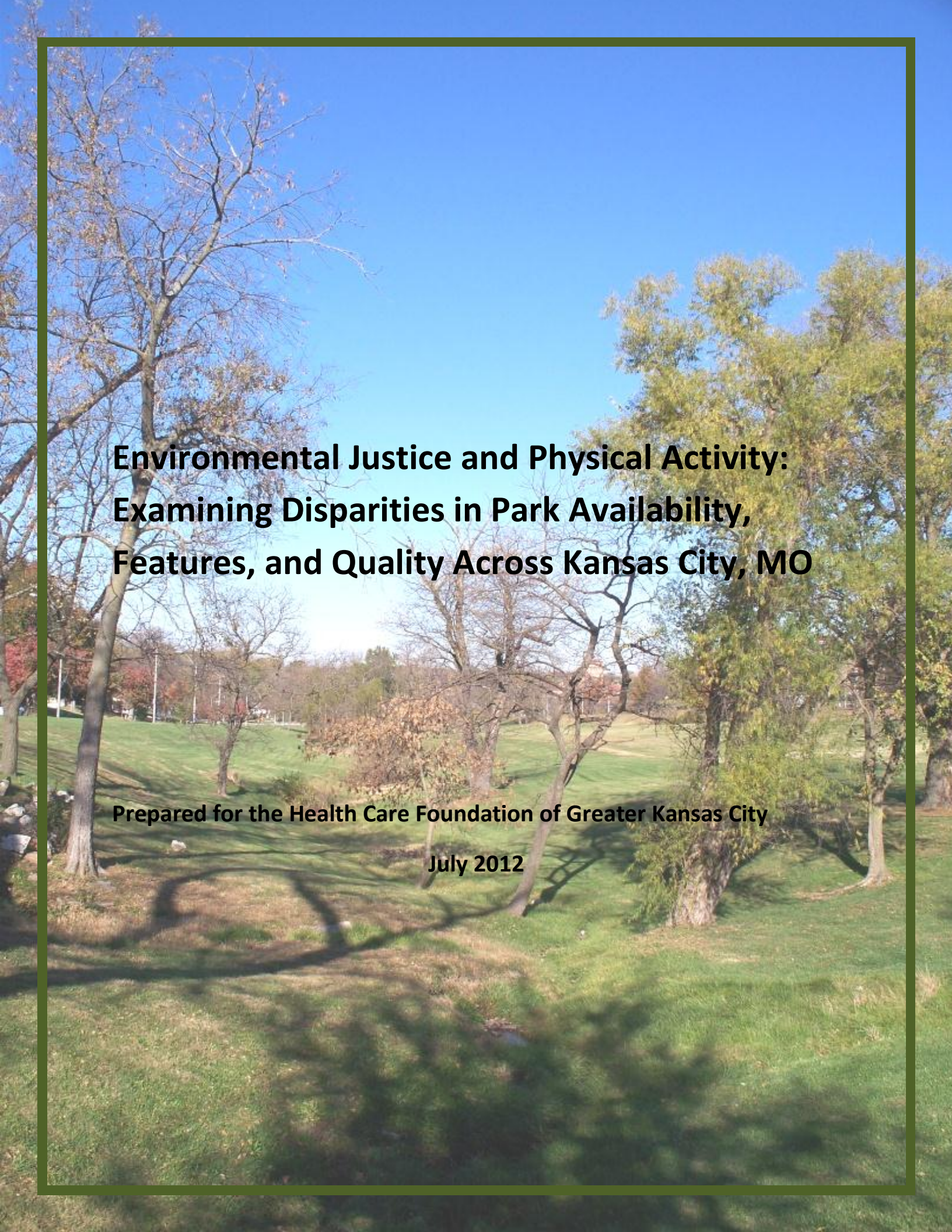
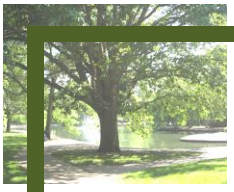


Environmental Justice and Physical Activity: Examining Disparities in Park Availability, Features, and Quality Across Kansas City, MO

Prepared for the Health Care Foundation of Greater Kansas City

July 2012



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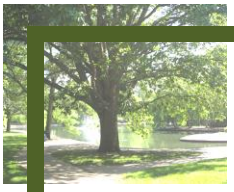


Executive Summary

Parks in Kansas City can be valuable community assets for promoting physical activity and health. This project examined whether park availability, features, and quality were equally distributed across Kansas City, Missouri by income and race/ethnicity. The key findings include:

- **Low income census tracts contained a greater number of parks** on average than medium or high income tracts. There were no differences by race/ethnicity.
- **Parks in high income tracts were more likely to contain playgrounds** than parks in low or medium income tracts.
- There were **fewer parks with trails in high minority areas** compared to low or medium minority areas.
- There were **more parks with basketball courts in high minority areas** compared to low or medium minority areas.
- **Parks in low and high income tracts were more likely to be surrounded by sidewalks** than parks in medium income tracts.
- There were a **greater number of quality concerns per park in low income tracts** than in medium or high income tracts.
- There were **more aesthetic features per park in medium income tracts** than in high income tracts.

In summary, park availability is greater in inner city, lower income areas of Kansas City, Missouri, but investments in certain key aspects of park features and quality may also be needed.

The following paragraphs provide a broader summary of the rationale for the project, its purpose and methods, detailed findings, and conclusions.

Background

Parks are acknowledged as important settings for physical activity, especially in low income areas where other accessible, low cost resources may not be available. Generally, persons from lower income and minority backgrounds exhibit lower physical activity levels. This may be partly explained by growing evidence showing that parks and other recreation facilities are less common in low income and racially-diverse neighborhoods. However, some authors have reported discrepant findings and few such studies have considered the actual content of parks. Thus, more research is needed to fully assess access to quality park environments in low income and high minority areas. This has been identified as an important environmental justice issue for public health.

Purpose

The primary purpose of this study was to examine disparities in park availability, features, and quality across racially and socioeconomically diverse census tracts (CTs) in Kansas City, Missouri (KCMO).

Methods

All CTs (n=174) with a majority of their area within KCMO were included in the study. Data from the U.S. Census Bureau's American Community Survey were used to identify the median household income and the percentage of minority (non-White and Hispanic White) residents for each CT. For both income and percent minority, all CTs were categorized into even tertiles (low, medium, high).

Parks were enumerated using GIS shape files provided by the City of KCMO and were included in an edited file after an in-person audit if they were deemed useable and publicly accessible. Park availability within CTs was measured using ArcView 9.3 by determining the number of parks and the total area of parks intersecting each tract.

Park features (facilities and amenities) were assessed via the Community Park Audit Tool (CPAT). Trained observers used the CPAT to assess the presence of 14 park facilities (e.g., playgrounds, sports fields, trails) and 25 park amenities (e.g., restrooms, lights, car parking). We compared the total number of features, facilities, and amenities per park across CTs, as well as the proportion of parks in the CT containing each individual facility and amenity. Park quality was measured by the average number of quality concerns (e.g., graffiti) and aesthetic features (e.g., landscaping) per park in the tract.

Analysis of covariance (ANCOVAs) with Sidak post-hoc tests were used to analyze differences in park availability, features, and quality across income and race/ethnicity tertiles, controlling for the size of the tract, total population in the tract, percentage of the population under 18 years,

and the tract's income or percent minority (when these variables were not used to stratify the sample of tracts to begin with).

Results

The 174 tracts contained between 0-6 parks, with a mean of 1.22 parks per tract. Park availability analyses revealed that low income CTs contained significantly more parks (M=1.46) than medium (M=1.25) or high (M=1.00) income CTs (F=6.28, p<.01).

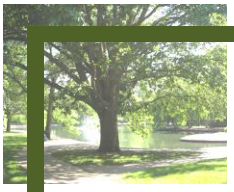
Regarding facilities, high income CTs contained a greater proportion of parks with playgrounds (M=.69) than low (M=.62) and medium (M=.52) income tracts (F=4.88, p<.01). As well, there was a greater proportion of parks with basketball courts in high minority CTs (M=.59) than low (M=.13) or medium (M=.30) minority CTs (F=5.18, p<.01), but fewer parks with trails in high (M=.39) minority CTs than low (M=.60) and medium (M=.55) minority CTs (F=5.61, p<.01). Finally, there were significant differences across income and race/ethnicity tertiles for only one park amenity, with low (M=.87) and high (M=.74) income CTs being more likely to have an adjacent sidewalk than medium (M=.61) income CTs (F=5.13, p=.01). However, the distribution of parks with restrooms was close to significantly different across the three percent minority tertiles (F=2.45, df=2,113, p=.09), with low (M=0.34) and medium (M=0.27) percent minority tracts having a somewhat greater proportion of parks with restrooms than high (M=0.20) minority census tracts.

There were a greater number of quality concerns per park in low income CTs (M=0.75, SD=0.89) than high (M=0.42, SD=0.57) or medium (M=0.50, SD=0.56) income CTs. Finally, there were more aesthetic features per park in medium income (M=3.02, SD=1.57) than high income CTs (M=2.29, SD=1.31).

Conclusion

This study adds to an important body of literature examining income and race/ethnicity disparities in access to active living environments. In KCMO, park availability was greater in low income areas, but some key park features were less common in low income or high minority areas and park quality was generally worse (more quality concerns and fewer aesthetic features) in parks in low income CTs than in medium or high income CTs. Low income and diverse areas of KCMO are generally found within the older, urban core of the city where parks are more established. However, similar to past research showing less spending per capita in at-risk neighborhoods, greater investments in certain park facilities, amenities, and quality components may also be necessary.

Future studies should also consider the quality of specific park facilities and amenities and the composition of neighborhoods around parks, as well as how disparities in access to park environments are associated with physical activity and health outcomes. Most importantly, public health and parks and recreation researchers and practitioners should work together to examine policies that contribute to and that might rectify disparities in access to safe and attractive parks and open spaces. This may lead to significant advancements toward leveling the playing field so that future generations may enjoy the health benefits of KCMO parks.



Authors and Acknowledgments

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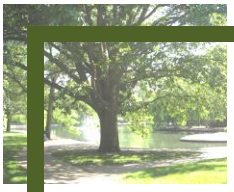

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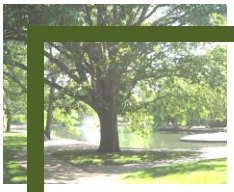

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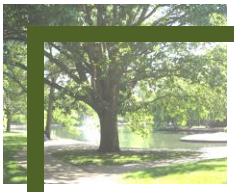


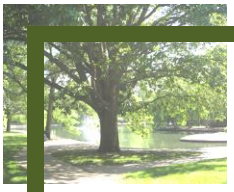
Introduction

Obesity and related chronic diseases have reached epidemic proportions in the United States.[1] Obesity and one of its primary causes, low rates of physical activity (PA), are disproportionately problematic among low income populations and persons from minority backgrounds.[2-4] Recent PA and health promotion efforts have adopted social ecological models that emphasize the role of the built environment in facilitating or constraining opportunities for active transportation and recreation.[5] Public parks are a major environmental resource in most communities and their proximity, accessibility, design, and quality are all important factors influencing their usage and impact on population-level PA.[6-9] Indeed, public parks generally offer diverse opportunities for PA, are present in most communities at low or no cost, and can thereby reach a large proportion of the population, especially disadvantaged groups who may not have access to other resources.[10]

Environmental justice can be defined as the fair treatment and meaningful involvement of all people in the development, implementation, and enforcement of laws, regulations, and policies about diverse environmental issues.[11] Similar to environmental justice, deprivation amplification[12] refers to the concern that persons with fewer *personal* resources that might support active living (e.g., income, knowledge) also may reside in areas more deprived of *neighborhood* PA resources (e.g., sidewalks, parks). Taken together, these ideas provide a conceptual foundation for investigating built environment disparities in low income and racially/ethnically diverse communities.[13]

A growing body of research has examined the distribution of PA resources by neighborhood socioeconomic status (SES) or ethnic/racial composition. It has often been concluded that areas with lower SES and/or a higher minority population contain significantly fewer parks and recreational resources than their higher SES and low minority counterparts.[14-19] However, other studies have reported that park availability is equal or greater in low-income and/or high minority neighborhoods,[20-23] so further research is warranted. Moreover, few studies have explored disparities in the specific facilities and amenities within parks. One exception in Australia found that within higher SES neighborhoods, public open spaces were more abundant and possessed more total amenities (e.g., picnic tables, drinking fountains, toilets) and were more likely to have shade trees, water features, walking and cycling paths, lighting, and various types of signage.[24] Finally, little research[25,26] has evaluated the actual quality of parks and recreation resources by race/ethnicity or income.

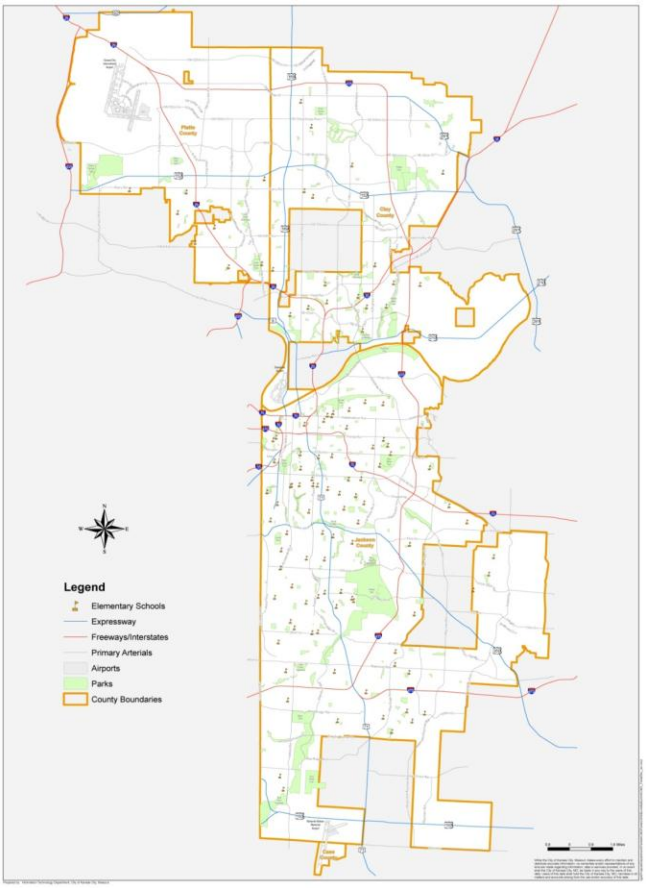
The purpose of this project was to examine disparities in park availability, features, and quality across socioeconomically and racially/ethnically diverse census tracts in Kansas City, Missouri. Better understanding how access to parks differs by income and percent minority is a critical first step in environmental and policy changes aimed at reducing inequalities in health resources (e.g., parks), behaviors (e.g., physical activity), and outcomes (e.g., obesity, disease).



Methods

Study Area and Sample

Figure 1: Map of Kansas City, MO Parks



The Kansas City metropolitan area includes nearly 2 million people across 176 cities and 15 counties in both Kansas and Missouri. This study was set in Kansas City, Missouri (KCMO; shown in Figure 1), which intersects four counties, covers 313 square miles, and is home to almost one-half million (441,545) residents. According to the US Census Bureau,[27] the KCMO population is ethnically and racially diverse (White=61%, Black=31%, Hispanic=7%) and has a broad income distribution (median household income=$39,230; 14% at or below the poverty line). At the time of the study (2011), there were 219 parks (0.09 to 1805 acres) and approximately 12,000 acres of total parkland in KCMO, which included a wide array of facilities and amenities of varying quality.

Parks were identified for enumeration and location in the present study using Geographical Information Systems (GIS) shape files provided by the KCMO Parks and Recreation Department. Ultimately, 165 parks were included in an edited GIS file after an in-person audit determined that they were parkland useable for recreation and were publicly accessible. This edited file of city parks was cross-referenced by location with census tracts to allocate parks (and their area and characteristics) to tracts.

The units of analysis for this study were census tracts in KCMO. Census tracts are small, generally permanent subdivisions of a county that usually contain from 2,500-8,000 people and are fairly homogenous in terms of population characteristics, economic status, and living conditions.[28] In ArcGIS, shape files representing the KCMO municipal boundary and all tracts in the four counties were overlaid to determine tracts partially or fully within KCMO. In total, 186 tracts intersected KCMO (Figure 2), but 12 were more than 50% outside the city boundary and were therefore excluded to maintain the focus on KCMO residents and parks.

Figure 2: Map of Kansas City, MO Census Tracts

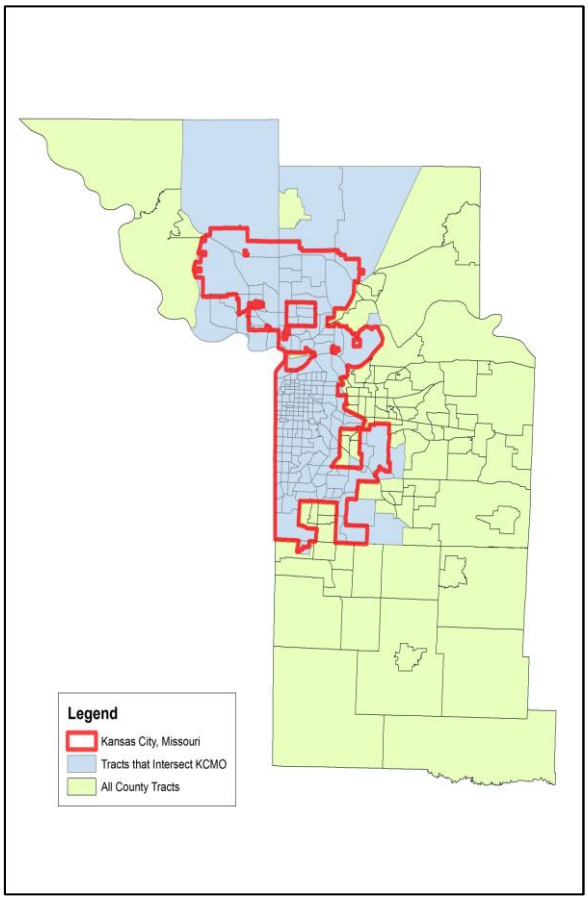
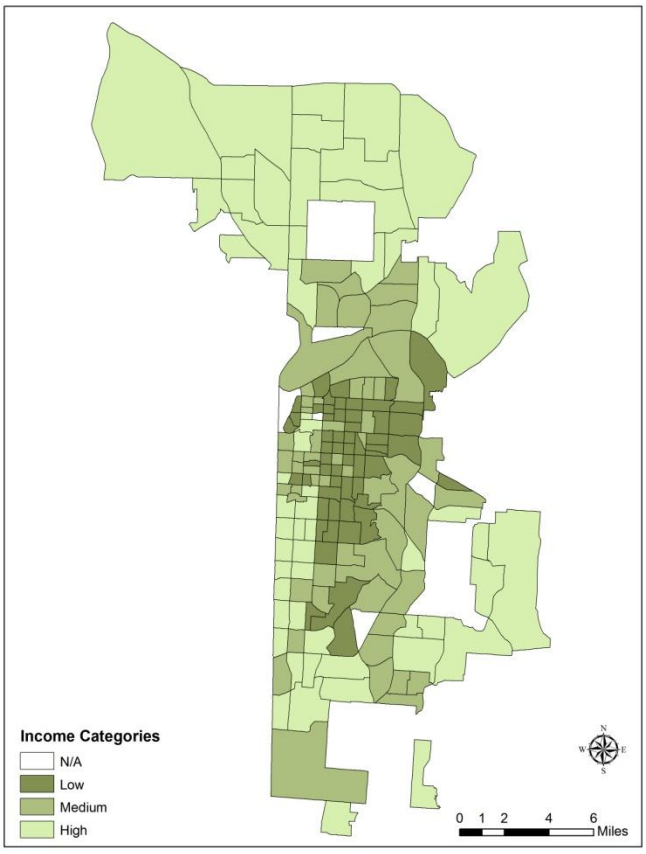


Figure 3: Map of Kansas City, MO Census Tracts by Income Category

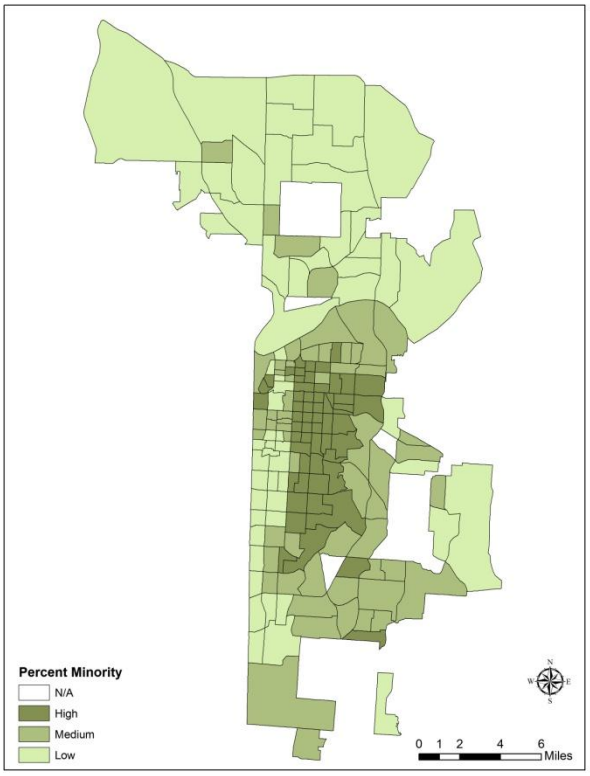


Measures

Census Tract Income and Race/Ethnicity

The American Community Survey (ACS) was used to gather information on income and race/ethnicity for each census tract in KCMO. The ACS is operated through the US Census Bureau and provides communities with annual data outputs to plan investments and services.[29] ACS 5-year (2005-2009) estimates are available at the census tract level and were downloaded from the ACS website. The median household income for each census tract was used to categorize tracts into three even tertiles (low, medium, and high income). For race/ethnicity, we identified the percentage of minority residents, defined as non-White and

Figure 4: Map of Kansas City, MO Census Tracts by Percent Minority Group



Hispanic White persons, and tracts were again categorized into even tertiles (low, medium, and high percent minority). The study tracts are shown in Figures 3 and 4 according to income and percent minority, respectively.

Park Availability

The first community resource variable of interest in this study was park availability, which was measured in two ways. First, we used ArcGIS to determine the *number* of parks that intersected each census tract.[20] Second, a total *amount* of park space (in acres) was calculated for each tract by summing the area of all parks that intersected the tract.

Park Features

The characteristics (e.g., features, quality) of all parks in the study were assessed using the Community Park Audit Tool (CPAT). The CPAT was recently developed to capture key attributes of park environments for physical activity, including the surrounding neighborhood, park facilities and amenities, and comfort, safety, and quality features (see Appendix A). In a recent study, the CPAT displayed excellent reliability.[30] Audits of all KCMO parks were conducted by both trained community stakeholders and research assistants from 2010 through 2011.

The park features examined in the audit tool comprised both park facilities and amenities. Park *facilities* included 14 park activity areas:

- baseball fields
- basketball courts
- dog parks
- fitness stations
- green spaces
- lakes

- playgrounds
- skate parks
- splash pads
- sports fields
- swimming pools
- tennis courts
- trails
- volleyball courts

Park *amenities* included 25 comfort, safety, and neighborhood features:

- animal waste bags
- benches
- bike lanes
- bike racks
- car parking
- dangerous spots
- drinking fountains
- emergency devices
- external trails
- grills
- lights
- neighborhood visibility
- restrooms
- roads through the park
- rules posted about animals
- park monitored
- picnic shelters
- picnic tables
- shade
- sidewalks
- traffic signals
- trash cans
- threatening behaviors
- transit stops
- vending machines

Note: Two of these park amenities – threatening behavior and dangerous spots – may not fit the traditional definition of a positive park attribute that contributes to park visitors' PA, but they were included amongst the other non-facility park features while recognizing this limitation.

Park Quality

Finally, to assess park quality, the presence of quality concerns and aesthetic features in each park were audited. *Quality concerns* were measured using an index of 6 negative attributes which were checked if they were present:

- graffiti
- vandalism
- excessive litter
- excessive animal waste
- excessive noise
- poor maintenance

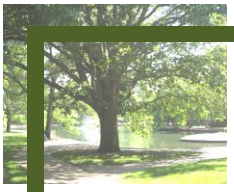
Likewise, *aesthetic features* were measured with a list of 7 features that might enhance park attractiveness or enjoyment:

- landscaping
- artistic feature
- historical or educational features
- wooded area
- trees throughout the park
- water feature
- meadow

The total number of quality concerns and the total number of aesthetic features were summed for each park to determine the mean number of quality concerns and the mean number of aesthetic features per park for each tract.

Analyses

To examine whether park-related disparities exist across KCMO, several analyses were undertaken. First, descriptive statistics (frequencies, means) were used to describe the income and racial/ethnic characteristics of KCMO census tracts as well as the availability, features, and quality of parks within them. Individual analyses of covariance (ANCOVAs) were used to compare low, medium, and high census tracts (for each of income and percent minority) with respect to i) the number of parks and the total amount of park space, ii) the average number of total park features, facilities, and amenities per park, iii) the proportion of parks with individual facilities and amenities, and iv) the average number of park quality concerns and aesthetic features per park. Significant ANCOVAs were followed by Sidak post-hoc tests to examine between group differences. All analyses controlled for the land area of the tract, total tract population, percentage of the tract population under 18 years old, and the tract's income or percent minority (when not used to stratify the sample of tracts to begin with). All analyses were conducted using SPSS 17.0 and findings were considered significant at $p<.05$.



Results and Implications

Census Tract Characteristics

Of the 174 tracts included in the study, four were missing income data and two tracts were missing race/ethnicity data and thus were not included in the respective analyses. Table 1 shows the income and percent minority values for all tracts in the study as well as those tracts within the low, medium, and high income groups and the high, medium, and low percent minority groups.

The average median household income of all tracts was $42,747 (SD=$23,951). The low income category (n=57) ranged from $9,219 to $28,762 (M=$22,694, SD=$4,393), the medium income category (n=56) from $29,167 to $46,276 (M=$36,728, SD=$5,250), and the high income category (n=57) from $46,471 to $173,750 (M=$68,714, SD=$23,518). The mean percent minority for all tracts was 50.4% (SD=33.2%), with the high category (n=57) ranging from 100% to 70.4% non-White (M=90.0%, SD=9.4%), the medium category (n=57) from 70.3% to 23.4% non-White (M=45.8% minority, SD=14.6%), and the low category (n=58) from 23.3% to 0% non-White (M=13.5% minority, SD=6.1%).

Table 1: Census Tract Characteristics

	N	Median Household Income		Percent Minority	
		Mean	SD	Mean	SD
All Tracts	174	$42,747	$23,951	50.4%	33.2%
Income					
Low	57	$22,694	$4,393	19.6%	21.9%
Medium	56	$36,728	$5,250	49.8%	27.5%
High	57	$68,714	$23,518	81.3%	14.0%
Percent Minority					
High	57	$24,987	$6,906	90.0%	9.4%
Medium	57	$39,310	$12,311	45.8%	14.6%
Low	58	$63,461	$27,332	13.5%	6.1%

Note: 4 tracts missing income data and 2 tracts missing race/ethnicity data

Table 2 show that across all census tracts, there was an average of 1.22 parks per tract (SD=1.14, range=0-6) as shown in Figure 5, and 152.2 park acres per tract (SD=410.9, range=0-1853) as shown in Figure 6. With respect to park features, there were, on average, 3.87 out of 14 facilities per park (SD=2.07, range=0-11), 8.75 out of 23 positive amenities per park (SD=3.13, range=2-17), and 12.6 out of 37 total features per park (SD=4.71, range=3-27). Finally,

we observed an average of 0.57 quality concerns per park (SD=0.71, range=0-4) and 2.47 aesthetic features per park (SD=1.45, range=0-6).

Table 2: Characteristics of Parks Across All Census Tracts		
	Mean	SD
Number of Parks	1.22	1.14
Park Acres	152.16	410.89
Average Facilities Per Park	3.87	2.07
Average Amenities Per Park	8.75	3.13
Average Total Features Per Park	12.62	4.71
Average Quality Concerns Per Park	0.57	0.71
Average Aesthetic Features Per Park	2.47	1.45

Figure 5: Map of Kansas City, MO Census Tracts by Number of Parks

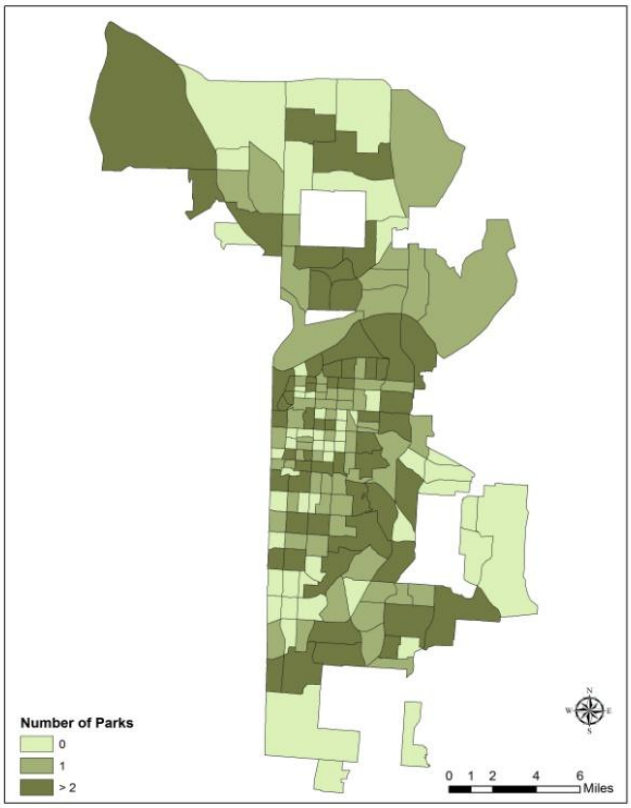
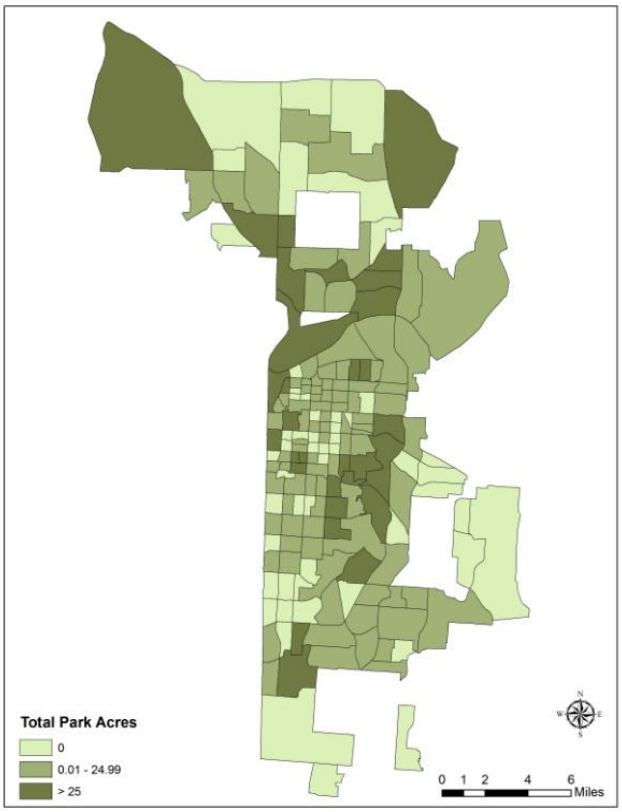


Figure 6: Map of Kansas City, MO Census Tracts by Total Park Acres



Park Availability

Table 3 shows the relationship between tract income and percent minority and the number of parks and total park acres per census tract. The number of parks was significantly different across low, medium, and high income tracts (F=6.28, df=2,163, p<.01). Specifically, low income tracts (M=1.46, SD=1.25) had significantly more parks than medium (M=1.25, SD=1.00) or high (M=1.00, SD=1.10) income tracts (Table 3). As well, the post-hoc test comparing medium and high income tracts approached significance (p=.06).

For total park acres across income tertiles, the ANOVA test approached significance (F=3.09, df=2,163, p=.05), but post-hoc tests revealed no differences between the three groups. Finally, as shown in the bottom half of Table 3, when examining the low, medium, and high percent minority groups, no significant differences were found for the number of parks (F=0.08, df=2,163, p=0.92) or total park acres per census tract (F=1.52, df=2,163, p=0.22).

Table 3: Number of Parks and Total Park Acres by Income and Percent Minority

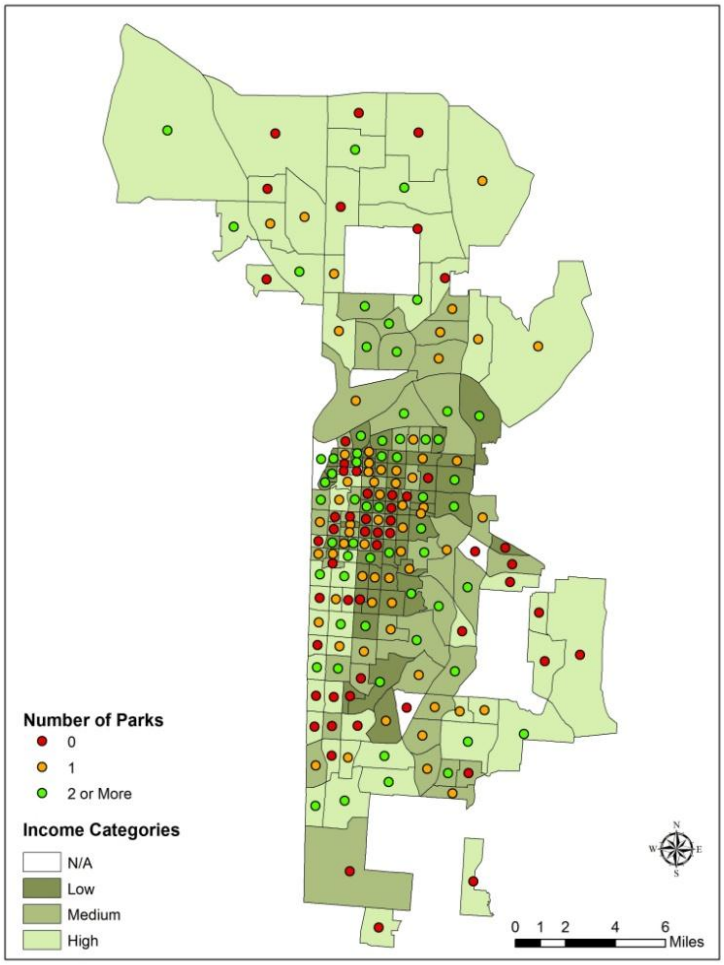
Tract Characteristic	N	Number of Parks		Total Park Acres	
		Mean	SD	Mean	SD
Income					
Low	57	**1.46**[a]	1.25	154.30	420.75
Medium	56	**1.25**[b]	1.00	246.82	544.54
High	57	**1.00**[b]	1.10	66.93	188.41
F		6.28		3.09	
df		2,163		2,163	
p		<.01		0.05	
Percent Minority					
High	57	1.28	1.05	194.48	506.82
Medium	55	1.27	1.13	200.72	475.10
Low	58	1.16	1.23	74.27	185.88
F		0.08		1.52	
df		2,163		2,163	
p		0.92		0.22	

[a,b] Means with different superscript letters are significantly different at p<.05

Park Availability Implications

Overall park availability was greater in low income areas in KCMO (Figure 7). The present findings are similar to a study in California which found that there were more places to engage in PA in low SES areas.[22] Other researchers have reported no discrepancies in park availability between areas of differing SES.[21,29,31,32] There is an equally substantial body of evidence documenting fewer parks in lower income areas.[14-19] For example, in a recent study conducted in Los Angeles, there were fewer parks and park acres in areas of the city of lower SES and higher percent minority, leading to greater park pressure (park area per capita) in those neighborhoods.[33]

Figure 7: Number of Parks per Tract by Tract Income



In KCMO, our findings may be explained by the fact that low income and diverse populations are generally found within the older, urban core of the city which was developed at a time when integrated planning and mixed use development (e.g., open, commercial, residential space) were more common. This pattern is shown in the map in Figure 7 highlighting the number of parks and the income category for all census tracts in our study area.

- ✓ **Low income census tracts in KCMO contain a greater number of parks than medium or high income tracts.**
- ✓ **There were no differences in park availability by race/ethnicity.**
- ✓ **Lower income areas of KCMO are generally found in the urban core where integrated land use planning (including parks) appears to have been more common.**

Park Features

While park availability is important, park features (i.e., facilities and amenities) may be equally significant determinants of park use and PA.[9] Indeed, our study uncovered differences in the availability of certain key individual facilities and amenities.

Park Facilities

Table 4 illustrates the proportion of parks with individual park *facilities*. Only eight of the 14 facilities were included in the analysis because some facilities were either too prevalent (e.g., green spaces) or too scarce (e.g., splash pads) within parks that variation across tertiles was non-existent (the specific inclusion criteria was a skewness value for the facility variable from -3 to +3).

As shown in Table 4, the proportion of parks with playgrounds differed significantly across income groups ($F=4.88$, $df=2,113$, $p<.01$), with low ($M=0.62$, $SD=0.40$) and medium ($M=0.52$, $SD=0.41$) income tracts having a lower proportion of parks with playgrounds than high income tracts ($M=0.69$, $SD=0.38$). Additionally, the overall MANCOVA comparing the proportion of parks with individual facilities across percent minority tertiles was significant ($F=2.60$, $df=16,212$, $p<.01$). Specifically, the proportion of parks with basketball courts was greater in high minority ($M=0.59$, $SD=0.43$) tracts than in medium ($M=0.30$, $SD=0.40$) or low ($M=0.13$, $SD=0.29$) minority tracts ($F=5.18$, $df=2,113$, $p<.01$). As well, the proportion of parks with trails was greater in low ($M=0.60$, $SD=0.41$) and medium ($M=0.55$, $SD=0.41$) minority than high minority ($M=0.39$, $SD=0.41$) tracts ($F=5.61$, $df=2,113$, $p<.01$).

- ✓ **High income tracts contained a greater proportion of parks with playgrounds than low or medium income tracts.**
- ✓ **Parks in high minority areas were more likely to contain basketball courts than low or medium minority areas.**
- ✓ **The proportion of parks with trails was greater in low and medium minority tracts than in high minority areas.**
- ✓ **All of these park facilities are important contexts for youth and/or adult physical activity and energy expenditure, and disparities in access to such resources could contribute to disparities in health outcomes.**

Table 4: Proportion of Parks with Individual Facilities Per Census Tract by Income and Percent Minority								
Tract Characteristic	Playground	Sports Field	Baseball Field	Swimming Pool	Basketball Court	Tennis Court	Trail	Lake
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Income								
Low	**0.62**[a] (0.40)	0.18 (0.34)	0.47 (0.43)	0.12 (0.27)	0.51 (0.44)	0.28 (0.39)	0.49 (0.41)	0.15 (0.29)
Medium	**0.52**[a] (0.41)	0.19 (0.32)	0.42 (0.42)	0.12 (0.29)	0.33 (0.42)	0.27 (0.39)	0.50 (0.43)	0.22 (0.36)
High	**0.69**[b] (0.38)	0.19 (0.36)	0.36 (0.40)	0.06 (0.15)	0.15 (0.32)	0.23 (0.33)	0.54 (0.41)	0.11 (0.25)
F	4.88	0.95	0.36	0.57	0.08	0.76	0.38	1.52
df	2,113	2,113	2,113	2,113	2,113	2,113	2,113	2,113
p	0.01	0.39	0.70	0.57	0.93	0.47	0.69	0.22
Percent Minority								
High	0.67 (0.39)	0.15 (0.31)	0.49 (0.42)	0.12 (0.27)	**0.59**[a] (0.43)	0.33 (0.41)	**0.39**[a] (0.41)	0.18 (0.32)
Medium	0.57 (0.39)	0.24 (0.33)	0.34 (0.38)	0.11 (0.27)	**0.30**[b] (0.40)	0.27 (0.38)	**0.55**[b] (0.41)	0.21 (0.33)
Low	0.55 (0.42)	0.18 (0.36)	0.43 (0.43)	0.08 (0.21)	**0.13**[b] (0.29)	0.17 (0.32)	**0.60**[b] (0.41)	0.10 (0.27)
F	2.98	0.77	1.36	0.04	5.18	1.59	5.61	0.56
df	2,113	2,113	2, 113	2,113	2,113	2,113	2,113	2,113
p	0.06	0.47	0.26	0.96	0.01	0.21	0.01	0.58

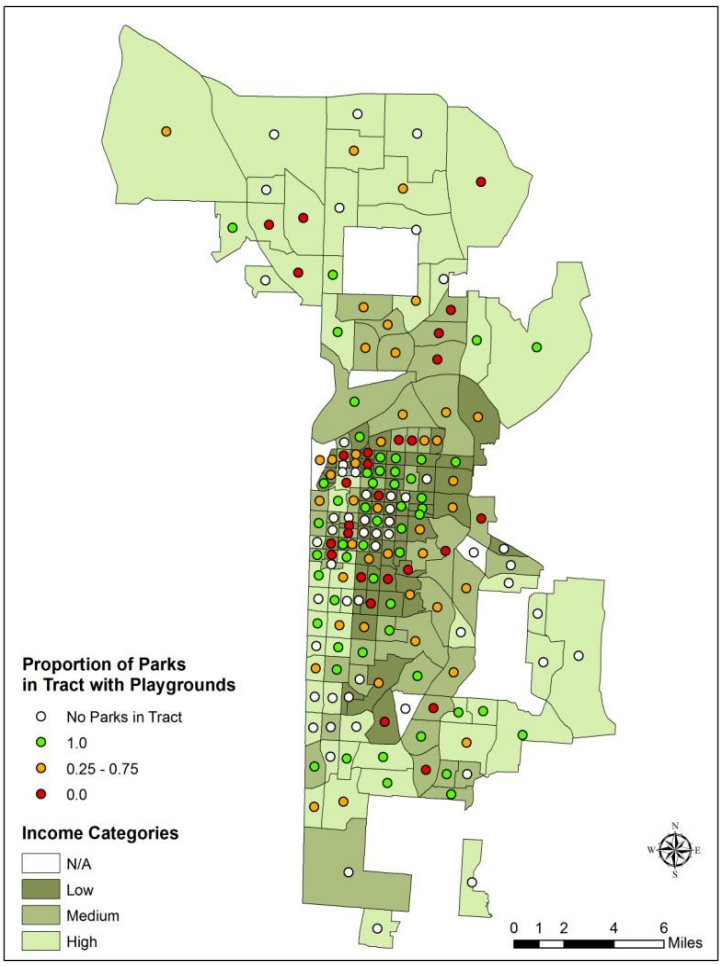
[a,b] Means with different superscript letters were significantly different at p<.05

Park Facilities Implications

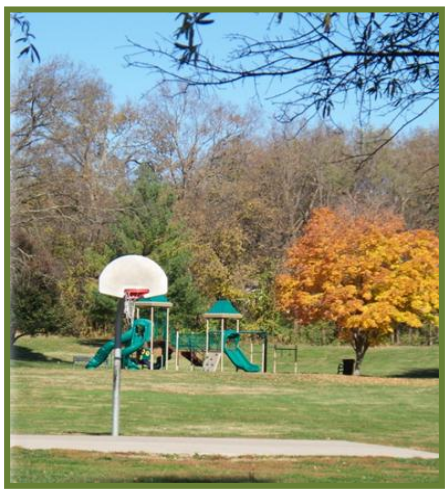
High income tracts had more playgrounds per park than low or medium income tracts, as shown in figure 8. Another study in Australia found similar results in that there were fewer playgrounds and other facilities and amenities (i.e., bike paths, picnic tables) conducive to children's PA in lower SES areas.[24] These findings are

problematic because playgrounds have been shown to promote increased PA intensity and healthier weight status among children.[34-37] Areas of low SES are perhaps the neighborhoods that need playgrounds the most due to the increased likelihood of those areas having a higher prevalence of overweight and obesity. Indeed, the KCMO Parks and Recreation Department has recently added playgrounds to numerous parks, including those in low income neighborhoods. Therefore, improvements are being made, yet as disparities are still evident, additional attention is needed.

Figure 8: Proportion of Parks with Playgrounds by Tract Income



The proportion of parks with basketball court facilities was significantly greater in high minority census tracts. Conversely, the proportion of parks with trails was lower in high minority tracts. Another study reported that lower SES areas contained fewer trails.[38] Overall, these findings are disconcerting as trails are key park resources for PA.[9,39] Likewise, several studies have reported that basketball courts are potential places to intervene due to their high levels of use and user energy expenditure.[36,40] The greater number of basketball courts in high minority areas could be a product of increased demand for these facilities at the time certain parks were built.



However, for all of the disparities observed, future research should explore why certain key park facilities are more prevalent in different areas and the impact this has on park use and PA participation. Nevertheless, none of the other park facilities in our analyses approached significant differences by income or race/ethnicity, which is encouraging from an environmental justice standpoint in that there is a relatively equal distribution for most park facilities across tracts in KCMO.

Park Amenities

Tables 5-7 show the proportion of parks in each tract with various individual *amenities* (similar to the park facilities analyses, 4 amenities – bike parking, bike lanes, vending machines, and emergency devices – were excluded from the analysis due to low variation). To reflect conceptual differences between the types of assessed amenities, we split the remaining 21 amenities into three distinct groups for the analyses: 'neighborhood' amenities (Table 5), 'park safety' amenities (Table 6), and 'park comfort' amenities (Table 7).

As shown in Table 5, the proportion of parks with adjacent sidewalks was significantly higher in low (M=0.87, SD=0.28) and high income (M=0.74, SD=0.38) tracts than in medium income (M=0.61, SD=0.43) tracts (F=5.13, df=2,113, p=.01). The remaining neighborhood amenity characteristics (transit, car parking, external trail, and traffic signal) were not significant by income tract, and none of the neighborhood amenities were significant by percent minority.

Table 5: Proportion of Parks with Individual 'Neighborhood' Amenities Per Census Tract by Income and Percent Minority

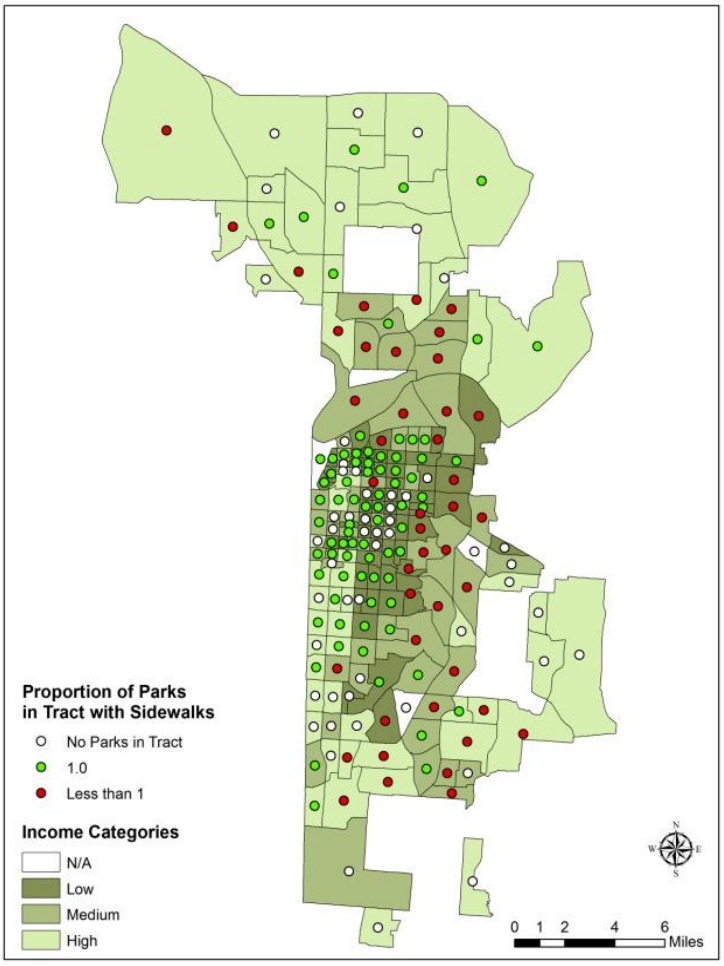
Tract Characteristic	Transit	Car Parking	Sidewalk	External Trail	Traffic Signal
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Income					
Low	0.70 (0.42)	0.90 (0.27)	**0.87**[a] (0.28)	0.07 (0.20)	0.86 (0.26)
Medium	0.54 (0.46)	0.91 (0.22)	**0.61**[b] (0.43)	0.08 (0.22)	0.74 (0.39)
High	0.29 (0.43)	0.87 (0.27)	**0.74**[a] (0.38)	0.12 (0.22)	0.63 (0.43)
F	0.68	0.13	5.13	0.65	2.46
df	2,113	2,113	2,113	2,113	2,113
p	0.51	0.88	0.01	0.53	0.09
Percent Minority					
High	0.69 (0.42)	0.93 (0.23)	0.82 (0.34)	0.06 (0.18)	0.84 (0.31)
Medium	0.51 (0.46)	0.83 (0.31)	0.66 (0.40)	0.10 (0.24)	0.67 (0.39)
Low	0.38 (0.45)	0.92 (0.20)	0.74 (0.40)	0.11 (0.22)	0.75 (0.38)
F	0.93	1.31	1.63	0.19	1.76
df	2,113	2,113	2,113	2,113	2,113
p	0.40	0.27	0.20	0.83	0.18

[a,b] Means with different superscript letters were significantly different at p<.05

Park Neighborhood Amenities Implications

The one individual park 'neighborhood' amenity that was significant in the analyses was sidewalks, with there being a higher proportion of parks with adjacent sidewalks in low and high income compared to medium income tracts, as shown in figure 9. Sidewalks are an important predictor of PA and the absence of such amenities around parks should not be ignored.[41] As well, a study conducted in St. Louis, MO found that neighborhoods that were predominantly African American were much more likely to have uneven sidewalks and sidewalks with obstructions than predominantly White neighborhoods.[42] Therefore, future research should examine not only sidewalk availability, but also the condition of such access-related amenities around parks.

Figure 9: Proportion of Parks with Adjacent Sidewalks by Tract Income



- ✓ **There were few differences by income or race/ethnicity with respect to the park neighborhood amenities examined (see amenities listed in Table 5).**
- ✓ **However, the proportion of parks with adjacent sidewalks was higher in low and high income tracts compared to medium income tracts.**
- ✓ **Sidewalks are important features for accessing parks and efforts should be made to not only ensure their availability, but also that they are well-maintained.**

Table 6 shows the analyses for the six 'park safety' amenities, none of which differed significantly across income or percent minority tertiles. Finally, table 7 shows the proportion of parks with various 'park comfort' amenities by tract income and percent minority. All the ANCOVAs comparing the park comfort amenities by tract income group were not significant. Further, when comparing the park comfort amenities by tract percent minority group, only restrooms were close to significantly different across the three tertiles (F=2.45, df=2,113, p=.09), with low (M=0.34) and medium (M=0.27) percent minority tracts having a somewhat greater proportion of parks with restrooms than high (M=0.20) minority census tracts.

Table 6: Proportion of Parks with Individual 'Park Safety' Amenities Per Census Tract by Income and Percent Minority

Tract Characteristic	Lights	Park Monitored	Dangerous Spots	Threatening Behaviors	Neighborhood Visibility	Road Through Park
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Income						
Low	0.48 (0.45)	0.17 (0.29)	0.29 (0.39)	0.13 (0.28)	0.68 (0.42)	0.35 (0.41)
Medium	0.41 (0.42)	0.07 (0.22)	0.35 (0.44)	0.03 (0.18)	0.72 (0.40)	0.22 (0.35)
High	0.63 (0.41)	0.18 (0.32)	0.23 (0.35)	0.15 (0.32)	0.53 (0.46)	0.32 (0.39)
F	1.37	0.24	0.20	0.35	1.59	1.45
df	2,113	2,113	2,113	2,113	2,113	2,113
p	0.26	0.79	0.82	0.70	0.21	0.24
Percent Minority						
High	0.62 (0.41)	0.22 (0.36)	0.25 (0.36)	0.18 (0.35)	0.60 (0.45)	0.36 (0.42)
Medium	0.46 (0.44)	0.15 (0.24)	0.29 (0.37)	0.09 (0.25)	0.65 (0.43)	0.21 (0.32)
Low	0.47 (0.44)	0.07 (0.20)	0.31 (0.43)	0.05 (0.19)	0.66 (0.44)	0.34 (0.41)
F	1.18	1.11	0.06	0.26	0.04	2.36
df	2,113	2,113	2,113	2,113	2,113	2,113
p	0.31	0.33	0.94	0.77	0.96	0.10

Table 7: Proportion of Parks with Individual 'Park Comfort' Amenities Per Census Tract by Income and Percent Minority										
Tract Characteristic	Restrooms	Drinking Fountains	Benches	Picnic Tables	Picnic Shelters	Grills	Trash Cans	Shade	Rules About Animals	Animal Waste Bags
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Income										
Low	0.22 (0.37)	0.39 (0.41)	0.76 (0.34)	0.65 (0.42)	0.30 (0.39)	0.34 (0.41)	0.78 (0.35)	0.42 (0.42)	0.10 (0.27)	0.06 (0.22)
Medium	0.27 (0.36)	0.43 (0.42)	0.71 (0.41)	0.63 (0.42)	0.24 (0.38)	0.33 (0.41)	0.77 (0.35)	0.49 (0.43)	0.11 (0.28)	0.13 (0.33)
High	0.32 (0.37)	0.51 (0.44)	0.70 (0.37)	0.66 (0.39)	0.38 (0.42)	0.44 (0.43)	0.75 (0.35)	0.55 (0.43)	0.29 (0.38)	0.26 (0.38)
F	0.11	0.03	0.24	0.04	1.25	0.59	0.52	0.24	1.55	0.68
df	2, 113	2, 113	2, 113	2, 113	2, 113	2, 113	2, 113	2, 113	2, 113	2, 113
p	0.89	0.97	0.79	0.96	0.29	0.55	0.60	0.79	0.22	0.51
Percent Minority										
High	0.20 (0.35)	0.33 (0.39)	0.76 (0.35)	0.66 (0.43)	0.31 (0.40)	0.36 (0.42)	0.77 (0.36)	0.42 (0.44)	0.10 (0.28)	0.03 (0.17)
Medium	0.27 (0.33)	0.44 (0.42)	0.70 (0.39)	0.57 (0.42)	0.28 (0.36)	0.34 (0.37)	0.71 (0.34)	0.52 (0.41)	0.11 (0.26)	0.10 (0.28)
Low	0.34 (0.40)	0.55 (0.42)	0.71 (0.39)	0.71 (0.38)	0.31 (0.42)	0.39 (0.45)	0.81 (0.33)	0.51 (0.43)	0.26 (0.38)	0.29 (0.41)
F	2.45	1.65	1.04	0.85	0.14	0.24	0.84	0.42	0.36	1.30
df	2, 113	2, 113	2, 113	2, 113	2, 113	2, 113	2, 113	2, 113	2, 113	2, 113
p	0.09	0.20	0.36	0.43	0.87	0.78	0.44	0.66	0.70	0.28

Park Comfort and Safety Amenities Implications

The analyses examining the presence of several park comfort and park safety amenities across tracts were not significant for either income or percent minority tertiles (although low percent minority tracts had somewhat more restrooms than high minority tracts). Due to low variability in the condition of park facilities and amenities across KCMO (i.e., they were all in reasonably good condition), we did not specifically analyze differences in the quality (e.g., maintenance, cleanliness) of playgrounds, restrooms, or other park features. However, another study set in Los Angeles found that, like our results, parks in inner-city metropolitan areas were more likely to be in neighborhoods of low SES and greater minority population. Those researchers also found, though, that parks in such areas had facilities of sub-par quality, thus making the parks less useable for PA and unsafe to residents and potential users.[33]

- ✓ **There were no differences by income or race/ethnicity in the availability of park comfort or safety amenities (see amenities listed in Tables 6 and 7).**
- ✓ **Additionally, the condition of all types of park features (facilities, amenities, etc.) was found to be quite good.**
- ✓ **Park amenities that contribute to park users' enjoyment, comfort, and safety should continue to be provided in order to support prolonged visits and increased physical activity participation.**

<u>Park Quality</u>

Table 8 shows the average number of quality concerns and aesthetic features per park by income and percent minority tertiles. The number of quality concerns per park varied across income groups ($F=3.74$, $df=2,113$, $p=0.03$), with more quality concerns per park in low income tracts ($M=0.75$, $SD=0.89$) than in high ($M=0.42$, $SD=0.57$) or medium ($M=0.50$, $SD=0.56$) income tracts. The average number of aesthetic features per park across the three income categories was also significantly different ($F=6.08$, $df=2,113$, $p<.01$), with more aesthetic features per park in medium income tracts ($M=3.02$, $SD=1.57$) than in high income tracts ($M=2.29$, $SD=1.31$).

Finally, the ANCOVAs comparing quality concerns and aesthetic features per park by census tract percent minority group were not significant.

Table 8: Quality Concerns and Aesthetic Features Per Park by Income and Percent Minority

Tract Characteristic	Average Quality Concerns Per Park		Average Aesthetic Features Per Park	
	Mean	SD	Mean	SD
Income				
Low	**0.75**[a]	0.89	**2.11**[a,b]	1.29
Medium	**0.50**[b]	0.56	**3.02**[a]	1.57
High	**0.42**[b]	0.57	**2.29**[b]	1.31
F	3.74		6.08	
df	2,113		2,113	
p	0.03		<.01	
Percent Minority				
High	0.62	0.87	2.18	1.52
Medium	0.57	0.65	2.65	1.41
Low	0.57	0.71	2.68	1.39
F	0.71		1.35	
df	2,113		2,113	
p	0.49		0.26	

[a,b] Means with different superscript letters were significantly different at p<.05

- ✓ **On average, parks in low income tracts contained a greater number of quality concerns (e.g., litter, graffiti) than parks in high or medium income areas.**
- ✓ **Parks in medium income tracts contained a greater number of aesthetic features (e.g., water feature, artwork) than parks in high income areas.**
- ✓ **Positive and negative park elements can significantly contribute to perceptions of park quality as well as enjoyment and use of parks for physical activity. Attention should be paid to ensuring parks are well-maintained and aesthetically-pleasing in all areas of KCMO.**

Park Quality Implications

Finally, this study found that there were a greater number of park quality concerns per park in low income tracts and more aesthetic features per park in medium income tracts, as shown in figures 10 and 11. Few previous studies have assessed park quality concerns, but these findings are consistent with researchers in Canada who found that parks in low SES and high minority neighborhoods were below standard quality overall and suffered from specific quality concerns.[25] Related to this, Coen and Ross[43] reported there were more quality concerns in parks in Montreal neighborhoods of poor health status. With respect to aesthetic features, researchers in Melbourne found that there were more aesthetic features (i.e., picnic tables, water features, lighting) in higher SES areas,[24] and that the quality of neighborhood resources is a predictor of engaging in more outdoor activities.[34] Thus, more quality concerns and fewer aesthetic features within parks can lead to both poorer perceptions and actual problems related to park attractiveness and safety, which can deter park visitation and use. Certainly, some of the quality concerns in certain parks may be an indication of the type of use and users rather than maintenance efforts; however, they still impact the park quality. Consequently, environmental justice efforts must take into account not only the availability of parks and the features therein, but also the quality of those resources and their attractiveness for PA.

Figure 10: Average Number of Quality Concerns per Park by Tract Income

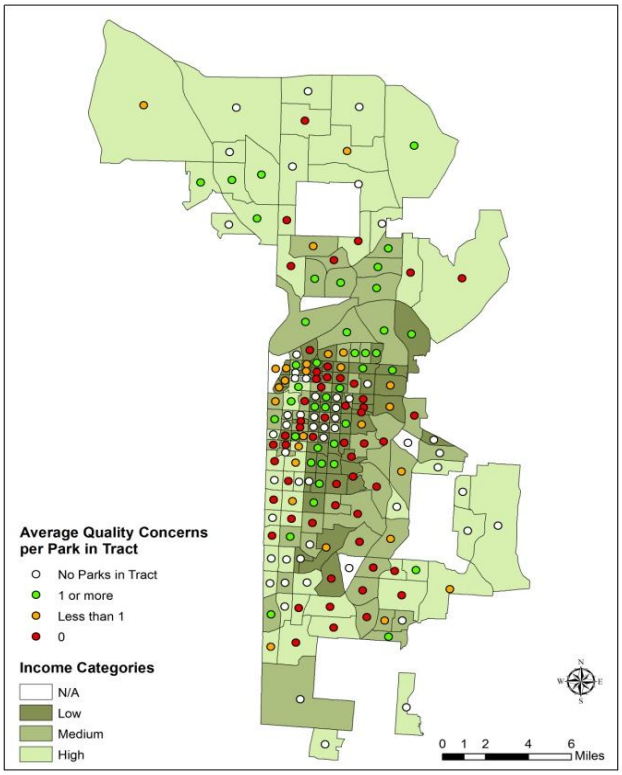
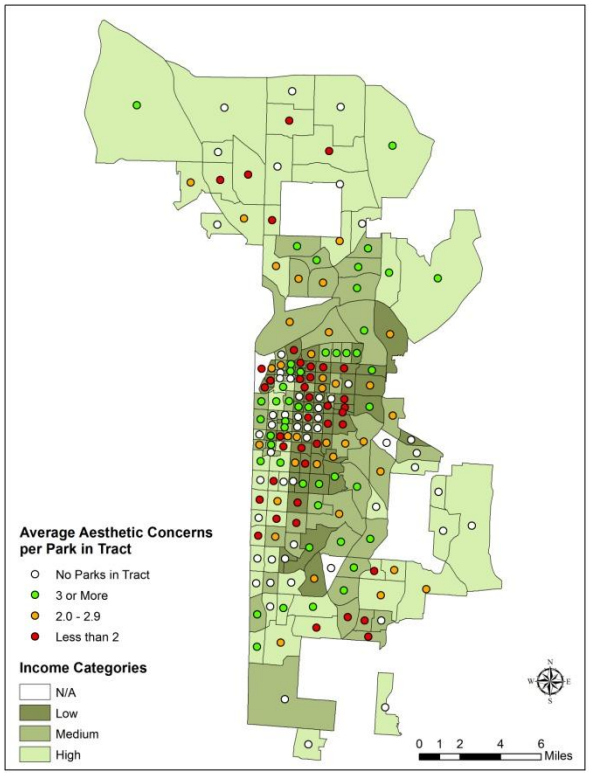


Figure 11: Average Number of Aesthetic Features per Park by Tract Income



Study Limitations

The present study had several limitations. First, our unit of analysis was census tracts, which is comparable to several past studies on similar topics.[14,16,29] However, other geographic areas, such as census block groups, municipal planning districts, postal codes, or zip codes may be equally useful for examining these issues. Additionally, we defined parks as being in a tract if they intersected the tract boundary, whereas future research may wish to examine more complex measures of availability and accessibility. Another limitation was that, given our detailed emphasis on public park availability, features, and quality, resources such as private parks, school grounds, and other recreation facilities were not examined. Further, not all of the park facilities and amenities audited could be included in the analyses due to a lack of variability for some (too scarce or too common). Finally, the present study only accounted for quality concerns and aesthetic features of the overall park, not the quality of individual facilities and amenities. Certainly, opportunities exist to continue to explore how park-related factors vary by socioeconomic status and race/ethnicity across communities.

Conclusion

This comprehensive study compared park availability, features, and quality by income and percent minority across all census tracts in KCMO. There were no glaring discrepancies in availability, features, or quality among tracts, but there were subtle marked differences that should not go overlooked. Low income and diverse areas of KCMO are generally found within the older, urban core of the city where the inclusion of parks in neighborhood planning appears to have been more common. However, similar to past research showing less spending per capita in at-risk neighborhoods,[19] greater investments in certain park facilities and amenities in these neighborhoods may also be necessary. Given that park availability was found to be greater in low income areas, there is already the green space and resources to build upon. Future research and practice should investigate law and policy changes that can ameliorate deprivation amplification in the areas where quality parks are needed most. Moreover, more research is needed to examine how disparities in access to quality park environments are associated with PA and health outcomes. Addressing such disparities in low income and high minority areas will help in leveling the playing field to combat the obesity crisis through the provision of equitable environmental supports for PA.

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Appendix A

Community Park Audit Tool

COMMUNITY PARK AUDIT TOOL

Instructions

Before you begin, review the brief training guide and audit tool and try to locate a map of the park. This is important to ensure each question and response option is clear when you are making your ratings. Then, go to the park and proceed with filling out this audit tool. The tool (6 pages) is divided into four sections that focus on different aspects of the park environment. Additional instructions are provided within each section.

Tips for Using the Community Park Audit Tool (CPAT)

- Drive, bike, or walk around the park to get a feel for the contents and characteristics of the park and surrounding neighborhood.
- The CPAT is organized such that questions on similar topics are grouped into logical sections and the four sections are arranged in the order that you might encounter them during your audit. However, you may need to switch between sections or pages as you complete the park audit. Therefore, it is important to review and be familiar with all of the tool sections and questions before you begin your audit.
- It is also important that you check back through the full document (6 pages) when you are finished to ensure you have completed all the sections and questions.
- Space is provided at the end of each section (and some individual questions) where you can take notes or record comments as you complete your audit. The margins or back of each page (if copied single-sided) can also be used to take notes, but please be sure that all relevant information is transferred to appropriate places on the tool and that all questions are fully answered using the format provided.
- If you see anything during your audit that requires immediate attention, contact the local parks department.

Section 1: Park Information

Park Name: _____ **Observer Name or ID:** _____

Park Address/Location: _____

Were you able to locate a map for this park? ❑ No ❑ Yes

Was the park easy to find onsite? ❑ No ❑ Somewhat ❑ Yes

Date (m/d/yr): ___ /___ /_____

Approximate Temperature: ___ °F **Weather:** ❑ Clear ❑ Partly Cloudy ❑ Rain/Snow

Start Time: _____ am or pm (circle) **End Time:** _____ am or pm (circle) **Length of visit:** ____ min

Comments on Park Information:

Section 2: Access and Surrounding Neighborhood

This section asks about factors related to accessing the park and about features of the neighborhood surrounding the park. Several questions include follow-up responses if you answered yes. After completing all questions, provide any additional comments in the space at the end of the section. **When thinking about the surrounding neighborhood, consider all areas that are visible from all sides of the park.**

When rating the access and surrounding neighborhood, please use the following definition:

- **Useable**: everything necessary for use is present and nothing prevents use (e.g., sidewalks are passable)

1. Can the park be **accessed for use**? (e.g., not locked/fenced, available for activity, etc.) ❑ No ❑ Yes

2. Are there **signs** that state the following (could be same sign)? *(check all that are present)*
   ❑ Park name ❑ Park hours ❑ Park contact information ❑ Park/facility rental information
   ❑ Park rules ❑ Park map ❑ Rental equipment information ❑ Event/program information

3. How many **points of entry** does the park have? ❑ More than 5 (or park boundary is open) ❑ 2-5 ❑ Only 1

4. Is there a **public transit stop** within sight of the park? ❑ No ❑ Yes

5. What types of **parking** are available for the park? *(check all that are present)*
   ❑ None ❑ Parking Lot ❑ On street parking ❑ Bike rack(s)

6. Are there **sidewalks** on *any* roads adjacent to the park? (could be on opposite side of road) ❑ No ❑ Yes
   If yes … Are they useable? ❑ All or most are useable ❑ About half ❑ None or few useable
   If yes … Are there **curb cuts and/or ramps** on *any* sidewalks bordering or entering the park? ❑ No ❑ Yes

7. Is there an external **trail or path** connected to the park? ❑ No ❑ Yes
   If yes … Is it useable? ❑ No ❑ Yes

8. Are there **bike routes** on *any* roads adjacent to the park? *(check all that are present)*
   ❑ None ❑ Marked lane ❑ Designated route sign ❑ Share the road signs/markers

9. Are there nearby **traffic signals** on *any* roads adjacent to the park? (e.g., crosswalk, stop light/sign) ❑ No ❑ Yes

10. What are the main **land use(s) around the park**? *(check all that apply)*
    ❑ Residential ❑ Commercial ❑ Institutional (e.g., school) ❑ Industrial (e.g., warehouse) ❑ Natural

11. Which of the following **safety or appearance concerns** are present in the **neighborhood surrounding the park**?
    (check all that are present <u>in the surrounding neighborhood</u> within sight on any side of the park)

❑ Inadequate lighting (e.g., absent or limited lighting on surrounding neighborhood streets)
❑ Graffiti (e.g., markings or paintings that reduce the visual quality of the area)
❑ Vandalism (e.g., damaged signs, vehicles, etc.)
❑ Excessive litter (e.g., noticeable amounts of trash, broken glass, etc.)
❑ Heavy traffic (e.g., steady flow of vehicles)
❑ Excessive noise (e.g., noticeable sounds that are unpleasant or annoying)
❑ Vacant or unfavorable buildings (e.g., abandoned houses, liquor store)
❑ Poorly maintained properties (e.g., overgrown grass, broken windows)
❑ Lack of eyes on the street (e.g., absence of people, no houses or store fronts)
❑ Evidence of threatening persons or behaviors (e.g., gangs, alcohol/drug use)
❑ Other _____

Comments on Access or Surrounding Neighborhood Issues:

Section 3: Park Activity Areas

This section asks about the activity areas in the park. For <u>each</u> activity area type:

1. **First, indicate the number (#) that are present in the park** (if none, write "0").
2. Then, respond to several subsequent questions about **up to three** of those particular areas. If there are more than three areas for a specific activity area type, **rate the first three you encounter during the audit**. If there were no activity areas of that type present in the park, move on to the next type.
3. Finally, use the space provided to note any additional comments about each type of activity area.

When rating the activity areas, please use the following definitions:

- **Useable**: everything necessary for use is present (excluding portable equipment - rackets, balls, etc.) and nothing prevents use (e.g., are there nets up for tennis courts, goals for sport fields, are trails passable, etc.)
- **Good condition**: looks clean and maintained (e.g., minimal rust, graffiti, broken parts; even surface; etc.)

12. **Activity Areas**	**# of Areas**	**Area 1**	**Area 2**	**Area 3**
a. **Playground**	**(# :_____)**			
Useable		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Good condition		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Distinct areas for different age groups		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Colorful equipment (i.e., 3+ colors)		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Shade cover for some (25%+) of the area		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Benches in/surrounding area		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Fence around area (i.e., half or more)		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Separation or distance from road		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Comments:				
b. **Sport Field** (football/soccer)	**(# :_____)**			
Useable		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Good condition		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Comments:				
c. **Baseball Field**	**(# :_____)**			
Useable		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Good condition		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Comments:				
d. **Swimming Pool**	**(# :_____)**			
Useable		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Good condition		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Comments:				
e. **Splash Pad**	**(# :_____)**			
Useable		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Good condition		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Comments:				
f. **Basketball Court**	**(# :_____)**			
Useable		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Good condition		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Comments:				
g. **Tennis Court**	**(# :_____)**			
Useable		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Good condition		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Comments:				

Activity Areas	# of Areas	Area 1	Area 2	Area 3
h. **Volleyball Court**	(# :_____)			
Useable		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Good condition		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Comments:				
i. **Trail**	(# :_____)			
Useable		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Good condition		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Connected to activity areas		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Distance markers/sign		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Benches along trail		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
What is the trail surface? *(check one)*		❑ Paved ❑ Crushed stone ❑ Dirt/mulch	❑ Paved ❑ Crushed stone ❑ Dirt/mulch	❑ Paved ❑ Crushed stone ❑ Dirt/mulch
Comments:				
j. **Fitness Equipment/Stations**	(# :_____)			
Useable		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Good condition		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Comments:				
k. **Skate Park**	(# :_____)			
Useable		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Good condition		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Comments:				
l. **Off-Leash Dog Park**	(# :_____)			
Useable		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Good condition		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Comments:				
m. **Open/Green Space**	(# :_____)			
Useable		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Good condition		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Comments:				
n. **Lake**	(# :_____)			
Useable		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Good condition		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Is there a designated swimming area?		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Comments:				
o. **Other** (*fill in a type description for each*)		_____	_____	_____
Useable		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Good condition		❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
Comments:				

Comments on Park Activity Areas:

Section 4: Park Quality and Safety

This section asks about factors related to comfort and safety when using the park. Several questions include follow-up responses if you answered yes. After completing all questions, provide any additional comments in the space at the end.

When rating the quality and safety features of the park, please use the following definitions:

- **Useable**: everything necessary for use is present and nothing prevents use (e.g., can get into restrooms, drinking fountains work, etc.)
- **Good condition**: looks clean and maintained (e.g., minimal rust, graffiti, broken parts; etc.)

13. Are there public **restroom(s) or portable toilet(s)** at the park? ❑ No ❑ Yes
    If yes …
    Are the restroom(s) useable? ❑ All or most are useable ❑ About half ❑ None or few are useable
    Are they in good condition? ❑ All or most in good condition ❑ About half ❑ None or few in good condition
    Is there a family restroom? ❑ No ❑ Yes
    Is there a baby change station in any restroom? ❑ No ❑ Yes

14. Are there **drinking fountain(s)** at the park? ❑ No ❑ Yes
    If yes …
    How many different fountains are there? (i.e., units, not spouts) _____
    Are the fountains useable? ❑ All or most are useable ❑ About half ❑ None or few are useable
    Are they in good condition? ❑ All or most in good condition ❑ About half ❑ None or few in good condition
    Are they near activity areas? ❑ All or most are near ❑ About half ❑ None or few are near

15. Are there **bench(es)** to sit on in the park? ❑ No ❑ Yes
    If yes …
    Are the benches useable? ❑ All or most are useable ❑ About half ❑ None or few are useable
    Are they in good condition? ❑ All or most in good condition ❑ About half ❑ None or few in good condition

16. Are there **picnic table(s)** in the park? ❑ No ❑ Yes
    If yes …
    Are the tables useable? ❑ All or most are useable ❑ About half ❑ None or few are useable
    Are they in good condition? ❑ All or most in good condition ❑ About half ❑ None or few in good condition
    Is there a picnic shelter in the park? ❑ No ❑ Yes
    Is there a grill or fire pit in the park? ❑ No ❑ Yes

17. Are there **trash cans** in the park? ❑ No ❑ Yes
    If yes …
    Are they overflowing with trash? ❑ All or most overflowing ❑ About half ❑ None or few overflowing
    Are they near activity areas? ❑ All or most are near ❑ About half ❑ None or few are near
    Are recycling containers provided? ❑ No ❑ Yes

18. Is there **food/vending machines** available in the park? ❑ No ❑ Yes

19. If the sun was directly overhead, how much of the park would be **shaded**? ❑ <25% ❑ 25-75% ❑ >75%

20. Are there **rules posted about animals** in the park? (e.g., dogs must be leashed)? ❑ No ❑ Yes

21. Is there a place to get **dog waste pick up bags** in the park? ❑ No ❑ Yes
    If yes … Are bags available at any of the locations? ❑ No ❑ Yes

22. Are there **lights** in the park? (not including neighborhood street lights) ❑ No ❑ Yes
If yes …
How much of the park could be lit? ❑ <25% ❑ 25-75% ❑ >75%
Are the activity areas lit? ❑ All or most are lit ❑ About half ❑ None or few are lit

23. Is the **park monitored**? (e.g., volunteer or paid staff, patrolled by police, cameras, etc.) ❑ Unsure ❑ Yes

24. Are there **any emergency devices** in the park? (e.g., phone, button, emergency directions) ❑ No ❑ Yes

25. Is there evidence of **threatening behavior or persons** in the park? (e.g., gangs, alcohol/drug use) ❑ No ❑ Yes

26. From the center of the park, how **visible is the surrounding neighborhood**? ❑ Fully ❑ Partially ❑ Not at all

27. Are there **road(s)** of any type through the park? ❑ No ❑ Yes
If yes … Are there traffic control mechanisms on the roads within the park? (e.g., crosswalk, stop light or sign, brick road, speed bumps, roundabouts) ❑ No ❑ Yes

28. Which of the following **park quality concerns** are present **in the park**? *(check all that are present)*
❑ Graffiti (e.g., markings or paintings that reduce the visual quality of the area)
❑ Vandalism (e.g., damaged signs, buildings, equipment, etc.)
❑ Excessive litter (e.g., noticeable amounts of trash, broken glass, etc.)
❑ Excessive animal waste (e.g., noticeable amounts of dog waste)
❑ Excessive noise (e.g., noticeable sounds that are unpleasant or annoying)
❑ Poor maintenance (e.g., overgrown grass/weeds/bushes or lack of grass in green areas)
❑ Other _____

29. What **aesthetic features** are present **in the park**? *(check all that are present)*
❑ Evidence of landscaping (e.g., flower beds, pruned bushes)
❑ Artistic feature (e.g., statue, sculpture, gazebo, fountain)
❑ Historical or educational feature (e.g., monument, nature display, educational signs, etc.)
❑ Wooded area (e.g., thick woods or dense trees)
❑ Trees throughout the park (e.g., scattered trees)
❑ Water feature (e.g., lake, stream, pond)
❑ Meadow (e.g., natural, tall grassy area)
❑ Other _____

30. Are there any **dangerous spots** in the park? (e.g., abandoned building, pit/hole) ❑ No ❑ Yes

Comments on Park Quality and Safety Issues:

Before finishing, please ensure you have answered all questions in the tool.