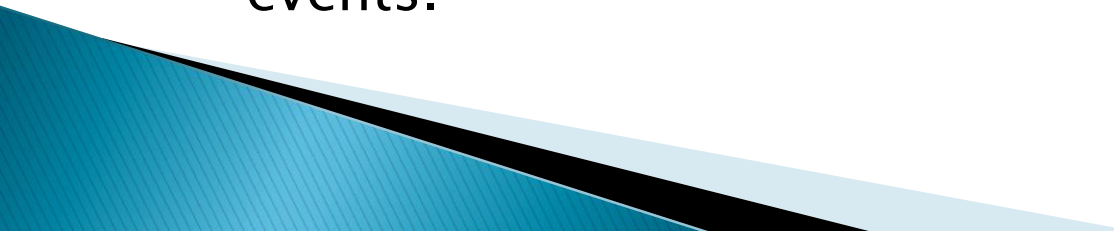


A Four-Pronged Approach to Conserving and Protecting Our Precious Water Resources

Andrew Kricun, PE, BCEE
Executive Director/Chief Engineer
Camden County Municipal Utilities Authority

The Importance, and Benefits, Of Water Conservation

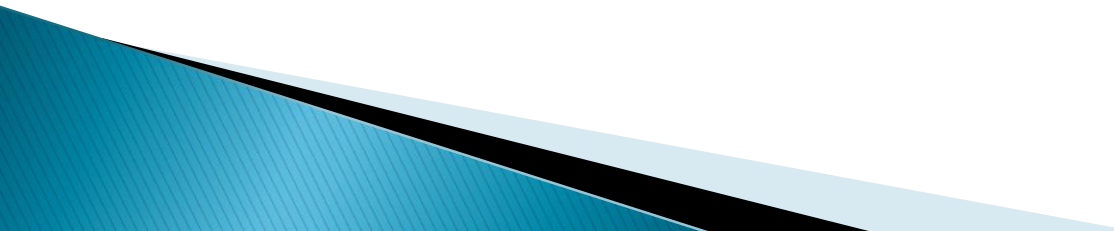
- ▶ Save the Planet! Water is a rare and precious resource. When we conserve water, we are saving the planet for our children and future generations.
 - ▶ Save Money!
 - Using less water reduces your own water bill and reduces water and sewage pumping and treatment costs.
 - ▶ Reduce Flooding!
 - Using less water directly reduces the potential for flooding and overflows of raw sewage during rain events.
- 

Camden County Municipal Utilities Authority(CCMUA)

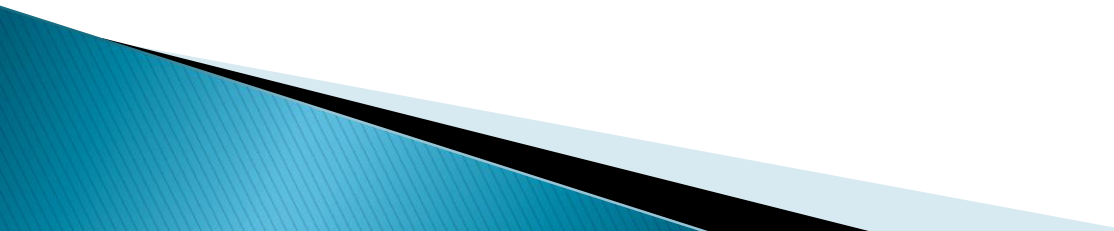
- ▶ Services 500,000 customers in Southern New Jersey
- ▶ Design Flow: 80 MGD
- ▶ Average Flow: 58 MGD
- ▶ Secondary, pure oxygen activated sludge treatment
- ▶ Discharges to Delaware River



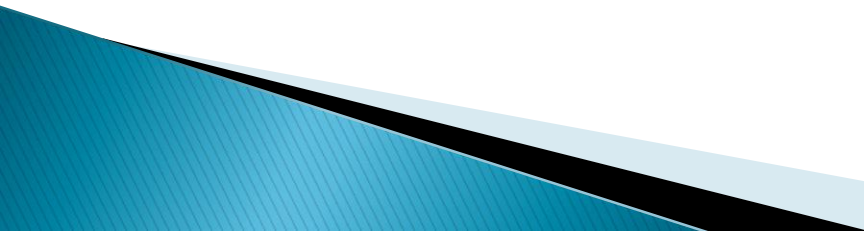
CCMUA's Four-Pronged Water Conservation Plan

- ▶ Water Conservation
 - ▶ Infiltration/Inflow Removal
 - ▶ Green Infrastructure
 - ▶ Effluent Water Quality Optimization
- 

Water Conservation Efforts

- ▶ Public outreach to all residents and businesses.
 - ▶ Jointly giving out water conservation kits to residents with United Water.
 - ▶ Conserving water isn't just the right thing to do, it's the smart thing to do as well.
- 

Infiltration/Inflow Removal

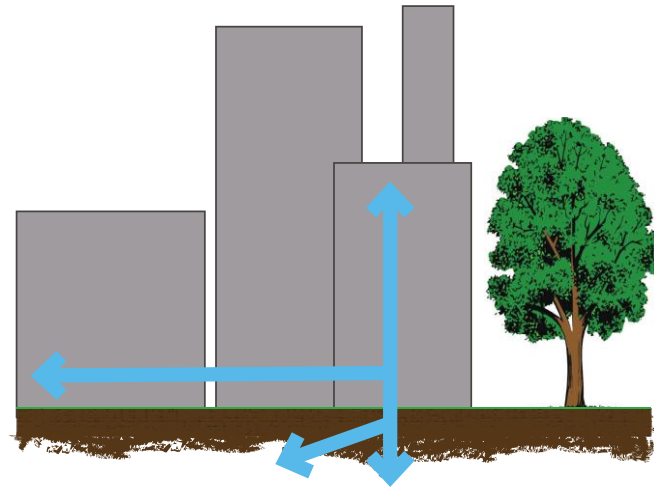
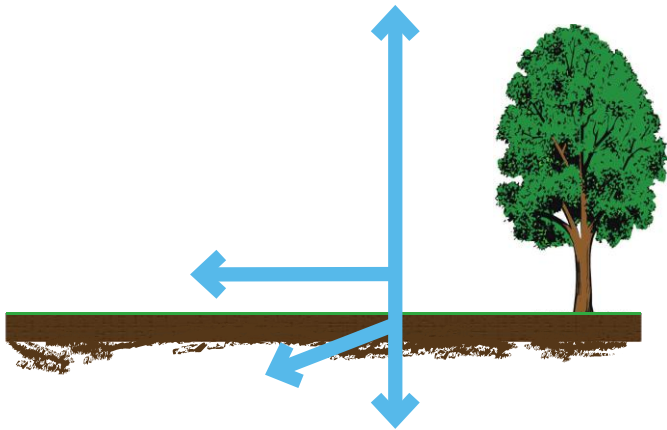
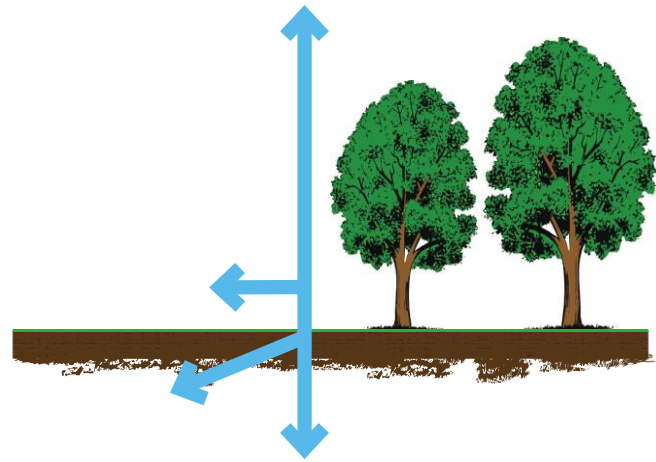
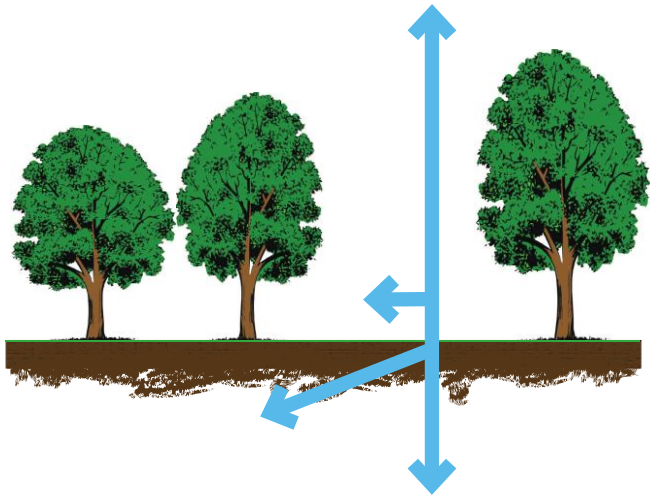
- ▶ Mixing a gallon of clean storm water or groundwater with a gallon of sewage results in two gallons of sewage.
 - ▶ Infiltration of groundwater, or inflow from storm water, through leaky pipe joints, into wastewater increases pumping and treatment costs and increases the risk of flooding.
 - ▶ CCMUA has entered into agreements with most of its constituent municipalities to reduce and minimize infiltration/inflow.
- 



Localized Flooding in Camden

- October 1, 2010 rain event in Cramer Hill
- Capacity of existing infrastructure & topography
- Sewage water and public health hazard
- Existing conditions/needs vary by neighborhood





more development



more paved surfaces



more stormwater runoff



City of Camden
Camden County Municipal Utilities Authority
Cooper's Ferry Development Association
New Jersey Department of Environmental Protection
Rutgers Cooperative Extension
NJ Tree Foundation



Green Roofs

Rainwater Harvesting

Planter Boxes

Rain Gardens

Permeable Pavements

Vegetated Swales

Natural Retention Basins

Trees & Urban Forestry

Brownfield Redevelopment

Green Infrastructure Includes:



Natural Retention Basins



Rain Gardens



Vegetated Swales



Green Roofs



Permeable Pavements



Rainwater Harvesting

2011- KEY ACCOMPLISHMENTS



- 11 rain gardens planted in 4 neighborhoods
- Obtained \$300,000 grant from NJ DEP for green infrastructure
- Over 300 street trees planted city-wide
- Camden SMART website
- Series of community outreach and education meetings
- Increased network of partners and volunteers
- Camden SMART Opportunities Analysis
- Rain garden installation training session
- Farnham Park Stormwater Management Project

SMART ACCOMPLISHMENTS

800,000 gallons of stormwater treated per year



WATERFRONT SOUTH RAIN GARDENS

Green Infrastructure on Brownfield Sites



Optimizing Water Quality

- ▶ Effluent Quality Improved by 40–50%
 - 22ppm TSS in 1999 to 5ppm in 2011
 - 25ppm BOD in 1999 to 3ppm in 2011
- ▶ Sludge Removed Improved by 45%
 - 11,000 dry tons removed in 1999 to 16,000 dry tons in 2011
- ▶ Odor Violations down from 16 in 1997/98 to 4 from April 1998 to December 2011

Thanks for Listening!

If you would like more information, please contact:

Andrew Kricun, P.E., BCEE
Executive Director / Chief Engineer
Camden County Municipal Utilities Authority
Camden, New Jersey
856-583-1223
andy@ccmua.org