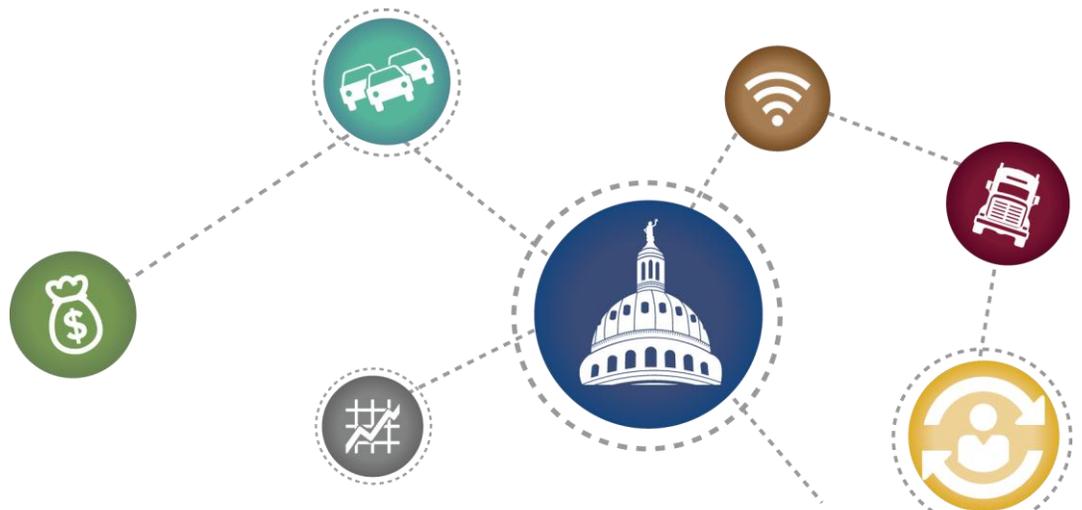


Public-Private Investment Models for Roadway Infrastructure

Final Report

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Texas A&M Transportation Institute

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Authors

Bob Farley

Nick Norboge

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Executive Summary

Greater demands are being placed on the Texas transportation network to accommodate increases in population, personal travel, and shipping activity. Transportation investments, however, have not kept pace with those demands. This is especially the case in Texas' largest cities, where traffic delays have increased by more than 500 percent in the past 20 years. Given that Texas' population is expected to increase by some 18 million people by 2040, the challenge is clear: new and innovative approaches are needed to sustain the state's transportation network.

Public-private partnerships (P3s) offer a potential solution to funding certain transportation infrastructure development and maintenance. In this solution, public agencies contract with private companies to finance, construct, operate, and maintain a public facility or system (e.g., a public toll road). Ultimately, the goal of such partnerships is to serve the public interest while securing new funding or financing sources and alternative delivery mechanisms.

For the past decade, Texas has used P3s to deliver highway improvements. The state has created an enabling legislative framework and pioneered P3s, even serving as a model for other states. This report examines recent Texas legislation related to P3s and looks at how other agencies around the nation and in Canada are using P3s to make observations for improving their application in Texas. The report also describes the characteristics of transportation P3s, outlines potential P3 benefits and concerns to consider, and describes conditions necessary for successful public-private transportation partnerships. The researchers found that effective P3 programs rely on these factors for their success:

- **Enabling Legislation:** Enabling legislation with clearly delineated authority for the managing agency and transparent processes send a signal to the private sector that the state is open to pursuing a P3.
- **Project Selection and Institutional Capacity:** States with clearly established P3 project priorities and a clear mechanism for project selection can move forward with P3 projects more quickly and effectively than states without them.
- **Transparency:** To garner and maintain public support of long-term concession agreements, transparency in the process is necessary.
- **Economic Environment:** Favorable economic conditions conducive to investment—from economic viability to appropriate risk allocation—are necessary to attract investment and create public support for a given project.
- **Administrative Practices:** A sponsoring agency's ability to pick and prioritize its projects facilitates effective implementation. Project champions can be key in moving a project forward by focusing on benefits and reducing confusion when it arises.

Researchers also identified three primary strategies for enhancing the benefits derived from P3s:

1. **Create an Information Exchange.** Improving access to information for all concerned promotes transparency and facilitates communication among partners. An information

exchange can also promote awareness of P3s, assist in understanding their complexities, and help outline ways to both manage technically complex projects and mitigate risks.

2. **Create a Technological Toolbox.** Complementing the information exchange, the toolbox provides access to online resources used by a wide array of partners to implement, evaluate, and monitor projects. Building off work TxDOT has already prepared, these resources can also promote greater awareness and transparency for important factors concerning public-private partnerships.
3. **Establish an Advanced Technical Support Team.** Establishing a team of P3 finance/contracting experts can facilitate P3 success. With its expertise, this team can identify and prioritize which projects can be successfully funded via P3 strategies. These experts could also make suggestions for making less-promising projects more appropriate for future P3 consideration.

As a model for other states, Texas already has the policy foundation in place to continue using P3s for transportation projects. A best practices review suggests that building on this solid foundation will require the implementation of timely and specific information, tools, and technical assistance.

Introduction

Transportation funding is increasingly becoming one of the foremost challenges faced by all U.S. state and local policymakers in the 21st century. While Texas is not alone in facing these challenges, the state has unique circumstances that require a significant policy and program response.

Due in part to continuing economic success, Texas has experienced one of the largest automobile traffic increases in the nation. This is especially evident in the state's urban areas. A recent analysis found traffic delay in the state's urban areas increased by more than 500 percent over the past two decades, with some formerly rural roads now considered part of the state's urban roadway network.¹ This trend is forecasted to continue in the future. According to the state demographer, Texas is expected to grow by an additional 18 million people from 2014 to 2040. This growth likely will place even greater demand on the state's already congested state highway network.²

In the past, Texas has paid for its highway construction through dedicated funding sources such as gas taxes and vehicle registration fees. These sources, however, are proving unable to meet future infrastructure needs. A study performed by the Texas A&M Transportation Institute (TTI) found that from 2011 to 2035, in order to maintain 2010 traffic conditions, the state will require \$270 billion.³ In response, state and local transportation officials are seeking new and innovative approaches to meeting these needs. A recent study found more than 50 unique solutions that governments have used or are proposing to meet roadway transportation needs.⁴ Population growth expected over the next 30 years places a unique burden on state leaders to be proactive in this new era of transportation financing.

One possible solution is the formation of partnerships with the private sector to deliver transportation infrastructure. A contracting model known as a public-private partnership (otherwise known as a P3) has become one option that has received increased consideration in recent years.⁵ The Federal Highway Administration (FHWA) defines this partnership as “a contractual agreement formed between public and private sector partners” that “allow[s] more private sector participation than is traditional.” Under P3s, a government agency contracts with a private company to design, renovate, construct, operate, maintain, and/or manage a facility or system depending on the terms of a contract.⁶ However, for nearly all P3s, the public sector remains accountable for the service provided to the public.

States, regional planning authorities, and municipalities are increasingly considering P3s as a possible solution to the delivery of transportation projects. However, this trend has caused concern among some who question whether P3s appropriately protect the public interest and whether private firms are held accountable. While these are serious public policy questions that should be evaluated carefully, evidence does support the value P3s can offer. Protecting the public interest while maximizing the potential benefits P3s can provide is a challenging but necessary public policy question for Texas transportation policymakers.

With this in mind, the goal of this report is to provide a balanced, objective survey assessment of the benefits and limitations of transportation P3 projects around the U.S. and Canada and an analysis of their application in a Texas context. Specifically, this report reviews (1) history of P3s and their use, (2) P3 best practices from around the U.S., (3) necessary conditions for successful partnerships as well as impediments to success, (4) existing Texas statutes and administrative procedures that govern these types of projects, and (5) possible considerations to increase use for the future. While P3s can offer alternative methods that leverage existing transportation dollars, report authors recognize that P3s constitute only part of the solution to addressing Texas infrastructure challenges.

Because the purpose of this report is to provide a preliminary policy scan of P3 best practices only, TTI relied primarily on a variety of secondary studies prepared by organizations such as the National Highway Cooperative Research Program, the Federal Highway Administration, the National Conference of State Legislatures, and others. For specific claims regarding P3 program benefits, limitations, and best practices, researchers attempted to cite the study source making that claim. Specific studies referenced can be found at the end of the document and in appendices that accompany this report.

Finally, Texas has nearly a 15-year history of use of P3s for highway improvements. The state is considered a leader in this area to date along with states such as Virginia, California, and Florida. Relevant Texas specific legislation, past and present project success, and opportunities for P3 improvements among all state and local stakeholders are referenced throughout this report. While Texas is fortunate to have a fundamental legislative and administrative framework in place, there remains an opportunity for improved understanding about P3 tools and techniques among all of Texas transportation stakeholders (MPOs, RMAs, local governments, etc.). To the extent all these stakeholders are better able to understand and use appropriate P3 tools, Texas will be better served in its search for alternative methods of financing and delivering highway infrastructure.

Background

Although nationally some perceive P3s as a new tool for delivering transportation infrastructure projects, the practice of using these partnerships dates back to the early 1800s. The development of the Philadelphia and Lancaster Turnpike in Pennsylvania and many of the nation's first railroads are a few examples of transportation projects that were financed almost exclusively by the private sector. While some of these early infrastructure negotiations involved certain provisions provided by the government, most early transportation infrastructure was financed, constructed, and maintained by private sector companies.

The 20th century, however, brought forth a declining rate of participation by the private sector in infrastructure projects. With the establishment of federal and state gas taxes in the early 1900s and the development of the Interstate Highway System in the 1950s, the public sector became almost exclusively responsible for funding and delivering transportation infrastructure. During this era, known as pay-as-you-go, the practice was for public transportation infrastructure to be built by the public sector as money was made available. In most cases, private participation was limited to construction and maintenance of a transportation facility. This infrastructure finance and delivery approach continued throughout much of the 20th century.

Since that time, however, traditional pay-as-you-go era mechanisms have failed to keep up with growing transportation demand. Factors such as enhanced vehicle fuel efficiency as well as general reluctance to tax increases have limited the ability for traditional funding mechanisms to keep pace with growing travel demand needs. As a result, U.S. states are increasingly revisiting P3s as one approach for infrastructure delivery.

Today, P3s include a broad scope of contracting, financing, and project delivery arrangements and are used in varying forms around the world. As briefly discussed earlier, the U.S. Department of Transportation refers to P3s as “a contractual agreement formed between public and private sector partners, which allows more private sector participation than is traditional.”⁷ An alternative definition, from legislation passed in Puerto Rico, defines a P3 as an entity that “couples the resources and efforts of the public sector with resources of the private sector by means of a joint investment” and makes clear that the public sector “...shall never relinquish its responsibility of protecting [the public] interest, nor waiving its rights to receive an efficient service, nor renouncing [the] ownership of the public assets included [in] the Partnership Contract.”⁸ Despite a range of approaches, philosophies, and roles, P3s tend to share common elements and most experts agree that government nearly always maintains overall accountability for a transportation P3 project. According to a recent report published by the ARTBA Transportation Development Foundation, from 1989 to 2011, 24 states and the District of Columbia have used a P3 process to help finance and build at least 96 transportation projects worth a total of \$54.3 billion. During this period, a significant number of these projects occurred in Texas alone.⁹

One defining characteristic of a transportation P3 project is the overall goal that project is attempting to accomplish. Once a project goal has been clarified and refined, the appropriate type of transportation infrastructure solution can be devised. Public policy decisions are then made to determine whether a P3 is appropriate, and if so, how it should be structured, implemented, and financed. Texas experience with P3s has included hybrids of both public and private models, particularly for those projects adding new capacity in existing transportation corridors. Such projects include the LBJ Freeway, DFW Connector, and State Highway 183, currently under procurement in the Dallas-Fort Worth area. Other projects include State Highway 130 near Austin and portions of the Grand Parkway near Houston.

A second characteristic of P3s is the method used to deliver the project. Delivery methods can be best thought of on a continuum—nearly exclusive public control to entire private control. Table 1 presents a summary review of the spectrum of P3 methods that range based upon the level of control by the public or private sector. More detailed descriptions regarding P3 delivery models are provided in Appendix 1.

Table 1: Transportation P3 Project Delivery Models

Term	Definition
<i>Design-Bid-Build (DBB)</i>	<i>This is the traditional method of project delivery in which the design and construction are awarded separately and sequentially to private firms.</i>
Design-Build (DB)	Design-build is similar to DBB but combines design and construction phases into a single fixed-fee contract.
Operations & Maintenance (O&M) Contract	This contract refers to a standalone agreement (i.e., the operator is contracting directly with the grantor) rather than part of a concession arrangement where the obligations of the concessionaire during the operating period are sub-contracted to an operator.
Design-Build-Operate-Maintain (DBOM)	This refers to when a selected contractor designs, constructs, operates, and maintains the facility for a specified period of time meeting specified performance requirements.
Design-Build-Finance (DBF)/Design-Build-Finance-Operate (DBFO), Design-Build-Finance-Operate-Maintain (DBFOM)	The variations of the DB or DBOM contracting methods for which the private partner provides some or all of the project financing. The project sponsor retains ownership of the facility. There is an important difference between these methods with and without traffic risk.
Long-Term Lease Concession	This method involves the long term lease of existing, publicly-financed toll facilities to a private sector concessionaire for a prescribed concession period during which they have the right to collect tolls on the facility.
Build-Transfer-Operate (BTO)	BTO refers to when a private owner builds an infrastructure facility, transfers it to another entity, and then operates it on a contractual basis for a specified period.
Lease-Build-Operate (LBO)	LBO refers to when a private party designs and builds a complete project, sells it to the government or consortium, and leases it back and operates the facility.
Build-Operate-Transfer	BOT & BOOT refer to models whereby the public sector grantor, grants to a

(BOT)/Build-Own-Operate-Transfer (BOOT)	private company the right to develop and operate a facility or system for a certain period. After a certain period, the private entity then transfers the facility back to the public sector.
<i>Build-Own-Operate (BOO)</i>	<i>BOO refers to when a private company is granted right to develop, finance, design, build, operate, and maintain a project; the public sector can provide tax incentives to make a project worthy of pursuing.</i>
<i>Private Sector Owns and Operates (PSOO)</i>	<i>PSOO refers to when a model where private company is granted right to develop, finance, design, build, operate, and maintain a project; usually means that no financing assistance is provided by the public sector.</i>
<i>Asset Sale</i>	<i>Asset Sale refers to when the public sector sells a transportation facility to the private sector for one lump-sum amount.</i>
<i>Buy-Build-Operate (BBO)</i>	<i>BBO refers to when a model where government sells the asset to the private sector entity, which then can make improvements necessary to operate the facility in a more cost-effective manner.</i>

Note: Delivery models in italics are generally considered purely public or private models and are not always defined as P3s. Source: adapted from Buxbaum and Ortiz (2007) pp. 7-8.

As noted in Table 1, P3 project delivery methods constitute a combination of public and private sector responsibilities. Figure 1 graphically represents the delivery models described in Table 1.

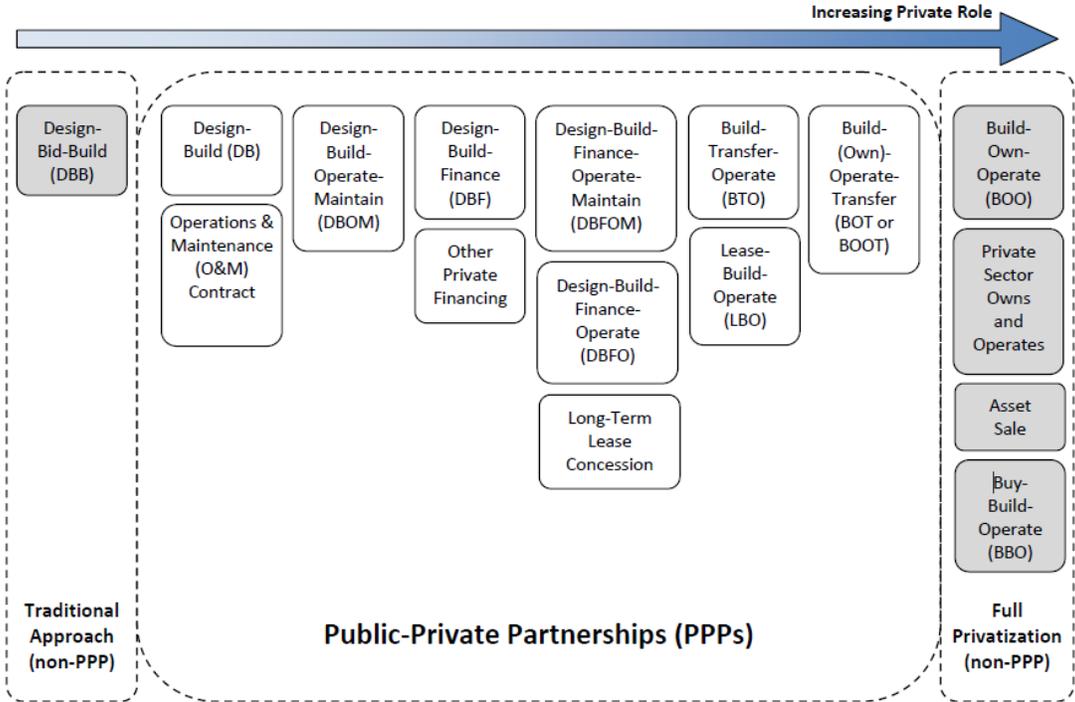


Figure 1: Project Delivery Models for Private Sector Involvement

Source: NCSL Transportation P3s: A Toolkit for Legislatures (2010).

A way to examine the differences in project delivery models is how risk is allocated between the public and private sector. Risk, a critical factor in consideration and structuring P3s, is closely evaluated as public and private parties seek an appropriate balance between responsibility, authority, and liability. In Texas’s experience, financing options, along with a host of design and

pricing issues, drive the overall P3 delivery approach. Table 2 reviews a way that the FHWA illustrates how private sector risks and responsibilities can be affected by different project delivery models.¹⁰

Table 2: Private Sector Risk Factors per Project Delivery Model

Project Delivery Models	Functional Responsibilities and Project Risks												
	Planning	Environmental Clearance	Land Acquisition	Finance	Preliminary Design	Final Design	Construction	Construction Inspection	Maintenance	Operations	Long-Term Preservation*	Traffic Revenue	Asset Ownership
Traditional Design-Bid-Build (DBB)						◇	◇						
Design-Build (DB)						◇	◇	◇					
Contract Maintenance									◇	◇			
Construction Manager at Risk (CM@R)					◇	◇	◇	◇					
Design-Build with Warranty						◇	◇	◇			◇		
Design-Build-Operate-Maintain (DBOM)				◇		◇	◇	◇	◇	◇		◇	
Design-Build-Finance-Operate (DBFO)				◇		◇	◇	◇	◇	◇		◇	
Build-Operate-Transfer (BOT)				◇	◇	◇	◇	◇	◇	◇	◇	◇	
Build-Transfer-Operate (BTO)				◇	◇	◇	◇	◇	◇	◇	◇	◇	
Build-Own-Operate-Transfer (BOOT)	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
Build-Own-Operate (BOO)	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
Asset Sale				◇					◇	◇	◇	◇	◇

*Note: Functional responsibilities denoted with a diamond above may be transferred entirely to the private sector or shared with the public sector, as determined by the contract. *refers to long-term risk of asset failure or physical obsolescence. Source: FHWA User Guidebook on Implementing P3s for Transportation (2007)*

A third characteristic of transportation P3s is how project financing is shared by its stakeholders. Some P3s are negotiated so that the public sector is wholly responsible for securing financing,

whereas others require the private sector to secure financing. Historically Texas P3s have favored a combination of both.

Private sector partners that finance a transportation P3 project need to recover costs and earn a return on their investment. This is usually accomplished through a revenue stream generated from the transportation asset, through direct compensation from the public sector, or both. In addition to opportunities to capture user-based fees, several credit enhancement programs have been made available to facilitate the development of P3 projects. For example, federal debt financing tools (e.g., Private Activity Bonds) and federal credit assistance tools (e.g., Transportation Infrastructure Financing and Innovation Act bonds) have been made available. In addition, innovative state financing programs such as Proposition 12 and Proposition 14 bonds have been used. For additional information regarding innovative federal and state finance mechanisms used, please refer to Appendix 2.

Regardless of the goal, project delivery model, or financing mechanism, several public and private sector stakeholders must come together to plan, structure, and deliver a P3 project. Key stakeholders in a transportation P3 project typically include:¹¹

- Public sector decision makers.
- State/public toll authorities.
- Equity participants.
- Lenders.
- Design and construction companies.
- Operating companies.

P3 Benefits, Limitations, and Concerns

As noted previously, P3s can have both perceived benefits and limitations associated with them. Table 3 provides a brief overview of P3 benefits and limitations, with an emphasis on some of their tradeoffs based on previously conducted studies.¹² Some of these concerns can be managed through the contract process itself; this can mitigate many of these perceived limitations and concerns.

Table 3: Potential P3 Benefits and Concerns to Consider

Potential P3 Benefits	Potential P3 Concerns
<ul style="list-style-type: none"> • Private financing and project acceleration • Monetization of existing assets • Cost and time savings • Lifecycle efficiencies • Improved project quality • Risk transfer • Public control and accountability 	<ul style="list-style-type: none"> • Possible loss of public control and flexibility • Possible unreasonable private profits at the public's expense • Perceived loss of future public revenues • Risk of bankruptcy or default • Accountability and transparency • Environmental issues • Foreign companies • P3 toll road issues and accountability • Specific contract terms

Source: Table adapted from information provided by the NCSL Transportation Public-Private Partnerships: A Toolkit for Legislatures (2010).

The benefits of P3s can, in some cases, include cost and time savings, improved project quality, and project lifecycle efficiencies. The following list summarizes studies conducted regarding benefits that P3 agreements can provide (as presented in Table 4):

- **Private financing and project acceleration:** Some have argued that through innovative financing mechanisms, such as those discussed in Appendix 2, a P3 can help expedite the delivery of a project that might otherwise not have been completed in a timely manner or even at all. A recent report by the FHWA found that completing a P3 project can minimize public inconvenience and traffic disruption as well as produce public safety benefits.¹³
- **Monetization of existing assets:** Some have argued that P3s that involve up-front payments or revenue sharing agreements could be used to extract value from existing transportation infrastructure to raise additional funding for other projects. For example, a recent GAO analysis found that in 2005, the city of Chicago received about \$1.8 billion by leasing the Chicago Skyway to a consortium for 99 years. The city in turn used the lease payments to pay off the remaining debt on the Chicago Skyway and some of the city's general obligation debt. In another example, in 2006, the state of Indiana signed a 75-year, \$3.8 billion lease of the Indiana Toll Road.¹⁴ The proceeds of this sale primarily were used to fund other highway infrastructure projects in Indiana.

- **Cost and time savings:** Recent academic literature and policy studies make note of the time and cost savings that can be attributed to the P3 approach to highway delivery. While academic evidence of P3 performance in the United States is limited, a recent academic study examined 12 North American public-private partnerships and found that P3 sample cost overruns averaged 0.81 percent and schedule overruns averaged -0.30 percent, compared to 12.71 percent cost overruns and 4.34 percent schedule overruns for publicly-financed large-scale design-bid-build highway projects .¹⁵ Possible reasons for time and cost savings include:

 - Direct incentives to the private contractor for on-time delivery.
 - Proper use of performance-based contracting.
 - Competition among bidders.
 - Transfer of risk to the private sector.
 - Lifecycle efficiencies.
- **Lifecycle efficiencies:** In an approach such as design-build-operate-maintain (DBOM), a sole contractor is responsible for several project stages, which gives the private contractor the incentive to lower costs throughout the facility’s lifecycle and reduces possible collaboration delays. According to a 2004 USDOT report to Congress, “public-private partnerships can save from 6 to 40 percent of the cost of construction and significantly limit the potential for cost overruns.”¹⁶
- **Improved project quality:** Several studies have found that P3s can improve the quality in the delivery of a highway project. While little quantitative evidence exists, in its survey of transportation P3 agencies, the University of Minnesota found that the use of a P3 contract method has been effective at encouraging innovation with private expertise and state-of-the art technologies.¹⁷
- **Risk transfer:** In some cases, a P3 contract can allow for the transfer of risk from the public sector to the private sector. Some experts believe that this risk transfer can actually encourage the public sector to reduce its own risk and potential financial losses. Furthermore, the up-front consideration of possible risks in a P3 arrangement can also facilitate more timely (and less costly) risk mitigation. A recent UK National Audit Office (NAO) study, however, found these potential risk transfer benefits depend heavily on careful project analysis and public sector enforcement of the P3 agreement.¹⁸
- **Public control and accountability:** Although some transportation experts have warned that P3s can reduce public control over public assets, others have argued that these contracting methods actually *enhance* public accountability and control over transportation infrastructure. For example, Leonard Gilroy of the Reason Foundation notes that most P3 negotiations tend to be based on a “strong, performance-based contract

that spells out all of the responsibilities and performance expectations that the government will require of the contractor. The failure to meet any of the thousands of performance standards specified in the contract exposes a contractor to financial penalties,” concluding that “the public interest is protected by incorporating enforceable, detailed provisions and requirements into the contract.”¹⁹ Other experts have also noted that under a typical P3 agreement, the public sector does not lose ownership of a facility and that well-crafted agreements, along with proper enforcement of those contract terms, can ensure the public is protected.²⁰

According to the literature, limitations and concerns regarding P3 contract methods have also emerged.²¹ Some of these concerns are summarized here:

- **Possible loss of public control and flexibility:** Some have argued that P3s, if not structured to adequately protect the public interest, result in a loss of public control and flexibility. Some of this risk can be because it is difficult to predict the public’s need far into the future. For example, some European Union countries have limited P3 contracts in term length to a maximum of 35 years (although some such as the Channel Tunnel project have been as long as 99 years).²² Others argue that these limits should be decided on a project-by-project basis, and concerns surrounding public control are typically addressed in P3 contracts that are written to stipulate how each party may amend a contract.^{23, 24}
- **Possible unreasonable private profits at the public’s expense:** Some claim that private companies may make profits at the public’s expense by exerting high tolls and fees, overlooking maintenance concerns only to boost profits, or requiring compensation for lost revenue due to competing facilities.²⁵ Although standards and clauses may have been outlined in a contract, some claim that contractual restrictions on tolls and fees allow private entities more than enough discretion to raise rates. Others argue that unsolicited bids also are thought to allow the private developer to design a project that may place profits ahead of the public good.²⁶ At the same time, others have argued that unsolicited proposals can encourage project innovation. A 2004 USDOT study found that a variety of P3 stakeholders (including state representatives, law firms, private companies, and trade associations) recommended elimination of state prohibitions on accepting unsolicited proposals.²⁷
- **Perceived loss of future public revenues:** Some criticize P3s due to the perception that these contracting methods could result in a loss of future public revenues. According to a GAO analysis, the higher private sector financing costs relative to public sector financing costs may result in higher overall project costs.²⁸ Conversely, others assert that many of these issues can be addressed through careful asset valuation and risk-sharing agreements.²⁹

- **Risk of bankruptcy or default:** Some project stakeholders have expressed concern that a private partner could default on a project, affecting the public sector in a negative way. This concern is especially directed toward agreements in which the public sector is at financial risk or otherwise could be owed money at the time of default.³⁰ Others find that P3s are nearly always designed with minimal risk to the public sector.³¹
- **Accountability and transparency:** Although maintaining confidentiality during the P3 proposal process can be important for several reasons, some expressed concerns about the openness and accountability for P3 projects relative to the traditional highway procurement process.³² For example, in a recent survey of state DOTs, 70 percent of respondents considered transparency an important measure to protect public interest.³³ Several studies identified P3 agreements completed without public oversight and opportunities for input can hurt public opinion toward these agreements. The available evidence shows that concerns about transparency and accountability can be mitigated through an open process that gives all stakeholders opportunities to provide input.³⁴
- **Environmental issues:** Concerns have been raised by some that P3 agreements may be tempted to choose “less environmentally friendly methods to save on cost.”³⁵ However, in recent years P3 contracts have been written to include environmental performance standards.³⁶
- **Foreign companies:** Concerns related to foreign companies involved with P3 contracts in the United States include foreign control of domestic assets, national security issues, and potential federal preemption of state and local authority in projects involving trade. The lines are blurred between foreign and U.S. investment companies as many foreign companies may include U.S. investors and many U.S. pensions are invested in non-U.S. investment funds.
- **P3 toll road issues and accountability:** Some say that roads that received some funding through traditional transportation funding mechanisms (e.g., gas taxes, vehicle registration fees) should not be tolled. To gain public support, some say that benefits to using the toll facility need to be clearly articulated.³⁷ Other issues for public and private toll roads include the re-routing of traffic to un-tolled routes, removal of tolls upon termination, and toll rate control. Many of these toll road issues can be addressed in P3 contract provisions or enabling legislation.
- **Specific contract terms:** Other concerns have emerged regarding specific P3 agreement terms. Concerns regarding maintenance standards, hand-back provisions, commercial development rights, data ownership, and other related concerns can be identified (and dealt with) within P3 agreements.³⁸

Texas P3 Statutory Framework

For most of the latter half of the 20th century, Texas delivered civil infrastructure through traditional pay-as-you-go methods. However, population growth and declining traditional funding methods have renewed interest in the P3 model for infrastructure delivery. While P3 authority exists for water-related infrastructure projects and RMAs or toll authorities, this report is focused on the interaction between P3s and state surface transportation. Recent legislative changes have granted several state and local agencies the authority to enter into P3s, as detailed in Table 4.

Table 4: Summary of Key State Legislation that Authorizes Governmental Entities to Enter into P3 Agreements

Agency	Type of Infrastructure	State Law	Brief Description
Texas Department of Transportation (TxDOT)	Highways; Toll Projects; ³⁹ Rail facilities and systems	Texas Transportation Code Ann Sec. 222.001-222.107; 223.201-223.210; 228;	Allows TxDOT to enter into P3s for certain highway projects. Section 91.054 allows TxDOT to enter into P3s for rail facilities and systems.
Regional Toll Authorities (RTAs)	Toll road	Texas Transportation Code Sec. 366	Texas Transportation Commission authorizes the creation of an RTA.
Regional Mobility Authorities ⁴⁰ (RMAs)	Toll road	Texas Transportation Code Sec. 370	Texas Transportation Commission authorizes creation of an RMA.
County Toll Authorities	Toll road	Texas Transportation Code Sec. 284	Texas Transportation Commission plays no role in development of a CTA.
Texas Facilities Commission	Facilities on state-owned property	Texas Government Code 2267.052	Allows Texas Facilities Commission to accept private proposals for developing certain facilities on state-owned infrastructure.
Partnership Advisory Commission	Most civil infrastructure (highways not included)	Texas Government Code 2267	Advises participating state agency regarding an infrastructure project prior to negotiation with a private entity.

Source: TTI

As noted earlier, transportation projects traditionally have been the primary responsibility of TxDOT and funded by a combination of dedicated revenue sources. This enabled TxDOT to design, build, and manage the state highway system. Facing a shortage of transportation revenue and recognizing the need for additional finance options, the Legislature considered and passed a

number of bills designed to increase opportunities for Texas to meet the growing transportation demands and maintenance of the state's existing infrastructure. Key Texas P3 legislation passed since 2003 is summarized in the subsections that follow. A more comprehensive legislative history on transportation-related P3s is provided in Appendix 3.

78th Legislative Session: HB 3588

While basic authority for P3s in Texas dates back as far as 1991, the legislation most often associated with P3s in Texas is HB 3588, introduced during the 78th Legislative Session. One of the most critical portions of this legislation was the creation of Comprehensive Development Agreements (CDAs), a mechanism that allows for the sharing of potential risk and reward between public and private entities that are involved in transportation projects.⁴¹ In short, this bill allows the state to initiate P3 projects. Specifically, this legislation allowed private entities to design, build, operate, and finance toll roads and revenue producing rail systems, adding a new dimension to the way transportation projects have previously been handled in Texas.

Article 2 of HB 3588 authorizes the Texas Transportation Commission to create Regional Mobility Authorities that localities can use to approve and generate revenue from regional transportation projects, which in turn can be used to support future infrastructure investments.⁴²

Article 5 of HB 3588 authorized the commission to issue state-owned bonds in order to fund other state highway improvements. In addition, the legislation imposed regulatory fees on driver licenses, increased court costs, increased motor vehicle sales taxes, and required project feasibility studies to be completed on all potential transportation projects. The bill also created the Texas Driver Responsibility Program that imposed additional fines on drivers with repeat offenses and funneled the money collected into the Texas trauma care system.⁴³

After the passage of HB 3588, some concern was expressed that the state government could be wielding too much power, especially regarding the state's ability to convert roads to a toll basis, as well as condemn property associated with the Trans-Texas Corridor.⁴⁴ Some of this key legislation associated with the Texas Transportation Code are summarized below.

79th Legislative Session: HB 2702

HB 2702, introduced during the 79th Legislative Session, altered the standing transportation code and placed a number of restrictions on toll roads including ensuring that revenue collected from toll roads be spent on transportation or air quality projects in the area in which the tolls were collected.⁴⁵

This legislation also changed the regulation of Texas' rail systems. Article 1 of this legislation amended the Transportation Code to allow TxDOT to combine highway and rail facilities under a CDA. This includes partnering on the design, construction, and operation of rail facilities via CDA procurement rules in Texas Chapter 361. In addition, it eased funding limitations by eliminating the previous limit of \$12.5 million from the state highway fund for rail projects.⁴⁶ Instead, Article 1 outlines a project-specific approach whereby each project can get approval to

receive money from the general fund. Also, this bill contained a provision that changed funding limits for creating toll roads across the state, raising the maximum average annual expenditure from \$800 million to \$2 billion.⁴⁷

80th Legislative Session: SB 792

During the 80th Legislative Session, SB 792, a compromise bill, was passed in an attempt to address the concerns of some anti-toll interests. The primary result of this bill was the imposition of a two-year moratorium on all private company toll roads, with a few exclusions in major metropolitan areas. The private projects that were allowed to continue included six projects in Harris County and the private projects underway in the Dallas-Fort Worth area. This legislation grants local toll authorities with the “first option in building projects within their jurisdictions and provides these authorities with the powers to cost-effectively construct and complete these projects.”⁴⁸ In addition, this bill requires TxDOT to provide resources at no cost to help ensure that projects are completed as efficiently as possible.⁴⁹ Despite all of these changes, the laws did not significantly interfere with P3s being considered as a longer-term option for highway transportation.

82nd Legislative Session: SB 1048

During the 82nd Legislative Session, legislation was introduced that greatly increased the diversity of allowable P3s in the state. SB 1048, also known as the Public and Private Facilities and Infrastructure Act, was in direct response to the growing desire for private sector expertise in the renovation and remodeling of the Texas Capitol Building.⁵⁰ This legislation can be applied across many industries. Qualifying projects in this bill include “any ferry, mass transit facility, vehicle parking facility, port facility, power generation facility, fuel supply facility, oil or gas pipeline, water supply facility, public work, waste treatment facility, hospital, school, medical or nursing care facility, recreational facility, public building, or other similar facility...”⁵¹

Although this bill was not concerned with highway projects per se, the legislation allowed private companies to submit unsolicited and solicited infrastructure project proposals, and outlined a transparent way in which the proposals would be evaluated by the state. Supporters of the legislation asserted that it would streamline the P3 process across multiple industries. Opponents feared that this bill would have similar problems as the legislation already in place for toll roads. As enacted, this broad-reaching legislation was rejected in practice and sparked intense controversy, which was addressed during the subsequent legislative session.

83rd Legislative Session: HB 3436

In early 2013, the Texas Sunset Advisory Commission recommended a freeze on all unsolicited P3 proposals, and in response to the significant opposition to the privatization of the capitol building renovations, HB 3436 was introduced. This bill prevented the use of P3s in the Capitol complex without specific legislative authority.

Moving Forward

Though many questions still remain regarding the best way to manage P3s, Texas has established a legislative framework for new and innovative finance solutions. In many ways, Texas has pioneered the use of public-private partnerships and has served as a model for other states.

As is often the case with public policy innovation, change causes growing pains and anxiety about new challenges. The following are some issues that have emerged, and been at least partially addressed, but could resurface for additional legislative consideration:

- The duration of contracts (i.e., statutory length of a P3 contract, which can be legislatively mandated, determined on a project-by-project basis, or both).
- “Hand-back” provisions (i.e., provisions that stipulate how a transportation facility is returned to the public sector).
- End-of-contract responsibilities (i.e., specific terms associated with end of contract or responsibilities of the private sector for terminating a contract early).
- Risk assignment between public and private parties as part of contractual provisions.

These issues are important considerations with regard to P3s and will likely receive additional consideration in the future.

P3 Best Practices

In looking beyond current Texas legislation, another way to evaluate the current Texas P3 legislative framework is to examine implementation in other regions. To date, the bulk of these projects have been executed in Europe and Asia, with some additional project activity in South America. While P3 transportation projects experience has been limited in the U.S. and Canada compared to Europe, there have been more than 50 P3 projects funded nationwide, and interest and experience is growing.

Based on historical experience, successful transportation P3 programs and policies are often determined by the presence or absence of success factors:

- The presence or absence of enabling legislation.
- Project selection and institutional capacity.
- Transparency.
- Administrative practices surrounding P3 application.

Best practice considerations presented here are based only on official public sector published reports from the Federal Highway Administration (FHWA), the American Association of State Highway and Transportation Officials (AASHTO), the National Conference of State Legislatures (NCSL), and peer-reviewed academic publications. At least at the state level, states such as Texas with a longer P3 track record have made significant progress in embracing these success factors.

Enabling Legislation

Geddes and Wagner (2012) examined private infrastructure investment in states and found that enabling statutes that authorize existing or new agencies to enter into one or more P3 arrangements are the major precursor to any project activity.⁵² One indicator of the increasing popularity of P3s is the number of states who have adopted enabling legislation. According to a study by the National Conference of State Legislatures (NCSL), as of February 2014, 33 states and Puerto Rico had enacted laws authorizing some form of P3s for highway and bridge projects, as shown in Figure 2.⁵³

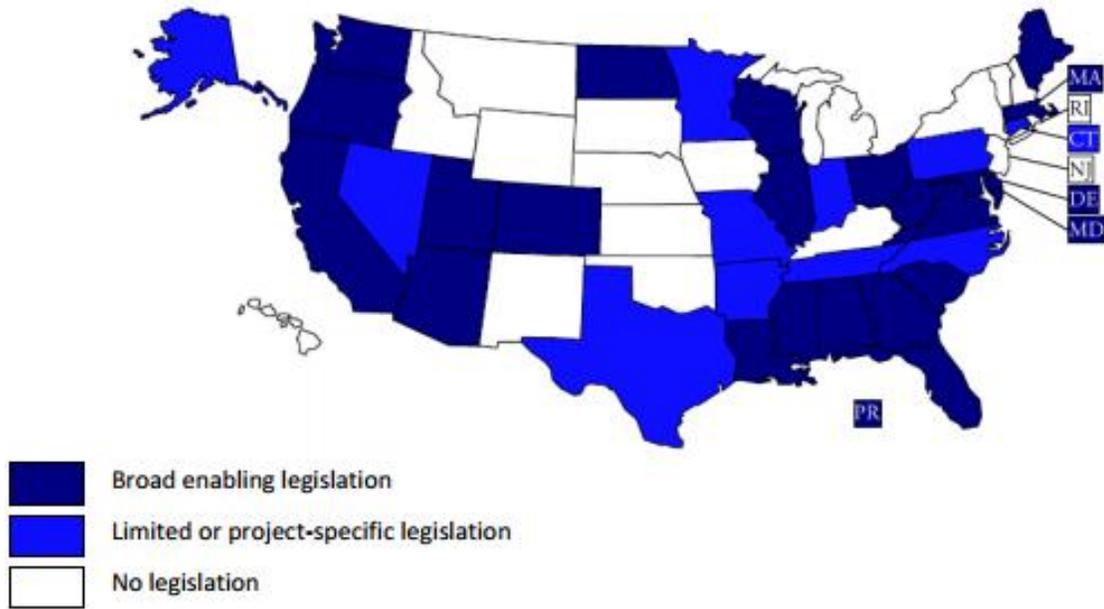


Figure 2: States with P3 Enabling Legislation, as of February 2014

Source: NCSL Public-Private Partnerships: A Toolkit for Legislators, February 2014 Update.

These laws vary in a number of ways, especially in the degree to which P3s should be pursued on a *widespread* versus *highly-targeted* or even *pilot* project basis. Whether a given state approach is more aggressive or more passive, most P3 statutes address key issues, such as:

- Project selection and approval.
- The review process for proposed projects.
- Funding requirements and restrictions.
- Overall project management.
- Toll management and administration.

Effective enabling legislation with clearly delineated authority and transparent processes can help send a signal to the private sector that the state is open to pursuing a P3. A review of available literature found that effective state enabling legislation generally contains the following characteristics:

- Clear focus of governmental responsibility under a designated agency and office.
- Sufficient staff and consultant expertise and resources to procure and negotiate projects on behalf of the state.
- Clear delineation of a P3 proposal solicitation process and whether unsolicited proposals are acceptable.

- Assigned responsibility to an office of state government to coordinate advocacy and information surrounding P3 use.
- Restrictions on what projects are going to be considered.
- No requirement of final, post-agreement approval by legislative bodies.

Generally, it can be common for a state to amend its P3 enabling legislation at least a few times after initial implementation. For example, Virginia began with project-specific enabling legislation in the late 1980s, but eventually followed with the passage of legislation that enabled a more comprehensive P3 project review approach in 1995 and again in 2011. Florida also revised its legislation several times and now allows a private entity to develop new toll facilities, use various innovative financing techniques, and provide annual payments for the availability of a P3 facility.

Several international and U.S. policymakers have also been credited for creating a P3 framework by specifying clear public interest criteria and requiring that P3 projects meet those criteria in their enabling legislation. For example, several Australian state governments responded to initial criticism of their P3 program by developing a comprehensive checklist for evaluating a P3 project based on predetermined public interest values. While establishing clear public interest criteria can vary by country and by state, the existence of such criteria can facilitate proper evaluation.

Project Selection Processes and Institutional Capacity

A review of several U.S. P3 projects found that states with clearly established P3 project priorities and a clear mechanism for project selection have been able to move forward with P3 projects more effectively than states that do not have these provisions. Many state legislatures have established P3 project priorities by restricting the use of P3s to projects that are consistent with their state's long-range transportation plan.

Based on evidence from stakeholder interviews, one approach that has proven successful is the establishment of an entity tasked with verifying that a project satisfies most of the P3 criteria and clearly offers the best opportunity for successful project delivery.⁵⁴

Establishing government expertise in P3s (as opposed to contracting for that expertise) has also proven to be an effective way to properly ensure that the public interest is protected. A review of available literature found expertise can exist at multiple levels of government. For example, P3 Canada is charged with providing information and assistance to Canada's provincial governments. At the provincial level, Partnerships British Columbia (BC) is responsible for handling a more specialized evaluation of its P3 projects. In addition to encouraging a layered approach to P3 evaluation and assistance, the literature also supports the practice of continuous evaluation of P3 contract outcomes. Determining what worked well and problems that were encountered can help inform future P3 procurements.

Another best practice is the development of government technical expertise for P3 evaluation. Experienced P3 staff can make it easier for the public sector to handle the workload more thoroughly and efficiently. One way this is done is to develop independent technical expertise that serves a P3 project support role. For example, Partnerships BC has developed extensive transportation P3 expertise, with finance, economics, public administration, and business professionals working in-house to evaluate solicited and unsolicited P3 proposals.

Transparency

Another important consideration is the transparency of a P3 project. Buxbaum and Ortiz noted that this transparency is important for public support of long-term concession agreements.⁵⁵ Further, a regional plan association interested in pursuing long-term toll concessions published a report suggesting full disclosure of:

- Current and proposed contract standards.
- Toll policy under a P3.
- Revenue losses related to tolls used for other investments.
- Non-compete clauses or potential limitations to expansion of other transportation infrastructure.
- Transaction costs incurred by the public sector.

Many transportation agencies find transparency a central concern for P3s. As noted earlier,⁵⁶ a 2009 FHWA survey of state DOTs found that only one state considered transparency as not important, with approximately 30 percent of interested parties in the survey noting that transparency is a main concern when considering P3s.⁵⁷ Furthermore, when asked about measures used to protect the public interest, only one state out of 26 indicated that public access to information was not important. Jeffers et al. provides the following recommendations regarding transparency in the procurement of P3 projects:

- Implement the use of a process auditor position for each P3 project.
- Conduct audits throughout the project life cycle, not just at the end of construction.
- Involve internal audit staff and financial experts early in the tendering process to improve the quality of highway RFPs.
- Specify outcomes desired and allow contractors the opportunity to determine the detailed specifications to construct, maintain, or operate the project based on the outcome specifics.⁵⁸

In its review of P3 best practices, the Legislative Analyst's Office for the California Legislature found evidence supporting the practice of adopting a transparent and publicly available P3 policy

that guides decision makers when evaluating procurement options. This level of transparency also helps communicate to project stakeholders and helps the public understand how and why the government selected a private entity to build a transportation facility.⁵⁹

Economic Environment and Administrative Practices

Sound economic and administrative practices provide a strong foundation for successful P3 projects. For example, Zhang suggests several project-specific critical success factors:

- Favorable investment environment.
- Economic viability.
- Reliable concessionaire consortium with strong technical strength.
- Sound financial strength.
- Sound financial package.
- Appropriate risk allocation via reliable contractual arrangements.⁶⁰

Academic literature provides further evidence that a project-sponsoring agency must have a clear delegation of authority (best through enabling legislation) to develop the project and determine the level of priority within the pipeline of priority projects. Abdel-Aziz suggests that the decision to proceed with a P3 depends in large part due to an effective programmatic environment. This report identified nine critical success factors:

- Availability of a P3 institutional and legal framework.
- Availability of P3 policy and implementation units.
- Perception of private finance objectives.
- Perception of risk allocation and contractor's compensation.
- Perception of value-for-money.
- P3 process transparency and disclosure.
- Standardization of P3 procedures and contracts.
- Performance specifications and method specifications.
- A dedicated project manager, experienced financial consultant, and a legal team with P3 expertise.⁶¹

In addition to an effective project selection process, many P3 experts note the importance of project champions and the critical role they can play in P3 project success. According to a study by George Mason University, elected officials, especially those in senior state government

leadership positions, can help keep information on potential benefits and opportunities for P3s in the foreground, thereby reducing confusion and uncertainty keeping appropriate P3 project opportunities on track.⁶²

As P3 project experience increases as it has in Texas, many of the foundational best practices issues listed above become more commonplace and less concerning. Over time, however, additional concerns arise. While many of these can be resolved through contract structures and on-going project management, there remain additional operational issues that can impact project success. Examples include long-term operations and maintenance considerations, various aspects of revenue risk such as traffic projections, and issues related to setting and managing tolls and fees. These more operationally-oriented issues are beyond the scope of this report.

Best Practice Review

Several case studies were examined to better understand results and outcomes from effective P3 policies and programs. Two P3 programs emerged as models for possible implementation: Partnerships BC and the Virginia Office of Transportation Public-Private Partnerships are considered to be some of the most well-established models and are the principal models reviewed in this report.

There are also emerging efforts such as the High Performance Transportation Enterprise (HPTE) in Colorado and new initiatives in states such as Maryland as well as collaborative partnerships between the states of California, Washington, and Oregon, but these efforts are so new that they cannot be fully assessed at this time.

Partnerships British Columbia Inc. (Partnerships BC)

Partnerships BC provides planning, delivery, and oversight for major economic and social infrastructure projects in the Canadian province of British Columbia. The corporation was authorized under the British Columbia Business Corporations Act in 2002 and is owned solely by the British Columbia provincial government. Governed by a board of directors, it answers to the Ministry of Finance.

Since its inception, Partnerships BC has participated in more than 35 major P3 projects with an investment value of \$12 billion, of which \$5 billion was private sector capital. Partnerships BC is widely credited with developing and cultivating in-house technical expertise, and has gained recognition for its commitment to analytical support, insight, and full transparency of the P3 selection process. Primary services for Partnerships BC include the following:

- Planning and securing partnership delivery solutions that are expected to generate value for money.
- Successfully implementing partnership delivery solutions for public infrastructure through its leadership in procurement and market development.

- Maintaining a self-sustaining organization and providing added value to an increasingly diverse client base.

Partnership BC uses a fee-for-service consulting model. Its staff provides consulting services, and it also calls on external consultants for specialized projects that are outside of the corporation’s internal knowledge base. Table 5 provides an overview of the Partnership BC’s core business service areas for each major phase of a transportation infrastructure project.

Table 5: Partnerships BC Core Business Areas

Business Planning	Procurement Process	Post-Contract/Financial Close
Early Project Screening	Competitive Selection Management	Project Reporting
Concept Plans	Evaluation Management	Design and Construction Phase
Procurement Options Assessment	Contract Negotiations	Operations Phase Advice
Business Case <ul style="list-style-type: none"> • Market Sounding • Quantitative Analysis • Risk Analysis • Multiple Criteria Analysis • Procurement Options Analysis 	Service Integration <ul style="list-style-type: none"> • Consultant reporting 	

Source: *Partnerships BC Service Plan 2013–2015*.

The Office of Transportation Public-Private Partnership of Virginia (OTP3)

The Office of Transportation Public-Private Partnership of Virginia (OTP3) is responsible for carrying out the state’s Public-Private Transportation Act (PPTA) of 1995 through a statewide program for major innovative project development for all modes of transportation projects. This effort has allowed the Commonwealth of Virginia to deliver a significant number of P3 projects from 2008–2012, making it the leading state in P3 efforts in the U.S. during that period. Within OTP3’s five years, Virginia had a total of seven projects underway, with an estimated total project value of \$8.1 billion.⁶³

The OTP3 consists of the Secretary of Transportation, Virginia Department of Transportation, Department of Rail and Public Transportation, Department of Aviation, Department of Motor Vehicles, Commercial Space Flight Authority, and the Virginia Port Authority.⁶⁴ This allows the OTP3 to work directly with the agency linked to a project’s mode of transportation.

The purpose of PPTA of 1995 was to bring together, under one framework, local governments, public entities, and the Commonwealth of Virginia, and allow these entities to enter into agreements authorizing private entities to develop and/or operate Qualifying Transportation Facilities. In short, this legislation enabled the Commonwealth to shift the risks of financing and construction, as well as long-term operations and maintenance responsibilities, to the private sector.⁶⁵

The objectives for the PPTA program and that of the OTP3 are:⁶⁶

- Facilitate timely delivery of PPTA projects within established laws and regulations.
- Develop multimodal and intermodal solutions consistent with state, regional, and local transportation policies, plans, and programs.
- Encourage competition for innovation and private sector investment, creating value-for-money for the commonwealth.
- Promote transparency, accountability, and informed and timely decision making.
- Establish reliable and uniform processes and procedures to encourage private sector investment.
- Seek efficiencies by standardizing processes.
- Foster efficient management of commonwealth financial and organizational resources.
- Achieve lifecycle cost efficiencies through appropriate risk transfer.
- Promote economic growth and job creation.

Feedback from several sources in transportation finance has indicated that the presence of this organization has increased awareness and ease of access to information on P3 in that state. A more detailed description of these models and a new joint program underway between the states of California, Oregon, and Washington are included in Appendix 5.

Key Observations and Policy Considerations for Texas

The preceding sections of this report lead the authors to make several observations and suggest areas for possible future policy consideration. One observation is that Texas' existing legislative framework already is broadly conducive to P3 implementation. HB 3588, which can be described as the state's transportation P3 enabling legislation, authorized the creation of P3 tools known as Comprehensive Development Agreements (CDAs). The legislation also established rules about the public and private roles and responsibilities within the development of a P3. Finally, it provides a framework for a competitive selection process, outlines criteria for the private sector's preparation of bids, and specifies procedures for how solicited bids are evaluated. Furthermore, bills such as SB 1048 (enacted during the 82nd Legislature) have further defined guidelines regarding unsolicited bids for civil works projects. In total, these key pieces of legislation provide greater certainty and predictability for potential private sector partners.

A second observation is that the number of P3s in Texas is increasing. In the past 12 years, TxDOT has successfully partnered with the private sector to pay for and construct large-scale projects that otherwise would remain years away from construction. These P3s leverage state resources and deliver projects much more expeditiously than do the standard pay-as-you-go methods of the past.

In Texas, P3s used for transportation projects employ a procurement process that allows TxDOT to select the proposal that provides the "best value" to the state. Unlike low-bid projects, this procurement process considers factors such as team experience, expedited design and construction schedules, innovations, long-term maintenance requirements, as well as price when determining a project's best value to the state. Projects can take the form of design-build or concession models with varying degrees of responsibility among private and public sector participants.

There are nine active TxDOT P3 projects with an approximate value of \$11 billion, with approximately \$4 billion in the procurement stage. Additional planned projects could raise the total to more than \$22 billion. Table 6 lists several current projects and identifies the contract execution date, the project's private developer, the capital cost and the project type—either operations and maintenance, procurement, or design and construction.

Table 6: Current Projects Being Delivered Through TxDOT's CDA Legislation

Project	Contract Execution	Developer	Capital Cost	Type of Project
SH 130 Seg 5 & 6	MAR 2007	Cintra-Zachry	\$1.367 Billion	Concession
DFW Connector	OCT 2009	NorthGate Constructors, J.V.	\$1.267 Billion	Design-Build
North Tarrant Expressway (NTE) (Seg 1 & 2W)	JUNE 2009	Cintra-Meridiam	\$2.107 Billion	Concession
IH 635 LBJ Managed Lanes	SEPT 2009	LBJ Infrastructure Group	\$2.983 Billion	Concession
NTE 3A	MAR 2013	Cintra- Meridiam	\$1.408 Billion	Concession
SH 99 Grand Parkway Segments F1, F2, & G	MAR 2013	Odebrecht & Zachry	\$1.452 Billion	Design-Build
I-35E Managed Lanes	MAY 2013	AGL Constructors	\$1.317 Billion	Design-Build

While the number and scope of alternative delivery projects being procured is increasing, future opportunities remain to encourage the exchange of information and resources so that projects deemed worthy of an alternative delivery method can be considered.

The third and final observation is that Texas has explicitly recognized the importance of public partners in the success of P3 programs. HB 3588 empowered agencies (principally TxDOT) with the authority to evaluate P3 proposals. This is important because it allows the public sector to ensure that P3s protect the public interest. In contrast, California's early P3 legislation significantly restricted state participation in its P3s and assigned environmental clearance to a private entity. These two actions created significant problems for some of California's early P3 projects; new California legislation remedied the problem. Texas' decision to retain this authority wholly within the public sector likely is one reason why some of the state's early CDA projects were implemented.

This report's earlier review of best practices and its delineation of the pros and cons associated with P3s lead the authors to identify several areas for possible further consideration.

As part of this review, report authors have taken into consideration TxDOT's knowledge and experience with P3 projects. It is worth noting that this experience will be helpful in providing a framework for other organizations (e.g., MPOs, RMAs) that is central to expanding awareness and consideration of P3 opportunities at the regional and local levels.

Information Exchange

The goal of an information exchange is to improve access to relevant information for all P3 participants (state, regional, and local agencies). As noted earlier in this report, full and open transparency is a proven element to a project's success. Building on information already compiled by TxDOT, this information exchange would help private entities and local governments to:

1. Understand the array of elements associated with successful P3s through an easy-to-use information portal, including the benefits of using non-public financing.
2. Outline ways to both manage technically complex projects and mitigate risk in a manner similar to project risk assessment workshops conducted by TxDOT.

Other best practices in this area include Virginia's Office of Transportation Public-Private Partnerships, which is positively viewed by many P3 policy experts for its practice of disclosing its project prioritization and selection practices. Similarly, Partnerships BC uses an open communication forum, which often is cited as critical to building knowledge and trust among project stakeholders and the public.

Technological Toolbox

The goal of the technological toolbox is to complement the information contained on the Information Exchange with improved access to technical online evaluation tools. For example, the website of TxDOT's Strategic Projects, the department within TxDOT that oversees procurement and other activities for comprehensive development agreements, contains:

- Legislation and rules regarding CDAs and DB.
- Conflict of Interest Information.
- CDA and DB Process.
- Current Project Construction and Procurement Information.
- Request for Information, Request for Qualifications, and amendments to those documents.
- Executed Projects and Project Award Documents.
- List of Winning Team Information.
- Periodic Project Update Information.⁶⁷

This approach can provide a technological solution to the issue of transparency, and will ensure that both public and private partners can understand the procurement process and their requirements in a specific proposed transaction. Again, the state of Virginia is frequently cited as a P3 innovator in this area. When its Office of Public Private Partnerships was established, it immediately set about to create a framework for P3 procurements, ultimately leading to a deeper knowledge base about the process for both end users and contract providers. As stated earlier, building on these approaches with additional tools such as an easy to use publicly-available preliminary feasibility model would also provide regional and local governments interested in understanding and evaluating P3 projects with the ability to access and exchange information with private investors.⁶⁸

Advanced Technical Support Team

A review of best practices found that building an advanced technical support team, whose members have a complete and detailed understanding of the financial and contracting P3 process, is fundamental to project success. The establishment of an advanced technical support team would further enhance the financial expertise among government stakeholders about the development and financial structure of P3s. Adopting the role of a facilitator, the team can identify projects that are likely to meet relevant technical and financial thresholds for successful consideration for P3 funding. In those cases in which an early review does not appear promising, the technical assistance team can also suggest changes and improvements to a proposed project that might make it more appropriate for future P3 consideration.

This technical expertise appears critical to P3 program success in these areas:

- Selection of the most appropriate P3 pilot projects.
- Refinement of public expenditure control procedures to accommodate P3s.
- Development of those best practice techniques that provide guidance to the establishment of project terms.
- Clarification of the legality of powers of public authorities to enter into P3 contracts.
- Identification of the potential tax anomalies that weigh against P3 project success.

Research suggests that this financial and technical expertise can exist inside or outside traditional organizational channels. One such example is the Partnerships BC. Its team, acting on behalf of the public sector, evaluates candidate P3s based on the feasibility and likelihood of their public benefit to the residents of the province. An experienced staff makes the workload more manageable and the due diligence process more efficient. In the end, this translates into access to key information for both private and public partners. More information regarding Partnerships BC is featured in Appendix 5.

As discussed previously, infrastructure investment firms are increasingly seeking investments in stable, long-term infrastructure projects while some Texas stakeholders are struggling to access the necessary capital to fund these projects. By considering the approaches identified in this report, state leaders could help marry these two divergent yet connected interests and help ensure the success of P3s.

Texas has the policy foundation in place to continue the use of P3s for transportation projects. The best practices review in this report suggests that building on a solid foundation still requires timely and specific information, tools, and technical assistance so decision makers can continue to successfully implement P3s.

Appendix 1: Project Delivery Model Descriptions

The following approaches offer specific details regarding strategies presented in Table 1.

- **Design-Bid-Build (DBB):** Design-bid-build (DBB) is the traditional method of project delivery in which the design and construction are awarded separately and sequentially to private firms. During the design phase, the local agency prepares detailed project plans and specifications using its own employees or by hiring outside architects and engineers. The design phase generally accounts for 5 to 10 percent of the project's total cost. Once project designs are complete, local officials invite bids from the construction community and award the contract to the lowest responsible bidder. The construction phase makes up the remaining 90 to 95 percent of the project's total cost. Ever since contracting reforms formally separated the design and construction phases at the turn of the century, design-bid-build became the traditional procurement method used by public agencies.⁶⁹
- **Design-Build (DB):** Design-build combines the construction phases into a single fixed-fee contract, thus potentially saving time and cost, improving quality, and sharing risk more equitably than the DBB method. Possibly the greatest advantage offered by the DB process to many owners is that at some point early in the design process, the owner negotiates a guaranteed maximum price for the finished project. An advantage of DB over the traditional DBB delivery method is that the owner has a single contract and point of contact for the design and construction of the project.⁷⁰
- **Operations and Maintenance (O&M) Contract:** Under this type of structure, contracts are granted to private companies for services typically performed in-house (planning and environmental studies, program and financial management, operations and maintenance, etc.). Under a private contract fee service arrangement, a public sector transportation owner transfers its program management responsibilities to a private sector firm. This is especially true with larger and more complex projects and even entire capital programs that benefit from strategic planning. In addition to coordinating environmental studies and approvals, engineering tasks, and construction activities, private program management contracts can involve financial planning as well. While the types of activities and analyses public agencies require from their private program managers vary, they often involve a combination of financial management, engineering, and construction expertise. They also involve identifying information needs and developing the strategies to bridge information gaps. Assignments may focus on ways to consolidate multiyear capital programs into shorter implementation periods. Specific activities could be likely to include strategic planning, financial management, and the coordination of design and construction activities. Program management consultants have also developed project and cash management software and procedures to manage capital funds and bond proceeds.⁷¹
- **Design-Build-Operate-Maintain (DBOM):** This refers to when a selected contractor designs, constructs, operates, and maintains the facility for a specified period of time

meeting specified performance requirements. These delivery approaches can increase incentives for high-quality projects because the contractor is responsible for operation of the facility after construction. The public sector retains financial risk, and compensation to the private sector can be in the form of availability payments. With this approach, the responsibilities for designing, building, financing, and operating are bundled together and transferred to private sector partners. Arrangements can vary greatly, especially concerning the degree of financial responsibilities that are actually transferred to the private sector. For this model, a project could be entirely financed by either the public sector or the private sector or a combination of both. A common trait across all DBOM projects is that they are either partly or wholly financed by debt that is backed by revenue sources dedicated to the project. Direct user fees are the most common revenue source. However, others range from shadow tolls to vehicle registration fees and other dedicated revenues. Future revenues are leveraged to issue bonds or other debt that provide funds for capital and project development costs. They also are often supplemented by public sector grants in the form of money or contributions in kind, such as right-of-way. In certain cases, private partners may be required to make equity investments as well. Ownership of the facility remains in the public sector.⁷²

- **Design-Build-Finance (DBF), Design-Build-Finance-Operate (DBFO), or Design-Build-Finance-Operate-Maintain (DBFOM):** These methods are variations of the DB or DBOM methods for which the private partner provides some or all of the project financing. The project sponsor retains ownership of the facility. Private sector compensation can be in the form of tolls or shadow tolls.
- **Long-term Lease Concession:** A long-term lease concession contract method involves the lease of existing, publicly-financed toll facilities to a private sector concessionaire for a predetermined concession period during which they have the right to collect tolls on a facility.
- **Build-Transfer-Operate:** The build-transfer-operate method refers to an instance where a private owner builds an infrastructure facility, transfers it to another entity, and then operates it on a contractual basis for a specified period.
- **Lease-Build-Operate:** The lease-build-operate method refers to an instance where a private party designs and builds a complete project, sells it to a government or consortium, and leases it back and operates the facility.
- **Build-Own-Operate:** In a Build-Own-Operate P3 model, the design, construction, and maintenance of the facility are the responsibility of the contractor. The contractor owns the facility and retains all operating revenue risk and surplus revenues for the life of the facility. The Build-Own-Operate-Transfer (BOOT) method is similar, but the infrastructure is transferred to the private agency after a specified time period, usually over a very lengthy time frame.

- **Private Sector Owns and Operates:** This refers to an instance where a private company is granted the right to develop, finance, build, operate, and maintain a project; in this instance, there is usually no financing assistance provided by the public sector.
- **Asset Sale:** In the asset sale model, the public entity fully transfers ownership of publicly financed facilities to the private sector for one lump-sum payment.
- **Buy-Build-Operate:** In this model, a government sells a transportation facility to the private sector entity. That private sector entity then can make improvements necessary to operate that facility.

Appendix 2: Innovative Finance Mechanism Descriptions

Category	Innovative Finance Mechanism
Federal-Aid Fund Management Tools	<ul style="list-style-type: none"> • Advance Construction (AC) • Partial Conversion of Advance Construction (PCAC) • Federal-Aid Matching Strategies <ul style="list-style-type: none"> ○ Flexible Match ○ Tapered Match ○ Toll Credits (Soft Match) ○ Program Match ○ Third-Party Donations Using Other Federal Funds as a Match
Federal Debt Financing Tools	<ul style="list-style-type: none"> • Grant Anticipation Revenue Vehicles (GARVEEs) • Private Activity Bonds (PABs)
Federal Credit Assistance Tools	<ul style="list-style-type: none"> • Transportation Infrastructure Financing and Innovation Act (TIFIA) • State Infrastructure Banks (SIBs) • Section 129 Loans
Public-Private Finance Mechanisms	<ul style="list-style-type: none"> • Pass-Through Tolls/Shadow Tolling
Other Finance Mechanisms	<ul style="list-style-type: none"> • Non-Federal Bonding and Debt Instruments • Value Capture Arrangements (e.g., Tax Increment Financing) • Proposition 12 Bonds • Proposition 14 Bonds • Texas Mobility Fund

Source: This table was adapted from NCSL *Transportation Public-Private Partnerships: A Toolkit for Legislatures* (2010); American Association of State Highway and Transportation Officials (AASHTO) Center for Excellence in Project Finance, *Financing: Federal Highway Administration (FHWA) Innovative Program Delivery, Project Finance: Tools and Programs*.

Federal-Aid Fund Management Tools⁷³

- **Advance Construction:** Removes the need for full obligational authority before starting projects and allows a state to begin a project even if it does not have sufficient Federal funds to cover the Federal share of the project costs. This allows for the state to take on a greater number of projects, large and small at the same time, and maintain flexibility in its transportation funding program.
- **Partial Conversion of Advance Construction:** Allows the state to begin projects earlier, enabling it to deliver to the public sooner, in which the state converts, obligates, and receives reimbursement for a portion of the Federal share of project costs. The state can then convert an advance-constructed project to a Federal-aid project in phases based on cash flow requirements and availability of obligational authority.

Federal-Aid Matching Strategies⁷⁴

- **Flexible Match:** allows public and private contributions for Federal-aid projects to be counted toward non-Federal match, therefore creating flexibility in funds. This mechanism can be used in two ways: (1) using Federal funds as a match, and (2) third party donations. Using Federal funds as a match also allows for flexibility in several instances such as transportation enhancement projects, federal land management agency funds for scenic byways, funds from federal land management agencies in general, funds from the federal lands highway program, recreational trails program, and TIFIA loans. Third-party donations allow states to apply toward their nonfederal share of project costs the value of third-party donated funds, land, material, or services. A third party could include private companies, organizations, individuals, and local governments. This flexible match mechanism allows for: accelerating certain projects that receive donated resources, allowing states to reallocate funds, and promoting public-private partnerships by providing incentives to seek private donations.
- **Toll Credits (Soft Match):** Toll credits are gained when the state, toll authority, or private entity funds a capital transportation investment with revenues earned on existing toll facilities. The toll credits mechanism allows states to change previous toll-financed investments for state matching funds on current Federal-aid projects. The non-Federal share needs to be met through a soft match of toll credits. By using toll credits for the required non-Federal share on a new Federal-aid project, the Federal share can be increased to 100 percent.

Federal Debt Financing Tools

- **Grant Anticipation Revenue Tools (GARVEEs):** Allow states to pay bond-related and debt service expenses with future Federal-aid highway funds. They can be issued by the state, political subdivision thereof, or a public authority. Federal-aid reimbursements can include interest payments, retirement of principal, or other costs incidental to the sale of an eligible debt instrument. GARVEEs fall under the same requirements as other Federal-aid projects; however, the reimbursement of GARVEE project costs occurs when debt service is due. The benefits include accelerated and increased amount of projects, borrowing at low interest rates, reduced inflation risk in construction and right of way costs, and others.
- **Private Activity Bonds (PABs):** Provide a low-cost option for financing infrastructure projects for public benefit. The debt instrument is used by local or state governments whose proceeds are used to construct projects with large private involvement. The limit on PABs is set at \$15 billion. Benefits of PABs include providing lower-cost financing to projects with private involvement and assisting projects to qualify for tax-exempt financing in the event of a large amount of private involvement.

Federal Credit Assistance Tools⁷⁵

- **Transportation Infrastructure and Financing Innovation Act (TIFIA):** TIFIA, a Federal program under the USDOT, provides credit assistance of up to \$2.5 billion annually to state DOTs, local governments, transit operators, and private entities for transportation projects that have major regional or national significance. There are three types of financial assistance through the TIFIA program. These include: secured (direct) loan, loan guarantee, and standby line of credit. Benefits include improved access to capital markets, flexible repayment terms, favorable interest rates, and earlier completion of project.
- **State Infrastructure Banks:** Can offer loans and credit assistance enhancement products to public and private sponsors of Title 23 highway construction projects or Title 49 transit capital projects. Under the SAFETEA-LU all states are authorized to enter into agreements with the Secretary of Transportation. At this time, infrastructure revolving funds eligible to be capitalized with Federal transportation funds authorized for fiscal years 2005–2009 can be established. There are three funding sources available within the SIB program. These include: 10 percent of the highway account, 10 percent of the transit account, and the rail account. The state will then match the Federal funds used to capitalize on the SIB on an 80-20 Federal/non-Federal basis with the exception of the highway account due to sliding scale provisions.
- **Section 129 Loans:** Section 129, as part of Title 23, allows for Federal participation in a state loan to support projects with dedicated revenue streams. These revenue streams for Section 129 include tolls, excise taxes, sales taxes, real property taxes, motor vehicle taxes, incremental property taxes, or other beneficiary fees.

Public-Private Financing Mechanisms⁷⁶

- **Pass-Through Tolls/Shadow Tolling:** Are not a traditional tolling fee in the sense that the driver does not pay the toll, but rather a state or local agency or authority will pay a private concessionaire as reimbursement for services in exchange for the concessionaire's commitment to design, build, maintain, and operate the roadway. This system is measured as a per-vehicle or per-vehicle-mile fee by the number of vehicles on a roadway.
- **Availability Payments:** Most commonly used in Canada, Europe, and Australia, and are beginning to be used in the United States. They are designed where the payments are made by a state DOT or public authority to a private concessionaire for their design, construction, and operation and maintenance for a tolled or non-tolled roadway. Level-of-service performance can also be used as availability payment concessions. Most often, this type of mechanism is used for toll facilities not expected to produce enough revenue to pay for operations and maintenance. Availability payments allow for the project

sponsor to keep the risk associated with the facility rather than the private sector. With less risk, the concessionaire receives a fixed payment and can rely on the public agency to secure financing through private equity, taxable debt, or federal credit assistance (TIFIA and private bonds).

Other Finance Mechanisms⁷⁷

- **Non-Federal Bonding Debt Instruments:** These include municipal/public bond issues, revenue bonds, limited and special tax bonds (TIF), nonprofit 63-20 financing, private bond issues, and certificates of participation.
- **Value Capture Arrangements (tax increment financing):⁷⁸** In exchange for benefits, the private sector contributes financial resources. Examples include development impact fees, tax increment financing, and air rights development and assessment districts. Depending on the shared project risks and responsibilities between the public and private sector, this mechanism can be considered a P3.

Appendix 3: Texas Legislation Regarding P3s

Current P3 Governing Legislation⁷⁹

- **Texas Transportation Code Ann. Sec. 222.001–222.107:**
 - Relates to funding and federal aid, with provisions pertaining to P3s.
 - Prohibits TxDOT from using state highway funds to guarantee loans or insure bonds for costs associated with a toll facility of a public or private entity.
 - Authorizes TxDOT to otherwise participate in the cost of acquiring, constructing, maintaining, or operating a toll facility of a public or private entity.
 - Allows TxDOT to enter into an agreement with a public or private entity to pay pass-through tolls (i.e., shadow tolls) to that entity as reimbursement for the development, financing, construction, maintenance, or operation of a toll or non-toll facility on the state highway system.
- **Texas Transportation Code Ann. Sec. 223.201–223.210:**
 - Authorized TxDOT to enter into CDAs with private entities to design, develop, finance, construct, maintain, repair, operate, extend, or expand toll projects and certain state highway improvement projects.
- **Texas Transportation Code Ann. Sec. 228:**
 - Relates to state highway projects, including county and voter approval requirements for conversion of a state highway to a toll road.
 - The Texas Transportation Commission can convert a state highway or segment to a toll road only if the conversion is approved by the commissioner's court of the county where the highway is located as well as by the voters of the relevant local jurisdiction.
- **Texas Transportation Code Ann. Sec. 366.185:**
 - Authorizes regional mobility authorities to obtain a combination of engineering, design, and construction services in a single procurement for a transportation project, provided that any contract awarded results in the best value for the authority.
 - Procurement procures may not materially conflict with the design-build code procedures provided by Subchapter J, Chapter 271, Local Government Code.

- **Texas Transportation Code Ann. Sec. 366.401–366.409:**
 - Authorizes regional tollway authorities to use CDAs with private entities to design, develop, finance, construct, maintain, repair, operate, extend, or expand turnpike projects.
- **Texas Transportation Code Ann. 370.305–370.317:**
 - Authorized provisions pertaining to certain non-tolled and managed lanes projects. This authority expired Aug. 31, 2011.
- **Texas Transportation Code Ann. 371.001–371.153:**
 - Sets requirements for CDAs for highway toll projects, including those developed by TxDOT under Chapter 277, or by a regional mobility authority under Chapter 366, or by a regional mobility authority under Chapter 370.
 - Requires a review of a proposed agreement by the attorney general and notifications to the Legislative Budget Board and state auditor.
 - Makes certain financial data public information available on or after the date the agreement is entered into.
 - Prohibits non-compete clauses, but allows compensation of the private participant for revenue losses attributable to the construction by the toll entity of a limited access highway project located within up to four miles of the P3 project, subject to limitations and exceptions.
 - Addresses termination, disclosure of financial information, and public hearing requirements.
 - Requires a toll entity to notify the Legislative Budget Board with the names of shortlisted proposers and team members no later than the 10th day after selection, and with several other materials at least 30 days before entering into a comprehensive development agreement.
 - Requires a toll authority to provide the state auditor with a traffic and revenue report at least 30 days before entering into such an agreement.
 - Further prohibits any toll project entity from entering into such an agreement unless the attorney general reviews it and determines it legally sufficient.

Recently Enacted P3 Legislation

- **SB 1048, Sen. Mike Jackson, 2011:**
 - Allows concession agreements for public-private partnerships for ferry, mass transit, vehicle parking, or port facilities (among others).
 - Excludes financing, design, construction, maintenance, or operation of a highway in the state highway system.

- **SB 1420, Rep. Linda Harper-Brown, 2011:**
 - TxDOT Sunset Bill—extends TxDOT for four years.
 - Limits TxDOT’s P3 authority to certain specified projects only.
 - Extends expiration of most P3 authority to Aug. 31, 2015.
 - Authorizes TxDOT to enter into design-build contracts for highway projects with a construction cost estimate of \$50 million or more.
 - Prohibits TxDOT from entering into more than three design-build contracts each year.
 - Provides for design-build procurement and negotiation process and allows TxDOT to pay a stipend for unsuccessful proposals.
 - Design-build authority expires Aug. 31, 2015.
 - Addresses design-build and P3 authority for other authorities in the state.
 - Addresses determination of financial terms for proposed TxDOT toll projects in which the private entity has a financial interest in the project’s performance.

- **SB 19, Sen. Robert Nichols, 2011:**
 - Allows toll projects to be owned by a local toll project entity in perpetuity.
 - Establishes a process for toll project development.
 - Sets requirements for agreement between TxDOT and a local project entity.
 - Creates first right of refusal guarantee (primacy) for local toll entities to build future toll projects. If a local toll project entity turns down this right, the right then transfers to TxDOT.
 - Allows tolling authorities to complete environmental and other pre-development work more quickly with the goal of expediting the primary determination process.
 - Allows regional authorities to enter into tolling agreements.

- **SB 1730, Rep. Larry Phillips, 2013:**
 - Puts forth the list of eligible projects for development by TxDOT and RMAs under the CDA process.
 - Adds ability for TxDOT to use the CDA process to develop non-tolled state highway improvement projects authorized by the legislature.
 - Extends the deadline dates for previously authorized projects to have environmental clearance and financing plans (until 2017 for most), clarifying boundaries of some.
 - Authorizes TxDOT to enter into a CDA for 10 additional projects.

Recently Proposed P3 Legislation of Interest (Not Enacted)

- **HB 1815, Rep. Carl H. Isett, 81R/2009:**
 - Creates Texas Partnerships agency.
 - Agency is tasked with the following regarding P3s:
 - Supporting and advising governmental entities on the use of public-private partnerships.
 - Studying policies and procedures.
 - Develop policies, procedures, protocols, and methodology.
 - Promote consistent standards.
 - Agency has authority to raise revenue by tolling, usage fees, license fees, franchise fees, right-of-way charges, issuing revenue bonds, or charge fees to government agencies.
- **HB 2929, Rep. Wayne Smith, 2009:**
 - Amends terms of Private Participation Code to require (instead of suggest) certain provisions in the concession agreement.
 - Exempts publicly owned toll projects.
 - Requires concession agreement to contain a provision authorizing toll project entity to purchase the interest of a private participant in the toll project that is the subject of the agreement.

- **SB 1353, Sen. John Carona, 2009:**
 - Prohibits a toll project from receiving a concession payment, or an up-front payment made by a private participant. In return, the private participant is granted the right to receive revenue from a toll project.
 - Allows a toll project to enter into a revenue sharing agreement as part of a CDA.
- **HB 3789, Rep. Larry Phillips, 2011:**
 - Authorizes toll project entities (e.g., TxDOT, regional tollway authorities, regional mobility authorities, counties) to enter into P3s for the design, development, financing, construction, maintenance, repair, operation, extension or expansion of a toll project within specified jurisdictional boundaries.
 - Specifies competitive procurement process by which toll entities may enter into P3s.
 - Allows solicited and unsolicited proposals.
 - Limits term lengths to 52 years.
 - Addresses proposal confidentiality.
 - Authorizes toll project entities to negotiate terms of private participation.
 - Approves method of toll collection and rate-setting by a private entity.
 - Prohibits limiting or prohibiting construction of other transportation projects, but allows negotiation for lost revenues attributable to certain competing highway projects.
 - Addresses termination of certain P3s.
- **SB 17, Sen. Robert Nichols, 2009:**
 - Repeals market valuation process.
 - Requires TxDOT to distribute money received from toll revenue in the district that affected by the toll road.
 - Requires a CDA to have a provision that allows the toll project to purchase the interest of a private participant in the toll project and any related property.
 - Specifies how the interest or property will be valued.
 - Requires a private entity to notify the state no later than 12 months before a toll increase.

- States that a CDA can contain a provision authorizing the toll project entity to compensate the private participant if it loses money due to a competing highway located 4 miles from the toll road.
 - Limits CDA terms to 30 years.
 - Gives right of first refusal to the public tollway authorities to develop the roadways.
 - Requires that all public avenues of financing would have to be exhausted first before the road could be turned into a P3.
- **SB 3, Sen. Robert Nichols, 2009:**
 - Repeals moratorium on TxDOT's authority to enter into comprehensive development agreements for certain transportation projects.
 - Streamlines the market valuation process for CDAs.
 - Deletes requirement that the CDA between TxDOT and a private party should contain a provision that sets the price for the overall agreement.
 - Contains a provision for excess revenue.
 - Requires that the Comptroller should review the CDA for financial viability and sign and certify it for approval.
 - Allows a toll entity to purchase the transportation asset for the stated price at the interval or the asset's fair market value at certain intervals throughout the contract.

Appendix 4: Selected P3 Case Studies

Partnerships British Columbia, Inc.

Partnerships British Columbia Inc. (Partnerships BC) provides planning, delivery, and oversight for major economic and social infrastructure projects in British Columbia. This corporation was authorized under the British Columbia Business Corporations Act in 2002 and is owned solely by the British Columbia provincial government. It is governed by a board of directors and answers to the Ministry of Finance. Since its inception, Partnerships BC has participated in over 35 projects that total nearly \$11.7 billion in infrastructure investments. Of this amount, \$4.7 billion came from capital in the private sector.⁸⁰ Partnerships BC's primary mandate is to:

- Plan and secure partnership delivery solutions that are expected to generate value for money.
- Successfully implement partnership delivery solutions for public infrastructure through leadership in procurement, practices, and market development.
- Maintain a self-sustaining organization and provide added value to an increasingly diverse client base.

Partnership BC uses a fee-for-service consulting model for providing its services. The operations of the corporation include consulting through direct expertise and external consultants for specialized projects outside of the corporation's internal knowledge base. Table A4-1 provides an overview of the core business service areas for each major phase of a transportation infrastructure project.

Table A4-1: Partnerships BC Core Business Areas⁸¹

Business Planning	Procurement Process	Post-Contract/Financial Close
Early Project Screening	Competitive Selection Management	Project Reporting
Concept Plans	Evaluation Management	Design and Construction Phase
Procurement Options Assessment	Contract negotiations	Operations Phase Advice
Business Case <ul style="list-style-type: none"> • Market Sounding • Quantitative Analysis • Risk Analysis • Multiple Criteria Analysis • Procurement Options Analysis 	Service Integration <ul style="list-style-type: none"> • Consultant Reporting 	

In addition to the board of advisors, Partnerships BC also has two support advisory committees, the Audit and Risk Management Committee and the Human Resources and Governance Committee. The Audit and Risk Management Committee provides oversight for financial information by auditing financial statements, annual reports, the service plan, business plans, operations and capital budgets, and government budget presentations. In addition, this committee reviews the information systems and risk management of Partnership BC. The Human Resources and Governance Committee provides advice on human resource issues, compensation matters, continuity planning, and senior management development. The primary goal of this committee is to enhance the organization's performance and provide oversight.

The portfolio of Partnership BC is diverse by design; however, the corporation has invested substantially in transportation projects since 2002:

- Six new bridges.
- 390 km (242 mi.) of new highway.
- 30 km (19 mi.) of transit infrastructure.

As shown in Table A4-2, several transportation-related projects have been completed by Partnerships BC.

Table A4-2: Operational/Complete Transportation P3 Projects that Received Assistance from Partnerships BC⁸²

Type	Year Complete	Project Name	Brief Description	Public Sector Partners	Private Sector Partner
Bridge		William R. Bennett Bridge	In order to relieve traffic congestion, a new \$144 million bridge was constructed to improve travel efficiency and safety	Ministry of Transportation and Infrastructure, the British Columbia Transport Finance Authority	Okanagan Lake Concession Limited Partner, SNC-Lavalin Constructors (Pacific) Inc., Vancouver Pile Driving Ltd., SNC-LAVALIN ProFac, Sun Life Assurance Company of Canada, Ontario Teacher's Pension Plan Board
Highway	2005	Sierra Yoyo Desan Resource Road	\$40 million in upgrades to a 180-km (111 mi) road used primarily by resource-related industries	Ministry of Energy, Mines and Petroleum Resources	Ledcor Group (McElhanney Consulting Services, Buckland & Taylor, Trow Associates, Triton Environmental Consultants)
Highway	2009	Sea-to-Sky Highway	\$600M highway project to improve connectivity from West Vancouver to Whistler	Ministry of Transportation and Infrastructure	S2S Transportation Group (Macquarie NA Limited, Peter Kiewit Sons Co., JJM Construction Limited, Hatch Mott MacDonald, Miller Paving, Capilano Highway Services)
Highway			\$198M to replace existing bridges and a new interchange to accompany growing traffic needs	Ministry of Transportation and Infrastructure, Government of Canada	Peter Kiewit Sons Co. (PKS)

Type	Year Complete	Project Name	Brief Description	Public Sector Partners	Private Sector Partner
Highway	2007	Kicking Horse Canyon	Involved upgrading 26 km (16 mi) of the Trans-Canada Highway to a modern four-lane standard	Ministry of Transportation and Infrastructure	Trans-Park Highway Group (Bilfiner Berger BOT Inc., Flatiron Constructors Canada, Parsons Overseas Company of Canada, HMC Services Inc.)

Virginia Office of Transportation Public-Private Partnerships (OTP3)

The Office of Transportation Public-Private Partnership of Virginia (OTP3) has the responsibility of carrying out the Public-Private Transportation Act (PPTA) of 1995 through a statewide program for major innovative project development and delivery for all modes of transportation. As a result of the creation of the OTP3 through the PPTA, the Commonwealth of Virginia was able to deliver a vast amount of P3 projects from 2008–2012 making it the leading state in P3s. Within five years, Virginia had a total of 7 projects at an estimated total P3 project value of \$8.1 billion.⁸³

The OTP3 consists of the Secretary of Transportation, Virginia Department of Transportation, Department of Rail and Public Transportation, Department of Aviation, Department of Motor Vehicles, Commercial Space Flight Authority, and the Virginia Port Authority.⁸⁴ This allows the OTP3 to work directly with the corresponding agency for a project concerning a particular mode of transportation.

The overall purpose of the PPTA is to bring together under one framework the local governments, public entities, and the Commonwealth of Virginia to facilitate agreements authorizing private entities to develop and/or operate qualifying transportation facilities. The major positive to the PPTA is that it enables the Commonwealth to shift the risks of financing and construction, and the long-term operations and maintenance to the private sector.⁸⁵

The objectives for the PPTA program and that of the OTP3 are as follows:⁸⁶

- Facilitate timely delivery of PPTA projects within established laws and regulations.
- Develop multimodal and intermodal solutions consistent with state, regional, and local transportation policies, plans, and programs.
- Encourage competition for innovation and private sector investment creating value-for-money for the commonwealth.
- Promote transparency, accountability, and informed and timely decision making.
- Establish reliable and uniform processes and procedures to encourage private sector investment.

- Seek efficiencies by standardizing processes.
- Foster efficient management of commonwealth financial and organizational resources.
- Achieve lifecycle cost efficiencies through appropriate risk transfer.
- Promote economic growth and job creation.

To achieve the above objectives, the OTP3 moves through a series of phases. The first phase is project identification. Projects can be either solicited by the OTP3 or unsolicited. If a project is identified from a potential source (Table A4-3) through solicitation, it can be at any level of government. If the project is unsolicited from a private entity, a non-refundable, non-negotiable proposal review fee of \$50,000 is required before review. The project will then go through a series of high-level screenings in phase 2 before undergoing project development in phase 3 and project procurement in phase 4.

Table A4-3: Potential Sources of Solicited Candidate Projects

Potential Sources of Solicited Candidate PPTA Projects	Description
PPTA Priority of the Governor	Priority transportation projects critical to safeguarding the Commonwealth’s long-term economic competitiveness, environment, safety and security, and improving mobility and overall quality of life for Virginians.
Six-Year Improvement Program (SYIP)	A program managed by the Commonwealth Transportation Board for allocating funding for rail, public transportation, commuter assistance, bicycle, pedestrian, interstate and primary highway transportation projects in future years.
Legislative Mandate	Any legislation passed by the General Assembly requiring the OTP3 to consider improvements to a transportation facility under the PPTA Program.
Virginia Multimodal Long-Range Transportation Plan (VTrans2035)	Provides an overall framework and facilitates development of policy for identifying and integrating transportation needs, allowing the Commonwealth’s investments to be prioritized based on defined Commonwealth transportation goals.
Virginia Surface Transportation Plan	Provides information for potential long-term transportation project development and investment based on the goals identified in Virginia’s statewide multimodal transportation policy plan.
Virginia Port Authority Master Plan	Focuses on the capital projects and investments needed to develop and maintain terminal capacity in order to continue to generate and increase economic benefits for Virginia.
Six-Year Airport Capital Improvement Plan	Identifies and prioritizes planning and engineering projects that focus on airport facility development over a six-year period and provides cost estimates, anticipated sources of funding and justifications for project implementation.
Statewide Transportation Improvement Program (STIP)	A short-range fiscal planning document that represents the first three years of the 20-year Long Range Transportation Plan. The STIP includes safety projects, transportation enhancement, aviation projects, rail projects, bicycle

Potential Sources of Solicited Candidate PPTA Projects	Description
	and pedestrian projects, and public transit projects.
Metropolitan Planning Organization Long-Range Transportation Plan	Identifies a capital investment strategy to meet existing and future regional transportation needs over the next 20 years in an efficient and effective manner.

Source: Table 1. Adapted from *The Commonwealth of Virginia: Public-Private Transportation Act of 1995 Implementation Manual and Guidelines* pg. 16⁸⁷

Phase 2, consisting of high-level screening, will assess the project complexity, current funding requirements, acceleration of project development using PPTA methods, project efficiencies, transportation priorities, and the abilities to transfer risk and to raise capital. Once a project moves through the first screening, it will then go through a detailed-level screening. The project development process of phase 3 will further outline the scope, design, phasing schedule, project costs, public involvement, etc. The final phase, phase 4, is a two-stage procurement process consisting of issuing a Request for Qualifications (RFQ) and issuing a Request for Proposals (RFP). Once a project completes the four phases, a final value for money analysis will be performed, a preferred proposer is awarded, an independent audit is completed by the responsible public entity for any project with a construction cost of more than \$50 million, and the proposer must enter into a Comprehensive Agreement with the Agency.⁸⁸

Colorado High Performance Transportation Enterprise

In 2009, legislation known as FASTER (Funding Advancement for Surface Transportation and Economic Recovery Act, Part 8, Art. 4, Title 43, Colorado Revised Statutes) created the HPTE as a government-owned business within the Colorado Department of Transportation (CDOT). The HPTE was formed to seek out, in partnership with local agencies, communities, and private industry, opportunities for innovative and efficient means of financing and delivering important surface transportation infrastructure projects in the state.⁸⁹ The articles of organization state that the HPTE has the authority to impose tolls and other user fees, issue revenue bonds secured by those fees, and enter into P3 contracts. The legislation also created a board of directors to oversee HPTE activities, which includes three transportation commissioners and four external members appointed by the Governor from four geographic areas throughout the state. As shown in Figure A4-4, the HPTE is unique because it is housed within the state DOT.

COLORADO DEPARTMENT OF
TRANSPORTATION
Organizational Chart

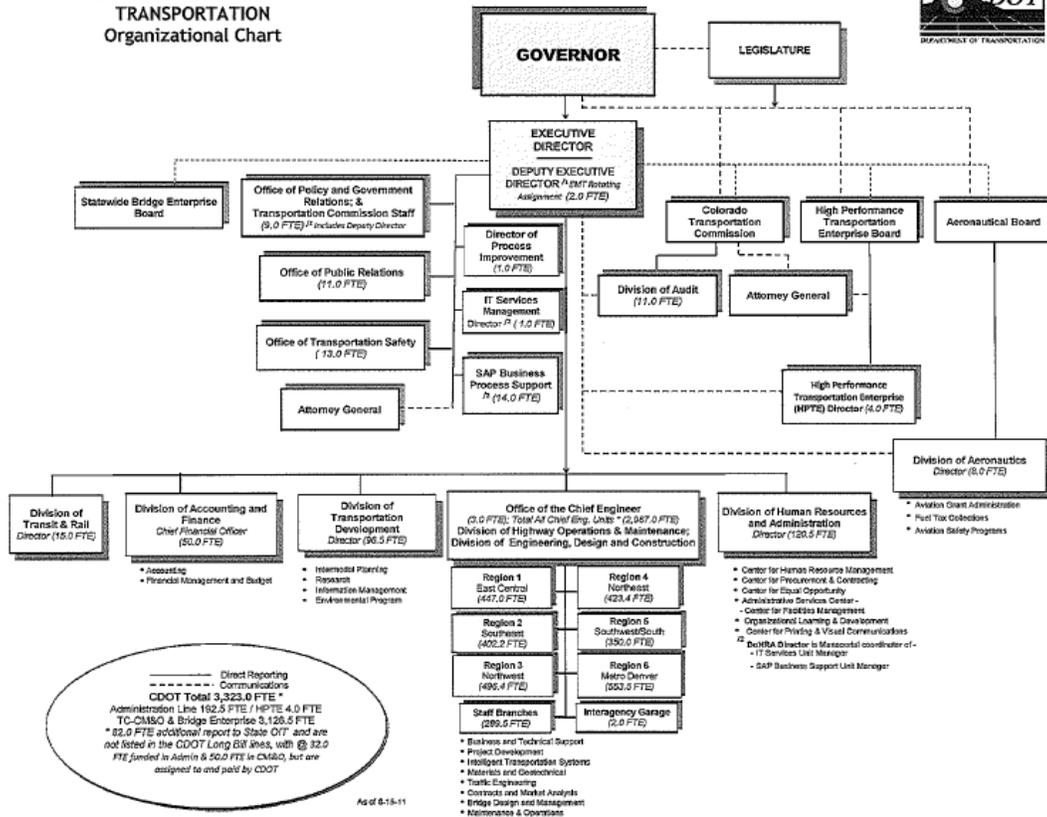


Figure A4-4: Colorado Department of Transportation Organization Chart

Source: Colorado DOT.

Due to this fact, HPTE and CDOT are constantly working together to provide the best delivery of transportation projects to citizens by way of P3s. By 2011, they completed their first project on the I-25 Express Lanes. In 2012, RFPs and RFQs were solidified and a contractor chosen for a P3 on US Highway 36. The Board of Directors stated that this would be modeled after the DBFOM process.⁶¹

Funding for the management and operations for the HPTE comes through two separate funds. The Statewide Transportation Revenue Fund is primarily capitalized through I-25 Express Lane tolls and the issuance of revenue bonds as mentioned above. The second fund, known as the Enterprise Operating Fund, was created to house the monies provided by the Transportation Commission from the State Highway Fund. Revenues collected by the Enterprise may be expended only for the project for which they were collected or for a project that is integrated with that project.⁹⁰

West Coast Infrastructure Exchange (WCX)

The states of California, Oregon, and Washington, and the Province of British Columbia signed a framework agreement in November 2012 to form the West Coast Infrastructure Exchange (WCX). The partnership was launched to develop innovative new methods to finance and facilitate development of the infrastructure needed to improve the region’s economic competitiveness, support

jobs and families, and enhance their shared quality of life. All west coast states and the province of British Columbia need to expand and upgrade energy facilities, update water and wastewater treatment plants, improve airports and dams, transportation facilities, and construct other projects. At the same time, state and local governments in these regions face limits on available financing through traditional sources. The WCX is designed to tap the expertise of development and finance leaders to save money and find innovative financing methods as the west coast states look to make \$1 trillion in infrastructure investments over the next 30 years.⁹¹

Operating under the non-profit rules of Oregon law, WCX is governed by a Board of Directors representing the chief executives (e.g., Governors, Premier) and chief financial officers (e.g., Treasurers and Minister of Finance) and employs an executive director who will manage staff, state employees, and contractors subject to the Board’s approval. Further, the Board has selected and appointed an Advisory Council composed of independent experts from relevant fields of interest, including the investment community (both pension funds and private equity fund managers), contractors, project management, organized labor, legal and financial advisors, and state, local and regional government and non-governmental organizations. The WCX will put a high priority on systematic outreach and consultation with the Advisory Council and other significant stakeholders.⁹²

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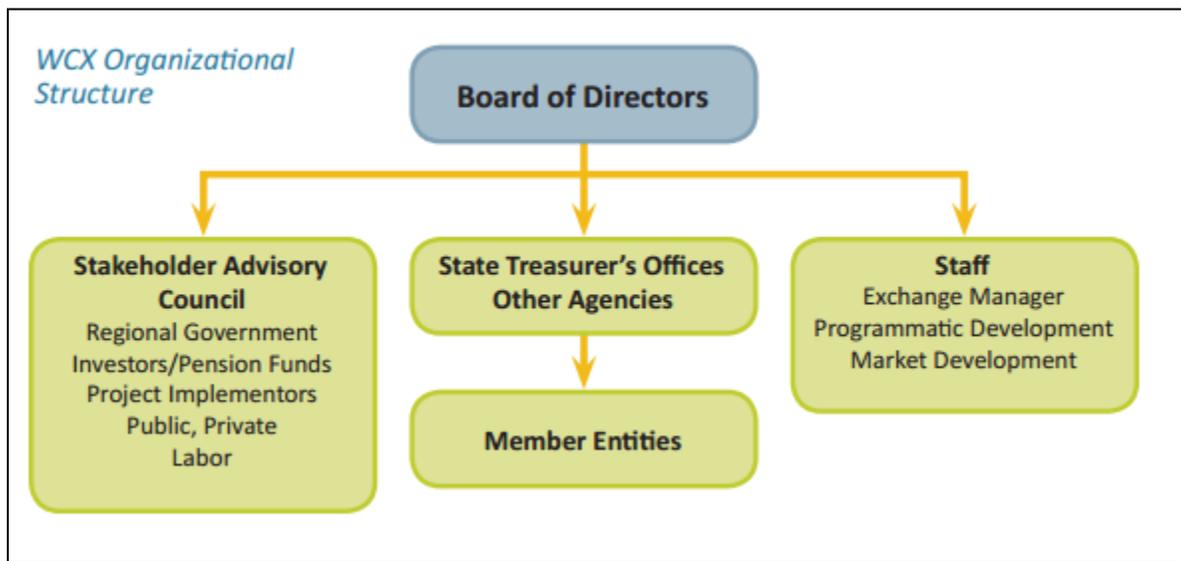


Figure A4-5: WCX Organizational Structure

Source: *West Coast Infrastructure Proposed Framework (2014)*.

The mission statement for the West Coast Infrastructure Exchange is to “promote near-term job creation and long-term economic competitiveness by improving and accelerating infrastructure development” (WCX 2014). They believe this will be done in the following ways:⁹⁴

- Identifying public project development and delivery methods that yield more measurable value for the public dollar while meeting public policy, accountability, and transparency objectives.

- Creating and advancing new mechanisms for project finance. This includes those that could be attractive to new investors that have traditionally not invested in public infrastructure.
- Connecting investors to opportunities by providing consistent, comprehensive, and high-quality data.
- Helping investors and project sponsors identify, understand, and mitigate risk.
- Sharing and developing best practices as well as strengthening public sector capacity and expertise in these new approaches.
- Ensuring that the investment for infrastructure considers climate risk factors.

The formation of West Coast Infrastructure Exchange was informed by a thorough assessment of infrastructure needs and global best practices in P3s that was performed under contract by CH2MHill. WCX is a resource that will increase the feasibility for vital infrastructure projects at a time when existing public facilities need renewal and new investments are imperative to maintain and improve economic competitiveness to support jobs and families. The WCX has created a Standards Committee, composed of national experts, to develop standards and a certification process for evaluating proposed P3 projects. The intent of these standards is to ensure that proposed P3s reflect the key elements that have proven to be successful based on international experience and to ensure that such transactions deliver maximum public benefit. These draft standards were released for public comment in September 2013 and subsequently revised and issued in final form in January 2014. The WCX will begin certifying proposed projects in early 2014. The traditional approaches where a public jurisdiction develops a detailed design and then awards a construction contract to the low bidder does not always deliver the best value to citizens. On the contrary, new funding mechanisms such as performance contracts with private entities that design, build, operate, and sometimes finance facilities can provide better value and less risk for the public and all stakeholders involved.⁹⁵

Appendix 5: Current TxDOT Alternative Delivery Projects in Procurement, Pre-Procurement, Operations and Maintenance, Construction, and Design-Build

Projects in Procurement								
Comprehensive Development Agreements								
Project	Final RFQ issued	SOQ Due date	Draft RFP Final RFP	Proposals Due	Conditional Award	Contract Execution	Capital Cost	\$ Value
SH 183 ⁴ (CDA- Design Build)	20-Feb-2013	19-Jul-2013	3-SEPT-2013 7-NOV-2013	14-Apr-2014	29-May-2014	NOV 2014	\$1,195,918,579	Nominal
SH 288 ¹ (CDA- Concession)	3-May-2013	2-Aug-2013	30-SEPT-2013 31-JAN-2014	15-Jul-2014	28-Aug-2014	DEC 2014	\$585,000,000	Nominal
Loop 375 Border Highway West (CDA- Design-Build)	26-Jul-2013	12-Sep-2013	1-NOV-2013 20-DEC-2013	TECH:20-MAR-2014 FIN: 7-APR-2014	24-Apr-2014	AUG 2014	\$800,000,000	2014 \$
SH 99 Grand Parkway Segments H, I-1, I-2 (CDA)	SPRING 2014	TBD	FALL 2014	SPRING 2015	SUMMER 2015	FALL 2015	\$1,230,000,000	Nominal
US 181 Harbor Bridge (Design-Build FY 2015)	21-Mar-2014	SPRING 2014	FALL 2014	TBD	TBD	SPRING 2015	\$701,000,000	x
Subtotal							\$4,511,918,579	
Design-Build ²								
Project	Final RFQ issued	SOQ Due date	Draft RFP Final RFP	Proposals Due	Conditional Award	Contract Execution	Capital Cost	\$ Value
SH 71 Express Lanes (FY 2014)	15-Nov-2013	13-Dec-2013	13-JAN-2014 5-MAR-2014	21-May-2014	26-Jun-2014	AUG 2014	\$145,700,000	2013 \$
SH 360 (Design-Build FY 2015)	10-Mar-2014	30-May-2014	Aug-14	TBD	EARLY 2015	EARLY 2015	\$274,993,568	2013 \$
SH 249 (Grimes-Montgomery)	TBD	TBD	TBD	TBD	TBD	TBD	\$300,000,000	2013 \$
US 281	TBD	TBD	TBD	TBD	TBD	TBD	\$458,000,000	X
Subtotal							\$1,178,693,568	

Table A5-1: Current TxDOT Alternative Delivery Projects in Procurement, Pre-Procurement, Operations and Maintenance, Construction, and Design-Build (Continued)

Pre-Procurement								
Project	Final RFQ issued	SOQ Due date	Draft RFP Final RFP	Proposals Due	Conditional Award	Contract Execution	Capital Cost	\$ Value
NTE Segment 3C	TBD	TBD	TBD	TBD	TBD	TBD	\$553,200,000	Nominal
NTE Segment 4	TBD	TBD	TBD	TBD	TBD	TBD	\$507,900,000	Nominal
I-635E	TBD	TBD	TBD	TBD	TBD	TBD	\$673,000,000	2012 \$
Loop 9	TBD	TBD	TBD	TBD	TBD	TBD	\$2,823,300,000	2012 \$
SH 45 SW	TBD	TBD	TBD	TBD	TBD	TBD	TBD	x
Southern Gateway	TBD	TBD	TBD	TBD	TBD	TBD	\$717,200,000	Nominal
SH 130 Connector New Braunfels	TBD	TBD	TBD	TBD	TBD	TBD	TBD	x
Subtotal							\$5,274,600,000	
Projects in Operation & Maintenance								
Project	Contract Execution	Notice to Proceed 1	Notice to Proceed 2	Substantial Completion	Service Commencement	Final Acceptance	Capital Cost	\$ Value
SH 130 Segments 5 & 6 (CDA- Concession)	22-Mar-2007	MAY 2007	APR 2009	24-Oct-2012	11-Nov-2012	8-May-2013	\$1,367,000,000	Nominal
DFW Connector (Design-Build FY 2009)	6-Oct-2009	OCT 2009	DEC 2009	NOV 2013	NA	MAR 2014	\$1,267,002,195	Nominal
Subtotal							\$2,634,002,195	

Table A5-1: Current TxDOT Alternative Delivery Projects in Procurement, Pre-Procurement, Operations and Maintenance, Construction, and Design-Build (Continued)

Projects in Design \ Construction								
Comprehensive Development Agreements								
Project	Contract Execution	Notice to Proceed 1	Notice to Proceed 2	Substantial Completion	Service Commencement	Final Acceptance	Capital Cost	\$ Value
North Tarrant Express-Segments 1 & 2W (CDA - Concession)	23-Jun-2009	JUL 2009	DEC 2009	JUN 2015	TBD	SEP 2015	\$2,107,437,000	Nominal
IH 635 LBJ Managed Lanes (CDA - Concession)	4-Sep-2009	SEP 2009	DEC 2010	DEC 2015	TBD	MAR 2016	\$2,983,049,730	Nominal
NTE 3A (CDA - Concession)	1-Mar-2013	13-Mar-2013	25-Sep-2013	SEP 2018	TBD	DEC 2018	\$1,407,630,000	Nominal
SH 99 Grand Parkway Seg F1, F2 & G (CDA - Design-Build)	22-Mar-2013	22-Mar-2013	14-Jun-2013	AUG 2015	NA	DEC 2015	\$1,451,958,290	Nominal
I-35E (CDA - Design-Build)	17-May-2013	30-May-2013	26-Sep-2013	MAY 2017	NA	SEP 2017	\$1,317,250,570	Nominal
Subtotal							\$9,267,325,590	
Design-Build ²								
Project	Contract Execution	Notice to Proceed 1	Notice to Proceed 2	Substantial Completion	Service Commencement	Final Acceptance	Capital Cost	\$ Value
Horseshoe (Design-Build FY 2013)	20-Feb-2013	28-Feb-2013	9-Aug-2013	Segment A: FEB 2017 Segment B: APR 2017	NA	MAY 2017	\$798,000,000	Nominal
US 77 (FY 2013)	30-Jul-2013	30-Jul-2013	27-Sep-2013	JUNE 2016	TBD	SEP 2016	\$84,274,778	Nominal
Loop 1604 (FY 2014)	5-Dec-2013	20-Dec-2013	MARCH 2014	JUNE 2016 (base)	TBD	JULY 2016	\$125,551,871	2013 \$
Energy Sector Roadway Repair Project (FY 2014)	10-Feb-2014	TBD	TBD	TBD	TBD	TBD	\$150,000,000	X
Subtotal							\$1,157,826,649	
Grand Total (Approximate Value; includes the addition of real, nominal, and TBD amounts)							\$24,024,366,581	

Note: * Anticipated. ¹Estimated Schedule. The final schedule will be determined by Environmental Clearance dates. ²Section 223.242(d-1_ limiting design-builds to 3 per FY, expired 8/31/15. No limit starting FY 2016. ³Local Toll Authority currently holds primacy. ⁴SH 183 Capital Cost estimate includes phase 1 and potential additional connecting facilities. Source: Project status data obtained from TxDOT Strategic Projects Division

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