

# Green Infrastructure

## An Overview of Post-Construction BMPs for Transportation Projects

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# If it's on the ground...



Litter

Leaves & Grass Clippings

Metals

Oil & Grease

Sediment

Pesticides

Fertilizer

Pet Waste



# It's in your water



Bacteria - Public Health Concerns



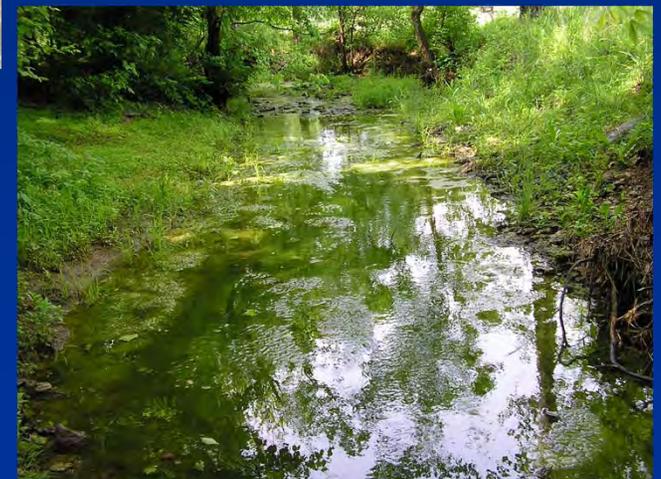
Increased Runoff - Flooding



[www.lclark.edu](http://www.lclark.edu)



Stream Bank Erosion – Loss of Property



Excess Nutrients – Algae Blooms

# Kentucky has over:

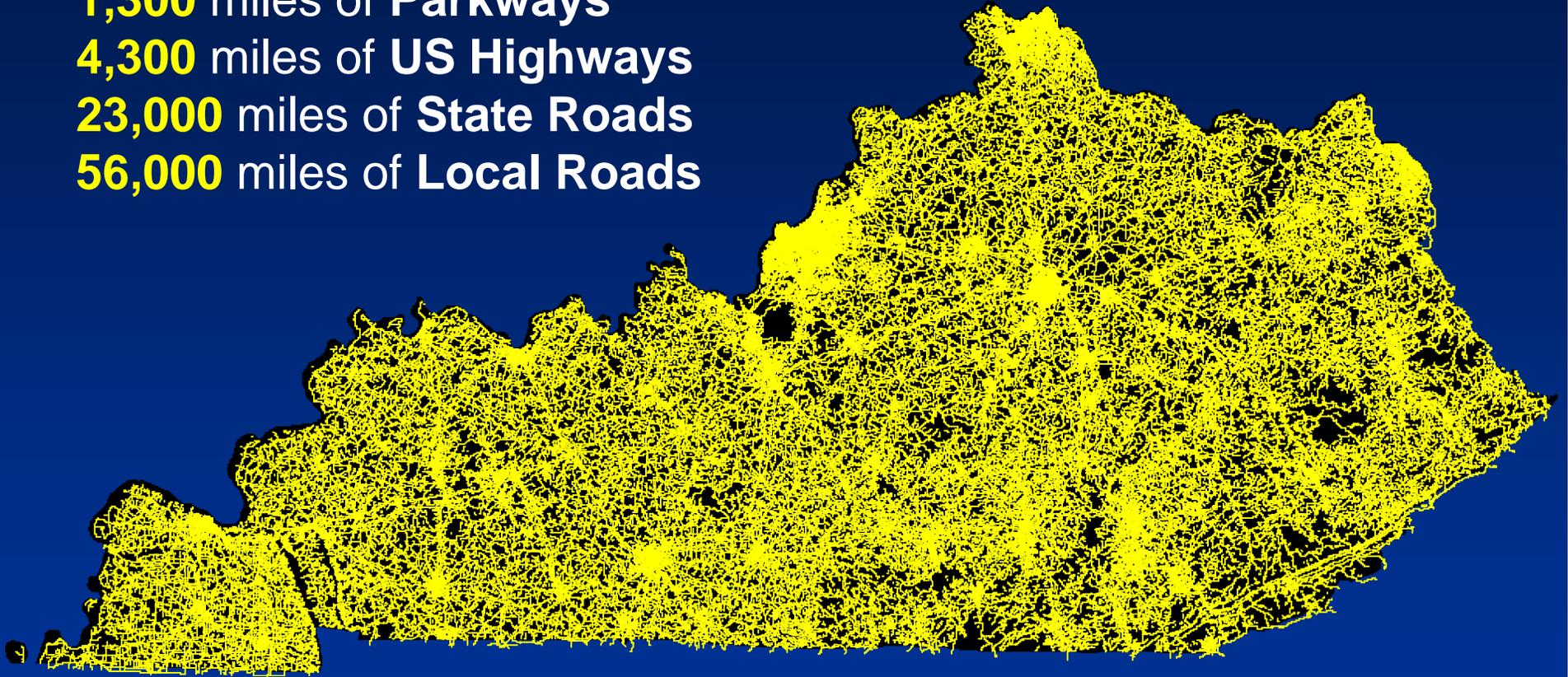
**1,900** miles of Interstate Highways

**1,300** miles of Parkways

**4,300** miles of US Highways

**23,000** miles of State Roads

**56,000** miles of Local Roads



# Green Infrastructure

- A wide array of practices that manage and treat storm water at the source.
- Maintain and restore natural hydrology by:
  - infiltrating (groundwater recharge)
  - evaporating
  - capturing and using storm water

# Green Infrastructure

## ■ Benefits

- Stormwater as a resource
- Attractive
- Cost Effective
- Compliance
- Water Quality – Quality of Life

# Vegetated Swales

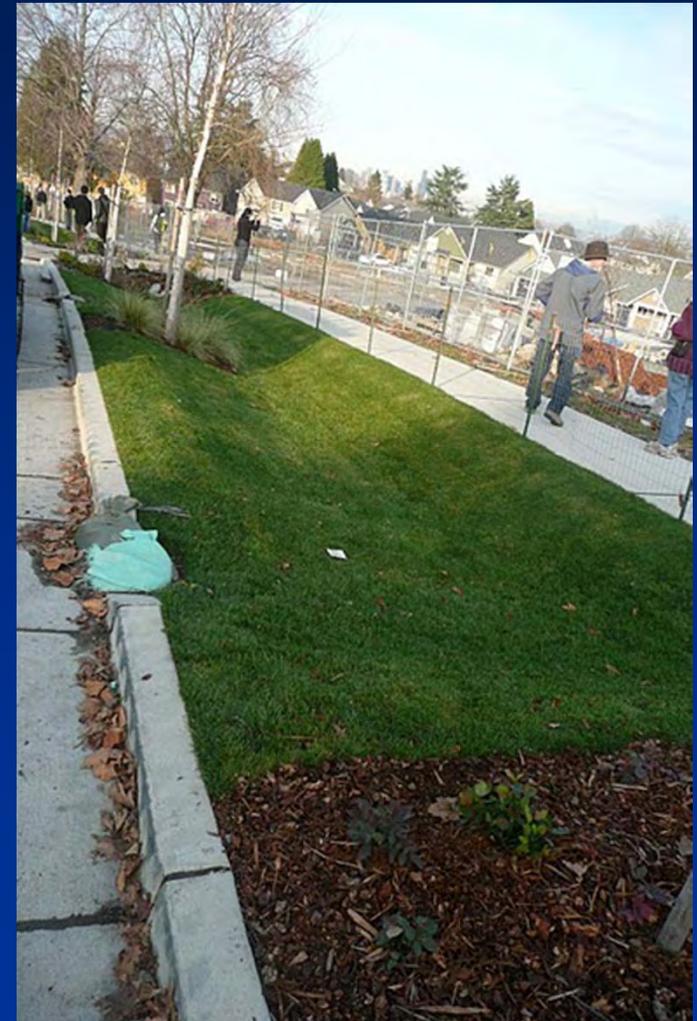


Photos: NRCS

# Vegetated Swales



High Point Neighborhood  
Seattle, WA



Photos: Abby Hall EPA

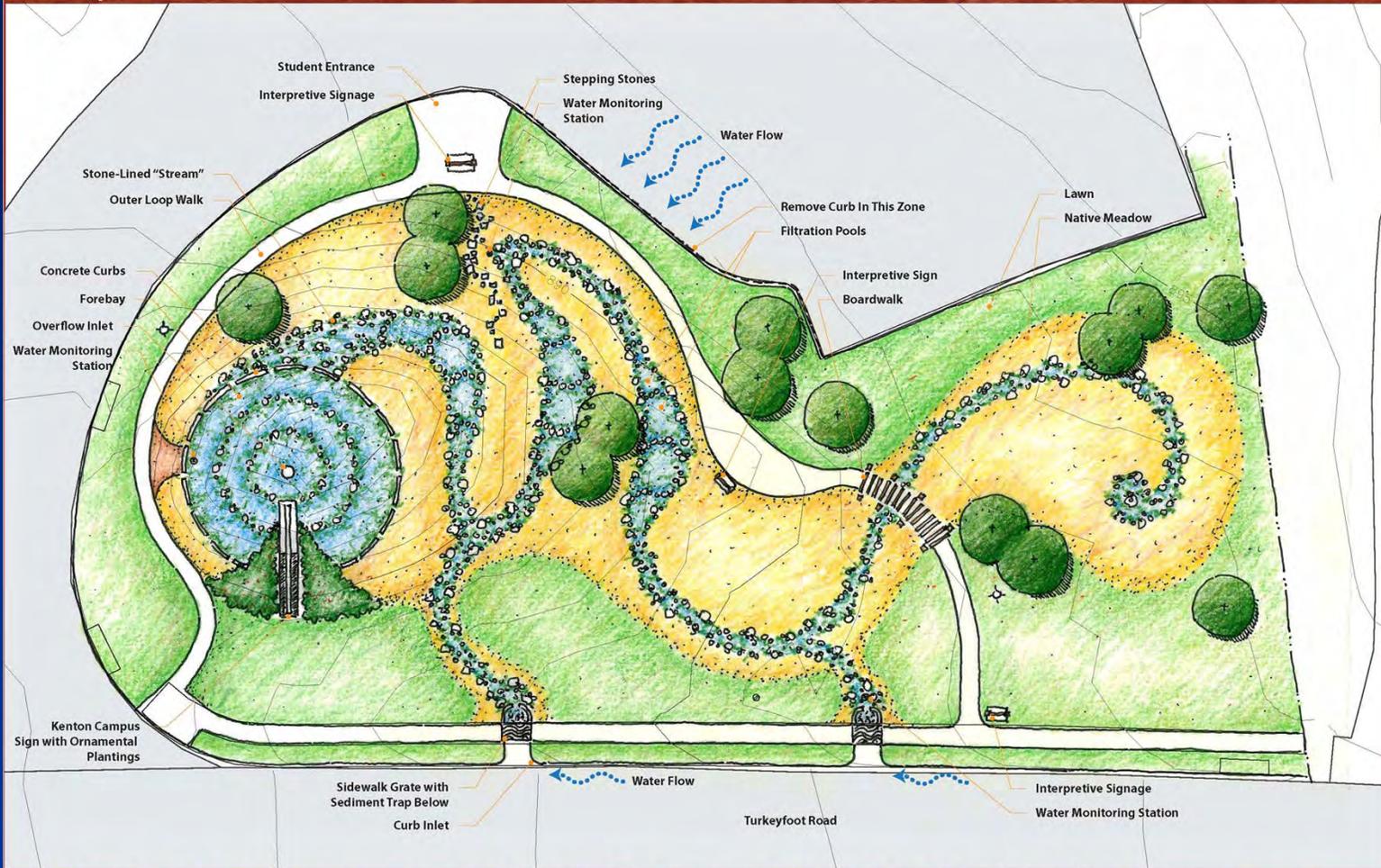
# Vegetated Swales

Caywood Elementary School, Patton STEM Academy, & Turkey Foot Middle School:  
Educational Rain Garden



Project Funded by EPA 319 Grant

## Concept Plan



Strand Associates

Human Nature



December 2009



# Curb Extensions



Photo: City of Portland

# Curb Extensions



South Limestone  
Lexington, KY



Photos: Andrew Stoeckinger

# Planter Boxes



Michigan Ave.  
Lansing, MI

# Planter Boxes



Portland, OR



Photos: Abby Hall, EPA

# Permeable Pavements



Chicago Green Alley Project

# Permeable Pavements



# Reduced Street Width



# Resources

- EPA Green Street Initiatives Around the United States  
<http://www.epa.gov/owow/podcasts/greenstreetsusa.html>
- EPA Municipal Handbook – Green Streets  
[http://www.epa.gov/npdes/pubs/gi\\_munichandbook\\_green\\_streets.pdf](http://www.epa.gov/npdes/pubs/gi_munichandbook_green_streets.pdf)
- EPA Conceptual Guide to Green Streets  
[http://www.epa.gov/npdes/pubs/gi\\_arra\\_green\\_streets.pdf](http://www.epa.gov/npdes/pubs/gi_arra_green_streets.pdf)

# Resources

- NKY Stormwater Managment Handbook  
[http://www.epa.gov/npdes/pubs/gi\\_stormwater\\_managementhandbook.pdf](http://www.epa.gov/npdes/pubs/gi_stormwater_managementhandbook.pdf)
- Low Impact Development Center Green Streets  
<http://www.lowimpactdevelopment.org/greenstreets/>
- University of New Hampshire Biannual Report  
[http://www.unh.edu/erg/cstev/pubs\\_specs\\_info/2009\\_unhsc\\_report.pdf](http://www.unh.edu/erg/cstev/pubs_specs_info/2009_unhsc_report.pdf)
- Green Highways Partnership  
<http://www.greenhighwayspartnership.org/>