



Chapter 3: Natural & Cultural Features



3.0 Natural and Cultural Resources

The natural environment has and continues to play an important role in how Washtenaw County has developed. The features, landscapes, flora and fauna all have been profoundly affected by the ways in which humans have altered the land, and the way that development has evolved within the County. These natural features also play an important role in recreation for County residents and visitors. A working knowledge of the natural systems is an important foundation in order to better understand the issues and opportunities present in the County.

3.1 Physiography

Physically, Washtenaw County has two primary regions with distinctly different physical characteristics. The southeastern portion of the County is a former part of glacial Lake Maumee, and has the physical characteristics associated with the glacial lake plain. The landscape of the remainder of the County was shaped by the movements of the Wisconsin glacier and is characterized by rolling topography and a significant number of lakes, particularly in the northwestern portion of the County.¹

Climate

The climate of Washtenaw County is in the continental climatic zone of eastern North America, characterized by warm summers and cold winters. Temperatures in southeast Michigan and in Washtenaw County are somewhat moderated by the proximity to the Great Lakes. Local summers are shorter and cooler than those of the “corn belt” to the south and west, but winters are neither as cold nor as long as they are a short distance to the north. During the summer, temperatures are typically moderate with an average of 13 days exceeding 90 degrees (Fahrenheit). The County seldom experiences prolonged periods of either hot, humid weather in summer or extreme cold during the winter.

1 Dorr, John A. And Donal F. Eshman, *Geology of Michigan*, University of Michigan Press, Ann Arbor. 1970.

The County receives an average of 30 inches of rain per year. The average annual snowfall is 29.5 inches. Snowfall can vary tremendously, but, on average, the County averages 55 days per winter season with at least an inch of snow on the ground.²

Topography And Soils

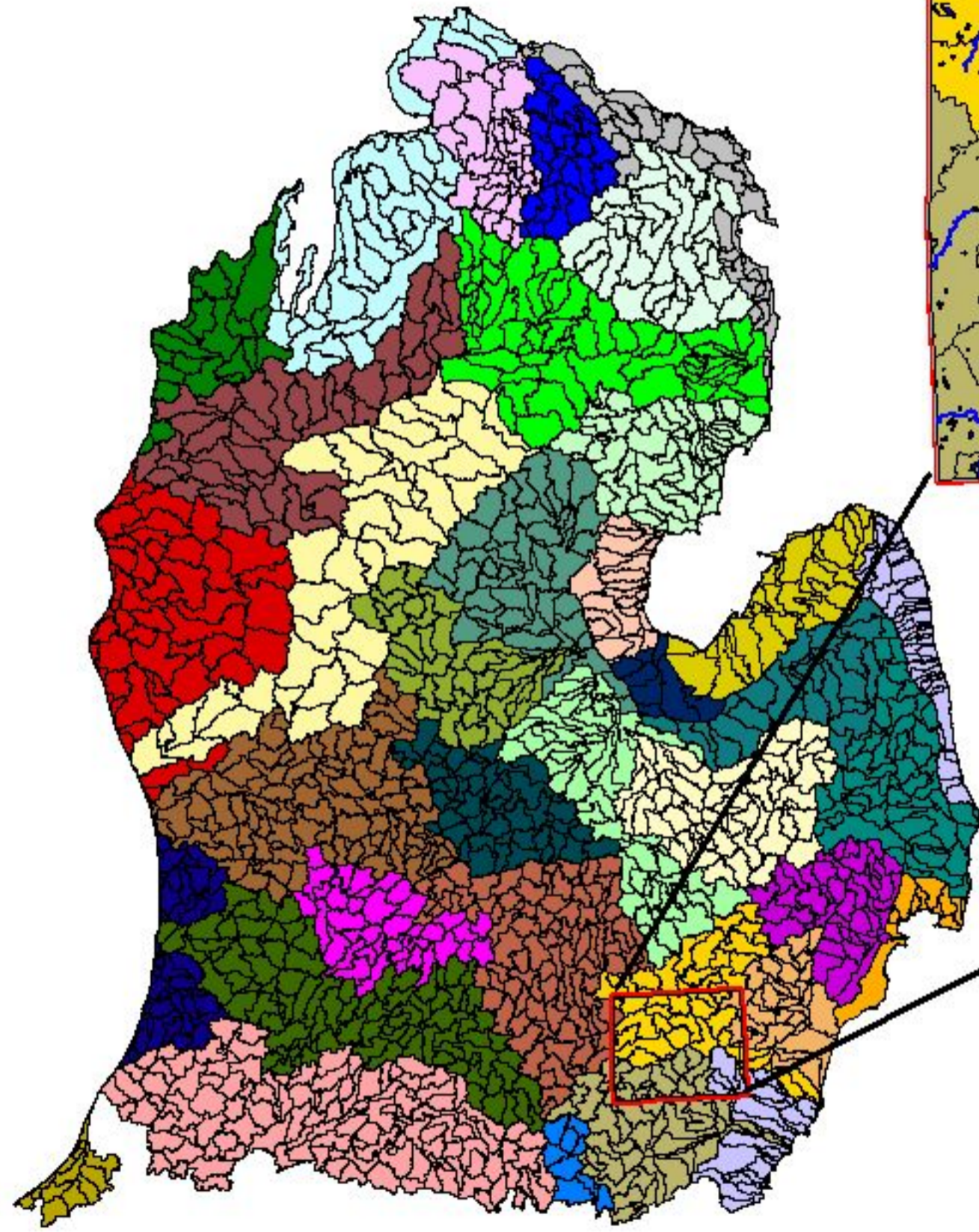
Elevations in the County range from a low point of 650 feet above sea level to a high point of over 1,100 feet. The topography of the County can best be generalized by describing the landscape as being sloped from the northwest to the southeast. However the gradient is not consistent. There are significant changes in elevation - rolling hills - in the west portion of the County and along the Huron River and some of its tributaries.

As a result of the vigorous glacial action, soils in Washtenaw County are quite diverse, but generally fine-grained with low permeability. The more hilly north and northwest has predominantly sandy soils and open water; clay and sand typify the gently rolling topography found in the northeast and central parts of the County; heavy clay soils dominate the southern part of the County; the flat area in the southeast corner is sand atop clay - a result of glacial Lake Maumee.

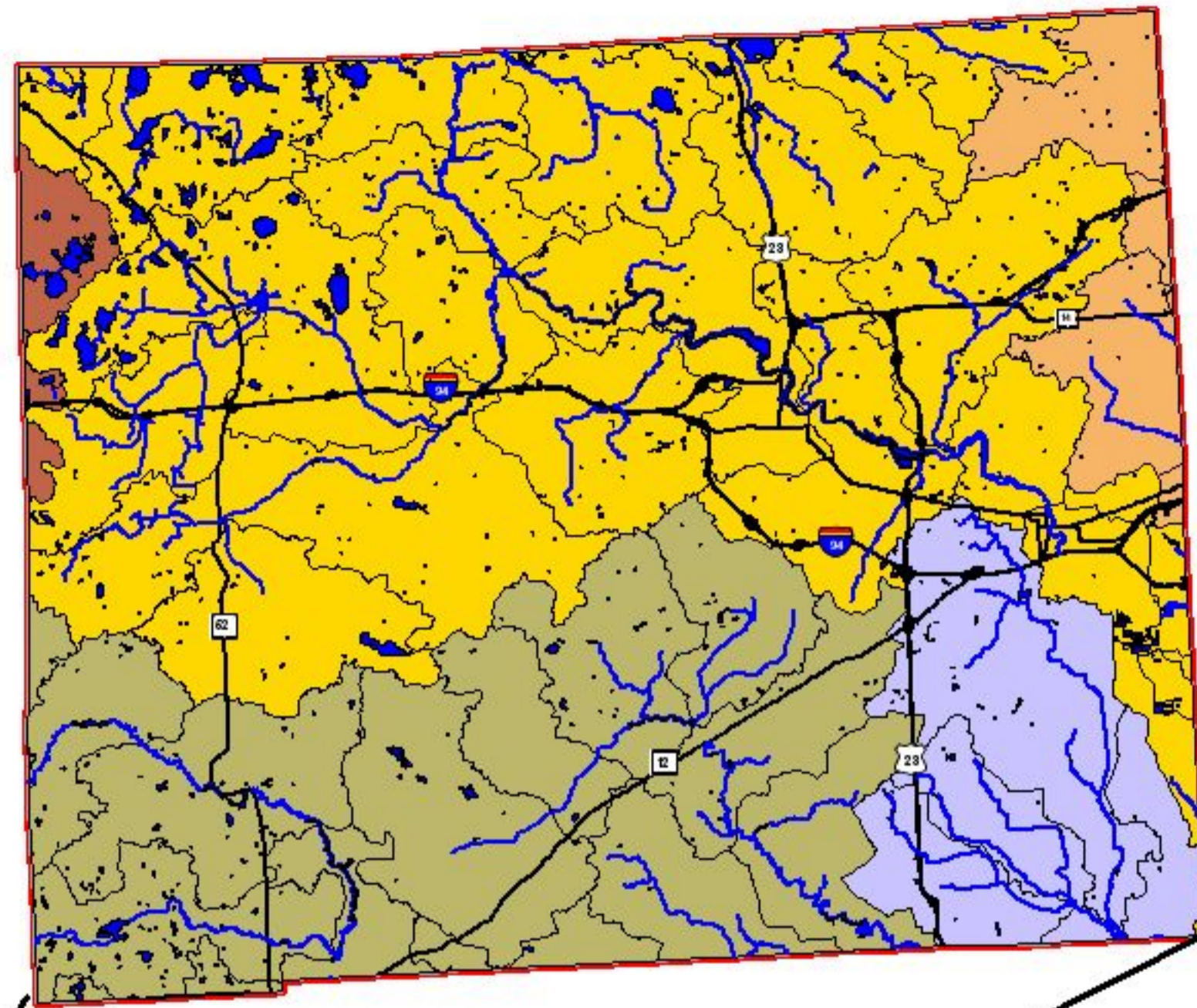
Drainage of these soils varies greatly. Generally, the central south and the southeast have some drainage problems. The rolling central-south produces a great deal of storm runoff, while the flat southeast often has standing water after storms. Loams and heavier soils have been productive farmland, but most of the lighter soils are wooded, scrubland or field. Tests for septic tanks have indicated that problems with percolation tend to be localized and scattered throughout the County.

2 Barnes, Burton V. And Warren H. Wagner, jr, *Michigan Trees: A Guide to the Trees of Michigan and the Great Lakes Region*, University of Michigan Press, Ann Arbor. 1981._

**MAP 4
WATERSHEDS
WASHTENAW COUNTY, MI**



Lower Peninsula Watersheds



Washtenaw County Watersheds

Washtenaw County Watersheds

- Grand
- Huron
- Raisin
- Rouge
- Stony Creek
- Subwatershed Boundary

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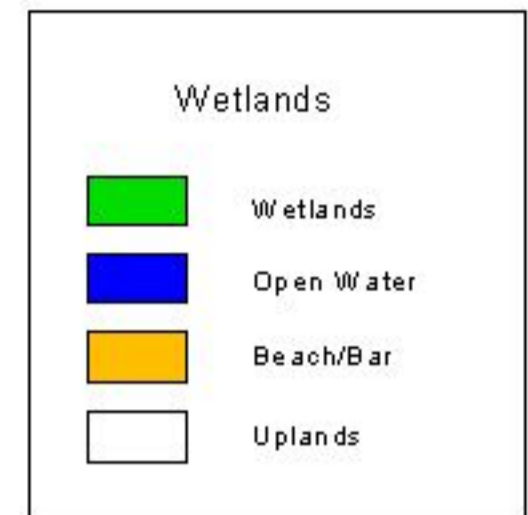
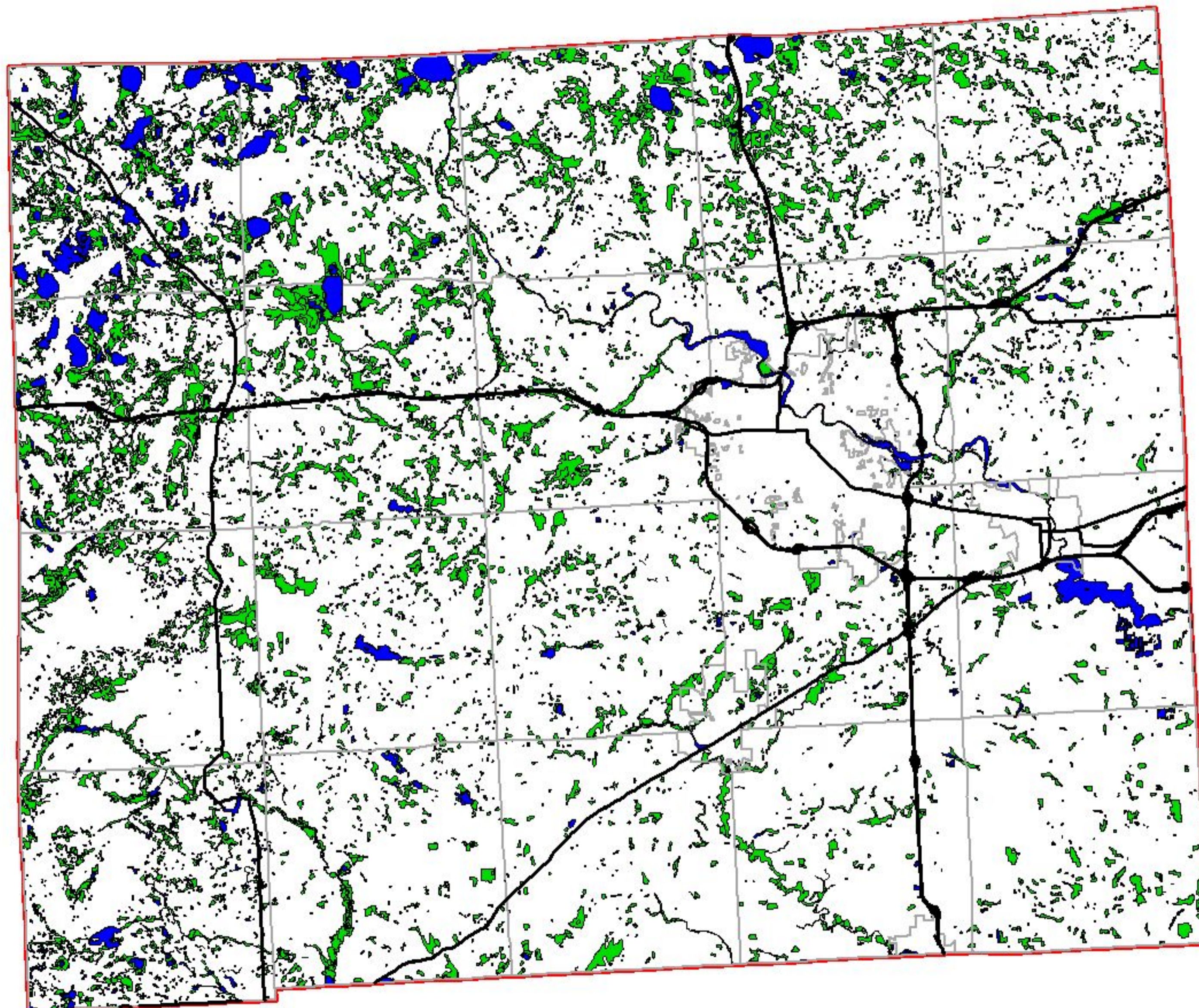


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**MAP 5
WETLANDS
WASHTENAW COUNTY, MI**



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3.2 Water Resources

Surface Water

Surface water is an abundant resource in Washtenaw County. The landscape is dominated by 175 glacial lakes. 29 of these lakes are at least 100 acres in size, however the overwhelming majority of the County's lakes and ponds are less than 20 acres in size. These lakes are typically shallow, warm water bodies. Flora and fauna have been altered in proximity to these lakes and most lakes have organic shore and bottom conditions, the result of a natural deterioration process. Humans have increased the rate of this aging process via the use of the lakes and development of adjacent lands. A number of human impacts ranging from residential development adjacent to the lakes, leaking septic tanks and stormwater runoff carrying a variety of pollutants have greatly accelerated the deterioration of water quality and have impacted the hydrologic cycle. Most Washtenaw County lakes are completely encircled by residential development and most are used for a variety of water activities.

Five major watershed basins are present in Washtenaw County - the Grand, Huron, Raisin, and Rouge Rivers and the Stony Creek (see **Map 4**, page 53). The Huron River Watershed (23,817 acres) and Raisin River Watershed (12,300 acres) combine to account for 84% of Washtenaw County.

When assessing water quality using typical chemical and biological standards, Washtenaw County water quality is generally considered good. While the overall water quality tends to be good, storm events and untreated wastewater discharge have an impact on water quality, particularly in the Huron River. Elevated levels of E. Coli bacteria and low levels of dissolved oxygen - signs of pollution - threaten the overall water quality throughout the County.

Ground Water

There are several large aquifers in Washtenaw County. These aquifers provide drinking water for much of the western portion of the County. Ground water stored in aquifers also seeps to streams and rivers, helping to maintain a somewhat consistent stream level and flow. While the overall groundwater quality is good, there are localized instances of severe pollution.

For example, a dioxane plume on the west side of Ann Arbor has contaminated groundwater resources and forced the City of Ann Arbor to close a municipal well. This plume is constantly moving and threatens the Huron River and additional groundwater if efforts are not made to contain and reduce it.

Wetlands

Most of the wetlands in Washtenaw County are located in the northwestern portion of the County (see **Map 5**, page 55) with the remainder along major and minor drainage systems. Wetland vegetation such as marshes, bogs, fens and swamps often occur adjacent to lakes and along the network of rivers and streams in the County. Wetlands serve many important functions. Like lakes, they act as water holding areas during flooding, and help maintain stream flows by receiving ground water inflow, and in some cases they recharge ground water supplies. Wetlands and marshes are a vital link in the ecological system providing nesting and feeding areas for many species of wildlife as well as supporting certain types of vegetation requiring a moist environment.

3.3 Vegetation

The pattern of vegetation in the County is influenced primarily by the soils and human habitation. Only a few small, scattered areas with native pre-settlement vegetation remain intact. After initial lumber harvesting and clearing, the land became predominantly agricultural. The remaining undeveloped land includes a limited range of vegetative characteristics. The following vegetative groupings are typical and representative of the area: forest, swamps and marshes, bogs, lakeshores, streamsides, meadows, abandoned fields and roadsides.

Woodlands

There are five major types of forests in the County: floodplain forests, mixed hardwoods, Oak-Hickory, Beech-Maple, and Pine-hardwoods. Many of the wooded areas in Washtenaw County lie along lakes and streams and on slopes. Others occur as woodlots surrounded by agricultural lands. Most larger woodlots lie in the north and west within the

extensive land holdings of the Department of Natural Resources.

Except where planting has occurred, these forests are mixed hardwood stands, with the Oak-Hickory forest type dominant along the well drained, hilly lands and the Sugar Maple-Beech dominating the moister, lower areas. Although rare, birch and tamarack swamps occur in the County. There are several kinds of marshes present, the most recognizable being cattail marshes. Dogwood-holly, Dogwood-willow and Sedge-rush wetlands are also abundant .

An unusual environment in Washtenaw County is the bog. Bogs generally contain one dominant species, either tamarack, cedar or spruce, with a supporting shrub layer of poison sumac, rosemary or leatherleaf. Fens are peatlands that are similar to bog ecosystems. The water chemistry of fens are basic as opposed to the acidic conditions in bogs. Fens are generally uncommon globally, but are relatively abundant in Washtenaw County. They are most abundant in the northwest part of the County in seepage areas, lakeshores and wet, sandy areas.³

3.4 Wildlife

Washtenaw County's wildlife inhabits the various environments of forests, farmlands, wetlands and surface waters. Thus it includes a variety of birds, mammals, reptiles, amphibians and fish. In terms of natural habitats and native wildlife, the areas that are of greatest size and quality are State-owned. Following are descriptions of the kinds of wildlife and representative species for various major habitat types.

- 1 Open land wildlife. Includes birds and mammals of croplands, pastures, meadows, lawns, and areas overgrown with grasses, herbs, shrubs, and vines. Examples are bobwhite quail, ring-necked pheasant, meadowlark, field sparrow, killdeer, cottontail rabbit, red fox, woodchuck, and ruffed grouse.

3 Mitsch, William J and James G. Gosselink, *Wetlands*, Van Nostrand Reinhold, New York. 1993. Second edition.

- 2 Woodland wildlife. Includes birds and mammals of wooded areas of either hardwood or coniferous trees and shrubs, or a mixture of both. Examples are ruffed grouse, wild turkey, raccoon, white-tailed deer, woodcock, thrushes, woodpeckers, tree squirrels, gray fox, warblers, nuthatches, and owls.
- 3 Wetland wildlife. Includes birds, mammals and fish species of swampy, marshy, or open-water area. Examples are ducks, geese, herons, bitterns, rails, kingfishers, cranes, muskrat, mink, water snakes, panfish, bass and pike.

3.5 Open Space

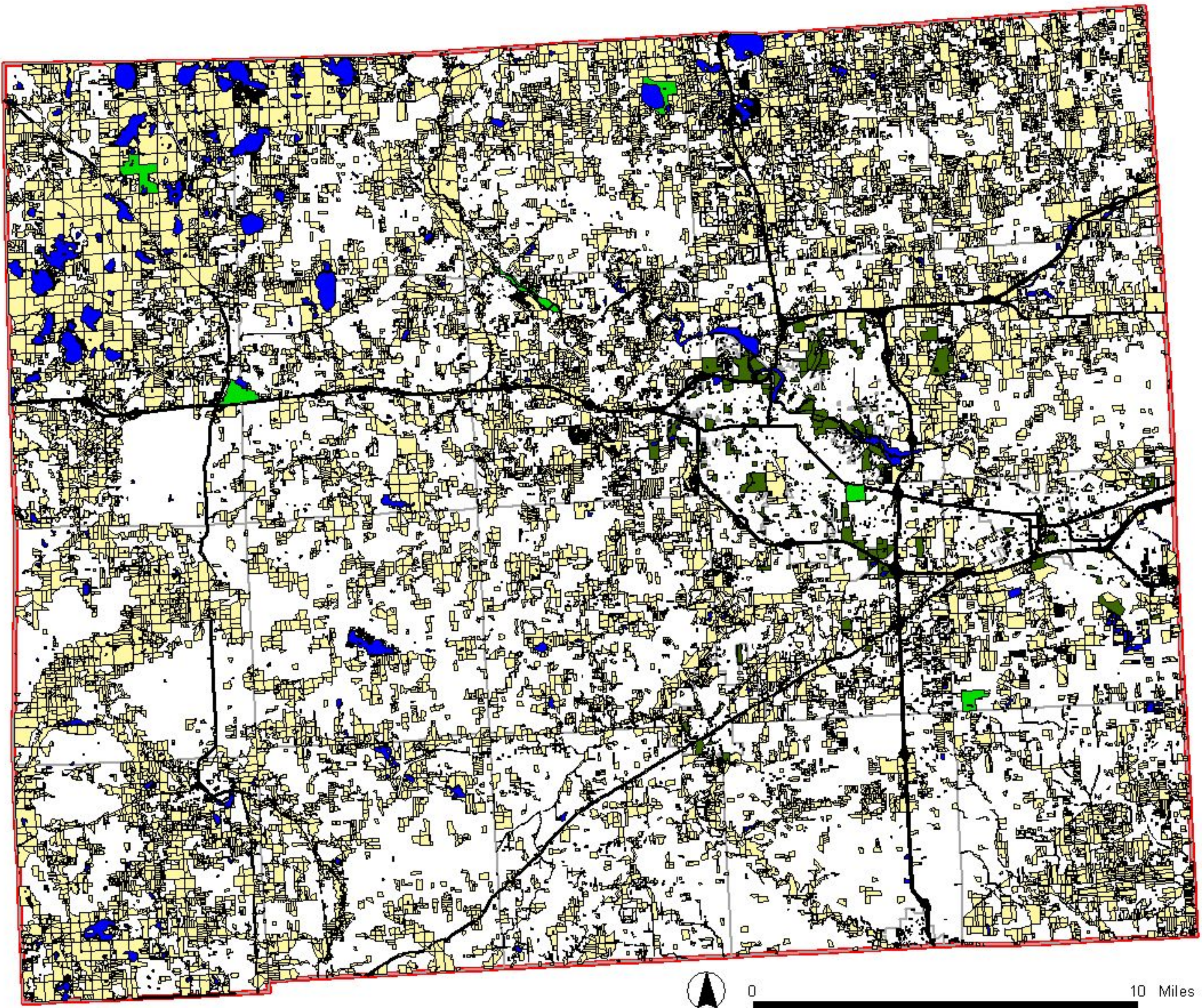
A significant portion of the County's land remains open in character, which includes forest, farmland, water bodies, and vacant land (see **Map 6**, page 63). Open space protects valuable natural resources and helps to preserve local scenic beauty while maintaining important potential recreation development opportunities for present and future generations. In areas of population growth and urban development, farmland and other open space creates visual and physical breaks within the urbanizing areas which define urban areas and delineate the separation of urban and rural spaces. Parks, recreation areas, land trust holdings and golf courses make up the County's traditional open space lands, those specifically dedicated to recreation and conservation uses.

Sensitive Lands

Sensitive or fragile County lands include large woodlots, wetlands and ground water recharge areas, 100-year flood plains and steep slopes. These lands are sensitive due to the importance of their interrelationships, limited supply and roles in natural cycles. Low intensity open space uses such as forestry, grazing, recreation, watershed protection and wildlife habitat, etc. are appropriate uses for such lands. Certain fragile land elements are partially protected by various state and local regulations, but only a small percentage of the lands are publicly owned recreational open space.

In spite of extensive agricultural activity and urban growth in Washtenaw County, remnants of past natural habitats still

**MAP 6
PARKS, RECREATION AND
OPEN SPACE LAND
WASHTENAW COUNTY, MI**



	Local Parks
	Regional Parks
	Open and Recreation lands

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survive. Natural areas with unique ecological conditions should not be utilized for recreational areas or other types of development, but managed as interpretive and educational laboratories of the past history and character of the region.

As mentioned previously, Washtenaw County harbors an unusual abundance of bogs and fens. These are sensitive natural features which exist because of soil and water acidity levels that are in excess of what non-native species can tolerate. However, these rare communities are extremely sensitive to any changes in soil and water conditions. Changes in the water chemistry and soil conditions lead to the acceleration of invasive species, which then overwhelm the native plant communities, thus permanently changing the character of the resource.

These bog and fen communities are rare largely because the plants native to these ecosystems are isolated from the larger communities of similar plants in the northern boreal forest, located primarily in Canada. The communities are fragile because of their dependence upon particular water and soil conditions. Many of the bog plant species are considered living fossils. Once the bog habitat is destroyed, these plant communities cannot reseed and regenerate naturally. Without protection they will cease to exist in the County.

Agricultural Lands

Agricultural and open lands make up a large portion of the County and are important for agricultural production, economic, scenic and ecological value. Washtenaw County is losing farmland at a rapid rate. Between 1987 and 1992 the total number of farms decreased by 13%, from 1,347 to 1,057 farms, with a total acreage of just 188,900 acres. By 2001, farm acreage dropped to 170,000 or less than half of the 400,000 acres that were farmed during the depression of the 1930s. Thus over the same historical period, County farmland disappeared at an average rate of 4,000 acres a year with most of the acreage being converted to residential development.⁴

4 Washtenaw Land Trust. www.washtenawlandtrust.org/farms

3.6 Cultural and Historic Resources

Cultural facilities and events in the County consist of museums, drama groups, astronomy and multi-media presentations, libraries, musical and other special events. The presence of Eastern Michigan University, the University of Michigan and other educational institutions in the region are major assets. Washtenaw County also has a large number of local school and civic organizations and senior citizen and youth centers where cultural and recreational events take place. Historical and art museums, theaters, science centers and zoological parks are also located in the nearby Detroit and Toledo metropolitan areas and are easily accessible to County residents.

Washtenaw County has one of the largest rural historic districts in the country eligible for listing on the National Register of Historic Places: the southern half of Lima Township.

Additionally, there are a large number of houses, buildings and districts that could qualify for preservation. Many of these sites have been placed on federal, state and/or local historical registers or are under consideration for inclusion. There are also a number of unique environments such as old cider mills, reconstructed commercial districts, model farms and antique villages that help define the cultural and historical value of Washtenaw County.

No known significant archaeological finds or areas exist in the County, although there are interesting historical remnants of early Native American habitation.