



DRAFT

Decatur Storm Water Master Plan Executive Summary

City of Decatur

September 2020



Prepared by:

AECOM

EXECUTIVE SUMMARY

What is the Purpose of the Storm Water Master Plan?

The City of Decatur envisions its future through planning. The City’s plans address housing, transportation, arts, recreation, public services, infrastructure, development, and many other community resources in an effort to address any current concerns and set a path of continuous improvement that will benefit City



Green infrastructure – like this installation on McDonough Street – is an important part of Decatur’s SWMP.

residents for generations to come. This document – the Storm Water Master Plan (SWMP) – addresses the City’s future management of storm water. This plan is focused on improving how the City manages its storm water to address and prevent flooding and improve water quality in the City’s streams. This plan evaluates storm water concerns across the City and prioritizes solutions to address these concerns.

The major goals of this plan are to improve storm water

management in Decatur’s neighborhoods, public spaces, and rights-of-way, to mitigate environmental impacts from urban runoff, and to improve the water quality in the City’s watersheds. In this plan, you can find an analysis of the City’s existing storm water infrastructure, recommendations to improve storm water management, and a prioritized list of recommended storm water infrastructure improvements.

What is storm water infrastructure?

Storm water infrastructure collects and conveys the water that falls as precipitation and flows over land as runoff. It moves this water from the source where it runs off to the stream where it is discharged. Storm water includes traditional engineered structures such as inlets, pipe, ditches, and ponds, but it also includes green infrastructure components that are designed to use vegetation and soils in a manner that slows the flow of runoff and promotes filtration and infiltration. Decatur uses both engineered and green infrastructure in its management of storm water.

Why Are We Updating the Plan Now?

Before this plan, the City last updated its SWMP in 2004. Implementation of the 2004 plan focused on major storm water infrastructure improvements in the downtown areas over the past decade. While the downtown areas have benefited from these improvements, many neighborhoods in Decatur have storm water systems that are inadequate compared to modern storm water standards. In this SWMP update, storm water management in residential areas of the City is a major focus.

To prepare this update, we assessed the City’s current storm water system relative to current land use patterns, which have changed in recent years. Based on that assessment and



Community Engagement was a key component of the SWMP update.

input from City staff and residents, this updated plan evaluates and prioritizes storm water system needs and recommends policy changes to address those needs and comply with changing federal, state, and regional regulations. This updated plan also seeks to incorporate more green infrastructure into the City’s approach to storm water management. Green infrastructure is an approach to storm water management that mimics natural hydrologic processes and uses natural components such as soils and plants to reduce flooding and protect water quality.

Realizing a Vision for Decatur’s Storm Water Infrastructure

We usually do not notice our City’s storm water infrastructure in our day-to-day lives in the City. It is there, but barely noticeable, and yet it sustains the livability of our City and protects us and our homes, schools, businesses, and community spaces.

Since the 2004 SWMP, the City of Decatur has invested more than \$16 million in improvements to the City’s storm water infrastructure. Storm water infrastructure associated with private development and dedicated to the City accounted for a substantial additional investment. These improvements were envisioned in the 2004 Storm Water Master Plan and were largely focused on improving storm water management capacity in the downtown area of the City. When you walk around in downtown Decatur, you are walking on top of that infrastructure. If you go to a soccer game at Ebster field, you are standing on top of 2.5-acre underground storm water vault – one of the largest in the region – that helps to prevent flooding downstream. When you walk past the high school on North McDonough Street, you can see an example of green infrastructure that the City has installed to slow and treat runoff with carefully designed installations of vegetation and soils.

These improvements are not eye-catching and many are not visible on the surface, but if they were not there, their absence would be obvious in flooding and degraded streams. These quiet improvements support our vibrant downtown business district, as well as the schools and community spaces downtown. We benefit from them because of the foresight and planning in the 2004 storm water master plan. By updating that plan, we seek to build on that success.



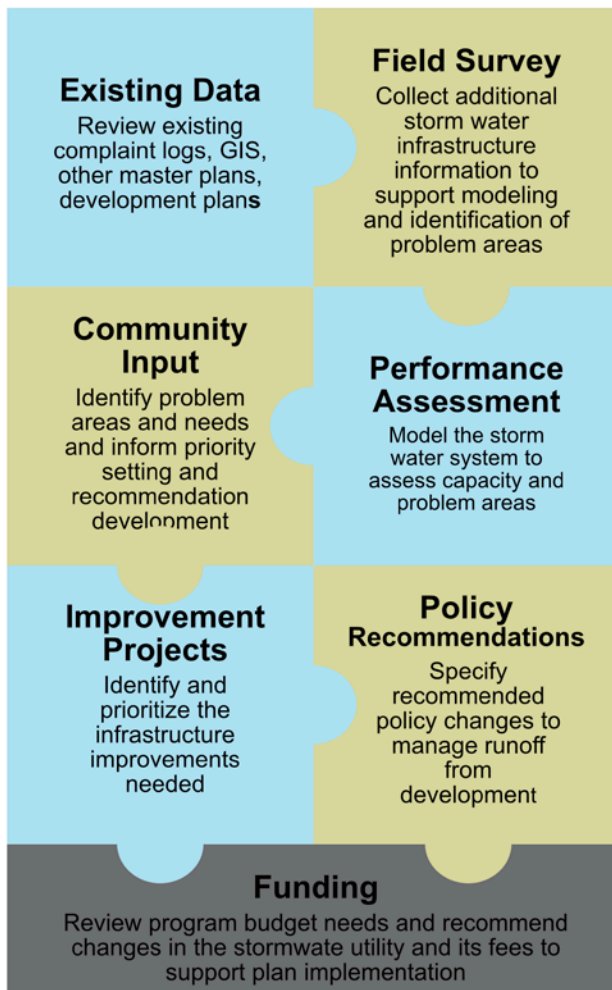
Pictures: Ebster storm water vault (top left); North McDonough Green Street (top right); Glenlake Park stream restoration (bottom left), downtown drainage system improvements (bottom right)

How Was the SWMP Updated?

In 2018 Decatur kicked off this SWMP update with support from AECOM and Policy Works LLC. The process included review of existing plans and ordinances, survey of storm water infrastructure, GIS database development, storm water system modeling, and identification and prioritization of capital improvement projects. The figure below outlines the major steps in the work that supported the development of this plan update. Each of these components is described in detail in this plan document.



Decatur residents submitted input that guided the development of the SWMP.



Major components of storm water master plan update

The planning effort incorporated a substantial community engagement process through which Decatur’s residents had many opportunities to provide input to the plan (see **Appendix C**). The community engagement process included seven community meetings, an on-line map (“WikiMapping”) for submittal of location-specific concerns, interviews with stakeholders, a project steering committee, telephone, email, and on-line channels for comment submission outside of meetings.

As of August 2020, over 175 community members have participated in the community engagement process. The main themes from community input focused on flooding in residential areas of the City, green infrastructure, and tree protection. Community members reviewed recommended projects, assisted in developing prioritization criteria, and provided input for the SWMP policy recommendations.

More than
175
community members have participated in the SWMP update

A final public meeting will be held in September 2020 during the public review of the draft SWMP.

What Does the SWMP Recommend?

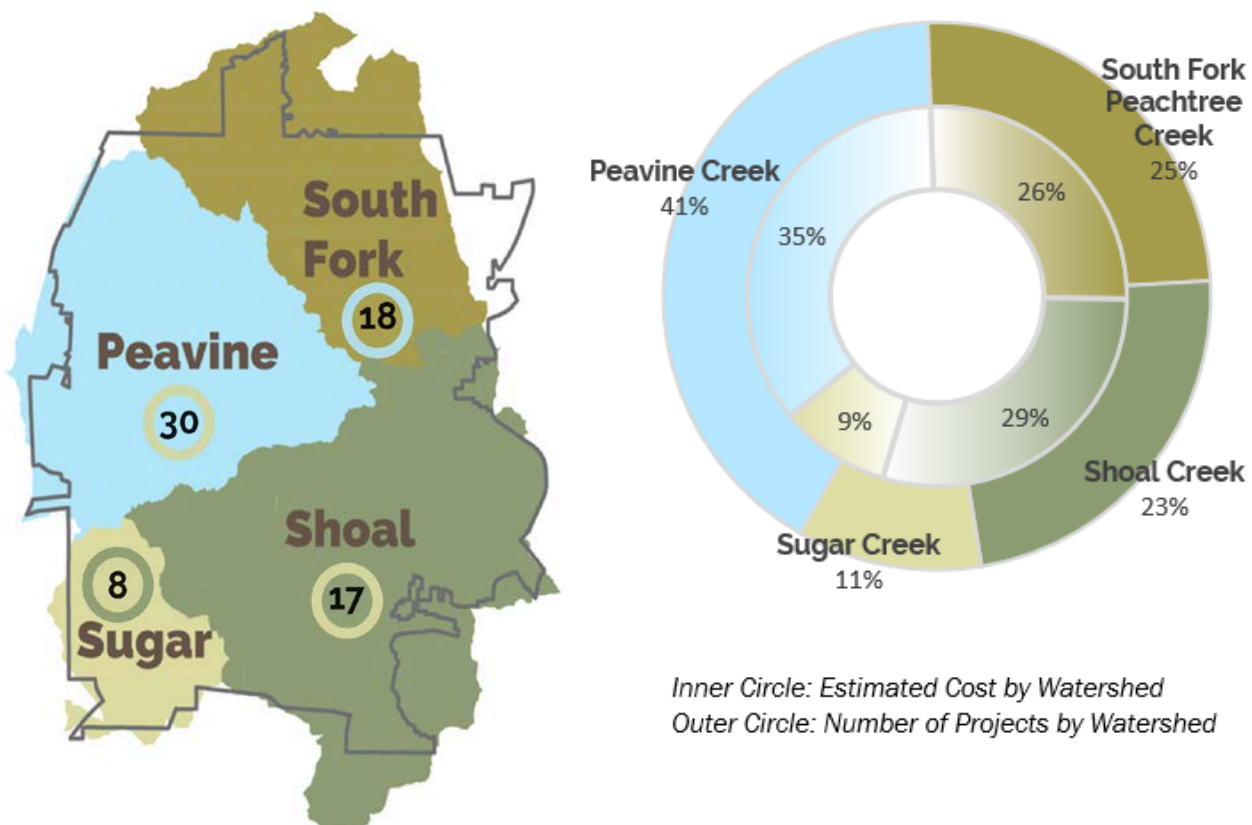
The major areas of focus for the plan’s recommendations are:

- Prioritized infrastructure improvement projects (see **Section 6**)
- Policy recommendations (see **Section 7**)

Infrastructure Improvements

The plan recommends 73 infrastructure improvement projects to be completed over the next 20 years at an estimated total cost of \$35 million (in current dollars). The full list of recommended projects can be found in **Section 6**. **Figure ES-1** shows the distribution of these projects across the City’s major watersheds as well as the distribution of the estimated project costs across those watersheds. The recommended projects were based on known problem areas identified in City complaint logs and through community input, as well as through modeling of the storm water infrastructure to assess performance during heavy precipitation events. Identified projects were prioritized through criteria based on input from the community and City staff. The criteria included: population impacted, flood impacts to properties and structures, and potential impacts to major thoroughfares and critical facilities. The recommended projects will improve storm water system capacity, address flooding, and resolve areas of insufficient infrastructure. The plan recommends that, where possible, *all* projects be designed to incorporate *green infrastructure*.

Figure ES-1: Recommended Storm Water Improvement Projects by Watershed



Policy Recommendations

Improving the management of storm water in the City requires more than improvements to infrastructure. The plan update includes recommendations for policy changes needed to address storm water concerns, keep pace with development trends, and adapt the storm water utility to the implementation and budget needs of the updated plan. The plan's policy recommendations are described in detail in **Section 7**. A summary of the recommendations is provided below.

Development Regulations

The updated plan recommends several changes in requirements that affect new development and redevelopment projects, with a specific focus on single-family dwellings.

Runoff Reduction

New development and redevelopment projects should collect and infiltrate the first one inch of storm water runoff on-site. This recommendation is directed toward reducing flooding and improving water quality by decreasing the volume and pollutant content of runoff closer to its source.

Impervious Coverage Threshold

The plan recommends that the threshold

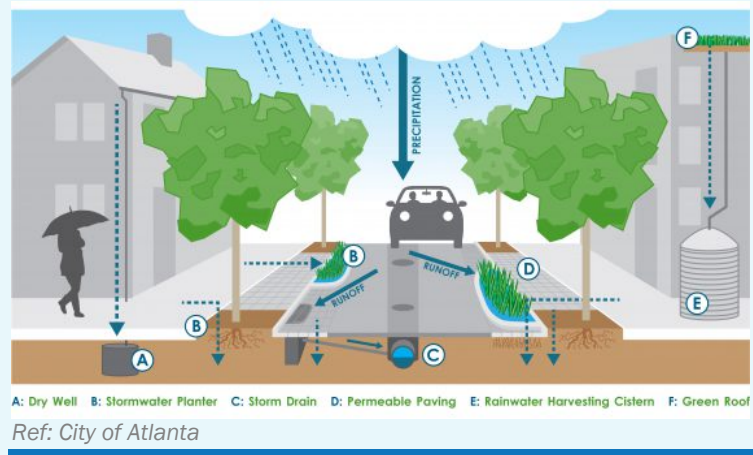
for the application of storm water requirements should be reduced for single-family dwelling development and redevelopment projects. This recommendation is intended to address the impacts of changing development patterns across the City through which larger single-family residences are putting a greater burden on the storm water system. To address these impacts, the plan recommends a new lower threshold for the application of storm water requirements for single-family dwellings: *Runoff reduction measures will be required when projects are adding or replacing more than 500 square feet of impervious surface. Under existing regulations, there is currently no requirement for runoff reduction from this type of project.* Detention of runoff will continue to be required when single-family dwelling projects are larger than 4,000 square feet of impervious surface. This is required by current regulations.

For all other project types (besides single-family dwellings), the plan recommends that runoff reduction be applied for *any* new or improved impervious coverage. This new runoff reduction requirement will be in addition to existing detention requirements.

Green Infrastructure

Green Infrastructure means managing small storms in more natural ways by finding ways to collect, convey, and treat storm water through natural or engineered systems that mimic natural processes. Conventional storm water infrastructure usually consists of structures like pipes, conduits, and retention ponds that are designed to quickly move water away from buildings and roads. By contrast, green infrastructure is designed to reduce and treat storm water at its source.

Examples of green infrastructure include bioswales, permeable pavers, rain gardens, green roofs, constructed wetlands, and rainwater collection. Trees can be considered a part of green infrastructure because they intercept rain, increase infiltration, and reduce the rate of runoff. Green infrastructure reduces runoff, removes pollutants, improves infiltration, and recharges groundwater. Additionally, it can improve wildlife habitat and provide aesthetic benefits. The recommendations in this plan favor increased use of green infrastructure.



Compliance Options

For the new recommended requirements affecting single-family dwelling development and redevelopment projects, the regulations should also provide a menu of options for compliance that support homeowners in finding solutions that are most appropriate for their sites and can be implemented without significant compliance burdens. The menu of options will include green infrastructure choices. **Figure ES-2** illustrates several of the recommended compliance options.

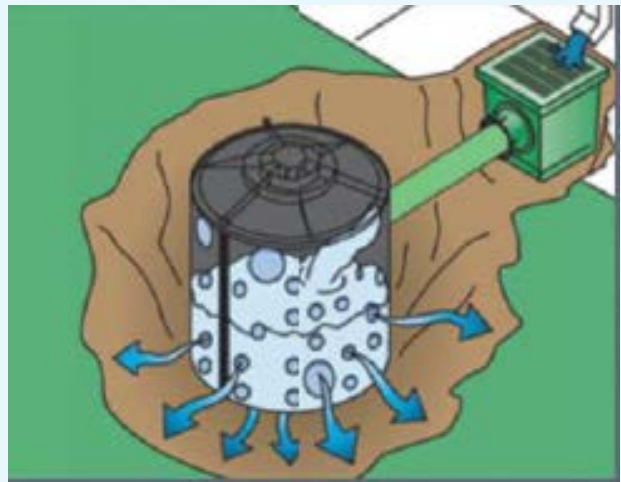
Figure ES-2: Recommended Options for Compliance with Storm Water Regulations

Runoff Reduction Compliance Options

Onsite infiltration can be accomplished with a variety of site design techniques...



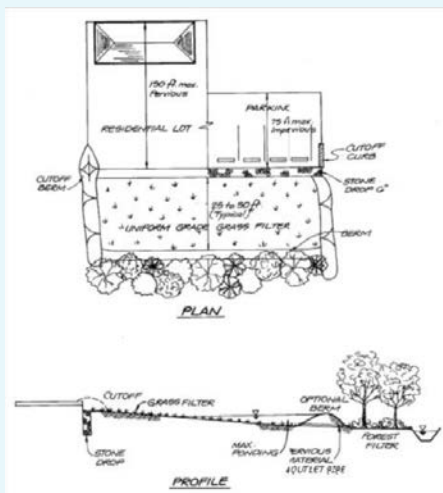
Rain Gardens/Bioretention



Dry Wells



Bioswales



Vegetated Filter Strips



Permeable Pavements



Green Infrastructure and Trees

The updated plan recommends several policy changes that establish a preference for green infrastructure and the protection of trees for the storm water benefits trees provide.

Storm Water and Trees

While trees are often valued for their beauty and shade, they also make an important contribution to controlling storm water runoff. Tree canopies intercept rain and promote evaporation and infiltration of water that would otherwise create runoff. Tree roots absorb water and create soil conditions that promote water infiltration.

The recommendations of this plan increase runoff requirements when trees are removed by a project to account for the loss of their storm water benefits. To promote tree conservation, the plan also recommends a storm water utility fee credit for parcels that have more than 45% tree canopy coverage.

Green Infrastructure

In all projects, public and private, green infrastructure should be prioritized to reduce the volume of runoff reaching the storm water system and the City’s waterways and provide ancillary environmental and aesthetic benefits to the community. The recommended runoff reduction requirements, as well as the recommended compliance options, emphasize improved infiltration and promote green infrastructure practices. Green infrastructure across the City will increase through implementation of this plan’s recommended storm water requirements.

Trees

The value of trees in storm water management should be recognized, and trees should be treated as a resource in storm water policy. The plan recommends that the requirements for runoff reduction be increased to mitigate the storm water benefits lost when trees are removed. It also recommends that runoff reduction requirements be increased by one cubic foot per 500 square feet of canopy removed. Additionally, the plan promotes tree conservation through a recommendation for a storm water utility fee credit for parcels where more than 45% of tree canopy is preserved.

Storm Water Utility

The updated SWMP recommends several changes in the City’s storm water utility to address current development trends and raise revenue adequate to implement the SWMP. It also recommends several storm water utility fee credits to support implementation of storm water best management practices and the protection of tree canopy.

Tiered Schedule of Fees

The SWMP recommends that the City’s storm water utility fee structure be updated to address the overall increase in home size as well as the growing range of homes sizes across the City. The recommended fee structure includes tiers that set the utility fees on a parcel’s level of storm water impacts (determined by impervious coverage) for residential properties:

| Tier | Impervious Coverage | Fee |
|-------------|--------------------------------------|------------|
| Tier 1 | 0 to 2,499 square feet (0.4 ERU) | \$114/year |
| Tier 2 | 2,500 to 3,999 square feet (0.7 ERU) | \$200/year |
| Tier 3 | 4,000 to 4,999 square feet (1.0 ERU) | \$285/year |
| Tier 4 | 5,000 square feet or more (1.4 ERU) | \$399/year |

The current storm water utility fee is \$100 for all residential properties. Non-residential storm water utility fees are currently based on impervious coverage and assessed in terms of Equivalent Residential Units (ERUs). The updated SWMP recommends adjustment of the current ERU from 2,800 square feet to 4,000 square feet; and that each ERU be billed at \$285/year.

Credits

The updated plan recommends several new credits toward a property owner's storm water utility fee to encourage the voluntary adoption of practices that help to manage the City's storm water. These credits are discounts to the property's storm water utility fee when property owners (residential and nonresidential) can demonstrate that they have practices in place that improve storm water quality and quantity. The proposed credit system includes four types of credits that can be added together for a maximum 40% credit for practices that address:

- Water Quality (10% credit) – Demonstrating on-site techniques to improve storm water quality, including:
 - + Reducing runoff from all storms of less than 1-inch of precipitation,
 - + Treating runoff on-site with practices that reduce total suspended solids from impervious areas by 80% or more, or
 - + Maintaining tree canopy of the parcel of more than 45%
- Stream Channel Protection (10% credit) – Providing detention of the 1-year storm (3.36 inches) and releasing it slowly to reduce downstream channel damage
- Overbank Flood Protection (10% credit) – Providing detention or peak runoff management to help reduce flooding during a 25-year/24-hour rain fall event (5.95 inches)
- Extreme Flood Protection (10% credit) – Providing extended detention or peak runoff management to help reduce flooding during a 100-year/24-hour rain fall event (7.5 inches)

The intent of these credits is to support private investment in storm water management capacity that benefits the public good. More details on the credits can be found in **Section 7.2.1**.

Infrastructure Design and Ownership

The updated SWMP recommends the adoption of updated standards by the City for new public storm water infrastructure. This standard is referred to as the Level of Service policy. The plan recommends that new City infrastructure should be built with capacity to manage a critical storm rain event (2.2 inches of rain over 6 hours) and the State standard for Level of Service (25-year/24-hour storm or 5.95 inches).

The updated SWMP also addresses the ownership of storm water infrastructure and recommends changes in how City policy addresses what is known as the Extent of Service for storm water infrastructure. Many parcels in the City have privately-owned storm water infrastructure, and some of this infrastructure provides public benefits. The plan recommends that the City develop a mechanism for public acquisition of privately-owned infrastructure when it serves a public benefit and meets certain minimum standards. Public acquisition is recommended where such infrastructure is in good condition, located on a single-family property, carrying more than 50% public runoff from multiple properties, and is associated with an area of public concern. The plan recommends that acquisition be administered via voluntarily donated easements that allow for access to maintain the infrastructure. More details on this policy recommendation can be found in **Section 5** and **Appendix I**.

Where to Next?

By committing to implementation of this plan, the City invests in its future. The plan is directed toward mitigating flooding and drainage problems and improving water quality and quality of life in the City. This plan aligns with the one of the four primary organizing principles of the 2010 Decatur Strategic Plan: Serve as Good Stewards of the Environment and Community Resources. It also implements the vision of the City's Environmental Sustainability Plan to create a community relationship with the environment that will protect and enhance natural resources and ensure that future generations will be able to share in the benefits of those resources. This SWMP is intended to serve as a tool to guide the City's storm water projects, programs, and policies for the next 20 years. It should be updated in 2040, or sooner if necessary, to address substantial changes in conditions not foreseen in this plan.