



LEVERAGING PARKS AS CARBON SINKS

How Parks Advance Sustainability and Resilience

Carbon sinks are natural features and environments, such as forests and bodies of water, that absorb more carbon dioxide than they release.

The preserved natural areas commonly found in parks and green spaces pull carbon dioxide from the atmosphere and help mitigate climate change. As cities ramp up efforts to reduce greenhouse gas emissions, parks offer great potential for reducing carbon and supporting climate goals.

While large, preserved wilderness areas and oceans are responsible for absorbing most of the world's carbon dioxide, urban parks and green spaces play an important role in drawing down carbon and mitigating the effects of climate change in cities.

In parks, the primary types of carbon sinks include the following:

- **Vegetation and trees:** Parks provide space for plants and trees, which absorb carbon dioxide during photosynthesis and convert it into oxygen and biomass, such as leaves, wood, and roots. Trees will continue storing carbon until they decompose naturally or are exposed to fire.
- **Soil:** The soil in natural and undeveloped areas of parks absorb and store carbon dioxide from decaying plants and animals. The amount of carbon stored in soil is directly related to the amount of organic matter present. Therefore, allowing grass clippings, deadwood, leaf litter, and other organic matter to decompose naturally in urban green spaces can help support soil health and promote enhanced carbon storage.


According to one study, urban parks and green spaces were shown to have a similar amount of carbon stored in their soils as in natural regions close to cities, indicating the importance of urban green spaces in global carbon sequestration and climate change.

- **Waterways:** Freshwater systems and inland bodies of water, such as those frequently found in parks and green spaces, play a critical role in absorbing carbon from the atmosphere. Maintaining healthy aquatic environments is essential for maximizing carbon capture potential.

Health and Equity Considerations

Carbon sinks help improve air quality, which is especially important for communities of color and those home to people with low incomes. Due to racial and socioeconomic disparities, people of color and those with low incomes are more likely to live in neighborhoods close to pollution sources. They are also more likely to experience health conditions, such as asthma, that are made worse by poor air quality.

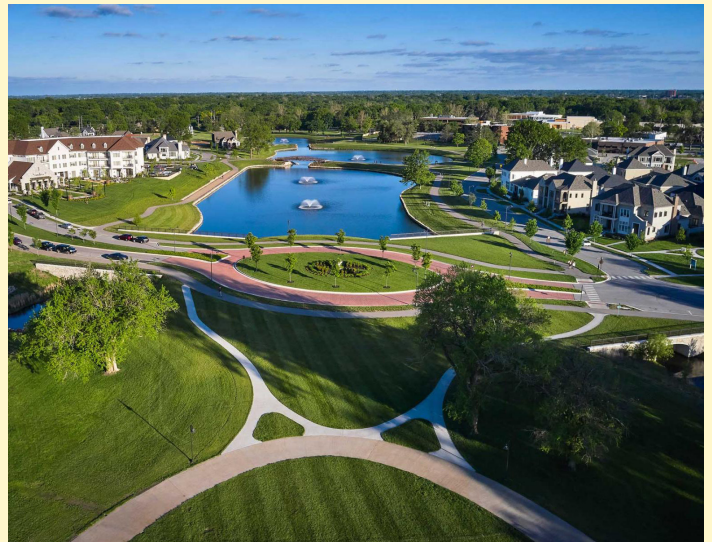
In addition to absorbing carbon dioxide, trees and plants remove other forms of harmful pollutants from the air, including ozone, sulfur dioxide, nitrogen dioxide, and carbon monoxide. Therefore, investing in parks is a key strategy for improving air quality and supporting health equity.



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A mature tree will absorb about 48 pounds of carbon dioxide per year, equivalent to 56 miles driven by an average gasoline-powered vehicle.

Project Example



Meadowbrook Park, Prairie Village, Kansas

Meadowbrook Park is an 80-acre public park that opened in 2019 alongside a 45-acre, \$250 million-plus private residential and mixed-use development—all on the site of a former private golf course and country club. Developer VanTrust Real Estate dedicated the majority of the original 136-acre site to public green space in the form of a county-owned regional park. The transition from golf course to public park entailed significant ecosystem restoration efforts, including strategic tree saves and plantings, as well as improvements to the site's waterways. Combined, the preservation of green space and restoration efforts allow the park to function as a carbon sink while providing meaningful community benefits. Learn more about Meadowbrook Park in the ULI report, [*Successful Partnerships for Parks: Collaborative Approaches to Advance Equitable Access to Open Space.*](#)