

Park Equity, Life Expectancy, and Power Building

Research Synopsis

ACKNOWLEDGEMENTS



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Written by Prevention Institute

Principal authors: Elva Yañez, Director of Health Equity
Manal J. Aboelata, Deputy Executive Director
Jasneet Bains, Program Coordinator

Prevention Institute is a national nonprofit with offices in Oakland, Los Angeles, Houston, and Washington, D.C. Our mission is to build prevention and health equity into key policies and actions at the federal, state, local, and organizational levels to ensure that the places where all people live, work, play and learn foster health, safety and wellbeing. Since 1997, we have partnered with communities, local government entities, foundations, multiple sectors, and public health agencies to bring cutting-edge research, practice, strategy, and analysis to the pressing health and safety concerns of the day. We have applied our approach to injury and violence prevention, healthy eating and active living, land use, health systems transformation, and mental health and wellbeing, among other issues.

Contributors

UCLA Fielding School of Public Health, Department of Environmental Health Sciences

Michael Jerrett, PhD, Professor and Director of Center for Occupational and Environmental Health
Rachel Connolly, Doctoral Student

Community Advisory Board Members

Scott Chan, Staff Analyst, Los Angeles County Center for Health Equity

Sarah Chang, Health Equity Programs Director, Social Justice Learning Institute

Grace Cotangco, Program Manager, National Health Foundation

Patricia Guerra, Director of Organizing, Community Coalition

Nancy Halpern Ibrahim, Executive Director, Esperanza Community Housing Corporation

Naomi Humphrey, Undergraduate Health Equity Fellow, National Health Foundation

Carlos Leon, Lead Community Organizer, Community Coalition

Veronica Padilla-Campos, Executive Director, Pacoima Beautiful

Christine Petit, Executive Director, Long Beach Forward

Francisco Romero, Senior Organizer, Promesa Boyle Heights

Nicole Steele, Health Equity Program Manager, Social Justice Learning Institute

Reviewers

Malcolm Carson, Trust for Public Land

Jon Christensen, UCLA Institute of the Environment and Sustainability

Mark Glasscock, Los Angeles County Department of Parks and Recreation

Elizabeth Goldstein, The Municipal Arts Society of New York

Yvette Lopez-Ledesma, Park Equity Alliance/The Wilderness Society

Rob Baird, Prevention Institute

Dedication

Prevention Institute would like to dedicate this toolkit to three social, environmental, and health justice giants who fought tirelessly for park equity:

- Robert Garcia—civil rights attorney and park equity advocate
- Lewis McAdams—a godfather of the Los Angeles River
- Dr. Beatriz Solis—philanthropist and health equity advocate

Key Takeaways

- Over 50% of Los Angeles County’s 10 million residents live in neighborhoods that rank as “high park need” or “very high park need.” Most of these high-need areas are concentrated in low-income communities of color.
- Findings from new research show that increasing park acreage in areas of LA County that face park deficits and low levels of tree canopy has the potential to considerably increase life expectancy in those areas.
- If all the census tracts in LA County with park deficits and low tree canopy levels had an increase in park acreage up to the county’s median level, those census tracts could see a gain of approximately 164,700 years in life expectancy across the population.
- Targeted investments in park infrastructure would significantly benefit the health of Latino and Black residents. Calculating gains specifically for these two groups, targeted investments would result in an increase of almost 118,000 years of life expectancy.

Introduction

Urban parks and green spaces are essential community infrastructure that protect public health by providing opportunities for physical activity, time in nature, social connection, and respite. Parks also filter air, remove pollution, buffer noise, cool temperatures, filter stormwater, and replenish groundwater.^{1,2} And parks store carbon, which helps slow climate change. Urban parks and green spaces should serve every community in a fair, just, and safe manner.³ In this synopsis, we briefly survey the existing literature and provide findings from new research on park access and life expectancy in Los Angeles County.

Review of the Evidence: Parks, Green Space, and Health Inequities

All communities do not have access to safe, well-maintained, and programmed parks and green spaces. A growing body of evidence demonstrates significant inequities in the distribution of these facilities, structures, resources, and spaces. Numerous studies across multiple geographic areas show that Blacks, Latinos, and people who live in low-income neighborhoods have less access to parks and green spaces compared to more affluent or predominantly white communities.⁴

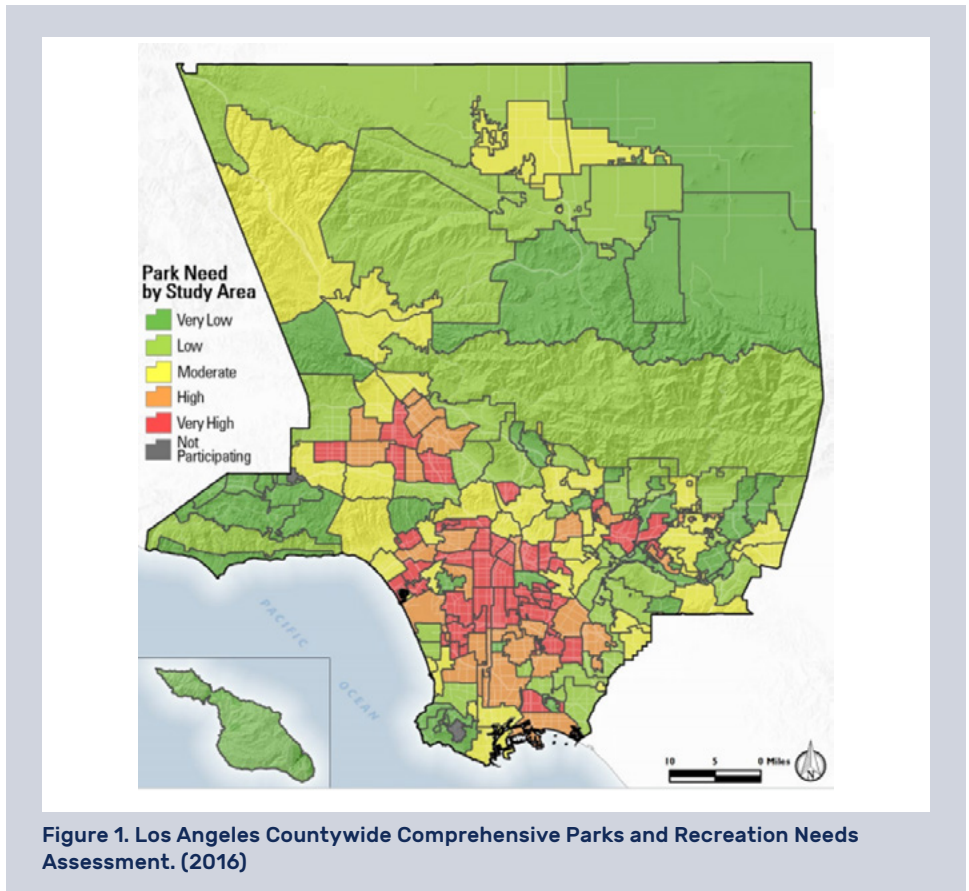
Early park equity research and foundational Geographic Information System (GIS) methodologies demonstrate the scope and scale of park and green space deficits facing the Los Angeles region’s most vulnerable neighborhoods. This work informed the methodology of the groundbreaking Los Angeles Countywide Comprehensive Parks

and Recreation Needs Assessment, completed in May 2016 (hereafter referred to as the Park Needs Assessment or PNA).⁵

While the Los Angeles region has significant amounts of open space, much of it is difficult to access, as it is located far from highly urbanized, densely populated communities.⁶ The PNA found vast need for park infrastructure in LA County, with an astounding 52.6% of the region's more than 10 million residents living in either 'high park need' or 'very high park need' areas as shown in Figure 1. Most of these high and very high need areas are concentrated in low-income communities of color.

Key Terms

- **Census tract:** Census tracts are small, relatively permanent geographic areas within a county assigned a unique numeric code. Census tracts can range from 1,200 to 8,000 inhabitants and average about 4,000 ([U.S. Census Bureau](#)).
- **Life expectancy:** The average number of years a person can expect to live. The United States Small-Area Life Expectancy Estimates Project ([USALEEP](#)) produced estimates of life expectancy at birth for most of the census tracts in the United States for the years 2010-2015.
- **Park inequities:** The unfair and unjust distribution of parks, green spaces, and associated resources (e.g. programming, amenities, staffing, and funds for maintenance and operations) by race, place, and income, among other factors. Conversely, park equity is the fair and just distribution of these resources such that systematic differences between population groups are not measurable or observable.
- **Parks and green spaces:** Parks are accessible to the general public and may include playgrounds, recreational facilities, sporting fields, and other features that promote physical activity, active recreation and respite. Green spaces are also accessible to the public and can include lakes, streams and riverbanks, trails and greenways, community gardens, green alleys, and other constructed facilities that use nature-based processes to manage stormwater, flooding, and water quality among other built environment challenges.
- **Predictive model:** A statistical model used to estimate the quantitative relationship between one or more factors and predict outcomes using existing data. These models are not causal, and we cannot definitively say that parks cause a specific life expectancy change. However, these models are predictive, so we can state that we do expect life expectancy to change under certain circumstances.
- **Tree canopy:** Tree canopy refers to the layer of tree leaves, branches, and stems that cover an area when viewed from above. Tree canopy provides numerous environmental and health benefits such as reducing heat and air pollution. For this project, we used tree canopy coverage [data](#) from a 2019 study by TreePeople and the Loyola Marymount Center for Urban Resilience.
- **Vegetation index:** The normalized difference vegetation index (NDVI) is a quantitative measure of vegetation level, calculated using remote sensing satellite imagery. For this project, we used imagery from the [National Agriculture Imagery Program \(NAIP\)](#). NDVI is a well-established metric of green space.



A study by the Los Angeles County Department of Public Health released concurrently with the PNA found that access to parks and recreation facilities is a critical health issue for everyone, especially the county’s low-income and predominantly Black and Latino communities. The report showed that, on average, LA County cities and unincorporated areas with less park space per capita have higher rates of premature mortality from cardiovascular disease and diabetes, higher prevalence of eating- and activity-related chronic illness among children and greater economic hardship compared with cities and communities with more park space per capita. It also found that Blacks and Latinos are more likely than Asian Americans and whites to live in cities and communities with less park space.⁷

One Major Driver of Park Inequities: Unequal Distribution of Resources

Multiple studies, including a number focused on the LA region, have found that parks and green spaces located in low-income communities of color are more crowded, have fewer and less diverse recreational

LA County Park Deficits by the Numbers

The Los Angeles Countywide Park Needs Assessment (PNA) found that while LA County averages 3.3 acres of parkland (the size of about three football fields) per 1,000 residents, 32% of LA County residents live in ‘high park need’ communities with an average of just 1.6 acres per 1,000 residents. A further 20.4% live in ‘very high park need’ areas with an average of 0.7 acres per 1,000. In comparison, ‘moderate park need’ areas have 11.5 acres of parkland per

1,000 residents, ‘low park need’ areas have 12.5 acres per 1,000, and ‘very low park need’ areas have 52 acres per 1,000. The PNA also found that 15.1% of park amenities in LA County are in poor condition, 42.7% are in fair condition, and 42.2% are in good condition. With regard to actual park infrastructure, 28.6% of parks in LA County are in poor condition, 51.1% are in fair condition, 18.1% are in good condition (2.2% are not reported upon).

Low- or poor-quality parks negatively affect visitation and usage, creating an additional barrier to access.

facilities, lower levels of maintenance, and more perceived and reported crime and safety issues compared to parks located in more affluent white communities. Low- or poor-quality parks negatively affect visitation and usage, creating an additional barrier to access.⁸

Other studies specific to the Los Angeles region show that high-density, low-income jurisdictions with large non-white populations also have less access to recreational programming, a factor that is closely linked to the development of eating- and activity-related chronic illness.⁹ One of these studies found that parks in low-income neighborhoods in the City of Los Angeles have fewer supervised activities and programs.¹⁰

Park quality and available programming are informal indicators of the level of core funding available to park agencies. While sporadic public finance measures—such as statewide bonds or local parcel taxes—provide essential infusions of revenue for acquisition of new park land or improvements to existing park infrastructure, most funding for operating and maintaining urban parks and green space comes from city or county general fund dollars generated at the local level supplemented by program fees, concessions, and other revenue sources. Like distribution of park facilities, local park resources are often unevenly distributed along race and class lines. This variation in fiscal capacity is another critical driver of park inequity.

The Trust for Public Land’s ParkScore data from 99 cities across the US finds that wealthier cities spend more on their park systems than their cash-strapped counterparts.¹¹ Another study of park funding across cities in the Los Angeles region found that well-resourced municipalities allocate more funds to parks and open-space uses.¹² Inner-ring suburbs

with large minority populations, and low-income cities and towns beyond the urban core and just outside the suburban spread are most likely to suffer from low government expenditures on parks and green spaces as well as fewer non-profit groups to help fill in gaps.¹³

By denying resources for parks and green spaces to some communities, governments have also systematically denied them of the health and environmental benefits parks confer.

Health, Safety, and Wellbeing: An Overview of the Impacts of Park Inequities

Chronic Disease

Access to parks and green spaces is associated with increased physical activity.¹⁴ Uneven and inequitable distribution of this infrastructure limits opportunities for physical activity. Physical inactivity is one of the factors contributing to the development of type II diabetes and cardiovascular disease.

Mental Wellbeing

Exposure to green spaces can confer improvements to mental health.¹⁵ Exposure to nature has been associated with mental and psychological wellbeing, as well as social cohesion.¹⁶

Housing and Health

Targeted interventions to increase the availability of parks, green space, and activity-promoting facilities in underserved communities have been embraced by diverse sectors for their ability to reduce or prevent persistent health disparities.^{17,18} Over time, however, such investments, combined with shifting job and housing markets, can create the conditions for gentrification and displacement in what were previously affordable neighborhood spaces.¹⁹ Even purposeful, thoughtful park development projects designed to improve community conditions with the input and leadership of residents can unintentionally set the stage for displacement, disrupting the social fabric of a vulnerable neighborhood and leading to the displacement of the very people the intervention was designed to

benefit.²⁰ Long-term residents displaced by green gentrification often end up moving into other park-poor neighborhoods, their situation exacerbated by the negative health impacts associated with people's lives being uprooted and disrupted. Wolch (2014) refers to this as an urban green space paradox.²¹

Displacement is not inevitable, however. There are measures that municipalities can adopt to shield current residents from displacement, like strengthening protections for renters and small businesses, providing employment opportunities for residents connected to park and green space development, adding new affordable housing units, and facilitating homeownership.

Respiratory Illness

One LA-based study found that visitors to parks located in low-income communities are disproportionately exposed to air pollutants compared to park users visiting similar facilities in more affluent, white neighborhoods.²² Low-income, park-poor communities of color are frequently overburdened by high concentrations of hazardous land uses emitting toxic pollutants.

Injuries

According to a study of traffic safety in Los Angeles, areas within a quarter mile of parks have a higher pedestrian and bicycle injury rate due to increased traffic in these areas.²³ Thus the presence of a park may result in more active crash injuries. Low-income communities of color have less traffic safety infrastructure, such as crosswalks and pedestrian signals, which exacerbates the effect of park proximity on active crash injuries. Non-white pedestrians and cyclists already constitute a larger proportion of those involved in crashes, with rates highest among Black and Latino residents.²⁴

Methodology

In 2019, with funding from Urban Institute’s Powering Healthy Lives initiative, Prevention Institute set out to explore the relationship between the availability of parks and life expectancy at the census tract level, using data from the United States Small-Area Life Expectancy Estimates Project (USALEEP). The research conducted for this project is, to our knowledge, the first of its kind in the United States. USALEEP is the first public health outcome measure available nationwide at the census tract level—measuring life expectancy at birth for nearly every census tract in the country.²⁵ A joint effort of The Robert Wood Johnson Foundation, National Association for Public Health Statistics and Information Systems (NAPHSIS), and the National Center for Health Statistics (NCHS) at the Centers for Disease Control (CDC), USALEEP data

provide unparalleled insights into community health and demonstrate that not everyone has the same opportunity to be healthy where they live.²⁶

The results referenced come from a rapid review of the literature and new research conducted by UCLA’s Department of Environmental Health Sciences in partnership with Prevention Institute and informed by the project’s community advisory board. The advisory board included representatives from the LA County Department of Public Health’s Center for Health Equity and the following local base-building organizations: Community Coalition, Esperanza Community Housing Corporation, Long Beach Forward, National Health Foundation, Social Justice Learning Institute, Pacoima Beautiful, and Promesa Boyle Heights.

Park Inequities and Small Area Life Expectancy: New Research Results from Los Angeles

Even a marginal increase in access to park acreage has the potential for considerable life expectancy gains in park-poor census tracts.

Life expectancy refers to the average number of years a person can expect to live. It serves as an indicator of overall community health. Life expectancy in LA County ranges from 69 to 93 years, with steep variations across neighborhoods.²⁷

In partnership with the UCLA Department of Environmental Health Sciences and the community advisory board assembled for this project, Prevention Institute examined relationships between access to parkland, tree canopy, vegetation, and life expectancy in Los Angeles County, with full recognition that many other factors, including those identified above, influence park need and associated health outcomes. The intent was to generate local-level data to equip community advocates, residents, and decision-makers with evidence to make a compelling case for public investments in park infrastructure in the highest need communities.

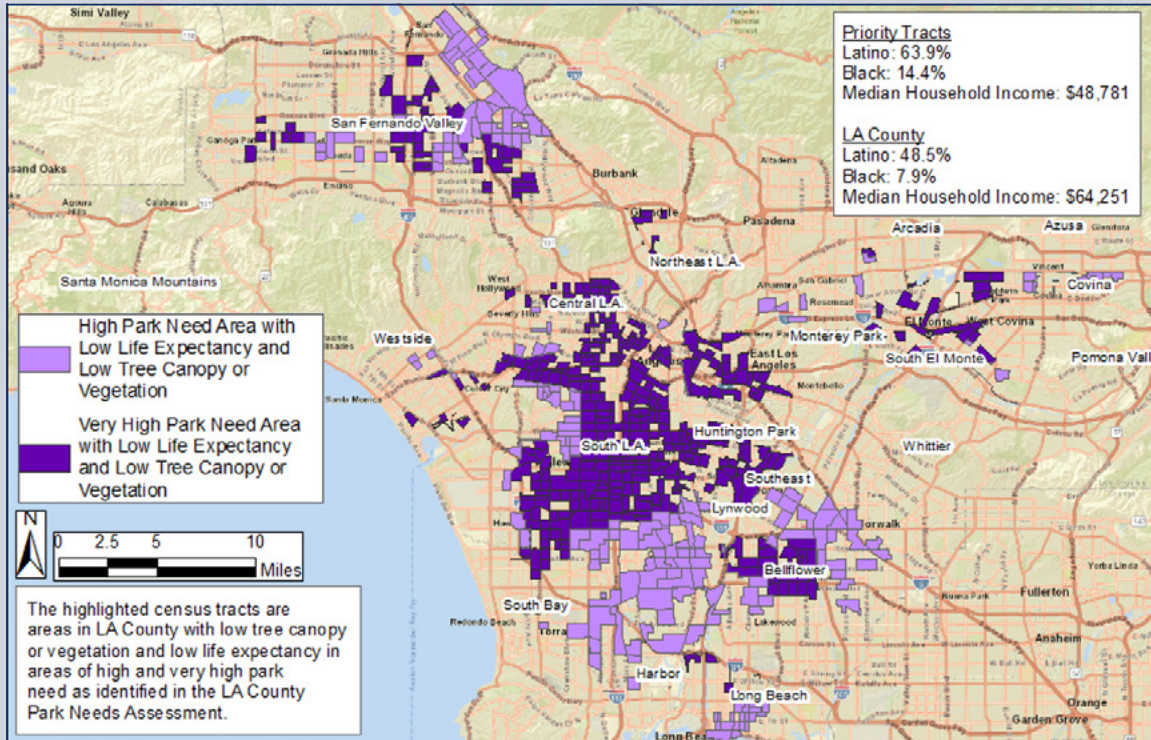
The study used predictive modeling and built upon the work of the PNA, which used park acreage as one of the main park metrics in determining 'need.' Park acreage is a quantitative metric for determining exposure to parks and showed a statistically significant association with life expectancy in the predictive models developed in the study. Results from this effort found that increasing park acreage has the potential to increase life expectancy for residents in areas that have less tree cover or lower vegetation levels than the county median. LA County tracts with less tree cover are typically park poor, disproportionately low income, and generally home to majority people of color: about 60% of LA County's Latino residents and 67% of Black residents live in these areas, compared to 31% of white residents.

This predictive model shows that if all of the census tracts in LA County with park deficits and low tree canopy levels had an increase in park acreage up to the median for LA County tracts (about 54 acres within a two-mile radius of each census tract), LA County would likely see an average gain of two-thirds of a month of life expectancy for each LA County resident living in those tracts.^{i,ii,28} When examining vegetation, there are similar life expectancy benefits, providing further evidence that in areas that lack tree cover, increasing park access could extend life expectancy.ⁱⁱⁱ

The findings suggest that even a marginal increase in access to park acreage has the potential for considerable life expectancy gains in park-poor census tracts. Approximately 164,700 years in life expectancy could be gained across the population of all people living in census tracts in LA County with park deficits and low tree canopy levels.^{iv} Targeted investments in park infrastructure would significantly benefit the health of Latino and Black residents. Calculating gains specifically for these two groups, targeted investments could result in an increase of almost 118,000 years of life expectancy.^v

- i. Low tree canopy refers to below the median level - in this case, half of the census tracts in LA County have tree canopy coverage above 15.7%, and half have below 15.7%. (TreePeople and Loyola Marymount Center for Urban Resilience 2016 Tree Canopy Coverage [2019]).*
- ii. Park deficit refers to below the median level of available park acres - so in this case, half of the census tracts in LA County have an average of above 53.8 available park acres on average throughout the tract, and half below 53.8 available acres. The available park acres metric used here was derived from the Los Angeles Countywide Comprehensive Parks & Recreation Needs Assessment. This variable estimates the number of park acres that individuals living within a certain area have access to, based on the buffers of how much people are willing to travel for parks—with a two-mile maximum distance—of different sizes (the assumption being that people will travel further for a larger park). This data was one factor used to determine the final park need for the assessment.*
- iii. When the predictive model used normalized difference vegetation index (NDVI) as the green space metric in the analysis, which looks at vegetation, the results were similar.*
- iv. These values represent years of life expectancy added for individuals living in tracts with both low park acreage and low tree canopy. An average of two-thirds of one month for each person, multiplied by the total population in these specific tracts, equates to a total gain of 164,700 years.*
- v. Although we cannot definitively say that increased park acreage causes life expectancy to increase, we controlled for numerous variables that could be related to both life expectancy and park access. If this relationship is causal, we would expect to see the substantial gains in life expectancy reported above.*

Figure 2: Reduced Life Expectancy in High and Very High Park Need Areas with Low Tree Canopy or Vegetation



Data sources: Los Angeles Countywide Comprehensive Parks & Recreation Needs Assessment (2016), USALEEP Life Expectancy 2010–2015 Estimates (2018), TreePeople and Loyola Marymount Center for Urban Resilience 2016 Tree Canopy Coverage (2019), National Agriculture Imagery Program (NAIP) Aerial Imagery (2016), United States Census Bureau American Community Survey 5-Year Estimates (2018)

Figure 2 provides a visual representation of where public dollars dedicated for park infrastructure in LA County should be prioritized to maximize health benefits for residents. The map identifies priority census tracts that have 1) low life expectancy and 2) low tree canopy or vegetation, that 3) fall within an area identified as ‘high park need’ (light purple) or ‘very high park need’ (dark purple), as determined by the Park Needs Assessment.^{vi}

These priority census tracts are concentrated in relatively small geographic areas with predominantly non-white populations. The geographic area (shown in Figure 2) where residents face shortened lives and limited access to parks and green space covers about 187 square miles, or 5% of LA County, stretching across 53 cities and 23 unincorporated areas. From a population standpoint, more than one in four of Los Angeles County’s 10,098,052 residents (28%) live in these tracts.²⁹ Additionally, while Latinos make up 49% of LA County’s

vi. In this map, low tree canopy or vegetation refers to falling below the median level of either tree canopy coverage or the normalized difference vegetation index (NDVI) value for LA County. Low life expectancy refers to falling below the median value of life expectancy of LA County, which is 80.6 years. High Park Need and Very High Park Need are defined by the Los Angeles Countywide Comprehensive Parks and Recreation Needs Assessment.

population, they represent 64% of people living in these high park need/low life expectancy tracts. Blacks make up 8% of the total population but represent 14% of the population living in these tracts.³⁰

Conclusion

This research synopsis reviewed evidence on park inequities and related health inequities and describes results from novel research linking park access to longevity. The research presented here focuses on the Los Angeles region, but the park inequities and underlying factors described are not unique to LA's neighborhoods. Similar conditions, challenges, and opportunities for achieving park equity exist across the United States.

Additional detail about research findings in specific LA communities can be found in [community profiles](#) about Boyle Heights and East Los Angeles, South Los Angeles, and Northeast San Fernando Valley.

Urban parks and green spaces should serve every community in a fair, just, and safe manner.³¹ To achieve that goal, local jurisdictions should prioritize investments in park and green space infrastructure and programs proven to increase health, social, and environmental benefits in the communities that need them the most.³² Additionally, the systems, policies, practices, and norms that produced park and green space inequities in the first place must be identified, analyzed, and authentically reformed to ensure that new, prioritized resources achieve their intended results.

To learn more about the policies and practices that could put LA County and other communities across the US on a path toward park equity, please refer to Prevention Institute's [Park Equity, Life Expectancy and Power Building Policy Brief](#).

Latinos make up 49% of LA County's population but represent 64% of people living in high park need/low life expectancy census tracts. Blacks make up 8% of the population but represent 14% of the population living in these tracts.

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