Watershed Management of Columbus' Water Reservoirs

October 30, 2013

THE CITY OF COLUMBUS
MICHAEL B. COLEMAN, MAYOR
DEPARTMENT OF PUBLIC UTILITIES

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RECREATION AND PARKS DEPARTMENT

- **Introductions**
  - Greg Davies, Department of Public Utilities, Director
  - Alan McKnight, Dept. of Recreation and Parks, Director
  - Rick Westerfield, Division of Water, Administrator
- **Purpose of meeting**
  - To discuss land stewardship and water protection programs around Columbus' drinking water reservoirs

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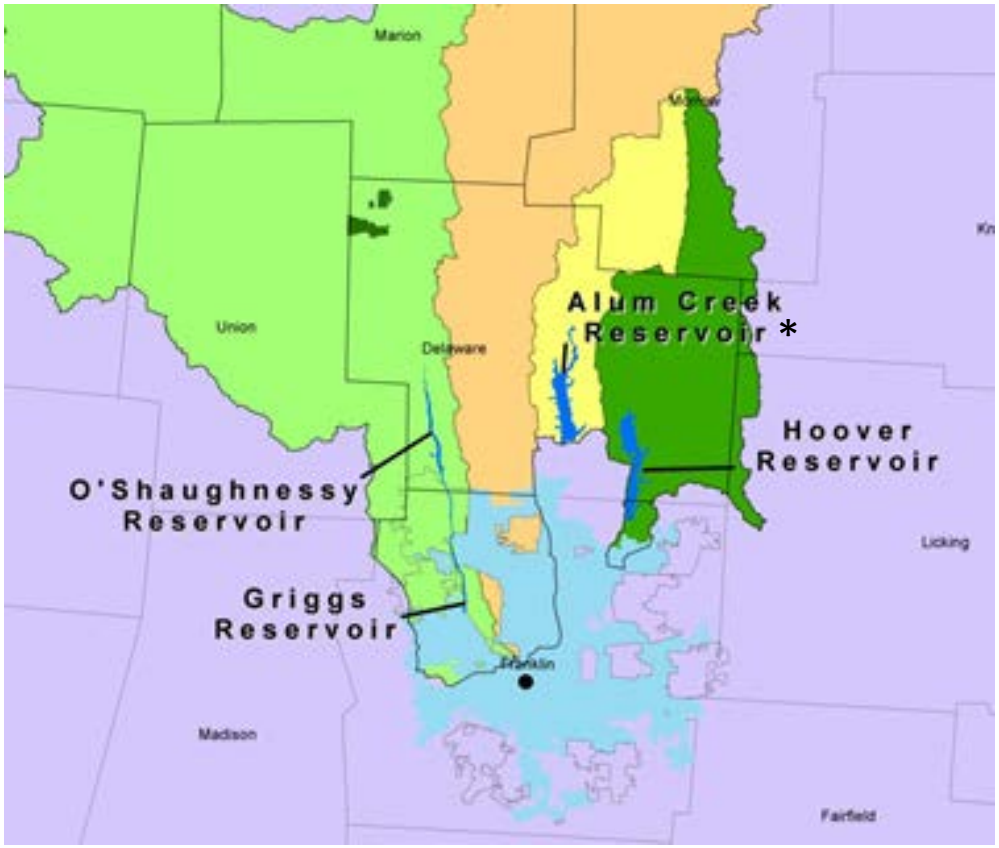
Reservoir and Dam History

Columbus built 3 water reservoirs to serve what is now 1.1 million water customers in Columbus and its contracting suburbs:

- Griggs (1906)
- O'Shaughnessy (1925)
- Hoover (1953)



** Columbus can supplement Hoover from Alum Creek Reservoir but does not own or operate the Alum Creek dam*

Watershed Management History

- Land around the reservoirs was purchased by Columbus going back to the 1890s for Griggs, 1920s for O'Shaughnessy and 1940s for Hoover
- There are approximately 1,200 adjacent parcels with about 900 owners
- Public Utilities' land stewardship program began in 1994 following a Waterways Task Force process

- Reservoir management plans were developed with resident and stakeholder input, watershed rangers were added to monitor reservoirs and parkland
- Recreation and Parks Department retained boat dock permitting and park management functions

A Balanced Approach

Columbus has struck a balance by allowing limited recreation on our reservoirs, while other communities have chosen to prohibit access with fences.

The city has an obligation and property rights to maintain the land to protect drinking water. Access for adjacent residents is possible through Land Stewardship Agreements.

Land Stewardship Agreements with the City of Columbus

- LSAs were developed as a compromise to allow adjacent property owners, willing to be environmental land stewards, limited usage of city-owned land for fishing, docking a boat, etc.
- It's important to note the city owns differing amounts of land between the reservoirs and the private property.
- With or without an agreement, it is public parkland with the goal of it being a natural filter for water quality benefit to all drinking water customers.

Why a Land Stewardship Program?

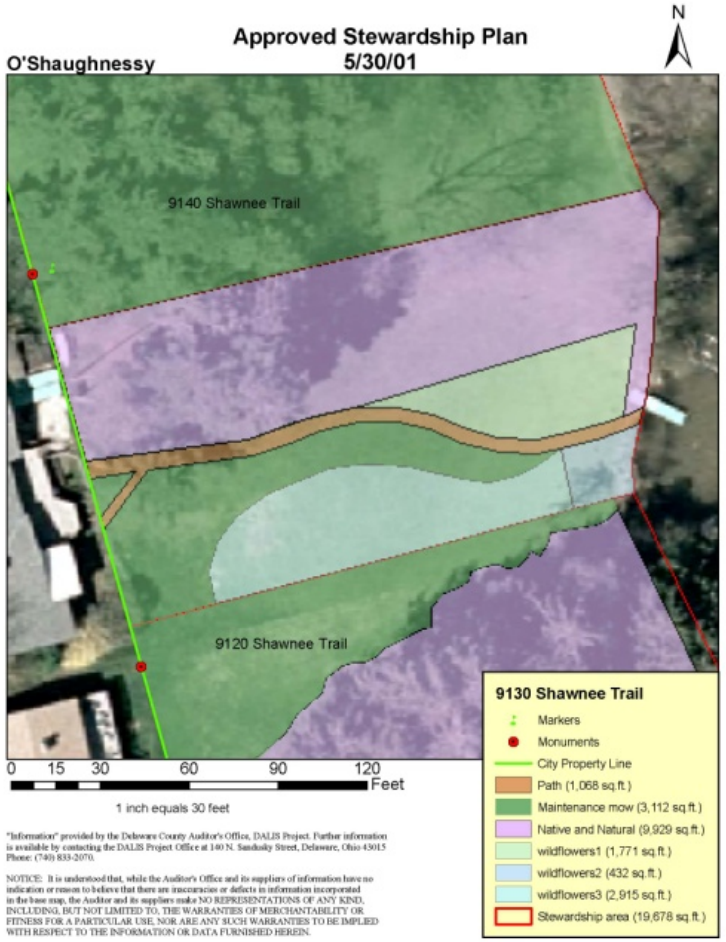
- Promote native, deep-rooted landscaping to filter pollutants in stormwater runoff, like pesticides, herbicides, fertilizer, bacteria from pet waste, car fluids etc.
- Erosion control to prevent loss of land
- Ratepayer savings: cleaner water requires less treatment
- Ecosystem balance and habitat preservation
- To allow adjacent property owners limited access

Water Treatment Costs

- 2012 water treatment operating budget :
  - $47.5 million; $16.7 of which is used to purchase chemicals
- Treatment plant capital improvements to meet EPA requirements:
  - Hap Cremean: $70 million
  - Dublin Road: $200 million
  - Parsons Avenue: $50 million
  - Total $320 million
- Costs are passed along to all ratepayers

How Land Stewardship Agreements Work

- We contact the adjacent property owner, ask for participation
- Site visit, landscape design
- Agreement authorizes limited maintenance of city-owned land
- Once plan is approved, adjacent owner is eligible for boat dock/ stake permit if desired
- If no dock/access desired, LSAs are not required
- 1/3 of adjacent owners have LSAs



Land Stewardship Area Example

Naturally vegetated with a 5’ wide path, view corridor and an annual mow allowed in portion. This type of plan allowed as land conditions permit and if not already naturally vegetated.

Examples of Problems to Avoid

Mowing to shore leads to land erosion. Natural landscaping provides deeper roots to prevent land loss and improves water quality.

Unauthorized ramp allowing storm-water to flow directly into reservoir with no filtering.

Examples of Unpermitted Structures Built on City-Owned/Public Land

Unauthorized Activity

- When unauthorized activity occurs on our land, we talk to the adjacent owner, send letters and encourage compliance.
- If those efforts fail, the City Attorney's Office gets involved.
- Many issues are resolved without formal litigation, but the city has filed suit in some cases where informal efforts were insufficient to gain compliance. Of these cases, all but one has been settled out of court.
- Some of those were after many years of trying to work with the adjacent owner, without resolution.
- Legal action is always a last resort.

Partnerships

In addition to working with neighbors, we also work with:

- Other jurisdictions - we are in discussions with Genoa Township on mutually beneficial interests including a fire station at Hoover Reservoir, for example
- Agricultural groups upstream to limit farm runoff into the reservoirs – we participate in the Conservation Reserve Enhancement Program (CREP) through ODNR
- Watershed groups, Soil and Water Conservation Districts, fishing groups and others

What Works:
Best Management Practices

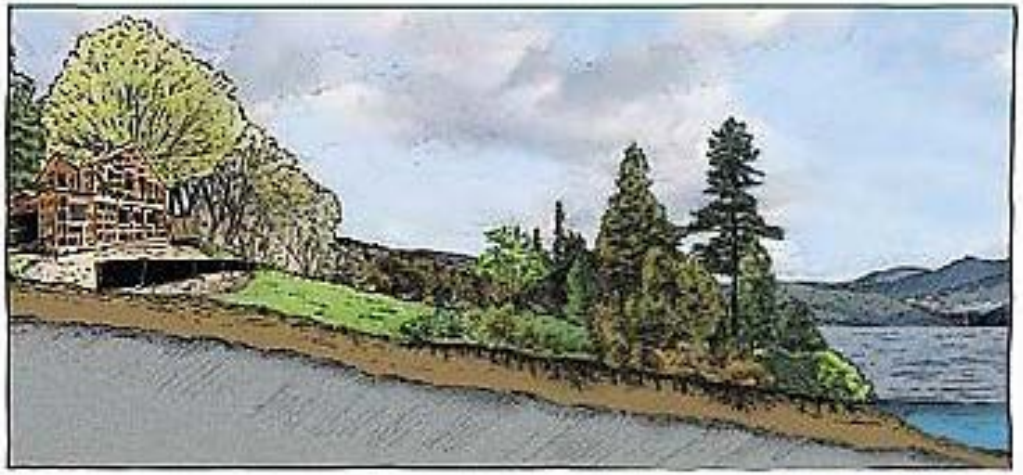
- Ohio EPA and soil and water conservation districts recommend natural, deep-rooted landscaping around waterways for beneficial water filtering
- Studies have shown “best management practices” are effective in preventing water pollution and soil erosion
- Stormwater management has evolved greatly the past few decades
- Columbus has installed native landscaping, rain gardens, and pervious pavement on public land including reservoir parkland; only 8% is mowed regularly, mostly for picnic, boat and building access
- We are using green infrastructure for our Wet Weather Management Plan (“Blueprint Columbus”) in Columbus neighborhoods
- We work with upstream farmers to limit agricultural effects

Landscaping: a Natural Water Filter

73% of stormwater runoff infiltrated by grass lawn plus a 100-foot wide buffer

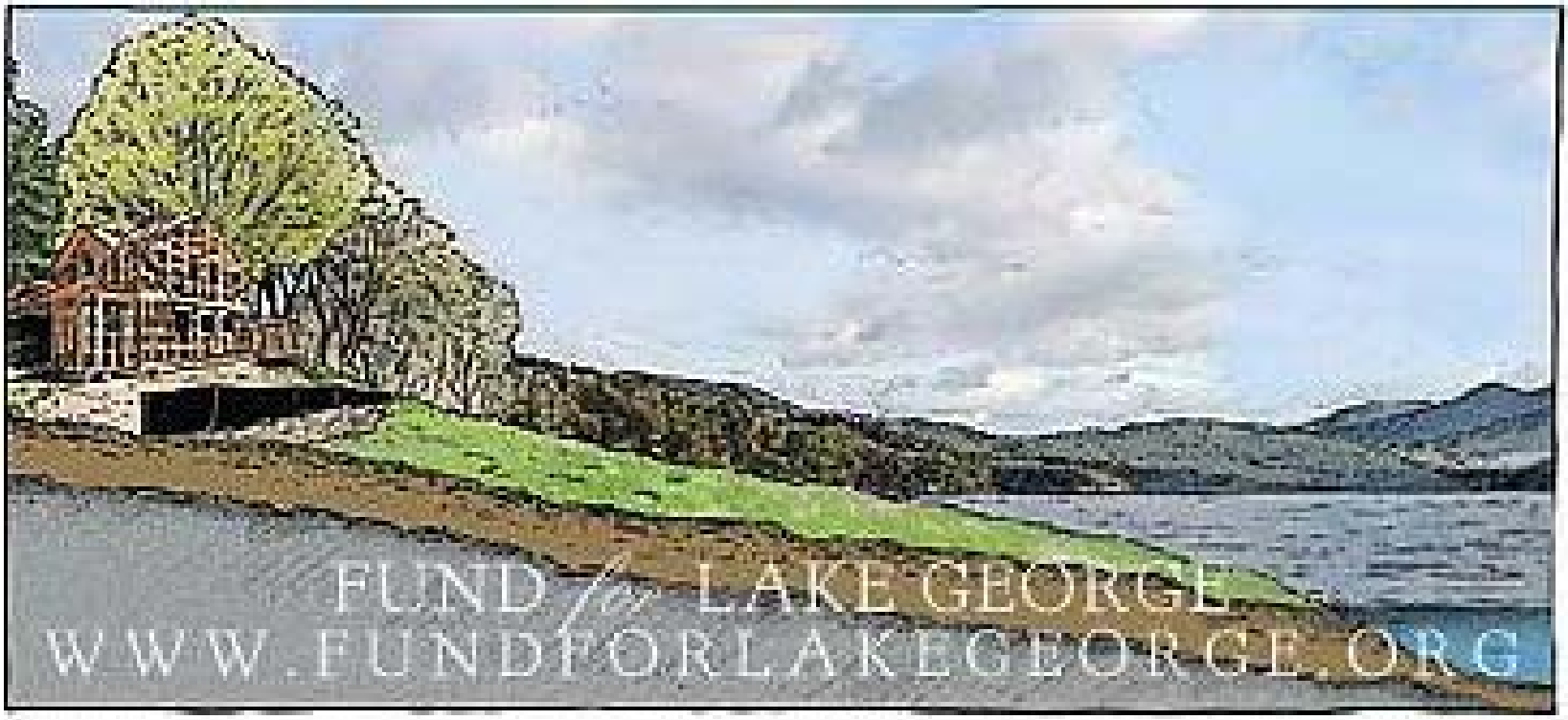
(From Lake George Waterkeeper, NY)

58% of stormwater runoff infiltrated by lawn and a 50-foot wide buffer . . .



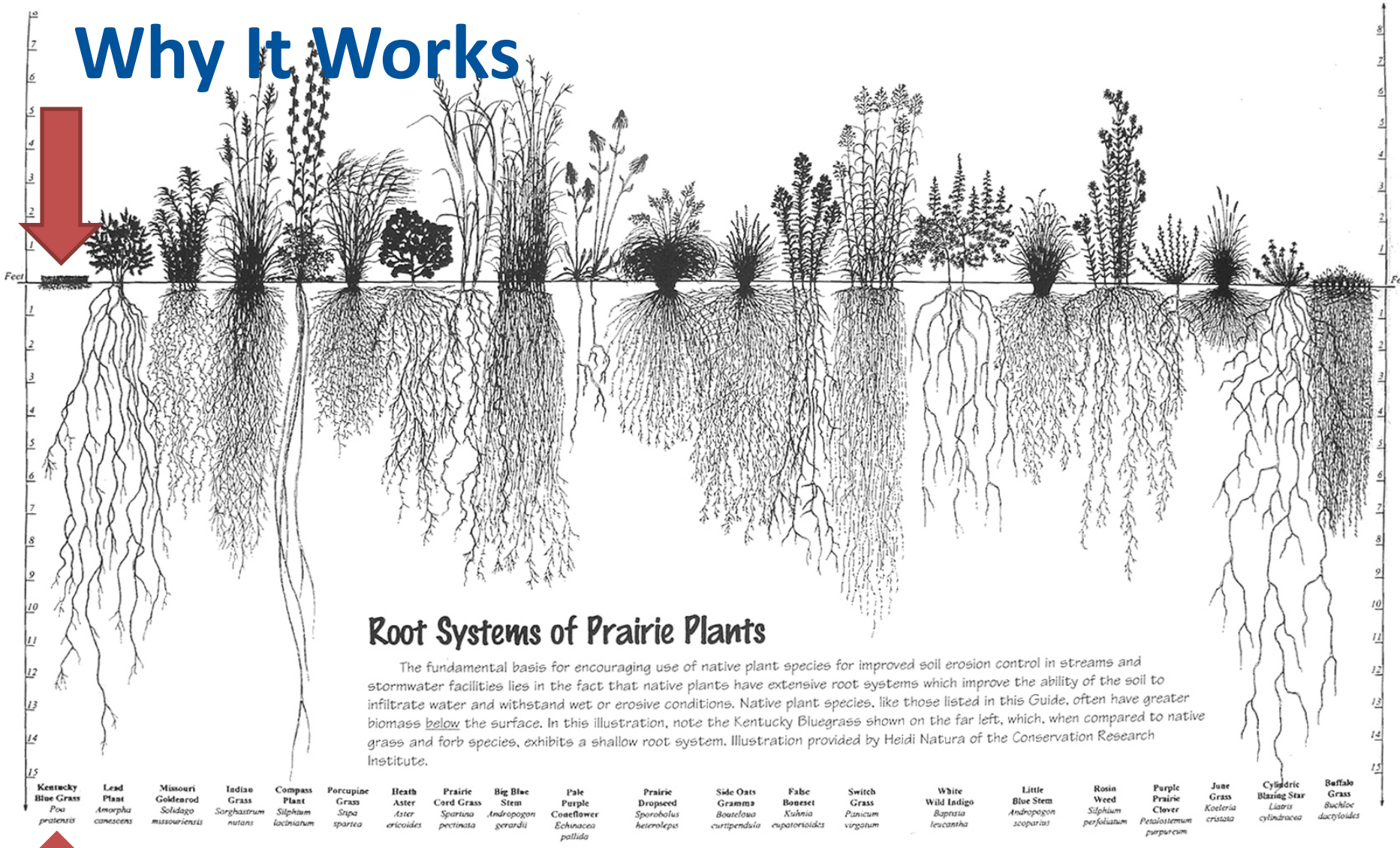
. . . and 32% of runoff infiltrated by lawn and a 10-foot wide buffer

And with just a grass lawn, it goes from 73% infiltration to just 18%



The performance level of water filtering goes down as the amount of land buffer goes down

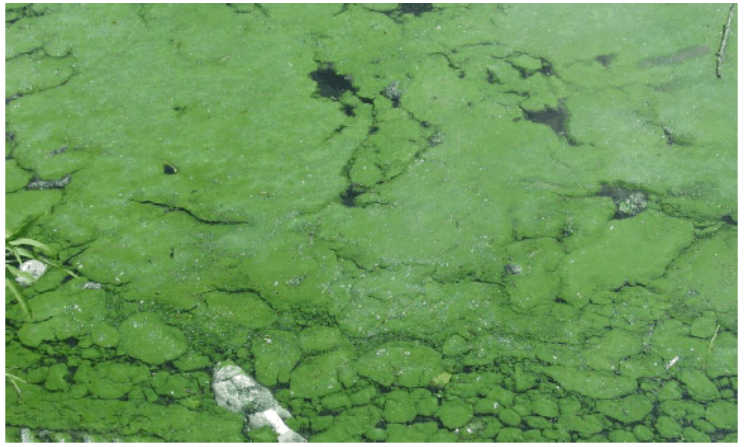
Why It Works



Kentucky Blue Grass root depth vs. native grasses; trees and bushes deeper as well

What We Know Doesn't Work

Places like Grand Lake St. Marys have experienced what an absence of filtering nutrients and pollutants does – unattractive blooms of algae.



Excess nutrients aren't just a farm runoff issue. Suburban runoff creates issues: Griggs Reservoir is seeing elevated phosphorus levels and is on a watch list for both it and nitrogen, according to a 2012 Ohio EPA water quality study.

Red Algae Bloom in Muskingum County This Past Summer

Changes Under Consideration

Since the program is nearly 20 years old and in response to concerns raised by adjacent property owners, we recently decided to review the LSA program. The following changes are under consideration, where conditions permit, ***with or without a boat dock:***

- In addition to mowed paths, allowing mulched (wood chips), gravel and paver paths including permeable pavers
- More flexibility on stair access, where possible
- Establishing a pilot program with a city contractor for water-safe removal of invasive species, dead trees, and poison ivy

Other Possible Changes

- Public Utilities is hiring an expert consultant to develop a new Watershed Protection Master Plan
- We will look at a wide range of issues in this process and include stakeholder input
- To make sure our plan reflects best practices, the consultant will review our program to see if other aspects should be changed
- Draft report expected late 2014/early 2015
- Will be posted on our Web site when available and include a public comment process

Public Input on Proposed Changes Tonight

We welcome your input on those ideas and others you may have.

- Please pick up the comment forms at the sign-in table on the way out and leave them tonight, or you may mail, email or fax them within 30 days.

Thank you for coming.

To learn more, please visit
www.watershed.columbus.gov

Questions?

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