

GREEN INFRASTRUCTURE FOR THE ATLANTA UNIVERSITY CENTER

ATLANTA, GEORGIA | 2022

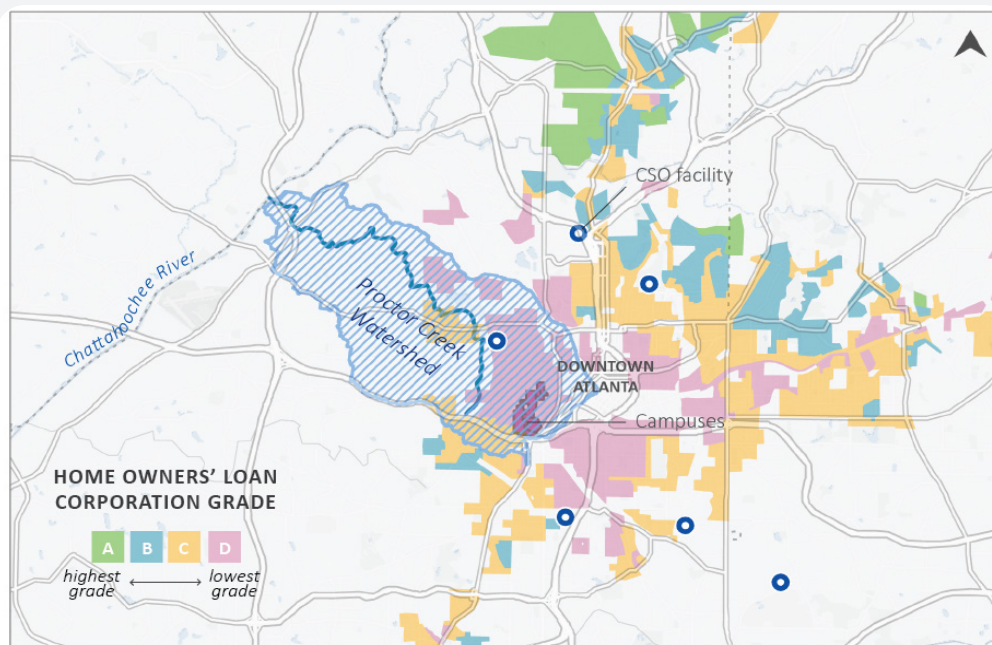
FLOODING CONCERNS: ATLANTA UNIVERSITY CENTER

The Atlanta University Center (AUC) and the City of Atlanta¹ are proposing to build resilience and strengthen nearby communities by reducing the frequency and intensity of stormwater flooding. The AUC is in a unique position to help mitigate these flood and public health risks because it is situated high in the Proctor Creek watershed. During major rainfall events, stormwater runoff from the AUC enters combined sewer systems resulting in nearby sanitary sewer overflows and downstream combined sewer overflows (CSO), exposing people and the environment to untreated sewage.



Environmental Community Action Inc. (ECO-Action) collaborated with Clark Atlanta University, the Interdenominational Theological Center, Morris Brown College, Spelman College, the Atlanta Housing Authority site, and adjacent private property owners, including Friendship Baptist Church and Villages II, to develop nine Green Infrastructure Conceptual Plans to address flooding and mitigate its impacts. The proposed solutions include building a network of cisterns, greenways, and trees to slow and store stormwater, which will reduce the occurrence of flooding, sanitary sewer overflows, and downstream CSOs in the Proctor Creek watershed. ECO-Action partnered with Earth Economics to analyze the economic benefits of the proposed plans. This fact sheet highlights the dollar value of a few selected benefits. Further research is needed to value additional benefits.

COMBINED SEWER OVERFLOWS AND HISTORIC REDLINING IN PROCTOR CREEK WATERSHED



Historic redlining policies and limited public infrastructure development have combined to expose communities in the Proctor Creek watershed to repeated flooding and public health risks from sewer overflows. Minor rain events—5-year events that have a twenty percent chance of occurring in a given year—produce severe consequences, which increase with rainfall intensity.

¹City of Atlanta Green Infrastructure Strategic Action Plan. 2018. City of Atlanta Department of Watershed Management. <https://www.atlantawatershed.org/greeninfrastructure/>

HISTORIC INFRASTRUCTURE DISINVESTMENT DRIVES PRESENT INEQUITIES

The most frequent urban flood damage usually happens at a scale too small to trigger disaster declarations and the release of relief funds. This leaves damages to be covered by individual insurance claims, which are optional, expensive, and targeted towards homeowners rather than renters. Uninsured flood damages often go unaddressed, leaving homes in substandard condition, driving losses in property values, and compromising affordable housing options.

AVERAGE COST OF PROPERTY FLOODING PER HOUSEHOLD (2021 USD \$)²

- Damages to structures: \$ 7,858
- Lost valuables: \$ 4,664
- Other expenses: \$ 4,562
- Lost wages: \$ 3,375
- Lost other income: \$10,553



Photo Credit: Kelly Michals, 2009

SUPPORT ADAPTATION AND RESILIENCE

Installing cisterns and the greenways will provide immediate flood relief. As vegetation becomes established, stormwater management greenways and street trees will further improve the AUC area's flood mitigation capabilities. By reducing downstream flooding, the proposed green infrastructure solutions can reduce public health risks—such as injury, stress, or mold exposure—and support the local economy by keeping businesses, roadways, and services open. Green infrastructure takes pressure off the existing sewer system and delays the need for costly sewer separations to avoid overflows.

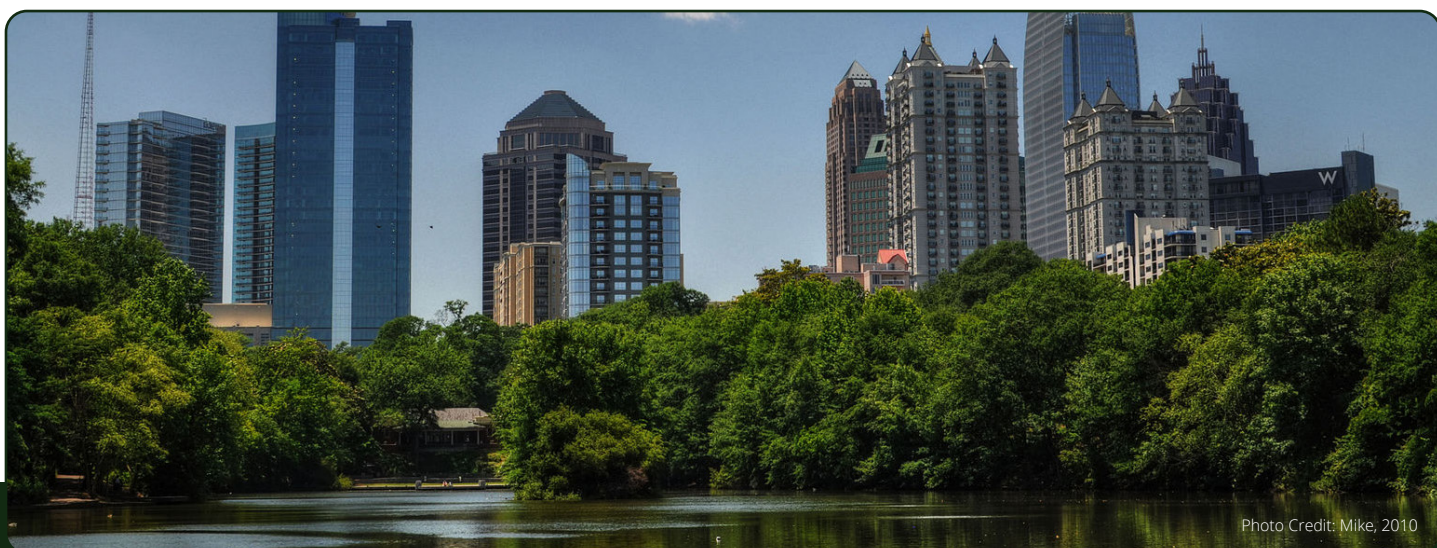
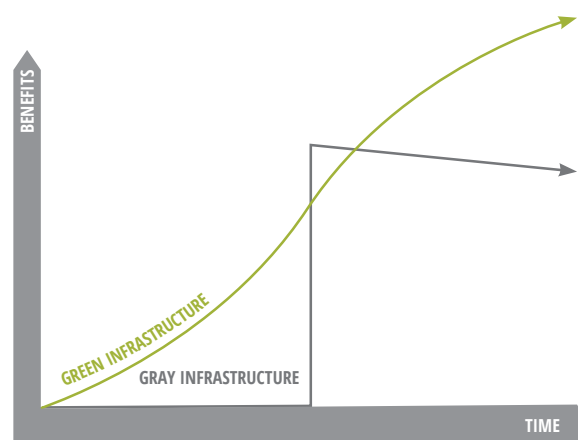
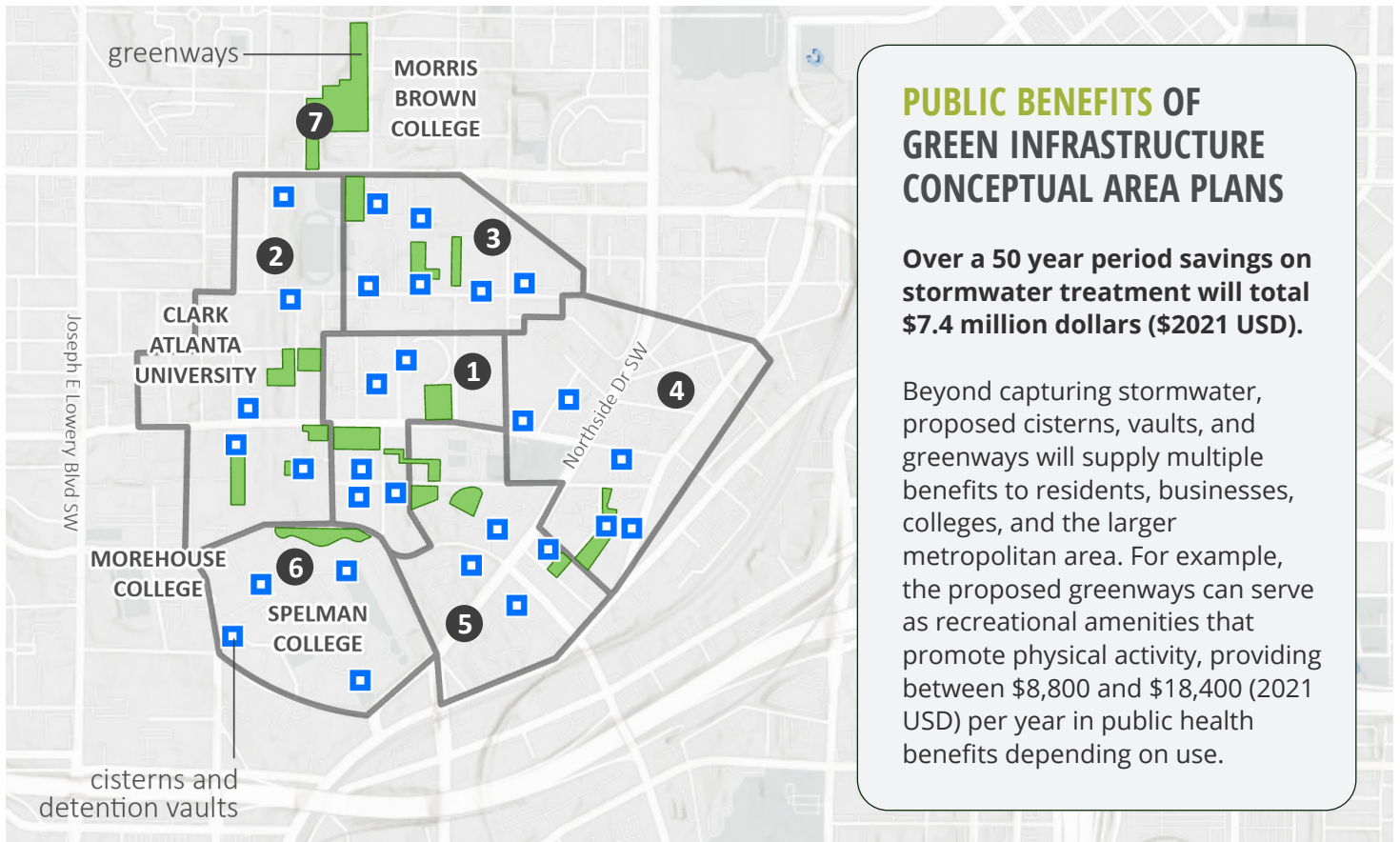


Photo Credit: Mike, 2010

VALUE OF AVOIDED STORMWATER TREATMENT BY CONCEPTUAL PLAN AREA



SOURCES: EcoAction, Mapbox, OpenStreetMap
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0.3
MILES

| | CATCHMENT AREA | CISTERN CAPACITY (MG) | GREENWAY AND VAULT CAPACITY (MG) | STORMWATER MANAGED PER YEAR BY CISTERNS (MG) | ANNUAL AVOIDED STORMWATER TREATMENT COST BENEFIT (\$2021 USD) |
|---|---------------------|-----------------------|----------------------------------|--|---|
| 1 | AHA | 1.83 | 2.37 | 23.41 | \$25,100 |
| 2 | Catchment 1 | 4.19 | 3.83 | 53.60 | \$57,500 |
| 3 | Catchment 2 | 2.31 | 1.71 | 29.55 | \$31,700 |
| 4 | Catchment 3 | 4.27 | 4.92 | 54.62 | \$58,600 |
| 5 | Catchment 4 | 3.14 | 1.89 | 40.17 | \$43,100 |
| 6 | Spelman College | 1.39 | 3.19 | 17.78 | \$19,100 |
| 7 | Sunset Ave Greenway | n/a | 5 | n/a | n/a |
| | TOTAL | 17.13 | 22.91 | 219.14 | \$235,100 |

Note: Value for wastewater treatment in combined sewer systems provided by the City of Atlanta Department of Watershed Management in personal communication on March 18, 2022.



A TREE IS NOT JUST A TREE

The AUC has one of the lowest areas of tree coverage in the Proctor Creek Watershed. This proposal will add 656 trees to the area. As these trees mature, they manage stormwater and provide other important benefits. Collectively, these trees at maturity will provide a total value of **\$478,700** per year.

Over a 50-year period, these trees will provide a total of \$11.3 million (2021 USD) in benefits, which accounts for their increased ability to provide benefits as they grow.

Additional research can value other benefits not quantified in this study, such as aesthetic enjoyment, stress relief, and social cohesion. Trees also help improve productivity, reduce crime, and support economic stability. Burying power lines can enhance these tree benefits, support tree maintenance, and enable more tree planting.

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HEAT RISK REDUCTION
 \$387,200 per year
- 
PROPERTY VALUE IMPROVEMENT
 \$34,900 per year
- 
ENERGY COST SAVINGS
 \$11,200 per year
- 
AIR QUALITY
 \$1,600 per year
- 
HABITAT
 \$26,400 per year
- 
STORMWATER MANAGEMENT
 \$13,200 per year
- 
CARBON SEQUESTRATION
 \$4,100 per year
- 
AVOIDED CARBON EMISSIONS
 \$100 per year

RENDERING OF POWERLINE REMOVAL AND TREE PLANTING FOR ATLANTA STUDENT MOVEMENT BLVD. AT VINE STREET



INVEST IN GREEN INFRASTRUCTURE FOR THE AUC

Research shows that green infrastructure projects tend to store more gallons of stormwater per dollar invested than conventional gray infrastructure. Investing in green infrastructure can address flooding in already developed areas while supporting the City's site-specific stormwater management requirements for new developments and redevelopments. Compared to investments in large-scale gray infrastructure upgrades, distributed green infrastructure projects can be financed and installed incrementally over time and space while prioritizing Atlanta's flooding concerns.

This project was completed in partnership with the ECO-Action, with funding support from the Kresge Foundation.

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