ENVIRONMENTAL FINANCIAL ADVISORY BOARD

July 24, 2014

Honorable Joel Beauvais
Associate Administrator for Policy
United States Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Dear Mr. Beauvais:

The Environmental Financial Advisory Board (EFAB or the Board) was charged by your office with developing information regarding financing tools and strategies that could be applied to transit-oriented development (TOD) for sustainable communities. This letter serves to document and conclude the Board's ongoing efforts in this regard and to suggest possible areas for further exploration and research.

In response to your office's request, EFAB convened and conducted a TOD workshop in Alexandria, VA attracting numerous development experts and stakeholders. The workshop provided a forum for the discussion of key issues related to TOD planning, development and financing. Subsequently, the Board convened an investment industry infrastructure roundtable discussion at which capital markets experts gathered to share with EPA their views, concerns and ideas on a set of TOD investment issues presented to them by EFAB. Staff from your Office of Sustainable Communities attended and participated in both of these events.

These public meetings generated valuable real world feedback for immediate use by staff in your office. In addition, the Board used the feedback as a component of its research and deliberations in developing the attached conclusions. Summary transcripts of both of the meetings are provided as Enclosures A and B for your reference and consideration when evaluating policies and programs related to TOD infrastructure development.

Concurrent with EFAB's efforts, your office engaged a consulting team to develop a report on TOD financing options, which was completed and released in January 2013 (hereafter, referred to as the "TOD Financing Study"). EFAB members have reviewed this document in detail and found that it provides excellent background information on a wide range of financing tools for TOD. In addition, it provides an interesting and informative selection of case studies for reference and further investigation.

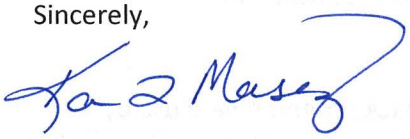
Matichich, Michael, et.al., *Infrastructure Financing Options for Transit-Oriented Development,* U.S. Environmental Protection Agency, Office of Sustainable Communities, Smart Growth Program, January 2013, http://epa.gov/smartgrowth/pdf/2013-0122-TOD-infrastructure-financing-report.pdf.

The TOD Financing Study, however, appears to predominately reflect the point of view of public sector sponsors as they approach financing issues. Accordingly, the Board has prepared for your review and consideration the enclosed EFAB Supplemental Report to the TOD Financing Study (Enclosure C) to expand on several financing concepts that would typically be considered by private sector developers and investors. These concepts are ones that the Board believes should be considered in greater depth with respect to the development of EPA policies and programs related to TOD financing.

The EFAB Supplemental Report suggests that public-private partnerships (P3s) provide access to alternative forms of financing that would enable TOD project directors to more easily harness private developers' expertise, industry innovation, and accelerate the timetable of meeting economic development goals. EFAB believes the planning and design of TOD projects should incorporate considerations to attract private investors' interest and investment. The Board recommends that the EPA identify means to improve the P3 process, especially as it relates to TOD, to further the environmental and economic development benefits. To provide further background on P3s, an EFAB report on Public-Private Partnerships has been provided (Enclosure D) for your information.

Given the breadth of the TOD Financing Study, considering the added input generated by the EFAB-sponsored events and the contents of the EFAB Supplemental Report, the Board believes that the TOD charge from EPA has been fully addressed. We appreciate the opportunity to support your office on this interesting and important topic. Should further research be desired, or if you would like to explore how these topics might be expanded into related areas, the Board stands ready to consider such additional efforts.

Sincerely,



Karen L. Massey, Chair
Environmental Financial Advisory Board

Enclosures

A. TOD Workshop Transcript
B. TOD Infrastructure Roundtable Transcript
C. EFAB Supplemental Report to the TOD Financing Study
D. EFAB Public Private Partnerships Report

cc: Maryann Froehlich, Acting Chief Financial Officer
Michael Shapiro, EFAB Designated Federal Official
Matthew Dalbey, Acting Director, Office of Sustainable Communities

Enclosure A

Meeting Summary of the Environmental Financial Advisory Board (EFAB) Workshop on Transit-Oriented Development for Sustainable Communities

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Alexandria, VA

May 24, 2012

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The minutes that follow reflect a summary of remarks and conversation during the course of the meeting. The Board is not responsible for any potential inaccuracies that may appear in the minutes. Moreover, the Board advises that additional information sources be consulted in cases where any concern may exist about statistics or any other information contained within the minutes.

Contents

Summary of the EFAB Workshop on Transit-Oriented Development for Sustainable Communities

Welcome and Introductions

Speaker: Michael Shapiro, EFAB Designated Federal Official & Deputy Assistant Administrator for Water

This meeting/workshop of the Environmental Financial Advisory Board (EFAB) is officially gaveled to order.

I welcome the attending EFAB members, the expert witnesses from the EPA-supported Environmental Finance Centers, and our distinguished speakers and panelists.

EFAB is an EPA Federal Advisory Committee Act advisory group charged with providing advice and recommendations to the Agency on environmental finance issues.

This particular EFAB workshop will be focusing on examining a range of model approaches that could be used to finance transit-oriented development, or TOD.

As you can see from the agenda in your folders, we will be hearing today from a range of outstanding speakers with experience and expertise in transit-oriented development.

Workshop Overview

Speaker: Philip Johnson, EFAB TOD Workgroup Chair & President/CEO, Green Terra Energy Corporation

EFAB is looking at TOD in the context of sustainable communities. Its interest is infrastructure and getting the resources required to finance that infrastructure.

I strongly believe that our cities, counties, and states need to become more market-oriented and they need to know how to assess risk in order to successfully implement development that is both financially and environmentally sustainable.

These public entities will increasingly need to replace financing that can no longer come from government sources.

There are billions of dollars in this country whose managers seek good investment opportunities, e.g., pension funds.

Today, the Board is examining TOD case studies trying to find examples of best practices and seeking to identify what is needed to develop financing models that embody successful market-based approaches.

Financing TOD: Lessons from DC and the Nation

Speaker: Sam Zimbabwe, Associate Director for Policy, Planning & Sustainability, District of Columbia Department of Transportation

The definition of TOD can be elusive. TOD means a walkable neighborhood near high-quality transit. Size wise, TODs range from individual buildings to regional structures.

The market for TOD is strong and growing, but uneven. TOD demand will represent at least a quarter of the U. S. housing market by 2030.

Social equity is critical and multidimensional. Benefits don't always accrue to those who finance the development, TOD or otherwise.

No one participant controls everything. TOD requires long-term flexible funding.

Equity becomes an issue when there is a mismatch in supply and demand. We want affordable housing, yet the demand for housing near transit raises prices, making subsidies for low-income housing more expensive.

TOD benefits include: affordability, improved public health and safety, economic development and competitiveness, revitalization without displacement, reduced carbon emissions, and policies and investments at all levels of government.

None of the players—developers, community, champions, transit agencies, local government, federal agencies, regional planning agencies—can do it alone.

We are seeing place-based collaborative investments: multi-sectoral public investment, philanthropy with community stakeholders, new forms of advocacy and social networks.

Transit doesn't create the market, but it increases accessibility to destinations. The approach varies by location, and proactive investment is often needed.

The biggest challenges are: societal benefits (social equity, public health, etc.) don't bring in much money and pay-offs are long-term (avoided costs, long-term revenues).

It is hard to match resources to needs (mostly in the public sector in a difficult short-term fiscal climate), and short-term payoffs (leveraging market, infrastructure costs).

Tax incentives must be used wisely and include accelerated payback. In the 1990s, DC was bankrupt, but tight control of tax incentives helped many successful developments.

To support TOD, a city needs: support for innovation (know of and how to use models); flexible, long-term funding sources and short-term innovation funds; a way to take on costs no one else will (important public role); reliable direct allocation of resources; and performance measures for spending tied to outcomes.

Steve Teitelbaum: The concept of different structures of different kinds of TOD is useful and important—they're not all the same. At the neighborhood and corridor scale, there are also different kinds of TOD.

Transit-Oriented Development at EPA

Speaker: Lee Sobel, Real Estate Development and Finance Analyst, US EPA Office of Policy, Office of Sustainable Communities

Smart growth benefits the economy, the community, the environment, and public health. It provides new choices for housing, working, shopping, playing, and getting around.

EPA is interested in smart growth because how and where we build has direct and indirect effects on the environment and human health.

The HUD, DOT, and EPA Partnership for Sustainable Communities' guiding principles include providing more transportation choices, promoting equitable and affordable housing, and enhancing economic competitiveness.

EPA has studied finance strategies for TOD in Salt Lake City, Utah (suburban TOD); in Wheat Ridge, Colorado (end-of-the-line station); in Atlanta, Georgia (new line and station); in Chicago, Illinois (a freight conversion).

The first step has been to look at every method these communities use to finance projects. From this, we created a matrix of some 50 financing sources and 29 finance tools and surveyed how communities were using them.

For each of the communities, based on priorities and context, policy solutions were derived, e.g., land disposition, joint development, shared parking, debt, value capture, federal grants, utility fees, private–public partnerships, bonds, land bank, tax increment financing, anchor institution, and structured funds.

For each, we identified the appropriate entity that has the capacity to carry out the project and the approaches that are viable.

Some communities use a tool in conjunction with other tools, while others do not, using layered financing based on timing, financing structure, and market-based considerations.

Bundling is one aspect of many good TODs. Bundling different infrastructures or capital projects into one bond or financing saves time in underwriting.

TOD happens more often in a stronger market, while land banking happens more in a weaker market. We need to know how to create a land-banking scheme for TOD.

***David Eberle**:* In Idaho, part of the problem in attracting capital is identifying the level of risk involved with TOD. Bond suppliers do not have expertise to assess risk and risk management, so we must educate new investors.

Panel 1 - City Experiences: Challenges and Successes

Moderator: Leanne Tobias, EFAB Member & President of Malachite LLC

There is promising quantitative data about TOD for community real estate development with regards to income appreciation and total returns of office properties near transit.

Property is more valuable because of higher sales prices, not increased income per square foot. Properties near suburban transit appreciate more rapidly.

Panelist: David Eberle, Member, Boise City Council; Commissioner, Boise Urban Renewal Agency; Commissioner, Community Investment District

The 20th century city was built for the automobile. Miles of single-family housing were built with no transit services.

Land consumption is a consequence of not internalizing the true cost of infrastructure. Governments used an average tax, but did not properly price the infrastructure costs.

Investors must also look at tax structure and policy. TOD will result if they truly cost the price of infrastructure.

Lowering risk is very important to financing, and constitutes a structural barrier for small cities without dedicated revenue.

When communities in a metropolitan area want to cooperate, it generates a lot of work for local agencies, which creates a huge time challenge. In developing a central city, one must keep suburban communities happy and involved.

Transit corridors must be identified and included in a comprehensive plan that aligns land use designations and zoning to promote TOD densities.

Developers need certainty and reduced risk for a project to succeed. Boise's ordinances are being revised to migrate from prescriptive to criteria-derived laws (e.g., zoning).

Eight policy guidelines: support transit, facilitate appropriate densities, be place making, include pedestrians and bicycles, manage transit and vehicles, address parking needs, include outreach, and address energy and environmental concerns.

TOD is important; we have to figure out how to fund it; but every community is different.

Panelist: Alexander Iams, Commercial Development Planner, Arlington Economic Development—City Experiences: Crystal City Plan, Arlington, Virginia

More than100 community meetings were held to improve Crystal City without losing what is valued. Participants conducted market studies to create a preliminary plan to market demand for planned uses, analyze factors affecting feasibility, tax benefits, etc.

The easy option was to re-let the buildings rather than to rebuild. Analysis was applied to when demand would occur according to developers, age of buildings, and other factors. From a taxable perspective, redevelopment spurs $100 million over doing nothing.

A concept plan was adopted to break up super blocks, create a 2-acre park, rebuild the street with building sites for more hotels and retail space, and build a streetcar route.

By 2028, the Crystal City plan infrastructure costs will exceed $200 million, of which $128 million has been identified as money not yet available.

Through 2028 $1.1 billion can be generated by tax increment financing (TIF) to pay for infrastructure.

Panelist: James Alexander, Manager of Housing & Economic Development, Atlanta Beltline Inc.

Atlanta Beltline is an evolving 25-year project. A main goal of the project is to clean up land (toxics) along the rail corridor, remove rails, and build trails.

The Atlanta Beltline redevelopment project is centered on reusing an abandoned rail corridor. It includes 22 miles of transit, 33 miles of trails, and 1300 acres of new parks within 2 to 3 miles of the city core. It also incorporates 5600 affordable housing units.

However, by building these amenities, some residents can no longer afford to live there, so an early effort is to ensure housing for a range of incomes and to leave the current residential character intact.

Incentives include an Affordable Housing Trust Fund, mandated for 15% of each tax allocation district (TAD). They want to create more than 5600 units over 25 years.

Parks will be nodes along the Atlanta Beltline, and incentives for development. Of the 33 miles of trails, 12 are now open to the public.

The funding plan totals over $2.8 billion. In 07/12, a 1-penny sales tax for transportation is likely to be implemented, with $600 million slated for Beltline projects. If enacted, it will be a game-changer, enabling a BRT line to run from center city to Cobb County.

In 10 sub-areas, master plans have been drafted for improved connectivity, new land uses (but not zoning), and higher intensity development (a new concept for residential areas).

Since 2005, more than 50 projects have been completed or are underway (i.e., the bond projects) within the TAD. More than 9000 new residential units and more than 700,000 square feet of new commercial space will be added.

Project funding is a problem. The main funding mechanisms are TIF, regional sales tax, planning and due diligence. They expect to use New Starts Funding, which costs money and time. If passed, a regional sales tax will be huge and will accelerate efforts.

Transportation, environmental, and housing issues coordination start at the executive level—the mayor has given the project priority. In addition, major departments have liaisons to the project. Coordination with the region and the state is more challenging.

Mr. Eberle: You need political support to work together across Agencies. The mayor furthers it for the central city, and then you move to county and state.

A Metropolitan Planning Organization is central. Enable the staff to do the work and bring forward a recommendation, and have a champion. Coordination can be a barrier.

Panel 2: The Economic Development Dynamic

Moderator: Tobias Rittner, EFAB Member & President/CEO, Council of Development Finance Agencies

Atlanta Beltline is arguably the country's most important development project.

Development and economic development involve a push and pull that can deter sustainability. We have to balance community decisions about jobs versus environment versus housing.

Panelist: Steve Teitelbaum, Senior Real Estate Advisor, Washington Metropolitan Area Transit Authority (WMATA — A View from Inside a Transit Agency

TOD is compact, mixed-use development, but there must be a synergy between transit and development; the transit cannot just be adjacent.

Transportation can lead to development, but it isn't automatic. It takes planning, zoning (a critical issue), a lot of financing and a lot of political will. There is a direct correlation between political will and TOD.

Transit agencies don't own very much developable real estate and they are not economic development agencies. They move people.

It is unusual for transit agencies to benefit from land value recapture taxes, even given the land value created by transit.

Many cities want public transportation; 95 have either a rail-based or a BRT-based system in place or planned. But, the capital costs and operating losses are daunting.

WMATA has found that parking attracts riders, but eliminates other types of development near stations. It is hard to reduce parking near stations to encourage development and still maintain ridership.

WMATA has also found that development may lag or not occur at all around stations if local governments lack political will and/or are ineffective.

For TOD, use is key, but mixed use is difficult. Not many lenders are interested in financing mixed-use projects, and not many developers can do mixed use.

The blessing of mixed use is that the diversity mitigates risk to some extent because something will be hot when something else is not.

Panelist: Steve Friedman President, S.B. Friedman & Co.—Keys to Success

Planning to create environments suitable for private development and transit is better characterized as development-oriented transit.

Sites and environment must meet use requirements—access, visibility, livability, services, useable spaces. The area around a transit stop should have public space, pedestrian and bike access to the station, and parking.

Six critical principles:

1. provide a comfortable, pleasant walking environment in the station area;
2. build a good vehicular and pedestrian grid or network around/for access to the station;
3. provide a diversity of housing types and densities;
4. encourage convenience services in the station area;
5. provide for street orientation of housing; and
6. ensure that sites meet private developer needs and be financeable as private projects.

Development financing is many layered. Commonly it is structured with real estate components—debt, equity, tax credits, tax increment financing (TIF), or payment in lieu of taxes (PILOT)—and/or public components—general funds, revenue bonds, TIF.

Transit improvements funding often takes the form of value capture mechanisms. These tools capture the increased private property values that result from public investment in transit.

There are several value capture mechanisms:

1. A special assessment—an added tax on a defined district that most benefits from the improvements, which offers a stable source of bond revenue.
2. TIF is a defined district form, which taxes property values above a base assessed value are diverted to the TIF district to fund infrastructure improvements.
3. Additional mechanisms include land value tax, joint development, transportation utility fee, and development impact fees.
4. Special service area (SSA)-like transit value capture is a more predictable and bondable funding source. It impacts development economics and feasibility, and requires significant property owner or taxpayer buy-in.

TIF offers a source of long-term funding, but is speculative. Revenues depend on the development that actually occurs.

TIF eligibility requirements limit the use for new transit and new roadways, and existing obligations of overlapping districts must be respected.

Value capture funding can generate local matching funds for major projects. It requires a strong market, an existing base of value, and stakeholder support and consensus.

Value capture funding may need legislation and credit enhancements, but a layering of mechanisms can increase funding potential.

Panelist: Anita Hairston, Senior Associate for Transportation Policy, PolicyLink — Meaningful Community Engagement in Planning for Equitable TOD

Equity means just and fair inclusion. Achieving equity requires intentionality, focus, and a commitment to community engagement and participation.

Planning processes have historically excluded low-income, marginalized communities, and exclusion results in many people being cut off from access to opportunities.

Lack of engagement in the process has sometimes resulted in opposition to results that did not reflect community needs.

It is vital from the beginning to integrate the knowledge and wisdom of the community by empowering residents, building the capacity of communities to engage, prioritizing community knowledge and concerns, targeting resources to support ongoing engagement, and facilitating mechanisms that encourage mutual learning.

Community advisors help translate the benefits to the community, invite a diversity of groups, make the case for potential benefits, ask leaders to facilitate meetings, and set goals to ensure a critical mass of people from marginalized groups are represented.

The process is equitable if it is inclusive, accessible, and transparent.

Inclusivity may be aided by including representatives from civil rights organizations, faith-based organizations, community-based organizations, public health organizations, and workforce development and labor organizations.

To address accessibility, assess and accommodate any special needs, e.g., language.

To ensure transparency, work with community organizations, inviting them to development meetings. And, be clear.

Recent studies found that where investment in transit results in low- and moderate-income residents being displaced by high-income residents, ridership declines. .

Mr. Eberle: Ms. Hairston points out the displacement of less advantaged people. We must remember this because the people being displaced are essential to our communities..

Mr. Teitelbaum: In the DC, area, a task force is getting together to address affordability. If housing costs go up in desirable areas, transportation costs go down, so housing should be recalibrated to housing plus transportation. Formulas should take this into account.

Mr. Friedman: The other piece is the need to build into planning mixed-income housing. Montgomery County, MD has had success with this. One unintended consequence is that the county's high school dropout rate has declined to 2%. We need to overcome opposition to integrating income groups because it resolves many social problems.

Ms. Hairston: All of these things need to be measured. DOT is struggling with this, and incentivizing things that increase mobility and accessibility.

Ms. Tobias: We need a more in-depth discussion. Can there be a synergy between the points that makes these projects affordable. TOD projects have tremendous returns.

Mr. Johnson: Can we fashion models that would include these issues so we can incentivize or monetize a system to engage the private sector to finance these projects —perhaps short-term investments to fill gaps or gap financing with short-term guarantees.

We must think about different roles and different pieces: private sector role, private sector development, public development, risk profiles

Panel 3: Transit-Oriented Development Finance 1

Moderator: Kevin O'Brien, Executive Director, Great Lakes Environmental Finance Center at Cleveland State University

Panelist: Michael Pehur, Development Finance Consultant, Duane Morris

The Transportation Revitalization Investment District (TRID) Act is supplemental to the TIF Act in Pennsylvania. In Pittsburgh, the eITRID Study Area focused on ½-mile radius around the Liberty Bus Station, analyzed by short walks from the station.

Currently, the infrastructure is oriented to automobiles, lacks connectivity to the station, and is a poor pedestrian environment.

The station is heavily used, but poorly integrated with the surrounding neighborhood, in addition to the TOD-inhibiting factors of the surrounding parking and one-way streets.

Developers want to further multi-modal activity. Of the acreage, 33% is tax exempt and 60% is controlled by the government. The land is divided into small parcels and a few large potential development sites of which a high percentage are vacant or underutilized.

Using the TIF model to fund projects, they focused on site-specific and district-wide infrastructure by creating an eastern gateway to this area, beginning with reversing one-way traffic flow around the business district.

Value capture funding will cover implementation and maintenance with $400 million in incremental taxes flowing into the fund. eITRID's value capture strategy centers on standalone TIF financing for projects requiring large infrastructure investment and other development that contribute to the value capture fund, which in turn is used to create district-wide improvements and maintenance

Panelist: Nathan Betnun, Managing Director, Public Finance, Stone & Youngberg, LLC

Many projects exemplify transit driven development, as well as development-driven transit:

> ***Washington, DC:*** A bond was issued in 2001 to support building the NY Avenue Metro station. It was funded in a 3-way split between government, property owners and developers. The project used a special assessment on property taxes—the amount paid was fixed from the beginning on residential not commercial owners—to repay DC.
>
> ***LA, California:*** For the Placentia Redevelopment, the city acquired land for parking for a stop on MetroLink connecting Riverside to downtown Los Angeles, which has generated revenues annually from increases in property taxes. They could issue notes due in 2014.
>
> ***Fairfax County, Virginia:*** To finance the Silver Line to Dulles Airport, developers met with property owners and levied a special tax on property owners based on 22 cents per $100 of assessed property value (this could go up to $40 cents). They will have to issue additional bonds to fund the $400 million.
>
> ***Stamford, Connecticut:*** Harbor Point, the Stamford Transportation Center for the commuter line and Amtrak, was done in 2010. They issued $145 million in bonds to

finance the infrastructure for development. Land was pledged and a special tax was levied on property owners. TIF revenues will offset paying the special tax.

Fairfax County, Virginia: For the Mosaic development, within a 10-minute walk of the Dunn Loring Metro stop, security for bonds was incremental property taxes and a special tax. Mixed-use development is under construction, and the project is 90% leased or sold.

Panelist: Kevin Warner, Vice President for Investments, Emerald Cities Cooperative

Various financial mechanisms are suited to TOD.

1. Structured financing offers single closings, private placements, and lower total costs.
2. TIF offers public benefits, and public uses versus private uses, but it is not a panacea and is not unlimited.
3. Payments in lieu of taxes (PILOT), or project revenue bonds, are TIF-like and self-financing.
4. Special assessment districts (business improvement districts [BID], community improvement districts [CID]) are useful for infrastructure and public amenities.
5. Density bonuses and public benefit incentives could be non-monetary. In essence you pay developers to develop.
6. Sustainability incentives and offset funds (beyond zoning requirements) could be energy efficiency, net zero, carbon reduction, transit, health care, etc.

Aligning interests in a non-traditional approach to financing offers incredible flexibility, and recognizes that one size does not fit all. There are public uses and private uses, and care must be taken to align public spending with public benefits. For example:

1. DCUSA at 14th Street and Park Road, NW sits over a Metro stop. There was a perceived gap in financing, but it was a problem in delivering financing. After 10 years, they brought in a buyer and CityBank bought taxable and exempt notes for the largest single TIF development in the country that year. After its first year, the Target store's revenue was the highest per square foot in the country. Among the lessons learned was that the The underground garage was overbuilt 2-fold (because of the site's proximity to the Metro stop), but the TIF was under-projected 3-fold.

2. The Emporium Westfield San Francisco Centre was vacant for 7 years. It became 1.6 million square feet of mixed-use TOD. Lessons learned included: things aren't always as they appear and you don't get what you don't ask for. Since transit was already there, they just increased use of the existing structure. They met economic, employment goals. The city took space.

All projects are not the same. You have to tell the right story.

New markets are developing today, as are new sources of revenue. We must align resources with the right project; e.g., public non-profit hospitals are now required to invest in public benefits.

Mr. Haskins: Many communities realize such opportunities, but social benefits accrue to communities that are not captured.

Mr. Warner: It's happening. For example, Alameda County, CA approached its water and sewer utility with an interest in projects that reduce water and power consumption. The payback is not in dollars. A challenge is to find the drivers and package them.

Mr. Pehur: The Pittsburgh project had 6 to 8 different funding sources, mostly EB-5, in which foreign nationals invest in exchange for a visa.

The challenge is to find developers, some of whom are slow to discern benefits. We really need to market better on the real estate side.

Mr. Rice: The New York Avenue Metro stop is a good model, but we did not fully appreciate the magnitude of the effect of the stop on the increase in development. The private sector now says they would have paid not 30% but 70% of the project if they had known what the results would be.

There is a real need for due diligence in planning.

Mr. Johnson: What about energy efficiencies, e.g., solar generators on rooftops of businesses to power those businesses. It might reduce operating costs, but efficiency would be better.

Mr. Warner: The challenge with energy efficiency is that no one understands investing in savings revenues. We have to re-characterize savings as revenues.

District energy and micro-grids are popular. Peak-use plants could be used to add renewable on-site energy, and sell the power on the open market during low-usage times.

Panel 4: Transit-Oriented Development Finance 2

Moderator: Scott Haskins, EFAB Member & Vice President of the Global Water Business Group, CH2MHill

Panelist: Keenan Rice, President, MuniCap, Inc.—Primary Public Policy Issues

Mr. Rice explained how local governments evaluate decisions to invest in development noting that analysis from the public sector can be more complex because of the triple bottom line—people, planet, and profit).

New development may create an opportunity for increased taxes, which may justify public investment in a project (which may be needed to make it happen).

Best practices require a disciplined approach to public investment, including written guidelines must be applied to each project.

A review of policies of local governments elicited 10 policies consistently recommended throughout the country.

1. Is public assistance appropriate for this project, i.e., does the project merit public assistance; does it implement an adopted policy? We want to implement something that's already a goal for the local government.
2. Apply the "but for" test, i.e., quantitative and qualitative evaluation.
3. How much assistance is appropriate? What improvements qualify (state law and IRS ramifications)? What will the tax increment revenues support? How much can the local government afford? How much does the developer need?
4. What is the sponsoring government agency receiving in return for the TIF? This must be very specific. (TIF is both a financial and land-use development tool.)
5. What is the amount of private investment? (Is the public investment adequately leveraging private investment?) Look for $5 to $8 per public dollar.
6. Will there be sufficient surplus tax revenues to cover costs of public services required for the project?
7. Is the proposed TIF economically efficient (i.e., more tax revenues or benefits than the no-TIF alternative)?
8. Are there clear linkages between the properties in the TIF area and the TIF plan? The logic is that we're investing tax dollars created by that investment.
9. What are the risks associated with the TIF plan and have they been addressed? Identify the risks (which implies due diligence) and manage or mitigate them.
10. Will the public support the TIF? The previous 9 issues come down to this very important one.

These criteria are used on a standard basis. They recently closed on $60 million in bonds for a project in Fairfax County, VA. The public redevelopment process was costly, but Fairfax worked with the developers to make it work.

Panelist: Deborah Nisson, Vice President for Investments, ULLICO Investment Advisors, Inc.—Public–Private Partnerships

Public–private partnerships (P3) relate to infrastructure in 4 sectors—transportation, utilities, social services (hospitals, schools), and specialist services (bulk storage, logistics).

Infrastructure business entails: assets, management team, maintain assets, useful life of perhaps 40 years, and capital to manage the business.

Competing priorities and constraints include the contract agreement, daily operations and revenue collection, operating company senior management, and real estate providing essential services.

Long-term maintenance and capital expenses can be deferred; deferring either is bad, but both are deferred routinely.

Market realities include the economic environment and the state of infrastructure. The economy is in a severe fiscal crisis and U. S. infrastructure is poor (a "D" grade).

Water systems face an annual shortfall of $11 billion. Leaking water pipes lose 7 billion gallons a day. Electricity demand has not been matched by investment in new capacity. Roadway conditions are a significant factor in nearly a third of traffic fatalities.

P3s are contractual agreements that allow more private involvement, as well as risk. The private entity usually retains ownership.

A partnership can provide a critical service to the community and be a vital community asset. If the private partner fails to fulfill its part, the agreement is subject to termination.

Canada has done a good job of P3, and Great Britain will start to use their model.

Recent P3 examples are: design, building, financing, operation, and maintenance of the Long Beach, California, Courthouse; and construction and maintenance of a 2-km tunnel linking the Port of Miami, Florida to the MacArthur Causeway.

Every billion dollars invested in transportation creates 14,000 jobs directly and another 14,000 indirectly.

Other benefits are the increased efficiency and market effectiveness of existing firms, leading to an expansion of output and employment, increased business investments, and expansions at locations of improved accessibility.

Canada has progressed far, but the U.S. has not because U.S. democratic structure and culture are different. All states operate differently. But, with enabling legislation, P3s work well.

Panelist: Richard Norment, Executive Director, National Council for Public–Private Partnerships

The U.S. has a kaleidoscopic market. If the governor and lieutenant governor approve a bill, it gets to the House of Representatives and everyone wants to tweak the legislation. Then they cannot reach reconciliation.

Partnerships are built on the concept that the private sector has marketable skills. Management has to be efficient and competitive.

Most new technologies, e.g., energy efficiency in water use, are introduced by the private sector because they are driven by the bottom line. But, the public has the legal authority, i.e., control.

The secret is to balance the strengths of both the public and private sectors. The two sectors think differently and use different language sometimes.

The major advantage is shifting risk to the sector that can best handle it. For TOD, various other infrastructure—electricity, water, IT—must be in place.

Partnerships can be effective tools to deliver all of these.

Successful P3 are founded on 7 keys factors:

1. Public sector champion - You need a responsible spokesperson recognized by the public.
2. Statutory regulatory environment - No one will invest on a handshake.
3. Organized structure - Partnerships are complex and the public needs the expertise to evaluate them.
4. Contracts should be performance-oriented, not design-oriented. Detailed business plan.
5. Viable revenues – Projects require a guaranteed and clearly defined revenue stream. There has to be a reasonable return on investment.
6. Stakeholder support - Development requires open, frank discussion with the general public, labor unions, competing interests, public sector employees; and knowing the facts.
7. Good partnership - Pick partners carefully, particularly in long-term contracts. Remember each sector's motivation. A company has to have deep enough pockets to complete the project.

Most important of all is strong leadership. For more information see www.ncppp.org.

Ms. Nisson: American investment funds are involved on the equity side, but on debt side it's mostly foreign banks.

Pension funds may also be involved. California was going to invest in infrastructure, so they had the state statute changed to allow them to do that. These fund managers are having trouble finding projects in which to invest.

The public sector may issue an RFP with insufficient due diligence regarding the required performance standard, but the investment community won't invest unless they see due diligence has been done.

Mr. Friedman: What kind of organizational, legal, managerial infrastructure does the public need to manage and monitor a project?

In Chicago, because a faulty due diligence process, lawsuits are being filed because parking meters cannot be used during public events. They also didn't cover handicapped parking (legally free) or street maintenance.

Mr. Norment: An interesting contrast is the Indianapolis negotiation of the same kind of contract 9 to 10 months after the problems in Chicago. In Indianapolis, they have a dedicated team that understood the process, and went through and clearly defined every step, so Chicago's problems did not arise.

Governments' Roles

Speaker: Philip Johnson, EFAB TOD Workgroup Chair & President/CEO, Green Terra Energy Corporation

Given the current economic situation – deficits and the need to reduce the public debt – we need to find ways to engage the federal government in policy processes to provide ways and means for broader financing options, rather than relying on federal funding.

EFAB needs to consider recommendations on desirable policies. A basic role of government is providing a policy framework to facilitate development, create new models and innovations for policy and legislation needed to facilitate that.

We need to break down silos and find ways for agencies to collaborate, e.g., achieving the transportation bill was a struggle in this political climate, but the real world must come together collaboratively.

The ways that the government does business must change to get things done in an era of limited resources.

The role of the federal government has to change and it will. EFAB should make creative policy recommendations for assisting development and bringing together the private and public sectors.

Public Comment

There were no public comments.

Final Comments

Ms. Toias: Most people in development or infrastructure planning become specialized, which gets them into "silos," but today we had a cross-section of specializations. All those perspectives should be incorporated into any report.

Mr. Haskins: The hard work is still ahead in summarizing the findings and recommendations.

Ms. Tobias: It would be useful if the material presented here could at some point be disseminated to communities to be used. EFAB should develop materials to help move the process forward at EPA and other agencies and with stakeholders across the U.S.

Mr. Shapiro: Are there any further comments or statements that anyone wishes to make. Hearing none, I thank all of you for your work here today and declare this meeting adjourned.

List of Participants

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U.S. Environmental Protection Agency
Washington, DC 20460

EFAB Members

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Enclosure B

Meeting Summary of the Environmental Financial Advisory Board (EFAB) Roundtable Discussion on Institutional Investments in Infrastructure

Washington, D.C.

March 27, 2013

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The minutes that follow reflect a summary of remarks and conversation during the course of the meeting. The Board is not responsible for any potential inaccuracies that may appear in the minutes. Moreover, the Board advises that additional information sources be consulted in cases where any concern may exist about statistics or any other information contained within the minutes.

Summary of the EFAB Roundtable Discussion on Institutional Investments in Infrastructure

UNITED STATES ENVIRONMENTAL AGENCY
ENVIRONMENTAL FINANCE ADVISORY BOARD

Roundtable Discussion on
Institutional Investments in Infrastructure

U.S. Environmental Protection Agency
EPA Federal Triangle Complex
1200 Pennsylvania Avenue, N.W.
Ariel Rios North, Room 4530
Washington, DC 2046
Wednesday, March 27, 2013, 2:00 pm – 5:00 pm

OVERVIEW

The U. S. Environmental Protection Agency's Environmental Financial Advisory Board (EFAB) is sponsoring this **Institutional Investment in Infrastructure Roundtable** as a follow-up to the *Workshop on Transit-Oriented Development (TOD) for Sustainable Communities* that the Board held in 2012. During that workshop, participants identified the need for further, in-depth discussion regarding the need for institutional financing of infrastructure.

Such a discussion is timely. Infrastructure needs are large and growing, and the sector has begun to attract private institutional capital, in part, because investments in it are tied to real assets, generate returns that keep pace with inflation, and produce sustainable sources of cash flow. It is anticipated that much of the institutional financing needed to bridge public sector budget gaps will be drawn from Taft-Hartley pension funds, public pension funds, and from private equity funds that invest in infrastructure.

The purpose of the **Roundtable** is to obtain the ideas of a select group of private sector infrastructure finance experts on how EPA can best leverage its resources to support environmentally-friendly, community-based infrastructure development, defined broadly to include transit-oriented development, clean air, clean water, energy and other public facilities. The **Roundtable** is being held in support of the EFAB's work on behalf of EPA's Office of Policy/Office of Sustainable Communities. Experts attending the Roundtable are drawn from a range of interested parties that include Booz Allen Hamilton, Kohlberg Kravis Roberts, LLP (KKR), Patton Boggs, Thompson Hine, Sustainable Capital Advisors, Ullico Infrastructure Investments and Zezen Advisors.

ROUNDTABLE AGENDA

Wednesday March 27, 2013

1:30 pm - 2:00 pm	**Registration**
2:00 pm - 2:05 pm	**Open the Meeting, Welcome and EFAB Background** Michael Shapiro - EFAB Designated Federal Official and EPA Deputy Assistant Administrator for Water
2:05 pm - 2:15 pm	**Introduction of Participants** Leanne Tobias - EFAB Member
2:15 pm - 2:25 pm	**Purpose of the Roundtable** Philip L. Johnson - EFAB Member and Workgroup Chair
2:25 pm - 3:30 pm	**Foundational Discussion on Institutional Investment in Infrastructure** Moderators: Leanne Tobias and Philip Johnson - EFAB

How Does the Private Sector View Infrastructure Investment as a Class?

- How does a fund manager or trustees decide the objectives for the role of infrastructure in a pension fund portfolio?
- What is the current average allocation of pension funds for investment in infrastructure and how do fund managers decide the percentage of the portfolio for investment?
- Is there a minimum or maximum size of investment for investors in infrastructure?
- What are the preferred methods of investing in infrastructure and how does that impact the decision to invest in it as an asset class?
- What are the return hurdles and how do they vary across asset classes and debt/equity structures?

What are the Private Sector's Investment Criteria?

- How do managers decide how investments meet the fiduciary standard of care?
- What criteria do managers use to decide the length of time for an investment?
- Are there Risk/Return models that are standard for the industry?
- What role does location play in investment decisions?
- What are the key underwriting criteria and do they vary across asset classes?

How Can the Public Sector Facilitate Investment?

- How should the public sector market its infrastructure project to a pension fund?
- At what stage should the project be before contact begins with an institutional investor?

- What is the most productive way to make contact with an institutional investor?
- What should the public sector do to encourage institutional investment in infrastructure?
- Are additional incentives needed?

3:30 pm - 3:45 pm **Break**

3:45 pm - 4:30 pm **Supporting EPA Transit-Oriented Development Efforts**
Moderators: Lee Sobel and Melissa Kramer- EPA Office of Policy, Office of Sustainable Communities

Background

Communities assisted by EPA are often environmentally friendly developments around transit stations that seek to facilitate walking and bicycling by adding or improving sidewalks, crosswalks, bicycle lanes, bicycle storage, and streetscape enhancements such as lighting, street trees, and benches, creating or improving parks, plazas, and other open space and building structured parking garages for park-and-drive transit riders, which allows surface parking lots to be redeveloped for TOD.

- How can financing for such activities be incorporated into infrastructure project financing by institutional investors?

4:30 pm - 4:50 pm **Supporting EPA Sustainable Communities and Economic Development Activities**
Moderator: Charlie Bartsch, EPA Senior Advisor for Economic Development, EPA Office of Solid Waste and Emergency Response

- What project features do infrastructure investors need to see to be induced to invest in EPA Sustainable Communities and environmentally challenged redevelopment program areas?
- What else should EPA do to facilitate environmentally-friendly infrastructure investments?

4:50 pm - 5:00 pm **Public Comments**

5:00 pm - 5:15 pm **Closing Comments**
Roundtable Participants
. Philip Johnson - EFAB

5:15 pm **Adjourn Meeting**
Michael Shapiro, EFAB Designated Federal Official

Summary of the EFAB Roundtable Discussion on Institutional Investments in Infrastructure

Open the Meeting, Welcome and EFAB Background

Michael Shapiro, EFAB Designated Federal Official

I think that we are ready to get started and I hereby open this meeting.

I am Mike Shapiro, the Designated Federal Official for the Environmental Financial Advisory Board or EFAB as it is called. EFAB is a federally chartered advisory group that provides advice and information to the EPA on issues relating to financing, affordability, and financial matters related to implementing the various programs for which the Agency has responsibility.

This roundtable is a unique session for EFAB. We have here today some illustrious invited guests to provide us with input. I thank you all for making the time to come in and speak with us. This is a great opportunity for EFAB and EPA and there are a lot of questions that we will be asking you to address.

Since we will be moving forward now, everyone should know that this is a public meeting and we are recording it. I do not know if anyone has called in yet, but there is the possibility that we will be joined by more EFAB members and also members of the public. Leanne, as the driving force for this meeting, do you have some comments that you want to make at this time?

Introduction of Participants

Leanne Tobias, EFAB Member

Thank you Mike. I also want to thank everyone who came in today. I know that a couple of you came in from out of town. We are excited to welcome such a distinguished group to advise EFAB and EPA on infrastructure finance options.

We have deliberately cast the group as a fairly wide gambit of people in terms of expertise. I know that a number of people at the table have been engaged in Transit-Oriented Development (TOD), energy efficiency, real estate and other types of surface transportation work.

While we all have the distributed biographies, my preference is to go around the table and have each participant briefly state their name and title and give us a couple of sentences about their background in the area of infrastructure finance.

As for myself, I am a member of EFAB and the Principal of Malachite, Inc. which is a boutique firm that specializes in the energy retrofit of buildings and on green building development. Let us continue the introductions starting with Mike Shapiro.

Michael Shapiro - As I stated when opening the meeting, I am the Designated Federal Official for EFAB; at least that is my part time job. My other job is the Deputy Assistant Administrator in the Office of Water at EPA. We, as you might expect, have a lot of interest in water and wastewater infrastructure financing.

Phil Johnson - I am a member of EFAB and chair of its Transit-Oriented Development Workgroup. I am also the CEO of the Green Terra Energy Corporation. We specialize in renewable energy and solar energy and so forth in the southern part of the country at this time. Hopefully we will be national at some point.

Ed Crooks - I am with Booz Allen Hamilton, was previously involved in project and infrastructure finance for some years at the Bechtel Corporation, and more recently was with KPMG working in the state and local government market. I had the opportunity to work with Bechtel on the Dulles Metrorail project for about four years during the development planning phase - with all of the TOD possibilities involved therein. I now lead Booz Allen Hamilton's infrastructure finance work across an extensive client base.

Elizabeth Seeger - I am with Kohlberg Kravis Roberts & Company (KKR) where I manage our responsible investment efforts globally - including environmental issues, management issues, and labor issues. KKR has an infrastructure fund although it is not focused on transit-oriented development. I will not be providing recommendations on behalf of KKR today, but I will be able to connect you with the appropriate colleagues internally following this conversation.

Charlie Bartsch – I am the senior policy advisor for economic development to Manny Stanislaus, the Assistance Administrator with Solid Waste and Emergency Response at EPA. This office's focus is on land programs. My focus in that office is interagency and public private partnerships aimed at stimulating the kind of financing connections needed to make projects happen.

Norma Krayem - I am a Partner at Patton, Boggs and Blow. I served as the Deputy Chief of Staff at the Department of Transportation during the Clinton Administration. The focus at Patton Boggs is on working with public and private sectors partners to build all types of infrastructure. TOD has been a specialty of ours, but we also we also work with highways, maritime ports, and a whole lot of waterways.

Trent Allen - I am the President of Sustainable Capital Advisors. We provide strategy and financial advisory services to local, public and private sector parties around financing and raising capital for projects. In a former life, I was an investment banker working on financing utility projects in both water and wastewater.

Sonia Axter - I am one of the senior partners at Ullico Infrastructure Investments. I run the firm's infrastructure investment fund. We raise institutional capital and invest it in the US and Canada in core essential infrastructure businesses. Previously, when I was with Bechtel, I worked on the Portland Light Rail Project. Bechtel's investment there was centered on the TOD development around the light rail extension so I have a lot of experience there. I am a civil engineer and the first half of my career was in project management for a division of Granite Construction. I have worked on a lot of surface re-beautification projects.

Monica Parikh – I manage and am the CEO of Zezen Advisors. We are located on the west coast and primarily work on transit-oriented design in bringing institutional capital and developers to large scale transformation projects.

Michael Zimmer – I am the Senior Counsel with Thompson Hine here in Washington, DC. I am also Executive-in-Residence for the past several years at Ohio University's Voinovich School for Leadership and Public Affairs. I focus on infrastructure energy project development in the finance arena. I have practiced law for 37 years representing owners, developers and venders that develop projects. It is a pleasure to be here today.

Lee Sobel - I am with the Environmental Protection Agency's Office of Sustainable Communities. I work on real estate and finance matters with regards to developing and implementing smart growth projects, including transit-oriented development. Prior to EPA, I worked in real estate in the south Florida area.

Melissa Kramer - I am also with the Environmental Protection Agency's Office of Sustainable Communities which is also known as the Smart Growth Program. Lee and I have been working on a report in a project involving a number of communities on financing infrastructure for Transit-Oriented Development.

Joe Dillon - I am the Director of EPA's Center for Environmental Finance. My office provides staff support to EFAB and working with Mike provides direction to EFAB in terms of work that the Agency is interested in. EFABs work is central to my office. We work primarily through EFAB and a network of universities across the country providing advice on financing and generating investments to deal with environmental finance.

Leanne Tobias, EFAB Member

Thank you one and all. I will turn now turn the meeting over to Phil Johnson who chairs EFAB's Transit-Oriented Development Workgroup to talk about the purpose of the meeting today.

Purpose of the Roundtable

Phil Johnson, EFAB Member & Workgroup Chair

Thank you, Leanne, and again welcome to all of you today. I cannot tell you how excited I am to be with a group of absolute experts in the field that we are struggling with in trying to advise EPA, and particularly the federal government, in terms of how to find the means and ways to get private institutional investors/investment funds into financing infrastructure across the country.

As you probably know, since you are in the field, the United States gets a D minus rating on its infrastructure - that is how far we are behind much of the rest of the world. Those who travel around the globe see many significant advancements on the part of some countries with regards to infrastructure investments. China is one and Brazil another where they are pumping trillions of dollars into infrastructure.

I was in Brazil last year in a town called Belem which is in the Amazon. Arriving from another city, I entered the airport which was a gleaming edifice of aviation. After I walked out of the terminal and reached the end of the parking lot, I turned around to look at this incredible building and said to myself that I have not seen a building like this in America in a long long time. It was brand new, sparkling, and everything that you could imagine that you would want in an airport was there. The same thing is true in China where you see the bullet trains flying along and ask yourself - why cannot we do that here in America?

What we are trying to accomplish today is to get input, ideas and options that we, as the finance advisory committee to EPA, can convey to the federal government on how to begin to engage the private sector and institutional investors in a much more significant and in-depth way.

The Federal government has a sustainability task force which consists of the Department of Housing and Urban Development (HUD), the Department of Transportation (DOT) and the Environmental Protection Agency (EPA). We hope to be able to have some impact/influence on how these agencies work together and to begin to figure out ways to mobilize federal resources - what little there seems to be left.

I was thinking recently that governments are in trouble all over the place. You look at the news and Chicago is closing 56 schools and there are all kinds of deficits all over the place. Clearly cities, towns and states face a huge deficit in terms of being able to finance infrastructure.

We are looking today to try to get a handle on infrastructure in general and we particularly want to get some ideas and options related to TOD. If we define Transit-Oriented Development as an agency, a lot of things are happening in TOD that everybody here should be aware of, the question is how do you get it financed and can it be financed through institutional investors? We also meet with P3s and TIFs and all the other things that have been used universally.

I ran a redevelopment management agency for Washington, DC, a number of years ago. During the implementation of Metro, we did a whole lot of negotiating back and forth between the city and Metro around all the various stations in the city. At that time, we were just glad to get the metro stations, but a lot of development came later. What we hope to be able to accomplish today is to get ideas and information from you that will help us formulate a report that we can circulate to EPA and other interested parties. We want to get a real handle on how we can influence or impact institutional investments into infrastructure and TOD across the country.

The last thing I will say is we would like to get back to you individually at some point later with some questions as we try to formulate our report, clarifications if you do not mind. If we have any questions or clarifications, we will call or send you an e-mail or something so that we can get some more feedback so that the report that we come up with the final report for the EFAB committee will be something very comprehensive, quite significant in its content and scope and we can circulate and hopefully help Governors, Mayors and other officials in the public sector understand how they need to react and respond to the private sectors institutional investors.

Moving down the agenda, Leanne and I are going to try to move forward on this one, I will ask Leanne to step in and get it going and then we will chime back and forth as we move along in terms of how does the private sector build infrastructure investment as a class and under that how does the fund management trustees decide its objective roll in infrastructure. Basically it is about how you invest, where you invest, what are the criteria, what sustains investments, what is the underwriting criteria, what does the public sector need to be able to do to get you an investment? That is basically where we would like to start. The floor is open would anyone like to start.

Foundational Discussion on Institutional Investment in Infrastructure

Leanne Tobias, EFAB Member

Let us start with the agenda, the most critical portions are helping the public sector facilitate more private sector investments in infrastructure and then specifically the segment on supporting EPAs sustainable communities, TODs, and economic development activities.

I would like the emphasis of the day to be on prescriptive advice for EPA and for the federal government generally. I want to start off with a brief foundational segment to get folks general views for EPA on infrastructure investment as an asset class. How does a fund manager or a trustee, or a potential investor with some of its funds decide the objectives for the role of infrastructure investment in a portfolio? I would like to throw that open, Sonia might have a sense of that, or Elizabeth may, or others who may have seen this in their professional lives.

Sonia Axter-Managing Director, Ullico Infrastructure Investments

Pension funds have long term liabilities and the liabilities must be offset by investments, one of which is infrastructure. Currently, most institutional investors, especially pension funds, allocate on average only 2%-5% of the portfolio to infrastructure investments. Concurrently, there are numerous funds that are over exposed to real estate investments and in the process of seeking to adjust the balance in their portfolios. What most fund managers seek are long term inflation linked cash flows to off-set their long term liabilities. Investments in infrastructure offer the institutional investor the opportunity to invest in assets with low volatility that have a useful life of fifty years or more and come with inflation-linked cash flows. Given all of these factors, the next question that must be addressed is what is considered infrastructure?

Infrastructure Sectors

My definition of infrastructure assets are businesses essential to the movement of people and goods, and the provisions of basic services. Infrastructure sectors include: utilities (power generation, gas and electric networks, renewable energy, water and sewage, communications); transportation (bridges, roads, tunnels, airports, seaports, freight rail, parking); social (hospitals, schools, government buildings, passenger rail, other transport); and specialty areas (bulk storage, logistic networks). The key is essential - services that a community cannot efficiently and safely function without. Today, American infrastructure rates a D-minus on its infrastructure report card because of failing to maintain its assets in good working order.

Investing in Infrastructure - The Opportunity

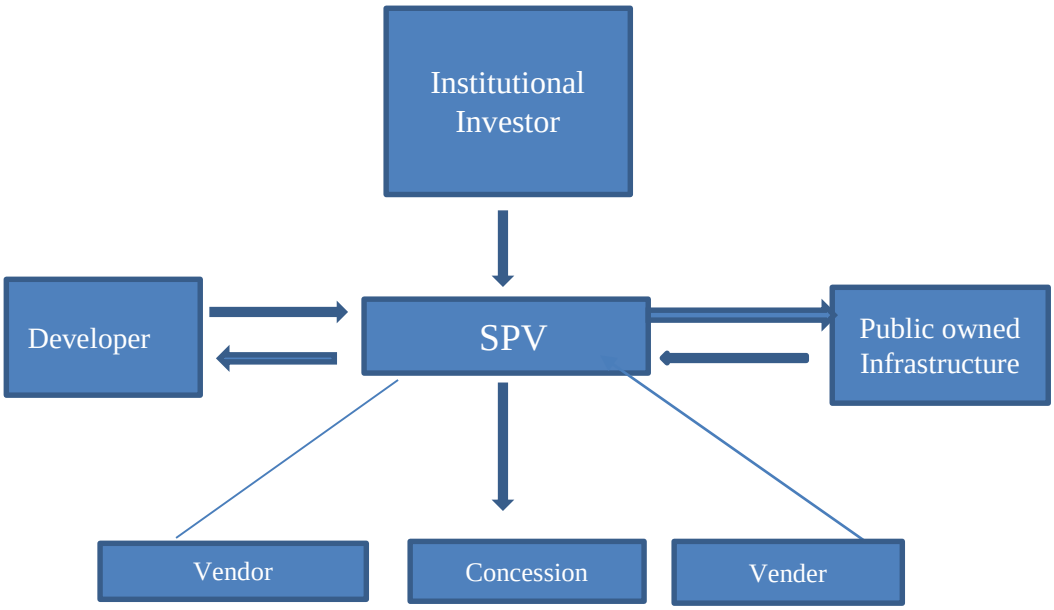
Many pension funds look to diversify traditional fixed-income and equities portfolios with alternatives. Those alternatives can be as much as 5% and 20% of the overall portfolio. Alternative asset classes include real estate, private equity, hedge funds, commodities, currency and infrastructure. While investing in each of these asset classes have different criteria to be considered - including risk, strategy and liquidity - infrastructure has become more recognized for its unique alternative performance characteristics. Those unique characteristics are:

1. Infrastructure is hard-asset-backed offering long-dated annual cash flows like real estate.
2. Like commodities, infrastructure offers inflation protection.
3. Infrastructure is less volatile like hedge funds.
4. The most important aspect of infrastructure is the essential nature of these businesses.

Therefore, Taft-Hartley pension funds, other public pension funds, and other institutional investors can participate in infrastructure investments by diversifying portfolios to include infrastructure strategies.

Investment Criteria

As an institutional investor, Ulico seeks long term investments with low volatility backed by hard assets with inflation linked cash flows. Typically Ulico wants a 30 year contract with a counter-party that can make the payments for the entire duration of the contract. If the underlying asset is under public control, a major concern is making sure there is adequate capital over the life of the contract to maintain the asset in good working order. In terms of structure, the deal we closed with Rialto, California can serve as an example of how a deal can get done with an institutional investor.



Special purpose vehicle (SPV) financing made the deal feasible with Rialto, California because an institutional investor could not take the upfront risk to get the project in a posture to be financed. Rialto city officials were fortunate that they found a developer that believed in the city and was willing to assume the risk required to get the project implemented. There was nothing easy about the deal. It took one year of negotiations between the city and the developer before the agreement was finalized. The city also negotiated a concession contract to operate the water utility. Ullico's investment was the equity capital needed to make the deal possible. The developer agreed to recoup his investment over a three year period. One of the critical issues for Ullico was the long-term maintenance of the asset. We were able to make sure sufficient capital would be available to maintain the asset for the entire 30 year life of the contract.

Ed Crooks, Vice President, Booze Allen Hamilton

The underlying policy challenges for municipalities is to develop dedicated streams of income to support TOD or infrastructure. Those dedicated streams of income must be reliable and viable throughout the life of the financial contract.

Norma Krayem, Partner, Patton Boggs

There is some federal assistance available today for surface transportation through the Transportation Infrastructure Finance and Innovation Act (TIFIA). TIFIA provides social payments that enable cities and states to secure GAP financing or credit enhancement for major surface transportation projects including transit. It took 10 years to get the program properly structured and approved by all federal parties.

TIFIA was created because state and local governments that sought to finance large-scale transportation projects with tolls and other forms of user-backed revenue often had difficulty obtaining financing at reasonable rates due to the uncertainties associated with these revenue streams. Tolls and other project-based revenues are difficult to predict, particularly for new facilities. Although tolls can become a predictable revenue source over the long-term, it is difficult to estimate how many road users will pay tolls, particularly during the initial "ramp-up" years after construction of a new facility.

Similarly, innovative revenue sources, such as the proceeds from tax increment financing, can be difficult to predict. TIFIA credit assistance is often available on more advantageous terms than in the financial markets, making it possible to obtain financing for projects when it might not otherwise be possible. State and local governments need to take advantage of the funding and use it to attract institutional investments, where appropriate.

TIFIA provides Federal credit assistance in the form of direct loans, loan guarantees, and standby lines of credit to finance surface transportation projects of national and regional significance. TIFIA credit assistance provides improved access to capital markets, flexible repayment terms, and potentially more favorable interest rates than can be found in private capital markets for similar instruments. TIFIA can help advance qualified, large-scale projects that otherwise might be delayed or deferred because of size, complexity, or uncertainty over the timing of revenues. Many surface transportation projects - highway, transit, railroad, intermodal freight, and port

access - are eligible for assistance. Each dollar of Federal funds can provide up to $10 in TIFIA credit assistance - and leverage $30 in transportation infrastructure investment.

In response to the question raised by EPA regarding the importance of land in the financing equation, you must remember that land is not infrastructure.

Sonia Axter, Managing Director, Ullico Infrastructure Investments

To follow-up to that, you cannot capture the value of land in the initial financing. Getting institutional investors to take that risk is not feasible. There is no doubt that land around a transit station will become more valuable as development occurs. The question is how you arrive at a value, and how do you capture the value to become a part of the financing equation.

Michael J. Zimmer, Senior Counsel, Thompson Hine

The value of land depends upon the location even if (perhaps especially if) it is around a transit station or nearby. A case in point is the Virginia Route 28 and the Dulles Metro Station. The value capture for this project has been extremely successful. The existing local property owners voted a tax on themselves (using Tax Increment Finance or TIF) to pay for the station. The property owners undervalued the TIF, but still fully funded the agreement. In this case, there was a densely developed area where the special taxing district would be successful. Infrastructure was local and financed by local concerns.

Density is not necessarily the driving force for real estate vs. return on investment (ROI). One important issue is how to successfully develop and finance infrastructure within shorter time frames. In addition, risk can be lowered if capital investments occurs in smaller tranches. Planners of TOD need to, where possible, develop regionally or create a larger scale of investments to finance infrastructure. Planners should add building blocks of housing, broadband, energy and transportation to serve a larger community. It means cobbling together as much resources from all sources including the federal government –TIFIA, for example. Utilize TIFIA to reduce the risk or to secure more bridge financing. Utilize a public-private partnership (P3) and other tools where it is feasible to do so.

Leanne Tobias, Managing Principal, Malachite LLC

Now, we would like to get some comments regarding energy infrastructure. Trenton Allen from Sustainable Capital Advisors, do you have any comments?

Trenton Allen, Sustainable Capital Advisors

Currently, 15 to 20 investors buy all of the energy tax credits and everyone knows who they are. Energy projects for solar or wind costing from $5 to $100 million are difficult to finance. Projects that require financing above $100 million are easier to finance. One of the problems for local governments is the lack of expertise to structure deals that have appeal to the capital markets. It would make sense make funding available to provide technical assistance to officials of municipal and state governments for engaging the capital markets and institutional investors.

Sonia Axter, Managing Director, Ulico Infrastructure Investments

Hiring advisors is not necessarily always the answer. In many cases investment advisors provide conflicting advice to public sector executives. Public sector executives hire investment advisors to help them make decisions regarding how best to finance infrastructure projects. In too many cases, the advice runs counter to the approach of investing by institutional investors and private equity funds. There is a need to educate public sector executives regarding how to seek and be successful in securing commitments for private financing for their infrastructure projects.

This is a role that EFAB may consider recommending to EPA as part of next steps for financing TOD and infrastructure projects in general. The problem with many investment advisors is their advice is not for the purpose of securing the best financing deal for the client. Rather, in many cases, they are advocating a product or a deal structure that will be profitable to themselves and the investment bank they represent and not necessarily the client.

Edward Crooks, Vice President, Booze Allen Hamilton

This is a very important point that needs further discussion. There needs to be educated consultants on the other side of the discussion between public executives and financial advisory services. The Federal government needs to play a pivotal role in the education of public executives in the process of how to structure a deal to finance infrastructure. The United States Department of Transportation has funded *The Project Finance Center* to make financial advisory services available to public executives. This effort is in the early stages of tackling the problem of helping public sector executives understand how to structure deals to finance TOD and infrastructure using a variety of tools.

The knowledge base for public executives regarding deal structuring and especially working with private or institutional investors is limited. In terms of EPA, it might be a better use of the Agency's revolving loan funds to provide technical assistance to public executives to be able to make deals happen. I know this may sound like heresy; but the Federal government can play a vital role in facilitating the conversation between the public and private sector regarding the need to secure institutional investment in infrastructure and TOD.

This point is especially true for public executives in small towns and cities who may have only one major deal for infrastructure over a substantial period of time. As a consequence, unlike the executive in a large city who may have a pipeline of deals to learn from, the executive in a small city has only one time to get it right. If a public sector executive does not know what he doesn't know to get a good deal done, it won't happen.

Getting back to Sonia's point of Best Value vs. Best Practices, participants need to be committed to the success of the project. Best Value vs. Best practices must be viewed from the process of capital formation in regards to the creation of the proper risk sharing structure.

Sonia Axter, Managing Director, Ullico Infrastructure Investments

That is correct. In the case of the deal in Rialto, we came in downstream after the process had been on-going for a year. As investors, we viewed Best Value vs. Best Practices from the formation of the risk sharing structure. The city had selected a developer and operator for the water utility. Ulico, as the institutional developer, negotiated the risk sharing structure for the transaction. Our concern as the institutional investor was to make sure that risks were properly shared by all participants. The city was fortunate in that it had selected a developer who had an interest in making sure that the financial health of the city was strong. Therefore, the developer was at risk for three years in making sure the deal succeeded. The city, meanwhile, had to create a new rate structure to fund a rate stabilization program to pay the developer, the lenders, the investors, the concession operators, and to maintain the asset. The developer was at risk regarding the predevelopment stages, i.e. the engineering, architecture, environmental issues, the selection of a concession operator, etc.

During the structuring of the deal, it became apparent that there were not many viable risk sharing structures (models) that could be relied upon. As the institutional investor, Ulico was prepared to take on the following risks; long term investment contract; construction risk; operating risk; maintenance risk; and the risk of getting repaid the investment over the life of the contract. The risk profile of the deal worked for us based upon the life cycle analysis for the asset. First and foremost, there was a credible counter-party siting across the table as a part of the risk sharing structure. Part of my task was to make sure that the long term operation of the asset or water utility was run as efficient as possible. Long term maintenance by the concession operator to achieve the projected life cycle of the asset is critical to the risk Ulico accepted as the investor. Before the Rialto deal, there were no models to rely upon. Now we have a template.

RISK SHARING STRUCTURE
RISKS

Participants	Engineer/Design.	Const.	Contract	Operations	Maintenance.	Revenue	Repay Debt/Invest.
Lender		**X**	**X**	**X**	**X**	**X**	**X**
Investor		**X**	**X**	**X**	**X**	**X**	**X**
Developer	**X**	**X**					
Operator				**X**	**X**	**X**	**X**

Edward Crooks, Vice President, Booze Allen Hamilton

The Governance Structure for TOD is critical regarding the ability to manage the risks. There are so many players. There are transit agencies, planners, stakeholders, municipal governments, state and the federal government. Who gets to make the call regarding design, sequencing, timing, type of development around the transit station, breaking down the silos of funding, sources of funding—stakeholders and investors. The right governance structure is critical to

success of TOD. The value proposition of TOD is problematic, where do you create money in the system. TOD is non-economic and the issue is how to expand the value equation or value proposition. Someone has to decide how to pay for TOD. Where is the quantitative value? How do you turn a non-economic asset into an economic value?

Supporting EPA Transit-Oriented Development Efforts

Discussion Leaders: Lee Sobel and Melissa Kramer, EPA Office of Policy, Office of Sustainable Communities

We are from the Office of Policy at EPA, Office of Sustainable Communities. Recently, my colleague, Melissa Kramer, published a report that we had worked on for two years, ***Infrastructure Financing Options for Transit-Oriented Development***. This report can be accessed at http://epa.gov/smartgrowth/infra_financing.htm. In the report, we listed a series of tools that we believe are essential to TOD. The report also provided policy suggestions to communities of various sizes.

Our office is a policy shop. We work with developers, public officials, states, counties and local governments to and provide assistance to implement TOD. We do a lot of policy research, provide technical assistance and make policy suggestions where needed. Our office is also involved in the Federal Sustainability Task Force which is a partnership with DOT, HUD and EPA. We are looking for some assistance to determine next steps for some of the communities that we are working with to implement TOD.

The first of the communities is SSMA-Economic Development in Chicago, South Suburban Mayors and Managers Association, representing 41 municipalities and 41 new and existing METRA stations in South Chicago; the City of Wheat Ridge, a city-suburb of Denver that has received approval to become the end-of-the-line station for the Fast tracks Gold Line expansion; and the Cobb County Cumberland Community Improvement District; a business district in Atlanta looking to bring a new line and station to connect to MARTA and .Utah Transit Authority, for both Salt Lake and Sandy City TRAX stations. Next steps could mean new financing models around the specific transit opportunities for these four areas.

In the case of SSMA, the project consist of nine new cities with a new transit station. In their case they have exhausted all federal funds, have use TIF and no more value capture possibilities exist. The SSMA has hundreds of land parcels and has received some funding to acquire land and to also do some land banking for future use. Everyone wants a new parking lot although a parking lot may not be feasible. There has been some thought given to developing a parking corridor to support the proposed 41 stations. What are the incentives for investing in TOD? There are a number of issues for consideration such as land banking, land assembly to deal with empty buildings, vacant and abandon blocks, existing pay parking for the SSMA. Policy suggestions include forming a Public Private Partnership, joint venture, selling land, etc. The SSMA received a grant from HUD to land bank, a grant from Enterprise added to the ability to land bank.

These communities, have before them the tools—the communities do not have the capacity to implement TOD. There are other problems such as in Atlanta, their charter will not permit them to acquire land.

We reviewed 64 different financial mechanisms including venture capital, TIF, 30 different financial tools. We took a look at 11 case studies in 11 different communities—leveraging was critical in our review in that it leads to increasing values for land and housing types. The review studies of the 11 different case studies verified our approach. It lead us to the conclusion that the major differences fall within two areas of considerations strong market and weak market.

Norma Krayem, Partner, Patton Boggs

If they don't know what they don't know then you do not have a credible counter-partner to do business for the planning and implementation of a TOD project.

Sonia Axter, Managing Director, Ullico Infrastructure Investments

What is the value proposition of the TOD projects you are presenting? How do you create money in the system?

Melissa Kramer, EPA Office of Policy, Office of Sustainable Communities

It is a process of push and pull to establish values. TOD takes different forms, with different land uses and building densities, depending upon the station area. TOD infrastructure such as transit facilities, sidewalks, walking paths, bike lanes, utilities and affordable housing can provide significant public benefits and improve the overall environment.

Sonia Axter, Managing Director, Ullico Infrastructure Investments

Many aspects of TOD as described are non-economic. In order to pay for TOD, you must expand the value equation. Where is the quantitative value? The question or challenge is how to turn the non-economic assets into economic value or otherwise find economic value. I agree that over time land around a transit station will increase in value. However, land is not infrastructure. Bike lanes and walking paths are not infrastructure. Air quality will improve as a result of TOD and people will get healthier because they are walking more - getting necessary exercise. But, where is the quantitative value? Someone has to decide how/find a way to pay for TOD.

How do you educate public officials to understand that how to finance TOD is a job that someone must take on? TOD has an important role to play, but TOD strictly defined as Smart Growth is largely a non-economic asset. Financing is a commodity, funding you do not have to repay. The environmental benefits of TOD cannot be easily financed. What are the funding mechanisms that can pay for these non-economic assets? Maybe it is things like a carbon tax credit, some sort of credit enhancements.

I like to use the "Big Dig" in Boston as an example of one of the most expensive TOD projects in recent history. That project was $10 billion, maybe $15 billion over budget. Now a few years

later, there are 119 new businesses in the area, several thousand new jobs, and companies from around the world are locating flagship businesses there. The commute time to Boston's Logan Airport has been cut in half. It is my proposition that it may have been over budget but it has paid for itself several times over and then some. How do you quantify the benefits resulting from the "Big Dig"? That is a very important question for the future of TOD.

Deal structuring is beyond the capacity of most municipalities and public executives. This is especially true for smaller cities and towns. What is the best project financial model? Who is the best partner that can monetized the values necessary to implement TOD?

Leanne Tobias, EFAB Member and Managing Principal, Malachite LLC

After listening to this conversation, I have questions with regards to assisting the public sector in structuring deals is the legal documents and an outline of what are the ingredients of a good deal. I work in the real estate industry and one of the things that was decided was the creation of basic documents for green development. The documents adoption became the industry standards. It seems to me that a set of legal documents could be developed that would provide public officials, especially in small town and cities, templates of the documents that make-up a proper deal. There are people here that know more about this me, what do you say Norma, Ed, Mike?

Norma Krayem, Partner, Patton Boggs

Documents could be developed, but the problem still remains if they don't what they want or are doing, the documents may not be that useful.

Michael J. Zimmer, Senior Counsel, Thompson Hine

For local communities it may be difficult to develop the top ten documents that will make it happen. What may be helpful is the development of a strategic outline of what is necessary to structure a deal. There are so many things to consider that documents may not cover areas such as having the right governance structure. What we are discussing is stake holder development; that is critical to understanding how deals get structured. Some of the local governments may consider going to foundations - Community Development Corporations and other non-profits stakeholders to secure funding to pay for consultants who have no vested interest in the deal to provide technical assistance for stakeholder development.

In addition, new kinds of corporations are being developed in some states that may be helpful in structuring deals. A good thing to do is to take a look at the development of the light rail corridor developed in Cleveland, Ohio and how that project was put together. Pittsburg is another example of successful development of TOD.

Edward Crooks, Vice President, Booze Allen Hamilton

The question of who is the best partner sitting across the table may not be a private entity but another public partner. Some public entities may be able to fulfill that role of deal maker.

Norma Krayem, Partner, Patton Boggs

I disagree. The best partner sitting across the table to structure a financial deal is a private partner or institutional investor. Public officials, unless they have a track record, do not know how to structure a deal that is financeable.

Mike Shapiro, EFAB Designated Federal Official

Charlie (Bartsch), do you have a question are comment?

Supporting EPA Sustainable Communities and Economic Development Activities

Charlie Bartsch, Senior Advisor for Economic Development, Office of Solid Waste and Emergency Response

I had series of questions, however, listening to the conversation I think I have all of my questions answered. In the Office of Solid Waste and Emergency Response, we are assisting communities to take vacant and abandoned properties and redevelop them into new uses. We need to focus on how to reduce risk and maximize values. It is not the $100 million deals that we are seeing that may be of great interest to major developers or investors. Our projects are much smaller and maximizing values is something we need to help communities learn how to do.

Mike Shapiro, EFAB Designated Federal Official

The real genius of that program was that it demonstrated that while there was a lot of perceived risk, in the end most of it proved not to be true.

Charlie Bartsch, Senior Advisor for Economic Development, Office of Solid Waste and Emergency Response

Yes that is true and I am glad that you mentioned that. The money we provide for assessment of brownfields has demonstrated that about a third of brownfield sites have no contamination at all.

Philip Johnson, EFAB Member, TOD Workgroup Chair & President/CEO, Green Terra Energy Corporation

Well, I would like to thank everyone for a great discussion we have run out of time. It has been a wonderful afternoon and we would like to thank our private sector presenters and institutional investors for taking time out of their busy schedules to share their insights regarding what is required to attract private financing for TOD and infrastructure in general.

Mike Shapiro, EFAB Designated Federal Official

Unless we have any comments from the public (none registered), we will consider the meeting adjourned. Thank you again for a great meeting and useful discussion.

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Ms. Krayem has also worked extensively with the DHS since its creation in 2002 and has created public-private partnerships with the various DHS agencies. She works extensively with key Congressional committees including Appropriations, Homeland Security, Transportation and Infrastructure, Commerce, Ways and Means, International Affairs, Banking, and Foreign Relations.

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Leanne Tobias, Managing Principal, Malachite LLC. Leanne Tobias is managing principal of Malachite LLC, a green real estate and building energy efficiency advisory firm. Ms. Tobias brings over 20 years of commercial real estate investment and portfolio management experience to green and energy-efficient properties. She has served as an Investment Committee member and senior manager of institutional real estate investment funds marketed to union pension investors, has advised the U.S. government on the energy-efficient retrofit of its 1.9 billion square foot portfolio, and helped to develop Washington, DC's new energy retrofit finance program. Ms. Tobias is the author of *Retrofitting Office Buildings to be Green and Energy-Efficient,* the Urban Land Institute's authoritative text on the sustainable retrofit of office buildings around the world. She holds the LEED AP, CRE and FRICS designations, an MBA from Wharton Business School and an MPA from Princeton University. Ms. Tobias is a member of EPA's Environmental Finance Advisory Board and serves on its Transit-Oriented Development/Sustainable Communities Workgroup.

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Charlie Bartsch, Senior Advisor for Economic Development, Office of Solid Waste and Emergency Response. Charlie Bartsch serves as Senior Advisor to EPA Assistant Administrator Mathy Stanislaus, charged with promoting inter-agency and public-private financing partnerships to spur land revitalization and site reuse. He serves as an EPA point person on the White House "Strong Cities/Strong Communities" recovery initiative, works closely with the EPA-DOT-HUD Partnership for Sustainable Communities, and advises EPA's Office of Brownfields and Land Revitalization on area-wide planning and revitalization financing strategies. Previously, Mr. Bartsch was Senior Fellow at ICF International, where he served as ICF's brownfields and smart growth policy expert. Before joining ICF, he was Director of Brownfield Studies at the Northeast-Midwest Institute in Washington DC, a public policy center affiliated with the bi-partisan Northeast-Midwest Congressional and Senate Coalitions. He is regarded as one of the nation's leading authorities and authors on brownfield and community redevelopment/reuse issues, with over 20 years of experience in these areas. Charlie has a Master's in Urban Policy and Planning from the University of Illinois-Chicago, and a B.A. in political science from North Central College in Naperville, Illinois.

Joseph Dillon, Director, Center for Environmental Finance, Office of the Chief Financial Officer. Joseph Dillon is the Director of EPA's Center for Environmental Finance which provides resource support and Agency direction to the Environmental Financial Advisory Board and to a

network of ten, university-based Environmental Finance Centers located around the nation. Mr. Dillon previously served as Director of the Office of Enterprise Technology and Innovation and as EPA's Comptroller where he was responsible for the Agency's annual planning, budgeting, and financial functions. During his twenty-five year career, he has worked with a wide range of public and private stakeholders on numerous critical resource and environmental issues such as Superfund cost recovery, public-private partnerships, public finance, and how-to pay issues. He is a Certified Public Accountant and has a graduate degree in Business and Accounting and a Masters in Public Policy from the University of Maryland.

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Michael Shapiro, Designated Federal Official, Environmental Financial Advisory Board, and Deputy Assistant Administrator, Office of Water. Mike Shapiro has been the Designated Federal Official for the Environmental Financial Advisory Board EFAB since 2010 and the Deputy Assistant Administrator for the Office of Water since November 2002. Prior to that, he was the Principal Deputy Assistant Administrator for the Office of Solid Waste and Emergency Response. Mr. Shapiro has also served as Director of the Office of Solid Waste, and Deputy Assistant Administrator for the Office of Air and Radiation, where he directed implementation of the 1990 Clean Air Act Amendments. Mr. Shapiro has a B.S. in Mechanical Engineering from Lehigh University and a Ph.D. in Environmental Engineering from Harvard. He has also taught in the public policy program at the John F. Kennedy School of Government.

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF POLICY, OFFICE OF SUSTAINABLE COMMUNITIES

Transit-Oriented Development Fact Sheet

Transit-Oriented Development (TOD) is development located within a quarter-to-half-mile radius of a transit station that offers a mix of housing, employment, shopping, and transportation choices within a neighborhood or business district. TOD can generally be built at greater densities because it is close to transit. If it relied strictly on the road network for transportation, such densities could cause major traffic congestion. TOD takes many different forms, with different land uses and building densities, depending on the context of the station area.

TOD and other smart growth practices can lessen the environmental and health impacts of development by building compactly and mixing land uses, which can make walking, bicycling, and transit use more appealing by putting destinations closer together. Compact development can reduce impervious surfaces, which protects water quality by reducing the amount of polluted runoff that flows into surface waters. Using land more efficiently takes development pressure off environmentally sensitive areas. Smart growth strategies encourage a mix of housing types at different price points to allow people at all stages of life to live in the same neighborhood. Encouraging investment in existing communities takes advantage of previous investments, using public funds more efficiently.

TOD often requires significant investments in infrastructure and community facilities for the type of development that can support robust transit use. These investments might include:

- Facilitating walking and bicycling by adding or improving sidewalks, crosswalks, bicycle lanes, bicycle storage, and streetscape enhancements such as lighting, street trees, and benches.
- Creating or improving parks, plazas, and other open space.
- Building structured parking garages for park-and-drive transit riders, which allows surface parking lots to be redeveloped for TOD.
- Increasing the capacity of utilities (e.g., sewer, water, storm drain) and roads.

TOD infrastructure such as transit facilities, sidewalks, utilities, and affordable housing can provide significant public benefits. However, infrastructure and related investments are costly. Moreover, purely public projects like sidewalks and local roads rarely generate any revenue. Services like water, wastewater systems, and parking can generate revenue for operations and maintenance from users, but raising rates high enough to pay for significant new capital investments can be contentious and requires careful planning to secure the necessary support. To add to the funding challenge, TOD infrastructure and community facilities often need to be in place *before* new private development can occur—either because additional infrastructure is required to support new uses, or, in a place with a weak real estate market, to make a location attractive for developers, residents, and workers.

Providing TOD infrastructure is further complicated by the number of entities that can be involved. Local governments have typically provided local roads, bicycle and pedestrian facilities, open space, utilities, and public parking, although many localities are shifting some of this responsibility to developers. Transit agencies also play an important role by building and maintaining transit stations, parking, and bicycle and pedestrian facilities and sometimes by forming partnerships to develop agency-owned land. Regional transportation planning organizations, states, and the federal government also play a role, typically by funding and financing infrastructure and setting the rules that govern the use of those funds.

EPA is interested in funding and financing strategies that can help communities meet the challenge of providing the infrastructure necessary to support TOD.

Enclosure C

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
ENVIRONMENTAL FINANCIAL ADVISORY BOARD (EFAB)

Supplemental Report To:
"Infrastructure Financing Options for Transit-Oriented Development"

As a supplement to EFAB's ongoing support of environmentally-sensitive, transit-oriented development (TOD) in target communities, EPA's Office of Policy tasked the Environmental Finance Advisory Board (EFAB) with developing recommendations concerning the financing of required infrastructure. This assignment was extended conterminously with the commissioning of an independent consultancy study, *Infrastructure Financing Options for Transit-Oriented Development*,[1] to assist the Agency in identifying TOD infrastructure financing tools. EFAB believes that the consultancy study was comprehensive with regard to the number and variety of financing tools presented to the Agency. This report is intended to supplement that study and emphasize Public Private Partnerships (P3s) as a viable means of approaching TOD because:

- P3s can provide access to *alternate sources of financing* that can be used to address upfront capital investment needs more quickly than diminishing, traditional sources of public financing.

- P3s allow private developer *expertise and innovation* to help shape the design, construction and operation of the TOD project in a way that can optimize the TOD project's economic value.

- Alliances with the private sector can help a TOD project meet *economic development goals* more rapidly, enhancing the provision of well-designed commercial space, encouraging preleasing by public entities to fill space more rapidly, and accelerating other benefits like job creation, enhanced mobility options and walkable communities.

State and local infrastructure has traditionally been financed through the municipal bond market, supplemented by diverse sources of federal assistance. TOD and associated infrastructure are frequently financed using Tax Increment Financing, a revenue bond mechanism that dedicates additional taxes associated with new development to repay project costs. P3s expand the possibilities to leverage TOD revenue streams because they tap additional pools of capital from investors who do not always have an appetite for municipal bonds, and who are now participating

[1] Matichich, Michael, et. al., *Infrastructure Financing Options for Transit-Oriented Development*, U.S. Environmental Protection Agency, Office of Sustainable Communities, Smart Growth Program, January 2013, http://epa.gov/smartgrowth/pdf/2013-0122-TOD-infrastructure-financing-report.pdf.

in infrastructure investments. The P3 approach harnesses an investment-minded focus on the return of both public and private dollars and a collaborative approach to sharing the risks of development.

An approach that public sponsors might wish to consider is to couple a TOD component with or within a larger transit P3 project. If structured properly, this could offer developers some potential upside above and beyond what they could earn on the transit portion of the P3 as well as increase competitive interest in the larger project scope.

TOD Revenue Considerations

The ability of a project to attract private investment capital and the interest of P3 developers depends heavily on the project's revenue stream. To the extent that the revenue streams are reliable and available immediately upon the project entering operations, the greater will be the interest of private investors. The more predictable (i.e., less risky) the revenue stream, the more efficiently (i.e., lower cost) it can be used to raise financing for upfront capital investment.

TOD revenue streams can take several forms, including:

- revenues raised from special surtaxes or tax increment financing (TIF);
- commercial rents from TOD property;
- subsidies paid by public sponsors; and
- ancillary revenues generated by the project, including parking fees and advertising sales.

For TOD projects in active, mature, commercial real estate locations, the emphasis will likely be on commercial rent revenues, especially those derived from pre-leasing to creditworthy tenants under long-term leases structured to keep pace with inflation. For these projects, it is more likely that private developers will look to raise capital by leveraging existing future rental revenues and borrowing against land controlled by project ownership and, therefore, more likely that the project will attract strong competitive interest from potential private partners.

For TOD projects in less well-developed locations, commercial rents will be much more speculative and, as a result, more heavily discounted when considered for financing to account for the potential risks associated with assumed but unknown development. The amount of upfront financing that can be raised against these project revenues will be lower, and in all likelihood will be more expensive. To be completed under a P3 approach, these projects might require some level of public sponsor subsidy. This could be delivered in several different forms, including:

- milestone payments during construction;
- regular payments during operations (e.g., some form of availability payment during operations);
- credit support; and
- public sector commitments to rent commercial space.

Attracting Developer Interest and Investment for TOD

The amount of private capital available for infrastructure investment is significant, yet relatively few projects have moved forward as P3s in the United States. Attracting private investment and competitive interest depends to a large degree on how public sponsors of TOD projects fulfill their role in the P3 partnership and how the partnership is structured. Public sponsors can undertake a number of actions to maximize competitive interest in their projects and enhance the chances of successfully delivering TOD projects as P3s.

Preparation: As a rule, P3 projects require more up front preparation, investment and planning than do traditional procurements. Rather than using off-the-shelf boiler-plate RFP templates, the process of developing complex commercial and financial agreements and managing the interfaces between multiple project stakeholders entails significant effort and specialized expertise. Public sponsors, especially those embarking on a P3 approach for the first time, must be willing to make the procedural, economic and political investments required for their projects to succeed as P3s. Private developers will look closely at the public sponsor's preparation for a P3, and will gauge their competitive interest accordingly. A competitive procurement process to identify the ideal private partners is possible and preferred, but involves an intensive effort and outreach to identify on the front end the value components of the project that will appeal to private investors.

Key public sponsor preparation elements include:

- identify the various components of risks and controls associated with the project and understand the specific risks and controls that the public sponsor is willing to negotiate;
- clearly articulate project objectives and build consensus around these objectives with key stakeholders, then communicate those objectives to the market;
- secure the resources required to undertake a P3 (internal staff expertise, legislative authority, appropriate external advisors, etc.); and
- enlist and sustain political support – a project champion in political leadership is key.

For TOD P3 projects in particular, public sponsors can play a critical role in building a strong community consensus around project objectives before launching a procurement process. As project development advances, the public sponsor must take the lead in sustaining community and political support by proactively communicating project benefits and keeping the project on track by bringing appropriate resources to the effort.

Engagement: To unlock the potential value of P3s, public sponsors must be willing to engage with private developers early and consistently throughout the project development process. A key value driver in any procurement process is competitive tension, and robust engagement by a well-prepared sponsor typically boosts competitive interest and drives greater value, but engagement with the private sector can and must be done in a way the respects the public sponsor's procurement regulations.

Forms of possible engagement include:

- early stage market sounding with private parties to assess their interest in the project and obtain feedback on project structuring issues;

- conducting industry days with the developer community to market the project and foster partnering opportunities among developers and local firms; and

- one-on-one sessions with potential developers to review draft procurement documents and obtain feedback on key commercial provisions.

For TOD projects, it will be essential that public sponsors engage early with the private sector to develop shared incentives around land use, planning and economic development goals.

Commitment: P3s succeed when they are a true partnership, and the public sponsor's ability to commit to their side of the deal is essential. Public commitment can take many forms, including providing direct investments and/or financial guarantees, being the honest broker in advancing community and public policy objectives, and taking direct responsibility for key project elements like environmental approvals.

TOD projects will benefit from public sponsors' willingness to commit their resources – political, financial and planning – to the public-private partnership. For example, if private developers are finding it difficult to secure commercial tenants, public sponsors may wish to consider housing public offices in the TOD facility on a short term basis until commercial demand picks up. Public sponsor willingness to commit to these types of project support might make the difference in a successful P3 TOD.

Deal Structure: The appeal of infrastructure is its production of long-dated, inflation-linked, low-volatility revenues, with steady cash flows tied to real assets. According to Prequin[2], $17 billion of the $23 billion raised in 2012 by infrastructure funds specifically targeted North American infrastructure. As noted by one prominent US infrastructure investor[3], while there is plenty of demand among institutional investors, there simply are not many investable opportunities in the US - there is "more money than opportunities." Investable opportunities refer to investments with attractive risk-adjusted returns and appropriate investment horizons that are expected to perform well versus others in its asset class.

- **Attractive Risk Adjusted Returns.** Investors need to be compensated for the amount of risk they are bearing. As a general rule, equity investors require higher returns than what debt investors require. Income investors, such as Real Estate Investment Trusts[4] ("REITs") and Master Limited Partnerships[5] ("MLPs") (and to some degree, pension funds, insurance companies, and certain sovereign wealth

[2] https://www.preqin.com/docs/samples/The_2013_Preqin_Global_Infrastructure_Report_Sample_Pages.pdf

[3] Aaron Visse helped start the first publicly traded infrastructure mutual fund in the US.

[4] A REIT is "a type of real estate company modeled after mutual funds. REITs were created by Congress in 1960 to give all Americans –not just the affluent—the opportunity to invest in income producing real estate in a manner similar to how many Americans invest in stocks and bonds through mutual funds. Income-producing real estate refers to land and the improvements on it – such as apartments, offices or hotels. REITs may invest in the properties themselves, generating income through the collection of rent, or they may invest in mortgages or mortgage securities tied to the properties, helping to finance the properties and generating interest income." (Source: www.reit.com) In all, "REIT" designation is a tax designation—qualified REITs pay no corporate level taxes but must pay at least 90 percent of taxable income to shareholders (in the form of dividends). As a result, their cost of capital is cheap. As of 01/31/14, there are 204 REITs publicly trading on the major stock exchanges, with a combined equity market cap of $719 billion. There are also about an additional 1,100 REITs that are not publicly traded.

[5] MLPs must derive at least 90% of its cash flow from real estate, natural resources, and/or commodities. Like REITs, the MLP designation is a tax status designation and therefore avoids corporate level taxes. MLPs typically pay out 85% to 90% of their cash flow in dividends.

funds), require returns positioned somewhere in between equity and debt investors and are natural infrastructure investors.

- **Appropriate Investment Horizons.** Some investors do not want their capital to be tied up in investments for an indefinite period of time; however, others prefer investments with a defined, finite term period. REITs and MLPS can tolerate longer investment horizons because the secondary markets provide them with liquidity while private equity and direct institutional investments have shorter investment horizons, typically in the five to seven year time range. Pension investors frequently prefer longer-term investment horizons (a decade or more) in order to match their assets with anticipated payouts that span 10+ or more years.

- **Asset Class Designation.** Institutional investors tend to make investment decisions based on a predetermined asset allocation allotment. TOD investments typically fall into a class of investments called "alternative assets". Unfortunately, oil and gas investments, notably liquid natural gas infrastructure, which typically can have higher expected returns (and higher risk) than TOD investments, also fall into the "alternative" asset class. The key, then, is either to figure out how to position TOD versus other "alternative" assets, to market TOD investments in another asset class, such as "real estate", or to establish TOD in a new asset class such as "infrastructure". With regard to the latter, an argument can be made that infrastructure should be in of itself an asset class because it offers portfolio diversification due to its low correlation with other asset classes[6]. Many infrastructure assets operate as natural monopolies or in markets which are heavily regulated or which have restricted entry[7].

For TOD projects, it will be important that the project's public sponsor understand these investment drivers and shape the deal structure accordingly. This reinforces the importance of both *preparation* (to assemble the right resources to undertake a P3) and *engagement* (to listen to what the market is looking for in a potential investment) prior to launching a TOD procurement effort.

Conclusions

In all, while P3 acceptance is flourishing globally, the United States has been slower to adopt this approach. While we are seeing P3s increasingly becoming popular, there are some limitations to their widespread adoption. EFAB's recommendations for increasing the use of P3s in the United States, especially in the infrastructure sphere, are the following.

- *Improve the P3 process.* National prioritization could rationalize the tangle of federal, state and local regulations, accelerate the development and deployment of best practices, and establish federal, state and local centers of excellence to undertake P3 work.

[6] Raffaele Della Croce, et. al., *Pension Funds Investment in Infrastructure, A Survey*, Organisation for Economic Cooperation and Development, September 2011, http://www.**oecd**.org/data**oecd**/59/33/48634596.pdf, p. 16.

[7] Raffaele Della Croce, et. al., *Pension Funds Investment in Infrastructure, A Survey*, Organisation for Economic Cooperation and Development, September 2011, http://www.**oecd**.org/data**oecd**/59/33/48634596.pdf, p. 28.

- *Prioritize TOD.* The Great Financial Crisis has accentuated the US priority of getting people back to work. Despite its job creation potential, infrastructure - including TOD - still resides on the backburner and is not a national priority. EFAB believes that environmentally sensitive TOD could be an important job creation vehicle.

- *EPA Role.* EPA's Office of Policy, Office of Sustainable Communities is well-positioned to promote the use of TOD and P3 development as environmentally sensitive planning tools. We recommend that the Office of Policy, Office of Sustainable Communities more fully incorporate a P3 approach to TOD in its work with local governments. EFAB also notes that P3 approaches may also be viable in additional EPA infrastructure development efforts, and stands ready to assist the Agency in this context.

ENVIRONMENTAL FINANCIAL ADVISORY BOARD

APR 29 2008

Honorable Stephen L. Johnson
Administrator
United States Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Dear Administrator Johnson:

The Environmental Financial Advisory Board (EFAB) is pleased to submit the enclosed report, *"Public Private Partnerships in the Provision of Water and Wastewater Services: Barriers and Incentives,"* for the Agency's consideration and use. This report presents an important opportunity for the Agency to strengthen its continuing efforts to insure sustainable water and wastewater services.

The report responds to the Agency's request for an assessment of the potential of public private partnerships (PPPs) to help alleviate chronic funding problems in the water industry. In preparing for this assessment, the Board reviewed previous EFAB reports as well as earlier Agency initiatives. We describe the present role of PPPs in the water industry and analyze various barriers to wider implementation. Information on eleven existing PPPs is reviewed and tabulated. We also examined the efforts of the US Department of Transportation to remove barriers to private sector participation in that sector. The report concludes with a number of specific recommendations for action by the Agency and by Congress, all designed to remove unnecessary barriers to beneficial use of PPPs.

PPPs cannot solve all water and wastewater utility financing or management problems and are not appropriate in every situation. However, experience has shown that these partnerships can be helpful and beneficial in many cases. In fact, the private sector has at all times maintained a substantial presence in the water industry.

The Board has found that the need for wider use of PPPs is well demonstrated, the mechanisms for considering and structuring these arrangements are known, and success stories and model applications are available. In certain situations, these partnerships can reduce costs, improve the quality of service, and speed the provision of needed infrastructure. Even though PPPs may not be

appropriate in every case, the availability of this tool should be a powerful weapon in the Agency's struggle to achieve sustainable water services at a reasonable cost. Despite this experience and potential, the use of PPPs is often precluded or restricted by a number of barriers, originating in law, regulation, policy, or perception.

The report identifies disincentives and barriers to adoption of PPPs that exist in Federal law, in State law, and that are embedded in state and local subsidy and tax policy. The Board also notes barriers and misperceptions that arise from lack of information on PPP implementation. The Board recommends a strong initiative by the Agency to clear these barriers, so that water and wastewater utilities are free to choose the most effective available strategies. As detailed in the report, this initiative will require more than programs, guidance, or workshops. It requires committed and sustained leadership on a number of fronts, involving legislative recommendations, outreach to state agencies and legislatures, information dissemination, and monitoring of progress.

We hope that you find our arguments compelling and our proposals constructive and useful. The Board is always ready to discuss its findings and recommendations, and to take any follow-up actions that are consistent with its charter. If you or your staff have questions about this report, or would like to arrange a meeting, please let us know. We greatly appreciate the continuing opportunity to serve the Agency.

Sincerely,

A. James Barnes
EFAB Chair

A. Stanley Meiburg
EFAB Designated Federal Official

Enclosure

cc: Marcus Peacock, Deputy Administrator
Ben Grumbles, Assistant Administrator for Water
Lyons Gray, Chief Financial Officer

Environmental Financial Advisory Board

Public Private Partnerships in the Provision of Water and Wastewater Services: Barriers and Incentives

April 2008

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PUBLIC PRIVATE PARTNERSHIPS IN THE PROVISION OF WATER AND WASTEWATER SERVICES: BARRIERS AND INCENTIVES

April 2008

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EXECUTIVE SUMMARY

Various sources, including EPA's 2002 "Gap Analysis," have pointed to a large and growing investment shortfall in the water industry. In the case of clean water, symptoms include continued reliance on combined sewer systems, problems with combined sewer overflows, and frequent sewage spills--not to mention a long series of consent decrees addressing the worst of these problems. Infrastructure problems in the drinking water industry are less frequently publicized, but probably not less serious. Aging treatment plants, century-plus-old water mains, crumbling structures all add up to a need for major investments to rehabilitate existing facilities plus more major investments to meet future demands.

A parallel discussion has taken place with respect to utility operating revenues. While some utilities have sound rate-making and financing practices, many others fail to cover the full cost of operating and maintaining water systems, much less the cost of replacing and expanding infrastructure. Among the remedies proposed for this problem, wider use of public private partnerships (PPPs) may help enforce full cost pricing in some situations, while offering communities the opportunity to increase efficiency and maintain desired levels of service.

EFAB has been asked to consider the potential for PPPs to alleviate the chronic funding problems in the drinking water and clean water industries. This report discusses the nature of PPPs, their present role in the industry, and certain barriers or disincentives to wider use of PPPs.

PUBLIC PRIVATE PARTNERSHIPS

This report utilizes the following definition of a PPP:

> A public private partnership (PPP) is a contractual, institutional, or other relationship between government and a private sector entity that results in sharing the duties, risks, and rewards of providing a service in which the government has an interest, recognizing that the government retains ultimate responsibility for insuring that social needs and objectives are met.

Water Sector

The private sector has always had a prominent role in the provision of drinking water in the U.S. Considering only the largest systems, serving populations of 100,000 or more, about 16 percent are investor-owned utilities. This fraction has been roughly constant for many years. More recently, there is anecdotal evidence of expansion in the diversity of PPP types, other than investor-ownership. One industry source lists 15 major drinking water PPPs in effect in 2006, as well as 29 major clean water PPPs.

PPPs in the water sector take many forms. Services provided by the private sector partner may range from support functions (e.g., laboratory services) to facility-level activities (e.g., operating a wastewater treatment plant) to contract operation of all facets of the utility. Among the variants commonly employed are contracts for design-build (DB), design-build-operate (DBO),

design-build-finance-operate (DBFO). build-operate-transfer (BOT), etc. An important characteristic of many of these contracts is that they require a long-term relationship between the public and private sector. In the U.S., contract terms for PPPs may range up to 25 years; in other countries, longer-term contracts may be found.

Where PPPs are used, government retains the responsibility to regulate private sector partners so that the public goods are preserved. Regulation can take the form of drinking water quality standards, requirements for universal access, regulatory commission or local government oversight of rates and charges, environmental regulations and standards, contractual provisions, etc. Each form of partnership imposes different regulatory requirements and has advantages and disadvantages in specific applications.

Transportation Sector

An incipient crisis in infrastructure investment has been noted for the transportation sector and, similar to the water sector, PPPs have been suggested as one approach to enhancing the availability of funds and improving the capability for project execution. Unlike the water industry, the public highway component of the transportation sector has no significant history of private sector infrastructure provision, or of PPPs. Other activities within the sector--such as rail, air, river crossings, and water transportation--have had varying degrees of private sector involvement in the past.

The U.S. Department of Transportation (US DOT) has moved aggressively to clear the way for wider use of PPPs, both by working to remove legal and institutional barriers and by disseminating information on PPPs to various transportation agencies. The Federal Highway Administration (FHWA) has developed a PPP website, published a User Guidebook on implementing PPPs, and produced model legislation designed to remove unnecessary barriers in state law. Changes in federal law have exempted from state caps up to $15 billion in Private Activity Bonds for transportation projects.

The US DOT PPP website reports that, as of October 2007, 21 states and one U.S. territory have enacted statutes which enable the use of PPPs for transportation projects. Among the large-scale PPPs that have emerged recently are the 75-year leased operation of the Indiana Toll Road (valued at $3.85 billion) and the 99-year leased operation of the Chicago Skyway (valued at $1.83 billion). Additional initiatives in the transit sector have led to, among other things, contract design, construction, and operation (DBO) of the Hudson-Bergen Light Rail Line for New Jersey transit (total value $1.67 billion).

Alternative Institutional Arrangements

It is a commonplace observation that many drinking water and clean water utilities are too small to provide the kind of professional management and technical competence that is required in the present regulatory environment. It is also apparent that, because of economies of scale and other reasons, user charges are often dramatically higher for small utilities, as compared to large metropolitan systems. Still, small systems persist, usually for political, jurisdictional, or geographical reasons.

Consolidation of small systems can be accomplished within a governmental ownership structure, perhaps by means of a quasi-corporate, fiscally autonomous management structure (sometimes called "commercializing" the utility). This promotes professional management, reduces unit costs, and facilitates innovation and performance improvement. Local governments can maintain their ultimate control over commercialized utilities through appointments to the governing board and through approval of tariffs.

BARRIERS TO PUBLIC PRIVATE PARTNERSHIPS

State and Federal Subsidies

The Clean Water State Revolving Fund (CWSRF) has become an important source of debt capital to wastewater utilities. However, the CWSRF does not permit borrowings by privately-owned systems for abatement of point source pollution, except in a rare case where private point-sources are cited in the Comprehensive Conservation & Management Plan (CCMP) of a National Estuary Program. To the extent the that CWSRFs offer below-market, or even zero interest rates, this policy creates a substantial subsidy for government-owned wastewater systems.

Several states accompany their SRF programs with other programs that offer grants for specific infrastructure improvements, such as wastewater treatment upgrades. In many cases, privately-owned wastewater facilities are not eligible for subsidies. Whether conveyed through interest rates or outright grants, these subsidies amount to significant barriers to those forms of PPP which involve private ownership of treatment facilities. The Board finds that the rationale for this exclusion is flawed, since rate of return regulation causes all subsidies to flow through to ratepayers, where they are intended to reside.

Legal and Institutional Barriers

Some public sector utilities are bound by state and local statutes or regulations which constrain the contracting process in ways that are inconsistent with PPPs. In particular, there may be term limits on contracts, prohibitions on negotiated contracts, prohibitions on take-or-pay agreements, and no authorization for private parties to collect service fees. These constraints, where present, may require a change in legislation or revised regulations. Many states, in the interest of facilitating PPPs, have undertaken these changes. No survey on this issue was performed in connection with this report, but a 1988 survey performed by EPA found that 19 states had modified legislation in an attempt to eliminate certain contracting barriers. The Board has learned of recent legislative changes in two states (Texas and New Jersey) which have led directly to new PPP initiatives in both states.

Barriers Created by Past Grant Funding

Prior to 1987, many wastewater utilities received substantial grant assistance from the federal government through the Construction Grants Program. As a result, there is an existing federal interest in many wastewater facilities that may be candidates for transfer, through sale or long-term lease, to a private partner. This requires that the PPP agreement be reviewed and approved by EPA. The Board is not aware of any instance in which EPA has failed to approve a proposed

disposition of a grant-funded facility. However, the need to apply for such approval as well as the potential requirement for distributing the proceeds from a sale or lease amounts to a significant perceived barrier to PPPs involving grant-funded facilities.

Public and Political Objections

Proposals to enter into PPPs often face considerable public and political opposition. Some of this reflects unfamiliarity with the new arrangement and skepticism regarding claimed advantages. Some opponents distrust the reliability of private sector arrangements to deliver services as important as drinking water and wastewater management. Others believe that it is the duty of government to provide these services, and that private sector provision is somehow inappropriate. Another concern has to do with the utility's labor force. One effect of most PPPs involving operations and maintenance is that some employees are no longer needed. They may be terminated, or the new operator may reduce staff through attrition. Either way, there is often public and political concern about this effect.

In most cases, though, the issue is simply one of economics: some people assume that the involvement of the private sector will result in higher rates and charges. Obviously, PPPs should not be entertained if their only effect is to increase costs. But public concern remains.

Previously Identified Barriers

A 1991 EFAB report identified twelve possible barriers to PPPs, affecting contracting, financing arrangements, tax liability, and other factors. The 1991 report pointed out the need for legislative changes at federal and state levels and made a number of recommendations for EPA action on certain barriers. As noted above, the Board has not conducted a survey of state and local legislative changes, but is aware of significant changes in some states. With respect to any other EPA or government action that may have been taken subsequent to the Board's 1991 recommendations, it appears that there were some initiatives in the first ten years, mostly directed to utility outreach and to the preparation of various kinds of guidance. Recently, EFAB and EPA have gone on record as supporting an Administration proposal to exempt water projects from state-level caps on Private Activity Bonds (PABs). Overall, however, there is no indication of a comprehensive, coordinated effort at the federal level to lower barriers or to otherwise facilitate PPPs.

REVIEW OF SELECTED PARTNERSHIPS

In order to assess the current industry perception of barriers to PPPs, the Board performed a limited review of the experience of private sector firms presently active in various kinds of partnerships. Seven firms were contacted; five were able to provide substantive responses for a total of eleven variants of PPPs. The information provided by the companies is tabulated in an Appendix to this report.

Some of the noteworthy results of this review include:

- Some operators reported problems with political will or with local concern over job

security for existing employees and others noted protracted, complex negotiations. The most significant barrier mentioned was a Texas statutory prohibition on DB contracts, which required legislative action to overcome.

- Two factors in the success of these contracts were mentioned multiple times: (1) the ability to arrange for comparable jobs for existing employees who would no longer be needed and (2) the proximity of existing operations of the private sector partner. The latter factor may be most important for PPPs in relatively small communities, where the private partner can easily bring to bear technical and management expertise that would normally be unavailable in a small operation.

- Nearly all of the PPPs described by the companies are claimed to provide operational improvements, improved performance, and lower costs. Since these are existing, successful PPPs, these results would be expected, but some of the reported cost savings are surprisingly large (e.g., United Water reported a 30% cost reduction in Indianapolis). In some cases, performance improvement seemed especially noteworthy (e.g., American Water in Buffalo).

In addition to these successful PPPs, the report also takes note of the unsuccessful experience of the City of Atlanta. In that case, a long-term operating contract for the water system was dissolved after less than four years, amid evidence of failed expectations on both sides.

RECOMMENDATIONS

For Action by the U.S. Congress

- Eliminate the state-level caps on public-purpose PABs issued for construction of drinking water and clean water infrastructure.

- Modify or terminate the federal interest in clean water facilities constructed with assistance from the former EPA Construction Grant Program, so that communities are free to consider PPPs in connection with these facilities.

- Make privately-owned, public purpose clean water facilities eligible for loans and grants from the CWSRFs on the same footing as government-owned systems.

For Action by EPA

State and Federal Subsidies

- The Agency should conduct and publish a survey of state and local programs, linked to or separate from the SRFs, that offer grants or other forms of subsidy to government-owned drinking water or clean water agencies, but which deny such assistance to privately owned, public purpose systems.

State-Level Statutory Barriers

- Conduct and publish a survey of existing state statutes which restrict or prohibit various forms of PPPs, either through procurement policies and other means.

- Assist the States in identifying and correcting these restrictions, including the preparation of draft model legislation, similar to the US DOT effort.

- Monitor the results of this initiative.

- The Agency should examine the initiatives undertaken at the US DOT with respect to PPPs as a possible model for federal agency activity in this arena. The Agency should adapt/adopt those activities that would advance the use of such partnerships where beneficial for environmental utilities.

Tax Policy Barriers

- Conduct and publish a survey of existing state and local taxing policy with respect to government-owned vs. investor-owned drinking water and clean water utilities. The survey should address access to state-tax-exempt bond financing, real and personal property taxes, inventory taxes, gross receipts taxes, etc. The purpose of the survey is to identify cases where tax exemptions to government-owned utilities act as hidden subsidies.

- Assist the States in identifying and correcting tax policy distinctions which discourage consideration of some kinds of PPP.

- Monitor the results of this initiative.

Information Barriers

- Continue to disseminate information on PPPs, including case studies which document specific situations in which these arrangements were beneficial to the community. In particular, describe the process of tailoring a PPP to a community's needs, so that it:

    - Is cost-effective

    - Protects the interests of all parties

    - Avoids unacceptable impacts on customers including low income households, and

    - Maximizes gains to the community as a whole.

- Disseminate information on structural reform of government-owned utilities, as an alternative or as an adjunct to PPPs. EPA should encourage state and local initiatives to regionalize water and sewer utilities where cost reductions and operational improvements are likely to result.

Monitoring Progress

- EPA should consider funding an extra-governmental organization to track progress in eliminating barriers to PPPs, at both federal and state levels, and to monitor the results of these changes.

CONCLUSION

PPPs are not the solution to every problem afflicting the delivery of drinking water and clean water services and they are not appropriate in every community or in every situation. However, experience has shown that PPPs can be helpful and beneficial in many cases. Despite this experience, these arrangements are often precluded or restricted by a number of barriers originating in law, regulation, policy, and perception.

The Board has found that the need for wider use of PPPs is well demonstrated, the mechanisms for considering and structuring these arrangements are known, and success stories and model applications are available. What is now required is a strong initiative by EPA to clear barriers and to take other steps needed to facilitate PPPs where they are appropriate. Since many of the barriers exist in legislation and at both state and federal levels, this initiative will require more than programs, guidance, and workshops. It requires committed and sustained leadership by EPA.

I. INTRODUCTION

In 2002, EPA published the widely noted "Gap Analysis," which examined the growing disparity between infrastructure needs and investments in the drinking water and clean water industries.[1] Following a series of "needs" assessments, the Gap Analysis was the first detailed attempt to assess the likelihood of meeting current and future infrastructure needs, given existing financing practices and sources. The Gap Analysis stated, for example, that a continuation of then-current investment rates would result in an expected cumulative twenty-year investment shortfall of $122 billion for clean water, and $102 billion for drinking water (measured in 2001 dollars): $224 billion in total. Given the various sources of uncertainty, the report suggests that the true shortfall could almost double to $444 billion.

While the specific numerical results of the Gap Analysis have been controversial, there is no doubt that the water sector, as a whole, has suffered from substantial underinvestment for some time. In the case of clean water, symptoms include continued reliance on combined sewer systems, problems with combined sewer overflows, and frequent sewage spills--not to mention a long series of consent decrees addressing the worst of these problems. Infrastructure problems in the drinking water industry are less frequently publicized, but probably not less serious. Aging treatment plants, century-plus-old water mains, crumbling structures all add up to a need for major investments to rehabilitate existing facilities plus more major investments to meet future demands.

While there are public sector examples of efficiently managed utilities with adequate, well-maintained facilities, there remains widespread skepticism as to the ability of the bulk of the industry to self-finance needed improvements. This concern has led to a vigorous discussion, still continuing, of available options. Measures have been proposed, including various proposals by EFAB, to strengthen the state Revolving Funds and otherwise increase the borrowing capacity of government-owned utilities. EFAB has also addressed the availability of Private Activity Bonds for investor-owned utilities. EPA and EFAB have strongly advocated full-cost pricing by utilities. But the perception remains that government-owned utilities frequently face capital, management, and/or political constraints which make it difficult to finance needed improvements. Among the remedies proposed for this problem, wider use of PPPs may help enforce full cost pricing in some situations, while offering communities the opportunity to increase efficiency and maintain desired levels of service.

A parallel discussion has taken place with respect to the operating and maintenance costs associated with drinking water and clean water utilities. The Gap Analysis reported that rate-making and budgeting practices observed as of 2001 would, if they continued, result in an expected twenty-year shortfall of $309 billion in operating and maintenance costs. Note that this number is even larger than the capital shortfall estimated in the same report. Consistent, industry-wide application of full cost pricing, as advocated by EPA and EFAB, would erase this gap, but many utilities are very far from this goal.

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1 U.S. EPA, "The Clean Water and Drinking Water Infrastructure Gap Analysis," EPA-816-R-02-020, September 2002.

For these reasons, EFAB has been asked to consider the potential for PPPs to alleviate the chronic funding problems in the drinking water and clean water industries. This report discusses the nature of PPPs, their present role in the industry, and certain barriers or disincentives to wider use of PPPs.

II. PUBLIC PRIVATE PARTNERSHIPS

THE PROVISION OF WATER SERVICES

In every modern urban society, the economy and many aspects of the quality of life depend upon the provision of efficient and adequate infrastructure services. These essential services include transportation, communications, energy, and water-related services. In all cases, and particularly in the case of water, the way in which these services are provided has important implications for the quality of life and of the environment as well as equity and fairness. For all of these reasons, it has always been understood that government has a broad responsibility for insuring appropriate provision of infrastructure services, even if government itself is not the provider in every case.

Since the latter half of the 19th century, water and wastewater services in the U.S. have most often been provided by local government. The public is accustomed to looking to government for safe and adequate drinking water supply, for wastewater services, for insuring that these services are consistently and universally available, and that the cost of providing them is reasonable and fairly allocated. Government is also expected to insure that there is no significant damage to the environment or unnecessary exploitation of natural resources.

To understand government's responsibility, it is helpful to divide these requirements into two categories. The first category consists of water supply and wastewater services provided to individual users. These services are, in the language of economics, ordinary market goods. They can be sold for a price, non-payers can be excluded, and others are not necessarily worse off if some do not purchase the service. Water and wastewater services, as market goods, can be provided by government, as they often are, but they can also be provided just as effectively by the private sector.

The second category of services is qualitatively different. This category includes the quality and safety of drinking water, universal access to services, fair and equitable cost sharing, environmental protections, resource conservation, etc. These are public goods. The benefits extend to all, regardless of who pays for the service, or whether anyone pays. Public goods are distinguished from market goods because they do not lend themselves to private sector provision. There is no incentive for an individual to pay for such services, since they receive them whether or not they pay. Consequently, it is difficult for a for-profit firm, acting on its own, to insure a revenue stream which covers the cost of providing these public goods. The responsibility falls to government, to be exercised by itself or through a PPP.

This report utilizes the following definition of a PPP:

> A public private partnership (PPP) is a contractual, institutional, or other relationship between government and a private sector entity that results in sharing the duties, risks, and rewards of providing a service in which the government has an interest, recognizing that the government retains ultimate responsibility for insuring that social needs and objectives are met.

At the most simplistic level, it may be argued that there is an advantage to pure government provision in that it centralizes responsibility and minimizes the need for regulation, while it can also be argued that the use of the private sector improves efficiency and relieves various constraints associated with the public sector (access to capital, for example). But it is not necessary to choose one side or the other. Private sector firms can be involved in varying degrees, through a wide range of possible PPPs.

Where PPPs are used, government retains the responsibility to regulate private sector partners so that the public goods are preserved. Regulation can take the form of drinking water quality standards, requirements for universal access, regulatory commission or local government oversight of rates and charges, environmental regulations and standards, contractual provisions, etc. Each form of partnership imposes different regulatory requirements and has advantages and disadvantages in specific applications. The following sections describe some of the forms of PPPs that have proven useful in the past.

PUBLIC PRIVATE PARTNERSHIPS IN THE WATER SECTOR

Historical Perspective

The private sector has always had a prominent role in the provision of drinking water in the U.S. In 2005, EPA identified 52,837 community water systems, about half of them classified as private sector providers.[2] A large majority of these private sector providers are very small, often not-for-profit, organizations (community associations, etc.). Considering only the largest water systems, serving at least 100,000 people each, the 2005 survey found 61 private sector providers out of a total of 386 (16 percent) utilities. The private sector providers also account for approximately 16 percent of the 126 million people served by utilities in this category.[3] It is safe to assume that most of these private sector entities are for-profit firms, and that a majority of those are subject to price regulation by state-level public utility commissions.

Some historical perspective can be gained from a survey EPA commissioned in 1982. This survey found 262 utilities serving populations of 100,000 or more, of which 47, or 18 percent, were private.[4] Using the data from this survey, a later calculation concluded that, of the 91 million persons served by these 262 utilities, 14.8 million (16.3 percent) were supplied by private

2 U.S. EPA, "Factoids: Drinking Water and Ground Water Statistics for 2005," downloaded Aug. 6, 2007; "community water systems" provide year-round service to a non-transient population of at least 25 persons, through at least 15 service connections.

3 Calculations taken from Boland, John J., "The Business of Water," *Journal of Water Resources and Management, ASCE*," vol. 133, no. 3, May/June 2007, pp. 189.

4 Temple, Barker & Sloane, Inc., "Final Descriptive Summary: Survey of Operating and Financial Characteristics of Community Water Systems," for U.S. EPA, Washington, D.C., 1982, pp. II-2 and II-3.

utilities.[5]

After allowing for the uncertainties inherent in surveys as well as the likely restructuring of many utilities during the intervening 23 years, it is still possible to conclude that there has been little change in the number or importance of the largest privately-owned and operated drinking water utilities in recent decades. There are many other kinds of PPP, where water service remains a government function but the private sector provides important services. There is no comprehensive list or survey of these arrangements, now or in the past, so it is not possible to say anything about their prevalence.

Comparable statistics could not be located for the clean water industry, but anecdotal evidence suggests that private sector provision is much less common, especially for the larger communities.

Possible Forms of PPPs

As discussed above, PPPs take many forms. Two polar cases are:

- Investor-owned utility.--A drinking water or clean water utility is wholly owned and operated by a for-profit firm; the public sector role is limited to regulation, normally by a state-level public utility commission

- Contract service provision.--A drinking water or clean water utility is wholly owned and managed by a government entity; the private sector role is limited to contract provision of specific services

In the second case, services provided by the private sector partner may range from support functions (e.g., laboratory services) to facility-level activities (e.g., operating a wastewater treatment plant) to contract operation of all facets of the utility.

A 1991 EPA document considered six kinds of participation in service provision:[6]

5 Boland, J.J., "Water/Wastewater Pricing and Financial Practices in the United States," for U.S. AID, Washington, D.C., 1983, p. 1.2.

6 U.S. EPA, "Public Private Partnerships for Environmental Facilities: A Self-Help Guide for Local Governments," 20M-2003, July 1991, p. 4.

	Function
A	Decision to provide services
B	Facility design
C	Financing
D	Construction
E	Ownership
F	Operation and maintenance

Each of these functions can be performed by a government entity or by a private sector entity. The different forms of PPPs are distinguished by different combinations of functions allocated to each partner. Some possibilities are shown on the following list.

- Investor-owned utility: functions A, B, C, D, E, F (often subject to government regulation)
- Design-build (DB): functions B, D
- Design-build-operate (DBO): functions B, D, F
- Design-build-finance-operate (DBFO): functions B, C, D, F
- Build-operate-transfer (BOT): functions C, D, E (until transfer), F (until transfer)
- Developer financing: function C
- Contract utility operation: functions B, C, D, F
- Contract service provision: function F (for part or all of utility O&M)

Other combinations of services are possible, as local needs dictate.

An important characteristic of these partnerships (with the possible exception of some kinds of contract service provision) is that they require a long-term relationship between the public and private sector. In the U.S., contract terms for PPPs may range up to 25 years; in other countries, longer-term contracts have been used.

Overview of Current Status

Public Works Financing publishes an annual summary of the major long-term water PPPs in the U.S. The 2006 summary lists 15 drinking water partnerships, totaling some 850 MGD of

capacity, and 29 clean water partnerships, involving a total of 1,363 MGD of treatment capacity.[7] In most cases, these are contract operation arrangements, with contract terms in the range of 10 to 25 years. A few are DBO or BOT contracts. The largest drinking water partnership is with Seattle, WA, where two treatment plants with a combined capacity of 300 MGD have been constructed and are being operated under DBO arrangements. The largest clean water partnership is with Milwaukee, WI, where 550 MGD of wastewater treatment capacity is under contract operation, under a 10-year contract.

Public Works Financing also reports that the total outsourcing market (defined as contract operation plus DBO fees) has remained relatively constant over the past seven years, fluctuating in the range of $1.5 to $1.9 billion per year.[8]

PUBLIC PRIVATE PARTNERSHIPS IN THE TRANSPORTATION SECTOR

A similar crisis in infrastructure investment has been noted for the transportation sector.[9] In response to this problem, the U.S. Department of Transportation (US DOT) has become an active proponent of innovative funding mechanisms, especially PPPs, to enhance the availability of funds and the capability for project execution.

Unlike the water industry, the public highway component of the transportation sector has no significant history of private sector infrastructure provision, or of PPPs. Other activities within the sector--such as rail, air, river crossings, and water transportation--have had varying degrees of private sector involvement. As concerns have arisen regarding infrastructure needs and the perceived limitations of the ability of governments to secure adequate financing, proposals for increased use of PPPs have appeared.

Highway transportation planning, funding, and construction are handled primarily by state departments of transportation. State user fees, in the form of gasoline taxes and motor vehicle registration fees, are the primary sources of funds, with additional support from the Federal-Aid Highways program of the Federal Highway Administration (FHWA). Transportation facilities for other modes such as airports and seaports have a strong history of self-support through user fees. Mass transit obtains revenue from user fees, but is substantially subsidized by state and federal grants.

PPP Initiatives by US DOT

Despite its well-established role in supporting highway and transit maintenance and improvements, the US DOT actively promotes PPPs as a source of funding and as an alternative means of project delivery. The most recent federal funding authorization, SAFETEA-LU[10], provided for, among other things, $15 billion in Private Activity Bond allocations for highway

7 "PWF's 11th Annual Water Outsourcing Report," *Public Works Financing*, Vol. 214, March 2007, p. 10.

8 *Ibid.*, p 4.

9 Testimony of Assistant Transportation Secretary Tyler Duvall before House Committee on Transportation and Infrastructure, February 13, 2007.

10 SAFETEA-LU is the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, signed into law on August 10, 2005.

projects, as well as authority to implement tolls on some interstate highway projects. The FHWA has also developed model legislation that states may use to authorize and encourage PPP transportation projects.[11] Previously, under TIFIA,[12] FHWA established a program for providing federal loans and guarantees as a means to encourage private investment in transportation projects. Also, DOT has established a website in order to provide access to various PPP-related resources.[13]

The DOT PPP website was created "for the transportation community in response to the growing interest in capitalizing on new forms of partnerships between the public and private sectors to plan, finance, build and operate the nation's transportation infrastructure." The website provides information from a variety of sources on a broad array of transportation PPPs. The website has links to other websites, informational resources including case studies, a glossary and a calendar of events.

FHWA has created a User Guidebook on Implementing Public-Private Partnerships for Transportation Infrastructure Projects in the United States that was published July 2007 and is available from the website. In preparing model PPP legislation, FWHA included an overview of the 28 key elements for PPP enabling legislation for highway projects, together with an explanation of their importance and sample provision text for each of the elements.

FHWA has also taken action to reduce impediments to the use of PPP procurement that result from federal regulation. The first, Special Experimental Project Number 15 or SEP-15 derives from section 502 of title 23, and it allows the Secretary to waive the requirements of title 23 and the regulations under title 23 on a case-by-case basis. SEP-15 allows FHWA to experiment in four major areas of project delivery - contracting, right-of-way acquisition, project finance, and compliance with the FHWA's National Environmental Policy Act (NEPA) process and other environmental requirements. While FHWA has long encouraged increased private sector participation in federal-aid projects, SEP-15 allows FHWA to actively explore much needed changes in the way it approaches the oversight and delivery of highway projects to further the Administration's goals of reducing congestion and preserving our transportation infrastructure.

The second initiative is increased access to tax-exempt financing. Section 11143 of Title XI of SAFETEA-LU amends Section 142 of the Internal Revenue Code to add highway and freight transfer facilities to the types of privately developed and operated projects for which Private Activity Bonds may be issued. This change allows private activity on these types of projects, while maintaining the tax-exempt status of the bonds. The law limits the total amount of such bonds to $15 billion and directs the Secretary of Transportation to allocate this amount among qualified facilities. The $15 billion in exempt facility bonds is not subject to the state volume caps. Providing private developers and operators with access to tax-exempt interest rates lowers the cost of capital significantly, enhancing investment prospects.

While not technically part of its PPP initiative, the FHWA has created a federal credit program

11 See: <http://www.fhwa.dot.gov/PPP/legislation.htm>
12 The Transportation Infrastructure Finance and Innovation Act of 1998.
13 <http://www.fhwa.dot.gov/ppp>

under TIFIA whereby DOT may provide three forms of credit assistance – secured (direct) loans, loan guarantees, and standby lines of credit. The program's fundamental goal is to leverage federal funds by attracting substantial private and other non-federal co-investment in critical improvements to the nation's surface transportation system. The DOT awards credit assistance to eligible applicants, which include state departments of transportation, transit operators, special authorities, local governments, and private entities. The program has awarded over $3.66 billion in assistance to projects that had total investments of over $15 billion.

Status of PPPs in the Transportation Sector

Even as the US DOT initiatives have encouraged some projects to move forward with a PPP structure, individual states had already begun to make use of design-build (DB) arrangements with private firms. These contracts integrate design and construction functions, often in a way that sets performance standards for the private partner, but allows considerable latitude to minimize costs. The projects are turned over to the government on completion. These arrangements are sometimes labeled "turn-key" projects. Some partnerships call upon the private partner to arrange financing (DBF), and others are DBO or BOT contracts.

It is worth noting that, prior to the US DOT initiatives, many states lacked legislative authority for PPPs involving highway projects. The US DOT PPP website, as of October 2007, reports that 21 states and one U.S. territory have since enacted statutes that enable the use of PPP arrangements for transportation infrastructure.

As of the end of 2006, the largest PPPs in the highway transportation field are the 75-year leased operation of the Indiana Toll Road (valued at $3.85 billion) and the 99-year leased operation of the Chicago Skyway (valued at $1.83 billion).[14] In each of these instances, the government entered into a concession agreement for which it received an up-front payment. Over the course of the concession, the private party must operate, improve, and maintain the project. In turn, it has the right to receive the toll revenues under a regime that is generally regulated by consumer price index or gross national product deflator increases.

Partnerships have also been reported for the rail transit sector. New Jersey Transit has developed the Hudson-Bergen Light Rail line using contracted design and construction, contracted equipment supply, and contracted O&M (total value $1.67 billion).[15] Meanwhile, the U.S. Federal Transit Administration (FTA) announced a PPP Pilot Program in January 2007 with the purpose of promoting, funding and studying transit PPPs, to highlight advantages and disadvantages. The initiative contemplates the selection of up to three projects with "high demonstration value" for the pilot program. Projects selected may be eligible for "New Starts" funding and other benefits, depending on the specific scheme. It is interesting to note that the FTA program contemplates a possible need to alter state and local legislation in order to permit some projects.

14 "U.S. and Canadian Transportation Projects Scorecard," *Public Works Financing*, Vol. 214, March 2007, p. 14.
15 *Ibid.*

ALTERNATIVE INSTITUTIONAL ARRANGEMENTS

It is a commonplace observation that many drinking water and clean water utilities are too small to provide the kind of professional management and technical competence that is required in the present regulatory environment. It is also apparent that, because of economies of scale and other reasons, user charges are often dramatically higher for small utilities, as compared to large metropolitan systems. Still, small systems persist, usually for political, jurisdictional, or geographical reasons. Consolidation of small systems can be accomplished within a governmental ownership structure, but it requires moving operating responsibility to either a higher level of government or to a special-purpose government corporation (authority, management district, commission, etc.).

The latter alternative involves creating a quasi-corporate management structure and requiring fiscal autonomy (sometimes called "commercializing" the utility). This promotes professional management and facilitates innovation and performance improvement. Local governments can maintain their ultimate control over commercialized utilities through appointments to the governing board and through approval of tariffs. Otherwise, the utility is free to operate much like a private sector firm, answering to its owners (governments) for performance and efficiency, not for day-to-day actions. A further advantage is that larger, professionally managed utilities are much better prospects for beneficial PPPs. Compared to smaller utilities embedded in local government, the high transaction costs and political interferences associated with partnerships are expected to be minimal.

III. BARRIERS TO PUBLIC PRIVATE PARTNERSHIPS

While PPPs are not advisable or beneficial in every situation, proponents often argue that these arrangements are sometimes not even considered in cases where they may be helpful. The failure to consider a PPP may be due to real or perceived barriers, leading to a belief on the part of the public agency that no effective partnership with a private entity will be possible. Some of the possible barriers are discussed in general terms in this section.

STATE AND FEDERAL SUBSIDIES

The Drinking Water and Clean Water State Revolving Funds (DWSRF and CWSRF) have become important sources of debt capital to the water industry. The DWSRF makes no distinction between government and investor ownership. However, the CWSRF does not permit borrowings by privately-owned systems for abatement of point source pollution, except in a rare case where private point-sources are cited in the Comprehensive Conservation & Management Plan (CCMP) of a National Estuary Program. To the extent the that CWSRFs offer below-market, or even zero interest rates, this policy creates a substantial subsidy for government-owned wastewater systems.

Several states accompany their SRF programs with other programs that offer grants for specific infrastructure improvements, such as wastewater treatment upgrades. In many cases, privately-owned facilities are not eligible for these programs. This may be a matter of policy, or it may

result from the use of tax-exempt bond proceeds. Whether conveyed through interest rates or outright grants, current subsidy policy creates a significant barrier to those forms of PPP which involve private ownership of treatment facilities.

It is believed that the reason for this provision in the CWSRF was a desire to avoid using public funds to subsidize private enterprises. But if the wastewater utility is subject to state-level rate regulation, this problem does not arise. Conventional rate-of-return regulation requires that grants and interest subsidies flow through directly to rate payers. The private firm is only permitted to earn a return on its own funds invested in the utility. Thus the prohibitions serve no discernable purpose, while potentially making it more difficult to achieve affordability. Current policy is particularly problematic in hardship cases, where grants intended for such cases are denied to low-income communities because of the ownership of the wastewater utility.

LEGAL AND INSTITUTIONAL BARRIERS

Contracting

Most types of PPPs require a complex, long term contractual relationship between the public and private partners. Competing bids for PPPs often differ in important ways, preventing evaluation on the basis of price alone. In many cases, especially where capital investments are required, private sector partners may require contract terms of 10, 20, or more years. The longer the contract term, the more important it is to provide a means of renegotiating specific contract provisions to reflect unexpected changes in costs or other parameters. These renegotiations cannot, in most cases, be competitively bid without doing harm to the underlying contract.

Some public sector utilities are bound by state and local statutes or regulations which constrain the contracting process in ways that are inconsistent with PPPs. In particular, there may be term limits on contracts, prohibitions on negotiated contracts, prohibitions on take-or-pay agreements, and no authorization for private parties to collect service fees. These constraints, where present, may require a change in legislation or revised regulations. Some states, in the interest of facilitating PPPs, have undertaken these changes. Many have not. No survey on this issue was performed in connection with this report, but an earlier survey performed by EPA found that 19 states had enacted "comprehensive privatization statutes" intended to eliminate many kinds of contracting barriers.[16] The Board has learned of recent legislative changes in two states (Texas and New Jersey) which have led directly to new PPP initiatives in both states.

Depending on the form of PPP contemplated, other legislative barriers may exist in the form of public utility laws, partnership laws, and tax codes. The exact situation is specific to every state and application. The Board has conducted no survey on this subject and is not aware of any survey conducted by others.

16 U.S. EPA, "Public-Private Partnerships for Environmental Services: Anatomy, Incentives, and Impediments," Office of the Comptroller, Washington, DC, 1988.

Contract Negotiation

The need to provide for the lowest cost provision of public services, and to do so while respecting the interests of both private and public partners, results in complex contracts which must usually be negotiated between the parties. Because of the nature of the services being provided, the term of the contract, and the complexity of the agreement, very few government agencies first contemplating a PPP possess in-house competence on all aspects of the contract negotiation. This is particularly true where the PPP includes a financing role for the private partner. In this case, it is necessary for the public partner to secure competent, experienced, and independent advice. Accordingly, the contract negotiation process itself may appear to be a barrier to some utilities.

Level and Size of Relevant Governments

In 2005, more than 150 million people were served by drinking water utilities in service areas with less than 100,000 population.[17] Private firms wishing to form partnerships with any utility must face the prospect of interfacing and potentially negotiating with government agencies at the federal, state, regional, and local level. In some places, government may be as much as five levels deep. A PPP may require approval at several levels, may be regulated at one or more levels, and is likely subject to often-conflicting political forces at all levels.

These facts impose significant transaction costs on the private partner, irrespective of the size of the resulting contract. For large utilities, or for utilities serving multiple jurisdictions, the potential benefit to the private firm may outweigh the transactions costs. But if the utility is small and/or is situated at the lowest level of government, there may be little incentive for any partnership more complex than simple operating or design-build contracts. Yet it is often these small utilities that can benefit the most from the financial, technical, and operating expertise of an experienced private firm.

Federal and State Tax Policy

Although there is a long history of investor ownership of water utilities, the tax treatment of these entities continues to differ markedly from the tax treatment of otherwise identical government-owned utilities. While the details differ from state to state, and sometimes from community to community, the general situation is that investor-owned utilities pay at least some taxes that do not apply to government-owned utilities. These include real- and personal-property taxes, gross receipts taxes, franchise taxes, etc. The tax treatment of bond interest is a related issue, where interest paid on government-issued bonds is exempt from federal income tax and may be exempt from state income tax. The effect of this unequal treatment has long been recognized as provided a significant hidden subsidy to government ownership.[18]

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17 U.S. EPA, "Factoids: Drinking Water and Ground Water Statistics for 2005," p.2.

18 Gardner, B. Delworth, "The Efficiency of For-Profit Water Companies Versus Public Companies," *Water Resources Update*, No. 117 (October 2000), pp.34-39.

BARRIERS CREATED BY PAST GRANT FUNDING

Prior to 1987, many wastewater utilities received substantial grant assistance from the federal government through the Construction Grants Program. As a result, there is an existing federal interest in many wastewater facilities that may be candidates for transfer, through sale or long-term lease, to a private partner. In 1992, Executive Order 12803 was issued to simplify requirements related to such disposition. However, under the terms of that Order, whenever non-operational revenues are received by the original federal grantee as a result of the transfer, the PPP agreement must be reviewed and approved by EPA. The approval, which ends the federal interest in the asset, is contingent on an approved distribution of the proceeds of the sale or lease between grantee, state or local government, and the federal government. The federal government receives any residual revenues, after other parties have recovered their costs.

The Board is not aware of any instance in which EPA has failed to approve a proposed disposition of a grant-funded facility. However, the need to apply for such approval as well as the potential requirement for distributing the proceeds from a sale or lease amounts to a significant perceived barrier to PPPs involving grant-funded facilities.

PUBLIC AND POLITICAL OBJECTIONS TO PRIVATE SECTOR PARTICIPATION

While many advantages can be claimed for properly constructed PPPs (operating economies, improved access to capital, increased technical competence, long-term sustainability, etc.), there are a number of reasons to be cautious about these arrangements.[19] In the case of full privatization (where the private sector partner acquires full operating and rate-making authority), these reasons include the loss of certain hidden subsidies to public sector operations. Examples of these subsidies are exemptions from many taxes, access to capital through tax-exempt bonds, and the use of costless retained earnings in place of equity capital. Other issues associated with full privatization have to do with the opportunity for monopoly pricing, possible loss of control over system expansion policies, and the loss of various public goods (such as providing affordable service to low income households). These latter issues can be addressed through regulation, but regulation itself is costly and results in higher tariff levels.

Other forms of PPPs present few, if any, such concerns. In these cases, the major issue is whether the private sector partner can perform its assigned function(s) effectively and at a lower cost than the former government entity. Or, in some cases, the private partner may be able to deliver a service that the public partner cannot, such as increased access to capital. The public partner remains in control of all major policies, including rate-making.

Still, proposals to enter into PPPs often face considerable public and political opposition. Some of this reflects unfamiliarity with the new arrangement and skepticism regarding claimed advantages. Some opponents distrust the reliability of private sector arrangements to deliver services as important as drinking water and wastewater management. Others believe that it is the duty of government to provide these services, and that private sector provision is somehow inappropriate. Another concern has to do with the utility's labor force. One effect of most PPPs

19 Portions of this section are based on Boland, John J., "The Business of Water."

involving operations and maintenance is that some employees are no longer needed. They may be terminated, or the new operator may reduce staff through attrition. Either way, there is often public and political concern about this effect.

In most cases, though, the issue is simply one of economics: some people assume that the involvement of the private sector will result in higher rates and charges. Obviously, PPPs should not be entertained if their only effect is to increase costs. But public concern remains.

The concern about rates and charges is particularly hard to address in circumstances where rates are rising in any case. If the PPP produces significant efficiencies and still results in higher rates in the future, it is hard to argue that rates would have been even higher in the absence of the PPP.

Regardless of the specific issues, the prospect of public and political opposition to a PPP appears to many public agencies to be a significant barrier. In fact, few agencies will risk this kind of reaction unless the cost and operational advantages are relatively large. On the other hand, some kinds of limited PPP will produce little or no public reaction. These include most kinds of simple outsourcing which have little impact on the required labor force. But the dilemma here is that it is exactly the PPP proposals which promise the greatest cost savings that have the largest impact on the labor force (cost is reduced by reducing staff).

PREVIOUSLY IDENTIFIED BARRIERS

In 1991, EFAB reviewed the status of PPPs in the water industry, identifying a number of barriers to wider application.[20] These barriers, along with EFAB's earlier recommendations, are summarized in the following table.

20 U.S. EPA, "Private Sector Participation in the Provision of Environmental Services: Barriers and Incentives," advisory report by the Environmental Financial Advisory Board, November 25, 1991.

Barriers in 1991	Perceived Obstacles to Forming PPPs	EFAB Recommendations	Changes/Activities
Federal policies and regulations	● Federal tax laws impact cost of capital for construction of facilities. Regulations on federal grant programs restrict profitability or availability of financing. ● State-level caps of Private Activity Bonds (PABs) may discourage use of private sector capital	● Demonstration programs. ● Awards programs by EPA. ● Funding such as federal appropriations, corporate funding, and non-federal source funding. ● EPA assistance such as seminars, publications, and direct consultation on projects. ● Consistent support for relaxing or lifting caps of PABs issued for environmental or water/ wastewater purposes	● 3 pilot projects 1991-1995 ● Publications, including guidance n EO 12803 on privatization ● Funding of 2 PPP seminars by National Council for Public-Private Partnerships ● EPA supports provision in President's FY08 Budget proposal which would lift PAB caps for water/wastewater projects
User fees below the cost of service	● Private investors are less likely to invest in facilities operating at a loss. Causes hesitation to commit long-term and depend on annual budget appropriation for price subsidies.	● Promote a greater public awareness of cost of services. ● EPA could endorse the practice in EPA publications and operational guidance. ● EPA could help localities implement full-cost pricing by providing assistance to set up cost-accounting procedures and establish volume discounts/rebates for commercial on-site treatment. ● EPA could provide technical support for public outreach and information programs that explain benefits of full-cost pricing. ● EPA could help guide States to review adequacy of the fees during permit process.	● "Full cost pricing" has become on of EPA's Four Pillars of Sustainable Infrastructure ● EPA endorses setting rates at the full value of service provided in all testimony, speeches, and presentations ● EPA is working with industry partners to develop tools and techniques to assist utilities recover long-term, full cost of service ● EPA plans workshops in 2008 on cost allocation and rate design

Barriers in 1991	Perceived Obstacles to Forming PPPs	EFAB Recommendations	Changes/Activities
State and local procurement practices	● Certain procurement practices can limit flexibility in design, financing, operations or providing services. ● Procurement laws may require selection of the lowest cost bidder, eliminating competition on basis of best service or innovative technology. ● Some states prohibit local government from entering into long term contracts. ● Limits flexibility of industry to seek cost-effective means of complying with environmental quality standards.	● EPA could provide guidance to states that consider revision of procurement laws to adopt ABA Model Procurement Code and Ordinance. ● EPA could provide guidance to states and localities on legislation that authorizes long-term contracts when practical. ● EPA could develop “best practice” guidance on long term service contracts.	● No significant EPA action ● Some states (e.g., NJ, TX) have passed legislation liberalizing procurement laws to facilitate PPPs ● U.S. Conference of Mayors has developed "best practice" guide to long-term service contracts

Barriers in 1991	Perceived Obstacles to Forming PPPs	EFAB Recommendations	Changes/Activities
Investment Risk	● Lenders are reluctant to invest due to potential low return for risks involved. Risks can include limited availability of adequate liability insurance, environmental liability, and lack of adequate information on the true level of risks. ● Laws subjecting contracts to annual re-approval and appropriation of funds exposes contractions to early termination risk before investments are amortized.	● EPA could help lenders/investors evaluate real risks by detailing information about the different types of risk and activities from which they derive. ● EPA could provide assistance to develop "risk ratings" from an independent organization. ● EPA could reduce magnitude of liabilities, such as risk-pooling through insurance programs. ● EPA could endorse and facilitate new programs to offer environmental liability insurance to capital lenders and provider of services. ● AIG could propose privately funded alternatives to government involvement in liability insurance. ● Consider having private insurers act as third-party regulators and police use of sites they insure.	● No significant EPA activity

Barriers in 1991	Perceived Obstacles to Forming PPPs	EFAB Recommendations	Changes/Activities
Federal grants	● Private firms have to consider grant repayments for grant-funded facilities which lead to potentially high rate increases. ● The definition of public ownership and SRF regulations results in preventing public entities who are seeking SRF loans from combining existing public owned portions of a facility with privately owned ones. ● Financing options under the Title II construction grants are limited by restrictions in what is used as collateral to secure refinancing.	● Evaluate case by case waivers to federal statues and grant regulations. ● EPA could permit waivers from grant regulations to redefine public ownership. ● Consider allowing the federal repayment requirement for facilities to be reinvestment in EPA approved WWT projects. ● Redefining the period of federal interest and the period for which plants are needed equivalent to the design life of facility. ● Define concept of acceptable encumbrance for the facility.	● EPA issued draft guidance on 2000 to guide utilities through encumbrance of title and grant repayment issues ● EPA currently revising the draft guidance to be less burdensome and more flexible

The table reflects one recent activity worthy of note, under the first heading, "Federal policies and regulations." This concerns Private Activity Bonds (PABs) which could conceivably provide a source of low-cost capital to the water industry. PABs were authorized by the 1986 Tax Reform Act for the purpose of creating tax exempt status for certain public purpose bonds issued by private sector firms. Unfortunately, state-level caps on the total amount of such bonds have effectively marginalized PABs as a source of capital for the water sector. The Board has consistently advocated, beginning in 1991, the liberalization or the lifting of these caps with respect to environmental or water projects.[21] Early in 2007, with the full support of the Board, EPA endorsed the President's proposal for exempting PABs intended to finance water and wastewater facilities from the unified state volume caps. As of October 2007, Congress has taken no action on this proposal.

Another prior recommendation that has received recent attention pertains to the need for full-cost pricing by local utilities. This is an issue that goes beyond the present PPP discussion, since it pertains to the fiscal sustainability of the entire industry. However, full cost pricing is often cited as a beneficial outcome of some kinds of PPPs. Since 2003, when full-cost pricing was incorporated into EPA's Four Pillars of Sustainable Infrastructure, it has figured prominently in EPA policy statements and initiatives.

State and local procurement policies have been another area of concern. The prior EFAB report pointed to state and local laws and regulations that restricted DBO and DFBO arrangements and that limited the ability of jurisdictions to enter into long-term operating contracts. The Board has not conducted a survey of the present status of state and local policies, but we are aware of significant changes in legislation in New Jersey and Texas, both of which led to new PPPs that would not have been possible before the changes.

With respect to any other EPA or government action that may have been taken subsequent to the Board's 1991 recommendations, it appears that there were some initiatives in the first ten years, mostly directed to utility outreach and to the preparation of various kinds of guidance. There is no indication of a comprehensive, coordinated effort to lower barriers or to facilitate PPPs.

IV. EFAB REVIEW OF SELECTED PARTNERSHIPS

2007 REVIEW

In order to assess the current industry perception of barriers to PPPs, the Board performed a limited review of the experience of private sector firms presently active in various kinds of partnerships. Seven firms were contacted; five were able to provide substantive responses for a total of eleven variants of PPPs. The information provided by the companies is tabulated in an

21 Environmental Financial Advisory Board, "Incentives for Environmental Investment: Changing Behavior and Building Capital," U.S. Environmental Protection Agency, Washington, D.C., August 9, 1991; Environmental Financial Advisory Board, "Recommendations and Final Report on Financing Opportunities for the Clean Water Action Plan," U.S. Environmental Protection Agency, Washington, D.C., July 1999; Environmental Financial Advisory Board, "Private Sector Initiatives to Improve Efficiencies in Providing Public-Purpose Environmental Services," U.S. Environmental Protection Agency, Washington, D.C., June 2001.

Appendix to this report.

Some of the noteworthy results of this review are summarized here:

- Of the eleven examples given, three were DBO contracts and two were long-term operating concessions. The others were various arrangements for full or partial operating services.

- Most contracting arrangements were competitive in nature, although some were simple sole source negotiations, or negotiations following a competitive qualification review.

- Some operators reported problems with political will or with local concern over job security for existing employees and others noted protracted, complex negotiations. The most significant barrier mentioned was a Texas statutory prohibition on DB contracts, which required legislative action to overcome.

- Two factors in the success of these contracts were mentioned multiple times: (1) the ability to arrange for comparable jobs for existing employees who would no longer be needed and (2) the proximity of existing operations of the private sector partner. The latter factor may be most important for PPPs in relatively small communities, where the private partner can easily bring to bear technical and management expertise that would normally be unavailable in a small operation.

- Nearly all of the PPPs described by the companies are claimed to provide operational improvements, improved performance, and lower costs. Since these are existing, successful PPPs, these results would be expected, but some of the reported cost savings are surprisingly large (e.g., United Water reported a 30% cost reduction in Indianapolis). In some cases, performance improvement seemed especially noteworthy (e.g., American Water in Buffalo).

- In terms of lessons learned, there were comments about the need to maintain momentum in the contracting process; the need to provide escalators for fuel, materials, and labor costs in long-term contracts; the need to resolve uncertainties regarding existing employees; and the need to go into the negotiation process with a clear understanding of existing work rules. However, the strongest messages in this category came from United Water and referred to their Indianapolis and Jersey City contracts. In both cases, it was noted that the contracting process had been smooth and professional, and that these partnerships could serve as a model for other similar situations.

It should be noted that EFAB's review was limited to the experience of the private sector providers of utility services; it did not solicit the opinions of the communities who used those services. But a recent study by R.W. Beck did seek the opinions of government-owned utilities serving populations 100,000 or more.[22] Of those responding (53% completed telephone interviews), 79% had used some form of private sector service delivery, such as DB and DBO

22 R.W. Beck, "Alternative Project Delivery Survey of Water and Wastewater Utilities," 2006.

contracts. Most important, 96% of those utilities that had used these forms of PPP reported that they would do so again. Among the advantages cited were time savings, fewer construction problems, innovative designs, cost savings, and increased staff competency.

CITY OF ATLANTA EXPERIENCE

In 1999, the City of Atlanta, Georgia, entered into a 20-year agreement with United Water Services for the operation of the City's water system. Less than four years later, the Company and the City agreed to dissolve the contract. A joint press release stated that the contract was not "in the best interests of either party."[23] Other press reports at the time indicated that both the City and the Company had very serious claims against each other.[24] This negative experience confirms many of the lessons learned from the positive experiences summarized in the Appendix to this report. Successful PPPs require careful planning, continuing political will, and must clearly serve the interests of both parties.

V. RECOMMENDATIONS

FOR ACTION BY THE U.S. CONGRESS

- Eliminate the state-level caps on public-purpose PABs issued for construction of drinking water and clean water infrastructure.

- Modify or terminate the federal interest in clean water facilities constructed with assistance from the former EPA Construction Grant Program, so the communities are free to consider PPPs in connection with these facilities.

- Make privately-owned, public purpose clean water facilities eligible for loans and grants from the CWSRFs on the same footing as government-owned systems. This change recognizes that utility regulation results in all subsidies flowing through to ratepayers. But it should be noted that some states may continue to limit such subsidies.

FOR ACTION BY EPA

State-Level Statutory Barriers

- Conduct and publish a survey of existing state statutes which restrict or prohibit various forms of PPPs, either through procurement policies and other means.

- Assist the States in identifying and correcting these restrictions, including the preparation of draft model legislation, similar to the US DOT effort.

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23 The joint press release can be found at <http://www.unitedwater.com/pr012403.htm>.

24 For an account of the City's case, see <http://www.bizjournals.com/atlanta/stories/2002/08/12/story1.html>. A different perspective on this dispute can be found in Geoffrey Segal, "What Can We Learn From Atlanta's Water Privatization," Georgia Public Policy Foundation, January 21, 2003 <http://www.reason.org/commentaries/segal_20030121.shtml>.

- Monitor the results of this initiative.

- The Agency should examine the initiatives undertaken at the US DOT with respect to PPPs as a possible model for federal agency activity in this arena. The Agency should adapt/adopt those activities that would advance the use of such partnerships where beneficial for environmental utilities.

State-Level Subsidies

- The Agency should conduct and publish a survey of state and local programs, linked to or separate from the SRFs, that offer grants or other forms of subsidy to government-owned drinking water or clean water agencies, but which deny such assistance to privately owned, public purpose systems.

Tax Policy Barriers

- Conduct and publish a survey of existing state and local taxing policy with respect to government-owned vs. investor-owned drinking water and clean water utilities. The survey should address access to state-tax-exempt bond financing, real and personal property taxes, inventory taxes, gross receipts taxes, etc. The purpose of the survey is to identify cases where tax exemptions to government-owned utilities act as hidden subsidies.

- Assist the States in identifying and correcting tax policy distinctions which discourage consideration of some kinds of PPP.

- Monitor the results of this initiative.

Information Barriers

- Continue to disseminate information on PPPs, including case studies which document specific situations in which these arrangements were beneficial to the community. In particular, describe the process of tailoring a PPP to a community's needs, so that it:

    - Is cost-effective

    - Protects the interests of all parties

    - Avoids unacceptable impacts on customers including low income households, and

    - Maximizes gains to the community as a whole.

- Disseminate information on structural reform of government-owned utilities, as an alternative or as an adjunct to PPPs. EPA should encourage state and local initiatives to regionalize water and sewer utilities where cost reductions and operational improvements are likely to result.

Monitoring Progress

- EPA should consider funding an extra-governmental organization to track progress in eliminating barriers to PPPs, at both federal and state levels, and to monitor the results of these changes.

VI. CONCLUSION

PPPs are not the solution to every problem afflicting the delivery of drinking water and clean water services and they are not appropriate in every community or in every situation. However, experience has shown that PPPs can be helpful and beneficial in many cases. Despite this experience, these arrangements are often precluded or restricted by a number of barriers originating in law, regulation, policy, and perception.

The Board has found that the need for wider use of PPPs is well demonstrated, the mechanisms for considering and structuring these arrangements are known, and success stories and model applications are available. What is now required is a strong initiative by EPA to clear barriers and to take other steps needed to facilitate PPPs where they are appropriate. Since many of the barriers exist in legislation and at both state and federal levels, this initiative will require more than programs, guidance, and workshops. It requires committed and sustained leadership by EPA.

APPENDIX

2007 EFAB REVIEW OF SELECTED PARTNERSHIPS

Private Sector Partner	American States Water Company
Role in PPP	All of the PPP's in which American States Water Company and its affiliates, hereinafter, collectively referred to as AWR, have engaged have resulted in AWR being the service provider or operator if you will. In each case, the PPP's have not involved operation of a WTR or WWTP but rather the provision of full service O&M of water systems or partial O&M services.
Site name, location (city, state) and type of plant (WTP, WWTP)	See response above.
Type of PPP and specific PPP role of each party	AWR, the O&M operator, provided a wide variety of services for a number of municipalities including meter reading, billing, customer service, or a combination of some or all of the previous functions; as well as total O&M functions.
Requirements for bid participation	In each case, the PPP's listed above were open competition for all qualified participants.
Major obstacles that delayed the bidding-stage process and how they were overcome	In as much as AWR's involvement in PPP's has largely resulted from bids placed by a municipality or other agency, AWR was not informed about potential or real obstacles in the bidding-stage. However, there is significant concern relating to political will and about the lack of full disclosure of information that made certain aspects of the process cumbersome or, worse, incomplete.
Major obstacles that delayed the contract-negotiations process and how they were overcome	It is fair to say that the most significant obstacle faced by AWR was the political will (described above) to consummate a transaction. In addition, AWR could list the following: (i) level of technical sophistication of parties; and (ii) hidden agendas; (iii) lack of meaningful time set aside to engage in potentially beneficial negotiations.
Factors that helped make this PPP a success	The main factor is trust by the governmental authority in the ability of the utility to perform the function(s) of the PPP for the price and terms negotiated.
Benefits to public and private sectors	It goes without saying – efficient provision of O&M services at a price acceptable to all parties.
What, if anything, would you have done differently?	Realistically, there are a number of pointed items that AWR may have done differently. The key item, however, is to keep the process continuous and not fall prey to diversions or "other things that come up."
What is the single, most compelling reason you would offer a city to consider a PPP?	The efficient provision of full or partial O&M services at a price fair to all parties.

Private Sector Partner	Connecticut Water Company - I
Role in PPP	Middlebury Water System
Site name, location (city, state) and type of plant (WTP, WWTP)	Middlebury, CT, distribution system with pump station
Type of PPP and specific PPP role of each party	The Town of Middlebury established a water system in the mid-1990's to serve an area of contaminated wells. The initial construction of the system was paid for by the polluter. The distribution system was expanded through access to various state grants to serve other areas. The source of water was an interconnection with a neighboring city. Middlebury purchased water from the city and took on a portion of the city's debt service for construction of its water treatment plant under an agreement between the two parties. Connecticut Water, through it's unregulated subsidiary New England Water Utilities Services, had been providing fulltime contract operations, customer service and billing services to Middlebury since the system's inception. The neighboring city became involved in a lawsuit over its water supply. In turn the continued availability of water to Middlebury to supply its needs became uncertain. The Connecticut Water Company (CWC) had a water system.
Requirements for bid participation	No bid. This was a unique situation brought about by the proximity of the water systems and the availability of supply.
Major obstacles that delayed the bidding-stage process and how they were overcome	This was a complicated deal that required months of study by the Town and Middlebury and negotiation with CWC
Major obstacles that delayed the contract-negotiations process and how they were overcome	See previous response.
Factors that helped make this PPP a success	The proximity of CWC's water system with available supply and the willingness of the Town and CWC to forge a mutually beneficial partnership.
Benefits to public and private sectors	The Connecticut Water Company was able to add several hundred customers in an area with substantial growth potential. Much of that growth continues to be paid for through the Town's access to grant funds. The Town of Middlebury was able to achieve its plans for growth and provide water supply to areas of contamination or deficient supply while relieving itself of its financial obligations to the neighboring city. The Town also avoided the customer service/meter reading/billing/collection costs of running its own water system.
What, if anything, would you have done differently?	Nothing.
What is the single, most compelling reason you would offer a city to consider a PPP?	In this situation the Town of Middlebury was faced with creating its own water department. Instead it was able to access the personnel, equipment and expertise of a neighboring utility without increasing the costs to the Town or ratepayers.

Private Sector Partner	Connecticut Water Company - II
Role in PPP	Operations, Management and Maintenance Agreement between The University of Connecticut and New England Water Utility Services. New England Water Utility Services operates, manages and maintains the public water systems owned by the University of Connecticut.
Site name, location (city, state) and type of plant (WTP, WWTP)	Site Name: University of Connecticut Main Campus and Depot Campus Location: Storrs, CT Type of Plant: Public Water Systems including wells, disinfection and corrosion control treatment, and distribution systems.
Type of PPP and specific PPP role of each party	Operation, maintenance and management services provided by New England Water Utility Services, Inc for water systems owner, The University of Connecticut.
Requirements for bid participation	Request for Qualifications, followed by Request for Technical Proposals, which included a price proposal, from all qualifying firms. Upon selection of a firm's Proposal, that firm negotiated a Contract with the University.
Major obstacles that delayed the bidding-stage process and how they were overcome	The bidding-stage was delayed approximately 3 months. We were not aware of any major obstacles that had to be overcome.
Major obstacles that delayed the contract-negotiations process and how they were overcome	The contract-negotiations process was somewhat slowed as five separate departments within the University system and/or the State of Connecticut were involved in review of the contract.
Factors that helped make this PPP a success	The Connecticut Water Company, which is the sister company to New England Water Utility Services, is a regulated public water utility which has operating territories close to the University campuses and has interacted with university water system personnel over the years. In addition, New England Water Utility Services has performed various services for the University in the past, including the collection and processing of water quality samples, cross connections inspections and backflow device testing. These factors have resulted in a level of trust and cooperation between the Company and the University which continues under the contract.
Benefits to public and private sectors	Under the current contract, the University has access at a very cost-effective price to the expertise and resources of a large public water utility, including a large staff specifically trained in the operation, maintenance and management of a complex public water utility system.
What, if anything, would you have done differently?	Nothing.
What is the single, most compelling reason you would offer a city to consider a PPP?	Access to the expertise and resources of a neighboring professional water utility at a cost-effective price.

Private Sector Partner	San Jose Water Company
Role in PPP	Maintenance, installation, consulting, and other service contracts with municipal utility.
Site name, location (city, state) and type of plant (WTP, WWTP)	San Jose Water Company (SJWC) is an investor-owned public water supply utility, which supplies, treats and distributes water to a population of 1 million in the Santa Clara Valley. The company also provides utility services to other agencies.
Type of PPP and specific PPP role of each party	SJWC has maintenance, installation and consulting contracts with San Jose Municipal Water System (SJMWS), which is owned and operated by the City of San Jose. These include water main and service leak repairs, water main and appurtenance installation, preventative maintenance services (such as valve exercising) and various consulting services. In addition, SJWC provides meter testing and repair service for eight regional water utility clients. We test, rebuild and certify the accuracy of water meters in sizes 1" to 10" in our state-of-the-art Meter Shop at a cost far less than replacement.
Requirements for bid participation	The requirements are: 1. Hold a corporate General contractor's License. (An employee obtained a state contractor's license and assigned it to SJWC.) 2. Look at the City's Internet site frequently for bid solicitations. 3. Obtain each of the City's RFPs and provide bids, when there is a good fit, competing against several local contractors. 4. Attach a bidder's bond and proof of insurance to our submittals. 5. Awards were made for the annual general contract and several additional large jobs based on being the lowest qualified bidder. 6. After award, submit a performance bond and sub-contractors' payment bond. 7. Also, after award, submit references to prove we are qualified (previous job of same scope and $-magnitude).
Major obstacles that delayed the bidding-stage process and how they were overcome	Obtaining the bidders bond quickly was a challenge, but our financial staff found a source. Preparing a bid is time consuming. In lieu of customer references, we described several capital improvement projects, which our staff constructed. We have to bid every large City project separately against local contractors. We have to re-bid the general installation contract annually. We may not always be price-competitive if a high percentage of the work is delegated to our sub-contractors.
Major obstacles that delayed the contract-negotiations process and how they were overcome	The City required several forms be completed to verify living-wages for field crews; since we use subcontractors for paving and backhoe, their response delayed the contract negotiations.
Factors that helped make this PPP a success	Proximity to SJMWS and familiarity with its service area; SJWC's expertise, staff and equipment available for distribution system repair, installation and preventative maintenance; A long-term working relationship with staff at SJMWS; The need by SJMWS to have a reliable contractor who could provide rapid response to leaks.
Benefits to public and private sectors	SJWC is able to maintain the staff size needed to deal with the cyclical nature of distribution system repairs; SJMWS is provided with cost effective, high quality services, with fast response; SJWC is able to leverage its economies of scale, and pass those savings onto SJMWS; As leak repair experts, SJWC crews need less oversight by SJMWS than typical construction companies performing similar work. In addition, SJWC's crew trucks and support equipment have been specifically designed for fast response to leaks of all sizes. This ultimately results in faster repairs, while minimizing service disruption to consumers.

Private Sector Partner	San Jose Water Company
What, if anything, would you have done differently?	SJWC would have crafted the contract to better allow for actual market costs for fuel, materials and labor.
What is the single, most compelling reason you would offer a city to consider a PPP?	Under the right conditions, a PPP is a way to get the high quality services needed for the lowest cost to ratepayers.

Private Sector Partner	American Water Company - I
Role in PPP	American Water is the prime contractor for DBO and plant operator.
Site name, location (city, state) and type of plant (WTP, WWTP)	Fillmore, California; New wastewater recycling plant to replace existing antiquated wastewater treatment plant.
Type of PPP and specific PPP role of each party	The procurement was structured as DBO. • City of Fillmore: client • Boyle Engineering: procurement advisor / program manager • American Water: prime contractor; facility operator • Kennedy-Jenks Consultants: design subcontractor • WM Lyles: construction subcontractor
Requirements for bid participation	Client issued RFQ setting forth financial, technical and business qualifications criteria for bidders.
Major obstacles that delayed the bidding-stage process and how they were overcome	None.
Major obstacles that delayed the contract-negotiations process and how they were overcome	None.
Factors that helped make this PPP a success	The following factors they believe will contribute to making this a successful PPP: (i) sole source responsibility; (ii) reduction of project duration; (iii) reduced E&O claims; (iv) integrated and aligned DBO team; (v) early cost and schedule certainty; and (vi) promotes innovation and creativity.
Benefits to public and private sectors	The primary benefits are the partnership's innovative open-book / contingency sharing approach on the DB side and striking a better balance of risk allocation/ sharing, particularly in the areas of bonding, repair and replacement and sludge disposal.
What, if anything, would you have done differently?	There is nothing suggested to have done differently.
What is the single, most compelling reason you would offer a city to consider a PPP?	PPPs provide cities that do not possess internal expertise and resources for one-time infrastructure and O&M procurements an alternative approach that provides, among other things, tangible, quantifiable value to the ratepayers and, specifically, access to the private sector expertise and resources at a reasonable, cost-effective price.

Private Sector Partner	American Water Company - II
Role in PPP	American Water is the private contract operator providing professional management oversight of all day-to-day operations as well as giving direction and support for more than 130 operations and administrative staff members who are City of Buffalo/Water Board employees. There are four American Water employees at this project led by James Campolong, American Water's project manager.
Site name, location (city, state) and type of plant (WTP, WWTP)	This project includes the management of the Colonel Ward Water Pump Station and Water Treatment Plant, the Massachusetts Avenue Pump Station and Exchange Street customer service and billing office located in Buffalo, NY.
Type of PPP and specific PPP role of each party	This is a full scope O&M project. The main parties and corresponding responsibilities are as follows: American Water (Contract Operator) • Project Management--overall O&M project oversight and contract compliance, including management oversight of city employees who carry out O&M services • Customer Service Management--responsible for the day-to-day operations of the customer service functions, including the call center, billing operations, and collections, including delinquent collections program for water and sewer charges • Assistant Business Management--responsible for management of the project purchase order process and vendor relations, budget compliance, and staff liaison. • Systems Administration--responsible for support of all billing system software and development support, including field meter reading equipment and staff liaison for computer hardware and network. **City of Buffalo/Water Board (Owner)** • Water Board sets rates, rules and regulations for the system, manages capital improvements and otherwise provides full governance of the system. • City of Buffalo is the employer of operations, maintenance and administrative staff engaged in direct operation and maintenance activities of the system. • Commissioner of Public Works--official representative of the Water Board and acts as the primary "responsible party" representing the City of Buffalo and Water Board. Negotiates contract terms on behalf of the Board and acts as the liaison between American Water O&M group and the City's administration. • Principal Water Engineer-oversees capital works projects funded by the Water Board, primary contact with O&M manager related to technical and operations matters for the contract. **Conestoga Rovers & Associates (CRA Engineering) (Owner's Engineer)** • CRA is the water board's consulting engineer for the O&M contract. CRA prepared the RFP and took a lead role in evaluating respondents' proposals as well as negotiations leading up to the Operating Agreement. CRA continues to perform contract compliance oversight on behalf of the water board.
Requirements for bid participation	Bidders were required to show that they had previous experience managing projects of a similar size and scope and the financial capacity and technical resources to support the project.

Private Sector Partner	American Water Company - II
Major obstacles that delayed the bidding-stage process and how they were overcome	Since this proposal for private management of public services was the first of its kind to be suggested in western New York, the first RFP in 1997 faced initial pushback from the public sector unions as well as the members of the City's Common Council largely over job security. The Commissioner of Public Works appeased concerns by meeting with all parties and assured them that labor retention would be a key component of the project and that these efforts by the Water Board were not only an effort to avoid future significant rate increases but also an attempt to actually reduce costs through efficiencies.
Major obstacles that delayed the contract-negotiations process and how they were overcome	Contract negotiations had to be held with not just one union group but four, and, as such, concessions over work rules were required with all four public sector unions. A Memorandum of Agreement was required which detailed management and union responsibilities and guaranteed staff reductions only through attrition. Also, since there was no preexisting management model in the area, the scope of service requirements were challenging to develop, since clear roles were not well defined within the municipal management staff. As a result, the first five-year term lacked the kind of clarity that the second five-year term provided regarding delineation of responsibilities. During the second five-year term, the scope of services were spelled out in much greater detail using examples and detailed definitions of roles and responsibilities.
Factors that helped make this PPP a success	There were many standout success factors in this milestone project for western New York. In fact, this project won the NCPPP's 2005 Public/Private Partnership award in the "service" category and was featured on the cover of *Underground Infrastructure Management's* March/April 2006 edition. Some key successes are as follows: ● The willingness of both parties to approach the Agreement as a true partnership, agreeing to work cooperatively to address all management issues as they arose, and the level of trust developed which allowed both parties to work out the details related to roles and responsibilities later. ● Clear, well-defined descriptions of scope of service deliverables that were mutually agreed to and were reasonable, which resulted in a positive experience for both parties and continues to this day. ● Well-defined contract compliance oversight by a neutral third party with the technical expertise to monitor the operations contractor as well as to provide guidance to the client with respect to interpretation of contract terms and conditions. ● Full commitment and support by American Water's O&M project team towards the City's long-term goals and objectives for operational and financial improvements. ● A contract based on reasonable commercial risks and a risk profile that is predicated upon which party is best able to control certain risks. For example, The Water Board has accepted price risk, while American Water has accepted utilization risk for electric power.

Private Sector Partner	American Water Company - II
Benefits to public and private sectors	• $4-5 million savings *annually* via across-the-board operating improvements and improved financial management. These were some of the efficiencies alluded to earlier. • Initial water rate reduction of 8 percent held for five years and rate stabilization and control in subsequent years • Huge productivity gains: an innovative labor contract utilizes city employees with no involuntary staff reductions; work rule changes and improved deployment yielded a sustainable 26 percent increase in productivity. • Complete automation of customer records and general operations (90,000 customer records were previously maintained on index cards). • Collection rate increased from an 80-percent range to 97% or greater resulting in *significant positive revenue impact.* • New state-of-the-art customer service center was built, with easy access to mass transit. • Conversion to metered water from flat rate, with installation of over 63,000 water meters. • Improvement in water quality through implementation of best practices reduced turbidity by more than 80 percent. • Responsiveness and efficiency of water- line repairs increased substantially with implementation of a computerized maintenance and management system (CMMS). • Vehicle reliability improved via a new replacement and repair program. Average age of fleet reduced from 14 years to 8 years. • Community involvement and support was an integral part of American Water's mission – water education in schools, help to disadvantaged, involvement in civic improvements and redevelopment efforts.
What, if anything, would you have done differently?	Better advanced insight into work rules could have accelerated the negotiations process and have realized the multitude of successes listed above much more quickly (time to money). Although AW participated in contract discussions and championed process change and work rule revisions, the staff continues to be governed by the Civil Service and Public Sector Collective Bargaining Agreements which are very restrictive and require multiple levels of participation and agreement before change can be implemented. Perhaps an agreement which would either enlist the staff as employees of American Water or which has a provision affording more influence over the agreements governing the operations staff would result in accelerated improvements for all parties; however, the current model has proven to be workable and a success by many accounts.
What is the single, most compelling reason you would offer a city to consider a PPP?	By entering into a partnership with a company like American Water, it will benefit from **private-sector discipline coupled with a strong public-service ethic.** The discipline, in particular, translates into a positive municipal cultural shift which will have heightened awareness of best practices and which gives greater focus to efficiencies and effectiveness top to bottom. As a result, it will save money and/or thwart higher costs, be better prepared for future "curve balls," and will be more easily adaptable to change, if required. The public-service ethic translates to better access to technologies to help sustain or improve water and wastewater protection and supply, as well as provide an ongoing high-level of customer satisfaction.

Private Sector Partner	American Water Company - III
Role in PPP	Director / NJ Contracts / project manager
Site name, location (city, state) and type of plant (WTP, WWTP)	Liberty Water Company- City of Elizabeth water system
Type of PPP and specific PPP role of each party	O&M contract 40 years- Dee Gillespie- Project manager- oversees entire project- Operated by various departments within American Water's NJ American Water subsidiary.(i.e. production, network, environmental, CFS, etc..) Too many to list.
Requirements for bid participation	Not available.
Major obstacles that delayed the bidding-stage process and how they were overcome	The contract may have originally included another City but decided to drop out. No knowledge of any other obstacles
Major obstacles that delayed the contract-negotiations process and how they were overcome	Not aware of any obstacles.
Factors that helped make this PPP a success	The biggest success factors were making certain that the existing employees from the city were offered new or related job opportunities. The other key factor was having identified the project contact person for providing immediate service and response.
Benefits to public and private sectors	The upfront payment to the City as part of the concession deal enabling the City to stabilize property taxes and pay down existing debt on water and sewer obligations. Also having an experienced operator like American Water ensured the timely and cost effective implementation of key capital and operational projects.
What, if anything, would you have done differently?	Nothing in my opinion. Both parties are satisfied, and the major has strongly endorsed our partnership.
What is the single, most compelling reason you would offer a city to consider a PPP?	PPP provides innovative measures to solve multiple City problems. In this case the concession model provided dollars to the City to address tax and debt issues, through services from a skilled operator. This often reduces system costs without affection the work force.

Private Sector Partner	American Water Company - IV
Role in PPP	Director / NJ Contracts / project manager
Site name, location (city, state) and type of plant (WTP, WWTP)	Edison Water Company- Township of Edison Water system
Type of PPP and specific PPP role of each party	O&M contract 20 years- Dee Gillespie- Project manager- oversees entire project- Operated by various departments within American Water's NJ American Water subsidiary.(i.e. production, network, environmental, CFS, etc..) Too many to list. Same as Liberty
Requirements for bid participation	Bid participation required participants to verify related experience in all facets of the water industry (i.e. repairs & maintenance, meter reading, billing and collection, customer service, production, etc.) Also, it was the obligation of the successful participant to satisfy the existing employees with employment or at least pay the township the employee salaries for a specific period if they remained with the town.
Major obstacles that delayed the bidding-stage process and how they were overcome	The township council was not all in favor; however, as stated earlier, a brief township open discussion was extremely effective in getting everyone on board. Edison was the first concession contract which generated many questions from us as manager and operator of the system.
Major obstacles that delayed the contract-negotiations process and how they were overcome	Not all council members were on board regarding the privatization. After a thorough presentation of American Water's obligations from an American Water employee the votes were all in favor. The process of questions and answers were belabored due to the lack of information in the RFP (system information).
Factors that helped make this PPP a success	The biggest success factors were making certain that the existing employees from the city were offered new or related job opportunities. The other key factor was having identified the project contact person for providing immediate service and response. Additionally, providing the capital projects to eliminate major discoloration complaints was key.
Benefits to public and private sectors	The upfront payment to the City as part of the concession deal enabling the City to stabilize property taxes and pay down existing debt on water and sewer obligations. Also having an experienced operator like American Water ensured the timely and cost effective implementation of key capital and operational projects. Edison, unlike Elizabeth, had many customer water quality complaints which were addressed and taken into consideration for long term corrective measures.
What, if anything, would you have done differently?	Nothing in my opinion, each contract / municipality is unique in its own way.
What is the single, most compelling reason you would offer a city to consider a PPP?	PPP provides innovative measures to solve multiple City problems. In this case the concession model provided dollars to the City to address tax and debt issues, through services from a skilled operator. This often reduces system costs without affection the work force.

Private Sector Partner	United Water - I
Role in PPP	Long-term O&M of the City of Indianapolis' two advanced wastewater treatment facilities; 250 MGD combined capacity
Site name, location (city, state) and type of plant (WTP, WWTP)	United Water Indianapolis, Indianapolis, IN Belmont Advanced WWT Facility Southport Advanced WWT Facility Indianapolis Collection System
Type of PPP and specific PPP role of each party	The PPP is a long-term O&M of the City of Indianapolis' two advanced WWT facilities. United Water's role as O&M manager is to treat the effluent of two advanced WWT facilities with a 250 MGD combined capacity; 193 MGD combined average daily flow collection system and Eagle Creek Dam; laboratory services; industrial pretreatment monitoring and program management services.
Requirements for bid participation	Contractor must: ● have been in the business of providing full service contract O&M and management of WWT facilities for at least five years prior to 11/01/96 and must be currently licensed to do business in Indiana; ● currently provide full service contract operations to at least five or more WWT facilities with a design average flow capacity of 15 MGD; ● currently provide full service contract operation services for at least one WWTP with a design average flow of 60 MGD. Additional requirements include: specific liability and property damage insurance, an acceptable annual (renewable) Performance Bond, an acceptable annual (renewable) Payment Bond and a requirement to accept AFSCME as the bargaining agent for the same or similar classifications of employees as are covered by the current contract.
Major obstacles that delayed the bidding-stage process and how they were overcome	Other than the delays which resulted from the exhaustive study on asset sale, the process was very professionally and efficiently done. The City used some outside consultants to assist in this endeavor but it had put together a very talented and multi-disciplined in-City team which enabled it to focus on its priorities and not be diverted by outside agendas.
Major obstacles that delayed the contract-negotiations process and how they were overcome	No Answer.

Private Sector Partner	United Water - I
Factors that helped make this PPP a success	The city was one of the privatization demonstration sites identified by EPA in the early 90's and thereby benefited from the counsel. The City was helped by EPA to consider various forms of privatization ranging from selling assets to forms of delegated management. Mayor Goldsmith recognized the value of their help and encouragement when he signed the contract in 1994. United Water improved the system's operations – saving Indianapolis more than $46 million during the first four years of the contract while reducing accidents by 85 percent. The company reduced effluent quality violations by 70 percent. The National Association of Clean Water Agencies (formerly AMSA) recognized these accomplishments over the years by giving United Water multiple Platinum, Gold and Silver Awards for Peak Performance. In addition to the savings to the City, United Water improved labor relations by signing a contract with the American Federation of State, County and Municipal Employees (AFSCME) and reducing employee grievances by 98 percent.
Benefits to public and private sectors	United Water has built strong partnerships with the Supplier Diversity Program by spending an average of 32 percent of all purchases (over the past three years) with local minority and women-owned businesses totaling more than $32 million since the beginning of the contract. United Water has also made a commitment to contribute 5 percent of pre-tax profits to community, charitable and cultural organizations. More than $2 million has been invested back in the community through the Community Relations Environmental Grant. The City's annual cost of operation was over 30% less than the cost in effect at the time. Over the past 14 years, these costs have been increased by annual inflation factors but, overall, the City has saved over $250 million as a result of the PPP. The savings were used by the City to avoid the need for sewer rate increases. Additionally, some of the revenues were transferred to the City's General Fund through the enactment of a PILT. In spite of these lower operating costs, the wastewater system has produced superior environmental performance. The private sector gained valuable insight into the development of PPPs from the ground up. The Indianapolis process was one of the first of its kind and set precedents for others to follow. As a result of the benefits awarded by the involvement of the EPA and the financial considerations given at the time to assist in the development of partnerships of this type, the private sector has been able to model this contract and process throughout the industry.
What, if anything, would you have done differently?	The Indianapolis process was very professionally done and should serve as a model for other Cities.
What is the single, most compelling reason you would offer a city to consider a PPP?	Value and efficiency. A PPP typically results in annual operating cost savings of 10 to 40 percent, allowing municipalities to avoid or mitigate increases in water rates. A sample of such partnerships realized average savings of 24 percent over the period 1992–1997 as reported in a joint publication of the Association of Metropolitan Sewerage Agencies and the Association of Metropolitan Water Agencies (AMSA/AMWA). The high rate of contract renewal indicates that service levels and environmental compliance are not compromised as a result of these efficiencies and that the private sector is capable of adding value rather than simply cutting costs.

Private Sector Partner	United Water - II
Role in PPP	DB management and operation of an 11MGD ultrafiltration surface WTP
Site name, location (city, state) and type of plant (WTP, WWTP)	Bexar Metropolitan Water District (BMDC) WTP San Antonio, Texas
Type of PPP and specific PPP role of each party	The PPP is a DBO&M. Under the terms of the contract, United Water is responsible for all aspects of designing, building, managing and operating the surface water facilities. BMDC is an industrial development corporation formed by the water district. BMDC owns the facilities, provided financing for the project and constructed a five-mile pipeline and the storage facility.
Requirements for bid participation	The project was sole sourced and therefore an RFP was not issued. The project was a DBO which in Texas required special authorizing legislation since currently government entities cannot enact DB's without specific approvals.
Major obstacles that delayed the bidding-stage process and how they were overcome	The contract was sole sourced. Montgomery Watson was contracted for the design-build and saw an opportunity to bring in United Water. The biggest obstacle was financing. Special legislation, mentioned previously, took time and cost for the District to enact. The project could have been done as a BOT with private financing if sufficient Private Activity Bond financing had been available. Lifting of the PAB bond cap would have made this option one that the District could have seriously considered since it would have created comparable costs to muni-bond financing.
Major obstacles that delayed the contract-negotiations process and how they were overcome	Refer to the above discussion on Texas DBO authorization
Factors that helped make this PPP a success	The factors that made this PPP a success were its use of innovative membrane technology, the procurement methodology which reduced the total cost of the project to $1.163 per 1,000 gallons produced – an estimated 30 percent reduction over traditional approaches and the assistance in the preservation of the Edward Aquifer by saving of nearly 3.56 million gallons of water annually through the construction of a 12.5 million gallon storage facility. The technology and design-build principles employed in conjunction with its overall benefit to the environment and the community, won United Water and Bexar Met the Texas Consulting Engineering Council Engineering Excellence Award and American City and County Crown Community Award
Benefits to public and private sectors	The ultra filtration plant treats water from the Medina River, making it the first facility in the San Antonio area to treat surface water. For generations the Edwards Aquifer has been the sole source of water for the residents in San Antonio and the surrounding areas. The demand of the aquifer has steadily increased with the development of new communities and business. As a result of the surface WTP, nearly 3.56 billion gallons of water are saved each year, decreasing the demand on the aquifer. In addition, United Water has safely upgraded the plant's design capacity to 14.5 MGD in the summer and 10.8 MGD in the winter without additional capital investment.
What, if anything, would you have done differently?	The process leading up to and throughout the contract has been successful. No changes would be made in retrospect.
What is the single, most compelling reason you would offer a city to consider a PPP?	Value and efficiency. A public-private partnership typically results in annual operating cost savings of 10 to 40 percent, allowing municipalities to avoid or mitigate increases in water rates. A sample of such partnerships realized average savings of 24 percent over the period 1992–1997 as reported in a joint publication of the Association of Metropolitan Sewerage Agencies and the

Private Sector Partner	United Water - II
	Association of Metropolitan Water Agencies (AMSA/AMWA). The high rate of contract renewal indicates that service levels and environmental compliance are not compromised as a result of these efficiencies and that the private sector is capable of adding value rather than simply cutting costs.

Private Sector Partner	United Water - III
Role in PPP	O&M and management of Hoboken's water distribution system. Customer service, billing and emergency services are also included among the company's responsibilities
Site name, location (city, state) and type of plant (WTP, WWTP)	Hoboken Water Services Hackensack, NJ Jersey City WTP Boonton, New Jersey
Type of PPP and specific PPP role of each party	The PPP is OM&M. United Water is responsible for providing the city's water supply, as well as all system maintenance and repairs, customer service, billing and collections, and 24-hour emergency service.
Requirements for bid participation	The contract was sole sourced. United Water approached the City of Hoboken at a time when the Mayor and council had interest in revitalization of the city. Consideration was given to creating an Economic Development Authority with an initial investment of $5 million, which at the time the city did not have. This was the last project before legislation was introduced to legally develop public-private partnerships in New Jersey
Major obstacles that delayed the bidding-stage process and how they were overcome	The two obstacles at the time of the birth of the relationship between United Water and the City of Hoboken were the divide between the mayor and the council over whether this partnership was in the best interest of the City and the expectations of the contract's value. Ultimately the Mayor was able to convince the council members and unions who were not previously supportive of the partnership that this was the best option for the City.
Major obstacles that delayed the contract-negotiations process and how they were overcome	As referenced in question #5, economic obstacles were the cause of the delays in contract negotiations. Eventually, both the City and United Water came to an agreement that was mutually beneficial
Factors that helped make this PPP a success	In 1994, the city of Hoboken and United Water reached an agreement that set the standards for municipal asset management in New Jersey. The city was faced with an annual $800,000 loss if it continued to operate its 40-mile water distribution system. That's when they teamed up with United Water in an innovative arrangement, the first public-private partnership for water services in New Jersey. The partnership enabled the city to retain ownership of the infrastructure and retain rate-setting responsibility. United Water has made numerous capital investments (will total $15 million over the life of the contract) including the installation of new automatic meters, new mains, new valves and new fire hydrants. Among other things, these efforts have helped upgrade Hoboken's fire rating from the worst to the best.
Benefits to public and private sectors	Investments in water infrastructure have improved the reliability and quality of the water service. This has helped the city develop a thriving waterfront which now boasts new park and recreation areas, high rise housing and commercial and retail space. United Water's role in rehabilitating NJ Transit's historic Hoboken Train Station has also helped improve the life for city commuters. The benefits to the private sector are reflected in the success of the contract with the City of Hoboken as the first of its kind in New Jersey and having set the standard across the State and country. The contract has received national recognition in the Best Practices Database of the US Conference of Mayors.
What, if anything, would	

Private Sector Partner	United Water - III
you have done differently?	The process leading up to and throughout the negotiations and contract thus far has been positive and successful. There would be no changes.
What is the single, most compelling reason you would offer a city to consider a PPP?	Value and efficiency. A public-private partnership typically results in annual operating cost savings of 10 to 40 percent, allowing municipalities to avoid or mitigate increases in water rates. A sample of such partnerships realized average savings of 24 percent over the period 1992–1997 as reported in a joint publication of the Association of Metropolitan Sewerage Agencies and the Association of Metropolitan Water Agencies (AMSA/AMWA). The high rate of contract renewal indicates that service levels and environmental compliance are not compromised as a result of these efficiencies and that the private sector is capable of adding value rather than simply cutting costs.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUL 29 2008

OFFICE OF
WATER

Mr. A. James Barnes
Professor of Public and
Environmental Affairs and
Adjunct Professor of Law
Indiana University
1315 East 10 Street, Suite 418
Bloomington, Indiana 47406

Dear Mr. Barnes:

Thank you for your letter to Administrator Stephen L. Johnson dated April 29, 2008, in which you transmit on behalf of the Environmental Financial Advisory Board (EFAB) the report entitled "*Public Private Partnerships in the Provision of Water and Wastewater Services: Barriers and Incentives.*" As always, I appreciate the opportunity to review and examine any input from EFAB.

The report assesses the potential of public private partnerships (PPPs) to help alleviate chronic funding problems in the water industry. The report notes that, "PPPs cannot solve all water and wastewater utility financing or management problems," though they can be helpful and beneficial in many cases. I agree with the assertion that, "these partnerships can reduce costs, improve the quality of service, and speed the provision of needed infrastructure…the availability of this tool should be a powerful weapon in the Agency's struggle to achieve sustainable water services at a reasonable cost."

The report notes and examines a number of legal and institutional barriers to PPPs in the water industry. These include prohibitions in state or local law, the continued federal interest in existing facilities funded by EPA, and public and political objections. Office of Water staff are currently in the process of addressing one of these concerns. The application process for privatizing facilities with a federal interest is being streamlined to encourage greater participation by the private sector. Additionally, as your findings suggest, my staff will examine the period of federal interest to determine potential limits, and reexamine the definition of public ownership.

The report also brings to light a number of initiatives undertaken by the Department of Transportation (DOT), including a website with various PPP-related resources, and model legislation for states to use in order to promote PPP transportation projects. I believe these types of initiatives are needed not only in the transportation sector, but in the water industry as well, and I am directing my staff to further examine these initiatives with the hope of potentially emulating DOT.

Once again, thank you for providing this valuable input. I continue to be a strong proponent of public private partnerships in the water industry. As I am sure you know, legislation that I strongly support, authorizing the creation of "Water Enterprise Bonds," has recently been introduced in Congress. I plan to continue working with Congress and the water industry to try to achieve many of the efficiencies highlighted in the report. Furthermore, I would like to continue this discussion with the Board at your earliest convenience. These efforts, and this dialogue, are much needed in a time of dwindling resources.

If you have any questions or wish to speak further about this issue, please contact James A. Hanlon, Director, Office of Wastewater Management, at (202) 564-0748.

Sincerely,

Benjamin H. Grumbles
Assistant Administrator