



## Rain Gardens:

Public Involvement  
for Water Quality

10,000  
Rain  
Gardens 

Scott Cahail  
Water Services Department  
Kansas City, Missouri

# CONFLUENCES

- APWA Standards Adoption
- MS4 Permit Requirements
- KC One: Comprehensive Stormwater Plan
- Overflow Control Program
- Development Code
- City-Wide Trails Plan
- Climate Protection Plan

# Best Management Practices (BMPs)

- Definition – Practices used to prevent or control discharge of pollutants to waters of the U.S. May be structural or non-structural solutions (WATER QUALITY)
- Detention, infiltration, and filtration of “first flush” rainfall – often using natural systems
- 10,000 Rain Gardens Initiative

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# Green Infrastructure: Multi-purpose, Multi-benefit

- Buffers, Greenways, Trails, Parks, Habitat
  - Stormwater Mgmt. (quality & quantity), Recreation (active & passive), Infrastructure savings, Increased property values, Birds and bunnies.
- High levels of public support
- **QUALITY of LIFE!!!**

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# **RESOLUTION NO.070830**

The Council hereby establishes the policy of the City to integrate green solutions protective of water in our City planning and development processes, particularly in our comprehensive Wet Weather Solutions Program

# GREEN SOLUTIONS EXAMPLES

## Greenways

Greenways are corridors of open space that follow natural land/water features to protect and enhance natural resources.



## Rain Gardens

Rain Gardens are man-made depressions in the ground used as a landscape tool to improve water quality and reduce flooding.



## Bioswales

Bioswales reduce peak flows, remove pollutants, promote runoff infiltration, and lower capital costs.



## Wetlands Restoration

Preserved and restored wetlands are natural systems for capturing and slowing water, and they improve water quality.



## Porous Pavement

Porous Pavement reduces downstream flooding and peak flows, and helps obtain zero site runoff.



## Green Roofs

Green Roofs consist of vegetation and soil, or a growing medium, planted over a water-proofing membrane. Root barriers and drainage & irrigation systems may also be included.



## Native Plant Landscaping

Once established, native plants do not need fertilizers, herbicides, pesticides or watering, thus benefiting the environment and reducing maintenance costs.

# Climate Protection Benefits

- Air Quality
- Heat Island (green roofs)
- Reduced pumping (combined sewers)
- Carbon Uptake and Sequestration

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# What's 10,000 Rain Gardens About?

Water quality, including sewer and stormwater concerns;

Rain gardens and other green solutions;

Encouraging funding for required sewer and stormwater improvements.

**WATER**  
*the future is clear*



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# Rain Garden Rally



**Nov. 8, 2005**

- **Kay Barnes** - Mayor of Kansas City, Missouri
- **Katheryn Shields**, Jackson County Executive
- **Annabeth Surbaugh**, Johnson County Commission Chairperson
- **Tom Jacobs**, Director of Environmental Programs, Mid-America Regional Council



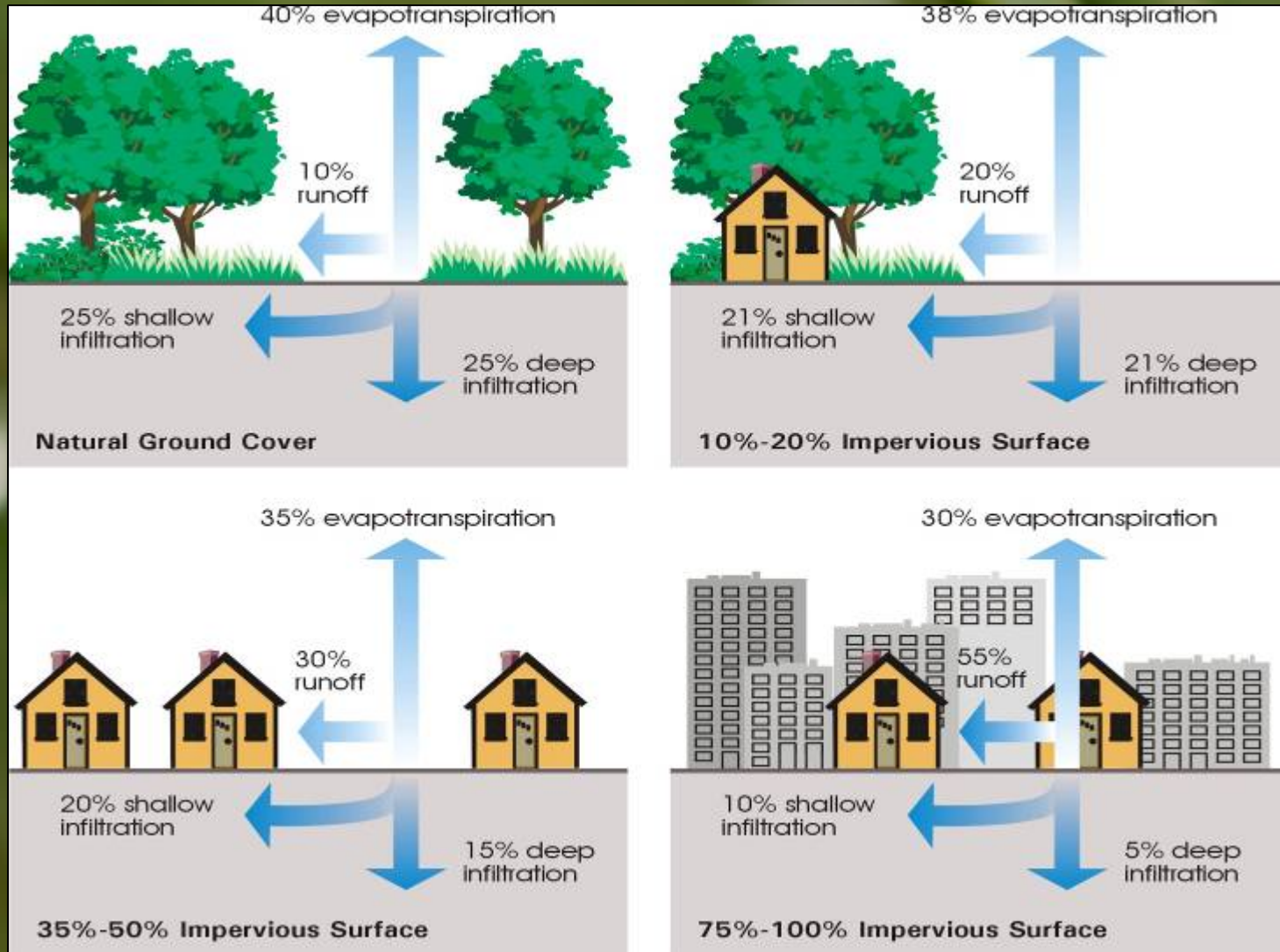
# Why Do We Need Rain Gardens?



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Photo: David Dods

# Urbanization and Runoff



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# Nonpoint Source Pollution

Oil

Pet waste

Fertilizer

Pesticide

Agricultural  
chemicals

Farm animals



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# Stream Degradation



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# How Can Rain Gardens Help?



Photos:  
Rusty Schmidt

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# Retain the Rain

- Mimic natural conditions by slowing and retaining rain
- Collect nutrients
- Filter pollutants from the water
- Provide habitat to butterflies and birds



Photo: Rusty Schmidt

A large rain garden during a storm

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**After  
the rain.**



Photo: Rusty Schmidt

**Wet Weather Solutions**

# What is a Rain Garden?

A shallow bowl,  
planted with native  
plants, designed to  
capture and drain  
rain within a day



Photo: Rusty Schmidt

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# Example Rain Gardens



Photo: Rusty Schmidt

**Anita B. Gorman Conservation Discovery Center, KCMO**

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# Example Rain Gardens

Basset Creek, MN

Rain Garden with  
Stepping Stones



Photo: Rusty Schmidt

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# Example Rain Gardens



**Residential Garden in Burnsville, MN**

Photo: Rusty Schmidt

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# Rain Garden Benefits

- Less water in the stormwater system
- Fewer pollutants washed into rivers
- Native plants support birds and butterflies



Maplewood, MN

Photo: Rusty Schmidt

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# Why Use Native Plants?

Drought-tolerant

Need little to no fertilizer

Infiltrate water through deep roots



Platte County, MO

Photo: David Dods

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# Mosquito Death Traps!



Photo: Larry Coffman

- Adult mosquitoes are attracted to the water and lay eggs.
- Properly designed gardens drain within 6 - 12 hours (max. 24).
- Eggs or larvae drain away.

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# Clay Soils



## Root Depths

Turf Grass: Inches

Native Grasses & Wildflowers:  
Feet

Deep Roots Increase  
Infiltration

Repair Compacted Soils  
– Tilling, Compost

Keep Water Levels Low  
First Season

Start with Plants vs.  
Seed

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# How to Make A Difference

- Plant a rain garden.
- Install rain barrels.
- Help a worship center or school to plant a rain garden.
- Support funding for needed sewer and stormwater infrastructure.



Visit [www.RainKC.com](http://www.RainKC.com)

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# Awards



- Honorable Mention for the **U.S. Conference of Mayors City Livability Award**, 2006
- **Sustainable** city ranking #18, in part due to the best national water quality and the 10,000 rain gardens initiative

# RainKC.com

- Rain garden how-to's
- E-newsletter
- Presentations and workshops
- Register your garden

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# Lessons Learned

- TV is great – if you can afford it!
- Web site – invaluable
- Control expectations???
- Speed vs buy-in
- Registration realty / Incentives
- Commitment / Capacity



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