



CITY OF ATLANTA DEPARTMENT OF  
**watershed  
management**

Keisha Lance Bottoms, Mayor  
Kishia L. Powell, DWM Commissioner

# Financing Resilience in Atlanta using an Environmental Impact Bond



Southern California Water Coalition  
September 27, 2019



# Contributing Authors

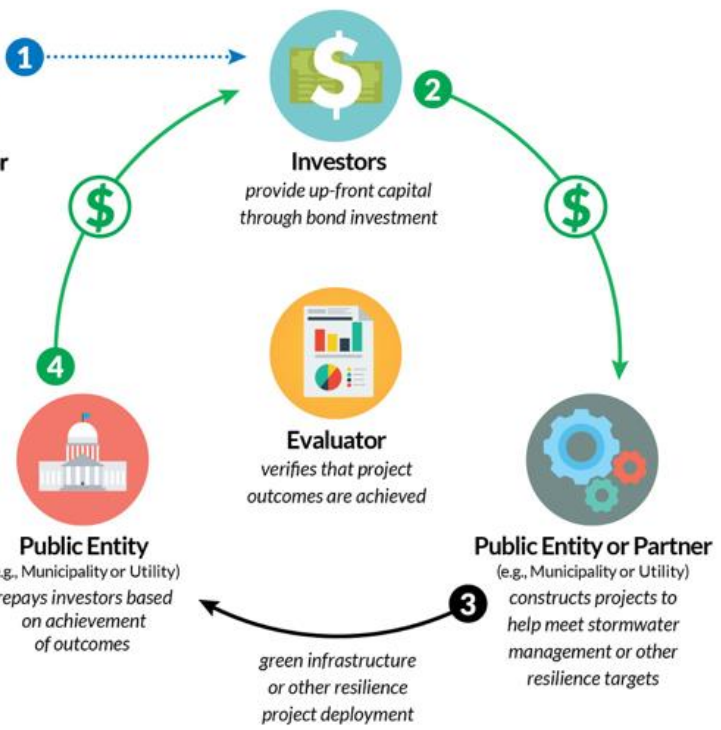
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# ENVIRONMENTAL IMPACT BONDS



**Intermediary/Advisor**  
coordinates deal,  
aligns and coordinates  
stakeholders

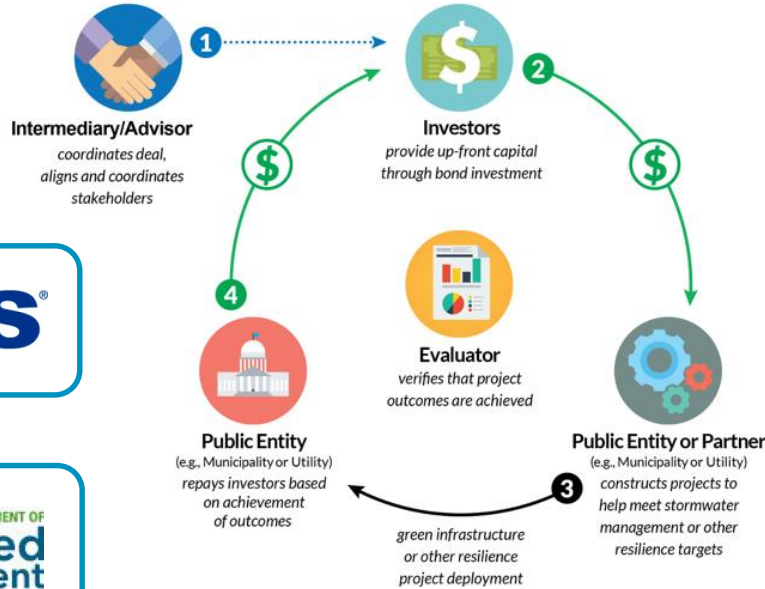


## What is an EIB?

- Performance-based finance mechanism
- Similar to municipal bond but outcomes are verified
- Similar to a social-impact bond or "pay-for success" bond
- Marketed to impact investors



# ENVIRONMENTAL IMPACT BONDS



## Why use an EIB?

- Opportunity of impact investors to fund positive outcomes
- Share potential risks of innovative approaches among investors
- Leverage data to support investment in resilient infrastructure



# Environmental Impact Bond (EIB)

- Issued in March 2018 by Mayor Keisha Lance Bottoms
- Initially Funded by Rockefeller Foundation 100 Resilient Cities Initiative
- First publicly offered EIB
- Coordinated by financial advisor **Quantified Ventures** and underwritten by **Neighborly Corporation**
- Lead designer and volumetric probability modeling by **Jacobs**





# Benefits of Green Infrastructure



Environmental

- Water Quality
- Air Quality
- Wildlife Habitat
- Floodplain Restoration



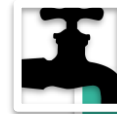
Social

- Equity & workforce
- Flood reduction
- Public Health
- Education
- Access to green space



Economic

- Job Creation
- Increased Property Values
- Avoided flood damages



Infrastructure

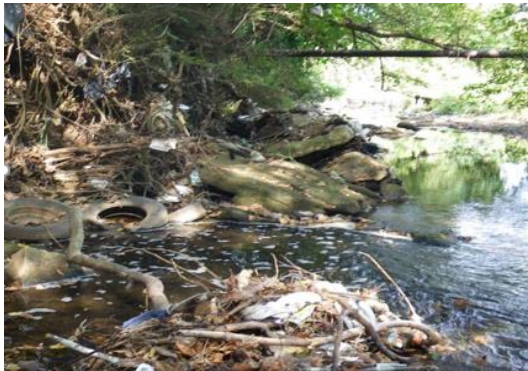
- Flood storage
- Sediment Removal
- Protect downstream sewer infrastructure
- Capacity Relief



## Primary Drivers: Flood Mitigation and Water Quality



Significant direct and indirect costs avoided

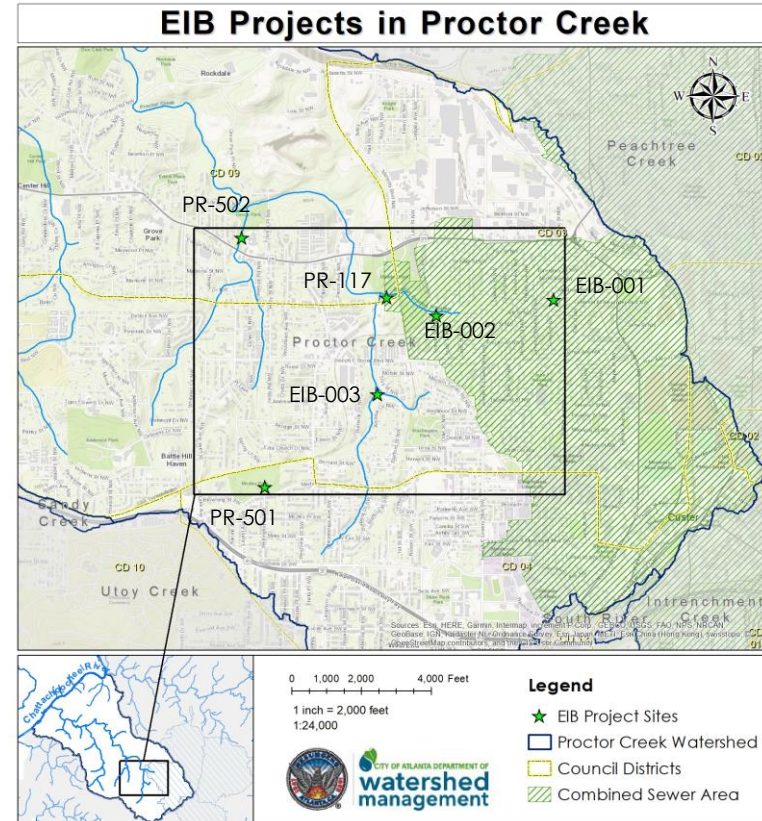


Proctor Creek is listed as impaired by the Georgia EPD



# Atlanta's EIB

- Six projects in the Proctor Creek Watershed
- Mix of ecosystem restoration and stormwater BMPs located in a CSO basin
- Focus on local job creation, health and resilience of Westside communities
- Estimated \$14M EIB construction budget will create over 6M gallons of static storage volume
- The additional storage volume is anticipated to create 56M gallons of runoff reduction annually
- The estimated ROI is over \$19M







## Outcome Metric

*How did we link EIB interest payments to project performance?*

Used **volume** of static stormwater storage as the metric for determining payments to the bondholders

*Why volume?*

- A simple metric that can be applied to and aggregated across all projects types
- Reflects both flood reduction and water quality improvement, the two major drivers
- Easy for investors to understand and related to their environmental interests
- Allows consistent prediction and measurement of results



# Probability Analysis: Predicting Overall Storage Volume

- Developed unique probability model using analytical methods and Monte Carlo simulations
- Estimated storage volume changes based on:
  - Unforeseen subsurface utilities
  - Contractor performance
  - Contractor price
- Mean storage volume was 6.3MG
- Design storage volume is 6.4MG

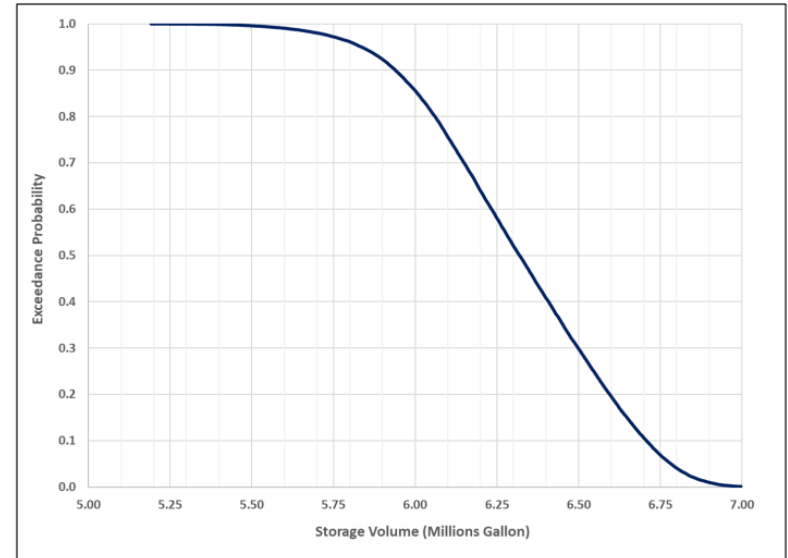
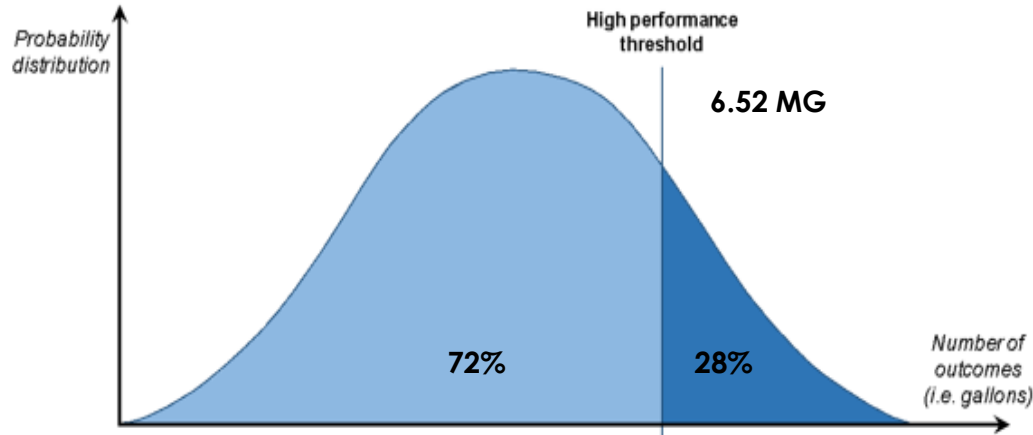


Figure 3. Probability Curve based on the Monte Carlo Simulation Method

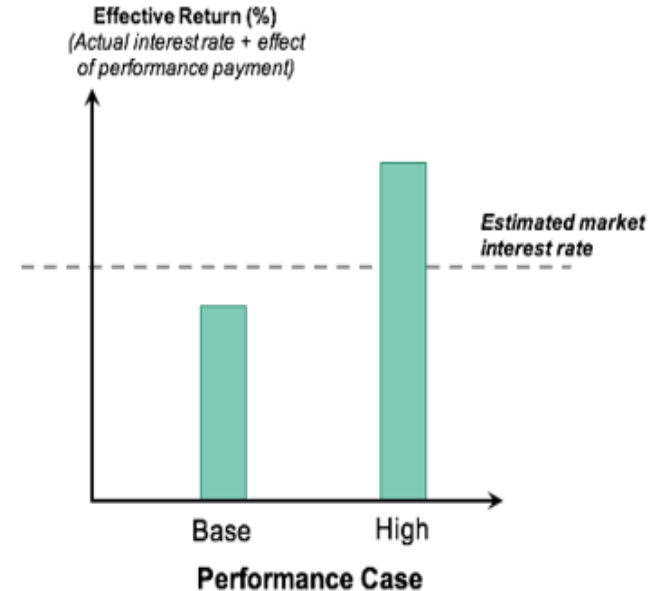


# Calculating Performance Payment

## TWO-TIERED PERFORMANCE STRUCTURE



Performance:	Base	High
Fixed (Actual) Interest Rate:	~3.55%	~3.55%
Additional Payment:	None	\$1M





# Timeline

- January 2019: EIB Sold
- 2019 - 2023: Final Design, Procurement, and Construction
- 2024: Validation of Volume to Determine Effective Rate
- 2028: Final Bond Maturity



# Takeaways

- EIBs are marketable offerings in the public sector
- Volumetric capacity is a simple, cost-efficient metric to apply across different types of GI and allows for consistent one-time measurement and evaluation
- A two-tiered performance structure is a replicable innovation
- Timing is key for both structuring and marketing the deal
- Relatively high transaction costs as a “pilot”
- Tying project design to financing terms involves coordination across departments and with multiple partners



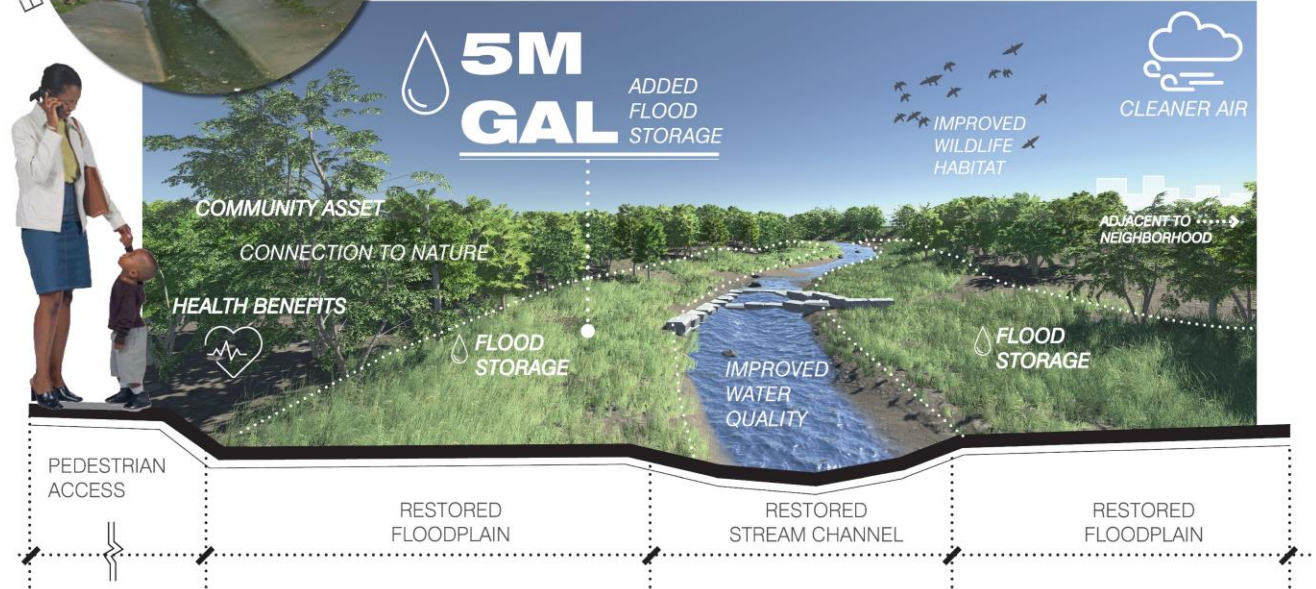
# GREENSFERRY

## GREEN SPACE & STREAM RESTORATION

EXISTING CONDITION



**SUMMARY:** This project restores a degraded segment of Proctor Creek channelized in concrete in the 1960's. By restoring a natural stream channel and floodplain access, this project will be able to increase storage by over 5 million gallons during rain events, protecting downstream communities from flash flooding while also improving water quality and aquatic habitat. In addition, the restored green space will be a community asset providing other ecosystems services for the adjacent community including cleaner air and temperature regulation, as well as proven health benefits associated with proximity to green space and walking trails.



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# Questions?



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