



# Central South Branch Kishwaukee Watershed-Based Plan Background Part 1

Cecily Cunz, AICP – Senior Environmental Planner

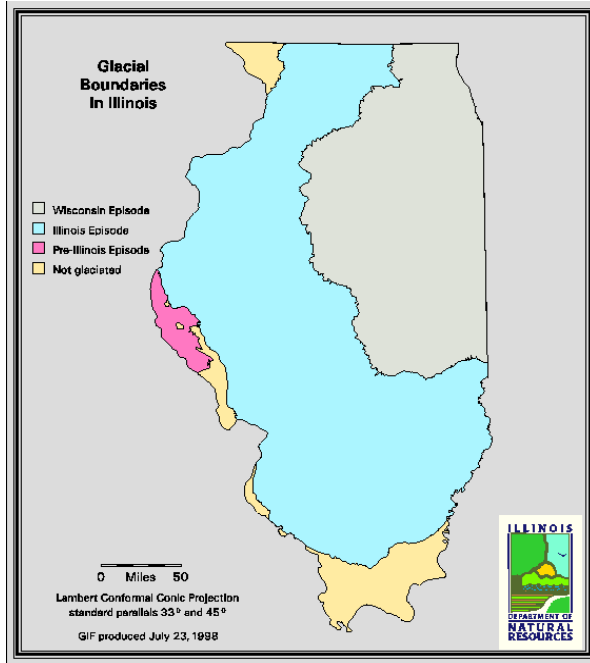


# Watershed Characteristics Assessment

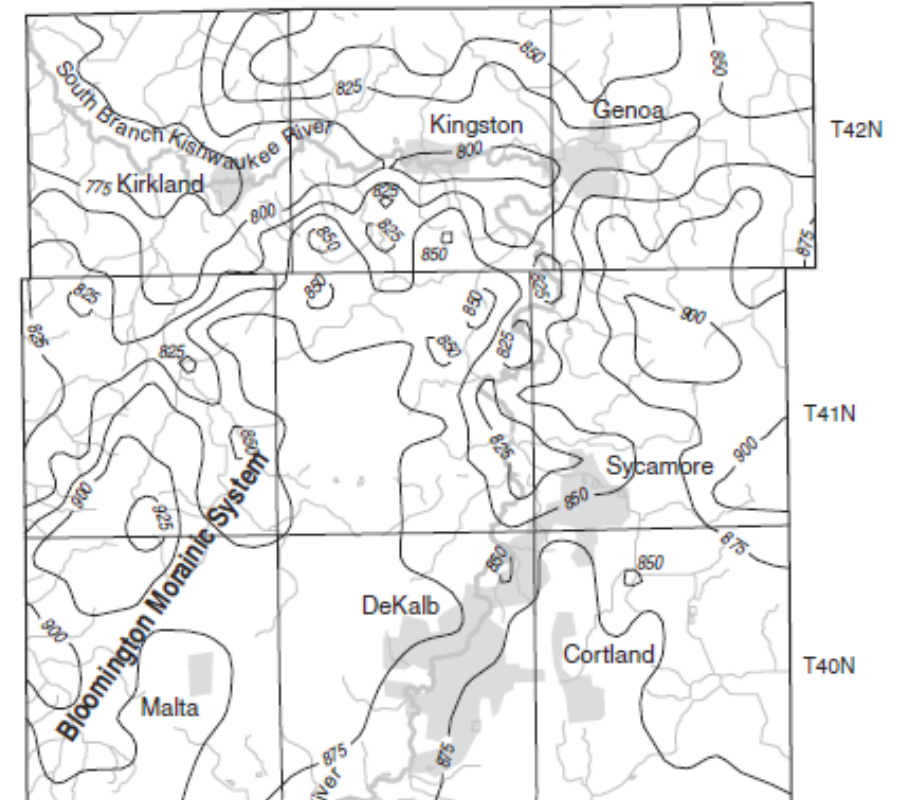
- **Geology**
- **Pre-Settlement Landscape**
- **Topography**
- **Subwatersheds**
- **Wetlands & Soils**
- **Jurisdictions & Demographics**
- **Code & Ordinance Review**



# Geology



- The geology dates back 9,500 years to end of Late Wisconsin Glaciation
- Nearby Bloomington Morainic System created during retreat of Wisconsin glacier
- Later erosion carved out the South Branch Kishwaukee River valley





# Early History

- Last Native American Indian tribe to call area home was Potawatomie, until treaty in 1833
- Kishwaukee River originally known as the Sycamore River
- “Kishwaukee” from Indian word for “sycamore tree”
- Kingston, Genoa, and Kirkland were settled in 1835, 1836, and 1837, respectively, and include some of the oldest settlements in the County.



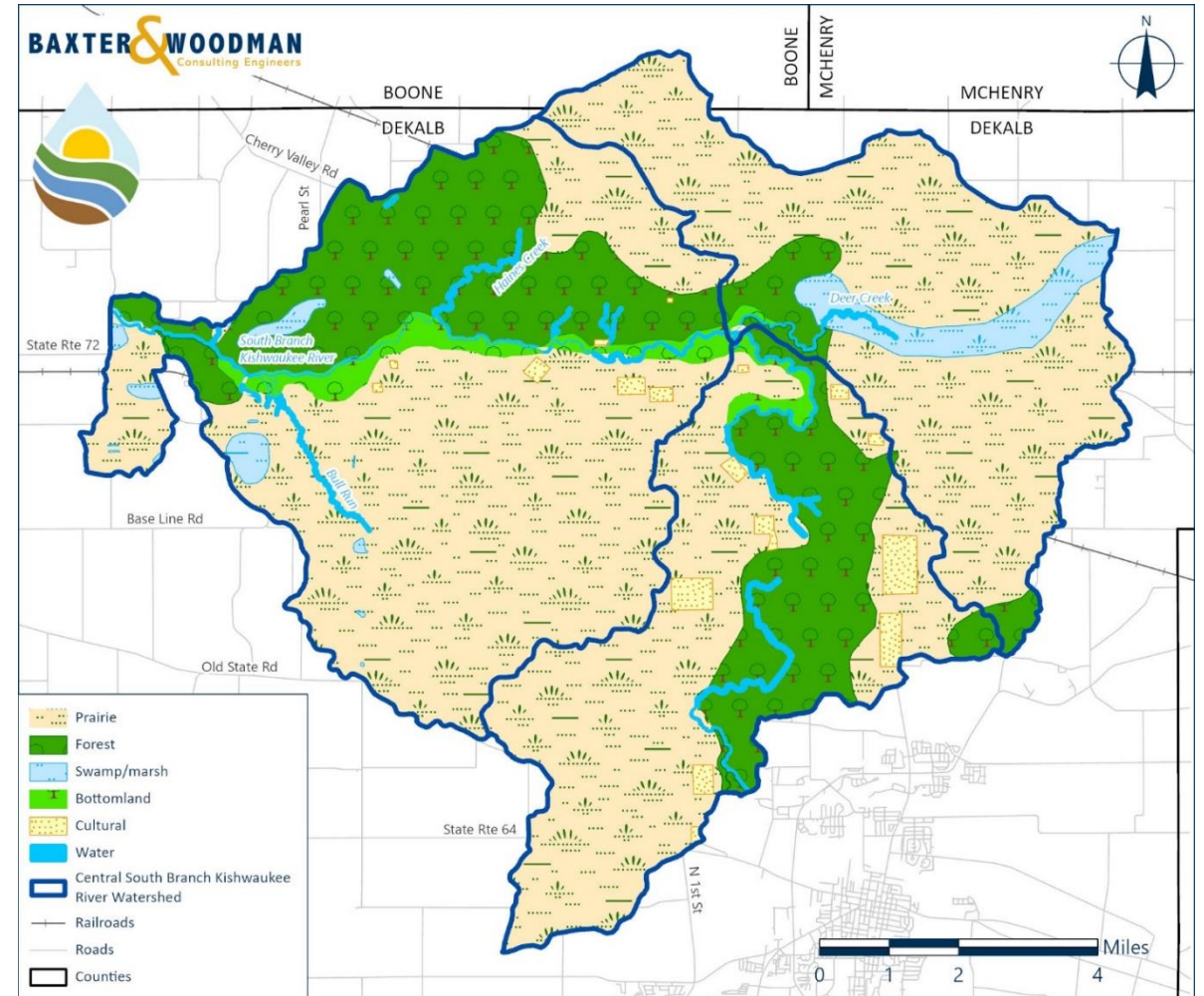
# Early History

- Kingston became a hub for the Chicago, Milwaukee and St. Paul railroad, while Genoa was situated along the Galena-Chicago stagecoach route.
- In 1875, W.T. Kirk, original settler and namesake of Kirkland, agreed to give railroad a portion of his land if every passenger train would stop at Kirkland.
- This led to altering the course of the Kishwaukee River and the building of the railroad through town (Worden, 1982).



# 1800s Public Land Survey System Land Cover

- 69% Prairie
- 25% Forest and Bottomlands
- 3% Swamp/marsh
- 2% Cultural (settled fields and barns)
- Note the streams identified on the map by the surveyors





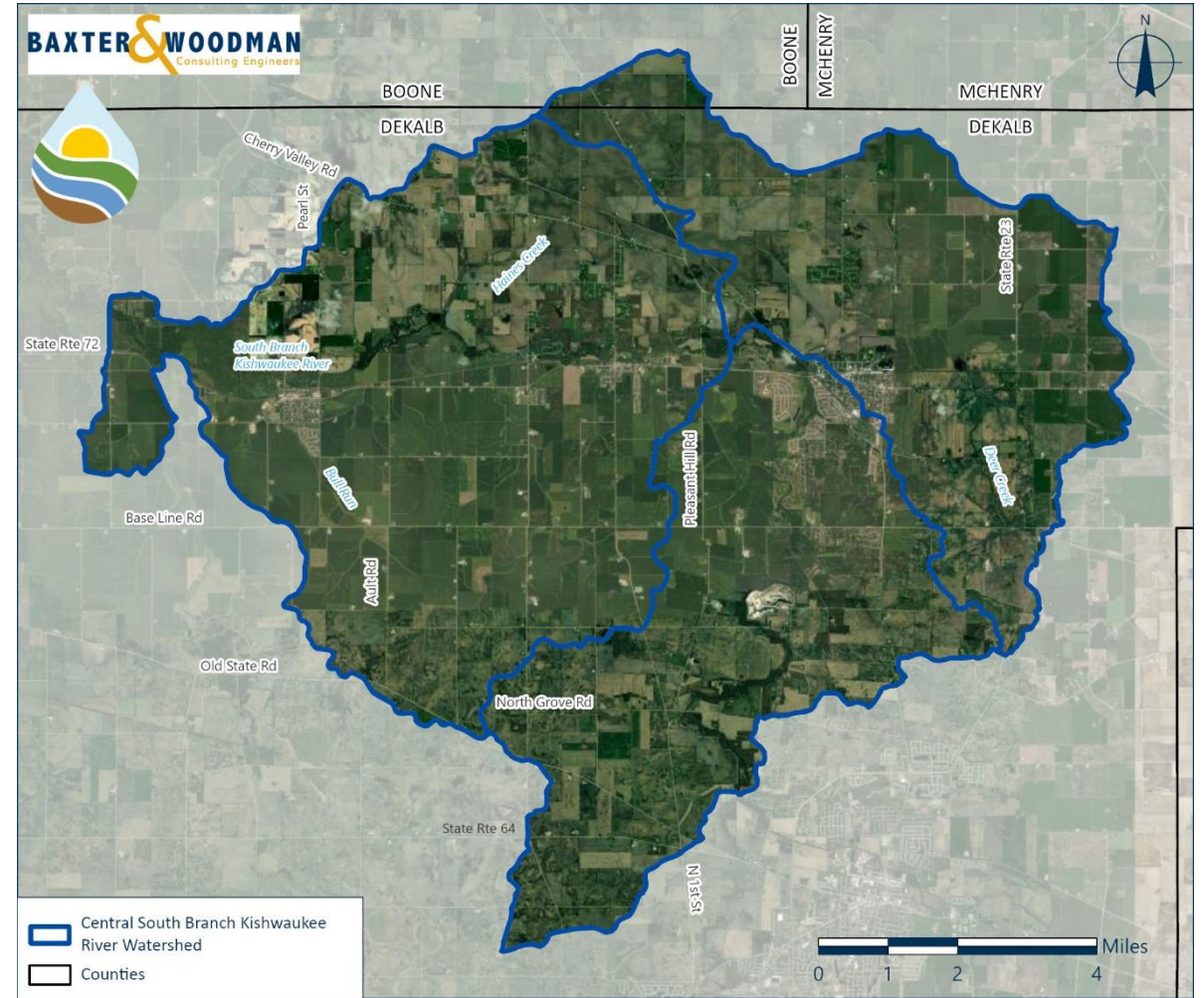
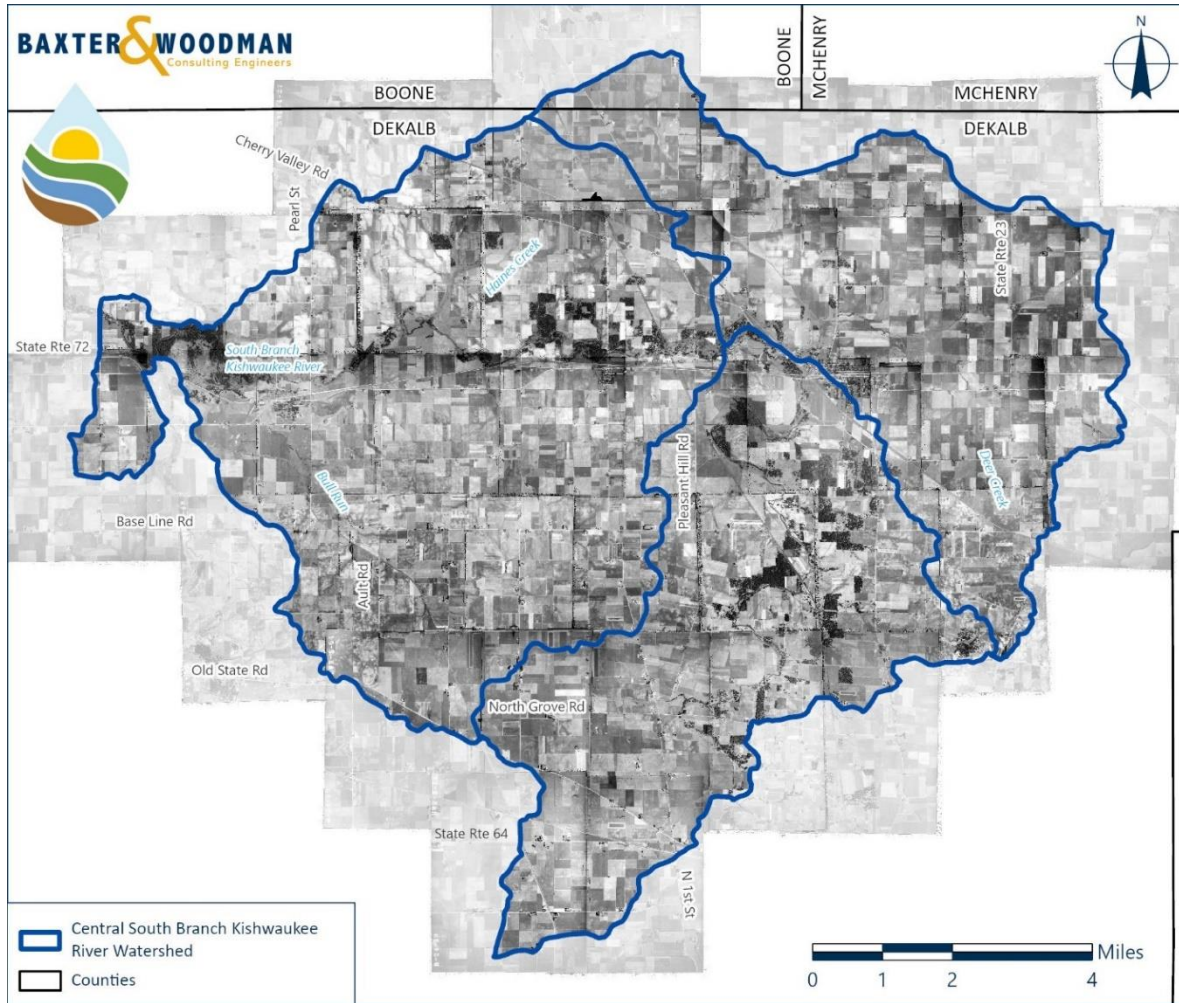
# Forest and Bottomlands

- **Continuous forest along the banks of the Kishwaukee River**
- **Typically comprised of silver maple, elm, and ash within the floodplains and white, red, and burr oaks, with poplar, maple, butternut, black-walnut and hickory further upland**
- **Floodplain was continually reshaped by meandering of South Branch Kishwaukee River and the deposition of soils and debris after floods**





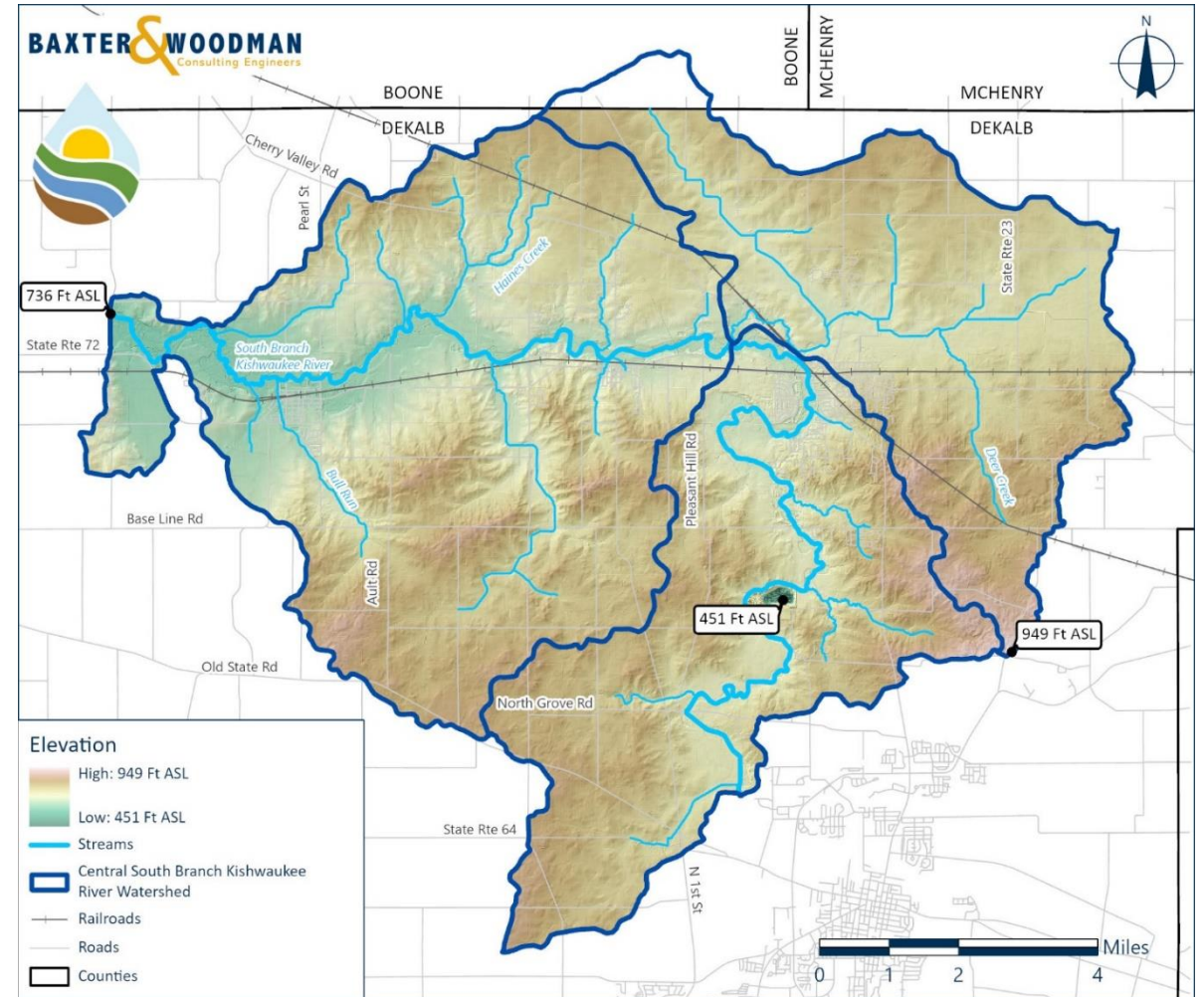
# Historic 1939 (left) and Current 2023 (right) Aerial Imagery





# Digital Elevation Model

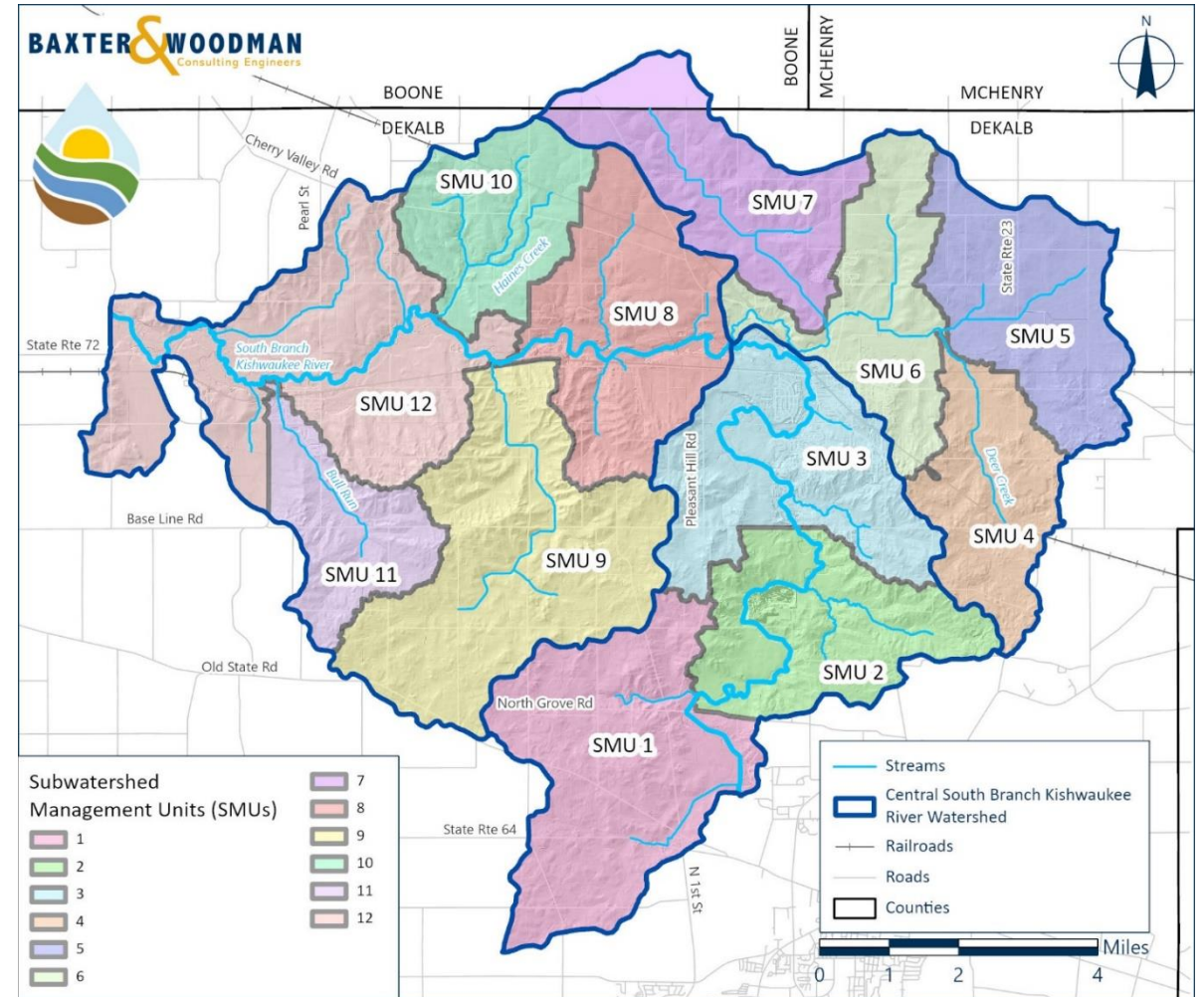
- Water flows north from near Sycamore to Genoa, then west past through Kingston and Kirkland to Irene Rd
- 66,040.4 acres or 103.2 sq mi
- Elevation ranges between 949 and 736 ft ASL
- Total relief of 213 feet
- Bottom of Vulcan Materials quarry is 451 ft ASL





# Subwatershed Management Units (SMUs)

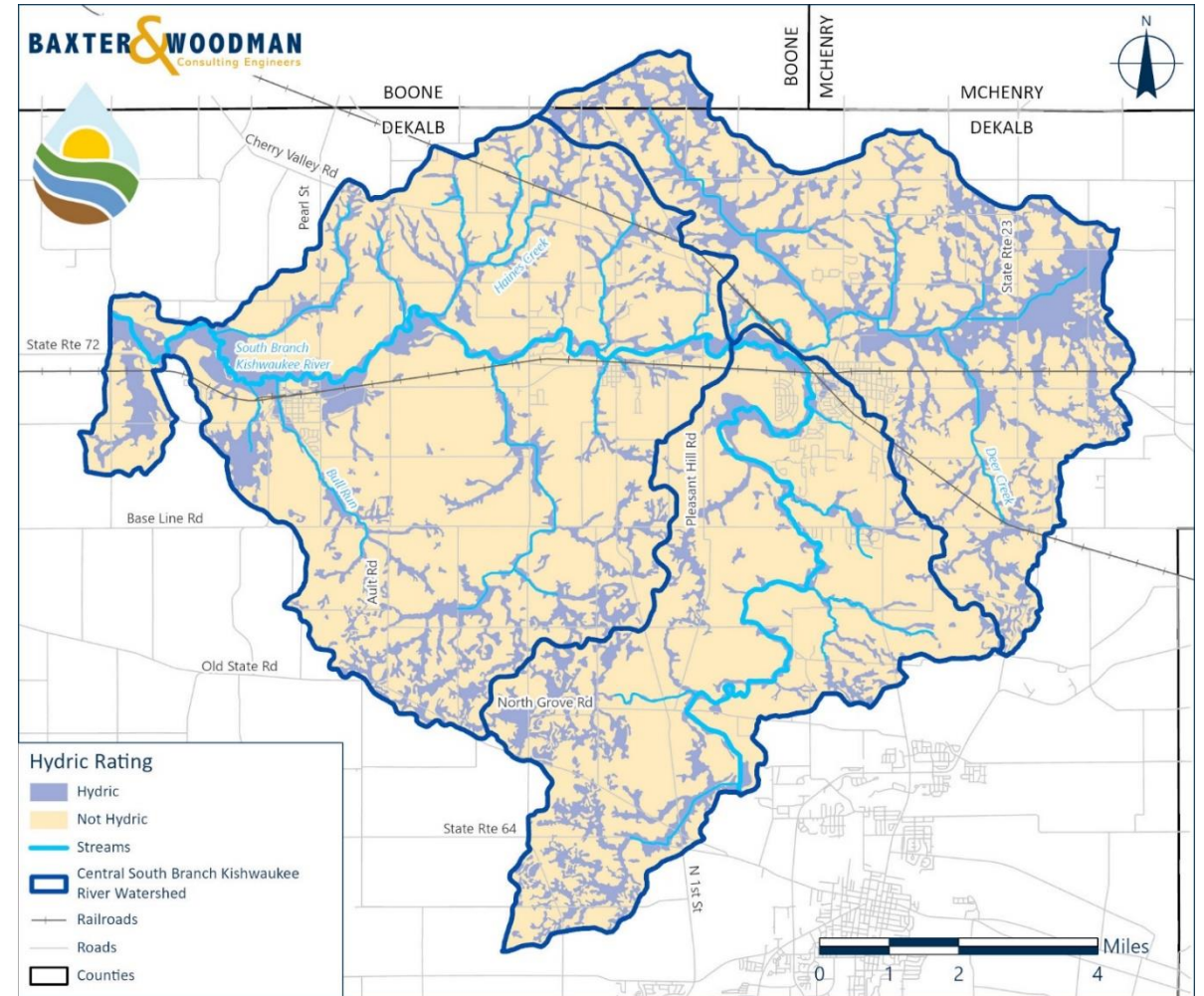
- Total of 12 SMUs
- Range in size from 4.8 to 14.0 sq mi
- Allows for more detailed analysis of smaller areas
- Used to help identify Critical Areas





# Hydric Soils

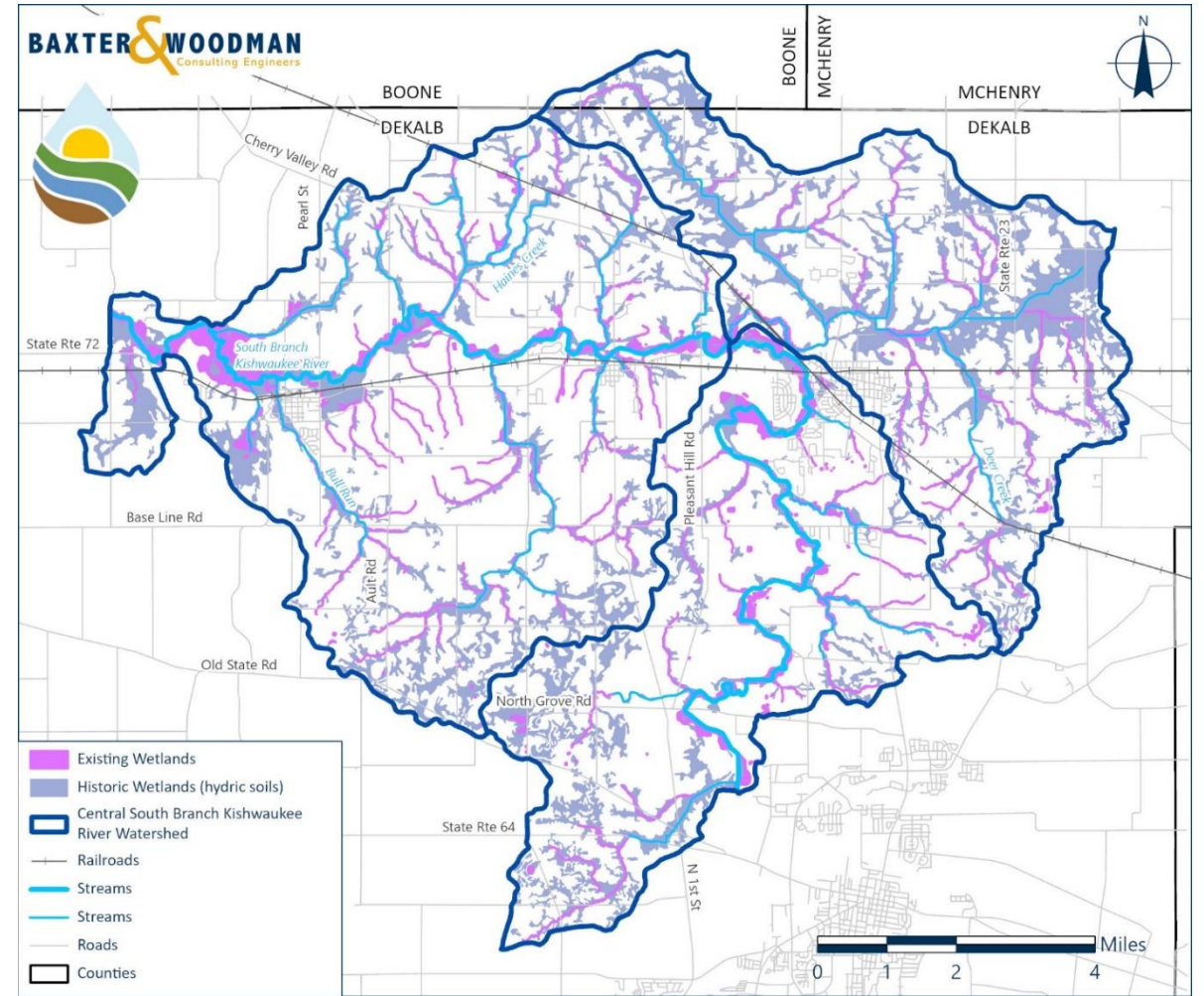
- 16,481 ac of hydric soils (25% of the watershed)
- Hydric soils are soils formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions
- Indicative of historic wetlands





# Existing and Historic Wetlands

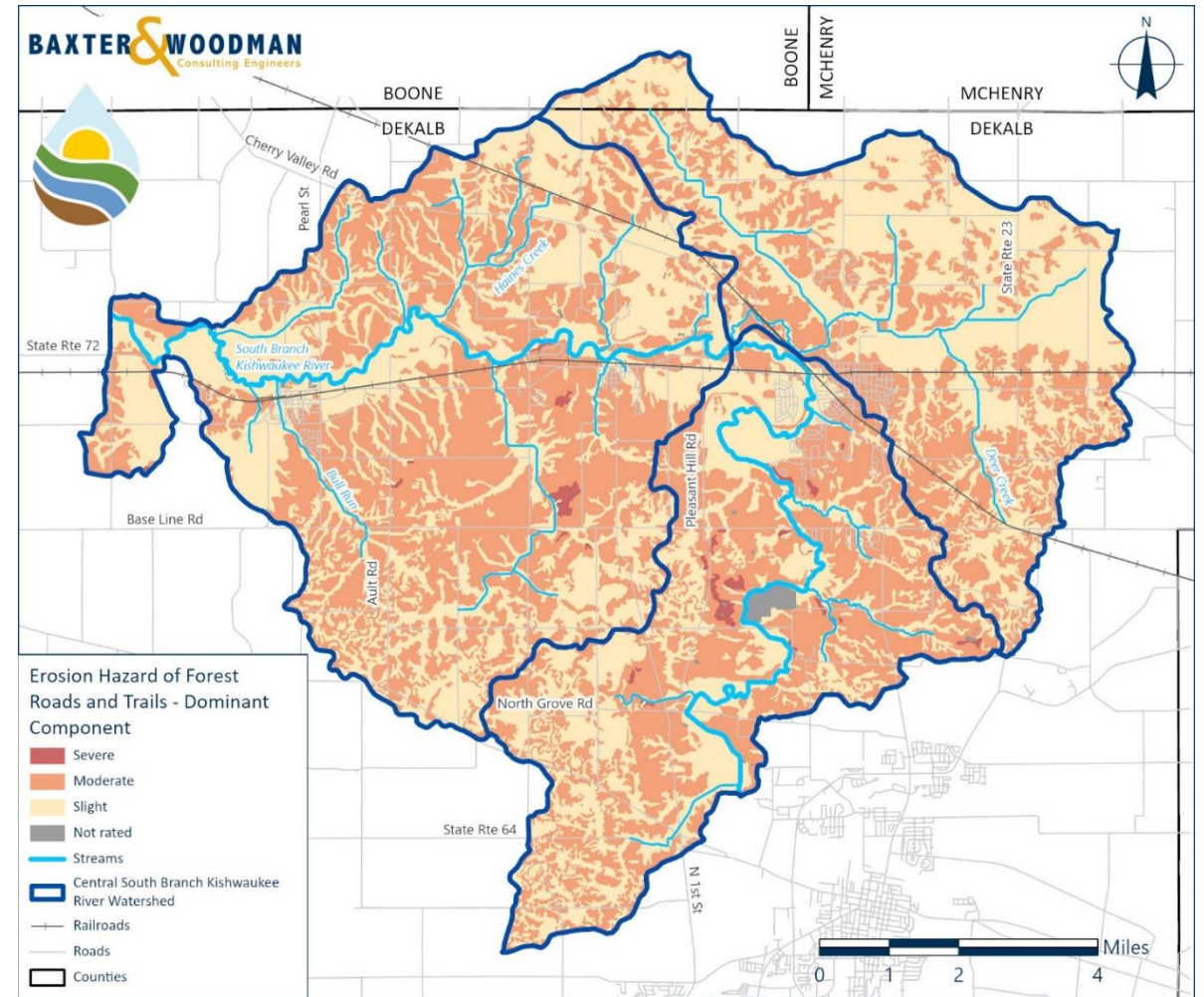
- 16,481 ac historic wetlands (25%)
- 2,117 ac of existing wetlands (3%)
- Historic wetland loss of 87% since pre-settlement
- Potential Wetland Restorations





# Potential Erosion Hazard of Soils

- Areas with highest potential to degrade water quality during farm tillage and development
- 367 acres (less than 1%) severe
- 31,940 acres (48%) moderate
- Remaining are slight or none

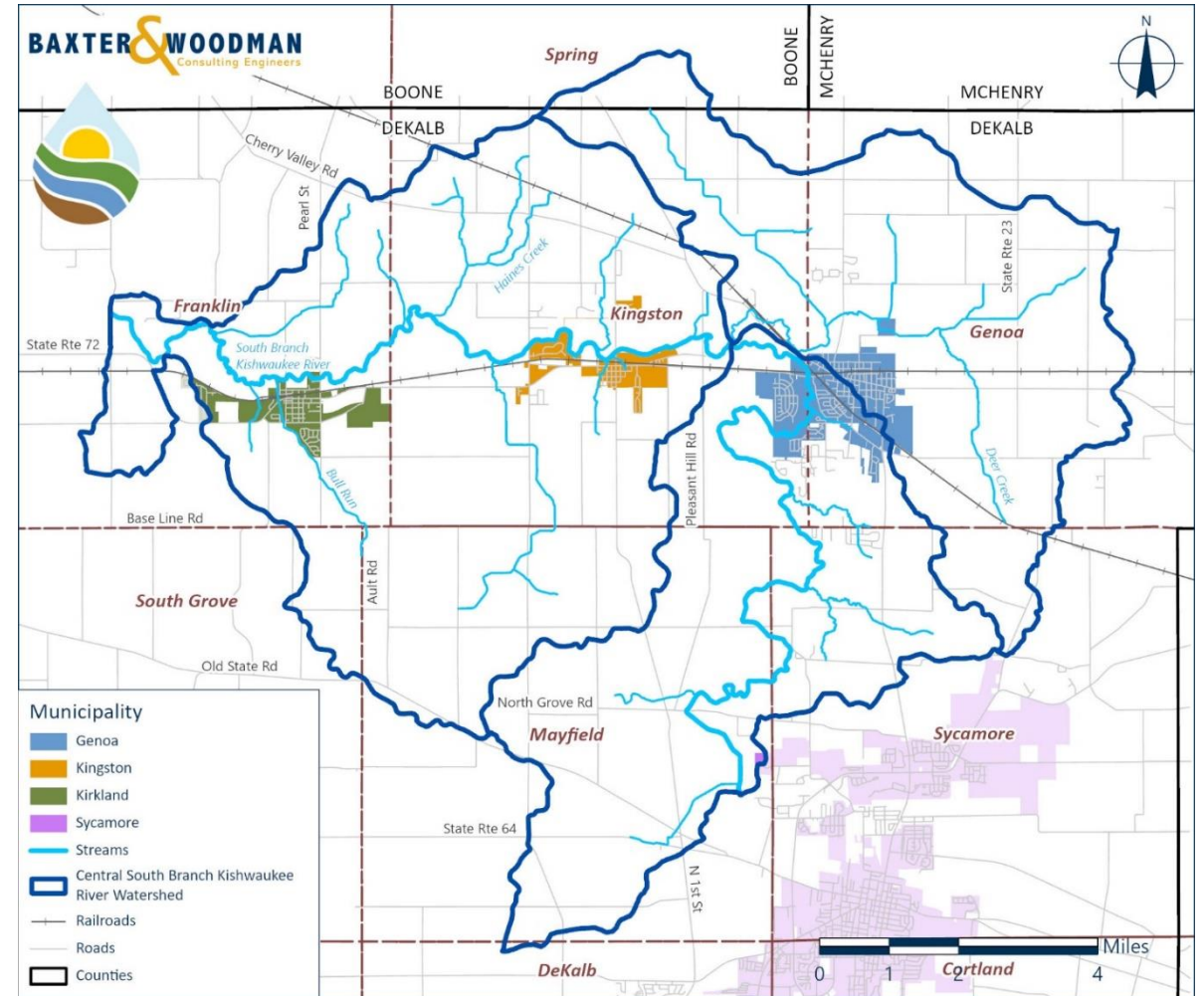




# Jurisdictions

Jurisdiction	Area (acres)	Percent of Watershed
<b>County</b>	<b>66,040.4</b>	<b>100</b>
DeKalb	65,295.5	98.9
Boone	744.9	1.1
<b>Unincorporated Township Areas</b>	<b>62,900.0</b>	<b>95.2</b>
Unincorporated Kingston	20,649.8	31.3
Unincorporated Mayfield	15,426.2	23.4
Unincorporated Genoa	12,447.0	18.8
Unincorporated Franklin	7,255.9	11.0
Unincorporated Sycamore	5,283.1	8.0
Unincorporated South Grove	1,063.8	1.6
Unincorporated Spring	744.9	1.1
Unincorporated DeKalb	29.3	0.0
<b>Municipalities</b>	<b>3,137.9</b>	<b>4.8</b>
Genoa	1,688.8	2.6
Kirkland	778.2	1.2
Kingston	655.2	1.0
Sycamore	15.7	0.0

■ Drainage districts cover <1%



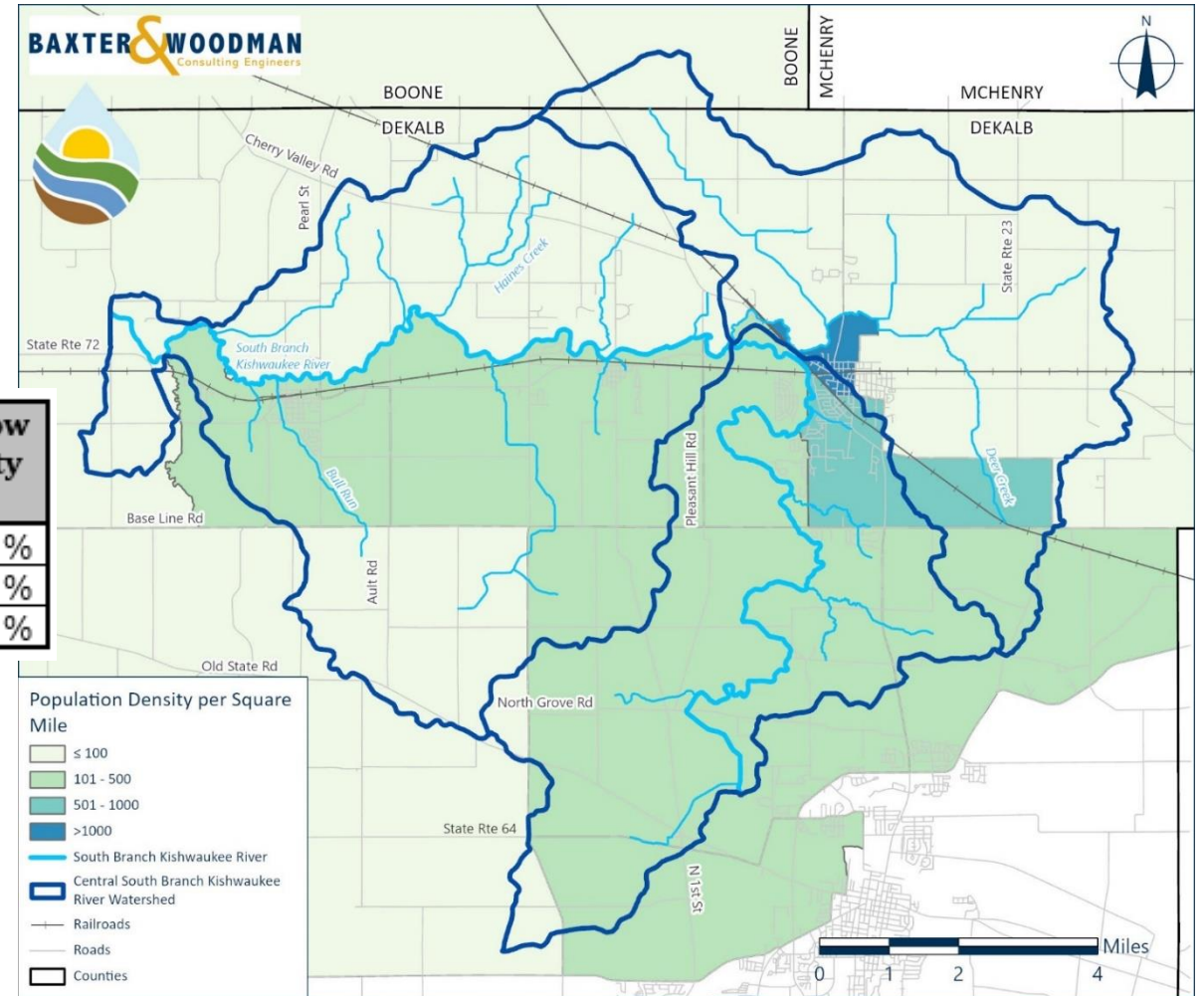


# Demographics

- Watershed population was ~ 20,343 in 2020
- 2030 population estimated at ~ 22,782 (12% increase)

Municipality/ Location	Median Age	Ethnicity (% White)	Median Household Income	Median Property Value	% Below Poverty Line
Genoa	39.5	84.4 %	\$72,795	\$158,100	8.8 %
Kirkland	34.5	91.7 %	\$63,708	\$149,400	12.8 %
Kingston	37.3	81.9 %	\$84,375	\$164,600	5.8 %

- No Environmental Justice areas





## Ordinance Review

Plan includes details on federal and state environmental protections:

- Clean Water Act (federal)
- NPDES permitting (state)

Must assess county and municipal ordinances:

- Stormwater regulation (county)
- Compare ordinances against a standard
- Strengths and weaknesses



# Municipal Ordinances

Can be most protective and include...

- Environmental regulations
- Zoning ordinance
- Subdivision codes
- Stormwater management or drainage criteria
- Buffer or floodplain regulations
- Tree protection or landscaping ordinances





# Municipal Ordinances

**Can run counter to ecological restoration, such as weed control ordinances vs. prairie plantings.**

**September 2021, article:**

**Kansas City Man's Plea For Native Flower Justice Unites Gardeners Around The World**

**– NPR Kansas City**

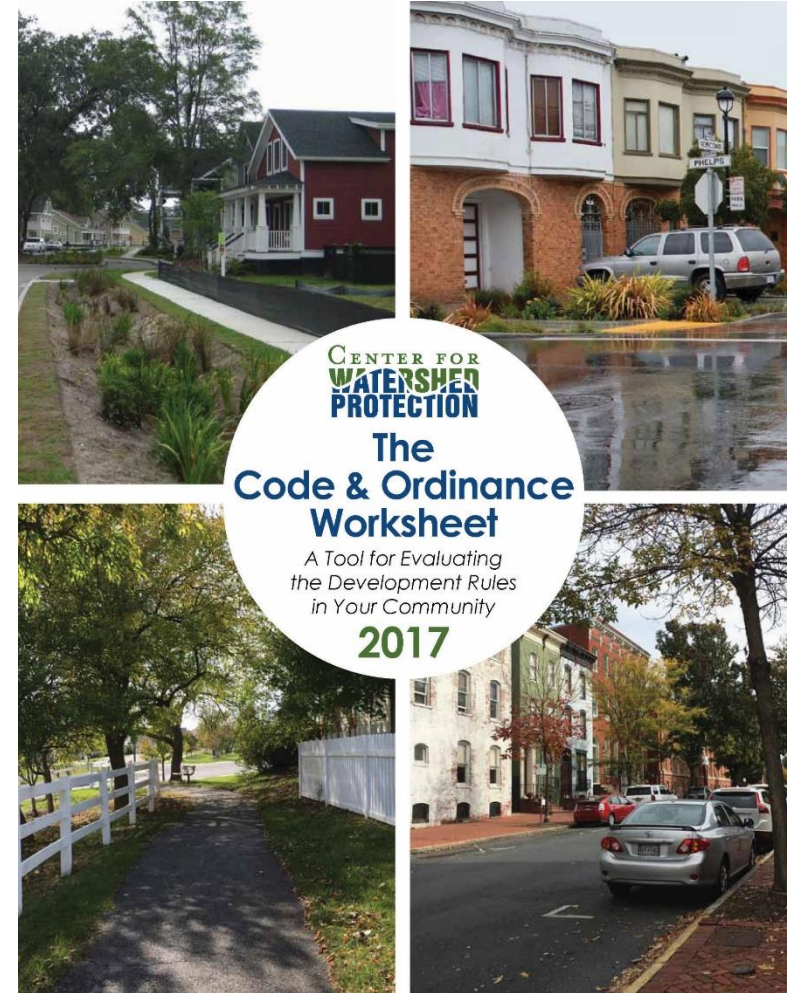




# Center for Watershed Protection

## The Code & Ordinance Worksheet: A Tool for Evaluating Development Rules in Your Community

- ❑ **Step 1:** Find out what the development rules are in your community
- ❑ **Step 2:** See how your rules stack up to the model development principles
- ❑ **Step 3:** Consider changing some local development rules





# Center for Watershed Protection



## Four categories:

- Residential Streets & Parking Lots
- Lot Development
- Conservation of Natural Areas
- Runoff Reduction

**Rural Form is best fit**



# Example: Lot Development

- Open Space Design
- Setbacks and Frontages
- Sidewalks
- Driveways
- Open Space Management
- Rooftop Runoff

Open Space Design			
31	Do the ordinances require or allow open space subdivisions?		
	<i>Yes, they are required in a designated open space zoning district (2 pts.)</i>		
	<i>Yes, open space designs are an allowable option (through an overlay zone) (1 pt.)</i>		
32	Is land conservation or impervious cover reduction a major stated goal or objective of the open space design ordinance?		
33	Is a minimum percentage of the buildable portion of the site required to be set aside as open space?		
	<i>Yes, at least 50% (2 pts.)</i>		
	<i>Yes, less than 50% (1 pt.)</i>		





# Scoring



- **Your overall score provides a general indication of your community’s ability to support environmentally sensitive development.**
- **If your overall score is lower than 80%, then it may be advisable to systematically reform your local development rules.**
- **Results can be used to measure improvement over time.**



# Ordinance Review

**Letter to administrators explaining worksheet and how to complete it forthcoming...**

- **Genoa**
- **Kirkland**
- **Kingston**
- **DeKalb County (completed)**





# Watershed Planning Schedule

## Upcoming Meetings:

- **January '24 – Watershed Characteristics Assessment, Part 2**
- **March '24 – Water Quality, Initial Modeling Results**
- **April '24 – Watershed Goals Workshop**
- **June '24 – Bus Tour**
- **August '24 – Critical Areas and Action Plan**
- **October '24 – Implementation and Outreach Plan**



Questions?

