



A **SMART INVESTMENT**FOR AMERICA'S HEALTH









The Land and Water Conservation Fund's Outdoor Recreation Legacy Partnership



INTRODUCTION

The need for parks and close-tohome recreation has never been greater, while the physical, mental, and environmental benefits of parks have never been clearer. Today, more than 80 percent of Americans live in urban areas. Extensive research shows parks play a critical role in making cities healthier places. They provide opportunities for outdoor activity, alleviate mental stress, and provide numerous environmental benefits. Parks have also proven to be a smart investment as a tool in reducing medical expenses and saving cities money.

Three out of four U.S. adults fail to meet the CDC's recommended guidance for physical activity,² almost half of all Americans are overweight or obese,³ and half suffer from heart disease.⁴ Safe, close-to-home parks increase the amount of physical activity people engage in, which significantly reduces rates of obesity, Type 2 diabetes, and heart disease.

Approximately one in four adults in the U.S. suffers from anxiety, depression, or other mental health disorders.⁵ Research shows that time in parks can decrease levels of stress and anxiety by 50 percent⁶ and reduces attention deficits in children comparable to the effects of medication.⁷

In addition to improving physical and mental health, parks and greenspaces are also critical to the environmental health of cities and are important tools for mitigating the effects of climate change. Parks and green spaces absorb carbon and clean the air, soak up and slow stormwater, limiting the severity of flooding, and reduce heat, which has become the number one weather-related killer.

Despite these facts, the U.S. spends only \$117 per resident on city parks,8 while spending \$11,582 per person on health care per year.9

Today, more than 100 million people in the U.S., including 28 million children, do not have a quality park or green space within a half mile from their home. 10 Low-income communities of color have historically received even lower park investments than whiter, wealthier communities. This has contributed to health disparities in communities of color, where rates of obesity, heart disease, anxiety, and depression are significantly higher. Inequitable park investments have also contributed to people of color suffering greater impacts from climate change, including higher temperatures and more frequent and destructive flooding.

LAND AND WATER CONSERVATION FUND

Cities across the country are working to increase park investments and address park disparities. The federal Land and Water Conservation Fund's (LWCF) urban park grant program, the Outdoor Recreation Legacy Partnership (ORLP), is a critical tool in their funding toolbox, providing much needed match dollars for their priority park projects.

In 1964, Congress established the LWCF as a bipartisan commitment to use a portion of fees paid by companies drilling for offshore oil to safeguard natural areas and provide recreation opportunities to all Americans. The Outdoor Recreation Legacy Partnership, a program under the LWCF, provides grants to cities for park projects in underserved communities. As an annual appropriation, funding levels for this program vary each year depending on the interests of Congress.

Funds from the ORLP play an important role in supporting strong, healthy communities across America. It is critical that Congress provides robust funding to the ORLP.



New research shows that increasing park acreage in areas that face park deficits could increase life expectancy.¹¹ Residents with safe, accessible parks are more likely to exercise regularly, and as a result have increased rates of overall health, ¹² including lower rates of obesity, Type 2 diabetes, ¹³ and heart disease. ¹⁴



CHILDREN'S HEALTH

In order to be healthy, children and youth need to be physically active at least one hour per day; unfortunately, three out of four children in the U.S. are not achieving this minimum amount of activity, with inactivity highest among adolescent girls.¹⁵ As a result, more than 20 percent of school-age children are obese. Hispanic and Black children, who are less likely to have access to safe parks, have even higher rates of obesity. 16 Children who spend more time outdoors are more likely to be physically active, particularly if they have access to close-to-home parks.



SENIOR HEALTH

Physical activity can have immediate benefits for seniors in preventing chronic and costly diseases. Four out of the five most costly chronic conditions can be prevented or managed with physical activity,17 yet only 16 percent of adults 65 and over meet recommended levels of physical activity.¹⁸ Seniors, age 60 and above, comprise 18 percent of the population but only four percent of neighborhood park users.¹⁹ Access to neighborhood parks can significantly increase seniors' activity levels when programmed and designed appropriately. Parks with walking trails, for example, attract twice as many seniors as parks without.20



BLACK AND HISPANIC HEALTH

People of color often struggle with higher rates of chronic health conditions than the rest of the population. Black, Hispanic, and other communities of color have fewer parks, and the parks they do have are half the size and five times more crowded than parks in whiter, wealthier neighborhoods.²¹ As a result, people of color are less likely to participate in leisure time physical activity and more likely to suffer from obesity, diabetes,²² and other chronic diseases.²³ Investing in quality parks and recreation opportunities in communities of color is an important step in addressing ongoing health disparities.

The Outdoor Recreation Legacy Partnership has resulted in the creation and restoration of parks in underserved communities, which tend to be low-income communities of color, where safe access to parks and recreation is critically needed to improve residents' health and reduce their risks of chronic disease.

THE HIGH COSTS OF CHRONIC DISEASES EACH YEAR IN THE U.S.



Obesity \$260 billion²⁴



Diabetes \$237 billion²⁵



Heart Disease \$216 billion²⁶

OBESITY

Obesity is one of the biggest health challenges facing America. Between 2000 and 2018, obesity rates among Americans increased from 30 to 42 percent and rates of severe obesity almost doubled, with Black, Hispanic,²⁷ and Indigenous²⁸ communities suffering from higher rates than their white counterparts. Obesity is linked to many other chronic health conditions, such as heart disease, stroke. Type 2 diabetes, and certain types of cancer.²⁹ Having parks and trails close to home where residents can enjoy physical activity in a safe and accessible environment has been shown to increase physical activity and decrease the prevalence of obesity in communities.³⁰

DIABETES

More than 34 million adults in the U.S. suffer from diabetes, 90 percent of whom have Type 2 diabetes, which is caused by poor diet and lack of physical activity. Of those with diabetes, 89 percent were obese or overweight and only 24 percent met recommended levels of physical activity. The American Diabetes Association recommends regular physical activity as a key part of managing diabetes.31 A 12-year study by the University of Michigan found a 21 percent reduced risk of Type 2 diabetes in neighborhoods with greater opportunities for physical activity, such as parks and trails.32

HEART DISEASE

Heart disease is the leading cause of death for both men and women in the U.S. In 2020, twice as many people died of heart disease as from COVID-19,³³ and underlying heart disease significantly increased the chance of severe illness or death from COVID-19. Research has shown that physical activity can lower the risk of developing heart disease and that adults who meet the minimum requirements for physical activity are 40 percent less likely to die from heart disease.³⁴





There have been few times in history when Americans have sought out parks and natural areas for their mental health more than in recent years. Currently four out of 10 Americans suffer from anxiety or depression.³⁷ With the stress and upheaval of the COVID-19 pandemic, and the associated economic and political turmoil, parks and trails have served as places of respite and relief for many Americans suffering from anxiety, depression, and other mental health issues.

While park use has soared across the country, the inequity of park access has come into sharp focus. For many of our most vulnerable communities, the lack of close-to-home parks and natural areas has left them without access to the mental health benefits of parks

during a time when rates of anxiety and depression have quadrupled.³⁸

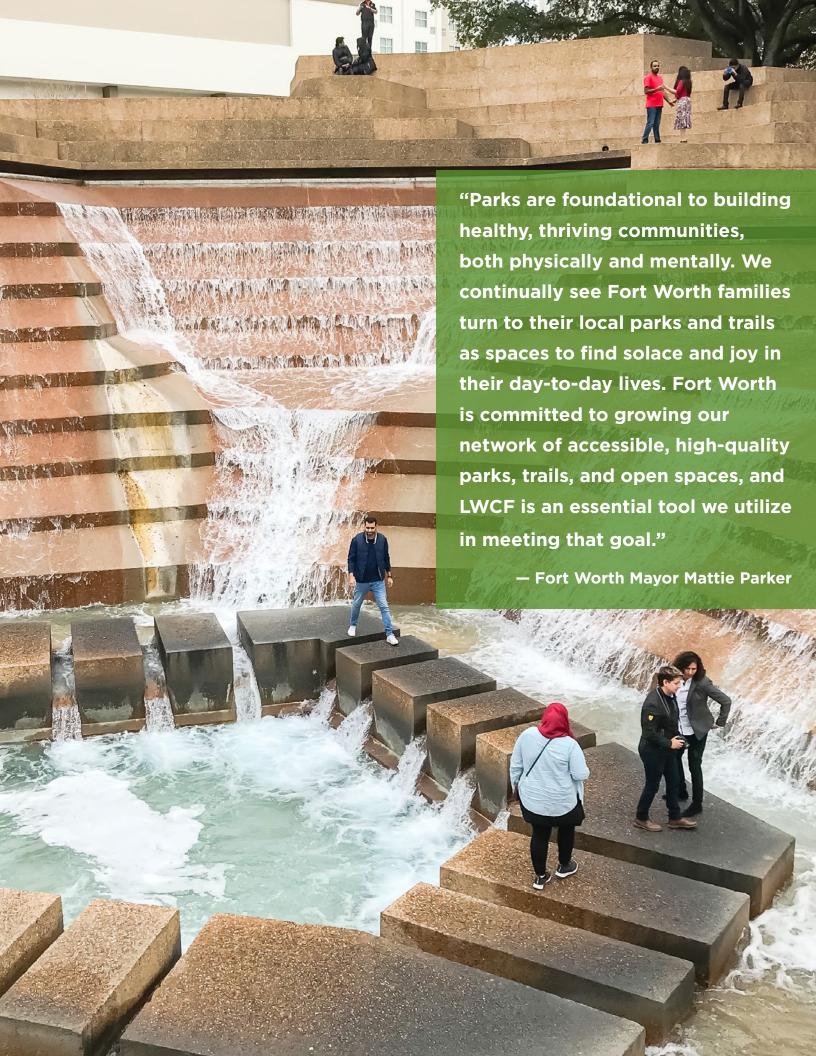
ANXIETY AND DEPRESSION

Residents within a short walking distance of a safe park are significantly less likely to suffer from stress, anxiety, or depression than residents further from a park.³⁹ People who live in neighborhoods with little to no green space had a 44 percent higher rate of physician-diagnosed anxiety disorders than people who lived in the greenest neighborhoods.⁴⁰ Simply having views of a park or greenspace has been shown to improve mental health, while visiting and being active in a park provide even greater mental health benefits.⁴¹ People who visited green spaces a few times a week were 50 percent less likely to experience stress.42

ATTENTION DEFICIT DISORDERS

Close-to-home parks have the greatest benefit for children, who rely on greenspaces in their neighborhoods and schools. One of the most profound benefits of parks for children's mental health is the impact on attention deficit disorders. Children with attention deficits (ADHD) have been found to concentrate better after a walk in a park. Just 20 minutes in a park setting was sufficient to improve children's concentration to a level comparable to those without ADHD. The effects of a walk in the park were even similar to the effects of common ADHD medication.⁴³ "Doses of nature" might serve as a safe, inexpensive, widely accessible tool in the tool kit for managing attention deficit disorders.

Cities are using the Outdoor Recreation Legacy Partnership to create close-to-home parks and revitalize run-down parks in historically parkpoor neighborhoods where residents are most vulnerable to stresses.





The impacts of climate change have created one of the greatest threats to human health.⁴⁴ Climate change is driven by an increase in emissions and air pollutants, such as black carbon (soot), and a decrease in the trees and plants that naturally clean the air by removing pollutants and storing them in the soil.

Low-income communities, which have fewer trees and parks and more paved surfaces, are often hit hardest by the impacts of climate change, such as flooding, extreme heat and reduced air quality.⁴⁵ Parks, trees, and green infrastructure play an important role in building community resilience to climate change by cooling and cleaning the air, absorbing rainfall, and preventing flooding.

COOLING COMMUNITIES

Extreme heat is now recognized as the greatest climate threat to human health, as it is the number one weather-related killer in the U.S. 46 and deadlier than all other weather-related causes combined. 47 Studies show that low-income communities of color, in particular, experience higher temperatures, and higher rates of premature deaths from extreme heat, 48, 49 as a result of having fewer trees and parks, and more impervious surfaces than whiter, wealthier neighborhoods. 50, 51

Parks and trees are essential to cooling communities and will be increasingly critical to saving lives as global temperatures rise. Trees reduce heat

3 to 10 degrees, depending on their size and location,⁵² and large, shady parks reduce heat 10 to 20 degrees. Neighborhoods within half a mile to a large park are 6 degrees cooler than neighborhoods without nearby parks.⁵³

CLEANING THE AIR

Urban areas suffer from higher levels of air pollution because of the concentration of motor vehicles, power plants and other sources of pollution, and fewer trees and plants to clean and cool the air. Higher urban temperatures increase ozone levels and concentrate pollutants, creating smog.⁵⁴

Smog exacerbates asthma and respiratory diseases, and increases

"Greenery and trees bring down the overall temperature of an area, and at night they serve to cool the neighborhood rather than trap the heat, offering some reprieve, particularly for those who don't have air-conditioning." 55

mortality, particularly during hotter months. Youth and young adults, as well as people who are obese or overweight, are at greatest risk of respiratory disease from ozone exposure.⁵⁶ Children who grow up in crowded urban neighborhoods have higher rates of asthma and are more likely to die from it.⁵⁷

Tree cover, including street trees and parks, can significantly reduce asthma rates. Within New York City, children in leafy neighborhoods are three times less likely to have asthma than children who live in neighborhoods with few trees.⁵⁸

PREVENTING FLOODING AND CLEANING WATERWAYS

As the planet warms, seas rise, and extreme weather events become more frequent, stormwater runoff and flooding have increased significantly in some regions of the country. Flooding threatens human lives and health by washing sewage, chemicals, and other contaminants into waterways and drinking water sources.⁵⁹

In urban and suburban areas, the loss of greenspaces to the development of roads, parking lots, and other impervious surfaces, causes stormwater runoff and flooding by funneling water into inundated waterways and stormwater systems. Low-income households and communities of color are at even greater risk of flooding because they are more often located in floodplains, have fewer trees, and parks, more impervious surfaces, and antiquated infrastructure. ⁶⁰

Parks, trees and green infrastructure, such as swales and bioretention areas, slow the flow of water and allow it to be absorbed into the soil and taken up by plant roots, cleaning the water as it infiltrates and significantly reducing the risk of flooding.⁶¹

Mobile, Alabama

Three Mile Creek Greenway

Initiated by a 2015 grant from the Outdoor Recreation Legacy Partnership, the City of Mobile, AL is transforming Three Mile Creek—once the city's drinking water source but more recently a degraded urban stormwater conveyance—into part of a larger 18+-mile greenway system that will reconnect diverse neighborhoods and provide much-needed outdoor recreation options for its 195,000 citizens. The city and its partners, the Mobile Bay National Estuary Program and Mobile Area Water & Sewer System, are cleaning the waterway, restoring natural stream channels, and planting trees to manage stormwater and improve biodiversity while preventing flooding. By connecting neighborhoods to parks and commercial districts and providing a fitness circuit and parcourse, the greenway will increase physical activity for the 70,000 Mobilians who live within a mile of the Three Mile Creek Greenway Trails, 40 percent of whom don't meet recommended levels of physical activity.





Mayor Joseph Peter Ganim of Bridgeport, Connecticut

"Parks in the City of Bridgeport provide a major haven for healthy, outdoor fun. With a \$375,000 ORLP grant, the City of Bridgeport leveraged private partners to transform Johnson Oak Park and the grounds of the Jettie S. Tisdale School in the East End, a predominantly minority and low-income neighborhood of the city. The park now includes playing fields, a playground, a spray pad, and a fitness exercise area. We are thankful for the ORLP program for helping us improve our residents' quality of life."

Mayor Michael B. Hancock of Denver, Colorado

"Denver's ever-expanding acres of parks, trails, and natural spaces demonstrate our commitment to equity, health, and well-being. Never before was that more evident than during the pandemic, as record numbers of grateful residents delighted in these outdoor spaces during uncertain and challenging times. Investments by the LWCF's ORLP program helps us expand access to Denver's parks, especially for those in our most vulnerable neighborhoods."

Mayor Satya Rhodes-Conway of Madison, Wisconsin

"Federal support such as the LWCF grant is essential to improving Madison's 6,000-acre park system and serving the full diversity of Madison residents. The Skatepark at McPike (formerly Central) Park is a great example. The LWCF's ORLP program helped us create a skating experience that is safe, free, and appropriate for all skill levels. It's wonderful to see the diversity of folks who use the park and the community they create there. McPike Park transformed a former industrial site into a vibrant regional attraction, and the skatepark has been critical to that revitalization."



ANCHORAGE, AK

The Municipality of Anchorage, Anchorage Park Foundation, and residents of the Muldoon neighborhood have worked together to turn what was once an abandoned lot into a lively, community space — Chanshtnu Muldoon Park.

An initial \$750,000 grant from the Outdoor Recreation Legacy Partnership enabled the partners to raise an additional \$1.2 million from municipal bonds and private funds. The first phase of the park includes an ice-skating loop, inclusive playground, restored natural areas, and trails built by the Youth Employment in Parks program, where teens gain job skills while learning about environmental stewardship.⁶²

Phase two includes a bike park and dog park, as well as a large community garden with 45 garden plots and a food forest with more than 100 Alaskan fruit trees and thousands of berry bushes and edible plants that will produce up to 10,000 lbs of food. The community gardens and food forest create an opportunity for community members to enjoy low-cost, locally grown, healthy food, as well as learn about gardening, agriculture, and forestry.⁶³



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DENVER, CO

The City and County of Denver, along with its partners, created Montbello Open Space Park in one of the most densely populated and diverse neighborhoods in Denver, with more than 36,000 residents underserved by parks.⁶⁴ Funding included a \$250,000 grant from the Outdoor Recreation Legacy Partnership.

The partners have transformed 5.5 acres from a vacant lot into a restored short-grass prairie ecosystem with native plants and green infrastructure to manage stormwater. The new park includes sports fields and courts, walking trails, and a new playground with interactive nature play spaces.⁶⁵

The park also houses Environmental Learning for Kids' (ELK) nature education center with outdoor classrooms, science stations, and interpretive signs. ELK provides recreation and programs for youth who may otherwise not have the opportunity to engage in science and science-related careers. Programs include "Chicas que Escalan," to teach girls the sport of climbing, and classes in natural resource stewardship to increase the number of youth choosing careers in science, the environment, and recreation. 66



PORTLAND, OR

Cully Park stands on 25 acres that was once a landfill. Located in a diverse, park-deficient neighborhood, the park has helped to build the environmental, economic, and physical health of the community.

Portland Parks and Recreation manages Cully Park, the product of a unique and strong partnership with the Let Us Build Cully Park coalition, led by the nonprofit Verde. The partners raised more than \$13 million to build the park, \$500,000 of which came from the Outdoor Recreation Legacy Partnership. Residents were not only involved in planning the park, but local tradespeople and workers were hired to build the park, ensuring economic benefits went directly to the community.

Cully Park features a community garden where residents can grow their own produce, sports fields, a large playground with water play facilities, restored habitat, and a Native Gathering Garden, designed in partnership with the local Native American community. Cully Park is a catalyst for neighborhood improvement.⁶⁷



Recreation Legacy
Partnership provides
critical funding to cities
to create new or restore
existing parks, trails,
and recreation areas for
communities in need.

Parks and green spaces are essential to the physical, mental, and environmental health of communities. Safe, accessible parks offer opportunities for residents to be physically active and experience the restorative power of nature. Increased physical activity can help prevent and manage serious health conditions, and access to nature reduces stress and improves mental health. Trees and plants clean and cool the air, absorb stormwater, and prevent flooding, mitigating climate change and improving community resilience.

Unfortunately, more than 100 million Americans, particularly lowincome people of color, lack access to safe parks or natural areas and, as a result, suffer from higher rates of obesity, diabetes, heart disease, and mental health disorders. The lack of green spaces also makes their communities more vulnerable to the impacts of climate change.

The Land and Water Conservation Fund's Outdoor Recreation Legacy Partnership grant program is a smart investment for America's health.

LWCF'S OUTDOOR RECREATION

LEGACY PARTNERSHIP OFFERS

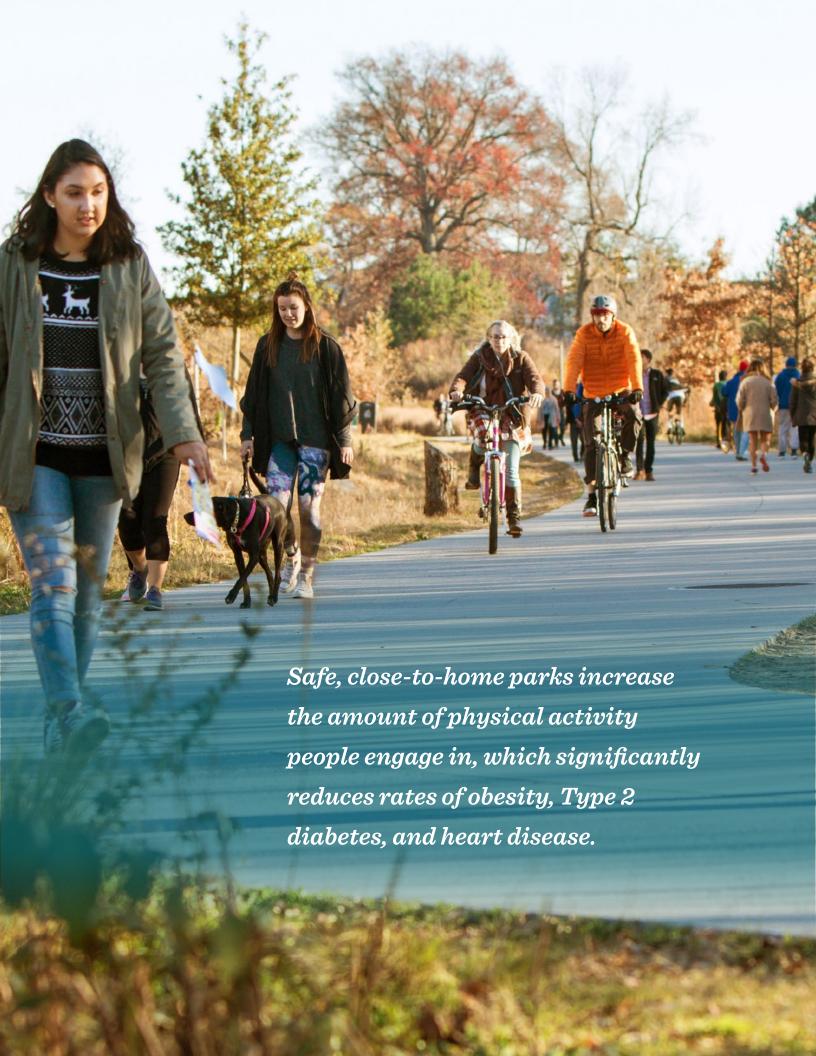
CRITICAL FUNDING THAT CITIES CAN

LEVERAGE TO ATTRACT THE PUBLIC AND

PRIVATE PARK INVESTMENTS NEEDED

TO SUPPORT STRONG, HEALTHY

COMMUNITIES ACROSS AMERICA.



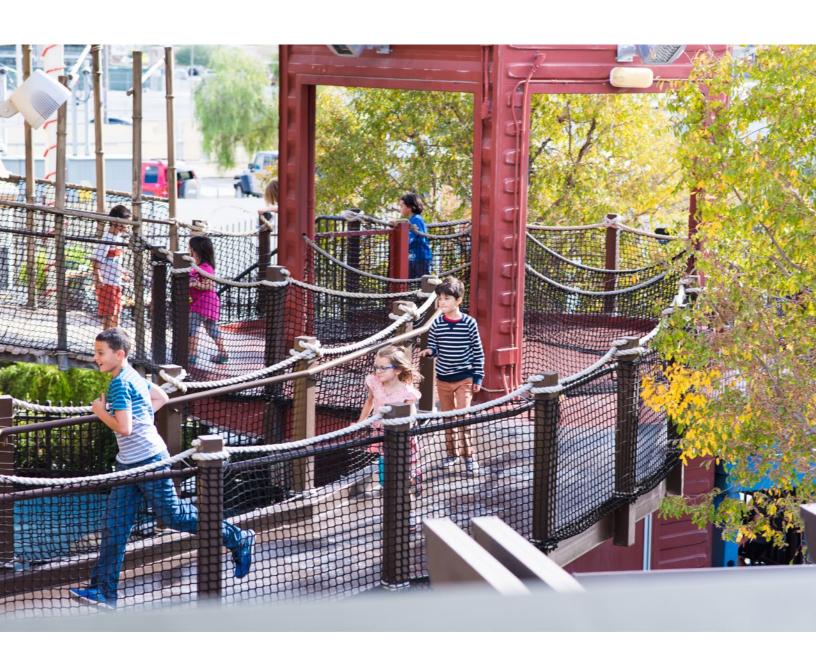
ENDNOTES

- United States Census Bureau, Urban Areas Facts. 2010 Census.
- 2 Centers for Disease Control and Prevention, State Variation in Meeting the 2008 Federal Guidelines for Both Aerobic and Muscle-strengthening Activities through Leisure Time Physical Activity Among Adults Age 18 to 64: United States 2010-2015, NHSR, No. 112, June 28, 2018, 4.
- 3 Centers for Disease Control and Prevention, Prevalence of Obesity and Severe Obesity Among Adults: United States, 2017-2018, NCHS Data Brief, No. 360, February 2020.
- 4 American Heart Association, Heart
 Disease and Stroke Statistics 2019 Update,
 Circulation, Jan 31, 2019, 139(10):13.
- 5 Centers for Disease Control and Prevention, Mental Health, Substance Use, and Suicidal Ideation During the COVID-19 Pandemic – United States June 24–30, 2020, Weekly, August 14, 2020, 69(32):1049-1057.
- 6 Sallis JF and Spoon C, University of California, San Diego, Making the Case for Designing Active Cities, Active Living Research, Technical Report, February 2015, 12.
- 7 Taylor AF and Kuo FE, Children with Attention Deficits Concentrate Better After a Walk in the Park, Journal of Attention Disorders, March 2009, 12(5):402-9.
- 8 The Trust for Public Land, 2021 City Park Facts: The Year in Parks.
- 9 Peterson-KFF, Total national health expenditures, US\$per capita, 1970-2019, Health System Tracker, KFF analysis of National Health Expenditure (NHE) data, December 23, 2020.
- 10 10 Minute Walk Campaign, https://10minutewalk.org/#Our-research
- 11 Park Equity, Life Expectancy, and Power Building: An Overview, The Prevention Institute and UCLA Fielding School of Public Health, September 2020.
- 12 Pitas NAD and Barret AG, et al, The Relationship Between Self-Rated Health and Use of Parks and Participation in Recreation Programs, United States, 1991-2015, CDC Research Brief, Preventing Chronic Disease, Vol 14, January 5, 2017.
- 13 Christine P, University of Michigan School of Public Health, Bridging the Gap: Biologic, Behavioral, and Environmental Contributions to the Development of Type 2 Diabetes, JAMA Internal Medicine, June 29, 2015.
- 14 Park Equity, Life Expectancy, and Power Building: An Overview, The Prevention Institute and UCLA Fielding School of Public Health, September 2020.
- 15 Katzmarzyk PT and Denstel KD, et al, Results from the United States of America's 2016 Report Card on Physical Activity for Children and Youth, Journal of Physical Act Health, Nov 2016, 13(11 Suppl 2): S307-S313.

- 16 Fryar CD, Carroll MD, Afful J, Prevalence of overweight, obesity, and severe obesity among children and adolescents aged 2–19 years: United States, 1963–1965 through 2017–2018, NCHS Health E-Stats, 2020, 7.
- 17 Watson KB and Carlson SA, et al, Physical Inactivity among Adults Aged 50 Years and Older- United States, 2014, MMWR Mob Mortal Wkly Rep 2016, Vol 65, 954–958.
- 18 Public Tableau, Figure 7.6. Percentage of adults aged 18 and over who met 2008 federal physical activity guidelines for both aerobic and muscle-strengthening activities through leisure-time aerobic and muscle-strengthening activities, by age group and sex: United States, 2018, NCHS, National Health Interview Survey, Sample Adult Core component.
- 19 Ernst C, Harnik P, Keenan L, Active Parks, Healthy Cities, City Parks Alliance, 2018, 3.
- 20 Ernst, 2018, 8.
- 21 The Heat Is On: A Trust for Public Land Special Report, The Trust for Public Land, 2020, 7.
- 22 Centers for Disease Control and Prevention, National Diabetes Statistics Report 2020: Estimates of Diabetes and Its Burden in the United States, 2020, 2.
- 23 Centers for Disease Control and Prevention, Adult Physical Inactivity Prevalence Maps by Race/Ethnicity, Division of Nutrition, Physical Activity and Obesity, National Center for Chronic Disease Prevention and Health Promotion, January 2020.
- 24 Cawley J and Biener A, et al, Direct medical costs of obesity in the United States and the most populous states, Journal of Managed Care and Specialty Pharmacy, March 2021, 27(3):354.
- 25 Centers for Disease Control and Prevention, National Diabetes Statistics Report 2020: Estimates of Diabetes and Its Burden in the United States, 2020, 13.
- 26 American Heart Association, 2021 Heart Disease and Stroke Statistics Update Fact Sheets, At-a-Glance, 2021, 1.
- 27 Hales CM and Carroll MD, et al, Prevalence of Obesity and Severe Obesity Among Adults: United States, 2017–2018, NCHS Data Brief, No. 360, February 2020.
- 28 Jollie-Trottier T, Holm J and McDonald JD, Correlates of Overweight and Obesity in American Indian Children, American Psychological Association, Public Interest Directorate, 2008.
- 29 Hales CM, 2020.
- 30 Centers for Disease Control and Prevention, Parks, Trails and Health, National Center for Environmental Health, October 27, 2014.
- 31 American Diabetes Association, www. diabetes.org/healthy-living/fitness.
- 32 Christine P, 2015.
- 33 Ahmad FB and Anderson RN, *The Leading Causes of Death in the US for 2020*, Journal of the American Medical Association, 2021, 325(18):1829–1830.
- 34 Barrett, Meredith A., et.al. Parks and Health: Aligning Incentives to Create Innovations in Chronic Disease Prevention, Centers for Disease Control and Prevention, April 17, 2014.

- 35 Peterson-KFF, Total national health expenditures, US\$per capita, 1970-2019, Health System Tracker, KFF analysis of National Health Expenditure (NHE) data, December 23, 2020.
- 36 The Trust for Public Land, 2021 City Park Facts: The Year in Parks.
- 37 Czeisler ME, Lane RI, Petrosky E, et al, Mental Health, Substance Use, and Suicidal Ideation During the COVID-19 Pandemic – United States, June 24-30, 2020, MMWR Morb Mortal Wkly Rep 2020, 69:1049-1057.
- 38 Panchal N and Kamal R, et al, *The Implications of COVID-19 for Mental Health and Substance Abused* KFF, February 10, 2021.
- 39 Orstad SL and Szuhany K, et al, Park
 Proximity and Use for Physical Activity
 among Urban Residents: Associations with
 Mental Health, 2020, International Journal
 for Environmental Research and Public
 Health, July 2020, 17(13):4885.
- 40 Sallis JF and Spoon C, 2015, 12.
- 41 Sturm R and Cohen D, Proximity to Urban Parks and Mental Health, Journal of Mental Health Policy Econ, March 2014; 17(1):19–24.
- 42 Sallis JF and Spoon C, 2015, 12.
- 43 Taylor, AF, 2009, 402-9.
- 44 Climate, Health, and Equity: A Policy Action Agenda, Climate Health Action, 2019. https://climatehealthaction.org/
- 45 Climate Safe Neighborhoods
 Partnership, Groundwork USA, https://
 groundworkusa.org/focus-areas/climatesafe-neighborhoods/about/.
- 46 Davis RE and Knappenberger P, et al, Changing heat-related mortality in the United States, Environmental Health Perspectives, November 2003, 111(14):1712–1718.
- 47 National Oceanic and Atmospheric Administration Climate Program Office, The National Integrated Heat Health Information System (NIHHIS).
- 48 Kondo MC and Meuller N, Health impact assessment of Philadelphia's 2025 tree canopy cover goals, The Lancet Planetary Health, April 2020, 4(4):E149–E157.
- 49 Flavelle C and Popovich N, Heat Deaths Jump in Southwest United States, Puzzling Officials, New York Times, August 26, 2019.
- 50 Hoffman J, Shandas V and Pendleton N, The Effects of Historical Housing Policies on Resident Exposure to Intra-Urban Heat: A Study of 108 US Urban Areas, Climate, January 2020, 8(1):12.
- 51 Climate Safe Neighborhoods Partnership, Groundwork USA.
- 52 Taleghani M, University of Salford, Manchester, UK, Outdoor thermal comfort by different heat mitigation strategies – A Review, Renewable and Sustainable Energy Reviews, 81(2018):2011–2018
- 53 The Heat Is On: A Trust for Public Land Special Report, The Trust for Public Land, 2020. 7.
- 54 Ulpiani G, On the linkage between urban heat island and urban pollution island: Three-decade literature review towards a conceptual framework, Sci Total Environ., January 10, 2021, 751: 141727

- 55 The Heat Is On: A Trust for Public Land Special Report, The Trust for Public Land, 2020, 7.
- 56 Koman P and Mancuso P, Ozone Exposure, Cardiopulmonary Health, and Obesity: A Substantive Review, Chem Res Toxicol, July 17, 2017, 30(7): 1384–1395.
- 57 Gern JE, The Urban Environment and Childhood Asthma Study, Journal of Allergy and Clinical Immunology, March 2010, 125(3):545–549.
- 58 Lovasi GS and Quinn JW, et al, Children living in areas with more street trees have lower prevalence of asthma, Journal of Epidemiology and Community Health, July 2008, 62(7):647–649.
- 59 Union of Concerned Scientists, Climate Change, Extreme Precipitation, and Flooding: The Latest Science, Fact Sheet, 2018, 1.
- 60 Lackey K, Water Rising: Equitable Approaches to Urban Flooding, US Water Alliance, 2020, 15.
- 61 Zimmerman E and Bracalenti L, et al, Urban Flood Risk Reduction by Increasing Green Areas for Adaptation to Climate Change, Science Direct, World Multidisciplinary Civil Engineering-Architecture-Urban Planning Symposium 2016.
- 62 Chanshtnu Muldoon Park Master Plan, Municipality of Anchorage, April 2016.
- 63 Chanshtnu Muldoon Park: Phase 2
 Development, Municipality of Anchorage,
 2018.
- 64 Denver Metro Data, Shift Research Lab, A Program of the Piton Foundation, 2017.
- 65 Fisher A, Denver's Montbello Open Space Park Officially Opens, Patch Community Corner, June 10, 2021.
- 66 Montbello Open Space, The Trust for Public Land, 2021.
- 67 Data provided by Portland Parks and Recreation Department staff.







CITY PARKS ALLIANCE

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City Parks Alliance is the only independent, nationwide membership organization solely dedicated to urban parks. The mission of City Parks Alliance is to engage, educate, and nurture a broad-based constituency to support the creation, revitalization, and sustainability of parks and green spaces that contribute to more vibrant and equitable cities.

The Mayors for Parks Coalition, a project of City Parks Alliance, is a national bipartisan coalition of mayors from cities large and small across America that advocates for increased federal investment for our nation's city parks.