



Chattahoochee Hills Stormwater Management Assessment



Acknowledgements

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Unless otherwise specified, all photos are by ARC staff.









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Purpose

In February of 2008, The City of Chattahoochee Hills adopted stormwater regulations based on the Georgia Stormwater Management Manual (GSMM) minimum standards. The goal of the adopted regulations was to establish minimum requirements and procedures to control the adverse effects of increased post-development stormwater runoff and nonpoint source pollution associated with new development and redevelopment. Additionally, in May of 2015, the City also adopted Light Imprint standards in the form of the Light Imprint Matrix, as a part of a larger zoning rewrite.

Light Imprint standards are not referenced in the City's overall Code of Ordinances. Additionally, when used alone, the Light Imprint Storm Drainage Matrix may not provide sufficient information for stormwater facility development. City of Chattahoochee staff were concerned that the City's adopted ordinances did not meet state regulations. Additionally, due to the complicated nature of all ordinances, City staff was interested in developing visuals to accompany adopted regulations.

The goals of the assessment include:

- 1. Reviewing the City's existing stormwater regulations, specifically those related to the concept of Light Imprint
- 2. Identify potential regulatory inconsistencies with state stormwater regulations and those adopted by Chattahoochee Hills, as well as any internal inconsistencies
- 3. Provide recommendations on amending existing regulations.
- 4. Develop one or more renderings to assist the City in communicating stormwater regulations.

Project Process and Timeline

In February of 2018, the Atlanta Regional Commission (ARC) announced its Community Development Assistance Program (CDAP), offering planning assistance to local governments, community improvement districts, and non-profit organizations. In May, ARC chose the City of Chattahoochee Hills for assistance with a Stormwater Management Assessment.

This project consisted of the following five phases that occured over eight months:

- 1. Review and summary of existing State and City stormwater regulations and processes.
- 2. Research of best practices from other relevant communities.
- 3. Development of a needs assessment summary.
- 4. Illustrations to help visualize stormwater regulations.
- 5. Development of a technical memo.



Chattahoochee Hills Stormwater Regulations

The City of Chattahoochee Hills has adopted local stormwater regulations which are a combination of those contained in the GSMM and Light Imprint Handbook.

The **Georgia Stormwater Management Manual (GSMM)**, administered by the State of Georgia, is designed to provide Georgia communities with comprehensive guidance on a Low Impact Development (LID)-based approach to natural resource protection through the integration of drainage design, stormwater quantity, and water quality considerations.

Although communities may choose to use the information presented in this manual to regulate new development and redevelopment activities, the document itself has no independent regulatory authority. The approach to natural resource protection, stormwater management and site design detailed in the GSMM can only become required through: (1) codes and ordinances established by local governments, and (2) rules, regulations and permits established by local, state and federal agencies.

Light Imprint (LI) is a comprehensive approach to neighborhood design employing green and sustainable development techniques to manage stormwater and drainage. Light Imprint subscribes to a New Urbanist approach by respecting terrain, geographical conditions, topography, and public space to create compactable, walkable, mixed-use neighborhoods. These techniques are summarized in the Light Imprint Toolkit.

The LI Toolkit offers more than 60 context-sensitive design solutions that result in a range of environmental benefits, an aesthetic approach to green infrastructure, and significantly lowered construction and engineering costs. These tools provide techniques for paving streets and walkways, channeling and storing water and filtering surface runoff before it releases into the underground water table. Utilizing the new urbanist transect, LI balances environmental considerations with design objectives, by determining which tools are used in every land environment, from rural districts to the urban core.

For the City of Chattahoochee Hills, LI standards are referenced in the following places: Chapter 26 – Subdivision and Land Development. Article VI. – Energy and Sustainability, Sec. 26-139. – Drainage and Stormwater Management. Section (a) notes "Light imprint stormwater management methods shall be used. Stormwater management methods employed shall be appropriate for the development intensity of the neighborhood. See Table 26-139." Table 26-139 is the Light Imprint Storm Drainage Matrix.

Evaluation of Existing Regulations

It appears that the only references to LI techniques in the City's ordinances are the Light Imprint Storm Drainage Matrix and brief accompanying text. When used alone, the matrix may not provide sufficient information for stormwater facility development. It is only a key for determining what tools a developer shall utilize. The matrix does not offer any instruction on how the developer shall use the various techniques. The complete handbook is needed to correctly apply the LI techniques. Additionally, the LI method utilizes the Transect and associated transect zones. It does not appear that the City has associated any transect zones within the existing adopted zoning ordinance.

Additionally, there is no explicit reference to LI in the adopted Stormwater regulations, found in Chapter 14 of the Chattahoochee Hills Code of Ordinances (Chapter 14 – Land Development and Environmental Protection, Article IV – Post Development Stormwater Management for New Development and Redevelopment, Sec. 14-149, - Post-development Stormwater Management Criteria, (7) Drainage System Guidelines).

The one mention of LI techniques is in Chapter 26 (Chapter 26 – Subdivision and Land Devlopment, Article VI. – Energy and Sustainability, Sec. 26-139. – Drainage and Stormwater Management). Chapter 26 states, "Light imprint stormwater management methods shall be used. Stormwater management methods employed shall be appropriate for the development intensity of the neighborhood." This language should also appear in the stormwater management regulations in Chapter 14.

Comparing the Minimum Standards the LI Matrix

This Chart matches the GSMM Minimum Standards with the LI Matrix Categories that are used to address them. If used correctly, LI should meet all post-construction requirements in adopted regulations.

	ess them. If used correcti	y, LI should meet all post-construction requirem	LI Matrix Categories			
			Paving	Channeling	Storage	Filtration
Chattahoochee Hills Minimum Standards	Natural Resources Inventory	Prior to the start of any land disturbing activities, acceptable site reconnaissance and surveying techniques shall be used to complete a thorough assessment of the natural resources,				
	Better Site Design Practices for Stormwater Management	Stormwater management plans shall preserve the natural drainage and natural treatment systems and reduce the generation of additional stormwater runoff and pollutants to the maximum extent practicable.	Х	X	Х	Х
	Water Quality	All stormwater runoff generated from a site shall be adequately treated before discharge.				Х
	Stream Channel Protection	Protection of stream channels from bank and bed erosion and degradation shall be provided.		Х		
	Over Bank Flooding Protection	Downstream overbank flood and property protection shall be provided by controlling (attenuating) the post-development peak discharge rate to the pre-development rate for the 25-year, 24-hour return frequency storm event.			Х	
	Extreme Flooding Protection	Extreme flood and public safety protection shall be provided by controlling and safely conveying the 100-year, 24-hour return frequency storm event such that flooding is not exacerbated.			X	
	Downstream Analysis	A downstream peak flow analysis shall be provided to the point in the watershed downstream of the site or the stormwater management system where the area of the site comprises 10% of the total drainage area.	Χ	Х	Х	
	Construction Erosion and Sedimentation Control	All new development and redevelopment sites shall meet the regulatory requirements for land disturbance activities under the Georgia Erosion and Sedimentation Control Act and/ or the NPDES General Permit for Construction Activities.	Χ	X	Х	Х
	Stormwater Management System Operation and Maintenance	All new development and redevelopment sites are to prepare a comprehensive operation and maintenance plan for the on-site stormwater management system.	Х	Х	Х	Х
	Design of Stormwater Management System	The design of the stormwater management system shall be in accordance with the applicable sections of the GSMM as directed by the administrator.	Х	Х	Х	Х
	Dam Design Guidelines	Any land disturbing activity that involves a site which proposes a dam shall comply with the Georgia Safe Dams Act and Rules for Dam Safety as applicable.	Х	X	X	Х

Stormwater Permitting Process (Approx. 2 weeks)

The following is a summary of the existing stormwater permitting process. It is intended to be used for information purposes only and does not explicitly cover all potential steps required for a specific project.

Step 1: Stormwater Concept Plan and Consultation Meeting

- a. Before a stormwater management permit application is submitted, the developer shall meet with the city community development department for a consultation meeting on a concept plan for the post-development stormwater management system to be utilized in the proposed land development project.
- b. The purpose of this meeting is to discuss the post-development stormwater management measures necessary for the proposed project, as well as to discuss and assess constraints, opportunities and potential ideas for stormwater management designs before the formal site design engineering is commenced.
- c. The concept plan shall include:
 - i. Existing conditions/proposed site plans,
 - li. Natural resources inventory,
 - iii. Stormwater management system concept plan.

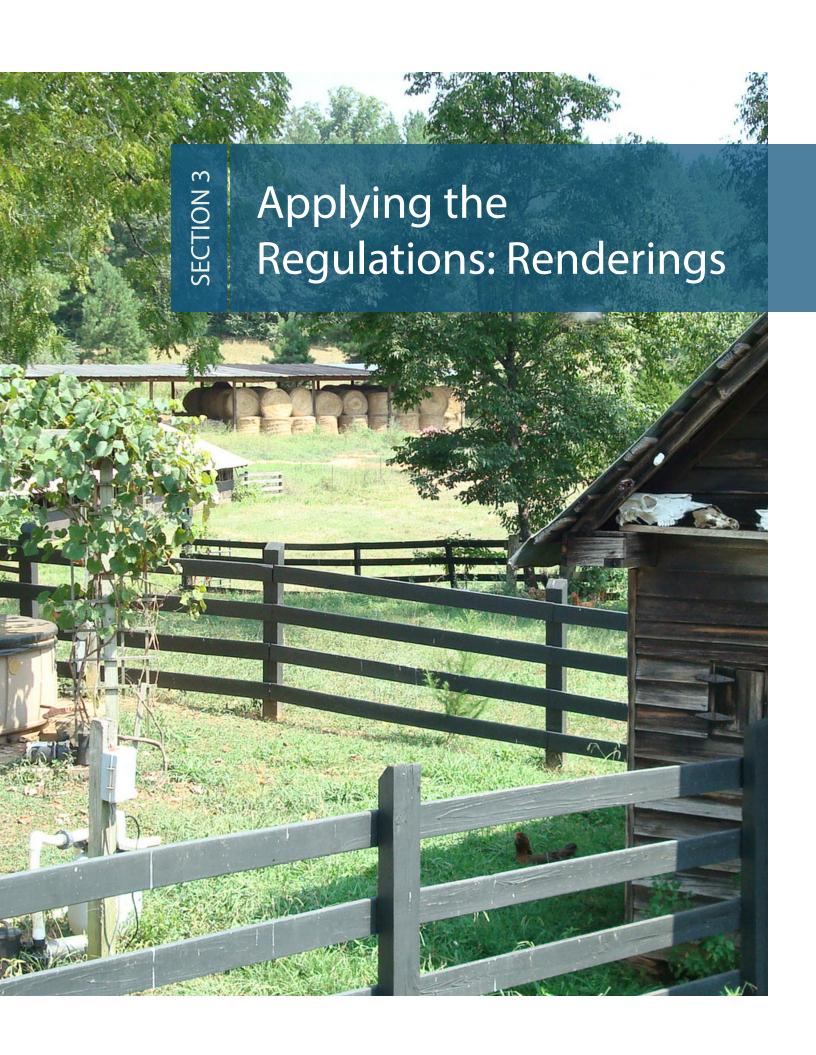
Step 2: Stormwater Management Plan

- a. Included in the Permit Application shall be a stormwater management plan, detailing how post-development stormwater runoff will be controlled or managed and how the proposed project will meet the requirements of the Code of Ordinances.
- b. The stormwater management plan must ensure that the requirements and criteria in this are being complied with and that opportunities are being taken to minimize adverse post-development stormwater runoff impacts from the development.
- c. The Light Imprint Stormwater Matrix shall be used. Stormwater management methods employed shall be appropriate for the development intensity of the neighborhood.
- d. The Stormwater Management Plan should include:
 - i. Common Address and legal Description of Site,
 - ii. Vicinity Map,
 - iii. Existing Conditions Hydrologic Analysis,
 - iv. Post Development Hydrologic Analysis,
 - v. Stormwater Management System,

- vi. Post Development Downstream Analysis,
- vii. Construction-phase Erosion and Sedimentation Control Plan,
- viii. Landscaping and Open Space Plan, Operations and Maintenance Plan,
- ix. Maintenance Access Easements,
- x. Inspection and Maintenance Agreement,
- xi. Evidence of Acquisition of Applicable and Non-Local Permits.

Step 3: Stormwater management inspection and maintenance agreements

a. Prior to the issuance of a permit for a land development activity requiring a stormwater management facility for which the city community development department requires ongoing maintenance, the applicant must (unless there is a dedicated on-site stormwater management facility accepted by the city community development department) execute an inspection and maintenance agreement, and/or a conservation easement.

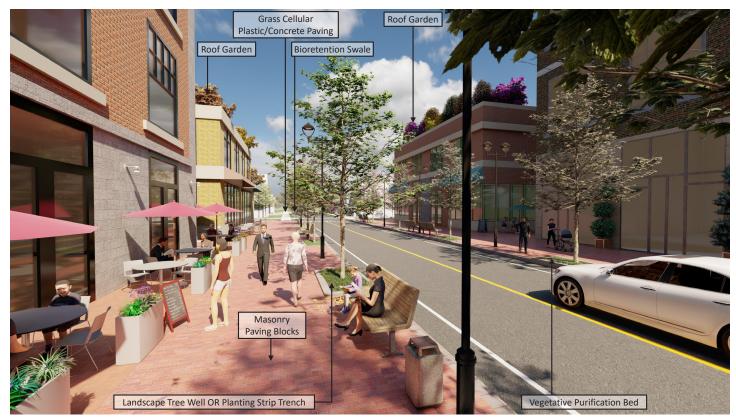


Bird's Eye View



This rendering is a Bird's Eye View image displaying the usage of green infrastructures and stormwater management features within the rural, urban neighborhood and urban core transects. The stormwater management features included in the rendering are Retention Ponds, Constructed Wetlands, Vegetive Swale Channeling, Crushed Stone/Shell Paving, Bioretention Swales, Vegetive Stone Swales, Gutters, Grass Cellular Plastic/Concrete Paving, Roof Gardens, Fountains, Stone/Masonry/Asphalt Paving, Landscape Tree Wells, Porous Asphalt, Rain Gardens, Flowing Parks, Planting Strip Trenches, and Fountains.

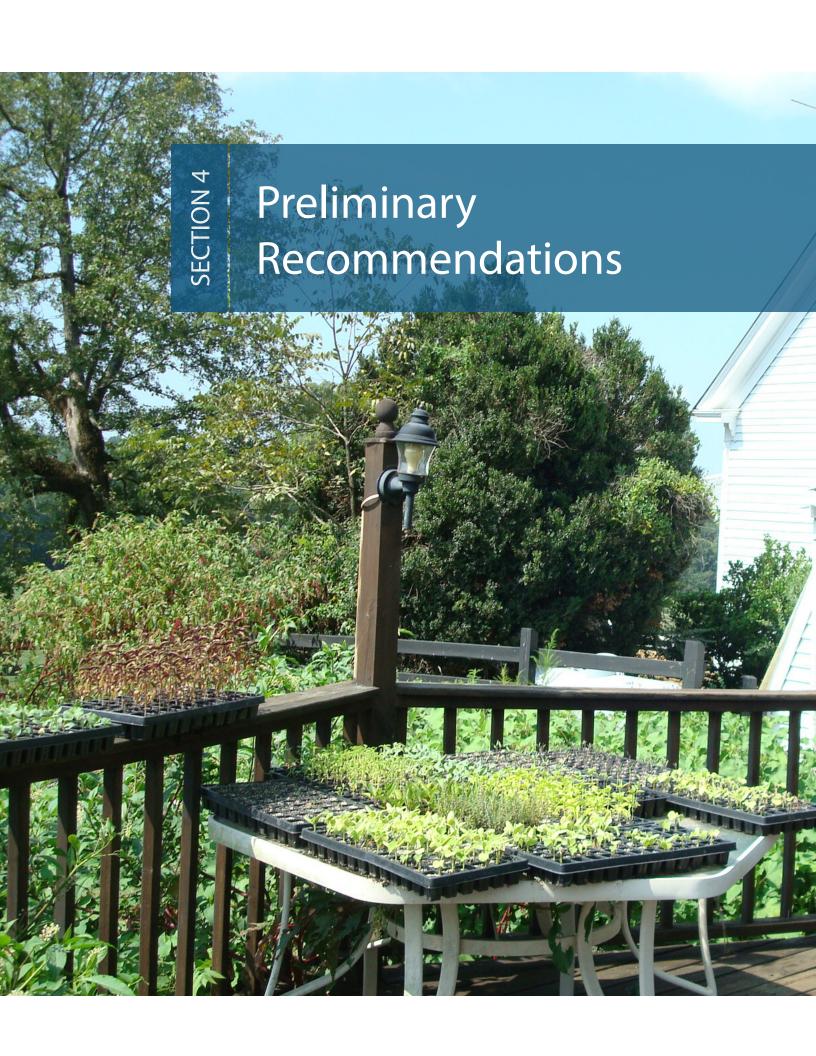
Street View



CORE AREA

This rendering is a Street View image displaying the usage of green infrastructures and stormwater management features within the urban core transect. The stormwater management features included in this rendering are Roof Gardens, Grass Cellular Plastic/Concrete Paving, Bioretention Swales, Masonry Paving Blocks, Landscape Tree Wells, and Planting Strip Trenches.

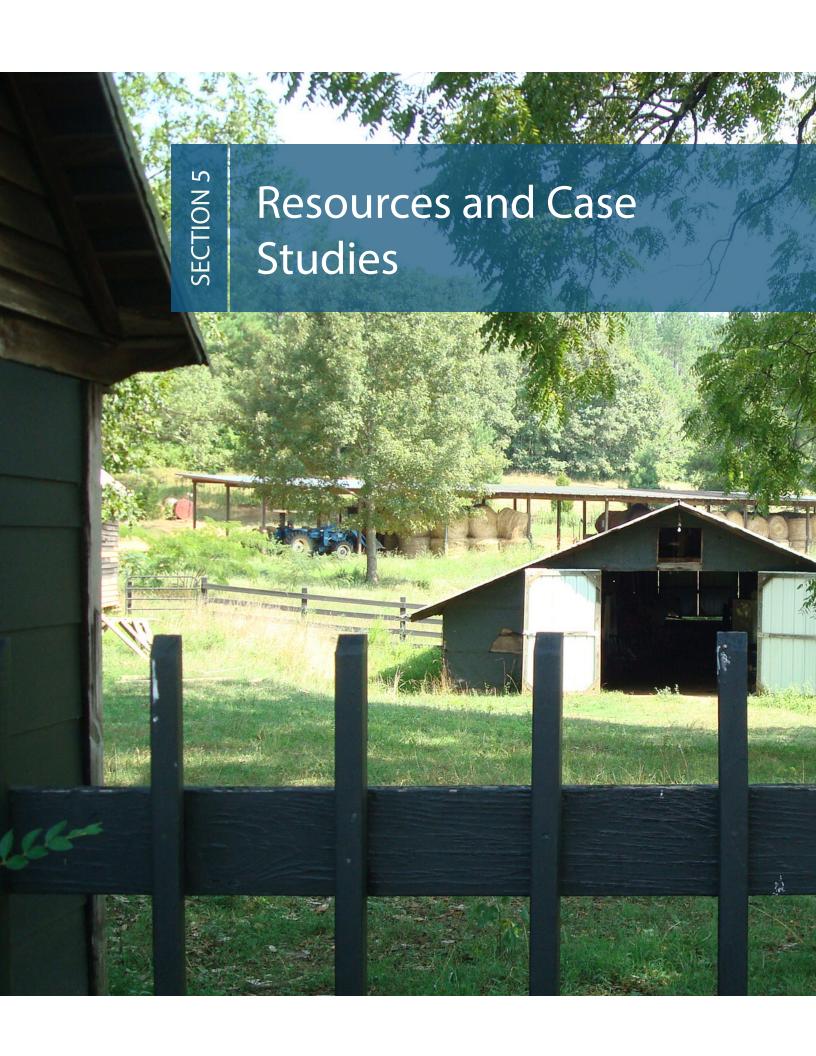




Recommendations

The following recommendations will help the City of Chattahoochee Hills addresss any conflicts or confustion around stormwater regulations in Chattahoochee Hills:

- 1. Revise Code of Ordinance for Better Cross-Referencing: The city of Chattahoochee Hills code of ordinances should be amended to better cross-reference the stormwater, light imprint, subdivision/plat, and zoning regulations. There should also be more language describing how developers are to use light imprint practices. This includes explaining the various transect zones and how they relate to zoning and the stormwater process. If Chattahoochee Hills desires to make LI techniques a requirement, then the City should consider adopting the full Light Imprint Stormwater Management Manual.
- 2. **Consider Incorporating Additional Form-Based Code Regulations**: If the City wishes to use Transect Zones in its various zoning and development regulations, additional zoning amendments or additions may be required, including the addition of specific form based code regulations.
- 3. **Adopt New Stormwater Standards When Ready**: A "New Model Ordinance for Post-Development Stormwater Management for New Development Redevelopment" is being created at the time this report is being produced. When the model ordinance is complete and released, Chattahoochee Hills should locally adopt the ordinance and revise other relevant ordinances as needed. These new regulations will allow the City to better codify the natural and aesthetic design that the city wishes to achieve.
- 4. **Develop Design Guidelines**: The city should also consider developing design guidelines that outlines the aesthetic the City would like to see in the built environment, including stormwater facilities. These new design guidelines could be based on the aesthetic prescribed in the LI Matrix or the design prescribed in the yet to be released "Model Ordinance for Post-Development Stormwater Management for New Development and Redevelopment".
- 5. **Develop Process Factsheet(s)**: Chattahoochee Hills should consider developing a short summary document outlining the stormwater management application process and desired outcomes to better communicate with developers before beginning the process.
- 6. **Utliize Other, Ongoing Work**: At this time, the City is reviewing its zoning ordinance for other purposes. The City should consider including the stormwater and LI regulations in the current zoning work as these regulations are all interrelated. ARC staff is available to meet with Chattahoochee Hills' staff, elected officials or appointed officials to discuss any of the recommendations above.



Resources/Tools

University of Arkansas

In 2014, The University of Arkansas designed Low Impact Development: A Design Manual for Urban Areas. The manual, designed for those in property development, presents ecologically-based stormwater treatment technologies in urban contexts. http://uacdc.uark.edu/work/low-impact-development-a-design-manual-for-urban-areas

Examples

Beaufort, SC

Rather than adopting the Light Imprint Stormwater Management Guide, the city of Beaufort has implemented their own Stormwater Best Management Practices Type Standards that outlines what practices are allowed at which transects. In 2012, the local stormwater design manual was updated to account for their form based codes, and integrate zoning and design with their stormwater standards. https://www.bcgov.net/departments/Planning-and-Development/planning/cdc/wp-content/uploads/2017/09/Article-5-09-27-17.pdf (Pages 181-186)

Glenwood Park

The Glenwood Park Neighborhood was developed in 2003, with sustainability and New Urban design in mind. From a 28 acre site, largely covered by impervious surface, it has become a neighborhood dedicated to a sustainable urban living experience. Glenwood Park's stormwater is routed to a pond located in the neighborhood's central park, where it is filtered before releasing downstream. http://glenwoodpark.com/info/6210

Roswell, GA

Roswell has used stormwater management as an incentive to redevelopment throughout the city. By providing green infrastructure and Low- Impact Development, at no cost to developers, they have been able to encourage targeted development. Now that the use of GI/LID is required by the city, this incentive is to the benefit of both developers and the city of Roswell. https://www.roswellgov.com/government/departments/environmental-public-works/stormwater-utility