost.

4.2.2 *Synthesis of Real Toll Crossing Experience*

There have only been two real toll crossing projects in the U.S.:

- ▶ Teodoro Moscoso Bridge in San Juan, Puerto Rico
- ▶ Elizabeth River Tunnels (Downtown Tunnel/Midtown Tunnel/Martin Luther King (MLK) Expressway Extension) in Portsmouth and Norfolk, Virginia

With just two projects in this cohort of real toll P3 projects, it is difficult to draw conclusions on trends for crossing projects. The Teodoro Moscoso Bridge was the first P3 project to open in the U.S. and is financially stable. The bridge was completed in a timely fashion and with its relatively low construction costs and higher toll rates it earns a good return for the private partner and provides opportunities for profit sharing with the sponsor. Even so, the concession period was extended by 17 years in 2010 to help the concession company recoup losses experienced earlier in the term. The Teodoro Moscoso Bridge project is unique in that the Puerto Rico Highways & Transportation Authority (PRHTA) used its own bonding capacity to raise the necessary funding for the project and then passed the repayment obligation on to the private partner.

The Elizabeth River Tunnels project opened in stages in 2016, with only the rehabilitation of the existing Midtown Tunnel remaining to complete in 2018. The project illustrates the public acceptance risks associated with tolling—especially the introduction of tolls on existing facilities that were not tolled. In this case, the opposition included a lawsuit and anti-P3 legislation introduced by state legislators. The Commonwealth Transportation Board helped to mitigate the project’s significant public acceptance risk by providing an additional \$100 million in public funding in order to delay the implementation of tolling on the existing Elizabeth River tunnel crossing.

With a cost of nearly \$2.1 billion, the Elizabeth River Tunnels project also provides evidence of the severe challenges of financing a project of this scale without a meaningful public sector subsidy. In this case, public sector funding has attracted a much larger investment of at-risk private sector capital and credit. Traffic risk in the case of the Elizabeth River Tunnels is mitigated to some extent by the fact that historic traffic levels are well documented in each of the crossing corridors. Although the project involves the construction of a new tunnel, it adds needed capacity in a heavily traveled existing corridor. In this way, the risk levels associated with the Elizabeth River Tunnels project are similar to those of a brownfield project.

4.2.3 *Synthesis of Real Toll Priced Managed Lane Experience*

With the exception of the Elizabeth River Tunnels project, all real toll P3 concessions that have reached financial close since 2009 have involved priced managed lane projects. There have been a total of nine priced managed lane real toll concessions implemented in the U.S. beginning with the 91 Express Lanes that entered into service in December 1995. Although there is a relatively large number of these projects, their collective outcome remains to be determined, as five of these projects are in construction or design at the time of this writing, and an additional three have been open for less than two years.

The following real toll priced managed lane projects are in operation in the U.S.:

- ▶ 91 Express Lanes in Orange County, California
- ▶ I-495 Capital Beltway HOT Lanes in Northern Virginia
- ▶ North Tarrant Express (I-820 and SH 121/183) in Fort Worth, Texas
- ▶ LBJ Express in Dallas, Texas
- ▶ I-95 HOV/HOT Lanes in Northern Virginia (95 Express Lanes)

The first real toll P3 managed lane concession is the 91 Express Lanes, which opened to service in late 1995. Running in a geographically constrained valley in an extremely congested highway corridor, the project has been highly profitable for its entire history. It was built without any public money but was purchased by the Orange County Transportation Authority in 2003 in order to annul a non-compete clause in the P3 concession agreement that prevented Caltrans from making improvements to the parallel general-purpose lanes. Built at a cost of \$119 million, the private developer sold the concession for \$207.5 million and derived a significant profit.

Most of the more recent real toll P3 managed lane projects have involved much larger and more expensive improvements in heavily traveled commuter corridors with well-documented traffic levels. Nonetheless, the introduction of tolling for the first time introduces revenue risk. The public sector agencies sponsoring these projects have made significant financial contributions towards their construction in order to make their financings viable. In addition to managed lane capacity, these projects have also involved the reconstruction and enhancement of existing urban-suburban highway corridors and have featured concession terms in excess of 50 years.



The \$2.068 billion, 85-year Capital Beltway HOT lane concession opened to service in late 2012 to lower than expected revenue levels. This led to a refinancing less than two years later, with the private partner investing an additional \$280 million of its own equity to reduce its debt servicing costs. While the outcome of this project is not certain, the concessionaire's additional equity investment indicates that it has confidence in the project's long-term financial performance.

The \$2.047 billion North Tarrant Express (I-820 and SH 121/183) opened to traffic in October 2014 to revenues that were higher than industry expectations.² The project has maintained its credit rating, due to its positive performance and expectations for continued economic and population growth in the Dallas-Fort Worth metropolitan area. However, if the growth in traffic levels slows project reserves could erode.

The \$923 million 95 Express Lanes project opened in Northern Virginia in December 2014. This is the only recent real toll managed lane project not to receive a public sector subsidy, due to its lower cost and healthy revenue generation potential. In its first six weeks of operation, revenues averaged \$105,000 per day, which was higher than industry expectations.³

The \$2.615 billion LBJ Express opened to service in September 2015. Through the third quarter of its first full year of operation, although toll transactions were one percent below expectations, revenues were seven percent higher than budget due to higher-than-anticipated toll rates.⁴

The \$209 million U.S. Express Lanes (Phase 2) opened in January 2016. The Phase 2 private partner is also operating and collecting toll proceeds from the U.S. 36 Express Lanes (Phase I) and I-25 Express Lanes, both of which have been built by the state of Colorado. Gross revenues on the combined Phase 1 and 2 U.S. 36 facility are slightly above expectation in 2016.⁵

The remaining three real toll managed lane concessions are under construction or design at the time of this writing:

- ▶ North Tarrant Express 35W Project (\$1.64 billion)
- ▶ I-77 (\$636 million)
- ▶ SH 288 (\$1.06 billion)

While these projects range in size, each transaction has included a subsidy from the public sector sponsor. In addition, the public sponsor of the North Tarrant Express 35W Project project is developing an extension of that project at its own cost. The private partner will operate the extension and be entitled to the toll revenues it generates. While the outcome of these three concessions is not known at this time, these important financial commitments demonstrate that project sponsors recognize that it would not be possible to implement these projects as at-risk, real toll managed lane concessions without public funding and other contributions in kind.

² Business Wire, February 27, 2015 <http://www.businesswire.com/news/home/20150227005958/en/Fitch-Affirms-North-Tarrant-Express-Mobility-Partners>

³ Fitch Ratings, March 30, 2015 <https://www.fitchratings.com/site/fitch-home/pressrelease?id=982134>

⁴ LBJ Express Quarterly Operations and Maintenance Report, Q3 2016 <http://emma.msrb.org/ES988641-ES773865-ES1175182.pdf>

⁵ Fitch Ratings, December 2, 2016 <http://www.businesswire.com/news/home/20161202005743/en/Fitch-Affirms-Plenary-Roads-Denver-LLCs-PABs>



4.2.4 Financing Real Toll P3 Projects

Figure 4-1 provides pie charts identifying the funding and financing sources that have been used on the 14 real toll P3 concessions that have reached financial close in the U.S., together with the percentage of the total project cost they have provided. Each of the 14 real toll projects are presented chronologically. The three real toll projects built in the 1990s predate the establishment of today's federal credit assistance. As a result, P3 developers had limited financing options. For example, the Dulles Greenway and 91 Express Lanes were both originally financed using a combination of commercial loans made by banks and at-risk equity provided by their sector development private partners. The Teodoro Moscoso project involved a one-of-a-kind financing where the government of Puerto Rico used its full faith and credit to raise special facility revenue bonds, which were then repaid by the private partner.

The TIFIA Credit Program was established by TEA-21 in 1998 to provide revenue-generating transportation projects with access to low-cost and flexible financing compared to the terms generally offered by commercial lenders. The goal of the program is to attract private and other non-federal co-investment in transportation projects of regional and national significance. The program was created in recognition of the fact that state and local governments that sought to finance transportation projects with tolls often had difficulty obtaining financing at reasonable rates due to the uncertainties associated with tolling.

As shown in Figure 4-1, TIFIA loans have been used on all 11 real toll P3 transactions to have reached financial close in the United States since the program was established. Beginning with the South Bay Expressway in 2003, the TIFIA program has providing approximately one-third of funding needed to support these projects. The TIFIA credit program was especially helpful to those projects that reached financial close in the wake of the 2008 financial crisis. The most recent real toll P3 project to benefit from the TIFIA Program is the \$1.063 billion SH 288 Toll Lanes, which closed on a \$357 million TIFIA loan on April 28, 2016.

SAFETEA-LU of 2005 amended Section 142 of the Internal Revenue Code to allow tax-exempt private activity bonds to be used to finance highway and freight transfer facilities. This change allowed private developers lower their borrowing costs by tapping the municipal credit market and gaining access to tax exempt financing. The I-495 Capital Beltway HOT lanes project was the first project to use PAB financing when it reached financial close in 2007. With the exception of SH 130 Segments 5 and 6, PABs have been used on all real toll P3 concessions to reach financial close since the establishment of the program. The combination of PABs and TIFIA financing has enabled real toll projects to proceed in a time of financial turmoil. It has also provided the necessary foundation to leverage other sources of financing, including at-risk equity contributions from private sector P3 investors.

The other major potential credit source for real toll projects is commercial debt. However, banks tend to lend money at a higher cost compared to federal credit programs, as commercial lenders set interest rates to reflect the level of risk involved with each transaction. The risk level is generally documented by ratings assigned to these transactions by the three major bond rating houses: Fitch Ratings, Moody's, and Standard and Poors. Commercial debt has only been used on two real toll projects since the establishment of the TIFIA Credit Program: SH 130 Segments 5 and 6 and U.S. 36 Express Lanes (Phase 2). As discussed earlier, the SH 130 project declared bankruptcy in March 2016, due to lower than expected toll revenues. Commercial debt was a viable financing tool for the U.S. 36 project because it leveraged the toll proceeds from two existing managed lane project, both of which had established and well documented revenue streams. This fact reduced the project revenue risk, allowing the banks to lend money at a more attractive interest rate. The project's risk profile was further reduced because nearly half of its cost was covered by a combination of a public subsidy and private equity.



Figure 4-1: Real Toll P3 Sources of Funding

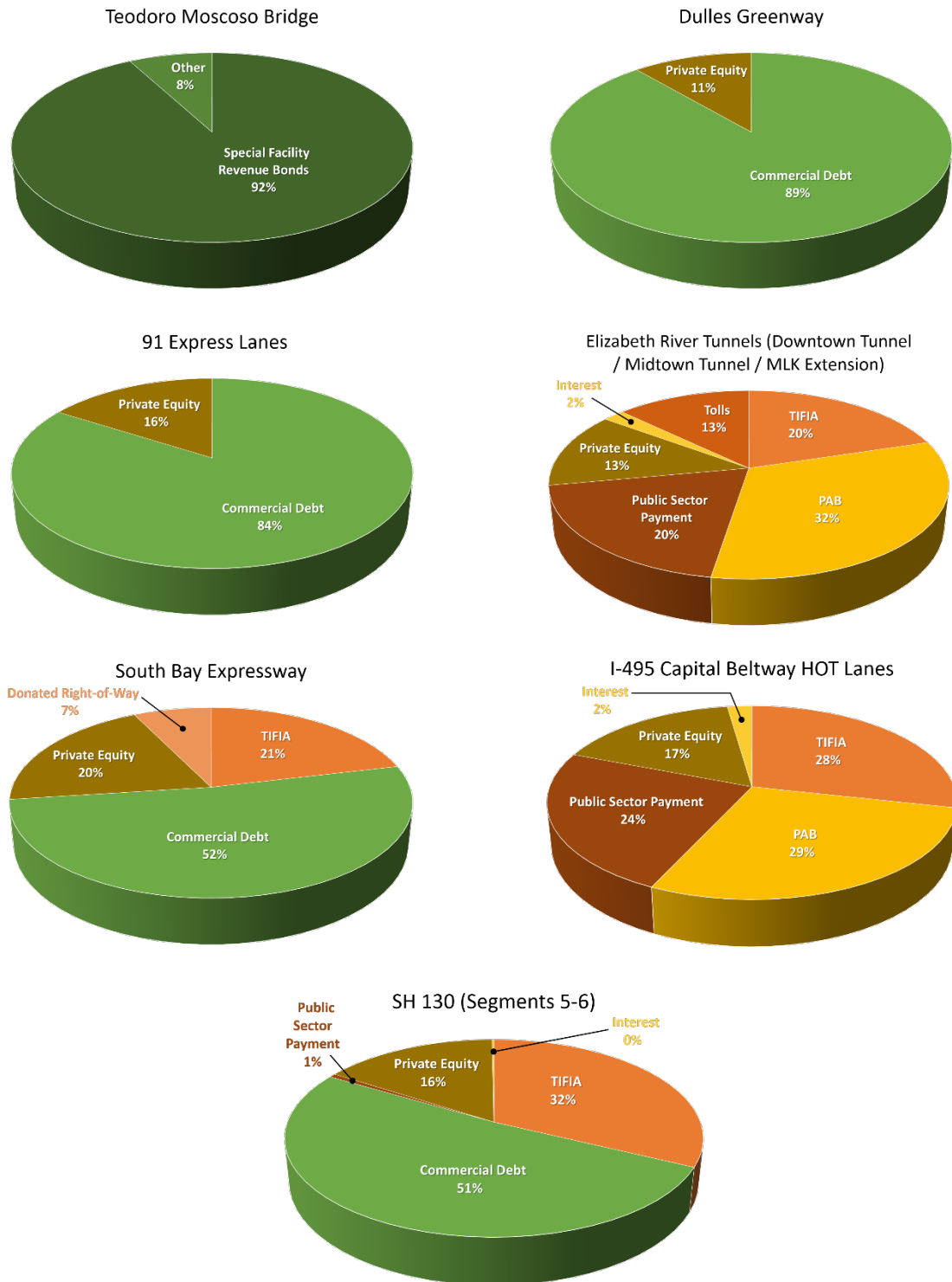
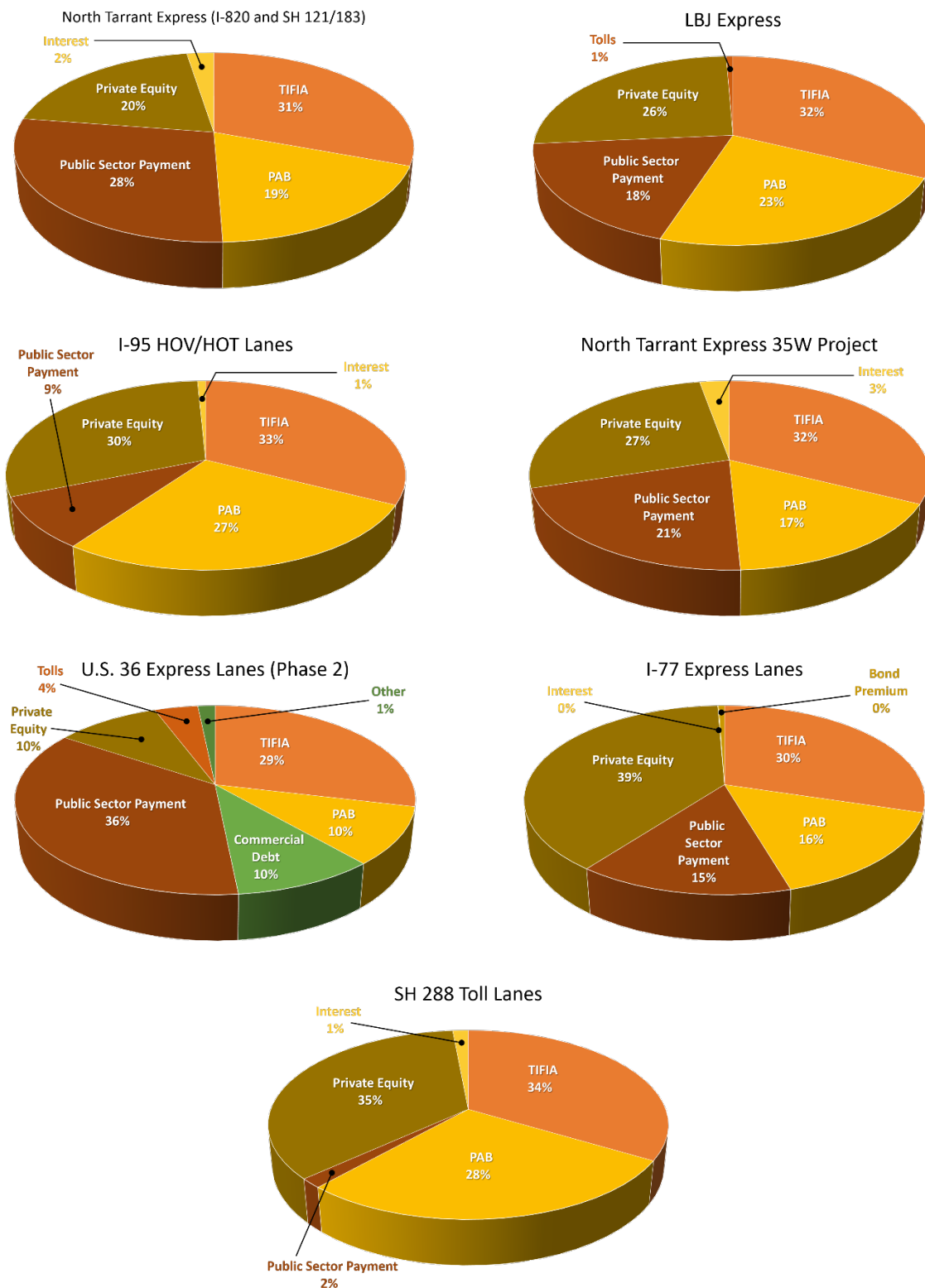


Figure 4-1: Real Toll P3 Sources of Funding (continued)



Public sector payments have also been an important funding source for several real toll projects. Increasingly, public sector sponsors recognize that large real toll P3 transactions will not be financially viable without their financial participation. Public subsidies can also play an integral role in the adjudication award of real toll concessions. In some procurements, bidders have been asked to specify the amount of the public subsidy that they would need to be able to complete a deal, and in others they are asked to identify the physical extent of a construction program they would be able to deliver with a fixed subsidy. Public subsidies are often used for larger and more expensive projects, such as managed lane improvements that reconstruct entire highway corridors or complex undertakings such as the Elizabeth River Tunnels.

Other sources of funding for real toll projects can include tolls from other existing facilities that the private partner has been asked to operate as part of a concession. Interest payments earned on the proceeds from loans before they are expended or on project reserves can also provide modest amounts of funding for real toll projects.

4.3 Availability Payment Concessions

As shown in Table 4.2, a total of nine availability payment P3 concessions have reached financial close in the U.S. The availability payment approach was pioneered in the state of Florida in the mid-2000s with the Port of Miami Tunnel. Due to the complexity and high level of risk associated with the tunnel, the Florida Department of Transportation (FDOT) was keen on procuring the project on a P3 basis. However, it would not be politically feasible to toll the crossing. As a result, FDOT made the decision to use its own funding to make annual payments to a private partner that would design, build, finance, operate and maintain the project and have the private partner raise the necessary financing by leveraging the state's availability payments.

The availability payment DBFOM P3 approach has proven popular with private sector developers as it involves considerably less financial risk compared to real toll concessions. As state financial commitments, availability payment financings essentially leverage the faith and credit of state governments. However, there is the added risk associated with state legislatures obligating monies to DOTs in future budget cycles, and the risk involved with funding the availability payments in state DOT budgets. In addition to non-toll projects, public sector sponsors have also used the availability payment approach to procure toll projects that do not generate adequate amounts of revenue to cover their costs, or in cases where the sponsor wants to retain control of toll rates. Project sponsors use traditional federal and state sources to fund availability payments. These can be supplemented with toll proceeds from projects procured on an availability payment basis, or other state and local transportation funding sources.

Five of the nine availability payment P3 projects in the U.S. remain under construction at the time of this writing. The remaining four have been open to service for less than three years. The following sections provide brief histories of these projects followed by a synthesis of the collective experience to date in the U.S. with availability payment concessions.

Table 4-2: Availability Payment Concessions Through December 2016

	I-595 Corridor Roadway Improvements	Port of Miami Tunnel	Presidio Parkway	Goethals Bridge Replacement	I-69 Section 5	I-4 Ultimate	Pennsylvania Rapid Bridge Replacement Project	Southern Ohio Veterans Memorial Highway	Ohio River Bridges - East End Crossing
	2009		2012	2013	2014		2015		
Location	Broward County Florida	Miami Florida	San Francisco, California	Staten Island, New York	Bloomington, Indiana	Orlando, Florida	Pennsylvania statewide	Portsmouth, Ohio	Southern Indiana, Louisville, Kentucky
Facility Type	Express Lanes	Nontolled Tunnel	Nontolled Highway	Toll Bridge	Toll Road	Expresslanes	Untolled Bridges	Nontolled Highway	Toll Bridge
Length	10.5 miles	1 mile	1.6 miles	1.3 miles	21 miles	21 miles	NA	16 miles	3.8 miles
Cost (millions)	\$1,834	\$1,113	\$365	\$1,526	\$466	\$2,878	\$1,117	\$647	\$1,319
P3 Basics									
Type of P3	Availability	Availability	Availability	Availability	Availability	Availability	Availability	Availability	Availability
Concession Length	35 years	35 years	30 years	40 years	35 years	40 years	25 years	35 years	35 years
Financial Close	3/3/2009	10/15/2009	6/14/2012	11/8/2013	7/23/2014	9/14/2014	3/8/2015	3/31/2015	4/15/2015
Status	Open March 2014	Open August 2014	Open July 2015	Construction	Construction	Construction	Construction	Construction	Open December 2016
Funding & Financing									
TIFIA	•	•	•	•		•		•	•
PAB					•		•	•	•
Commercial Debt	•	•	•	•		•		•	•
Public Sector Payment	•	•	•	•		•		•	•
Private Equity	•	•	•	•	•	•	•	•	•
Special Facility Revenue Bonds									
Donated Right-of-Way									
Interest	•	•	•			•	•		
Milestone Construction Payments		•		•	•	•	•		•
Tolls									
Bond Premium								•	
Other									
Source of Revenue									
Tolls						•			
Availability Payments	•	•	•	•	•		•	•	•
Concession Milestones									

4.3.1 Synthesis of Availability Payment Concession Experience

Although the first availability payment P3 projects did not reach financial close until 2009, half of the P3 projects that to have closed since then have been availability payment projects. Concession periods for availability payment projects range between 25 and 40 years, with an average of roughly 35 years. This is nearly 20 years less than typical concession periods for real toll P3 projects and provides an indication of the timeframe public sponsors are willing to extend payment obligations. Over half of U.S. availability payment activity has been concentrated in two states: Florida with three availability payment projects, and Indiana with two. The pace at which availability projects have been developed gained momentum in 2014 and 2015, with five projects reaching financial close in those two years alone. However, deal flow slowed in 2016, and it appears that there may be fewer availability projects in coming years.⁶

Transportation agencies have used availability payment procurements to develop a wide array of highway projects. Five of the nine availability payment projects that have reached financial close involve non-tolled projects. They include a tunnel providing truck and vehicular access to the Port of Miami, the approach road to the Golden Gate Bridge, an Interstate highway segment in Indiana, a highway bypass in Ohio and 558 one- and two-span bridges in largely rural regions around the state of Pennsylvania. The remaining four projects involve two priced managed lane projects in Florida and two toll bridges, one connecting New York and New Jersey and the other Kentucky and Indiana.

The expanding use of availability payment P3 procurements has been driven by a number of factors. They have proven an effective strategy to accelerate the completion of large and expensive projects that would otherwise be built in smaller pieces extended over multiple budget cycles. As with real toll projects, they also transfer lifecycle risk to the private partner and incentivize long-term maintenance efficiencies and cost savings. They also engender rigorous competition among the companies bidding for availability payment concessions, given that award decisions are based primarily on cost. They can also be an effective vehicle for providing sponsoring agencies access to international firms with expertise not necessarily available domestically—such as experience with subaqueous, wide-diameter, bored tunnel construction in the case of the Port of Miami Tunnel. One of the strongest motivations for project sponsors to use the availability payment approach is to extend all the benefits described above to high-priority projects that do not generate revenue, and would otherwise be procured using other means.

Although these arguments are all valid, many of the same outcomes can be achieved through design-build contracts. Public sector owners should also be aware of the potential downside to availability payment concessions. While some sponsors may initially have equated availability payments with lease, or off-balance-sheet transactions, all three major rating agencies consider them equivalent to debt obligations.⁷ As such, the use of availability payment concessions puts downward pressure on state credit ratings. This pressure can be mitigated to a certain extent if availability payment concessions are used on projects that generate toll revenues covering all or a portion of the state's obligations. However, this is not the case with availability payment procurements for non-revenue generating projects. Therefore, there is a limit on the volume of availability payment activity in order for states to avoid a threat to their credit rating. Because of this dynamic, the use of availability payment procurements is also generally limited to those states with stronger credit ratings.

The growth in the use of availability payment concessions in the U.S. has also clearly coincided with the wake of the 2008 financial crisis. With the tightening commercial credit market and the loss of the bond insurance market, availability payment concessions provided public agencies with a new way to structure P3 transactions that mitigate risks that some private investors may have no longer found acceptable, such as the revenue risks

⁶ “Where Did P3 Deal Flow Go?” *Public Works Financing*, September 2015, pp 11–15.

⁷ Jodi Hecht, “Are Availability Payment Obligations Debt?” *Public Works Financing*, September 2015, pp. 16-18.

associated with real toll projects. The availability payment approach allowed project sponsors and private partners alike to focus on managing risks associated with construction, operations, and asset management. With the lower risk profile, the public sector may receive more competitive bids providing lower financing and capital costs.

Availability payment concessions are not without financial risk to the private sector. The private partner typically must assume appropriation risk associated with the availability payments themselves. However, state policies often mitigate this to an extent by prioritizing availability payments in their capital or work programs ahead of other agency obligations. Even with such policies, the annual state legislative appropriation process may still present risk to the private partner. In the case of the Presidio Parkway in California, the state legislature chose to commit to a “continuous appropriation” that provides protection against budget delays, because, as a lump-sum appropriation, the funds may be paid regardless of passage of the annual budget.

While availability payment procurements may afford many benefits to project sponsors, the fact that availability payments are prioritized above other needs reduces the sponsor’s flexibility to allocate future revenues where they may be most needed. Public agencies should have a clear understanding of the impact availability payment obligations will have on their budgets and the state’s credit rating, and they should only use this approach on high priority projects where it will deliver value. Florida has set caps on the overall amount of availability payment activity that can occur in the state. Its current portfolio of availability payment projects is well below the cap, enabling it to maintain the robust confidence of the credit agencies and derive the benefits from the procurement strategy on a small number of complex, high-priority projects.

Availability payment procurements are attractive to private sector developers because they mitigate the troublesome revenue risks associated with real toll projects. However, their upside profit potential is capped by the availability payments, which are fixed for the duration of the concession. Real toll concessions provide the potential for greater profit, but with much higher risks.

4.3.2 Financing Availability Payment P3 Projects

Figure 4-2 identifies the funding and financing sources that have been used on the nine availability payment P3 concessions that have reached financial close in the U.S. These projects closed between 2009 and 2015 and had access to all current federal credit programs. Seven of the nine P3 concessions have used TIFIA loans. While TIFIA support is common among availability payment concessions, it is used with slightly less frequency compared to real toll P3 transactions. Both projects that did not use TIFIA loans did have PABs. An additional three projects used both PABs and TIFIA.

Four of the nine availability payment P3 projects have included commercial debt in their financings. This is a higher frequency compared with real toll projects and is likely related to the reduced financial risk profiles associated with availability projects. All four projects using commercial debt also involved TIFIA transactions. To date, no availability payment projects have paired commercial debt with PABs.

As with real toll P3 transactions, all availability payment financings have included private sector equity. However, compared with the 14 real toll projects, the average level of equity is significantly lower with availability payment projects: 9 vs. 22 percent. This higher gearing—the debt to equity ratio—is possible because availability payment projects are less risky. As a result, lenders do not require private partners to contribute as much equity in order to make loans supporting availability payment projects.



Figure 4-2: Availability Payment P3 Sources of Funding

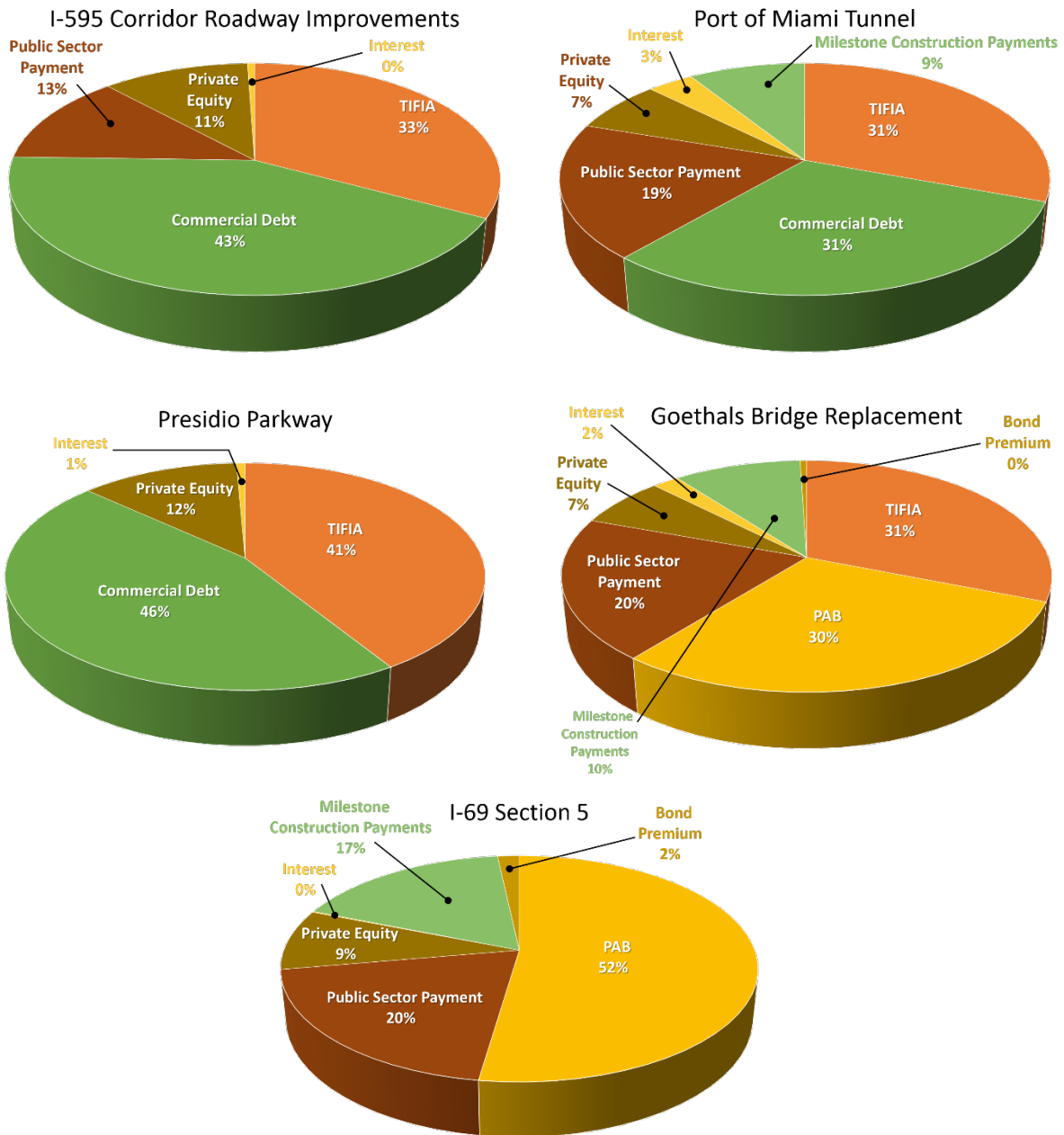
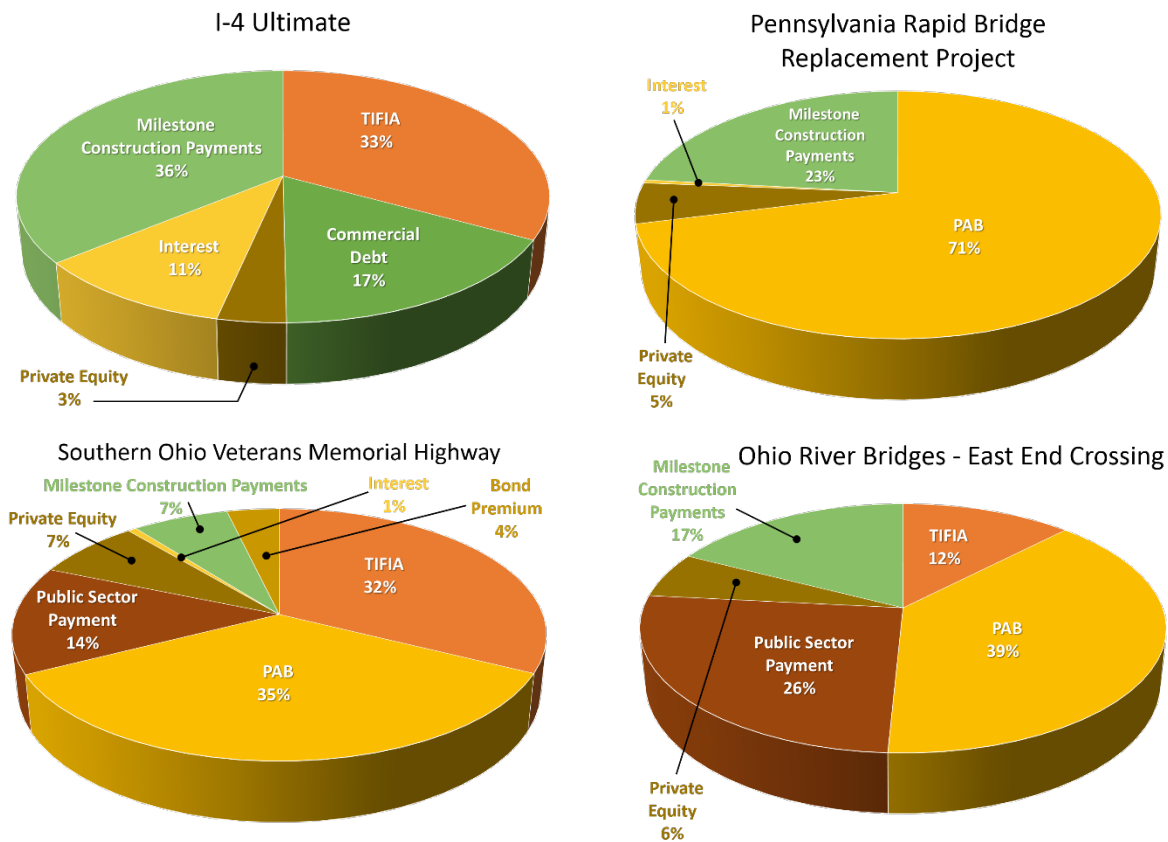


Figure 4-2: Availability Payment P3 Sources of (continued)



With eight out of the nine availability payment projects, their public sector sponsors have made upfront payments to their private partners, either in the form of an upfront public contribution, milestone construction payments, or a combination of the two. Given that these projects are funded entirely with public money, this is a deliberate choice on the part of their public sponsors. By doing so, they reduce the amount of the annual availability payments they will pay throughout the life of the concession. It is interesting to note that availability payment concession financings tend to include a greater share of public sector funds compared with real toll concessions: 20 vs. 12 percent on average. This trend also reflects the fact that agencies sponsoring availability payment projects assemble their funding from a variety of sources, some of which may be limited for use on capital construction and others restricted to support maintenance needs.

As with real toll projects, availability payment financings can also include modest amounts in interest payments and bond premiums.

4.4 Long-Term Lease Concessions

A total of five long-term lease concessions have reached financial close in the U.S. beginning with the Chicago Skyway, in 2005. In the following three years, three additional long-term lease transactions took place. Since 2008 only once lease transaction has occurred: the PR-22/PR-5 toll roads in Puerto Rico in 2011. While other project owners have considered leasing toll facilities, no other lease concessions have occurred in the ensuing time.

Long-term lease concession can take several forms. These include:

- ▶ **Debt transfer lease transactions** where a fee paid by the private concessionaire is used to defease the toll facility's underlying publicly-held debt, with no additional funds available to the public sponsor. Such transactions require the private concessionaire to maintain the road to specified standards throughout the concession period and may also require the private investors to make additional capital repairs to address safety and condition issues.
- ▶ **Hybrid debt transfer and new construction lease transactions** where the private investor pays a fee that is used to defease the underlying publicly-held debt on the facility and agrees to complete new center-line construction extending the existing toll facility. With this model additional payments in excess of the debt underlying the existing road are not made. In some cases, new construction may only be required at a future point in time if certain predetermined performance levels are achieved.
- ▶ **Value extraction lease transactions** where a fee paid by the private investor is used to defease any underlying public debt associated with the toll road and provide the public sponsor leasing the facility with a sizeable infusion of additional funds that it can use for other needs. These transactions require the private investors to maintain the road to specified standards throughout the concession period and may also require the private investors to make additional capital repairs to address safety and condition issues.

4.4.1 Synthesis of Long-term Lease Concession Experience

Table 4-3 summarizes the five long-term lease concessions in the U.S. to date. Concession periods tend to be longer than with real toll DBFOM and availability payment concessions, averaging about 82 years. Only the Puerto Rico lease is less than 75 years, although it was extended from 40 to 50 years in 2016.



Table 4-3: Long-term Lease Concessions through December 2016

	Chicago Skyway	Indiana Toll Road	Pocahontas Parkway / Richmond Airport Connector	Northwest Parkway	PR 22 and PR 5 Lease
	2005	2006		2008	2011
Location	Chicago, Illinois	Northern Indiana	Richmond, Virginia	Metropolitan Denver, Colorado	
Facility Type	Toll Road	Toll Road	Toll Road	Toll Road	Toll Roads
Length	7.8 miles	157 miles	8.8 miles	8 miles	52/2.5 miles
Cost (millions)	\$1,830	\$3,948	\$766	\$726	\$1,146
P3 Basics					
Type of P3	Brownfield	Brownfield	Hybrid	Brownfield	Brownfield
Concession Length	99 years	75 years	99 years	99 years	40 years
Financial Close	1/26/2005	6/29/2006	May-16	12/21/2007	Sep-11
Status	Open	Open	Open	Open	Open
Funding & Financing					
TIFIA			•		
PAB					
Commercial Debt	•	•	•	•	•
Public Sector Payment					
Private Equity	•	•	•	•	•
Special Facility Revenue Bonds					
Donated Right-of-Way					
Interest					
Milestone Construction Payments					
Tolls					
Bond Premium					
Other					
Source of Revenue					
Tolls	•	•	•	•	•
Availability Payments					
Concession Milestones					
	Refinanced 2005 Concession Sold 2016	Bankruptcy Filed 2014 New Lease awarded to IFM Investors 2015	Concession transferred to creditors 2012 New Lease Awarded 2016	Concession Sold 2013	Short-term debt refinanced 2015 Concession Extended 10 years 2016

All long-term leases include a commitment to operations and maintenance over the concession term. However, unlike similar commitments for availability payment concessions, adhering to established performance standards is not as easily enforced since there are no performance-based availability payments. Two lease transactions have included provisions for facility expansion: the Pocahontas Parkway where the concessionaire constructed a connecting road segment to Richmond International Airport, and the Northwest Parkway, which includes options for two extensions of that facility. Other commitments bundled with long-term leases have included upgrading toll collection systems, capital maintenance, and other safety and system improvements.

Experience with long-term leases in the U.S. has been decidedly mixed. Most long-term lease concessions are no longer held by their original private sector concessionaires. Although the Chicago Skyway's investors sold their interests in the facility for a profit in 2015, 10 years into the lease, both the Indiana Toll Road and Pocahontas Parkway struggled to achieve adequate traffic and revenue levels sufficient to cover their debt repayments. The Indiana Toll Road's concessionaire filed for bankruptcy in 2014, and the lease was subsequently auctioned off to a new private sector consortium. The Pocahontas Parkway's concessionaire ultimately transferred ownership of the roadway to the banks holding its senior debt in 2014, and subsequently VDOT awarded a concession to a new private consortium in October 2016.

The Northwest Parkway's concessionaire reported "favorable" performance evidenced by 15.2 (2014) and 41 (2015) percent increases in toll revenue, along with respective 13.3 and 12 percent growth in traffic due to strong economic activity in the Denver metropolitan area.⁸ Nonetheless, prior years of underperformance and an inability to restructure private debt maturing in 2017 led the concessionaire to sell the toll road to new investors in late 2016.

The PR-22 and PR-5 concessionaire refinanced its shorter-term debt in December 2015 extending the payback period and stabilizing the facility's finances. The concession agreement also was extended by 10 years in April 2016 in exchange for an additional payment from the concessionaire to the project sponsors of \$115 million. In conjunction, the concessionaire's revenue share was increased from 50 to 75 percent of future toll revenues. Traffic levels have shown recent improvement despite unfavorable economic conditions in Puerto Rico.⁹ Ninety-five percent of the concessionaire's five-year investment plan to make operational improvements to the roadways is complete.

While several initial private sector investors have been challenged to realize expected returns from their investments in the near-term, public sector sponsors have generally benefited from their long-term lease transactions. First, changes in lease ownership have not had an impact on facility users or project sponsors since the provisions of the original concession agreements, including commitments to operate and maintain the roadways, to follow established methods for toll rate increases, and to share excess profits still stand. Second, the large, upfront payments secured upon lease execution have provided demonstrable benefits. At a minimum, they helped retire debt on burdensome or troubled assets for all five projects, and in three instances, permitted the project sponsors to make investments elsewhere in their respective region or state. Both the Chicago Skyway and Indiana Toll Road exemplify this outcome, as the City of Chicago and State of Indiana were able to make substantial investments in infrastructure, and in the City of Chicago's case, to parlay the proceeds into social and future income generation benefits as well.

⁸ Brisa 2014 and 2015 Consolidated Annual Reports.

http://www.brisa.pt/Portals/0/Documentos/Relatorios/EN/RC%20Consolidados/ReCBAE_Cons_2014UK.pdf

⁹ Abertis 2015 Annual Report.

https://www.abertis.com/media/annual_reports/2015/IA2015_abertis_eng_bP7VWsH.pdf

However, in order to achieve these results, each of these sponsors had to forego the income that these existing toll facilities would have provided them over the life of these extremely long concession terms. While it may have been more difficult politically and from a public acceptance perspective, the project sponsors could have implemented toll increases and streamlined operation of their existing toll facilities in ways emulating what their private sector operators have accomplished. With mature legacy facilities such as in Chicago, Indiana and Puerto Rico, the income that has been forfeited for periods up to 99 years is substantial. These sponsors did receive extremely large payments for these leases that provided capital funding for other project needs, and in the case of Indiana to fund the \$2.6 billion, 10-year, Major Moves transportation investment program, advancing the benefits of the projects undertaken.

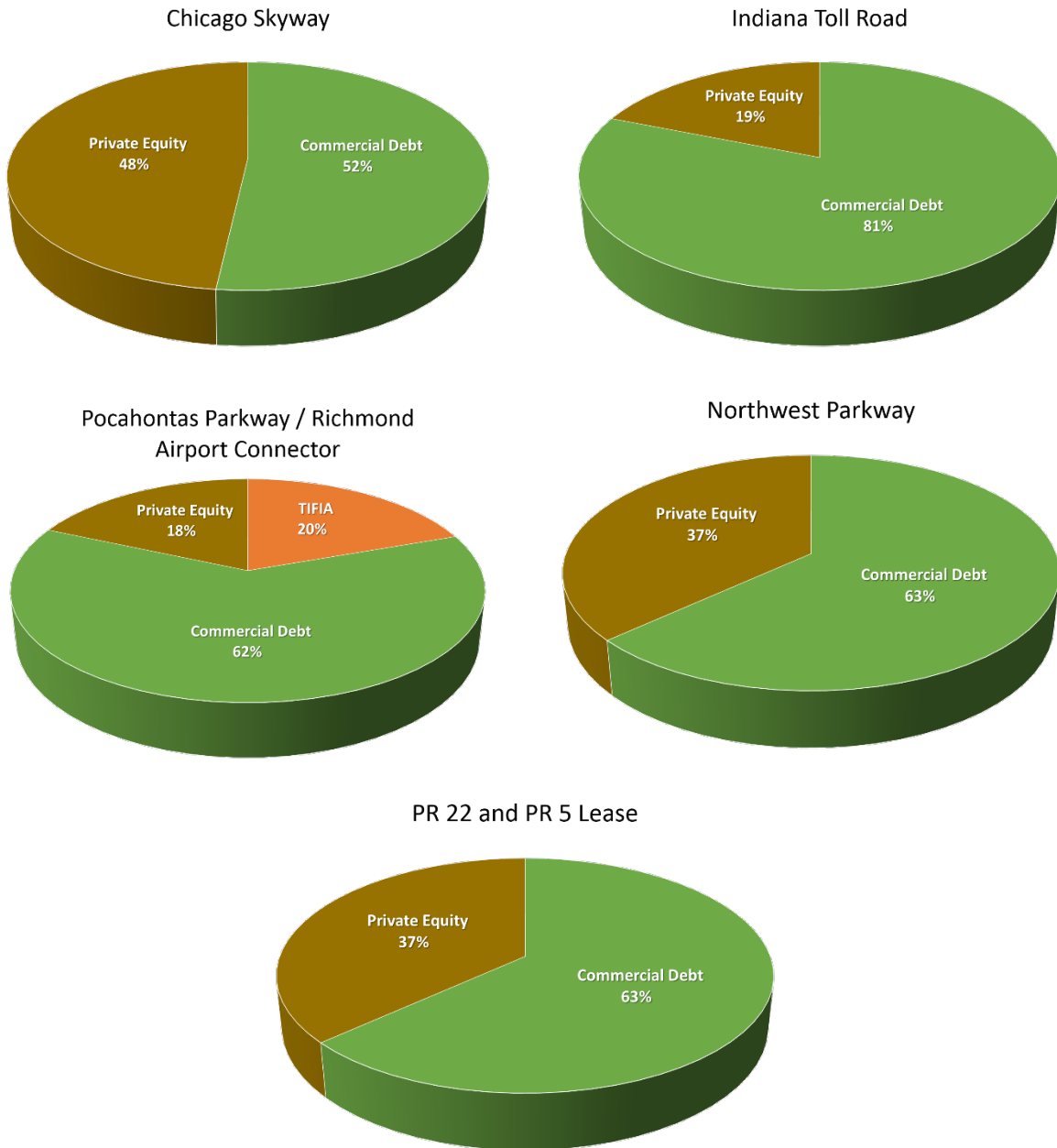
4.4.2 *Financing Long-term Lease Concessions*

As shown in Figure 4-3, original financings for long-term lease concessions in the U.S. have all comprised significant private equity investment coupled with taxable long-term debt from commercial banks. The fact that these legacy facilities have well established traffic and revenue histories mitigates traffic risk, thereby making commercial debt a viable option for their private sector operators. Given that federal credit programs must be used on projects involving the expansion of existing facilities or the construction of entirely new projects, they have not been available for use on long-term lease projects. The Pocahontas Parkway lease transaction did include a TIFIA loan, which the concessionaire used to help finance the construction of the Richmond Airport Connector.

The percentage of equity as a share of overall concession cost at initial financial close ranges between 18 (Pocahontas Parkway) and 48 percent (Chicago Skyway), with an average of roughly 32 percent. However, the Chicago Skyway concessionaire refinanced its underlying debt only seven months after financial close, reducing its equity share to 25 percent. This change reduced the average level of equity investment for the five long-term lease transactions to 27 percent.



Figure 4-3: Long-Term Lease Sources of Funding



Appendix A – P3 Story Documents



Real Toll Concessions: Greenfield Toll Roads

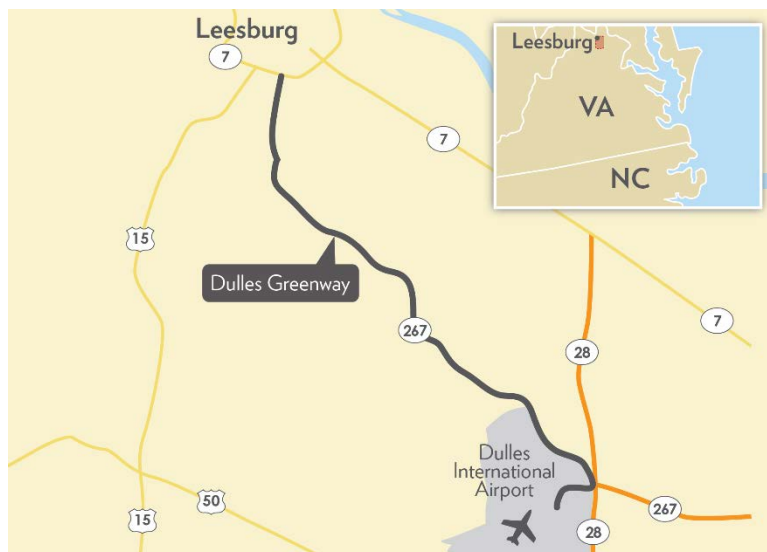


Dulles Greenway

NORTHERN VIRGINIA

Project Overview

The Dulles Greenway is a six-lane, 14-mile, limited access toll highway in Loudoun County, Virginia in suburban Washington, DC connecting Dulles International Airport with US 15 in Leesburg. It serves as an extension of the state-owned Dulles Toll Road (DTR), which connects Dulles Airport and other high-density employment centers in the corridor to the rest of the Washington metropolitan area. The two toll roads connect at a toll plaza, where drivers pay a single toll that is divided between the two operators.



The Dulles Greenway was the second toll facility in the U.S. in the Interstate era to be developed under a long-term design-build-finance-operate-maintain (DBFOM) public-private partnership (P3) concession. The project was developed by Toll Road Investors Partnership II (TRIP II), with an initial concession period of 42.5 years. Over the operation period, the project concession period was extended 20 years to 2056, and the toll structure changed to a variable pricing structure to improve the management of peak period congestion. In 2005, Macquarie Infrastructure Group (MIG, now Macquarie Atlas Roads) purchased the concessionaire, TRIP II. In 2006, MIG sold a 50 percent stake to Macquarie Infrastructure Partners.

Project History

Washington Dulles International Airport opened to serve long distance air travelers in the National Capital Region in 1962. The new airport included the Dulles Airport Access Road (DAAR), a four-lane, 14-mile highway developed on land owned by the airport authority linking the airport to the Capital Beltway, the orbital highway around the District of Columbia. The toll-free DAAR had no intermittent points of access or egress, and was designated exclusively for traffic traveling to and from the airport.

Heavy development in the Dulles corridor in Fairfax County during the 1970s brought mounting pressure to expand the local roadway network. In the early 1980s, the Dulles Airport Authority allowed the Virginia Department of Transportation (VDOT) to build the Dulles Toll Road within in the airport access corridor, outside of the lanes of the DAAR. As growth in the corridor extended into Loudoun County west of the airport, VDOT became interested in extending the DTR to serve traffic in that growing area. With the DTR carrying 80,000 trips daily and strong growth in the region, local decision makers believed that the new facility would be successful.



The Decision to Pursue as a P3 Project

The climate for private participation in transportation was gaining focus at the time the Dulles Greenway was being considered. Private investors saw P3s as a promising investment opportunity that would also relieve the government of the long-term financial and operational burden of implementing transportation infrastructure. In 1986, a private consortium, the Toll Road Corporation of Virginia (TRCV), comprising local investors and former government officials began considering developing the Dulles Toll Road Extension as a private toll road. Simultaneously, legislation was being developed to remove the state prohibition on private toll road development.

In 1988, the state legislature passed the Virginia Highway Corporation Act (VHCA), which allowed private developers to submit applications to the Virginia State Corporation Commission (SCC) to build and operate toll roads in the Commonwealth. The VHCA outlined a process for developing private roadways, including an application and approval process by the Commonwealth Transportation Board and local governing bodies of each jurisdiction through which the roadway would pass. If approved, by the SCC, VDOT and the private development company would enter into a comprehensive agreement to develop the roadway.

The VHCA also regulated the setting of toll rates and equity rates of return for the investor, similar to those for public utilities. The Act also required that any privately developed toll roads would be turned over to the state after a specified period of time, prohibited the use of eminent domain by the state (but allowed by local jurisdictions), and obliged the concessionaire to pay the state to enforce traffic law on the highway. Importantly, the VHCA also stipulated that the Commonwealth of Virginia could not pledge its “full faith and credit” on any project financing, removing state obligation to repay securities from public sources other than toll revenue.

Project Procurement

Shortly after the passage of the VHCA, VDOT applied for project approval and completed the environmental studies needed to advance the Dulles Greenway. In March 1989, TRCV submitted a proposal to fund and construct the Greenway privately. The Commonwealth Transportation Board approved the application in July 1989.

After receiving the proposal, the SCC issued a two-part report evaluating the proposal. The Commission concluded that it would cost TRCV approximately four times as much to construct and operate the project over its lifecycle, compared to a public construction (by VDOT). The large disparity in cost was due to the fact that the private developer would pay higher interest costs compared to the government. In addition, unlike VDOT, the company would be required to pay both income and property taxes. Further information from both VDOT and the investor clarified the discrepancies in the large cost difference between public and private options. In 1990 however, VDOT announced that they had no plans to move forward with a public construction and operation of the project.

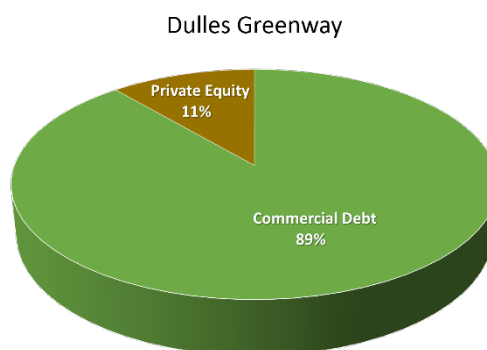
With the absence of the public option, SCC issued a Certificate of Authority to the private developer, which by that time had changed its name to TRIP II, to build and collect tolls on the Dulles Greenway over a 42.5-year operating period. TRIP II was composed of the Shenandoah Group, a local family-owned investor with a majority interest in the company, Autostrade International S.p.A (a large Italian toll road operator) and Brown & Root (a U.S.-based construction firm). Financing was secured by 1993, and construction on the \$298 million project began in September of that year. The Dulles Greenway opened to traffic in September 1995.

The Dulles Greenway was the only toll facility in Virginia to be developed under the VHCA public utility model. Subsequent long-term P3 concessions for transportation facilities in the state have been implemented under the Public-Private Transportation Act enacted in 1995.



Project Financing and Implementation

The private developers financed the project using a mix of long-term, commercial debt and their own equity. A group of institutional lenders led by CIGNA Investments, Prudential Power Funding Associates, and John Hancock Mutual Fund Life Insurance Company provided \$258 million in long-term loans, due to mature over 29 and 32-year terms. In addition, the private partners also contributed \$40 million in cash. They used the long-term loans to repay an earlier short-term loan of \$57 million from a group of banks including Barclays, NationsBank, and Deutsche Bank. These banks also provided standby and revolving lines of credit of \$40 million each to cover construction cost overruns, potential operating shortfalls, and in certain circumstances, debt service. If the toll revenue generated by the Greenway met the levels projected, TRIP II would not need to tap into either line of credit. If not, then the standby lines of credit would be used to allow the concession company to meet its obligations until project revenues from toll collections increased to the needed level.



The project financing and delivery structure included no financial risk to the Commonwealth. Additionally, the TRIP II partners agreed to forego making real estate investments along the corridor, limiting additional risk exposure.

Project Restructuring and Sale

When the project first opened to traffic in September 1995, tolls were set at \$1.75 each way, but six months later were lowered to \$1.00 each way when traffic fell short of projected levels. Despite the toll reduction, revenues did not increase, and the toll rate was increased to \$1.15 in July 1997. The Virginia General Assembly also raised the speed limit on the Greenway from 55 to 65 mph.

During this time, revenues on the Dulles Greenway amounted to less than \$6 million per year, well below projections, and left TRIP II with inadequate funds to cover its debt service. By late 1997, the company had missed four interest payments and was on the road to bankruptcy. In 1999, TRIP II reached an agreement with its creditors to restructure its debt with \$332 million in privately-placed, insured bonds. As part of the restructuring process, the SCC extended the term of TRIP II's concession for an additional 20 years to 2056.

In 2004, TRIP II introduced variable peak and discounted off-peak pricing to manage peak period congestion on the Dulles Greenway. With this user pricing structure, the Greenway became the first highway in the Washington, DC metro area to feature variably priced tolls.

In March 2005, Macquarie Infrastructure Group—an Australian investment bank and toll operator—purchased the Dulles Greenway from TRIP II for \$617.5 million. The firm had been actively pursuing the sale for some time. The road was well maintained and MIG was bullish on continued high growth in the region. MIG paid \$84.5 million to Kellogg Brown & Root for its 13.3 percent share of the company and \$535 million to the Shenandoah Group, which had purchased Autostrade's share in the company and owned the remaining 86.7 percent stake in TRIP II. Ownership of TRIP II is now held in equal shares by Macquarie Atlas Roads and Macquarie Investment Partners I, funds that are both managed by Macquarie Group Limited.

In 2013, the Commonwealth of Virginia considered buying back the Dulles Greenway. The Commonwealth contemplated two options. The first would allow the Commonwealth Transportation Board to issue bonds to

fund the Greenway’s purchase. The second would create a Dulles Greenway Authority to operate and maintain the facility. The motivation behind the contemplated purchase was to ease upward pressure on toll rates, which had been rising by two-to-three percent annually, and refinance the Greenway’s debt at lower interest rates due to the Commonwealth’s high credit rating. However, the plans to transfer control did not proceed, because an analysis showed that taking on responsibility for the facility’s ownership and operation would not make financial sense to the Commonwealth.

In 2013 and 2015, the Virginia General Assembly proposed implementing distance-based pricing on the Dulles Greenway. However, in September 2015 after a two-year study the SCC ruled that TRIP II did not have to alter its pricing structure. The SCC concluded that TRIP II does not have a monopoly on routes and that it is not a public utility and is subject to competition. It also concluded that lowering the tolls would be unconstitutional, as it could prevent TRIP II from paying its operating costs and debt obligations, which had already been approved by the SCC.



South Bay Expressway

SAN DIEGO, CALIFORNIA

Project Overview

The South Bay Expressway (SBX) is a 12.5-mile, tolled extension of State Route 125 (SR 125) in San Diego County, CA, running from SR-54 southward to Otay Mesa, just north of the Mexican border. The SBX is the easternmost of the region's three north-south highway corridors and is located roughly 10 miles inland from the Pacific coast near the Laguna Mountains. The SBX also connects the only border crossing in the San Diego area serving commercial vehicles to the regional freeway network.



The southern 9.3-mile portion of the SBX opened in 2007 and was originally implemented under a long-term public-private partnership (P3) concession by a special purpose entity called California Transportation Ventures (CTV). The remaining 3.2-mile link to the existing freeway network at the northern end of the corridor—known as the “Gap and Connector”—was publicly funded and built in conjunction with the construction of the private toll road. In 2011, the San Diego Association of Governments (SANDAG)—the metropolitan planning organization and transit agency, and toll operator for the San Diego region—purchased the SBX from CTV following its restructuring in bankruptcy, and the full facility is now under public control.

Project History

In 1989, California became the second state in the U.S. to authorize the use of public-private partnerships (P3s) to deliver transportation improvements when the legislature enacted Assembly Bill (AB) 680. This bill authorized the California Department of Transportation (Caltrans) to enter into agreements with private entities that would construct up to four toll projects around the state at their own expense and without state funds to supplement existing state-owned transportation facilities. The legislation authorized Caltrans to lease those facilities to the private entities for up to 35 years, and allowed private concessionaires to identify specific projects where a private facility would perform favorably.

When AB 680 was passed, the SBX—known at the time as SR 125—had been an approved component of California's Long Range State Transportation Plan for 20 years. The road also reinforced the vision of the 1981 *Otay Mesa Community Plan* to develop new residential communities in eastern Otay Mesa, encourage employment opportunities, and also coordinate the development of the Otay Mesa border crossing, which at the time was only served by local arterial streets. Although the SBX was recognized as an integral element of the region's future transportation network, it had never gained state or local funding, as the surrounding area was only beginning to see rapid growth and development.



The Decision to Pursue as a P3 Project

The decision to implement the South Bay Expressway on a P3 basis was a direct result of AB 680. The bill called for Caltrans to issue a Request for Statements of Interest for up to four transportation projects to be financed by private investors under a demonstration program. Although it stipulated that at least one of those projects be located in Northern California and a second in Southern California, prospective investors were invited to identify projects they felt would be of greatest benefit to the state. The State also gave preference to project proposals that were consistent with the local and state long-range transportation improvement plans. This led CTV to propose building the SBX as a toll road and implement a needed highway for which no other funding had been identified.

Project Procurement

Shortly after the passage of AB 680, Caltrans issued a request for qualifications from private sector investors and developers to participate in the P3 demonstration. Several consortia responded to the request, and 13 groups were prequalified and invited to submit franchise proposals. Nine of the consortia submitted detailed proposals for eight different private toll road projects, and ultimately four groups were selected. Caltrans made its selection based on a number of criteria, including the need for the project, environmental effects, constructability, right-of-way requirements, the experience of the consortium, incorporation of innovative concepts, and the promotion of economic development.

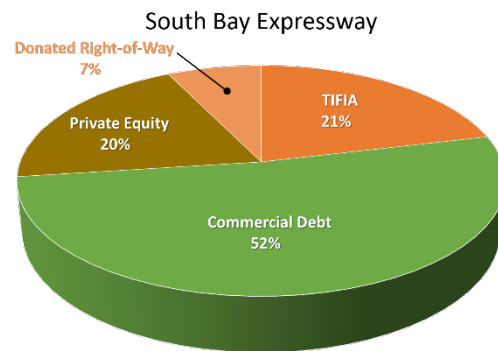
CTV was one of the four winning consortia for its proposal to develop the long-planned extension of SR 125 South as a toll facility. CTV was a consortium of four firms, each of which had equal ownership in the company. They included an engineering firm (Parsons Brinckerhoff), a construction company (Fluor Daniel Corporation), a French toll road operator and developer (Transroute International S.A.), and the investment arm of a large insurance company (Prudential Bache Capital). Caltrans and CTV negotiated the terms of their partnership during the latter half of 1990 and signed a franchise agreement for the SBX in January 1991. The agreement allowed CTV to finance and construct the roadway, transfer the title of the road to Caltrans upon completion, and then lease back the operational rights for a 35-year concession period. Toll rates would be set by the concessionaire, subject to a cap on its rate of return. The agreement also prohibited Caltrans from building any competing roads that could divert traffic away from the SBX.

Under the franchise agreement, CTV was to complete final environmental documentation for the project by December 1997. After delays due to legal challenges, shifting responsibilities, and other factors, the project finally gained environmental approval in mid-2000. In 2003, CTV awarded a contract to design and construct the project and shortly thereafter was acquired by Macquarie Infrastructure Partners, which established SBX Limited Partnership (LP) as the new concession company implementing the project.

Following financial close, construction began in May 2003 and was completed in November 2007, roughly one year behind the original schedule. Tolling began two months later following delays in activating the facility's tolling system. Despite subsequent financial distress and project ownership changes, the road has operated continuously and remained open to traffic since that time.

Project Financing and Implementation

The total cost of the privately-procured toll road portion of the SBX was \$658 million. The concessionaire’s financing for the project included \$340 million in commercial bank debt; a \$140 million loan provided by a federal credit assistance program known as the Transportation Infrastructure Finance and Innovation Act, or “TIFIA”; and \$130 million in private equity. The TIFIA loan was a milestone for the federal credit program, as the loan was the first that it had made for a P3 directly to the private developer rather than the public-sector project sponsor. The bank debt for the SBX was provided by a group of 10 banks over an 18-year term. The project also received \$48 million worth of donated right-of-way from four real estate developers in the corridor. Scheduled payments on the TIFIA loan were to begin in 2010, with final maturity in 2040. Both the TIFIA and bank loans were backed by toll revenues generated on the facility.



Funding for the \$138 million Gap and Connector project at the northern end of the SBX was provided from a dedicated regional sales tax for transportation administered by SANDAG.

Bankruptcy and Sale to the Public Sector

In March 2010, SBX LP filed for bankruptcy. The primary cause of the bankruptcy filing was ongoing litigation related to claims by the contractor that built the SBX project. The SBX opened to traffic in late 2007, shortly before the 2008 recession, and toll revenue steadily declined falling well short of original projections. At the time of bankruptcy, the toll road had approximately half of the traffic volume estimated by investors in 2003. In December 2009, SBX LP, the equity partners, and senior lenders signed a standstill agreement, halting payments until restructuring negotiation was complete. This step was seen as the first alternative to the bankruptcy.

SBX LP’s reorganization plan, which was confirmed by a bankruptcy court in April 2011, settled the litigation with the contractor and established a new concession company (SBX LLC) under the ownership of TIFIA and the project’s commercial lenders, who would share future toll revenues. Under the reorganization plan, TIFIA’s \$172 million outstanding balance was broken into a new \$93 million secured loan along with a \$6 million equity stake in the new company. This left a \$73 million unsecured balance on the original loan, although TIFIA was scheduled to recapture more than 90 percent of the original loan by the final maturity date of 2042.

Soon after the reorganization, SANDAG expressed its interest in purchasing the lease of SBX from the new owners. SANDAG had experience operating the county’s priced managed lanes on I-15 and its offer was more attractive than private sector offers because it could issue tax-exempt bonds, and incur no income or property taxes. Together these attributes were valued at an estimated \$65 million and would enable SANDAG to reduce toll rates on the SBX. In 2009, a study of potential debt recovery options was completed. It revealed that under the terms of a private offer, the estimated debt recovery was \$220 million over the existing 35-year concession. However, the public offer was more favorable, with an estimated debt recovery of \$442 million due to the use of tax-exempt bonds over the concession period.

Under the terms of the \$341.5 million sale, which closed in December 2011, TIFIA issued a new \$94.1 million loan under the same terms as in the reorganization plan and received a cash distribution of \$15.4 million.

TIFIA's ultimate recovery of the loan depends on roadway performance. However, the credit quality of the cash flow stream improved significantly after the sale to SANDAG. Although the principal amount of the original loan was reduced, based on the credit attributes of the restructured loan and the higher interest rates, the TIFIA program is positioned to realize 100 percent of the original loan balance, not including interest. SANDAG also paid off SBX's commercial creditors, whose loans had been restructured in the bankruptcy reorganization, using funds from its TransNet regional sales tax revenue.

Despite losses absorbed by equity investors and the contractor, SBX customers and the local government felt no negative impact during the bankruptcy and sale to SANDAG. Soon after completing the sale of the SBX, SANDAG lowered toll rates by as much as 40 percent on the facility to attract more local and through traffic and relieve congestion on I-805, a parallel route. Tolls have not risen above the limit set in the original concession agreement. Control of the SBX is scheduled to revert to Caltrans in 2042 under the terms of the original franchise agreement. SANDAG also realized good value for money from its purchase, as it paid \$341.5 million for a road that had cost its private investors \$658 million to build.

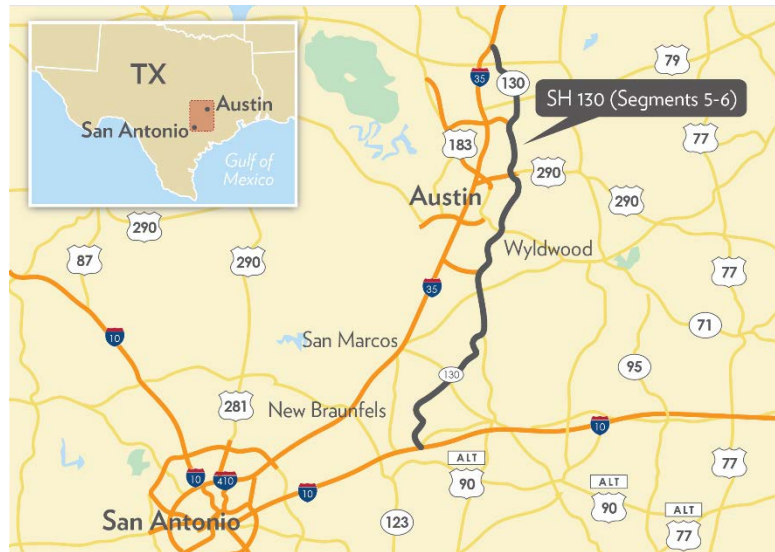


SH 130 (Segments 5-6)

AUSTIN, TEXAS

Project Overview

State Highway (SH) 130 is a 91-mile, four-lane toll road east and south of Austin, Texas. The road runs roughly parallel to I-35 through central Texas and is intended to accommodate growth in long-distance travel between Mexico and the Midwest, in addition to providing additional capacity for local traffic. The road also serves as an eastern bypass of the Austin metropolitan area, providing motorists the opportunity to avoid the highly congested stretch of I-35 through Austin.



Segments 1 through 4 of SH 130, which extend 50 miles from I-35 at Georgetown to US 183 at Mustang Ridge, were developed by the Texas Department of Transportation (TxDOT). TxDOT operates the facility along with several other toll roads in the greater Austin area.

Segments 5 and 6 extend along the southernmost section of the SH 130 alignment, from US 183 in Mustang Ridge to I-10. Segments 5-6 include 15 miles that follow the alignment of US 183. SH 130 Segments 5-6 were developed as a 50-year design-build-finance-operate-maintain (DBFOM) public private partnership (P3) between TxDOT and the SH 130 Concession Company, which comprises Cintra (a subsidiary of the Spanish construction firm Ferrovial) and Zachry (a Texas-based construction company). The \$1.35 billion project opened to traffic in October 2012 as the first privately developed highway in Texas.

Project History

During the 1990s, growing traffic volumes and congestion in strategic Interstate highway corridors led Texas to explore new methods of financing and delivering needed surface transportation investments. Public officials in Texas began to look to tolling as a means to finance transportation improvements, as the proceeds from motor vehicle fuel taxes could not cover the cost of needed improvements and a fuel tax increase was not a tenable option.

In January 2002, Governor Rick Perry unveiled the Trans Texas Corridor (TTC) initiative. The program included a network of 11 multimodal corridors up to 1,200 feet wide, containing separate toll lanes for cars and trucks, rail lines for freight, commuter and high-speed train service and utility rights-of-way. The entire program was expected to cost between \$145 and \$184 billion. TxDOT believed that the program could be implemented through a combination of toll-backed P3 concessions and public sector funding.

One of the priority corridors in the program was “Trans Texas Corridor 35” (TTC-35), which would parallel I-35 from the Mexican border to Oklahoma. TTC-35 would serve as an Eastern Bypass of the greater Austin



area, helping to divert much of the heavy freight traffic through the region from chronically congested I-35. Part of the Eastern Bypass included SH 130.

Meanwhile, TxDOT constructed the four northern segments of SH 130 under a design-build agreement as part of the Central Texas Turnpike, and opened the corridor to traffic in stages between 2006 and 2008. In early 2009, TxDOT canceled the Trans Texas Corridor program, but allowed individual components of the program to continue, under the environmental approvals received for the TTC-35 and TTC-69 (another priority corridor along the Gulf Coast and through Houston) and using financing tools made available by the state legislature.

The Decision to Pursue as a P3 Project

In June 2003, the Texas state legislature passed HB 3588, which authorized the use of public-private partnerships to develop highway projects in the state. The law authorized TxDOT to enter into a range of “Comprehensive Development Agreements” (CDAs), from design-build procurements (where a single private entity designs and constructs a project), to full design-build-finance-operate-maintain (DBFOM) concessions (where a single private developer would design, construct, finance, maintain and operate an improvement for a designated period of time). This authorization enabled TxDOT to pursue plans for the TTC.

In 2005, in response to growing public opposition to the TTC, HB 2702 was passed to curb the broad powers granted to TxDOT in 2003. HB 2702 prohibited using non-compete clauses in CDAs to bar public investment in parallel routes, required CDAs to include an approved methodology for setting, increasing and collecting tolls, and limited concession terms to 50 years.

While TxDOT was able to fund Segments 1-4 of SH 130 using traditional means, its financial advisers could not find a way to finance Segments 5-6, which faced a funding gap of over \$600 million. In order to complete the facility, TxDOT opted to procure the toll project on a P3 basis where a private partner could borrow against the toll proceeds during a designated concession period to raise the needed financing to build the project.

Project Procurement

In March 2005, following a competitive process, TxDOT engaged a team led by Cintra, a Spanish toll road operator, and San Antonio-based construction firm Zachry to prepare a master development plan for the entire TTC-35 corridor. Under the CDA, Cintra-Zachry would identify segments within the corridor that might be feasible to advance in the near term. The team also had the right to negotiate a separate CDA to develop those segments on a P3 basis.

The TTC-35 plan produced by Cintra-Zachry identified SH 130 Segments 5-6 as a strong candidate for private development. The two firms formed a joint venture, SH 130 Concession Company—with Cintra holding a 65 percent stake and Zachry the remaining 35 percent—to negotiate a CDA for the project with TxDOT.

In June 2006, the Texas Transportation Commission approved the state’s first toll road CDA concession awarding SH 130 Concession Company a 50-year DBFOM concession to develop the first new-build private toll road in the state of Texas.

Under the terms of the SH 130 CDA, SH 130 Concession Company would collect all toll revenues on the project and then share the revenues with TxDOT by applying a sliding scale based on the concessionaire’s financial performance. Future toll rate increases would be tied to growth in the state of Texas’ gross domestic product.

The CDA also required the developer to make an upfront concession fee payment of \$25 million for the right to build the project. This fee would be increased if TxDOT were to authorize a higher maximum speed limit for the facility, thereby increasing the facility’s desirability as an alternative route to I-35. In September 2012, TxDOT set the speed limit on the southern portion of SH 130 at 85 mph—the highest in the U.S.—triggering a \$100 million increase in the concession fee due from the developer.

The CDA agreement also included a 10-mile-wide “Competing Facilities Zone” where if TxDOT constructed new roads or enhanced existing facilities, it could be liable for the concessionaire’s lost revenue. However, there were specific exclusions in the agreement for all portions of I-35, as well as all highway projects listed at the time on all regional long-range transportation plans.

Project Financing and Implementation

Following the completion of permitting work for the project, SH 130 Concession Company executed the various loans to raise the money it needed to begin implementing the project. This milestone, known as “financial close,” occurred in March 2008.

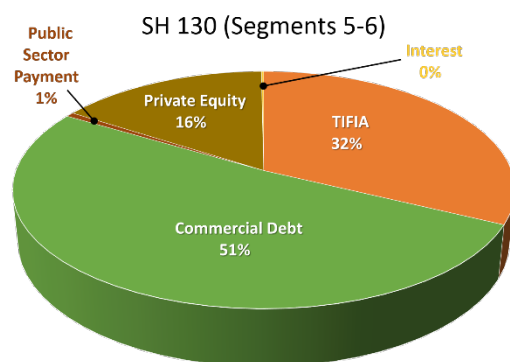
SH 130 Concession Company financed the \$1.35 billion project using a combination of loans from commercial banks, a loan from a federal government program known as TIFIA, which provides low-interest and flexible loans to projects of national or regional significance, and its own at-risk equity.

The largest single source of financing was \$686 million in 25-year loans from a group of five European banks: Banco Santander and Caja de Ahorros y Monte de Piedad de Madrid of Spain, Banco Espirito Santo and Caixa-Banco de Investimento of Portugal, and Fortis Bank of Belgium. The loan is separated into two groups or “tranches”: \$596.5 million to cover investment needs and \$170 million to cover cash flow shortfalls in the first years of operation. During the first five years after construction completion, the loan has a principal payment grace period, which means that SH 130 Concession Company may opt only to make interest payments on the loan.

A \$430 million loan from the TIFIA program will be repaid over a 35-year period. The loan is subordinated, which means that TIFIA debt service payments will only be made after all debt service on the senior debt held by the five European Banks has been paid in full. The TIFIA loan is secured by a lien on project revenues, with repayments scheduled to begin in 2017 for interest obligations and in 2018 for principal repayments. In addition, a 12-month debt service reserve account will be established beginning in year six of operations and will be in place through the final maturity of the TIFIA loan.

SH 130 Concession Company also has invested \$210 million of Cintra and Zachry’s own equity in the project. The commercial bank and TIFIA loans will be repaid prior to the company’s equity. It is at risk of losing its equity if the project were to default. Cintra and Zachry also provided contingent equity commitments to cover \$35 million in right-of-way acquisition costs and \$30 million to have additional cash on hand during construction. During construction, TxDOT paid \$8 million in compensation to the developer for change orders.

The financing included a \$35 million “liquidity facility” from the lending banks that can be drawn on to meet the project’s debt payments during the first ten years of operation if needed. If this additional loan is accessed, it will need to be repaid within 30 years.



SH 130 Concession Company completed final design and right-of-way acquisition in early 2009, and construction began that April. The facility opened to traffic in October 2012 and toll collection began the next month. Toll revenues generated on SH 130 Segments 5-6 have fallen well short of expectations, with revenue levels more than 60 percent below original forecasts. As a result, the concessionaire has fully drawn down the bank liquidity facility, and risk ratings on the outstanding commercial bank debt and TIFIA loan have been downgraded to so-called “junk status” by Moody’s Investors Service, an important credit rating company. The concession company negotiated with its senior bank lenders to postpone most of its June 2014 interest payment to December 2014, avoiding a legal default. Traffic levels rebounded in 2015, climbing 18 percent in the first quarter of the year compared to 2014. Truck traffic increased by 20 percent. Nonetheless, SH 130 Concession Company filed for Chapter 11 bankruptcy protection in federal court in March 2016. The bankruptcy has no financial impact on the State of Texas, and the operator promises “business as usual for customers, employees, vendors and surrounding communities during [the bankruptcy] proceedings.” On September 9, 2016, Cintra relinquished ownership of the facility to its creditors but will continue to operate the facility for 18 months.

TxDOT has retained the right to terminate the CDA with SH 130 Concession Company in the event that the project defaulted. However, TxDOT would be required to compensate the company for its assets at their fair market value. It is unlikely that TxDOT would seek to assume responsibility for the financially troubled facility, as it has no incentive to take on the financial obligations of a toll road with traffic and revenue levels far below projections.

Although the facility was privately funded, TxDOT has invested public resources to promote the toll road. The agency has helped to pay for nearly 400 signs along the I-35 corridor that advertise SH 130 as an alternative route. TxDOT has also paid the concessionaire for providing truck toll discounts as a means to help increase traffic on SH 130 and divert truck traffic from the chronically congested I-35 corridor.



Real Toll Concessions: Toll Crossing Projects

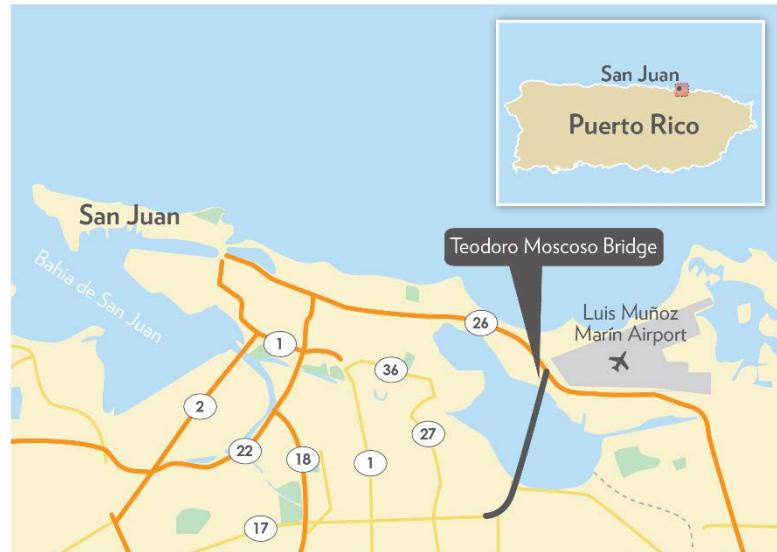


Teodoro Moscoso Bridge

SAN JUAN, PUERTO RICO

Project Overview

The Teodoro Moscoso Bridge Project is a four-lane, 1.4-mile-long toll bridge that spans the San José Lagoon between the municipalities of San Juan and Carolina, Puerto Rico. A segment of PR-17, the bridge connects roadways on both sides of the lagoon in the vicinity of Luis Muñoz Marín International Airport. The total length of the facility, including access roadways, is 2.1 miles. The project included toll facilities, access roads, interchanges, overpasses, and other support facilities. The bridge opened to traffic in February 1994.



The bridge was developed under a single design-build-finance-operate-maintain (DBFOM) public-private partnership (P3) concession agreement between the Puerto Rico Highways and Transportation Authority (PRHTA), an independent agency of the Commonwealth of Puerto, and Autopistas de Puerto Rico (APR), a private consortium. Under the agreement, the private partner has the right to collect toll revenues and use those proceeds to make debt service payments on bonds issued by PRHTA. The concession term is scheduled to expire in 2044.

Project History

The history of the Teodoro Moscoso Bridge project can be traced back to the late 1980s when the municipalities of San Juan and Carolina faced a growing population and severe traffic congestion. At the same time, the Commonwealth of Puerto Rico sought to improve connectivity and access to the Luis Muñoz Marín Airport, located just north of the San José Lagoon.

In the late 1980s, the Commonwealth also initiated a new program for developing privatized toll roads to complement its traditional highway program. The goal was to expedite the development of new strategic highway corridors to address traffic congestion in its largest metropolitan regions, San Juan and Ponce. Two projects were initially contemplated: the Teodoro Moscoso Bridge (then referred to as the San José Lagoon Bridge) and PR 66, a planned expressway between San Juan and Fajardo.

The Decision to Pursue as a P3 Project

Although PRHTA had contemplated building the bridge for a number of years, the cost of construction and traffic demand risks associated with the facility limited PRHTA's ability to undertake the project, leading it to seek a private partner to develop the project.



In August 1990, the Puerto Rico Legislature approved Act No. 4, which amended the PRHTA Act to allow PRHTA to enter into concession agreements with private entities for the design, construction, financing, operation and maintenance of highway projects. Under Act No. 4, ownership of the transportation assets would be retained by PRHTA, but private sector developers could finance projects by leveraging future toll proceeds. PRHTA had already identified the Teodoro Moscoso Bridge as a priority corridor to advance to implementation on a P3 basis.

Project Procurement

PRHTA solicited interest among private firms for the two projects initially contemplated for P3 delivery. Three firms were shortlisted in January 1990 based on statements of interest. The firms submitted proposals in April 1990, and PRHTA selected APR in June 1990 on the basis of demonstrated capability to manage the project's expected construction and financial risks. APR was originally composed of Dragados Construction (a large Spanish construction and investment company) and two local construction firms, Supra and Rexach Construction.

On December 20, 1991, PRHTA and APR executed a 35-year concession agreement, giving APR the right to collect and retain all toll revenues generated by the new bridge. In March 1992, PRHTA issued Special Facility Revenue Bonds to finance the bridge. Construction began in April 1992 and was completed in February 1994, two months ahead of schedule. The total cost of the project was \$126.8 million. The Teodoro Moscoso Bridge is considered the first modern highway P3 project in the U.S.

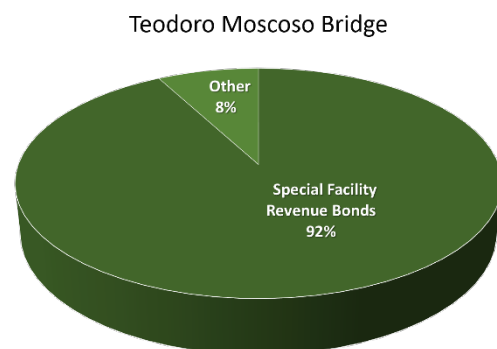
In 2009, the concession agreement was amended to extend the term by 17 years to 2044, 50 years after the initiation of service on the bridge, as part of a litigation settlement between APR and PRHTA. Following a series of transactions between 1998 and 2010, APR is now wholly owned by Abertis Infraestructuras, S.A., a Spanish conglomerate.

Project Financing and Implementation

The Teodoro Moscoso Bridge was originally financed with \$117 million in Special Facility Revenue Bonds issued by PRHTA in 1992. PRHTA then loaned the bond issue proceeds to APR, which agreed to repay the principal and interest on the bonds. In 2003, PRHTA issued \$153.2 million in Special Facility Revenue Refunding Bonds to refinance the original debt, and the proceeds again were loaned to APR.

The refunding bonds are primarily repayable from net toll revenues collected by APR. If net toll revenues and available reserves are insufficient to service the debt, PRHTA is required to assume APR's obligations to pay the bonds, exchanging them for bonds issued under PRHTA's existing resolution, if possible. In such an event, the concession agreement with APR would be terminated.

The concession agreement for the Bridge also provides that net toll revenues be shared between APR and PRHTA once APR achieves a target rate of return on its investment, with PRHTA's share of the excess revenues increasing at higher rates of return for APR are achieved.



Elizabeth River Tunnels: Downtown Tunnel/Midtown Tunnel/MLK Expressway Extension

NORFOLK AND PORTSMOUTH, VA

Project Overview

The \$2.1 billion Downtown Tunnel/ Midtown Tunnel / Martin Luther King (MLK) Expressway Extension project is located in the cities of Portsmouth and Norfolk, in the Hampton Roads area of Virginia. This three-facility project involves transportation improvements to two tunnels and one expressway. The project includes: 1) building a new two-lane tolled Midtown Tunnel parallel to the existing Midtown Tunnel below the Elizabeth River connecting Norfolk and Portsmouth, together with modifications to both tunnel approaches to improve traffic flow; 2) rehabilitating and upgrading the existing Downtown Tunnel to comply with current fire and life safety standards; and 3) extending the MLK Expressway (Route 58) 0.8 mile to the south in Portsmouth to connect with I-264.



The project has a wide array of goals. They include increasing travel options and regional accessibility, reducing congestion and travel times, extending the useful life of the existing tunnels, improving access to port facilities and goods movement, enhancing regional competitiveness, and creating jobs. The project will also improve safety by eliminating two-way traffic in the Midtown Tunnel and by bringing both the Midtown and Downtown Tunnels into compliance with current fire and safety standards.

Project History

The Elizabeth River Tunnel District constructed both the original Midtown and Downtown Tunnels as the first two river crossings connecting Portsmouth and Norfolk. The Downtown Tunnel opened to service in the early 1950s and the two-lane Midtown tunnel followed in 1962. Both tunnels were financed with bonds backed by toll proceeds, with motorists paying 25 cents to use the crossings. Tolls continued to be charged until the late 1980s when the bonds were paid off.

As the tolls were removed from the crossings, the Virginia Department of Transportation (VDOT) began to formulate plans to expand the Midtown Tunnel. To do so, it began a Federal environmental approval process to establish the goals of the project and assess the ability of different solutions to meet those goals. This analysis led to the recommendation to upgrade Route 58 into a limited access highway and add a second tunnel to expand east-west connections between Portsmouth and Norfolk.



VDOT completed its environmental review process in 1996, but still needed Federal approval in order to proceed with the project. However, at that time funding had only been identified for the interchange with the MLK Expressway and the western tunnel approach. These portions of the project were included in the financially constrained, 20-year, long-range transportation plan maintained by the region's Metropolitan Planning Organization (MPO), the Hampton Roads Transportation Planning Organization. As a result, the Federal Highway Administration (FHWA) issued a Record of Decision approving these portions of the project in 1997, but it withheld its approval of the tunnel itself and eastern approach because these components of the project were not included in the fiscally constrained long-range transportation plan.

During the same period, VDOT also initiated a series of studies to analyze alternatives for closing a gap nearly one mile long between the southern terminus of the MLK Expressway at London Boulevard and I-264 in Portsmouth. This process led to the selection of a four-lane limited access freeway to replace the existing Harbor Drive and connect the MLK Expressway to I-264. VDOT concluded its environmental review process for the MLK Extension in 1999, but funding was not available for the project. As a result, it was not included in the region's fiscally constrained long-range plan and FHWA approval was delayed.

The Decision to Pursue as a P3 Project

In 1995 Virginia became the first state in the U.S. to enable the private sector to develop transportation infrastructure by passing its landmark Public-Private Transportation Act. After the enactment of this legislation, a number of public-private partnership projects—also known as P3s—were initiated in the Commonwealth. They include the Pocahontas Parkway south of Richmond in 1998 and the Capital Beltway High Occupancy Toll Lanes in 2002. When plans for the Midtown Tunnel expansion were stalled due to lack of funding in the early 2000s, VDOT considered reintroducing tolling on the crossing and advancing the project as a P3 procurement. At the same time, the Hampton Roads Transportation Planning Organization completed a study suggesting that tolling both the Downtown and Midtown Tunnels and completing the MLK Extension would create a network that would provide commuters a choice if one crossing were to be congested. The MPO also noted that the financial feasibility of the project would be enhanced and that diversions would create fewer impacts if both tunnels were tolled.

In November 2004, VDOT issued a Request for Information on a possible Midtown Tunnel P3 procurement from potential private partners. The Department received three responses and gained helpful feedback on how the procurement could be structured to attract private developers. Two of the three firms suggested reintroducing tolls on the Downtown Tunnel and grouping the three facilities in a single P3 concession. They pointed out that a combined project would accelerate the completion of the MLK Extension and provide VDOT and its partners with the revenue from both tunnels to help pay for the cost of the new improvements.

The City of Portsmouth also supported the idea, so VDOT made the final decision to combine the three projects in May 2005. Tolls would be reinstated on both crossings and would be used to pay for the tunnel improvements and extension of the MLK Expressway. Combining the projects also allowed VDOT to leverage the private sector's technical and financial resources. The private sector would provide technical expertise in the construction of an immersed tube tunnel as well as the operation of an all-electronic, open-road toll collection system. It would also bear the major risk elements of the project, including construction cost escalation and on-time completion, as well as toll revenue risk.

With the decision made to toll the tunnels and combine the projects, both the MLK Extension and the new Midtown Tunnel and eastern tunnel approach were added to the region's fiscally constrained long-range plan in 2006. FHWA revised its earlier approval of the Midtown Tunnel to include the missing pieces of the project in 2007 and then approved the MLK Extension in 2009 after studying different interchange configurations. Given that the improvements to the Downtown Tunnel were limited to upgrades of the water supply,

ventilation, electrical, and emergency response systems, the approvals for that facility were straightforward and were gained from FHWA in 2009.

Project Procurement

VDOT launched its multi-phased procurement process for the combined Downtown Tunnel / Midtown Tunnel / MLK Expressway Extension by issuing a Solicitation for Conceptual Proposals for the design, financing, construction and operation and maintenance of the project in May 2008. The solicitation did not specify the length of time the private partner would operate the completed project and collect tolls, but it did state that no public funding would be available to support the implementation of the project.

When the conceptual proposals were due in September 2008, VDOT received only one response to its solicitation. The offer was submitted by Elizabeth River Crossings, LLC, or ERC, which was a special purpose company composed of two partners: Skanska, a Swedish contractor and infrastructure developer with involvement in several other transportation partnership projects; and Macquarie, a large Australian investment bank with extensive toll road holdings. VDOT confirmed that ERC's proposal met all the state's legal requirements, so it advanced the proposal for subsequent review by an Independent Review Panel appointed by the Secretary of Transportation in early 2009.

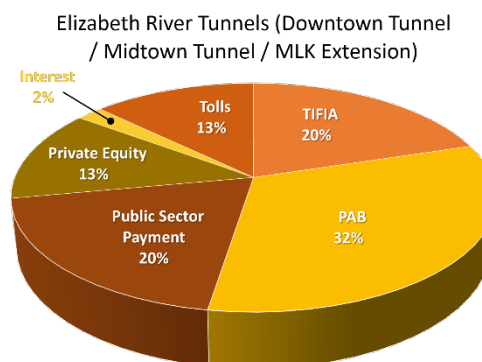
Later in the year at the recommendation of the Independent Review Panel, the Commonwealth Transportation Board approved VDOT's entering into an Interim Agreement with ERC to assess the project's financial viability in greater detail and obtain environmental approvals for the combined project. VDOT and ERC signed the Interim Agreement in early January 2010. At that time no public funding was available for the project and ERC's financial analysis indicated that the project could be financed using toll revenues alone during the 58-year operating period with a one-way crossing toll of \$2.86 for automobiles and three times that amount for trucks upon opening. VDOT and ERC recognized that the high toll rate would be problematic and agreed to explore what could be done to lower it during negotiations that followed the execution of the Interim Agreement.

VDOT received its final environmental approval in April 2011 and ERC began detailed design work for the project. By the summer of 2011, VDOT and ERC reached agreement on the business terms for the private financing, which were formalized in a Comprehensive Agreement executed in December 2011. VDOT and ERC agreed on a series of steps that enabled them to reduce the starting toll to \$1.84 during peak travel periods and \$1.54 at other times for automobile crossings. They achieved this by introducing tolling on the two existing tunnels during the construction period and increasing toll rates for trucks to four times those of automobiles. In addition, after opening, toll rates for both automobiles and trucks would increase by the cost of inflation or no less than 3.5 percent each year. In addition, VDOT had agreed to contribute \$308 million in public funding to help offset the cost of the project. VDOT planned to raise the funds for its non-reimbursable contribution using bonds issued by the state against future federal transportation funding. The bonds were placed on March 1, 2012 and were a particularly innovative financing solution, as this form of grant anticipation had never been used before to support a P3 project.



Project Financing and Implementation

ERC formally closed its financing for the Downtown Tunnel / Midtown Tunnel / MLK Expressway Extension on April 12, 2012. ERC's sources of financing for the project included \$675 million in tax-exempt bonds that the public sector issued on behalf of ERC. These Private Activity Bonds, or PABs, allowed ERC to gain access to the tax-free municipal debt bond market, lowering its interest rates substantially. ERC also received a \$422 million loan from the Federal credit program known as TIFIA, which stands for the Transportation Infrastructure Finance and Innovation Act. These sources of debt will be repaid from future toll proceeds collected over the 58-year period ERC was granted to construct and operate the project. ERC also contributed \$272 million in equity of its own money to the project.



Although VDOT and ERC had taken several steps to lower toll rates, the realization that tolls would be introduced on the existing tunnel crossings in September 2012 was drawing an increasingly negative response from local Tidewater residents and many elected officials in Virginia as the project neared financial close. In March 2012, a group of local residents and business owners opposed to tolls began preparing a lawsuit challenging the legality of the P3 procurement approach used to implement the project and the introduction of tolls on the existing crossings. In response to the growing opposition to tolling, VDOT and ERC executed a contract amendment that would allow the governor of Virginia to delay the collection of tolls on the tunnels. In April 2012, just days after ERC reached financial close, the Commonwealth Transportation Board unanimously approved a measure to allocate an additional \$100 million in state funding in order to delay the introduction of tolls until the beginning of 2014. Like the state's initial subsidy, the funding for the additional \$100 million would come from state bonds on future federal transportation funding that were later issued in July 2012.

In spite of these steps, discontent over the prospect of tolls on the crossings continued to grow. In July 2012, the tolling opponents sued VDOT and ERC, arguing that the imposition of tolls on the existing tunnels was a tax that neither VDOT nor ERC had the authority to levy. The group collected over 10,000 signatures, and meanwhile groups elsewhere in the state were mobilizing to contest the governor's plans to introduce tolling in other locations. The anti-toll movement was embraced by a number of state legislators who introduced a bill in January 2013 to change several important components of Virginia's Public-Private Transportation Act that would have ended the use of partnership projects in the Commonwealth.

The bill was not passed, but on May 1, 2013 a Virginia circuit court judge issued a decision on the lawsuit against VDOT and ERC, agreeing with the plaintiffs that the tolls were unconstitutional. Recognizing that the ruling would jeopardize the state's ability to embark on partnership projects, VDOT and ERC sought to appeal to the Supreme Court of Virginia. The Supreme Court agreed and heard final arguments in the appellate case on September 11, 2013. Then on October 31, 2013 the Supreme Court issued a unanimous decision reversing the earlier ruling, concluding that the tolls were a user fee rather than an unconstitutional tax. The Supreme Court's decision could not be appealed and tolling on the existing Downtown and Midtown Tunnels began on February 1, 2014.

In spite of risk of a negative outcome to the lawsuit, ERC continued project construction throughout 2013. The new Midtown Tunnel carrying eastbound traffic opened June 17, 2016, allowing the rehabilitation of the existing Midtown Tunnel to begin. That work will continue through mid-2018. Initially one lane was made available; the second lane opened during morning rush hours in mid-October. ERC completed rehabilitation

of the Downtown Tunnel on August 17, 2016, and opened the MLK Extension on November 30, 2016. All three elements opened prior to the original schedule's end of 2016. The total cost of the Downtown Tunnel/ Midtown Tunnel / MLK Expressway Extension project is \$2.089 billion. This includes \$1,494 million for construction, \$113 million for operations and maintenance during construction, and approximately \$482 million in interest, reserves, insurance, and development costs. ERC's 58-year operating period will extend through 2070.

Real Toll Concessions: Priced Managed Lanes



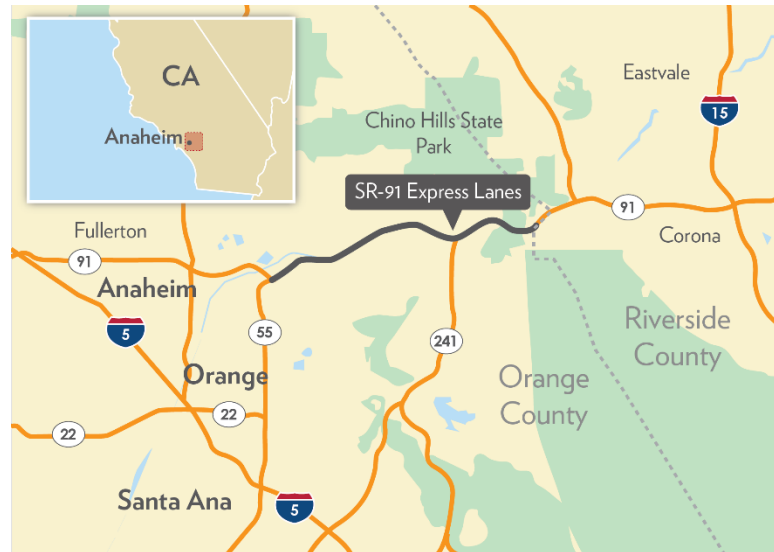
91 Express Lanes

ORANGE COUNTY, CA

Project Overview

The 91 Express Lanes are a 10-mile, four-lane express toll lane facility in the median of SR-91 in Orange County, California, extending eastward from the SR-55 interchange near Anaheim to the Riverside County line. The facility consists of two lanes in each direction, separated from five general-purpose lanes in each direction by tubular markers. There are single points of access and egress on each end, with no intermediate entrances or exits.

The lanes offer a premium service for toll-paying customers and carpools traveling between bedroom communities in Riverside County and commercial centers in Orange County.



The 91 Express Lanes feature a fixed-schedule variable toll structure, with rates that vary based on direction of travel, day of the week, and the hour of the day. The toll rate schedule is examined quarterly and adjusted if necessary. Three-person carpools receive a 50 percent discount during weekday afternoon peak periods and may use the lanes toll-free at other times. All other customers are required to have a FasTrak™ toll transponder and pay a non-discounted toll to use the facility.

The express lanes were originally developed under a long-term public-private partnership (P3) concession by a private consortium, the California Private Transportation Company (CPTC). It opened in 1995 and was the first priced managed lane facility in the United States. In 2003, the Orange County Transportation Authority (OCTA) purchased the operating franchise for the 91 Express Lanes from CPTC, and the lanes were returned to public control. OCTA contracts Cofiroute USA (one of the original partners in the CPTC) to operate the express lanes.

Project History

SR-91 extends through Santa Ana Canyon between the Santa Ana Mountains and the Chino Hills. Due to the rugged topography in the area, SR-91 is the only east-west freeway between Orange and Riverside counties for dozens of miles. As a result, large volumes of traffic have to travel through a single constrained corridor.

With traffic volumes and congestion levels on the SR-91 freeway increasing sharply in the 1980s, the California Department of Transportation (Caltrans) proposed adding four high occupancy vehicle (HOV) lanes in the median of the highway to increase capacity. Caltrans completed an environmental review process for the project that complied with both national and California requirements. However, after gaining environmental clearance and acquiring the necessary right-of-way, the project stalled amid controversy over the introduction



of HOV lanes. As a result, funding reserved for the project from Orange County's Measure M local sales tax devoted to transportation purposes was eventually redirected to other needs.

Caltrans decided to proceed with the project operated as priced managed lanes as the result of a solicitation for candidate P3 projects in response to new state legislation passed in 1989. The decision to develop the project as express lanes prompted an additional state level environmental review focused on the impacts of tolling. This work was completed in 1991 and was followed by two lawsuits. The Cyprus Targa group, a local environment group, sued to stop the project on the grounds that it would have a negative environmental impact, but the court found in favor of the project because it would provide incentives to carpool. Additionally, the Riverside County Transportation Commission filed suit, claiming that the project was unfair because it would be an improvement in Orange County financed with tolls paid by Riverside County residents. The lawsuit was settled out of court allowing the project to proceed.

Construction of the new lanes began in mid-1993 and the new facility opened to traffic in December 1995. The 91 Express Lanes became one of the world's first fully-automated toll facilities, with tolls collected solely by FasTrak™ transponders, and also pioneered the concepts of variable pricing and premium service lanes in the U.S. It was also just the third toll facility implemented on a P3 basis in the Interstate era. The lanes were a major financial success; in the third year of operation, 1998, the CPTC's annual report noted that toll revenues covered all operating costs and all debt service obligations.

Although the lanes were very popular, continued traffic growth in the corridor led to worsening congestion levels on the parallel general purpose lanes. Growing traffic on the express lanes also led CPTC to begin charging HOV 3+ vehicles (those with at least three occupants) to use the facility at a discounted rate. At the same time, a non-compete clause in CPTC's contract prevented Caltrans from making any improvements in the general-purpose lanes. In order to remove the non-compete clause, OCTA ultimately bought out the remainder of CPTC's lease in January 2003 for \$207.5 million dollars and took over the operation of the 91 Express Lanes.

In 2014, the Riverside County Transportation Commission initiated a \$1.3 billion project to extend the 91 Express Lanes into Riverside County by eight miles from the Orange County line to I-15.

The Decision to Pursue as a P3 Project

In 1989, the California legislature enacted AB 680, which authorized Caltrans to enter into agreements with private entities for the construction of up to four toll projects around the state under a demonstration program. Prospective investors were invited to identify projects they felt would be of greatest benefit to the state. The legislation authorized Caltrans to grant easements, issue permits, and lease those facilities to the private entities for up to 35 years. Caltrans decided to proceed with the project operated as priced managed lanes as the result of a solicitation for candidate P3 projects in response.

Project Procurement

Soon after AB 680 was passed, Caltrans issued a request for expressions of interest from private investors interested in developing transportation improvements. It received several submittals and ultimately invited 13 groups to submit franchise proposals. Nine of them submitted detailed proposals for eight private toll road projects. Of these, four groups were selected. Caltrans made its selection based on a number of criteria, including the need for the project, environmental effects, constructability, right-of-way requirements, the experience of the consortium, incorporation of innovative concepts, and the promotion of economic development.

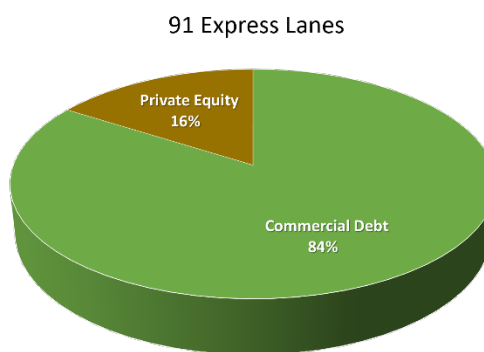
The third-ranked submission was made by CPTC, a subsidiary of CRSS (Caudill Rowlett Scott-Sirrinc), an architectural company. CPTC proposed developing Caltrans' HOV widening concept for SR-91 as tolled express lanes. Caltrans and CPTC successfully negotiated a Development Franchise Agreement for the project in December 1990. The Agreement specified that CPTC would finance and construct the express lanes and transfer the title to the facility to Caltrans immediately upon completion. Caltrans would then lease the operational rights back to CPTC for a 35-year concession period.

Under the agreement, CPTC would maintain control over the toll rates, but its rate of return was capped, with any excess profits split equally between Riverside and Orange counties. The contract also included a non-compete clause that created a 1.5-mile protection zone along each side of SR-91 effective until 2030 where the development of new roads or highway capacity competing with the express lanes was prohibited.

Project Financing and Implementation

In 1992, CRSS's majority interest in the CPTC was purchased by Peter Kiewit Sons, Inc. (an American construction company) and Cofiroute SA (a French toll road operator). Granite Construction also joined CPTC as a limited equity partner and the construction contractor for the project.

CPTC executed its financing of the SR-91 Express Lanes on July 20, 1993—a milestone known as “financial close.” Together, three banks—Citicorp, Banque Nationale de Paris, and Société Générale of France—provided \$65 million in variable-rate bank loans with a 14.5-year term. Peter Kiewit Sons provided an additional \$35 million project loan, which it ultimately sold to CIGNA Investments in 1994. CPTC also provided \$19 million in private equity for the project and made commitments to provide additional equity in the event of revenue shortfalls.



The 91 Express Lanes opened to service on December 20, 1995. CPTC had up to 35 years to pay off over \$100 million in taxable project debt and to generate a return on investment.

The project was constructed on schedule and on budget despite the challenges of phasing the project so that it did not disrupt traffic on SR-91, which carried over 255,000 vehicles per day.

In early 2002, CPTC refinanced its remaining debt on the project with \$135 million in taxable toll revenue bonds. Then in April 2002, OCTA reached an agreement to purchase the operating franchise for the express lanes from CPTC for \$207.5 million. The sale occurred in January 2003. OCTA financed its purchase of the SR-91 Express Lanes with \$72.5 million in cash from internal reserves and assumption of CPTC's recently issued toll revenue bonds. Later that year, OCTA refinanced the entire interest in the 91 Express Lanes by issuing \$200 million in tax-exempt toll revenue bonds.

Following the sale, OCTA eliminated tolls for HOV 3+ vehicles during most periods, and Caltrans added a fifth general purpose lane in each direction.

I-495 Capital Beltway High-Occupancy Toll (HOT) Lanes

FAIRFAX COUNTY, VA

Project Overview

The \$2 billion I-495 Capital Beltway High-Occupancy Toll (HOT) Lanes project expanded and improved a 14-mile section of the Capital Beltway (I-495) in Fairfax County, Virginia. In addition to adding four new managed HOT lanes (two in each direction) and reconstructing the existing general-purpose lanes, the project included the replacement of over 50 bridges and overpasses, the reconfiguration of six interchanges and the construction of three new interchanges providing direct access to the HOT lanes.



Advanced traffic management technology is being used to ensure that both the HOT lanes and the adjacent general-purpose lanes operate at maximum efficiency. Prices charged to use the HOT lanes change in real time to regulate demand and ensure that a dependable, high level of service is maintained at all times. Travelers may choose to pay for a dependable travel time on the HOT lanes, or they may elect to travel in the free general-purpose lanes, where they may experience a less predictable trip. Buses, emergency vehicles and vehicles with three or more occupants can all access the HOT lanes at no cost. Vehicles eligible for free use of the road must declare their HOV status using an E-ZPass Flex® transponder switched to the “HOV” setting. All motorists in the HOT lanes are required to have an E-ZPass electronic toll payment transponder. Tolls are collected at highway speeds and deducted from customers’ pre-paid E-ZPass toll accounts. The Virginia State Police enforce vehicle occupancy requirements on the lanes, ensuring that motorists that declare HOV status with their transponder have three or more people in the vehicle.

Project History

Beginning in the late 1980s, the Virginia Department of Transportation (VDOT) undertook a number of high-profile studies to explore options for addressing chronic congestion on the Capital Beltway. These efforts resulted in short-term solutions including truck restrictions, deployment of Intelligent Transportation System (ITS) strategies, and geometric design improvements. In the 1990s, VDOT conducted a broad range of longer-term improvement studies including a Major Investment Study in 1994.

In early 2000, VDOT assessed a range of options for improving the Capital Beltway, including HOV lane addition alternatives and concepts for improving interchanges. Estimated costs ranged between \$2.7 and \$3.3 billion and impacts included displacing hundreds of residences. Local stakeholders expressed concerns over the potential solutions.



A Draft Environmental Impact Statement (DEIS) was completed in March 2002, assessing different HOV lane addition concepts. During the ensuing public comment period, VDOT received several comments suggesting that HOT lane options be explored instead of an HOV lanes.

The Decision to Pursue as a P3 Project

Following Loudoun County's successful implementation of the Dulles Greenway as the first public-private partnership (P3) project in the Interstate Highway era in 1993, Virginia passed its landmark Public-Private Transportation Act (PPTA) in 1995. The Commonwealth embarked on its first P3 project with the Pocahontas Parkway south of Richmond in 1998.

In June 2002, Fluor Daniel (now Fluor Enterprises), a private engineering, procurement, construction, maintenance and project management company based in Irving, Texas, submitted an unsolicited proposal to VDOT to design, build, finance, operate and maintain (DBFOM) HOT lanes on the Capital Beltway on a P3 basis. Fluor would finance the project by borrowing against future toll revenues generated by the managed lanes. The company also proposed a streamlined design that would eliminate the need to purchase private properties and construct the improvements within the existing publicly owned highway right-of-way. This reduced the project cost significantly and eased public opposition to the project as originally proposed by VDOT.

Project Procurement

Under guidelines established in a 2001 amendment to the PPTA, VDOT formed an Internal Review Committee composed of agency staff to review Fluor's proposal. After finding that it was consistent with legal and policy requirements, VDOT issued a request for competing proposals. VDOT did not receive any competing offers and ultimately made the decision to accept the company's conceptual proposal for the Capital Beltway Project.

At the time that VDOT accepted Fluor's conceptual proposal, the company developed a relationship with Transurban, a private-sector Australian toll road operator. Transurban was interested in entering the American market and establishing new business. Meanwhile, Fluor was looking to act on a suggestion from VDOT to improve its position relative to toll road operation and its ability to finance the project.

The remaining steps in the procurement process were prescribed by the PPTA Act. Fluor and Transurban submitted a Detailed Proposal to VDOT in October 2003. VDOT then incorporated Fluor's design concept into the formal environmental review process. VDOT approved Fluor's detailed proposal in June 2004 and entered into negotiations in August. In October 2004, Transurban was acknowledged as a formal participant in negotiations.

In January 2005, the Commonwealth Transportation Board selected the HOT lanes plan for the Capital Beltway as its preferred alternative. An Interim Comprehensive Agreement was executed in April 2005 between VDOT, Fluor and Transurban to develop, design, finance, construct, maintain and operate the Capital Beltway HOT Lanes. The agreement acknowledged that the project would be privately funded and the state would not be responsible for any major project costs. However, through ongoing negotiations, the scope of the project continued to expand to include several major changes including: altering the project's northern and southern termini, changing the I-66 interchange configuration, substituting direct access to Route 123 in Tyson's Corner with three new direct access interchanges and making other alignment changes to the HOT lanes.



In addition, VDOT required Fluor to support the robust public outreach efforts it had established for the Capital Beltway project. There were also federally mandated design requirements that needed to be met, including additional sound walls and signage mounted on standalone structures.

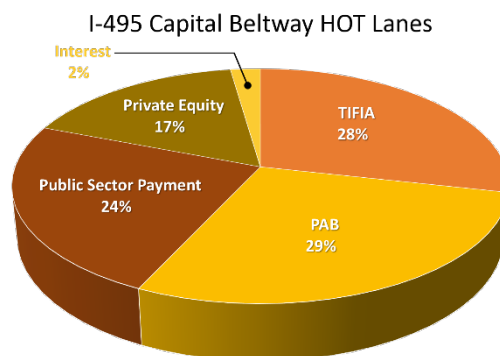
These changes resulted in cost escalations. By May 2007, VDOT and Fluor-Transurban agreed to “freeze” the project and defer any decisions on possible scope changes so that Fluor-Transurban could establish its fixed-price cost for the design-build contract and arrange its financing.

Ultimately, the state agreed to contribute \$409 million in public funds to the project to cover the changes to the project design. In addition, the VDOT agreed to compensate Fluor-Transurban if HOV traffic levels exceeded an established benchmark. This was important because HOVs would be allowed to use the HOT lanes at no cost. It also validated VDOT’s policy goal of encouraging HOV traffic on the Beltway.

In December 2007, VDOT formally awarded the DBFOM Capital Beltway concession to Capital Beltway Express, LLC—the special purpose entity established by Fluor and Transurban to implement the project. The contract period included five (non-operational) years for construction and 75 years for operations and maintenance of the facility. In addition to being a partner in Capital Beltway Express, Fluor served as the prime design-build contractor that would build the project for a fixed price. Similarly, Transurban is serving as the toll operator of the managed lanes.

Project Financing and Implementation

The financing package for the Capital Beltway HOT Lanes included \$348.7 million in at-risk shareholder equity provided by Capital Beltway Express. In addition, the company secured a \$588.9 million loan from the U.S. Department of Transportation’s (USDOT) Transportation Infrastructure Finance and Innovation Act (TIFIA) credit program. This program lends money to projects of national significance at low interest levels available only to the U.S. government. In addition, the company received approval from USDOT to raise \$589.0 million by selling tax-exempt Private Activity Bonds (PABs). The Commonwealth of Virginia issued the PABs on behalf of Capital Beltway Express. The TIFIA loan and PABs reduced the concession company’s financing costs and will be repaid with project revenues during the 75-year concession period. VDOT also contributed \$495 million in public funding. This was an increase above the \$409 million it agreed to contribute in 2007, due to scope additions. VDOT’s contribution is a subsidy and will not be repaid.



The project marked a number of precedent-setting “firsts” in transportation project delivery in the US. It was the first to use dynamically priced tolls to leverage a project financing package. It was also the first transportation project to use PABs in the United States.

The concession agreement shifts certain risks from VDOT (and the taxpayer) to the private developer. For example, Capital Beltway Express has unrestricted rights to set tolls, but at the same time has assumed the risk of lower-than-projected toll revenues. Revenues generated from the tolls are intended to cover all project costs, including debt service, operations, maintenance and administrative costs, as well as provide a reasonable return on investment.

Many contractual provisions exist to protect the public interest. For example, if the HOT lanes exceed financial expectations, excess toll revenues will be shared with VDOT. Additionally, the concession contract includes condition, performance and safety standards. Capital Beltway Express must hand the facility back to VDOT in a state of good repair at the end of the concession period. VDOT retains ownership of the land and improvements, as well as oversight of the HOT lanes.

Construction began in spring 2008 and the facility opened to traffic ahead of schedule in November 2012.

Due to a lower than expected toll revenues during the first two years of operations, Capital Beltway Express and its lenders restructured the project's debt. They used an additional \$280 million in private equity from Capital Beltway Express and \$150 million in existing project reserves to reduce the PAB debt—which must be repaid before the TIFIA loan—by 60 percent. This change improves Capital Beltway Express' credit structure and strengthens the creditworthiness of the TIFIA loan by reducing the project's overall debt load. The agreement was finalized in May 2014.



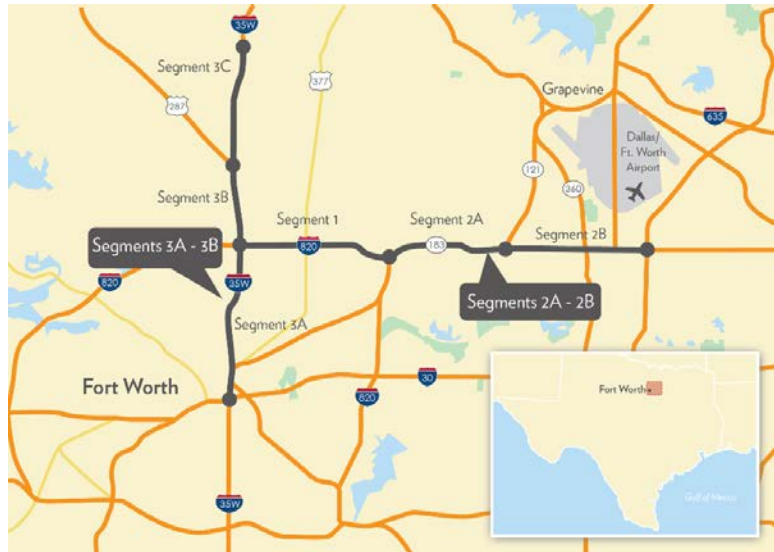
North Tarrant Express (I-820 and SH 121/183)

FORT WORTH, TEXAS

Project Overview

The North Tarrant Express (NTE) project involves the reconstruction, widening, and addition of tolled managed lanes along approximately 31 miles of roadway north and east of Fort Worth, Texas. The NTE is being delivered in two phases.

The \$2.12 billion Phase I of the NTE (Segments 1 and 2A) along I-820 and SH 121/SH 183 opened in October 2014 after nearly a five-year design and construction period. The project includes the reconstruction, widening, and addition of tolled



managed lanes along 13.3 miles of roadway northeast of Fort Worth, Texas. Two tolled managed lanes were constructed in each direction together with new frontage roads on I-820 and SH 121/SH 183 extending east from Fort Worth toward Dallas-Fort Worth International Airport (DFW). By 2030, a third tolled managed lane will be added along SH 121/SH 183 and a third general purpose lane will also be constructed on I-820.

Known as TEXpress Lanes, the new managed lanes will allow drivers without passengers in their vehicles to pay a toll when they want to avoid travel delays on the (free) general purpose lanes. Prices on the managed lanes will be set in real time every five minutes to control the number of vehicles entering the lanes and keep traffic moving at speeds of at least 50 miles per hour.

Project History

The possible expansion of the I-820 and SH 121/SH 183 corridor connecting Fort Worth and Dallas dates back to the 1980s when the North Central Texas Council of Governments (NCTCOG)—the region’s metropolitan planning organization—included it in its long-range planning process. In the early 1990s, the Texas Department of Transportation (TxDOT) completed environmental review and preliminary design for these improvements which would add new general purpose lanes to the highway corridor.

Later in the mid-1990s, TxDOT modified the project by proposing to operate the new lanes on a high occupancy vehicle (HOV) basis, carrying only automobiles with more than one person. This change was made to help the region achieve air quality requirements mandating that pollutants be below certain levels. However, the project stalled in the latter half of the decade when it became clear that traditional pay-as-you-go funding from gas-tax collections would be insufficient to complete the widening in a timely fashion.

Planning and design were revived in the early 2000s as Texas began to explore new ways to finance and procure transportation improvements in the face of insufficient pay-as-you-go revenues. Initially reversible HOV lanes were considered, but later the concept of tolled managed lanes was proposed to provide an ongoing revenue source against which a portion of the project’s costs could be bonded. In addition, this strategy would



provide adequate funding to add two managed lanes in each direction and accommodate growing traffic demand in both directions.

The Decision to Pursue as a P3 Project

Enhancements to Texas transportation law enacted in the early 2000s introduced new project financing and delivery options including the ability for TxDOT to engage the private sector to finance, design, construct, operate, and maintain a toll road project on a public-private partnership (P3) basis. This approach would allow final design, right-of-way acquisition, and construction to take place concurrently, with access to private sector financing helping to accelerate the delivery of the project.

The I-820 and SH 121/SH 183 segments of what was to become the NTE was one of the first corridors in the state to be identified as being a good candidate for P3 development. It was attractive because the development costs were reasonable and traffic demand was high.

Following the state legislature's authorization of P3 projects in Texas, private investors also began to assess project development possibilities in the state. In March 2004, TxDOT received an unsolicited proposal from a private developer to complete the entire I-820 and SH 121/SH 183 corridor, from I-35W in Fort Worth to I-35E east of DFW airport in Dallas County, with a tolled managed lane component. The unsolicited proposal assumed a design-build-operate-maintain procurement funded by tax-exempt bonds issued by TxDOT.

The proposal compelled TxDOT to issue a Request for Qualifications (RFQ) to solicit competing offers and identify the most qualified firms to invite to submit detailed proposals. TxDOT also asked respondents to propose a plan of finance and indicate their estimated need for state funding. Prior to receiving offers, TxDOT informed proposers that \$500 million of public funding could be available over the assumed construction period. However, after receiving four offers in August 2004, TxDOT canceled the procurement in January 2006 because it believed that the level of detail and status of environmental reviews across the full corridor were not sufficiently advanced and because concerns had also arisen over the project's financial feasibility.

Project Procurement

Building on the momentum of the project contemplated in the unsolicited proposal, the Texas Transportation Commission—TxDOT's governing board—approved in March 2006 a revised approach to develop two P3 procurements, one calling for the development of at least the I-820 corridor (Segment 1) as contemplated in the canceled procurement, and a second to create a Master Development Plan for improvements to additional highway segments in the region. This multi-segment system of planned improvements was named the North Tarrant Express. Additional segments included SH 121/SH 183 from I-820 to SH 161 just east of DFW airport (Segment 2), as well as I-35W running north-south through Fort Worth (Segments 3A, 3B, and 3C) and an additional portion of I-820 starting where it turns south toward I-30 at the junction with SH 121/SH 183 (Segment 4).

The Master Development Plan would assess the financial feasibility of the additional segments and prioritize their implementation. The winning proposer would also have the right of first refusal to implement any of these sections on a P3 basis. By including the additional segments in the procurement, TxDOT hoped to generate greater interest from the private sector since a network of tolled managed lanes would be financially more attractive than a standalone facility. TxDOT did not believe that all segments necessarily would be feasible to implement on a P3 basis, but would benefit from the private sector's expertise in conducting such a feasibility analysis.

A new dual P3 procurement process began with an RFQ in December 2006. TxDOT shortlisted four of seven respondents in June 2007. Detailed proposals were solicited in March 2008 after some delay. Uncertainty

over the fate of the procurement had arisen due to a 2007 moratorium on P3 activity in the state, from which the NTE was ultimately exempted.

The procurement included the mandatory reconstruction of the four existing general purpose lanes on I-820, the addition of two tolled managed lanes in each direction, and new frontage roads, as well as the optional completion of the SH 121/SH 183 segment and other components west of Segment 1 where I-820 intersects I-35W. TxDOT would provide up to \$600 million in public funding to support the P3 project and would award the project to the proposer providing the greatest value to the state.

TxDOT received two submittals in December and conditionally awarded both P3 agreements to North Tarrant Express Mobility Partners (NTEMP) in January 2009. NTEMP is a private consortium composed of Cintra U.S., Meridiam Infrastructure Finance, and the Dallas Police and Fire Pension System. Cintra, a Spanish company, is a highly experienced toll road developer and operator. Meridiam is a French firm and is one of the largest investors in and developers of public infrastructure facilities in the world.

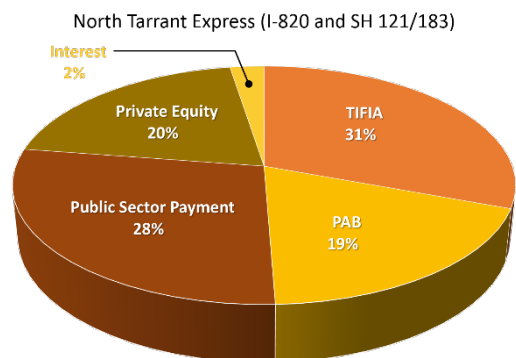
In June 2009, TxDOT and NTEMP executed the two P3 agreements and formally concluded the competitive bidding process, a milestone referred to as reaching “commercial close.” NTEMP’s proposal provided the best value to the state by including the mandatory components of Segment 1 along with three sub-segments of Segment 2. It also included the work west of the I-35W/I-820 Interchange and committed to building a third general purpose lane in each direction along Segment 1 and a third managed lane in each direction along Segment 2 by 2030. The bid exceeded TxDOT’s expectations by promising to deliver portions of Segment 2, along with Segment 1, within the limits of the available public funding.

NTEMP’s P3 concession will extend over a 52-year period. The private developer will set the toll rates for the managed lanes and collect toll revenues over the life of the concession. Toll rates must be set in accordance with a Regional Managed Lanes Policy established by NCTCOG and its governing board in 2006, which provides a basic framework to help guide the development of new projects.

TxDOT completed the environmental approvals process for Segment 1 in December 2008 and Segment 2 in October 2009.

Project Financing and Implementation

Financing for the NTE Segments 1 and 2 was finalized in December 2009. TxDOT contributed \$594 million in public funds and NTEMP provided the remaining \$1.53 billion. Its financing package includes a combination of private equity and debt. NTEMP’s private equity contributions from its three partners totaled \$426 million. The private partners will be repaid for their initial investment and receive a return over the life of the concession from toll revenue collections. In August 2012, a fourth private partner, the Dutch pension fund APG, joined the concession by purchasing a portion of Meridiam’s shares in the project.



NTEMP also capitalized on two federal credit programs administered by the U.S. Department of Transportation that reduce financing costs for private developers. They secured a \$650 million loan from the Transportation Infrastructure Finance and Innovation Act (TIFIA) program, which provides low cost, flexible credit assistance to transportation projects of national and regional significance. The TIFIA loan also

contributed \$54 million in capitalized interest to the project. The flexibility provided in TIFIA’s debt service schedule was critical to the successful financing of the project.

In addition, NTEMP’s financing includes \$398 million in tax-exempt bonds that TxDOT issued on behalf of the concession company. These Private Activity Bonds, or PABs, allowed NTEMP to gain access to the tax-free municipal bond market, lowering its interest rates substantially. The TIFIA loan, as well as the PABs will be repaid from project revenues.

The concession agreement shifts certain risks from TxDOT (and the taxpayer) to the private developer. For example, NTEMP has assumed the risk that toll revenues may be lower than expected. NTEMP’s profit will come from the toll revenues with any excess being shared with TxDOT for use on future transportation projects in the region. Texas retains ownership of the land and improvements. NTEMP must hand the facility back to TxDOT in a prescribed state of good repair when the concession expires in 2061.

The Master Development Plan and Future NTE Segments

NTEMP completed the Master Development Plan under the second P3 agreement in December 2010. Prior to submitting the master plan, NTEMP informed TxDOT that it would act on its option to develop two additional segments of the NTE along I-35W—Segments 3A and 3B extending north from I-30 in downtown Fort Worth to U.S. 287 north of I-820, including managed lane connections with I-820—provided a certain amount of public funding was available.

Ultimately, an 18-mile, \$1.73 billion NTE 35W project emerged from the initial Master Development Plan work. Phase II of the NTE comprises three segments, with NTEMP constructing Segment 3A, TxDOT constructing Segment 3B, and NTEMP negotiating with TxDOT on the development of 3C. Plans include capacity improvements similar to Segments 1 and 2A, including the reconstruction of existing general-purpose lanes and the addition of tolled managed lanes. Segment 3A is anticipated to be substantially complete in 2018 and Segment 3B nears substantial completion at the end of 2016. TxDOT felt that it could achieve superior value for money by delivering Segment 3B on a traditional design-bid-build basis, rather than asking NTEMP to deliver it on a design-build basis with its own financing. To maintain continuity along the corridor, NTEMP will operate and maintain Segments 3A and 3B, and ultimately 3C, in an integrated fashion with Segments 1 and 2A.

LBJ Express

DALLAS-FORT WORTH, TEXAS

Project Overview

The \$2.65 billion, 13-mile LBJ Express project in the Dallas-Fort Worth Metroplex rebuilt and expanded the northern portion of the I-635 (LBJ Freeway) loop around Dallas. The LBJ Freeway is one of the busiest highways in Texas and is congested virtually round-the-clock. Traffic counts are projected to continue climbing as some of the fastest population growth and development along this corridor.

The project included construction of four to six new

lanes (two to three in each direction) between I-35E and U.S. 75. These new lanes are located partially underneath the current LBJ Freeway and are operated as tolled managed lanes. The existing non-tolled lanes were reconstructed and cantilevered above the managed lanes. This innovative design allows the capacity of the facility to be almost doubled while maintaining the same footprint as the original LBJ Freeway. The project also included the construction of two elevated tolled managed lanes in each direction along I-35E from its interchange with the LBJ Freeway south to Loop 12.

The new managed lanes, now known as the LBJ TEXpress Lanes, allow drivers without passengers in their vehicles to pay a toll when they want to avoid travel delays on the (free) general-purpose lanes. Prices on the managed lanes are dynamically set—as often as every five minutes—to keep traffic moving at speeds of at least 50 miles per hour. The LBJ Express uses an electronic open-road tolling system that allows traffic to enter and exit the managed lanes without passing through tollbooths. High-occupancy vehicles with two or more passengers may register to receive a 50 percent discount on the toll during the rush hour. All vehicles pay full toll rates at other times regardless of the number of passengers they are carrying.

Project History

When the LBJ Freeway opened to traffic in 1969 it was designed to carry 180,000 vehicles per day. In the 1980s, demand started to exceed capacity, and in 1987 the Texas Department of Transportation (TxDOT) initiated the I-635 Corridor Study to examine a 21-mile stretch of I-635 between I-35E and U.S. 80 east of Dallas. This effort was inconclusive, so efforts to find ways to upgrade the facility began again in 1993 with the LBJ Corridor Study. This study examined a number of roadway expansion configurations, including the addition of tolled managed lanes.

The tolled managed lane option was introduced for two reasons. Funding from gas-tax collections—the sole source of transportation revenue in the region at the time—was not adequate to meet current and expected future investment requirements. Tolled managed lanes could provide a new revenue source to help finance



the project. In addition, the concept helped to manage travel demand in the corridor by charging higher tolls on the lanes as congestion levels increase.

The LBJ Corridor Study evolved into a Major Investment Study by the mid-1990s. This report examined a number of proposed design solutions to identify one that best met a set of project evaluation criteria. The outcome of this study, in late 1996, was referred to as a “Locally Preferred Alternative” (LPA). The Dallas-Fort Worth region’s Metropolitan Planning Organization, the North Central Texas Council of Governments (NCTCOG), adopted the LPA into its financially constrained 20-year long-range transportation plan in December 1996.

Over the next several years, TxDOT undertook further analysis and design refinements on the managed lane concept. Environmental assessments for the segments ultimately included in the LBJ Express project were completed and approved by the Federal Highway Administration (FHWA) in January 2001, December 2002, and April 2004.

The Decision to Pursue as a P3 Project

As planning and schematic design continued into the early 2000s, TxDOT and its regional and local partners began to look more closely at the project’s estimated cost and sources of funding. However, by 2003, only a small amount of funding from state and local sources had been secured.

TxDOT considered the option of delivering the project through a conventional approach where final design, right-of-way-acquisition, and construction would progress sequentially as available public funding permitted. It also considered an alternative approach that would capitalize on recent enhancements to Texas transportation law that permitted TxDOT to engage the private sector to finance, design, construct, operate, and maintain a toll road project. Known as a public-private partnership (P3) and referred to as a comprehensive development agreement (CDA) in Texas, this approach would allow final design, right-of-way acquisition, and construction to take place concurrently, with access to private sector financing helping to accelerate the delivery of the project.

Given the lack of sufficient funding from traditional sources and the desire to relieve congestion as quickly as possible, TxDOT and its local partners agreed that the P3 (CDA) model offered the best option for accelerating construction. This consensus was formalized through the work of the I-635 Corridor Coalition, a group representing a broad spectrum of businesses, local governments, and community groups. In 2004, the Coalition requested that the Texas Transportation Commission, the governing board of TxDOT, direct the department to pursue a P3 agreement to implement the project.

Project Procurement

In May 2005, TxDOT issued a request for qualifications (RFQ) to gauge initial interest in the project from the private sector and identify the most qualified firms to ultimately submit detailed proposals. At this time, the project still included segments of I-635 east of U.S. 75, extending to U.S. 80, but the RFQ acknowledged that those segments may only be included as optional components in the ultimate solicitation for detailed proposals. The RFQ included an estimate of public funding available for the project and stated that the private partner would be expected to finance the design and construction of the project with the stream of toll revenues. TxDOT announced a shortlist of four proposers in November 2005.

In 2006, NCTCOG and its governing board, the Regional Transportation Council (RTC), approved a 19-point Regional Managed Lanes Policy. This policy, which includes guidance for private developers interested in potential managed lanes projects, provides a basic framework to help guide the development of new projects.



That year TxDOT amended the project scope to be consistent with the regional managed lane policy. As part of its value engineering exercise—a design process intended to identify project cost savings—TxDOT also modified the configuration of the subsurface tolled managed lanes. It determined that rather than placing the managed lanes in tunnels, they could be constructed as an open trench, with the existing general-purpose lanes cantilevered above them. This approach resulted in significant cost savings while still conforming to the original project goal not to increase the width or height of the existing roadway. Other modifications were also made to incorporate existing interchanges into the design and improve access to and egress from tolled managed lanes.

Later in 2006, the RTC endorsed the P3 project delivery approach and committed additional public funding to the project. However, the request for detailed proposals from the shortlisted private partners was delayed, as support for P3s at the state level underwent considerable scrutiny during the 2007 legislative session. Ultimately, the state’s ability to use this project procurement tool was curtailed that year, but the LBJ Express project was exempted from the new restrictions.

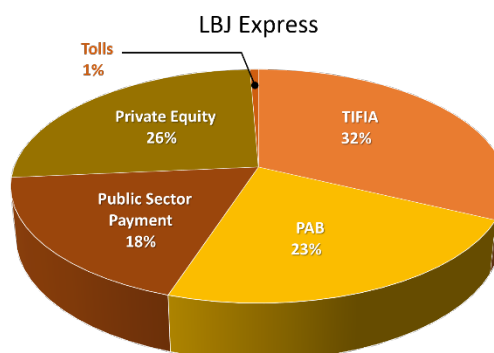
In September 2007, TxDOT issued a final request for proposals from the three remaining shortlisted bidders and scheduled a series of one-on-one meetings with the developers to obtain a better understanding of the procurement requirements and to discuss financial feasibility and commercial terms and conditions. After a lengthy solicitation period prolonged by the financial crisis of 2008, TxDOT ultimately received two proposals in January 2009.

Over the next month, TxDOT evaluated the proposals and by the end of February 2009, determined that LBJ Infrastructure Group (LBJIG) provided the best value to the state. In September 2009, TxDOT and LBJIG formally concluded the competitive bidding process by signing a P3 agreement (CDA), a milestone referred to as reaching “commercial close.” LBJIG committed to financing, designing, building, operating, and maintaining the LBJ Express under a 52-year concession agreement. The private developer will set the toll rates for the managed lanes (in accordance with the regional policy) and collect toll revenues over the life of the concession.

The LBJIG is a special purpose entity with limited liability established by Cintra U.S., Meridiam Infrastructure Finance, and the Dallas Police and Fire Pension System to implement the project. Cintra, a Spanish company, is a highly experienced toll road developer and operator. Meridiam is a French firm and is one of the largest investors in and developers of public infrastructure facilities in the world. LBJIG partners also include the design-build contractor Trinity Infrastructure LLC, which is a joint venture between Ferrovial Agroman and Houston-based Webber, both units of Cintra’s Spanish parent company, Ferrovial.

Project Financing and Implementation

Financing for the LBJ Express was completed in June 2010. TxDOT contributed \$490 million in public funds and LBJIG provided the remaining \$2.155 billion. LBJIG’s private equity contributions total \$682 million, with 51 percent coming from Cintra, 42 percent from Meridiam, and 7 percent from the Dallas Police and Fire Pension System. (Later in August 2012, a fourth private partner, the Dutch pension fund APG, joined the concession by purchasing a 13.3 percent stake in the project from Meridiam.) The private partners expect to be repaid for their initial investment and receive a return over the life of the concession from toll revenue collections. Toll revenues collected on



“interim” managed lane segments which will open during construction of the project, estimated to be \$17 million, will also be applied to project implementation costs.

Additionally, LBJIG took advantage of a federal credit program administered by the U.S. Department of Transportation that reduces financing costs for private developers. They secured an \$850 million loan from the Transportation Infrastructure Finance and Innovation Act (TIFIA) program, which provides low cost, flexible credit assistance to transportation projects of national and regional significance. The flexibility provided in TIFIA’s debt service schedule was critical to the successful financing of the project.

In addition, LBJIG’s financing includes \$606 million in tax exempt bonds that TxDOT issued on behalf of LBJIG. These Private Activity Bonds, or PABs, allowed LBJIG to gain access to the tax free municipal bond market, lowering its interest rates substantially. The TIFIA loan as well as the PABs will be repaid from project revenues.

The concession agreement shifts certain risks from TxDOT (and the taxpayer) to the private developer. For example, LBJIG has assumed the risk of lower-than-projected toll revenues. LBJIG’s profit will come from the toll revenues with any excess being shared with TxDOT for use on future transportation projects in the region. Texas retains ownership of the land and improvements. LBJIG must hand back to TxDOT a fully operational facility in a prescribed state of good repair when the lease expires.

Trinity Infrastructure designed and built the project. Construction started in 2011 and the full project opened to traffic in September 2015.



I-95 HOV/HOT Lanes

NORTHERN VIRGINIA

Project Overview

The I-95 HOV/HOT Lanes project provides over 29 miles of reversible high occupancy toll (HOT) lanes along the I-95/I-395 corridor between Fairfax and Stafford Counties in the northern Virginia suburbs of Washington, DC. The project converted seven miles of existing two-lane HOV lanes to HOT lanes; widened 14 miles of the existing reversible HOV lanes from two to three lanes; and constructed an eight-mile extension of the lanes south to Garrisonville Road in Stafford County. The HOT lanes are reversible with entry and exit points that open or close depending on the direction of traffic flow. The project also includes the addition of new direct access ramps to the managed lanes and improvements to existing access points. Tolls are collected electronically by transponder.



The \$923 million project has been implemented as a design-build-finance-operate-maintain (DBFOM) public-private partnership (P3) between the Virginia Department of Transportation (VDOT) and 95 Express Lanes LLC (95 Express), a private consortium owned by the Australian toll road operator Transurban Group (90 percent) and Fluor Enterprises (10 percent). 95 Express has assumed construction and operations risks on the project and will receive all toll proceeds over a 73-year concession period that begins when the facility opens to traffic.

The partners in 95 Express also lead the private consortium that developed and now operates the I-495 Capital Beltway Express Lanes. The two facilities have a direct connection at the I-495/95/395 Springfield Interchange and share common tolling operations and policies, with toll rates adjusted dynamically based on real-time traffic conditions. Free access is provided to transit vehicles and carpools with three or more occupants.

Project History

The original 11-mile reversible lane facility on I-95/395 in northern Virginia was among the first HOV lanes in the U.S. Originally designed as an exclusive busway, the facility was opened to carpools with four or more occupants in 1973 and to three-person carpools in 1989. In 1997, VDOT completed a 19-mile extension of the lanes to Route 234 in Prince William County. Since that time, local and intercity passenger and freight travel on I-95 and I-395 has continued to grow, precipitating ongoing efforts to ease traffic congestion in the corridor.

As described in greater detail below, VDOT received two P3 proposals under the commonwealth's Public-Private Transportation Act (PPTA) of 1995 to improve and expand the existing reversible lanes in the I-



95/395 corridor in 2003 and 2004. An independent review panel evaluated the proposals and recommended that VDOT partner with 95 Express. In 2006, VDOT and 95 Express entered an interim agreement to design, build, finance, operate, and maintain new high occupancy toll lanes and began the environmental review process.

95 Express proposed widening the entire existing HOV facility on I-95/395 from two to three lanes and converting it to HOT operation. The lanes would also be extended by 25 miles southward to Spotsylvania County with new integrated Bus Rapid Transit service introduced throughout the length of the 56-mile corridor. In addition, 95 Express' financial projections were expected to be sufficient to fund a \$250 million upfront payment to VDOT that could be applied toward the costs of operating transit service in the corridor, in addition to covering other project related costs.

In January 2009, the Federal Highway Administration (FHWA) granted environmental clearance for the northern section of the project covering improvements on the existing lanes. However, this action became the subject of a lawsuit filed by Arlington County, which claimed that the environmental analysis did not satisfy federal requirements. In February 2011, with the lawsuit pending, VDOT made the decision to abandon the final six miles of the project which would have brought the lanes through Alexandria and Arlington Counties to the 14th Street Bridge at the border of the District of Columbia. Instead VDOT opted to terminate the HOT lanes just inside the Capital Beltway. FHWA cleared a new environmental assessment for the re-scoped proposal in December 2011.

Construction on the project began in August 2012, and the entire 29-mile HOT lane facility opened to traffic in December 2014.

Project Procurement and the Decision to Pursue as a P3 Project

In 1995 the Virginia state legislature passed the PPTA, which authorized VDOT and other public agencies to enter into long-term concession agreements with private firms to develop and/or operate transportation facilities, and laid out a framework for evaluating proposals and developing such agreements. The PPTA allows the submission of unsolicited proposals for most transportation modes (except any seaport or port facility), provided that a policy review is conducted by the state to ensure that the proposal fits with existing transportation plans both statewide and for the affected facility. If the offer is consistent with the state's plans then VDOT is required to initiate a 120-day posting period to invite the submission of competing proposals.

In September 2003, a group led by Clark Construction and Shirley Contracting submitted an unsolicited P3 proposal for a \$407 million project to improve a 36 mile section of I-95 from the Springfield Interchange with the Capital Beltway to Route 17 in Stafford County. The conceptual proposal was deemed in accordance with the state's transportation plans, and VDOT invited requests for competing proposals between November 2003 and March 2004. During that time VDOT received one response from 95 Express, which was then negotiating a separate P3 agreement with VDOT to add HOT lanes to the I-495 Capital Beltway. The 95 Express' proposal called for a \$1 billion project that would improve 54 miles of I-95 from the 14th Street Bridge at the Arlington County and District of Columbia line south to Massaponax.

The two proposals were reviewed by an initial review panel, which confirmed the developers' qualifications and proposals' financial feasibility. They then recommended that the Commonwealth Transportation Board (CTB) grant preliminary approval before in-depth analysis by an independent advisory panel. The CTB is comprised of 17 members (including the Secretary of Transportation, Commissioner of VDOT, and Director of Department of Rail and Public Transportation) that regulate and fund transportation in the state, as well as oversee the VDOT. In January 2005, the CTB approved and recommended that an independent advisory panel of experts conduct an in-depth review of the proposals to identify a preferred proposer.



In March 2005, both proposers were asked to submit detailed proposals. In addition, both groups were asked to develop their proposals using the same beginning and end points. As a result, the Clark/Shirley/Koch group extended their coverage north to the 14th Street Bridge and south to Massaponax. Detailed proposals were received in June and in November VDOT awarded the project to the 95 Express team. VDOT and 95 Express signed an interim agreement in October 2006 and began preliminary engineering and detailed planning and operations studies for the project, with the costs of those studies to be shared between the two entities.

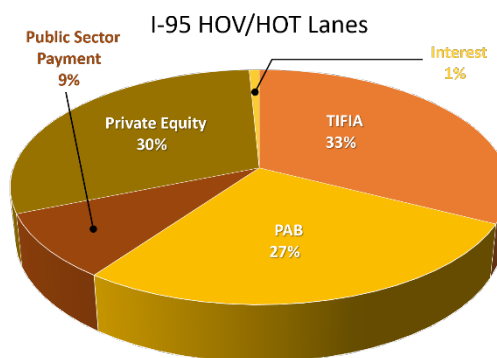
Initial plans called for construction on the project to begin in late 2009, but the project was delayed due to the Arlington County lawsuit and the subsequent decision not to extend the Express Lanes to the 14th Street Bridge. The six-mile segment that was ultimately abandoned would have generated significant revenues, so VDOT allowed 95 Express to split the project into two phases and no longer required the company to make the \$250 million upfront payment.

VDOT and 95 Express executed a P3 concession agreement in July 2012 formally concluding the competitive bidding process through a milestone referred to as reaching “commercial close.” They agreed that 95 Express would develop the first phase of the project, including improvements to the existing lanes and the nine-mile extension to Garrisonville.

A two-mile extension further south is planned for construction in 2016–17 to ease congestion issues arising from merging traffic at the existing terminus of the express lanes. A further extension south to Spotsylvania County may be developed under a separate agreement at a later date. In addition, the Commonwealth of Virginia announced in late 2015 that an extension of the express lanes along I-395 in Arlington County through to the District of Columbia line at the 14th Street Bridge will be implemented by converting and expanding the existing HOV lanes. The extension will be developed by Transurban, the primary private firm in 95 Express, under its existing contract with VDOT.

Project Financing and Implementation

The I-95 HOV/HOT Lanes project’s financing for capital construction includes a mix of debt, public funds, and private equity. 95 Express’ sources of financing include \$253 million in tax-exempt bonds (including the bond sale premium) that the public sector issued on behalf of the concession company. These Private Activity Bonds, or PABs, allowed 95 Express to gain access to the tax-free municipal bond market, lowering its interest rates substantially. 95 Express also received a \$300 million loan from the Federal credit program known as TIFIA (the Transportation Infrastructure Finance and Innovation Act). The TIFIA program provided the project with a low-interest loan that will be subordinate to the PAB debt (except in the case of default). In addition, 95 Express has contributed \$280 million in equity to the project. Interest earnings amount to another \$7 million in project funding.



The project’s debt will be repaid from future toll proceeds collected over the 76-year period 95 Express was granted to construct and operate the project. 95 Express reached financial close on the PAB debt in July 2012. Financial close on the TIFIA loan and remaining funding occurred in November 2012.

The project’s debt will be repaid from future toll proceeds collected over the 76-year period 95 Express was granted to construct and operate the project. 95 Express reached financial close on the PAB debt in July 2012. Financial close on the TIFIA loan and remaining funding occurred in November 2012.

In addition, VDOT contributed \$83 million in public funding toward the costs of the project using GARVEE funding. GARVEEs are “grant anticipation revenue vehicles,” which allow states to fund a project in advance of receiving anticipated Federal-aid funding to repay the debt.

Outside of the \$923 million project capital cost, VDOT also incurred \$46 million in costs for preliminary engineering prior to executing the agreement with 95 Express and expected to spend \$73 million on project management and oversight during construction.



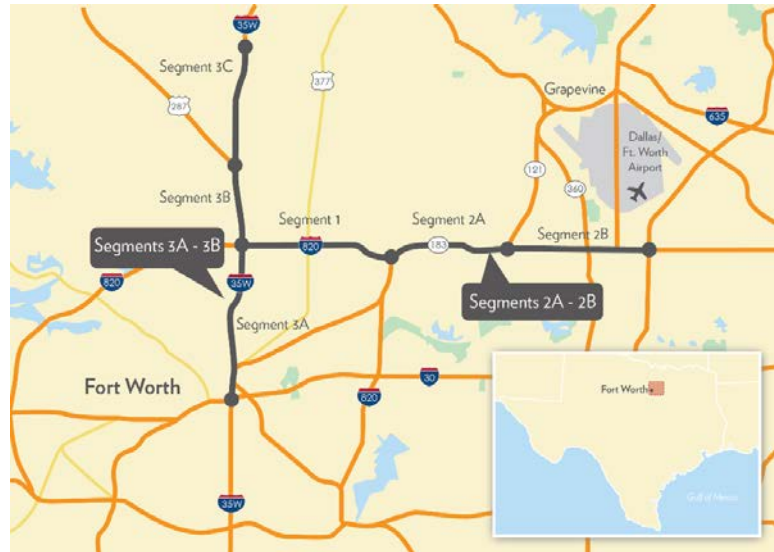
North Tarrant Express 35W Project

FORT WORTH, TEXAS

Project Overview

The North Tarrant Express (NTE) project involves the reconstruction, widening, and addition of tolled managed lanes along approximately 31 miles of roadway north and east of Fort Worth, Texas. The NTE is being delivered in two phases.

The \$1.64 billion NTE 35W Project is the second phase of the North Tarrant Express. The 18-mile project includes the reconstruction, widening, and addition of tolled managed lanes along I-35W in three segments: the 6.5-mile Segment 3A from I-30 in downtown Fort Worth north to I-820; the 3.6-mile Segment 3B from I-820 north to U.S. 287, and the 8-mile Segment 3C from U.S. 287 north to Eagle Parkway near Fort Worth Alliance Airport. Two tolled managed lanes will be constructed in each direction on Segments 3A and 3B, while one tolled managed lane in each direction will be added to Segment 3C. In addition, one to two general purpose lanes and new frontage roads will be added to Segment 3A by 2030. On Segments 3B and 3C additional general purpose lanes, managed lanes, or frontage roads are also contemplated by 2030.



Known as TEXpress Lanes, the new managed lanes will allow drivers without passengers in their vehicles to pay a toll when they want to avoid travel delays on the (free) general-purpose lanes. Prices on the managed lanes will be set in real time every five minutes to control the number of vehicles entering the lanes and keep traffic moving at speeds of at least 50 miles per hour.

Construction on Segment 3A began in May 2014, construction on 3B started in April 2013, and the development of Segment 3C is under negotiation at the end of 2016. The \$2.12 billion Phase I of the NTE opened in October 2014. It included capacity improvements similar to 35W along 13.3 miles of I-820 (Segment 1) and SH 121/SH 183 (Segment 2A) extending east from I-35W toward Dallas-Fort Worth International Airport.

Project History

Planning for roadway improvements along the I-35W corridor between downtown Fort Worth at I-30 north to I-820 (what has become Segment 3A) began with a Texas Department of Transportation (TxDOT) study in 1992. TxDOT continued to advance a schematic design periodically throughout the 1990s to refine interchange configurations and to include the addition of a reversible high occupancy vehicle (HOV) lane in the median, which would be available to multiple-occupant passenger vehicles only.



A separate TxDOT study conducted in the late 1980s to early 1990s examined improvements to I-35W north of I-820 to SH 114—a corridor that now includes Segments 3B and 3C—and resulted in a series of small improvements to frontage roads and the addition of new interchanges near Fort Worth Alliance Airport.

While TxDOT endorsed expanding I-35W, little was done in the early 2000s as pay-as-you-go funding from gas-tax collections was insufficient to complete a major widening in a timely manner. In addition, regional priorities were focused on the I-820 corridor—a corridor that would become part of the first phase of the NTE. To overcome the funding constraints delaying the project, TxDOT sought to capitalize on a 2001 change in Texas transportation law that permitted the state to issue bonds against the collection of toll revenues. It began to examine tolled managed lanes rather than HOV lanes as a means to provide an ongoing revenue source against which to issue bonds.

The Decision to Pursue as a P3 Project

Another significant change to Texas transportation law was enacted in 2003 and permitted TxDOT to engage the private sector to finance, design, construct, operate, and maintain a toll road project on a public-private partnership (P3) basis. This approach would allow final design, right-of-way acquisition and construction to take place concurrently, with access to private sector financing helping to accelerate the delivery of the project.

Following the state legislature’s authorization of P3 projects in Texas, private investors began to assess project development possibilities in the state. In March 2004, TxDOT received an unsolicited proposal from a private developer to reconstruct and expand the entire I-820 and SH 121/SH 183 corridor, from I-35W in Fort Worth to I-35E in Dallas County, adding tolled managed lanes. This prompted TxDOT to begin a formal process to solicit competing offers, but the department ultimately canceled the process in early 2006. Nonetheless, the seed was planted that this corridor, and potentially others in the Fort Worth region including I-35W, could be developed on a P3 basis.

Project Procurement

In 2006, the Texas Transportation Commission—TxDOT’s governing board—approved a revised approach to develop two P3 procurements, one calling for the development of at least the I-820 corridor as contemplated in the canceled procurement, and a second to create a Master Development Plan for improvements to additional highway segments in the region. This multi-segment system of planned improvements, which included I-35W, was named the North Tarrant Express.

The Master Development Plan would assess the financial feasibility of the additional segments and prioritize their implementation. The winning proposer would also have the right of first refusal to construct any of these sections on a P3 basis. By including the additional segments in the procurement, TxDOT hoped to generate greater interest from the private sector since a network of tolled managed lanes would be financially more attractive than a standalone facility. TxDOT did not believe that all segments necessarily would be feasible to build using a P3, but it would benefit from the private sector’s expertise in conducting such a feasibility analysis.

A new dual P3 procurement process began in December 2006 for the I-820 SH 121/SH 183 corridor as well as the Master Development Plan. From a field of two finalists, TxDOT awarded both P3 opportunities to North Tarrant Express Mobility Partners (NTEMP) in January 2009. NTEMP is a private consortium composed of Cintra U.S., Meridiam Infrastructure Finance, and the Dallas Police and Fire Pension System. Cintra, a Spanish company, is a highly experienced toll road developer and operator. Meridiam is a French firm and is one of the largest investors in and developers of public infrastructure facilities in the world.



In June 2009, TxDOT and NTEMP executed the P3 agreements and formally concluded the competitive bidding process, a milestone referred to as reaching “commercial close.” NTEMP’s proposal provided the best value to the state for the construction of the NTE Phase I along the I-820 corridor. NTEMP’s P3 concession will extend over a 52-year period. It began construction on Phase I in late 2010.

While negotiation of the I-820 corridor P3 was taking place, TxDOT revised its schematic designs for Segments 3A and 3B along I-35W to include tolled managed lanes and began an environmental review process.

As construction on Phase I began in 2010, NTEMP also undertook its master planning work for the I-35W corridor. NTEMP refined TxDOT’s initial designs for Segments 3A and 3B and prepared a plan of finance. NTEMP expected that these segments would be constructed on P3 basis in the same manner as Phase I. In May 2010, the company informed TxDOT that it was ready to begin negotiations on a P3 agreement to build these sections of the NTE.

In July 2011, TxDOT and NTEMP agreed to a plan where NTEMP would design, build, finance, operate, and maintain Segment 3A and also operate and maintain Segment 3B, which would be financed and constructed by TxDOT. TxDOT felt that it could achieve superior value for money by delivering Segment 3B on a traditional design-bid-build basis, rather than asking NTEMP to deliver it on a design-build basis with its own financing. The plan was formalized under a new 52-year P3 executed in March 2013. The agreement did not include Segment 3C, which TxDOT initially planned to finance and construct itself at a later date. In early 2016, NTEMP submitted a proposal to TxDOT to develop Segment 3C, similar to Segment 3A, and the two parties expect to reach agreement on commercial terms by early 2017. TxDOT gained environmental approvals for all three segments in 2012.

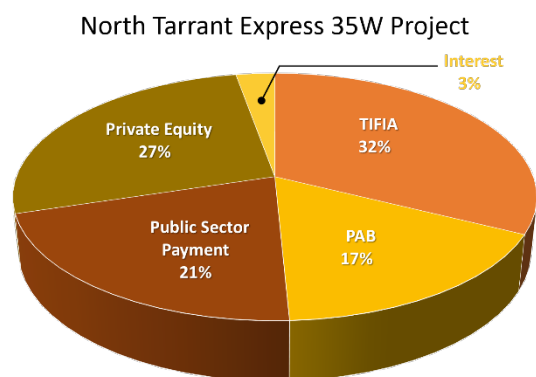
As with Phase I, the private developer will set the toll rates for the managed lanes and collect toll revenues from both Segments 3A and 3B (and ultimately 3C) over the life of the concession. Toll rates must be set in accordance with a Regional Managed Lanes Policy established in 2006 by North Central Texas Council of Governments (NCTCOG) and its governing board. The policy provides a basic framework to help guide the development of new projects. The P3 agreement sets out a revenue sharing mechanism with TxDOT if toll revenues exceed defined thresholds.

Project Financing and Implementation

Financing for the \$1.397 billion NTE Segment 3A was finalized in September 2013. NCTCOG is contributing \$145 million in public funds and NTEMP is providing the remaining \$1,252 million. NTEMP’s Segment 3A financing includes toll equipment for both Segments 3A and 3B.

Financing for the \$244 million Segment 3B is primarily being provided by TxDOT in the form of traditional state and federal funds. A small portion of NTEMP’s financing will also cover Segment 3B. Financing for the proposed \$700 million Segment 3C is expected in 2017 pending a development agreement between TxDOT and NTEMP.

NTEMP’s financing package for Segment 3A includes a combination of private equity and debt. NTEMP’s private equity contributions from its three partners total \$442 million and it also expects to generate \$46



million in interest income. The private partners will be repaid for their initial investment and receive a return over the life of the concession from toll revenue collections.

NTEMP also capitalized on two federal credit programs administered by the U.S. Department of Transportation that reduce financing costs for private developers. Together with TxDOT, the company secured a \$531 million loan from the Transportation Infrastructure Finance and Innovation Act (TIFIA) program, of which \$524.4 million was allocated to Segment 3A and \$6.6 million to Segment 3B. TIFIA provides low cost, flexible credit assistance to transportation projects of national and regional significance. The flexibility provided in TIFIA's debt service schedule was critical to the successful financing of the project.

In addition, NTEMP's financing includes \$274 million in tax-exempt bonds that TxDOT issued on behalf of the concession company (\$3.4 million of these proceeds will go toward Segment 3B). These Private Activity Bonds, or PABs, allowed NTEMP to gain access to the tax-free municipal bond market, lowering its interest rates substantially. The TIFIA loan, as well as the PABs will be repaid from project revenues.

The concession agreement shifts certain risks from TxDOT (and the taxpayer) to the private developer. For example, NTEMP has assumed the risk that toll revenues may be lower than expected. NTEMP's profit will come from the toll revenues with any excess being shared with TxDOT for use on future transportation projects in the region. Texas retains ownership of the land and improvements. NTEMP must hand back the facility in a prescribed state of good repair when the concession expires on June 22, 2061 (or on another date, as agreed upon between the TxDOT and NTEMP).

Construction of Segment 3B nears completion at the end of 2016. Construction on Segment 3A is anticipated to be complete in 2018. Segment 3C's completion depends on the timing of the P3 partner and TxDOT executing a development agreement.



U.S. 36 Express Lanes (Phase 2)

DENVER, COLORADO

Project Overview

U.S. 36 is a four-lane divided highway that connects the City of Boulder, Colorado to I-25, which provides onward connections to downtown Denver. The U.S. 36 Express Lanes project reconstructed the general purpose lanes and added one high-occupancy toll (HOT) lane in each direction along a 15-mile segment of U.S. 36. The project also included the replacement of eight bridges; accommodations for BRT service and associated transit station improvements; a bikeway; and installation of Intelligent Transportation System equipment.



The project was delivered in two phases. Phase 1, delivered under a design-build contract, covers the first 10 miles of the project from Denver to Superior/Louisville. Phase 2, continuing northwest an additional five miles to Table Mesa/Foothills Parkway in Boulder, has been delivered under a design, build, finance, operate, and maintain (DBFOM) public-private partnership (P3) with the Plenary Roads Denver consortium (Plenary) led by Plenary Group. Under the 50-year concession agreement, Plenary is also responsible for operations and maintenance of Phase 1 of the U.S. 36 project, as well as the seven-mile portion of the existing I-25 Express Lanes along I-25 from the U.S. 36 Interchange into downtown Denver. Plenary collects and retains the toll revenues from all the managed lane facilities.

The estimated total capital cost for Phases 1 and 2 of the U.S. 36 Express Lanes is \$521 million and Phase 2 was Colorado's first highway P3 transportation improvement.

Project History

The Boulder-Denver Turnpike (U.S. 36) opened to traffic in 1952 as a four-lane toll road. Tolling ceased in 1968 shortly after the facility's underlying toll revenue bonds were repaid. Originally built with just one interchange along its 18.2-mile length, it now has 10 access points and became increasingly congested due to rapid population growth in the region.

Planning and environmental studies conducted by Colorado Department of Transportation (CDOT) in the late 1990s and 2000s explored options for expanding capacity on U.S. 36. A Major Investment Study (MIS) was conducted from 1998 to 2001 to consider improvements to the facility and multimodal solutions to relieve congestion. Environmental assessment began in 2003 to analyze the impacts of several alternatives, including one that would add commuter rail to the freight rail corridor parallel to U.S. 36. The commuter rail plan was



ultimately abandoned in 2006 when voters in the region approved the FasTrack program, which would support a number of transit improvements in the metropolitan area.

Following the release of the draft environmental document in 2007 and several rounds of public and stakeholder input, the preferred alternative included two new managed lanes in the corridor, BRT system improvements, extensive bridge repair or replacement, and auxiliary lane additions between most interchanges. The project advanced into the final environmental review stage and gained approval from the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) in December 2009.

The Decision to Pursue as a P3 Project

While the U.S. 36 project was still under environmental review in 2007 CDOT sought funding under the federal Urban Partnership Agreement (UPA) program from the U.S. Department of Transportation (USDOT). The UPA program funded projects in metropolitan areas employing innovative solutions, such as BRT, HOT lanes, and dynamic pricing, to combat congestion. The U.S. 36 project was ultimately not selected for a grant, so after the project gained final approval from FHWA and FTA, CDOT applied for \$100 to \$200 million in funding under the first round of the federal “TIGER” discretionary grant program that was put in place as part of the American Recovery and Reinvestment Act. The project was ultimately awarded a \$10 million TIGER challenge grant in 2009, and FHWA encouraged CDOT to apply the grant proceeds toward the federal government’s subsidy cost associated with a possible loan from a USDOT credit program known as “TIFIA.”

CDOT had not initially sought TIFIA credit assistance, but was interested in following through on FHWA’s suggestion. In 2010 CDOT commissioned a traffic and revenue study that found that toll revenues from the facility would be sufficient to pay a TIFIA loan. The TIFIA loan—together with additional funding from the Denver Regional Transit District (RTD), the Denver Regional Council of Governments, and the state—would be sufficient to cover the costs of Phase 1 of the U.S. 36 project. CDOT opted to procure Phase 1 on a design-build basis, providing it with the benefit of a firm fixed cost for the project and allowing it to benefit from the design and scheduling efficiencies of bundling the design and construction activities into a single contract.

Meanwhile, in 2009 the Colorado General Assembly created the Colorado High Performance Transportation enterprise (HPTE) with the mission of seeking out opportunities for innovative strategies for financing important surface transportation projects in the state. HPTE was established as a division within CDOT and one of its initial activities was to embark on a strategic planning process and the development of a short-term 2010 Action Plan. As part of that effort, HPTE reviewed P3 programs in other states and assembled a list of strategic projects in Colorado that could benefit from innovative financing and procurement strategies, one of which was the U.S. 36 Express Lanes.

In March 2011, CDOT submitted its application for a \$54 million TIFIA loan to support Phase 1 of the U.S. 36 Express Lanes project and in May it initiated the design-build procurement process. CDOT closed on the TIFIA loan in early September 2011 and awarded its design-build contract for Phase I in March of 2012 to the Ames/Granite Joint Venture team.

Meanwhile, HPTE and CDOT explored different options for completing Phase 2 of the project. This final portion of the project was expected to have a capital cost of \$208 million and HPTE and CDOT were interested in considering a P3 arrangement that would combine the operation of the existing I-25 Express Lanes and both phases of the U.S. 36 project with the construction and long-term operation of Phase 2 on a design-build-finance-operate-maintain basis. HPTE and CDOT estimated that using a P3 approach would enable construction to be completed at least five years ahead of CDOT’s anticipated schedule if it used a design-build procurement. Moreover, a P3 structure would enable CDOT and HPTE to transfer significant project risks to the private sector partner, such as meeting the construction schedule and budget, collecting



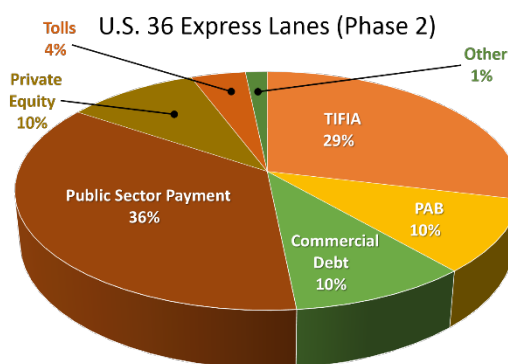
sufficient toll revenue to meet debt obligations and return on investment expectations, and ensuring the project is returned to CDOT in well maintained condition.

Project Procurement

HPTE issued a Request for Qualifications for a DBFOM concession for Phase 2 in February 2012. Phase 2 included the design, construction and financing of the remaining five miles of U.S. 36, as well as the operation and maintenance of the managed lanes in both Phase 1 and 2 and the existing managed lanes on I-25, which connect U.S. 36 to downtown Denver. A final Request for Proposals was released in late 2012 to three shortlisted bidders, and the concession was awarded to Plenary in April 2013. HPTE and Plenary signed the concession agreement for the project in June 2013 formally concluding the competitive bidding process and achieving a milestone referred to as reaching “commercial close.” Plenary reached financial close on the project in February 2014 after having begun early construction activities in late 2013. Phase II opened to traffic January 2016 and began tolling in March 2016. Tolling along Phase I had started in July 2015.

Project Financing and Implementation

The total cost of Phase 1 was \$312 million. The project drew on a variety of direct public funding sources, including \$112 million from dedicated regional transit sales taxes; \$46.6 million in regional federal funds provided by the Denver Region Council of Governments, a \$4.8 million TIGER grant; \$41.4 million in CDOT funds; and \$5.5 million from local governments. The Colorado Bridge Enterprise also dedicated \$41.5 million from a previous sale of Build America Bonds (BABs) to the project. Established under the American Recovery and Reinvestment Act of 2009, the BAB program made special tax credits and federal subsidies available to issuers of taxable municipal bonds. The Colorado Bridge Enterprise BABs were backed by a special bridge safety surcharge on vehicle registrations in Colorado. Additional project financing was obtained through a \$54 million TIFIA loan leveraging future toll revenues generated on the managed lanes.



The total cost of Phase 2 was \$208 million. Public funds provided \$75.2 million of this cost, including \$25.6 million in direct expenditures by CDOT/HPTE and \$49.6 million in payments to Plenary during construction. Revenue sources for these public funds included \$15 million in Federal funds; \$18.9 million in state funds; \$30.5 million from dedicated regional transit sales taxes; and \$10.8 million in local government funds.

Plenary’s financing sources for its portion of the Phase 2 project costs included \$20.6 million in tax exempt bonds that the public sector issued on behalf of the concession company. The Private Activity Bonds, or PABs, allowed Plenary to gain access to the tax free municipal bond market and lower interest rates. Plenary’s financing also included a \$60 million TIFIA loan; a \$20.6 million commercial loan; \$20.6 million in equity from the partners in the concession; and \$12 million in toll and other revenues generated by the I-25 Express Lanes and the Phase 1 managed lanes while Phase 2 was under construction.

The TIFIA loan for Phase 2 is secured by a pledge of revenues from the I-25 Express Lanes (existing) and the U.S. 36 Phase 1 (upon the transfer to Plenary) and Phase 2 managed lanes. Plenary also assumed the TIFIA Phase 1 loan at substantial construction completion when HPTE transferred responsibility for operating that

segment to Plenary. Plenary will operate and maintain the U.S. 36 Express Lanes (Phases 1 and 2) and the existing seven-mile portion of the I-25 Express Lanes south of U.S. 36 until 2065.

Plenary will repay its debt over a 50-year period using toll proceeds from the new lanes on U.S. 36 and the existing lanes on I-25. If toll revenue surpasses an agreed rate of return, toll revenue will be shared with HPTE. Plenary has also agreed to maintain minimum travel speeds for buses using the lanes. Toll rates will be based on a fixed schedule that varies by time of day. Plenary also has the option to migrate to a dynamically priced toll regimen where toll rates would vary in real time based on actual congestion conditions in the I-25 and U.S. 36 corridors. On January 1, 2017, the HOV policy granting free use of the managed lanes will shift from requiring two or more people to three or more people.



I-77 Express Lanes

CHARLOTTE, NORTH CAROLINA

Project Overview

The \$636 million I-77 Express Lanes will be a 26-mile, express toll lane facility in the median of I-77 extending through Charlotte, North Carolina and its northern suburbs. The project converts existing high-occupancy vehicle (HOV) lanes on I-77 to express lane operation and adds a second express lane in both directions on a 19-mile segment of I-77 between Downtown Charlotte (Exit 11) and West Catawba Avenue in Cornelius (Exit 28). From there, a single express lane will extend north for eight miles to Exit 36 in Mooresville in Iredell County.

Motorcyclists, buses and carpoolers with three or more occupants will be able use the Express Lanes at no cost. Other vehicles will be charged tolls that vary in real time according to congestion levels in the corridor.

The project is being built under a 50-year design, build, finance, operate and maintain (DBFOM) concession contract. Construction began in November 2015 and is expected to be complete in late 2018.

Project History

In 2007, the North Carolina Department of Transportation (NCDOT) partnered with the South Carolina Department of Transportation, the Charlotte Department of Transportation and other regional agencies to conduct the Charlotte Region Fast Lanes Study. This regional study analyzed existing and planned highway corridors in 10 counties in greater Charlotte and identified highway segments where the introduction of express lanes could reduce congestion. The study identified the I-77 North corridor as a high priority.

In 2009, NCDOT conducted a feasibility study considering the conversion of the existing HOV lanes on I-77 to express lanes and extending the converted lanes to Catawba Avenue (Exit 28) in Cornelius. In July 2011, the Charlotte Regional Transportation Planning Organization (CRTPO)—the region’s Metropolitan Planning Organization—amended its 2035 Long-Range Transportation Plan (LRTP) to include a project creating one express lane in each direction on I-77 with a combination of HOV conversions and new construction.

In 2012, NCDOT refined its plans for the I-77 Express Lanes and explored the possibility of teaming with a private developer to implement the project in response to new legislative developments allowing P3s in North Carolina. In June 2012 CRTPO amended its 2035 LRTP and 2012–2018 Transportation Improvement Program (TIP) to include the conversion of the existing HOV lanes to express lanes, adding a second express lane on I-77 between I-85 (Exit 13) and I-485 (Exit 19) and building two new express lanes between I-485 and Catawba Avenue.



In May 2013, CRTPO again amended its 2035 LRTP and its 2012–2018 TIP to include express lanes along I-77 from I-277 (Brookshire Freeway/Exit 11) in Mecklenburg County to N.C. 150 (Exit 36) in Iredell County. In July 2013, NCDOT gained federal environmental approval for the I-77 Express Lanes Project.

The Decision to Pursue as a P3 Project

While it was eager to advance the project, with an estimated cost of over \$665 million NCDOT determined that it would not have sufficient funds to complete the I-77 Express Lanes for at least 20 years. However, by using a DBFOM contract with a private developer, NCDOT determined it could accelerate the project by leveraging a private partner’s upfront financing.

The state legislature had also been contemplating the use of public-private partnerships in North Carolina and approved House Bill (HB) 1077 in July of 2012. The law permitted NCDOT to “enter into partnership agreements with private entities” to “plan, design, develop, acquire, construct, equip, maintain and operate transportation infrastructure in the State,” using tolls as the primary funding source. In addition, HB 1077 required that the use of P3 procurements be approved by the North Carolina Board of Transportation.

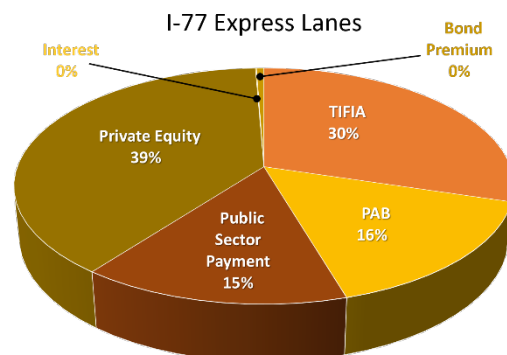
Project Procurement

In early 2012, NCDOT issued a Request for Qualifications for the I-77 Express Lanes, and in March, it announced a shortlist of four qualified teams. The four potential bidders participated in over 70 meetings with NCDOT to help the Department refine the project scope and design. These one-on-one meetings also provided valuable input that helped NCDOT finalize the contract documents. NCDOT limited the state’s contribution to the project to \$170 million. Each bidder conducted an independent analysis to determine if it could meet the contract requirements and whether the project could generate enough revenue to cover the expected financing costs and generate a return on investment.

NCDOT issued its formal request for proposals to the shortlisted bidders on August 8, 2013. Competing teams submitted their bids on March 31, 2014. NCDOT evaluated the proposals using approximately 200 pass/fail criteria. On April 11, 2014, the Department announced the award of the I-77 Express Lanes concession to I-77 Mobility Partners. The consortium includes Cintra (a Spanish toll road operator and developer), Aberdeen Global Infrastructure Partners II LP, (a UK-based investment firm), Sugar Creek Construction LLC, (an American construction company) and Ferrovial Agroman, SA, (a construction subsidiary of the Spanish Infrastructure developer Ferrovial). I-77 Mobility Partners would build the project for \$635.8 million, which was \$30 million below NCDOT’s estimate for the project. In addition, the consortium only required \$94.9 million in public contribution from NCDOT.

Project Financing and Implementation

I-77 Mobility Partners secured its financing for the \$636 million I-77 Express Lanes on June 26, 2014—a milestone known as reaching financial close. It is financing the project using a combination of debt, funding provided by NCDOT, and its own equity. The debt package includes \$100 million in Private Activity Bonds (PABs) (plus \$3.6 million in bond sale premiums) issued by the State of North Carolina on behalf of I-77 Mobility Partners. PABs enable private developers of transportation projects to access the municipal debt market and thereby lower their



financing costs. In order to use PABs on a given project, the US Department of Transportation must first award a PAB allocation. I-77 Mobility Partners will repay the PABs with future toll proceeds.

I-77 Mobility Partners is also the recipient of a \$189 million loan from the TIFIA federal credit program. The TIFIA program offers flexible repayment terms and provides the concession company with relatively low interest rates. The loan has a maximum term of 35 years and repayments can begin up to five years after the project's substantial completion. In the event that I-77 Mobility Partners files for bankruptcy, the TIFIA loan will be repaid at the same time as the PABs.

The State of North Carolina has provided \$94.9 million in funding for the project. In addition, I-77 Mobility Partners is investing \$248 million of its own equity in the project. Cintra has contributed approximately \$225 million of this amount, while Aberdeen Global Infrastructure Partners II contributed the remaining \$23 million.

In April 2015, Fitch ratings assigned an investment-grade rating of BBB- to the PABs and TIFIA loan issued for the project. Fitch's rating reflected the project's strategic location in a metropolitan region that is experiencing continuing growth and has long-standing congestion issues. The project lacks any current or planned competing routes that could cause traffic diversion, increasing the likelihood of steady demand for the Express Lanes. Additionally, I-77 Mobility Partners maintains the right to set tolls at a dynamic rate. The toll rates will rise and fall with the demand in the Express Lanes. If there are more cars using the Express Lanes, the toll rate will rise to discourage more vehicles from entering the lanes and increasing congestion. Toll rates will drop to encourage drivers to use the lanes when there is little traffic in the lanes.

NCDOT has provided a contractual provision known as a developer ratio adjustment mechanism (DRAM) that has enhanced the creditworthiness of the project. Under the DRAM, if the projected debt payment exceeds the amount of cash that I-77 Mobility Partners has on hand, NCDOT will cover the difference. NCDOT's payment assistance will not exceed \$12 million in a year or \$75 million over the concession term. In the event that the concession company defaults on its debt payments, the state can take over the contract for 50 to 60 cents on the dollar and will be entitled to all future toll revenues.

The I-77 Express Lanes has generated controversy. Local grass roots groups, including "Widen I-77" have campaigned heavily against the project, arguing that the state should add free lanes to the corridor. The group sought a court injunction against the project, alleging that NCDOT's contract with I-77 Mobility Partners is unconstitutional. Additionally, Widen I-77 alleged that the North Carolina General Assembly unconstitutionally delegated authority to NCDOT to toll the Express Lanes. NCDOT warned opposition groups that cancelling the contract with I-77 Mobility Partners could cost the state as much as \$300 million.

In December 2015, John Laing Group, a British infrastructure developer, became an equity investor in the project. John Laing invested \$25 million in the project, reducing Cintra's contribution to \$200 million or roughly 80 percent of the total project equity investment. John Laing was interested in the project for its potential to provide stable long-term returns for its investors, as the Charlotte region and the I-77 corridor are predicted to grow for decades to come.

In January 2016, a judge ruled against Widen I-77, stating that the agreement between I-77 Mobility Partners and NCDOT was legal and that NCDOT has the right to toll the Express Lanes. Widen I-77 continued to oppose the project, seeking to stop the project through political means. The strategy was unsuccessful, as the Charlotte City Council and the Charlotte Regional Transportation Planning Organization have since both voted in favor of advancing the project.

SH 288 Toll Lanes

HARRIS COUNTY, TEXAS

Project Overview

The SH 288 Toll Lanes project in Harris County, Texas will add new toll lanes, general-purpose (untolled) lanes, and incorporate new connections and interchanges along 10.3 miles of State Highway (SH) 288 from US 59 (also designated I-69) near downtown Houston south to the Harris-Brazoria County line.

The initial project configuration adds two toll lanes in each direction within the existing median, a new interchange with Beltway 8 (Sam Houston Parkway) that includes eight

direct connector ramps to the toll lanes, interchange improvements with I-610 including direct connectors to the new toll lanes, and two direct connectors to the Texas Medical Center, located near the northern end of the corridor. The ultimate configuration of the project will include additional improvements to the interchange with I-610 and one additional general-purpose lane in each direction between I-610 and Beltway 8 (about 5.5 miles) increasing the total number of lanes from six to eight.

The Texas Department of Transportation (TxDOT) is developing the SH 288 Toll Lanes through a 52-year design-build-finance-operate-maintain public-private partnership (P3) with Blueridge Transportation Group. The private developer is financing and building the project in return for the right to collect and retain all toll revenue on the route subject to certain tolling policies. It will also be responsible for all operations and maintenance of the new facilities, as well as the existing general-purpose lanes, for the duration of the concession.

Project History

SH 288 is a 61-mile highway between Houston and the Gulf of Mexico providing a vital route for commuters, commercial trucking, and hurricane evacuation. The highway's configuration has remained essentially unchanged since 1984. It extends from I-45 in downtown Houston to US 36 in Freeport and provides two to four general-purpose lanes in each direction separated by a grassy median. Communities along the northern portion of the route through Harris County and the northern portion of Brazoria County have experienced significant population growth since the early 1990s, contributing to increased traffic congestion. Projections estimate a 60 percent increase in the population along the corridor between 2005 and 2025. Estimates indicate that traffic levels in the corridor would increase by 32 to 74 percent between 2011 and 2035.

TxDOT sought solutions to alleviate existing and projected traffic congestion along the route while improving access to the Texas Medical Center, a major employment destination. The Texas Medical Center, situated southwest of SH 288's interchange with US 59, is the world's largest with 106,000 employees.



TxDOT and the Houston region’s metropolitan planning organization conducted a project feasibility study between 2003 and 2005 that examined the full SH 288 corridor. The study considered a wide range of improvements, including building additional lanes, using technology to improve traffic management, and introducing commuter or light rail transit. Ultimately the study identified a set of the most feasible alternatives, led by the addition of 17.5 miles of high occupancy toll (HOT) lanes—two in each direction—between US 59 and SH 6 in Brazoria County. HOT lanes charge higher tolls for vehicles with fewer occupants (and potentially no toll for high occupancy vehicles) and vary those tolls depending on traffic levels to better manage travel demand and ensure a reliable trip.

TxDOT began developing preliminary schematic designs and conducting environmental studies in 2006 on the recommended outcome of the SH 288 Corridor Feasibility Study. It presented the project to the public in February 2007 and revised its design schematics based on the feedback received. TxDOT also determined that it would be necessary to toll all vehicles using the proposed new lanes, as toll revenues could help finance the project and expedite project implementation. Lanes in which all vehicles are charged variable tolls regardless of occupancy, alongside general-purpose (untolled) lanes, are called express toll lanes.

TxDOT ultimately conducted a formal environmental analysis of the project that emerged from its preliminary design work. The environmental analysis focused on the 26-mile stretch of SH 288 from US 59 to County Road (CR) 60 in Brazoria County. TxDOT assumed the project would be built in two phases: an interim phase consisting of two reversible express toll lanes between US 59 and SH 6 and an ultimate phase adding two more express toll lanes between those points, providing a total of four express toll lanes. The ultimate phase would also add an additional general-purpose lane in each direction between I-610 and SH 8. Both phases included select direct connector, interchange, and overpass improvements. TxDOT estimated the cost of the interim phase at \$300 million over four years. The ultimate phase would not be operational until 2035 at an additional cost of \$1.4 billion. TxDOT noted, however, that if additional funding were to become available, all four express toll lanes could be constructed at once between US 59 and SH 6.

The federal government granted its environmental approval of the SH 288 project between US 59 and CR 60 in May 2013. In fall 2013, TxDOT completed additional environmental analysis of the Texas Medical Center connector for which it had been studying various alignment alternatives since 2012. The connector also received federal approval and was later included in the project.

The Decision to Pursue as a P3 Project

After completing the SH 288 Corridor Feasibility Study in 2005, TxDOT concluded that its traditional funding sources including fuel taxes and other taxes and fees would be insufficient to cover the cost of the SH 288 project, given the burgeoning need for capital improvements across the state. However, the state recognized that it could help fill this funding gap with toll revenues and that the private sector could potentially finance and implement the project. By pursuing this approach, TxDOT hoped that more of the ultimate SH 288 configuration could be built as part of the interim project.

Enhancements to Texas transportation law enacted in the early 2000s introduced new project financing and delivery options, including the ability for TxDOT to engage the private sector to finance, design, construct, operate, and maintain toll road projects on a P3 basis. This approach would allow final design and construction to take place concurrently and provide access to private sector financing that could help accelerate the implementation of projects. It would also provide funding for long-term operations and maintenance.

Texas law governing P3s evolved throughout the 2000s, and some of the broad permissions for P3 project development granted under earlier legislation were curtailed. Legislation enacted in 2011 made a number of reforms to TxDOT and, because P3 concession projects must now be explicitly named in statute, authorized the SH 288 project to be developed on a design-build-finance-operate-maintain basis.



Texas transportation law also grants local toll authorities (at the county or regional level) a first right of refusal guarantee (“primacy”) to build a toll project before TxDOT can. This provision protects local control over transportation planning and investment decisions for projects that involve toll collection. In April 2012, Harris County agreed to cede its right to develop the SH 288 project to TxDOT. This agreement applied to the 10.3 miles of the project corridor in Harris County and included a commitment for TxDOT to implement several other road improvement projects in the county, including the direct connector to the Texas Medical Center. That same month, the Texas Transportation Commission, which oversees TxDOT, granted its permission for the department to begin seeking private sector firms to deliver the SH 288 project in Harris County.

For the remaining portion of the interim project in Brazoria County (now defined as from the county line to CR 58, two miles north of SH 6), Brazoria County has exercised its right to develop the project and will do so on a traditional design-bid-build basis. Under this project delivery model, separate firms will complete the project’s final design and undertake its construction. The Brazoria County Toll Road Authority will finance the project and be responsible for ongoing operations and maintenance.

Project Procurement

By early 2013, TxDOT took steps to launch the procurement of the SH 288 Toll Lanes in Harris County. Two important activities took place. TxDOT made certain statutorily-required determinations on delivering the project on a P3 basis and initiated the process to solicit interested private partners to participate in the project’s delivery.

Since 2011, Texas transportation law has required convening a so-called SB 1420 Committee to report to TxDOT’s Executive Director on proposed toll projects where the private sector has a “financial interest” (i.e. when a P3 concession is used). The committee must be convened for projects using regional funding, county or municipal rights-of-way, or local revenues. The committee must make determinations on the allocation of financial risk, method of financing, and tolling structure and methodology. Committee membership includes representatives from TxDOT, the local metropolitan planning organization, the relevant toll authority, and affected local governments.

With SH 288, the committee compared the overall costs of a design-build procurement, which does not involve private financing or long-term operations and maintenance, with a full design-build-finance-operate-maintain approach. The design-build option would require significant public investment because the constructor would have very little financial stake in the project. With the full concession, TxDOT could actually expect an upfront payment from the private partner for the right to implement the project because of potential earnings from toll proceeds over the life of the concession.

The SB 1420 Committee for SH 288 issued a report in April 2013 confirming that all project financial risk would be retained by the private developer and that the financing package for the project would rely exclusively on private funds. (The Texas Medical Center connector was added to the SH 288 project later in the year and would not be financed by the private developer.) The report also established a tolling policy prescribing minimum and maximum rates, a protocol for increasing toll rates over time, expectations for travel speeds on the tolled lanes, and other policies such as exempting public transit buses.

After the SB 1420 Committee completed its work, TxDOT issued a Request for Qualifications in early May 2013 to identify the most qualified private firms to submit detailed proposals on the design-build-finance-operate-maintain concession. Several weeks later, it held a prequalification workshop to present the project to interested bidders.

TxDOT structured the project to include at a minimum the addition of the four express toll lanes along the 10.3-mile section in Harris County, direct connectors to the Texas Medical Center pending completion of



further studies later in 2013, a new interchange with Beltway 8, and operations and maintenance of the full corridor including the general-purpose lanes and frontage roads for the duration of a 52-year concession period. Optional components of the project included the addition of two general-purpose lanes between I-610 and Beltway 8 and improvements to the I-610 interchange, requiring additional right-of-way acquisition.

TxDOT estimated the design-build cost of the required components of the project within Harris County to be \$567 million, with up to another \$50 million for the Texas Medical Center connector. TxDOT indicated to potential bidders that it had submitted an application for a TIFIA loan from the federal government to help finance the project. The TIFIA program provides low-interest loans and credit assistance to projects of national or regional significance. TxDOT would also seek an allocation of private activity bonds (PABs) from the federal government. These bonds allow a private entity to gain access to the tax-free municipal debt market, reducing the cost of financing a P3 project. TxDOT reiterated that no public funding would be available except for the Texas Medical Center connector.

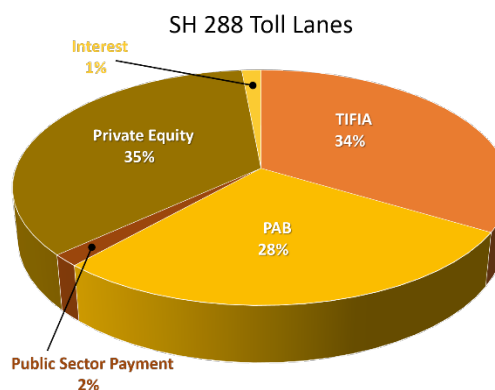
Three private consortia responded to the Request for Qualifications and all were shortlisted by TxDOT in September 2013. TxDOT issued a Request for Proposals in January 2014 and began to hold one-on-one meetings in February to discuss its requirements with the bidders. Proposals were initially due in July 2014, but the submission date was ultimately delayed until January 2015, when the bidders were required to submit separate technical and financial proposals.

TxDOT announced a conditional project award to Blueridge Transportation Group in late February 2015. The team is composed of three equity partners: ACS Infrastructure Development, an American subsidiary of a large Spanish construction firm; InfraRed Capital Partners, a British infrastructure and real estate investment firm formerly part of the banking giant HSBC; and Shikun & Binui Concessions, a division of an Israeli construction, real estate, and infrastructure firm. Blueridge Transportation Group achieved the highest combined financial and technical score, which TxDOT had weighted 80/20, offering the best value to the state. Blueridge Transportation Group's proposal included 75 percent of the ultimate configuration's I-610 interchange improvements, increasing the total cost of the project (although not TxDOT's contribution) but saving significant future capital and maintenance costs.

The formal execution of the P3 agreement between TxDOT and Blueridge Transportation Group—a process known as commercial close—occurred in March 2016. Blueridge Transportation Group then began advancing final design, utility coordination, geotechnical surveying, and securing its financing.

Project Financing and Implementation

Blueridge Transportation Group closed on the financing of the SH 288 Toll Lanes in Harris County on May 9, 2016. The total estimated cost of the interim project, including financing costs and the majority of the I-610 interchange improvements, in year-of-expenditure dollars is \$1,064 million. The financing package includes a \$357 million TIFIA loan and \$298.6 million in PABs. The private partner has also contributed \$375 million of its own equity to the project. TxDOT has contributed \$17.1 million for the construction of the Texas Medical Center direct connector. Interest payments will provide \$15.6 million in additional funding.



Blueridge Transportation Group will retain the right to set toll rates and collect toll proceeds in compliance with the tolling policies established in the SB 1420 report. It will use this revenue to repay the project debt, its own equity investment, and to make a profit. However, all major project risks, including financial risk, will remain with the private partner. Subject to certain traffic demand metrics, Blueridge Transportation Group will also construct and maintain the remaining components of the ultimate project, including the additional general-purpose lanes and remaining improvements to the I-610 interchange, within the concession period. TxDOT will finance the cost of this additional work. At the conclusion of the concession, the private partner must comply with strict quality requirements for returning the facility to TxDOT.

Construction began in November 2016 and is expected to be complete in late 2018 or early 2019. The private developer must also coordinate with Brazoria County as the county extends the express toll lanes the five miles from the Harris County line to CR 58, targeting a completion date roughly coinciding with the Harris County project.



Availability Payment Concessions



I-595 Corridor Roadway Improvements

FORT LAUDERDALE, FLORIDA

Project Overview

The I-595 Corridor Roadway Improvements project in Broward County, Florida involved the reconstruction and widening of a 9.3-mile section of I-595, along with frontage road improvements and new interchanges with the I-75/Sawgrass Expressway and State Route (SR) 7. The project includes the addition of three at-grade reversible express toll lanes (595Express) in the median of I-595 that allow drivers to pay a toll to avoid potentially congested conditions in the adjacent (free) general purpose lanes. The reversible lanes generally operate in the direction of prevailing traffic: eastbound in the mornings and westbound in the afternoon and evenings. Direct connector ramps provide access to and egress from the 595Express at I-75, Florida's Turnpike, and SR 7.



The project improves travel along the east-west I-595 corridor between Fort Lauderdale and its fast-growing western suburbs, connections with several vital north-south routes critical to the South Florida economy, and freight movement to and from Port Everglades and Fort-Lauderdale-Hollywood International Airport. The express lanes also accommodate new express bus service between a park-and-ride center in Sunrise near the western end of I-595 and downtown Miami. Service to Fort Lauderdale was initially provided but was eliminated in October 2015 due to low ridership.

The \$1.83 billion (2009 dollars) project has been implemented as a public-private partnership between the Florida Department of Transportation (FDOT) and a private concession company called I-595 Express LLC. The company has designed, built, and financed the project and now operates and maintains the roadway over a 35-year period. FDOT provided management oversight and installed, tested, and now operates all tolling equipment for the express lanes. FDOT also sets toll rates and retains the toll revenue. FDOT is compensating the concessionaire with annual payments that are adjusted based on quality and performance requirements stipulated in its contract with I-595 Express LLC.

Project History

The I-595 corridor originally opened to traffic in 1989 to serve growing traffic demand between the developable areas west of Fort Lauderdale and established north-south roadways. Travel demand within the corridor grew faster than predicted due in part to regional population redistribution following Hurricane Andrew in 1992.



FDOT identified short-term operational improvements to the I-595 corridor to address capacity shortfalls in 1994. This was followed by a corridor master plan that studied the roadway along with a portion of I-95 through Fort Lauderdale. Fifteen alternative concepts for improving I-595 were assessed in an I-95/I-595 Master Plan Study completed in 2003. From this study, FDOT adopted a preferred alternative including the addition of two reversible express lanes in the median of I-595 and related access and interchange improvements.

Another study being conducted at the time—the Central Broward East-West Transit Alternatives Analysis—also proposed the addition of light rail transit service in the corridor. This recommendation was accommodated in FDOT’s design by preserving right-of-way in the median of I-595.

Following the conclusion of the Master Plan Study, FDOT began to assess the project’s potential impacts on the environment while also starting preliminary engineering and design. FDOT also performed a detailed traffic and revenue analysis for the tolled express lanes.

Preliminary engineering expanded the design from two to three express lanes to permit making direct connections to Florida’s Turnpike. This change also included placing the express lanes on elevated structure, but later modifications placed the lanes back at-grade, due largely to public opposition to the elevated design.

The environmental review and preliminary engineering concluded in March 2006, identifying 16 separate design projects for implementation. The Federal Highway Administration (FHWA) granted its environmental approval in June 2006. FDOT intended to procure the project using traditional design-bid-build delivery, where separate contracts for final design and for construction would be advertised bringing onboard distinct designers and construction contractors. The 16 separate projects would also be scheduled to align with anticipated funding availability—primarily federal funds.

The Decision to Pursue as a P3 Project

As the environmental assessment phase drew to a close, private sector developers expressed initial interest in implementing the project on a public-private partnership (P3) basis. State legislation enacted in 2004 removed a significant impediment to FDOT’s ability to use this project delivery method. At the same time, the active pursuit of a design-build-finance-operate-maintain P3 concession for the nearby Port of Miami Tunnel project generated additional interest in considering a similar approach for the I-595 project.

FDOT was receptive to the private sector’s ideas for a P3 collaboration to deliver the I-595 project. Consistent with FDOT’s own thinking, private developers encouraged FDOT to bundle the 16 separate improvement projects in a single procurement that could be built more quickly and efficiently. Delivering the entire project corridor at once would accelerate the delivery by approximately 15 years, generating the resulting mobility, connectivity, and safety benefits considerably sooner.

FDOT could have issued bonds to cover the shortfall in available federal funding needed to advance the full project, but this financing option would have required too great a share of the state’s debt capacity. A P3 approach that included project financing arranged by the private partner would reduce the state’s debt exposure and transfer the risks associated with project completion, construction cost overruns, and ongoing maintenance requirements to the private partner.

The viability of the P3 approach was also enhanced by Florida’s Strategic Intermodal System (SIS), which was established in 2003 to support a designated set of projects critical to moving people and goods and enhancing economic competitiveness and quality of life in Florida. Funding for SIS projects came from newly dedicated documentary (doc) stamp collections, which are levied on documents that transfer ownership of real property in Florida.



In late 2005, the state announced a list of Growth Management projects proposed for SIS funding between fiscal years 2005–2006 and 2010–2011. The list included nine of the 16 I-595 corridor projects identified during preliminary engineering. Then in 2007, further legislative changes were made to encourage the use of P3s on SIS projects, I-595 among them. Initial funding provided by a private partner would be eligible for reimbursement from FDOT funds.

Just after this legislative change went into effect, FDOT hosted an industry forum in July 2007, soliciting feedback from would-be private partners on proposed technical and financial approaches. At this point, FDOT presented two P3 delivery options under consideration: a full design-build-finance-operate-maintain concession and a design-build-finance option in which the state would retain responsibility for the long-term upkeep of the facility. FDOT sought to gauge which option would generate the most interest from private partners and, hence, the most competition. A majority of potential bidders indicated a preference for the full concession approach.

To inform its decision on whether or not to pursue a full P3 concession on the I-595 project, FDOT completed a value for money (VfM) analysis in August 2007. This type of analysis generally compares two or more methods of project procurement to determine which one offers the best “value” to the state. The analysis considers the upfront construction and financing costs as well as long-term operations and maintenance, usually for a period of at least 30 years. In this case, FDOT compared the lifecycle costs of the full design-build-finance-operate-maintain concession with those of a design-build-finance option. The analysis indicated that the full concession option would deliver greater value to the state.

Project Procurement

Once the decision was made to deliver the I-595 project as a full P3 concession, FDOT completed the procurement process relatively rapidly, taking less than 13 months from start to finish. Following the precedent set by the Port of Miami Tunnel—which the state had begun to procure in 2006—FDOT issued a Request for Qualifications in October 2007 to identify the most qualified private firms to invite to submit detailed proposals. Four of six consortia that responded were shortlisted and received a draft Request for Proposals (RFP) in December. FDOT issued a final RFP in April 2008. It sought a partner that would provide a superior approach to project management, design, construction, and operations and maintenance, while minimizing an annual availability payment that FDOT would be required to pay to the private partner over the life of the concession. These availability payments are the primary means for compensating the private partner for its role on the project. They are based on the private partner’s ability to make the facility “available” at a defined level of condition and performance.

Ultimately, two teams submitted proposals to FDOT in September 2008. One month later, FDOT selected I-595 Express LLC as the best value concessionaire based on technical merit and price. The I-595 Express LLC consortium is led by ACS Infrastructure Development, an American subsidiary of a large Spanish construction firm. Proposal bid prices were based on a maximum annual availability payment (MAP). I-595 Express LLC’s winning MAP bid was substantially less than its competitor’s and 8.3 percent less than FDOT’s estimate from its VfM analysis. Although the competitor’s technical score was superior, the difference in the MAP price more than made up for the difference in offering FDOT the “best value.”

In addition to investing its own equity, the financial plan submitted with I-595 Express LLC’s winning proposal assumed the use of \$826 million in private activity bonds (PABs) to help pay for the project’s construction. PABs allow a private entity to gain access to the tax-free municipal debt market. FDOT had obtained approval from the U.S. Department of Transportation in July 2008 to issue PABs for the project in part to help stimulate competition among the bidders in developing their financial plans. Similarly, FDOT also received pre-approval



to use a federal credit program called TIFIA, which provides low cost, flexible loans to transportation projects of national and regional significance. I-595 Express LLC’s financial plan also assumed receipt of a TIFIA loan.

However, in the fall of 2008 as the financial crisis worsened, FDOT questioned the capacity of the volatile bond market to absorb the proposed volume of PABs. By December 2008, FDOT and ACS reached an agreement to revise the financial plan and substitute a commercial bank loan for the PABs. The critical challenge was the ability to finance the project without increasing FDOT’s maximum annual availability payment, particularly at a time when interest rates were uncertain. Ultimately, the TIFIA program ensured the project’s affordability by lending the project funds at low U.S. government interest rates. TIFIA’s payback flexibility also allowed the commercial bank debt to be repaid on an expedited schedule.

The private partner assumed full risks for the construction cost and schedule, as it did not receive any public funds until the project was completed. I-595 Express LLC relied solely on its own equity and the commercial bank loan and TIFIA loan to cover its costs during the construction period—incentivizing it to deliver the project efficiently.

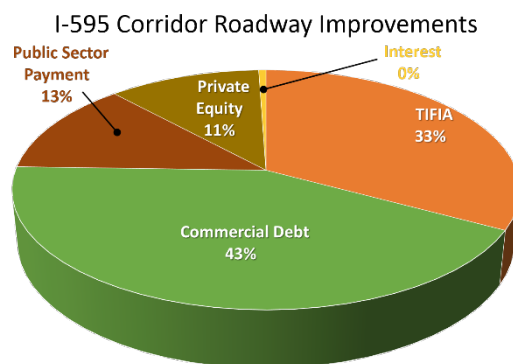
Project Financing and Implementation

The I-595 project reached financial close in March 2009. I-595 Express LLC’s final sources of financing included \$781 million in commercial bank debt, a \$603 million TIFIA loan (plus capitalized interest), \$208 million in equity, and \$10 million in other revenues, as well as \$232 million in funding from FDOT.

Construction began in June 2009 and the facility opened to traffic in March 2014. In the interim, ACS Infrastructure Development sold a 50 percent stake in I-595 Express LLC to the financial services organization TIAA-CREF in October 2011.

Project debt is being repaid from a \$686 million final acceptance payment (year of expenditure [YOE] dollars) made by FDOT upon substantial completion, as well as the annual availability payments. FDOT also made bonus payments to the concessionaire for meeting interim milestones during construction. Annual availability payments are capped at \$65.9 million in 2009 dollars, with adjustments for inflation. The total cost of the project, as measured by the present value (2009 dollars) of all final acceptance and availability payments covering capital, operating, and maintenance costs over the 35-year concession term borne by the concessionaire, is \$1.83 billion.

FDOT has programmed a total of \$4.33 billion (YOE) in state and federal funding through 2044 to cover the final acceptance payments, availability payments, and supplements. FDOT is also incurring \$292 million (YOE) in other costs between 2006 and the end of the concession for preliminary engineering, right-of-way, construction inspection, turnpike connector ramps, provision for bus rapid transit, and toll collection and operations.

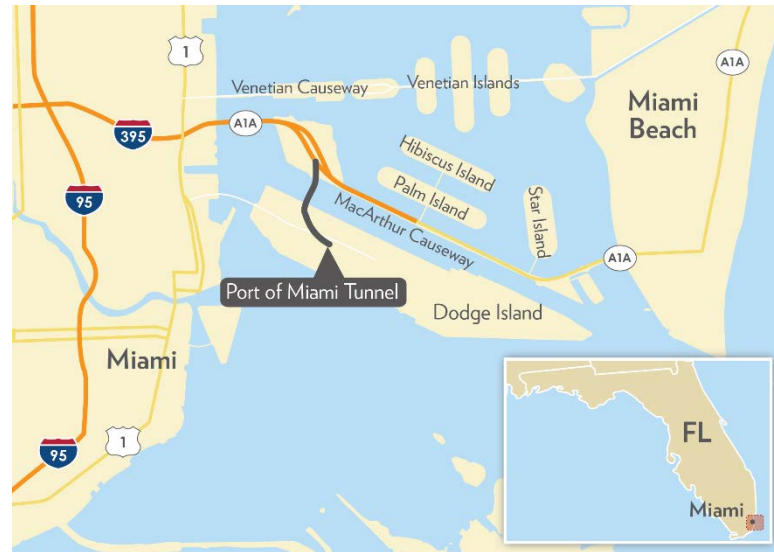


Port of Miami Tunnel

MIAMI, FLORIDA

Project Overview

The Port of Miami Tunnel (POMT) has improved access to and from the Port of Miami, serving as a dedicated roadway connector linking the Port with the MacArthur Causeway and I-395. Previously the Port (located on an island in Biscayne Bay) was linked to the mainland only by the Port Bridge. The tunnel has improved access to the Port and traffic safety in downtown Miami by removing cargo trucks and cruise line buses from congested city streets, thereby facilitating ongoing and future development plans in and around downtown



Miami. The project includes a tunnel under the Main Channel and related roadway work, including the widening of the MacArthur Causeway Bridge. Twin tubes, each 3,900 feet long and 41 feet in diameter, reach a depth of 120 feet below the water. The total capital cost of the project is \$1,113 million.

The Port of Miami Tunnel was developed as a public-private partnership (P3) between the Florida Department of Transportation (FDOT) and Miami Access Tunnel, LLC (MAT). Following a five-year construction period, MAT will operate the tunnel for 30 years in exchange for an annual availability payment. The POMT was the second availability payment P3 project to reach financial close in the United States.

Project History

The concept of building a direct tunnel connecting the Port of Miami with I-395 was first explored officially through a Vehicular Access Study commissioned by the City of Miami in 1981. At this time, the Miami-Dade Metropolitan Planning Organization (MPO) created the Port of Miami Access Task Force with a mandate of analyzing and identifying future bridge and tunnel access options to the Port.

Based on the Task Force's recommendations, the Miami-Dade County Board of Commissioners approved a three-phase plan to improve access to the Port of Miami in 1984. The plan included intersection improvements at Port Boulevard and Biscayne Boulevard, the replacement of the bascule Port Boulevard Bridge with a fixed-span bridge, which occurred in the 1990s, and the construction of a new direct access tunnel between the Port and I-395.

Following the approval of the plan, the FDOT began a Project Development and Environmental study to examine the environmental impact of bridge and tunnel alternatives in 1989. It released a draft environmental document assessing the effects of an immersed tube tunnel running in a diagonal alignment across the Main Channel between Watson Island and the Port of Miami in 1996. The analysis found that while the tunnel



would be an effective transportation solution, the immersed-tube construction technique would have serious environmental impacts on Biscayne Bay and also disrupt operations at the Port of Miami.

Shortly after the release of the environmental document, the notion of using bored tunneling technology arose. The concept came to light at an industry forum exploring tunnel construction methods for a rail improvement in Miami. While that discussion was focused on another project, it proved to be pivotal for the Port of Miami Tunnel. After further analysis, FDOT ultimately decided to capitalize on advances in bored tunneling technology and construct the Port of Miami Tunnel as a bored structure. Given that this approach reduced the impacts of the tunnel on Biscayne Bay and Port operations dramatically, FHWA agreed to the change in May 1997. The project gained environmental clearance in November 2000.

Although the bored tunnel method had far fewer environmental impacts, it was extremely risky. In order to accommodate two lanes of traffic in each tunnel tube, the Port of Miami Tunnel would have the largest diameter of any bored tunnel in the United States. The size of the tunnel would be further complicated by the soft soil conditions below Biscayne Bay. In addition, while European contractors were familiar with the technique, no construction firms in the U.S. had experience with the technology.

The Decision to Pursue as a P3 Project

In the early 2000s, day-to-day responsibility for overseeing the project was transferred from FDOT to Florida's Turnpike Enterprise (FTE), largely because of the assumption that the new tunnel would be tolled. In 2003 FTE began a reevaluation study to update project documents and examine construction methods for the tunnel. As FTE's work progressed, two important realities became clear. There was great opposition to tolling by the Port of Miami and the cruise ship operators, who believed that tolls would drive customers away. More importantly, tolling the tunnel but not the Port Boulevard Bridge would divert traffic away from the new tunnel and keep the streets of downtown Miami crowded with trucks bound for the port. For these reasons decision makers in Florida recognized that it would not be tenable to toll the new tunnel.

As it completed its work to gain environmental approvals for the project, FDOT held informal discussions with major U.S. and European contractors to elicit their opinions on the design and procurement of the tunnel. A dichotomy soon became apparent. American contractors were unanimous in their belief that the crossing had to be constructed as an immersed tube tunnel delivered under a design-build contract. However, four European firms involved in the discussions agreed that the tunnel could be built as a bored facility. Further conversations also revealed that the European contractors would only be interested in pursuing the project if it were procured as a P3 concession, as this would give them greater flexibility to innovate and refine the design. Furthermore, they also indicated that they would only be interested in bidding for a P3 concession if it included the long-term operation of the tunnel.

The P3 approach was also attractive to FDOT and its advisers. The risks involved with constructing the tunnel were great. A 40-foot-diameter tunnel had never been undertaken before in the United States. Procuring the tunnel on a design-build-finance-operate-maintain (DBFOM) partnership basis would allow the state to transfer the risks associated with constructing the large-diameter tunnel to the private sector. They also believed that there would be a greater level of competition with a P3 procurement compared to a more standard design-build arrangement. In 2004 FDOT completed a high level value-for-money and risk analysis and concluded that a P3 procurement would be viable. The department also recognized that if the private partner were compensated with availability payments tolls would not be necessary.

An additional rationale for developing the project on a P3 basis was to capitalize on Florida's recently created Strategic Intermodal System (SIS) program. Created in 2003, the SIS program was funded from documentary (doc) stamp collections which are levied on documents that transfer interest in Florida real property. The doc stamp is an important revenue source in Florida, where there is no income tax, and has been in place for

several decades. Legislation passed in 2003 allocated over one third of doc stamp proceeds to Florida's Transportation Trust Fund, and then applied formulas allocating that amount to a variety of uses, including the SIS program.

The doc stamp allocation represented the first time non-transportation revenues were devoted to transportation needs in Florida and state officials began looking for a select number of "hallmark" investments that it could support. The governor and FDOT officials were eager to use SIS funding to fund the Port of Miami Tunnel. However, the SIS program also required that each dollar of SIS funding be matched at the local level on a 50-50 basis. This led to discussions among the state, Miami-Dade County (which owns the Port), and the City of Miami on how that local share could be provided, eventually securing funding commitments from all three parties.

The county identified \$100 million in upfront funding broadly earmarked for "port access" within a 2004 local bond program. In addition, the county was able to leverage the State Comprehensive Enhanced Transportation System (SCETS) tax, which was collected on motor fuels since 1991 and had to be spent in the county in which it was collected. This strategy enabled Miami Dade County to direct an additional \$114 million toward the Port of Miami Tunnel. The final components of the county's contribution would include a \$40 million pledge from the Port of Miami upon substantial completion of the project and right-of-way contributions valued at approximately \$50 million.

Project Procurement

FDOT held an industry forum with potential private sector investors in December 2005 to follow up on earlier individual conversations and elicit their input on strategies for procuring the tunnel as a P3 project. The industry forum confirmed that potential investors would not be interested in pursuing the project without the necessary environmental approvals and permits being in place. Much of the session focused on risk allocation and confirmed that if the project sponsor were to assign all the risk of the project to a private partner it would need to pay for it up front. The participants in the industry forum were particularly concerned about the geological risk associated with constructing a large-diameter bored tunnel and stated that they would prefer not to include the associated costs in their bids. Ultimately FDOT decided to establish a geological risk contingency fund that could be tapped if a risk event occurred. This mechanism would enable bidders to remove the cost provisions for potential geological risks from their cost estimates, thereby streamlining costs and encouraging greater competition. As a further incentive to ensure that tunnel construction would be of the highest quality, FDOT was also keen to include the long-term operation and maintenance of the tunnel in the P3 procurement.

In February 2006 FDOT issued a Request for Qualifications (RFQ) for a DBFOM concession, and a Request for Proposal (RFP) to shortlisted proposers in November 2006. In May 2007, FDOT announced its intent to award the concession to MAT, comprised of the Australian investment firm Babcock and Brown and the French construction firm Bouygues, a subsidiary of which would serve as the lead contractor on the project. Once funding commitments from the state, county, and city partners were finalized, a formal award was made in February 2008. However, financing for the project soon became caught up in the market turmoil of that year, which would see the failure of both Babcock and Brown and Lehman Brothers, its underwriter for the project. In late 2008, Meridiam replaced Babcock and Brown as the primary equity partner in the concession.

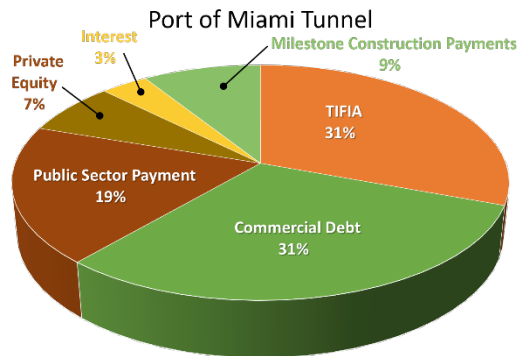
During this period, it was also recognized that long-term credit assistance from the federal Transportation Infrastructure Finance and Innovation Act (TIFIA) program would be crucial in financing the project. TIFIA provides improved access to capital markets, flexible repayment terms and favorable interest rates credit to projects with dedicated revenue sources. However, in order to become eligible for this assistance, the Port of Miami Tunnel had to go through a process of "federalization" to ensure that all Federal protocols—such as the



National Environmental Policy Act (NEPA) approvals, Buy America Act requirements for the use of domestically produced materials, and Davis-Bacon prevailing wage requirements—would be met. Since FDOT had initially planned to finance the project using state and local revenue sources exclusively it had not engaged FHWA in the necessary reviews prior to that time. This process was initiated in mid-2008 and was completed by the fall of 2009.

Project Financing and Implementation

MAT reached financial close for the Port of Miami Tunnel in October 2009. MAT’s financing sources for the project include a \$341 million TIFIA loan (plus \$40.1 million in capitalized interest); \$341.5 million in short-term commercial bank debt provided by a “club” of 10 banks; and \$80 million in equity from the partners in the concession. The TIFIA loan is backed by the availability payments due to MAT. Under the concession agreement, FDOT provided MAT a total of \$100 million in milestone payments during the construction period between 2010 and 2014. FDOT also made a \$350 million final acceptance payment to MAT upon construction completion, which the concession company used to retire the short-term bank debt. In addition, FDOT has incurred \$209.8 million in project-related costs for preliminary engineering and right-of-way acquisition.



During the 30-year operational period, MAT will receive annual availability payments totaling \$32.479 million (in 2009\$), with adjustments for inflation. Deductions will be made from this amount if MAT’s operation of the facility does not meet prescribed performance standards.

Total capital and operating costs over the life of the concession through October 2044 are projected to be \$2.65 billion (in year-of-expenditure dollars). Funding for these lifetime expenditures comes from \$221 million in Federal-aid highway funds; \$1.89 billion in State funds; and \$528 million in county and city funds.

As part of the P3 concession, FDOT created a \$180 million geotechnical contingency fund to mitigate risk of unforeseen construction costs due to the technically risky bored tunnel construction method. Construction on the tunnel began in May 2010 and the tunnel opened to traffic in August 2014.

Presidio Parkway

SAN FRANCISCO, CALIFORNIA

Project Overview

The \$851 million Presidio Parkway project replaced Doyle Drive, a 1.6-mile, east-west segment of Route 101 that serves as the access route to the Golden Gate Bridge in San Francisco. The roadway traverses the Presidio of San Francisco, one of the nation's largest urban parks, and provides a major regional traffic link between the San Francisco Peninsula and North Bay counties. Built in 1936, Doyle Drive did not meet current highway standards and was at risk of damage in the event of an earthquake.



The Presidio Parkway extends from the Golden Gate Bridge Toll Plaza to Broderick Street in San Francisco's Marina District. The roadway will provide three lanes in each direction and an eastbound auxiliary lane serving merging traffic along most of its length. A landscaped median will separate the east and westbound lanes to improve safety and aesthetics. Moving eastward from the toll plaza, the roadway will be made up of a high-level viaduct, two sets of cut-and-cover tunnels, at-grade sections, and a low-level viaduct.

In addition to meeting current design, seismic, and safety standards, the project is also intended to improve access to the Presidio, Golden Gate National Recreation Area, and surrounding neighborhoods, while reducing traffic impacts on the park, local monuments, and the natural environment.

Project History

Beginning in the early 1970s, the California Department of Transportation (Caltrans) undertook several studies to examine improvements to Doyle Drive. While the public supported improving safety conditions on Doyle Drive, it did not want capacity to be increased. In 1989, the Loma Prieta earthquake heightened safety concerns on Doyle Drive and that same year the U.S. Army announced that it would close its base at the Presidio and transfer the land to the National Park Service. In response, the San Francisco Board of Supervisors established a Doyle Drive Task Force in 1991 to review concepts to replace Doyle Drive developed by Caltrans and others. In early 1993, the Task Force identified a preferred replacement alternative that balanced Caltrans' functional requirements with environmental and community concerns.

Later in 1993, Caltrans completed a Project Study Report identifying alternatives based on the task force recommendations. The report examined the scope, schedule, and cost of the project so it could be considered for inclusion in capital spending programs and so that a likely implementation timeframe could be identified.

When the National Park Service assumed responsibility for the Presidio from the U.S. Army in 1994, it incorporated its main objectives for the Doyle Drive improvements into its general management plan, which



focused on maintaining the historical value of the Presidio, minimizing noise pollution impacts, and enhancing access and circulation within the park.

In 1996, the San Francisco County Transportation Authority (SFCTA), which is responsible for transportation planning, design, and funding in San Francisco County, completed the Doyle Drive Intermodal Study. It supported the task force and National Park Service recommendations to improve safety, multimodal access and aesthetics in the Presidio.

In 2000, Caltrans and SFCTA began a nine-year process to gain environmental approval for the project. They released an initial report examining two project alternatives in December 2005. One alternative was similar to the 1993 Task Force's Parkway concept that proposed wide landscaped medians to create a park-like setting and used two shallow tunnels to limit impacts on the park. SFCTA's Board of Commissioners endorsed this alternative in September 2006, and a final environmental review was completed in October 2008. Following some final refinements to the design, the project gained the Federal Highway Administration's (FHWA) approval in December 2008.

The Decision to Pursue as a P3 Project

Initially Caltrans had planned to break the implementation of the Presidio Parkway into eight contracts: two pre-construction contracts to complete environmental mitigation and utility relocation, and six roadway construction and landscaping contracts. However, Caltrans' decisions on options for phasing and procuring the project were influenced by two notable pieces of legislation in 2009.

In early 2009, the federal government passed the Recovery Act in response to deepening recession from the financial crisis of late 2008. It allocated additional federal funding to the project, augmenting a series of local, state, and federal funding sources that had already been committed to it. However, in order to utilize the Recovery Act funding, Caltrans was required to accelerate the schedule of the Presidio Parkway. The accelerated implementation also resulted in significant savings from reduced escalation costs and the favorable contract bidding environment after the economic downturn. In addition, the expedited schedule would also accelerate safety and seismic benefits by shifting traffic completely off the existing Doyle Drive structures more quickly.

Also in early 2009, the state of California passed new legislation permitting the use of public-private partnerships (P3s) without the need to seek legislative approval on a project-by-project basis. As with the Recovery Act at the federal level, the bill was also passed in response to the financial crisis, with the intent of promoting P3 agreements that might include private sector finance, design, construction, maintenance, and operation of transportation facilities. A Public Infrastructure Advisory Commission was also established to assist Caltrans and other transportation agencies in developing public-private agreements for high-priority projects.

As a result of the new state and federal legislation, Caltrans adopted a two-phased approach to procure the Presidio Parkway. It packaged four of the eight contracts into a single \$496 million Phase 1 procurement using a traditional project delivery method known as design-bid-build. With this method Caltrans completed the design to 100 percent and then awarded contracts to the qualified construction contractor submitting the lowest bid price. The Phase 1 procurement included a portion of the new roadway and a temporary bypass route that would accommodate traffic and eliminate seismic risks while the remainder of the project was completed. Construction of Phase I began in late 2009 and was completed in April 2012.

Caltrans and SFCTA chose to capitalize on the newly enacted state P3 legislation to deliver the remainder of the project. They selected an option whereby a private sector developer would be responsible for the financing, design, and construction of the remaining four construction contracts (Phase II), as well as the long-

term operation and maintenance of the full Presidio Parkway project for a period of 30 years. This arrangement is referred to as a concession. While the roadway is still owned by the state, all other responsibilities are transferred to the private sector partner during the concession period. An analysis revealed this approach to be the best option among several considered, including traditional procurement approaches like the one used for Phase I. The advantages of the concession approach used on Phase II included lower long-term operation and maintenance costs, reduced risk of exceeding the project budget or not meeting the construction schedule, and access to upfront private sector financing, which would free up public funds for other critical projects in the state.

In order for the private partner to arrange financing, P3 projects must have a dedicated revenue stream. With the Presidio Parkway, Caltrans and SFCTA opted for an availability payment structure where annual payments are made to the private partner based on the “availability” of the facility at a pre-defined level of condition and performance. Tolling the roadway—the most common revenue source for P3 projects—was strongly opposed by commuters in Marin County north of the city who use the route to access San Francisco.

In order to authorize California’s commitment to fund the availability payments, the State Legislature enacted a “continuous appropriation” provision as part of its Fiscal Year 2011 budget passed in 2010. This legislation commits the state to provide the necessary funding for the availability payments in its annual budget and identifies specific sources of funds to cover them along with some contingencies over the life of the concession. The continuous appropriation mechanism also provides protection against budget delays, because, as a lump-sum appropriation, the funds may be paid regardless of passage of the annual budget.

Project Procurement

With procurement option analyses complete, the Public Infrastructure Advisory Commission endorsed the P3 approach for Phase II of the Presidio Parkway in early 2010, followed by endorsement by the California Transportation Commission—the state body that oversees the allocation of highway funding and advises on transportation policy—in May. Meanwhile, three private teams had responded to a request for qualifications in March—a process that gauged initial interest in the project from the private sector and was designed to identify the most qualified firms to ultimately submit a full proposal. Final proposals from the three teams were submitted in September 2010.

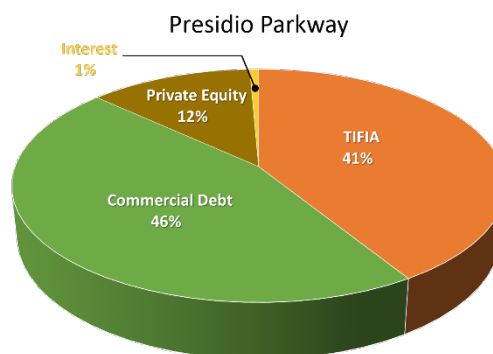
In October 2010, Caltrans announced its selection of Golden Link Concessionaire, LLC (GLC) to implement Phase II of the Presidio Parkway project. In January 2011, Caltrans entered into a P3 agreement with GLC, in cooperation with SFCTA, formally concluding the competitive bidding process. With P3 projects, this milestone is referred to as reaching “commercial close.” GLC committed to delivering the \$364 million project and operating and maintaining the entire parkway under a 30-year lease.

GLC is a special purpose entity established by Hochtief Presidio Holding, LLC and Meridiam Infrastructure North America II to implement the project. The two firms share equal ownership in the concession company. Based in Germany, Hochtief is a leading international construction services company. Meridiam is a French firm and is one of the largest investors in and developers of public infrastructure facilities in the world. GLC in turn entered into a fixed-price, date-certain construction contract with a joint venture composed of Flatiron West, Inc. (65%) and Kiewit Infrastructure West Co. (35%) to design and build the remaining Presidio Parkway components.



Project Financing and Implementation

GLC was not able to secure financing for Phase II of the Presidio Parkway until June 2012. The delay was due to a legal challenge from the state’s union representing Caltrans’ engineers. The union had originally challenged the P3 deal in late 2010, but an appellate court ruling in December of that year permitted the agreement to move ahead. However, a further appeal to the state Supreme Court was not resolved until late 2011 when the court declined to review the case. In the interim, Caltrans made bridge loans to GLC to allow Phase II design work to proceed. The union had objected to funding the availability payments with future state transportation funds. They viewed this approach as opening the door to a larger number of private firms—essentially competitors to the state’s public engineers—who would be willing to pursue availability payment P3s in the state, compared to the smaller number of firms that would be willing to enter into P3 agreements supported instead by toll revenue and assume the associated traffic risk.



GLC’s Phase II \$365 million financing package includes \$46 million in equity from the concession partners, \$166 million in short-term commercial bank debt issued by a group of five banks, \$2.5 million in interest, and \$150 million in loans from the U.S. Department of Transportation’s TIFIA program. TIFIA—the Transportation Infrastructure Finance and Innovation Act—provides low cost, flexible credit assistance to transportation projects of national and regional significance.

The flexibility offered by TIFIA was key to the Presidio Parkway’s successful financing. TIFIA’s credit support was provided to the concessionaire in two loans. One is a short-term, \$90 million loan that the company will repay upon final delivery of the project. The second is a \$60 million, long-term loan that will be repaid over the life of the concession via the non-Federal portion of the availability payments. This precedent-setting financing structure reduced interest costs and aligned repayments with available non-federal funding sources.

Another essential component to the project’s viability was a new FHWA policy allowing state DOTs to apply their Federal-aid funds to availability payments. FHWA determined that the P3 agreement defines the project in a way that allows it to be treated, for purposes of determining Federal-aid eligibility, in a manner similar to that of a traditional public works project.

Under the P3 agreement, GLC will also receive “milestone payments” upon substantial completion of the project funded with state and local transportation funds from a number of regional entities. These agencies include the San Francisco County Transportation Authority, which manages administration of a local transportation sales tax; the Golden Gate Bridge, Highway and Transportation District, which operates the bridge; the region’s metropolitan planning organization—Metropolitan Transportation Commission; and two other regional planning and local tax-administering agencies—the Transportation Authority of Marin County and the Sonoma County Transportation Authority. GLC will use these payments to pay off its commercial bank debt as well as the short-term TIFIA loan. GLC will utilize its availability payments of \$22.1 million, received annually over the life of the concession, to cover routine operations and maintenance costs, capital repairs, and TIFIA loan payments, and to provide the company with a return on its equity investment.

Phase II construction began in late 2012, and major construction was complete in July 2015 when traffic was shifted from the Phase I construction bypass to the permanent route. Landscaping and final restoration took place throughout 2016. At the end of the concession in 2045, ongoing operations and maintenance responsibilities will revert to Caltrans.



Goethals Bridge Replacement

STATEN ISLAND, NY/ELIZABETH, NJ

Project Overview

The \$1.44 billion Goethals Bridge Replacement project involves the construction of a new dual-span bridge to replace the aging Goethals Bridge, which has been in service since 1928 and carries I-278 across the Arthur Kill channel between Staten Island, New York and Elizabeth, New Jersey. The bridge is owned and operated by the Port Authority of New York and New Jersey (Port Authority) and is one of three toll bridge crossings connecting Staten Island and New Jersey.

The existing Goethals Bridge provides four narrow 10-foot travel lanes with no shoulders and serves 80,000 vehicles per day. The replacement project will include the construction of two new parallel cable-stayed bridges providing three 12-foot travel lanes, a 12-foot outer shoulder, and a five-foot inner shoulder per span. The westbound span will also include a 10-foot wide sidewalk and bikeway along its outer edge. Space will also be reserved between the replacement spans to accommodate possible transit service in the future. The replacement spans are being built to the south of the existing Goethals Bridge, which will remain in service during the construction period and then be dismantled after the new spans open to traffic.

The project is being delivered as a public-private partnership (P3) between the Port Authority and NYNJ Link LLC, a private concession company. Under this design, build, finance and maintain (DBFM) concession, NYNJ Link will construct the new bridge and then perform operational and capital maintenance over a 35-year operating period. The Port Authority will retain ownership of the new bridge and be responsible for toll collection. It will make milestone payments to the private developer upon completion of specified construction activities, as well as monthly availability payments based on maintenance performance and availability of the bridge to motorists once it is open to service.

Project History

The Goethals Bridge was constructed in the late 1920s by the Port Authority, opening in 1928. The existing bridge, originally designed for narrower vehicles and local traffic movements, has become increasingly challenged in accommodating the expanding markets it serves. As early as the mid-1980s, the Port Authority recognized that the bridge had become functionally and physically obsolete, as original design features no longer met current standards. In addition, increasing traffic volumes and trucking activity had led to deteriorated traffic conditions and relatively higher accident rates on the bridge. These conditions were also expected to deteriorate in future years. In response, the Port Authority undertook a screening analysis of



potential alternative improvements for all three Staten Island Bridges. In the early 1990s, it completed a review of the alternatives that most promisingly addressed the identified needs.

As a result of these initial studies, the Port Authority proposed the construction of a parallel bridge carrying eastbound traffic and reconfiguring the existing Goethals Bridge to carry westbound traffic on I-278. This solution would enhance carrying capacity to meet future needs and ease operational constraints caused by the design of the existing bridge. This proposal became known as the Staten Island Bridges Program – Modernization and Capacity Enhancement Project. The Port Authority began the necessary studies to gain environmental clearance for the new bridge in late 1993 and issued a final environmental document in 1997. However, due to unresolved issues, the U.S. Coast Guard did not approve the replacement project. Facing continuing traffic service and safety concerns, the Port Authority revisited its approach and began a new environmental clearance process in mid-2004. Its goals were to modernize the bridge, improve customer service, provide additional capacity for transit, and enhance safety and reliability. This process led to the conclusion that building a new, improved replacement bridge would be more cost-effective than rehabilitating and maintaining the older span. The Port Authority released its final environmental document in 2010 and the project gained the necessary approvals from the Coast Guard in January 2011.

The Decision to Pursue as a P3 Project

In 2009 as the initial draft of the second environmental document was nearing completion, the Port Authority began exploring alternative financing and delivery options for the Goethals Bridge Replacement Project. The agency was required to adhere to bond covenants that place caps on the amount of funds it is able to borrow at any given time. Because of other spending needs in the wake of the 2001 terror attacks, the Port Authority did not have adequate funding in its Capital Plan to implement the replacement bridge. In order to add the project to the Capital Plan, construction would have to be deferred until the funding could be assembled, or an alternative approach to the agency's standard debt financing practices would need to be identified. Management was concerned with the ongoing operational issues if the bridge's replacement were deferred for too long. Moreover, a delay in the replacement project could trigger the need for repairs on the existing Goethals Bridge, including the costly possibility of re-decking.

Although neither New York nor New Jersey had P3 enabling legislation in place, the Port Authority's Financial Analysis Group explored the possibility of pursuing an availability payment P3 procurement approach for the replacement bridge. Rather than having a private partner collect the toll revenue from the new bridge, the Port Authority would make monthly availability payments to the private partner. The private developer would leverage the agency's payments to raise the necessary financing for the bridge, leaving the Port Authority with control over the sensitive issue of toll rates.

The Port Authority would be able to pursue a P3 approach for the bridge replacement because it is not bound by the procurement laws of New York State or New Jersey. While it generally follows state law in its normal business dealings, it is not obliged to do so. Financially and legally, the Port Authority's actions must comply with its own bond covenants and the original bi-state Port Compact establishing the mandates and functions of the agency. It had recently pursued alternative design-build-operate-maintain contracts that would not have been allowed under state law on two recent projects at John F. Kennedy International Airport: the AirTrain and the new International Arrivals Terminal. This experience encouraged the agency to consider a P3 approach for the Goethals replacement.

The Port Authority retained financial and legal advisors who confirmed that an availability payment P3 structure would be feasible and would not impact the agency's bond covenants. Given the need to ensure that toll levels on the new bridge would be consistent with the agency's toll policies on its other bi-state crossings, the Port Authority would continue to set toll rates on the replacement bridge and use agency staff to collect

tolls. The private partner would receive milestone payments during the construction period, followed by monthly availability payments throughout the term of the P3 concession. Although the Port Authority’s financial analysis indicated that the cost of the availability payment concession approach would be greater than if the agency financed the bridge using traditional debt sources, the P3 procurement would accelerate the implementation of the project and obviate the need for ongoing repairs to the original Goethals Bridge.

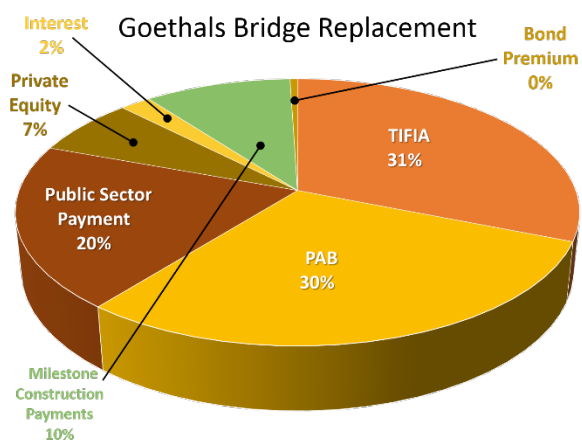
Project Procurement

In May 2010, the Port Authority released a Request for Information from potential investment partners. This exercise gave the Port Authority an important opportunity to gain feedback from potential bidders on the availability payment P3 approach. It also enabled discussion of the challenges of building a bridge with a 135-foot vertical clearance above the Kill Van Kull to accommodate post-Panamax tankers and towers that could not exceed 272 feet in height because they lie in the flight path of Newark Liberty International Airport. An encouraging response to the RFI process led the agency to pursue the P3 DBFM path. The Port Authority issued a Request for Qualifications from potential private investment partners in October 2010 and a formal Request for Proposals to three shortlisted bidders in August 2011.

In April 2013, the Port Authority awarded the P3 contract to NYNJ Link. The limited liability concession company is a partnership of Macquarie Capital, the investment arm of an Australian Bank, and Kiewit, an American construction company. The Port Authority and NYNJ Link signed a concession agreement—a milestone known as “commercial close”—in August 2013, and the firm closed on its financing package in November 2013. Construction of the replacement bridge began in May 2014 and is anticipated to be complete by the end of 2017. The Goethals Bridge Replacement Project will be the Port Authority’s first new bridge in more than 80 years and is the first transportation improvement in the northeastern U.S. to be delivered under a long-term P3 concession.

Project Financing and Implementation

NYNJ Link’s financing sources for the Goethals Bridge Replacement Project include a combination of its own equity, debt and milestone payments from the Port Authority. The company is contributing \$107 million in cash equity at risk and is borrowing a total of \$935 million. This includes a \$474 million loan (plus \$31.6 million in capitalized interest) from a federal credit program called TIFIA, which provides low cost, flexible loans to transportation projects of national and regional significance. It is also raising \$461 million in tax-exempt Private Activity Bonds, or “PABs,” including \$7.6 million in premiums. PABs allow private developers of transportation projects to lower their interest costs by gaining access to the tax-free municipal debt market. Federal approval is required before PABs may be issued. The final component of NYNJ Link’s financing package is \$150 million in milestone payments to be received as work on the project progresses.



Upon opening, the developer will receive monthly availability payments from the Port Authority. These payments will be drawn from the agency’s consolidated revenues and are not tied to the use of the new Goethals Bridge. The Port Authority also expects to incur \$303 million in costs for the project’s planning and engineering, site acquisition, contingencies, and other costs.

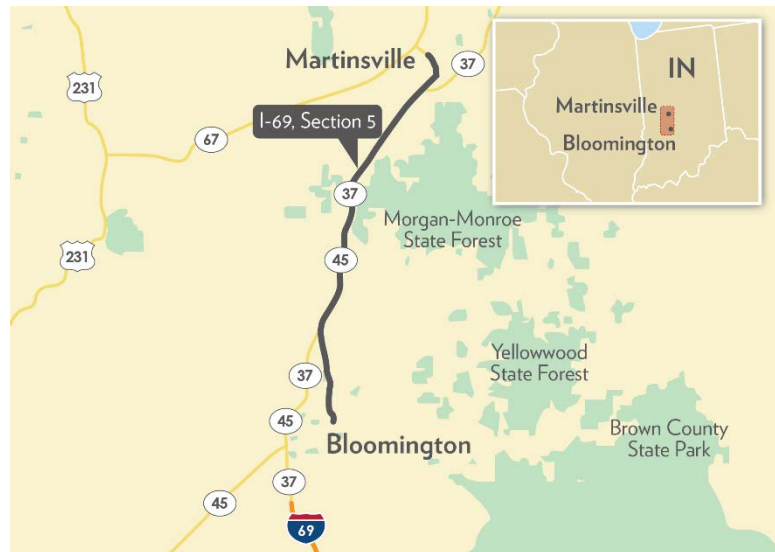


I-69 Section 5

BLOOMINGTON TO MARTINSVILLE, INDIANA

Project Overview

The I-69 Section 5 project will reconstruct and upgrade 21 miles of State Route 37 (an existing four-lane divided highway southwest of Indianapolis) between Bloomington and Martinsville, Indiana to full Interstate highway standards. The \$466 million project includes four new interchanges and four new overpasses, in addition to improvements at existing interchanges and a third travel lane in each direction within urban areas along the corridor.



I-69 Section 5 is one segment of a planned Interstate highway that would extend from Michigan to Texas and facilitate trade and mobility between Canada, the United States, and Mexico. A portion of the I-69 route, from Indianapolis to Port Huron, Michigan, was constructed as part of the original Interstate System, and additional segments of the full route have opened to traffic or are under construction in other states. The project is one of two segments of I-69 yet to be built in Indiana.

The Indiana Finance Authority (IFA) and the Indiana Department of Transportation (INDOT) are developing I-69 Section 5 through a 35-year design-build-finance-operate-maintain public-private partnership (P3) with I-69 Development Partners. The private developer will finance and build the project in return for milestone payments after meeting established construction goals, and annual availability payments based on the quality and performance of the facility throughout the concession period.

Project History

Conceptual plans for improving highway connections from Indianapolis through southwestern Indiana to Evansville have been contemplated since at least the 1940s. Decades later, within the Intermodal Surface Transportation Efficiency Act of 1991 and subsequent federal legislation, Congress designated the route a high-priority corridor as part of a larger plan to extend I-69 from its original terminus in Indianapolis to the Rio Grande in Texas.

For the purposes of evaluating the environmental impacts of construction along the entire U.S. corridor, I-69 was divided into 32 separate segments, each of which could be considered independent projects. The Indianapolis-to-Evansville corridor was one of these 32 segments.

Initially, INDOT evaluated the full Indianapolis-to-Evansville corridor at a high level using what is called a “Tier 1” environmental study. This initial assessment was followed by “Tier 2” studies examining more closely the precise alignment of six sections that comprise the full corridor—each 13 to 29 miles long.



The Tier 1 environmental study began in January 2000 and received final approval from the Federal Highway Administration (FHWA) in March 2004. The study considered five corridors of 140 to 160 miles in length, encompassing 12 route alternatives in total. The subsequent Tier 2 environmental study for Section 5 began immediately after the Tier 1 approval in April 2004. More than eight years passed before a draft environmental study was completed.

By 2012, the first three sections of the new route, beginning in Evansville and extending north 67 miles, had been completed, and a fourth, 27-mile section continuing to Bloomington had begun construction. (It later opened in December 2015.) INDOT delivered Sections 1 through 4 using a combination of the traditional design-bid-build procurement model, where separate firms design and construct the facility, and the design-build model, where the same firm performs design and construction services. Neither model incorporates private participation in the project's financing or long-term operations and maintenance.

The Decision to Pursue as a P3 Project

While conducting the Tier 2 studies, INDOT explored various options to finance and construct I-69. In 2006, the state enacted legislation creating a statewide program of highway improvements called Major Moves. The state funded the program with revenue received from leasing the Indiana Toll Road (I-90) to a private entity. One of the priorities of the Major Moves program was the extension of I-69 from Indianapolis to Evansville. For a short time, Indiana's governor proposed that I-69 between Evansville and Martinsville (Sections 1–5) be developed as a (potentially private) toll road, as authorized in the Major Moves legislation. This idea was dropped by the end of 2006 due to significant local opposition along the route. The Governor also advocated for a privately constructed toll road called the Indiana Commerce Connector to allow trucks to bypass downtown Indianapolis. His proposal for that project suggested toll revenues could help pay for I-69 between Indianapolis and Martinsville (Section 6), but this plan also attracted substantial opposition and was abandoned in 2007.

Ultimately, Sections 1 through 3 were constructed between 2008 and 2012 using a combination of funds from the Major Moves program and traditional funding (primarily taxes on motor vehicle fuels). Section 4, which began construction in early 2012, also relied upon these funding sources. INDOT initially assumed the same funding approach would be used to pay for Section 5—estimated at the time to cost between \$350 and \$500 million—using a traditional design-bid-build procurement. However, with the state under budgetary stress from the economic downturn and I-69 Sections 1-4 consuming a significant portion of INDOT's available funding, it became clear by 2011 that the anticipated funding sources would be insufficient to build Section 5.

At the same time, legislation enacted in 2011 strengthened INDOT's ability to enter into private agreements to finance and build highway projects. The change in the law removed a requirement for the state legislature to approve P3 projects on an individual basis. Instead, they would only require the Governor's approval, while maintaining a role for legislative review. The impetus behind this change was to reduce the amount of time and uncertainty involved in gaining governmental approvals for P3 projects, which would in turn attract greater interest in projects in the state from would-be private investment partners. However, the legislation did not apply to I-69 until further changes were enacted in 2013. This was due to significant opposition to I-69 in the Bloomington region, which peaked during 2010–2012. As a result, P3 authorization requirements for I-69 were unchanged initially, but by 2012 the state legislature approved INDOT's active pursuit of a P3 strategy for Section 5.

Two months after the release of the draft Tier 2 environmental study for Section 5, INDOT issued a Request for Information (RFI) in December 2012 to gain industry feedback on the potential for developing this segment on a P3 basis. With access to private sector financing essential, INDOT contemplated two alternative models to build the project.

The first model called design-build-finance allows a private entity to design and construct a facility using its own funds (equity) and/or its own financing (at least for a portion of the project's cost) and receive reimbursement from the public agency sponsor at a later date, which is often tied to successful delivery of the project. The other model, a full design-build-finance-operate-maintain concession, also includes responsibility for the long-term operation and maintenance of the facility once completed. If using the full concession option for Section 5, INDOT would compensate the private partner with annual availability payments for a set number of years based on the satisfactory performance and upkeep of the roadway.

Using the RFI, INDOT sought comments from responding firms on the technical and financial feasibility of the two procurement options. Following the responses received, IFA and INDOT made the decision in early 2013 to use the design-build-finance-operate-maintain P3 model to procure I-69 Section 5. The rationale for INDOT and IFA selecting this method included the ability to share project risks with the private partner (such as on-time completion), the ability to encourage innovative design approaches to meet operational performance standards, and the budget certainty of making fixed availability payments for guaranteed facility upkeep.

As determined previously, the project would not involve tolling but instead leverage INDOT's annual funding appropriations to attract low-cost private sector finance. The successful completion of a similar availability payment concession agreement to construct the East End Crossing in Southern Indiana near Louisville, Kentucky provided further impetus for selecting this P3 model.

Project Procurement

With the P3 project approach determined, IFA and INDOT began the process of procuring the project. They issued a Request for Qualifications in May 2013 to identify the most qualified private firms to invite to submit detailed proposals. IFA and INDOT also held an industry forum that month to promote the project and provide further project details to private entities interested in participating. In July 2013, the agencies announced a shortlist of four private teams out of five that had responded. The following month, FHWA issued its final environmental approval for the project. The four teams received a draft Request for Proposals shortly after their selection and a final version in October.

Prior to announcing its selection of a preferred bidder, the state released a preliminary financial plan based on current cost estimates and schedule. It estimated the cost of the project at \$407 million in year-of-expenditure dollars. This cost included final design, purchase of right-of-way, construction, and other related expenses. The estimate also accounted for project development costs incurred to date including environmental analysis and preliminary design, but it did not include ongoing operations and maintenance costs. The financial plan would be updated later to account for the selected private partner's financing approach and anticipated operations and maintenance costs.

IFA assumed that the private partner would likely use private activity bonds (PABs) to help finance the project. PABs allow a private entity to gain access to the tax-free municipal debt market and require federal approval for their use. IFA had received approval for up to \$400 million in PABs for the project. To compensate the private entity for its work during construction, the state would use a combination of state and federal funds to make "milestone payments" based on the completion of certain construction targets. It would also use these funds, approved through the state's annual appropriation process, to make ongoing availability payments to the private entity during the operations phase.

In February 2014, IFA selected I-69 Development Partners as the state's preferred bidder. The team is led by Isolux Infrastructure Netherlands B.V., an investment subsidiary of the Spanish firm Isolux Corsán that specializes in transportation and energy infrastructure. I-69 is the firm's first U.S. highway project. IFA and INDOT selected the team based on a high technical score and lowest cost.

The execution of the P3 concession agreement between the state and I-69 Development Partners, known as commercial close, occurred in April 2014. IFA sold \$244 million in PABs on behalf of the private entity in July, completing the project's financing.

Project Financing and Implementation

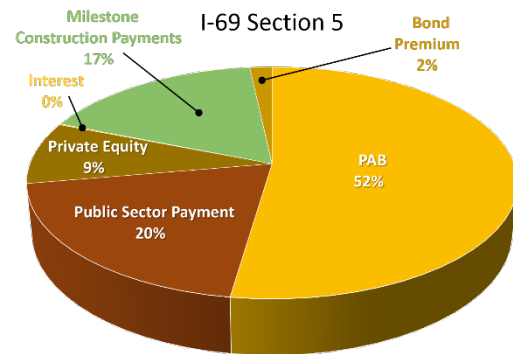
The total project capital cost for I-69 Section 5 in year-of-expenditure dollars is \$466 million. I-69 Development Partners' financed share is about \$373 million. The balance is costs for design, right-of-way acquisition, utility relocation, environmental mitigation, and program administration borne by INDOT.

I-69 Development Partners' financing sources include \$243.8 million in PABs (plus an additional \$8 million in bond sale premiums), \$0.7 million in interest income, and \$40.5 million in private equity.

The private funding is being provided by Isolux Infrastructure's major shareholders: Isolux Corsán and the Public Sector Pension Investment Board, a Canadian Crown corporation that provides pension plans for the Public Service of Canada, the Canadian Forces, the Royal Canadian Mounted Police, and the Reserve Force. This Canadian participation represents the first international public pension fund to make a direct investment in a U.S. P3 project.

The private team will also receive four milestone payments totaling \$80 million from INDOT as construction on the project progresses. The state is funding its milestone payments from a mixture of state and federal sources. Ultimately, almost no Major Moves funding is being used on the project. After the project is complete, the state will make annual availability payments of \$21.9 million (adjusted each year for inflation) to I-69 Development Partners throughout the 35-year operation and maintenance period. The availability payments are subject to appropriation by the state legislature but do not require any separate legislative approvals.

Construction began in late 2014, and the project is expected to be fully open to traffic in October 2017.



I-4 Ultimate

ORLANDO, FLORIDA

Project Overview

The \$2.9 billion I-4 Ultimate project will reconstruct and widen 21 miles of I-4 running through metropolitan Orlando, Florida. The project extends from Kirkman Road in Orange County to the south through downtown Orlando to State Road 434 in Seminole County. The existing highway lanes will be fully reconstructed and four new express lanes will be added in the median. Motorists who choose to use the express lanes will be required to pay a toll that will vary depending on the amount of traffic in order to maintain speeds



of at least 50 miles per hour during peak travel periods. Access to the express lanes will be provided from five crossover zones and by direct connector ramps at major interchanges. The project will also include the reconstruction of 15 major interchanges, the construction of 53 new bridges, and the widening or reconstruction of 87 existing bridges. The I-4 Ultimate will also feature numerous aesthetic elements, including a signature pedestrian bridge, accent lighting, fountains, and sculptures.

Project History

The eight-mile segment of I-4 that runs through downtown Orlando opened to traffic in 1965 and accommodated 70,000 vehicles per day. Since that time the Orlando region has grown exponentially, and the highway has been expanded to provide three to four lanes in each direction.

The I-4 Ultimate project is the outcome of several earlier planning studies. In 1989, the Florida Department of Transportation (FDOT) completed a Master Plan for I-4 that called for widening the existing roadway by up to eight lanes per direction and adding a transit line in the median by 2010. Planning in the corridor continued in the mid-1990s with a multi-modal master plan for a longer 73-mile section of the I-4 corridor which also included a Major Investment Study (MIS) assessing nine improvement options. In 1995, the local metropolitan planning organization, known as MetroPlan Orlando, adopted the recommendations made for the corridor in the MIS into its financially constrained long-range transportation plan.

FDOT continued the corridor development process by undertaking three closely coordinated environmental approval and engineering studies for the I-4 highway improvements and an environmental evaluation of the light rail transit line. The engineering study with the same limits as the I-4 Ultimate project recommended widening the highway to accommodate six general purpose lanes and two high occupancy vehicle (HOV) lanes in each direction, together with a 44-foot rail corridor in the median of the highway. This configuration gained environmental approval from the Federal Highway Administration (FHWA) in 2005.



At the same time, FDOT was completing similar studies for a project that would reconstruct and add high occupancy toll (HOT) lanes—also called express lanes—to I-595 in Fort Lauderdale. Vehicles with two or more passengers could use the HOT lanes at no cost, but single occupant vehicles would be required to pay a toll to use the lanes. The toll rate would vary based on congestion levels in the non-tolled lanes. In light of the high cost of the I-4 improvements and the desire to maximize transportation benefits, FDOT began exploring the possibility of operating the proposed HOV lanes on I-4 as HOT lanes. Later in 2005, it began a re-evaluation of its design studies to assess the effects of this change, and in September 2007, MetroPlan Orlando modified its long-range transportation plan to include HOT lanes on I-4. However, the use of tolls on I-4 remained uncertain, as a member of the Florida delegation in the U.S. House of Representatives had amended newly passed federal transportation legislation to explicitly prohibit the use of tolls on I-4 in the state.

Meanwhile, FDOT continued to purchase land that would be needed to implement the project and local elected officials voiced their support for the HOT lanes. In 2011, FDOT gained the required permits for the project and also announced that the state's transportation program would rely heavily on the use of tolling and public-private partnerships (P3s) in the future, due to insufficient levels of traditional transportation revenues to meet investment needs. In March 2012 traffic and revenue forecasts for the tolled lanes were completed and FDOT began a feasibility study for proceeding with the project on a tolled basis. At the same time, the U.S. Congress was also advancing new federal transportation legislation called Moving Ahead for Progress in the 21st Century (MAP-21), and when it passed in July 2012, the ban on tolling the new lanes on I-4 was removed because the legislation made tolling for the construction of new Interstate Highways and tolling new lanes eligible under federal transportation law.

The Decision to Pursue as a P3 Project

In 2004, the Florida legislature modified state law to allow FDOT to procure transportation projects on a P3 basis. This project delivery method permits a private partner to finance, design, construct, operate, and maintain a project on a long-term basis—taking on greater responsibility compared to conventional project delivery methods. FDOT used this approach in 2009 to deliver both the Port of Miami Tunnel and the I-595 reconstruction project in Fort Lauderdale. Local contractors had encouraged FDOT to consider using this approach for both of those large project, and FDOT was open to replicating this process in Orlando given the similarities with the I-4 Ultimate project.

Using traditional pay-as-you-go funding, FDOT estimated that it would take 27 years to complete the I-4 Ultimate, as it would need to break the project into smaller contracts that would be awarded as funding became available in future budget cycles. However, pursuing a P3 approach would allow FDOT to design and construct the project in less than seven years. The private partner would raise upfront financing based on milestone payments during construction, final acceptance payments following construction, and periodic payments from the state based on roadway performance and upkeep called availability payments. A P3 procurement would also allow FDOT to benefit from private sector design innovations, which was particularly attractive given the complexity of the I-4 Ultimate project.

While it appeared that the project could generate a significant amount of toll revenue, traffic and revenue studies found that they could only cover approximately half the project's cost. However, FDOT could make up part of this revenue shortfall because I-4 was part of the state's Strategic Intermodal System program, making it eligible for funding from certain taxes collected when properties are sold in the state. These taxes are a significant source of public revenue in Florida, which has no state income tax. The milestone, final acceptance, and availability payments are not tied directly to the amount of toll revenue collections.

Under Florida's P3 law, P3 procurements must be approved by the Governor, followed by a 14-day period of consultation with the state legislature. With the federal ban on tolling I-4 lifted in mid-2012, Governor

Rick Scott approved the use of a P3 procurement in February 2013. The state legislature concurred with his decision shortly thereafter, clearing the way for FDOT to launch the procurement process.

Project Procurement

FDOT kicked off the procurement of the I-4 Ultimate project in March 2013 by hosting an Industry Forum to introduce the private sector to the project and solicit their recommendations on the terms of the procurement. The event was attended by over 1,000 people from highly qualified firms.

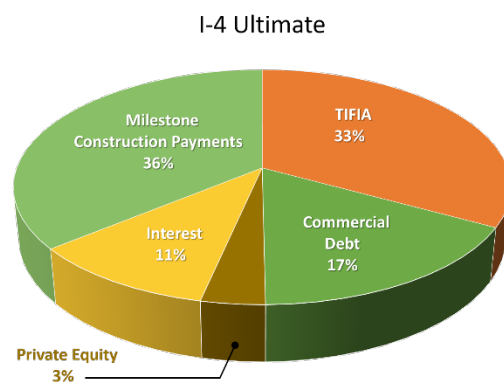
Shortly thereafter, FDOT issued a Request for Qualifications to identify firms that would be qualified to bid on the project. FDOT received submittals from seven teams in April 2013, and in June 2013 announced a list of four firms that would be invited to submit proposals for the project. FDOT then conducted four rounds of meetings with each of the bidders and used their input to enhance the procurement documents it was preparing with the help of a team of advisers. As a result of this process, FDOT modified its request for proposals to allow the bidders to identify technical enhancements to FDOT’s design.

FDOT received separate technical and financial proposals from the bidders in early 2014. Then on April 23, 2014, it selected I-4 Mobility Partners OpCo. LLC (I-4 Mobility Partners) as the preferred bidder based on achieving the best score based on a combination of technical and financial criteria. Although it scored a close second technically, its financial proposal was superior to the other bidders and undercut the availability payment price cap set by FDOT. Through the project technical enhancements process, I-4 Mobility Partners also expanded the scope of the project to include an additional set of direct connector ramps, additional auxiliary lanes, and a pedestrian bridge, adding further value to the project bid.

The I-4 Mobility Partners concession company is owned by the Swedish contractor Skanska Infrastructure Development Inc. and John Laing Investments Limited, a British investment firm and infrastructure operator. FDOT executed a 40-year P3 concession agreement with I-4 Mobility Partners on September 4, 2014.

Project Financing and Implementation

With a total capital cost of \$2.877 billion, the I-4 Ultimate project is one of the largest and most expensive highway improvements to be built in Florida. I-4 Mobility Partners is financing the project using a variety of sources. The largest is a \$949 million direct loan from a federal credit program known as the Transportation Infrastructure Finance and Innovation Act, or “TIFIA.” The loan is being made in two parts. The first is a \$127 million short-term loan that will be repaid upon project completion and receipt of final acceptance payments from FDOT by 2021. The remaining \$822 million will be repaid from future availability payments by 2052. TIFIA provides low cost, flexible credit assistance to transportation projects of national and regional significance. In the case I-4 Ultimate, TIFIA’s low interest rate saved the project nearly \$69 million (in 2014 dollars) compared to I-4 Mobility Partners’ original financial proposal. I-4 Mobility Partners has also borrowed \$484 million from commercial banks, has invested \$103 million of its own at-risk equity in the project, and will net \$306 million in capitalized interest.



I-4 Mobility Partners reached financial close on the same day it signed its concession agreement with FDOT, just four-and-a-half months after being awarded the I-4 Ultimate procurement. In addition to its financing,



the I-4 Mobility Partners will receive a total of \$1,035 million in milestone payments during the 2015 to 2019 construction period, as well as additional final acceptance payments from FDOT totaling \$688 million in 2020 and 2021. The company will also receive annual availability payments during the operation and maintenance period. FDOT will retain ownership of the I-4 throughout the concession period, set the toll rates, and manage the toll collection.

FDOT is funding 57 percent of its construction and availability payment costs from toll revenue on the I-4 Express lanes and an additional 20 percent from the Strategic Intermodal System program. It is using a variety of additional regional, state, and federal revenue sources to cover the remaining 23 percent of the project cost. FDOT will set toll rates on the I-4 Express Lanes and the tolls will be collected by Florida's Turnpike Enterprise, which is also procuring the toll collection equipment.

I-4 Mobility Partners broke ground on the I-4 Ultimate project in February 2015 and expects construction to be completed in 2021.

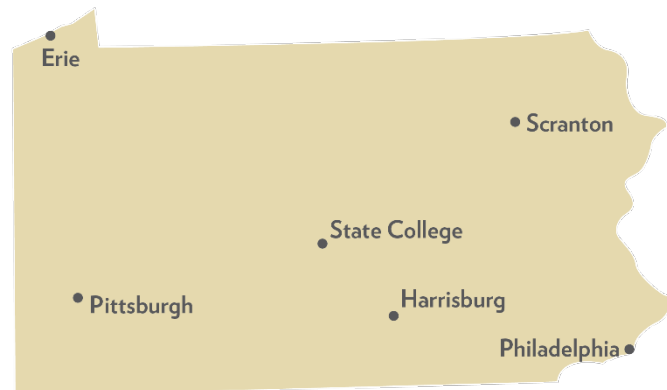


Pennsylvania Rapid Bridge Replacement Project

PENNSYLVANIA STATEWIDE

Project Overview

The Pennsylvania Rapid Bridge Replacement Project is an availability payment-based public-private partnership (P3) that will replace 558 structurally deficient bridges in three years. The Pennsylvania Department of Transportation (PennDOT) entered into a P3 agreement with Plenary Walsh Keystone Partners to design and construct the bridges and then maintain them for 25 years. The bridges are smaller spans on local streets in rural areas across the state.



With 25,000 state owned bridges, Pennsylvania has the third-largest number of bridges of any state in the nation and the unwanted distinction of having the largest number of structurally deficient bridges of any state. The average bridge owned by PennDOT is over 50 years old, and there are currently weight restrictions limiting heavier vehicles from driving on roughly 1,000 bridges in the Commonwealth. These restrictions inconvenience local communities and inhibit economic development. With approximately 250 to 300 additional bridges being designated structurally deficient annually, the overall number of deficient bridges has been increasing, making bridge replacement one of PennDOT's most pressing needs.

The purpose of the Rapid Bridge Replacement Project is to accelerate the replacement of structurally deficient bridges with robust, high-quality new structures that will be well maintained and have longer lifespans. By bundling the replacement of over 500 bridges in a single P3 procurement, PennDOT hopes to create efficiencies through economies of scale and then apply asset management best practices throughout the concession period. The bridges have been designed to minimize environmental impacts and public inconvenience during construction.

The project includes 87 so-called "Early Completion Bridges." In order to expedite construction on these bridges, PennDOT is responsible for gaining necessary environmental approvals, acquiring right-of-way, and completing utility relocations. The remaining 471 bridges included in the project are designated as "Remaining Eligible Bridges." The private partner is responsible for gaining environmental approvals and making utility relocations for these crossings. However, PennDOT retains responsibility for any necessary right-of-way acquisition for the Remaining Eligible Bridges.

Project History

In the past, various PennDOT district offices have been responsible for repairing or replacing structurally deficient bridges. Although the department has experimented with bundling small numbers of bridges together in single contracts, this work is usually done one bridge at a time. The Pennsylvania Rapid Bridge Replacement Project had no history until the decision was made to pursue the bundling of a large number of bridges into a single contract to be procured on a P3 basis.



The Decision to Pursue as a P3 Project

The increasingly pressing need to address the Commonwealth's structurally deficient bridges was the primary driver behind the Rapid Bridge Replacement Project, but there were other important factors that led PennDOT to pursue a bundled P3 approach. One of these was the Missouri Safe and Sound Bridge Improvement Program, which was the first major bundled bridge replacement program in the U.S. It was advanced in the mid-2000s and also involved smaller rural bridges around the state. The Safe and Sound program was initially conceived as a design-build-finance-maintain P3 endeavor, where a single private entity would be responsible for all of these functions. However, due to high financing costs during the onset of the 2008 financial crisis, the program was ultimately advanced as a single design-build and multiple design-bid-build procurements. The project replaced 554 bridges under a \$487 million design-build contract in three and a half years. Another 248 bridges were rehabilitated using design-bid-build contracts.

Officials with PennDOT held discussions with Missouri DOT to learn more about the project and explore whether a similar approach could be used in Pennsylvania. In the early 2010s, two important pieces of legislation passed in Pennsylvania that were integral to the Rapid Bridge Replacement Project. The first of these was Act 88 of 2012, which provided authorization to undertake projects involving new or existing transportation facilities as P3s. It allowed P3 agreements to extend for as long as 99 years and required that all P3 projects be approved by a newly created State P3 Board before PennDOT could initiate a procurement.

In 2013, the state legislature passed Act 89, which provided important new transportation funding by eliminating Pennsylvania's motor fuels tax at the pump and replacing it with increases on the fuel tax at the wholesale level. Together with increases in vehicle registration and license fees, Act 89 would raise \$2.3 billion annually by 2017.

Once these two pieces of legislation were in place, PennDOT moved quickly to advance the Rapid Bridge Replacement Project. Over 70 percent of the revenue from Act 89 was dedicated to highways and bridges, and PennDOT opted to use a portion of those funds to fund availability payments to a private contractor who would rebuild and maintain a set of bridges. The Department pursued the availability payment structure because charging tolls on the replacement bridges would have been infeasible. Under this approach, the Department would make annual payments to a private developer over a 25-year concession period. The developer would assume the risks and responsibilities related to delivery of the project on time and within budget, and related to maintaining the bridges according to the standards set forth in the contract. If the private partner does not perform according to the contract standards, then PennDOT's availability payments to the private partner would be reduced accordingly.

In order to identify the structures that would be included in the project, PennDOT screened over 2,000 structurally deficient bridges around the state, ultimately selecting 558 bridges to be included in the project. Based on the projected revenues from Act 89, the Department had an idea of the amount of funding it could dedicate to the project and selected the number of bridges accordingly. The bridges are generally smaller crossings. Most have two lanes and one or two spans, and range from 40 to 75 feet in length. The bridges are similar in design and are largely in rural areas, with limited impacts on utilities or railroads and few significant environmental issues. This approach would enable PennDOT's private partner to use a small number of standard designs for the replacement bridges with limited concern for complications from environmental approvals.

Project Procurement

Act 88 prescribed the actual steps that PennDOT followed in the procurement of the Rapid Bridge Replacement Project. PennDOT maintained an aggressive schedule for the procurement, moving from a request for qualifications to an intent to award in just ten months, which is extremely quick for a P3 project



of this scale and complexity. PennDOT issued a request for qualifications from potential bidders on December 12, 2013 and received responses from five groups on January 31, 2014. PennDOT shortlisted four proposers on March 26 and issued a draft request for proposals (RFP) within ten days on April 4, 2014.

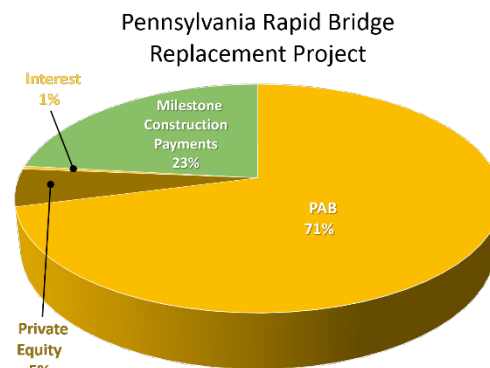
The proposers were asked to review the document and prepare questions and comments. PennDOT then held separate discussions with each of the proposers and used their input to prepare several drafts and ultimately issue a final RFP on August 12, 2014. This consultation process enabled PennDOT to understand the private sector’s concerns and structure the procurement to address these issues and create as competitive an environment as possible.

Bidders submitted their proposals to PennDOT on September 29, 2014. PennDOT ranked the proposals giving a 90 percent weighting to cost and the remaining ten percent to the following technical evaluation criteria: financial capacity to carry out the project; background and experience in managing comparable projects; and project understanding.

On October 24, 2014, PennDOT announced Plenary Walsh Keystone Partners as its preferred proposer. The company is a partnership of Plenary Group USA Ltd. (a Denver-based public infrastructure developer) and Walsh Investors, LLC (the investment arm of a large Illinois-based construction firm). On January 8, 2015 PennDOT and Plenary Walsh Keystone Partners signed a formal Project Partnership Agreement, a milestone known as commercial close.

Project Financing and Implementation

Plenary Walsh Keystone Partners is financing the \$1.117 billion project development costs with a combination of its own equity, milestone and availability payments from PennDOT, and tax-exempt private activity bonds, or PABs. At \$793 million (including \$71.9 million in sale premium), the PABs are the largest single source of funding, covering 71 percent of project costs. Plenary Walsh will use the availability payments it receives from PennDOT to repay the PABs. The PABs were issued by the Pennsylvania Economic Development Finance Authority on Plenary Walsh’s behalf. The PABs enable the developer to tap into the municipal debt market and its competitive interest rates. PennDOT applied to USDOT to receive a PAB allocation prior to issuing its RFP for the Rapid Bridge Replacement Project.



PennDOT will also make milestone payments to Plenary Walsh Keystone Partners totaling \$260 million during the three-year construction period. This represents 23 percent of the project funding. The remaining funding consists of \$59 million in equity contributions from Plenary Walsh Keystone Partners, roughly five percent of project funding, and an additional \$5 million in interest.

In order to avoid overburdening its district offices and to ensure consistency in the way the program is overseen, PennDOT is coordinating the management of the Rapid Bridge Replacement Project from its headquarters in Harrisburg. It is relying on consultants for much of the day-to-day administration of the project and has consultant teams in place for project management, design review, and right-of-way acquisition. PennDOT’s intent is to manage the project in a manner that avoids creating delays for its other programs and activities.



Southern Ohio Veterans Memorial Highway

PORTSMOUTH TO LUCASVILLE, OHIO

Project Overview

The Southern Ohio Veterans Memorial Highway (State Route 823) will be a new four-lane, limited-access divided highway around the City of Portsmouth in Scioto County, Ohio, approximately 90 miles south of Columbus. The southern limit of the roadway begins at US 52 just east of Portsmouth and curves north and west to US 23 in Lucasville. The 16-mile roadway includes 5 new interchanges, 19 bridges, and 16 ramps.

The new highway is part of the Appalachian Development Highway System, a 3,090-mile network extending from Mississippi to New York, designated by the federal government in 1965. In 2014, 89 percent of the network was complete or under construction. The purpose of the highway system has been to promote economic development in traditionally isolated and underserved areas of the Appalachian Region. These roads are intended to supplement the Interstate system, which does not serve the region well due to geographic constraints, and provide residents with access to greater economic opportunities.

The project is intended to improve travel, regional mobility, and safety by providing a route that bypasses approximately 26 miles of US 52 and US 23 through Portsmouth. Poor roadway alignments and congestion on the US 53 and US 23 route have contributed to widespread safety problems and above-average accident rates. With the bypass, numerous traffic signals, intersections and driveways will be avoided—relieving congestion and safety concerns. Traveling the new route will save an estimated 16 minutes per trip and offer opportunities for economic development and better access to employment sites. This will be particularly helpful in a region where unemployment is 50 percent higher than the rest of Ohio.

The Ohio Department of Transportation (ODOT) is delivering the Southern Ohio Veterans Memorial Highway as a 39-year design-build-finance-operate-maintain public-private partnership (P3) with Portsmouth Gateway Group. The private developer will finance and build the project in return for milestone payments after meeting established construction goals and annual availability payments based on the quality and performance of the facility throughout the concession period.

Project History

The concept of a bypass around Portsmouth was first suggested in 1964 and incorporated into the original iteration of the Appalachian Development Highway System in 1965. However, the State of Ohio did not seriously contemplate building the roadway until it conducted the Portsmouth Transportation Study between 1999 and 2001. The study recommended a new 16-mile highway known as the “Airport Bypass” concept.



ODOT continued to revise the proposed route and configuration of the roadway recommended by the Portsmouth Transportation Study. ODOT developed a number of alternatives for consideration as part of an environmental impact analysis started in late 2001. Ultimately, a preferred alternative emerged and the Federal Highway Administration (FHWA) granted its final environmental approval in June 2006. At this time, ODOT assumed the project, now known as the Portsmouth Bypass, would be built in three phases, subject to funding availability. Following the environmental approval, ODOT began purchasing the land it would need to accommodate the alignment of the new highway, and in the summer of 2008 it completed preliminary design for the project.

Over the next several years, the project underwent detailed design and value engineering, a process that looks for ways to reduce costs and increase its construction feasibility. ODOT also continued to acquire properties necessary to build the road. By 2010, ODOT had identified available state funding for the first phase of the project (a three-mile section in the middle of the full 16-mile stretch) and right-of-way acquisition for all three phases. Construction on phase 1 was assumed to start in 2012, and the project was not expected to be completed until 2022 or 2024. ODOT and FHWA conducted a thorough analysis of the project's cost in March 2011 and concluded that the project's price tag would be about \$550 million.

The Decision to Pursue as a P3 Project

The 13-year, three-phase plan to build the Portsmouth Bypass assumed a traditional design-bid-build project delivery. This method uses separate firms to design and construct the facility. Responsibility for financing the roadway and operating and maintaining it once complete would remain with the sponsoring public agency, in this case ODOT.

As ODOT was preparing for the construction of phase 1, Ohio enacted new legislation in 2011 permitting the use of P3s in the state. Newly-elected Governor John Kasich supported greater collaboration with the private sector to capitalize on their resources and innovation in delivering new transportation infrastructure, especially in light of the constraints on the state's budgets. In 2012, a new Division of Innovative Delivery was formed within ODOT to identify, develop, and manage projects that would benefit from a P3 approach.

With the new authority to pursue P3s, ODOT reevaluated its portfolio of capital construction projects to identify those that would benefit from the P3 approach. Its goals in using a P3 were to reduce costs and achieve resource efficiencies with faster project completion timeframes when compared with traditional delivery methods. ODOT identified the Portsmouth Bypass project as a promising candidate and conducted a value for money (VfM) analysis in late 2012. This type of analysis generally compares two or more methods of project procurement to determine which one offers the best "value" to the state.

ODOT's analysis identified a number of reasons that a P3 option would present a better value to the state than the traditional approach. ODOT would have greater certainty over the project's price, schedule, and operations and maintenance standards since the risks associated with these major project components would shift to the private partner. ODOT also determined that the project could be completed eight years sooner than a state-led effort, and in a single phase. The P3 approach would also engender competition and a favorable bidding environment. This was advantageous when undertaking a project in a part of the state with historically limited competition among construction firms, especially for paving contractors. Contractually, fewer "interfaces" between project participants would also reduce the possibility for disputes.

In addition, the P3 option would require less initial funding from ODOT because of the private partner's upfront financing, freeing up budget capacity for other projects in ODOT's work program. A private partner's financing package likely would capitalize on a federal loan program called TIFIA, which provides credit assistance to projects of regional or national significance. TIFIA could lend the project money at a low interest rate not otherwise available from other debt financing options. The loan program requires a dedicated revenue

source for repayment, which in this case would be availability payments from ODOT. Availability payments are annual payments made to a private developer for the satisfactory management and upkeep of the facility and can be adjusted downward if certain performance targets are not met. Overall, ODOT's analysis estimated that the P3 option would require 50 percent less public funding during the originally estimated 13-year construction period.

Overall, ODOT concluded that there were a number of compelling reasons to advance the Portsmouth Bypass as an opportunity to gain experience with P3s, and by early 2013, decided to pursue the design-build-finance-operate-maintain approach to deliver the project.

Project Procurement

ODOT began its procurement process for the Portsmouth Bypass by hosting an industry forum in April 2013 at which it presented project details and its goals for working with a private partner. ODOT gauged interest among potential project bidders and sought feedback on its proposed approach, including the duration of the operations and maintenance period and an appropriate delineation between ODOT's and the private partner's respective responsibilities. ODOT also sought input on whether the P3 agreement should include the operations and maintenance of the new highway only or all, or a portion of, the State and US highway network in Scioto County as well.

In June 2013, ODOT released a Request for Qualifications to identify the strongest private firms to invite to submit detailed proposals. By this time, ODOT had made the decision to exclude the operations and maintenance of additional highways in Scioto County from the private developer's role. ODOT shortlisted three out of four responding private consortia in September 2013 and provided each with a draft Request for Proposals (RFP) for their review and comment. This was followed by one-on-one meetings between ODOT and the bidders in February and April 2014 to discuss any identified issues and comments. ODOT then issued a final RFP in April, held another round of one-on-one meetings, and received technical proposals from the three teams in August 2014. Bidders submitted their financial proposals the following month.

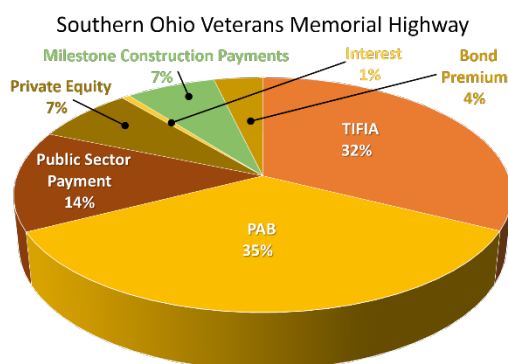
ODOT formally announced the project award to Portsmouth Gateway Group in October 2014. The team is composed of three equity partners: ACS Infrastructure Development, an American subsidiary of a large Spanish construction firm; InfraRed Capital Partners, a British infrastructure and real estate investment firm formerly part of the banking giant HSBC; and Star America Infrastructure Partners, an American investment firm practicing in the transportation and environment sectors. Portsmouth Gateway Group's proposal had the lowest maximum availability payment (\$25.9 million) among the bidders, although all three bids were within about one percent of each other. The availability payment bids came in about 20 percent below ODOT's estimate. In addition, the private partner's bid for project design and construction (\$429.7 million) was more than 10 percent below ODOT's 2013 cost estimate.

The execution of the P3 concession agreement between the state and Portsmouth Gateway Group, known as commercial close, occurred in December 2014. The private consortium then secured financing at the end of March 2015. That month, the Portsmouth Bypass was officially renamed the Southern Ohio Veterans Memorial Highway by the State Legislature.

Project Financing and Implementation

The total cost of delivering the project borne by Portsmouth Gateway Group is \$556.8 million. This includes the cost of design and construction, as well as financing and other project development costs. Additional preconstruction costs, including environmental analysis, preliminary engineering, and right-of-way acquisition paid for by ODOT total approximately \$89.5 million.

Portsmouth Gateway Group has financed the project by combining a \$209.3 million TIFIA loan and \$251.2 million in private activity bonds (including the sale premium above the bonds' face value). Private activity bonds allow a private entity to gain access to the tax-free municipal debt market and require federal approval for their use. ODOT had obtained this approval in November 2013, anticipating that they might be a necessary component of a private partner's financing package. The TIFIA loan was especially critical to the project's financial viability, as it carried a 1.27 percent interest rate. This rate was 50 percent less than rates for other TIFIA loans at the time because the project qualified for a special rural designation created by Congress in federal transportation legislation enacted in 2012. Portsmouth Gateway Group has also invested \$48.9 million of its own capital in the project and will apply about \$4 million in earned interest.



At the time the procurement started, ODOT had reserved approximately \$120 million in federal funds—anticipating it would build the project traditionally in phases—including \$97 million in Appalachian Development Highway System funds dedicated to roads on that network. Once the P3 approach was selected, ODOT used these funds to cover its own costs for right-of-way acquisition and three milestone payments during construction. ODOT will make the milestone payments totaling \$44 million when the project is 70 percent, 80 percent, and substantially complete. These payments will repay a portion of the private partner's upfront capital costs.

Availability payments begin after substantial completion and are made monthly with potential deductions if the developer does not meet certain performance expectations. FHWA policy permits state DOTs to apply their Federal-aid funds to availability payments. ODOT will use traditional funding from federal and state taxes on motor vehicle fuels to cover the cost of the availability payments. The private partner will use the availability payments to repay its debt and cover operations and maintenance costs. ODOT will retain some operations responsibilities including snow removal, incident response and maintenance of equipment that provides information on weather conditions on the facility.

ODOT's P3 policy prioritizes the availability payments ahead of other ODOT financial obligations. This policy lends assurance to the private partner that its compensation will not be impacted by state financial or political changes over time. The policy also ensures that the funds (debt service) required to pay the capital portion of the availability payments do not exceed 20 percent of state and federal funds available to ODOT for highways.

Construction on the project began in June 2015 and is expected to be substantially complete by the end of 2018, at which point the 35-year operations and maintenance period will start.

Ohio River Bridges – East End Crossing

LOUISVILLE, KENTUCKY/INDIANA

Project Overview

The \$1.32 billion East End Crossing project provides a new highway connection between Clark County, Indiana and Jefferson County, Kentucky, completing the I-265/KY-841/IN-265 circumferential freeway corridor in the eastern suburbs of Louisville. The project consists of a new toll bridge over the Ohio River and approaches on both sides, including a 3.3-mile extension of I-265 on the Kentucky side (featuring a 1,700-foot tunnel under a historic property) and a 4.1-mile extension of I-265/SR 265 on the Indiana side. The project also includes a 13-foot-wide pedestrian and bicycle path.



The East End Crossing is part of the larger \$2.75 billion Ohio River Bridges project to augment highway capacity between Louisville and Southern Indiana. The Downtown Crossing portion of the project rehabilitates and adds a new span to the existing I-65 Kennedy Bridge in central Louisville, and reconstructs the Kennedy Interchange between I-65, I-64, and I-71 just south of the bridge. While each of the two projects includes road work in both states, Indiana is responsible for the entire East End Crossing project, while Kentucky is implementing the Downtown Crossing project.

Project History

Vehicular traffic across the Ohio River between Louisville and Southern Indiana had been served by the Clark (US-31) Bridge, which opened in the late 1920s, and the Sherman Minton (I-64) and Kennedy (I-65) Bridges, which were built in the early 1960s as part of the Interstate System. Long-range planning documents prepared in 1969, 1978, and 1993 subsequently proposed an additional river crossing, approximately eight miles to the east of the downtown bridges, to connect the I-265 beltway segments that had been built in both states. In 1996, a Major Investment Study recommended a “two-bridge solution” involving both a new downtown bridge to expand capacity on the congested I-65 and the new east end crossing, as well as the reconstruction of the Kennedy Interchange. A subsequent environmental review for the project was approved by the Federal Highway Administration (FHWA) in September 2003.

As planning efforts proceeded, it became clear that using traditional Federal and state funding sources alone for the \$4.1 billion project would require construction of the new roads and bridges to be staged sequentially and spread out over almost two decades. At the behest of the governors of both states, the Louisville and Southern Indiana Bridges Authority, a bi-state authority, was created in 2009 and charged with developing a plan to finance and develop the project, including consideration of tolling both crossings and alternative project implementation options, including public-private partnerships, or “P3s.”



Due to the rising costs on the project, Governor Steve Beshear of Kentucky, Governor Mitch Daniels of Indiana, and Louisville Mayor Greg Fischer announced plans in January 2011 to explore alternative design and delivery options. The bi-state authority revisited the project design to reduce costs. The East End Bridge and approach roads, including the tunnel, were reduced from three to two lanes per direction, and the width of the new Downtown Crossing was also reduced. These changes lowered the cost of the Ohio River Bridges project to \$2.6 billion. Given the scope of these changes and the introduction of tolling, further environmental review was required, which FHWA approved in June 2012.

In late 2012, the two states agreed on an innovative strategy to finance the overall project on a shared basis. The states would pursue separate procurements, with Kentucky taking responsibility for all elements of the Downtown Crossing and the interchange project in both states, and Indiana doing the same for the East End Crossing. Although the Kennedy Bridge was expected to produce a greater share of revenues, toll proceeds on the two bridges would be split evenly between the two states.

The Decision to Pursue as a P3 Project

With the support of Governor Daniels, the state of Indiana passed P3 enabling legislation in 2006. This law permitted private sector firms to participate in the financing, design, construction, operations, and maintenance of roadway facilities on a long-term basis. It also permitted the state to lease existing facilities to private firms, receiving an upfront fee and a commitment of long-term roadway upkeep in exchange for the private firm's right to retain toll revenue collected on the roadway. That same year the state leased the 157-mile Indiana Toll Road to a private investor/operator in exchange for a concession fee of \$3.8 billion. Building off of the momentum of this P3 transaction, the state conducted an extensive review of the costs of delivering the East End Crossing project using a P3 compared to traditional methods. It applied available cost estimates and assumptions on funding from state and federal sources, as well as potential revenue from tolling the bridge.

Indiana's P3 enabling legislation required that any potential P3 project be approved by the state legislature and that an analysis of the project's economic impacts be completed before the state could advance the project into procurement. In March 2010 the state legislature passed legislation authorizing the possible use of a P3 procurement on the East End Crossing.

In 2011 the bi-state authority identified two options for implementing the Ohio River Bridges. One was to use a fixed-price contract for the design and construction of the bridges (a "design-build" contract) with funding coming from tax-exempt bonds backed by toll revenue, with a separate contract awarded to an operator for toll collection on the bridges. The second option was a P3 concession model where a private developer would design, build, finance, operate and maintain the bridge for a fixed period in exchange for a combination of milestone construction payments and availability payments over the life of the concession. Availability payments are made to the developer contingent upon meeting certain roadway performance criteria related to "availability" to traffic and its condition.

In late December 2011, the governors and bi-state authority announced that the states had reached an agreement on their preferred delivery methods, with Kentucky pursuing the toll-backed design-build option, and Indiana pursuing the availability-payment P3 concession. In March 2012, the Governors signed a Memorandum of Understanding (MoU) detailing the responsibilities of each state in developing and financing their respective projects. The MoU also stipulated the degree of technical review the two states would have on one another's projects, while limiting the risk of additional interference.

Indiana was attracted to the availability-payment P3 approach because of the opportunities to transfer project risks that the state would normally bear to a private partner. These project risks include construction risk (cost overrun and meeting schedule). The state also would benefit from budgetary certainty during the operations and maintenance phase of the project as a result of the upper limit of the availability payment. The private

partner would be held to specified performance standards for operations and maintenance by the availability payment mechanism. The only project risk retained by the state would be achieving expected toll revenues from forecasted traffic levels.

Project Procurement

Following the execution of the MoU, Governor Daniels mandated that Indiana's P3 availability payment concession be awarded by the end of 2012. To meet that aggressive schedule, the Indiana Finance Authority (IFA)—the state agency responsible for overseeing the issuance of state debt and overseeing the procurement of P3 projects—hired legal, financial, and technical advisers to help produce the procurement documents, manage the review process, and evaluate the final proposals.

IFA released a request for qualifications from interested private firms in March 2012. This step in the procurement process enabled IFA to assess the interest of private developers in the project and identify the best qualified firms to bid for the project. IFA received six submittals and in April 2012 selected four teams that would be invited to submit proposals. The following month, IFA and the Indiana Department of Transportation (INDOT) circulated a draft request for proposal (RFP) document to the four firms for their review and comment. Using their inputs together with that of its advisers, IFA refined the draft RFP to address the critical concerns identified by the bidders and issued a final RFP in July 2012.

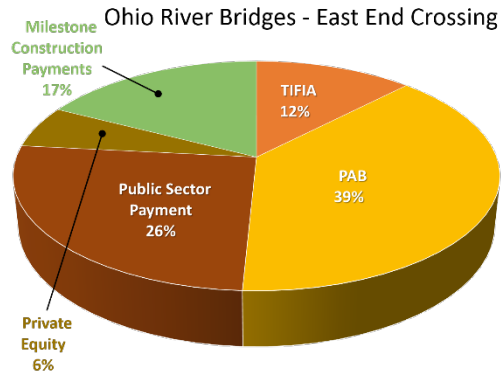
All four shortlisted teams submitted conforming bids to IFA—a first for a U.S. P3 project—allowing IFA to maintain a highly competitive procurement that generated an attractive winning bid. The winning bidder, selected in November 2012, was WVB East End Partners. The team is made up of Walsh Investors LLC (the investment division of a large construction company), VINCI Concessions (a French infrastructure developer and operator), and Bilfinger Project Investments (the investment arm of a large German construction company). WVB East End Partner's proposal included a design-build construction cost of \$763 million, 23 percent less than INDOT's estimate of \$987 million.

The public-private partnership agreement was executed on December 27, 2012. The process, from shortlisting firms to commercial close, took a total of eight months, with IFA reaching every procurement milestone as planned, making the award of the East End Bridge concession one of the fastest P3 procurements ever in the United States. The concession includes a four-year construction period and a 35-year operation term. WVB East End Partners will be compensated with milestone payments during construction and availability payments during operation.

WVB East End Partners will be responsible for both operations and maintenance of the new bridge and the Indiana approach. It will also construct the Kentucky approach, but the Commonwealth of Kentucky will be responsible for maintenance on that portion of the project. IFA will manage toll collection on both the East End and Downtown bridges. The Downtown Crossing project is being developed by the Kentucky Transportation Cabinet under a separate design-build contract with a team led by Walsh Construction.

Project Financing and Implementation

WVB East End Partners reached financial close for the project in March 2013. The concession company financed the East End Crossing project with a combination of equity and debt. The concession company is providing \$78 million of its own equity to the project at risk. It is also using \$507.8 million in long- and short-term tax-exempt bonds, called private activity bonds (PABs), issued on its behalf by IFA. The company will use a portion of its \$392 million in milestone construction payments to repay the short-term PABs totaling \$18.9 million. The remaining \$488.9 million in long-term bonds will be repaid with the availability payments made through 2051.



The State of Indiana used a combination of Federal and state funds to cover the cost of the milestone payments. Milestone payment sources included a \$162 million loan from the Transportation Infrastructure Finance and Innovation Act (TIFIA) program, which provides low cost, flexible credit assistance to transportation projects of national and regional significance. Additional Federal and state funding during construction from the States of Indiana and Kentucky amounted to \$208.1 million and \$88.0 million, respectively. Indiana also funded a \$45 million Relief Events Allowance Account for contingency purposes. For the availability payments, Indiana is using a combination of toll revenues and other state and federal funds as necessary. The maximum availability payment during the first full year of operations is set at \$43 million, growing over time based on a formula tied to future inflation at a pre-set rate.

Construction began on the East End Crossing on May 28, 2013, and the bridge opened on December 18, 2016, six months ahead of schedule. WVB East End Partners’ 35-year operating concession will conclude in 2052.

Long-Term Lease Concessions



Chicago Skyway

CHICAGO, ILLINOIS

Project Overview

The Chicago Skyway is a 7.8-mile, six-lane toll road built in 1958 by the City of Chicago to connect the Dan Ryan Expressway (I-94) to the Indiana Toll Road (I-90). Owned by the City of Chicago, the facility includes a 3.5-mile elevated mainline structure crossing the Calumet River. The Chicago Department of Streets and Sanitation was responsible for maintaining the road and collecting tolls until a private consortium took control in January 2005. The agreement between the consortium, Skyway Concession Company, LLC, and the City of Chicago was the first long-term lease of an existing toll road in the United States.



Project History

Constructed in 1958, the Chicago Skyway was operated and maintained by the City of Chicago Department of Streets and Sanitation for almost 50 years. For most of its life, the Skyway operated at a financial loss. Bondholders obtained court orders several times to raise Skyway tolls to cover the interest payments on the \$101 million in bonds sold to build the road, leaving the City to subsidize Skyway maintenance programs. By the 1990s, traffic had increased significantly on the Skyway, as motorists were willing to pay the \$2 toll to bypass congestion on I-80 to travel between Indiana and Chicago. In 2002, the Skyway attracted a record 18.7 million motorists, with tolls generating \$43 million in revenue, twice the \$21.5 million collected in 1993. In 2003, the City completed a \$300 million, multi-year capital investment program on the Skyway. With rising traffic and the facility modernization complete, the City of Chicago felt that the Skyway would be an attractive asset for investors to purchase.

The Decision to Pursue as a P3 Project

Facing major budgetary issues, the City of Chicago looked to “monetize” (derive money from) its infrastructure assets. In October 2003, Mayor Richard M. Daley announced his desire to lease the Skyway under a long-term concession agreement during his annual budget address. Mayor Daley stated that “running a toll road is not a core function of city government” and believed that transferring the burden of the Skyway’s debt and operating costs to a private owner would be a “great result for the taxpayers of the City.”

At that time, the Skyway had 130 employees and was not organized as an independent transportation or taxing authority. The decision to privatize the road was not particularly sensitive for the Mayor or the City Council, as most of the Skyway’s users were commuters from Indiana, not Chicago residents. The Skyway provided no



major financial benefit to the City, as its tolls were set to cover costs and not to generate additional revenue. The Skyway only added to the City's total debt burden with its \$465 million in outstanding bonds.

The City believed that the Skyway was an attractive asset to investors as it was a critical link for interstate traffic that had no direct competitive route and had seen strong growth in toll revenues over the past 20 years, averaging roughly eight percent per year. In addition, the Skyway had an established customer base and would not need major rehabilitation work in the near term. While the State of Illinois did not have legislation enabling public-private partnerships at the time, the City of Chicago was able to advance its plans to lease the Skyway, because it was owned by and located entirely within the city.

Project Procurement

In March 2004, the City of Chicago issued a request for qualifications (RFQ) for an operating agreement with a private operator to maintain, develop, operate and collect tolls on the Skyway for a period of at least 50 years. Ten teams responded to the RFQ in May 2004. The City created an evaluation committee made up of representatives from various City departments to review the submittals. The committee evaluated the teams' financial and technical qualifications based on several criteria, including expertise in toll road operations and maintenance, customer service and public safety. The bidding teams also had to demonstrate the capability to pay the purchase price for the Skyway and maintain the roadway to an acceptable standard.

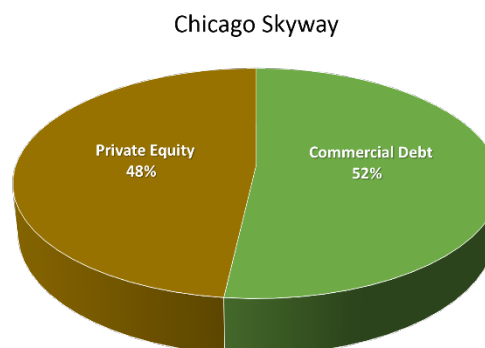
In May 2004, the City of Chicago invited five qualified teams to submit proposals by October 2004. These five teams were asked to comment on the bid terms and to make first-round pricing offers. The bidders were then asked to provide detailed technical responses and final prices reflecting detailed operating standards established by the City's evaluation committee. The bidders were also given access to an internet-based data room that included information on the Skyway's financial history, and its historic engineering and traffic history. The City indicated that it would award the concession to the bidder offering the highest upfront lease payment; however, it did not publically announce a minimum asking price. Goldman Sachs and Loop Capital Markets served as financial advisers to the City on the privatization, while the law firms Mayer, Brown, Rowe & Maw LLP and Pugh, Jones & Johnson advised the City on the legal structuring of the deal.

The concession was awarded on October 28, 2004 to Skyway Concession Company, LLC, which consisted of Cintra, a Spanish toll road developer and operator, and Macquarie, an Australian investment bank and infrastructure developer. Skyway Concession Company bid \$1.83 billion for the 99-year concession, 2.6 times higher than the next highest bidder. Skyway Concession Company would be responsible for all operating and maintenance costs throughout the 99-year concession period and a third-party engineer would conduct annual reviews to ensure that the concessionaire met the technical requirements of the agreement.

The agreement between Skyway Concession Company and the City of Chicago was the first long-term lease of an existing toll road in the United States. The bid was secured by a \$55 million line of credit. Upon signing the lease, Cintra and Macquarie were obligated to make its payment to the City within 180 days. Two weeks after the award was announced, the Chicago City Council voted 45-0 in a special council meeting to approve the concession agreement.

Project Financing and Implementation

On January 24, 2005, Cintra and Macquarie reached financial close with their lenders and made a wire transfer of \$1.83 billion to the City of Chicago. On January 26, the Skyway Concession Company, LLC assumed operations on the Skyway. The concessionaire originally financed the project with a mix of equity and bank loans. Cintra and Macquarie contributed \$485 million and \$397 million in equity, respectively, and Skyway Concession Company covered the rest with \$948 million in loan proceeds backed by toll revenue. The toll-revenue backed loans were issued by European banks with experience in financing toll roads with taxable debt. They included Calyon (a subsidiary of the French bank Credit Agricole), Depfa Bank of Ireland, and Banco Santander Central Hispano and Banco Bilbao Vizcaya Argentaria of Spain. The bank loans totaled \$1.19 billion, were made in nine-year terms, and divided into three parts. The first \$1 billion covered the purchase price and the transaction costs, the second part of \$110 million covered interest payments during the early period of the loan, and the third part of \$80 million covered infrastructure improvements to be made in the early years of the concession.



In August 2005, just seven months after financial close, Skyway Concession Company refinanced its underlying debt, raising \$1.55 billion in loans and contributing a total of \$510 million in equity. By refinancing, Cintra and Macquarie were able to extract \$205 million and \$168 million respectively in equity from the project and improve their rate of return for investors. Additionally, with their smaller equity investment, Cintra and Macquarie positioned themselves to recover their investment in full within the first 12 years of the concession period, based on forecasted cash flows. After recovery, the concessionaire would be able to operate the facility for the remainder of the concession with no equity risk.

After the repayment of equity to Cintra and Macquarie, \$1.016 billion went to refinancing existing bank debt; \$36 million was held in reserve, \$80 million for expected capital expenditures and \$55 million to cover transaction costs.

The \$1.55 billion in debt was issued by Citigroup and the four original banks. The debt package was structured in the following manner:

- ▶ \$961 million in capital accretion bonds issued with a 21-year term and a 5.6 percent interest rate. A capital accretion bond is a type of bond where the borrower does not make regular interest payments; instead, the interest is added to the value of the principal and the borrower makes a lump sum payment at the end of the bond's term.
- ▶ \$439 million in current interest bonds issued with a 12-year term. Current interest bonds pay interest at regular intervals.
- ▶ \$150 million in subordinated bank debt. Subordinated bank debt is a type of loan that has a lower credit rating than other debt in a loan package. In the event of a default, creditors with subordinated debt will not be paid until after the senior debtholders are paid in full.

The refinanced debt was rated AAA, the highest possible credit rating, by two large rating companies (Moody's and Standard & Poor's) helping to stabilize and improve the Skyway Concession Company's long-term financial health.

After assuming the operations of the toll road, Skyway Concession Company invested heavily in the modernization of the facility hoping to attract more users, reduce costs and improve operational performance. The company installed the I-PASS electronic toll collection system, significantly reducing peak period congestion at the toll plaza and reducing the Skyway's reliance on manual toll collectors. Once electronic tolling was implemented, 30 percent of peak hour customers shifted from cash payment to I-PASS.

Under the agreement, the Skyway Concession Company immediately increased the toll from \$2 to \$2.50. After the initial increase, annual toll increases are fixed at 12.5% per year through 2017, when it would reach \$5. After the 2017 increase, the toll rate increase is capped at the greater of two percent, the Consumer Price Index or growth in the per capita Gross Domestic Product.

The payment received for the Concession allowed the City of Chicago to establish several funds for city improvements. These funds included:

- ▶ A long-term \$500 million reserve that generates interest income in perpetuity.
- ▶ A medium-term \$375 million reserve that would be drawn down over the course of eight years to provide budgetary relief and mitigate the need to raise taxes in future years.
- ▶ A \$100 million Neighborhood, Human and Business Infrastructure fund that would be drawn down over five years. This fund contributes to over 20 City programs.

In addition, the City used \$860 million from the concession proceeds to pay off \$390 million in City obligations and \$465 million in outstanding Skyway bonds.

Following the Skyway sale, all three credit rating agencies positively revised the City of Chicago's credit outlook. This provided significant long-term benefits to the City, as it reduced the City's borrowing costs on the municipal bond market.

Sale of the Concession

In June 2015, Cintra and Macquarie, seeking to make a return on their equity investment, announced their intent to sell all interest in the Skyway Concession Company, LLC. In November 2015, a consortium made up of the Canadian Pension Plan Investment Board, the Ontario Municipal Employees Retirement System, and the Ontario Teachers' Pension Plan agreed to acquire the lease on the Chicago Skyway from the Cintra/Macquarie consortium for \$2.8 billion. Cintra and Macquarie earned approximately \$490 million from the sale. The deal closed in February 2016. The Canadian Pension Consortium will operate and collect tolls on the Skyway for the remainder of the lease, until 2104.

The Canadian Pension Consortium viewed the Skyway as an attractive and stable long-term investment that would provide inflation-protected returns. It felt that the investment in a stable American infrastructure asset, which turned an \$8 million profit in 2014, was worth the risk of fluctuating exchange rates. Each of the three pension funds contributed \$512 million in equity for equal shares in the concession, while the remaining \$1.26 billion is financed with toll-revenue backed debt.

The City of Chicago also benefitted from the buy-out of the concession, collecting almost \$21 million in real property transfer taxes from the sale.

Indiana Toll Road

NORTHERN INDIANA

Project Overview

The Indiana Toll Road (ITR) is a 157-mile tolled highway extending across northern Indiana from Illinois to Ohio. To the west, the ITR connects to the Chicago metropolitan area via the Chicago Skyway, and to the east, it provides connections to the Ohio Turnpike. The facility provides six lanes for 13 miles at the western end and four lanes for the remainder of the facility. Electronic tolling was introduced in 2008, and the ITR is designated part of Interstate 90 and also Interstate 80 over the eastern section leading into Ohio.



The ITR has two separate toll systems. The western 23 miles of the roadway have toll barriers located directly on the highway. The remaining 134 miles use a ticket system with toll booths located near where on and off ramps meet the local street system.

Project History

In 1951, the Indiana General Assembly created the Indiana Toll Commission with the mandate to construct, own, operate and maintain the Indiana Toll Road. Construction began on the ITR in September 1954 and the highway was opened in sections between August and November 1956.

In 1983, the General Assembly created the Indiana Toll Finance Authority and authorized it to enter into contracts or leases with the Indiana Department of Highways to own and operate all toll roads and bridges throughout the state. The Authority took over responsibility for operating the ITR and was later renamed the Indiana Transportation Finance Authority in 1988. In 2003, the state created the Indiana Finance Authority (IFA) to consolidate several state financial agencies including the Transportation Finance Authority. As under its predecessors, the IFA retained ownership of the ITR and other state-owned toll facilities. The ITR continued to be operated by the successor to the Department of Highways, the Indiana Department of Transportation (INDOT).

Originally, the ITR used a ticket toll system for its entire length, with toll rates determined by the distance traveled and vehicle class (i.e., 2-axle, 4-axle, etc.). In July 1986, INDOT converted the western section of the ITR in the Chicago area to a barrier toll system and equipped the entire facility with a computerized toll collection system. At the time of its lease in 2006, toll rates had not been increased since October 1985.

The Decision to Pursue as a P3 Project

In 2005, one-year into his administration, Governor Mitch Daniels unveiled the Major Moves initiative, a 10-year, \$10.6 billion transportation plan to build and improve roads, comprising nearly 200 projects around the state. A fundamental component of the plan was the possible lease of the ITR, which was estimated to be capable of providing over \$1 billion in funding for the Major Moves program. The state's plans for the ITR emulated the \$1.83 billion lease of the neighboring Chicago Skyway in 2004.

In early 2005, Governor Daniels tasked the IFA with exploring the feasibility of leasing the ITR. IFA hired a financial adviser and conducted detailed traffic and revenue forecasts so that it could determine the value of the ITR. INDOT was incurring millions of dollars in annual costs to operate and maintain the ITR. These costs were generally offset by toll revenue, but INDOT also borrowed money to complete capital improvements on the ITR, and toll proceeds were not adequate to cover the resulting debt obligations. At the time IFA was assessing leasing options, INDOT faced a significant capital and maintenance backlog. In addition to providing funding for the Major Moves projects, leasing the ITR would lower the state's ongoing financial obligations, as well as associated risks.

Many state lawmakers opposed the ITR lease because of the expected toll increases that would follow. Concerns also arose that the facility would be sold "at a discount" and road quality and operations would suffer.

Project Procurement

In September 2005, IFA released a Request for Toll Road Concessionaire Proposals and four teams submitted bids in October 2005. The highest bidder was Indiana Toll Road Concession Company (ITRCC), a joint venture between Cintra (a large Spanish contractor) and Macquarie Atlas Roads (a toll operating arm of a large Australian investment bank). ITRCC's bid of \$3.8 billion was nearly one billion higher than that of the next highest bidder.

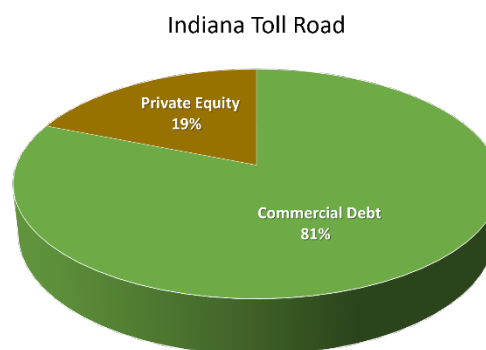
The Indiana General Assembly was considering Major Moves program legislation when it met in January 2006. The bill included the 10-year funding plan as well as authorization to lease the ITR. The Assembly approved the program, including the ITR concession in March 2006.

Opposition to the ITR lease continued through the procurement period. A group of individuals and the Citizens Action Coalition of Indiana, a consumer rights advocacy group, sued to prevent the lease from going through. In early June 2006, a judge ruled that the group would be required to post a \$1.9 billion bond to continue with the lawsuit. The bond represented half the proposed purchase price offered by the Macquarie-Cintra joint venture. The group was not successful in raising funds to post the bond, ending the lawsuit.

The state awarded ITRCC a 75-year concession in June 2006. As part of the concession, ITRCC pledged to spend \$200 million on capital improvements to the facility during the first three years of the lease and approximately \$4.4 billion over the life of the concession. By leasing the facility, the state would be able to retire \$225 million in debt. It allocated the remainder of the lease proceeds to several funds used solely to pay for infrastructure projects throughout the state.

Project Financing and Implementation

At the time it reached financial close, the lease of the ITR was the largest private infrastructure transaction in U.S. history. Cintra and Macquarie split their equity share equally, each contributing \$374 million toward the lease payment. They financed the remainder with loans from a syndicate of seven European banks, including: Banco Bilbao Vizcaya Argentaria SA, Banco Santander Central Hispano SA, Caja de Ahorros y Monte de Piedad de Madrid, BNP Paribas, Depfa Bank, RBS Securities, and Dexia Crédit Local. The toll receipts from the ITR served as collateral for the debt. The project reached financial close on June 29, 2006, and operations and maintenance responsibilities were transferred from INDOT to ITRCC.



The company's debt package was divided into three parts, or "facilities." It included a \$3.2 billion loan used to fund the acquisition of the operating concession, a \$665 million "capex" facility to fund capital expenditures through June 2015, and a \$150 million liquidity facility. The liquidity facility funded interest payments on the debt and capex facility, and provided a buffer against downward fluctuations in operating cash flows as the concession period began. The financing package also included a fixed-income swap agreement, which deferred most interest payments on the debt and capex facilities until 2015.

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During negotiations with ITRCC, the Daniels administration raised toll rates on the ITR but froze further increases until a new electronic tolling system was installed by the concession company. IFA set aside \$60 million to compensate ITRCC for the two-year toll freeze. The new tolling system was installed along the full length of the roadway in April 2008. ITR then increased toll rates by 72 percent, although passenger vehicles using an electronic transponder receive a 40 percent discount on the higher rates until 2016. Under the concession agreement, ITRCC had the authority to raise tolls periodically over the life of lease, based on inflation or the rate of national economic growth, whichever was greater.

The concession agreement included minimum operating standards, such as pavement smoothness and landscaping upkeep. The agreement included a 55-year non-compete clause to protect concession revenues. The clause prohibits the state from building or improving any limited-access highways over 20 miles long within ten miles of the ITR. If such improvements are made, the state is required to compensate the concession company for any loss in revenue.

Bankruptcy and Resale

In 2012, ITRCC was suffering from a number of financing issues. Although earnings had increased each year between 2008 and 2013, they did not meet expectations due in part to the Great Recession following the 2008 financial crisis. This led to the reduction of the interest reserve account from \$150 to \$40 million. ITRCC retained financial advisers to recommend how its debt could be restructured. In addition to low revenues, interest rates were set to rise on its debt due to accrediting swap agreements (agreements that contractually trade interest rate terms with another party). These conditions raised the risk that the company would default on its debt, which would lead to loss of the concession.

In September 2014, ITRCC filed for Chapter 11 bankruptcy in Chicago. The liquidity facility was fully drawn, and the company had missed an interest payment in June 2014. The terms of the bankruptcy would lead either to the sale of ITRCC at auction or the restructuring of the company's debt with a new \$2.75 billion financing



package that would cede nearly 96 percent of Cintra and Macquarie’s equity investment to ITRCC’s creditors. The bankruptcy was approved in October 2014.

After ITRCC’s bankruptcy filing was approved, the ITR lease was put out to bid under the condition that the successor adhere to the performance standards set out in the 2006 concession agreement. The IFA and its advisers evaluated four bids and interviewed proposers. In March 2015, IFA awarded the new lease concession to IFM Investors, an Australian company owned by 30 different Australian and American pension funds, including the California State Teachers’ Retirement System, New York City Employee Retirement System, and the Illinois State Board of Investment. The bankruptcy has no financial impact on the State of Indiana, and drivers and toll road employees are essentially unaffected.

On May 27, 2015, ownership of ITRCC was transferred from Cintra and Macquarie to IFM Investors. IFM Investors paid \$5.725 billion to operate the ITR over a 66-year concession period. Nearly all of the sale funds will be used to pay back creditors holding ITRCC’s debt. IFM has plans to invest \$260 million in capital improvements over the first five years of the concession to address deteriorating pavement, bridges, and travel plazas.

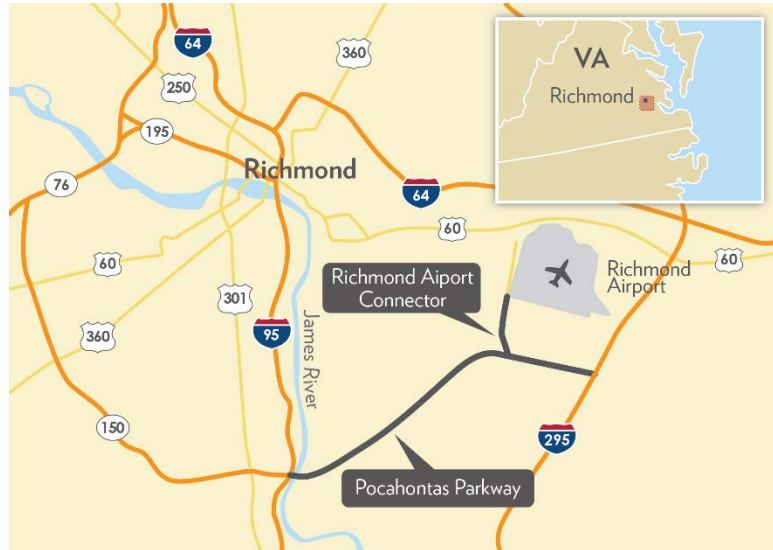


Pocahontas Expressway / Richmond Airport Connector

RICHMOND, VIRGINIA

Project Overview

The Pocahontas Parkway (VA-895) is an 8.8-mile, four-lane, orbital toll road in southeast Richmond, Virginia connecting I-95 and the Chippenham Parkway to I-295. The Parkway also includes the 1.6-mile, four-lane Richmond Airport Connector, providing access to Richmond International Airport. The toll road was developed in 1998 by the Pocahontas Parkway Association, a nonprofit public benefit corporation created by the Virginia Department of Transportation (VDOT) to finance the project under



regulations established by IRS Revenue Ruling 63-20. In June 2006, the road was leased for 99 years to Transurban, an Australian toll operator. Following several years of poor traffic and revenue, Transurban transferred its stake in the Parkway to its senior lenders in 2014.

Project History

Beginning in the 1980s, transportation officials in Virginia considered the Pocahontas Parkway corridor for a potential east-west Interstate-grade connection between I-95 and I-295 southeast of Richmond. In 1983, the Commonwealth Transportation Board approved the current roadway alignment. While the project was originally envisioned as a free interstate route, VDOT was unable to find sufficient funding to develop the project.

Under the legal framework created by the Virginia Public-Private Partnership Act of 1995, VDOT created the Pocahontas Parkway Association in 1998 to finance the project. The original Pocahontas Parkway procurement was unique among 63-20 Corporation road projects, as VDOT, rather than the Parkway Association, hired the constructor. In June 1998, after nearly a year and a half of negotiation, VDOT entered into a fixed-price design-build agreement with a team comprising Fluor Daniel and Morrison Knudsen, both large U.S. engineering and construction firms. A large component of the project's cost was construction of the James River Bridge. Construction began in 1998 and the Parkway was completed in phases between May and September 2002.

The cost of the original Pocahontas Parkway project was \$381 million, financed using the following funding sources:

- ▶ \$354 million – Tax-exempt bonds issued by Pocahontas Parkway Association 63-20 Corporation
- ▶ \$18 million – State Infrastructure Bank Loan
- ▶ \$9 million – Federal Funds for design



The Decision to Pursue as a P3 Project

In 1995, Virginia became the first state to fully enable the private sector to develop transportation infrastructure on a concession basis by passing its landmark Public-Private Transportation Act. Under the 1995 law, Virginia pursued its first public-private partnership in 1998, developing the Pocahontas Parkway as a design-build agreement between VDOT, private contractors and the Pocahontas Parkway Association. As a tax-exempt entity, the Pocahontas Parkway Association was able to borrow money at interest rates significantly below those available to private-sector investors. VDOT chose this approach because all the project's debt obligations would be held by the Parkway Association protecting VDOT from any repayment obligation. The Pocahontas Parkway Association financed the entire cost of the project without providing any upfront equity and the facility opened to traffic in 2002.

In the years after opening, traffic and revenue levels on the road failed to meet the optimistic forecasts used to justify its construction. By 2005, toll revenues only reached \$7.7 million annually, roughly 50 percent below forecasts. As the Pocahontas Parkway Association struggled to make debt payments, Transurban, an Australian toll road operator, offered to pay off the Parkway Association's debts in exchange for a 99-year lease to operate the facility and complete a planned extension to the airport.

Project Procurement

Responding positively to its unsolicited proposal, VDOT reached an agreement-in-principle with Transurban in May 2006 to lease the Parkway for 99 years in exchange for a payment of \$522 million. The state used the concession payment to retire \$450 million in outstanding debt issued by the Pocahontas Parkway Association and compensate VDOT for its operating costs.

Under the agreement, the state maintains the right to terminate the concession after the first 40 years, but would have to refund the concessionaire's equity investment and pay off any outstanding debt. The agreement gave Transurban the right to set toll rates up to a cap of \$2.25 until 2007. Rates could then rise to \$3.00 by 2012. From 2012 to 2016, rates were allowed to increase \$0.25 per year. After 2016, the maximum toll increase per year is based on the highest of increase in GDP per capita, increase in CPI, or 2.8 percent.

The concession agreement also includes a revenue-sharing clause entitling VDOT to 40 percent of gross toll revenues if the concessionaire's rate of return is 6.5 percent or higher. If the concessionaire's rate of return exceeds 8 percent, VDOT is entitled to 80 percent of toll revenues. The agreement also includes a non-compete clause where VDOT must compensate the concessionaire for any lost revenue from the construction of new crossings of the James River within three miles of the Parkway.

As part of the agreement, Transurban also agreed to build the \$45 million Richmond Airport Connector. The construction of the connector was contingent upon Transurban receiving a \$150 million loan from TIFIA, a federal credit program that provides low-interest loans for revenue-generating transportation projects. The size of the TIFIA loan was determined through a financial analysis that showed that \$150 million for construction and refinancing was the minimum amount required to incentivize Transurban to assume the risk of constructing a much needed airport connector roadway that was not financially feasible otherwise.

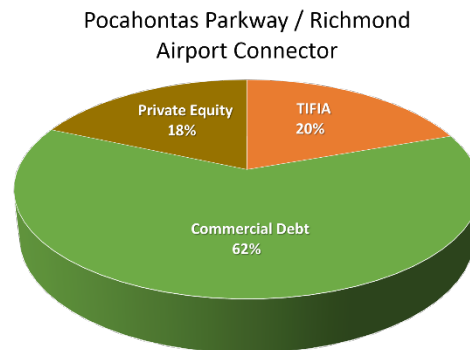
Transurban pursued its unsolicited offer to lease the Pocahontas Parkway because it believed that over the long-term the road would be a financial success. The road provided access to vast tracts of land prime for residential and commercial development, and the corridor provided an alternate route to the airport. Transurban believed that the profits generated in the concession's later years would offset potential losses due to low traffic levels in its early years.

Transurban installed a new toll collection system in November 2009 allowing customers with E-ZPass transponders to travel through the toll plaza at highway speeds. Transurban hoped that this improvement would entice more motorists to use the Parkway and reduce the amount of revenue lost to toll violators.

Project Financing and Implementation

The value of the concession agreement between VDOT and Transurban was \$766 million, which included payments to VDOT and the cost to construct the airport connector. Transurban raised the funding from the following sources:

- ▶ \$420 million – Senior Bank Debt
- ▶ \$55 million – Subordinated Debt
- ▶ \$141 million – Equity Contribution
- ▶ \$150 million – TIFIA Loan



Three European banks with experience financing long-term toll road concessions issued the Senior Bank Debt as two separate loans, both maturing in 2036. The European banks and the U.S. government, as holders of the senior bank debt and the TIFIA federal credit loan were entitled to be repaid first in the event that the concession failed. In the event of a bankruptcy, the holders of the subordinated debt would be repaid last.

In mid-2012, with traffic volumes far below forecast, Transurban wrote down its \$141 million equity stake in the Pocahontas Parkway. By doing so, the company took an accounting loss in that year, but was able to reduce the value of the Parkway in its portfolio.

In May 2014, still facing mounting losses, Transurban transferred ownership of the Pocahontas Parkway to the banks holding its senior debt. The transfer of ownership had no impact on the Parkway’s users or the Commonwealth of Virginia, as the 2006 concession agreement remained in effect. Under the name Pocahontas Parkway Operations LLC, the banks contracted with DBi Services, a roadway operations firm based in Pennsylvania, to operate and maintain the Parkway.

As part of the restructuring, the TIFIA Credit Program sold its interest in the project to two American banks, TPG Capital and Citibank for approximately \$60 million, only 40 percent of its original \$150 million loan. The TIFIA Program was not interested in participating in the long-term operation of the road and recognized that it would be unlikely to recover its investment in the near term. Following the transfer of ownership, several of the debt holders sold their stakes to other banks, recognizing the high risk of failure that came with a potential for a high return on investment.

In August 2015, Macquarie Capital, an Australian toll road developer, bought a 50 percent stake in the Pocahontas Parkway from the banks holding the Parkway’s debt. Macquarie made the investment because it believed it could derive financial rewards in the later years of the concession. Rather than borrowing money to purchase its stake in the Parkway, Macquarie used its own equity. This would have allowed it to generate a return on investment sooner than it would if it had debt to repay. Nonetheless, Macquarie, TPG, and Citibank sought bids for the concession in 2016, and with VDOT’s approval, reached agreement in October 2016 to sell the concession to Globalvia, a Spanish toll road investor and operator, for a reported \$600 million.

Through all these ownership transfers, the terms of the original concession agreement have remained in effect.

Northwest Parkway

DENVER, COLORADO

Project Overview

The Northwest Parkway is an 8.9-mile, four-lane toll road that forms part of the E-470 orbital highway in the northern Denver metropolitan area. The Parkway includes 26 structures, three major interchanges, four ramp plazas, and one mainline toll plaza. Originally developed by a public authority, the Parkway was leased to a private concessionaire in 2007 for 99 years.



Project History

In the late 1980s, officials in Broomfield, Colorado advocated for a new highway to serve Interlocken Office Park and FlatIron Crossing shopping mall. In 1998, local developers established the Northwest Parkway Non-Profit Corporation to advance the parkway project. With additional municipalities interested in the proposed toll road, the Northwest Parkway Public Highway Authority was created in 1999. The Authority was created under a 1987 state law giving cities and counties the power to enter into intergovernmental agreements to create public authorities and to finance, build and operate toll roads. The Northwest Parkway Public Highway Authority consisted of the City and County of Broomfield, the City of Lafayette and Weld County. Its primary goal was to connect communities in the Northwest Denver metro area to I-25 and U.S. 36, providing better access to jobs and commercial centers.

With construction financed by \$416 million in toll revenue bonds issued by the Northwest Parkway Public Highway Authority, the Northwest Parkway was built for \$180 million under a design-build contract by Washington Group International and Kiewit Western. The Parkway opened to traffic on November 24, 2003. The \$236 million in excess toll revenue bonds issued by the Northwest Parkway Public Highway Authority were intended to cover short-term operating expenses while allowing traffic to grow. Tolling began on the Northwest Parkway on January 1, 2004.

In 2005, traffic volumes on the Northwest Parkway averaged 11,400 vehicles per day, generating a total of \$5.7 million in tolls collected for the year. This was only 54 percent of the forecasted \$10.4 million in toll revenue. In 2006, revenue increased to nearly \$8 million, nearly doubling initial toll receipts collected in 2004, yet still far below original forecasts.

With traffic volumes and revenue below forecasts during these first several years, the Northwest Parkway Public Highway Authority explored different strategies to refinance its debt. However, the cost of refinancing would be prohibitive. Then in 2006, the Authority received an unsolicited offer to lease the Northwest Parkway to a private sector highway operator, prompting it to pursue this option.



The Decision to Pursue as a P3 Project

In 2006, Colorado passed legislation enabling public entities to accept unsolicited proposals for public-private partnerships (P3) to develop and operate public infrastructure. That same year the Northwest Parkway Public Highway Authority received an unsolicited offer from Northwest Parkway LLC to take over the operation of the toll road. The consortium was made up of Brisa, a privatized Portuguese toll road developer, and CCR Group, a Brazilian toll road operator. Northwest Parkway LLC proposed maintaining the toll road in exchange for the right to retain toll proceeds under a long-term lease agreement for 99 years. The Authority's financial adviser RBC Dain Rauscher encouraged the organization to consider a lease of the Parkway to the private operator as a means to pay off its underlying debt.

Northwest Parkway LLC saw the toll road as a valuable investment for several reasons. Although the Parkway's traffic levels were below forecasts, the doubling of the facility's revenues between 2004 and 2006 was promising. The firm believed that traffic volumes on the facility would likely increase significantly in the coming decades as the population of the greater Denver region continued to grow. While the consortium might lose money in the early years of the concession, Brisa and CCR believed that the toll road would be profitable as time progressed, especially if the orbital route around Denver, of which the Northwest Parkway is a part, were completed. In addition, Brisa and CCR were eager to establish a presence in the United States and bolster their credentials, helping them to win larger projects in the future—possibly including the completion of the Denver Beltway.

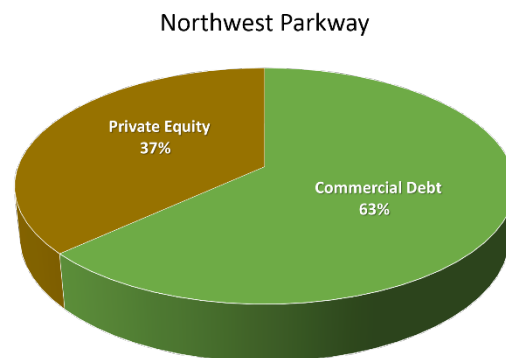
Project Procurement

Following receipt of Northwest Parkway LLC's unsolicited offer, the Northwest Parkway Public Highway Authority sought competing bids and issued a request for qualifications for the long-term lease of the Parkway in September 2006. It received 15 responses in October 2006 and shortlisted 11 teams to participate in the competitive bidding process. The bids were due in February 2007, and in April 2007, the Board of the Northwest Parkway Public Highway Authority voted to enter into negotiation with Northwest Parkway LLC. The Authority selected the consortium based on its "excellent history of toll operations in Europe and strong customer service." The Northwest Public Highway Authority did not "simply accept the highest bid," but rather the bid that provided the "strongest financial values for [the] multiple member jurisdictions."

In November 2007, the Northwest Parkway Public Highway Authority executed a 99-year concession agreement with its private partner. Northwest Parkway LLC made an upfront cash payment to the Authority, assuming all of its outstanding debt and committing to make annual administrative payments to the authority over the life of the lease, totaling approximately \$200 million. The concession agreement also required oversight by an independent engineer to perform periodic inspections of the Northwest Parkway and its toll collection system.

Project Financing and Implementation

Northwest Parkway LLC completed its financing on December 21, 2007, a milestone known as achieving financial close. It made an upfront payment of \$503 million to the Northwest Parkway Public Highway Authority. This payment retired the Authority's \$416 million in toll revenue bonds and provided it with an additional \$50 million cash payment. The concessionaire also paid approximately \$30 million



to the Parkway's local jurisdictions to compensate them for right-of-way costs.

The concession also contemplates the Parkway's extension 2.3 miles south to SH 128 in Broomfield by the end of 2018. If the extension is approved, the concessionaire will release \$40 million placed in escrow at financial close to the Authority to cover the cost of construction. In the event that a second extension of the Parkway to SH 93 at 64th Avenue in Arvada, 15 miles southwest of the initial extension is approved, the concessionaire must contribute an additional \$60 million for its construction. Northwest Parkway LLC has the right to toll, operate, and maintain these potential extensions, and the concession agreement states that the City of Broomfield and Northwest Parkway LLC "shall use their best efforts" to ensure that the extension to SH 93 is approved. Including the funds set aside for the two extensions, Northwest Parkway LLC's total payment for the concession was \$603 million.

Northwest Parkway LLC financed these payments with \$459 million in senior bank debt and \$266.9 million in equity. Brisa contributed 90 percent of the equity while CCR contributed the remaining 10 percent. (CCR sold its stake in the toll road to Brisa in May 2009.) The senior bank debt is composed of three parts: a \$249 million, 10-year term loan; an 11-year, \$60 million equity bridge (this is a short-term loan that allows the holder of the debt to enter into financial transactions before longer-term financing is secured), and a \$150 million, 10-year liquidity facility (a short-term loan that is intended to cover any shortfalls in cash flow).

The debt was provided by a group of European banks including BNP Paribas of France, Caja Madrid of Spain, and Caixa Geral de Depósitos of Portugal, who saw the concession as a long-term investment in a corridor that was likely to experience growth in population and employment.

The concession agreement included many provisions regarding the operation of the existing facility. While it does not have a non-compete clause, the Authority is required to compensate Northwest Parkway LLC if certain transportation facilities are built and the private partner can demonstrate that toll revenues declined as a result. In addition, if the Authority or other public entities take actions that reduce the value of the concessionaire's financial interest in the agreement, the Authority is required to compensate the concessionaire.

The concession agreement permits annual increases in toll rates based on the greater of an adjustment for inflation, increase in per capita GDP, or two percent. In the event that Northwest Parkway LLC's profits exceed certain levels, it is required to share excess revenue with the Authority. In the event that traffic demand exceeds the current capacity of the facility, Northwest Parkway LLC is allowed to widen the highway. However, no public funds will be available for a widening project.

As part of the concession agreement, Northwest Parkway LLC was required to consider all employees of the Authority, other than the Executive Director, for employment opportunities. If the company did not make an offer of employment on equivalent terms as the Authority had, it had to pay the employee an amount equal to 12 months of salary, inclusive of health insurance and retirement benefits.

In January 2010, Northwest Parkway LLC upgraded the toll collection facility on the Parkway, converting the facility to all-electronic toll collection, improving traffic flows and reducing operating costs by eliminating cash toll collection. This was the first major upgrade of the toll collection system since tolling began six years earlier.

In mid-2016, Brisa solicited bids to sell the concession, and in December 2016 selected from among 11 bidders a consortium of infrastructure investment funds comprising Northleaf Capital Partners (Canada), DIF (Netherlands), and HICL Infrastructure Company (U.K.). The sale price was a reported \$500 million.



PR-22 and PR-5 Lease

NORTHERN PUERTO RICO

Project Overview

Puerto Rico Highway 22 (PR-22) and Puerto Rico Highway 5 (PR-5) are limited access toll highways serving Puerto Rico's northern coast and the San Juan metropolitan area. PR-22, also known as José de Diego Expressway, is a 52-mile, four- and six-lane highway with seven toll plazas, extending west from San Juan to Hatillo. It is the busiest highway in the commonwealth. PR-5, also known as Río Hondo Expressway, is a 2.5-mile extension of PR-22 (the facility is four miles in total) south to Bayamón, where its single toll plaza is located, that opened in 2006. Both facilities were leased in 2011 to a concessionaire who will rehabilitate, operate and maintain the toll roads over a 40-year period, which was later extended to a 50-year term.



Under the terms of the lease, the Government of Puerto Rico received a \$1.08 billion upfront lease payment and will retain ownership of the facilities. The concessionaire was responsible for implementing \$56 million in safety improvements within the first three years of the lease. It will invest another \$300 million in upgrades over the term of the concession and adhere to an established set of operating standards.

Project History

In 1965, the Puerto Rico Highway and Transportation Authority (PRHTA, also known as Autoridad de Carreteras) was created to manage and develop a network of toll roads throughout Puerto Rico. Between 1964 and 1968, Wilbur Smith & Associates and Padilla Garcia & Asociados conducted a transportation and planning study in northern Puerto Rico, as well as a road needs and fiscal impact study to determine which routes would be beneficial to the island and financially feasible. The study concluded that PR-22, along with four other facilities, should be critical components of a strategic toll road system.

Construction of PR-22 began in segments in 1971. The first two segments, on opposite ends of the facility, from San Juan to Toa Baja (11 miles) and from Arecibo to Arecibo Ramp (13.5 miles) were completed in the 1970s. The intervening segment, Toa Baja to Arecibo Ramp (26.5 miles) was completed in the early 1980s. In March 2004, PRHTA began to introduce electronic toll collection on the facility.

At the time of the 1968 study, PR-2 was an existing parallel route to the planned PR-22. After completion of the 52-mile PR-22 facility, plans called for an extension 30 miles west from Arecibo to Aguadilla to complete a circuitous express highway connection on the island. At this time, PR-2, the parallel facility, was a toll-free alternative. PR-2 is a local route with traffic lights and reduced speeds that result in slower travel times



compared to PR-22. Ultimately, the planned PR-22 extension was not constructed due to the inability to acquire sufficient right-of-way. In its place, PR-2 from Arecibo to Aguadilla was widened to a four lanes. Today, using PR-2 as a toll-free alternative to PR-22 adds 45 minutes of travel time between San Juan and Arecibo.

PR-5 opened in February 2006, extending from Cataño south to Bayamón. It connects to several major highways in the San Juan metropolitan area, including PR-22, PR-6, PR-2 and PR-199.

The Decision to Pursue as a P3 Project

PRHTA and the Department of Transportation and Public Works are responsible for the construction, operation and maintenance of the island's transportation infrastructure. The large majority of investment in the island's transportation system is done by PRHTA due to its diverse sources of dedicated transportation revenue sources, including tolls. However, between 2005 and 2009, deteriorating economic conditions in Puerto Rico, reduced toll revenue, and rising investment and operational costs led to a funding crisis at PRHTA. During this time, PRHTA's bonds were downgraded, impeding the agency's access to financing through capital markets.

Both PR-22 and PR-5 were in need of capital improvements, including structural rehabilitation and improvements to the electronic toll collection systems. Due to PRHTA's downgraded credit rating and funding constraints, the agency could not fund these improvements or other capital needs around the island.

In June 2010, the Puerto Rico Public-Private Partnerships Authority (PPPA) published a "Desirability and Convenience Study" evaluating the feasibility of leasing existing public sector toll roads to private investors on a concession basis for a designated period of time. The study reviewed multiple facilities around the island and provided recommendations on how and when P3 lease concessions could be pursued. The study concluded that more investment in the island's highway facilities was needed to improve mobility and connectivity. It also recommended that PRHTA reduce its debt burden in order to make additional funds available to build new facilities to meet those needs. The study also recommended that PRHTA improve its maintenance program and reduce toll revenue leakage by implementing a new electronic toll collection system. Lastly, the study recommended that PRHTA pursue a phased program to lease existing toll road assets to private sector operator-developers in exchange for large upfront payments that would enable PRHTA to retire or "defease" its existing bond obligations, thereby easing the agency's financial burden.

The study recommended a four-phase P3 model to improve and expand Puerto Rico's highway system, beginning with "brownfield" leases of existing toll roads and ending with the development of new so-called "greenfield" projects. The lease of PR-22 and PR-5 were part of the first phase of the study recommendations. The extension of PR-22, in government plans since the 1970s, represents the fourth phase of the recommended P3 delivery model.

The lease of PR-22/PR-5 would require the private sector developer/operator to make needed repairs to improve traffic performance and safety. The upfront lease payments would also provide PRHTA with funding for other improvements in the region and reduce its debt obligations. This would improve its prospects of obtaining additional financing in the future to support other projects on the island.

Project Procurement

Conforming to Puerto Rico's 2009 P3 Act, the PPPA established the Partnership Committee for the PR-22/PR-5 brownfield project in May 2010. The Committee's responsibilities included approving all documents required of the process, procuring the project, evaluating proposals, negotiating the terms of the concession agreement, and overseeing compliance with the P3 Act. The PR-22/PR-5 Partnership Committee comprised

officials from the Development Bank of Puerto Rico, PRHTA, the PPPA and the Department of Transportation and Public Works.

In June 2010, the PPPA published a Request for Qualifications to which eight private developers responded. The committee narrowed the field down to four groups who would be invited to submit formal proposals for the long-term lease concession. Selection criteria included: expertise in highway operations and maintenance, environmental stewardship, and financial capabilities, including the ability to raise finances, credit quality, and ability to make an upfront payment.

The PPPA issued a Request for Proposals (RFP) and draft concession agreement in November 2010 to the shortlisted respondents, who were required to submit their responses by May 2011. During the RFP period, two bidders submitted a request to respond as a single bidder. This request was approved, but the group subsequently withdrew its proposal. The PPPA ultimately received proposals from the two remaining bidders. The PPPA evaluated the proposals on a pass/fail basis against four criteria: completeness of proposal, financing plan, operating plan, and professional qualifications. Since both bidders met the required technical criteria, the award was made based on the payment the bidders were prepared to make. Autopistas Metropolitanas de Puerto Rico, LLC (Metropistas), composed of Abertis Infraestructuras (a Spanish toll road and telecommunication infrastructure operator) and Goldman Sachs Infrastructure Partners II (an investment arm of the American bank) offered a lease payment of \$1,080 million. The runner-up bid was \$960.45 million.

In June 2011, the Partnership Committee recommended the selection of Metropistas as the concessionaire, based on their passing proposal and higher concession fee.

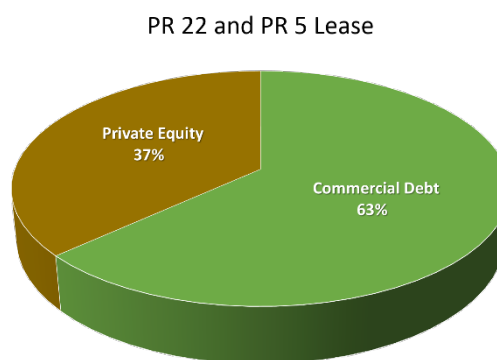
Project Financing and Implementation

Metropistas moved quickly and assembled the financing it needed to assume the operating lease. The company had to raise a total of \$1.436 billion, which covered the \$1.080 billion lease payment plus additional funding for capital improvements.

Metropistas's financing involved a combination of its own equity and loans provided by a group of commercial banks. Metropistas invested a total of \$421 million in its own equity at-risk. Forty-five percent of this money was provided by Abertis and the remaining 55 percent was provided by Goldman Sachs Infrastructure Partners. In February 2013, the two investors adjusted their equity stakes in the concession, with Abertis increasing its equity stake in the concession to 51 percent.

Metropistas borrowed a total of \$725 million from a group of 12 European and Puerto Rican banks, including Banco Santander, Scotiabank, RBC Capital Markets, Société Générale, Siemens Financial, Intensa, ING Bank, Crédit Agricole, La Caixa, Caja Madrid, WestLB, and Banco Popular de Puerto Rico. It executed its loans in September 2011; a milestone known as “reaching financial close.” The bank loan has to be repaid in seven years. PRHTA used the upfront lease payment to repay \$902 million of its existing debt and reserved the remainder for other improvements projects in the region.

At the time of the concession agreement's execution, PR-22 and PR-5 were in substandard condition. The toll roads required new pavement, signage, lighting, and safety barriers in order to improve traffic service and safety. Metropistas agreed to implement a group of improvements in the first three years of the lease period



to address safety and performance conditions. Those improvements cost roughly \$50 million, while an additional \$300 million in investment is planned over the lease period.

The contract also called for the construction of two reversible, dynamically-priced toll lanes in the medians of PR-22 and PR-5 from Toa Baja to Bayamón (approximately six miles). The new lanes increase the free flow of traffic in and out of Bayamón (Puerto Rico's second largest city) and provide new public transit options for commuters. In addition to bus rapid transit, the lanes allow motorists paying a premium rate to use the lanes to avoid congestion. Toll rates vary in real time to meter the amount of paying traffic and ensure congestion-free conditions. The toll lanes opened to traffic in August 2013.

The concession agreement was extended by 10 years on April 21, 2016 in exchange for an additional payment from the concessionaire to the project sponsors of \$115 million. The concessionaire's revenue share was also increased from 50 to 75 percent of future toll revenues.

The PR-22/PR-5 lease was the only bank-financed P3 toll concession to close in North America in 2011. It was also the first brownfield toll project to close since 2006, before the start of the financial crisis in 2008.

