



2 - Why are Stormwater Requirements Changing

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Who is here?

- Developers
- Site Design Engineers
- Landscape Architects
- Surveyors
- County or City staff
- Other



Module Content

- Regulatory driver for change
- EPA's Support for Green Infrastructure
- Impact on Tennessee NPDES-MS4 Permits



Definition

- Post-Construction Minimum Control Measure
 - Targets the control of water quality from developments and redevelopments AFTER construction
 - Not Erosion Prevention and Sediment Control



2003 NPDES Phase II Permit

➤ Post-construction requirements

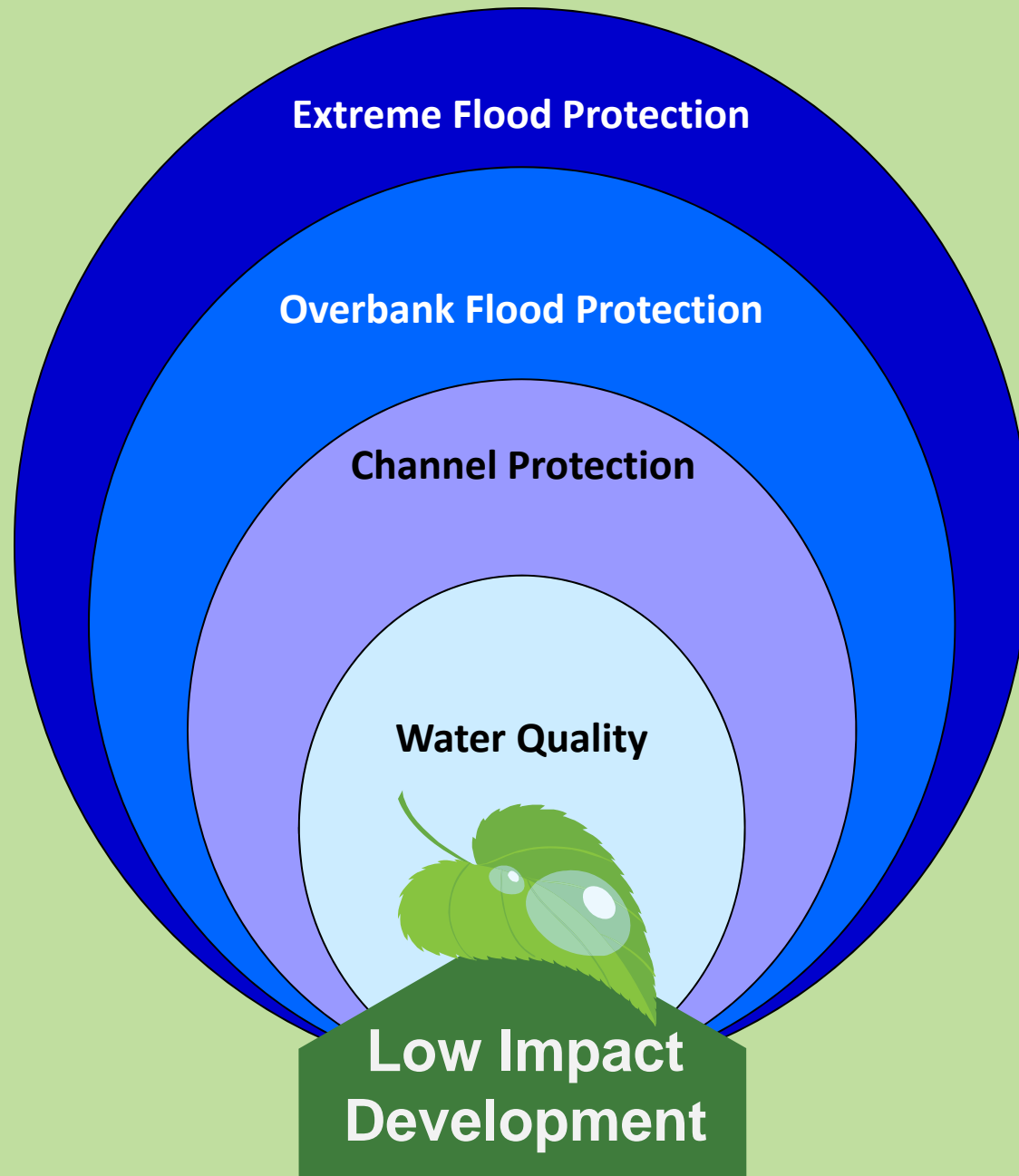
- Applies to new/redevelopments > 1 acre
- Must consider structural and non-structural strategies
- Must ensure the long-term maintenance and operation
- Must require a water quality buffer

Key Points:

- ✓ **No performance standards.**
- ✓ **No prescriptive approach.**



Common Tennessee Post-Construction Programs



BMPs emphasize pollutant removal rather than pollutant prevention.



EPA Introduces...Green Infrastructure!



- Use soil and vegetation
- Reduce stormwater volume
- EPA's GI message:
 - Maintains healthy waters
 - Can mimic "natural" hydrology
 - Provides other environmental benefits
 - Supports sustainable communities



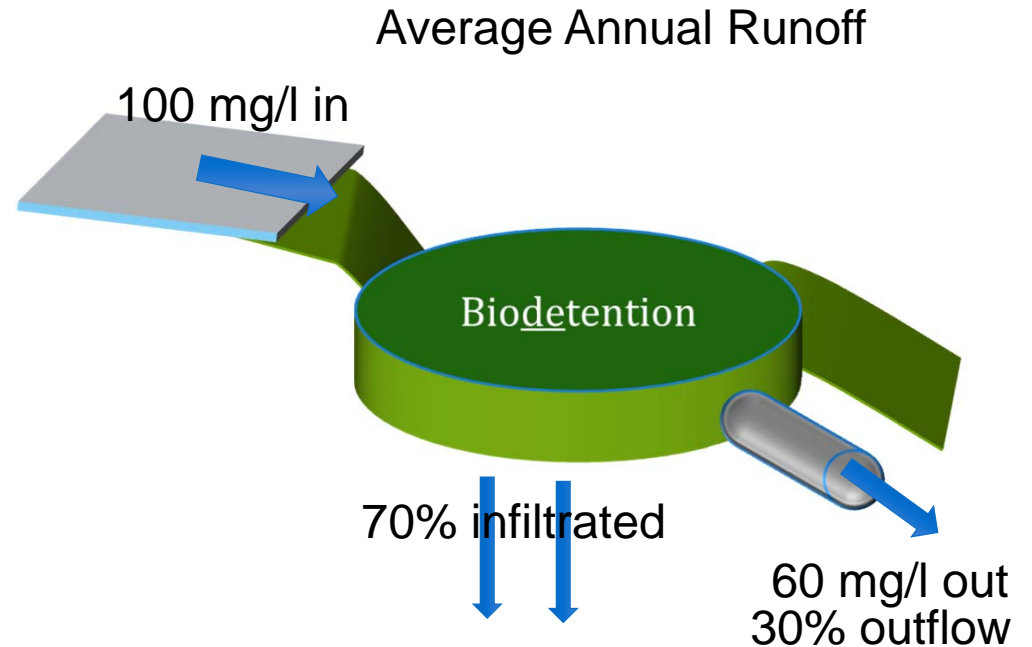
The Regulatory Shift...

➤ Control of SW volume = Control of SW pollutants



Why Volume?

- Volume carries pollutants
- Can “mimic” natural hydrology
 - Reduces stormwater discharge
 - Maintains groundwater recharge, baseflow
 - Reduces streambank erosion



Old way = **40%** TSS removal

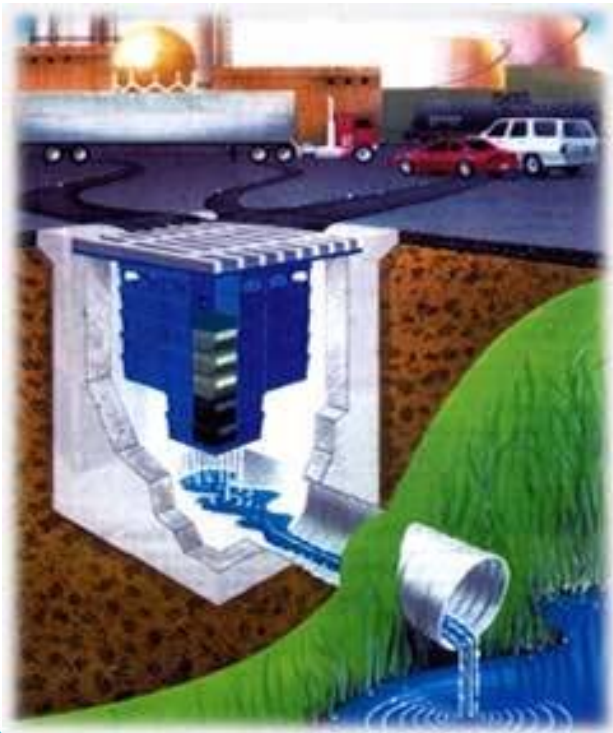
New way = **82%** TSS removal
also accounts for volume removal



Green is the New Gray

➤ Gray (old) approach:

- Use basins, pipes & ditches to remove pollutants from stormwater



➤ Green (new) approach:

- Use **soil** and **vegetation** to manage rainwater where it falls

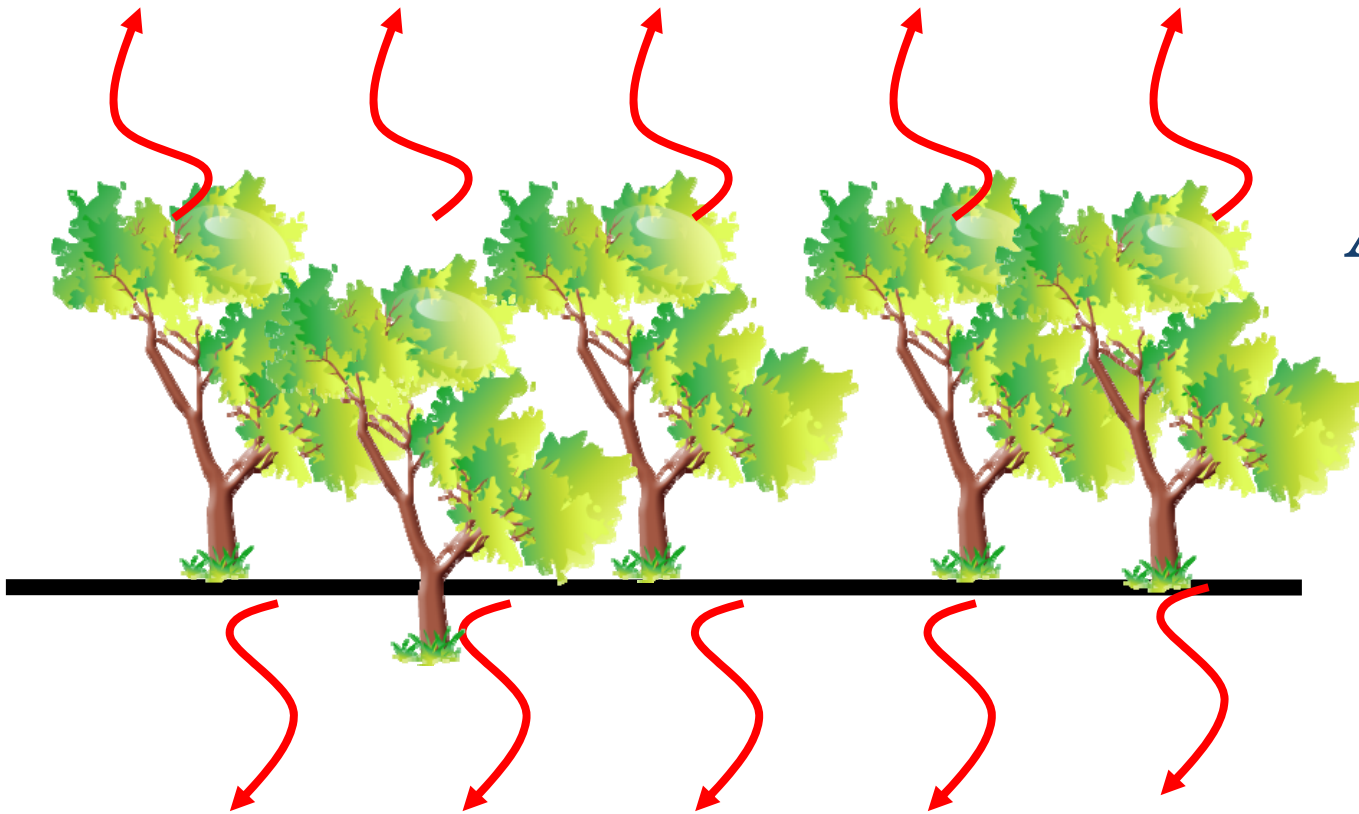


Source: Tompkins County NY (Bioswale)



EPA's Volume Reduction Pathways

Evapotranspiration (“up”)



*Alternate Use
 (“out”)*



Infiltration (“down”)



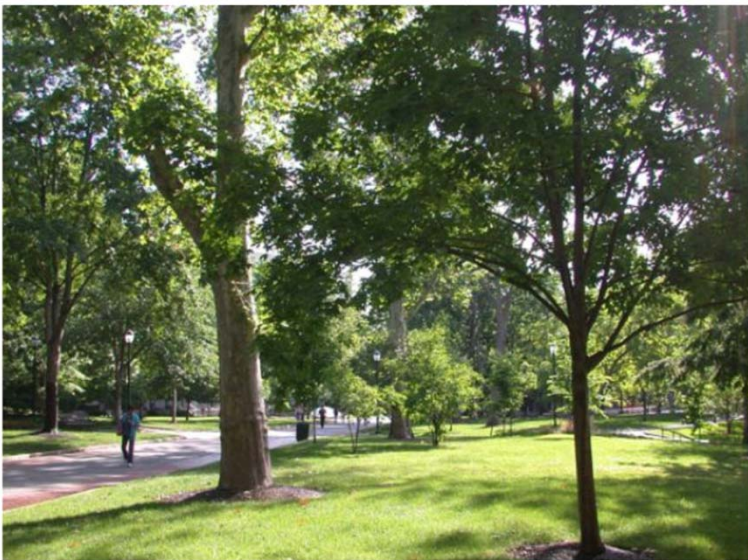
Green Infrastructure includes...

Low Impact Development

- Pocket Parks
- Parks/Greenways
- Cluster development
- Walking trails
- Open space plans
- Urban Forest areas
- Water features
- Stream buffers
- Recharge zones
- Pavement reductions



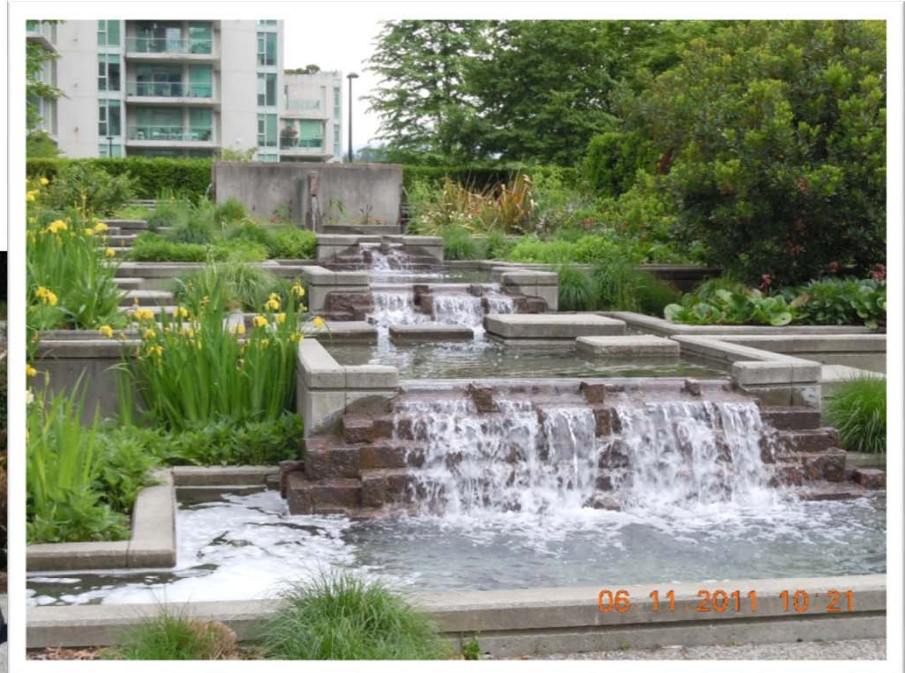
Low Impact Development Examples



Green Infrastructure also includes...

Green Infrastructure Practices (GIPs)

- Bioretention
- Urban Bioretention
- Reforestation
- Downspout disconnection
- Infiltration trenches
- Cisterns
- Permeable pavement
- Green roofs
- Infiltration swales



EPA's Use of Green Infrastructure

- **Policy memorandums and Memorandums of Understanding** in support of GI
- **Consent orders** for CSO areas that include requirements for the use of GI
- **NPDES-MS4 Permits** that require “infiltration” or Green Infrastructure

Partial List of States with GI Requirements in MS4 Permit

✓ Tennessee	✓ Massachusetts
✓ Virginia	✓ Washington DC
✓ Pennsylvania	✓ California
✓ Illinois	✓ Georgia

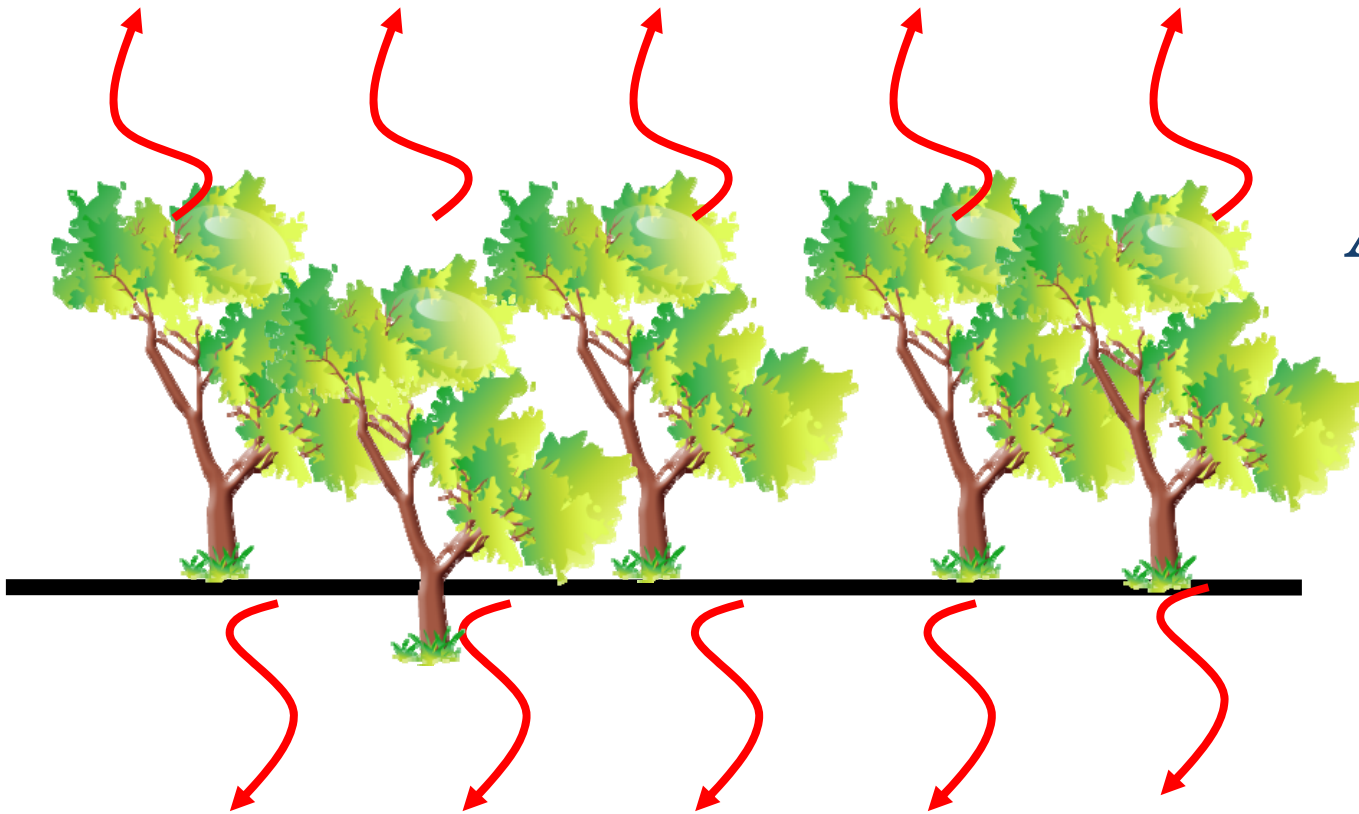


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RDAs 2352 and 2366

Permit Requirements

Evapotranspiration (“up”)



*Alternate Use
 (“out”)*

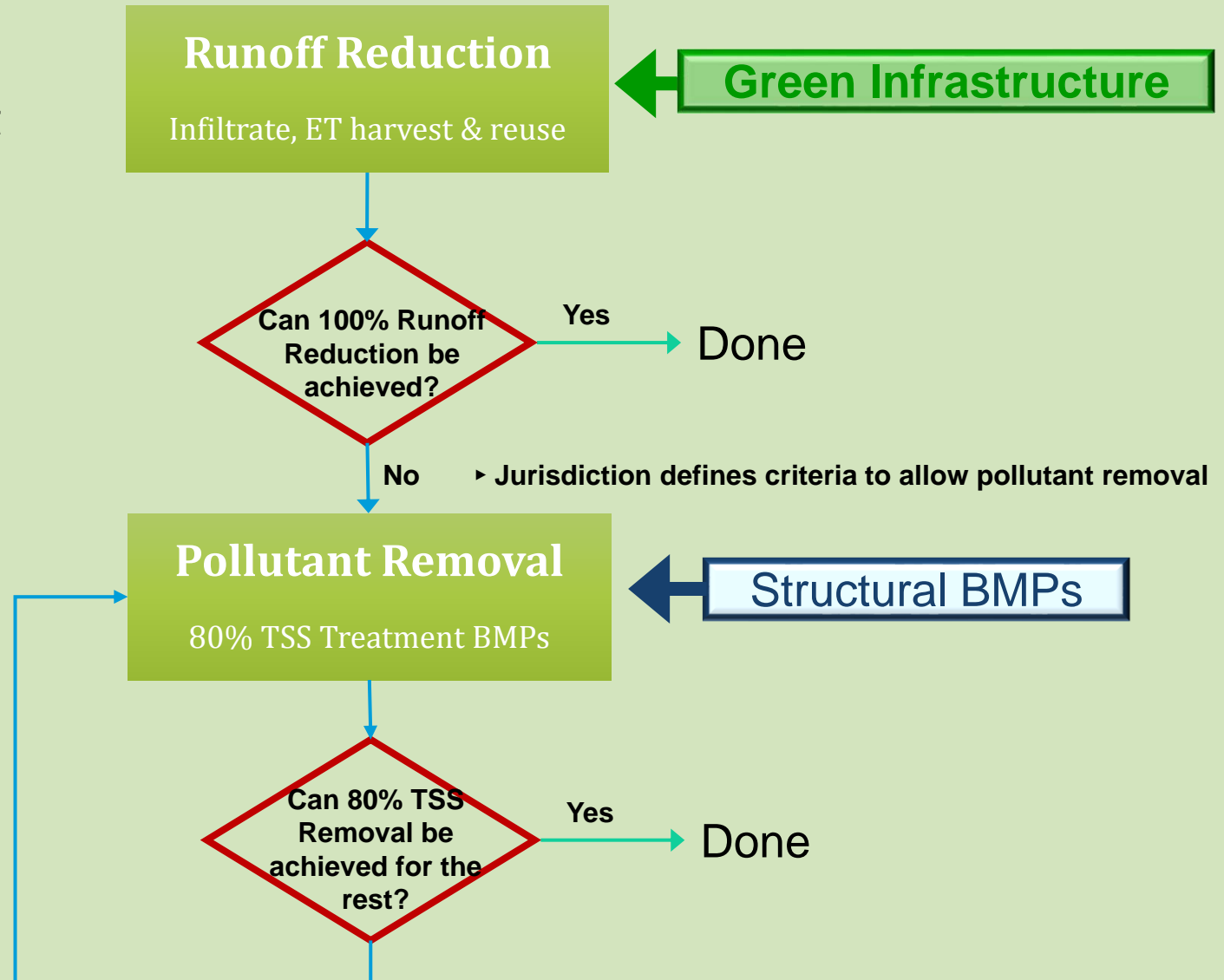


Infiltration (“down”)



Breaking Down TDEC's Performance Standard

Site Control
Volume = First
1" of every
rainfall event



Module Topic Summary

- Regulatory driver for change
- EPA's Support for Green Infrastructure
- Impact on Tennessee NPDES-MS4 Permits





Questions?

