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Lessons Learned from the Rapid Bridge Replacement Project and General Concerns with Public Private Partnerships (P3) in Transportation Infrastructure Projects

Public Private Partnerships (P3) are essentially long-term contracts, underwritten by government guarantees, with which the private sector builds (and maintains) major infrastructure projects such as roads and bridges. Total costs for P3s are more likely to be hidden because they are typically ‘off balance sheet’. For example, the annual availability payment for the RBRP is not found on PennDOT’s budget presentation. The Commonwealth should perform a comprehensive cost-benefit analysis of potential P3 financed bridges and consider the information presented below before implementing such a procurement.

RBRP Lessons Learned – Costs and Issues

Before entering into further P3 bridge projects, the PA P3 Board should have a full understanding of the actual costs of the Rapid Bridge Replacement Project. There is general understanding of the following:

- PennDOT invested \$200 million of advance financing to initiate the project. PennDOT also paid for environmental clearances on 81 bridges. This did not include the cost of preliminary designs that ultimately, were not used by the construction team.
- Additional layers of legal and engineering consultants were engaged (outside of the project cost) to develop contract documents, scope, etc. These consultant fees typically were not part of the financing arrangements but came directly from unencumbered government funds. We believe an estimate of these fees on RBRP included:
 - \$35 million – Project Manager/Construction Manager
 - \$15 million – Document Review
 - \$15 million – Right of Way Coordination
- Engineering consultants were engaged throughout the entire project to manage the project and provide oversight to the P3 team. PennDOT engaged new staff and consultants who would go back and change many previous design agreements creating additional consultant redesign costs.
- NEPA Process Lessons Learned - Developer/designers need to be familiar with the state and federal requirements and practices. There should be one team working on the permits. An issue with RBRP was that permit responsibilities evolved, and different people became involved at different times. There should be one team familiar with the agencies and keeping the same personnel throughout the process. NEPA work should have been done prior to the P3 award.

- The DEP permit process and approval was even more difficult than the NEPA permit process. The DEP was not a project partner. There was no pre-project MOU between PennDOT and DEP in order to engage DEP in the process to provide the required permits. PennDOT should also be responsible for DEP permits as opposed to the developer.
- Utility Relocations and Right of Way: PennDOT should have been better equipped to provide the status of the utilities and the rights of utility owners regarding relocation schedule, etc. PennDOT should also be responsible for Right of Way acquisition.
- The project was originally scheduled for completion in 2017. It was recently reported to the P3 Board that the final bridges were finished in 2020 – three years behind the original schedule.
- Experience shows that government agencies must assign experienced senior staff to the administration of P3 projects, often at the expense of their existing programs. Combined with the large management teams associated with the developer and the QA team, there were arguably more overhead personnel overseeing the design and construction than the normal delivery method.
- Every large project needs a project champion on the owner’s side who is vested in the success of the project without that the project generally struggles. The RBRP project had no project champion from PennDOT. PennDOT central office was not prepared or knowledgeable on how to administer a complex P3 project.
- Each PennDOT District has unique preferences that hindered standardization. PennDOT (Districts primarily) did not understand that the contract required the developer to meet the minimum standards and not fix every issue on every site. PennDOT could make Department Change Requests but, they just needed to be aware that they have to pay for it.
- Whether P3 projects divert existing government staff, add staff, or temporarily contract out for additional staff, there are both direct and indirect costs associated with this effort that often are not properly captured or recognized in the upfront evaluation of the P3 project.

Non-Compliance Events

There is a difference between Non-Conformance Reports (NCR) and Non-Compliance Events (NCEs). NCEs should not be used by the owner and their consultants as leverage in negotiations. Every NCE must have a cure period regardless of who discovers it and allow the contractor to rectify the circumstance. Contractors are advised not to even enter into a contract that does not allow a cure period for every NCE. Unless addressed by the owner, this must be a “no-go” clause for the entire transportation construction industry moving forward.

RBRP Lessons Learned - from PennDOT Staff Notes:

- Permits – Challenges of (1) incorporating public feedback when a private group is driving process, and (2) costing potential added scope to project vs. bid. QA role - Decision making authority needs to be clear between DB staff, developer staff, QA staff, regional DOT staff, etc. Q/A should be independent, not influenced by developer. PennDOT should keep the QA. PennDOT’s culture does not allow them to relinquish control. They constantly second guess decisions made by others. PennDOT believes their way is the only way and any other way is wrong. PennDOT needs to change culture in order to consider alternative solutions

- Overall team Communications and Governance - Issues/disputes need to be removed (elevated) from project team. Projects need decision makers, who can provide strong direction to make a project successful. PennDOT does not have this. PennDOT is ruled by committee and this makes for lack of direction and decisions.
- Schedule - Managing the schedule and its importance – full understanding is critical
 - Allow time at the beginning of the project to ensure systems and tools are developed properly and vetted through, allow adequate time for design development, approval and to procure permits.
- Risk Allocation – Communication on Risk Requires Focus
 - Understand fully the impacts when you allocate risks and how it will affect cost and schedule.
 - Be very clear when allocating risk what the expectations are and who owns what so there is no guessing from the start. Consider holding separate meetings at the beginning of the project to discuss risk so everyone agrees.
- Project Administration - Ensure the required resources are allocated to the project.

Construction Industry Concerns with P3 Procurement

- P3s are typically extremely expensive and contractually complex so that only a limited number of firms compete, which decreases competition and limits work opportunities for smaller firms to subcontractor roles. Risk is also significantly pushed downward to subcontractors.
- The P3 contracting process is very complex and thus difficult to administer, often resulting in disputes. Government employees charged with the day-to-day inspection/oversight of P3 projects may be unfamiliar with the model, and thus hesitant to give up any level of control that they typically enjoy, which again leads to disputes.
- The usual Subcontractor model is often disrupted by developer. In some cases, the developer may propose to bulk purchase materials and have subcontractors install which is not a desired model by subcontractors.
- Typically, progress payments to lower tier team members are very slow. Developers do not make payment to subcontractors until all clearances on specific sections were in hand.
- P3 projects do not foster innovative ideas and project delivery improvements in any fashion greater than standard Design Build projects. P3 transportation projects are subjected to the same state and federal design manuals and guidelines.
- Design-build procurement by multiple design-build contracting teams can, in some cases, provide better and more economical solutions than traditional Design Bid Build procurement, but it is not necessary to utilize a P3 delivery to take advantage of design-build opportunities. While, Pennsylvania currently has procurement code limitations that currently prohibits the selective short listing of design-build teams, industry and government are working together to develop a Best Value procurement system. It appears PennDOT proposes to utilize the current P3 legislation as a work around solution to get to a selective design – build procurement model for larger more complex projects.

Government Owners Assume Risk for Most Toll-Based P3 Projects

- P3 toll projects on the surface appear to be paid for by the user and more feasible and palatable to the tax paying public, but in most cases, the government agency owner bears the toll risk.
- It is common knowledge in the P3 community that other than projects like the Northern Virginia I-495 Hot Lanes (which are very few), most toll-based P3 projects are extremely risky and increasingly require public subsidy or guarantee to make them viable. Thus, the idea that there is no public risk in toll road P3 projects is only true in a very limited number of situations. The recently proposed PennDOT P3 bridge projects will most certainly require some sort of public governmental back stopping for them to proceed. The question is not if a premium for this risk will be paid, but how big a premium. The bridge projects propose guaranteed availability payments, which will shift all toll risk to the Commonwealth.
- Further, if tolling is the proposed basis of the revenue to support the proposed bridge projects, have proper traffic studies and revenue projections been prepared and communicated to the public before project authorization? Are these projections being completed in a manner that are not overly optimistic? Most toll road failures are a result of overly optimistic projections that were skewed to meet a predetermined outcome. This step needs absolute transparency and void of any bias. Finally, will tolls be politically acceptable to the community in which they will occur? Toll financing might be a viable part of an overall highway funding strategy. But using the P3 model is not necessary to implement toll projects.

Options for Financing Other than The Private P3 Market

P3 Financing is Costly

- P3 financing costs include concessionaire return on investments in the 10 to 15 % range, carried interest charges by the equity partners of the concessionaire team, which can be in the 8 to 12 % range, legal fees associated with the bond holders for the financing portion of the project, higher profit margins by the contracting teams (which are typically considerably higher than a traditionally bid project) and higher insurance rates than typical PennDOT contractors incur due to the riskier nature of the delivery method.
- P3 financial schematics include higher interest rates than traditional municipal bond financing (private borrowing can be double public borrowing interest rates). Therefore, hidden within P3 concessionaire guaranteed availability payments are increased project costs of as much as 20 to 40 percent.

Municipal Bond Market

By accessing the municipal bond market, PennDOT could take advantages of historically low interest rates. If the Commonwealth would access the bond market in January 2021, it is believed that the Commonwealth would incur an interest rate of 1.21% on a 20-year bond and 1.49% on a 30-year bond. Typical transaction costs on \$500 million in bond underwriting would be less than \$500,000.

TIFIA Credit Program Presents an Alternative

The Transportation Infrastructure Finance and Innovation Act (TIFIA) program was established in 1998 as a section of the Transportation Equity Act for the 21st Century. It enables the United States Department of Transportation to provide credit assistance to state and local government transit agencies

and other eligible applicants for transportation projects. The creation of the program was a response to the difficulty state and local governments faced financing significant transportation projects, such as highway, transit, railroad, intermodal freight, and port access initiatives. Most transportation projects eligible for TIFIA loans have dedicated revenue streams in the form of tolls or user fees, the uncertainty in projects' revenue streams can make the private sector apprehensive to invest, or in the case of P3 projects, generate costly interest rates. TIFIA uses federal appropriations to provide credit assistance to just these capital-intensive projects, providing a financing alternative to P3s.

Examples of P3 Project Problems

California Department of Transportation State Route 91 in Riverside County

Experience from the State Route 91 (SR 91) P3 project which added two new toll lanes to an existing state highway, made many California transportation entities and the public cautious of future P3 projects. Terms of the P3 agreement precluded the state from making capacity improvements to the adjacent untolled lanes because of competition with the toll lanes. Safety improvements were intended to be excepted from this "non-compete" provision but the concessionaire challenged the work. Litigation ultimately led to the counties buying out the concessionaire and taking over management of the state road.

Indiana I-69 - Cost Overruns

In southern Indiana, the I-69 Section 5 the P3 concession failed and the total cost of completing construction on Section 5—excluding operations and maintenance—grew from \$369 million to \$556.2 million. This represents an increase of 51 percent. The project was finally slated for completion in late summer of 2018—approximately two years behind schedule.

Virginia P3 Elizabeth River Crossing – Toll Risk Exclusively on Government Owner

Elizabeth River Crossings and VDOT P3 project to expand and renovate tunnels between Norfolk and Portsmouth cost Virginia nearly \$300 million to buy down tolls while exposing the state to an estimated \$700 million in penalties if it builds other projects that affect the private company's toll revenue.

I-4 Ultimate – Florida

Begun in 2015, In 2019, it was reported that the I-4 Ultimate project near Orlando was 245 days behind schedule. In April 2020 it was reported that the consortium and FDOT settled claim of \$125 million to cover cost overruns. The justification for this claim was based on alleged delays caused by lane closure issues and construction failures.

Major Contractors Leaving P3 Market

Granite told investors in 2019 that the P3 process is no longer viable for them, and that the firm's heavy civil division will no longer pursue megaprojects. Granite opined that issues with these P3s include fixed-price agreements that lock contractors into a set fee and timetable. As things change on these jobs, additional costs are often incurred, leading to disputes between owner and contractors.

Fluor stated that the risk that contractors assume with these types of projects has caused the industry to "suffer severely" over the last few years. Going forward, Fluor will only perform fixed-price work on a selective basis in which Fluor executes the FEED (front-end engineering and design) package or is allowed to perform sufficient due diligence.

Skanska also has said it will limit the type of P3s it takes on. In 2019, after taking a \$100 million write-down on its P3 business, the company announced that it would no longer pursue major design-build transportation public-private partnerships in which it held an equity stake.

With the exit of these firms from the P3 market, it is clear that only large international firms are interested in participating in P3 projects.

Conclusions

Public Private Partnerships are misrepresented as low-cost new funding for highway projects that create innovative solutions and add substantial work for local engineering and construction firms. However, upfront costs, the high cost of private financing and owner oversight costs can drive the cost of P3 delivery much higher than municipal bond financed Design Build project delivery.

Rather than accessing the more costly private financing market, government project owners can access lower cost financing through the municipal bond market and the Transportation Infrastructure Finance and Innovation Act (TIFIA) loan program at the U.S. Department of Transportation.

P3s are typically riskier for government owners than for the private developers involved, as the government may be required to step in to assume costs and liabilities if things go wrong. P3 projects are generally of a nature and scope that only a small minority of national firms are competitive in the market. In fact, several major national/international firms have recently exited the P3 market. The current P3 market is not available to Pennsylvania-based firms and the P3 subcontract market puts most contract risks on smaller firms.

Toll financed projects could be a complementary component of a comprehensive transportation funding package that includes addressing the drain of the Motor License Fund by the State Police budget, inflation sensitivity of existing revenue sources, commensurate fees on alternate fuel vehicles, and other funding methods. Additionally, industry PennDOT and PA Turnpike officials are currently working together to develop a Best Value procurement system that could effectively deliver toll financed and other projects. This process should be advanced to completion.

Given the current PennDOT financial situation, we do not believe it is prudent to embark on a significant Public Private Partnership financing program, at this time, without further detailed review of alternatives. The Commonwealth should perform a comprehensive cost-benefit analysis of specific proposed P3 financed bridge or other projects using toll revenue before embarking on such a program.