

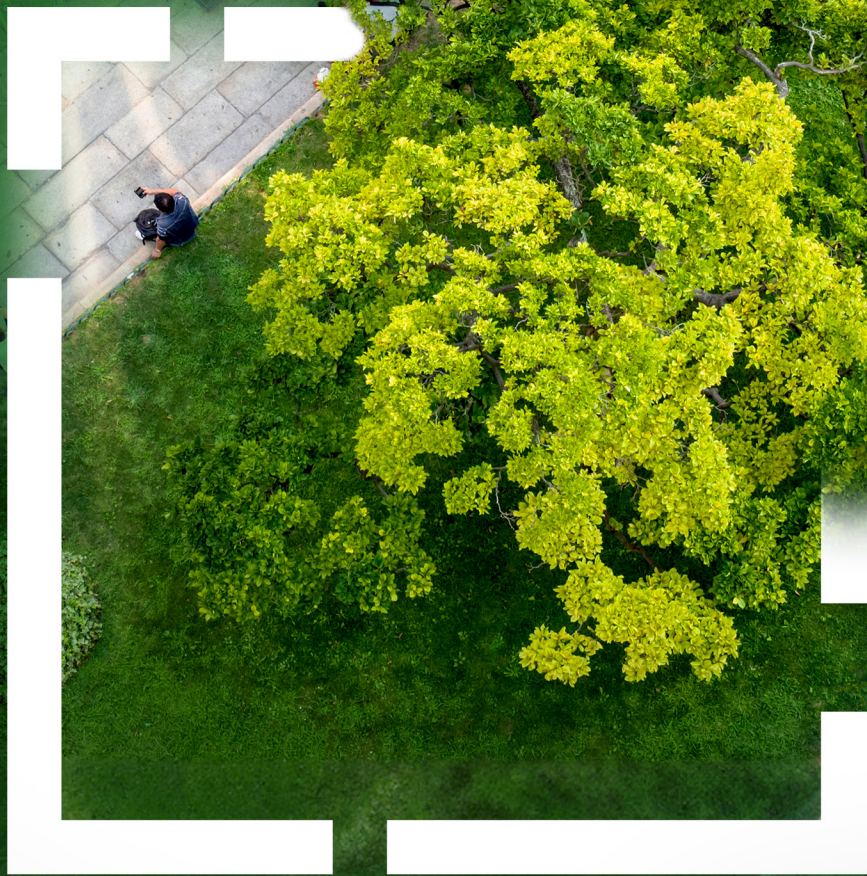


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Planning Parks and Recreation for the Next Generation

Blazing a Trail to Smart Parks with GIS



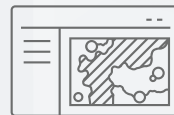
Introduction

Park and recreation professionals take care of our parks so that they can take care of us. Parks are a core component of healthy, vibrant communities. From small urban parks with recreational facilities and picnic areas to large natural landscapes with backcountry camping, trails, and cabins, parks contribute to the health and well-being of their surrounding communities and boost their economies. Regardless of the type of park or its size, park and recreation management is a location-based business.

Geographic information system (GIS) technology is a mission-critical tool for understanding all park operations across your entire community—equitable distribution of services, planning and design, effective operations, and even strategies to leverage parks for climate adaptation. GIS is the enterprise IT business system that gives your park management staff the geospatial advantage.

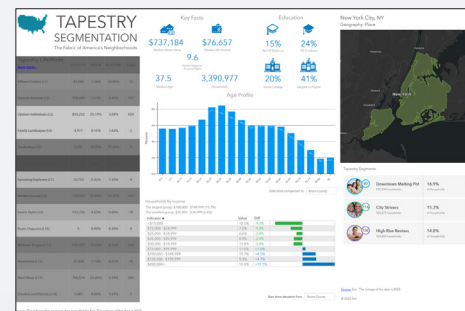
Explore how park and recreation professionals apply GIS to the following:

- Planning and design
- Smart operations
- Education and outreach
- Community health and well-being
- Equity
- Climate resilience



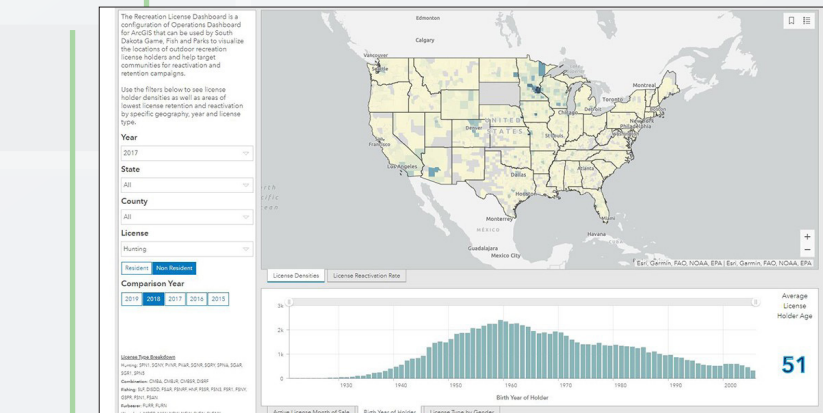
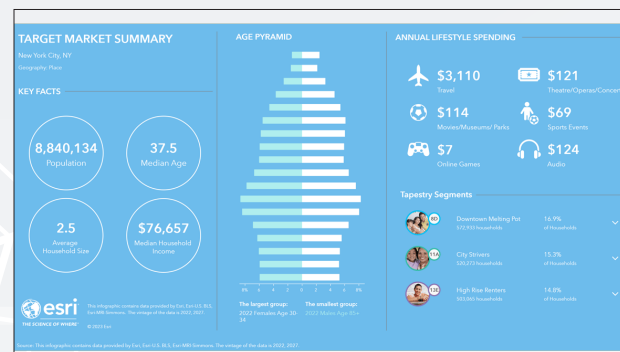
Advancing Parks and Recreation with GIS

Purposeful Park and Recreation Planning—
Ensuring Safe and Easy Access for All

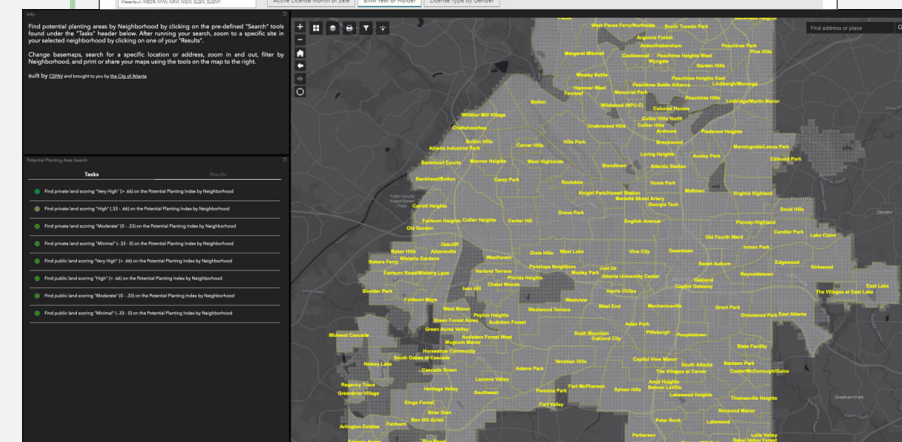


New York City –
Tapestry Segmentation for market and park customer analysis.

New York City –
ArcGIS® Business Analyst report reveals facts about New Yorkers.

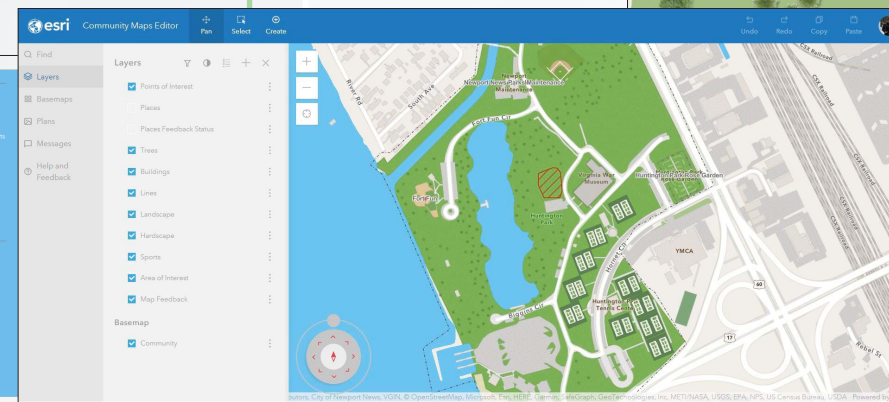


South Dakota –
Recreation Outreach Dashboard to visualize the locations of outdoor recreation license holders.



Atlanta, GA –
Interactive map underscores the importance of the city of Atlanta's 2,600 acres of public lands and 16,000 acres of private lands that have high planting potential.

Rancho Cucamonga, CA –
Parks Locator App assists frontline staff by providing community accurate recreation information.



Newport News, VA –
Community Maps Editor digitizes over 4,000 park amenities.

Planning and Design

Identify gaps in parks accessibility.



Parks are increasingly recognized as serving multiple functions for their communities, giving park agencies new opportunities to collaborate with other departments for new and innovative designs. Increasingly, parks are designed to help manage stormwater, address historical inequities, harmonize with the character of the community, help mitigate climate hazards, and protect natural and cultural resources.

GIS allows park departments to design beautiful parks with these complex needs in mind. GIS allows you to create digital twins, providing a palette to visualize multiple data sources, compare design options in 3D, and test them against predictive models to ensure that they remain resilient during high-impact events before you ever put a shovel in the ground.

Park and recreation professionals use GIS to:

- Design high-functioning multiuse parks.
- Ensure accessible and equitable park designs.
- Integrate real-time and up-to-date data to enhance park designs.
- Model impact scenarios on current or future park plans.
- Ensure that designs protect and preserve natural and cultural resources.
- Visualize park plans in 3D for stakeholder and public engagement.
- Understand the demographics of an agency's service area.

Washington State Maps Recreation Inventory

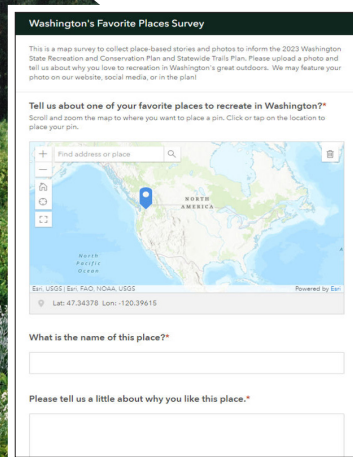
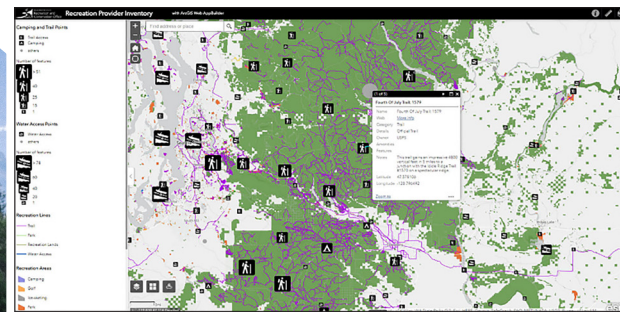
Every five years, the Washington State Recreation and Conservation Office (RCO) collaborates with recreation partners to complete a statewide comprehensive outdoor recreation plan (SCORP). The plan is used to protect, enhance, and conserve public outdoor spaces.

Leveraging ArcGIS® Hub, RCO developed a hub site to consolidate information about the state's recreation areas. The hub site includes maps that display points of interest and opportunities for outdoor recreation; feedback from residents surveyed about what they want to see in recreational spaces; inventory of public lands and recreation facilities; and dashboards that monitor service quality and distribution.

Adopting a geographic approach enabled RCO to increase public engagement twofold, compared to a previous effort by the office to gather survey responses.

RCO used ArcGIS Hub to prepare and host the latest statewide comprehensive outdoor recreation plan.

The SCORP hub site includes the Public Lands Inventory, a searchable, interactive map and dashboard. It displays all recreation and conservation lands owned by cities, counties, and state and federal agencies.



Smart Operations

Optimize park operations for efficient asset management.



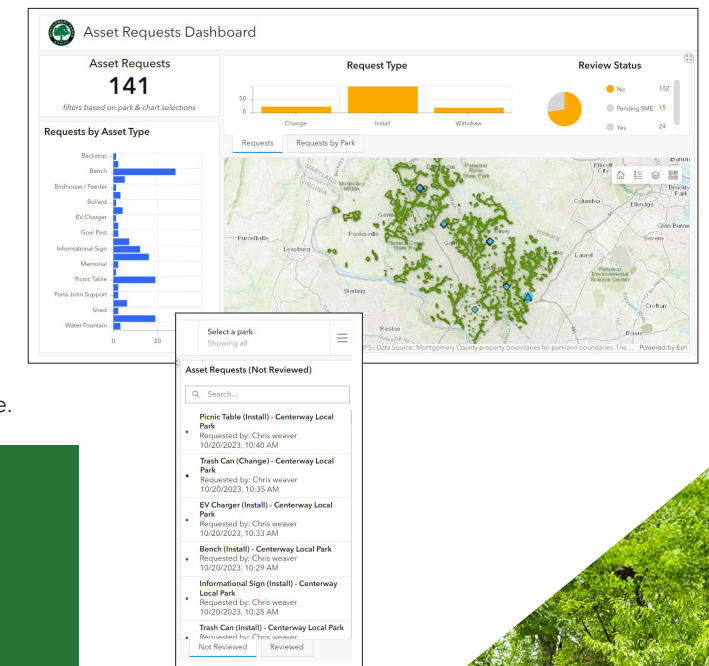
With smart operations powered by GIS, park and recreation professionals experience new efficiencies, more proactively manage their assets, and deliver a higher level of service. GIS transforms operations and maintenance activities into real-time streams of information used to establish more accurate situational awareness for better, data-driven decision-making.

GIS can integrate with other mission-critical enterprise systems—including work order and asset management, finance, sensor network, and customer service systems—to provide a comprehensive, up-to-date view of your operations in a geographic context. This holistic view includes incorporating artificial intelligence for better preventative maintenance and automated data collection and analysis.

Park and recreation professionals use GIS to:

- Enable a holistic and proactive approach to real-time, sustainable park and recreation asset life cycle management.
- Improve levels of service to the public by decreasing response time for service requests.
- Provide digital maps and apps to mobile workers and other stakeholders for improved outdoor work efficiency, accountability, and safety.
- Automate workflows and increase insight through artificial intelligence for predictive maintenance of park and recreation assets.
- Analyze asset distributions across the park service area for equity considerations like assets' age, equipment type, and use.

Asset Requests Dashboard provides a centralized view of which assets have and have not been reviewed.



Montgomery County Streamlines Park Operations with GIS

In Maryland, Montgomery County boasts a complex park system that includes 419 parks across 38,000 acres. These parks include campsites, facilities, and trails—complex infrastructure that requires inventory, oversight, and maintenance.

To manage these park assets and amenities, Montgomery County has turned to GIS. Data collection on park assets and their attributes is achieved using ArcGIS Survey123 and ArcGIS Field Maps. ArcGIS Instant Apps facilitate review and collaboration across all park operations staff, including engineers, asset inspectors, and more.

GIS allows them to maintain quality control of information while scaling their ability to collect information and communicate. With GIS, parks staff can contribute to park asset inventory and management, and request changes to asset information whenever and wherever.



Education and Outreach

Better understand trends and target outreach.



GIS helps recreation managers understand recreation trends, tailor educational content to their audience, conduct outreach efforts, and facilitate engagement around priority initiatives. With GIS, park and recreation organizations can—in the field or from a desktop—easily collect pertinent information about resources or gather feedback from recreationists. These same tools can be used by the public to participate in park initiatives.

Engage citizens with their natural and cultural resources through digital interactive maps, enhanced with greater context from text, videos, and other media. Expand the capabilities of volunteers and citizen scientists by sharing powerful capabilities and tools for key initiatives.

Park and recreation professionals use GIS to:

- Identify community characteristics to better refine and target outreach efforts for new and existing audiences.
- Provide tools to crowdsource valuable information on park features and proposed projects.
- Enhance the visitor experience through enriched digital storytelling.
- Employ powerful field apps to expand volunteer efforts.

The city's Volunteer Escondido website tracks the success of volunteer projects, including the number of events hosted, volunteers who participated, and hours contributed.

City of Escondido Volunteer/Intern Application

ESCONDIDO
City of Choice

Welcome to the City of Escondido Volunteer Application. The form will be submitted to City staff, who will then review your application and reach out to arrange an interview.

If you have any questions, please email the [Volunteer Coordinator](#)

Applicant Information

Is your volunteer request for court-ordered community service?*

Yes No

Submit Page 1 of 1

Escondido Saves Millions with Smart Volunteer Outreach

The City of Escondido was looking to host a 50-kilometer trail race through the beautiful 3,000-acre conservation area Daley Ranch. However, the trails were unfit for use, so staff needed to enlist the help of community volunteers to help fill erosion areas and cut back brush that impeded travel on the trail.

Previous volunteer outreach efforts involved six different forms and required volunteers to physically go to city hall to turn them in. This time, the city turned to ArcGIS Hub, creating a website to recruit volunteers in preparation of this event and eliminate the pen-and-paper processes. Volunteers could go on the website and visualize what tasks needed to be completed for the project on any given day.

Using ArcGIS Hub, the city secured the talent and time of over 1,500 volunteers, whose donated 60,000 hours of community service resulted in a cost avoidance of \$1.5 million.

Community Health and Well-Being

Enhance quality of life and encourage community camaraderie.



Park and recreation facilities boost the health of their associated communities physically, economically, and environmentally. Ensuring that our parks are well-maintained and provide equitable recreation experiences for people of diverse lifestyles and interests, in a safe setting, is critical.

GIS allows park operations to ensure that recreational assets are maintained, identify gaps in recreational resources, and balance the protection of natural and cultural resources against park development and infrastructure.

Park and recreation professionals use GIS to:

- Provide a resource for communities to locate places for recreation.
- Ensure safe and appropriate recreation experiences for all community members.
- Identify which communities are underserved by parks and outdoor spaces.
- Protect natural and cultural resources while providing rich recreational experiences for visitors.
- Understand the community health profile and demographics to guide policy and decision-making.

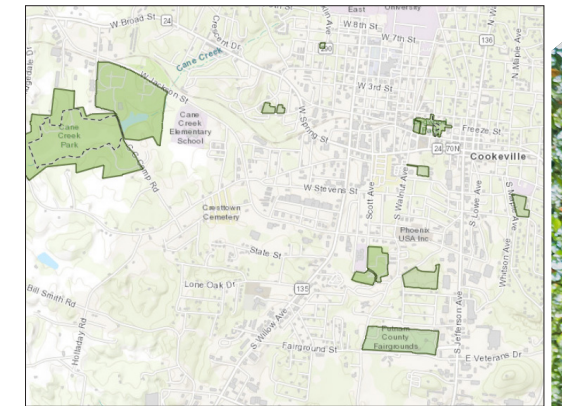
Tennessee Uses Federal Funding to Deliver a GIS-Based Recreation Hub

The Tennessee Department of Health had an idea: provide a GIS-based hub site where doctors could query a database of trails and prescribe exercise to patients based on their needs, accessibility, and physical abilities. While Tennessee boasts incredible outdoor recreation opportunities, it can be difficult to know where to go or to get details on the different parks, trails, and greenways.

Although the department had the idea years before the COVID-19 pandemic, the health crisis brought about a more urgent need to provide this recreation database to help address the risk factors for COVID-19 hospitalizations, such as obesity and heart disease. Parks and outdoor spaces were also a lifeline for people during the pandemic, giving them a way to stay active and support their mental health.

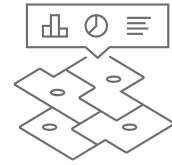
Securing funding through the Centers for Disease Control and Prevention's (CDC) National Initiative to Address COVID-19 Health Disparities Among Populations at High-Risk and Underserved, Including Racial and Ethnic Minority Populations and Rural Communities, the department collaborated with Tennessee Strategic Technology Solutions to create the Trails Recreation Environment Community (TREC) hub site. This site, created using ArcGIS Hub, helps the state mobilize resources to increase access to outdoor recreation, promote the health benefits, and identify underserved areas.

The Tennessee Trails Recreation Environment Community (TREC) hub site was many years in the making, mainly due to the lack of funding. A silver lining of the COVID-19 pandemic was that it led to the federal funding Tennessee needed to execute this GIS-based project.



Equity

Ensure equitable access for all.



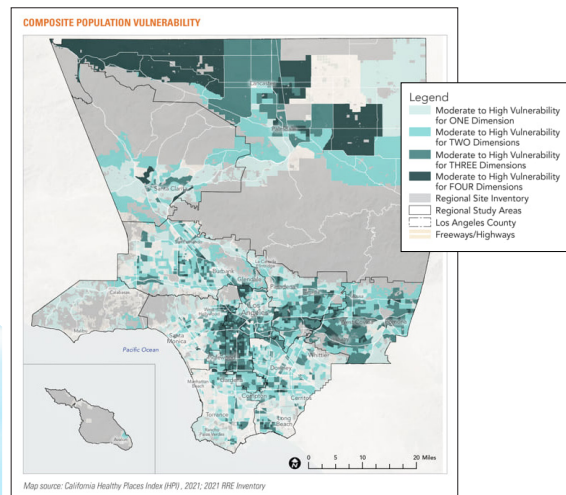
Park and recreation professionals strive for a future where everyone has fair access to quality recreational opportunities in their communities. Location is critical for understanding where to prioritize resources and change policy to make the most significant impact.

GIS is the foundational technology that allows organizations to quickly understand where inequities are, how they are impacting the community, and how to act on them. Leveraging emerging technology and maps can help overcome the complex fundamental issues that park and recreation professionals face.

Park and recreation professionals use GIS to:

- Measure and locate areas that pose accessibility concerns.
- Identify patterns of inequities to establish priorities and change policy.
- Prioritize funds and resources in at-risk areas across the community.
- Develop benchmarks and indexes to monitor progress conditions.
- Integrate accountability and transparency tools that inform community members.
- Understand the demographics of customers.

The PNA+ report focused on population vulnerability, going beyond population density to ensure that everyone in Los Angeles County has access to nature and recreational facilities. (Map courtesy of LA County Department of Parks and Recreation and MIG).



Los Angeles County Maps Equitable Access to Nature

Los Angeles County performed a needs assessment using GIS technology to map existing facilities and identify demand for parks in communities countywide. Staff found that Los Angeles has the least amount of accessible park space among major metropolitan areas in the United States, with the worst access to parks in communities of color.

The analysis of park equity helped fuel the passage of Measure A, resulting in a tax on property improvements that now funds park improvement and development projects into perpetuity. Measure A mandates that dedicated funding be set aside and allocated to areas with high/very high need.

The pioneering work now has a follow-on focus to review the needs of rural communities, look at park needs regionally, and identify priority areas to conserve and restore land for parks and open space. The county's final report, the Parks and Needs Assessment Plus (PNA+), analyzes and maps land conservation, rural recreational needs, and restoration priorities along with transit options to parks.

Climate Resilience

Revolutionize resilient parks and facilities.



Parks and open space are among the best tools communities have to combat climate hazards. As parks continue to play multifunctional roles in our communities, departments must increasingly collaborate to ensure that their communities are leveraging these assets to their fullest. Parks play a role in combating heat, help manage stormwater runoff, buffer communities from extreme weather events, sequester carbon emissions, and provide habitat for biodiversity. GIS allows park planners to understand where climate hazards are presenting the greatest threat, determine who is most at risk, and design park scenarios that tackle the right problems in the right areas.

Park and recreation professionals use GIS to:

- Leverage authoritative datasets such as climate, demographic, and economic variables for local needs.
- Prioritize park planning by weighing climate hazards and community characteristics for the most positive outcomes.
- Ensure that green infrastructure features perform at their highest potential before storms test them.
- Map trees to understand tree canopy density and perform gap analysis.

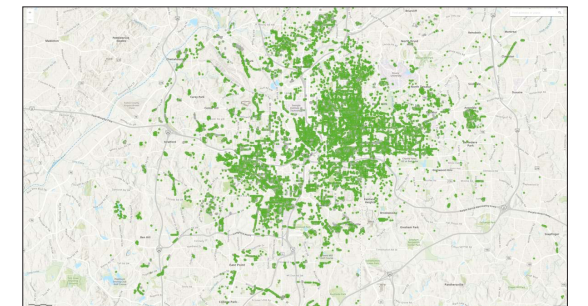
Atlanta Uses Maps to Protect Trees and Reduce Climate Impacts

The US Forest Service has identified Georgia as having the fastest urban tree loss in the nation. Trees Atlanta works to mitigate Atlanta's tree loss and increase downtown tree canopy through planting, education, and conservation. The nonprofit organization uses GIS to record, map, and track its work to safeguard the city's reputation for being a "city in a forest," with its 48 percent tree canopy coverage.

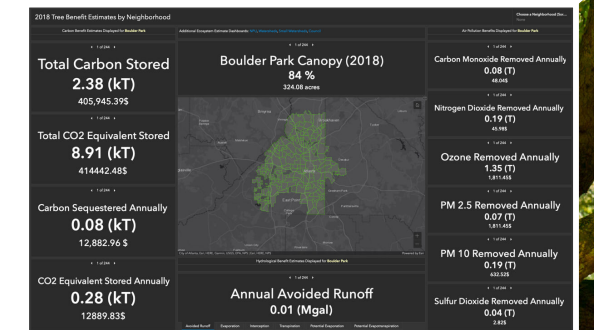
Implementing GIS enabled the Trees Atlanta team to get a full picture of its work in each neighborhood, tracking each step along the way. Coordinators use ArcGIS to plan and prioritize planting projects, while mobile workers use GIS apps to navigate and track where they need to prune and water trees, as well as where to treat trees that may be infested with pests. GIS data collection tools provide mobile workers a place to track their hours, and GIS dashboards show them the acres of trees they have conserved.

Trees Atlanta has planted and cared for over 150,000 trees. In order to determine which trees to plant and where to plant them, the organization uses information from the US Department of Agriculture (USDA) Plant Hardiness Zone map. This information helps determine which trees will have the most adaptability. Analysis of the forest's benefits is guiding decision-making as the climate continues to change.

Trees Atlanta has planted and cared for more than 150,000 trees, which are shown on this tree inventory map.



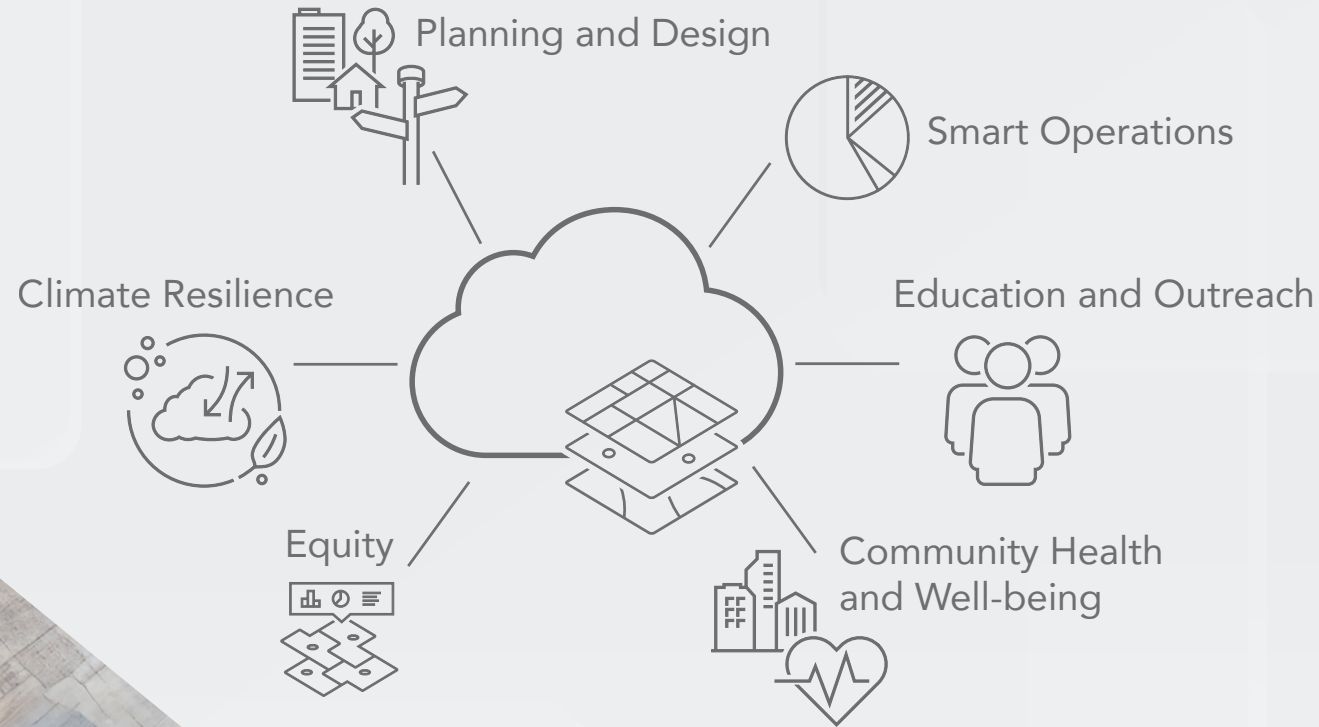
The Tree Benefit dashboard displays Atlanta's 244 neighborhoods and the benefits of their tree canopy, including decreases in carbon emissions, annual stormwater runoff, and air pollution.



GIS Tools and Solutions to Get Started

An Enterprise GIS Platform for Parks and Recreation

Esri's ArcGIS is a comprehensive GIS, complete with flexible licensing and deployment options, a suite of ready-to-use apps, authoritative data, developer tools, a vibrant user community, and robust training and technical support options to fully equip your organization.



ArcGIS Solutions for Parks and Recreation

Esri provides hundreds of industry-specific solutions to help you easily get started and maximize your investment in location-based technology. Use these focused maps and apps to optimize workflows and make data-driven decisions.

Here are just a few of the most commonly used solutions for parks and recreation.

Parks and Grounds Management

Inventory assets, understand asset condition, and communicate changing asset conditions that impact services.

Recreation Outreach

Increase participation in outdoor activities and understand recreation license trends.

Capital Project Tracking

Manage an active project portfolio, communicate project status, and share project updates with internal and external stakeholders.

Tree Management

Create an inventory of publicly owned trees, streamline inspection and maintenance activities, understand conditions, cultivate a volunteer workforce, and inform the public.

Social Equity Analysis

Understand community conditions, analyze demographic data, and communicate racial equity initiatives.

Connect with Us

Connect with an Esri expert to explore how GIS can support your parks and recreation organization's mission and goals.



Learn more at go.esri.com/GISforParks.



Services

Esri provides a global network of GIS experts who offer professional, training, and support services, and serve as trusted advisers as you work to reach your smart parks and recreation goals.



Partners

Discover a global ecosystem of partners that can help you maximize your GIS investment. Many partners provide specific tools and expertise that can help guide you on your path to developing smart parks and recreation programs.



Esri, the global market leader in geographic information system (GIS) software, location intelligence, and mapping, helps customers unlock the full potential of data to improve operational and business results.

Founded in 1969 in Redlands, California, USA, Esri software is deployed in hundreds of thousands of organizations globally, including Fortune 500 companies, government agencies, nonprofit institutions, and universities.

Esri has regional offices, international distributors, and partners providing local support in over 100 countries on six continents. With its pioneering commitment to geospatial technology and analytics, Esri engineers the most innovative solutions that leverage a geographic approach to solving some of the world's most complex problems by placing them in the crucial context of location.

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