

# Stormwater Management in Coastal Georgia – The Coastal Stormwater Supplement

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# Coastal Stormwater Management Needs



With the exception of the metropolitan Atlanta area, the coastal zone is the most rapidly growing region in the State of Georgia. Forecasts predict that the population of the 10-county coastal area will increase by an additional 32% by 2015 and an Additional 51% by 2030 (CQGRD, 2006).

# Coastal Surface Water Quality Issues



## FLOODING

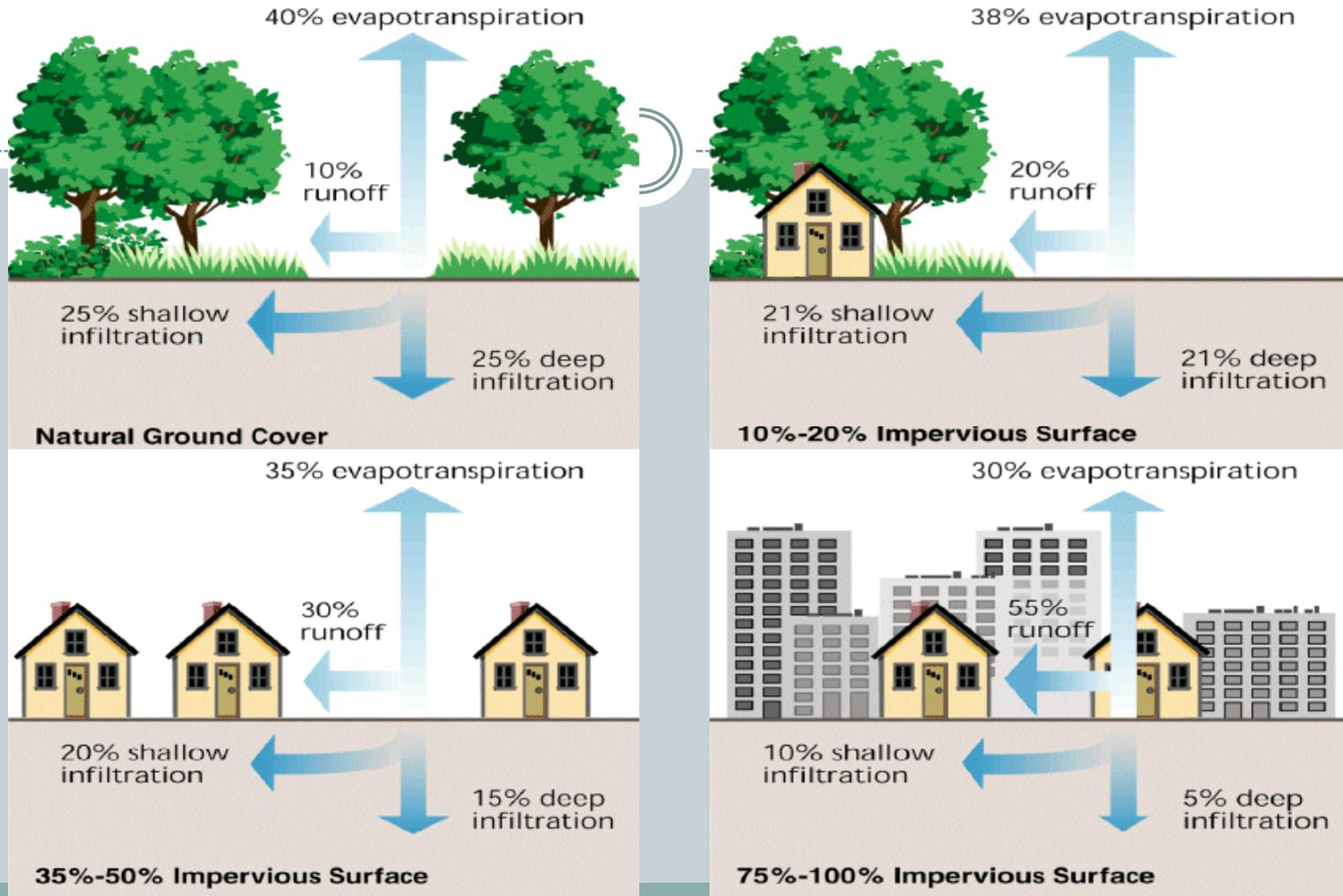


## NON POINT SOURCE POLLUTION



# Non-point Source Challenges

## *Land Use Impacts: Impervious Surfaces*



# What are the Impacts of Unmanaged Stormwater Runoff?



# Impacts of Land Development on Coastal Aquatic Resources

- Impacts on Estuarine Resources
  - Beaches:
    - ✦ Decreased water quality
    - ✦ Beach advisories and closures
- Impacts on Marine Resources
  - Near coastal waters:
    - ✦ Decreased water quality
    - ✦ Reduced fish and shellfish harvests
  - Beaches
- Impacts on Groundwater Resources
  - Groundwater Aquifers:
    - ✦ Decreased groundwater recharge
    - ✦ Increased risk of contamination

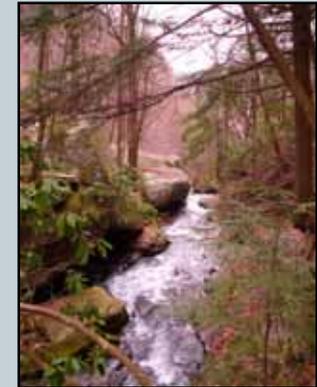


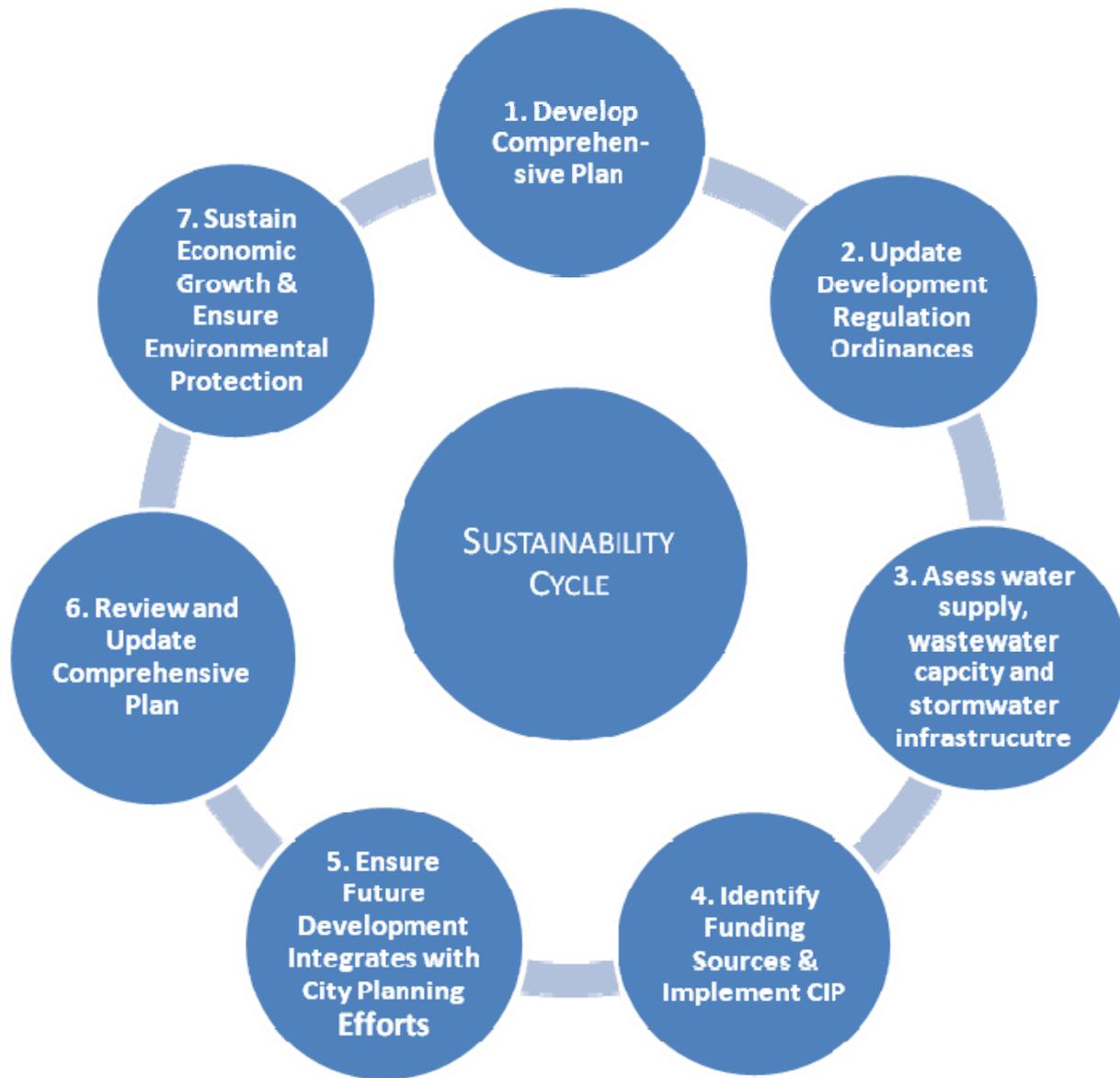
# Why Worry About Stormwater?



- **Flooding can result in property damage and become a public safety and health issue**
- **Good infrastructure management protects the public investment and is good practice for a community**
- **Maintaining or improving water quality enhances a community's quality of life**
- **New and increasing restrictive stormwater regulations require additional attention from the City**
- **Future stormwater program implementation will require the allocation of additional City resources to address numerous issues**
- **And more...**

# Watershed Protection Clean Water Goals





# Stormwater Management Programs (SWMP) for Cities & Counties



- 1. Meet the needs and expectations of your citizens.**
- 2. Achieve compliance with regulatory requirements.**
- 3. Balance protection of the local government's water resources with an individual's right to develop their land.**
- 4. Sustain economic growth for the local government and the region.**

# Obstacles to Local SWMP Implementation



- **Understanding of Watershed Impacts**
- **Program Needs & Priorities**
- **Program Organization & Responsibilities**
- **Inadequate Funding**
- **Poorly Defined Extent of Service Policy & Level of Service Policy**
- **Stakeholder & Elected Official Education**
- **Other**

# Local SWMP Elements

## Regulatory Compliance

Phase I & II NPDES Stormwater Permits

TMDLs

Water/Wastewater Permits

Industrial NPDES Permits

## Development Regulations

Post Construction Runoff

E&S Control

## Capital Improvement Program

Flood Control

Water Quality

Replacement

## Operations & Maintenance

Inventory

Routine Maintenance

Capital Maintenance

# Regulatory Compliance

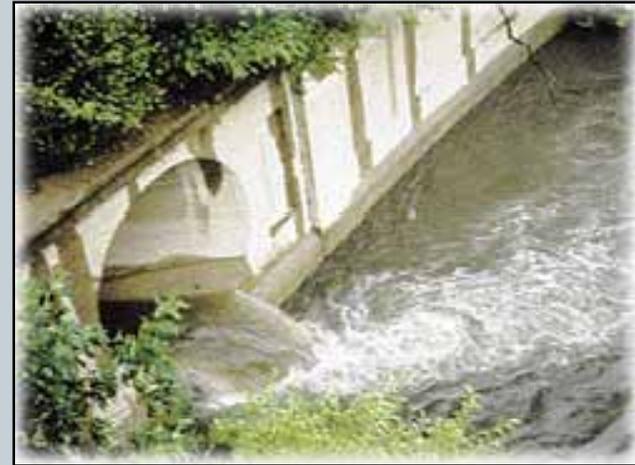


**DRIVERS FOR STORMWATER MANAGEMENT**

# State & Federal Regulations

- **National Pollution Discharge Elimination System (NPDES) permits**
  - Phase I & Phase II MS4 Stormwater Permits
  - General Industrial Stormwater Permit
  - Wastewater Discharge Permit
  - Construction Permits
- **Georgia Erosion & Sedimentation Act**

- **Total Maximum Daily Loads (TMDLs)**
- **National Flood Insurance Program**
- **Regional & State Planning**



# NPDES MS4 Stormwater Permit Program



- Regulations require permittees to develop a stormwater management program (SWMP) designed to prevent the discharge of stormwater pollutants into the MS4
- The first Phase I permit in Georgia was issued in 1994.
- The Phase II permit was issued in Georgia in 2002.
- *The next round of NPDES Phase I Stormwater Permit will be renewed in 2009 & 2010.*
- *New Phase II communities will be designated in 2012 after the next census data is issued.*

# NPDES SWMP Requirements



## Phase I

- Drainage System Operations & Maintenance
- Illicit Discharge Detection & Elimination
- Waste Handling & Industrial Facilities Pollution Controls
- Construction Site Structural & Non-Structural Controls
- 303 (d) Listed Waterways

## Phase II

- Public Education
- Public Involvement
- Illicit Discharge Detection
- Erosion & Sedimentation
- Post Construction
- Good Housekeeping

# What if local governments don't comply with the regulations?



- **EPD Enforcement – Hammer & Carrot**
  - Correspondence
  - Administrative Fines (\$50,000/day/violation)
  - Conditional Compliance with NPDES Permits & Water Withdrawal Permits
  - Loss of Qualified Local Government Status
  - State Funding
  - Public Relations “Challenge”



# NPDES Industrial General Permit



- **Requires Site-Specific Stormwater Pollution Prevention Plan**
- **Local Government Exemption Expired 2003**
- **NOI revised in 2006**
  - TMDL Monitoring Required
  - Annual Reporting
- **First Annual Reports Due October 2007/2008**
- **Notice of Violation issues to local government in 2007**

# NPDES Wastewater Discharge Permits



- **Development Regulation/Legal Authority**
- **Structural and Non-Structural BMPs**
  - Public Education
  - Inspection
  - Detention Pond retrofits
- **Water Quality Trend Monitoring**



# National Flood Insurance Program



- Requires Flood Damage Prevention Ordinance
- Recent Digital Flood Insurance Rate Map (DFIRM) update
- Community Rating System (CRS) status and lower local insurance rates



# State & Regional Drivers for Local Stormwater Management

## Georgia Comprehensive State-wide Water Management Plan



Water Council Date of Approval  
January 8, 2008



November 12, 2008

## COASTAL GEORGIA COMPREHENSIVE PLAN AGENDA

*Coastal Georgia*  
Regional Development Center

# Development Regulation



**POST CONSTRUCTION RUNOFF CONTROL**

# Effective Post-Construction Stormwater Management



- **Green infrastructure-based approach approach to natural resource protection and stormwater management!**
- **Focus on:**
  - **Linking** a development project with its surroundings
  - **Identifying and protecting** existing green infrastructure
  - **Limiting** land disturbance and the creation of new impervious and disturbed pervious cover
  - **Preventing**, rather than simply **managing** increases in post-construction stormwater runoff rates, volumes and pollutant loads

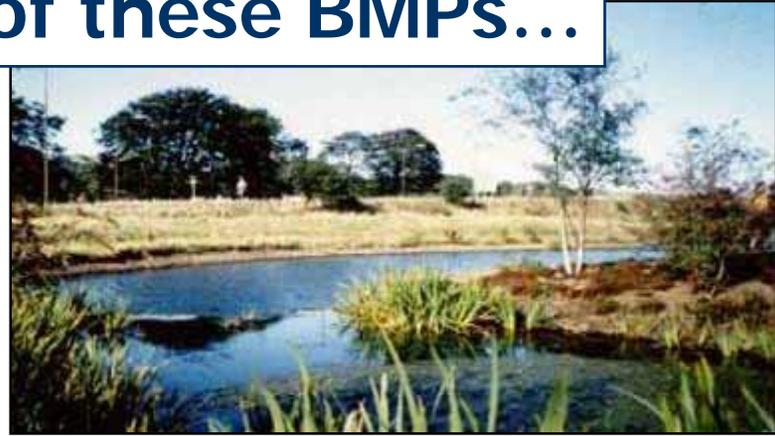
# Guiding Principles



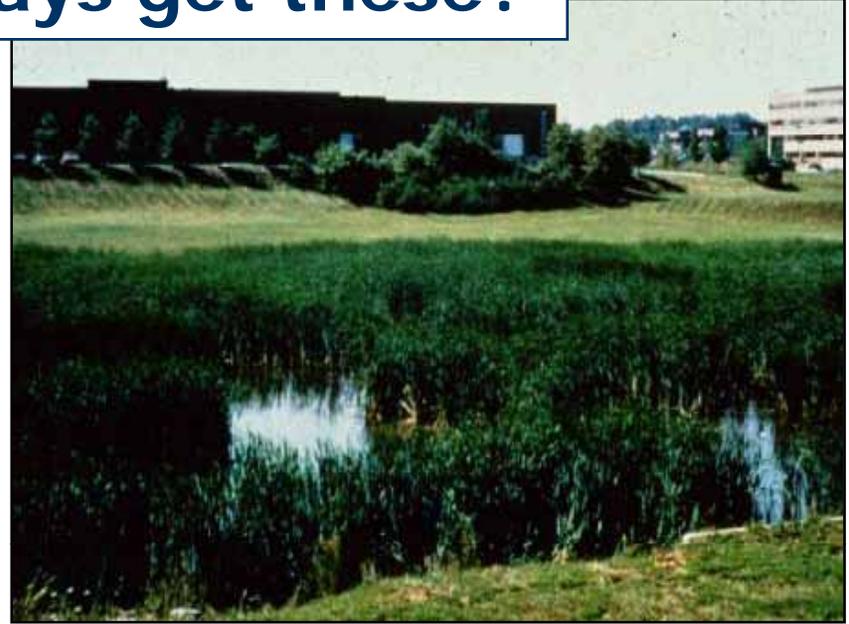
- Green infrastructure at both the watershed and site scales can be used to achieve our stormwater management goals
- Impacts of land development can be effectively controlled with land use planning and green infrastructure practices, as well as with traditional stormwater BMPs
- Green infrastructure practices need to be considered **EARLY** in the site planning and design process
- BMP selection affects performance, cost and long-term maintenance burden
- Local programs should adopt an approach that will minimize the negative impacts of land development

**Use a green infrastructure-based approach that will help protect both terrestrial and aquatic resources!**

# If we can use all of these BMPs...



# Why do we always get these?



# The Fact Is, We Ask For It!



- **We encourage them with our:**
  - **Existing Stormwater Management Criteria**
  - Traditional “One Size Fits All” Approach to Stormwater Management
  - Failure to Demonstrate New Stormwater Practices
  - Lack of Innovation with our Local Design Guidance & Construction Specifications

# With our existing criteria, we encourage this...



Development Project



Stormwater Management Practices



Receiving Waters



# So how do we get something that looks more like this?

Better Site Planning



Better Site Design



Low Impact Development Practices

Stormwater Management Practices



Receiving Waters



# Manage stormwater runoff from the rooftop to the stream...



- **To get to that point, we have to:**
  - Place less reliance on individual stormwater management practices (e.g., ponds)
  - Put an emphasis on using green infrastructure practices (e.g., better site planning & design techniques, low impact development practices)
  - **Integrate** natural resource protection and stormwater management with the site planning and design process

# First: Reduce Stormwater Runoff By Design



- **Better Site Planning & Design Techniques**

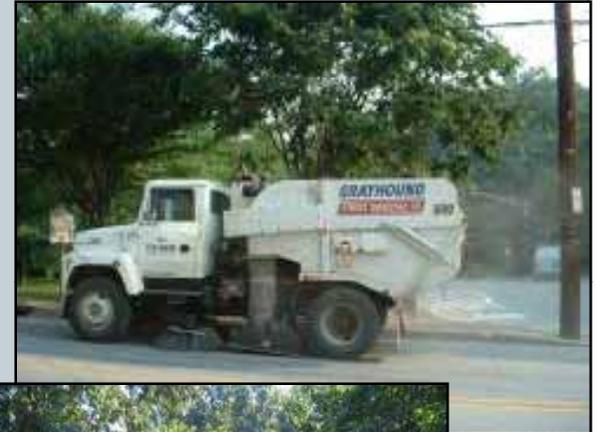
- Preserve natural areas
- Conservation design
- Reduce clearing & grading limits
- Reduce roadway widths
- Use alternative cul-de-sacs
- Promote redevelopment
- And more...



## Second: Reduce Pollution and Stormwater Runoff Rates, Volumes & Pollutant Loads



- **Source Control Practices**
  - Storm drain marking
  - Street sweeping
  - And more...
- **Low Impact Development Practices**
  - Soil restoration
  - Site reforestation/ revegetation
  - Downspout disconnection
  - Rain gardens
  - Rainwater harvesting
  - Permeable pavement
  - And more...



## Third: Intercept & Manage Remaining Stormwater Runoff



- **Stormwater Management Practices**

- Stormwater ponds
- Stormwater wetlands
- Bioretention areas
- Sand filters
- Infiltration practices
- Swales
- And more...



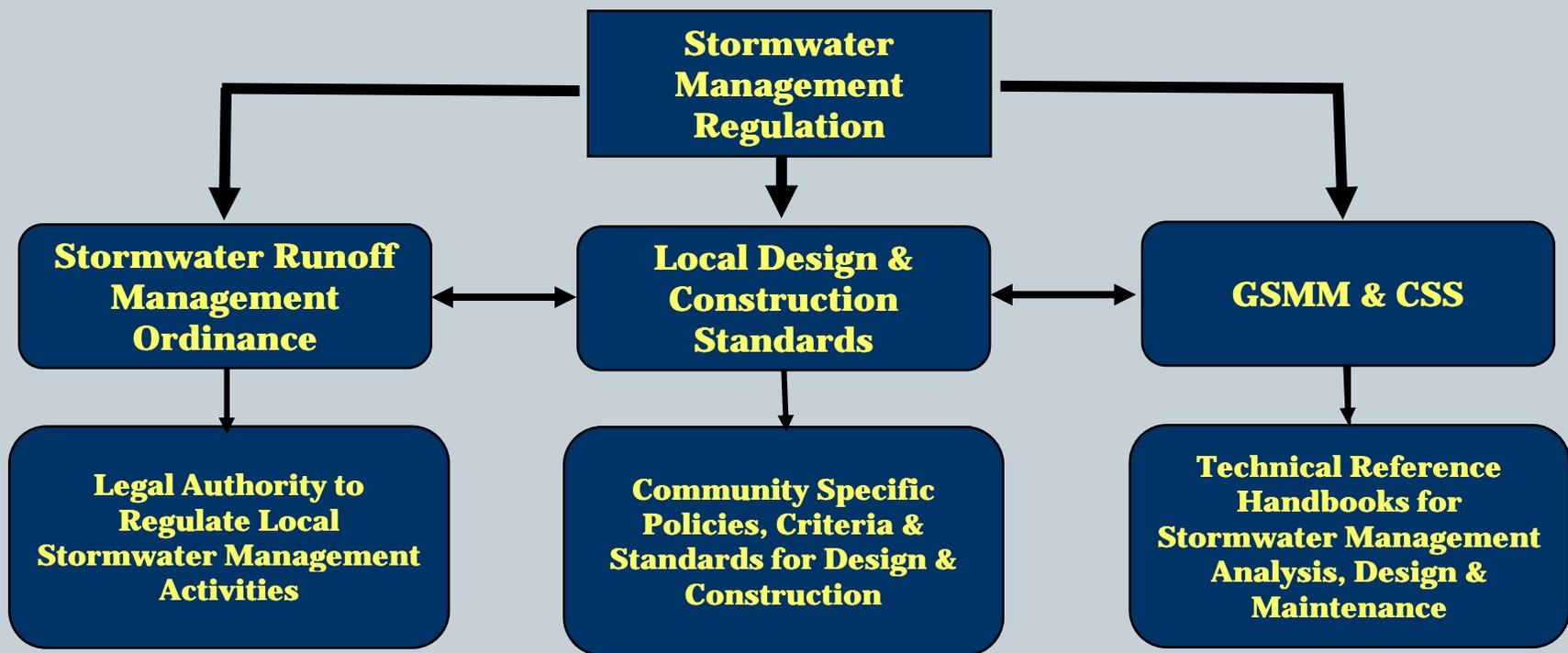
# Supporting an Integrated Approach



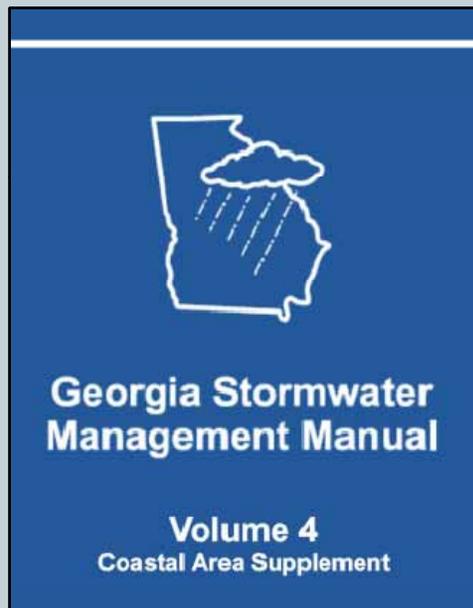
- To support an integrated approach to natural resource protection, stormwater management and site design, we've got to be asking for the right things in our **stormwater management criteria**:
  - **Technical Guidance Documents**
  - **Local Stormwater Management Ordinance**
  - Local Construction Standards (Specifications)



# Stormwater Runoff Management Strategy



# Georgia Stormwater Management Manual Coastal Area Supplement



- Better site design methods, site-specific applications and appropriate BMPs
- Green infrastructure approaches at both the watershed and site level
- Consideration EARLY in the site planning and design process
- Stormwater BMP selection
- BMPs with a proven track record of operation in the community and the region

# CSS Model Stormwater Ordinance



- Establish SOP for Stormwater Management
- Define & Codify Local Requirements
- Regulate Future Growth & Development
- Mitigate Flooding & Water Quality Impairments
- Address Regulatory Compliance Requirements
- Establish Long Term Inspection & Maintenance Requirements
- Natural Resources Protection
- Maintain Local Quality of Life Standards



# How Do We Pay For All This?



**STORMWATER UTILITY MANUAL**

- *There are numerous stormwater management program funding methods and variations for local governments*
- *There is a big difference between “resources”, “money” and “revenue”*

# Funding the Program.....

- **General Fund\***
- General Obligation Bonds
- Revenue Bonds
- Development Impact Fees
- Special Assessments/Tax Districts
- **User Fees/Stormwater Utilities\***
- Development Review Fees
- GEFA Loans
- In-lieu of Construction Fees
- SPLOST
- Federal & State Grants



# Six Step Process



- **Step 1: Education & Outreach**
- **Step 2: Define/Establish Structure**
- **Step 3: Data Compilation**
- **Step 4: Rate Structure & Analysis**
- **Step 5: Billing & Database Systems**
- **Step 6: Ordinance Adoption & Implementation**

# Georgia Stormwater Utility Handbook Outline



- **Section I: Introduction & Background**
- **Section II: Stormwater Management Program (SWMP) Assessment & Funding Analysis**
- **Section III: Six Steps to Setting Up a Stormwater Utility**
- **Section IV: Conclusions and Additional Resources**

# Stormwater Utility Overview



- **Formal Organizational and Financial Entity**
  - Stand Alone Stormwater Enterprise Fund
  - Separate Budget Under Existing Water & Sewer
- **Consistent and Stable Revenue Stream**
- **Assigns Costs to Parcels in a Fair and Equitable Manner**
- **Functions as a User Fee based System Similar to other Public Utilities (water, sewer, sanitation, etc.)**

# Stormwater User Fee Overview



- **Stormwater User Fee:** A charge assigned to a parcel for Stormwater Management Services provided by the local government
- The user fee charge is the amount paid by the customer for the stormwater runoff ***demand*** that the parcel imposes on the City (or County) Drainage System and the Program
- The user fees paid by the customers fund the Stormwater Program

# Stormwater Utilities in Georgia



- In 1998, the City of Griffin set up the first Stormwater Utility in Georgia.
- In 2004, less than ten Stormwater Utilities were established in Georgia, but many communities were considering the option.
- In 2008, approximately 35 Stormwater Utilities are established in Georgia with over 90% in metro Atlanta.
- By 2015, the total number of Stormwater Utilities in Georgia could approach 100!

Questions?

