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*Chapter 4.0*  
**HINCKLEY**  
**RESERVATION**



Figure 3: Bridge and Trail

### History

As a result of the efforts of George Emmett, a Hinckley Township resident, and John F. Johnson, who donated more than 230 acres to the Metroparks, Hinckley Reservation became part of the Cleveland Metroparks in the early part of the 1920s. The Reservation is now one of the sixteen reservations in the Cleveland Metroparks system (see Figure 1: Hinckley Reservation Location Map).

As a part of the Metroparks System, Hinckley Reservation became part of Cleveland's "Emerald Necklace." It is an open space for natural beauty and diversity, a place for wildlife, plants and people to flourish in harmony. A place to protect, conserve and appreciate and a natural place that provides an "escape" from day-to-day life.

### 4.1 PHYSICAL RESERVATION

The 2,803-acre reservation is located in Hinckley Township in the northeastern corner of Medina County, which falls within the southwest planning zone of the Cleveland Metroparks. The reservation is comprised of two non-contiguous areas, a main reservation located between Ledge Road and Bellus Road and a smaller area located north of the main reservation.

The majority of the reservation is located within Medina County, with a small portion located in western Summit County. A smaller, separate area is located north of the main park along the east branch of the Rocky River (see Figure 2: Facility Map).

Hinckley Reservation is dominated by the 90-acre Hinckley Lake, with two small fishing lakes on the south side; Ledge Lake and Judge's Lake. These feature a wide variety of amenities like swimming, hiking, boating and fishing. Sledding and ice skating areas are also offered in the winter season (see Table 1: Picnic Areas).

### 4.2 BUILT ASSETS

#### Ledge Pool and Recreation Area

Located along Ledge Lake, the recreation area features a heated, 80 by 100 foot stainless steel pool. It is open from Memorial Day weekend through mid-August. The area also offers a concession stand, fishing along the shore of Ledge Lake, sand volleyball, a basketball court, and reserved picnic facilities.

#### Trails

Paved all purpose trails run throughout the reservation. A hike around Hinckley Lake will provide an excellent introduction to

the area and should provide a good representation of surrounding flora and fauna (see Figure 3: Bridge and Trail). This trail is well-populated with joggers and bikers, especially in the summer and on weekends. In general, the All Purpose Trail runs adjacent to West and East Drives.

A dirt hiking trail follows the immediate shoreline most of the way around the lake. It traverses woodland, including pine and spruce plantings, and therefore offers optimal birding opportunities. However, it does not extend into any "deep woods" (see Table 2: Hinckley Reservation Trails).

For individuals who are interested in equestrian activities, the reservation provides six miles of bridle trails. According to the online survey associated with this project, these are in high demand, with desired expansion.

#### Hinckley Lake Amenities

The largest inland lake within Cleveland Metroparks, Hinckley Lake features Hinckley Lake dam, which impounds the Rocky River East Branch, a boathouse, Johnston's Picnic Area, a scenic overlook, and the Buzzard Roost parking Area (see Figure 4: Historic Hinckley Lake). It is encircled by two park roads, West Drive and East Drive. Both roads have entrances

off Bellus Road on the north side of the park, and on State Road, which cuts north and south through the center of the park. Many of the park's primary destinations are accessed from West Drive. Other park areas are accessed from East Drive, Kellogg Road, Ledge Road, State Road, Bellus Road, and Parker/Harter Roads, all which serve to form boundaries for the Reservation (see Figure 5: Lake Boathouse).

#### *Whipps Ledges Amenities*

Picnic areas and hiking trails can be found at Whipps Ledges, located east of State Road (see Figures 6 & 7: Whipps Ledges). It is an interesting aspect of the reservation with an unusual exposure of large outcroppings of Sharon Conglomerate; soft and porous sandstone laid down during the Coal Age almost 250 million years ago. Atop these ledges, which rise 350 feet above Hinckley Lake, grows a magnificent forest of oaks and other hardwoods.

#### *Worden's Ledges Amenities*

A similar formation to Whipps Ledges, this area displays a series of carved figures, including carved images of George Washington and Thomas Jefferson, a sphinx, clipper ship, face, cross, and Bible. The figures were carved in the 1940s by an eccentric landowner, Noble Stuart. He was the

son-in-law to the namesake of the ledges, Hiram Worden.

#### *4.3 SERVICES*

Thousands of guests visit Hinckley Reservation each year. During the summer months, non-motorized boating, picnicking and hiking are the most prominent activities. Baseball, drive-in movies and the Ledge Pool also draw visitors in warm weather. In the winter, Hinckley Lake is well known for ice fishing and skating.

#### *Formal Recreation*

Visitors of all ages can enjoy the diverse recreational activities available at this reservation. Baseball, skating and kayaking are among the organized activities taking place at Hinckley Reservation. A Learn to Swim Program is also offered for children and adults.

#### *Informal Recreation*

Hinckley Reservation offers visitors a multitude of choices for relaxing and shedding day-to-day burdens. While observing the natural habitat of flora and fauna, a visitor can enjoy year-round recreational activities such as sledding, fishing, swimming, boating, picnicking and hiking.

#### *Formal Education*

Hinckley Reservation offers a variety of opportunities to study nature in its natural environment. The Hinckley Reservation Floating Water Lab offers programs organized by naturalists. The Floating Water Lab serves as a microcosm of Hinckley Lake's ecosystem and provides an increased understanding and appreciation of our natural environment. Other organized environmental education activities, such as Nature Tracks, function to broaden the knowledge of visitors about nature by using a SMART board technology. Educational programs attract history buffs with the Worden Heritage Homestead and the stories behind the unusual carvings at Worden's Ledges. Additional educational and recreational events are scheduled throughout the year.

Hinckley Reservation is also noted for the annual return of the buzzards or turkey vultures, a prominent feature of the park (see Figure 8: Historic Buzzards Roost). The celebration takes place each year during the weekend after March 15, traditionally called Buzzard Sunday. The buzzards have been making the annual trek since the 1800's but the phenomenon of the returning birds was first noted in 1957. Since that time, thousands come each year to witness their arrival. Falcons and hawks are also

guests of the Hinckley Reservation at the annual Buzzard celebration.

#### *Informal Education*

The park is open year-round to birdwatchers, up-and-coming naturalists, and nature observers who share a love of the outdoors. Hiking trails are marked with informational references about the various types of trees that are native to the area.

#### *4.4 EVALUATION OF ASSETS*

Of the assets listed above, most are in good shape and are adequately used by visitors. The hiking trails and picnic areas are all in good condition with minimal amounts of litter. The restrooms are not as well maintained. Signage, however, is lacking in some areas. Visitors may be encouraged to explore less traveled parts of the reservation if better signage directed the way. At the Hinckley Lake dam, the observation deck is also in need of repair.

#### *4.5 SERVICES VALUATION MODEL*

Based on the services valuation model described previously, Hinckley Reservation has a social value of \$7,291,509 (see Table 3: Social Valuation). This number is based on 844,029 total visitors to the reservation during 2009, including 57,029

participants in educational programs, and 43 venue rentals. A total of 79,236 individuals use the all purpose trails. Of those, an estimated 8,715 regularly utilize the reservation for physical fitness purposes, with 7 percent runners, 3 percent bikers and 1 percent inline skating. This value is a very conservative number due to the lack of separate data for Hinckley Reservation, the statistics for the reservation are compiled with Brecksville Reservation data.

#### *4.6 THREATS TO BUILT ASSETS*

Stressors on the built assets at Hinckley Reservation are observed by numerous site visits and discussions with the park personnel. The key stressors identified are as follows:

- Lack of information available to visitors interested in using the park and its amenities
- Hiking and biking trails are expensive to maintain from the existing budget
- Erosion due to improvements and paved trails that interfere with natural rain water collection
- Increased vehicle traffic and pollution that progressively has changed the ambiance of the park

#### *4.7 RECOMMENDATIONS FOR BUILT ASSETS AND SERVICES*

The following is a list of specific goals for Hinckley Reservation to maintain and improve the quality of services throughout the reservation:

- Develop a visitor center at the Bellus Road entrance. The proposed center will provide better information about the reservation and the surrounding areas.
- The lack of proper signage around the reservation requires an improvement of trail markings for easy accessibility throughout entire reservation.
- Connecting the sections of the park that are disconnected, with on/off road trails, will create a better trail flow will greatly improve user-friendliness.
- Analyze the dam structure and spillway for a better nature-integrated redesign in collaboration with Army Corps of Engineers. However, this could be an expensive capital improvement project and not a priority for the near future.
- Redesigning the educational programs of Hinckley Reservation is essential. A larger variety of offerings would increase the number of visitors and the revenue stream of the park. Possible opportunities include collaboration with Cleveland Orchestra for weekend lunch concerts, rain gardens for native plants, and an urban vegetable garden inside the park's natural habitat in col-

laboration with Cleveland Botanical Garden.

#### 4.8 SOCIAL CONTEXT

##### *Boundary Definition*

The boundaries chosen to define the social context of Hinckley Reservation were transportation routes forming edges along the four sides of the park. Four major Interstate Highways can be found within two miles of Hinckley Reservation. Interstate 71, located just west of the reservation provides access to downtown Cleveland, which is about a 30-minute drive, and to the Cleveland Hopkins International Airport, which is approximately 15 minutes north. North of the Reservation is Interstate 80, also known as the Ohio Turnpike, which provides east-west connections to the entire United States. South of the reservation is Interstate 271, which begins just northwest of Hinckley and terminates with I-90 near Euclid. Finally, to the east is Interstate 77, originating in downtown Cleveland and terminating in Columbia, South Carolina.

The Reservation is bounded by Bellus Road to the north, which provides access to the swimming area at Hinckley Lake and the dam, State Road to the south, and East and West Drives. Entrances to the Reser-

vation are off Bellus and State Roads.

The following boundaries were chosen to analyze the social characteristics of the area around Hinckley Reservation. Interstate 80 east to Interstate 77 south to Interstate 271 west to Ledge Rd west to Weymouth Rd west to Pearl Rd north to Elyria-Twinsburg east, to Interstate 80 east. These boundaries were chosen based on ZIP code responses from the user surveys conducted at the reservation.

#### 4.9 NEIGHBORHOOD INVENTORY

##### *Surrounding Land Use*

Because of the rural character of the area, retail trade near Hinckley Reservation is relatively limited. However, an analysis of the business characteristics for Hinckley Township reveals that approximately 57 acres are zoned for general business. Some of the current uses include a CVS Pharmacy in the Bennetts Corner area, a chiropractor, some offices and a mini-golf course/golf ball driving range near the Bellus Road entrance to the reservation.

Hinckley Township abuts the growing communities of Brunswick, Brunswick Township, Strongsville and North Royalton. Pressure for development is emanating outward from these communities. The

pattern of existing land use is located for the most part along jurisdictional boundaries shared with these communities. There are primarily three areas where commercial and industrial uses are located: the intersection of State Route 303 (Center Road) and West 130th Street; the northeast corner of West 130th Street and Boston Road (Bennetts Corners); and the intersection of State Route 303 and Ridge Road (State Route 94) at Hinckley Center. The largest concentration of commercial land use is located at State Route 303 and West 130th Street. A fourth area comprised of the mini-golf/driving range establishment is located near the Bellus Road entrance to the reservation.

Residential development on  $\frac{3}{4}$  acre lots, which results in a density of approximately one unit per acre, is also concentrated in the Bennetts Corners area. This sits across from similar suburban type residential development in Brunswick. Central water and sewer lines service all of these more densely developed areas, with the exception of the mini-golf/driving range. These developed areas account for approximately 900 acres, or about five percent of the 17,238 acres in the township. Another 9,560 acres (55 percent) are considered developed, though they have a much more rural, open feel, with two acre lot sizes. The average density is over four acres per



Figure 4: Historic Hinckley Lake



Figure 5: Lake Boathouse

unit. See the table below for a breakdown of existing land uses (see Table 4: Suburban Type Development).

#### 4.10 POPULATION AND HOUSING CHARACTERISTICS

##### *Current Demographic Data – Within Social Context Boundary*

The current (2009) population within the social boundary is 106,235 persons. The total number of households is 39,983. Of those households, 387 are without a vehicle. The total population of the Medina County census tracts within the social boundary area is 52,376. The average household income is \$79,094. To view this data broken down by block group see Figure 9: Income Map. Education levels vary at the block group level within the social boundary (see Figure 10: Education Map). The racial composition of the social boundary is predominantly White, with small African American, Asian, and Hispanic populations (see Figure 11: Race Map).

##### *Current Demographic Data – Within Hinckley Township*

The total population of Hinckley Township is 6,753 persons, of which 28 percent is urban and 72 percent is rural. There are

3,420 males in the township (50.6 percent) and 3,333 females (49.4 percent). The racial composition of the township is 97.6 percent White Non-Hispanic, 0.1 percent African American and 0.8 percent Asian. There are no American Indians or Alaska Natives in the township. The median age for males is 41.0 years and the median age for females is 40.8 years. The average household size is 2.90 people, while the average family size is 3.17 people.

##### *Projected Demographics – Within Social Context Boundary*

Within the social boundary, the total population is projected to dip and then increase again by 2019; with population estimates dropping to 103,431 in 2014, and bouncing back up again to 106,116 in 2019. While population is projected to drop by 2014, the number of households is projected to increase to 40,971 from 2009 estimates of 39,983. They are expected to increase substantially from 2014 to 2019, with an estimated number of 63,711 households. The total number of households without a vehicle is expected to drop in 2014 to 323 from its current level of 387 (see Table 5: Projected Demographics).

##### *Housing Characteristics*

In Hinckley Township, the median house

or condo value in 2008 is \$310,050, compared to \$214,700 in 2000. The mean price for a detached house is \$344,575 in 2008. The median contract rent for apartments in 2008 is \$677 (lower quartile is \$577, upper quartile is \$870). Figure 12: Home Value, displays the current home values at the parcel level, illustrating the areas within the social boundary that represent the highest and lowest housing values relevant to Hinckley Reservation.

A GIS analysis was conducted using buffers at 200-foot intervals, from 200 to 1,500 feet from the Hinckley Reservation. The data reflects a fairly stable home value until around 1,500 feet, where the average value increases substantially (see Figure 13: Home Value and Distance). This counter-intuitive phenomenon is due to the fact that the homes immediately surrounding the reservation are predominately lower value cottage-type houses. At 1,500 feet, modern suburban development becomes more common.

#### 4.11 HOUSING VALUATION MODEL

Based on Lutzenhiser and Netusil's (2001) hedonic analysis of the effect of open spaces on housing prices, value is added to the county base housing price by proximity to a reservation. These "buffers" are measured in feet and rely on the count of

single-family homes in each zone. These values are inflated to 2009 values and normalized. Each buffer range is measured from the Hinckley Reservation. All of the homes in the analysis intervals fall within the Highland School District, which has a tax rate of 1.48 percent.

Based on this analysis, the total property tax that is, in effect, created by the location of Hinckley Reservation is estimated to be \$287,436 (see Table 6: Economic Valuation).

#### 4.12 COMMUNITY GROUPS AND GOVERNMENT AGENCIES

##### *Rocky River Watershed Council*

The Rocky River Watershed Council concentrates efforts on protecting, restoring and perpetuating the Rocky River Watershed. Primary to their mission is public education, watershed planning and facilitating communication and cooperation between stakeholders. The recognition that it is increasingly important for local watershed groups to help local governments and residents understand the complexity of sound management techniques enables the RRWC to act as an intermediary between larger entities and localities. The council assists in public education regarding flooding, erosion and storm water

run-off. On site assistance is available for stream bank restoration, river clean-ups and remediation efforts. Often, identifying where the council's efforts can be most advantageous, is the greatest obstacle toward effective partnerships.

##### *Community Partnerships*

Community partnerships within the social context boundary of the Hinckley Reservation require reservation staff to establish and maintain contact with neighboring community service managers. The interconnectivity of the reservation and its neighbors is apparent during roadway repairs, utility infrastructure and future development goals within the Township. The opportunities present when stakeholders who are familiar with each other's goals and limitations can expedite projects that otherwise may lay dormant.

##### *Public-Private Partnerships*

The efforts of corporate volunteers provide the reservation staff the ability to maintain areas of the reservation that would not ordinarily be included in day-to-day maintenance. Non-profit partnerships with local organizations also bolsters staffing in many areas of park maintenance, establishing Eagle Scout projects through the Boy Scouts of America achieves small-

er project goals while also providing a learning experience for the scouts. These non-profit partners include: The Hinckley Historical Society, neighboring riding clubs and stables, and businesses within the Hinckley Chamber of Commerce.

#### 4.13 THREATS TO SOCIAL CONTEXT

The predominant social threat to the study area is increasing population pressures from neighboring counties. As Cuyahoga County's population has declined and Summit County's population has remained relatively stagnant, the population of Medina County has increased. One mitigating circumstance in this situation is that the dominant residential zoning for Hinckley Township at two acre lots will not allow extremely dense development pressures.

#### 4.14 RECOMMENDATIONS FOR SOCIAL CONTEXT

##### *Support Low-Density Development*

In the survey associated with this project, the majority of respondents stated that 'conservation' is the most important planning parameter for the Cleveland Metroparks. Therefore, the Metroparks should partner with Hinckley Township and Medina County to evaluate and maintain the current residential zoning

regulations in the immediate area around the park. The two acre residential regulations allow for continued growth of the area, while mitigating the effects of urban sprawl from neighboring counties.

#### *Encourage Community Partnerships*

Given the prevalence of the equestrian related activities in the area, the reservation should partner with the township and neighboring riding clubs and stables to establish an “Equestrian Friends of Hinckley” organization. The organization could provide input and guidance for these activities. Given the costs for establishing and maintaining bridle trails, watering facilities and use-specific parking areas, the organization could implement a membership fee system to mitigate these costs, while providing an opportunity for these activities to continue.

The social context encompasses the relationship between the Metroparks and their neighboring communities. Encouraging close working relationships between the Hinckley Reservation Park Manager and Hinckley Township Trustees should be a continuous goal. This is a critical relationship to cultivate and maintain as the township faces the potential loss of revenue from a reduced tax base if the park expands into previous taxed property.

#### *4.15 ECOLOGICAL CONTEXT*

Watersheds are a critical frame of reference for the land, water and all living creatures from microorganisms to human populations. The quality of the watershed translates equally to the quality of life for all organisms. In effect, water is the lifeblood of everything within the watershed.

#### *Boundary Definition*

Hinckley Reservation is a non-contiguous park area, situated slightly to the southwest of the main ‘necklace’ of parks that surrounds the greater Cleveland region. The connector linking the Reservation and the main body of parks is the Rocky River watershed. The watershed in this zone encompasses 294 square miles. It partially includes Cuyahoga, Lorain, Medina and Summit Counties. The East and West Branches are the main headwater sources with the tributaries adding to the volume. The East Branch courses through the reservation. The smaller contributing headwaters systems are associated with the tributaries and sub-watersheds. The Rocky River basin contains approximately fifteen stream segments or water bodies; some other tributaries are Abram, Baldwin, Plum and Healey Creeks. The Rocky River flows south to north; from a maximum elevation of 1,250 feet to Lake Erie at 571

feet (see Figure 14: Rocky River Map).

#### *4.16 NATURAL RESOURCES INVENTORY*

Rocky River, while originating in a more rural area, travels through thirty-two municipalities and townships. The dominant land use overall is only 14 percent urban, but its development density is located in the headwater systems. Examples of headwater urban concentration are: more than 45 percent in Abram Creek; Baldwin Creek, 27 percent; Plum Creek (Brunswick), 21 percent; and Healey Creek, a tributary to East Branch, 90 percent development (although low density) in the upper half its headwaters. Each of these areas is noted as having or potentially having impairment.

The upper reaches and headwaters areas of a watershed are important for two main reasons. First, everything flowing down from this point impacts the main stem and lower reaches. Therefore, it is important that it remain in as high quality and naturally intact condition as possible. Second, negative water events are exacerbated by high density development. Therefore, it is necessary to balance land uses in headwater areas. The lower segments of the watershed have the most impervious surfaces in urban and suburban areas.



Water quality is of particular importance in the upper reaches of a watershed. Therefore, point and non-point sources of water pollution should receive special attention. Point sources are those that are known discharges; some possessing permits. Non-point discharges are unknown, broader sources. Examples of non-point pollution include residential lawn wastes and chemicals; commercial, industrial and agricultural runoff; animal waste from livestock and pets; and uncontrolled dumping of materials, including land excavations, building debris, chemicals, etc. (see Figure 15: Areas of Concern).

#### *Forest*

Hinckley Reservation has a broad expanse of forested area. The tree canopy coverage is a wide mix of deciduous red and sugar maple, beech, a variety of ash, oak, tulip, hickory, cottonwood, Ohio buckeye, apple, black tupelo and some evergreens such as hemlock and pines. The coverage is mainly intact forest with few edges which increases undisturbed habitat for avian, mammal, flora and fauna species. Undisturbed habitat can account for a higher and healthier quality of life with more successful proliferation. The tree canopy spreads across 2,178 acres of the park's total 2,804 acreage (see Figure 16: Forest Cover).

#### *Soil Condition, Infiltration and Erosion*

The Rocky River watershed is located within the Erie/Ontario Lake Plain ecoregion. The land features of this ecoregion were formed during last ice age when glaciers retreated. The glaciers leveled plains while leaving behind notable geographic formations such as higher remnant beach ridges, glacial till ridges, drumlins, till plains and outwash terraces. The main stem river bed consists of a bedrock substrate. Primary watershed soils are productive Alfisols which are moist mineral soils containing an alluvial horizon in which silicate clays have been deposited.

#### *Hydrology*

The Rocky River has a length of over 664 miles, including its tributaries. Most of the riparian corridor is forested with easy access from the surrounding urban and suburban communities. The convergence of the East and West Branches is about 12 miles from the mouth of the river at Lake Erie. The river's mouth is configured for boating. It showcases an artificial lagoon designed in the West Channel (a side water way), plus the Lake Erie access channel. The Harbor utilizes 4,200 feet of the river.

The main stem of the river is relatively shallow with good movement and velocity.

The highest water volume occurs February to April and the lowest amounts August to October. Precipitation in this temperate region falls as 37 inches of rain and 56 inches of snow.

The Ohio EPA designates the Rocky River watershed as a warm water basin. The upper reaches of the East Branch are the healthiest in water quality and diversity of species and habitat. Some segments of the upper reaches are challenged with failing septic system contamination and land development. Lower reaches have higher density land use with significant impairment from runoff and sewage, ammonia, metals and habitat alteration (see Figure 17: Hydrography).

#### *Aquatic and Animal Life*

A wide variety of animal species can be found in various habitats within the reservation. These include red tailed fox, raccoons, chipmunks, brown squirrels, opossums, skunks, ground hogs, mice, voles, moles, shrews, weasels, coyotes and white tailed deer. Over recent years, deer populations have expanded to such large numbers that it is now a major problem for the park.

The coyote population has increased, creating more contact with humans, despite

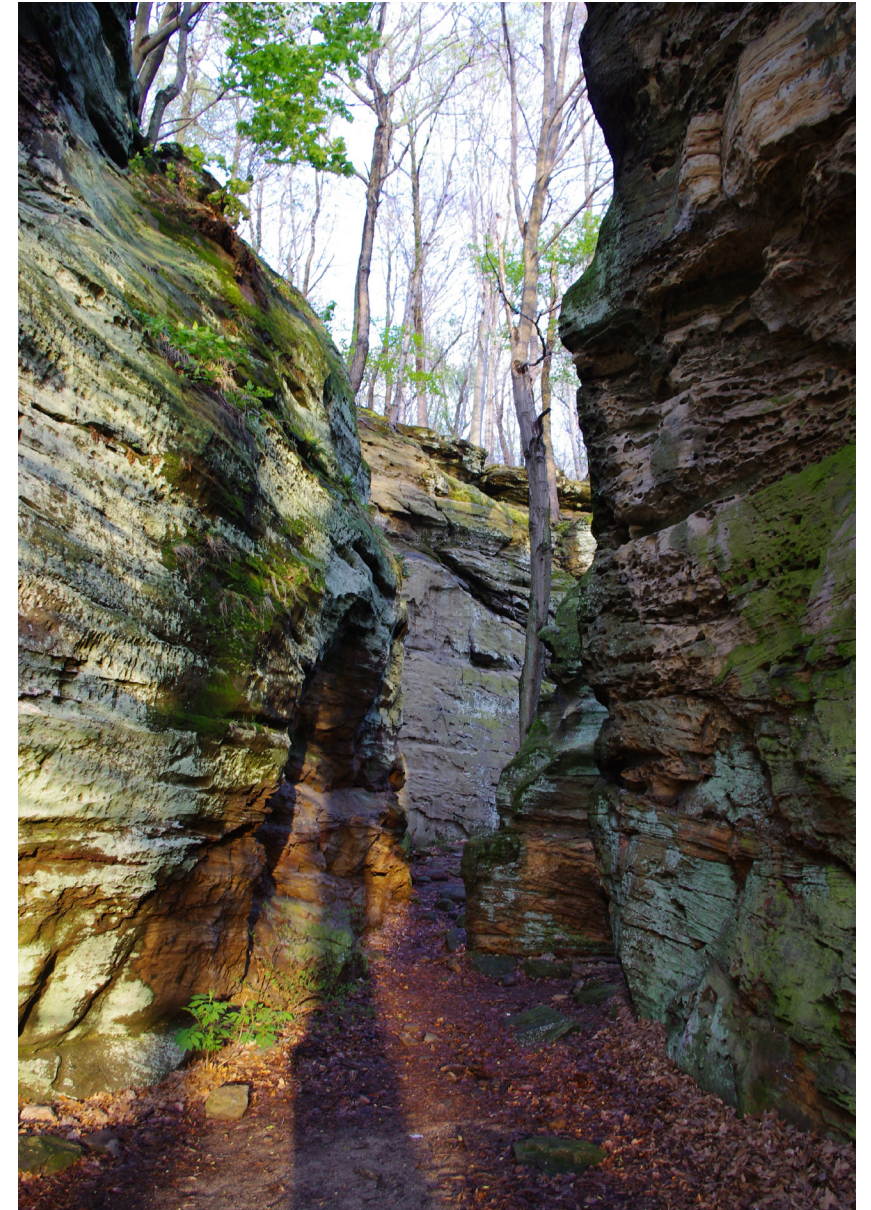


Figure 6: Whipps Ledges



Figure 7: Whipps Ledges

their instinctive behavior to retreat and avoid contact. The increase in coyotes may well be reflective of the abundance of wildlife in the parks and open spaces. Access to food in designated human spaces may contribute to increased human contact. Therefore, it is recommended that caution be exercised in close encounters.

Bird watching is a popular recreational activity, whether done in a backyard, park or on an extended field excursion. Bird watching also produces a documented count of migrant and local species, providing a fairly accurate record of population trends. The Western Cuyahoga Audubon Society closely monitors the bird population in the Hinckley Reservation. Counts taken over a number of years reveal avian information and surrounding flora data. Correlations between species and flora may account for the rise and fall of populations of certain species.

Ohio Audubon has designated Hinckley Reservation as an important bird area (IBA). The Audubon Society defines an IBS as a “tract of land that the Ohio Audubon Society has determined crucial to the existence of birds and other wildlife because of their habitat.” The Audubon Society works in collaboration with the Cleveland Metroparks to protect and conserve the avian and flora populations

within Hinckley and other Metropark reservations.

Local or non-migrating birds include (partial list): cardinal; robin; white breasted nuthatch; blue jay; downy, hairy, and red-bellied woodpeckers; mourning dove; house sparrow; and black capped chickadee. Migrating birds include (partial list): a variety of warblers such as Canada, black throated blue, yellow throated, palm, cerulean, prothonotary, bay-breasted and red start; song sparrow; great crested flycatcher; eastern wood peewee; eastern kingbird; veery; gray catbird; cedar waxwing; red shouldered hawk; and turkey vulture.

The turkey vulture is one of the largest birds of prey in Ohio and can be seen on warm days in a wing v-position riding the sky thermals without wing beats. The thermals (pockets of heated air) lift the bird which continually adjusts to remain within the column of rising warm air. Buzzard Sunday is an annual event celebrating the return of the migrant turkey vulture (“buzzard”) and draws an enthusiastic crowd from all parts of the United States. This year’s March festivities welcomed 6,000 visitors.

Aquatic life varies with the type of habitat. For those who enjoy fishing, Hinckley Lake and the East Branch are stocked

with steelhead smolts (which increase the population overtime), small mouth bass and trout. The wetland area on the north side of Hinckley Lake is the largest and highest quality wetland, most likely due to the park-protected upstream waters. Some salamanders as well as macro invertebrates are found here. Three classifications of streams run through the park and the aquatic life varies with the order. Perennial warm water will vary from perennial cold water streams. Ephemeral or intermittent streams are seasonal and will have the lowest diversity and counts.

#### 4.17 ECOLOGICAL VALUATION MODEL

Preservation of the parks and the forests and watersheds within them has substantial economic benefits in the form of ecosystem services. Services such as watershed protection and carbon storage (in forests) can be more valuable than forest related products (timber, pulp, etc.).

A combination of the ecoservices based on the forested area of 2178 acres totals \$18,610,808. The services include hydrologic, carbon storage, air quality maintenance, storm water control, bio/diversity habitat, and soil formation/retention (see Table 7: Ecological Valuation).



#### 4.18 THREATS TO ECOLOGY

##### *Forest*

Two stressors stand out with regard to major forest impacts. First, the Emerald Ash Borer is a wood-boring beetle that reaps devastation on the many varieties of ash by depositing eggs below the bark. The resulting larvae consume the cambium layer which virtually kills the tree by eventually girdling the trunk. The adult beetles actively fly May through September and the rest of the year the larvae continue to consume the trees. The Ohio Department of Agriculture prohibits the movement of any ash tree parts and also prohibits any wood (not just ash) removal from an infected/quarantined county. A \$4,000.00 fine supports the warning. As of January 2010, the Department has quarantined 67 of Ohio's 88 counties. The Cleveland Metroparks prohibits any movement of wood in or out of the parks. The borer has been active in Ohio since 2003.

The second stressor is deer browsing. The high population of the white tailed deer has resulted in degradation and/or loss of forest floor flora and any flora that rises to the height of the deer 'browse line' (the height the deer are able to reach to eat). The degradation and loss of flora impact the fauna and in-

sect life that rely on the plants for nourishment. Additionally, the species that can help the forest pollinate and maintain self-rejuvenation are lost. The numbers of species of fauna and insect life may be so reduced that the population can be considered eliminated in some areas.

##### *Hydrology*

Main stressors on the watershed impact the quality of the water and everything living in it:

High nitrogen levels, habitat alteration and increasing siltation. The lower reaches of the river, and its tributaries, are affected daily by the surrounding urban and suburban land uses. Commercial and industrial discharges, either permitted or unauthorized, can easily exceed allowable EPA (Environmental Protection Agency) levels. Pressure from businesses has kept permissible levels of discharge at a level that exceeds the limit of what is naturally acceptable to maintain a stream's balance. Zero discharge is the healthiest approach to preserving waterways, but the EPA compromises until technologies, science and funding can significantly reduce levels of discharge to near-natural states. Upper reaches of the headwaters face septic system failures, bank degradation, land development and habitat alterations. Impervious surfaces of the large parking areas

and paved walkways within the park cause runoff that carries pollutants that impact the surrounding habitats. The ratio of impervious areas to pervious areas is low as compared to other reservations, but improvements can be considered. Technologies may bring down the costs of new material. Pervious hard surface materials are on the market now, but at uncompetitive costs (see Figure 18: Impervious Surfaces).

##### *Animal Life*

As mentioned above, overgrazing deer populations have led to loss of forest floor and meadow fauna. This stresses the animal species that rely on that fauna. Natural controls from predatory species no longer exist, except for the occasional young or injured deer. Deer tend to browse at forest edge lines. The increased development of land use has formed a new pattern of forest edging where large tracts of intact forest are now fragmented, increasing the linear footage of forest edges. The deer population has increased as a result of no predators and an abundant, easily accessible, food source. The deer wander to take advantage of the new patterns of forest edge lines. They travel through urban and suburban residential and commercial lands, including the park system, where they remain generally undisturbed.



Attempts to control or balance the elevated deer population are achieved through permit-sanctioned culling. Although anti-conception measures were studied, the current culling method remains the most practical and successful. An accurate number of deer per square acre for a natural balance might be between ten and twenty, with variations due to habitat conditions (geology, vegetation, water bodies, and impervious surfaces). In Hinckley Reservation, the average count per acre is far higher. The deer density is devastating vegetation to the degree that not enough food exists for the deer population. This results in a segment of the deer population that dies from malnutrition. The positive aspect of culling is that the meat is processed quickly to maintain freshness and then is distributed to organizations that help feed the hungry.

Reduction of deer populations also impacts the conservation of avian habitats. When the forest floor is denuded of all vegetation, the opportunities for ground feeding birds decline or are eliminated. If a bird species cannot find adequate food sources, it will not have a successful nesting season. This leads to a very rapid (next generation) decline in the species either by the death of that bird or by no reproduction.

Avian conservation is approached by collaborating with birding interest groups: Western Cuyahoga Audubon Society, Kirtland Bird Club, Eastern Cuyahoga Audubon Society, Cleveland Science Club, and programs sponsored by the nature centers in the Cleveland Metroparks. Similar interests in conserving and protecting species and habitat are a growing concern as bird populations decrease. Many avian, flora and fauna studies, in addition to formalized recorded counts, help develop plans to achieve more favorable conditions. Private citizens, university students, and smaller organizations all share in providing data and support for conservation venues. The work by the Western Cuyahoga Audubon Society in the IBA areas is an excellent example of collaboration success.

Currently, West Nile Virus appears not to be a significant avian threat since counts have receded after the crest around 2002. However, naturalists, birders and the scientific community continue to monitor the virus. Any reports are closely investigated and watched. Certain bird species were damaged more than others, such as blue jays. In 2010, the jays appear to be increasing in numbers again.

Rabies transmitted by raccoons, bats and skunks are an ongoing animal and human health issue for the park system. The dis-

ease has its history in the 1970's when an infected raccoon was discovered in Virginia. As increasing reports of rabies spread across Ohio from the eastern boundary, the park worked with the USDA-APHIS Wildlife Services to halt the movement at the Cuyahoga River line. Work continues today, in affiliation with the Cuyahoga County Board of Health and the Ohio Department of Health, using an effective program that dispenses animal ingestible vaccine packets. A reduction in rabies is attributable to this multi-agency effort. The counter measures to control rabies are critical since animals are responsible for transmitting approximately ninety percent of reported cases.

Monitoring the health of fish in the greater Lake Erie region is conducted by the Ohio Sea Grant College Program. The VHS (Viral Hemorrhagic Septicemia) disease noted in Lake Erie fish in the early and mid 2000's could cause significant deformities. However, an infected fish could also present no symptoms. Due to the easy transmission of the disease from fish to fish, the Cleveland Metroparks Natural Resources Division warns that no fish are to be moved between bodies of water. It further warns that all water vehicles be cleaned. This acts as an alert for prevention. There appears to be no harm to humans consuming infected fish. The virus

requires low temperatures and prospers mostly in the cool spring season. Mammal body temperatures are too warm for virus survival.

#### 4.19 RECOMMENDATIONS FOR NATURAL RESOURCES

##### *Conservation, Education and Recreation*

The Cleveland Metroparks has an active stance on conservation. Considering it to be the main mission objective of its three tiers (conservation, education and recreation), policies and programs are created and implemented to support resolution of the park's environmental challenges. Programs are specific to address the issues while the overarching policies are established to develop long range plans that will become multi-generational in goals and outcomes. The skill-set resources of the park employees allow flexibility within this framework to adjust to changing situations and events. Conservation remains forefront in decision making as population and land uses shift, often creating unexpected additional challenges. The three-tier approach can be thought of as building blocks to construct a naturalized environment through conservation measures strengthened by educational structures allowing visitors to enjoy an enriching and positive recreational experience in

the great outdoors.

##### *Educational Outreach*

Conservation practices currently underway by Hinckley Reservation may be additionally supported by greater educational outreach programs that give the participants the opportunity to learn directly how these practices touch their lives.

- Additional funding would be required to develop programs, provide materials, ensure follow up contact to maximize the educational experience and expand the programs based on participant feedback.
- Developing business and government partnerships would strengthen funding and government policy efforts to facilitate the educational outreach opportunities.
- Growing the volunteer and resource base would connect separate smaller organizations, entities, and individuals by creating an overarching group dedicated to the same goals and commitments. Each group remains intact and is empowered by the scope of the new main body. It entails a synergistic approach.

##### *Opportunities for Collaboration and Expansion*

Most rivers in the United States flow through numerous political boundaries with each boundary area including different political agendas and priorities, different hydrological formations, different land use contexts (industrial, agricultural, residential), and different watershed valuations. Maintaining or improving the quality of waterways becomes complex with potentially conflicting governments, agencies and stakeholders involved. Restoration or maintenance may be delayed or shelved due to the nature of working across so many organizations.

Hinckley Reservation plays a unique role in the life of the river. The upper reaches of the Rocky River's East Branch are relatively protected within the park. In addition, most of the land along the river in Cuyahoga and Medina counties (the riparian corridor) is owned by the Cleveland Metroparks. This positioning offers an outstanding opportunity to have a strong and singular valuation and management vision for the river and watershed. While the land ownership along the corridor is significant, the quality of the health of the waterways still requires an active network of partnerships with other agencies, stakeholders and governments (federal, state, and local) due to a variety of impacts that may cause impairments or potential threats: point and non-point runoff, ero-



Figure 8: Historic Buzzards Roost



Figure 19: Phelps School Before

sion, sediment control, and flooding.

Land in close proximity to Hinckley Reservation noted for possible park expansion, acquisition or watershed protection includes private and government holdings. The Cleveland Metroparks has a non-aggressive approach to growth: the organization requires an invitation from a prospective party. The process may involve outright land acquisition or conservation easements. A recent acquisition of a 250 acre plot was completed with three separate owners.

Other possibilities for expansion exist to the east of the reservation and along the riparian corridor. Partnerships with the Rocky River Watershed Council and the Western Reserve Land Conservancy help to further this process. The intent is to protect the Rocky River Watershed. The primary responsibility of the park system is conservation:

“The Board of Park Commissioners may acquire lands either within or without the Park District for conversion into forest reserves and for the conservation of the natural resources of the state, including streams, lakes, submerged lands, and swamplands, and to those ends may create parks, parkways, forest reservations, and other reservations and afforest, develop,

improve, protect, and promote the use of the same in such a manner as the board deems conducive to the general welfare.”

#### 4.20 POLICY RECOMMENDATIONS

##### *Additional Funding*

Create close business-to-park partnerships. Ask businesses to adopt and support a group of students, volunteers, agenda, or program based on the interests, skills and resources of the business. The approach is a long-term mentoring relationship that builds a sense of place through commitment to the people within the environment. The connections that increase the bonds are the activities created and implemented together toward a common vision and goal, while being guided by the park’s conservation framework. This is the opposite approach to general funding. This type of partnering carries the rewards of abundant funding.

Example: The Floating Lab, on Hinckley Lake, has a program that can be expanded. By linking specific businesses that have the interests, skills and resources for a particular segment of the program, employees can offer assistance to a group of science students. The students will visit the business to see how research is translated into information and products that benefit

society. The relationship follows the students from high school and into college, and beyond. These are connections that will bring the students back to the park and back to the region. It builds a generational commitment to the park and deeply develops a bond with sense of place and purpose. This type of initiative also naturally spurs a growing network for both the students and the businesses, and strengthens the region’s economy by keeping well-educated young professionals here.

##### *Grow the Volunteer and Resource Base*

Hinckley Reservation is a large reservation facing numerous challenges that require additional help. Many small organizations and individuals want to become involved on a long term basis. An overarching group can assess the skills and resources of the volunteer organizations and individuals. Based on this information, they would be given the opportunity to network and become involved with other similar people. They can work together to achieve their volunteering goals under park guidance.

Example: Various hiking groups exist in the region and have a volunteering effort. They don’t know each other; yet share a goal in wanting to create better maintained natural trails in Hinckley. They know that erosion, overgrowth, dog waste, trash, and



signage are park challenges and want to participate. The overarching group could connect them to other actively participating groups, increasing the number of volunteers focused on specific tasks. The tasks appear to be less of a challenge when more people come together, offering ideas and energies and even social opportunities.

A website connecting these groups could offer a new format of communication and provide the park with a new format for marketing its conservation and educational agendas. Recreation can happen as the people come together to work toward their common goals. Volunteering becomes a social event. The website would be created by the park and open to public viewing. Stories and photographs can be shared online. It is very interactive and carries the visual coloring and appearance of the Metroparks environment.

These are general ideas that have a more localized context. The scope of the programs is short termed and focuses on specific agendas.

#### *Flagship Branding*

The Cleveland Metroparks is a regional organization rooted in a long history of conservation and education. It is well known and respected across the United States.

The location of the park system is central in the Midwest with easy access by plane, train or automobile. It is the central loop in Northeastern Ohio linking communities by crossing political boundaries for the education and enjoyment of its people.

Populations are shifting away from the Cleveland urban core to more suburban terrains and often out of Ohio. The economic downturn lessens funding and visitor counts. This is the time for the Cleveland Metroparks to take a step into a new era of conservation outreach and education by placing itself in a flagship model that will brand the park system as a unique key regional, state and national leader.

The flagship concept is creatively spurred by the synergistic energies of ideas that renovated education and a school building in Washington, D.C. The school is the Phelps Architecture, Construction, and Engineering High School. An overview can be seen at: <http://www.educationdesignshowcase.com/view.esiml?pid=247>.

In 2006, the 1933 school had been closed for five years; abandoned and neglected. Residents, business, and government recognized that the flourishing engineering and construction trades needed to have an engine fueling new professionals. None currently existed. What happened in two

years, when the doors opened to greet its first students, wasn't a miracle in building rapidly, but it was a spectacular event in formulating functional, realistic ideas promoted and carried out by multiple stakeholders. Business, individuals and government were a collective force that drove the project. The educational programs are state-of-the-art in a building that is state-of-the-art. The majority of funding came from state appropriations followed by grants and donations. The collaboration was so successful that the project came in at 75 percent of budget (see Figures 19 & 20: Phelps School Before and After).

Cleveland and the surrounding region are dissolving the long held image of being a rust belt area by grasping the new energy technologies. Related 'green' businesses are mushrooming all over Northeastern Ohio. Located centrally in this new vitality of the new century is the Cleveland Metroparks. Following is the flagship concept that can carry Cleveland Metroparks along that cresting wave:

- The Cleveland Metroparks needs to teach and train professionals, students, the community and park visitors to carry the goals of the mission into the future.
- Renovate a closed Cleveland school using the LEED methods and remain-



Figure 20: Phelps School After

ing mindful of historic preservation guidelines. The building will use the latest, best green methods of construction and connect the new methods to the integrity of historic design and relevance. All effort to involve material conservation (recycling) and designs to draw the human context into the environment could be achieved by careful design and material selection by a collective group of designers, engineers, educator, naturalists, and visionaries. Private, commercial, and government participation is required in the collective.

- The building would be a Cleveland Metroparks conservation and education community center in which schooling accounts for only one of many activities. The focus follows the three tier park perspective of conservation, education and recreation. This is a center established to promote, strengthen and generationally empower that focus. Activities appropriate for this location would include: a school; community events; an adult learning center; resources for various established green industries; an incubator for emerging green industries and adjunct trades/industries; a main nature center; a publisher of a new, heavily marketed and branded parks educational book line; a clearinghouse for environmen-

tal publications; science labs relevant to conservation; gardens; an outdoor museum and lab; native plant gardens; green workshops; and an art gallery.

- Develop a website that is the environmental search engine, similar to the Google concept. Anyone wanting and needing environmental, green information would automatically think of searching 'greenit'. Nobody has done this yet.
- The school could be multi-tiered in purpose: 1) a magnet school for the Cleveland School District. Programs focus on environmental concerns but also address full academic requirements; 2) a school for scientific professionals to learn the latest environmental techniques and concepts and to network within a synergistic, vital learning center unlike any in the nation; 3) a school that hosts workshops for the non-professional, but environmentally concerned citizen; 4) a school for architects, builders, developers, real estate agents, and the construction trade to update and integrate new methods and techniques.

The flagship concept is particularly compelling because:

- Cleveland is closing schools that need use. It is a collaboration with new visions for a region that is becoming

known as the Green City on a Blue Lake.

- Cleveland needs to educate new generations of urban children who can understand their environment, their place in it, and how to become an engaged citizen.
- Cleveland is losing its population and visitors to other cities, when the 'Jewel' is the Emerald Necklace.
- Cleveland has the environmental context to be a leader and national/international draw for ecotourism. A vibrant marketing plan that is supported by the collective group will only continue to expand into developing new market shares. Collaboration between organizations will benefit everyone.
- It is critical that the center be a large concept in scope to be able to open its doors to all ideas and opportunities that the new technologies hold to help the citizens of planet earth live more responsibly while enjoying an enriched quality of life.
- No other organization is positioned with such significant land holdings that can function as a large outdoor laboratory on land. Turning to the north, the possibility exists of extending the lab to the lake.
- No other organization has thought of this. No one else has all the key elements.



Figure 2

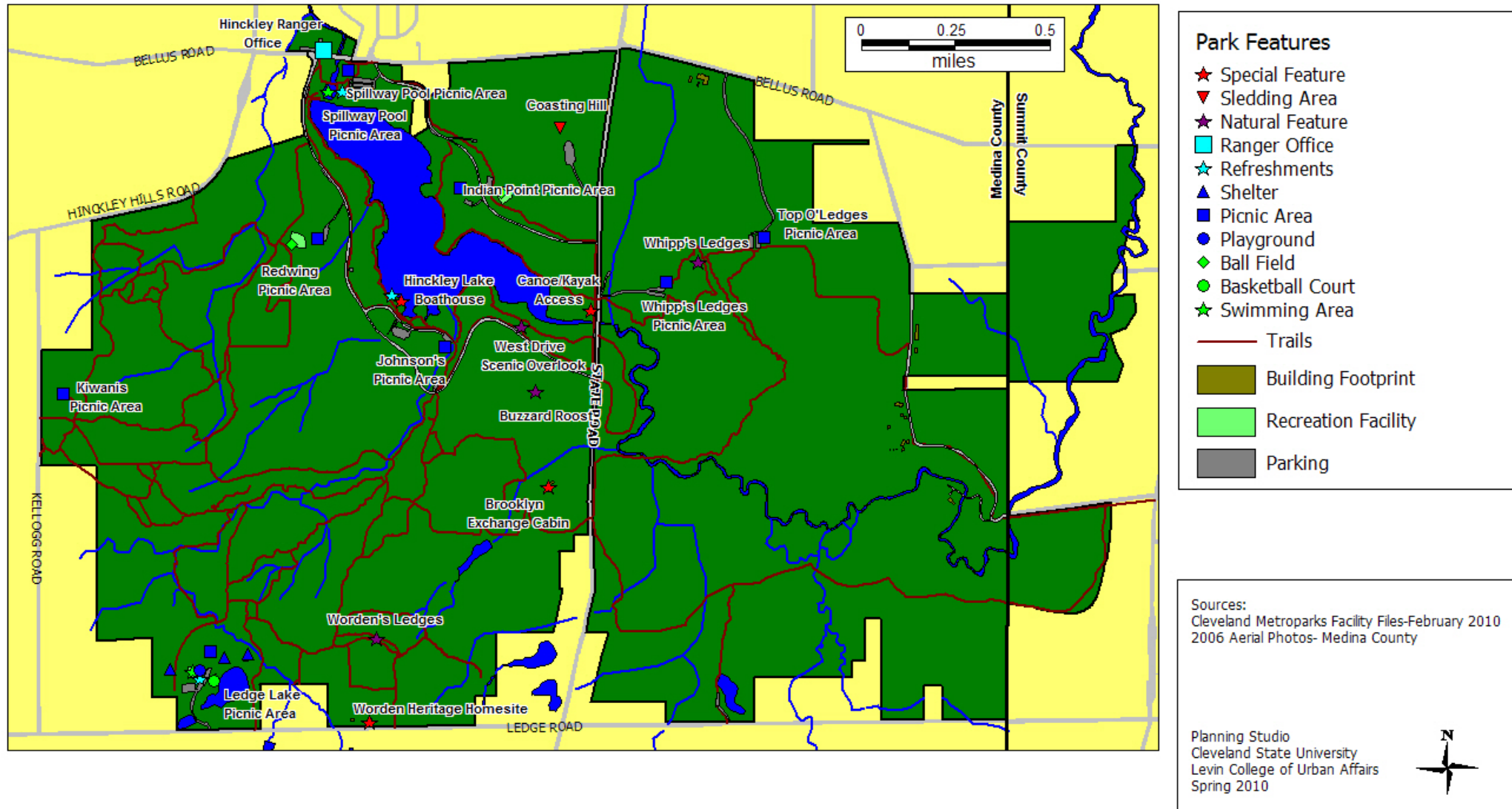


Figure 9

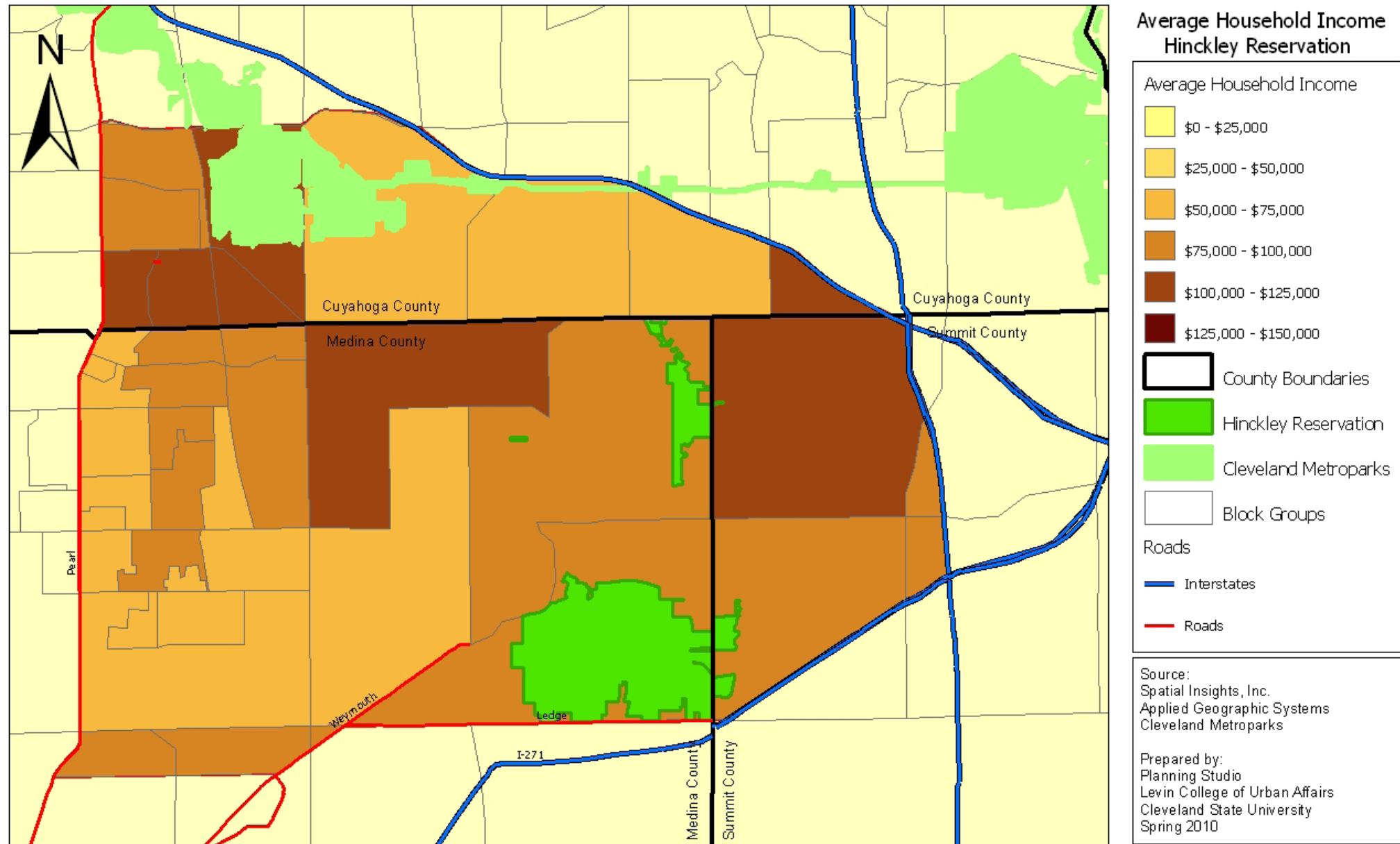


Figure 10

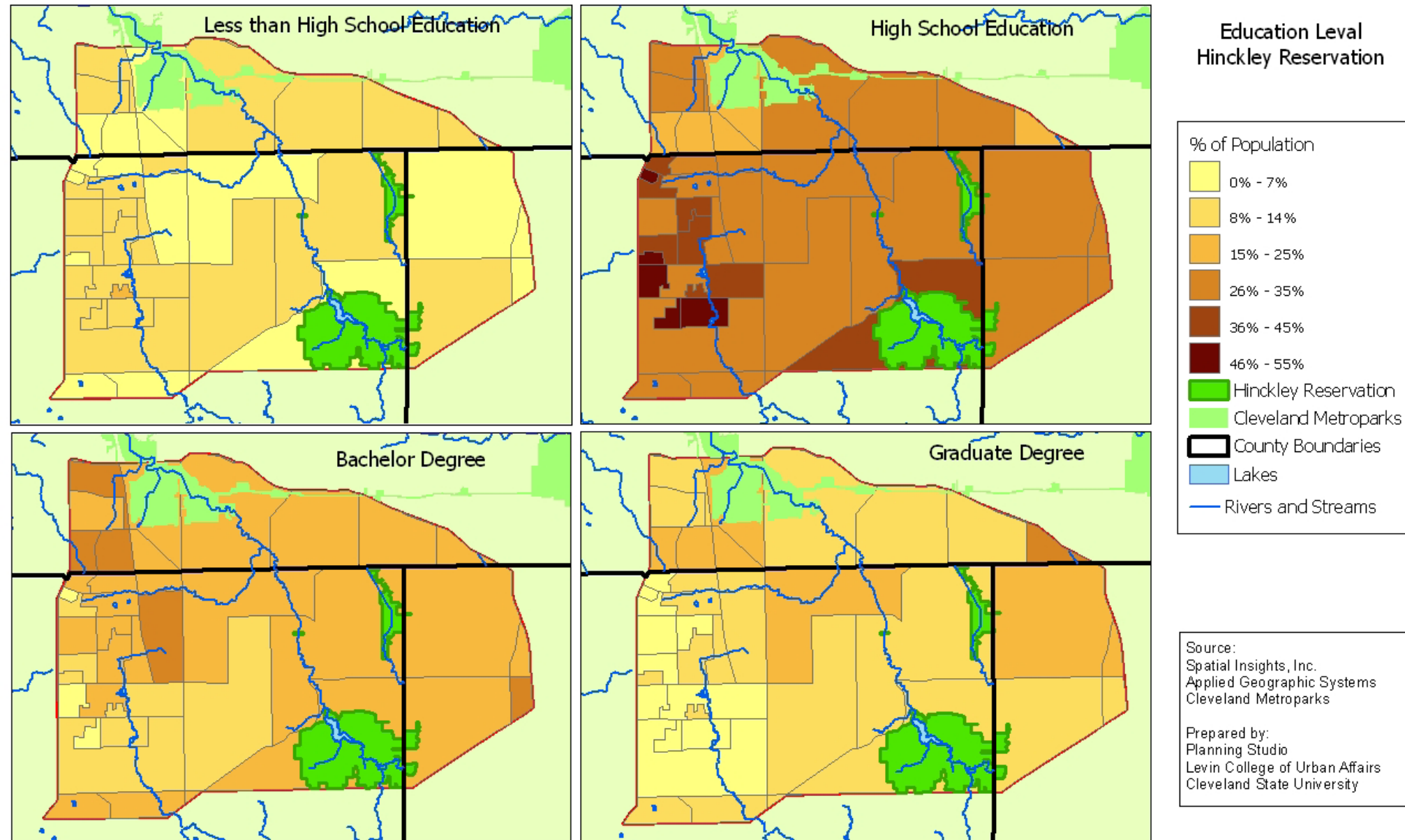


Figure 11

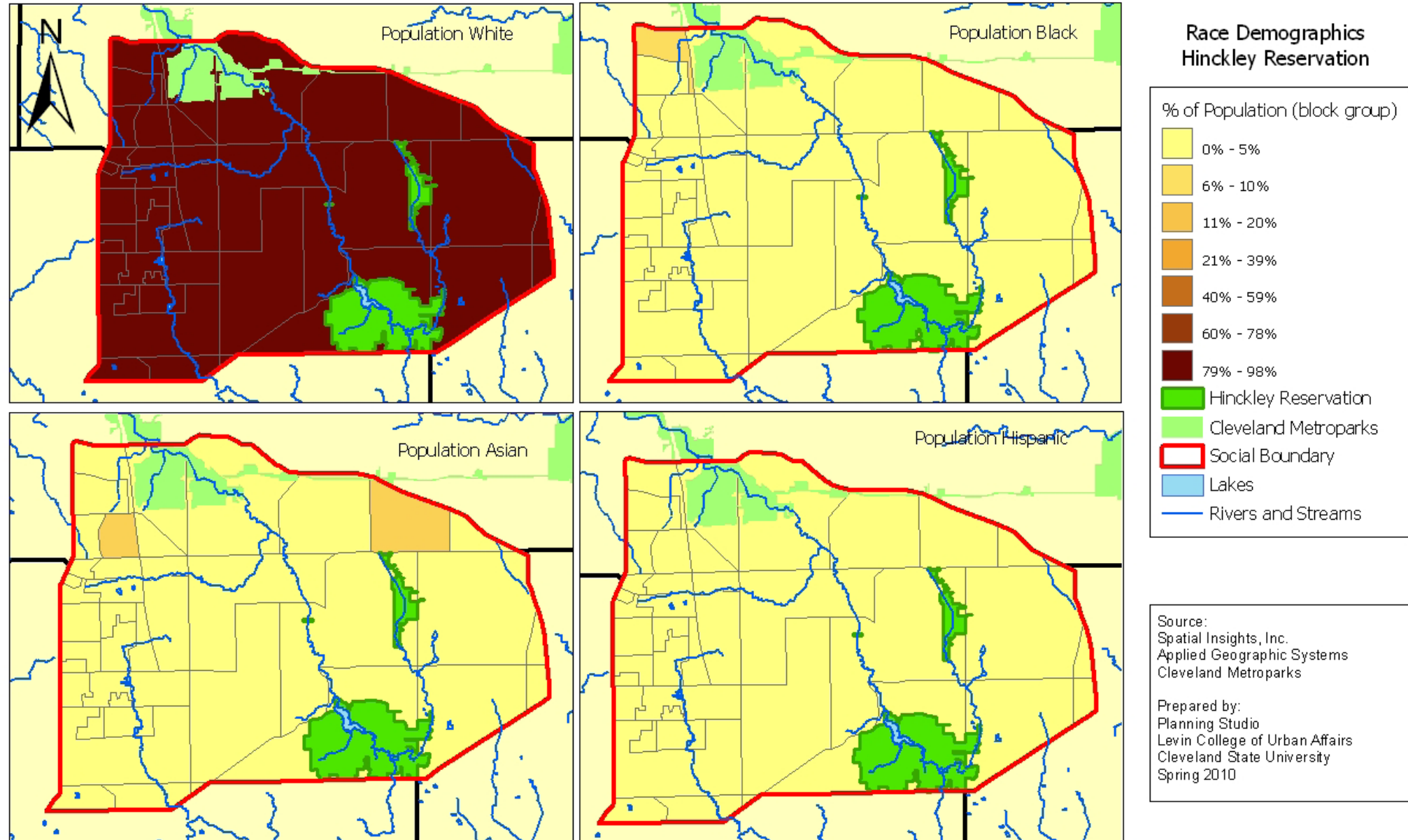




Figure 14

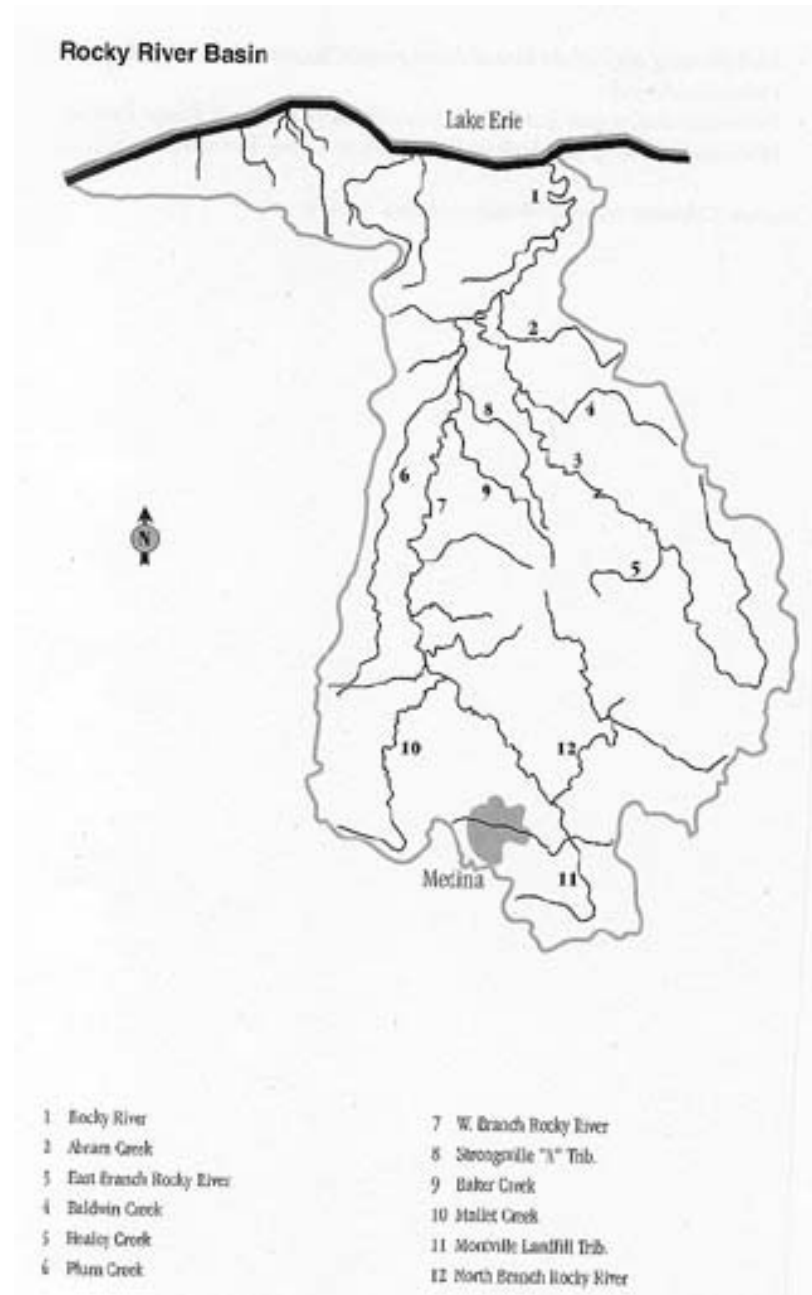


Figure 15

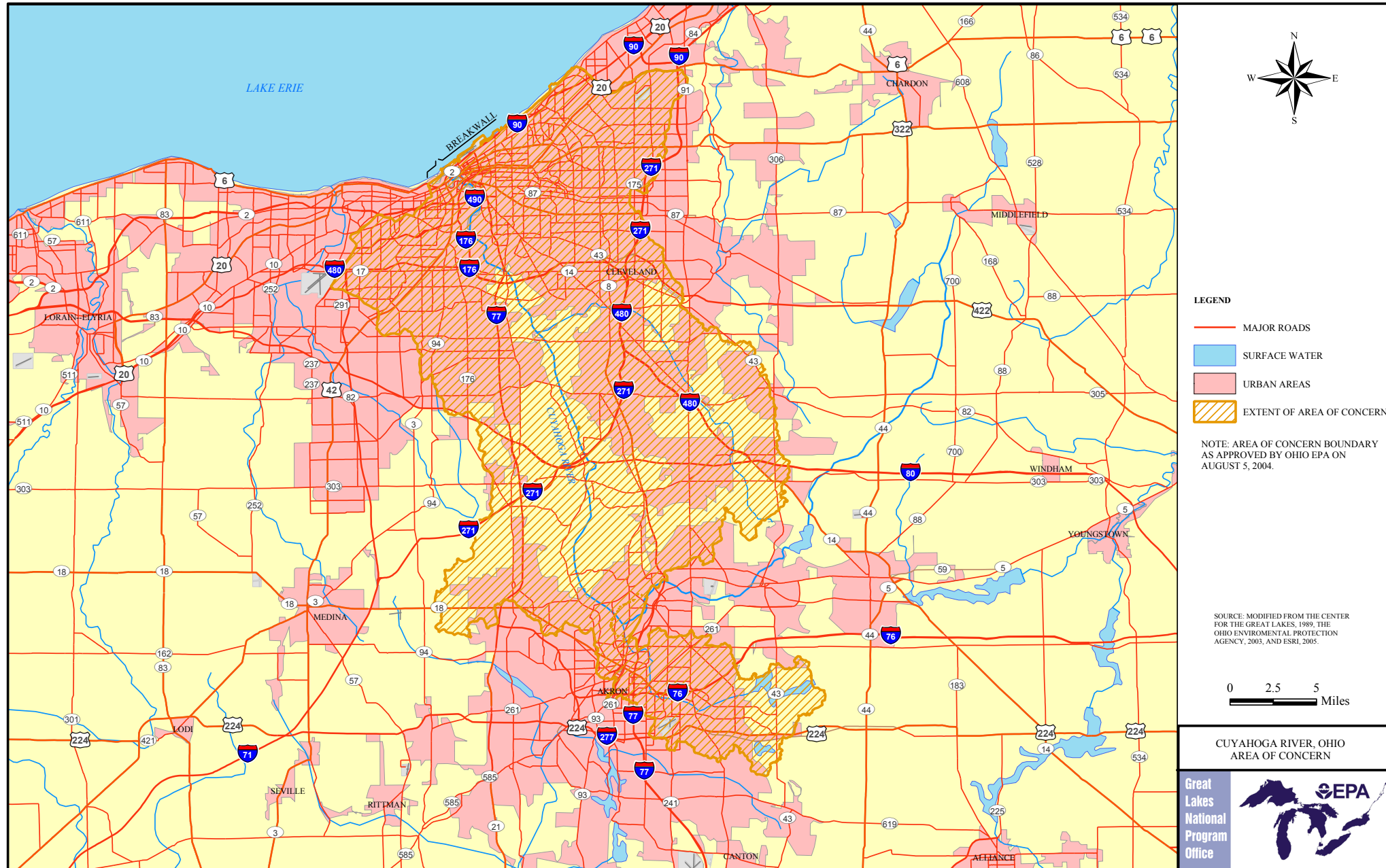


Figure 16

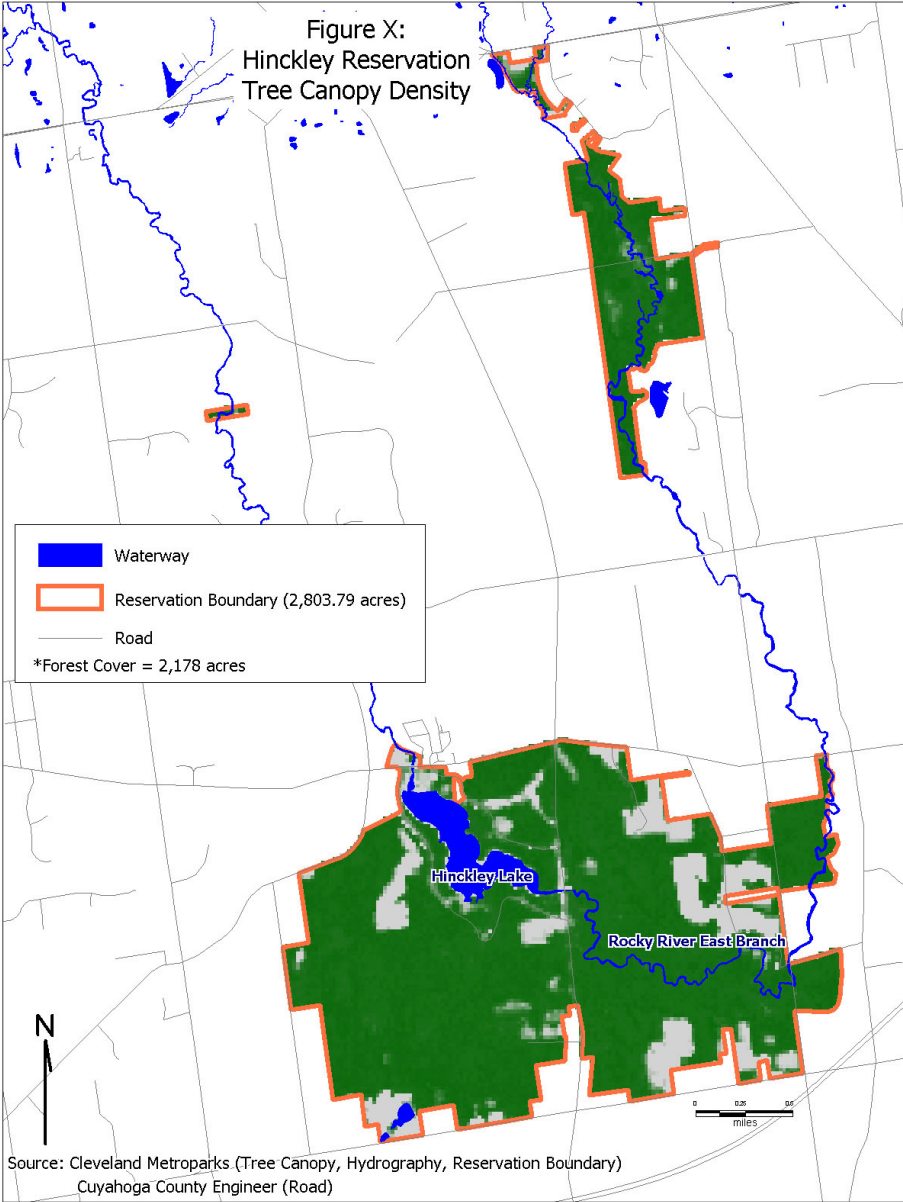


Figure 17

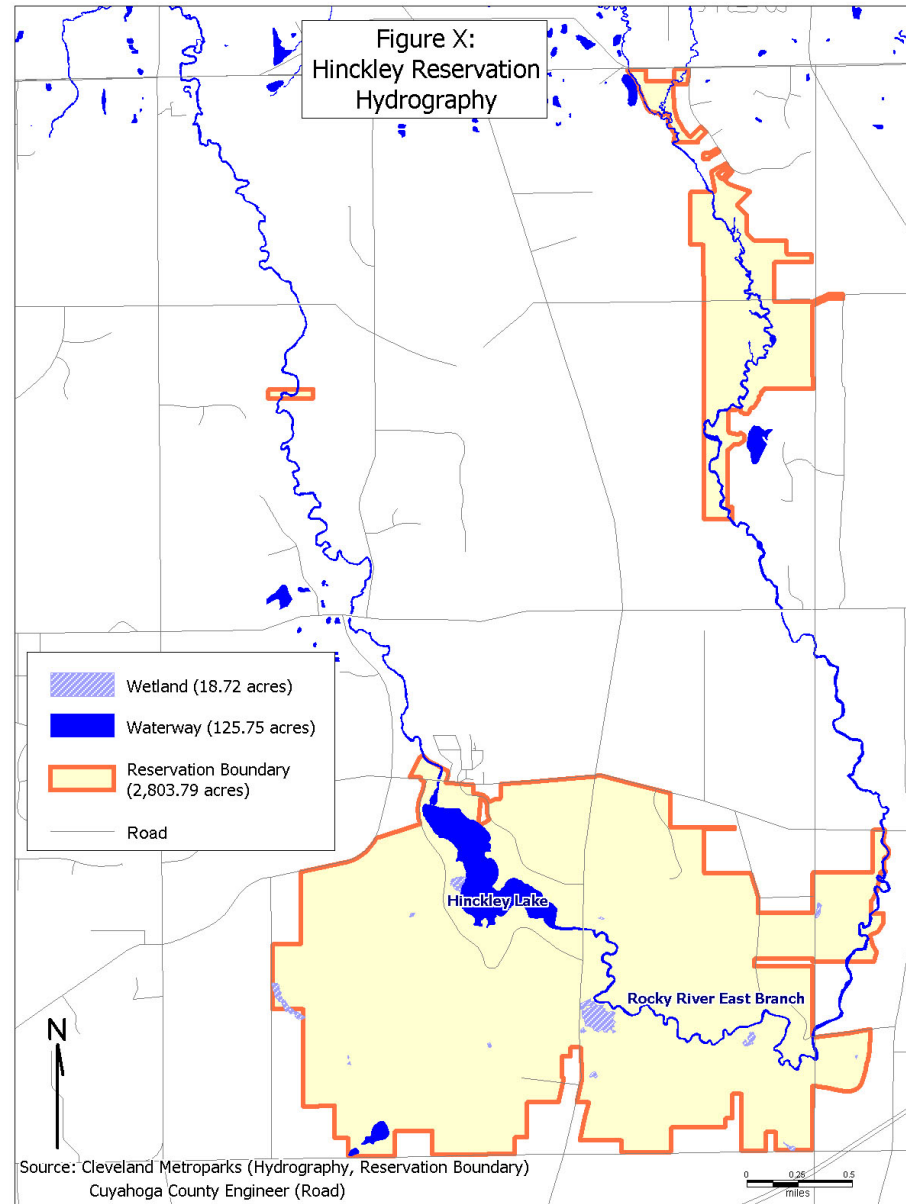
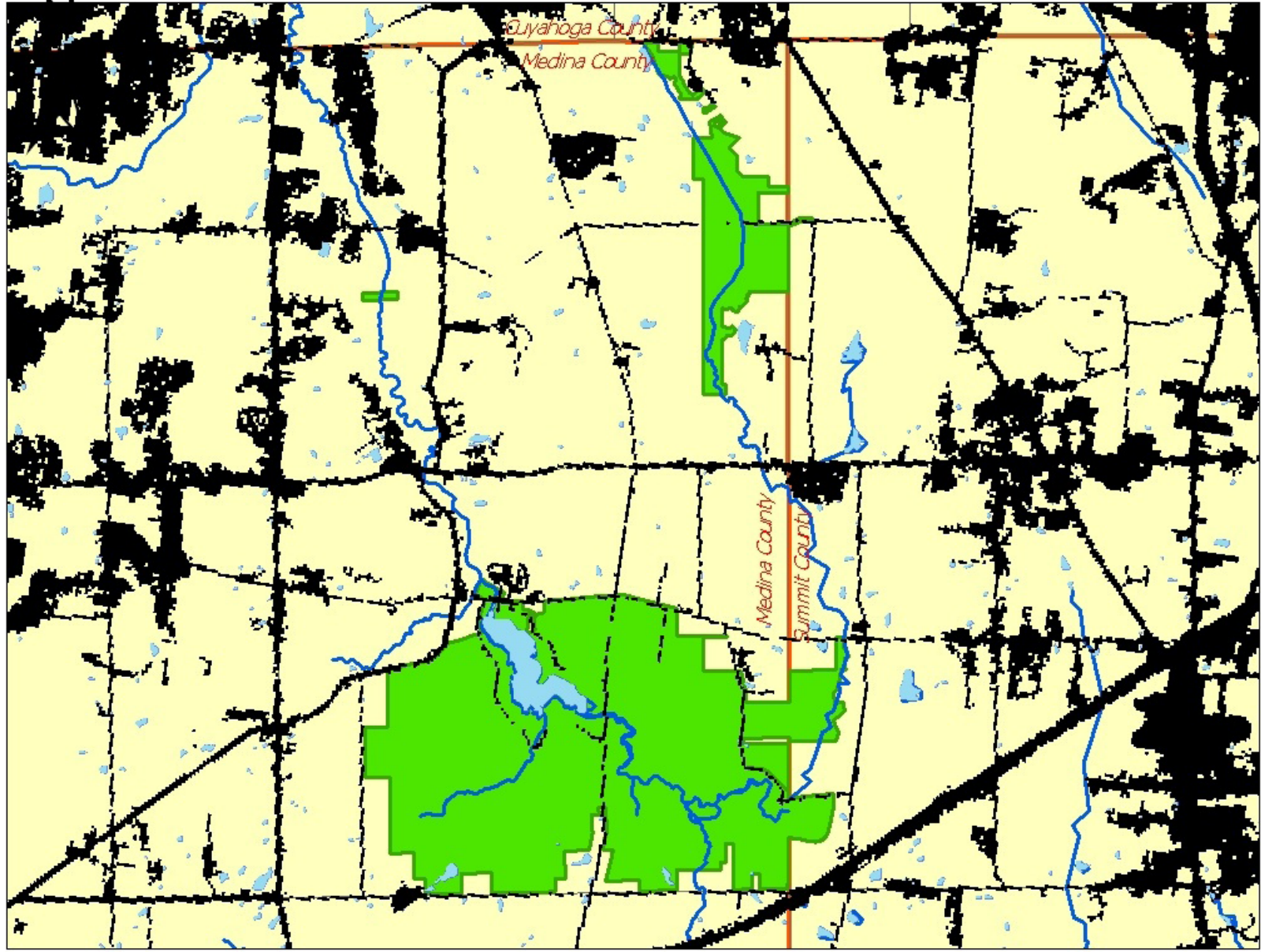







Figure 18

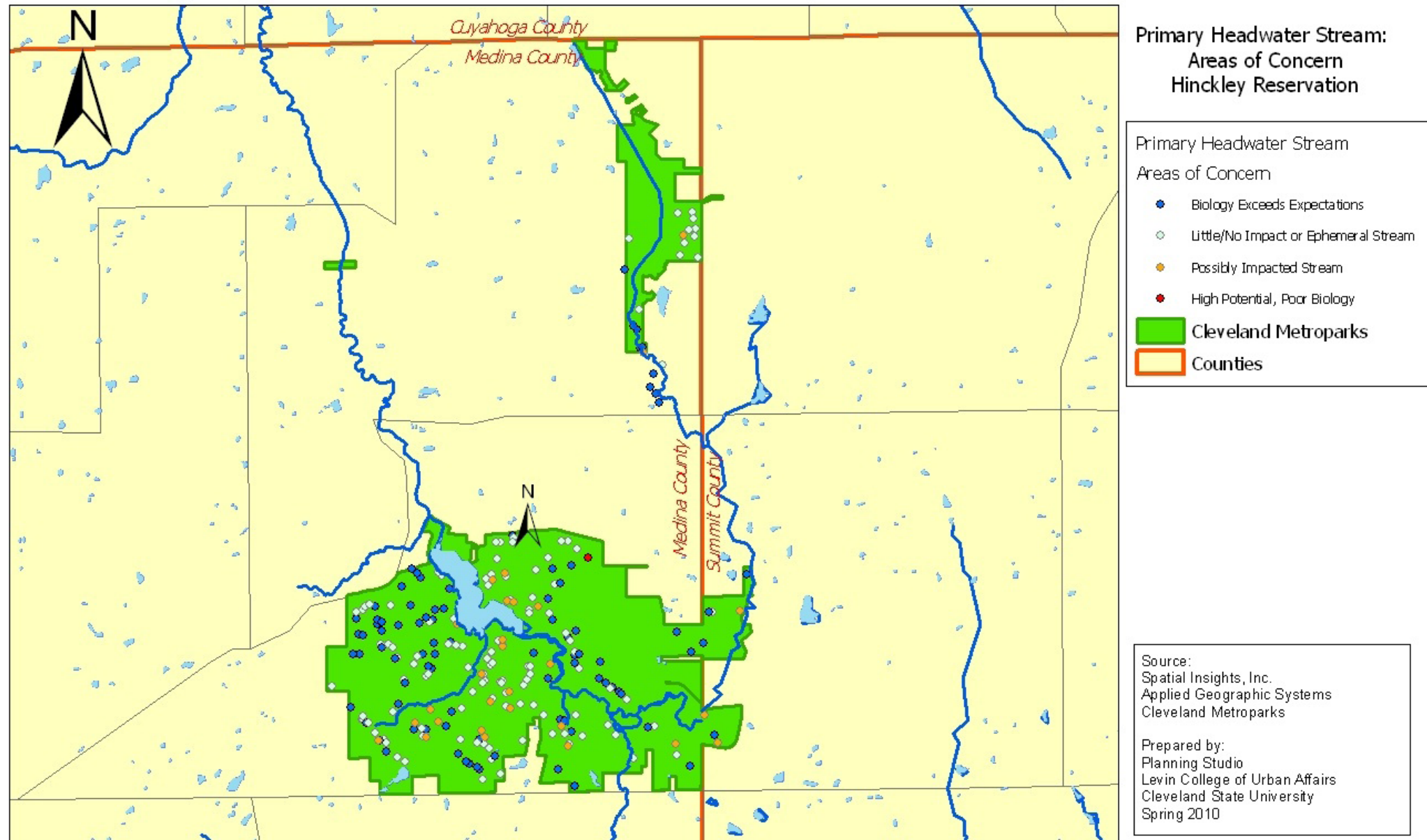


Impervious Surfaces  
Hinckley Reservation

	Impervious Surfaces
	Cleveland Metroparks
	Counties

Source:  
Spatial Insights, Inc.  
Applied Geographic Systems  
Cleveland Metroparks

Prepared by:  
Planning Studio  
Levin College of Urban Affairs  
Cleveland State University  
Spring 2010



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