

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

1
CHALLENGES AND OPPORTUNITIES
SERIES: PUBLIC PRIVATE
PARTNERSHIPS IN TRANSPORTATION
DELIVERY

May 11, 2012



21
22
23
24
25
26
27
28
29
30
31
32
33

Table of Contents

INTRODUCTION.....	3
1. LEGAL AND STATUTORY ISSUES	12
2. DECISIONMAKING PROCESSES AND TOOLS	24
3. FINANCIAL CONSIDERATIONS.....	46
4. PERFORMANCE MANAGEMENT.....	68
5. ORGANIZATIONAL CAPACITY	80
GLOSSARY	96
ACKNOWLEDGEMENTS.....	100
BIBLIOGRAPHY	101

1

2

3

4

INTRODUCTION

5

6 **INTRODUCTION**

7 State and local governments provide more than two thirds of U.S. highway funding and are responsible
8 for developing and delivering most of our transportation infrastructure. But many of these agencies do
9 not have enough funds to maintain the existing transportation system, let alone expand it. In response,
10 many agencies are looking to public private partnerships (P3s) to allow them to get more done with less.
11 FHWA prepared this series of papers to enable transportation agencies to make informed decisions with
12 respect to P3s by exploring the myths and realities of this complex—but often effective—project finance
13 and delivery approach.

14 P3s are contractual agreements between a public agency and a private entity that allow for greater private
15 sector participation in the delivery and financing of transportation projects than with traditional
16 approaches. With P3s, private firms take on the risks of some or all of the financing, constructing,
17 operating, and/or maintaining a transportation facility in exchange for a future revenue stream. This is a
18 departure from the traditional model where private contractors construct projects based on a public
19 design using public funding, after which public agencies take responsibility for long-term operations,
20 maintenance, and rehabilitation. While the term public private partnerships be applied to a range of
21 contract types, from design-build contracts to the lease of existing assets, these issue papers focus on P3s
22 that involve private partners financing, constructing and long-term (10+ years) operation and
23 maintenance of new highway capacity.

24 When all goes well, the agency gets a transportation asset built and taken care of for decades for a
25 guaranteed price and the private firm has a chance to make money. However, P3s are complicated
26 transactions. Successful P3s take special expertise, a stable political environment, and diligence.

27 This series of issue papers explores five key issues involved with taking a potential P3 from conception to
28 long term oversight:

- 29 • Legal and Statutory Issues;
- 30 • Decisionmaking Processes and Tools;
- 31 • Financial Considerations;
- 32 • Performance Management; and
- 33 • Organizational Capacity.

34 The papers describe the policies, processes, and decisions required to evaluate, implement, and manage
35 P3s in the United States in a way that serves the public interest. The intended audience is transportation
36 agency staff with responsibility for carrying out P3 project development, as well as legislative staff and
37 policy makers tasked with creating the policy environment conducive to successful P3s.

38 **USE OF P3S IN THE UNITED STATES TO DATE**

39 P3s are used extensively around the world to encourage private investment in public infrastructure, limit
40 public debt, and deliver infrastructure more efficiently. In the United States, P3s, as defined in this paper,
41 are relatively rare with only a dozen transactions completed and four projects open to traffic (Table I-1)
42 over the last 20 years.¹ Projects range in size from \$126 million for the SR 91 project in California to \$2.6

¹ Notably absent from this list are the Indiana Toll Road, Chicago Skyway, Northwest Parkway in Colorado, and PR-22 and PR-5 in Puerto Rico asset leases—P3s that netted hundreds of millions of dollars for their project sponsors. These projects do not meet the criteria for inclusion in this series of papers—in that they were “brownfield” transactions where public agencies monetized the value of an existing asset, but no new highway capacity was built.

43 billion for the I-635 managed lanes project in Texas. Some use tolling as a revenue source, while others do
44 not. Sometimes the private partner takes on the risk of project revenues achieving expectations by
45 accepting compensation based on tolls charged to users of the facility. Othertimes the public agency
46 retains this risk by compensating the private partner through annual “availability payments” that are
47 based on keeping the facility “available” at agreed-upon service levels rather than toll revenues or traffic
48 levels.

49 P3 projects have been less prevalent in the United States than in many other countries in part due to
50 historic public policies that have led to large Federal investments in highways and have discouraged the
51 construction of toll roads. Policies in many States have also limited the ability of public agencies to apply
52 tolls to roads or utilize private capital to finance public infrastructure. The lack of a legal framework to
53 utilize tolls or private capital combined with the establishment of a large network of non-tolled public
54 roads whose construction has been largely federally funded, has limited opportunities for private
55 investment in transportation infrastructure. In addition, federal tax policy that allows for tax-exempt
56 municipal bonds has tended to make private financing of public infrastructure less attractive than in
57 countries without such policies. Since the 1980s, however, traditional sources of public funding for
58 transportation infrastructure construction have not grown in proportion to inflation in highway
59 maintenance and construction costs. This has put pressure on State and local governments to look for new
60 sources of revenue and investment and more efficient ways to deliver infrastructure. In the late 1980’s
61 both Virginia and California passed legislation enabling private investment in and operation and
62 maintenance of publicly owned roads. Since that time, some 30 States and Puerto Rico have passed
63 various forms of P3 enabling legislation.

64 A recent report by the Congressional Budget Office, “Using Public Private Partnerships to Carry Out
65 Highway Projects,” estimates that less than one half of one percent of investment in transportation
66 infrastructure was delivered through P3s over the past twenty years. However, P3s are becoming an
67 increasingly common way of delivering new capacity, and many States are giving them serious
68 consideration. Major projects are underway in Florida, Virginia, and Texas, totaling nearly \$10 billion and
69 many other States are passing P3 enabling legislation, establishing P3 offices or agencies, and exploring
70 P3 options. As more public agencies consider P3s, so does the demand for clear and objective information
71 on the opportunities and challenges that P3s present.

72 **Table I-1. P3 Projects* in the United States**

Facility	Lease Term (years)	Total Cost (\$ millions)	Public Investment Grant/TIFIA	Private Investment Equity/Debt	Year of Financial Close**	Compensation Model	Project Website	Notes
Presidio Parkway (CA)	33.5	\$368	\$0/\$152 [†]	\$46/\$170 [†]	N/A	Availability Payment	www.presidioparkway.org	Pending final approval
IH 635 Managed Lanes(TX)	52	\$2,615	\$490/\$850	\$672/\$606	2010	Toll revenue	newlbj.com	Under construction
Port of Miami Tunnel (FL)	35	\$1,073	\$100/\$341	\$80/\$342	2009	Availability Payment	www.portofmiamitunnel.com	Under construction
I-595 Managed Lanes (FL)	35	\$1,834	\$686/\$603	\$208/\$781	2009	Availability Payment	www.i-595.com	Under construction
North Tarrant Express (TX)	52	\$2,047	\$573/\$650	\$426/\$398	2009	Toll revenue	northtarrantexpress.com	Under construction
SH 130 (Segments 5-6) (TX)	53	\$1,328	\$0/\$430	\$210/\$686	2008	Toll revenue	mysh130.com	Under construction
Capital Beltway (I-495 HOT Lanes) (VA)	80	\$2,006	\$409/\$589	\$350/\$589	2007	Toll revenue	www.virginiahotlanes.com	Under construction
South Bay Expressway (CA)	35	\$774	\$0/\$165	\$209/\$400	2003	Toll revenue	southbayexpressway.com	Open. Concessionaire defaulted in 2011. The concession was acquired by San Diego Association of Governments for \$341.5M.
Pocahontas Parkway (VA)	99	\$655	\$0	\$0/655\$	1997	Toll revenue	www.pocahontas895.com	Open. Sold for ~\$552M in 2006. Lease term extended to 99 years.
State Route 91 (CA)	35	\$184	\$0	\$31/\$153	1993	Toll revenue	www.dot.ca.gov/hq/paffairs/about/toll/rt91.htm	Open. Acquired by Orange County Transportation Authority in 2003 for \$207.5M.
Dulles Greenway (VA)	63	\$495	\$0	\$56/\$439	1993	Toll revenue	dullesgreenway.com	Open. Concession extended 20 years in 2001. Original concessionaire defaulted. Concession sold for \$615.5M in 2005.

73 * P3s are defined as those projects that involve a private partner financing, constructing operating and maintaining new highway capacity.

74 ***"Financial close" means the signing of financial commitments by lenders, project sponsors, and project funders to assemble the funds needed to construct the project.

75 [†]Tentative pending financial close. Includes only initial construction costs.

76 Sources: CBO, Public Works Financing, AASHTO Center for Excellence in Project Finance

77 **WHY DO P3S?**

78 P3s can be controversial. They are complicated, and they shake up the status quo. There are
79 misconceptions about how they work and who benefits. P3 critics question whether promised
80 benefits will be realized. P3 advocates are not always eager to discuss the potential pitfalls of P3s.
81 Each P3 is different and presents unique challenges and opportunities. This paper series attempts
82 to shed light on both the potential benefits and pitfalls of P3s -- dispelling some of the myths and
83 identifying important practical issues for policymakers to think about when considering P3s.

84 Whatever you believe, P3s are not a panacea to the transportation funding shortage. P3s are not a
85 source of free money. The private partner gets involved because they want to make a profit. If they
86 contribute money to help get a project funded, they do so with the expectation of being repaid –
87 with a healthy, market-appropriate profit. If that were not the case, they would invest their money
88 elsewhere. When P3s are successful, the private sector is able to make a profit while creating
89 benefits that the public sector could not otherwise have achieved. Ultimately, however, just like
90 with publicly financed projects, the revenue to pay for the project will come from the public's
91 pocket—via tolls, taxes, or other fees.

92 P3s are not “privatization.” While the private sector plays a larger role in delivering P3s, the
93 public sector retains ownership and directs what the private partner can and cannot do through
94 statute and contract. P3s do not sell public assets to corporations, domestic or foreign. The reason
95 P3s have drawn the interest of policy makers is that they offer an opportunity for cash-strapped
96 public agencies to accelerate the delivery of much needed projects and to do so more efficiently.
97 Done right, P3s can harness the desire of private firms to make money to create a valuable long-
98 lived asset that will be maintained in good repair for decades.

99 How can profit-seeking private firms save the government money and deliver projects they may
100 not be able to afford? By aligning incentives and accessing financial resources in ways that
101 government just cannot do. P3s can create public benefits through more optimal allocation of
102 risks, responsibilities and incentives between the public and the private sector and integrating
103 design, construction, operations and maintenance phases of a project. Fixed price contracts to
104 design, build, operate, and maintain an asset over a long period of time incentivize private partner
105 to innovate, cut costs and deliver projects on-time to increase their profit margin. The private
106 partner takes on the risk that long-term project costs may be greater than expected or that there
107 will be unanticipated delays, but when those risks are well- managed, they are in a position to
108 turn those risks into opportunities.

109 P3s can also help public agencies access financial resources that allow them to accelerate project
110 delivery. P3s allow public agencies to leverage future revenue streams for up-front capital in the
111 form of private investment. These arrangements do not eliminate the need for additional revenue.
112 But they do overcome a significant barrier to project delivery: the lack of a financial strategy that
113 can take advantage of future streams of revenue without requiring governments to take on
114 additional financial risk.

115 Table I-2 provides a brief overview of the potential benefits for a public agency in undertaking a
116 P3.

117

Table I-2. Primary Public Benefits of P3s

Benefit	Description
Projects open to traffic sooner	May provide public agencies with access to up-front capital needed to complete major projects that is not subject to annual budget constraints or public debt caps.
More reliable project delivery	Many P3s create incentives for the private sector to design and construct a project more efficiently. Several studies have found that P3 projects are more likely to be completed on-time and on-budget than projects using traditional procurement methods. P3s also provide greater cost certainty for public agencies.
Contractually-obligated life-cycle project delivery reduces costs	In P3s where the private sector is responsible for operating and maintaining the asset, the private sector has a strong incentive to minimize life cycle costs which often means building to higher standard initially and timely maintenance through the life of a project. Public agencies may be unable to do this simply because of fiscal challenges.
Transfer some risks to private partner	Risks such as construction and financial risks can be fully or partially transferred to the private sector in a cost effective way.

118

CHALLENGES

119

There are also pitfalls to P3s. P3 projects are a potentially effective way to transfer long-term project risks to the private sector, but they are not guaranteed to succeed. P3s do not eliminate the risks that come with financing, constructing and operating large infrastructure. There is always the potential that the public sector will still experience losses, financial and otherwise.

123

Furthermore, although construction and long term preservation can cost less, the transaction costs are usually much higher due to legal fees, financing costs, and procurement expenses.

125

Finally,, an important element of P3s is the transfer of risk to the private partner, which the private partner builds into their price. As a result, the higher transaction costs of P3s mean that the use of P3s is generally limited to large and complex projects.

128

P3s are limited in that they are only appropriate for a small segment of potential transportation projects - typically large, complex projects with stable revenue streams. Only large and complex projects make the substantial transaction cost of a P3 worthwhile, so it is unlikely that P3s will have such broad application that they can solve the transportation funding gap that many States and local governments currently face.

133

Table I-3 summarizes some of the challenges of P3s for transportation agencies.

134

Table I-3. Primary Challenges of P3s

Challenge	Description
Higher transaction costs	Delivering a P3 project involves the development and procurement of complex long-term contracts which takes special technical expertise and extensive due diligence to get right.
Higher finance costs	Because the costs of financing a P3 are typically greater than comparable projects financed with debt issued by public agencies, the private sector requires a competitive rate of return on capital investments that factors in the cost of risk, while public agencies can often issue tax-free bonds. But, it can be difficult to make a comparison because the public agency may be unwilling or unable to borrow for a project.
Difficulty estimating long-term value of transferred costs and risks	Given the complexity and uncertainty involved in the design, construction, financing, and long-term operations and maintenance of major transportation facilities, it can be difficult for the parties involved to estimate the appropriate value of an agreement.

135

136 **ALLOCATING RISKS**

137 Risks associated with P3s include construction, geotechnical, financial, demand/revenue,
 138 political, operations and maintenance cost, and liability. Most of these risks are inherent in
 139 traditionally procured projects as well; a P3 arrangement, however allows the public sector to
 140 transfer some of these risks to the private sector.

141 With a P3, a public agency can transfer, allocate or retain specific risk depending on how well it
 142 believes it can manage the risk weighed against the expected cost of the risk transfer. When an
 143 agency transfers all or part of a risk to the private partner, the private partner has to conduct the
 144 due-diligence necessary to price and mitigate them. Many uncertainties associated with a project
 145 have a potential upside, or reward, as well (see Table I-4.) When transferring certain risks , the
 146 public agency may forgo certain rewards if revenues are greater than expected or costs are lower
 147 than expected. Oftentimes, a P3 contract will stipulate that excess revenue be shared between the
 148 public and private partner; but this is factored into the private partner’s risk and reward
 149 calculation as well.

150 **Table I-4. Typical Risks and Rewards of P3s**

Risk Type	Downside/Potential Costs	Upside/Potential Reward
Financial	Higher financing costs	Lower financing costs
Design	Design-related cost increases	Cost-saving design innovations
Construction	Construction costs overruns	Construction cost savings
O&M	O&M cost increases	O&M cost efficiencies
Revenue	Revenue shortfalls	Higher revenues
Environmental	Unanticipated environmental costs or delays	None
Force Majeure	Catastrophic failure	None
Performance	Performance lapses (Fines)	None

151

152 **THE LIFE CYCLE OF A P3**

153 These papers address P3 development issues from enabling legislation through identification,
 154 evaluation, negotiation, and management of P3 agreements. The aim is to help public agencies
 155 anticipate the challenges and develop the needed capabilities to be successful. While some of
 156 these capabilities can be acquired through contracts with private advisors, many will need to be
 157 developed in house. Agencies will need:

- 158 • A legal framework to enter into and enforce long term P3 agreements;
- 159 • Policies, processes, and tools to guide policy decisions;
- 160 • Technical skills to develop, evaluate, and negotiate agreements; and
- 161 • Skilled staff to manage and oversee projects over the long-term.

162 Developing projects as P3s will require organizational and cultural change. The public sector will
 163 need to gain a better understanding of private sector interests and perspectives and become
 164 comfortable transferring a greater degree of responsibility to the private sector—a cultural shift.
 165 Managing the organizational changes needed to develop an effective P3 program will take
 166 committed leadership at multiple levels that can champion P3 policies and projects.

167 Public and private sector organizations have different interests, values, cultures, competencies
 168 and processes. In effective P3 arrangements, these differences are leveraged to create value for
 169 both parties. However, these differences can also be barriers to negotiating agreements that
 170 create value. Differences between the two parties can create distrust that can undermine
 171 perceptions of value and raise perceptions of risk. Surmounting these differences and
 172 implementing an effective P3 program requires leadership commitment to developing new
 173 processes and capabilities on the part of public agencies.

174 Just as the public sector wants a private partner that can meet its commitments and create public
 175 value, the private sector wants a public sector client it can trust to see a deal through. Public
 176 agencies will need sufficient commercial knowledge and experience to understand the
 177 perspectives of the private sector, develop attractive P3s, and select and manage qualified

178 advisors and concessionaires. Significant differences in the way the public and the private sector
 179 perceive project development are summarized in Table I-5.

180 **Table I-5. Public and Private Sector Cultural Perspectives**

Public Sector	Private Sector
Projects - Seeks to address transportation needs by developing “projects” to improve the infrastructure network.	Deals - Sees the process in terms of negotiated transactions.
Stakeholders – Seeks to address the concerns of various parties, including local residents, facility users, and political representatives.	Stockholders – Seeks to generate dividends for its stakeholders.
Process – Applies and complies with prescriptive, standard operating procedures designed to provide uniformity, minimize risk and build consensus among stakeholders.	Outcome – Demands greater flexibility and expediency to arrive at final objective.
Policy Goals – Develops projects to achieve policy goals such as improvements to mobility and safety.	Profits –Interested in a competitive return on investment
Transparency – Seeks to share information with the public to ensure public participation and accountability.	Confidentiality – Protects intellectual property and the competitive advantages derived from innovations.

181

182 **OVERVIEW OF THE CHAPTERS**

183 Together, these chapters address policymaker concerns and identify research questions that can
 184 support public decisionmaking:

- 185 1. **Legal and Statutory Issues** describes how State legislation can be structured to
 186 provide public agencies with the legal authority to reach P3 agreements while ensuring
 187 that there are safeguards in place to protect the public.
- 188 2. **Decisionmaking Processes and Tools** discusses the ways in which public agencies
 189 structure decisionmaking processes to effectively evaluate and negotiate P3 agreements.
- 190 3. **Financial Considerations** explains how P3s can be financially structured to leverage
 191 the interests and capabilities of private financial investors.
- 192 4. **Performance Management** describes how public agencies can design and manage
 193 contracts that enable them to ensure private partners meet their obligations and P3
 194 projects help achieve public goals.
- 195 5. **Organizational Capacity** discusses how public agencies can develop the capabilities
 196 needed to evaluate, negotiate and implement P3s in the ways discussed in the previous
 197 papers.

1

2

3

4

1. LEGAL AND STATUTORY ISSUES

5

6

KEY FINDINGS

7

- A growing number of States have or are considering P3 enabling legislation, but enabling legislation differs significantly from State to State. It is up to each State to determine the appropriate approach to legislation, starting with an understanding of the goals they are trying to achieve.

10

11

- Enabling legislation can determine which agencies have the authority to enter P3s, the types of P3 agreements those agencies can enter into, the procurement methods used to arrive at P3 agreements, and the types of funding and financing arrangements that can be applied to those agreements.

12

13

14

15

- While some issues can only be addressed through statutes, it can be difficult to determine if some issues, such as how a P3 project is funded or procured, should be addressed through statute as opposed to through policy or contract provisions.

16

17

18

- There are tradeoffs associated with some legal decisions, particularly where public and private concerns can conflict, such as the degree of transparency and competition to require in the procurement process and the level of public and legislative input to allow in the decisionmaking process.

19

20

21

22

23

1. LEGAL AND STATUTORY ISSUES

24

INTRODUCTION

25

26

Before implementing a public-private partnership (P3), States need to create a legal framework. P3 enabling legislation varies widely among States, but the basic goal is the same: to allow public entities to take advantage of the benefits of P3 project delivery while protecting the public interest. Some States provide broad authority for public entities to enter into and manage P3 agreements, while others strictly limit P3s to specific projects or project types and define the type of provisions that must or must not be included.

32

It is up to each State to determine the appropriate approach to legislation, starting with an understanding of the goals they are trying to achieve. Enabling legislation varies from State to State because policymakers consider the needs and goals of their constituencies and the unique political and institutional environment of their State. Policymakers often include language in legislation that reassures specific constituencies - such as tax payers, road users, or road builders - that their interests are protected. There is a fine line, however, between prescribing processes or provisions intended to protect the public interest, and those that create inefficiencies or deter private sector interest. Each State's goals can guide the decisions on legal issues.

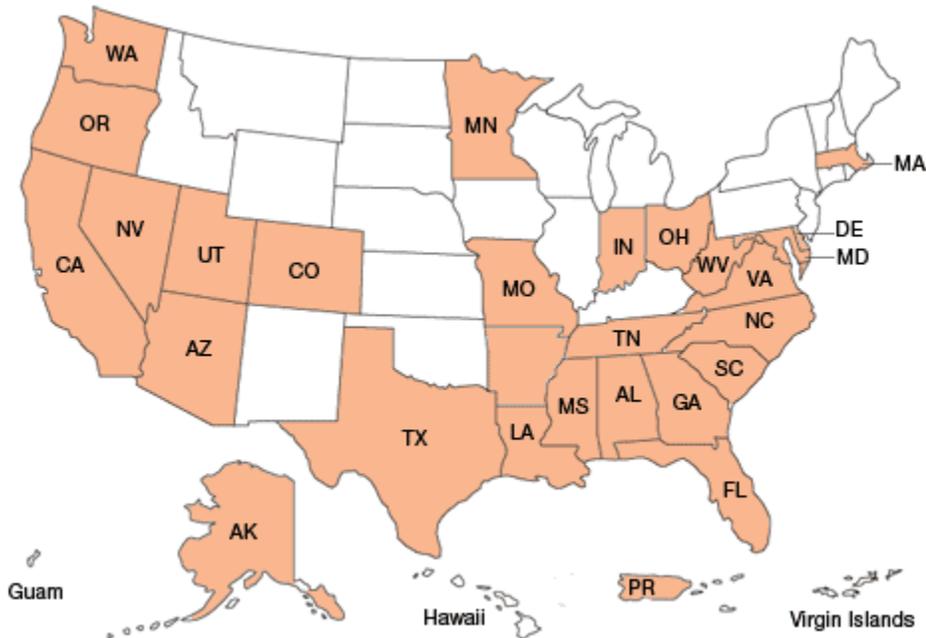
40

The FHWA Office of Innovative Program Delivery's website provides examples of the 23 U.S. States and one U.S. territory that have enacted statutes that enable the use of various P3 approaches (see Figure 1-1).

42

43

Figure 1-1. States That Currently Have P3 Enabling Legislation



44

45

From www.fhwa.dot.gov/ipd/p3/state_legislation/

46 This chapter discusses how legal issues may be addressed through enabling legislation, or other
 47 statutes. State P3 legislation provides a legal framework that identifies permissible parties,
 48 agreements, and procurement processes. Once a statutory framework is established, other issues
 49 may be determined by policies set by the public sector agency that is given power under the
 50 enabling legislation. Those that are not addressed with legislation or programmatic policy are
 51 handled in the specific project contracts, either as determined in the procurement process or via
 52 negotiation.

53 There is no one correct way to address legal issues. The legislature can decide whether to treat an
 54 issue as statutory or leave it to the discretion of the authorized project sponsor to address through
 55 programmatic policy or through project-specific agreements. The legislature may decide, for
 56 example, to set a maximum limit on concession term lengths, allowing the public agency to
 57 establish its own policies for determining term length, or leaving specific concession terms to
 58 contract negotiations for each project. Table 1-1 summarizes the kinds of legal issues encountered
 59 in P3s and the way these issues are often handled—through statute, policy, or agreement.

60 This chapter describes the factors State policy makers consider in creating a legal framework for
 61 P3s that may be used to authorize or restrict who may enter into P3 agreements, how partners
 62 and proposals may be selected, and what types of agreements may be entered into.

63 **Table 1-1. Legal Issues Commonly Addressed Through Statute, Policy or Contract**

	Description
<p>Primarily Statutory Issues <i>These issues are typically addressed through State legislation.</i></p>	<ul style="list-style-type: none"> • Types of P3 agreements allowed • Authority to enter P3 agreements • Authority to approve or review P3 agreements • Types of facilities allowed.
<p>Issues typically addressed through Policy and/or Statute <i>These issues may be addressed in legislation, to authorize or clarify specific capabilities, as necessary, but the details are frequently addressed through program policy.</i></p>	<ul style="list-style-type: none"> • Types of financing/subsidies allowed • Public uses of proceeds • Ability to hire external advisors • Types of procurement allowed • Whether unsolicited proposals are allowed • Whether stipends are allowed • Whether administrative fees are allowed • Whether to require performance security • Criteria used to evaluate potential P3 projects • Criteria used to select bidder
<p>Issues typically addressed through Contract and/or Statute <i>These issues are typically addressed in contracts although the general parameters may be set by Statute or Policy.</i></p>	<ul style="list-style-type: none"> • Length of contract term • Toll rates and toll rate setting mechanisms • Allocation of risks • Revenue sharing • Dispute resolution • Buy back provisions • Refinancing provisions • Ongoing performance audits or reports

64

65

PROGRAM PROVISIONS

66

State legislation typically addresses several key issues that affect the power and scope of an agency's P3 program. These issues are summarized in Table 1-2.

68

Table 1-2. Potential Statutory Provisions Impacting P3 Program Development

Provision Type	Description
Authority to Enter into P3s	Defines which agencies have the authority to enter into P3s
Types of P3 Projects Allowed	Restricts the types of projects allowed to specified modes, geographic areas, projects, etc.
Types of Revenue and Finance Agreements Allowed	Defines the type of revenues and finance instruments that can be applied to projects and the ways project revenues can be generated and used.
Use of Advisors	Provides authority to use private advisors.
Other Legal Restrictions	Overrides certain existing legal restrictions, such as those governing procurement.

69

70

Authority to Enter P3 Agreements

71

In the United States, State law establishes the primary legal framework for P3s. In general, State law determines what kinds of P3s may be enabled, which levels of government will be authorized to do them, and how the process will be implemented. Federal laws and regulations may affect the implementation of P3s for projects constructed with Federal-aid funds (e.g., the process for environmental analysis, permits that are required, available tolling authority, etc.) but they do not provide authority for a State to enter into a P3, nor determine whether or how P3s will be implemented. Local laws may determine how a P3 will be implemented on the local level, but generally a State will have to specifically provide authority to a local government to engage in most P3s.

72

73

74

75

76

77

78

79

P3 enabling legislation generally defines which entities have the authority to enter into P3 agreements. Authority may be given broadly to a range of State, regional and local public agencies or limited to a specific agency or department. Sometimes, P3 authority is given to a special public body or commission formed by the legislation, with provisions for instances where jurisdictions overlap, if applicable. For example:

80

81

82

83

84

85

86

87

88

89

90

91

92

- Florida allows any expressway authority, transportation authority, bridge authority, or toll authority to enter into a P3 agreement for facilities that increase transportation capacity within their jurisdiction.
- California law authorizes the State DOT and regional transportation agencies to enter into an unlimited number and various forms of P3 agreements for "transportation projects," which is defined in the P3 statute.
- Puerto Rico has designated a new public entity, the Public-Private Partnerships Authority, with broad authority to identify, evaluate and implement P3 projects.

93 **Allowable P3 Projects**

94 Enabling legislation typically defines the term “public-private partnership” and that definition
95 may limit the types of P3s that are allowed. P3 legislation may allow for many types of projects, or
96 be more limited in scope. Depending on policy and program objectives, States may choose to
97 restrict the allowable project types in a variety of ways, such as:

- 98 • Type of facility (e.g., highway infrastructure only)
- 99 • Geographic area (e.g., within a specified county)
- 100 • Projects that increase highway capacity (as opposed to leasing of existing facilities)
- 101 • Projects specified in legislation
- 102 • Projects that impose new tolls on existing facilities.

103 Several States have strictly limited P3s to specific, named projects. This project- by-project
104 approach may help to assure the public (and interest groups) that the State will take an
105 incremental approach to P3s; however, the lack of broader authority may raise government costs.
106 Limited allowable P3 projects may also reduce interest of concessionaires by signaling a lack of
107 long-term political and institutional commitment to seeing P3 procurements through to
108 agreement.

109 **Allowable Revenue Sources and Financial Instruments**

110 Enabling legislation may define the allowable and prohibited revenue sources, financial
111 instruments, and payment structures for P3s. Some P3 statutes, for example, include broad
112 language authorizing the DOT or other sponsoring agency to exercise “any powers it possesses”
113 under other applicable law in order to facilitate the delivery of P3 projects. Without express
114 treatment in statute, such language may be construed to permit agencies responsible for the
115 expenditure of transportation revenues to devote such revenues to the delivery of P3 projects.

116 **Revenue Sources.** Revenue sources may include taxes, tolls, or fees, as well as tax increments,
117 special assessments, and impact fees. Legislation may prohibit the use of tolls on a facility once its
118 debt has been repaid or it may limit the way revenues generated by the project may be applied.
119 For example, States have used differing approaches to ensure that P3 legislation does not create
120 ambiguities or conflict with other State laws governing the permissible uses of funds. Some State
121 enabling legislation specifically requires that revenues generated from P3 agreements be
122 reinvested in the State’s transportation system or in the project facility or corridor. Other States
123 allow public revenues from P3 agreements to be directed to the general fund or to pay off State
124 bonds.

125 Enabling legislation commonly includes provisions to require sharing of excess revenues.
126 Revenue sharing provisions require the private sector to split revenues above a certain rate of
127 return with the public sector. Revenue sharing agreements guard against the private sector
128 reaping “windfall” profits and allow the public to share the benefits from higher than expected
129 gross revenues.

130 Revenue sources are discussed in more detail in the Chapter 3, Financial Considerations.

131 **Financial Instruments.** Financial instruments used in P3s may include revenue bonds, TIFIA
132 loans, and other forms of public financing. Enabling legislation may explicitly allow the use of any
133 combination of Federal, State, or local tools to finance projects. If such language is not included in

134 enabling legislation, it may create uncertainty as to whether public sponsors can put together the
135 kind of financing package typically required to fund a P3 project.

136 Issues related to financial instruments are discussed further in Chapter 3, Financial
137 Considerations.

138 **Payment Structures.** Authority to compensate a private partner with revenues other than tolls
139 or user fees, such as availability payments or shadow tolls, may be expressed or implied. Enabling
140 legislation may permit agreements that pay the private partner with availability payments funded
141 by project revenues such as tolls or user fees—whether collected by the concessionaire or the
142 government—or paid from other sources of public funds, such as gas or sales taxes.

143 **Use of Technical, Legal and Financial Advisors**

144 P3 programs often rely on external legal, financial, and technical advisors to assist in the
145 assessment, selection, and negotiation of P3 agreements. Enabling legislation often specifically
146 authorizes and provides funding for public sponsors to contract with external advisors.
147 The use of external advisors raises important legal concerns over conflicts of interest. Since the
148 market for P3 advisors is highly specialized, the number of potential contracting parties is small,
149 and the risk of conflicts of interest is higher than in traditional procurement models. However,
150 existing State statutes prohibiting State workers from benefiting from conflict of interest and
151 established public agency policies on hiring are usually adequate. P3 programs typically deal with
152 this issue through defined policies and guidelines that are established before any specific
153 procurement, rather than in legislation.

154 **Other Applicable State Laws and Constitutional Provisions**

155 P3 enabling legislation is rarely the sole body of law governing P3 agreements. State
156 constitutional law, tax laws, procurement laws, labor laws, and other laws will apply. Generally,
157 State legislatures do not overturn long-established principles of law by enacting P3 enabling
158 legislation. To avoid conflicts, P3 statutes can be crafted in a way that achieves consistency with
159 other bodies of law that may apply.

160 P3 enabling legislation may exempt P3s from certain State laws. For example, enabling legislation
161 frequently exempts P3 transportation facilities from property or ad valorem taxes. If
162 concessionaires have to pay property or sales taxes, it would raise their costs, which would be
163 passed along to the public in their bids. However, this extra cost would be offset by the fact that
164 the tax is going to a government agency, although it may not be the same agency involved in the
165 P3 transaction. Enabling legislation may also allow for different procurement processes than are
166 traditionally allowed under State law, such as the selection of bids based on “best value.”

167 Constitutional provisions are more difficult to amend than statutes and may limit the ability of
168 States to develop certain projects or include certain terms in contracts. For example,
169 constitutional rules may limit the ability of a public sponsor to make guarantees to private
170 partners concerning future payments that are subject to the appropriations process. This may
171 limit a State’s ability to use an availability payments model.

172
173
174
175
176
177

PROCUREMENT PROVISIONS

While conventional procurements often require uniform bid packages, preclude the consideration of nonmonetary values, or forbid negotiation of a final contract limit, P3 contracting opens the way for these and other features. Table 1-3 provides an overview of statutory provisions that may be included in enabling legislation which permit nonconventional procurement processes.

Table 1-3. Procurement and Statutory Provisions

Provision Type	Description
Permissible types of procurement methods	<ul style="list-style-type: none">• May allow for the use of less conventional procurement processes or exempt P3s from existing procurement statutes.
Allowable types of payments and fees	<ul style="list-style-type: none">• May allow for the use of stipends or administrative fees to encourage competition or offset transaction costs.
Proposal evaluation criteria	<ul style="list-style-type: none">• May allow for selection of proposals based on “best value” and broadly define the criteria by which proposals may be judged.
Confidentiality and transparency	<ul style="list-style-type: none">• May set restrictions on how intellectual property disclosed in proposals is treated.

178
179
180
181
182
183
184
185
186
187
188
189

Permissible Types of Procurement Methods

Since P3 agreements are generally larger, more complex, and for longer terms than traditional contracts, public agencies often use less conventional procurement processes. For example, because of the complexity of P3s and the need for the private partner to arrange financing, negotiations of final contract terms are often necessary. P3 enabling legislation can expressly permit specific procurement methods that may facilitated the selection of P3 proposals including:

- Calls for projects,
- Unsolicited proposals,
- Competitive Request for Qualifications (RFQs) and Requests for Proposal (RFPs),
- Negotiations with the winning bidder, and
- Best and final offers.

190
191
192
193
194
195
196
197
198
199
200
201

Unsolicited Proposals. Some States allow unsolicited proposals for potential P3 projects. Unsolicited proposals allow private entities to propose solutions to transportation problems that the public sector might not have otherwise considered. However, unsolicited proposals can be perceived as competing with resources for projects that have gone through the usual project selection process in regional and State transportation plans. Furthermore, some observers have expressed concerns that the private sector may “cherry pick” those projects that generate the most financial return rather than address a State’s more pressing mobility and connectivity needs.

In States that allow unsolicited proposals, enabling legislation typically prescribes that such proposals be subject to a competitive procurement process. For example, a State may require at least one competing proposal before an agreement can be awarded in response to an unsolicited proposal. To ensure States are reviewing only feasible proposals, States may require application fees or security deposits, or screen projects eligible for unsolicited proposals in advance.

202 **Allowable Types of Payments and Fees**

203 Some States require bidders to pay fees to offset the costs of proposal review or provide
204 performance security, while other States provide stipends to bidders.

205 **Application Fees.** If unsolicited proposals are allowed, application fees can be a useful tool to
206 help defray the costs incurred by public sponsors in reviewing the unsolicited proposals.

207 **Performance Security.** State law may require a contract performance security, which is a
208 financial guarantee made by a contractor to a State that the contractor will faithfully perform the
209 contract. Some observers believe that requiring a performance security for P3 agreements may
210 present a prohibitive and unnecessary requirement because concessionaires typically put their
211 own equity at risk, which should be enough of an incentive for them to perform. In addition,
212 lenders will apply due diligence and impose their own insurance requirements on the contractor
213 to limit their exposure to financial risk.

214 **Stipends.** Due to the complexity of most P3 projects – involving design, finance, construction,
215 and long-term operation – it can cost bidders millions of dollars to develop a bid. As a result,
216 some States allow stipends for qualified bidders to increase competition by encouraging more
217 bidders. Stipends can also be used to compensate losing bidders for specific concepts proposed in
218 their bid that may be incorporated into the final design of the project. However, some observers
219 believe that the use of stipends may provide an unnecessary public subsidy to a private firm for
220 providing little more than a proposal.

221 **Proposal Evaluation Criteria**

222 In some States, legislation may explicitly describe criteria by which proposals are evaluated.
223 Generally, these criteria are further elaborated in P3 program policy and guidelines. Other States
224 may direct public sponsors to develop evaluation criteria and that the criteria be provided in the
225 RFP or RFQ. For example, Texas statute states, “the department shall evaluate each proposal
226 based on the criteria described in the request.” Prescribing detailed evaluation criteria in
227 legislation may limit the ability of public sponsors to solicit and select innovative proposals. For
228 example, a public agency may wish to adjust its criteria to ensure the best match for a particular
229 project by acquiring a partner with specific expertise to overcome a difficult technical challenge.

230 P3 statutes may permit the selection of a proposal on the basis of best value rather than low bid.
231 Value considerations may include: the experience and qualifications of the bidder and key staff;
232 the quality of the proposed technical solutions; the quality of the operations and maintenance
233 plan; and the overall lifecycle costs of the bid.

234 **Confidentiality and Transparency**

235 While public disclosure of proposal details can help improve the transparency and public
236 legitimacy of the bidding process, full transparency may deter private sector bids. Legislation may
237 establish a process whereby private bidders identify confidential and proprietary information that
238 should be excluded from disclosure.

239 **AGREEMENT PROVISIONS**

240 State enabling legislation may define the permissible or mandatory provisions in a P3 agreement.
241 Enabling legislation may also prescribe specific parameters for contract provisions such as the

242 maximum length of contract terms, mechanisms for raising tolls, and the use of funds. A
 243 summary of the ways that enabling legislation may address the agreement provisions is provided
 244 in Table 1-4, with details provided below.

245 **Table 1-4. Potential Statutory Restrictions on Agreement Provisions**

Provision Type	Description
Risk Allocation	<ul style="list-style-type: none"> • Require defined process for assessing and allocating risk.
Payment/Revenue	<ul style="list-style-type: none"> • Limit toll rate increases. • Designate a public agency to determine/approve rate increases. • Require revenue sharing provisions.
Term length	<ul style="list-style-type: none"> • Limit contract term length to specified number of years.
Non-compete clauses	<ul style="list-style-type: none"> • Forbid broad non-compete clauses.
Review of final agreement	<ul style="list-style-type: none"> • Require legislative review/approval of final P3 agreements. • Designate committee or commission responsible for final approval.

246

Risk Allocation

247 The primary value proposition of P3 agreements is that they allow for the transfer of risks to the
 248 party that is most capable of handling those risks. Enabling legislation may define a process for
 249 assessing and allocating risks. Public sponsors may be prohibited from transferring specific risks,
 250 such as archaeological or environmental risks, to the private sector.
 251

Payment/Revenue Provisions

252 The ability of the concessionaire to charge tolls or fees may be defined in the State enabling
 253 legislation. More restrictive legislation may stipulate where tolls may be applied, how tolls are set,
 254 and how toll revenues may be used. Broader legislation allows the public sponsor to negotiate
 255 tolling provisions with the private sponsor. Enabling legislation may designate a public agency to
 256 set toll rates or include restrictions on private sector profit by capping the rate return or requiring
 257 revenue sharing above a specified rate or return.
 258

259 P3 agreements that authorize the private partner to impose tolls and set toll rates will typically
 260 detail when and by how much tolls can be modified. The authority to impose tolls or user fees may
 261 be subject to certain statutory or contractual conditions, including approval by State, local, and
 262 Federal agencies. State legislation may require, for example, that toll or user fee revenue be
 263 applied to the payment of construction and financing costs, including a reasonable return on
 264 investment.

265 Enabling legislation may specifically need to permit the use of availability payments where the
 266 public sponsor provides regular payments to the private partner on the condition that the facility
 267 meets defined performance specifications.

Length of Contract Terms

268 State legislation may stipulate the maximum length of P3 agreements. Some State legislators have
 269 raised concerns about ceding public control over an asset to the private sector for decades and
 270

271 have sought to address these concerns through legislation. Private partners may seek longer
272 contract terms in order to gain long-term tax advantages, which may translate into benefits for
273 the public sector in terms of stronger bids. For example, the Chicago Skyway concession is for a
274 99-year term. Longer-term agreements, however, may be more difficult to accurately value, and,
275 due to discount rates, the benefits in the more distant years may have marginal value. In Florida,
276 for example, statute limits P3s to terms of up to 50 years. Beyond 50 years requires written
277 justification and explicit approval of the secretary of the department; beyond 75 years requires
278 legislative approval.

279 **Non-Compete Clauses**

280 A non-compete clause in a contract limits the ability of the public sponsor to construct or enhance
281 competing facilities that would compete for travel demand with a P3 that has tolls. Non-compete
282 clauses can take a variety of forms. In California, the 91 Express Lanes agreement contained a
283 non-compete clause that precluded the State from building unplanned facilities along thirty miles
284 of the Riverside Freeway. When Caltrans, the California DOT, sought to expand a facility due to
285 congestion, the concessionaire filed a lawsuit to stop the expansion. Before the case was resolved,
286 the Orange County Transportation Authority bought the toll road so that the desired
287 improvements could go ahead.

288 Several States have prohibited non-compete clauses in P3 agreements. For example, Texas statute
289 States that an agreement “may not contain a provision that limits or prohibits the construction,
290 reconstruction, expansion, rehabilitation, operation or maintenance of a highway or other
291 transportation project.”

292 In other cases, non-compete provisions may take the form of compensation clauses, which require
293 the public partner to compensate the private partner for revenue lost due to the development of
294 unplanned competing facilities. Compensation clauses can be made to cut both ways, by counting
295 induced as well as lost traffic on a concessionaire operated facility. For example, in the SH-121
296 comprehensive development agreement there is an unplanned revenue clause that requires the
297 developer to prove that the construction of competing facilities has had a cumulative negative
298 effect on project revenues in order to receive compensation. This clause allows TxDOT to offset
299 any claims of lost revenues by demonstrating how other TxDOT actions have served to increase
300 revenue on the SH-121.

301 **Authority to Review and/or Approve Final P3 Agreements**

302 Legislation may designate entities—other than the public sponsor—with the power to review,
303 approve, or veto P3 agreements. Such entities may include the Governor, the legislative body, a
304 State agency, or a special commission. Delaware, for example, requires that the relevant
305 Metropolitan Planning Organization approve the project.

306 These provisions are intended to protect the public interest; however, if approval occurs late in
307 the project development process, they can result in significantly increased costs for both public
308 and private partners due to the uncertainty generated by the provision. This can make it less likely
309 that private entities are willing to incur proposal development costs.

310 Some States address issues of legislative review or local approval by requiring approval prior to
311 the issuance of a RFP. Florida’s enabling legislation, for example, requires “legislative approval as

312 evidenced by approval of the project in the department's work program." In California, to ensure
313 that such arrangements are in the public interest, a proposed agreement must be reviewed by the
314 State legislature and the Public Infrastructure Advisory Commission at least 60 days before
315 Caltrans or the relevant regional transportation agency signs the agreement. Neither entity has to
316 approve the project, however, for it to move forward.

317 Legislative bodies may play an oversight role other than simple approval or disapproval. In
318 Georgia, for example, legislation requires that the Georgia DOT provide quarterly updates on the
319 progress of P3 projects and project proposals to legislative transportation committees.
320 Alternatively, enabling legislation can prescribe a role for the legislature in appointing
321 committees or boards responsible for approving agreements, such as in Alaska and Puerto Rico.
322 In Washington, the Washington State Transportation Commission is statutorily responsible for
323 reviewing and approving public-private partnership agreements developed under the
324 Transportation Innovative Partnership Program.

325 Other State agencies may control or regulate other aspects of the P3 project development or
326 procurement process. The Attorney General may play a large role in interpreting what is
327 permissible under statute. The Treasurer may control bond issuance or other aspects of project
328 financing. The State procurement agencies may control the processes by which advisors and
329 partners are selected. Other potential controlling agencies include existing tolling authorities,
330 legislative committees, and State transportation oversight commissions. These agencies may be
331 consulted when developing enabling legislation.

332 **Dispute Resolution, Renegotiation, Hand back and Other Changes**

333 P3 agreements often last for decades, so there is a need for provisions that manage change in the
334 public-private relationship over time. Enabling legislation may explicitly allow for alternative
335 dispute resolution mechanisms, renegotiation, refinance or facility buy back. Legislation may also
336 include language explicitly forbidding private ownership arrangements and requiring agreement
337 provisions that deal with handback of the facility to the public sponsor at the end of the
338 agreement's terms.

339 **SUMMARY**

340 State legislation enabling the use of public private partnerships can take a variety of forms, but it
341 generally addresses a core set of issues. It is up to each State to determine the appropriate
342 approach to legislation, starting with an understanding of the goals they are trying to achieve. A
343 clear sense of purpose will help to guide the decisions States make on specific issues.
344 Furthermore, as States gain experience in public private partnerships, there is a growing body of
345 literature, cases, and models that can serve as a reference in developing appropriate legislation.
346 Drawing from these resources, the Federal Highway Administration and the law firm Nossaman
347 LLP have both created model legislation to serve as guide.² In addition, the National Conference

² Federal Highway Administration. www.fhwa.dot.gov/ipd/pdfs/legis_model_0610.pdf

348 of State Legislatures has developed a “Public-Private Partnerships Toolkit” that lays out a set of
349 recommended principles for legislators to follow in making policy decisions.³

350 **RESEARCH NEEDS**

351 Since relatively few P3s have been implemented in the U.S., more research is needed to determine
352 how well enabling legislation has provided a framework for protecting the public interest while
353 allowing States to benefit from P3 arrangements. Possible research questions include:

354

355 • What lessons have been learned from legislative provisions for program development,
356 such as allowable projects, revenue sources, and financial interests?

357 • What lessons have been learned from legislative provisions for procurement?

358 • How have legislative provisions helped or hindered development of P3 project
359 agreements that protect the public interest? For example, have restrictions on contract
360 length diminished private interest, or bolstered public support, or both?

361 • How have legislative provisions affected States’ ability to attract private investment?
362 What provisions have helped to protect industry interest in States, and what provisions
363 have reduced industry interest?

364 • What legislative provisions have successfully protected the public interest, avoiding
365 financial loss and ensuring that the public sector shares in financial returns?

366

367

368

³ National Conference of State Legislators. Public-Private Partnerships for Transportation: A Toolkit for Legislators. www.ncsl.org/default.aspx?TabId=20321

1

2

3

4 **2. DECISIONMAKING PROCESSES** 5 **AND TOOLS**

6

7 **KEY FINDINGS**

- 8 • States vary in their approach to identifying and evaluating potential P3 projects. Some
9 States use a programmatic approach, where an agency screens a set of projects for
10 feasibility as a P3. Other States evaluate P3s on a project by project basis.

- 11 • State use different tools to evaluate potential P3 projects, such as Value for Money
12 analysis, which allows public agencies to compare the risk adjusted net present value of
13 different procurement options.

- 14 • One of the primary ways P3s generate value is by optimally allocating risks, but project
15 risks are not always well understood and this can hamper risk allocation decisions.

- 16 • P3 agreements can vary significantly from project to project depending on the goals of the
17 project sponsor, the nature of the facility, the legal and political environment, and the
18 capabilities and interests of potential private partners. Significant differences can include
19 the type of compensation model used, the length of the agreement, and the allocation of
20 specific risks and responsibilities.

- 21 • Because of the size, complexity, and length of term of P3 agreements, special
22 procurement processes are needed to ensure there is sufficient and qualified competition.

23

24 **2. DECISIONMAKING PROCESSES** 25 **AND TOOLS**

26 **INTRODUCTION**

27 Public agencies have to make important and complicated decisions to develop effective P3
28 programs and projects—often under intense public scrutiny. P3s tend to be large and complex
29 projects that present unique challenges to decisionmakers. As a result, policymakers must make
30 difficult decisions with limited information and few points of reference.

31 Once a public sector agency has decided to enter into a P3 program or project, as enabled by State
32 legislation, policymakers must consider:

- 33 1) Whether to set up a P3 program or develop P3 projects on a project-by-project basis;
- 34 2) Establish a criteria and process for the selection of projects for evaluation as a potential
35 P3;
- 36 3) How to structure a commercially valuable P3 agreement that achieves policy goals,
37 optimally allocates project risks, and brings value to the investment;
- 38 4) How to conduct a fair and competitive procurement to select the best partner and
39 negotiate a final agreement that is transparent and protects the public interest while
40 addressing the private partner's concerns.

41 While the types of decisions and the tools and processes used to make these decisions are similar
42 for all States, approaches to P3s and types of projects vary significantly by State. Many States
43 evaluate P3s on a project-by-project basis. These States sometimes rely on the private sector to
44 help identify opportunities to develop projects as P3s or developing a project as a P3 once other
45 approaches to financing and delivering a project prove insufficient. However, some States are now
46 starting to apply a more programmatic approach that identifies P3 opportunities early in the
47 planning process. States have used different methods to evaluate the value of the P3 approach.
48 Some States have allowed public toll authorities to compete with private bidders. Other States
49 have developed value for money analyses that use financial models and risk assessments to
50 compare different models of project delivery.

51 While the structures of individual P3 agreements have evolved as the P3 market has developed
52 over the past 25 years, they vary greatly depending on State's internal financial and legal
53 structure, appetite for risk, market conditions, and other factors States have employed different
54 lengths of term, methods of compensation, risk allocation, and performance management
55 processes in P3 agreements to create public value and incentivize performance. There are also
56 variations in how States have procured P3 projects to select the best partner and negotiate the
57 best final agreement. These differences provide a rich pool of experience and lessons learned on
58 which policymakers can draw when considering future P3 projects.

59 The first section of this chapter discusses decisions associated with initiating a P3 project or
60 program. The second section discusses methods public agencies can use to identify potential P3
61 projects. The final two sections discuss the issues that policymakers face in developing P3 project
62 agreements and selecting an appropriate private partner.

63 **AUTHORIZING LEGISLATION: THE FRAMEWORK**

64 States generally require enabling legislation to begin using a P3 procurement model. P3
 65 authorizing legislation sets out the legislative mandate and legal framework for P3s (see Chapter
 66 1). The P3 legal framework may preclude or constrain potential agency decisions regarding P3s,
 67 although executive agencies may benefit by coordinating with the legislature on the initial legal
 68 framework to allow flexibility in the procurement model due to the unique nature of the proposed
 69 projects. Decisions that are typically addressed in the legal framework include:

- 70 • The agencies that have the authority to enter into P3s;
- 71 • The types of eligible projects; and
- 72 • The types of agreements that are allowed.

73 Decisions regarding the identification, development, and implementation of specific P3 projects
 74 are often left to the implementing agencies.

75 Table 2-1 describes how three States have set different parameters on public agency’s authority to
 76 enter into P3s through legislation.

77 **Table 2-1. Statutory Decisionmaking Frameworks**

	Virginia	Texas	Florida
Entities with authority to enter into P3s	Commonwealth of Virginia, local governments, and specified transportation agencies and authorities.	Texas DOT, the Texas Turnpike Authority, Regional Mobility Authorities, and Regional Tollway Authorities.	Any expressway authority, transportation authority, bridge authority, or toll authority.
Eligible P3 projects	Any road, bridge, tunnel, overpass, ferry, airport, mass transit facility, vehicle parking facility, port facility, or similar commercial facility used for the transportation of persons or goods.	Twelve highway projects specifically named in legislation.	Projects programmed in the DOT’s adopted 5-year work program or projects in the 10-year Strategic Intermodal Plan that increase transportation capacity and are greater than \$500 million.
Allowable Agreements	Any lease, license, franchise, easement, or other binding agreement transferring rights for the use or control of a transportation facility by a responsible public entity to a private entity for a definite term during which the private entity will manage the facility in return for the right to receive all or a portion of	Agreements that provide for the financing, design, acquisition, construction, maintenance, or operation of a designated transportation facility.	Agreements that allow the lease of existing facilities as well as financing, design, construction, operation, and maintenance of new or expanded tolled facilities using either annual availability payments or toll-based payments.

	the revenues of the facility.		
--	-------------------------------	--	--

78

79 **ESTABLISHING A P3 PROGRAM**

80 Once P3 authorizing legislation is in place, public agencies can take different approaches to
81 identifying and evaluating potential P3 projects, conducting procurements, and managing
82 contracts. A public agency's approach to P3s may depend on the enabling legislation in the State,
83 an agency's commitment to and expectations for P3 projects, and an agency's existing traditional
84 processes for developing and delivering projects, the use of internal and external resources,
85 among other things. An important initial decision is whether to pursue P3 opportunities on a
86 project-by-project basis or to establish a P3 program.

87 Some public agencies have pursued P3 projects on a project-by-project basis as opportunities
88 arise. For example, Florida and Texas have each been very active in using P3 procurements but do
89 not have established centralized P3 programs. Project champions in Division Offices (Florida) or
90 regional mobility authorities (Texas) initiate P3 projects in these States, with some oversight and
91 technical support from the State DOT. A project-by-project approach to P3s can allow a public
92 agency to be responsive to local demands and to allocate resources as needed to support project
93 opportunities as they arise. In some cases, the approach to P3s may evolve. Virginia DOT (VDOT),
94 for example, started developing P3 projects on a case-by-case basis. In 2010, Virginia's governor
95 created the Office of Transportation Public-Private Partnerships, which is now responsible for
96 developing and implementing a multi-modal Statewide program for P3 project delivery.

97 If a steady stream of projects is expected, a permanent P3 program can improve identification of
98 P3 opportunities, reduce transaction costs, and educate stakeholders. An established P3 program
99 could potentially instill private sector confidence. If the private sector sees public agencies
100 investing in a P3 program, then potential bidders may have added confidence that the agency is
101 serious about carrying P3s from inception to deal-close and beyond. This can improve the
102 number, quality and competitiveness of interested bidders on a proposed project. In addition, a
103 permanent P3 program or agency may allow staff to accumulate institutional knowledge and to
104 proactively identify future opportunities where P3s may be beneficial. However, setting up a
105 program office in an existing or new agency is a significant undertaking that may not be
106 worthwhile unless there is an expectation of a significant pipeline of P3 deals to evaluate and
107 manage.

108 States may establish P3 programs within an existing public agency, such as a DOT, or, through
109 legislation, in a new independent agency or authority. Institutionalized P3 programs establish
110 policies and processes for identifying, analyzing, and implementing projects and dedicate
111 resources and staff to carry out those processes. States and territories with institutionalized P3
112 programs include Virginia, Georgia, Arizona, and Puerto Rico.

113 In some countries with well-established P3 programs, such as Canada, Australia, and the United
114 Kingdom (UK), specialized P3 agencies have broad authority over a wide range of social
115 infrastructure including highways, schools, water and sewage treatment facilities, and energy
116 plants. Having broad authority to implement P3s across an array of social infrastructure expands
117 the set of potential P3 projects and may lead to lower transaction costs and faster procurement
118 processes. P3 programs in these countries are often located within a treasury agency or within an
119 agency exclusively dedicated to the evaluation and implementation of P3 projects. In Canada and

120 the UK, some P3 agencies are set up as P3s themselves and work on a fee-for-service model, with
121 implementing agencies paying for the P3 expertise of the centralized P3 agency. Such a
122 centralized program might limit the ability to respond to regional or local issues, and be more
123 difficult to implement in countries such as the U.S., which has a long tradition of State and local
124 governments retaining broad authority over project implementation.

125 **PROGRAM GOALS AND STRUCTURE**

126 States with ongoing P3 programs typically establish
127 goals, policies, and standard processes that guide
128 and facilitate the development and implementation
129 of P3 projects.

130 Clear program goals can guide agencies in
131 establishing policies and making decisions related
132 to identifying projects, structuring agreements, and
133 selecting partners. In general, public sector
134 agencies enter into P3 arrangements when they
135 believe there can be added value for the public
136 sector as compared to more traditional
137 development options. Specific program goals may include:

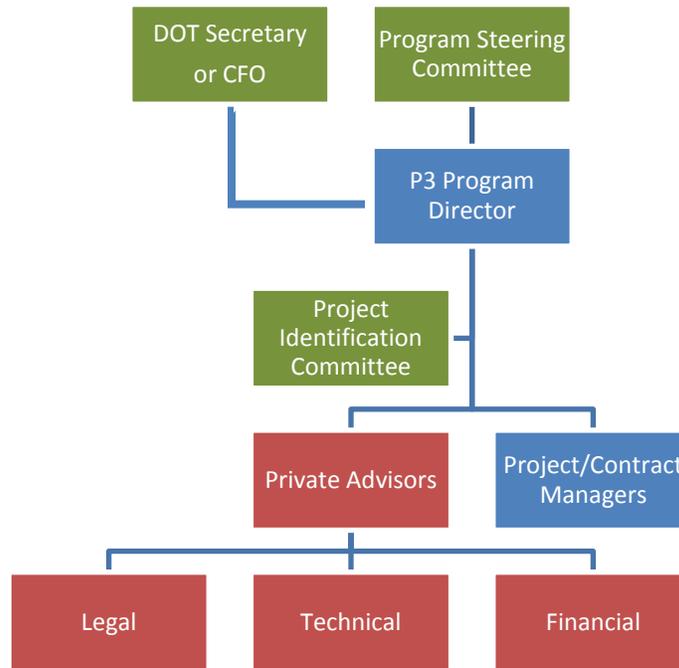
- 138 • Encourage competition and innovation;
- 139 • Realize long-term cost savings;
- 140 • Transfer cost and schedule risks;
- 141 • Accelerate major projects;
- 142 • Communicate the benefits and risks of P3s to stakeholders;
- 143 • Coordinate agency processes and build public capacity to undertake P3s; and
- 144 • Promote economic growth.

145 Decisions regarding the specific mechanisms to achieve the goals of a program are made at the
146 implementation level. P3 programs need sufficient human resources to identify and develop
147 projects and monitor contract performance. P3 programs often draw from political, technical,
148 financial, legal, and managerial skills from throughout a transportation agency and sometimes
149 within other public agencies. P3 programs sometimes establish working committees and steering
150 committees to assist in the identification of P3 opportunities and to coordinate the resources
151 necessary to develop P3 projects. In addition, P3 programs typically engage private advisors as
152 needed to provide specialized technical, financial, and legal skills. Figure 2-1 shows how Virginia's
153 Office of Transportation Public-Private Partnerships is structured to use cross-agency committees
154 and private advisors.

Georgia P3 Program Goal Statement

“The goal of the P3 program is to create a fair, transparent and reliable process to support a climate for private sector innovation and investment in a manner that provides value and benefit to the State’s transportation system.”

155 **Figure 2-1. Virginia's P3 Program Structure**



156
157

158 **PROJECT IDENTIFICATION AND SCREENING**

159 Not all projects are suited to P3 project delivery, so agencies need a way to identify which projects
160 have the best potential to succeed as P3s. Agencies may identify projects with the help of the
161 private sector through unsolicited proposals or a call for nominations, or projects may be selected
162 through programmatic project screening. In some States, such as Texas, potential P3 projects are
163 limited to those that are specifically identified in State enabling legislation. In States where public
164 agencies have broader authority to enter into P3 agreements, public agencies may choose to
165 identify and solicit projects themselves or they can permit the private sector to submit unsolicited
166 proposals. Several States, including Virginia and Florida, consider both solicited and unsolicited
167 proposals. Public agencies can also issue a call for proposals that meet specific criteria (e.g., toll
168 projects or projects that increase capacity) or that meet specific policy goals or needs as identified
169 in transportation plans. Other public agencies have defined project screening processes that lead
170 to the development and solicitation of specific P3 projects. The process for screening projects is
171 discussed further below.

172 **Unsolicited Proposals**

173 The typical unsolicited proposal process allows a private party to submit a conceptual proposal.
174 The public agency evaluates the proposal as to whether it is legally permissible, technically
175 feasible, and, most importantly, meets the agency's policy goals. If the public agency decides to go
176 forward with the unsolicited proposal, it typically publishes the conceptual outlines of the
177 proposal and provides a time period for other private parties to submit competing proposals. This
178 time period varies by State but may range from 60 to 135 days. Public agencies typically charge a
179 fee for reviewing an initial unsolicited proposal ranging from \$10,000 to \$50,000.

180 Table 2-2 provides State examples of requirements for accepting unsolicited proposals for P3s.

181 Agencies may allow unsolicited proposals to
 182 inject private sector innovation into project
 183 selection and implementation. For example, in
 184 2003, VDOT received an unsolicited proposal
 185 for the design of the I-495 Capital Beltway HOT
 186 lanes in Virginia that reduced right-of-way
 187 takings from several hundred homes to less than
 188 ten. The redesign was estimated to reduce the
 189 project cost from \$3.2 billion to \$846 million, in
 190 part by reducing the number of breakdown
 191 lanes from eight to four and deferring
 192 improvements to several interchanges. The
 193 design innovations in the unsolicited proposal
 194 made the project financially and politically
 195 feasible. However, by the time the project was
 196 under construction, the estimated cost had risen
 197 to about \$2 billion, as a result of inflation and
 198 design enhancements, and the concessionaire
 199 needed about \$400 million in State grants to make the financial plan work.

Unsolicited Proposals: Georgia DOT

Georgia DOT initially accepted unsolicited proposals. Several unsolicited proposals were submitted but only one project was advanced to project development. Ultimately, that project was terminated due to public opposition. In 2009, the State passed new legislation that established a framework for Georgia DOT to identify projects and solicit proposals through a P3 program. The program has subsequently identified a network of interconnected managed lanes around

200 **Table 2-2. State Examples of Requirements for Unsolicited Proposals**

	Virginia	Texas	Florida	Puerto Rico
Review Fee	\$50,000 (\$10,000 for concept; \$40,000 for detail)	\$25,000 (\$5,000 for concept; \$20,000 for detail)	\$50,000	\$50,000
Period to submit competing proposals	120 days	90 days	120 days	90 days

201
 202 Unsolicited proposals can be problematic in several ways. They can be perceived as uncompetitive
 203 and non-transparent, although most public agencies that accept unsolicited proposals require a
 204 period of competition to allow competitors to offer alternative bids. Unsolicited proposals often
 205 derive from planned projects that for whatever reason the public sector has not seen through to
 206 implementation. Some observers have questioned whether projects that do not fit into existing
 207 public agency transportation plans or priorities should be pursued as P3s, even if it can be
 208 demonstrated that those projects are commercially viable and create benefits for the public.
 209 Others have expressed concerns that unsolicited proposals allow concessionaires to “cherry-pick”
 210 profitable projects that might otherwise generate revenue for a public agency. In addition,
 211 unsolicited proposals may face significant delays and scope changes in the environmental review
 212 and preliminary design process. These delays and scope changes may make a project less
 213 commercially attractive and suitable as a P3. Finally, unsolicited proposals commit the public
 214 agency to staff resources to review the proposals, and depending on the result of that review, to
 215 conduct a competition with competing proposals. The resources needed to respond to unsolicited
 216 proposals can be substantial. For example, between 1995 and 2011, VDOT received more than 50
 217 project proposals but is only moving forward with a small portion of them. As a result, VDOT
 218 charges a \$50,000 fee to review a proposal—intending that only the most serious of
 219 concessionaires will propose.

220 **Calls for Nominations**

221 A call for nominations is a more controlled form of getting creative proposals from potential
222 concessionaires. In a call for nominations, a public agency requests proposals from the private
223 sector for a specified number or set of projects. For example, in 1989, California passed AB 680,
224 which allowed up to four private concessions in the State. The first P3 projects in California--91
225 Express (Orange County) and South Bay Expressway (San Diego)--were two of the four projects
226 identified through that process. The other two nominated projects did not proceed to
227 implementation.

228 **Programmatic Project Screening**

229 Public agencies can manage the flow of P3 proposals if they take a programmatic approach to
230 identifying potential P3 opportunities. A programmatic approach may allow policymakers and
231 agency staff to coordinate and streamline decisionmaking processes across the agency. Several
232 State DOTs now conduct programmatic project screenings to identify potential P3 projects,
233 including Georgia and Virginia.

234 When planners can identify projects with P3 potential during the development of long range
235 planning documents such as the Statewide Transportation Improvement Program (STIP) and
236 Transportation Improvement Programs (TIPs), it puts transportation agencies in a better position
237 to facilitate project development and consider the financial implications of using a P3 approach.
238 To identify potential P3 projects, transportation projects in the STIP or TIP can be evaluated
239 across established criteria to determine the feasibility of advancing a project as a P3. This process
240 can be repeated on a regular basis as projects enter the planning process and can also be used to
241 prioritize and schedule potential P3 procurements. Project screening criteria may include:

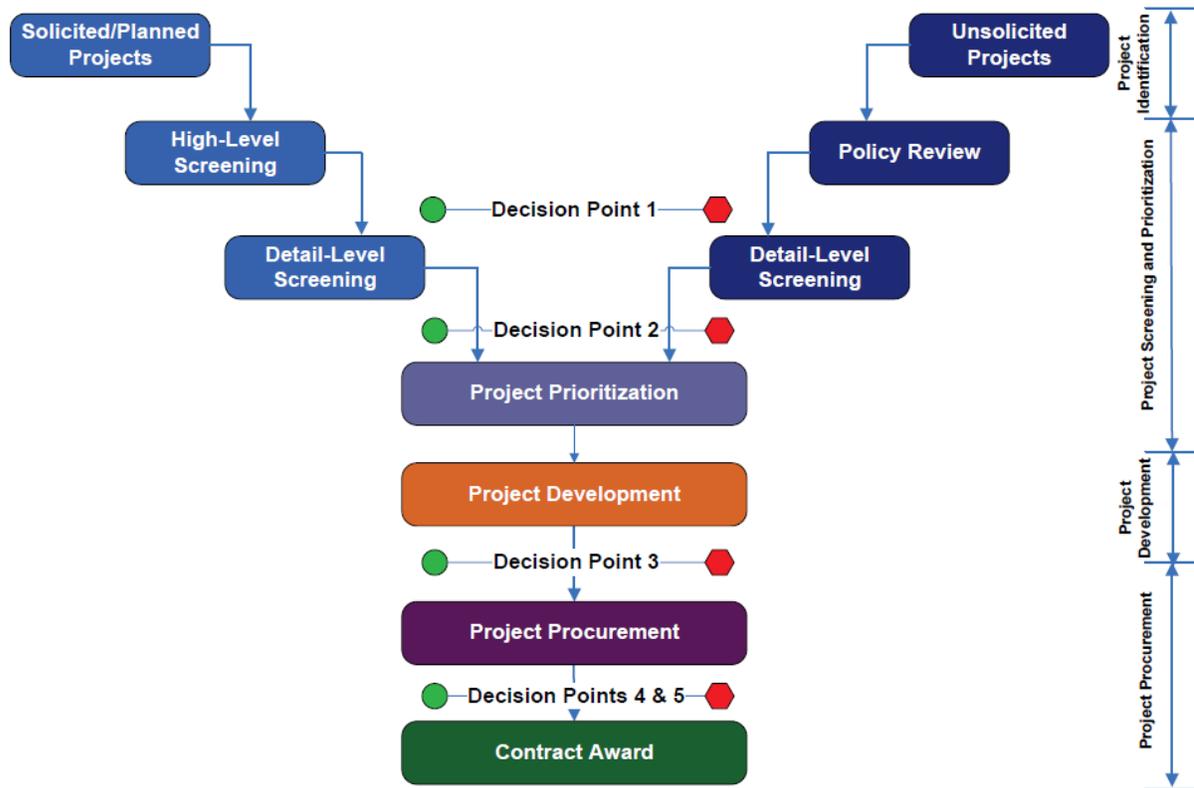
- 242 • Size and cost (often over \$250 million);
- 243 • Revenue potential;
- 244 • Transferrable risks that may be better managed by the private sector;
- 245 • Completed or near-complete environmental studies (NEPA); and
- 246 • Political support and consistency with existing transportation plans.

247 Virginia uses a process to identify potential P3s through the normal project development pipeline
248 or through unsolicited proposals (see Figure 2-2). To identify planned projects that may be
249 appropriate to deliver as a P3, Virginia has established a Public-Private Transportation Act
250 (PPTA) Program Steering Committee that includes representatives from each transportation
251 agency and is chaired by the VDOT Commissioner. The Committee works with the P3 Office to
252 apply established evaluation criteria to systematically screen and prioritize potential projects.
253 Once the Committee has prioritized a project, the P3 Office coordinates project development
254 activities, develops the scope and design concept, prepares cost, traffic, and revenue estimates,
255 and conducts an initial value for money analysis. If, after further project development and
256 evaluation, the project is still judged to be appropriate as a P3, the P3 Office begins a procurement
257 process through which a proposal is ultimately selected and a final contract negotiated.

258 When an unsolicited proposal is received, the P3 Office reviews the proposal to ensure that it
259 satisfies a public need, is identified in a current transportation plan, and is consistent with
260 Commonwealth transportation goals. The Committee ultimately makes a determination whether
261 to advance the project to detailed screening. The proposal is then considered for prioritization,
262 development, and procurement alongside planned projects.

263

Figure 2-2. Virginia’s Process to Identify and Evaluate Potential P3s



264

265

Source: Virginia’s PPTA Implementation Manual and Guidelines

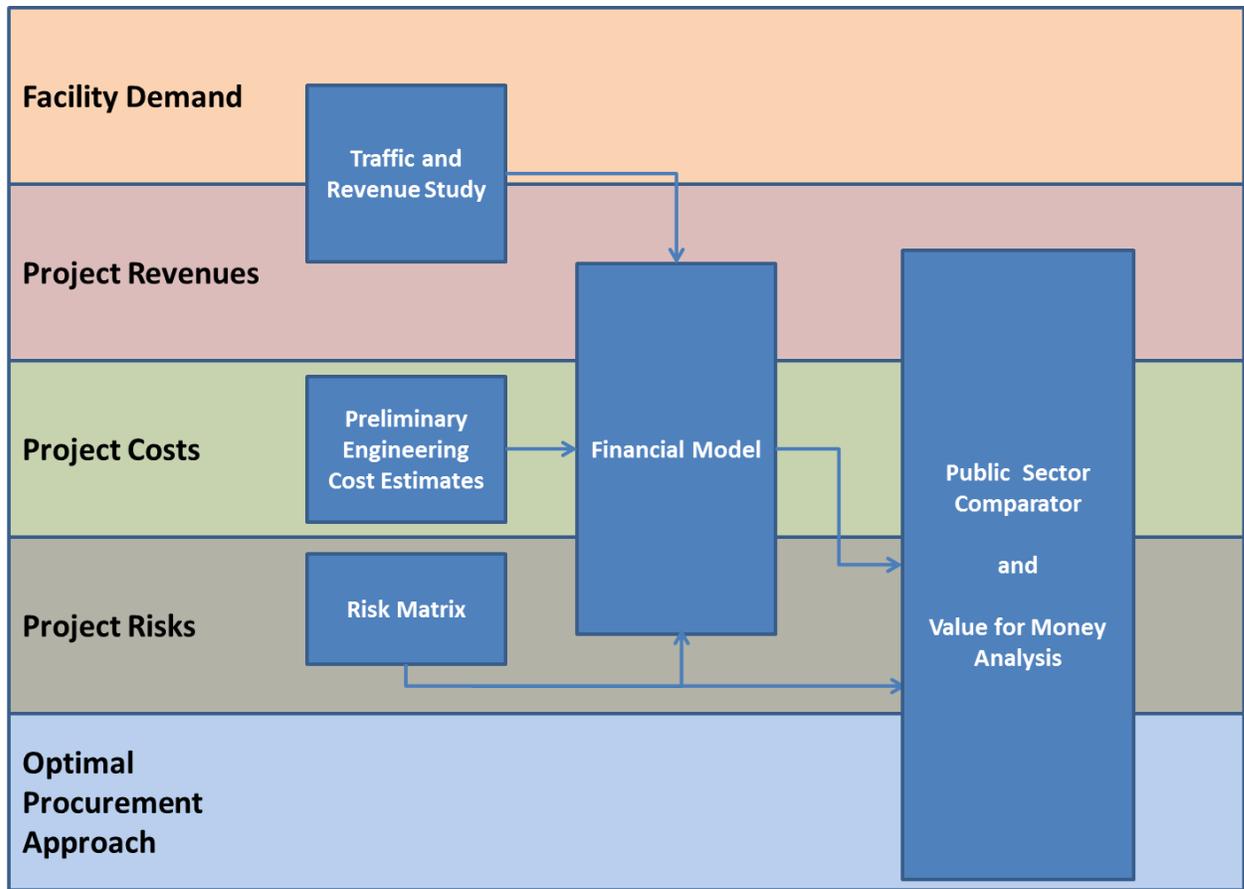
266 **USING P3 EVALUATION TOOLS**

267 Once public agencies have identified a project as having the potential to be a P3, they typically
 268 conduct a series of progressively more rigorous evaluations to determine the best approach to
 269 delivering the project. These evaluations help decisionmakers choose how best to structure and
 270 procure a potential P3 project. There are several analytical studies and tools used by public
 271 agencies to conduct these evaluations:

- 272 • Traffic and revenue (T&R) studies;
- 273 • Preliminary design and cost estimates;
- 274 • Risk matrices /registers;
- 275 • Financial cash flow and valuation models; and
- 276 • Public Sector Comparators (PSC) /Value for Money Analyses (VfM).

277 These tools are often used in combination to assess potential procurement approaches, agreement
 278 structures, and private sector bids. T&R studies and cost estimates serve as inputs to a financial
 279 model. Risks identified in a risk matrix inform any sensitivity analysis conducted with the
 280 financial model as well as with the VfM analysis. A thorough VfM typically incorporates material
 281 from a financial model as well as a risk matrix. Figure 2-3 shows how these tools interrelate. The
 282 following sections provide additional details on each of these tools.

283 **Figure 2-3. P3 Evaluation Tools**



284

Traffic and Revenue (T&R) Studies

285

286 T&R studies are used to forecast traffic on toll roads under various toll rate structures and
 287 macroeconomic scenarios. Agencies typically hire consultants to prepare T&R studies, which are
 288 important in determining how to structure toll rates, deciding whether to transfer, retain, or share
 289 revenue risk, and understanding what to expect from private sector bids. T&R studies are critical
 290 inputs into financial models, but their limitations need to be clearly understood. T&R forecasting
 291 involves subjective estimates of the future behavior of millions of people with respect to housing
 292 and business location decisions and choices of transportation. There is tremendous uncertainty
 293 associated with these forecasts, and a good study will be transparent about pointing out the
 294 uncertainties.

Preliminary Design and Cost Estimates

295

296 Agencies need to have a reasonable understanding of the costs to design, build, operate, and
 297 maintain a facility in order to make a meaningful comparison of anticipated revenues and costs.
 298 Preliminary designs will also identify the risk factors in a project (e.g., geotechnical, right-of-way
 299 acquisition, hazardous materials).

Risk Matrices

300

301 Agencies use risk matrices in evaluating a P3 to identify project risks, risk mitigation strategies,
 302 and the appropriate allocation of risk. The risk matrix provides a format for capturing
 303 information on risks, the probability of risks occurring, the consequences if an event accounted
 304 for in the risk matrix does occur, and strategies to reduce the probability of negative events
 305 occurring or to mitigate the consequences if a negative event were to occur. For example on the

306 Downtown/Midtown/Martin Luther King project VDOT conducted several pre-procurement risk
 307 assessments and then conducted a risk assessment with the private sector partners so it could
 308 identify and mitigate identified risks. While many risk matrices include only qualitative
 309 information, agencies can take the risk matrix a step further by quantifying the probability of
 310 risks and assessing the potential consequences in monetary terms. Agencies can then use the risk
 311 matrix to perform a sensitivity analysis on the project’s financial model to assign an equivalent
 312 monetary value to each risk. A risk matrix can help a public agency decide which risks to transfer
 313 to the private sector, which to retain, and which to share. Figure 2-4 is an example of a simple risk
 314 matrix used for the Florida I-595 Express Lanes project that does not try to quantify the risks.

315 **Figure 2-4. Florida I-595 Express Lanes Risk Allocation**

Risk Category	Risk Allocation		
	FDOT	Concessionaire	Shared
Political	X		
Financial		X	
Traffic & Revenue	X		
Right-of-Way	X		
Permits/Government Approvals			X
Utilities			X
Procurement	X		
Construction		X	
Operations & Maintenance		X	
Hand-Back		X	
Force Majeure			X
Change in Law	X		
Contamination			X
Geotechnical		X	

316
 317 *Source: Florida Department of Transportation*

318 **Financial Models/Cash Flow Analysis**

319 Agencies use financial models to understand potential project value and cash flow requirements
 320 under different agreement structures and macroeconomic scenarios. Financial models include
 321 assumptions about revenue, project costs, financing costs, tax and inflation rates, and discount
 322 rates to estimate potential concession fees and/or project subsidies and estimate appropriate toll
 323 rates, if the facility is tolled. Public agencies use financial models primarily to gain a better
 324 understanding of cash flow requirements, but they can also use these models to better understand
 325 private sector’s perspectives and incentives. The private sector is primarily concerned with net
 326 revenues and the internal rate of return on invested capital (for more detail, see Chapter 3,
 327 Financial Considerations.

328 A financial model will typically rely on these factors:

- 329 • Estimated design and construction costs;
- 330 • Estimated annual operations and maintenance costs;
- 331 • Estimated long term repair and rehabilitation costs;
- 332 • Estimated long-term stream of revenue;
- 333 • Forecast future inflation and interest rates; and
- 334 • Assumed discount rates for future cash flows.

335 These factors will usually have a range, and the financial model will allow the agency to conduct a
336 sensitivity analysis based on uncertainties regarding critical inputs. Establishing accurate levels
337 for these inputs can be extremely difficult. The discount rate for future cash flows, for example,
338 can have a major effect on the net present value of the project. Unfortunately, there is no industry
339 consensus as to the appropriate discount rate for infrastructure projects. It can also be difficult for
340 public agencies to estimate long term project costs because public agencies often lack historical
341 data or benchmarks. Finally, it is difficult to estimate the probabilities of uncertain events or risks
342 that may affect revenues and costs.

343 **Public Sector Comparator/Value for Money (VfM) Analysis**

344 A VfM analysis compares the projected risk-adjusted life cycle costs of a project delivered
345 through a P3 to a public sector comparator (PSC). A PSC is an independent, objective assessment
346 of project costs if delivered solely by the public sector, against which potential and actual private
347 sector contract bids and evaluations may be judged. It is important to recognize that there are
348 inherent limitations with developing a PSC, including the difficulties of evaluating taxable vs.
349 generally cheaper (but potentially unavailable) tax-exempt financing and the lack of reliable
350 information about private sector efficiencies.

351 VfM analysis generally follows these basic steps:

- 352 **1. Develop a PSC.** Using a financial model, estimate the base costs of the project under
353 consideration if it were to be delivered using the project delivery alternative (typically
354 Design-Bid-Build or Design-Build) that might otherwise be used.
- 355 **2. Adjust for competitive advantages and disadvantages.** Adjust the base costs to
356 account for the inherent advantages and disadvantages of the project delivery alternative,
357 such as relevant tax exemptions.
- 358 **3. Identify, assess, and allocate risks.** Identify and determine the value of project risks
359 by estimating the probability that each risk will occur and the consequences if it does.
- 360 **4. Assess the value of the risks transferred to the private sector through P3
361 procurement model(s) and develop a risk-adjusted PSC.**
- 362 **5. Compare the risk-adjusted net present value cost of the PSC to the net
363 present value of the P3 procurement model(s).**

364 VfM is used to guide decisions regarding potential P3 projects, including which procurement
365 approach to take, which risks to allocate to the private sector, and which private sector bid to
366 accept. Agencies employ VfM to compare the costs of different project delivery options by
367 assessing the value of transferring risks to the private sector, as well as the value of any efficiency
368 gains that may be obtained through P3s. Agencies can also use VfM to evaluate the extent to
369 which higher financial costs and risk premiums associated with P3 delivery are offset by efficiency
370 gains from the transfer of project risks and costs to the private sector. When comparing
371 procurement options, the procurement approach which has the lowest cost--after lifecycle cost,
372 risks, competitive neutrality, and other items are considered--would have the best "value for
373 money."

374 While VfM analysis seeks to quantify the value of risk transfer and any efficiency gains under
375 different procurement methods, a comprehensive VfM also considers factors that can influence
376 procurement decisions but may be difficult or impossible to quantify. Such factors may include:

- 377 • Speed of delivery;
- 378 • Quality of facility and service;
- 379 • Differences in scope;
- 380 • Ability of public sector to enforce performance standards;
- 381 • Value to the public sector of cost and
- 382 schedule certainty;
- 383 • Effects on public sector debt capacity and
- 384 cash flow; and
- 385 • Degree of market interest.

386 Alternative methods for valuation exist, including
387 comparative market analysis, discounted cash
388 flow analysis, shadow bidding, and auction.
389 Texas, for example, has used shadow bidding,
390 whereby public agency engineers and consultants
391 make detailed estimates of long term projects and
392 those estimates are compared to private sector
393 proposals. However, in countries with well-
394 established P3 programs, including the UK, Canada and Australia, VfM is considered a best
395 practice and in some cases, legally required. In the United States, Virginia DOT (VDOT) and
396 Florida DOT (FDOT) regularly conduct VfM analyses of potential P3 projects.

Examples of VfM Analysis

Florida I-595: www.transportation-finance.org/pdf/funding_financing/financing/i595_vfm_0609.pdf

Presidio Parkway:

www.presidioparkway.org/project_docs/files/presidio_prkwy_prjct_bsns case.pdf

Virginia's VfM Guide:

http://www.vappta.org/resources/VDOT%20VfM%20guidance%20document_final_20110404.pdf

397 **STRUCTURING P3 PROJECT AGREEMENTS**

398 Once policymakers have identified a project as having the potential to be delivered as a P3, they
399 can prepare a project for procurement, which typically involves scoping and designing the project
400 and specifying elements of the agreement.

401 **Project Scoping and Design**

402 As with any transportation project, scoping and design considerations will involve evaluating:

- 403 • Estimated long-term costs of design, construction, operations, maintenance, repair, and
- 404 rehabilitation;
- 405 • Forecasted facility use;
- 406 • Risks and potential risk mitigation strategies;
- 407 • Potential funding, revenue sources, and/or toll rate structures; and
- 408 • Expected impact on network performance, environment, and local populations.

409 With a P3 project, agencies will have additional factors to consider such as the timing of facility
410 expansion, setting toll rates (if applicable), and identifying other non-toll revenue opportunities
411 such as air rights or rest stops. With these special considerations in mind, a public agency may
412 wish to structure agreements to retain flexibility in the definition of key project characteristics to
413 allow for private sector innovation.

414 **Agreement Definition**

415 Agencies typically develop the conceptual structure of an agreement before procurement. The
416 optimal structure of an agreement depends on the characteristics of a project, the goals and
417 capabilities of the public agency, and the incentives and capabilities of potential private partners.
418 Key elements include:

- 419 • Allocation of responsibilities and risks;
- 420 • Compensation mechanisms;
- 421 • Concession term; and
- 422 • Performance standards and performance management processes.

423 Building, operating, and maintaining a major transportation project involves risk. P3s derive
424 much of their value by structuring contract agreements that transfer many of the long-term risks
425 that are traditionally retained by the public sector to the private sector. To ensure the best value
426 for the public, the procuring agency needs to perform a thorough risk analysis to determine which
427 risks it should manage internally and which the private sector should handle.

428 Table 2-3 describes typical risks associated with P3 transportation projects. Risks tend to be
429 highest at the beginning of a project, at the time of major investments, since there is greater
430 uncertainty about long-term costs and revenues. Once construction is completed, risks tend to
431 ebb, and, after an initial ramp up period, costs and revenues tend to stabilize. The change in risk
432 over time has important implications for how agencies value P3 projects and structure and
433 manage their contracts.

434 **Table 2-3. Common P3 Project Risks**

Project Phase	Risk Type	Description
Project Development and Construction	Site Risk	Acquiring land required for infrastructure development can result in delays or cost overruns; geological, hydrological, environmental or archaeological, cultural resource discoveries can cause delays.
	Design Risk	The design can have flaws that are not identified or realized until after construction gets underway.
	Construction Risk	Unanticipated construction delays or obstacles can add time and cost.
	Financial/Economic Risk	Cost inflation and/or interest rates can be greater than anticipated.
Operations and Maintenance	Revenue Risk	Revenues can be less than expected.
	Performance Risk	Operations and maintenance costs can be greater than anticipated.
	Appropriations Risk	Expected funds may not be appropriated.
	Regulatory Risk	Regulations can be changed in a way that affects project costs or revenues.
	Contract Risk	Contract can be interpreted differently than expected by either party.
All Phases	Force Majeure	A catastrophic event such as a natural disaster or terrorist attack can occur.

435
436 The goal of a P3 is not to transfer all project risks—rather, it is to transfer the risks that the private
437 sector can manage most efficiently. The private sector does not take on risk unless it expects to
438 benefit. For each risk transferred, there is a cost that the project owner must pay. Higher
439 perceived risks for a project will result in higher costs being attributed to those risks—called risk
440 premiums. A risk may be priced differently by the public and the private sector, depending on

441 their capabilities. It may be financially inefficient to transfer risks that are difficult to assess or
442 that the private sector will have a difficult time managing.

443 To determine the optimal allocation of risk, an agency should compare the public sector's ability
444 to manage each risk to the ability of a potential private partner to do the same. Risks that the
445 private sector is more capable of managing should be transferred; risks that the public agency is
446 more capable of managing should be retained. Where possible, the party with responsibility for
447 managing the risk will seek to mitigate or avoid that risk. If a risk is difficult to assess or manage,
448 it may be appropriate that it should be shared between the public and private sectors. An effective
449 risk allocation should create incentives for the private sector to supply quality and cost-effective
450 services.

451 While the concept behind
452 optimal risk allocation is
453 clear, the practice of how
454 agencies allocate risks is
455 more of an art than a
456 science. There are methods
457 for assessing the
458 probabilities and costs of
459 risks as well as various rules
460 of thumb that may be
461 applied. Typically, the
462 public sector will be
463 expected to take on site
464 risks and regulatory risks.
465 The private sector will be
466 expected to take on risks
467 arising from the building,
468 operation, finance, and
469 management of the project.
470 The concessionaire may
471 choose to further delegate
472 risks to other private parties
473 by selling equity stakes,
474 holding subcontractors
475 responsible for
476 performance, and/or
477 insuring against certain
478 risks.

Risk Allocation: Port of Miami Tunnel

The Port of Miami Tunnel and Access Improvement Project is a \$900 million P3 project that will connect the Port of Miami with I-395 via a tunnel. Building the tunnel involves significant geotechnical risks. Unforeseen ground conditions could cause significant delays and increased costs. To manage this risk in a way that preserved performance incentives without scaring off investors, FDOT negotiated the following risk sharing provisions:

- The first \$10 million in additional costs due to geological conditions are borne by the concessionaire.
- The next \$150 million is borne by FDOT;
- The next \$20 million is the concessionaire's responsibility
- If additional costs are over \$180 million, either party may choose to terminate the agreement.

FDOT also agreed to extend construction deadlines in case the boring equipment required to dig the tunnel was damaged in transit.

the Atlanta metropolitan area that the Georgia DOT may develop as P3s, some of which the State is pursuing.

COMPENSATION MECHANISMS

479 Different compensation mechanisms put different risks on the government and private partners,
480 with significant implications for the cost and structure of a P3 deal. P3 compensation mechanisms
481 include:
482

- **Tolls.** A P3 may be structured so that the concessionaire keeps the toll revenue it collects.
484 The toll rate structure and future toll rate increases are typically set in the concession

485 agreement to provide greater predictability to the concessionaire and assurance to the
486 public that the concessionaire will not charge excessive tolls. If facility demand is less
487 than expected, the private concessionaire may face losses, while it could reap windfall
488 profits if demand is higher than expected. Most recent P3s that involve the private sector
489 taking on toll revenue risk have revenue sharing provisions that mitigate the risks and
490 share the rewards. Toll revenue risk is typically greater in a project where there is no
491 history of traffic on which to base an estimate of demand.

492 • **Shadow tolling.** With shadow tolling, a public agency compensates the concessionaire
493 based on the amount of traffic using the facility, but the drivers do not pay the tolls
494 themselves. This allows the agency to mitigate the technical risks associated with a tolled
495 road while transferring most or all of the traffic risk to the concessionaire. This method of
496 compensation has been used in P3s in the UK and Spain, but it has not been applied to
497 P3s in the United States. Internationally, there is a trend away from shadow tolling
498 because it may not effectively align private sector incentives with the public sector goal of
499 managing mobility across the transportation network. For example, if a concessionaire's
500 compensation is purely based on the amount of traffic, the concessionaire has less
501 incentive to reduce congestion. Also, the public sector ends up paying a premium for the
502 concessionaire to take on traffic risk, but the concessionaire may have little ability to
503 influence the amount of traffic that is drawn to the facility. Instead, traffic levels are more
504 likely to be affected by external, macroeconomic factors, such as job and housing trends
505 and resulting regional traffic flows.

506 • **Availability payments.** With availability payments, the agency retains traffic risk. The
507 concessionaire is compensated based on its ability to operate and maintain the road to
508 standards specified in the contract. This allows the agency to choose whether or not to use
509 tolls to finance the project and to keep more control over toll setting if it does use tolls. It
510 also avoids the perception that the concessionaire is setting excessive tolls. Availability
511 payments are described in greater detail in Chapter 3, Financial Considerations.

512 • **Flexible-term concession.** A flexible-term concession is a form of revenue guarantee
513 whereby once specified gross revenue has been reached (in present value terms), the
514 contract is terminated. Firms can bid the level of present value of project revenues at
515 which the contract would terminate. This arrangement limits downside revenue risks to
516 the concessionaire while continuing to provide strong performance incentives. This
517 model has not been used in the United States, but it has been used in Portugal, the UK,
518 and Chile.

519 **Table 2-4. Revenue Sharing Provisions**

P3 Agreement	Revenue Sharing Agreement
I-495 Capital Beltway HOT Lanes	Gross revenue sharing of 5 to 30 percent if traffic and revenue exceeds projections and when project is refinanced.
LBJ I-635	Gross revenue sharing of up to 75 percent of revenue exceeding projections and when project is refinanced.
North Tarrant Expressway	Gross revenue sharing of up to 75 percent of revenue exceeding projections and when project is refinanced.
State Highway 130	Gross revenue sharing of up to 50 percent of revenue exceeding projections and when project is refinanced.
Midtown Downtown MLK Tunnel	Gross revenue sharing of up to 60 percent of revenue exceeding projections and when project is refinanced.

520

521 Determining which compensation model to use depends on the agency’s goals for the project, the
 522 capacity of the project to generate revenues, the financial structure within the State, and the
 523 willingness of the private sector to take on revenue risk. In deciding which model to use, a public
 524 agency should determine:

- 525 • Is tolling the facility technically and legally feasible?
- 526 • Is there political support for tolling?
- 527 • How certain is the demand/revenue estimate?
- 528 • Are facility revenues sufficient to support design, construction, finance, operations, and
 529 maintenance of the facility?
- 530 • How efficiently can the agency monitor facility performance?

531 In P3 models that involve the concessionaire taking revenue risk, the government may choose to
 532 ease that risk by including revenue sharing provisions and/or revenue guarantees. These are
 533 described in greater detail in Chapter 3, Financial Considerations.

534 **CONCESSION TERM**

535 Concession terms (i.e. period of performance) vary widely depending on the economics of the
 536 project and requirements of the contract. A typical length for a P3 contract is 35 to 40 years, but
 537 some contracts have terms of as long as 99 years. In the United States, private firms tend to prefer
 538 terms of 50 years or more because they can then capture the potential tax benefits as the asset
 539 depreciates. If the concession term is equal to or exceeds the facility’s remaining design life, then
 540 the concessionaire can be treated as the facility owner for tax purposes and can write off the
 541 annual depreciation. Longer concessions can provide the public sector greater certainty regarding
 542 asset life-cycle costs and standards of service but can also reduce the public sector’s flexibility to
 543 allocate resources to other projects, adjust performance standards, or change the delivery model.
 544 Concessions of less than 50 years are more likely to correspond to the design-life of a
 545 transportation facility, the term of financial instruments, and the time over which an agency can
 546 reasonably assess risk. No matter how long concession contracts are, however, there are always
 547 provisions to modify the contract over time as needs change, but these modifications may come at
 548 a cost.

549 There are ways of incentivizing concession lengths that better align with public sector policy
 550 goals. Where a shorter concession length is preferable, procurements can be structured so that
 551 shorter concession length is one of the proposal factors. The length of a concession can be used as

552 a way to manage revenue risks as well. Agencies can use flexible-term contracts to manage
553 revenue risks while maintaining incentives to manage long-term costs.

554 Some factors that should be considered in setting concession length include:

- 555 • What is the design-life of the facility, and when will major asset upgrades or repairs be
556 needed during the term of the contract?
- 557 • Can revenues or costs be accurately forecasted over the term of the contract?
- 558 • How will the contract manage potential technological advances affecting the facility over
559 the contract life?
- 560 • How will the agency manage resources dedicated to the project over time? What is the
561 value to the public agency to have flexibility in allocating those resources?

562 **PERFORMANCE STANDARDS AND PERFORMANCE MANAGEMENT PROCESSES**

563 In setting performance standards for a P3, agencies need to consider:

- 564 • The types of performance standards that should be used. Are these standards critical to
565 the performance of the project? Does the agency have the staff and resources to monitor
566 the performance?
- 567 • The level at which the performance standards should be set. High standards are
568 desirable, but standards that are set too high will raise the cost of a project and will result
569 in a project that is at a higher standard than others in the State, or possibly a project with
570 higher standards than are needed for user benefit. For example, requiring that roads be
571 litter-free may lead to a better driving experience for road users: but requiring that litter
572 be removed hourly may not produce enough benefit to offset the additional cost.

573 Details relating to performance standards are covered in Chapter 4, Performance Management.

574 **CONDUCTING PROCUREMENTS**

575 Given the risks and complexity involved in using non-traditional methods of transportation
576 project delivery, choosing the best partner(s) requires due diligence on the part of the public
577 sector. Because of the size, complexity, and length of term of P3 agreements, special procurement
578 processes are needed to ensure there is sufficient and qualified competition. Some of the methods
579 used to identify, qualify, and attract private partners are discussed below.

580 **Bid Stipends**

581 A well-structured procurement should generate competition and allow the public agency to select
582 the partner that will best help the agency meet the project goals. Bidding firms may spend more
583 than 1 percent of the bid value to develop bids. They are more likely to place a bid if they have
584 confidence that the procurement process will be fair, competitive and that it will be seen through
585 to completion. In addition, most bidding processes are structured so that the public agency can
586 use ideas contained in one proposal while selecting a different bidder. To encourage competition,
587 defray bidding costs, and compensate proposers for the value of ideas that might be used, some
588 public agencies offer stipends to pre-qualified bidders. Bid stipends rarely, if ever, cover the entire
589 cost of a proposal, and the value of an idea that is used in another proposal may be well in excess
590 of the stipend amount.

591 **Unsolicited Proposals**

592 As described above, public agencies may use unsolicited proposals as a way of accessing private
593 sector ideas about potential projects that could be commercially viable. Agencies that allow

594 unsolicited proposals have developed various processes to introduce competitiveness and
595 transparency into the procurement process.

596 **Industry Outreach**

597 A public agency may conduct industry outreach to gain a better understanding of private sector
598 capabilities and interests with regards to a particular project. This process may occur prior to the
599 procurement process or once an agency has selected a short list of qualified bidders. This can help
600 an agency understand how to structure a commercially viable project that will generate
601 competitive bids. Agencies may hold information-sharing meetings or workshops with industry
602 representatives in order to describe the basic attributes of the project and potential agreement
603 and asks for participant feedback. Agencies may also issue a formal “Request for Information” as
604 a precursor to procurement.

605 **Multi-Phase Procurement Process**

606 To create a competitive and fair procurement environment, agencies often use a multi-stage, “best
607 value” procurement process that includes a request for qualifications (RFQ), followed by a request
608 for proposals (RFP), followed by negotiations with the preferred bidder. Figure 2-5 illustrates how
609 this process could occur.

610 **Figure 2-5. Example of a Multi-Phase Procurement Process**



611

612 **Request for Qualifications (RFQ)**

613 The agency can use an initial procurement period to prequalify bidders by issuing a request for a
614 letter of interest or a request for qualification from prospective bidders. The RFQ typically asks
615 prospective bidders to provide information demonstrating:

- 616 • Technical capacity to meet project performance specifications;
- 617 • Past performance on similar projects; and
- 618 • Financial capacity to complete the project.

619 In addition, the RFQ may ask for a conceptual project development plan and/or a conceptual
620 project financial plan.

621 **Request for Proposals (RFP)**

622 After selecting a response from qualified bidders through the RFQ process, the agency then
623 invites those short-listed qualified bidders to submit a second binding bid through a request for

624 proposal. Bidders are typically required to submit a proposal that includes both technical plans
625 for how the project will meet the design, construction, maintenance, and operational
626 requirements as well as a financial plan demonstrating the financial feasibility of the proposal.

627 Public agencies can structure bidding so that bidders bid on different aspects of the project.
628 Bidding can be based on different criteria, such as: the dollar value of the offer, the lowest subsidy
629 or availability payment required, the lowest length of the concession term, or the lowest net
630 present value of gross revenues required. The decision to select an appropriate partner often
631 comes down to whether to choose the qualified bidder with the lowest dollar value (“low bid”), or
632 whether to consider bid price in conjunction with other factors (“best value”). To determine the
633 best value bid, the public agency may conduct a VfM analysis. Sometimes, the decision to choose
634 the lowest bid or the best value bid is mandated by State or local law.

635 **Negotiation with the Preferred Bidder**

636 In the U.S., the negotiation stage generally does not include negotiations on key commercial
637 issues or scope, which should be identified during the bidding process, so that all bidders have the
638 opportunity to provide a bid on similar terms. Yet negotiations with the preferred bidder can
639 allow both parties to establish a mutually-agreeable, project-specific solution to issues identified
640 after the procurement process. This requires skilled legal counsel, ideally with expertise in
641 developing long-term, enforceable agreements between the public and private sectors.

642 For example, the public and private sector may negotiate methods for verifying gross revenues as
643 part of ensuring that the public sector receives appropriate toll revenue shares. The negotiation
644 process can help to ensure mutual understanding on the part of both parties regarding the details
645 of an agreement and the smooth implementation and oversight of a project. However, there are
646 potential disadvantages to addressing items in negotiations with the preferred bidder. For one,
647 the bargaining position of the public sector may be diminished at this point in the process (after
648 substantial sunk costs in procurement). Secondly, there may be a perception of unfairness if the
649 items negotiated are basic elements of the concession that could have changed the outcome of the
650 selection process. For example, if provisions regarding revenue share or concession length are left
651 to negotiation after selection of a successful bidder, other bidders who might have been willing to
652 offer higher levels of revenue sharing or shorter concession terms than the preferred bidder
653 offered might feel that they were unable to offer their best value in the competition. Thus, the
654 basic elements of the concession are usually either established earlier in the procurement process,
655 and are the same for all bidders, or bidders are allowed to use them to differentiate themselves in
656 the bidding process. Provisions that may be left to negotiation generally relate to the
657 implementation, oversight, and monitoring details of the concession – for example, the payout
658 schedule for a revenue share, or how the revenue share will be calculated.

659 While the basic elements of an agreement are typically established early in the procurement
660 process and, for reasons of fairness, bidders will expect provisions related to the core value of the
661 agreement to remain unchanged, many of the details of agreement provisions may be subject to
662 negotiation with the preferred bidder. Negotiating issues may include:

663 **1. Compensation structure (payout schedule, revenue sharing provisions, and**
664 **subsidies).** Issues that may be negotiated regarding the compensation structure
665 include: when, how, and under what circumstances the concessionaire will receive
666 payments; what portion of revenues will be shared at what revenue levels; and the degree
667 to which the public sector will contribute to the project with grants, in-kind donations,
668 tax breaks, or public financing.

- 669 **2. Risk sharing and mitigation measures.** While the risk allocation is generally
670 specified by the public agency in the procurement process, the precise performance
671 measures and mitigation processes for specific risks may be subject to negotiation.
- 672 **3. Toll rate setting mechanism.** Toll rate setting mechanisms may include defined toll
673 rate schedules, maximum annual percentage increases (often tied to inflation or GDP
674 increases), or regulatory review and approval of proposed rate increases.
- 675 **4. Performance standards and measures.** P3 agreements typically set output- and
676 outcome-based performance standards and management regimes for enforcing standards
677 (See Chapter 4, Performance Management). These standards may be subject to
678 negotiation.
- 679 **5. Termination/buyback provisions.** The rights to terminate the contract and the
680 conditions under which those rights may be invoked (for example, if the private party
681 defaults), are typically negotiated in the final contract. In the event of early termination,
682 mechanisms are usually described in the contract to ensure that the harmed party is
683 compensated for any losses or for the residual value of the asset.
- 684 **6. Refinancing provisions.** The concessionaires of a P3 may refinance a project once the
685 project is well established and uncertainty diminishes or operational efficiencies are
686 established. Changing macroeconomic conditions such as declining interest rates can
687 make refinancing attractive as well. Refinancing can result in greater returns to equity
688 from interest rate reductions, extensions of debt maturity, and increases in the amount of
689 debt. Contract provisions related to refinancing may include a negotiated share between
690 the public and private partner in the gains made from refinancing.
- 691 **7. Non-compete provisions.** The private sector may request some protection against the
692 public sector's ability to reduce facility demand by building or improving competing
693 parallel facilities in the vicinity of the project. Strict non-compete provisions barring the
694 public sector from improving competing facilities are rare and are often forbidden in
695 legislation. More commonly found are non-compete provisions that allow the
696 concessionaire to be compensated if they can prove a net harm to project revenues from
697 public agency activities.

698 **RESEARCH NEEDS**

699 To date, there have been few long-term P3s procured in the United States, so policymakers have
700 few examples from which to draw. As more P3 agreements are made, researchers will have an
701 opportunity to observe short- and long-term performance of the project with respect to the public
702 and private sector's goals.

703 The following is a list of research questions to be answered:

- 704 • How do compensation structures perform over the long term? Do they provide adequate
705 incentive for the private sector while protecting the interests of the public sector?
- 706 • What items tend to be negotiated in P3 agreements? How well is the public sector
707 prepared to negotiate? Given the available information at the time of making the
708 agreement, would public agencies make different choices, in hindsight, with regards to
709 risk transfer? What issues were not anticipated at the time of making initial P3

- 710 agreements that turned out to be important? What issues were of great concern and
711 turned out not to be as problematic as anticipated?
- 712 • How accurately do evaluation tools such as T&R studies, valuation models, and VfM
713 analyses predict eventual project outcomes? Are there ways to improve the evaluation
714 tools?
 - 715 • What characteristics of P3 projects and programs lead to greater chance for “success” as
716 defined by the public agency? How should public agencies define success with respect to
717 P3s?

1

2

3

4

3. FINANCIAL CONSIDERATIONS

5

6

KEY FINDINGS

7

- Private financing of transportation projects can also help to facilitate the financing of projects that cross multiple jurisdictions, reduce cost and schedule uncertainties, better allocate risk, and create incentives to better manage the life cycle costs of a project.

8

9

10

- P3s are not a source of revenue; in fact, to be financially feasible they require a stable revenue source. However, they can be used to free up existing revenue, increase the certainty of project lifecycle costs, and protect general revenue from revenue shortfalls.

11

12

13

- In recent experience, most P3s in the U.S. have not been exclusively privately financed. Most P3s have required public sector financial support in the form of up-front capital contributions or credit assistance to attract private investment.

14

15

16

- Availability payments, where the public sector retains demand risk, represent one way public agencies have structured P3 contracts to attract more bids that are competitive and keep financing costs down.

17

18

19

20 **3. FINANCIAL CONSIDERATIONS**

21 **INTRODUCTION**

22 Public private partnerships (P3s) allow public agencies to access private equity capital to finance
23 projects. This can help public agencies achieve their goals in a number of ways. P3s can accelerate
24 the delivery of necessary projects by helping public agencies raise the upfront capital necessary to
25 construct a major infrastructure project all at once, rather than in stages. In some cases, private
26 capital can mean the difference between developing a project and having no project at all. Private
27 financing of transportation projects can also help to facilitate the financing of projects that cross
28 multiple jurisdictions, reduce cost and schedule uncertainties, better allocate risk, and create
29 incentives to better manage the life cycle costs of a project.

30 While accessing private capital to finance transportation projects may help a public agency deliver
31 needed transportation projects, it does not come without cost. As with any financing, the capital
32 generated from private finance must be paid back with future revenue. P3 agreements often
33 involve the commitment of a long-term revenue stream to pay back lenders and private investors.
34 Private lenders and investors typically demand a higher rate of return than investors in tax-
35 exempt municipal bonds; so, the cost of private financing is generally greater than that of public
36 financing. Public agencies must carefully analyze these and other tradeoffs when deciding
37 whether to pursue private financing of transportation projects.

38 This chapter explains why public agencies may choose to use private sector capital to deliver
39 projects and the requirements that private financial markets may impose on such projects. It
40 explains the basic concepts of project finance and explores the incentives and capabilities of
41 various sources of private capital. Since P3s require revenue to pay back investors, this chapter
42 describes the various types of revenue that can be used to support P3s. It then describes how
43 private investors and public agencies may determine the value of public private partnership
44 opportunities and come to an agreement regarding the price of transferred risks. Finally it
45 discusses the advantages and disadvantages of private finance and how P3 deals can be structured
46 to incentivize private investment and optimize risk transfer.

47 **ADVANTAGES AND DISADVANTAGES OF PUBLIC FINANCING OF PROJECTS**

48 Traditionally, public agencies have funded transportation infrastructure through State and local
49 taxes, Federal aid grants, and municipal bonds. In some States, transportation projects are
50 funded primarily on a “pay-as-you-go” basis, while other States issue bonds to raise the capital
51 needed to pay for planned projects. Both approaches have advantages and disadvantages.

52 The pay-as-you-go approach has the benefit of simplicity and allows public agencies to avoid costs
53 associated with borrowing. However, with pay-as-you-go, large projects often have to wait until
54 sufficient funds are accumulated, or be completed in smaller sections, meaning that the benefits
55 of improved mobility and economic development that come from many transportation projects
56 may be postponed. Building a project in sections can be less efficient than building a project all at
57 once. Furthermore, in times of high inflation, delays in project delivery can lead to higher costs
58 when the project is eventually built.

59 Many public agencies issue bonds to raise the capital needed to pay for projects. Bonding can help
60 to accelerate the delivery of needed projects. The interest on most bonds issued by public agencies
61 is tax-exempt, keeping interest rates low. However, bonds must be paid back with future revenue.

62 Excessive bonding can constrain future infrastructure investment by obligating future funding
63 streams to past projects to the point where it is difficult to undertake new projects. In addition,
64 public agencies may be limited in the amount of bonds they can issue for various legal, political,
65 and financial reasons.

66 **STRUCTURING EQUITY-FINANCED P3S**

67 In a P3 project, the responsibilities for designing, building, financing, and operating are bundled
68 together and transferred to private sector partners. P3 projects are either partly or wholly
69 financed by debt that leverages revenue streams dedicated to the project. Structuring effective
70 partnerships requires an understanding of the advantages, disadvantages, interests, and
71 capabilities of various sources of financing such as public agency bond issuances, private activity
72 bonds (PABs), special governmental credit issuers (such as the Federal TIFIA Program), private
73 equity investors, and commercial loans. Each source of financing varies in both cost and capacity
74 to assemble sufficient amounts of capital. Equity-financed P3s may use each of these sources to
75 assemble the capital necessary to meet the terms of the agreement.

76 A public agency undertaking a P3 can leverage anticipated future revenues by issuing bonds or
77 attracting private investors that provide funds for capital and project development costs in return
78 for a stake in profits derived from the project. Direct user fees (tolls) are the most common
79 revenue source, but other revenue options are available, ranging from lease payments to shadow
80 tolls and vehicle registration fees. These revenues may be supplemented by public sector grants in
81 the form of money or contributions in kind, such as right of way. Figure 3-1 shows a basic P3
82 financing structure under a P3 arrangement.

83 The critical private investor is the concessionaire, the partner who bids for the project and is
84 responsible for delivering it. To facilitate financing, the concessionaire typically establishes a
85 special purpose vehicle (SPV), a legal entity organized to limit the liability of investors. Typically,
86 the SPV has no assets or liabilities other than those related to the project. Investors in an SPV are
87 sheltered from claims on their revenues or assets outside of those directly related to the project.

88 Revenue from the transportation project is channeled through the SPV. The cash flow is
89 structured so that accounts for project costs and reserve funds, as well as accounts to repay
90 lenders and investors are sequentially funded. This is commonly referred to as a cash flow
91 waterfall (Figure 3-2). The cash flow waterfall defines the order of priority for project cash flows
92 as established under the loan and financing documents. In a typical cash flow waterfall, dedicated
93 revenues are used to pay for project costs and debt repayments before other parties derive
94 benefits from the project. This ensures that project debt and maintenance are covered before
95 surplus revenues are used to pay back investors or shared with the public sector.

96

97

98

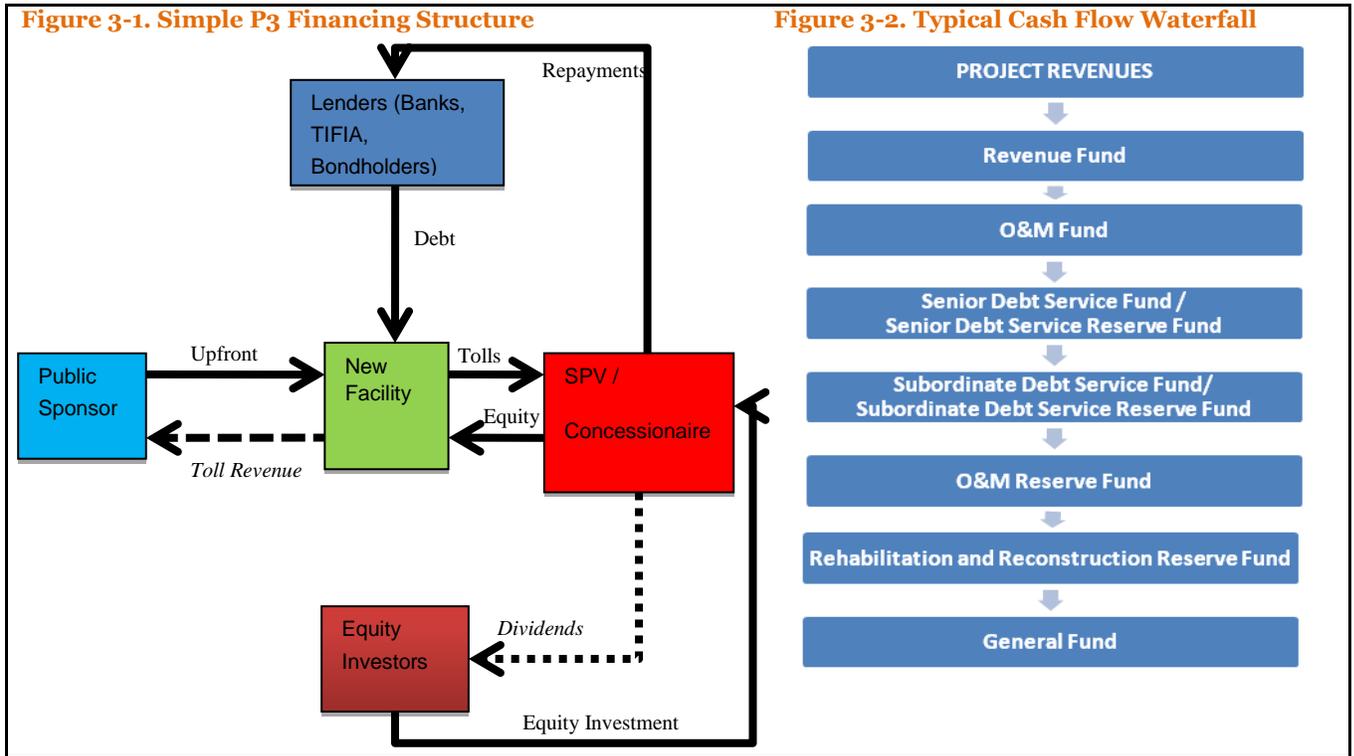
99

100

101

102

103



104

SOURCES OF PRIVATE FUNDS IN A P3 FINANCE TRANSACTION

Private project sponsors usually seek investment partners to optimize the capital structure of P3 project financing and maximize their return on investment. The partners to a project include public project sponsor(s), equity investors, subcontractors, private lenders, and, oftentimes, public lenders. Each partner has distinct interests and capabilities. Public project sponsors may make upfront capital contributions, ongoing payments, or credit assistance to a P3 project. Equity investors assume the highest risks but may also receive the highest returns. Subcontractors, who sign contracts with the private project sponsor to perform specific services such as the construction, operation, and maintenance of the project, may or may not contribute an equity stake as well. Lenders to a project make loans to the SPV that will be reimbursed through future cash flows. Lenders may provide senior debt, which has the first claim on the SPV’s net cash flows, or subordinate debt. Lenders may come from the private or the public sector.

Equity Investors

Equity investors provide upfront capital, which can be repaid with dividends if the project is financially successful. Equity typically accounts for less than 30 percent of the investment in a project and may be provided by project sponsors or by third party investors. Equity plays an important role in strengthening incentives for the private sector to perform efficiently and effectively and can be vital in attracting private lenders to a project.

Equity investors are typically willing to take on greater financial risks than private lenders or public agencies in return for a competitive risk-adjusted return on investment. Equity investors are exposed to greater financial risk because project revenues typically must be used to pay operational costs and repay lenders before equity. If a project does not generate sufficient

127 anticipated revenues, equity investors may lose some or all of their investment. Equity investment
 128 also has a potential upside, as surplus net revenue from higher than expected revenues or efficient
 129 management of costs is captured in dividends to investors (though they may be subject to revenue
 130 sharing provisions with the public sector). As a result of the risks that equity investors take, the
 131 expected rate of return on equity may be significantly higher than the expected rate of return on
 132 debt.

133 Equity investors have an interest in maximizing the return on their investment by borrowing
 134 funds from private lenders. Because of its place in the cash flow waterfall, equity investment
 135 provides a cushion for lenders to the project and helps to attract private finance. The greater the
 136 ratio of debt to equity, the higher the potential return on equity will be (see Table 1Error! Reference
 137 source not found..) However, lenders will typically expect larger equity contributions for riskier
 138 projects. If equity investors are able to achieve higher lender participation, they may be able to
 139 accept lower revenues and still make similar returns on a percentage basis.

140 Table 3-1 illustrates the effect of higher leverage on equity return. For a \$1 billion project that
 141 achieves \$75 million in revenue over the life of an investment, greater leverage – that is, higher
 142 levels of debt – lowers the amount of equity that investors must contribute to the project up front.
 143 If the investors only have to contribute \$100 million, with \$900 million covered by debt, they will
 144 realize \$12 million in profit once the revenue has been realized and interest is paid. That
 145 represents a 12 percent return on their investment. By contrast, if the equity investors have to
 146 contribute \$400 million, they will have lower interest costs due to more robust debt service
 147 coverage, but the profit of \$39 million will only represent a 10 percent return on their investment.

148 **Table 3-1. Illustrative Example of Effect of Leverage on Returns on Equity**

	High Leverage	Low Leverage
Debt (in millions)	\$900	\$600
Equity (in millions)	\$100	\$400
Revenue (in millions)	\$75	\$75
Interest Rate on Debt	7%	6%
Interest Payable (in millions)	\$63	\$36
Interest Coverage	1.19	2.08
Profit (in millions)	\$12	\$39
Return on Equity	12%	10%

149 *Adapted from E.R. Yescombe, Public-Private Partnerships: Principles of Policy and*
 150 *Finance*

151
 152 Equity investors may also receive tax benefits from their investment. The tax benefits of equity
 153 investment (depreciation and amortization deductions shielding other taxable income) may
 154 account for 10 percent or more of the project’s value to the investor. These tax benefits vary over
 155 the period of the agreement and can be factored into the bids of project sponsors.

156 There are different types of equity investors. Each has different preferences for projects based on
 157 their capacity to manage different types of risk:

- 158 • **International toll road companies.** As a result of their technical skills and
159 experience with other projects, these companies are well positioned to evaluate and
160 manage construction and operations and maintenance risks. They typically serve as the
161 concessionaire on a project. By investing their own funds in a project, they may create
162 business opportunities, attract other private capital, and participate in any upside gains
163 from higher than expected net revenues. They are also more exposed to risk, should a
164 project fail. As a result, they have a strong incentive to conduct due diligence before
165 investing in a project and managing a project so that it is positioned for success.
- 166 • **Major infrastructure construction firms.** These companies specialize in
167 construction, project management, and operations and maintenance of infrastructure
168 projects. They may participate in a concession as a concessionaire or as a subcontractor to
169 the concessionaire.
- 170 • **Financial equity funds.** These financial institutions have access to large amounts of
171 capital and are skilled at assessing financial risks. They tend to act as shareholders to a
172 project and may bring specific sector expertise.
- 173 • **Public pension funds** are interested in investments that may offer stable long-term
174 returns.

175 **Private Lenders**

176 Private lenders are often investment or commercial banks that specialize in project finance. They
177 tend to be more conservative and have a lower risk tolerance than equity investors. They require
178 lower rates of return than equity investors, but they seek to structure deals that minimize their
179 risk by ensuring that they have first call on the net cash flows of a project.

180 Lenders assess the risks of a project to determine if it is a good credit risk. They want to see that
181 there is a reasonable expectation that the project can be completed on time and on budget; that
182 the revenues and expenditures are relatively predictable; and that projected net cash flows are
183 adequate to cover interest payments. If lenders perceive that a project is less risky, they may be
184 willing to lend more. If lenders perceive more risk, they will demand greater investment of equity,
185 thereby raising the overall cost of the project.

186 Lenders maintain oversight responsibilities throughout the term of their loan and may retain
187 “step-in” rights that allow them to take over a project that is not meeting expectations. Private
188 lenders have an interest in being paid back as quickly as possible and often structure loans to
189 encourage refinancing after an initial period of project ramp up. As a result, equity investors often
190 seek to refinance their loans after seven to 10 years. Prior to the 2007/2008 financial crisis,
191 refinancing of loans at lower rates and shorter terms often led to substantial increases in rates of
192 return for equity investors. Today, due to uncertainty in the financial markets, refinancing
193 represents more of a downside risk to equity investors.

194 **Bondholders**

195 The proceeds from bonds sold to investors in the capital markets may also be used to fund a
196 project. Bond buyers are typically institutional investors such as insurance companies and
197 pension funds looking for a predictable long-term return on investment. Bonds offer advantages
198 over commercial loans such as greater capacity, lower costs, and longer terms; however, they can
199 be less flexible instruments.

200 **Municipal Bonds**

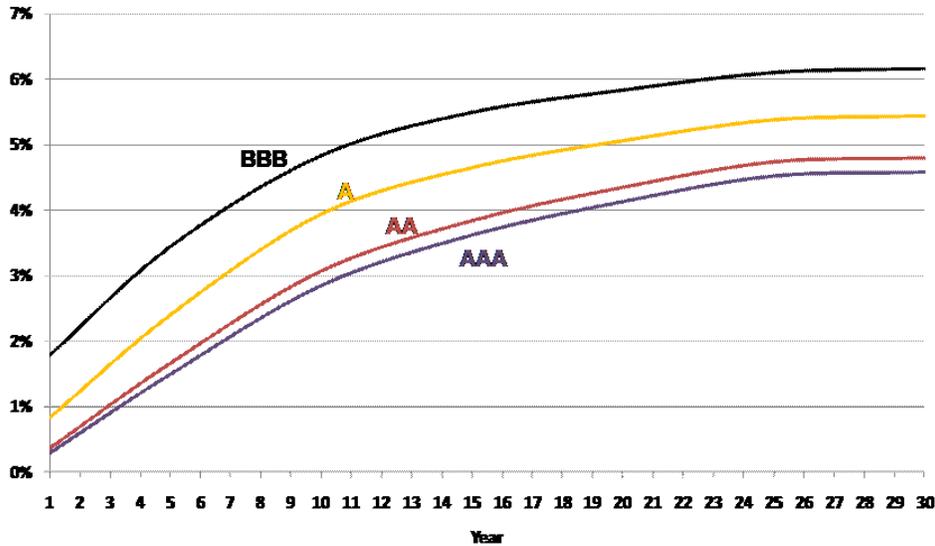
201 Bonds issued by the State or local governments are termed “municipal bonds.” Bond investors are
202 often willing to accept lower interest rates on municipal bonds than other types because they are
203 generally exempt from Federal income tax and most State and local taxes. There are many
204 different kinds of municipal bonds that can be issued to help finance transportation projects
205 including general obligation bonds, revenue bonds, and grant anticipation notes. In addition to
206 project revenues, municipal bonds can be repaid from revenue sources including State gas taxes
207 and other transportation-related revenues; Federal-aid funds; tolls; and State and local sales
208 taxes.

209 The interest rates that must be paid on bonds are determined by market demand. That demand is
210 heavily influenced by the project’s credit ratings as determined by rating agencies (if the bond will
211 be repaid through project revenues) or by the issuing government’s credit history and financial
212 circumstances. Rating agencies evaluate a wide variety of potential risks associated with the bond
213 issuer and the project’s projected costs and revenues before applying a credit rating. Figure 3-
214 3Error! Reference source not found. shows an example of how different credit ratings may influence
215 the interest rates, or yields, demanded by the market. Typically, the longer the term of the bond
216 and the lower the credit rating of the project, the higher the interest rate demanded by the
217 market.

218 **Project Finance Bonds and Private Activity Bonds**

219 An SPV may issue taxable project bonds or seek to use private activity bonds (PABs) issued by a
220 public sector conduit issuer. Because project finance bonds issued by the private sector are
221 taxable and financially riskier, buyers typically demand a higher rate of return. Project finance
222 bonds typically receive much lower ratings from ratings agencies than general obligation
223 municipal bonds do. This is because project finance bonds offer no recourse beyond project cash
224 flows. If a project fails to produce sufficient revenues, bond holders may not get paid. Project
225 finance bonds often struggle to achieve investment grade ratings from ratings agencies and
226 private project sponsors often must adjust a project’s capital structure to reach investment grade.
227 Prior to the 2007/2008 financial crisis, default insurance could be purchased to make the
228 issuance of project finance bonds more attractive to buyers. The collapse of the bond insurance
229 market has made it more difficult to finance projects through project finance bonds.

230 **Figure 3-3. Illustrative Tax-Exempt Yield Curves (Interest Costs)**



231

232 Federal Assistance

233 In recent years, most P3s in the United States involving private financing have been supported by
234 Federal government programs such as credit assistance from the Transportation Infrastructure
235 Finance and Investment Act (TIFIA) and allocation of Private Activity Bonds. The TIFIA program
236 can issue long-term subordinate debt to revenue-financed projects of national significance. TIFIA
237 credit assistance can lower the amount of private sector financing needed and the costs of that
238 financing by assuming a subordinate position in the cash flow waterfall of a project. This means
239 that TIFIA interest costs are paid only after the interest on private debt is paid. Private Activity
240 Bond allocations allow State and local governments to issue tax-exempt bonds on behalf of
241 infrastructure projects with significant private involvement.

242 POTENTIAL REVENUE SOURCES FOR P3S

243 Project revenues for P3s can come from various sources. The most common source of revenue for
244 a P3 project is project tolls. In many P3 projects, the revenues for a project come exclusively from
245 tolls. Toll-based P3 projects may be undertaken with minimal financial contributions from the
246 public sector. The private sector may agree to design, build, operate and maintain a project in
247 exchange for the future revenues derived exclusively from the project itself. Future toll levels are
248 typically established to in the P3 agreement. The public sector effectively transfers demand risk --
249 the risk that facility demand will be less than expected -- to the private sector. If demand for a
250 facility does not materialize private investors stand to lose their investment.

251 In recent years, potential project investors have been more reluctant to accept a high degree of
252 demand risk. Many P3 agreements in the United States now include revenue sharing agreements
253 and a mix of public and private financing. Some P3 agreements use availability payments, where
254 the public sector pays the private sector an agreed upon annual or monthly fee for meeting
255 performance standards set in the agreement.

256 Public agency contributions to a P3 agreement can be derived from various revenue sources.
257 Typical revenue sources include State and local gas and sales taxes, as well as Federal aid funds.
258 P3s may also be structured to take advantage of non-traditional revenue sources such as local
259 option taxes, parking and other fees, tax increment financing, and tax assessment districts.

260 However, nontraditional revenues may be viewed by potential investors as less stable sources of
 261 revenue and, as a result, may be more difficult to leverage. As a rule of thumb, the broader the
 262 base from which a revenue source is derived, the more stable the revenue source. For example,
 263 Statewide sales taxes and gas taxes are generally considered more stable than local property taxes.
 264 See Table 3-2, for a more detailed explanation of typical P3 revenue sources.

265 **Table 3-2. Typical P3 Revenue Sources**

Revenue Source	Advantages	Disadvantages
Tolls	<p>Direct user fee, may create stronger performance incentives for a facility operator.</p> <p>Revenue risk can be transferred to the private sector.</p> <p>Tolling structure may include market pricing mechanisms that create economic benefits.</p>	<p>Traffic and revenue forecasts can fall short of actual revenues.</p> <p>Use of additional toll revenues may be constrained within pre-defined limits of the corridor to address geographic equity concerns.</p> <p>Few facilities can be fully financed on toll revenues alone; recent experience shows that most projects will require a combination of revenue sources to work.</p> <p>Costs of collection may be higher than other revenue sources.</p>
State fuel taxes	<p>Indirect user fee. Revenues are not directly associated with the use of a specific project, but related to general use of highway network, therefor they may be relatively stable.</p> <p>Low cost of collection.</p>	<p>Yield declining over time since they typically do not increase in line with inflation and improved fuel efficiency and introduction/growth of alternative fuels lead to lower fuel usage.</p> <p>Significant demand from competing priorities/interests.</p>
Federal-aid highway funds and discretionary funds	<p>Derived from federal fuel taxes—a relatively stable revenue source and an indirect user fee.</p>	<p>Yield declining over time, see above.</p> <p>Federal funds are generally linked to regulations and contracting requirements (e.g., NEPA, Davis-Bacon, etc.) that may be more demanding than the requirements of other revenue sources.</p> <p>Once obligated or awarded, Federal funds, grants and earmarks must be used within a specific timeframe (generally three years).</p>
Sales taxes	<p>Relatively stable revenue source, though subject to influence of economic growth and recession.</p>	<p>May create market distortions because it is not aligned with the “user pays” concept.</p> <p>Some of the local option taxes or those dedicated for specific uses may have a “sunset” date that may or may not be aligned with the length of the P3 agreement.</p>
Value capture <i>Impact fees</i> <i>Special assessments</i> <i>Tax increments</i>	<p>May capture economic value created through infrastructure improvements that is not captured by other</p>	<p>Subject to the volatility of the real estate market.</p> <p>Rated low by bond rating agencies.</p> <p>Yield may be low for major projects;</p>

Revenue Source	Advantages	Disadvantages
<i>Development contributions</i> <i>Joint development /development rights</i>	sources. Value capture options can be chosen based on regional/local conditions and project needs.	likelihood of requiring other revenue sources is higher. There can be concerns about the public sector being a “landlord.” Policy issues related to eminent domain takings (if any required for the project) being turned over to the private sector for profit.
Ancillary revenues <i>Rest stops</i> <i>Utility/fiber optics on highway right-of-way</i> <i>Advertising</i> <i>Air rights</i>	Encourage private sector to optimize potential revenue options, reducing the need for limited public resources	Yield is relatively low; cannot be considered as standalone funding sources, but as part of the “revenue portfolio.”

266

267 None of these revenue sources is exclusive to P3s, but the information regarding the advantages
 268 and disadvantages is presented from that perspective. It is also important to note that this list
 269 represents some of the revenue sources available today, and it may change over time. For
 270 example, fuel taxes are the main revenue source for highway and transportation investments, yet
 271 given their declining yield due to the introduction of more fuel efficient and alternative fuels,
 272 some practitioners are exploring revenue options, such as mileage-based user fees to replace fuel
 273 taxes over the long term.

274 Notice that the table above does not include two items that are sometimes counted as revenue in
 275 public discourse: debt and equity. Oftentimes, debt is used to help fund a project or program of
 276 projects, and when looking at the project financial pro forma, debt shows up in the “revenue”
 277 category. This is true from the perspective of the project’s upfront funding, but debt cannot be
 278 considered a long term revenue stream that supports the repayment of lenders and bondholders.
 279 Similarly, investors may put up equity at the front end of a project, thereby providing the funds
 280 needed to build the project earlier. That equity, however, is offered in anticipation of earning a
 281 return on investment over time.

282 **KEY CONSIDERATIONS ASSOCIATED WITH P3S AND REVENUES**

283 **Revenue from Programmed Toll Increases**

284 Toll facilities typically require periodic toll increases to cover operations and maintenance costs
 285 which tend to increase over time. Toll increases for publicly operated toll facilities often get
 286 caught up in political debate, so it can be difficult for public toll operators to raise tolls when they
 287 need to. In a P3 concession (where toll collection is transferred to the private sector), toll
 288 increases are typically defined in the contract and are often tied to inflation. Publicly financed toll
 289 facilities may also commit to future toll increases through bond indentures or other means,
 290 however, ratings agency typically have more confidence in the ability of privately operated toll
 291 facilities to raise tolls as needed. This is because privately operated facilities have stronger
 292 incentives to raise tolls and may be more insulated from political influence than publicly operated
 293 facilities.

294 Periodic increases in toll rates for a P3 project do not necessarily mean that there are additional
295 revenues to invest in transportation. In a toll-based P3 agreement, toll revenues are used to pay
296 for debt service, return on investment (ROI) to equity investors, and operating and maintenance
297 expenditures on the facility. If a P3 agreement includes a revenue sharing agreement than a
298 public agency may share in the remaining net revenues once the payments identified above have
299 been made. Only then can additional revenues be realized by the public. In the availability
300 payment model, toll revenues derived from a project are retained by the public agency and the
301 public agency pays the private partner an agreed upon periodic fee. If toll revenues are in excess
302 of the required availability payment than the public agency may choose to reinvest that income in
303 the transportation system or lower tolls on the facility.

304 **Freeing up Revenue for Other Projects**

305 If private equity or debt is used as part of a project funding plan, it could mean that less money is
306 needed from public sources in the short term. This means that
307 the unused money could be used on other projects that may
308 not be attractive for P3 delivery, but that are considered
309 important to meet the transportation demands of the public.
310 As noted before, however, ultimately, the private contribution
311 will need to be paid back by the public, either from tax or toll
312 sources, so what may appear to be increased revenue is really
313 just a matter of adjusting the timing of the revenue.

314 **Obligating Future Revenue on a Specific Project**

315 A P3 that uses availability payments may dedicate public funds
316 for decades on an individual project. The availability payment
317 model obligates the private partner to maintain certain
318 performance standards, which will encourage them to make
319 timely investments in the facility's upkeep. This kind of asset
320 management should reduce the life cycle cost of the project,
321 and ensure that the facility remains in acceptable operating
322 condition.
323

324 The implication of an availability payment agreement,
325 however, is that the projects that are subject to these
326 agreements will receive top-notch care (if the performance
327 measures are written in that manner), while others may suffer
328 from neglect. With contractual obligations to make availability
329 payments, government loses the flexibility to allocate revenue
330 where it may be most needed. This can impact the overall
331 revenue picture for the entire highway program in a region.

332 **Stability of P3 Revenue Sources and Need for Multiple Revenue Sources**

333 Revenue sources must be stable and have an adequate yield
334 over the long term to repay P3 debt and equity. Tolls and taxes
335 are usually stable revenue sources, and tend to be rated higher
336 by credit rating agencies. Ancillary revenues, such as revenue
337 generated from right of way leases, rest stop concessions, or the sale of advertising or air rights,
338

What about the upfront payments from long-term leases?

The long-term leases of the Chicago Skyway and the Indiana Toll Road generated large upfront payments (\$1.8 billion and \$3.8 billion, respectively). Some may argue that these upfront payments can be considered revenues generated through P3s, especially if those revenues are used to advance other transportation projects, such as it was done in Indiana. In reality, however, the upfront payments are similar to cash advances; the concessionaires will continue to collect tolls over the concession in return for the cash advance. The use of upfront payment revenues is important in that when used to advance other transportation investments, it helps with cash flow issues

339 tend to have relatively low yields, and value capture revenues are typically volatile, thus are best
340 when combined with other revenue sources as part of the P3 debt/equity repayment plan.
341 Therefore, not all revenue sources are equal, and some are of higher quality than others.

342 In most cases, several financing and funding sources are combined to provide capital for the
343 initial construction of a project, and several revenue sources are bundled to repay debt and equity
344 in a P3. It is rare that a project can be “self-financed” through tolls, without requiring any form of
345 up-front contribution from the public sector. In many cases, more than one revenue source (e.g.,
346 ancillary revenues in addition to tolls) is required to repay all of the investment over time. However,
347 this is not unique to P3s. On both P3 and traditional project development models, project
348 sponsors have to use a mix of approaches to develop a plan that meets all the needs of a project.

349 **Restrictions on Uses of Revenue**

350 P3 legislation in most States allow public and private sector funds to be combined, although
351 legislation in some States does not include explicit provisions that allow it (e.g., Alabama,
352 Maryland, Minnesota, Missouri and South Carolina).

353 Some revenue sources have a shelf-life. Grants and discretionary funds may have time limitations,
354 and some State/local revenue sources (such as sales taxes) may expire after a certain date,
355 requiring voter approval to be extended beyond that period. For a P3 project using availability
356 payments, the revenues dedicated to make the annual payments must have a life span that
357 extends through the concession period. Those revenue sources with a shorter shelf-life can be
358 used to make payments in the early stages or be used as backstop during period of high risk (e.g.,
359 construction, and ramp up period for toll roads).

360 Another concern with availability payments is whether these payments are contingent upon
361 annual appropriation. For instance, the Florida statutes on P3s allow FDOT to use availability
362 payments⁴ but include the following two provisions:

- 363 • “The annual payments under such agreement shall be included in the department’s tentative
364 work program... and the long-range transportation plan for the applicable metropolitan
365 planning organization... The department shall ensure that annual payments on multiyear
366 public-private partnership agreements are prioritized ahead of new capacity projects in the
367 development and updating of the tentative work program”
- 368 • “The annual payments are subject to annual appropriation by the Legislature as provided in
369 the General Appropriations Act in support of the first year of the tentative work program.”

370 Although availability payments are prioritized in the agency’s work program, there is a risk to the
371 concessionaire associated with the State’s annual budgeting process.

372 **Restrictions on the Use of Federal Funds Related to P3**

373 Federal funds come with some restrictions that may affect their applicability for P3s, such as
374 specific criteria for the types of eligible projects and activities that can be funded with Federal-aid
375 highway programs. For example, Interstate Maintenance funds are for capital investments
376 associated with resurfacing, restoring, rehabilitating, and reconstructing Interstate highways.
377 Projects eligible for Congestion Mitigation and Air Quality (CMAQ) funds must demonstrate air
378 quality benefits and be located within nonattainment areas, among other factors. There are
379 similar restrictions with other Federal-aid highway programs. In some cases, even after flexing of
380 Federal-aid highway funds is considered, States may find it difficult to align the available funds

⁴ Florida Statutes, Title XXVI, Chapter 334, Section 9.

381 with their priorities. Federal funds also have matching requirements. Title 23 regulates what can
382 be used as match, including flexible match (i.e., other Federal funds, or third party donations). In
383 addition, any project funded with Federal money must meet specific requirements (e.g., NEPA,
384 Davis-Bacon, DBE, Buy America, etc.) that can add to the complexity of administering a project or
385 otherwise increase project costs.

386 Lastly, Federal funds can only be used on capital expenditures; States are responsible of operating
387 and maintenance (O&M) expenses of any Federally-funded project, including P3s. Therefore, for
388 a project delivered under the availability payment model of P3s, Federal funds cannot be
389 dedicated to make the annual payments to the concessionaire, unless it pays for 4R expenses, or a
390 clear distinction is made that the Federal funds are being used to pay debt associated with the
391 initial capital investment.

392 **PRICING FINANCIAL RISK**

393 Whether revenues are derived from tolls or other sources, public agencies seek to structure a P3
394 agreement that achieves public benefits and can attract private financial resources. Potential
395 private project sponsors determine whether and how much to invest or lend to a project based on
396 an evaluation of projected project cash flows and associated risks. Both equity investors and
397 lenders assess the extent and likelihood of project risks and price those risks. To the extent that
398 investors and lenders perceive risks to projected net revenues, investors will demand a higher rate
399 of return and lenders will demand a higher interest rate.

400 To determine the value of a P3 agreement, the public agency and private investors each develop a
401 financial model that forecasts cash flows and project costs and assesses project risks. The
402 financial model may include projections and assumptions related to constructions costs;
403 operations and maintenance costs; capital expenditures; debt schedules and financing costs; tariff
404 schedules, usage rates and toll and non-toll revenues; and inflation and tax rates. The results of
405 the model illustrate project cash flow under different assumptions.

406 Investors are interested in the project's internal rate of return or return on equity. If investors
407 decide that there is a good chance that they can meet a defined internal rate of return (IRR) or
408 "hurdle rate" then they will make a bid. The IRR calculation is a measure of how well an
409 investment pays off over time, and allows investors to compare different types of investments to
410 decide where to invest their capital. Different investors have different hurdle rates. Lenders are
411 primarily concerned with the projected debt service coverage ratio, or the amount of annual cash
412 flow available to meet debt service payments in a given year, and the quality of the analysis that
413 led to the project. Lenders generally expect a minimum of debt service coverage ratio of 1.2 or
414 higher.

415 The financial model reflects assumptions made about risks, the allocation of risks, and the value
416 of money over time. It enables decisionmakers to make informed choices about how to structure
417 the agreement, set tariff and subsidy levels, and allocate and mitigate risks. Investors factor risk
418 into their valuation of an agreement by identifying risks, estimating the extent of each risk, the
419 timing of each risk, and the probability of each risk occurring. Since risks to a project vary over
420 time, these risks may be applied to projected project cash flows at different levels over the period
421 of the project. The value of a P3 is ultimately arranged along a probabilistic curve that States the
422 estimated probability of achieving a certain value.

423 Since risks have costs associated with them, the private sector will not take on risk unless it
424 expects to benefit. Therefore, the private sector will attach a risk premium, or higher cost, in order

425 for it to take on and manage a particular risk. The private sector does not decide upon risk
426 allocation and risk premiums lightly and relies on extensive analysis. It is up to the public sector
427 to decide whether to pay that risk premium or retain the risk. The amount of risk premium may
428 be an indicator to the public sector of the magnitude of the risk, which will help them make a
429 more informed decision. However, it can be difficult for the public sector to determine which
430 project elements have led to a higher risk premium on a project. It is also important to note that
431 the public sponsor cannot know the risk premium in advance with any certainty. It can be difficult
432 to design a procurement process that allows them to choose which risks to transfer—a so-called
433 “cafeteria plan.”

434 How an investor values future cash flows is reflected in the discount rate applied to future cash
435 flows. Variation in the discount rate can have a major effect on an investor’s valuation of a project.
436 Despite the discounting of revenues in the later years of an agreement, longer-term agreements
437 may be more attractive to investors due to potential tax benefits of anticipated depreciation,
438 amortization, and interest rate deductions. In addition, equity investors may anticipate
439 refinancing a project on more favorable terms once construction is complete and the project has
440 been fully operational for several years, when the uncertainties associated with the project are
441 significantly less. Often, however, the concession agreement will stipulate that any savings from
442 refinancing need to be shared with the public sponsor.

443 The public sector will develop its own financial model and apply its own evaluation process to
444 help shape appropriate agreement structures and determine acceptable bids (for a detailed
445 discussion of public sector project evaluation processes see Chapter 2, Decisionmaking.) The
446 public sector may use cost benefit analysis or Value for Money (VfM) tests to determine whether
447 to go ahead with a P3 approach, evaluate bids, and set an acceptable level of subsidy. VfM tests
448 use a public sector comparator to determine whether a P3 would be better than more traditional
449 public sector delivery methods. Using a public sector comparator, the public agency models the
450 net present value of a project using traditional project delivery methods versus a P3 delivery.
451 Qualitative factors are also considered in conducting the analysis. Procurements based on VfM
452 tests help achieve a best value selection of a bidder, rather than the traditional low-bid selection.
453 VfM analysis can help a public agency better understand project risks and determine the optimal
454 allocation of those risks.

455 **POTENTIAL ADVANTAGES AND DISADVANTAGES OF EQUITY-FINANCED P3S**

456 This subsection contrasts the advantages and disadvantages of the P3 approach from the
457 perspective of financial considerations. Table 3-3 provides a summary of the considerations.

458 **Table 3-3. Financial Advantages and Disadvantages of Traditional and P3 Financing**

Financing Approach	Advantages	Disadvantages
Traditional	<ul style="list-style-type: none"> • Generally cheaper • Smaller or no “learning curve” • Quicker, less complex transactions 	<ul style="list-style-type: none"> • Funding may be inadequate or permit only a piecemeal approach • Government retains all financial risk • Short-term budget process limits resources and options for life-cycle cost management • Debt capacity is limited by law and policy
P3	<ul style="list-style-type: none"> • Leverages more up-front capital resources • Transfers financial risk from public sector (for a price) • Provides incentives for early, on-budget completion and better life-cycle cost management • Debt owed by private parties does not count against the government’s debt limit • Standalone project financing can insulate government from bad investments (though non-recourse municipal debt can do the same). • More rigorous analysis of costs, benefits and risks 	<ul style="list-style-type: none"> • Typically higher cost of capital, although the additional cost may be offset by the risk transfer • Complex and lengthy transaction • Potential for greater public controversy • Higher management and oversight costs • Potential for lost residual revenues (unless adequately dealt with in contracts) • Availability payments obligate government to future payments, thereby limiting its flexibility in allocating revenue to projects.

459

460 **Potential Financial Advantages of P3s**

461 Equity-financed P3s have the potential to generate benefits
462 for a project or program of projects by:

- 463 1. Providing an alternative to public sector debt capacity
464 for legal, political or other reasons;
- 465 2. Leveraging greater amounts of upfront capital for the
466 same revenue stream as comparable public sector
467 financing;
- 468 3. Facilitating the financing of projects that cross
469 multiple public jurisdictions;
- 470 4. Allowing the public sector to transfer financial risks,
471 thereby creating stronger incentives for at-risk
472 private partners to conduct due diligence; and
- 473 5. Creating incentives to reduce the long-term life cycle
474 costs of maintaining the asset.

475 **Providing an Alternative to Public Sector Debt Capacity**

476 Legislative, constitutional or policy restrictions on a State’s or agency’s ability to borrow in the
477 public finance market are often the primary reason why a public agency decides to seek out
478 private financing for a project. In some cases, legal covenants restrict how much of a revenue
479 source can be pledged to debt, the term of the debt that can be assumed, or the overall amount of
480 debt a government can take on. In cases where a public agency is unable to issue sufficient debt
481 through the municipal bond market to raise the capital needed to fund a transportation project,
482 private financing may provide a viable alternative.

Florida’s Limitations on P3 Obligations

When Florida authorized the use of P3s, it explicitly limited the amount of funding that can be obligated for future payments to 15 percent of its five-year work program. This is one potential mechanism to prevent public agencies from over-committing future resources to P3 projects.

483 It is important to recognize that whereas some P3s transfer future financial risk away from
484 governments, others (particularly those featuring availability payment or shadow toll structures)
485 retain such risks over time. These techniques may still provide benefits, but governments will
486 need to consider the level of future payments that are obligated to such projects as a part of their
487 broader work program.

488 **Leveraging Upfront Capital**

489 Private entities may be willing to take on more financial risk than public agencies by borrowing
490 more against a given revenue stream. Some public agencies may be less willing and less able to
491 issue debt as aggressively as the private sector. A public jurisdiction has numerous demands on its
492 debt issuance capacity. In addition to transportation projects, other capital projects that may
493 require debt financing include schools, hospitals, and water and sewer facilities, as well as other
494 government buildings. Since a default could affect all government operations, not just the single
495 project, governments may be less willing to take on financial risks than private investors.

496 The private sector may be able to achieve greater financial leverage on a project by being more
497 willing to accept projections of higher revenues or lower costs, or financing projects at lower
498 coverage levels than the public sector. In general, public sector debt issuances have to have a
499 higher ratio of forecast pledged revenues to the debt service requirement. Typical coverage levels
500 for public debt are 1.5 times forecast revenue, while commercial loans can be in the range of 1.2
501 times. Thus, a given revenue stream will yield less upfront money for the public sector than the
502 private sector. Despite these differences, private investors have become considerably more
503 cautious in recent years as traffic (and revenue) flows have leveled due to the recession of
504 2007/2008. Their appetite for taking on higher risks may have cooled, and it remains to be seen if
505 that caution is maintained into the future.

506 **Catalyzing Project Debt Issuance for Projects that Involve Multiple Jurisdictions**

507 Many P3 projects involve multiple government jurisdictions, such as counties, cities, States, and
508 toll authorities. For a project that crosses multiple jurisdictions, it may be difficult for one
509 jurisdiction to bear the responsibility of issuing all the debt. At the same time, it is difficult for the
510 other jurisdictions to provide guarantees and pledges to back up the debt of an issuing
511 jurisdiction. Sometimes, this problem can be solved by creation of a special authority that crosses
512 the relevant jurisdictions – but that may just create another level of government solely to carry
513 out a single project.

514 Private equity finance, by contrast, can allow multiple public jurisdictions to pledge either upfront
515 or ongoing revenues, without taking on the debt issuance risks on behalf of the other
516 jurisdictions. In an equity-financed P3, public and private financing for a project goes to a special
517 purpose vehicle (SPV) set up solely for the purpose of administering the project, which limits
518 exposure to financial risk.

519 **Providing a Financial Incentive for More Robust Due Diligence**

520 In many P3s, private sector participants--both investors and lenders--have capital at risk, so they
521 have financial incentives to ensure that the contracted services are provided. Private sector
522 lenders want to be sure that the project to which they are lending is financially sound throughout
523 the term of the loan. Therefore, they can be expected to conduct due diligence before issuing a
524 loan and independent oversight of a project throughout the period of their involvement. The
525 additional due diligence imposed on privately financed P3s means that risks may be more likely to
526 be identified, assessed, and mitigated than when using traditional delivery methods. Evaluations

527 of projects financed through public bond issuances tend to be done tend to be based more on the
528 credit rating of the issuer than the project..

529 **Protecting General Revenue from Project Revenue Shortfalls**

530 P3s can be one way for governments to make sure that general tax revenues, or the toll revenues
531 from pre-existing toll projects, are not at risk in the event project revenues do not materialize as
532 expected. Non-recourse revenue bonds have been used for decades to achieve this purpose. P3s
533 provide yet another mechanism but one for which governments need to be wary of either
534 contractual or implied promises that weaken this protection. This has not generally been an issue
535 in U.S. public finance, but there are situations abroad where revenue risk was not adequately
536 transferred in the P3 transaction. In fact, there are several cases in the United States of P3
537 projects where lower than expected revenues led to private sector losses, but, because of the P3
538 contract the public sector was shielded from losses. For
539 example, the original investors in the Dulles Greenway, a P3
540 project completed in 1995 in northern Virginia, took
541 substantial losses when initial traffic was less than half of what
542 investors had anticipated. While the private partner was forced
543 to lower its tolls to attract traffic and restructure its debt, the
544 public sector had no funding at risk and lost nothing.

545 **Improving Performance and Life Cycle Cost** 546 **Management**

547 A well-designed P3 agreement can align the incentives of
548 public and private partners in such a way that the private
549 partner has a strong incentive to complete a project on time
550 and to make cost-efficient investments throughout the life of
551 the project. P3 agreements are typically structured so that the
552 public sector pays the private partner only when the facility is
553 complete and performing to agreed-upon standards.

554 P3 agreements typically involve a commitment on the part of
555 the private project sponsor to operate and maintain a facility at a specified standard for the
556 duration of the agreement. In bidding for a contract that includes long-term O&M private firms
557 factor in the projected long term costs of achieving the stated O&M standards into their bids.
558 Project revenues are dedicated to maintaining the facilities at the stated standards prior to
559 reimbursing creditors or investors. This gives the private participant a strong incentive to
560 minimize long-term maintenance costs by applying the most cost-effective treatments at the
561 appropriate time so that it can maximize its long-term net revenues.

562 This is in contrast to traditional means of project maintenance by public agencies where funding
563 constraints can thwart efforts to apply both routine maintenance and rehabilitation treatments
564 required on aging roadways, even when such treatments would be the more cost-effective over the
565 long-term. As a result, they end up applying short term treatments that end up costing the public
566 more in the long-term.

567 **Potential Financial Disadvantages of P3**

568 The costs of private financing of transportation projects must be taken into account and weighed
569 against the benefits when considering a P3 (see Figure 1). The costs and complexities of private
570 financing such as higher transaction costs, higher capital costs, lost revenue opportunities, and
571 hidden risks make using such an approach appropriate only for certain projects.

Spanish Concession Program: Unintentionally Retained Risks

Under the Spanish concession program, the private sector was supposed to take the financial risk. However, the contracts were written such that the government owed the concessionaire compensation if the concession terminated early for any reason— including bankruptcy. This meant that the government

572 **More Lengthy and Costly Transactions**

573 Private financing can add complexities and costs to the project delivery process and can be
574 difficult to explain to the public. P3 contracts can be lengthy and complex and require more time
575 and resources to develop and monitor than traditional contracts. Due to the complexities of P3
576 agreements, it is important to acquire or develop the appropriate legal, financial, and technical
577 expertise to execute an efficient agreement. Implementing a P3 procurement process can take
578 several years from the beginning of P3 investigations to financial close. Due to the length and
579 complexities of such transactions, private
580 financing will only be appropriate for large
581 projects, although Canada’s experience
582 indicates that as P3 transactions become
583 routine, the costs and timelines should
584 decrease.

585 **Higher Cost of Capital**

586 Private capital tends to be more expensive
587 than public capital because the public sector
588 has the advantage of tax-free municipal bonds.
589 Private debt is not tax-exempt and the private
590 sector also requires greater returns for
591 assuming the greater risks associated with P3
592 agreements. This “risk premium” is reflected
593 in the higher financing costs of private finance
594 compared to public financing. The interest
595 costs on public bonds may range from 4 to 7
596 percent, while private financing costs may be 8
597 percent or higher.

598 **Lost Revenue Opportunities**

599 P3s may commit a dedicated revenue source,
600 typically tolls, to a private project participant
601 for periods typically ranging from 30 to 99
602 years. These dedicated revenues allow the
603 private firms to cover initial capital and
604 ongoing O&M and financing costs and to
605 profit. Anticipated project revenues as well as costs are reflected in the competitive bids made by
606 private firms. But if actual revenues are much higher than anticipated, a private firm can receive a
607 windfall. Using traditional public financing, any revenues above and beyond project costs would
608 belong to the public sector. Most recent P3s have revenue sharing arrangements in the event of
609 “excess” revenue to eliminate the potential for windfall profits.

610 **Poorly Transferred or Unintentionally Retained Risks**

611 The value of a P3 can hinge on the extent to which certain risks are transferred and on the costs of
612 transferring or retaining those risks. If revenue risk is not adequately transferred to the private
613 sector in a P3 and future revenues do not materialize, the public sector may have to cover the
614 shortfall. That is, the public sector may end up bailing out a failed concession in order to maintain
615 an operational road. Although there are no examples of this in the United State, the concession

SR-91 Express Lanes

Completed in 1995, the 10-mile, four-lane section of California State Route 91 (SR-91) known as the SR-91 Express Lanes was constructed with \$135 million of private funds under a 35 year concession agreement. It was the first fully automated electronically tolled road in the world. The project was a financial success; however, a clause in the contract that limited improvements to parallel, “competing” infrastructure within the SR-91 Express Lanes corridor proved untenable for the public sector and led to litigation. To alleviate the issue, Orange County Transportation Authority (OCTA) purchased the concession for \$207 million in 2003. OCTA now has more control over toll levels and operates the road under a private contractor. The SR-91 Express Lanes remains financially

616 program in Spain did not adequately insulate the government from the need to step in when
617 concessionaires went bankrupt.

618 **STRUCTURING AGREEMENTS TO OPTIMIZE RISK TRANSFER**

619 The primary value proposition of the P3 project delivery approach is that it allows for the optimal
620 allocation of project risk. Project risks include, but are not limited to, financial, design,
621 construction, maintenance, operations, demand, regulatory, and asset ownership risks. In
622 structuring a potential P3 agreement the public agency decides which risks to retain, which risks
623 to transfer, and which risks to share. The private partner may in turn transfer risks to
624 subcontractors, insurers, and other parties.

625 Different types of project delivery agreements transfer different risks. However, risks are not
626 always apparent and the true allocation of risk to various parties may not be known until a
627 negative event occurs. In practice, many project risks are not, or cannot, be wholly transferred to
628 the private sector, and the public partner inevitably retains significant risks.

629 Risks should be transferred to the party best able to control them at the lowest cost. Where the
630 private partner has limited control over a risk, it may be optimal for the public agency to retain
631 that risk. Risks that private investors may be able to effectively control include: design and
632 construction risks, finance risks, operations risks, and maintenance risks.

633 Potential project bidders are also concerned with risks associated with the bidding process itself.
634 It can cost millions of dollars to develop a competitive bid for P3 procurement. As a result,
635 bidders will have a strong interest in a procurement process that they believe is fair, open, and
636 transparent and that has a reasonable likelihood of the agreement being completed. Once a
637 project is underway, private investors anticipate the greatest uncertainties in design and
638 construction costs and demand, or facility usage. Operations and maintenance costs are perceived
639 as less of a risk because they are a smaller portion of the overall costs and they occur in later
640 periods of the agreement and are therefore discounted. Facility usage, or demand risk, is often the
641 greatest risk that private investors are asked to take on, but it is a risk over which they have
642 limited control.

643 For toll projects the projection of toll revenues is central to the evaluation of cash flows. In
644 projects where the primary revenue stream is tolls, how private investors assess the value of a toll-
645 financed project will depend on their projections of potential toll revenues. Forecasting demand
646 on new toll roads and lanes, however, is not a simple task. The uncertainty associated with toll
647 forecasts will be factored into a potential investor's assessment of project risks and their
648 willingness to invest in a project. Investors that are more speculative may be attracted to the
649 potential upside gained from assuming demand risk. If demand for a facility is higher than
650 anticipated, they will be positioned to capture residual revenues, subject to revenue sharing
651 contract provisions.

652 **Availability Payments: A Different Risk Transfer Approach**

653 In recent years, there has been a trend away from P3 projects where private partners assume
654 demand risks. The 2007/2008 financial crisis continues to impact financial markets, making it
655 more difficult and more expensive to assemble private capital. The loss of the bond insurance
656 markets and a newfound conservatism among senior debt lenders has led public agencies to find
657 new ways to structure P3s to mitigate or retain risks that private investors no longer find
658 acceptable. Given the limited capacity of private capital markets to take on risk, publicly
659 subsidized debt mechanisms and credit assistance are more likely to be required to ensure that

660 sufficient capital can be raised to complete P3 agreements. Most recently closed P3 agreements
 661 include a mix of public and private capital invest as well as the use of various contract
 662 mechanisms that limit the private sector’s exposure to risk.

663 Rather than ask the private sector to rely on tolls for project revenues, public agencies have
 664 offered fixed availability payments to the private partners based on performance of the facility to
 665 standards. In the availability payment structure, private partner revenues are not dependent on
 666 tolls. The public partner commits an annual payment to the private partner for maintaining and
 667 operating the facility to a specified standard. If the project is a tolled facility, the public partner
 668 retains the revenues from the tolls. To determine the amount of the availability payment, private
 669 sector bidders submit bids based on the maximum annual payment they would require. Table 3-4
 670 provides a comparison between availability payments and toll-based revenue for P3s.

671 **Table 3-4. Characteristics of Availability Payments vs. Toll-based Revenue Risk P3s**

Availability Payments	Toll-based Revenue Risk P3
<ul style="list-style-type: none"> • Payments are made for a fixed amount on a periodic basis • Potential concessionaires bid on required payment amount • Bid amounts depend on the concessionaire’s expected project costs, likelihood of achieving performance standards, and desired return on investment • Payments begin when facility is open to traffic (although progress payments can also be included) • For toll-based projects, public sector sets toll rates and receives toll revenues • Public sector imposes financial penalties for failure to meet performance standards, such as lane availability, exist • Private investors may perceive less risk and be more willing to invest 	<ul style="list-style-type: none"> • Revenues are generated from tolls • Potential concessionaires may bid on amount paid to public agency for revenue stream or required payment amount • Bid amount depends on estimates of likely costs and revenues and desired return on investment • Payments depend on toll rate schedule (usually set in the agreement) and facility demand • Concessionaire captures residual revenues, usually subject to maximums • Legal and financial recourse is established for failure to meet performance standards

672
 673 There are a number of reasons why a public agency may choose to use availability payments
 674 instead of toll-based payments. Availability payments may be used in cases where tolling is
 675 infeasible long-term project costs. If this is the case, the public sector will have to identify an
 676 alternative source of revenue to make the payments. Availability payments may also be used if the
 677 public sector wishes to retain traffic risk because the private sector demands too high of a risk
 678 premium. In the case of Florida I-595, one of the reasons Florida DOT chose to use availability
 679 payments was to retain the ability to dynamically manage toll rates to optimize mobility along the
 680 corridor. Availability payments may be more attractive to potential private sector investors that
 681 are averse to taking on risks outside of their control. This can help to lower project financing costs
 682 and overall costs to the public agency.

683 With the availability payment model, potential private partners no longer assume demand risk.
 684 This may make it easier to attract capital and allows the project sponsor to focus on managing
 685 risks associated with construction, maintenance and operation of the facility. Whereas the ratio of
 686 debt to equity in a demand risk deal may be 80/20; in an availability payment deal the ratio could
 687 be 90/10. Whereas a private operator of a toll facility may adopt practices to maximize

688 throughput, there is little the private operator can do to manage demand risk that is largely
689 dependent on exogenous factors such as economic development and the performance of other
690 transportation facilities in the network. With availability payments, private sector bids are more
691 likely to be based on the bidder's ability to manage risks associated with construction costs and
692 operations and maintenance of the facility rather than divergences in traffic modeling
693 assumptions.

694 It should be noted that the use of availability payments results in the public sector retaining
695 greater risks than in P3 agreements where demand risk is transferred. If project revenues are less
696 than expected it is the public agency that must make up for the shortfall. Alternatively, if demand
697 is greater than expected, the public agency is positioned to capture any windfall. The I-595
698 Express Toll Lanes is an availability payment project where the public sector is responsible for
699 collecting toll revenue, but relies on other sources as the basis for its long-term responsibility to
700 pay the concessionaire. Availability payments may be paid from the State transportation trust
701 fund and Florida Turnpike Enterprise. Toll revenues offset the obligations from these sources.

702 Availability payments represent one way to structure P3 contracts where the public sector retains
703 demand risk, the risk that demand for the facility is lower than expected leading to lower than
704 anticipated revenues. This structure may allow the public sector to attract more bids that are
705 competitive and keep financing costs down. In addition, availability payments eliminate the
706 public relations risk of a private firm potentially reaping windfall profits if facility demand is
707 higher than anticipated. Other alternative approaches to P3 contracting, such as dynamic
708 concession terms, can also be used to ease the risks of future revenue for both the public and
709 private partners.

710 Like public debt, availability payments represent a significant long-term commitment of funds for
711 the maintenance of infrastructure at specified standards that may limit the public agency's
712 financial flexibility in the future. Furthermore, while the public agency may demand, and be
713 willing to pay for, the operations and maintenance of facilities to high standards in an availability
714 payment concession, it may be unable to maintain the rest of the transportation system to such
715 standards due to financial constraints.

716 **Other Ways to Share Risks**

717 If the public agency is uncomfortable retaining all of the demand risk, there are alternative
718 contract mechanisms that can allow it to transfer some portion of the demand risk. For example,
719 the public agency can guarantee an agreed-upon amount of annual revenue to the concessionaire
720 and require sharing profits if the project revenues are greater than expected.

721 Another alternative contract mechanism allows for a flexible agreement term. The terms can be
722 set so that the concession terminates at a pre-determined level of gross revenue (in present value
723 terms). If projects yield more revenue than expected, the term is shorter; conversely, if there is
724 less revenue, the term is extended. This allows the public agency to offer fair compensation for the
725 equity contribution without affecting general government revenue. In the case of toll projects,
726 however, it will be toll payers carrying the burden for a longer period.

727 **SUMMARY**

728 P3s include a potentially powerful suite of financial tools that allow governments to accelerate the
729 delivery of projects and to do so more efficiently. However, P3s are not a financial panacea.

730 Private participation in project finance may allow greater leveraging of future revenue streams
731 than traditional public sector financing, but such participation does not create revenue. Private

732 participation in project financing can create significant benefits for appropriate projects, but
733 private financing can do nothing without the promise of future revenues, whether taxes or tolls.

734 **RESEARCH NEEDS**

735 Additional research may help clarify some of the additional opportunities and challenges
736 associated with P3 financing for long-term concessions. Among the research needs are:

- 737 • What are the realistic public alternatives to compare to P3 concession financing rather
738 than traditional public financing?
- 739 • How much in financial loss has been avoided by the public sector in past domestic P3s?
740 How much future revenue has the public sector foregone?
- 741 • What financial models can be used to estimate financial risks in a P3 transaction (in order
742 to allocate it between public and private parties)? How successful have the models been at
743 predicting outcomes?
- 744 • How can a State compare a “system pledge” with a standalone P3 financing?
- 745 • How has lender behavior changed since the downturn of 2008? How has this affected the
746 current P3 lending market?
- 747 • How have rating agency criteria changed since the downturn of 2008? How has this
748 affected the current P3 lending market? Do criteria differ for public and private
749 borrowers?
- 750 • How do private financial structures differ from those available to public agencies (e.g.,
751 greater capacity, higher cost, greater or lesser flexibility, shorter or longer tenure, etc.)?
752 What are the advantages and limitations of each?
- 753 • What is the actual financial advantage of depreciation in a transaction?
- 754 • How does discount rate affect the analysis?
- 755 • How does the market view appropriations risk for availability payment financings? How
756 are future availability payments counted against debt ceilings under statute and by rating
757 agencies? What are some lessons learned from past availability payment financings?

758

759

760

761

1

2

3

4 4. PERFORMANCE MANAGEMENT

5

6 PERFORMANCE MANAGEMENT KEY FINDINGS

- 7 • Public agencies managing P3 contracts need to find ways to monitor and manage contract
8 performance without reclaiming transferred risks or reducing the efficiencies gained from
9 allowing the concessionaire to choose the best way to meet performance specifications.
- 10 • Effective P3 contracts must be comprehensive enough to align the concessionaire's interest
11 with those of the public sector across all phases of a project from design and construction
12 through operation. Yet, they also must be flexible enough to adapt to changing public and
13 private interests over decades.
- 14 • Performance standards on a P3 project should match those on the rest of the system. If
15 performance levels are set too high, which can be a temptation, the agency may drive up costs
16 and reduce its ability to maintain the rest of the transportation system at comparable levels.
- 17 • Performance management approaches should facilitate the resolution of issues in an
18 expeditious manner.
- 19 • The sponsoring agency should assign a competent, long-term team responsible for making
20 sure the contract terms are followed and communicating regularly with the private partner.

21

22 4. PERFORMANCE MANAGEMENT

23 INTRODUCTION

24 P3 agreements can create efficiencies through establishing long-term design-build-finance-
25 operate-maintain (DBFOM) contracts that include outcome-based performance specifications.
26 Outcome-based performance specifications focus on what a facility is intended to achieve rather
27 than prescribing methods and materials for achieving facility goals. The goal of using outcome-
28 based performance specifications is to make service delivery more efficient by allowing the
29 concessionaire to decide how best to achieve the intended results. Defining, measuring, and
30 monitoring outcome-based performance specifications can be challenging and costly, so outcome-
31 based performance measures may be more appropriate for long-term contracts that span multiple
32 phases of a facility's lifecycle (e.g., design, construction, operations and maintenance) or for large,
33 complex projects where there are potential efficiencies to be gained from innovation. P3 projects
34 typically meet both of these conditions. As a result, public agencies using P3 agreements normally
35 employ performance-based contracts. This shifts the public agency's primary role in the project
36 from oversight of design and construction to management of a performance-based contract. In
37 this role, the challenge for the public agency is to find ways to monitor and manage contract
38 performance without reclaiming transferred risks or impinging on the efficiencies gained from
39 allowing the concessionaire to choose the best way to meet performance specifications.

40 Effective performance-based P3 contracts align the concessionaire's interest with those of the
41 public sector throughout the duration of the agreement. Over the period of a P3 agreement,
42 economic conditions will fluctuate, technology will evolve, policy needs will shift, and the
43 contracted parties are likely to change. Changing economic conditions may lead to unexpected
44 changes in facility demand or financial terms. New technologies may require increased capital
45 investment in a facility. Changes to the contracted parties, through elections on the public side or
46 sale on the private side, may bring new understandings and capabilities to an agreement, but may
47 also lead to financial and technical underperformance. Performance management is a way to
48 maximize project efficiency while at the same time ensuring that the contractor not only meets
49 performance standards at the time of construction, but manages the dynamic risks to
50 performance over the period of the agreement.

51 This chapter describes the elements of effective P3 performance management. The first section
52 discusses public sector performance management responsibilities and challenges. The second
53 section identifies factors that contribute to effective performance management.

54 PERFORMANCE MANAGEMENT RESPONSIBILITIES

55 Public sector responsibilities for managing the performance of P3 agreements begin prior to the
56 close of the agreement and last for the duration of the agreement. These responsibilities include:

- 57 • Defining performance measures;
- 58 • Setting performance standards;
- 59 • Monitoring performance;
- 60 • Assessing payments and penalties for performance;
- 61 • Designing and managing dispute resolution processes;
- 62 • Managing capacity expansion of the facility; and
- 63 • Managing handback of the facility.

64 **Defining Performance Measures**

65 Outcome-based performance measures can be used to specify standards across three phases of a
66 P3 project: design and construction; operation and maintenance; and handback. Outcome-based
67 performance specifications define indicators of quality and functionality that can be measured
68 over time, such as ride smoothness, material durability, lane availability, incident response times,
69 and work zone safety. These measures are typically specified in the contract, but they are rarely
70 set in stone once the contract is completed. Many P3 agreements include provisions for reviewing
71 and updating performance requirements to meet evolving industry standards.

72 **Design and Construction**

73 During the design and construction phase, specifications in P3 contracts are generally drawn from
74 agreed-upon designs, and typically include some prescriptive design standards. These standards
75 should be made clear to proposers in the procurement process. Similar to traditional design-bid-
76 build contracts, the public agency may choose to include procedural specifications in a P3
77 contract to ensure, for example, that a concessionaire conforms to safety and environmental
78 standards. Additional performance specifications, either procedural or outcome-based, may be
79 drawn from project management and quality assurance plans that the concessionaire may be
80 required to develop. Performance measures may also be used to monitor aspects of construction
81 performance such as work zone safety, minimization of service disruption, and the provision of
82 timely and accurate communication with the public. Finally, public agency may set outcome-
83 based goals, such as congestion-relief and allow private partners to propose alternative designs to
84 help achieve those goals.

85 **Operations and Maintenance**

86 During the operations phase, performance measures are typically used for managing capital
87 assets, as well as daily operations and maintenance (these are summarized in Table 4-1).
88 Performance measures related to facility maintenance and operations can be specified as
89 processes in detailed maintenance plans (e.g. daily graffiti patrols) or as outcomes to be achieved
90 (e.g. graffiti cleaned within one hour). For some concessions, the concessionaire may be asked to
91 manage a facility so as to meet mobility goals, which may be specified with measures such as
92 average vehicle speed. Often an agreement will require that the concessionaire develop
93 management plans and systems for meeting outcome-based specifications. The role of the public
94 agency or independent auditor in such cases is to verify that the concessionaire is complying with
95 the specified performance requirements.

96 **Handback**

97 Performance measures must also be defined for measuring the condition of the facility at the end
98 of an agreement when it reverts to public control (handback). To assess asset conditions prior to
99 handback, the government can require the concessionaire to develop and follow an asset
100 management plan that describes planned capital investments and systems for monitoring asset
101 condition. Relevant performance measures for asset conditions at handback include residual asset
102 value and remaining design life. In an availability payment P3 project, the agreement may allow
103 the public agency to hold back payments in the latter years of the concession if the facility is
104 judged to be in poor condition. In a toll-based P3 project, the public agency can protect against
105 handback risk by requiring that the concessionaire set aside a portion of facility revenue in a
106 special account that can be used once the contract ends for unanticipated capital expenditures
107 resulting from the conditions of the facility.
108

109 **Table 4-1. Common Operations and Maintenance Measurement Categories**

Measure Type	Elements Measured
Asset Management	Pavement conditions Bridge conditions Guardrails Signs Lighting Toll Systems Drainage and ventilation systems Intelligent transportation systems Buildings
Operations	Incident response Lane availability Vehicle speeds Facility throughput Customer service
Maintenance	Mowing Litter pick-up Graffiti removal Environmental compliance Winter maintenance

110 **SETTING PERFORMANCE STANDARDS**

111 Public agencies may set performance standards at different phases of project development. The
 112 parameters of a project’s design will be set during the environmental review process. Functional
 113 specifications will be further set during preliminary design and the development of a procurement
 114 package. Specific construction or operations standards should be clearly stated in the
 115 procurement documents for bidders to accurately price their bids.

116 Setting performance standards that are representative of a public agency’s desired levels of
 117 service requires careful deliberation during the development of the project. In procuring a P3
 118 agreement, a public agency can set high standards for a facility, but it may have to pay more to the
 119 concessionaire to achieve higher standards. If the standard is too high, the project may become
 120 financially infeasible. Furthermore, by committing to higher standards for P3 facilities, the public
 121 agency may have less funding available in the future to invest in other infrastructure. In setting
 122 performance standards, public agencies may want to carefully consider the tradeoffs associated
 123 with committing to certain standards and levels of funding. In this regard, P3 agreements are less
 124 flexible than traditional methods of publicly maintaining and operating infrastructure, where the
 125 public agency retains year-to-year flexibility in the allowable performance standards. Public
 126 sector agencies sometimes relax these standards by delaying or reducing investments, or by
 127 lowering maintenance standards, in order to conform to financial realities. By specifying
 128 performance standards contractually, a P3 agreement lessens the flexibility of public agencies to
 129 make such compromises, including those that save money in the short term but are more costly
 130 from a life-cycle perspective. On the other hand, during periods when agency budgets are
 131 strained, the loss of flexibility to relax performance standards on a P3 facility will increase the
 132 pressure on public agencies to reduce spending on non-P3 facilities.

133 Early private sector involvement in the development of P3 projects, through the use of unsolicited
 134 proposals or pre-development agreements, can help to ensure that design elements that may
 135 determine the financial feasibility from a private sector perspective are considered. For example,

136 early private sector involvement in the development of the I-35W north of Fort Worth (NTE 3A3B
137 project) allowed the private sector to suggest connectivity improvements that, while they required
138 additional up-front private investment, resulted in much higher revenues over the term of the
139 contract, helping the project achieve greater financial feasibility. Private sector input on
140 performance standards may also be sought at the onset of a procurement process by soliciting
141 alternative technical concepts (ATCs) or changes to project scope, design, or construction criteria.
142 However, in considering ATCs, the public agency must balance the benefits of private sector
143 innovations, with the benefits of maintaining a fair and competitive procurement process.

144 In setting performance standards, public agencies may look to benchmarks set in other P3
145 agreements or equivalent facilities. Public agencies that are already applying performance
146 management to State-operated transportation facilities may set goals and measures for P3
147 projects that are consistent with, or contribute to, the goals and measures the agency has set for
148 the rest of the system. Public agencies may also set policy goals for specific facilities and set
149 performance standards based on those explicit policy goals, such as mobility, safety,
150 environmental stewardship, or economic development. In the case of Florida's I-595 project, for
151 example, Florida chose to retain control over tolling policy and demand risk by using an
152 availability payment compensation model. This control allows Florida to modify tolling levels to
153 help achieve a policy goal of corridor mobility optimization. Mobility improvements may also be
154 achieved in toll-based compensation agreements by benchmarking toll escalation to traffic flows,
155 or through contract mechanisms that allow for the public agency to modify toll policies as long as
156 the private partner is financially compensated for lost revenues.

157 Public agencies must also consider that desired performance standards are likely to change over
158 time. As a public agency's own standards change due to changing conditions or policy goals, they
159 will likely expect the concessionaire to conform to those changes. For example, future land
160 development may necessitate changes in environmental standards. The concessionaire is typically
161 willing to take on the risks associated with non-discriminatory changes in law to a certain degree,
162 and such an agreement can be written into the contract. However, the concessionaire will
163 typically ask for some assurance that the standards won't be changed so quickly or completely
164 that it becomes financially onerous to meet new standards. As a result, some P3 contracts specify
165 a limit to the number or percentage of changes to standards that can be made on an annual basis
166 or include procedures for the private partner to be compensated for unexpected costs or lost
167 revenues resulting from changes.

168 There is a natural tension between flexibility and accountability in performance management. If a
169 standard is too flexible, the public sector risks not obtaining the highest possible level of
170 performance from a concession. If a standard is inflexible, it may not adapt to changing
171 technology needs. For example, in one agreement, the concessionaire's performance was based on
172 the operations of its call center for its toll payment accounts. However, most users preferred to
173 use a web interface to communicate with the concessionaire. The contract performance standard
174 failed to anticipate technology changes or to use a more flexible measure of success, such as
175 customer satisfaction.

176 **MONITORING PERFORMANCE**

177 The government is responsible for monitoring the performance of the concessionaire. P3
178 contracts will typically establish roles and responsibilities (see Table 4-2) and monitoring
179 procedures. Performance monitoring procedures can include self-reporting procedures,

180 independent audits, regular meetings and reports, and the use of intelligent transportation
 181 systems that automate data collection and reporting processes.

182 **Table 4-2. Potential Performance Monitoring Responsibilities**

Party	Responsibility
Concessionaire	Develop management plans and procedures Collect monitoring data Develop status reports Self-report violations
Government	Set performance standards Review plans, procedures, and status reports Perform audits and inspections Assess penalties and awards
3rd Party	Perform independent audits and inspections Data collection Resolve disputes
Shared	Perform daily communication and problem solving Conduct regular face to face meetings Complete annual performance reviews

183 **Self Reporting**

184 Many P3 contracts require the concessionaire to develop project plans that explain how the
 185 concessionaire will monitor and report the project’s performance. Project plans may include:
 186 asset management plans, operations and maintenance manuals, quality and performance
 187 management plans, and communications and customer care plans. The concessionaire then
 188 assumes responsibility for quality management and performance reporting. The government
 189 approves the concessionaire’s project plans and validates performance reports. While this model
 190 can conserve public resources, there must be significant consequences if the concessionaire
 191 falsifies or fails to provide the required information.

192 **Independent Engineers**

193 P3 contracts may also establish processes whereby an independent engineer or certified auditor is
 194 responsible for spot checks and audits of the facility. The independent engineer is generally used
 195 to assure the design and construction complies with the concession agreement technical
 196 requirements, but they can be used through all phases of project. As a rule of thumb, independent
 197 engineers are typically employed to monitor high risk areas, whereas self-reporting is used for
 198 areas of lower risk. The cost of the independent engineer’s services may be borne by the
 199 concessionaire or it may be split between the public agency and the concessionaire. By sharing the
 200 cost of the independent engineer’s services, the public agency may reduce the risk that conflicts of
 201 interest arise. In Australia, some P3 agreements have followed a reimbursable payment structure
 202 for independent engineers where the costs are shared up to an established threshold; beyond the
 203 threshold, the costs are borne by the concessionaire. The logic of this payment model is that costs
 204 beyond a certain threshold are likely the result of the need for increased oversight due to poor
 205 compliance by concessionaire.

206 Additional oversight or monitoring of the facility conducted by the government can be
 207 coordinated with the independent engineer. An independent engineer may also be hired by the
 208 lenders as a technical adviser, to ensure that the concessionaire will be able to meet performance
 209 targets and comply with contract specifications, or in the case of availability payments, to receive
 210 payments accordingly. While this engineer will represent the lenders’ interests, in many cases the

211 public agency's interest and the lenders' interest are aligned in terms of ensuring that the
212 concessionaire meets performance targets.

213 **Regular Meetings and Reports**

214 Most P3 monitoring regimes include regular monthly or quarterly meetings between the
215 government and the concessionaire for which performance reports are prepared and reviewed.
216 Such monthly performance reports typically are also required for the monthly payment from the
217 government to the concessionaire.

218 **Intelligent Transportation Systems**

219 P3 projects are increasingly using technology such as closed-circuit television and electronic
220 tolling systems to monitor and report operations performance. Intelligent transportation systems
221 (ITS) can be used to monitor toll operations, incident response and reporting, and traffic flows.
222 Florida DOT (FDOT), for example, uses video monitoring systems and other ITS features on I-595
223 to monitor traffic conditions, incidents, and toll operations in real-time and to generate monthly
224 performance reports.

225 **ASSESSING PAYMENTS AND PENALTIES FOR PERFORMANCE**

226 Most P3 agreements prescribe processes for penalizing noncompliance, but rewards for superior
227 performance are rarely used. The government is responsible for tracking concessionaire
228 performance and penalizing the concessionaire when
229 contractual obligations are not met. Before penalties
230 are assessed, P3 agreements typically prescribe a
231 series of actions that must be taken to notify the
232 concessionaire of the issue and a period of time to
233 correct the noncompliance issue after it is detected.
234 Penalties typically consist of payment reductions or
235 retentions or noncompliance or default points. Once
236 noncompliance or default points reach a specified
237 level, they can result in increased oversight, work by
238 the owner at the contractor's expense, suspension of
239 work, or termination of the contract. For I-595, for
240 example, if the concessionaire compiles 100 non-
241 compliance points in a 3-year period, FDOT may
242 increase levels of oversight. If noncompliance issues
243 are not rectified in a timely manner, FDOT may
244 reduce payments or even step in to fix the problem
245 itself at the concessionaire's expense. Capital
246 Beltway (I-495) employs a similar system of
247 performance points (see Table 4-3).

248 Contractors may prefer default points to financial
249 penalties because they may fear the public agency
250 will abuse financial penalties to meet short-term financial objectives. Furthermore, if the cause of
251 underperformance is lack of finances, fines may inhibit the concessionaire's ability to correct the
252 problem. On the other hand, if financial penalties are set too low, the concessionaire may lack
253 sufficient incentive to take corrective action or may perceive fines are simply part of the cost of
254 doing business. Default points incentivize performance without money changing hands by raising

Setting Penalty Provisions

Penalty provisions must be carefully crafted to achieve desired performance. For the London transit operations and maintenance concession, a provision penalized the concessionaire for the first 48 hours of a service interruption. The provision was intended to encourage the concessionaire to fix all service problems within 48 hours, but it had the opposite of the intended effect. Once a problem had gone unfixed for more than 48 hours, resolving it was no longer as high a priority, because the fines would not increase over time.

255 the risk of default. This in turn may raise the concerns to private lenders, who may then pressure
 256 the concessionaire to correct the issue.

257 **Table 4-3. Capital Beltway Performance Point Examples**

Heading	Subheading	Breach or Failure	Cure Period	Max Default Points
Communication	Public information	Issues factually incorrect information to the public	None	5
Operation	Work zone management	Fails to meet work zone safety requirements	60 minutes	5
Inspection	Quality of inspection	Fails to identify material defects in inspection reports, maintenance plans, or current work	None	5

258 *From: Key Performance Indicators in Public-Private Partnerships, 2011, FHWA*

259 **RESOLVING DISPUTES**

260 P3 contracts typically specify dispute resolution processes to reduce the risk of legal conflict over
 261 technical issues or differences in contract interpretation. Alternative dispute resolution processes
 262 may include mediation and third party arbitration following a period of time allowed for both
 263 parties to make good faith efforts to resolve the dispute themselves. Arbitration may be conducted
 264 by an agreed-upon expert or by a designated board with members selected by both the
 265 government and the concessionaire. In particularly large projects, a permanent, independent
 266 dispute resolution office may be established to quickly resolve any contract dispute.

267 P3 contracts typically specify alternative dispute resolution processes for various reasons
 268 including the speed advantage of these extrajudicial processes combined with the time sensitivity
 269 of many P3 projects. Professional arbitrators or mediators can be selected for their industry
 270 knowledge and will seek resolution through a collaborative non-adversarial process. Another
 271 consideration favoring alternative dispute resolution procedures on P3 contracts is that that the
 272 public agency may not be sued, even when in breach of the contract. This “sovereign immunity”
 273 can become an obstacle for the private sector to financing a project unless the agency waives this
 274 immunity in favor of contractually-defined alternative dispute resolution mechanisms.

275 Prior to mediation or arbitration, dispute resolution processes often define tiered systems of
 276 problem identification and resolution through negotiation to encourage problems to be resolved
 277 at the lowest levels. For example, on the Capital Beltway project, the contract specifies a process
 278 whereby the parties to the agreement are given a set time period to seek ways to resolve their
 279 dispute before it is elevated to their respective managers. In elevating the dispute, the parties
 280 must write a memo to their supervisor, summarizing the nature of the dispute and the steps they
 281 attempted to take to resolve the issue. This can serve as an incentive for parties to seek a speedy
 282 resolution to disputes.

283 In the worst case scenario, underperformance can lead to contract failure. Contract failure occurs
 284 when one party is unable or refuses to comply with a contract or the parties to an agreement are
 285 unable to resolve disputes concerning the meaning of contract specifications. Contract failure can
 286 result in the need to amend or renegotiate a contract, resolve disputes in courts, replace parties to
 287 an agreement, or terminate an agreement. These events may ultimately lead to higher costs for
 288 the public sector

289 **MANAGING CAPACITY EXPANSION**

290 Some P3 agreements set conditional rights or obligations to expand the facility. Capacity
291 expansion can be an option for the concessionaire or a requirement of the contract that is set to a
292 trigger mechanism such as revenue, usage levels, or operating speeds on the existing facility.
293 Capacity triggers can pose a significant financial risk to a concessionaire. If a capacity expansion
294 is triggered towards the end of an agreement, it can result in a significant cost to the
295 concessionaire for which the concessionaire cannot hope to make up from gained revenues. To
296 mitigate this risk, the contract may
297 stipulate adequate compensation to
298 the concessionaire if capacity
299 improvements are required by the
300 last years of the concession or may
301 allow for other means besides
302 capacity expansion to retain levels
303 of service on the facility by
304 improving operations or managing
305 demand through pricing or other
306 means. In some cases, scheduled
307 toll increases agreed to by the
308 public agency may forestall capacity
309 demands by dampening facility
310 demand. In other cases, capacity
311 expansion can be seen as a
312 desirable way for the
313 concessionaire to increase facility
314 revenues, and the concessionaire
315 may bid for the right of first refusal
316 to expand the facility.

317 **MANAGING HANDBACK**

318 P3 contracts generally specify the
319 condition in which the facility
320 should be at the end of the contract
321 term. The condition of a facility at
322 handback depends on the
323 maintenance and operation
324 procedures employed throughout
325 the lifecycle of the facility, so the
326 concessionaire is typically required
327 to develop a capital replacement or
328 asset management plan for
329 equipment, systems, and assets. In addition, the concessionaire may be required to develop a plan
330 that specifies the processes for turning operation of the facility to another party at the conclusion
331 of the contract. Review of handback conditions may involve the use of a third party to assess
332 remaining design life or the residual value of assets through inspections, materials testing, and a
333 review of the history of maintenance and capital investments. If the facility is not in acceptable
334 condition, the concessionaire may be required to make additional capital investments. To manage
335 the financial risks associated with handback, some P3 agreements require the concessionaire to

Renegotiation and Default

In some cases, contract terms have to be renegotiated to ensure that incentives remain aligned, performance standards remain achievable, or contract disputes are resolved. In the United States, several P3 agreements have been renegotiated, including: Dulles Greenway, Orange County SR91 Express Lanes, South Bay Expressway, and Pocahontas Parkway. Many of these renegotiations took place under the threat of default and resulted in refinancing with losses to equity partners and private lenders and bondholders. In several cases, ownership eventually reverted to the public sector. Renegotiations occurred because of lower than expected demand or because of disagreements over specific contract provisions. The Dulles Greenway project, for example, went into default in 1999, four years after it opened, after traffic levels did not meet expectations. The concession was refinanced, resulting in losses to the original equity lenders and bondholders, and the duration of the agreement was extended to 60 years to allow the sale of the concession to new owners. In the case of SR91, disagreements arose between the concessionaire and Caltrans over a clause in the agreement that prohibited expansion improvements of competing facilities within 1.5 miles of the SR91 right of way without the concessionaire's consent. To resolve the dispute and address congestion issues in the area, the Orange County Transportation Authority eventually purchased the concession from the concessionaire.

336 establish a handback reserve account that begins to accrue toward the end of an agreement and
337 may be used for unplanned repairs required prior to or shortly after handback of a facility to the
338 public owner. This handback reserve or replacement letters of credit typically serve to alleviate
339 uncertainties and unforeseen costs at the end of the concession, covering those repairs that may
340 be required prior to reversion of the project.

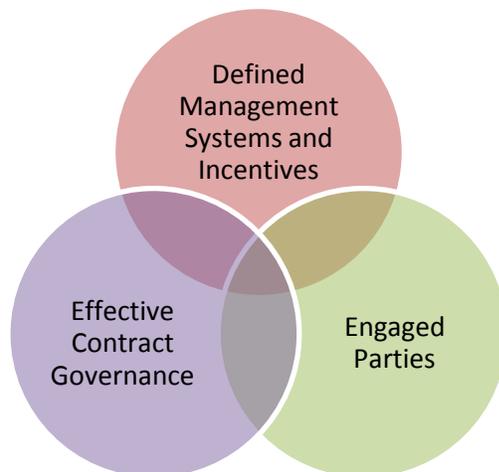
341 **SUCCESS FACTORS**

342 Performance management can address the risks of underperformance by:

- 343 • Designing a contract that aligns private sector incentives with public sector goals and
344 clearly defines performance standards and performance management systems;
- 345 • Assigning a competent, long-term team to govern the contract; and
- 346 • Establishing communication processes that facilitate an engaged and adaptive
347 relationship between the public and private parties.

348 These elements allow parties to a P3 agreement to effectively manage the risks that occur
349 throughout the term of the contract, allowing the private party to find the best way to meet its
350 contractual obligations while the public agency effectively safeguards the public interest (see
351 Figure 4-1).

352 **Figure 4-1. Elements of Effective Performance Management**



354

355 **Defined Management Systems and Incentives**

356 A critical factor in successful performance management is an agreement that aligns the interests
357 of the public agency and concessionaire over time by defining effective performance management
358 systems and compensation structures. Flexible, outcome-based performance management
359 systems are essential for P3 agreements because they allow the public agency to ensure that a
360 facility continues to meet policy goals over time. In designing and managing P3 contracts,
361 however, policymakers must consider the tradeoffs associated with designing a performance-
362 based contract. An effective performance-based contract is one that is sufficiently detailed to
363 ensure that potential bidders understand what their responsibilities will be over the term and
364 compete on their capability to meet those responsibilities efficiently, yet flexible enough to allow
365 for changing conditions and needs over time. Contracts can allow for flexibility by accounting for
366 contingencies that can be anticipated, such as the need for expanded capacity when usage reaches
367 a projected level. However, some changes may be more difficult to predict, such as the emergence

368 of new technologies. To account for such changes, P3 contracts typically define processes to adjust
369 performance specifications, amend contracts and resolve disputes.

370 The compensation structure of an agreement typically provides the primary incentive for the
371 private partner to meet performance standards. Incentives may vary depending on whether a
372 concessionaire's compensation is based on user fees or availability payments. Each arrangement
373 has pros and cons. Compensating the concessionaire with revenues from highway user fees
374 reinforces this incentive because retaining and attracting customers to the facility depends partly
375 on customer satisfaction with levels of service (particularly when many actual and potential
376 customers have viable travel alternatives). Users will make choices to use the facility based on the
377 convenience of the route and the quality of the ride, although the user may have few alternatives.
378 When contractor payments are not tied directly to facility usage, as in availability payments, the
379 incentive to provide quality service may not be tied directly to the choices of potential facility
380 users. Concessionaire incentives in an availability payment structure are instead tied to provisions
381 in the agreement that allow the public agency to withhold payments or apply default points if
382 performance standards are not met.

383 Longer contract terms can also be used to strengthen the incentives of the private partner to
384 perform, at least early on in the contract, because a failure to perform could lead to a loss in long-
385 term revenue. However, with longer terms, it is more likely that conditions and needs will change
386 and the contract will require amendment or renegotiation. Spanish P3s use a "rebalancing" model
387 that tries to reframe the economic balance of the concession over time. This model has not been
388 used in the United States or the United Kingdom, partially because such a rebalancing would
389 likely become a legal dispute.

390 **Effective Contract Governance**

391 The duration, size, and complexity of P3 agreements make them unlike most contracts public
392 agencies must manage. Public agencies often establish contract management teams to manage P3
393 contracts. Contract management teams need to have the skills, experience, and authority to
394 understand contract provisions, monitor performance, and manage changes and disputes. Public
395 agencies can promote effective contract governance by facilitating knowledge sharing between the
396 procurement teams and the contract management team, planning for skill and knowledge
397 retention over the period of the contract, and balancing the use of internal capacity and external
398 advisors in developing and retaining that knowledge and skill. Some public agencies have found
399 that the best way for the contract management team to understand and manage contract
400 provisions is for team members to have played a role in the development and negotiation of the
401 contract. Public agencies can also improve the sustainability of effective contract governance
402 practices by ensuring that decisions and processes are documented and that succession planning
403 takes place. These skills are discussed in Chapter 5, Organizational Capacity.

404 **Engaged Parties**

405 An adaptive contractual arrangement requires active cooperation between the government and
406 the concessionaire throughout the agreement. The hallmarks of active cooperation are a mutual
407 recognition of shared goals, clear lines of communication at both the strategic and the tactical
408 level, and open information sharing. The relationship between the two parties can be expected to
409 evolve over time and the learning curve may be steep for both parties. Mechanisms such as
410 regularly scheduled face-to-face meetings can facilitate the development of an effective
411 relationship. To maintain this relationship, enforcement mechanisms should be used consistently
412 and proportionally.

413 **SUMMARY**

414 In a P3 agreement, the public agency's role shifts from that of facility operator and overseer to
415 that of performance-based contract manager. Public agencies must be deliberative and judicious
416 in negotiating and managing this new role. The establishment of a well-defined performance
417 management regime, a strong contract management team, and an open and engaged relationship
418 with the concessionaire can be key to the long-term success of a P3 project. While external risks,
419 such as economic downturns, can always threaten the performance of a P3, performance
420 management systems help agencies and concessionaires manage the risks that they can control
421 and understand and adapt quickly when conditions change. This can help to ensure contract
422 performance while avoiding the potentially costly consequences of contract refinancing,
423 renegotiation, or default.

424 **RESEARCH QUESTIONS**

- 425 • How do P3s perform differently over the long-term than traditionally managed projects?
426 What innovations in lifecycle cost, operations, maintenance, etc., have concessionaires
427 identified, if any?
- 428 • What are typical performance metrics used in highway P3s?
- 429 • What are some lessons learned from performance metrics over time? Have some metrics
430 been too flexible or too rigid?
- 431 • What penalties and default provisions are most effective at ensuring performance over
432 time?
- 433 • Why don't P3 contracts feature rewards for superior performance, instead of penalties?
- 434 • What are typical handback provisions?
- 435 • What are lessons learned in establishing handback provisions?
- 436 • What impacts have contract renegotiations had on performance measures? How were
437 these changes made and for what reasons?

438

1

2

3

4

ORGANIZATIONAL CAPACITY

5

6

KEY FINDINGS

- 7 • Developing, negotiating and managing P3 agreements is resource intensive and requires
8 specialized skills not traditionally retained in public agencies. Public agencies face challenges
9 acquiring or developing the political, legal, technical, financial, and managerial skills needed
10 to reach P3 agreements that protect the public interest.
- 11 • Leadership at all levels is required to facilitate overcome organizational challenges to efficient
12 P3 project delivery. Potential challenges include a public sector culture uncomfortable with
13 transferring a greater degree of control of projects to the private sector and project
14 development processes that are not conducive to the multidisciplinary approach required to
15 identify, evaluate, procure and manage P3 agreements.
- 16 • Strategies public agencies have used to address organizational capacity needs include hiring
17 private advisors, developing capacity internally, and creating specialized offices or agencies to
18 address P3 opportunities and challenges programmatically.

19

20 5. ORGANIZATIONAL CAPACITY

21 INTRODUCTION

22
23 This chapter examines the organizational capacity challenges that State and local governments
24 face in considering and implementing public-private partnerships (P3s). The first part of this
25 chapter describes the capabilities that a public agency needs to implement P3s at each stage of
26 project delivery, followed by a discussion of the organizational challenges of P3s. The last section
27 explores strategies for developing organizational capacity.

28 Building the organizational capacity needed to develop P3s while protecting the public interest
29 presents a major challenge to transportation agencies. To identify, develop, negotiate, and
30 manage agreements with private partners, transportation agencies will need capabilities they
31 have not traditionally possessed. Agencies will need to acquire or develop new policy, legal,
32 technical, financial and managerial skills and establish processes and structures, such as
33 specialized P3 units, that allow them to apply those skills in a multidisciplinary way.

34 Changing the way some projects are delivered will require public actors to approach project
35 delivery from a different perspective. To design partnerships that are both in the public interest
36 and attractive to private investors, public agencies will need to gain a better understanding of
37 private sector interests as well as public demands. In many agencies, this will require a cultural
38 shift as responsibilities and risks that are traditionally retained by the public sector are
39 transferred to the private sector. Managing the organizational changes needed to develop,
40 implement, and monitor P3s will require agencies to involve and educate agency staff and
41 external project stakeholders to build committed leadership at multiple levels.

42 WHAT ARE P3 ORGANIZATIONAL CAPACITY NEEDS?

43 To deliver P3 projects, a public agency will need to acquire or develop new knowledge, skills, and
44 abilities that vary by phase of project development:

- 45
46 **Phase 1:** Establish a Statutory and Policy Framework;
47 **Phase 2:** Identify and Evaluate Potential P3 Projects;
48 **Phase 3:** Prepare and Conduct Procurement; and
49 **Phase 4:** Monitor Outcomes.

50
51 For each phase, agencies need a mix of five capability types:

- 52 • policy,
53 • legal,
54 • technical,
55 • financial, and
56 • managerial (see Figure 5-1).

57 Figure 5-1. Agency Organizational Capacity Needs



58
59

60 These are explored below by phase.

61 **Establish a Statutory and Policy Framework**

62 A State’s statutory framework, as described in Chapter 3, typically determines the types of P3
 63 arrangements that are allowed and may define project selection, funding, management and other
 64 policies. Beyond the enabling legislation, agencies may establish specific policies that guide P3
 65 project development. The skills required to establish and implement a statutory and policy
 66 framework are summarized in Table 5-1.

67 **Table 5-1: Skills to Establish and Implement Statutory and Policy Framework**

Skill Type	Description
Policy	<ul style="list-style-type: none"> • Develop and seek authorization for legislation. • Serve as program champion and serve as liaison with the public. • Establish goals, policy and legal framework for the overall P3 program. • Align P3 program goals with overall agency goals and mission. • Align P3 program with Federal requirements. • Provide policy guidance. • Develop regulations and rules.
Legal	<ul style="list-style-type: none"> • Draft legislation. • Draft legal framework for the P3 program.
Financial	<ul style="list-style-type: none"> • Provide financial guidance to policy makers in developing the overall framework. • Develop financial requirements for the evaluation of proposals. • Determine financial capacity for P3 program and overall transportation program. • Identify financial tools available to public agency.
Technical	<ul style="list-style-type: none"> • Aid in developing technical requirements for the program framework. • Develop matrix of technical risks.

	<ul style="list-style-type: none"> • Develop project identification and screening guidelines. • Determine transportation needs within context of transportation planning process. • Integrate P3 concept into planning, programming, and design.
Managerial	<ul style="list-style-type: none"> • Determine performance management goals and objectives for program and projects. • Serve as liaison to other agencies (both permitting and advisory).

68

69 **Identify and Evaluate Potential P3 Projects**

70 Identifying projects that have the potential to be delivered as P3s early on in the planning process
 71 allows agencies to more carefully consider how P3s fit into their long term performance objectives
 72 and fiscal constraints. Early identification can help to position P3 projects for success by ensuring
 73 that the P3 delivery model is considered in the scoping, preliminary design, and environmental
 74 review of the project. To effectively identify projects with the potential for P3 delivery, agencies
 75 need to build the capacity of transportation planners and project engineers to evaluate proposed
 76 projects for their potential to be delivered as a P3 and compare P3 delivery to other delivery
 77 methods.

78 Evaluating the feasibility of a P3 project requires estimating the potential life cycle costs of the
 79 project, the value of long term revenue streams, and the value of transferring specific risks to the
 80 private sector. Similarly, tax expertise is needed to assess tax benefits and obligations that may
 81 accrue to the private partner in a long term agreement. Public agencies can evaluate the potential
 82 feasibility and value of a P3 agreement through technical planning and engineering studies,
 83 including:

- 84 • **Traffic and revenue studies** – estimate future traffic levels and revenues based on
 85 various scenarios. The traffic and revenue study is essential for estimating the value of
 86 potential user-based fees as well as the overall public benefit of a project.
- 87 • **Preliminary engineering studies** – help to establish cost estimates for construction
 88 as well as for long term maintenance and operations of a facility.
- 89 • **Financial models** – used to understand project cash flow requirements and rates of
 90 returns under different conditions.
- 91 • **Value for money analyses** – compare the life cycle costs and benefits of different
 92 procurement approaches.

93 The primary skills required to identify and evaluate potential P3 projects are summarized in Table
 94 5-2.

95 **Table 5-2: Skills to Identify and Evaluate Potential P3 Projects**

Skill Type	Description
Policy	<ul style="list-style-type: none"> • Determine the extent to which a potential project may address public agency goals or achieve public benefits • Make decision on whether or not to proceed with P3 procurement.
Legal	<ul style="list-style-type: none"> • Interpret implications of laws on project liabilities, cash flows, and revenues.
Financial	<ul style="list-style-type: none"> • Develop a finance plan, including identification of Federal aid, joint development and other innovative finance techniques.

	<ul style="list-style-type: none"> • Assess potential project cash flows. • Identify potential financial risks. • Conduct a value for money analysis.
Technical	<ul style="list-style-type: none"> • Identify potential permitting requirements for program projects. • Conduct preliminary technical studies (traffic/revenue, engineering, environmental). • Prepare project cost estimates. • Identify potential project risks. • Recommend which technical components should be contained within the P3 and which should be retained in-house (design, environmental, maintenance, etc.).
Managerial	<ul style="list-style-type: none"> • Recommend whether to proceed with P3 procurement. • Recommend structure of preferred P3 procurement (Design-Build, Design-Build-Operate-Maintain, etc.). • Serve as project lead and coordinate overall effort. • Solicit proposals and receive non-solicited proposals. • Review and evaluate work of technical experts.

96

97 **Conduct Procurement**

98 P3 procurement requires greater flexibility than traditional procurement to allow for innovation
 99 on the part of bidders and for more room to negotiate with multiple stakeholders. Flexibility is
 100 needed in negotiating a final agreement to ensure that it is deemed creditworthy by commercial
 101 lenders and provides an adequate return on investment to attract private equity investors. A
 102 public agency may want to have experienced legal and technical advisors to help negotiate with
 103 the private partner.

104 During procurement, agencies need financial expertise to assess the financial quality of the bids
 105 and technical expertise to assess the qualifications of the bidder. The decision to go ahead with a
 106 P3 project often rests on a value for money analysis of a potential agreement. Conducting a value
 107 for money analysis requires the public agency to have the capability to evaluate the value of a
 108 project and compare the costs and benefits of the potential P3 arrangement to those of a
 109 traditionally delivered project.

110 The key skills required to conduct a P3 procurement are summarized in Table 5-3.

111 **Table 5-3: Skills to Conduct Procurement**

Skill Type	Description
Policy	<ul style="list-style-type: none"> • Review allocation of risk between public agency and private sector. • Make decision on whether to proceed with P3 procurement. • Negotiate P3 procurement. • Sign and justify final agreement.
Legal	<ul style="list-style-type: none"> • Identify legal risks and liabilities. • Draft agreement. • Prepare requests for qualifications (RFQ) and proposals (RFP). • Negotiate P3 procurement and prepare final agreement. • Assist in managing and overseeing outside legal advisers and

	coordination and consultation with control agencies
Financial	<ul style="list-style-type: none"> • Develop plans for sharing of financial risk. • Identify revenue sources. • Develop a finance plan. • Conduct a value for money analysis. • Assist in managing and overseeing outside financial advisers. And coordination and consultation with control agencies
Technical	<ul style="list-style-type: none"> • Define technical specifications, performance standards and evaluation criteria. • Develop plans for sharing of technical risks. • Conduct preliminary technical studies. • Prepare project cost estimates. • Propose allocation of technical risks.
Managerial	<ul style="list-style-type: none"> • Recommend whether to proceed with P3 procurement for specific proposals. • Serve as project lead and coordinate overall effort. • Review and evaluate work of internal and outside experts.

Monitor and Oversee a P3

After the agreement is signed, the public agency must manage the contract to ensure that it achieves the performance standards established in the agreement. Contract management responsibilities include:

- Monitoring of technical and financial performance;
- Authorization of payments;
- Review and preparation of required records and reports;
- Change management; and
- Dispute resolution.

Contract management is inherently an in-house responsibility for the public agency. While private advisors are typically retained through financial close, the need for additional technical, legal, and financial capabilities often continues throughout the agreement. In addition, when conflicts arise or, in the extreme case, when an agreement must be terminated, legal expertise is needed to mediate and resolve disputes.

The performance monitoring and oversight phase will require building a strong set of skills within the public agency due to the need to maintain these oversight responsibilities in-house. This includes the need for contract management skills to monitor the established performance standards and manage accordingly. In addition, the capacity to monitor technical performance during construction and operations can be critical to ensuring efficient service delivery.

Throughout the agreement, the public agency may be overseeing different private parties. In addition to the initial project concessionaire, the public agency will likely have a role in monitoring the activities of separate subcontractors responsible for construction and operations and maintenance. Also, concessions may change hands once the initial ramp up risks have diminished, in which case the public agency may perform oversight of different parties.

Specific skills needed for performance monitoring and oversight are shown in Table 5-4.

138
 139

Table 5-4: Performing Monitoring and Oversight

Skill Type	Description
Policy	<ul style="list-style-type: none"> • Provide policy guidance and dissemination of public information. • Evaluate project within context of overall P3 program.
Legal	<ul style="list-style-type: none"> • Oversee contract interpretation, dispute resolution and related legal issues.
Financial	<ul style="list-style-type: none"> • Review and approve updated finance plans. • Monitor financial risks. • Monitor cash flow and debt streams.
Technical	<ul style="list-style-type: none"> • Collect and analyze data. • Monitor construction and operations. • Provide technical advice on performance standards.
Managerial	<ul style="list-style-type: none"> • Serve as project lead and coordinate overall effort. • Monitor whether performance standards are achieved. • Review and evaluate work of outside experts.

140
 141
 142
 143
 144

OVERVIEW OF ORGANIZATIONAL CHALLENGES

Transportation agencies seeking to explore and develop P3s face a number of organizational capacity challenges. Table 5-5 summarizes the primary challenges, some of which are discussed further in this section.

Table 5-5: Organizational Capacity Challenges

Challenge	Description
Acquiring/Developing New Skills	Specialized technical, legal, financial and managerial capabilities will need to be developed in-house.
Managing Organizational and Cultural Changes	Public employees will need to become accustomed to transferring certain responsibilities and risks to private partners as part of the project development process.
Coordinating With and Educating Others	Agencies will need to communicate effectively with more project stakeholders than in traditional procurements. In addition, agencies will need to communicate about P3 models and other topics for which they may never have developed information or outreach materials.
Conserving Institutional Knowledge	Agencies will need to develop capabilities to monitor projects over the long-term – terms that may extend well beyond the career tenure of current employees and leadership.

145
 146
 147
 148
 149
 150
 151

Acquiring/Developing New Skills

Public agency project managers will need to consider numerous factors they may never have had to consider previously to ensure that P3 projects uphold safety, design, environmental and fiscal standards and meet public agency goals. In many P3 arrangements, the agency’s responsibility for design and construction engineering is reduced, since these are done by the private partner. Instead, the agencies become responsible for contract management and oversight of the private partner.

152 Agencies will need to learn how to establish performance standards rather than construction
153 specifications. This may involve a culture change for public agency engineers, who are used to, for
154 example, specifying standards based on use of certain materials rather than performance. While
155 this role can be outsourced, the development of the goals themselves – whether safety, congestion
156 management, aesthetics, or other project characteristics – should probably remain with the
157 agency. This change in roles may lead to a shift in the types of technical skills within an agency as
158 there may be less need for hands-on design, and more need for broader performance setting and
159 project management and oversight.

160 **Managing Organizational and Cultural Changes**

161 Transportation agencies may need to examine current structures in order to be able to
162 successfully identify, develop and implement P3s. Most transportation agencies do not have a
163 dedicated “owner” of the P3 development process. Only a few State DOTs currently have an
164 established P3 Program with a dedicated P3 staff. States with existing design-build programs or
165 toll facilities may be more likely to have at least some of the skills and structures in place to
166 facilitate P3 project development than States without design-build programs or toll facilities, who
167 may be effectively starting from scratch.

168 A major institutional barrier to effective P3 project development is the traditional division of
169 project development responsibilities and authorities into multiple offices and, sometimes,
170 agencies. Financial, procurement, and engineering expertise and authority generally are housed
171 in different offices. For example, the authority and expertise to issue debt and understand and
172 manage complex financial agreements may often be in a different agency from the one that
173 identifies, develops and delivers transportation projects. This organizational structure may make
174 sense for traditional project development processes steps that are often sequential, so that
175 environmental, planning, engineering and financial experts may not have to coordinate closely in
176 order to deliver a project. However, in developing a P3, many of these steps need to happen on an
177 iterative basis, requiring more frequent interactions and internal coordination. For example, a
178 public agency may need to consider how the alignment selected for the project affects both the
179 financial and environmental aspects prior to the RFP, and then reevaluate how any changes
180 proposed to the alignment in the winning proposal may change the outcome of that evaluation. In
181 addition, by considering project funding and procurement issues early in the project development
182 process, rather than at the end of the process, decisionmakers may be in a better position to take
183 advantage of potential P3 opportunities. Developing projects iteratively, rather than sequentially,
184 may require forming and managing multidisciplinary teams that understand the interactions of
185 various technical, financial and legal factors and can facilitate an iterative project development
186 process.

187 To manage organizational and culture changes, champions at all levels are needed. In some cases,
188 the champion may be the governor; in others it may be a legislator, agency director, or
189 community or business leader. A P3 champion can communicate the business case and public
190 good for P3s (both within public agencies and among stakeholders), gather support for the
191 concept, facilitate the streamlining of processes and organizational change, set and manage
192 expectations, and provide assurance to the private sector of the public sector’s commitment to the
193 P3 model. Beyond the champion at the top, champions within the transportation organization
194 need to lead the organizational changes demanded by P3s.

195 While champions are needed, it is important for the champions to understand the risks and
196 rewards of pursuing a P3 within the context of the overall transportation program. P3s are not the

197 answer to every infrastructure problem, and champions need to be careful about not overstating
198 the benefits of P3s or understating the costs.

199 **Coordinating With and Educating Others**

200 P3s are generally large projects with significant impacts on local populations and economies. In
201 many ways, they may generate controversy, much as any other major project will. However, in
202 accelerating project delivery, the P3 approach accelerates and condenses the political negotiation
203 and consensus building process. Furthermore, certain features of P3s may make them more
204 vulnerable to public controversy: they are often toll-financed; they may require allocations of
205 public funds or tolls to private firms over long time periods; and they involve private firms that
206 are typically large and often foreign and that stand to profit from those public funds or tolls.
207 Finally, P3s also have complex structures that involve a large number of diverse stakeholders with
208 a range of responsibilities and interests, as described in Table 5-6. For a P3 approach to be
209 successful, the interests and capabilities of these diverse stakeholders need to be taken into
210 account.

211 **Conserving Institutional Knowledge**

212 To conduct oversight of long-term concessions, agencies need to develop their internal
213 capabilities with the understanding that staff may retire or leave and that the demand for specific
214 capabilities may fluctuate over time. Building robust capabilities and documenting institutional
215 knowledge, processes and guidelines is important for maintaining those capabilities over time.
216 Currently, most States lack a steady flow of P3 projects, making it difficult to predict staffing and
217 resource needs. But, as projects are identified, developed, procured and implemented, capacity
218 needs, particularly for performance monitoring, will need to be identified and filled.

219
220

Table 5-6: Potential P3 Stakeholders

Stakeholder		Role/Interest
Public Agencies	Project Development Agency	Manages project development and procurement; may sign the P3 contract.
	Permitting Agencies	Issue permits to enable projects to proceed.
	Bonding Agency	Issues publicly sponsored debt; may be the same as or different from the project development agency.
	Private Advisors	Provide technical, financial and legal advice; contracted by the project development agency.
	Other Funding Agencies	May contribute funding to the project.
Elected Officials	State Legislators	Develop enabling legislation for P3s and may play a role in project identification (through legislation) and approval.
	Other local and State Officials	May play a role in project identification, selection, approval and funding.
Private Partners	Equity Participants	Invest money in the project in exchange for long term returns.
	Concession Company (individual company or consortium of companies)	Contracts with the project development agency to provide services such as design, construction, operations, maintenance, and financing.

	Local subcontractors	May contract with project development agency to provide services.
	Lenders (private & public)	May finance the project.
General Public	Voters/Taxpayers	Help identify transportation needs, fund the project through tax revenues, and/or approve public financing.
	Facility Users	Benefit from the use of the facility and may contribute funding through tolls or other means.
	Abutters	Concerned about property values and takings.
Interest groups	Interest groups (environmental, business, and other)	Provide input on issues that may or may not be directly linked to the P3 procurement method.

221 Adapted from <http://www.ncsl.org/documents/transportation/PPPTOOLKIT.pdf>

222 **STRATEGIES FOR ADDRESSING ORGANIZATIONAL CAPACITY**

223 Public agencies have acquired new capabilities through outsourcing, training or hiring to develop
 224 internal capacity, or establishing new P3 units. While not mutually exclusive, each approach has
 225 its strengths and limitations (see Table 5-7).

226 The public agency is responsible for protecting the public’s interest, setting policy goals and
 227 objectives, administering the procurement process, and overseeing the agreement. Other
 228 capabilities can be outsourced or handled in-house, depending on the anticipated volume of work
 229 to be done. It may not be worthwhile for an agency to hire in-house experts or create a P3 unit for
 230 a single transaction.

231

232

Table 5-7: Strengths and Cautions/Constraints of P3 Capacity Building Models

Capacity Building Model	Strengths	Cautions/Constraints
Hire Consultant Advisors	Quick to acquire as needed.	Need to select effective advisors. Services may be perceived as expensive. Risk of real or perceived conflicts of interest. Use of consultants is often regulated by statutes/rules outside the P3 statute.
Train Internally and/or Hire New Staff	Builds bottom-up capacity to identify P3 projects as well as capacity to manage external advisors.	Takes time and resources to train staff. Staff may lack incentives or background to learn new material. Still likely to require outside advisors to start.
Establish State P3 Unit	Can address P3 needs programmatically. Enhances private sector confidence that the public sector will be a strong client/partner.	P3 opportunities may be sporadic and may not justify a dedicated unit. Even with a specialized unit, additional experts may be needed from other government agencies or consultants. May be politically complicated where public agency ownership or governance is fragmented.

233

Potential Roles for Consultant Advisors

234

235

236

237

238

239

240

241

242

243

Especially when a public agency is just beginning a P3 program, the needed skills, knowledge and perspectives will not be easy to cultivate in-house, so the agency will likely bring on consultant advisors for legal, technical, and financial advice. While qualified consultant advisors in the P3 arena may be more costly on a per hour basis than public agency employees, they usually bring specialized skills that it may not be cost-efficient for the agency to maintain in-house on a permanent basis. This is because opportunities to work on a P3 project may be sporadic, making it difficult for public agencies to develop and maintain the specialized skills necessary to develop and negotiate a P3. Consultant advisors can bring expertise from other engagements and do not need to find continuing roles in the agency organization once their work is complete.

244

245

246

247

248

249

250

Agencies need to understand how to select competent advisors whom they can trust. There is no certification process for P3 consultants. Many private firms do not have expertise in implementing a full range of financial tools and arrangements; as a result, they may recommend only the approach they know best, ignoring potentially better opportunities. Furthermore, while many advisors in the P3 arena may have international experience, not all international experience is relevant. International firms may lack an understanding of the U.S. market and potential financial tools.

251 When hiring external advisors, it is important to consider which roles are appropriate for the
 252 consultants and which are more appropriate for a public agency to keep in-house (see Table 5-8).
 253 Some roles are inherently a public sector responsibility. A public agency should drive and manage
 254 the process, set the program’s direction, identify potential projects, select bidders, and manage
 255 contracts. Private sector expertise is more often used for well-defined tasks, such as developing a
 256 financial model, advising as to the optimal financial structure and contract provisions, and
 257 assisting with the negotiation of the final agreement.

258 Public agencies also need to be aware of potential conflicts of interest with any outside advisors it
 259 hires. In order to ensure independent advice and analysis, public agencies need to ensure that the
 260 advisors do not have any conflicts with advising private sector partners either engaged in or
 261 bidding on a potential P3 project. As one State DOT official noted, “it is important to worry about
 262 both the substance and the optics of whom an agency hires.”

263 **Table 5-8: Typical Public and Private Roles**

Role	Public Agency	Consultants
Program Direction	<ul style="list-style-type: none"> Sets overall program direction and program and project goals. 	<ul style="list-style-type: none"> Not applicable.
Project Selection	<ul style="list-style-type: none"> Screens and selects projects 	<ul style="list-style-type: none"> Technically evaluates potential projects.
Project Evaluation	<ul style="list-style-type: none"> Makes decisions regarding the structure of the agreement based on evaluation. 	<ul style="list-style-type: none"> Prepares traffic and revenue studies. Conducts value for money analysis and provides financial advice.
Project Procurement	<ul style="list-style-type: none"> Sets RFQ and RFP goals. Selects partners and bids. Leads final negotiations. 	<ul style="list-style-type: none"> Develops language for RFQ and RFP. Advises on contract structure and risks. Assists final negotiation.
Project Monitoring	<ul style="list-style-type: none"> Monitors performance and administers contract. 	<ul style="list-style-type: none"> Assists with inspections and performance monitoring.

264

Training and Peer Exchanges to Build Capacity

265 Whether or not public agencies use external advisors, they will need to train or hire internal staff
 266 to be capable of understanding and managing the project development process and managing the
 267 agreement once it is signed. Developing the skills to manage the P3 process can be done through
 268 training existing staff as well as hiring new staff. In some cases, external advisors hired for their
 269

Resources for case studies and other educational resources, such as guides and manuals, dealing with P3s:

- FHWA Office of Innovative Program Delivery. www.fhwa.dot.gov/ipd
- AASHTO Center for Excellence in Project Finance. www.transportation-finance.org
- National Council for Public Private Partnerships. www.ncppp.org
- National Conference of State Legislatures. www.ncsl.org

270 technical, legal or financial expertise can also be used to conduct training of internal staff.

271 In 2008, FHWA and AASHTO surveyed State DOTs regarding their experience in P3s and their
272 training needs. State DOTs varied in their experience with P3s and their self-assessed readiness to
273 implement P3s. State DOTs with more experience implementing P3s were more likely to indicate
274 an interest in training. A majority of the State DOT representatives indicated a need for advanced
275 training in topics of contracting, management, finance, and risk management. Specifically, State
276 DOT representatives believed their organizations would benefit the most from training in:

- 277 • Common failures of P3 contracts and how they are addressed;
- 278 • Techniques for monitoring technical and financial performance;
- 279 • How to assess the economic costs and benefits of projects; and
- 280 • Assessing risks to both partners at each phase of a project.

281 As the P3 market matures in the United States, agencies can learn from their peers in other
282 organizations. Peer exchanges are one way public agencies can develop internal capacity. Closely
283 reviewing case studies is another way.

284 **Specialized P3 Units**

285 In the United States, the authority to develop transportation P3 agreements typically rests with
286 State DOTs, but is sometimes extended to municipalities or regional authorities (such as the City
287 of Chicago, Regional Mobility Authorities in Texas, or Regional Transportation Agencies in
288 California), or with another department within the State with the power to issue debt—typically
289 Administration and Finance or Treasury Departments. A model increasingly used by States and
290 other countries to address P3 organizational capacity is the specialized P3 unit. A P3 unit can be
291 any institution, office, or team set up to support the development, implementation and evaluation
292 of P3s. P3 units are typically staffed with sector-specific experts as well as experts in economics
293 and finance, regulation, procurement, communications and training. Many of the countries that
294 are the most active users of P3s for project delivery have P3 units.

295 The roles and responsibilities of a P3 unit may include:

- 296 • **Providing technical assistance and training on P3 project development and**
297 **procurement.** This centralization of knowledge can save money and allow for a more
298 consistent approach.
- 299 • **Helping to identify a pipeline of potential P3 projects and prioritize those**
300 **opportunities.** P3 units can help to promote a standardized programmatic approach to
301 the development of P3s.
- 302 • **Providing regulatory oversight and screening of P3 projects.** P3 units often act
303 as gatekeepers to ensure that risks are accounted for and value for money is achieved.
- 304 • **Promoting the P3 program by soliciting projects, attracting potential**
305 **partners and investors, and educating the public.** P3 units may raise private
306 sector interest and confidence in P3 investments as potential partners may feel they have
307 a more experienced and capable client team with whom to negotiate agreements.

308 P3 units can be housed within government departments, or run as privately or publicly owned
309 corporations funded by fee-for-service. In the United States, P3 units are State-based and
310 typically have a small dedicated staff of employees with engineering, legal and financial
311 specializations who report to a CEO or Executive Director. The P3 staff is generally supplemented
312 by expert advisors (government employees or consultants) who may be relied on for specific

313 technical, legal and financial tasks. The P3 unit typically reports to a board or committee charged
314 with oversight responsibilities. Authority to sign P3 agreements may rest with the director of the
315 P3 unit, the commissioner of the board, or the director of the agency where the P3 unit is housed.

316 P3 units can facilitate a programmatic approach to project identification and assessment.
317 Programmatic evaluation has the advantage of allowing P3 projects to be identified earlier in the
318 planning and scoping process, allowing the public sector to better manage its limited resources.

319 In recent years, several U.S. States and territories (e.g., Georgia, Virginia, and Puerto Rico) have
320 established P3 units, but their experience thus far has been limited. Georgia passed renewed P3
321 legislation in 2009 that established a P3 program team within Georgia DOT. With the support of
322 external advisors, the team developed a policy framework and guidelines for developing P3s,
323 identified potential P3 projects, and began the procurement process for several projects. Puerto
324 Rico established the Public Private Partnerships Authority (P3A) with the goal of promoting
325 private investment in public infrastructure ranging from schools to airports and highways. In
326 October 2010, P3A began the procurement process for the long term lease of one of its primary
327 toll roads, PR-22, currently operated by the Puerto Rico Highways and Transportation Authority.

328 **INTERNATIONAL EXPERIENCE WITH P3 UNITS**

329 The experiences of the development of the P3 market in the United Kingdom, Canada and
330 Australia provide several well-established models for P3 units.

331 **National P3 Units - Partnerships UK**

332 Partnerships UK is perhaps the most prominent example of a national P3 entity that provides
333 advice, technical assistance, and guidelines for other units of government. Partnerships UK was
334 established in 1999 as part of an effort to reform and bring order to privatization efforts. Earlier
335 privatization efforts were criticized for not generating enough public value, raising prices, and
336 reducing services. The goal of Partnerships UK is to increase investment in public services and
337 increase the efficiency of public service delivery. Partnerships UK does not focus exclusively on
338 transportation projects but rather supports a broad range of publicly delivered services including
339 utilities, hospitals, prisons and schools.

340 Establishing Partnerships UK was the recommendation of the Bates Review, a 1997 review of
341 government efforts to privately finance public services. The Bates Review recommended that a
342 national task force be established to support the use of P3s. The task force was made up of staff
343 recruited from the private sector with specialized project management and financial experience.
344 Its role was to evaluate potential P3 projects before procurement commenced and advise on
345 contractual terms and conditions. The task force was widely considered a success and, following a
346 subsequent review in 1999, was made permanent in the form of Partnerships UK.

347 A second Bates report found that P3s required a range of skills that would be difficult to develop
348 in the civil service. Therefore, Partnerships UK was itself established as a P3 and managed on
349 private sector principles, rather than as part of the civil service, to better enable it to recruit and
350 retain the private sector skill base required to support the public sector.

351 Partnerships UK has operational independence from Her Majesty's Treasury and 51 percent
352 private equity ownership. It operates primarily on a fee-for-service business model. The chief role
353 of Partnerships UK is to provide technical assistance and financial tools to support the public
354 sector's development of specific P3 projects. Partnerships UK has a staff of over 80 employees and

355 has been involved in over 900 projects worth well over US\$100 billion since it was launched. A
356 separate, smaller P3 policy team housed within the Treasury is responsible for approval of
357 projects and the development of nationwide policy guidance.

358 **Partnerships British Columbia (Canada)**

359 Partnerships British Columbia (Partnerships BC) is one of three provincial P3 units in Canada
360 (Infrastructure Ontario and Public-Private Partnerships Quebec are the other two and there is
361 also a Federal P3 unit, Partnerships Canada). Partnerships BC was established in 2002 as a public
362 corporation governed by a Board of Directors and reporting to its sole shareholder: the Minister
363 of Finance. It has a full-time staff of approximately 40 and is based on a fee-for-service business
364 model. To date, Partnerships BC has been involved in over 35 P3 projects with a combined value
365 of over US\$12 billion. The role of Partnerships BC is to act as a center of procurement expertise to
366 assist with the evaluation, structure and implementation of P3s for public infrastructure in
367 transportation, health, education, water and sewage, and other sectors. Partnerships BC provides
368 a variety of services including:

- 369 • Research and dissemination of best practices;
- 370 • Evaluation of risks, value for money and procurement options;
- 371 • Development and evaluation of standardized procurement processes; and
- 372 • Project management and construction oversight.

373 **Partnerships Victoria (Australia)**

374 Partnerships Victoria, established in 2000, is the P3 unit within the State Government of Victoria
375 and is also the name of the overall policy framework established for P3 by the State. There are
376 currently 21 Partnerships Victoria projects in place, valued at approximately US\$10 billion.
377 Partnerships Victoria is a unit with the Commercial, Infrastructure and Risk Management Group
378 – a part of the Commercial Division of Victoria’s Department of Treasury and Finance.
379 Partnerships Victoria has a staff of 12 full-time employees with backgrounds in banking, law,
380 economics, finance and engineering. The role of Partnerships Victoria is to work with the
381 Treasury to facilitate the P3 approval process, develop policy, and to provide expert commercial
382 advice, training and materials to procuring ministries. Partnerships Victoria offers a number of
383 courses and conferences to build public sector capacity to develop and manage P3s, including
384 courses in:

- 385 • P3 basics;
- 386 • P3 business case development;
- 387 • P3 evaluation and approval processes;
- 388 • P3 procurement; and
- 389 • P3 contract management.

390 **SUMMARY**

391 To identify, develop, and procure P3 projects requires a multidisciplinary approach that combines
392 policy, financial, technical, legal and managerial skills. Most agencies have traditionally
393 approached these aspects of project development separately. Not only will agencies need to
394 acquire or develop new skills that they have not traditionally utilized; they will need to change
395 their structures, processes and mindsets to be able to apply these skills in combination.

396 Public agencies have employed a variety of strategies for building organizational capacity
397 including the development of specialized P3 units, the use of external advisors, and the training

398 and hiring of staff. Each approach has strengths and weaknesses and they are not mutually
399 exclusive. Most public agencies rely on external advisors to varying degrees to develop program
400 policies and processes, evaluate projects and agreements, and provide training to agency staff.
401 Internal training of agency staff can provide long term benefits that hiring external advisors may
402 not, such as enhanced project identification and stronger contract management. Developing the
403 capacity to implement a P3 program can help to catalyze private infrastructure investment, but
404 without a pipeline of potential P3 projects, investment in permanent staff positions may not be
405 warranted. Finally, capacity building efforts should not solely focus on the agency responsible for
406 delivering the project. Varying degrees of understanding and capacity are needed across agencies
407 at all levels of government to effectively implement P3s.

408 **RESEARCH NEEDS**

409 Additional research can help determine what skills, structures, and resources can best prepare
410 agencies for evaluation and implementation of P3s, as well as how these needs can be met most
411 effectively. Research questions include:

- 412 • What lessons have been learned about organizational capacity in the implementation of
413 past P3s? What skills/resources/organizational structures have contributed most to
414 success, or have been regarded as impeding success?
- 415 • What are lessons learned from agencies that have attempted to build capacity for P3s?
416 What specific examples exist of how organizational capacity has affected P3
417 implementation (positively or negatively?). What common organizational capacity
418 elements exist in projects deemed as successful (and ones that are not?).
- 419 • What capacity needs exist in the private sector, and in levels of government other than
420 the implementing agency for a P3s, such as local governments, other State agencies, and
421 State legislatures?

422

1 **GLOSSARY**

2
3 **Availability payment** – Under this P3 financing arrangement, the public entity agrees to make
4 regular payments to the private entity based on the facility’s availability and level of service
5 achieved for operations and maintenance. Unlike shadow tolls, availability payments do not
6 depend on traffic volume (see “shadow toll”). In the United States, availability payments are more
7 common for transit projects. Florida’s I-595 Managed Lanes project is the first U.S. highway
8 project to use this approach.

9 **Bid stipend** – a payment made by a public agency to a bidder on a particular contract to
10 encourage competition or offset transaction costs. Stipends can also be used to compensate losing
11 bidders for specific concepts proposed in their bid that may be incorporated into the final design
12 of the project.

13 **Bond** – refers to a negotiable note or certificate which evidences indebtedness. It is a legal
14 contract sold by one party, the issuer, to another, the investor, promising to repay the holder the
15 face value of the bond plus interest at future dates.

16 **Bondholder** – the owner or keeper of a bond, to whom repayment is issued.

17 **Cash flow waterfall** – defines the order of priority for project cash flows as established under
18 the loan and financing documents. In a typical cash flow waterfall, dedicated revenues are used to
19 pay for project costs and debt repayments before other parties derive benefits from the project.
20 This ensures that project debt and maintenance are covered before surplus revenues are used to
21 pay back investors or shared with the public sector.

22 **Concession** – A P3 project delivery structure involving a lease of an existing public asset to a
23 private concessionaire for a specified period of time. Generally, the concessionaire agrees to pay
24 an up-front lump sum fee to the public agency in exchange for the right to collect availability
25 payments or direct revenue generated by the asset over the life of the contract (typically 25 years
26 to 99 years). The concessionaire agrees to operate, maintain and/or improve the facility during
27 the term of the lease.

28 **Concessionaire** – the private-sector party to a concession agreement.

29 **Debt Service Coverage Ratio (DSCR)** – the ratio of cash available for debt servicing to
30 interest, principal and lease payments. A DSCR of 1.0 suggests that there is exactly enough
31 revenue to cover debt payments, while a ratio above 1.0 (e.g., 1.2) reflects the fact that revenues
32 exceed debt payments and a ratio below 1.0 (e.g., 0.95) reflects the fact that revenues are not
33 sufficient to cover debt payments.

34 **Design-Bid-Build (DBB)** – the traditional procurement approach for transportation projects
35 in the United States, in which the design and construction of a facility are sequential steps in the
36 project development process and each activity is bid separately. This is not a P3.

37 **Design-Build (DB)** – a procurement or project delivery arrangement whereby a single entity (a
38 contractor or team of contractors) is entrusted with both design and construction of a project.
39 This contrasts with traditional procurement where one contract is bid for the design phase and
40 then a second contract is bid for the construction phase of the project. Potential benefits can
41 include time savings, cost savings, risk sharing and quality improvement.

42 **Design-Build-Operate-Maintain (DBOM)** – a project delivery structure that includes not
43 only design and construction into a single contract, but also the operations and maintenance of a
44 facility.

45 **Design-Build-Finance-Operate-Maintain (DBFOM)** – a project delivery structure that
46 includes include some private financing of the design, construction, operation and/or
47 maintenance of a facility. Under a DBFOM, the public sponsor retains ownership of the facility
48 and uses revenues generated from operation of the facility (such as tolls) to repay the private and
49 other financing used to construct it. Potential benefits include transfer of financial risk to the
50 private contractor.

51 **Discount rate** – a percentage representing the rate at which the value of equivalent benefits and
52 costs decrease in the future compared to the present. The discount rate is used to determine the
53 present value of future benefit and cost streams.

54 **Equity** – commitment of money from public or private sources for project finance, with a
55 designated rate of return target.

56 **Equity investor** – an investor that has contributed towards the financing of a P3.

57 **Hand back provision** – the terms, conditions, requirements and procedures governing the
58 condition in which a private partner is to deliver an asset to the public sector upon expiration or
59 earlier termination of the agreement, as set forth in the contract.

60 **Innovative finance** – alternative methods of financing construction, maintenance, or operation
61 of transportation facilities. The term covers a broad variety of non-traditional financing, including
62 the use of private funds or the use of public funds in a new way, such as in a P3 agreement.

63 **Internal Rate of Return (IRR)** – interest rate that equates the present value of the expected
64 future cash flows net of on-going costs for operations, maintenance, repair, reserve funds, and
65 taxes, to the initial capital cost outlay or investment. This is the rate at which the net present
66 value of the project equals zero.

67 **Junior debt** – debt having a subordinate or secondary claim on an underlying security or source
68 of payment for debt service, relative to another issue with a higher priority claim.

69 **Lease** – see “Concession.”

70 **Lender** – the issuer of debt.

71 **Lifecycle cost** – the total cost from a project’s inception to the end of its useful life.

72 **Municipal bond** – interest bearing obligations issued by state or local governments to finance
73 operating or capital costs. The principal characteristic that has traditionally set municipal bonds
74 apart from other capital market securities is the exemption of interest income from Federal
75 income tax.

76 **Net Present Value** – the difference between the present value of the benefits and the present
77 value of the costs of a project, including capital investment, maintenance and any other costs)

78 **Non-compete clause** – In P3 agreements, non-compete clauses prevent the public sponsor
79 from building or improving highways or other transportation facilities that might provide a
80 competing route for traffic on a privately leased toll road. Such clauses are used to help reduce
81 revenue risk for the private toll road operator, but have been criticized for limiting the public
82 sector’s ability to deliver needed transportation infrastructure.

83 **Performance measure** – outcome-based metrics used to specify standards in a P3 agreement.
84 These measures are used throughout all phases of project, and enable the public sector to
85 determine specifications that the private sector must meet in order to be in compliance with the
86 terms of the contract. Failure to perform to these standards may result in a compensation event,
87 whereby the private-sector party is penalized a sum of money. Adherence to these measures may
88 result in a reward for the private-sector party.

89 **Private capital** – equity contributed to a P3 project by the private sector partner, with a
90 designated rate of return target.

91 **Privatization** – the full transfer of public infrastructure to the private sector. This is distinct
92 from a P3, in which ownership remains in the public sector.

93 **Private Activity Bond (PAB)** – a form of tax-exempt bond financing that can be issued by or
94 on behalf of state or local governments for privately developed and operated projects, such as P3s.
95 This gives private entities access to tax-exempt interest rates.

96 **Public-Private Partnership (P3)** – a contractual agreement formed between public and
97 private sector partners, which includes private sector financing and allows for more private sector
98 participation than is traditional. The agreements involve a government agency contracting with a
99 private company to renovate, construct, operate, maintain, and/or manage a facility or system.
100 The public sector retains ownership of the facility, however the private party may be given
101 additional decision rights in determining how the project or task will be completed.

102 **Public Sector Comparator (PSC)** – an objective assessment of project costs if delivered by
103 the public sector under traditional procurement processes, against which potential and actual
104 private sector contract bids and evaluations may be judged.

105 **Revenue** – the proceeds generated by a P3 facility, usually in the form of tolls.

106 **Revenue bond** – instruments of indebtedness issued by the public sector to finance the
107 construction or maintenance of a transportation facility. Revenue bonds, unlike general
108 obligation bonds, are not backed by the full faith and credit of the government, but are instead
109 dependent on revenues from the roadway they finance.

110 **Risk** – an uncertain event or condition that, if it occurs, has a positive or negative effect on a P3
111 project's objectives.

112 **Risk allocation** – the process of attributing or transferring risk between the public and the
113 private parties within a P3 contract, generally to the party best able to manage that particular risk.

114 **Risk premium** – an additional required rate of return that must be paid to investors who invest
115 in risky investments to compensate for the risk.

116 **Senior debt** – debt obligations having a priority claim on the source of payment for debt service.

117 **Shadow toll** – also known as pass-through tolls. Under this P3 financing arrangement, the
118 sponsoring public agency agrees to make payments to the private operator based on usage of a
119 facility, which gives the private sector an incentive to maximize volume. Thus, shadow tolls are
120 not paid by facility users. Shadow tolls are similar to availability payments, except that shadow
121 tolls depend on traffic volume (see “availability payments”).

122 **Special purpose vehicle (SPV)** – a corporate body (usually a limited company of some type
123 or, sometimes, a limited partnership) created specifically to implement a P3 project, primarily to
124 isolate risks.

125 **Subordinate debt** – see “junior debt.”

126 **Transportation Infrastructure Finance and Innovation Act (TIFIA)** – this program
127 provides federal credit assistance in the form of direct loans, loan guarantees or standby lines of
128 credit to public or private sponsors of major surface transportation projects, including P3s. The
129 program’s goal is to leverage federal funds by attracting substantial private and other non-federal
130 co-investment in transportation infrastructure.

131 **Unsolicited proposal** – a proposal by the private sector that does not come as a result of a
132 public sector solicitation. Unsolicited proposals may often result from the identification by the
133 private sector of an infrastructure need and opportunity that may be met by a privately financed
134 project. Such projects may also involve innovative proposals for infrastructure management and
135 offer the potential for transfer of new technologies.

136 **Value capture** – arrangements in which the private sector contributes financial or other
137 resources in exchange for benefits, such as increased property values, resulting from public
138 investment in transportation improvements. Examples include development impact fees, joint
139 development agreements (usually used for transit projects), tax increment financing, air rights
140 development and assessment districts.

141 **Value for Money (VfM)** – the estimated project cost savings associated with using a P3
142 delivery approach, accounting for all project factors throughout the full lifecycle of the asset and
143 length of the contract.

144

145

ACKNOWLEDGEMENTS

The Office of Innovative Program Delivery would like to thank the following individuals, each of whom participated in roundtables to develop the content of this document.

6	David Alvarez	Puerto Rico Private Partnership Authority
7	James Bass	TxDOT
8	Dale Bonner	Cal-Infra Advisors
9	Sandra Burgess	GDOT Division of P3 - Director
10	Brian Chase	Campbell Lutyens
11	Gregory Dierkers	NGA
12	Vincent Dolan	KPMG
13	Michael Galvin	Virginia Tech
14	Sharon Greene	Sharon Greene & Associates
15	Cherian George	Fitch Ratings
16	David "DJ" Gribbin	Macquarie Capital
17	Jodi Hecht	S&P - Director of Project Finance
18	Dusty Holcombe	Virginia OTPPP
19	Steve Howard	Barclays
20	Mike Krusee	former Texas State legislator
21	Joung Lee	AASHTO
22	Richard Little	University of Southern California
23	David Luberoff	Harvard
24	Clay McGonagill	FL DOT - Special Counsel
25	Dolly Mirchandani	Freshfields
26	Adrian Moore	Reason Foundation
27	Gerry O'Reilly	Florida DOT
28	Stefan Parche	Amber Infrastructure
29	Jeffrey Parker	Jeffrey Parker and Associates
30	Michael Parker	Jeffrey Parker & Associates
31	Tom Pelnik	ACS Infrastructure Development Inc
32	Ed Pensock, Jr.	Texas DOT
33	Anne Rabin	Hochtief
34	Nicolas Rubio	Cintra US
35	John Schmidt	Mayer-Brown
36	David Seltzer	Mercator
37	Michael Uhouse	Scotiabank
38	Marty Wachs	Rand Corporation
39	Geoff Yarema	Nossaman
40	Shirley Ybarra	Reason Foundation

1 **BIBLIOGRAPHY**

2 **This is a selected set of key documents used in the research for drafting**
3 **this paper. It is not intended to be a comprehensive bibliography of P3**
4 **literature**

5 **OVERVIEW – UNITED STATES**

6 Congressional Budget Office. *Using Public-Private Partnerships to Carry Out Highway Projects*.
7 January 2012. www.cbo.gov/publication/42685

8 Deloitte Research. *Closing America's Infrastructure Gap: The Role of Public-Private*
9 *Partnerships*. A Deloitte Research Study, 2006,
10 [www.deloitte.com/view/en_US/us/Industries/US-federal-](http://www.deloitte.com/view/en_US/us/Industries/US-federal-government/2ea59a17c900e110VgnVCM100000ba42fo0aRCRD.htm)
11 [government/2ea59a17c900e110VgnVCM100000ba42fo0aRCRD.htm](http://www.deloitte.com/view/en_US/us/Industries/US-federal-government/2ea59a17c900e110VgnVCM100000ba42fo0aRCRD.htm)

12 Engel, Eduardo et al. *Public-Private Partnerships to Revamp U.S. Infrastructure*. The Hamilton
13 Project. February 2011. http://cowles.econ.yale.edu/~engel/pubs/efg_revamp.pdf

14 Federal Highway Administration. *Innovation Wave: An Update on the Burgeoning Private*
15 *Sector Role in U.S. Highway and Transit Infrastructure*. July, 2008.
16 www.fhwa.dot.gov/reports/pppwave

17 Federal Highway Administration. *Case Studies of Transportation Public-Private Partnerships in*
18 *the United States*. July 2007. [www.fhwa.dot.gov/ipd/pdfs/us_ppp_case_studies_final_report_7-](http://www.fhwa.dot.gov/ipd/pdfs/us_ppp_case_studies_final_report_7-7-07.pdf)
19 [7-07.pdf](http://www.fhwa.dot.gov/ipd/pdfs/us_ppp_case_studies_final_report_7-7-07.pdf)

20 Federal Highway Administration. *Manual for Using Public Private Partnerships on Highway*
21 *Projects*. 2006. www.fhwa.dot.gov/ipd/pdfs/manual_0905.pdf

22 Federal Highway Administration. *Public-Private Partnerships for Highway Infrastructure:*
23 *Capitalizing on International Experience*. March 2009,
24 <http://international.fhwa.dot.gov/pubs/pl09010/pl09010.pdf>

25 Federal Highway Administration. *Report to Congress on Public-Private Partnerships*. December
26 2004. www.fhwa.dot.gov/reports/pppdec2004

27 Federal Highway Administration. *User Guidebook on Implementing Public-Private Partnerships*
28 *for Transportation Infrastructure Projects in the United States*. July 2007.
29 www.fhwa.dot.gov/ipd/pdfs/ppp_user_guidebook_final_7-7-07.pdf

30 Government Accountability Office. *Highway Public Private Partnerships: More Rigorous Up-*
31 *Front Analysis Could Better Secure Potential Benefits and Protect the Public Interest*. GAO-88-
32 44, September 2008. www.gao.gov/products/GAO-08-1149R

33 Reinhardt, William, ed. *Public Works Financing*. October 2011, Volume 2011

34 Reinhardt, William. *The Role of Private Investment in Meeting U.S. Transportation*
35 *Infrastructure Needs*. May 2011. www.artba.org/mediafiles/transportationp3whitepaper.pdf

36 **OVERVIEW - INTERNATIONAL**

37 Czerwinski, David and R. Richard Geddes. *Policy Issues in U.S. Transportation Public-Private*
38 *Partnerships: Lessons from Australia*. Mineta Transportation Institute. July 2010.
39 http://transweb.sjsu.edu/MTIportal/research/publications/documents/2807_09-15.pdf

Challenges and Opportunities Series: Public Private Partnerships in Transportation Delivery
DRAFT May 11, 2012

- 40 Garvin, Michael. "International Practices in Public-Private Partnerships: Synthesis and
41 Discussion." *TR News* 274, pp. 10-15, May-June 2011.
- 42 Gilbertson, Travis. *The BC, Canada P3 Highway Improvement Contract Model*. 2006.
43 http://sh2omountroskill.co.nz/content_files/conference/T-Gilbertson.pdf
- 44 Gomez-Ibanez, Jose A. and John Robert Meyer. *Going Private: The International Experience*
45 *with Transport Privatization*. Brookings Institution Press, 1993.
- 46 HM Treasury. *Value for Money Assessment Guidance*. November, 2006. [www.hm-](http://www.hm-treasury.gov.uk/ppp_vfm_index.htm)
47 [treasury.gov.uk/ppp_vfm_index.htm](http://www.hm-treasury.gov.uk/ppp_vfm_index.htm)
- 48 HM Treasury. *Public Private Partnerships: The Government's Approach*. 2000. [http://www.hm-](http://www.hm-treasury.gov.uk/d/80.pdf)
49 [treasury.gov.uk/d/80.pdf](http://www.hm-treasury.gov.uk/d/80.pdf)
- 50 Iacobacci, Mario. *Dispelling the Myths: A Pan-Canadian Assessment of Public-Private*
51 *Partnerships for Infrastructure Investments*. The Conference Board of Canada, 2010.
52 <http://www.conferenceboard.ca/e-Library/abstract.aspx?did=3431> (registration required).
- 53 Jeffers, et al. *Audit Stewardship and Oversight of Large and Innovatively Funded Projects in*
54 *Europe*. Federal Highway Administration and American Association of State Highway and
55 Transportation Officials. March 2007.
56 <http://international.fhwa.dot.gov/pubs/pl07001/pl07001.pdf>
- 57 Organisation for Economic Co-Operation and Development. *Dedicated Public-Private*
58 *Partnership Units: A Survey of Institutional and Governance Structures*. 2010.
59 [www.infrastructureaustralia.gov.au/publications/files/Dedicated PPP Units OECD 2010.pdf](http://www.infrastructureaustralia.gov.au/publications/files/Dedicated_PPP_Units_OECD_2010.pdf)
- 60 Quim Abdul, *A Guidebook on Public-Private Partnership in Infrastructure*. United Nations
61 Economic and Social Commission for Asia and the Pacific. January 2011.
62 www.unescap.org/ttdw/common/TPT/PPP/text/ppp_guidebook.pdf
- 63 The World Bank Public Private Infrastructure Advisory Facility. *Toolkit for Public-Private*
64 *Partnerships in Roads and Highways*, March 2009.

65 STATE PRACTICES

- 66 Georgia Department of Transportation Public Private Partnerships Program.
67 www.dot.state.ga.us/informationcenter/p3/Pages/default.aspx
- 68 Georgia Department of Transportation. Public-Private Partnership Guidelines. February, 2010.
69 www.dot.state.ga.us/informationcenter/p3/Documents/P3Guidelines.pdf
- 70 Puerto Rico Public Private Partnership Authority, www.app.gobierno.pr/?lang=en
- 71 The Commonwealth of Virginia Office of Transportation Public Private Partnerships. Public
72 Private Transportation Act of 1995: Implementation Manual and Guidelines. December, 2010.
73 www.drpt.virginia.gov/about/files/PPTA_Implementation_Manual_FINAL_December_08_2010.pdf
74 [o.pdf](http://www.drpt.virginia.gov/about/files/PPTA_Implementation_Manual_FINAL_December_08_2010.pdf)
- 75 The Commonwealth of Virginia Office of Transportation Public Private Partnerships. Public
76 Private Transportation Act of 1995: Risk Analysis Guidance. 2011.
77 www.vappta.org/resources/PPTA%20Office%20Risk%20Guidance%20Document%20v2.1%2020110930.pdf
78 [110930.pdf](http://www.vappta.org/resources/PPTA%20Office%20Risk%20Guidance%20Document%20v2.1%2020110930.pdf)

79 The Commonwealth of Virginia Office of Transportation Public Private Partnerships. Public
80 Private Transportation Act of 1995: Value for Money Guidance. April 2011.
81 www.vappta.org/resources/VDOT%20VfM%20guidance%20document_final_20110404.pdf

82 **LEGAL AND STATUTORY ISSUES**

83 Chase, Brian F. and Karen J. Hedlund, *Overview of Key Elements and Sample Provisions State*
84 *PPP Enabling Legislation for Highway Projects*. Federal Highway Administration. October 2005.
85 www.fhwa.dot.gov/ipd/pdfs/legis_key_elements.pdf

86 Federal Highway Administration. *FHWA Draft Model Legislation*.
87 www.fhwa.dot.gov/ipd/pdfs/legis_model_0610.pdf

88 Fishman, Edwards, “Major Legal Issues for Highway Public Private Partnerships.” *Legal*
89 *Research Digest 51*. Transportation Research Board of the National Academies. January 2009.
90 http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_lrd_51.pdf

91 Iseki, Hiroyuki et al. *Status of Legislative Settings to Facilitate Public Private Partnerships in the*
92 *U.S.* California PATH Research Report. 2009.
93 www.path.berkeley.edu/PATH/Publications/PDF/PRR/2009/PRR-2009-32.pdf

94 Martin, Jonathan D. *Legislative Frameworks and Oversight of Public-Private Partnerships for*
95 *Transportation*. Department of Legislative Services, Maryland. September 2009.
96 http://dlslibrary.state.md.us/publications/OPA/P/JC/MPF/LFOPPPT_2009.pdf

97 Rall, Jaime, et al. *Public-Private Partnerships for Transportation: A Toolkit for Legislators*.
98 National Conference of State Legislatures Partners Project on Public Private Partnerships for
99 Transportation. October 2010. [www.ncsl.org/issues-research/transport/public-private-](http://www.ncsl.org/issues-research/transport/public-private-partnerships-for-transportation.aspx)
100 [partnerships-for-transportation.aspx](http://www.ncsl.org/issues-research/transport/public-private-partnerships-for-transportation.aspx)

101 State of Texas Legislative Study Committee. *Report of the Legislative Study Committee on*
102 *Private Participation in Toll Projects*. December 2008. [ftp://ftp.dot.state.tx.us/pub/txdot-](http://ftp.dot.state.tx.us/pub/txdot-info/library/pubs/bus/tta/sb_792_report.pdf)
103 [info/library/pubs/bus/tta/sb_792_report.pdf](http://ftp.dot.state.tx.us/pub/txdot-info/library/pubs/bus/tta/sb_792_report.pdf)

104 **DECISIONMAKING**

105 Buxbaum, Jeffrey N. and Iris N. Ortiz. *Protecting the Public Interest Role of Long-Term*
106 *Concession Agreements for Providing Transportation Infrastructure*. The Keston Institute of
107 Public Finance and Infrastructure Policy Research Paper Series. Research Paper 07-02 – June
108 2007. [http://www.usc.edu/schools/price/keston/pdf/20070618-trans-concession-](http://www.usc.edu/schools/price/keston/pdf/20070618-trans-concession-agreements.pdf)
109 [agreements.pdf](http://www.usc.edu/schools/price/keston/pdf/20070618-trans-concession-agreements.pdf)

110 Buxbaum, Jeffrey N. and Iris N. Ortiz. *Public Sector Decision Making for Public-Private*
111 *Partnerships a Synthesis of Highway Practice*, NCHRP Synthesis 39. Transportation Research
112 Board 2009. http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_syn_391.pdf

113 Caltrans. *Analysis of Delivery Options for the Presidio Parkway Project*. CTC Project Proposal
114 Report Submission. Anup/PB Joint Venture. February 2010.
115 www.presidioparkway.org/project_docs/files/presidio_prkwy_prjct_bsns case.pdf

116 Cui, Qingbin, et al. *Feasibility Study Guideline for Public Private Partnership Projects: Volume I*
117 *and 2*. University Transportation Center for Alabama, October 2010.
118 http://ntl.bts.gov/lib/36000/36000/36066/930-722R_Final_Report.pdf

Challenges and Opportunities Series: Public Private Partnerships in Transportation Delivery
DRAFT May 11, 2012

- 119 Ellen Dannin, Crumbling Infrastructure. *Crumbling Democracy: Infrastructure Privatization*
120 *Contracts and Their Effects on State and Local Governance*. Penn State Law Legal Studies
121 Research Paper No. 14-2011, Vol.6, Winter 2011.
- 122 European PPP Expertise Center. *The Guide to Guidance: How to Prepare, Procure and Deliver*
123 *PPP Projects*. <http://www.eib.org/epec/resources/guide-to-guidance-en.pdf>
- 124 Iossa Elisabetta, Spagnola Giancarlo, Vellez, Mercedes. *Contract Design in Public-Private*
125 *Partnerships*. September, 2007.
126 www.gianca.org/PapersHomepage/Best%20Practices%20on%20Contract%20Design.pdf
- 127 Murray, Stuart. *Value for Money? Cautionary Lessons About P3s from British Columbia*.
128 Canadian Centre for Policy Alternatives. June 2006.
129 [www.policyalternatives.ca/sites/default/files/uploads/publications/BC_Office_Pubs/bc_2006/P](http://www.policyalternatives.ca/sites/default/files/uploads/publications/BC_Office_Pubs/bc_2006/P3_vfm_summary.pdf)
130 [3_vfm_summary.pdf](http://www.policyalternatives.ca/sites/default/files/uploads/publications/BC_Office_Pubs/bc_2006/P3_vfm_summary.pdf)
- 131 Partnerships British Columbia. *Methodology for Quantitative Procurement Options Analysis*
132 *Discussion Paper*. October 2011. [www.partnershipsbc.ca/files/documents/DiscussionDraft-](http://www.partnershipsbc.ca/files/documents/DiscussionDraft-MethodologyforQuantitativeProcurementOptionsAnalysisAugust2009finalv2.pdf)
133 [MethodologyforQuantitativeProcurementOptionsAnalysisAugust2009finalv2.pdf](http://www.partnershipsbc.ca/files/documents/DiscussionDraft-MethodologyforQuantitativeProcurementOptionsAnalysisAugust2009finalv2.pdf)
- 134 Prieto, Bob. Yours, “Mine and Ours: Risk and Risk Allocation in Public Private Partnerships.” *PM*
135 *World Today*, January 2009.
- 136 State of Florida. *I-595 Corridor Roadway Improvements: Value for Money Analysis*. June 2009.
137 http://www.transportation-finance.org/pdf/funding_financing/financing/i595_vfm_0609.pdf
- 138 Yarema, Geoffrey S. “Selecting Public-Private Partnerships for Transportation Projects: From
139 Episodic to Programmatic Public-Sector Decision Making.” *TR News* 274, pp23 -27. May-June
140 2011.

141 **FINANCIAL CONSIDERATIONS**

- 142 Dochia, Silviu and Parker, Michael. *Introduction to Public-Private Partnerships with Availability*
143 *Payments*. 2009. Jeffrey A. Parker & Associates, Inc. [www.transportation-](http://www.transportation-finance.org/pdf/funding_financing/financing/jpa_introduction_to_availability_payments_0709.pdf)
144 [finance.org/pdf/funding_financing/financing/jpa_introduction_to_availability_payments_0709](http://www.transportation-finance.org/pdf/funding_financing/financing/jpa_introduction_to_availability_payments_0709.pdf)
145 [.pdf](http://www.transportation-finance.org/pdf/funding_financing/financing/jpa_introduction_to_availability_payments_0709.pdf)
- 146 Engel, Eduardo et al. *The Basic Public Finance of Public-Private Partnerships*. July 2007
147 (Update January 2011), Cowles Foundation Discussion Paper No. 1618, Yale University.
148 <http://cowles.econ.yale.edu/P/cd/d16a/d1618.pdf>
- 149 Moody’s Investors Service. *Rating Methodology: Operational Toll Roads*. December 2006.
150 <http://www.ppp-pf.ru/docs/roads.pdf>
- 151 Yescombe, E.R. *Public-Private Partnerships: Principles of Policy and Finance*. Elsevier. 2007.

152 **PERFORMANCE MANAGEMENT**

- 153 Garvin, Michael and Desiderio Navarro. *Key Performance Indicators in Public-Private*
154 *Partnerships: A State-of-the-Practice Report*. Federal Highway Administration. March 2011.
155 <http://international.fhwa.dot.gov/pubs/pl10029/pl10029.pdf>
- 156 Guasch, J. Luis. *Granting and Renegotiating Infrastructure Concessions: Doing It Right*, World
157 *Bank Institute*. March 2004.

Challenges and Opportunities Series: Public Private Partnerships in Transportation Delivery
DRAFT May 11, 2012

158 Foster, Richard. *PPP Performance Management*. Partnerships Victoria. Presentation at World
159 Bank PPPI Days 2008.

160 **ORGANIZATIONAL CAPACITY**

161 Istrate, Emilia and Robert Puentes. *Moving Forward on Public Private Partnerships: U.S. and*
162 *International Experience with PPP Units*. Brookings-Rockefeller Project on State and
163 Metropolitan Innovation. December 2011.

164 www.brookings.edu/~media/Files/rc/papers/2011/1208_transportation_istrate_puentes/1208
165 [_transportation_istrate_puentes.pdf](http://www.brookings.edu/~media/Files/rc/papers/2011/1208_transportation_istrate_puentes/1208_transportation_istrate_puentes.pdf)

166 KPMG Corporate Finance LLC. *Commonwealth of Virginia PPTA Program Assessment – Phase*
167 *I: Diagnostic Report*. May 3, 2010.

168 www.virginiadot.org/news/resources/Statewide/PPTA_Assessment_Report_Final_052410.pdf

169 Pew Center on the States. *Driven by Dollars: What States Should Know When Considering*
170 *Public Private Partnerships to Fund Transportation*. March 2009.

171 www.pewcenteronthestates.org/uploadedFiles/PA_Turnpike_FINAL_WEB.pdf

172 Tinker, Susan. *Elements of a Successful PPP Program*. Partnerships BC. Presentation at Puerto
173 Rico Projects Conference, October 22, 2009. [www.p3.gov.pr/wp-](http://www.p3.gov.pr/wp-content/uploads/2010/05/Elements_Successful_PPP_Program.pdf)

174 [content/uploads/2010/05/Elements_Successful_PPP_Program.pdf](http://www.p3.gov.pr/wp-content/uploads/2010/05/Elements_Successful_PPP_Program.pdf)

175 Volpe National Transportation Systems Center. *AASHTO Survey of Public Private Partnerships:*
176 *Report of Findings*. November 2008. Unpublished.

177 **REFERENCE WEBSITES**

178 AASHTO Center for Excellence in Project Finance. www.transportation-finance.org

179 Federal Highway Administration of Innovative Program Delivery. www.fhwa.dot.gov/ipd

180 The National Council for Public Private Partnerships. www.ncppp.org

181 European PPP Expertise Centre, <http://www.eib.org/epec/g2g/guidance/index.htm>