

# POST DEVELOPMENT STORMWATER MANAGEMENT IN GEORGIA

Recent developments in stormwater management to include the Georgia Stormwater Management Manual, Model Post Development Ordinance, and Runoff Reduction

*James Moore*

*Stormwater Specialist*

*May 1, 2019*



“Mister!” he said with a sawdusty sneeze,  
“I am the ~~Lorax~~. I speak for the ~~trees~~.”

Metro N. GA Water Planning District

Blue Book



# THE BLUE BOOK

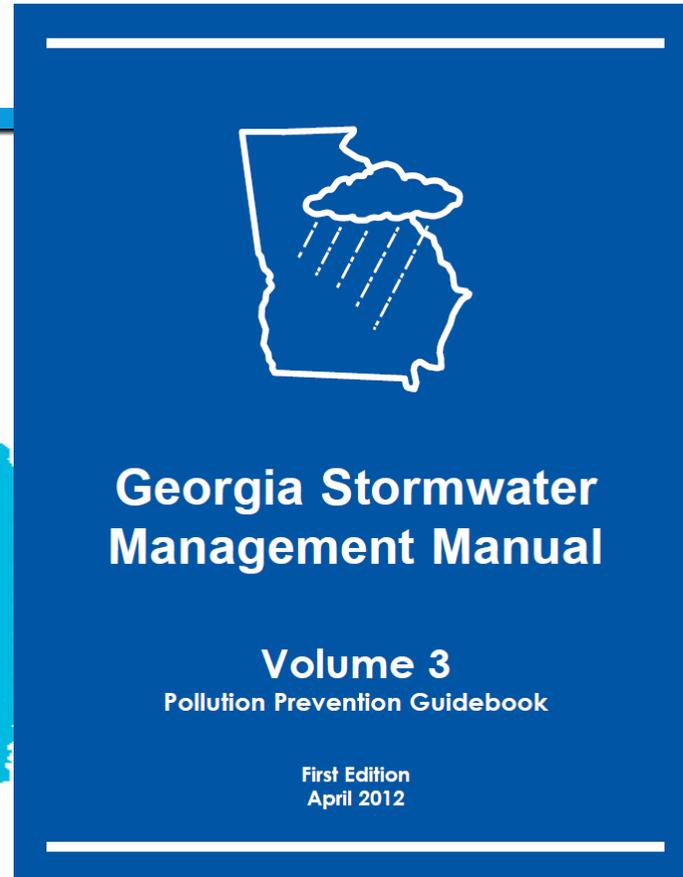


GEORGIA  
STORMWATER MANAGEMENT MANUAL  
2016 EDITION

VOLUMES 1 & 2



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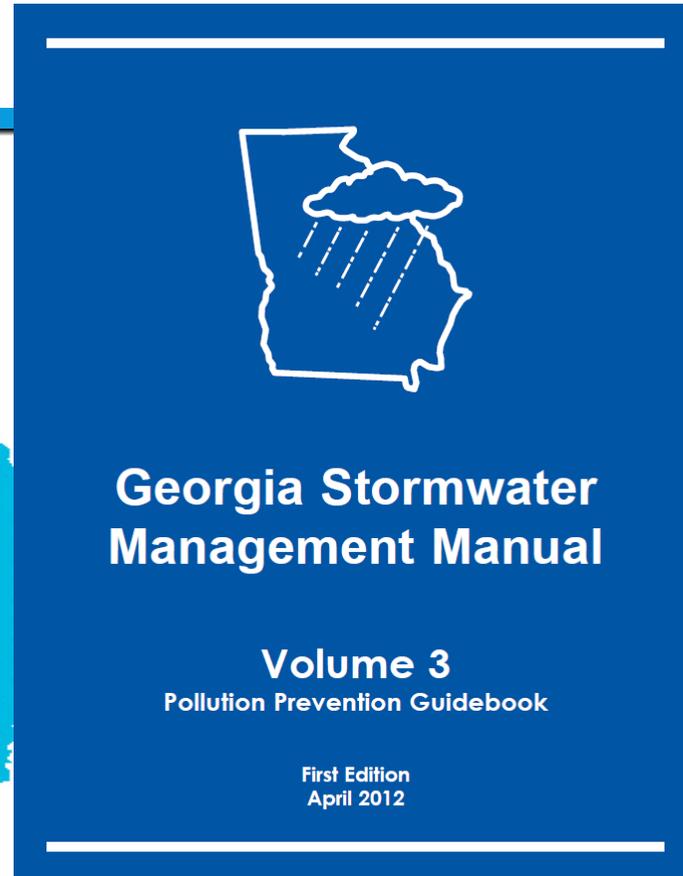


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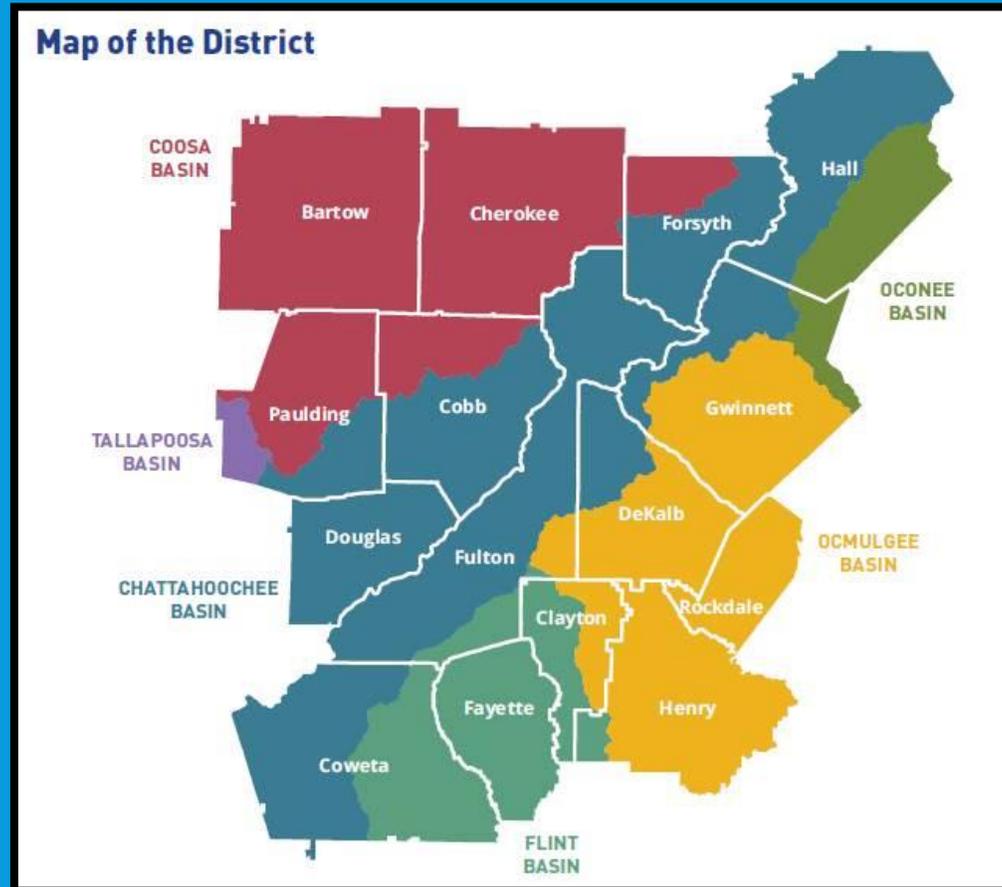


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# METROPOLITAN NORTH GEORGIA PLANNING DISTRICT



# NPDES MS<sub>4</sub> PERMITTEES

STATE OF GEORGIA  
DEPARTMENT OF NATURAL RESOURCES  
ENVIRONMENTAL PROTECTION DIVISION

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Permit No. GAG610000

Appendix B

Phase II MS4s by Population

Phase II MS4s with a population greater than 10,000

Counties

Athens-Clarke	Dougherty	Jackson	Oconee
Barrow	Douglas	Jones	Paulding
Bartow	Effingham	Lee	Peach
Carroll	Fayette	Liberty	Rockdale
Catoosa	Floyd	Long	Spalding
Cherokee	Glynn	Lowndes	Walker
Columbia	Hall	Madison	Walton
Coweta	Henry	Murray	Whitfield
Dawson	Houston	Newton	

Cities

Albany (Dougherty Co.)	Hinesville (Liberty Co.)
Brookhaven (DeKalb Co.)	Johns Creek (Fulton Co.)
Brunswick (Glynn Co.)	Loganville (Walton Co.)
Canton (Cherokee Co.)	McDonough (Henry Co.)
Cartersville (Bartow Co.)	Milton (Fulton Co.)
Conyers (Rockdale Co.)	Newman (Coweta Co.)
Cordele (Crisp Co.)	Peachtree City (Fayette Co.)
Covington (Newton Co.)	Peachtree Corners (Gwinnett Co.)
Dallas (Paulding Co.)	Perry (Houston Co.)
Dalton (Whitfield Co.)	Rome (Floyd Co.)
Douglasville (Douglas Co.)	Sandy Springs (Fulton Co.)
Dunwoody (DeKalb Co.)	Stockbridge (Henry Co.)
Fayetteville (Fayette Co.)	Valdosta (Lowndes Co.)
Gainesville (Hall Co.)	Villa Rica (Carroll Co.)
Griffin (Spalding Co.)	Warner Robins (Houston Co.)
Grovetown (Columbia Co.)	Woodstock (Cherokee Co.)

STATE OF GEORGIA  
DEPARTMENT OF NATURAL RESOURCES  
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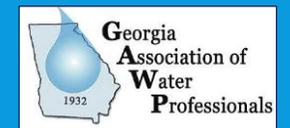
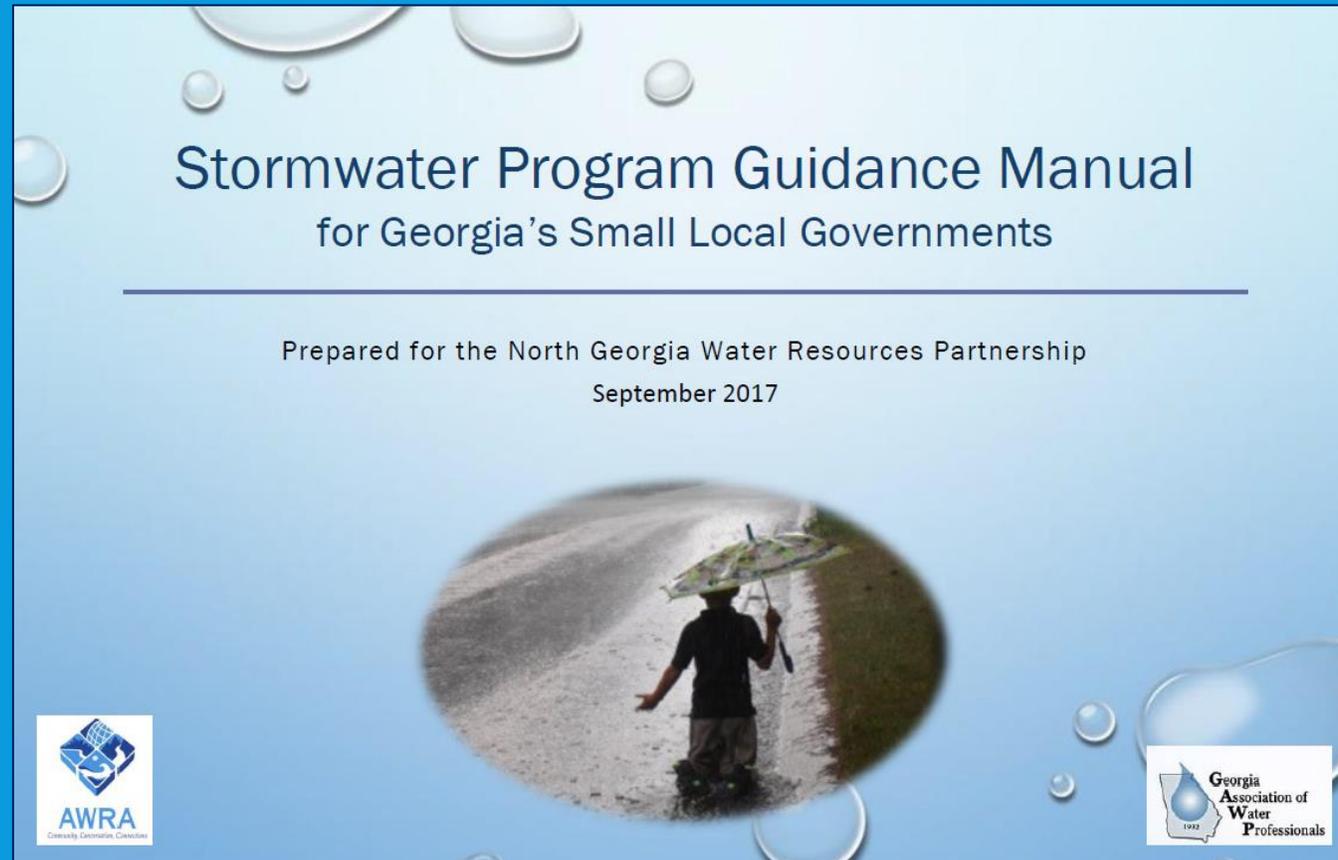
Appendix B (Continued)

Phase II MS4s with a population less than 10,000

Cities

Allenhurst (Liberty Co.)	Fort Oglethorpe (Catoosa Co.)	Remerton (Lowndes Co.)
Auburn (Barrow Co.)	Hahira (Lowndes Co.)	Richmond Hill (Bryan Co.)
Bogart (Oconee Co.)	Hampton (Henry Co.)	Ringgold (Catoosa Co.)
Braselton (Jackson Co.)	Hephzibah (Richmond Co.)	Rossville (Walker Co.)
Byron (Peach Co.)	Hiram (Paulding Co.)	Senoia (Coweta Co.)
Centerville (Houston Co.)	Holly Springs (Cherokee Co.)	Temple (Carroll Co.)
Chatsworth (Murray Co.)	Hoschton (Jackson Co.)	Tunnel Hill (Whitfield Co.)
Chickamauga (Walker Co.)	Leesburg (Lee Co.)	Tyrone (Fayette Co.)
Cumming (Forsyth Co.)	Locust Grove (Henry Co.)	Varnell (Whitfield Co.)
Emerson (Bartow Co.)	Lookout Mountain (Walker Co.)	Walnut Grove (Walton Co.)
Fton (Murray Co.)	Mountain Park (Fulton Co.)	Walthourville (Liberty Co.)
Euharlee (Bartow Co.)	Oakwood (Hall Co.)	Watkinsville (Oconee Co.)
Flemington (Liberty Co.)	Oxford (Newton Co.)	Winterville (Clarke Co.)
Flowery Branch (Hall Co.)	Porterdale (Newton Co.)	

# SW PROGRAM GUIDANCE MANUAL



# TODAY'S DISCUSSION

1. Rollout of the Runoff Reduction Performance Standard
2. Feasibility Criteria
3. Private Permitting Review and Inspection Act

# STORMWATER PERFORMANCE STANDARDS

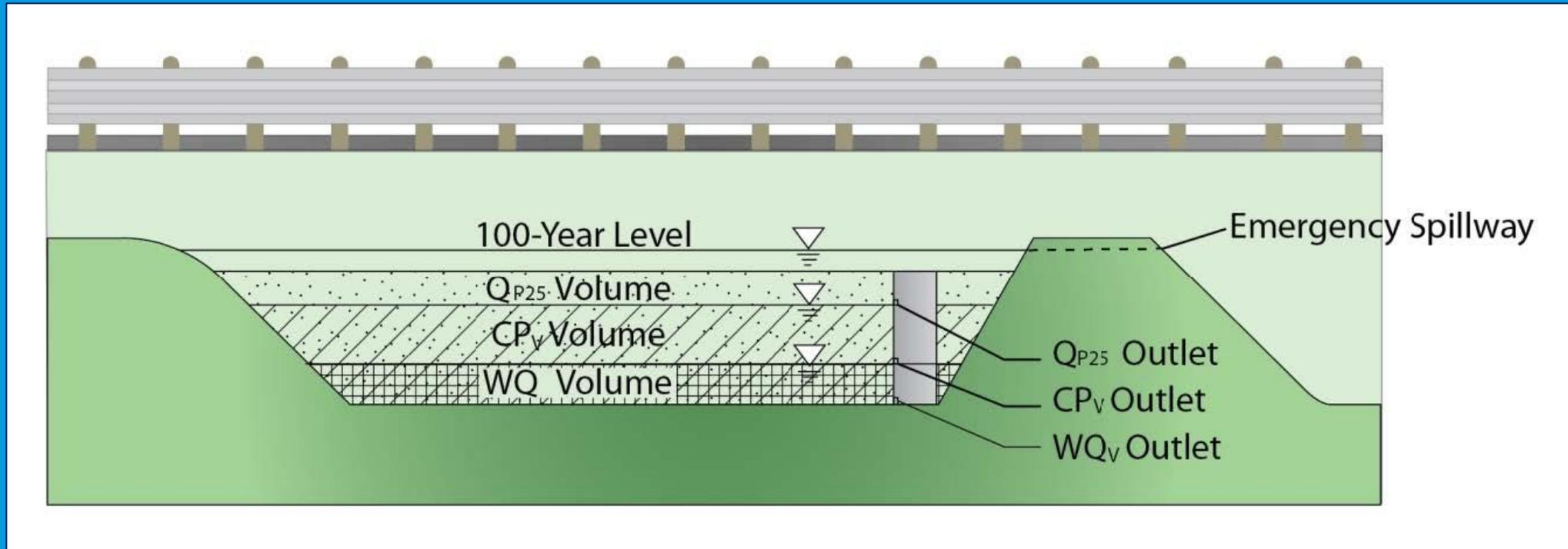
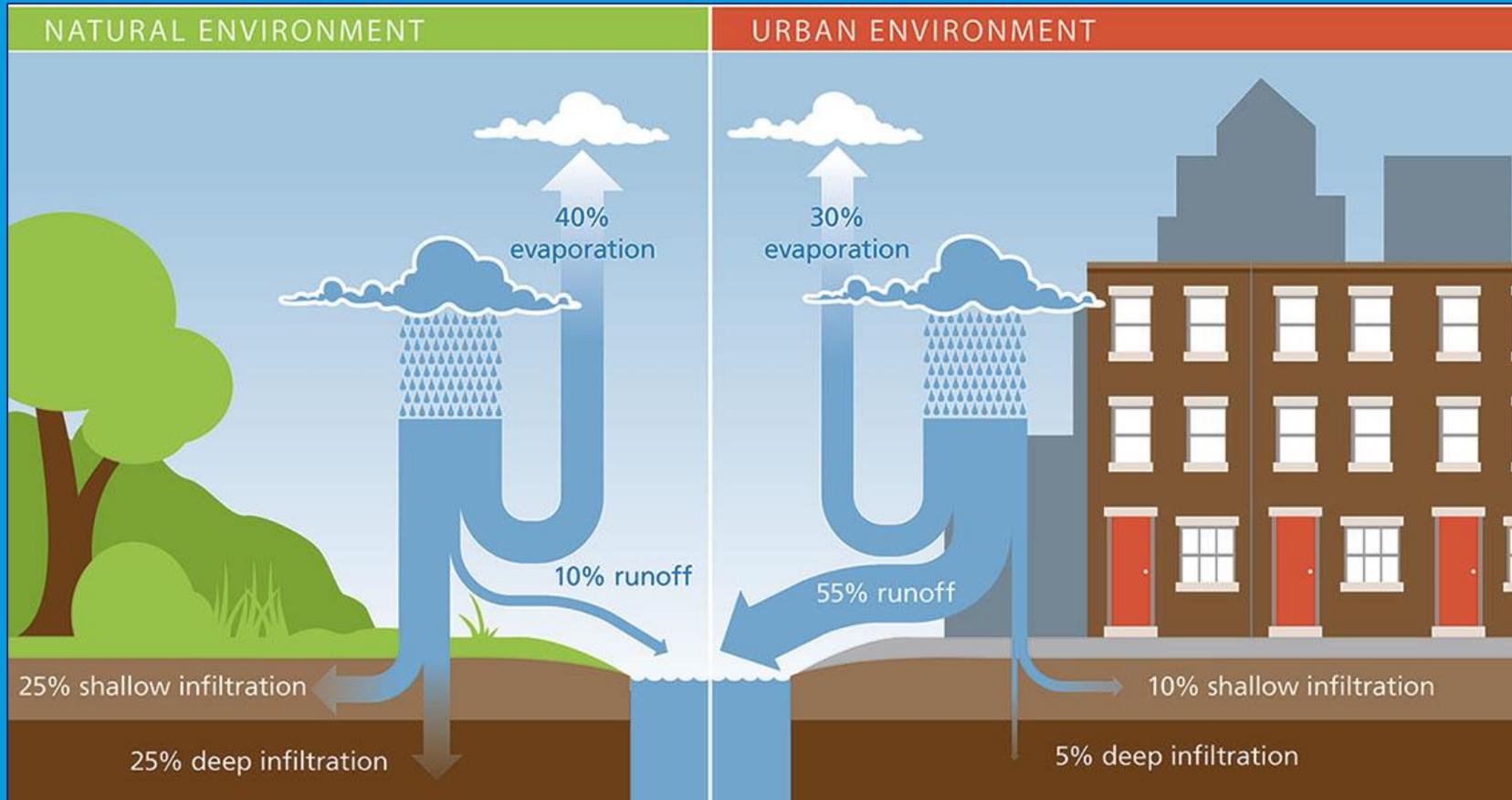


Image: GDOT Drainage Manual

# RUNOFF REDUCTION STANDARD

The stormwater management system shall be designed to retain the first 1.0 inch of rainfall on the site, to the maximum extent practicable. The maximum extent practicable applicability can be determined by the MS<sub>4</sub> using criteria they establish, such as the feasibility criteria in the GSMM. *2017 Georgia Phase II MS<sub>4</sub> Permit*

# IMPERVIOUS COVER & THE WATER CYCLE



# 10 Steps to Runoff Reduction

1. Clean Water Act  
1972

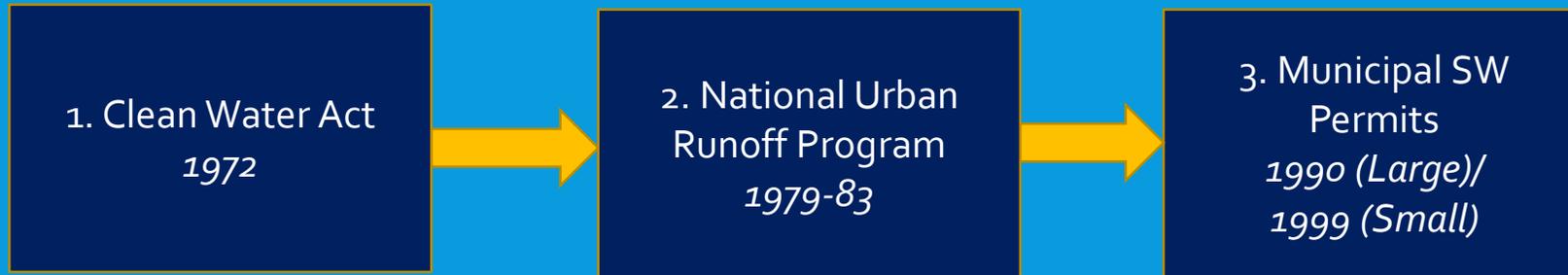
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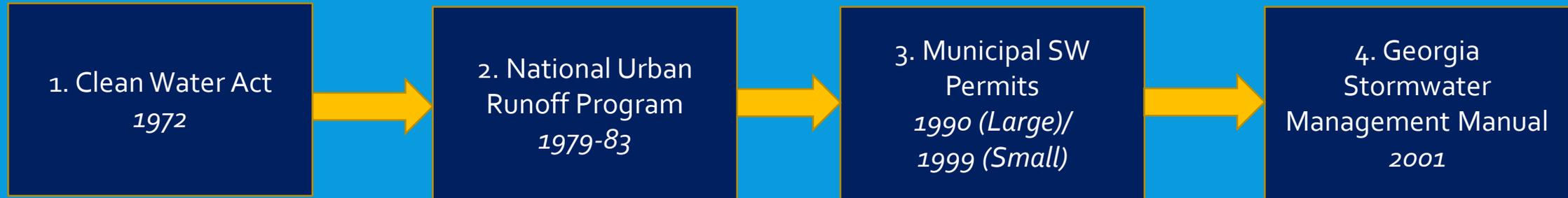


2. National Urban  
Runoff Program  
1979-83

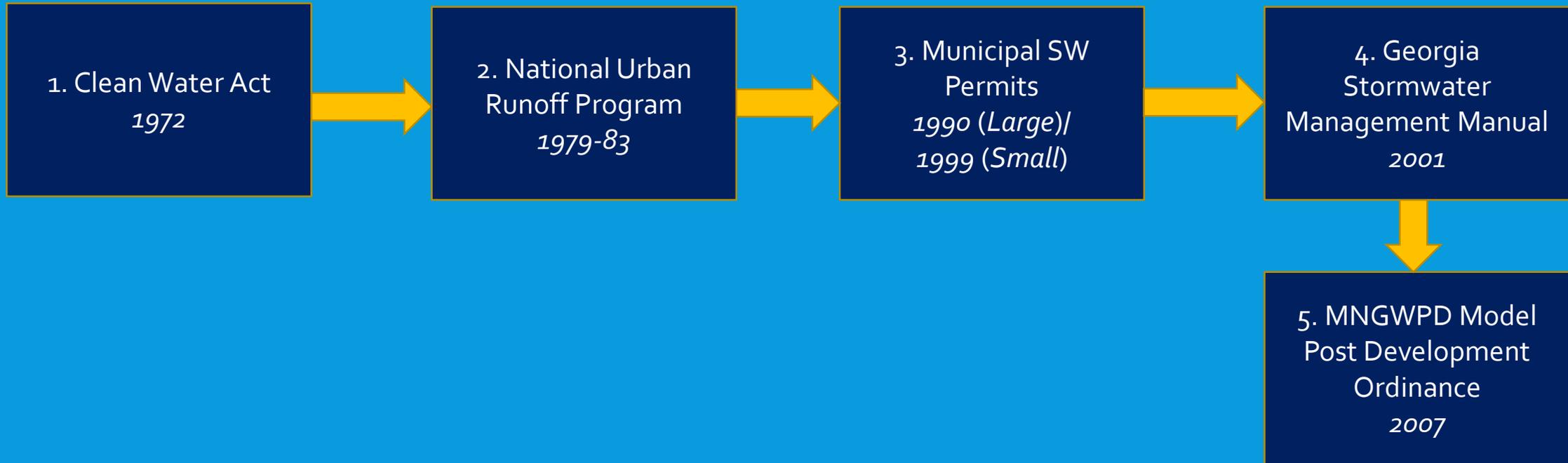
# 10 Steps to Runoff Reduction



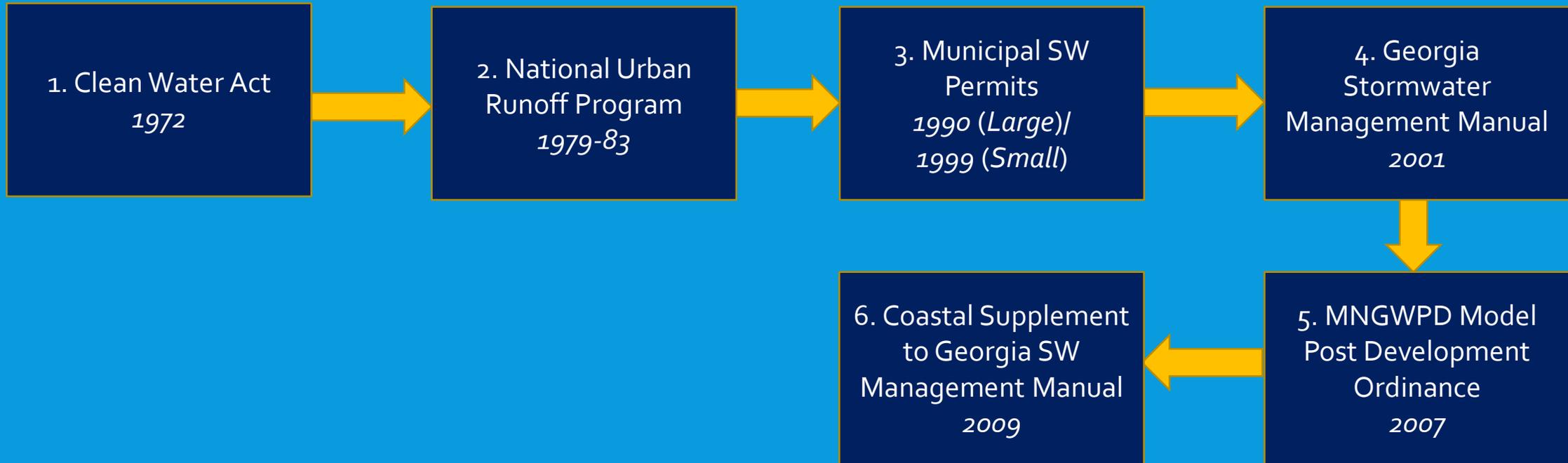
# 10 Steps to Runoff Reduction



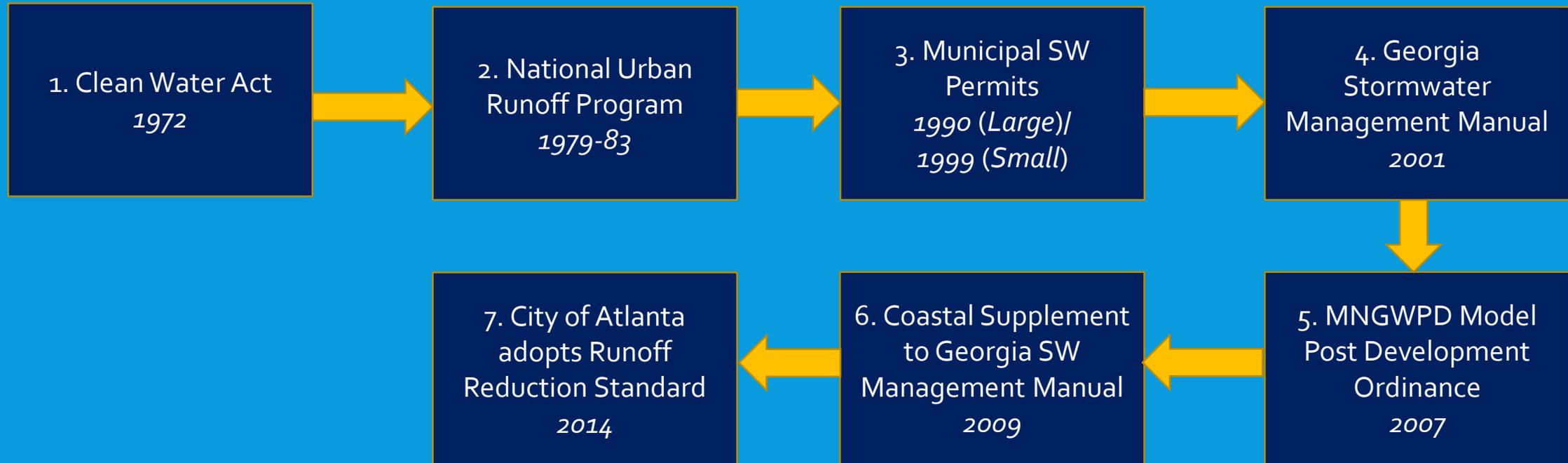
# 10 Steps to Runoff Reduction



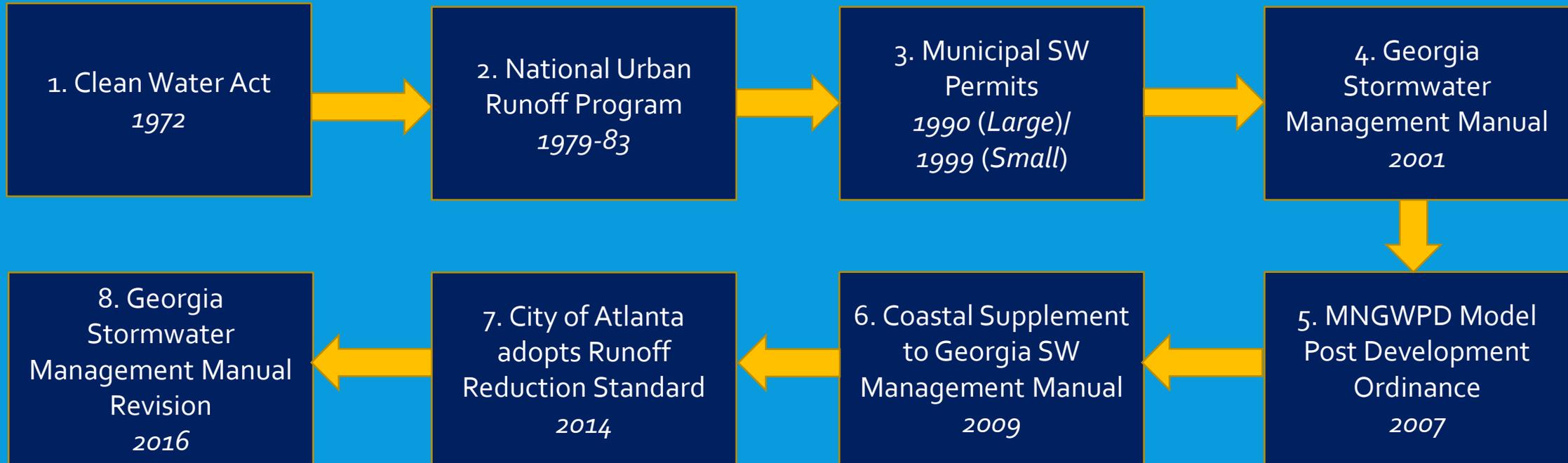
# 10 Steps to Runoff Reduction



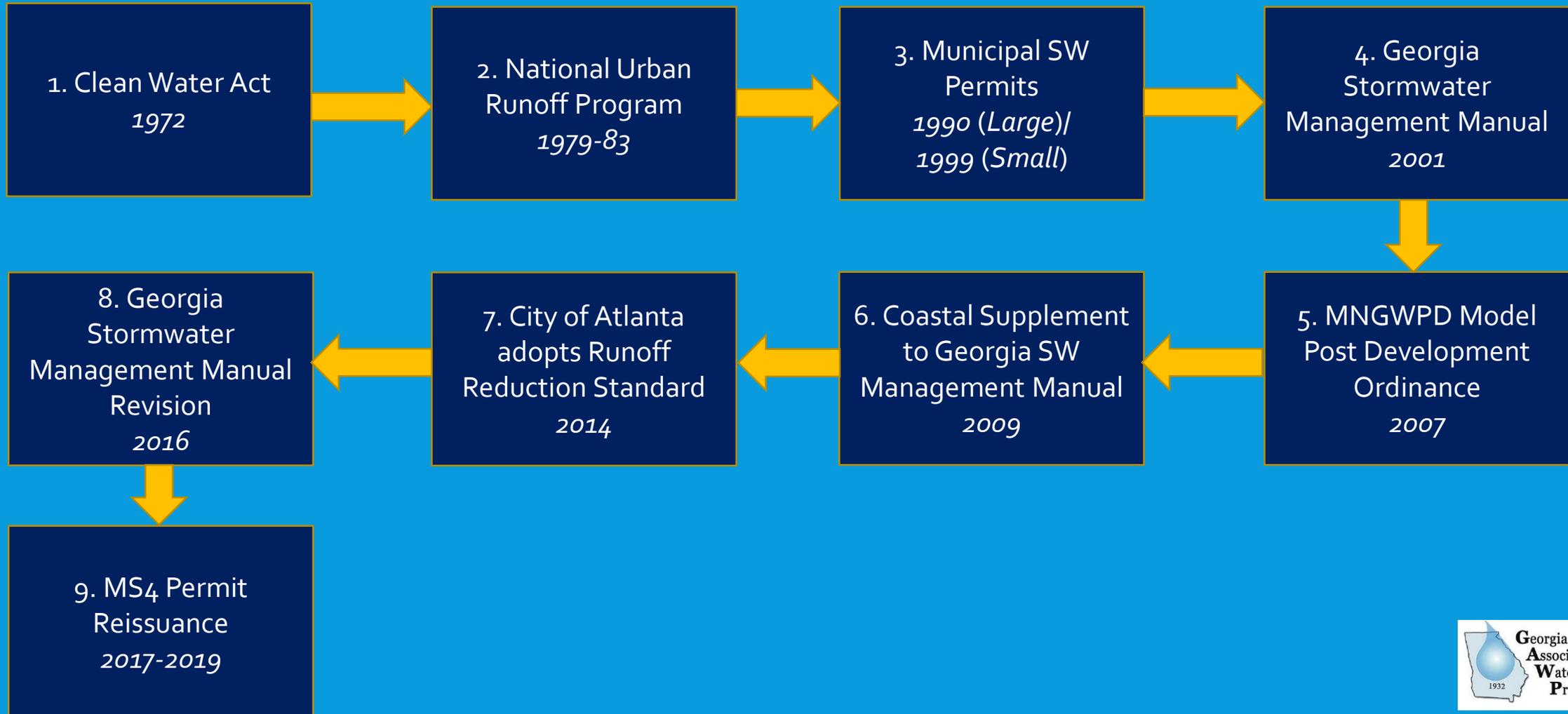
# 10 Steps to Runoff Reduction



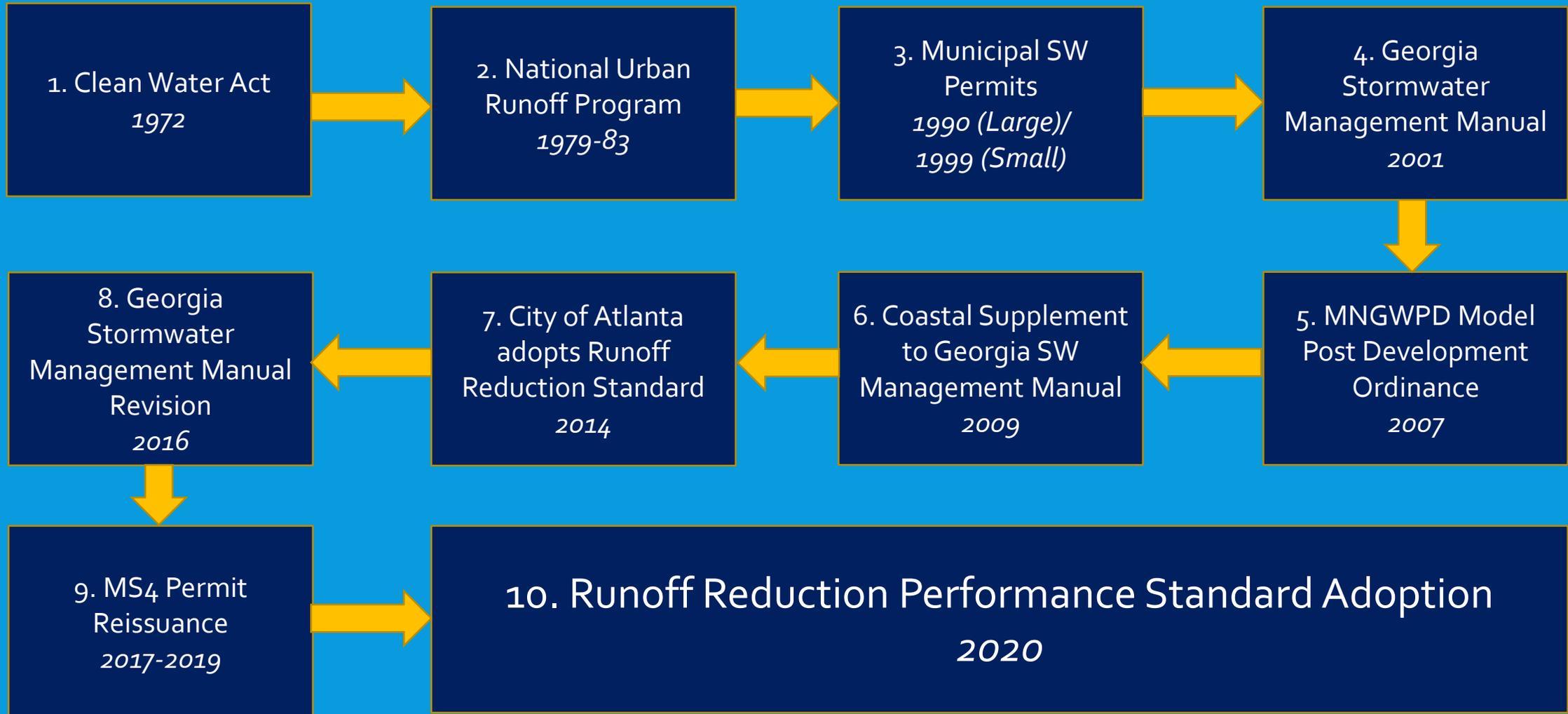
# 10 Steps to Runoff Reduction



# 10 Steps to Runoff Reduction



# 10 Steps to Runoff Reduction



# IMPLEMENTATION DATES

NPDES Phase 1 (Medium) : April 12, 2020

- *Forsyth County*

NPDES Phase 2 (Small) : December 6, 2020

- *Rome*
- *Dalton*
- *Cumming*
- *Catoosa Co.*
- *Cherokee Co.*
- *Dawson Co.*
- *Floyd Co.*
- *Murray Co.*
- *Whitfield Co.*

NPDES Phase 1 (Large) : December 10, 2020



# FEASIBILITY CRITERIA

The stormwater management system shall be designed to retain the first 1.0 inch of rainfall on the site, to the maximum extent practicable. **The maximum extent practicable applicability can be determined by the MS<sub>4</sub> using criteria they establish, such as the feasibility criteria in the GSMM.** *2017 Georgia Phase II MS<sub>4</sub> Permit*

# FEASIBILITY CRITERIA

## Feasibility Policy Working Group

- *GAWP*
- *MNGWPD*
- *Environmental Nonprofit*
- *MS<sub>4</sub> (Phase 1)*
- *MS<sub>4</sub> (Phase 2)*
- *Design Professionals (x2)*
- *Real Estate Developer*
- *Geotechnical Scientist*

## Key Elements

- *Part of the Model Post Development Ordinance Revision process*
- *Non-binding policy document*
- *To be recommended to MNGWPD's Stormwater Technical Coordinating Committee (TCC)*

# IMPLICATIONS OF RUNOFF REDUCTION

integrating hard engineering

...and soft engineering  
toward a LID approach

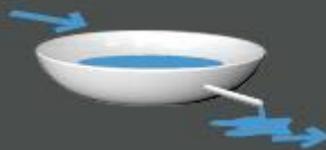


mechanical

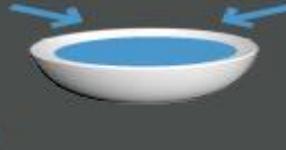
biological



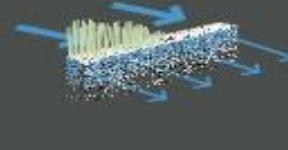
flow control



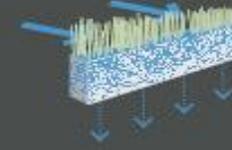
detention



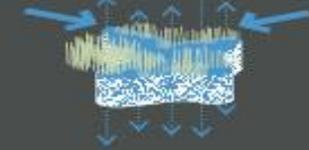
retention



filtration



infiltration



treatment

slow

→ spread

→ soak

**flow control:** The regulation of stormwater runoff flow rates.

**detention:** The temporary storage of stormwater runoff in underground vaults, ponds, or depressed areas to allow for metered discharge that reduce peak flow rates.

**retention:** The storage of stormwater runoff on site to allow for sedimentation of suspended solids.

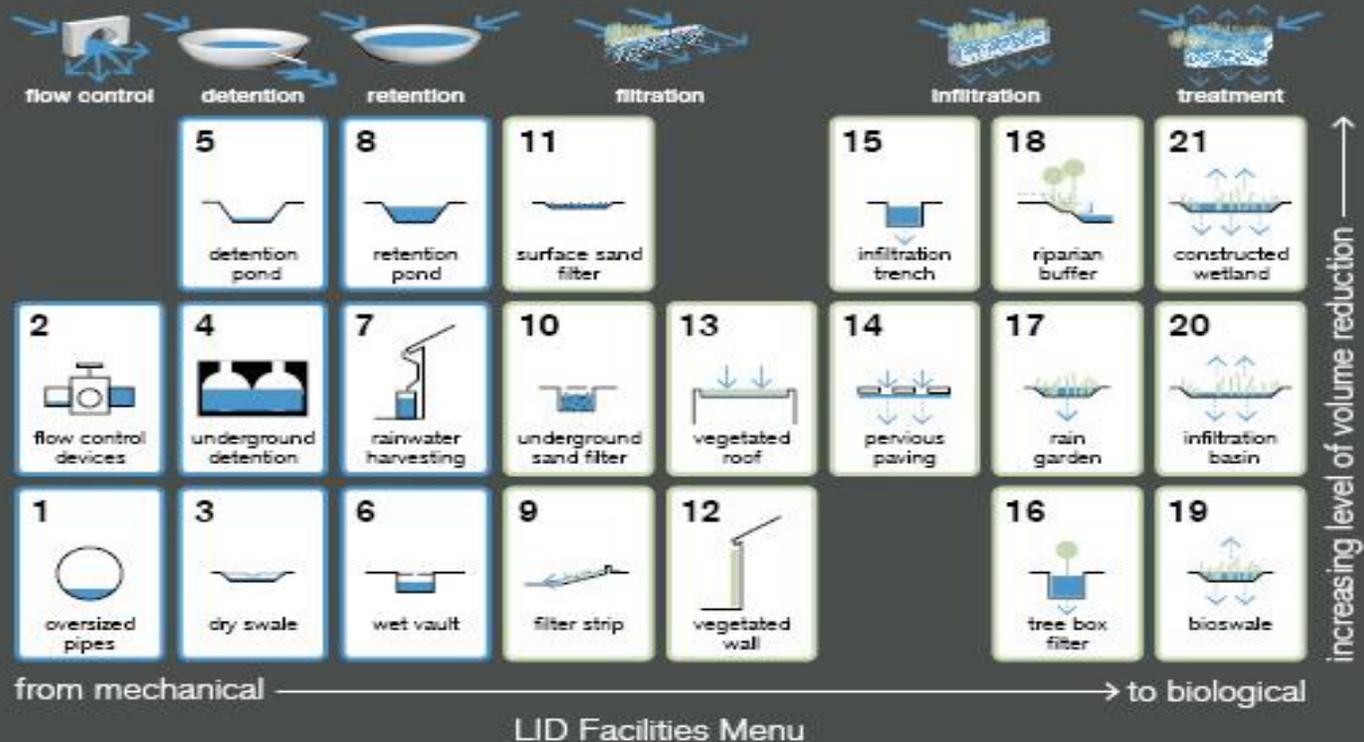
**filtration:** The sequestration of sediment from stormwater runoff through a porous media such as sand, a fibrous root system, or a man-made filter.

**infiltration:** The vertical movement of stormwater runoff through soil, recharging ground-water.

**treatment:** Processes that utilize phytoremediation or bacterial colonies to metabolize contaminants in stormwater runoff.

# What are the LID facilities?

The LID Facilities Menu organizes facilities based on increasing level of treatment service (quality) as well as increasing level of volume reduction (quantity). Therefore, number one (1), flow control devices offer the least amount of treatment services while number twenty-one (21), constructed wetland offers the most. Most municipalities require drainage infrastructure to manage 100-year storm events. Though one facility alone will not likely satisfy performance requirements, facilities with varying levels of service in a treatment network will provide superior levels of treatment and volume reduction.



# POTENTIAL CHALLENGES TO IMPLEMENTATION

Lack of institutional capacity to design, install, and sustain Green Infrastructure



Image credit: City of Atlanta

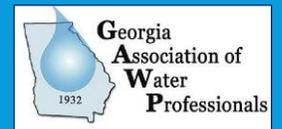
Tangled Ownership & Obligations

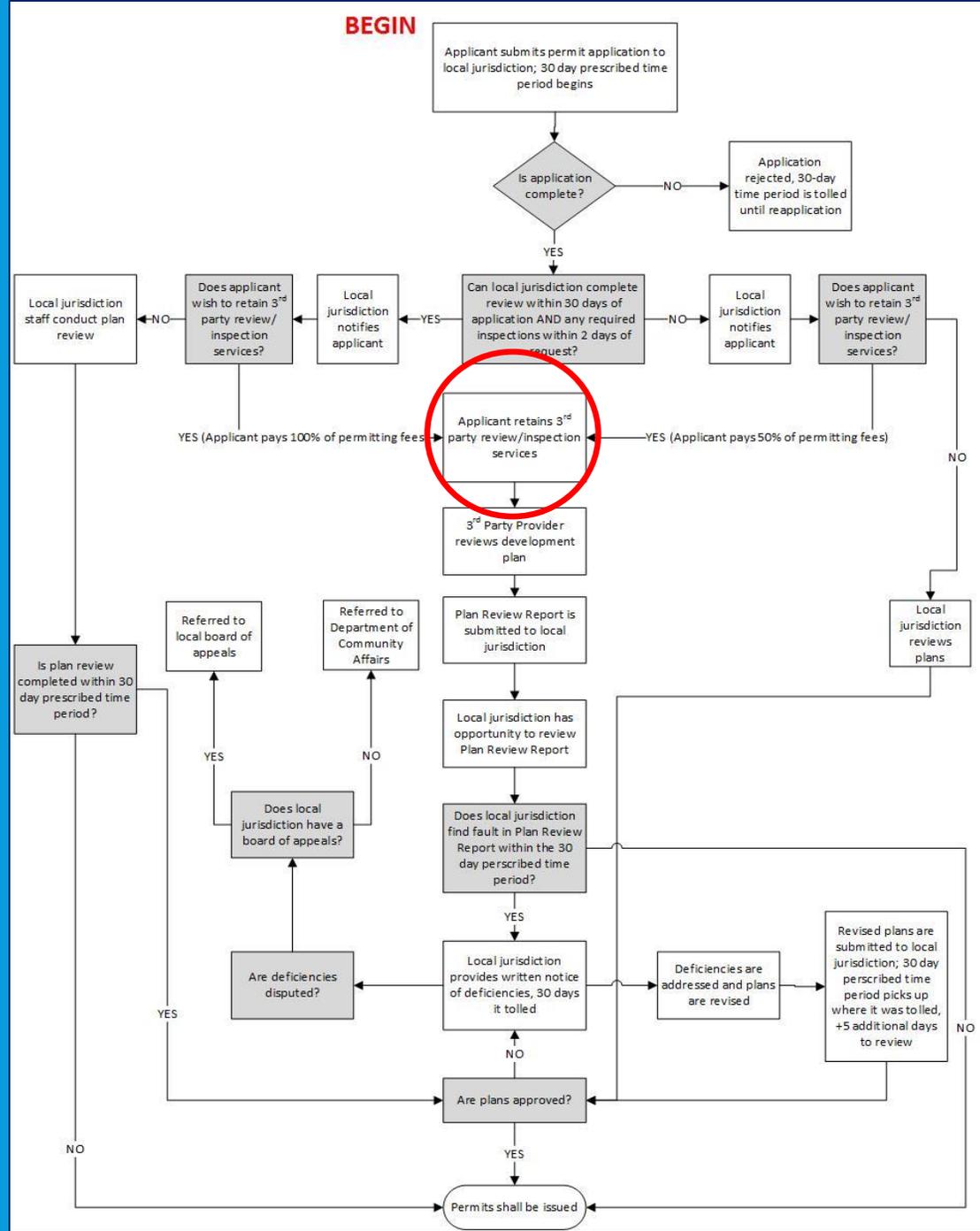


Bioretention cell, Nashville, TN

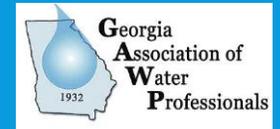
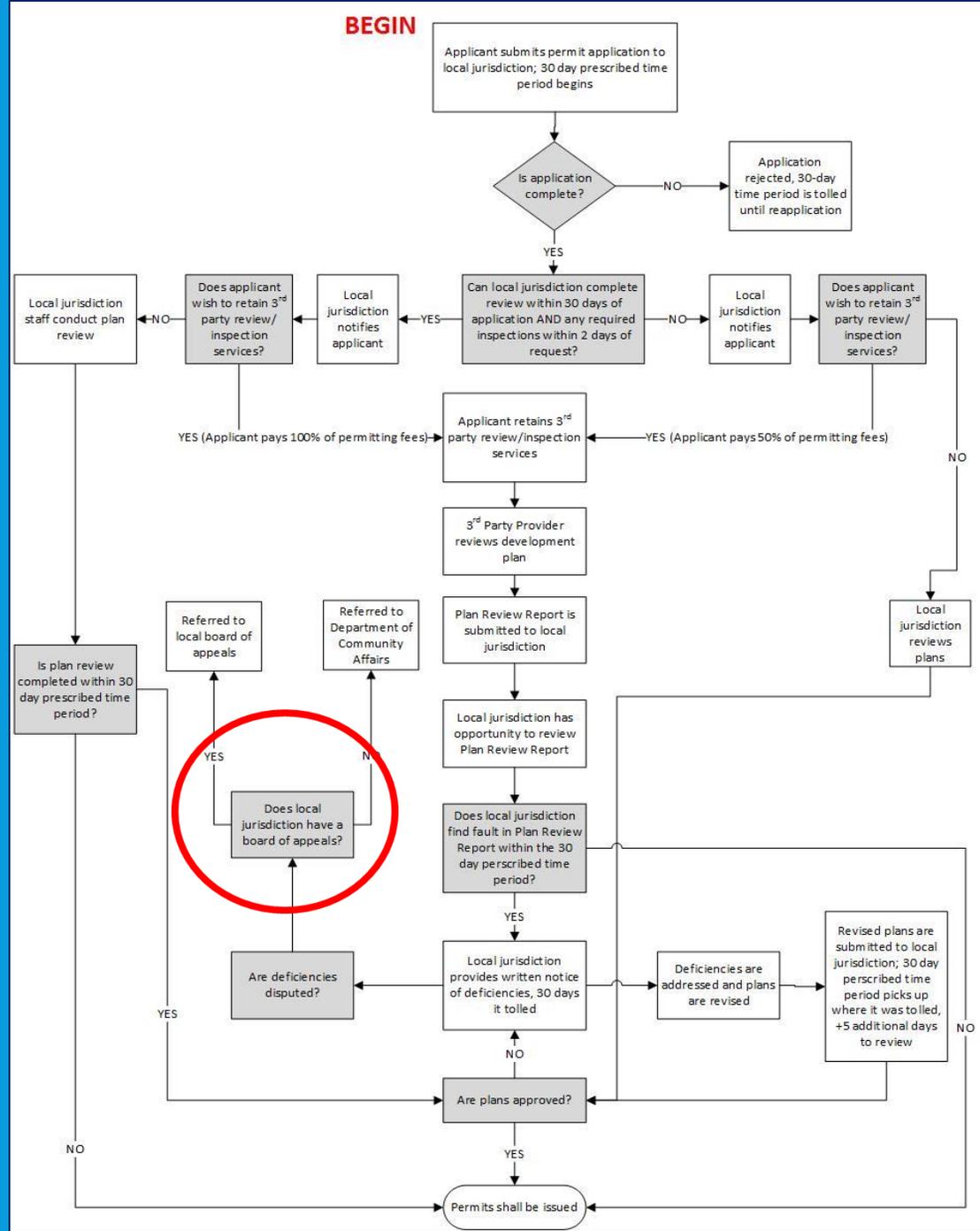
# PRIVATE PERMITTING REVIEW AND INSPECTION ACT

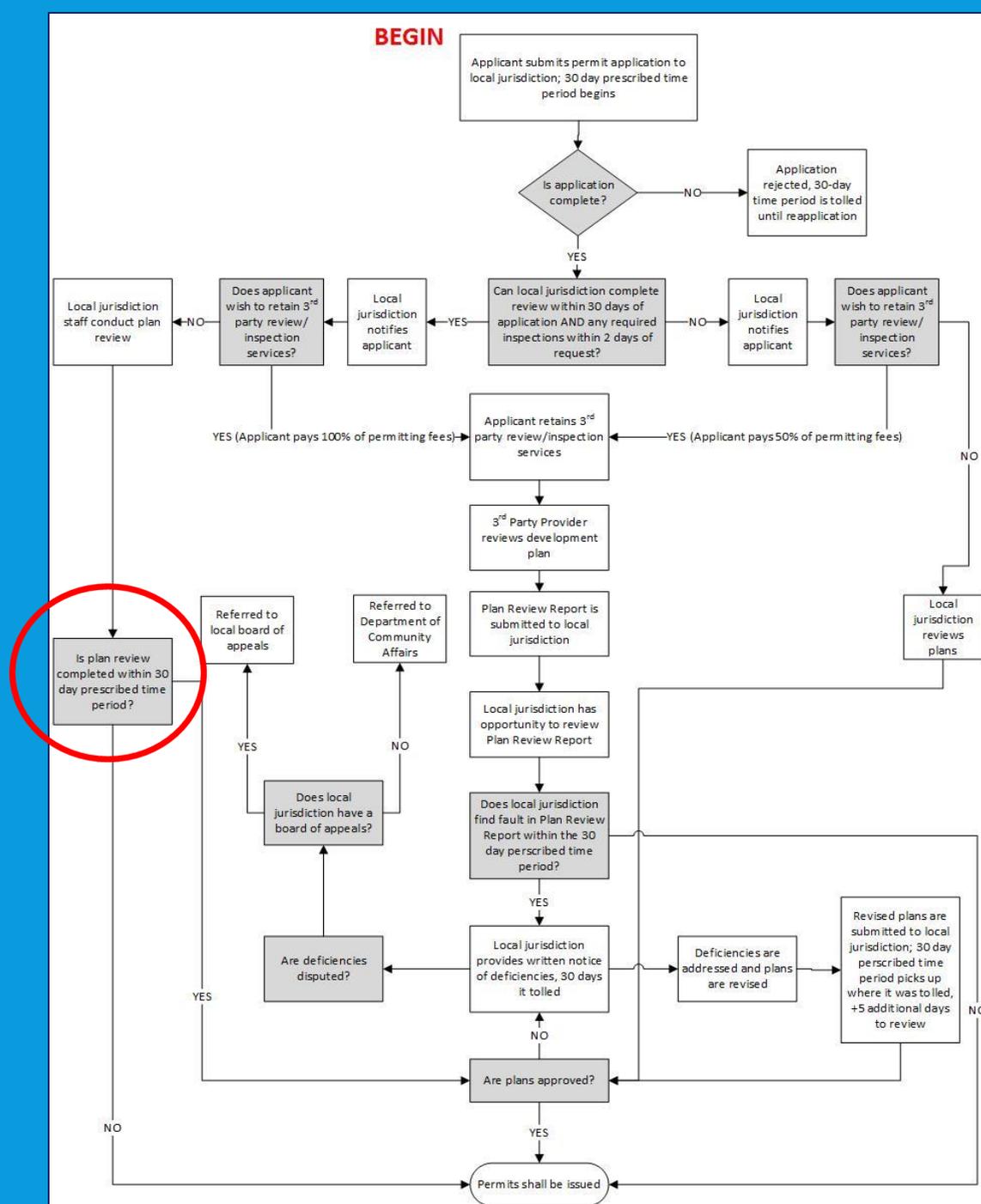
- Passed in the 2018-19 Legislative Session
- Establishes mandatory timetables for development plan review and approval
- Allows for permit applicants to opt to hire 3<sup>rd</sup> party professional service providers to review development plans and provide construction inspections services
- Establishes appeals process if applicant disputes local jurisdiction's findings





**BEGIN**





# THE TAKEAWAYS

1. Runoff Reduction is coming.
2. Green Infrastructure will be the means to achieve it.
3. Feasibility policy will be key to how its implemented.
4. There will be a learning curve.

# QUESTIONS, COMMENTS, ACCUSATIONS, OR DENIALS?

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