Financing Stormwater Resilience: How Energy Efficiency Can Inform Decision Making for GSI

Starkman, Kendall
Duke University, Nicholas School for the Environment

At the same time as climate change impacts are becoming an increasingly pressing threat to our cities, urban development continues to grow. Stormwater runoff already severely compromises the health and resilience of local waterbodies, habitat and ecosystems, but the limited capacity of existing sewer systems increasingly puts human health and property at risk as well. Cities are turning to green stormwater infrastructure (GSI) as a distributed solution to relieve growing stormwater management challenges and increase resilience to flooding and storms. However, given the disaggregated nature of GSI, installations on public property may be insufficient to have a system–wide impact. Penetration onto private property is essential.

In order to inform decision–making on how to design a GSI incentive program for commercial properties, this research looked to successful energy efficiency financing mechanisms. By identifying key factors that influence the success of three energy efficiency financing programs in the United States (on–bill repayment, performance assessed clean energy (PACE) and performance contracting through energy services companies (ESCOs)), and drawing cross–sector parallels to GSI, a decision–making framework was created for municipalities looking to incentivize private investment in GSI on commercial property.

The resulting Excel–based Decision Tool uses the specific characteristics of a stormwater system to determine which, if any, of the three case financing mechanisms would be appropriate for further consideration in the given jurisdiction. The Tool is intended to provide initial direction for further evaluation of possible program designs by highlighting tradeoffs and bringing the national experience to bear for a specific case. This presentation will explore the results for Durham, NC as well as other cities relevant to session attendees.