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Potential and Implementation of Alternative Funding and Finance of the USACE Civil Works Mission

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The U.S. Army Corps of Engineers (USACE) operates, maintains, and manages about one-third of the nation's water resource assets. River and coastal navigation are a central element of the Civil Works mission, but over the years Congress has expanded USACE responsibilities to include hydropower generation, flood risk management, ecosystem restoration, outdoor recreation, and related functions. USACE assets range from small boat launches to massive dams, extensive levee systems, and complex locks, all of which contribute to the nation's economy, safety, and security. Many of these vital assets, built decades ago, are reaching or exceeding their original design lives.

USACE assets generate revenue through lease income and a variety of user fees. Some, but not all, of this revenue is reinvested in capital projects and ongoing operations and maintenance through annual Congressional appropriations. USACE also shares costs with state and local government partners for capital investment projects. Current levels of appropriations and cost share contributions must keep pace with pressing capitalization as well as operating and maintenance needs. To bridge the gap, USACE is considering innovations in revenue generation, project finance, asset management, and the leveraging of federal investment through expanded partnerships with public and private entities.

To promote consideration of a wide range of innovative techniques and effective practices, USACE organized Alternative Finance Workshops with USACE Civil Works leadership and outside experts in project finance. The objective was to engage USACE senior leaders and external experts in a discussion on USACE funding and finance challenges and to assist the USACE in exploring alternative financing and delivery mechanisms.

This report reviews the issues, summarizes outcomes from the workshops, and looks forward to next steps.

**Potential and Implementation of Alternative Funding and
Finance of the USACE Civil Works Mission**

June 2013

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Acronyms List

AASHTO	American Association of State Highway and Transportation Officials
BAB	Build America Bond
CRADs	Cooperative Research & Development Agreements
DOD	Department of Defense
DOT	Department of Transportation
ERDC	Engineer, Research and Development Center
ESPC	Energy Savings Performance Contracting
FHWA	Federal Highway Administration
FRM	Flood Risk Management
FUSRAP	Formerly Utilized Sites Remedial Action Program
HMTF	Harbor Maintenance Trust Fund
HQUSACE	Headquarters US Army Corps of Engineers
LBG	The Louis Berger Group, Inc.
MnDOT	Minnesota DOT
MRT	Mississippi River and tributaries
O&M	operation and maintenance
PAB	Private Activity Bond
PIB	Pennsylvania Infrastructure Bank
PMA	Power Marketing Administration
PPG	Pittsburgh Paint and Glass
PPP	Public-Private Partnerships
RRIF	Railroad Rehabilitation and Improvement Financing
SIB	State Infrastructure Bank
SEP	Special Experimental Program
SWOT	Strengths, Weaknesses, Opportunities, and Threats
TAA	Technical Assistance Agreement
TEA	Transportation Equity Act
TIF	Tax Increment Finance
TIFIA	Transportation Infrastructure Finance and Innovation Act
TRLF	Transportation Revolving Loan Fund
USACE	United States Army Corps of Engineers
USC	United States Code
USDOT	United States Department of Transportation
WRDA	Water Resources Development Act

I. Executive Summary

The U.S. Army Corps of Engineers (USACE) operates, maintains, and manages about one-third of the nation's water resource assets.¹ River and coastal navigation are a central element of the Civil Works mission, but over the years Congress has expanded USACE responsibilities to include hydropower generation, flood risk management, ecosystem restoration, outdoor recreation, and related functions. USACE assets range from small boat launches to massive dams, extensive levee systems, and complex locks, all of which contribute to the nation's economy, safety, and security. Many of these vital assets, built decades ago, are reaching or exceeding their original design lives. Limited resources and increasing age have contributed to a decline in the overall value of USACE capital stock, which has decreased from a value of \$250 billion in 1980 to \$165 billion in 2011.² As assets age, unplanned and scheduled outages at the nation's inland waterway locks and dams and hydropower facilities have increased, driving down the reliability of the services these public works provide. Revenue sources and general funds from annual appropriations have not been able to keep up with the growing needs of the existing assets, much less with new priority items across the United States.

To promote consideration of a wide range of innovative techniques and effective practices, USACE engaged The Louis Berger Group, Inc. (LBG) to organize Alternative Finance Workshops with USACE Civil Works leadership and outside experts in revenue generation and financial options. The goal of the study is to assist the USACE in exploring alternative financing mechanisms and identify the mechanisms best suited for further study and possible implementation, obstacles to implementation, and steps for overcoming the obstacles to achieve successful implementation. A variety of innovative funding mechanisms used by various federal, state, and local agencies as well as the private sector for infrastructure projects were evaluated. Interviews were conducted with various federal, state, and local officials, as well as financing experts in the private sector who have applied these techniques. . Through its review and interviews, the team identified advantages and disadvantages of key techniques. This report summarizes the options, methods, and case studies explored in the workshops and related discussions.

The USACE has explored many options over the years to enhance revenues and reduce cost with key examples included in the report, such as cost sharing with partners on various projects that leverages the limited federal funds; technical assistance for program partners to assist in the development of key projects; concessions and leases on marinas, restaurants, campgrounds and similar assets; partnerships with private citizen volunteers or nonprofit organizations to raise funds and partner on projects such as land conservancy; and partnering with the private sector on hydropower facilities. Each of these items is outlined in more detail in Section II of the report.

Three workshops provided productive forums for discussion of effective practices and ideas for near-term and long-term implementation as well as potential case studies. All three workshops began with

¹ USACE, *USACE Makes the Case for Improving the Nation's Water Assets, U.S. Army Corps of Engineers: Building Strong, Serving the Nation and the Armed Forces*, 2011-2012.

² Committee on U.S. Army Corps of Engineers Water Resources Science, Engineering, and Planning, National Research Council, *National Water Resources Challenges Facing the U.S. Army Corps of Engineers*, National Academy of Sciences, 2011.

an introduction by Steven Stockton, director of Civil Works. He emphasized the fiscal constraints facing USACE in the performance of its mission, citing as an example the \$60 billion of needed projects competing for approximately \$2 billion in annual funding. He charged for the workshop participants to pursue innovative ideas to transform the current appropriations-dependent funding plan and to find implementable strategies to contribute to recapitalization³ priorities. The workshops continued with an overview of innovative funding and finance techniques identified through the initial phases of the study. This was designed to serve as a base for discussions on effective practices and options. Participants arrived at a set of long-term funding and finance strategy goals and short-term conceptual action plans after in-depth discussions on Public-Private Partnerships (PPP) experience in USACE hydropower; a matrix exercise on strategy opportunities and constraints); and discussions on potential projects and priorities, such as inland waterways, hydropower, and recreation.) Summarized in Table 1 (see below) are long-term strategies and experimental pilot programs with potential for short-term implementation. The matrix outlines where the alternative finance tools may have the most potential among the USACE business lines. Section II.E.3.5 goes into more detail about this matrix.

Table 1: Alternative Finance Matrix

# BUSINESS LINES	Key Long Term Funding Strategies				Key Financing Strategies		
	Revenue Enhancement	Trust Fund Dedication	Value Capture	Asset Sales, Transfer or Disposition	Loan Programs (Federal or SIB)	Bond Programs	Public-Private Partnerships
1 Emergency Management					XX		X
2 Environment							
3 Flood Risk Management	XXX	X	XXX	XXX	XX	XXX	XX
4 Hydropower	X	XXX	X	XX	X	X	XXX
5 Navigation	X	XXX	X	X	XXX	XXX	XXX
6 Recreation	XXX		XXX	XXX	XXX	XXX	XXX
7 Regulatory							
8 Water Supply	XXX	X	XXX	XXX	XXX	XXX	XXX

Code:

Blank- There appears to be no potential use of the applicable finance tool in this business line.

X – Potential use is limited for the applicable finance tool in this business line due to the types of projects, legal requirements and other key items.

XX – Potential use of the applicable finance tool in this business line warrants further study based on the types of projects, legal requirements, and other key items.

XXX – Potential use of the applicable finance tool is high in this business line warranting further study based on the types of projects, legal requirements, and other key items.

An important point to note is the difference between funding and financing. Although sometimes used interchangeably, they have different applications. Funding is the revenue stream that ultimately pays the cost of the project, maintenance, or other needs, such as appropriations, dedicated taxes, user fees, private donations, and partner contributions. Financing is the means by which the funding is advanced to provide the cash needed to build the project at the most efficient cost of borrowing, such as debt (bonds and loans) and private equity.

The study examined a number of options to increase revenues, leverage existing resources, shift lower priority assets, reduce cost, and deliver projects through alternative means. The various options that show the most opportunity for further study and consideration include:

³ Capital investments and renovations needed in order to bring USACE’s assets back to a state of good repair and full function.

- Workshop participants identified **key long-term funding strategies** that merit further study by USACE. These initiatives likely require Congressional authorization, substantial USACE internal study, and some level of organizational realignment and training as outlined in Section II.E.
 - **Revenue enhancement** – User fees to study include *ad valorem* fee for bulk cargo; container fee; lock user fees; vessel fuel taxes; and waterway tolls.
 - **Trust Fund dedication** – Congressional authority, along the lines of bills introduced in the 112th Congress, would be required to dedicate trust fund revenues, e.g., Harbor Maintenance Trust Fund (HMTF), to specific purposes.
 - **Value capture** – Fees applied to recover the value of benefits provided to beneficiaries of Flood Risk Management (FRM), recreation, Formerly Utilized Sites Remedial Action Program (FUSRAP), and other programs could provide a new source of revenue to offset the cost of recapitalization projects. These include Tax Increment Finance (TIF) districts developer fees; and special improvement or tax districts.
 - **Asset Sales, transfers or disposition** -- USACE is developing standards for asset assessment and appropriate disposition. Options include 1) recapitalization with federal and nonfederal funding sources; 2) concession to transfer risk and responsibility; 3) asset transfer to another federal or nonfederal party; and 4) decommissioning of assets that no longer contribute to the Civil Works’ mission.
- Participants also identified **key financing strategies** for further study. Some may also require Congressional authorization and internal study. The shortlist of the finance methods summarized below is outlined in Section II.E.3.
 - **Infrastructure bank** -- An infrastructure bank is a method of organizing access to partnering funds, evaluating, and prioritizing project funding through a revolving loan or credit enhancement program. The initial seed capital can be leveraged through issues of bonds sold to investors using its portfolio of loans as collateral. A conservative ratio of 3:1 or 4:1 leverage could be established.
 - **Federal loans and credit enhancement** -- To promote nonfederal investment in Civil Works projects, USACE could investigate the creation of a program to encourage PPPs and assist local governments with project finance. The program could include loan guarantees; bond insurance; construction bridge loans; subordinate loans, and reserve funding or guarantees.
 - **Bonding options** – Bonding options could provide cost effective bonding for local and private partners, such as Private Activity Bonds; Build America Bonds; and possibly tax-exempt municipal bonds.

An **action plan** was developed that identified the following opportunities for consideration by the USACE:

- **Special Experimental Program Authority** – Federal agencies like the U.S. DOT (Department of Transportation) have successfully utilized Special Experimental Program (SEP) authority to develop many innovative materials, processes, and approaches that were later incorporated into the law, regulations, and United States Department of Transportation (USDOT) processes. This authority for the USACE would allow pilot programs and projects to move forward through innovative approaches. SEPA allows projects that incorporate alternative financing techniques as well as new contract arrangements and processes, to move forward.

- **Candidate Pilot Programs or Projects** – The USACE participants and the overall team discussed the possible application of the various options and strategies and some possible USACE programs or projects on which these could be applied. These are listed below and outlined in Section II.F.2.
 - Pilot for Discretionary Use of HMTF: Focus on Funding
 - Pilot for Partnership Between USACE and State Infrastructure Banks in Great Lakes Region: Focus on Funding and Finance (Primarily Finance)
 - Pilot for PPP Solutions: Allegheny Locks and Dams: Funding and Finance
 - Pilot for Expansion of Nonprofit Partnerships at District Level (Recreation and Environmental Restoration)
 - Pilot Program/Process for Asset Restoration or Disposition

After further vetting and prioritization in Phase II of the project, we recommend USACE consider the development of formal implementation plans for pilot programs in Phase III of the project. Outreach and coordination with key stakeholders inside and outside USACE would be a key aspect to implementation of the strategies. This outreach would be most effective if it were organized around implementation of the pilot programs or discussions on specific long-term strategies. Following the review and acceptance of the Phase II Report, we recommend that USACE consider the development of an outreach and coordination plan, possibly incorporated into an ongoing strategic communication plan.

II. Alternative Finance Phase II Report

A. Purpose of the Phase II Report

USACE assets generate revenue through lease income and a variety of user fees. Some, but not all, of this revenue is reinvested in capital projects and ongoing operations and maintenance through annual Congressional appropriations. USACE also shares costs with state and local government partners for capital investment projects. Current levels of appropriations and cost share contributions must keep pace with pressing capitalization as well as operating and maintenance needs. To bridge the gap, USACE is considering innovations in revenue generation, project finance, asset management, and the leveraging of federal investment through expanded partnerships with public and private entities.

To promote consideration of a wide range of innovative techniques and effective practices, USACE engaged LBG to organize Alternative Finance Workshops with USACE Civil Works leadership and outside experts in project finance. The workshops were held on February 21 and 22, 2012, June 15, 2012, and December 4, 2012, in Washington, DC. The objective was to engage USACE senior leaders and external experts in a discussion on USACE funding and finance challenges and to assist the USACE in exploring alternative financing and delivery mechanisms. The workshops presented a variety of alternative funding, financing, and delivery mechanisms used by various federal, state, and local agencies as well as the private sector for transportation infrastructure projects. Experts who had applied these techniques made presentations.

This report expands and modifies the initial White Paper and documents the action plans recommended for implementing the possible strategies. These strategies are summarized in an Alternative Financing Matrix. The matrix outlines the finance tools and the potential business lines where the tools have potential uses. The uses are based on the types of projects, legal requirements, and related items, such as partner interests (nonprofit and private) in the program/projects in the business line. [See Section II.E.3.5 for more detail on this matrix.] Additionally, this report serves as a basis for Phase III of the study.

Following presentations on effective practices and lessons-learned from case study examples, a series of moderator-led discussions were conducted. One of the workshops' goals was to provide a forum for the participants to provide input on the following questions:

1. Are there alternative options for funding and finance that are viable options for USACE? What activities in each business line might be suitable for alternative funding and finance strategies?
2. What are the opportunities and constraints of various alternative finance and delivery mechanisms within the context of the USACE operations?
3. What are the most promising finance and delivery mechanisms that should be evaluated?
4. What are the next steps forward? What are the most promising financial and delivery alternatives for early and long-term implementation? What USACE administrative or legal steps are necessary for implementing the identified financial and delivery alternatives?
5. What additional issues should be addressed as part of the study?

The information gained from Phase I and Phase II culminates in Phase III detailed case studies and action plans. Phase III will develop an **action plan** for the implementation of financing mechanisms that can be realistically used by the federal government to invest in the nation's water resource assets. This action plan will inform Headquarters US Army Corps of Engineers (HQUSACE) and other stakeholders on the implementation feasibility of innovative finance mechanisms and elaborate on topics such as partnering concepts, potential investment costs, selection criteria, and future authorization. The plan will identify the USACE steps needed to efficiently and successfully implement the financing mechanisms, specifically how to maximize their advantages, minimize their disadvantages, and reduce or overcome obstacles to implementation. The case studies will define a clear set of directions, essentially a roadmap of the implementation process for the USACE to follow for each of the selected business lines.

B. Background Information

The U.S. Army Corps of Engineers-managed water resources are immense and found in all 50 states.⁴ USACE's infrastructure provides 24 percent of U.S. hydropower; 11,000 miles of levees for flood damage reduction; 329 million acre-feet of water storage capacity that meets 18 percent of the nation's household water consumption; and 420 recreation projects in 43 states that serve 370 million visits a year. The USACE facilitates the effective and efficient transportation of 78 percent of the U.S. domestic and international cargo. The majority of the Civil Works program today is focused on the operation, maintenance, repair, and replacement of major navigation, flood risk management, and hydropower infrastructure systems, as well as on the environmental mitigation and restoration of natural resources affected in the past by these systems. As the infrastructure that USACE operates ages, it often becomes more difficult and more expensive to maintain these systems to meet performance goals and efficiently provide the economic and environmental benefits for which they were designed and constructed. The USACE is adopting new practices to improve management of large and costly projects and is considering additional proposals to advance those efforts. USACE's plan for maintaining and improving infrastructure outlines specific actions to communicate a vision for synchronized investment in critical waterway and other infrastructure construction and maintenance that will help the U.S. maintain global competitiveness. The strategies will also include the ability to fund capital investments that have high value to the nation.

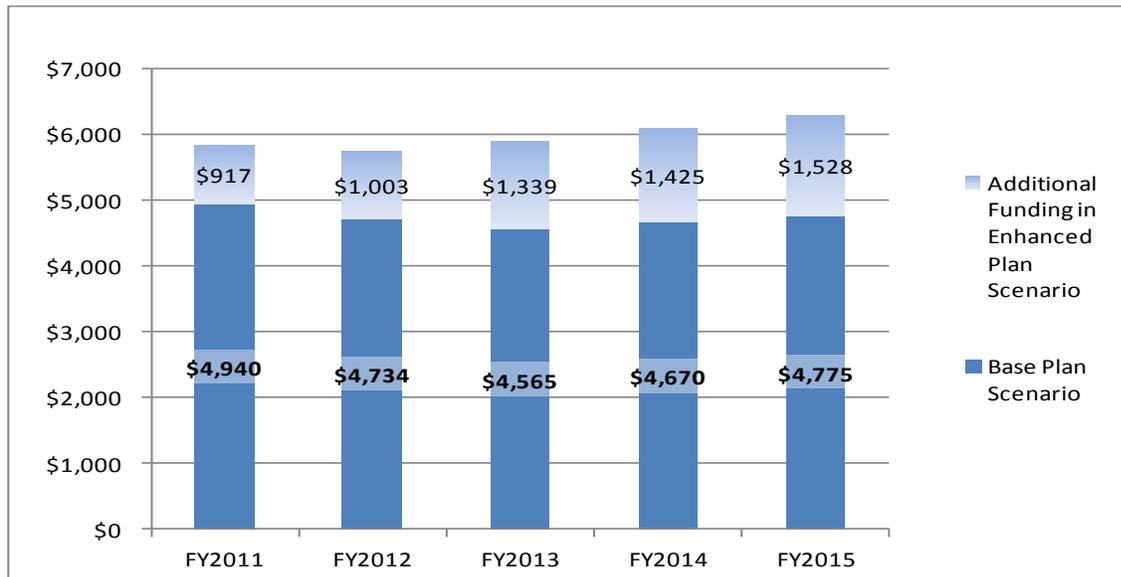
Current expectations for appropriations to support the USACE budget in the near term indicate recent levels of investment in recapitalization (new construction and major rehabilitation) and operation and maintenance (O&M) will not be met.⁵ Figure 1 (on the following page) presents the FY 2011 five-year outlook. The Base Plan Scenario, where shares of the overall expected federal budget are maintained, indicates an overall reduction in funding, even before inflation is considered. In its five-year budget outlook, USACE also proposes an Enhanced Plan Scenario where appropriations are increased to mitigate against erosion in value due to inflation, particularly in O&M and Mississippi River and tributaries (MRT) maintenance as shown in Figure 1 above. The Enhanced Plan recognizes "wedge" funds that will be made available due to the completion of budgeted capital projects and applied to business line priorities.

Even in the Enhanced Plan Scenario, the level of recapitalization funding is not sufficient to substantially reduce the backlog of capital project needs. Under the Base Plan, recapitalization spending is lower overall and asset maintenance is deferred. For example, in navigation proposed O&M appropriations will not be sufficient to achieve substantial improvement in key performance measures. Base Plan funding levels will result in an increase in unscheduled closures of inland navigation locks and a decrease in channel availability. Critical maintenance funding will keep most key navigation infrastructure functioning; however, overall facility condition will continue to decline.

⁴ Discussion excerpted from: USACE, *Strong Point: Maintaining and Improving Infrastructure: To Maintain Economic Prosperity, National Security and Social Well Being*, February 13, 2012.

⁵ USACE, *Fiscal Year 2011 Civil Works Program Performance Work Plan*, April 2011.

Figure 1: USACE 2011 Civil Works Base and Enhanced Plans by Fiscal Year (\$ in millions)



Source: LBG, 2012 from USACE, *Civil Works Program Five-Year Development Plan FY2011-FY2015*, April 2011.

Following development of the Five-Year Plan, USACE has received appropriations somewhat in excess of the Base Scenario through FY2013, but not at levels sufficient to offset inflation, as envisioned in the Enhanced Plan.

Although USACE assets and operations generate revenue, USACE is primarily dependent on Congress for annual appropriations and cost sharing in its spending. In some cases, revenues collected do not flow immediately back to USACE or to recapitalization needs of users paying fees. Appropriations from HMTF, for example, will not be sufficient to meet future revenues. In 2008, shippers utilizing the nation’s ports contributed \$1.467 billion to the HMTF; however, only \$787 million was spent on maintaining the federal channels and other harbor maintenance activities.⁶ Two bills were introduced in the 112th Congress⁷ to provide for dedication of future HMTF receipts to harbor maintenance needs.

1. Summary of Previous USACE Studies

USACE operates, maintains, and manages about one-third, of the nation’s water resource assets.⁸ River and coastal navigation are a central element of the Civil Works mission, but over the years Congress has expanded USACE responsibilities to include hydropower generation, flood risk management, ecosystem restoration, outdoor recreation, and related functions. USACE assets range from small boat launches to massive dams, extensive levee systems, and complex locks, all of which contribute to the nation’s

⁶ San Francisco Bay Conservation and Development Commission, *Staff Report and Recommendation on Harbor Trust Fund Legislation*, July 2011.

⁷ These two bills were S.412, Harbor Maintenance Act of 2011 and H.R. 104, RAMP Act. Both failed to pass in the 112th Congress and were reintroduced in the 113th Congress as S.218 (Feb. 4, 2013) and H.R. 335 (Jan. 22, 2013).

⁸ USACE, *USACE Makes the Case for Improving the Nation’s Water Assets, U.S. Army Corps of Engineers: Building Strong, Serving the Nation and the Armed Forces*, 2011-2012.

economy, safety, and security. Many of these vital assets, built decades ago, are reaching or exceeding their original design lives. Limited resources and increasing age have contributed to a decline in the overall value of USACE capital stock from a value of \$250 billion in 1980 to \$165 billion in 2011.⁹ As assets age, unplanned and scheduled outages at the nation's inland waterway locks and dams and hydropower facilities have increased, driving down the reliability of the services these public works provide.

1.1. Existing Examples of Partnerships and Alternative Funding in USACE

The study team's literature review in preparation for the workshops and the workshop discussions identified several effective examples of partnerships and alternative funding mechanisms already at work in USACE. Examples of innovative methods of project finance were not found in the Civil Works program. This section outlines those activities and summarizes comments by workshop participants on priorities for expansion and enhancement of these efforts.

1.2. Cost Sharing

The sharing of project costs and obligations for nonfederal cost share proportions has been an effective way for USACE to leverage federal appropriations investments as well as encourage partners' participation in selecting a viable project. Table 2 outlines the current cost-share objectives authorized by Congress.

A few limited general authorities exist that allow nonfederal project sponsors using nonfederal funds to conduct navigation and flood control studies or perform construction work that would more typically be performed by USACE.¹⁰ These authorities have been discussed for enhancement in Congressional consideration of Water Resources Development Act (WRDA) reauthorization. They include the following:

- § 211 of WRDA 1996, as amended (P.L. 104-303, 33 U.S.C. § 701b-13) provides that a nonfederal interest may undertake flood control activities, including studies and construction, and later may be reimbursed (subject to the availability of federal funds) or credited for its portion of the work subject to the approval of the Secretary of the Army.
- § 203 of WRDA 1986 (P.L. 99-662, 33 U.S.C. § 2231) provides similar opportunity for credit for nonfederal interest in projects for harbors and inland harbor projects.
- § 204 of WRDA 1986, as amended (P.L. 99-662, 33 U.S.C. § 2232) provides opportunity for reimbursement for navigation projects authorized by the Secretary of the Army.
- § 408 of 33 USC (United States Code) that gives the Corps permit authority for nonfederal plans to locally fund and implement project modifications.

⁹ Committee on U.S. Army Corps of Engineers Water Resources Science, Engineering, and Planning, National Research Council, *National Water Resources Challenges Facing the U.S. Army Corps of Engineers*, National Academy of Sciences, 2011.

¹⁰ Adapted from Congressional Research Service, *Army Corps of Engineers Water Resource Projects: Authorization and Appropriation*, August 19, 2011.

These options have not been used widely due to requirements for compliance with federal laws and regulations. In some instances nonfederal entities have hired USACE to perform the work to facilitate compliance.

Table 2: Cost Shares for Construction and Operation of New Projects

Project Purpose	Maximum Federal Share of Construction	Maximum Federal Share of O&M
Navigation		
Coastal Ports —		
<20 ft. harbor	80% ^a	100% ^b
20-45 ft. harbor	65% ^a	100% ^b
>45 ft. harbor	100% ^c	100%
Flood and Hurricane Damage Reduction		
Inland Flood Control	65%	0%
Coastal Hurricane and Storm Damage Reduction	65%	0%
except Periodic Beach Nourishment	50%	0%
Repair of Damaged Flood and Coastal Storm Projects		
Locally Constructed Flood Projects	not applicable	80% ^d
Federally Constructed Flood and Coastal Projects	not applicable	100% ^d
Aquatic Ecosystem Restoration		
	65%	0%
Multi-Purpose Project Components		
Hydroelectric Power	0% ^e	0%
Municipal and Industrial Water Supply Storage	0%	0%
Agricultural Water Supply Storage	65% ^f	0%
Recreation at Corps Facilities	50%	0%
Aquatic Plant Control	not applicable	50%
Environmental Infrastructure (typically municipal water and wastewater infrastructure)	75% ^g	0%

Source: Congressional Research Service, Army Corps of Engineers Water Resource Projects: Authorization and Appropriation, August 19, 2011. Notes:

- a These percentages reflect that the nonfederal sponsors pays (10%,25%, or 30%) during construction and an additional 10% over a period not to exceed 30 years.
- b Appropriations from the Harbor Maintenance Trust Fund, which is funded by collections on commercial cargo imports at federally maintained ports, are used for 100% of these costs.
- c Appropriations from the Inland Waterway Trust Fund, which is funded by a fuel tax on vessels engaged in commercial transport on designated waterways, are used for 50% of these costs.
- d 33 U.S.C § 70In. Repair assistance is restricted to projects eligible for participating in the Corps’ Rehabilitation and Inspection Program and to fixing damage caused by natural events, not regular maintenance or betterments.
- e Hydroelectric capital costs initially are federally funded and are repaid by fees collected from power customers.
- f For the 17 western states where reclamation law applies, irrigation costs initially are funded by the Corps but repaid by nonfederal water users.
- g Most environmental infrastructure projects are authorized with a 75% federal cost share; a few have a 65% federal cost share.

Participants in the workshops noted flexibility and enhancement in cost-share authority, specifying the following goals:

- Streamlined advance construction authorization for all USACE activities

- Flexibility in cost-share requirements to allow nonfederal share to be used as a criterion for project prioritization

Implementation would likely require changes in existing authorities, as noted above.

1.3. Technical Assistance

USACE has a long history of providing technical assistance to nonfederal project sponsors through General Investigations studies.¹¹ These types of studies are undertaken in response to a Congressional Resolution from the House Committee on Public Works and Transportation, the Senate Committee on the Environment and Public Works, or a public law. With technical assistance programs, USACE jointly conducts a study with a nonfederal sponsor and, if shown by the study to be feasible, constructs the project. This approach requires that Congress provide the Corps with authority and funds to first accomplish a feasibility study and second, to construct the project. Local sponsors share the study and construction costs with the Corps and usually pay for all operation and maintenance costs.

An example of technical assistance to private firms can be found in Technical Assistance Agreements (TAAs) authorized for U.S. firms operating overseas. Engineer, Research and Development Center (ERDC) laboratories may provide technical assistance on a nonexclusive basis to assist U.S. firms that are competing for or have been awarded a contract for planning, designing, or constructing a project outside the U.S. TAAs must be coordinated with the U.S. embassy where the project is located and with the appropriate Army element responsible for the region. 33 U.S.C. 2323 authorizes the Secretary of the Army (with delegation down to the laboratory director) to enter into TAA with U.S. firms in support of overseas work. Technical assistance includes studies, evaluations, designs, computer and physical modeling and testing, and other engineering and scientific functions for which USACE is uniquely equipped, trained, and authorized by law to perform. The firm must certify that assistance is not otherwise reasonably and expeditiously available from a private sector source and must agree to hold and save the U.S. free from any damages due to any assistance. Cooperative Research & Development Agreements (CRADAs) are an example of two-way research and development information sharing authorized by 15 USC 3710a.

A requirement applicable to all federal agencies is set forth in 31 USC 6505. This provision limits the USACE to perform only those specialized or technical services that cannot be reasonably and quickly provided by the private sector, and it requires the Secretary to certify that USACE is uniquely equipped to perform the services.

Workshop participants discussed some goals for Technical Assistance (see Section II.D.2.5) that may require additional Congressional authority.

1.4. Concessions and Leases

Recreation assets, such as marinas, restaurants, and campgrounds, are routinely leased or subleased on USACE property to profit-seeking entities. Prior to entering into the partnership, USACE conducts a market feasibility study to establish needs and concession viability. Competitive proposals are solicited

¹¹ USACE, Detroit District, General Investigations Fact Sheet, 2009.

through an established “Notice of Availability” process. Lease terms of 25 years are standard with leasehold improvements to receive USACE approval. Private companies operate, maintain, develop, and improve these facilities during the term of the lease. USACE also has outgranted federal land to state and local governments who in turn lease to, or partner with, private entities. These “Public Park and Recreation Leases” do not have to be advertised competitively prior to USACE approval—the sublease process is conducted under state regulations. USACE studies have found local and state leases to be more advantageous to taxpayers than direct USACE leases.¹² Recommendation: USACE lease terms could be more closely aligned with successful state terms and conditions to allow USACE to benefit from additional market demand.

1.5. Conservancy, Land Trusts, Contributions, and Fundraising

USACE has several programs that promote partnerships with private citizen volunteers or nonprofit organizations. Important examples include the following.¹³

- The Volunteer Program, authorized by Public Law 98-63, can accept volunteer services and also provide reimbursement for incidental expenses.
- The Contribution Program allows USACE “to accept contributions from groups and individuals in connection with carrying out water resources projects for environmental protection and restoration or for recreation.”¹⁴
- The Challenge Partnerships Program established under WRDA 1992 enables partnerships with public and nonfederal groups and individuals to contribute to and participate in the operation and/or management of recreation facilities and natural resources at Corps water resource developments.
- USACE has also established the Handshake Partnership Program, which provides “seed money” as an incentive for USACE facilities to use Challenge Partnership agreements. This program provided \$125,000 to 14 facilities in 2008. These locations received up to \$10,000 each to use appropriated funds and partner contributions (in-kind services, supplies, volunteers, etc.) to accomplish a partnership project.
- WRDA 2007 contains provisions which allow nonprofit organizations with wetlands restoration expertise to design and construct authorized projects for USACE and become cost-sharing partners on Continuing Authorities and General Investigation Studies. Nonprofit sponsors are to act similarly as the Corps’ current sponsors: providing in-kind services, lands, easements, rights-of-way, relocations, and disposal areas for construction, the nonfederal cost share, operations, and maintenance.

¹² USACE Institute for Water Resources, *Water Resource Outlook: Budget Constraints and the Corps Consideration of Public-Private Partnerships: Where is the Money Going to Come From?* December 2008.

¹³ USACE Institute for Water Resources (2008).

¹⁴ Ibid.

Workshop participants noted that current partnership programs require heavy involvement of USACE headquarters resources for setup and negotiations, despite the existence of standard model agreements. Participants indicated that goals for enhancement in this area should include delegation of authority to the districts and technical assistance to district personnel and nonprofits to facilitate participation (see Section II.G.2).

1.6. Hydropower PPPs

As noted in previous USACE research on applicability of PPPs to Civil Works, hydropower plants at USACE facilities began as PPPs.¹⁵ USACE would pursue project development jointly with electric utility companies. The companies would build the dam and power facilities and the Corps would build the navigation lock. Congress later authorized USACE to build plants where dams were being built for flood risk management, navigation, and other purposes. In the 1970s, nonfederal hydropower was allowed at Corps project sites. Nearly 40 were completed by municipalities, electric utilities, and independent power producers.

The discussion on expansion of hydropower PPPs during the workshops included the following key considerations.

- As demonstrated by the Bonneville Power Marketing Administration (PMA), hydropower can be self-sustaining and the direct funding model holds promise beyond Northwest. PMAs do not currently see the need for change. USACE needs to advance discussion based on implementation of improvements to increase efficiencies and reliability and reduce downtime.
- PMA interest ends at the power house. USACE should press the case where responsibility includes dam safety and flood control.
- Inquiries from industry continue, indicating ongoing interest in partnerships. A mechanism is required to better channel and explore inquiries. An example of current success includes three-way agreements for O&M.
- Energy Savings Performance Contracting (ESPC) also has potential for PPPs for USACE facilities beyond hydropower.
- Although PMAs have authority (right of first-refusal on future power generation), USACE has the potential to partner with other agencies (i.e., Bureau of Reclamation) to make better use of opportunities to expand generating capacity. This could include PPP structures. USACE could also explore arrangements for power generation for other federal agencies' needs.
- Private firms currently hold options to eventually develop and obtain power from a high percentage of nonpowered dams sometime in the future. Some of these nonpowered dams are currently under development as a renewable energy source. The private developers typically keep all the revenue from the power generated by the dam and maintain the systems they put in place.

¹⁵ USACE Institute for Water Resources (2008).

2. Summary Description of Alternative Finance Workshops

The three workshops provided productive forums for discussion of effective practices and ideas for near-term and long-term implementation as well as potential case studies. The workshop agendas, a list of workshop participants, workshop presentations and notes on workshop activities and action items are presented in Appendix A1 and A2.

All three workshops began with an introduction by Steven Stockton, director of Civil Works, who emphasized the fiscal constraints facing USACE in the performance of its mission. With a backlog in necessary recapitalization projects (new projects and major rebuilds) of more than \$60 billion competing for approximately \$2 billion in annual funding, the balance between capital projects and asset O&M was unsustainable. He charged the workshop participants to develop innovative ideas to transform the current appropriations-dependent funding plan and implementable strategies to contribute to capitalization and recapitalization priorities, in addition to improved O&M.

The workshops included overviews of innovative funding and finance techniques identified through the initial phases of the study. The overviews were designed to serve as a base for discussion on effective practices and options (see Appendix B for Overview of Alternative Finance and Funding Strategies).

For the first workshop, February 21 and 22, 2012, the initial presentation was followed by effective practice and case study examples provided by representatives from government agencies and private parties active in project finance and alternative delivery approaches. These were the American Association of State Highway and Transportation Officials (AASHTO), Clary Consulting, Macquarie Group, Abeima/Abengoa, Louis Berger Group, and Jacobs Engineering.

The second workshop June 15, 2012, consisted of two main parts. The first part was an introduction and overview on USACE water resources and the need for innovative finance, while the second part captured the private sector's perspective and ideas. USACE highlighted the necessity of approaching this issue with fundamentally different insights. They also stressed on the importance of thinking over time in order to meet current and future needs. Within a theme of reformation, alternative finance mechanisms were discussed, such as use of a long-term leases, property transfers, disposal of federal assets, limited liability partnership and public private partnership. Other financing methods also identified were utilizing a State Revolving Fund, Water Infrastructure Trust Fund, Water infrastructure Finance and Innovation Act, National Infrastructure Bank, etc.

The private sector added to this conversation through a discussion of alternative finance mechanisms that apply to USACE and corresponding examples. One case was about the potential of hydropower and its promising applicability to a PPP funding mechanism. Certain cardinal overarching concepts were pinpointed, such as figuring out a way to bundle projects and carry out a detailed life cycle analysis, blending of assets with risk buy down for a period depending on life cycle insurance, and organizing the different aspects of the design-build process. Defining a performance standard and risk at the project level is central to furthering innovative finance options. The industry perspective also drew a parallel between the process of innovative financing and the business transformation process, which has an initial correcting phase, middle enabling phase, and a final transformation phase. Garnering support and

stakeholders in the form of third party validators would be critical for USACE, an industry representative said.

For the third workshop, convened December 4, 2012, the initial presentation was followed by case studies and discussion from the private finance sector (KPMG, Meridiam, and Fluor Corporation) and from the public sector finance perspective (State Infrastructure Banks (SIBs) in Ohio and Florida, and the Transportation Infrastructure Finance and Innovation Act (TIFIA) program at the U.S. Department of Transportation). Next was a roundtable discussion on the legal perspective (Allen & Overy), the rating agencies perspective (Standard & Poors), the financial advisor perspective (KPMG) and the PPP perspective (Fluor).

Participants arrived at a set of long-term funding and finance strategy goals and short-term conceptual action plans through in-depth discussions on PPP experience in USACE hydropower and a matrix exercise on strategy opportunities and constraints and discussions on potential projects and priorities such as inland waterways, hydropower and recreation. Participants identified a need for experimental pilot programs. Potential ideas for short-term implementation are summarized below.

C. Review of Federal, State, Local and International Projects that Successfully Implemented Innovative Financing Mechanisms

Various transportation and water projects were profiled in the case studies presented at two workshops; information on these projects is included in the PowerPoint presentations in Appendix A. These represent a tiny sample of the successful projects that have been implemented across the U.S. and internationally.

The National Council on Public Private Partnerships (ncppp.org) has links to 85 PPP case studies (as of January 10, 2013) on its website. All appear to be in the U.S. and its territories. The case studies encompass the sectors identified in Table 3.

Table 3: NCPPP Featured Case Studies by Sector

Sector	Number of Case Studies	Date Range of Studies
Energy	6	2005-2011
Operations and Management/ Maintenance	19	1998-2010
Public Safety	4	1999-2010
Public Works	7	1999-2010
Real Estate and Economic Development	19	1998-2012
Technology Infrastructure	3	1999-2002
Transportation Infrastructure	11	1988-2006
Water/Wastewater Infrastructure	16	1999-2011
Total Listed	85	1988-2012

Note: the earliest project listed (1988) was the redevelopment of Union Station in Washington, DC.

The Federal Highway Administration (FHWA) Innovative Finance Office website (<http://www.fhwa.dot.gov/ipd/finance/index.htm>) includes extensive materials and resources. (One of the key speakers at the third workshop was from that office; her presentation on TIFIA is included in Appendix A.) Project Profiles provide details on successful projects by major funding source. Some of the projects listed include funding from more than one source. See Table 4.

Table 4: Innovative Finance Office Project Profiles by Funding Category

Funding Category	Number of Projects Profiled
TIFIA	31
SIB ⁽¹⁾	6
PABs	3
Section 129 Loans	1
GARVEEs ⁽²⁾	8
GANS ⁽³⁾	2
Federal Aid Matching Strategies	2

1. Projects profiled represent a fraction of the total projects financed. For example, elsewhere a table of SIBs by state identifies 407 projects, with a total loan value exceeding \$4.8 billion and disbursements to date exceeding \$3.2 billion.
2. GARVEEs: Grant Anticipation Revenue Vehicles
3. GANS: Grant Anticipation Notes

The Public Private Partnership Bulletin (pppbulletin.com) provides a project tracker with a database of 1,357 PPP projects (as of January 10, 2013), mostly international but including some U.S. projects. A search on water in the project tracker identified 108 projects; a search on power identified 31. Of these 31, four are hydro power, one thermal power, four solar power, and one wind power. Recreation search identified 11 projects, with four in the category of leisure and libraries. This database is one of many potential sources for international projects.

D. Descriptions of Most Appropriate Funding and Financing Mechanisms

1. Distinction Between Funding and Financing

Panelists at the December workshop emphasized the subtle but important differences between funding and financing. Although sometimes used interchangeably, they are different. Funding is the revenue stream that ultimately pays the cost of the project, maintenance or other needs including sources such as appropriations, dedicated taxes, user fees, private donations, and partner contributions. Financing is the means by which the funding is advanced to provide the cash when needed to build the project at the most efficient cost of borrowing such as debt (bonds and loans) and private equity. By way of illustration, in the case of bonds issued against revenues from user fees dedicated to an infrastructure investment, the revenue stream from the user fees pledged as security for the bonds would be the funding. The bond proceeds received at the time of bond issuance to fund the design-construction expense would be the financing. Appropriations are also considered revenues that fund projects.

2. Potential Funding Mechanisms

2.1. Bridging Funding Gaps and Leveraging Appropriations

The funding gap and challenges outlined in this section point to the need for mechanisms to bridge gaps between outstanding recapitalization and O&M needs and the annual level of funding through appropriations. Financing mechanisms provide additional leverage to the federal appropriations that are determined by Congress. Workshop participants indicated that innovative techniques in funding and finance should be evaluated for their ability to bring in new sources of funds and provide additional leverage to government investments or reduce the need for government funds overall. The following considerations and examples are relevant to this goal.

- Expansion and enhancement of user fees will likely require more certainty in the dedication of funds and their allocation on a geographic and priority basis (where user's fees are generated). If users are asked to pay the full cost or a larger share of the true cost of the assets and services provided, then they will expect fees paid in to be dedicated to related improvements and benefits, and distributed equitably with demonstrated attention to priorities.
- PPPs will require some form of revenue capture or dedication to fund the project.
 - User fees provided through full concession arrangements on the project compensate private partners by providing leveraged funds through equity and debt financing. Workshop participants noted that dedicated user fees generally operate more efficiently managed by private partners and local partners (e.g., port district, redevelopment agency) as these entities may have more flexibility than a federal agency in regularly adjusting fees to match costs and the fees can be dedicated to funding the projects. Arrangements where fees are determined through pre-defined contractual mechanisms (e.g., Consumer Price Index adjustments and caps) provide more certainty to all parties.
 - A combination of user fees and appropriations provided by the public owner can be used to compensate private partners by providing leveraged funds on an available structure to advance the construction of projects. Under the availability payment structure, the public owner takes the risk of the annual payment to the private party

and the private party takes the risk of design-build-operate-maintain. If the assets are not “available to use” as outlined in the PPP agreement the annual payment would be reduced as directed in the agreement. The public owner is at risk for reimbursing the private team, subject to annual appropriation.

- USACE activities, like recreation and particularly flood risk management, provide value to surrounding property owners, businesses, and communities that could be captured via fees or local taxes to pay for needed improvements. These value-capture mechanisms, most frequently applied in the U.S. for infrastructure improvements such as roads, bridges, schools, water and sewer systems, transit stations, and park improvements, could be implemented directly by USACE, or more likely, by nonfederal parties to provide ongoing fees to finance projects. For local nonfederal implementations of value capture, USACE could provide “seed” funding and/or technical assistance to conduct the studies required to set and maintain fees or local taxes. Value-capture mechanisms could include the following: Tax Increment Financing, developer fees, or special tax improvement districts (see Section II.E.1.).
- Revolving loan funds and credit enhancement techniques (see Section II.E.3 for more information) provide examples of how the commitment of appropriated funds can be used to leverage private funding, while returning funds (through principal repayment and interest) to government for future use on a revolving basis. This is not the common approach for federal programs where federal loans are made with a credit risk premium deposited with the U.S. Treasury by the applicable federal agency sponsoring the loan and funds from the loan repayment are made to the U.S. Treasury to repay the loan. The repaid funds are not revolved for the federal loan. It is likely a quasi-governmental entity would need to be created under the direction of the USACE to implement and manage a revolving loan program in a similar structure as a National Infrastructure Bank that was proposed in the 112th Congress as the Rebuild America Jobs Act¹⁶. One other option would be to allow projects under the responsibility of the USACE to be eligible under a National Infrastructure Bank, if this is created in the current or next Congress.
- Alterations in the cost share regulations and statutory requirements would provide additional flexibility to leverage nonfederal funds to complete projects that would be of substantial local benefit.
- Expansion of partnerships with nonprofit participants provides leverage for federal investments with lower requirements for return on investment for nonfederal capital.

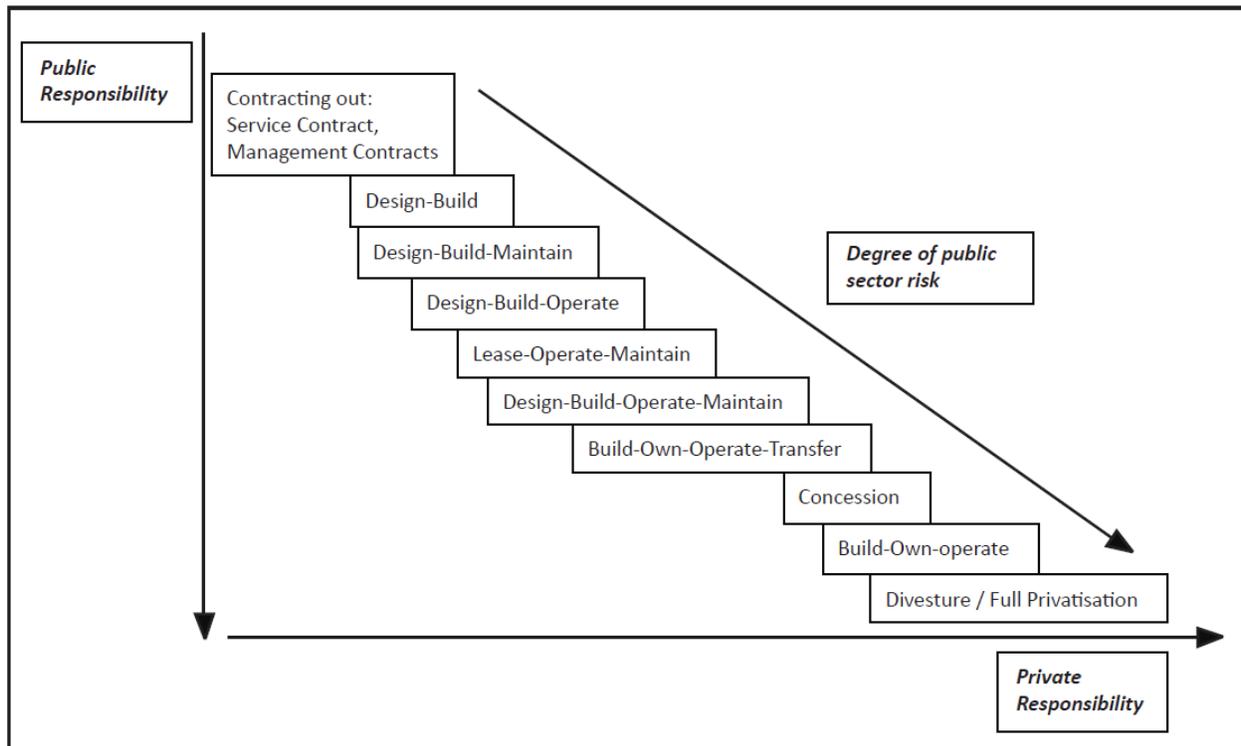
2.2. Risk Transfer and Sharing

In addition to the new money and leverage benefits noted above, PPPs and innovative project finance techniques provide benefits to the government in the form of risk transfer and sharing. Various forms of PPP arrangements provide the opportunity for the government to set the PPP requirements and thus choose the risks to retain and the risks the private party will assume provided the structure is financeable and acceptable to both the public owner and private party. For example, when the

¹⁶ S.1769, introduced 10/31/2011.

government collects user fees and provides an availability payment to a concessionaire it is retaining the risk that revenues could be higher or lower than anticipated and is responsible for paying the availability payment regardless of the amount of fees collected. Correspondingly, the public owner can ask a concessionaire to take the risk of user fees. Generally, the cost of financing is lower under an availability payment approach compared with a revenue risk approach because it reflects the level of risk the private party assumes on the user fees. When the PPP process is properly structured to promote early involvement and collaboration, the private partners provide government with feedback on the level of risk transfer most appropriate for the asset. Figure 2 illustrates the degree of risk and involvement associated with various PPP structures.

Figure 2: Scale of Public Sector Risk Transfer in Typical PPP Arrangements

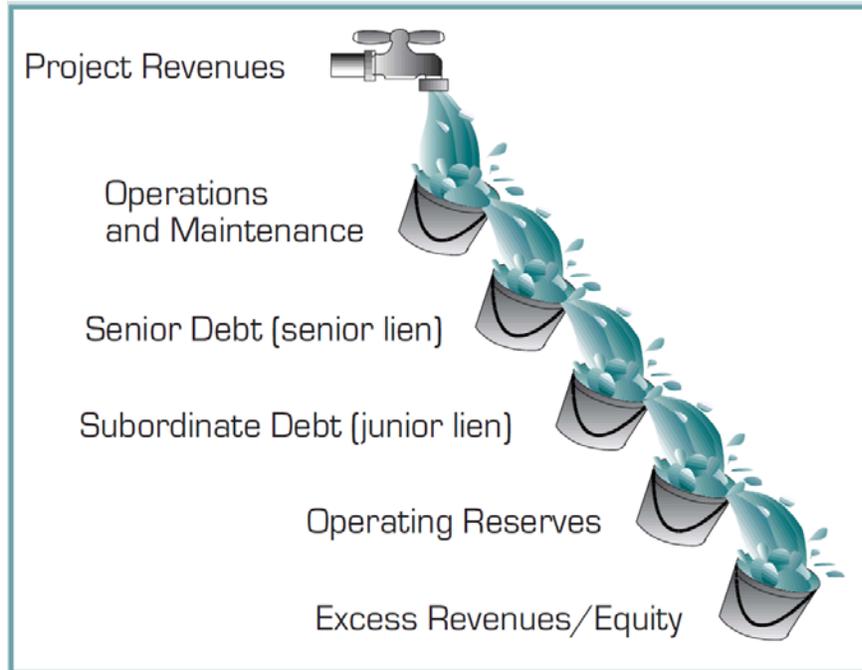


Source: Canadian Council for Public Private Partnerships

Risk sharing is also effective in federal government credit enhancement programs such as that provided under TIFIA (See Section II.E.3 for more information). In loans issued under this program, the federal government assumes the risk of nonpayment from the private party or local partner for loans advanced to fund a project. In this way, the cost of these private party or local partner loans for the project is reduced. TIFIA loans include provisions which protect government rights in cases of default and a credit default premium is deposited when the loan is closed (US DOT for TIFIA). TIFIA loans can be subordinated to senior project debt; Figure 3 provides an illustration of the position of subordinated debt in the cash flow waterfall. As noted, a bill to establish a Water Infrastructure Finance and

Innovation Act (WIFIA) loan program was introduced in the 112th Congress, where it failed, and was reintroduced in the 113th Congress¹⁷.

Figure 3: Subordinate Debt Position in the Project Cash-Flow Waterfall



Source: USDOT Innovative Finance Primer, 2004

2.3. Project and Service Delivery Streamlining

A key goal in any application of innovative funding or finance techniques is the streamlining of project or service delivery. As frequently cited in research on PPPs, the private sector has a wide range of skills and motivation for completing tasks in a timely fashion.¹⁸ When properly structured, PPPs can encourage private partners to apply ideas, technologies, and methods, not contemplated by government, that lead to lower costs, more timely project delivery and better service. This is particularly true in fixed-price contracts with incentives and penalties applying to schedule performance and service standards and in the case of longer-term agreements the private partner focuses on strong life-cycle approaches. Participants in the Workshops cited savings to state transportation agencies of 20 percent to 30 percent in service privatization contracts due to competition, efficiencies, and innovation and also long-term warranties for longer-term agreements that ensure the assets are properly

¹⁷ WIFIA bill was reintroduced in the 113th Congress as S.335 by Senator Jeff Merkley on 11/14/2012. It was passed by the Senate Committee on 3/21/2013. At the same time in the 113th Congress, a WRDA reauthorization is being drafted, that includes a WIFIA pilot program.

¹⁸ USACE Institute for Water Resources, *Water Resource Outlook: Budget Constraints and the Corps Consideration of Public-Private Partnerships: Where is the Money Going to Come From?* December 2008.

maintained during the term of the agreement and handed over in the condition required by the PPP agreement.

2.4. Optimizing Local Participation

As noted in the section on value capture (see Section II.E.1), local communities can benefit in a variety of ways beyond those envisioned in the current user-pays and cost sharing frameworks. Establishing a process to engage local partners in identifying project benefits and capturing revenue to contribute to project funding can be a useful goal for expanding USACE funding options. Other goals noted by workshop participants include increased flexibility in cost sharing, advanced construction credit, and mechanisms to encourage nonprofit partnerships. The addition of competition among local partners (e.g., discretionary funding applications, credit enhancement program applications, consideration of local match in funding distribution) was also discussed. Competition can help optimize local participation and enhance cost-sharing.

2.5. Capitalizing on USACE Expertise (technical advisory, project management)

Through its long history of service and broad base of responsibilities, USACE is a world leader in methods and technology in water resources and related disciplines, such as environmental stewardship and restoration. USACE has programs and mechanisms in place to share its expertise (see Section II.B.1.3). The following goals were identified during initial project research and were recognized by workshop participants.

- Technology transfer to encourage and facilitate partnerships and expand the pool of potential partners (e.g., feasibility studies, nonprofit partner education).
- Transition from an owner to project manager and service provider to focus on core priorities.
- Providing technical assistance free of charge or at cost as an in-kind contribution to project development.
- Providing for a fee technical assistance and services for purposes of revenue generation.

2.6. Right-Sizing and Prioritization

In efforts to improve asset management and take a long-range view on project prioritization and asset preservation, USACE is examining mechanisms and structures for limiting the scope of its Civil Works mission to core functions, high-priority needs, and high benefit-cost projects. In this manner, USACE can consider asset transfer, divestiture, and privatization in the larger context of mission benefits and costs in order to optimize its O&M budget and prioritize the use of scarce federal funds. As noted by Workshop participants, this goal can also be advanced through partnerships with other federal agencies, flexibility in the definition of authorized purpose, and flexibility in the definition of O&M and recapitalization priorities.

E. Most Likely Funding and Financing Mechanisms: Long Term and Short Term

Long-Term Strategies for Potential Funding and Financing Mechanisms

Workshop participants identified key long-term strategies that the USACE may consider for further study. These initiatives would likely require Congressional authorization, substantial USACE internal study, and some level of organizational realignment and training. This section outlines and provides additional information on these long term strategies and implementation requirements.

1. Long-Term Funding Mechanisms: User Fees and Trust Fund Enhancements

Revenue generation through long-term changes, enhancements to user fees, and the operation of trust funds can provide dedicated revenue streams for recapitalization and discretionary authority for project identification and prioritization. Key elements include the following.

- **Trust Fund dedication** – Congressional authority would be required to dedicate trust fund revenues (e.g., HMTF) to specific purposes related to recapitalization needs of the assets where fees are applied¹⁹. Use of trust fund balances in annual USACE budgets would be subject to periodic Congressional authorization, in a manner similar to USDOT authority for use of the Highway Trust Fund. Given current revenue pressures and competing challenges for general fund distributions at the federal level, this initiative would most likely be limited to future trust fund receipts. This type of initiative has received support from stakeholders and industry groups, but advancement would most likely hinge on provisions for project selection and prioritization, geographic distribution of funds, nonfederal share standards, and related issues.
- **Revenue Enhancement** – With needs for recapitalization that outpace annual appropriations and even user fee revenues, user fees are not adequately aligned with the long-term costs of the assets and services provided. Workshop participants expressed interest in the feasibility of strategies for applying or increasing fees for navigation to more closely represent USACE costs for maintaining facilities in line with user expectations for levels of service. User fees of particular interest include the following:
 - **Ad valorem fee** for bulk cargo – Enhancement and expansion of the value-based harbor maintenance fee to align with cost of dredging needs.
 - **Container fee** – Establish a per container fee at maritime ports to raise funds for dredging to accommodate deep draft vessels.
 - **Lock user fees** – Capture costs of lock improvements at individual locations through setting fees to cover capital and maintenance needs (users benefit from reliability, speed, and expanded capacity). USACE could revive studies that have examined congestion pricing at locks or the establishment of tradable lockage fees.

¹⁹ S.412, Harbor Maintenance Act of 2011 and H.R. 104, RAMP Act. Both failed to pass in the 112th Congress and were reintroduced in the 113th Congress as S.218 (Feb. 4, 2013) and H.R. 335 (Jan. 22, 2013).

- **Fuel taxes** – Increase in towing vessel fuel taxes to match inland waterway capital needs.
- **Waterway tolls** – Explore use of real time vessel tracking technology to impose distance fees or waterway tolls for vessels, towing vessels, and barges.

Assessment of the feasibility of changes or implementation of these fees would require detailed study. The study would identify appropriate fee levels; estimate and account for price elasticity of demand; determine feasibility and cost of toll collection technology; identify administrative requirements and cost for user fee collection; and identify mechanism for use of funds and ongoing performance measurement.

- **Value capture** – Fees applied to recover the value of benefits provided to beneficiaries of FRM, recreation, FUSRAP, and other programs could provide a new source of revenue to offset the cost of recapitalization projects. These benefits are related to the increased property values and business potential of property owners and private firms protected by FRM projects, located adjacent to desirable recreation facilities or in developments made possible through FUSRAP. These value capture mechanisms could be implemented directly by USACE. A more likely approach would be through nonfederal parties to provide ongoing fees to finance local cost share contributions. For local nonfederal implementations of value capture, USACE could provide grant funding and technical assistance to conduct the studies. Value capture mechanisms could include the following:
 - **Tax Increment Financing** – the incremental increase on property values can generate additional taxes such as local property taxes that result from a USACE improvement, e.g., major FRM, recreation, or FUSRAP project. In a partnership with the local partners, a portion of the tax increment could be directed to helping to pay for the improvement and maintaining the asset once constructed.
 - **Developer fees** – New developers benefiting from an infrastructure project would contribute a one-time fee based on square footage or number of units to cover anticipated costs.
 - **Special improvement or tax district** – business and residents within an area benefiting from infrastructure would be charged a special assessment to contribute to the cost of the improvement.

Local redevelopment agencies have demonstrated experience in estimating, applying, and collecting these fees to offset the cost of capital projects or provide revenue streams for PPPs. Private participants in the workshop saw substantial risk and uncertainty in these revenue sources based on current economic conditions. Credit enhancement would be required to help construct a project. This could include areas such as advancing the funds through a TIFIA-type program, Infrastructure Bank-type program, a local partner guarantee or a combination of enhancements. Similarly, rating agencies often determine that under the current economic conditions these revenue sources are not suitable to secure investment-grade (BBB-/Baa ratings and above) commercial loans and bond issues without adequate reserve funds and other credit enhancements.

2. Combined Long-Term Funding and Finance Mechanism: Asset Management Review

USACE is actively working toward a resource investment priority system that is based on performance measures and standards that will promote consistent, repeatable, transparent, and auditable evaluation across all project purposes. The process will be informed by assessment and analysis of asset condition and risk. In addition to performance measures, USACE is also developing standards for asset assessment and appropriate disposition with options including 1) Recapitalization with federal and nonfederal funding sources, 2) Concession to transfer risk and responsibility 3) Asset Transfer to another federal or nonfederal party, and 4) Decommissioning assets that no longer contribute to the core Civil Works mission. This topic was the subject of interest for a pilot program (see Section II.F.2.5, below).

3. Long-Term Finance Mechanisms: Infrastructure Bank and Credit Programs

A third area of interest for long-term consideration raised by Workshop participants was the development of an infrastructure bank and/or related credit enhancement programs.

3.1. Infrastructure Bank

An infrastructure bank is a method of organizing access to partnering funds and evaluating and prioritizing project funding. The infrastructure bank can be organized for USACE as a whole or organized by district or business lines. USACE can also participate in a multiagency national infrastructure bank. Infrastructure banks have been the subject of recent administration and congressional proposals and were authorized at the state level through Transportation Equity Act for the 21st Century (TEA-21, Public Law 105-178, as amended by Title IX of Public Law 105-206). The bank can contain some or all of the following features:

- **Seed funding** – Initial capital funds for an infrastructure bank can come from one or more of the following sources 1) one-time appropriation; 2) divestiture or sale of excess no-income USACE property or facilities; 3) sale to private entities of USACE facilities that produce income (converts income streams to lump sums); and fees or trust fund revenues.
- **Revolving fund** – With the initial capital, a revolving fund is established and loans are made to nonfederal entities for construction of various USACE related facilities. Low interest rates (small premium above the current federal cost of borrowing) can be charged to retain the value of the revolving fund and recapture any administrative costs and loan repayment risk. As funds are repaid, they can become available for other projects, reducing need for ongoing appropriations.
- **Leverage** – Once a significant loan portfolio is established, the loan portfolio can be leveraged through issues of bank bonds sold to investors using its portfolio of loans as collateral. A conservative ratio of 3:1 or 4:1 leverage would be established. An alternative source of leverage would be loan packaging or securitization. The infrastructure bank could sell packages of its loan portfolio to private investors; also with conservative leverage 3:1 or 4:1 limits.
- **Equity participation** – Federal funds loaned out or pledged to projects can be further leveraged by local matching funds and private equity participation (equity participation in infrastructure projects typically ranges from 20 to 40 percent).
- **Grant, credit assistance, and bond authority** – The bank could have the authority to make limited direct grants for a narrow function such as seed capital for stressed areas that have

smaller projects. If this is not limited in scope, it would lower the available funds in the infrastructure bank long term. In addition, the infrastructure bank could provide credit or bond assistance as outlined below.

- **Credit standards and evaluation** - Loans are disbursed based on application process that evaluates project purpose and need, project implementation plan, and credit worthiness of borrowers. USACE can establish a grant program to cover all or part of the project planning and application cost to encourage participation.
- **Quasi-government function** – As discuss earlier, federal programs may make loans that are authorized by Congress and these are specific to a project or program with no ability to “revolve” the repayments. As noted in the proposal for the National Infrastructure Bank in the 112th Congress, a quasi-government function would have to be created under the oversight of the USACE to allow the loan repayments to revolve to create a new series of loans.

3.2. Loans and Credit Enhancement

To promote nonfederal investment in Civil Works projects, USACE can investigate the creation of a program to encourage PPPs and assist local governments with project finance. Programs can be modeled on successful USDOT programs (TIFIA and Railroad Rehabilitation and Improvement Financing (RRIF)). The program could offer the following products:

- **Loan guarantees** – partial or full repayment guarantees for bank loans to substantially reduce the cost of borrowing by nonfederal partners
- **Bond insurance** – guarantees to bonds issued by states, municipalities, and public authorities to reduce the cost of borrowing and increase bonding capacity
- **Subordinate loan** – subordinated tranche loans to reduce amount and cost of borrowing for nonfederal parties (municipalities and private partners in PPPs).
- **Reserve funding or guarantee** –pledged funds to cover project debt service reserve or O&M reserve (bank loan or bond issue).

Low interest loans or guarantees offered at the federal cost of borrowing would substantially reduce the cost of borrowing by private concessionaires, private freight operators or facility owners, or public port authorities or redevelopment agencies. This would allow them to raise capital for cost share more easily, leveraging existing revenue streams and preserving their own bonding or borrowing capacity. The TIFIA program, which now offers rates for 35-year terms as low as 3.3 percent, routinely receives many more applications than it can accommodate. To implement the TIFIA program, USDOT needs to train and hire staff with project finance backgrounds and engage consultants and project finance advisors to review and evaluate credit application and monitor and audit program performance.

3.3. Bond Initiatives

In order to expand the pool of funds available to nonfederal partners, USACE can work with other federal agencies and Congress to expand authority for the use of specialized tax-exempt municipal bonds to fund the local cost shares and PPPs. Bonds would not be issued or underwritten by USACE, but the authority to issue bonds would be given by IRS and other federal agencies to nonfederal partners for

authorized USACE projects. Two examples of potentially useful bond initiatives that were successful in other markets include the following:

- **Private Activity Bonds** – Congress would authorize removal of the allocation cap for Private Activity Bonds (PABs) for USACE project purposes (including FRM, water supply, waterborne transport infrastructure). A PAB authorization would allow private partners in PPPs to issue tax-exempt bond funding through user fee revenue streams. (Current practice in USDOT regulated transportation sector is \$15 billion of capacity in which the USDOT Secretary controls the allocation of the capacity, based on applications for proposed projects.) The adequacy of these revenue streams would be determined by underwriters, rating agencies, and the market of bond investors. USACE could manage the allocation of the PAB capacity, but would have no role in evaluation or issuance of the bonds and no risk exposure but would benefit from enhanced nonfederal leverage.
- **Subsidized Bonds** – Congress would authorize issuance of government-backed bond issues available to municipalities and public authorities modeled after the successful Build America Bonds (BABs) program. This program included federal subsidies in the form of direct payment; a subsidy of 35 percent of the interest paid on the bonds to the issuer; or a refundable tax credit to the bondholders. This initiative would require Congressional appropriation to fund the subsidies. BABs were an element of the federal stimulus program in 2009 and 2010.

3.4. TIFIA Partnership and Establishment of WIFIA Program

Workshop participants expressed interest in further study of the feasibility of a Department of Defense (DOD)/USACE partnership with USDOT to authorize use of TIFIA credit program for navigation projects, particularly high-priority deep draft projects accompanied by landside intermodal access improvements. While this credit enhancement capacity would likely increase the ability for local partners to enter into projects and provide cost share contributions, the currently over-subscribed condition of the TIFIA program suggests that expansion of its capital base and additional funding for administrative functions would be necessary to accomplish this. This would likely require Congressional appropriations for USACE contribution for the credit risk assessment payment to U.S. Treasury for each loan or for the TIFIA program scope of uses to be expanded to seaport dredging projects. Alternatively, a separate WIFIA program could be established, along the lines of the WIFIA bill entered for consideration in the 112th Congress.

3.5. Alternative Finance Matrix

In Table 5, the Alternative Financing Matrix outlines the finance tools and the potential business lines where the tools have potential uses based on the types of projects, legal requirements, and related items. This matrix is designed to help guide the Phase 3 study effort on those financial tools and business lines where the tools have the most potential for application. The matrix was developed using the knowledge of the USACE business lines, including the types of projects, legal requirements, partner interest (nonprofit and private), and the possible updating of legal authority where laws may be restrictive. This is only a guide for follow-up study and should not be used exclusively to outline the use of these tools with in the various business lines.

Table 5: Alternative Finance Matrix

#	BUSINESS LINES	Key Long Term Funding Strategies				Key Financing Strategies		
		Revenue Enhancement	Trust Fund Dedication	Value Capture	Asset Sales, Transfer or Disposition	Loan Programs (Federal or SIB)	Bond Programs	Public-Private Partnerships
1	Emergency Management					XX		X
2	Environment							
3	Flood Risk Management	XXX	X	XXX	XXX	XX	XXX	XX
4	Hydropower	X	XXX	X	XX	X	X	XXX
5	Navigation	X	XXX	X	X	XXX	XXX	XXX
6	Recreation	XXX		XXX	XXX	XXX	XXX	XXX
7	Regulatory							
8	Water Supply	XXX	X	XXX	XXX	XXX	XXX	XXX

Code:

Blank- There appears to be no potential use of the applicable finance tool in this business line.

X – Potential use is limited for the applicable finance tool in this business line due to the types of projects, legal requirements and other key items.

XX – Potential use of the applicable finance tool in this business line warrants further study based on the types of projects, legal requirements, and other key items.

XXX – Potential use of the applicable finance tool is high in this business line warranting further study based on the types of projects, legal requirements, and other key items.

4. Action Plan: Short-Term Implementation Steps

Through an in-depth discussion of a matrix exercise on strategy opportunities and constraints, Workshop participants arrived at a set of conceptual action plans with potential for implementation in the near term with the objective of testing and demonstrating the feasibility of innovative funding and finance initiatives. It is anticipated that the pilot programs would require a special experimental program authority as outlined below.

4.1. Special Experimental Program Authority

USDOT and FHWA promoted innovative project delivery methodologies and practices through the application of Special Experimental Project Number 14 (SEP-14). Since the inception of SEP-14 in 1990, many processes that were once considered experimental -- design-build, cost-plus-time bidding, lane rental and the use of warranties -- have become mainstream practices across the U.S. These also include alternative ways to accomplish NEPA environmental compliance, right of way acquisition, and financing. In order for FHWA expand adoption of innovative methods, FHWA saw the need to establish the SEP-15 program. SEP-15 allows for the use of experimental features on federal-aid projects that will test an innovative project delivery technique prohibited by a current provision of title 23 of the United States Code, FHWA regulations, or policy. SEP-15 does not replace SEP-14, which is still available to evaluate experimental contract administration methods. The creation of SEP-15 provides a process and the tools for the application of these strategies in an environment that encourages innovation while still maintaining the fundamental objectives of FHWA’s legislative authorities. In establishing the SEP-15 program, the FHWA recognized that its specific procedures should not be so narrowly construed that they prevent or unnecessarily inhibit a possible project or program where opportunities may exist for innovation. The primary objectives of the SEP-15 program are to:

- Encourage tests and experimentation in the entire project development process leading to increased project management flexibility, more innovation, improved efficiency, timely project implementation, and potentially new revenue streams;
- Identify impediments to current laws, regulations, and practices to the greater use of public-private partnerships and private investment in transportation improvements;

- Develop procedures and approaches addressing these impediments; and
- Evaluate and propose administrative and statutory recommendations to remove these impediments.

Authority for the Secretary of the Army to authorize USACE to enter into a Special Experimental Program could be grounded in 33 USC 2300 which states:

The Secretary shall study and evaluate the measures necessary to increase the capabilities of the United States Army Corps of Engineers to undertake the planning and construction of water resources projects on an expedited basis and to adequately comply with all requirements of law applicable to the water resources program of the Corps of Engineers. As part of such study, the Secretary shall consider appropriate measures to increase reliance on the private sector in the conduct of the water resources program of the Corps of Engineers. The Secretary shall implement such measures as may be necessary to improve the capabilities referred to in the first sentence of this section, including the establishment of increased levels of personnel, changes in project planning and construction procedures designed to lessen the time required for such planning and construction, and procedures for expediting the coordination of water resources projects with Federal, State, and local agencies.

It is recommended that USACE or DOD legal counsel evaluate reliance upon existing authority and assess the need for special authorization. Congressional authorization would be expected in the event that individual pilot programs would require appropriations actions.

5. Potential Increase in Funding Multipliers

The categories and descriptions in Table 6 correspond to the discussion and descriptions in Section II.E.1, II.E.2 and II.E.3, above.

Table 6: Potential Increase in Funding Multipliers

Major Category	Description	Potential for Increases in Revenue/Leveraging-High/ Medium/ Low	Typical Funding Multiplier(s)
User Fee and Trust Fund Enhancement (Funding Strategies)	Trust Fund Dedication	High/Medium	1::1 or > with local match
	Revenue Enhancement	Medium/Low	1::1
	Value Capture	Medium/ Low	1::1
Asset Management Review		Medium/Low (greater if assets are sold)	1::1
Infrastructure Bank and Credit Program (Finance Strategies)	Infrastructure Bank	High/Medium	Federal SIBs generally have a ratio of \$3.26 "other"/\$1 SIB; Florida SIB has a ratio of \$9.1 "other"/\$1 SIB.
	Loans and Credit Enhancement	High	10::1 or > based on OMB scoring
	Bond Initiatives	Medium	Up to 10::1
	TIFIA / WIFIA Partnership	High	10::1or >

F. Potential Conceptual Action Plans for Each Mechanism

1. Goals for Application of Alternative Strategies

Given the fiscal challenges facing the Civil Works mission, USACE leadership has placed emphasis on identification of alternative finance methods designed to move beyond O&M and recapitalization competition for scarce resources inherent in the annual appropriations process. Goals for innovative techniques are oriented toward capturing value from the Corps' extensive asset base, dedication, and proper prioritization of USACE asset-generated revenues, careful asset management, leveraging federal funds through expanded partnerships with public, private, and nonprofit entities, and long-term project finance. Study research and workshop discussions indicated several goals that USACE leadership, Office of Management and Budget, Congress and other stakeholders can consider when evaluating alternative funding and finance approaches.

2. Pilot Program Candidates

Workshop participants identified several candidate concepts to test and demonstrate the value of innovative funding and finance options. These concepts are described in further detail below along with likely steps required for implementation.

2.1. Pilot for Discretionary Use of Harbor Maintenance Trust Fund (Focus on Funding)

As noted in Section E, not all annual receipts of the HMTF are appropriated by Congress for use in the USACE budget for navigation recapitalization. Workshop participants noted that approximately \$800 million in trust fund receipts have been left un-appropriated on an annual basis. At the end of FY2010, HMTF had a surplus of over \$5 billion.

Despite the HMTF surplus, recapitalization and maintenance needs persist in the busiest U.S. harbors. USACE estimates that full channel dimensions at the nation's busiest 59 ports are available less than 35 percent of the time.²⁰ Channels not maintained at authorized project depths could result in light-loading of vessels (carrying less cargo to enter shallower drafts), delays waiting for higher tides, diversion to other ports, or using trucking or rail.

Several proposals were put forth in the 112th Congress for reform of HMTF function. These proposals involve provisions to dedicate HMTF receipts to harbor maintenance projects, tying appropriations to receipts. Reform measures involve eliminating the Congressional Budget Office scoring or mandated savings that apply to general fund appropriations and the current HMTF structure²¹. Similar approaches are used for highway and airport trust funds with success.

The purpose of this pilot program is to reserve a portion of appropriated funds for an application-driven, discretionary investment program. This program would have the following features:

- Criteria for award would include the level of matching funds brought by local partners or leverage achieved through private partnerships. This promotes the goals of leveraging federal funds and optimizing local participation noted in Section II.E.3.1.

²⁰ Congressional Research Service, *Harbor Maintenance Trust Fund Expenditures*, January 10, 2011.

²¹ Bills introduced in the 112th Congress included H.R. 104, RAMP Act; H.r.4348, MAP-21; H.R. 3648, Harbor Fairness Act; H.R. 6026, Dredge Act; H.R.7, American Energy and Infrastructure Jobs Act; H.R. 1533, etc.

- The program would also contain set-asides for high need and high value projects at major facilities (post-Panama dredging needs). Applicants would be encouraged to provide detailed justification of need and benefit, which would be considered in the evaluation process.
- The program would set aside funds for projects that are not receiving attention, such as low-use commercial ports. Applicants would be encouraged to provide information on the benefits of recapitalization in terms of economic development, cost of shipment, relief of congestion on other modes of shipment, and ancillary benefits to recreation and related uses.
- The pilot would include performance metrics tied to the evaluation criteria and to current metrics for performance (e.g., channel availability, cost per ton) to demonstrate effectiveness of the invested funds and contribution to business line high priority performance goals.

Workshop participants cited several benefits of the pilot program:

- The discretionary framework would introduce structured competition for limited federal funds and more clearly incentivize local communities to put forward projects with demonstrated need and utility.
- The pilot program would also encourage a higher match to the trust fund money than would be likely through traditional appropriations model.
- The pilot program would serve to demonstrate value of federal expenditures, highlight unmet needs, and incentivize appropriators to release unused trust fund receipts by identifying viable projects with local support.

Implementation of this pilot program would likely be limited to temporary modification of internal policy and procedure. The purpose of these modifications would be a temporary test of new techniques for project identification and prioritization. The pilot program could be implemented via headquarters or at the district level.

2.2. Pilot for Partnership Between USACE and State Infrastructure Banks in Great Lakes Region: Focus on Funding and Finance (Focus Primarily on Finance)

Workshop participants identified the Great Lakes region as an integrated waterway system that would benefit from a collaborative approach with surrounding states to identify new funding and finance strategies. The concept for this pilot program involves USACE collaboration with existing State Infrastructure Banks (SIBs) in the region for project development.

A recent Congressional Research Service study outlined the needs in the Great Lakes waterway system.²²

- Great Lakes shippers and port operators have characterized lack of adequate dredging as a crisis in their waterway system, noting that many ships are carrying less cargo than the ship's capacity to reduce draft.
- Drafts have also been affected by lower than normal precipitation in the region.

²² Congressional Research Service, *Harbor Maintenance Trust Fund Expenditures*, January 10, 2011.

- The Great Lakes Maritime Task Force, a coalition promoting Great Lakes shipping, estimates \$200 million per year in maintenance funding is needed to restore the system to its authorized dimensions, but only about \$90 million per year has been appropriated.
- While Great Lakes harbors and channels have accounted for 14 percent of total HMTF withdrawals over the last decade, shipping on the Great Lakes represents less than 10 percent of the total tonnage subject to the HMTF and is composed of lower value raw materials.

This condition assessment suggests that increased levels of investment may result in efficiencies and improved HMTF revenue and economic activity. Surrounding states and private partners would stand to benefit most from projects and this could be an important opportunity to leverage federal funds.

The conceptual action plan concept includes the following features:

- USACE would provide additional capitalization to SIBs in states surrounding the Great Lakes. This additional capitalization would be used to make loans to port authorities or private parties to be used for projects of regional significance in the Great Lake Region. Capitalization funds could be allocated by formula, proportionate to HMTF revenues generated or an alternative metric to be proposed in negotiation with the SIBs.
- SIBs would set investment priorities and criteria for project selection, loan underwriting, terms and conditions, and ongoing performance evaluation in coordination with USACE.
- The project would demonstrate value of seed capitalization in the following manner.
 - Leverage potential of federal funds in combination with state and private contributions.
 - Credit worthy projects identified through defined evaluation process.
 - Value of recycling of capital as initial funds are repaid, and then reinvested.
 - Demonstration of benefits of recapitalization in a closed system.

A key consideration in the evaluation of the feasibility of this concept is the presence and capabilities of SIBs in the region. Existing SIBs include:

- Minnesota DOT Transportation Revolving Loan Fund (TRLF) – This fund was established in 1997 and is jointly administered by MnDOT, the Minnesota Department of Trade and Economic Development, and the Minnesota Public Facilities Authority. Eligible TRLF borrowers include the state, counties, cities, and other governmental entities. Private entities must enter into partnerships. Currently it is open only to surface transportation projects eligible under Title 23 or Title 49 of the United States Code and Minn. Stat. 446A.085 (1998). Eligible projects include, but are not limited to, pre-design studies; acquisition of right-of-way; road and bridge maintenance, repair, improvement, or construction; enhancement items; rail safety projects; transit capital purchases and leases; airport safety projects; and drainage structures, signs, guardrails, and protective structures used in connection with these projects.
- Wisconsin State Infrastructure Bank – Wisconsin DOT operates this fund. Currently, it is lightly capitalized with \$700,000 in loan capacity. Projects eligible for consideration are limited by statute to highway and transit improvements. Eligible borrowers include a county, city, village,

town, a combination of government entities (e.g., Amtrak), a private nonprofit organization (sponsored by an eligible community), and transit commissions.

- Ohio State Infrastructure Bank – This SIB was capitalized with a \$40 million authorization of state general revenue funds from the Ohio State Legislature, \$10 million in state motor fuel tax funds, and \$87 million in Federal Title XXIII Highway Funds. Any highway or transit project eligible under Title XXIII, as well as aviation, rail, and other intermodal transportation facilities is eligible for direct loan funding under the SIB. Qualified borrowers include any public entity such as political subdivisions, state agencies, boards, or commissions, regional transit boards, and port authorities. Publicly dedicated roads and transportation or infrastructure facility projects are eligible, but must have a local government sponsor to receive funding. The loan must go to a public entity and be pledged to be paid back with public funds.
- Pennsylvania Infrastructure Bank (PIB) –The PIB was capitalized with federal and state funds in 1998, in accordance with 1997 enabling legislation and a cooperative agreement between PennDOT and USDOT. The SIB has a current balance of \$60 million and outstanding loans of over \$160 million. Loaned funds are leveraged against over \$300 million in other project funding. The PIB encompasses four separate accounts: highway/bridge, transit, aviation, and rail freight. Loans to eligible projects are made from one of these four accounts. Borrowers include cities, townships, boroughs, counties, transportation authorities, economic development agencies, nonprofit organizations, and private corporations.

The review of existing SIBs indicated that eligible purposes were currently restricted to surface transportation projects. Existing SIBs established in cooperation with USDOT have not made loans to waterborne transportation projects with the exception of landside intermodal facilities and access.

Implementation of this pilot program would likely require action by state legislatures (to expand eligible projects to waterborne transportation and allow for additional state capitalization) and Congress to authorize funds for USACE contribution to capitalization. Given these initial challenges, this pilot program concept requires further study before feasibility can be fully determined.

2.3. Pilot for PPP Solutions: Allegheny Locks and Dams (Focus on Funding and Finance)

In consideration of waterway systems that are potential candidates for innovative funding or finance pilot programs, workshop participants suggested the Allegheny Locks and Dams in the Pittsburgh District in Pennsylvania.

USACE constructed eight locks and dams on the Allegheny River in the 1920s and 1930s. They guarantee a minimum nine-foot navigation channel for 72 miles from Pittsburgh to East Brady, Penn. Four of the facilities host privately owned power generation stations producing from nine megawatts to 18 megawatts of power annually. Key attributes of the system are outlined in Table 7 (on the following page).

Table 7: Allegheny River Lock and Dam Key Attributes

Facility	Commercial Tows (annual average)	Cargo (annual average in tons)	Recreation Vessels (annual average)	Estimated Annual Transportation Savings	Estimate Annual O&M	Asset Mgmt. Condition Rating
No. 2	1,485	2.2 million	5,912	\$20 million	\$4 million	D
C.W. Young	1,351	2.1 million	2,333	\$19.4 million	\$3 million	C
No. 4	1,747	1.2 million	2,123	\$10.7 million	\$1.7 million	C
No. 5	626	0.5 million	1,517	\$5.1 million	\$1.3 million	C
No. 6	174	0.1 million	969	\$1.2 million	\$2 million	D
No. 7	162	0.1 million	1,203	\$1.1 million	\$0.8 million	D
No. 8	7,755	0.6 million	894	\$4.4 million	\$1.4 million	F
No. 9	8	None	900	N/A	\$0.2 million	D

Source: LBG, 2012 from Port of Pittsburgh Commission.

Workshop participants indicated that this project was a good candidate for early action in promoting PPPs or asset transfer for waterway system preservation and enhancement for the following reasons:

- The facilities provide valuable transportation savings for commercial traffic and are important for regional recreation traffic.
- The facilities are suffering from underinvestment and a funding gap. Facilities are currently in caretaker status.
- Several logical local partners include the Port of Pittsburgh Commission and the private power operators. Private parties have expressed interest in partnerships.
- There is a 150 acre riverside parcel north of Allegheny 9, [former Pittsburgh Paint and Glass (PPG) Industries site] that has undergone planning and investment as an industrial park and may also be suitable for an intermodal center. Wal-Mart has also expressed interest in the site for distribution. This site may be challenged by litigation over hazardous materials during PPG operations. The Armstrong County Industrial Development Council and Greater Ford City Community Development Corporation are also potential partners with respect to joint development opportunities on this site.
- This waterborne transportation system may have renewed importance for commercial traffic to provide cost-effective transportation of bulk and project cargo used in Marcellus Shale gas extraction.

Implementation of this pilot program concept would likely be limited to dedication of USACE headquarters and district resources to further study and discussions with potential partners. This could be accomplished under existing authorities.

2.4. Pilot for Expansion of Nonprofit Partnerships at District Level (Recreation and Environmental Restoration)

Partnerships with nonprofit entities have proven successful for USACE facilities and government-owned recreation and environmental projects nationwide. In state and local government operations, park conservancies (e.g., Central Park Conservancy in New York City) have proven particularly valuable in raising private funds, attracting volunteer services, and efficiently administering O&M programs. With a dedicated mission and public benefit orientation, these organizations offer capabilities in leveraging investment and flexibility in expenditures that government operators cannot often provide. Section II.B.1 outlines successful USACE programs that have attracted donated labor, funds, and in-kind services, and local private partners that are not required to achieve the rate of return or compensation for risk that a for-profit concessionaire might require.

Participants in the workshops outlined several opportunities and needs in promoting USACE nonprofit partnerships, including need for streamlining, decentralization, and technical assistance to promote participation. With these needs in mind the concept for the pilot program was established with the following features:

- Authority and incentives for entering into partnerships would be decentralized from headquarters to the district level.
- Headquarters would establish performance measures and targets to encourage increased partnership adoption during the conceptual action plan period. Savings expectations and performance improvements for these partnerships would be established through benchmarking against existing USACE operations. Nonprofit partnerships would be benchmarked against private concession examples and leases to state and local governments, as well.
- District initiatives would be incentivized by allowing some level of discretion for repurposing of savings achieved through partnerships in current and future budget cycles. This would require a change in USACE policy. Flexibility may be limited in budget cycles in which all federal agencies must demonstrate cost reduction and savings.
- District level decision making would be supported through training and knowledge transfer. Program champions would be identified for each district and personnel would be trained. Headquarters would provide mechanisms and contacts for ongoing support for partner identification, agreement negotiation, and ongoing monitoring and troubleshooting.
- Headquarters would disseminate current model agreements, and establish guidelines for flexibility on terms and conditions that would allow district program managers authority to alter model agreements within certain agreed-upon parameters. Headquarters would provide attorney support and review, but process would be streamlined to promote timely review and district-level decision making wherever possible.
- The program would include availability of seed money for training and development of nonprofit partners. The objective of this initiative would be expansion of the pool of applicants and to provide potential applicants with knowledge of program goals, benefits, and requirements for successful application and participation.

- Headquarters would set standards and goals for competition in solicitation and common standard for proposal evaluation and concession award.
- The program would be promoted to stakeholders and potential partners through program funds allocated to development and dissemination of effective practices and lessons learned via web and printed fact sheets. Funding would also be dedicated to stakeholder outreach and information events organized at the district level, but supported through headquarters.

This pilot program concept furthers the goals of streamlining in service delivery, risk transfer, and leveraging of federal funds outlined in Section II.E.1. Implementation of this pilot program would be limited to modification of internal USACE policy and procedure and dedication of the funds for headquarters level research, direction, and support and district-level training and implementation.

2.5. Pilot Program and Process for Asset Restoration or Disposition

To promote broader goals for asset management, workshop participants expressed interest in a pilot program study to conduct an asset management evaluation for a limited group of USACE facilities and functions. To ensure that the process is manageable, the study team recommends that a single business line and district be chosen for pilot implementation. The pilot program could be organized as follows:

- Staff at headquarters and district level would be tasked to assemble an inventory of assets and related performance measures.
- Staff would also identify baseline fiscal constraints (appropriations projection) and alternative scenarios (e.g., increased appropriations or cost share outlook).
- The evaluation could include a strengths, weaknesses, opportunities, and Threats/Constraints (SWOT) evaluation to identify factors outside the performance measurement system. These factors would contribute to decisions on asset disposition (e.g., opportunities for concession PPP in the form of expressed interest or inquiries from private operators; or constraints in the form of legal or political obstacles to decommissioning).
- Based on the performance measurement system, fiscal constraints, and SWOT analysis (Strengths, Weaknesses, Opportunities, and Threats analysis), staff would produce rankings and recommendations on assets by sorting into four categories:
 - Recapitalization with federal and nonfederal funding sources,
 - Concession to transfer risk and responsibility,
 - Asset transfer to another federal or nonfederal party, and
 - Decommissioning for assets that no longer contribute to the core Civil Works mission. Rankings could also be assembled for alternative fiscal scenarios to illustrate consequences of increased investment.
- A review committee would be established to review the staff report and determine further next steps. The review committee could contain or be complemented by outside peer panel composed of industry experts or other government agency experts.

Because studies and initiatives on asset management are currently in progress, further evaluation of this potential pilot program is recommended after these evaluations are completed.

G. Next Steps

The workshops provided productive forums for discussion of effective practices and ideas for near-term and long-term strategies for alternative methods of funding and finance. The third workshop in particular identified lenders' requirements and perspectives for selecting viable projects or sets of projects for public and private financing. The White Paper, incorporated into this Phase II Report, summarized the goals, objectives, strategies, and recommendations discussed in the workshop along with further information to form the basis for next steps in vetting and prioritizing the strategies. Considerations important in the development of implementation plans have also been provide for both near-term and long-term strategies. Below are several planned and recommended next step to further this initiative:

1. Pilot Implementation Plans

This report has presented several pilot strategies with varying requirements and level of effort for implementation. After further vetting and prioritization in Phase II of the project, the study team recommends that USACE consider the development of formal implementation plans for pilot programs chosen for advancement in Phase III of the project.

2. Outreach and Coordination

A key aspect to implementation of the strategies is outreach and coordination with key stakeholders inside and outside USACE. This outreach would be most effective if it were organized around implementation of the pilot programs or discussion on specific long-term strategies. Following the review and acceptance of the Phase II Report, the study team recommends that USACE consider the development of an outreach and coordination plan to accomplish these objectives.

H. Glossary

Ad valorem Fee

A Latin phrase that literally means “according to value”, this is a fee which varies based on the value of the products, services, or property on which it is levied.

Credit Enhancement

The improvement of the credit profile of a structured financial transaction or the methods used to improve the credit profiles of such products or transactions. In the context of project financing, this is the issuance of a guarantee or additional collateral to reinforce the credit strength of a project financing.

Financing

Financing is the means by which the funding is advanced to provide the cash needed to build the project at the most efficient cost of borrowing, such as debt (bonds and loans) and private equity.

Funding

Funding is the revenue stream that ultimately pays the cost of the project, maintenance or other needs including sources such as appropriations, dedicated taxes, user fees, private donations, and partner contributions.

Although sometimes used interchangeably, it is important to note the difference between funding and financing. By way of illustration, in the case of bonds issued against revenues from user fees dedicated to an infrastructure investment, the revenue stream from the user fees pledged as security for the bonds would be the funding. The bond proceeds received at the time of bond issuance to fund the design-construction expense would be the financing. Appropriations are also considered revenues that fund projects.

Private Activity Bonds

A tax-exempt municipal bond in which a local government entity is seeking to raise money for a private company. A municipality issues a private activity bond when it wishes to attract businesses and subsequent jobs to the area, especially when the business may be otherwise unable to obtain financing for the project. The municipality issuing the bond must be able to prove that a public benefit derives from the private activity bond in order to qualify for tax-exempt status. Private activity bonds generally are not guaranteed by the revenue of the municipality.

Recapitalization

Capital investments and renovations needed in order to bring USACE’s assets back to a state of good repair and full function. Many of their assets have reached the end of their design lives and require reinvestment beyond normal operations and maintenance to restore their value. An example is a water

storage lake kept at lower level so as not to stress the dam. Recapitalization would bring the dam and the lake back to its intended functional level.

State Infrastructure Bank

These are revolving infrastructure investment funds (traditionally for surface transportation projects) that are established and administered by states. A SIB, much like a private bank, can offer a range of loans and credit assistance enhancement products to public and private sponsors of construction or transit capital projects. SIBs give states the capacity to make more efficient use of their transportation funds and significantly leverage Federal resources by attracting non-Federal public and private investment. Alternatively, SIB capital can be used as collateral to borrow in the bond market or to establish a guaranteed reserve fund.

SIBs are capitalized with Federal-aid surface transportation funds and matching State funds. (Several states have established SIBs or separate SIB accounts capitalized solely with state funds.) As loans or other credit assistance forms are repaid to the SIB, its initial capital is replenished and can be used to support a new cycle of projects.

III. Appendices

- A. Workshops- Presentations and Notes
- B. USACE Civil Works Mission and the Potential for Alternative Financing
- C. White Paper: List of Resources: USACE Potential for Alternative Funding and Finance



Institute for Water Resources

The Institute for Water Resources (IWR) is a U.S. Army Corps of Engineers (USACE) Field Operating Activity located within the Washington DC National Capital Region (NCR), in Alexandria, Virginia and with satellite centers in New Orleans, LA; Davis, CA; Denver, CO; and Pittsburg, PA. IWR was created in 1969 to analyze and anticipate changing water resources management conditions, and to develop planning methods and analytical tools to address economic, social, institutional, and environmental needs in water resources planning and policy. Since its inception, IWR has been a leader in the development of strategies and tools for planning and executing the USACE water resources planning and water management programs.

IWR strives to improve the performance of the USACE water resources program by examining water resources problems and offering practical solutions through a wide variety of technology transfer mechanisms. In addition to hosting and leading USACE participation in national forums, these include the production of white papers, reports, workshops, training courses, guidance and manuals of practice; the development of new planning, socio-economic, and risk-based decision-support methodologies, improved hydrologic engineering methods and software tools; and the management of national waterborne commerce statistics and other Civil Works information systems. IWR serves as the USACE expertise center for integrated water resources planning and management; hydrologic engineering; collaborative planning and environmental conflict resolution; and waterborne commerce data and marine transportation systems.

The Institute's Hydrologic Engineering Center (HEC), located in Davis, CA specializes in the development, documentation, training, and application of hydrologic engineering and hydrologic models. IWR's Navigation and Civil Works Decision Support Center (NDC) and its Waterborne Commerce Statistical Center (WCSC) in New Orleans, LA, is the Corps data collection organization for waterborne commerce, vessel characteristics, port facilities, dredging information, and information on navigation locks. IWR's Risk Management center is a center of expertise whose mission is to manage and assess risks for dams and levee systems across USACE, to support dam and levee safety activities throughout USACE, and to develop policies, methods, tools, and systems to enhance those activities.

Other enterprise centers at the Institute's NCR office include the International Center for Integrated Water Resources Management (ICIWaRM), under the auspices of UNESCO, which is a distributed, intergovernmental center established in partnership with various Universities and non-Government organizations; and the Conflict Resolution and Public Participation Center of Expertise, which includes a focus on both the processes associated with conflict resolution and the integration of public participation techniques with decision support and technical modeling. The Institute plays a prominent role within a number of the USACE technical Communities of Practice (CoP), including the Economics CoP. The Corps Chief Economist is resident at the Institute, along with a critical mass of economists, sociologists and geographers specializing in water and natural resources investment decision support analysis and multi-criteria tradeoff techniques.

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