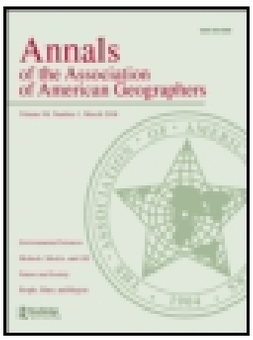

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Parks and People: An Environmental Justice Inquiry in Baltimore, Maryland

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This article examines the distribution of parks in Baltimore, Maryland, as an environmental justice issue. In addition to established methods for measuring distribution of and access to parks, we employ a novel park service area approach that uses Thiessen polygons and dasymetric reapportioning of census data to measure potential park congestion as an equity outcome measure. We find that a higher proportion of African Americans have access to parks within walking distance, defined as 400 meters or less, than whites, but whites have access to more acreage of parks within walking distance than blacks. A needs-based assessment shows that areas with the highest need have the best access to parks but also have access to less acreage of parks compared to low-need areas. Park service areas that are predominantly black have higher park congestion than areas that are predominantly white, although differences are less apparent at the city level than at the metropolitan level. Following Iris Young and others, we argue that conceptions of justice must move beyond distributive justice and address the social and institutional mechanisms that generate inequities. For Baltimore, we examine how segregation ordinances, racial covenants, improvement associations, the Home Owners Loan Corporation, and the Parks and Recreation Board created separate black spaces historically underserved with parks. These mechanisms ultimately fueled middle-class flight and suburbanization and black inheritance of much of Baltimore's space, including its parks. If justice demands just distribution justly achieved, the present-day pattern of parks in Baltimore should be interpreted as environmental injustice. *Key Words: Baltimore, environmental justice, parks, segregation.*

本文探讨了在马里兰州巴尔的摩市的公园分布，作为一个环境正义问题对此加以分析。除了使用现有的方法来测量公园的分布与可获取性，我们采用了一种新的公园服务区测量方法，即利用泰森多边形和人口普查数据的分区密度重置来衡量潜在的公园阻塞，以作为衡量公平的结果。我们发现，非裔美国人相对白人，在人均拥有步行距离内可达的公园数目上有着更高的比例，步行距离定义为 400 米或以下，但白人在人均拥有步行距离内可达的公园面积上相对黑人占优。基于需求的评估显示，对公园需求最高的地区拥有最好的公园可获取性，但是相对低需要的地区，所获得的公园面积要小一些。在以黑人为主的公园服务区，相对于以白人为主的服务区，有较高的公园拥挤阻塞现象，虽然这种差异在一般城市的级别不如在大都市那么明显。和爱瑞斯杨以及其他学者一样，我们认为，正义的概念必须超越分配正义，并对产生不公平的社会机制和制度机制加以阐述。对于巴尔的摩，我们研究了历史上隔离条例，种族协议，改进协会，自居房主贷款公司，公园和娱乐管理处是如何造成了被隔离的和供给不足的公园黑色空间。这些机制最终引发了中产阶级的移居和郊区化，黑人继承了大部分的巴尔的摩城区，包括它的公园。如果正义要求正义的分配以正义的方式得以实现，当今巴尔的摩的公园格局应当解释为环境非正义。*关键词：巴尔的摩，环境正义，公园，隔离。*

Este artículo examina la distribución de parques en Baltimore, Maryland, en términos de justicia ambiental. Además de los métodos usuales para medir la distribución y acceso a los parques, nosotros empleamos un novedoso enfoque de área de servicio del parque, el cual utiliza los polígonos Thiessen y la distribución dasimétrica de datos censales para medir la congestión potencial del parque como una medida del grado de equidad. Descubrimos que hay mayor proporción de afroamericanos que blancos con acceso a los parques a distancia peatonal, la cual se define como de 400 metros o menos; pero más que los negros, los blancos pueden acceder a parques de mayor extensión, situados a distancia peatonal. Una evaluación basada en niveles de necesidad muestra que las áreas con las mayores necesidades tienen el mejor acceso a parques, pero también tienen acceso a parques de menor extensión, en comparación con lo que ocurre en áreas de necesidades menores. Las áreas de servicio de parques en donde predomina la población negra exhiben mayor congestión que las áreas con predominio blanco, aunque las diferencias son menos aparentes al nivel de ciudad que del metropolitano. Siguiendo a Iris Young y otros, argüimos

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que la concepción de justicia tiene que ir más allá de la justicia distributiva y debe enfrentar los mecanismos sociales e institucionales que generan inequidad. Examinamos cómo en Baltimore las ordenanzas de segregación, convenios raciales, las asociaciones de bienestar, la Corporación de Préstamos para Propietarios de Vivienda, y el Consejo de Parques y Recreación, han contribuido a crear espacios negros separados, siempre deficientes en el servicio de parques. En últimas, estos mecanismos llevaron a la desbandada de la clase media, al desarrollo de la suburbanización y la herencia por los negros de gran parte del espacio de Baltimore, incluidos sus parques. Si a la justicia se la concibe como distribución justa, lograda con justicia, entonces el actual patrón de parques de Baltimore debe interpretarse como injusticia ambiental. *Palabras clave: Baltimore, justicia ambiental, parques, segregación.*

Environmental justice as a body of scholarship and forum for activism is now more than twenty years old. In its infancy, the primary focus of environmental justice scholarship was the distribution of toxic facilities and waste dumps in relation to where groups of people live, especially racial and ethnic minorities. The landmark study by the United Church of Christ Commission for Racial Justice (1987) set the course of early scholarship, given the alarming finding that racial and ethnic minorities were more likely than whites to live near hazardous waste facilities, even controlling for income. It implied two things that most believe to be unjust: that residents could not buy themselves out of a polluted neighborhood or that polluting industries were deliberately targeting or discriminating against racial and ethnic minority neighborhoods. In response, a number of "which-came-first" studies (see, for example, Been and Gupta 1997) were undertaken to test whether industry was deliberately targeting racial and ethnic minority communities with unwanted land uses. If minority communities moved near to a polluting industry after it was established, the argument goes, the spatial coincidence of minority community and toxic facility could not stand as a charge of environmental racism. The approach is superficially persuasive, yet it ignores the institutional structures in place, such as zoning and real estate practices, that might increase the probability of disadvantaged communities living near hazardous facilities. Although many of the institutions are not overtly discriminatory, they might be governed by more subtle forms of racism that guide relations between rich and poor, white and non-white (Bolin et al. 2002). White privilege has also helped to ensure that most unwanted land uses end up on the other side of town. Pulido (2000) reminds us that in Los Angeles, the distribution of polluting industry is as much a function of where whites are located as where racial and ethnic minorities reside. Most of the environmental justice literature has treated minorities as a magnet for polluting industry, but the distribution of toxic and hazardous facilities is also a function of whites having the power to expel and exclude the dirtiest industries from their neighborhoods.

Because many of the early studies, including the which-came-first investigations, could show only statistical associations between variables, in the last decade a number of scholars have examined the place-specific, historical, and institutional structures that have created environmental inequities (Hurley 1997; Boone and Modarres 1999; Craddock 2000; Bolin et al. 2002; Boone 2002, 2005; Ishiyama 2003; Bolin, Grineski, and Collins 2005; Colten 2005; Saha and Mohai 2005; Grineski, Bolin, and Boone 2007). Hurley's (1997) study of Wagner Electric in St. Louis, for instance, shows how housing and occupational discrimination restricted jobs and neighborhoods around the plant mainly to whites, a pattern that persisted well into the 1960s. After white flight in the 1960s, African Americans moved in, encouraged by blockbusters, and were left with a toxic brownfield. Others have highlighted the legacy of early zoning decisions on present-day land use to explain patterns of inequity (Maantay 2001, 2002; Boone 2005). Such intensive case studies and narratives provide "thick description" that enriches understanding of processes at work. Boone's (2002) study of environmental equity in Baltimore, for example, demonstrates how a long history of disadvantage for black Baltimoreans led to a present-day distribution of toxics release inventory (TRI) sites primarily in white neighborhoods. Decades of strict occupational and residential segregation kept blacks away from white, working-class neighborhoods that enjoyed short walks to nearby factories. Persistent residential patterns mean that whites are now living closer than blacks to toxic industrial sites, an unexpected legacy of discrimination and racism. In Buffalo, New York, similar historical processes of labor force exclusion and residential segregation have resulted in disproportionately low exposure of blacks to toxic sites (Krieg 2005). A study from Detroit finds similar patterns where residential segregation has excluded blacks from industrial districts and in turn reduced proximity to toxic facilities (Downey 2005). Bowen et al. (1995) found no significant spatial correlation at the census tract level between TRI sites and race in Cleveland for 1990, but they did not investigate historical explanations for those patterns. These results from older

industrial cities suggest that regional patterns of environmental inequities might exist, but further historical investigation is required to properly theorize on this issue.

In contrast to the place-specific historical studies, national-level assessments continue to search for broad patterns and explanations of inequity. In a recent assessment, Mohai and Saha (2007) find that race, controlling for income and sociopolitical factors, is a critical variable for explaining the distribution of hazardous waste facilities. Similar to the United Church of Christ study of twenty years ago, they argue that racial targeting, housing discrimination, and other race-related factors cannot be discounted in the explanations for hazardous waste facility siting. Using the Department of Environmental Protection's Risk Screening Environmental Indicators database, which models relative levels of toxic releases in a given region, Downey (2007) tests the hypotheses that higher residential segregation and income inequality lead to greater environmental inequalities in the nation's largest metropolitan areas. He finds that the sixty-one metropolitan areas show variation in environmental inequality that is explained neither by degrees of residential segregation nor by income inequality. Downey argues, as have others (Mennis and Jordan 2005; Saha and Mohai 2005) who have undertaken quantitative environmental justice studies, that detailed, historical studies are necessary to illuminate the processes of environmental inequality formation.

By far, the majority of environmental justice studies have focused on the distribution of environmental disamenities, but recent research has cast attention on environmental amenities, especially parks. Coming to terms with white privilege compels researchers to understand not only how privilege repels environmental burdens, such as polluting industry, but also how it might attract more than its fair share of environmental amenities. Parks are usually treated as environmental amenities because of the multiple social, economic, health, and environmental benefits they provide. People who live near parks benefit from access to public space and opportunities for social interaction; strength of social ties and sense of security are typically greater in neighborhoods with public parks. The health benefits of parks are clear: People who live close to parks are three times as likely to get the recommended amount of daily exercise when compared to those who live beyond walking distance (Giles-Corti et al. 2005). Mental health has also been shown to improve when individuals have access to green spaces (Chiesura 2004; Maller et al. 2006). Parks also provide a number of important ecosystem services such as a moderation of the urban heat island effect, reduction in certain air pollutants, absorption of precipitation, filtration of water pollutants, reduction in floods, reduced loads on stormwater systems, and the provision of wildlife habitat. In some parks, community gardeners take advantage of these ecosystem services every day in growing food. Park planners have long touted the economic benefit of parks as justifications for city expenditures. Most studies indicate that property values increase with proximity to parks (Crompton 2001; Sherer 2006). More than a century ago, Frederick Law Olmsted showed that tax revenues from properties adjacent to Central Park more than offset the costs of building the park (Rosenzweig and Blackmar 1992). Real estate developers also understand this arithmetic and build parks into residential subdivisions, although a notable trend is the increase in the number of private parks open exclusively to subdivision residents or members of home owners associations.

Most urban parks, however, are public property and should stand up to the scrutiny of just distribution. Defining just distribution is not a simple task, but it is central to the environmental justice project. Some Marxist scholars are wary of the term *justice*, given that traditional systems of justice have worked to perpetuate class advantages for the elite. But the association of justice with social struggle, fairness, and equity means that it has broad currency from multiple political and analytical viewpoints (Harvey 1973; Merrifield and Swyngedouw 1997). At the most basic level, just distribution can be defined as equal distribution of benefits and burdens among individuals or groups. In the case of parks, this might be measured, for instance, as equal numbers of acres per person or recreation funds per capita by neighborhood or socioeconomic status. A difficulty with equal distribution as an outcome measure, however, is that it does not take into consideration needs, merits, or choices of the population, which can differ considerably between a middle-class family with two cars and a single mother who depends on walking or public transportation. Neighborhoods with an abundance of young children or elderly individuals might merit more parks and recreation spaces than do neighborhoods with working-age individuals. Equity or fairness of distribution, which incorporates needs, choices, and merits, is more difficult to measure and evaluate than equality of distribution but is an ethically defendable position (Hay 1995). Equitable distribution can also serve as an efficient model for park planning when budgets for parks and recreation are scarce.

Nevertheless, a focus on distribution or outcome equity is not an entirely satisfactory assessment of justice. Very early on in the environmental justice movement, affected groups protested their systematic exclusion from the decision-making process that resulted in waste facilities being located in their communities (Bullard and Johnson 2000). Marginalized groups not only had to bear the disproportionate burden of toxics but also the humiliation of not being heard by decision-making bodies and regulatory agencies. Their protests highlighted the fact that unjust procedures can be as harmful and unjust as uneven distributions of hazardous wastes (Shrader-Frechette 2002; Agyeman 2005). The same applies for the allocation of amenities. A just distribution of parks does not constitute justice unless the procedures to allocate them are just as well. I. M. Young (1990, 15) argues that distributive justice "tends to ignore the social structure and institutional context that often help determine distributive patterns." An assessment of justice should therefore include an evaluation of procedural equity, including the institutions that guide social relations and decision structures.

The history of the public parks movement shows that securing public, democratic space in just ways has never been easy. "Public space," notes Mitchell (2003, 11), "is always an achievement (invariably against very steep odds)." Even when that public space is achieved, it often reflects decisions and motives of a privileged group, but such systems of privilege have long been challenged. More than a hundred years ago, Progressive era politics and the playground movement brought park distributional issues to the fore, a reaction to the large bucolic landscape parks, such as New York's Central Park, which were designed to reflect interests of male elite society (Cranz 1982). By the late nineteenth century, women, adolescents, and children were deemed legitimate park users with specific needs (T. Young 1995). Although the playground movement had larger social engineering goals in mind, especially to reduce juvenile delinquency, it forced city leaders to confront the issue of distribution of parks, rather than just design, and to serving groups previously ignored. Fear of mob rule and the belief that parks could soothe the revolutionary zeal of working-class citizens played a part in shifting priorities (Pipkin 2005). Principles, however, did not always lead to practice. Plans for large urban parks reflecting elite tastes continued to find their way into city budgets, often at the hands of influential groups beyond the reach of the electorate.

As the twentieth century progressed, the growth of the bureaucratic classes placed more authority in the hands of administrators for the distribution of urban services, including parks (Teaford 1984). A basic accompanying assumption is that the distribution of parks became less influenced by the vagaries of politics. In a study on the distribution of parks in Chicago, however, Koelher and Wrightson (1987) found that politics played a strong role, favoring wards that had a high percentage of black residents. In addition, they found that the Park District's decisions on park distribution responded to efficiency maximization, favoring wards with high percentages of home ownership, but not equity maximization, which would favor low-income wards. Even the most trenchant bureaucracy cannot be immune from local political favoritism.

Other actors influence park distribution. For Los Angeles, Pincetl (2003) highlights the leadership role of the nonprofit sector in funding, establishing, and maintaining parks in a relatively underserved city. Proposition 13, which drastically cut city and county real estate taxes and shifted revenue control to the state, reduced funding for parks in the early 1980s. By formulating intricate public–private partnerships, environmental nonprofits have been a significant force in crafting persuasive park bond measures and influencing park distribution and land use in Southern California. Pincetl uses this study to remind us that urban theory cannot ignore the role of nonprofit organizations in the provision of urban services, including parks. Nonprofits were influential, for example, in generating funds for the Kenneth Hahn State Recreation Area, a large park near Baldwin Hills in Los Angeles. In a city that is largely deficient in parks, the 387-acre park is a remarkable achievement; however, Byrne, Kendrick, and Sroaf (2007) demonstrate that the existence of a large tract of undeveloped land in this part of Los Angeles is largely the result of past environmental degradation. The recreation area sits on land that was formerly covered by oil derricks and later a water reservoir. On a geologically unstable site, the reservoir burst in 1963, killing five people and destroying sixty-five homes. By the late 1960s, County Supervisor Kenneth Hahn saw the potential of creating a park on the site. He was prompted in part by the Watts riots but drew on the romantic notion of parks as a means of reducing juvenile delinquency as both a moral and cost-saving justification for the park. In a part of the city experiencing white flight and becoming primarily middle- and upper-class African American, Hahn also likely saw the political advantages to be gained from securing a park in this neighborhood. Hahn counted on African Americans as a reliable and loyal constituency, and he was the

only elected official to meet with Dr. Martin Luther King, who visited Los Angeles in 1961. Although the Hahn family had a long history of supporting parks, Kenneth Hahn's forty-year tenure as a county supervisor is testament to his political prowess. The story of the state recreation area reminds us that park development is not a simple, technocratic exercise but is deeply imbued with political and ecological considerations (Byrne, Kendrick, and Sroaf 2007).

Neglect of existing parks, or nonaction, is an injustice that can result from procedural inequities. Although neglect might not remove existing parks, it can make those spaces dangerous, unpleasant, and unwelcoming, sometimes to such a degree that parks are rarely used. The simple presence of a nearby park does not mean that people will perceive it as an amenity or use it for recreation. In the 1970s, particularly in inner cities, collapsing park budgets, coupled with a continued tide of middle-class residents to the suburbs, coincided with general declines in park maintenance and use (Low, Taplin, and Scheld 2005). In high-crime neighborhoods, many parks became places to avoid rather than to enjoy. In Cobbs Creek Park in Philadelphia, a loss of informal and formal mechanisms of social control, from park policing to benches on which to sit and watch the park, created an ecology of disorder and fear. Once a safe haven from crime on the streets, the park became a center of crime, especially against women, after the city's police commissioner dissolved the Park Guard in 1972 and new, more violent gangs infiltrated the neighborhood. Many local residents time the decline in safety of the park with the replacement of the unarmed Park Guard by the Philadelphia Police Department. Poorly maintained park grounds add to residents' sense of disorder and fear (Brownlow 2006). These decisions, made in the context of increasingly oppressive policing tactics, rendered a once cherished park into a disservice to many in the surrounding neighborhoods.

Seemingly benign management decisions for parks can also act as barriers or disincentives to particular groups or individuals. In Brooklyn's Prospect Park, an advocacy group that helps to manage the park has worked to restore its natural ecology, especially the woodlands. The activities include expansion of the woodland area into previously open spaces and fencing off of some of the older woodland areas to protect restoration efforts. Low, Taplin, and Scheld (2005) found that the fences were perceived by the poorer, east-side users of the park as a barrier to the more affluent and white west side of the park. For Hispanic users, who perceived open areas with shade trees as forested, the woodland regeneration efforts were seen as signs of official neglect and also dangerous places, especially for women. Even greenways, promoted as a means of integrating neighborhoods by linking places along a linear park system, tend to attract and shun some groups more than others. In Raleigh, North Carolina, greenways are used mainly by whites engaged in solitary, active recreation (Furuseth and Altman 1991). In Chicago's Lincoln Park, Hispanics, Asians, and blacks were more likely than whites to use the park in groups and engage in passive activities (Gobster 2002). If management favors wooded trails over picnic areas, some users might find the park less appealing. Low, Taplin, and Scheld (2005) also remark that if a group's history is not represented or is erased in historic parks, those groups are unlikely to use them. Having a park in the neighborhood might in these instances be quite literally meaningless.

Although people might feel excluded from parks, as public spaces parks should count for something. At the very least, parks have the potential, if properly and sensitively managed, to provide multiple services and benefits. An assessment of procedural justice is fundamental for understanding the social and institutional dynamics that create parks and govern how they are used and perceived, but an analysis of the distributive justice is an appropriate beginning point in comprehending who gets what and why. In the next section we use the Baltimore metropolitan region to illustrate three ways to assess the distributive justice of parks. This is followed by an analysis of documents pertaining to parks and recreation, and the role of improvement associations, the Baltimore municipal council, and the Home Owners Loan Corporation in reinforcing separate white and black spaces in the city. We argue that a deeper historical understanding of urban and institutional dynamics is necessary to comprehend the unexpected distribution of parks in Baltimore, as well as to advance environmental justice theory.

Measuring Access to Open Space

A quarter mile (400 m) has become the standard distance threshold that people are willing to walk to reach a park or recreation area, corresponding roughly to a five-minute trip (Forsyth 2000; Nicholls 2001; Lindsey, Maraj, and Kuan 2001; The Trust for Public Land 2004; Wolch, Wilson, and Fehrenbach 2005). Accordingly, many municipalities in the United States set goals to place parks and recreation areas within prescribed distances or walking times of residential

areas. Seattle, Phoenix, Portland, and Cleveland aim to have parks for their entire populations within a half mile (800 m). Minneapolis and Denver use a six-block standard, and Denver specifies that the blocks must be walkable, without physical barriers to access (Harnik 2004). The National Recreation and Parks Association (NRPA), the Trust for Public Land, and the Congress for New Urbanism advocate for parks within a quarter mile (400 m) of all urban residents. People will certainly travel further than a quarter mile to parks but are likely to drive rather than walk if distances are greater than a half mile. Parks then become "a formal destination, not a place to drop in" (Harnik 2004, 10), and therefore reduce the chances of unplanned exercise that can occur in close-by neighborhood parks.

Researchers have employed a variety of methods to measure walking access to parks, as well as other urban destinations, such as schools (Braza, Shoemaker, and Seeley 2004; Ewing, Schroeer, and Greene 2004; Schlossberg et al. 2006), junk-food outlets (Austin et al. 2005; Kipke et al. 2007; G. C. Liu et al. 2007), video lottery machines (D. H. Wilson et al. 2006), and transit stops (Randall and Baetz. 2001; Rastogi and Rao 2003; Zhao et al. 2003). Metrics range from simple Euclidean or Manhattan distance buffers to more complex network analyses with distance-cost functions (S. X. Liu and Zhu 2004). One difficulty with generating network distances is that parks can have multiple entry points or destinations. For small parks, a centroid can be used as the destination point, but for larger parks, any point along the perimeter can arguably serve as the destination. In some cases, gates, barriers, or street intersections create natural entry points. Given the broad scale and extent of this study, we chose to use a simple quarter-mile buffer from the perimeter of all parks as a measure of accessibility. This generalization likely introduces more error in suburban areas of metropolitan Baltimore where streets are less likely to follow a grid pattern. Strict compliance to street networks, on the other hand, discounts the cut-throughs and informal paths that walkers use to straighten their paths to destinations, including parks (Hewko, Smoyer-Tomic, and Hodgson 2002; Talen 2003).

The spatial data for the parks layer were obtained from the Maryland Department of Planning (MDP). For the city of Baltimore, this data set was supplemented with a parks layer compiled by the Parks & People Foundation (http://parksandpeople.org), a nonprofit organization based in Baltimore. Some of the small pocket parks digitized by the foundation are not included in the MDP database. For measures of accessibility, these small pocket parks are treated as equal to larger regional parks, because they can provide some, although not all, opportunities for active or passive recreation. Although schoolyards can provide recreation space, we did not include them in the analysis because access is typically restricted to nonschool hours and in some cases the schoolyards are gated or fenced (Scott et al. 2007). We used aerial imagery (Google Earth) and flat maps (Thomas Guide) to confirm that the parks layer is accurate for surrounding counties.

To determine the demographic characteristics of those who have access to parks, we use census block groups (CBGs), census tracts (CTs), and census attribute data from 2000 and employ two selection methods: (1) CBGs that contain their population centroid within a quarter-mile buffer from parks; and (2) centroids of assessed value of properties (as a proxy for household income) within a quarter mile of parks. We also employ a needs-based index, described later, and analyze park accessibility for high- versus low-need CBGs.

In addition, we employ potential park congestion (PPC) as an innovative method to examine the distributional equity of parks. PPC is defined as the number of people per park acre (PPA) in a given park service area (PSA) if every resident were to use the closest park. It is a measure of park provision in terms of acreage available to residents within a specified area. We use Thiessen (Voronoi) polygons to delineate a service area for each park (see Sister et al. 2007 for details of the method). Demographic characteristics are assigned to each PSA by overlaying the layer with Census 2000 block data and a parcel layer. Information from the Census 2000 block data was refined using a dasymetric approach that reapportions census data according to residential land use polygons (Boone 2008). As indexes to the relative economic status of a given service area, we used total assessed property values from parcel data, along with percentage of owner-occupied housing units and vacancy rates from census block data. PPC in the PSAs was then compared across different race and income groups. In this PSA approach, higher PPC levels translate to potentially greater numbers of people competing for park space, and are therefore a measure of park crowding and potentially limited access.

Park Distribution and Access: Measuring Equality

The Baltimore metropolitan region is well endowed with parks, totaling 56,397 acres or 22.5 acres per

Table 1. Acres of accessible parks per thousand population for census block groups, categorized by percentage white and black

Percentage of census block group population	White (acres/1,000 population)	Black (acres/1,000 population)
25–50	31.32	22.80
50–75	30.16	24.94
>75	53.02	12.75

thousand population. That figure is well above the national standard of 6.25 to 10 acres of parkland per thousand persons. Within the metro area, acres per thousand population range from a low of 7.6 in Baltimore City to a high of 46.3 in suburban and rural Harford County. At the CBG level, we selected CBGs that had a population centroid within a quarter mile of one or more parks and then compared the demographics of these CBGs to those not selected. Using this approach, we find that a significantly higher proportion of blacks, 38 percent, have access to parks than does any other racial or ethnic group in metro Baltimore. Analysis of household income data also shows that lower income areas have better access to parks. Median household income of block groups with access to parks ($42,160) is lower than that for block groups beyond the quarter mile ($52,123). These results are in part a function of higher residential and park densities in Baltimore, where blacks are the majority, than in surrounding counties. Indeed, population density and percentage black are strongly correlated and have been for most of Baltimore's history (Groves and Muller 1975; Olson 1997). In CBGs where blacks constitute more than 75 percent of the population, the mean density is 5,411 per square kilometer, and the figure in predominantly white CBGs is 1,366. Even controlling for income, population density and percentage black are significantly and positively correlated. The reality for most blacks in metropolitan Baltimore is that they live in more densely populated neighborhoods than whites.

Another equality measure is access to acreage of parks, which measures quantity of park space. This tells a different story. In general, those parks that are within a quarter mile of predominantly white neighborhoods tend to be larger than parks close to predominantly black neighborhoods (Table 1). Income also shows a strong association with accessible park acreage (Table 2). This is also likely a function of the high collinearity of race and income, as well as a concentration of minorities in Baltimore where most parks are relatively small. These results are similar to patterns found in Los Angeles, where low-income Latinos have better access than whites but whites have access to more park acreage than Latinos (Wolch, Wilson, and Fehrenbach 2005).

Using parcel-level data from Maryland PropertyView, we analyzed age and value characteristics of properties within and beyond a quarter mile from parks. The purpose of this analysis is not to model hedonically the impact of parks on housing values but to seek another method of gauging the demographic and housing characteristics of areas close to parks. Of the 860,000 residential property parcels in metropolitan Baltimore, 225,000 or 26.2 percent had their centroids within a quarter mile of at least one park. This figure matches very closely the proportion of block group population (27 percent) within a quarter mile of parks. Analysis using the property parcels shows that residents within a quarter mile of parks tend to live in houses that are older and have lower market values than those beyond the quarter mile. For properties with access, the mean and median years built are 1952 and 1955, whereas for properties beyond the quarter mile, the figures are 1966 and 1972. The mean and median market value for properties with access is $138,399 and $91,360, whereas for properties without access the values are $191,694 and $149,160. Parcel density is also significantly and positively associated with access. In general, these figures confirm what is seen on the map of parks and demographic characteristics: Poor, inner-city minority residents tend to have better access to parks, but white,

Table 2. Acres of accessible parks per thousand population, categorized by income class and race

Income class ($)	Accessible acres	Population	Acres/1,000 population	Mean % white	Mean % black	*SD* of income
0–11,739	815	28,500	28.60	5.95	90.33	<–2
11,740–36,704	6,208	429,047	14.47	26.11	70.05	–2 to –1
36,705–61,669	9,242	513,242	18.01	63.25	31.80	–1 to 1
61,670–86,633	20,056	258,634	77.55	80.70	13.39	1 to 2
86,634–200,000	13,281	119,562	111.08	85.76	6.26	>2

Table 3. Pearson's coefficient of correlation comparing potential park pressure with percentage race groups in park service areas across the Baltimore metropolitan region ($N = 1{,}068$)

	Pearson's coefficient	Significance level
% African American	0.153	0.01
% White	−0.156	0.01
Assessed property value	−0.046	> 0.05
% owner-occupied	−0.111	0.01
Vacancy rates	0.098	0.01

wealthier suburban residents tend to have access to more park acreage per person. Age and timing of development play a large role in these patterns, and these issues are discussed in the final section.

Park Distribution and Access: Measuring Potential Park Congestion

Results from the PSA approach show that across metropolitan Baltimore, percentage African American population is positively correlated and percentage white is negatively correlated with the number of persons per park acre in a PSA (Table 3). African Americans are more likely than whites to reside in PSAs that are potentially more congested (Table 4). Assessed property values are not significantly correlated with PPC, but these values are significantly less ($p < 0.01$) in predominantly African American PSAs compared to predominantly white PSAs (Table 5).

The distribution of potential park pressure across the Baltimore metropolitan region has a distinct spatial pattern, with potentially more congested PSAs located in or close to the City of Baltimore (Figure 1).

Table 4. Proportion of the two major race groups (African Americans and whites) present in different park pressure classes in the City of Baltimore and in the metropolitan Baltimore area

Persons per park acre	City of Baltimore		Metropolitan Baltimore	
	% Black	% White	% Black	% White
0–50	50	46	13	82
>50–166	51	45	21	74
>166–300	71	26	29	67
>300–500	71	26	42	54
>500–1,000	69	27	45	51
>1,000–3,000	76	21	65	31
>3,000	66	30	65	31

Table 5. A comparison of park service areas with greater than 75 percent African Americans or whites in terms of park pressure levels (i.e., persons per park acre), total assessed property values, owner-occupied vacancy rates, and proportion of owner-occupied housing units in both the City of Baltimore and the metropolitan Baltimore area

	City of Baltimore		Metropolitan Baltimore	
	>75% Black	>75% White	>75% Black	>75% White
Persons/park acre	4,890	4,870	4,787	890
Assessed value ($)	37,878	128,109	39,800	213,182
% vacancy rate	22	10	22	5
% owner-occupied	30	58	31	76

In contrast, PSAs with relatively low park pressure levels are located mainly in the predominantly white suburban counties outside the city. This distinct pattern helps to explain differences in PPC at the city and metropolitan levels (Table 4). PPC for predominantly (greater than 75 percent) black and white PSAs is nearly identical for the City of Baltimore, whereas for the metro region as a whole the persons per park acre is more than five times greater in predominantly black PSAs than in predominantly white PSAs. The different results at these two scales reflect Baltimore's geography of race, where the City of Baltimore remains the center of predominantly black neighborhoods. The contrasting results also highlight the need to consider scale in environmental justice research (Cutter, Holm, and Clark 1996). Existence of inequities at one scale might easily be invisible at another scale, especially when such injustices are not distributed evenly across space, as is typically the case. Analyses that "jump up" or "jump down" scales can significantly change results.

Needs-Based Assessment

The literature defines children, the elderly, the carless, and low-income neighborhoods as having the greatest needs for parks within walking distance (Talen 2003; Wolch, Wilson, and Fehrenbach 2005). Needs-based assessments are one means of addressing issues of equity rather than equality but also serve a practical purpose by targeting a public good, in this case parks, to those groups who are most likely to use it or need (because of limitation based on age, ability, or resources) access to green space within walking distances. Following Talen (2003), we created a needs index using the

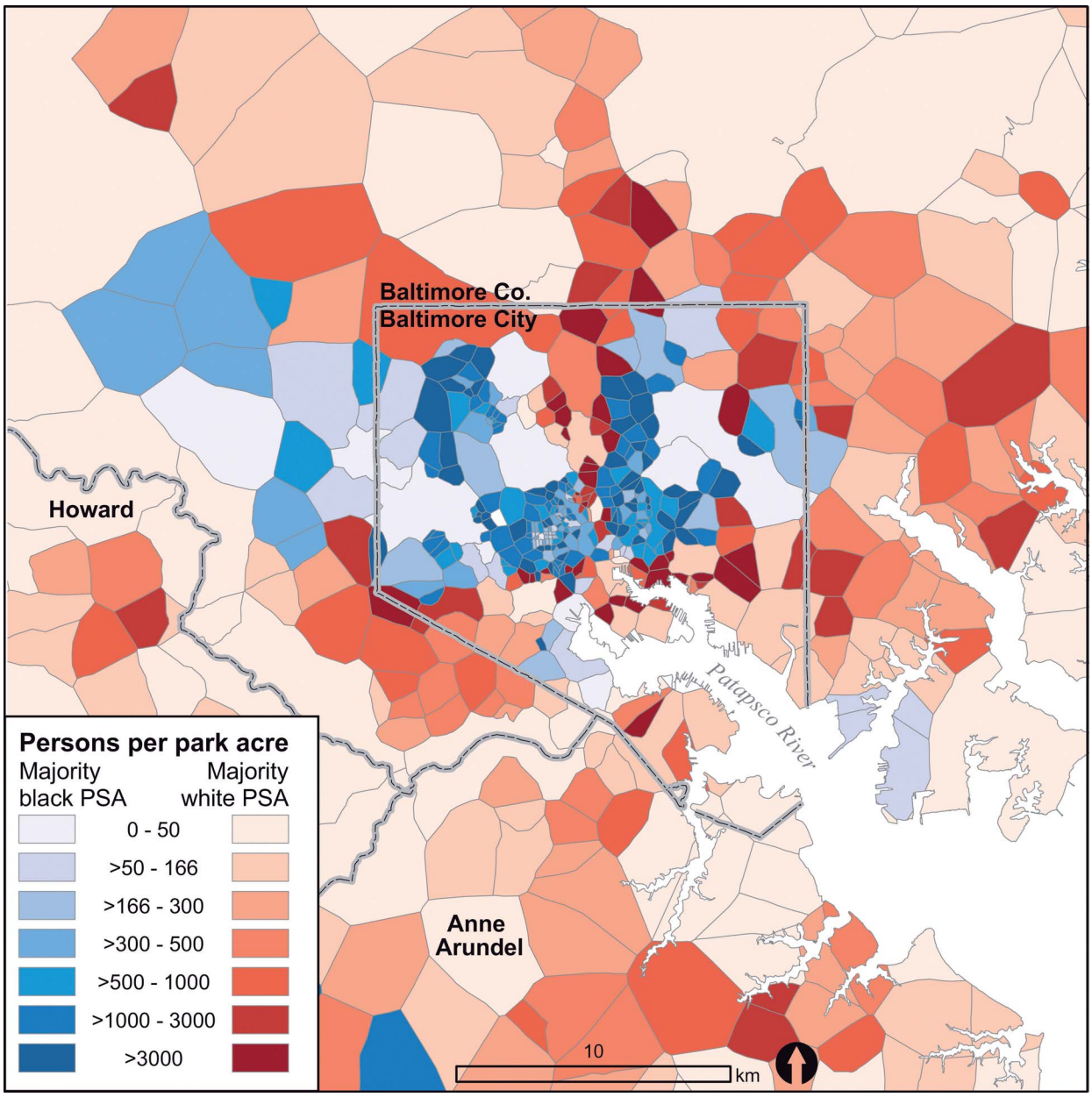

Figure 1. Park congestion levels in the greater Baltimore region, 2000. PSA = park service area.

percentage of persons under eighteen years of age, over sixty-five years of age, percentage in poverty, as well as the percentage of housing units without an automobile. Using Jenks natural breaks, each variable was divided into four classes and then each census tract was assigned a corresponding value of 1 (*low need*) to 4 (*high need*). Figure 2 shows the summed values of all four variables. A clear pattern emerges indicating the highest needs for parks in the City of Baltimore and a lower overall need score in the suburban counties. A little over 60 percent of all census tracts have their population centroid within a quarter mile of at least one park. Using these selection criteria, nearly 70 percent of the highest need census tracts have access to parks, compared to 57 percent for the lowest need census tracts (we use census tracts because data on percentage of households in poverty and without automobiles are not available at the block group level). Nearly all the highest-need census tracts are in the City of Baltimore, suggesting that the city is meeting this important equity goal. Only 19 of the 127 high-need census tracts are not accessible to a park. Nevertheless, 74,733 people out of a total of 320,181 in high-need census tracts do not have access as measured here.

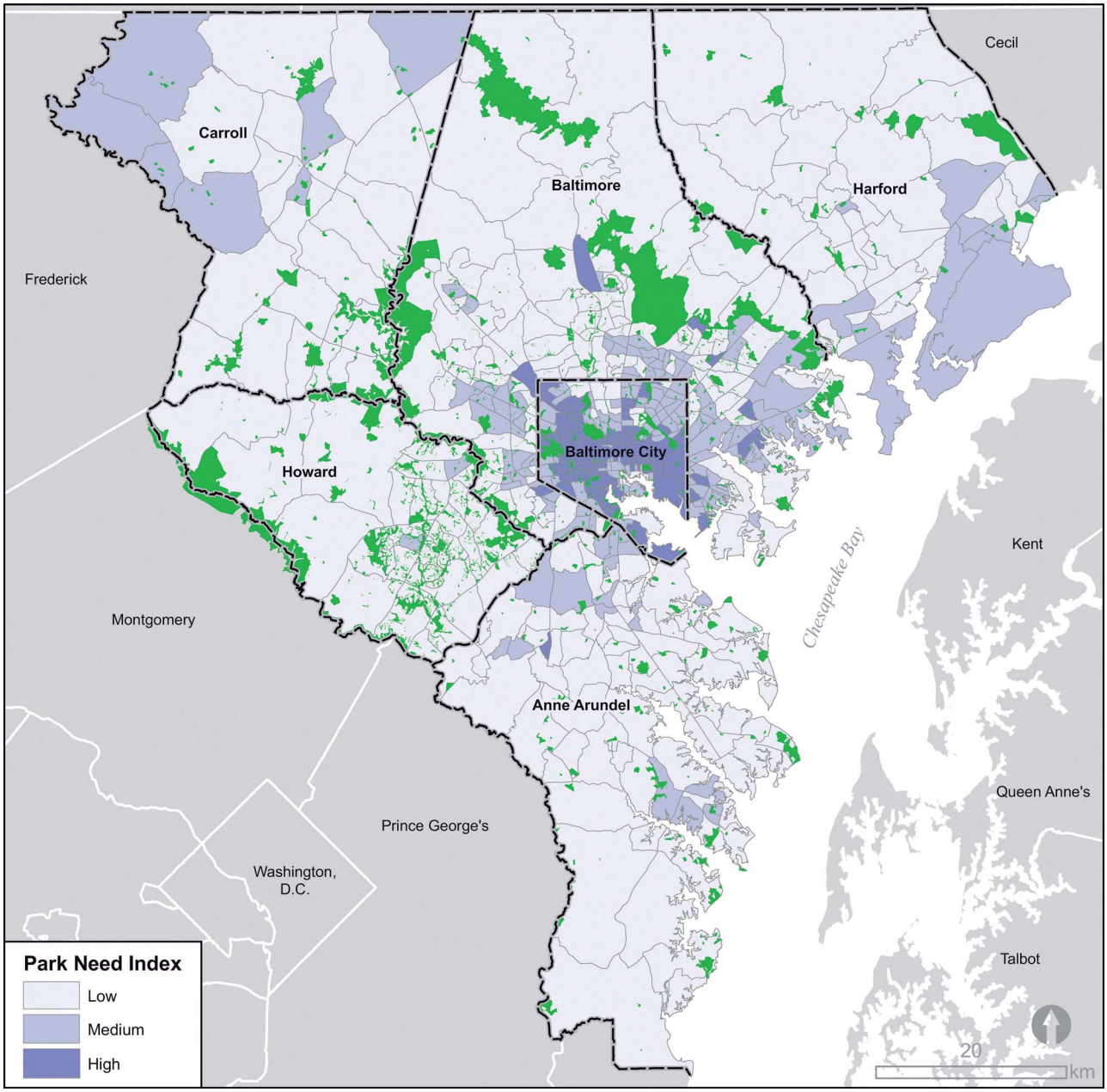

Figure 2. Park needs index by census tract for metropolitan Baltimore, 2000, and existing parks.

Another way of measuring equity of access is to calculate the distance from the population centroids of high-, medium-, and low-need census tracts to the closest park. The results show that high-need areas are best served in this regard. The mean distance for high-need census tracts is 239 m, well within the 400-m standard. For the low-need census tracts, the mean distance to the closest park is 864 m but the maximum is nearly 6 km (Table 6). Hewko, Smoyer-Tomic, and Hodgson (2002) argue that a population-weighted mean distance is a better measure of accessibility because it weights distances from a fixed point, in this case a population centroid, by the number of people that point represents. We find, however, that using the population-weighted mean distance formula generates results very similar to the mean distance calculated from the population centroid. Using either method, the results indicate that the highest need populations have the best access to parks. Results for per capita acreage, however, are not as rosy. Census tracts with the highest need have the least acres per thousand population, whereas the lowest need census tracts have the highest acreage (Table 6). These results are similar

Table 6. Distance measures (meters) to nearest park by need categories

Need class	Mean distance to park	Maximum distance	*SD* distance	Population-weighted mean distance	Accessible acres per 1,000 population
Low	864	5,654	926	873	13.48
Medium	505	5,779	644	477	10.36
High	239	1,224	201	252	7.46

to the findings of the accessibility analysis, which underscores the importance of race as a variable in Baltimore. Two of the four needs variables—percentage in poverty and households without a car—are highly and positively correlated with percentage African American.

Procedural Injustice: Institutional Legacies on the Landscape

A limitation of much environmental justice literature is the inference of process from pattern. Although the distribution of parks or hazardous facilities can suggest possible linkages between race and the location of environmental amenities or disamenities, to advance the science of environmental justice it is necessary to investigate the drivers or forces that generate those patterns. One way of doing so is to examine the legacy of past decisions on the present landscape. Cities are the product of thousands of individual and collective decisions, made in the context of larger social and economic cycles, environmental limitations and possibilities, and politics. In the following section, we examine the public and private institutions that played a significant role in the development of parks and Baltimore's residential geography, with a special focus on segregation. We draw on official park plans, master plans, municipal ordinances, newspaper accounts, unpublished documents from neighborhood associations, and records from the Home Owners Loan Corporation. Similar documents are available for most municipalities. Undertaking a historical process analysis, however, requires a considerable investment in time, which is one of the challenges of process- and place-based research. Yet we and others believe such an approach is critical for advancing environmental justice research (Pulido 2000; Mennis and Jordan 2005; Pastor, Morello-Frosch, and Sadd 2005).

Results from the outcome analysis show that residents of metropolitan Baltimore have relatively good access to parks. The mean distance to parks for the 860,000 parcels in metro Baltimore is 705 m, with a standard deviation of 851 m. Conditions for the City of Baltimore are even better. In Baltimore, the mean distance of residential parcels to the closest park boundary is only 500 m and the maximum distance is 1,904 m. The number of acres per thousand population puts Baltimore in the old range of the NRPA suggestions. Compared to Los Angeles, Dallas, or Phoenix, residents have good walking access to parks (The Trust for Public Land 2004; Wolch, Wilson, and Fehrenbach 2005). A recent telephone survey on recreation in metro Baltimore showed that the vast majority of residents, nearly 90 percent, are satisfied with park quality and availability.

Although Baltimore fares well in accessibility measures against most cities in the U.S. West (with the exception of San Francisco), it is in the middle of the pack for Northeastern cities. Boston and New York do a better job than Baltimore of providing accessible parks within walking distance (The Trust for Public Land 2004). A variety of factors help to explain the greater degree of accessibility of parks in the Northeastern United States, and most are legacies of past decisions made in the context of different urban technologies and transportation systems. Timing of growth we know plays a large role in the morphology of cities, and those that developed before the mass use of automobiles tend to have in their historical cores higher densities, more mixed land use, narrower streets, and more extensive pedestrian infrastructure (Vance 1990; Jacobs 1961; Transportation Research Board 2001). These characteristics tend to increase walkability and lead to small park spaces closer together than in sprawling, car-dominated suburbs (Pucher and Dijkstra 2003; Southworth 2005). Although older cities might benefit from design before the car, in many cases the establishment of parks was a difficult process. Because of heavy demands on space in compact walking cities, prior to the second half of the nineteenth century, setting aside land for parks was rare (Rosenzweig and Blackmar 1992; Tuason 1997). In Baltimore, the establishment of parks required the long and often difficult process of cobbling together parcels of private land or the action of civic groups to seek out large donors. The idea of setting aside land in Baltimore "for urban embellishment and public

recreation" can be traced to 1827, when a wealthy merchant named William Patterson donated several acres on Hampstead Hill for the purpose of establishing a "Public Walk." Twenty-six years later, Patterson Park was officially designated in his honor (Board of Park Commissioners 1927, 5–6; Baynes and Brady 1985). The popularity of this new park prompted city officials to make further acquisitions, most notably the "Druid Hill" estate of Lloyd Nicholas Rogers in 1860. The creation of Druid Hill Park initiated a pattern of park development that would come to be closely identified with Baltimore. As the city expanded, it enveloped the country estates of some of the region's most prominent citizens. Today, these former estates constitute the core of Baltimore's park system.

Despite this auspicious beginning, by the turn of the twentieth century it was clear that Baltimore's modest system of parks and squares was not meeting the needs of city residents. Nor were these amenities distributed equally or equitably. An editorial published in the *Baltimore News* in 1897 put it bluntly: "The parks of our city should be for the people—all the people—not for a particular class, or for those living in a particular district." Although acknowledging the beauty and splendor of Druid Hill Park, the editorialist declared that "park pleasures and benefits should be available to all" and in a city the size of Baltimore, "one park will not do for all."

About this same time, Baltimore, like other major cities in the United States, altered its approach to park development, eschewing the contemplative ideals of the Romantic Era while embracing the rationalistic principles of the City Beautiful movement. No longer able to meet the recreational and aesthetic demands of a growing and increasingly diverse general public, cities modified their large romantically planned parks, acquired smaller parks designed for recreation, and constructed new playgrounds and recreational facilities (Peterson 1976; W. H. Wilson 1989; Tuason 1997). For Baltimoreans, the outcome of this shift in thinking was that the "priority of space and resources that the city's park system had formerly given to flower beds and clipped lawns" was now redirected to the "massive construction of athletic facilities and extensive acquisition of new park lands for recreational purposes" (Kessler and Zang 1989, 1). Spearheading the City Beautiful movement in Baltimore was the Municipal Art Society (MAS). Founded in 1899 by influential members of the city's elite class, the Society was originally established to promote city beautification but quickly branched out into other planning concerns (Crooks 1968). Soon after its founding, MAS members pressured city administrators and politicians to construct a modern sewer system (Boone 2003). Then, in 1902, the Society hired the landscape architecture firm, Olmsted Brothers, to study the city's park system and offer suggestions for improvement and expansion. (The Board of Park Commissioners later reimbursed the MAS.) Submitted in 1903 and published the following year, the report "gave substance to the Municipal Art Society's ambitious vision: to create numerous small parks and playgrounds, expand the larger city parks, develop parkways and stream valley parks in the suburbs, and select and set aside large reservations beyond the metropolitan area for future use" (Zucker 1995, 82; Buckley, Bailey, and Grove 2006). A follow-up survey conducted in 1926 reaffirmed the conclusions reached in the earlier report. Although never fully implemented, many of the recommendations set forth in the two Olmsted plans were adopted.

In designing the city's park system, Olmsted Brothers sought to expand recreational opportunities for city residents and to achieve a "roughly equitable distribution" of resources for "all the people" (Korth and Buckley 2006; see Figure 3). In some cases, however, other

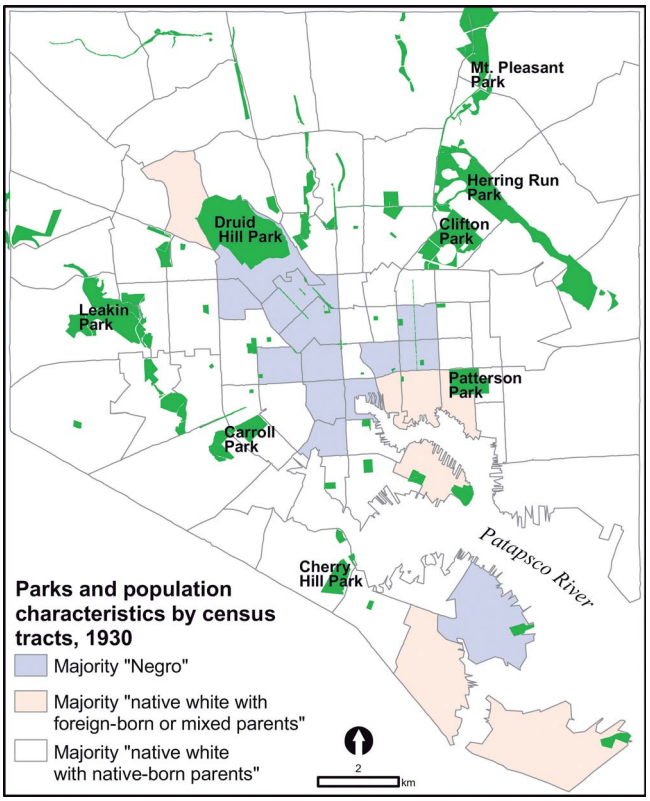

Figure 3. Population characteristics by census tract and existing parks in Baltimore, 1930. Other than Druid Hill, note the near absence of parks in majority "Negro" census tracts.

considerations took precedence. Such was the case with 325-acre Leakin Park on the city's west side. When J. Wilson Leakin died in 1922, he left instructions for city officials to sell his downtown estate and use the money from the sale to purchase a large tract of land for the creation of a park in his name. Contractual obligations with tenants and the real estate market collapse of the late 1920s put the sale on hold. In the meantime, city officials searched for a suitable location for a large new park. Unable to reach consensus on a single site, members of the City Council agreed to a compromise: the establishment of numerous "Leakin" playground parks across the city. Arguing that her brother wanted only one park dedicated in his name, Leakin's sister took the city to court and won. With nowhere else to turn, Theodore Marburg, Chairman of the MAS, contacted his old friend Frederick Law Olmsted, Jr. for advice. In an eight-page letter written in 1939, Olmsted urged the city to purchase the Crimea estate of Thomas Winans, located in the Dead Run Valley of West Baltimore adjacent to Gwynns Falls Park. Although East Baltimore was clearly in greater need of a park, Olmsted determined that the declining population of this section, coupled with the price of acquiring land in the inner city, made it a more risky proposition. Despite the fact that more residents might have benefited from the establishment of a network of small playground parks, the city heeded Olmsted's advice and made the first of several purchases in the Dead Run Valley in 1941 (Korth and Buckley 2006).

Although Baltimore developed an extensive park system, numerous plans and documents remarked on the relative lack of park space for its black residents (Figure 4). An Urban League Report from the mid-1930s commented on the absence of "recreation space for Negroes near their zones of residence" at a time when "the peculiar economic and social precursors of the depression . . . gave Negroes more leisure and few organized facilities for using it" (Reid 1935, 28). Noting that the Playground Athletic League operated numerous playgrounds in South Baltimore to which "thousands of children flock" each year, a report issued in 1938 by the South Baltimore Improvement Association "regretted that many of them have great distances to walk before reaching an area that is safe to play." This was especially true for South Baltimore's "Negro youth," who were forced to make do with "very meager facilities" (South Baltimore Improvement Association 1938). A poorly funded Division of Recreation for Colored People, which fell under the auspices of the Board of Education, could not hope to provide for the recreational needs of black Baltimoreans. The Long Range Recreation Plan of 1941, prepared by the National Recreation Association for Baltimore's Board of Public Recreation, concluded that the city had inadequate acreage in parks, especially for children's playgrounds, and that the "colored community is lacking in areas and facilities quite out of proportion to the ratio of its numbers to the total population" (Pangburn and Allen 1941, ix). The report recommended that the Board acquire an additional 473 acres for children's playgrounds, and the plan included the continued use of two playgrounds, enlargement of eleven others, and creation of fourteen new playgrounds, for a total of twenty-seven playgrounds "for colored children" (Pangburn and Allen 1941, x). Similar to the Urban League Report, the park report recognized the increasing congestion of blacks in the northwest and eastern sections of the city, the doubling and tripling up of families in former houses owned by whites, and the associated high rates of tuberculosis and infant mortality. Ironically, the higher rates of disease in the congested black neighborhoods were historically one of the reasons for segregation policies in the city (Olson 1979). "It is obvious," the Board concluded, "that the most urgent needs are in the colored community" and therefore that "some of the very first projects should be undertaken in their neighborhoods" (Pangburn and Allen 1941, 89). Interestingly, the report also suggested that playgrounds should be within a quarter-mile radius of every child's home, the same distance as modern recommendations for walking access. Continued segregation of parks and other recreation facilities, including golf courses, into the 1950s, despite repeated attempts by the Urban League and others in the 1930s and 1940s to desegregate the parks, meant the issue of lack of "colored parks" would remain pressing and noteworthy (see, for example, Wells 2006).

Residential dynamics in Baltimore have been shaped by a long history of de jure and de facto segregation. For these reasons it was possible for the park reports to speak of "white" and "colored" parks. The designation of parks by race was a reality because of the high degree of residential segregation, in addition to the other modes of control that kept white spaces separate from black. The most egregious segregation acts were the city ordinances of 1910, 1911, and 1913. Baltimore was the first municipality in the country to legally segregate its city into "white" and "colored" blocks. This Baltimore-style "apartheid" (Power 1983) stipulated that no blacks (with the exception of black servants in white houses) could move into blocks that were half white and vice versa (Nightingale 2006).

Figure 4. "The street is closed to traffic to provide play space for the children." Enoch Barker, Children at play, Division Street, Baltimore c. 1934–35. http://epfl.mdch.org | identifier: mdaa146. (Part of W.P.A. project #7012.) Enoch Pratt Library, Maryland Department, Photograph Collection; 7012C.

"[F]or preserving peace, preventing conflict and ill feeling between the white and colored races in Baltimore city, and promoting the general welfare of the city," the 1910 ordinance required "the use of separate blocks by white and colored people for residences, churches and schools" (City of Baltimore Ordinance No. 692). The ordinance was frequently challenged by Progressives, black newspapers and citizens, and realtors who saw the ordinance as undue and extraordinary control of their practices, including blockbusting (Orser 1994). In 1917, the National Association for the Advancement of Colored People (NAACP) and the Louisville Real Estate Exchange Office challenged a similar ordinance in Louisville, Kentucky, which the U.S. Supreme Court struck down as violating the property rights law of the Fourteenth Amendment, effectively negating Baltimore's segregation ordinances (Power 1983).

If the ordinances failed to keep blacks from white neighborhoods, fear and violence were generally very effective. When black families crossed the color line, they were typically met with hostilities, stoning, and occasionally gunfire from their white neighbors (Olson 1997). Black Baltimoreans were hemmed in by the segregation ordinances, restrictive covenants, steering by real estate agents, and fear and intimidation into very densely settled parts of northwest and east Baltimore. When successful black families were able to move out to the suburbs, these houses opened up for sale for black families. This "secondhand housing" was often too large for most families to afford, forcing doubling or tripling up of families (Olson 1997, 276). High

residential densities and systematic disinvestment resulted in deteriorated housing conditions that further marginalized and stigmatized black neighborhoods as blighted areas. A 1937 map from the Home Owners Loan Corporation, a New Deal federal agency established to refinance homes in danger of foreclosure, identifies in red most of the older and black neighborhoods as "hazardous," the most risky designation (Figure 5). Text descriptions that accompanied these secret maps point to "obsolescent houses," "immigrants," "negroes" or imminent "negro invasion" as keys to the most hazardous designations. This government-sponsored redlining did not preclude lending in hazardous neighborhoods, but it likely increased the costs of borrowing to homeowners (Hillier 2003). Black families spent about a third of their earnings for rent, whereas the average for whites was only a fifth. For the same accommodation, black families paid more rent than whites (Olson 1997). Strict occupational segregation also worked to keep separate the lives of black and white Baltimoreans (McDougall 1993).

Segregation was also enforced through neighborhood associations. Known as neighborhood improvement and protection associations, they functioned independently and in concert with a citywide congress to deal with a wide range of local problems and to pressure city officials into providing residents with much-needed infrastructure and services (Olson 1997; Holcomb 2005). These included, among other things, the extension of gas, electric, sewer, and water lines; the improvement of roads and mail delivery; the introduction of telephone and street car service; the installation of street and traffic lights; the planting and care of street trees; and the expansion and upgrade of parks. By 1910, approximately seventy such organizations existed in Baltimore. One group that wielded considerable influence in city matters was the Peabody Heights Association. Along with the MAS, members of this group are credited with convincing Baltimore's mayor in 1912 to hire a professionally trained forester and to establish a Division of Forestry to plant and care for trees throughout the city. In addition to street tree planting and other city beautification efforts, evidence gathered from twenty-five years of meeting minutes indicates that this group favored expansion and improvement of city parks and playgrounds (especially nearby Wyman Park), lobbied for enforcement of the city's antismoke laws, and opposed "undesirable" commercial development in residential areas. Like many other improvement and "protection" associations at this time, the Peabody Heights Association also sought to bar African Americans from moving into the neighborhood. Indeed, two months

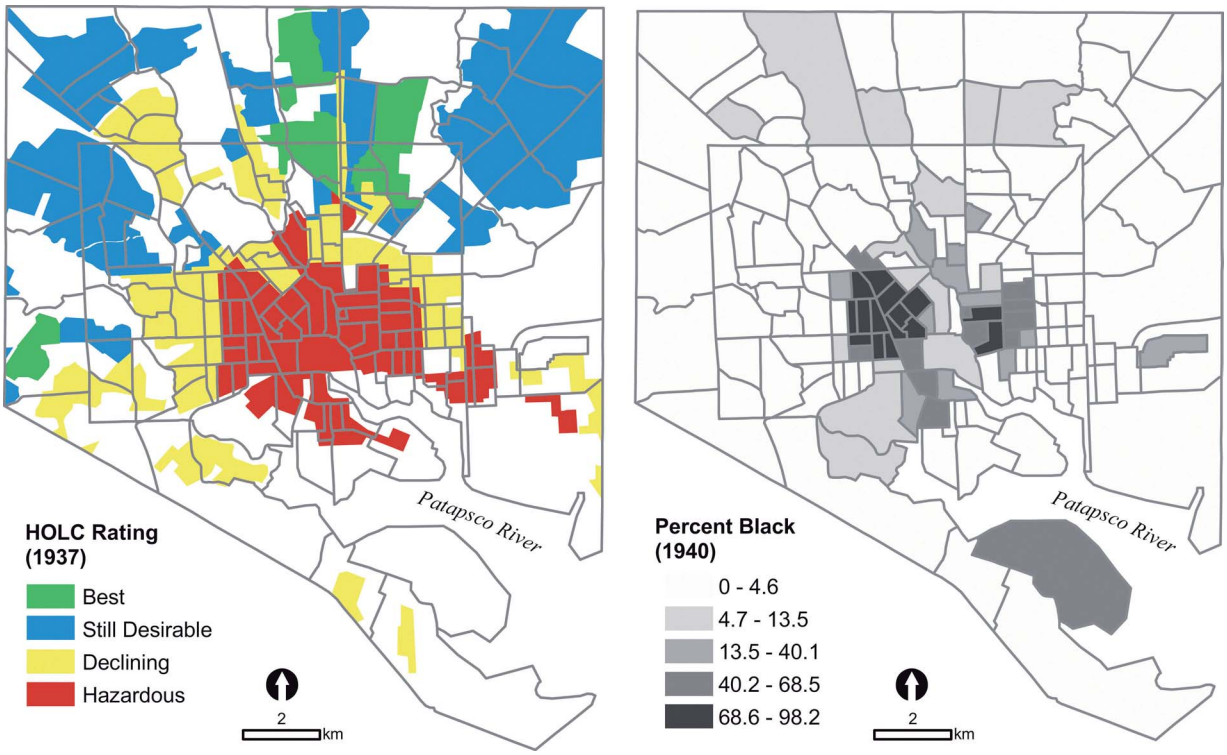

Figure 5. Note the strong spatial correlation between the hazardous neighborhood rating of the Home Owners Loan Corporation (HOLC) in 1937 and percentage black in 1940. *Source:* Home Owners Loan Corporation (1937), U.S. Bureau of Census (1942), and Haines (2006).

prior to passage of the first segregation ordinance, the group resolved to support "the enactment of such proper State or City legislation as will make it difficult or impossible for negroes, as dwellers, to invade those blocks or neighborhoods where there is a preponderance of white occupants" (Peabody Heights Improvement Association 1910, Book 1, 58). In 1922, four years after the segregation ordinance was overturned, the president of the board indicated just how little things had changed when he assured residents that "property owners in any section may by contractual agreement bind themselves not to sell to a negro." This restrictive covenant was also extended to prevent migration into the neighborhood of "so-called 'kike' Jews" (Peabody Heights Improvement Association 1922, Book 1, 344).

Another organization, the Mount Royal Improvement Association, pursued goals similar to those of the Peabody Heights group. In a promotional document published by the association, prospective buyers are presented with the many advantages of living in this district: The Mount Royal district was promoted for its convenient location free from "business encroachment," yet within easy walking distance of sections of town "from which comes most of our domestic help" (Mount Royal Improvement Association 1930a, 3). In addition to the numerous beautification initiatives, members of the Association boasted that their "greatest achievement . . . has been the subjecting of the property" in this part of town "to a restriction for white occupancy only" (Mount Royal Improvement Association 1930a, 5). In addition to the restrictive agreement, residents were also reminded that the Mount Royal Improvement Association stood "ready at all times to take any action necessary to protect the health, welfare and property rights of its members, and generally to advance the interests of the district" (Mount Royal Improvement Association 1930a, 5). As if to underscore the connection between white-only occupancy and a beautiful environment, the group incorporated the following message into a meeting announcement from ca. 1930: "When the present officers of the Mount Royal Improvement Association assumed office, assurances were given that plans would be presented for the maintenance of this district as the most beautiful and most desirable urban section of Baltimore, but that this could be done only after the property owners had made the district safe for white occupancy by the execution of a sufficient number of the association's protective agreements. This condition was imposed because of the impossibility of preserving, much less improving any unrestricted section of Baltimore" (Mount Royal Improvement Association 1930b). Given the political influence of groups like the Peabody Heights and Mount Royal improvement associations—and other groups like them—it is not difficult to imagine how de facto segregation in the form of discriminatory housing practices and protective covenants coupled with an aggressive effort to attract and improve amenities such as parks and street trees would have caused a disproportionate share of limited resources to flow into predominantly white and well-to-do districts like Peabody Heights or Mount Royal at the expense of neighborhoods inhabited largely by African Americans.

Baltimore's population peaked in 1950 and over the course of the next fifty years, its economy would experience a net loss of 100,000 manufacturing jobs (U.S. Bureau of Census 1952; U.S. Census Bureau 2000). Black population continued to increase while white population dwindled, an all-too-familiar story of post–World War II white (and later black middle-class) flight. Over the last half century, the city has developed numerous programs, slogans, and incentives to try to reverse the population and economic decline. In a 1967 parks report, the authors noted that good parks could be one way of brightening Baltimore's future. Lack of playgrounds, "particularly within the high-density areas" (City of Baltimore 1967, 11), remained an issue. Although specific racial or ethnic groups are not mentioned in the report, high-density areas translated for all intents and purposes into black neighborhoods, where residential densities (mean of 10,278/km^2) were nearly double those in predominantly (> 75 percent) white census tracts. One potential solution, absurd in hindsight, was the development of parks under elevated expressways. Freeways also served as a means of clearing slums and blighted areas, which planners viewed as one reason for a declining population in the city. As World War II drew to a close, the Baltimore City Planning Commission brought in Robert Moses, the influential builder of highways and bridges in New York City, who promoted an east–west highway that would have displaced 19,000 people in blighted areas, a form of slum clearance that Moses promoted for the long-term benefit of the city. H. L. Mencken, Baltimore's noted journalist and wit, called the plan "idiotic" (Mohl 2004, 689). A more elaborate plan in 1955, which would have razed large parts of Rosemont, a middle-class black district, and the historic neighborhoods of Fells Point and Federal Hill, was shouted down by angry constituents at public hearings in the early 1960s. The final nail in the

coffin was the success of the Movement Against Destruction and other community groups in stopping the extension of I-70 through Baltimore, which would have run through Leakin Park, and Interstate 83 at city limits in the early 1970s (Olson 1997; Mohl 2004). Although the freeway revolts saved many neighborhoods, they did little to reverse the tide of middle-class flight, not surprising given the larger economic and social forces that were creating a primarily black core and underclass (Harvey 1985; Massey 1990).

By 2000, blacks constituted 65 percent of the population in the City of Baltimore, and they lived in a city dotted with parks large and small. Because of the extensive park system, developed over a century and a half, Baltimore, unlike many American cities, does not have accessibility goals (Mary Porter, Design Planner, City of Baltimore Department of Parks and Recreation, personal e-mail communication, 9 May 2006). In essence, the high access ratio for blacks is a hand-me-down from former white neighborhoods, a historical legacy of white privilege. But not all hand-me-downs, as any younger sibling knows, are worth having. Swann Park, located near the Digital Harbor High School and next to the former Allied Chemical Plant, now owned by Honeywell, was recently closed to the public after arsenic levels in the soil were found to be 100 times acceptable levels (Pelton 2007). When parks become brownfields or acute health hazards, it is a stretch to call them an amenity. Although this park was used actively, the health concerns that arise from the arsenic level should put it well beyond the amenity category, even if perceived as such by kids playing baseball or adults walking their dogs.

The next generation of environmental justice research needs to address, among other concerns, to what degree individual parks contribute to quality of life or meet the needs of their residents. As a public good, the equitable distribution of parks, whether measured in terms of spatial distribution, acreage, or quality, should be a basic goal. To address equity, a needs-based approach, as employed here, can also address distributive justice concerns. Assessing the public health benefits of parks as an equity issue would be an innovative strategy. Public health research can help to identify at-risk populations, especially children at risk of obesity, who would best be served with better access to parks (Greenberg and Renne 2005; Kipke et al. 2007). Evaluating the ability of parks to improve health of children, for example, could serve as a guiding principle for equitable park planning.

Conclusion

Using established and new methods for examining the distributive justice of parks in Baltimore, we find that African American and high-need populations have better walking access to parks but access to less park acreage per capita than whites and low-need populations. For African Americans, the current benefit of living close to parks comes in spite of a long history of official neglect of the recreational needs of black Baltimoreans in addition to segregation of blacks from white spaces through de jure and de facto mechanisms. The story of parks in Baltimore illuminates the complex interactions between race and planning where efforts to segregate the city fueled fear and ignorance, and consequently white and later middle-class black flight to the suburbs, along with population and economic decline in the core. As a city working toward revitalization, Baltimore is now living and struggling with the legacies of segregation and environmental injustice.

This article contributes to environmental justice scholarship in three important ways. First, it incorporates a novel method, PSAs and dasymetric mapping of socioeconomic data, for assessing the distributional justice of parks. Although simple buffering around parks meets the 400-m standard for a walkable park, the PSA method allows us to capture potential park users by assigning each area of the city to its closest park. The dasymetric approach improves the efficacy of the PSA method by designating where people actually live rather than assuming even distribution of residents throughout a census tract or block group. Nevertheless, this method does not track actual usage, nor does it assess the quality, attractiveness, or meanings of different parks. The approaches of Low, Taplin, and Scheld (2005) on local and cultural meanings, and Brownlow (2006) on the ecology of fear of parks, should be coupled with these distributional analyses to improve our understanding of park equity.

Second, this article advances environmental justice scholarship by focusing on parks as an environmental justice issue rather than the traditional spotlight on polluting industry or hazardous waste facilities. Measuring the uneven distribution of environmental benefits, as opposed to burdens, in relation to where social groups live is a legitimate and important justice concern. At the root of most environmental justice struggles is concern for human health. The vast majority of environmental justice studies pay attention to toxins and pollutants because of their negative health impacts. Parks and recreation spaces generally

have positive impacts on physical and mental health, as the public health literature has convincingly demonstrated. If human health is a fundamental justification for environmental justice, then parks should fall within the realm of environmental justice inquiries. The distribution of parks should be scrutinized for other reasons beyond health implications. As a public investment, parks should be distributed in an equitable manner in accordance with justifiable needs. This article provides an assessment of need using established protocols, but further research should refine fairness and equity of park accessibility and distribution, taking into account perceptions and meanings of parks, information beyond what can be discerned from census data. As public places in highly privatized urban areas, parks also provide opportunities for social and community engagement. Very few public places exist in cities, especially those where people can linger or loiter or express civil disobedience (Mitchell 2003). For the homeless, parks are a last refuge from increasingly fortified and monitored urban spaces (Davis 1992). More than a recreation space, parks serve the critical functions of providing public space and a right to the city. Ecologists support the establishment and maintenance of parks, although typically for other reasons. Depending on their configuration, parks can provide important habitats for flora and fauna, spaces for nutrient cycling, stopover points for migrating species, and other ecosystem functions. The ecosystem function of parks can also return environmental benefits to humans in the form of cooler temperatures, amelioration of pollutants, reduction in stormwater loads, and other services. Because of the multiple benefits derived from parks, their distribution will continue to be debated and contested.

Third, this article extends environmental justice scholarship by combining an analysis of distributive and procedural inequity. It is difficult to understand the process of environmental inequity formation without comprehending the historical and institutional dynamics that create such inequities. Others have used historical and institutional analyses to explain the development of environmental disamenities and hazards, but this article breaks new ground by focusing on the development of an environmental amenity, a parcel of public space usually regarded as a privilege rather than a burden. What is remarkable about this story is that the efforts and policies of the segregation ordinances, racial covenants, improvement associations, the Home Owners Loan Corporation, and the Parks and Recreation Board that created separate black spaces underserved with parks fueled the fire of middle-class flight and suburbanization. The inherited spaces might appear from a present-day point of view to be a just distribution. But if justice demands just distribution justly achieved, then it is difficult to interpret the pattern of parks in Baltimore as environmental justice.

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