TRUST FOR **PUBLIC LAND**™

Park Equity Communities of Practice

PARK QUALITIES: MAPPING PARK EXPERIENCE TYPES

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Acknowledgements

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About Us

The 10-Minute Walk® Program

Our goal is to help close the park equity gap for the 100 million people—including 28 million children—who lack access to a close-to-home park or greenspace. Trust for Public Land works through the 10-Minute Walk® program to support systems-changes that lead to sustainable change within the cities and communities we partner with. We accomplish this work through:

- **Capacity building, peer learning and exchange.** Through our **Park Equity Communities of Practice** and roundtables, we bring together mayors, municipal leaders, partners, and communities to break down silos and advance learning through webinars, workshops, and discussion.

- **Test and accelerate action through pilots and direct assistance.** We work with cities to provide tailored support to address a wide range of parks-related activities—from assessments and planning, to funding and policy, to measurement of benefits. Through **Park Equity Accelerator** projects, we aim to identify high-impact policies, practices, and insights that can be informative and inspirational to other communities.

- **10-Minute Walk® policy recommendations.** We conduct research and partner with local leaders to identify promising policy solutions for expanding quality park access. We synthesize lessons learned into sound, impactful policy recommendations that can more effectively and equitably close the park equity divide.

- **Partnerships to scale impact.** The 10-Minute Walk® program works closely with allied organizations to create alignment around park equity goals across sectors and city departments. We also seek cross-sector partnerships to leverage the multi-benefits of parks as a vital element of sustainable community development.

The Land and People Lab

The Land and People Lab is TPL's "think and do" tank that advances TPL's work through the power of evidence. From geospatial science to ecology, from economics to epidemiology, from social science to urban planning—we collect and analyze data, generate evidence, and get that evidence where it needs to go to influence policy and practice—all within the aim of advancing TPL's strategic commitments to health, equity, climate action, and community.

Park Equity Communities of Practice

We envision a future where parks can truly be common grounds for communities everywhere. To get there, the leaders who shape these spaces need a platform to share their experiences and learn from one another. Since Fall 2021, the 10-Minute Walk® program and the Land and People Lab at Trust for Public Land have convened a peer learning series that has brought together city stakeholders, including city officials, planners, and parks professionals, from over 80 cities. This network serves as both a collaborative hub for cities that are actively focused on improving park equity, as well as an essential place for identifying and elevating cutting edge practices and policies that address park access and quality.

Introduction: 10-Minute Walk to... What?

Parks and green spaces are helping confront some of today's most pressing urban challenges. They offer places to play, exercise, unplug, and connect with others in our communities, serving as essential infrastructure that delivers benefits to people and to natural systems. For example, research shows that close-to-home access to parks and recreational amenities can not only encourage higher levels of physical activity, but can positively influence mental health and quality of life. Parks also directly benefit our environment, from stormwater management to cooler neighborhoods to increased biodiversity.

Despite these known benefits, many Americans do not have parks close to home. TPL has mapped park access for every urban area in the U.S., including Puerto Rico, and has found that 1 in 3 residents does not have a park or green space within a 10-minute walk of home. Further, there are significant racial and economic disparities in the amount and quality of close-to-home parks. Across the 100 most populous cities, residents living in neighborhoods of color have access to 43% less park space per person than those living in predominantly white neighborhoods. A similar disparity exists between low- and high- income neighborhoods. The quality of park spaces and surrounding conditions impact the extent to which communities can realize the social cohesion, improved health and wellbeing, and environmental resilience parks and green spaces support.

Ensuring people have close-to-home access to quality recreational amenities is essential to health and well-being. For the past decade, Trust for Public Land has helped cities across the country measure their park access and incorporate a 10-minute walk goal into policy and planning documents. However, with this legacy come ample opportunities to take a step further and evaluate park impacts by asking, "A 10-minute walk to what, exactly?"

To date, answering this question by measuring park quality in a systematic and comparable way has proved challenging given the lack of standard measures, resources, and frameworks. Yet we know that better data and better metrics could tell a more complete story, as illustrated by early investigations comparing park access by the presence of a park (e.g., 10-minute walk) versus the number and size of those parks within a 10-minute walk (**Figure 1**).

Data tells a story.
Park access: 10-minute walk access is better for people of color

People of color	77%
White population	73%

Better data tells a more complete story.
Park acreage per person: neighborhoods of color have much less park space

Neighborhoods of color	43% less
White neighborhoods	

FIGURE 1. Better data tells a more complete story.

There are a range of metrics that can be used to evaluate the "qualities" of a park, including both physical and social access, each of which provides a different perspective on how people choose to spend time in a given park (**Figure 2**). To deepen our understanding of both the qualities that make parks special, as well as those that perpetuate hidden inequities, Trust for Public Land convened a Community of Practice series to investigate one of these components: park experience types.
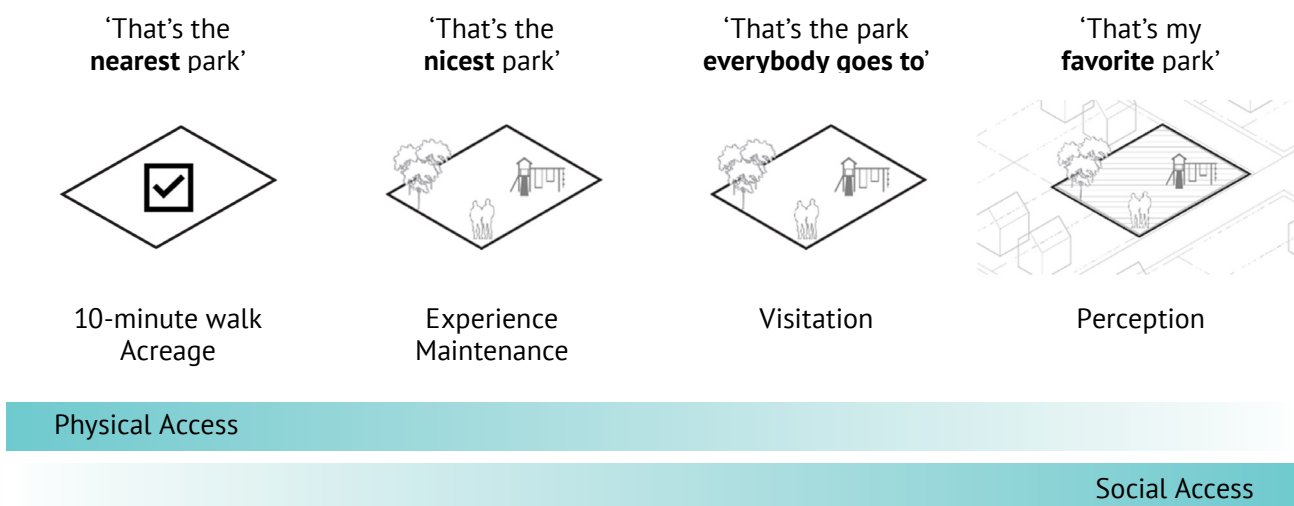

| 'That's the **nearest** park' | 'That's the **nicest** park' | 'That's the park **everybody goes to**' | 'That's my **favorite** park' |
| 10-minute walk Acreage | Experience Maintenance | Visitation | Perception |

Physical Access

Social Access

FIGURE 2. Different measures of park qualities

Currently, most cities lack the ability to evaluate and leverage data on the three common "park experience types"— opportunities for play and exercise, enjoying nature, or spending time with others—in decision-making about funding allocations. Most cities still use acreage per capita targets or 10-minute walk access goals to spatially identify high-need park areas, but neither of these metrics account for the actual visitor experience within their parks. Cities identified two common barriers to incorporating these more relevant metrics: 1) a lack of a commonly accepted framework for park experience metrics and 2) a lack of investment in data collection and monitoring capacity to collect and maintain data on these metrics. If these barriers can be overcome, developing a protocol to incorporate experience types into decision-making processes can help cities:

• Improve capital improvement planning and resource allocation by prioritizing resources based on systematic analysis of park qualities and experience types.

• Identify which parks and/or amenities are most popular (e.g., combine with usage data) and use this information to inform planning and resourcing decisions.

• Develop a park inventory and asset tracking system for agencies without an existing digitized process.

This paper summarizes the findings of the Park Equity Communities of Practice: Park Qualities Incubator, a national discussion series that convened **80 participants from 40 cities**, ranging from planners, researchers, and advocates, to review a methodology to measure the availability of key park experience types across neighborhoods and cities. With this paper, we aim to provide a methodological framework to measure common park experience types, with the ultimate goal of creating a tool to inform policy- and decision-making for park planners, researchers, and advocates.

Part 1. Defining Park Experience Types

Historically, park agencies have classified their parks as either active or passive, typically reflecting the agency's level of management (i.e., actively managed vs. passively managed), rather than the public's experience of that space. This method can falsely characterize actual park usage or the experience types available. For example, many people enjoy actively running on trails through natural areas that are passively managed, while others may enjoy quietly sitting on a bench watching people at an actively managed park.

The historical bifurcation of active or passive parks does not reflect today's reality. One of the defining characteristics of a park is that it offers visitors a place to enjoy one of three common experiences: 1) play or exercise, 2) enjoy nature, or 3) spend time with others. These offerings exist in addition to the opportunities for informal leisure, whether alone or with others, offered by *all* parks. Each of the three experience types provides **important health benefits** to park users:

- **Parks are an ideal venue for physical activity**, helping to reduce obesity and the risk of numerous diseases by encouraging play and exercise. Parks with active amenities and staffed programming, such as walking loops and/ or fitness classes, are associated with significant increases in physical activity.

- **Spending time in natural areas**, whether walking or reflecting in a garden, is a powerful strategy for improving physical and mental health. There is a vast body of evidence documenting the health benefits of natural areas, ranging from reduced anxiety and depression to improved birth outcomes. Some agencies have special divisions to manage natural areas, while others incorporate natural elements throughout their park system.

- **Parks provide a platform to bolster social connections** through both structured group activities and informal encounters. Social connections improve health, as people who are lonely are more likely to get sick and die younger. Notably, parks were one of the few safe havens for socializing during the COVID-19 pandemic, offering a lifeline to seniors, as well as others across the country.

When mapping access to these three types of park experiences, planning staff have generally relied upon two types of datasets:

- **Active and Social Experiences:** Amenity data that identifies parks with opportunities for physical activity or social connections. These parks are often referred to as "developed," "designed," or "amenitized" parks.

- **Natural Areas:** Satellite or management units that identify natural areas, including amounts of "nature" or greenspace in designed parks.

Precedents: Classifying Active and Social Experiences

Our proposed methodology to classify active and social experiences builds upon park experience frameworks developed independently by three cities and counties: San Diego, CA; Montgomery County, MD; and Portland, OR (**Figure 3**). Each of these jurisdictions used amenity data to classify their park inventory into different types of common park experiences.

Montgomery County, Maryland

In Montgomery County, MD, staff at the Maryland-National Capital Park and Planning Commission (M-NCPPC) **assessed the availability** of three common experience types across public spaces in high density corridors: social gathering, active, or contemplative. Each of their amenities was scored based on the 'amount' (0–3 scale) of each experience type it provides. Assets that facilitated community-wide experiences scored higher than those that primarily served individuals. For example, trails scored 3 out of 3 for active experience but only 1 out of 3 for social gathering experience due to the limited ability of groups to gather on trails. One of their key observations was that nearly every amenity type offers some level of social experience. Of their 104 amenity types classified, nearly all (92%) received at least 1 point for social gathering. Almost all were social and either active, contemplative, or both (i.e., very few were only social and very few were not considered social). Their analysis assessed all amenity types, including both traditional amenities (e.g., ballfields and playgrounds) and facilities, as well as streetscape features (e.g., centers, tree canopy, lawns, decorative elements, and walkways).

San Diego, California

On the other side of the country in San Diego, CA, planning staff at the City of San Diego developed a new classification structure to assess levels of service for their community districts as part of their **Parks Master Plan** update. Rather than establish levels of service targets based solely on an acreage per capita metric, staff assigned each recreational park points based on four criteria: park size, range of recreational experiences, connections with other civic infrastructure (e.g., trails, transit, and libraries), and activation or engagement. Within its evaluation of recreational experiences, the City identified three types: 1) health, fitness, and sport amenities; 2) social spaces; and 3) other site amenities. They did not assess natural spaces or other public spaces as part of this methodology. The total points were evaluated at the neighborhood level to support the agency's goal of ensuring each community district has a minimum number of recreational value points per capita.

Portland, Oregon

In Portland, OR, Parks & Recreation planning staff assessed the availability of different park experiences by overlaying level of service radii for 13 types of park experiences, defined using amenity data, across the city. Each of Portland's 13 common park amenities was assigned a level of service distance ranging from ½ mile for play areas to 3 miles for ballfields and other amenities residents have demonstrated a willingness to travel for. As in the case of Montgomery County, this data can be used to quantify the number of experience types "accessible" to each household. This can then inform planning efforts to address neighborhoods that lack things to do at parks, regardless of their park access. The 13 amenities and associated levels of service were:

- ½ mile: Play areas
- 1 mile: Basketball courts, community gardens, spray play
- 2 miles: Dog parks, group picnic areas, natural areas, skate parks, sports fields
- 3 miles: Ballfields, plazas, specialty gardens, tennis courts

To learn more about how San Diego and Portland approach mapping park experience types, view the Park Qualities Community of Practice session recording **here** and explore their presentations **here**.

ENERGIZED PUBLIC SPACES PLAN

Montgomery County, MD
Link to view

- High density portions of County
- Includes all public spaces
- Includes social, active, and contemplative experience types
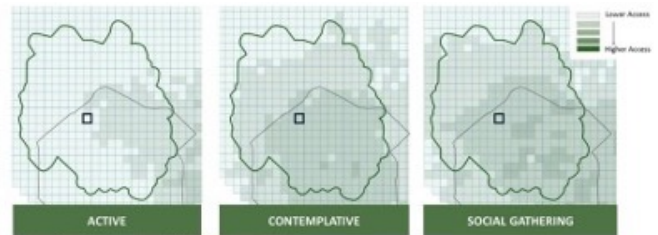- Amounts are normalized with population data at a "household" level

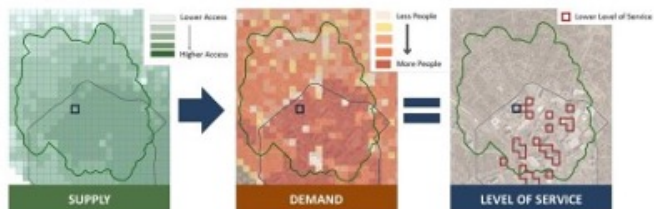Figure 6 - Supply Analysis: Walkable Access to Experiences.

Figure 7 - Sample Supply and Demand Analysis with resulting Lower Level of Service Map.
A full-sized version of this graphic is shown as Figure 28 in Chapter 3.

PARKS MASTER PLAN

San Diego, CA
Link to view

- City-wide
- Only recreational parks (excludes natural areas)
- Combines recreational experiences with park size, access/connectivity, and activation/engagement
- Amounts are normalized with population data for each community district
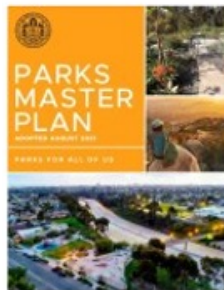
LEVEL OF SERVICE GUIDANCE

Portland, OR
Link to view

- City-wide
- All agency parks
- Accounts for 12 major park features as well as natural areas and community centers
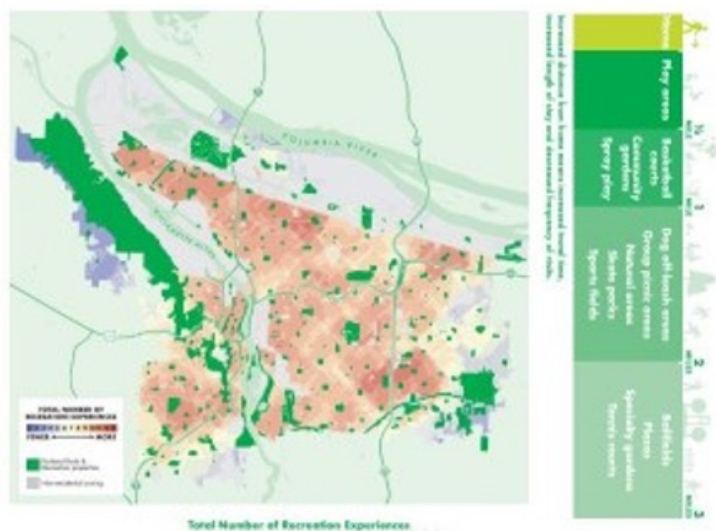- Service areas are adjusted for typical travel distance, but not population

FIGURE 3. Defining Active and Social Experiences, Precedents

Precedents: Classifying Natural Areas

In contrast to traditional neighborhood parks, natural areas are often defined by their lack of active or social amenities, therefore necessitating an alternate methodology for classifying these experience types. Our proposed framework builds on three precedents developed by the White House Council on Environmental Quality, the Natural Areas Conservancy, and NatureQuant (**Figure 4**).

White House Council on Environmental Quality (CEQ)

As part of a Climate & Economic Justice Screening Tool, (CEJST), the White House Council on Environmental Quality (CEQ) uses a "nature deprivation" **index** to identify communities disadvantaged by a lack of green space. This metric, which was designed to apply universally across census tracts nationwide, defines nature deprivation as those census tracts that have the highest combined percentage of developed surfaces covered with artificial materials, such as concrete or pavement, and crop land used for agricultural purposes. The index derives this data from the National Land Cover Database (NLCD) at 30-meter resolution and is produced by the federal Multi-Resolution Land Characteristics (MRLC) consortium. The percentage of "natural" area is calculated for each census tract as 100% minus percent impervious surface minus percent crop land.

Natural Areas Conservancy

In 2014, the New York City-based Natural Areas Conservancy undertook a study to assess different protocols for classifying the amount and type of natural areas across the NYC Department of Parks and Recreation's park and open space holdings. Their classifications were more granular than the CEQ, ultimately categorizing ecological areas into one of 37 unique vegetation classes (e.g., Oak-Pine Forest and Woodland). This schema was translated into a **public mapping tool** that uses land cover data and agency-provided GIS files to summarize natural areas into four distinct types: forests, streams, salt marshes, and freshwater wetlands. However, to distinguish between specific land cover types in denser urban areas, such as maintained lawns versus managed grasslands, additional LiDAR or contextual GIS data was needed. These natural areas may encompass entire sites or portions of a single site, such as portions of Central Park (**Figure 4**).

NatureQuant

NatureQuant, a technology and research company that seeks to monitor, quantify, and evaluate natural elements and exposure to nature, has undertaken a hybrid approach, analogous to WalkScore, that measures access to nature based on a composite index of a wide range of data inputs: satellite infrared vegetation measurements; GIS and land classification datasets; noise, air and light pollution; tree canopy; park features; open water; park space; and computer vision (e.g. Google Streetview). They provide no further public information about their methodology.

NATURAL AREAS CONSERVANCY

New York, NY
Link to view

- Classifies natural areas based on management approach, coupled with satellite data to identify specific type of natural area
- Classifies at the 'sub-park' scale, meaning portions of parks (e.g. Central Park) can be identified as natural areas
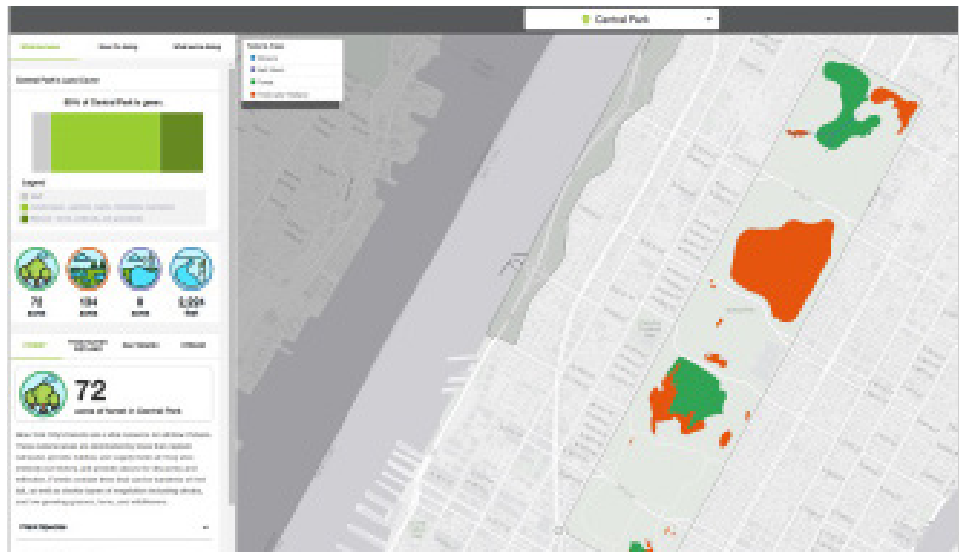
NATUREQUANT

USA
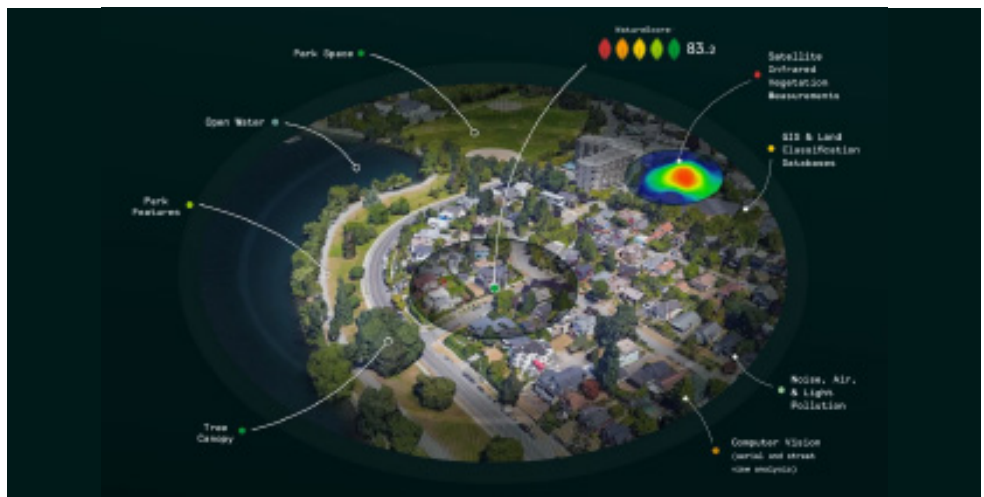**Link** to view

- Composite 'NatureScore' index for each address based on scoring availability of nearby 'nature'

WHITE HOUSE COUNCIL FOR ENVIRONMENTAL QUALITY

USA
Link to view

- Calculates 'nature deprivation' for every census tract in the U.S .using satellite data providing estimates of a) impervious surface and b) cropland
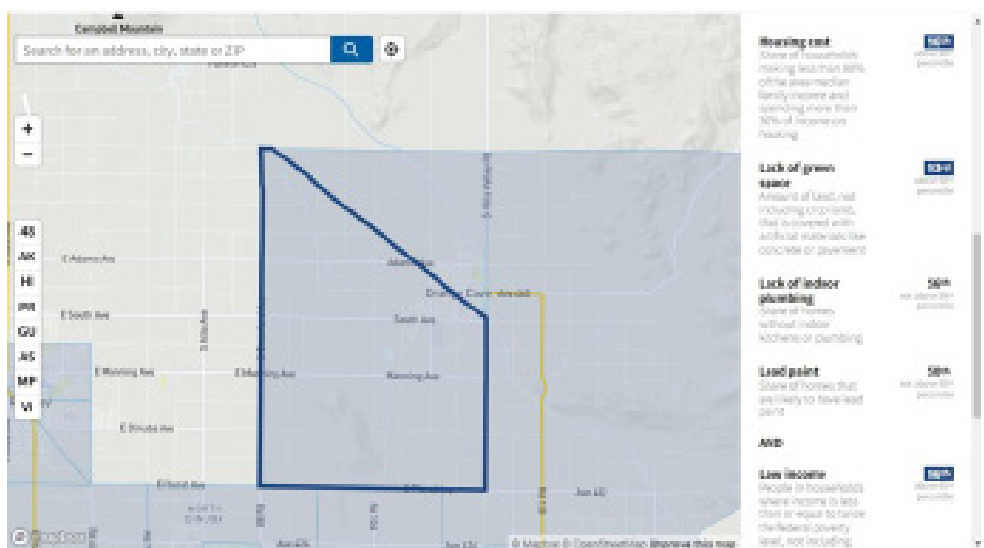

FIGURE 4. Classifying Natural Areas, Precedents

Part 2. Measuring Park Experiences

Measuring Nearby Active and Social Experiences

TPL's proposed approach to measuring nearby active and social experiences involves three steps:

1. Classify existing amenity data into a standardized taxonomy.

2. Aggregate the quantity of active and social amenities available at parks within each neighborhood and normalize for population.

3. Compare values city-wide for use in prioritization formulas.

Step 1. Classify existing amenity data into a standardized taxonomy.

The standardized amenity taxonomy (**Table 1**) enables users to compare the diversity of available amenity types (as in the case of Portland, OR) or to quantify the total number of active or social experiences within a defined area (as in the case of Montgomery County, MD). To achieve this, common amenities are first classified as either "active" or "social." Active amenities largely reflect opportunities for people of all ages to play and exercise and include fields, diamonds, and courts for organized sports, playgrounds and splashpads for child play areas, fitness loops and walking loops for adult "play" or exercise, trailheads, and specialized facilities like skate parks for all-age recreation. Only those spaces that lack a primary purpose of physical activity were classified as social in this schema. These include picnic areas, dog parks, gardens, informal gathering spaces, game courts, and performance spaces.

In the Community of Practice discussions, there was considerable debate regarding how to classify social spaces since, as discussed previously, most park activities can be considered inherently social. For example, playing organized sports or talking to fellow parents and kids at the playground are primarily social activities for many people. Some participants found value in mapping the specific locations of social gathering areas distinctly from active play amenities, while others suggested combining both elements into a combined overall activity score. Additional considerations for future amenity classification exercises included: a) inclusion of pools and indoor recreation facilities, b) accounting for permitted versus unpermitted facilities (e.g., facilities open for informal play), c) accounting for informal play areas such as lawns, d) standardizing mapping of trails, and e) accounting for general park infrastructure improvements such as bathrooms, lighting, trash, water fountains, signage, etc.

TPL's amenity classification can be used to differentiate "amenitized" parks from natural areas or undeveloped parks, as well as to classify parks by purpose. At a simple analytical level, this framework enables users to calculate access to a more specific subset of a city's parks. For example, the amenity classification data can be used to identify which areas in a city lack parks with active amenities—in other words, it filters out undeveloped or sparsely developed public spaces that may be somebody's only "park" within a 10-minute walk, as demonstrated in **Figure 5**. A more sophisticated analysis, such as the one used in Portland, OR, could use this approach to identify which areas lack certain types of park experiences, such as basketball courts or playgrounds, or lack a wide range of park experience types. For TPL's proposed methodology, however, we want to understand the total array of park experiences available to a given neighborhood, which requires additional aggregation.

It's important to note that, while an agency may only have amenity data for the parks under their management, to conduct a more accurate city-wide assessment, amenity data should be collected and classified from all publicly accessible parks within the city.

Table 1. Hierarchical classification of amenities into active and social experience types.

EXPERIENCE TYPE	CATEGORY	FACILITY NAME
Active	Fields & Diamonds	Rectangular Fields, dedicated
Active	Fields & Diamonds	Diamonds, dedicated
Active	Fields & Diamonds	Multi-Use: Rectangle/Diamond Overlays
Active	Fields & Diamonds	Other Fields
Active	Hard Courts	Basketball, dedicated
Active	Hard Courts	Tennis, dedicated
Active	Hard Courts	Pickleball, dedicated
Active	Hard Courts	Tennis/Pickleball Multi-Use
Active	Hard Courts	Volleyball, dedicated
Active	Hard Courts	Racquetball/Handball/Squash
Active	Hard Courts	Other Courts
Active	Child Play Areas	Playground
Active	Child Play Areas	Water play area (splashpad)
Active	Adult Fitness	Walking loop or track
Active	Adult Fitness	Fitness Zone
Active	Specialized facility	Disc Golf
Active	Specialized facility	Skate Park
Active	Specialized facility	Bike/BMX
Active	Specialized facility	Inline Skate/Hockey
Active	Specialized facility	Other Specialized facility
Active	Trailhead	Land Trailhead
Active	Trailhead	Water Access
Social	Picnic Area	Designated picnic area w/ constructed shelter
Social	Picnic Area	Designated picnic area w/o constructed shelter
Social	Picnic Area	Food concessions
Social	Dog Park	Dog Park

EXPERIENCE TYPE	CATEGORY	FACILITY NAME
Social	Garden	Community Garden
Social	Garden	Specialized Garden
Social	Informal gathering	Plaza
Social	Informal gathering	Informal lawn
Social	Game court	Game court
Social	Performance	Performance space

Step 2. Aggregate the quantity of active and social amenities available at parks within each neighborhood and normalize for population.

To identify which areas of a city have greater or fewer active or social park experiences—as defined by the counts of active or social amenities in parks—the amenity data must be aggregated at a neighborhood level. In this methodology, we use buffered census block groups as the unit of analysis. Census block groups have about 1,000 people, which is a small enough quantity to account for the significant demographic variation in urban environments. However, because of their smaller size, we buffer their perimeter a half-mile to account for parks that are directly adjacent to the block group. All amenities that are located within this buffered perimeter are aggregated for each census block group. Other neighborhood units can be used in a similar manner, such as political or management districts. If a spatial amenity layer with specific geolocations for individual amenities is not available, analysts can alternatively geo-locate the amenities by their park. All amenities within each adjacent park can then be aggregated within the buffered census block group. This total amenity count is then divided by the census block group population to normalize the data to enable comparison across a given city. When mapped, the results identify which parts of a city may have relatively high amounts of acreage but fewer opportunities for active experiences (as seen in **Figure 6**). This approach does not account for park access—street networks or entryways to parks—due to the increased processing power required.

Step 3. Compare values city-wide for use in prioritization formulas.

The findings from this aggregation can be mapped to show which neighborhoods have greater or fewer opportunities for physical activity or social connection on a per capita basis. Further analysis and comparison of neighborhoods can leverage demographic data such as race or income to identify the census block groups that have the highest relative percentage of four demographic groups: populations of color, white population, low-income households, and high-income households. The average quantities of active or social experiences can then be compared between those neighborhoods. This same construct can be applied for any two demographic groups, with more significant spatial variation to be expected when comparing race or income than other demographic variables such as age or gender.

Community of Practice participants identified two core limitations to the overall approach outlined above: 1) it does not account for onsite programming or actual use patterns and 2) it does not account for amenity conditions. These limitations are subject to future exploration and would require additional datasets beyond what is typically tracked in a systematic manner by parks & recreation departments.

Measuring Nearby Natural Areas

In contrast to traditional parks, natural areas are often defined by their lack of amenities, therefore requiring a different approach to classification. Our proposed approaches each rely upon two alternate data sources: agency-defined management data and satellite land use data. In the Community of Practice, we discussed the potential advantages and challenges of these two methodologies for identifying natural area experiences.

Option 1. Classifying natural areas by agency management practice.

One approach to identifying natural area experiences is by classifying parks according to how they are managed. "Natural areas" are defined as such because they are managed for their natural benefits and have a "place-like" quality to them. This definition may or may not include undeveloped open spaces in addition to naturalized spaces managed for public enjoyment, and the distinction between the two was subject to great debate among Community of Practice participants.

Trust for Public Land has used the following definition of natural areas for the past twenty years when asking agencies to report on natural acres under management:

> *Natural areas are defined as either pristine or reclaimed areas that are open to the public and managed for their conservation and ecological value (e.g., wetlands, forests, deserts). While they may have trails and occasional benches, they are not developed for any recreation activities beyond walking, running, and cycling. While this will always include designated natural areas, it may also include portions of other parks or park-like places that have natural areas.*

This definition, aligned closely with the approach undertaken by the Natural Areas Conservancy, distinguishes green spaces with amenities (e.g., sports fields) from managed natural areas. This definition also provides a practical way to identify natural areas within an agency's existing park inventory, including portions of larger parks that are managed as natural areas.

However, this approach doesn't necessarily reflect efforts to incorporate natural experiences with designed park spaces. For example, a playground within a forested park would not be classified as a natural area using the definition above, even though it would offer some of the same benefits of a natural experience and, for many, would be preferred to a playground exposed to only the hot sun (**Figure 5**). For example, a playground within a forested park, such as Hertford Village Park in Raleigh, NC, would not be classified as a natural area using the definition above, even though it has 76% permeable surface area and significant natural features. A park with these qualities might offer some of the same benefits of a natural experience, however, whether or not these park types should be included in an analysis of natural area access will be a subject of further exploration.

Figure 5. Hertford Village Park, Raleigh NC

Option 2. Classifying natural areas using satellite land-use data and agency amenity data.

An alternate approach to defining natural areas leverages satellite data to quantify the amount of naturalized land cover across all parks. Building on an adaptation of the approach developed for the CEQ, we combine two data layers—impervious land surface data (satellite data) and agency park amenity data—to remove lawns and sports fields from this calculation (**Table 2** and **Figure 6**). The percentage natural area for each park site is calculated as:

$$\text{Natural Area} = \text{Park Area} - \text{Impervious Surface Area} - \text{Sport and Lawn Acreage}$$

There was considerable discussion as to the limitations of this approach and possible alternatives. The impervious land surface data is only available nationally at a 30-meter (about 1/10th of an acre) resolution, which creates an implicit minimum size requirement for identifying natural areas. Tree canopy data was frequently suggested for use instead, however it only reflects one type of natural area (forested) and does not capture grasslands, deserts, or wetlands.

Table 2. Data layers for defining natural areas.

LAYER	DATA SOURCE	CALCULATION
Park polygons	TPL ParkServe PAD-US City sources	Utilizing park polygons as the base layer enables controlling for public access and park spaces, rather than private or closed natural areas, in all subsequent calculations.
Impervious surface cover	NLCD impervious surface raster (30m resolution)	Calculate the percentage of pervious surfaces for all park polygons by subtracting the impervious surface area from each park polygon area.
Amenity data: sport fields and lawns	City sources (shapefile polygons) Open Street Map	Classify all sport fields and lawns. Subtract these areas from the pervious surface cover calculation.
Calculated percentage of natural value	Calculated	For each park polygon, calculate the percentage of natural surface cover. Determine threshold levels for defining a park as a natural area.

FIGURE 6. Accounting for sports fields and lawns is important when characterizing natural areas using permeable surface data. The park shown below has 89% permeable surface, but almost all of that is due to sports fields.

Quantifying Natural Areas Access

Both approaches outlined above can be aggregated at the neighborhood scale using a similar method to the one described for active and social experiences, instead using acres as the unit instead of amenity counts. This approach accounts for the partial acreage of natural areas within parks, whereas the typology-based approach only aggregates the subset of parks classified as fully natural areas. The aggregated natural area acreage can be evaluated at the neighborhood level (using the desired neighborhood definition) and adjusted for population. Both approaches yield similar, though slightly different results (**Figure 7**). For example, the map on the left reflects Option 1 (typology-based classification), while Option 2 (permeable acreage-based classification) is reflected on the right.
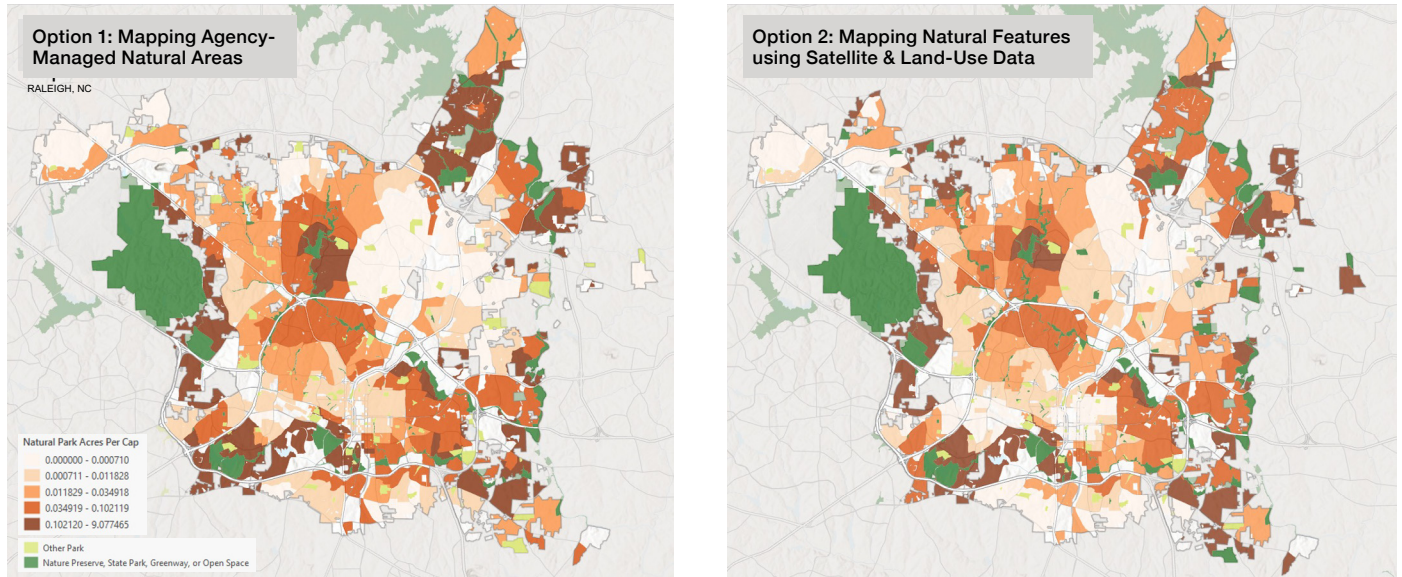

FIGURE 7. Approaches to mapping natural areas reflecting the differences in natural area classifications based on Option 1 (Left) and Option 2 (Right).

Both options were highly regarded by participants, however, the use of satellite data in Option 2 was identified as particularly promising due to its ability to generate a national dataset. In addition, most agencies do not have a rigorous spatial data layer that maps managed natural areas, therefore requiring significant additional data collection and classification work to implement Option 1.

Participants also identified several limitations to both these approaches and suggestions for future improvements. For example, the satellite data used in Option 2 has relatively low spatial resolution, limiting its ability to identify natural areas in smaller parks, and does not distinguish between types of permeable surfaces, such as fields vs. dense vegetation. These limitations can be addressed through the creation of local data sets or the use of other contextual data layers, as demonstrated by the Natural Areas Conservancy in their natural areas mapping.

Part 3. Translating Data to Policy Impact

We initiated the Park Qualities Community of Practice discussion with the goal of clarifying a seemingly simple question: "A 10-minute walk to what?" The methodologies proposed above allow for park planners and advocates to begin answering this question by better identifying access gaps to three common park experiences that are known to improve key health outcomes: play and active recreation, connection with others, and time spent in nature (**Figure 8**). TPL's spatial methodology for characterizing park systems aggregates these experiences on a neighborhood level, adjusting for population, creating a more targeted tool for measuring park access than the 10-minute walk calculation, in which any park experience is equivalent to another. This approach allows for both system-level planning and deeper community engagement in decisions around how and where critical park experiences exist across neighborhoods. For example, a community that would prefer a large park with several soccer fields could have a similar level of active experience opportunities as a community that prefers many basketball courts spread out across small pocket parks, despite the considerable difference in the spatial distribution of their park(s).
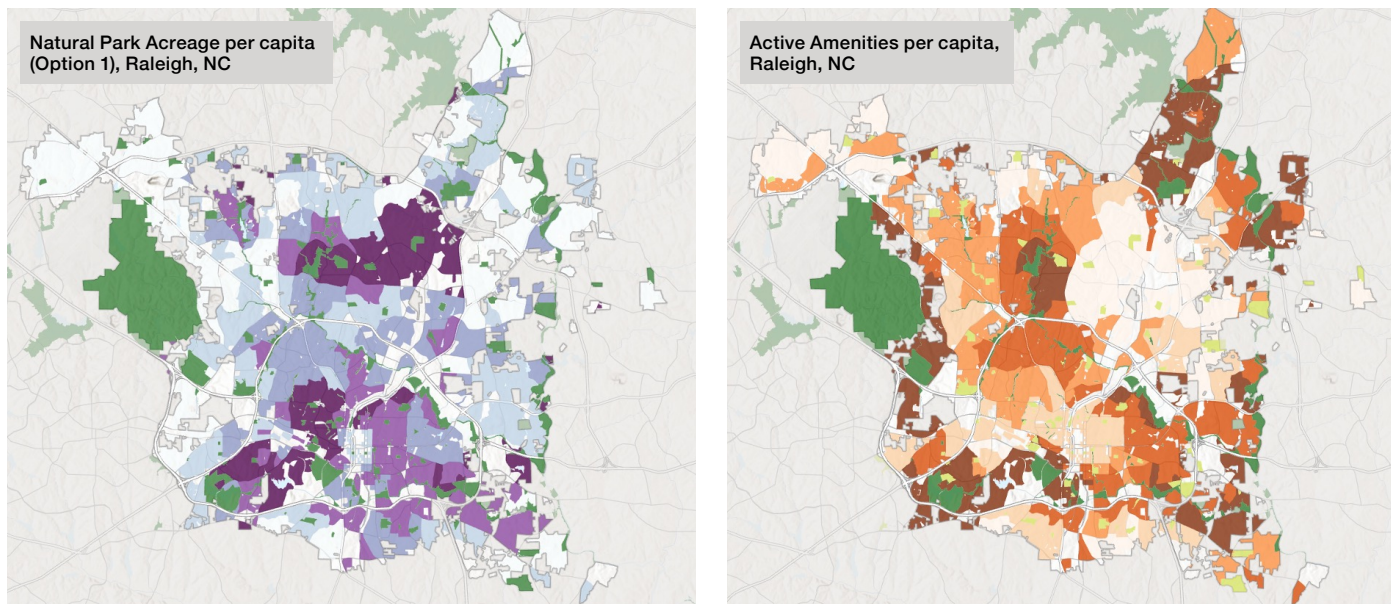

FIGURE 8. Mapping active and natural experience types in Raleigh, NC. Darker shades indicate higher amounts of either active or natural experiences. Parks are identified in green.

Community of Practice participants identified four key applications of this methodology to inform better policy and planning decisions:

1. Incorporate park experience metrics into capital planning and park needs assessments.

Park experience metrics can support improved decision-making for prioritizing capital projects based on hyperlocal needs. For example, **Figure 8** illustrates that while the Raleigh neighborhoods adjacent to large natural areas might appear to be park-rich, these neighborhoods lack some opportunities for play, such as playgrounds, sport fields, or courts. Conversely, this mapping tool could help neighborhoods that lack natural areas advocate for the preservation of open space that may be under threat of development.

Specifically, because these metrics aggregate the park experiences available at a neighborhood level, they can be factored into formulas analogous to other metrics of neighborhood need, such as demographics. Because it speaks to the types of experiences available, this metric better reflects neighborhood-level park needs than 10-minute walk or acreage per capita metrics alone. Additionally, it is a useful tool to identify when acquisitions or new amenities are needed in neighborhoods, which can be missed in a capital improvement plan formula that only measures condition of existing amenities.

2. Incorporate park experience metrics into equity policies.

One of the primary limitations in spatially assessing park equity is the lack of park quality data, which can lead to metrics that don't reflect reality. For example, when comparing 10-minute walk metrics by race or income, we see better park access for people of color or low-income households relative to white populations or high-income households. In actuality, this isn't due to better park access, but rather to a higher portion of people of color and low-income households living in dense urban cores that are more likely to have nearby parks, albeit smaller and more crowded ones. This park experience approach enables a more specific articulation of systematic racial and income gaps based on the historic development of city park systems, which can be used to inform equity-driven policies and funding strategies.

For example, the total active amenities per capita metric can be compared between neighborhoods of color and white neighborhoods to identify potential systematic differences associated with race and access to opportunities for play or exercise. Similar analyses can be done for natural areas and social experiences as well. These analyses can inform policy decisions to address the root causes of park equity gaps and can be combined with community engagement strategies to ensure impacted communities are centered in solutions.

3. Combine park experience metrics with usage data to identify which parks and/ or types of parks are most popular.

The standardized classification system offered through this methodology can facilitate structured analyses of park characteristics and associated visitation patterns to understand if there are certain types of systematically under-utilized or over-utilized amenities or park types. This kind of analysis can help agencies understand if there are common characteristics between their most visited parks, or if certain neighborhoods are oversaturated with a particular type of park experience, potentially identifying opportunities for conversion to park types that better fit community needs.

4. Use park experience metrics to inform level of service standards for land-use policy and development requirements.

Most parkland dedication requirements and/or impact fees are predicated on developments providing a certain amount of park or open space acreage, with less regard to the experiences offered in those spaces. The park experience approach can provide justification for and inform more specific and predictable land-use policies that clarify what is required of development as part of park dedications or impact fee calculations.

Part 4. Looking Ahead

Thanks to the thoughtful feedback and guidance from the Park Qualities Community of Practice, TPL has made significant advances in developing a methodological framework to measure three common park experience types, with the ultimate goal of creating a tool to inform policy- and decision-making. Our hope is that planners, researchers, and advocates will adapt this framework to meet their specific needs, and we will continue to facilitate improvements to the approach so it may become a more widely used metric in park planning.

Park experience types are only one of a wide array of park qualities that can be used to evaluate park equity (**Figure 2**). We continue to advocate for the development of metrics for each of these individual qualities, rather than efforts to ascertain a single, composite metric of park quality. As part of the Community of Practice series, we discussed the development of three other measures of park qualities—park condition, visitation, and perception—building on sample practices from California and Colorado.

For example, the City of San Francisco measures and publishes **park maintenance data** on its entire park system as part of the City Auditor's Office effort to track the success of bond initiatives designed to improve park conditions (view their presentation **here**). This data reflects the work of 200 trained city staff, each of whom assess one or two parks every quarter. Each park's features (e.g., playground, basketball court) are assessed on a range of yes/no condition measures that reflect the feature's cleanliness, maintenance, and usability. These scores are averaged together out of a maximum 100% to produce a replicable metric that is tracked across time. San Francisco has been assessing condition in this systematic way for many years and are thus able to use the data to show a measurable improvement in park condition across the city, which supports their continued requests for maintenance funds.

RRC Associates, a Colorado-based consulting firm, has developed approaches to measure park visitation using mobility data and perception data through resident surveys (view their presentation **here**). Notably, the use of resident surveys—rather than user surveys—includes the perspectives of those who don't currently use parks but might in the future. Measuring perception this way allows planners and park agencies to capture inequities across non-spatially segregated demographic variables, like gender.

Parks have an incredible array of superpowers that improve health, climate, and communities. Yet the field of parks has historically been one of the least data-driven sectors of local government, and thus corresponding metrics and policies have not kept pace with their true potential. As we look for better ways to address historic inequities and advocate for the investments parks need, better metrics are required. Trust for Public Land is excited to leverage our data expertise and continue working with leaders across the country to achieve park equity for all.

Resources for the Communities of Practice

TRUST FOR PUBLIC LAND

We create parks and protect public land where they're needed most so that everyone will have access to the benefits and joys of the outdoors for generations to come.

THE 10-MINUTE WALK® PROGRAM

The 10-Minute Walk program helps cities expand access and green spaces for everyone.

COMMUNITIES OF PRACTICE SESSIONS AND RECORDINGS

Find and download resources by track.

THE LAND AND PEOPLE LAB

The Land and People Lab is TPL's "think and do" tank that advances TPL's work through the power of evidence.

CITY PARK FACTS

Each year, TPL compiles data on parks across the nation's 100 most populous cities. This dataset aggregates park inventories—investment, acreage, and amenities—across all public and private organizations in each city, making it the most comprehensive data set of its kind.

PARKSCORE INDEX

See how the park systems across the 100 most populous U.S. cities stack up against one another.

PARKSERVE

The ParkServe® mapping platform empowers users to plan and advocate for new local parks to help close this gap in park access.

TRUST FOR PUBLIC LAND™

Trust for Public Land is a national nonprofit that works to connect everyone to the benefits and joys of the outdoors.

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