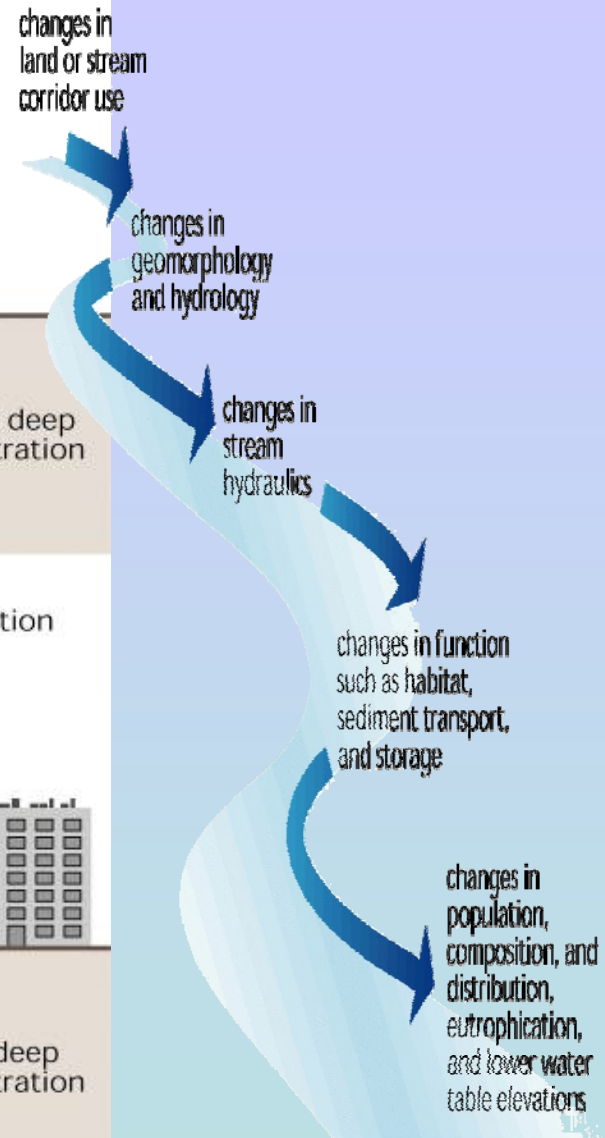
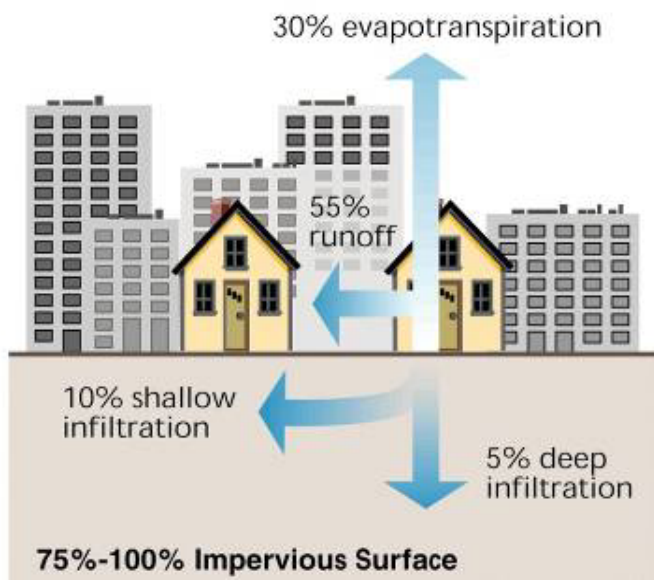
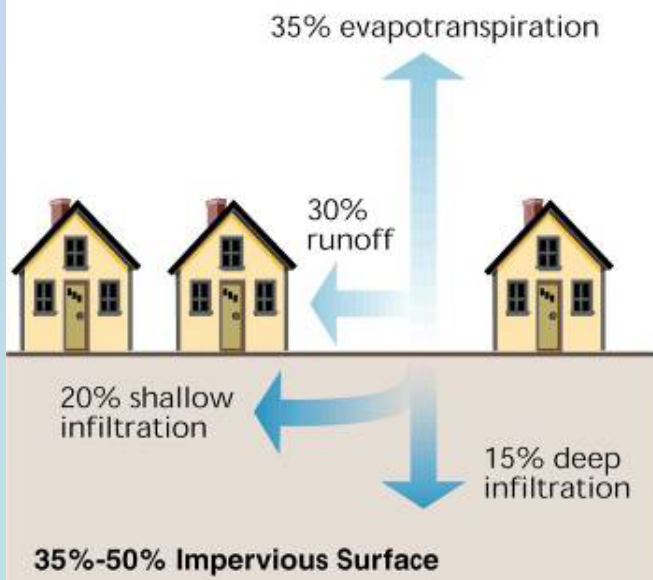
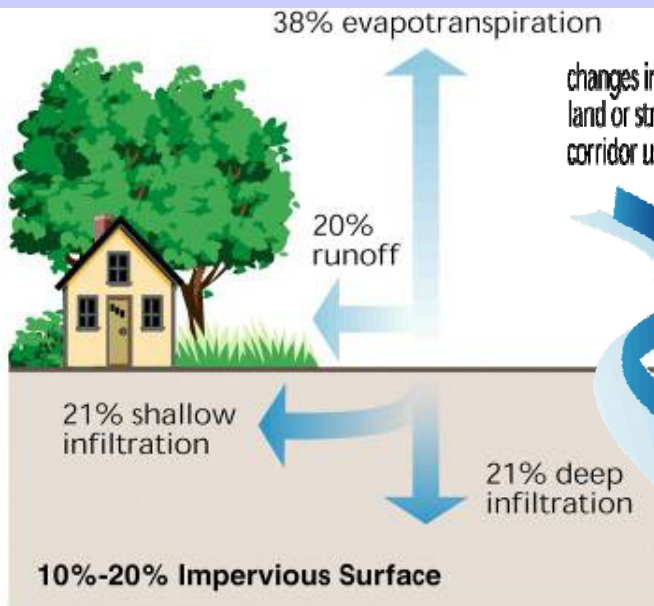
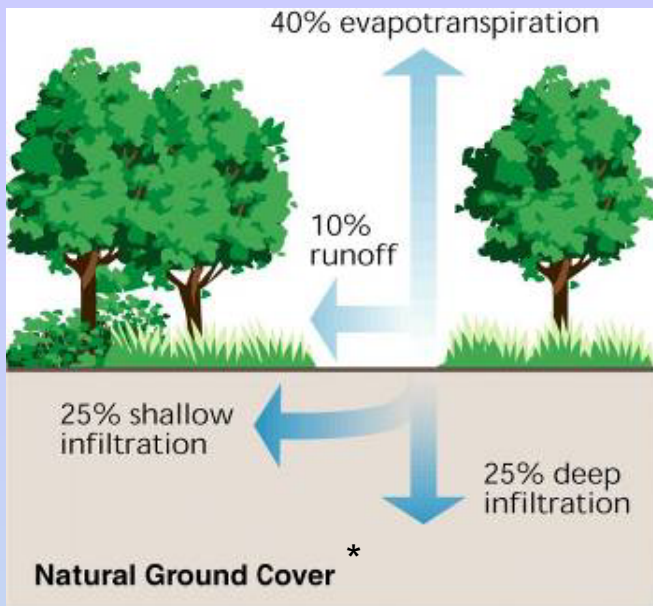


Stormwater Program Updates  
and  
Direction of Future  
Stormwater Regulations

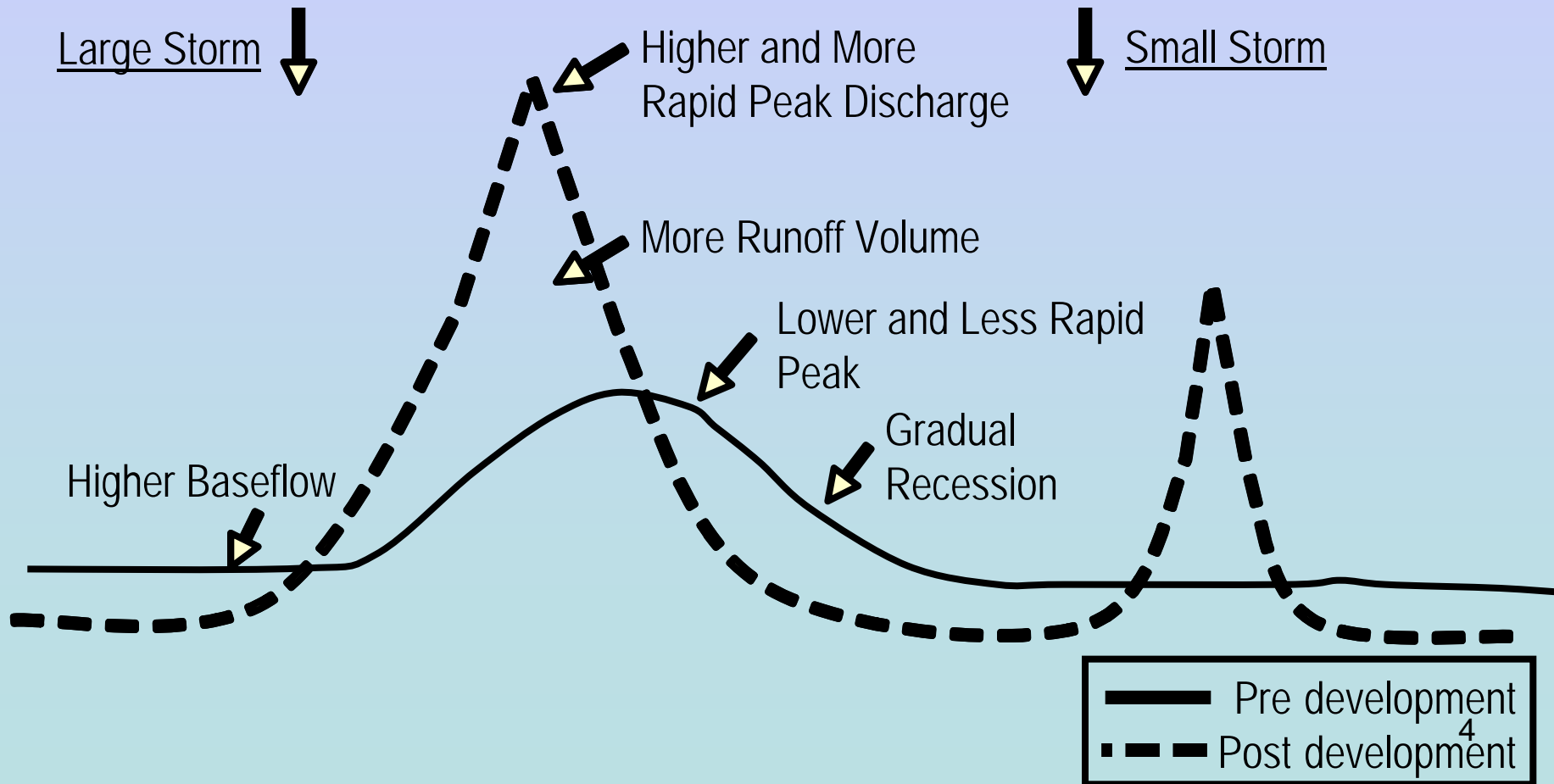
# OUTLINE

- **Impacts of Excess Stormwater Discharge**
- **Construction General Permit**
- **Current MS4 Program**
- **National Research Council Report**
- **Green Infrastructure Approaches to Managing Stormwater**
- **Stormwater Rulemaking**
- **Information Collection Request**
- **Other Considerations**
- **Permits That Incorporate On-Site Stormwater Management**
- **Energy Independence and Security Act Guidance**



Source: FISRWG 2001

# Consequences of Development to Urban Streams



**Stream Displaying Effects of Excess Stormwater Discharge:  
Stream Downtcutting & Sidebank Erosion,  
Undermining of Streamside Vegetation,  
Loss of Fine-Grained Bed Material,  
Low Baseflow Conditions**



# Construction General Permit (CGP)

- Construction and Development (C&D) Effluent Guidelines to be published 12/1/09
- EPA's 2008 CGP set to expire June 30, 2010
- EPA has proposed one-year year extensions to provide time to incorporate new C&D Guidelines

# Current MS4 Requirements

- Phase I
  - Applies to medium and large MS4s with population >100,000
  - Contains permit application requirements
  - No detailed long-term stormwater management requirements in the Phase I rule
  - Mandates description of controls for new subdivision in application, but no specific requirements or standards

# Current MS4 Requirements

- Phase II

- Applies to urbanized areas as defined by Census. This excludes many developed and developing areas.

- Permits must contain long-term stormwater management provision to address discharge and water quality impacts from new development and redevelopment. MS4 programs must:

- Implement structural and and/or nonstructural BMPs
    - Use ordinance or other mechanism to address stormwater discharges to the extent allowable under State/local law
    - Ensure adequate O&M of BMPs



# National Research Council 2008

## Stormwater Study Findings

- “Even though ‘pollutant’ is defined broadly in the Act to include virtually every imaginable substance added to surface waters, including heat, it has not traditionally been read to include **water volume**.”
- “A more straightforward way to regulate stormwater contributions to waterbody impairment would be to use **flow** or a surrogate, like impervious cover, as a measure of stormwater loading ....”
- “Efforts to reduce stormwater flow will automatically achieve reductions in pollutant loading. Moreover, flow is itself responsible for additional erosion and sedimentation that adversely impacts surface water quality.”
- “Stormwater control measures that **harvest, infiltrate, and evapotranspirate** stormwater are critical to reducing the volume and pollutant loading of small storms.”

# Green Infrastructure Approaches

## Infiltration - Evapotranspiration - Capture & Use



- Amended soils
- Impervious cover removal
- Bioretention
- Permeable pavements
- Green roofs
- Cisterns & rain barrels
- Trees & expanded tree boxes
- Reforestation & restoration
- Redevelopment
- Infill development
- Alternative parking & street designs
- Water Conservation

# Stormwater Rulemaking

- EPA considered NRC recommendations
- Decided to move forward with rulemaking
- EPA intends to propose a rule to control stormwater from, at minimum, newly developed and redeveloped sites
- Final Rule to be published November 2012

# Information Collection Request (ICR)

- To support rulemaking, EPA is proposing to require three separate questionnaires to gather data about current stormwater management and control practices, local regulations, and baseline financial information.
- Survey would gather data from three groups:
  - ✓ 1) owners, operators, developers, and contractors of newly and redeveloped sites;
  - ✓ 2) owners and operators of municipal separate storm sewer systems; and
  - ✓ 3) states and territories.

# Considerations for Rule

- Regulated Area
- Post Construction Standards
- Consistent National Requirements
- Urban Areas

# Need for Flexibility in Any Revised Approach to Stormwater Management

- There is great variability in hydrologic conditions throughout the country – therefore a “one-size-fits-all” approach would be neither feasible nor advisable
- It is important to preserve the full range of ‘natural’ hydrologic conditions intrinsic to a given site
- Special considerations may be needed in some cases
- Any potential requirements should not encourage rampant development in pristine areas (“sprawl”) at the expense of re-developing areas already impacted

# Groundwater Issues Related to Possible Stormwater Revisions

## INFILTRATION:

Encouraging infiltration as a means of retaining stormwater on-site can be very effective, but there are certain things – such as groundwater mounding and natural limitations to infiltration – that must be considered.

## POTENTIAL GROUNDWATER CONTAMINATION:

Infiltration should **not** be encouraged in areas where there is significant potential for groundwater contamination; such as where soluble, hydrophilic, and/or mobile and persistent toxic chemicals might be present, or where there are very sandy soils and/or shallow water tables and/or soil with very low clay/OM content.

# Stormwater Rulemaking Website

[www.epa.gov/npdes/stormwater/rulemaking](http://www.epa.gov/npdes/stormwater/rulemaking)

# Existing Permits that Regulate Storm Discharge

- CGP for Big Darby Creek, OH – effective 10/06
  - Covers areas where substantial development is occurring
  - Groundwater recharge must be similar to or better than existed before development
  - Pre-development physical & biological condition of receiving waters must be maintained
  - Riparian buffer requirement
- New Jersey Permit – effective 9/05
  - Sets standards for groundwater recharge: maintain 100% of preconstruction recharge volume or demonstrate that increase in stormwater volume for 2 year storm is infiltrated
  - Controls stormwater runoff quantity by requiring:
    - Demonstration that post-construction hydrographs for certain storm events do not exceed pre-construction hydrographs, or
    - Demonstrate that there is no increase in peak runoff rates for certain storm events, as compared to pre-construction condition
    - Design stormwater measures so that peak runoff rates for certain storm events are a certain percentage of pre-construction peak runoff rates.

# Existing Permits that Regulate Storm Discharge

- North Carolina General Permit – effective 11/08
  - Applies to certain residential projects located near shellfish waters
  - Requires use of rain cisterns, rain barrels, permeable pavement, and rain gardens
- Washington State Phase I Permit – effective 2/07
  - Requires post developed discharge durations to match pre-developed discharge durations for a range of peak flow conditions
  - Defines pre-developed conditions as forested land cover unless land was prairie or had 40% impervious cover since 1985
  - Affects projects based on amount of impervious area and extent of native vegetation replaced
- Howard County, MD MS4 Permit – effective 6/05
  - Requires restoration of impervious services, monitoring of watershed restoration efforts, and retrofitting for existing discharges where feasible
- Montgomery County, MD MS4 Permit – effective 3/09
  - Requires restoration of impervious areas, retrofitting, stream channel restoration, stream measurements and assessments

# Energy Independence and Security Act of 2007 (EISA)

**“Sec. 438. Storm Water Runoff Requirements for Federal Development Projects.** The sponsor of any development or redevelopment project involving a Federal facility with a footprint that exceeds 5,000 square feet shall use site planning, design, construction, and maintenance strategies for the property to maintain or restore, to the maximum extent technically feasible, the **predevelopment hydrology** of the property with regard to the **temperature, rate, volume, and duration of flow.**”

# EISA Guidance

Performance Options –

**Option 1:** Control 95<sup>th</sup> Percentile Rainfall  
Event

**Option 2:** Calculate Site-Specific Hydrology

# Quality water is critical for human health, environmental, industrial, agricultural and energy needs



But our Water Quality is inherently linked to how we develop our land...



**...and the infrastructure we create to protect our water resources.**