

# Encouraging Use of Green Infrastructure



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# Today's discussion

- EPA's NPS Program has been promoting GI/LID for a long time
- Sec. 319 NPS Program support for GI
- TMDLs with stormwater sources
- Strengthening LEED Neighborhood Development standard
- EPA is leading by example

# NPS Support for LID

- EPA's NPS Program has been promoting GI or Low Impact Development (LID) for many years
  - National Urban Management Measures document published in 2005
    - Provides info on BMP effectiveness and costs
    - At [www.epa.gov/owow/nps/urbanmm/index.html](http://www.epa.gov/owow/nps/urbanmm/index.html)
  - Lady Bird Johnson Wildflower Center
  - American Society of Landscape Architects
  - Partnership with academia, associations and various NGOs to promote LID practices
- New document on "Economic Benefits of Low Impact Development Practices: Case Studies" - published soon
  - Will be posted at [www.epa.gov/owow/nps/lid/](http://www.epa.gov/owow/nps/lid/)

# Sec. 319 Nonpoint Source Program Support for GI

- About \$200M annually
- Sec. 319 has funded GI/LID practices
- 319 grant funds cannot be used to fund any stormwater activities that are specifically required by a draft or final NPDES permit. \*
- Examples of 319 funded projects in FY '05 -'06:
  - Retrofitting of buildings with green roofs (DC) (Retrofitting is not required by most state NPDES permit programs.)
  - Monitoring to evaluate effectiveness of stormwater practices (MD)
  - Databases on BMP practices (CT)
  - Development of curriculum on LID practices (NC)
  - Support for local government “River Roundtable” to promote NPS control, land use planning and LID (VA) “



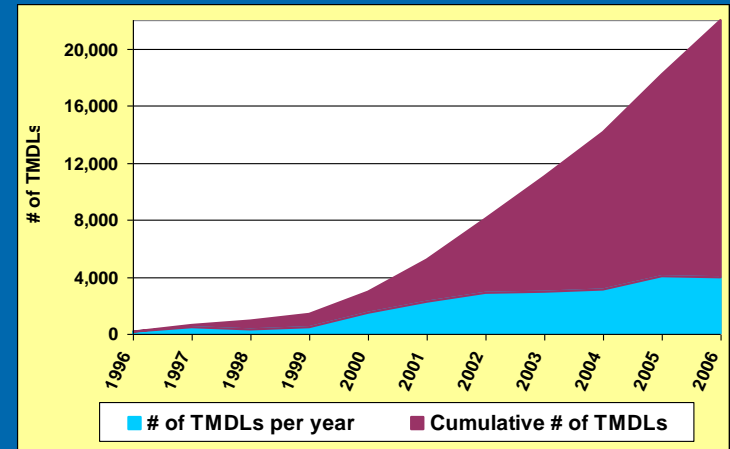
\* Source: Sec. 319 2003 grant guidance



# TMDLs with Stormwater Sources

- 20,000 TMDLs have been completed
- But thousands more impaired waters need TMDLs due to stormwater
- Key pollutants associated with stormwater
  - Pathogens
  - Sediment
  - Nutrients, toxics

TMDLs Completed: FY 1996 - 2006



Source: State 305(b), 303(d) reports

# EPA Providing Support for Developing TMDLs with SW Sources

- EPA just published “*TMDLs with Stormwater Sources: A Summary of 17 TMDLs*” – see [www.epa.gov/owow/tmdl/techsupp.html](http://www.epa.gov/owow/tmdl/techsupp.html)
- *Use of Load Duration Curves* – useful for flow-based pollutants; to be published soon
- Developing a Handbook on SW-source TMDLs and translation to NPDES stormwater permits
- Promising “Pilot TMDLs” approved: Use Flow and Impervious Cover

# Pilot “Flow” TMDL: Potash Brook, VT

- Flow – surrogate for sediment + other pollutants
  - Related SW volume to sediment
  - Target of 16% flow reduction
  - Added benefit – address stream channel impacts from SW runoff
  
- Implementation: State watershed permit
  - Specify type/location of BMPs (GI BMPs)
  - Requires monitoring (biology, flow, geomorphology and BMP effectiveness)

# Pilot "Impervious Cover" TMDL:

## Eagleville Brook, CT

- TMDL uses Impervious Cover as a surrogate
  - Related IC to aquatic life (State data on 125 small watersheds)
  - TMDL target set -- reduce IC by 12%
  - Local partners/State to implement
  - State will monitor progress
- Same approach used for Barberry Creek, ME TMDL



# LEED Neighborhood Development

- EPA partnering with NGOs to strengthen the LEED-ND credits to promote better stormwater management and smart growth
- ND standard encourages onsite practices to reduce infrastructure costs and to use GI techniques to protect water quality
- Pilot program underway (374 applications received)
- Drafting technical guidance to help LEED applicants design projects that are more sustainable from a WQ perspective

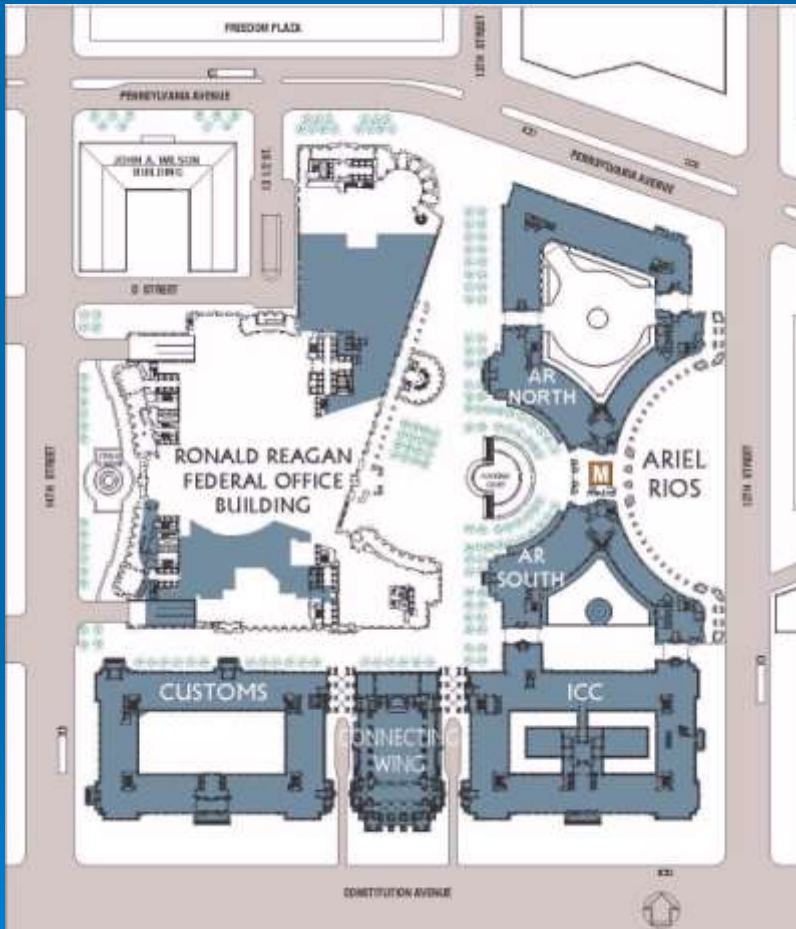
# EPA is Walking the Walk, Not Just Talking the Talk



- EPA HQ provided opportunity to demonstrate SI/LID practices
- High visibility building in DC with exposure to:
  - Government officials
  - Tourists
- Low cost options available
- Multiple sites available



# Background: The Problem



- Federal Triangle – 25 acres
- 95% impervious
- 1 inch storm = 500,000 gal. runoff
- No stormwater management plan
- Stormwater currently goes into combined sewer



# EPA HQ Ariel Rios Courtyard - BEFORE the LID Project



# EPA HQ Ariel Rios Courtyard - After LID Project





## Cistern stores irrigation water



Rain garden on  
Constitution Ave.

Permeable pavers and  
pervious concrete



# EPA Reg. 8's New Green Roof

- New EPA Region 8 Bldg. completed in March 2007
- Building has many sustainable features including a three-level, 20,000 sq. ft. green roof



Source: [www.epa.gov/greeningepa/facilities/denver-hq.htm](http://www.epa.gov/greeningepa/facilities/denver-hq.htm)



# Summary

- Nonpoint Source Program has promoted implementation of GI/LID practices for many years
- Sec. 319 NPS grants support GI/LID projects
- Many stormwater TMDLs being developed
- LEED Neighborhood Development standard strengthened to address GI
- We are leading by example
- Questions?