CITY OF ATLANTA

GREEN INFRASTRUCTURE STRATEGIC ACTION PLAN

It is my goal for Atlanta to become one of the top tier sustainable cities in the nation."

Mayor Kasim Reed

This Eco-Commons on the GA Tech Campus is an engineered waterway designed to replicate the function of a riparian system.

City of Atlanta Green Infrastructure Strategic Action Plan

Purpose of the Green Infrastructure Strategic Action Plan

Building on the significant success already achieved by the City, the purpose of the Green Infrastructure Strategic Action Plan is to promote and support the implementation of green infrastructure (GI) in order to reach the City's GI goals and benchmarks. This action plan supports the Mayor's goal of becoming a top tier sustainable city and optimizing the city's infrastructure investments.

This plan provides a series of recommended next steps for achieving the City's goals. Recommendations are broken down into the following four categories:

1. Project implementation
2. Policy, funding, and planning
3. Partnering and outreach
4. Data tracking and technical analysis

What is GI?

The City of Atlanta, like many cities, struggles with managing stormwater runoff that causes flooding, degraded water quality, streambank erosion, and property damage. GI is a cost-effective approach to managing stormwater runoff that emphasizes infiltration, evapotranspiration, and reuse that also complements traditional engineered approaches in both combined and separated stormwater systems. GI uses natural systems and/or engineered systems designed to mimic natural processes to more effectively manage urban stormwater and reduce impacts on receiving waters. These systems are often soil or vegetation-based and include planning approaches such as forest conservation and restoration, urban tree preservation and impervious cover reduction, as well as structural practices such as rain gardens and permeable pavements. By maintaining and restoring the natural hydrologic function of urban areas, GI treats precipitation as a resource rather than waste, and can play a critical role in improving community development as well as achieving water quality goals.

GI works by reducing the volume of stormwater discharging through grey infrastructure (typically piped systems that discharge directly into bodies of water, or water treatment facilities) by managing rainwater where it naturally falls and removing many of the pollutants present in runoff. By reducing volume and pollutants, these systems make an effective strategy for addressing wet weather pollution and improving water quality. GI can also provide a sustainable, local supply of water by harvesting or infiltrating precipitation.

GI is a cost-effective approach for managing stormwater that helps communities to stretch their infrastructure investments further, while providing multiple environmental, economic, and community benefits. The co-benefits of GI do much more than

Atlanta City Hall's green roof was the first of its kind installed on a municipal building in the southeast.

support a more sustainable and resilient water infrastructure, an outcome that will grow in value in the face of climate variability. GI can also revitalize urban communities by providing much-needed green space for recreation, increase the value of adjacent properties, provide wildlife habitat, and mitigate some of the heat island effect of dense urban areas.

An Emerging GI Leader

During the administration of Mayor Kasim Reed and under the leadership of the Department of Watershed Management commissioner Jo Ann Macrina, the City of Atlanta has developed components of a GI program that have received attention both locally and nationwide. Successes include the following examples:

- **Post-Development Stormwater Management Ordinance**

  In February of 2013, the City of Atlanta adopted one of the most far-reaching stormwater management ordinances in the country. The ordinance laid the groundwork for a robust GI program, both for private development as well as capital improvement projects undertaken by the City. Without a direct source of funding from a stormwater utility fee, Atlanta has undertaken the implementation of this program through an extensive coordination approach which relies on multiple city departments, non-profit organizations, and the private development community. Early phases of implementation focused on establishing baselines and goals, producing guidance material to simplify compliance, and training and outreach efforts for the development community and city staff to help ensure consistency. To date, the City has permitted nearly 2,000 construction projects that utilize green infrastructure to reduce the volume of polluted runoff by approximately 350 million gallons annually.

- **Southeast Atlanta Green Infrastructure Initiative**

  This initiative represents a catalytic change in the way the DWM responds to combined sewer system capacity issues. Using a combination of green and gray infrastructure, the City captures approximately 13 million gallons (MG) of stormwater runoff in large storm events, reducing the frequency of combined sewer overflows while recharging groundwater. The City is currently installing six miles of permeable paver roadways to help alleviate flooding in neighborhoods served by the City's combined sewer infrastructure.

- **Historic Fourth Ward Park**

  Stormwater runoff and damaging flooding once plagued the area where Historic Fourth Ward Park now stands and its surrounding environs. The 2-acre lake provides not only an arresting visual and natural gathering place, but also serves in a functional capacity as a stormwater detention basin. In this role, the lake increases the sewer capacity, reduces the burden on aging city infrastructure, and minimizes downstream flooding and property damage. Additionally, this project has had substantial environmental benefits including ecosystem restoration, habitat creation, urban reforestation, as well as soil remediation and brownfield redevelopment. This innovative infrastructure solution was achieved through a partnership with the City of Atlanta DWM and the Atlanta BeltLine, Inc. It ultimately saved the City more than $15 million versus a traditional stormwater tunnel system, and has sparked more than $500 million in redevelopment in the area surrounding the park.

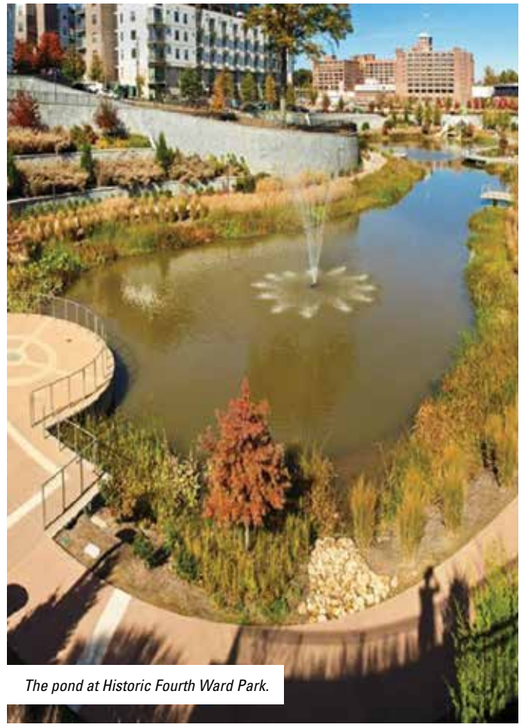
- **DWM's Technical GI Training and Outreach Program** targeting the design and development community consistently reaches capacity on each workshop and has trained over 2,600 people at 60+ events.

- **City of Atlanta staff** served on the Technical Advisory Group for the statewide Stormwater Management Manual update, specifically for their GI knowledge and experience.

- **At a staff level, the Departments of Public Works and Parks and Recreation** are consulting together with DWM about potential GI opportunities in their infrastructure projects, thanks to the relationships formed in the GI Task Force.

Permeable pavers roadway being installed in southeast Atlanta.

Walking path at Historic Fourth Ward Park.



The pond at Historic Fourth Ward Park.

City of Atlanta's Public Green Infrastructure Projects to Date

Project Name	Owner	Watershed	Combined Sewer Area
Adair Park Rain Garden	Dept. of Watershed Management Dept. of Parks & Rec.	South River	McDaniel
City Hall Green Roof	Dept. of Watershed Management	Peachtree	Custer Avenue
City Jail Parking Lot - Pervious Concrete	Dept. of Corrections	Peachtree	Custer Avenue
Dean Rusk Stormwater Pond	Dept. of Watershed Management Dept. of Parks & Rec.	Proctor	N/A
Fire Station No. 16 Rain Garden	Atlanta Fire & Rescue	Proctor	North Avenue
Historic Fourth Ward Park	Dept. of Watershed Management Dept. of Parks & Rec. Atlanta Beltline	Clear	Clear Creek
Lindsay Street Park	Dept. of Parks & Rec. The Conservation Fund	Proctor	North Avenue
McDaniel Stormwater Detention Ponds and Wetlands	Dept. of Watershed Management	South River	N/A
Piedmont Park Wetland Restoration	Piedmont Park Conservancy Dept. of Parks & Rec.	Clear	Clear Creek
Southeast Atlanta Green Infrastructure Initiative *(Multiple Bioretention, Permeable Pavers)*	Dept. of Watershed Management Dept. of Parks & Rec.	Intrenchment	Custer Avenue

McDaniel Branch constructed wetlands.

As DWM is incorporating GI into its Capital Improvements Program (CIP) and watershed improvement plans, this document serves as a comprehensive action plan for City-wide GI implementation: removing institutional barriers, increasing cost-effectiveness, and engaging multiple city departments, citizens, the development community, and environmental groups in working towards GI goals.

This Strategic Action Plan has been developed by the GI Task Force, an interdepartmental working group of City staff and non-profit partners that was commissioned following the 2012 Peer Exchange to Philadelphia sponsored by The Conservation Fund.

Implementing the Strategic Action Plan will require commitment from departmental Commissioners in that the Plan:

- Synthesizes and summarizes the GI Task Force work to date into tangible goals
- Suggests actions that will require interdepartmental coordination and formal partnership agreements
- Suggests actions that will require policy changes in multiple departments
- Suggests partnership opportunities with external organizations and agencies that will require citywide commitment

This document proposes a strategy to make the City's GI program more comprehensive and at the same time more detailed: more comprehensive in that it enlarges the umbrella of entities responsible for GI and broadens the scope of GI goals and benefits; and more detailed in that it directs the development of technical specifications, data analysis, funding, and policies that facilitate implementation.

GI Goal

The Goals and Metrics Committee of the GI Task Force examined citywide GI goals from nationally recognized programs in other cities, evaluated the types of data available here in the City of Atlanta, and proposed the following overarching goal for Atlanta's program:

GREEN INFRASTRUCTURE GOAL:
Reduction of 225 Million Gallons of Runoff Annually
(Annual 1% reduction in volume of runoff from a 1" storm)

While GI provides a multitude of benefits, the primary goal for Atlanta is to reduce the volume of polluted stormwater runoff from every storm into our streams and rivers. Currently, the city generates approximately 640 million gallons (MG) of stormwater runoff from a 1-inch storm. The goal for the first year is to reduce the runoff from a 1-inch storm by 6.4 MG (1%). The reduction of 6.4 MG per 1-inch storm equals approximately 15 gallons per Atlantan or approximately the amount of water in the Georgia Aquarium's whale shark tank. This equates to removing 225 MG of runoff annually.

Whitehall Terrace bioretention bulb-out.

Green Infrastructure Task Force

In keeping with the Mayor's goal of becoming a top tier sustainable city and to optimize the City's investments in multiple types of infrastructure, the City convened a task force representing relevant City agencies as well as partner groups to develop and advance a coordinated strategy for implementing GI throughout the City.

The GI Task Force is charged to:

1. Develop a Citywide Green Infrastructure Action & Implementation Strategy
   - Develop metrics to evaluate and prioritize projects and establish goals
   - Propose citywide GI implementation goals for the Reed Administration, through 2020, and through 2030
   - Catalog and prioritize projects, process and policy opportunities to advance and implement GI in the City in the near-, medium-, and long-term
2. Eliminate code, policy, and institutional barriers to implementation of GI
3. Advance the development of a database of public and private GI projects in the City with corresponding metrics
4. Develop GI design parameters/specifications/details to be used across City Departments and for private development
5. Coordinate development and distribution of GI messaging, materials, trainings/workshops to educate and involve city staff, the private sector and the public at large

The GI Task Force is comprised of City employees and City partners interested in promoting GI in the City. Task Force 'Brown Bag' lunch meetings are held monthly to foster communication and share information and ideas.

Participants in the GI Task Force include the following agencies and partner organizations listed below:

City of Atlanta Agencies

Department of Watershed Management, Mayor's Office of Sustainability, Department of Planning & Community Development, Department of Public Works, Department of Parks & Recreation, Department of Aviation

Partners

American Rivers, Atlanta BeltLine, Inc., The Conservation Fund, Invest Atlanta

ACTIONS

1: Project Implementation

Implement pilot projects to illustrate the value of key GI technologies, to showcase their application on various publicly-owned lands, and to build institutional capacity. By implementing a pilot program, the City develops the details and maintenance plans for each project type and technology, adapting typical details for the City's unique land use types. Pilot projects also help to develop an increased understanding of the benefits that GI provides among city agencies and the general public. A summary of the initial recommended GI pilot projects and costs is provided in Table 1 and the following additional actions are recommended for initiating this program and expanding implementation beyond pilot projects:

a. **Consistently engage in the scoping of public capital projects for possible GI project opportunities.** Include agencies with capital projects, including Community Improvement Districts (CID), and non-governmental organizations with public capital improvement projects.

b. **Develop project selection parameters for Green Streets and Complete Streets** to support the selection and development of approaches to GI in various types of road and right of way projects. Include GI strategies as a component in the updated tree ordinance. Develop checklist of triggers or factors that would indicate a use for GI for plan reviewers to consider when evaluating existing projects.

c. **Establish a prioritized capital program for GI implementation** within Department of Watershed Management, Department of Parks and Recreation, Department of Planning and Community Development, Department of Public Works, Department of Aviation, and other relevant departments.

d. **Develop comprehensive design and construction standards for GI** and incorporate into capital projects that are suitable for GI.

e. **Develop pilot GI projects on targeted brownfields.** Evaluate opportunities for overcoming obstacles to GI implementation on brownfields in conjunction with redevelopment and economic revitalization projects that may be undertaken by the public or private sector in the future.

Bioretention cul-de-sac at E. Rivers Elementary School.

2: Policy, Funding, and Planning

Policy Actions include financial and other high-level changes that remove barriers, create incentives and scale up GI implementation.

a. Establish GI grant funding & financing to incentivize action on privately-owned lands.

- Grant funds can be an effective way for the City to jump start implementation on privately owned lands by providing the funding for retrofit projects within existing developments and for projects which exceed the minimum requirements of the Post-Development Stormwater Management ordinance. This method has been used by other communities to allow for early action projects to be built as examples for others to follow. Partner with CIDs, Tax Allocation Districts (TADs), or other potential sources of funding.
- Work with Invest Atlanta to develop a Property Assessed Clean Energy (PACE) program financing mechanism that includes GI (e.g. green roofs, rainwater harvesting) as an eligible project type.
- Develop a public-private partnership program that supports project aggregation to consolidate small, private property GI retrofits under a single contract, allowing property owners to benefit from the cost savings realized through economies of scale.
- Dedicate a portion of sewer bill revenue to stormwater management in combined sewer areas (or identify a process leading to this result). Examine methods for leveraging this revenue stream to deliver GI retrofits, potentially through direct incentive grants OR additional bond issuances allocated to stormwater management. (Prince George's Co, MD approach).
- Examine other potential resources including tree recompense and building permit funds.
- Examine Public-Private Partnership models that design, finance, build, and operate GI retrofits on private property funded through TAD, CID, stormwater bill, grants and other revenue sources.

b. Revise City design guidelines and standard details to allow for GI. Develop design standards that allow for the incorporation of GI into City infrastructure projects. Standard design details can be revised to document the new and accepted approaches for including GI in each project.

c. Incorporate GI into existing City Planning documents and develop new GI-focused plans for the City

- **Incorporate GI into existing City Planning documents.** Ensure GI is incorporated into relevant City planning documents (City and regional planning documents including Connect Atlanta, Comprehensive Development Plan, Watershed Improvement Plans, Atlanta BeltLine 2030 Strategic Implementation Plan, etc.)
- **Develop a GI Maintenance and Operations Plan.** GI requires a different type of maintenance regime as compared with gray infrastructure. This plan will include a plan for management of the infrastructure, identification of the implementing agencies, and identification of the funding for GI maintenance. Agencies include CIDs, Department of Watershed Management, Department of Public Works, Department of Parks & Recreation, and Atlanta Regional Commission. Strategies for long-term maintenance should also look for partnerships with existing neighborhood and community organizations and friends of parks groups.
- **Develop a GI Typologies Plan,** similar to Baltimore, which clearly and graphically outlines suggested short-, medium- and long-term GI strategies for specific public and privately owned properties within a relevant watershed or geography. A typologies plan would not only set out ideal GI strategies for individual properties, but would also identify public and private partners for management of those properties for the suggested GI use. Apply the typologies to the Proctor Creek Watershed as a model.
- **Evaluate the use of vacant land (publicly and privately owned), parks, and right of ways for management of stormwater runoff.** Identify land to serve the dual purpose of GI/stormwater infiltration and recreational/open space.
  - > Concessions contracts for park amenities may help fund GI. Also, consider incentives for developers to convert underused properties (permit streamlining, financial, etc.) into developments that incorporate park greenspace.
  - > Include GI in the criteria for evaluating potential parks and greenspace acquisitions.

d. Revise City codes to promote, encourage, and incentivize GI and facilitate a more seamless permitting process. Continue the process for review and evaluation of codes governing zoning, subdivisions, tree planting, roadway and sidewalk design, stormwater management, etc. to eliminate conflicting requirements and standards.

Green roof installed on the Sam Nunn Atlanta Federal Center.

3: Partnering and Outreach

GI is a decentralized form of stormwater management and requires both the private and public sector working together in order to implement at scale.

a. Develop a framework for public involvement in GI implementation in the City

- **Develop a public outreach plan,** presentation materials and a schedule for outreach to key neighborhood groups, business leaders, City Council, development community, and other stakeholders through public meetings. Use individual and group educational programming to gain public input in areas that have promising GI opportunities.
- **Create a GI advisory committee** comprised of community leaders to discuss and remove implementation barriers and endorse selected implementation programs. Work with community improvement districts and neighborhood organizations to suggest projects to the advisory committee.
- **Develop and manage a list or database of key partners and volunteers** to help deliver outreach messages, host workshops, and provide support for grant funding pursuits.

b. Develop GI Outreach and Education Resources for the Public

- **Develop an Atlanta Green Infrastructure Portal with interactive map** to disseminate information to the public about GI technologies, program updates, and what the public can do to help.
- **Develop a homeowner's guide to GI.**
- **Provide GI Fact Sheets and education materials** on the Portal and brochures for selected audiences.
- **Share City of Atlanta success stories** to inform the adoption and implementation of GI in other urban areas in Metro Atlanta.

c. With key partners, **evaluate models for expanding funding for GI** through Invest Atlanta, CIDs, the PATH Foundation, tree ordinance incentives, and street tree programs.

d. Convene meetings with City partners to **identify opportunities for GI implementation and/or funding early in the planning and design phases of a partner project.**

e. Coordinate compliance efforts with the State and adjacent jurisdictions to implement the state and federal pollution reduction requirements as it relates to Total Maximum Daily Loads (TMDL) requirements and Watershed Improvement Plans (WIPs).

Adair Park Rain Garden.

Community planting at Lindsay Street Park.

4: Data Tracking and Technical Analysis

Data tracking is critical to gauging the effectiveness of the GI in achieving benchmarks and goals and must be coordinated across public and private sectors in order to account for the full impact and benefits of GI implementation.

Data Tracking

a. Develop a citywide project tracking system to document public and private sector GI projects, including information such as site size, watershed size, type of BMP, square footage, infiltration capacity, as built surveys, etc.

b. Periodic evaluation of GI goals metrics and benchmarks. Every two years re-evaluate GI goal, metrics and benchmarks to adjust and reconcile with new data.

c. Address GIS data needs and updates. Update parcel-based land use dataset as new data becomes available. Update impervious cover data set in coordination with City planning staff by which impervious and pervious conditions are accurately represented.

Technical Analysis

a. Develop hydrologic and hydraulic models at a watershed scale to simulate GI improvements in order to identify strategic opportunities to address water quality and localized flooding issues.

b. Identify direct stormwater inflow sources to the combined sewer for potential removal from the combined sewer system and evaluate drainage areas around the City to identify sources of stormwater and natural stream inflow for potential removal projects from the combined sewer.

c. Expand the GI Action Plan to evaluate the pollution reduction requirements of TMDLs on a watershed scale in each of the City's WIPs.

PRIORITIZED ACTIONS FOR 2016 – 2017

1: Project Implementation

a. Consistently engage in the scoping of public capital projects for possible green infrastructure project opportunities

GOAL: Incorporate GI into infrastructure Bond projects to the extent feasible

b. Develop a pilot Green Streets program or evolve Complete Streets program

GOAL: Develop a GI feasibility checklist for use by Public Works

2: Policy, Funding, and Planning

a. Establish Green Infrastructure Grant Funding & Financing

GOAL: Develop mechanism to use tree recompense funding for GI

GOAL: CID leadership incorporates GI concepts, recommendations into their work/plans

b. Revise City design guidelines and standard details to allow for green infrastructure –

GOAL: Develop a suite of standard GI details to be used by all relevant City Departments

c. Incorporate GI into existing City Planning documents and develop new GI-focused plans for the City

- Develop a GI Maintenance and Operations Plan

GOAL: Develop guidance for DWM O&M

3: Partnering and Outreach

a. Develop a framework for public involvement in GI implementation in the City

GOAL: Develop public outreach plan

- Create a Green Infrastructure advisory committee

GOAL: Develop a clear constituency for GI in the city

- Develop and manage a list or database of key partners and volunteers

GOAL: Review, expand list of partners; utilize public opinion polls to track awareness, education, influence

b. Develop GI Outreach and Education Resources for the Public

- Provide GI Fact Sheets and education materials

GOAL: Incorporate or expand GI component of project fact sheets

c. Evaluate models for expanding funding for green infrastructure

GOAL: Expand eligibility of IA financial offerings to include GI

4: Data Tracking and Technical Analysis

Data Tracking

a. Develop a citywide project tracking system

GOAL: Develop a citywide GI project tracking system

Technical Analysis

a. Develop hydrologic and hydraulic models at a watershed scale to simulate green infrastructure

GOAL: Develop a pilot hydrologic and hydraulic model in the Nancy Creek watershed

Modular green roof on the Woodruff Arts Center.

Green Infrastructure Task Force

City of Atlanta Agencies

Department of Watershed Management

Mayor's Office of Sustainability

Department of Planning & Community Development

Department of Public Works

Department of Parks & Recreation

Department of Aviation

Partners

American Rivers

Atlanta BeltLine, Inc.

The Conservation Fund

Invest Atlanta

Mayor Kasim Reed

City Council

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Carla Smith *District 1*

Kwanza Hall *District 2*

Ivory Lee Young, Jr. *District 3*

Cleta Winslow *District 4*

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Keisha Lance Bottoms *District 11*

Joyce Sheperd *District 12*

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Mary Norwood *Post 2 At-Large*

Andre Dickens *Post 3 At-Large*

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