Risks and Rewards of Alternative Water Project Delivery Methods

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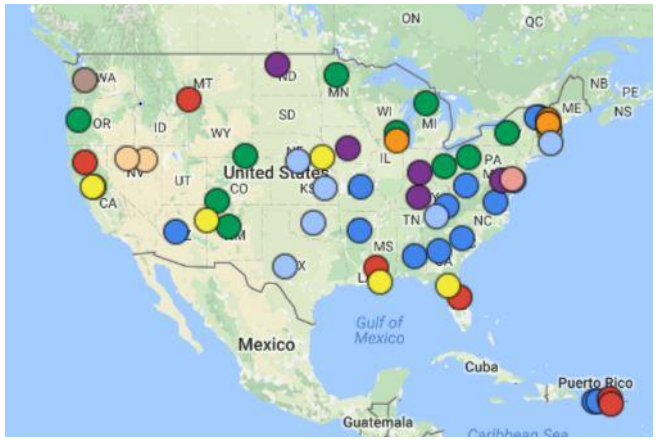

Acknowledgements

Environmental Protection Agency

The EPA Water Infrastructure and Resiliency Finance Center provides financial expertise to communities that are financing drinking water, wastewater, and stormwater infrastructure.
https://www.epa.gov/waterfinancecenter

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Communities and their Partners: Woodland Davis, Tampa Bay Water, Bayonne, Suez, Allentown, Lehigh County Authority, Phoenix, Regina…..

High Expectations……

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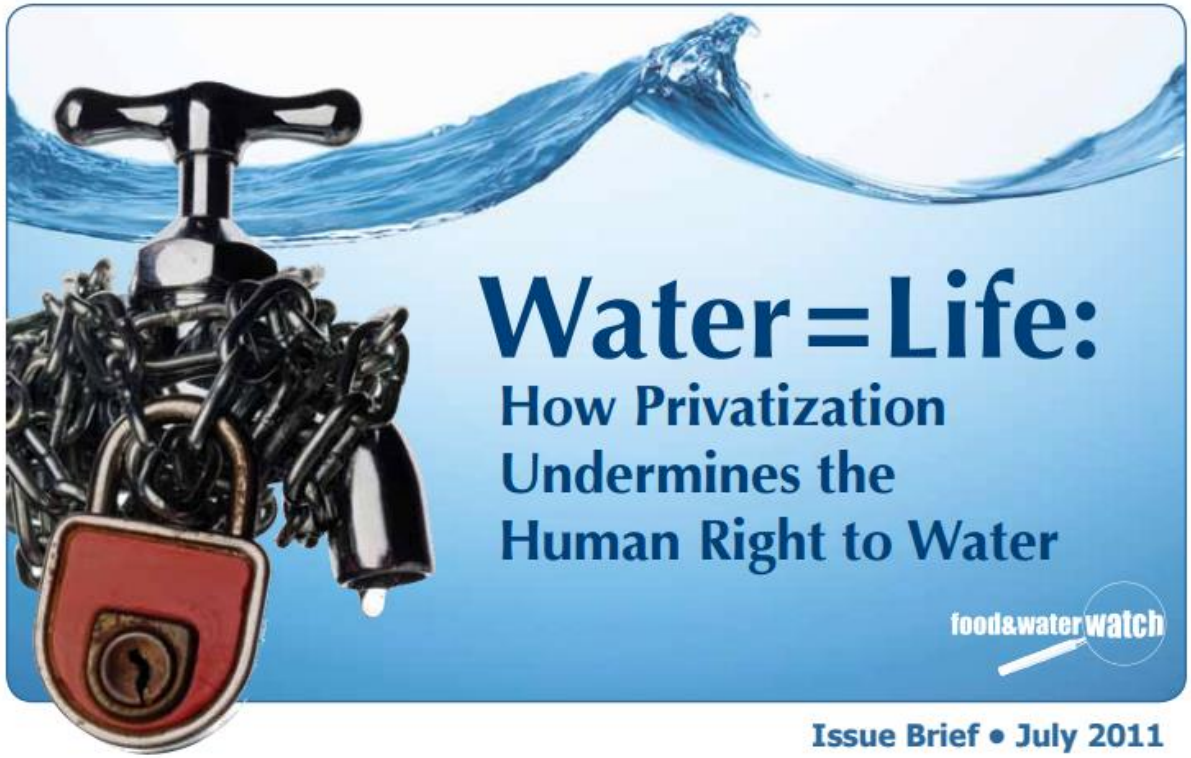
P3s Expected to Restore National Water Infrastructure

In a recent report by the Bluefield Research Group, infrastructure repairs for municipal water and wastewate to surpass $532 billion between 2016 and 2025. Although spending has increased by $28 million over the l

Source: http://sustainablewater.com/

..and strong criticism



Assessment of Financial Impact of Alternative Project Delivery Models

- Study jointly conceived of by USEPA Water Infrastructure and Resiliency Center (WIRFC), West Coast Infrastructure Exchange, and the Environmental Finance Center at the University of North Carolina at Chapel Hill (UNC)
- Focus on financial/monetary impact of models in different communities across the country
- Practical examples for practitioners
- Nine financial (impact) profiles

Diverse Models Across the Continent

Graphic Source: USEPA Water Infrastructure and Resiliency Finance Center

Methodology

- Review “success stories” and “case studies” that describe the models
- Review agreements, internal documents, and reports (board minutes, memos etc.)
- Interview key participants

Community	Service Procured	Type of Contract	Example of Anticipated Savings/Financial Benefits
Bayonne (NJ)	Water/wastewater collection/distribution and customer service	Concession	O&M, capital plan, leveling rate increases, city financial condition
Woodland Davis (CA)	Water withdrawal, treatment, and bulk transfer	Design - Build – Operate (DBO)	Permitting, construction
Regina (Canada)	Wastewater treatment	Design - Build - Finance - Operate – Maintain (DBFOM)	Retained risk, out of pocket funds, design/construction
Rialto (CA)	Water/wastewater collection/distribution and customer service	Concession	O&M, economic wellbeing
Santa Paula (CA)	Wastewater treatment	Design - Build – Operate Finance Own	Project Cost, Capital Plan, O&M
Tampa Bay Area (FL)	Desalinated drinking water	Water purchase agreement that evolved into modified DBO	Technology Risk, Permitting, Life Cycle costs
Allentown (PA)	Water and wastewater utility	Long term Lease	Consolidation, efficiency, economic wellbeing
Prince Georges County (MD)	Urban stormwater retrofits	Design – Build – Operate – Maintain (with option to finance)	Overall integrated costs
Phoenix, AZ	Surface water treatment	Design – Build - Operate	Technology, construction

Community/Project Sponsor	Estimated Initial Major Outlays	Primary Methods Used to Raise Initial Outlay Funds	Major Uses of Initial Outlays
City of Davis, City of Woodland, and University of California at Davis/Woodland Davis Clean Water Agency	$141 Million	California Clean Water and Drinking Water State Revolving Fund loans issued by project sponsor	DBO design and construction fees for new water supply project
City of Phoenix, AZ	$237 Million	Tax exempt revenue bonds issued by project sponsor	DBO design and construction fees for new water treatment plant and other project development costs (legal, consulting etc.)
City of Regina, Saskatchewan, Canada	$180 Million	Private equity structured as loan to project sponsor, national government grant, and project sponsor reserves	Costs of design and construction for upgraded and expanded wastewater treatment plant
City of Santa Paula, CA	$62 Million	Private equity and privately placed loans issued by service provider	Design and construction costs for a new wastewater treatment plant
Tampa Bay Region, Florida	$158 Million	Regional grant and tax exempt bonds issued by project sponsor (prior to unexpected early transfer to project sponsor, tax exempt private activity bonds were planned but not utilized)	Design and construction of new seawater desalination plant

Models for Incorporating Privately Arranged Financing

- Private sector owned facility with private activity bonds (Original Tampa Bay Water) DBOOT
- Government owned facility with private equity financing (Regina) DBFOM
- Government owned facility with mix of private equity and debt (Rialto, Bayonne) Concession
- Private equity as small percentage of project during construction with public financing (Davis Woodland) DBO

Project	Description of Component Capital Stacks Involved in Project (Typically Blended with Other Sources)	Terms/ tax status
Regina	$78.7 Million in Private Sector (EPCOR) financing structured as loan to public sponsor	27 ½ years, 6.46% (Taxable)
Davis Woodland Water Supply	$95.5 Clean Water State Revolving Fund Loan issued by public sponsor	30 years, 1.7%
Rialto	$25 million in private equity (Table Rock Capital and Ullico Infrastructure Fund) integrated into overall project financing	30 years, 19.6% (Taxable)
Allentown	$308 million in bonds issued by service provider (Lehigh County Authority)	29 years, 5.45% (Tax-exempt)
Bayonne	$110 million in privately placed taxable bonds issued by private service provider	18 years, 5.07% (Taxable)

[1] *Agreement to Design, Build, Finance, Operate and Maintain: Regina Wastewater Treatment Plant Upgrade Project.* The City of Regina and EPCOR Water Prairies, Inc. July 3, 2014.

[2] *Woodland and Davis Receive Initial Installments of State Funding for Water Supply Project.* Woodland-Davis Clean Water Agency. February 16, 2015. http://www.wdcwa.com/images/uploadsdoc/WDCWA_MediaRe

[3] *Proposed financing included in Agenda Report for the City Council/RUA Meeting of March 27, 2012.* City of Rialto. March 22, 2012.

[4] *Bayonne Water & Wastewater Concession | InfraDeals "Funding Details".* Infra-deals. September 15, 2015. http://www.infra-deals.com/deals/950558/bayonne-water-and-wastewater-concession.html

Regina Wastewater Treatment Plant Upgrade

Project Title:	Regina wastewater treatment plant upgrade
Primary Facility:	Upgraded wastewater treatment plant
Local Government Entity:	City of Regina, Saskatchewan, Canada
Primary Partner(s):	EPCOR Prairies Inc
Delivery Model:	Design, Build, Finance, Operate, and Maintain (DBFOM)
Contract Period:	30 years
Population Served:	200,000 people in 2013, growing to an estimated 258,000 people in 2035
Major Initial Outlays:	$180.8 million over a five year period
Flow of Revenues:	City of Regina collects user fees, and uses a portion of them to make its contractual payments, which include both operating and capital components

Regina Highlights

- High number of responders, highly structured procurement process with safeguards
- Regulatory pressure and tight time frame (achieved)
- Significant grant funding and unusual private equity financing model
- Some intense opposition (e.g. unions)

Tampa Bay Water Desalination Plant

Tampa Bay Water Desalination Plant

Project Title:	Tampa Bay Water Desalination Plant
Primary Facility:	Seawater desalination plant (25 Million Gallons per Day)
Local Government Entity:	Tampa Bay Water
Primary Partner(s):	Initial: S&W Water, LLC, a partnership of Stone & Webster and Poseidon Resources Corporation Intermediate: Tampa Bay Desal, a partnership of Poseidon Resources Corporation and Covanta Tampa Construction Current: American Water-Acciona, a joint venture of American Water and Acciona Agua
Delivery Model:	Conceived as a Design Build Own Operate Transfer (DBOOT) project, later transformed to a modified Design Build Operate (DBO) model, and completed as a Operations, Management, and Maintenace Contract (OM&M)
Contract Period:	Original DBOOT 30 years, terminated after 3 years; Current OM&M 20 years
Population Served:	More than 2.5 million people
Major Initial Outlays:	$158 million ($110 million prior to remediation and $48 million for remediation)
Flow of Revenues:	Tampa Bay Water sells wholesale water to retail water distributors and uses revenues to pay debt service and make OM&M contract payments

Tampa Bay Water Highlights

- Plant in operation and essential component of water portfolio
- First two construction contractors experienced financial problems culminating in bankruptcies
- Driven by technology and permitting risk
- Evolution of service delivery models
- Current demand is below forecasted demand resulting in much higher per unit costs than estimated

Phoenix Design Build and Operate

Project Title:	Lake Pleasant Water Treatment Plant (LPWTP) Design Build and Operate (DBO) Project
Primary Facility:	Drinking water treatment plant (80 mgd)
Local Government Entity:	City of Phoenix
Primary Partner(s):	American Water Services (Project Leader and Operations), Black & Veatch (Design), and McCarthy Building Companies (Construction)
Delivery Model:	Design Build and Operate & Maintain (DBO)
Contract Period:	15 years
Population Served:	Approximately 1.535 million people served by entire Phoenix Water System (2016)
Major Initial Outlays:	$605,000 for project delivery model analysis and evaluation (1999) $6.8 Million (estimated) for professional services during procurement (2000-2002) $228,846,090 for DBO design/build fee including permitting, design, construction, and start up (2003)
Flow of Revenues:	City of Phoenix sets rates and collects and uses revenues to pay debt service on City issued bonds for DBO design/build fee and to pay contractually required annual DBO operating fees

Phoenix Highlights

- Private sector financing ruled out early in process due to Phoenix's strong credit rating
- Facility constructed on time and on budget ("award winning")
- Forecasted demands never materialized leading to Phoenix renegotiating agreement to reduce their demand risk exposure.

Santa Paula Water Recycling Facility

- Completion of modern alternative wastewater treatment (water recycling facility) on time and on budget significantly lower than previous estimates
- Chloride compliance challenges
- Debate over cost of capital led to purchase

Some examples of lessons learned: The good, the bad, the OK, and the obvious

- Many projects are much more about quality improvement than cost savings
- Deals need to be customized to meet local conditions (political, human resources, availability of grants….)

Some examples of lessons learned: The good, the bad, the OK, and the obvious

- Strict regulatory timelines and sharing regulatory and permitting risk often drive models (Tampa Bay, Regina, Phoenix, Santa Paula, Woodland-Davis)
- On time, on budget construction (Phoenix, Regina, Davis Woodland)
- Contracts can be designed to protect the public sector from themselves by formalizing investment requirements (Bayonne)
- Realization that “risk” can carry a financial cost (Tampa Bay, Bayonne, Phoenix)

Some examples of lessons learned: The good, the bad, the OK, and the obvious

- Private sector supplied capital does not have to “cost a lot” and can be used to monetize legacy investments and incentivize performance (Bayonne, Regina), however..
- In many if not most cases, the advantage of private sector supplied capital has little to do with access to capital and even less to do with access to low (financial) cost of capital…

For more information

- http://www.efc.sog.unc.edu/
- Jeff Hughes, jhughes@unc.edu

- https://www.epa.gov/waterfinancecenter

Other Cases

Bayonne Water and Wastewater Concession

Project Title:	Bayonne Water and Wastewater Concession
Primary Facility/Service:	Water, wastewater, and stormwater distribution and collection network
Local Government Entity:	City of Bayonne operating through Bayonne Municipal Utilities Authority (BMUA)
Primary Partner(s):	Bayonne Water Joint Venture (Partnership between Suez/United Water and Kohlberg Kravitz & Roberts)
Delivery Model:	Concession
Contract Period:	40 years
Population Served:	22,000+ meters, 66,000 residents
Major Initial Outlays	Upfront concession fee ($150 million), plus contractually required capital investments over first 3 years including $7.5 million in meter and billing upgrades.
Flow of Revenues:	Concessionaire collects revenues (bills) directly from users. Rates set by public entity to meet contractual annual revenue requirements.

Bayonne Highlights

- Very similar to a regulated rate of return approach but the City maintains asset ownership
- Private financing used to monetize system equity for use for non-utility purposes
- Includes recurring capital investment
- Use of “revenue path” places demand risk with City. Early rate adjustments came in much higher than “forecasted” needed rate adjustments

Davis Woodland Water Supply Project

Project Title:	Davis Woodland Water Supply Project
Primary Facility/Service:	Surface water treatment plant (30 Million Gallons per Day), raw water pipeline, treated water transmission lines to City of Woodland and City of Davis distribution systems
Local Government Entity:	Woodland Davis Clean Water Agency (Joint Powers Authority created by Cities of Davis and Woodland, University of California Davis, and Yolo County)
Primary Partner(s):	CH2M Hill
Pirmary Advisor:	West Yost Associates
Delivery Model:	Design Build and Operate agreement (DBO)
Contract Period:	15 years with 5 year renewal option
Population Served:	Approximately 2/3^{rds} of Yolo County, CA (roughly 140,000 people)
Major Initial Outlays:	$141,152,772 for Design Build portion of the DBO agreement
Flow of Revenues:	Davis and Woodland remain the primary retail water service providers, control rate setting for their communities. They use revenue from their water sales to make payments to the Agency which in turn is responsible for paying facility debt service and DBO agreement fees.

Davis Woodland Highlights

- First major DBO project to employ SRF financing
- Limited number of responders
- Modeled DB savings imposed through required proposal ceiling
- Very little private sector financing involved in the project