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Chapter 5.0

*ROCKY
RIVER
RESERVATION*



Figure 1: Rocky River Reservation

History

By the turn of the 20th century, Cleveland had become a sprawling metropolis. At the time, it was the country's sixth largest city and home to more than 560,000 residents. As the area rapidly lost land to residential development, city leaders began to look outward; their sights set upon the Rocky River Valley. In an effort to preserve and protect the remaining "natural beauty spots" beyond the city borders, the Cleveland Metroparks were conceived. The leader of this rising tide was a self-taught Cuyahoga County engineer named William Stinchcomb. In 1919, Stinchcomb made his first purchase toward envisioning an "emerald necklace" within, what is known today as, the Rocky River Reservation (see Figure 1). The bluff of his first transaction overlooks the Rocky River and onward to the city of Cleveland. Today the site honors Stinchcomb's legacy of preservation with a monument dedicated upon his passing in 1959.

5.1 PHYSICAL RESERVATION

The Rocky River Reservation is one of the Metroparks most extensive holdings with over 2,500 acres. The long, narrow parkway stretches through eight Cuyahoga County communities and exemplifies Stinchcomb's vision. As it beckons those

who grow weary of the city din, its alluring siren taking the form of forest, field and waterway, invigorate, energize and sustain its captive audience (see Figure 2: River Corridor).

The 2,576 acres that make up the Rocky River Reservation are situated around the Rocky River in Cuyahoga County. The reservation stretches nearly thirteen miles and borders eight communities including Berea, Brook Park, Cleveland Fairview Park, Lakewood, North Olmsted, Olmsted Township and Rocky River. The river, its gorges and steep cliffs that line the Rocky River Valley are the most prominent natural features and provide unique character and picturesque vignettes as the river winds its way to Lake Erie.

Access to the reservation is limited due to the steep cliffs of shale that line the valley. There are two main entrances, a southern entrance located in Berea and a northern entrance located between the Lakewood and Rocky River borders. Additional access roadways include: Grayton, Mastick, Cedar Point, Brookpark, Puritas, Old Lorain Road, and Hogsback and Rockcliff Lanes. Cleveland Hopkins Airport forms a barrier for much of the Brook Park portion of the reservation, while several bridges fracture the flow of traffic to the north (see Figure 3: Bridge Near Fairview

Park).

Located in the Western Zone of the Cleveland Metroparks planning area, the reservation is maintained by a staff of twenty; nineteen full-time and one part-time. During the summer, the staffing is increased by approximately 12 to 15 seasonal workers.

5.2 BUILT ASSETS

Picnic Areas

Rocky River Reservation maintains a variety of recreational and educational opportunities within its borders. Visitors who enjoy less formal recreational opportunities can enjoy the ten picnic areas that line the Valley Parkway. Each facility offers shelter, grills, and restrooms while providing unique characteristics and amenities including playing fields, fishing access, fitness trails or meadows for kite-flying. Two facilities; Sycamore and Will Bend are reservable shelters available for a fee of \$100 on weekdays and \$150 on weekends and holidays.

Trails

Fifteen different trail options, from the 0.2 mile Shepherd Lane Trail to Rocky River Reservation's 13.6 mile paved all purpose trail, are provided for those who prefer

walking, jogging or hiking. As trail users travel along they share the river's landscape with local anglers, many of whom take advantage of the trout stocked by the Cleveland Metroparks annually. Former river fords provide perches for fisherman to lure their prey and much enjoyment can be had not only fishing, but observing the art of the sport. Rockcliff Springs located near the I-90 overpass is not only popular with fisherman, but also with physical fitness buffs who can take advantage of the 1.3 mile Rockcliff Springs Fitness Trail (see Figure 4: Fishermen).

Golf

The reservation includes three golf courses: Big Met, Little Met and Mastick Woods. Big Met Golf Course and Little Met Golf Course, both built in the 1920s, have enjoyed extensive remodeling over the years; including irrigation and drainage systems and cart paths. The construction of a new clubhouse at Big Met is an example of a Leadership in Energy and Environmental Design (LEED) sustainable site. The new building, with its state-of-the-art design and environmentally sensitive building techniques, reduces the amount of energy used in building operations, and exemplifies the conservation principles and values associated with the Cleveland Metroparks system. While Big Met provides an 18-hole

course for the more experienced player, Little Met and Mastick Woods, both nine-hole courses, provide a less challenging environment surrounded by forests, rolling hills and the Rocky River (see Figure 5: Golfers).

Equestrian Facilities

Rocky River Stables and the Lewis Road Riding Ring are within the park borders and centrally located adjacent to the reservation's 15.4 miles of bridle trails. The riding stable is operated by Valley Riding Company through an agreement with the park. In lieu of rental fees, the company provides funding for a portion of annual capital improvements. The park system maintains the facility. Memorial and Tyler Fields are specifically for baseball, with Memorial Field exclusively leased and maintained by the city of Lakewood for their youth program.

Marina

The Rocky River Reservation is also home to the Scenic Park/Emerald Necklace Marina. The 85-boat marina provides storage, dockside fuel service, professional motor and mechanical repair, winter storage and a boat launch ramp for 15' to 30' boats. Bait, ice, snacks and gifts are available at Sails Point and refreshments at the Wa-

terside Grill. Both Marina concessions are run privately.

Nature Center

The newly constructed Rocky River Nature Center provides visitors with interactive displays and exhibits detailing the history of the Rocky River Valley. A wildlife viewing area offers Amish-made rockers from which to observe the bird feeding station. An extensive series of trails, gardens, wetlands, ponds and the river provide additional opportunities for exploration. The nature center hosts a number of educational forums and non-profit events. A sampling of clubs and societies that host meetings at the nature center include: Western Cuyahoga Audubon Society, Cuyahoga Astronomical Society, Greater Cleveland Beekeepers Association, Northeast Ohio Association of Herpetologists, Cleveland Metroparks Southwest Camera Club, and the Rocky River Watershed Council (see Figure 6: Nature Center).

Historic Attractions

Several venues are available for visitors looking for a bit of history including: the Stinchcomb-Groth Memorial Scenic Outlook, the Lawrence Grist Mill and Frostville Museum. The Stichcomb-Groth Memorial is the site of the first Metroparks acqui-



Figure 2: River Corridor



Figure 3: Bridge Near Fairview Park

tion nearly seventy years ago; a monument honors the park's first supervisor William Stinchcomb. The Frostville Museum, located within reservation boundaries, is operated by the North Olmsted Historical Society. The museum complex consists of eight historic buildings and is open on weekends and for special events. Admission is free (see Figures 7a-d: Park Facilities Map).

5.3 SERVICES

In 2009, over 8-million people visited the Rocky River Reservation of the Cleveland Metroparks, nearly half of these visits were recreational. Educational activities are focused at the Rocky River Nature Center and at several interpretive sites along the all purpose trail, these include informational signage highlighting wetlands, gardens and astronomy.

Formal Recreation

The diversity of the reservation provides a multitude of formal recreation opportunities appealing to a broad array of visitors. Boating, kayaking, golf, soccer and baseball are a few of the organized activities that take place within park borders. The stables extend the recreational opportunities by providing lessons and additional services.

Informal Recreation

The beauty of the reservation lies in its ability to enable visitors to shed their day-to-day burdens, while transforming themselves into what is best described as public art in motion. Observation is a most enjoyable form of informal recreation within Rocky River Reservation and on a typical day you can enjoy children and adults of all ages walking, fishing, sunbathing, picnicking, and feeding the squirrels. It is a mosaic of human interest on display everyday of the year (see Figure 8: Recreational Walker).

Formal Education

Most programs are held at the Rocky River Nature Center. Historical displays detail the rich history of the Rocky River Valley along the walls and take us on a journey spanning prehistoric times to the modern day. The annual North Coast Nature Festival takes place every April to celebrate the earth's reawaking from a long north-east Ohio winter. Organizational exhibits, "The Nature & Art Show," guest speakers, games and nature-minded vendors host over 4,000 people at the event. Other highlighted weekend events are held throughout the year at the center.

Informal Education

Budding naturalists, birdwatchers and observers of nature share in the value of a reservation visit.

5.4 EVALUATION OF ASSETS

A result of the reservation's popularity is the strain that increased traffic puts on an aged system. Valley Parkway, the main artery throughout the reservation, consists of more than 12 miles of paved roadway. Stretches of the roadway show significant deterioration. Increased funding and ongoing maintenance appear necessary to address repairs of this main route. Bridges, trails and picnic facilities also require constant upkeep not only aesthetically, but also to minimize safety concerns. Funding and staffing demands regarding reservation infrastructure will persist and most likely increase in future years.

Big Met, Little Met and Mastick Woods Golf Courses have a workforce separate from reservation maintenance and require a cadre of seasonal workers in addition to a full-time supervisory staff. All three courses are subsidized by the Cleveland Metroparks. Greens fees are lower than the majority of area courses in keeping with the recreational mission of the Metroparks. Big Met and Little Met are beau-

tiful courses and rival their competitors. The Mastick Woods course is in great condition, though the clubhouse is dated and due for replacement.

A Cleveland Metroparks User Survey assessed visitors regarding the quality of services within the reservation. Services included maintenance, cleanliness, safety, ease of movement, educational and entertainment programs, and restroom availability. The survey data resulted in a generally favorable response with the majority of the subjects citing the quality of services within the Rocky River Reservation as excellent or good (see Figure 9: Quality of Services). Further information on Cleveland Metroparks User Survey results is located in Appendix A.

The survey also asked visitors what facilities within the Rocky River Reservation they used most frequently. Trails topped the list at 57 percent, with the Nature Center a close second at a 54 percent response rate. Golf courses (19 percent) and picnic shelters (28 percent) rounded out the top four facilities used by survey respondents (see Figure 10: Facility Usage).

5.5 SERVICES VALUATION MODEL

Based on the services valuation model described previously, Rocky River Reserva-

tion has a social value of \$11,406,399. This value is based on 2009 figures that allow for the assumption that 45 percent of recreational visits (1,786,912) were by people who exercise at least three times a week on park property; 144,344 nine-hole golf course games were played on any of the three golf courses on the Rocky River Reservation; and there were 53 venue rentals. This value is a conservative estimate, but it is indeed illustrative of the economic impact of the reservation on nearby municipalities and throughout Cuyahoga County (see Table 1: Social Valuation).

5.6 THREATS TO BUILT ASSETS

The key to identifying potential stressors affecting the built environment of the Rocky River Reservation begins with site observations as well as discussions with reservation personnel. Rocky River Park Manager Keith Kessler identified the following as potential stressors within the reservation:

- Encroachment on park property by adjacent property owners.
- Bridle trails have become expensive to maintain, while demand for additional trails grows.
- Flooding, the frequency of which has increased since 2004.
- Commuter traffic has changed the at-

mosphere of the park. Particularly the Wooster Road entrance in Fairview Park.

Site observations revealed additional stressors including:

- Significant erosion along Valley Parkway may require the relocation of trails and roadways.
- Vehicle traffic competes with other uses as the park is predominately located in a narrow strip along the Valley Parkway.
- Several remaining fords across the river flood during periods of intense rainfall. While many of the older structures were replaced, three remaining fords exist along the parkway. Replacing the fords with bridges that do not flood is very expensive and is significantly higher than the current capital improvement budget allows. (See Figure 11: Homes on Hillside).

Perhaps the largest potential stressor on the physical reservation is its limited revenue stream. The reservation currently operates on a \$ 2.3 million annual budget. Annual salaries for reservation staff are nearly half of the total reservation allowance: \$1 million. For fiscal year 2010, Rocky River Reservation will receive capital improvement funding (separate budget

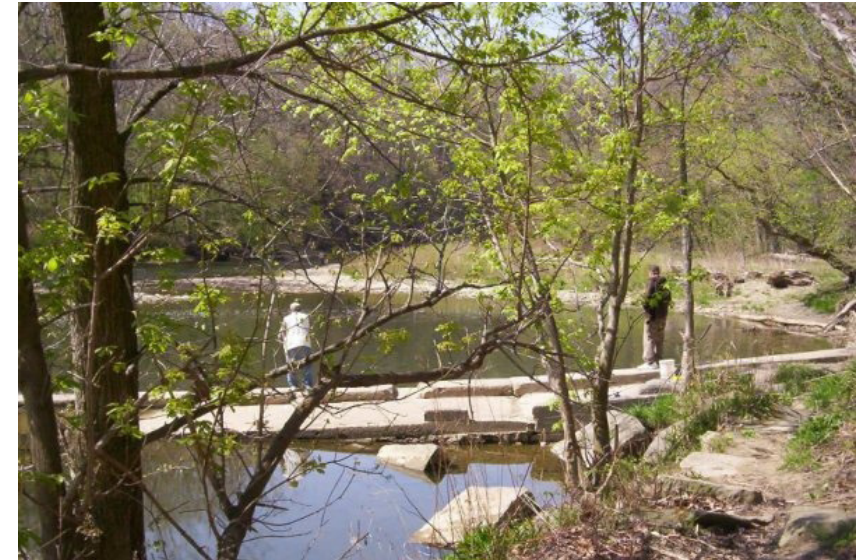


Figure 4: Fisherman



Figure 5: Golfers

line) for two projects totaling \$45,000.

5.7 RECOMMENDATIONS FOR BUILT ASSETS AND SERVICES

Overall Goal

To preserve what makes Rocky River Reservation beautiful and unique. To maintain the present level of services in order to retain the current level of visitors and attract new visitors to the Rocky River Reservation.

The following objectives are offered to provide suggestions for future goals within the reservations physical boundaries:

- Provide additional trail connectors into the park to minimize the vehicular traffic that reduces the quality of park visits.
- Promote the use of bicycles within the park by encouraging Cleveland RTA to provide bike racks on their bus routes that travel through adjacent communities (Routes 26 and 49). To reduce the necessities of automobile traffic within the reservation consider offering seasonal bicycle rentals at key locations including the Marina, Mastick Woods and the Nature Center.
- Guide the proposed renovation to Mastick Woods Golf Course around

design principles that incorporate the natural environment in construction and management techniques.

- Supplement the number of drinking fountains available along the all purpose trail system
- Install emergency call boxes in remote locations to increase security.
- Continue to upgrade existing portable toilets to permanent restroom facilities.

5.8 SOCIAL CONTEXT

Boundary Definition

The social context boundary surrounding the reservation includes the area within two miles of the reservation boundaries and is divided into three sections: north, south and central. The field surveys reveal that the majority of users live within five miles of the park location in which they were surveyed. The social context boundary was chosen to be within the immediate vicinity of that threshold.

Several barriers are included in the social context, including Cleveland Hopkins Airport and Interstate 71 to the east and Interstate 480 to the west. The Cleveland Metroparks Reservations of Big Creek and Mill Stream Run form a social barrier to the south.

5.9 NEIGHBORHOOD INVENTORY

Surrounding Land Use

The northern section of the social context boundary includes the cities of Lakewood, Rocky River and portions of Fairview Park and Cleveland. While the majority of the land usage is residential, there are major corridors of apartment buildings along Detroit and Wooster Road near the northern entrance of the reservation. Detroit Road, spanning Lakewood and Rocky River within the social context, is predominantly commercial retail with a limited amount of religious and governmental usage. Several schools are located within the social context boundaries as well (see Figure 12: Land Use Map – North).

The central section is predominantly residential and includes the cities of Cleveland, Fairview Park, and portions of Rocky River and North Olmsted. Several pockets of apartment housing exist within the social context boundaries. The NASA Lewis Research Center and Cleveland Hopkins Airport consume a significant amount of land in the central section. Sporadic commercial and office uses dot the area within the boundaries, with additional clusters located near the I-480 Bridge at Brookpark Road and the Lorain Avenue Bridge near

the railroad tracks (see Figure 13: Land Use Map – Central).

The southern section of the social boundary includes the cities of Cleveland, Berea, North Olmsted, Middleburg Heights, Brook Park and Olmsted Township. This portion includes the airport property south of Interstate 71 as well as Big Creek and Mill Stream Run Reservation. To the north are major commercial and industrial uses within Middleburg Heights. Retail commercial usage includes North Olmsted's Great Northern Mall, as well as Bagley Road in Berea. Baldwin Wallace College represents a majority of the land usage in the southeast. Commercial development is included on Front Street in Berea. Olmsted Township provides a considerable amount of agricultural usage with a high number of stables located near Columbia Road (see Figure 14: Land Use Map – South).

5.10 POPULATION AND HOUSING CHARACTERISTICS

Current Demographic Data

According to 2009 U.S. Census Bureau Block Group data assembled within 2-miles of the Rocky River Reservation boundary, the population of 116,424 includes 9.1 percent of Cuyahoga County's

total population (1,275,708). The median age of residents within the study area continues to mirror that of the State (36.2 years), but remains slightly lower than the 2008 median for Cuyahoga County (40 years).

As of 2009, 52,046 households averaging 2.2 persons were in the 2-mile boundary. Nearly 60 percent of these households are owner-occupied (see Figure 15: Housing Count). The communities surrounding the reservation continue to retain and attract residents with median household incomes that are well above the median for Cuyahoga County (\$44,199) and the state of Ohio (\$47,987) (see Figure 16: Median Household Income Map).

Racially, the area is predominately Caucasian, with 6.2 percent of the population being African-American. Twenty percent of the population aged 25 and above have Bachelor's degrees, which is slightly lower than the Cuyahoga County average of 25.1 percent (see Figures 17 and 18: Race and Education Maps).

Projected Demographics

The U.S. Census estimates project a significant decline in population for the block groups within the study area. Population estimates for 2014 population show a 6.4

percent decline from 2009. By 2019, estimates reflect a 15.6 percent decline from 2009 population data. Somewhat paradoxical is an increase in the number of households within the block group area during the same time period. Though increases are minimal through 2014, the number of households in a 2-mile radius of the reservation borders is estimated to increase by 56.4 percent.

Housing Characteristics

The average age of the housing stock within the eight communities lining the Rocky River Reservation of the Cleveland Metroparks is 59 years. The oldest homes are in the cities of Cleveland and Lakewood – 88 and 92 years respectively. The newest construction is found in Olmsted Township with an average age of 35 years. Rocky River and Fairview Park average 60 and 61 years of age (see Figure 19: Age of Housing Stock).

Maps that use Cuyahoga County Auditor's Office data from 2009, offer a view into the range of residential property values throughout the reservation's neighboring communities. The predominance of low property values in Cleveland may indicate aging housing stock, the foreclosure crisis, limited education and safety concerns. Olmsted Township reflects higher residential



Figure 6: Nature Center



Figure 8: Recreational Walker

property values most likely attributed to lower density development and a lack of commercial properties. Rocky River and the north end of Lakewood reflect high property values and benefit from their proximity to Lake Erie as well as quality school systems and neighborhood amenities (see figure 20: Housing Values and Figures 21, 22, 23: Residential Property Values [North, Central and South]).

5.11 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. The neighborhood area is divided into five different ranges of 200 feet buffers. Each buffer range is measured from the Rocky River Reservation.

Rocky River borders 8 municipalities and has an effect on 12 tax districts: Fairview Park, Fairview Park/Berea, Fairview Park/Rocky River, Berea, Brook Park, Cleveland, Cleveland/Brook Park, Cleveland/Berea, Lakewood, North Olmstead, Olmstead Township, and Rocky River. The average property tax rate for the tax districts

is 2.31 percent

The total property tax that is, in effect, created by the location of the Rocky River Reservation is estimated to be \$4,823,094 (see Table 2: Economic Valuation)

5.12 COMMUNITY GROUPS AND GOVERNMENT AGENCIES

"To manage resources in the public interest, agencies must expand their value base in order to understand the range of public groups: their concerns and how to reach them. To do this requires interaction with people of different values and cultures, which by definition means building bridges with the world outside agency walls."

- Julia M. Wondolleck and Steven L. Yaffee

-Making Collaboration Work: Lessons from Innovation in Natural Resource Management

The Cleveland Metroparks continues to focus on broadening their collaborative relationships by developing partnerships that bridge longstanding boundaries of organizational affiliations, personal interests and perceptions, geography and jurisdictions.

The Rocky River Watershed Council (RRWC) efforts concentrate on protect-

ing, 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. Successfully identifying where council efforts are most effective is the greatest obstacle toward effective partnerships.

The Western Cuyahoga Audobon Society (WCAS) continues to survey forest breeding bird populations throughout the Rocky River watershed. WCAS volunteers take part in recording bird sightings at randomly selected points throughout the Rocky River Reservation to estimate population sizes relative to reservation size and plant composition. Ongoing efforts to collect vegetation data to correlate vegetative structure and composition with bird counts is also undertaken by the

group. Currently the organization is working with Metroparks personnel, environmental groups and governmental entities to establish a 2020 plan.

The Ohio Audubon Society has designated the Rocky River Watershed as an IBA (Important Bird Area), determining that the habitat within the Rocky River Reservation, among other Metropark holdings within the watershed, is critical for birds and other wildlife. The WCAS is important in providing data to assist the Metroparks in their ongoing mission to identify tracts of land prime for acquisition in order to protect wildlife and habitat. Through their Rocky River Important Bird Area Surveys, the support provided by the organization aids in grant applications for future Cleveland Metropark acquisitions. The group recently provided valuable survey data that was used in receiving grant funding for 62 acres in North Royalton, which protects nearly a half-mile of the Rocky River’s east branch. A portion of the application for grant money identified one species of bat and about two dozen bird species. The acquisition of this land by the Cleveland Metroparks will protect the habitat of these rare and endangered species.

Community Partnerships

Community partnerships within the so-

cial context boundary of the Rocky River Reservation include reservation staff establishing and maintaining 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 individual communities.

The opportunities presented when stakeholders are familiar with each other’s goals and limitations can expedite projects that otherwise may lay dormant. The potential development of new trail connectors along the reservation is an opportunity for all parties to combine their efforts to benefit residents. Large stakeholders such as the airport and Great Northern Mall include Cleveland Metroparks staff in planning meetings regarding expansions or improvements (see Figure 24: Berea).

Public-Private Partnerships

The efforts of corporate volunteers enhance the ability of reservation staff to maintain areas of the reservation that would not normally be included in day-to-day maintenance. Employees from Key-Bank, Ford Motor Company, Cargill and Aspen Dental routinely provide teams of volunteers for trail maintenance, litter clean up and additional necessary tasks.

Non-profit partnerships with local organizations also bolster staffing in many areas of park maintenance. For example, establishing Eagle Scout projects through the Boy Scouts of America achieves smaller project goals while also providing a learning experience for the scout. Other non-profit partners include: Cleveland Yacht Club, Valley Riding, North Olmsted Historical Society and 41 Degrees North Kayak Club.

5.13 THREATS TO SOCIAL CONTEXT

Cuyahoga County has been especially hard-hit by foreclosures during the recent economic downturn, and the social context area of the Rocky River Reservation has not missed the devastation. Even the relatively stable city of Rocky River saw a record high of 18 foreclosures adjacent to reservation border in 2008. Foreclosed Cleveland properties within the social context area remain the highest with an average of 47 annually from 2005 to 2009. While an overall decrease in home value has frightened homeowners, the park system also suffers due to anticipated decreases in property taxes. These reductions are partially attributed to an anticipated higher amount of delinquencies in 2010 (see Figures 25, 26, 27: Foreclosure Effects Maps [North, Central and South]).

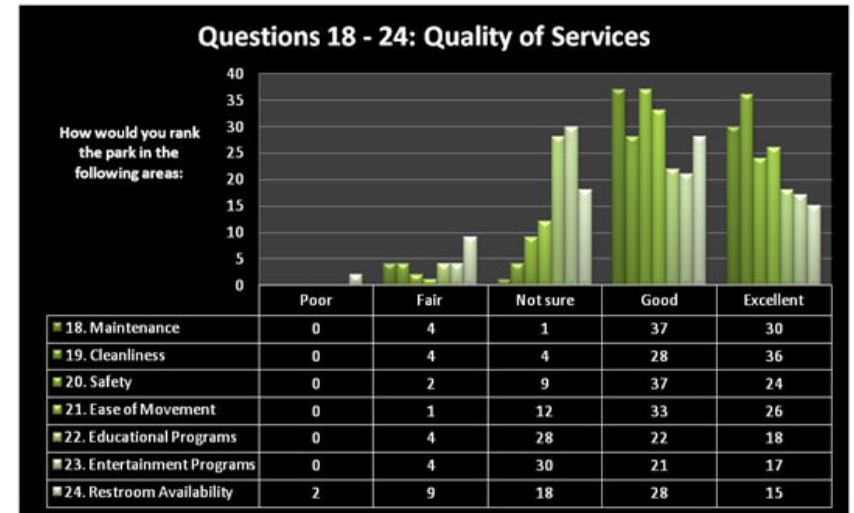


Figure 9: Quality of Services

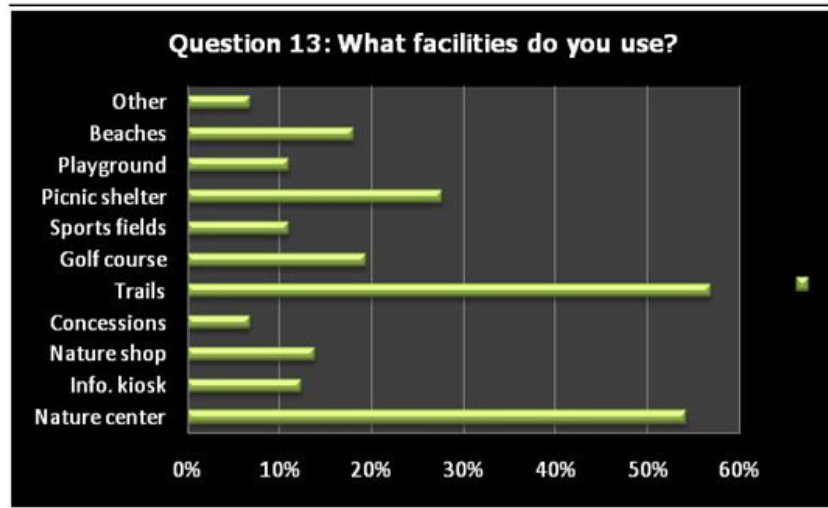


Figure 10: Facility Usage

Increasing development and urbanization have increased strains on the Rocky River Valley. The impacts of which contribute to erosion and a degradation of water quality. Construction sites are a major water quality problem, as sediment muddies the water and smothers the normally rocky bottom of the streams. Bare ground within new subdivisions makes soil vulnerable to erosion and phosphorus runoff.

Construction debris is a big problem as developers use the valley as a garbage dump. Thousands of homes are built too close to riparian areas, leading to ecological stresses on feeder streams. The alteration of topography and drainage patterns during construction can lead to channelization of waterways contributing further negative effects on an already fragile ecosystem.

Pollution in the form of storm water runoff from impervious surfaces such as roofs and driveways degrade water quality and failing home sewage systems compound the problem. Within the social context area, a number of sewage plants release inadequately treated waste into the river and its tributaries, severely degrading water quality. Continued commercial development near Great Northern Mall and Lorain Road may also impact the social context of the reservation.

Limited access into the reservation blocks opportunities for easy use. Access is especially difficult in the northern section of the reservation where several highway overpasses and the Lorain Avenue Bridge impede the ease of access. In a similar vein, the reservation is difficult to access unless one has an automobile. Severe grades and limited RTA service exclude those who may wish to frequent the reservation but lack an automobile.

5.14 RECOMMENDATIONS FOR SOCIAL CONTEXT

Overall Goal

To improve reservation accessibility through a number of methods including: partnerships with neighboring communities and agreements with public transportation services. These partnerships are also important to prevent further environmental degradation to the river valley by storm water runoff of inadequate sewage systems.

Objectives

The following objectives are offered to provide suggestions for future goals within the reservation's social context boundaries:

- Further analysis of collaborative best management practices may enable the Cleveland Metroparks to expand their list of stakeholders and further an increased sense of responsibility and value toward natural resource protection.
- Provide ongoing education with neighboring communities regarding land use regulations that reduce negative impact upon the Rocky River Reservation. Working with for-profit and non-profit partners can aid the Cleveland Metroparks in reaching a wide audience.
- In this time of high foreclosures and unemployment, investigate workforce development opportunities that share the professional talents of Cleveland Metroparks staff with community youths while instilling a sense of stewardship and appreciation for the natural environment.
- Partner with RTA in the provision of buses with bike racks to encourage visitation by those who rely on public transportation outside the social context boundaries.

5.15 ECOLOGICAL CONTEXT

Boundary Definition

Rocky River Reservation is part of the

Rocky River Watershed, encompassing a drainage area of 294 square miles. The watershed's headwaters are located in Summit and Medina Counties. The park includes two branches: the East and West which meet near Cedar Point Road to form the river's mainstem 12 miles from Lake Erie. The river has seven major tributary creeks: Plum, Blodgett, Baldwin, Abram, Baker, Mallet and Healey. Together these waterways consist of 664 stream miles. The watershed provides drinking water for Berea and Medina.

5.16 NATURAL RESOURCE INVENTORY

The entire watershed basin is designated as a warm water habitat by the Ohio Environmental Protection Agency (EPA) and is capable of supporting a balanced and relatively diverse community of warm water aquatic organisms. The last six miles of the mainstem are designated as Seasonal Salmonid and support the seasonal passage of salmonid species, such as trout, and large enough to support recreational fishing.

According to the Ohio EPA, the Rocky River Basin is located in the Erie/Ontario Lake Plain ecoregion, which is characterized by glacial plains interspersed with higher remnant beach ridges, drumlins,

glacial till ridges, till plains, and outwash terraces.

Persistent problems within the watershed include: organic enrichment from sewage and runoff, metals, ammonia and habitat alteration.

Forest

The forest canopy makes up 66 percent of the total reservation. Mature trees within the ecological context of the park include species such as sugar maple, beech, hickory, oak, tulip, sweet gum and ash. Understory trees such as amelanchier, dogwood, crabapple and cherry provide a valuable food source for the bird population (see Figures 28, 29, 30: Forest Cover [North, Central and South]).

Soil Condition, Infiltration and Erosion

More than 90 percent of the watershed is covered by Hydrologic Soil Types that are classified as 'C' and 'D' soils. These soils have the slowest infiltration rates and the highest runoff potential. This would seem to limit the effects of increasing impervious areas as the streams of the watershed are already sized to transport large storm flows. However, these stream channels are in a fragile state of balance in that they are capable of supporting warm water aquatic

habitats but have only a limited ability to accept change without degradation (see Figure 31: Rocky River Border).

The steep shale cliffs that line the valley are highly susceptible to erosion. This is exacerbated by development along the ridges. The identified problem areas for erosion tend to be found in the northern part of the reservation. The ridges along Riverside Drive, Puritas Avenue and Mastick Road are of particular concern.

Wetlands

Wetland areas comprise 1.85 percent of the Rocky River Watershed. Of the 3,462 wetland acres in the watershed, 3,118 are classified as woody wetlands and 344 are emergent herbaceous wetlands. Marshes are the most common form of wetlands and are characterized by low growing plants and reeds and a sense of open space. Other types of wetland include bogs, which have a highly acidic chemical balance, and fens, which are very alkaline. Swamps are wetlands which support trees and other large plants, often with limited visibility. Due to their soil saturation and pools of standing water, they are also classified as wetlands (see figure 32: Wetlands).

One of the most important functions of a wetland within the ecological border is



Figure 11: Homes on Hillside

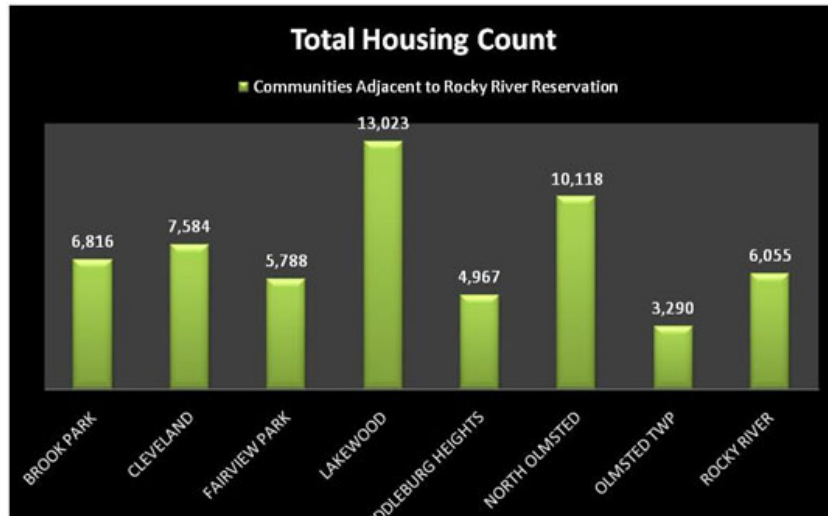


Figure 15: Housing Count

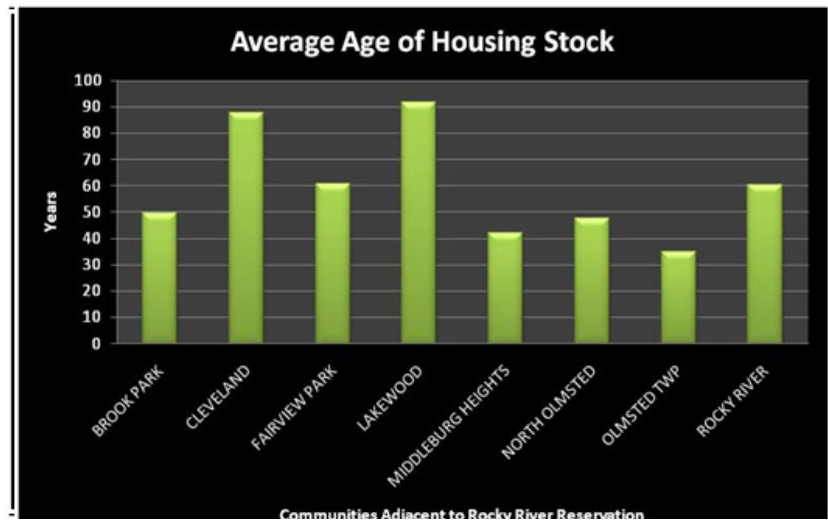


Figure 19: Age of Housing Stock

to act as a buffer zone between a river and dry land. Wetlands protect land from flooding and storm damage by absorbing the brunt of it. In addition, these wetlands help to prevent soil erosion, because the plants and trees that live in them form dense networks of roots that hold the soil in, preventing it from washing away. Many wetlands actually create accumulations of rich, nutritious soil upon which plants, animals, and birds can thrive.

Hydrology

The most important hydrologic characteristic affects storm water runoff from land surface that does not allow infiltration of runoff into the soil and is directly connected to the drainage system. Imperviousness correlates well with land cover and drainage system type. Highly urbanized areas - such as those within the ecological boundaries of the Rocky River Reservation - where much of the land surface is either paved or covered with buildings, are highly impervious. Hydrologic function improves in the southwest rural area of the boundary, which tends to have low imperviousness. In this case, runoff response is almost entirely a function of soil type.

As much as 95 percent of the area in the watershed is underlain with soils that

have severe limitations for septic systems. Therefore, alternative septic system designs are regularly used in the watershed. Local health departments already use county soil maps to insure that appropriate system designs are used on individual lots. Soil unsuitability is so widespread that it dictates the types of systems that are approved by local health departments (see Figures 33, 34, 35: Hydrography Map [North, Central and South]).

Animal Life

Wildlife thrives within the Rocky River Reservation, perhaps too much, as populations of whitetail deer and Canadian Geese delight park visitors, while confounding reservation staff. The river supports an active and productive fishery. Migrating waterfowl are plentiful. There is a diverse variety of small mammals and it is not unusual to regularly see rabbit, groundhog, red fox, mink, beaver, raccoon, skunk and opossum (See Figure 36: Beaver Dam near Nature Center).

Songbird populations have increased as their native habitats are reduced. Similar to the increased presence of whitetail deer, turkey populations are increasing. Coyote sightings have increased within park borders. While coyotes are generally shy and avoid humans, their presence may require

additional measures to educate park visitors about their habits.

Management of the whitetail deer population within the reservation has relied on culling the population periodically to maintain sustainable numbers for an ecological balance.

5.17 ECOLOGICAL VALUATION MODEL

Based on the valuation model, the ecological service that the 1,692 acres of forest in Rocky River Reservation provide is \$40,566,053. The highest service provided was carbon storage, which was \$26,766,067, followed by storm water control at \$11,465,464. Forested areas also support biodiversity and habitat, which has a value of \$1,820,901. Air quality, hydrologic services, and soil formation/retention added to the overall ecosystem services, and had a total of \$513,621 combined (see Table 3: Ecological Valuation).

5.18 THREATS TO ECOLOGY

Emerald Ash Borer

In 2008, the Cleveland Metroparks Forestry Division discovered its first confirmed Emerald Ash Borer infestation along Big

Creek Parkway south of Bagley Road. The Emerald Ash Borer, an ash tree-killing insect from Asia, was first discovered in Michigan in 2002. Nearly 3,000 square miles in southeastern Michigan are infested and more than 6 million ash trees are dead or dying from this insect.

The first confirmed Ohio case was identified in 2003. To date, infestations have been confirmed in 48 Ohio counties. The best method to prevent the spread of the Emerald Ash Borer is to not move infested wood. The Metroparks distinctly marks all pruned and felled ash wood to prevent its transport into other communities.

Invasive Species

Non-native, invasive species are a major threat to the integrity of natural plant and animal communities around the world. Without intervention, many invasive plants will spread rapidly and displace native plants, disrupt the natural plant succession and reduce the ecological integrity of the native habitat. It is estimated that nearly one-quarter (500 species) of all plants growing in the wild in Ohio are non-native. Several dozen of these are considered serious enough for the Cleveland Metroparks to develop an Invasive Plant Management Plan (IPMP) (see Figures 37 and 38: Environmental Stressors

Map [North and South]).

The IPMP focuses on those invasive species with the most invasive characteristic and have a significant presence in the park system. According to the IPMP, Rocky River Reservation has a high degree of infestation with greater than 300 acres of estimated primary and secondary invasive plant species.

- Primary: lesser celandine, garlic mustard, Norway maple and Japanese knotweed
- Secondary: Eurasian buckthorns, multiflora rose, barberry, phragmites, purple loosestrife and cattails

In 2010, the annual costs required to control invasive species within the Metroparks is determined to exceed \$200,000 (see Figure 39: Garlic Mustard and Invasive Species).

Deer Population

The impact of a large deer population can have a cumulative negative effect on natural areas, especially forested areas. Deer repeatedly browse new growth and tree seedlings often to the point where regeneration of native species stops. Plants not preferred by the deer increase and crowd out the weakened natives. Several areas

of the Metroparks have been browsed to the point where native trees, shrubs and wildflowers will need to be re-introduced into the landscape. While the mature forest trees are not affected by deer browsing, the lack of understory growth in the forest makes it difficult for small mammals to find shelter and birds to find food.

Storm Water Maintenance

A large portion of the pollution found in the watershed comes from non-point sources such as improper land use practices, home sewage treatment systems, construction, yard fertilizers and roadways. This type of pollution is best controlled through best management practices to protect water quality and economic, social and political interests.

In urban areas such as the Rocky River watershed, sources of non-point pollution include: oil and grease from highways, driveways and parking lots, excess fertilizers and pesticides, illegal dumping into storm sewers and creeks, erosion and sedimentation from construction sites, pet wastes and leaves and debris that clog storm sewer systems and creeks.

5.19 RECOMMENDATIONS FOR NATURAL RESOURCES



Figure 20: Average Housing Values



Figure 24: Berea



Figure 29: Rocky River Border

Increase the Stewardship of the Rocky River Watershed

Encouraging public involvement and providing residents and visitors with information on methods to improve water quality can aid in establishing a sense of ownership within the Rocky River Watershed. Educational opportunities such as rain garden and rain barrel demonstrations can be fun and informative. Methods to reduce the amount of impervious surface within the ecological boundaries can increase through local government reviewing their zoning requirements regarding parking facilities and driveways.

Many steps to protect water quality can occur at home through the establishment of riparian buffers, picking up and disposing of animal waste properly, septic tank maintenance and washing cars on lawns rather than driveways. Something as simple as raising the height of a mowing deck can improve the water quality for the residential user.

Invasive Species Removal

Organizing volunteers for an afternoon of invasive species removal can mentally and physically benefit participants. Working with local garden centers and horticulture professionals can educate the public adja-

cent to the reservation on plant varieties that may lead to costly headaches for the park system. Offering alternatives to invasive species and public information on identification and disposal can also aid in combating this persistent ecological threat.

5.20 POLICY RECOMMENDATIONS

Establish Mastick Woods Golf Course as a Leader in Eco-Friendly Recreation

Traditional golf course construction and maintenance impact the natural environment in a number of ways including: loss of habitat, water depletion; chemical contamination of soil, surface water and ground water, and excessive runoff and soil erosion. Golf courses, old and new, are responding to growing concerns about environmental degradation by focusing on designs that support and incorporate wildlife habitat into their planning efforts.

Currently, the park system has invested in designing the existing course to model the successful Washington Reservation's Washington Golf Learning Center and First Tee Course. The Washington Reservation facility currently participates in the Audubon International's GOLD signature program by promoting wildlife conservation, habitat enhancement resource management, energy efficiency and water con-

servation.

The Mastick Woods renovation offers the Cleveland Metroparks an opportunity to expand efforts to preserve plant, animal and ecosystem diversity on a large scale by providing habitat corridors appealing to birds and small mammals. Links-style management practices traditionally used in England are an example of establishing primary and secondary roughs of native vegetation along and within the fairways that attract wildlife that may otherwise avoid traditional mowed areas, while challenging golfers in an aesthetically pleasing environment. Operating costs are reduced due to less mowing, fertilization and watering.

Unique concepts such as elevated tee areas that require golfers to hit over wetlands and marshes, or an earth-sheltered clubhouse that double as a driving range or first tee, further serve as examples of innovative environmental recreational practices. Several sources of funding are available to aid non-profit organizations in establishing naturalistic golf courses including the federal Cooperative Endangered Species Fund (Section 6), providing nearly \$66 million in grant funding to local private landowners, conservation organizations and other partners to protect and conserve the habitat of threatened and

endangered species. Additional resources are the Wildlife Links program, a joint venture of the United States Golf Association (USGA) and the National Fish and Wildlife Foundation, and Audubon International's Wildlife Sanctuary program (see Figure 38: Mastick Woods Clubhouse).

Focusing on Community Partnerships to Enhance the Region

Sharing the wide-ranging talents of Cleveland Metroparks staff within a region may provide positive role models for young adults. The field of public resource management provides a future career training ground for these youngsters while offering a broader understanding of the value and shared responsibility of natural resource protection. Participants in the program receive mentoring and training and the park system received resources assisting in park maintenance and infrastructure projects.

The model for such a program remains depression-era public works programs like the Civilian Conservation Corp (CCC). During the 1930s and until 1942, the corps was instrumental in keeping the country's fledgling park system from falling victim to the economic depression, and in fact, projects within the national park system were accelerated by the influx of laborers. The national parks were not the only

ones to benefit. By 1936, more than 5,000 CCC workers were building roads, foot and bridle trails, shelters and clearing picnic and parking areas within the City of Cleveland's metropolitan park system, the current Emerald Necklace.

Though the CCC program was discontinued in 1942, programs to expose the nation's youth to national service have continued. The current national service program is AmeriCorps initiated by President Clinton in 1993. AmeriCorps combined two long-standing national service programs: VISTA (Volunteers in Service to America) in which new generations of environmental professionals continue as the AmeriCorps program and was created by President Lyndon Johnson in 1964, and the National Civilian Conservation Corps (NCCC). The goal of AmeriCorps is to engage Americans in intensive service to meet the nation's critical needs on education, public safety, health, and the environment.

AmeriCorps works with Governor-appointed State Service Commission to provide grants to non-state government and government entities that sponsor service programs. The grants can be used to engage AmeriCorps members in service projects to help meet critical community needs in education, public safety, health

and the environment. Sample activities include tutoring and mentoring youth and restoring parks. The organizations that received grant funding are responsible for the recruitment, selection and supervision of AmeriCorps members serving in their programs.

Ohio's Recovery Conservation Corps Initiative

Another example is Ohio's Recovery Conservation Corps Initiative, establishing "green" summer youth programs that provide work experience opportunities for young Ohioans. The work experiences are performed in state parks, forests, metropolitan parks and natural areas which would otherwise be neglected due to lack of funding.

The initiative is funded with \$2 million in statewide American Recovery and Reinvestment Act (ARRA) Workforce Development funding. Local Workforce Investment Boards use local workforce stimulus funds for the wages of the youth workers and also support the cost of tools, transportation and other needs.

A wide variety of work experiences within the Cleveland Metroparks reservations are appropriate for this target population which includes low-income youth who are ages 16 through 24. These opportunities include trail maintenance, invasive spe-



Figure 30: Wetlands



Figure 32: Beaver Dam near Nature Center



Figure 34: Garlic Mustard and Invasive Species



Figure 35: Mastick Woods Clubhouse

cies removal, facility maintenance repair and repair, and landscaping. Training in a variety of eco-management techniques may lead to certification and enhance participants' opportunities for future employment opportunities.

Recently, U.S. Senator Sherrod Brown (D-OH) introduced legislation that expands the range of Youth Corps programs. The Youth Corps Act of 2010, cosponsored by Sens. Kirsten Gillibrand (D-NY), Bernie Sanders (I-VT) and Tom Udall (D-NM) would amend the Workforce Investment Act (WIA) to establish a competitive grant program to assist states and local communities in establishing and expanding Youth Corps Programs.

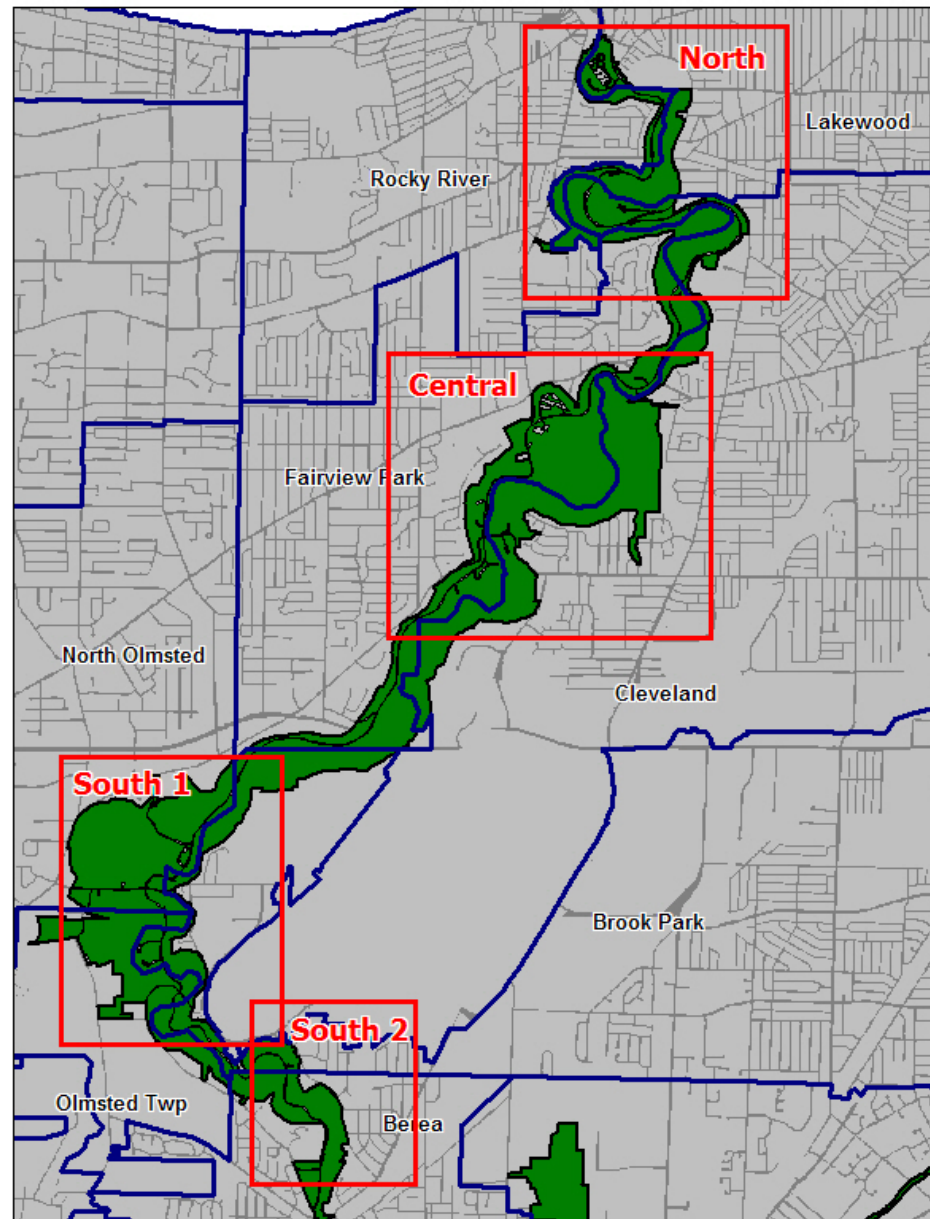
The proposed legislation addresses the estimated 3.5 to 5 million youth, ages 16 through 24, who are out-of-school or out-of-work. Additionally nearly a half-million young people drop out of school annually. The current unemployment rate for youth in this age group is approximately 25 percent. For youth who are in low-income or minority communities, this rate is even higher. Youth Service and Conservation Corps which descended from the CCC, prepares disadvantaged and disconnected youth for careers in resource conservation, environmental restoration and land management since the 1980s. To date, more

than 600,000 young people have found a new beginning through Youth Service and Conservation Corps.

The purpose of the proposed amendment to WIA is to utilize service, environmental stewardship, and the Youth Corps model to educate and train the next generation of workers to enable them to find meaningful employment in the 21st century economy, while instilling a sense of civic engagement and environmental stewardship.

The grants, awarded to eligible public or private nonprofit agencies, may be awarded for a period of three years with an option for renewal. In the Youth Corps model, adult leaders serve as mentors and guide crews of 8-12 Corps members as they gain the paid work experience and learn the skills that are essential to the development of a strong work ethic and success in the workplace. Corps members also receive a living allowance, classroom instruction to improve basic academic competencies, complete high school, and prepare for postsecondary education, and a wide range of supportive services. Additionally, they participate in technical skills training and leadership development.

Figures 7a-d



Rocky River Reservation Overview

Park Features

- ★ Natural Feature
- ▼ Sledding Area
- ◆ Fishing Area
- Ranger Office
- ★ Refreshments
- Picnic Area
- ▲ Shelter
- Playground
- All Purpose Field
- ◆ Ball Field
- ★ Golfing
- Trails
- Building Footprint
- Recreation Facility
- Parking
- Municipal Boundary

Sources:
 Cleveland Metroparks Facility Files-February 2010
 2008 Aerial Photos- Cuyahoga County

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



Figures 7a-d



Rocky River Reservation North

Park Features

- ★ Natural Feature
- ▼ Sledding Area
- ◆ Fishing Area
- Ranger Office
- ☆ Refreshments
- Picnic Area
- ▲ Shelter
- Playground
- All Purpose Field
- ◆ Ball Field
- ★ Golfing

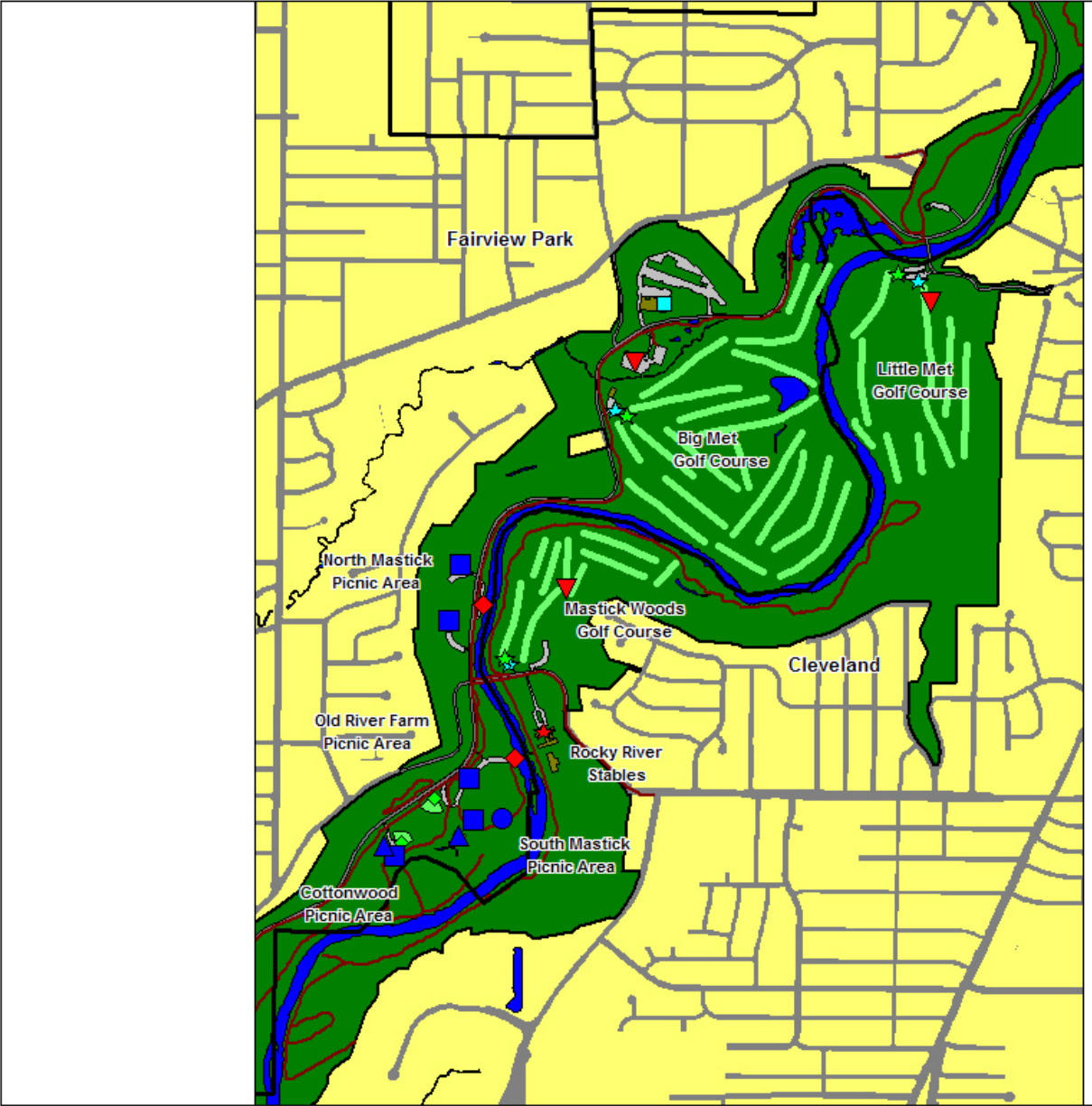
- Trails
- Building Footprint
- Recreation Facility
- Parking
- Municipal Boundary

Sources:
 Cleveland Metroparks Facility Files-February 2010
 2008 Aerial Photos- Cuyahoga County

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



Figures 7a-d



Rocky River Reservation Central

Park Features

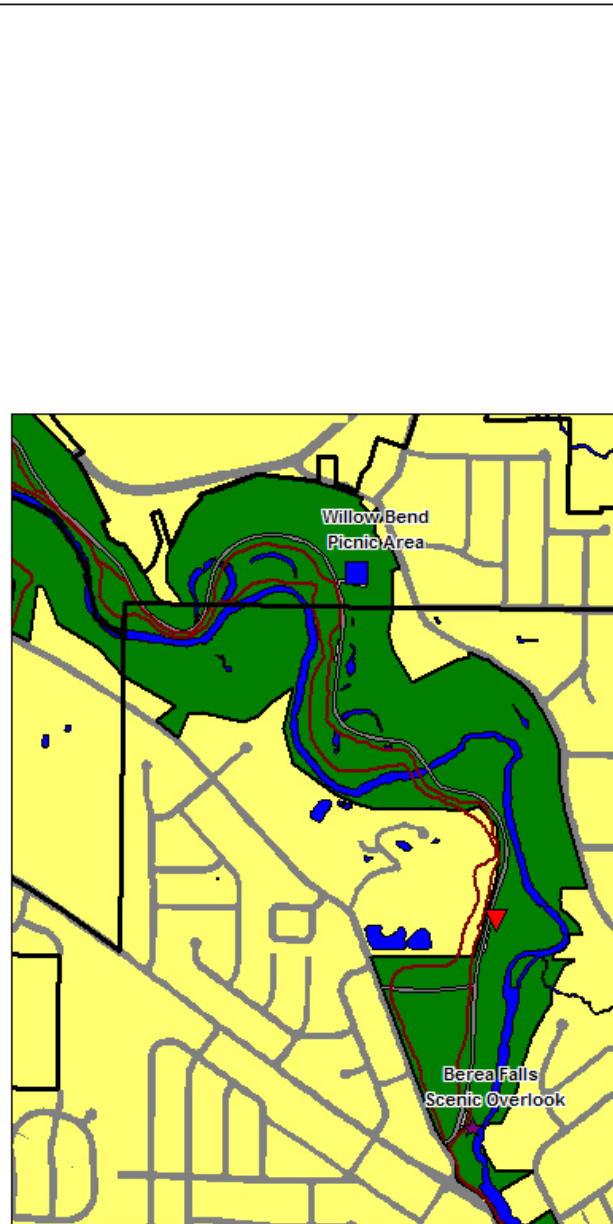
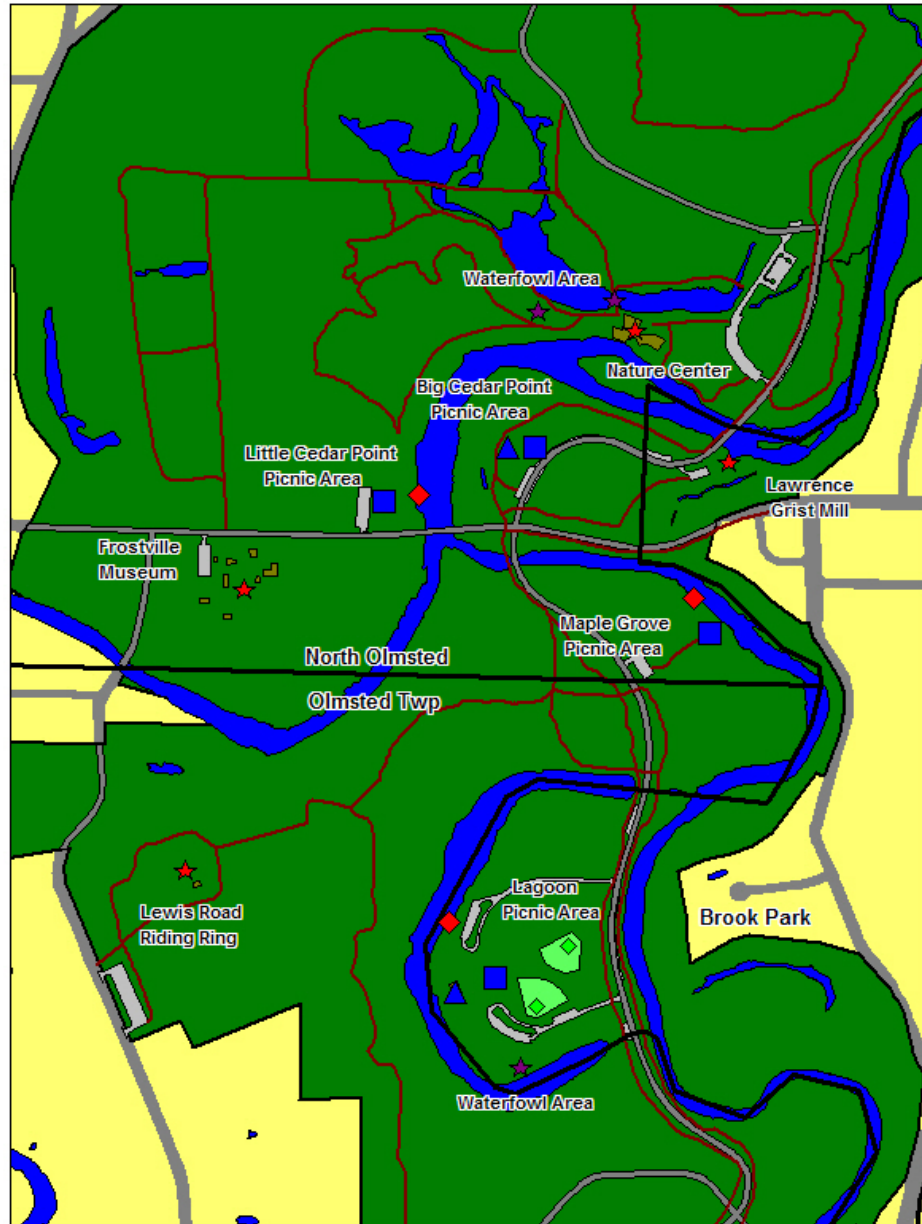
- ★ Natural Feature
- ▼ Sledding Area
- ◆ Fishing Area
- Ranger Office
- ★ Refreshments
- Picnic Area
- ▲ Shelter
- Playground
- All Purpose Field
- ◆ Ball Field
- ★ Golfing
- Trails
- Building Footprint
- Recreation Facility
- Parking
- Municipal Boundary

Sources:
 Cleveland Metroparks Facility Files-February 2010
 2008 Aerial Photos- Cuyahoga County

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



Figures 7a-d



Rocky River Reservation South

Park Features

- ★ Natural Feature
- ▼ Sledding Area
- ◆ Fishing Area
- Ranger Office
- ★ Refreshments
- Picnic Area
- ▲ Shelter
- Playground
- All Purpose Field
- ◆ Ball Field
- ★ Golfing
- Trails
- Building Footprint
- Recreation Facility
- Parking
- Municipal Boundary

Sources:
Cleveland Metroparks Facility Files-February 2010
2008 Aerial Photos- Cuyahoga County

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



Figure 12

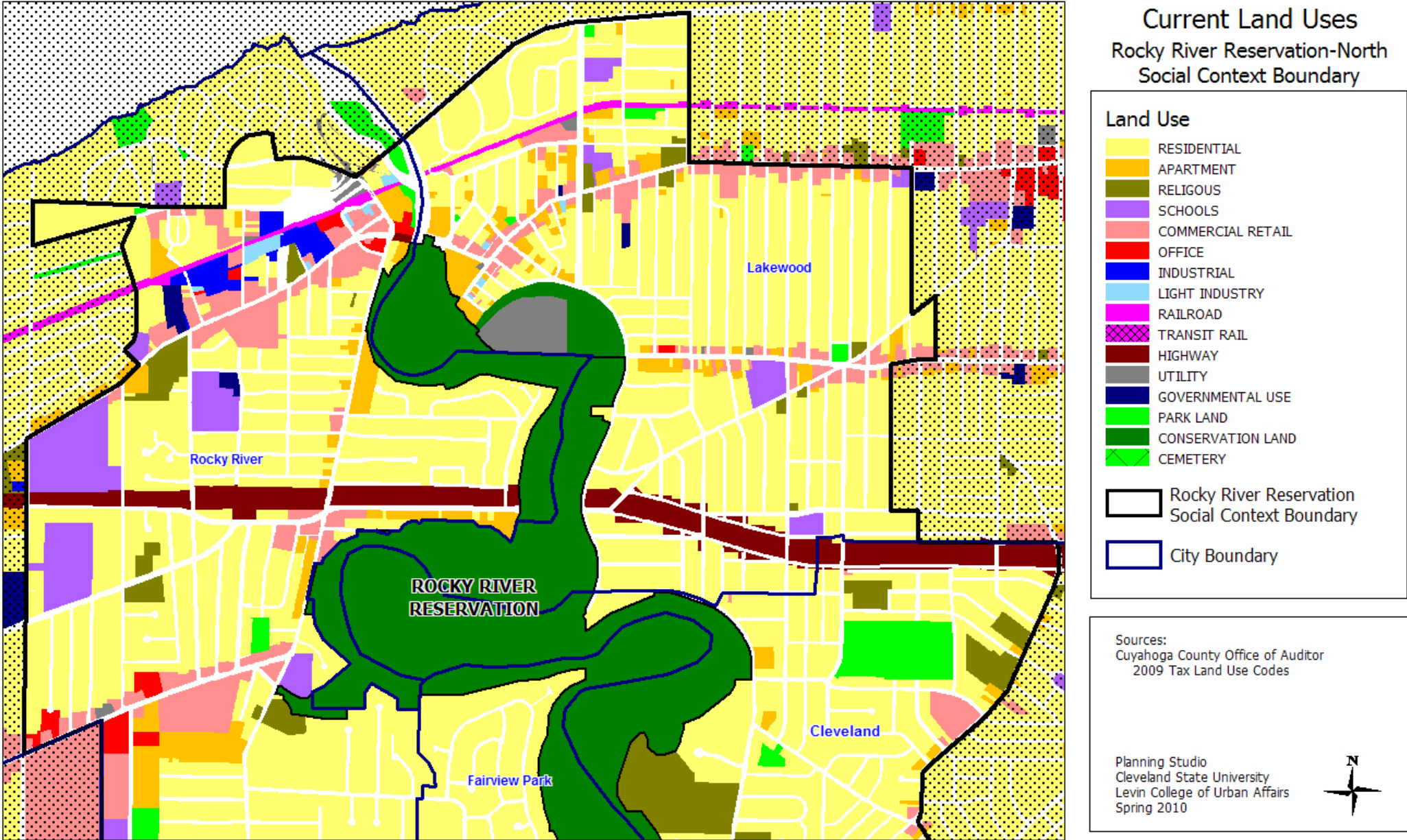


Figure 13

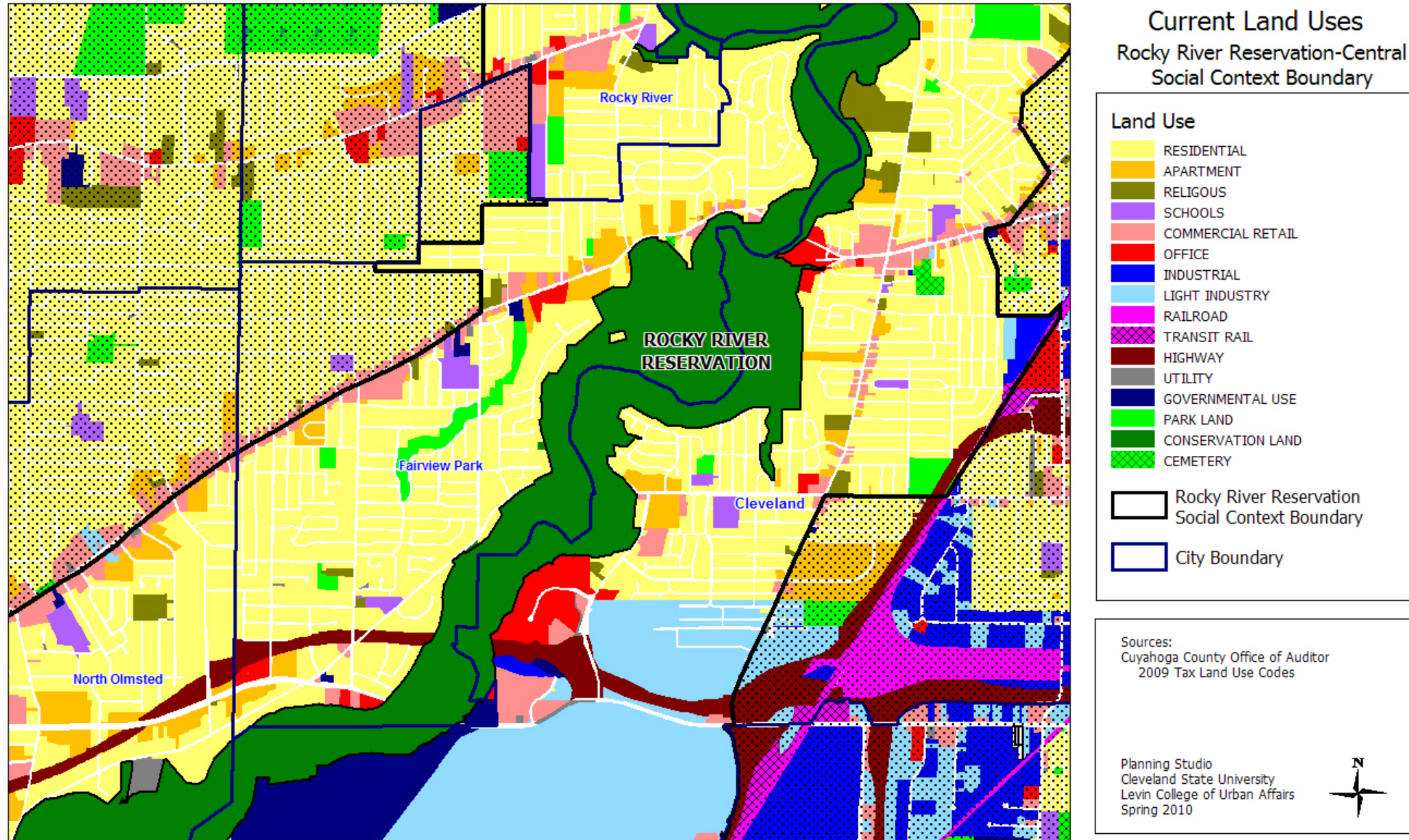


Figure 14

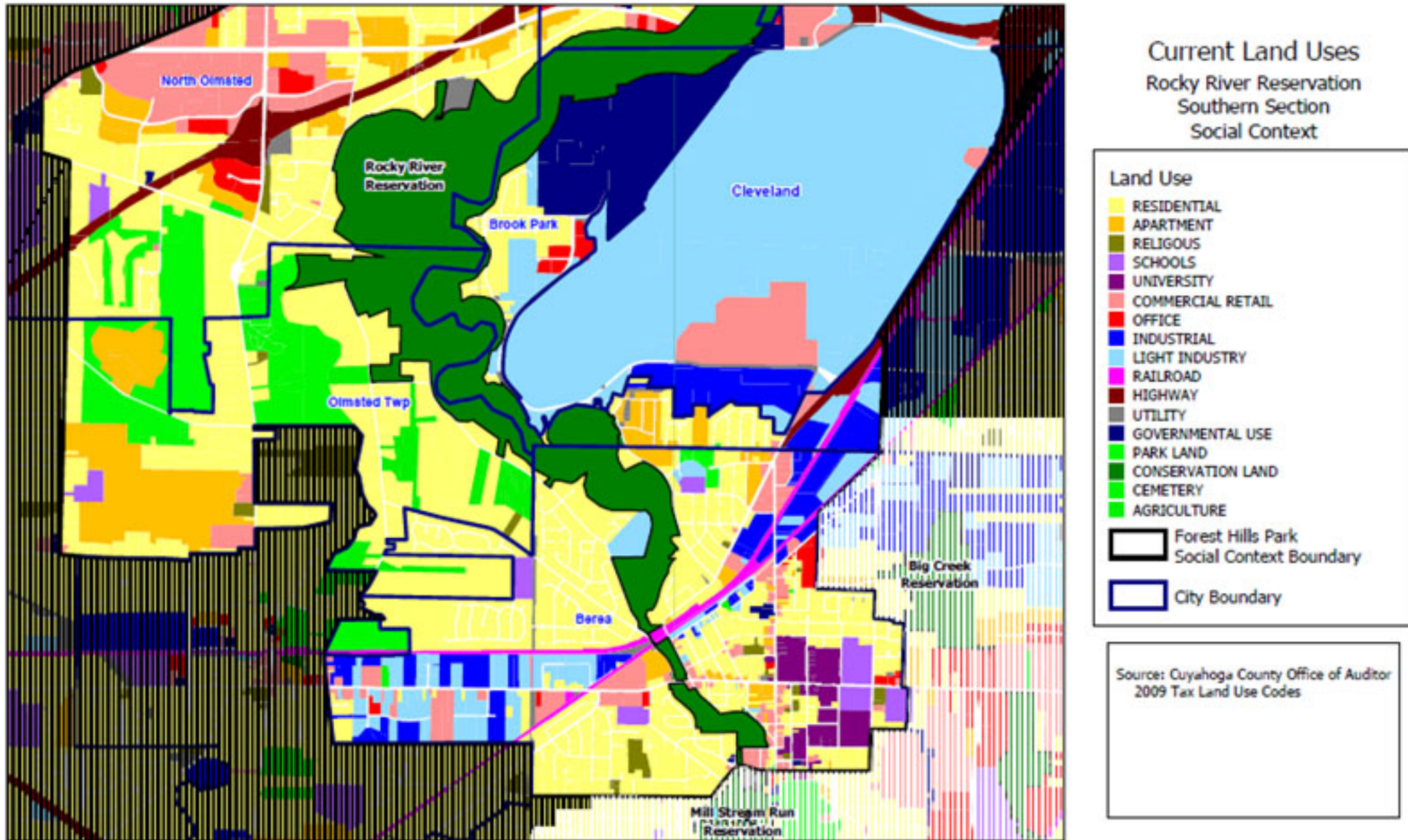


Figure 16

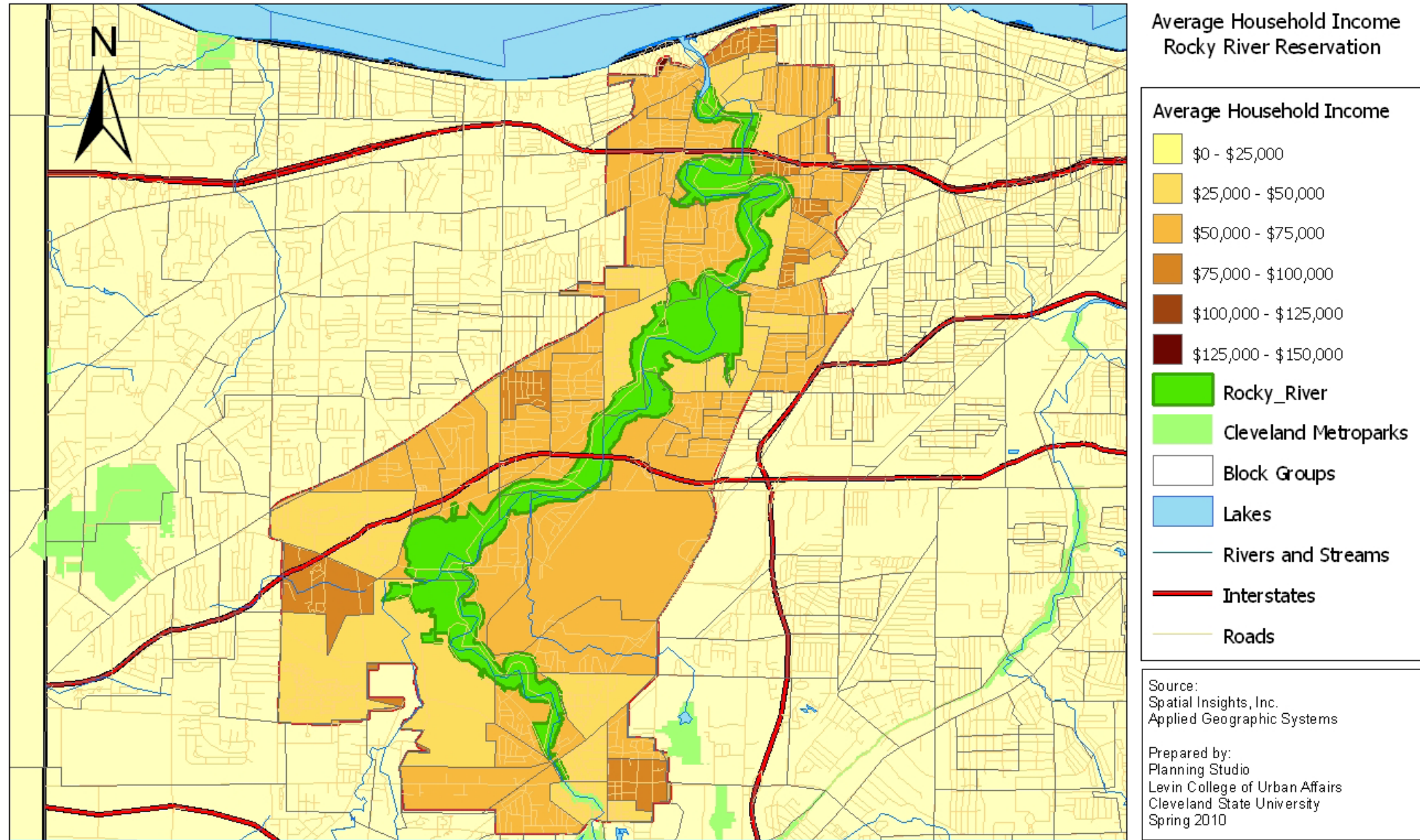


Figure 17

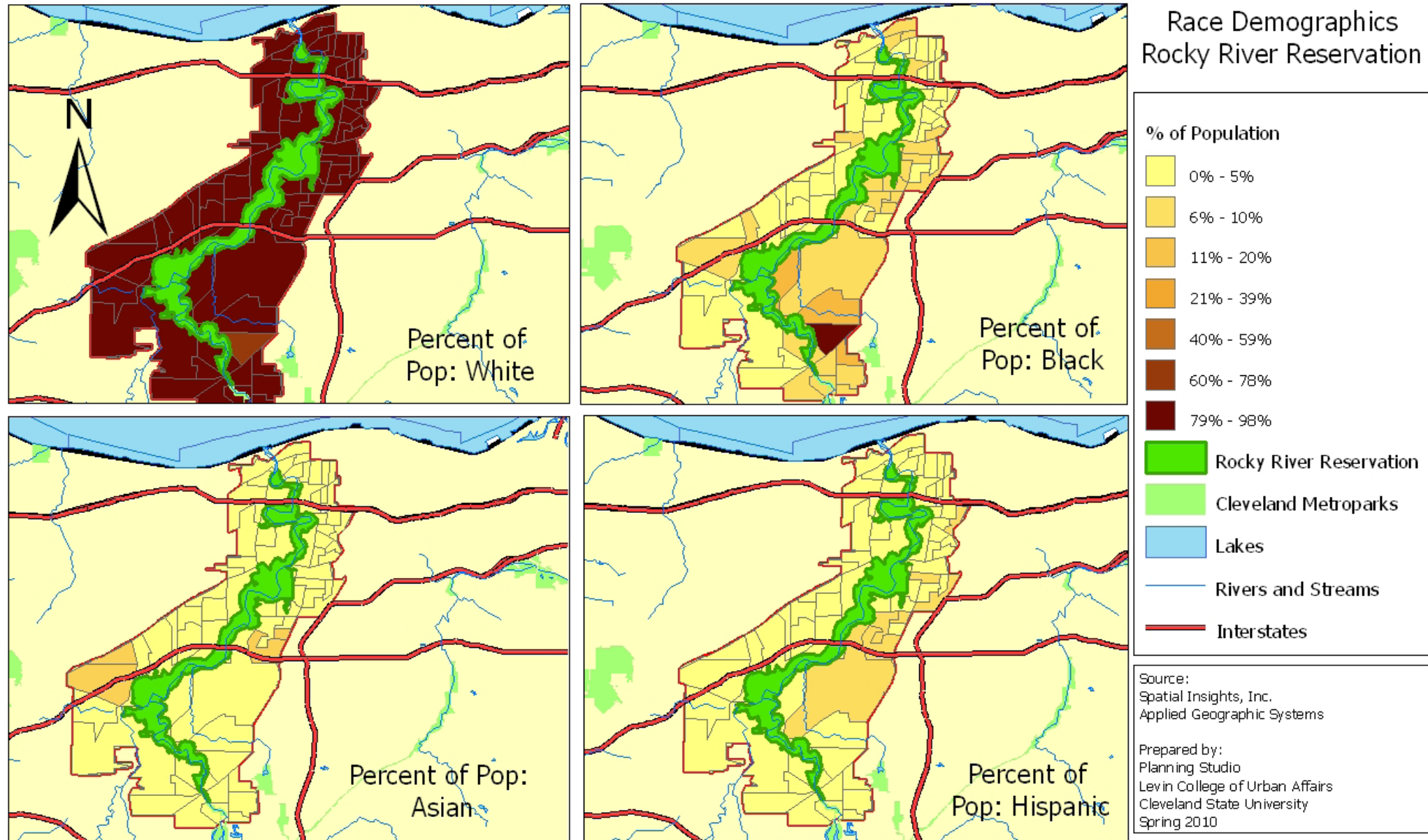


Figure 18

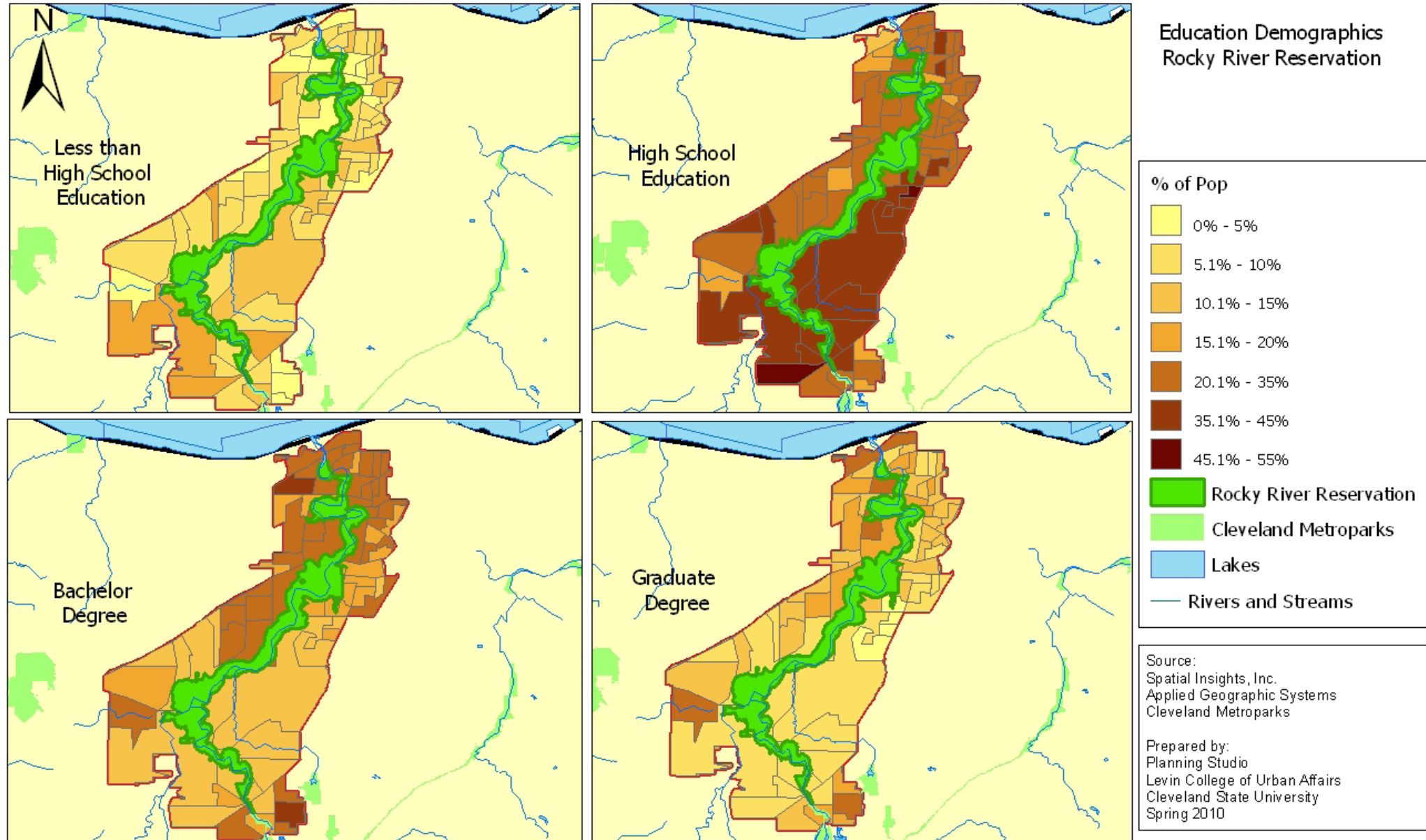
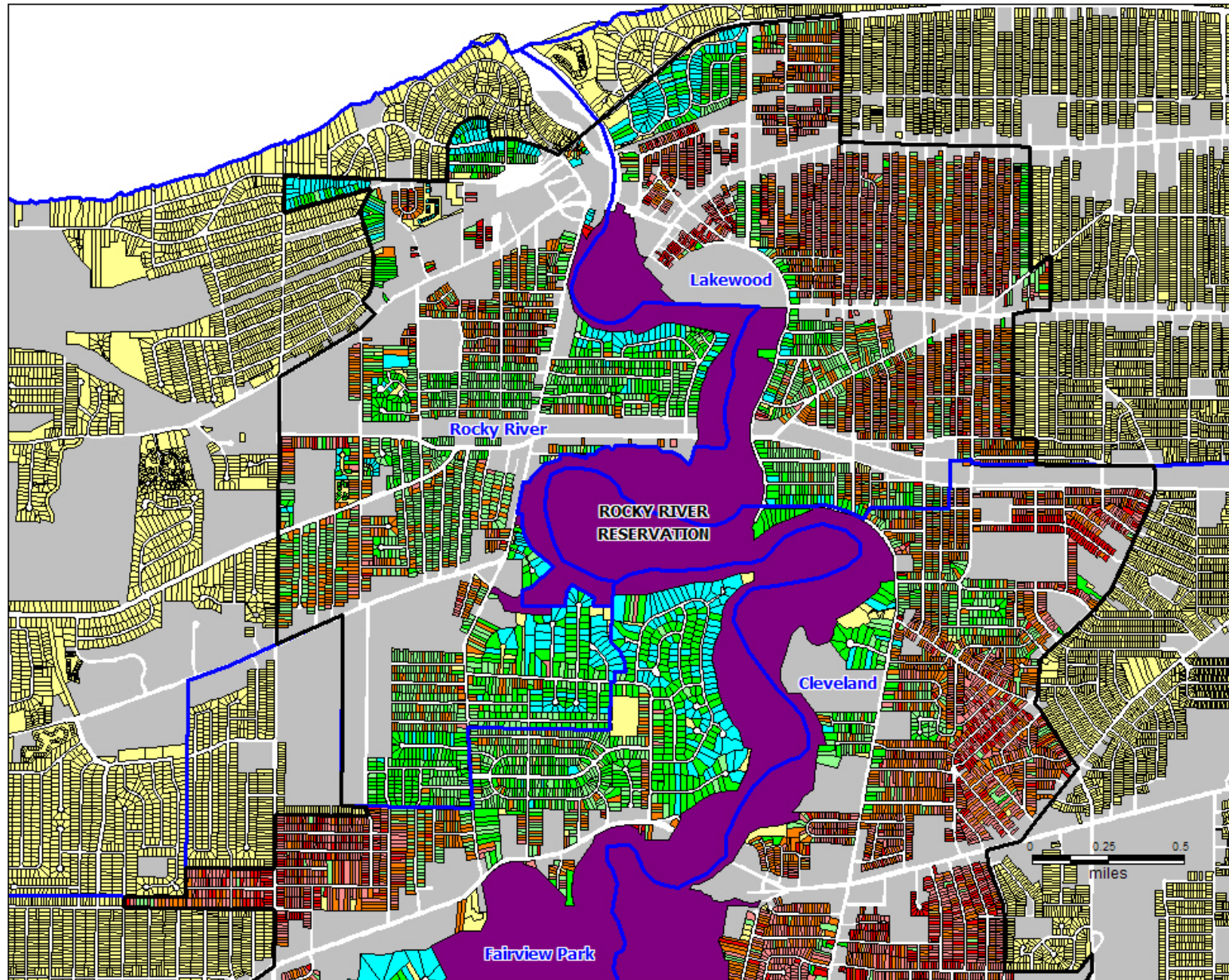


Figure 21



Residential Land Values Rocky River Reservation-North Social Context Boundary

Market Value

Residential Parcel

- \$281,000 to \$1,234,000
- \$192,000 to \$281,000
- \$151,000 to \$192,000
- \$124,000 to \$151,000
- \$103,000 to \$124,000
- \$0 to \$103,000

Other Residential Property*

Rocky River Reservation Property

Rocky River Reservation Social Context Boundary

Municipal Boundary

*Other Residential Property includes all vacant, common area or associated residential uses that do not have residential structures; or all residential property outside of the Social Context Boundary.

Sources:
Cuyahoga County Office of Auditor
2009 Tax Property Value

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



Figure 22

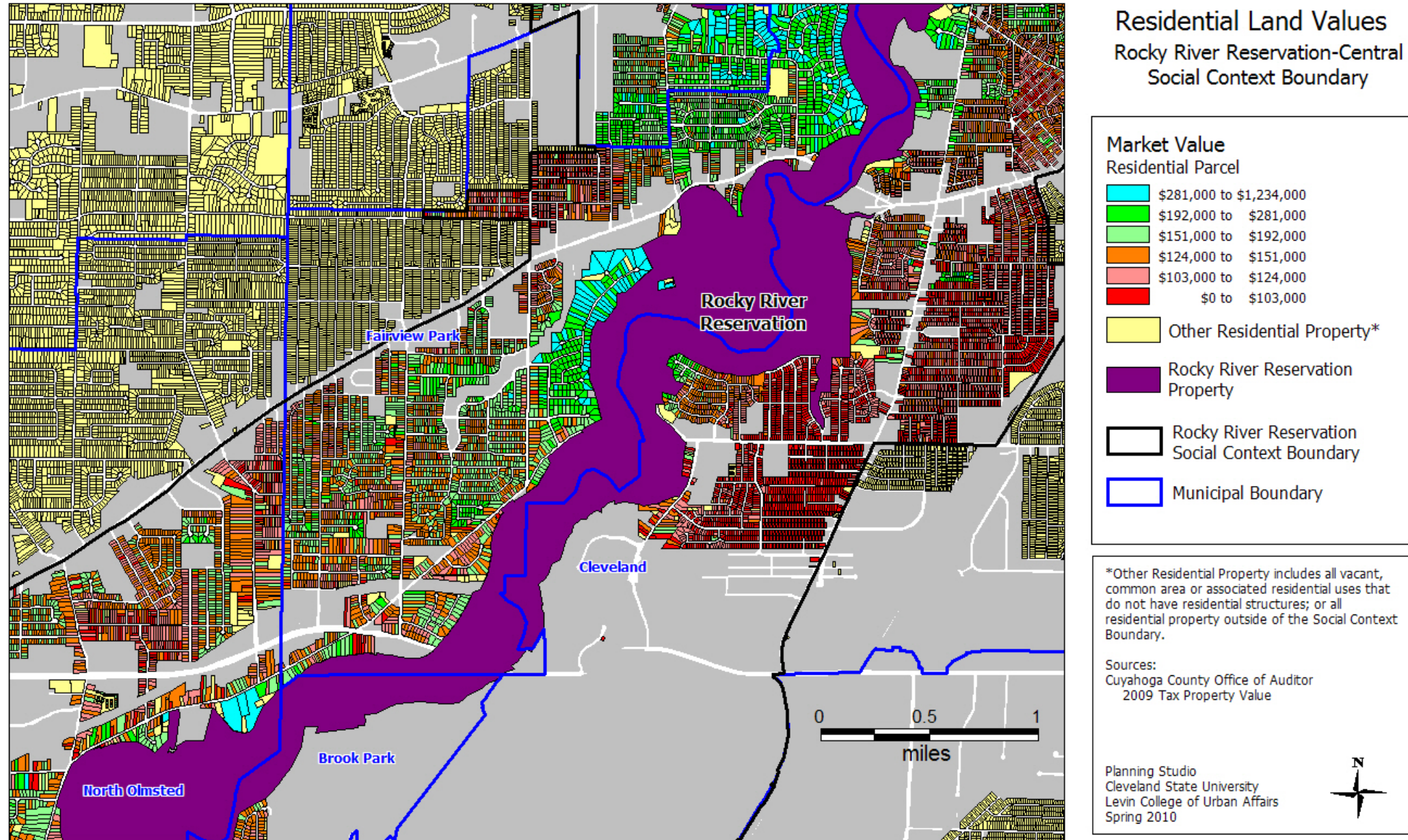


Figure 23

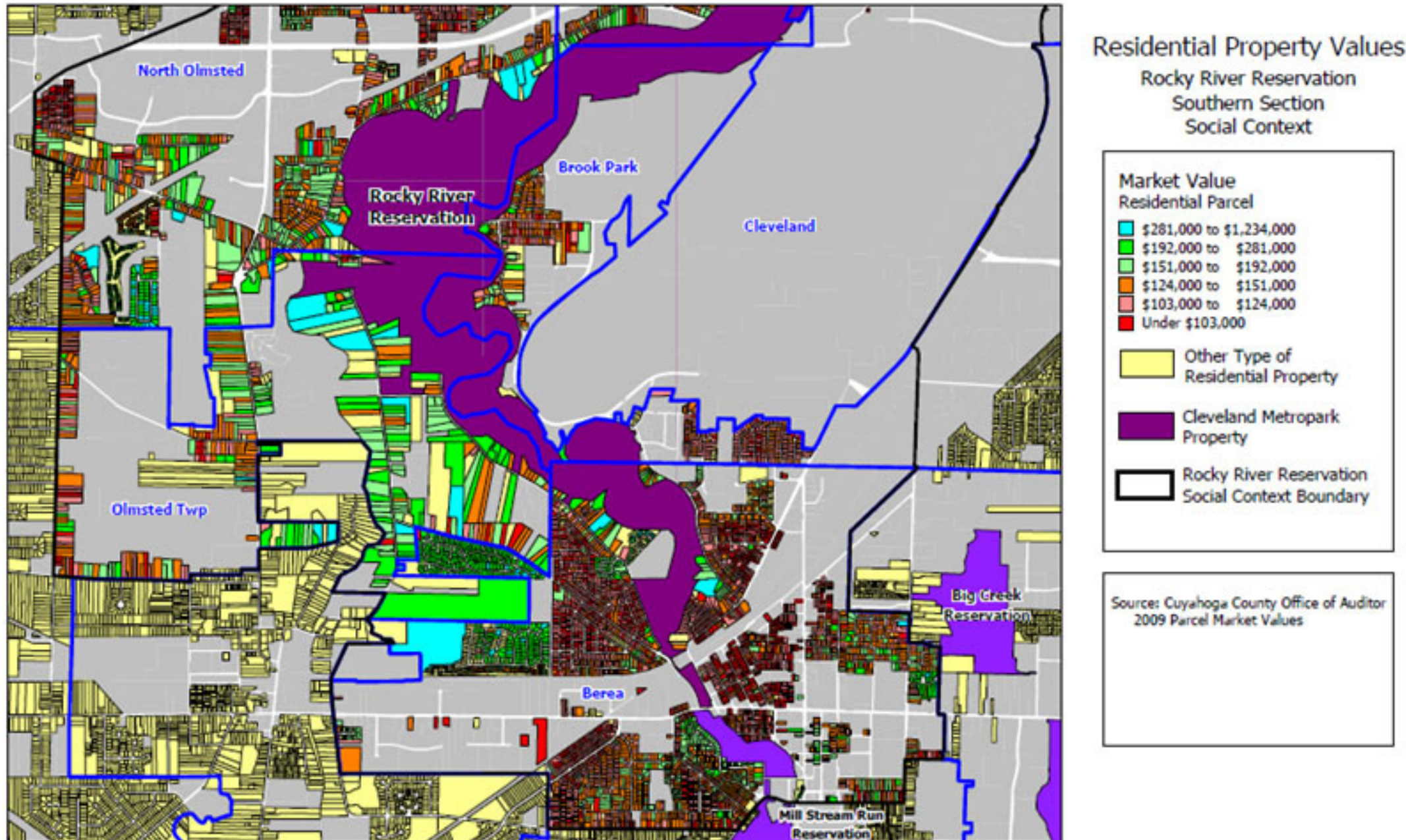
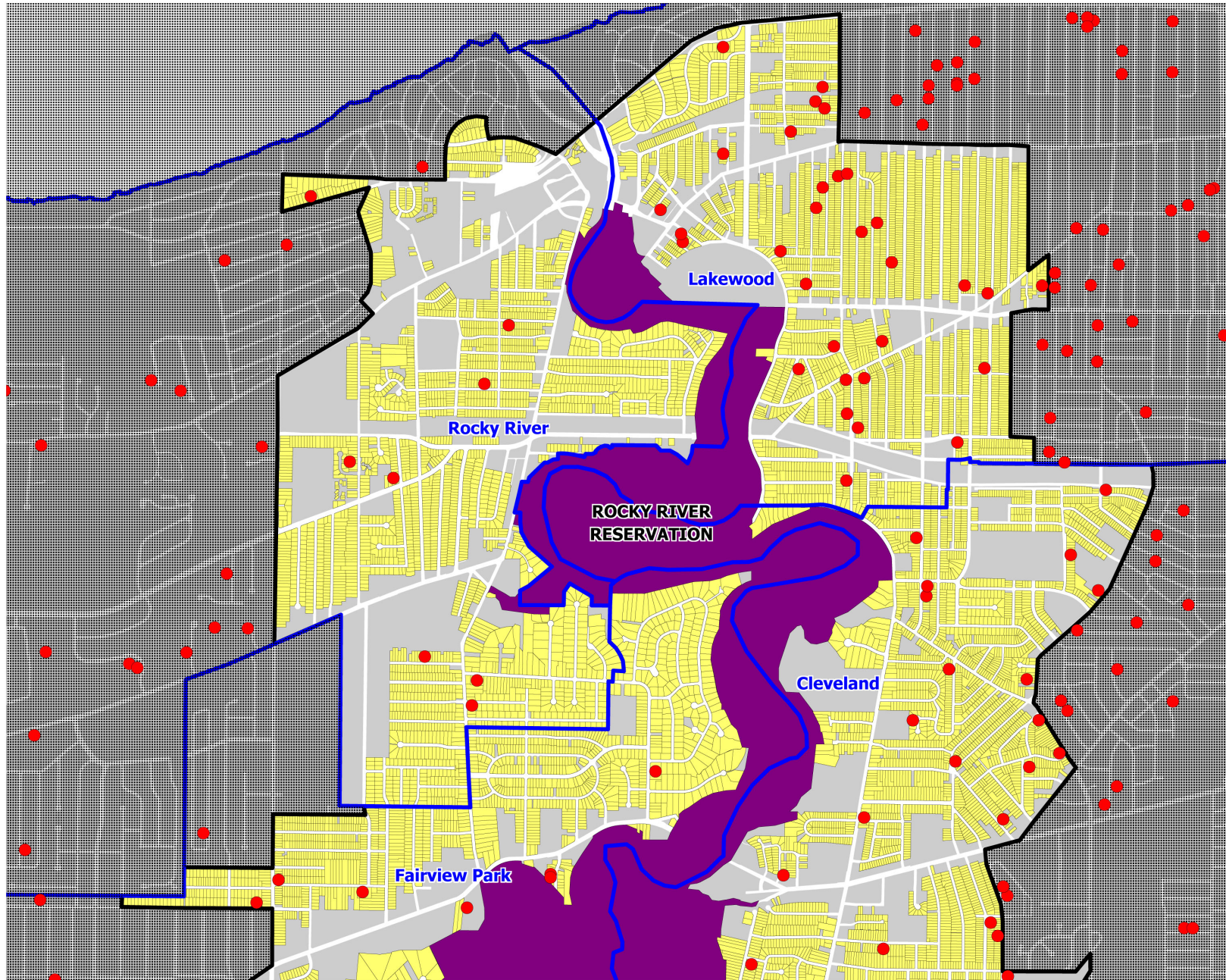


Figure 25



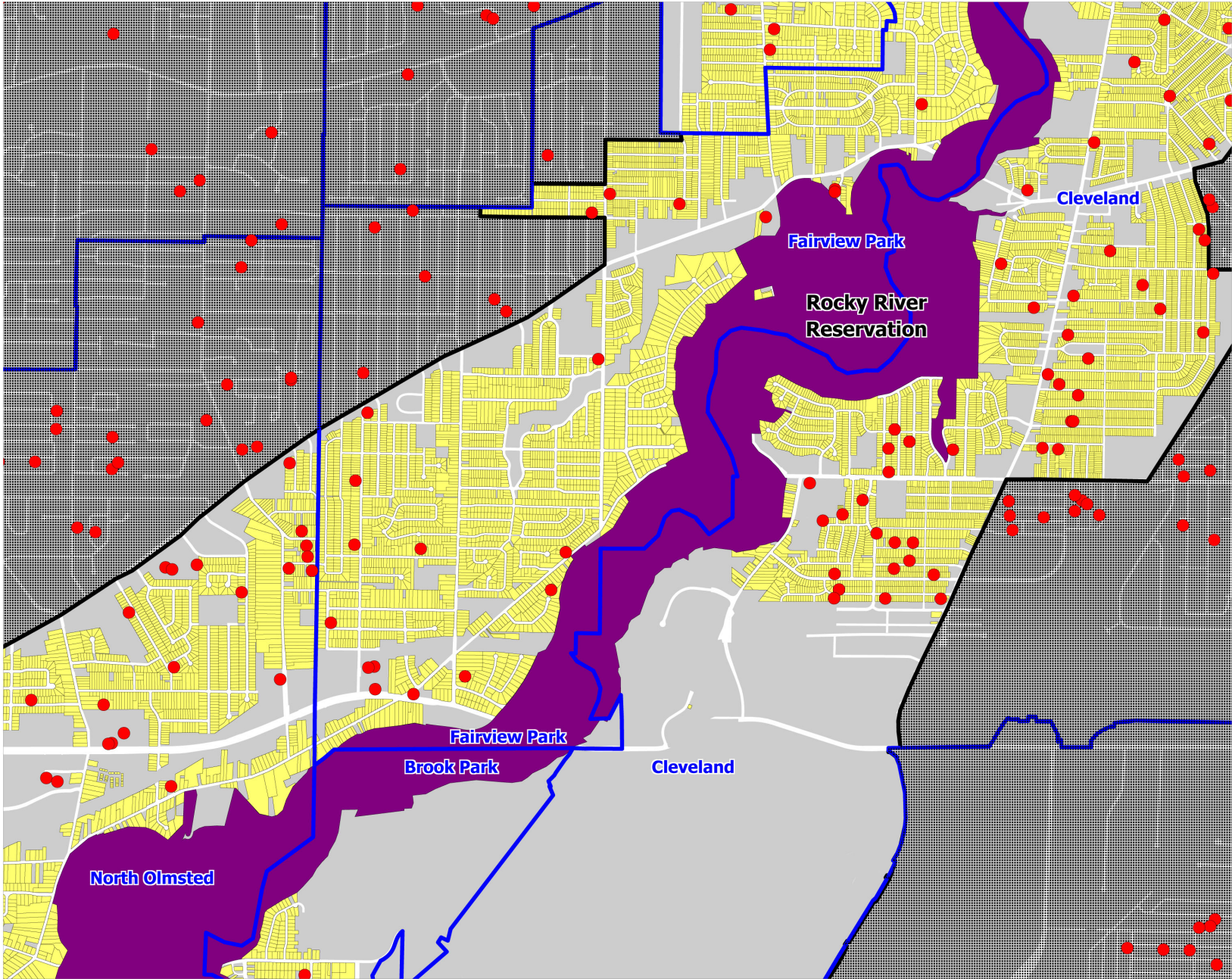
2009 Sheriff Sales Rocky River Reservation Northern Section Social Context

- 2009 Sheriff Sale
- Sheriff Sale Location
 - Residential Parcel
 - Rocky River Reservation Social Context Boundary
 - Rocky River Reservation Property

Source: Cuyahoga County Office of Auditor Transfer Records

Sherrif Sales result from both bank and property tax foreclosures.

Figure 26



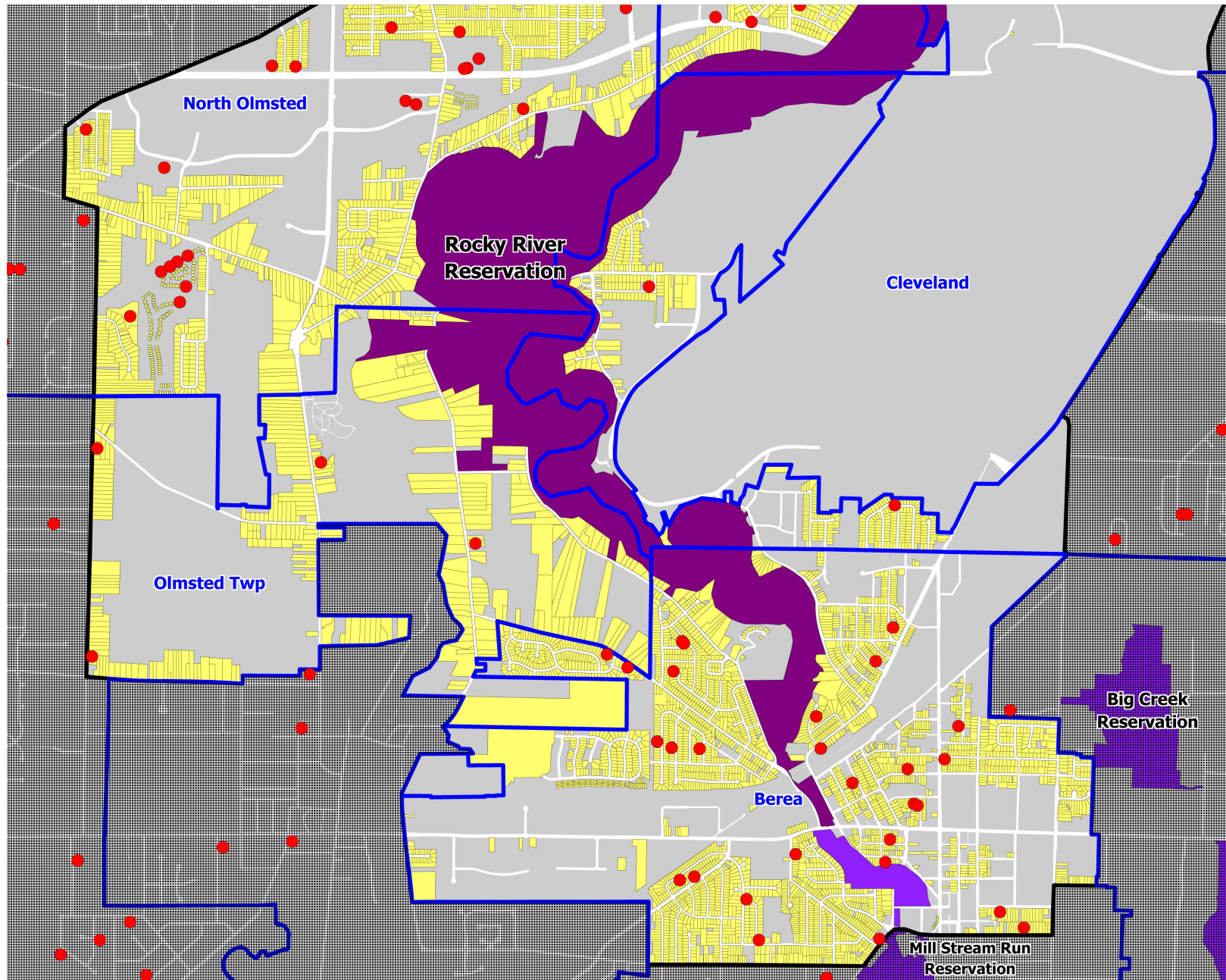
2009 Sheriff Sales
 Rocky River Reservation
 Middle Section
 Social Context

- 2009 Sheriff Sale**
- Sheriff Sale Location
 - Residential Parcel
 - Rocky River Reservation Social Context Boundary
 - Rocky River Reservation Property

Source: Cuyahoga County Office of Auditor Transfer Records

Sherrif Sales result from both bank and property tax foreclosures.

Figure 27



2009 Sheriff Sales Rocky River Reservation Southern Section Social Context

- 2009 Sheriff Sale
- Sheriff Sale Location
 - Residential Parcel
 - Rocky River Reservation Social Context Boundary
 - Rocky River Reservation Property

Source: Cuyahoga County Office of Auditor Transfer Records

Sherrif Sales result from both bank and property tax foreclosures.

Figure 28

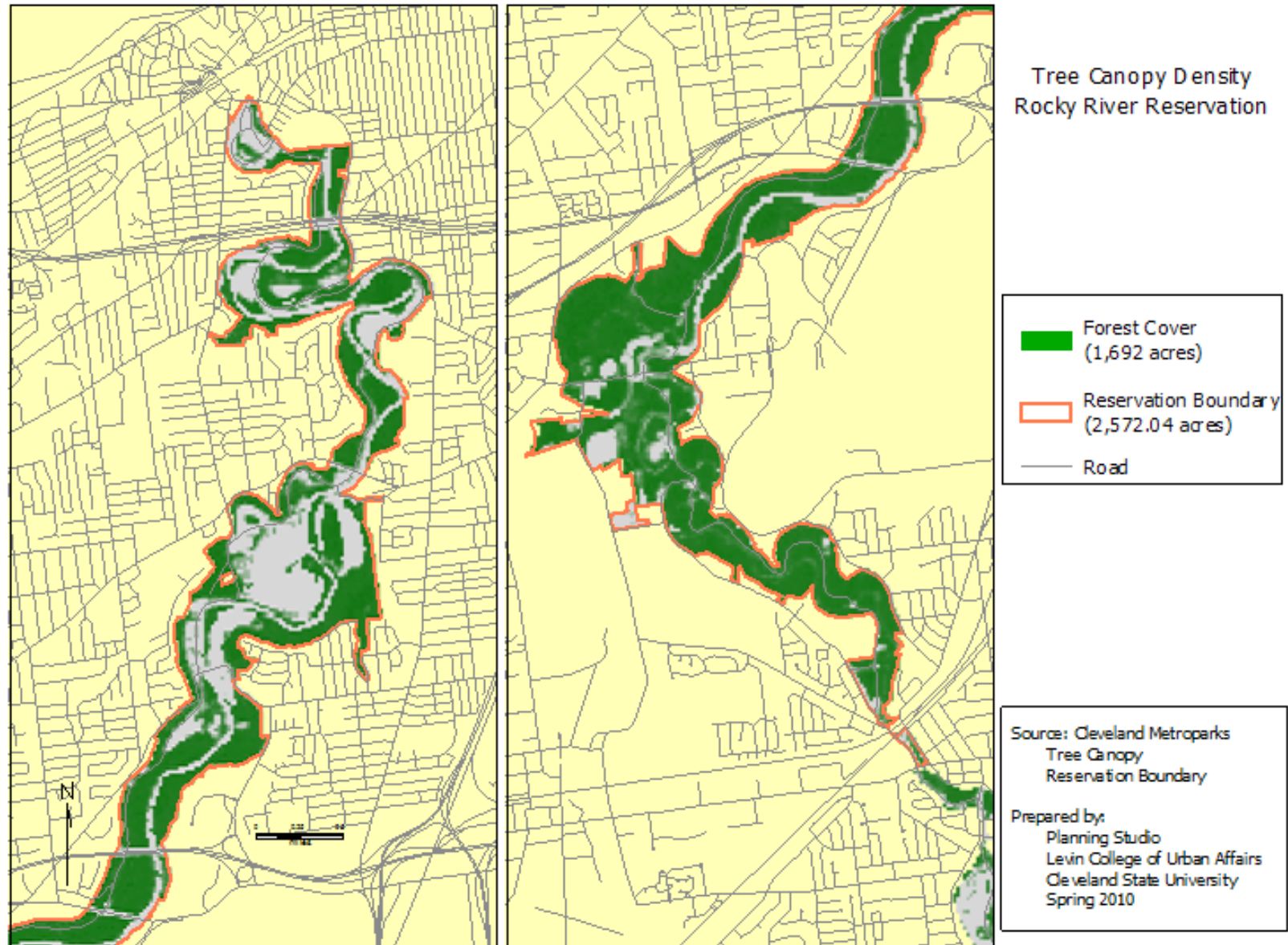


Figure 31

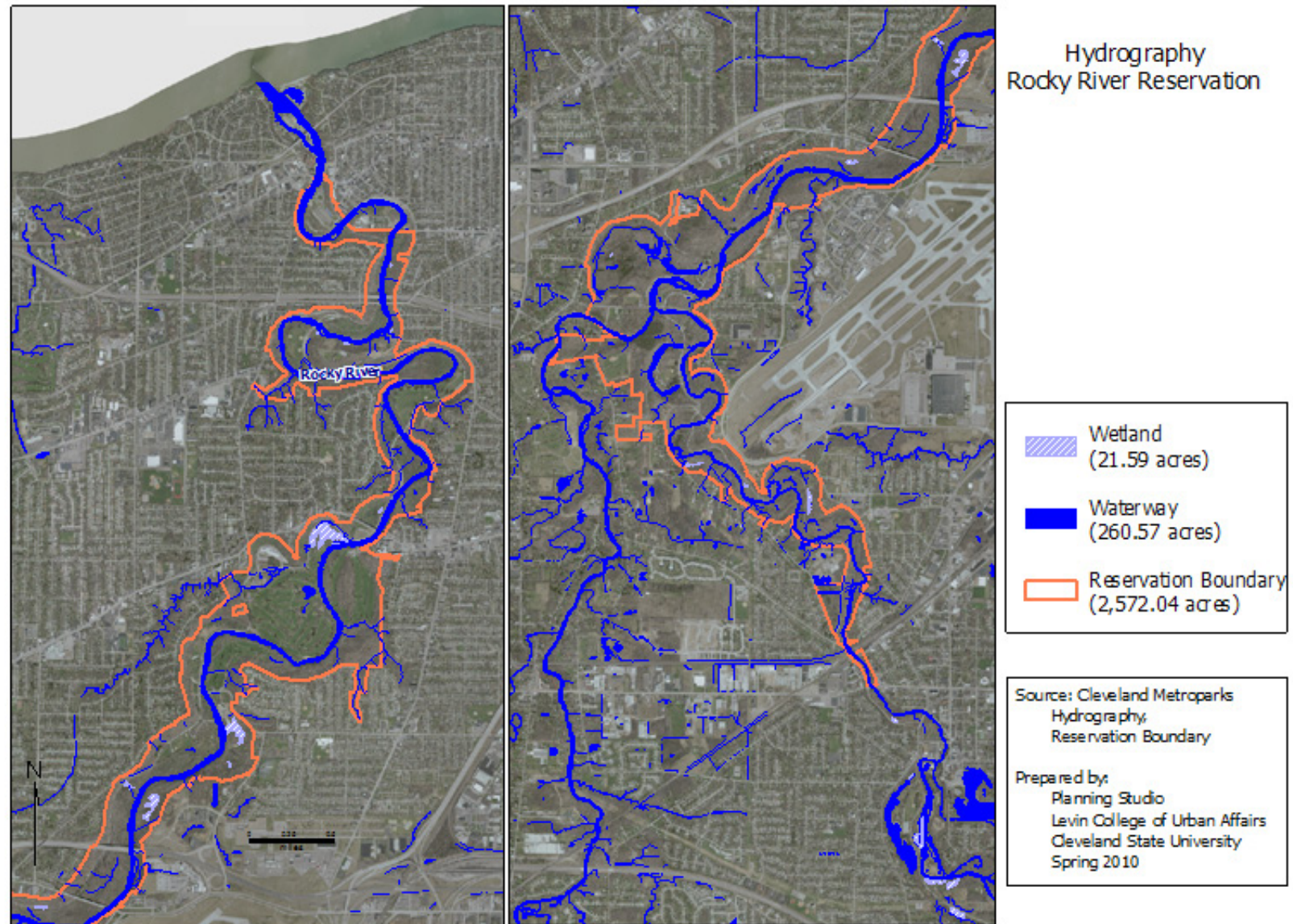
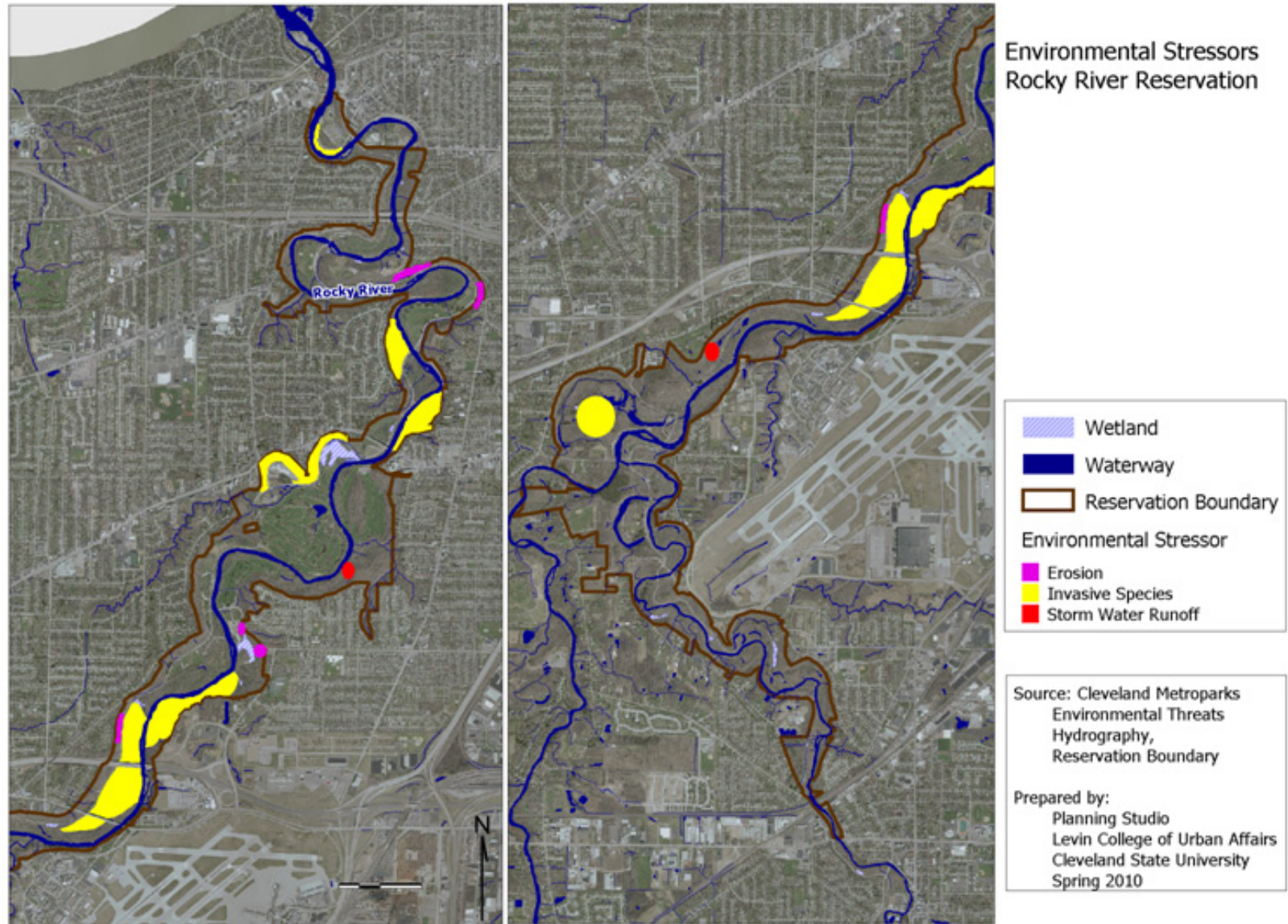


Figure 33



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