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THE ECONOMIC BENEFITS OF

BREC Parks

**Recreation and Park Commission for the
Parish of East Baton Rouge**



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THE ECONOMIC BENEFITS OF
BREC Parks

AUGUST 2023



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

TPL's Lab for Land and People is made up of an award-winning GIS team, environmental economists, planners, and subject matter experts in public health, climate, equity, and community.

The Conservation Economics team has extensive experience measuring the benefits and fiscal impacts of parks and conservation in over 60 economic analyses across the country, including reports for cities or states or both 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, Vermont, Virginia, Washington, and Wyoming.

tpl.org/brec-economic-benefits

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BREC Superintendent, Corey K. Wilson



In the past 76-years, the BREC system has grown from a handful of small parks to a robust system comprised of 175 parks and the operations and maintenance of \$350-million in assets.

Twenty years ago, BREC leadership conceived a bold plan to work with the public to unleash their imaginations and begin the creation of a modern system with larger themed community parks located in every area of the Parish to serve more people at a higher level. The Imagine Your Parks plan introduced splash pads, dog parks, a water park, an extreme sports park, larger playgrounds, mobile playgrounds, burgeoning trails system, conservation areas and much more to the region.

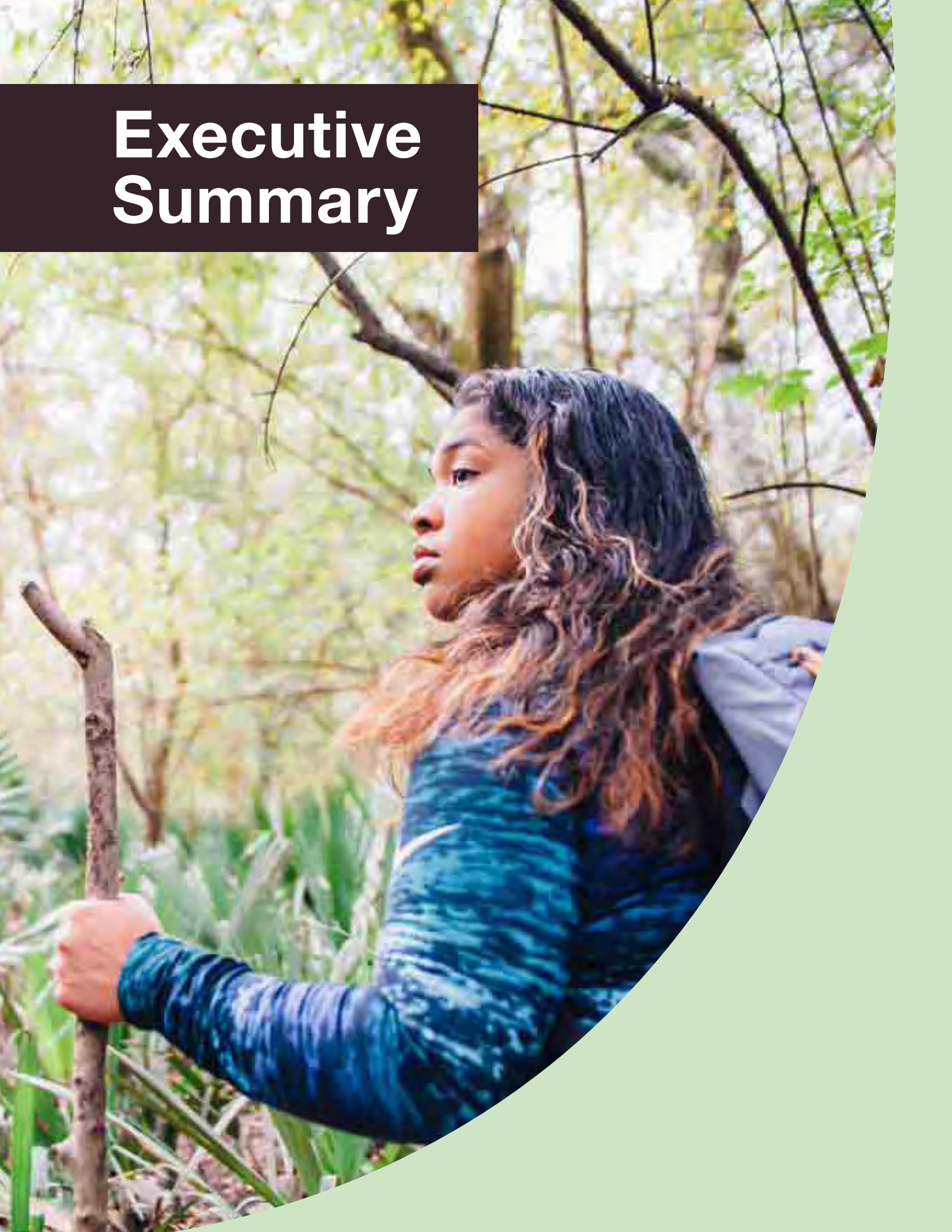
Ten years later, BREC conducted a second year-long effort to continue the momentum, identify and fill service gaps and respond to changing community needs. The second Imagine Your Parks plan guided the construction of expanded and air-conditioned recreation centers, new phases in community parks, improvements to neighborhood parks and the introduction of unforeseen transformational projects requested by the public, including the reimagination of the Zoo and Greenwood Community Park, the revitalization and reimagination of the LSU Lakes near City-Brooks Community Park, the parish-wide bicycle and pedestrian master plan, green infrastructure so parks can hold more water and protect nearby homes and businesses from flooding.

We know these changes have brought value to our community as we hear the stories of people who walk in our parks every day only to find they no longer need to take medicine for high blood pressure or diabetes, teachers who have said that BREC on the Geaux improves behavior and learning in the classroom and parents who say they couldn't make it through the summer without our award-winning camps. We've heard from visitors and newcomers who say their (larger) cities don't have a comparable park system and we know that our parks held enough water during the Historic Flood to fill Tiger Stadium 71 times.

How do you put a dollar figure on that information to show the community that their investment is paying dividends every day, despite the doom and gloom they see on the news? That's why we are grateful to the Trust for Public Land for their painstaking work to collect data about the economic, health and environmental benefits BREC parks bring to East Baton Rouge Parish. They have conducted similar analyses for park systems across the country and met with other leading local organizations to gather relevant information, not solely relying on BREC's numbers to ensure this report is an accurate reflection of the return-on-investment taxpayers have received since approving that first Imagine Your Parks plan in 2004 and, continuing to work together, how we can do even more to make East Baton Rouge Parish a better place to live, work and play.

Corey K. Wilson
BREC Superintendent

Executive Summary



The Recreation and Park Commission for the Parish of East Baton Rouge, also known as BREC, provides parks, trails, and greenways at little to no cost to East Baton Rouge Parish residents. The value of these green spaces can often be overlooked, when undefined benefits are compared with well-defined costs of maintenance, programming, and operations. However, these parks and facilities provide tangible and measurable economic benefits to residents and visitors. Through economic analysis, TPL isolated and quantified many of these benefits, helping to articulate the value provided by the BREC park system to East Baton Rouge Parish residents.

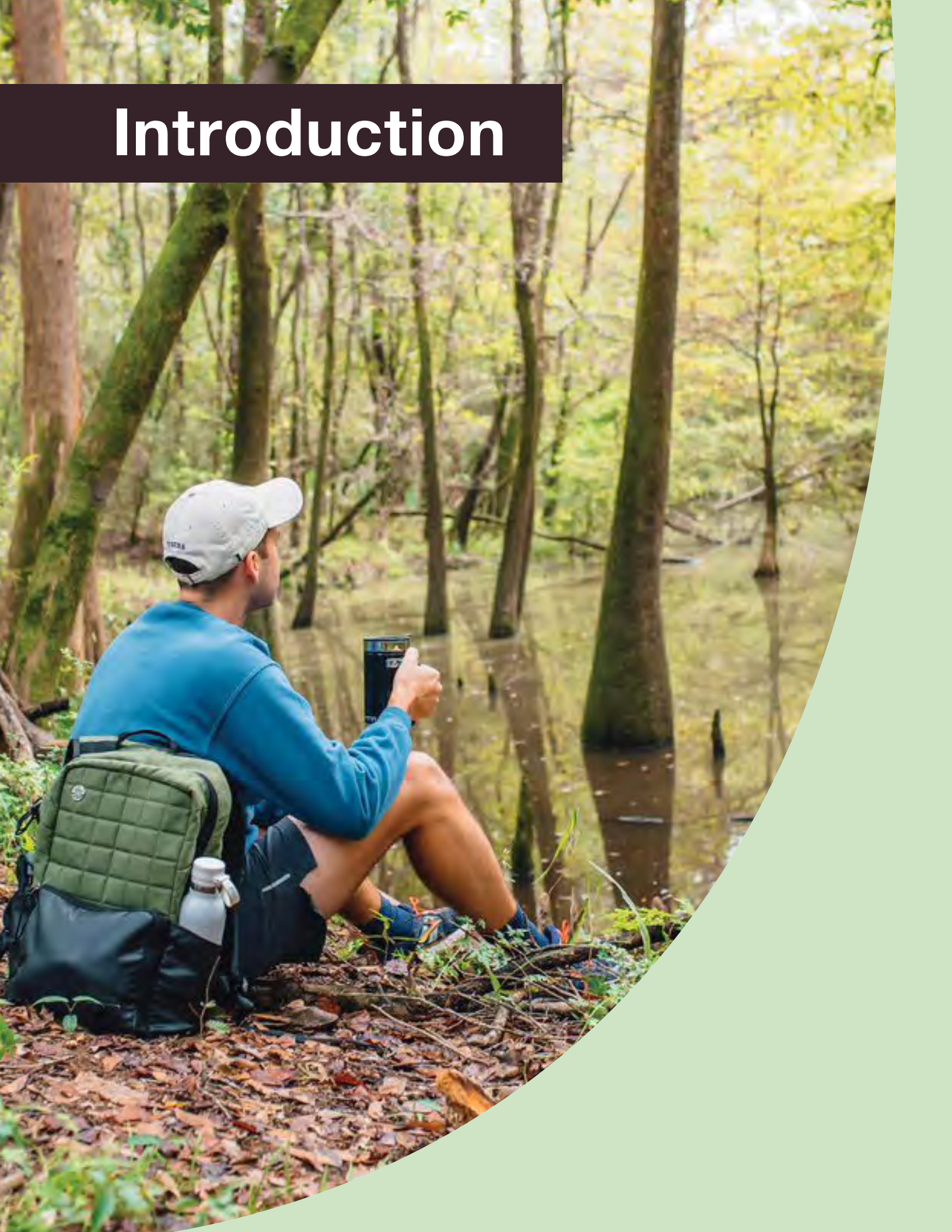
This study documents some of the significant economic benefits that these parks and facilities provide (summarized in Table 1).

Table 1. Summary of Economic Benefits of BREC calculated in this study.

Category	Annual Value
Recreational Use Value	\$279,464,378
Avoided Costs of Health Care	\$8,018,856
Stormwater Infiltration Value: Existing Infrastructure	\$2,943,090
Stormwater Infiltration Value: New Green Infrastructure	\$36,224,882
Air Pollution Reduction	
<i>Carbon Monoxide</i>	\$150
<i>Nitrogen Dioxide</i>	\$257
<i>Ozone</i>	\$14,406
<i>Sulfur Dioxide</i>	\$45
<i>Particulate Matter <2.5 microns</i>	\$27,714
<i>Particulate Matter <10 microns</i>	\$9,733
Annual Property Tax Revenue due to parks	\$1,667,798
Tourism expenditures for non-local residents who visit BREC parks	\$26,166,357
Category	One-Time Value
Enhanced Property Value due to parks	\$20,794,966

BREC parks and greenspaces improve water quality, infiltrate stormwater, reduce air pollution, enhance community health, provide recreational opportunities, attract visitors and new businesses, and support economic development in the region. Access to these parks reduces healthcare costs for people who exercise and are physically active there and improves air quality for the community. Finally, parks enhance property values for local residents, and generate local tax revenue to the community both from the increased property value and from the tourism expenditures from non-local visitors.

Introduction



East Baton Rouge Parish is a vibrant region with a rich cultural history and dynamic natural environment, and is home to the City of Baton Rouge, the state capital of Louisiana.

BREC, the Recreation and Park Commission for the Parish of East Baton Rouge, is the primary park and recreation provider for all residents of East Baton Rouge Parish, providing thousands of acres of parks, trails, open space, and hundreds of recreation facilities and amenities. These resources provide environmental, economic, health and wellness, and social benefits to residents and visitors, greatly enhancing quality of life in the Baton Rouge region.



This report by Trust for Public Land (TPL) analyzes the economic value of the BREC park system. TPL prepared this report to estimate both the value of ecosystem services of green space and the value of economic development the parks contribute to East Baton Rouge Parish. Environmental economic approaches estimate the dollar value of these benefits and articulate their importance in helping communities flourish.

Ecosystem services are the benefits provided by nature to people. This includes *provisioning services* such as food and medicine, *regulating services* like water purification and carbon storage, *cultural services* like spiritual connections to nature, and *supporting services* such as the water cycle and soil creation.

In addition to providing access to nature and outdoor recreation, parks also provide critical and adaptable infrastructure roles. For example, green spaces like those maintained by BREC absorb and store rainwater and reduce runoff. Following a historic flooding event in August 2016, research showed that BREC parks temporarily held nearly 10 billion gallons of stormwater that would have greatly exacerbated the damage caused by the flood.¹

TPL conducted this analysis between 2020 and 2023 in three phases. The research findings represent a lower-bound value for each benefit, as the most conservative methodology was applied to determine the economic values of the BREC park system.

This report provides residents, local officials, park advocates, policymakers, and researchers with quantitative information on the economic value of BREC to help fund, protect, enhance, and maintain the park system and all the amenities it provides East Baton Rouge Parish.

EAST BATON ROUGE PARISH

East Baton Rouge Parish is the largest parish in Louisiana, with 456,781 residents; the parish seat and largest municipality is the state capital of Baton Rouge, home to 227,470 people. The parish has seen a significant population increase over the last ten years, rising 4.4% since 2013.

The parish is racially diverse: 45.3 percent of residents are Black or African American, 45.3 percent of residents are white, and 4 percent are two or more races. In terms of age demographics, 22.9 percent of East Baton Rouge Parish residents are under 18 (nearly the same as the national average of 22.5 percent), while 14.4 percent are over 65 (compared to 16 percent nationally).²

The parish faces persistent and linked socio-economic challenges, including poverty, historical disinvestment, and poor health. In 2021, 17.7 percent of the population (over 78,700 residents) lived below the poverty level, compared to 12.6 percent across the U.S.³ According to Build Baton Rouge, at the beginning of the 21st century, “the neighborhoods of North Baton Rouge experienced rapid disinvestment, a trend that had been taking place since school desegregation and intensified after the turn of the century.”⁴ These patterns have led to unequal distribution of and access to resources, infrastructure, and services, disproportionately affecting minority communities, in East Baton Rouge parish and across the U.S.⁵

The communities that suffered from disinvestment are also now subject to poor health outcomes. A study by the National Community Reinvestment Center found statistically significant associations between increased neighborhood redlining and indicators of population health, including reduced life expectancy and higher risk for the pre-existing conditions that exacerbate impacts of COVID-19.⁶

The history of redlining, segregation and disinvestment not only reduced minority wealth, it impacted health and longevity, resulting in a legacy of chronic disease and premature death in many high minority neighborhoods. With the ongoing pandemic, the indication of greater risk factors for COVID-19 compounds the disparities in communities that have a history of redlining. Redlining and disinvestment are not only associated with greater segregation and economic inequality, but with the most basic attributes of public health, life expectancy and social vulnerability.”

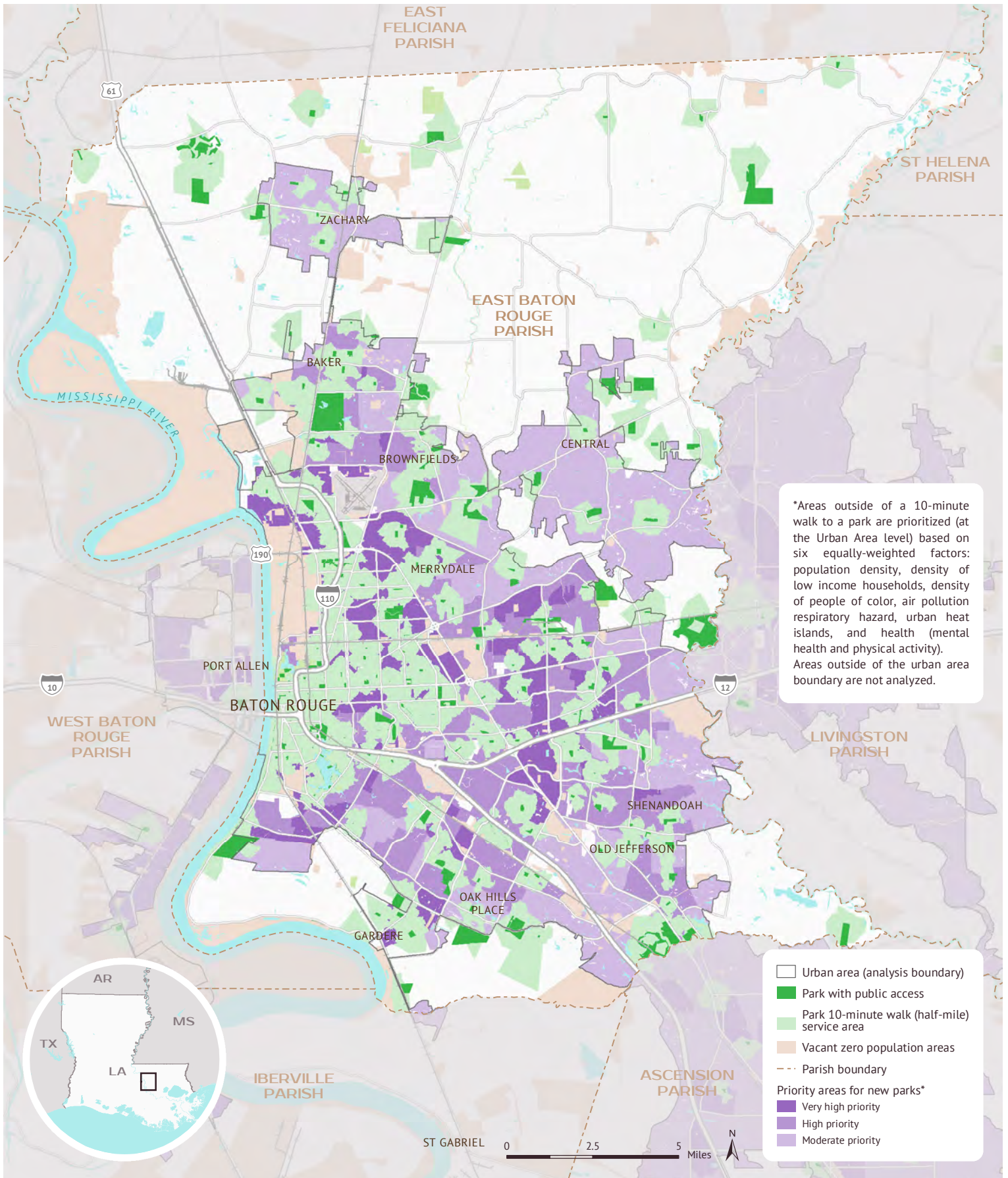
— National Community Reinvestment Coalition



PARKSCORE IN BATON ROUGE

TPL produces the ParkServe® mapping application and ParkScore® Index each year, which provides data on park access in U.S. cities and identifies how many residents live within a 10-minute walk to a park. (BREC serves East Baton Rouge Parish, which includes the City of Baton Rouge; however, ParkServe data on access is only available at the city level.)

According to the 2023 ParkServe results, 52% of residents live within a 10-minute walk of a park in the City of Baton Rouge, while 109,839 residents live further than a 10-minute walk.⁷ The U.S. median across the 100 largest cities is 74% of residents live within a 10-minute walk of a park.



Park Access

ECONOMIC BENEFITS OF BREC PARKS - EAST BATON ROUGE PARISH, LOUISIANA

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In 2023, the City of Baton Rouge received a ParkScore equity score of 44 (out of 100 points), which measures the fairness in the distribution of parks and park space between neighborhoods by race and income (Table 2). This category averages two types of metrics. On the first set of measures, the City of Baton Rouge scores 34 (out of 100) for people of color living within a 10-minute walk of a park, and 29 points for low-income households on the same metric. The second set of measures compare the distribution of park space. In Baton Rouge, residents living in neighborhoods of color have access to 24% more nearby park space than those living in white neighborhoods (84 points out of 100). However, residents living in lower-income neighborhoods have access to 52% less nearby park space than those in higher-income neighborhoods (27 points out of 100).⁸

Table 2. City of Baton Rouge ParkScore Equity Score for 2023

Category	Baton Rouge Per Capita Score	Baton Rouge Per Capita Points	Per Capita' value needed to achieve 1 point	Per Capita' value needed to achieve 100 points
Percent of people of color within a 10-minute walk of a park	55%	28 points	38%	100%
Percent of low-income households within a 10-minute walk of a park	55%	23 points	43%	100%
Residents in neighborhoods of color have _____ park space as those in white neighborhoods	46% more	99 points	91% less	47% more
Low-income neighborhoods have _____ park space as those in high-income neighborhoods	52% less	27 points	86% less	40% more

Source: Trust for Public Land ParkScore.

BREC is approaching the end of its current 10-year strategic plan, which ends in 2024. As of the date of this report, BREC has begun the planning process for the next 10 years. Equity will be a priority focus for both the upcoming master and strategic plans. Through these planning processes, BREC will continue to identify community needs in park access and will work to close these gaps for all East Baton Rouge Parish residents.

BREC PARK SYSTEM

The BREC park system was created by a State Legislative Act in 1946.⁹ (The name “BREC” is a blend of Baton Rouge (BR) and recreation (REC).) Its mission is to contribute to a healthier, more vibrant community by providing exceptional parks, open spaces, and recreational experiences for all of East Baton Rouge Parish. BREC is led by a nine-member volunteer Commission.

BREC manages 175 parks with a total of 6,568 acres and over 400 buildings and operates 56 recreation centers. BREC currently operates 73.4 miles of park trails, including 9.75 miles of greenways, and a wide assortment of outdoor recreation facilities, among them over 260 basketball courts, a cricket pitch, 51 volleyball courts, nearly 250 athletic fields, 3 stadiums, 133 tennis courts, and 5 golf courses. Special use facilities include the Baton Rouge Zoo, Liberty Lagoon waterpark, Cohn Arboretum, Farr Park Equestrian Center, Independence Park Theater, Magnolia Mound historic site, and the Bluebonnet Swamp Nature Center. In 2021, despite impacts of the COVID-19 pandemic, the park system served more than a million people at staffed events and programs, in addition to those participating in passive recreation, such as walking trails and visiting parks.



EXPLORE WHAT BREC HAS TO OFFER



6568

PARK ACRES

175 PARKS

56 REC CENTERS



122 PLAYGROUNDS



73.4 MILES OF PARK TRAILS

9.75

MILES OF GREENWAYS

4.8

MILES OF NATURE TRAILS



24.9

MILES OF PRIMITIVE TRAILS

4

COMMUNITY GARDENS

3

NATIVE POLLINATOR GARDENS



33

INDOOR BASKETBALL COURTS

149

BASKETBALL HALF-COURTS

79

BASKETBALL FULL-COURTS

1

CRICKET PITCH



5

TENNIS CENTERS

133

TENNIS COURTS



51

VOLLEYBALL COURTS

247

ATHLETIC FIELDS

3

STADIUMS



5

GOLF COURSES

3

DRIVING RANGES



2

ARCHERY RANGES

4

DISC GOLF COURSES

4

FITNESS CENTERS

21

OUTDOOR FITNESS STATIONS

3

BOCCE BALL COURTS



1

CROQUET COURT

3,350

ACRES OF CONSERVATION LAND

6

CONSERVATION AREAS



8

NATURE RESERVES

40

PICKLEBALL COURTS



6

DOG PARKS



3

SWIMMING POOLS



8

SPLASH PADS

16

FISHING LAKES



2

BLUEWAY TRAILHEADS



5

CANOE/KAYAK LAUNCHES

HIGHLAND ROAD PARK OBSERVATORY

LIBERTY LAGOON



1 SURFING SIMULATOR

5 THRILL SLIDES

BATON ROUGE GALLERY



NORTH 14TH STREET BOXING CENTER

JEAN LAFITTE AIR GUN RANGE



INDEPENDENCE BOTANICAL GARDEN



LAURENS HENRY COHN, SR MEMORIAL PLANT ARBORETUM



INDEPENDENCE PARK THEATRE + CULTURAL CENTER

FARR PARK EQUESTRIAN CENTER



BATON ROUGE ZOO



EXTREME SPORTS COMPLEX



BLUEBONNET SWAMP NATURE CENTER



MAGNOLIA MOUND

UPDATED MARCH 2023

East Baton Rouge Parish adopted a comprehensive plan in 2018 called FUTUREBR. The plan notes that the parish has “an extensive but largely underused network of existing green spaces,” and aligns with BREC’s priority actions and recommendations to help improve existing parks, make strategic investments, and enhance park equality through increased maintenance.¹⁰

BREC parks recently won a third National Gold Medal Award in 2022 from the American Academy for Park and Recreation Administration in partnership with the National Recreation and Park Association (NRPA). The NRPA National Gold Medal Award honors recreation agencies “that demonstrate excellence in long-range planning, resource management and innovative approaches to delivering superb park and recreation services with fiscally sound business practices.”¹¹ The award was given to BREC for their excellent service to the community, especially through historic challenges like severe flooding, multiple hurricanes, and the pandemic.¹² Previously, BREC had won the award in 1975 and 1991, demonstrating a rich, extended history of commitment to its community. BREC was also one of the first park systems in the country to earn accreditation through NRPA’s Commission for Accreditation of Park and Recreation Agencies (CAPRA) and earned its sixth accreditation in 2019. Only 193 park departments or agencies throughout the country are accredited, including BREC.

The COVID-19 Pandemic and Parks

TPL conducted this analysis during the COVID-19 pandemic. Research on the impact of the pandemic on parks and greenspace has shown their essential role in enhancing physical and mental health, and providing spaces for people to connect with nature and each other. Across the US, 72 percent of adults increased or maintained their use of public parks and trails during the pandemic.¹³

The Baton Rouge Area Chamber collected pulse survey data on park visitation before and during the COVID-19 pandemic; the results showed that there was a 41% increase in park visitors in Baton Rouge during the pandemic.

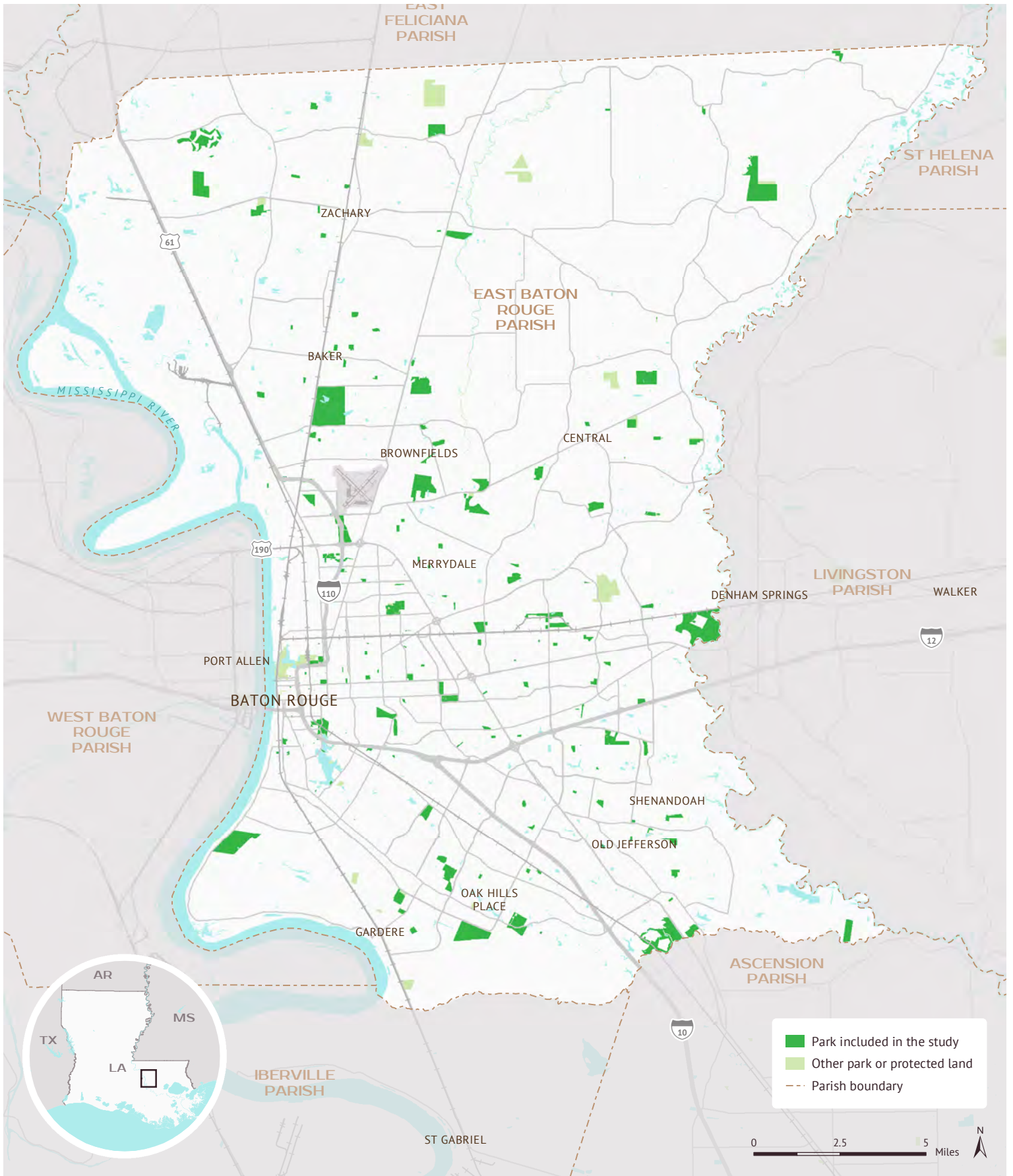
While it is still unknown how the economic impacts of the pandemic will affect park management and maintenance long-term, this analysis intended to capture a baseline understanding of the economic benefit of BREC parks.

BREC adopted a new Resilience Strategy in 2019, which emphasizes their commitment to integrating resiliency into their operations and investments. The strategy recommends improving intra-agency coordination and cohesion, integrating resiliency into projects as a means of providing greater long-term returns on their investments, and increasing resiliency through operational efficiencies that also reduce environmental impacts.¹⁴

WHAT’S INCLUDED IN THIS REPORT

TPL analyzed the benefits that nature provides people in BREC parks. For the recreational value and healthcare analyses in this report, TPL assessed publicly accessible parks and natural areas and the recreational activities that typically take place in them. For the tourism and economic development sections of the report, TPL also included the facilities that required tickets for entry, such as the Baton Rouge Zoo and Liberty Lagoon.

This report does not encompass all natural areas in East Baton Rouge Parish, as this research focused on publicly accessible parks and natural areas offered by BREC. For example, the impact of street trees in the parish were excluded from the study, although they provide benefits like improved air quality, mitigation of the urban heat island effect and stormwater runoff, and mental health benefits. The benefits from natural areas on private property have also been excluded from this analysis.



BREC Park System

ECONOMIC BENEFITS OF BREC PARKS - EAST BATON ROUGE PARISH, LOUISIANA

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Human Health Benefits



Parks and green space improve people’s wellness by providing opportunities for recreation and reducing healthcare costs for people who exercise there. They also help increase environmental quality. For example, parks and greenspace mitigate urban heat islands. TPL estimated the recreational value of BREC parks, and estimated healthcare costs avoided by those who use the park system for physical activity.

RECREATIONAL USE VALUE

The BREC park system provides substantial benefits to people who use the space for outdoor recreation and relaxation, including picnicking, visiting playgrounds, walking, hiking, jogging, and more.

Whether or not people pay to participate in these activities, park amenities provide value to people. When people pay for access (such as through admissions or registration fees), recreational value can be estimated based on the price of participation. However, many forms of outdoor recreation at BREC parks are available at no cost. The value that people get above and beyond what they pay to participate is known as *consumer surplus value*, which the TPL research team estimated in this section. (Because this section focuses on recreation that does not require the exchange of dollars, it excludes special events and facilities that required tickets for admission. This research focuses on outdoor recreation that does not require entry fees or tickets. For information on the economic impact of special events and facilities, please see the [Economic Development](#) section below.

To estimate consumer surplus, TPL surveyed East Baton Rouge Parish residents to determine the number of recreational users of BREC parks, how they use the parks and how often, and the recreational value they gain because they have access to the park system. The estimated value is a conservative value for BREC, as the survey was limited to parish residents; visitors from outside the parish would have a recreational value above and beyond what is estimated here.

Step 1: Estimating Annual Number of Visits to BREC Parks by Activity

The first step in estimating the annual recreational value of the BREC park system was determining the total annual number of visits that residents made to parks for each kind of activity in which they participate.

TPL conducted a telephone survey of East Baton Rouge Parish Residents. Survey facilitators asked questions about their park use and activities, in addition to demographic background information.¹⁵ Respondents provided information about the frequency of their visits to BREC parks; whether they had children that use also use parks; and information about the type of activities they and their children participate in. TPL worked with BREC to select ten activities that visitors would be most likely to engage in.

The survey was conducted on a sample of 400 residents of the East Baton Rouge Parish in January 2022 by Luce Research LLC, on behalf of TPL. The survey was designed to be statistically representative of the residents living throughout the parish, including race, gender, income, age, and education.¹⁶

The sample was leveraged to scale up to the East Baton Rouge Parish population of 453,301 to estimate the total population of park users.¹⁷ The survey was structured so that each individual visit was associated with only one activity type (although multiple activities may occur during one visit), so that an average dollar value per activity could be associated with visits.

The survey results showed that 69.3 percent of parish residents use BREC parks at least once each year. Of the residents who visit BREC parks, 46.2 percent are Black/African American, and 46.5 percent are white. Most survey respondents who visit BREC are between 26 and 44 years old, followed by adults 18–25 (Table 3). (Survey respondents had to be 18 or older to be included in the results.)

Table 3. Age breakdown of survey respondents for TPL BREC Recreational Use Survey (2022).

Age of Survey Respondent	Of BREC visitors identified in the survey, what percentage fell into each age category?
18–25 Years Old	21.3%
26–44 Years Old	41.8%
45–65 Years Old	28.2%
65 Years and Older	8.7%

Source: TPL BREC Recreational Use Survey, 2022.

TPL asked residents about their outdoor recreation activities in BREC parks. The activity participation data were calculated for each individual respondent for 11 activities, based on conversations with BREC staff:

- Biking,
- Picnicking, relaxing, visiting with family and friends,
- Water activities such as kayaking or paddle boarding,
- Viewing/taking photographs of wildlife,
- Visiting playgrounds,
- Walking or hiking local trails,
- Jogging or running,
- Visiting dog parks,
- Participating in 'passive' sports like disc golf, soccer golf, croquet,
- Swimming or cooling off in water at a pool (excluding Liberty Lagoon),
- And using splashpads or cooling towers.



TPL used survey responses about weekly participation in these activities to calculate the annual visitation estimates for respondents, accounting for the seasonality of any activities (with the assumption that most activity happens in good weather). In Baton Rouge, most activities take place year-round, including picnicking/visiting with family and friends/relaxing; visiting playgrounds; walking/hiking; viewing/photographing wildlife; running/jogging; biking; visiting dog parks; and participating in passive sports. Swimming/cooling off in water was assumed to take place half the year (27 weeks), and kayaking/non-motorized boating was limited to ¾ of the year, or 39 weeks. Activity participation data was also adjusted to account for over-reporting of park use.¹⁸

Scaling survey results to the entire parish population, TPL found that residents visit BREC parks approximately 9,524,500 times annually, with adults visiting 7,028,200 times per year, and children 2,496,200 times per year. About 47.7 percent of residents visit multiple times per week.

The most popular activities reported for adults were walking/hiking, picnicking/visiting with family and friends/relaxing, and running/jogging. The most popular activities reported for children were visiting playgrounds, picnicking/visiting with family and friends/relaxing, and walking/hiking (Table 4).

Table 4. Percent of Adults and Parents Participating in Activities in BREC Parks.

Activity Type	Percent of Adults who Participate in Activity (N=277)	Percent of Parents whose Children Participate in Activity (N=88)
Picnic, visit with family or friends, or relax	57.0%	62.5%
Visit playgrounds	41.5%	79.5%
Walk or hike	69.3%	51.1%
Take photos or view wildlife	37.2%	34.2%
Run or jog	43.3%	35.2%
Bike	22.4%	23.9%
Swim or cool off in water at a pool or splash pad? (Excluding Liberty Lagoon)	14.8%	42.0%
Visited dog parks	26.7%	21.6%
Participate in passive recreational use (like disc golf, soccer golf, basketball, or croquet)	29.6%	35.2%
Water-based activities like kayaking or paddle boarding	10.1%	9.1%

Source: TPL BREC Recreational Use Survey, 2022.

Step 2: Estimating Value of Visits to BREC Parks

Visiting a park provides value to people—the consumer surplus value described above—regardless of any costs to participate.

After estimating annual BREC park visitation, TPL assigned a dollar value to these visits using a methodology developed by the U.S. Army Corps of Engineers.¹⁹ The dollar values are derived from economic studies on consumer surplus values

of different outdoor recreation activities—that is, what is the value people get from participating in these activities above and beyond what they spend to participate. These economic studies use different methods, such as analyzing travel costs, to estimate these values; TPL then “transferred” the values to the Baton Rouge survey results to estimate recreational value. Values were selected from the literature based on their relevance to BREC parks, and the most conservative values were selected where multiple choices were available. The sources for these values were identified in the Oregon State University Recreation Use Values database. The list of citations is available from TPL upon request.²⁰ The values leveraged in this analysis are listed in Table 5.

Table 5. Consumer Surplus Values for Outdoor Recreation activities (2021\$).

Activity Type	Consumer Surplus Value
Picnic, visit with family or friends, or relax	\$36.70
Visit playgrounds	\$36.70
Walk or hike	\$55.31
Take photos or view wildlife	\$16.35
Run or jog	\$38.60
Bike	\$78.30
Swim or cool off in water at a pool or splash pad? (Excluding Liberty Lagoon)	\$65.70
Visited dog parks?	\$16.35
Participate in passive recreational use (like disc golf, soccer golf, basketball, or croquet)	\$46.44
Water-based activities like kayaking or paddle boarding	\$16.35

Source: Oregon State University Recreational Use Values Database, Accessed 2021.

Applying these recreation values to the 9,524,458 visits calculated from the survey, the analysis finds **the total recreational use value of BREC parks to residents is \$279,464,378 annually, in 2021 dollars (2021\$)**. The annual value of the BREC parks, based on usage and frequency, is \$196,372,327 for adults, and \$83,092,052 for children. The total value considers the different types of activities available to residents, frequency of visits, and seasonality of activities. **The average value per visit is \$29.34 (inclusive of all activities).**

In studies of recreational value, emphasis is placed on understanding adults’ preferences and willingness to pay—largely because they have the income and budget to make their preferences clear in dollar terms. Making choices like where or how to participate in outdoor recreation is a matter of tradeoffs, like choosing to take a bicycle ride versus visiting a playground, and those decisions help determine recreational value. However, children certainly find value in outdoor recreation, especially in BREC parks. However, children highly value outdoor recreation, such as playing parks, playgrounds, and sports facilities, and benefit from increased physical activity in nature.

BREC delivers with playground on a truck

BREC established a mobile playground in 2012, turning a box delivery truck into an outdoor recreation opportunity on the road for local children: BREC “painted it with bright colors and filled it with scooters, hula-hoops, balls, slack lines, trampolines, sidewalk chalk and jump ropes.”

“BREC on the Geaux” attends community events at housing complexes, churches, parks and schools in low-income neighborhoods every week. As Pew noted in their blog, “If peals of laughter and swarms of activity are any indicator, BREC on the Geaux was an immediate success.”

Source: Vestal, Christine, “On the Geaux’: How a Playground on a Truck Brings Joy.” Pew Stateline Blog. November 14, 2018. <https://www.pewtrusts.org/en/research-and-analysis/blogs/stateline/2018/11/14/on-the-geaux-how-a-playground-on-a-truck-brings-joy>



AVOIDED HEALTH CARE COSTS FOR RESIDENTS

The telephone survey results identified which residents use BREC parks to meet their exercise needs, and to calculate the associated reduction in healthcare costs because of that exercise.

Physical inactivity is a global public health challenge. In the United States, where 33% of adults are obese, studies have shown that physical inactivity and related health problems such as heart disease are a leading cause of death.²¹ According to the Centers for Disease Control and Prevention (CDC), adults who have obesity “are at increased risk for many other serious health conditions such as heart disease, stroke, type 2 diabetes, some cancers, and poorer mental health.”²² Ultimately, a study on the preventable causes of death in the United States found that overweight-obesity and physical inactivity each were responsible for nearly 1 in 10 deaths.²³

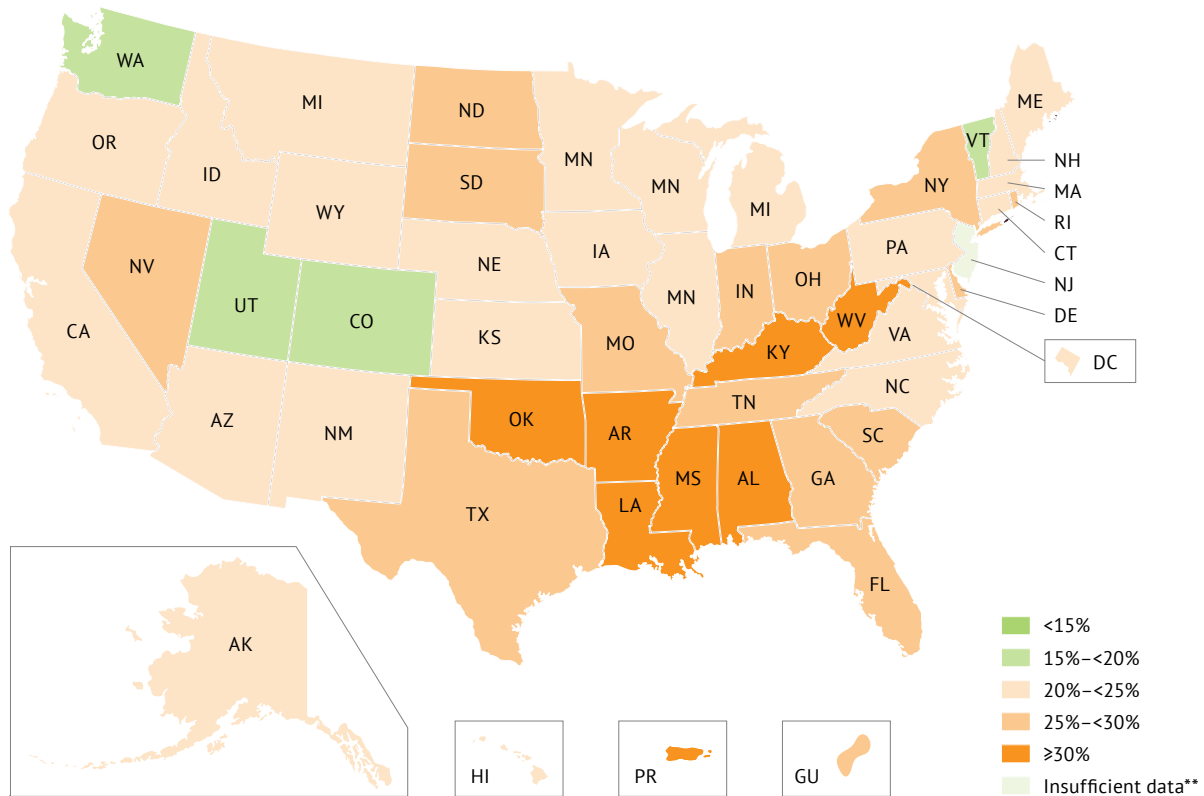
In a series of telephone surveys for the Behavioral Risk Factor Surveillance System (BRFSS), CDC researchers asked respondents if they participated in any physical activity outside their regular job.²⁴ In 2021, Louisiana ranked as the fifth highest state for physical inactivity and the seventh highest state for obesity.²⁵

East Baton Rouge Parish has a higher rate of adult obesity (36%) than the national average (32%), based on the most recent County Health Rankings. Similarly, the percentage of adults over age 18 reporting no-leisure time physical activity (30%) was higher than the national average of 26 percent, though the parish fared better than the state overall at 32 percent. **(This is likely in part driven by an exceptional score for access to exercise opportunities, such as the recreation facilities provided by BREC. Ninety-six percent of East Baton Rouge residents have adequate access to locations for physical activity, compared to 72 percent in Louisiana and 80 percent in the U.S.)**²⁶

Parks improve people’s wellness in several ways, including providing access to outdoor recreation and facilitating increased physical activity. Physical exercise can reduce the likelihood of illnesses, including obesity and cardiovascular disease, and consequently reduce medical costs associated with them.²⁷

There are many factors that contribute to obesity in urban areas, including structural and environmental racism, socioeconomic status, and the lack of leisure time, as well as transportation constraints. In this report, TPL focused on the measurable role parks have in increasing physical activity, acknowledging that other factors contribute significantly to population health.

Prevalence of Self-Reported Physical Inactivity* Among U.S. Adults by State and Territory, BRFSS, 2018–2020



Source: Behavioral Risk Factor Surveillance System

* Respondents were classified as physically inactive if they responded “no” to the following question: “During the past month, other than your regular job, did you participate in any physical activities or exercises such as running, callisthenics, golf, gardening, or walking for exercise?”

** Sample size <50, the relative standard error (dividing the standard error by the prevalence) ≥30%, or no data in at least 1 year.

Step 1: Estimating Residents’ Exercise Frequency and Intensity in BREC Parks

To estimate the value of avoided health care costs for residents who exercise in BREC parks, TPL analyzed the telephone survey data to estimate the frequency, duration, and intensity of their exercise.

The CDC promotes physical activity guidelines to help Americans improve their overall wellbeing and reduce the instances of chronic diseases associated with inactivity. Sufficient activity is defined 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).²⁸

TPL assigned an intensity level to the outdoor recreation activities included in the survey, using a conservative approach where possible. For example, if a respondent reported bicycling, TPL assumed they did so at a leisurely pace on level

terrain, which qualifies as moderate activity, rather than bicycling at a brisk pace or on steep uphill terrain, a vigorous activity. Running and swimming were considered vigorous; walking, biking, visiting dog parks, kayaking/non-motorized boating, and passive recreation were considered moderate intensity activity; and visiting playgrounds, photographing/viewing wildlife, and picnicking/relaxing were considered sedentary activities for adults.

Over 5,800 East Baton Rouge Parish residents use the BREC park system exclusively each year to improve their health with physical activities that meet CDC guidelines. TPL also used a conservative approach to estimate this total, as residents had to use the BREC park system exclusively (and not in combination with exercise at a gym, at home, or another type of park).

Step 2: Estimating Value of Avoided Healthcare Costs Due to Exercise in BREC Parks

Previous work in healthcare economics has shown that in the long-term, people have reduced healthcare costs if they are physically active. One 2017 study noted that physically active adults used less inpatient services, emergency room visits, home health care, and prescription medications (where regular physical activity was defined as 30 minutes or more in moderate or vigorous activities, three times a week).²⁹

TPL estimated average annual health care cost savings for adults aged 18–64 and adults over 65, based on the National Medical Expenditures Survey which has been widely cited in similar studies. The difference in health care costs for active and non-active 18 to 64 year olds is approximately \$1,366 per year (2022\$); for adults 65 and older, the healthcare savings is double that, approximately \$2,733 per year (2022\$).³⁰ TPL chose a conservative approach with the doubling of expenses, as seniors typically incur two or more times the medical care costs of younger adults; one study found that average healthcare expenses for adults over 65 were over three times those of working-age adults.³¹



Avoided health care costs for East Baton Rouge Parish residents who exercise in BREC parks are shown in Table 6. **When the survey results are scaled to the full population of East Baton Rouge Parish, 5,868 adults between 18 and 64 use the BREC parks exclusively to meet CDC guidelines, for a total estimated health care cost savings of \$8,018,856 (2022\$) annually.**

Table 6. Avoided healthcare costs of adults in East Baton Rouge Parish due to exercise in BREC parks.

Category	Value
Number of adults (18-64) that use BREC parks exclusively for physical activity at CDC-recommended levels	5,869
Average annual medical care cost difference between active and inactive persons	\$1,366
Total annual avoided healthcare costs for adults in East Baton Rouge Parish due to exercising in BREC parks	\$8,018,856

Note: this only includes outdoor recreation in BREC parks, and does not include indoor facilities. Source: TPL BREC Recreational Use Survey, 2022.

TPL found through the telephone survey that none of the survey respondents over 65 (n=58) used BREC parks exclusively to meet the CDC threshold for vigorous physical activity. CoA provides fitness programming to seniors. This may be due to TPL’s conservative methodology approach (e.g., residents needed to use the parks exclusively to meet CDC guidelines), or may reflect the strong programming opportunities offered by the East Baton Rouge Parish Council on Aging. Many seniors participate in their Fitness and Wellness programs to meet their exercise needs, which may or may not take place in BREC parks. The survey results warrant future research on how older adults interact with the park system and opportunities to increase their engagement.

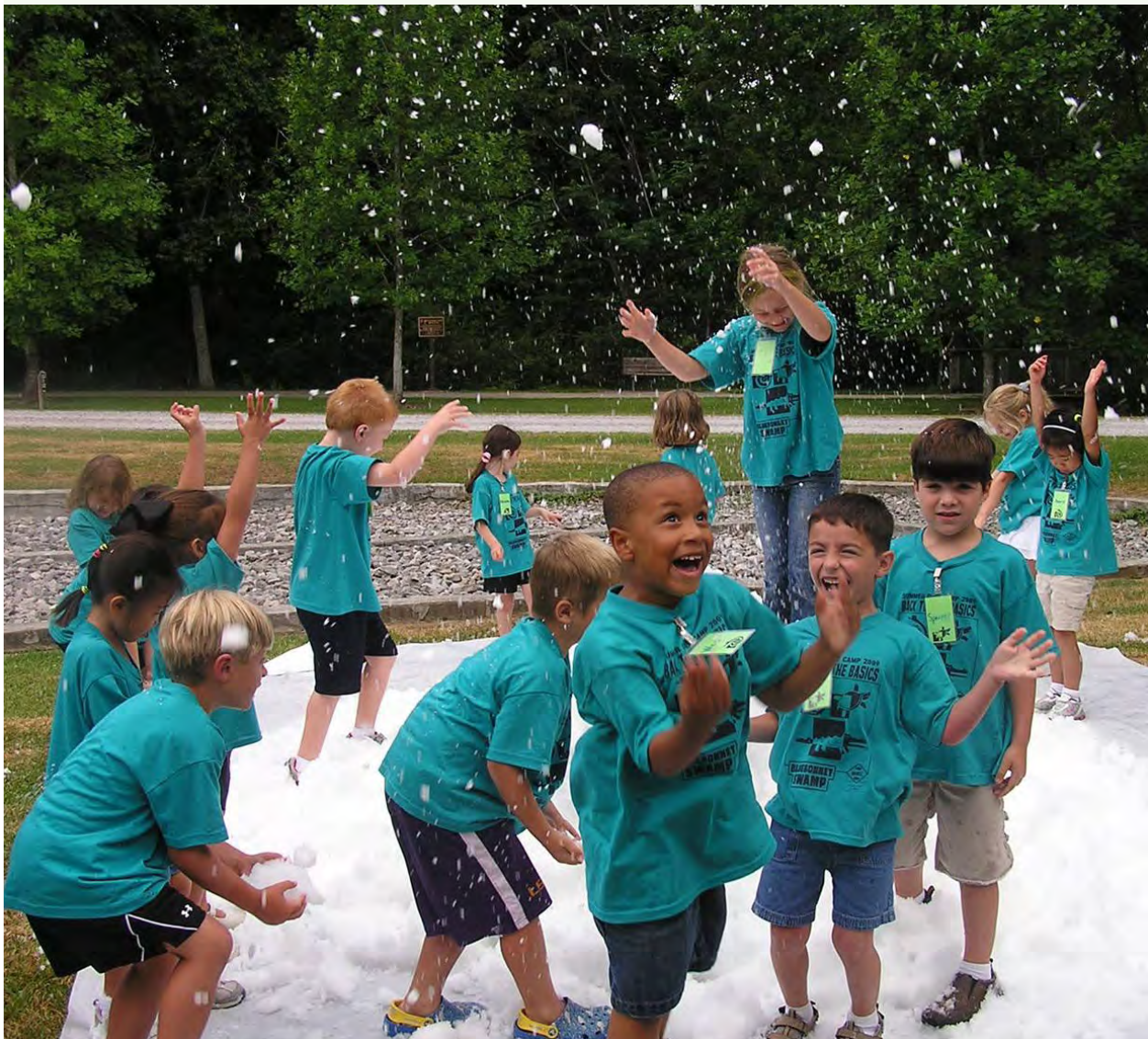


BREC parks provide low- or no-cost opportunities for physical activity outdoors and avoided healthcare costs for those who leverage the park system for exercise. These values do not include non-residents who use the parks for exercise; people who use BREC parks to meet some (but not all) of their exercise needs; any avoided health care costs due to children’s exercise; and the economic value of mental health benefits due to recreating in the parks. (Recent research has been starting to articulate the significant value that parks and greenspace provide in terms of mental health benefits: the National Recreation and Parks Association found that “the vast majority of Gen Z (79%), Millennials (85%), Gen X (87%) and Boomers (89%) find it helpful to have access to the outdoors during stressful times.”³²)

Additionally, as the focus of this research was on the avoided costs of individual healthcare payers, this research does not estimate any economy-level impacts of physical inactivity (such as the economic cost of productivity loss due to poor health outcomes).³³

Camp BREC Increases Children's Activity Levels

Camp BREC is East Baton Rouge Parish's most beloved program offered by BREC. Each summer, BREC offers many different camps around the parish with various themes to keep children engaged and active throughout their summer breaks. From Extreme Sports Camp where campers learn how to skateboard and do tricks on their bikes to Tennis Camp where campers learn the game of tennis and refine their skills to Outdoor Adventure camp where campers explore the great outdoors in a fun and active way, BREC has a plethora of ways for kids to make memories, meet new friends, and try new things. Approximately 9,000 children attend Camp BREC each summer on average. In 2019, campers wore fitness trackers each day as part of a #BRECTrekLA activity challenge. The rules were simple, campers wore the BREC wristband activity trackers during camp and recorded their steps at the end of each day. During the 5-week challenge, BREC tracked the campers' steps and converted those steps into miles. The camp with the most weekly steps received a special prize, and the camp with the most steps overall at the end of the challenge was treated to a special celebratory day. By the end of the challenge, the campers and staff had trekked almost 28-million steps which equated to 13,157 miles, an average of over 11 miles per camper per day!



PARKS, HEAT-RELATED ILLNESSES, AND HEALTHCARE

In addition to providing recreational and physical exercise experiences, BREC also provides public health benefits by maintaining and enhancing the natural areas in its parks and around its trails.

Heat, especially the climate in south Louisiana, can also significantly impact public health and healthcare costs. Climate change impacts include increasing the intensity and frequency of heat waves, when three or more days in a row are hotter than 90°F. Climate scientists are predicting that the number of heat waves and the number of days of extreme heat (100°F) may increase nearly threefold in the U.S. by 2050, and the duration of extended extreme heat events in an average year will double. Estimates from the US EPA forecast that Louisiana will become warmer and see more severe floods and droughts in the coming decades.³⁴

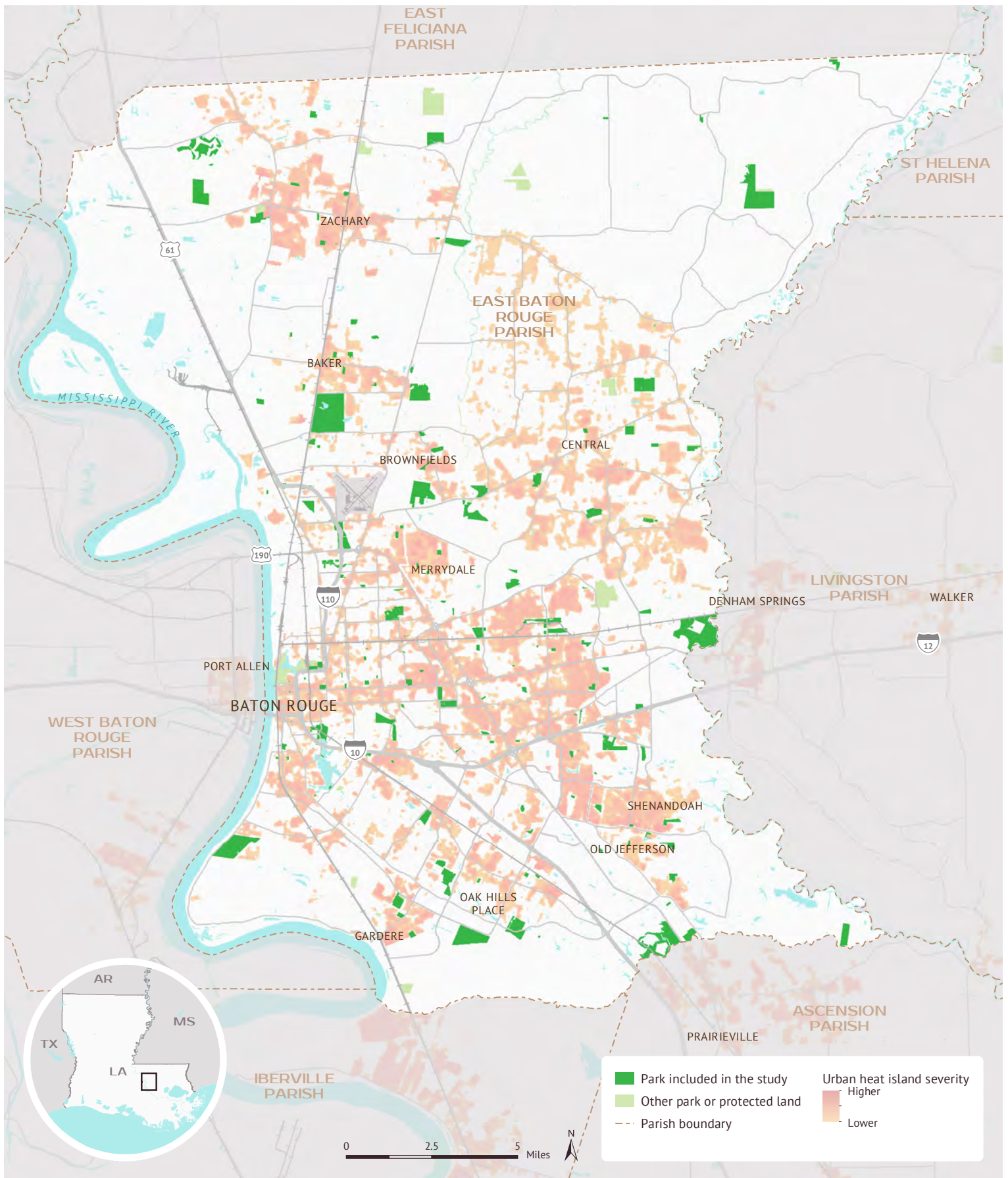
Extreme heat events and heatwaves significantly impact public health. Higher temperatures are associated with higher rates of both heat stroke and hyperthermia and can lead to increased respiratory difficulties. Extreme heat events are the leading cause of weather-related deaths in the U.S. and have an outsized impact on vulnerable populations—children, the elderly, and people with pre-existing conditions (such as asthma).³⁵

Parks with vegetation play an essential role in lowering temperatures, and the cooling effect can reduce temperatures up to a half-mile away.³⁶ In an analysis of 14,000 cities and towns nationwide, TPL found that areas within a 10-minute walk of a park are as much as 6°F cooler than areas beyond that range.³⁷ In warmer climates, shaded surfaces can range from 25°F to 35°F cooler than the peak temperatures of exposed surfaces.³⁸

BREC parks with trees and vegetation help mitigate these high temperatures and the urban heat island effect (when “densely packed buildings, concrete, and pavement trap heat, leading to increased temperatures in areas with the least amount of green space and vegetation”).³⁹ In TPL’s urban heat island severity data (See following page), BREC parks in green show areas of cooling compared to the light-to-dark pink areas that indicate elevated temperatures.

Future research is needed to quantify the impacts of BREC parks on reducing healthcare costs associated with extreme heat, and on how park amenities and features (such as splashpads) influence the urban heat island effect.





BREC Park System and Urban Heat Islands

ECONOMIC BENEFITS OF BREC PARKS - EAST BATON ROUGE PARISH, LOUISIANA

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Nature's Services



Nature provides valuable natural goods and services to people in many ways—permeable surfaces filter stormwater and protect water quality; trees and vegetation remove air pollution, store carbon, and mitigate urban heat islands; and wetlands reduce flooding impacts from sea level rise and storm surge.

For this report, TPL looked at the value of BREC parks due to reduced costs of stormwater infrastructure, and the value of reduced air pollution due to the park system.

REDUCTION IN STORMWATER RUNOFF

Flooding is a significant issue in Louisiana, including East Baton Rouge Parish. The region has a humid subtropical climate, with hot and humid summers and cold and mild winters and some of the heaviest rainfall in the United States paired with a relatively flat topography. It is located near the Gulf of Mexico and is at risk for extreme storms such as hurricanes and intense flooding events. During the 2020 hurricane season, coastal Louisiana was impacted by five named storms, three of which were major hurricanes.⁴⁰ Historic flooding in 2016 had a devastating impact on East Baton Rouge Parish that greatly underscored the need for better stormwater management.⁴¹

Effective stormwater management provides multiple benefits to a community, including economic and environmental benefits. Rainwater that flows off impervious surfaces in the built environment (including rooftops, roads, and sidewalks) can intensify flooding and erosion and exacerbate property damage. This runoff can negatively impact water quality, as it can carry pollutants and litter into water bodies.

There are many projects underway in East Baton Rouge Parish to help address stormwater challenges. A map of current projects on the parish website includes bank stabilization, subsurface drainage improvement, removal of channel restrictions, and floodplain acquisitions.⁴² At the time of publication, East Baton Rouge Parish is completing a five-year process to develop the East Baton Rouge Stormwater Master Plan and 20-Year Stormwater Capital Improvement Plan, partly in response to the significant flooding event in August 2016 that highlighted challenges to current and future stormwater management.⁴³ One of the interim changes to the Stormwater Plan is the prioritization of green infrastructure, defined as:

Natural and man-made infrastructure systems that use naturalized features to store, infiltrate, or evapotranspire stormwater and reduce flows to sewer systems or to surface waters. Examples of green infrastructure include bioswales, rain gardens, permeable pavements, urban tree canopy, and land conservation.⁴⁴

FUTUREBR also noted the importance of nature-based solutions to reducing stormwater and flooding impacts in the latest comprehensive plan:

As Baton Rouge moves forward, priority should be given to using drainage areas as public space for trails and wildlife corridors. Restoration of waterways should include naturalization of stream banks and lake edges, development of riparian buffers along stream corridors, and reestablishment of wetland systems for better stormwater collection and treatment.⁴⁵

BREC Cypress Bayou Watershed Project

In 2021, BREC was awarded a \$4.7 Million grant from the Louisiana Watershed Initiative program to unlock the latent resilience value of a combined 1,000 acres of park land at three of its parks that were already serving as natural flood storage. The project, which is currently underway, will reroute stormwater from surrounding waterways and drainage systems to store and clean millions of gallons of diverted stormwater, allow stormwater to infiltrate into the ground, capture runoff from surrounding streets, and provide educational opportunities for the community to understand the value of well-planned green infrastructure. The project will provide significant downstream benefits to over 14,000 residents and business owners in locations prone to catastrophic backwater flooding by collecting more stormwater upstream, especially during extreme storm events.



Louisiana passed enabling regulations that declared stormwater a utility in 2022, allowing communities to establish a stormwater utility fee.⁴⁶ Stormwater utility fees are a way to address water quality and flooding challenges by establishing a permanent fund for stormwater management through a fee assessed on homeowners. Utility fees could be used to fund traditional stormwater management projects, such as pipes and stormwater basins, and projects that protect or enhance green infrastructure.⁴⁷ Communities that decide to pursue a stormwater fee have the flexibility to choose the approach and rate. Western Kentucky University conducts an annual stormwater utility fee survey across the U.S.—in the 2022 study, they identified 41 states and the District of Columbia as having stormwater utility fees in place.⁴⁸

Preserving parks and greenspace reduces stormwater treatment costs for municipalities by absorbing rainfall that would otherwise flow over impervious surfaces and into storm drains. Stormwater infiltration in these greenspaces also improves overall water quality. BREC’s “What is a Greenway” overview, BREC also notes that their greenways are specifically designed to flood, therefore reducing the potential for property damage because of excess runoff.⁴⁹

Excess nutrients, such as nitrogen (N) and phosphorus (P) that end up in water bodies degrade water quality and decrease their dissolved oxygen concentration, leading to algal blooms that harm fish and wildlife and limit people's ability to swim or go boating. Suspended solids or sediment can also impact water quality, leading to increased treatment costs for drinking water or reducing fish populations due to impacts on spawning. While some nutrients and sediments are naturally produced by forests, shrubbery, and other herbaceous land cover, the rate at which they enter water bodies is greatly exacerbated by stormwater runoff over impervious land surfaces.

TPL analyzed the value of stormwater infiltration by parks in the BREC system, explicitly considering the avoided treatment costs because of these parks' pervious surfaces. This study did not assess other natural areas (other than parks) that manage stormwater.



To quantify the economic benefits of stormwater infiltration by BREC parks, TPL used the iTree Hydro program to estimate the avoided treatment costs due to the parks' pervious surfaces. iTree Hydro is an open access hydrological model that was developed by the U.S. Forest Service. It is designed to quantify the impact that changes in tree canopy cover and impervious cover are expected to have on stream flow, stormwater runoff, and water quality in an area.⁵⁰

Step 1: Identify Land Use Characteristics of BREC Parks and Surrounding Areas

First, TPL added BREC park boundaries to a database in ESRI ArcGIS, as well as land cover data from the 2016 Percent Developed Imperviousness data from the National Land Cover Database (NLCD) created by the U.S. Geological Survey (USGS). The NLCD data showed that BREC Parks have more porous than impervious surfaces (Table 7).

Step 2: Create the No Parks Scenario

TPL created an alternative, 'No Parks' scenario in iTree Hydro to estimate the amount of stormwater runoff and pollutant loading that BREC parks prevent from entering water bodies. TPL used a land cover map of East Baton Rouge parish to serve as the baseline, while the alternative scenario clipped out the existing BREC parks. Then, to estimate land cover percentages, TPL used the iTree Canopy tool to photo-interpret Google Earth imagery to classify random points that located within each scenario. (This tool was also used in the air pollution reduction analysis, below.)

In the alternative scenario, parks were analyzed as if they were not protected, and therefore were developed to the same extent as surrounding lands (e.g., their impervious surface percentages are comparable to nearby areas). Typically, parks' impervious surfaces are limited to paved trails, roadways, parking areas, and buildings; pervious or porous surfaces such as trees, shrubs, herbaceous cover, open soil, or other trails and fields designed to infiltrate water. [Table 7](#) shows the land cover types for the two scenarios.

Table 7. Percentage of land cover types for the base and alternative case in East Baton Rouge Parish.

Land Cover	Base	Alternative
Tree Cover %	51.6	42.5
Shrub Cover %	0.2	0.0
Herbaceous Cover %	36.6	22.7
Soil Cover %	3.2	13.6
Pervious Surface % (Includes Tree, Shrub, Herbaceous, and Soil Cover)	91.6	78.8
Water Cover %	1.8	5.8
Impervious Cover %	6.6	15.4

Source: iTree Hydro.

Overall, there is a high amount of tree canopy in each scenario, with more pervious surface in the baseline scenario. Tree cover, shrub cover, and herbaceous cover all declined in the alternative scenario, while water cover, impervious cover, and soil cover increased.

Step 3: Estimate Stormwater Runoff in Each Scenario

TPL used the iTree Hydro tool to analyze the volume of stormwater retained by BREC parks compared to the No Parks scenario.

The iTree Hydro tool models tree canopy and impervious cover and estimates the volume of stormwater entering water bodies that may impact their water quality. Several factors contribute to that estimated volume, including geography, climate and annual precipitation, hydrologic soil composition, land use, vegetation types, and amount of directly connected impervious area. The tool relies on several inputs, including a map of the two scenarios, hourly weather data, land cover types, and elevation, to simulate precipitation and volumes of water absorbed into the land or runoff from a surface.⁵¹ The model combines surface volume runoff data with the concentration of pollutants associated with land use types, estimating pollutant loading to water bodies for the scenarios, presenting the differences in pollution generation or reduction in each.

The No Parks scenario had 8.8 percent more impervious surface and 12.8 percent less pervious surfaces compared to the existing BREC Parks scenario (Table 7). The model estimates that if the land cover of BREC parks was similar to the surrounding land use, **stormwater runoff would increase by 1,246,601 cubic meters per year (or 329,317,144 gallons)** (Table 8). This stormwater volume reduction estimate includes passive infiltration in porous surfaces, and does not include any intentional stormwater capture (such as in catch basins or rain gardens).

Step 4: Estimate the Value of Stormwater Reduction by BREC Parks

TPL estimated the economic value of stormwater reduction by BREC parks by comparing the costs of more “engineered” methods to treat the same volume of runoff. This can be considered an avoided cost of treating water and wastewater.



TPL used two different potential treatment methods: one for existing wastewater treatment systems and the second for implementing new green stormwater infrastructure. The costs of using existing wastewater infrastructure is approximately \$0.008936 per gallon of treatment; the cost of implementing new green stormwater infrastructure is significantly higher, at \$0.11 per gallon.⁵²

The estimated annual avoided stormwater treatment costs due to BREC parks, using the “wastewater infrastructure” scenario, is estimated at **\$2,943,090 annually**. To treat the same volume of stormwater with new green infrastructure, the estimated cost is **\$36,228,721 annually** (Table 8).

Table 8. Estimated runoff reduction and associated value, due to infiltration BREC parks.

Category	Annual Value	Unit	Annual Value	Unit
Runoff without BREC Parks	1,418,686	cubic meters	374,816,947	gallons
Runoff with BREC Parks	172,085	cubic meters	45,464,936	gallons
Runoff Reduction from BREC Parks	1,246,601	cubic meters	329,352,011	gallons
Value of Avoided Stormwater Management due to Trees (Traditional)			0.008936	dollars/ gallon
Total savings from BREC Parks			\$2,943,090	per year
Value of Avoided Stormwater Management due to Trees (Green Infrastructure)			\$0.11	dollars/ gallon
Total savings from BREC Parks			\$36,228,721	per year

Source: *iTree modeling suite.*

Maintaining the pervious surfaces in BREC parks has a significant impact on stormwater treatment costs in East Baton Rouge Parish. Without these porous surfaces, communities would have to invest in expanding water treatment infrastructure and facilities to capture and treat more stormwater—and with heavier rainfall and more extreme storm events expected due to climate change, the costs could be substantial.

BREC Parks and Stormwater



In August 2016, an unnamed storm that produced a prolonged downpour resulted in catastrophic flooding in the state of Louisiana. Thousands of houses and businesses were submerged. The Great Flood of 2016 was a wake-up call for East Baton Rouge Parish. A number of BREC parks collected and stored stormwater in open spaces, especially larger community parks like Greenwood and Howell Community Parks, Airline Highway Park, Burbank Soccer Complex, and Central Sports Park. Howell Community Park's 60-year-old recreation center received between 6 to 7 feet of water and was destroyed. In the aftermath, BREC recognized how much stormwater its parks held: nearly 10 billion gallons in the 2016 flood, enough to fill Tiger Stadium in Baton Rouge 71 times. The stormwater would have flooded even more homes and businesses in the surrounding areas, creating even greater devastation.

In the wake of the storm, BREC's Natural Resources Management Division created rubrics for scoring parks on their ecological value and natural capital value. These rubrics are used by BREC in planning decision and it shows the importance of all BREC property, including undeveloped Nature Reserves. A comparative analysis of different BREC parks showed the significant differences that development has on parks' ability to store stormwater. Parks of equal size were compared, showing that a fully forested park has a runoff equivalent of 41 Olympic-sized swimming pools; a partially forested community park, comparatively, has a runoff equivalent of 81 pools; a park with 'grow zones' has an equivalent of 89 pools; parks with partial tree canopy have an equivalent of 110 pools; and a fully-developed neighborhood park has the stormwater runoff equivalent of 260 Olympic sized pools.

AIR POLLUTION REDUCTION

Air pollution injures human health and our natural environment. Small particles in the air impact human cardiovascular and respiratory systems, affecting productivity and increasing healthcare costs.⁵³ Acid rain, smog, and ozone lead to increased repair costs for buildings and infrastructure.⁵⁴

The American Lung Association conducts an annual "State of the Air" report to describe air pollution impacts to communities. East Baton Rouge parish received a failing grade for its rate of high-ozone days based on days of poor air quality measured by the U.S. Environmental Protection Agency's (U.S. EPA) Air Quality System (AQS). However, the parish received a B grade for its short-term particle pollution (24-hour PM2.5). The results suggest that there are a high number of unhealthy ozone days where the ozone standard, set by the U.S. EPA, is not being met.⁵⁵

Ground-level ozone is created when certain pollutants (such as those emitted by cars, power plants, and chemical plants) react with sunlight, leading to serious health impacts. High ozone days are often driven by high temperatures, especially. When ozone forms on the ground, it becomes a lung irritant that seriously impacts people's respiratory systems.

Particulate matter pollution may include small particles of dust, metals, chemicals, and acids, and its many sources include diesel- and gasoline-powered motor vehicles, factories, power plants, equipment, wood burning, and wildfires. Fine particles such as PM_{2.5} form in the atmosphere because of chemical reactions between pollutants, and are often derived from burning fossil fuels.⁵⁶

Fortunately, the trees and other vegetation in BREC parks help improve air quality, and can therefore mitigate the impacts of air pollution within and around the park system.⁵⁷ Trees and shrubs remove pollutants from the air, and leaves absorb gases such as nitrogen dioxide, sulfur dioxide, carbon monoxide, and ozone. By adhering to plant surfaces, particulate matter can also be removed from the atmosphere.

The pollution-reducing benefits of trees in BREC parks also enhance ongoing efforts made under the Louisiana State Implementation Plan.⁵⁸ Although East Baton Rouge Parish has numerous trees on private property and streets, this study measures only the economic value of tree canopy located in within BREC parks to isolate the economic benefits of air pollution reduction attributed to BREC parks.

To estimate the economic benefits of air pollution reduction by BREC parks, TPL used another tool in iTree suite, iTree Canopy, which incorporates factors such as local tree canopy, pollution, weather, and demographic data for East Baton Rouge Parish to estimate the reduction of air pollutants due to trees, including carbon monoxide, nitrogen dioxide, ozone, sulfur dioxide, and particulate matter.⁵⁹



Step 1: Identify Canopy Characteristics of BREC Parks

TPL used the U.S. Geological Survey National Land Cover Database to assess and classify the canopy cover in BREC parks. (This analysis was also used in the Stormwater Infiltration analysis, above—see Table 7).

Step 2: Identify Estimate and Value of Canopy Pollutant Reduction

The iTree Canopy tool uses the tree canopy cover data to estimate hourly changes in air pollution removal due to vegetation and estimates the value of these reductions for each pollutant. The values are based on a literature review by iTree researchers and the U.S. EPA’s Environmental Benefits Mapping and Analysis (BenMap) Program.⁶⁰

BenMap collects data to model environmental and health benefits of natural infrastructure. Researchers use BenMap data to estimate the economic value of health impacts specifically due to changes in pollutants like ground-level ozone and fine particles. These pollutants cause health impacts including aggravated asthma, and heart conditions, and potentially premature death. The value of the health impacts are primarily driven by healthcare cost savings, as well as on environmental economic studies that estimate people’s willingness to pay for reduction of exposure to harmful pollutants.⁶¹

The iTree Canopy values described in Table 9 were adjusted to 2021 dollars using the Producer Price Index (PPI).⁶²

Table 9. Tons and value of air pollutants removed by BREC Parks annually.

Pollutant		Tons Removed by BREC Parks Annually	Value of Pollution Removal Attributed to BREC Parks Annually (2021\$)
CO	Carbon Monoxide	1.49	\$149.89
NO ₂	Nitrogen Dioxide	8.12	\$257.29
O ₃	Ozone	80.87	\$13,406.04
SO ₂	Sulfur Dioxide	5.12	\$44.85
PM _{2.5}	Particulate Matter <2.5 microns	3.93	\$27,713.76
PM ₁₀	Particulate Matter 2-6-10 microns	27.09	\$9,733.22

Source: iTree Hydro

Because it is difficult to determine exactly which pollutant causes each incidence of impaired health, the estimated values should not be considered additive, but instead illustrate the relative impact of each pollutant on health costs. For example, fine particles (PM_{2.5}) have the highest value in terms of canopy reduction benefit, which can be interpreted as PM_{2.5} leading to the highest cost or most frequent healthcare impacts among East Baton Rouge Parish residents.

The results from this analysis demonstrate that the tree canopy in BREC parks provides significant air pollutant reduction benefits to the region. If this tree canopy did not exist or were replaced with more developed forms of land use, the community would incur more healthcare costs from increased air pollution.

BREC Urban Forestry

BREC has an Urban Forestry division within its Park Operations department that cares for all of the trees in the BREC park system. The division consists of one Certified Arborist, one Foreman, three Tree Trimmers, one Equipment Operator, two Heavy Truck Operators, and two Groundsmen. In addition, BREC's Director of Park Operations and an Assistant Director each hold a Ph.D. in Urban Forestry and Natural Resources. In 2022, the Urban Forestry division cared for over 1,000 trees and planted approximately 50 new trees.



Economic Impact



The BREC park system not only provides ecosystem services through its trees and green spaces, but also directly benefits the parish's economy. People come from all over to visit the parks, helping drive tourism and associated economic growth through new business and job creation. Additionally, the parks help contribute to community wealth through impacts to property values and raising the quality of life for parish residents.

For this report, TPL estimated the value of increased property values in homes located near BREC parks, and the economic development impacts of the park system.

ENHANCED PROPERTY VALUE

Well-maintained parks can have a positive impact on nearby residential property values.⁶³ All other things being equal, people are willing to pay more for a home close to natural space and park amenities, and economic analysis can isolate parks' impact on home values. Living near parks and trails means access to outdoor recreation facilities, increasing residents' quality of life, attracting and retaining businesses and employees, and increasing economic development activity.⁶⁴ The increased value is separate from the recreational use value of the parks, because property value is raised near parks even if the residents never visit or use them.

Additionally, because a home's value typically determines the property tax amount, the increased value of homes near park spaces also leads to increased annual property taxes in their community.

TPL estimated the increase in property value attributed to BREC parks and the associated tax revenue generated on an annual basis.

Step 1: Identify Property Values Around BREC Parks

Property value is affected by two factors in the context of parks and greenspace: distance and quality. Nationwide, research shows that the premium for proximity to these spaces can extend up to 2,000 feet and can also affect market values by as much as 20 percent.⁶⁵

TPL first collected data on property and tax assessment information for residences in East Baton Rouge Parish using parcel and tax data provided by BREC.⁶⁶ To maintain a conservative approach to benefit estimation, TPL focused on residential properties within 500 feet of BREC parks. (This analysis includes single-family homes as well as multiple-unit dwellings such as condominiums that are owned and taxed.) This data is considered a snapshot, looking at property values and associated taxes in 2021.

The analysis contained 175 parks ranging in size from Wenonah Street Park (0.11 acres) to Frenchtown Road Conservation Area (469.54 acres).

TPL used spatial analysis to estimate the total value and taxes assessed on these residences.

Step 2: Identify Property Value Impacts Due to BREC Parks

Residences near high-quality natural areas with public access, scenic vistas, and bodies of water are markedly more valuable. Less attractive or outdated parks may provide only marginal value, and in some cases, they may reduce nearby property values.

In economic studies of property value impacts due to individual parks, park quality may be directly factored into the analysis (e.g., park design, facilities, or level of maintenance). Because this study looks at the BREC park system holistically, TPL applied a methodology that accounts for variations in quality and considers a straightforward “park premium” that is a minimum average value added by the parks collectively. The park premium is separate from other factors that impact home value, such as square footage, number of bedrooms, or the presence of a garage.

To remain well within the bounds of reported values and to reflect differences between park size and type, TPL conservatively applied a midpoint value of five percent (the park premium) to the total market value of nearby residences to estimate the impacts of BREC parks. Similarly, five percent of the total assessed tax value is calculated as the increased revenue from the park’s proximity.⁶⁷

Table 10 describes the results of this analysis for BREC parks. The spatial analysis identified 24,373 homes located within 500 feet of BREC parks in 2021. The total market value of these residences is \$415,899,315 in 2021 dollars (2021\$), and the total annual property tax of assessed value for these homes is worth \$33,355,963 in 2021\$.

The additional market value of residential properties due to BREC parks is \$20,794,966. The additional annual property tax revenue due to the parks is \$1,667,798 each year.

These impacts should be considered a lower-bound estimate of total enhanced property value due to BREC parks.

Table 10. Estimated impact of BREC parks on nearby property values and associated annual property taxes.

BREC Parks – Property Values Analysis Categories	Values (2021\$)
Number of homes within 500 feet of parks	24,373
Total market value of homes within 500 feet of parks	\$415,899,315.00
Total Annual Property tax of homes within 500 feet of parks	\$33,355,963.20
Additional market value due to parks	\$20,794,966.00
Additional annual property tax revenue due to parks	\$1,667,798.00

Source: Trust for Public Land, 2021.

For this report, TPL’s analysis focuses on residential property—parks and green space may also enhance property value for commercial and industrial property, but these benefits were excluded from this study.⁶⁸

The Garden District in Baton Rouge

“The Garden District looks and feels like a slice of New Orleans in Baton Rouge. This quiet and friendly neighborhood is full of historic properties and architecture dating back to 1910, all while also being surrounded by a big park, local businesses, and is situated close to LSU,” reads a March 2019 post by a popular local Baton Rouge blog, Red Stick Living. The park referenced is BREC’s City-Brooks Community Park, which features a historic golf course, an art gallery, a tennis center, and the largest dog park in the area, among many other attractive and inviting features. The Garden District was also named one of America’s top neighborhoods in 2012 by the American Planning Association and was the filming set for scenes in Disney’s National Treasure: Edge of History television series.

Displacement

TPL recognizes that increased property values have the potential to displace current residents due to rising, unaffordable housing costs. This is particularly a concern for renters who do not capture the potential wealth created by increased home values. Whether smaller parks create the same displacement effects is less clear or documented.

The City of Baton Rouge has a history of displacement, with African American communities being predominantly impacted by the development of the Interstate highway system.⁶⁹ In more recent years, while historic designation efforts have supported both preservation and community economic development, its positive impact on property values may displace less-affluent residents living within the historic districts once they are established.⁷⁰ Special attention should be paid to the impacts of park development and expansion in the context of historical displacement in Baton Rouge.

Gentrification is a complicated issue with many root causes beyond parks. However, thoughtful community engagement, planning, and specific policies can help ensure park projects are enjoyed by existing residents, as well as newcomers, for years to come. Indeed, creating new parks and improving existing parks in all neighborhoods can be an important tool to improve equity by broad measures (see sidebars). Research specifically focused on parks and displacement suggests cities have been successful in combating gentrification and displacement by using parks-related anti-displacement strategies (PRADS) are employed.⁷¹ In addition, governing or funding agencies can institute proactive policies for increasing income, affordable housing, and legal requirements for displacement avoidance to determine park projects' success (and failures).⁷²

Using strategies early can lead to park improvements that advance equity. The research found successful implementation of strategies in 12 cities that limited “green gentrification” (a process of “greening” a city that also leads to higher property values and elevated rents).⁷³ An example from Los Angeles County is a parcel-tax funding source for parks that scores competitive grants higher if they include displacement-avoidance strategies. Other entities that fund outdoor facilities and parks in California and the state’s Strategic Growth Council, which administers grants for climate resilience, are implementing this strategy. This particular strategy encourages and incentivizes collaboration between housing advocates and developers to develop and implement anti-displacement strategies as part of receiving public funding for parks.⁷⁴

TOURISM AND OUTDOOR RECREATION IN EAST BATON ROUGE PARISH

Tourism is a critical economic driver for Louisiana. In 2021, tourism brought in \$16.3 billion in domestic spending and \$488.0 million in international spending to the state, including tourists’ transportation, lodging, food & beverage, shopping, and entertainment.⁷⁵ There were 40.87 million domestic visitors and 150,000 international visitors in 2021. Baton Rouge alone had 7.2 million visitors in 2022, with a total visitor spend of \$450 million, saving residents \$1,100 in tax dollars each year.⁷⁶

Louisiana is still recovering from the economic impacts of the COVID-19 pandemic, including travel limitations, special event cancellations, and business closures. In 2019, for example, Louisiana hosted 52.5 million domestic visitors (down 11.63 million in 2021) and spending \$17.9 billion dollars (down \$1.6 billion in 2021). International travel was even more heavily impacted, with visitor numbers dropping 79.2% between 2019 and 2020, and only rising 36.3% percent by 2021.

Source: MMGY Travel Intelligence, “Year-End 2021 Louisiana Visitor Volume and Spending.” May 2022.

As the state capitol, Baton Rouge is a major regional hub for tourism and special events. Longwoods International analyzed 2018 domestic visitor data for Baton Rouge, finding that there were 11.3 million visitors spending \$958.5 million in day and overnight trips. Overnight visitors accounted for 37% of all trips (4.1 million people), staying an average of 2.1 nights.⁷⁷

Most people visited Baton Rouge to visit friends/relatives (42%) or other leisure (40%). Outdoor recreation was the primary purpose of 3% of visitors in 2018, though it may have been a secondary outcome of the trip (e.g., if someone is visiting primarily to attend an event in Baton Rouge and goes fishing or visits a park while they're traveling).⁷⁸ Statewide, 15 percent of visitors to Louisiana participate in nature-based activities and five percent participate in outdoor sports like bicycling and fishing.⁷⁹

Tourism provides important employment and wage opportunities in East Baton Rouge Parish. In 2021, there were 24,277 employees working in leisure and hospitality, which includes the arts, entertainment, and recreation and accommodation and food services industries. The industry continues to recover from the impacts of the COVID-19 pandemic, which severely impacted tourism-related industries starting in 2020 (Figure 2).

Annual Leisure and Hospitality Employment in East Baton Rouge Parish, 2012–2021

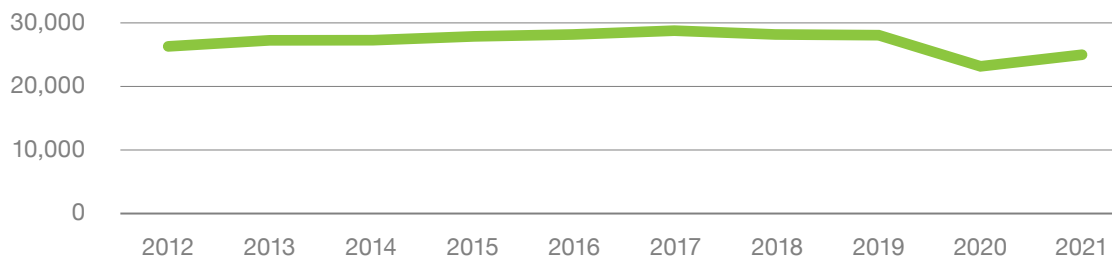


Figure 2. Annual Leisure and Hospitality Employment in the Private Sector in East Baton Rouge Parish, Louisiana, 2012–2021. Source: U.S. Bureau of Labor Statistics

Tourism and BREC Parks and Facilities

BREC parks and facilities are a major tourism destination for East Baton Rouge Parish, attracting many visitors from across the United States. These parks and facilities are essential to attracting tourists to the Parish, including outdoor recreation enthusiasts, art and nature lovers, athletes, and history buffs.

BREC collects participation and attendance data for many of their programs. The Appendix includes a table of visitation data and, where available, the origin of BREC visitors. Many of the facilities, such as the Baton Rouge Zoo, are anchor tourism destinations in the region, helping attract tourists from outside the state (and even internationally). For example, visitors came from 25 different states to visit Liberty Lagoon in 2022. The parks also host special events, including Rockin' at the Swamp and the October Haunted Hike at the Bluebonnet Swamp Nature Center, each attracting more than 1,000 visitors per day in 2020.

Each year, BREC's Baton Rouge Zoo hosts Boo at the Zoo. On average, around 25,000 people, around half of those being children ages 12 and under, come to the Zoo over the last two weekends in October to enjoy this merry-not-scary event featuring fall themed activities, animal enrichments, character visits and, of course, everyone's favorite—Halloween candy for the kids!

Children and adults are encouraged to dress in costume and the most creative ones are featured on the zoo's social media pages. Over the years, our community has enjoyed this as an annual staple for families looking to do something festive for the fall season that is safe, educational and fun.



Sports tourism is an especially an important economic driver for BREC, which maintains several facilities used for local, state-wide, or national sports teams for tournaments and competitions:

- **Burbank Soccer Complex:** Between July 2021 and May 2022, the Complex hosted at least 10,985 participants across more than a dozen programs and nearly 20 tournaments and events. Of those participants, 23.5% came from outside East Baton Rouge Parish.⁸⁰ In 2019, BREC hosted the U.S. Youth Soccer Regional Tournament, bringing in 20,000 attendees over the course of a week. The economic impact of the tournament was estimated at \$13 million.⁸¹
- **Golf Courses:** BREC golf courses saw a steady increase in participation over the last four years, as outdoor recreation became increasingly important during the COVID-19 pandemic. Between Santa Maria, Webb Memorial, Beaver Creek, City Park, and Dumass Memorial courses, attendance increased from 119,931 in 2019 to 164,643 in 2022.
- **Perkins Road Community Park:** This park is BREC's Extreme Sports Complex, including a 30,000 square foot skate park, BMX Raceway, a 35-ft rock climbing tower, community playground, tennis court, and walking, skating, and biking trails.

Located in BREC's City Park, the Baton Rouge Gallery is a multi-media contemporary art gallery that connects artists and audiences in the region. There were nearly 13,000 visitors to the Gallery in 2022, despite ongoing event cancellations due to the COVID-19 pandemic. The Gallery has a significant economic impact on the Greater Baton Rouge region, attracting non-local visitors for events and exhibitions. A recent economic impact study of the Gallery found that between 2010–2019, its total impact on the local economy is estimated to be \$8,119,565, including providing 143 jobs (direct, indirect, and induced employment). For every fundraising dollar collected in 2019, there was an estimated economic impact of \$17.41.⁸²



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TPL reviewed and analyzed existing park visitation and Baton Rouge tourism data to estimate the impact of spending by non-resident park visitors to the region. (For the purposes of this study, non-resident visitors live outside the Baton Rouge metro region.) Even people who do not spend money to use BREC parks (such as cyclists, picnickers, and walkers) provide economic benefits to the region, as they spend money on lodging, at restaurants, and in retail shops.

BREC tracks monthly visitation to its facilities (such as the Baton Rouge Zoo, Liberty Lagoon, and the Magnolia Mound historic site), and its recreation centers in its 39 neighborhood and 12 community parks ([Appendix](#)). In addition, BREC worked with Baton Rouge-based marketing firm Feigley Communications to collect opt-in, anonymized cell phone data to estimate the number of visits and visitors to several parks between 2019 and 2022.⁸³ For this analysis, TPL calculated total attendance at all BREC parks and facilities using (1) attendance data at special facilities, community parks, and neighborhood parks and (2) data from the cell phone study to estimate the number of visitors at conservation sites.⁸⁴ In 2022, the total estimated visitation was 1.735 million visitors to staffed facilities per year, across all BREC community and neighborhood parks, sports programs, and special facilities (Table 11). It is important to note that the 1.735 million visitors are those that staff are able to count through facility visits or program participation and does not include park visitors participating in passive recreation such as jogging or playing on playgrounds.



Table 11. Estimated 2022 BREC visitation by park, by facility, and by program.

Location	Total Visitors to Staffed Facilities/ Programs in 2022
Parks	
Community Parks	164,668
Neighborhood Parks	537,343
Conservation Areas	7,728
Facilities	
Baton Rouge Zoo	187,454
Knock Knock Children’s Museum	93,671
Liberty Lagoon	53,097
Baton Rouge Gallery	12,992
Sports	
Golf	164,645
Burbank Soccer Complex	10,985
Athletics (Including Memorial Sports Complex, Harley-Vey Park at Oak Villa, Sports Academy, Kathy Drive, North 14th, Central Sports Complex, and Olympia Stadium)	191,780
Tennis	85,041
Aquatics	2,090
CORE Programs	
Bluebonnet Swamp	35,070
Additional CORE Programs (Including Extreme Sports, Outdoor Adventure, and Conservation Programs; Excluding Bluebonnet Swamp)	71,982
Special Use Programs	
Farr Park	20,187
Magnolia Mound	4,012
Independence Theatre	40,347
Additional Special Use Programs (Includes Highland Observatory, Highland Road Pavilion, Airline Hwy, BREC Art Programs; Excludes Farr Park, Magnolia Mound, and Independence Theatre)	51,814
Total Visitors	1,734,906

Source: BREC Monthly Attendance Reports and Admissions Data; Feigley Communications; Baton Rouge Gallery.

For a subset of BREC’s special facilities, BREC provided data on visitors’ origin zip codes: Baton Rouge Zoo, Knock Knock Children’s Museum, Burbank Soccer Complex, Liberty Lagoon, and Golf Courses (Table 12). TPL used this information to identify which visitors lived in East Baton Rouge Parish; lived in the Baton Rouge Metro Area but outside East Baton Rouge Parish; lived in Louisiana but outside the Baton Rouge Metro area; lived out of state; or visited from outside the U.S. (The Baton Rouge Metro Area includes Ascension Parish, East Feliciana Parish, Iberville Parish, Livingston Parish, Pointe Coupee Parish, St. Helena Parish, West Baton Rouge Parish, and West Feliciana Parish, in addition to East Baton Rouge Parish.)

Table 12. Visitor origins at select BREC facilities.

Location	East Baton Rouge (EBR) Parish	In Baton Rouge Metro Area (Excluding EBR)	In Louisiana, Outside Baton Rouge Metro Area	Out of State	International
Baton Rouge Zoo	38.43%	32.83%	17.37%	11.37%	
Knock Knock Children’s Museum	53.01%	18.46%	21.02%	7.49%	0.02%
Burbank Soccer Complex	82.07%	15.63%	2.19%	0.10%	
Liberty Lagoon	30.67%	15.00%	49.12%	5.20%	
Golf (All Courses)	54.79%	34.13%	0.24%	10.84%	
<i>Parks (Estimate)</i>	<i>85.00%</i>	<i>14.00%</i>	<i>1.00%</i>		

The park origin data was conservatively estimated based on other BREC facilities. Source: BREC Admissions Data.

The origin zip code data is important for estimating the economic impact of non-local visitation. Visitors coming from out of state or from abroad are most likely staying overnight in the Baton Rouge area, spending money on lodging, travel, food, shopping, and entertainment/recreation.

Visit Baton Rouge commissioned a Visitor Profile for the region from the travel intelligence company DK Shifflet in 2019. The report looked at five geographic subregions in Louisiana to analyze and compare regional travel markets. DK Shifflet found that the daily average spending per person in Plantation Country (the cited name of the area in which East Baton Rouge Parish falls) is \$128 (2019\$); adjusted for inflation, **the daily average expenditure per person is \$152.13 (2023\$)**.⁸⁵ The report further breaks down the daily average spending by expense type (Figure 3). TPL leveraged this data to estimate the daily average expenditure for a day tripper to be approximately 63% of that of an overnight visitor, or \$96/day (2023\$) (Table 13).

Per-Person-Per-Day-Spending

PERSON-DAYS 2019(%)

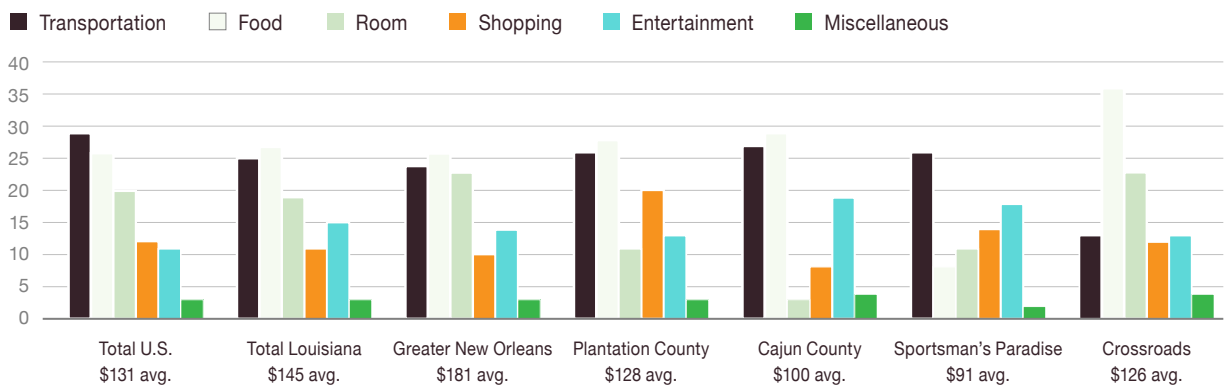


Figure 3. Per-Person-Per-Day Spending for Overnight Visitors to Louisiana, Comparing Sub-Regions and the U.S. Overall. Source: DK Shifflet 2019 Visitor Profile for Baton Rouge.

Table 13. Percent share of daily average spending by Baton Rouge visitors.

Category	Overnight (DK Shifflet)	Day Trip (TPL Estimated)
Transportation	26%	6%
Food	28%	20%
Room/Lodging	9%	0%
Shopping	18%	18%
Entertainment/Recreation	10%	10%
Miscellaneous	9%	9%
Total	100%	63%

Source: DK Shifflet 2019 Visitor Profile for Baton Rouge.

Leveraging the total park visitation, data on BREC visitor origins, and the estimated daily average expenditure, TPL estimated the annual economic contributions of non-resident BREC park visitors (Table 14). **Non-local residents who visit BREC parks contribute \$26,166,357 to the region each year.**

Table 14. Estimated economic impact of non-local visitors to BREC parks.

Visitor Origin	Total Visitors by Origin	Estimated Length of Stay (Days)	Estimated expenditure per day (2023\$)	Total Expenditures by Origin
In Parish	925,319	0		
In Metro, Out of Parish	270,191	0		
In State, Out of Metro	94,713	1	\$96	\$9,077,461
Out of State	53,469	2.1	\$152	\$17,081,868
International	22	2.1	\$152	\$7,028
Total				\$26,166,357

Note: BREC did not have visitor origin data for all facilities that TPL calculated total attendance for, so this value is lower than the total estimated attendance for 2022. Source: BREC Attendance Reports, BREC Admissions Data, Longwoods 2018 Baton Rouge Overnight Visitor Report, DK Shifflet 2019 Visitor Profile for Baton Rouge.

Value of the Outdoor Recreation Economy

Parks and green space provide economic benefits by facilitating access to outdoor recreation.

TPL used Esri Business Analyst to evaluate the sales and expenditures by residents in East Baton Rouge Parish to determine the market potential for outdoor recreation goods and services. The tool contains data on consumer behavior, leisure activities, and business activity for a defined geography, to estimate how much recreation-driven spending contributes to the local economy.⁸⁶

While outdoor recreation goods can be used anywhere, TPL assumed that residents would leverage parks near home most often for many of these purchases, including bicycles, running gear, and fishing equipment.

TPL leveraged Esri Business Analyst to estimate (a) the overall spending potential for households in East Baton Rouge Parish; (b) participation rates in (or market potential of) outdoor recreation activities; (c) outdoor recreation-related household spending; and (d) the number of employees and businesses in the outdoor recreation industry in 2022.



In 2022, the average annual household expenditure in East Baton Rouge Parish is \$79,998.48; this includes all categories of spending, including food, housing, transportation, healthcare, and education. This is 11 percent lower than the national average based on the spending potential index (SPI). Esri Business Analyst calculates a spending potential index (SPI) that compares the average amount spent locally for a product to the average amount spent nationally. A SPI of 100 indicates the average.⁸⁷ In East Baton Rouge Parish, the spending potential index for various expenditures ranges from 76 (below the national average) to 102 (just above average), indicating that the potential for household budget expenditures ranges from 24 percent less than the national average (expenses for other properties) to 2 percent more than the national average (checking account/banking service charges).

Table 15 shows the average amount spent on household budget expenditures and the SPI in East Baton Rouge Parish, compared to median and average household incomes for 2021. Having a SPI under 100 indicates that East Baton Rouge Parish has a smaller proportion of higher income households compared to the national average.⁸⁸

Table 15. Income and budget data for East Baton Rouge Parish.

Location	Median Household Income (U.S. Census)	Average Household Income (U.S. Census)	Average Amount Spent on Household Budget Expenditures (Esri)	Spending Potential Index for Total Household Budget (Esri)
East Baton Rouge Parish, Louisiana	\$58,167	\$88,696	\$79,998.48	89

Source: U.S. Census, American Community Survey 5-Year Estimates, 2021; Esri Business Analyst, 2022.

Esri Business Analyst also calculates a market potential index (MPI) for various categories of spending that measures the relative likelihood of individuals and households in an area participating in certain activities compared to the U.S. average.

The results for East Baton Rouge Parish (Table 16) show that the top outdoor activity was walking for exercise in the last 12 months (30.4% of all households), followed by swimming (15.0%) and hiking (14.9%). Households in the parish are more likely than other households across the country to participate in roller skating based on their MPI of 117 (an MPI over 100 suggests a higher rate of participation in those activities.).

Table 16. Outdoor recreation household participation data for East Baton Rouge Parish.

Category of Sports and Leisure	Percentage of Households Participating in Last 12 Months in East Baton Rouge Parish	Market Potential Index (Esri)
Walking for Exercise	30.4%	97
Swimming	15.0%	96
Hiking	14.9%	93
Jogging/Running	11.3%	101
Bicycling (Road)	10.9%	96
Fishing (Freshwater)	9.6%	90
Golf	7.9%	100
Basketball	7.2%	107
Canoeing/Kayaking	7.1%	97

Note: Indoor recreation activities were excluded from the table; activities with >7% household participation included weight lifting, yoga, and bowling.

Source: Esri Business Analyst, 2022

Understanding how parish residents participate in different types of outdoor recreation gives insight into the value residents place on outdoor recreation access, including the diverse opportunities available in BREC parks. Residents frequently use BREC trails and greenways for walking, jogging, and running, and there are dozens of places residents can play basketball: 37 indoor courts, 132 half courts, and 44 full courts. BREC offers five different golf courses, which saw a significant increase in use during the COVID-19 pandemic when people began seeking out outdoor leisure opportunities. Residents can also swim (3 swimming pools), fish (18 fishing lakes across 102 acres), and canoe or kayak (3 boat launches). Given their provision of such an expansive array of outdoor recreation facilities and programs, BREC is very likely driving the rates of participation in many of them.

In addition to the participation rates in different types of outdoor recreation, Esri Business Analyst also compiles estimates of household expenditures on different categories of goods and services, including sports, recreation, and exercise equipment. The tool also provides a SPI for this and related subcategories, including hunting and fishing equipment, bicycles, and water sports equipment.

Data from Esri Business Analyst shows that 71,552 households, or 39.2 percent of households in East Baton Rouge Parish, spent money on sports, recreation, and exercise equipment in 2022. Of those 71,552 households, 42.8% of

households spent over \$250 over the previous 12 month period. The total value of these expenditures is \$32,316,726. Exercise equipment and gear (including game tables) is the category with the highest total expenditures in East Baton Rouge Parish at \$9,874,005 with an average of \$54.10 spent per household each year.

Table 17 describes some of the estimated annual expenses related to outdoor recreation from ESRI Business Analyst.

Table 17. Recreation Expenditures for select categories in East Baton Rouge Parish.

Recreation Expenditures	Spending Potential Index	Average Amount Spent	Total Amount Spent
Entertainment/Recreation Fees and Admissions	87	\$729.96	\$133,240,435
Tickets to Parks or Museums	87	\$33.35	\$6,087,113
Admission to Sporting Events, excl. Trips	87	\$63.52	\$11,594,636
Fees for Participant Sports, excl. Trips	88	\$114.91	\$20,973,611
Fees for Recreational Lessons	81	\$130.19	\$23,763,812
Recreational Vehicles and Fees	80	\$101.96	\$18,610,923
Payments on Boats/Trailers/Campers/RVs	81	\$46.89	\$8,559,541
Rental of Boats/Trailers/Campers/RVs	86	\$21.46	\$3,916,786
Sports, Recreation and Exercise Equipment	86	\$177.05	\$32,316,726
Exercise Equipment and Gear (including Game Tables)	86	\$54.10	\$9,874,005
Bicycles	87	\$29.58	\$5,398,395
Camping Equipment	90	\$21.23	\$3,875,931
Hunting and Fishing Equipment	87	\$48.02	\$8,764,926
Winter Sports Equipment	81	\$6.77	\$1,235,527
Water Sports Equipment	75	\$7.09	\$1,294,869
Other Sports Equipment	89	\$7.20	\$1,313,653
Rental/Repair of Sports/Recreation/Exercise Equipment	85	\$2.76	\$504,200

Note: not all subcategories of Entertainment/Recreation Fees and Admissions and Recreational Vehicles and Fees are listed in this table. Source: Esri Business Analyst, 2022.

BREC is the only park system in East Baton Rouge Parish. While household purchases of outdoor recreation equipment may be used outside the parish, it is likely that people are using easily accessible parks close to home most frequently.

Parks as an Economic Development Tool

In addition to driving tourism, BREC parks and facilities contribute to local economic development by making communities more attractive to new residents and businesses and an increasingly mobile workforce. Greenspace and natural areas help bolster the city's business community, create a sense of place, and can drive social connectedness. BREC parks and facilities increase residents' quality of life and offer many recreational opportunities and special events that are important generators of economic activity, attracting new investments into the region.

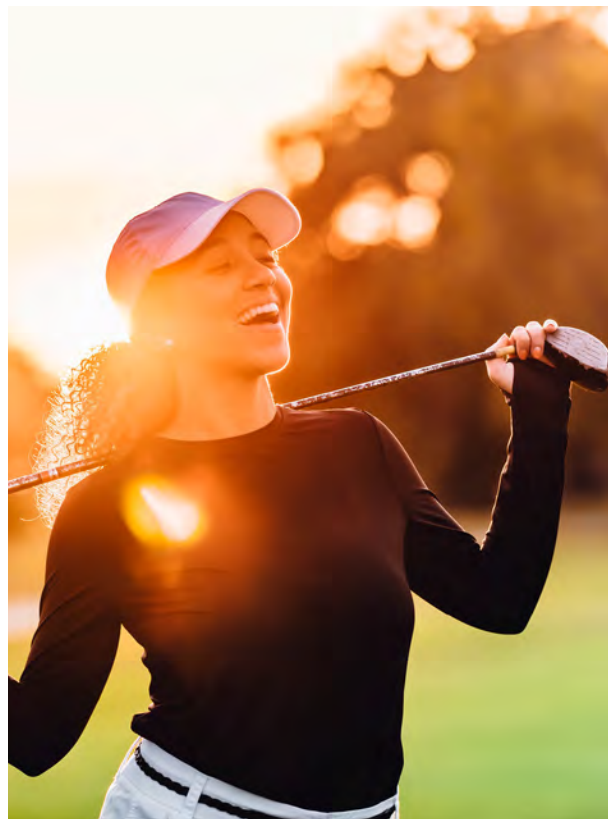
The American Planning Association City Parks Forum notes five ways that parks and green space can be used to drive economic development:

- Parks increase property values (see Enhanced Property Value section above)
- Municipal revenues are increased due to enhanced property values
- Affluent retirees are attracted and retained
- Knowledge workers and talent are attracted to live and work
- Homebuyers are attracted to purchase homes

Parks provide low-cost opportunities for recreation and health that increase the quality of life for residents.⁸⁹ Quality of life factors are increasingly important in attracting new residents, from retirees to homebuyers to knowledge workers. In the wake of the COVID-19 pandemic, increased rates of remote work give young workers and their families more flexibility in where they live and work. Workers looking for more affordable housing opportunities and a stronger work-life balance are attracted to “communities near natural amenities, where remote workers can take advantage of a higher quality of life, with more disposable income than in traditional business hubs.”⁹⁰ Recent research has found associations between higher quality of life and higher employment, population growth, and lower poverty rates, and that “it is more important than quality of the business environment in determining the success of micropolitan [i.e., smaller, urban] areas.”⁹¹

The Baton Rouge Area Chamber (BRAC) commissioned a 2021 study to better understand how white-collar professionals in key target areas perceive the Baton Rouge area. Many employees choose to locate here due to its high performance on quality of life factors, including access to the outdoors. In the study, on average 67 percent of people familiar with Baton Rouge rated its availability of outdoor activities such as hiking, biking, and hunting as favorable; outdoor recreation ranked third only behind the unique culture of Baton Rouge (74%) and the quality of its restaurants (73%).⁹² Similarly, in a study of Capital Region residents about living in Baton Rouge (also commissioned by BRAC), outdoor recreation had a significant impact on the perception of quality of life in the area, followed closely by arts and cultural opportunities and social community events.⁹³

BREC parks and facilities will continue to play a significant role in encouraging new residents to relocate to East Baton Rouge Parish because of the recreational value they offer.



Conclusion



This study illustrates that BREC parks and facilities provide award-winning recreation amenities and natural spaces for East Baton Rouge Parish that contribute millions of dollars annually in economic benefits. BREC parks increase the value of nearby residential properties by \$20.8 million, increasing annual property tax revenues by \$1.7 million each year.

BREC parks also provide access to nature and outdoor recreation to underserved communities, increasing residents' quality of life. Nature's benefits to people, or ecosystem services, provide millions of dollars in annual benefits to the community. By reducing runoff through infiltration, for example, natural areas in BREC parks provide a value of \$2,943,090 each year by reducing the burden on existing stormwater infrastructure. By removing air pollutants that negatively affect public and environmental health, the natural areas in BREC parks reduce health care costs and lower pollution control costs by \$52,305 each year.

BREC parks and facilities are a major economic driver in the parish, attracting visitors from around Louisiana and elsewhere in the United States for their award-winning parks, sports and recreation facilities, special events, and attractions like the Baton Rouge Zoo and Bluebonnet Swamp Nature Center. Visitors spend an estimated \$26,166,357 each year in the local economy, including on accommodations and lodging, restaurants, and retail.

East Baton Rouge Parish residents benefit from visiting BREC parks, trails, and facilities. People visited for many reasons: walking, running, swimming, biking, participating in team or water-based sports, visiting playgrounds and dog parks, viewing wildlife, or relaxing with friends and family. Each year residents of East Baton Rouge Parish receive a benefit of \$279,500,000 for the direct use of these park facilities. An estimated 5,868 adult parish residents engage in physical activity at a level that reduces health care costs, yielding an avoided healthcare cost of \$8,000,000 each year.

Understanding the value of the park system is important in decision making processes and communication efforts. Urban analysts, park planners, economic development professionals, and regional decision-makers can communicate in dollar terms how parks benefit the city's residents. Health advocates, business leaders, policymakers, and other regional constituencies may strategically use the dollar values to acquire parkland, support and maintain existing parks, and find new allies in park advocates.

APPENDIX

Total Visitors to BREC's Staffed Facilities and Parks (2022)

Location	Where are visitors coming from?					Total Visitors
	In Parish	In Metro, Out of Parish	In State, Out of Metro	Out of State	International	
Parks						
Community Parks*	139,968	23,054	1,647			164,668
Neighborhood Parks**	456,742	75,228	5,373			537,343
Conservation Areas***	6,569	1,082	77			7,728
Facilities						
Baton Rouge Zoo	72046	61546	32557	21305		187,454
Knock Knock Children's Museum	49657	17287	19690	7015	22	93,671
Liberty Lagoon	16287	7965	26084	2761		53,097
Baton Rouge Gallery						12,992
Sports						
Golf	90217	56189	392	17847		164,645
Burbank Soccer Complex	9016	1717	241	11		10,985
Tennis	69,797	13,292	1,863	88		85,041
Aquatics						2,090
Athletics (Including Memorial Sports Complex, Harley-Vey Park at Oak Villa, Sports Academy, Kathy Drive, North 14th, Central Sports Complex, and Olympia Stadium)						191,780
CORE Programs						
Bluebonnet Swamp	13,479	11,514	6,091	3,986		35,070
Additional CORE Programs (Including Extreme Sports, Outdoor Adventure, and Conservation Programs; Excluding Bluebonnet Swamp)						71,982

Special Use Programs						
Farr Park						20,187
Magnolia Mound	1542	1317	697	456		4,012
Independence Theatre						40,347
Additional Special Use Programs (Includes Highland Observatory, Highland Road Pavilion, Airline Hwy, BREC Art Programs; Excludes Farr Park, Magnolia Mound, and Independence Theatre)						51,814
Total Visitors to Staffed Facilities and Parks (2022)	925,319	270,191	94,713	53,469	22	1,734,906

For all parks, the origin of visitors was conservatively estimated based on available data from Feigley Communications and other BREC facilities.

- * BREC reported monthly attendance across all Community Parks.
- ** BREC attendance reports provided specific data on a subset of Neighborhood Parks: there are 39 non-community parks where attendance is taken. The visitation estimates of this subset of parks was conservatively extrapolated to all neighborhood parks based on
- *** Visitation to Conservation Areas was estimated based on anonymized cell phone data collected by Feigley Communications. Their research tracked engagement with an online advertisement by people located near these areas, and is understood to be a lower-bound estimate of visitation to all Conservation Areas.

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