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## **Public Private Partnerships: The New Infrastructure Mega-Projects<sup>1, 2</sup>**

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The funding and delivery of US Infrastructure projects using Public Private Partnerships (PPP) is an increasingly attractive tool in the United States. Legislative changes in SAFETEA-LU (the latest US transportation bill) provided the States with new and improved tools to foster development. In turn this has created new opportunities for contractors and developers to participate in the design, build, finance, and operation of tomorrow's transportation infrastructure.

The PPP process is not “business as usual” for either the public sector or the traditional service providers that have served the industry over the years. For the public sector a new regulatory design is required to meet the challenges PPPs present while realizing the opportunities they hold. For the Contractor/Developer the risks are higher as are the rewards – but only if a deliberate process is employed. Regulators and Contractor/Developers must understand each other's needs and processes as the programmatic delivery of infrastructure changes. This paper provides a “How To” Guide from the Contractor/Developer's perspective to facilitate this understanding and to begin surfacing the myriad of issues that must be considered in this changed programmatic arrangement.

For the Contractor/Developer, his role in the total program process is earlier and more extensive than before. This brings with it a need for new skills and new questions which he must focus on. The contractor/developer's objective is create, complete and prosper from a project that might otherwise not exist. For the public sector partner the transfer of responsibility, risk and reward brings its own set of issues and a need for a changed regulatory and even sometimes a changed legislative framework.

Some of the new, key questions that drive the overall process from the Contractor/Developer's standpoint are:

Does political will exist?

Does a potential project exist?

Will stakeholders support the project?

Are there any fatal flaws?

Will it make financial sense?

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Is the regulatory framework well designed?

Will the project “FLIP”?

Can we close it?

A process for answering these questions follows, together with some second order questions that must be satisfactorily answered to achieve a profitable PPP. This “How To” Guide is not intended as a cookie-cutter approach to PPP development but as a framework around which market and project specific approaches can be built.

### **What is a Successful PPP?**

“How To” guides usually start out by defining what the end objective is just as program management is about the achievement of strategic business objectives. In the case of PPPs it is clearly a successful PPP.

But what is a successful PPP?

The definition of success depends on where you sit. For the public sector it might be seen as delivering the maximum public infrastructure for the lowest cost to taxpayers and users. After all, in some ways the various user fees are merely another form of “tax” for what was previously provided free by the public sector.

The public sector measures this cost in many ways including looking at the Net Present Value (NPV) for the lowest compliant bid, affordability (owners ability to pay annual tariffs), and measures such as a Public Sector Comparator.

For the Contractor/Developer, however, success can be simply defined as achieving an acceptable risk weighted return in a reasonable time frame. To accomplish this, the Contractor/Developer must execute a disciplined and staged risk management process and be willing to exit the process and move onto the next opportunity if an appropriate risk weighted return cannot be achieved.

The stepwise process the Contractor/Developer must move through may start at different points and some stages may be iterative. It is not uncommon for multiple activities to be ongoing in parallel. However, the basic hurdles that must be cleared do not fundamentally change. Each of the sections that follow take a look at the hurdles the Contractor/Developer must clear to achieve success.

### **Does Political Will Exist?**

One of the greatest barriers to more widespread use of PPPs is the absence of an appropriate legislative framework to provide specific authority as well as limitations on the use of PPPs. From the Contractor/Developer perspective the absence of required legislation is not necessarily a fatal flaw but rather an additional hurdle that must be considered from a cost, timing and likelihood of success perspective. To the extent that the Contractor/Developer seeks to create or modify the legislative framework, well planned and resourced political action will be required.

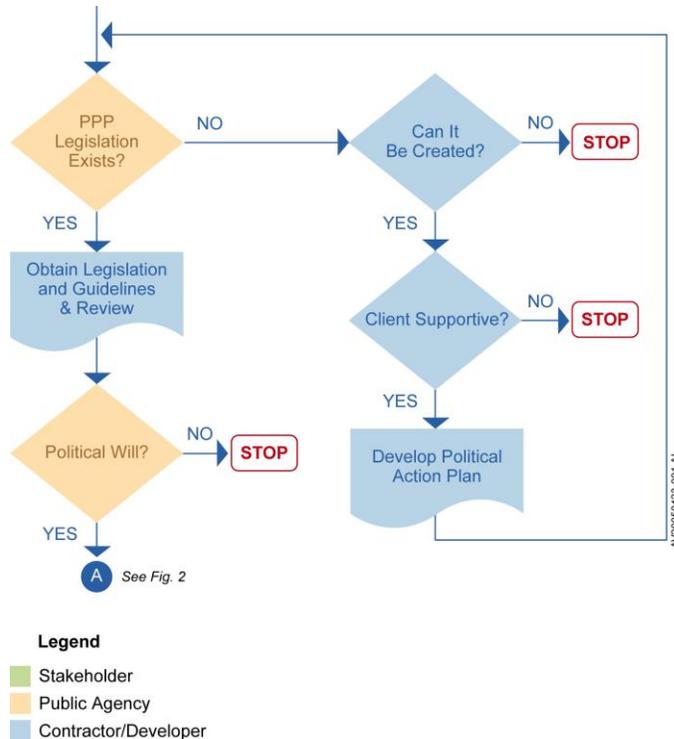
The support or resistance likely from what will ultimately be the implementing agency needs to be carefully assessed to avoid a situation that is like “trying to push a string.” Similarly, the actual legislation and any implementing regulations need to be carefully reviewed and assessed. Is the climate right?

The procurement process that is anticipated must be assessed even if it is still evolving. Will it be transparent with objective criteria and will it be staffed by quality people with the skills required to evaluate a non-traditional financing and delivery option? The willingness of the agency to embrace change is essential to capture the full benefit of PPPs and private sector innovation.

But good legislation and good regulation is not enough. Political will must exist. PPPs, at least in these earliest days, are fraught with risks for the public sector. These risks require political leadership willing to confront these challenges head on and move through them expeditiously. The record to date here is spotty at best.

Delay is one of the greatest risks the Contractor/Developer faces in delivering a PPP program. To avoid extensive delays, it is imperative for the Contractor/Developer to determine if political will exists early in the process and reaffirm its continued existence throughout the entire development period. The Contractor/Developer is after all assuming much of the program risk traditionally maintained by the public sector.

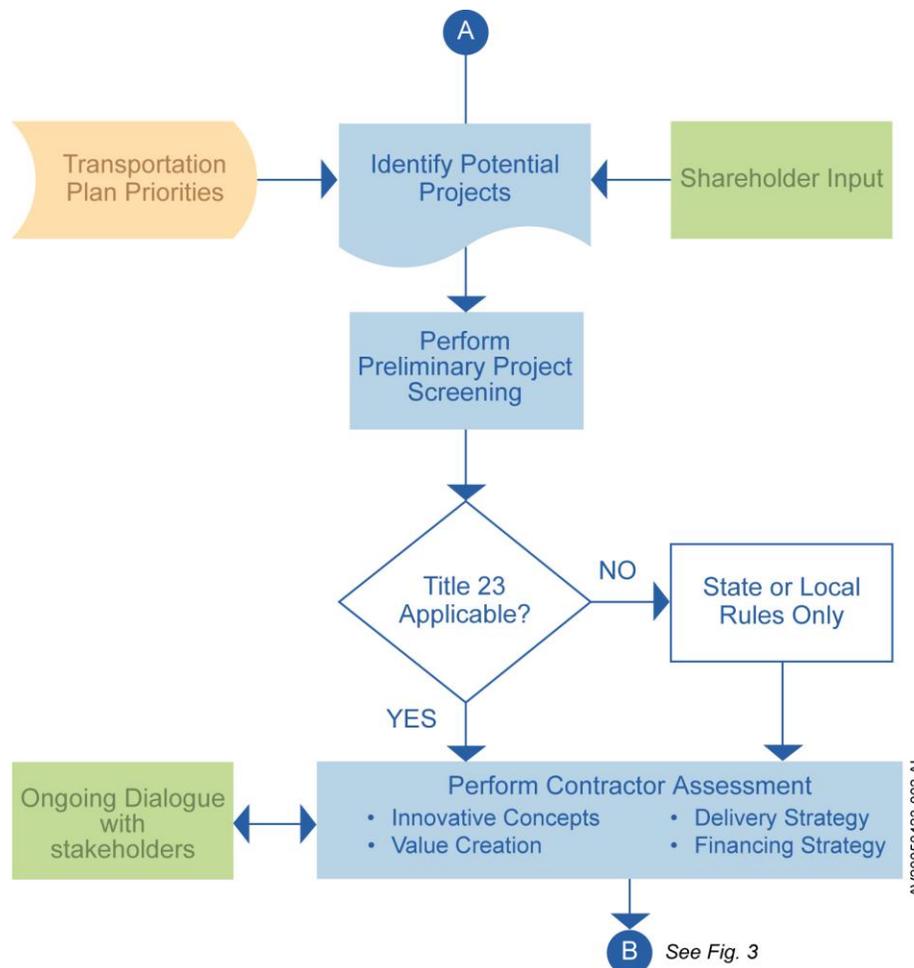
Figure 1 demonstrates this process.



**Figure 1. Does Political Will Exist?**

### Does a Potential Project Exist?

Need, legislation and political will are important prerequisites but in and of themselves they cannot ensure whether one or more potential projects exist. To identify potential projects, the Contractor/Developer must clearly understand local priorities for which some degree of consensus exists. These priorities are typically embodied in the regional or local transportation plan, local economic development plan, or other similar documents. This array of projects is then filtered through an outreach process to stakeholders, initiating one of the most important aspects of a successful PPP process, namely strong stakeholder support. Strong stakeholder support can help sustain the political will that the public sector will be required to exhibit throughout the entire development period. Figure 2 illustrates this process for U.S. highway projects, but similar flows could be defined for other forms of infrastructure.



**Figure 2. Does A Potential Project Exist?**

Potential projects must then be screened for technical and economic feasibility, public support and any open regulatory issues. Additionally, the Contractor/Developer must

determine the applicability of Title 23 or the requirements that govern federally aided highways. Title 23 provides both tools as well as limitations as it relates to PPPs, and these must be clearly understood in project selection and design. Key areas of Title 23 as it relates to PPPs include:

- Financing Related Provisions
- Tolling of Interstates
- HOV Facilities
- Design Build legislation
- State Environmental Responsibility
- Transit Provisions

Understanding the set of tools and constraints available under either Title 23 or the applicable state or local rule, together with the political and stakeholder input obtained at these early stages, provides the starting point for actual project design. Innovative approaches can help meet stakeholder needs, garner political support, reduce costs and enhance revenue potential. Project design will be structured to minimize the total process time and increase the availability of financing options at attractive rates. This is the innovation stage where many options will be looked at and many discarded, but a few attractive ones (that may be viewed as variations on a theme) will be carried forward. These variations will reflect the flexibility in project design required at this early stage. Financing options will remain flexible (e.g., tax exempt, concession), staging will still be evolving, and value engineering of the design and construction process still lies ahead.

### **Will Stakeholders Support the Project?**

With a potential project defined, the next step is to go through a series of hurdles to assess whether a project “FLIPS” at the end of the day. (“FLIPS” is an acronym for the major issues to be successfully resolved by the Contractor/Developer; FLIPS—**F**inancial, **L**egal & Risk, **I**nnovation, **P**olitical, and **S**ocial & Environmental. These issues will be discussed further in this document.) Key among these preliminary hurdles will be the ability of the defined project to sustain stakeholder support or, better still, enhance the support which the Contractor/Developer created in its earlier interaction with them during the project definition phase.

To move through these preliminary hurdles, it is important first to ensure that the desired approach can clear the myriad of legal hurdles it will encounter, including those related to land acquisition, environmental regulations, delivery and contracting method, right to toll, access to other revenue mechanisms, and so forth. Among these legal hurdles for highways are the special rules that apply to facilities covered by Title 23 and the ability to toll “federal aid highways”.

Each Title 23 PPP program carries with it both an opportunity to toll as well as limits in program scope and applicability of other Title 23 requirements. Some of the toll related programs that may be available include the following, and project design must be carefully assessed against each of these:

- Value Pricing Pilot Program
- Express Lanes Demonstration Program
- Interstate System Construction Toll Pilot Program
- Interstate System Reconstruction and Rehabilitation Pilot Program (unmodified by new law)

Non-Title 23 projects need to undergo a similar examination as it relates to state or local programs that may exist.

Projects that have available (one or more) tolling options after this examination of the various laws then need to be screened against their ability to sustain stakeholder approval. Tolling options have a direct impact not only in project design and viability but also in stakeholder perceptions of the project.

The ability to sustain stakeholder support must be reassessed in light of likely financing schemes and toll rates. Figure 3 shows the process for assessing stakeholder support. A key to making an effective assessment is having an ongoing dialogue with stakeholders during the earliest stages of the project design process.

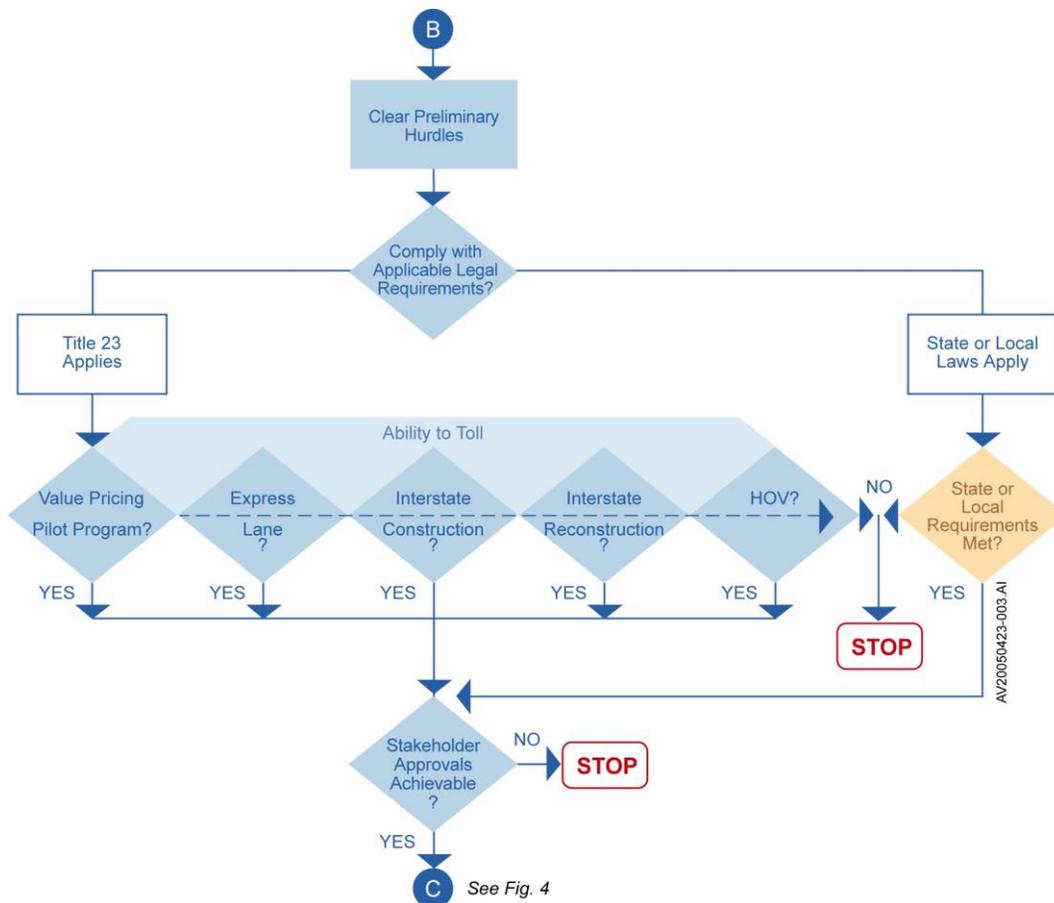


Figure 3. Will Stakeholders support the project?

### Are There Any Fatal Flaws?

Stakeholder support is a key hurdle to clear, but others lie ahead. How will the conceived project relate to the existing transportation plan for the region? Clearly a project included in the plan offers a level of support that a new project would have to build over time. Not that it is impossible to get the support needed for a new project, but rather it is an additional risk to be weighed – and priced. Does the conceived project improve on what is in the transportation plan, by accelerating the project, reducing property takes, or improving the overall features of the project?

Is the project environmentally cleared, or is it capable of getting there? In what time frame? Will the project attract environmental support or opposition? Environmental risk and timing of approvals is key to a PPP project's viability. Do process streamlining opportunities exist?

Table 1 shows some of the opportunities that exist in the environmental area as a result of SAFETEA-LU. Similar types of opportunities must be explored at the state level.

**Table 1. SAFETEA-LU Environmental Provisions**

<p>Sec. 325. State assumption of responsibilities for certain programs and projects</p> <p>States may assume the responsibilities of the Secretary under any Federal laws subject to the requirements of this section.</p> <p>Projects funded under section 104(h).</p> <p>(h) Recreational Trails Program</p> <p>Transportation enhancement activities under section 133</p> <p>Pilot program limited to five states in first 3 years</p>
<p>Sec. 326. State assumption of responsibility for categorical exclusions</p> <p>State may assume, responsibility for determining whether certain activities are categorically excluded from requirements for environmental assessments or environmental impact statements</p>
<p>Sec. 327. Surface transportation project delivery pilot program</p> <p>State may assume responsibilities of the Secretary with respect to one or more highway projects within the State under the National Environmental Policy Act including all or part of the responsibilities for environmental review, consultation, or other action required under any Federal environmental law pertaining to the review or approval of a specific project</p>
<p>Sec. 139. Efficient environmental reviews for project decision making</p>

An acceptable environmental and planning framework now sets the stage to refine back of the envelope estimates with an eye to developing the preliminary financing plan for the project.

Figure 4 shows the process for determining whether any fatal flaws would prevent the project from going forward.

### Will it Make Financial Sense?

The U.S. market provides PPPs with some key financial tools not available in other PPP markets around the world. The first tool is the availability of tax-exempt financing through the use of tax exempt structures such as those that a 501(c) (3) or 63-20 type of vehicle would provide. More recently, Congress has provided for the use of Private Activity Bonds. Each of these mechanisms must be considered in light of whether the facility is a federal aid highway or not; which tolling provisions of Title 23 would apply; and which Title 23, tax or return limitations may be associated with the specific project design. In the case of a concession-type approach, Title 23 requirements may greatly influence project and financial scheme design.

Issues related to subsidy requirements or anticipated concession payments, timing and limitations, if any, on use of proceeds are similarly key considerations in overall project design and economic feasibility. States, today, are clearly on the learning curve and a key question for the Contractor/Developer is “does the public sector have the tools it needs to broadly evaluate the financial offerings it receives in the PPP process, especially where there are competing offers with different risk structures and time frames?”

For the public sector, these models are more than pure financial models in that they must allow the regulator to consider broader economic and specific user impacts. Government must be a sophisticated seller of rights which traditionally (at least since about the 1920’s) have been its purview only. A successful PPP industry in the United States cannot be built just on headlines.

The PPP proposal process itself now becomes a key hurdle to be addressed. Unsolicited proposals afford the Contractor/Developer the greatest opportunity to create a feasible and profitable project. It maximizes the opportunity for creativity in solving the “project problems” which the public sector has not yet been able to solve. Several key issues exist that are still evolving in the PPP marketplace today. These issues relate to protection of intellectual property, especially in the case of seeking competitive proposals in response to an unsolicited proposal, and the timing of freedom of information provisions dealing with information, especially when competitive offers are determined by economic valuation or best-value approaches. The unknowns that exist with regard to client financial evaluation methodologies introduce a degree of risk into the PPP process that must be addressed.

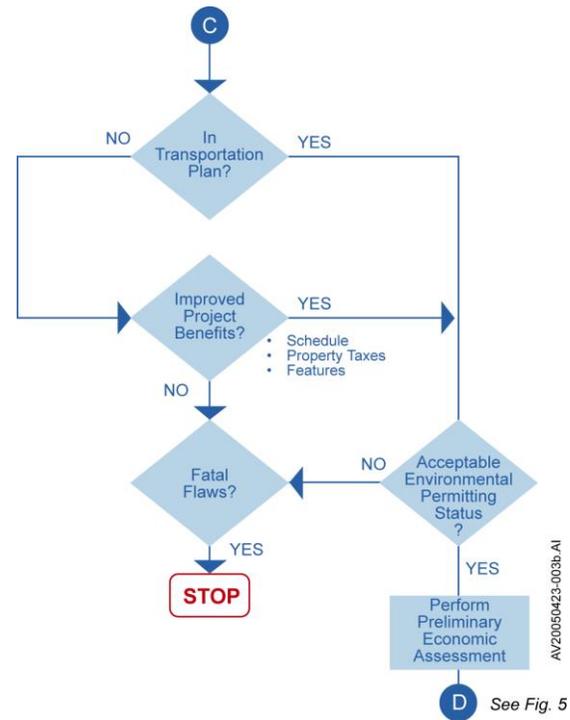


Figure 4. Are There Any Fatal Flaws?

Depending on the client’s processes, the Contractor/Developer now is providing its first formal proposal of a concept that has been previously “shopped” to the various stakeholder groups. Figure 5 illustrates the stages involved in determining the financial feasibility of such a concept.

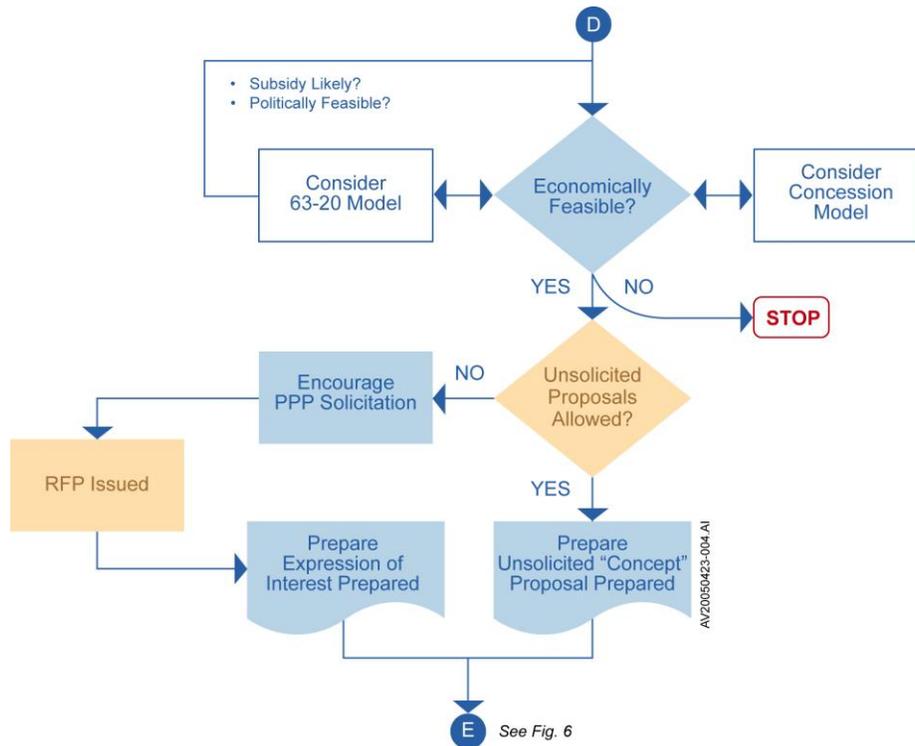


Figure 5. Will It Make Financial Sense?

**Is the Regulatory Framework Well Designed?**

The regulatory framework for U.S. PPPs is still at the earliest stages of evolution. As a result, change is still occurring both at the legislative and regulatory level. Additionally, regulatory interpretation, process, procedures and tools are still in a state of flux to varying degrees in each of the states that currently have PPP legislation. In today’s environment, the Contractor/Developer must be certain that it understands the evaluation process for the proposal. This aspect is particularly important when two or more proposals are being considered on a competitive basis.

What should the objectives of a well-designed regulatory framework be?

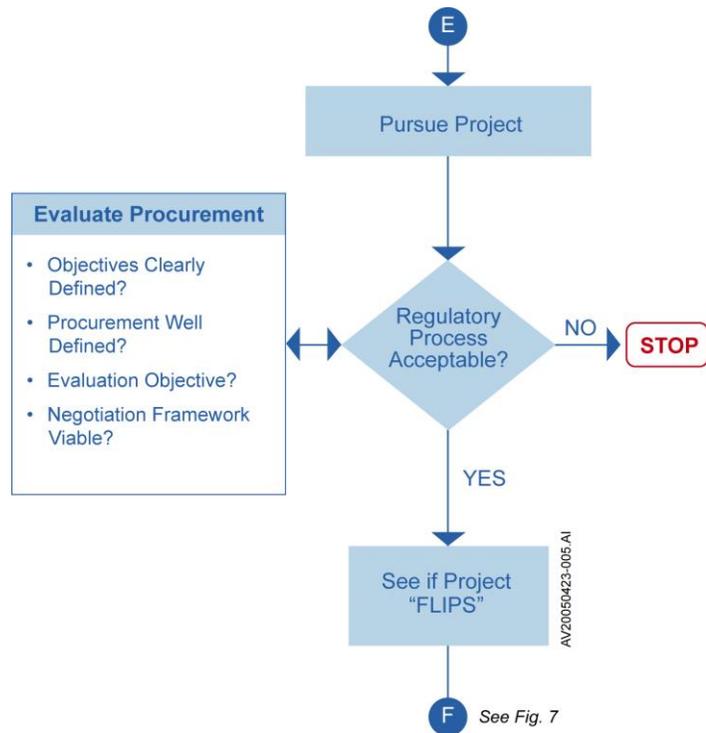
Viability, efficiency and fairness seem to be important objectives, but the definition of regulatory objectives cannot stop there. These objectives, in my opinion, must also ensure: the financial viability of the resulting PPP; the efficiency and fairness of any toll rate structure; the speed of delivery, efficiency of operation as well as promotion and efficiency of any reinvestment.

Most importantly, these objectives and their implementation must be simple, transparent, consistently applied and fair in their allocation of risk.

The procurement process must be well-defined, not invented, on a step-by-step basis. Clear milestones must exist and, importantly, a time frame for final or intermediate decisions must be reasonably well-defined. The process must allow the contractor to bring his creativity and ideas to bear and not constrained by unnecessarily prescriptive specifications and requirements. The objective of solving a problem must be kept front-and-center to ensure that a less-than-optimal solution to the problem is not submitted to the Contractor/Developer.

The process for negotiating a final agreement must be well-understood and new requirements must not be introduced at these late stages of the PPP process. If the project can overcome this set of regulatory hurdles, the next stage is to determine if it “FLIPS” into a financially attractive project that can be successfully built and operated.

Figure 6 shows the factors that must be addressed in determining if the regulatory framework is well-designed.



**Figure 6. Is The Regulatory Framework Well Designed?**

**Will the Project “FLIP”?**

We are now at the stage of developing a comprehensive proposal. If we are able to resolve each major area successfully, we will have the basis for negotiating the final agreement. The areas to be comprehensively resolved can be described by the acronym “FLIPS,” which is defined as:

- Financial
- Legal and Risk
- Innovation/Value Creation
- Political
- Social and Environmental

## **Financial**

Key among the financial activities that we must drive to conclusion is the traffic and revenue model. Simplistically, this model is the “top line” in the subsequent financial analysis. Traffic and revenue modeling is an area requiring further development in the U.S. market to reflect the sophistication of Contractor/Developer’s business models when contrasted with traditional 100 percent debt financing models used in municipal bond financing activities.

Capital costs must be developed on a full-risk basis as there is no other source of funds than the top line of the project. Operations & Maintenance (O&M) costs over extended periods of time must be estimated, as must tax rates, inflation and a myriad of uncertain costs.

Fundamentally different financing approaches must be competitively evaluated including a range of taxable and tax-exempt models. Legislative changes must be weighed and tax effects considered, including both rate and depreciation opportunities. A range of financing tools is also considered, including equity, debt, subordinated debt, subsidies and alternative revenue sources. Specialized tools such as Private Activity Bonds and limitations on tolling regimes of different delivery options based on the financing model must be considered.

The financial modeling of a PPP is, if nothing else, a comprehensive modeling of uncertainty over an extended period of time. Historically, in the United States, this uncertainty was handled by sufficiently high coverage ratios to make the bondholders comfortable that they would eventually receive their money. It was also handled by traditionally low sovereign risk premiums, providing an advantage that many other markets did not similarly enjoy. This historical approach is not extendable to the PPP marketplace where the degree of sophistication in the modeling and evaluation of competing concepts is fundamentally no different than that of any large, long-time scale capital investment with a measurable degree of revenue or marketplace uncertainty.

Whether it is using Monte Carlo techniques to model risk and returns in an uncertain future or Real Options or other pricing methods traditionally applied by the financial sector in other capital endeavors, our industry must move beyond the municipal finance mentality more aggressively than it has to date.

A simple case can be used to make a point—a PPP competition with two different offers for the same project. One offer proposes the use of 50-year concession with taxable financing and a series of payments over time to the government that totals several billion dollars. Any excess revenue beyond the assumptions made in this first offer would de-risk the project and provide additional returns to the Contractor/Developer. The second proposes a 30-year offering employing a tax-exempt financing structure which would use any excess revenue to retire debt early and return the facility to the government even faster than the 30-year timeframe. In the second case, the revenue stream from the time the tax-exempt debt is retired to year 50 would belong to the government.

Which of these scenarios provides the greater benefit to the government? Simply put, it depends. The public sector framework for evaluation of these two competing offers must consider total economic impact, carefully evaluating the differing time frames, the period

where benefits accrue directly to the government and how and who captures the value of progressive project de-risking.

**Legal and Risk**

Legal and risk-related activities include an ongoing set of legal conformance reviews that, in many ways, are model-specific. Approvals and permits must be defined, long-lead activities initiated and key items (such as a Record of Decision) obtained prior to financial close. Schedule risk associated with permits and approvals can have a significant effect on overall project economics and represent a key uncertainty in project financial modeling.

A structured “business risk management framework” must be developed and updated at each iteration of this final project design process. Teaming and subcontractor agreements must be developed and defined during this process as part of the Contractor/Developer’s risk management process.

The authority to toll must be clear and unambiguous, including any requirements such as toll-free periods or limitations on rate-setting or rate-of-return. These provisions are very important for projects covered by Title 23, where selection of applicable governing provisions has contracting, permitting and financing implications. (See Table 2 below) Specific adjustment provisions required must be defined and the limitations related to non-compete provisions carefully considered and integrated into the traffic and revenue modeling. Force majeure and incentive clauses, if any, must be addressed and any flowdown of requirements as a result of either project design or statutory requirements completely addressed.

**Table 2. Title 23 Tolling Programs**

Value Pricing Pilot Program
Express Lanes Demonstration Program
Interstate System Construction Toll Pilot Program
Interstate System Reconstruction and Rehabilitation Pilot Program (unmodified by new law)

**Innovation/Value Creation**

It is at this stage that the Contractor/Developer can contribute maximum value. Through the use of optimization, the Contractor/Developer takes a fully holistic approach which moves beyond normal value engineering and constructability review-type activities to consider the sharpening of scope definition (will the extra ramp generate an increased financial return or detract from it?). Other factors that should be considered are: 1) incorporating value-added features (flexibility, additional revenue sources), 2) closely coupling project phasing with traffic and revenue model results, and 3) comprehensively addressing life-cycle costs including O&M costs through material selection, operating parameters and maintenance and replacement program design.

### **Political**

Political risk management, begun at the outset of the process, must continue until a final agreement has been reached...and beyond. The marketing of the project must continue at all levels of government, with increasing emphasis placed on stakeholder-desired features and all project benefits. The objective is to maximize critical stakeholder support at this final project phase.

Just as the Contractor/Developer is seeking to define and control the risks assumed, so is government. Government must understand the level of protection offered by the agreement. Risks retained by government must be disclosed and discussed, as they are identified, to avoid last-minute delays in deal execution.

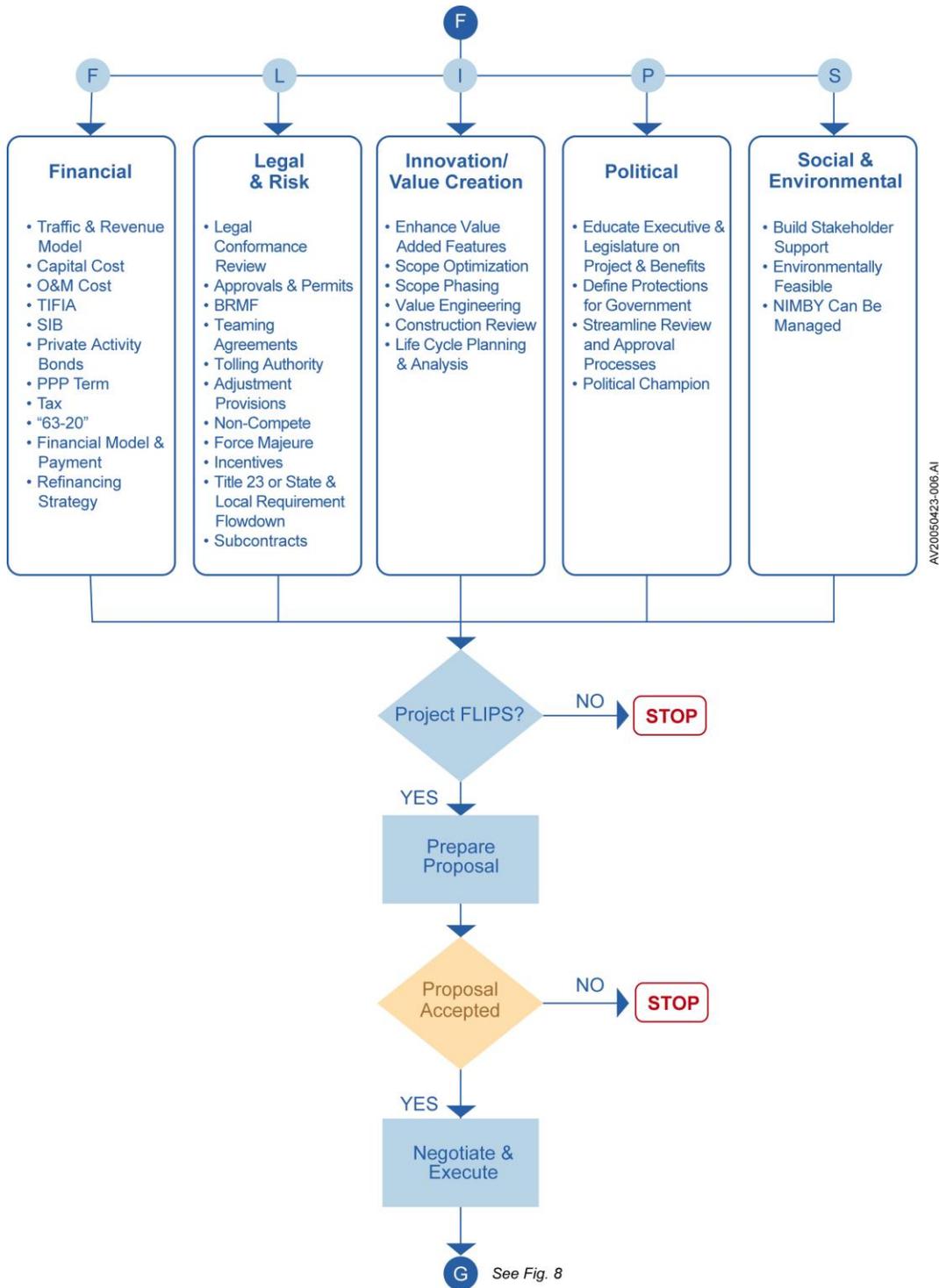
Opportunities to streamline the review and approval processes must be explored and, where possible, a singular government authority designated with lead responsibility (with enforcement power). Bureaucracy has a great opportunity to effectively kill anything new through inaction. This problem will remain a significant risk throughout the project's full life-cycle.

The need for a political champion began with our earliest search for clear commitment and political will. It is at this stage where that champion must drive government to completion of the project.

Figure 7 shows the various factors that must be addressed in determining the viability of the project.

### **Can We Close It?**

Once the project has been determined to be viable, all negotiations must be completed. They will likely be staged and will result in a signed Comprehensive Development Agreement (CDA) as well as a myriad of Construction Joint Venture (CJV), Operating Joint Venture (OJV) and other subcontracts needed for the Contractor/Developer-created Special-Purpose Vehicle (SPV).



**Figure 7. Will the Project "FLIP"?**

Typically, the CDA and other agreements will be conditioned upon their ability to satisfy certain parameters (such as obtaining all required permits and establishing acceptance by the project investors and lenders of the developed CDA and plan of finance). Once accepted, financial close occurs and, in the case of concession-structured projects, an initial concession payment (if any) may occur.

Figure 8 shows the process that must be followed to achieve financial close.

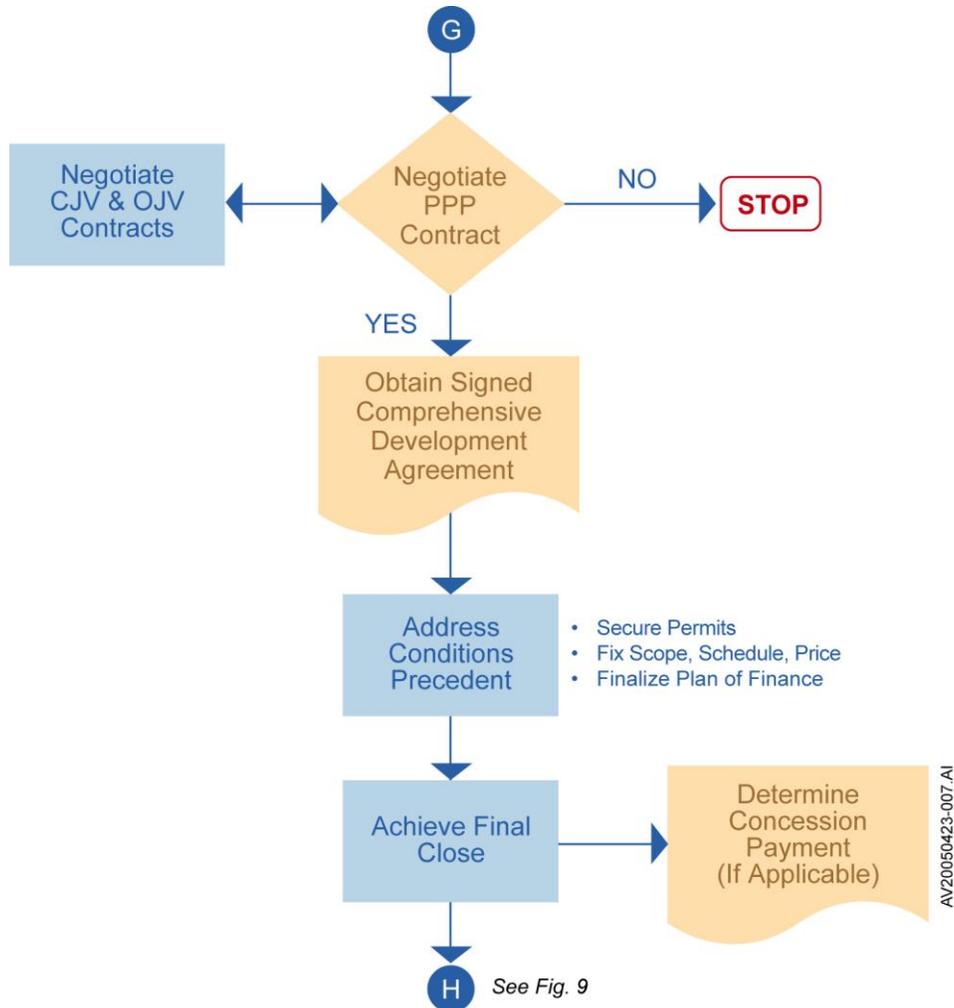


Figure 8. Can We Close It?

**Execute For Profit**

If we have performed our job correctly, we have created a profitable opportunity subject to our ability to execute the project as planned. Initial capital costs must be presented in terms

of defined parameters, periodic refinancings executed in accordance with planned financial model triggers, operation, maintenance and other life-cycle costs monitored and controlled as well as a structured program implemented for major maintenance, rebuilds, replacements and technology upgrades.

Management of surplus cash is a key return driver, and at the end of the PPP period, the facility must revert to government in the agreed-to condition.

Figure 9 depicts the interrelationship of the various areas that must be addressed to execute profitably:

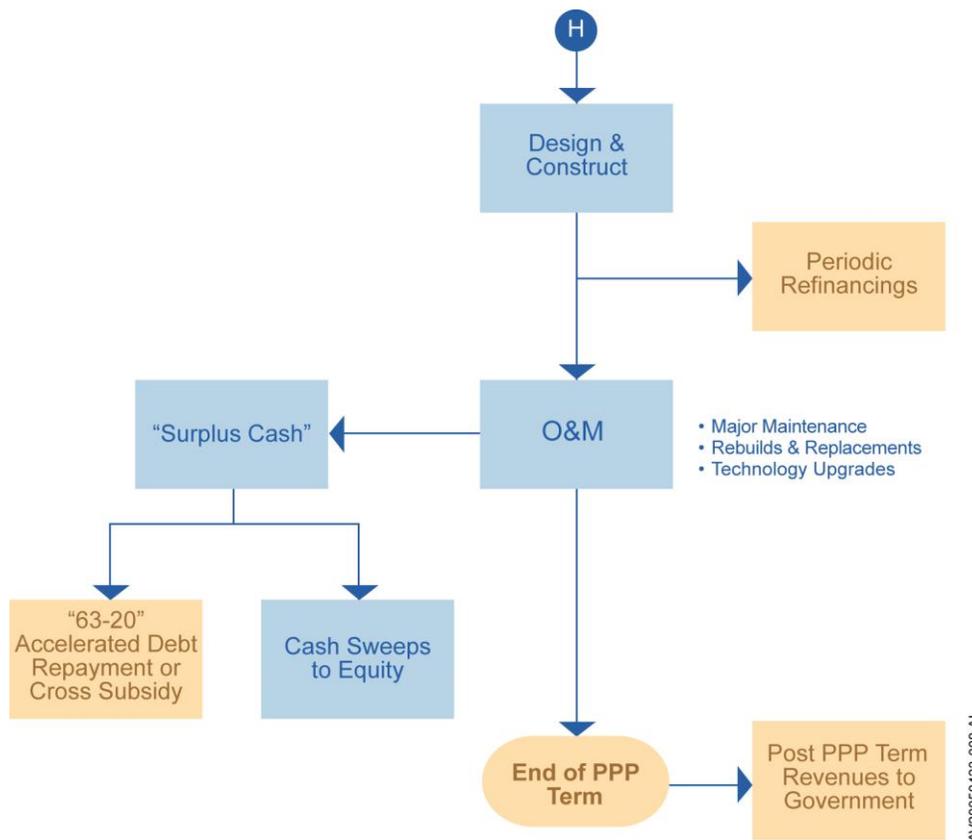


Figure 9. Can We Execute for Profit?

### A Final Thought

Prioritize, prioritize, prioritize! In the short term, there will always be more capital than financially attractive projects. Do we have a good process for ensuring that “proposed solutions” are solving the real problems that we must address? This is where the skills of “program management” are brought to bear.

The absence of well-defined priorities drives the PPP provider into a role of justifying the need for a solution rather than just promoting the merits of the proposed solution. The role

of needs definition – and communication – lies with the public sector at the outset of the process, not with the private sector PPP provider as a final hurdle before financial close. The process outlined in this paper is only a starting point for what will be a series of unique pursuits. It serves to guide not only the Contractor/Developer but to also educate all of the project's stakeholders regarding the commitment and investment that the Contractor/Developer is making.

A final word to Contractor/Developer's is in order. The steps and processes described here embody the hallmarks of good program and project management. PPP's, by design shift the risk/reward point providing the potential for greater upside, but only if risk and execution are professionally and comprehensively managed at each step along the way.

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## About the Author



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**Bob Prieto** is a senior executive effective in shaping and executing business strategy and a recognized leader within the infrastructure, engineering and construction industries. Currently Bob heads his own management consulting practice, Strategic Program Management LLC. He previously served as a senior vice president of Fluor, one of the largest engineering and construction companies in the world. He focuses on the development and delivery of large, complex projects worldwide and consults with owners across all market sectors in the development of programmatic delivery strategies. He is author of nine books including "Strategic Program Management", "The Giga Factor: Program Management in the Engineering and Construction Industry", "Application of Life Cycle Analysis in the Capital Assets Industry", "Capital Efficiency: Pull All the Levers" and, most recently, "Theory of Management of Large Complex Projects" published by the Construction Management Association of America (CMAA) as well as over 800 other papers and presentations.

Bob is an Independent Member of the Shareholder Committee of Mott MacDonald and a member of the board of Dar al Riyadh. He is a member of the ASCE Industry Leaders Council, National Academy of Construction, a Fellow of the Construction Management Association of America and

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