Public-Private Partnership Lessons Learned and Best Practices

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PREFACE

This White Paper addresses lessons learned and best practices observed from implementation of a broad range of public-private partnerships. It was prepared under the auspices of the Transportation Public-Private Partnership (P3) Policy Program of the George Mason University (GMU) School of Public Policy to provide guidance on the development of P3 projects by state and local governments.

The white paper was written by Dr. Porter Wheeler, who supports the program as a consultant and adviser. His extensive experience with P3 developments across the U.S. has been a great asset to the program's development. Input was also provided by doctoral students Nobuhiko Daito, Zhenhua Chen, John Gudgel, Chang Kwon and Kyung Min Lee.

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Further information about the program is available through the website http://p3policy.gmu.edu.

Introduction

Public-private partnerships (P3s) to deliver public-use infrastructure have been applied frequently in Europe, Asia, and many parts of the world, but they have just begun to emerge as a serious alternative in the United States. Several trends have converged to bring P3s to the fore when considering infrastructure delivery options. Among these trends are the following: the improving fuel efficiency of vehicles (causing aggregate fuel use to flatten or even decline); the resistance to increases in the motor fuel tax (used by both Federal and State governments to fund transportation investments); the increasing costs associated with the aging of existing infrastructure facilities necessitating maintenance and rehabilitation; and the long-term need for system expansion and renewal.

States and regional authorities have responded by exploring P3 approaches and enacting legislation to provide a framework for applying P3s to specific needs. The Federal government has provided guidance and a variety of credit support mechanisms, most notably the Transportation Infrastructure Finance and Innovation Act (TIFIA), have emerged for application and assistance to infrastructure development and operation. There exists a wide array of P3 formats, and no type has emerged as predominant to date. In part this diversity reflects the absence of set rules or standards for P3s (except where individual state legislation dictates certain criteria be met). However, differing underlying conditions, local needs and priorities, and perceptions of the private investor market suggest that P3 formats in use will necessarily vary for different applications and will continue to do so.

Recent legislation (Moving Ahead for Progress in the 21st Century Act, or MAP-21) continues and enhances the Federal role in P3s by expanding the credit assistance available under TIFIA by a large multiple and providing new guidance activities for the US Department of Transportation (USDOT) including requirements that states consider P3 approaches in project development and that model legislation and contracting formats be developed.

Categories of Best Practices

This white paper provides an elaboration of best practices gleaned from review of a number of P3s in various stages of development, ranging from those still in preparation to several that are operational. The "best practices" identified essentially reflect lessons learned from a variety of sources including published reports, public presentations, project summaries and case studies made available on websites (e.g., AASHTO's Center for Excellence in Project Finance), and case studies in process under GMU's P3 Policy Program. Desirable practices range from establishing a supportive legislative framework to having skilled support for ironing out business details and appropriate risk sharing.

These inferences about best practices are categorized into several subgroups in order to provide the most useful comparisons between broad ranges of operational P3 programs. The categories used are (a) enabling legislation, (b) champions and stakeholder development, (c) project selection and agency priorities, (d) P3 administering office, (e) P3 procurement plan and process, (f) funding and financing, and (g) P3 structures.

A. ENABLING LEGISLATION

Enabling legislation sets the framework under which a P3 project can be developed. Private participation in project development, financing, and operation must be legally possible. While not absolutely essential, well-crafted enabling legislation increases the prospects for P3 development because it will delineate the range of acceptable projects, the process for consideration and award, the powers of the state agency, and usually which state agency will have primary responsibility for implementation of P3 projects. By counter example, the San Joaquin Hills, CA toll road project came forward to meet regional needs without either Federal or State enabling provisions. In several states (seven according to NCHRP Synthesis #391, 2009), legislation establishes a set number of pilot or demonstration projects.

Enabling legislation sets the tone and gives potential private partners a designated target and delivery window for their proposals. In particular, well-crafted enabling legislation sends a signal that the state is open to a new type of business relationship with private developers and invites their participation.

Based on expert opinion and results, the most effective enabling legislation has the following characteristics:

- A focus of governmental responsibility under a designated agency and office, preferably empowered to act on behalf of the state.
- Appropriate statutory powers to procure and negotiate projects, with clear intent expressed by the legislative body.
- Adequate staff and consultant budgets to represent the state on equal footing with the potential private partners and their consultants.
- Legislation itself indicates the existence of some advocates and/or enthusiasts somewhere in state government.
- Enough flexibility to deal with new or unexpected project features as the process unfolds.
- Clear delineation of the solicitation process and whether unsolicited projects are wanted or acceptable.
- Restrictions, if any, on what projects are going to be considered. For example, many states require a project to be on the state's Transportation Improvement Program (TIP), or even in an approved multi-year work program.
- Indicates whether the state will exercise or lend its powers of eminent domain to expedite land acquisition on behalf of the private partner.
- Indicates whether the state anticipates or is able to contribute funding or co-funding of a project.

- Indicates which parties have the responsibility for project-level environmental clearances.
- Does not require final, post-agreement, approval by legislative bodies, primarily due to the potential for political tug-of-war after substantial effort has been expended to reach mutual agreement between the knowledgeable parties.

There are many more specific provisions that are often incorporated, including limitations that some lawmakers judge to be important. For example, as Maryland P3 legislation developed, the Maryland Department of Legislative Services suggested an extensive list of topics or provisions that it thought important to incorporate in the P3 legislation, and many were eventually included. Among these were legislative notice and processing provisions, labor stipulations, and minority business enterprise (MBE) requirements that are often imposed by statute.

The potential term or length of an agreement is often a controversial provision. As a result of the Chicago Skyway and Indiana Toll Road long-term concessions (99 and 75 years, respectively), subsequent legislation in other states often sought to limit the term of P3 concessions. It is inarguable that the nature of mobility and infrastructure needs 75-100 years in the future are uncertain, and best practice seems to have settled on a 30-50 year term as sufficient to capture the future revenue streams that will repay the P3 investment.

California's AB-680 legislation in 1989 established the general terms and conditions for four concession agreements and Caltrans had adequate authority to embark on at least two early projects, SR-91 and SR-125. However, AB-680 contained at least two provisions that created significant stumbling blocks: it restricted state financial participation to zero; and it assigned environmental clearance to the private concessionaire. These restrictions have generally been omitted from subsequent legislation in other states.

Virginia began with project-specific action to allow private development of the Dulles Greenway in 1988, followed by the Public Private Transportation Act (PPTA) of 1995 (VA Title 56, Chapter 22). Virginia has subsequently revised its PPTA legislation several times. As amended, the PPTA now provides for an extensive comprehensive agreement, including processes for state financial participation, priority project lists, inspection and oversight of projects, etc.

Florida has also refined its enabling legislation several times, and many feel that the current version (found at FL 334.30) is responsible for obtaining multiple P3 projects either completed or underway. Florida provides that a private entity may be permitted to develop new toll facilities or lease existing ones, and that the department may exercise eminent domain on behalf of the P3 project. Florida may lend funds to the P3 partner, use various innovative finance techniques, and provide extended annual payments for the "availability" of a P3 facility.

Colorado's well-developed and flexible state P3 legislation played an important role in setting the framework for the Eagle P3 Commuter Rail Project. For Virginia's Midtown Tunnel Project, the Public-Private Transportation Act (PPTA) of 1995 and subsequent amendments gave the state agencies and local governments the authority to enter into a full-service agreement to develop the tunnel project, to use tolls for partial funding source, and to consider unsolicited proposals by private firms. Also, the creation of the Virginia Office of Transportation P3s (OTP3) in 2011 with broad multimodal responsibilities has given increased independence to speed the development of the tunnel project, including transfer of substantial potential technical development risks to the private entity.

Some jurisdictions have found value in setting specific criteria for meeting a "public interest" standard, even to the extent of augmenting the already extensive public participation features of existing transportation project planning process. Critics of P3s often complain about inadequate transparency in the contracting process. As a counterpoint, the Australian states of Victoria and New South Wales have developed an extensive check list for evaluation of the public interest in P3 development, including transparency, oversight, and consumer rights (NCHRP Synthesis, p. 14).

B. CHAMPIONS AND STAKEHOLDER "DEVELOPMENT"

A frequent theme echoed by participants in P3 initiatives is the high importance of project champions, especially those from positions of government and community leadership. This is a clear message of project experience: develop community-wide support from high-level state officials and from the business community and local governments. Champions such as a governor or legislative leader have the ability to provide and communicate balanced information, fend off misleading attacks, and keep a project on track (NCHRP Synthesis, p. 1 & p. 26). As broad a group as possible needs to be cultivated as stakeholders (FHWA, Implication of Changes, p. vii & p. 8). Stakeholders who have the potential for receiving direct benefits from the project have an incentive to see the project through to completion.

In this era of often dissonant and sometimes dysfunctional political processes, the importance of champions cannot be overstated. In international and domestic applications, retaining political support beyond the pilot project stage has proven difficult, in part because of the political will needed to overcome the opposition of public sector employees. Public opposition to tolls, especially tolls flowing into private hands, can be expected and must be dealt with, constantly communicating the milestones of the project, the risks borne by the private partner, and the project benefits accruing to the public.

For the Colorado Eagle P3 Commuter Rail project, much of its public support and diversity of funding appears to be attributable to substantial efforts to communicate project goals and status to the public by means of organized public conferences, forums, and regularly updated websites. The past two Colorado Governors have clearly supported

P3s and their application to the Eagle Rail project. Further, both the sponsoring agency and the developer echo the belief that the "third P" for partnership is a key to project success.

As occurred in Virginia's Midtown Tunnel, it can be expected that some stakeholders will oppose tolls to finance projects in general and especially on facilities they expect to use. Even where tolls appear to be the only reliable source of funding for a project, often due to anti-tax legislatures, the anti-toll opposition can be quite persistent. The planning and public relations outreach needs to be equally persistent, and sponsored by both the governmental sponsors and potential private concessionaires. For Virginia and Maryland, who have both increased fuel-based fees, public outreach will become even more important to find support for future P3 projects, since users will correctly perceive that they are paying two incremental transportation charges.

For California's South Bay Expressway (SR-125) project, the need to obtain environmental permits associated with new or expanded facilities was subject to community opposition and at times lengthy delays that undermined the finances of the project. In such cases, the public sponsor should bear some responsibility for these risks by developing a clear message about the benefits of the project. To leave the private developer with total responsibility for satisfying a myriad of supplemental approvals proved to be a recipe for long delays, added costs, and eventual financial collapse.

For Maryland's Intercounty Connector, the long-planned project had been derailed on several occasions by political opposition, at one juncture leading the Governor to seek to cancel the project. Further, environmental challenges were large and costly and thought to be too difficult to leave to a private concessionaire. Hence, a P3 approach was ruled out and a more traditional but still innovative state construction project was undertaken, partially financed by tolls and partly by state/federal transportation funds. This decision was strongly influenced by the difficulties that would have faced a private partner in stakeholder relations and the environmental process.

A key factor in stakeholder relations is transparency—this is regularly cited by both supporters and opponents. Disclosure of contract terms, performance standards, toll policies, non-compete clauses, and transactions costs can do much to alleviate media and citizen concerns. Ongoing access to traffic and revenue information can also be useful in this regard. (NCHRP Synthesis, p. 25)

C. PROJECT SELECTION & AGENCY PRIORITIES

Establishing a clear mechanism for project selection and the setting of agency priorities provides a firm foundation upon which to procure P3 projects. Many states restrict P3 projects to those that are already included in or at least consistent with long-range development plans. This allows prospective developers to plan for and chose among a menu of "wanted" projects, proposals for which are almost certain to be welcomed by a P3 office. In addition, because P3 projects generally must clear the usual planning and

environmental stages, such an approach means that projects will already be somewhere along in the project planning process, making it more feasible to embark on a P3 venture.

Conversely, should the state receive an unsolicited proposal for a project not yet included in the long-range planning process, this would indicate that the project is not of high priority from the state DOT's perspective and pose additional hurdles. However, it is important to provide some flexibility to alternative concepts for a high-priority project. For example, Virginia was planning to add capacity on the I-495 Beltway but had not incorporated the tolled express lanes concept that was proposed by the eventual developer who brought forward the concept as an unsolicited proposal.

Virginia's OTP3 now publishes a list of projects under consideration, termed the PPTA Project Pipeline. In addition to projects underway, including the 495 Express Lanes (now open to traffic) and the I-95 Express Lanes (under construction), a recent 2012 compilation (at www.vappta.org) outlined four near-term potential PPTA projects, four longer-term projects needing additional development and business cases, and 14 conceptual projects requiring further scope development. It is virtually certain that any solicited projects will be solicited from this group and, even though Virginia OTP3 can accept unsolicited proposals, projects not included in this compilation are not likely to be considered at great length.

In the Eagle P3 Commuter Rail project in Colorado, it was important be open to innovative technical and financial concepts, yet to lock down the project construction scope early so that developers and lenders could be confident that project changes, even simple design changes, would not substantially increase the risks to the concessionaire.

For the Florida Department of Transportation (FDOT) I-595 Managed Lanes project, FDOT had a project development and engineering (PD&E) plan that effectively dealt with most potential challenges inherent in the project and had worked on those issues in advance to help build consensus among many stakeholders. Florida's P3 enabling legislation requires that projects be included in FDOT's five-year work program which is submitted to the legislature for approval, hence gaining a modicum of pre-approval.

D. P3 ADMINISTERING OFFICE, STAFFING, CONSULTANT SUPPORT

There seems to be universal agreement that the sponsoring agency needs to have a clear delegation of authority, preferably in enabling legislation, so as to develop the project and determine the level of priority within the pipeline of priority projects. This would include creating an attractive investment climate and being able to commit the State when negotiating project and contract issues. Without these factors, P3 developers may prove unwilling to commit the upfront investment required to prepare a complex proposal.

To accomplish these objectives, the P3 administering office must have well-trained staff covering several disciplines and back it up with expert consultant support. Otherwise, the agency could be overmatched by the private sector representatives and not be able to

command respect and trust in the eventual negotiations and final contract terms. In essence, the State must create the appropriate institutional capacity so that the P3 office can adequately determine how to obtain and allocate public resources to contract for selected investment projects, and to monitor the outcomes to ensure that the selected investments have the expected impacts.

In addition, the P3 office should consider developing a supportive oversight role to mediate disputes post P3 contract closing. Numerous issues are almost certain to arise, and government offices performing regular permitting, construction management and review, alongside other state functions, are not accustomed to dealing with a private developer whose time and money are at stake. On the day after financial close, the P3 developer must deal with other offices and will require assistance to explain its "special" situation.

For the Eagle P3 Commuter Rail project, the sponsor Denver Regional Transit District's (RTD's) General Manager is convinced that having a dedicated project manager, an experienced financial consultant, and a legal team with P3 experience was the key to the project's development and eventual success (deal closed and under construction).

For the Hudson Bergen line in New Jersey, an early P3 involving public transit, public and private partners needed to equip staff with knowledge of innovative project delivery such as design-build-operate-maintain (DBOM) and preparation for contingency issues. Particularly on the public side, the skills needed differ from historic state DOT skills.

For Virginia's PPTA, a P3 unit was established and then more recently transformed in 2011 into the OTP3 with multi-modal responsibilities. This office basically has full responsibility to represent the Commonwealth in transportation-related P3 matters.

E. P3 PROCUREMENT PLAN & PROCESS

The fundamental key to a successful procurement plan is that the public agency should already have a pipeline of projects based on their long-range planning process and be seeking to develop a procurement plan that leverages its limited resources in the most effective way. Then, through its control of the procurement process, the public agency can determine what projects can be best realized traditionally versus via P3 approaches and which of many P3 formats should be deployed.

There is a wide range of possible approaches to solicitation and each has its adherents. In part, the selection of an approach depends on the underlying characteristics of the project, especially its financial feasibility as a P3 and its permitting characteristics. If the project will generate substantial revenues, for example, a toll road, then the private role could be broader and encompass investment capital. If a project has serious environmental or other permitting concerns, then private partners will likely avoid taking a leadership role due to the high cost of uncertainty surrounding the project.

Solicited or Unsolicited Proposals? There is a recurrent theme around P3s that private developers will circumvent the planning process by submitting unsolicited proposals that will allow private parties to "cherry-pick" the best projects, leaving the public sector to deal with more difficult, less commercially viable projects. Of course, by careful concessioning and revenue sharing the public sector might be left with more resources to deal with such projects, whereas the private parties might not put capital at risk on "difficult" projects. Indeed, using the asset monetization approach may allow the public sector to capitalize on "profitable" projects in ways that could not have been realized without the private partner. (NCHRP Synthesis, p.14)

Alternatively, P3 developers may be accused of short-cutting the procurement process by jumping to the front of the queue with an unsolicited proposal to undertake a project that would have eventually been bid out in a traditional competition. Either possibility arises with unsolicited proposals—hence, most P3 programs have limited the role of unsolicited proposals and prefer to set their own priorities through the solicitation process. However, it remains important to be open to innovations and alternative concepts from the private developers—they know more about what will work in the "enterprise" setting of a P3 development.

The procurement approach that seems to be gaining favor with facility sponsors is one that begins with a Request for Qualifications (RFQ) that solicits expressions of interest and qualifications (and encourages early team building), leading to a short list of qualified teams that will be able to offer suggestions as the formal project Request for Proposals (RFP) is being drafted. Indeed, the draft RFP is often circulated for comment and even industry review. Additionally, after a formal RFP has been released, one or more proposer-developers may be invited for confidential discussions to elaborate on aspects of their proposals and explore alternative concepts that may have been put forward.

For the Eagle P3 Commuter Rail project, this RFQ/RFP approach was followed with substantial success. The sponsor, RTD, was open to considering innovations and as a result, Denver Transit Partners (DTP) proposed a performance service payment concept and also presented alternate technical concepts. Further, both RTD's manager and the P3 developer team's manager have stated their belief that good communication between owners and bidders regarding project risks and other concerns led to a proposal that delivers "best value" to RTD and its constituents.

Virginia has developed a process that incorporates transparency and public participation. P3 proposals are reviewed by a panel that is made up of various stakeholder groups. Further, affected jurisdictions are given a 60-day period to review and comment on P3 proposals (NCHRP Synthesis, p.26).

Protections Against Financial Distress. For the Florida I-595 project, flexibility in the procurement process and contract documents was crucial in allowing both owners and

bidders to respond to the volatile and unstable financial market and still obtain a project with acceptable risk sharing

For the Las Vegas Monorail, which experienced serious financial distress, it might have been recognized that a very large percentage of major rail projects worldwide have failed to meet their ridership forecasts and that demand risk would be a significant factor. Better, more independent stress tests, at least in retrospect, should have been done to clarify the potential financial health of the project. The nonprofit 63-20 corporation format used may have created unanticipated opportunism by the public sector coupled with boosterism by the private sector that underestimated the risks associated with the project. A more flexible procurement strategy could have been open to redesign of the project, scaling back in order to protect its solvency.

For the Southbay Expressway (SR-125), it was important that the P3 procurement plan and process protected relevant assets since a P3 dependent on toll revenues could always face losses and potential bankruptcy. Similar considerations proved important for the Las Vegas Monorail and the Pocahontas Parkway projects. These projects resulted in substantial facilities that remain in use even though the original developers have experienced serious financial losses and insolvency.

F. FUNDING AND FINANCING

Public officials embarking on a P3 need a good understanding of debt/equity structures and options, and can expect to need expert advisors in this area. Project level skills on the public and private side have historically been more oriented to design and engineering, with some budgeting and cost issues layered over. As distinct from private project finance, public financing with tax-exempt debt (or direct governmental grants) is undoubtedly low-cost financing, yet public debt issuance is often constrained, and significantly so in recent years. Also, if project financing is done with public debt, then the interest cost will be risk-adjusted and the rates demanded by the market would go up accordingly. Only when system backed debt is used, ranging from the state's full faith and credit to multi-facility authority debt, is a relatively low cost of financing obtained.

Does private financing add carrying (interest) costs to the project? Many public officials seem to think so, but private financing may be the only path to advancing the project in a timely fashion. That is, if state budgets are constrained, and state debt caps are nearby, public funding may simply not be available to a highly desired project—the relative cost in theory goes out the window. A privately financed project can chose among a wide variety of structures and the presence of equity can be a strong incentive and efficiency enhancer. Potentially, overall project efficiencies, resulting in lower construction costs and accelerated completion, could overcome any differences in financing rates.

Even so, when a private developer pays more for capital, the increment includes elements of risk bearing and debt structure in addition to tax treatment. And, providing tax-exempt financing is not a true social saving because the cost differential is being shifted from the

project to a general government revenue account (Small, 2010). Or, put more directly, financing a project with bonds exempt from federal taxation shifts the project's costs to federal taxpayers (CBO, 2012).

In addition, several approaches have been taken to make low-cost debt available to P3 projects. The project can be established under a "63-20" corporation that can issue tax-exempt debt. In most cases this would not be state or municipal debt unless there was an additional pledge to make good on principal and interest. One of the potential drawbacks of a 63-20 approach is that it must have a majority of governmental representatives on its governing board. In practice, this has meant that financial exigencies may emerge that cannot be promptly or adequately resolved under the mixed governance structure. And, to date, the record for 63-20 arrangements has not been good as projects mature.

Financial stress and insolvency plagued Virginia's Pocahontas Parkway and South Carolina's Southern Connector, though both projects were completed and are serving the public. One lesson may be that resort to the 63-20 format was necessary because neither public nor private parties were willing to take on the substantial revenue risks of these projects. At least in these cases, both parties sought to transfer demand risks to another party, the 63-20 corporation and its debt holders.

For projects with high demand risk, another innovative funding mechanism may be more appropriate, if not necessary—that of availability payments whereby the governmental sponsor promises to make periodic payments over a defined period. In most instances, this arrangement would be counted as public debt financing since the agency is basically paying for the facility over time.

For Florida's Miami Tunnel project, several attempts were made to obtain privately funded proposals backed by facility toll revenues. Finally, an availability payment by FDOT and its governmental partners was brought together and offered in a RFP, with bidders competing based on the payment level they would require. Essentially, this method provides government funding over time to motivate private partners to put capital at risk and take construction risk without the necessity of absorbing demand risks.

Strictly private financing means there must be some return somewhere to service debt and repay the investment. In most cases, the revenues would flow from traffic payment of tolls or passenger payment of fares. Hence the demand projections must be robust. Some argue that more stringent due diligence is required, taking an outside third-party view of projects and reflecting actual outcomes on comparable projects (Poole, 2013). At any rate, demand risk needs to be carefully evaluated on all sides. In the current slow-growth environment, demand risks will likely be shared or even retained by the governmental partner, leading to a reliance on availability payments (promissory governmental payments over time) to ensure a sustainable project for the private partner.

For California's South Bay Expressway, and for the Las Vegas Monorail project, complete demand risk was assumed by the private developers and shortfalls triggered financial collapse. Traffic growth assumptions could be carefully examined by

independent reviewers, and independent stress tests performed. In San Diego County and Las Vegas, however, strong growth was the norm, so it would have been difficult to make empirical forecasts with less that robust growth. In these examples, one must assume that the lenders and bond rating agencies were in fact performing their own due diligence and expert reviews that ratified the optimistic traffic and revenue forecasts; that is, the forecasts were probably technically sound and credible, but were still wrong in hindsight. Nevertheless, this optimism led to a serious loss of investment capital, even though the projects were completed to operational status.

Poor experience with traffic and revenue forecasts has made private investors much more cautious in recent years. In the current recessionary or slow growth environment, with deleveraging still on-going, co-investment by government is being used to reduce the private capital requirements. Most recently in the US, availability payments are being used more frequently to absorb much of the demand risk for a project.

G. P3 STRUCTURES

There are many possible P3 structures, ranging from simple design/build, to build-operate-transfer (BOT), to variations where the private partner provides some or all of the project financing. All of these formats have their own virtues and some have limitations. The P3 format fits neatly on the spectrum between traditional governmental design-bid-build (DBB) contracting for facilities and full privatization of the asset, yet there remain many P3 structures along the spectrum to choose from as shown in Table 1 below. The sponsoring agency must sort through the pros and cons for its particular situation, and its particular state statutes and procurement regulations in order to find the most favorable approach.

TABLE 1
ALTERNATIVE APPROACHES TO INFRASTRUCTURE DEVELOPMENT

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(from least private involvement to most)

Traditional Approach (non-PPP)	Definition
Design-Bid-Build (DBB)	The traditional method of project delivery in which the design and construction are awarded separately and sequentially to private firms.
PPP Approaches	
Design-Build (DB)	Combines the design and construction phases into a single fixed-fee contract, thus potentially saving time and cost, improving quality, and sharing risk more equitably than the DBB method.
Private Contract Fee Services / Maintenance Contract	Contracts to private companies for services typically performed in-house (planning and environmental studies, program and financial management, operations and maintenance, etc.)
Construction Manager @ Risk (CM@R)	A contracted construction manager (CM) provides constructability, pricing, and sequencing analysis during the design phase. The design team is contracted separately. The CM stays on through the build phase and can negotiate with construction firms to implement the design.
Design-Build with a Warranty	A DB project for which the design builder guarantees to meet material workmanship and/or performance measures for a specified period after the project has been delivered.
Design-Build-Operate-Maintain (DBOM), Build-Operate-Transfer (BOT), or Build-Transfer-Operate (BTO)	The selected contractor designs, constructs, operates, and maintains the facility for a specified period of time meeting specified performance requirements. These delivery approaches increase incentives for high quality projects because the contractor is responsible for operation of the facility after construction. The public sector retains financial risk, and compensation to the private partner can be in the form of availability payments.
Design-Build-Finance (DBF), Design-Build-Finance-Operate (DBFO), or Design-Build-Finance-Operate-Maintain (DBFOM)	DBF, DBFO, and DBFOM are variations of the DB or DBOM methods for which the private partner provides some or all of the project financing. The project sponsor retains ownership of the facility. Private sector compensation can be in the form of tolls (both traffic and revenue risk transfer) or through shadow tolls (traffic risk transfer only).
Long-Term Lease Agreements/Concessions (brownfield)	Publicly financed existing facilities are leased to private sector concessionaires for specified time periods. The concessionaire may pay an upfront fee to the public agency in return for revenue generated by the facility. The concessionaire must operate and maintain the facility and may be required to make capital improvements.
Full Privatization	
Build-Own-Operate (BOO)	Design, construction, operation, and maintenance of the facility are the responsibility of the contractor. The contractor owns the facility and retains all operating revenue risk and surplus revenues for the life of the facility. The Build-Own-Operate-Transfer (BOOT) method is similar, but the infrastructure is transferred to the public agency after a specified time period.
Asset Sale	Public entity fully transfers ownership of publicly financed facilities to the private sector indefinitely.

Source: Based on FHWAs "User Guidebook on Implementing Public-Private Partnerships for Transportation Infrastructure Projects in the United States," with some modifications made by the authors.

Source: Reproduced from NCHRP Synthesis, p.8, with permission of the Cooperative Research Program.

There is no one-size-fits-all approach, and the sponsoring agency should consider a number of factors in deciding whether to pursue one of the many P3 formats or to use a traditional design-bid-build approach (or even to move to full privatization). These factors include: first, a compelling need to expand project delivery outside the traditional approach; then, a comparative valuation of alternative approaches; potential for an appropriate risk transfer to the private partner; willingness to educate the public and elected officials, seek their participation, and operate with transparency; and all with the recognition of the inherent complexity of P3 transactions.

H. CONCLUSIONS

This White Paper has provided a wide-ranging view of P3 arrangements and identified various characteristics that seem to be indicated as best practices. The material is difficult to summarize, but in conclusion, features of a P3 approach that seem most likely to be common to projects beneficial to the sponsoring agency are as follows:

- Issuance of a RFQ and development of a negotiated RFP, preferably prior to completion of the environmental review (in case project changes are proposed by the P3 process);
- Design and construction of highway (or other) facilities with a value of greater than $300 million (because of the complexity and administrative costs);
- Use of best-value selection to encourage private sector creativity and accommodate a variety of technical approaches;
- Consultation with potential bidders/partners during the NEPA process (that is, prior to obtaining environmental clearances such as a Categorical Exclusion, Finding of No Significant Impact, or Record of Decision;
- Development of a long-term partnering commitment with a private developer/operator;
- A long-term warranty or maintenance commitment by the private partner to address facility operations and system preservation;
- Where feasible, private sector responsibility for managing right-of-way acquisition;
- An expectation of significant cost and time savings to realize the project;
- Prospects for revenue sharing by the sponsoring agency in order to participate in the upside of the project;
- Significant private partner contributions to capital costs, repaid by participation in revenue collection or other value-capture approaches; and
- Post-contract support to facilitate project progress, along with ongoing analyses of project delivery statistics, operational statistics, and user surveys to evaluate the P3's performance.

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