

Memorandum

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From: Mary Burkholder, Associate Principal

Date: November 12, 2020

Subject: Economic Benefits of Parks, Open Space, and Trails

Introduction

At the direction of the Annapolis Department of Zoning, BAE Urban Economics conducted a literature review on the topic of the economic benefits of parks, open space and trails. In addition, BAE identified three case studies of cities that share some common characteristics with the City of Annapolis to illustrate approaches other cities have taken to improve or expand parks, open space, and trails. These case studies may provide some valuable lessons to Annapolis on this topic. This report adds a different perspective to the discussion of future land uses that is part of the Comprehensive Plan Update, and whether the allocation of land for parks, open space, and trails potentially contributes positively to the City's financial position.

Key Findings from Literature – Identified Economic Benefits

In the last 20 years, dozens of books, articles, and reports have been published on the topic of the economic benefits of parks, open space, and trails. The authors of these publications includes members of academia, as well as representatives of parks and open space advocacy organizations, and foundations with a mission to preserve and expand parks, open space and recreational opportunities.

From the literature reviewed, a list of which is included at the end of this report, BAE identifies five economic benefits of parks, open space, and trails that are applicable at some level to Annapolis. These include:

1. Increasing property values
2. Serving as economic development tools
3. Reducing cost of municipal services and providing ecosystem services

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4. Improving quality of life and attractiveness of community
5. Improving the health of local residents

While it is clear that some of these more directly result in financial benefit to the City (e.g., increased property values), the others have indirect or induced positive economic impact. Included below is a description of each of these benefits, with examples from the literature that illustrate the potential economic benefit.

- 1. Increasing property values** – There is a significant amount of literature on the positive impact on parks, open space, and trails on property values. The academicians who have written the most frequently cited articles on this topic are John L. Crompton of Texas A & M University and the combination of Soren T. Anderson of the University of Michigan and Sarah E. West of Macalester College. In a 2005 article in the journal *Managing Leisure*, Crompton reviews current research from the past two decades using “advanced analytical procedures,” suggesting there is a positive impact of 20 percent on the value of property that abuts or fronts a passive park (Crompton, 2005). In this article he discusses several examples of places where assessed value of residential property is positively affected by proximity to a park, especially when the property is located 600 feet or less from the park. One example used in the article is the impact on the price of homes in neighborhoods located near Barton Creek Greenbelt and Wilderness Area in Austin, Texas. This example shows that in one neighborhood, Barton, there was a \$44,000 or 20 percent adjacency premium on homes located next to the greenbelt. In his writings, Crompton refers to this as the “proximate principle,” the notion that parks and open space have a positive impact on proximate property values. (Crompton, 2005)

In the 2005 article, Crompton cites a study of the impact of 14 neighborhood parks ranging from 0.3 to 7.3 acres in size on home prices in suburban areas in Dallas-Fort Worth metro area. As shown in Figure 1, homes adjacent to parks had a price premium of 22 percent versus homes a half-mile away. Approximately 75 – 85 percent of the value associated with parks occurs within 800 feet of the park. That distance is about a two to three minute walk from a park (Crompton, 2005).

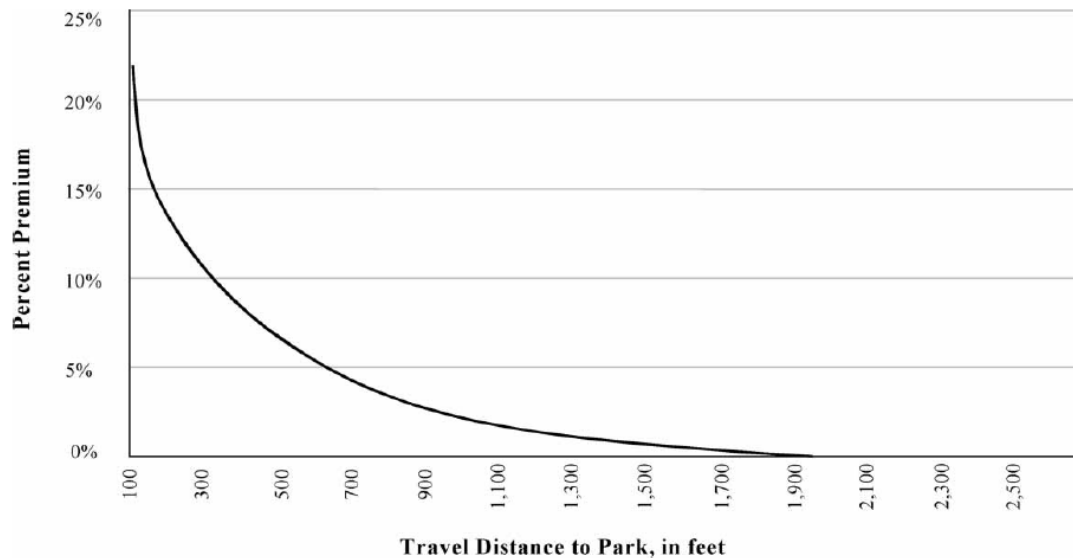


Figure 1 Impact of proximity to parks (14 neighborhood parks, Dallas Fort-Worth Metroplex)

Similarly, Anderson and West, in an article that appeared in *Regional Science & Urban Economics* in 2006, document a positive effect of open space on residential property values (Anderson & West, 2006). Using what is known as hedonic analysis, a preference method for estimating the demand for a good, the authors note in the article that the positive effect on home prices is especially true if the property is near a preserved open space as opposed to a developable open space. They also note that the effect of open space on sales price “depends on home’s location and neighborhood characteristics.” According to Anderson & West, urban residents value proximity to open space more than suburban residents (Anderson & West, 2006). In Annapolis, this would likely to apply to some of the older, more urban areas with small front setbacks including the Historic District, Murray Hill and much of Eastport. Higher sales prices lead to higher property tax assessments and additional property tax revenue for the City.

- 2. Serving as economic development tools** – Parks, open space, and trails can be important tools for economic development. These amenities can enhance both community curb appeal and quality of life which can help drive site location decisions by businesses. Furthermore, those quality of life factors can help attract and retain talented workers. Being able to attract a strong workforce is especially important to companies in technology and creative industries that prioritize talent attraction.

One case study that demonstrates the importance of parks in the site location process is Boeing’s 2001 decision to locate its new headquarters in Chicago over Dallas. Though Dallas competed well on several factors, Boeing officials cited Chicago’s

quality of life, including “recreation opportunities” in its decision. According to a 2003 Trust for Public Land report entitled *The Benefits of Parks*, Boeing’s decision led Dallas leaders to the conclusion that the city needed more downtown park space to improve its competitive position for attracting business (Sherer, 2003).

In fact, site selectors look for investments in parks and public spaces as evidence of civic investment and community engagement that would serve businesses well. According to a survey conducted by the George Mason University Center of Regional Analysis as part of 2018 study on the role of parks and recreation in economic development, two site selectors noted that Greenville, South Carolina, now home to several foreign automobile manufacturing operations, was widely recognized for “decades-long investments that it made in downtown parks and public spaces” (GMU Center for Regional Analysis, 2018).

Parks, open space, and trails are also recognized as quality of life amenities for workers, too. Portland, Oregon with ample parks and trails in the city and many recreational opportunities just a short drive away, has been able to attract a skilled workforce for its knowledge industry. Hewlett-Packard, Intel, and Hyundai made major investments in Portland in the last 20 years, and have been able to attract workers drawn to the area for its quality of life (Sherer, 2006).

It is also important to note that in addition to larger companies and site location consultants, small business owners, entrepreneurs, and now a growing group of telecommuters, also look at quality of life amenities including parks, open, and trails when they decide where they should locate. These businesspeople are focused less on where they want to locate their business, but where specifically they want to live. While many small business owners and entrepreneurs will keep their businesses small, some will grow and will hire additional employees over time.

Without question, economic development agencies are cognizant of the appeal of park and recreation assets. According to the GMU Center of Regional Analysis study a review of marketing materials from 133 different communities of various sizes from around the country finds that 72 percent of communities use images of parks and public spaces, area outdoor amenities (e.g., waterways, trails, mountains, etc.) or recreational and cultural facilities, in their economic development marketing materials (GMU Center for Regional Analysis, 2018). Additionally, 70 percent of these communities specifically reference quality of life amenities or present parks-related data/information (e.g., number of parks, acreage of park lands, miles of bike trails, etc.) in their marketing materials used for business attraction (GMU Center for Regional Analysis, 2018).

As Annapolis considers how it could promote its parks, open space, and trails for economic development, it might consider better integration of all of its parks and recreational facilities including Truxtun Park, the Waterworks Park, and even the smaller parks like Acton's Cove Waterfront Park in Murray Hill. (The latter park is frequently shown as an image in real estate advertisements for nearby homes.) Planners should also recognize that Quiet Waters Park, located just outside the City line near the intersection of Bay Ridge Avenue and Forest Drive and managed by the Anne Arundel County Department of Parks and Recreation, can be considered part of the City's park inventory. This 340-acre park offers open space, trails, community meeting facilities, an amphitheater for outdoor concerts, a dog park, and opportunities for canoeing and kayaking on Harness Creek. Additionally, last fall, Anne Arundel County agreed to purchase another 19 acres of waterfront adjacent to the current park, making Quiet Waters the largest park by far in the County.

- 3. Reducing cost of municipal services and providing ecosystem services** – Though this benefit falls under the category of indirect or induced economic benefits, greenspace, whether parks, trails or open space, can potentially reduce the cost of some municipal services. In the literature, examples of cost reductions are mostly focused on environmental benefits that have measurable economic value. For example, the services provided by trees, which help to sequester carbon and remove air pollution. A study conducted by the U.S. Forest Service calculated that over a 50-year lifetime one tree generates \$31,250 worth of oxygen, \$62,000 worth of air pollution control, recycles \$37,500 worth of water, and controls 31,250 worth of soil erosion (U.S. Department of Agriculture, Forest Service, 2002).

Trees also act as filters for water pollution, which is directly relevant to Annapolis, with its 17 miles of waterfront along the Chesapeake Bay and its tributaries. The leaves, trunks, roots and soil around trees remove polluted particulate matter before it is washed into storm sewers. Trees also absorb human activity nutrients including nitrogen, phosphorous, and potassium, which would otherwise pollute the Severn River and the City's creeks (Beattie et al., 2000).

In fact, the role of greenspace in controlling stormwater runoff is probably the most tangible example of environmental and economic benefits for Annapolis. The greenspace more effectively and less expensively manages the flow of stormwater runoff than concrete sewers. Runoff problems do occur in the City when there is heavy rainfall or a storm event. Like many cities, Annapolis has a significant amount of impervious surfaces, including roads, sidewalks, parking lots, and rooftops, which prevent water from soaking into the ground. Though it may be challenging to estimate the savings earned for having more trees and greenspace in the City, there is little doubt that doing so would help to build a less expensive stormwater management system going forward (Beattie et al., 2000).

- 4. Improving quality of life and attractiveness of community** – Though this benefit is related to benefit #2 above, which stresses the importance of parks, open space, and trails for being able to attract and retain businesses, this is more about attracting and retaining a diverse set of residents. It can be argued that having a significant amount of parks, open space, and trails in a city is an important piece of the overall appeal of the city for potential residents. Indeed, this is related to the concept of placemaking which, according to the Congress of New Urbanism, is “the process of creating quality places that people want to live, work, play, and learn.”

A city that offers a diverse set of both urban and recreational amenities, including parks, trails, and open spaces, has a good chance of being appealing to people of all ages, from millennials to seniors, living in different types of households. Household types include singles, unrelated roommates, couples without children, families of different types, empty nesters, and others. It is easy to see that each of these groups of people and household types would appreciate and likely use parks, trails, and open space.

Though certainly Annapolis is a long-established place, what a city represents and who it attracts can change over time and a close look at demographic trends reveals Annapolis has changed. Despite being mostly developed out and being physically constrained, mainly by waterways, Annapolis continues to grow. The City has a distinct identity in the metro area because it is a small historic city, with a real downtown, charming neighborhoods, and waterfrontage in both commercial and residential areas. It is commutable to Washington, Baltimore, and large employment centers in-between (i.e., Fort Meade, Columbia, etc.), but a comfortable distance away from beltway congestion.

The parks, open space, and trails that exist and are being considered as land uses in Comprehensive Plan update, contribute to the City’s appeal. If the city grows incrementally with a diverse set of new residents who enjoy Annapolis’ set of amenities, it has the potential to create what is known as a virtuous cycle of spending and tax revenues that will help support new amenity infrastructure. In addition to full-time residents and visitors, Annapolis has also attracted second home buyers and retirees who help to bolster the housing market and the property tax base. The expansion of parks and open space, even on small lots in the various neighborhoods of Annapolis, strengthens the City’s appeal and ultimately helps to maintain a resilient, stable local economy.

- 5. Improving the health of local residents** – The economic benefit of good health due to access to and use of parks, trails and open space extends broadly across the population of an area. The primary economic benefits are cost savings for individuals

that allow them to spend dollars in the local economy rather than for treatment of medical issues brought on by physical conditions that are exacerbated by inactivity.

The recognized health benefits of parks, open space and trails include:

- *Encouraging physical activity.* When people have access to parks and trails, they exercise more. According to a 2013 study conducted by the RAND Corporation for the National Institutes of Health, approximately 14 percent of moderate exercise and 50 percent of vigorous exercise deemed “heart healthy” takes place in nearby neighborhood parks (Han et al, 2013).
- *Helping to combat chronic disease and conditions leading to it.* Regular physical activity that occurs at parks and on trails helps to:
 - Reduce risk of cardiovascular disease
 - Reduce risk of type 2 diabetes
 - Reduce risk of certain types of cancer
 - Improve mental health
 - Increase life expectancy (CDC, 1996)
- *Through physical activity, helping to reduce levels of obesity.* According to data from the Centers for Disease Control and the Trust for America’s Health, as shown in Figure 2, the adult obesity rate in the United States as of 2019 is 42.4 percent, up 26 percent since 2008. The obesity rate for young people (ages two to 19) is 19.3 percent. In the mid-1970s, the childhood obesity rate was 5.5 percent (Warren & Beck, 2020). As discussed above, ready access to parks and trails increases the likelihood of use of recreational amenities, increased physical activity and by extension, obesity.

Percent of Adults and Youth with Obesity, 1988–2018

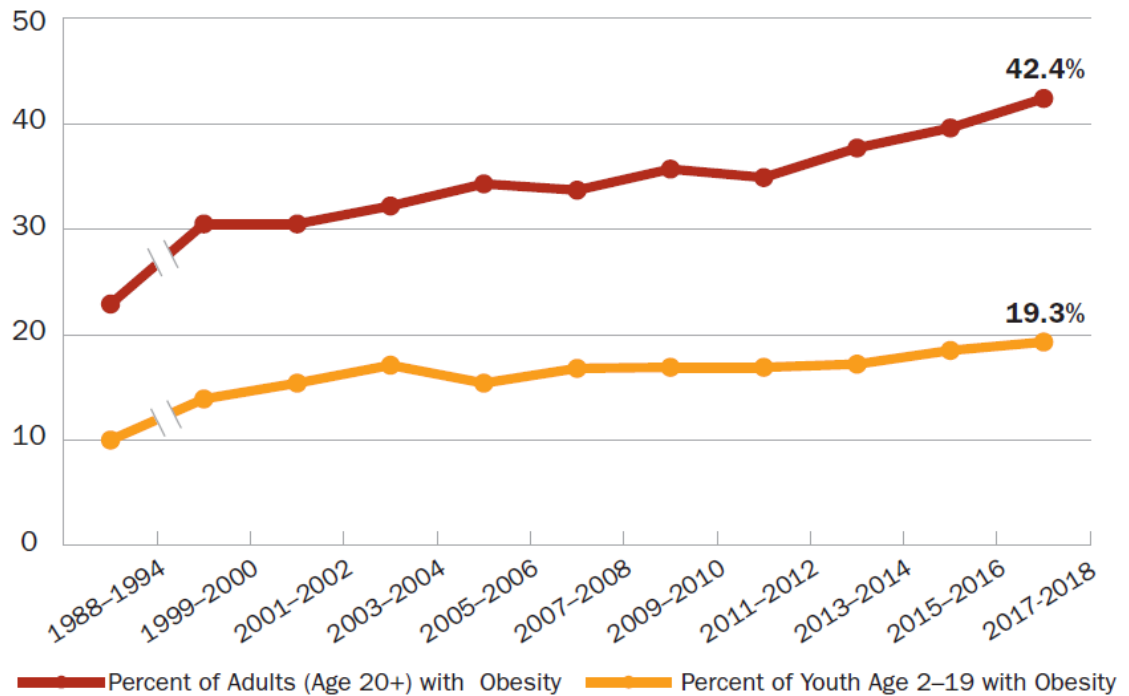


Figure 2: Obesity in Adults and Youth 1988-2018
 Source: Trust for America's Health, 2020

- Improving both physical and psychological health.* In a 2013 article that appeared in the *American Journal of Preventive Medicine*, author Howard Frumkin of the University of Washington School of Public Health indicates “research on recreational activities in savanna-like settings are associated with self-reported feelings of ‘peacefulness,’ ‘tranquility’ or ‘relaxation’” and viewing these areas “leads to decreased fear and anger.” (Frumkin, 2013). Another study, conducted in the Netherlands in 2001, reported that “a ten percent increase in nearby greenspace was found to decrease a person’s health complaints in an amount equivalent to a five year reduction in that person’s age” (de Vries, et al., 2001).

While each of the health benefits of parks, open space, and trails can probably be translated into economic benefits, obesity is the health issue most frequently quantified into cost. According to a 2012 study described in an article in the *Journal of Health Economics*, the U.S. spends \$190 million dollars on obesity-related health care expenses. This includes direct costs that result from inpatient and outpatient health services, laboratory and radiological tests, and drug therapy. The indirect costs of obesity, or resources that are lost treating a health condition include the value of lost work due to short-term absences, long-term disability

and premature death; employers paying for higher life insurance premiums and pay-out for more workers' compensation for obese employees versus employees who are not obese; and lower wages and lower household income for obese employee (Cawley et al, 2012).

While it is difficult to quantify the impact of obesity at the local level, there is no doubt there is an impact to the Annapolis area economy, particularly for lower wages and lower household income. According to the Robert Wood Johnson Foundation's County Health Rankings, Anne Arundel County has an adult obesity rate of 29 percent, about the same as Maryland's rate of 31 percent. (Robert Wood Johnson Foundation, 2020). As noted above, this compares to a 42.4 percent obesity rate nationally, but Anne Arundel County's rate is on the rise. It was 23 percent in 2004 (Robert Wood Johnson Foundation, 2020).

Case Studies

BAE has identified three cities with characteristics in common with Annapolis—Asheville, NC, Boulder, CO, and Burlington, VT—to explore the cities' recognition of the social and economic benefits of parks, open space and trails and the approach each has taken to improve and expand recreational offerings.

Asheville, North Carolina

Population (2019): 92,870

Location: Western North Carolina in the Blue Ridge Mountains

Characteristics:

- Growing population (11% in last 10 years)
- Tourism destination – historically (e.g., Biltmore Estate, Grove Park Inn and Spa, etc.) and presently (i.e., art scene, regional recreation opportunities)
- Retirement mecca, especially for “half-backs,” those who originally intended to move to Florida but decided to move halfway back
- Home to UNC Asheville with 3,600 students
- Attractive to millennials—amenities include arts, outdoor recreation, many breweries and distilleries

Parks:

- 755 park acres
- 7 regional parks within the city limits; 38 neighborhood parks
- Asheville is located along the Blue Ridge Parkway, a 469-mile road that is part of the National Park Service. This scenic byway connects the Shenandoah National Park to the Great Smoky Mountains National Park (North Carolina) and has many recreational opportunities along it (e.g., hiking, mountain biking, etc.) as well as waterfalls and the highest mountain east of the Mississippi River, Mount Mitchell, located 35 miles from Asheville.

Plans:

Parks are featured in Asheville's most recent (2018) comprehensive plan update, *Living Asheville* (link: <https://online.flippingbook.com/view/106269/>), but there is no separate parks plan and no discussion of the economic benefits of parks. Some of the strategies that note the importance of parks, open space and trails include the following:

- Under the category "Protect Land and Water Assets," a strategy to "minimize the loss of the urban forest on city-owned land" and "look for opportunities to connect natural and forested areas on city-owned land."
- Under "Protect Land and Water Assets," a strategy to "manage public lands with a goal to enhance habitat types such as meadows and let some park areas re-naturalize."
- Under "Protect Land and Water Assets," a strategy to "create a citywide program to acquire sensitive land for natural open space, forest, habitat and stormwater management" and "encourage protection of sensitive lands for conservation purposes."
- Under "Promote General Health and Wellness," a strategy to "promote accessibility to parks and open spaces to encourage their use for health, wellness and recreation."
- Under "Promote Health and General Wellness," a strategy to promote policies to enhance the citywide tree canopy to increase shade and sequester carbon pollution."
- Under "Promote Health and General Wellness," a strategy for greenway planning to "ensure that there is an adequate bike lane, bike trail, or greenway connection to all city owned and managed parks and open spaces."
- Under "Harmony and the Natural Environment," a strategy to "consider the use of green infrastructure when improving existing parks and creating new ones."
- Under "Harmony and the Natural Environment," a strategy to "foster racial equity in parks and recreation planning and programming," supporting "policies and programs that aim to close the achievement gap within marginalized neighborhoods."
- Under "Harmony and the Natural Environment," a strategy to "strengthen park programming citywide and develop unique programs that fit with neighborhood character to new and existing park amenities" in line with "neighborhood needs and demographics."

- Under “Harmony and Natural Environment,” a strategy to develop more pocket and neighborhood-scale parks within walking distance (within a half mile) of residences, especially in areas where residents do not currently have access to a park.”
- Under “Harmony and the Natural Environment,” a strategy to develop zoning policies to accommodate conservation-based subdivisions and communities”

In the 2013 *Greenways Master Plan* several new trails are proposed. This includes the [River to Ridge Greenway and Trail Network](#) that will be a connection of continuous greenways that encircle the downtown area with the River Arts District and French Broad River greenways, the South Slope Greenway Connector, Beaucatcher Greenway and the Urban Trail. This greenway network will provide a unique experience for any local or tourist that will allow access to two of Asheville’s most special natural assets: the French Broad River and the Blue Ridge Mountains. Once completed, the network will have 10.25 miles of connected greenways and trails. These trails are currently under construction.

In 2012 Buncombe County (where Asheville is located) released the *Greenways and Trails Master Plan* that includes a section on the economics of greenways and trails. This plan recommends that Buncombe County work with regional partners to conduct a full-scale economic impact analysis related to the economic impacts of greenways, trails, bicycle facilities, running/bicycle shops, hotels, motels and bed and breakfasts. While there is no indication from research that this recommended analysis was prepared, this Plan does show an awareness of the economic impacts of trails and suggests the types of economic effects that should be tallied including direct (e.g., jobs created during construction), indirect (e.g., suppliers of tools and materials used for greenway increase output), and induced (e.g., money earned from the project spent on goods and services in the local economy).

Trust for Public Land ParkServe Assessment:

The Trust for Public Land (TPL), a U.S. nonprofit organization with a mission to "create parks and protect land for people, ensuring healthy, livable communities for generations to come," scores cities on what percentage of residents live within a 10-minute walk of a park and the access of different population segments to parks, focusing in on age, household income and race/ethnicity. These scores can be useful for comparison purposes.

Asheville’s TPL scores are as follows:

- Approximately 45 percent of Asheville’s residents live within a 10-minute walk of a park (national average is 55 percent)
- Approximately 44 percent of children (0-19 years), 47 percent of adults (20-64 years), and 39 percent of seniors (65+ years) live within a 10-minute walk of a park

- Approximately 42 percent of high income residents, 40 percent of middle income residents, and 50 percent of low income residents live within 10-minute walk of a park.
- Approximately 3 percent of Asheville's city land is used for parks and recreation (the national average is 15 percent).

Summary of key findings: Asheville's approach to planning for parks and open space is focused primarily on environmental stewardship and social equity issues. There is almost no mention of economic benefits associated with parks and open space. Buncombe County recognizes that there are positive economic impacts of the County's trail system, but has not yet commissioned an analysis of those impacts.

Boulder, Colorado

Population (2019): 101,995

Location: In the foothills of the Rocky Mountains, about 25 miles northwest of Denver

Characteristics:

- Growing population (8.5% in last 10 years)
- Home of University of Colorado, which has 37,000 students
- Primarily because of the university, the median age in Boulder is significantly lower than the national average, 28.7 percent versus 37.2 nationally

Parks:

- 2,397 park acres
- 60 parks total including five city/community parks and 55 neighborhood and pocket parks
- Rocky Mountains National Park is located 40 miles away, about an hour's drive, in Estes Park, Colorado. This national park is 415 square miles

Plans:

The Boulder City Council adopted the *Boulder Parks and Recreation Master Plan* in 2014. From the community engagement process for the plan, six core themes emerged as the basis for future action and decision-making: community health and wellness, taking care of what we have (i.e., maintenance), financial stability, building community and relationships, youth engagement and activity, and organizational readiness.

The policies and initiative under financial sustainability show that the city recognizes the positive economic benefits of parks. The overview for the section notes that Boulder's parks

“enhance property values, increase municipal revenue and attract homebuyers, a quality workforce, and retirees.”

Long range goals identified under financial sustainability include developing a “Recreation Priority Index” that establishes program objectives working toward an outcome or impact desired and categorizing programs depending upon the degree of community or individual benefit they provide. Another long range goal is to leverage partnership and increase funding from foundations and nonprofits, clearly an approach to parks and recreation, almost like a business plan.

This year the Parks and Recreation Department has begun the process to update the master plan. According to a new release issued by the City of Boulder, the updated plan “will build upon the department’s success in achieving and implementing the strategies and initiatives” in the 2014 plan.

Trust for Public Land ParkServe Assessment:

Boulder’s TPL scores are as follows:

- Approximately 92 percent of Boulder’s residents live within a 10-minute walk of a park (national average is 55 percent)
- Approximately 84 percent of children (0-19 years), 95 percent of adults (20-64 years), and 95 percent of seniors (65+ years) live within a 10-minute walk of a park
- Approximately 96 percent of high income residents, 95 percent of middle income residents, and 95 percent of low income residents live within 10-minute walk of a park.
- Approximately 14 percent of Boulder’s city land is used for parks and recreation (the national average is 15 percent).

Summary of key findings: Boulder is exceptionally well-served by parks and open space within the city limits. Interestingly, most (55 of 60) of the City’s parks are pocket parks or neighborhood parks. The City is keenly aware of the positive economic benefits of parks, open space and trails and works to leverage the value for maximum benefit.

Burlington, Vermont

Population (2019): 42,819

Location: Northwestern Vermont on the eastern shore of Lake Champlain

Characteristics:

- Stable population, just 1.0 percent growth between 2010-2019
- Home of the University of Vermont, with 12,500 students

- A popular summer tourism destination

Parks:

- 1,621 park acres
- 35 parks
- Parks include beaches on Lake Champlain
- 30 miles of public trails

Plans:

The *Burlington Parks, Recreation & Waterfront Master Plan* was adopted by Burlington City Council in 2015. The planning process resulted in seven system themes that are key areas of focus upon which recommendations are based. These include recognizing culture, community and partnership, enhancing recreation opportunities and programming, linking people to parks, protecting and preserving the environment, creative inclusive social spaces, streamlining operations, and motivating economy (City of Burlington, 2015).

There is a long list of strategic initiatives in the plan that includes adding capacity to parks systems, rehabilitating parks and trails, better environmental management of resources, improving park and recreation offerings in targeted neighborhoods, and preparing a marketing plan for the parks system. The list of initiatives was developed in part through a community survey conducted for the plan.

There is little discussion of the economic benefits of parks, but the social benefits are clearly implied. Environmental management of the parks, particularly along the waterfront are a priority. Additionally, connecting the various parks is also stressed.

Burlington's TPL scores are as follows:

- Approximately 92 percent of Burlington's residents live within a 10-minute walk of a park (national average is 55 percent)
- Approximately 92 percent of children (0-19 years), 93 percent of adults (20-64 years), and 90 percent of seniors (65+ years) live within a 10-minute walk of a park
- Approximately 91 percent of high income residents, 93 percent of middle income residents, and 93 percent of low income residents live within 10-minute walk of a park.
- Approximately 24 percent of Burlington's city land is used for parks and recreation (the national average is 15 percent).

Summary of key findings: Burlington is well-served by parks, trails and open space within the City limits. The parks plan focuses on maximizing function but seeks to maintain and improve environmental conditions in the park properties, particularly on Lake Champlain.

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Plans

Asheville, NC

Living Asheville: A Comprehensive Plan for our Future (2018)

Greenways Master Plan (2013)

Buncombe County Greenways and Trails Master Plan (2012)

Boulder, CO

Boulder Parks and Recreation Master Plan (2014)

Burlington, VT

Burlington Parks, Recreation & Waterfront Master Plan (2015)

