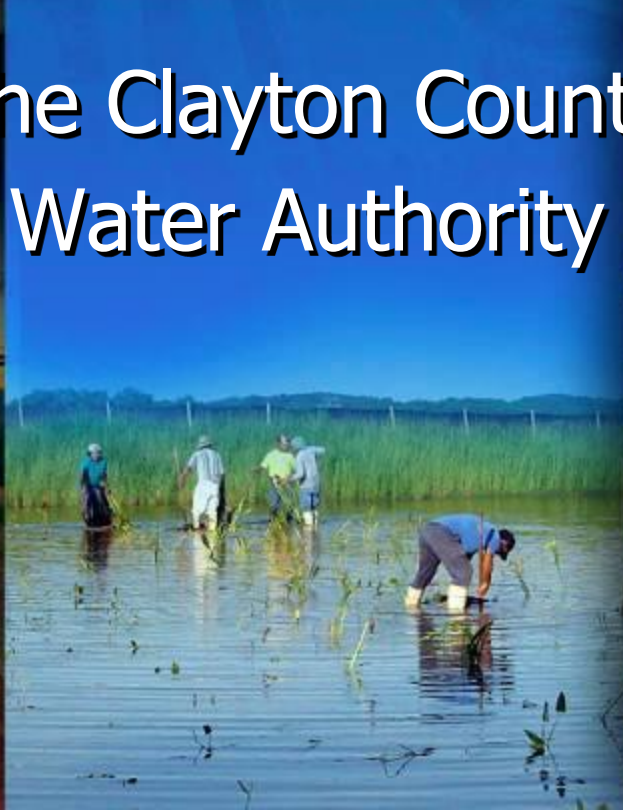


Developing a Sustainable Water Resource for Clayton County

The Clayton County
Water Authority



Chris Hamilton
Water Reclamation
Department Manager



CCWA Background

- Created by Act of State Legislature in 1955
- Guided by 7 member Board of Directors
 - Appointed by County Commissioners
 - Operate solely on water, sewer, stormwater revenues – no tax support





CCWA Background

- Over 78,000 Water, Wastewater and Stormwater Accounts
- Serving over 270,000 people
- 3 water plants that can provide up to 42 million gallons per day
- 3 water reclamation plants that can treat up to 38.8 million gallons per day
- Enough water and sewer pipes to stretch from here to Denver, CO and back!

Developing a Sustainable Water Supply



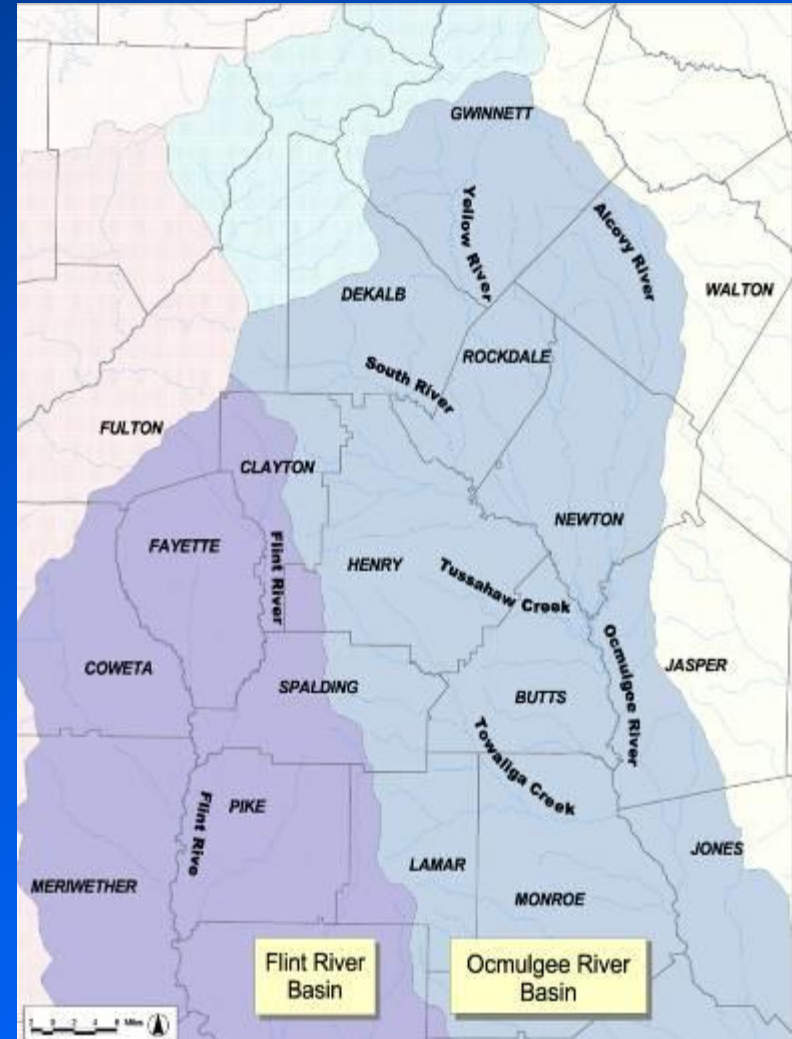
- CCWA Success built on planning & action
 - Develop a Plan and work the Plan
- Limited water supplies and water quality issues in the Flint River in the 1970's were drivers for innovation



Clayton County Water Resources Limited but Sustainable Supply



- Limited surface water & groundwater availability





Indirect Potable Reuse

- One objective of CCWA's 2000 Master Plan was to recapture reclaimed water to insure a dependable water supply for Clayton County
- Planning for Indirect Potable Reuse involved the following steps:
 - Appropriate water reclamation and water treatment technologies
 - Review by independent experts
 - Source water protection
 - Water quality monitoring
 - Public relations and education

Water Reclamation Begins at the WRFs



Water Reclamation Begins at the WRFs



- W.B. Casey WRF - Design Treatment Capacity =
- 24 MGD- Huie Constructed Wetlands
- Shoal Creek WRF – Design Treatment Capacity =
- 4.4 MGD – Panhandle Road Constructed Wetlands
- Northeast WRF – Design Treatment Capacity =
- 10 MGD – Panther Creek

Next Step – Natural Treatment Systems



- CCWA has utilized land application for reclaiming and recycling “used” water back into our water supplies for almost 30 years
- Over 2,400 forested acres receiving spray irrigation of treated wastewater
- 70% of the reclaimed water sprayed onto the site was returned to the watershed



Transition from Land Application to Constructed Wetlands



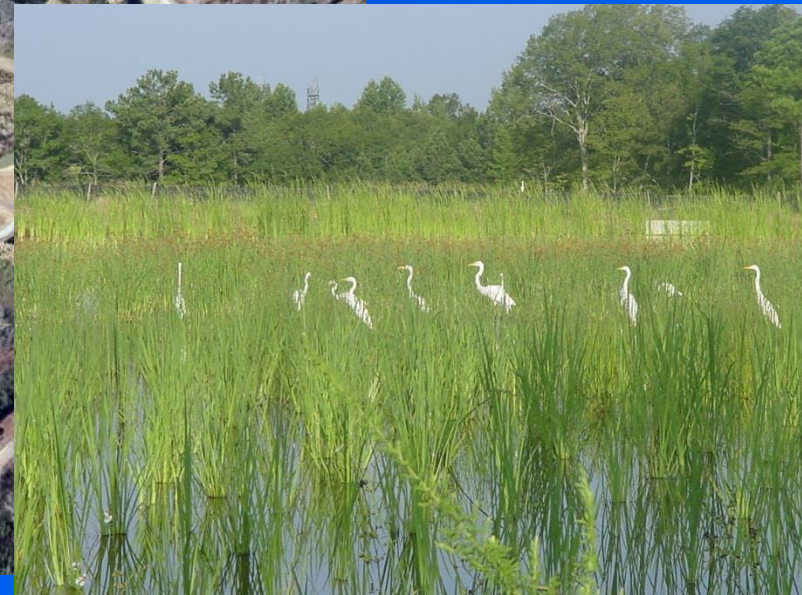
Existing land application acreage was converted to constructed wetlands



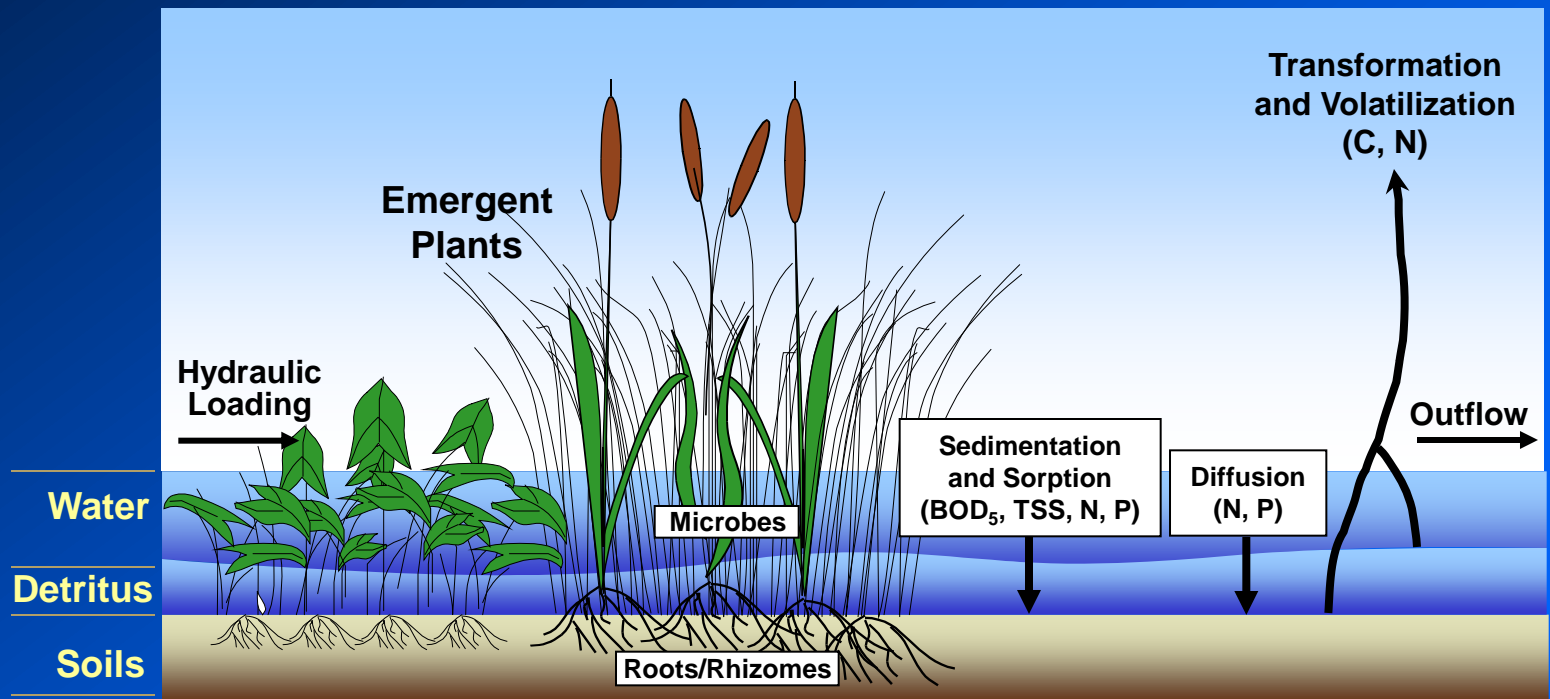
E.L. Huie Constructed Wetlands



Panhandle Road Constructed Wetlands



Wetlands use natural processes to improve water quality.



Design Parameters: Loading Rate, Area, Depth, Vegetation, Inflow Concentration

Constructed Wetlands



Constructed Wetlands – A Living Filter



Constructed wetlands
expected to provide an
additional 10% to 20%
removal of conventional
pollutants



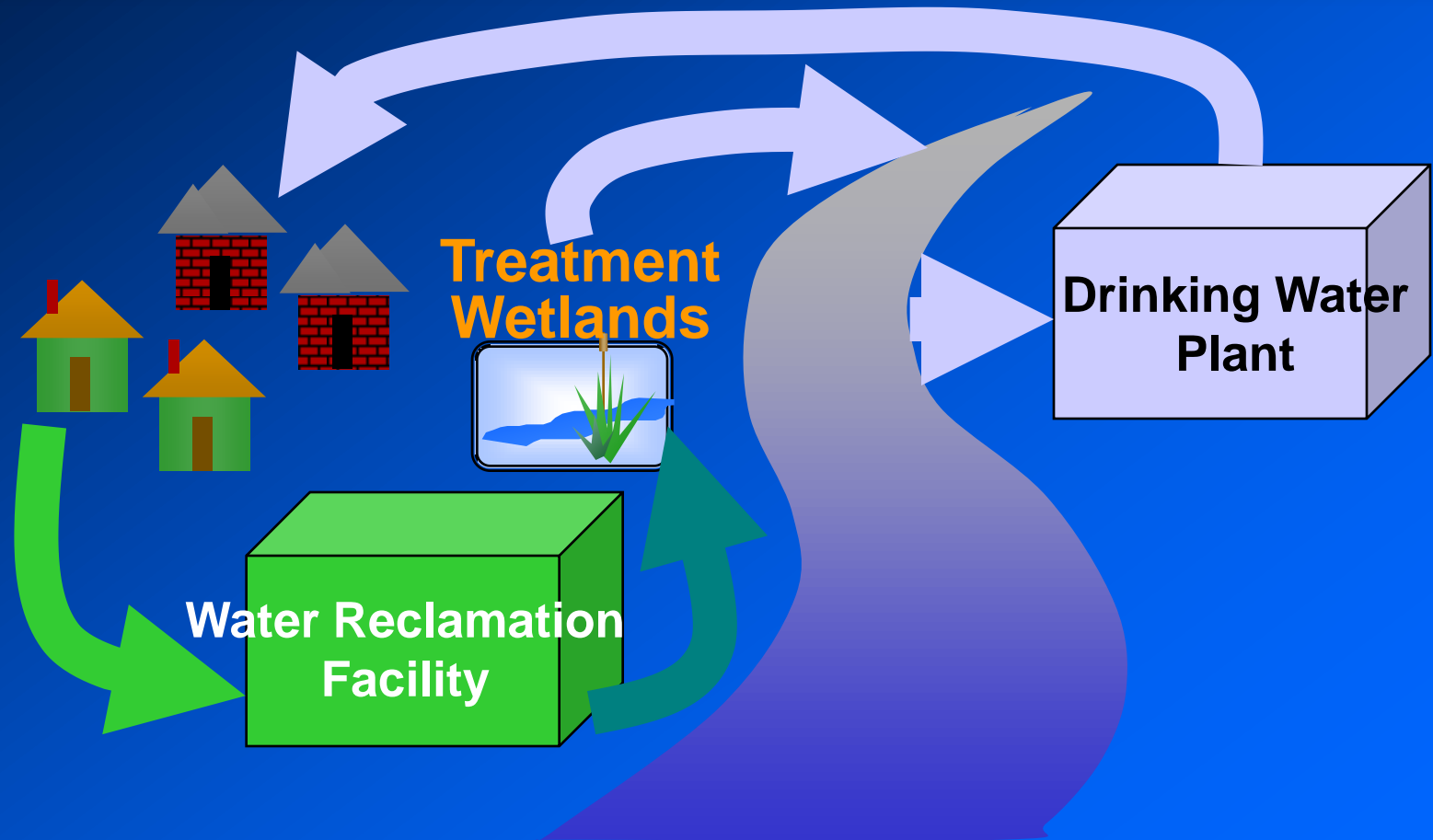
Sustainable Water Supply – Indirect Potable Reuse



- Clayton County returns highly treated water back to our water supplies
- 2007 Drought
 - Minimum storage capacity was 77% = at least 200 days supply without additional rain



Sustainable Water Supply - Indirect Potable Reuse



"It's raining in Clayton County every day!"



Positive Press Coverage

WHAT WATER CRISIS?

Clayton County's antidote to drought

Clayton wetlands project a clean hit

It's not nice to fool Mother Nature, but that doesn't mean you can't work with her to the benefit of everybody involved.

Hats off to Clayton water and sewer officials for embarking on such a venture. They have opted to invest in wetlands, with the intent of cleaning up county waste water and, at the same time, creating an enlarged habitat for wetland plants and animals.

Over the next 10 years, Clayton will develop two wetland areas, totaling 660 acres. Together,

to have the wetlands put a finishing touch on waste water already processed in the county's treatment facilities.

As the water descends through the wetland system, pollutants are absorbed by aquatic plants and microbes or removed by evaporation and sheer gravity. It's nature's way of restoring water purity, and it's more cost-effective, not to mention more aesthetically pleasing, than building additional treatment plants.


AWWA Recognition



U.S. National Climate Assessment Report




- The Clayton County Water Authority (CCWA) earned recognition in the Third U.S. National Climate Assessment report



SELECTED ADAPTATION EFFORTS

Clayton County, Georgia's innovative water recycling project enabled it to maintain abundant water supplies, with reservoirs at or near capacity, during the 2007-2008 drought, while neighboring Lake Lanier, the water supply for Atlanta, was at record lows. The project involved a series of constructed wetlands (see photo) used as the final stage of a wastewater treatment process that recharges groundwater and supplies surface reservoirs. The county has also implemented water efficiency and leak detection programs.¹⁸



In other adaptation efforts, the North Carolina Department of Transportation is raising U.S. Highway 64 across the Albemarle-Pamlico Peninsula by four feet, which includes 18 inches to allow for higher future sea levels.¹⁹

For another example, see page 63 for a description of the Southeast Florida Regional Compact's plans to reduce heat-trapping gas emissions and adapt to climate change impacts.

Thank You!

