Overview of NRDC Report
Financing Stormwater Retrofits in Philadelphia and Beyond
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The purpose of the NRDC's research and subsequent paper was to identify and evaluate non-traditional approaches for financing stormwater retrofits, specifically with green infrastructure, although the authors suggest that the same financing principles could apply to new construction and possibly to other water infrastructure investments.

NRDC's premise:
Stormwater runoff is the principal cause of urban waterway pollution nationwide. To reduce the environmental and public health threats posed by polluted stormwater and to comply with the Clean Water Act, cities are making significant investments to reduce stormwater runoff. Traditional solutions that rely solely on fixing or expanding existing sewer and stormwater infrastructure can be extremely expensive and fail to address the root cause of the problem: impervious spaces in the built environment that generate 10 trillion gallons of untreated runoff per year.

Green infrastructure (GI) techniques, while more cost-effective than traditional gray infrastructure, still require significant financial investment if they are to be implemented at the scale necessary to protect urban waterways. Fortunately, the use of GI practices – in combination with stormwater fee and credit systems that reward investment in retrofits – creates tremendous opportunities for private investment to underwrite much of the cost. And given the substantial gap in infrastructure funding available in local, state and federal budgets, the report predicts that cities will increasingly seek to leverage private financing to meet their needs.

How Philadelphia is creating the environment for private investment in GI:
Philadelphia has taken the lead among cities nationwide by establishing a parcel-based stormwater billing structure. In July 2010, The Philadelphia Water Dept. began phasing in a stormwater rate structure that applies to all parcels, both public and private, except residential buildings of 4 units or fewer. It is a system based on a parcel's gross area and impervious surface area. Fees for the impervious component are substantial. For example, the Philadelphia airport pays $126,000/mo. in stormwater fees. [Maximum stormwater fee in KCMO is $4K/mo. per parcel.] Incentives come in the form of a credit against future stormwater fees for properties that install stormwater retrofits. Under the credit structure, the property owner receives a reduction in the Impervious Area (IA) portion of the monthly stormwater fee proportional to the amount of impervious area from which the entire first inch of runoff is managed. A credit of nearly 100% is available if the owner can demonstrate retention of the first inch of rainfall over 100% of his impervious area. The city plans to retrofit nearly 10,000 impervious acres of public property to manage an inch of stormwater runoff onsite over the next 25 years at an estimated cost of $1.67 billion.

Within Philadelphia there are approximately 90,000 commercial properties subject to the new parcel-based system. The authors suggest that if the owners of the 100 properties with the highest fees would choose to retrofit to manage one inch of runoff from substantial portions of their

aggregate impervious area, the total construction costs would range around $115M. Then following the industry standard for commercial real estate finance, if 80% of the retrofit cost were financed and 20% of the costs were covered by the property owner, those 100 properties would require as much as $92M in third party investment. Or, if one would only look at the 1288 parcels that have monthly stormwater fees greater than $1000/mo., approximately $470M in constructions cost would be needed to retrofit these parcels. Under the same financing assumptions described above, those projects could require about $376M in 3rd party financing. NRDC believes there clearly is an opportunity in Philadelphia and in other communities to engage private investors. Nearly 800 communities nationwide have CWA obligations to reduce raw sewage overflows from combined sewer systems.

Financial approaches NRDC believes will work:

1. Off-balance sheet "project developer" model. To date this model has only been used for energy efficiency retrofits. The way it works is - using various structures, energy efficiency investment firms cover all upfront retrofit costs, often installing the retrofit measures as well as providing multi-year maintenance, monitoring and verification of performance following installation. In exchange, the property owner pays the project developer in installments, based on a portion of the energy saving resulting from the retrofit. Project developers can use external debt, external equity or their own cash to finance the retrofit and the project remains on the project developer's balance sheet. Authors advocate that this model should be developed for the water sector, but say that communities must set stormwater fees high enough to generate the needed cost savings from retrofit projects to create a debt repayment stream – which Philadelphia has done.

2. Land-secured financing through commercial PACE (Property Assessed Clean Energy) Programs. PACE is a finance program that was developed to help residential and commercial building owners afford renewable energy, energy efficiency and water efficiency improvements. Currently 27 states and the District of Columbia have passed enabling legislation to provide legal authority for municipalities within their states to implement PACE programs. Under a typical PACE model, a municipality issues special revenue bonds, the proceeds of which are utilized by participating property owners to pay for energy or water efficiency improvements to their property. Property owners then agree to repay the cost of the retrofit in the form of an assessment on their property taxes for up to 20 years. Because the assessment is part of the property tax, the PACE assessments are attached to the property, not the individual owner.

In 2009, EPA's Environmental Finance Advisory Board sent a report to Administrator Jackson encouraging the agency to consider tax-lien mechanisms to finance a range of environmentally beneficial improvements to private property. The report highlighted specifically the role that EPA could play in encouraging states to enact PACE enabling legislation that would finance not only energy efficiency, but also stormwater retrofits. The authors note that legislative changes will likely be needed for PACE to cover the full ranges of Best Management Practices for stormwater management.

3. Utility-enabled Financing and Repayment. In the electric utility sector, if an electric utility is offering an on-bill financing program, this typically means that the utility will lend capital to

ratepayers, who will use those funds to install energy efficiency retrofits, and the utility will collect repayment through a monthly line item listed on the ratepayer's utility bills. The funds provided for on-bill financing typically come from ratepayer funds or other state or local funds. Financing stormwater retrofits could be financed in the same way. On-bill programs could also be sourced in whole or in part from private investors. Authors believe that investors could rely on the track record of ratepayer utility default rates as a yardstick for repayment default. They also note that in cities where stormwater utilities can demonstrate relatively low delinquency rates on utility bills, this approach, coupled with repayment obligation running with the property, could entice private investment.

The authors note that there are challenges associated with using these mechanisms to create a large and liquid market for private investment in stormwater retrofits. These include the relatively high transaction cost associated with some of these mechanisms, the large number of dispersed stormwater projects, difficulty lending to mortgaged properties, lack of available collateral, questions that may arise in the event of transfer of ownership and uncertainty regarding long term trends for municipal stormwater fees and credits.

The authors offer some suggestions on strategies that communities could use to make private investment or public-private partnerships more successful: aggregating projects, off-site mitigation programs, tradable credits and others. Their message is – communities need to figure out what the barriers and opportunities are to make financing work within their jurisdiction, and then be creative with solutions.

Next Steps:

NRDC is now working with Philadelphia to pilot some of the financing approaches explored in the paper.