How P3s (and CBP3s) Can Scale Up Green Stormwater Infrastructure

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Storm & Stream Solutions, LLC

A Community on Ecosystems Services
Thursday, December 8, 2016

Evolution in Stormwater Management

Traditional Stormwater Management

Collect → Convey → Detain

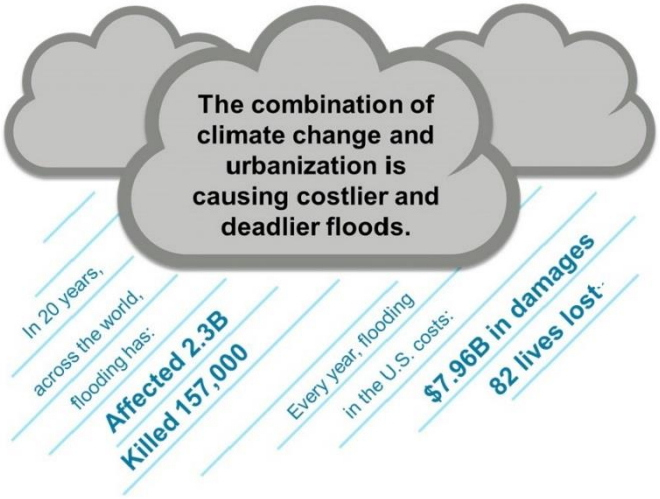
Green Stormwater Infrastructure

Infiltrate → Retain

Stormwater as a Resource and an Opportunity

Impacts of Stormwater Runoff

- The fastest growing water quality problem in many parts of the country
- **Flooding**
  - Houston, West Virginia, Baton Rogue
  - Hurricanes Katrina, Sandy, Matthew
    - Billions of dollars of damage to properties, infrastructure, loss of life, etc.
- **Water Quality**
  - Impacts to urban waters
    - Bacteria, nutrients, sediment, heavy metals
  - Economic losses
    - Beach closures, shellfishing, etc.

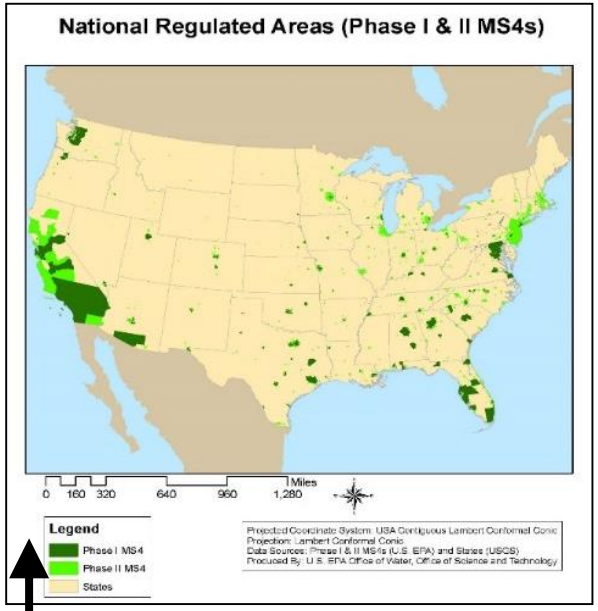


The Regulatory Context: Stormwater/Wet Weather

Clean Watershed Needs Survey

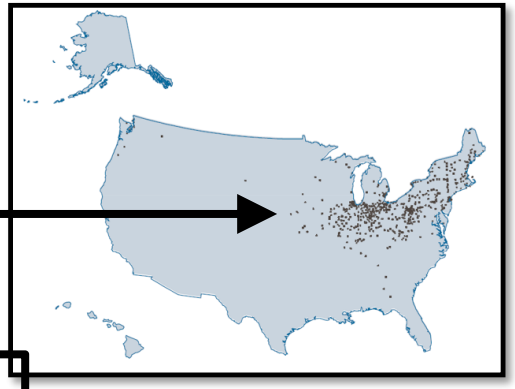
- ~$150B* in wet weather/stormwater needs

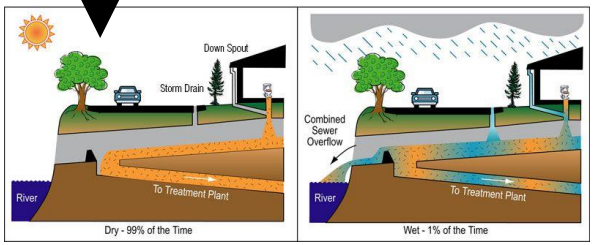
*Extrapolated from information provided



Regulated Entities

- **7,500** communities regulated municipal separate storm sewer systems (MS4s) in the U.S.
- **772** combined sewer systems in the U.S.
- **Growing interest** and public demand for **green stormwater infrastructure**
- Due to **expanded urbanized acres & increased localized flooding**





Motivating Facts

- Impacts from existing impervious cover*
- Redevelopment provides an opportunity**
- GSI (especially retrofits) has been expensive…
- GSI project delivery has been slow…
- Bottom Line
  - **GSI implementation has been limited**

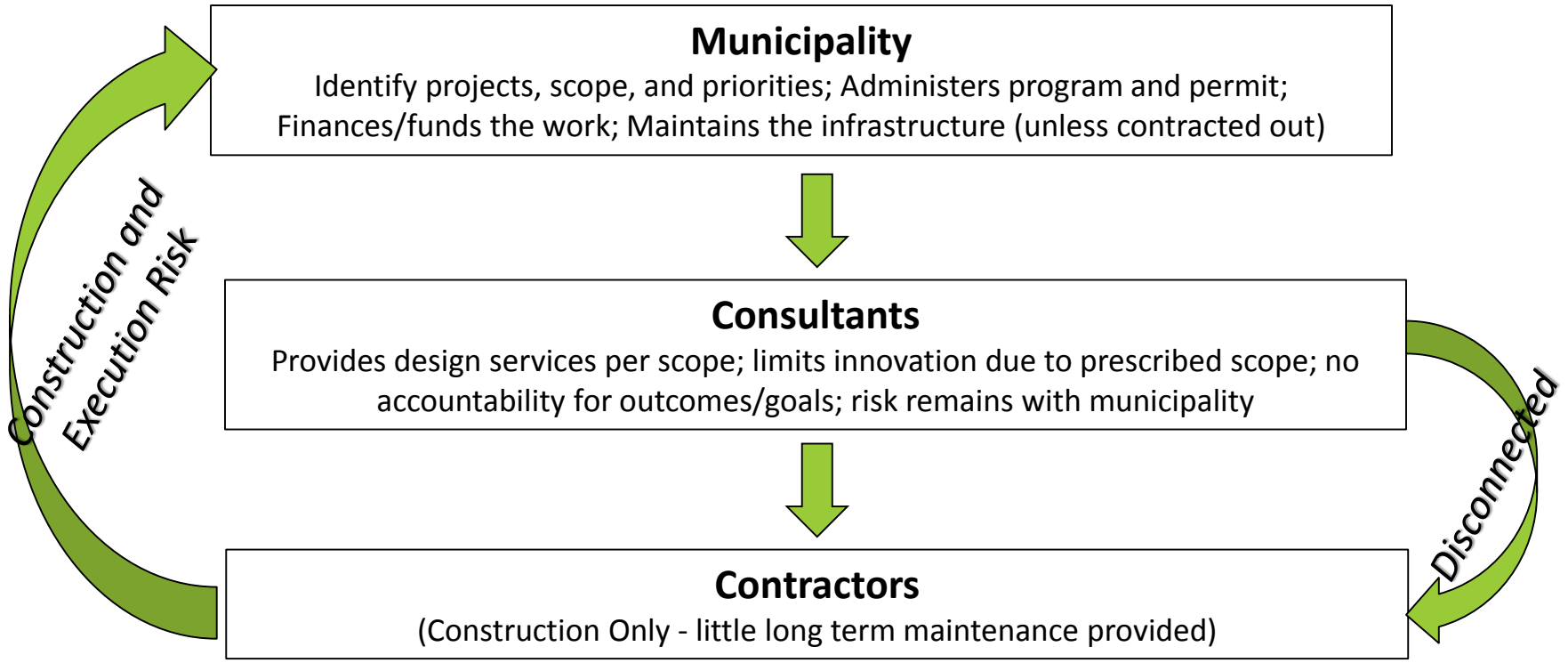
*And more on the way – 800,000-1,000,000 acres per year anticipated through 2030

**A 2004 Brookings Institution report estimates 42% of the existing developed areas will be redeveloped by 2030

Innovative GSI Delivery / Funding-Financing Options

- Market-Based
  - Trading, incentives, etc.
- Private Capital/Investments
  - Pay-For-Success
  - Social Capital / “Impact” Investors
- Public Funding/Financing
  - Clean Water State Revolving Fund, WIFIA
- **Public-Private Partnerships (P3s)**
  - **Community-Based P3s (CBP3s)**

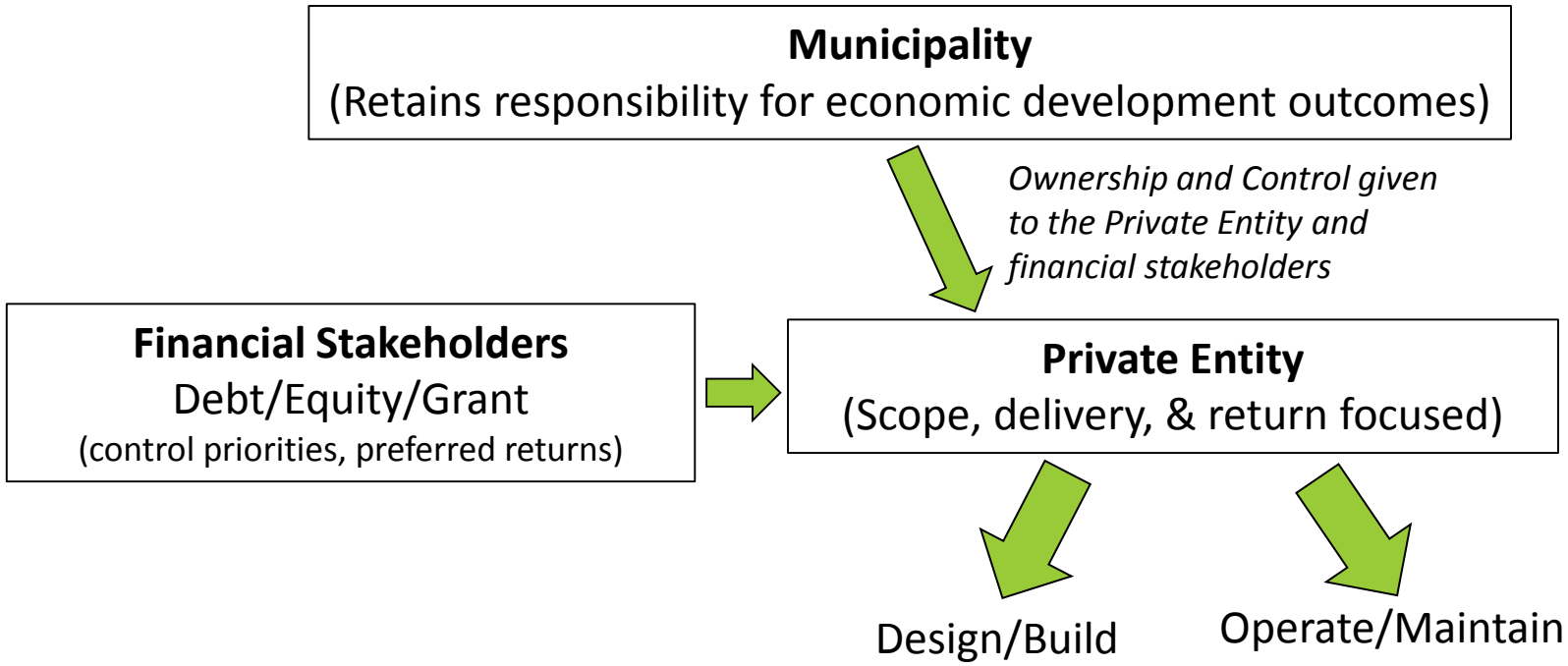
Standard Design-Bid-Build Approach



Price Increases Due To

- **Low volume of work**
- **Misaligned interests/priorities**
- **Frictional costs**
- **Field conditions**
- **Sub-par design work**
- **Change orders**

Traditional P3 Approach



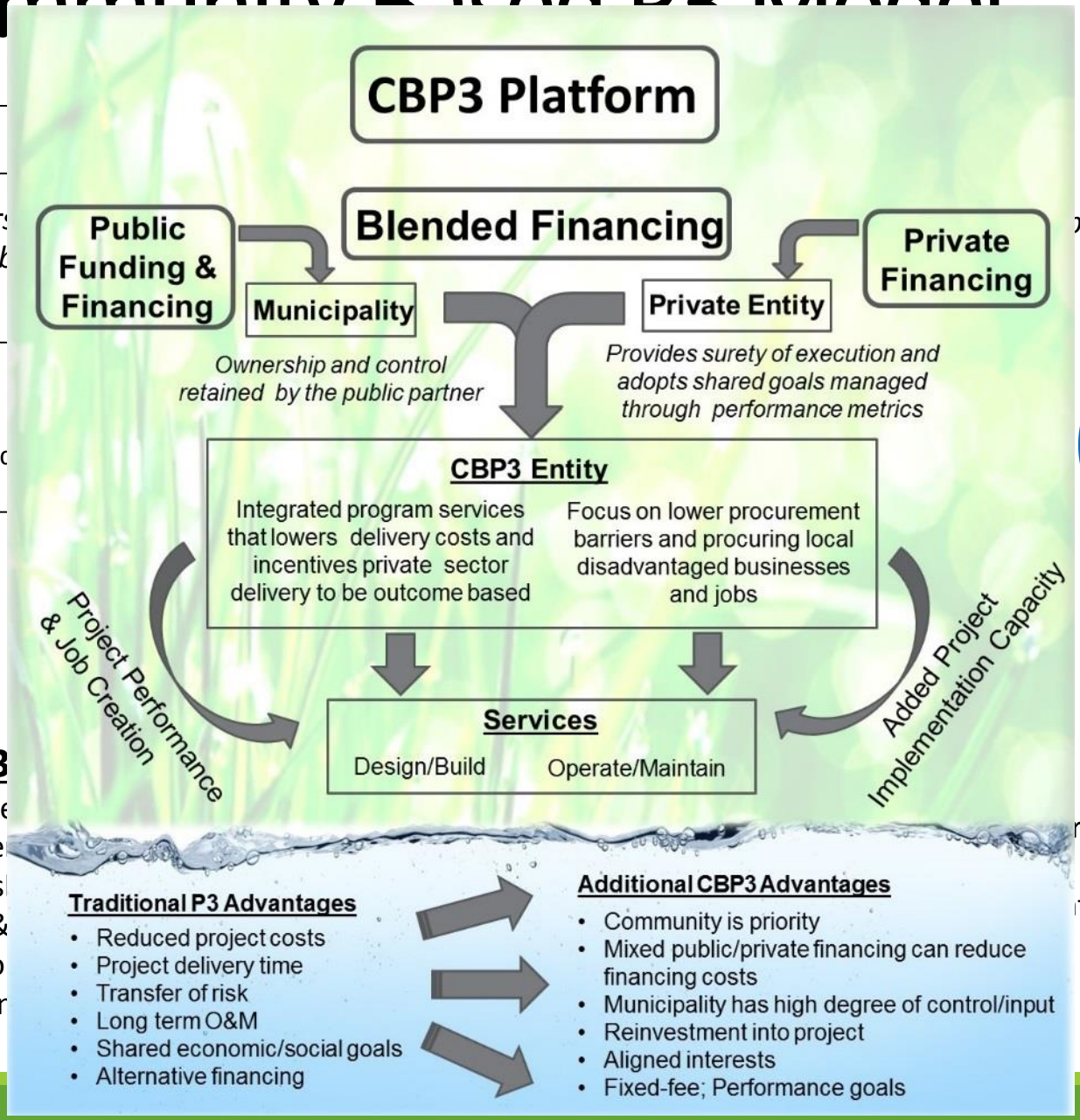
Advantages

- Reduced project costs
- Project delivery time
- Transfer of risk
- Long term O&M
- Off-balance sheet financing

Disadvantages

- Profit/return is motivator
- Large reliance on private financing can be costly
- Loss of control by public
- Economic development not a driver

Community Based P3 Model



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Traditional P3

- Reduced proje
- Project delive
- Transfer of ris
- Long term O&
- Shared econo
- Alternative fir

reduce financing

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CBP3 – The Proof's In the Pudding…

Prince George's County, Maryland

- CBP3 entity (Clean Water Partnership) established in early 2015
- Focus on integrated green stormwater infrastructure
- $100M/2,000 impervious acres for initial phase
- Total of 15,000 impervious acres to address
- Significant cost reductions realized already
- ***Over 2,000 acres in design/development***

This is LARGE-SCALE investment

PRINCE GEORGE'S COUNTY
Department of Environmental Resources

PRINCE GEORGES COUNTY MARYLAND

COMMUNITY BASED

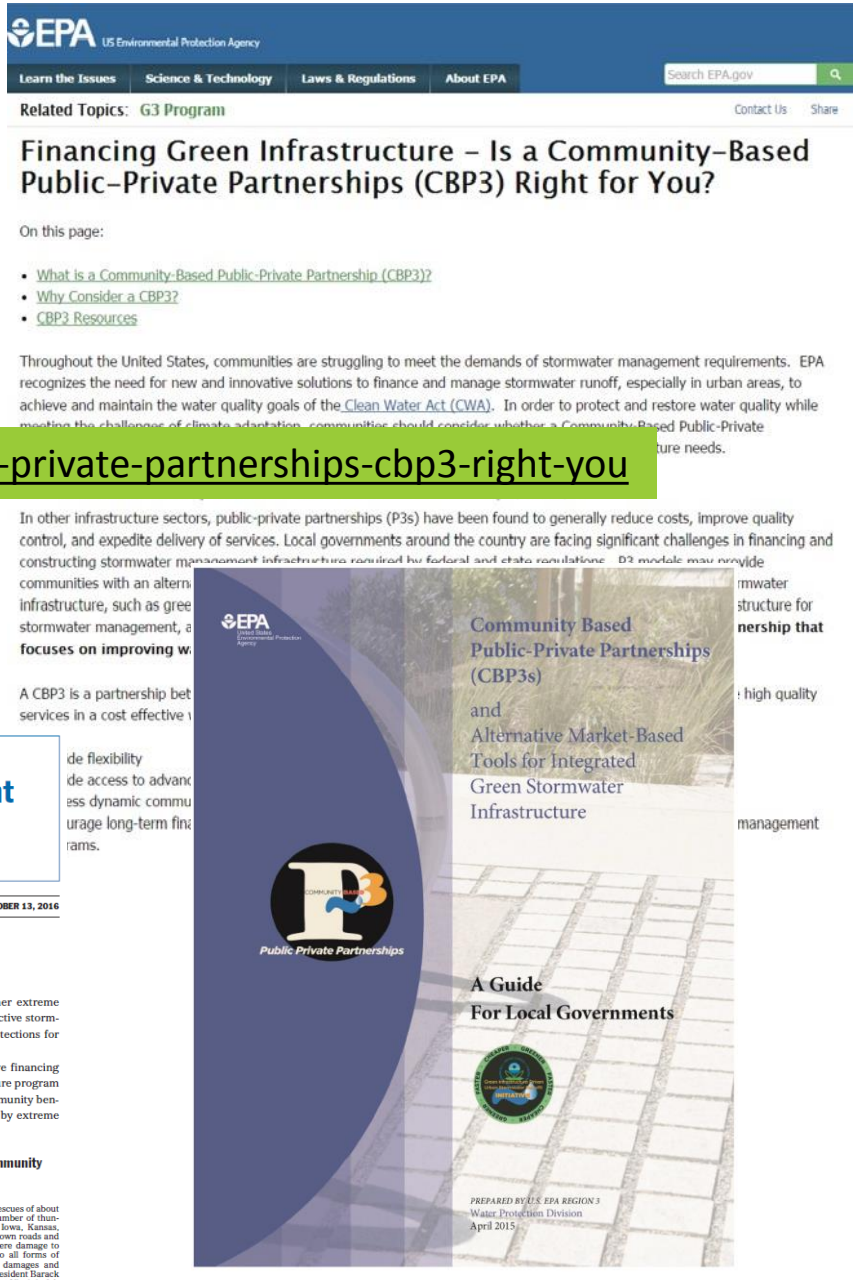
CBP3 Resources

Guide, Publications

Website: www.epa.gov/G3/

/financing-green-infrastructure-community-based-public-private-partnerships-cbp3-right-you

For more information, contact:
lueckenhoff.dominique@epa.gov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Financing Green Infrastructure – Is a Community–Based Public–Private Partnerships (CBP3) Right for You?

On this page:

- What is a Community-Based Public-Private Partnership (CBP3)?
- Why Consider a CBP3?
- CBP3 Resources

Throughout the United States, communities are struggling to meet the demands of stormwater management requirements. EPA recognizes the need for new and innovative solutions to finance and manage stormwater runoff, especially in urban areas, to achieve and maintain the water quality goals of the Clean Water Act (CWA). In order to protect and restore water quality while

ure needs.

In other infrastructure sectors, public-private partnerships (P3s) have been found to generally reduce costs, improve quality control, and expedite delivery of services. Local governments around the country are facing significant challenges in financing and

rmwater

structure for

nership that

high quality

management


Bloomberg BNA

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Financing

Green Infrastructure

The frequency and intensity of storms, whether they are hurricanes or other extreme events, pose significant challenges for communities, including the need for effective stormwater controls to meet Clean Water Act requirements and to ensure strong protections for public health and the environment.

Authors Dominique Lueckenhoff and Seth Brown discuss needs and effective financing solutions for building a comprehensive integrated green stormwater infrastructure program that combines the strengths of green and grey solutions to provide multiple community benefits, including mitigation and rehabilitation of critical infrastructure damaged by extreme wet weather events.

Financing Integrated Green Stormwater Infrastructure to Improve Community Health, Resiliency – Getting the Best Deal for the Money!

BY DOMINIQUE LUECKENHOFF AND SETH BROWN

As storms sweep across the United States with more frequency and greater intensity, the need to address the impacts of flooding increases. These days, one can hardly escape constant news of crippling storms and flash flood emergencies from a growing number of extreme weather events around the country. For example, the unanticipated ravages of Hurricane Matthew along the Southeastern seaboard last week is already estimated to have mult-billion dollar impacts. Houston experienced unprecedented rainfall volumes earlier this year, including 17.6 inches within a 24-hour period in April, which impacted over 1,000 homes, required over 1,200 rescues, led to eight deaths and caused over $5 billion worth of infrastructure and property damage. In August, Baton Rouge, La., saw two feet of rain fall within 24 hours, inundating the city, killing at least nine people, and prompting the rescues of about 20,000. As of May, an unprecedented number of thunderstorms continued to affect parts of Iowa, Kansas, Missouri, Nebraska and Texas, closing down roads and leaving many people stranded, with severe damage to all matter of facilities and disruption to all forms of transportation, resulting in unforeseen damages and mounting costs to society. In addition, President Barack Obama declared a major disaster for West Virginia following the severe storms, flooding, and landslides killing 23 people and leaving thousands homeless.

And who can ever forget Superstorm Sandy with its sweeping and unpredictable devastation—starting in the Caribbean and barreling up the East Coast in late October 2012, leaving nearly 150 dead, thousands homeless and millions in 15 states without power. Travel and commerce came to a halt, and fuel was in

EPA

Community Based Public-Private Partnerships (CBP3s)

and

Alternative Market-Based Tools for Integrated Green Stormwater Infrastructure

Public Private Partnerships

A Guide For Local Governments

PREPARED BY U.S. EPA REGION 3
Water Protection Division
April 2015

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