Report to Congress on the Costs, Benefits, and Efficiencies of Public-Private Partnerships for Fixed Guideway Capital Projects

Report of the Secretary of Transportation to the United States Congress
Pursuant to 49 U.S.C. 5309(c)(6)

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Table of Contents

Chapter 1: Introduction

As the growth in traditional transportation revenue sources, such as gasoline taxes, continues to decline and operating deficits increase, transportation agencies are increasingly looking for new sources of revenue to leverage funding and to improve project feasibility and cost-effectiveness. One of the most successful methods employed by other infrastructure sectors to improve project feasibility and cost-effectiveness and generate revenues is the use of public-private partnerships (PPPs). In addition to cutting costs and raising new revenue, PPPs can significantly reduce the time it takes to complete a capital project, can help the public sector allocate risks to the private sector that the private sector is better able to manage and can improve the quality of the public's infrastructure. The success other sectors have had with PPPs has led transportation agencies, including a number of transit agencies, to pursue opportunities for applying various types of PPPs to deliver major capital projects. There is ample evidence across the United States that the private sector is interested in increasing its participation in transportation infrastructure projects, including a number of recent transit capital projects structured as PPPs.

This report sheds light on the growing use of PPPs for transit capital projects – a trend which has been driven more by local transit agencies than Federal government encouragement or promotion – to provide significant new sources of funding for transit, help address the country's urban congestion crisis and enhance mobility in many of the country's metropolitan areas.

A. Purpose

This report responds to a requirement contained in 49 U.S.C. 5309(c)(6), which was enacted on August 10, 2005 as part of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) and is intended to identify and examine the costs, benefits, and efficiencies of applying PPP delivery approaches to transit projects. The report is intended to provide greater understanding of PPPs and their relative advantages for expediting public transit capital projects and improving service delivery.

B. Scope

The report defines PPPs, discusses various types of PPPs applicable to transit capital projects, and presents the impacts of using PPPs for transit capital projects in terms of costs, benefits, efficiencies, and effectiveness. It also discusses other implications of applying PPPs to transit projects, including risk sharing, technical and operational considerations, cultural and political environment, and public service impacts. The report then examines the legal and institutional issues and impediments to the use of PPPs for transit capital projects and suggests ways to overcome these issues to facilitate greater application of PPPs to the transit industry. The Appendices to the report provide supporting information, including a summary of the FTA Public-Private Partnership Program (Penta-P) and its key features, eligibility criteria, and application timeframe.

The report is based on a literature review of PPPs in surface transportation, analysis of specific transit experience with PPPs both in the United States and other developed countries, as well as interviews with transit project sponsors using PPPs within the continental United States since 2000. These results clearly demonstrate the tangible advantages of applying PPP approaches that increase the role, responsibilities, and risk-taking by the private sector to enable public sponsors of these projects to leverage their public resources and move transit projects forward to address the mobility needs of the nation, particularly in our highly congested urban areas.

Chapter 2: Types of PPPs in Transit

The chapter defines PPPs and describes several types of PPPs applicable to transit capital projects.

A. PPPs Defined

PPPs are essentially a form of procurement. Unlike conventional methods of contracting for new construction, in which discrete functions are divided and procured through separate solicitations, PPPs contemplate a single private entity, typically a consortium of private companies, being responsible and financially liable for performing all or a significant number of functions in connection with a project. In transferring responsibility and risk for multiple project elements to the private partner, the project sponsor relaxes its control of the procurement, and the private partner receives the opportunity to earn a financial return commensurate with the risks it has assumed.

Structured in multiple forms, PPPs vary generally according to the scope of responsibility and degree of risk assumed by the private partner with respect to the project. In each case, the private partner assumes financial risk in some form - for example, through an equity investment, liability for indebtedness, a fixed priced contract or a combination thereof.

Accordingly, the term “PPP” does not denote innovative finance as such, but instead, innovative procurements of major capital projects in which private capital is invested. PPPs may be distinguished from other collaborative arrangements between public and private sectors that are not procurements but instead are mechanisms to provide private capital to transit projects. Many transit agencies, for example, are partnering with the private sector in order to promote real estate development in and around transit facilities, which is often referred to as “joint development” or “transit oriented development.” These partnerships provide access to additional capital and operating revenues for transit agencies through the receipt of lease payments, access fees, and increased fare revenues, as well as direct private sector funding of capital facilities that promote access between transit and private development. The capital-raising function, however, is but one element of a PPP.

It is important to note that not all innovative contracts referred to as PPPs adopt the principles of PPP project delivery. For example, project sponsors have defeated the purpose of having a single point of accountability and enhanced design constructability provided by a design-build contract by procuring multiple design-build contracts for a single project. Notable among such projects is the San Francisco Airport Extension (with four design-build contracts) and the Tren Urbano project (with seven design-build contracts).

B. Types of PPPs

In recent years transit agencies have increasingly turned to PPP in order to procure new or expanded transit services. Agencies use PPP delivery approaches to obtain time savings, cost savings, and more innovative, higher quality projects with reduced risks. This section describes the types of project delivery approaches used for transit projects and the potential benefits

associated with these approaches. By way of background, this section begins with a description of the traditional design-bid-build approach to project delivery.

Exhibit 2.1 summarizes some of the major types of PPPs applicable to transit projects, moving from the PPPs that have the greatest private sector role to those with the least private sector role.

Exhibit 2.1: Major Types of PPPs in Transit

Greater Private Sector Role	• Build-Own-Operate (BOO) • Design-Build-Finance-Operate-Maintain (DBFOM) • Design-Build-Finance-Operate (DBFO)
Lesser Private Sector Role	• Build-Operate-Transfer (BOT) • Design-Build-Operate-Maintain (DBOM) • Design-Build (DB)

Design-Bid-Build

Design-bid-build ("DBB") is the traditional form of project delivery in which the design and construction of the facility are awarded separately to private sector engineering and contracting firms. As a result, the DBB process is divided into two separate phases for design and construction. In the design phase, the project sponsor either performs the work in-house or contracts with an engineering and design firm to prepare the preliminary engineering plans and environmental clearance, which typically results in a project plan at the 30 percent completion stage, and the final drawings and specifications for the project. Once the design phase is complete, the project sponsor separately contracts with a private construction firm through a competitive bidding process. Under a DBB delivery approach, the project sponsor, not the construction contractor, is solely responsible for the financing, operation, and maintenance of the facility and assumes the risk that the drawings and specifications are complete and free from error. The DBB selection process is based on negotiated terms with the most qualified firm for the design phase; while the award of the construction contract typically is based on the lowest responsible bid price. The majority of surface transportation projects, including most transit capital projects, currently use the DBB approach.

Design-Build

Unlike DBB where the design and construction phases of a project are procured using two separate contracts with little or no overlap in the respective project work phases, the design-build ("DB") delivery approach combines the design and construction phases into one, fixed-fee contract. Under a DB contract, the design-builder, not the project sponsor, assumes the risk that the drawings and specifications are free from error. While the design and construction phases are performed under one contract, it is important to note that the design-builder may be one company or a team of companies working together. The DB selection process may be based on a negotiation with one or more contractors or a competitive process based on some combination of

price, duration, and qualifications. Increasingly DB contracts are being awarded on the basis of best value, considering each of these factors.

The DB delivery approach is a relatively new process for the transportation industry in the United States, particularly for transit. Since its introduction in the early 1990s, DB has become a successful, well-established process for delivering major capital projects by the private sector. As other sectors experience success with DB delivery, transportation agencies are increasingly interested in the potential to apply DB as a means to improve the cost-effectiveness (time, cost, and quality) of traditional contracting practices.

Since 2000, 7 transit New Starts projects have been procured using a DB approach, including:

- Denver RTD Southeast Corridor LRT;
- South Florida Commuter Rail Upgrades;
- Minneapolis Hiawatha LRT;
- NJ Transit Hudson-Bergen LRT MOS-1;
- NJ Transit Hudson-Bergen LRT MOS-2;
- WMATA Largo Metrorail Extension; and
- BART Extension to San Francisco International Airport.

In addition there are two non-New Start fixed guideway projects with Federal interest that have been delivered using a DB approach:

- Portland MAX Airport Extension; and
- JFK Airtrain.

The primary advantages associated with DB delivery and other PPP delivery approaches that include a DB component (discussed below) when compared to traditional DBB delivery include:[1,2,3]

- **Time savings:** The potential for time savings results from early contractor involvement in the design phase, which increases the constructability of the design plans, the ability to work concurrently on the design and construction phases for portions of the project and the elimination of the bidding process between the design and construction phases that is required of traditional DBB project delivery.
- **Cost savings:** The potential for cost savings results from continued communication between design, engineering, and construction team members throughout the delivery, reduced inspection requirements by the project sponsor because the design and construction risk are the responsibility of the design-builder, reduced change orders due to

[1] Loulakis, M.C. *Construction Project Delivery Systems: Evaluating the Owners Alternatives*, AEC Training Technologies, 1999.
[2] Pakkala, Pekka. *Innovative Project Delivery Methods for Infrastructure: An International Perspective*, Finnish Road Enterprise, 2002.
[3] Tenah, K.A. "Project Delivery Systems for Construction: An Overview," *Cost Engineering*, AACE International, Morgantown, WV, 43(1), pp20-26.

early involvement of the construction contractors in the design phase and shortened project timeline, which, among other benefits, may reduce construction costs.

- **Shared risks:** Since the potential project risks are shared among the public and private sectors, the risks may be assigned to the party best able to handle them. For example, the private sector may be better equipped to handle the risks associated with design quality, construction costs, and adherence to the delivery schedule since it is responsible for both the design and construction of the facility while the public sector may be better able to manage the public risks of environmental clearance, permitting, and right-of-way acquisition. Additional benefits of proper risk allocation are reduced costs and minimization of contingencies.
- **Improved quality:** The potential for improved quality results from the involvement of the design team through the project development and opportunities to incorporate project innovations and new technology that may arise based on project needs and contractor capabilities.

PPPs may include a variety of structures and combinations that result in private participation only in the design and construction phases or also in other aspects of project delivery, including operations, maintenance, and project financing.

Design-Build-Operate-Maintain and Build-Operate-Transfer

Under a design-build-operate-maintain ("DBOM") or build-operate-transfer ("BOT") delivery approach, the selected contractor is responsible for the design, construction, operation, and maintenance of the facility for a specified time. The contractor must meet all agreed upon performance standards relating to physical condition, capacity, congestion, and/or ride quality. The potential advantages of the DBOM or BOT approach are the increased incentives for the delivery of a higher quality plan and project because the private partner is responsible for the performance of the facility and for maintaining the project, in its complete and fully operational state, for a specified period of time after construction. Since 2000, three transit projects in the U.S. have been procured as DBOMs: NJ Transit Hudson-Bergen LRT MOS-1 and MOS-2 (see illustration of Hudson-Bergen LRT Line below); and JFK Airtrain.

Hudson-Bergen Light Rail Transit Line (DBOM PPP Project)

Source: Photo by David Pirmann, 11/2001. http://world.nycsubway.org/us/hudson-bergen/

Design-Build-Finance-Operate and Design-Build-Finance-Operate-Maintain

The design-build-finance-operate ("DBFO") and Design-Build-Finance-Operate-Maintain ("DBFOM") delivery approaches are a variation of the DBOM approach. The major difference is that in addition to the design, construction, and operation of the project, the contractor is also responsible for all or a major part of the project's financing. The potential advantages of the DBFO and DBFOM approaches are the same as those under the DBOM approach but also include the transfer of the financial risks to the private partner during the contract period. While the project sponsor retains ownership of the facility, the DBFO and DBFOM approaches attract private financing for the project that can be repaid with revenues generated during the facility's operation. All or a portion of the revenue used to repay the private financing can be generated by the facility itself, but revenue generated by the public sector through taxes or other public sources can also be used to repay all or a portion of the private financing. Utilizing long-term public sources of revenue to pay down privately financed projects allows the public sector to enjoy some of the benefits available with a leveraged project without issuing bonds or otherwise incurring debt on its balance sheet.

Build-Own-Operate

Under a build-own-operate ("BOO") delivery approach, the design, construction, operation, and maintenance of a facility is the responsibility of the contractor. The major difference between BOO and other PPP approaches is that with a BOO approach, the private partner owns the facility and is assigned all operating revenue risk and any surplus revenues for the life of the facility.

Exhibit 2.2 summarizes the various possible benefits from using PPPs to develop transit capital projects and operate transit services, the potential application of PPPs to major transit capital projects, and examples of specific U.S. transit projects that used PPP structures. As Exhibit 2.2 illustrates, agency sponsors of transit projects have a broad array of choices for engaging the private sector as partners in their efforts to improve their systems and services, expedite delivery of needed facilities and equipment, and leverage scarce resources.

Exhibit 2.2: Summary of Transit PPPs and Benefits

Type of PPP	Benefits	Applicability to Transit Projects	Examples

Types of PPPs in Transit

Type of PPP	Benefits	Applicability to Transit Projects	Examples
DB	▪ Time savings ▪ Cost savings ▪ Risk sharing ▪ Improve quality ▪ Expedite introduction of new technology and innovative approaches	▪ Most commonly used PPP delivery approach among U.S. transit capital projects since 2000 ▪ Potential for increased use ▪ New Starts process slows delivery ▪ Several states have laws against DBs	▪ Denver RTD Southeast Corridor LRT ▪ South Florida Commuter Rail Upgrades ▪ LA MTA Metro Gold Line East Side Extension ▪ Minneapolis Hiawatha LRT ▪ BART Extension to SFO ▪ WMATA Largo Metrorail Extension ▪ Portland MAX Airport Extension
DBOM	▪ Same as DB, but transfer of operating and maintenance risks to developer-operator increases incentives for higher quality plan and Project	▪ Second most commonly used PPP delivery approach among U.S. transit capital projects since 2000 ▪ Same as DB, but extends private partner's responsibilities into operations and maintenance	▪ Hudson-Bergen LRT ▪ JFK Airtrain
BOT	▪ Same as DBOM	▪ Same as DBOM	
DBFO and DBFOM	▪ Same as DBOM, but transfer of financial risks to developer-operator	▪ Same as DBOM, but extends private partner's responsibilities into financing	▪ Las Vegas Monorail (private funding only)
BOO	▪ Same as DBFOM, but transfer of operating revenue risk to private partner	▪ Same as DBFOM, but extends private partner's responsibilities to ownership	

Chapter 3: Implications of PPPs on Transit Costs, Benefits, Efficiencies, and Effectiveness

This chapter discusses the impacts of applying PPP approaches to transit capital projects and services in terms of costs, benefits, efficiency, and effectiveness. The results are based largely on the transit capital projects that have been delivered using PPP approaches in the U.S. since 2000.

A. Cost Impacts of PPPs on Transit Projects and Services

By giving the contractor more flexibility in final design, the public sponsor facilitates use of cost-saving innovations and enables the developer to take advantage of a broad array of specialized resources that are available to its team. In order to gain full advantage of these efficiencies, the government sponsor must approve the requirements to be met by the sponsor, prior to start of the final design process, and must limit its review of the project design to verification that the design conforms to applicable requirements, such as design standards and performance-based specifications. Likewise, in the operation and maintenance phase, performance measures rather than prescriptive standards allow the contractor flexibility to innovate and achieve efficient operations while maintaining the public sponsor's quality standards.

The selection of a PPP for project delivery can impact capital construction costs directly and indirectly. In addition, a PPP can impact the life-cycle costs to operate and maintain the asset over its useful life.

i. Reduced Direct Costs

Reduced direct costs include savings over the estimated cost of a contract that are attributable to the use of a PPP structure. For example, the final cost of two design-build contracts for the **Largo Metrorail Extension** project were approximately $1 million less than WMATA had budgeted for them. Similarly, the LRT portion of **Denver's T- REX** project was completed under budget and the final cost did not vary from the original cost estimate published in the project's EIS.

Direct cost savings can also be attributable to innovations in project design or other changes to the project that result in savings, such as the application by the design-build contractor of a jet van tunnel ventilation system in the Largo project that saved an estimated $10 million over the vent shafts that WMATA had constructed elsewhere in the Metrorail system.

While PPP structures that include private financing offer certain important benefits, it should be noted that, just like public sector debt financing, private financing may be more expensive than pay as you go funding. For example, the **BART Oakland Airport Connector** project will include costs related to the private sector financing of the project. Applying a DBFO delivery approach will add an estimated $30 to $40 million to the cost of the concession over a 30 to 40 year term versus a DBOM approach in which the project's capital costs were entirely funded with public sector monies. However, given the scarcity of state funds, the project would not be possible at this point without private financing, and BART has estimated that the cost for the agency to borrow directly is similar to the cost of private financing.

ii. Lower Indirect Costs

Lower indirect costs include avoided costs attributable to the selection of a PPP. The overhead costs of MnDOT and Metro Transit associated with the **Hiawatha Corridor** project were trimmed by an estimated $25 to $38 million due to the project's completion one year earlier than likely would have been the case with a design-bid-build project delivery approach.

Another form of indirect cost savings comes in the form of avoided inflation costs on building materials. For example, the **Denver T- REX** project design-build consortium aggressively purchased building materials early in the design process, as soon as design plans were complete enough to justify a purchase. This locked in prices early and protected the project against any increases in building materials costs. And by overlapping design and construction, the project timeframe was condensed, thereby eliminating exposure to the rapid rise in the price of construction commodities in 2005 and 2006. Conservatively, delivery of the **Portland MAX Airport Extension** project via design-bid-build would have added three years to the project schedule, adding $10 to $15 million (or 8 to 12 percent) to the cost of the project due to escalating materials costs.

Design-build project delivery simplified **WMATA's Largo Metrorail Extension** project management by reducing the number of contractors reporting to WMATA to three from an estimated 15 to 20 contractors that the agency might have hired had it applied a design-bid-build approach. This would have increased the cost and complexity of managing the project and procuring contractors. WMATA originally justified a design-build delivery approach for the Largo Metrorail Extension based on projections of overhead cost savings related to a shortened project timeframe versus commodities-related cost savings, which did not substantially impact the project given its completion before the recent sharp increases in key construction commodities including oil, concrete, and steel.

Indirect cost savings also result from the transfer of risk of operating and maintenance cost increases to a consortium. NJ Transit will pay the **Hudson-Bergen Light Rail** project's DBOM consortium a guaranteed price in 1996 dollars for operation and maintenance of the line, subject to increases in the consumer price index (CPI) and other inflation indices for selected operating costs, including electricity. This insulates the agency from growth in operating costs for reasons other than inflation, and provides the operating consortium incentive to keep a lid on O&M cost escalation.

iii. Lower Life-cycle Costs

Project costs over the useful life of a capital improvement—including construction, operations, maintenance, and preservation—may be reduced by the application of a PPP. For example, the jet fans applied instead of vent shafts along the cut-and-cover tunnel portion of **WMATA's Largo Metrorail** project were found to be easier to maintain and more efficient to operate. Given their presence along the trackway, however, special equipment was required to maintain them. The design-build offered to provide WMATA the equipment necessary given the substantial capital savings.

BART expects the O&M component of the DBFO approach being applied to the agency's planned delivery of the **Oakland Airport Connector** project to result in operating efficiencies for the link. As formulated, the project teams pre-qualified to design, construct, and operate the system would apply proprietary systems, the operation of which will benefit from the technology owner's detailed know-how. In addition, the consortium will not be subject to BART's labor agreements which could create a higher operating cost for the connector if the project were directly operated by the agency.

B. Benefits of PPPs on Transit Project Delivery Schedules and Revenue

In addition to the opportunity to reduce the costs of delivering transit capital projects and services, both the sponsor agency and patrons of transit services can benefit from the shorter project delivery schedules offered by PPP structures.

i. Reduced Project Duration

One of the primary reasons the public sector is interested in using PPPs is to achieve time savings in the total development process through concurrent performance of certain activities whose results are not mutually dependent, efficient use of resources, and related cost savings. PPPs can also expedite the application of advanced technology. Thus, private developers seek to "fast-track" design and construction, proceeding with certain elements of the construction work while design is still ongoing on others, and involving the construction firm in design reviews to avoid delays associated with design defects affecting project construction. Time savings can also lower the cost of the project by avoiding large increases in material costs due to price inflation.

Many of the transit capital projects identified in this report that were delivered through a PPP advanced by a year or more in part as a result of the PPP delivery approach. In one instance the application of a PPP advanced the opening date of a planned extension by several years as a result of funding contributions made by private partners.

Design-build expedited completion of the **Hiawatha Corridor LRT** project by one year over design-bid build by enabling project design and construction schedules to overlap. Similarly, the **Largo Metrorail Extension** advanced by an estimated two years due to DB, while the **Hudson-Bergen Light Rail** project advanced by at least one and possibly two years by using a DBOM delivery approach versus design-bid-build.

Both the highway and LRT portions of **Denver's T- REX** were delivered 22 months earlier than requested in the sponsoring agencies' request for proposals (RFP). While the RFP required completion by June 2008, the project delivery team proposed completion by September 1, 2006, which was one factor in the team's selection. The team met the schedule, completing LRT construction by September 1, 2006 and highway construction a few days earlier.

The DB consortium completed construction of **Portland's MAX Airport Extension** nine weeks early, providing Tri-Met additional time for initial testing. More importantly, the funding that Bechtel Enterprises brought to the table advanced the project by several years compared to the likely project timeframe if it were required to wait its turn for funding from the region and the

Federal government. In fact, the lack of New Starts funding was an added attraction of the PPP as it eliminated the extensive application process required to secure Federal transit capital funds.

The BART **Oakland Airport Connector** project would not be possible without using a PPP structure because, due to the economic climate, a significant amount of anticipated state funding for the project would not likely have been made available for several years. Using a PPP, this project is moving forward with revenue service scheduled to begin as early as 2011.

ii. Agency Revenue and Ridership Enhancement

The use of PPPs to expedite transit capital projects can also have significant impacts on agency ridership, revenues, and project funding requirements. Increases in transit agency revenues and ridership from the facility can result from advancing the scheduled opening date for fare-paying customers to begin to use the facility. PPP arrangements can also expedite the provision of mobility benefits to patrons of transit facilities and services by reducing the timeframe for project development and delivery.

As noted above, many of the transit capital projects delivered using a PPP approach reduced the timeframe for project delivery and initiation of revenue service. In each of these cases, the sponsoring agency was able to increase both ridership and revenues by bringing the projects on-line for revenue service earlier than using a more traditional project delivery approach. This benefits both the sponsoring transit agencies and their patrons.

iii. Project Funding Enhancement (Subsidy Minimization)

One of the most important features of PPPs is the opportunity to supplement public sources of funding with private equity and debt. In order for the private sector to be willing to invest (or lend) funds for development of a project, it needs to have access to a predictable stream of revenues from which it can earn a return. For certain projects, financing can be based on projected revenues from the project itself (farebox). However, most transit projects do not generate sufficient revenues for this purpose, and it is therefore necessary to explore finance alternatives based on infusion of public dollars to leverage the private investment and/or utilization of other sources of public revenue to pay down the project's debt. Where public dollars are needed, private moneys typically will not be put at risk until such time as the public funding is firmly committed.

As part of its unsolicited proposal, Bechtel Enterprises provided $28.2 million in up-front project funding for the **Portland MAX Airport Extension**, in exchange for the right to develop a 120-acre parcel adjacent to the airport with mixed use development as well as for Bechtel Infrastructure to lead design-build activities for the project. The contribution funded 23 percent of the project's capital expenses and reduced the public subsidy required to construct the project.

Private financing is a key reason that BART is using a PPP structure for its **Oakland Airport Connector** project. Under the proposed DBFO structure for the project, the private consortium would be expected to finance half of the project's capital cost, with debt service to be repaid from fare revenue generated by the project's operation.

C. Impacts of PPPs on Transit Project and Service Efficiencies

The impacts of PPPs on the efficiency of facility or service delivery are of great interest to transit agencies seeking to lower their cost of operations which further contributes to "subsidy minimization." The following section discusses service efficiency impacts of transit PPPs in terms of operating efficiency, integrated facility development and delivery, and transfer of project risks to the entity best able to manage, mitigate, or eliminate such risks.

i. Improved Operating Efficiency

A PPP is not merely the outsourcing of transit system services and functions to the private sector but involves a partnership relationship between the sponsor transit agency and the private partner whereby each provides those services it is best equipped to offer in the most cost-effective manner – not merely the cheapest. PPPs bring specialized resources to a transit service operation that can significantly leverage the resources and capabilities of the sponsor transit agency. These improved practices result in better patron service, greater access to capital markets to expedite project delivery by augmenting more traditional sources of funding and finance, quicker access to more efficient technology, and in certain instances less expensive staff resources to perform functions only when needed instead of retaining them on a full-time basis.

PPPs also introduce competition to the provision of public transportation facilities and services, which inevitably serves to increase the availability of qualified resources to perform these functions and places downward pressure on the prices of these services, especially when there are multiple providers to choose from. Alternatively, private sector involvement can result in service quality improvements at the same cost as traditional public agency-provided services, but with the potential for the added benefit of transferring the risk of providing the desired service quality to the private partner.

The public sponsor agency also serves to protect the public interest in the social benefits and externalities provided by public transportation services.

ii. Integrated Development and Delivery

Private innovation can be maximized by engaging a private developer early in the development process, even before completion of preliminary engineering, although this must be done in a manner that does not prejudice environmental analysis under the National Environmental Policy Act (NEPA). Where this approach is used, it will not be possible for the price of construction services to be considered in selecting the private partner—as a general matter, price can be ascertained only after the NEPA analysis has been completed and preliminary engineering work performed to define the scope of the project. Consequently, laws must permit the negotiation of a price for final design and construction using methods that assure the reasonableness of the final agreed price.

iii. Risk Transfer

Transfer of risk to the private sector is one of the key goals of PPPs. Nevertheless, it must be recognized that the private sector will not contribute to a project that shifts unreasonable risks to

the private partner. While private partners will typically assume final design, construction, financing, operations, and maintenance risks, and to varying degrees geotechnical and utility relocation risks, they generally have a lower tolerance for certain regulatory risks, such as environmental clearance and permitting, as well as right-of-way acquisition, which can generally be better managed by the public sector.

D. Impacts of PPPs on Transit Project and Service Effectiveness

i. Service and Social Benefits

The major social welfare benefit of PPPs is their ability to expedite the delivery of transit facilities and services and to reduce capital and operating costs so that these benefits can be generated in a timelier manner at the same or lower overall costs. Transit projects and services that can be accelerated at reasonable cost by the use of PPPs enable residents of the area to enjoy such benefits as improved mobility and reduced energy consumption, air pollution, and congestion on adjacent highways more quickly.

Continuing to provide social benefits through the availability of transit services is a major reason that public transportation systems in the United States and elsewhere around the world consume significantly more revenues than are provided directly by user charges, even with private sector operations. This is a major reason that the achievable goal of transit PPPs is "subsidy minimization," not "profit maximization," with the sponsor agency retaining the responsibility for protecting the public interest through conscientiously administering the PPP contract to hold the private partner accountable for the level of services specified in the agreement.

ii. Project Quality

BART selected a DBFO project delivery approach for the **Oakland Airport Connector** project in part because it provides the design-build team the incentive to build a high-quality system, as the consortium will be responsible for capital reinvestment and system turnover costs over the 35-year span of the O&M contract. In addition, the project is expected to benefit from efficiencies created by direct operation and maintenance by the proprietary owner of the applied automated people mover technology.

The **South Florida Commuter Rail Upgrades** project is praised for the higher quality of its construction as a result of using a design-build project delivery approach, which enabled the project builders to improve the constructability of the project's design.

The application of design-build provides the opportunity to improve a project by applying a construction technique that is both higher quality and more cost effective. An example is the tunnel ventilation changes suggested to WMATA by the design-builder of the **Largo Metrorail Extension**.

E. Summary of Quantitative Impacts of Transit Capital PPP Projects

This section summarizes the impacts of using PPP approaches for major capital projects receiving Federal funding under the New Starts program. There are a variety of reasons that the

project sponsors interviewed for this report chose to deliver projects using PPP approaches, but in every case at least one of four common benefits of PPPs were realized or expected to occur:

- Project costs were reduced;
- Project duration was shortened;
- Project quality was maintained or enhanced; and/or
- The procuring agencies funding sources were leveraged or enhanced.

Exhibit 3.1 summarizes the quantitative impacts of PPP approaches used by these project sponsors in terms of project cost, timeframe, quality, and funding sources, where applicable or available. Most of the projects were delivered within budget and ahead of the projected timeframe by applying a PPP approach, with consistent or better quality. In some cases, funding sources were also enhanced.

Exhibit 3.1: Summary of PPP Impacts on Selected Transit Projects since 2000

Project (PPP Approach)	Project Cost	Project Timeframe	Project Quality	Funding Sources
Denver T-REX Southeast Corridor LRT (DB)	▪ Project completed within budget. ▪ Estimated building materials cost savings.	▪ 22 months saved due to design-build.	▪ Meets agency's usual design standards.	▪ N/A
South Florida Commuter Rail Upgrades (DB)	▪ Slightly higher costs for DB than estimated for DBB delivery approach.	▪ 4-6 years saved by completing upgrades as one project.	▪ Higher quality design and construction.	▪ N/A
Minneapolis Hiawatha Corridor LRT (DB)	▪ Completed within budget as amended. ▪ Estimated $25-38M in over-head savings from design-build.	▪ 1 year saved due to design-build.	▪ Meets agency's usual design standards.	▪ N/A
Hudson-Bergen LRT MOS-1 & MOS-2 (DBOM)	▪ Insulated from capital & O&M cost overruns through risk transfer.	▪ 1-2 years saved due to DBOM approach.	▪ O&M portion of DBOM provides incentives for quality product.	▪ N/A
Portland MAX Airport Extension (DB & JD) – with	▪ Completed within budget. ▪ $10-15M in	▪ Estimated 3+ years saved due to	▪ Meets agency's usual design	▪ Up-front private funding of

Project (PPP Approach)	Project Cost	Project Timeframe	Project Quality	Funding Sources
PFC Funding	building materials cost savings.	PPP. ▪ Construction ended 9 weeks early.	standards.	$28M, 23% of project cost.
WMATA Largo Metrorail Extension (DB)	▪ Completed $1M under budget. ▪ Overhead cost savings from fewer contractors.	▪ Estimated 2 years saved due to DB.	▪ Innovative and cost-effective design lead to life-cycle cost savings and higher quality product.	▪ N/A
BART Oakland Airport Connector (DBFO) – with PFC Funding	▪ Slightly higher cost for private financing. ▪ Reduced estimated cost for O&M as DBFO.	▪ Project may otherwise never occur without DBFO.	▪ DBFO provides incentive to build higher quality project.	▪ Up-front private funding for 50% of estimated $352M project capital cost.

The quantitative impacts of the PPP approaches used on the eight projects shown in Exhibit 3.1 are summarized below:

- Cost savings per project ranged from $1 to $38 million, with eight projects experiencing lower overall costs, two projects coming in on-budget, and one project slightly over the engineer's estimate based on a Design-Bid-Build approach to project delivery.
- All seven projects where duration was a factor experienced schedule reductions ranging from 1 to 6 years.
- Four out of the eight projects applied higher design standards due to the integration of design and construction functions for DB projects and the additional risk taken by the contracts using DBOM and DBFO delivery approaches, while the remaining four projects applied design standards comparable to the agency's requirements.
- Private financing to expedite a project was a factor in two projects, with the level of private financing ranging from $28 million (23 percent of the project's capital cost) to $172 million (50 percent of the project's capital cost).

F. Other Impacts of PPPs for Transit

In addition to the impact of PPPs on project cost, timeframe, quality, or funding sources, PPPs have a number of other qualitative impacts on transit projects and services. These include:

- Risk sharing

- Procedural and institutional
- Technical and operational
- Cultural and political
- Public service

These impacts are summarized in this section.

i. Risk Sharing

By applying a PPP, many of the risks associated with developing and operating a project can be shared with the private sector. Risk sharing can provide incentives to improve the quality, cost-effectiveness, or timeliness of a project. As one project sponsor observed, under a design-bid-build approach contractors would sit back and leave it to the sponsor to resolve design problems. On the other hand, with design-build, the contractor team members must implement what they themselves design, and will come to the plate much faster to make sure the design works than under design-bid-build.

It is essential, however, to map the risks associated with a project and assign each identified risk to the party most capable of managing the risk. For example, while BART plans to transfer design, construction, start-up, operations and financing risks to the consortium selected to deliver the **Oakland Airport Connecto**r project, the agency will retain most of the risk associated with ridership and fare revenue, from which it will pay the consortium a monthly payment for operating and maintaining the connector. By statute BART has the sole authority to control its fare policy, and since fares will not be under the consortium's control, it would be a difficult risk to assign. However, a small portion of the consortium's monthly payment (between 10 and 20 percent) will likely be tied to project fare revenues, to provide incentive for the consortium to design, construct, and operate a facility that is attractive to riders.

Early in the planning process for the **Largo Metrorail Extension**, WMATA determined which risks were best assumed by the agency as project owner and lumped many of these tasks into a design-bid-build site preparation contract. In the process of negotiating with the design-build teams selected to deliver the project some additional risks were identified and discussed, and contractual requirements such as bonding and minority business enterprise goals were refined to the satisfaction of both WMATA and its contractors.

The **Hiawatha Corridor LRT** project applied an owner-controlled insurance program (OCIP) to the project, in which the project sponsors maintained five lines of insurance covering general liability, workers compensation, hazardous materials, contaminated groundwater, and other risks. The project sponsors found that this policy helped to minimize the proposed design-build prices from the responsive joint ventures. However, there were some drawbacks to the policy, as contractors had limited incentive to resolve workers' compensation claims.

ii. Procedural and Institutional

Procedural and institutional issues can play a significant role in the success of a project or partnership. Impacts center on coordination and communications between sponsors, legal and

financial advisors, designers, contractors, operators, and project stakeholders such as localities and adjacent property owners. Another category of procedural and institutional impacts concerns FTA's New Starts approvals process.

Lack of Internal Expertise or Experience

Because BART does not have a lot of past experience with PPPs, BART brought in outside legal and financial experts who have extensive international experience in negotiating these deals from both sides of the table. In addition, BART has consulted with peer agencies that have developed similar projects, such as the Port Authority of New York and New Jersey, which recently completed its **JFK Airtrain** light rail system to New York's JFK International Airport, sponsors of the Richmond-Airport-Vancouver (RAV) rapid transit line in British Columbia, officials from London Underground, which completed numerous PPPs in recent years, and experts on commercial aspects of toll road concessions.

Public-Public-Private Partnerships

Several agencies found that the structure of their PPPs enabled public-*public* interactions that facilitated implementation of the project:

- **Portland's MAX Airport Extension** benefited from cooperation between FTA, which was experienced with transit capital program oversight, and the Federal Aviation Administration ("FAA"), which has regulatory oversight over projects funded with Passenger Facility Charges ("PFCs"). FTA officials in particular took an interest in the project's success as a model for funding transit projects without a New Starts grant. FAA insisted that the cost-effectiveness of the project be evaluated, but had little experience with transit projects. FTA assisted FAA with examining the project's cost-effectiveness, which ultimately resulted in FAA's approval of the application of PFC revenues towards the on-airport elements of the project. The project, which included a design-build component, was ultimately the first successful application of PFC fees to an off-airport transit project, and was the first in which the cash flow from PFC fees was bonded.

- **Denver's T- REX** project successfully united highway staff from CDOT and transit staff from RTD. The project staff from both agencies were interrelated and co-located in the same building along with contractors' staff, which enabled communications between the public and private sector partners. This facilitated a collaborative working relationship between team members throughout the project. In fact, no issues arose between partners that needed to be escalated to the senior management of either agency. The $1.2 billion project finished without any claims from the contractor, and met all of its goals, finishing ahead of schedule, on budget, with a quality, award-winning project that successfully minimized inconvenience to the traveling public, according to surveys.

- The **Hiawatha Corridor LRT** project had a similar experience with co-locating its design-build team in the same building as the sponsor's project office, which included both MnDOT and Metro Transit officials. Metro Council found that having proximity and a close, collegial working relationship between partners was useful so that they could

coordinate and answer design questions. This arrangement provided both technical and time benefits.

Obsolete Bureaucratic Processes

On the other hand, the Hiawatha Corridor project faced an awkward and time-consuming process for executing change orders due to the project's bifurcated management structure, in which MnDOT was responsible for constructing the project while Metro Transit was the FTA New Starts grantee. A total of 138 change orders were negotiated during project delivery, and every one had to be executed by both MnDOT and Metro Transit. Beyond the project's primary sponsors, the project team had to keep its many funding partners informed and engaged, especially as it related to the drawdown of construction funds from general obligation bonds issued by the Minnesota Department of Finance to draw funds for the project from general obligation debt.

Integration Challenges

Another procedural impediment to the **Hiawatha Corridor LRT** project involved the interface between the project's design-build team and the contractor selected to construct the airport segment of the project, twin 1.8 mile tunnels delivered by the Metropolitan Airport Commission using a design-bid-build approach. MAC's contractor was responsible for civil construction and stub-ins for electrical systems, while the design-build team was responsible for track, signal, and catenary power delivery system. The original plan called for MAC's contractor to complete one tunnel first, enabling the design-build team to initiate systems installation in the first tunnel while the second tunnel was completed. However, the MAC contractor fell behind schedule by 102 days, which could potentially have resulted in 3 or more months of inactivity for the design-build team while it waited for the tunnel's completion. To address this, both sets of contractors and the project sponsors developed a detailed plan in which the tunnel would be completed in linear feet segments, which allowed the design-build team to begin systems installation in part of the tunnel while the other contractor finished the rest of it. This kept the two teams active and productively working simultaneously in the same tunnel, 75 feet below the runways of the Minneapolis-St. Paul International Airport.

The initial disconnect between the design-build contractor and MAC's contractor highlights the benefits of a PPP structure where a single entity is responsible and financially liable for performing all or a significant number of functions in connection with a PPP project and the public sponsor does not need to assume the risk that the work of one contractor will impede the work of another.

Sponsors of both the **Hiawatha Corridor** and **T-REX** projects orchestrated careful interactions with localities and private property owners regarding project betterments. Both projects were requested to improve facilities near the project to enhance access to or the appearance of the project. In both cases, sponsors responded that the parties would need to pay for design and construction of improvements that were outside the scope of the project. In the case of Hiawatha, the project sponsors were diplomatic in saying "no" to parties interested in improved access who weren't willing to pay for it with private resources. In the case of Denver's project, localities

paid for most of the changes, but RTD did contribute to some changes when there was a direct benefit to the agency or its users.

Contractor-Subcontractor Integration Challenges

NJ Transit discovered that when the concessionaire did more design itself instead of subcontracting design, the agency obtained superior results because there was better coordination between the prime contractor and the operator. The design of the **Hudson-Bergen LRT MOS-1** was by a subcontractor, which created coordination and communication issues between the project's designer and operator. The lead for the DB consortium designed **Hudson-Bergen LRT MOS-2** directly, and was more responsive to civil and systems needs, which achieved a better product more easily.

PPP Impacts on New Starts Evaluation and Rating Process

A final procedural and institutional impact involves FTA's current process for reviewing prospective New Starts projects. Several commented that FTA's process does not reflect the fast-track possibilities of innovative project delivery approaches such as design-build. As currently structured the FTA approval process was described as very linear, sequentially moving projects from preliminary engineering to final design to FFGA without allowing for concurrency in the planning process, a vestige of a time when design-bid-build was the only delivery approach employed for New Starts projects. Rigorous risk assessments identifying major project risks and mitigation strategies are required prior to FFGA, but construction cannot begin until the agency enters into a FFGA with FTA. One agency suggested that FTA modify its evaluation process so that a FFGA may be entered into without first completing final design, stating that conclusive evidence demonstrating to the Project Management Officer (PMO) that Federal risk is minimized should be sufficient to advance a project. Another stated that FTA's risk assessment requires the sponsoring agency to develop designs early in the development process as a condition of grant award, which may foreclose opportunities to apply innovative delivery techniques because 60 to 65 percent design detail is required to satisfy FTA requirements.

iii. Technical and Operational

PPPs offer the opportunity for the private sector to apply its expertise to bring technical innovation to complex projects. One example is the application of a jet van tunnel ventilation system in the **Largo Metrorail Extension** project that saved an estimated $10 million in project costs over the vent shaft design that WMATA had constructed elsewhere in the Metrorail system, and is more cost-effective to operate and maintain than the agency's usual approach.

Denver's Southeast Corridor LRT project benefited from several technical and engineering innovations because contractors had the ability to propose technology equal to or better than that proposed in the project specifications. There were a total of approximately 100 so-called "Category B" changes, in which the contractor applied new technologies or found a better solution than originally proposed. Many of these changes cost the agency less money but provided a better product.

Portland's Tri-Met successfully applied design-build to fast-track the **MAX Airport Extension** project, in part because of the technical innovations it offered. A number of bridges constructed

for the project had shafts being driven and piers built while the design detail for the bridges was being finished. When problems did arise, the agency found that design-builder Bechtel was quick to remedy the situation. The pier for a bridge over a freeway had an accident in which the concrete pour was contaminated and lost. In a traditional arrangement, in which responsibilities for design and construction are distinct, it may have taken six to eight weeks to resolve the issue. Under DB, the redesign by Bechtel took a matter of hours after it was realized the pier would require a new design.

South Florida RTA found that design-build offered the advantage of contractor provided input as design progressed for the **South Florida Commuter Rail Upgrades** project. The agency found that contractors have a lot of skilled employees who were able to provide the perspective of their experience constructing projects, which led to improved design.

From an operations standpoint, the private sector partner in a PPP should be given incentives to perform at or above the public agency's desired performance standards. NJ Transit discovered that its DBOM contract for the **Hudson-Bergen LRT** project did not adequately address the quality of service to the traveling public. While the consortium received a penalty or bonus for on-time performance, there were no incentives for station cleanliness or notification of customers of changes in service or other announcements, which became an issue. This experience highlights the need for detailed performance standards and proper incentives for performance.

iv. Cultural and Political

Because PPP is an innovative approach to project delivery, which can significantly reduce the timeframe of a project and introduce new technologies and other savings, public agencies may face cultural and political resistance to PPP. Resistance may be related to the processes employed by regulatory agencies or to the distinct world view of different project partners—from transit agencies to departments of transportation to freight railroads. Resistance may also be related to the influence of other project stakeholders, such as local governments, lenders, unions, and elected officials.

Regulatory Process

With respect to the regulatory process, the **T- REX** project, which involved both highway and light rail, is informative. The project's sponsors consider their encounter with Federal regulatory agencies a success, working out differences fairly easily. FHWA assigned a full-time representative to the project and FTA had an active Project Management Officer (PMO) based in Denver. The agencies formed a "One DOT" working group to assist the project and tried not to create issues in which something was okay with one and not the other. There were certain Federal policies that couldn't be waived, such as Buy America, but the Federal project team cooperatively worked through issues on a case-by-case basis to determine the appropriate regulations to follow, such as whether FTA or FHWA procurement regulations applied to particular purchases.

On the other hand, **T-REX** faced issues with local permitting for station and other construction activities. The agency had a lot of early discussions with affected city and county governments, which did not always move as fast as RTD would have liked. In the end, the project reached

mutually agreeable compromises with most of the impacted jurisdictions, but project leaders have learned that it is important to have agreements in place up front with localities to avoid complaints that the project is moving too fast, trying to steamroll them or keep them out of the loop.

WMATA found that some regulatory processes are not geared to be on the fast track because they are process driven, and can be a significant impediment if the project does not have the energy or political champions to push it through. The environmental review process for the **Largo Metrorail Extension** was not structured to facilitate the fast-moving nature of a design-build project. WMATA also discovered that regulatory agencies did not have a lot of trust for the private sector, so the project was structured so that WMATA, as the project owner, would always interface with regulatory agencies.

For the **Hiawatha Corridor** project, where a highway agency was responsible for building a light rail line, differences between the management style of highway and transit agencies played a role. Initially, MnDOT approached construction of the light rail line in a similar fashion to its approach to highway projects. This contrasted with FTA's procedures for managing projects that it funds, and Metro Transit, as the New Starts grant recipient for the project, worked with MnDOT to modify its approach to comply with FTA requirements.

Other Stakeholders

The South Florida RTA struggled to interact with CSX Transportation in its efforts to complete its **Commuter Rail Upgrades** project. While CSX had sold the corridor to the State of Florida, the railroad essentially still controlled it as operator of freight rail and maintainer of the railroad. The project started with pre-construction buy-in by the railroad and other partners to initial designs. The agreement specified that the upgrades would meet the current corporate design standards of CSX. However, as the project progressed, the railroad's design standards evolved, and the project incurred costly change orders to accommodate the new design standards. This led to cost overruns, and the project took a year longer than originally envisioned to complete. In the end, the South Florida RTA considers it a successful project, completed safely, with one-half the national average number of accidents for a project of this type, and reflecting a high level of quality. However, because of cultural and institutional issues, the project costs were higher and the agency had to come up with local funds to handle overruns.

Political Conflicts

Political issues can play a role in project success. For example, the **Hiawatha Corridor** project sought and received state funding in two installments under two administrations, the first in 1998 and the second in 1999. During the interval, the project team worked to ensure that political leaders in Minnesota fully understood the justification for the project before it approached the Federal government for a FFGA. It took until the final hours of a 5-month legislative session in 1999 to reach a final agreement.

v. Public Service

All of the project sponsors interviewed for this report acknowledged significant public benefits associated with the application of a PPP. These benefits include advancing the availability of a

new transit service, increased system accessibility, improved ridership, minimized inconvenience during construction, as well as economic, environmental, and other benefits to the general public.

Since the recent completion of **Denver's Southeast Corridor LRT** and the highway portion of the **T-REX** project, RTD and CDOT have received many compliments on the agency's approach to construction as well as the final product. The contractor used lane shifts to avoid taking an excessive number of lanes out of service during construction, which minimized inconvenience to the motoring public. According to one sponsor, the project was completed faster (22 months earlier) and better than otherwise would have been the case without design-build.

Tri-Rail ridership is over 30 percent higher and its trains have a higher on-time rate as a result of the South Florida Commuter Rail Upgrades project. The service used to be viewed as the railroad that was always late and went nowhere, and now it is viewed as a success story in the community, and people are happy with the service. Its success has spin-off benefits for agencies elsewhere in Florida because it sets it a good example for others who are considering commuter rail.

The **Hiawatha Corridor LRT** project opened to revenue service a year early versus a design-bid-build approach. In its first year the project served 7.9 million passengers, who would not have benefited from the service if the project had required a fifth year of construction.

Hudson-Bergen Light Rail passengers benefited from the completion of the project years ahead of schedule, made possible with a DBOM approach. The project has improved mobility and connectivity in northern New Jersey and has spurred significant economic development in the communities served by the line.

WMATA found during the environmental process for the **Largo Metrorail Extension** that there was mixed community support for the project. Therefore, one of the goals of the solicitation was for the DB contractor to create an effective community outreach program. Proposers offered a variety of approaches to improving community outreach, including providing jobs and contracting opportunities within the community, briefings with local homeowners, businesses, and community organizations on a regular basis, and creating a community information office. According to one WMATA official, contractors, given a problem, came up with great solutions that facilitated the project.

BART's planned **Oakland Airport Connector** project will operate on an exclusive guideway, so the project will deliver increased capacity and extreme reliability. The project will provide a much higher grade of service between BART and the airport than the current bus service, which is at capacity. The project is also expected to enhance ridership on the BART core system by drawing more Oakland airport passengers to BART. The project could also allow for further growth of the airport itself. The airport is presently physically constrained by its location, which limits the airport's parking capacity. The connector will provide a cost-effective alternative to access the airport. This project would not be possible without using a PPP structure because, due to the economic climate, a significant amount of anticipated state funding for the project would not likely have been made available for several years. Using a PPP, this project is moving forward with revenue service scheduled to begin as early as 2011.

Chapter 4: Legal and Institutional Issues for Applying PPPs to Transit Projects and Services

This chapter reviews the extent to which existing state and Federal laws facilitate or impede the use of PPPs in the transit industry. The first section identifies the various legal and regulatory issues facing PPP programs involving transit projects and/or services. The second section describes the extent of legal authority, contracting requirements, and impediments that exist for surface transportation PPPs at the state and local levels of government. The third section presents the key Federal statutory and regulatory requirements impacting transportation PPPs and FTA programs, processes, and resources that impact the applicability of PPPs to transit projects. The section reviews certain laws, regulations and procedures governing FTA capital grant programs that either facilitate or pose barriers to full implementation of PPPs.

The final section suggests changes in Federal, state and local laws and procedures required to facilitate a PPP program. Also discussed are ways in which the definitive terms governing FTA's Public-Private Partnership Pilot Program (the "Penta-P" or "Pilot Program") will encourage PPPs by removing certain procedural obstacles for PPP projects that meet the Pilot Program's criteria and protect the Federal interest.[4]

A. Legal and Regulatory Issues Facing Transit PPPs

As discussed elsewhere in this report, PPPs offer a number of advantages to sponsors of public transit infrastructure projects. However, achieving these benefits can be impeded by long-standing statutes, regulations and procedures at the Federal, state, and local levels, all of which can influence a transit agency's ability to pursue PPPs to expedite delivery of transit projects.

The success of PPPs can be facilitated or significantly constrained by the legal and regulatory environment in which they function. Key issues to be considered by transit agencies contemplating the use of PPPs in their capital improvement programs, including applications for Full Funding Grant Agreements for projects under the FTA's New Starts program, include procurement rules, contracting methodologies, timing of the PPP agreement relative to the environmental process, regulatory risk, and availability and timing of public investment.

Exhibit 4.1 provides a comprehensive list of the legal and regulatory issues associated with transit PPPs. Certain of these legal and regulatory issues may need to be addressed to apply selected PPP approaches to transit capital projects.

[4] Federal Transit Administration, Docket No: FTA-2006-23697, Public-Private Partnership Pilot Program, 72 Fed. Reg. 2583 (January 19, 2007) (the "Pilot Program Notice"). The Pilot Program was authorized by section 3011 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), Public Law 109-59, 119 Stat. 1144 et seq. (2005).

Exhibit 4.1: Summary of Legal and Regulatory Issues Potentially Facing Transit PPPs

- Legal capacity of parties and legal requirement of sponsor to provide services
- Ability of private sector to be involved in surface transportation infrastructure development financing, or operations, particularly foreign companies
- Authority of other governmental entities over transit facilities and development access rights
- Authority to regulate services, fares, and profit sharing
- Ability/restrictions over transferring private contract responsibilities to other parties
- Competition and anti-trust regulations
- Existence and legal basis of cost recovery for PPP partners
- Ability to provide performance guarantees
- Property issues of land acquisition – condemnation, use, and disposal
- Adequacy of procurement and selection procedures
- Contract provisions and surety requirements
- Administrative coordination throughout PPP contract
- Adequacy of oversight and monitoring procedures
- Dispute resolution and liability provisions
- Changes in design standards or construction specifications during transit facility development
- Shifts in public policy towards PPPs or technology changes that impact the project's viability or provider performance
- Special provisions associated with use of Federal funds – Davis-Bacon, Buy-America, Section 13(c) labor protection
- Tax and accounting liabilities
- Public sector borrowing restrictions
- Currency and profit repatriation rules
- Property laws regarding proprietary technologies and transfer of know-how

The requirements for achieving the most out of PPPs are sometimes at odds with traditional methodologies for procurement, contracting and financing of public projects. Certain steps have already been taken to promote use of PPPs for transit projects, including passage of legislation in a number of states. At the Federal level, FTA has long provided significant flexibility in its procurement requirements to accommodate design-build and design-build-operate-maintain contracting. However, FTA has recognized that changes to its rules and procedures for

processing requests for financial assistance are needed to incentivize greater investment and risk-taking on the part of private partners.

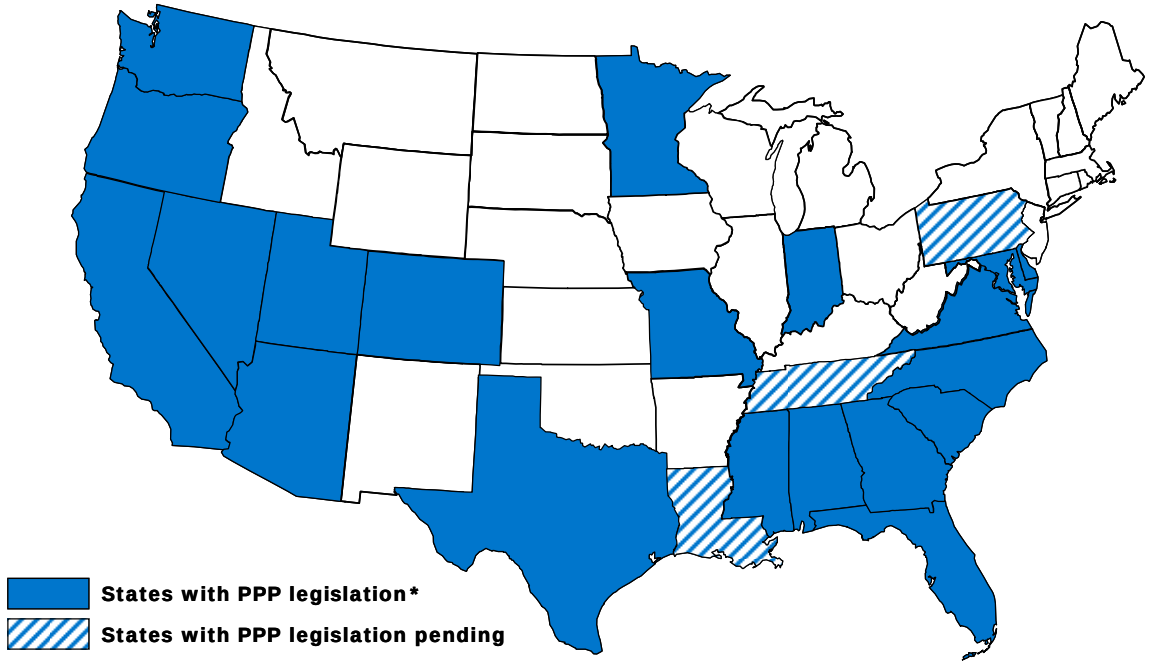
B. Authority under State and Local Laws

Many states are limited in their pursuit of PPPs due to existing legislation that impedes the use of PPPs, such as the requirement for low bid awards, the inability to mix private and public funds, or limitations on use of DB contracts.

i. State Legal Authority to Use PPPs

As of April 2007, 23 states and Puerto Rico have legislation in place to allow varying levels of private sector participation in varying types of transportation projects. Exhibit 4.2 highlights the states with PPP authorizing legislation in place and those states where PPP legislation is pending.

Exhibit 4.2: States with Existing or Pending Legislation Authorizing PPPs



*Also includes Alaska and Puerto Rico.
Arizona and California PPP Authority limited to several pilot projects in certain cases.

Source: Nossaman Guthner Knox & Elliott. Data valid through April 2007

ii. Local Legal Authority to Use PPPs for Transit Projects

Whether a state or local transit agency can procure a project utilizing a PPP approach is in the first instance governed by state law and in the second instance by local law, since transit agencies

are generally the product of local or regional initiative.[5] While a review of state laws governing transit agencies is outside the scope of this report, as noted above about half of the states have adopted general statutes authorizing use of PPPs for public infrastructure projects.[6] The laws of these states allow varying levels of participation by the private sector in varying types of transportation projects.

It should be noted that authorization in certain states is limited to specific agencies and therefore might not be available to transit agencies. Transit agencies in many states are governed by separate statutes or local ordinances. As a result there are still many state and local transit agencies with no current legal capacity to take advantage of private capital and innovation to help address their transportation infrastructure needs.

The Federal Highway Administration (FHWA) has published a study of the state PPP enabling statutes identifying key elements and sample provisions for highway projects.[7] Most of the same elements would apply to transit projects. In addition, USDOT developed model language for states to consider in writing PPP legislation to suit their needs, if PPPs are not permitted under state laws.[8] These documents can be a useful resource for states considering either adopting comprehensive PPP legislation or amending their existing enabling statutes.

iii. Key Legal Issues for PPPs under State and Local Laws

There are a number of key issues arising under state and local laws that impact the ability of transit agencies or their state transportation agency counterparts to use PPPs for transit projects. These are discussed below.

Procurement Methodologies

PPPs require flexibility in the procurement process because such contracts go beyond mere construction to include design as well as operations, maintenance, and, in some cases, financing. In evaluating proposals and awarding a contract, the government sponsor needs to be able to take into account not just the proposed capital cost, but also the value of the commitments made by the private partner, risks associated with the proposal, and public policy issues.

- **Low-bid Procurement**

  Many state and local governments have used the traditional design-bid-build (DBB) process which requires that the owner first retain a design professional (either in-house personnel or an outside consultant retained on a qualifications/negotiated price basis) to prepare a complete design for the project. The design must be prepared so as to accommodate bids from multiple contractors. Only after the design has been completed

[5] Section 3011(c)(4) of SAFETEA-LU provides that the Secretary may approve the application for the designation of a project as a Pilot Project if, among other things, "State and local laws permit public-private agreements for all phases of project development, construction, and operation of the project. . . ."

[6] United States Department of Transportation, Report to Congress on Public-Private Partnerships, December 2004, Section 4.A.ii and Appendices F and G. http://www.fhwa.dot.gov/reports/pppdec2004/index.htm.

[7] http://www.fhwa.dot.gov/ppp/legis_key_elements.pdf.

[8] http://www.fhwa.dot.gov/ppp/legis_model.pdf. It should be noted that FHWA's web page specifically advises that the model legislation is provided for informational purposes only and that it should not be construed as the policy of USDOT or FHWA.

can the procurement process for construction services proceed. This sequential process is time consuming, and the passage of time generally increases cost.

Under the DBB process construction contracts for public works must be awarded using sealed bidding procedures, with award going to the "lowest responsible bidder." The term "responsible" has been defined by a California court as follows[9]:

> *The concept is not one of relative superiority but has reference to the quality, fitness and capacity of the low bidder to satisfactorily perform the proposed work. Thus, a contract must be awarded to the lowest bidder unless it is found that he/she is not responsible, i.e., not qualified to do the particular work under consideration.* [Citations omitted.]

This general definition has wide acceptance at the state and Federal level. The concept of responsibility must be determined on a case-by-case basis, and includes matters such as financial strength (often limited to ability to provide performance and payment bonds), experience, and expertise sufficient for the job at hand. Once the minimum threshold is met, no further distinction can be made among the qualified firms regarding their relative qualifications: the low bidder is awarded the contract if it is deemed responsible, regardless of whether other bidders are *more* capable than the low bidder.[10]

In addition to marginalizing the relative qualifications of bidders, the traditional procurement process and its focus solely on price generally precludes any opportunity for private competitors to propose innovative approaches that could increase the cost-effectiveness of the project. All bidders must bid on precisely the same bid package, including a completed design for the project provided by the sponsor. While this approach helps to establish a level playing field of sorts for the competing construction contractors, it leaves no room whatsoever for bidders to propose improvements on the design mandated in the bid package. A hallmark of design-build and its variants, in contrast to DBB, is that the owner engages interested contractors, in concert with their design partners, to exercise their creative abilities to propose solutions that will further the objectives of the project.

The design-build approach, which is utilized in virtually every PPP project, can significantly reduce these delays and costs by combining design and construction services under a single procurement, which permits construction of early elements of a project to proceed while final design is completed on later elements. Moreover, if enabled, design and construction can be packaged with any combination of pre-development services, project finance, operations and maintenance. These invaluable services cannot be procured using the highly constrained, traditional low-bid procurement procedures.

- **Best Value Procurement**

To accommodate the needs of the PPP program, state and local law must allow the agency to develop evaluation criteria that will result in selection of the best developer for the job

[9] Domar Electric, Inc. v. City of Los Angeles, 9 Cal. 4th 161, 181; 885 P.2d 934, 945; 36 Cal. Rptr. 2d 521, 532 (1994).
[10] Id.

that offers the greatest value to the project sponsor. The agency must be able to establish selection criteria based on the agency's project goals and policy determinations. For one recent transit PPP project, the selection criteria included pass/fail criteria to ensure that the proposer met certain responsibility requirements as well as the following criteria:

- Management capabilities,
- Qualifications of key staff,
- Proposed stakeholder/community outreach and business outreach plan,
- Quality and effectiveness of proposed technical solutions,
- Quality of proposed operations and maintenance plan,
- Price for services to be performed during the pre-construction phase, and
- "Added value" features of the proposed approach.

To ensure integrity and predictability in the procurement procedures, it is important for the agency to advise the proposers regarding the selection process that will be used and the evaluation criteria that will be applied. The process must ensure a level playing field for the potential competitors. Legislation enabling a PPP program should provide a framework ensuring the integrity of the process, leaving the details of the process to be determined by the sponsoring transit agency.

For most PPP procurements, the agency will probably want to adopt a two-stage process resulting in selection on the basis of qualifications and best value, using procedures modeled after practices and procedures that have been used successfully at the Federal level. The first stage would be for the transit agency to issue a request asking interested private parties to submit statements of qualifications. Based upon its evaluation of the qualifications submissions, the transit agency would then identify a "short list" of qualified private entities that would then be invited to respond to a request for proposals. Selection of the private partner to deliver the project would then be made based upon the evaluation of proposals received, applying the evaluation criteria identified in the request for proposals.[11]

- **Solicited and Unsolicited Proposals**

Several states have adopted PPP legislation that permits consideration of both solicited and unsolicited proposals. The former approach contemplates that the responsible public entity will evaluate its projects in the planning stage to determine which of them may be appropriate for a PPP, taking into account its transportation project priorities, project feasibility, and the agency's relative capabilities to complete the project on its own. The latter approach allows the private sector to participate in the project selection process, which could result in a project being elevated to a higher priority level once it becomes apparent that the private sector would be interested in developing it.

[11] See, generally, Loulakis, Michael C. (ed.), Design-Build for the Public Sector, §4.13, Aspen Publishers, 2003.

The public entity does not have any obligation to accept an unsolicited proposal, and if the entity is interested in pursuing the project identified in the unsolicited proposal, it will likely be required by the enabling legislation to issue a request for competitive proposals for the project within a specified timeframe which should be adequate to enable interested qualified teams to prepare competing proposals.[12]

Surety Bonding Requirements

Virtually all states have enacted what have become known as "Little Miller Acts," similar to the Federal Miller Act (40 U.S.C. Section 3131 *et seq.*). These statutes require general contractors on public works projects to provide performance and payment bonds to secure the project. Public owners have recourse against the performance bond in the event the contractor defaults on the contract, and subcontractors and suppliers have recourse against the payment bond in the event the general contractor fails to pay them amounts that are due.[13]

The Federal Miller Act provides some flexibility as to the penal amount of the bonds. For the performance bond, the Act provides that the bond must be in an amount the contracting officer considers adequate for the protection of the government.[14] For the payment bond, it requires that the bond be in the total amount payable under the contract, unless the contracting officer makes a written determination, supported with specific findings, that a payment bond in that amount is impractical.[15] This recognizes that the surety market places limits on total bonding available to each contractor, increases the pool of contractors interested in competing for the project, and permits the contracting officer to tailor the financial security requirement for larger projects based on an assessment of the agency's potential maximum exposure in the event of default, which is generally much smaller than 100 percent of the contract price.

In enacting their own parallel surety bonding provisions, many states have not included Miller Act-type flexibility regarding the amount of the bonds. In many states, the Little Miller Acts simply require that both bonds be in an amount equal to the total amount payable under the contract, which creates a potential problem for large projects.[16] The statutes provide very little flexibility to address either the scale of many PPP projects or the considerable structural differences between PPPs and traditional projects.

Several considerations suggest that state and local transportation agencies ought to have greater flexibility with respect to financial security requirements in PPP projects.

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[12] See, e.g., Georgia – GA. Code Ann. §32-2-79 (applies only to the Georgia Department of Transportation), Oregon – ORS §367.802 (applies both to state and local agencies), and Virginia – VA. Code Ann. §56-560A (applies both to state and local agencies).

[13] The requirements for payment bonds on public projects are generally recognized as serving as a substitute for mechanics' lien rights of subcontractors and suppliers, since publicly owned property is generally exempt from mechanics' liens under the doctrine of sovereign immunity.

[14] 40 U.S.C. Section 3131(b)(1)

[15] 40 U.S.C. Section 3131(b)(2) It should be noted that FTA's Circular on Third Party Contracting Requirements requires performance bonds for 100 percent of the contract price for projects exceeding $100,000. It also establishes minimums for payment bonds. (Circular FTA C 4200.1E, Section 11) However, FTA has granted waivers from this requirement in larger design-build and DBOM projects, including for Colorado's $1.1 billion T-Rex Project that included an extension of light rail in the I-25 corridor, and for New Jersey Transit's River LINE.

[16] See, eg., Arizona - A.R.S. § 34-222; North Carolina - N.C. Gen. Stat. § 44A-26; Oregon – ORS 279C.380; Virginia - Va. Code § 2.2-4337.

- For very large projects, requiring private partners to provide surety bonds in the full amount of the contract price may have the effect of limiting the number of proposers who can compete for the project as the requirement may exceed the bonding capacity of many potential competitors.
- PPP projects typically establish a high "responsibility" threshold for the private partners, initially assessed during the procurement's short-listing process and re-assessed when final proposals are received. In order to qualify, proposers must demonstrate their financial and technical capabilities. This presents an important difference from traditional low-bid procurements, where the public sector usually considers a firm qualified if it is able to provide the required surety bonds.
- A standard requirement of PPP programs is that the private partners provide an additional layer of security in the form of parent company guarantees, whereby the parent company is liable for losses that result if the subsidiary that enters into the public-private agreement fails to perform its contract obligations.
- In the typical PPP project, the government's private partner may consist of a consortium of companies, each of which must meet the agency's qualifications standards in order to be eligible to submit a proposal. Moreover, each of them may be required to provide parent company guarantees.
- The private partners in PPPs can be required to provide other alternative forms of security, such as letters of credit upon which the government may draw in the event of a default.
- Most PPP contracts involve a wide range of services in addition to construction, often including design professional services, supply of equipment and rolling stock, and management services. As the intent of the Miller Act-type statutes is only to secure performance of construction contractors, it may be inappropriate to require surety bonds to cover the non-construction services in PPP contracts.

State PPP statutes should allow the transit agency or authority considerable flexibility to deviate from 100 percent performance and payment bond requirements applicable to other contracts for public works. Ideally, the statutes would provide a simple exemption from those requirements and authorize the agency to develop its own approach to financial security requirements that can be flexibly applied to the needs of each PPP project on a case-by-case basis. In this way, the interests of the parties, the project and the public can all be weighed and advanced.

Flexibility in Project Delivery Systems

Approximately half of the states currently have statutes which either substantially restrict, or effectively prohibit altogether, the use of design-build for public works projects.[17] Similarly, many states' statutes do not provide their state and local transit and other transportation agencies with the authority to contract out the operation of their transportation facilities. These limitations preclude such states from engaging in the most advantageous forms of PPPs that are proving so successful in other states. DBOM, DBFO, AND DBFOM projects generally are prohibited in

[17] United States Department of Transportation, Report to Congress on Public-Private Partnerships, December 2004, Section 4.A.ii and Appendices F and G. http://www.fhwa.dot.gov/reports/pppdec2004/index.htm .

these states. By taking these options off the table, these states fail to provide key ingredients for successful PPP projects:

- Providing for the private partner to assume greater risk of the ultimate project cost and delivery time;
- Harnessing and incentivizing the private sector to participate in the management of life cycle costs of the project; and
- Allowing private partners to invest capital and take an equity stake in the success of the project.

There is no doubt that design-build alone can provide significant time savings for implementation of transportation projects. Without coupling the design-build services with operation and maintenance obligations, however, the agencies miss out on a very substantial benefit: when the private partner's profits are tied to operations and maintenance, it has a direct incentive to provide the highest quality design, construction and service delivery. In other words, where the private partner's interests depend on the long-term performance of the transportation asset, it has every reason to strive to control project costs for the project's full life cycle.

To foster the leveraging of private capital in public transportation infrastructure, states should be encouraged to enact statutes granting transit agencies the necessary flexibility to contract out for operation and maintenance services. Only by allowing private partners to participate in transportation facilities on a long-term basis can the transit agencies truly have a private sector partner.

Absent the opportunity to earn a reasonable return commensurate with its risk, there is little incentive for the private sector to invest capital. To take advantage of the maximum amount of risk sharing by the private sector, state laws must facilitate longer-term private investment than is available with design-build or DBOM. Some might argue that the transit sector would have trouble attracting private equity to the construction of transit systems because most transit projects are "revenue negative," with farebox revenues providing only a percentage of operating costs and making no contribution to design and construction costs. They might look to the **Las Vegas Monorail Project** as an example. Completed in 2004 and currently experiencing ridership and revenue shortfalls relative to projections, the project is the only urban fixed guideway project since the 1920s with financing based in large part on projected farebox revenues and the private sector solely responsible for project risks.

This argument fails to take into account that for transit projects that are not expected to provide farebox revenue exceeding the project's costs private participation can be structured to provide for a future "non-farebox" stream of payments to the private operator. This may include an agreement by the public entity to make "availability payments" to the private operator based on project performance. The Tranvia de Tenerife project, a 7.7 mile light rail project serving the Spanish Canary Island of Tenerife, utilizes availability payments together with farebox revenues to provide compensation to the private partner under a DBFO contract providing for a 50 year term of operations services. The fixed compensation paid to DBOM contractors typically is adjusted based on factors such as downtime events and availability of fare collection machines and escalators. Payments could also reflect the number of passengers boarding, thereby shifting

ridership risk to the private operator, while the transit agency retains control over fares and the related revenue risk. State laws should provide for these types of contractual arrangements.

In fact, BART is currently soliciting proposals for private financing of the **Oakland Airport Connector** that would be only partly dependent on farebox revenues. While BART plans to transfer design, construction, start-up, and operations risk to the consortium selected to deliver the project, BART will retain most of the risk associated with ridership and fare revenue. Only a small portion of the consortium's monthly payment (between 10 and 20 percent) will likely be tied to project fare revenues, so that there is some incentive for the consortium to design, construct, and operate a facility that is attractive to riders.

Private investors in certain international transit projects have accepted ridership and revenue risk. The proposed concession agreement for the Tel Aviv Red Line in Israel includes assumption of modified revenue risk, with the public agency providing a makeup between indexed fares and actual fares.

Pricing transportation facilities during congested periods has the potential to increase farebox revenue and make ridership and revenue risk more manageable for the private sector. USDOT, State DOTs and other public agencies are increasingly looking at congestion pricing as an important mechanism for managing congestion. Congestion pricing involves charging travelers more to use a facility or system during peak congestion periods. Congestion pricing works by shifting purely discretionary rush hour travel to other modes of transportation or to off-peak periods. Congestion pricing on highways and other congested roads could potentially increase ridership and revenue significantly on transit systems that provide viable alternatives to these congested roads because it reveals to commuters the true cost of travel by automobile and increases the "pricing power" of transit agencies for their services. In addition, where congestion pricing on a highway includes managing toll lanes through variable pricing to ensure a free flow of traffic, bus rapid transit (BRT) could be incorporated into the project and bus fares could contribute to the revenue dedicated to pay off the project's financing. Revenues could also be increased, and contribute more meaningfully to revenue streams dedicated to pay off financing, if transit facilities themselves were variably priced during congested periods.

Other Legal Obstacles to Transit PPPs

In some states and localities, private operation of a transit facility may be subject to franchise laws. Such laws and ordinances could subject private transit operators of projects using public rights-of-way (ROW) to utility type regulation over fares, to approval by public votes and other restrictions. Exemptions from such laws may be required to facilitate modern PPPs where fare-setting authority is retained by the public agency or, in the rare case, delegated to the private entity and controlled by contract.[18] Joint use of transit ROW by cable and other telecommunications entities are also subject to other local laws that impact PPPs, such as franchise laws governing use of public ROW.

[18] Clark County, Nevada adopted a new franchise ordinance to facilitate the private development and operation of the Las Vegas Monorail. Clark County Code, Chapter 5.04 Monorail. http://www.accessclarkcounty.com/administrative_services/FranchiseManagement/ordinances/ord_5.04.htm.

C. Federal Statutory and Regulatory Requirements

FTA has provided funding to a number of PPP fixed guideway projects in the past, including design-build and DBOM contracts. While these have been successful projects, there has been considerable interest in improving FTA's processes to encourage greater private participation in transit projects. To this end, Section 3011(c) of SAFETEA-LU authorized FTA to establish a Pilot Program to demonstrate the advantages and disadvantages of PPPs in up to three new fixed guideway capital projects.

On March 22, 2006, FTA published a notice in the Federal Register soliciting comments and preliminary expressions of interest with respect to the establishment and implementation of the Pilot Program.[19] FTA invited comment on, among other things, what changes in law or new financial incentives are appropriate or necessary to promote the participation of private enterprise in the delivery and operation of transit systems.[20]

This section focuses on those Federal statutory provisions, regulations and processes that transit industry stakeholders have highlighted as tending to impede growth in transit PPPs. Many of these concerns have been addressed by FTA in its January 19, 2007 Notice setting forth the definitive terms of the Pilot Program.[21]

i. Procurement Rules and Alternative Project Delivery

Innovative procurement methodologies are relatively well-accommodated by laws and regulations governing FTA grant programs. FTA's current policy as reflected in the Circular on Third Party Contracting Requirements allows various procurement strategies, including low-bid/sealed bidding, competitive proposal/RFPs, and qualifications-based procurement where the preponderance of the work is design professional services.[22] The guidance provides that design-build services should be awarded either with low bid or competitive proposal procedures. FTA's Best Practices Procurement Manual encourages agencies to use a "best value" selection process for the selection of a "turnkey" contractor, including incorporation of a negotiation phase in the procurement.[23]

The SAFETEA-LU provisions calling for the FTA PPP Pilot Program specifically provides that the Secretary may only approve an application if she determines that applicable state and local laws permit public-private agreements for all phases of development, construction, and operation of the project.[24] In the Pilot Program Notice, FTA states that one of the factors it will consider is whether the project utilizes procurements that include risk sharing and streamline project development, engineering, construction, operations, and maintenance.[25] These considerations can only be addressed using alternative project delivery systems.

[19] Federal Transit Administration, Docket No. FTA-2006-23697, Public-Private Partnership Pilot Program, 71 Fed. Reg. 14568, March 22, 2006.
[20] Comments may be found at http://dms.dot.gov/search/searchResultsSimple.cfm (search Docket Number 23697).
[21] Public Private Partnership Pilot Program, 72 Fed. Reg. 2583, January 19, 2007 (the "Pilot Program Notice").
[22] FTA C 4220.1E, section 9.
[23] FTA Best Practices Procurement Manual § 6.1.4.
[24] 49 USC § 5309((c)(4)(D).
[25] Pilot Program Notice, Section 3(h).

ii. PPP Contracting and the Environmental Process

One of the contentious issues regarding the use of PPPs for surface transportation projects is the effects that the environmental review and analysis process has on the viability of PPP contracting approaches. This is especially true for PPPs involving alternative project delivery approaches like DB where the issue arises as to the acceptable timing for design or development-related activities to proceed relative to the completion of the environmental review process and receipt of a Record of Decision (ROD).

NEPA Regulations and FTA Implementation

The Council on Environmental Quality (CEQ) regulations implementing the National Environmental Policy Act of 1969 (NEPA) include requirements that, until a ROD has been issued, "no action concerning the proposal shall be taken which would... limit the choice of reasonable alternatives."[26] Moreover, the CEQ regulations provide that while work on an Environmental Impact Statement is in progress, the government may not undertake in the interim "any major Federal action" that would tend to "determine subsequent development or limit alternatives."[27] These provisions have been interpreted to preclude a wide range of activities prior to completion of the NEPA process because the activities might prejudice the outcome by favoring one alternative over another. Unless a special exception applies, agencies are precluded from acquiring right-of-way, proceeding to final design, and applying for a FFGA, until issuance of a ROD and entry into final design.

In a document entitled "Interim Guidance on Design-Build Project Delivery and the FFGA Process," FTA provided additional guidance on the timing of procurements relative to the environmental process.[28] The Interim Guidance Document allows agencies to proceed with prequalification of proposers, but in general does not permit an RFP to be issued until a ROD or Finding of No Significant Impact (FONSI) has been issued by FTA. Exceptions to this rule have been granted on a case-by-case basis.

FTA's Pilot Program Notice

In its PPP Pilot Program Notice, FTA states that it will permit a Pilot Program project sponsor to issue procurement documents (RFQs and RFPs) prior to conclusion of the NEPA process provided the procurement documents do not commit the project sponsor to any of the alternatives being evaluated, or exclude any of the alternatives (including the no-build alternative). Furthermore, both contract award and issuance of a notice to proceed with preliminary engineering may occur prior to the issuance of final NEPA approval if the contract includes appropriate provisions preventing the contractor from proceeding with "final design" activities and physical construction prior to completion of the NEPA process. The Notice does not address the approach that FTA will take for non-Pilot Program projects, although the Notice states that these procedures are "substantially the same as FTA's existing approach."

[26] 40 CFR Part 1506.1(a).
[27] 40 CFR Part 1506.1(c).
[28] Although the Interim Guidance is now more than six years old, it remains in effect. http://www.fta.dot.gov/printer_friendly/leg_reg_4191.html.

The Notice also addresses the design-builder's role in preparation of the NEPA document, stating that the design-builder may not act as the preparer or have any decision-making responsibility with respect to the NEPA process, and making it clear that any consultants who prepare the NEPA documents must be selected by and subject to the exclusive direction and control of the project sponsor. However, a subconsultant on the design-builder's team would have the ability to prepare the NEPA decision document if it does not have a financial or other interest in the outcome of the project and its NEPA services are at all times subject to the exclusive direction and control of the project sponsor. In order to take advantage of these more flexible provisions, several other conditions spelled out in the guidance must be satisfied.[29]

FTA's Pilot Program Notice includes definitions that are close to the industry standard meanings and would permit a broad range of activities, including topographic surveys, metes and bounds surveys, geotechnical investigations, hydrologic analysis, hydraulic analysis, utility engineering, traffic studies, financial plans, revenue estimates, hazardous materials assessments, and other work that advances the project and reduces risk in the procurement but does not materially affect the consideration of alternatives in the NEPA review process.[30]

iii. Sequential Approach to Stages of Project Planning

Transit projects inevitably take a long time to move from the planning stage to contract award. The private sector, because of the requirements of investors, needs to move as expeditiously as possible to final design and construction. As noted above, private partners in transit projects are generally unwilling to commit private capital to projects requiring supplemental government investment until the government funding is assured. As a result, the cost and time required for a transit project to navigate FTA's detailed review process tends to discourage private investment.

The process of bringing fixed guideway transit projects to the point of contract award involves many steps, including an alternatives analysis, the environmental clearance process under NEPA, preliminary engineering, final design, the Full Funding Grant Agreement process, right-of-way (ROW) acquisition, and the contracting process.

Each of these steps involves a number of different activities, and are subject to a variety of FTA requirements with respect to sequencing and methodology. For example, the alternatives analysis (including all of the project justification activities such as analysis of mobility improvements and cost-effectiveness) must be completed, with the project receiving an overall satisfactory rating, before a request to enter preliminary engineering may be submitted to FTA. Preliminary engineering cannot conclude, and a request to enter final design cannot be submitted to FTA, until the NEPA process has culminated with a ROD or a FONSI. In addition, the formal FFGA

[29] For example, the design-build contract must include termination provisions in the event a no-build alternative is selected; and the project sponsor must obtain FTA concurrence before issuing the RFP or awarding the design-build contract. Pilot Program Notice, section 3(l) at p. 2590.

[30] See definitions of "preliminary design," "preliminary engineering" and "final design" set forth in Section 3(b) of the January 19, 2007 Pilot Program Notice.

application process and ROW acquisition cannot commence until the NEPA process has been completed and FTA has issued a ROD or FONSI.[31]

FTA mandates that many of these activities have what is called in critical path method scheduling "finish-to-start" relationships; that is, a predecessor activity must by completed before a later activity may be started, effectively prohibiting concurrent work on these activities. FTA implemented these requirements as a part of its effort to ensure that projects pass rigorous evaluation before they receive grant funding. Still, the net effect of such rigid relationships is to slow the process.

The definitive terms set forth in the Pilot Program Notice provide several means to accelerate reviews and funding commitments for the selected Pilot Projects. These include the ability to obtain concurrent approval of the project into preliminary engineering and final design.[32] In addition, the guidance provides for the early issuance of Letters of No Prejudice (or other assurances) "to accelerate commencement of pre-construction services and planning."[33] Letters of No Prejudice are used by FTA to allow projects that have not yet obtained a FFGA to proceed with certain pre-development activities and, once the FFGA is executed, costs properly expended may be reimbursed with grant funds.

Finally, the guidance for the PPP Pilot Program allows the parties to negotiate on a case-by-case basis for streamlining of the project development process, and the opportunity for the private partner to earn higher returns in exchange for assuming the risk associated with achieving the cost estimates and/or ridership projections put forward.[34]

iv. FTA's Due Diligence Process

Concerns about the potential for cost-overruns on turnkey projects have resulted in the requirement of a relatively high level of design to be completed before the FTA will commit to funding a project. In a "Dear Colleague" letter concerning design-build projects, FTA stated that it must attain "an adequate level of confidence in the final cost estimates of the project" before it will sign a Full Funding Grant Agreement.[35]

Existing Procedures

Under the existing New Starts program, once a sponsor has submitted a request to enter preliminary engineering, together with its project justification materials, FTA conducts an extensive evaluation to develop a "project justification rating." The evaluation includes a quantitative review of New Starts criteria, including an assessment of mobility improvements, environmental benefits, cost-effectiveness, and operating efficiencies for the project. Under the statute, the Secretary is authorized to approve grants or loans for fixed guideway capital projects

[31] See FTA guidance, Introduction to New Starts, http://www.fta.dot.gov/planning/newstarts/planning_environment_2608.html, pp. 2-4. See also, http://www.fta.dot.gov/planning/newstarts/planning_environment_2598.html and http://www.fta.dot.gov/planning/newstarts/planning_environment_2599.html.
[32] Pilot Program Notice, section 3(i)(i)(C).
[33] Pilot Program Notice, section 3(i)(i)G).
[34] Pilot Program Notice, section 3(i)(i)(I).
[35] See "Dear Colleague Letter" dated Sept 20, 2000; http://www/fta/dot/gov/office/public/c0015.html.

if she finds that the project is justified based upon the evaluation and other specified factors.[36] While the statute requires that the criteria be satisfied, it does not dictate how the evaluation should be conducted. FTA has an established process for conducting the evaluations to serve the statutory purpose of protecting the government by ensuring that the proposed project is justified on a quantitative basis.

Representatives of several of the agencies interviewed regarding certain transit PPP projects expressed concern that FTA's risk assessment requirements would foreclose the possibility of using PPPs for projects currently in the pipeline. One agency suggested that FTA should be willing to enter into the FFGA prior to completion of Final Design so long as the sponsor can prove to the Project Management Officer that the Federal risk has been minimized.

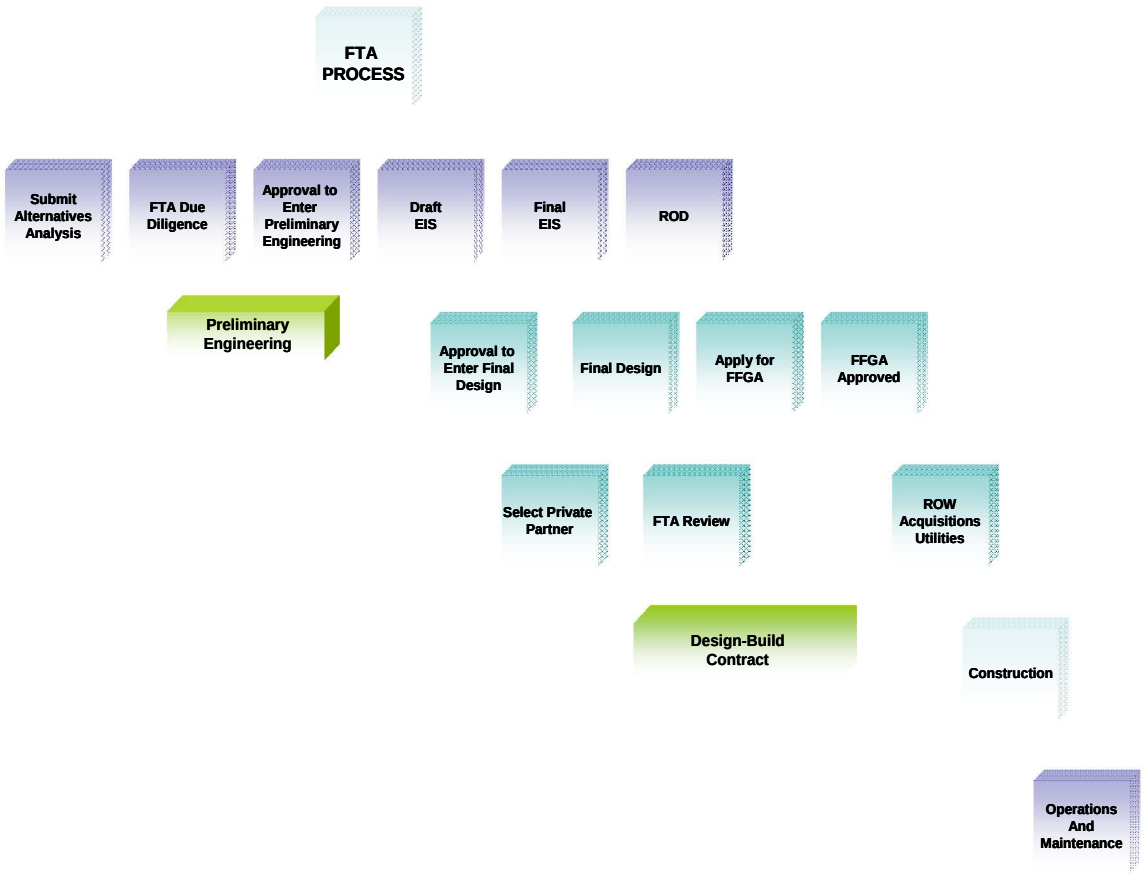
Differences between PPP Projects

However, for purposes of cost effectiveness evaluation, there are structural differences between PPP projects and projects that are wholly publicly funded that may warrant different treatment. For projects that are fully funded by the government, the only cost effectiveness assessment that will be done is that provided by the government. Thus, there is good reason for the government to conduct a rigorous evaluation of ridership and revenue to ensure that the transit agency fully understands the financial viability of the project. On the other hand, for PPP projects where the private partner commits to a substantial investment in the project and will be at risk financially for project performance, it is reasonable to assume that the private partner has done considerable financial testing and evaluation before deciding to become a partner on the project. Because it has "skin in the game," the private partner will protect itself by doing its own due diligence.

Exhibit 4.4 illustrates how the New Starts process could be adjusted to accommodate PPPs using a design-build project delivery approach. As shown in the exhibit, preliminary engineering is allowed to begin during preparation of the environmental clearance documents, with hiring of the design-build contractor to begin the final design following receipt of the ROD for the project from FTA.

Exhibit 4.3: Potential FTA PPP Process for Large-Scale Transit Capital Projects

[36] 49 USC 5309(e)(1)(A).



Source: Nossaman Guthner Knox & Elliott LLP, February 2007.

FTA's Pilot Program Notice

FTA's Pilot Program Notice addresses these issues directly, and the selected projects will be eligible for a simplified and accelerated review process that is intended to substantially reduce the time and cost to the sponsors of New Starts reviews and increase funding assurance, as follows:

- FTA will limit or eliminate altogether certain risk assessments from the rating process, specifically including assessments conducted during the preliminary engineering stage as well as assessments prior to entering into a Full Funding Grant Agreement.[37]
- FTA will limit or eliminate certain reviews of transportation user benefits, specifically including the projections of user benefits and mobility benefits which will be used by FTA to develop the Pilot Project's rating "subject to the private partner's agreeing to assume levels of risk with respect to such benefits on terms satisfactory to FTA." Depending on the degree to which the private sector entity has assumed management, construction, and financial risks, FTA may alter the scope and content of the Project Management and Financial Management Oversight reviews. Such projects may also be eligible for accelerated design approvals, including the issuance of concurrent approvals

[37] Pilot Program Notice, section 3(i)(i)(D) at p. 2589.

for the Pilot Project to enter into preliminary engineering and final design, thus allowing the project to proceed with final design immediately upon completion of preliminary engineering without requiring additional approvals.[38]

- FTA has also offered to limit or accept, without further review, projections of transportation user benefits on the basis of which cost-effectiveness and mobility measures for the Pilot Project's rating will be developed, provided that the private partner assumes levels of risk with respect to such benefits on terms satisfactory to FTA.[39]

With these provisions, FTA is providing significant opportunity for private partners in Pilot Projects to benefit from significant streamlining of the Federal review and evaluation process. Moreover, they may enjoy both acceleration of the process and financial benefits if they are confident in their own cost estimates and ridership projections and are willing to accept some risk that their estimates and projections may prove too optimistic. The results of the PPP Pilot Program should help FTA to identify policy and procedural changes that will help to speed up the process and allow sponsoring agencies to implement transit projects with private sector involvement on a more expeditious basis.

v. FTA Bonding Requirements

As discussed above, surety bonding requirements should be modified for PPP projects to take into account the differences between PPP projects and traditional projects. FTA's Circular on Third Party Contracting Requirements, FTA C 4220.1E, section 11(b)[40], requires performance bonds in the amount of 100 percent of the contract price. For payment bonds, section 11(c) of the Circular establishes a sliding scale according to the size of the contract, requiring payment bonds in the amount of $2.5 million for all contracts with a price of $5 million or more being required. Section 11(d) of the Circular does allow the grantee to seek FTA approval for a bonding policy that does not meet these minimum requirements. FTA has granted waivers from the 100 percent bonding requirement in larger design-build and DBOM projects, including Colorado's $1.1 billion **T- REX** project, **New Jersey Transit's River LINE** project, and BART's **Oakland Airport Connector** project.

With larger PPP projects a more flexible approach to bonding is required. While still protecting the government's interests, the requirements should be modified to take into account the maximum amount of bonding available in the market, the risk that requiring very large surety bond amounts may significantly limit the level of competition for large projects, the nature of the risks being addressed, and the alternative forms of surety that the private partner may provide.

vi. Use of Program Income

FTA policy generally requires that "Program Income" such as fares, lease payments, or other revenues be used to reduce program costs, unless an alternative use was authorized by regulations or specifically approved by FTA in the FFGA. This policy was based on FTA's interpretation of the Common Grants Rule. For PPP projects, this policy can pose a substantial obstacle, since the private entities have other financial requirements that they must address in order to stay in

[38] Pilot Program Notice, section 3(i)(i)(E) at p. 2589.
[39] Pilot Program Notice, section 3(i)(i)(I) at p. 2589.
[40] http://www.fta.dot.gov/laws/circulars/leg_reg_4063.html.

business. For example, they must service debt incurred on the project, and they must provide a return to their investors.

On January 11, 2007, FTA published its final policy statement on when high occupancy vehicle (HOV) lanes converted to high-occupancy/toll (HOT) lanes may be classified as fixed guideway miles for FTA's funding formulas.[41] With this policy statement, FTA clearly recognized this issue and expressly authorized the use of Program Income from HOT lane tolls to be used to: (a) service debt, (b) provide a reasonable return on private investment, and (c) pay costs of operations and maintenance. In addition, if the operating entity annually certifies that the facility is being properly operated and maintained and that the items identified in (a), (b) and (c) above are being paid, Program Income may be used for any other purpose relating to the project.

The potential for attracting equity investment in transit projects may be highest for bus rapid transit projects that share facilities with tolled express lanes or HOT lanes. It has been suggested that FTA should consider making Express Toll Lane/BRT networks eligible for New Starts funding provided that a specified percentage of the managed lanes capacity would be reserved for bus service and a specified level of service (LOS) was maintained during peak hours. In those conditions, buses could operate in free-flow of traffic as if they were on an exclusive guideway. As recognized in the HOV to HOT Lanes policy described above, toll revenue may be used first for debt service and a reasonable return on investment, with the remainder available for operation and maintenance of the toll lanes on the BRT-related road infrastructure. Private sector participants would therefore be able to earn a return on investment in BRT-shared facilities, without being exposed to transit revenue risk.

It also should be noted that FTA's recently published guidance for the PPP Pilot Program specifically allows for three PPP pilot projects which, among other things, will be allowed to make flexible use of Program Income.[42] Similar policies applicable to other transit PPPs would be a major step forward in furthering the PPP program.

vii. Other Federal Statues and Regulations Impacting Use of PPPs for Transit

There are several Federal statutes which, while setting important public policies, also impose significant cost burdens that must be borne by PPP projects receiving Federal funding.[43]

Buy America Act

The Buy America provisions in the Surface Transportation Assistance Act of 1982, as amended by SAFETEA-LU, require that when FTA grant monies are used to purchase materials or equipment, U.S.-produced materials must be purchased with certain limited exceptions.[44] This preference results in the imposition of significant additional cost in instances where more favorable prices are available for imported goods.

[41] Final Policy on When High-Occupancy Vehicle (HOV) Lanes Converted to High-Occupancy/Toll (HOT) Lanes Shall Be Classified as Fixed Guideway Miles for FTA's Funding Formulas and When HOT Lanes Shall Not Be Classified as Fixed Guideway Miles for FTA's Funding Formulas, 72 Fed. Reg. 1366, January 11, 2007.
[42] Pilot Program Notice, section 3(i)(i)(H) at p. 2589.
[43] These requirements, and their impact on PPPs, were reviewed in United States Department of Transportation, Report to Congress on Public-Private Partnerships, December 2004, Exhibit H, section ii.
[44] 49 U.S.C. Section 5323 (j)

Davis-Bacon Act

The Davis-Bacon Act[45] requires that prevailing wages be paid for work on construction projects that are financed by a loan or grant from the Federal government that uses FTA funds. In states that have no prevailing wage law, or where the state wages are lower than Federal wages, the application of the Federal law could have significant cost implications for the project. In addition, whenever the Davis-Bacon Act applies, it is accompanied by significant record keeping and auditing requirements.

Labor Protection

Public transportation agencies must commit to existing labor protection agreements in their expenditure of Federal funding due to 49 U.S.C. 5333(b), also known as "Section 13(c)." The requirement mandates that expenditures that would result in new service or expansion of existing service must be made in a way that does not reduce existing labor protections, including:

- Preservation of rights, privileges, and benefits (including continuation of pension rights and benefits) under existing collective bargaining agreements or otherwise;
- Continuation of collective bargaining rights;
- Protection of individual employees against a worsening of their positions related to employment;
- Assurances of employment to employees of acquired mass transportation systems;
- Assurances of priority of reemployment of employees whose employment is ended or who are laid off; and
- Paid training or retraining programs.

The public transit agency must apply Federal labor protection provisions to any contracted activity with a private partner if it intends to seek reimbursement from Federal funds. Where transit employees have existing rights, the rights are to be protected. With respect to collective bargaining rights, if they pre-existed Federal assistance, then they must continue. However, if there was no pre-existing collective bargaining right or obligation, no such rights or obligations are imposed by this section. Thus, 5333(b) requirements may have a significant impact on projects extending existing transit facilities or using employees from existing operations, but should have less impact on new projects.

viii. Institutional Resources to Manage PPP Projects

PPPs are sufficiently different from conventional procurements in that they pose institutional challenges in terms of skills development and resource allocations by local governmental sponsors and their Federal funding partners. FHWA has engaged in extensive internal and external education programs related to innovative procurement and finance. FHWA's website on Public-Private Partnerships provides transportation professionals with information on a broad array of transportation PPPs, including highway and transit projects.[46] This site provides

[45] 40 U.S.C. Section 276a et seq.
[46] http://www.fhwa.dot.gov/ppp/index.htm.

information on PPP legislation, FHWA's SEP 15 Program intended to advance innovative procurements by providing appropriate waivers of FHWA requirements, case studies and summaries of key PPP project agreements. FHWA has also appointed a Program Manager for Public-Private Partnerships.

FTA is a relatively smaller agency with more limited resources. Nevertheless, providing more training on PPPs to its own personnel and offering technical assistance to local agencies could help spur the further growth of PPPs in this important transportation sector. The creation of a special projects group advised by consultants that have PPP experience also may help advance the review of transit projects that employ innovative procurement and finance features.

D. Legal Implications for Transit Projects Delivered using PPPs

The legal implications on transit capital projects delivered using PPPs since 2000 include the following, as discussed above:

- The nature of enabling legislation to permit application of a PPP;
- The quality of the contract employed to govern the partnership;
- Regulations imposed by project funding sources such as state and Federal governments; and
- Contractors' claims following project completion.

Denver's T- REX project required the passage of specific legislation allowing CDOT to use a design-build project delivery approach and select a contractor on a basis other than cost. RTD already had the ability to apply design-build but CDOT did not, and the coupling of highway and transit improvements was essential to the project's advancement.

In some instances, structures enabling PPPs may provide legal advantages. For example, the California Infrastructure Finance Act, which BART is applying to advance its **Oakland Airport Connector** project, provides flexibility in contract procedures relative to the regulations that govern typical project delivery approaches. Other than requiring the project to pay laborers' prevailing wages, the law exempts projects advanced under the act from several other state regulations governing public works projects. Most importantly, the law allows project sponsors to pick a consortium based on best value instead of low bid, which is essential when selecting a team that will assume the large degree of risk that is typical of DBFO projects.

Several agencies cited the importance of having a well-written contract and experienced counsel to avoid legal tangles with the contractor. RTD and CDOT hired outside attorneys that have been involved in many innovative project delivery projects to write their contract for **T- REX**, as many agencies do. BART is currently working with an international law firm experienced with DBFO projects around the world to advise the agency as it issues its RFP, evaluates proposals, and negotiates a contract for the **Oakland Airport Connector** project.

South Florida RTA faced a significant number of claims and litigation associated with its **South Florida Commuter Rail Upgrades** project, in part related to the application of a design-build delivery approach. Issues were related to the length of the project and the fast-tracking process,

and the size of the project allowed for issues between the project sponsors and the contactor to be magnified.

E. Strategies to Expand Legal and Regulatory Authority for PPPs in Transit

Successful PPPs in the public transit arena, whether involving innovative contracting or infusion of long-term private investment, require implementation in accordance with appropriate laws and regulations. State and local transit agencies contemplating the use of PPPs should review their **authorizing statutes** and charters to determine whether additional procurement and contracting authority is needed to allow:

- The project sponsor to bundle a wide range of services from pre-development through long-term operations:
- A variety of project delivery systems, including design-build, DBOM, DBFO and concessions
- Use of qualifications-based procurement methodologies, such as two-stage "best value" procurements;
- Development of evaluation criteria for procurements that will result in selection of the best developer for the job and the greatest value to the project sponsor;
- The use of alternative forms of financial security; and
- Transit agency participation in the early planning and development stages of multimodal projects with other public sponsoring agencies (representing other complementary modes of transportation) and private sector partners prior to completion of the NEPA process.

Although changes to State and local laws must be initiated and pursued at the local level, FTA could provide technical assistance to transit agencies wishing to pursue PPP project delivery to help them better understand the range of statutory issues that may arise with respect to varying forms of PPPs.

With respect to **Federal law and procedure**, FTA has recognized that changes in their procedures for processing New Starts and other grant applications would encourage the greater use of PPPs for transit fixed guideway projects. The Pilot Program will demonstrate how PPPs reduce new construction risks, accelerate project delivery, improve the reliability of projections of project costs and benefits, and enhance project performance. Adjusting New Starts ratings to reflect private contributions and modifying the risk assessment process in recognition of the greater assumption of pricing and completion risk by the private partner should encourage more innovation and private investment in transit projects. In addition, accelerating design approvals and providing earlier funding assurances will reduce project delays and attendant costs.

If the results of the Pilot Program are successful, the kinds of flexibility and streamlining allowed for the pilot projects should be made available to PPP transit projects generally. FTA should also engage participants in the Pilot Program to help it identify further reforms that would attract more robust private sector participation in transit projects.

FTA should also expand its efforts to address institutional challenges by providing greater access and resources related to PPPs and lessons learned, and should undertake a substantive training program for its own personnel and local agency administrators. Creation of a special projects group to cultivate alternative project delivery processes and further public understanding and acceptance should also be considered.

By reducing the cost of delays inherent in traditional FTA grant approval processes, and giving credit to the unique contractual and financial benefits of PPPs, FTA can help improve the quality and feasibility of transit projects supported by Federal funds.

Chapter 5: Conclusions

This final chapter presents conclusions regarding the use of PPP approaches to leverage public resources with the capabilities and resources of the private sector firms seeking to participate in the development, financing, implementation, and/or operations and maintenance of transit fixed guideway facilities

In recent years transit agencies have begun to reconsider the potential role and involvement of the private sector in transit capital investments and operations. PPPs are among the most effective ways other transportation sectors have controlled the costs of infrastructure development and operation while increasing program resources. As a result, many transit agencies are considering various approaches to engage the private sector in some form of PPP to **leverage public resources, lower costs, improve services,** and **transfer risks** associated with fixed guideway design, construction, financing, operations, and maintenance. Their intent is to minimize the level of public subsidy required by public transit facilities and services while protecting the social benefits delivered by transit. While it is unlikely that public transportation services can become fully self-supporting, PPPs can reduce the level of public subsidy while improving services to patrons. PPPs:

- Reduce the costs of transit facilities through the use of more cost-effective alternative project delivery approaches, better management of project risks, and life-cycle preservation through the application of asset management principles.

- Expedite the delivery of transit facilities (new, expanded, or rehabilitated), keep them in a state of good repair, and maintain an attractive travel environment (stations, access ways, parking lots/garages) to attract and retain patrons and increase farebox revenues.

- Improve the efficiency of transit services by adopting more cost-effective operating practices and resources.

- Quicken the pace of adopting more cost-effective new technologies that can improve patron services and reduce capital and/or operating costs.

These strategies are aimed at minimizing the level of public subsidy required by transit agencies (referred to earlier as *subsidy minimization*) and placing essential public transportation facilities and operations on a firmer customer service and fiscal foundation with less uncertainty and greater accountability. By working together as partners, experience over the past decade has shown that public transit agencies and private firms with access to best practices, capital resources, and risk management techniques can often realize these outcomes more cost-effectively than by working separately.

While some argue against the use of PPPs for fixed guideway projects due to the perceived lack of farebox revenue for the private sector partners, it is becoming increasingly clear that transit agencies can access alternative sources of revenue for the private partners and make their payments contingent on availability and other performance related factors, which can measure the private partners' performance through the life of the contract.

With many PPP arrangements possible, the kind of private sector involvement can vary by function, service, project, and agency. Some kinds of partnership arrangements may not be

appropriate or beneficial in certain cases while in other instances a PPP can turn a troubled fixed guideway project or service into a success. The essence of a PPP is that it is based on a true partnership, where both the public agency and private partner are involved in ways that maximize their contributions to the project based on their respective capabilities.

Other Observations and Suggestions

Based on the findings of this report, the following observations are made regarding the various forms of PPPs for delivering transit fixed guideway projects and operations and the potential benefits and risks for implementing successful transit PPPs.

- Some State and local transit agencies contemplating the use of PPPs to deliver capital projects may need additional procurement and contracting authority for project delivery, finance, and operations.
- To foster the leveraging of private capital in public transportation infrastructure, states need statutes that grant transit agencies the necessary flexibility to contract out for operation and maintenance services. Only by allowing private partners to participate in transportation facilities on a long-term basis can the transit agencies truly have a private sector partner.
- Public sponsors of transit capital projects should consider a variety of ways to involve private sector firms and their resources to expedite needed projects that do not have full funding grant agreements, selecting those approaches which offer the greatest potential for value capture and risk management by both private and public project partners.
- A PPP involves a sharing of project responsibilities and risks between public owners of public transportation facilities and their private sector partners – not an abdication of public authority over or responsibility for these important infrastructure assets.
- Transit agency sponsors of PPP projects should develop an appropriate sharing of responsibilities, risks, and rewards with the private sector through a transparent contractual arrangement that assigns functions and risks to the partner best able to manage them.
- Transit agency project sponsors interested in a potential PPP arrangement should seek private sector partners with mutually complementary project interests and a willingness to accommodate changing conditions and opportunities consistent with the desired project outcomes and performance.
- Transit agency project sponsors should hold private project partners accountable for project performance in their areas of responsibility, consistent with the terms of the PPP contract agreement, through continuous contract administration involving performance monitoring and reporting, and where appropriate, enforcement of a performance-based payment mechanism.
- The uncertainty associated with introducing PPP approaches to state and local surface transportation programs and projects can be reduced through insights and guidance from the extensive literature on developing and implementing PPP programs and projects in the United States and around the world, as well as documented results of successfully implemented PPP programs and projects by other surface transportation agencies.

Building on the successes of recent PPP projects by pioneering transit agencies, the potential exists to reduce the costs, accelerate the delivery, and improve the quality of fixed guideway projects and services through PPP approaches to project delivery and operations.

Urban mobility stands to benefit from the advantages that PPPs can bring to the transit community when properly managed and executed. In a broader context, PPPs represent an important means to sustain citizens' quality of life and foster the country's economic growth in an increasingly competitive global economy.

Appendix A: Summary of FTA PPP Pilot Program (Penta-P)

On January 19, 2007, the Federal Transit Administration published a notice (the "Notice") in the Federal Register [1] containing the definitive terms of the Public-Private Partnership Pilot Program (the "Pilot Program") authorized by Congress in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users ("SAFETEA-LU"). [2] Section 3011(c) of SAFETEA-LU authorizes the U.S. Secretary of Transportation to establish and implement a pilot program to demonstrate the advantages and disadvantages of public-private partnerships ("PPPs") for certain new fixed guideway capital projects funded by FTA. The Secretary may select up to three projects ("Pilot Projects") to participate in the Pilot Program.

The FTA Notice states that the Pilot Program is intended to study whether, in comparison to conventional procurements, PPPs achieve any of the following benefits:

- Reducing and allocating risks associated with new construction,
- Accelerating project delivery,
- Improving the reliability of projections of project costs and benefits, and
- Enhancing project performance.

The Pilot Program will study projects that, among other things, utilize methods of procurement that integrate risk-sharing and streamline project development, engineering, construction, operation, and maintenance. FTA states that the amount and terms of private investment to be made in such projects will be a significant consideration in selecting projects to participate in the Pilot Program. PPPs eligible under this program may include DB, DBOM, fixed price contracts, equity investments, and other risk sharing arrangements.

Projects selected under the Pilot Program will be eligible for a simplified and accelerated review process that is intended to substantially reduce the time and cost to the sponsors of New Starts [3] reviews. The Notice also provides important clarifications regarding the relationship between the procurement process and NEPA approvals.

The Notice is highly detailed, and should be read in its entirety. The purpose of this summary is to point out certain significant features of the Pilot Program.[47]

A. Use of PPPs in Transit Projects

As noted by FTA, the PPPs utilized in the transit industry have primarily taken the form of design-build and design-build-operate-maintain ("DBOM") procurements, which typically do not involve a significant long-term equity investment by the private partner or require the private partner to take ridership or revenue risk. Design-build transit projects funded by FTA include five New Starts projects (Denver RTD's T-Rex project; the South Florida Commuter Rail Upgrades; the Minneapolis Hiawatha LRT Line; the Bay Area Rapid Transit (BART) Extension to the San Francisco International Airport; and the Washington Metro's Largo Metrorail Extension), and one project outside of the New Starts program (the Portland MAX Airport

[47] Summary courtesy of Nossaman Guthner Know & Elliott LLP. FTA Announces Terms of the Public-Private Partnership Pilot Program to Encourage Private Investment in Transit Projects, by Karen J. Hedlund and William B. Fisher. January 31, 2007, with additional input provided by AECOM Consult, Inc. April 2007.

Extension). DBOM projects funded by FTA include the New Jersey Transit Hudson-Bergen LRT and the Port Authority of New York and New Jersey's JFK Airtrain.

The terms of the Pilot Program are clearly designed to encourage more private risk-taking and investment in fixed guideway transit projects than is found in typical design-build and DBOM procurements. Whether the private sector will be willing to accept more risk in transit projects – at a level more comparable to that assumed by private developers in recently procured highway concessions – is not known. Examples in the U.S. transit industry are limited.

- The Las Vegas Monorail Project, completed in 2004, is the only urban rail transit project since the 1920s with a significant portion of the financing based on projected farebox revenues.
- Currently, BART is soliciting proposals for private financing of the Oakland Airport Connector that may depend in part on farebox revenues.

In addition, there are numerous private "transit-oriented development" ("TOD") projects around the country that produce revenues used to support development of related transit projects. However, TOD investments do not involve the procurement of transit facilities (other than station connections) or the developer directly taking ridership or transit revenue risk. [4]

A new type of fixed guideway project that may have significant potential for private investment is the incorporation of "bus rapid transit" ("BRT") into new express toll lanes. Proposed projects include the Northwest Parkway and Georgia 400 Crossroads projects near Atlanta. Unlike stand-alone transit projects that typically cannot produce revenues sufficient to pay their operating costs, much less the cost of construction, projects that integrate BRT with managed toll lanes can use the tolls paid by passenger and commercial vehicles to provide a means of financing construction while providing a return to the private investor. [5]

B. Obstacles to Private Investments in Transit Projects

The primary obstacle to attracting equity investment in new transit projects is the fact that most transit projects are "revenue negative," with farebox revenues funding only a percentage of operating costs and making no contribution to the capital cost of design and construction. New fixed guideway transit systems are capital intensive and expensive. In addition, fares paid by transit users generally are kept as low as possible because the systems serve, among others, the needs of lower-income citizens and provide the only affordable form of mobility for many urban residents.

Additionally, if a transit project is built as an extension of an existing system, private operation of a single segment of a publicly owned system may not be feasible. Private investors might be wary of assuming the ridership risk of any portion of a system operated by an entity they do not control. And DBOM contractors who operate the transit systems that they construct want to be insulated from farebox risk since they don't have control over fares or certain other factors affecting ridership.

C. Program Incentives

Section 3011(c) of SAFETEA-LU is notably silent on what benefits, if any, participation in the Pilot Program would confer on a project, and no special funding was provided. However, FTA

notes that the statute affords the Secretary of Transportation broad discretion to devise criteria or approve arrangements that would demonstrate the advantages or disadvantages of PPPs as applied to transit projects. Under the Pilot Program, New Starts demonstration projects will be eligible for consideration, on a case by case basis, with the following incentives designed to reduce the cost and time of FTA reviews and to increase funding assurance:

- New Starts Rating Adjustments. Adjustments will be made in the project's "cost-effectiveness" rating to exclude any costs that will be paid for by equity capital, and in the project's ``project justification" rating, determined by assigning a weighting of 20% to the status of the project as a Pilot Project; [6]
- Accelerated Design Approvals. FTA will issue concurrent approvals for Preliminary Engineering and Final Design to commence, thus allowing the project to proceed with Final Design immediately upon completion of Preliminary Engineering without requiring additional approval;
- Modified Review Process. Modified processes will be implemented with regard to certain risk assessments included in the rating process as well as to the scope and content of the Project Management and Financial Management Oversight reviews to confirm that the allocation of risks safeguard the Federal interest;
- Reduced User Benefit Reviews. FTA will accept, without further review, certain projections of transportation user benefits subject to the private partner's assuming levels of risk with respect to such benefits on terms satisfactory to FTA, and will also implement other modifications to its process for reviewing user benefits;
- FTA Funding Assurances. FTA will issue a Letter of Intent setting forth its intention to obligate a specified amount of New Starts funds for the Pilot Project from future available budget authority specified in law, subject to the availability of appropriations;
- Letters of No Prejudice. FTA will issue Letters of No Prejudice (or other assurances) to accelerate commencement of pre-construction services and planning;
- Uses of Program Income. FTA will consider allowing flexible uses of program income, through agreement pursuant to 49 CFR 18.25(g); and
- Early Contract Incentives. The program will encourage transit agencies and contractors to enter into public-private agreements prior to the award of a Full Funding Grant Agreement, by streamlining of the project development process to obtain an earlier Federal funding commitment, and the opportunity to earn higher returns in exchange for assuming the risk associated with achieving the cost estimates and/or ridership projections.

Projects that propose to use non-New Starts Federal funds may also apply for the Pilot Program, but the Notice cautions that in order to be considered they must present exceptionally high demonstration value. If successful, the non-New Starts projects may receive "certain procedural and substantive benefits, as negotiated with FTA on a case-by-case basis." [7]

D. Environmental Matters and Design-Build Contracts

FTA has not previously published any procurement rules relating to environmental matters similar to those contained in FHWA's proposed amendments to its Design-Build Rule. [8] In the past FTA has discouraged grantees from proceeding with design-build procurements prior to

receipt of final NEPA approval, but has on multiple occasions allowed such procurements to proceed. The Notice expressly permits a Pilot Program project sponsor to issue procurement documents (RFQs and RFPs) prior to conclusion of the NEPA process, but makes it clear that neither the procurement nor the contract may commit the project sponsor to any of the alternatives being evaluated, including the no-build alternative. Furthermore, both contract award and issuance of a notice to proceed with preliminary engineering may occur prior to the issuance of final NEPA approval if the contract includes appropriate provisions preventing the contractor from proceeding with "final design" activities and physical construction prior to completion of the NEPA process. The Notice does not address the approach that FTA will take for non-Pilot Program projects, although it suggests that the same approach is likely to apply, stating that the environmental procedures expressly set forth in the Notice are "substantially the same as FTA's existing approach." [9]

The Notice also addresses the design-builder's role in preparation of the NEPA document, stating that the design-builder may not act as the preparer or have any decision-making responsibility with respect to the NEPA process, and making it clear that any consultants who prepare the NEPA documents must be selected by and subject to the exclusive direction and control of the project sponsor. However, a subconsultant on the design-builder's team would have the ability to prepare the NEPA decision document if it does not have a financial or other interest in the outcome of the project and its NEPA services are at all times subject to the exclusive direction and control of the project sponsor.

FHWA's proposed distinction between preliminary design and final design under its draft rule for design-build and PPP highway projects has provoked extensive commentary. [10] (The final rule is expected to be published later this year.) The FTA's Notice includes definitions that are much closer to the industry standard meanings, defining the terms as follows:

- "Preliminary design" means, for purposes of section 3(l) of this notice only, all design and engineering activities undertaken for the purposes of:

  (a) Defining the project alternatives and completing the NEPA review process;

  (b) Complying with other related environmental laws and regulations;

  (c) Supporting agency coordination, public involvement, permit applications and development of mitigation plans; or

  (d) Advancing the design development of the preferred alternative when authorized by the lead Federal agency in accordance with 23 U.S.C. 139(f)(4)(D) or as necessitated by 49 U.S.C. 5309.

- Preliminary design expressly includes, but is not limited to, preliminary engineering and other pre-construction activities such as environmental assessments, topographic surveys, metes and bounds surveys, geotechnical investigations, hydrologic analysis, hydraulic analysis, utility engineering, traffic studies, financial plans, revenue estimates, hazardous materials assessments, and other work that does not materially affect the consideration of alternatives in the NEPA review process. Preliminary design specifically excludes any activity that would constitute an irreversible or irretrievable commitment of resources that has the effect of foreclosing the formulation or implementation of any reasonable and prudent alternatives.

- "Preliminary engineering" has the meaning provided in 49 CFR 611.7(b). [11]

- "Final design" for purposes of section 3(l) of this notice, means any design activities following preliminary design and includes the preparation of final construction plans and detailed specifications for the performance of construction work, and for all other purposes, shall have the meaning provided in 49 CFR 611.7(b).

In summary, the Penta-P program stipulates the following requirements project sponsors must meet relative to the environmental clearance process:

- **Sponsor may:**
  - Issue RFQ prior to conclusion of NEPA if proposers are informed of NEPA status
  - Issue RFP after conclusion of NEPA
  - Issue RFP prior to conclusion of NEPA if proposers are informed of NEPA status and no commitment is made to any alternative under evaluation in NEPA including No-Build
  - Proceed with award of DB contract
  - Issue Notice to Proceed (NTP) for preliminary engineering for DB contract prior to completion of NEPA
  - Allow DB to proceed to final design and construction after completion of NEPA process with receipt of Record of Decision (ROD)
- **If DB contract awarded prior to completion of NEPA:**
  - Contract must include provisions preventing final design and construction prior to completion of NEPA
  - Contract must include provisions preventing commitment to any NEPA alternative including No-Build
  - Contract must include provisions ensuring all environmental and mitigation measures in NEPA document will be implemented
  - Design-builder may not have decision-making responsibility regarding NEPA
  - Consultants preparing NEPA documents must be subject to exclusive direction of project sponsor. This does not prevent DB subcontractors from preparing NEPA document subject to subcontractor not having financial/other interest in outcome
  - DB work product may be considered in NEPA
  - DB contract includes termination provisions in event of selection of No-Build
- **Other stipulations:**
  - FTA Concurrence required prior to issuing RFP and prior to awarding DB contract.
  - If NEPA is completed prior to DB contract, consultants/subconsultants may bid on a DB contract

E. Selection Criteria

FTA's Pilot Program selection criteria emphasize increased private risk-taking and investment. They include:

- The number of project elements for which the private partner is responsible;
- The quality of risk allocation with respect to the cost and ridership of the project;
- The extent to which equity capital and proceeds of the sale of development rights are contributed to the project and the terms on which such capital is contributed;
- Whether the project is part of a congestion mitigation plan that incorporates system-wide congestion pricing; and
- The expected effects of the foregoing arrangements on the speed and quality of delivery and performance of the project and on the reliability of the projections of costs and benefits associated with the project.

It is important to note that assumption of ridership risk referred to earlier is not a requirement, but merely one factor to be considered. The assumption of farebox revenue risk is not mentioned at all. Theoretically, a portion of the private partner's compensation could be based on the number of passengers that actually utilize the project without any tie to the farebox revenues, in the manner of "shadow tolling" schemes used in the United Kingdom and elsewhere.

F. Eligibility Requirements

The Notice sets forth eligibility requirements which include, among others:

- All or part of the project is a new fixed guideway capital project and, with respect to the project, the project sponsor has not entered into a full funding grant agreement or project construction grant agreement with FTA;
- The project sponsor has submitted, with its application to the Pilot Program, a schedule and finance plan for the construction and operation of the project and an analysis of the costs, benefits, and efficiencies of the proposed public-private agreement;
- The public-private agreements are permitted under applicable state law and governing instruments;
- The recipient cannot advance the project without a public-private partnership due to fiscal constraints; and
- If New Starts funding is to be used, then the Alternatives Analysis must be completed.

G. Application Deadlines

FTA will review applications to the Pilot Program quarterly on a rolling basis for so long as at least one position in the Pilot Program is available. The deadline for submission of applications for FTA's first quarterly review of proposals will be March 31, 2007. Applications received by FTA between March 31, 2007 and July 1, 2007 will be reviewed in FTA's second quarterly review of applications to the Pilot Program. No application for designation as a Pilot Project will be approved by FTA after September 30, 2009.

H. Expected Pilot Program Benefits

The anticipated benefits of the Pilot Program for New Starts and other kinds of fixed guideway projects are listed below:

- **For New Starts Projects:**
  - Adjustment in Construction Engineering and Inspection (CEI) by excluding 100% of equity capital and 50% of development proceeds (subject to OMB approval)
  - Adjustment to project justification by adjusting weighting of CEI and land use (subject to OMB approval)
  - Concurrent approval in to PE and Final Design
  - Elimination or limitation of FTA risk assessments (negotiated on a case by case basis)
  - Elimination or limitation of FTA User Benefit review subject to private acceptance of risk on terms satisfactory to FTA
  - Issuance of letter of intent subject to availability of appropriations
  - Early issuance of Letters of No Prejudice to accelerate pre-construction services and planning
  - Flexible use of program income as permitted by FTA
  - Incentives to contractors as negotiated with FTA:
    - Earlier approvals
    - Higher returns in exchange for assumption of risk related to cost and ridership
    - Projects rated medium or higher (overall and cost-effectiveness) will be included in President's Budget
- **For Projects Receiving Formula Funds (Non-New Starts Projects):**
  - Procedural and substantive benefits negotiated with FTA

Through this PPP Pilot Program, FTA is seeking to better understand the extent to which the private sector's requirement for a financial return and agreement to assume risk for costs and benefits may permit FTA to relax requirements or accelerate approvals for New Starts projects. In particular, when risks are allocated to a private partner, the Pilot Program will help FTA determine the extent to which it can rely on commercial due diligence, financial incentives, and potential liabilities rather than relying solely on FTA's established procedures for risk evaluation and due diligence under the existing New Starts review process.

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[1] Public-Private Partnership Pilot Program, 72 Fed. Reg. 2583 (Jan. 19, 2007).

[2] Pub. L. No. 109-59, 119 Stat. 1144 et seq. (2005).

[3] The New Starts program authorized under 49 U.S.C. § 5309 provides funds for construction of new fixed guideway systems or extensions to existing fixed guideway systems. A "fixed guideway system" refers to any transit service that uses exclusive or controlled rights-of-way or rails, entirely or in part. The term includes, for example, light rail, trolleybus, that portion of motor bus service operated on exclusive or controlled rights-of-way, and high-occupancy-vehicle (HOV) lanes (see http://www.fta.dot.gov/funding/grants/grants_financing_3590.html).

[4] The Notice indicates that such joint development projects will not be the focus of the Pilot Program (see page 2586 of the Notice).

[5] See also as to HOV to HOT Lane conversions: Final Policy Statement on When High Occupancy Vehicle (HOV) Lanes Converted to High Occupancy/Toll (HOT) Lanes Shall Be Classified as Fixed Guideway Miles for FTA's Funding Formulas, 72 Fed. Reg. 1366 et seq. (Jan. 11, 2007). This notice can be found at the following address: http://dmses.dot.gov/docimages/p88/434448.pdf. This notice does not address construction of new HOT lanes.

[6] The Notice indicates that these adjustments are subject to the approval of the Office of Management and Budget (see page 2586 of the Notice).

[7] See page 2590 of the Notice.

[8] Design-Build Contracting, 71 Fed. Reg. 30 100 (May 25, 2006) (to be codified in 23 C.F.R. pts. 630, 635 and 636).

[9] See page 2587 of the Notice.

[10] Comments can be viewed by visiting http://dms.dot.gov/ and referencing FHWA Docket No. FHWA-2005-22477. A discussion of the proposed rule can be found in the Nossaman E-Alert, "FHWA Changes to Design-Build Rule Fall Short of PPP Needs" by Nancy C. Smith, Christine D. Ryan and Brandon J. Davis, by clicking here.

[11] The reference to 49 C.F.R. 611.7(b) is in need of clarification since that subsection does not define the term "preliminary engineering".

Appendix B: Bibliography

- AECOM Consult, Inc., National Council for Public Private Partnerships, and Parsons Brinckerhoff, Ltd. *Partnerships in Transportation Workshops, Final Report*. Prepared at the request of the Federal Highway Administration, March 17, 2004.

- AECOM Consult, Inc., SAIC, and University of Colorado at Boulder. *Design Build Effectiveness Study – As Required by TEA-21 Section 1307(f), Final Report.* Prepared for the Federal Highway Administration, January 2006.

- Apogee Research, Inc. *Implications of Change in Procedures and Laws to Advance Public-Private Partnerships*. Prepared at the request of the Federal Highway Administration, (FHWA-PL-95-026), April 30, 1995.

- Apogee Research, Inc. *Summary of the Federal Highway Administration's Symposium on Overcoming Barriers to Public-Private Partnerships*. Prepared at the request of the Federal Highway Administration, (FHWA-PL-94-026), May 1994.

- Ballati, Deborah S., *Privatization Governmental Functions,* Law Journal Press, 2004.

- Ballati, Deborah S., ed. *Surface Transportation: "Tools" in the Privatization "Tool Box."* New York: American Lawyer Media, Inc. Law Journal Press, Ch. 6, 2001.

- Battelle. *Performance-Based Contracting for the Highway Construction Industry: An Evaluation of the Use of Innovative Contracting and Performance Specifications in Highway Construction, Final Report*. Prepared at the request of Koch Industries, Inc., February 2003. http://www.ncppp.org/resources/papers/battellereport.pdf.

- Bureau of Transport and Communications Economics. *Working Paper 33: Benefits of Private Sector Involvement in Road Provision: A Look at the Evidence,* 1996, http://www.bte.gov.au/docs/wp33.pdf.

- California Department of Transportation Innovative Finance Web site. “Private Investment Public Infrastructure – AB 680 Private Toll Road Program,” May 2003, http://www.dot.ca.gov.

- Congressional Budget Office. *Innovative Financing of Highways: An Analysis of Proposals*, January 1998. http://www.cbo.gov/showdoc.cfm?index_320&sequence=0.

- DBOM Update: *Independent Evaluation of Alternative Approaches Relating to Operations and Maintenance Component of DBOM Contract for the SMP Green Line.* January 2004.

- Department of Transportation. “Report to Congress on Public-Private Partnerships,” December 2004. www.fhwa.dot.gov/reports/pppdec2004/

- Design-Build Institute of America Web-Site, http://www.dbia.org.

- Federal Highway Administration. *Exploring Key Issues in Public-Private Partnerships for Highway Development, Searching for Solutions: A Policy Discussion Series, No. 2*, (FHWA-PL-92-023), June 1992.

- Federal Highway Administration. *FHWA Innovative Finance Primer*, (FHWA-AD-02-004), April 2002, 45-46. http://www.fhwa.dot.gov/innovativefinance/ifp/ifprimer.pdf.

- Federal Highway Administration SAFETEA-LU Web Site, http://www.fhwa.dot.gov/reauthorization/safetea_bill.doc.

- Federal Highway Administration Web-Site, FHWA PPP Web Page, http://www.fhwa.dot.gov/ppp.

- Federal Transit Administration. *Annual Report to Congress on New Starts*, FY 2000 through FY2007, http://www.fta.dot.gov/publications/publications_2618.html.

- Federal Transit Administration, *Circular on Third Party Contracting Requirements*, Circular FTA C 4200.1E.

- Federal Transit Administration, *Dear Colleague Letter;* dated September 20, 2000. http://www:/fta.dot.gov/office/public/c0015.html.

- Federal Transit Administration – Docket No.: FTA-2006-23697. *Public-Private Partnership Pilot Program*. Federal Register/ Volume 72, No. 12, January 19, 2007. pp. 2583-2591.

- Federal Transit Administration – Docket No: FTA-2006-23511. *Notice of Final Agency Guidance on the Eligibility of Joint Development Improvements Under Federal Transit Law.* Federal Register/ Volume 72, No. 25. February 7, 2007. pp. 5788-5800.

- Federal Transit Administration – Docket No: FTA-2006–25750. *Final Policy Statement on When High-Occupancy Vehicle (HOV) Lanes Converted to High-Occupancy/Toll (HOT) Lanes Shall Be Classified as Fixed Guideway Miles for FTA's Funding Formulas and When HOT Lanes Shall Not Be Classified as Fixed Guideway Miles for FTA's Funding Formulas.* Federal Register/ Volume 72, No. 7, January 11, 2007. pp. 1366-1372.

- Federal Transit Administration, *Final Policy on When High-Occupancy Vehicle (HOV) Lanes Converted to High-Occupancy/Toll (HOT) Lanes Shall Be Classified as Fixed Guideway Miles for FTA's Funding Formulas and When HOT Lanes Shall Not Be Classified as Fixed Guideway Miles for FTA's Funding Formulas*, 72 Fed. Reg. 1366, January 11, 2007.

- Federal Transit Administration, *Introduction to New Starts*, http://www.fta.dot.gov/planning/newstarts/planning_environment_2608.html.

- "Federal Transit Gets Back on PPP Track." *Public Works Financing.* Volume 213. Editor/Publisher: William G. Reinhardt, February 2007.

- Fitch Ratings. *Global Toll Road Rating Guidelines*. Project Finance, Criteria Report. New York City, NY, September 12, 2006.

- Hauser, Dr. Edd, P.E., Principal Investigator. *Volume III: Developing and Maintaining Partnerships for Multimodal Transportation Planning*. NCHRP Web Document 22, Project 8-32(41), June 1997.

- Hedlund, Karen J. *The Case for Tax-Exempt Financing of Public-Private Partnerships*, 1998, 4, citing Federal Reserve Board of Governors Statistical Release G. 13, March 13, 1998. http://www.reason.org/HEDLPDF.PDF.

- Horner, David B., Esq. *FTA's Public-Private Partnership Pilot Program - Current Thinking.* Presentation by Chief Counsel, Federal Transit Administration, U.S. Department of Transportation. July 25, 2006.

- Innovative Finance Web site, http://www.innovativefinance.org.

- Karlaftis, Matthew G., Ph.D. *Privatization and Regulation of Urban Transit Systems – Privatization, Regulation and Competition: A Thirty-Year Retrospective on Transit Efficiency.* Presented at the European Conference of Ministers of Transport, Joint OECD/ECMT Transport Research Centre – Round Table 138. Department of Transportation Planning and Engineering, School of Civil Engineering, National Technical University of Athens, Greece. January 30, 2007.

- Legal Research Digest, Transit Cooperative Research Program, sponsored by Federal Transit Administration, June 1995 No. 4. http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_lrd_04.pdf.

- Lockwood, Steve. *Public and Private Roles in Highway Network Development: An Agenda for Future Research on Institutions and Regulations*. STELLA Conference on Transport and Sustainability, Athens, Greece, 2004.

- Loulakis, M.C. *Construction Project Delivery Systems: Evaluating the Owners Alternatives*, AEC Training Technologies, 1999.

- Loulakis, Michael C. (ed.), *Design-Build for the Public Sector*; Aspen Publishers, 2003.

- Nancy Smith and Christine Ryan, *FHWA Changes to Design-Build Rule Fall Short of PPP Needs*, http://www.envoynews.com/nossaman/index000131963.cfm.

- National Council for Public-Private Partnerships Web-Site, http://www.ncppp.org/resources/index.html

- National Society of Professional Engineers. "Design/Build in the Public Sector (#1726)", July 1995, http://www.nspe.org/govrel/gr2-ps1726.asp.

- Norment, Richard. "PPPs - American Style." *The PFI Journal*, 39 (October 2002), 27. http://www.ncppp.org/howpart/PFIArticle.pdf.

- Pakkala, Pekka. Innovative *Project Delivery Methods for Infrastructure – An International Perspective*. Finnish Road Enterprise, Helsinki, 2002.

- Rebollo Fuente, Andres. *Infra-News: Global PPP/Infrastructure Yearbook 2005.*

- Reid, Stephen, *et al.*, *Final Report: Finding Ways to Reduce Insurance and Bonding Costs for Major Transit Projects*, Center for Urban Transportation Research, University Smith Florida, prepared for the Florida Department of Transportation, September 2006.

- Sanchez, Humberto. "Transportation: FTA's "Penta-P" Program to Offer Aid to Three P3 Projects." *Bond Buyer*, March 1, 2007.

- Smith, Nancy C. "A Critique of FHWA's Proposed Draft Design-Build Regulations." *Public Works Financing*, November 2001.

- Stainback, John. *Public/Private Finance and Development*. John Wiley & Sons, Inc., New York, 2000. pp. 33-53.

- "State Public-Private Partnership Legal Score Card: Enabling Laws for Transportation Partnerships." *Public Works Financing*, February 2004, 7; and information provided by Nossaman, Guthner, Knox & Elliott, LLP.

- Tenah, K.A. "Project Delivery Systems for Construction: An Overview," *Cost Engineering*, AACE International, Morgantown, WV, 43(1), pp20-26.

- U.S. Government Accountability Office. *Highways and Transit: Private Sector Sponsorship of and Investment in Major Projects Has Been Limited*, (GAO-04-419), March 25, 2004. http://www.gao.gov/new.items/d04419.pdf.

- Virginia Department of Transportation. "Public-Private Transportation Act of 1995 Implementation Guidelines," April 2001, http://www.virginiadot.org/business/resources/PPTA-overview.pdf

Appendix C: List of Exhibits