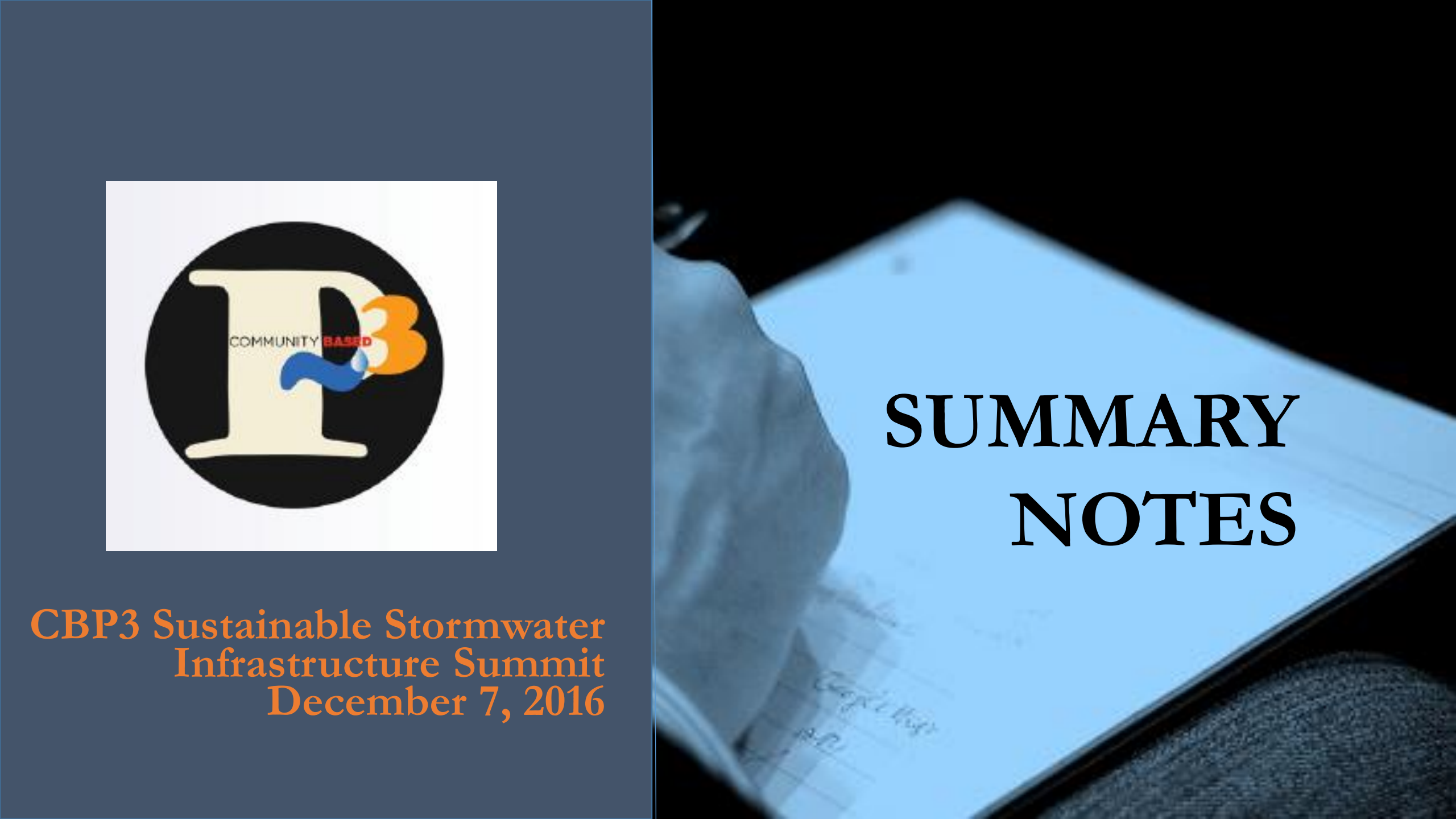


SUMMARY NOTES

CBP3 Sustainable Stormwater Infrastructure Summit
December 7, 2016

Introduction

Community-Based Public-Private Partnership (CBP3) Sustainable Stormwater Infrastructure Summit

Philadelphia, PA
Monday, December 7, 2015
9:30 AM to 5:00 PM

"CBP3s focus investments on green infrastructure approaches that create local economic growth and improve quality of life in urban and underserved communities. Done right a balanced partnership between public and private sectors can accomplish more than other unbalanced, piecemealed approaches."

-**Dominique Lueckenhoff, Deputy Director**
Water Protection Division, U.S. Environmental Protection Agency, Region 3

Welcome and Overview

Dominique Lueckenhoff, Deputy Director
Water Protection Division, U.S. Environmental Protection Agency, Region 3

Todd Herberghs, Executive Director
National Council for Public-Private Partnerships

"During a time of local economic constraints and limited federal funds, many communities must consider smarter ways to finance construction, operation, and maintenance of their stormwater management systems in ways that provide multiple versus singular benefits."

- Urban stormwater runoff is the only major growing source of water pollution in many parts of the US. In order to improve water quality, communities must build smarter cities and retrofit already built environments to decrease the amount of runoff from impervious surfaces. However, stormwater infrastructure needs are projected to cost more than $100 billion over the next 20 years.
- Despite limited funds and a lack of public understanding, communities must better manage stormwater and meet increasingly strict regulations while dealing with rising pressures from climate change.
- Green infrastructure offers a multi-benefit solution to stormwater challenges that can improve climate resiliency and water quality while also making communities more vibrant.
- Community-based public-private partnerships (CBP3) offer one solution for financing green stormwater infrastructure faster and at a lower cost. The private entity in this arrangement is sensitive to the needs of the public sector and delivers stormwater solutions that stimulate economic growth and improve quality of life. In this arrangement, the private sector partner is typically responsible for financing, delivery, and long-term maintenance of green stormwater infrastructure.

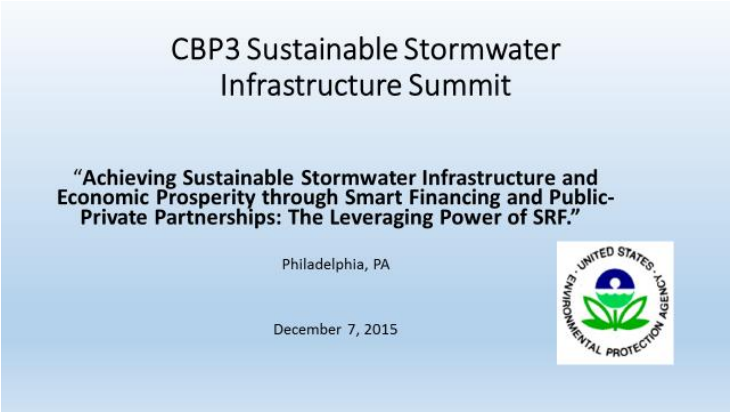
A CBP3 can allocate the risk, produce local economic value, solve a costly, complex public problem with faster, less expensive and better outcomes, and substitute private resources for limited public resources.

Opening Keynote

Achieving Sustainable Stormwater Infrastructure and Economic Prosperity through Smart Financing and Public-Private Partnerships: The Leveraging Power of SRF

James T. Gebhardt, CFA, Senior Advisor to the Deputy Administrator for Water Finance & Director Finance and Resiliency Center
U.S. Environmental Protection Agency

"The challenges we face are really incredible. We need to think of resources we have available. If you want to convince Federal Government to put more funds into the SRF program, funds need to be put to highest and most efficient use possible. Using resources more effectively will create more stakeholders, which generates more conversations with congress people which in turn generates more resources."



- State Revolving Funds (SRF) are allocated by Congress and administered to states through the US EPA. Federal and state contributions fund low-interest loans to address the highest priority water infrastructure needs.
- Since 1989, the SRF has provided more than $130 billion in loans through the Clean Water and Drinking Water SRFs. However, historically, most Clean Water State Revolving Funds have been allocated to wastewater projects, followed by combined sewer overflow abatement with the smallest portion available to urban stormwater management capital projects.
- The financial strength of the SRF program presents new opportunities to leverage funds. With strong cash balances and excess credit capacity, the CWSRF could provide meaningful guarantee capacity that could be used to support nascent environmental finance markets. As reported by the USEPA Financial Advisory Board in 2014, for each dollar of recycled Clean Water SRF program equity, $3 to $14 of Clean Water SRF guarantee capacity could be provided to fund green infrastructure projects in addition to current project funding levels. This translates into $6 billion to $28 billion in potential green infrastructure funding capacity nationwide.
- In the absence of commercial lenders, SRFs can provide capital to originate loans to project owners or developers to support CBP3s.

The SRF guarantee could be a great partner for P3s. Small distributed infrastructure scales at its own pace. We need to warehouse these loans with a targeted commercial lender, maybe getting into a warehousing program with the SRF program itself.

Session 1

The Challenge of Stormwater Runoff and Its Market Potential to Drive a New Economy

Jon Capacasa, Director
Water Protection Division, U.S. Environmental Protection Agency, Region 3

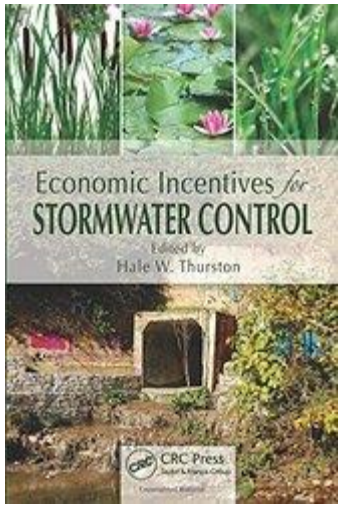
"The time is right to innovate with some new tools and financing solutions. There are many leaders in the green infrastructure revolution that is sweeping the country. We need to match the green revolution with some green financing and management techniques."

- There are many leaders in the green infrastructure revolution that is sweeping the country. However, we need to match the green infrastructure revolution with some green financing and management techniques.
- There are many drivers for stormwater management solutions and financing needs. There are 7,500 regulated municipal separate storm sewer system (MS4) communities and 772 combined sewer systems in the US. Additionally, many communities also have water quality goals as part of total maximum daily loads, which are increasingly being incorporated with stormwater permits.
- Beyond regulatory drivers, the public is increasingly demanding that communities address flooding, water quality impairments, combined sewer overflows, and the ecological effects of urban stormwater runoff.
- However improving water quality requires retrofitting the built environment, and retrofits are costly. This high cost demands multi-benefit solutions.
- EPA is promoting faster, cheaper, greener solutions for communities and is seeking partnerships with more local governments to demonstrate affordable financing approaches linked to sustainable performance in stormwater management.

We cannot afford to fix one problem at a time. We can't afford singular dimension projects. We need to focus on projects that have multiple benefits. Decentralized, innovative green solutions are part of the answer.

Session 1

The Challenge of Stormwater Runoff and Its Market Potential to Drive a New Economy



Hale Thurston, Assistant Director, Office of Research and Development, National Risk Management Research Laboratory
U.S. Environmental Protection Agency

"The sector needs a sustained economic driver to keep projects sustainable and growing. Sustainable as in projects that continue, not just one-off efforts."

- The sector needs a sustained economic driver to keep projects sustainable and growing.
- Often, the public is motivated to install green infrastructure on private property - just through education and the knowledge that they are benefiting water quality.
- Tradeable allowances (cap and trade for stormwater runoff pollution) or fee and rebate programs haven't worked very well in the past because the fee wasn't well linked with actual stormwater impacts. It was out of line with reality. As stormwater fees increase, rebate fees can be higher too. These strategies may have a place in the future.

As solutions and regulations become more expensive, economic incentives (for instance, tradeable allowances and fee-and-rebate programs) have the potential to become greater tools for incentivizing the public to install green infrastructure on a larger scale.

Session 1

The Challenge of Stormwater Runoff and Its Market Potential to Drive a New Economy

Dr. Robert Traver, **WRE, Professor and Director**
Villanova Urban Stormwater Partnership, Villanova University

"Innovation should be incorporated into everything."

- Green infrastructure definitely works. In fact, we often underestimate green infrastructure performance.
- Green infrastructure practices are systems, yet they are not always treated as such. These systems have design standards and goals. To meet those, it is necessary to properly construct, inspect, and maintain the system over time. All of these aspects require funding.
- However, to continuously improve, the sector needs to credit performance not the standard design.
- Through research and implementation, the sector has doubled its knowledge over the last decade, but this knowledge is not being utilized to its full advantage. Additionally, there are still many questions to answer.
- Partnerships and innovation are critical for continuing to move the sector forward and achieve our water quality goals.

We often underestimate performance of green infrastructure…We have doubled our knowledge over the last decade, but the sector has not taken full advantage of that.

Session 2

Session 2: Sustainable Stormwater Infrastructure DBFOM: Traditional Approaches and New Paradigms

Moderator: Seth Brown, Principal/Founder, Storm & Stream Solutions
Speakers:
- John Germain, Municipal Finance Consultant, Jefferies
- Jag Khuman, Director, Maryland Water Quality Financing Administration, Maryland Department of the Environment
- Adam Ortiz, Director, Department of the Environment, Prince George's County, MD

Seth Brown, **Principal/Founder**
Storm & Stream Solutions, LLC

Overview of Community-Based Public-Private Partnerships (CBP3s) Approach

"Status quo investments are not getting us there. We have to adapt and improve."

- The status-quo stormwater project model of design-build-finance-operate-maintain (DBFOM) is slow and costly. It has resulted in a piecemeal approach and has not led to effective operations and maintenance of stormwater management infrastructure.
- The CBP3 approach harnesses the private procurement (and delivery) process, not privatization, to lower costs and provide flexibility, which drives creative and cost-effective solutions. Cost efficiencies can be found through a more efficient procurement process and large-scale, rather than piecemeal investments.
- A key focus of CBP3 is creating and enhancing community benefits, such as economic development, entry level jobs, and public health. The use of a request for qualifications allows a community to define their goals.
- The private sector is incentivized to place high-value infrastructure in the ground, rather than the cheapest solutions, through performance-based contracting and long-term maintenance responsibilities.
- The CBP3 approach focuses on community priorities, augments staff resources, and allocates more risk to the private sector.

Within the CBP3 approach, the community is the top priority. The partnership brings value to the community while addressing regulatory obligations.

Session 2

Sustainable Stormwater Infrastructure DBFOM: Traditional Approaches and New Paradigms

Adam Ortiz, Director
Department of the Environment, Prince George's County, MD

"…it brings the strengths of both public sector goals/representation and private sector innovation to the table."

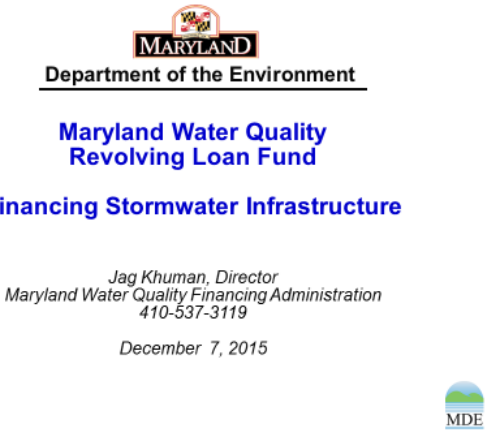
- To comply with the Chesapeake Bay TMDL, Prince George's County, Md. needs to retrofit 15,000 acres by 2025. The Clean Water Partnership is a CBP3 between the county and Corvias Solutions. It involves a 30-year, $100M contract with Corvias Solutions. Initially, Corvias is managing the design, construction, and long-term maintenance of stormwater management systems with the goal of retrofitting 2000 acres in approximately 3 years.
- One of the county's key goals was economic development to make the county more competitive and put more people to work. Corvias will use small and minority-owned businesses for at least 35% of the total project. The CBP3 is expected to create 5000 new entry-level, green jobs in the county.
- The county built a 30-year maintenance commitment into the contract. With this long-term view, employment for contractors is more secure. Contracting companies can expand and move into the green infrastructure space.
- As a local government, Prince George's County represents the common good in making long-term investments in projects that benefit the community. It has the power to collect and raise money. However, the government does not specialize in management of large-scale projects. It is siloed and slow. Instead, the county is relying on its private partner to bring innovation and efficiency through its extensive and focused project management expertise.

This CBP3 approach is not privatization, we are bringing our strengths together for the common good.

Session 2

Sustainable Stormwater Infrastructure DBFOM: Traditional Approaches and New Paradigms

Jag Khuman, **Director**
Maryland Water Quality Financing Administration, Maryland Department of the Environment



"The Water Resources Reform and Development Act of 2014 (WRRDA) created eligibility for publicly and privately owned, permitted and unpermitted projects that manage, reduce, treat, or recapture stormwater or subsurface drainage water."

- The Maryland Water Quality Revolving Loan Fund provides attractive loans at below-market interest rates to local governments.
- The SRF is comprised of federal funds and a 20% state match along with revenue from bond proceeds, investment earnings, and loan debt service repayments.
- These loans can provide up to 100% of the cost of capital infrastructure projects that improve the quality of Maryland's water resources. Now, due to the Water Resources Reform and Development Act of 2014, publicly and privately owned, as well as permitted and unpermitted projects that manage, reduce, treat, reuse/recycle/recapture stormwater or subsurface drainage are eligible for the SRF.
- In the CBP3 approach, SRF funds can flow from the public entity to the private partner and be repaid by the public sector. Or through the debt service payment guarantee, the private sector partner can go to the market for a loan, and the state backs it with triple-A credit.

State Revolving Fund dollars can go to a P3 private entity that is providing service to a public/municipal group via a P3 arrangement.

Session 2

Sustainable Stormwater Infrastructure DBFOM: Traditional Approaches and New Paradigms

John Germain, Municipal Finance Consultant
Jefferies

"Stormwater CBP3 retrofit programs are well-suited for raising debt in the capital markets."

- Stormwater CBP3's are attractive for raising debt in the capital markets.
- Create a strong partnership first: The financial structure should suite the partnership, not the other way around.
- SRF & WIFIA funds can replace higher-cost equity and/or bond debt.
- If bond debt is necessary, stormwater fees provide the fundamental & prerequisite collateral for a bond issue.
- Capital Market appetite is strong & credit rating criteria is already established.
- Bonds does not require a General Obligation guarantee, Offer final maturities up to 40 years and are fixed rate, non-recourse instruments
- SRF Guarantees can raise the rating of these bond issues and lower the cost of financing. The all in rate for a AAA rated 15 year term stormwater bond is approximately 3.50% in today's market

In summary – we are on the precipice. We will see more CBP3s in the future as our nation prepares to efficiently improve its water management practices

Luncheon Keynote

The Age of Resilience: Building a Sustainable Water Future

Ralph Exton, Chief Marketing Officer
GE Power & Water, Water & Process Technologies; Member, Water Environment Federation Board of Trustees

"We need to be proactive to solve the problems we need to address. We need to be deliberate and take steps. We need to spend money to build infrastructure."

- Natural disasters and the costs of such events are on the rise. There are well over 800 disasters annually on average. The costs (as a percentage of GDP) associated with these events has tripled over the last 40 years.
- According to FEMA, for every $1 spent in preparation, $4 of loss is prevented.
- Resiliency is the ability to prepare for, respond to, and learn from extreme weather events.
- There are four pillars of resiliency that are part of a closed loop: robustness, resourcefulness, rapid recovery, and adaptability.

Sustainability is narrowly focused when we look at all the water issues we need to address.

Session 3

Technology-Driven Public-Private Partnership Programs: How Can Emerging Technologies Help to Support Sustainable Stormwater Infrastructure Investments and Programs

Tom Dooney, **Managing Director**
Bostonia Group

"It's all about the math, and technology can help make the math work."

- There are a variety of water challenges that present opportunities to use technological solutions that save ratepayers money. Ratepayers want to see that their money is being used in the most cost effective way that provides the most community benefit.
- There should be better integration between the spectrum of water services. Cost savings in one area of the water sector could be redirected to other sectors.
- The greatest impediment to using new technology is the business-as-usual mindset of engineers and policymakers.

We are trying to add to the equation the CBP3, because it has proven to be a cost-effective way to implement green infrastructure in a timely fashion.

Session 3

Technology-Driven Public-Private Partnership Programs: How Can Emerging Technologies Help to Support Sustainable Stormwater Infrastructure Investments and Programs

Marcus Quigley, Chief Executive Officer
OptiRTC, Inc.

"People often immediately associate emerging technologies with risk. However, many new technologies actually decrease risk."

- Continuous monitoring, adaptive control, coupled with cloud-based controls and weather forecasting, allows the sector to take control of the hydrograph and extend the residence time and/or capacity of stormwater management facilities. Without the need for costly retrofits, this enables the sector to enhance the function and adaptability of both new and traditional infrastructure using information technology.
- Continuous monitoring reduces uncertainty and allows for improved pricing and risk reduction by better quantifying performance risk as well as compliance risk.
- Data generated through continuous monitoring can translate into knowledge that is actionable. It can be used to reduce maintenance costs (decrease frequency, etc.), to know minute-by-minute that facilities are working, and to inform future capital expenditures.

We know a lot about how natural systems work. We understand that you don't just pull a solution off of the shelf. There are engineering problems to be solved. And those allow us to optimize existing infrastructure.

Session 4

Session 4: P3/CBP3 Tools 101: Top 3 Things to Know If You Are Interested in a Public-Private Partnership for Assistance in Financing and/or Managing Your Stormwater/Water Infrastructure Program

Moderator: Dominique Lueckenhoff, Deputy Director, Water Protection Division, U.S. Environmental Protection Agency, Region 3

Speakers:
- Greg Cannito, Managing Director, Corvias Group
- Bob Helwig, Senior Advisor, Phoenix Infrastructure Group
- James Lyons, Clean Water Programs Administrator, Department of the Environment, Prince George's County, MD

Dominique Lueckenhoff, Deputy Director
Water Protection Division, U.S. Environmental Protection Agency, Region 3

"*In order to create value for the community, the CBP3 approach advocates use of a Request for Qualifications (RFQ) to evaluate the capacity and track record of interested contractors to select the best possible partner.*"

- A value for money analysis is used to compare the financial impacts of a CBP3 with that of traditional public delivery and can include a triple bottom line analysis that considers social and environmental benefits as well.
- Comparing a traditional county/municipal stormwater management approach with a CBP3, a CBP3 approach can reduce the retrofit cost per acre and decreases project procurement and planning time. It also augments staff capabilities and the private partner can take on responsibilities for inspecting, certifying, maintaining, etc.
- A Request for Qualifications (RFQ) is used to evaluate the capacity and track record of interested contractors to select the best possible private partner.

The RFQ process will allow for an open dialogue and will help the community begin to identify the best possible partner, based upon its needs & priorities, before moving into the procurement process.

Session 4

P3/CBP3 Tools 101: Top 3 Things to Know If You Are Interested in a Public-Private Partnership for Assistance in Financing and/or Managing Your Stormwater/Water Infrastructure Program

Bob Helwig, Senior Advisor
Phoenix Infrastructure Group

"In 1995, military housing was in the same position as the stormwater sector. We had an enormous problem and little money to fix it."

- The Military Housing Privatization Initiative is a public-private partnership that allowed the U.S. Department of Defense to bring all of its housing to adequate conditions over 20 years and $30 billion in projects. Additionally, the housing will be sustained through 50-year deals.
- The private sector brings efficiency and innovation to the process, captures economies of scale, and changes your value for money analysis.

Getting private funding is critical. That allows you to do the work you cannot get into your budget process.

Session 4

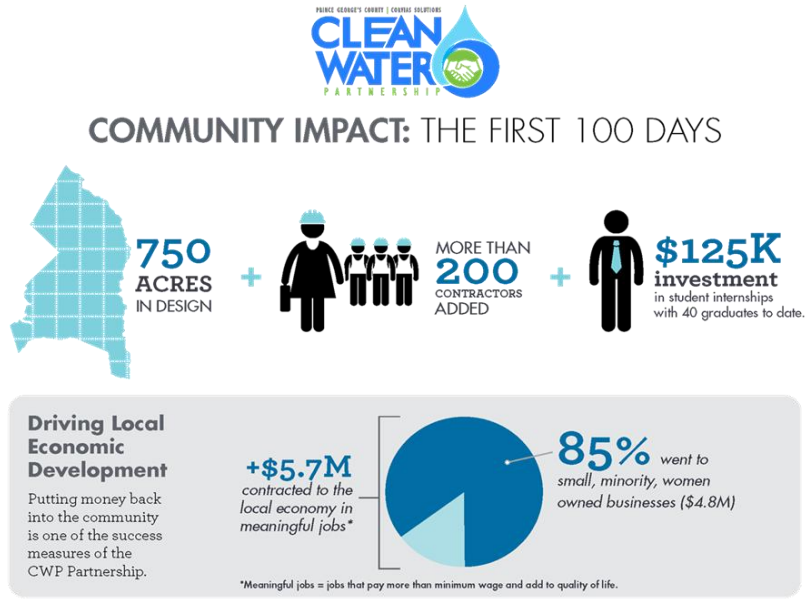
P3/CBP3 Tools 101: Top 3 Things to Know If You Are Interested in a Public-Private Partnership for Assistance in Financing and/or Managing Your Stormwater/Water Infrastructure Program

Greg Cannito, Managing Director
Corvias Group

"You first need a best fit partner whose values are aligned with your interests. They need to be willing to invest time and energy to understand challenges and propose a viable solution."

- The public sector first needs a best fit partner whose values are aligned with both stormwater permit requirements and community goals.
- "Intelligent investing is value investing – acquiring more than you are paying for."
  - Charlie Munger
- To get more than you are paying for, it is important to maintain public oversight, finance with confidence to ensure long-term sustainability, transfer construction risk, hold your private partner to specific outcomes, and reinvest funds created by cost efficiencies back into the community.
- To get more than you are paying for, leverage partnerships and community investments to provide multiple benefits, such job training programs that create new professionals.

Implement a long-term program with goals that provide value. Your private partner then protects your interests and ensures that targets are met, while taking on your risks.



Session 4

P3/CBP3 Tools 101: Top 3 Things to Know If You Are Interested in a Public-Private Partnership for Assistance in Financing and/or Managing Your Stormwater/Water Infrastructure Program

James Lyons, **Clean Water Programs Administrator**
Department of the Environment, Prince George's County, MD

"*The beauty of the Master Program Agreement is that it allows us to write procedures on the fly.*"

- A Master Program Agreement outlines the practices being constructed, expected outcomes (particularly economic and social), and accountability.
- Adaptive management has been built into the process through open dialogue. Rather than having to amend the master agreement, the partners only have to agree to a procedure and document it appropriately.
- The green infrastructure installed at Forestville New Redeemer Baptist Church provides an example of a project through the Clean Water Partnership that has already provided local work and engaged the community.

The Master Agreement is written on a platform of reconciliation, with continuous open dialogue.

Session 5

Session 5: Real World Scenarios: Discussion on Community Needs and Applications of Innovative Financing and Market-Based Approaches to Achieve Sustainable Stormwater Infrastructure Procurement, Delivery and Long-Term Management

Moderators: Dominique Lueckenhoff, Deputy Director, Water Protection Division, U.S. Environmental Protection Agency, Region 3
Seth Brown, Principal/Founder, Storm & Stream Solutions, LLC

Panelists — Municipal Needs and Challenges

- Thanh Dang, Transportation & Environmental Planning Manager, City of Harrisonburg, VA
- Felicia S. Dell, AICP, Director, York County Planning Commission, York County, PA
- Steven Shofar, Director, Water Division, Montgomery County, MD
- Dan Sweet, Stormwater Utility Manager, City of Charlottesville, VA
- Damon Weiss, P.E., Principal, Ethos Collaborative, Pittsburgh, PA

Panelists — Innovative Financing & Public Private Partnership Practitioners – Approaches & Advice to Communities

- Mami Hara, Deputy Commissioner, Philadelphia Water Department
- Stanford Ladner, Butler Snow LLP
- Pete Littleton, Clean Water Partnership, LLC
- Paul Marchetti, Executive Director, PENNVEST

Session 5

Real World Scenarios: Discussion on Community Needs and Applications of Innovative Financing and Market-Based Approaches to Achieve Sustainable Stormwater Infrastructure Procurement, Delivery and Long-Term Management

Panelist — Municipal Needs and Challenges

Thanh Dang, Transportation & Environmental Planning Manager
City of Harrisonburg, VA

- Harrisonburg is a Phase II MS4 community in third permit cycle.
- The City has a newly-established stormwater utility with a billing unit of $10.50 per 500 square feet.
- Program is small - $2.5M annual budget with 75% going towards capital and programmatic needs.

<u>Questions/Comments:</u>

1. Is community too small for such a CBP3 opportunity?
2. Would you recommend an aggregate program?
3. I have concerns that our regulations would stifle private entities having the expertise and ability to be innovative in installing BMPs. If a BMP is not on an approved list, we don't get credit. What can private/public folks do to get new BMP ideas approved?

Session 5

Real World Scenarios: Discussion on Community Needs and Applications of Innovative Financing and Market-Based Approaches to Achieve Sustainable Stormwater Infrastructure Procurement, Delivery and Long-Term Management

Panelist — Municipal Needs and Challenges

Felicia S. Dell, AICP, Director
York County Planning Commission, York County, PA

- York County is at the corner of two Chesapeake Bay hot spots; on the Maryland state line and the Susquehanna River, which contributes about 75% of nutrients to Bay, so there is a spotlight on us.
- York County has 43 stormwater municipalities. The County has created one plan for its 34 regulated and 10 nonregulated municipalities that has been approved by the state Department of Environmental Protection. The plan includes programs to accomplish over life of the permit.
- Populations of these townships and boroughs range from 200 to 17,000 people with varying levels of capacity to administer their permit. Despite the fact that permits are allocated to municipalities, the targets we need to meet are county targets. York County is helping municipalities meet county goals.

Questions/Comments:

1. The MS4s are determined by census, but there is an emphasis to improve things is on a watershed basis. What is the smartest way to plan to meet those requirements?
2. We agreed on a funding formula to raise $1 million over life of permit to leverage other funding sources to accomplish projects on the list. The funds are knitted together through an intergovernmental cooperation agreement involving invoicing, collecting funds, etc. Do we have enough money over the life of the permit?
3. With some 250,000 people and more than 40 municipalities, are we large enough to enter into a P3 agreement?
4. How can we move a funding consortium into something more structured like an authority or utility?

Session 5

Real World Scenarios: Discussion on Community Needs and Applications of Innovative Financing and Market-Based Approaches to Achieve Sustainable Stormwater Infrastructure Procurement, Delivery and Long-Term Management

Panelist — Municipal Needs and Challenges

Steven Shofar, **Director**
Water Division, Montgomery County, MD

- Montgomery County is a Phase I MS4. More than one million people live in the County. It is approximately 500 square miles, and 1/3 of that land is county-preserved agricultural land.
- The County has a 20% retrofit requirement. The county has to retrofit 4,300 impervious acres and has completed just over half of its goal.
- Beginning retrofits involved tackling low-hanging fruit, such as enhancing stormwater ponds. Now the County is doing more environmental site design or low impact development.
- The County has doubled its capital program staff and hired contractors to provide additional services.
- The County has also issued an annual water quality protection charge of $90 for the average single family home.

Questions/Comments:

1. Our biggest challenge has been the ability to get the work in the ground. Capacity is a big issue for us. We are looking at the P3 approach as a possible alternative to the current design, bid, build, and construct model.
2. We have also spent a lot of time on data management. This is a killer for us. It takes a lot of time and resources.
3. We are also looking at ways to streamline permitting. Different business improvements will help us improve our efficiency.

Session 5

Real World Scenarios: Discussion on Community Needs and Applications of Innovative Financing and Market-Based Approaches to Achieve Sustainable Stormwater Infrastructure Procurement, Delivery and Long-Term Management

Panelist — Municipal Needs and Challenges

Dan Sweet, **Stormwater Utility Manager**
City of Charlottesville, VA

- Charlottesville is a Phase II community, which has enacted a more stringent local stormwater ordinance than the state standard requiring permits for sites with greater than 6,000 square feet of land disturbance.
- The City passed a stormwater utility fee in March of 2013 to provide a dedicated funding source for our water resource protection program, and we are anticipating an annual budget of $1M associated with these user fees. The City wants to spend 75-80% of revenue collected on capital improvement projects by keeping operation costs low.
- The City receives a high amount of credit towards meeting permit compliance through our street sweeping program. Currently, the City is at least 25% of the way toward meeting required phosphorus and sediment reduction goals associated with the Chesapeake Bay TMDL, without spending a dollar of enterprise funds. We are really focused on what that means for local water resources.

Questions/Comments:

1. Our hopes are that we can leverage a watershed approach to work with adjacent MS4s to do more than manage paper pollutants. We hope to leverage funding for green infrastructure retrofits. However, regulatory uncertainty has loomed large in Virginia.
2. The question is, can we work together with adjacent MS4s as an aggregate to install low-cost practices in the nonregulated rural sector and does that buy us some of the green infrastructure that the community wants. Currently, we get push-back from regulators for treated on non-regulated land unless it is stream restoration.
3. Our intent is to deliver high-quality capital projects through our enterprise fund. Inconsistent and uncertainty in regulations is an ongoing challenge. We need technology as well as flexible, consistent, reasonable and adaptive regulations, and not necessarily funds from the private sector.

Session 5

Real World Scenarios: Discussion on Community Needs and Applications of Innovative Financing and Market-Based Approaches to Achieve Sustainable Stormwater Infrastructure Procurement, Delivery and Long-Term Management

Panelist — Municipal Needs and Challenges

Damon Weiss, P.E., Principal
Ethos Collaborative, Pittsburgh, PA

- Pittsburgh has a $3 billion sewer infrastructure problem. However, sewer authorities have no control of the land beyond the utility right-of-way. There is uncertainty about the long-term performance, maintenance, and costs of green infrastructure
- The Pittsburgh area is fragmented with more than 130 municipalities, many of whom have limited capacity to meet stormwater regulations and are struggling to provide consistent end products.
- We are also exploring a green infrastructure pay-for-success partnership with a performance-based contracting focus rather than project-based.
- Green infrastructure provides multiple benefits. Pittsburgh has significant sewer issues, community revitalization needs, challenges meeting regulations, and water infrastructure uncertainty. What are the barriers to Green infrastructure – why are we spending money on grey instead of green?

Questions/Comments:

1. In a pay-for-success model, what would flow of money and responsibilities look like?
2. The pay-for-success model engages with a multi-tiered system of stakeholders, such as the sewer authorities, government and taxpayers, and private industry looking to reduce flooding and address other challenges, but questions remain. Who are the players, what are the outcomes, and how do we pay for it? How do you scale and get over permitting hurdles? How do you scale to regional level to overcome the fragmented nature of the sector?

Session 5

Real World Scenarios: Discussion on Community Needs and Applications of Innovative Financing and Market-Based Approaches to Achieve Sustainable Stormwater Infrastructure Procurement, Delivery and Long-Term Management

Panelist — Innovative Financing & Public Private Partnership Practitioners – Approaches & Advice to Communities

Mami Hara, **Deputy Commissioner**
Philadelphia Water Department

- The Green Cities, Clean Water Program is incentivizing green infrastructure retrofits on private land. Philadelphia is densely developed, so every bit of land counts.
- The City's contracting process is long and inefficient. Cost efficiencies through private development are important. Philadelphia is not a very wealthy community, so we have to make every dollar count.
- PWD developed two primary incentive programs – Stormwater Management Incentives Program (SMIP) and the Greened Acre Retrofit Program (GARP); however, there are still challenges to address, most significantly is limited capital – PWD can only spend about $15M on these programs each year. We need more capital and haven't found a way to leverage the money we are putting into those incentive programs for enhanced investments. We are trying to figure out how to get the most out of our dollars. How can we overcome funding constraints, can we find other sources of funding for incentive programs? SRF funding would open a door for us.
- Currently, GARP program has one successful aggregator, who can take a project from planning to groundbreaking in two months, which is one-tenth of the time that it takes us in the public sector. And they can do this at the low-cost of $50,000 per impervious acre treated.
- We need to increase the pot and drive competition. The incentive programs are important for bringing in diverse, small contractors.
- We are not getting that many vegetated practices from GARP program – how can we bundle our incentives with others to create more robust, more impactful programs.

Session 5

Real World Scenarios: Discussion on Community Needs and Applications of Innovative Financing and Market-Based Approaches to Achieve Sustainable Stormwater Infrastructure Procurement, Delivery and Long-Term Management

Panelist — Innovative Financing & Public Private Partnership Practitioners – Approaches & Advice to Communities

Stanford Ladner
Butler Snow LLP

BUTLER | SNOW

- You really have a P3 only where you have the financing to bring the project to fruition.
- The military executed its agreement with a private developer who borrowed money to build the housing, which was billions of dollars. Why did the military want to do this?
  1. There were cost savings driven by the fact that if a third party undertook construction, they didn't have to comply with federal rules for contracting, so they could do it cheaper and faster.
  2. Congress always appropriate the same amount of funds each year, causing the stop and start of construction.
  3. The developer puts up modest equity plus their expertise.
- It is important to figure out a source of repayment to satisfy people who will be in a position to loan you money.
- A piece of advice is to focus on a solid P3 contractual agreement, which needs to be negotiated. At the community level there is currently no one standard. If you can, try to find a real-world example and then take the time to walk decision makers through the real world example, telling them how allocations of risk occurred and why they made sense in that example. You have to get the congregation behind you. if you want to see the project succeed.

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Pete Littleton, Operations Manager
Clean Water Partnership, LLC

- With the Prince George's County Clean Water Partnership, the key is listening to our county partner. We want to understand their goals and their requirements, and how much of those requirements they want us to meet. We are not taking over the program.
- Our team of various design engineers have great knowledge of the permit conditions. We also have a team of general contractors and maintenance contractors, who are assessing projects along the way. Before we spend design dollars, we want to know the practice can be constructed and permitted to meet objectives.
- We also build in flexibility. We have taken a certain percentage of projects and identified the BMP shortlist of projects approved by the Maryland Department of the Environment and by the partnership. The practices must be cost effective, easily maintained, and achieve specific pollutant reductions.
- It is progressive. We will learn a lot of lessons at first. We have 12-13 BMPs in the toolbox, but we will whittle that down to what is most effective. The partnership and the flexibility are key. Make sure partner goals are aligned. Our public sector partner has to work every day to meet community's needs. We are bringing in additional tools to help the county meet its goals.

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Paul Marchetti, **Executive Director**
PENNVEST

- PENNVEST administers the Pennsylvania SRF.
- For example, we currently have a $30M loan provided to Philadelphia for stormwater retrofits.
- We have provided a $7M loan to Lancaster, who uses this funding to install stormwater infrastructure, including a program where funding is provided directly to private property owners to install stormwater practices on their property. The City pays for up 90% of the costs for installations on private property by using a mix of local and SRF funding, and uses revenue from the stormwater management fee to pay back the SRF loan.
- Nutrient trading in Pennsylvania between farmers and wastewater treatment plants involves agricultural entities creating and selling credits to treatment plants to meet permit limits. We are looking at a narrow watershed trading program. Sediments. nitrogen and phosphorus have been the focus up to now. But MS4s have sediment requirements as well.
- Another potential source of funding is to stimulate voluntary contributions from corporations with sustainability goals, and use that money to fund nutrient (pollution) reducing activities. How can we engage the private sector in voluntarily providing funds?

Closing Discussion

Closing Discussion

Moderator: Dominique Lueckenhoff, **Deputy Director**
Water Protection Division, U.S. Environmental Protection Agency, Region 3

- Capital Sources
  - Current public fee sources are not enough.
  - Disconnect between people interested in P3 approach, but when you start talking about a stormwater authority it is more divisive. Maybe need to tie these two together to better address needs, because the constant revenue source is important.
  - SRF's leveraging – there is an SRF guarantee program in Pennsylvania, but haven't had anyone take advantage of it. Probably entities most interested would be larger, but could also do it for smaller communities. Great idea and will prove to be a useful tool.
  - Private capital can intersect in any number of places. SRF can partner with private capital in terms of being a co-lender. Can also lower interest rates.
  - Social impact investing – look at both private and public $$. Instead of putting cash balances in treasury bills, to the extent you can create flexibility, why not use these dollars for social impact investing to offset needs and costs to communities trying to implement integrated GI and other sustainable water infrastructure?
- Technical Resources
  - Do communities have the capacity to start looking at these funding options?
  - Even large cities with much expertise have challenges, and they need to figure out how to get over the hurdles placed in front of these kinds of schemes.
  - There is plenty of money – money in SRF and private funds. Its about the leg work. EPA is providing technical assistance to partnering communities in order to better determine what types of technical assistance are needed, while supporting a variety of successful demonstrations.
- Strategies and Leadership
  - Coming together into an (stormwater) authority – creates the scale from a financing perspective. Expanding parties with similarly aligned objectives helps level the costs.
  - Money and public will is there…leadership will is not there due to perceived risks and complexities in execution among other reasons.
  - Have to convince people who are going to supply the money that there is a value to their money. Use demonstrations as first steps.
  - Need to evaluate process. Need to go beyond just implementing practices – operation, maintenance, jobs and other community benefits are very important. You need to also fix the problem at the source – to effectively address stormwater/excessive runoff. Climate is the next big thing. We will be talking more and more about flooding, water quantity and resiliency – this resonates with public officials. Need to connect at this level.

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Community Based Public-Private Partnerships (CBP3s) and Alternative Market-Based Tools for Integrated Green Stormwater Infrastructure: A Guide for Communities) at: http://www.epa.gov/sites/production/files/2015-12/documents/gi_cb_p3_guide_epa_r3_final_042115_508.pdf

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