CURRENT PRACTICES IN PUBLIC-PRIVATE PARTNERSHIPS FOR HIGHWAYS

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1. EXECUTIVE SUMMARY

States throughout the country face serious gaps between the level of highway service demanded by citizens and businesses and the funding available to finance, construct, operate, and maintain the highway system. The needed improvements would provide substantial economic benefits to the traveling public – both to citizens of the sponsoring states and to the residents and businesses traveling through those states to other destinations.

The State of Maryland is exploring the potential to expand the use of public-private partnerships (P3) to deliver highway projects. Maryland has enjoyed success using the "design-build" model of P3 in several highway projects. That model would be expanded to larger projects and could encompass a broader range of project activities including the financing, planning, design, construction, operation, and maintenance of highways.

Maryland offers an unusual environment for public partnerships with the private sector in toll financings. It has one statewide (user fee supported) agency, the Maryland Transportation Authority (the Authority), which is the sole entity empowered by State law to establish and collect tolls on State highway facilities. The Authority operates its facilities as a unified financial system, thereby creating a pooled revenue fund for the operation, maintenance, and enhancement of their highway facilities. The Authority already administers a P3 program, which has been used for a variety of non-highway transportation projects, including port and airport support facilities. While the financing available through the Authority has some advantages, any Maryland P3 initiative for highways could be supplemented by private sector financing.

The Authority, the Maryland Department of Transportation (MDOT), and the State Highway Administration (SHA) commissioned a review of transportation P3 initiatives throughout the US in order to gain a broad understanding of the challenges and obstacles associated with such programs. The information used in the review came from two concurrent research efforts conducted by staff from the Authority, MDOT, SHA, FHWA, and KCI Technologies (the Maryland P3 Team) in 2004:

- Request for Information (RFI) on Public-private Partnerships for Highways:

  The Authority, SHA, and MDOT developed an RFI in an effort to secure private-sector input on P3s for Maryland highway projects. The full text of the RFI can be found in **Appendix A**.

- Scanning tours of states with P3 highway experience:

  The Maryland P3 Team conducted scanning tours of three states with public-private partnership (P3) experience: Virginia, California, and Texas.

These two research efforts sought information on:

- Best practices for implementing P3 programs for highway projects;
- Benefits a P3 might offer Maryland if used as an alternative to traditional Authority and SHA practices in production and financing of highways; and
- Market interest regarding implementation of a P3 highway program in Maryland.

1.1 Key Findings

After reviewing the results of the research efforts, the project team reached the following conclusions about the current practices in P3 highway projects in the United States.

1.1.1 Using the P3 approach for large projects can improve price certainty and project delivery

Most often, P3 projects tend to be large, complex, and expensive. They usually include a design/build (DB) component, but oftentimes include more phases, such as continued operations and maintenance. Most industry representatives indicated that projects should be in excess of $200-250 million to justify the considerable effort involved in competing for the project. These mega-projects provide opportunities for significant efficiencies that save time and money. The certainty of long-term involvement in a highway project encourages the private sector teams to seek long-term cost efficiencies using innovative design and construction techniques.

- P3s can provide relatively fast access to increased staff for project development, which can contribute to improved project schedules and delivery.
- In many states, P3 endeavors are motivated by a new opportunity to use toll revenues in the project finance. In states without a history of toll roads, the use of tolls can provide new revenue sources to construct larger projects that would otherwise have taken decades to complete. California, Virginia, Texas, and South Carolina used private businesses and non-profit corporations to establish tolls. In these cases, the private organization, not a State agency, is responsible for payment of loans and revenue bonds that finance the highway facility.
- California SR 125 and the Central Texas Turnpike System used contributions from local governments as part of the initial project-financing packages. The Virginia SR 28 Corridor Improvements Project and the Dulles Corridor Rapid Transit Project financing packages include a dedicated property tax on the parcels of land that increase in value due to the availability of transportation services. The Chicago Skyway concession attracted some private sector cash investment and provided the City with an infusion of new capital.
- In 2003, UK's National Audit Office (NAO) completed a review of that nation's Private Finance Initiative, the equivalent to a P3 program. NAO concluded that using a P3 approach would deliver both improved price certainty and more predictable schedules for the delivery of quality assets.
- By avoiding the inflation that can occur in projects lasting many years, there is greater potential for price certainty and greater predictability of ultimate project delivery resulting from the P3 approach.
- The use of non-traditional funding for P3 projects can reduce the pool of projects competing for the traditional funding resources.
- Some of the risk for project quality can be shifted to the private sector when operations and maintenance activities are also included in the project scope.

1.1.2 Many of the projects described as P3 in the press are primarily design/build (DB) projects; however, other types of P3 approaches are beginning to emerge for large transportation projects

In 2004, the majority (71%) of the P3 transportation facility contracts in the United States with a value over $50 million were Design/Build (62%), or Design/Build/Finance (9%). Projects that included some longer-term aspect of maintenance, operation, finance, warranty, or equipment procurement accounted for 20 percent of the current P3 projects in the United States. The average cost of these nine projects was approximately $660 million.

In the State of Maryland, 15 highway design-build contracts have been issued, ranging in size from $2.7 million to $28.3 million, with an average of $10 million. There are an additional 6 design-build projects in the proposal stage at this time. These range from $1.6 million to $48 million, with an average size of $28 million. None of these projects has included contractor responsibility for right-of-way acquisition, railroad relocation or long-term system preservation or warranty.

1.1.3 The public and private sector participants in a P3 have different reasons for participating and different measures of success

Government agencies chose P3 arrangements fo

- To secure a long-term commitment to their team for design and construction of a large project.

1.1.4 Private sector firms evaluate P3 projects individually

Private sector firms that responded to the RFI reported that there are two prime motivators for private sector interest in a P3:

- Opportunity to develop a major project that will achieve cost/time savings or develop new technology that result in market growth; and
- Opportunity to complete key projects that add value to communities, resulting in market development or increased stock and shareholder value.

The features private companies consider when evaluating a P3 investment opportunity include:

- The level of investment and technical risk;
- Assignment of risk between the public and private sectors;
- Perception of a trustworthy procurement process;
- The strength of the public sector project management;
- The strength of project commitment from the public sector;
- The project size - greater than $200-250 million;
- Length of time to return on investment; and,
- The clarity of the enabling legislation.

1.1.5 Proper allocation of risk is unique to every project and key to the success of each partnership

Risk cannot be eliminated, only allocated. Risk sharing in a P3 project involves the transfer of risks to the partner best able to manage it. Risk efficiency is achieved when each risk is borne by the party who can cover it most efficiently. In an ideal P3 project, all of the risks are covered efficiently. Generally, the public sector agency will accept the risk of scope, public support, and right of way costs, while the private partner will be responsible for construction cost and schedule risks. Risk allocation will vary according to the type of project and location – there is no optimum risk allocation formula. The most efficient risk allocation depends on the stage at which a project is procured and the potential for change during the project development.

1.1.6 Maryland is a unusual financial environment for P3 projects

Unlike many of the states currently using P3 approaches to highway finance, Maryland has a long history of tolled highways. While the role of the Authority as administrator of a statewide toll facility program is replicated in some state programs, none of the other states visited or studied appear to have a single statewide agency with comparable financial resources. The Authority already has a track record of bond sales and repayment and a favorable rating on the bond market. Private sector firms and newly

created not-for-profit corporations are likely to have higher financing costs than the Authority.

1.1.7 Most states with P3 programs for highways have a specialized staff and process for P3 projects

The success of a P3 is equally dependent upon the skills of both sectors in the venture. The highest levels of success are achieved when a skilled private entity is teamed with a committed and capable State agency staff. Implementation of P3 projects typically requires a dedicated staff of State employees with a willingness to be pioneers, and a commitment to making the project succeed. These employees deal primarily or exclusively with P3 projects and report to a supervisor with broad responsibility for the state's highway network. The selection of project staff was noted as critical in every State visited. Since these projects represent a significantly different method of project execution, the agency staff involved must be willing to evaluate new ideas on their merits, not on past practices, and to adjust rapidly to change. Most States supplement this internal team with specialized consultants that provide specific support to the P3 program, most notably support for financing, legal issues, and negotiation.

The commitment of the State elected leadership and appointed leadership of the transportation department is key to P3 program success. Generally, the states have specific legislation governing P3 activities that lay out the project selection and contract award process.

The time from initial proposal of a P3 project to execution of a Comprehensive Agreement ranges from 11 to 29 months, depending upon the complexity of the project and whether a final price is included in the agreement.

1.1.8 Design/build P3 programs permit traditionally sequential design and construction activities to be done simultaneously. Some programs include right-of-way (ROW) acquisition

By consolidating final design, ROW acquisition, and construction under one contract, the P3 can pursue the three activities simultaneously rather than sequentially. By providing all final project delivery elements under the umbrella of a single team, the interface between these different elements is improved, reducing possible schedule delays and cost overruns. In some P3 projects, the right-of-way (ROW) acquisition process is managed by the private entity, and coordinated with the final design and construction phasing. In these situations, most of the schedule risks related to ROW can be transferred to the private entity. The cost risk and condemnation process remain with the public agency, as does responsibility for assuring that private property owners' rights are protected.

Co-location of private partners and public agencies is highly desirable during the construction process. In every case visited by the Maryland P3 Team, State and private sector design staff are co-located at the project site to facilitate communication and collaborative decision-making.

1.1.9 Federal approvals should be obtained early in the process

When the procurement approach for a Federally funded project includes release of the RFP prior to completion of the NEPA process, FHWA must approve the approach under the SEP-14 (Special Experimental Project Number 14) or SEP-15 program. There was nearly universal agreement that approval of Federal level environmental permits was required prior to negotiation of a fixed price construction contract with the P3.

1.1.10 In a P3 project, the State's approach to quality assurance during construction varies considerably depending upon the long-term obligation of the P3 to the facility

Three basic approaches to operation and maintenance keep the P3 involved after construction is complete and the facility is opened:

- P3 operation, maintenance, and asset management
- P3 operation and state maintenance
- State operations and maintenance with P3 warranty

Operations and maintenance contracts usually last for 30 to 99 years. When the P3 that designs and builds a highway also has the capital maintenance agreement, they have a strong motivation to ensure that quality is integrated into construction and materials. In cases where the P3 has a long-term role in the facility maintenance through a warranty, maintenance contract, or franchise agreement, the state DOT staffs have found that their role in quality assurance may be reduced. The willingness of state quality assurance (QA) staff to consider new approaches to ensuring the quality of the constructed facility, while protecting the state interests, is identified by both state and private sector partners as key to the success of this phase of a P3 project.

Strong, clear performance standards at the time of transfer to the State at the end of a maintenance contract can also act as a form of warranty. These performance standards must be carefully defined during the contract process, so that the receiving agency is not required to undertake repairs or system preservation activities for a specified period. The standards for pavement condition and other key assets must balance normal wear with a reasonable level of system preservation by the P3.

1.1.11 Everywhere P3 projects are used, they have generated attention from the public and the media

The size of most P3 highway projects makes them targets for public attention. A project that enjoys broad public support can lower the political risk of the public agency and the financial risk for the private entity. Conversely, an unpopular project with lukewarm support is unlikely to attract either private investment or public agency funding.

When P3 projects involve tolls or other user fees, the amount of public attention usually increases. It is sometimes difficult to separate the public reaction to the increased private sector involvement from the reaction to tolls or to the highway itself. In the limited opinion research completed to date, the public is more likely to approve of variable tolls than of private, for-profit development and operation of toll lanes.

Surprisingly, income levels of the respondents seem to have little effect on their approval of private, for-profit operation.

Some limited research has also looked at media coverage of P3 projects. The study reveals that the media tends to cover disputes between governments and P3 entities in detail and as a clash between competing interests:

- Public v. private;
- Safety v. profit;
- Transit v. highways;
- Taxation v. private ownership; and,
- Nonprofit v. for-profit organization.

When press reports have been positive, they have praised P3 toll roads for:

- Being innovative;
- The philosophy behind the privatization of toll lanes;
- Allowing private companies to assume or share the financial risk and reducing the use of public money to finance the project; and
- Providing funding for needed roadways when public dollars were not available for the improvements.
- Negative media coverage of P3 partnerships has suggested that the corporations operating toll roads may:
- Sacrifice safety for profit;
- Repeatedly raise toll rates;
- Maintain secrecy about their financial performance;
- Discourage improvement to nearby “free” roads in order to maintain demand for the toll road.

1.1.12 P3 projects tend to be very customer-oriented

In most of the P3 toll facilities, drivers were viewed as “customers” with a high priority placed on customer satisfaction. Marketing efforts targeted facility customers and potential customers; a group viewed as distinct from the general public and the users of non-toll facilities. Most P3 projects with a toll component have active programs to attract users and provide a travel experience that is “superior” to the surrounding non-toll roads. In most cases, the facilities are portrayed as offering a faster, more predictable and more pleasant ride. Even for non-toll projects where the P3 is primarily involved in design and construction, not long-term operation, there is usually a corporate outreach effort aimed at reducing complaints during construction and assuring continued public and political support for the project.

1.1.13 Local labor unions and contractors have concerns that must be addressed in the States in order for P3 programs to succeed

Some of the earliest objections to P3 projects in Maryland and other States have come from unions, local contractors, and local engineering firms. The experience of states with P3 projects is that most lead firms self-perform only a fraction of the work, preferring to contract out to local firms and to use local labor. Concerns from the local contracting community have been addressed in all three of the States visited by noting

these “ramp-up” challenges has been to refinance the project revenue bonds several times during the early years. The involvement of the private sector as a partner in project finance can allow new approaches, including the use of short-term loans, private equity investments, and other financing programs not typically available for governments. One of the more innovative uses of the TIFIA program occurred when Texas used a TIFIA loan commitment to guarantee the bonds it planned to finance using tolls from the Central Texas Turnpike, something like a standby line of credit. The TIFIA funds would be used only if revenues from the tolls were not sufficient to cover the debt. So long as the tolls were sufficient, none of the TIFIA funds would actually be spent.

1.2 Lessons Learned

The following lessons are based upon the review of the current practices for P3 highway projects conducted during 2004. These lessons have important implications for the development of P3 programs in any states. Like the review itself, these lessons cover a wide range of topics, including legal questions; public acceptance; the processes for selecting projects and partners; environmental review; project finance, design, construction and maintenance; and the management structures used by state governments to administer P3 highway projects.

1.2.1 Legal Issues

The FHWA design-build regulations limit the flexibility of the state in crafting the P3 program for highways. The SEP-14 program provided additional flexibility in specific cases and was used by several states to craft successful P3 projects. However, experience with SEP –14 revealed that the level of flexibility it provided did not address many of the concerns raised in emerging P3 projects.

In October 2004, FHWA adopted SEP-15, a new experimental process to identify, for trial evaluation, new public-private partnership approaches to project delivery. SEP-15 addresses, but is not limited to, four major components of project delivery:

- Contracting
- Compliance with environmental requirements
- Right-of-way acquisition
- Project finance

Elements of the transportation planning process may be also involved. SEP-15 applications may include suggested changes to the FHWA's traditional project approval procedures and may require some modifications in the implementation of FHWA policy. Deviations from current title 23, U.S.C., requirements and generally applicable FHWA regulations also may be involved.[2]

[2] SEP-15 Program, Public-Private Partnerships, FHWA, 2005 http://www.fhwa.dot.gov/ppp/sep15.htm

An added legal issue raised in all the States visited was the question of right-of–way ownership. In every case, the State assumed ownership of the ROW to limit the tort liability of the private partner.

Maryland has a specific state requirement that may pose a challenge for some firms interested in participating in P3 projects. Under Maryland law any firm that has assisted a state agency in a project valued at over $100 million during the post-ROD period, however small the role, will be barred from competing in a construction phase solicitation.

1.2.2 Public Acceptance

The private sector prefers to participate when public acceptance of a highway is high and there is a clear consensus on the need for the improvement. In many cases, these projects are the ones most likely to be funded using traditional approaches.

Public acceptance of a P3 project will vary depending upon whether and what kind of tolls are imposed.

The advertising and outreach tools used by the private sector in P3 projects may be more effective in reaching isolated groups and likely customers of the facility.

The involvement of a private sector operator will draw mixed reactions from the public, some will applaud the potential efficiency, and others will be suspicious that the costs of the project will be inflated or the quality will be compromised to increase profits.

Contracts for P3 projects may require MBE participation, goals and labor guarantees or SBA set-asides. While Federal guidelines prohibit preferences for local business and labor, most P3 projects managed by out-of-state firms make extensive use of local labor and material suppliers.

A non-compete clause that limits improvements to nearby roads can lead to public opposition of the private owner and force public purchase of the asset. If a non-compete clause is included in a comprehensive agreement, it should be crafted to protect the ability of the DOT to make safety improvements or allow compensation if the DOT must make competing capacity improvements. One approach is to guarantee a minimum traffic volume to the P3 and allow competing improvements as long as minimum volumes are maintained.

1.2.3 Project Selection

A process that accepts unsolicited proposals is more likely to attract participants if the window for submission of competing proposals is shorter.

One incentive for private sector submission of an unsolicited proposal is the opportunity to secure an early commitment for the life of a project from the public agency.

Use of a modified solicited process (Section 7.3) can provide the opportunity for innovation, reduce the number of directly competing proposals, and allow the state a better level of control on the number of type of proposals received.

1.2.4 Procurement and P3 Selection

The procurement process chosen should allow for early participation of potential P3 vendors in the NEPA process.

The most commonly used method for choosing between competing vendors for P3 projects is best value (a combination of technical approach and price).

Negotiated RFPs can allow the state and potential bidders to share ideas that may result in a better project.

Negotiated RFPs require considerable time and money and should be reserved for large projects with potential for innovation that may contribute to significant cost savings or schedule reduction. To encourage participation in a process requiring a significant investment of time and staff resources, the state should provide stipends to the unsuccessful bidders.

A P3 should only be pursued where the strong likelihood of timely construction funding exists.

1.2.5 Environmental Review

Early involvement of the P3 in project conceptualization may be very beneficial and the NEPA process can be structured to permit this early involvement.

Multiple P3 firms can be used during NEPA to provide input prior to competing for a fixed-fee contract upon completion of NEPA.

1.2.6 Financing

Development of the financial approach to a P3 project goes beyond questions of who issues long-term debt. Significant savings have been achieved through innovative uses of short-term borrowing and federal credit guarantees.

1.2.7 Final Design

Use of a P3 permits all the final design activities and the construction process to proceed simultaneously with phasing based upon the complexity of the various road segments. This approach can significantly reduce project delivery time.

1.2.8 Construction, Quality Assurance and Maintenance

Investing the same private entity with responsibility for design, construction, and maintenance forges a strong incentive to develop a cost effective and durable project.

1.2.9 Administration

Public staff assigned to the project should be dedicated exclusively to the P3 project and should be prepared to embrace new approaches and innovation.

For each project, the State should perform a risk management analysis to identify the risks most appropriately transferred to the private sector.

2. BACKGROUND

States throughout the country face serious gaps between the level of highway service demanded by citizens and businesses and the funding available to finance, construct, operate, and maintain the highway system. The needed improvements would provide substantial economic benefits to the traveling public – both to citizens of the sponsoring states and to the residents and businesses traveling through those states to other destinations.

The Texas Transportation Institute estimates that congestion costs some $1.06 billion in the Baltimore metropolitan area and $2.47 billion in the Washington metropolitan area each year – more than enough to pay for the needed improvements.[3] Another recent report estimates that for every dollar of additional investment in the Wisconsin highway system beyond that needed to maintain current conditions, Wisconsin would enjoy three dollars of benefit.[4]

The challenge that transportation officials face is to capture the value of that increased productivity to finance the improvements needed to achieve it. Maryland is exploring the potential for capturing that increased value – through expanding the use of public-private partnerships (P3) for the development of highway projects. In this exploration, Maryland is considering options well beyond the "design-build" model, extending P3s to projects that include the financing, planning, design, construction operation, and maintenance of highways.

As of February 2004, 23 states have passed legislation providing the legal authority for private sector participation in transportation projects to varying degrees. Thirty-four states have laws allowing the use of design-build; 30 of these allow its use in highway projects. However, the laws in four of these 28 states limit the use of design-build to pilot programs or to a very small number of projects. [5]

Many states currently administer P3 programs or have them in the planning stages. These states include: Colorado, Delaware, Minnesota, Nevada, New Jersey, New Mexico, Oregon, South Carolina, Utah, Texas, and Virginia. Internationally, P3s are used to provide transportation facilities throughout South America and in Australia, Canada, Germany, Norway, Spain, Ireland, and the United Kingdom.

P3s have been used successfully to meet a wide variety of public needs and can be used to increase the pool of capital available for construction and operation of highways. However, P3s are not panaceas. They have some political risk and can

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[3] *The 2005 Urban Mobility Report*, Texas Transportation Institute, http://tti.tamu.edu/documents/mobility_report_2005.pdf

[4] *Transportation Improvements Grow Wisconsin's Economy: The Economic Benefits of Transportation Investments*, Final report, Transportation Development Association of Wisconsin, February 2003 p. 2.

[5] 50-state Survey of Transportation Agency Design-Build Authority, March 2005, Nossaman, Guthner, Knox, and Elliott, LLP.

require new ways of doing business for State and local transportation agencies. Issues such as the structure of partnerships, the source of private sector profits, the role of the public sector in these agreements, and the value of the proposed improvements (to both the general public and public agencies) are all complex issues requiring careful thought and consideration.

2.1 Types of Public-Private Partnerships

The roles of the public and private sectors in P3s can vary depending upon the goals of each sector, the type of facility involved, the structure of the financial arrangement, and the limits of the State enabling legislation. Listed below are some of the most common types of P3 relationships[6].

Build-Own-Operate (BOO): A contractor constructs and operates a facility for providing public services without transferring ownership of the facility to the public sector. Legal title to the facility remains with the private partner. Typically, the public sector issues a franchise to the private entity.

Build-Operate-Transfer (BOT): Under this option, the private partner builds a facility to specifications agreed to by a public agency, operates the facility for a specified time period under a contract or franchise agreement with the public agency, and then transfers the facility to the public agency at the end of the specified period. Usually, the private partner provides all or part of the financing, so the contract is structured to be of sufficient length to enable the private partner to realize a reasonable return on its investment.

Buy-Build-Operate (BBO): This transaction is a form of asset sale that includes the rehabilitation or expansion of an existing facility. The government sells the asset to the private sector entity, which then makes the improvements necessary to operate the facility in a cost-effective manner.

Design-Build (DB)[7]: Under this option, the private partner designs and builds a facility to specifications agreed to by a public agency within an agreed upon timeframe and at a pre-determined price. FHWA-funded DB projects that include construction of highways of $50 million or more, and those that include Intelligent Transportation Systems (ITS) of $5 million or more are subject to the FHWA DB guidelines.

Design-Build-Operate-Maintain (DBOM): In a DBOM project, a single contract is awarded to a private sector entity for the design, construction, operation, and maintenance of a public facility, with title to the facility remaining with the public sector. Some contracts will include design-build-operate (DBO) and retain larger maintenance responsibilities for the public sector.

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[6] Source: Some terms taken from the US General Accounting Office. 1999. *"Public-Private Partnerships"*: Terms Related to Building and Facility Partnerships".

[7] SHA currently uses DB to deliver many of its highway improvement projects. DB projects do not require private financing.

Design-Build-Warranty (DBW): Under this option, the private partner designs and builds a facility to specifications agreed to by a public agency, transfers the facility to the public agency at the end of construction then provides a warranty to guarantee the condition of the facility for a specified time period under a contract with the public agency.

Buy/Lease-Develop-Operate (BDO): Under these partnership arrangements, a private entity leases an existing facility from a public agency, invests its own capital to renovate, modernize, or expand the facility, and then operates it under a contract with the public agency. A number of municipal transit facilities are operated under this type of arrangement.

2.2 How Are P3s Financed?

The P3 approach is best suited to highway construction projects of $200 million or more. These larger projects generally require innovative financing approaches to be fundable, and the significant amounts of money involved create incentives for private sector risk-taking. Since most typical highway projects are not profitable, public funding and resources are sometimes used to supplement toll and private sector financing, effectively “buying down” the project cost to the private sector partner and investors. Virginia and Texas have both developed highway projects that combine state highway funds with private sector and toll financing.

The combination of public and private organizations that create a P3 opens the full range of financing tools available to both public agencies and private companies. The initial capitalization of a P3 transportation facility is typically a mix of public sector grants (Federal, State and local), private equity, and borrowed funds.

The public sector finance vehicle can be an instrument such as a grant anticipation note, a secured loan using the Transportation Infrastructure Finance and Innovation Act (TIFIA) or other government program, or a traditional public sector revenue bond. Local governments sometime participate by providing land dedications for right--of-way, one-time cash contributions for construction costs, or a dedicated revenue stream that can secure bond finance, such as revenues from a special tax district or a Tax Increment Financing (TIF) district.

Some P3s benefit from the use of State Infrastructure Banks (SIBs) that can provide loans and credit enhancement. SIBs are used by some states as a method of funding highway, rail, transit, intermodal, and other transportation facilities and projects by producing revenue to amortize debt while contributing to the connectivity of the transportation system and furthering other statewide goals. Virginia and South Carolina are among 33 states operating SIBs. The Dulles Greenway and Pocahontas Parkway in Virginia, and Southern Connector in the South Carolina all make use of SIBs.

Private sector at-risk investments are rare but are beginning to emerge as part of large P3 projects using the DBOM and BBO models. Private businesses have access to a range of short-term loans and finance vehicles not available to the public sector. Examples include corporate bonds, bank loans, land donations, or private equity. Private sector investment can be leveraged with user fees and revenues from lease of land and air rights. In addition, project cost savings can be realized by using innovative

design, shared quality assurance, streamlined procurement processes, and incentives to shorten design and construction schedules. Private sector contributions in the P3 process also come in the form of innovative solutions, background studies of financial feasibility, traffic analysis, environmental resource data, legal expertise, and project outreach support.

Private firms must have reasonable expectation of profitability to be interested in participating in a P3 project. When private ownership and operation of a facility is involved, the private sector equity investment in the project is usually predicated on a share of the long-term revenue stream, including control of toll rates and user fees. For facilities where public ownership is retained, private sector profits can result from cost-saving design and operation techniques, life cycle costing of improvements, and careful management of risks that might delay project completion. Private sector partners typically seek rates of return in the range of 25-33 percent for any equity investment – that is, profit on the actual at-risk private sector cash investment. This potential for return is critical to attracting private equity for projects.

When the private partner controls the revenue stream for a facility, the actual cost of this return on investment to the user is an important, and sometimes controversial, part of the total project cost. The 25-33 percent return on investment could lead to higher tolls if user fees are the primary source of revenue. Another potential increment to user fees may result if the project is financed by the private sector via interest payments. The interest rate on taxable bonds or bank loans may be significantly higher than municipal bonds.

2.3 What Project Delivery Enhancements Can P3s Provide?

In almost all cases studied by the Maryland P3 Team, P3 projects are large and complex projects of substantial cost (mega-projects). Their delivery using conventional funding and design-bid-build approaches can take decades. The P3 project approach for mega-projects is one approach that may achieve significant efficiencies that save time and money.

P3s are a “production tool” as well as a “financial tool.” Staff requirements for one mega project can absorb major portions of public agency production capacity. P3s provide relatively fast access to increased staff for project development.

If the State accelerates completion of a project with high costs, using a large portion of the available funding for a State or region, smaller urgent projects could be delayed. If the large project is split into a series of smaller efforts, it could take years, or even decades, before the full facility is open to the public. Use of the P3 approach with new non-traditional funds can result in simultaneous construction of the large project in conjunction with the smaller competing projects.

Many P3 endeavors are motivated by the opportunity to use a toll revenue stream in the project finance. California, Virginia, and South Carolina use private businesses and non-profit corporations to operate toll facilities rather than establish a State toll highway agency. California initially permitted up to four franchise agreements for the construction and operation of new highways, provided no State funding was used in the projects. In California’s SR 91 Express Lanes, Canada’s 407 Express Toll Route, and South

Carolina's Southern Connector, toll revenues are pledged to pay off the entire cost of the construction. Along the Dulles Greenway and California SR 125, private sector donations of right-of-way were made in anticipation of property value increases that will provide a return to the private donor, above and beyond the return from projected toll revenues. In these cases, the private organization, not the State, is responsible for payment of loans and revenue bonds that finance the highway facility.

California SR 125 and the Central Texas Turnpike System both used contributions from local governments as part of the initial project-financing package. These contributions did more than offset a portion of the project costs. They provided both the bond financiers and the private sector partners with a clear indication of the level of political support and local commitment to the highway projects and the proposed financing approach. The Virginia SR 28 Corridor Improvements Project and the Dulles Corridor Rapid Transit Project financing packages include a dedicated property tax upon the parcels of land whose value is increased by the availability of increased transportation services.

Even where the public sector has access to toll funding and an independent tolling agency such as Maryland's Transportation Authority, there are significant advantages to sharing the risk for large highway facilities with the private sector using a P3 approach. In 2003, UK's National Audit Office (NAO) completed a review of that nation's Private Finance Initiative, the equivalent to a P3 program. NAO concluded that using a P3 approach delivers greater price certainty and more timely delivery of good quality assets than conventional approaches.

The NAO showed that 22 percent of the P3 projects were delivered with a construction related price increase after contract award. By contrast, a study of public agency projects reported that 73 percent of traditional public projects had overrun the initial budget.

With regard to the timing of delivery, similar improvements were observed. While 24 percent of the P3 projects were delivered later than the date specified in the contract, some 70 percent of the central government's projects were delivered late.

Some of the improvements under P3 structures may have occurred because project specifications are often worked out in detail and because cost and schedule targets are set later for P3 procurements than for traditional procurements. This added effort by the public sector reduces the uncertainty in the process.

The cost certainty and greater predictability of project delivery resulting from P3 approaches when combined with the use of non-traditional funds (such as tolls) can provide the financial resources to construct larger projects that would otherwise have taken decades. This approach is not the solution to every funding challenge but it does add another tool for completing expensive but critical highway projects. In addition, the use of non-traditional funding for P3 projects can reduce the pool of projects competing for the traditional funding resources.

2.4 P3 Projects in the United States

Numerous States in the United States are currently using P3 approaches for large transportation projects in excess of $50 million. Of the 46 P3 projects identified in the

June 2004 issue of *Public Works Financing*, **Figure 1** shows that 62 percent of the large transportation facility contracts in the United States are of the Design-Build type (DB), The average cost of these 29 projects is approximately $395 million. Design-Build P3 projects with an aspect of finance (DB/Finance) account for an additional 9 percent of the current P3 transportation projects in the US, and their average cost was $226 million. These projects are construction–oriented and have no operations or maintenance features.

Projects that included some longer-term aspect of maintenance, operation, finance, warranty, or equipment procurement account for 20 percent of the current P3 transportation projects in the United States, and the average cost (DB/Long-term aspect) of these nine projects is approximately $660 million.

The remaining P3 transportation projects were construction projects that included operation, ownership, and/or transfer to another agency (BOT/BOO/BTO). This accounts for the remaining 9 percent of the P3 projects in the US, and the average cost of these projects was approximately $260 million.

Sixty-seven percent of the P3 transportation projects in the US are highway-oriented projects, while the remaining 33 percent are transit-oriented projects. The P3 projects that were specifically transit-oriented were D/B/O/M.

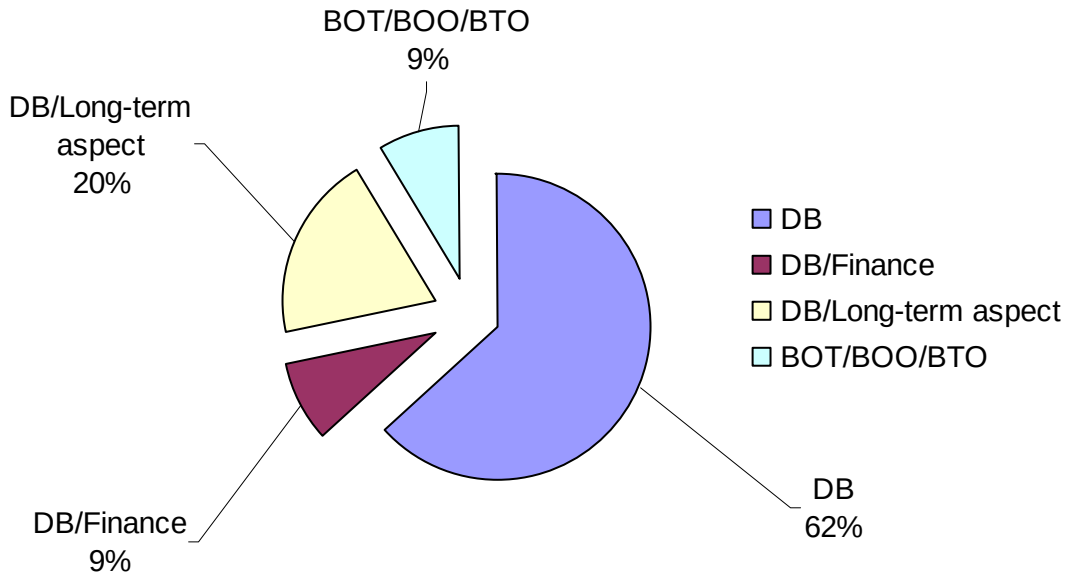
The use of D/B and other P3 approaches to large transportation projects is increasing in recent years, as shown in **Figure 2**. More than half of the projects received a notice to proceed in 2000 or after. Only seven percent of the projects received a notice to proceed between 1990 and1994. The list of current P3 projects in the United States is provided in **Appendix D**, P3 Projects in the United States, 2004.

Not included in the P3 projects considered in **Figure 2** is the long-term concession and lease agreement with a private consortium for the Chicago Skyway Toll Bridge concluded on October 28, 2004. The City of Chicago awarded the 99-year lease for $1.8 billion, payable at closing (90 days after approval of the Lease). The private sector partner will collect tolls and revenues that must be used for debt service and operation and maintenance obligations before any distribution may be made to any holder of an equity interest.

An additional project of note is the Trans-Texas Corridor. To develop a master plan for the Trans-Texas Corridor project, the State of Texas hired a private firm to plan, design, construct, finance, maintain, and operate the facilities. In December 2004, the Texas Transportation Commission selected Cintra-Zachry as a long-term strategic partner to develop TTC-35. On March 11, 2005, TxDOT and Cintra-Zachry signed a comprehensive development agreement for TTC-35. The consortium and the State are currently working on a master development and financial plan. Cintra-Zachry is proposing to invest $7.2 billion to help build TTC-35. The first phase of their proposal calls for building a $6 billion toll road between Dallas and San Antonio by 2010. In exchange for building and operating it as a toll facility, the consortium will pay the state an additional $1.2 billion, which the state may use to fund road improvements or high-speed and commuter rail projects along the I-35 or TTC-35 corridors.[8]

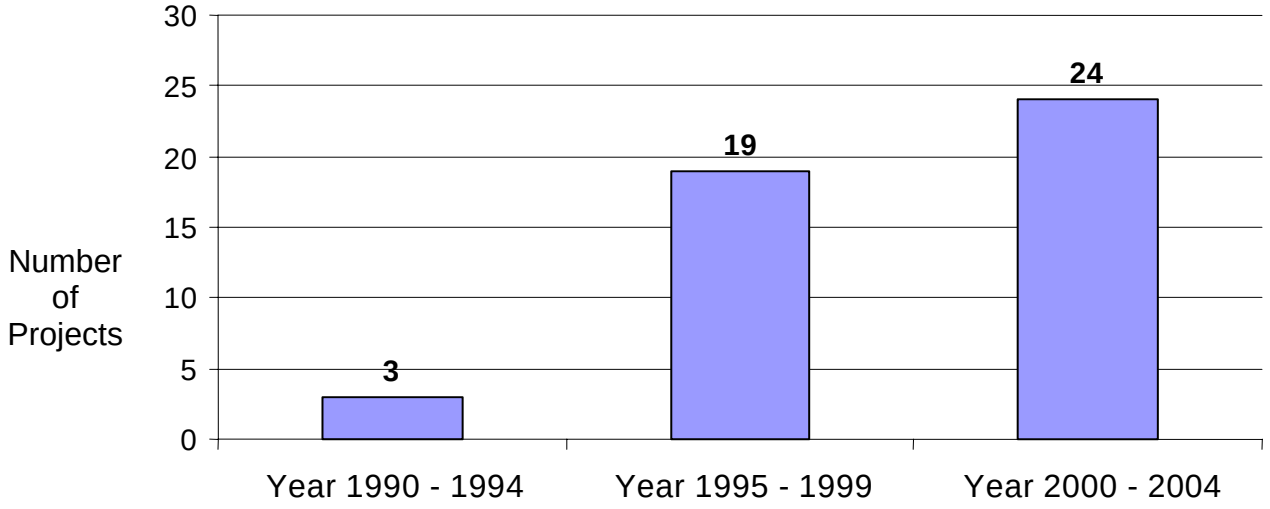
[8] Development process, Trans Texas Corridor,

Figure 1. Current P3 Transportation Projects in the United States, 2004



Source: Public Works Financing & KCI Technologies, Inc.

Figure 2. Notice to Proceed for P3 Projects in the United States, 2004



Source: KCI Technologies, Inc.

http://www.keeptexasmoving.org/projects/development_agreement.aspx

2.5 Design-Build Highway Projects in Maryland

In Maryland, SHA first began requesting proposals for design–build highways in 1998. None of the current SHA design-build projects exceeds the $50 million threshold for highway projects set in the FHWA design-build guidelines. To date, 15 highway design-build contracts have been issued, ranging in size from $2.7 million to $28.3 million, with an average of $10 million. These projects are smaller and have a much lower risk for both the public and private sector than the larger scale P3 projects described above. All of these projects are financed from traditional highway construction sources and none involve toll facilities or highway specific user fees. None of these projects has included contractor responsibility for right-of-way acquisition, railroad relocation or long-term system preservation or warranty. There are an additional 6 design-build projects in the proposal stage at this time. These range from $1.6 million to $48 million, with an average size of $28 million. The total value of these 21 projects either contracted for construction or in the proposal stage totals approximately $316 million.

3. STUDY APPROACH

The Maryland Transportation Authority (the Authority) and the State Highway Administration (SHA) commissioned a review of transportation P3 initiatives in order to gain a broad understanding of the challenges and obstacles associated with such programs. The Authority, in cooperation with SHA, the Maryland Department of Transportation (MDOT), and the Federal Highway Administration (FHWA), has produced this report on current practices in P3 for highway projects. This report is part of an effort to examine the potential for P3 highway proposals in Maryland.

The base information for this report came from two concurrent research efforts undertaken in 2004:

Request for Information (RFI) on Public-Private Partnerships for Highways:

The Authority, SHA, and MDOT developed this RFI in an effort to secure private-sector input on P3s for Maryland highway projects. SHA advertised the RFI beginning April 19, 2004. Notices of the RFI advertisement were mailed to over 150 transportation industry firms and professional organizations. In addition, public notices were placed in four transportation industry publications. Responses were due June 18, 2004 and 17 teams responded.

Scanning Tours of States with P3 Highway Experience:

To supplement the private-sector information, the Authority conducted scanning tours of three states with P3 experience: Virginia, California, and Texas. These visits sought information on:

- Benefits a P3 might offer Maryland if used as an alternative to traditional Authority and SHA practices in the production and financing of highways; and,
- Best practices for implementing P3 programs for highway projects;
- Market interest regarding implementation of a P3 highway program in Maryland.

The visits were conducted in June and July 2004 and were funded through a combination of Authority capital program funds and FHWA funding. The Maryland P3 visitation Team included representatives from MDOT, SHA, FHWA, and the Authority with experience in finance, planning, construction, procurement, and operations. Consultant support was provided by KCI Technologies, Inc.

3.1 Request for Information

The project team developed a Request for Information (RFI) directed at the highway industry in order to determine the overall level of private sector interest in P3s for highways in Maryland, and to solicit ideas for the most attractive methods of developing such partnerships.

The RFI asked that respondents:

- Provide information on P3 projects in which they had participated;

- Answer a series of specific questions related to the attractiveness of a project to the private sector, the project development and implementation process; and,
- Describe their approach to a P3 for a sample project in the I-270 Corridor.

The State Highway Administration (SHA) issued the RFI on April 15, 2004. Seventeen responses were submitted on or before June 18, 2004 and subsequently reviewed by the Maryland P3 Team members. The text of the RFI is contained in **Appendix A**.

Firms and teams responding to the RFI fit into two broad categories: (1) those seeking to participate in a P3 as the private partner to develop highway projects; and (2) those seeking to advise the State agencies in the development of a P3 program or projects. During July 2004, the Maryland transportation agencies interviewed five of the groups interested in participating in P3s. During the interviews, the firms presented several business models for partnering with public agencies. Some teams were most interested in constructing the facilities, and either planned to subcontract operations and maintenance, or to turn the completed facility over to the State. Other firms were most interested in the long-term control of the facility and its revenue stream.

3.2 Scanning Visits to California, Texas and Virginia

The Maryland P3 Team visited three states during June and July 2004, and reviewed the following projects:

- In California, the team visited two projects developed in partnership with the California Department of Transportation (Caltrans);
- In Texas, discussions centered on two projects that are part of the Central Texas Turnpike project; and,
- In Virginia, the team saw four projects, two in Northern Virginia, and two in the Richmond area.

In Orange County, California, the team met with representatives of the Orange County Transportation Authority (OCTA), Caltrans, and the operations vendor, Cofiroute, for an overview of the development, operation, and recent sale of the SR 91 Express Lanes. OCTA currently holds the franchise for the SR 91 Express Lanes, and Cofiroute is the vendor that provides day-to-day operation of the facility. The tour included a site visit to the SR 91 Express Lanes and to the Operations Center. The team observed the lanes in operation, and viewed the video enforcement system. Following the site visit, the team met separately with the Caltrans project manager to review the initial development of the SR 91 Express Lanes, and the history of P3 legislation in California.

In San Diego, the team met with representatives of Caltrans and the San Diego Association of Governments (SANDAG) to review and tour the SR 125 project currently under construction. An informative portion of this visit was devoted to meeting with representatives of the private sector partner, California Transportation Ventures (CTV), to discuss their role and expectations for the project. CTV is owned by Macquarie Infrastructure Group, an investment company headquartered in Australia.

In Austin, Texas, the team met with staff of the Texas Department of Transportation (TxDOT), including staff from the Texas Turnpike Authority Division. The Austin District of TxDOT is charged with the construction of the Central Texas Turnpike System.

Meeting with OCTA representatives to discuss the SR 91 Express Lanes.

In Virginia, the team visited with the Northern Virginia District of VDOT and learned about the Dulles Toll Road, the Dulles Greenway, the SR 28 Corridor Improvements Project, and the proposed Capital Beltway (I-495) HOT Lanes Project. Site visits included the SR 28 Corridor Improvements Project and the Dulles Greenway.

Access tunnel at the Pocahontas Parkway facility

From Northern Virginia, the team traveled to Richmond. They met with the VDOT senior staff involved in the financing and environmental review of both the Pocahontas Parkway (Rt. 895) and Rt. 288. Rt. 288 serves the newly opened Capital One office park. There was also a discussion of the tiered National Environmental Protection Act (NEPA) process underway to consider improvements along I-81. The Virginia stop concluded with on-site discussions held at the Pocahontas Parkway Toll Facility and the Rt. 288 Project field office regarding innovative design, cost-effective construction techniques, and extended pavement warranty provisions.

4. PURPOSES OF P3 FOR HIGHWAY DEVELOPMENT

The initial question to be addressed when exploring the use of public-private partnerships (P3) for highways involves the level of motivation each participant has in the partnership. The rationale varies from State to State and between private sector participants.

Government agencies chose P3 arrangements for a variety of reasons:

- To avoid an increase in the bonded indebtedness of the State;
- To construct new highway facilities with minimal initial public investment;
- To reduce the cost of a new highway to the general taxpayers, by charging user fees in the form of tolls;
- To gain access to nontraditional revenue sources for highway construction such as tolls or local tax revenues;
- To enhance production resources for the delivery of major projects when internal staff resources are already at capacity;
- To permit a project to proceed as a whole, rather than in the phased construction often required by a state's budgetary process;
- To save time in the overall project delivery by streamlining the procurement process;
- To permit concurrent design, right-of-way acquisition and construction activities in place of the sequential completion of these activities;
- To promote private sector creativity and innovation in project delivery.

Private sector partners likewise have a variety of motives for joining public-private partnerships:

- To increase the number or size of highway construction projects in production;
- To operate toll highways as a long-term for-profit investment;
- To direct or encourage development of properties in a given area through highway construction; and,
- To secure a long-term commitment to a single firm or team to design and construct a large project.

The match between public sector goals and private sector objectives can have a significant effect on the P3 approach used in any specific situation. For example, California sought to construct new highway capacity with no investment of State monies. This matches well with the long-term for-profit motive of international firms that build, own, and operate toll highways.

In all the States, the certainty of long-term involvement in a highway project encouraged the private sector teams to seek long-term cost efficiencies using innovative design and construction techniques.

4.1 Risk allocation

A P3 is a risk-sharing relationship between the public and private sectors to deliver transportation infrastructure and related non-core services. Risk cannot be eliminated, only reduced and allocated. Risk sharing in a P3 project involves the transfer of risks to the partner who is best able to manage it. In an ideal P3 project, all of the risks are covered efficiently. Risk allocation will vary according to the type of project and location – there is no optimum risk allocation formula. The most efficient risk allocation depends on the stage at which a project is procured and the potential for change during the project development. Typical risks associated with a P3 project include, but are not limited to:

Construction or completion risks – the probability that a project will not be brought into operation successfully or on schedule. Types of risks include differing site conditions, traffic control, interim drainage, public access, weather issues, and schedule.

Environmental risks - the probability that a project will be delayed or disapproved due to a particular adverse effect on human health or the environment.

Expropriation risks – the probability of depriving ownership or proprietary rights by government or private party action.

Economic risks - the risk that the project will not generate sufficient revenues to cover operating costs and to repay debt obligations.

Financial risks - the possibility that a bond issuer will default, by failing to repay principal and interest in a timely manner.

"Force majeure" (greater force) **risks** - the probability that there will be an interruption of operations for a prolonged period after a project finance project has been completed due to fire, flood, storm, terrorism, or some other factor beyond the control of the project's sponsors.

Operating risks - the inherent or fundamental risk of a firm, without regard to financial risk, the risk created by operating leverage. Also called business risk.

Political/Governmental risks - probability that comes into play with investments that may be adversely affected by nationalization, taxation, war, government instability or other economic or political actions or factors. Types of risks include the potential for delays, modifications, withdrawal, scope changes, or additions that result from multi-level Federal, State, and local participation or sponsorship.

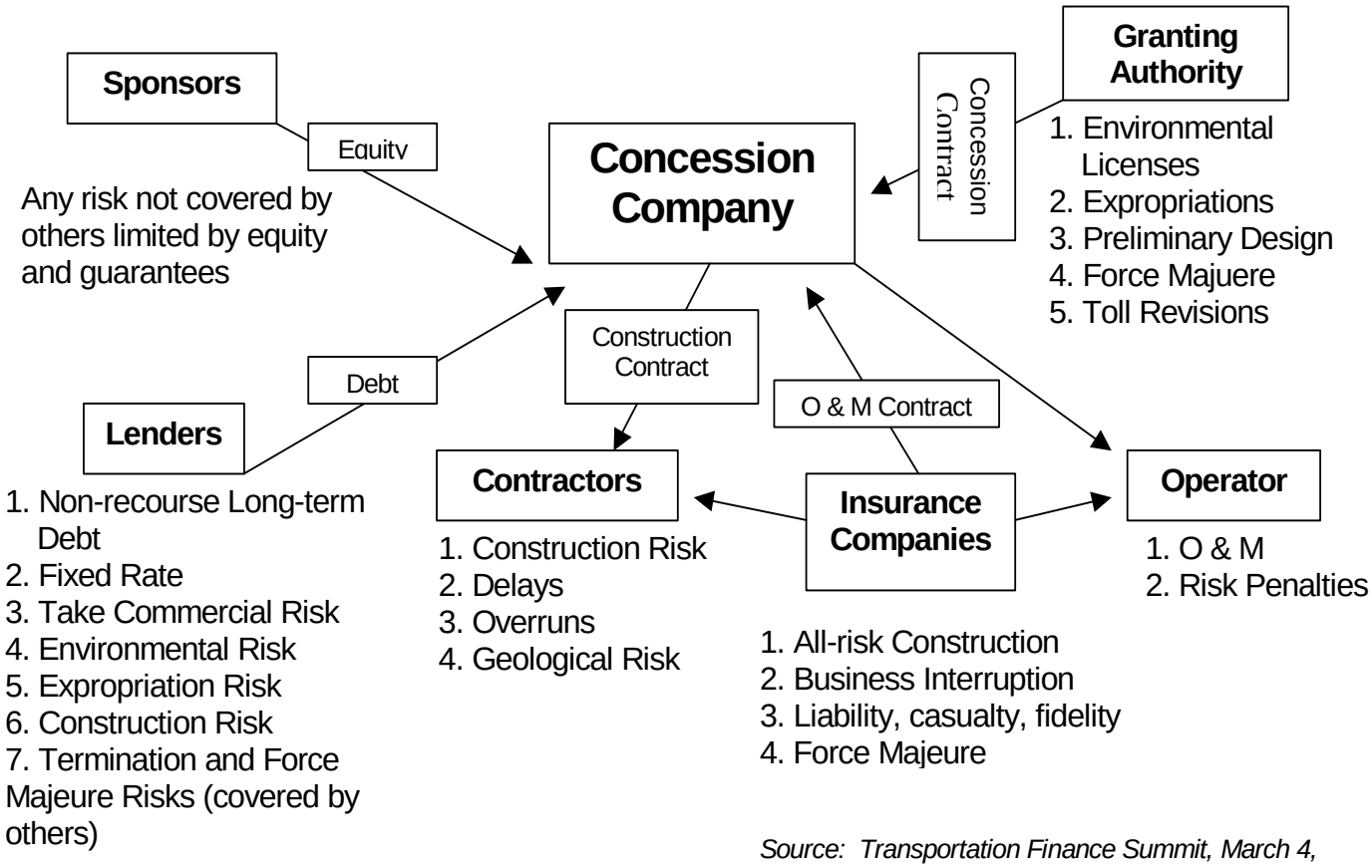
Competing facilities risks – the probability of a competing facility opening after the project is under operation.

Regulatory Compliance risks – when the project must address environmental and third party issues, such as permitting, railroad, and utility company risks.

Right-of-Way risks – the probability that the project will incur unanticipated acquisition costs, appraisals, relocation delays, condemnation proceedings, including court costs, etc.

Figure 3 below illustrates the fundamental players involved in a Build/Operate/Transfer P3 project and the types of risks they may undertake between various phases of the project.

Figure 3. P3 Players and Risks



Source: Transportation Finance Summit, March 4, 2004: Optimal Risk Distribution in BOT Projects by Presenter, Miguel Abeniacar.

4.2 Risk Mitigation

During the negotiations for a P3 partnership, the allocation of risks and the responsibility for mitigating them, if possible, is a major focus of discussion. If the risk exposure of a given party can be mitigated, then the cost of the project can be reduced. Numerous tools are available that attempt to mitigate risks:

- "Revenue deficiency" insurance
- Reserves
- Warranties
- Owner-retained maintenance (protects bondholders)
- Contractor subdebt
- Bond insurance
- Casualty insurance
- Interest during construction period
- Ability to issue completion bonds
- Delayed opening insurance

5. LEGAL CONTEXT FOR P3 DEVELOPMENT

5.1 Federal Laws and Regulations

When a highway construction project involves a Federal decision due to the use of Federal funds or loan guarantees, or a Federal decision to approve use of tolls on an interstate or Federally funded highway, the (National Environmental Protection Act) NEPA requires a review of the environmental impact of the decision. This review can conclude with a categorical exclusion (CE), a finding of no significant impact (FONSI) based upon an Environmental Assessment (EA), or a Record of Decision (ROD) based upon an Environmental Impact Statement (EIS). FHWA and most states have well-developed legal requirements and processes that govern this environmental review. If a project is not determined to be subject to a CE, the NEPA process begins with the development of a project scope, and a statement of purpose and need. This is followed by development and evaluation of alternatives including a no build alternate. Selection of the alternate resulting from the NEPA process includes required mitigation. The NEPA process concludes with a FONSI or a ROD, as appropriate.

5.1.1 Council on Environmental Quality (CEQ)

The Council on Environmental Quality (CEQ) requires that the preparer of a NEPA document have no stake in the outcome of the analysis. Generally, this has been interpreted to mean that the firms preparing the environmental documents on behalf of the State and FHWA cannot have a financial stake in the construction of the project. In recent years, FHWA has issued opinions that clarify this requirement as it relates to

highway right-of-way or linked to a Federal-aid highway project (i.e., the project would not exist without another Federal-aid project). Projects that are not located within the highway right-of-way, and not linked to a Federal-aid highway project may utilize State-approved procedures. Furthermore, the regulations do not require the use of design-build contracting by State Transportation Departments, but allows them to use it as an optional technique in addition to traditional contracting methods.

The FHWA regulations permit the use of a two-phase procurement process - Request for Qualifications and Request for Proposals (RFQ/RFP). The RFQ for final design and construction may be issued prior to the conclusion of the NEPA process, provided the request documents specify the status of the NEPA process. The RFP may only be issued after the NEPA process is complete. The RFP must specify how the environmental commitments made during NEPA will be fulfilled.

FHWA permits the use of stipends to compensate unsuccessful bidders for the cost of developing a response to the RFP. FHWA recommends that such stipends cover one-third to one-half of the proposal development cost and suggests that the states retain the right to use any ideas from unsuccessful bidders if they accept stipends.

FHWA requires that the RFP and contract documents specify how certain risks are allocated between the public agency and the private party. The types of risks may include but are not limited to:

- Delays due to governmental actions and the coordination of decisions between various levels of government (Federal, State and local);
- Regulatory compliance risks such as environmental permitting;
- Construction phase risks such as differing site conditions, traffic control, weather delays and public access;
- Post-construction risks such as public liability and performance standards; and
- Right-of-way risks such as acquisition costs, relocation delays and condemnation issues.

FHWA also specifies the requirements for the selection procedure and award process when traditional federal-aid funds are used in a project. This includes specification of what items may be included in the RFQ and RFP solicitation documents. The RFP may require minimum goals for participation by disadvantaged and minority businesses but may not include a preference for local firms or contractors. Submissions must be in two parts: a technical proposal and a price proposal. Separate review teams independently evaluate price and technical proposals.

FHWA specifies certain items that must be considered in the evaluation process for a D-B project:

- Price must be a factor where construction is a significant part of the scope of work;
- The quality of the product or service must be rated based upon compliance with the RFP, evaluation of the proposer's completion

schedule, quality of technical solutions, past performance, technical experience and management experience is required; and,

- States may add factors and indicate their relative significance in the solicitation documents.

The solicitation documents must specify the evaluation criteria to be used in the selection decision.

All of these criteria must be met when FHWA funds or financial tools (such as TIFIA) are applied to D/B projects. Even if the project does not use Federal funds, the requirements and specifications listed above provide a good model for P3 solicitation and award practices.

5.1.3 Special Experimental Project No. 14 (SEP-14)

FHWA has permitted some deviation from the strict application of the contracting process regulations when States experiment with unconventional contracting approaches under FHWA Special Experimental Project No. 14 (SEP-14 - Innovative Contracting). The most common type of exception sought for P3 projects permits the advertisement for and/or selection of a design-build contractor prior to the final ROD.

5.1.4 Special Experimental Project No. 15 (SEP-15)

On October 6, 2004, FHWA established Special Experimental Project 15 (SEP-15), a program for United States transportation agencies seeking to attract private sector investment, innovation, efficiency, and new revenue streams for transportation infrastructure. SEP-15 addresses four key components of project delivery: contracting, environmental requirements, right-of-way acquisition, and project finance.

The new program offers agencies the opportunity to ask FHWA to waive statutory and regulatory restrictions impeding the project delivery process. The objective of SEP-15 is "to identify for trial evaluation and documentation public-private partnership approaches that advance the efficient delivery of transportation projects while protecting the environment and the taxpayers," with the ultimate goal of obtaining future legislation to authorize those public-private innovations that have proven most useful. Envisioned as an efficient "one stop shopping" process, SEP-15 offers greater flexibility in designing procurements, finance plans and project delivery structures than SEP-14, as well as the prospect of faster Federal approvals. [9]

Elements of the transportation planning process may be also involved. SEP-15 applications may include suggested changes to FHWA's traditional project approval procedures and may require some modifications in the implementation of FHWA policy. Deviations from current Title 23, U.S.C., requirements and generally applicable FHWA regulations also may be involved.[10]

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[9] Nossaman E-Alerts: "FHWA Initiates SEP-15 to Promote Public-Private Partnerships and Other Innovations in Project Development and Finance", Nossaman Infrastructure, October 2004

[10] SEP-15 Program, Public-Private Partnerships, FHWA, 2005

5.2 Maryland's Transportation Program and Regulations

5.2.1 Maryland's Consolidated Transportation Program

The Maryland Department of Transportation (MDOT) has a forward-thinking approach to funding its transportation programs. All Federal and State transportation funding goes into a single consolidated Transportation Trust Fund (TTF), administered by MDOT. MDOT encompasses all travel modes – highway, transit, rail freight, airports, and seaports. The Secretary of Transportation heads MDOT, which includes the State Highway Administration, the Maryland Transit Administration, the Maryland Aviation Administration, the Maryland Port Administration, and the Motor Vehicle Administration.

The Secretary of Transportation also serves as the Chairman of the Maryland Transportation Authority (the Authority). The Authority is a separate State agency that owns and operates the toll highways, bridges and tunnels in the State. The Authority operates solely on the revenues from its facilities and does not ordinarily receive financing from the state TTF. The Authority issues bonds secured by its own revenues, not by the TTF. These bonds are subject to bond limits set by the State legislature but are not part of the State bond portfolio.

With changes enacted by the Maryland General Assembly in the 2005 Legislative Session, the relevant section of the State Code reads as follows:

> "Transportation Article § 4-306. (b)(B)
>
> (1) The revenue bonds secured by toll revenue may be issued In any amount as long as the aggregate outstanding and unpaid principal balance of the revenue bonds secured by toll revenue and revenue bonds of prior issues does not exceed $1,900,000,000 on June 30 of any year.
>
> (2) Except as otherwise provided in this section and § 4-205 of this title, without the approval of the General Assembly, the Authority may issue bonds to refinance all or any part of the cost of a transportation facility project for which the Authority previously issued bonds authorized under this subtitle.
>
> Transportation Article § 4-307(a) If by reason of increased construction costs, error in estimates, or otherwise, the proceeds of the revenue bonds of any issue are less than the amount required for the purpose for which the bonds are authorized, additional revenue bonds may be issued in a similar manner to provide the amount of the deficiency."

5.2.2 SHA NEPA Limitations to Design-Build Participation

In the 2003/2004 legislative session, Senate Bill 56 was passed, modifying State Government Article, Section 15-508. Prior to July 1, 2004, Section 15-508 barred all firms that participated in the preliminary and/or final design stage of a project (post-Record Of Decision [ROD]) from bidding as a member of the contracting team for construction.

In 2004, the statute was amended and the test for construction eligibility became more liberal for projects between $1.5 million and $100 million. A firm that participates in

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http://www.fhwa.dot/gov/ppp/sep15.htm

preliminary design is permitted to compete for a construction phase award, unless the firm serves as the lead or prime consultant for the state or has been assigned construction phase responsibilities on behalf of the state. The amended statute is subject to caps on contract sizes and contains a sunset provision for 2008. In 2004, the limitations on contract size ranged from $1.5 million dollars on the low end to $40.0 million on the upper end. In 2006, the upper limit will be increased to $100.0 million and the lower limit will remain at $1.5 million.

This rule may have the effect of forcing firms to decide at a very early stage whether to pursue the preliminary planning for a project that is a potential P3. In Maryland, any firm that has assisted a state agency during the post-ROD period for a project with a construction cost of more than $100 million, however small the role, may be barred from competing in a P3 solicitation for that project.

5.2.3 Public-Private Partnership Program - Unsolicited Projects

The Authority is established under TR §4-201 and "has those powers and duties relating to the supervision, financing, construction, operation, maintenance, and repair of transportation facilities projects, including toll highways." The Authority has the sole authority to set tolls in Maryland, and is the owner and operator of all existing toll roads in the State. Appendix B contains information on the existing operations of the Authority.

Under the authority granted in TR §4-201, the Authority has adopted regulations and is responsible for implementing unsolicited P3s (called TP3) for MDOT and its affiliated agencies. All TP3 projects must be consistent with and eventually incorporated into Maryland's Consolidated Transportation Program (CTP) and must comply with all applicable Federal, State, and local regulations. Eligible projects include capital facilities for airports, transit and port facilities. Unsolicited highway P3s are not included in the regulations at this time; however, other SHA facilities are eligible. (A detailed description of the program is contained in Appendix C).

Proposers may include any person, corporation, limited liability company, partnership, joint venture or other private business entity with a demonstrated ability to acquire, finance, construct or operate a new, economically feasible transportation facility of high quality; and those with a demonstrated ability to perform a major rehabilitation or expansion of an existing transportation facility. Prospective proposers are encouraged to use innovative financing methods, including user fees or other types of charges. Financing arrangements may include the issuance of debt, equity or other securities or obligations, and sale and leaseback transactions.

The Authority appoints a review committee for each project that includes representatives of the MDOT agency primarily responsible for the type of transportation facility being proposed. Proposals are evaluated according to qualifications of the proposer, the project’s ability to satisfy a public need; compatibility with State and local transportation plans; cost-effectiveness; and ability to result in the timely acquisition, construction, financing, or operation of the proposed transportation facility. The review committee presents viable proposals to the Secretary of Transportation for consideration. The evaluation and selection is conducted in accordance with Maryland procurement law and guidelines established by the Authority. The process for

acquisition, financing, construction, and operation of a specific project depends on the project and the nature of the partnership.

For unsolicited proposals, proposers follow a two-phase proposal process.

Phase One – Conceptual Proposal: Proposers submit a "conceptual proposal" containing standardized information addressing the rights, duties, and obligations of both the State and the private partner with respect to the project, and sufficient information to enable a review committee appointed by the Authority to determine the proposers qualifications and the project's technical and economic feasibility. Submission of a conceptual proposal requires a $5,000 initial review fee.

The proposal is evaluated to determine whether:

- It would be in the State's interest to enter into agreement based on that offer, using sole source procurement; or
- Competitive proposals should be sought. If competitive proposals are to be sought, the Authority will issue a Request for Expressions of Interest (RFEI).

The RFEI will state:

- The Authority has received an unsolicited proposal;
- Describe the project; and,
- Request submission of competing proposals within a specified period, not less than 60 days.

The Authority will not consider competing proposals submitted after the specified period unless the Authority terminates consideration of, or negotiations on, the original proposal and all competing proposals received within the 60-day period. No extensions of the 60-day period will be given.

Phase Two – Detailed Proposal: If a project is determined to be viable, the proposer is invited to submit a more detailed proposal containing the same information as in *Step One* and any additional requirements specified by the Authority during of the initial review. A $25,000 fee must accompany submission of the Detailed Proposal.

5.3 P3 Programs in Other States

The role of the Authority as administrator of a statewide toll facility program is replicated in some State programs. However, none of the other states visited or studied appear to have a single statewide agency with comparable financial resources.

States that have P3 programs generally have specific legislation governing the activity. In fact, P3 proposers typically prefer the security of clear State-enabling legislation to establish a P3 program. In general, the legislation empowers the state to enter into P3s, establishes the types of projects that are eligible for participation, sets out project procurement and selection processes, and outlines the contents of the franchise agreement or "Comprehensive Agreement" (CA).

A CA is the generic name used in this report to refer to the written contract between the public agency and the private sector partner outlining roles, responsibilities, legal

liabilities, and financial obligations in a P3 project. In this report, CA is used to refer to a franchise agreement, concession agreement comprehensive agreement, exclusive development agreement, or similar contract instrument.

5.3.1 California

In 1989, the California legislature passed Assembly Bill (AB) 680 with the goal of attracting alternate funding sources to meet the State's growing highway transportation needs. The bill authorized privately funded Build-Operate-Transfer (BOT) projects on all or a portion of a public transportation facility. Specifically, Caltrans was permitted to approve four geographically distributed demonstration projects across the State.

Each facility could be leased for up to 35 years, after which time it would revert to the State. Any State expense incurred in the development and implementation of the demonstration projects was to be reimbursed by the private participant. The State made its power of condemnation available for the projects, with reimbursement of costs by the private partner. The maximum rate of return to the private sector was established and excess revenues collected through tolls were to go to the State or be used to reduce project debt.

AB 680 law established an area 1½ mile to each side of the centerline (3-mile corridor), called the absolute protection zone, for a BOT project. The absolute protection zone prohibited the State from making improvements to alternate public routes in order to protect the company's investment and prevent projected revenues from being undercut. The absolute protection zone was created to encourage private companies to invest in building toll facilities.

In March 1990, Caltrans issued an RFQ for a private BOT for any project proposed in the State transportation program. The State received responses from 13 firms. The RFP issued in June 1990 elicited 12 proposed projects, only two for the same facility. Caltrans selected four proposals for implementation: one in Northern California, and three in Southern California. The CAs were all executed by January 1991.

Only two of the projects have moved forward to date: SR 91 Express Lanes in Orange County and SR 125 in San Diego County.

The SR 91 Express Lanes project was proposed as the first congestion-priced facility in the country. The four-lane tolled facility was to operate in the median of SR 91 for a 30-mile length. The first 10 miles of the SR 91 Express Lanes were developed by California Private Transportation Company (CTPC) at a total cost of $135 million and opened in 1995. OCTA had completed the NEPA process for a high-occupancy vehicle (HOV) facility along SR 91, and CTPC purchased those environmental documents from OCTA. Those documents were then supplemented to address the design changes and tolling proposals needed by CTPC to implement their proposal. An agreement between Caltrans and CTPC granted a 35-year franchise along 30-mile portion of SR 91, commencing at the opening of the first phase. The CA established the maximum rate of return to CTPC (23%), defined the treatment of HOVs, provided that Caltrans would not build competing road capacity within a 3-mile corridor for the entire 30-miles of the franchise, and provided that traffic enforcement and facility maintenance would be provided by the State on a reimbursement basis.

Orange County SR 91 Express Lanes

In 2002, in response to growing concerns about the SR 91 Express Lanes, including the restrictions on capacity improvements of the absolute protection zone, changes in the ownership of CTPC and several lawsuits, the California Assembly passed AB 1010 authorizing OCTA to buy out the CPTC franchise. Other provisions of the bill eliminated the absolute protection zone and required that the facility become toll-free at the end of the franchise. AB 1010 prohibits OCTA from transferring the franchise without State approval, and creates an advisory committee composed of local and State officials and prohibits Caltrans from entering into new franchise agreements anywhere in the state.

In May 2003, the OCTA Board of Directors endorsed a policy allowing 91 Express Lanes users with three or more persons per vehicle to ride free, except for “super-peak” hours when they pay 50 percent of the posted toll rate. The OCTA Board of Directors also approved a “congestion management” toll pricing policy in July 2003. The objective was to use pricing to optimize the number of vehicles that can safely travel on the toll road at free-flow speeds during all hours, including peak hours. The toll policy adopted by OCTA calls for tolls to be increased when hourly traffic in the Express lanes exceeds 1600 vehicles per lane or level of service “D”. The policy sets lane prices at a level that maintains the free flow of traffic.

The schedule for development of the CA on SR91 is shown in **Table 1**.

Table 1. Timeframe for SR 91 Express Lanes Project in California

Timeframe	Action
July 10, 1989	Assembly Bill 680 Passed
March 1990	RFQ Issued
June 1990	RFP Issued
Dec 1990 / January 1991	Comprehensive Agreement executed for 4 routes
September 1993	Construction began on SR 91
December 1995	Construction ended on SR 91 / Road Open to Traffic
Time to Comprehensive Agreement = ~10 months	
Time to Construction = 42 months	

Source: California Department of Transportation & KCI Technologies, Inc., 2004.

SR 125 is a new facility to be built on a new right-of-way in San Diego County. The development of SR 125 has taken considerably longer than the implementation of the initial portion of the SR 91 Express Lanes, largely because the NEPA process had not been completed for SR 125 and was considerably more complex. In addition, development of the CTV portion of SR 125 was dependent upon completion of connecting, publicly funded projects. The environmental issues on the publicly funded facilities were quite complicated. FHWA issued the final ROD on June 9, 2000, and the US Army Corps of Engineers issued the 404 Permit in July 2001.

CTV has responsibility for the finance, design, construction, and operation for 35 years of their portion of SR 125. The 35-year timeframe begins on the opening day of the first portion of the facility. The absolute protection zone limitations for this facility are slightly different (adjusted in the CA) than for SR 91. Caltrans may build competing capacity within 1.5 miles of the franchise if it compensates CTV for any loss of revenue attributable to the improvement.

5.3.2 Texas

The Texas Transportation Commission has been empowered by the state legislature to enter into P3 relationships. The current version of the process is outlined in HB 3588 passed in May 2003. This legislation permits the use of P3s in turnpike projects and for facilities in the Trans-Texas Corridor. HB 3588 authorizes a broad range of P3 types including DB projects, DBOM, strategic partnerships, concessions, and franchises.

HB 3588 authorizes both solicited and unsolicited procurements, and uses a two-phase process to evaluate projects of either type. All P3 procurements are selected based on the apparent best value, which is a combination of technical and price components.

For solicited P3 projects, TxDOT first issues an RFQ for a particular project. A short-list of teams is selected to receive a Request for Detailed Proposals (RFDP). In some cases, TxDOT will first issue a draft RFDP and meet with each of the short-listed firms under confidential and uniform conditions to receive their comments before issuing the final RFDP. After the detailed proposals are evaluated, the apparent best value proposal is selected. The CA is awarded after limited negotiations.

A private entity may submit an unsolicited proposal to TxDOT at any time. The proposal must contain:

- Information regarding the proposed project location, scope, and limits;
- Information regarding the private entity's qualifications, experience, technical competence, and capability to develop the project; and,
- The proposed financial plan for the proposed project that includes, at a minimum, projected project costs and proposed sources of funds.

If the Texas Transportation Commission finds the proposal has merit, TxDOT issues a Request for Proposals and Qualifications (RFPQ). The legislation does not specify a minimum or maximum timeframe for response to the RFPQ. A short-list is developed from the firms responding to the RFPQ. TxDOT issues those firms a RFDP, in the same

fashion as for a solicited project. After the detailed proposals are evaluated, the apparent best value proposal is selected. The CA is awarded after limited negotiations.

The schedule for the development of the CA for the Oklahoma to Mexico segment of the Tran-Texas Corridor is shown in **Table 2**.

Table 2. Oklahoma-Mexico Element (TTC-35) of the Trans-Texas Corridor Schedule

Timeframe	Action
November 2002	Receives and Reviews Unsolicited Proposals
August 4, 2003	RFP and RFQ Issued
September 9, 2003	Deadline for Request for Proposal and Qualifications
October 29, 2003	Evaluation/Short listing
Ongoing	Industry Review Process
January 2004	Notice of Intent (NEPA)
Spring 2004	Issues Request for Detailed Proposals
Spring 2004	Public Scoping Meetings
Spring 2004 (90 days from date issued)	Deadline to submit Detailed Proposals
Fall 2004/Winter 2004	Evaluation/Selection of Proposals
Fall 2004/Winter 2004	Negotiations with Best Value Proposer
December 16, 2004	TTC makes selections of contractor
March 11, 2005	TTC awards Comprehensive Agreement
Time to Comprehensive Agreement = 28 months	

Source: Texas Department of Transportation & KCI Technologies, Inc., June 2005

5.3.3 Virginia

The State Code of Virginia Section 33.1-12 governs the legal and procurement requirements of design-build contracts. Section 56.566-575, Public-private Transportation Act (PPTA) of 1995, as amended, regulates such requirements for PPTA projects. VDOT policy, legal and implementation requirements are consistent with the Code of Virginia Section 2.2-4301; however, the selection process for a PPTA proposal, solicited or unsolicited, is not subject to the Virginia Public Procurement Act (Section 2.2-4300 et seq.).

The provisions for design–build contracts generally are applied to smaller projects. VDOT may enter into five contracts of less than $20 million each year and into no more than five contracts of more than $20 million at any one time. VDOT identifies these projects and solicits for firms to undertake the design and construction through a formal procurement process that is consistent with FHWA requirements for design-build contracts.

The PPTA permits VDOT and other Commonwealth of Virginia responsible public entities to accept proposals from private offerors to acquire, construct, improve, maintain, and operate certain transportation facilities. The participating agencies must determine that there is a need for the proposed facility and that the offeror can provide

the facilities in a timely or cost-effective manner. While the procedures adopted by the PPTA implementation guidelines are consistent with the Virginia Code requirements, the selection process for solicited and unsolicited project proposals is not subject to the Virginia Public Procurement Act. Rather, the process is in harmony with procedures for procurement of other than professional services through competitive negotiation.

When a P3 proposal is solicited by a public agency, the RFP must specify:

- The information and documents that must be included in the proposals;
- The factors that will be used to evaluate the proposals;
- The terms and conditions of the award; and,
- Any unique capabilities or qualifications required.

Manual toll collection at the Pocahontas Parkway Toll Facility, Richmond, VA

The PPTA also allows VDOT and other agencies to accept unsolicited proposals for transportation facilities submitted by private entities to design, build, maintain, and operate large projects. VDOT receives a processing fee for all unsolicited proposals: $10,000 for the conceptual phase, and $40,000 for the detailed phase for projects where construction is estimated at $50 million or more. Where construction is estimated below $50 million, the fees are $5,000 and $20,000 respectively. When Virginia reviews an unsolicited proposal, it may accept the conceptual proposal as is, and post it to solicit competitive bids, or return proposals with informal feedback. In this early stage, VDOT may refrain from posting those proposals for competitive bids.

Upon acceptance of the conceptual proposal, VDOT solicits competition by posting the conceptual proposal on its website, in newspapers, and in other appropriate industry publications. Financial information included in the proposal remains confidential at this early stage. Any unique concepts are also protected. Proposals should include what the private firm proposes to do, how much it will cost, and how long it will take. Proposals must also disclose the proposed use of any public funds. Because costs cannot be firmly established in this early stage, ranges of cost are encouraged.

The PPTA requires at least 45 days for submission of competing proposals. In practice, VDOT accepts new competing proposals for 60 to 120 days from the initial post date. An Initial Review Committee (IRC), which consists of the Chief Engineer, Chief Financial Officer, and the District Administrator for each affected VDOT District, reviews

the proposals and prepares a recommendation to the Commonwealth Commissioner of Transportation for consideration. The Commissioner then decides whether or not to recommend the action to the Commonwealth Transportation Board (CTB). The CTB considers the Commissioner's positive recommendation, and then votes to recommend those proposals that are approved for detailed review.

Private entities are asked to develop detailed proposals within a specified time. Detailed proposals are prepared at the private firms' expense. The detailed proposals are submitted to the appropriate local governments and the public for a 60-day comment period. An advisory panel reviews the detailed proposals. The Advisory Panel is comprised of individuals having the appropriate expertise and knowledge to objectively evaluate and analyze those projects that would promote the Commonwealth's transportation goals and are in the public's best interest. The panel is chaired by the Deputy Secretary of Transportation and includes the IRCC members, an engineering representative from the academic community, and members of the CTB. The panel submits its recommendations to the Commonwealth Commissioner of Transportation. The Secretary of Transportation must approve procurement of the project under the PPTA. The Commissioner makes the final decision to enter into a comprehensive agreement for a P3 project.

An initial contract guarantees the exclusive right to negotiate CA. If NEPA does not select the proposed alternative, there is no obligation to the private partner.

The PPTA requires a CA between the public agency and the private entity that sets out the roles and responsibilities of each party with respect to the project. It may consist of a set of agreements, including financing agreements, design-build and operating agreements, escrow agreements and technology agreements. The CA establishes the structure that will be used to implement the project. The CA can set milestones, phasing, and conditions to the Notice to Proceed (NTP) for each phase.

The CA must include:

- Performance and bonding requirements;
- Plan specifications and review requirements;
- Inspection requirements;
- Insurance and liability requirements;
- Maintenance requirements, monitoring and standards;
- Reimbursement for public agency costs;
- Auditing and financial statements;
- Maximum rate of return for the private entity;
- Use of revenue in excess of the maximum rate of return;
- Length of the agreement and requirements for public dedication of land and improvements;
- Establishment and adjustment of user fees (tolls);
- Amount of public funds to be spent on the project;

- Default and remedies; and,
- Provisions for amendment.

VDOT has received more than 42 unsolicited and two solicited proposals under the PPTA, and has established an Innovative Project Delivery Division to administer and manage the program development and procurement process of both P3 and design-build projects. **Table 3** contains a general timeframe for the completion of a CA in Virginia.

Table 3. General Timeframe for Completion of the Proposal Selection Process in Virginia

Timeframe	Action
7 - 8 weeks after acceptance of conceptual proposal	Posting of Notice
4 – 6 weeks	Conceptual Proposals--Initial Review
3 – 8 weeks	Commonwealth Transportation Board Approval
8 – 12 weeks	Detailed Proposal Submission
8 – 16 weeks	Detailed Proposal—Review by Advisory Panel
2 – 4 weeks	Final Project Selection by Commissioner
12 – 26 weeks	Negotiation of Comprehensive Agreement
Time to Comprehensive Agreement = 42- 80 weeks (10-18 months)	

Source: The Commonwealth of Virginia, "Public-Private Transportation Act of 1995, Implementation Guidelines", April 2001, pg. 6.

5.4 Tort Liability

Torts are civil wrongs recognized by law as grounds for a lawsuit. Torts fall into three general categories[11]:

- Intentional torts - those wrongs which the defendant knew or should have known would occur through their actions or inactions
- Negligent torts - those wrongs that occur when the defendant's actions were unreasonably unsafe.
- Strict liability torts - wrongs that do not depend on the degree of carefulness by the defendant, but are established when a particular action causes damage.

Private owners of roads would be subject to tort liability for injuries suffered on their facility. The financial risk presented by such liability is substantial and generally more than any P3 would be able to survive.

[11] **http://www.law.cornell.edu/topics/torts.html**

State governments, on the other hand, are generally immune from tort liability. In Maryland and the other states, State personnel are immune from tort liability as long as the act or omission is within the scope of their public duties and is made without malice or gross negligence. Only an agency of the State, and only qualifying personnel of the State are entitled to these immunity provisions (i.e., State officers and State employees). Under Federal law, the Eleventh Amendment of the US Constitution bars a tort suit for damages against a State in federal court. Independent contractors to, or private partners of, a State agency would not qualify for these constitutional protections.

To minimize the exposure of a P3 to tort liability, the actual ownership of P3 highway facilities rests with state government in every case visited by the Maryland team.

6. PUBLIC ACCEPTANCE

One of the most significant risks in any highway project is the level of public acceptance and political support. A strong champion for a project that enjoys broad public support can lower the political risk of the public agency and the financial risk for the private entity. Conversely, an unpopular project with lukewarm support is unlikely to attract either private investment or public agency funding.

Everywhere P3 projects are used, they have generated attention from the public, the media, local businesses, and labor unions. The size of most P3 highways makes them targets of public attention. Those opposed to the physical, environmental, and social impacts of a major facility may oppose the expanded private sector role in the project. For some states, toll collection itself is an innovative practice. Therefore, it is sometimes difficult to separate the public reaction to the increased private sector involvement from the reaction to tolls or to the highway itself.

When P3 projects involve tolls or other user fees, the amount of public attention usually increases. Transportation facilities, particularly highways, are generally perceived as public goods in the US. The idea that a private company profits from tolls can raise significant policy, financial and ethical questions, sometimes accompanied by emotional responses. In addition, several of the recent P3 projects have involved innovative traffic management or operational approaches, including express lane tolling and truck-only lanes. These projects would attract public attention even without private sector participation.

6.1 General Public Acceptance

This section of the report examines the issues raised in discussions of P3 projects by reviewing the results of two studies into public acceptance of the SR 91 Express Lanes. For most of the period during which these studies were performed, a private for-profit corporation operated the SR 91 Express Lanes. The nature of the franchise granted by the State became a subject of intense public debate when the absolute protection zone restricted improvements to congested roads within 1½ mile of the entire length of the 30-mile franchise granted by the State (See Section 5.3.1). This debate was widely covered in the local media and the issue was resolved when OCTA purchased the lanes in 2003.

6.1.1 Cal Poly Study of SR 91, 1996-2000

The most extensive research into public acceptance of a privately constructed and operated highway in the US has looked at the SR 91 project in Orange County CA. In a study of public acceptance of the SR 91 Express lanes completed in 2000 (prior to the OCTA purchase of the lanes), Cal Poly State University concluded:

- Throughout the study period (1996-1999), the idea of providing extra toll-financed lanes to bypass congestion (with no mention of variable tolls) has consistently been regarded positively by the majority of SR 91 commuters;

- SOV and HOV commuters who use the free lanes for their peak travel are less likely to approve of express lane tolling than those who use the express lanes;
- The relationship between the respondents' income levels and their approval ratings for express toll lanes is weak. Only the highest income group shows a strong positive correlation between positive approval and income;
- In contrast to the approval ratings for providing general use toll lanes, approval for the idea of varying the tolls depending on the severity of the bypassed congestion decreased significantly over time; extensive negative press coverage of CPTC and the 91 Express lanes may have influenced, by association, the public's opinions of variable tolls;
- Although overall approval levels for variable priced lanes were lower, the pattern of approval among different groups is similar to the pattern for toll lanes in general; and
- The public's approval of private, for-profit development and operation of toll lanes has been consistently lower than approval of variable tolls. Users of the toll lanes are more likely to approve of private sector control than non-users. The relationship between approval of private for-profit operation and income is weak.

Table 4 shows a breakdown of reasons given by Orange County survey respondents who said they thought it was a bad idea to let SOV commuters purchase excess HOV lane capacity.

Table 4. Reasons for Disapproving of SOV Buy-in - 1999

Reason	PERCENT OF RESPONDENTS
Government will waste the money	24%
Tolls not fair on roads already paid for	21%
Will discourage carpooling	18%
Only benefits the rich	13%
Bad for environment	6%
Roads should be free for all	5%
Too complicated and confusing	5%
Discourages highway improvement	4%
Increases government bureaucracy	4%

Source: Cal Poly State University, December 2000

6.2 Media Response

The Cal Poly study also examined media coverage of P3 facilities during the period of May 1997 – May 2000. Their research concluded that the media often portrayed P3 projects as a clash between competing interests:

- Public v. private;
- Safety v. profit;
- Transit v. highways;
- Taxation v. private ownership; and,
- Nonprofit v. for-profit organization.

Media coverage has highlighted facilities that do not appear to cover debt and operating costs in the initial years of operation as business failures. The articles rarely acknowledge that most new toll facilities experience a “ramp-up” period. Attempts by the private sector to keep specific financial reports confidential are characterized as “secretive”.

Lawsuits involving disputes between governments and the P3 entity are likely to be covered in detail.

Negative media coverage of P3 partnerships has suggested that the corporations operating toll roads may:

- Sacrifice safety for profit;
- Repeatedly raise toll rates;
- Maintain secrecy about their financial performance;
- Encourage the illegal use of public carpool lanes; and,
- Provide funding for non-highway government projects.

Positive press reports have praised P3 toll roads for:

- Being innovative and for the philosophy behind the privatization of toll lanes;
- Saving taxpayer dollars since none of their money was at risk and the private companies assumed all risk; and,
- Providing funding for needed roadways when no public dollars were available for the improvements.

Limitations on improvements to “free” roads that compete with “toll” roads are characterized in the news media as “monopolies”. In some of the Orange County media coverage, the privatization of roads was termed an “incredible breach of public trust”. The State of California was accused of failing in its duty to protect the traveling public. Some reports questioned whether the State put public safety at risk when allowing private companies to build toll roads and restrict improvement of alternate routes. On the other hand, one public opinion article that supported privatization and the absolute protection zone stated that there needs to be a reasonable degree of protection from State competition with toll lanes and if Caltrans had the ability to add unlimited amounts of free capacity, no one is likely to buy toll road bonds.

6.3 Customer Response to SR 91, 2000-2003

In 2003, Market Research Associates in Irvine, California compiled a report that detailed the findings of market research and customer satisfaction among 400 randomly

selected users of the 91 Express Lanes over the period from 2000-2003. For most of this period, the private corporation owned and operated the 91 Express Lanes. In 2003, the lanes were purchased by OCTA. However, operation of the facility was contracted back to the private corporation. OCTA assumed responsibility for setting toll rates. The purpose of this research was to determine the issues most important to 91 Express Lanes customers, to discover their perceptions of the OCTA, and to track customer satisfaction with the 91 Express Lanes.

The following results are taken directly from the report:

- In 2003, most respondents are aware of the ownership of the 91 Express Lanes, in this case, OCTA. The majority do not feel any different about the lanes now that OCTA owns and operates the lanes, and over one-fourth of all respondents feel better because of the change in ownership;
- On average, travel patterns on the 91 Express Lanes have remained consistent over the last four years. The majority of customers interviewed have been using the 91 Express Lanes for more than four years. Few respondents are new customers of OCTA. Most say their driving habits have not changed over the last six months.
- Respondents say saving time is their primary reason for satisfaction with the lanes, and one of the best things about traveling on the 91 Express Lanes.
- Many respondents say they save nearly 34 minutes by driving on the 91 Express Lanes rather than the 91 Freeway during their afternoon commute;
- Complaints about toll charges have declined over the last four years. Fewer respondents this year mention a concern about toll charges or the frequency with which toll charges are increased. Respondents make clear that they prefer toll charges, in order to keep the traffic moving on the 91 Express Lanes;
- Respondents prefer pre-notice of any toll change. Most say they are not likely to rely on signs or the website to learn about toll changes;
- Results indicate a steady increase in overall satisfaction with the 91 Express Lanes over the last four years. Overall satisfaction appears to be higher among infrequent users than frequent users of the 91 Express Lanes;
- When asked to suggest any improvements to the lanes, respondents in 2003 say that the lanes should be extended as often as they say the toll charges should be reduced. This is the second year this has occurred;
- Respondents are pleased with the overall safety of the toll roads. When complaints are voiced, they center on the driving habits of others rather than any actions on the part of OCTA. As in previous years, complaints regarding lane cutters continue to be voiced by customers of the 91 Express Lanes;

- When respondents rate the performance of OCTA on several important service attributes, OCTA performs quite well. Respondents indicate that a fast, safe, and reliable commute is the only area where OCTA may need to focus their attention. This may be because of concerns over lane cutters and other actions by drivers using the 91 Freeway and the 91 Express Lanes;
- Respondents indicate they expect OCTA to perform well when it comes to managing the road, providing customer services, and making improvements. However, fewer offer high ratings for setting policies, strategies, or tolls. When asked to recommend changes, most respondents focus on changes to the road including pricing and extending the lanes;
- In the latest survey, respondents rate confidence that all customer information is held in confidence by the 91 Express Lanes as more important than a fast, safe, reliable commute every time;
- Nearly half the respondents indicate they are likely to utilize a free 3-plus carpool offer if it were available on the 91 Express Lanes

6.4 Public Outreach and Marketing

The use of a P3 approach to highway development and operations introduces private sector concepts of marketing the facility to potential customers. Most P3 projects with a toll component have active programs to attract users and provide a travel experience that is “superior” to the surrounding non-toll roads. In most cases, the facilities are portrayed as offering a faster and more pleasant ride. In most of the P3 toll facilities, drivers were viewed as “customers” with a high priority placed on customer satisfaction. Marketing efforts targeted facility customers and potential customers; a group viewed as distinct from the general public and the users of non-toll facilities. When the Dulles Greenway and Pocahontas Parkway initially opened, marketing efforts included offerings of free or reduced toll rates, followed by an increase in tolls once the drivers had benefited from the faster commute for a period.

Even for non-toll projects where the P3 is primarily involved in design and construction, not long-term operation, there is usually a corporate outreach effort aimed at reducing complaints during construction and assuring continued public and political support for the project. For a P3 project, opposition and complaints have the potential to lead to delay in the project. For a P3 contractor, “time is money”. In Texas, the P3 constructing the Central Texas Turnpike maintains an extensive website and newsletter effort with regular updates on the progress of construction. In Virginia, the P3 proposing express lanes for the Capital Beltway has undertaken an extensive corporate effort during the NEPA process to increase public support for their proposed solution.

6.5 Unions And Use Of Local Labor

Some of the earliest objections to P3 projects in other states have come from the following groups:

- Unions representing state employees, who see privatization as a threat to their jobs;
- Local trade unions concerned the provisions of the Davis-Bacon Act will not apply and that jobs on the project will be filled by labor brought in from outside the area;
- Local contractors and engineering firms concerned that they will be unable to compete with national and international firms for very large projects; and,
- Environmental groups concerned that use of a P3 is a ploy to avoid NEPA review.

Responses to these concerns can come from several sources. Most lead firms in P3s self-perform only a fraction of the work, preferring to contract out to local firms and to use local labor. The private sector groups interviewed indicated that using local talent saves money (no housing and travel expenses), and has the benefit of building on existing relationships with the State transportation agencies. This concern is raised often enough that some firms provide records of their use of local resources on past jobs.

California, Texas, and Virginia address concerns from the local contracting community by noting that the States have an active program of maintenance and construction, which will continue. A P3 project usually represents new work, not an alternative to the State's existing program. Once convinced that use of a P3 actually represents an increase in the available work, most local contractors are pleased. Texas noted however that local engineering and design firms may not have the same experience since the national engineering firms can send design work to offices throughout the country, so long as the review process is handled by a local project manager.

Larger P3 projects involve a Federal finding or other Federal involvement that triggers both NEPA and Davis-Bacon requirements. In Maryland, State law sets minimum labor and environmental standards that apply to all State-funded transportation projects.

Goals for minority, disadvantaged and small businesses are typically part of the procurement process and the CA. The specific contract allocations to individual firms may not be specified in contract documents but compliance is assured through ongoing monitoring by the State. To address other economic concerns, some states encourage or require training for the local workforce and a training component in the contract.

7. SELECTING A P3 PROJECT

7.1 Private Sector Preferences

The request for information (RFI) expressly asked firms what characteristics make a P3 attractive to the private sector. They reported that there are two prime motivators for private sector interest in a P3:

- Opportunity to develop a major project that will achieve cost/time savings or develop new technology that result in market growth; and,
- Opportunity to complete key projects that add value to communities, resulting in market development or increased stock and shareholder value.

The features private companies consider when evaluating a P3 investment opportunity include:

- The level of investment and technical risk,
- How that risk is assigned between the public and private sectors,
- How trustworthy the procurement process is perceived to be,
- The strength of the public sector project management,
- The strength of project commitment from the public sector;
- The clarity of the enabling legislation, and,
- The project size - greater than $200-250 million.

Firms with a primary interest in design-build contracts and less interest in the long-term maintenance component generally place greater emphasis on the opportunity to participate early in the project development process. They use the project development process to better understand construction risks and to seek opportunities to develop more timely or cost-effective solutions to project objectives.

Firms with a greater interest in the long-term operations and maintenance of the facility also value early project involvement, but tend not to value it as highly. They have additional opportunities to achieve saving through life cycle costing and prefer to enter the process after the largest environmental and political risks are clear or resolved. The experience of SR 125 in California, which took ten years to obtain environmental approval, has heightened the awareness of the risk of committing to the project before the environmental risks are understood.

7.2 Solicited Projects

In a variety of cases, States solicited for firms to partner in the construction of a specific facility. The State chooses projects it would like to have built using the P3 structure. These projects have been identified in a State's CTP or Regional Transportation Plan. Generally, these projects are planned for the future due to lack of current funding. The perceived importance of the project, coupled with lack of funds, makes it a candidate for

P3. In most cases, these projects would not be funded in the near future without the P3 involvement. The solicitation process generally includes an RFQ, a short-list of qualified firms, and an RFP.

7.3 Modified Solicited

When a modified solicited approach is used, the State identifies a list of projects for which private entities may submit proposals. Typically, firms are asked to submit their qualifications and a conceptual proposal for a specific project. The proposal should contain:

- Information regarding the proposed project location, scope, and limits;
- Information regarding the private entity's qualifications, experience, technical competence, and capability to develop the project; and,
- The proposed financial plan for the proposed project that includes, at a minimum projected project costs, and proposed sources of funds.

California's enabling legislation, AB 680, allowed the modified-solicitation approach for any projects in the Capital Program. This legislation allowed Caltrans to announce its willingness to approve four projects, two in northern and two in southern California. Private entities were given a date certain by which all proposals were due. Caltrans then selected the four proposals that presented the best value for the State.

7.4 Unsolicited Proposal

An unsolicited proposal is initiated by the private sector. It may be for a project that is brand new or for one that the State has already begun planning. In some cases, private entities submit unsolicited proposals for projects during or at the conclusion of the environmental review process. In most cases, the state has set up enabling legislation that allows the DOT to accept and review project proposals that private entities believe are financially feasible.

Many private sector firms expressed a preference for having the ability to submit unsolicited proposals. However, a State P3 program with an unsolicited component can overwhelm State staff resources and threaten established state priorities. For this reason, it is recommended that the "candidate pool" or "project development stage" be defined for highway projects to assure unsolicited highway proposals are consistent with state priorities. The highway project needs to be far enough along in project development to gauge public and political support before the decision to proceed with a P3 is made.

The unsolicited highway proposals should include the same features and selection criteria described for solicited P3 projects in Section 8.0. The fundamental difference would be that unsolicited proposals provide the private sector partner with a stake in their particular alternate.

Accepting unsolicited proposals is generally a multi-step process. The initial submission is typically conceptual. Once an unsolicited proposal is accepted, there is typically a period for submission of competing proposals. The period for submission of the competing proposals ranges from 30 to 120 days. Both the states and the private sector

report that a shorter timeframe for competing proposals limits the potential for competition, and that a period of 90-120 days is necessary to develop a competitive conceptual proposal. Some private firms noted that giving competitors excessive time to submit proposals may stifle the incentive to submit unsolicited proposals in the first place.

With the original and any competing proposals in hand, the public agency selects the offer that represents the best value to the state through a public review process. Once the conceptual proposal is accepted, a detailed proposal is required. If no best value proposal is apparent, the state may select more than one proposal to carry to the next phase, preparation of a detailed proposal. If more than one detailed proposal is received, the state will make the final selection through a public process. After selection of the apparent best value detailed proposal, the state enters the formal negotiation process with the private entity. Final execution of the CA may require several interim agreements if the environmental review process is not yet complete.

In preparing an unsolicited proposal, the private sector partner will incur costs of preliminary design, revenue projection, right-of-way consultants, estimating construction cost, and conducting public opinion surveys. These costs are “at risk”.

8. PROCUREMENT AND SELECTION PROCESS

The procurement process is the best opportunity to build the working partnership between the public and private entities. Generally, for a P3 project, scope, schedule, and plan of finance cannot be determined precisely enough to use the traditional low bid process. A majority of P3 proposals are solicited through the RFQ/RFP process with selection based on the best value to the State, rather than on low bid price submitted. The best value approach provides the best opportunity for private sector innovation.

The best value evaluation criteria used by the states may include timesavings, creative financing, revenue enhancement, construction staging, traffic maintenance during construction, toll collection mechanisms, and reductions to operation and maintenance costs. Best value evaluation considers the overall business plan and the risk of execution to the proposer, but may not allow direct numerical comparisons between competitors.

During the procurement process, all potential bidders must be treated uniformly and the selection process must be perceived to be fair and even-handed. RFPs need to be prepared and carried out uniformly. The short-listed firms must trust the State to treat each firm fairly and to hold proprietary information in confidence. Financiers must trust the process to be free from credible legal challenges. Ultimately, the public must be willing to trust the integrity of the final contract award.

Four basic methods are used for selecting the private sector entity in a competitive P3 procurement process:

Qualification Based Selection;

- RFQ/RFP, Best value with fixed price;
- RFQ/RFP, Best value with price negotiation; and,
- RFQ with negotiated RFP, Best value with fixed price.

8.1 Qualification Based Selection

Qualification based selection (QBS) uses a ranking system that can compare best benefit, best project execution, most feasible plan of finance, and best track record for project completion on time and within budget.

A QBS proposal may be evaluated based on:

- The sufficiency of the proposed purpose and need;
- The economic viability of the design concept;
- The feasibility of the finance plan;
- Compatibility with the state's CTP and local comprehensive plans;
- The use of innovative design concepts;
- The overall experience of the firms, their experience with similar projects; and,

- The financial strength of the team.

The design-build price is not a factor in the selection process, and would be negotiated on an "open-book" basis with the public partner once design concepts are selected and the environmental review is complete. The selected team can be partially or totally reimbursed for their participation in the early project development.

QBS promotes a true partnering environment that utilizes the strengths of each partner. QBS also allows a flexible contract approach and a cost effective risk sharing structure.

The drawbacks of the QBS approach are that, from the beginning, it requires strong expertise by the public and private partners to develop a strong P3 team and a realistic and equitable comprehensive agreement. QBS requires a commitment to the P3 process and the partnership before all costs are known. In addition, the project cost is agreed upon well after the private entity selection has taken place.

Washington DOT used QBS to solicit concepts for "decongestion" of a list of corridors and locations. Submissions were evaluated strictly on qualifications of the firms responding. In this scenario, the design-builder was involved from the start of the process. The DOT initiated the environmental review process for the projects it wanted to pursue. The P3 team assumed the role of the Engineer of Record for the EIS process. The private developer was reimbursed at cost for its expenses until completion of the environmental process. The business model and financing plan were not set until completion of the environmental process. The public and private sector partners worked together over a seven-month period concurrent with the environmental process to develop the scope of work in the Comprehensive Agreement. The CA was developed and consummated at six percent completion of the engineering design.

8.2 RFQ/RFP, Best Value with Fixed Price (FHWA Model)[12]

FHWA regulations permit the use of a two-phase procurement process for qualified design-build projects under the provisions of the Design-build Contracting Final Rule. The contracting agency must have awarded the contract to the public-private entity through a competitive process that complies with applicable State and local laws. Such public-private projects must comply with all non-procurement requirements of 23 US Code, regardless of the form of the FHWA funding (traditional Federal-aid funding or credit assistance). This includes environmental, right-of-way, and construction contracting requirements.

8.2.1 Solicitation and Receipt of Proposals

The solicitation and receipt of proposals can include the following methods:

- Exchanges with industry before receipt of proposals;
- RFQ, RFP, and contract format;
- Solicitation schedules;
- Lists of forms, documents, exhibits, and other attachments;

[12] Based upon Title 23 of the US Code, CFR Parts 627, 635, 636, 637, and 710, *Design Build Contracting: Final Rule, adopted December 10, 2002*

- Representations and instructions;
- Advertisement and amendments;
- Handling proposals and formation; and
- Submission, modification, revisions, and withdrawals of proposals.

8.2.2 NEPA Review of the Design-Build Contracting Process

The RFQ solicitation may be released prior to the conclusion of the NEPA review process as long as the RFQ solicitation informs proposers of the general status of the NEPA process.

The RFP must not be released prior to the conclusion of the NEPA process. The RFP must address how environmental commitments and mitigation measures identified during the NEPA process will be implemented.

Options in the solicitation process include the use of oral presentations and presenting stipends to unsuccessful offerors who have submitted responsive proposals. Unless prohibited by State law, the contracting agency may retain the right to use ideas from the unsuccessful offerors if they accept stipends.

8.2.3 Selection Procedures / Award Criteria

A two-phase selection process is recommended for design-build projects; however, it is possible to use a single-phase selection procedure or the modified-design-build contracting method if appropriate.

Table 5 below shows the selection procedure, criteria for using a selection procedure and award criteria options for single-phase, two-phase, and modified selection procedures established by FHWA.

Table 5. Criteria for Two-Phase, Single-Phase, and Modified Design-Build Projects

Selection Procedure	Criteria for Using a Selection Procedure	Award Criteria Options
Two-Phase Selection Procedures (RFQ followed by RFP)	Are there 3 or more offers anticipated?	Lowest Price
	Will offerors be expected to perform substantial design work before developing price proposals?	Adjusted low-bid (price per quality point)
	Will offerors incur a substantial expense in preparing proposals?	Meets criteria/low bid
	Have you identified and analyzed other contributing factors, including:	Weighted criteria process
	(1) The extent to which you have defined the project requirements?	Fixed price/best design
	(2) The time constraints for delivery of the project?	Best Value
	(3) The capability and experience of potential contractors?	
	(4) Your capability to manage the twophase selection process?	
	(5) Other criteria that you may consider appropriate?	
Single Phase (RFP)	Project not meeting the criteria above	All of the award criteria above
Modified Design-Build (may be one or two phases)	Any project	Lowest price techncially acceptable

Source: Title 23 U.S. Code, CFR Parts 627, 635, 636, 637, and 710

Two – Phase Selection Procedure[13]

The elements of a Two-Phase Selection Procedure for competitive proposals include:

Phase 1: Short-listing based on an RFQ (normally 3 to 5 firms – 5 is typically the maximum number to be short-listed; however, it depends on the nature of the project)

Phase 2: Receipt and evaluation of price and technical proposals in response to an RFP

The following items may be included in **Phase 1** of the solicitation:

1. The scope of work;
2. The phase-one evaluation factors and their relative weights, including:
   - (a) Technical approach (but not detailed design or technical information);
   - (b) Technical qualifications, such as:
     - (i) Specialized experience and technical competence;

[13] Title 23 of the US Code, CFR, Section 636.209

(ii) Capability to perform (including key personnel); and

(iii) Past performance of the members of the offeror's team (including the architect-engineer and construction members);

(c) Other appropriate factors (excluding cost or price related factors, which are not permitted in phase-one);

3. Phase-two evaluation factors; and,
4. A statement of the maximum number of offerors that will be short-listed to submit phase-two proposals.

The following items may be included in **Phase 2** of the solicitation:

1. The requirements for technical proposals and price proposals. All factors and significant subfactors that will affect contract award and their relative importance must be stated clearly in the solicitation; and,
2. Alternate technical concepts as long as they do not conflict with criteria agreed upon in the environmental decision making process.

Modified Design-Build Solicitation[14]

The following items may be included in a **Modified Design-Build** solicitation:

1. The identification of evaluation factors and significant subfactors that establish the requirements of the acceptability;
2. The award will be made on the basis of the lowest evaluated price of proposals meeting or exceeding the acceptability standards for non-cost factors;
3. The contracting agency may forgo a short-listing process and advertise for the receipt of proposals from all responsible offerors. The contract is then awarded to the lowest responsive bidder.
4. Tradeoffs are not permitted, however, you may incorporate cost-plus-time bidding procedures (A + B bidding), lane rental, or other cost-based provisions in such contracts;
5. Proposals are evaluated for acceptability but not ranked using the non-cost/price factors; and,
6. Exchanges may occur.

Past performance information can be used as evaluation criteria, and is valued highly since it is an indicator of an offeror's ability to perform the contract successfully. Trade-offs may be used when it is desirable to award to other than the lowest priced offeror or other than the highest technically rated offeror.

8.2.4 Proposal Evaluation Factors

The proposal evaluation factors and significant subfactors should be tailored to the acquisition. They should represent the key areas of importance and emphasis to be

[14] Title 23 of the US Code, CFR, Section 636.210

considered in the source selection decision. They should support meaningful comparison and discrimination between and among competing proposals.[15]

Evaluation factors and significant subfactors are subject to the following requirements:

- Price must be evaluated in every source selection where construction is a significant component of the scope of work;
- Quality of the product or service must be evaluated through consideration of one or more non-price evaluation factors; and
- Past performance, technical experience and management experience may be evaluated at the discretion of the State Transportation Department.[16]

8.2.5 Rating and Scoring Proposals

Proposals must be evaluated solely on the factors and subfactors specified in the solicitation. Evaluations may be conducted using any rating method or combination of methods including color or adjectival ratings, numerical weights, and ordinal rankings. The relative strengths, deficiencies, significant weaknesses, and risks supporting proposal evaluation must be documented in the contract file.[17]

8.3 RFQ/RFP, Best Value with Price Negotiation

Virginia uses a typical process for best value with price negotiation and is used in this report as the model for this procurement process. The VDOT PPTA Implementation Guidelines establish what should be included in project proposals, and how the proposals should be organized. Each proposal includes five sections or “tabs”:

Tab 1: Qualifications and Experience;

Tab 2: Project Characteristics;

Tab 3: Project Financing;

Tab 4: Public Support; and

Tab 5: Project Benefit/Compatibility.

Proposals describe what the private firm proposes to do, how much it will cost, and how long it will take. The proposal discloses the proposed use of any public funds. Because costs cannot be firmly established in this early stage, cost ranges are encouraged.

VDOT has established an Initial Review Committee (IRC), which consists of the Chief Engineer, Chief Financial Officer, and District Administrator(s). The IRC reviews the proposals and prepares a recommendation to the Commonwealth Transportation Commissioner (the Commissioner) for consideration, who may or may not recommend consideration to the Commonwealth Transportation Board (CTB). The CTB considers the Commissioner’s positive recommendation, and then votes to recommend proposals that are approved for detailed review.

[15] Title 23 of the US Code, CFR Section 636.301
[16] Title 23 of the US Code, CFR Section 636.302
[17] Title 23 of the US Code, CFR Section 636.304

If approved by the CTB, a Public-Private Transportation Advisory Panel (Advisory Panel) invites successful offerors or private firms to submit a Detailed Proposal for review. The Advisory Panel is comprised of individuals having the appropriate expertise and knowledge to objectively evaluate and analyze those projects that would promote the Commonwealth's transportation goals and are in the public's best interest. The Advisory Panel is chaired by the Secretary of Transportation or his designee, and includes IRC members, a representative from the academic community, and appropriate members of the CTB. The Advisory Panel reviews the conceptual proposal(s), the findings and recommendation of the IRC, the detailed proposal(s), and any comments received from affected local jurisdictions. The panel submits its recommendations to the Commonwealth Transportation Commissioner. The Commissioner makes the final decision to enter into a comprehensive agreement for a P3 project. In such cases where NEPA is not finalized, the CA is crafted to comply with the environmental process.

VDOT maintains an extensive website at http://www.virginiadot.org/business/ppta-default.asp. This site lists proposals along with current and completed projects and provides information on the status of each P3 project in the state.

8.4 RFQ with Negotiated RFP, (Best Value with Fixed Price)

Texas has developed a Negotiated RFP process, using a best value selection with a fixed price to select qualified teams for P3 projects. It uses the RFQ process to identify firms that can bring large projects to financial close, then short-lists teams that will be eligible to respond to the RFP.

A draft RFP is developed detailing the project standards and establishing a stipend to be paid to the non-selected firms after the project is awarded. Texas sets the stipend as a percentage of the overall project cost. To receive the stipend, bidders must be on the short-list and sign a confidentiality agreement with the state.

Texas sets up two rounds of meetings with each short-listed firm to discuss the content of the RFP and address questions. TxDOT will also evaluate alternative technical concepts confidentially at the request of the firms. The text of the draft RFP is modified to address the comments and concepts discussed with the bidding teams. In the final RFP the firms are given a date by which to submit formal technical and price proposals. In the actual bid document, firms must specify any alternative technical concepts they will use and a fixed price for the project.

The bid proposals are evaluated using scoring criteria that are specified in the RFP. TxDOT uses two distinct sets of criteria to evaluate the teams: technical merit and financial feasibility. Technical merit reviewers and financial feasibility reviewers conduct their evaluations of the proposals independently. Each proposal is scored anonymously for these two sets of criteria. The team that scores the highest on the combination of technical merit and financial feasibility is selected; yielding the project that is considered the best value to the State.

TxDOT negotiates with the selected team to craft a comprehensive agreement or lump sum design build contract. The teams not selected receive the stipend.

9. ENVIRONMENTAL REVIEW

In cases where a project for highway development (P3 or traditional) involves a Federal action, compliance with NEPA is required. Federal and State transportation agencies must maintain control of the NEPA process even in cases where the analysis is performed and documented by a private sector firm. In cases where only non-Federal government funds and private sector financing are used, the primary environmental issue is the review of permits for specific actions. This chapter focuses on the NEPA environmental process.

Most of the private sector respondents place great emphasis on the value of an interactive relationship between the potential design-build teams and the preparers of the NEPA documents. All of the firms spoke to the value of being able to submit innovative design solutions during the NEPA process to reduce the time and risks involved with requesting a design change after the final NEPA action. The ability to inject innovative solutions specific to the project early in the process is a prime opportunity to reduce the costs and time for project delivery. In fact, several teams identified this as necessary for the success of a P3.

9.1 Public-Funded Traditional NEPA

The simplest NEPA process used in P3 projects occurs when the State undertakes the environmental review in its customary manner. In these cases the Categorical Exclusion (CE), Finding of No Significant Impact (FONSI), or Record of Decision (ROD) is secured prior to the solicitation for a P3 or the receipt of an unsolicited proposal. The regulatory procedure for this approach is laid out in the FHWA Design-Build regulations described in Section 8.2. Most of the early examples of P3 projects began in this way. After approval of the P3, the private sector partner reviews the preliminary design and modifies it to introduce more efficient and innovative design and construction concepts. Where the changes are so significant that additional environmental review is required, the P3 performs the supplemental analysis at its own cost and submits it for review by the appropriate state and federal agencies.

9.2 Public-Funded NEPA with Consultation

In certain cases, the state has engaged one or more potential private sector partners before the NEPA process is concluded. During the NEPA process, the private sector provides some comment and review of the preliminary design and alternatives considered. The private sector consultant is involved early in the process to assist the potential final design team and constructor to better understand the environmental issues and to allow them to provide cost information or improved design options. Consultant support will typically have specific experience in P3 programs, most notably financing, related legislation, and negotiation. This approach requires a SEP-14 or SEP-15 approval from FHWA.

For the Tacoma Narrows Bridge in Washington State, the final designer was selected and brought on-board early in the NEPA process to review and provide cost data to the

environmental team. The P3 was paid by the State for their review activities, which included suggesting more efficient design options and providing information on the impact certain costs would have on tolling levels. The P3 expressed no preference for any of the alternatives and was not a party to selecting the preferred alternate. At the end of the NEPA process, the state was free to choose the no-build option with no contract penalties. The final cost and schedule for the project were negotiated between the state and the P3 only after the ROD.

Texas has taken a slightly different approach. The State issues an RFQ and selects a short-list of qualified teams early in the NEPA process. All of the selected firms review the alternatives and provide comment to the NEPA team. After the ROD is issued, the state accepts technical and price proposals from the short-listed firms and selects the winning P3.

In both cases, the private sector teams noted that their status in the NEPA process enabled and encouraged them to become involved in the public education and outreach activities of the NEPA process. The private firms operated websites and provided outreach materials independent of the formal NEPA public involvement activities. The private sector outreach increased public awareness of the project and its implications. They noted particular success in mobilizing support of the project from groups such as minorities and special populations who are often difficult to reach with traditional public sector approaches.

9.3 Public-Funded NEPA with Advocacy

Under this model, the State prepares the NEPA document and the potential P3 submits, and becomes an advocate for their alternate. Perhaps the best example of this is the Washington Beltway HOT Lane proposal for Virginia. VDOT had begun the NEPA process to consider alternatives to reduce congestion along the Beltway. The range of solutions developed by VDOT all involved significant expansions to the right-of-way to accommodate additional lanes. In an unsolicited proposal, a P3 proposed to construct value-priced lanes in the existing median, a solution that required only a small amount of additional right-of-way.

In April 2005, VDOT signed a comprehensive agreement with Fluor Enterprises, Inc. and Transurban (USA) Inc. to add two high-occupancy toll (HOT) lanes in each direction on a 14-mile segment of the Capital Beltway, from north of the Springfield Interchange to north of the Dulles Toll Road. The project would also include a portion of the Springfield Interchange, which would add a carpool connection to the Beltway from I-95/I-395. HOT lanes would be free to carpoolers, buses, and emergency vehicles. All others would pay a variable toll to use the lanes. Large trucks would not be allowed to use HOT lanes.

When fully built, construction of the four HOT lanes is estimated to cost $900 million, which would be paid for primarily by revenues from the HOT lanes. Transurban's investment would be at least 15% of the cost. Because of Transurban's investment, the state would bear no financial risk in the construction of the HOT lanes or their operation. Improvements to the Springfield interchange are estimated to cost $85 million. Public funds for the interchange improvements are under consideration in the draft of the

Commonwealth Transportation Board's Six-Year Improvement Program. Construction could begin as soon as late 2006 or early 2007.[18]

9.4 P3-Funded At-Risk NEPA

FHWA has issued an opinion that a P3 could prepare NEPA documents, at its own risk, with oversight and review by a State transportation agency and FHWA. This approach is not likely to be attractive to most private sector firms because of the high risk of such an undertaking. As the States know, NEPA review for most highways in an expensive undertaking and the no-build option must be retained as a viable alternative in most cases.

The best example of a developer funded NEPA effort is the review of SR 125 in California. In this case, the developer and the state have worked together to perform the environmental review for the new highway. The commercial success of the privately funded road depends on an environmentally complex, publicly funded, connector road. CTV reimbursed the state for its costs in preparing the NEPA documents for the CTV portion of the road, and the state paid for the NEPA documents on the publicly financed portion of the road.

In addition to covering the state's costs for a portion of the NEPA documents, CTV also brought on an environmental attorney to assist the state with legal issues that arose during review. State transportation officials credit the specialized legal expertise with a shortening of the NEPA review process, which still took over ten years to complete.

9.5 Tiered NEPA Review

Tiered NEPA review is sometimes used when a project area is large and project implementation will take place over many years, perhaps decades, and when construction is likely to take place in segments, with each segment suitable for a "stand-alone" project. The Tier One review functions like a programmatic EIS that sets out:

- Purpose and Need;
- Improvement concepts;
- Mode choice;
- Location of the corridor for study in Tier Two;
- Logical termini for segments of the work;
- Any special right of way acquisition requirements;
- Approaches to resource avoidance, impact minimization and mitigation;
- If and how the facility is tolled; and
- Secondary and cumulative impacts of the project, such as induced development

[18] *Capital Beltway HOT Lanes In Northern Virginia Move A Step Closer To Construction,* VDOT Press Release, April 29, 2005, www.virginiadot.org

A ROD is issued for the Tier One document, and Tier Two NEPA documents are then prepared for each portion of the road in sequence. Virginia is proposing a tiered NEPA process for I-81, and Maryland has used it for several large corridors, including the Authority portion of I-95.

If a tiered approach to NEPA were used for a P3 project, the State or its contractors would prepare all the EIS documents. The P3 organization would be limited to providing background information that the State might use in its analysis.

10. FINANCING

One of the biggest costs for any large highway project is the cost of financing the final design and construction. The cost of financing (interest) is based upon a number of factors, most notably, the tax status of the bonds and the bond rating. Bond ratings are determined based upon the credit quality of the issuing entity and the quality of the potential revenue stream that will pay off the debt. In general, bonds backed by revenues from a single source or highway project receive a lower rating than bonds backed by a system of toll facilities or multiple revenue sources.

Maryland has a long history of issuing two types of bonds to finance highway projects:

General revenue bonds backed by the full faith and credit of the State to support large SHA projects and,

Revenue bonds backed by toll collections for Authority projects.

A cap established by the General Assembly limits the bonded indebtedness of the State, which enjoys AAA ratings. Debt issued by the Authority is not backed by tax revenues and is subject to a recently enacted debt cap. Bonds issued by the State and the Authority are tax-exempt municipal debt, which combined with the strong ratings, results in some of the lowest interest rates available in the financial markets.

A primary motive for the states using P3 to finance highway projects is the desire to issue bonds that will not be secured by the state's general fund. In these cases, the bond rating of the issuing entity and the tax status of those bonds will determine the interest rate, and thus the cost of financing.

Table 6 below summarizes the options for project financing using toll revenues with regard to risk and tax status.

Table 6. Risk and Tax Factors in Financing Toll Highways

Type	Stand alone facility	System
Government	Moderate risk/tax-free interest	Low risk/tax free interest
Non-profit	High risk/tax-free interest	Moderate risk/Tax-free interest
For profit	High risk/taxable interest	Moderate risk/ Taxable interest

In some cases, additional revenue streams or financing sources have been used to mitigate the risk associated with a stand-alone project or one whose toll revenues may not be enough to cover the debt. For example, Texas has used a TIFIA loan commitment to guarantee the bonds it plans to finance using tolls from the Central Texas Turnpike. The TIFIA funds will be used only if revenues from the tolls are not sufficient to cover the principle and interest on the bonds and loans.

When a P3 plans to issue bonds, it must first create a corporate structure to issue the debt. That structure is most frequently a Limited Liability Corporation (LLC). The corporate structure protects the other assets of the firms that make up the P3 team by

limiting their financial exposure to their actual investment in the P3 venture, rather than putting the assets of their entire firm at risk.

The LLC creates a separate entity that can raise capital for the project, through the issuance of taxable bonds and stock equity. If the business structure of the P3 is organized as a non-profit entity, it may be eligible to issue tax-free bonds under f8(e99 175.68938.8.68 -

10.2 Toll Revenues and Public Funds

Some projects use several of the public funding sources listed above in combination with toll revenues from the highway users. The toll revenue is used to secure financing that is paid off over time, typically 15-30 years. The initial designers and builders of the road are paid using the loan proceeds, and the bondholders take on the risk for those debts. The interest rate charged for the loans is directly related to the level of risk assumed by the bondholders.

Some consider the risk assumed by the bondholders to constitute “private investment” even though the loan repayment is provided from toll revenues. This arrangement does not differ significantly from the situation that already exists at the Authority, where tolls are collected by a public agency, and bonds are sold by a government entity, but not backed by the full faith and credit of the State of Maryland.

In the early years of some new toll roads revenues may be less than anticipated and, the costs of operations, maintenance, and debt-repayment may exceed the toll revenues. A variety of strategies are available to address this challenge. If the facility is part of a larger system under the same ownership, it may be possible to move funds from other more established facilities with excess revenues to cover the added costs of the new road. Alternatively, the state transportation agency may assume operations and maintenance of the new facility at no cost to the project.

A variety of financial tools are used to secure the financial resources to pay for toll highway construction. Several of those tools are described below.

10.2.1 Revenue Bonds

Almost all P3 toll projects use revenue bonds. The revenue from tolls collected on the highway is used to pay off the bonds. State agencies and nonprofit organizations, like 63-20s, can issue tax-free revenue bonds in order to borrow the money to pay for project planning, design, and construction. The interest rates paid on the bonds are based upon the credit ratings of the issuing agency. When the revenue from a single new facility backs the bonds, the bond rating tends to be low and the interest rates comparatively high. These projects typically have the BBB category credit rating. If a stronger agency with more facilities and more sources of income issues bonds, the ratings are higher and the interest rates lower.

10.2.2 Short-Term Loans

Many businesses and nonprofit corporations use short-term loans to address financing needs, although most states and public agencies are prohibited from such borrowing. When a P3 is used for highway construction, the corporation can secure a short-term loan or line of credit to pay for construction and start-up expenses. Toll and other facility revenues, government funds or long-term borrowing can be used to pay off the short-term notes, saving a portion of the long-term interest expense.

10.2.3 Transportation Infrastructure Finance and Innovation Act

The Transportation Infrastructure Finance and Innovation Act (TIFIA) program allows an LLC, 63-20, or state agency to borrow money through FHWA at below market rates on a subordinate structure, with very flexible repayment and interest rate terms. TIFIA can provide credit support during project construction, ramp-up and full operations. Texas uses TIFIA approvals as loan guarantees to be accessed if toll revenues fall below expectations in the early years of operation.

TIFIA requirements include:

- Projects must cost at least $100 million or 50 percent of a State's annual apportionment of Federal-aid funds, whichever is less; and
- Project must be supported at least in part from user fees or other non-Federal dedicated funding sources and must be included in the STP.
- USDOT selects projects for TIFIA funding based on economic benefits of the project, leverage of private capital, and promotion of innovative technologies. The project must have an investment grade bond rating of BBB or higher to be eligible for TIFIA funds.

10.3 Toll Revenues and Private Investment

International infrastructure firms are interested in entering the US highway market but prefer to have significant control over the toll revenues for an extended period, 35-50 years and a significant rate of return on their investment (15-25%).

In a few rare cases in the US, public funds and toll revenues that support a new facility have been supplemented by private sector equity contributions. Most often, these contributions have come in the form of upfront, at-risk, cash expenditures by the private partner. Examples include the private sector expenses for the environmental documents for CA SR 125 and SR 91, and the right-of-way acquisition expenses for the Dulles Greenway. Smaller amounts are the expenses incurred in the development of proposals and the payment of review fees assumed by any private firm seeking a P3 with the government. The private sector will only see a return on those expenditures if the project is built, and after the maintenance, operations, and debt repayment expenses are paid. The long lead-time and uncertainty of repayment make significant private equity contributions unlikely unless there is considerable long-range profit potential.

A second model for private investment is the long-term lease of an existing facility. The most recent example of this approach is the long-term concession and lease agreement for the Chicago Skyway Toll Bridge. Chicago does not consider the operation of the Skyway a "core activity". The City is receiving $1.8 billion for granting a 99-year lease of the Skyway Bridge to a private consortium. The City will use the proceeds from the lease to retire existing Skyway debt and other City debt, create a long-term reserve fund, and strengthen the City's financial condition. The private sector partner will collect tolls and revenues and be responsible for all operation and maintenance of the facility for the length of the lease. The private partner will collect the tolls. Revenues from the tolls will be used for debt service and operation and maintenance obligations first and

any excess revenues will be distributed to the firms that provided the initial equity for the lease purchase.

11. FINAL DESIGN

The final design of a facility takes place after the NEPA review is complete and a build alternate ROD is approved. By then, most of the risks associated with environmental issues are known and can be quantified. Many private firms see the final design stage as an opportunity to reduce project construction costs and schedule, and address long-term maintenance costs. Other risk issues typically addressed during the final design process on a design-build project are right-of-way (ROW) acquisition and utilities relocation.

Final Design can include all aspects of a large project including the following:

- Toll systems
- Utilities
- ROW needs
- Maintenance Of Traffic (MOT)
- Drainage
- Permits (Erosion & Sediment Control, and Stormwater Management)
- Structures
- Earthwork

By providing all of these design elements under the umbrella of a single P3 team, the interface between these different elements is improved, reducing possible schedule delays and cost overruns. The risk of each element must be evaluated for the specific project to determine the appropriate amount of responsibility for the P3. Strategies to share risks beyond a certain threshold are also recommended to foster bidding that is more competitive. An example of this would be establishment of a ROW or utility budget beyond which the contractor would share costs, and below which the contractor would receive the savings.

Design guidelines and/or performance criteria need to be included in the Draft RFP and agreed on prior to the beginning of Final Design.

11.1 Facility Design

Most P3 projects use the design-build process providing the opportunity for the design engineers to work with the construction contractors to reduce costs and improve facility design. The design-build process has also been effective in controlling costs after construction begins and avoiding delays by reconciling project issues in a timely manner. The potential for cost savings is a key opportunity for profit for the P3 team members and examples abound. The ultimate success of this approach depends in large part on the cooperation of state designers and engineers who must review and approve the final design. In every case visited by the Maryland P3 Team, State and private sector design staff are co-located at the project site to facilitate communication and collaborative decision-making.

State transportation agencies take seriously their responsibility to ensure that construction designs provide safe, durable and efficient transportation facilities at the lowest cost to the public. Most agencies use predetermined solutions established in adopted standard designs to ensure that project design meets public quality standards. Considerable public resources are used reviewing the design, to ensure conformance to the agency's adopted standards and regulations. Private sector designers who use the standard designs are rewarded with shorter review times, while those who proposing innovative solutions face a longer review at increased expense to both the private sector firm and the public agency.

Under traditional design-bid-build contract delivery methods, a contentious triangle sometimes develops between the sponsoring agency, designer, and contractor. The designer spends a lot of time and energy developing a set of contract documents that meet the agency's rigorous review process. Conditions in the field may then raise unforeseen issues for the contractor, who then must ask the agency for a change order. The agency must determine whether the designer or the contractor is responsible for increased costs or project delays, or whether the situation is the result of the application of a standard specification to an unusual field condition. This environment of "who is at fault" can discourage innovation and contribute to project delay.

Some states, such as Maryland, have developed partnering programs to provide opportunities for contractors, designers, and state agency personnel to work collaboratively. Expanding the project development phases included in a P3 project can further reduce the potential for conflict.

When the designer and contractor work together, the need for changes during construction can be reduced. The immediate availability of agency staff to work with the designers and contractors on-site provides a quick turnaround on questions about agency standards and acceptable alternative designs. When the P3 team has responsibility for both the initial construction and long-term maintenance of the facility, the team members may assume some of the quality assurance responsibility traditionally assigned to the state in an effort to reduce the life-cycle costs of the facility.

In the field visits to P3 projects the Maryland team observed cases in which interaction between the designers, construction personnel, ROW staff, and the warranty or maintenance provider during the final design phase increased the apparent quality of the finished product while projecting savings in life-cycle cost and allowing construction to proceed on schedule. In one case, the designers' priorities were set by the contractor to insure that final design was complete as ROW became available on different segments of the project. Coordinating design and ROW acquisition with contractor resources increased the control of the project construction schedule.

Project and life–cycle cost savings can also be realized when design, ROW, and construction activities are coordinated during final design. Input from the ROW acquisition process can influence alignment decisions to minimize the ROW acquisition costs. Design, and construction input on methods to limit ROW such as retaining walls also can impact ROW decisions. Construction and maintenance input to design decisions affecting materials, constructability, and construction methods can result in substantial savings to the overall project.

11.2 Right-of-Way (ROW)

ROW acquisition is frequently a significant financial risk and can represent a significant schedule risk as well. In many traditional design-bid-build processes, final design is completed, ROW plats are prepared, and the ROW is acquired, before the construction bid documents are finalized and advertised for construction.

In many P3s, ROW acquisition process is managed by the private entity with oversight by the State, and coordinated with the final design and construction phasing. Schedule risks of ROW should be transferred to the private entity whenever possible. However, the State cannot transfer its responsibility for protecting property owners' rights and must provide oversight to the ROW acquisition process.

By consolidating final design, ROW acquisition, and construction under one contract, the P3 can pursue the three activities simultaneously rather than sequentially. To reduce the time in project delivery, P3 projects have used the flexibility of being able to coordinate ROW activities with the construction schedule. In Texas and Virginia, ROW acquisition began in the area of the highway where construction was most complex and would take the longest time. The Private Sector Partner (PSP) is responsible for assuring that the ROW is available in time for construction to begin on each segment of highway. Most P3s use firms that specialize in ROW issues to prepare plats and survey.

Some states permit private firms to initiate contacts with property owners and even finalize amicable negotiations. Public acceptance of a P3 can be jeopardized if the private ROW firm is not prudent about working with owners who have property close to the ROW. State employees oversee the process to assure that legal requirements and relocation packages meet State and Federal requirements. In other states, the private firms prepare the ROW packages but State employees handle all contact with property owners. In all cases where the state will own the ROW, the state pays the property owner for the land. If acquisition cannot be negotiated, the state will use the power of eminent domain and condemn the property.

To address the financial risks of ROW acquisition, three models for financing ROW have been used:

- All private sector dollars (rare and not likely to be repeated);
- All ROW at state expense; and
- ROW acquisition expenses are a fixed amount set in the contract. The amount may be pre-determined by the State or included in the P3 proposal. If ROW costs are higher than anticipated, the State and P3 split the higher cost. If it is less, they split the "savings".

11.3 Utilities and Railroads

Utilities relocation has many of the same risks as ROW acquisition for both schedule and budget, and can be handled in much the same way. As it is for ROW, the costs of relocation can be fully borne by the State, by the P3, or shared through some agreed upon arrangement.

Texas law provides that utility companies move their own facilities at the request and expense of the state in a process modeled on property condemnation. TxDOT works with the utilities to reimburse the cost of relocation and establish a date when the utilities must be removed. If the utilities are not removed by the specified date, the utility companies will lose 10 percent of the reimbursement cost. The Texas Turnpike Authority Division of TxDOT can delegate its responsibility for utility relocation coordination and costs to a P3, and has done so in the Central Texas Turnpike project. The P3s duties pursuant to the CA include causing the removal, relocation, or other necessary adjustment of existing utilities impacted by the project, at the P3s expense. TxDOT must review the plans prepared by either the developer or the utility company. If a utility fails to complete the relocation within the time agreed, the reimbursement of cost is reduced by 10 percent for each 30 days of delay.

Since Maryland and other States may not have similar legislation, project specific agreements may be appropriate for P3 projects to minimize the risk of delay due to utility relocations. Such agreements could establish the ability of the P3 to perform design and/or construction services, describe the utility company review and approval process and appeal mechanisms, and specify the sharing of project delay risks and consequences between the public agency and the private entities.

Railroads are not subject to the same obligations to cooperate in highway construction projects as state regulated utilities. Most states and FHWA do provide for reimbursement of any railroad relocation expenses as part of the highway project costs. When delays due to railroad relocations are likely, the provisions of the CA should address them.

11.4 Environmental Permits

The handling of environmental permits in P3 highway projects varies considerably across the states. There was nearly universal agreement that Federal level environmental permitting was required prior to negotiation of a fixed price construction contract with a P3. Pre-permit coordination with one or several potential contractors was found in a number of instances, but was generally not performed at risk.

In California, where the state has no direct relationship with the construction contractor on SR 125, environmental permits are issued to both CTV and Caltrans, and each organization is held responsible for compliance.

For its Trans-Texas Corridor project, the US Army Corps of Engineers granted the 404 permit to TxDOT in advance of design completion. Prior permit approval was necessary to save time and begin construction. The permit was in hand prior to bond financing, thereby minimizing some risk.

As the P3 completed final design on pieces of the project, TxDOT went back for further approval from the Corps of Engineers. This approval-by-segments process allowed TxDOT and the Corps to work closely and foster multiple agreements that protect the environment and public health. The project has resulted in more wetland creation and more mitigation than would have been required and realized significant timesavings. TxDOT uses an independent environmental monitor on the construction project to

assure that the P3 complies with the terms of all the permits issued by federal and state environmental agencies.

12. CONSTRUCTION AND QUALITY ASSURANCE

12.1 Construction Management

Approaches to construction management vary from state to state. In Texas, construction management is maintained as a public function. The state has hired a construction management firm that is co-located with TxDOT staff and shares responsibility with state staff for the management of the work performed by the private sector partner, Lone Star Infrastructure (LSI). LSI is responsible for maintaining the critical path development schedule and bringing in the resources to maintain its schedule. Texas also uses incentives and penalty approaches such a lane rental to keep the project on schedule and minimize the inconvenience to current traffic movements.

Virginia encourages the private sector to manage project construction directly. VDOT project staff is co-located with the P3 construction team to allow for quick and easy communications and resolution of problems. Similarly, Caltrans depends upon the private sector partner to manage the construction schedule and co-locates state project staff with the P3 team during construction.

12.2 Quality Assurance

Regardless of the role assumed by the P3, the ultimate responsibility for the safety of the highway rests with its owner, the State. Traditionally, state transportation agencies have assumed the heavy burden of assuring the quality of road construction. As owners who would also assume the costs of operation and maintenance, the states had considerably more interest in the long-term durability of a facility than the contractor whose responsibility ended with the acceptance of the final product. Most states have well-developed inspection standards and inspection requirements to meet these obligations.

In a P3 project, the State's approach to quality assurance during construction varies considerably depending upon the long-term obligation of the P3 to the facility. Where the P3 only has design-build responsibility, the state generally maintains a vigorous quality assurance program. When the P3 has a stake in the long-term costs of operations and maintenance, it can be a partner with the state and may share a greater responsibility in assuring the quality of construction.

In cases where the P3 has a long-term role in the facility maintenance through a warranty, maintenance contract or franchise agreement, the state DOT staff find that their role in quality assurance is greatly reduced. All of the states note that this may require a change to the way the state typically does business. The QA staff assigned to P3 projects is the more forward thinking and innovative of the State employees. Their willingness to consider new approaches while protecting the state's interests is key to the success of this phase of a P3 project.

Where the private sector has a long-term stake in the facility performance, the P3 team will provide rigorous QA/QC procedures. In one Virginia case, the private firm providing

an extensive project warranty employed its own inspectors with significant control over project construction design measures, In this case, construction quality typically exceeded VDOT's normal standards and specifications. The main thrust of this approach is to transfer the risk of design from VDOT to the Contractor. Permitting performance-based specifications allows the contractor to be innovative in performance, means, and methods, as long as the performance-based specification criteria are obtained.

In every case, the State sets performance criteria that must be met before the DOT accepts the facility into the State system. Performance standards for transfer to the state at the end of a maintenance contract can serve as a warranty. These performance standards define the condition of the roadway at turnover such that the receiving agency is not required to undertake repairs or system preservation activities for a specified period. The standards for pavement condition and other key assets must balance normal wear with a reasonable level of system preservation by the P3.

13. OPERATIONS AND MAINTENANCE

Three basic approaches to operation and maintenance can keep the P3 involved after construction is complete and the facility is opened:

- P3 operation, maintenance, and asset management;
- P3 operation and state maintenance; and,
- State operations and maintenance with P3 warranty.

13.1 P3 Operations, Maintenance and Asset Management Systems

The operational model in which the facility is owned, operated, and maintained by the P3 with all expenses paid from the toll revenues requires the least effort from the State. This model encourages life cycle costing of the facility, which is increasingly accomplished using asset management systems. In the DBOT approach used by the Dulles Greenway, the private sector is responsible for operations and maintenance for 30 years, and the facility must meet a specified performance standard when it is turned over to the State. The ROW acquisition agreements with individual property owners specify that certain capital improvements must be put in place on a given schedule. The CA also requires that at least one overlay be installed during the life of the project and that the facility meet certain standards when it is transferred to the State.

13.1.1 Asset Management for P3 Facilities

The initial investment of a roadway project involves building an infrastructure of pavement, drainage, bridges, signing, lighting, landscaping, and tolling equipment that requires specific maintenance, upgrades, and replacement. The management of these assets to determine when they should be inspected, maintained, and or replaced at the least cost is critical to the financial success of the P3.

When the private sector partner is responsible for long-term operations and maintenance, the day-to-day operations staff is responsible to identify when assets such as signs or guardrail are damaged, and need to be repaired. The same staff is responsible to keep the roadway in good operating condition, but not responsible for system maintenance or significant facility upgrades. These tasks are the responsibility of an engineering staff that performs routine inspections of the system, and must work with the maintenance staff to develop an annual maintenance program. A computerized asset management system is an effective management tool to assist these two different organizational units to work together to develop their annual maintenance budgets and needs.

There are asset management software packages that use GPS and database technology to identify and locate the item on the roadway and record its past, present, and future maintenance needs. These software programs can also incorporate photos, maintenance records and replacement information to identify and record their condition, and determine when replacement should occur and be automatically scheduled and budgeted for maintenance. These records are also useful for accident investigations to

determine when and how the facility is being maintained to show due diligence on the part of the operations manager.

The most important function of an asset management system to a P3 organization is using the information to determine cost effective maintenance and investment programs. Life Cycle cost analysis can be incorporated into the program to evaluate the appropriate investment required to maintain the facility at the lowest cost, and at a reasonable operations condition. For example, pavement replacement would be balanced to an annual level such that the overall facility has a good average rating. This spreads the maintenance costs out over the project life cycle while keeping the roadway in good condition. Smaller annual budgets can be developed instead of one larger reconstruction at the end of the project operations.

13.1.2 Capital Maintenance Agreement

A Capital Maintenance Agreement (CMA) is an agreement between the State and a private organization to provide the maintenance of the “big ticket” items along a highway, bridges, overpasses, and pavement. When the P3 that designs and builds a highway also has the capital maintenance agreement, they have an important motivation to ensure that quality is integrated into construction and materials.

In Texas, the Transportation Commission has retained the option to enter into a fixed price Capital Maintenance Agreement for up to 15 years with the P3 Contractor that built the roadway. A 15-year Capital Maintenance Agreement includes pavements, drainage, structures, and other large capital items. TxDOT does not disclose whether a P3 will be responsible for that 15-year agreement during the original CA. The CA specifies only that the State retains the option to make the developer responsible.

13.1.3 Operation and Maintenance Contracts

In the latest operations contracts for highway facilities in the UK, operations contracts include innovative provisions that might have application to P3 facilities in the US such as:

- Keeping records on types and numbers of complaints;
- Preparing and publishing an annual report that includes accident statistics, performance in comparison to established standards and plans to rectify failures, planned lanes closures and names and phone numbers of key contract personnel. The report is made available free of charge to the public; and,
- Safety performance adjustments and congestion management payments that encourage the concessionaire to manage the road to reduce congestion, as measured by traffic flow patterns, and traffic safety, as measured by personal injury accidents.

The Operations and Maintenance contract for the London Underground sets numerous performance standards. The contract itself is issued for a 7½ -year term with three options for renewal, providing a potential contract life of 30-years if all parties remain satisfied.

13.2 P3 Operations and State Maintenance

In some cases, the most cost-effective solution for a facility is for the P3 to operate the tolling mechanism and provide day-to-day operations of the facility. The state transportation agency, which already has a significant maintenance responsibility for adjoining roads, can take on routine and capital maintenance functions and bill the P3 for the costs. This model requires that the lead responsibility for identifying maintenance needs be clearly spelled out in the CA. In California, the P3 is responsible for maintenance, but the CA specifies that the P3, Caltrans, or a party acceptable to Caltrans perform it. In practice, Caltrans provides most of the maintenance for the roadway and bridges at the request of the P3, and is reimbursed by the P3, and the P3 maintains the toll equipment.

At the Pocahontas Parkway in Virginia, almost all operations and maintenance functions are provided by VDOT through internal and contracted resources. VDOT submits a monthly invoice of its operating, maintenance and extraordinary maintenance expenses to the Pocahontas Parkway Association (the IRS 63-20 management entity) for reimbursement from toll revenues; however, to date toll revenues have not been sufficient to cover these expenses.

13.3 P3 Warranty and State Operations and Maintenance

In a unique approach to long-term maintenance on a non-toll highway, Virginia requires the developer of Rt. 288 Project near Richmond to provide a long-term warranty on the road pavement and a five-year warranty for structures and bridges constructed by a design-build P3 team. Not only does this mean that certain long-term costs for maintenance can be included in the initial project finance package, but it also gives the P3 a financial interest in the durability of the facility construction.

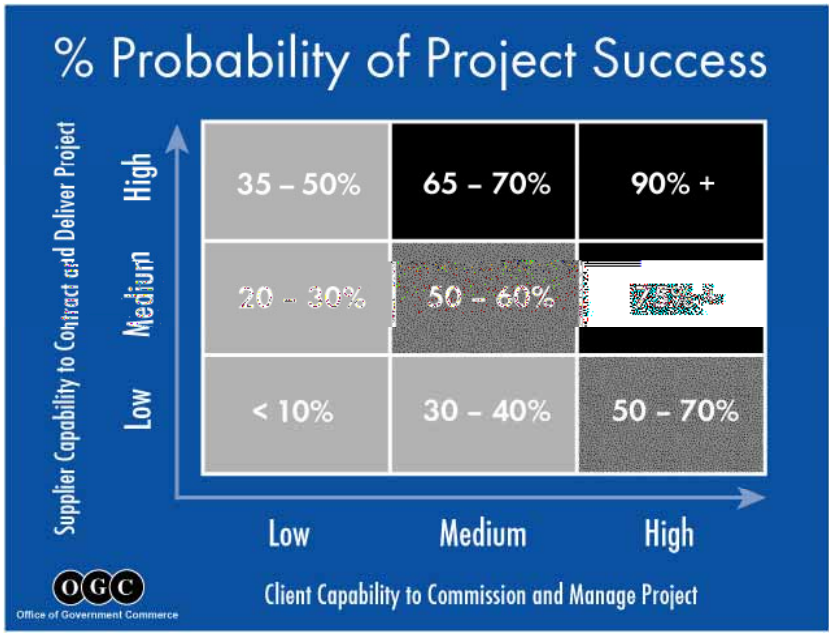
14. ADMINISTERING P3 PROGRAMS FOR HIGHWAYS

The innovation, size, contract term, and procurement practices for P3 projects are significant departures from "business as usual." Success in implementation P3 projects typically requires a dedicated staff of state employees with a willingness to be pioneers, and to commit to making the project succeed. On the state side, a separate specialized unit is often times required to manage P3 projects. For example, in Texas and Virginia, a separate staff of state employees is dedicated solely to the implementation of P3 projects. VDOT manages the PPTA and design-build program through an Innovative Project Delivery Division in Richmond and draws from other division or district staff throughout the Commonwealth of Virginia. While Virginia has an internal staff of 17 state employees, Texas uses a combined staff of TxDOT employees and personnel from a contract management firm. Co-location of private partners and public agencies is highly desirable. The commitment of the state elected leadership and appointed leadership of the transportation department is key to success of a P3 program. California lost that level of support, to the detriment of the program, while both Virginia and Texas have maintained their programs in the face of considerable public concern.

The selection of project staff was noted as critical in every state visited. Given that these projects represent a significantly different method of project execution, the agency staff must be willing to evaluate new ideas on their merits, not on past practice, and to adjust rapidly to change. Agency staff for P3 projects was also dedicated to the project and not expected to split responsibilities with other agency initiatives.

The importance of having the right skills in the state organization is summarized in a chart prepared by the UK Office of Government Commerce and shown below in **Table 7**. The chart shows that the success of a P3 is equally dependent upon the skills of both sectors in the venture. The highest levels of success are achieved when a skilled private entity is teamed with a committed and capable state agency staff.

Table 7. Roles of Contractor and Client in P3 Success



15. GLOSSARY OF TERMS

Most definitions were obtained from the Transportation Research Board Value Pricing Subcommittee and FHWA regulations.

AADT: Annual Average Daily Traffic, the estimated number of vehicles using a roadway each day. Estimates of AADT are developed from 24-hour counts of traffic on the facility. These counts are factored to estimates of AADT taking into consideration volume variations among seasons of the year and days of the week.

Best value selection: Any selection process in which proposals contain both price and qualitative components and award is based upon a combination of price and qualitative considerations.

Cost: Resources used to produce a good or service.

Deficiency: A material failure of a proposal to meet a contracting agency requirement or a combination of significant weaknesses in a proposal that increases the risk of unsuccessful contract performance to an unacceptable level.

Design-bid-build: The traditional project delivery method where design and construction are sequential steps in the project development process.

Design-build contract: An agreement that provides for design and construction of improvements by a contractor or private developer. The term encompasses design-build-maintain, design-build-operate, design-build-finance, and other contracts that include services in addition to design and construction. Franchise and concession agreements are included in the term if they provide for the franchisee or concessionaire to develop the project that is the subject of the agreement.

High occupancy toll (HOT) lanes: HOV facilities that allow lower occupancy vehicles, such as solo drivers, to use these facilities in return for toll payments, which could vary by time-of-day or level of congestion.

HOV lane: An exclusive traffic lane or facility limited to carrying high occupancy vehicles (HOVs) and certain other qualified vehicles.

High-occupancy vehicle (HOV): A passenger vehicle carrying more than a specified minimum number of passengers, such as an automobile carrying two or more people. HOVs include carpools and vanpools, as well as buses.

Intelligent transportation system (ITS) services: Services that provide for the acquisition of technologies or systems of technologies (*e.g.*, computer hardware or software, traffic control devices, communications link, fare payment system, automatic vehicle location system, *etc.*) that provide or contribute to the provision of one or more ITS user services as defined in the National ITS Architecture.

Modified design-build: A variation of design-build in which the contracting agency furnishes offerors with partially complete plans. The design-builders role is generally limited to the completion of the design and construction of the project.

Price proposal: The price submitted by the offeror to provide the required design and construction services.

Price: The direct costs borne by users for consuming a good or service.

Qualified project: An FHWA-approved design build project with a total estimated cost greater than $50 million or an intelligent transportation system project greater than $5 million (23 U.S.C. 112 (b)(3)(C)).

Request for proposals (RFP): The document that describes the procurement process, forms the basis for the final proposals, and may become an element in the contract.

Request for qualification (RFQ): The document issued by the owner in Phase I of the two-phased selection process. It typically describes the project in enough detail to let potential offerors determine if they wish to compete and forms the basis for requesting qualifications submissions from which the most highly qualified offerors can be identified.

Short listing: The narrowing of the field of offerors through the selection of the most qualified offerors who have responded to an RFQ.

Single-phase selection process: A procurement process where price and/or technical proposals are submitted in response to an RFP. Short listing is not used.

Solicitation: A public notification of an owner's need for information, qualifications, or proposals related to identified services.

Sponsoring agency The public agency awarding and administering a design-build contract. The contracting agency may be the STD or another State or local public agency.

Stipend: A monetary amount sometimes paid to unsuccessful offerors as partial reimbursement for expense of participation.

System preservation: Capital funds projects for reconstruction and rehabilitation of the facility.

Technical proposal: That portion of a design-build proposal containing design solutions and other qualitative factors that are provided in response to the RFP document.

Toll road: A section of road where motorists are charged a user fee (or toll).

Tradeoff: An analysis technique involving a comparison of price and non-price factors to determine the best value when considering the selection of other than the lowest priced proposal.

Two-phase selection process: A procurement process in which the first phase consists of short listing (based on qualifications submitted in response to an RFQ) and the second phase consists of the submission of price and technical proposals in response to an RFP.

Weakness: A flaw in the proposal that increases the risk of unsuccessful contract performance. A significant weakness in the proposal is a flaw that appreciably increases the risk of unsuccessful contract performance.

16. LIST OF ACRONYMS

Caltrans	California Department of Transportation
CA	Comprehensive Agreement
CE	Categorical Exclusion
CEQ	Council on Environmental Quality
CTB	Commonwealth Transportation Board
CSP	Competitive Sealed Proposal
CTP	Consolidated Transportation Program (Maryland)
CTPC	California Private Transportation Company
CTV	California Transportation Ventures
DB	Design – Build
DBOM	Design – Build – Operate – Maintain
DBOT	Design – Build – Operate – Transfer
DOT	Department of Transportation
EA	Environmental Assessment
EIS	Environmental Impact Statement
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
HOT	High Occupancy Toll Lanes
HOV	High Occupancy Vehicle
ITS	Intelligent Transportation System
LLC	Limited Liability Corporation
MDOT	Maryland Department of Transportation
NEPA	National Environmental Policy Act
NTP	Notice to Proceed
OCTA	Orange County Transportation Authority
P3	Public-private Partnership
PSP	Private Sector Partner
RFEI	Request for Expressions of Interest
ROD	Record of Decision
ROW	Right-Of-Way
RFPQ	Request for Proposals and Qualifications
RFI	Request for Information
RFP	Request for Qualification
SEP-14	Special Experimental Program No. 14
SEP-15	Special Experimental Program No. 15
SHA	State Highway Administration
SIB	State Infrastructure Bank
TEA-21	TRANSPORTATION EQUITY ACT
TIF	Tax Increment Financing
TIFIA	Transportation Infrastructure Finance and Innovation Act
TPB	Transportation Planning Board
TRB	Transportation Research Board
TTF	Consolidated Transportation Trust Fund
TxDOT	Texas Department of Transportation
VDOT	Virginia Department of Transportation

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18. APPENDIX A. REQUEST FOR INFORMATION

19. APPENDIX B. EXISTING MARYLAND TOLL FACILITIES

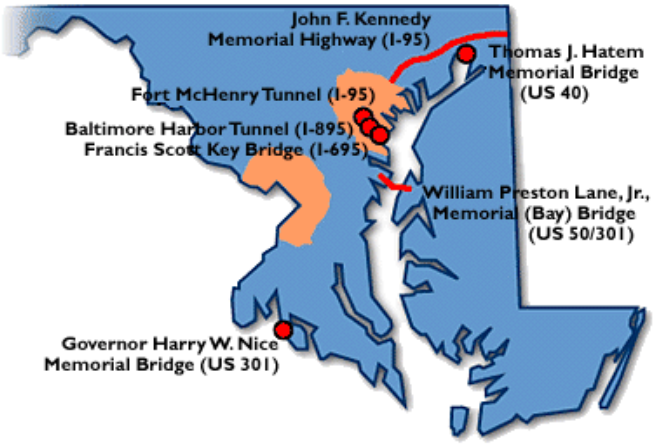
All existing highway toll facilities in Maryland are owned, operated, and maintained by the Authority, which has the exclusive right to levy tolls within the State. The Authority is a seven-member group composed of six citizens appointed by the Governor and the Chairman - the Maryland Secretary of Transportation. This board serves as the policy setting, decision-making and governing body charged with the operation of the State's toll facilities.

The Authority currently operates seven traditional, fixed-fee toll facilities:

- John F. Kennedy Memorial Highway (I-95);
- Thomas Hatem Memorial Bridge (US 40);
- Fort McHenry Tunnel (I-95);
- Baltimore Harbor Tunnel (I-895);
- Francis Scott Key Bridge (MD 695);
- William Preston Lane Jr. Memorial (Bay) Bridge (US 50/301); and
- Governor Harry W. Nice Memorial Bridge (US 301).

The locations of the existing toll facilities are shown in **Figure B-1**. In 2001, the Authority collected $150 million in tolls from these facilities as shown in **Figure B-2. Figure B-3** shows annual average daily traffic (AADT) at each of the existing toll facilities.

Figure B-1. Maryland Transportation Authority Existing Facilities



MARYLAND TOLL ROADS

Under the provisions of Maryland Transportation (TR) Code, Ann., §4-204(a), the Authority has the power to construct, operate, and maintain transportation facilities. Under §302(a) of the same title, the Authority has the power to issue revenue bonds for the financing of any transportation facility. The Authority has the exclusive right to establish tolls for State transportation facilities subject to the provisions of State and Federal law.

The location of toll facilities is partially limited by Maryland law. The Authority "may not construct any toll road, toll highway, or toll bridge in … [certain] counties … without the express consent of a majority of the governments of the affected counties." Md. Article 25 Code, Ann., §236(a) (2001 Repl. Vol.). Those counties include: Caroline, Cecil, Dorchester, Kent, Queen Anne's, Somerset, Talbot, Wicomico, and Worcester. Under the provisions of Maryland TR § 4-312.1, the Authority is also prohibited from the collection of ramp tolls along I-95 in Harford and Cecil Counties.

LIMITS TO TOLLING RATES

Although the Authority has broad power to set tolls, that power is subject to restrictions and limitations. Limits on the Authority's toll-setting powers exist in both Federal and State law.

Under Federal statute (33 U.S.C. §508), "tolls for passage or transit over any bridge constructed under the authority of … the 'Bridge Act of 1906' [including the Thomas J. Hatem Memorial Bridge and the Harry W. Nice Memorial Bridge], [and] the General Bridge Act of 1946 [including the William Preston Lane Memorial Bridge, the Baltimore Harbor Tunnel, and the Francis Scott Key Bridge] … shall be just and reasonable." Toll rates for facilities constructed under these statutes in other jurisdictions have been challenged, notably in New York, New Jersey, and Delaware. The reviewing courts have established some factors for consideration in setting "just and reasonable" tolls:

- Applying traditional utility ratemaking concepts to toll facilities;
- Requiring a reasonable rate of return or profit on the investment of capital;
- Including multiple facilities in a related system within a single rate base;
- Including auxiliary facilities that are used and that are useful in providing system-wide service within the rate base;
- Comparing rates on similar toll facilities in adjacent jurisdictions;
- Deferring to transportation agencies' determinations as to the scope of related facilities within a system; and,
- Basing tolls primarily on financial needs related to a toll facility or system.

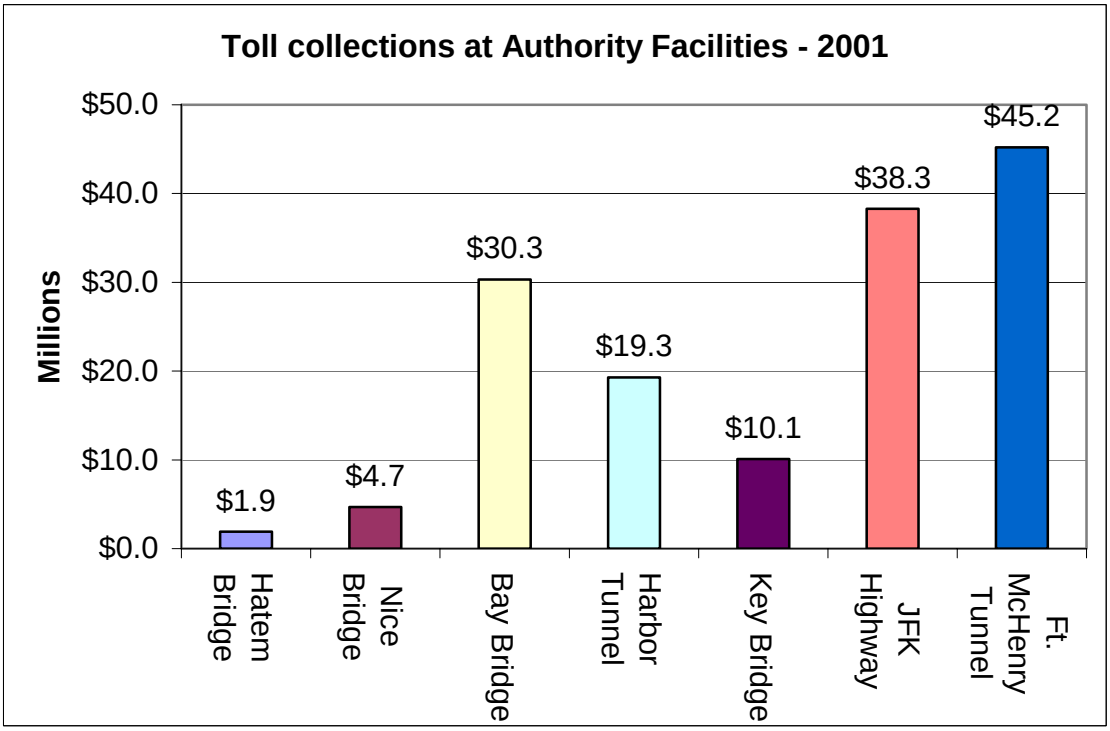
As a result, for the transportation facilities projects subject to the federal statute, the Authority must establish toll rates that are just and reasonable, taking into consideration the factors established by the courts.

In establishing toll rates, the Authority must consider issues that arise under the US Constitution. Impact on interstate commerce, the effect on a citizen's right to travel, and a citizen's rights under the Privileges and Immunities Clause must be taken into account. Under constitutional analysis, generally, toll structures or toll rates that on their face, or in practical effect, discriminate against interstate commerce, or interstate travelers are prohibited. Accordingly, toll rates and discounts should not be based on residency, citizenship, or geography.

Maryland statutory constraints on toll setting are more specific. Tolls for the John F. Kennedy Memorial Highway "may not be less than the comparable tolls charged for the use of" the Thomas J. Hatem Memorial Bridge (Md. TR Code, Ann., §4-312[c][3]). Because the Maryland General Assembly has the inherent ability to establish the power and duties of the Authority, even though no such law exists, the General Assembly could establish, or direct the Authority to establish, toll rates or structures on any Authority project.

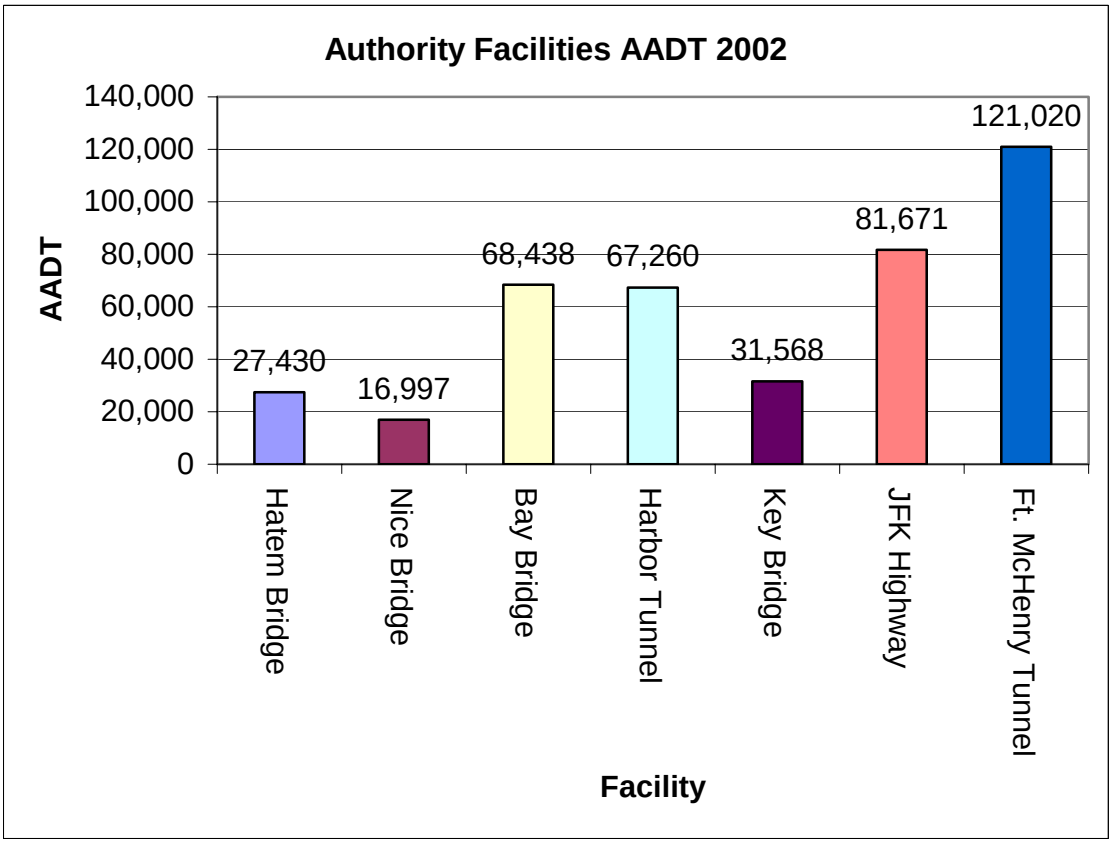
There was an historical provision in State legislation that constrained a private operator of a toll road, or "turnpike" to be subject to rate regulation by relevant County's commissioners (Md. Art. 23 Code, Ann., §330). Under this legislation, the rate of return for such a private toll road was limited to 8 percent. This provision was repealed by Acts 1998, Ch. 8, § 1, effective October 1, 1998.

Figure B-2. Toll Collections by Authority Facility



Source: Maryland Transportation Authority Annual Report, 2001

Figure B-3. Traffic Levels at Authority Facilities



- *Source: MSHA, Traffic Volume Maps, 2002*

20. APPENDIX C. CURRENT AUTHORITY PUBLIC-PRIVATE PARTNERSHIP PROGRAM

FACT SHEET
TRANSPORTATION PUBLIC-PRIVATE PARTNERSHIP PROGRAM

- For the citizens of Maryland to experience a high quality of life and economic well being, an efficient transportation system is essential. Maryland has been fortunate to have one of the best transportation systems in the United States.

- The Transportation Public-Private Partnership (TP^3) program has the potential to enhance the State's Transportation System. TP^3 agreements will enable the State to meet its emerging transportation needs in a more timely or cost-effective manner than may otherwise be possible using traditional sources of public financing. Such arrangements also may offer sound economic investment opportunities for private firms and may promote business and employment opportunities for the citizens of Maryland.

- The Maryland Transportation Authority (the Authority), chaired by the Secretary of Transportation (MDOT), will be responsible for implementing TP^3 for MDOT and its affiliated agencies including the Maryland Port Administration, the Maryland State Highway Administration, the Maryland Mass Transit Administration, the Maryland Aviation Administration and the Maryland Motor Vehicle Administration.

- The Authority, established under TR §4-201, is authorized to act on behalf of MDOT and "has those powers and duties relating to the supervision, financing, construction, operation, maintenance, and repair of transportation facilities projects, including toll highways."

- In 1996, an opinion of the Attorney General stated that, acting on behalf of MDOT, the Authority has the statutory power to enter into public-private partnership agreements.

- All TP^3 projects will be consistent with and will eventually be incorporated into Maryland's Consolidated Transportation Program (CTP) and will comply with all applicable federal, State, and local regulations, including recently enacted "Smart Growth" legislation.

- In selecting TP^3 projects, the State will consider projects only from qualified proposers -- those which have demonstrated an ability to successfully acquire, finance, construct or operate a new, economically feasible transportation facility of high quality; or those with a demonstrated ability to perform a major rehabilitation or expansion of an existing transportation facility.

- Eligible projects include airport, transit and port facilities, and all incidental property rights, materials, and structures related to the facilities. Highways have not been included; however, other State Highway Administration facilities and services are eligible.

- Proposers may include any person, corporation, Limited Liability Company, partnership, joint venture, or other private business entity.

- In implementing the program, officials will work closely with county governments and Federal, State and local elected officials.

- Interested firms will be encouraged to submit solicited and unsolicited proposals. For solicited proposals, requests for proposals (RFPs) will be advertised in newspapers, the *Maryland Register*, *Maryland Contract Weekly* and other publications of general circulation within and outside the State to encourage maximum response.

- Proposers of unsolicited projects will be required to pay a non-refundable, non-negotiable fee of $30,000 for consideration of their proposals. The fee is payable during a two-step process -- $5,000, to be submitted with a conceptual proposal, for an initial review of the project; and, if the concept receives initial approval, a $25,000 payment must be made along with a detailed proposal of the project. Fees partially will offset the costs of processing and reviewing proposals.

- The evaluation and selection process will be conducted in accordance with Maryland procurement law and guidelines established by the Authority. The actual acquisition, financing, construction, and/or operation of a specific project may or may not be subject to Maryland procurement laws depending on the project and the nature of the partnership.

- Prospective proposers will be encouraged to use innovative financing methods, including user fees or other types of charges. Financing arrangements could include the issuance of debt, equity or other securities or obligations, and sale and leaseback transactions.

- Proposals will be evaluated by a Review Committee appointed by the Authority and including representatives of MDOT Administrations primarily responsible for the type of transportation facility being proposed. Viable proposals will be presented to the Secretary of Transportation for consideration.

- Proposals will be selected according to their ability to satisfy a public need; compatibility with State and local transportation plans; cost-effectiveness; and ability to result in the timely acquisition, construction, financing or operation of the proposed transportation facility.

- This TP^3 program incorporates the best efforts of states considered to be on the leading edge of public-private partnership development.

The Maryland Transportation Authority is the State agency that operates Maryland's seven toll facilities and oversees the Maryland Transportation Authority Police Department.

Two-Phase Proposal Process

For both solicited and unsolicited proposals, proposers will follow a two-phase proposal process.

Phase One – Conceptual Proposal: Proposers will submit a conceptual proposal containing standardized information (addressing the rights, duties, and obligations of both the Authority and the private partner with respect to the project) and enough information to enable a review committee appointed by the Authority to determine its technical and economic feasibility. A $5,000 initial review fee shall accompany the "Conceptual" proposal.

Phase Two – Detailed Proposal: Proposers will submit a more detailed proposal containing the same information as in *Step One* and any additional requirements specified by the Authority as a result of the initial review. The remaining $25,000 fee shall accompany the "Detailed" proposal.

Project approvals will be considered by the Authority, at each step, based on the recommendations of a review committee appointed by the Authority. The review committee will evaluate and may recommend project proposals for further consideration to the Authority.

A project selected under this Program is subject to approval by the Maryland State Board of Public Works.

Confidential and Proprietary Information

Regulations provide for confidentiality of proprietary information included in proposals. Portions of proposals considered to be confidential, proprietary information, or trade secrets need to be identified by the proposer and justification provided as to why this information should not be disclosed.

Summary:
Maryland's Transportation Public-Private Partnership Program

Purpose

The purpose of Maryland's Transportation Public-Private Partnership Program (TP3) is to provide opportunities for creation of public-private partnerships to supplement traditional transportation resources, and allow needed projects to be completed in a more timely and cost-effective manner.

The Maryland Transportation Authority, on behalf of the Department of Transportation, will work with qualified and experienced business entities which can demonstrate the capacity to successfully acquire, finance, construct, and/or operate new transportation facilities (excluding highways), or to complete major rehabilitations of existing transportation facilities (excluding highways), and thereby provide sound economic investments.

Desired Impact

- Enable private financing and development of new transportation facilities;
- Result in increased economic activity; and,
- Accelerate needed projects.

The Maryland Transportation Authority administers the Program

- The Authority administers the Program on behalf of the Maryland Department of Transportation.
- The Authority will select only qualified and experienced proposers. Proposers may include a person, corporation, Limited Liability Company, partnership, joint venture, or other private business entity.
- Projects must be consistent with and eventually be incorporated into the Department's Consolidated Transportation Program and the Maryland Transportation Plan.
- Unsolicited proposals for the sale of assets or procurement of operational or maintenance services will not be accepted under this program.
- Proposers are encouraged to utilize innovative financing methods, including the imposition of user fees and other charges.

The Unsolicited Proposal Process

The Authority will accept unsolicited proposals for a new transportation facility project from private entities at any time.

There are *two-phases* in the proposal process. Proposal approvals will be considered, at the end of each phase, based on the findings of a review committee appointed by the Authority.

***Phase One* – Conceptual Proposal:** Proposers will submit a conceptual proposal containing standardized information (addressing the rights, duties, and obligations of both the State and the private partner with respect to the project) and enough information to enable the review committee to determine its technical and economic feasibility.

Private entities must submit 15 copies of each *Conceptual Proposal* to the Authority.

Conceptual Proposals shall be accompanied by a check for $5,000 to cover the initial review fee.

The proposal will be evaluated to determine whether:

It would be in the State's interest to enter into agreement based on that offer, using sole source procurement; or

Competitive proposals should be sought. If competitive proposals are to be sought, the Authority will issue a Request for Expressions of Interest (RFEI). The RFEI will state:

The Authority has received an unsolicited proposal;

Describe the project; and

Request submission of competing proposals within 60 days.

The Authority will not consider competing proposals submitted after the 60-day period unless the Authority terminates consideration of, or negotiations on, the original proposal and all competing proposals received within the 60-day period. No extensions of the 60-day period will be given.

***Phase Two* – Detailed Proposal:** If the *Conceptual Proposal* is approved, Proposers will submit a more detailed proposal containing the same information as in *Phase One,* and any additional requirements specified by the Authority as a result of the initial review. The *Detailed Proposal* shall be submitted with a check for an additional $25,000 to cover the *Detailed Proposal* review fee.

A project selected under this Program is subject to approval by the Maryland State Board of Public Works.

TP3 Guidelines are available for review.

Confidential and Proprietary Information

Regulations provide for confidentiality of proprietary information included in proposals. Portions of proposals considered as confidential proprietary information or trade secrets need to be identified by the Proposer. The Proposer must provide the justification as to why the information should not be disclosed.

Controlling Regulations

Maryland Code (COMAR) 11.07.06 - Regulations were adopted by the Authority on August 19, 1997, and published in the Maryland Register on August 29, 1997.

Additional Information

To learn more about Maryland's public-private partnership initiative, please contact the Office of Strategic Development at 410-537-1026. Or, e-mail the Authority at mdta@mdtransportationauthority.com.

QUESTIONS AND ANSWERS
MARYLAND TRANSPORTATION
PUBLIC-PRIVATE PARTNERSHIP PROGRAM

Q: What kind of project is the State looking for under the partnership program?
A: The State has not developed a list of desired projects. Maryland is looking for projects that will meet a public need, support designated growth areas, and bring increased economic development. As put forward in the regulations, a wide range of projects including airport, port, rail, and transit are eligible, but they must be transportation facilities or major rehabilitation of existing facilities.

Q: Must project proposers prove public acceptance/support for their proposals?
A: Some indication, not proof, of public acceptance will be needed. At a minimum, projects must meet a public need, be consistent with the Department of Transportation's Consolidated Transportation Program, and fulfill the proposal submission requirements on "Public Support" including identification of public support/opposition and proposer's public information plans.

Q: Will projects that are not already in the Consolidated Transportation Program, at the time proposals are submitted, be at a disadvantage when compared to competing projects that are included, other factors assumed equal?
A: No, and the review process will take into account the benefits of bringing either category of projects forward in a more timely manner.

Q: What criteria will be used to select projects?
A: Projects generally must be technically and financially feasible and fulfill a legitimate State transportation need. Other criteria that should be used in selecting a proposal include: transparency, size, and capacity.

Q: Who will be involved in the review and selection of the proposals submitted to the Authority?
A: The Authority will appoint a review committee, which will include: the Deputy Secretary, MDOT Finance representative, Authority key staff, business professionals, members of various transportation boards and commissions and consultants.

Q: If intergovernmental agreements are required, will the Authority or MDOT work with the private sector partner is structuring those intergovernmental agreements?
A: Yes.

Q: How will these public-private transportation projects be paid for?
A: Each proposer must submit a plan of project financing showing proposed sources of funds. No specific restraints on this plan have been adopted. The objective is to attract private capital to augment State resources and to test application of innovative financing methods.

Q: *Will the Authority or the State participate financially in projects? For example, can proposals include plans to access transportation trust funds or other existing governmental revenues?*
A: The State will consider participating financially, contingent on achievement of significant State benefits or other State goals. Proposers should be aware, however, that much of the State's funding sources are already committed and may prove difficult to redirect.

Q: Will the Authority consider a project that requires a change or exemption in state or federal law?
A: Yes, it will consider it, but evidence of feasibility for obtaining such a statutory change would be required.

Q: What happens after the Authority selects a partnership project?
A: The Authority selects proposals to be recommended to the Secretary of Transportation. The Secretary will review those recommendations and select projects for final approval. Final approval is contingent on successful execution of an agreement between the Authority and the private partner and approval by the Maryland Board of Public Works.

21. APPENDIX D. P3 PROJECTS IN THE UNITED STATES, 2004

Source: *Public Works Financing*, Volume 186, June 2004

U.S. Transportation Projects Scorecard					
Contract Amount ($ millions)	**Project Name**	**Owner**	**Private Risk**	**Notice to Proceed**	**Sponsor Constructors**
1,674	Hudson-Bergen Lt. Rail Ph. 1+2	NJ Transit	DB/Equip+OM	10/96	Washington Group/Itochu (Perini/Slattery)
1,376	I-15 Reconstruction	Utah DOT	DB	3/97	Kiewit/Granite/Washington Group
1,369	Texas SH 130	Tex. DOT	DBM	7/02	Fluor/Balfour Beatty (DMJM + Harris)
1,186	I-5 Road/Rail Expansion	Colo. DOT/RTD	DB	5/01	Kiewit/Parsons Trans. Group
930	Jamaica-JFK Airtrain	Port Auth. NY/NJ	DB/Equip+OM	9/99	Skanska/Bombardier (Slattery/Perini)
790	San Joacquin Hills Toll Road	Trans Corridor Agencies	DB	9/91	Kiewit/Granite
780	Eastern Toll Road	Trans Corridor Agencies	DB	6/95	Flatiron/Wayss & Freitag/Sukut/Obayashi
712	Alameda Rail Tunnel	Alameda Corridor Trans. Auth.	DB	11/98	Tutor-Saliba/O&G Indus (Pars. Grp/HNTB)
689	JFK Terminal 4	Port Auth. NY/NJ	BOT	5/97	Schipol/LCOR (Morse Diesel)
645	Foothill South Toll Road	Trans Corridor Agencies	DB (partial)	11/98	Flatiron/HBG/Sukut/Fluor Daniel
610	Tacoma Narrows Bridge	Washington State DOT	DB	11/02	Bechtel Infrastructure/Kiewit
604	Camden-Trenton Light Rail	NJ Transit	DB/Equip+OM	6/99	Bechtel/Bombardier (Conti/LB Foster)
532	Cooper River Bridge	SC DOT	DB	7/01	Flatiron/Skanska
530	BART San Fran. Airport Ext.	Bay Area Rapid Transit Dist.	DB (FTA demo)	5/98	Tutor-Saliba/Slattery JV (HNTB)
386	Conway Bypass Highway	SC DOT	DB	3/98	Fluor Daniel
385	Route 3 North	Mass. Highways	DB/F/M	8/00	Modern Continental/Roy Jorgensen
360	SR 125 South + Connectors	San Diego Expressway L.P.	DB	5/03	Washington Group/Fluor Daniel (Parsons Grp)
343	Las Vegas Monorail	L.V. Monorail LLC	DB/Equip/F/O&M	10/00	Bombardier/Granite
330	Legacy Parkway	Utah DOT	DB	1/01	Fluor Daniel/Ames/Ed Kraemer
324	E-470 Toll Beltway, Seg. 2 & 3	E-470 Public Hway Auth.	DB	8/95	Washington Group Intl/Fluor Daniel
323	Rt. 895 Connector	Va. DOT	DB/F	7/98	Fluor Daniel/Washington Group Intl
295	New Mexico 44 Highway	NM DOT	DB/L-T Warranty	9/98	Koch Materials (Flatiron/CH2M Hill)
291	Hiawatha Light Rail	Minn. DOT	DB	9/00	Granite/C.S. McCrossan
267	Blue Line Rail Tunnel	LA-Pasadena Blue Line Const.	DB	4/00	Kiewit/Washington Group
245	ROC 52 Highway	Minn. DOT	DB	NA	Fluor
236	Virginia Rt. 288	VDOT	DB/L-T Warranty	12/00	Koch/APAC/CH2M Hill
233	E-470 Toll Beltway, Seg. 4	E-470 Public Hway Auth	DB	1/00	Kiewit/Washington Group
232	Palm Beach-Ft. Laud. Track Dbl.	Tri-County Commuter Rail Auth	DB	8/01	Herzog/Granite/Washington Group
226	Carolina Bays Highway	SC DOT	DB	11/99	Flatiron/Tidewater
220	Blue Line Extension	WMATA	DB	4/02	Lane/Granite/Slattery Skanska
198	Rt. 28 Corridor Improvements	VDOT	DB/F	9/02	Clark Const./Shirley Contracting Corp.
191	Southern Connector Toll Road	Connector 2000 Assn.	DB/F	2/98	Interwest (Thrift Bros.)
191	Atlantic City-Brigantine Tunnel	NJ DOT	DB/F	10/97	Mirage Resorts (Yonkers/Granite)
184	U.S. 60 Upgrade	Arizona DOT	DB	5/01	Granite/Sundt
180	Northwest Parkway, Denver	NWP Public Highway Auth.	DB	6/01	Washington Group/Kiewit Western
171	Reno ReTRAC	City of Reno	DB	7/02	Granite (Parsons Trans. Group)
145	Dulles Greenway Toll Road	TRIP II	BOT	9/93	TRIP II (Brown & Root)
132	U.S. 64 Knightdale Bypass	North Carolina DOT	DB	6/02	Flatiron Structures/Lane Const. Corp.
130	CPTC 91 Express Lanes	CalTrans	BTO	7/93	Level 3/Cofiroute/Granite (sold to OCTA 1/03)
129	U.S. 70	New Mexico DOT	DB	7/02	Granite/Sundt/James Hamilton (URS)
125	Portland Airport Max Rail	Tri Met	DB	10/98	Bechtel
102	I-4 Over the St. John's River	Florida DOT	DB	1/01	Granite/PCL Civil Constructors
86	Hwy I-17 Thomas to Peoria	Arizona DOT	DB	1/99	Granite/Sundt
85	Camino Columbia Truck Bypass	TexDOT	BOO	6/99	Granite/Carter & Burgess
82	Hathaway Bridge	Florida DOT	DB Warranty	6/00	Granite
53	New River Bridge	Tri-County Commuter Rail	DB	2/03	Washington Group International