

**Green Infrastructure Initiative at the Atlanta University Center
Conceptual Plan Summary Report**

Description of the Plan Areas and Total Flows Captured

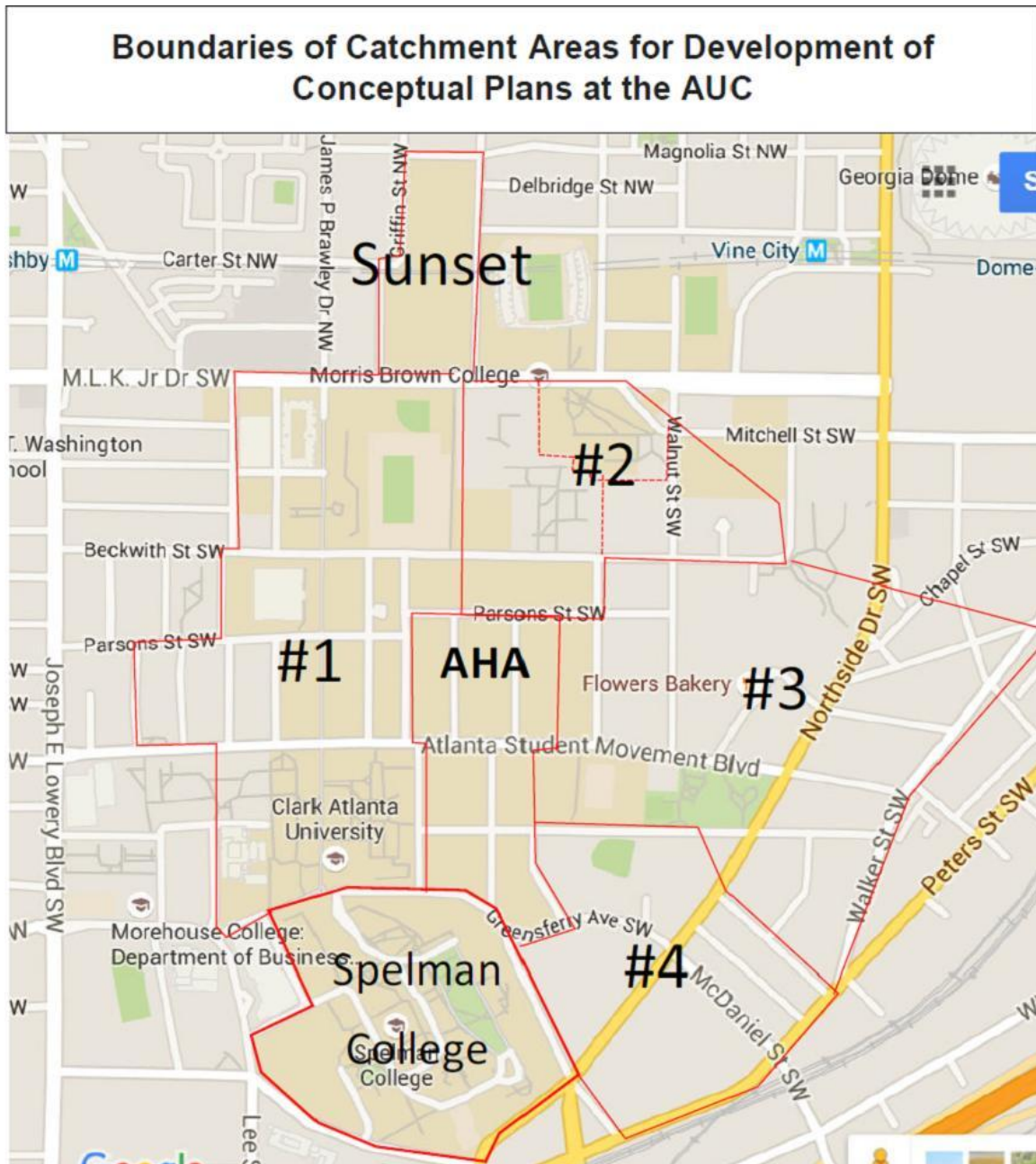
The nine conceptual plans capture 40.0 MG of stormwater runoff from this enlarged study area. 17.1 MG is retained in cisterns for reuse while 22.9 MG is detained in greenways and vaults for release after the major rain events have passed. Quantities of stormwater retained, detailed and captured in each of the seven areas studied are summarized in Table 1 below.

Table 1: Stormwater Retained, Detained and Captured

Area	Stormwater Retention	Stormwater Detention	Total Floodwaters Captured
Spelman College	1.4 MG	1.9 MG + 1.3 MG = 3.2 MG	4.6 MG
Sunset Avenue Greenway		5.0 MG	5.0 MG
Catchment # 1	4.2 MG	3.8 MG	8.0 MG
Catchment # 2 includes 3 Conceptual Plans	2.3 MG	1.7 MG	4.0 MG
Catchment # 3	4.3 MG	4.9 MG	9.2 MG
Catchment # 4	3.1 MG	1.9 MG	5.0 MG
Atlanta Housing Authority	1.8 MG	2.4 MG	4.2 MG
Total	17.1 MG	22.9 MG	40.0 MG

A summary of each of the catchment plans appears below. The full reports that detail the findings of the conceptual plans can be found at the indicated links on the ECO-Action website.

- [Spelman College Green Infrastructure Conceptual Plan](#) considered the southernmost part of the study area. It can capture 4.6 MG of flood waters, 1.4 MG in cisterns, 1.9 MG in the Spelman Parking Lot Underground Detention Vault, and 1.3 MG in terraced flood plains (Spelman Meadows).
- [Sunset Avenue Greenway Catchment Area](#) on the historic Morris Brown College campus is identified in several of the AUC Conceptual Plans as a significant opportunity to detain, infiltrate and clean stormwater from the AUC campuses before it impacts local neighborhoods. Extending along Sunset Avenue north of Martin Luther King, Jr. Drive to Magnolia Street, the property is adjacent to Herndon Stadium. It can capture and detain 5 MG of stormwater runoff during a major rain event. It can also infiltrate 500,000 to 1,200,000 gallons of runoff per year.



- **Catchment Area 1** embraces the western part of the CAU campus plus parts of the surrounding community all located between Lawshe Street and Lowery Boulevard. It captures 8.0 MG of floodwaters, 4.2 MG in cisterns and 3.8 MG in recreational greenways.
- **Catchment Area 2** brings together three adjoining Conceptual Plans for the Interdenominational Theological Center, the high elevation portion of the historic Morris Brown campus, and contiguous parts of the CAU campus, as well as private and public/private areas uphill from the campuses. It extends along the northern edge of

the study area. It captures 4.0 MG of floodwater, 2.3 MG in cisterns and 1.7 MG in greenways.

- **Catchment Area 3** is central in the eastern side of the study area. Some 2/3 of the Catchment is located outside of the boundaries of AUC, starting as high up in elevation as Walker Street in Castleberry Hill. Rainwater from these portions of the Catchment drops 60 feet in elevation to flood the lower elevations at CAU and the Atlanta Housing Authority (AHA) at John Hope Drive and Lawshe Street. Green infrastructure in this Conceptual Plan will capture 9.2 MG of floodwaters, 4.3 MG in cisterns and 4.9 MG in greenways.
- **Catchment Area 4** takes in the southeastern portion of the study area. As much as 2/3 of this Catchment is public/private apartment developments starting at the high elevations of Peters Street down to where they flood the parking lot behind the CAU Gym. This Conceptual Plan captures 5.0 MG of floodwaters, 3.1 MG in cisterns and 1.9 MG in greenways.
- **Atlanta Housing Authority Catchment Area**, a Multifamily Housing Plan called Scholars Landing is located at one of the lowest elevation areas of the CAU campus. Its EPA wetness index of “usually wet” can be mitigated by the green infrastructure Conceptual Plans for the surrounding Catchments # 1, # 2, # 3 and # 4. In addition, the Conceptual Plan for the AHA Catchment itself calls for the capture of 4.2 MG of floodwaters, 1.8 MG in cisterns and 2.4 MG in greenways.

Student Observations and Recommendations

Early in their research, students documented the adverse effects that combined sewage – stormwater mixed with raw sewage – flooding downhill from the AUC campuses had on public health in the lower elevation residential communities and on water quality in Proctor Creek. They took it as a moral responsibility to develop capacity relief for the combined sewer system in order to reduce the adverse impacts that flooding from the AUC campuses has on downstream communities public health.

In line with the notion that nature can help make cities healthier, more resilient and more appealing places to live, the students also recognized that introducing stormwater storage greenways to the AUC campuses could improve aesthetics and provide passive recreation opportunities and play spaces. One conceptual plan notes that “running water releases negative ions into its surroundings which mediate mood and improve creativity...” Other research says that walking in nature changes brain chemistry in a positive way, in such a way as to reduce violence and improve attitude.

Students recommended that their conceptual plans be considered for implementation over a period of time not only to improve livability at AUC, but also to ensure improved living conditions for all affected downstream communities. Long-term benefits the students expect include increased systems resiliency, cleaner air and water, a way to lessen the impact of climate change, collection of water for reuse and for drought, and other benefits.

The students note that implementation of their conceptual plans will require that someone nurture collaboration and cooperation among the private and public stakeholders. Once the stakeholders agree to move forward, more complex hydrological analysis will be necessary along with cost/benefit analyses.

They also note that the third world situation in Proctor Creek has led to a convergence of both federal and local stakeholders to investigate the causal problems and implement flood control solutions. The Department of Housing and Urban Development, the Army Corps of Engineers and the Environmental Protection Agency, among 16 federal agencies, have joined forces with the City of Atlanta, corporations, charitable foundations, and non-governmental organizations to fix this problem.

They further note that the cost of eliminating CSOs and SSOs throughout the nation is staggering. The wastewater systems of the United States are aging and require significant investment in traditional infrastructure and innovative, non-structural infrastructure to prevent the occurrence of sewer overflows. In its most recent Clean Water Needs Survey (2000), EPA estimated the future capital needs to address existing CSOs at \$50.6 billion. In addition, EPA estimated that it would require an additional \$88.5 billion in capital improvements to reduce the frequency of SSOs caused by wet weather and other conditions (e.g., blockages, line breaks and mechanical/power failures).

Student Comments: Students who have been engaged in this project claimed to have gained an increased understanding of green infrastructure and its application to capturing stormwater, engineering concepts, design processes, and the importance of moral responsibility. Imani Love, a May 2016 Spelman graduate wrote, *“Thinking back to when I was first introduced to green infrastructure in Dr. Yomi’s Environmental Health class my junior year at Spelman College, I never would have thought how much this project would impact my personal and academic career. Since 2015 I have immersed myself in two projects that have not only extended my knowledge of environmental health and green infrastructure, but the importance of sustainability, environmentally and culturally, in the West End. I learned the importance of giving back to the community that essentially assisted me in becoming the environmental advocate that I am today. In every phone interview and conversation that I engage in regarding my career and academic achievements thus far, the green infrastructure project is at the top of the list. There are a number of skills and personal relationships that I developed while working on this project ...”*.