Big Creek Water Quality Monitoring and Control: 1969 – Present

Thursday, September 27, 2012
Reinberger Education Center
Cleveland Metroparks Zoo

Friends of Big Creek

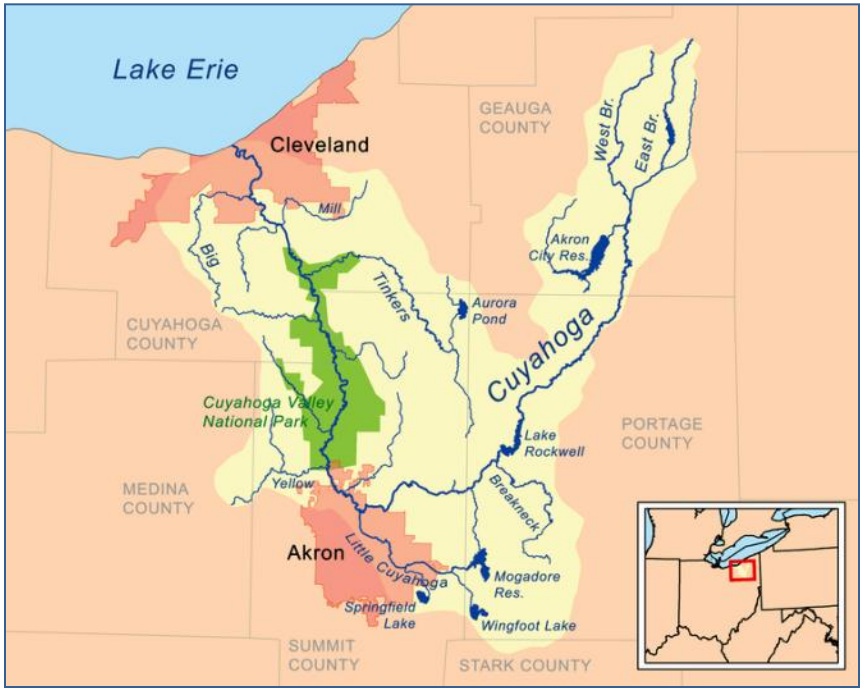
Northeast Ohio Regional Sewer District

Cleveland Metroparks

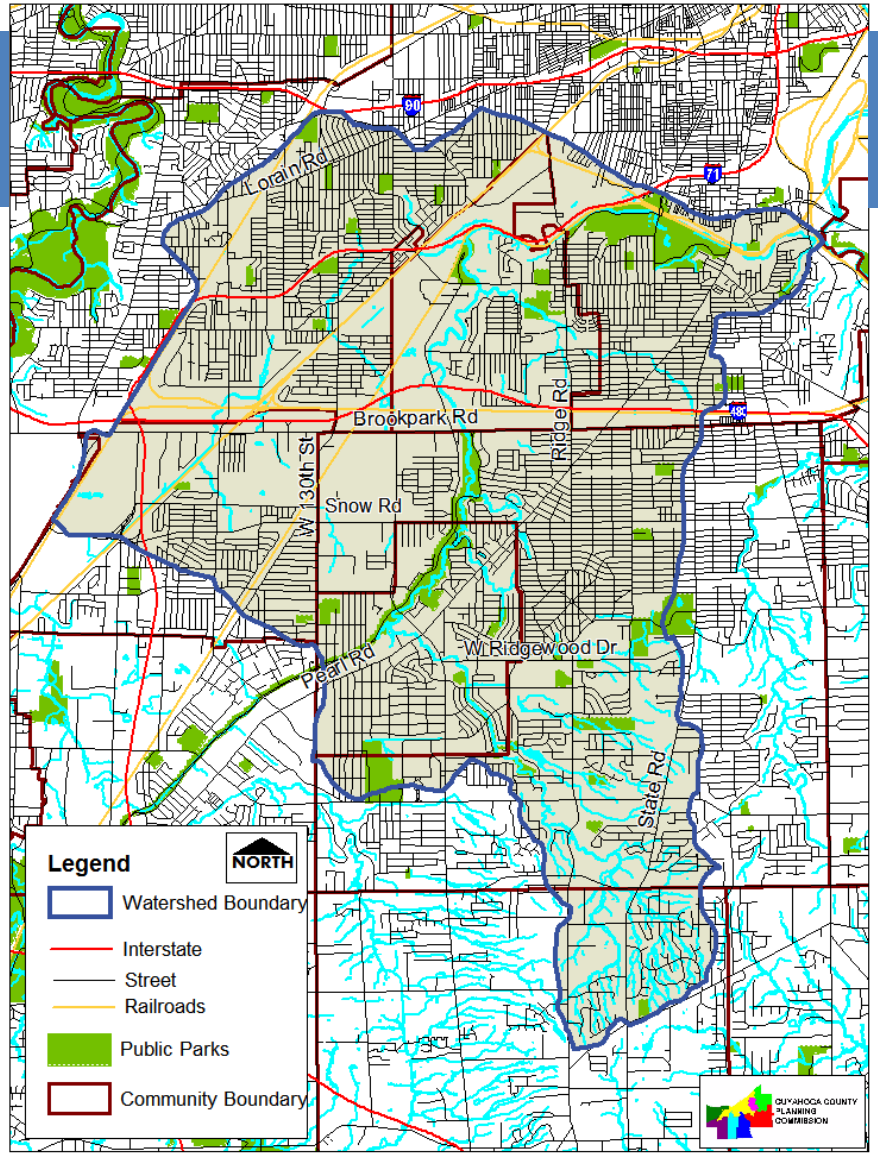
WATERSHEDS

What is a watershed?

Why watershed-based planning and organizing?



Map of the Big Creek Watershed



BIG CREEK COMMUNITIES

- Big Creek is the 3rd largest and northernmost tributary of the Cuyahoga River
- Big Creek drains nearly 38 square miles from 8 communities
- Big Creek runs through
  Cleveland
  Brooklyn
  Linndale
  Parma
  Parma Heights
  Brook Park
  North Royalton

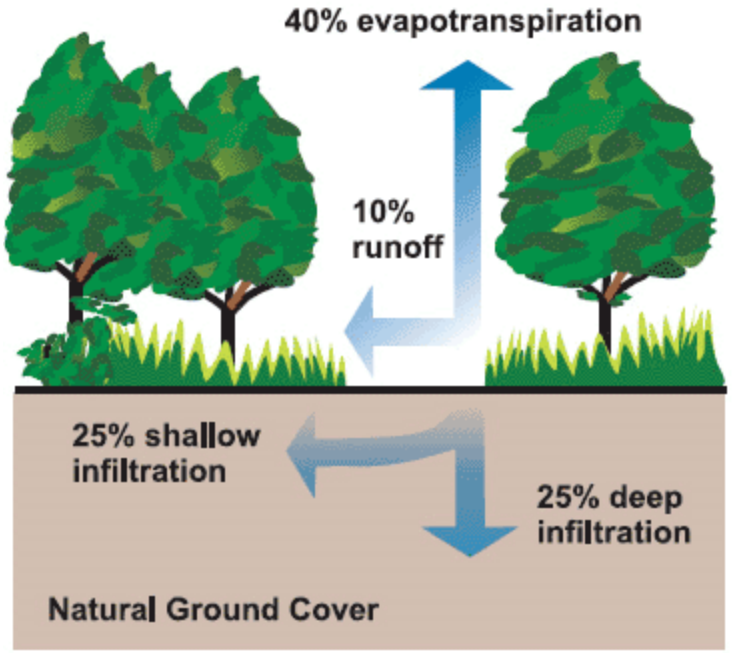
CONDITIONS IN THE BIG CREEK WATERSHED

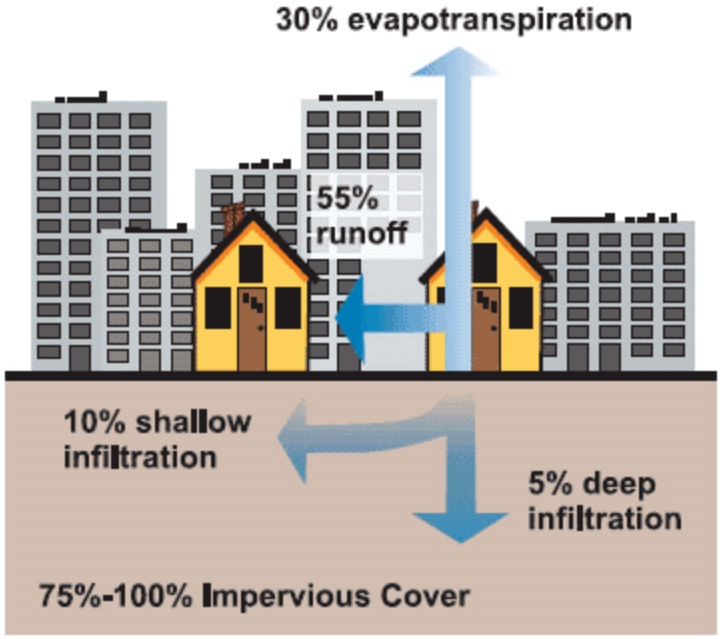
- Heavily urbanized, with almost 40% impervious surfaces. Sub-watersheds range from 23% to 48% imperviousness.
- Susceptible to severe flooding, erosion and degraded water quality as a result of urban runoff, alteration and encroachment on the stream.

IMPACTS OF URBANIZATION

- Altering stream channels by straightening, lining, or placement in culverts.
- Enlargement of the channel through incision and widening processes.
- Reducing riparian corridor width through floodplain encroachments.
- Greater and more frequent peak storm flows, and longer duration of stream flows capable of altering channel beds and banks.
- Increasing sediment yield.
- Increasing pollutant loading.
- Increased stream temperatures and higher nutrient loading.
- Displacing native riparian plant communities by invasive non-natives.
- Reduction of native wildlife species.

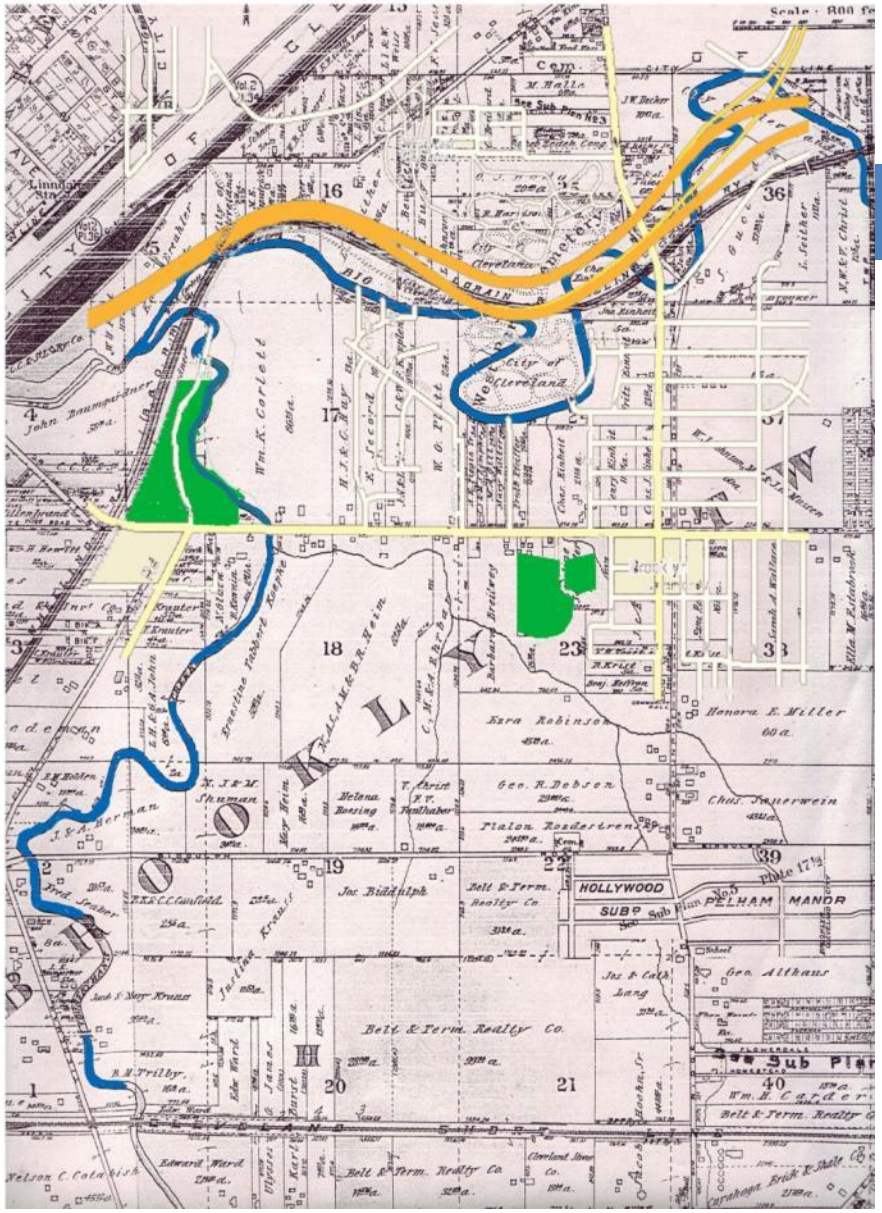
IMPERVIOUS COVER





CONDITIONS:

Channelization



Brooklyn Township
-Hopkins 1914

CONDITIONS: Channelization

Big Creek along I-71

CONDITIONS: Results ⇨ downstream

Big Creek Reservation

CHALLENGE

GOAL:

Arrest degradation and enhance ecological functions, increase local property values and quality of life

ACTIONS:

- Land acquisition and conservation easements for buffers that will provide long-term protection to high-quality habitats and water resources.
- Construction of retrofits for stormwater management to reduce hydrologic and geomorphic impacts, improve water quality, and protect fish and wildlife habitat.
- Restoration activities with regard to geomorphology, vegetation, and fish and wildlife habitat.
- Zoning regulations and management practices aimed at reducing identifiable impacts from urbanization activities.
- Education