The Georgia State University GIRAS Initiative **Green Infrastructure to Reduce Atlanta Stormwater**

Challenge: Atlanta, GA receives abundant rainfall and has massive amounts of runoff, with much of it passing over impervious surfaces and going directly to either combined sewer systems or local streams thereby leading to degraded water quality and flooding. Georgia State University (GSU), in the heart of downtown Atlanta, is comprised almost entirely of impervious surfaces and its roofs are responsible for nearly 40 million gallons of stormwater runoff annually. This project focuses on preventing all stormwater runoff from the roof of GSU's Sports Arena from entering the city's combined sewer system.



Most of Atlanta is in the Apalachicola-Chattahoochee-Flint (ACF) Basin and the southeastern section is in the Altamaha-St. Mary's Basin. Therefore, Atlanta runoff goes to both the Gulf of Mexico and the Atlantic Ocean.

The City of Atlanta is 134 mi², with impervious surfaces covering 40% of the city. Annual stormwater runoff for the city is roughly 41 billion gallons.

- Zoning, permitting, and ownership issues.
- Lack of available space for landscaping initiatives.
- Aging infrastructure.

- Insufficient means of access to rooftops.
- Prohibitive cost to structurally reinforce buildings to support a green roof.



Proposed Intervention

- Transform the roof into 3" irrigated green roof
- Irrigation water will be harvested on-site and stored in a cistern
- Green roof will be mostly native grass and ornamentals species





Decreasing Geographic Scale



GSU is located in downtown Atlanta and its impervious surfaces covers approximately 90% of its "footprint." Annual stormwater runoff from the campus' 32 acres of roofs is roughly 38 million gallons.

On the southern side of campus is the Sports Arena, which has a 38,900 ft² roof. Annual stormwater runoff from the roof is roughly 940,000 gallons. This water enters the sewer system and is transported across the subcontinental divide to a treatment plant.

Challenges Facing Urban Green Infrastructure

• Buried utility main and lines.





Proposed Intervention



EPA Campus RainWorks Challenge



Northeast of the Sports Arena is an unnamed and rarely used 3,600 ft² greenspace. The greenspace is not hospitable: it is situated at a busy road intersection, and a 32-ft wall forms the southern side of the greenspace.

• Structural loading capacities not sufficient for the weight of a green roof. • Safety concerns that come with public access. • Increased costs of construction due to urban location.

Existing Greenspace

• Convert the barren wall into a living wall • Construct a rain garden on the eastern end • Divert Sports Arena runoff to the park Incorporate a water feature on the west corner

