

Green Infrastructure



Sanitation District No. 1 of Northern Kentucky
NACWA Development in Clean Water Law
November 13, 2008

Presentation Outline

- SD1 Overview
- Current Challenges
- Economic Impacts of Traditional Development
- Green Infrastructure Opportunities
- SD1's Green Infrastructure Program



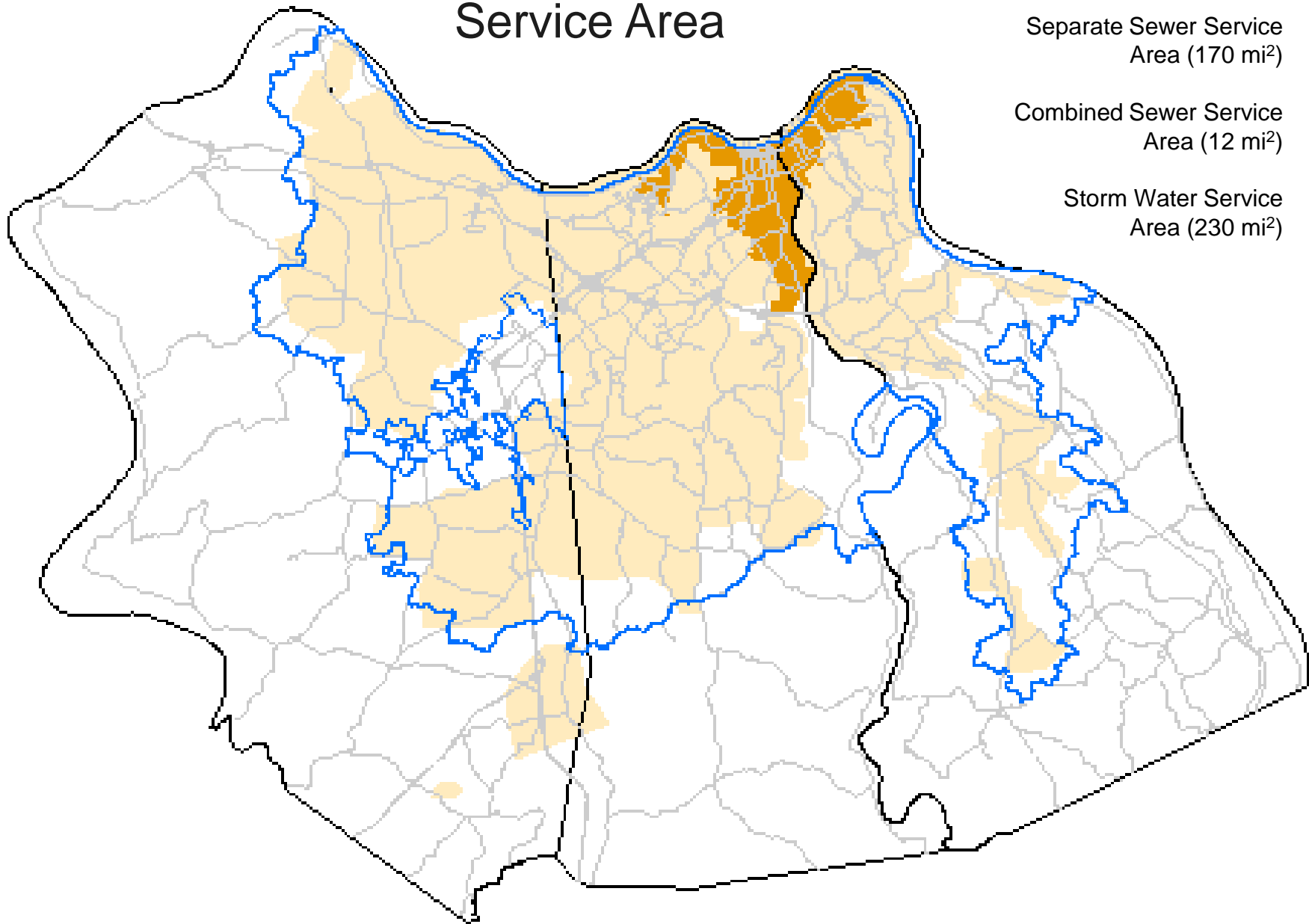
Sanitation District No.1 Service Area

Legend

Separate Sewer Service
Area (170 mi²)

Combined Sewer Service
Area (12 mi²)

Storm Water Service
Area (230 mi²)



SD1's Role

- Wastewater collection and treatment
- Storm water management; ownership coming soon
- Capital improvement administration
- Public education



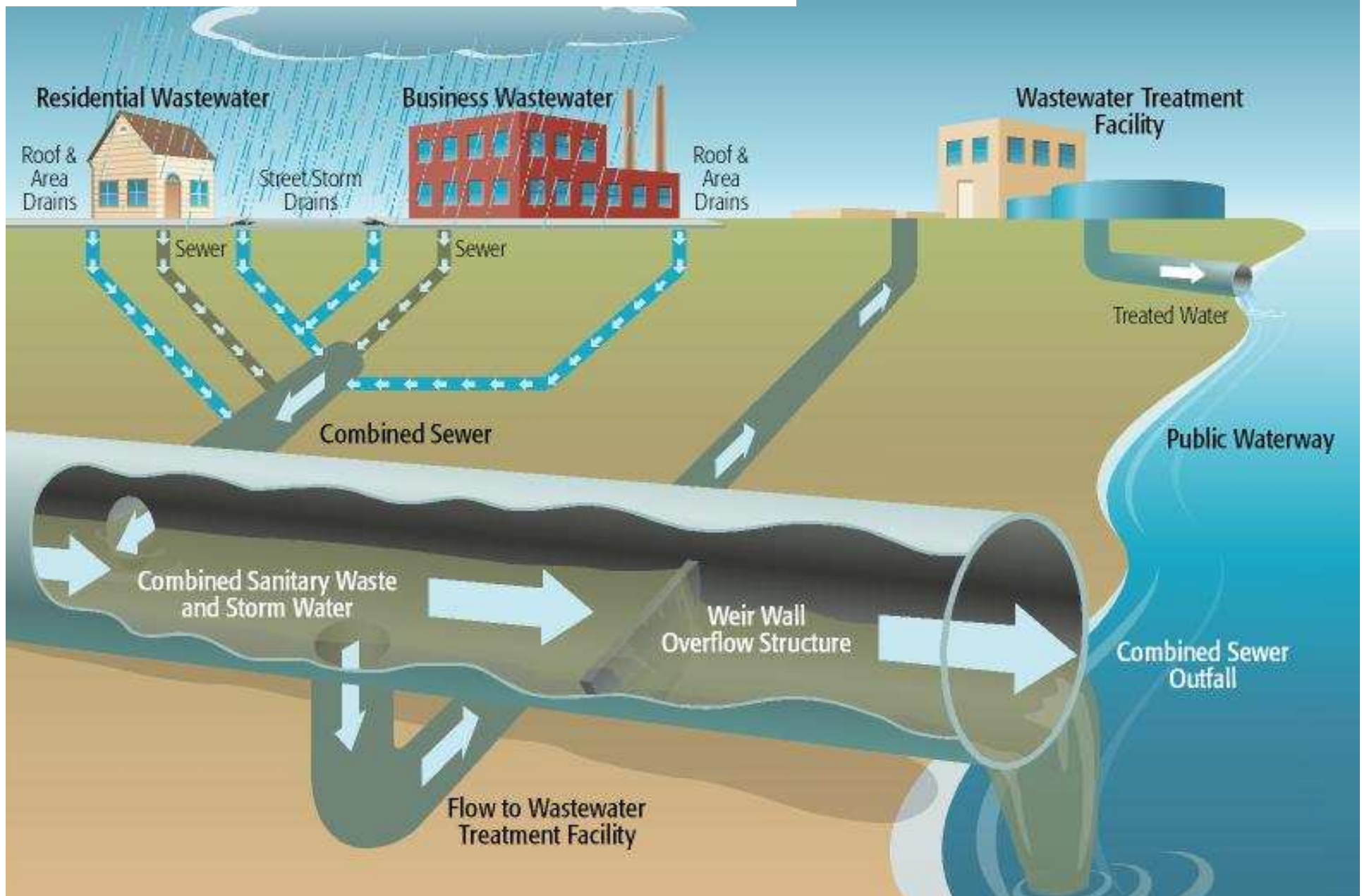
SD1's Governance

- 8 member Board of Directors appointed by the 3 County Judges-Executive
- Board of Directors meet monthly
- Judges-Executive meet quarterly
- Approve budget, rate increases, property acquisitions

SD1 – GI Challenges

- Sanitary/ Storm Water System
- Regulatory/Legal
- Social/Political
- Education

96 Combined Sewer Overflows (CSO)
1.4 billion gallons, annually (estimate)

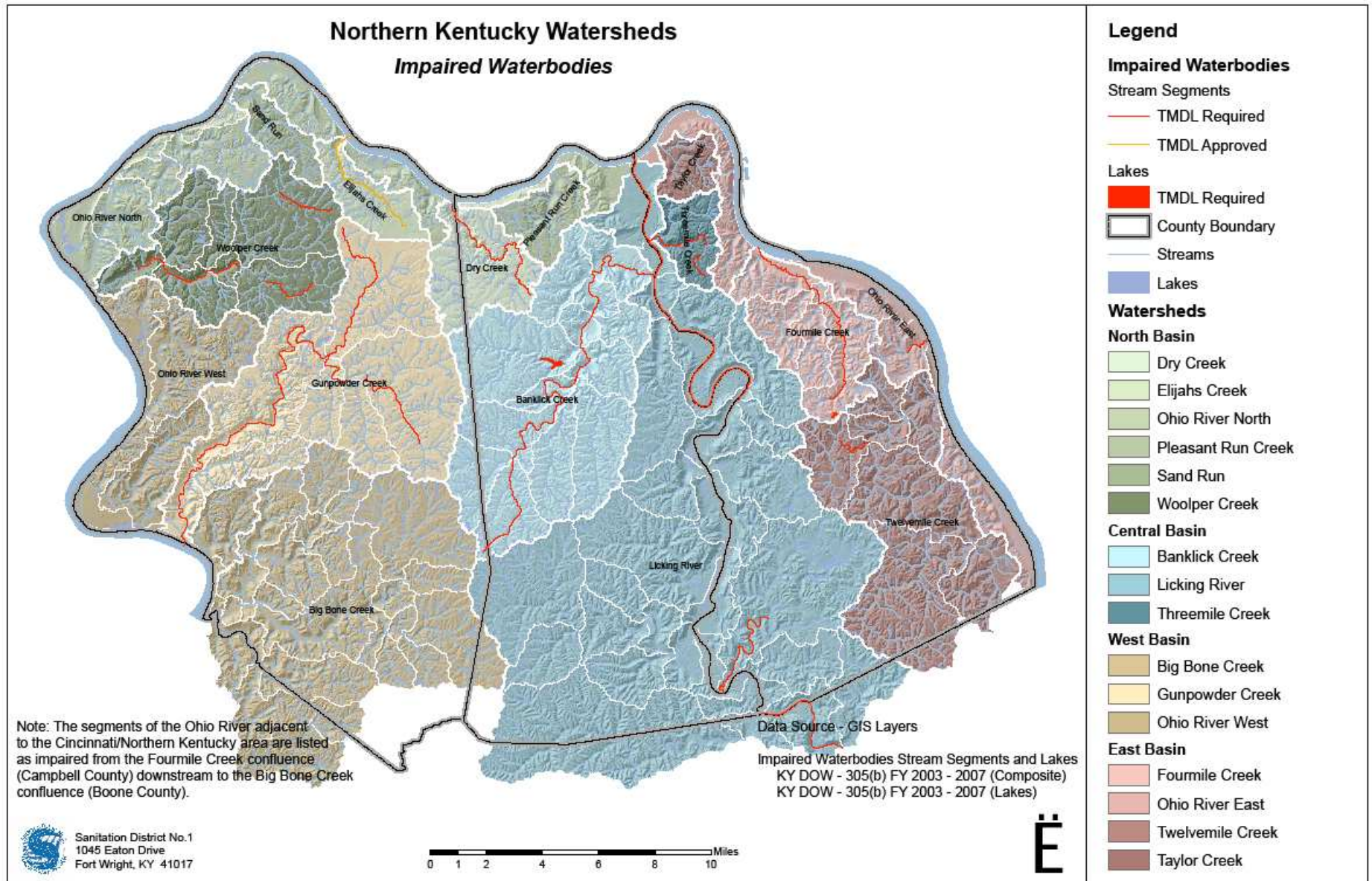


Sanitary Sewer Overflows (SSO)

80 million gallons, annually (estimate)



303(d) Listed Streams



SD1 – Regulatory Challenges

- Consent Decree
 - Bring CSOs into compliance with regulations by 2025
 - Eliminate SSOs by 2025
 - Watershed-based approach; 1st set Watershed Plans due June 2009
- Storm Water
 - KPDES Phase 2 permit program

SD1 – Legal Challenges

“If Watershed Plans identify any permitted point sources or nonpoint sources, other than CSOs and SSOs, that are contributing to water quality impairment, the Watershed Plans shall also identify planned control measures, if any, that the District plans to utilize and shall provide implementation schedules for these controls. If a control on these other sources of pollution is to be ***implemented to offset the level of CSO control*** or to ***delay the elimination of an SSO...*** the Watershed Plan shall ***identify the means*** by which the District intends ***to insure that the control is implemented.***”

SD1 –Social/Political Challenges

November 4, 2008 Ballot Initiative

- Boone County - one of fastest growing counties
- Long-term parks master plan - preserve forests, wildlife habitat, provide active parks/recreation services
- No reliable source of funds
- Placed a referendum on ballot for property tax of 2.2 cents per \$100 assessed value designated for parks, open space, and recreation
 - average residential home valued at \$185,000 = \$40.70/ year
 - business owner with a building valued at \$1 million = \$220/year
- generate approximately \$2.4 million annually
- allow County to bond \$22 million to \$24 million in parks improvement projects
- 3 county taxing districts lowered their taxes rates by a corresponding amount – tax-rate neutral
- Election Result?



**Astronaut Takes
Blame for Gas
in Spacecraft** p.2

Oregon Man Abducted by Aliens - Again

**Typhoon Rips Through
Cemetery; Hundreds Dead**

**Something Went Wrong
in Jet Crash, Experts Say**

**Drunk Gets Nine Months
in Violin Case** p.15

Morecambe News, Sport, Jobs, Property, Cars, Entertainments & More.

Voters Defeat Park Tax 67 to 33

EXCLUSIVE

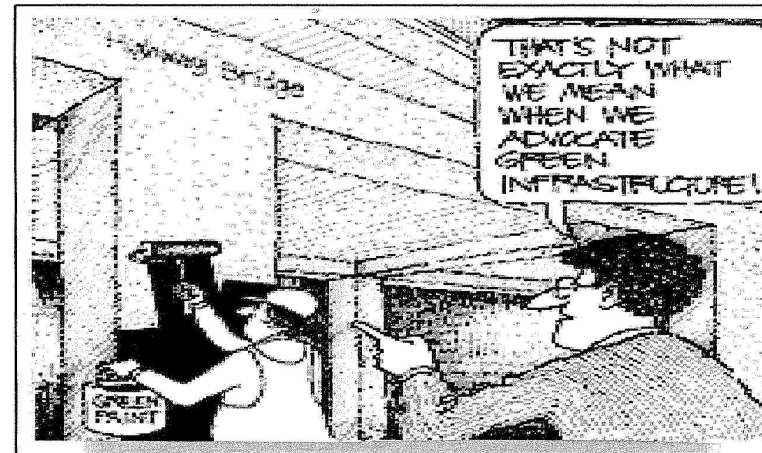
By Community Recorder

A proposal that would have created a park fund in Boone County went down to defeat Tuesday.

With 60 of 60 precincts reporting, the park tax was defeated by 31,228 to 15,303 votes. The

margin was 67 to 33 percent.

The proposal would have created a park fund to enable the county to preserve forests and wildlife habitat, as well as to provide active parks and recreation services.



The property tax would have costs the owner of a \$100,000 home \$22 a year.

Voters gave Florence City Council a shuffle.

Red Tape Holds Up New Bridge

 p.3

Ge

Education Challenges

- October 2007 - SD1 created a Watershed Community Council
- 55 members
- Diverse group of stakeholders
environmentalists, local leaders, developers,
and citizens
- Meet quarterly
- Purpose
 - provide input on SD1's watershed planning process
 - fulfill public input component of Consent Decree

Watershed Community Council

Distribute 100 points in a way that indicates how highly each factor should be considered when comparing and selecting potential project solutions to water quality issues.

Rank	Criteria
1	Reduction of sanitary sewage entering waterways
2	Reduction of storm water runoff pollutants
3	Public health benefit
4	Eco-friendliness
5	Criticality of aging infrastructure
6	Reduction in flooding
7	Fish and wildlife benefit
8	Protection of sensitive areas
9	Cost
10	Size of population/density receiving direct benefit
11	Aesthetic appeal

Watershed Community Council

- To comply with the Federal Clean Water Act and make upgrades to the sanitary sewer system, how much are you willing to pay per month for sewer services in Northern Kentucky?

Watershed Community Council

Monthly Cost	Response
\$ 0 - \$10	19.0%
\$11 - \$30	25.3%
\$31 - \$50	27.8%
\$51 - \$70	8.9%
\$71 - \$90	8.9%
\$91 - \$110	7.6%
More than \$110	2.5%

VS

Rank	Criteria
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SD1 Challenges

- Rapid growth pressures
- Burdened combined sewer system that frequently overflows
- Lack of understanding about benefits of green infrastructure
- Failure to appreciate the cost of clean water
 - Unwillingness to bear costs

Economics of Storm Water Runoff in Northern KY

- 1 acre of new impervious surface can produce 550,000 gallons of additional CSO discharge annually
- Capital cost to mitigate – up to \$110,000 / acre*
- Approximately 800 acres of open property within SD1 combined sewer system area
- Total mitigation cost: \$44 million at 50% impervious development

* \$5 / gallon estimated storage cost



Opportunities

“Conservation and green infrastructure are the new measures of a community’s wealth...”



Town Lake Trail System, Austin

Source: Laura Long



Millennium Park, Chicago

... It is a way to attract businesses and residents by guaranteeing both quality of life and economic health.”

Culture of Conservation

- The green movement no longer on the fringe
- Has some very mainstream advocates
 - Journalist and best-selling author Thomas L. Friedman told National Public Radio's Fresh Air that "green technology is going to be the industry of the 21st century."

SD1's Green Infrastructure Program: Approach

- Awareness
 - Compiling relevant information
 - Understanding SD1 & community needs
 - Identifying existing programs and potential partners
- Exploration
 - Investigating a range of Green Infrastructure strategies and building community/stakeholder consensus
- Vision
 - Articulating a powerful vision that inspires the community, integrates with the Watershed Plans and provides a roadmap for implementation

SD1's Green Infrastructure Program: Strategy

- Multi-Scale
 - From site-specific BMPs to regional regulations
- Multi-Objective
 - From Consent Decree compliance to quality of life
- Multi-Benefit
 - Water Quality
 - Urban Beautification
 - Air Quality
 - Wildlife Habitat
 - Greenway Connectivity

SD1's Green Infrastructure Program: Objectives

- Augment traditional engineering solutions
 - CSO, SSO, SW controls (Gray controls)
- Assist in achieving regulatory compliance
 - Must meet regulatory standards
 - Will require local performance data
- Achieve cost-effectiveness goals
 - Cost sharing and grant opportunities
- Provide supplemental benefits
 - More than just CSO/SSO reduction

SD1's Green Infrastructure Program: Efforts

- Review of local planning & zoning regulations; coordination with planning & zoning agencies
- Revising SD1 storm water rules & regulations
- Revising SD1 storm water BMP manual
- Sewershed GI analysis (emphasis in combined sewer service area)
- Regional GI Evaluation (soils, natural systems)
- Pilot project evaluations / partnerships
- EPA Technical Assistance Project

EPA Technical Assistance Program

- National experts assist local communities
- Applied & selected in Spring 2007; workshop held in Spring 2008
 - 5 communities selected nationally
- Objective
 - Identify approaches that will work in NKY
 - Emphasis on CSO control
- Elements
 - Innovative Storm Water Design Workshop
 - Stormwater BMP Toolbox
 - Regulatory Review



Resources

- Portland – Stormwater Management Manual (www.portlandonline.com/bes)
- Chicago – Green Alley Handbook (csc.usc.edu/GreenAlleyHandbook.pdf)
- Cincinnati MSD – Green Infrastructure Program (www.msdbg.org/wetweather/greenreport.htm)
- Center for Watershed Protection (www.cwp.org)
- Low Impact Development Center (www.lowimpactdevelopment.org)



St. Elizabeth Medical Center, Covington Future Green Roof (20,000 sq. ft.)





Take Away



Totally Irrelevant Obscure Presidential Trivia

Obscure Presidential Trivia

- Which one of our presidents spoke/speaks English as a second language?
 - A. George W. Bush
 - B. Martin Van Buren
 - C. Herbert Hoover

Obscure Presidential Trivia

- How much did George Washington spend on ice cream during the summer of 1790?
 - A. \$20
 - B. \$50
 - C. \$200

Obscure Presidential Trivia

- Anne Royall became the first female reporter to interview which president?
 - A. John Quincy Adams
 - B. Abraham Lincoln
 - C. Grover Cleveland

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