

**FLOOD**  
**D**IVERSION  
AUTHORITY

Testimony by:

Mayor Tim Mahoney, City of Fargo

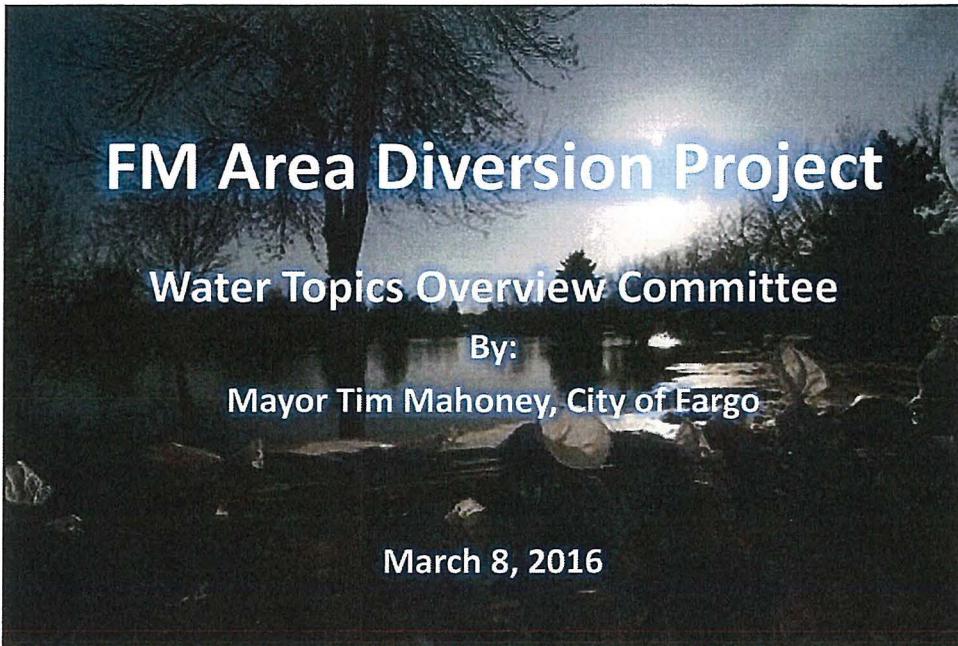
&

Colonel Daniel C. Koprowski, District Commander

to the

Water Topics Overview Committee

March 8<sup>th</sup>, 2016



# FM Area Diversion Project

## Water Topics Overview Committee

By:  
Mayor Tim Mahoney, City of Fargo

March 8, 2016



## Presentation Outline

- 💧 Federal Appropriations for Construction
- 💧 2016 Diversion Authority Priorities
- 💧 Diversion Authority 2016 Budget



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## Federal Appropriations for Construction

- 💧 In February, the U.S. Army Corps of Engineers 2016 Work Plan named FM Diversion Project as 1 of 6 “new starts” in the country
- 💧 New start provision allows Project to be included in future annual funding to the Corps without specific Congressional action
- 💧 2016 Work Plan included \$5 Million, to be obligated this fiscal year (by Sept. 30)
- 💧 Corps will bid and award \$50 Million in construction in 2016

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## 2016 Diversion Authority Priorities

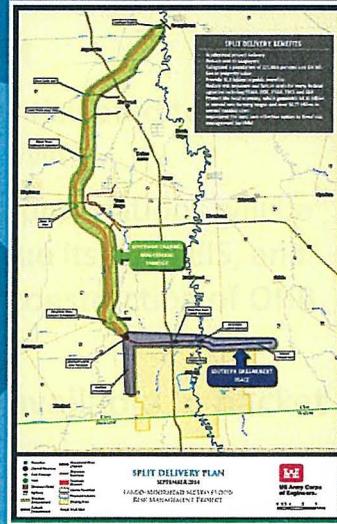
- 💧 Mitigation Solutions
  - Home Buyouts
  - Ag Policy
  - Cemeteries
- 💧 MN DNR Environmental Impact Statement (EIS)
- 💧 In-town Levee Construction
  - \$130 Million Spent to Date
  - \$40 Million in Progress
  - 18 Miles of Levees Constructed
- 💧 Prepare for Public-Private Partnership (P3) Split Delivery
- 💧 See ‘2016 Priorities’ letter from Diversion Authority Chairman Darrell Vanyo in your packet



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# Prepare for P3 Split Delivery

- Federal funding triggers local sponsor requirements
  - Joint Powers Agreement
  - Project Partnership Agreement
  - Financial Plan
- P3 Activities
  - RFQ
  - RFP



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## Why use a Public-Private Partnership?

- 💧 Surest route to **Federal dollars**
- 💧 Authority gets schedule and **cost certainty**
- 💧 Delivers **best value** for the public's money
- 💧 Promotes delivery **innovation**
- 💧 Assigns risk to the party most able to manage the risk
- 💧 Provides **performance guarantees** and long-term warranties
- 💧 **Shortens schedule** – achieves flood risk reduction sooner



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## 2016 Diversion Authority Budget

- 💧 FY2016 Budget is \$237.5M
  - Up to \$150M of which is anticipated to be reimbursable through ND SWC
  - Budget assumes federal appropriations will be identified, MN DNR will issue its Final EIS, and Preliminary Injunction for construction of OHB Ring Levee will be lifted
- 💧 2016 budget summary is available in packet with more information

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**Thank You for Your Partnership!**



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## **Diversion Authority Goals for 2016**

Now that we have heard from our Congressional Delegations the good news that federal funding could be on the way, flood protection for Fargo-Moorhead is expected to take significant steps forward in 2016. In December, the Diversion Authority approved a \$237.5 Million budget for 2016. The budget supports efforts based on the assumption that three major milestones will be completed; the Minnesota DNR will issue its final EIS, the preliminary injunction for construction of the OHB Ring Levee will be lifted, and federal appropriations for construction will be obtained.

As Chairman, I have heard loud and clear the concerns about the impacts from the Diversion Project;

- **What is being done to mitigate the impact to farmland?**
- **What is being done to protect cemeteries within the staging area?**
- **When will we be certain which properties will be bought and when?**
- **What will the Diversion Project cost?**

We know that there are several unresolved questions regarding the impacts that will be caused by the Diversion Project. What the mitigation will be for those impacts is a key question and an important piece of the puzzle. We are working on solutions, but have been unable to complete the answers to these questions because we have not yet obtained the federal commitments needed to begin Project construction. We are committed to spending the time and taxpayer dollars necessary to develop answers as soon as we are certain the project is underway with a federal commitment.

With the approval of the 2016 Diversion Budget, we have approved money to move forward to work with upstream residents and technical experts to develop solutions.

### **What is being done to mitigate the impact to farmland?**

In order to operate the Diversion Project during times of major flooding, the staging of water upstream is necessary. There is an 85% chance in any given year that there will be no additional water upstream of the Project and the Diversion will not operate. When it does operate, water will be stored for approximately 1-3 weeks in the spring. The question we need to answer is, how will farmers be compensated for additional water on their land when the Project operates? The recently released NDSU study takes a big step forward in answering this question, but we are not

there yet. We know flowage easements are a federal requirement and we will obtain them. In addition, we need a better understanding of how federal crop insurance is impacted by Project operations and if the Diversion Authority should consider additional mitigation on top of the federal flowage easement.

It is my vision that easement payments for those inundated begin to be determined by year end. If this can be achieved, then those land owners interested in working with the Diversion Authority to finalize individual agreements will be provided with the opportunity to do so.

### **What is being done to protect cemeteries within the staging area?**

The Red River Valley is prone to flooding. We have numerous cemeteries up and down the Red River that flood today. With the Diversion Project in place, there are several sites where this flooding is worse. We have to, and will, address this. The Corps of Engineers released an incredibly detailed report on each cemetery in the area that included potential mitigation options for each. This mitigation is a local responsibility and is to be paid with local taxpayer dollars. Given the current legal environment, we have been unable to advance this mitigation and cannot until the MN EIS is final. What we can do is ask representatives from the impacted cemeteries to join with representatives from the Diversion Authority to sit down at a table and go through the options and try to find the best option. We will do this in 2016.

I would like this group to begin meeting soon to categorize the types of impacts on cemeteries. It would seem achievable by year end to have a better understanding of future mitigation plans for cemeteries. I envision this effort would include meeting with each cemetery manager and working together to develop a mitigation plan that is appropriate and workable. Costs would be developed for each cemetery's mitigation plan and then forwarded to the Diversion Authority. I do not expect this work to be entirely complete at year end, but substantial progress should be made and we can prioritize implementing these efforts in future budgets.

### **When will we be certain which properties will be bought and when?**

In 2016, we will expand the current voluntary home buyout program to those within the impacted area who wish to move elsewhere. The metro area has acquired over 700 homes in the name of flood protection and we have approximately 100 more that are needed to implement the Diversion Project. To date, the Diversion Authority has purchased a few dozen homes in Oxbow and homes where a medical hardship exists. Throughout this process, we have heard a desire from many impacted homeowners to move out of the limbo they are in and start the buyout process now. It is my goal, and the budget complements this goal, that we make contact with the owners that have expressed this interest in hopes of being able to jointly reach an agreement on how to move forward.

### **What will the Diversion Project cost?**

Taxpayers in Cass County and Fargo know we need flood protection and have voted three times to implement taxes to support permanent flood protection. With the passage of two dedicated sales taxes and a special assessment district for financing, we are further ahead than any project

in the country. We owe it to the taxpayers now to develop a final comprehensive cost estimate and financial plan. What is the price of the protection we need? How will construction be financed and how long will we need to extend the sales taxes further into the future to allow more generations to share in the cost of protection? We will know these answers in the coming months and will be able to have an open conversation with the taxpayers about what final commitments are needed to get the protection we all know we need.

Like any significant public infrastructure undertaking, the Diversion Project is large, expensive, and complicated. The Diversion Project is also an absolute necessity to protect our economy from being destroyed, our homes from being lost, and for the long-term relief for more than 20,000 homes on both sides of the river from paying increasingly burdensome flood insurance costs. With the Diversion Project, we have the right plan in place and are ready to begin construction, and in 2016, we expect to obtain the federal and state commitments to begin.

I know it has been difficult for those potentially impacted by the Project and for those within the protected area in need of protection as we wait for resolution of these questions. Know that we are working fervently to attain the federal and State approvals, as well as advance mitigation plans, so that we can start as soon as possible. Our Senators and Congressmen in Washington are also working hard with the same goal in mind: to get protection in place for Fargo-Moorhead before the next big flood comes. We are working as quickly as possible to make this happen, but as slow as we need to in order to respect the processes that are in place. This is not an easy task and we have undoubtedly stepped on toes along the way as we balance these two aspects of Project implementation. We are doing our best and only hope that our efforts are enough as we watch the waters rise each spring.

Sincerely,

Darrell Vanyo  
Diversion Authority Chairman

# Fiscal Year 2016 Budget Summary

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**December 15, 2015**

## **Overview**

The Diversion Authority Fiscal Year 2016 (FY16) budget is presented to continue to implement permanent flood protection for the metro area and achieve the following:

1. Continue On-Going Activities
  - a. Support MN DNR through completion of its EIS
  - b. Complete substantial portions of in-town flood protection for downtown Fargo, El Zagal, and Mickelson
  - c. Support Corps and Local Design and Construction Projects
  - d. Advance Mitigation Projects
  - e. Support Diversion Commitment to Retention Projects
  - f. Fulfill Non-Federal Sponsor Requirements
  
2. Prepare for Split Delivery Project Implementation
  - a. Negotiate the Project Partnership Agreement with the Corps
  - b. Complete a Financial Plan to support P3 delivery
  - c. Initiate the procurement of a P3 contractor
  - d. Amend Diversion Authority JPA
  - e. Acquire lands along the channel and diversion inlet
  - f. Support Corps construction contracts on Southern Embankment and Associated Infrastructure split delivery

## **Background**

The Diversion Authority FY16 is on a calendar year basis, which will begin January 1, 2016 and end December 31, 2016. Previously, fiscal years paralleled the federal fiscal year basis, October 1 through September 30. The fiscal year basis was changed by the Diversion Authority Board in 2015 and FY15 was changed to a 15-month fiscal year ending on December 31, 2015.

Summary of previous budgets:

FY12 -- \$13M

FY13 -- \$32M

FY14 -- \$70M

FY15 -- \$224M (\$13M carryover from FY2014 and \$211M new)

## **Fiscal Year 2016**

The proposed FY16 Budget is \$237.5M, including \$96.3M in FY2015 committed costs, and \$141.2M in new allocations.

The proposed FY16 budget assumes the following will occur in Q1/Q2 2016:

- MN DNR will issue its Final EIS,
- The Preliminary Injunction for construction of the OHB Ring Levee will be lifted, and
- Federal appropriations will be identified.

The budget consists of seven main categories:

<b>Design/Permitting</b>	<b>\$ 7.5 M</b>
<b>Land Acquisition</b>	<b>\$ 109.9 M</b>
<b>Construction</b>	<b>\$ 88.0 M</b>
<b>Management/Legal/Finance</b>	<b>\$ 12.9 M</b>
<b>Mitigation</b>	<b>\$ 0.8 M</b>
<b>Utility Relocates</b>	<b>\$ 17.0 M</b>
<b>Retention</b>	<b>\$ 1.4 M</b>
<b>Total</b>	<b>\$ 237.5 M</b>

### **Design/Permitting**

The budget includes completion of designs for In-Town Levees (WP-42) and OHB Ring Levee (WP-43), as well as support for Corps design of the Southern Embankment and Associated Infrastructure, support for procurement of the P3 Developer, and permit preparation. Also included is carry-over funding, along with additional funding, for the DNR to complete its EIS.

This portion of the budget also includes engineering services during construction.

### **Land Acquisition**

The budget for land acquisition includes the completion of acquisitions for In-Town Levees (WP-42), and OHB Ring Levee (WP-43). It also assumes acquisitions for CR16/17 bridge and road project (WP-28), which is required to be under construction before the Corps can begin construction of Diversion Gated Inlet (WP-26), for which the land is also included. Land acquisition also includes planning for additional medical hardship acquisitions and other opportunistic land purchases.

Land acquisition for the Public-Private Partnership (P3) project, the Diversion Channel and Associated Infrastructure (DCAI), is planned to be completed in three phases to be spread over 3 fiscal years, FY2016, FY2017, and FY2018. The FY2016 budget includes 50 percent of the Phase 1 acquisitions.

This portion of the budget also includes land acquisition services.

### **Construction**

The budget for construction includes continued construction of In-Town Levees (WP-42) (including completion of the 2<sup>nd</sup> Street and 4<sup>th</sup> Street pump stations), construction of the 2<sup>nd</sup> Street floodwall and road relocation, levee construction in El Zagal and Mickelson, demolition of Howard Johnson's and Fargo Public Schools (partial) and demolition or removal of houses. The budget also includes resuming construction of the OHB Ring Levee (WP-43), including portions of the levee, storm water pump station, ponds and piping, and road raises, as well as demolition or relocation of houses in Oxbow. Also included in the budget is CR 16/17 bridge and road project (WP-28).

This portion of the budget also includes construction management, materials testing, and construction surveying.

### **Management/Legal/Financial**

The budget includes services for program management, including oversight of Diversion Authority contracts, coordination with the Corps, coordination with DNR, change management, public involvement, government affairs, schedule and budget control, and document control; legal, including local development and review of contracts and agreements, outside counsel for litigation support, and outside counsel for P3 Developer procurement support; and financial advisor overall P3 funding and procurement support.

### **Mitigation**

The budget includes design of river restorations and riparian wetland mitigation around OHB utilizing the golf course holes outside the ring levee footprint. Initiate additional local cemetery mitigation outreach is included. Also within the budget is funding for additional study of agricultural mitigation, including supplemental income / crop insurance.

### **Utility Relocates**

The budget includes utility relocates for OHB Ring Levee (WP-43), the Diversion Channel and Associated Infrastructure, and In-Town Levees (WP-42).

### **Retention**

The budget includes cost share funding for Phase I retention project upstream of Halstad. Projects proposed and recommended for Phase I funding approval include six projects in Minnesota; including three Buffalo Red River Watershed District projects and three Bois de Sioux Watershed District projects.

# Fargo-Moorhead Metropolitan Flood Risk Management

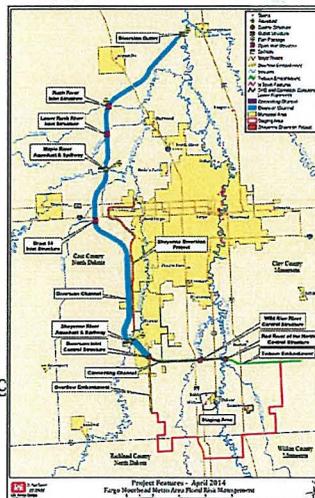
## ND Water Topics Overview Committee

Colonel Dan Koprowski  
 District Commander  
 St. Paul District  
 8 March 2016



## The Authorized Project

- What does the diversion do?
  - Provides 100-year flood protection with the ability to flood fight up to a 500-year event
  - Benefits ~225,000 people
  - Provides benefits to more than 70 square miles of existing infrastructure
  - Is the **only** feasible way to provide 100-year certifiable flood risk management to the Fargo-Moorhead metro area
  - The best possible engineering solution
  - The diversion plan is the **safest, most reliable, and most resilient** plan for existing infrastructure and population centers



## Federal Construction Start

- **Construction New Start and Funding Received:** Another milestone achieved!
  - USACE 2016 Work Plan included \$5 million in construction funds for Fargo-Moorhead
  - Fargo-Moorhead was 1 of 6 projects nationwide chosen to be a New Start
  - Most important funding this project will ever receive – allows Federal construction to begin
- This project is one of the top priorities for the Corps of Engineers
- Success is a testament to the strong, dedicated Corps-Sponsor team working since 2008
- First USACE Project to be implemented using Public-Private Partnership (P3)



## Federal Construction Start

- **2016 Work Plan included restrictive language:**

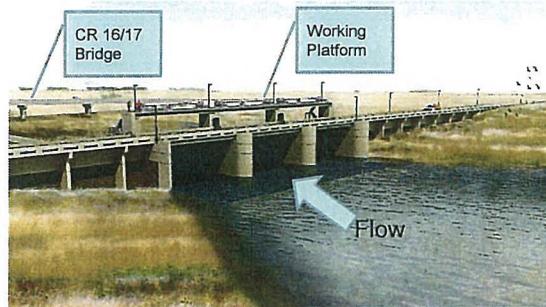
*"The Minnesota Department of Natural Resources began its environmental review of the Fargo-Moorhead Metro project in January 2012, and is currently scheduled to publish a final Environmental Impact Statement in May 2016. No earlier than July 2016, the ASA(CW) will assess the progress of all state environmental reviews and regulatory requirements needed to complete construction of the project as authorized. The Corps will not execute a PPA for construction of the project, or use Federal funds for its construction, until the Assistant Secretary of the Army, Civil Works determines that the Corps is likely to resolve any outstanding regulatory issues that could affect the prospects for completing construction of the project."*

- We will continue working with the DNR to move this critical project forward
- Submitted permit applications to both NDSWC and MnDNR
- Anticipate signing a Project Partnership Agreement (PPA) in July 2016
- Anticipate awarding the first federal construction contract in the Fall 2016



## Diversion Inlet Control Structure

- First Federal construction contract
- Award in Fall 2016
- Controls flow into the diversion channel
- 3-50' wide gates
- 100/500-year flows: 20,000 cfs



View of the Southern Gateway Diversion Inlet Control Structure from the CR 16/17 Bridge  
 Diversion Inlet Structure - Analytical Treatments

Full Day 6, 2016 



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## Development of Split Delivery Plan

- **Rigorous planning/analysis conducted with goals of:**
  - Accelerating Project Delivery
  - Reducing cost to taxpayers
  - Reducing risk to population and infrastructure sooner
  - Reducing scheduling and funding risks
  - Demonstrate a viable strategy to reduce USACE backlog of projects
- **Sponsors and USACE have agreed to pursue a Split Delivery Plan**
  - Best option to implement the project



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## Split Delivery Plan

- **Diversion Channel: non-Federal Sponsors, Public-Private Partnership (P3)**
  - **Southern Embankment (dry dam): USACE traditional implementation**
- Accelerates project delivery
    - 11 contracts vs. 28
    - Diversion/embankment constructed simultaneously
  - Reduces life cycle costs
  - Reduce flood risks to People/Infrastructure Sooner
  - Mitigates appropriations risk



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## What is P3?

“A contractual agreement between a Public Agency (federal, state, or local) and a private sector entity. Through this agreement, the skills, and assets of each sector (public and private) are shared in delivering a service or facility for the use of the general public. In addition to the sharing of resources, each party shares in the risks and rewards potential in the delivery of the services and/or facility.”

- The National Council for Public-Private Partnerships, “Testing Tradition Assessing the Added Value of Public-Private Sector Partnerships,” (Arlington, Virginia 2012) p.2, <http://www.ncppp.org/wp-content/uploads/2013/03/WhitePaper2012-FinalWeb.pdf>



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## P3 Advantages

- Leverages private resources to expedite implementation - its not privatization
- Public and Private financing combined to ensure most efficient delivery
- Includes Operation and Maintenance for 30-50 years
  - Provides cost and functionality certainty for Project through O&M period
- Balances life-cycle costs with capital costs
- Generates economy of scale for construction through bundling
  - Example: 1 contract vs. several
  - Allows for greater innovation.
- Transfer of Contracting and Construction Risk to Private Sector



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## P3 and Fargo-Moorhead

- P3 will only be used for the diversion channel and associated infrastructure
- Will be a contract between the local sponsors and a Developer
  - Developer likely a team consisting of finance, design and construction firms
  - Developer will enter into a "Development Agreement" whereby they agree to design, build, finance, operate and maintain (DBFOM) the diversion channel and associated features
- P3 is new to the Corps but not to America/the World
  - Its use in America predates the Revolutionary War
- USACE has designated FMM as a P3 Demonstration Project due to solid plan, strong partnership with sponsors and importance to the nation.

***Fargo-Moorhead will Demonstrate Proof of Concept for both Alternative Delivery and P3, While Also Mitigating Critical Life/Safety Risks and Economic Impacts in ND/MN***



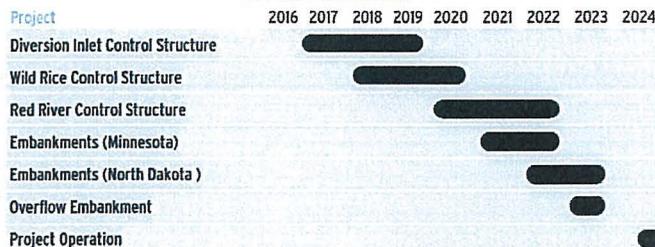
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# Project Implementation

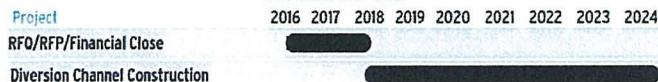
## FEDERAL CONSTRUCTION SCHEDULE

### SOUTHERN EMBANKMENT



## SPONSOR CONSTRUCTION SCHEDULE

### DIVERSION CHANNEL



- Federal schedule assumes capability funding stream
- Actual diversion channel schedule determined upon P3 Financial/Commercial Close



# Conclusion

- Federal appropriations for construction of FMM have been approved
- St. Paul District committed to working with our local sponsors and States to implement this critical project
- FMM selected as Demonstration Project by USACE for implementation by Public-Private Partnership and has full support of USACE to ensure success



**U.S. Army Corps of Engineers**  
**Public-Private Partnerships**  
**February 2016**

This report describes the work that the Corps has completed to date toward the development of potential alternative financing P3/P4 transactions. It includes an update on progress in implementing Section 5014 of WRRDA 2014; and a discussion of the P3 or P4 demonstration projects that the Corps has considered thus far.

**Background**

Under its ongoing Civil Works Transformation efforts, the Corps is exploring alternative approaches to deliver resilient, reliable and sustainable water resources infrastructure. These efforts have many goals, including sustaining performance; extending service life; buying down Federal risk related to existing infrastructure; reducing life cycle costs; and expediting delivery of the project benefits. Alternative financing mechanisms, including public-private partnerships (P3s) and public-public-private partnerships (P4s)<sup>1</sup> are some of the tools being considered as the Corps seeks other ways to use the available Federal funding to provide the greatest return to the Nation.

**Work To-date on Developing Public Private Partnerships**

Over the last several years, the Corps has been analyzing its portfolio to assess where a P3 or P4 structure may provide a more efficient and cost-effective means of delivering water infrastructure services. This effort is related to Civil Works Transformation; it is also consistent with the President's Memorandum Expanding Public-Private Collaboration on Infrastructure Development and Financing. A specific P3 or P4 structure will be unique to each project's situation and depend on many factors (e.g., authorizing legislation; desired allocation of risks, rights and responsibilities; asset ownership; assignment of contingent liabilities).

In addition, the Corps has also been working specifically to develop potential demonstration projects for P3 or P4 delivery, to provide proof of concept and help identify replicable practices that will achieve efficient and effective project delivery. Corps headquarters has worked with each Major Subordinate Command (MSC) and requested that each MSC develop two P3/P4 demonstration proposals across various business lines (e.g., navigation, hydropower, recreation), as well as working with project sponsors and stakeholders. The Corps is currently evaluating a number of these demonstration projects through an iterative process that includes developing and evaluating a range of possible alternative delivery models. Evaluation of the models includes both qualitative and quantitative assessment, where the latter includes financial modeling to confirm financial feasibility of alternative delivery models and value for money analysis to and compare the costs and benefits of traditional project delivery versus the identified alternative.

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<sup>1</sup> A P4 is, essentially a multi-jurisdictional P3 (with multiple public partners) in which one or more of the public parties have a contractual relationship with the private sector.

In addition to these projects, the Corps has also explored a number of additional projects at a conceptual level that are not yet being developed as a demonstration project or where the project specific details did not support additional investigation for a P3/P4 application.

### **Water Resources Reform and Development Act of 2014, Section 5014**

Section 5014 of WRRDA 2014, provides that “any activity undertaken under this section is authorized only to the extent specifically provided for in subsequent appropriations Acts.” The Corps issued implementation guidance for this provision on September 30, 2015, which indicated that “At such time as appropriations are provided for Section 5014 activities, additional guidance will be provided.”

### **P3 or P4 demonstration projects being evaluated.**

- **Fargo-Moorhead, ND/MN.** This flood risk management project consists of an embankment/dam to temporarily store floodwaters, and a diversion channel to divert flood water around both cities. In order to expedite project delivery, the Corps and local sponsors developed a “split delivery” approach, where the local sponsors would use a design-build-finance-operate-maintain P3 structure to construct the diversion channel, and the Corps would use its traditional methods to construct the southern embankment/dam.
- **Illinois Waterway, IL.** This navigation proposal aims to improve the reliability of eight locks and dams on the Illinois Waterway. Although baseline structuring and financial modeling have been done, continued project development is needed to resolve issues pertaining to revenue generation authority and Federal ownership and operations.
- **Great Lakes.** This navigation proposal seeks to partner with industry to reduce the cost of harbor dredging in the Great Lakes by developing innovative ideas for dredging and placement of dredged material. Project scope and location(s) are still under development.
- **Whittier-Narrows, CA.** This flood risk management and water storage/supply proposal consists of improvements to a dam that allows for the capture of additional storage of storm water for groundwater recharge. The specific application of alternative financing and delivery options is pending development of a report on viable options that address residual dam safety concerns.
- **Sabine Neches Deepening, TX/LA.** This navigation channel deepening project in the Sabine-Neches waterway would provide an additional six-foot depth to the existing channel.
- **Ala Wai, HI.** The Corps is evaluating options for a proposed flood risk management project at this location; that study is in the feasibility stage. Current activities include creating a local community investment vehicle that is specifically considering whether early development of P3 type structures could be used, among other alternative financing options.

## Advances and Remaining Challenges

The value of a P3 or P4 is that, in many cases, the private partner can provide full up front financing with bundled project delivery across phases, which has the potential to maximize efficiency and allow a project to be delivered in a fraction of the time compared to traditional processes. While P3 and P4 structures can be an effective tool for project delivery in some cases, it is not a replacement for traditional delivery models. Advances in partnership development efforts to-date include: identifying some partnership structures that can be implemented under current Corps authorizations; learning that the feasibility phase may be the best time to assess and select the most appropriate financing and delivery approach; learning that the efficient application of partnership concepts is very business line or project specific; and identifying a number of significant legal and authority challenges presented when considering a P3 transaction without a formal non-Federal sponsor. Given the established cost sharing relationships that the Corps has with a wide variety of non-federal partners, a P4 agreement would be the most likely transaction scenario for most Corps projects.

The Corps has also identified several authority and policy issues that must be addressed for broader adoption of partnership structures:

- **Revenue generation.** The Corps currently has limited authority to assess project-specific user fees or generate commercial revenues from projects, or to commit revenues to a third-party. This effectively eliminates the possibility of user-paid structures.
- **Projects are expensive, even with alternative financing.** As with other Government projects, the Corps must recognize the full cost of a contract at the time that obligation is incurred. Private partners expect sufficient payment over the life of the agreement to make a profit, in addition to covering all direct and indirect costs.
- **Risk allocation.** Non-Federal partners are reluctant to assume many of the risks that the Corps bears for water infrastructure projects, particularly liability for project failure.
- **Authority and Scoring Barriers.** A fully successful program involving revenue generation and ring fencing would need a change in authority, and would likely have budgetary impacts as well as increasing the amount that users pay to use the asset.

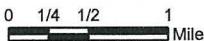
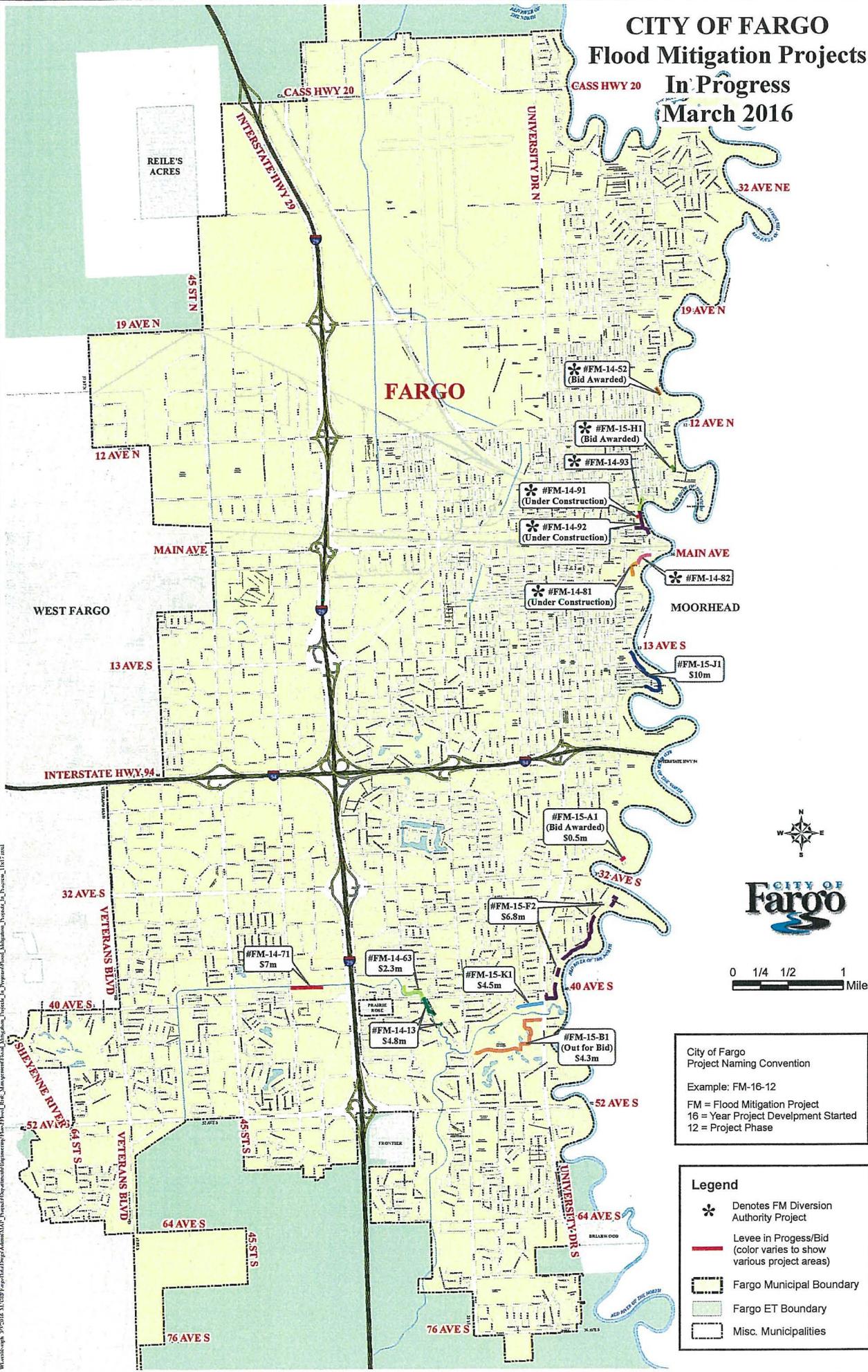


# CITY OF FARGO

## Flood Mitigation Projects

### In Progress

### March 2016



City of Fargo  
Project Naming Convention

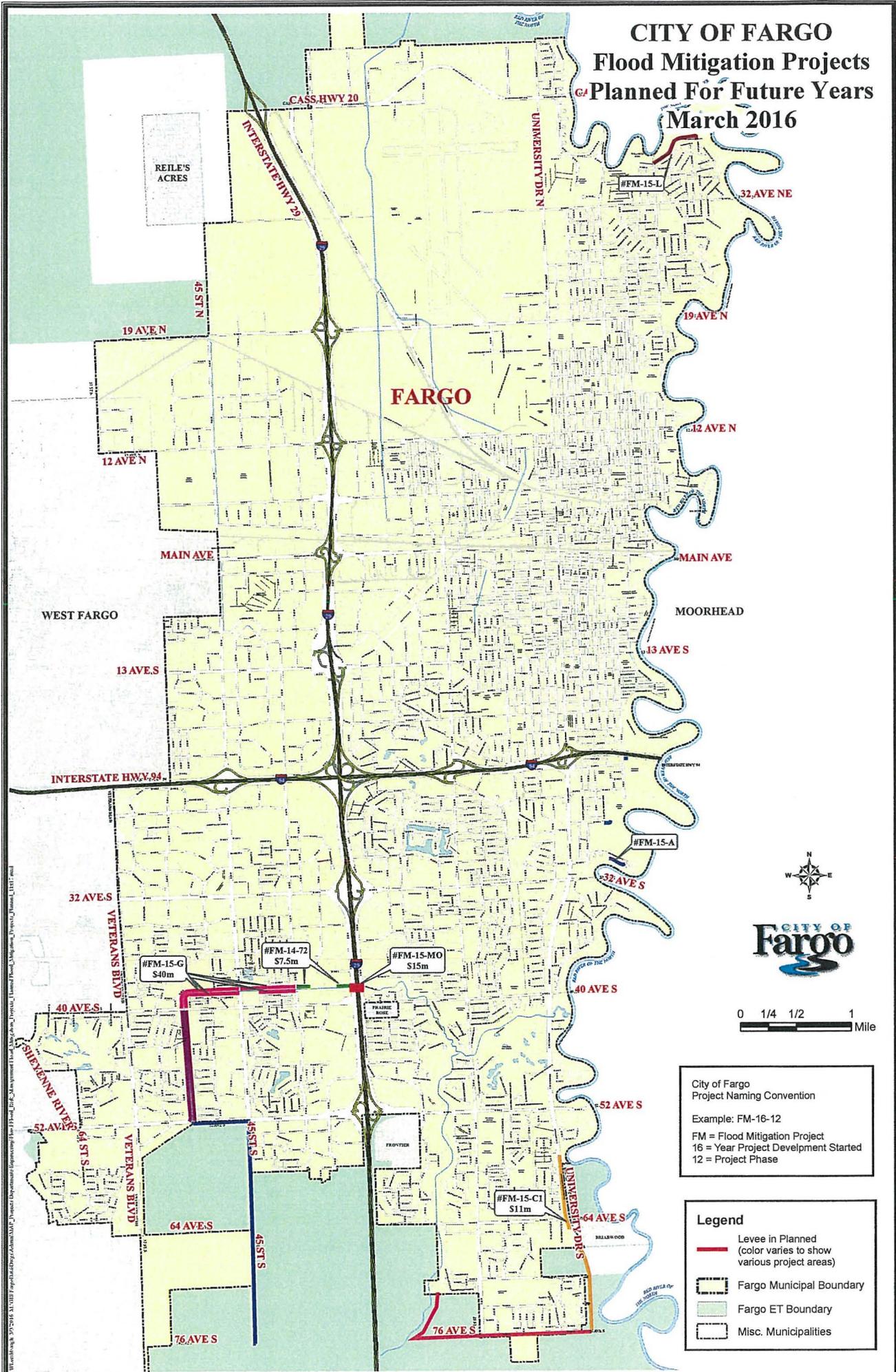
Example: FM-16-12

FM = Flood Mitigation Project  
16 = Year Project Development Started  
12 = Project Phase

- Legend**
- \* Denotes FM Diversion Authority Project
  - Levee in Progress/Bid (color varies to show various project areas)
  - ▭ Fargo Municipal Boundary
  - ▭ Fargo ET Boundary
  - ▭ Misc. Municipalities

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 User: jgibson  
 Project: Flood Mitigation Map Series\_101116

# CITY OF FARGO Flood Mitigation Projects Planned For Future Years March 2016



City of Fargo  
Project Naming Convention

Example: FM-16-12  
 FM = Flood Mitigation Project  
 16 = Year Project Development Started  
 12 = Project Phase

- Legend**
- Levee in Planned (color varies to show various project areas)
  - Fargo Municipal Boundary
  - Fargo ET Boundary
  - Misc. Municipalities

WorkSheet: 3/15/16 3:11:07 PM Project: Flood Mitigation - Fargo, ND  
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# **NOTICE OF INTENT (NOI)**

to develop a

**Public-Private Partnership**

to

**Design-Build-Finance-Operate-Maintain**

the

**Diversion Channel and Associated Infrastructure**

of the

**Fargo-Moorhead Area Flood Diversion Project**

Issued By: Flood Diversion Board of Authority

Issue Date: September 2, 2015

# Flood Diversion Board of Authority

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Approved:

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Darrell Vanyo, Chairman

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Date

# Notice of Intent

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## Introduction

The communities of Fargo, ND and Moorhead, MN, along with Cass County, ND, Clay County, MN, the Cass County Joint Water Resource District, and the Buffalo-Red River Watershed District, have signed a joint powers agreement that forms the Flood Diversion Board of Authority (Diversion Authority). The Diversion Authority, representing the local communities as the non-Federal Sponsors (NFS), and the United States Army Corps of Engineers (USACE), representing the Department of the Army, have, as a team, completed significant work in readying the Fargo-Moorhead Metropolitan Area Flood Risk Management Project (the Project) for implementation.

Construction of the Project was authorized by the US Congress as part of the Water Resources Reform and Development Act of 2014, Public Law 113-121. The Diversion Authority and the USACE recognize that advancing the completion of the Project as soon as practicable is critical to reducing flood risk for the Fargo-Moorhead metropolitan area. The estimated \$1.8 billion Project, which is comprised of multiple project features, has been selected by USACE as a demonstration project that will be implemented using a Split Delivery model. Under the Split Delivery model, the multiple Project features will be split into those implemented by the Diversion Authority and those implemented by the USACE. The majority of the Diversion Authority's features will be delivered through a Public-Private Partnership (PPP) project, whereas the USACE intends to use traditional Design-Bid-Build (DBB) and Design-Build (DB) methods.

The portions of the Project that the Diversion Authority will implement through a PPP are collectively referred to as the Diversion Channel and Associated Infrastructure Work Package (DCAI WP). The DCAI WP generally consists of 30 miles of channel, 2 aqueducts, 2 river inlets, various local drainage inlets, the channel outfall, 4 railroad bridges, 4 interstate highway bridges, and 10 county road bridges, as well as associated environmental mitigation and recreational features. Further detail is provided in Attachment A: Diversion Channel and Associated Infrastructure Work Package Scope.

The portions of the Project that the USACE will implement through traditional DBB and DB methods are collectively referred to as the Southern Embankment and Associated Infrastructure (SEAI). The SEAI may include multiple and separate construction packages that are yet to be defined by the USACE in cooperation with the Diversion Authority. In addition, the Diversion Authority and the USACE are currently designing and constructing Mitigation and Associated Infrastructure Work Packages (MAI WP) that will not be part of the PPP and will be delivered through traditional DBB or DB methods.

The Diversion Authority intends to seek competitive PPP proposals through a fair and transparent procurement process, and enter into a single PPP Agreement with a PPP Developer for the design, build, finance, operation, and maintenance (DBFOM) of the DCAI WP as generally described herein. The USACE will not be signatory to the PPP Agreement, and the PPP procurement and DCAI WP implementation will be exclusively within the control of the Diversion Authority. The purpose of this Notice of Intent (NOI) is to increase market interest in, and competition for, the DCAI WP, as well as provide initial information about the intended PPP procurement process.

**NOTE: This is only a Notice of Intent, not a commitment, by the Diversion Authority. The Diversion Authority is anticipating satisfactory resolution of certain enabling outcomes, as identified in the "Current Project Status" section, to occur prior to the procurement process advancing beyond this NOI. The Diversion Authority may modify or cancel this NOI at any time.**

## Project Goals

The purpose of the Project is to reduce flood risk, flood damages, and flood protection costs related to flooding in the Fargo-Moorhead area and to accomplish the following goals:

- Reduce flood risk associated with a long history of frequent flooding on local streams, including the Red River of the North, Sheyenne, Wild Rice, Maple, Rush, and Lower Rush Rivers passing through or into the metro area.
- Qualify substantial portions of the metropolitan area for 100-year flood accreditation by Federal Emergency Management Agency (FEMA) under the National Flood Insurance Program, including currently known anticipated future floodplain map revisions.
- Reduce flood risk for floods exceeding the 1% event (100-year flood or greater) by lowering the predicted flood stage at the Fargo gauge to 40 feet during the 0.2% event (500-year flood).

## PPP Delivery Goals

The goals of the Diversion Authority in employing a PPP delivery approach include benefitting from: (i) innovative design, construction, and financing that results in cost savings and schedule improvements; and (ii) risk assignment, including long-term operation and maintenance by the PPP Developer. It is expected that the PPP Agreement will provide cost and schedule certainty upon contract execution, and provide a high-quality product that will benefit the Fargo-Moorhead metropolitan area for generations.

## Current Project Status

The Project has achieved the following major milestones:

1. Report of the USACE Chief of Engineers submitted to Congress: December 19, 2011
2. Record of Decision (ROD) signed by the Assistant Secretary of the Army (Civil Works): March 3, 2012
3. Congressional Authorization: Water Resources Reform and Development Act of 2014, Public Law 113-121

The Diversion Authority is anticipating successful resolution of the following three (3) enabling outcomes before advancing the PPP procurement process beyond this NOI:

1. Determination of Adequacy on the Minnesota Environmental Impact Statement (MnEIS) from the Minnesota Department of Natural Resources (MnDNR);
2. Lifting of the Preliminary Injunction issued by the US District Court for the District of Minnesota – Civil File No. 0:13-cv-02262-JRT-LIB; and
3. Appropriation of federal funds and designation as a USACE new construction start.

## Proposed Procurement Process

Prior to the start of the procurement process, the Diversion Authority intends to have one or more Industry Forums, which will be publicly advertised and open to interested parties. The Diversion Authority will provide updated information regarding the scope and the procurement schedule, and will be available for questions.

The Diversion Authority is going to undertake a fair and transparent procurement, leveraging industry best practice, which is expected to include a two phase procurement with a Request for Qualifications (RFQ) phase followed by a Request for Proposal (RFP) phase.

The RFQ will be publicly advertised, provide additional detail on the DCAI WP and procurement process, and supersede this NOI.

The Diversion Authority intends to evaluate the received Statements of Qualifications and shortlist a limited number of parties to proceed to the RFP phase. Only the shortlisted firms will receive Requests for Proposals (RFP). The proposal process may include confidential meetings with each proposer entity to discuss proprietary concepts. The Diversion Authority intends to select the preferred proposer using a best-value approach. The specifics of the evaluation process and scoring criteria will be included with the RFQ and RFP, as applicable.

## Procurement Schedule

The Diversion Authority may hold Industry Forum(s) as early as the 4<sup>th</sup> quarter of 2015.

Shortly after satisfactory resolution of the three enabling actions, which could occur as early as first quarter 2016, the Diversion Authority intends to proceed with the PPP procurement process. The goal is to begin construction on the DCAI WP in the summer of 2017, and finish as soon as practicable.

## Diversion Authority's and Project's Organizations and Consultants

The Diversion Authority, to date, has engaged two primary firms to assist with the PPP procurement and implementation. These firms will consult with the Diversion Authority's local administrative, financial, and legal representatives regarding all aspects of PPP procurement and implementation. These include:

- Owner's Agent: CH2M HILL Engineers, Inc. (CH2M)
- Financial Advisor: Ernst & Young Infrastructure Advisors, LLC (EYIA)

In addition, the Diversion Authority has engaged firms to provide technical assistance in preparing the procurement documents and evaluating the SOQs and Proposals. These include:

- Houston-Moore Group, LLC (HMG) and sub-consultants:
  - Houston Engineering, Inc (HEI)
  - Moore Engineering, Inc (MEI)
  - Braun Intertec Corporation (Braun)

The Diversion Authority and the USACE have involved and employed many organizations and consultants (and sub-consultants) over the history of the Project. The Diversion Authority has determined that there is no conflict of interest or prohibition on proposing or being part of a proposal team for organizations or firms that have been involved in the Project prior to the issuance of this NOI. However, organizations or firms that have decided to support the Diversion Authority on the DCAI WP moving forward, either by assisting in the procurement process for the PPP Developer or in providing professional services on the DCAI WP during the procurement, are considered to be organizationally conflicted and precluded from participating on a PPP team.

Attachment B provides a list of organizations or firms that have worked on the Project or DCAI WP in the past, but are not assisting in the procurement process for the Diversion Authority or providing professional services on the DCAI WP (Organizationally Eligible Firms) – these firms have been identified as eligible to pursue the PPP procurement as a prime or team member. Attachment B also provides a list of organizations or firms that have worked on the Project or DCAI WP in the past, but are assisting in the PPP procurement process for the Diversion Authority or are providing professional services on the DCAI WP (Organizationally Conflicted Firms) – these firms have been determined by the Diversion Authority to be **precluded from** the PPP procurement as a prime or team member.

## Project Website

The Diversion Authority hosts a website, [www.fmdiversion.com](http://www.fmdiversion.com), which contains information about the Project. The Diversion Authority intends to establish a link on that website where information on the PPP Procurement will be posted. This information may include updates to this NOI (which may also be noticed elsewhere), updates to the procurement schedule, and other general information.

Interested parties are advised to visit the website regularly to check for new information or announcements regarding the PPP procurement process. The Diversion Authority shall not be responsible for any failure of any party to note information on the website.

## Communication Protocols

Interested parties shall correspond with the Diversion Authority regarding this NOI only through the designated representatives, who must initially be contacted through e-mail at the address identified herein. Follow up meetings and site visits may be scheduled with the Diversion Authority if, in the sole determination of the Diversion Authority, it is beneficial to the Diversion Authority and the development of the PPP procurement process to do so. Interested parties are expected to conduct themselves with professional integrity and to refrain from lobbying activities with respect to this NOI. Potential PPP proposers or team members are advised not to contact or communicate with the USACE regarding this PPP procurement or the DCAI WP.

The Diversion Authority has designated the following individuals to be its authorized representatives and solely authorized contact persons during the NOI phase of the PPP procurement:

Bruce Spiller, P.E., DBIA, Program Manager @ [bruce.spiller@ch2m.com](mailto:bruce.spiller@ch2m.com)  
Martin Nicholson, Senior VP, Program Director @ [martin.nicholson@ch2m.com](mailto:martin.nicholson@ch2m.com)  
CH2M  
520 Main Avenue, Suite 600  
Fargo, ND 58103

The Diversion Authority has met or had discussions with several interested parties prior to the issuance of this NOI. The Diversion Authority and its consultants and advisors will not be responsible for, and interested parties may not rely on, any oral or written exchange or any other information or exchange that is not documented on the website or officially released by the Diversion Authority for the purpose of this procurement.

## Opportunity for Local Businesses

The Diversion Authority recognizes that local firms may not possess all of the necessary capacity or technical expertise required for a project of this size and complexity. However, it is the desire of the Diversion Authority that well-qualified local firms are afforded the maximum practical opportunity to participate in all phases of the DCAI WP.

## Disclaimers

The procurement of the PPP for the DCAI WP will begin upon publication of official notice as required by the North Dakota Century Code, after authorization for publication of such notice by the Diversion Authority Board. This NOI does not commit the Diversion Authority to enter into an Agreement or to proceed with the procurement as described herein. The Diversion Authority does not assume any liability for any consequences or costs incurred or alleged to have been incurred by interested parties as a result of this NOI.

# Attachment A – Diversion Channel and Associated Infrastructure Work Package (CAI WP) Scope

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Elements that are currently anticipate to be delivered as the Diversion Channel and Associated Infrastructure Work Package under the PPP Agreement are presented below and shown on Figure 1:

Diversion Channel, including Low Flow Channel

Inflow Design Flood (IDF) Levee

Diversion Channel Outlet

Rush River Inlet

Lower Rush River Inlet

Maple River Aqueduct

Sheyenne River Aqueduct

Drain 29 Inlet

Drain 30 Inlet

Drain 14 Inlet

Drain 21C Inlet

Drain 50 Inlet

Drain 47 Inlet

CR 31 Bridge

CR 18 Bridge

CR 32 Bridge

CR 22 Bridge

CR 20 Bridge

CR 10 Bridge

38<sup>th</sup> Street W Bridge

CR 8 Bridge

CR 6 Bridge

CR 14 Bridge

I-29 NB Bridge

I-29 SB Bridge

I-94 EB Bridge

I-94 WB Bridge

BNSF Hillsboro Subdivision RR Bridge

BNSF Prosper Subdivision RR Bridge

BNSF K.O. Subdivision RR Bridge

RRV RR Bridge

# Attachment B – Organizationally Conflicted and Organizationally Eligible Firms

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## Organizationally Conflicted Firms

Diversion Authority and USACE consultants currently working on the PPP procurement or providing professional services on the DCAI WP, and are therefore considered Organizationally Conflicted Firms and are precluded from proposing on the PPP project, being a member of a PPP project team, or discussing the PPP procurements with any PPP proposer or team member, except through the process described in the Communications Protocols section herein:

CH2M

Ernst & Young Infrastructure Advisors, LLC

Gray Pannell & Woodward LLP

AE2S

Erik Johnson and Associates

Ohnstad Twichell

Public Financial Management, Inc.

Houston-Moore Group, LLC

Houston Engineering, Inc.

Moore Engineering, Inc

SRF Consulting Group, Inc.

Braun Intertec

Ultieg Engineering

ProSource Technologies, LLC

Pifers Auction and Realty

## Organizationally Eligible Firms

The consultants or professional service providers listed below are organizations who have provided services in the past on the Diversion Project, either to the Diversion Authority (or one of its member entities) or to the USACE, but did not provide services related to the PPP procurement process by the Diversion Authority. Such organizations are not currently providing services on the DCAI WP or the PPP procurement and will not do so in the future, but may be providing current or future services on the MAI Work Packages or the SEAI.

These organizations have been determined to be Organizationally Eligible Firms by the Diversion Authority solely on the basis of the nature of their past services provided as of the date of the Notice of Intent. However, the Diversion Authority may place such organizations on its list of Organizationally Conflicted Firms as appropriate in the event future work for the Diversion Authority (or one of its member organizations) on the DCAI WP as determined by the Diversion Authority in its sole discretion.

The Diversion Authority's determination that a firm is currently organizationally eligible is based solely on the nature of the services provided by that organization on the Diversion Project to date and is not a representation or assurance that such organization does not have other conflicts or that it will not have such conflicts in the future.

Barr Engineering

HDR, Inc.

KLJ

AECOM/URS

Black & Veach

KGS Group

TKDA

Stanley-INCA JV

Bergmann/Hanson/HDR JV

WEST Consultants, Inc.

Anderson Engineering of MN

Bear Creek Archeology, Inc.

Great Lakes Archaeological Research Center, Inc.

Fugro Geospatial, Inc.

Industrial Builders, Inc.

Interstate Drilling Services, LLP

Midwest Testing Laboratory

SEH/INCA JV

Soil and Environmental Testing Services

Soil Engineering Testing, Inc.

St. Anthony Falls Laboratory

Strategic Value Solutions, Inc.

Texas Transportation Institute

Battelle Memorial Institute



# PRIVATE CAPITAL, PUBLIC GOOD

Drivers of Successful  
Infrastructure  
Public-Private Partnerships

BROOKINGS

# PRIVATE CAPITAL, PUBLIC GOOD

## DRIVERS OF SUCCESSFUL INFRASTRUCTURE PUBLIC-PRIVATE PARTNERSHIPS

BY PATRICK SABOL AND ROBERT PUENTES

## Executive Summary

**D**espite its fundamental and multifaceted role in maintaining national growth and economic health, infrastructure in the United States has not received an adequate level of investment for years.<sup>1</sup> Political dysfunction, a challenging fiscal environment, greater project complexity, and the sheer size of the need across different sectors are forcing leaders across the country to explore new ways to finance the investments and operations that will grow their economies over the next decade.

Part of this exploration means new kinds of agreements between governments at all levels and the private sector to deliver, finance, and maintain a range of projects. Beyond simplistic notions of privatization, the interest is in true partnerships between agencies, private firms, financiers, and the general public. Many nations already successfully develop infrastructure in this manner today.

These public-private partnerships (PPPs) are alternately framed as a panacea to all of America's infrastructure challenges or a corporate takeover of critical public assets. In reality, they are neither. A well-executed PPP is simply another tool for procuring or managing public infrastructure—albeit a new and increasingly popular one.<sup>2</sup> The growing interest can be attributed to a number of factors, including tightening budgets, increased project complexity, better value for money, the desire to leverage private sector expertise, and shifting public sector priorities.

However, this surge of interest is not matched by broad public sector understanding of the PPP landscape.



This paper is designed to fill that gap by providing an overview of basic PPP structure, how to consider proper risk and reward sharing, and the purpose and the rationale behind these arrangements. It is based on extensive background research and directly informed by interviews with leading practitioners from the public and private sector. Primarily, this paper presents nine recommendations for public leaders as they consider PPPs and is intended to serve as a guide to executing them in the public interest.

- 1 Create a strong legal framework at the state level.** PPPs require a sound legal basis to ensure that the public sector has the authority to pursue a deal and allows the private sector to mitigate unnecessary political risk.
- 2 Prioritize projects based on quantifiable public goals.** Not every infrastructure project is suitable for a PPP, so it is essential for policymakers to base their procurement decisions on economic and financial analysis that captures the social, environmental, and fiscal impacts of the deal.
- 3 Pick politically smart projects.** A successful PPP requires a pragmatic understanding of what is feasible in a constantly evolving political environment.
- 4 Understand what the private sector needs.** Strong partnerships are based on finding the right alignment of interests, which is why it is essential to understand what makes a project appealing to private sector investors.
- 5 Find the right revenue stream.** PPPs are not free money; they require localities to find durable and resilient revenue sources that will pay for the investment over the long-term.
- 6 Create a clear and transparent process.** Routinization and standardization will create a market for PPPs that provides the public and private sector with a clear roadmap for success.
- 7 Build an empowered team.** Assembling an empowered public sector team that is capable of making and executing informed procurement decisions is an essential part of any successful PPP.
- 8 Actively engage with stakeholders.** PPPs are inherently complex deals that require significant public engagement to ensure that the deal is in the interest of the community and executed at the highest standards possible.
- 9 Monitor and learn from the partnership.** PPPs involve decades of dedicated attention that requires thoughtful monitoring, flexibility in the face of a changing world, and a willingness to learn from mistakes.

# I. What is an Infrastructure Public-Private Partnership?

A

precise definition of a PPP for infrastructure is elusive, as it refers to a broad range of deal structures and asset types. However, the easiest way to understand a PPP is as a legally binding contract between a public sector entity and a private company—typically referred to as a concessionaire—where the partners agree to share some portion of the risks and rewards inherent in an infrastructure project.<sup>3</sup>

In the most advanced PPP markets, such as the United Kingdom, this risk and reward sharing structure more narrowly refers to agreements where the private sector designs, builds, finances, operates, and maintains (also known as DBFOM) an infrastructure asset for a pre-determined period of time.<sup>4</sup> In exchange, the public sector provides a recurring payment based on the condition of the asset (known as an availability payment) or allows the private sector to collect tolls or fees generated from the project.

Figure 1. Different Levels of Private Sector Engagement in PPP Contracts

	Identify Infrastructure Need	Propose Solution	Project Design	Project Financing	Construction	Operation/Maintenance	Ownership
Bid/Build	Public Sector				Private Sector	Public Sector	
Design/Build	Public Sector		Private Sector	Public Sector	Private Sector	Public Sector	
Design/Build/Finance	Public Sector			Private Sector		Public Sector	
Design/Build/Finance/Operate/Maintain	Public Sector			Private Sector			Public Sector

Source: Brookings analysis and expert interviews

Despite federal efforts to create a uniform American definition, domestically the term remains amorphous and highly variable depending on the audience.<sup>5</sup> In the United States, PPPs can include everything from the highly integrated DBFOM model to simple arrangements where the private sector only takes an active role in design, engineering, and construction of the project (also known as “design-build”).

Public sector agencies procuring infrastructure PPPs may opt to engage with the private sector on either end of this spectrum, and will often choose something in between. Depending on the particulars of the infrastructure asset, local political restraints, existing contractual obligations, financing costs, or other limitations, a public sector agency may choose to engage with the private sector on only a subset of issues. For example, they may choose to form a PPP to design, build, and finance a school, but not maintain it due to an existing contract with a custodial union.

Figure 1 shows the range of PPP types and the elements for which the public or private sector is typically responsible. It shows that, for example, the public sector is always responsible for identifying an infrastructure need. Likewise, the private sector is nearly always contracted out to construct projects.<sup>6</sup>

Financial arrangements and oversight abilities also depend on the specific needs of the public and private sector partners. However, PPPs usually take on a variation of the same basic structure. The public sector maintains ownership of the infrastructure asset, but engages in a formal agreement with a private partner for the financing, construction, operation, and maintenance responsibilities.

The concessionaire is typically comprised of a financing group and an engineering or development firm, which receives revenue from the tolls, fees, or ratepayers using the infrastructure asset. Additionally, some PPPs now involve “availability payments,” in which the public sector makes regular payments to the private sector for keeping an infrastructure asset in good working order and open and available to the public.<sup>7</sup> The entire system is overseen by the public sector partner, which ensures that the concessionaire abides by all the terms of the PPP contract.

The wide range of terms and structures possible in a PPP make generalizations difficult—if not impossible. Therefore, the best practices and case studies in this paper relate specifically to DBFOM procurements. While many of these lessons are applicable to more limited partnerships, the intent is to inform policymakers of the critical issues in the most comprehensive form of a PPP.

**“The public sector is always responsible for identifying an infrastructure need. Likewise, the private sector is nearly always contracted out to construct projects.”**

## II. How Does Reward and Risk Sharing Work?

**T**houghtful allocation of project rewards and risks are the basis of a successful PPP. While the exact terms are project dependent and tied to the specific needs of both partners, there are some general best practices in the field.<sup>8</sup> Of these, **reward sharing** is generally more straightforward. At the most fundamental level, the public sector passes the costs of building and/or maintaining certain elements of an infrastructure asset to the private sector, usually without directly assuming any financial risk. The public sector may also receive a one-time payment from the concessionaire for the right to operate the asset, and, in some cases, a recurring payment or profit sharing. The private sector is rewarded with a long-term recurring revenue source, either through tolls, fees, or through an availability payment.

**Risk sharing**, on the other hand, is much more complicated. These agreements can take a wide variety of forms, often specifically tailored to an individual project. But they always involve one or more different—but related—types of risk described below and in Figure 2.

Figure 2. Typical Risk Sharing Responsibilities in a PPP

Type of Risk	Public Sector	Private Sector	Shared
Regulatory/Legislative	X		
Government Default	X		
Planning and Design		X	
Permits and Approvals		X	
Construction		X	
Occupational/Workforce		X	
Operation/Maintenance		X	
Financial/Market		X	
Private Sector Default		X	
Political			X
Acts of God			X
Demand	Project dependent		

Source: Modified and adapted from the U.K. Treasury



Generally, the public partner that owns the asset fully assumes the **regulatory or legislative** risk for potential changes that might affect the project. For example, if legislation were passed that demands all bridges need 24-hour video monitoring, then the public sector would be responsible for the additional costs of installing the new equipment on the existing asset. The public partner also usually assumes the **risk of government default** and is subject to fees or penalties if it fails to make payments or other contractually agreed on provisions.

The private sector often assumes a large amount, or all, of the **planning and design** risks associated with the project. In the early stages, this means that the concessionaire must put up their own capital to develop the engineering, technical, and aesthetic aspects of the asset. These key elements will influence the performance and cost of the entire endeavor, as well as serving as a basis for the public sector to evaluate competing project bids. Once these plans are finalized, the risk for acquiring the requisite **permits and approvals** also falls to the private sector. This is often an intensive process that requires negotiations with the local, state, and federal government.

Once the design and permits are in order, the concessionaire assumes the risk of constructing or upgrading the asset to meet the demands of the PPP agreement. **Construction** risk includes price fluctuations in labor or materials costs, problems in implementing the design, and general project delays. Furthermore, providing insurance for **occupational and workforce** risks, like workplace injuries, also falls to the concessionaire.<sup>9</sup>

Risk transfer does not stop once the project is physically completed. The responsibility and costs associated with **operating and maintaining** the asset are also passed on to the concessionaire. These day-to-day concerns may involve making routine repairs, managing staff, providing customer service, or anything else that keeps the infrastructure asset functional.

Direct exposure to **financial** risk is also borne by the private sector, which includes the possibility of unexpected interest rate fluctuations in the capital markets that may undermine the debt structure of the project. This financial risk extends to the concessionaire's own balance sheet, as their revenue is contingent on keeping the infrastructure asset available and in a state of good repair. If the **private sector defaults** on any aspect of the contract, the public sector maintains the right to fine the concessionaire, or in some cases, even terminate the PPP agreement.

Other risks are shared between the public and private sectors. For example, each take on a degree of **political** risk, as each partner will devote resources to a project that might not come to fruition.<sup>10</sup> The risk of large unforeseeable events, often called "**acts of God**" or "**force majeure**," is also usually shared.<sup>11</sup> These can include everything from terrorist attacks to unforeseen weather or geological events.

**Demand** risk is an area that is often highly project dependent. Functionally, demand risk refers to the possibility that fewer users than projected will support the project through revenue from tolls, fees, rates or fares. In a standard PPP agreement, the public sector passes on the risk of lower than expected revenue to the concessionaire and that possibility is priced into the contract. A recent example is the Indiana Toll Road. In 2010, the private partner estimated that the road needed nearly 11 million toll-paying trucks each year just to break even, but only half as many traveled the highway.<sup>12</sup>

However, the public sector may also retain some portion of demand risk for a number of reasons, primarily when issues around social equity or the environment are involved. For example, a profit-maximizing toll road concessionaire may prefer that commuters using their facility did not carpool, as it would cut into their revenues. The public sector, for equity or environmental reasons, may favor carpooling. To bring both these interests in line, the public sector can choose to subsidize the concessionaire for the lost toll revenue. This collaborative approach was implemented for the 495 Express Lanes project in Virginia to balance each sectors' goals.<sup>13</sup>

# III. Why Pursue a Public/Private Partnership?

**P**PPs for infrastructure are complicated. They require robust economic analysis, complex negotiations, intense public scrutiny, long-term commitments, political leadership, and force public sector employees and policymakers to hone a relatively new skill set. The \$3.6 trillion municipal bond market that makes public sector borrowing for infrastructure projects affordable and the risk adverse nature of public procurement offices brings added complexity.<sup>14</sup> Despite these challenges, PPPs can make sense in a number of different situations:

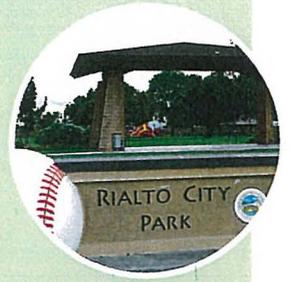
- **Debt Constraints** – Cities and states across the country have approximately \$3.6 trillion in outstanding debt.<sup>15</sup> This weighs heavily on many standalone infrastructure systems, including public water utilities, transit agencies, and departments of transportation. This legacy debt increases borrowing costs, makes new issuances unappealing to policymakers and the public, and, in some cases, precludes the issuance of new bonds because of statutory debt limits.<sup>16</sup>

PPPs can be structured to allow the public sector to avoid adding to their long-term debt obligations by using private sector capital to finance a project. This does not mean that the users of the system may not bear higher costs, or that the public sector avoids additional budgetary outlays. However, it does mean that the financing, building, and maintenance costs are no longer the direct responsibility of the government.

“PPP’s are rarely the lowest-cost way to procure infrastructure. [However] a well-structured PPP can deliver better *value* for the public dollar.”

## RIALTO UTILITY AUTHORITY

In 2010, Rialto, California's beleaguered water utility struggled with a number of environmental, operational, and financial challenges. Contamination from a shuttered munitions plant complicated water processing, required expensive purchases from neighboring water systems, and posed a major public health concern.<sup>17</sup> Years of deferred maintenance and lack of improvements to the system's aging facilities lead to a number of water main breaks and substandard service that hurt the utility's 48,000 customers.<sup>18</sup> The historically underfunded system also struggled to meet pension liabilities, which were starting to weigh on the utility's ability to affordably raise capital in the tax-exempt market.<sup>19</sup>



The city itself was poorly equipped to tackle all of these issues on its own. The Great Recession hit the city's finances hard, which were still in a delicate position from a near default in the early 2000s.<sup>20</sup> After a thorough evaluation of city-led refinancing options provided few viable options, Rialto opted to explore a PPP for the struggling utility. The city placed a special emphasis on building consensus around key control and quality issues with the community at large, organized labor, and existing utility staff.<sup>21</sup> Critically, Rialto did not rush into a deal and instead spent nearly two years building out selection criteria and a process that would best suit their needs.<sup>22</sup>



Rialto's careful efforts resulted in a 30 year concession with Veolia Water, a large water operator, and Table Rock Capital, a boutique equity firm specializing in infrastructure PPPs.<sup>23</sup> Reinforcing the important role of organized labor, Ullico (a major labor-owned insurance and investment company) came alongside Table Rock as one of the largest equity partners in the deal.<sup>24</sup> This engagement with unions resulted in a comprehensive labor agreement, which ensured that that all existing employees would maintain their positions for at least 36 months and receive additional training.<sup>25</sup>

The reorganized water authority, rechristened Rialto Water Services (RWS), took over the operations, maintenance, financing, and modernization of the utility in exchange for the right to collect revenue from ratepayers with formula based rate adjustments.<sup>26</sup> RWS compensated the city with an upfront payment of \$30 million, defeased (or extinguished) the city's \$27.4 million in utility debt, and agreed to invest in a \$42 million capital improvement plan for the water system.<sup>27</sup> The deal effectively shifted all the operational and financial risks inherent in running the utility to RWS, while easing the city's budgetary challenges.

In exchange, the public sector pledges to share revenues or to simply pay the private sector a fixed cost based on the availability and condition of the facility. This is by no means "free money" for the procuring agency, but does allow the public sector to mitigate the upfront borrowing costs and sometimes even receive a onetime cash payment for rights to operate the asset. However, it is important to note that these transactions can preclude future budgetary flexibility and may end up costing users or taxpayers more over the long term, depending on the structure of the deal. Availability payments, for example, could be considered to be a form of "debt" since they require an ongoing public expenditure and a binding budgetary obligation.

## VIRGINIA 495 EXPRESS LANES

The Washington Beltway is infamously congested. INRIX, a traffic data provider, recently ranked metropolitan Washington as the 10th most congested metro in the United States, mostly along the key corridors connecting the city with commuter suburbs.<sup>30</sup> The problem is particularly acute in Virginia along a 14 mile stretch of the Capital Beltway between the I-95 interchange and the Dulles Access/Toll road.



Alleviating traffic along this corridor in the traditional manner by building new lanes would be expensive, politically toxic, and require the state to relocate at least 350 private residences.<sup>31</sup> After nearly 20 years of intermittent planning work, the Virginia Department of Transportation (VDOT) received an unsolicited proposal to create special dynamically tolled lanes along the highway from Fluor Daniel, a large private sector construction firm.

The proposed High Occupancy/Toll (HOT) lanes would incorporate both new monitoring technologies and advanced price-setting algorithms that maximize traffic flow and revenue, while reducing congestion. Tolls would vary depending on real-time congestion conditions (i.e., drivers would pay higher tolls when congestion is high, and vice versa.) Furthermore, they would not require the expansion of the existing highway, as the lanes would be added in the center median.

While most states are not equipped to handle unsolicited proposals, VDOT maintains a dedicated internal PPP unit, the Office of Transportation Public-Private Partnerships (OTP3) that specifically works to pursue these types of partnerships. Under the guidance of OTP3, Virginia was able to develop a PPP with Fluor to launch the managed lane project in November 2012.<sup>32</sup>

In this case, VDOT used its robust PPP process to shift the planning and design risk of developing a complex and creative traffic project to the private sector, while gaining the ability to use a traffic management model that was beyond their internal expertise and technical capacity. Currently, revenue from the HOT lanes is not meeting projections, but due to the PPP structure the state gained a technologically advanced system that delivered a 50 percent increase in capacity along the corridor, without bearing the demand risk for revenue shortfalls.<sup>33</sup>

- **Private Sector Expertise** – While the public sector brings significant expertise to projects; many private sector firms have access to technologies, materials, and management techniques that exceed the capabilities of an individual governmental agency or department. PPPs are one way to harness the ideas and breadth of experience the private sector brings to projects by fully incorporating them into the procurement process.<sup>28</sup>

Public and private sector collaboration from the outset of an infrastructure project, whether greenfield or brownfield, can lead to a number of innovations. These may come in the form of new materials, faster project delivery, increased use of technology, operational efficiencies, or enhanced building techniques.<sup>29</sup> An open PPP procurement process, at minimum, provides the possibility for new ideas that the public sector may have never considered.

## LONG BEACH, CALIFORNIA COURTHOUSE

Built in 1959, the Long Beach Courthouse had long been an unpleasant and unprofessional place to conduct legal proceedings. Ceiling collapses, a termite infestation, and overcrowding seriously compromised the building's operations.<sup>37</sup>

In 2007 when the Judicial Council of California's Administrative Office of the Courts (AOC) began looking into options for replacing the aging building, they chose to pursue a procurement model that delivered the best value for the money, not just the lowest cost. After a feasibility study and a legal review, the AOC launched a request for qualifications and then a formal request for proposals to evaluate what was achievable using a PPP.

Using a value for money (VFM) analysis, the AOC compared the PPP proposals against traditional bid-build procurement models. The AOC determined that the best value over the lifetime of the project came from a consortium led by AECOM, Clark Construction, Johnson Controls, and Meridiam Infrastructure. The AOC would continue to own the facility, but would pay the consortium a monthly fee based on the condition and availability of the courthouse over 35 years.<sup>38</sup>

Through a combination of construction and operational risk transfer as well as state of the art materials and energy efficiency measures, the project came in at 15 percent under the AOC's initial cost estimates. The project was also delivered eleven days early.<sup>39</sup>



► **Value for Money** - PPPs are rarely the lowest-cost way to procure infrastructure for several reasons.<sup>34</sup> For one, the transaction costs for PPPs are usually higher than traditional bid-build contracts, which average around 10 percent of the entire value of the project.<sup>35</sup> Plus, private sector borrowing costs are generally higher than those available to the public sector, as governments are able to access the tax-exempt municipal bond market.<sup>36</sup> Despite these limitations, a well-structured PPP can deliver better *value* for the public dollar. This value can be derived in a number of ways.

Driven by the need to deliver profit to investors and shareholders, the private sector is less tolerant of cost overruns and project delays than the public sector. Therefore, transferring construction, operational, and/or demand risk to the private sector can result in quantifiable savings for the public sector, as taxpayers or ratepayers do not bear the costs if the project takes longer than expected to complete, goes over budget, or underperforms. The company or consortium that assumes responsibility for the infrastructure asset may also opt to invest in more durable materials or efficient technologies that drive down lifecycle costs. These might not be the cheapest options in the *short term*, but have the potential to drive savings over the *long term* through decreased energy usage, lower maintenance costs, or enhanced resiliency.

## PORT OF BALTIMORE, SEAGIRT TERMINAL

The expansion of the Panama Canal is forcing ports across the United States to re-evaluate their role in the global supply chain. Once the expansion is complete, the canal will be capable of handling cargo ships that are nearly three times as large as current standards, requiring American ports to either make large investments in upgrading their facilities or else restrict their operations to accommodate only smaller, conventional boats.<sup>40</sup>



Making the investment to host these so-called Panamax ships is not a trivial matter. Dredging costs alone can range from \$345 million at a port like Charleston, South Carolina to \$1.7 billion at the Port of New York and New Jersey.<sup>41</sup> These estimates do not include the price of new logistics facilities or larger gantry cranes to unload the oversized ships.

For the Port of Baltimore, which is owned and operated by the state, the cost of improving the Seagirt Terminal to handle the new demands of Panamax ships was in excess of \$700 million.<sup>42</sup> Balancing this significant investment against other projects—such as improvements to I-95 and the Chesapeake Bay Bridge—led the state to consider a PPP. After an open bid process, Maryland formalized a partnership with Ports America, an experienced private operator, and Highstar Capital, a large private equity firm that focuses on infrastructure, to improve and manage the port for 50 years.



While the state lost access to the full future revenues from the port for the term of the deal, they received a one-time \$140 million payment, all the necessary infrastructure to handle the new Panamax ships, an annual payment, and a profit sharing mechanism with the concessionaire.<sup>43</sup> These payments and revenues were used to improve transportation assets, including highways and bridges throughout the state.<sup>44</sup> Furthermore, the concessionaire assumed not only the construction risk inherent in the project, but also the demand risk that the expanded Panama Canal would not deliver the expected increase in shipping volumes.

The Seagirt terminal is a strong example of a state using a PPP to develop economically critical infrastructure that did not necessarily fulfill a fully public sector function.

- **Non-Inherently Governmental Assets** – State and local governments own and operate a number of infrastructure assets that, for a variety of reasons, may no longer be central to their organizational mission or even have a clearly defined governmental function. These assets might include parking garages, port facilities, water and electric utilities, buildings, idled property, or even the right to develop real estate above an existing road or transit facility.

PPPs are one way for the public sector to monetize or improve these untapped or non-inherently governmental assets, without ceding public ownership. This gives the public sector both the oversight it needs to ensure the proper use of the asset and gives the government the opportunity to reevaluate their role at the end of the PPP concession. Furthermore, the agreements also drive new revenue since private sector concessionaires often pay upfront lump sums for long-term operational rights. Additionally, the development of the asset itself can increase local economic activity or enhance property values which, in turn, raise tax revenue.

# IV. What Do Policymakers Need to Do?

PPPs are not appropriate in all instances. However, public sector agencies interested in using this tool need to implement a number of rules, tools, and institutions to ensure that the process is carried out in a responsible manner. Through interviews with leading stakeholder groups and extensive background research, we identified a set of success factors for PPPs.

## **1. Create a Strong Legal Framework at the State Level**

Markets thrive on certainty and PPPs are no exception. While many aspects of PPPs can be executed without the involvement of state legislatures, a strong legal basis is a necessary precondition for a successful partnership.<sup>45</sup> The public sector can only enter into contracts that are authorized in their jurisdictions. For their part, the private sector needs assurances that a project will not be derailed by political fiat or in a way that may be considered arbitrary or capricious. To do so, PPP authorizing legislation must address several key issues:

First, it should authorize state and local agencies to enter into concession and partnership contracts with private entities without a second review by the legislature. Strong oversight and evaluation processes should be implemented early in project selection, often orchestrated by a dedicated public sector unit and guided by an appointed board.<sup>46</sup> However, giving elected officials multiple veto points, especially late in the procurement process, can be prohibitively expensive for private sector bidders and public sector agencies.<sup>47</sup> Furthermore, the political uncertainty created by the lack of authorizing legislation discourages bidders and that additional risk will be priced into future contractual agreements.

Second, authorizing legislation should introduce flexibility for state and local agencies to engage in PPPs for a broad range of project types, not just a single subset of assets. Narrowly focused language that targets a single sector, like transportation, may prevent the public sector from experimenting with different types of assets and precludes the ability to join up sectors such as energy and water. Innovative localities or agencies looking to procure broadband, social, and other types of infrastructure should not be left without legal standing or guidance. The same flexibility should also be applied to both new greenfield projects and the redevelopment of existing brownfield assets.

Third, the legislation must address fundamental PPP contractual issues. Legal requirements to accept lowest cost bids—which undermine the value for money (VFM) concept—must be modified to allow procuring public sector agencies to take issues beyond price into account. Legislation should also allow public and private funds to be mixed.

Finally, PPP legislation must take into account existing legal structures that may undermine the intent of the authorization. State and local laws may impact PPP procurements in a number of unexpected ways, including rate setting requirements, insurance, tolling authority, federal loan eligibility, fraud statutes, collective bargaining agreements, and environmental review processes. Performing a detailed scan of the existing legal environment and rectifying these issues through the legislative process will ensure that PPPs are not applied in inappropriate situations or unnecessarily delayed due to inconsistencies in the authorizing language.

While 33 states have some form of PPP authorizing legislation in place, most are focused exclusively on transportation and even fewer states actually pursue deals with any frequency.<sup>48</sup> While a relative latecomer to the field, Maryland passed some of the most thorough PPP legislation in 2013.<sup>49</sup> Their legislation addresses all the issues identified above and serves as a strong model for other states interested in starting a PPP program or looking to update existing statutes.

## **2. Prioritize Projects Based on Quantifiable Public Goals**

The success of a PPP is driven by a wide variety of factors, but the most important are the underlying policy goals, economics, and financial drivers of a project. Quantifying these is a mix of art and science; however there are several distinct ways to guide smart project prioritization.

A key driver of a successful PPP procurement and for procuring infrastructure in general is prioritizing projects based on a strong economic, and not political, rationale. This rationale can derive from a number of different sources, including concerns around social equity and inclusion, the environment, business development, or other quantifiable and justifiable public sector goals. It is difficult to adhere to these principles in order to serve a poorly considered or politically motivated project.

Some of the most notable PPP failures in the United States are based on such misguided planning or overly optimistic projections. For example, the concession of the Pocahontas Parkway in Virginia was premised not on a need for increased passenger or freight transit in the Richmond area, but on a poorly considered real estate development strategy.<sup>50</sup> Overly optimistic traffic projections tied to unrealistic development expectations around the Parkway eventually led the project to the brink of default in 2013 and forced one of the concessionaires to write off nearly \$140 million in equity.<sup>51</sup>

Successful projects must demonstrate real value as a partnership between the public and private sector. With the relatively low cost of capital from the tax-exempt municipal bond market, the financial case for a PPP requires a thoughtful approach.<sup>52</sup> The U.S. Department of Transportation, as well as international leaders like Her Majesty's Treasury in the United Kingdom, recommends using a VFM (also referred to as a public sector comparator) analysis to econometrically evaluate the true costs and benefits of a PPP project.<sup>53</sup>

Private consultants or financially savvy internal review teams are capable of running these types of models, which can incorporate a number of different scenarios. Importantly, VFM analysis is predicated on quantifiable inputs and outputs in the project. These considerations often look at the cost of capital, demand projections, tax implications, social gains, risk transfer pricing, environmental externalities, and a range of other factors.<sup>54</sup> Using a VFM, policymakers can start making informed decisions about entering into a PPP by comparing the costs and risks associated with different proposals and procurement models.

As mentioned, PPPs are usually not the lowest cost procurement option, but very often will present greater value for the public through other cost savings. Faster delivery times, increased certainty and accountability for the operational condition of the asset, diminished downside financial risk for taxpayers, budgetary certainty over a long period of time, lower lifecycle costs, and the use of innovative materials or technologies are all achievable through a well-structured PPP.<sup>55</sup>

However, it is important to remember that these models will only capture things that can be measured in dollars and cents. Issues that are not easy to monetize, such as broad equity, environmental, or even aesthetic concerns, will not appear in a VFM. That does not mean that these factors do not merit serious attention. In any PPP analysis, these difficult to quantify concerns should be noted and expanded upon along with a rigorous financial model. When factoring in so many variables and the inherent limitations of VFM models, policymakers should always consider these studies as rough guides to the financial implications of a PPP and not an exact assessment of a deal.

**“Some of the most notable PPP failures in the United States are based on such misguided planning or overly optimistic projections.”**

### **3. Pick Politically Smart Projects**

Even with all the right financial and legal pieces in place, a poor understanding of the political environment can increase costs, delay the project, or even scuttle a well-structured PPP.

Despite the fact that PPPs are not privatizations, as the public sector retains ownership and some degree of control over the asset, a number of users and stakeholders may consider any type of partnership as a threat to the livelihoods of their constituents. This is particularly the case in highly unionized infrastructure sectors where toll collectors, maintenance workers, or other employees might feel that their jobs are threatened by any deal directly connected to the private sector.

For example, the Professional Engineers in California Government (PECG) took extensive legal action against a PPP deal to improve the Presidio Parkway outside of San Francisco.<sup>56</sup> The union feared that any type of partnership could result in job losses, reduced benefits, and increased costs to state taxpayers. Engineers also displayed concerns that the private contractors would supplant public engineers to conduct safety inspections of their own work.<sup>57</sup> Ultimately the legal efforts failed and the union's concerns proved largely unfounded. However, the misunderstanding delayed the road improvement significantly and damaged sensitive relationships with organized labor groups.

That is not to say that PECG did not have reason for concern. A study by the U.S. Government Accountability Office found that while contracting out services may provide short-term cost savings for some public transit agencies, those savings are almost always borne by reductions in wages and benefits.<sup>58</sup> However, these issues can potentially be addressed with early outreach to unions, benefit guarantees, and other employment assurances.<sup>59</sup> For example, the Service Employees International Union (SEIU) recommends a decision making board to oversee investments that have a wide range of community stakeholders, including representatives of labor, state and local governments and other organizations.<sup>60</sup> In 2006, an official at Goldman Sachs testified that “it is important to consider the future of the municipal employees as a result of a PPP concession. It is possible for concession contracts to be written so a concessionaire must use municipal employees for all or a portion of toll collection, maintenance, administration, etc.”<sup>61</sup>

While there are examples of failed partnerships with unions, there are also success stories.<sup>62</sup> The Seagirt Terminal in Baltimore is a notable example of successfully concessionaire and union negotiation, in which the Longshoremen retained their jobs and received technical training as part of the agreement.<sup>63</sup> In this way, strong labor practices and early outreach added great value to the investment.

There are also strong political risks in raising rates or changing toll structures. Highly tax or toll adverse communities are increasingly pushing back against PPPs, as these revenues may be seen

as “crony-capitalism” or generally an inappropriate way to pay for infrastructure.<sup>64</sup> This shift is particularly pronounced in Texas, where the state Republican Party platform recently changed its longstanding endorsement of tolling for highway PPPs, to a strong stance against them.<sup>65</sup> Virginia, already a leader in PPPs, also faced significant and unexpected political and legal challenges to a toll based concession in their Elizabeth River Crossing project.<sup>66</sup>

Understanding and overcoming these types of challenges is difficult for any public agency, but doubly so for those engaging in their first PPP. Therefore, it is often politically easier and less time consuming to start simpler PPP projects and then graduate to more complicated deals, if appropriate. Parking facilities are potential early entry points for PPPs since they have straightforward revenue streams and the public is already accustomed to their fee structures. Provisions around job creation, continuity of service, and other well defined public goals can be codified into these contracts, to ensure that they appeal to a broad set of community interests. Once the public sector can demonstrate competence in executing smaller deals, they are more likely to receive support in larger endeavors.

#### **4. Understand What the Private Sector Needs**

Public entities also need to understand how to select projects that will drive private sector interest. Public officials looking to improve high risk, overleveraged, or outdated assets might view PPPs as an attractive model for stimulating much needed capital investment. Yet, while these troubled assets may draw some private sector interest, there must be a compelling revenue stream or underlying economic potential to draw serious bidders.

Outside of the state of the asset itself, the number of available or possible PPP projects in a given market is a key driver of private sector involvement in public infrastructure. Private sector builders and financiers interviewed for this paper cited due diligence costs for projects running into the millions of dollars and taking months or even years of dedicated staff time. One contractor interviewed for the paper cited a five year proposal development process for a project that never came to fruition.

Proper analysis requires detailed information on the specific engineering and demand characteristics of the individual project, as well as a thorough understanding of the legal, political, and regulatory environment in each market. Therefore, the private sector is less likely to engage in a place that only offers up a handful of PPP projects every couple of years. To make their investment in understanding that locality worthwhile, the private sector needs a defined pipeline of projects that justify their upfront costs.<sup>67</sup>

This type of market building is what makes Virginia's approach successful. Through a thoughtful PPP selection process, the state maintains a well-defined list of projects that the private sector can rely on for continued business over the long term.<sup>68</sup> On an even larger scale, the West Coast Infrastructure Exchange is building a pipeline of projects across infrastructure types for California, Oregon, Washington, and British Columbia by identifying and preparing assets for PPP procurement.<sup>69</sup> These are the types of markets where the private sector will devote its time and resources for the foreseeable future.

As a corollary to the volume of PPP deals in a given state, the projects need to be large enough in dollar terms to merit private sector attention. As a rule of thumb, the private sector is interested in projects in the \$100 million range to make the investment of their time and resources worth the effort. For some straightforward projects, notably parking garages, this number can be as low as \$50 million.

Given this high threshold, many states and localities need to bundle smaller projects together into a single deal. Bundling similar small scale projects into one deal generates the scale needed for the private sector to justify its due diligence costs, for both sides to keep transaction costs low, and to effectively diversify the risks across a number of individual projects. While this is an appealing idea, few have tried it, primarily due to the challenge of coordinating multiple jurisdictions. Pennsylvania

is one of the first to attempt this strategy domestically by including several hundred bridges in a single availability payment concession.<sup>70</sup> Examples of water project bundling can be found throughout Canada's First Nations communities.<sup>71</sup>

### **5. Find the Right Revenue Stream**

PPPs are not free money. Just like other public sector projects, they fail or succeed based on access to long-term revenue streams. While the details of PPP funding and financing packages are arranged far along in the procurement process, states and localities must lay the groundwork for a successful repayment mechanism in advance.

Taking projects directly to the voters remains a popular and time-tested approach. Ballot measures have traditionally played an important role in securing funds for infrastructure investment, particularly at the local level. These initiatives are popular among voters. According to the Center for Transportation Excellence, 73 percent of measures passed in 2013 as did 79 percent in 2012.<sup>72</sup> These ballot box initiatives can be used to increase revenues in a number of ways, including new toll authorizations or user fees, which can be used as a revenue stream for concessionaires. Alternately, voters can approve general sales or gas tax increases that can be applied to availability payment PPPs.

In many cases, direct voter approval may not be necessary. Legislatures, city councils, boards, or other authorizing agencies have the power to increase taxes, rates, or approve new tolling, which can generate revenue to support the capital needs of the PPP. While politically challenging, these measures are a straightforward way to generate the recurring revenue necessary for a successful PPP. Using predictable formula-based rate increases (an approach Rialto, CA used for their water PPP) can temper political resistance, keep the rate setting process transparent, and also protect consumers from rate shocks.<sup>73</sup>

Beyond direct appeals for money, new technologies allow infrastructure operators to squeeze new efficiency out of existing assets by more accurately pricing demand. Water and energy companies are utilizing smart metering technologies to dynamically adjust pricing to reflect factors like the time of day and system load.<sup>74</sup> Similarly, high occupancy tolling (HOT) lanes, like those installed along the 495 Express Lanes in Virginia, manage demand and increase revenues by charging for a dedicated, less congested lane on an existing roadway.<sup>75</sup> PPPs allow the private sector to use these efficiency gains to drive new revenue out of existing assets, which incentivizes them to both make improvements and to engage with the public sector.

Outside of creating new revenue streams, many states and localities are pursuing ways to capture value from existing assets. Value capture is based on the idea that infrastructure improvements will attract new businesses, customers, and investors to a community. For example, tax increment financing (TIF) districts capture the appreciation in real estate values surrounding the infrastructure project to pay back project bonds. In Denver the TIF model is being used in conjunction with the Eagle Commuter Rail PPP to back redevelopment along the new transportation corridor, which will move more housing closer to public transportation, potentially increase the local tax base, and reduce road congestion in the region.<sup>76</sup>

Exploring and establishing these revenue streams will ensure that a PPP has the fundamental financial underpinnings that will position the project to succeed. Furthermore, they are the basis for the financing packages that constitute the risk sharing component of any partnership.

**“Provisions around job creation, continuity of service, and other well defined public goals can be codified into these contracts, to ensure that they appeal to a broad set of community interests.”**

## 6. Create a Clear and Transparent Process

Both the public and private sector need a well-defined process to guide a successful PPP procurement. This does not mean that some states and localities have not executed ad hoc PPP deals. However, routinization and standardization are what drives a healthy PPP environment.

In many cases, a state's PPP authorizing legislation outlines a generic process for agencies to procure a PPP. However, the actual procurement will require the development of a wide variety of internal rules and processes. See Figure 3.

**Figure 3. A Typical DBFOM Procurement**

<b>Project Prioritization and Selection</b>	<i>Build the economic, financial, and business case for the project</i>
<b>Basic Political and Market Testing</b>	<i>Evaluate private sector and political interest in the project internally and with partners</i>
<b>Formally Present the Project</b>	<i>Publicly present the project at a forum and/or take the project out to investors</i>
<b>Issue Request for Qualifications</b>	<i>Issue a formal solicitation to narrow the field of eligible private sector candidates</i>
<b>Select Qualified Bidders</b>	<i>Engage in a consistent, transparent, and fair initial pre-screening process</i>
<b>Issue Request for Proposals</b>	<i>Request detailed and technical proposals from the pre-qualified bidders</i>
<b>Short-List Proposals</b>	<i>Rank proposals based on pre-defined and transparent criteria</i>
<b>Negotiations and Final Selection</b>	<i>Engage the top bidders and negotiate a final contractual agreement with the winning party</i>
<b>Construction</b>	<i>Monitor the building phase for compliance with all aspects of the contract</i>
<b>Contract Management</b>	<i>Actively manage the private sector partner over the life of the contract</i>
<b>Asset Return</b>	<i>Ensure the asset is fully returned to the public sector as negotiated and determine next steps</i>

Source: Brookings analysis and expert interviews

While establishing a PPP procurement process requires a number of steps, it is important to note that even traditional lowest cost bid/build contracts require similar measures.<sup>77</sup> The additional transaction costs incurred through this complicated process can be added to the VFM analysis, ensuring that they are captured in any comparison to other forms procurement or competing bids.<sup>78</sup>

Building an effective process also requires the public sector to establish a roadmap that charts out the variety of boards, permits, approvals, and regulations that apply to the PPP. These may range from hyper-local concerns like a zoning board, to nationally dictated policy such as environmental regulations. Both the public and private sector stakeholders working on a PPP may not be aware of the scope and breadth of these potential roadblocks, which is why it is so important to map out the full process before moving a project forward. This mapping process is often carried out by a dedicated PPP unit, the public sector procurement team, or with the help of an outside consultant.

Beyond identifying possible bottlenecks, a roadmap can inform administrative changes that smooth the process. Commonly applied practices include fast track permitting and standardization.

Fast tracking can be as simple as moving a project to the top of the regulatory review process, or as involved as granting specific waivers to accelerate project permitting and approval. While expediting the process may be appealing, these measures are best applied as part of a well-defined policy framework and codified in statute to avoid legal challenges and to prevent abuse of power. In other words, a project should not be fast tracked just because it is a PPP. Setting up clear benchmarks or qualifications for gaining fast track status is necessary to clarify the process for both the public and private sector. A strong example of fast tracking exists in Maryland, where qualifying projects receive expedited review from all the relevant state agencies, as well as a direct liaison to ease the permitting and approval process.<sup>79</sup>

Form standardization is significantly easier to implement and generally does not require legislative or political authorization. As PPPs are inherently complex financial and logistical undertakings, even basic steps like maintaining common application forms and consistent submission deadlines both horizontally across public agencies and vertically between levels of government can significantly speed up procurement. While not specific to PPPs, Governor Cuomo's NY Works Task Force is working to implement form standardization across multiple state agencies.<sup>80</sup>

Many of the public and private sector leaders interviewed for this paper noted persistent inefficiencies due to lag times between decisionmaking bodies and the need to submit nearly duplicate forms multiple times to multiple agencies. Considering the wide variety of stakeholders involved, even the small inconvenience of learning how to fill out a new form for each agency or a misaligned approval process can add significant time and cost to project development. California approached this problem by consolidating and aligning several existing financing programs under their new Green Bank, which is working to streamline all of its approval processes.<sup>81</sup>

**“While expediting the process may be appealing, these measures are best applied as part of a well-defined policy framework and codified in statute to avoid legal challenges and to prevent abuse of power.”**

### 7. Build an Empowered Team

Creating a well-defined procurement process is useless without a team to execute it. Assembling a group with the right mix of finance, legal, policy, and communications experience is critical to the success of any PPP project. Public sector agencies looking to procure a limited number of PPP projects or engaging in their first, often use outside advisors for most of these services. This can be a successful strategy as long as public sector decisionmakers remain in control of the process.<sup>82</sup>

However, a dedicated PPP unit increases the public sector's in house capacity and expertise to execute these transactions. These teams can live inside a department, such as a transportation office, or may be generalists under a mayor or governor's office. Examples of these types of PPP units can be found at both the state level, notably in Virginia, and at the city level in places like Los Angeles and Chicago.<sup>83</sup> The Obama administration is also creating the Build America Transportation Investment Center, a coordination unit at the U.S. Department of Transportation that will help localities with innovative finance tools like PPPs.<sup>84</sup>

While the exact mission of each of these offices varies, PPP units have five distinct roles in the procurement process: policy formulation and coordination, quality control, technical assistance, standardization, and promotion (Figure 4).<sup>85</sup>

**Figure 4. Core Functions of a PPP Unit**

Policy Formulation and Coordination	Quality Control	Technical Assistance	Standardization and Dissemination	Promotion
<ul style="list-style-type: none"> <li>• Develop program guidelines</li> <li>• Create application processes</li> <li>• Coordinate both between agencies and levels of government</li> </ul>	<ul style="list-style-type: none"> <li>• Perform project review</li> <li>• Monitor budgetary implications</li> <li>• Certify compliance with existing policy</li> </ul>	<ul style="list-style-type: none"> <li>• Provide guidance across the procurement process</li> <li>• Perform value for money analysis</li> </ul>	<ul style="list-style-type: none"> <li>• Create common contract language and forms</li> <li>• Provide best practices and sample documents</li> <li>• Push materials out to agency and local government partners</li> </ul>	<ul style="list-style-type: none"> <li>• Keep private sector informed of available PPP projects</li> <li>• Provide guidance for interested private sector stakeholders</li> <li>• Consolidate and maintain project list</li> </ul>

Source: Istrate and Puentes, 2011.

By bringing this expertise in-house, states and localities are able to develop both the formal and informal processes that underpin smooth transactions. Finance expertise in these units is especially important, as it decreases transaction costs over time by cutting down on need to hire outside consultants and builds greater market certainty for leading private sector partners.<sup>86</sup>

Once the process and team are in place, the final considerations must be placed on maintaining a well-defined schedule and establishing clear lines of authority. Simply put, the private sector needs their partners in the public sector to come up with clear yes or no decisions. PPPs do not rely on the private sector to only line up material and labor costs, as is common in typical low-bid build contracts. The private sector must invest large amounts of resources into multiple aspects of the design, finance, and operational aspects of the project. Long delays or unclear decisions drive up both the realized and opportunity costs for the bidders, which will result in lower quality and weaker proposals and decreased market interest.

## **8. Actively Engage with Stakeholders**

PPPs are inherently technically and financially complex projects. Unfortunately, this complexity presents ample opportunities for miscommunication, weak management, and poor planning. While it is essential to have both a strong financial case and an initial market assessment in place before fully pursuing a PPP, an engagement strategy is a necessary component of any transaction. Key stakeholders and the public at large need to have meaningful opportunities to understand, vet, and shape the deal. Creating these opportunities requires three major steps: ensuring transparency, creating a targeted engagement strategy, and finding a project champion.

Any relationship between the public and private sector presents an opportunity for corruption or inside dealing. However, creating and actively maintaining a transparent procurement process will not only help allay public suspicion of any backroom decisions, but also put pressure on public officials to avoid taking shortcuts or moving forward without complete documentation. While it is often too early to engage in this type of public dialogue and scrutiny in the initial project selection process, providing thorough documentation and a coherent narrative for the PPP procurement should be done as soon as possible.

Achieving transparency is straightforward. All the relevant documents should be made publicly available online through an easily accessible database. These should include the financial analysis, business case, environmental review documents, and any other supplemental materials related to the procurement. Many states and localities have so-called “sunshine laws” that require this, but a pre-emptive and active approach to disclosure will not only help the public sector further vet the proposal, but also provide opportunities to change course or even abandon the project if necessary. Here again, Virginia’s OTP3 is a leader in the field with a robust and fully documented website that tracks each of its projects.

Beyond making these materials available online, it is important to get out in front of the communities that will use or be affected by the project. Key stakeholder groups must be identified and approached early and often to ensure a broad understanding of the project and to gain feedback that can improve or even veto the deal. This requires targeted communication with both the committees that are likely to have oversight duties related to any given infrastructure type and with community members on the ground.

It is critical to meet stakeholders where they live and work and not expect them to only engage through publically announced meetings. Going into the community and presenting the project at churches, union halls, schools, chambers of commerce, and other local forums will help ensure that a broad variety of voices are heard and that they are approached on their own terms. For example, Charlotte, NC held a two-day summit to explore using a PPP to finance the expansion of their light rail system and invited a broad set of both local and national stakeholders to discuss the pros and cons of the approach.<sup>87</sup> The goal of such outreach should not be only to “sell” the transaction but to engage with stakeholders to design a better project.

Failure to take these steps around transparency and engagement has real consequences. Chicago’s parking meter PPP is a prime example of what happens when stakeholders and the public are excluded from the process. The 75-year PPP to manage the city’s 36,000 parking meters was negotiated out of public view with an opaque selection and oversight process.<sup>88</sup> Combined with a large and poorly communicated spike in the parking fee structure, Chicago faced a broad backlash against the deal and the overall mishandling of the project soured public opinion on the entire PPP model.<sup>89</sup>

Finally, PPP projects need a champion. A mayor, governor, legislator, or other prominent citizen who can speak compellingly about the project is an essential component of any engagement strategy. They build project credibility and give cover to the more technical staff working on the particulars of the deal. However, a strong spokesman is not a substitute for strong legal or financial fundamentals, as was demonstrated by Governor Ed Rendell’s failed PPP bid for the Pennsylvania Turnpike. Despite

the governor's strong support for the project, conflict with the state legislature, lack of PPP authorizing legislation, and insufficient economic analysis ultimately made the \$12.8 billion project infeasible. An analysis of the transaction revealed that despite a generally optimistic assessment of the project's economic impact, the state's residents and labor interests were unclear about the long-term effects of the deal.<sup>90</sup>

### **9. Monitor and Learn from the Partnership**

Much of the attention given to a PPP occurs during the procurement process and when the construction is completed. However, these contractual agreements often last decades and require open and sustained engagement from the public and private sector, as well as the community at large. To ensure a successful PPP over the long term, the public sector should create a staffed monitoring mechanism, design an ongoing engagement strategy with the public, be willing to adapt to project changes, and actively learn from mistakes made throughout the process.

Most monitoring procedures involved in a PPP are codified into the contract. These formalized processes around condition reporting, definitions for state of good repair, and formal steps to remedy any problems are often one of the most intensive parts of the negotiation process. While these steps are contractually defined, it is up to the public sector to dedicate sufficient staff time and resources to ensure that the private sector is fulfilling its contractual obligations. For example, the Long Beach Courthouse commissioned an independent expert to monitor the condition of the building and provide onsite opportunities for community feedback, which can translate into fines for compliance failure or suggestions for improving the facility.<sup>91</sup>

Outside of these contractual duties, the public sector should maintain open and honest communication channels with the concessionaire. These less formal interactions can take the form of regular meetings or check-in calls where the partners can identify potential issues or challenges, before they become a source of discord or even a legal dispute.

Open lines of communication are not limited to dealings with the concessionaire. Public awareness of the value that the asset provides to the community or the challenges the project faces are essential to maintaining a healthy PPP. Open communication ensures that the public knows how its scarce resources are being spent. Ongoing community meetings, widely available financial reports, and sometimes even a direct helpline can be used to keep the public informed. Virginia's OTP3 regularly updates its website, provides ongoing opportunities for community feedback, schedules regular calls with their concessionaires, and maintains a dedicated communications staff.<sup>92</sup>

While PPPs appear to be unyielding contractual agreements, the reality is that these are ongoing partnerships which can and should adapt to changes on the ground. Over the course of a 20, 30, or even 99 year contract massive changes can occur. Demographic shifts, new technologies, emerging economic trends, climate change, and a wide variety of other factors may alter the assumptions underlying an infrastructure PPP. While these issues can be identified through continued dialogue with the concessionaire and the broader community, the public and private sectors have to be able to find ways to adapt their PPP strategy to serve new realities. Working around the margins of the contract to tweak services and periodically defined opportunities to re-evaluate the agreement are two ways to ensure that the public and private sector can remain responsive to changes on the ground.

# V. Conclusion

Infrastructure PPPs are technically, economically, politically, and contractually difficult arrangements. Despite these challenges, they are increasingly a topic of conversation in congressional hearings, state forums, local meetings, and are featured at conferences and symposiums around the world. This enthusiasm for a complex procurement model reflects growing demand for infrastructure investment, the search for new tools, and also a great deal of over-optimism. In a tax averse and politically gridlocked environment, PPPs are appealing as abstract solutions to very tangible infrastructure problems.

Yet PPPs are not a substitute for direct public sector investment in infrastructure and in fact are highly dependent on public revenue and expertise to operate effectively. The real opportunity for public benefit in a PPP lies in the innovation, risk sharing, and value to the taxpayer that these agreements are capable of providing. Better commutes, access to economic opportunity, more efficient energy distribution, world class public buildings, more resilient water systems, and a wide range of other benefits are imminently achievable through carefully arranged PPPs.

These benefits can be difficult to achieve and only a subset of projects will ever have the scale, revenue, and political support to become a PPP. Creating an accountable, effective, and lasting PPP environment requires both the work of highly competent public officials and the strategic use of precious public resources. However, taking the time to develop these processes will guide private capital towards the greater public good.

# Endnotes

1. Susan Lund et al, "Game Changers: Five Opportunities for U.S. Growth and Renewal." (McKinsey Global Institute, 2013).
2. Standard and Poors, "2014 U.S. State Debt Review: New Issuance Remains A Lower Priority," (2014).
3. Infrastructure sectors that are inherently private are largely excluded from this analysis. We recognize there are sectors such as freight rail, telecommunications, and clean energy, where the public sector still plays an active regulatory role.
4. HM Treasury, "A New Approach to Public-Private Partnerships." (2012).
5. See for example: Federal Highway Administration, "P3 Defined." (U.S. Department of Transportation, 2014).
6. A recent Congressional report rightfully points out that public agencies rarely design and construct projects themselves. In this way, even traditional procurements represent at least a version of PPPs. See: Committee on Transportation and Infrastructure, "Public-Private Partnerships: Findings and Recommendations of the Special Panel on Public-Private Partnerships." (U.S. House of Representatives, 113th Congress, September 2014).
7. Federal Highway Administration, "Payment Mechanisms in Public-Private Partnerships." (U.S. Department of Transportation, 2012a).
8. As each deal is unique, certain commonly used risk transfer responsibilities may be reversed. Areas like permit, demand, and operation risk might be retained by the public sector if they are better able to control or price these issues.
9. The insurance issues around PPPs represent a distinct set of challenges, as concessionaires do not enjoy the same protections and liability caps that sovereign governments possess. For a thorough discussion of the issue see Chapter 7 of David Hatem and Patricia Gary, "Public-Private Partnerships: Opportunities and Risks for Consulting Engineers," American Council of Engineering Companies (2013).
10. Communication risk is a related side issue. For example, the responsibility of communicating rate increases to the public as the result of a PPP transaction may fall to either the public or private sector. However, it does not necessarily fall into the category of real risk transfer in any legal or economic sense.
11. Damien McNair, "Force Majeure Clauses-Revisited." (Washington, DLA Piper, 2012).
12. Robert Puentes and Patrick Sabol, "The Indiana Toll Road: How Did a Good Deal Go Bad?" (Forbes, October 3, 2014).
13. Virginia Department of Transportation, "Amended and Restated Comprehensive Agreement Relating to the Route 495 HOT Lanes in Virginia Project." (2007).
14. *Bond Buyer*, "2013 in Statistics: Annual Review." (New York, 2013).
15. Securities Industry and Financial Markets Association, "US Bond Market Issuance and Outstanding." (New York, 2014).
16. "Legacy debt" usually specifically applies to situations where current pensioners are pulling out more money than is being put into a fund. See: U.S. Security and Exchange Commission, "Municipal Bonds: Understanding Credit Risk." (2012); Janney Capital Markets, "The Rime of Municipal Bond Issuance." (Philadelphia, 2014); and William D. Eggers and Tiffany Dovey, "Closing America's Infrastructure Gap: The Role of Public-Private Partnerships." (Washington: Deloitte, 2011).
17. Phil Willon, "Goodrich Corp. to Help Clean Up Perchlorate in Rialto Groundwater." (*Los Angeles Times*, March 26, 2013).
18. National Council for Public-Private Partnerships, "A Tale of Two Cities: The Rialto and Allentown Water/Wastewater System Transactions." (2014).
19. Committee on Transportation and Infrastructure, "Overview of Public-Private Partnerships for Water Supply and Treatment." (U.S. House of Representatives, 113th Congress, March 2014).
20. Ibid.
21. Ibid.

22. Rachel Layne and Justin Doom, "KKR to Goldman Breach Water Deal Dam in U.S.: Commodities." (*Bloomberg*, May 8, 2013).
23. Randall Jensen, "Southern California City Enters Into P3 for its Water and Sewer Systems." (*Bond Buyer*, December 6, 2012).
24. Ullico, "Ullico Announces First Infrastructure Investment." (2012). Available online at: <http://www.ullico.com/news-item/ullico-announces-first-infrastructure>.
25. Deborah Robertson, "The City of Rialto Concession Agreement: A Case Study of a Successful Public-Private Partnership." (Presentation at Greater Los Angeles Water Summit, October 17, 2013.) Available online at: <http://www.westbasin.org/files/glaws/la-water-summit-rialto-panel-2.pdf>.)
26. Randall Jensen, "Southern California City Enters Into P3 for its Water and Sewer Systems." (*Bond Buyer*, December 6, 2012).
27. House Transportation Committee, March 2014.
28. Federal Highway Administration, "Case Studies of Transportation Public-Private Partnerships in the United States." (U.S. Department of Transportation, 2007); and Finnish Road Enterprise, "Innovative Project Delivery Methods for Infrastructure: An International Perspective." (2002).
29. *ibid*
30. INRIX, "Worst Corridors." (2013). Available online at: <http://www.inrix.com/scorecard/uscorridors.asp>.
31. Thomas Jennings et al., "Traveling the Capital Beltway Is Now E-Zier." (U.S. Department of Transportation: Federal Highway Administration, 2014).
32. Fluor Daniel, "Capital Beltway HOT Lanes: Detailed Proposal Virginia Public-Private Transportation Act." (2003).
33. Federal Highway Administration, "Project Profiles: I-495 Capital Beltway HOT Lanes." (U.S. Department of Transportation, 2008).; Larry Cloyd, "Virginia's 495 Express Lanes." (Presentation to Regional Transportation Alliance, November 20, 2013); and Eric Jaffe, "Why Are HOT Lanes Struggling to Make Money?" (*Atlantic Cities*, June 24, 2013).
34. Congressional Budget Office, "Using Public-Private Partnerships to Carry Out Highway Projects." (2012).
35. Gerti Dudkin and Timo Vällilä, "Transaction Costs in Public-Private Partnerships: A First Look at the Evidence." (European Investment Bank, 2005).
36. Dennis Zimmerman, "Tax Topics: Tax-Exempt Bonds." (The Urban Institute and Brookings Institution Tax Policy Center, 2005). Available online at: <http://www.taxpolicycenter.org/taxtopics/encyclopedia/Tax-exempt-bonds.cfm>.
37. California Administrative Office of the Courts, "Governor George Deukmejian Courthouse: An Evaluation of Project Agreement Development, Procurement Process & Performance During Design & Construction." (2012).
38. *Ibid*.
39. *Ibid*.
40. Adie Tomer and Joseph Kane, "Widening the Panama Canal and the Future of Global Trade Mapping." (Brookings Institution, 2013).
41. Maryland Department of Transportation, "Maryland's Transportation Public-Private Partnership Case Studies." (2012a).
42. U.S. Army Corps of Engineers, "The National Dredging Needs Study of Ports and Harbors-Implications to Cost-Sharing of Federal Deep Draft Navigation Projects Due to Changes in the Maritime Industry." (2000).
43. Maryland Department of Transportation Port Administration, "Maryland Port Administration-Ports America Chesapeake Public-Private Partnership Summary." (2012b).
44. Maryland Department of Transportation, (2012a).
45. Jaime Rall et al, "Public-Private Partnerships for Transportation: A Toolkit for Legislators." (National Conference of State Legislatures, 2010). Available online at: <http://www.ncsl.org/documents/transportation/PPPTOOLKIT.pdf>
46. Emilia Istrate and Robert Puentes, "Moving Forward on Public-Private Partnerships: U.S. and International Experience with PPP Units." (Brookings Institution, 2011).
47. Rall et al. (2010).

48. Eno Center for Transportation, "Partnership Financing: Improving Transportation Infrastructure through Public Private Partnerships." (Washington, 2014).
49. General Assembly of Maryland, "House Bill 560: An Act Concerning Public-Private Partnerships." (2013).
50. Peter Galuszka, "Australians May Dump Pocahontas Parkway." (*Bacon's Rebellion*, August 10, 2012).
51. Michael Martz, "Pocahontas 895 Toll Road Under a New Operator;" (*Richmond Times-Dispatch*, June 17, 2014).
52. *Bond Buyer*, 2013.
53. Federal Highway Administration, "Value for Money Assessment for Public-Private Partnerships: A Prime." (U.S. Department of Transportation, 2012b); and HM Treasury, "Value for Money Assessment Guidance." (2006).
54. Federal Highway Administration, 2012b.
55. William D. Eggers and Tiffany Dovey, "Closing America's Infrastructure Gap: The Role of Public-Private Partnerships." (Deloitte, 2011).
56. Robert Carlsen, "California Judge Dismisses Engineer Union's Lawsuit on P3 Project." (*ENR California*, February 23, 2011).
57. Ianthe Jeanne Dugan, "In California, a Road to Recovery Stirs Unrest." (*Wall Street Journal*, December 1, 2010).
58. Other concerns include decreased level of safety, reduction in service quality, and other hidden costs. Government Accountability Office, "Public Transit: Transit Agencies' Use of Contracting to Provide Service," GAO-13-782 (2013).
59. Bill Barnhart, "Infrastructure Partnerships: Labor's Evolving Experience." (Washington: Center for American Progress, 2013).
60. Service Employees International Union, "Protecting Workers Under Public-Private Partnerships: Public Sector Union Experiences and Models." (Washington, 2007).
61. Mark Florian, "Understanding Contemporary Public Private Highway Transactions: The Future of Infrastructure Finance?" Testimony before the Committee on Transportation and Infrastructure. (U.S. House of Representatives, 109th Congress, May 24, 2006).
62. SEIU, 2007.
63. Ron Cassie, "Our Ship Has Come In." (*Baltimore Magazine*, August 2012).
64. Terri Hall, "Reason Foundation Comes Unhinged at Populist Revolt Against Tolls." (*San Antonio Express-News*, August 27, 2014).
65. Aman Batheja, "As Perry Exits, Texas GOP Shifting Away From Toll Roads;" (*Texas Tribune*, July 4, 2014).
66. Dean Hoffmeyer, "Virginia High Court to Get Last Word on Tolls Lawsuit." (*Richmond Times Dispatch*, July 22, 2013).
67. CH2MHill, "West Coast Infrastructure Exchange Final Report." (2012).
68. The list of candidate PPP projects is available online at: <http://www.vappta.org/projects.asp>.
69. West Coast Infrastructure Exchange, "Framework to Establish a West Coast Infrastructure Exchange." (November 24, 2012.) Available online at: [http://west-coastx.com/assets/documents/WCX\\_framework-agreement.pdf](http://west-coastx.com/assets/documents/WCX_framework-agreement.pdf).
70. Pennsylvania Department of Transportation, "PennDOT Office of Policy & Public Private Partnerships." (2014). Available online at: <http://www.dot.state.pa.us/Internet/P3info.nsf/P3Home>.
71. PPP Canada, "P3 Water/Wastewater Sector Study." (Ottawa, 2013). Available online at: <http://www.p3canada.ca/en/about-p3s/p3-resource-library/>
72. Center for Transportation Excellence, "Transportation Ballot Measures." (Washington: 2014). Available online at: <http://www.cfte.org/elections/past>.
73. Governing Institute, "Transforming Water Management in Local Government." (Washington: 2013).
74. Navigant Research, "Smart Water Networks Smart Water Meters, Communications Infrastructure, Network Monitoring and Automation Technologies, and Data Management and Analytics: Market Analysis and Forecasts." (2013); and Edison Electric Institute, "Smart Meters and Smart Meter Systems: A Metering Industry Perspective." (2011)
75. Neil Spiller and Greg Jones, "Cool Tips on HOT Lanes: Are They Right for Your Community?" (U.S. Department

- of Transportation, Federal Highway Administration, 2013). Available online at: <http://www.ops.fhwa.dot.gov/publications/fhwahopi2031/fhwahop12025/index.htm>.
76. Rick Clarke, "Eagle P3 Project Update." (Denver Regional Transportation District, 2014); and Federal Transit Administration, "Eagle Commuter Rail Denver, Colorado Final Design." (U.S. Department of Transportation, 2010).
  77. See New York State's Design/Build bidding guidelines as an example: New York State Procurement, "Bidding 101." (2014). Available online at: <http://nyspro.ogs.ny.gov/content/bidding-101-0>.
  78. Federal Highway Administration, "Value for Money: State of the Practice." (U.S. Department of Transportation, 2011).
  79. "About FastTrack." (2014). Available online at: <http://easy.maryland.gov/fasttrack/>.
  80. Margaret Tobin, Panel Discussion: "Can Do States: A New Era for Infrastructure Investment." (Brookings Institution, 2013).
  81. California State Treasury, "California's Green Bank." (2014). Available online at: <http://www.treasurer.ca.gov/greenbank/>.
  82. European PPP Expertise Center, "Role and Use of Advisers in Preparing and Implementing PPP Projects." (2014). Available online at: [http://www.eib.org/epcc/resources/publications/role\\_and\\_use\\_of\\_advisers\\_en.pdf](http://www.eib.org/epcc/resources/publications/role_and_use_of_advisers_en.pdf).
  83. Virginia Office of Transportation Public Private Partnerships, "About the Office." (2014). Available online at: [http://www.vappta.org/about\\_the\\_office.asp](http://www.vappta.org/about_the_office.asp); Los Angeles Metro, "About Public-Private Partnerships for Metro Transportation Projects." (2014). Available online at: [http://www.metro.net/projects/public\\_private\\_partnerships](http://www.metro.net/projects/public_private_partnerships); and Chicago Infrastructure Trust, "How it Works." (2014). Available online at: <http://shapechicago.org>.
  84. The White House, "Fact Sheet: Building a 21st Century Infrastructure: Increasing Public and Private Collaboration with the Build America Investment Initiative." (2014).
  85. Istrate and Puentes, 2011.
  86. Organization for Economic Cooperation and Development, "An Overview of Dedicated Public-Private Partnership Units." (2010). Available online at: [http://www.oecd-ilibrary.org/governance/dedicated-public-private-partnership-units/an-overview-of-dedicated-public-private-partnership-units\\_9789264064843-3-en](http://www.oecd-ilibrary.org/governance/dedicated-public-private-partnership-units/an-overview-of-dedicated-public-private-partnership-units_9789264064843-3-en).
  87. Charlotte Chamber of Commerce, "East Coast P3 Summit." (2014). Available online at: <http://charlottechamber.com/summits/east-coast-p3-infrastructure-conference-2014>.
  88. Office of the Inspector General, "An Analysis of the Lease of the City's Parking Meters." (Chicago: 2009). Available online at: <http://chicagoinspectorgeneral.org/wp-content/uploads/2011/03/Parking-Meter-Report.pdf>.
  89. David Schafer, "Chicago's Privatized Parking Meters Sour Airport Lease Deal." (*National Public Radio*, 2013).
  90. Stephen Fehr, "Why the Pennsylvania Turnpike Plan Failed." (Philadelphia: Pew Charitable Trusts, 2009). Available online at: <http://www.pewtrusts.org/en/research-and-analysis/reports/2009/03/24/study-why-the-pennsylvania-turnpike-plan-failed>.
  91. California Administrative Office of the Courts, "An Evaluation of Project Agreement Development, Procurement Process & Performance During Design & Construction." (2012).
  92. Virginia Office of Transportation Public Private Partnerships, "PPTA Outreach Information." (2014). Available online at: [http://www.vappta.org/ppta\\_outreach\\_information.asp](http://www.vappta.org/ppta_outreach_information.asp).

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