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Isaac Smith
22244
Rocky River, Ohio 44116-
idsmith25@gmail.com

Please reject the proposal to change the railbanking rules as proposed within docket EP-749-1. The restriction of railbanking negotiations with railroad corporations and owners to six consecutive 180 terms would significantly hinder agency and non-profit's ability to negotiate and acquire railroad properties for re-use as trail corridors and other uses for the public good. Agencies and advocates often operate with limited resources and require the time provided under the existing rule to obtain the funding and perform complex negotiations necessary to acquire and protect these corridors. These corridors provide the best opportunity for development of safe, long-distance trail and alternative transportation routes that have repeatedly been proven to provide positive economic impact to the communities they pass through. These positive impacts have been well documented by the Trust for Public Land, The Rails to Trails Conservancy, and even locally with park agencies such as Cleveland Metroparks. Below are a number of websites that document such impacts:

American Trails Economic Benefits Report: <https://www.americantrails.org/resources/evidence-of-many-varieties-of-economic-benefits-linked-to-trails>

Rails to Trails Conservancy: <https://www.railstotrails.org/resourcehandler.ashx?id=4620>

US Department of Agriculture: <https://www.fs.usda.gov/nac/buffers/index.html>

Also attached is the updated Trust for Public Land report regarding the economic impacts of Cleveland Metroparks and its expansive trail network.



The economic benefits of Cleveland Metroparks

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LAND



The economic benefits of Cleveland Metroparks

The Trust for Public Land
September 2018



The Trust for Public Land creates parks
and protects land for people,
ensuring healthy, livable communities
for generations to come.

The Trust for Public Land's Conservation Economics team has extensive experience measuring the economic benefits and fiscal impacts of land conservation. Partnering with its award-winning GIS team, it has published over 40 economic analyses across the country, including reports in Alabama, Arizona, California, Colorado, Florida, Georgia, Illinois, Kansas, Kentucky, Maine, Massachusetts, Minnesota, Missouri, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, Washington, and Wyoming. The Trust for Public Land has advanced this research working with leading academic partners and research institutions including Colorado State University, Dartmouth College, Georgia Institute of Technology, Michigan State University, University of California-Davis, University of Georgia, Texas A&M, University of Minnesota, University of New Hampshire, University of Wyoming, and the U.S. Forest Service.

tpl.org/cleveland-metroparks-2018

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Acknowledgments

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Executive summary

PUBLIC PARK AND TRAIL SYSTEMS ARE A VALUABLE COMPONENT OF HEALTHY CITIES. Cleveland Metroparks commissioned a study of the economic benefits of the Park District's amenities in 2013, which showed that the district's reservations and trails provided significant economic benefits to the local community—generating hundreds of millions of dollars in economic benefits each year.

This report provides an update to the 2013 study and analyzes the significant economic benefits that the Cleveland Metroparks reservations, zoo, and trails provide to the community. As a whole, the report demonstrates that the Park District's continued investments provide extensive economic benefit, which has grown by millions of dollars in the five years since the previous study.

Cleveland Metroparks enhances property values, reduces stormwater runoff, filters pollutants from the air, attracts visitors to the community, provides recreational opportunities for residents, contributes to the multimodal transportation network, improves community health,





and boosts economic development. These amenities support local jobs, increase spending at local businesses, decrease costs, and generate local tax revenue. Specifically, the reservations and trails, as pictured in [Figure 1](#), produce the following economic benefits ([Table 1](#)):¹

- Reservations and trails increase the value of nearby homes because people enjoy living close to these well-kept amenities and are willing to pay for that proximity. Reservations and trails in Cuyahoga County and Hinckley Township raise the value of nearby homes by \$155 million and increase property tax revenues by \$4.18 million a year ([see Table 2](#)).
- Parks capture precipitation and slow runoff, reducing the volume of water entering the stormwater system. Cleveland Metroparks reservations provide stormwater infiltration valued at \$20.4 million annually ([see Table 4](#)).
- Trees and shrubs in reservations remove air pollutants that endanger human health and damage structures. Such spaces provide health benefits and reduce pollution control costs in Cuyahoga County and Hinckley Township by \$8.09 million per year ([see Table 5](#)).
- Cleveland Metroparks is critical to the local tourism economy because it provides numerous reservations, trails, facilities, and programming that attract visitors. Cleveland Metroparks generates \$616 million annually in direct visitor spending ([see Table 8](#)).
- Residents also enjoy Cleveland Metroparks reservations and trails. Each year residents of Cuyahoga County receive a benefit of \$64.6 million for the recreational use of these spaces ([see Table 10](#)). Popular activities include hiking, walking, enjoying nature, observing wildlife and birding, visiting with family, relaxing, playing in playgrounds, picnicking, and exercising.
- Independent research shows that park use translates into increased physical activity, resulting in medical care cost savings. Approximately 114,000 adults receive measurable health benefits through their physical activity in the Cleveland Metroparks system, yielding an annual medical cost savings of \$160 million ([see Table 11](#)).
- Reservations and trails, such as those provided by Cleveland Metroparks as well as other organizations, contribute to the region's high quality of life, which plays an important role in attracting businesses and employees to the region and enhancing the community's

recreation economy. Residents of Cuyahoga County and Hinckley Township spend \$77.4 million annually on sports, recreation, and exercise equipment. This spending, along with tourist spending, supports 102 sporting goods stores that generate \$170 million in sales and provide 924 jobs (see Table 13 ➔).

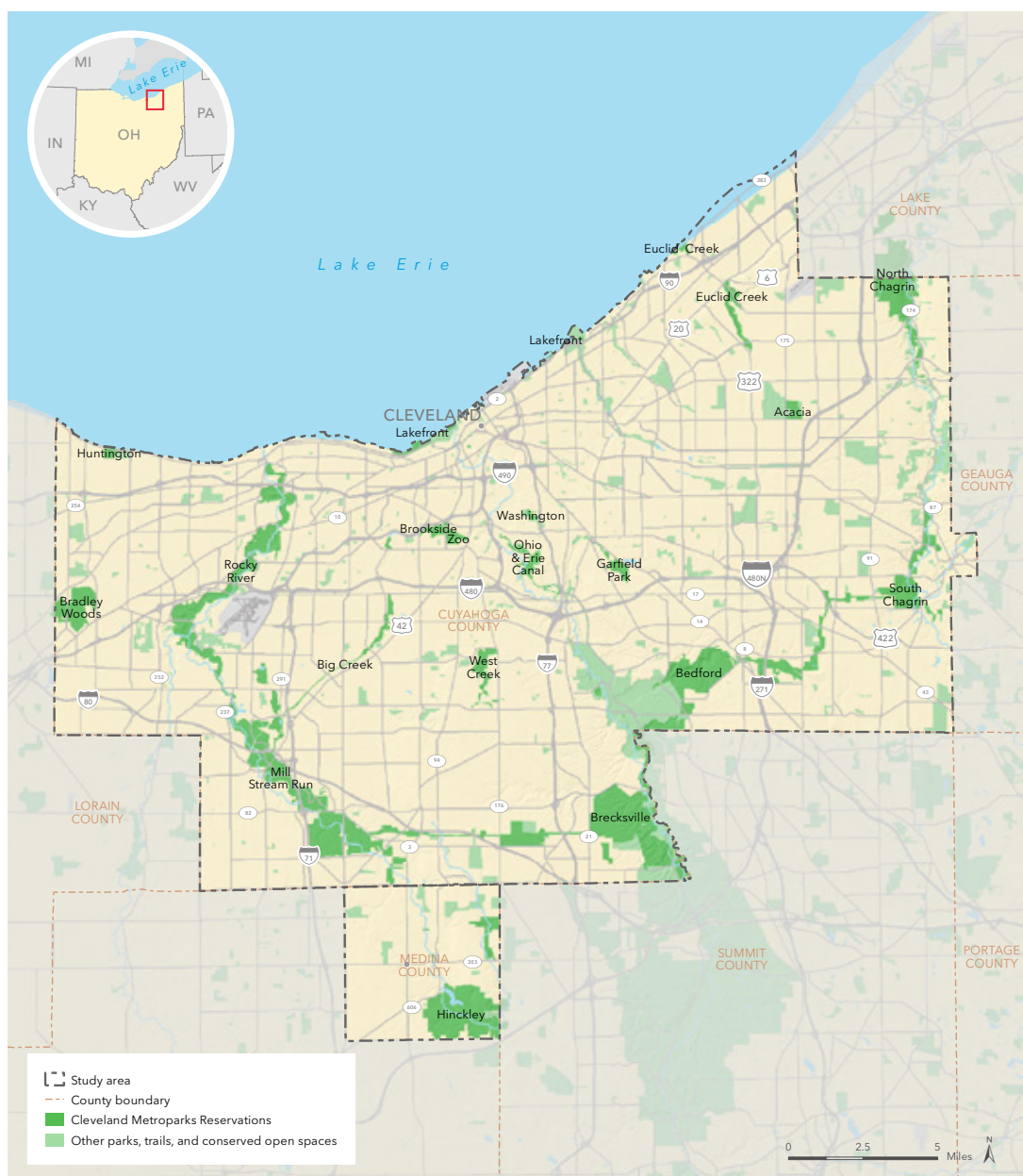
These benefits are distributed across many sectors of the economy in Cuyahoga County and Hinckley Township. Each estimate above represents a different type of value, with different time frames, accruing to different beneficiaries such as local businesses, government, and residents. In order to provide a robust and reliable report, this analysis relied on the most conservative methods supported by existing methodology and literature. For example, in any instance where multiple valuation methods were available, The Trust for Public Land utilized the method that produced the conservative, lower bound estimate.

This study illustrates that Cleveland Metroparks reservations and trails are key economic drivers that contribute hundreds of millions of dollars in economic benefits annually to the community as a whole (Table 1 ➔).

TABLE 1. SUMMARY OF ESTIMATED ECONOMIC BENEFITS PROVIDED BY CLEVELAND METROPARKS (2018\$)²

Benefit category	Total
Enhanced property	
Total additional property value	\$155,000,000
Additional annual property tax	\$4,180,000
Stormwater infiltration	\$20,400,000
Air pollution removal	\$8,090,000
Tourism	\$616,000,000
Recreational use	\$64,600,000
Health care cost savings	\$160,000,000
Economic development*	
Annual spending on sports, recreation, and exercise equipment by residents	\$77,400,000
Annual sales generated by sporting goods stores	\$170,000,000

*The economic development values presented here illustrate the importance of the recreation economy in Cuyahoga County and Hinckley Township. Not all spending and sales in these categories are exclusively generated by Cleveland Metroparks reservations and trails.



Cleveland Metroparks

CUYAHOGA COUNTY AND HINCKLEY TOWNSHIP

➔ **FIGURE 1** Map of Cleveland Metroparks reservations and trails. Copyright © The Trust for Public Land. The Trust for Public Land and The Trust for Public Land logo are federally registered marks of The Trust for Public Land. Information on this map is provided for purposes of discussion and visualization only.

Introduction

CLEVELAND METROPARKS PARK AREAS, REFERRED TO AS RESERVATIONS, AND TRAILS ARE VALUABLE COMPONENTS OF HEALTHY, FLOURISHING COMMUNITIES. Reservations, parks, and trails in Cuyahoga County are public goods that are owned and maintained by federal, state, and local governments, as well as nonprofit organizations, for residents to access at little or no cost. As such, the actual value of reservation and trail amenities is often overlooked. Unlike selling tickets to a sporting event, for instance, a public reservation does not increase revenues with additional visitors. Well-maintained reservations and trails do, however, provide tangible, and measurable, economic benefits to local residents and governments. Through economic analysis, it is possible to isolate and quantify many of these benefits and help interested parties gain a fuller understanding of the value of their reservations and trails.

This report analyzes Cleveland Metroparks reservations and trails and documents a selection of the significant economic benefits that these amenities provide to the community. Founded in 1917, Cleveland Metroparks is the oldest park district in Ohio, and is often referred to as the Emerald Necklace. The system maintains a national reputation for quality, as evidenced by the organization's receipt of the 2016 National Gold Medal Award for Excellence in Park and Recreation Management.³ Cleveland Metroparks includes 18 park reservations and Cleveland Metroparks Zoo, which together span over 23,000 acres, over 300 miles of trails, five nature centers, eight golf courses, more than 75 reservable facilities, and other high-quality park amenities. These facilities provide diverse recreational opportunities to the public for free or at a reasonable cost, including biking, birding, boating, cross-country skiing, exercising, fishing, exploring nature, golfing, hiking, horseback riding, picnicking, sledding, swimming, viewing wildlife, walking, and more. By providing access to an array of outdoor amenities and activities, Cleveland Metroparks generates numerous economic benefits within the local community. Reservations and trails enhance property values, offer recreational opportunities, improve human health, attract visitors, and provide natural goods and services such as filtering air pollutants and managing stormwater. In addition, they support local jobs, boost spending at local businesses, and generate local tax revenue.

Cleveland Metroparks commissioned a study of the economic benefits of the Park District's amenities in 2013. The results of that report indicated that Cleveland Metroparks reservations and trails provided immense economic benefit to the local community—generating hundreds of millions of dollars in economic benefits each year.⁴ Since 2013 Cleveland Metroparks has made significant improvements throughout its reservations and trails, such as at the Lakefront Reservation. This will soon include trails from the Re-Connecting Cleveland TIGER Grant Project that was awarded \$7.95 million in Department of Transportation funding in 2016. Given



these investments and other improvements, Cleveland Metroparks commissioned another in-depth analysis of the economic benefits that result from the reservation and trail system.

In order to provide robust and grounded evaluations, this analysis relies on the most conservative methods supported by comparable economic valuation studies. The methodology has been updated to reflect current best practices for economic analysis. In any instance where multiple valuation methods are supported, or where a range of values are available for analysis, The Trust for Public Land selects the method or values producing the lower bound estimate. As such, it is likely that the actual benefits are higher than what The Trust for Public Land estimates in the following pages.

Although this analysis determines many of the economic benefits of Cleveland Metroparks reservations and trails in Cuyahoga County and Hinckley Township, it does not capture the full value of these high-quality, well-managed spaces for area residents. From quiet places to walk and reflect to venues for hosting regionally important events, the full value of Cleveland Metroparks reservations and trails goes far beyond dollars and cents.

Enhancing property value

RESERVATIONS, OR PARKS, AND TRAILS HAVE A POSITIVE IMPACT ON NEARBY RESIDENTIAL PROPERTY VALUES.⁵ All other things being equal, people are willing to pay more for a home close to these amenities. Further, since property tax is based on a home's value, the increased value of homes near these spaces leads to additional property taxes being generated annually. Through economic analysis, it is possible to isolate the impact that reservations and trails have on home values. This section estimates the enhanced property value that can be attributed to Cleveland Metroparks reservations and trails in Cuyahoga County and Hinckley Township, as well as the additional tax revenue generated on an annual basis.

The effect of reservations and trails on local property value is evident in Cuyahoga County and Hinckley Township. These spaces contribute to the nationally recognized quality of life in the area, which is a draw for home buyers. For example, the real estate website Movoto identified Cuyahoga County as one of the “best counties in Ohio” for quality of life and specifically described Cleveland Metroparks as “one of the best parts of Cuyahoga County.”⁶ Further, Sperling's BestPlaces ranked Cleveland ninth out of the 60 largest metropolitan areas in the United States to retire based on a set of criteria related to health and quality of life. One specific piece of Cleveland's high score was easy access to three unique park systems, including Cleveland Metroparks, which swathe the region in natural beauty and provide scores of recreational opportunities.⁷ Finally, proximity to parks and trails, and particularly Cleveland Metroparks reservations and trails, is often used as a selling point for homes listed on real estate websites such as Zillow. Residents of Cuyahoga County and Hinckley Township not only enjoy these amenities, they are willing to pay a premium to live close to reservations and trails.

The property value added by reservations, or parks, and trails is separate from the value residents gain from the recreational use of these amenities. Property value goes up even if the resident never visits or uses a given park or trail. Rather, property value is affected by two factors: quality of and distance from the park or trail.

Recognizing the importance of high-quality park amenities, Cleveland Metroparks works diligently to maintain its system. In fact, over the last 25 years, Cleveland Metroparks received the National Gold Medal Award for Excellence in Park and Recreation Management four times. This award recognizes the Park District's proven record in providing consistent, high-quality park maintenance, management, and environmental stewardship. Further demonstrating its commitment to quality, Cleveland Metroparks was certified in 2013 by the National Recreation and Park Administration (NRPA) through the Commission for Accreditation of Park and Recreation Agencies (CAPRA), the most prestigious organization to certify park agencies in the country.



Research has found that the quality of parks and trails can affect nearby property values in several ways.⁸ Beautiful natural areas with public access, scenic vistas, and bodies of water are markedly valuable. Less attractive or outdated parks and trails may provide only marginal value, and in some cases, they may actually reduce nearby property values. When looking at the impact of individual parks and trails, economic analysis is complicated by the subjective nature of a park or trail's quality as well as the variation in quality across time. In order to account for such variations and resultant impacts on the premiums generated by individual parks, The Trust for Public Land relies on a methodology that accounts for the impact of a community's entire park and trail system. The park premium that is applied in this analysis of Cleveland Metroparks reservations and trails isolates the minimum average value added by these spaces collectively, separate from other locational factors that affect a home's value, such as proximity to transportation networks and central business districts. Using this method, the premium is not based on any one reservation or trail but rather on the entire system of these spaces. This makes it possible to generate a reliable, conservative estimate of the total impact of reservations and trails on property values based on established rates from comparable studies.

In addition to quality, distance from parks and trails is the second factor influencing property values. Nationwide research, as well as work locally in Ohio, shows that the premium for proximity to these spaces can affect market values up to 2,000 feet by 20 percent or more.⁹ A 2009 report from the National Association of Realtors found that the premium for homes near parks can extend three blocks and start at 20 percent, declining as the distance from the park increases.¹⁰ Research in nearby Cincinnati, Ohio, found that impacts on home prices can extend even farther, to beyond 3,000 feet from a park. For the average property in the study (valued at \$122,852), every 100-meter¹¹ increase in the distance from the closest park decreased the sale price up to 0.51 percent (\$627).¹² Another nearby study of Three Rivers Park in Pittsburgh, Pennsylvania, found that since 2001, home values within the vicinity of riverfront investment projects had risen 60 percent compared to the 32 percent rise citywide.¹³ Trails also increase property values. For example, research in Austin, Texas, found that being directly adjacent to greenbelts, a collection of trails and greenspaces that encircle a community, increased homes' average value by 5.7 or 12.2 percent, depending on the greenbelt being studied.¹⁴

CLEVELAND METROPARKS



TABLE 2. ENHANCED PROPERTY VALUE DUE TO PROXIMITY TO RESERVATIONS AND TRAILS IN CUYAHOGA COUNTY AND HINCKLEY TOWNSHIP (2018\$)	
Category	Value
Number of homes within 500 feet of reservations and trails	18,000
Total market value of homes within 500 feet of reservations and trails	\$3,090,000,000
Additional market value due to reservations and trails	\$155,000,000
Additional annual property tax revenue due to reservations and trails	\$4,180,000

Using the most conservative method of analysis supported by these and other studies, The Trust for Public Land analyzed the value premium and increased tax revenue from residences due to their proximity to reservations and trails in Cuyahoga County and Hinckley Township. First, the Trust for Public Land identified all homes in the county and township within 500 feet of these spaces using spatial analysis conducted by Cleveland Metroparks.¹⁵ Appraisal data from Cuyahoga County were used to obtain property value and tax information for all homes in the county. This information was then combined with the spatial analysis to isolate a 5 percent value premium for residences proximate to reservations and trails, as well as the accompanying property tax contributions due to this premium. The Trust for Public Land repeated this procedure for parcels in Hinckley Township using appraisal data from Medina County.

Table 2 shows the results of this analysis for all reservations and trails in Cuyahoga County and Hinckley Township. In 2018, 18,000 homes in Cuyahoga County and Hinckley Township were located within 500 feet of these amenities. These homes had a total market value of \$3.09 billion. An additional \$155 million in residential property value in Cuyahoga County and Hinckley Township resulted from proximity to reservations and trails. Each year, \$4.18 million in additional property tax revenue is generated by reservations and trails in Cuyahoga County and Hinckley Township.¹⁶

Infiltrating stormwater

STORMWATER MANAGEMENT IS AN IMPORTANT ISSUE FOR COMMUNITIES IN CUYAHOGA COUNTY AND HINCKLEY TOWNSHIP. Rainwater that flows off roads, sidewalks, and other impervious surfaces can cause flooding, erosion, and declines in water quality by carrying pollutants with it. Cleveland Metroparks reservations support stormwater management by capturing precipitation and slowing its runoff. Large pervious surfaces in Cleveland Metroparks reservations absorb precipitation, allowing it to infiltrate and recharge groundwater. Meanwhile, vegetation in reservations provides a considerable surface area that intercepts and stores rainwater, allowing some to evaporate before it ever reaches the ground. In effect, these green spaces function like storage reservoirs, reduce peak flows of runoff during rain events, and are an important form of green infrastructure, which naturally filters, infiltrates, harvests, or reuses stormwater. This section uses economic analysis to determine the cost savings of these amenities.

Cleveland Metroparks works closely with the Northeast Ohio Regional Sewer District (Sewer District) to minimize the impacts of stormwater runoff. For example, a recent project in Acacia Reservation involves efforts by Cleveland Metroparks to restore the natural stream channel and install regenerative swales to capture, treat, and slow stormwater runoff to Euclid Creek.¹⁷ Owing to the nature of the work, the Sewer District supported the project through sponsorship under the Water Resource Restoration Sponsor Program (WRRSP).¹⁸ Developed by the Ohio Environmental Protection Agency in 2000, WRRSP funds the design and implementation of stream and wetland protection and restoration projects that counter the loss of ecological function or preserve biological diversity of Ohio's water resources. Additionally, Cleveland Metroparks, Sewer District, the City of Parma, and West Creek Conservancy collaborated to create the Watershed Stewardship Center, a home for watershed and water-quality education.¹⁹ The design features of the center, as well as its programs, demonstrate the importance of managing stormwater, reducing pollution, and supporting wildlife.

The positive stormwater management impacts of many Cleveland Metroparks reservations are further accentuated because many reservations are located along riparian corridors. Cleveland Metroparks is the largest stream-side landowner in Ohio.²⁰ Flooding in these areas happens first on reservations, buffering denser urban residential and industrial areas from the worst flooding. By keeping these lands open as reservations, Cleveland Metroparks complements and strengthens critical ecosystem services provided by rivers, streams, and lands adjacent such as flood control and prevention, as well as water quality protection.²¹

Understanding the importance of reservations as part of a robust stormwater management system, the former Western Research Station of the U.S. Forest Service developed a model to estimate the value of stormwater retained by such lands. Inputs to the model consist of



geographic location, climate region, surface permeability, acres of parkland, land cover, and vegetation types. The Trust for Public Land adapted the model specifically for use in Cuyahoga County and Hinckley Township. First, The Trust for Public Land determined the perviousness of Cleveland Metroparks reservations using the 2011 Percent Developed Imperviousness data from the National Land Cover Database (NLCD) that is created by the U.S. Geological Survey.²² Impervious areas consisted of roadways, parking areas, buildings, and hard courts. The 23,400 acres of reservations within the study area had 865 acres of impervious surface, making these lands 96.3 percent permeable and 3.7 percent impermeable (Table 3 ●).²³

Second, The Trust for Public Land estimated the amount of perviousness of the rest of Cuyahoga County and Hinckley Township (i.e., the county without its parkland) using the same NLCD impervious surface data. The pervious land consisted largely of residential front and back yards, private natural areas such as cemeteries, public institution grounds, and office campuses. Combined, the land in Cuyahoga County and Hinckley Township is 69.9 percent permeable, meaning that 30.1 percent of the precipitation falls on impermeable surfaces. Cleveland Metroparks reservations are thus more permeable than the surrounding lands.

TABLE 3. ACREAGE AND PERMEABILITY OF CLEVELAND METROPARKS RESERVATIONS IN CUYAHOGA COUNTY AND HINCKLEY TOWNSHIP

Acres of Parks	Acres	Percent of area
With pervious soil	22,000	93.9%
With impervious soil	865	3.70%
Underwater	561	2.40%
Total	23,400	100.0%

Third, the University of California, Davis, created a stormwater reduction model for Cleveland Metroparks reservations. The model first determined annual rainfall on these lands based on precipitation data for Cuyahoga County. Cuyahoga County receives 38.1 inches of rain in a typical year.²⁴ The model then used hourly annual precipitation data for Cuyahoga County to estimate annual runoff, which is reported in inches and cubic feet. The reduction in runoff in Cuyahoga County and Hinckley Township that is attributable to Cleveland Metroparks reservations was calculated by comparing the modeled runoff with the runoff that would leave a hypothetical site of the same size but with a land cover that is typical of the surrounding urban development (i.e., with streets, rooftops, parking lots, etc.). In other words, the analysis does not measure all of the water that is absorbed by Cleveland Metroparks reservations; it only measures the amount of water that is retained by these spaces above what would be absorbed had the land been developed similarly to the rest of Cuyahoga County and Hinckley Township. Of the 38.1 inches of rainfall that the study area receives in an average rain year, 2.63 inches of runoff are generated; however, an additional 5.27 inches of runoff would result if parks did not exist and absorb the stormwater that they do. That is, Cleveland Metroparks reservations reduce stormwater runoff in Cuyahoga County and Hinckley Township by 447 million cubic feet per year (Table 4 .

The final step in determining the economic value of stormwater retention by Cleveland Metroparks reservations was to estimate the cost to manage stormwater using built infrastructure (e.g., concrete pipes, sewers, and detention ponds). National studies have found that construction and annual maintenance costs for common stormwater-management

infrastructure range from \$0.05 to \$0.79 per cubic foot of stormwater managed.²⁵ To be conservative, The Trust for Public Land used the lower bound of this range (\$0.05) to estimate the value of stormwater infiltration provided by Cleveland Metroparks reservations. These spaces provide a total annual stormwater value of \$20.4 million.

This value is conservative based on local calculations. In 2016, the Sewer District resumed its Regional Stormwater Management Program, designed to address long-standing regional stormwater flooding, erosion, and water quality issues resulting from incremental increases in stormwater runoff from hard surfaces. Owing to the recent restart of the program, the actual costs per volume of stormwater management are not yet known. However, impervious surface fees fund this program and can be used as the basis for calculating the implied value of stormwater management. Following an approach used by the U.S. Forest Service, The Trust for Public Land determined the annual volume of runoff created by each square foot of impervious surfaces in NEORSD's district and then combined this information with the minimum annual fee per square foot of impervious surface on a property. This approach yielded an implied value of \$0.06 per cubic foot of stormwater runoff reduction, which is comparable to other regional studies as well as national studies on stormwater management costs. This value is higher than the stormwater management value (\$0.05) used in this analysis, making the analysis more conservative.²⁶

TABLE 4. ANNUAL STORMWATER COST SAVINGS FROM CLEVELAND METROPARKS RESERVATIONS (2018\$)		
Category	Inches	Amount
Rainfall	38.1	3,240,000,000 cubic feet
Runoff with parks	2.63	224,000,000 cubic feet
Runoff without parks	7.91	671,000,000 cubic feet
Runoff reduction from parks	5.27	447,000,000 cubic feet
Value of stormwater (\$ per cubic foot)		\$0.05
Total savings from parks		\$20,400,000

Reducing air pollution

AIR POLLUTION IS A SIGNIFICANT AND EXPENSIVE PROBLEM ASSOCIATED WITH METROPOLITAN GROWTH THAT INJURES HUMAN HEALTH AND DAMAGES STRUCTURES. Human cardiovascular and respiratory systems are affected, with broad consequences for health care costs and productivity.²⁷ In addition, acid rain, smog, and ozone increase the need to clean and repair buildings and other infrastructure.²⁸

The vegetation in reservations and trails plays a role in improving air quality, helping nearby areas avoid the costs associated with pollution.²⁹ Trees and shrubs have the ability to remove pollutants from the air. Leaves absorb gases such as nitrogen dioxide, sulfur dioxide, carbon monoxide, and ozone. Particulate matter (PM), which includes small particles of dust, metals, chemicals, and acids, can also be removed by adhering to plant surfaces.³⁰

Air pollution is a significant issue in Cuyahoga County and Hinckley Township. Although air quality in the area is improving, the Cleveland region is still ranked as one of the 25 most polluted regions in the country.³¹ *State of the Air* is an annual report by the American Lung Association that looks at air quality across the United States. Based on the number of days of dangerous concentration levels, Cuyahoga County received a failing grade for ozone pollution and annual particulate pollution levels in the 2018 report.³² The same report found Cleveland to have the tenth-highest levels of particulate pollution.³³ The positive, pollution-reducing benefits of reservations and trails are thus magnified in Northeast Ohio.



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The Trust for Public Land estimated the value of air pollution removed by Cleveland Metroparks trees using a model designed at the Northeast Research Station of the U.S. Forest Service in Syracuse, New York. This program utilizes the U.S. Forest Service's i-Tree Eco model, which is location-specific and incorporates factors such as tree canopy, pollution, weather, and local demographic data.³⁴

The Trust for Public Land determined the amount of tree canopy cover in Cleveland Metroparks using the National Land Cover Database.³⁵ Although Cuyahoga County and Hinckley Township have numerous trees on private property as well as on streets, this study measures only the economic value of trees located on Cleveland Metroparks reservations and trails. Tree canopy covers 68 percent of the 23,400 acres of parkland considered in this analysis.

The i-Tree Eco model processed the tree canopy cover data to estimate hourly changes in annual air pollution removal due to vegetation in reservations and along trails. The model then estimated the value of these changes for each pollutant based on values established by i-Tree researchers. These values are determined primarily from savings in health care costs related to reduced exposure to harmful pollutants, based on the Environmental Protection Agency's Environmental Benefits Mapping and Analysis (BenMap) Program. These values were then adjusted to 2018 values using the producer price index.³⁶

A total value of \$8.09 million in air pollution removal was estimated for Cleveland Metroparks reservations and trails each year (Table 5 [↗](#)).

TABLE 5. VALUE OF AIR POLLUTION REMOVED BY CLEVELAND METROPARKS RESERVATIONS AND TRAILS IN CUYAHOGA COUNTY AND HINCKLEY TOWNSHIP (2018\$)		
Pollutant	Pollution removed (pounds)	Pollutant removal value
Carbon monoxide	19,700	\$14,500
Nitrogen dioxide	181,000	\$59,500
Ozone	763,000	\$2,140,000
Coarse dust particles	233,000	\$809,000
Fine particles	47,200	\$5,050,000
Sulfur dioxide	84,500	\$13,100
Total	1,330,000	\$8,090,000

Generating tourism

FROM MAJESTIC LAKEFRONT BEACHES TO LUSH GOLF COURSES, TOURISTS ARE ATTRACTED TO CLEVELAND METROPARKS RESERVATIONS AND TRAILS IN CUYAHOGA COUNTY AND HINCKLEY TOWNSHIP.

Tourists who visit these amenities spend money on food, travel, and lodging during their stay, bringing new dollars and new tax receipts into the region. Cleveland Metroparks amenities thus support this large and growing industry. *National Geographic* listed Cleveland as one of the 20 best destinations in the world for 2018, one of only three U.S. locations selected.³⁷ A record 18 million visitors came to the county in 2016.³⁸ Visitor spending also increased more than 25 percent from 2011 to 2015, most recently totaling \$5.38 billion in direct sales. The rate of this growth outpaces both the region and the rest of Ohio,³⁹ translating to \$8.1 billion in business activity and generating over a billion dollars of taxes each year.⁴⁰ This section explores how Cleveland Metroparks amenities contribute to this critical sector of the region's economy.

Cleveland Metroparks reservations, trails, events, activities, and facilities such as the Cleveland Metroparks Zoo, outdoor concerts, and beaches attract new visitors to the area. For example, Cleveland Metroparks Zoo is the seventh-best attraction in Cleveland according to *U.S. News and World Report* and a top year-round attraction in Ohio in terms of attendance, with annual visitation routinely surpassing 1 million visitors.⁴¹ Meanwhile, the Edgewater LIVE and Euclid Beach LIVE concert series, entering their fifth seasons, are popular draws for visitors from across Northeast Ohio. In 2017, attendance for Edgewater LIVE surpassed 120,000, a more than 40 percent increase from 2016.⁴² According to Jacqueline Gerling, director of communications at Cleveland Metroparks, this record-breaking attendance figure was due to both the expanding awareness of the concert series and the brand-new Edgewater Beach House, which opened in 2017.⁴³ Cleveland Metroparks Zoo and the Edgewater LIVE and Euclid Beach LIVE concert series are just a few of the high-quality Cleveland Metroparks amenities drawing visitors to the area.

Cleveland Metroparks amenities can further enhance the experience for visitors already traveling to the region. Destination Cleveland recognizes the value of these amenities, listing Cleveland Metroparks as a top free attraction for Cleveland visitors.⁴⁴ "Outdoor exploration opportunities help dispel long-held perceptions of Cleveland as a city challenged by the by-products of industrialization," notes Colette Jones, vice president of marketing at Destination Cleveland. "Whether it's enjoying a meal at Merwin's Wharf while watching freighters navigate the river, playing Frisbee on the beach as the sun sets at Edgewater Park, or exploring on foot or on a bike the diversity of Cleveland's natural landscape in a wooded reservation, the abundance and diversity of Cleveland's outdoor amenities round out Cleveland's visitor experience."

Tourists' activities, the number of visitors, and tourist spending determine the contribution of reservations and trails to the tourism economy. That is, families may come to spend the day at



Huntington Reservation, fishing, relaxing on the beach, and meeting up with friends.⁴⁵ They can enjoy this amenity without paying admission but will have several expenditures related to their trip that contribute to the local economy. They may purchase fishing gear and beach chairs at nearby sporting goods stores, eat at local restaurants, and buy gas for their vehicle during the trip. As the purpose of their trip is Huntington Reservation, it is the driver of this spending.

All visits by tourists who come primarily to use reservations and trails, and the associated spending they generate, make up the total contribution of Cleveland Metroparks to the tourism economy. The Trust for Public Land determined an estimate for this impact by looking at visitors who came to the region for the outdoors, as well as to engage in activities and events hosted or supported by Cleveland Metroparks. The Trust for Public Land first isolated the number of leisure visitors to Cuyahoga County whose primary purpose for travel was the outdoors and then applied this percentage to total direct travel expenditures and tax receipts for Cuyahoga County. Based on visitor survey data, The Trust for Public Land determined that approximately 11.1 percent of visitors cited the outdoors as the top reason for their trip.⁴⁶ Applying this percentage to the total direct tourism spending, tax, and employment figures, The Trust for Public Land

TABLE 6. OUTDOOR TOURISM IMPACTS OF CLEVELAND METROPARKS RESERVATIONS AND TRAILS IN CUYAHOGA COUNTY (2018\$)

Category	Value
Total direct travel spending in Cuyahoga County	\$5,660,000,000
Total local tourism tax revenue in Cuyahoga County	\$145,000,000
Total state tourism tax revenue in Cuyahoga County	\$220,000,000
Total direct employment related to tourism in Cuyahoga County	49,200
Percentage of tourists whose primary reason to visit Cuyahoga County is the outdoors	11.1%
Approximate spending of tourists in Cuyahoga County attributable to reservations and trails	\$553,000,000
Approximate local tourism tax revenue in Cuyahoga County attributable to reservations and trails	\$12,200,000
Approximate state tourism revenue in Cuyahoga County attributable to reservations and trails	\$21,500,000
Approximate employment in Cuyahoga County attributable to tourism driven by reservations and trails	4,360

estimated that \$553 million in spending each year is attributable to the reservations and trails that make the outdoors accessible to tourists (Table 6). Spending by these visitors generates \$12.2 million and \$21.5 million in local and state tax revenues, respectively, and supports 4,360 jobs. These figures do not include spending, tax, or employment impacts generated by Cuyahoga Valley National Park, the impacts of which are discussed separately below. Furthermore, spending by visitors to Cleveland Metroparks reservations and trails ripples through the economy, adds value, and supports additional jobs. Businesses serving tourists must purchase labor and supplies from other businesses within the local economy. These businesses, in turn, increase their purchases and employ more individuals who spend their earnings on local goods and services. Including these ripple effects, \$838 million in total visitor spending is attributable to the reservations and trails that make the outdoors accessible to tourists.⁴⁷

Another strong indicator of visitor preferences for outdoor recreation opportunities, as well as the impacts of such amenities, is apparent by looking at Cuyahoga Valley National Park (CVNP). CVNP provides economic opportunities to the region as it is partially contained in Cuyahoga County and located a short distance from the urban areas of Cleveland and Akron. In 2016,

2.42 million park visitors spent almost \$72.5 million, which in turn supported 1,090 jobs in Cuyahoga County and the rest of the region. CVNP partners with Cleveland Metroparks through such means as the Get Up, Get Out & Go! recreation program, which encourages families to utilize outdoor amenities throughout the region.⁴⁸

A methodology focused exclusively on outdoor tourism would miss important impacts that result from visitors to Cleveland Metroparks for other purposes. Additional impacts result from individuals who travel to the area specifically to attend special events, concerts, tournaments, and other types of activities either hosted directly by Cleveland Metroparks or enabled by Cleveland Metroparks reservations and trails. The Trust for Public Land estimated the impacts for some of the most popular Cleveland Metroparks facilities, events, and activities, including Cleveland Metroparks Zoo, the summer concert series, NEOCycle, and others. These events and activities supported nearly 700,000 tourist visits and \$63.0 million in additional direct tourism spending (Table 7 )⁴⁹.

TABLE 7. TOURISM SPENDING FROM ACTIVITIES AND SPECIAL EVENTS SUPPORTED BY CLEVELAND METROPARKS		
Activity or event	Tourism visits	Tourism spending
Cleveland Metroparks Zoo	553,000	\$49,900,000
Golfing	89,700	\$8,110,000
Edgewater LIVE	28,000	\$2,530,000
Centennial Firework Celebration	6,900	\$624,000
USA Triathlon's Age Group Nationals	3,340	\$301,000
Top special events	3,220	\$291,000
Top outdoor experience events	2,760	\$249,000
Top running and walking events	2,530	\$229,000
NEOCycle	2,300	\$208,000
Chagrin Valley Hunter Jumper Classic	2,300	\$208,000
Euclid Beach LIVE	2,000	\$181,000
Total Eclipse of the Park	1,150	\$104,000
Total	697,000	\$63,000,000

The Trust for Public Land estimated the number of tourist visits for special events, activities, and tournaments by first determining the number of visitors or participants originating from outside Cuyahoga County for each activity or event. In instances where this figure was not available, The Trust for Public Land assumed that 23 percent of attendees were tourists based on the total percentage of reservation and trail visits originating from outside the county.⁵⁰ The Trust for Public Land then calculated total spending impacts by determining the breakdown of overnight and day visitors using county-level visitor profiles and multiplying each user group by the average expenditures for each type of visitor (Figure 2 ⁵¹).

FIGURE 2. DETERMINING TOURISM SPENDING FROM CLEVELAND METROPARKS SPECIAL EVENTS, ACTIVITIES, AND TOURNAMENTS					
Tourism spending	=	Total tourist visits		x	
		Total visitors	x	Spending per visit	
				Percentage of day visitors	Average expenditure per day visitor
				x	
				Percentage of overnight visitors	Average expenditure per overnight visitor
				x	

While not exhaustive of the total tourism impact of Cleveland Metroparks reservations and trails, these figures, when combined with spending from outdoor tourism, provide an insight into the scale of this impact. In total, Cleveland Metroparks reservations and trails support \$616 million in tourism spending each year (Table 8 ⁵²).

TABLE 8. TOTAL TOURISM SPENDING ATTRIBUTABLE TO OUTDOORS, SPECIAL EVENTS, ACTIVITIES, AND TOURNAMENTS ON CLEVELAND METROPARKS RESERVATIONS AND TRAILS	
Category	Tourism spending
Outdoors	\$553,000,000
Special events and activities	\$63,000,000
Total	\$616,000,000



Looking only at the primary purpose of travel does not capture impacts from visitors who come for another primary purpose, such as visiting family, but also engage in outdoor recreation or attend special events as part of their stay or increase the length of their trip to do so. According to Destination Cleveland, visitors who planned to spend most of their time focused on arts and culture, music, or sports often added a visit to parks to their agenda after learning about what is available. In fact, 23 percent, or more than 4 million, of the recreational visits to Cleveland Metroparks in 2017 were made by visitors from outside Cuyahoga County.⁵²

As this analysis has shown, tourism is an important and growing economic driver in Cuyahoga County and Hinckley Township. From enabling encounters with over 600 species of animals at the Cleveland Metroparks Zoo and sandcastle competitions at Edgewater Beach to hosting triathlons and 5k runs, Cleveland Metroparks reservations play an important role in supporting the tourism industry. These amenities, special events, and activities attract new visitors to the region, bringing new dollars into the local economy. Further, for those already in the area visiting family, traveling for business, or taking vacation, Cleveland Metroparks offers a host of amenities and activities that enhance the visitor experience. Altogether, Cleveland Metroparks reservations and trails are critical public-facing amenities that are both directly supporting tourism and contributing to the reinvigorated image of Cleveland and the surrounding region.

Providing recreational value

IN ADDITION TO BOLSTERING THE TOURISM ECONOMY, THE RESERVATIONS AND TRAILS OWNED AND MANAGED BY CLEVELAND METROPARKS PROVIDE SUBSTANTIAL ECONOMIC BENEFITS THROUGH THEIR WIDE USE BY LOCAL RESIDENTS. These amenities offer recreational value to residents in Cuyahoga County and Hinckley Township by providing access to recreational opportunities such as hiking, walking, enjoying nature, observing wildlife and birding, visiting with family, relaxing, playing in playgrounds, picnicking, and exercising. This section measures the recreational value that accrues to local residents who use Cleveland Metroparks reservations and trails. The value from nonresident use is excluded from this analysis since it is accounted for in the tourism section (see page 22).

Economists know that parks and trail amenities provide value because people are willing to pay for recreational access to trails, parks, and even private facilities. This value exists even if individuals do not have to pay to access these amenities (e.g., pay an entry fee). Most recreational uses in Cleveland Metroparks reservations and trails are available at low or no cost. Thus, the benefit accrues to the user in one of two ways: by providing cost savings to individuals who were willing to pay to recreate but did not have to, or by providing travel cost savings to individuals who do not have to travel to access a substitute site. In this section, The Trust for Public Land estimates the number of recreational users and the recreational value gained by residents.

Over the last five years, Cleveland Metroparks has grown its park system, added new land to its reservations, improved amenities, and expanded its programming. For example, in 2017, Cleveland Metroparks opened the newly constructed Edgewater Park Beach House, an amenity that has greatly improved the beachfront and allowed for the growth of the Edgewater LIVE summer concert series, which draws approximately 10,000 people to each show.⁵³ Across the country, investments in parkland, amenities, staffing, and programming are shown to increase park use. It is important to measure the recreational benefits that residents receive given the continued investment of Cleveland Metroparks throughout Cuyahoga County and Hinckley Township, especially considering the established body of literature that demonstrates the importance of park amenities, staffing, and programming in increasing park use.

This literature focuses on socio-demographic, community, and park or park system characteristics, which together affect park use. One recent study found that the number of parks, amount of park space, and types of amenities were significant factors affecting park use, in addition to characteristics of the participant.⁵⁴ A study of community parks found that park system characteristics had the biggest impact on park use. In fact, the strongest factors in estimating park use were the number of part-time staff, the number of supervised



and organized programs, and knowing the park staff.⁵⁵ Further supporting the concept of the park system itself being important to determining park use, a more recent study found that the strongest predictor of increased park use was the availability of organized and supervised activities.⁵⁶ Programming is especially important in areas of need, such as low-income neighborhoods, which researchers have found can have residents who use the park system less than their higher-income counterparts; the difference is attributed to fewer supervised activities being available and less marketing outreach.⁵⁷ Recognizing the importance of reaching all demographic groups, Cleveland Metroparks actively provides programming to target traditionally underserved communities.

These, and other studies, also focused on the role of neighborhood poverty, demographic composition, and safety in determining park use.⁵⁸ For example, research has been conducted about the use of Cleveland Metroparks Ohio and Erie Canal Reservation. The study investigated the relationships between age, race, and residential location and residents' preferences for parkland, recreation, and the level of visitation to local parks. The study concluded that older adults and African Americans were less likely to use the park than younger adults and whites.⁵⁹

Additional research regarding use of Cleveland Metroparks has shown that regular park use by seniors is common and that this use has health implications. One study found that park users were significantly more educated than non-park users and had significantly higher perceived

mental health scores. In addition, residents within walking distance of a local park visited parks more frequently.⁶⁰ This is consistent with other research on the use of urban park in-fill in Cleveland, where socio-demographic characteristics did not feed into future visitation intentions, but accessibility and convenience did.⁶¹

To calculate the recreational use value to residents of Cuyahoga County and Hinckley Township, The Trust for Public Land first determined the number of visits to Cleveland Metroparks reservations and trails. To do this, The Trust for Public Land relied on the results of a professionally conducted telephone survey of Cuyahoga County residents.⁶² Respondents provided information about the frequency of their visits to Cleveland Metroparks reservations and trails, as well as detailed information about the types of activities in which they participated. The Trust for Public Land also estimated the additional recreation participation associated with additions to reservations and trails since 2013, such as the 100-acre addition to Brecksville Reservation in 2017. This was done using The Trust for Public Land's ParkServe database to understand and identify the residents who are newly served by parks added since 2013.⁶³ The Trust for Public Land assumed park use patterns remained constant over the five-year period.

The survey results indicated that 71.2 percent of adults and 83.9 percent of children visit Cleveland Metroparks reservations and trails annually. The results also indicate that the most popular activities for children were walking or hiking followed by playground use and picnicking or sitting on benches. For adults, walking or hiking was followed by exploring nature and picnicking or sitting on benches. These are also the top three activities for adults and children combined. See [Table 9](#) for a listing of the five most popular activities overall. To be conservative for the purposes of the recreational use analysis, the self-reported participation

TABLE 9. TOP FIVE ACTIVITIES IN CLEVELAND METROPARKS AS DETERMINED BY SELF-REPORTED PARTICIPATION FOR RESERVATIONS AND TRAILS

Activity	Participation (annual visits)		
	Adults	Children	Total
Walking or hiking on trails, including dog walking	2,390,000	649,000	3,040,000
Exploring nature, viewing wildlife, or geocaching	1,840,000	421,000	2,260,000
Picnicking or sitting on benches	1,680,000	500,000	2,180,000
Visiting public play areas or playgrounds	889,000	585,000	1,470,000
Using exercise stations	749,000	182,000	930,000



data were adjusted to account for participation in multiple activities during a single visit, as well as the overreporting of park use by respondents. The Trust for Public Land also adjusted weekly reported participation in park and recreation activities to account for seasonality. For example, paddle sport participation drops to lower levels during certain times of year, particularly in the winter months. As such, participation is not included in this analysis for those months.

Each visit a resident takes to Cleveland Metroparks has value. Once participation was determined, The Trust for Public Land assigned dollar values to each park use by each participant in each activity. The methodology applied by The Trust for Public Land was developed using the framework of the Unit Day Value method, which is employed by the U.S. Army Corps of Engineers to count park visits by specific activity, assigning each activity a dollar value.⁶⁴ The Trust for Public Land determined the value of recreation activities in Cuyahoga County utilizing estimates of outdoor recreation value from Oregon State University's Recreation Use Values Database. Oregon State University's database contains values for more than 20 activities and is based on over 420 economic studies that estimated the use value of recreation activities in the United States and Canada from 1958 to 2015.⁶⁵ In determining which values to use, The Trust for Public Land's economists applied the values most conservative and relevant to Cuyahoga County.



The average value per visit of \$4.25 is a unique calculation for Cuyahoga County residents across all activities engaged in for all park visitors (Table 10 [↗](#)). The value was calculated based on the frequency and type of park visits engaged in by residents of Cuyahoga County in the past year. It takes into account the diverse types of activities available to residents, seasonality of park use, and varying values by park activity.

Applying these values to the number of visits to Cleveland Metroparks by children and adults, this analysis finds the recreational use value for Cuyahoga County is \$64.6 million for 2018 (Table 10 [↗](#)).⁶⁶

TABLE 10. THE ANNUAL ECONOMIC VALUE OF RECREATIONAL USE IN CLEVELAND METROPARKS RESERVATIONS AND TRAILS (2018\$)

	Person visits	Average value per visit	Value
Total	15,200,000	\$4.25	\$64,600,000

These results are consistent with the results of Cleveland Metroparks visitation estimates that are based on recreation and trail counters. In 2017, Cleveland Metroparks estimated 18.5 million recreational visits to reservations and trails; however, some of those recreational visits were made by tourists and are covered in the tourism section above. That is, based on survey work completed for Cleveland Metroparks, 23 percent, or 4.26 million recreational visits, are attributable to tourists.

To be conservative for the purposes of the recreational use analysis, The Trust for Public Land designed the approach to be conservative in several ways.

- The calculation includes only residents of Cuyahoga County so results cannot be extrapolated to Hinckley Township; however, the use of Cleveland Metroparks reservations and trails by Hinckley Township residents would increase the estimated total recreational use value.
- The Trust for Public Land adjusted the data to account for individuals' participation in multiple activities during a single visit, such as walking and wildlife watching or visiting a beach and fishing.
- The Trust for Public Land addressed the tendency of individuals to overreport park visitation because they perceive such a response to be socially desirable.⁶⁷
- The Trust for Public Land considered fluctuations in usage by season.
- In quantifying the benefits of resident use, The Trust for Public Land also recognized that not every visit within a given period has the same value to the visitor. In fact, additional uses of a park are less valuable than the first use.
- The Trust for Public Land also took into account any fees charged to participate in an activity. The per-person fee is subtracted from the imputed value and only the "extra" value is assigned. For example, if playing golf costs \$40 at a Cleveland Metroparks course and \$50 at a private country club, the value of the resident's first time playing golf at a public course would be \$10.

Providing health care cost savings

ACCESS TO PARKS AND TRAILS, LIKE CLEVELAND METROPARKS RESERVATIONS AND TRAILS, CAN HELP A COMMUNITY MEET ITS HEALTH GOALS AND REDUCE MEDICAL COSTS FOR COMMUNITY RESIDENTS. The relationship between health, nature, and parks is well documented in the health care literature and recognized locally through partnerships between Cleveland Metroparks and health organizations, such as Cigna and the Cleveland Clinic. This section recognizes the important role that parks play in improving the health of a community's residents, discusses relevant literature and data, and measures the health care cost savings to residents that result from their physical activity and exercise in the park system.

Studies have found that physical inactivity and poor diet together are the second-leading cause of death in the United States.⁶⁸ Physical exercise can reduce the likelihood of illnesses such as obesity, cardiovascular disease, diabetes, and arthritis, and, consequently, it can also reduce the associated medical costs.⁶⁹ There are many potential ways by which nature has been empirically tied to specific physical and mental health outcomes.⁷⁰ Studies of health care economics and policy have established that increased access to public outdoor spaces and more biking and walking infrastructure encourages people to exercise, reducing overall health care expenditures.⁷¹ Investment in public open space encourages behavioral changes that not only reduce chronic diseases and health care costs, but also improve quality of life.⁷²

In addition to physical benefits, research indicates that people who have increased exposure to the outdoors show long-term mental health improvements. Several studies have demonstrated that access to public outdoor spaces can decrease stress, aid in mental fatigue recovery, and reduce levels of depression and anxiety.⁷³ Exposure to natural environments or more green areas provides further benefits. Researchers have found that leisurely walks in natural environments lead to a 12 percent decrease in the stress hormone cortisol and are linked to lower depression and perceived stress.⁷⁴ In addition, women living with a higher amount of greenness around their homes had a 12 percent lower rate of death from non-accidental causes compared to women living with the least amount of greenness.⁷⁵

The Robert Wood Johnson Foundation recently ranked the health of Ohio counties, taking into consideration length of life, quality of life, health behavior (including physical inactivity and access to exercise opportunities), clinical care, social and economic factors, and the physical environment. The results show that Cuyahoga County residents are more physically active than the average Ohioan. That is, according to the Robert Wood Johnson Foundation, only 24 percent of Cuyahoga County's population is physically inactive in 2018, compared to 26 percent of the state's residents. The community's relative physical activity is likely affected by the fact that Cuyahoga County residents also have more access to exercise opportunities. That is, 96 percent



of the county's residents have access to exercise opportunities, compared to 85 percent of the state's population.⁷⁶ Cleveland Metroparks reservations and trails provide critical access to opportunities for physical activity.

Despite Cuyahoga County's health rankings relative to other counties in the state, physical inactivity and obesity are challenging health problems that have significant impacts on the resident population. In 2018, 30 percent of Cuyahoga County residents were obese.⁷⁷ A larger percentage of residents in the city of Cleveland are also obese (35 percent), and an additional 32.6 percent are overweight.⁷⁸ Physical inactivity and obesity can lead to chronic illnesses, which cost Ohioans significant amounts each year. If Ohioans could reduce the average body mass index (a measure of body fat based on height and weight) by 5 percent, the state could save as much as \$1.2 billion in health care spending and prevent 650,000 case of diabetes, heart disease, and cancer by 2030.⁷⁹

In fact, several Cleveland area hospitals' Community Health Needs Assessments identify physical inactivity, and its link to chronic diseases and other health conditions, as a significant community health need.⁸⁰ The 2013 Community Health Status Assessment for Cuyahoga County discussed higher than average hospitalizations for chronic conditions that could be prevented through increased nutrition, increased physical activity, and the elimination of tobacco usage.⁸¹

The role of physical inactivity, among other factors leading to chronic illness, is also discussed in the 2015 Cuyahoga County Community Health Improvement Plan.⁸² Research has shown that every \$1 invested by a community in strategies to increase physical activity by building biking trails and walking paths could result in \$3 in avoided medical expenditures.⁸³

Recognizing the links between parks, physical activity, and health, Cleveland Metroparks and the Cleveland Clinic have launched an “Explore Your Park” wellness initiative to improve the health of the community by connecting residents with a vast array of free, local programs, activities, and experiences that encourage healthy living.⁸⁴ Cleveland Metroparks 18 reservations across the county, many within proximity to health institutions, are a critical component of the solution to top health care issues in Cuyahoga County—providing access to exercise opportunities and facilitating rehabilitation of area hospital residents. According to Joshua S. Miller, DO, vice president of Cleveland Clinic’s Regional Hospitals and Family Health



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Centers, “The access that Northeast Ohio residents have to Cleveland’s Emerald Necklace is an invaluable benefit to the health and wellness of the community. The close proximity of Cleveland Clinic’s regional hospitals and 18 full-service family health centers to the Park District’s 18 park reservations helps directly connect local residents with free recreation and wellness programs right in their own backyard.”

In this analysis, The Trust for Public Land measured the collective cost savings realized on an annual basis by residents of Cuyahoga County who use the reservations and trails to exercise. The Centers for Disease Control and Prevention (CDC) recognizes that physical activity helps improve overall health and reduces the risk for chronic diseases. As such, the CDC promotes physical activity guidelines, defining sufficient activity as at least 150 minutes of moderate-intensity activity per week or at least 75 minutes of vigorous-intensity activity per week, along with muscle-strengthening activities at least two days per week. For seniors, the thresholds of moderate-intensity and vigorous-intensity physical activity are higher: 300 and 150 minutes, respectively.⁸⁵

Having access to places to walk can help individuals meet recommendations for regular physical activity.⁸⁶ Parks are some of the most commonly reported convenient places for improved physical and mental health, especially if the space is well maintained, safe, and accessible.⁸⁷ From a public health perspective, parks provide low-cost, high-yield wellness opportunities.⁸⁸ In addition to providing a location for physical activity, Cleveland Metroparks offers significant staff and programming to reach residents. A body of park use literature shows that park use and physical activity in the park system increases with more staff members and programming.⁸⁹

Based on the CDC’s guidelines for physical activity, The Trust for Public Land used the results of the professionally conducted telephone survey (see page 30) to determine how many adults were using reservations or trails at a frequency and intensity that would result in medical care cost savings. The Trust for Public Land conservatively defines vigorous- and moderate-intensity physical activity according to the guidelines developed by the CDC⁹⁰ and assumed the lowest level of intensity possible for each activity. That is, if the respondent reported bicycling, The Trust for Public Land assumed he or she did so at a leisurely pace on level terrain, which qualifies as a moderate activity, rather than bicycling at a brisk pace or on steep uphill terrain, which qualifies as a vigorous activity. The Trust for Public Land limited vigorous-intensity activity to running or jogging. Moderate-intensity activities included walking, hiking, road or mountain biking, playing sports, using exercise stations, and other types of physical activity or exercise in reservations and on trails. The health analysis does not include sedentary or low-heart-rate activities, such as picnicking, wildlife watching, or fishing. In addition,



individuals must utilize the reservations and trails exclusively to an extent that is sufficient to meet the CDC's physical activity guidelines. This analysis does not include individuals who use private facilities in conjunction with public facilities to meet the CDC's physical activity thresholds. This analysis finds that 114,000 adult residents of Cuyahoga County improve their health to a degree that meets the CDC's physical activity guidelines by using Cleveland Metroparks reservations and trails exclusively.⁹¹

Based on previous work in health care economics, The Trust for Public Land assigned a value of \$1,230 as the annual medical cost savings between adults under 65 years old in Cuyahoga County who exercise regularly and those who do not. The Trust for Public Land chose this value based on a careful review of health care economics literature that focuses on the cost difference between physically active and inactive persons. The cost savings were based on the National Medical Expenditures Survey and has been widely cited in similar studies.⁹² The Trust for Public Land adjusted the medical care cost savings for inflation and converted the value to 2018 dollars.⁹³ The Trust for Public Land doubled the health care cost savings for persons over the age of 65 because seniors typically incur two or more times the medical care costs of younger adults.⁹⁴ This doubling of health care cost savings is conservative. For example, one study found that average health care expenses for adults over 65 were over three times those of working-age people.⁹⁵

TABLE 11. ESTIMATED HEALTH BENEFITS OF CUYAHOGA COUNTY RESIDENTS' PHYSICAL ACTIVITY IN CLEVELAND METROPARKS RESERVATIONS AND TRAILS (2018\$)

Category	Value
Adults under 65 years of age	
Number of adults under 65 years old who are physically active in reservations and trails*	99,000
Average annual medical care cost difference between active and inactive adults under 65 years old	\$1,230
Subtotal of health care benefits	\$122,000,000
Adults 65 years of age and older	
Number of adults over 65 years old who are physically active in reservations and trails*	15,500
Average annual medical care cost difference between active and inactive adults over 65 years old	\$2,460
Subtotal of health care benefits	\$38,100,000
Total adults physically active in reservations and trails*	114,000
Total annual value of health benefits from reservations and trails*	\$160,000,000

*Calculations are based on Cuyahoga County residents using the Cleveland Metroparks reservations and trails exclusively to engage in sufficient levels of moderate- and/or vigorous-intensity activity that meets the CDC's physical activity guidelines.

In 2018, the combined health savings gained by residents of Cuyahoga County who were physically active in the Cleveland Metroparks reservations and trails were \$160 million (Table 11 [↗](#)).

This estimate is conservative because it does not include health care cost savings that result when children use these resources to an extent that makes them healthier. It has been shown that public outdoor spaces also provide important benefits to children and childhood development.⁹⁶ Multidisciplinary research has consistently shown that child's play, playgrounds, and parks are linked to positive development of neural pathways for large and small motor skills and social skills.⁹⁷ Reservations and trails can also provide additional benefits to children with developmental disorders. For example, one study on the effects of outdoor playtime on children with attention-deficit/hyperactivity disorder (ADHD) showed that a 20-minute exposure to the outdoors, such as walking in a reservation, improved concentration just as effectively as common prescription medications.⁹⁸ Similarly, other studies have found that limited or no access to nature leads to higher rates of ADHD and other mental disorders.⁹⁹ Providing reservations and trails to youth is an essential benefit provided by Cleveland Metroparks, especially given the extent to which physical inactivity and its related health challenges affects youth in the region. For example, a recent survey of middle school youth in Cuyahoga County found that only 51 percent of seventh and eighth graders met weekly recommendations for physical activity.¹⁰⁰

Bolstering economic development

CLEVELAND METROPARKS RESERVATIONS AND TRAILS CONTRIBUTE TO ECONOMIC DEVELOPMENT.

These amenities enhance quality of life as well as provide safe and enjoyable means of transportation to work, school, and other activities. They also provide diverse leisure opportunities that are important generators of economic activity—attracting talent, employers, and investment to the community. This section explores how these amenities enhance quality of life, boost the recreation economy, and support local businesses. It includes in-depth statistics on participation in recreation and annual household spending on sports and recreation equipment, indices of market and spending potential, and a comparison of these results for Cleveland Metroparks with the national average and five comparison park districts.

Quality of life

Quality of life plays a critical role in the region's economic development because the most sought-after employees in today's economy consider more than salary when choosing where to work. For example, focus groups conducted by Carnegie Mellon University have found that young creative workers, particularly those in high-technology fields, consider lifestyle factors, such as environmental and recreational quality, more heavily than the job itself when choosing where to live.¹⁰¹ Local businesses see the value of Cleveland Metroparks in creating a vibrant and attractive community and thus support a range of programs and special events throughout the reservation and trail system. This support included a partnership with KeyCorp that enabled Cleveland Metroparks to throw a free community event attended by over 30,000 guests celebrating the Cleveland Metroparks centennial in 2017. "Cleveland Metroparks is one of this region's greatest natural assets," notes Beth Mooney, KeyCorp chairman and chief executive officer. "As Cleveland's hometown bank it was important to invest in strengthening connections with community through the Park District's centennial celebration."

From waterfront reservations to winter hikes through wooded trails and summer concert series, Cleveland Metroparks offers year-round recreation for the whole family.¹⁰² Youth Outdoors is one program that has been particularly successful in enhancing the quality of life by connecting area youth to hiking, camping, kayaking, and many other outdoor-related activities, often for the very first time.¹⁰³ The quality of the reservation and trail system and its programs was recognized when Cleveland Metroparks won the 2016 National Gold Medal Award for Excellence in Park and Recreation Management for the fourth time,¹⁰⁴ as well as the 2016 Impact Award as part of the Vibrant City Awards, which recognize organizations that support progress, place-making, and urban revitalization in Cleveland.¹⁰⁵



Boosting the recreation economy

In addition to enhancing quality of life, reservations and trails enable recreation activities that generate economic benefits by supporting related businesses, including those that sell recreation equipment. In order to understand the recreation-related economic activity that occurs in Cuyahoga County and Hinckley Township, The Trust for Public Land utilized information from the Esri Business Analyst tool, which allows users to understand consumer behavior, participation in leisure activities, and business activity in a defined geography.¹⁰⁶ Using this tool, one can begin to understand how an area compares to the U.S. average, as well as other communities across the country, such as the five comparison park districts considered in this analysis: Chicago Park District; Minneapolis Park and Recreation Board; Miami-Dade County Parks, Recreation and Open Space Department; Parish of East Baton Rouge Recreation and Park Commission; and Maryland-National Capital Park and Planning Commission.¹⁰⁷

Participation in recreation

While the recreation survey discussed earlier in this report looked at recreational use among Cleveland Metroparks users, Business Analyst allows for the examination of recreation activities across the entire population. According to this tool, participation in outdoor recreation activities is prevalent among residents of Cuyahoga County and Hinckley Township.¹⁰⁸ The top

activity was walking for exercise—26.5 percent of households did so in the last 12 months (Table 12). Other popular activities included swimming (15.0%), fishing (11.6%), bicycling (10.1%), and basketball (9.1%)—all recreation activities available on Cleveland Metroparks amenities. Residents in the district have a higher median age than nationally (41.6 years compared to 37.7),¹⁰⁹ and it follows that a slightly older population is interested in the types of low-impact activities they can engage in on Cleveland Metroparks reservations and trails. Esri Business Analyst also calculates a market potential index (MPI) that measures the relative likelihood of individuals and households in an area participating in certain activities or exhibiting certain consumer behavior compared to the U.S. average.¹¹⁰ The MPI for many of the top activities is just below the national average and above average for baseball (108), basketball (107), and aerobics (101), meaning households in Cuyahoga County and Hinckley Township are more likely to engage in these activities than elsewhere in the United States.

TABLE 12. PARTICIPATION IN RECREATION AND MARKET POTENTIAL IN CUYAHOGA COUNTY AND HINCKLEY TOWNSHIP		
Activity	Households that participated in the last 12 months	Market potential index
Walking for exercise	26.5%	98
Swimming	15.0%	97
Jogging/running	12.1%	90
Fishing (freshwater)	11.6%	97
Bicycling (road)	10.1%	99
Weightlifting	9.9%	98
Bowling	9.5%	99
Hiking	9.2%	89
Basketball	9.1%	107
Golf	8.7%	99
Aerobics	8.4%	101
Yoga	7.1%	93
Canoeing/kayaking	5.7%	99
Football	5.0%	99
Baseball	4.9%	108

TABLE 13. ANNUAL HOUSEHOLD SPENDING ON SPORTS, RECREATION, AND EXERCISE EQUIPMENT IN CUYAHOGA COUNTY AND HINCKLEY TOWNSHIP (2018\$)

Spending category	Average amount spent per household	Total spending	Spending potential index
Total all categories	\$143.00	\$77,400,000	82
Exercise equipment and gear, game tables	\$50.10	\$27,200,000	83
Bicycles	\$22.60	\$12,300,000	79
Camping equipment	\$14.90	\$8,090,000	89
Hunting and fishing equipment	\$35.40	\$19,200,000	82
Winter sports equipment	\$4.51	\$2,450,000	74
Water sports equipment	\$4.39	\$2,380,000	76
Rental and repair of sports, recreation, and exercise equipment	\$1.78	\$967,000	80
Other sports and recreation equipment	\$9.32	\$4,813,000	85

Recreation expenditures and spending potential

Individuals who participate in recreation activities purchase products to enhance their experiences, such as exercise clothing, footwear, bicycles, and fishing tackle. In addition to participation, the Esri Business Analyst tool compiles estimates of recreation expenditures and calculates a spending potential index (SPI) that represents the amount spent for products and services relative to the national average.¹¹¹ As with the MPI, the SPI can be useful for comparing the Cleveland Metroparks district to other park districts and the U.S. averages.

Residents of Cuyahoga County and Hinckley Township spend \$77.4 million annually on sports, recreation, and exercise equipment, with households spending an average of \$143 (Table 13). This spending—among other recreation equipment expenditures—includes \$50 on exercise equipment,¹¹² \$35 on hunting and fishing equipment,¹¹³ and more than \$20 on bicycles. From a run in the park after work to fishing at one of the thirteen major fishing areas within Cleveland Metroparks,¹¹⁴ Cleveland Metroparks reservations and trails enable a wide array of recreation activities and thus support these recreation expenditures.

Household spending on sports and recreation in the Cleveland Metroparks district is comparable to national figures as well as the other park districts. Although actual spending is lower than the U.S. average (SPI of 82) and the comparison park districts (average SPI of 102), income and cost of living vary greatly in these districts. In the Maryland-National Capital Park and Planning Commission district, for example, average household spending on recreation equipment is 79.7 percent greater than in Cleveland Metroparks district households. Median income, meanwhile, is nearly double. This means that Cleveland Metroparks district households are actually spending more relative to their income on recreation equipment. When median income is taken into account, average spending per household in Cuyahoga County and Hinckley Township is consistent with the comparison communities (Table 14 ). Considering that the MPI for recreation activities in the Cleveland Metroparks district was at or just below national averages, this suggests that household income, rather than recreation demand or interest, may be a larger influence on recreation expenditures. In other words, residents want to engage in outdoor recreation but have less income to spend on such activities and equipment.

TABLE 14. ANNUAL HOUSEHOLD SPENDING ON SPORTS, RECREATION, AND EXERCISE EQUIPMENT FOR CUYAHOGA COUNTY AND HINCKLEY TOWNSHIP AND COMPARISON PARK DISTRICTS (2018\$)

Park District	Average amount spent per household	Total spending	Median household income (2018\$)	Spending potential index (SPI)
Maryland-National Capital Park and Planning Commission	\$257	\$180,000,000	\$90,100	147
Minneapolis Park and Recreation Board	\$169	\$29,900,000	\$53,200	97
Chicago Park District	\$163	\$177,000,000	\$52,400	94
Parish of East Baton Rouge Recreation and Park Commission	\$155	\$27,500,000	\$50,100	89
Miami-Dade County Parks, Recreation and Open Space Department	\$149	\$139,000,000	\$47,800	85
Cleveland Metroparks	\$143	\$77,400,000	\$48,700	82
Average of comparison park districts	\$178	\$111,000,000	\$58,700	102
Cleveland Metroparks compared to average	80.1%	69.9%	82.9%	80.1%



In light of this, the free and low-cost amenities and activities available through Cleveland Metroparks provide additional value in meeting this recreation demand.

Local recreation businesses

Reservations and trails are used for multiple types of activities that generate economic activity and support businesses, including those that sell related equipment. According to Esri's Business Analyst, there are 102 sporting goods stores in Cuyahoga County and Hinckley Township.¹¹⁵ This includes businesses such as bike retailers, those that sell exercise gear or hiking equipment, skateboard shops, wholesalers, and many others. In total, these businesses generate \$170 million in sales each year and employ 924 people.

Whether through renting equipment directly to park users (see [Case Study](#) on page 46) or offering exercise classes at private facilities, many businesses provide recreation-related activities in the district. This includes businesses involved in equipment, outdoor guides and tours, instructors, recreation centers, and many others. Not all of these businesses are directly affected by Cleveland Metroparks amenities, but they support the same sort of activities and users as Cleveland Metroparks, and the existence of a private market further demonstrates the value of these types of amenities to residents. There are 466 businesses supporting recreation-related activities in Cuyahoga County and Hinckley Township. These businesses provide 7,750 jobs and generate over \$412 million in sales each year.¹¹⁶

41° North Coastal Kayak Adventures and Cleveland Metroparks: Transforming perceptions of Cleveland, one customer at a time

Cleveland feels different from the water. Beautiful sightlines, quiet moments, exercise, and time with family and friends are just some of the reasons a growing number of residents and visitors are taking to the water. Founded in 2003, 41° North Coastal Kayak Adventures has been partnering with Cleveland Metroparks since 2007 to help people access these experiences. 41° North leases space from Cleveland Metroparks along the Rocky River where, in addition to renting kayaks, paddleboards, and all the associated equipment needed for folks to get out on the water, they run classes and tours.

A city with a proud industrial past, Cleveland was not always known for water sports. "Ten years ago, when you would see a kayaker out on the water, you would know who it was," notes Mark Pecot, owner of 41° North. But thanks to Cleveland Metroparks acquiring lands along the river and promoting access to these amenities, things have changed. A lot. Now, it is rare for 41° North to not be fully booked on weekends throughout the entire paddling season, which begins around mid-June each year. They rent to, guide, teach, and outfit up to 200 people a day during these peak times.

Whether it is new residents to the area or a group in town for a conference, Mr. Pecot sees himself and his team as ambassadors for Cleveland. "We are introducing people to this city,

introducing them to the vibrancy of this city, and changing perceptions of this city," he notes. Approximately 20 percent of their customers are tourists, with whom sunset tours and downtown paddles are particularly popular. They also work with families, young professionals, retirees looking to stay fit, and regulars who come back all the time for the convenience of having all the equipment they need provided right at the water.

Mr. Pecot has noticed mutually beneficial relationships with Cleveland Metroparks and with other area businesses. "We bring people to the park, but the park also brings customers to us," he says. And when customers, hooked on water sports, are ready to purchase their own gear, he gladly points them in the direction of local sporting goods stores. "The more we can get people excited about the water, the better."



CLEVELAND METROPARKS



Alternative transportation

Cleveland Metroparks currently owns and maintains over 300 miles of trails, many of which are used by residents for active transportation. Trails provide value to users and society through reduced congestion and travel times, health care cost savings, and lower transportation costs. Biking and walking are important modes of alternative transportation that are growing in Cuyahoga County and Hinckley Township. According to a report by the League of American Bicyclists, commuting by bike in Cleveland is growing at the third-fastest rate in the United States, with a growth rate of 392 percent between 2000 and 2016.¹¹⁷ New bicycling infrastructure, community support, and an aversion to downtown congestion are some of the factors driving this growth.¹¹⁸

The Cleveland Metroparks trail system is also supporting economic development by helping revitalize neighborhoods. Melinda Gigante, director of Flats Forward Inc.—an organization working on behalf of the Flats neighborhood—believes that trails and connectors are getting users into new areas of Cleveland. “Especially for vacant areas, knowing that trails and connectors will be coming to the neighborhood is extremely attractive for selling businesses on the area,” says Ms. Gigante. She finds this has been particularly true in the Columbus Peninsula area where “more foot and bike traffic is leading to new awareness of the neighborhood, changing perceptions of the neighborhood and accessibility, as well as expenditures.”¹¹⁹

Just as Cleveland Metroparks reservations and trails are interwoven throughout Cuyahoga County and Hinckley Township, these amenities are interwoven into, and augment, economic development opportunities throughout the community. By contributing to the quality of life, they draw new businesses and workers. They also help drive recreation expenditures and support hundreds of businesses that rely on outdoor recreation. Finally, Cleveland Metroparks trails are supporting the growing interest in alternative transportation methods by bolstering the availability of safe and enjoyable routes to school, work, and play.

Conclusion

THIS STUDY ILLUSTRATES THAT CLEVELAND METROPARKS RESERVATIONS AND TRAILS ARE KEY ECONOMIC DRIVERS THAT CONTRIBUTE HUNDREDS OF MILLIONS OF DOLLARS ANNUALLY IN ECONOMIC BENEFITS. The benefits studied in this report are just a selection of the many, varied, and robust economic contributions generated by the award-winning Cleveland Metroparks reservation and trail system.

Local residents value being close to reservations and trails and are willing to pay for that proximity. These amenities increase the value of nearby residential properties in Cuyahoga County and Hinckley Township by \$155 million and increase property tax revenues by \$4.18 million per year.

Cleveland Metroparks reservations and trails provide natural goods and services. Specifically, by reducing the amount of stormwater, reservations provide a value of \$20.4 million each year. By removing air pollutants that cause damage to structures and endanger human health, the trees and shrubs within reservations reduce health care costs and lower pollution control costs by \$8.09 million per year.

Cleveland Metroparks reservations and trails also contribute to the tourism economy. By enabling outdoor experiences, as well as supporting special events and activities, Cleveland Metroparks reservations and trails generate \$616 million in tourism spending each year.





People who live in Cuyahoga County also gain from Cleveland Metroparks reservations and trails. Each year residents receive a benefit of \$64.6 million for the recreational use of these amenities. In addition, approximately 114,000 adult residents of Cuyahoga County engage in physical activity at a level sufficient to generate measurable health benefits, yielding annual medical cost savings of \$160 million.

Cleveland Metroparks reservations and trails contribute to the high quality of life, which plays an important role in attracting business and employees to the county and supporting a robust recreation economy. By providing opportunities for recreation, these amenities support \$77.4 million in resident spending on sports, recreation, and exercise equipment annually, or an average of \$143 per household. Along with tourist expenditures, this spending helps support 102 sporting goods stores that generate \$170 million in sales and provide 924 jobs, further demonstrating that reservations and trails are significant contributors to the economy in Cuyahoga County and Hinckley Township.

This report is the second time that the significant economic benefits of Cleveland Metroparks have been analyzed. The methodology has been updated to reflect current best practices for economic analysis. Not only do Cleveland Metroparks reservations and trails provide extensive economic value, this value has grown by millions of dollars since 2013. This is no accident. In the five years since the original study, the award-winning Park District has continued to invest in the region's reservations and trails. This study shows that these investments are paying dividends throughout the region.

Endnotes

- 1 The values of the economic benefits estimated in this analysis are reported in 2018 dollars.
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- 7 Judson Retirement Community, "Why Cleveland Ranks High for a Healthy, Affordable Retirement," Judson Smart Living Blog, accessed March 13, 2018, <https://www.judsonsmartliving.org/blog/why-cleveland-ranks-high-for-a-healthy-affordable-retirement/>.
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- 15 A home consists of a residential structure that is owned and taxed. This analysis includes single-family homes as well as multiple-unit dwellings (e.g., condominiums). Other property types were not considered in this analysis because sufficient data were not available to quantify the benefit. Nonresidential property types are rarely studied in the literature as they are more difficult to statistically analyze—there are more variables that influence value and fewer real estate transactions to compare.
- 16 Cleveland Metroparks analyzed residential property values from 2012 and 2017 and found that residences near reservations and trails appreciated at a higher rate than those located farther away. Although this analysis did not control for other factors, such as the location of central business districts or other amenities, it supports the findings of The Trust for Public Land's enhanced property value analysis.
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- 111 The SPI is tabulated to represent a value of 100 as the overall spending for the United States. When the SPI is equal to 100 for a specific type of merchandise, consumers are spending at a rate equal to the national average. The SPI is an indicator of what level of discretionary income consumers are willing to devote to a particular good or service.
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The Trust for Public Land
101 Montgomery St., Suite 900
San Francisco, CA 94104
415.495.4014

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