

# Watersheds

Rosemary Giesser

Kesha Christoph

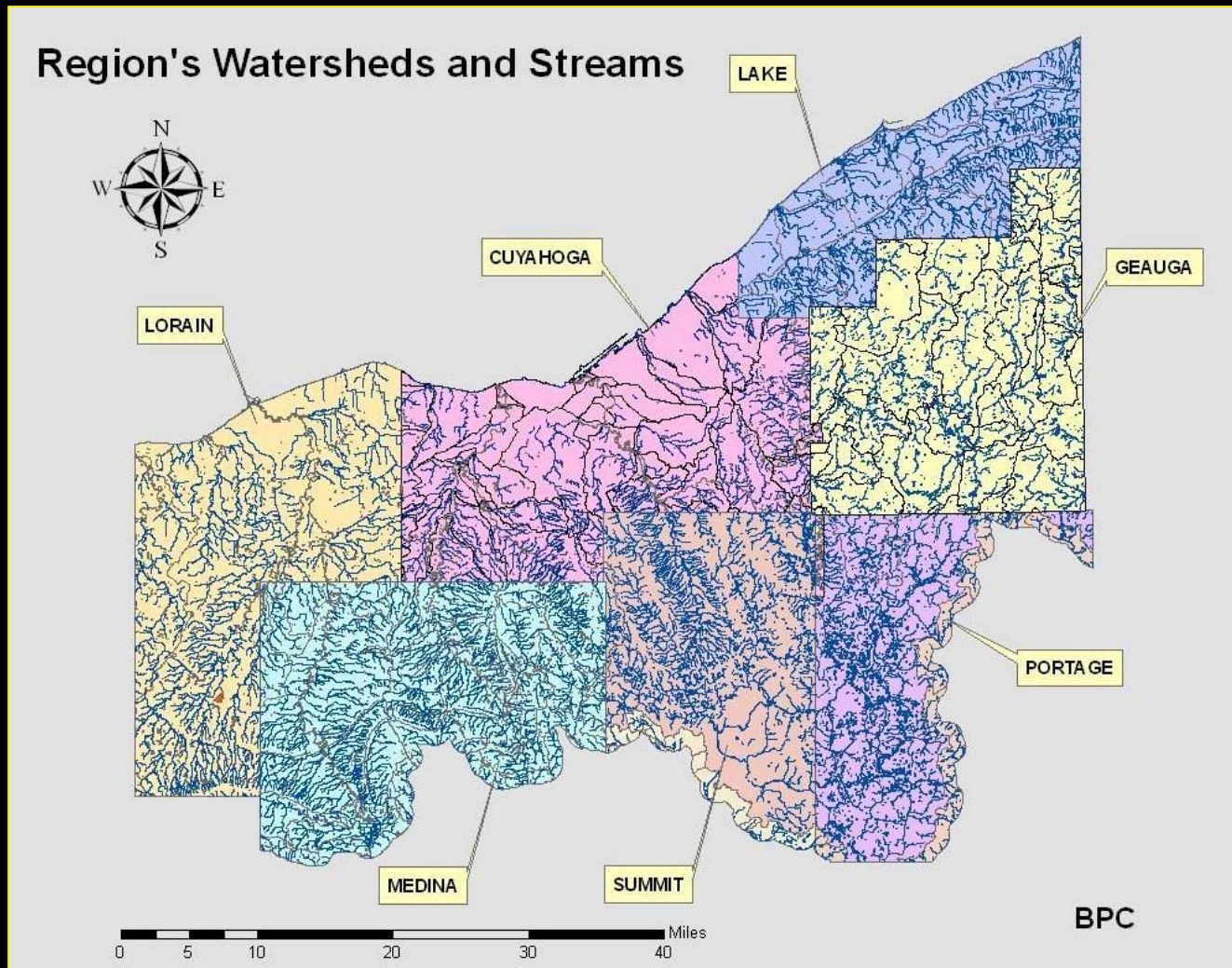
Erin Aleman

Bee Chalarat

Laurent Gloerfelt

# “No matter where you live, you live in a watershed.”

--US EPA, Adopt Your Watershed



A photograph of a city skyline at sunset or sunrise, with buildings and a bridge silhouetted against a warm, orange and yellow sky. The title 'Ecosystem Services' is overlaid in large white text with a blue shadow effect.

# Ecosystem Services

- **Ecosystem services -- the conditions and processes through which natural environments *sustain human life***
  - **Watersheds provide many of these services:**
    - *Clean water*
    - *Flood control*
    - *Soil retention/erosion control*
  - **When watershed ecosystem services are lost due to development:**
    - *Storm water runoff pollutes rivers and other sources of water*
    - *Increased impervious surface area leads to increased flooding*
    - *Sensitive riparian and/or wetland environments may be compromised*

# Flooding in the Region: The Cost of Staying Above Water

Recent flooding in the region illustrates the value of wetlands and forests as natural flood control water bodies:



**Broadview Heights**



***Protection of watersheds and the services they provide must cross political boundaries***

***Retail developments must be wisely sited within watersheds***



A photograph of a city skyline at dusk or dawn, with buildings and a bridge visible against a dark sky. The text is overlaid on this image.

# Sustainable Development: Mitigating the Impact of Retail Development on Watersheds

- **First step: think of retail development as having opportunity costs**
- **Second step: review the political decision-making process**
  - Preliminary step: look at the law and assess its efficacy
    - *The Clean Water Act (NPDES Permits)*
    - *Riparian/Wetland Setbacks*



# Riparian and Wetland Setbacks

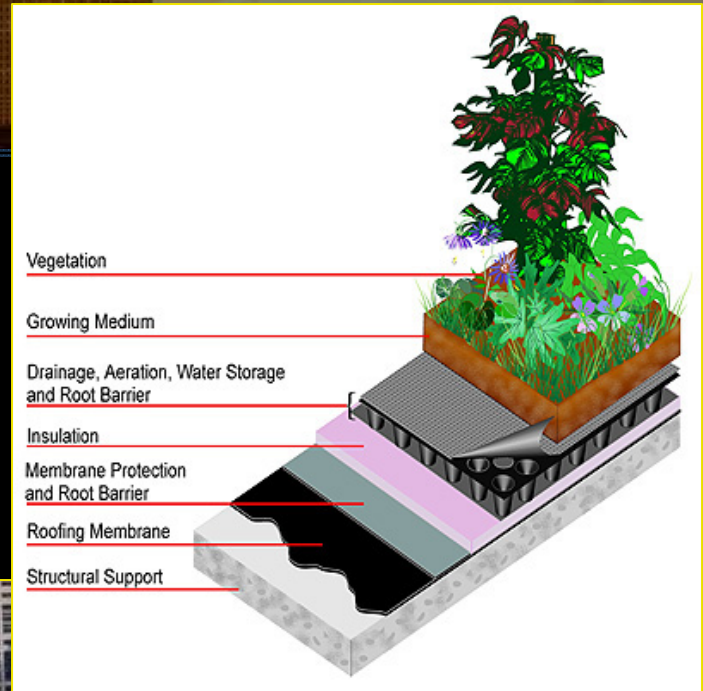
## Sustainable land-use regulations

*\*\*\*Setback ordinances are an effective way for municipalities to comply with Ohio EPA's NPDES Phase II requirements*

- **Land in a riparian zone/wetland can be built upon, but structures must be "set back" a certain distance**
- **Riparian setbacks**
  - *Allow storm water to slow down, collect, and filter into the ground*
- **Wetland setbacks**
  - *Allow the wetland to provide irreplaceable services to its surrounding community, such as flood control, erosion control, ground water protection, surface water protection, and protection of essential habitat for aquatic and terrestrial organisms*

# Innovative Storm Water Management Systems

- Salem, Massachusetts
- Portland, Oregon
- Pennsylvania

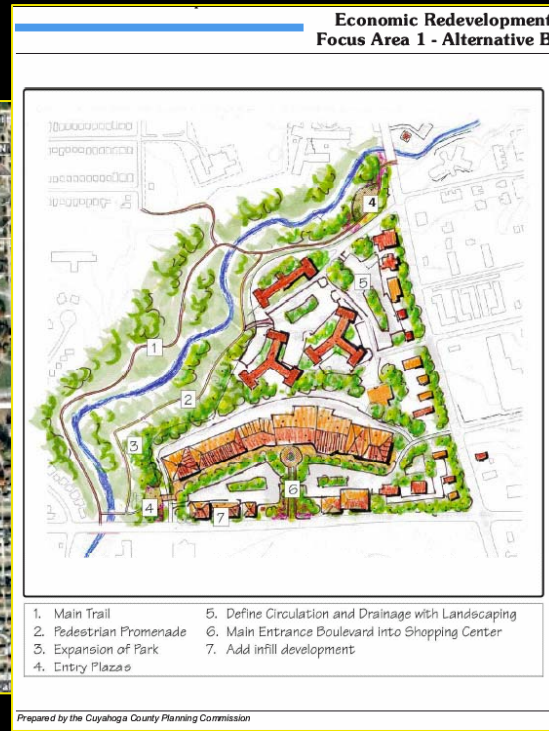
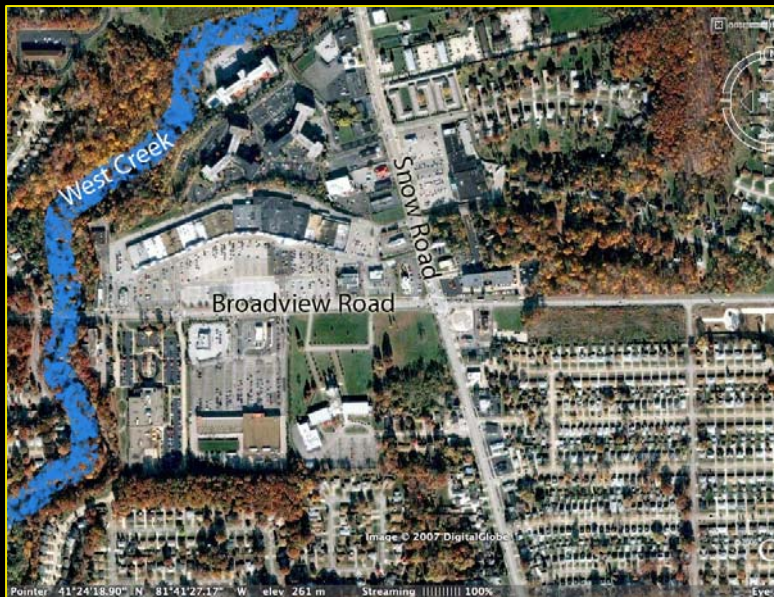


Source: [www.lowimpactdevelopment.com](http://www.lowimpactdevelopment.com), [www.portlandonline.com](http://www.portlandonline.com)

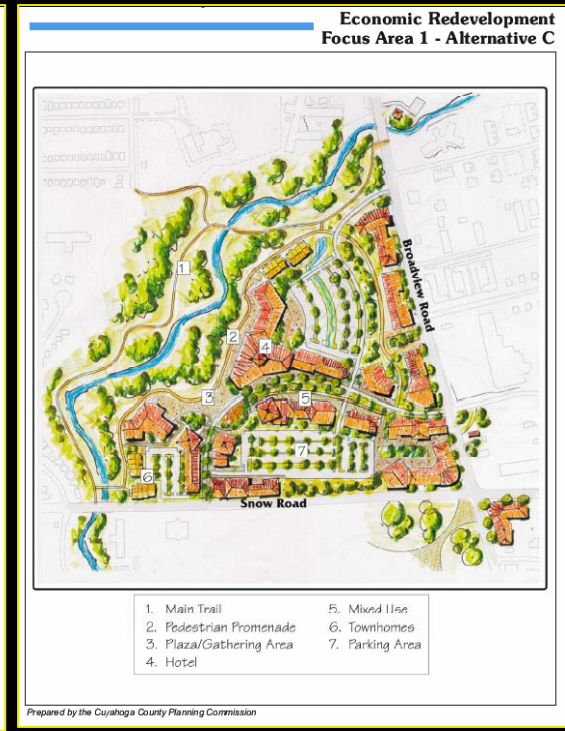


# The West Creek Watershed

- History
- Lessons Learned
- West Creek Community Partners
  - Policy & Vision



Mid Term



Long Term

Short Term



# Local Examples of Watershed Planning and Protection

- **Lake County Soil and Water Conservation District**
  - Database of headwater streams used to affect city/county policy decisions
- **Chagrin River Watershed Partnership**
  - Cities and Townships within the watershed are members—partnership provides policy/zoning/ordinance assistance
- **Legacy Village**
  - Improvement of storm water management in surrounding area BEFORE development was built



A background image showing a city skyline with various buildings and a bridge, likely representing Boston Heights, Summit County. The text is overlaid on this image.

# Proposed Development: Boston Heights, Summit County

- **Existing Conditions of Brandywine Creek Watershed Since 1997**
  - Combined growth rate of the communities within Brandywine watershed has exceeded the growth rate of the entire county
  - >22% of the watershed's land-cover is impervious (when a watershed's land-cover is twenty-five percent impervious, it is considered permanently damaged, and it is extremely difficult for such watershed to recover)
  - 3 large-scale proposed developments within Boston Heights
  - Existing watershed policy within Boston Heights
    - *Riparian setback ordinance*
    - *No community watershed partnership or collaboration between local governments within Brandywine watershed*